

Anadarko Petroleum Corp.

Weld County, CO (NAD 83)

Sec. 8-T1N-R67W

NRC 3N-32HZ

Plan A

Plan: Rev A0 Permit

Sperry Drilling Services

Proposal Report

10 January, 2014

Well Coordinates: 1,269,307.88 N, 3,163,319.13 E (40° 04' 16.19" N, 104° 54' 59.13" W)

Ground Level: 5,034.00 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 3N-32HZ

RKB = 17' @ 5051.00usft (Drilling Rig)

N

True

API - US Survey Feet - Custom

HALLIBURTON

Project: Weld County, CO (NAD 83)
Site: Sec. 8-T1N-R67W
Well: NRC 3N-32HZ
Wellbore: Plan A
Design: Rev A0 Permit

Anadarko Petroleum Corp.

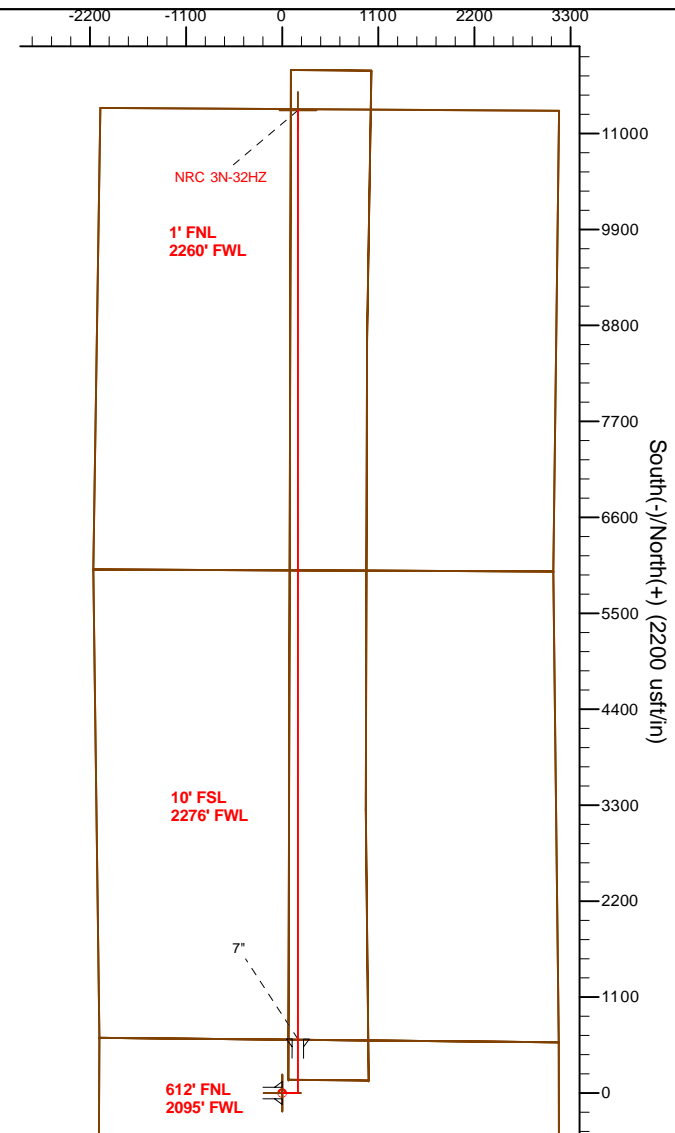
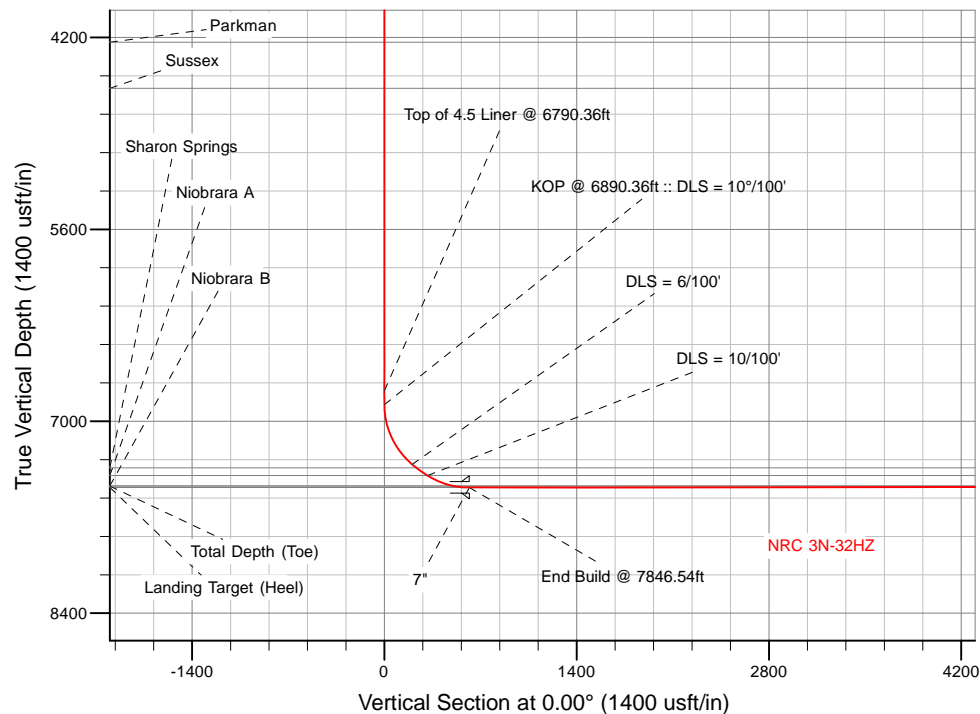
HALLIBURTON
Sperry Drilling

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	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	2480.00	10.00	90.00	2469.41	0.00	135.56	0.00	0.00	0.00	
5	2980.00	0.00	0.00	2966.88	0.00	179.08	2.00	180.00	0.00	
6	6890.36	0.00	0.00	6877.24	0.00	179.08	0.00	0.00	0.00	
7	7387.03	49.67	0.00	7314.00	202.12	179.08	10.00	0.00	202.12	
8	7526.12	58.01	0.00	7396.00	314.32	179.08	6.00	0.00	314.32	
9	7846.54	90.05	0.00	7483.00	618.38	179.09	10.00	0.01	618.38	
10	18494.25	90.05	0.00	7473.00	11266.08	179.60	0.00	0.00	11266.08	NRC 3N-32HZ_BHL

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Polygon
NRC 3N-32HZ_LD	0.00	0.00	0.00	40° 4' 16.194 N	104° 54' 59.126 W	Polygon
NRC 3N-32HZ_SEC	0.00	0.00	0.00	40° 4' 16.194 N	104° 54' 59.126 W	Polygon
NRC 3N-32HZ_SHL	0.00	0.00	0.00	40° 4' 16.194 N	104° 54' 59.126 W	Polygon
NRC 3N-32HZ_BHL	7473.00	11266.08	179.60	40° 6' 7.528 N	104° 54' 56.815 W	



WELL DETAILS: NRC 3N-32HZ		
Ground Level: 5034.00		
RKB = 17' @ 5051.00usft (Drilling Rig)		
Plan: Rev A0 Permit (NRC 3N-32HZ/Plan A)		
Created By: Clint Eshelman		Date: 1/10/2013
Reviewed: _____		Date: _____
TVD	MD	
6777.24	6790.36	Top of 4.5 Liner @ 6790.36ft
6877.24	6890.36	KOP @ 6890.36ft :: DLS = 10°/100'

Plan Report for NRC 3N-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 3N-32HZ_SHL - NRC 3N-32HZ_LD - NRC 3N-32HZ_SEC										
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
1,450.00	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
2,480.00	10.00	90.00	2,469.41	0.00	135.56	0.00	0.00	0.00	0.00	0.00
Begin Drop @ 2480.00ft										
2,500.00	9.60	90.00	2,489.12	0.00	138.96	0.00	2.00	-2.00	0.00	180.00
2,600.00	7.60	90.00	2,587.99	0.00	153.91	0.00	2.00	-2.00	0.00	180.00
2,700.00	5.60	90.00	2,687.32	0.00	165.41	0.00	2.00	-2.00	0.00	180.00
2,800.00	3.60	90.00	2,787.00	0.00	173.43	0.00	2.00	-2.00	0.00	180.00
2,900.00	1.60	90.00	2,886.89	0.00	177.96	0.00	2.00	-2.00	0.00	180.00
2,980.00	0.00	0.00	2,966.88	0.00	179.08	0.00	2.00	-2.00	0.00	-180.00
End Drop @ 2980.00ft										
3,000.00	0.00	0.00	2,986.88	0.00	179.08	0.00	0.00	0.00	0.00	0.00
3,100.00	0.00	0.00	3,086.88	0.00	179.08	0.00	0.00	0.00	0.00	0.00
3,200.00	0.00	0.00	3,186.88	0.00	179.08	0.00	0.00	0.00	0.00	0.00
3,300.00	0.00	0.00	3,286.88	0.00	179.08	0.00	0.00	0.00	0.00	0.00
3,400.00	0.00	0.00	3,386.88	0.00	179.08	0.00	0.00	0.00	0.00	0.00
3,500.00	0.00	0.00	3,486.88	0.00	179.08	0.00	0.00	0.00	0.00	0.00
3,600.00	0.00	0.00	3,586.88	0.00	179.08	0.00	0.00	0.00	0.00	0.00
3,700.00	0.00	0.00	3,686.88	0.00	179.08	0.00	0.00	0.00	0.00	0.00
3,800.00	0.00	0.00	3,786.88	0.00	179.08	0.00	0.00	0.00	0.00	0.00
3,900.00	0.00	0.00	3,886.88	0.00	179.08	0.00	0.00	0.00	0.00	0.00
4,000.00	0.00	0.00	3,986.88	0.00	179.08	0.00	0.00	0.00	0.00	0.00
4,100.00	0.00	0.00	4,086.88	0.00	179.08	0.00	0.00	0.00	0.00	0.00
4,200.00	0.00	0.00	4,186.88	0.00	179.08	0.00	0.00	0.00	0.00	0.00
4,248.12	0.00	0.00	4,235.00	0.00	179.08	0.00	0.00	0.00	0.00	0.00
Parkman										

Plan Report for NRC 3N-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 (°)
4,300.00	0.00	0.00	4,286.88	0.00	179.08	0.00	0.00	0.00	0.00	0.00
4,400.00	0.00	0.00	4,386.88	0.00	179.08	0.00	0.00	0.00	0.00	0.00
4,500.00	0.00	0.00	4,486.88	0.00	179.08	0.00	0.00	0.00	0.00	0.00
4,583.12	0.00	0.00	4,570.00	0.00	179.08	0.00	0.00	0.00	0.00	0.00
Sussex										
4,600.00	0.00	0.00	4,586.88	0.00	179.08	0.00	0.00	0.00	0.00	0.00
4,700.00	0.00	0.00	4,686.88	0.00	179.08	0.00	0.00	0.00	0.00	0.00
4,800.00	0.00	0.00	4,786.88	0.00	179.08	0.00	0.00	0.00	0.00	0.00
4,900.00	0.00	0.00	4,886.88	0.00	179.08	0.00	0.00	0.00	0.00	0.00
5,000.00	0.00	0.00	4,986.88	0.00	179.08	0.00	0.00	0.00	0.00	0.00
5,100.00	0.00	0.00	5,086.88	0.00	179.08	0.00	0.00	0.00	0.00	0.00
5,200.00	0.00	0.00	5,186.88	0.00	179.08	0.00	0.00	0.00	0.00	0.00
5,300.00	0.00	0.00	5,286.88	0.00	179.08	0.00	0.00	0.00	0.00	0.00
5,400.00	0.00	0.00	5,386.88	0.00	179.08	0.00	0.00	0.00	0.00	0.00
5,500.00	0.00	0.00	5,486.88	0.00	179.08	0.00	0.00	0.00	0.00	0.00
5,600.00	0.00	0.00	5,586.88	0.00	179.08	0.00	0.00	0.00	0.00	0.00
5,700.00	0.00	0.00	5,686.88	0.00	179.08	0.00	0.00	0.00	0.00	0.00
5,800.00	0.00	0.00	5,786.88	0.00	179.08	0.00	0.00	0.00	0.00	0.00
5,900.00	0.00	0.00	5,886.88	0.00	179.08	0.00	0.00	0.00	0.00	0.00
6,000.00	0.00	0.00	5,986.88	0.00	179.08	0.00	0.00	0.00	0.00	0.00
6,100.00	0.00	0.00	6,086.88	0.00	179.08	0.00	0.00	0.00	0.00	0.00
6,200.00	0.00	0.00	6,186.88	0.00	179.08	0.00	0.00	0.00	0.00	0.00
6,300.00	0.00	0.00	6,286.88	0.00	179.08	0.00	0.00	0.00	0.00	0.00
6,400.00	0.00	0.00	6,386.88	0.00	179.08	0.00	0.00	0.00	0.00	0.00
6,500.00	0.00	0.00	6,486.88	0.00	179.08	0.00	0.00	0.00	0.00	0.00
6,600.00	0.00	0.00	6,586.88	0.00	179.08	0.00	0.00	0.00	0.00	0.00
6,700.00	0.00	0.00	6,686.88	0.00	179.08	0.00	0.00	0.00	0.00	0.00
6,790.36	0.00	0.00	6,777.24	0.00	179.08	0.00	0.00	0.00	0.00	0.00
Top of 4.5 Liner @ 6790.36ft										
6,800.00	0.00	0.00	6,786.88	0.00	179.08	0.00	0.00	0.00	0.00	0.00
6,890.36	0.00	0.00	6,877.24	0.00	179.08	0.00	0.00	0.00	0.00	0.00
KOP @ 6890.36ft :: DLS = 10°/100'										
6,900.00	0.96	0.00	6,886.88	0.08	179.08	0.08	10.00	10.00	0.00	0.00
7,000.00	10.96	0.00	6,986.21	10.46	179.08	10.46	10.00	10.00	0.00	0.00
7,100.00	20.96	0.00	7,082.23	37.93	179.08	37.93	10.00	10.00	0.00	0.00
7,200.00	30.96	0.00	7,172.03	81.65	179.08	81.65	10.00	10.00	0.00	0.00
7,300.00	40.96	0.00	7,252.86	140.30	179.08	140.30	10.00	10.00	0.00	0.00
7,387.03	49.67	0.00	7,314.00	202.12	179.08	202.12	10.00	10.00	0.00	0.00
DLS = 6°/100'										
7,400.00	50.45	0.00	7,322.33	212.07	179.08	212.07	6.00	6.00	0.00	0.00
7,426.63	52.04	0.00	7,339.00	232.83	179.08	232.83	6.00	6.00	0.00	0.00
Sharon Springs										
7,500.00	56.45	0.00	7,381.86	292.36	179.08	292.36	6.00	6.00	0.00	0.00
7,526.12	58.01	0.00	7,396.00	314.32	179.08	314.32	6.00	6.00	0.00	0.00
DLS = 10°/100' - Niobrara A										
7,600.00	65.40	0.00	7,430.99	379.33	179.08	379.33	10.00	10.00	0.00	0.01
7,700.00	75.40	0.00	7,464.50	473.42	179.08	473.42	10.00	10.00	0.00	0.00
7,728.54	78.25	0.00	7,471.00	501.21	179.08	501.21	10.00	10.00	0.00	0.00
Niobrara B										
7,800.00	85.40	0.00	7,481.15	571.89	179.08	571.89	10.00	10.00	0.00	0.00
7,846.54	90.05	0.00	7,483.00	618.38	179.09	618.38	10.00	10.00	0.00	0.00
End Build @ 7846.54ft - Landing Target (Heel) - 7"										
7,900.00	90.05	0.00	7,482.95	671.84	179.09	671.84	0.00	0.00	0.00	0.00
8,000.00	90.05	0.00	7,482.85	771.84	179.09	771.84	0.00	0.00	0.00	0.00
8,100.00	90.05	0.00	7,482.76	871.84	179.10	871.84	0.00	0.00	0.00	0.00
8,200.00	90.05	0.00	7,482.66	971.84	179.10	971.84	0.00	0.00	0.00	0.00
8,300.00	90.05	0.00	7,482.57	1,071.84	179.11	1,071.84	0.00	0.00	0.00	0.00
8,400.00	90.05	0.00	7,482.48	1,171.84	179.11	1,171.84	0.00	0.00	0.00	0.00

Plan Report for NRC 3N-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 (°)
8,500.00	90.05	0.00	7,482.38	1,271.84	179.12	1,271.84	0.00	0.00	0.00	0.00
8,600.00	90.05	0.00	7,482.29	1,371.84	179.12	1,371.84	0.00	0.00	0.00	0.00
8,700.00	90.05	0.00	7,482.20	1,471.84	179.13	1,471.84	0.00	0.00	0.00	0.00
8,800.00	90.05	0.00	7,482.10	1,571.84	179.13	1,571.84	0.00	0.00	0.00	0.00
8,900.00	90.05	0.00	7,482.01	1,671.84	179.14	1,671.84	0.00	0.00	0.00	0.00
9,000.00	90.05	0.00	7,481.91	1,771.84	179.14	1,771.84	0.00	0.00	0.00	0.00
9,100.00	90.05	0.00	7,481.82	1,871.84	179.15	1,871.84	0.00	0.00	0.00	0.00
9,200.00	90.05	0.00	7,481.73	1,971.84	179.15	1,971.84	0.00	0.00	0.00	0.00
9,300.00	90.05	0.00	7,481.63	2,071.84	179.16	2,071.84	0.00	0.00	0.00	0.00
9,400.00	90.05	0.00	7,481.54	2,171.84	179.16	2,171.84	0.00	0.00	0.00	0.00
9,500.00	90.05	0.00	7,481.44	2,271.84	179.17	2,271.84	0.00	0.00	0.00	0.00
9,600.00	90.05	0.00	7,481.35	2,371.84	179.17	2,371.84	0.00	0.00	0.00	0.00
9,700.00	90.05	0.00	7,481.26	2,471.84	179.18	2,471.84	0.00	0.00	0.00	0.00
9,800.00	90.05	0.00	7,481.16	2,571.84	179.18	2,571.84	0.00	0.00	0.00	0.00
9,900.00	90.05	0.00	7,481.07	2,671.84	179.18	2,671.84	0.00	0.00	0.00	0.00
10,000.00	90.05	0.00	7,480.97	2,771.84	179.19	2,771.84	0.00	0.00	0.00	0.00
10,100.00	90.05	0.00	7,480.88	2,871.84	179.19	2,871.84	0.00	0.00	0.00	0.00
10,200.00	90.05	0.00	7,480.79	2,971.84	179.20	2,971.84	0.00	0.00	0.00	0.00
10,300.00	90.05	0.00	7,480.69	3,071.84	179.20	3,071.84	0.00	0.00	0.00	0.00
10,400.00	90.05	0.00	7,480.60	3,171.84	179.21	3,171.84	0.00	0.00	0.00	0.00
10,500.00	90.05	0.00	7,480.51	3,271.84	179.21	3,271.84	0.00	0.00	0.00	0.00
10,600.00	90.05	0.00	7,480.41	3,371.84	179.22	3,371.84	0.00	0.00	0.00	0.00
10,700.00	90.05	0.00	7,480.32	3,471.84	179.22	3,471.84	0.00	0.00	0.00	0.00
10,800.00	90.05	0.00	7,480.22	3,571.84	179.23	3,571.84	0.00	0.00	0.00	0.00
10,900.00	90.05	0.00	7,480.13	3,671.84	179.23	3,671.84	0.00	0.00	0.00	0.00
11,000.00	90.05	0.00	7,480.04	3,771.84	179.24	3,771.84	0.00	0.00	0.00	0.00
11,100.00	90.05	0.00	7,479.94	3,871.84	179.24	3,871.84	0.00	0.00	0.00	0.00
11,200.00	90.05	0.00	7,479.85	3,971.84	179.25	3,971.84	0.00	0.00	0.00	0.00
11,300.00	90.05	0.00	7,479.75	4,071.84	179.25	4,071.84	0.00	0.00	0.00	0.00
11,400.00	90.05	0.00	7,479.66	4,171.84	179.26	4,171.84	0.00	0.00	0.00	0.00
11,500.00	90.05	0.00	7,479.57	4,271.84	179.26	4,271.84	0.00	0.00	0.00	0.00
11,600.00	90.05	0.00	7,479.47	4,371.84	179.27	4,371.84	0.00	0.00	0.00	0.00
11,700.00	90.05	0.00	7,479.38	4,471.84	179.27	4,471.84	0.00	0.00	0.00	0.00
11,800.00	90.05	0.00	7,479.28	4,571.84	179.28	4,571.84	0.00	0.00	0.00	0.00
11,900.00	90.05	0.00	7,479.19	4,671.84	179.28	4,671.84	0.00	0.00	0.00	0.00
12,000.00	90.05	0.00	7,479.10	4,771.84	179.29	4,771.84	0.00	0.00	0.00	0.00
12,100.00	90.05	0.00	7,479.00	4,871.84	179.29	4,871.84	0.00	0.00	0.00	0.00
12,200.00	90.05	0.00	7,478.91	4,971.84	179.29	4,971.84	0.00	0.00	0.00	0.00
12,300.00	90.05	0.00	7,478.82	5,071.84	179.30	5,071.84	0.00	0.00	0.00	0.00
12,400.00	90.05	0.00	7,478.72	5,171.84	179.30	5,171.84	0.00	0.00	0.00	0.00
12,500.00	90.05	0.00	7,478.63	5,271.84	179.31	5,271.84	0.00	0.00	0.00	0.00
12,600.00	90.05	0.00	7,478.53	5,371.84	179.31	5,371.84	0.00	0.00	0.00	0.00
12,700.00	90.05	0.00	7,478.44	5,471.84	179.32	5,471.84	0.00	0.00	0.00	0.00
12,800.00	90.05	0.00	7,478.35	5,571.84	179.32	5,571.84	0.00	0.00	0.00	0.00
12,900.00	90.05	0.00	7,478.25	5,671.84	179.33	5,671.84	0.00	0.00	0.00	0.00
13,000.00	90.05	0.00	7,478.16	5,771.84	179.33	5,771.84	0.00	0.00	0.00	0.00
13,100.00	90.05	0.00	7,478.06	5,871.84	179.34	5,871.84	0.00	0.00	0.00	0.00
13,200.00	90.05	0.00	7,477.97	5,971.84	179.34	5,971.84	0.00	0.00	0.00	0.00
13,300.00	90.05	0.00	7,477.88	6,071.84	179.35	6,071.84	0.00	0.00	0.00	0.00
13,400.00	90.05	0.00	7,477.78	6,171.84	179.35	6,171.84	0.00	0.00	0.00	0.00
13,500.00	90.05	0.00	7,477.69	6,271.84	179.36	6,271.84	0.00	0.00	0.00	0.00
13,600.00	90.05	0.00	7,477.59	6,371.84	179.36	6,371.84	0.00	0.00	0.00	0.00
13,700.00	90.05	0.00	7,477.50	6,471.84	179.37	6,471.84	0.00	0.00	0.00	0.00
13,800.00	90.05	0.00	7,477.41	6,571.84	179.37	6,571.84	0.00	0.00	0.00	0.00
13,900.00	90.05	0.00	7,477.31	6,671.84	179.38	6,671.84	0.00	0.00	0.00	0.00
14,000.00	90.05	0.00	7,477.22	6,771.84	179.38	6,771.84	0.00	0.00	0.00	0.00
14,100.00	90.05	0.00	7,477.13	6,871.84	179.39	6,871.84	0.00	0.00	0.00	0.00
14,200.00	90.05	0.00	7,477.03	6,971.84	179.39	6,971.84	0.00	0.00	0.00	0.00
14,300.00	90.05	0.00	7,476.94	7,071.84	179.40	7,071.84	0.00	0.00	0.00	0.00
14,400.00	90.05	0.00	7,476.84	7,171.84	179.40	7,171.84	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 (°)
14,500.00	90.05	0.00	7,476.75	7,271.84	179.41	7,271.84	0.00	0.00	0.00	0.00
14,600.00	90.05	0.00	7,476.66	7,371.84	179.41	7,371.84	0.00	0.00	0.00	0.00
14,700.00	90.05	0.00	7,476.56	7,471.84	179.41	7,471.84	0.00	0.00	0.00	0.00
14,800.00	90.05	0.00	7,476.47	7,571.84	179.42	7,571.84	0.00	0.00	0.00	0.00
14,900.00	90.05	0.00	7,476.37	7,671.84	179.42	7,671.84	0.00	0.00	0.00	0.00
15,000.00	90.05	0.00	7,476.28	7,771.84	179.43	7,771.84	0.00	0.00	0.00	0.00
15,100.00	90.05	0.00	7,476.19	7,871.84	179.43	7,871.84	0.00	0.00	0.00	0.00
15,200.00	90.05	0.00	7,476.09	7,971.84	179.44	7,971.84	0.00	0.00	0.00	0.00
15,300.00	90.05	0.00	7,476.00	8,071.84	179.44	8,071.84	0.00	0.00	0.00	0.00
15,400.00	90.05	0.00	7,475.90	8,171.84	179.45	8,171.84	0.00	0.00	0.00	0.00
15,500.00	90.05	0.00	7,475.81	8,271.84	179.45	8,271.84	0.00	0.00	0.00	0.00
15,600.00	90.05	0.00	7,475.72	8,371.84	179.46	8,371.84	0.00	0.00	0.00	0.00
15,700.00	90.05	0.00	7,475.62	8,471.84	179.46	8,471.84	0.00	0.00	0.00	0.00
15,800.00	90.05	0.00	7,475.53	8,571.84	179.47	8,571.84	0.00	0.00	0.00	0.00
15,900.00	90.05	0.00	7,475.44	8,671.84	179.47	8,671.84	0.00	0.00	0.00	0.00
16,000.00	90.05	0.00	7,475.34	8,771.84	179.48	8,771.84	0.00	0.00	0.00	0.00
16,100.00	90.05	0.00	7,475.25	8,871.84	179.48	8,871.84	0.00	0.00	0.00	0.00
16,200.00	90.05	0.00	7,475.15	8,971.84	179.49	8,971.84	0.00	0.00	0.00	0.00
16,300.00	90.05	0.00	7,475.06	9,071.84	179.49	9,071.84	0.00	0.00	0.00	0.00
16,400.00	90.05	0.00	7,474.97	9,171.84	179.50	9,171.84	0.00	0.00	0.00	0.00
16,500.00	90.05	0.00	7,474.87	9,271.84	179.50	9,271.84	0.00	0.00	0.00	0.00
16,600.00	90.05	0.00	7,474.78	9,371.84	179.51	9,371.84	0.00	0.00	0.00	0.00
16,700.00	90.05	0.00	7,474.68	9,471.84	179.51	9,471.84	0.00	0.00	0.00	0.00
16,800.00	90.05	0.00	7,474.59	9,571.84	179.52	9,571.84	0.00	0.00	0.00	0.00
16,900.00	90.05	0.00	7,474.50	9,671.84	179.52	9,671.84	0.00	0.00	0.00	0.00
17,000.00	90.05	0.00	7,474.40	9,771.84	179.52	9,771.84	0.00	0.00	0.00	0.00
17,100.00	90.05	0.00	7,474.31	9,871.84	179.53	9,871.84	0.00	0.00	0.00	0.00
17,200.00	90.05	0.00	7,474.22	9,971.84	179.53	9,971.84	0.00	0.00	0.00	0.00
17,300.00	90.05	0.00	7,474.12	10,071.84	179.54	10,071.84	0.00	0.00	0.00	0.00
17,400.00	90.05	0.00	7,474.03	10,171.84	179.54	10,171.84	0.00	0.00	0.00	0.00
17,500.00	90.05	0.00	7,473.93	10,271.84	179.55	10,271.84	0.00	0.00	0.00	0.00
17,600.00	90.05	0.00	7,473.84	10,371.84	179.55	10,371.84	0.00	0.00	0.00	0.00
17,700.00	90.05	0.00	7,473.75	10,471.84	179.56	10,471.84	0.00	0.00	0.00	0.00
17,800.00	90.05	0.00	7,473.65	10,571.84	179.56	10,571.84	0.00	0.00	0.00	0.00
17,900.00	90.05	0.00	7,473.56	10,671.84	179.57	10,671.84	0.00	0.00	0.00	0.00
18,000.00	90.05	0.00	7,473.46	10,771.84	179.57	10,771.84	0.00	0.00	0.00	0.00
18,100.00	90.05	0.00	7,473.37	10,871.84	179.58	10,871.84	0.00	0.00	0.00	0.00
18,200.00	90.05	0.00	7,473.28	10,971.84	179.58	10,971.84	0.00	0.00	0.00	0.00
18,300.00	90.05	0.00	7,473.18	11,071.84	179.59	11,071.84	0.00	0.00	0.00	0.00
18,400.00	90.05	0.00	7,473.09	11,171.84	179.59	11,171.84	0.00	0.00	0.00	0.00
18,494.24	90.05	0.00	7,473.00	11,266.08	179.60	11,266.08	0.00	0.00	0.00	0.00
Total Depth (Toe)										
18,494.25	90.05	0.00	7,473.00	11,266.08	179.60	11,266.08	0.01	0.00	0.00	0.00
TD Well @ 18494.25ft - NRC 3N-32HZ_BHL										

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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
2,480.00	2,469.41	0.00	135.56	Begin Drop @ 2480.00ft
2,980.00	2,966.88	0.00	179.08	End Drop @ 2980.00ft
6,790.36	6,777.24	0.00	179.08	Top of 4.5 Liner @ 6790.36ft
6,890.36	6,877.24	0.00	179.08	KOP @ 6890.36ft :: DLS = 10"/100'
7,387.03	7,314.00	202.12	179.08	DLS = 6/100'
7,526.12	7,396.00	314.32	179.08	DLS = 10/100'
7,846.54	7,483.00	618.38	179.09	End Build @ 7846.54ft
18,494.25	7,473.00	11,266.08	179.60	TD Well @ 18494.25ft

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	7,846.54	Rev A0 Permit	MWD
7,846.54	18,494.25	Rev A0 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
7,846.54	7,483.00	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	
4,248.12	4,235.00	Parkman		0.00	
4,583.12	4,570.00	Sussex		0.00	
7,426.63	7,339.00	Sharon Springs		0.00	
7,526.12	7,396.00	Niobrara A		0.00	
7,728.54	7,471.00	Niobrara B		0.00	
7,846.54	7,483.00	Landing Target (Heel)		0.00	
18,494.24	7,473.00	Total Depth (Toe)		0.00	

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Targets associated with this wellbore

Target Name	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Shape
NRC 3N-32HZ_SHL	0.00	0.00	0.00	Point
NRC 3N-32HZ_LD	0.00	0.00	0.00	Polygon
NRC 3N-32HZ_SEC	0.00	0.00	0.00	Polygon
NRC 3N-32HZ_BHL	7,473.00	11,266.08	179.60	Point

Directional Difficulty Index

Average Dogleg over Survey:	0.60 °/100usft	Maximum Dogleg over Survey:	10.00 °/100usft at 7,387.03 usft
Net Tortousity applicable to Plans:	0.60 °/100usft	Directional Difficulty Index:	6.596

Audit Info

North Reference Sheet for Sec. 8-T1N-R67W - NRC 3N-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' @ 5051.00usft (Drilling Rig). Northing and Easting are relative to NRC 3N-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: 1,269,307.88 usft N, 3,163,319.13 usft E
Geographical Coordinates of Well: 40° 04' 16.19" N, 104° 54' 59.13" W
Grid Convergence at Surface is: 0.38°

Based upon Minimum Curvature type calculations, at a Measured Depth of 18,494.25usft
the Bottom Hole Displacement is 11,267.51usft in the Direction of 0.91° (True).

Magnetic Convergence at surface is: -8.24° (7 January 2014, , BGGM2013)

