

# Anadarko Petroleum Corp.

Weld County, CO (NAD 83)

Sec. 8-T2N-R66W

Kunzman 4N-5HZ

Plan D 0

Plan: Plan D 0-Permit

## Sperry Drilling Services

## Proposal Report

05 June, 2013

Well Coordinates: 1,301,807.30 N, 3,194,499.05 E (40° 09' 35.14" N, 104° 48' 14.77" W)

Ground Level: 4,858.00 ft

Local Coordinate Origin:

Centered on Well Kunzman 4N-5HZ

Viewing Datum:

RKB @ 17' @ 4875.00ft (Drilling Rig)

TVDs to System:

N

North Reference:

True

Unit System:

API - US Survey Feet - Custom

Geodetic Scale Factor Applied

Version: 2003.16 Build: 43I

**HALLIBURTON**

Project: Weld County, CO (NAD 83)  
 Site: Sec. 8-T2N-R66W  
 Well: Kunzman 4N-5HZ  
 Wellbore: Plan D 0  
 Design: Plan D 0-Permit



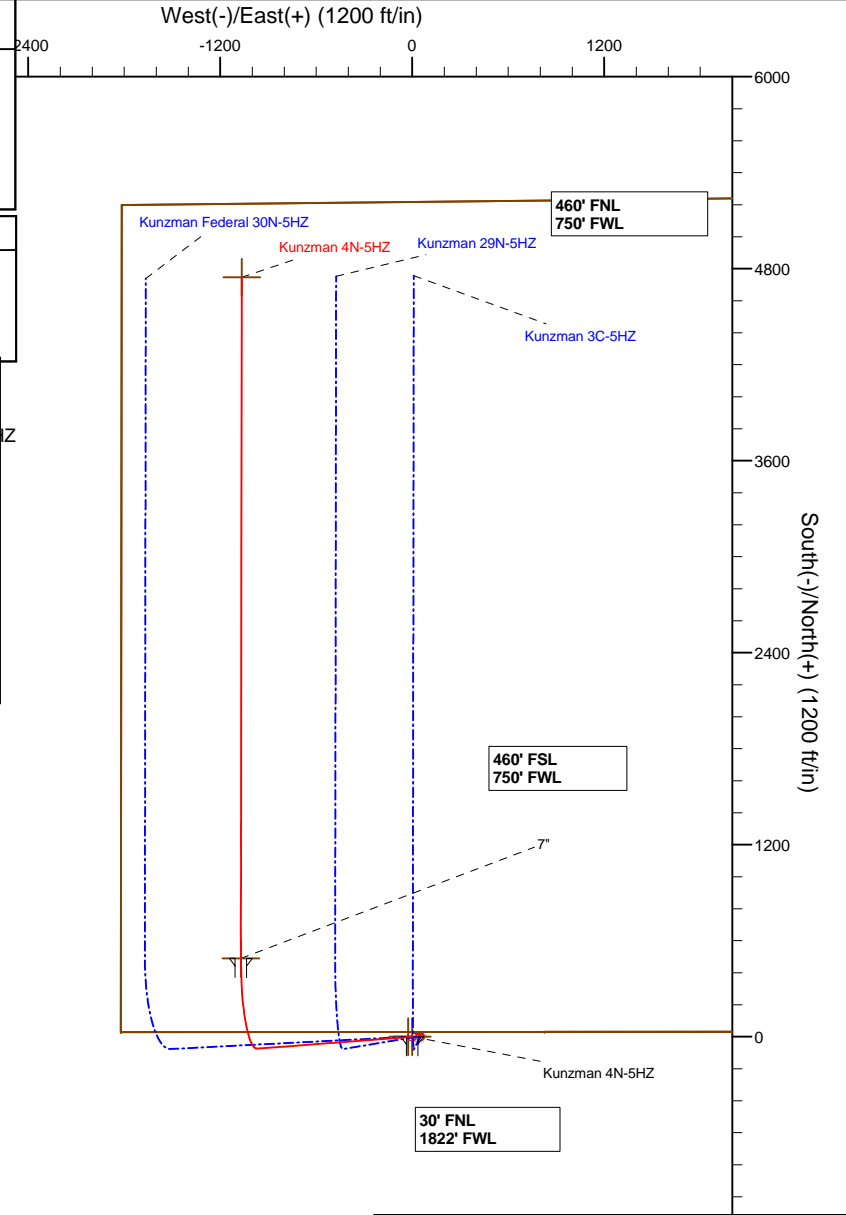
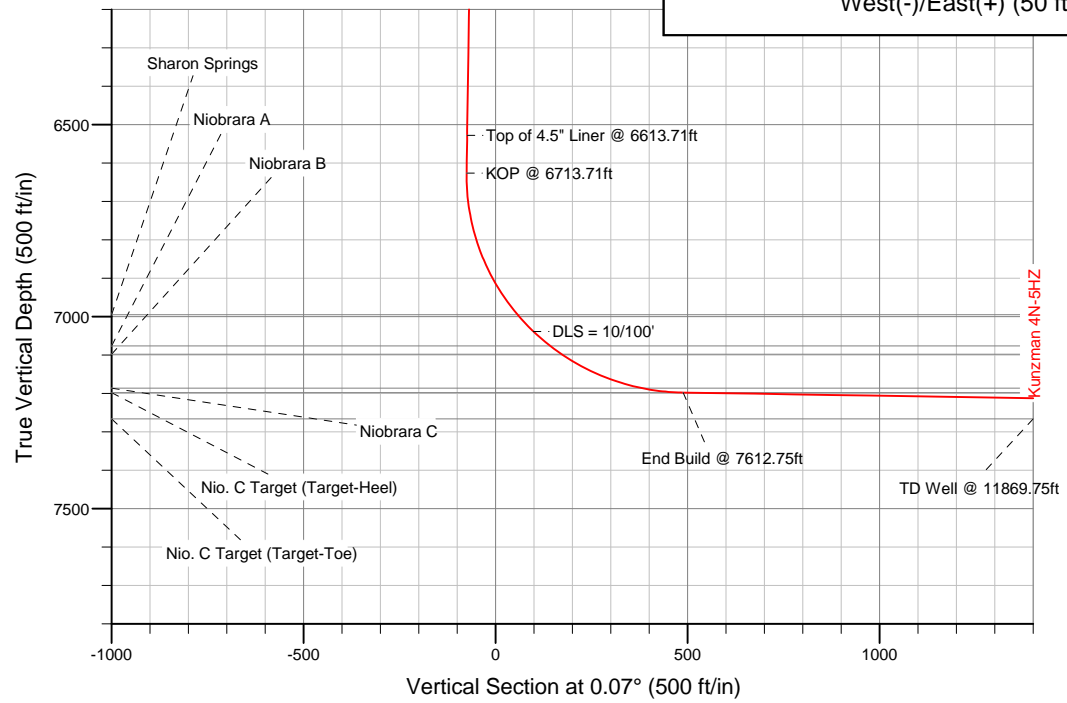
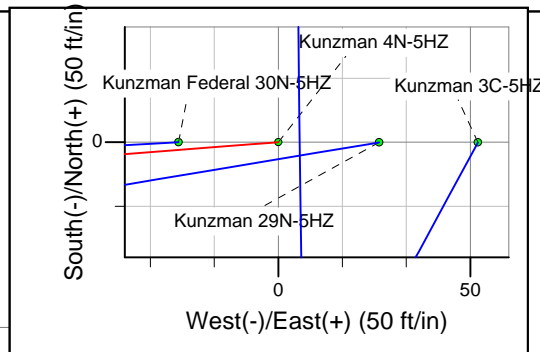
### SECTION DETAILS

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	1622.56	10.45	265.63	1619.67	-3.62	-47.39	2.00	265.63	-3.68	
4	6713.71	10.45	265.63	6626.35	-74.02	-968.23	0.00	0.00	-75.21	
5	7612.75	89.08	0.07	7198.00	490.00	-1071.00	10.00	94.53	488.69	Kunzman 4N-5HZ_CP
6	11869.75	89.08	0.07	7266.00	4746.45	-1065.84	0.00	0.00	4745.15	Kunzman 4N-5HZ_BHL

### WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
Kunzman 4N-5HZ_SHL	0.00	0.00	0.00	40.159761	-104.804104	Point
Kunzman_SEC	0.00	0.00	-25.99	40.159761	-104.804197	Polygon
Kunzman 4N-5HZ_CP	7198.00	490.00	-1071.00	40.161106	-104.807936	Point
Kunzman 4N-5HZ_BHL	7266.00	4746.45	-1065.84	40.172790	-104.807918	Point

MD	TVD	
6613.71	6528.01	Top of 4.5" Liner @ 6613.71ft
6713.71	6626.35	KOP @ 6713.71ft



WELL DETAILS: Kunzman 4N-5HZ	
Ground Level:	4858.00
RKB @ 17' @ 4875.00ft (Drilling Rig)	
Plan: Plan D 0-Permit (Kunzman 4N-5HZ/Plan D 0)	
Created By: Fred Hartmann Date: 06/05/2013	

**Plan Report for Kunzman 4N-5HZ - Plan D 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
<b>9 5/8"</b>										
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	265.63	1,199.98	-0.13	-1.74	-0.14	2.00	2.00	0.00	265.63
1,300.00	4.00	265.63	1,299.84	-0.53	-6.96	-0.54	2.00	2.00	0.00	0.00
1,400.00	6.00	265.63	1,399.45	-1.20	-15.65	-1.22	2.00	2.00	0.00	0.00
1,500.00	8.00	265.63	1,498.70	-2.13	-27.80	-2.16	2.00	2.00	0.00	0.00
1,600.00	10.00	265.63	1,597.47	-3.32	-43.40	-3.37	2.00	2.00	0.00	0.00
1,622.56	10.45	265.63	1,619.67	-3.62	-47.39	-3.68	2.00	2.00	0.00	0.00
<b>End Nudge @ 1622.56ft</b>										
1,700.00	10.45	265.63	1,695.82	-4.69	-61.40	-4.77	0.00	0.00	0.00	0.00
1,800.00	10.45	265.63	1,794.16	-6.08	-79.48	-6.17	0.00	0.00	0.00	0.00
1,900.00	10.45	265.63	1,892.50	-7.46	-97.57	-7.58	0.00	0.00	0.00	0.00
2,000.00	10.45	265.63	1,990.85	-8.84	-115.66	-8.98	0.00	0.00	0.00	0.00
2,100.00	10.45	265.63	2,089.19	-10.22	-133.74	-10.39	0.00	0.00	0.00	0.00
2,200.00	10.45	265.63	2,187.53	-11.61	-151.83	-11.79	0.00	0.00	0.00	0.00
2,300.00	10.45	265.63	2,285.87	-12.99	-169.92	-13.20	0.00	0.00	0.00	0.00
2,400.00	10.45	265.63	2,384.21	-14.37	-188.01	-14.60	0.00	0.00	0.00	0.00
2,500.00	10.45	265.63	2,482.55	-15.76	-206.09	-16.01	0.00	0.00	0.00	0.00
2,600.00	10.45	265.63	2,580.89	-17.14	-224.18	-17.41	0.00	0.00	0.00	0.00
2,700.00	10.45	265.63	2,679.23	-18.52	-242.27	-18.82	0.00	0.00	0.00	0.00
2,800.00	10.45	265.63	2,777.57	-19.90	-260.35	-20.22	0.00	0.00	0.00	0.00
2,900.00	10.45	265.63	2,875.91	-21.29	-278.44	-21.63	0.00	0.00	0.00	0.00
3,000.00	10.45	265.63	2,974.25	-22.67	-296.53	-23.03	0.00	0.00	0.00	0.00
3,100.00	10.45	265.63	3,072.60	-24.05	-314.62	-24.44	0.00	0.00	0.00	0.00
3,200.00	10.45	265.63	3,170.94	-25.44	-332.70	-25.84	0.00	0.00	0.00	0.00
3,300.00	10.45	265.63	3,269.28	-26.82	-350.79	-27.25	0.00	0.00	0.00	0.00
3,400.00	10.45	265.63	3,367.62	-28.20	-368.88	-28.65	0.00	0.00	0.00	0.00
3,500.00	10.45	265.63	3,465.96	-29.58	-386.97	-30.06	0.00	0.00	0.00	0.00
3,600.00	10.45	265.63	3,564.30	-30.97	-405.05	-31.46	0.00	0.00	0.00	0.00
3,700.00	10.45	265.63	3,662.64	-32.35	-423.14	-32.87	0.00	0.00	0.00	0.00
3,800.00	10.45	265.63	3,760.98	-33.73	-441.23	-34.27	0.00	0.00	0.00	0.00
3,900.00	10.45	265.63	3,859.32	-35.12	-459.31	-35.68	0.00	0.00	0.00	0.00
3,965.77	10.45	265.63	3,924.00	-36.02	-471.21	-36.60	0.00	0.00	0.00	0.00
<b>Parkman</b>										
4,000.00	10.45	265.63	3,957.66	-36.50	-477.40	-37.08	0.00	0.00	0.00	0.00
4,100.00	10.45	265.63	4,056.00	-37.88	-495.49	-38.49	0.00	0.00	0.00	0.00
4,200.00	10.45	265.63	4,154.35	-39.26	-513.58	-39.89	0.00	0.00	0.00	0.00
4,300.00	10.45	265.63	4,252.69	-40.65	-531.66	-41.30	0.00	0.00	0.00	0.00
4,372.52	10.45	265.63	4,324.00	-41.65	-544.78	-42.31	0.00	0.00	0.00	0.00
<b>Sussex</b>										
4,400.00	10.45	265.63	4,351.03	-42.03	-549.75	-42.70	0.00	0.00	0.00	0.00
4,500.00	10.45	265.63	4,449.37	-43.41	-567.84	-44.11	0.00	0.00	0.00	0.00
4,600.00	10.45	265.63	4,547.71	-44.79	-585.92	-45.51	0.00	0.00	0.00	0.00
4,700.00	10.45	265.63	4,646.05	-46.18	-604.01	-46.92	0.00	0.00	0.00	0.00
4,800.00	10.45	265.63	4,744.39	-47.56	-622.10	-48.32	0.00	0.00	0.00	0.00
4,900.00	10.45	265.63	4,842.73	-48.94	-640.19	-49.72	0.00	0.00	0.00	0.00

**Plan Report for Kunzman 4N-5HZ - Plan D 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 (°)
5,000.00	10.45	265.63	4,941.07	-50.33	-658.27	-51.13	0.00	0.00	0.00	0.00
5,100.00	10.45	265.63	5,039.41	-51.71	-676.36	-52.53	0.00	0.00	0.00	0.00
5,200.00	10.45	265.63	5,137.76	-53.09	-694.45	-53.94	0.00	0.00	0.00	0.00
5,300.00	10.45	265.63	5,236.10	-54.47	-712.53	-55.34	0.00	0.00	0.00	0.00
5,400.00	10.45	265.63	5,334.44	-55.86	-730.62	-56.75	0.00	0.00	0.00	0.00
5,500.00	10.45	265.63	5,432.78	-57.24	-748.71	-58.15	0.00	0.00	0.00	0.00
5,600.00	10.45	265.63	5,531.12	-58.62	-766.80	-59.56	0.00	0.00	0.00	0.00
5,700.00	10.45	265.63	5,629.46	-60.01	-784.88	-60.96	0.00	0.00	0.00	0.00
5,800.00	10.45	265.63	5,727.80	-61.39	-802.97	-62.37	0.00	0.00	0.00	0.00
5,900.00	10.45	265.63	5,826.14	-62.77	-821.06	-63.77	0.00	0.00	0.00	0.00
6,000.00	10.45	265.63	5,924.48	-64.15	-839.14	-65.18	0.00	0.00	0.00	0.00
6,100.00	10.45	265.63	6,022.82	-65.54	-857.23	-66.58	0.00	0.00	0.00	0.00
6,200.00	10.45	265.63	6,121.16	-66.92	-875.32	-67.99	0.00	0.00	0.00	0.00
6,300.00	10.45	265.63	6,219.51	-68.30	-893.41	-69.39	0.00	0.00	0.00	0.00
6,400.00	10.45	265.63	6,317.85	-69.68	-911.49	-70.80	0.00	0.00	0.00	0.00
6,500.00	10.45	265.63	6,416.19	-71.07	-929.58	-72.20	0.00	0.00	0.00	0.00
6,600.00	10.45	265.63	6,514.53	-72.45	-947.67	-73.61	0.00	0.00	0.00	0.00
6,613.71	10.45	265.63	6,528.01	-72.64	-950.15	-73.80	0.00	0.00	0.00	0.00
<b>Top of 4.5" Liner @ 6613.71ft</b>										
6,700.00	10.45	265.63	6,612.87	-73.83	-965.75	-75.01	0.00	0.00	0.00	0.00
6,713.71	10.45	265.63	6,626.35	-74.02	-968.23	-75.21	0.00	0.00	0.00	0.00
<b>KOP @ 6713.71ft</b>										
6,800.00	12.99	307.36	6,710.98	-68.73	-983.77	-69.93	10.00	2.94	48.36	94.53
6,900.00	20.53	330.84	6,806.77	-46.54	-1,001.29	-47.76	10.00	7.55	23.48	53.59
7,000.00	29.54	341.30	6,897.33	-7.77	-1,017.78	-9.02	10.00	9.00	10.46	31.03
7,100.00	39.00	347.11	6,979.90	46.38	-1,032.74	45.12	10.00	9.46	5.81	21.52
7,119.70	40.89	347.98	6,995.00	58.73	-1,035.46	57.47	10.00	9.59	4.39	16.70
<b>Sharon Springs</b>										
7,180.00	46.71	350.26	7,038.51	99.70	-1,043.29	98.42	10.00	9.65	3.79	16.04
<b>DLS = 10/100'</b>										
7,200.00	48.65	350.92	7,051.98	114.29	-1,045.71	113.01	10.00	9.70	3.31	14.39
7,237.76	52.32	352.07	7,076.00	143.09	-1,050.01	141.81	10.00	9.72	3.04	13.94
<b>Niobrara A</b>										
7,275.33	55.98	353.11	7,098.00	173.28	-1,053.93	171.99	10.00	9.75	2.76	13.21
<b>Niobrara B</b>										
7,300.00	58.39	353.74	7,111.37	193.88	-1,056.30	192.59	10.00	9.77	2.56	12.60
7,400.00	68.18	356.02	7,156.28	282.74	-1,064.19	281.43	10.00	9.79	2.28	12.26
7,500.00	78.00	358.00	7,185.34	378.16	-1,069.14	376.85	10.00	9.82	1.98	11.23
7,503.24	78.32	358.06	7,186.00	381.33	-1,069.24	380.02	10.00	9.83	1.89	10.65
<b>Niobrara C</b>										
7,600.00	87.83	359.84	7,197.66	477.25	-1,070.99	475.94	10.00	9.83	1.84	10.64
7,612.75	89.08	0.07	7,198.00	490.00	-1,071.00	488.69	10.00	9.83	1.81	10.43
<b>End Build @ 7612.75ft - Nio. C Target (Target-Heel) - 7" - Kunzman 4N-5HZ_CP</b>										
7,700.00	89.08	0.07	7,199.39	577.24	-1,070.89	575.93	0.00	0.00	0.00	10.42
7,800.00	89.08	0.07	7,200.99	677.22	-1,070.77	675.92	0.00	0.00	0.00	0.00
7,900.00	89.08	0.07	7,202.59	777.21	-1,070.65	775.90	0.00	0.00	0.00	0.00
8,000.00	89.08	0.07	7,204.19	877.20	-1,070.53	875.89	0.00	0.00	0.00	0.00
8,100.00	89.08	0.07	7,205.78	977.19	-1,070.41	975.88	0.00	0.00	0.00	0.00
8,200.00	89.08	0.07	7,207.38	1,077.17	-1,070.29	1,075.86	0.00	0.00	0.00	0.00
8,300.00	89.08	0.07	7,208.98	1,177.16	-1,070.17	1,175.85	0.00	0.00	0.00	0.00
8,400.00	89.08	0.07	7,210.58	1,277.15	-1,070.05	1,275.84	0.00	0.00	0.00	0.00
8,500.00	89.08	0.07	7,212.17	1,377.13	-1,069.93	1,375.83	0.00	0.00	0.00	0.00
8,600.00	89.08	0.07	7,213.77	1,477.12	-1,069.80	1,475.81	0.00	0.00	0.00	0.00
8,700.00	89.08	0.07	7,215.37	1,577.11	-1,069.68	1,575.80	0.00	0.00	0.00	0.00
8,800.00	89.08	0.07	7,216.96	1,677.10	-1,069.56	1,675.79	0.00	0.00	0.00	0.00
8,900.00	89.08	0.07	7,218.56	1,777.08	-1,069.44	1,775.77	0.00	0.00	0.00	0.00
9,000.00	89.08	0.07	7,220.16	1,877.07	-1,069.32	1,875.76	0.00	0.00	0.00	0.00
9,100.00	89.08	0.07	7,221.76	1,977.06	-1,069.20	1,975.75	0.00	0.00	0.00	0.00
9,200.00	89.08	0.07	7,223.35	2,077.04	-1,069.08	2,075.74	0.00	0.00	0.00	0.00

**Plan Report for Kunzman 4N-5HZ - Plan D 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 (°)
9,300.00	89.08	0.07	7,224.95	2,177.03	-1,068.96	2,175.72	0.00	0.00	0.00	0.00
9,400.00	89.08	0.07	7,226.55	2,277.02	-1,068.83	2,275.71	0.00	0.00	0.00	0.00
9,500.00	89.08	0.07	7,228.15	2,377.01	-1,068.71	2,375.70	0.00	0.00	0.00	0.00
9,600.00	89.08	0.07	7,229.74	2,476.99	-1,068.59	2,475.69	0.00	0.00	0.00	0.00
9,700.00	89.08	0.07	7,231.34	2,576.98	-1,068.47	2,575.67	0.00	0.00	0.00	0.00
9,800.00	89.08	0.07	7,232.94	2,676.97	-1,068.35	2,675.66	0.00	0.00	0.00	0.00
9,900.00	89.08	0.07	7,234.54	2,776.95	-1,068.23	2,775.65	0.00	0.00	0.00	0.00
10,000.00	89.08	0.07	7,236.13	2,876.94	-1,068.11	2,875.63	0.00	0.00	0.00	0.00
10,100.00	89.08	0.07	7,237.73	2,976.93	-1,067.99	2,975.62	0.00	0.00	0.00	0.00
10,200.00	89.08	0.07	7,239.33	3,076.92	-1,067.87	3,075.61	0.00	0.00	0.00	0.00
10,300.00	89.08	0.07	7,240.93	3,176.90	-1,067.74	3,175.60	0.00	0.00	0.00	0.00
10,400.00	89.08	0.07	7,242.52	3,276.89	-1,067.62	3,275.58	0.00	0.00	0.00	0.00
10,500.00	89.08	0.07	7,244.12	3,376.88	-1,067.50	3,375.57	0.00	0.00	0.00	0.00
10,600.00	89.08	0.07	7,245.72	3,476.86	-1,067.38	3,475.56	0.00	0.00	0.00	0.00
10,700.00	89.08	0.07	7,247.31	3,576.85	-1,067.26	3,575.55	0.00	0.00	0.00	0.00
10,800.00	89.08	0.07	7,248.91	3,676.84	-1,067.14	3,675.53	0.00	0.00	0.00	0.00
10,900.00	89.08	0.07	7,250.51	3,776.83	-1,067.02	3,775.52	0.00	0.00	0.00	0.00
11,000.00	89.08	0.07	7,252.11	3,876.81	-1,066.90	3,875.51	0.00	0.00	0.00	0.00
11,100.00	89.08	0.07	7,253.70	3,976.80	-1,066.78	3,975.49	0.00	0.00	0.00	0.00
11,200.00	89.08	0.07	7,255.30	4,076.79	-1,066.65	4,075.48	0.00	0.00	0.00	0.00
11,300.00	89.08	0.07	7,256.90	4,176.77	-1,066.53	4,175.47	0.00	0.00	0.00	0.00
11,400.00	89.08	0.07	7,258.50	4,276.76	-1,066.41	4,275.46	0.00	0.00	0.00	0.00
11,500.00	89.08	0.07	7,260.09	4,376.75	-1,066.29	4,375.44	0.00	0.00	0.00	0.00
11,600.00	89.08	0.07	7,261.69	4,476.74	-1,066.17	4,475.43	0.00	0.00	0.00	0.00
11,700.00	89.08	0.07	7,263.29	4,576.72	-1,066.05	4,575.42	0.00	0.00	0.00	0.00
11,800.00	89.08	0.07	7,264.89	4,676.71	-1,065.93	4,675.40	0.00	0.00	0.00	0.00
11,869.75	89.08	0.07	7,266.00	4,746.45	-1,065.84	4,745.15	0.00	0.00	0.00	0.00

Nio. C Target (Target-Toe) - Kunzman 4N-5HZ\_BHL

**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
1,622.56	1,619.67	-3.62	-47.39	End Nudge @ 1622.56ft
6,613.71	6,528.01	-72.64	-950.15	Top of 4.5" Liner @ 6613.71ft
6,713.71	6,626.35	-74.02	-968.23	KOP @ 6713.71ft
7,180.00	7,038.51	99.70	-1,043.29	DLS = 10/100'
7,612.75	7,198.00	490.00	-1,071.00	End Build @ 7612.75ft
11,869.75	7,266.00	4,746.45	-1,065.84	TD Well @ 11869.75ft

**Vertical Section Information**

Angle Type	Target	Azimuth (°)	Origin Type	Origin		Start TVD (ft)
				+N/-S (ft)	+E/-W (ft)	
User	No Target (Freehand)	0.07	Slot	0.00	0.00	0.00

**Survey tool program**

From (ft)	To (ft)	Survey/Plan	Survey Tool
0.00	11,869.75	Plan D 0-Permit	MWD

**Plan Report for Kunzman 4N-5HZ - Plan D 0-Permit****Casing Details**

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
800.00	800.00	9 5/8"	9-5/8	13-1/2
7,612.75	7,198.00	7"	7	8-3/4

**Formation Details**

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,965.77	3,924.00	Parkman		0.00	
4,372.52	4,324.00	Sussex		0.00	
7,119.70	6,995.00	Sharon Springs		0.00	
7,237.76	7,076.00	Niobrara A		0.00	
7,275.33	7,098.00	Niobrara B		0.00	
7,503.24	7,186.00	Niobrara C		0.00	
7,612.75	7,198.00	Nio. C Target (Target-Heel)		0.00	
11,869.75	7,266.00	Nio. C Target (Target-Toe)		0.00	

***Targets associated with this wellbore***

Target Name	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Shape
Kunzman 4N-5HZ_SHL	0.00	0.00	0.00	Point
Kunzman_SEC	0.00	0.00	-25.99	Polygon
Kunzman 4N-5HZ_CP	7,198.00	490.00	-1,071.00	Point
Kunzman 4N-5HZ_BHL	7,266.00	4,746.45	-1,065.84	Point

## North Reference Sheet for Sec. 8-T2N-R66W - Kunzman 4N-5HZ - Plan D 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 @ 17' @ 4875.00ft (Drilling Rig). Northing and Easting are relative to Kunzman 4N-5HZ

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: 0.99995810

Grid Coordinates of Well: 1,301,807.30 ft N, 3,194,499.05 ft E

Geographical Coordinates of Well: 40° 09' 35.14" N, 104° 48' 14.77" W

Grid Convergence at Surface is: 0.45°

Based upon Minimum Curvature type calculations, at a Measured Depth of 11,869.75ft  
the Bottom Hole Displacement is 4,864.65ft in the Direction of 347.34° (True).

Magnetic Convergence at surface is: -8.18° ( 4 June 2013, , BGGM2013)

