

Anadarko Petroleum Corp.

Weld County, CO (NAD 83)

Sec. 14-T3N-R66W

Ferge 4C-14HZ

Plan C Rev 0

Plan: Plan C Rev 0 Permit

Sperry Drilling Services

Proposal Report

25 September, 2012

Well Coordinates: 1,323,360.65 N, 3,209,494.51 E (40° 13' 06.92" N, 104° 44' 59.29" W)

Ground Level: 4,914.00 ft

Local Coordinate Origin:

Centered on Well Ferge 4C-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 4C-14HZ
Wellbore: Plan C Rev 0
Design: Plan C Rev 0 Permit

Anadarko Petroleum Corp.

HALLIBURTON
Sperry Drilling

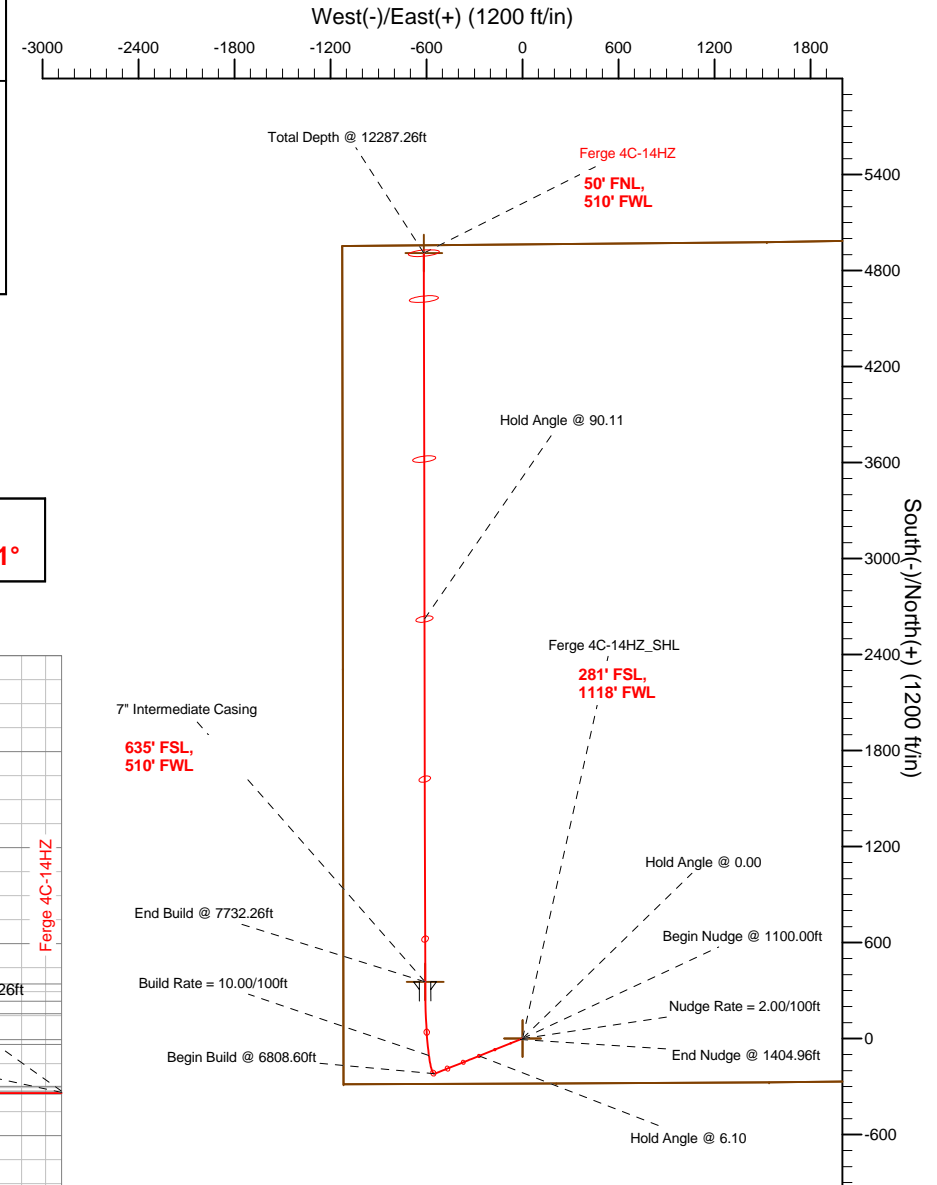
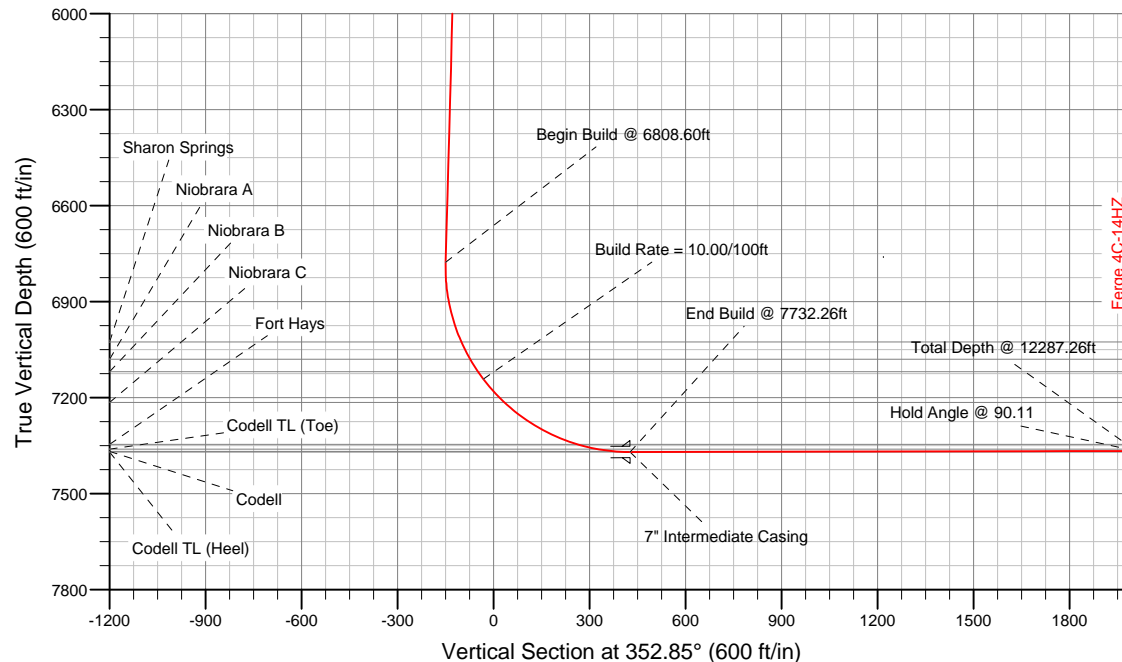
SECTION DETAILS

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	1404.96	6.10	248.17	1404.39	-6.03	-15.05	2.00	248.17	-4.11	
4	6808.60	6.10	248.17	6777.43	-219.53	-548.03	0.00	0.00	-149.57	
5	7732.26	90.11	359.90	7370.00	354.00	-608.00	10.00	111.60	426.97	Ferge 4C-14HZ_Casing Point
6	12287.26	90.11	359.90	7361.00	4908.98	-616.22	0.00	0.00	4947.50	Ferge 4C-14HZ_BHL

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
Ferge 4C-14HZ_Section Lines	0.00	0.00	0.00	40.218590	-104.749802	Polygon
Ferge 4C-14HZ_SHL	0.00	0.00	0.00	40.218590	-104.749802	Point
Ferge 4C-14HZ_BHL	7361.00	4908.98	-616.22	40.232065	-104.752009	Point
Ferge 4C-14HZ_Casing Point	7370.00	354.00	-608.00	40.219562	-104.751979	Point

Target Line:
7370.50' TVDkb @ 0° VS Drilling 90.11°



WELL DETAILS: Ferge 4C-14HZ

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

Plan: Plan C Rev 0 Permit (Ferge 4C-14HZ/Plan C Rev 0)

Created By: Fred Hartmann Date: 09/21/2012
Reviewed: _____ Date: _____

Plan Report for Ferge 4C-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
Ferge 4C-14HZ_SHL - Ferge 4C-14HZ_Section Lines										
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
Hold Angle @ 0.00										
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
Fox Hills										
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
Begin Nudge @ 1100.00ft										
1,200.00	2.00	248.17	1,199.98	-0.65	-1.62	-0.44	2.00	2.00	0.00	248.17
Nudge Rate = 2.00/100ft										
1,300.00	4.00	248.17	1,299.84	-2.60	-6.48	-1.77	2.00	2.00	0.00	0.00
1,400.00	6.00	248.17	1,399.45	-5.84	-14.57	-3.98	2.00	2.00	0.00	0.00
1,404.96	6.10	248.17	1,404.38	-6.03	-15.05	-4.11	2.00	2.00	0.00	0.00
End Nudge @ 1404.96ft										
1,500.00	6.10	248.17	1,498.89	-9.79	-24.43	-6.67	0.00	0.00	0.00	0.00
1,600.00	6.10	248.17	1,598.32	-13.74	-34.29	-9.36	0.00	0.00	0.00	0.00
1,700.00	6.10	248.17	1,697.75	-17.69	-44.15	-12.05	0.00	0.00	0.00	0.00
1,800.00	6.10	248.17	1,797.19	-21.64	-54.02	-14.74	0.00	0.00	0.00	0.00
1,900.00	6.10	248.17	1,896.62	-25.59	-63.88	-17.43	0.00	0.00	0.00	0.00
2,000.00	6.10	248.17	1,996.06	-29.54	-73.74	-20.13	0.00	0.00	0.00	0.00
2,100.00	6.10	248.17	2,095.49	-33.49	-83.61	-22.82	0.00	0.00	0.00	0.00
2,200.00	6.10	248.17	2,194.92	-37.44	-93.47	-25.51	0.00	0.00	0.00	0.00
2,300.00	6.10	248.17	2,294.36	-41.39	-103.33	-28.20	0.00	0.00	0.00	0.00
2,400.00	6.10	248.17	2,393.79	-45.35	-113.20	-30.89	0.00	0.00	0.00	0.00
2,500.00	6.10	248.17	2,493.23	-49.30	-123.06	-33.59	0.00	0.00	0.00	0.00
2,600.00	6.10	248.17	2,592.66	-53.25	-132.92	-36.28	0.00	0.00	0.00	0.00
2,700.00	6.10	248.17	2,692.09	-57.20	-142.79	-38.97	0.00	0.00	0.00	0.00
2,800.00	6.10	248.17	2,791.53	-61.15	-152.65	-41.66	0.00	0.00	0.00	0.00
2,900.00	6.10	248.17	2,890.96	-65.10	-162.51	-44.35	0.00	0.00	0.00	0.00
3,000.00	6.10	248.17	2,990.40	-69.05	-172.38	-47.04	0.00	0.00	0.00	0.00
3,100.00	6.10	248.17	3,089.83	-73.00	-182.24	-49.74	0.00	0.00	0.00	0.00
3,200.00	6.10	248.17	3,189.26	-76.95	-192.10	-52.43	0.00	0.00	0.00	0.00
3,300.00	6.10	248.17	3,288.70	-80.91	-201.97	-55.12	0.00	0.00	0.00	0.00
3,400.00	6.10	248.17	3,388.13	-84.86	-211.83	-57.81	0.00	0.00	0.00	0.00
3,500.00	6.10	248.17	3,487.56	-88.81	-221.69	-60.50	0.00	0.00	0.00	0.00
3,600.00	6.10	248.17	3,587.00	-92.76	-231.56	-63.20	0.00	0.00	0.00	0.00
3,700.00	6.10	248.17	3,686.43	-96.71	-241.42	-65.89	0.00	0.00	0.00	0.00
3,800.00	6.10	248.17	3,785.87	-100.66	-251.28	-68.58	0.00	0.00	0.00	0.00
3,900.00	6.10	248.17	3,885.30	-104.61	-261.14	-71.27	0.00	0.00	0.00	0.00
3,927.86	6.10	248.17	3,913.00	-105.71	-263.89	-72.02	0.00	0.00	0.00	0.00
Parkman										
4,000.00	6.10	248.17	3,984.73	-108.56	-271.01	-73.96	0.00	0.00	0.00	0.00
Hold Angle @ 6.10										
4,100.00	6.10	248.17	4,084.17	-112.51	-280.87	-76.65	0.00	0.00	0.00	0.00
4,200.00	6.10	248.17	4,183.60	-116.47	-290.73	-79.35	0.00	0.00	0.00	0.00
4,300.00	6.10	248.17	4,283.04	-120.42	-300.60	-82.04	0.00	0.00	0.00	0.00
4,400.00	6.10	248.17	4,382.47	-124.37	-310.46	-84.73	0.00	0.00	0.00	0.00
4,465.90	6.10	248.17	4,448.00	-126.97	-316.96	-86.50	0.00	0.00	0.00	0.00
Sussex										

Plan Report for Ferge 4C-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 (°)
4,500.00	6.10	248.17	4,481.90	-128.32	-320.32	-87.42	0.00	0.00	0.00	0.00
4,600.00	6.10	248.17	4,581.34	-132.27	-330.19	-90.11	0.00	0.00	0.00	0.00
4,700.00	6.10	248.17	4,680.77	-136.22	-340.05	-92.81	0.00	0.00	0.00	0.00
4,800.00	6.10	248.17	4,780.21	-140.17	-349.91	-95.50	0.00	0.00	0.00	0.00
4,900.00	6.10	248.17	4,879.64	-144.12	-359.78	-98.19	0.00	0.00	0.00	0.00
5,000.00	6.10	248.17	4,979.07	-148.07	-369.64	-100.88	0.00	0.00	0.00	0.00
5,100.00	6.10	248.17	5,078.51	-152.03	-379.50	-103.57	0.00	0.00	0.00	0.00
5,200.00	6.10	248.17	5,177.94	-155.98	-389.37	-106.27	0.00	0.00	0.00	0.00
5,300.00	6.10	248.17	5,277.38	-159.93	-399.23	-108.96	0.00	0.00	0.00	0.00
5,400.00	6.10	248.17	5,376.81	-163.88	-409.09	-111.65	0.00	0.00	0.00	0.00
5,500.00	6.10	248.17	5,476.24	-167.83	-418.96	-114.34	0.00	0.00	0.00	0.00
5,600.00	6.10	248.17	5,575.68	-171.78	-428.82	-117.03	0.00	0.00	0.00	0.00
5,700.00	6.10	248.17	5,675.11	-175.73	-438.68	-119.72	0.00	0.00	0.00	0.00
5,800.00	6.10	248.17	5,774.55	-179.68	-448.55	-122.42	0.00	0.00	0.00	0.00
5,900.00	6.10	248.17	5,873.98	-183.63	-458.41	-125.11	0.00	0.00	0.00	0.00
6,000.00	6.10	248.17	5,973.41	-187.59	-468.27	-127.80	0.00	0.00	0.00	0.00
6,100.00	6.10	248.17	6,072.85	-191.54	-478.14	-130.49	0.00	0.00	0.00	0.00
6,200.00	6.10	248.17	6,172.28	-195.49	-488.00	-133.18	0.00	0.00	0.00	0.00
6,300.00	6.10	248.17	6,271.71	-199.44	-497.86	-135.88	0.00	0.00	0.00	0.00
6,400.00	6.10	248.17	6,371.15	-203.39	-507.73	-138.57	0.00	0.00	0.00	0.00
6,500.00	6.10	248.17	6,470.58	-207.34	-517.59	-141.26	0.00	0.00	0.00	0.00
6,600.00	6.10	248.17	6,570.02	-211.29	-527.45	-143.95	0.00	0.00	0.00	0.00
6,700.00	6.10	248.17	6,669.45	-215.24	-537.32	-146.64	0.00	0.00	0.00	0.00
6,800.00	6.10	248.17	6,768.88	-219.19	-547.18	-149.33	0.00	0.00	0.00	0.00
6,808.60	6.10	248.17	6,777.44	-219.53	-548.03	-149.57	0.00	0.00	0.00	0.00
Begin Build @ 6808.60ft										
6,900.00	8.91	320.61	6,868.22	-215.86	-557.05	-144.80	10.00	3.08	79.25	111.60
7,000.00	17.79	341.86	6,965.47	-195.31	-566.74	-123.20	10.00	8.88	21.25	39.62
7,064.82	24.01	347.01	7,026.00	-173.03	-572.80	-100.34	10.00	9.60	7.94	18.87
Sharon Springs										
7,100.00	27.43	348.86	7,057.69	-158.09	-575.97	-85.12	10.00	9.74	5.27	14.05
7,125.43	29.92	349.95	7,080.00	-146.10	-578.21	-72.94	10.00	9.79	4.30	12.38
Niobrara A										
7,171.52	34.45	351.57	7,119.00	-121.87	-582.13	-48.41	10.00	9.83	3.50	11.42
Niobrara B										
7,200.00	37.26	352.39	7,142.08	-105.35	-584.45	-31.74	10.00	9.86	2.88	10.06
Build Rate = 10.00/100ft										
7,298.43	46.99	354.57	7,215.00	-39.83	-591.82	34.20	10.00	9.89	2.22	9.39
Niobrara C										
7,300.00	47.15	354.60	7,216.07	-38.69	-591.93	35.34	10.00	9.91	1.84	7.76
7,400.00	57.07	356.20	7,277.41	39.88	-598.18	114.08	10.00	9.92	1.60	7.74
7,500.00	67.01	357.47	7,324.24	127.96	-603.00	202.07	10.00	9.94	1.27	6.76
7,564.29	73.40	358.19	7,346.00	188.38	-605.29	262.30	10.00	9.94	1.12	6.16
Fort Hays										
7,600.00	76.95	358.57	7,355.13	222.88	-606.26	296.66	10.00	9.95	1.06	5.92
7,683.11	85.22	359.41	7,368.00	304.90	-607.70	378.22	10.00	9.95	1.01	5.82
Codell										
7,700.00	86.90	359.58	7,369.16	321.75	-607.85	394.96	10.00	9.95	0.99	5.69
7,732.26	90.11	359.90	7,370.00	354.00	-608.00	426.97	10.00	9.95	0.99	5.68
End Build @ 7732.26ft - Codell TL (Heel) - 7" Intermediate Casing - Ferge 4C-14HZ_Casing Point										
7,800.00	90.11	359.90	7,369.87	421.74	-608.12	494.19	0.00	0.00	0.00	5.67
7,900.00	90.11	359.90	7,369.67	521.74	-608.30	593.44	0.00	0.00	0.00	0.00
8,000.00	90.11	359.90	7,369.47	621.74	-608.48	692.68	0.00	0.00	0.00	0.00
8,100.00	90.11	359.90	7,369.27	721.73	-608.66	791.93	0.00	0.00	0.00	0.00
8,200.00	90.11	359.90	7,369.08	821.73	-608.84	891.17	0.00	0.00	0.00	0.00
8,300.00	90.11	359.90	7,368.88	921.73	-609.02	990.41	0.00	0.00	0.00	0.00
8,400.00	90.11	359.90	7,368.68	1,021.73	-609.21	1,089.66	0.00	0.00	0.00	0.00
8,500.00	90.11	359.90	7,368.48	1,121.73	-609.39	1,188.90	0.00	0.00	0.00	0.00

Plan Report for Ferge 4C-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 (°)
8,600.00	90.11	359.90	7,368.29	1,221.73	-609.57	1,288.14	0.00	0.00	0.00	0.00
8,700.00	90.11	359.90	7,368.09	1,321.73	-609.75	1,387.39	0.00	0.00	0.00	0.00
8,800.00	90.11	359.90	7,367.89	1,421.73	-609.93	1,486.63	0.00	0.00	0.00	0.00
8,900.00	90.11	359.90	7,367.69	1,521.73	-610.11	1,585.87	0.00	0.00	0.00	0.00
9,000.00	90.11	359.90	7,367.50	1,621.73	-610.29	1,685.12	0.00	0.00	0.00	0.00
9,100.00	90.11	359.90	7,367.30	1,721.73	-610.47	1,784.36	0.00	0.00	0.00	0.00
9,200.00	90.11	359.90	7,367.10	1,821.73	-610.65	1,883.60	0.00	0.00	0.00	0.00
9,300.00	90.11	359.90	7,366.90	1,921.73	-610.83	1,982.85	0.00	0.00	0.00	0.00
9,400.00	90.11	359.90	7,366.70	2,021.73	-611.01	2,082.09	0.00	0.00	0.00	0.00
9,500.00	90.11	359.90	7,366.51	2,121.73	-611.19	2,181.33	0.00	0.00	0.00	0.00
9,600.00	90.11	359.90	7,366.31	2,221.73	-611.37	2,280.58	0.00	0.00	0.00	0.00
9,700.00	90.11	359.90	7,366.11	2,321.73	-611.55	2,379.82	0.00	0.00	0.00	0.00
9,800.00	90.11	359.90	7,365.91	2,421.73	-611.73	2,479.06	0.00	0.00	0.00	0.00
9,900.00	90.11	359.90	7,365.72	2,521.73	-611.91	2,578.31	0.00	0.00	0.00	0.00
10,000.00	90.11	359.90	7,365.52	2,621.73	-612.09	2,677.55	0.00	0.00	0.00	0.00
Hold Angle @ 90.11										
10,100.00	90.11	359.90	7,365.32	2,721.73	-612.27	2,776.79	0.00	0.00	0.00	0.00
10,200.00	90.11	359.90	7,365.12	2,821.73	-612.45	2,876.04	0.00	0.00	0.00	0.00
10,300.00	90.11	359.90	7,364.93	2,921.73	-612.63	2,975.28	0.00	0.00	0.00	0.00
10,400.00	90.11	359.90	7,364.73	3,021.73	-612.82	3,074.52	0.00	0.00	0.00	0.00
10,500.00	90.11	359.90	7,364.53	3,121.73	-613.00	3,173.77	0.00	0.00	0.00	0.00
10,600.00	90.11	359.90	7,364.33	3,221.73	-613.18	3,273.01	0.00	0.00	0.00	0.00
10,700.00	90.11	359.90	7,364.14	3,321.73	-613.36	3,372.25	0.00	0.00	0.00	0.00
10,800.00	90.11	359.90	7,363.94	3,421.73	-613.54	3,471.50	0.00	0.00	0.00	0.00
10,900.00	90.11	359.90	7,363.74	3,521.72	-613.72	3,570.74	0.00	0.00	0.00	0.00
11,000.00	90.11	359.90	7,363.54	3,621.72	-613.90	3,669.98	0.00	0.00	0.00	0.00
11,100.00	90.11	359.90	7,363.35	3,721.72	-614.08	3,769.23	0.00	0.00	0.00	0.00
11,200.00	90.11	359.90	7,363.15	3,821.72	-614.26	3,868.47	0.00	0.00	0.00	0.00
11,300.00	90.11	359.90	7,362.95	3,921.72	-614.44	3,967.71	0.00	0.00	0.00	0.00
11,400.00	90.11	359.90	7,362.75	4,021.72	-614.62	4,066.96	0.00	0.00	0.00	0.00
11,500.00	90.11	359.90	7,362.56	4,121.72	-614.80	4,166.20	0.00	0.00	0.00	0.00
11,600.00	90.11	359.90	7,362.36	4,221.72	-614.98	4,265.45	0.00	0.00	0.00	0.00
11,700.00	90.11	359.90	7,362.16	4,321.72	-615.16	4,364.69	0.00	0.00	0.00	0.00
11,800.00	90.11	359.90	7,361.96	4,421.72	-615.34	4,463.93	0.00	0.00	0.00	0.00
11,900.00	90.11	359.90	7,361.77	4,521.72	-615.52	4,563.18	0.00	0.00	0.00	0.00
12,000.00	90.11	359.90	7,361.57	4,621.72	-615.70	4,662.42	0.00	0.00	0.00	0.00
12,100.00	90.11	359.90	7,361.37	4,721.72	-615.88	4,761.66	0.00	0.00	0.00	0.00
12,200.00	90.11	359.90	7,361.17	4,821.72	-616.06	4,860.91	0.00	0.00	0.00	0.00
12,287.25	90.11	359.90	7,361.00	4,908.97	-616.22	4,947.50	0.00	0.00	0.00	0.00
Codell TL (Toe)										
12,287.26	90.11	359.90	7,361.00	4,908.98	-616.22	4,947.50	0.00	0.00	0.00	0.00
Ferge 4C-14HZ_BHL										

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Comment
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	-0.65	-1.62	Nudge Rate = 2.00/100ft
1,404.96	1,404.38	-6.03	-15.05	End Nudge @ 1404.96ft
4,000.00	3,984.73	-108.56	-271.01	Hold Angle @ 6.10
6,808.60	6,777.44	-219.53	-548.03	Begin Build @ 6808.60ft
7,200.00	7,142.08	-105.35	-584.45	Build Rate = 10.00/100ft
7,732.26	7,370.00	354.00	-608.00	End Build @ 7732.26ft
10,000.00	7,365.52	2,621.73	-612.09	Hold Angle @ 90.11
12,287.26	7,361.00	4,908.98	-616.22	Total Depth @ 12287.26ft

Plan Report for Ferge 4C-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 4C-14HZ_BHL	352.85	Slot	0.00	0.00	0.00

Survey tool program

From (ft)	To (ft)	Survey/Plan	Survey Tool
0.00	12,287.26	Plan C Rev 0 Permit	MWD

Casing Details

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
7,732.26	7,370.00	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	
3,927.86	3,913.00	Parkman		0.00	
4,465.90	4,448.00	Sussex		0.00	
7,064.82	7,026.00	Sharon Springs		0.00	
7,125.43	7,080.00	Niobrara A		0.00	
7,171.52	7,119.00	Niobrara B		0.00	
7,298.43	7,215.00	Niobrara C		0.00	
7,564.29	7,346.00	Fort Hays		0.00	
7,683.11	7,368.00	Codell		0.00	
7,732.26	7,370.00	Codell TL (Heel)		0.00	
12,287.25	7,361.00	Codell TL (Toe)		0.00	

Targets associated with this wellbore

Target Name	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Shape
Ferge 4C-14HZ_BHL	7,361.00	4,908.98	-616.22	Point
Ferge 4C-14HZ_Section Lines	0.00	0.00	0.00	Polygon
Ferge 4C-14HZ_Casing Point	7,370.00	354.00	-608.00	Point
Ferge 4C-14HZ_SHL	0.00	0.00	0.00	Point

North Reference Sheet for Sec. 14-T3N-R66W - Ferge 4C-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 4C-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: 1,323,360.65 ft N, 3,209,494.51 ft E

Geographical Coordinates of Well: 40° 13' 06.92" N, 104° 44' 59.29" W

Grid Convergence at Surface is: 0.48°

Based upon Minimum Curvature type calculations, at a Measured Depth of 12,287.26ft
the Bottom Hole Displacement is 4,947.50ft in the Direction of 352.85° (True).

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

