

# Anadarko Petroleum Corp.

Weld County, CO (NAD 83)

Sec. 14-T3N-R66W

Ferge 3N-14HZ

Plan C Rev 0

Plan: Plan C Rev 0 Permit

## Sperry Drilling Services

## Proposal Report

24 September, 2012

Well Coordinates: 1,323,360.69 N, 3,209,539.75 E (40° 13' 06.92" N, 104° 44' 58.70" W)

Ground Level: 4,914.00 ft

Local Coordinate Origin:

Centered on Well Ferge 3N-14HZ

Viewing Datum:

RKB=17 @ 4931.00ft (Drilling Rig)

TVDs to System:

N

North Reference:

True

Unit System:

API - US Survey Feet - Custom

Geodetic Scale Factor Applied

Version: 2003.16 Build: 431

**HALLIBURTON**

Project: Weld County, CO (NAD 83)  
Site: Sec. 14-T3N-R66W  
Well: Ferge 3N-14HZ  
Wellbore: Plan C Rev 0  
Design: Plan C Rev 0 Permit

# Anadarko Petroleum Corp.

**HALLIBURTON**  
Sperry Drilling

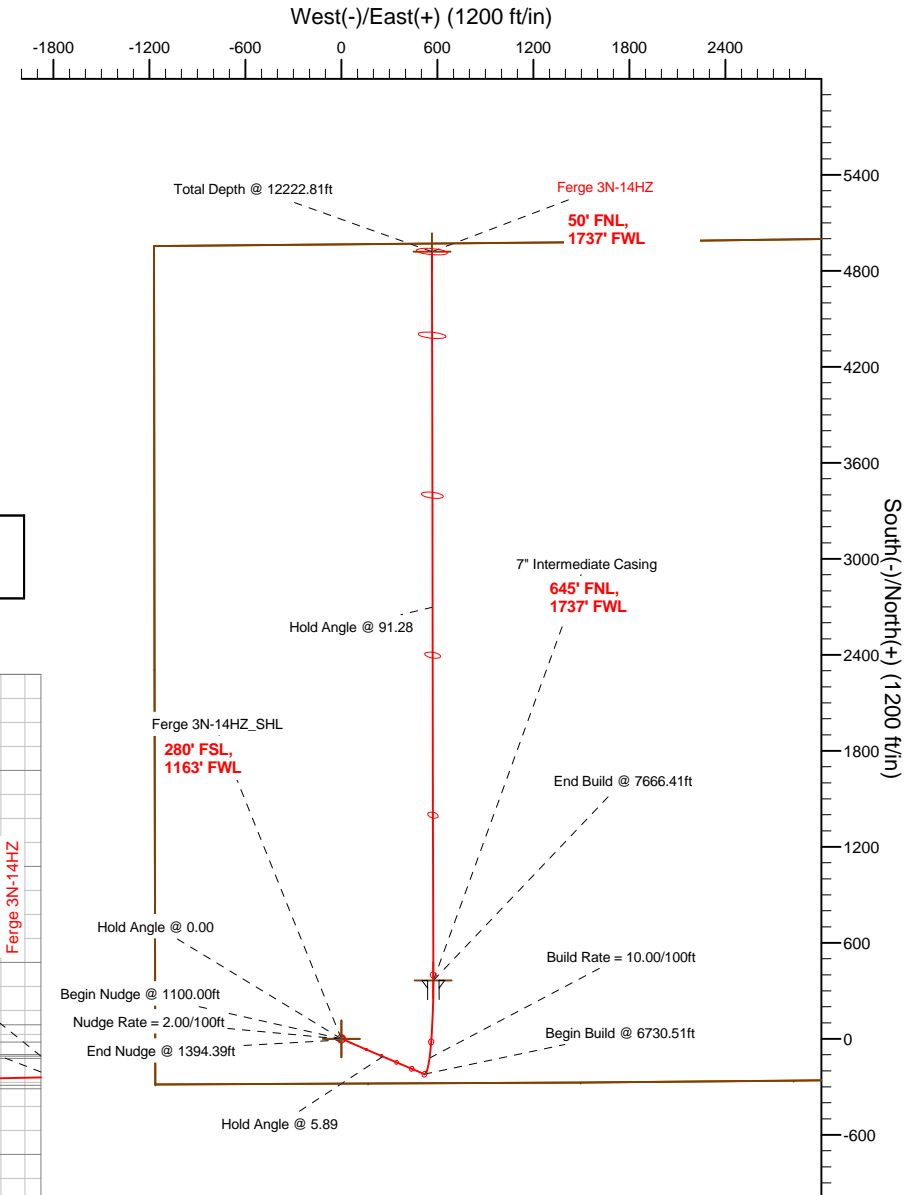
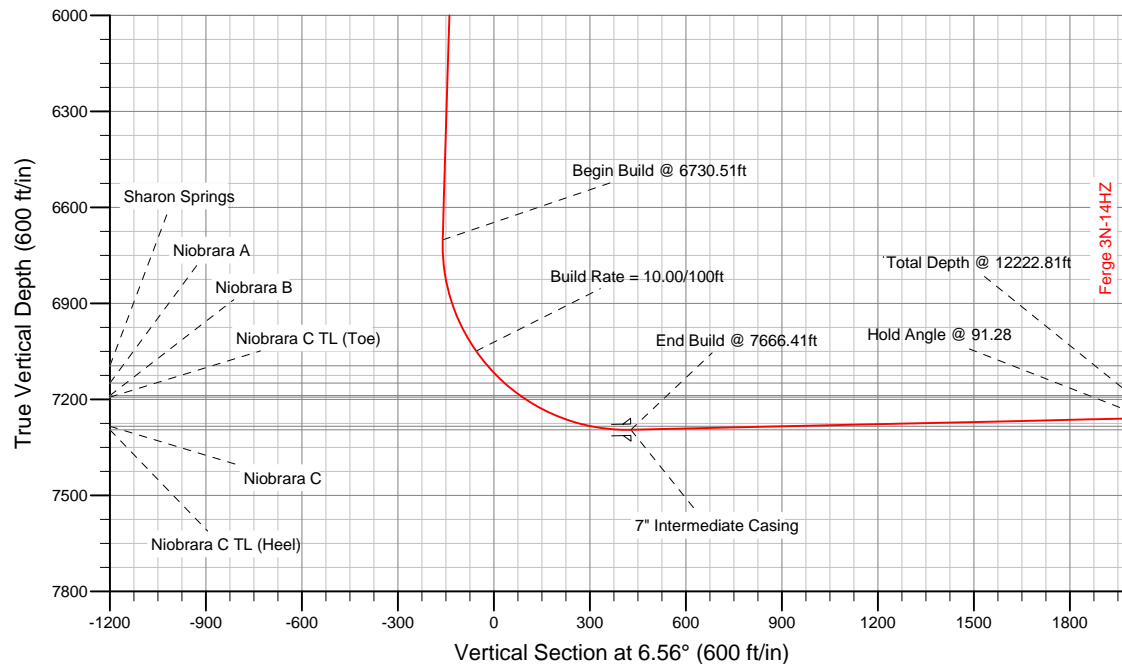
## SECTION DETAILS

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	1394.39	5.89	113.06	1393.87	-5.92	13.90	2.00	113.06	-4.29	
4	6730.51	5.89	113.06	6701.84	-220.36	517.54	0.00	0.00	-159.81	
5	7666.41	91.28	359.90	7295.00	365.00	574.00	10.00	-112.94	428.17	Ferge 3N-14HZ_Casing Point
6	12222.81	91.28	359.90	7193.00	4920.25	565.68	0.00	0.00	4952.66	Ferge 3N-14HZ_BHL

## WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
Ferge 3N-14HZ_Section Lines	0.00	0.00	0.00	40.218589	-104.749640	Polygon
Ferge 3N-14HZ_SHL	0.00	0.00	0.00	40.218589	-104.749640	Point
Ferge 3N-14HZ_BHL	7193.00	4920.25	565.68	40.232095	-104.747614	Point
Ferge 3N-14HZ_Casing Point	7295.00	365.00	574.00	40.219591	-104.747585	Point

**Target Line:**  
**7303.66' TVDkb @ 0° VS Drilling 91.28°**



## WELL DETAILS: Ferge 3N-14HZ

Ground Level: 4914.00 RKB=17 @ 4931.00ft (Drilling Rig)

Plan: Plan C Rev 0 Permit (Ferge 3N-14HZ/Plan C Rev 0)

Created By: Fred Hartmann Date: 09/21/2012  
Reviewed: \_\_\_\_\_ Date: \_\_\_\_\_

**Plan Report for Ferge 3N-14HZ - Plan C Rev 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
<b>Ferge 3N-14HZ_SHL - Ferge 3N-14HZ_Section Lines</b>										
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
<b>Hold Angle @ 0.00</b>										
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
701.00	0.00	0.00	701.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Fox Hills</b>										
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
<b>Begin Nudge @ 1100.00ft</b>										
1,200.00	2.00	113.06	1,199.98	-0.68	1.61	-0.50	2.00	2.00	0.00	113.06
<b>Nudge Rate = 2.00/100ft</b>										
1,300.00	4.00	113.06	1,299.84	-2.73	6.42	-1.98	2.00	2.00	0.00	0.00
1,394.39	5.89	113.06	1,393.87	-5.92	13.90	-4.29	2.00	2.00	0.00	0.00
<b>End Nudge @ 1394.39ft</b>										
1,400.00	5.89	113.06	1,399.45	-6.15	14.43	-4.46	0.00	0.00	0.00	0.00
1,500.00	5.89	113.06	1,498.93	-10.16	23.87	-7.37	0.00	0.00	0.00	0.00
1,600.00	5.89	113.06	1,598.40	-14.18	33.31	-10.29	0.00	0.00	0.00	0.00
1,700.00	5.89	113.06	1,697.87	-18.20	42.75	-13.20	0.00	0.00	0.00	0.00
1,800.00	5.89	113.06	1,797.34	-22.22	52.19	-16.11	0.00	0.00	0.00	0.00
1,900.00	5.89	113.06	1,896.81	-26.24	61.63	-19.03	0.00	0.00	0.00	0.00
2,000.00	5.89	113.06	1,996.29	-30.26	71.06	-21.94	0.00	0.00	0.00	0.00
2,100.00	5.89	113.06	2,095.76	-34.28	80.50	-24.86	0.00	0.00	0.00	0.00
2,200.00	5.89	113.06	2,195.23	-38.30	89.94	-27.77	0.00	0.00	0.00	0.00
2,300.00	5.89	113.06	2,294.70	-42.31	99.38	-30.69	0.00	0.00	0.00	0.00
2,400.00	5.89	113.06	2,394.18	-46.33	108.82	-33.60	0.00	0.00	0.00	0.00
2,500.00	5.89	113.06	2,493.65	-50.35	118.25	-36.52	0.00	0.00	0.00	0.00
2,600.00	5.89	113.06	2,593.12	-54.37	127.69	-39.43	0.00	0.00	0.00	0.00
2,700.00	5.89	113.06	2,692.59	-58.39	137.13	-42.34	0.00	0.00	0.00	0.00
2,800.00	5.89	113.06	2,792.07	-62.41	146.57	-45.26	0.00	0.00	0.00	0.00
2,900.00	5.89	113.06	2,891.54	-66.43	156.01	-48.17	0.00	0.00	0.00	0.00
3,000.00	5.89	113.06	2,991.01	-70.44	165.45	-51.09	0.00	0.00	0.00	0.00
3,100.00	5.89	113.06	3,090.48	-74.46	174.88	-54.00	0.00	0.00	0.00	0.00
3,200.00	5.89	113.06	3,189.96	-78.48	184.32	-56.92	0.00	0.00	0.00	0.00
3,300.00	5.89	113.06	3,289.43	-82.50	193.76	-59.83	0.00	0.00	0.00	0.00
3,400.00	5.89	113.06	3,388.90	-86.52	203.20	-62.74	0.00	0.00	0.00	0.00
3,500.00	5.89	113.06	3,488.37	-90.54	212.64	-65.66	0.00	0.00	0.00	0.00
3,600.00	5.89	113.06	3,587.85	-94.56	222.07	-68.57	0.00	0.00	0.00	0.00
3,700.00	5.89	113.06	3,687.32	-98.58	231.51	-71.49	0.00	0.00	0.00	0.00
3,800.00	5.89	113.06	3,786.79	-102.59	240.95	-74.40	0.00	0.00	0.00	0.00
3,900.00	5.89	113.06	3,886.26	-106.61	250.39	-77.32	0.00	0.00	0.00	0.00
3,996.24	5.89	113.06	3,982.00	-110.48	259.47	-80.12	0.00	0.00	0.00	0.00
<b>Parkman</b>										
4,000.00	5.89	113.06	3,985.74	-110.63	259.83	-80.23	0.00	0.00	0.00	0.00
<b>Hold Angle @ 5.89</b>										
4,100.00	5.89	113.06	4,085.21	-114.65	269.27	-83.15	0.00	0.00	0.00	0.00
4,200.00	5.89	113.06	4,184.68	-118.67	278.70	-86.06	0.00	0.00	0.00	0.00
4,300.00	5.89	113.06	4,284.15	-122.69	288.14	-88.97	0.00	0.00	0.00	0.00
4,400.00	5.89	113.06	4,383.63	-126.71	297.58	-91.89	0.00	0.00	0.00	0.00
4,500.00	5.89	113.06	4,483.10	-130.73	307.02	-94.80	0.00	0.00	0.00	0.00
4,534.08	5.89	113.06	4,517.00	-132.09	310.23	-95.80	0.00	0.00	0.00	0.00

**Plan Report for Ferge 3N-14HZ - Plan C Rev 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 (°)
<b>Sussex</b>										
4,600.00	5.89	113.06	4,582.57	-134.74	316.46	-97.72	0.00	0.00	0.00	0.00
4,700.00	5.89	113.06	4,682.04	-138.76	325.89	-100.63	0.00	0.00	0.00	0.00
4,800.00	5.89	113.06	4,781.52	-142.78	335.33	-103.55	0.00	0.00	0.00	0.00
4,900.00	5.89	113.06	4,880.99	-146.80	344.77	-106.46	0.00	0.00	0.00	0.00
5,000.00	5.89	113.06	4,980.46	-150.82	354.21	-109.37	0.00	0.00	0.00	0.00
5,100.00	5.89	113.06	5,079.93	-154.84	363.65	-112.29	0.00	0.00	0.00	0.00
5,200.00	5.89	113.06	5,179.41	-158.86	373.09	-115.20	0.00	0.00	0.00	0.00
5,300.00	5.89	113.06	5,278.88	-162.87	382.52	-118.12	0.00	0.00	0.00	0.00
5,400.00	5.89	113.06	5,378.35	-166.89	391.96	-121.03	0.00	0.00	0.00	0.00
5,500.00	5.89	113.06	5,477.82	-170.91	401.40	-123.95	0.00	0.00	0.00	0.00
5,600.00	5.89	113.06	5,577.30	-174.93	410.84	-126.86	0.00	0.00	0.00	0.00
5,700.00	5.89	113.06	5,676.77	-178.95	420.28	-129.78	0.00	0.00	0.00	0.00
5,800.00	5.89	113.06	5,776.24	-182.97	429.71	-132.69	0.00	0.00	0.00	0.00
5,900.00	5.89	113.06	5,875.71	-186.99	439.15	-135.60	0.00	0.00	0.00	0.00
6,000.00	5.89	113.06	5,975.19	-191.01	448.59	-138.52	0.00	0.00	0.00	0.00
6,100.00	5.89	113.06	6,074.66	-195.02	458.03	-141.43	0.00	0.00	0.00	0.00
6,200.00	5.89	113.06	6,174.13	-199.04	467.47	-144.35	0.00	0.00	0.00	0.00
6,300.00	5.89	113.06	6,273.60	-203.06	476.91	-147.26	0.00	0.00	0.00	0.00
6,400.00	5.89	113.06	6,373.08	-207.08	486.34	-150.18	0.00	0.00	0.00	0.00
6,500.00	5.89	113.06	6,472.55	-211.10	495.78	-153.09	0.00	0.00	0.00	0.00
6,600.00	5.89	113.06	6,572.02	-215.12	505.22	-156.00	0.00	0.00	0.00	0.00
6,700.00	5.89	113.06	6,671.49	-219.14	514.66	-158.92	0.00	0.00	0.00	0.00
6,730.51	5.89	113.06	6,701.84	-220.36	517.54	-159.81	0.00	0.00	0.00	0.00
<b>Begin Build @ 6730.51ft</b>										
6,800.00	7.14	49.31	6,770.96	-218.94	524.10	-157.65	10.00	1.80	-91.75	-112.94
6,900.00	15.60	19.89	6,868.98	-202.21	533.40	-139.96	10.00	8.46	-29.42	-49.51
7,000.00	25.20	11.65	6,962.62	-168.63	542.30	-105.59	10.00	9.60	-8.24	-20.57
7,100.00	35.02	7.80	7,049.03	-119.23	550.51	-55.57	10.00	9.82	-3.85	-12.82
<b>Build Rate = 10.00/100ft</b>										
7,158.27	40.77	6.33	7,095.00	-83.72	554.89	-19.80	10.00	9.88	-2.52	-9.48
<b>Sharon Springs</b>										
7,200.00	44.91	5.48	7,125.59	-55.51	557.80	8.57	10.00	9.90	-2.05	-8.32
7,234.07	48.28	4.87	7,149.00	-30.86	560.03	33.31	10.00	9.92	-1.79	-7.69
<b>Niobrara A</b>										
7,296.60	54.49	3.90	7,188.00	17.83	563.74	82.11	10.00	9.93	-1.55	-7.27
<b>Niobrara B</b>										
7,300.00	54.83	3.85	7,189.97	20.60	563.93	84.88	10.00	9.93	-1.42	-6.66
7,400.00	64.77	2.58	7,240.21	106.78	568.72	171.04	10.00	9.94	-1.27	-6.64
7,500.00	74.72	1.50	7,274.79	200.42	572.03	264.45	10.00	9.95	-1.08	-5.99
7,540.08	78.71	1.10	7,284.00	239.41	572.92	303.28	10.00	9.95	-1.00	-5.62
<b>Niobrara C</b>										
7,600.00	84.67	0.52	7,292.66	298.67	573.76	362.25	10.00	9.95	-0.97	-5.53
7,640.64	88.72	0.14	7,295.00	339.23	573.99	402.57	10.00	9.96	-0.95	-5.44
<b>Niobrara C TL (Heel)</b>										
7,666.41	91.28	359.90	7,295.00	365.00	574.00	428.17	10.00	9.95	-0.94	-5.42
<b>End Build @ 7666.41ft - 7" Intermediate Casing - Ferge 3N-14HZ_Casing Point</b>										
7,700.00	91.28	359.90	7,294.25	398.58	573.94	461.53	0.00	0.00	0.00	-5.42
7,800.00	91.28	359.90	7,292.01	498.56	573.76	560.83	0.00	0.00	0.00	0.00
7,900.00	91.28	359.90	7,289.77	598.53	573.57	660.13	0.00	0.00	0.00	0.00
8,000.00	91.28	359.90	7,287.53	698.50	573.39	759.43	0.00	0.00	0.00	0.00
8,100.00	91.28	359.90	7,285.29	798.48	573.21	858.73	0.00	0.00	0.00	0.00
8,200.00	91.28	359.90	7,283.06	898.45	573.03	958.02	0.00	0.00	0.00	0.00
8,300.00	91.28	359.90	7,280.82	998.43	572.84	1,057.32	0.00	0.00	0.00	0.00
8,400.00	91.28	359.90	7,278.58	1,098.40	572.66	1,156.62	0.00	0.00	0.00	0.00
8,500.00	91.28	359.90	7,276.34	1,198.38	572.48	1,255.92	0.00	0.00	0.00	0.00
8,600.00	91.28	359.90	7,274.10	1,298.35	572.30	1,355.22	0.00	0.00	0.00	0.00
8,700.00	91.28	359.90	7,271.86	1,398.33	572.11	1,454.52	0.00	0.00	0.00	0.00

**Plan Report for Ferge 3N-14HZ - Plan C Rev 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 (°)
8,800.00	91.28	359.90	7,269.62	1,498.30	571.93	1,553.82	0.00	0.00	0.00	0.00
8,900.00	91.28	359.90	7,267.38	1,598.28	571.75	1,653.12	0.00	0.00	0.00	0.00
9,000.00	91.28	359.90	7,265.15	1,698.25	571.57	1,752.42	0.00	0.00	0.00	0.00
9,100.00	91.28	359.90	7,262.91	1,798.23	571.38	1,851.72	0.00	0.00	0.00	0.00
9,200.00	91.28	359.90	7,260.67	1,898.20	571.20	1,951.02	0.00	0.00	0.00	0.00
9,300.00	91.28	359.90	7,258.43	1,998.18	571.02	2,050.32	0.00	0.00	0.00	0.00
9,400.00	91.28	359.90	7,256.19	2,098.15	570.84	2,149.62	0.00	0.00	0.00	0.00
9,500.00	91.28	359.90	7,253.95	2,198.13	570.65	2,248.92	0.00	0.00	0.00	0.00
9,600.00	91.28	359.90	7,251.71	2,298.10	570.47	2,348.22	0.00	0.00	0.00	0.00
9,700.00	91.28	359.90	7,249.48	2,398.08	570.29	2,447.52	0.00	0.00	0.00	0.00
9,800.00	91.28	359.90	7,247.24	2,498.05	570.11	2,546.82	0.00	0.00	0.00	0.00
9,900.00	91.28	359.90	7,245.00	2,598.03	569.92	2,646.12	0.00	0.00	0.00	0.00
10,000.00	91.28	359.90	7,242.76	2,698.00	569.74	2,745.42	0.00	0.00	0.00	0.00
<b>Hold Angle @ 91.28</b>										
10,100.00	91.28	359.90	7,240.52	2,797.98	569.56	2,844.72	0.00	0.00	0.00	0.00
10,200.00	91.28	359.90	7,238.28	2,897.95	569.38	2,944.02	0.00	0.00	0.00	0.00
10,300.00	91.28	359.90	7,236.04	2,997.92	569.19	3,043.32	0.00	0.00	0.00	0.00
10,400.00	91.28	359.90	7,233.81	3,097.90	569.01	3,142.62	0.00	0.00	0.00	0.00
10,500.00	91.28	359.90	7,231.57	3,197.87	568.83	3,241.92	0.00	0.00	0.00	0.00
10,600.00	91.28	359.90	7,229.33	3,297.85	568.65	3,341.22	0.00	0.00	0.00	0.00
10,700.00	91.28	359.90	7,227.09	3,397.82	568.46	3,440.52	0.00	0.00	0.00	0.00
10,800.00	91.28	359.90	7,224.85	3,497.80	568.28	3,539.82	0.00	0.00	0.00	0.00
10,900.00	91.28	359.90	7,222.61	3,597.77	568.10	3,639.12	0.00	0.00	0.00	0.00
11,000.00	91.28	359.90	7,220.37	3,697.75	567.92	3,738.42	0.00	0.00	0.00	0.00
11,100.00	91.28	359.90	7,218.14	3,797.72	567.73	3,837.71	0.00	0.00	0.00	0.00
11,200.00	91.28	359.90	7,215.90	3,897.70	567.55	3,937.01	0.00	0.00	0.00	0.00
11,300.00	91.28	359.90	7,213.66	3,997.67	567.37	4,036.31	0.00	0.00	0.00	0.00
11,400.00	91.28	359.90	7,211.42	4,097.65	567.19	4,135.61	0.00	0.00	0.00	0.00
11,500.00	91.28	359.90	7,209.18	4,197.62	567.00	4,234.91	0.00	0.00	0.00	0.00
11,600.00	91.28	359.90	7,206.94	4,297.60	566.82	4,334.21	0.00	0.00	0.00	0.00
11,700.00	91.28	359.90	7,204.70	4,397.57	566.64	4,433.51	0.00	0.00	0.00	0.00
11,800.00	91.28	359.90	7,202.47	4,497.55	566.46	4,532.81	0.00	0.00	0.00	0.00
11,900.00	91.28	359.90	7,200.23	4,597.52	566.27	4,632.11	0.00	0.00	0.00	0.00
12,000.00	91.28	359.90	7,197.99	4,697.50	566.09	4,731.41	0.00	0.00	0.00	0.00
12,100.00	91.28	359.90	7,195.75	4,797.47	565.91	4,830.71	0.00	0.00	0.00	0.00
12,200.00	91.28	359.90	7,193.51	4,897.45	565.73	4,930.01	0.00	0.00	0.00	0.00
12,222.80	91.28	359.90	7,193.00	4,920.24	565.68	4,952.65	0.00	0.00	0.00	0.00
<b>Niobrara C TL (Toe)</b>										
12,222.81	91.28	359.90	7,193.00	4,920.25	565.68	4,952.66	0.00	0.00	0.00	0.00
<b>Total Depth @ 12222.81ft - Ferge 3N-14HZ_BHL</b>										

**Plan Annotations**

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
600.00	600.00	0.00	0.00	Hold Angle @ 0.00
1,100.00	1,100.00	0.00	0.00	Begin Nudge @ 1100.00ft
1,200.00	1,199.98	-0.68	1.61	Nudge Rate = 2.00/100ft
1,394.39	1,393.87	-5.92	13.90	End Nudge @ 1394.39ft
4,000.00	3,985.74	-110.63	259.83	Hold Angle @ 5.89
6,730.51	6,701.84	-220.36	517.54	Begin Build @ 6730.51ft
7,100.00	7,049.03	-119.23	550.51	Build Rate = 10.00/100ft
7,666.41	7,295.00	365.00	574.00	End Build @ 7666.41ft
10,000.00	7,242.76	2,698.00	569.74	Hold Angle @ 91.28
12,222.81	7,193.00	4,920.25	565.68	Total Depth @ 12222.81ft

## Plan Report for Ferge 3N-14HZ - Plan C Rev 0 Permit

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin +N/_S (ft)	Origin +E/-W (ft)	Start TVD (ft)
Target	Ferge 3N-14HZ_BHL	6.56	Slot	0.00	0.00	7,193.00

Survey tool program

From (ft)	To (ft)	Survey/Plan	Survey Tool
0.00	12,222.81	Plan C Rev 0 Permit	MWD

Casing Details

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
7,666.41	7,295.00	7" Intermediate Casing	7	8-3/4

Formation Details

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
701.00	701.00	Fox Hills		0.00	
3,996.24	3,982.00	Parkman		0.00	
4,534.08	4,517.00	Sussex		0.00	
7,158.27	7,095.00	Sharon Springs		0.00	
7,234.07	7,149.00	Niobrara A		0.00	
7,296.60	7,188.00	Niobrara B		0.00	
7,540.08	7,284.00	Niobrara C		0.00	
7,640.64	7,295.00	Niobrara C TL (Heel)		0.00	
12,222.80	7,193.00	Niobrara C TL (Toe)		0.00	

Targets associated with this wellbore

Target Name	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Shape
Ferge 3N-14HZ_BHL	7,193.00	4,920.25	565.68	Point
Ferge 3N-14HZ_SHL	0.00	0.00	0.00	Point
Ferge 3N-14HZ_Casing Point	7,295.00	365.00	574.00	Point
Ferge 3N-14HZ_Section Lines	0.00	0.00	0.00	Polygon

## North Reference Sheet for Sec. 14-T3N-R66W - Ferge 3N-14HZ - Plan C Rev 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 @ 4931.00ft (Drilling Rig). Northing and Easting are relative to Ferge 3N-14HZ  
 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: 0.99995700

Grid Coordinates of Well: 1,323,360.69 ft N, 3,209,539.75 ft E  
 Geographical Coordinates of Well: 40° 13' 06.92" N, 104° 44' 58.70" W  
 Grid Convergence at Surface is: 0.48°

Based upon Minimum Curvature type calculations, at a Measured Depth of 12,222.81ft  
 the Bottom Hole Displacement is 4,952.66ft in the Direction of 6.56° (True).

Magnetic Convergence at surface is: -8.23° (21 September 2012, , BGGM2012)

