

Anadarko Petroleum Corp.

Weld County, CO (NAD 83)

Sec. 14-T3N-R66W

FERGE 28N-14HZ

Plan A

Plan: Rev A0 Permit

Sperry Drilling Services

Proposal Report

18 November, 2013

Well Coordinates: 1,323,360.55 N, 3,209,524.67 E (40° 13' 06.92" N, 104° 44' 58.90" W)

Ground Level: 4,913.00 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 FERGE 28N-14HZ

RKB = 17' @ 4930.00usft (Drilling Rig)

N

True

Dec-Deg - API - US Survey Feet - Custom

HALLIBURTON

Project: Weld County, CO (NAD 83)
Site: Sec. 14-T3N-R66W
Well: FERGE 28N-14HZ
Wellbore: Plan A
Design: Rev A0 Permit

Anadarko Petroleum Corp.

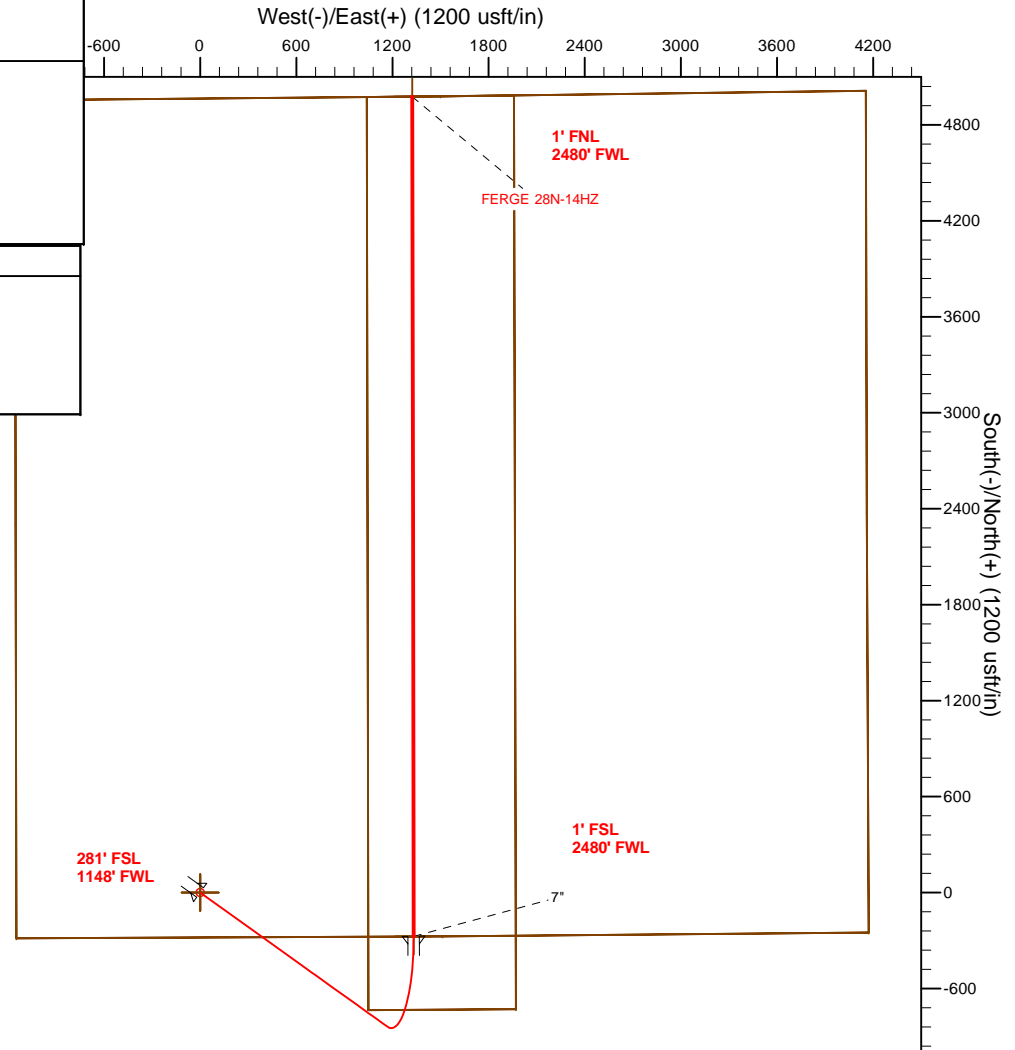
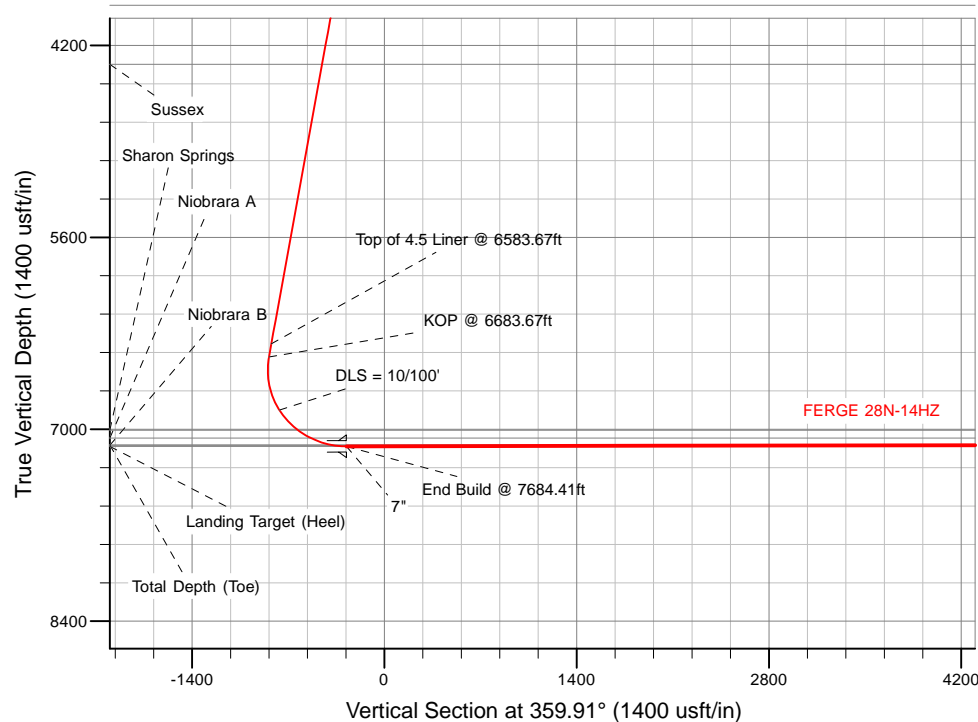
HALLIBURTON
Sperry Drilling

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	1400.00	0.00	0.00	1400.00	0.00	0.00	0.00	0.00	0.00	
3	2261.56	17.23	125.67	2248.63	-74.97	104.46	2.00	125.67	-75.14	
4	6683.67	17.23	125.67	6472.26	-838.80	1168.67	0.00	0.00	-840.63	
5	7684.41	90.11	359.91	7124.00	-273.17	1332.12	10.00	-124.49	-275.26	FERGE 28N-14HZ_CP
6	12933.63	90.11	359.91	7114.00	4976.03	1323.74	0.00	0.00	4973.94	FERGE 28N-14HZ_BHL

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Polygon
FERGE 28N-14HZ_LD	0.00	0.00	0.00	40.218589	-104.749694	Polygon
FERGE 28N-14HZ_SEC	0.00	0.00	0.00	40.218589	-104.749694	Polygon
FERGE 28N-14HZ_SHL	0.00	0.00	0.00	40.218589	-104.749694	Polygon
FERGE 28N-14HZ_BHL	7114.00	4976.03	1323.74	40.232248	-104.744953	Point
FERGE 28N-14HZ_CP	7124.00	-273.17	1332.12	40.217839	-104.744924	Point



TVD MD

6376.75 6583.67 Top of 4.5 Liner @ 6583.67ft
6472.26 6683.67 KOP @ 6683.67ft

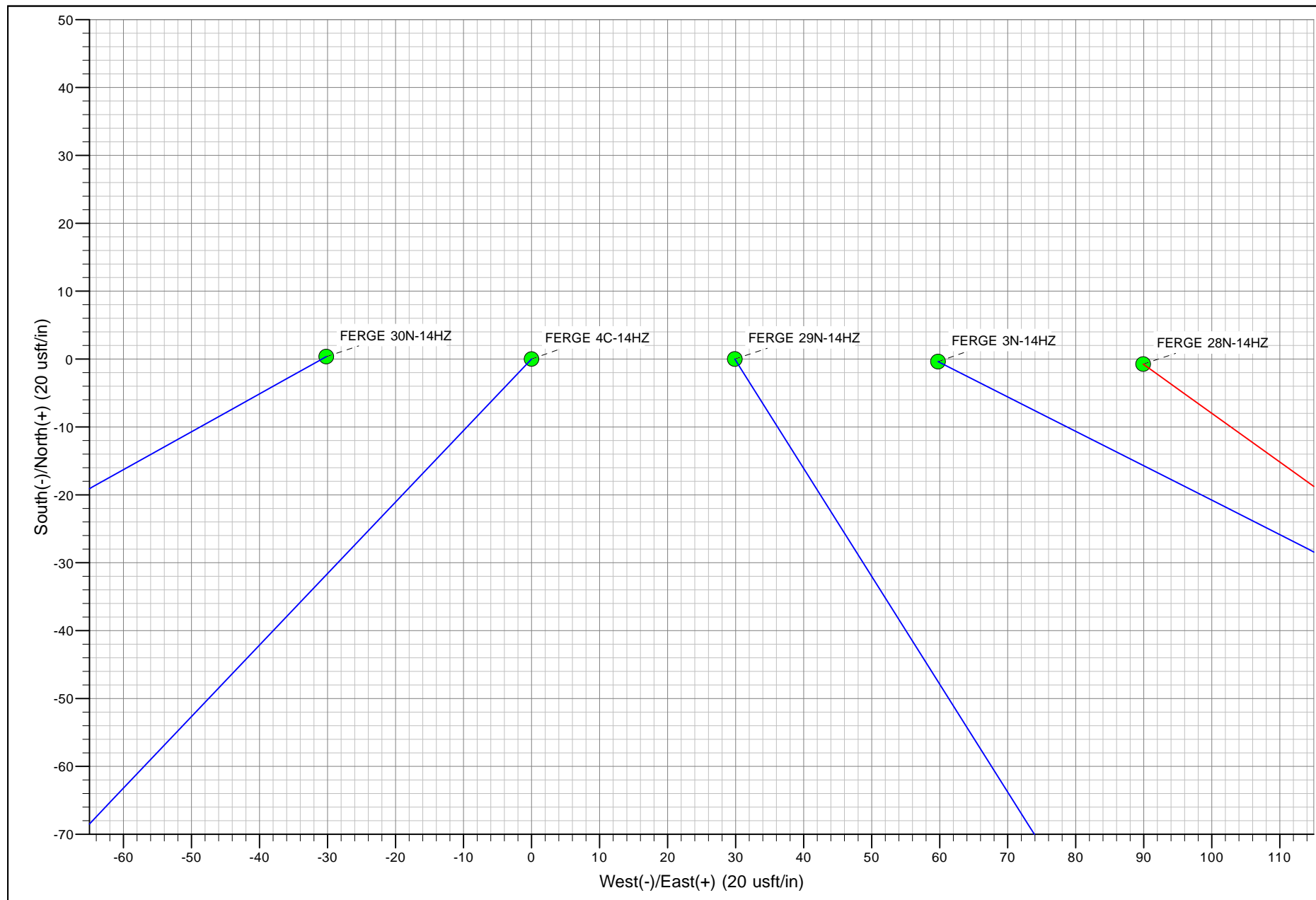
WELL DETAILS: FERGE 28N-14HZ

Ground Level: 4913.00

RKB = 17' @ 4930.00usft (Drilling Rig)

Plan: Rev A0 Permit (FERGE 28N-14HZ/Plan A)

Created By: Clint Eshelman Date: 11/18/2013
Reviewed: _____ Date: _____



Plan Report for FERGE 28N-14HZ - 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
FERGE 28N-14HZ_SEC - FERGE 28N-14HZ_SHL - FERGE 28N-14HZ_LD										
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
1,095.00	0.00	0.00	1,095.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fox Hills Marker										
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,145.00	0.00	0.00	1,145.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9 5/8"										
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Begin Nudge @ 1400.00ft										
1,500.00	2.00	125.67	1,499.98	-1.02	1.42	-1.02	2.00	2.00	0.00	125.67
1,600.00	4.00	125.67	1,599.84	-4.07	5.67	-4.08	2.00	2.00	0.00	0.00
1,700.00	6.00	125.67	1,699.45	-9.15	12.75	-9.17	2.00	2.00	0.00	0.00
1,800.00	8.00	125.67	1,798.70	-16.26	22.65	-16.29	2.00	2.00	0.00	0.00
1,900.00	10.00	125.67	1,897.47	-25.38	35.36	-25.43	2.00	2.00	0.00	0.00
2,000.00	12.00	125.67	1,995.62	-36.50	50.86	-36.58	2.00	2.00	0.00	0.00
2,100.00	14.00	125.67	2,093.06	-49.62	69.13	-49.73	2.00	2.00	0.00	0.00
2,200.00	16.00	125.67	2,189.64	-64.71	90.16	-64.85	2.00	2.00	0.00	0.00
2,261.56	17.23	125.67	2,248.63	-74.97	104.46	-75.14	2.00	2.00	0.00	0.00
End Nudge @ 2261.56ft										
2,300.00	17.23	125.67	2,285.35	-81.61	113.71	-81.79	0.00	0.00	0.00	0.00
2,400.00	17.23	125.67	2,380.86	-98.89	137.78	-99.10	0.00	0.00	0.00	0.00
2,500.00	17.23	125.67	2,476.37	-116.16	161.84	-116.41	0.00	0.00	0.00	0.00
2,600.00	17.23	125.67	2,571.88	-133.43	185.91	-133.72	0.00	0.00	0.00	0.00
2,700.00	17.23	125.67	2,667.39	-150.71	209.97	-151.04	0.00	0.00	0.00	0.00
2,800.00	17.23	125.67	2,762.90	-167.98	234.04	-168.35	0.00	0.00	0.00	0.00
2,900.00	17.23	125.67	2,858.42	-185.25	258.10	-185.66	0.00	0.00	0.00	0.00
3,000.00	17.23	125.67	2,953.93	-202.52	282.17	-202.97	0.00	0.00	0.00	0.00
3,100.00	17.23	125.67	3,049.44	-219.80	306.24	-220.28	0.00	0.00	0.00	0.00
3,200.00	17.23	125.67	3,144.95	-237.07	330.30	-237.59	0.00	0.00	0.00	0.00
3,300.00	17.23	125.67	3,240.46	-254.34	354.37	-254.90	0.00	0.00	0.00	0.00
3,400.00	17.23	125.67	3,335.97	-271.62	378.43	-272.21	0.00	0.00	0.00	0.00
3,500.00	17.23	125.67	3,431.49	-288.89	402.50	-289.52	0.00	0.00	0.00	0.00
3,600.00	17.23	125.67	3,527.00	-306.16	426.56	-306.83	0.00	0.00	0.00	0.00
3,700.00	17.23	125.67	3,622.51	-323.43	450.63	-324.14	0.00	0.00	0.00	0.00
3,800.00	17.23	125.67	3,718.02	-340.71	474.69	-341.45	0.00	0.00	0.00	0.00
3,900.00	17.23	125.67	3,813.53	-357.98	498.76	-358.76	0.00	0.00	0.00	0.00
3,995.76	17.23	125.67	3,905.00	-374.52	521.81	-375.34	0.00	0.00	0.00	0.00
Parkman										
4,000.00	17.23	125.67	3,909.05	-375.25	522.83	-376.07	0.00	0.00	0.00	0.00
4,100.00	17.23	125.67	4,004.56	-392.53	546.89	-393.38	0.00	0.00	0.00	0.00
4,200.00	17.23	125.67	4,100.07	-409.80	570.96	-410.70	0.00	0.00	0.00	0.00
4,300.00	17.23	125.67	4,195.58	-427.07	595.02	-428.01	0.00	0.00	0.00	0.00
4,400.00	17.23	125.67	4,291.09	-444.34	619.09	-445.32	0.00	0.00	0.00	0.00
4,448.07	17.23	125.67	4,337.00	-452.65	630.66	-453.64	0.00	0.00	0.00	0.00
Sussex										

Plan Report for FERGE 28N-14HZ - 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 (°)
4,500.00	17.23	125.67	4,386.60	-461.62	643.15	-462.63	0.00	0.00	0.00	0.00
4,600.00	17.23	125.67	4,482.12	-478.89	667.22	-479.94	0.00	0.00	0.00	0.00
4,700.00	17.23	125.67	4,577.63	-496.16	691.29	-497.25	0.00	0.00	0.00	0.00
4,800.00	17.23	125.67	4,673.14	-513.44	715.35	-514.56	0.00	0.00	0.00	0.00
4,900.00	17.23	125.67	4,768.65	-530.71	739.42	-531.87	0.00	0.00	0.00	0.00
5,000.00	17.23	125.67	4,864.16	-547.98	763.48	-549.18	0.00	0.00	0.00	0.00
5,100.00	17.23	125.67	4,959.67	-565.25	787.55	-566.49	0.00	0.00	0.00	0.00
5,200.00	17.23	125.67	5,055.19	-582.53	811.61	-583.80	0.00	0.00	0.00	0.00
5,300.00	17.23	125.67	5,150.70	-599.80	835.68	-601.11	0.00	0.00	0.00	0.00
5,400.00	17.23	125.67	5,246.21	-617.07	859.75	-618.42	0.00	0.00	0.00	0.00
5,500.00	17.23	125.67	5,341.72	-634.35	883.81	-635.73	0.00	0.00	0.00	0.00
5,600.00	17.23	125.67	5,437.23	-651.62	907.88	-653.04	0.00	0.00	0.00	0.00
5,700.00	17.23	125.67	5,532.74	-668.89	931.94	-670.36	0.00	0.00	0.00	0.00
5,800.00	17.23	125.67	5,628.26	-686.17	956.01	-687.67	0.00	0.00	0.00	0.00
5,900.00	17.23	125.67	5,723.77	-703.44	980.07	-704.98	0.00	0.00	0.00	0.00
6,000.00	17.23	125.67	5,819.28	-720.71	1,004.14	-722.29	0.00	0.00	0.00	0.00
6,100.00	17.23	125.67	5,914.79	-737.98	1,028.21	-739.60	0.00	0.00	0.00	0.00
6,200.00	17.23	125.67	6,010.30	-755.26	1,052.27	-756.91	0.00	0.00	0.00	0.00
6,300.00	17.23	125.67	6,105.82	-772.53	1,076.34	-774.22	0.00	0.00	0.00	0.00
6,400.00	17.23	125.67	6,201.33	-789.80	1,100.40	-791.53	0.00	0.00	0.00	0.00
6,500.00	17.23	125.67	6,296.84	-807.08	1,124.47	-808.84	0.00	0.00	0.00	0.00
6,583.67	17.23	125.67	6,376.75	-821.53	1,144.60	-823.32	0.00	0.00	0.00	0.00
Top of 4.5 Liner @ 6583.67ft										
6,600.00	17.23	125.67	6,392.35	-824.35	1,148.53	-826.15	0.00	0.00	0.00	0.00
6,683.67	17.23	125.67	6,472.26	-838.80	1,168.67	-840.64	0.00	0.00	0.00	0.00
KOP @ 6683.67ft										
6,700.00	16.36	120.88	6,487.90	-841.39	1,172.61	-843.23	10.00	-5.34	-29.30	-124.49
6,800.00	14.23	83.12	6,584.59	-847.16	1,196.96	-849.04	10.00	-2.13	-37.76	-119.91
6,900.00	18.25	49.70	6,680.78	-835.53	1,221.16	-837.45	10.00	4.02	-33.42	-83.39
7,000.00	25.68	31.50	6,773.56	-806.86	1,244.49	-808.81	10.00	7.43	-18.20	-51.22
7,100.00	34.38	21.53	6,860.11	-762.00	1,266.23	-763.99	10.00	8.69	-9.98	-34.28
DLS = 10/100'										
7,200.00	43.58	15.27	6,937.79	-702.33	1,285.72	-704.35	10.00	9.20	-6.25	-25.62
7,300.00	53.03	10.86	7,004.25	-629.66	1,302.37	-631.71	10.00	9.45	-4.41	-20.74
7,304.60	53.47	10.69	7,007.00	-626.04	1,303.06	-628.09	10.00	9.52	-3.80	-17.79
Sharon Springs										
7,400.00	62.60	7.43	7,057.46	-546.20	1,315.67	-548.27	10.00	9.57	-3.41	-17.69
7,414.56	64.00	6.99	7,064.00	-533.30	1,317.31	-535.37	10.00	9.62	-3.06	-15.96
Niobrara A										
7,500.00	72.24	4.56	7,095.81	-454.48	1,325.23	-456.56	10.00	9.65	-2.84	-15.76
7,585.94	80.56	2.33	7,116.00	-371.18	1,330.22	-373.27	10.00	9.68	-2.59	-14.85
Niobrara B										
7,600.00	81.93	1.98	7,118.14	-357.29	1,330.74	-359.38	10.00	9.69	-2.50	-14.33
7,684.41	90.11	359.91	7,124.00	-273.17	1,332.12	-275.26	10.00	9.70	-2.46	-14.28
End Build @ 7684.41ft - Landing Target (Heel) - 7" - FERGE 28N-14HZ_CP										
7,700.00	90.11	359.91	7,123.97	-257.59	1,332.10	-259.68	0.00	0.00	0.00	-14.13
7,800.00	90.11	359.91	7,123.78	-157.59	1,331.94	-159.68	0.00	0.00	0.00	0.00
7,900.00	90.11	359.91	7,123.59	-57.59	1,331.78	-59.68	0.00	0.00	0.00	0.00
8,000.00	90.11	359.91	7,123.40	42.41	1,331.62	40.32	0.00	0.00	0.00	0.00
8,100.00	90.11	359.91	7,123.21	142.41	1,331.46	140.32	0.00	0.00	0.00	0.00
8,200.00	90.11	359.91	7,123.02	242.41	1,331.30	240.32	0.00	0.00	0.00	0.00
8,300.00	90.11	359.91	7,122.83	342.41	1,331.14	340.32	0.00	0.00	0.00	0.00
8,400.00	90.11	359.91	7,122.64	442.41	1,330.98	440.32	0.00	0.00	0.00	0.00
8,500.00	90.11	359.91	7,122.45	542.41	1,330.82	540.32	0.00	0.00	0.00	0.00
8,600.00	90.11	359.91	7,122.26	642.41	1,330.66	640.32	0.00	0.00	0.00	0.00
8,700.00	90.11	359.91	7,122.07	742.41	1,330.50	740.32	0.00	0.00	0.00	0.00
8,800.00	90.11	359.91	7,121.87	842.41	1,330.34	840.32	0.00	0.00	0.00	0.00
8,900.00	90.11	359.91	7,121.68	942.41	1,330.18	940.32	0.00	0.00	0.00	0.00
9,000.00	90.11	359.91	7,121.49	1,042.41	1,330.02	1,040.32	0.00	0.00	0.00	0.00

Plan Report for FERGE 28N-14HZ - 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 (°)
9,100.00	90.11	359.91	7,121.30	1,142.41	1,329.86	1,140.32	0.00	0.00	0.00	0.00
9,200.00	90.11	359.91	7,121.11	1,242.41	1,329.70	1,240.32	0.00	0.00	0.00	0.00
9,300.00	90.11	359.91	7,120.92	1,342.41	1,329.54	1,340.32	0.00	0.00	0.00	0.00
9,400.00	90.11	359.91	7,120.73	1,442.41	1,329.38	1,440.32	0.00	0.00	0.00	0.00
9,500.00	90.11	359.91	7,120.54	1,542.41	1,329.22	1,540.32	0.00	0.00	0.00	0.00
9,600.00	90.11	359.91	7,120.35	1,642.41	1,329.06	1,640.32	0.00	0.00	0.00	0.00
9,700.00	90.11	359.91	7,120.16	1,742.41	1,328.90	1,740.32	0.00	0.00	0.00	0.00
9,800.00	90.11	359.91	7,119.97	1,842.41	1,328.74	1,840.32	0.00	0.00	0.00	0.00
9,900.00	90.11	359.91	7,119.78	1,942.41	1,328.58	1,940.32	0.00	0.00	0.00	0.00
10,000.00	90.11	359.91	7,119.59	2,042.41	1,328.42	2,040.32	0.00	0.00	0.00	0.00
10,100.00	90.11	359.91	7,119.40	2,142.41	1,328.27	2,140.32	0.00	0.00	0.00	0.00
10,200.00	90.11	359.91	7,119.21	2,242.41	1,328.11	2,240.32	0.00	0.00	0.00	0.00
10,300.00	90.11	359.91	7,119.02	2,342.41	1,327.95	2,340.32	0.00	0.00	0.00	0.00
10,400.00	90.11	359.91	7,118.83	2,442.41	1,327.79	2,440.32	0.00	0.00	0.00	0.00
10,500.00	90.11	359.91	7,118.64	2,542.41	1,327.63	2,540.32	0.00	0.00	0.00	0.00
10,600.00	90.11	359.91	7,118.45	2,642.41	1,327.47	2,640.32	0.00	0.00	0.00	0.00
10,700.00	90.11	359.91	7,118.26	2,742.41	1,327.31	2,740.32	0.00	0.00	0.00	0.00
10,800.00	90.11	359.91	7,118.06	2,842.40	1,327.15	2,840.32	0.00	0.00	0.00	0.00
10,900.00	90.11	359.91	7,117.87	2,942.40	1,326.99	2,940.32	0.00	0.00	0.00	0.00
11,000.00	90.11	359.91	7,117.68	3,042.40	1,326.83	3,040.32	0.00	0.00	0.00	0.00
11,100.00	90.11	359.91	7,117.49	3,142.40	1,326.67	3,140.32	0.00	0.00	0.00	0.00
11,200.00	90.11	359.91	7,117.30	3,242.40	1,326.51	3,240.32	0.00	0.00	0.00	0.00
11,300.00	90.11	359.91	7,117.11	3,342.40	1,326.35	3,340.32	0.00	0.00	0.00	0.00
11,400.00	90.11	359.91	7,116.92	3,442.40	1,326.19	3,440.32	0.00	0.00	0.00	0.00
11,500.00	90.11	359.91	7,116.73	3,542.40	1,326.03	3,540.32	0.00	0.00	0.00	0.00
11,600.00	90.11	359.91	7,116.54	3,642.40	1,325.87	3,640.32	0.00	0.00	0.00	0.00
11,700.00	90.11	359.91	7,116.35	3,742.40	1,325.71	3,740.32	0.00	0.00	0.00	0.00
11,800.00	90.11	359.91	7,116.16	3,842.40	1,325.55	3,840.31	0.00	0.00	0.00	0.00
11,900.00	90.11	359.91	7,115.97	3,942.40	1,325.39	3,940.31	0.00	0.00	0.00	0.00
12,000.00	90.11	359.91	7,115.78	4,042.40	1,325.23	4,040.31	0.00	0.00	0.00	0.00
12,100.00	90.11	359.91	7,115.59	4,142.40	1,325.07	4,140.31	0.00	0.00	0.00	0.00
12,200.00	90.11	359.91	7,115.40	4,242.40	1,324.91	4,240.31	0.00	0.00	0.00	0.00
12,300.00	90.11	359.91	7,115.21	4,342.40	1,324.75	4,340.31	0.00	0.00	0.00	0.00
12,400.00	90.11	359.91	7,115.02	4,442.40	1,324.59	4,440.31	0.00	0.00	0.00	0.00
12,500.00	90.11	359.91	7,114.83	4,542.40	1,324.43	4,540.31	0.00	0.00	0.00	0.00
12,600.00	90.11	359.91	7,114.64	4,642.40	1,324.27	4,640.31	0.00	0.00	0.00	0.00
12,700.00	90.11	359.91	7,114.45	4,742.40	1,324.11	4,740.31	0.00	0.00	0.00	0.00
12,800.00	90.11	359.91	7,114.25	4,842.40	1,323.96	4,840.31	0.00	0.00	0.00	0.00
12,900.00	90.11	359.91	7,114.06	4,942.40	1,323.80	4,940.31	0.00	0.00	0.00	0.00
12,933.63	90.11	359.91	7,114.00	4,976.03	1,323.74	4,973.94	0.00	0.00	0.00	0.00

TD Well @ 12933.63ft - Total Depth (Toe) - FERGE 28N-14HZ_BHL

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
1,400.00	1,400.00	0.00	0.00	Begin Nudge @ 1400.00ft
2,261.56	2,248.63	-74.97	104.46	End Nudge @ 2261.56ft
6,583.67	6,376.75	-821.53	1,144.60	Top of 4.5 Liner @ 6583.67ft
6,683.67	6,472.26	-838.80	1,168.67	KOP @ 6683.67ft
7,100.00	6,860.11	-762.00	1,266.23	DLS = 10'/100'
7,684.41	7,124.00	-273.18	1,332.12	End Build @ 7684.41ft
12,933.63	7,114.00	4,976.03	1,323.74	TD Well @ 12933.63ft

Plan Report for FERGE 28N-14HZ - Rev A0 Permit

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin +N/_S (usft)	Origin +E/-W (usft)	Start TVD (usft)
User	No Target (Freehand)	359.91	Slot	0.00	0.00	0.00

Survey tool program

From (usft)	To (usft)	Survey/Plan	Survey Tool
0.00	7,684.41	Rev A0 Permit	MWD
7,684.41	12,933.63	Rev A0 Permit	MWD

Casing Details

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
1,145.00	1,145.00	9 5/8"	9-5/8	13-1/2
7,684.41	7,124.00	7"	7	8-3/4

Formation Details

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,095.00	1,095.00	Fox Hills Marker		0.00	
3,995.76	3,905.00	Parkman		0.00	
4,448.07	4,337.00	Sussex		0.00	
7,304.60	7,007.00	Sharon Springs		0.00	
7,414.56	7,064.00	Niobrara A		0.00	
7,585.94	7,116.00	Niobrara B		0.00	
7,684.41	7,124.00	Landing Target (Heel)		0.00	
12,933.63	7,114.00	Total Depth (Toe)		0.00	

Targets associated with this wellbore

Target Name	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Shape
FERGE 28N-14HZ_SEC	0.00	0.00	0.00	Polygon
FERGE 28N-14HZ_SHL	0.00	0.00	0.00	Point
FERGE 28N-14HZ_LD	0.00	0.00	0.00	Polygon
FERGE 28N-14HZ_BHL	7,114.00	4,976.03	1,323.74	Point
FERGE 28N-14HZ_CP	7,124.00	-273.17	1,332.12	Point

Directional Difficulty Index

Average Dogleg over Survey:	0.91 °/100usft	Maximum Dogleg over Survey:	10.00 °/100usft at 7,684.41 usft
Net Tortosity applicable to Plans:	0.91 °/100usft	Directional Difficulty Index:	6.361

Plan Report for FERGE 28N-14HZ - Rev A0 Permit

Audit Info

North Reference Sheet for Sec. 14-T3N-R66W - FERGE 28N-14HZ - 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' @ 4930.00usft (Drilling Rig). Northing and Easting are relative to FERGE 28N-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: 3,000,000.00usft, False Northing: 1,000,000.00usft, Scale Reduction: 0.99995700

Grid Coordinates of Well: 1,323,360.55 usft N, 3,209,524.67 usft E
Geographical Coordinates of Well: 40° 13' 06.92" N, 104° 44' 58.90" W
Grid Convergence at Surface is: 0.48°

Based upon Minimum Curvature type calculations, at a Measured Depth of 12,933.63usft
the Bottom Hole Displacement is 5,149.09usft in the Direction of 14.90° (True).
Magnetic Convergence at surface is: -8.07° (14 November 2013, , BGGM2013)

