

Anadarko Petroleum Corp.

Weld County, CO (NAD 83)

Sec. 8-T1N-R67W

NRC 3C-32HZ

Plan B

Plan: Rev B0 Permit

Sperry Drilling Services

Proposal Report

12 March, 2014

Well Coordinates: 1,269,308.41 N, 3,163,289.46 E (40° 04' 16.20" N, 104° 54' 59.51" W)

Ground Level: 5,034.00 usft

Local Coordinate Origin:

Centered on Well NRC 3C-32HZ

Viewing Datum:

RKB = 17' @ 5051.00usft (Drilling Rig)

TVDs to System:

N

North Reference:

True

Unit System:

Dec-Deg - API - US Survey Feet - Custom

Geodetic Scale Factor Applied

Version: 5000.1 Build: 70

HALLIBURTON

Project: Weld County, CO (NAD 83)
 Site: Sec. 8-T1N-R67W
 Well: NRC 3C-32HZ
 Wellbore: Plan B
 Design: Rev B0 Permit

Anadarko Petroleum Corp.

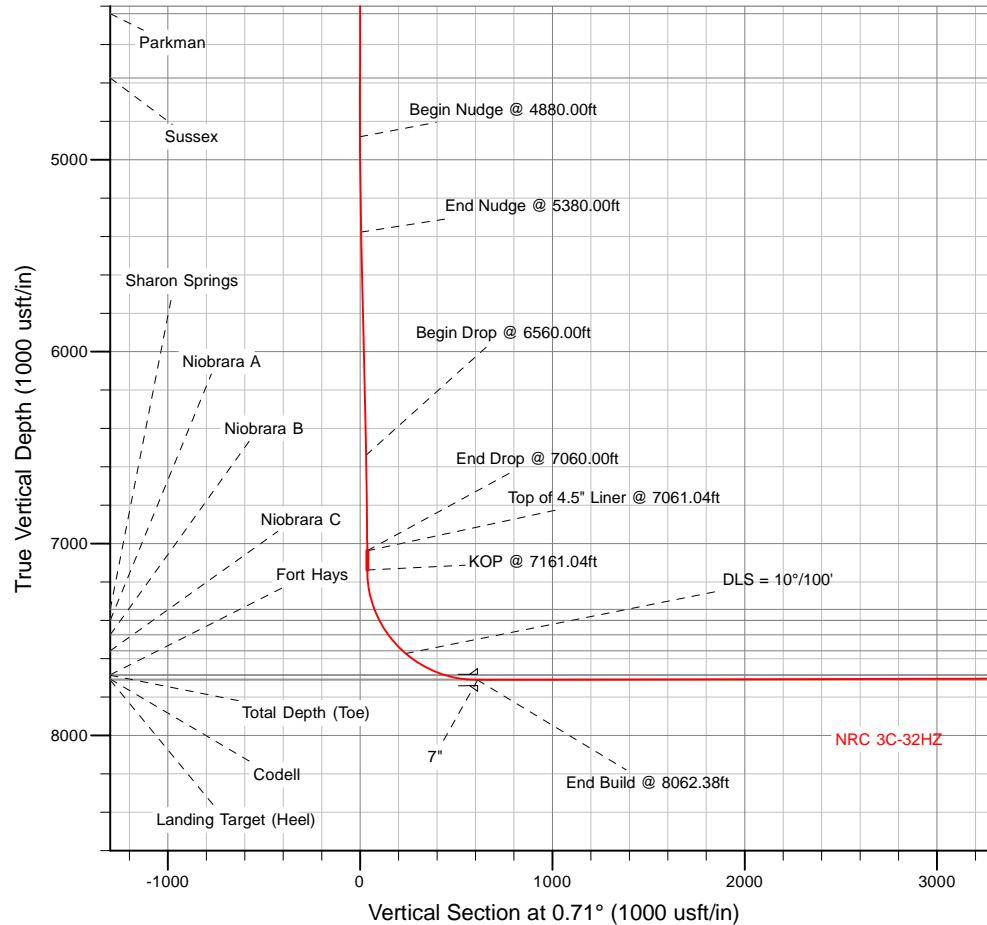
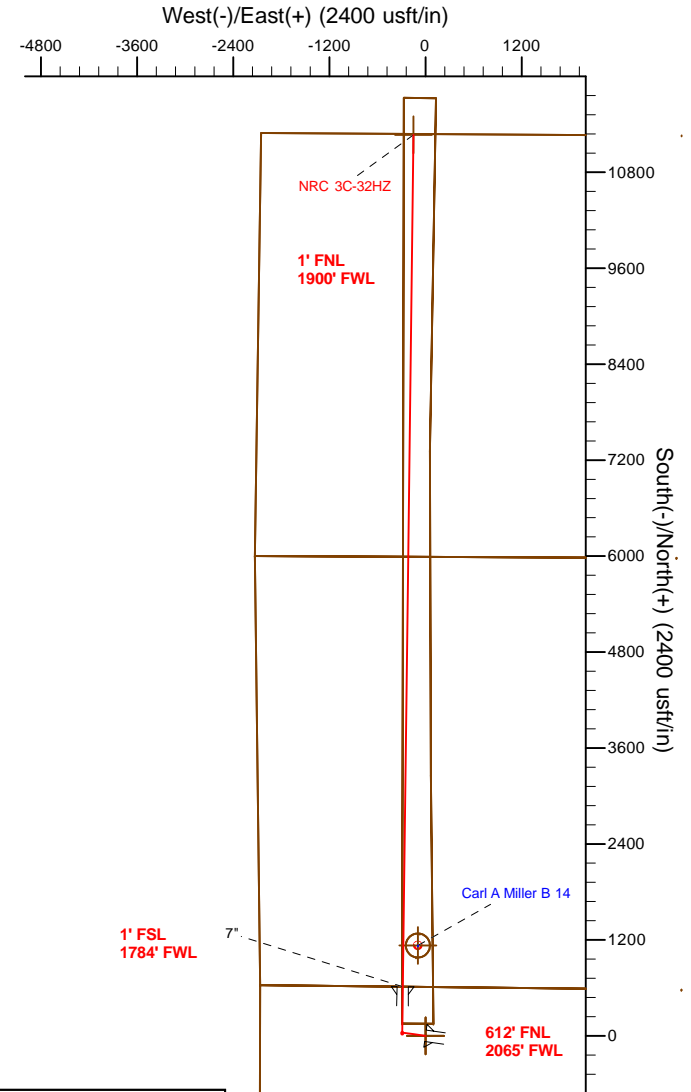


SECTION DETAILS

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	4880.00	0.00	0.00	4880.00	0.00	0.00	0.00	0.00	0.00	
3	5380.00	10.00	278.00	5377.47	6.06	-43.10	2.00	278.00	5.52	
4	6560.00	10.00	278.00	6539.54	34.57	-246.01	0.00	0.00	31.52	
5	7060.00	0.00	0.00	7037.00	40.63	-289.11	2.00	180.00	37.05	
6	7161.04	0.00	0.00	7138.04	40.63	-289.11	0.00	0.00	37.05	
7	8062.38	90.13	0.71	7711.00	614.89	-282.03	10.00	0.71	611.35	
8	18717.70	90.13	0.71	7686.00	11269.36	-150.78	0.00	0.00	11266.63	NRC 3C-32HZ_BHL

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Polygon
NRC 3C-32HZ_LD	0.00	0.00	0.00	40.071167	-104.916530	Polygon
NRC 3C-32HZ_SEC	0.00	0.00	0.00	40.071167	-104.916530	Polygon
NRC 3C-32HZ_SHL	0.00	0.00	0.00	40.071167	-104.916530	Polygon
NRC 3C-32HZ_BHL	7686.00	11269.36	-150.78	40.102102	-104.917069	
Carl A Miller B 14	8355.00	1130.41	-95.15	40.074270	-104.916870	Circle (Radius: 150.00)



TVD	MD	Notes
7038.04	7061.04	Top of 4.5" Liner @ 7061.04ft
7138.04	7161.04	KOP @ 7161.04ft

WELL DETAILS: NRC 3C-32HZ	
Ground Level:	5034.00
RKB = 17' @ 5051.00usft (Drilling Rig)	
Plan: Rev B0 Permit (NRC 3C-32HZ/Plan B)	
Created By: Clint Eshelman	Date: 3/12/2014
Reviewed:	Date:

Plan Report for NRC 3C-32HZ - Rev B0 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 3C-32HZ_SEC - NRC 3C-32HZ_LD - NRC 3C-32HZ_SHL										
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
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,255.00	0.00	0.00	1,255.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fox Hills Marker										
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,305.00	0.00	0.00	1,305.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9 5/8"										
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,900.00	0.00	0.00	1,900.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2,100.00	0.00	0.00	2,100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2,200.00	0.00	0.00	2,200.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2,300.00	0.00	0.00	2,300.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2,400.00	0.00	0.00	2,400.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2,500.00	0.00	0.00	2,500.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2,600.00	0.00	0.00	2,600.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2,700.00	0.00	0.00	2,700.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2,800.00	0.00	0.00	2,800.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2,900.00	0.00	0.00	2,900.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3,000.00	0.00	0.00	3,000.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3,100.00	0.00	0.00	3,100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3,200.00	0.00	0.00	3,200.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3,300.00	0.00	0.00	3,300.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3,400.00	0.00	0.00	3,400.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3,500.00	0.00	0.00	3,500.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3,600.00	0.00	0.00	3,600.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3,700.00	0.00	0.00	3,700.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3,800.00	0.00	0.00	3,800.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3,900.00	0.00	0.00	3,900.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4,000.00	0.00	0.00	4,000.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4,100.00	0.00	0.00	4,100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4,200.00	0.00	0.00	4,200.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4,239.00	0.00	0.00	4,239.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Parkman										
4,300.00	0.00	0.00	4,300.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4,400.00	0.00	0.00	4,400.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4,500.00	0.00	0.00	4,500.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4,574.00	0.00	0.00	4,574.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sussex										
4,600.00	0.00	0.00	4,600.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4,700.00	0.00	0.00	4,700.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4,800.00	0.00	0.00	4,800.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Plan Report for NRC 3C-32HZ - Rev B0 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 (°)
4,880.00	0.00	0.00	4,880.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Begin Nudge @ 4880.00ft										
4,900.00	0.40	278.00	4,900.00	0.01	-0.07	0.01	2.00	2.00	0.00	278.00
5,000.00	2.40	278.00	4,999.96	0.35	-2.49	0.32	2.00	2.00	0.00	0.00
5,100.00	4.40	278.00	5,099.78	1.18	-8.36	1.07	2.00	2.00	0.00	0.00
5,200.00	6.40	278.00	5,199.33	2.48	-17.68	2.27	2.00	2.00	0.00	0.00
5,300.00	8.40	278.00	5,298.50	4.28	-30.43	3.90	2.00	2.00	0.00	0.00
5,380.00	10.00	278.00	5,377.47	6.06	-43.10	5.52	2.00	2.00	0.00	0.00
End Nudge @ 5380.00ft										
5,400.00	10.00	278.00	5,397.16	6.54	-46.54	5.96	0.00	0.00	0.00	0.00
5,500.00	10.00	278.00	5,495.64	8.96	-63.73	8.17	0.00	0.00	0.00	0.00
5,600.00	10.00	278.00	5,594.12	11.37	-80.93	10.37	0.00	0.00	0.00	0.00
5,700.00	10.00	278.00	5,692.60	13.79	-98.13	12.57	0.00	0.00	0.00	0.00
5,800.00	10.00	278.00	5,791.08	16.21	-115.32	14.78	0.00	0.00	0.00	0.00
5,900.00	10.00	278.00	5,889.57	18.62	-132.52	16.98	0.00	0.00	0.00	0.00
6,000.00	10.00	278.00	5,988.05	21.04	-149.71	19.18	0.00	0.00	0.00	0.00
6,100.00	10.00	278.00	6,086.53	23.46	-166.91	21.39	0.00	0.00	0.00	0.00
6,200.00	10.00	278.00	6,185.01	25.87	-184.10	23.59	0.00	0.00	0.00	0.00
6,300.00	10.00	278.00	6,283.49	28.29	-201.30	25.79	0.00	0.00	0.00	0.00
6,400.00	10.00	278.00	6,381.97	30.71	-218.50	28.00	0.00	0.00	0.00	0.00
6,500.00	10.00	278.00	6,480.45	33.12	-235.69	30.20	0.00	0.00	0.00	0.00
6,560.00	10.00	278.00	6,539.54	34.57	-246.01	31.52	0.00	0.00	0.00	0.00
Begin Drop @ 6560.00ft										
6,600.00	9.20	278.00	6,578.98	35.50	-252.62	32.37	2.00	-2.00	0.00	180.00
6,700.00	7.20	278.00	6,677.95	37.49	-266.74	34.18	2.00	-2.00	0.00	180.00
6,800.00	5.20	278.00	6,777.36	38.99	-277.43	35.55	2.00	-2.00	0.00	180.00
6,900.00	3.20	278.00	6,877.09	40.01	-284.69	36.48	2.00	-2.00	0.00	180.00
7,000.00	1.20	278.00	6,977.01	40.54	-288.49	36.97	2.00	-2.00	0.00	180.00
7,060.00	0.00	0.00	7,037.00	40.63	-289.11	37.05	2.00	-2.00	0.00	180.00
End Drop @ 7060.00ft										
7,061.04	0.00	0.00	7,038.04	40.63	-289.11	37.05	0.00	0.00	0.00	0.00
Top of 4.5" Liner @ 7061.04ft										
7,100.00	0.00	0.00	7,077.00	40.63	-289.11	37.05	0.00	0.00	0.00	0.00
7,161.04	0.00	0.00	7,138.04	40.63	-289.11	37.05	0.00	0.00	0.00	0.00
KOP @ 7161.04ft										
7,200.00	3.90	0.71	7,176.97	41.96	-289.09	38.37	10.00	10.00	0.00	0.71
7,300.00	13.90	0.71	7,275.65	57.40	-288.90	53.81	10.00	10.00	0.00	0.00
7,370.64	20.96	0.71	7,343.00	78.54	-288.64	74.96	10.00	10.00	0.00	0.00
Sharon Springs										
7,400.00	23.90	0.71	7,370.14	89.74	-288.50	86.16	10.00	10.00	0.00	0.00
7,433.11	27.21	0.71	7,400.00	104.02	-288.33	100.44	10.00	10.00	0.00	0.00
Niobrara A										
7,500.00	33.90	0.71	7,457.58	138.00	-287.91	134.42	10.00	10.00	0.00	0.00
7,521.26	36.02	0.71	7,475.00	150.18	-287.76	146.60	10.00	10.00	0.00	0.00
Niobrara B										
7,600.00	43.90	0.71	7,535.31	200.70	-287.14	197.13	10.00	10.00	0.00	0.00
7,633.86	47.28	0.71	7,559.00	224.89	-286.84	221.32	10.00	10.00	0.00	0.00
Niobrara C										
7,655.00	49.40	0.71	7,573.05	240.68	-286.64	237.11	10.00	10.00	0.00	0.00
DLS = 10°/100'										
7,700.00	53.90	0.71	7,600.96	275.95	-286.21	272.39	10.00	10.00	0.00	0.00
7,800.00	63.90	0.71	7,652.56	361.46	-285.16	357.90	10.00	10.00	0.00	0.00
7,884.44	72.34	0.71	7,684.00	439.74	-284.19	436.19	10.00	10.00	0.00	0.00
Fort Hays										
7,900.00	73.90	0.71	7,688.52	454.63	-284.01	451.08	10.00	10.00	0.00	0.00
7,985.28	82.42	0.71	7,706.00	538.01	-282.98	534.46	10.00	10.00	0.00	0.00
Codell										
8,000.00	83.90	0.71	7,707.75	552.63	-282.80	549.08	10.00	10.00	0.00	0.00

Plan Report for NRC 3C-32HZ - Rev B0 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 (°)
8,062.38	90.13	0.71	7,711.00	614.89	-282.03	611.34	10.00	10.00	0.00	0.00
End Build @ 8062.38ft - Landing Target (Heel) - 7"										
8,100.00	90.13	0.71	7,710.91	652.50	-281.57	648.96	0.00	0.00	0.00	0.00
8,200.00	90.13	0.71	7,710.68	752.49	-280.34	748.96	0.00	0.00	0.00	0.00
8,300.00	90.13	0.71	7,710.44	852.49	-279.11	848.96	0.00	0.00	0.00	0.00
8,400.00	90.13	0.71	7,710.21	952.48	-277.88	948.96	0.00	0.00	0.00	0.00
8,500.00	90.13	0.71	7,709.97	1,052.47	-276.64	1,048.96	0.00	0.00	0.00	0.00
8,578.65	90.13	0.71	7,709.79	1,131.12	-275.68	1,127.61	0.00	0.00	0.00	0.00
Carl A Miller B 14										
8,600.00	90.13	0.71	7,709.74	1,152.46	-275.41	1,148.96	0.00	0.00	0.00	0.00
8,700.00	90.13	0.71	7,709.50	1,252.46	-274.18	1,248.96	0.00	0.00	0.00	0.00
8,800.00	90.13	0.71	7,709.27	1,352.45	-272.95	1,348.96	0.00	0.00	0.00	0.00
8,900.00	90.13	0.71	7,709.03	1,452.44	-271.72	1,448.96	0.00	0.00	0.00	0.00
9,000.00	90.13	0.71	7,708.80	1,552.43	-270.48	1,548.96	0.00	0.00	0.00	0.00
9,100.00	90.13	0.71	7,708.57	1,652.42	-269.25	1,648.96	0.00	0.00	0.00	0.00
9,200.00	90.13	0.71	7,708.33	1,752.42	-268.02	1,748.96	0.00	0.00	0.00	0.00
9,300.00	90.13	0.71	7,708.10	1,852.41	-266.79	1,848.96	0.00	0.00	0.00	0.00
9,400.00	90.13	0.71	7,707.86	1,952.40	-265.56	1,948.96	0.00	0.00	0.00	0.00
9,500.00	90.13	0.71	7,707.63	2,052.39	-264.33	2,048.96	0.00	0.00	0.00	0.00
9,600.00	90.13	0.71	7,707.39	2,152.38	-263.09	2,148.96	0.00	0.00	0.00	0.00
9,700.00	90.13	0.71	7,707.16	2,252.38	-261.86	2,248.96	0.00	0.00	0.00	0.00
9,800.00	90.13	0.71	7,706.92	2,352.37	-260.63	2,348.96	0.00	0.00	0.00	0.00
9,900.00	90.13	0.71	7,706.69	2,452.36	-259.40	2,448.96	0.00	0.00	0.00	0.00
10,000.00	90.13	0.71	7,706.45	2,552.35	-258.17	2,548.96	0.00	0.00	0.00	0.00
10,100.00	90.13	0.71	7,706.22	2,652.35	-256.94	2,648.96	0.00	0.00	0.00	0.00
10,200.00	90.13	0.71	7,705.98	2,752.34	-255.70	2,748.96	0.00	0.00	0.00	0.00
10,300.00	90.13	0.71	7,705.75	2,852.33	-254.47	2,848.96	0.00	0.00	0.00	0.00
10,400.00	90.13	0.71	7,705.52	2,952.32	-253.24	2,948.96	0.00	0.00	0.00	0.00
10,500.00	90.13	0.71	7,705.28	3,052.31	-252.01	3,048.96	0.00	0.00	0.00	0.00
10,600.00	90.13	0.71	7,705.05	3,152.31	-250.78	3,148.96	0.00	0.00	0.00	0.00
10,700.00	90.13	0.71	7,704.81	3,252.30	-249.54	3,248.96	0.00	0.00	0.00	0.00
10,800.00	90.13	0.71	7,704.58	3,352.29	-248.31	3,348.96	0.00	0.00	0.00	0.00
10,900.00	90.13	0.71	7,704.34	3,452.28	-247.08	3,448.96	0.00	0.00	0.00	0.00
11,000.00	90.13	0.71	7,704.11	3,552.27	-245.85	3,548.96	0.00	0.00	0.00	0.00
11,100.00	90.13	0.71	7,703.87	3,652.27	-244.62	3,648.96	0.00	0.00	0.00	0.00
11,200.00	90.13	0.71	7,703.64	3,752.26	-243.39	3,748.96	0.00	0.00	0.00	0.00
11,300.00	90.13	0.71	7,703.40	3,852.25	-242.15	3,848.95	0.00	0.00	0.00	0.00
11,400.00	90.13	0.71	7,703.17	3,952.24	-240.92	3,948.95	0.00	0.00	0.00	0.00
11,500.00	90.13	0.71	7,702.93	4,052.24	-239.69	4,048.95	0.00	0.00	0.00	0.00
11,600.00	90.13	0.71	7,702.70	4,152.23	-238.46	4,148.95	0.00	0.00	0.00	0.00
11,700.00	90.13	0.71	7,702.47	4,252.22	-237.23	4,248.95	0.00	0.00	0.00	0.00
11,800.00	90.13	0.71	7,702.23	4,352.21	-235.99	4,348.95	0.00	0.00	0.00	0.00
11,900.00	90.13	0.71	7,702.00	4,452.20	-234.76	4,448.95	0.00	0.00	0.00	0.00
12,000.00	90.13	0.71	7,701.76	4,552.20	-233.53	4,548.95	0.00	0.00	0.00	0.00
12,100.00	90.13	0.71	7,701.53	4,652.19	-232.30	4,648.95	0.00	0.00	0.00	0.00
12,200.00	90.13	0.71	7,701.29	4,752.18	-231.07	4,748.95	0.00	0.00	0.00	0.00
12,300.00	90.13	0.71	7,701.06	4,852.17	-229.84	4,848.95	0.00	0.00	0.00	0.00
12,400.00	90.13	0.71	7,700.82	4,952.16	-228.60	4,948.95	0.00	0.00	0.00	0.00
12,500.00	90.13	0.71	7,700.59	5,052.16	-227.37	5,048.95	0.00	0.00	0.00	0.00
12,600.00	90.13	0.71	7,700.35	5,152.15	-226.14	5,148.95	0.00	0.00	0.00	0.00
12,700.00	90.13	0.71	7,700.12	5,252.14	-224.91	5,248.95	0.00	0.00	0.00	0.00
12,800.00	90.13	0.71	7,699.88	5,352.13	-223.68	5,348.95	0.00	0.00	0.00	0.00
12,900.00	90.13	0.71	7,699.65	5,452.13	-222.44	5,448.95	0.00	0.00	0.00	0.00
13,000.00	90.13	0.71	7,699.42	5,552.12	-221.21	5,548.95	0.00	0.00	0.00	0.00
13,100.00	90.13	0.71	7,699.18	5,652.11	-219.98	5,648.95	0.00	0.00	0.00	0.00
13,200.00	90.13	0.71	7,698.95	5,752.10	-218.75	5,748.95	0.00	0.00	0.00	0.00
13,300.00	90.13	0.71	7,698.71	5,852.09	-217.52	5,848.95	0.00	0.00	0.00	0.00
13,400.00	90.13	0.71	7,698.48	5,952.09	-216.29	5,948.95	0.00	0.00	0.00	0.00
13,500.00	90.13	0.71	7,698.24	6,052.08	-215.05	6,048.95	0.00	0.00	0.00	0.00

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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 (°)
13,600.00	90.13	0.71	7,698.01	6,152.07	-213.82	6,148.95	0.00	0.00	0.00	0.00
13,700.00	90.13	0.71	7,697.77	6,252.06	-212.59	6,248.95	0.00	0.00	0.00	0.00
13,800.00	90.13	0.71	7,697.54	6,352.05	-211.36	6,348.95	0.00	0.00	0.00	0.00
13,900.00	90.13	0.71	7,697.30	6,452.05	-210.13	6,448.95	0.00	0.00	0.00	0.00
14,000.00	90.13	0.71	7,697.07	6,552.04	-208.90	6,548.95	0.00	0.00	0.00	0.00
14,100.00	90.13	0.71	7,696.83	6,652.03	-207.66	6,648.95	0.00	0.00	0.00	0.00
14,200.00	90.13	0.71	7,696.60	6,752.02	-206.43	6,748.95	0.00	0.00	0.00	0.00
14,300.00	90.13	0.71	7,696.37	6,852.02	-205.20	6,848.95	0.00	0.00	0.00	0.00
14,400.00	90.13	0.71	7,696.13	6,952.01	-203.97	6,948.95	0.00	0.00	0.00	0.00
14,500.00	90.13	0.71	7,695.90	7,052.00	-202.74	7,048.95	0.00	0.00	0.00	0.00
14,600.00	90.13	0.71	7,695.66	7,151.99	-201.50	7,148.95	0.00	0.00	0.00	0.00
14,700.00	90.13	0.71	7,695.43	7,251.98	-200.27	7,248.95	0.00	0.00	0.00	0.00
14,800.00	90.13	0.71	7,695.19	7,351.98	-199.04	7,348.95	0.00	0.00	0.00	0.00
14,900.00	90.13	0.71	7,694.96	7,451.97	-197.81	7,448.94	0.00	0.00	0.00	0.00
15,000.00	90.13	0.71	7,694.72	7,551.96	-196.58	7,548.94	0.00	0.00	0.00	0.00
15,100.00	90.13	0.71	7,694.49	7,651.95	-195.35	7,648.94	0.00	0.00	0.00	0.00
15,200.00	90.13	0.71	7,694.25	7,751.94	-194.11	7,748.94	0.00	0.00	0.00	0.00
15,300.00	90.13	0.71	7,694.02	7,851.94	-192.88	7,848.94	0.00	0.00	0.00	0.00
15,400.00	90.13	0.71	7,693.78	7,951.93	-191.65	7,948.94	0.00	0.00	0.00	0.00
15,500.00	90.13	0.71	7,693.55	8,051.92	-190.42	8,048.94	0.00	0.00	0.00	0.00
15,600.00	90.13	0.71	7,693.31	8,151.91	-189.19	8,148.94	0.00	0.00	0.00	0.00
15,700.00	90.13	0.71	7,693.08	8,251.91	-187.95	8,248.94	0.00	0.00	0.00	0.00
15,800.00	90.13	0.71	7,692.85	8,351.90	-186.72	8,348.94	0.00	0.00	0.00	0.00
15,900.00	90.13	0.71	7,692.61	8,451.89	-185.49	8,448.94	0.00	0.00	0.00	0.00
16,000.00	90.13	0.71	7,692.38	8,551.88	-184.26	8,548.94	0.00	0.00	0.00	0.00
16,100.00	90.13	0.71	7,692.14	8,651.87	-183.03	8,648.94	0.00	0.00	0.00	0.00
16,200.00	90.13	0.71	7,691.91	8,751.87	-181.80	8,748.94	0.00	0.00	0.00	0.00
16,300.00	90.13	0.71	7,691.67	8,851.86	-180.56	8,848.94	0.00	0.00	0.00	0.00
16,400.00	90.13	0.71	7,691.44	8,951.85	-179.33	8,948.94	0.00	0.00	0.00	0.00
16,500.00	90.13	0.71	7,691.20	9,051.84	-178.10	9,048.94	0.00	0.00	0.00	0.00
16,600.00	90.13	0.71	7,690.97	9,151.83	-176.87	9,148.94	0.00	0.00	0.00	0.00
16,700.00	90.13	0.71	7,690.73	9,251.83	-175.64	9,248.94	0.00	0.00	0.00	0.00
16,800.00	90.13	0.71	7,690.50	9,351.82	-174.40	9,348.94	0.00	0.00	0.00	0.00
16,900.00	90.13	0.71	7,690.26	9,451.81	-173.17	9,448.94	0.00	0.00	0.00	0.00
17,000.00	90.13	0.71	7,690.03	9,551.80	-171.94	9,548.94	0.00	0.00	0.00	0.00
17,100.00	90.13	0.71	7,689.80	9,651.80	-170.71	9,648.94	0.00	0.00	0.00	0.00
17,200.00	90.13	0.71	7,689.56	9,751.79	-169.48	9,748.94	0.00	0.00	0.00	0.00
17,300.00	90.13	0.71	7,689.33	9,851.78	-168.25	9,848.94	0.00	0.00	0.00	0.00
17,400.00	90.13	0.71	7,689.09	9,951.77	-167.01	9,948.94	0.00	0.00	0.00	0.00
17,500.00	90.13	0.71	7,688.86	10,051.76	-165.78	10,048.94	0.00	0.00	0.00	0.00
17,600.00	90.13	0.71	7,688.62	10,151.76	-164.55	10,148.94	0.00	0.00	0.00	0.00
17,700.00	90.13	0.71	7,688.39	10,251.75	-163.32	10,248.94	0.00	0.00	0.00	0.00
17,800.00	90.13	0.71	7,688.15	10,351.74	-162.09	10,348.94	0.00	0.00	0.00	0.00
17,900.00	90.13	0.71	7,687.92	10,451.73	-160.85	10,448.94	0.00	0.00	0.00	0.00
18,000.00	90.13	0.71	7,687.68	10,551.72	-159.62	10,548.94	0.00	0.00	0.00	0.00
18,100.00	90.13	0.71	7,687.45	10,651.72	-158.39	10,648.94	0.00	0.00	0.00	0.00
18,200.00	90.13	0.71	7,687.21	10,751.71	-157.16	10,748.94	0.00	0.00	0.00	0.00
18,300.00	90.13	0.71	7,686.98	10,851.70	-155.93	10,848.94	0.00	0.00	0.00	0.00
18,400.00	90.13	0.71	7,686.75	10,951.69	-154.70	10,948.94	0.00	0.00	0.00	0.00
18,500.00	90.13	0.71	7,686.51	11,051.69	-153.46	11,048.94	0.00	0.00	0.00	0.00
18,600.00	90.13	0.71	7,686.28	11,151.68	-152.23	11,148.93	0.00	0.00	0.00	0.00
18,700.00	90.13	0.71	7,686.04	11,251.67	-151.00	11,248.93	0.00	0.00	0.00	0.00
18,717.69	90.13	0.71	7,686.00	11,269.36	-150.78	11,266.62	0.00	0.00	0.00	0.00
Total Depth (Toe)										
18,717.70	90.13	0.71	7,686.00	11,269.36	-150.78	11,266.63	0.01	0.00	0.00	0.00
TD Well @ 18717.70ft - NRC 3C-32HZ_BHL										

Plan Report for NRC 3C-32HZ - Rev B0 Permit**Plan Annotations**

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
4,880.00	4,880.00	0.00	0.00	Begin Nudge @ 4880.00ft
5,380.00	5,377.47	6.06	-43.10	End Nudge @ 5380.00ft
6,560.00	6,539.54	34.57	-246.01	Begin Drop @ 6560.00ft
7,060.00	7,037.00	40.63	-289.11	End Drop @ 7060.00ft
7,061.04	7,038.04	40.63	-289.11	Top of 4.5" Liner @ 7061.04ft
7,161.04	7,138.04	40.63	-289.11	KOP @ 7161.04ft
7,655.00	7,573.05	240.68	-286.64	DLS = 10°/100'
8,062.38	7,711.00	614.89	-282.03	End Build @ 8062.38ft
18,717.70	7,686.00	11,269.36	-150.78	TD Well @ 18717.70ft

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin		Start TVD (usft)
				+N/_S (usft)	+E/-W (usft)	
User	No Target (Freehand)	0.71	Slot	0.00	0.00	0.00

Survey tool program

From (usft)	To (usft)	Survey/Plan	Survey Tool
0.00	8,062.38	Rev B0 Permit	MWD
8,062.38	18,717.70	Rev B0 Permit	MWD

Casing Details

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
1,305.00	1,305.00	9 5/8"	9-5/8	13-1/2
8,062.38	7,711.00	7"	7	8-3/4

Formation Details

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,255.00	1,255.00	Fox Hills Marker		0.00	
4,239.00	4,239.00	Parkman		0.00	
4,574.00	4,574.00	Sussex		0.00	
7,370.64	7,343.00	Sharon Springs		0.00	
7,433.11	7,400.00	Niobrara A		0.00	
7,521.26	7,475.00	Niobrara B		0.00	
7,633.86	7,559.00	Niobrara C		0.00	
7,884.44	7,684.00	Fort Hays		0.00	
7,985.28	7,706.00	Codell		0.00	
8,062.38	7,711.00	Landing Target (Heel)		0.00	
18,717.69	7,686.00	Total Depth (Toe)		0.00	

Plan Report for NRC 3C-32HZ - Rev B0 Permit

Targets associated with this wellbore

Target Name	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Shape
NRC 3C-32HZ_SEC	0.00	0.00	0.00	Polygon
NRC 3C-32HZ_LD	0.00	0.00	0.00	Polygon
NRC 3C-32HZ_SHL	0.00	0.00	0.00	Point
NRC 3C-32HZ_BHL	7,686.00	11,269.36	-150.78	Point
Carl A Miller B 14	8,355.00	1,130.41	-95.15	Circle

Directional Difficulty Index

Average Dogleg over Survey:	0.59 °/100usft	Maximum Dogleg over Survey:	10.00 °/100usft at 8,062.38 usft
Net Tortosity applicable to Plans:	0.59 °/100usft	Directional Difficulty Index:	6.596

Audit Info

North Reference Sheet for Sec. 8-T1N-R67W - NRC 3C-32HZ - Plan B

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' @ 5051.00usft (Drilling Rig). Northing and Easting are relative to NRC 3C-32HZ
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: 0.99996173

Grid Coordinates of Well: 1,269,308.41 usft N, 3,163,289.46 usft E
Geographical Coordinates of Well: 40° 04' 16.20" N, 104° 54' 59.51" W
Grid Convergence at Surface is: 0.38°

Based upon Minimum Curvature type calculations, at a Measured Depth of 18,717.70usft
the Bottom Hole Displacement is 11,270.37usft in the Direction of 359.23° (True).

Magnetic Convergence at surface is: -8.22° (12 March 2014, , BGGM2013)

Magnetic Model: BGGM2013
Date: 12-Mar-14
Declination: 8.59°
Inclination/Dip: 66.65°
Field Strength: 52571

Grid North is 0.38° East of True North (Grid Convergence)
Magnetic North is 8.59° East of True North (Magnetic Declination)
Magnetic North is 8.22° East of Grid North (Magnetic Convergence)

To convert a True Direction to a Grid Direction, Subtract 0.38°
To convert a Magnetic Direction to a True Direction, Add 8.59° East
To convert a Magnetic Direction to a Grid Direction, Add 8.22°