

Anadarko Petroleum Corp.

Weld County, CO (NAD 83)

Sec. 8-T1N-R67W

NRC 28C-32HZ

Plan A

Plan: Rev A0 Permit

Sperry Drilling Services

Proposal Report

10 January, 2014

Well Coordinates: 1,269,308.08 N, 3,163,349.35 E (40° 04' 16.19" N, 104° 54' 58.74" W)

Ground Level: 5,033.00 usft

Local Coordinate Origin:

Centered on Well NRC 28C-32HZ

Viewing Datum:

RKB = 17' @ 5050.00usft (Drilling Rig)

TVDs to System:

N

North Reference:

True

Unit System:

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 28C-32HZ
 Wellbore: Plan A
 Design: Rev A0 Permit

Anadarko Petroleum Corp.

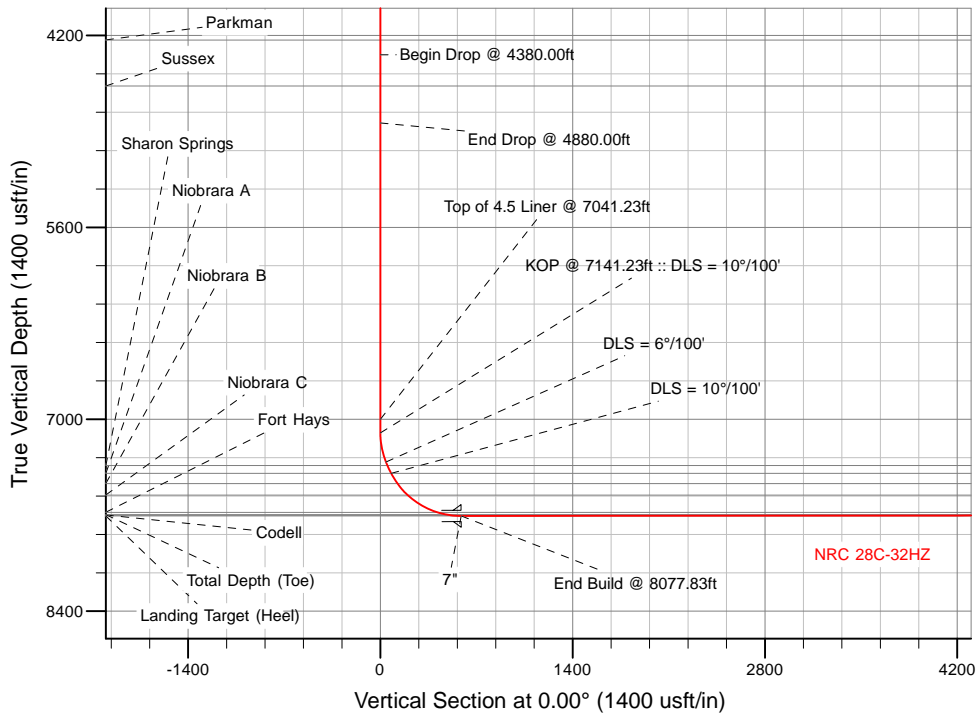
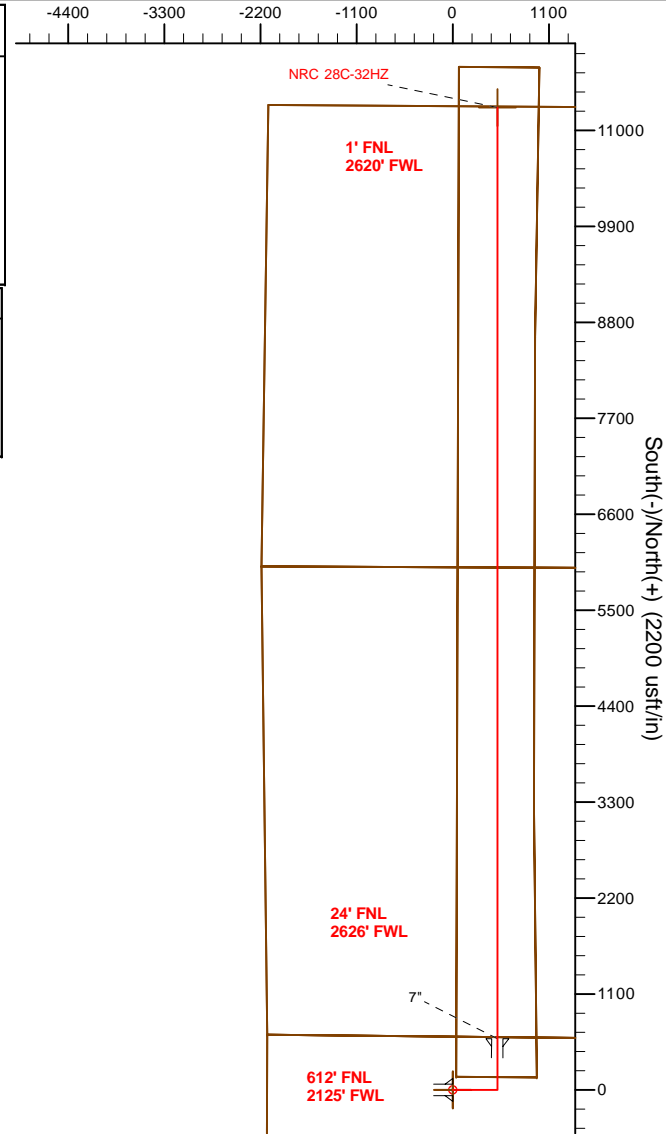


SECTION DETAILS

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	1450.00	0.00	0.00	1450.00	0.00	0.00	0.00	0.00	0.00	
3	1950.00	10.00	90.00	1947.47	0.00	43.52	2.00	90.00	0.00	
4	4380.00	10.00	90.00	4340.55	0.00	465.49	0.00	0.00	0.00	
5	4880.00	0.00	0.00	4838.01	0.00	509.01	2.00	180.00	0.00	
6	7141.23	0.00	0.00	7099.24	0.00	509.01	0.00	0.00	0.00	
7	7359.21	21.80	0.00	7312.00	40.97	509.01	10.00	0.00	40.97	
8	7449.36	27.21	0.00	7394.00	78.34	509.01	6.00	0.00	78.34	
9	8077.83	90.05	0.00	7705.00	588.44	509.01	10.00	0.00	588.44	
10	18751.10	90.05	0.00	7695.00	11261.71	509.14	0.00	0.00	11261.71	NRC 28C-32HZ_BHL

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Polygon
NRC 28C-32HZ_LD	0.00	0.00	0.00	40° 4' 16.194 N	104° 54' 58.738 W	Polygon
NRC 28C-32HZ_SEC	0.00	0.00	0.00	40° 4' 16.194 N	104° 54' 58.738 W	Polygon
NRC 28C-32HZ_SHL	0.00	0.00	0.00	40° 4' 16.194 N	104° 54' 58.738 W	Polygon
NRC 28C-32HZ_BHL	7695.00	11261.71	509.14	40° 6' 7.484 N	104° 54' 52.186 W	



TVD	MD	Target
6999.24	7041.23	Top of 4.5 Liner @ 7041.23ft
7099.24	7141.23	KOP @ 7141.23ft :: DLS = 10°/100'

WELL DETAILS: NRC 28C-32HZ	
Ground Level:	5033.00
RKB = 17' @ 5050.00usft (Drilling Rig)	
Plan: Rev A0 Permit (NRC 28C-32HZ/Plan A)	
Created By: Clint Eshelman	Date: 1/10/2013
Reviewed:	Date:

Plan Report for NRC 28C-32HZ - 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 28C-32HZ_SEC - NRC 28C-32HZ_LD - NRC 28C-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
1,254.00	0.00	0.00	1,254.00	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
1,304.00	0.00	0.00	1,304.00	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
1,450.00	0.00	0.00	1,450.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Begin Nudge @ 1450.00ft										
1,500.00	1.00	90.00	1,500.00	0.00	0.44	0.00	2.00	2.00	0.00	90.00
1,600.00	3.00	90.00	1,599.93	0.00	3.93	0.00	2.00	2.00	0.00	0.00
1,700.00	5.00	90.00	1,699.68	0.00	10.90	0.00	2.00	2.00	0.00	0.00
1,800.00	7.00	90.00	1,799.13	0.00	21.35	0.00	2.00	2.00	0.00	0.00
1,900.00	9.00	90.00	1,898.15	0.00	35.27	0.00	2.00	2.00	0.00	0.00
1,950.00	10.00	90.00	1,947.47	0.00	43.52	0.00	2.00	2.00	0.00	0.00
End Nudge @ 1950.00ft										
2,000.00	10.00	90.00	1,996.71	0.00	52.20	0.00	0.00	0.00	0.00	0.00
2,100.00	10.00	90.00	2,095.19	0.00	69.57	0.00	0.00	0.00	0.00	0.00
2,200.00	10.00	90.00	2,193.67	0.00	86.93	0.00	0.00	0.00	0.00	0.00
2,300.00	10.00	90.00	2,292.15	0.00	104.30	0.00	0.00	0.00	0.00	0.00
2,400.00	10.00	90.00	2,390.63	0.00	121.66	0.00	0.00	0.00	0.00	0.00
2,500.00	10.00	90.00	2,489.11	0.00	139.03	0.00	0.00	0.00	0.00	0.00
2,600.00	10.00	90.00	2,587.59	0.00	156.39	0.00	0.00	0.00	0.00	0.00
2,700.00	10.00	90.00	2,686.07	0.00	173.76	0.00	0.00	0.00	0.00	0.00
2,800.00	10.00	90.00	2,784.55	0.00	191.12	0.00	0.00	0.00	0.00	0.00
2,900.00	10.00	90.00	2,883.03	0.00	208.49	0.00	0.00	0.00	0.00	0.00
3,000.00	10.00	90.00	2,981.51	0.00	225.85	0.00	0.00	0.00	0.00	0.00
3,100.00	10.00	90.00	3,079.99	0.00	243.22	0.00	0.00	0.00	0.00	0.00
3,200.00	10.00	90.00	3,178.48	0.00	260.58	0.00	0.00	0.00	0.00	0.00
3,300.00	10.00	90.00	3,276.96	0.00	277.95	0.00	0.00	0.00	0.00	0.00
3,400.00	10.00	90.00	3,375.44	0.00	295.31	0.00	0.00	0.00	0.00	0.00
3,500.00	10.00	90.00	3,473.92	0.00	312.68	0.00	0.00	0.00	0.00	0.00
3,600.00	10.00	90.00	3,572.40	0.00	330.04	0.00	0.00	0.00	0.00	0.00
3,700.00	10.00	90.00	3,670.88	0.00	347.41	0.00	0.00	0.00	0.00	0.00
3,800.00	10.00	90.00	3,769.36	0.00	364.77	0.00	0.00	0.00	0.00	0.00
3,900.00	10.00	90.00	3,867.84	0.00	382.14	0.00	0.00	0.00	0.00	0.00
4,000.00	10.00	90.00	3,966.32	0.00	399.50	0.00	0.00	0.00	0.00	0.00
4,100.00	10.00	90.00	4,064.80	0.00	416.87	0.00	0.00	0.00	0.00	0.00
4,200.00	10.00	90.00	4,163.28	0.00	434.23	0.00	0.00	0.00	0.00	0.00
4,270.79	10.00	90.00	4,233.00	0.00	446.52	0.00	0.00	0.00	0.00	0.00
Parkman										
4,300.00	10.00	90.00	4,261.76	0.00	451.60	0.00	0.00	0.00	0.00	0.00
4,380.00	10.00	90.00	4,340.55	0.00	465.49	0.00	0.00	0.00	0.00	0.00
Begin Drop @ 4380.00ft										

Plan Report for NRC 28C-32HZ - 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 (°)
4,400.00	9.60	90.00	4,360.26	0.00	468.89	0.00	2.00	-2.00	0.00	180.00
4,500.00	7.60	90.00	4,459.13	0.00	483.84	0.00	2.00	-2.00	0.00	180.00
4,600.00	5.60	90.00	4,558.46	0.00	495.34	0.00	2.00	-2.00	0.00	180.00
4,609.59	5.41	90.00	4,568.00	0.00	496.26	0.00	2.00	-2.00	0.00	180.00
Sussex										
4,700.00	3.60	90.00	4,658.13	0.00	503.36	0.00	2.00	-2.00	0.00	180.00
4,800.00	1.60	90.00	4,758.02	0.00	507.89	0.00	2.00	-2.00	0.00	180.00
4,880.00	0.00	0.00	4,838.01	0.00	509.01	0.00	2.00	-2.00	0.00	-180.00
End Drop @ 4880.00ft										
4,900.00	0.00	0.00	4,858.01	0.00	509.01	0.00	0.00	0.00	0.00	0.00
5,000.00	0.00	0.00	4,958.01	0.00	509.01	0.00	0.00	0.00	0.00	0.00
5,100.00	0.00	0.00	5,058.01	0.00	509.01	0.00	0.00	0.00	0.00	0.00
5,200.00	0.00	0.00	5,158.01	0.00	509.01	0.00	0.00	0.00	0.00	0.00
5,300.00	0.00	0.00	5,258.01	0.00	509.01	0.00	0.00	0.00	0.00	0.00
5,400.00	0.00	0.00	5,358.01	0.00	509.01	0.00	0.00	0.00	0.00	0.00
5,500.00	0.00	0.00	5,458.01	0.00	509.01	0.00	0.00	0.00	0.00	0.00
5,600.00	0.00	0.00	5,558.01	0.00	509.01	0.00	0.00	0.00	0.00	0.00
5,700.00	0.00	0.00	5,658.01	0.00	509.01	0.00	0.00	0.00	0.00	0.00
5,800.00	0.00	0.00	5,758.01	0.00	509.01	0.00	0.00	0.00	0.00	0.00
5,900.00	0.00	0.00	5,858.01	0.00	509.01	0.00	0.00	0.00	0.00	0.00
6,000.00	0.00	0.00	5,958.01	0.00	509.01	0.00	0.00	0.00	0.00	0.00
6,100.00	0.00	0.00	6,058.01	0.00	509.01	0.00	0.00	0.00	0.00	0.00
6,200.00	0.00	0.00	6,158.01	0.00	509.01	0.00	0.00	0.00	0.00	0.00
6,300.00	0.00	0.00	6,258.01	0.00	509.01	0.00	0.00	0.00	0.00	0.00
6,400.00	0.00	0.00	6,358.01	0.00	509.01	0.00	0.00	0.00	0.00	0.00
6,500.00	0.00	0.00	6,458.01	0.00	509.01	0.00	0.00	0.00	0.00	0.00
6,600.00	0.00	0.00	6,558.01	0.00	509.01	0.00	0.00	0.00	0.00	0.00
6,700.00	0.00	0.00	6,658.01	0.00	509.01	0.00	0.00	0.00	0.00	0.00
6,800.00	0.00	0.00	6,758.01	0.00	509.01	0.00	0.00	0.00	0.00	0.00
6,900.00	0.00	0.00	6,858.01	0.00	509.01	0.00	0.00	0.00	0.00	0.00
7,000.00	0.00	0.00	6,958.01	0.00	509.01	0.00	0.00	0.00	0.00	0.00
7,041.23	0.00	0.00	6,999.24	0.00	509.01	0.00	0.00	0.00	0.00	0.00
Top of 4.5 Liner @ 7041.23ft										
7,100.00	0.00	0.00	7,058.01	0.00	509.01	0.00	0.00	0.00	0.00	0.00
7,141.23	0.00	0.00	7,099.24	0.00	509.01	0.00	0.00	0.00	0.00	0.00
KOP @ 7141.23ft :: DLS = 10°/100'										
7,200.00	5.88	0.00	7,157.91	3.01	509.01	3.01	10.00	10.00	0.00	0.00
7,300.00	15.88	0.00	7,255.99	21.86	509.01	21.86	10.00	10.00	0.00	0.00
7,359.21	21.80	0.00	7,312.00	40.97	509.01	40.97	10.00	10.00	0.00	0.00
DLS = 6°/100'										
7,386.29	23.42	0.00	7,337.00	51.38	509.01	51.38	6.00	6.00	0.00	0.00
Sharon Springs										
7,400.00	24.25	0.00	7,349.54	56.92	509.01	56.92	6.00	6.00	0.00	0.00
7,449.36	27.21	0.00	7,394.00	78.34	509.01	78.34	6.00	6.00	0.00	0.00
DLS = 10°/100' - Niobrara A										
7,500.00	32.27	0.00	7,437.96	103.45	509.01	103.45	10.00	10.00	0.00	0.00
7,537.51	36.02	0.00	7,469.00	124.51	509.01	124.51	10.00	10.00	0.00	0.00
Niobrara B										
7,600.00	42.27	0.00	7,517.44	163.93	509.01	163.93	10.00	10.00	0.00	0.00
7,650.11	47.27	0.00	7,553.00	199.22	509.01	199.22	9.98	9.98	0.00	0.00
Niobrara C										
7,700.00	52.27	0.00	7,585.20	237.30	509.01	237.30	10.02	10.02	0.00	0.00
7,800.00	62.27	0.00	7,639.20	321.32	509.01	321.32	10.00	10.00	0.00	0.00
7,900.00	72.27	0.00	7,677.79	413.43	509.01	413.43	10.00	10.00	0.00	0.00
7,900.69	72.34	0.00	7,678.00	414.09	509.01	414.09	10.00	10.00	0.00	0.00
Fort Hays										
8,000.00	82.27	0.00	7,699.80	510.85	509.01	510.85	10.00	10.00	0.00	0.00
8,001.53	82.42	0.00	7,700.00	512.37	509.01	512.37	10.00	10.00	0.00	0.00

Plan Report for NRC 28C-32HZ - 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 (°)
Codell										
8,077.83	90.05	0.00	7,705.00	588.45	509.01	588.45	10.00	10.00	0.00	0.00
End Build @ 8077.83ft - Landing Target (Heel) - 7"										
8,100.00	90.05	0.00	7,704.98	610.62	509.01	610.62	0.00	0.00	0.00	0.00
8,200.00	90.05	0.00	7,704.89	710.62	509.02	710.62	0.00	0.00	0.00	0.00
8,300.00	90.05	0.00	7,704.79	810.62	509.02	810.62	0.00	0.00	0.00	0.00
8,400.00	90.05	0.00	7,704.70	910.62	509.02	910.62	0.00	0.00	0.00	0.00
8,500.00	90.05	0.00	7,704.61	1,010.62	509.02	1,010.62	0.00	0.00	0.00	0.00
8,600.00	90.05	0.00	7,704.51	1,110.62	509.02	1,110.62	0.00	0.00	0.00	0.00
8,700.00	90.05	0.00	7,704.42	1,210.62	509.02	1,210.62	0.00	0.00	0.00	0.00
8,800.00	90.05	0.00	7,704.32	1,310.62	509.02	1,310.62	0.00	0.00	0.00	0.00
8,900.00	90.05	0.00	7,704.23	1,410.62	509.02	1,410.62	0.00	0.00	0.00	0.00
9,000.00	90.05	0.00	7,704.14	1,510.62	509.02	1,510.62	0.00	0.00	0.00	0.00
9,100.00	90.05	0.00	7,704.04	1,610.62	509.03	1,610.62	0.00	0.00	0.00	0.00
9,200.00	90.05	0.00	7,703.95	1,710.62	509.03	1,710.62	0.00	0.00	0.00	0.00
9,300.00	90.05	0.00	7,703.86	1,810.62	509.03	1,810.62	0.00	0.00	0.00	0.00
9,400.00	90.05	0.00	7,703.76	1,910.62	509.03	1,910.62	0.00	0.00	0.00	0.00
9,500.00	90.05	0.00	7,703.67	2,010.62	509.03	2,010.62	0.00	0.00	0.00	0.00
9,600.00	90.05	0.00	7,703.57	2,110.62	509.03	2,110.62	0.00	0.00	0.00	0.00
9,700.00	90.05	0.00	7,703.48	2,210.62	509.03	2,210.62	0.00	0.00	0.00	0.00
9,800.00	90.05	0.00	7,703.39	2,310.62	509.03	2,310.62	0.00	0.00	0.00	0.00
9,900.00	90.05	0.00	7,703.29	2,410.62	509.03	2,410.62	0.00	0.00	0.00	0.00
10,000.00	90.05	0.00	7,703.20	2,510.62	509.04	2,510.62	0.00	0.00	0.00	0.00
10,100.00	90.05	0.00	7,703.11	2,610.62	509.04	2,610.62	0.00	0.00	0.00	0.00
10,200.00	90.05	0.00	7,703.01	2,710.62	509.04	2,710.62	0.00	0.00	0.00	0.00
10,300.00	90.05	0.00	7,702.92	2,810.62	509.04	2,810.62	0.00	0.00	0.00	0.00
10,400.00	90.05	0.00	7,702.83	2,910.62	509.04	2,910.62	0.00	0.00	0.00	0.00
10,500.00	90.05	0.00	7,702.73	3,010.62	509.04	3,010.62	0.00	0.00	0.00	0.00
10,600.00	90.05	0.00	7,702.64	3,110.62	509.04	3,110.62	0.00	0.00	0.00	0.00
10,700.00	90.05	0.00	7,702.54	3,210.62	509.04	3,210.62	0.00	0.00	0.00	0.00
10,800.00	90.05	0.00	7,702.45	3,310.62	509.05	3,310.62	0.00	0.00	0.00	0.00
10,900.00	90.05	0.00	7,702.36	3,410.62	509.05	3,410.62	0.00	0.00	0.00	0.00
11,000.00	90.05	0.00	7,702.26	3,510.62	509.05	3,510.62	0.00	0.00	0.00	0.00
11,100.00	90.05	0.00	7,702.17	3,610.62	509.05	3,610.62	0.00	0.00	0.00	0.00
11,200.00	90.05	0.00	7,702.08	3,710.62	509.05	3,710.62	0.00	0.00	0.00	0.00
11,300.00	90.05	0.00	7,701.98	3,810.62	509.05	3,810.62	0.00	0.00	0.00	0.00
11,400.00	90.05	0.00	7,701.89	3,910.62	509.05	3,910.62	0.00	0.00	0.00	0.00
11,500.00	90.05	0.00	7,701.79	4,010.62	509.05	4,010.62	0.00	0.00	0.00	0.00
11,600.00	90.05	0.00	7,701.70	4,110.62	509.05	4,110.62	0.00	0.00	0.00	0.00
11,700.00	90.05	0.00	7,701.61	4,210.62	509.06	4,210.62	0.00	0.00	0.00	0.00
11,800.00	90.05	0.00	7,701.51	4,310.62	509.06	4,310.62	0.00	0.00	0.00	0.00
11,900.00	90.05	0.00	7,701.42	4,410.62	509.06	4,410.62	0.00	0.00	0.00	0.00
12,000.00	90.05	0.00	7,701.33	4,510.62	509.06	4,510.62	0.00	0.00	0.00	0.00
12,100.00	90.05	0.00	7,701.23	4,610.62	509.06	4,610.62	0.00	0.00	0.00	0.00
12,200.00	90.05	0.00	7,701.14	4,710.62	509.06	4,710.62	0.00	0.00	0.00	0.00
12,300.00	90.05	0.00	7,701.04	4,810.62	509.06	4,810.62	0.00	0.00	0.00	0.00
12,400.00	90.05	0.00	7,700.95	4,910.62	509.06	4,910.62	0.00	0.00	0.00	0.00
12,500.00	90.05	0.00	7,700.86	5,010.62	509.06	5,010.62	0.00	0.00	0.00	0.00
12,600.00	90.05	0.00	7,700.76	5,110.62	509.07	5,110.62	0.00	0.00	0.00	0.00
12,700.00	90.05	0.00	7,700.67	5,210.62	509.07	5,210.62	0.00	0.00	0.00	0.00
12,800.00	90.05	0.00	7,700.58	5,310.62	509.07	5,310.62	0.00	0.00	0.00	0.00
12,900.00	90.05	0.00	7,700.48	5,410.62	509.07	5,410.62	0.00	0.00	0.00	0.00
13,000.00	90.05	0.00	7,700.39	5,510.62	509.07	5,510.62	0.00	0.00	0.00	0.00
13,100.00	90.05	0.00	7,700.30	5,610.62	509.07	5,610.62	0.00	0.00	0.00	0.00
13,200.00	90.05	0.00	7,700.20	5,710.62	509.07	5,710.62	0.00	0.00	0.00	0.00
13,300.00	90.05	0.00	7,700.11	5,810.62	509.07	5,810.62	0.00	0.00	0.00	0.00
13,400.00	90.05	0.00	7,700.01	5,910.62	509.07	5,910.62	0.00	0.00	0.00	0.00
13,500.00	90.05	0.00	7,699.92	6,010.62	509.08	6,010.62	0.00	0.00	0.00	0.00
13,600.00	90.05	0.00	7,699.83	6,110.62	509.08	6,110.62	0.00	0.00	0.00	0.00

Plan Report for NRC 28C-32HZ - 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 (°)
13,700.00	90.05	0.00	7,699.73	6,210.62	509.08	6,210.62	0.00	0.00	0.00	0.00
13,800.00	90.05	0.00	7,699.64	6,310.62	509.08	6,310.62	0.00	0.00	0.00	0.00
13,900.00	90.05	0.00	7,699.55	6,410.62	509.08	6,410.62	0.00	0.00	0.00	0.00
14,000.00	90.05	0.00	7,699.45	6,510.61	509.08	6,510.61	0.00	0.00	0.00	0.00
14,100.00	90.05	0.00	7,699.36	6,610.61	509.08	6,610.61	0.00	0.00	0.00	0.00
14,200.00	90.05	0.00	7,699.26	6,710.61	509.08	6,710.61	0.00	0.00	0.00	0.00
14,300.00	90.05	0.00	7,699.17	6,810.61	509.09	6,810.61	0.00	0.00	0.00	0.00
14,400.00	90.05	0.00	7,699.08	6,910.61	509.09	6,910.61	0.00	0.00	0.00	0.00
14,500.00	90.05	0.00	7,698.98	7,010.61	509.09	7,010.61	0.00	0.00	0.00	0.00
14,600.00	90.05	0.00	7,698.89	7,110.61	509.09	7,110.61	0.00	0.00	0.00	0.00
14,700.00	90.05	0.00	7,698.80	7,210.61	509.09	7,210.61	0.00	0.00	0.00	0.00
14,800.00	90.05	0.00	7,698.70	7,310.61	509.09	7,310.61	0.00	0.00	0.00	0.00
14,900.00	90.05	0.00	7,698.61	7,410.61	509.09	7,410.61	0.00	0.00	0.00	0.00
15,000.00	90.05	0.00	7,698.51	7,510.61	509.09	7,510.61	0.00	0.00	0.00	0.00
15,100.00	90.05	0.00	7,698.42	7,610.61	509.09	7,610.61	0.00	0.00	0.00	0.00
15,200.00	90.05	0.00	7,698.33	7,710.61	509.10	7,710.61	0.00	0.00	0.00	0.00
15,300.00	90.05	0.00	7,698.23	7,810.61	509.10	7,810.61	0.00	0.00	0.00	0.00
15,400.00	90.05	0.00	7,698.14	7,910.61	509.10	7,910.61	0.00	0.00	0.00	0.00
15,500.00	90.05	0.00	7,698.05	8,010.61	509.10	8,010.61	0.00	0.00	0.00	0.00
15,600.00	90.05	0.00	7,697.95	8,110.61	509.10	8,110.61	0.00	0.00	0.00	0.00
15,700.00	90.05	0.00	7,697.86	8,210.61	509.10	8,210.61	0.00	0.00	0.00	0.00
15,800.00	90.05	0.00	7,697.77	8,310.61	509.10	8,310.61	0.00	0.00	0.00	0.00
15,900.00	90.05	0.00	7,697.67	8,410.61	509.10	8,410.61	0.00	0.00	0.00	0.00
16,000.00	90.05	0.00	7,697.58	8,510.61	509.10	8,510.61	0.00	0.00	0.00	0.00
16,100.00	90.05	0.00	7,697.48	8,610.61	509.11	8,610.61	0.00	0.00	0.00	0.00
16,200.00	90.05	0.00	7,697.39	8,710.61	509.11	8,710.61	0.00	0.00	0.00	0.00
16,300.00	90.05	0.00	7,697.30	8,810.61	509.11	8,810.61	0.00	0.00	0.00	0.00
16,400.00	90.05	0.00	7,697.20	8,910.61	509.11	8,910.61	0.00	0.00	0.00	0.00
16,500.00	90.05	0.00	7,697.11	9,010.61	509.11	9,010.61	0.00	0.00	0.00	0.00
16,600.00	90.05	0.00	7,697.02	9,110.61	509.11	9,110.61	0.00	0.00	0.00	0.00
16,700.00	90.05	0.00	7,696.92	9,210.61	509.11	9,210.61	0.00	0.00	0.00	0.00
16,800.00	90.05	0.00	7,696.83	9,310.61	509.11	9,310.61	0.00	0.00	0.00	0.00
16,900.00	90.05	0.00	7,696.73	9,410.61	509.11	9,410.61	0.00	0.00	0.00	0.00
17,000.00	90.05	0.00	7,696.64	9,510.61	509.12	9,510.61	0.00	0.00	0.00	0.00
17,100.00	90.05	0.00	7,696.55	9,610.61	509.12	9,610.61	0.00	0.00	0.00	0.00
17,200.00	90.05	0.00	7,696.45	9,710.61	509.12	9,710.61	0.00	0.00	0.00	0.00
17,300.00	90.05	0.00	7,696.36	9,810.61	509.12	9,810.61	0.00	0.00	0.00	0.00
17,400.00	90.05	0.00	7,696.27	9,910.61	509.12	9,910.61	0.00	0.00	0.00	0.00
17,500.00	90.05	0.00	7,696.17	10,010.61	509.12	10,010.61	0.00	0.00	0.00	0.00
17,600.00	90.05	0.00	7,696.08	10,110.61	509.12	10,110.61	0.00	0.00	0.00	0.00
17,700.00	90.05	0.00	7,695.98	10,210.61	509.12	10,210.61	0.00	0.00	0.00	0.00
17,800.00	90.05	0.00	7,695.89	10,310.61	509.12	10,310.61	0.00	0.00	0.00	0.00
17,900.00	90.05	0.00	7,695.80	10,410.61	509.13	10,410.61	0.00	0.00	0.00	0.00
18,000.00	90.05	0.00	7,695.70	10,510.61	509.13	10,510.61	0.00	0.00	0.00	0.00
18,100.00	90.05	0.00	7,695.61	10,610.61	509.13	10,610.61	0.00	0.00	0.00	0.00
18,200.00	90.05	0.00	7,695.52	10,710.61	509.13	10,710.61	0.00	0.00	0.00	0.00
18,300.00	90.05	0.00	7,695.42	10,810.61	509.13	10,810.61	0.00	0.00	0.00	0.00
18,400.00	90.05	0.00	7,695.33	10,910.61	509.13	10,910.61	0.00	0.00	0.00	0.00
18,500.00	90.05	0.00	7,695.24	11,010.61	509.13	11,010.61	0.00	0.00	0.00	0.00
18,600.00	90.05	0.00	7,695.14	11,110.61	509.13	11,110.61	0.00	0.00	0.00	0.00
18,700.00	90.05	0.00	7,695.05	11,210.61	509.14	11,210.61	0.00	0.00	0.00	0.00
18,751.10	90.05	0.00	7,695.00	11,261.71	509.14	11,261.71	0.00	0.00	0.00	0.00

TD Well @ 18751.10ft - Total Depth (Toe) - NRC 28C-32HZ_BHL

Plan Report for NRC 28C-32HZ - Rev A0 Permit**Plan Annotations**

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
1,450.00	1,450.00	0.00	0.00	Begin Nudge @ 1450.00ft
1,950.00	1,947.47	0.00	43.52	End Nudge @ 1950.00ft
4,380.00	4,340.55	0.00	465.49	Begin Drop @ 4380.00ft
4,880.00	4,838.01	0.00	509.01	End Drop @ 4880.00ft
7,041.23	6,999.24	0.00	509.01	Top of 4.5 Liner @ 7041.23ft
7,141.23	7,099.24	0.00	509.01	KOP @ 7141.23ft :: DLS = 10°/100'
7,359.21	7,312.00	40.97	509.01	DLS = 6°/100'
7,449.36	7,394.00	78.34	509.01	DLS = 10°/100'
8,077.83	7,705.00	588.45	509.01	End Build @ 8077.83ft
18,751.10	7,695.00	11,261.71	509.14	TD Well @ 18751.10ft

Vertical Section Information

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

Survey tool program

From (usft)	To (usft)	Survey/Plan	Survey Tool
0.00	8,077.83	Rev A0 Permit	MWD
8,077.83	18,751.10	Rev A0 Permit	MWD

Casing Details

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
1,304.00	1,304.00	9 5/8"	9-5/8	13-1/2
8,077.83	7,705.00	7"	7	8-3/4

Formation Details

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,254.00	1,254.00	Fox Hills Marker		0.00	
4,270.79	4,233.00	Parkman		0.00	
4,609.59	4,568.00	Sussex		0.00	
7,386.29	7,337.00	Sharon Springs		0.00	
7,449.36	7,394.00	Niobrara A		0.00	
7,537.51	7,469.00	Niobrara B		0.00	
7,650.11	7,553.00	Niobrara C		0.00	
7,900.69	7,678.00	Fort Hays		0.00	
8,001.53	7,700.00	Codell		0.00	
8,077.83	7,705.00	Landing Target (Heel)		0.00	
18,751.10	7,695.00	Total Depth (Toe)		0.00	

Plan Report for NRC 28C-32HZ - Rev A0 Permit

Targets associated with this wellbore

Target Name	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Shape
NRC 28C-32HZ_SEC	0.00	0.00	0.00	Polygon
NRC 28C-32HZ_LD	0.00	0.00	0.00	Polygon
NRC 28C-32HZ_SHL	0.00	0.00	0.00	Point
NRC 28C-32HZ_BHL	7,695.00	11,261.71	509.14	Point

Directional Difficulty Index

Average Dogleg over Survey:	0.59 °/100usft	Maximum Dogleg over Survey:	10.00 °/100usft at 7,359.21 usft
Net Tortousity applicable to Plans:	0.59 °/100usft	Directional Difficulty Index:	6.745

Audit Info

North Reference Sheet for Sec. 8-T1N-R67W - NRC 28C-32HZ - 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' @ 5050.00usft (Drilling Rig). Northing and Easting are relative to NRC 28C-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° 0' 0.000 E°, Latitude Origin:40° 47' 0.000 N°
False Easting: 3,000,000.00usft, False Northing: 1,000,000.00usft, Scale Reduction: 0.99996173

Grid Coordinates of Well: 1,269,308.08 usft N, 3,163,349.35 usft E
Geographical Coordinates of Well: 40° 04' 16.19" N, 104° 54' 58.74" W
Grid Convergence at Surface is: 0.38°

Based upon Minimum Curvature type calculations, at a Measured Depth of 18,751.10usft
the Bottom Hole Displacement is 11,273.22usft in the Direction of 2.59° (True).

Magnetic Convergence at surface is: -8.23° (7 January 2014, , BGGM2013)

Magnetic Model: BGGM2013
Date: 07-Jan-14
Declination: 8.61°
Inclination/Dip: 66.66°
Field Strength: 52593

Grid North is 0.38° East of True North (Grid Convergence)
Magnetic North is 8.61° East of True North (Magnetic Declination)
Magnetic North is 8.23° 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 8.61° East
To convert a Magnetic Direction to a Grid Direction, Add 8.23°