

# Anadarko Petroleum Corp.

Weld County, CO (NAD 83)

Sec. 22-T3N-R66W

Morning Fresh 14N-22HZ

Plan A Rev 0

Plan: Plan A Rev 0 Permit

## Sperry Drilling Services

## Proposal Report

20 September, 2012

Well Coordinates: 1,322,497.50 N, 3,204,992.92 E (40° 12' 58.77" N, 104° 45' 57.41" W)

Ground Level: 4,886.00 ft

Local Coordinate Origin: Centered on Well Morning Fresh 14N-22HZ

Viewing Datum: RKB=17 @ 4903.00ft (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. 22-T3N-R66W  
Well: Morning Fresh 14N-22HZ  
Wellbore: Plan A Rev 0  
Design: Plan A Rev 0 Permit

# Anadarko Petroleum Corp.

**HALLIBURTON**  
Sperry Drilling

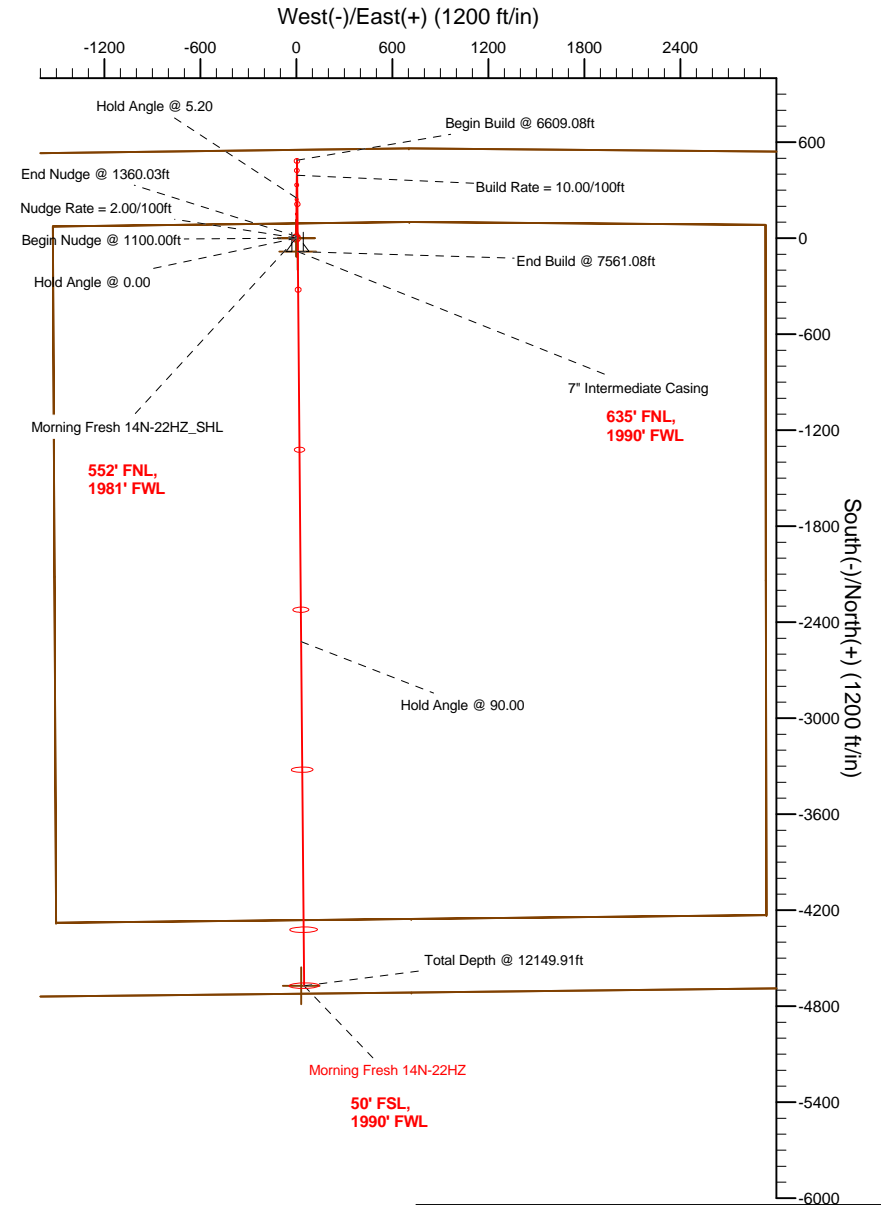
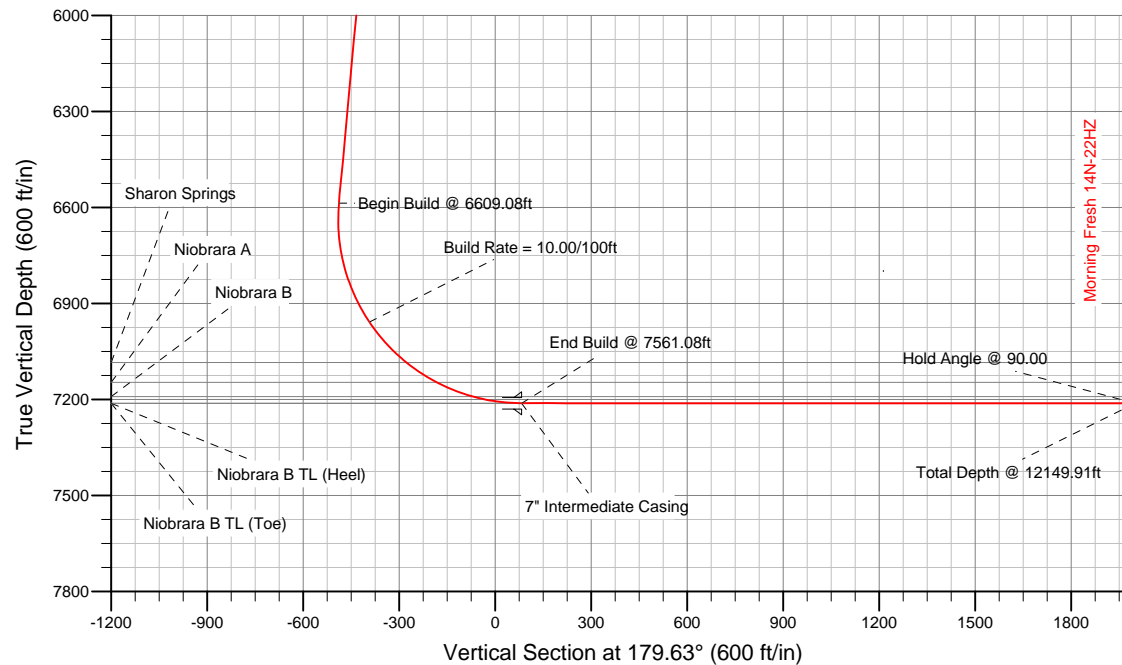
## SECTION DETAILS

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	1360.03	5.20	0.38	1359.67	11.79	0.08	2.00	0.38	-11.79	
4	6609.08	5.20	0.38	6587.11	487.57	3.26	0.00	0.00	-487.54	
5	7561.08	90.00	179.51	7212.00	-83.00	9.00	10.00	179.12	83.06	Morning Fresh 14N-22HZ_Casing Point
6	12149.91	90.00	179.51	7212.00	-4671.66	48.17	0.00	0.00	4671.87	Morning Fresh 14N-22HZ_BHL

## WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
Morning Fresh 14N-22HZ_Section Lines	0.00	0.00	0.00	40.216324	-104.765947	Polygon
Morning Fresh 14N-22HZ_Setback Lines	0.00	0.00	0.00	40.216324	-104.765947	Polygon
Morning Fresh 14N-22HZ_SHL	0.00	0.00	0.00	40.216324	-104.765947	Point
Morning Fresh 14N-22HZ_BHL	7212.00	-4671.78	30.17	40.203500	-104.765839	Point
Morning Fresh 14N-22HZ_Casing Point	7212.00	-83.00	9.00	40.216096	-104.765915	Point

**Target Line:**  
**7212.00' TVDkb @ 0' VS Drilling 90.00°**



## WELL DETAILS: Morning Fresh 14N-22HZ

Ground Level: 4886.00 RKB=17 @ 4903.00ft (Drilling Rig)

Plan: Plan A Rev 0 Permit (Morning Fresh 14N-22HZ/Plan A Rev 0)

Created By: Fred Hartmann Date: 09/20/2012  
Reviewed: \_\_\_\_\_ Date: \_\_\_\_\_

**Plan Report for Morning Fresh 14N-22HZ - Plan A 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>Morning Fresh 14N-22HZ_SHL - Morning Fresh 14N-22HZ_Section Lines - Morning Fresh 14N-22HZ_Setback 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
751.00	0.00	0.00	751.00	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	0.38	1,199.98	1.75	0.01	-1.75	2.00	2.00	0.00	0.38
<b>Nudge Rate = 2.00/100ft</b>										
1,300.00	4.00	0.38	1,299.84	6.98	0.05	-6.98	2.00	2.00	0.00	0.00
1,360.03	5.20	0.38	1,359.67	11.79	0.08	-11.79	2.00	2.00	0.00	0.00
<b>End Nudge @ 1360.03ft</b>										
1,400.00	5.20	0.38	1,399.48	15.42	0.10	-15.41	0.00	0.00	0.00	0.00
1,500.00	5.20	0.38	1,499.07	24.48	0.16	-24.48	0.00	0.00	0.00	0.00
1,600.00	5.20	0.38	1,598.66	33.54	0.22	-33.54	0.00	0.00	0.00	0.00
1,700.00	5.20	0.38	1,698.24	42.61	0.29	-42.61	0.00	0.00	0.00	0.00
1,800.00	5.20	0.38	1,797.83	51.67	0.35	-51.67	0.00	0.00	0.00	0.00
1,900.00	5.20	0.38	1,897.42	60.74	0.41	-60.73	0.00	0.00	0.00	0.00
2,000.00	5.20	0.38	1,997.01	69.80	0.47	-69.80	0.00	0.00	0.00	0.00
2,100.00	5.20	0.38	2,096.60	78.86	0.53	-78.86	0.00	0.00	0.00	0.00
2,200.00	5.20	0.38	2,196.19	87.93	0.59	-87.92	0.00	0.00	0.00	0.00
2,300.00	5.20	0.38	2,295.77	96.99	0.65	-96.99	0.00	0.00	0.00	0.00
2,400.00	5.20	0.38	2,395.36	106.06	0.71	-106.05	0.00	0.00	0.00	0.00
2,500.00	5.20	0.38	2,494.95	115.12	0.77	-115.11	0.00	0.00	0.00	0.00
2,600.00	5.20	0.38	2,594.54	124.18	0.83	-124.18	0.00	0.00	0.00	0.00
2,700.00	5.20	0.38	2,694.13	133.25	0.89	-133.24	0.00	0.00	0.00	0.00
2,800.00	5.20	0.38	2,793.72	142.31	0.95	-142.30	0.00	0.00	0.00	0.00
2,900.00	5.20	0.38	2,893.30	151.38	1.01	-151.37	0.00	0.00	0.00	0.00
3,000.00	5.20	0.38	2,992.89	160.44	1.07	-160.43	0.00	0.00	0.00	0.00
3,100.00	5.20	0.38	3,092.48	169.51	1.13	-169.49	0.00	0.00	0.00	0.00
3,200.00	5.20	0.38	3,192.07	178.57	1.20	-178.56	0.00	0.00	0.00	0.00
3,300.00	5.20	0.38	3,291.66	187.63	1.26	-187.62	0.00	0.00	0.00	0.00
3,400.00	5.20	0.38	3,391.25	196.70	1.32	-196.68	0.00	0.00	0.00	0.00
3,500.00	5.20	0.38	3,490.83	205.76	1.38	-205.75	0.00	0.00	0.00	0.00
3,600.00	5.20	0.38	3,590.42	214.83	1.44	-214.81	0.00	0.00	0.00	0.00
3,700.00	5.20	0.38	3,690.01	223.89	1.50	-223.88	0.00	0.00	0.00	0.00
3,800.00	5.20	0.38	3,789.60	232.95	1.56	-232.94	0.00	0.00	0.00	0.00
3,900.00	5.20	0.38	3,889.19	242.02	1.62	-242.00	0.00	0.00	0.00	0.00
4,000.00	5.20	0.38	3,988.78	251.08	1.68	-251.07	0.00	0.00	0.00	0.00
<b>Hold Angle @ 5.20</b>										
4,025.33	5.20	0.38	4,014.00	253.38	1.70	-253.36	0.00	0.00	0.00	0.00
<b>Parkman</b>										
4,100.00	5.20	0.38	4,088.36	260.15	1.74	-260.13	0.00	0.00	0.00	0.00
4,200.00	5.20	0.38	4,187.95	269.21	1.80	-269.19	0.00	0.00	0.00	0.00
4,300.00	5.20	0.38	4,287.54	278.27	1.86	-278.26	0.00	0.00	0.00	0.00
4,400.00	5.20	0.38	4,387.13	287.34	1.92	-287.32	0.00	0.00	0.00	0.00
4,500.00	5.20	0.38	4,486.72	296.40	1.98	-296.38	0.00	0.00	0.00	0.00
4,520.37	5.20	0.38	4,507.00	298.25	2.00	-298.23	0.00	0.00	0.00	0.00

**Plan Report for Morning Fresh 14N-22HZ - Plan A 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	5.20	0.38	4,586.31	305.47	2.04	-305.45	0.00	0.00	0.00	0.00
4,700.00	5.20	0.38	4,685.89	314.53	2.11	-314.51	0.00	0.00	0.00	0.00
4,800.00	5.20	0.38	4,785.48	323.59	2.17	-323.57	0.00	0.00	0.00	0.00
4,900.00	5.20	0.38	4,885.07	332.66	2.23	-332.64	0.00	0.00	0.00	0.00
5,000.00	5.20	0.38	4,984.66	341.72	2.29	-341.70	0.00	0.00	0.00	0.00
5,100.00	5.20	0.38	5,084.25	350.79	2.35	-350.76	0.00	0.00	0.00	0.00
5,200.00	5.20	0.38	5,183.84	359.85	2.41	-359.83	0.00	0.00	0.00	0.00
5,300.00	5.20	0.38	5,283.42	368.92	2.47	-368.89	0.00	0.00	0.00	0.00
5,400.00	5.20	0.38	5,383.01	377.98	2.53	-377.96	0.00	0.00	0.00	0.00
5,500.00	5.20	0.38	5,482.60	387.04	2.59	-387.02	0.00	0.00	0.00	0.00
5,600.00	5.20	0.38	5,582.19	396.11	2.65	-396.08	0.00	0.00	0.00	0.00
5,700.00	5.20	0.38	5,681.78	405.17	2.71	-405.15	0.00	0.00	0.00	0.00
5,800.00	5.20	0.38	5,781.37	414.24	2.77	-414.21	0.00	0.00	0.00	0.00
5,900.00	5.20	0.38	5,880.95	423.30	2.83	-423.27	0.00	0.00	0.00	0.00
6,000.00	5.20	0.38	5,980.54	432.36	2.89	-432.34	0.00	0.00	0.00	0.00
6,100.00	5.20	0.38	6,080.13	441.43	2.95	-441.40	0.00	0.00	0.00	0.00
6,200.00	5.20	0.38	6,179.72	450.49	3.02	-450.46	0.00	0.00	0.00	0.00
6,300.00	5.20	0.38	6,279.31	459.56	3.08	-459.53	0.00	0.00	0.00	0.00
6,400.00	5.20	0.38	6,378.90	468.62	3.14	-468.59	0.00	0.00	0.00	0.00
6,500.00	5.20	0.38	6,478.48	477.68	3.20	-477.65	0.00	0.00	0.00	0.00
6,600.00	5.20	0.38	6,578.07	486.75	3.26	-486.72	0.00	0.00	0.00	0.00
6,609.08	5.20	0.38	6,587.12	487.57	3.26	-487.54	0.00	0.00	0.00	0.00
<b>Begin Build @ 6609.08ft</b>										
6,700.00	3.89	178.34	6,677.93	488.61	3.38	-488.58	10.00	-1.44	195.73	179.12
6,800.00	13.89	179.19	6,776.61	473.17	3.65	-473.14	10.00	10.00	0.85	1.17
6,900.00	23.89	179.33	6,871.10	440.84	4.06	-440.80	10.00	10.00	0.14	0.33
7,000.00	33.89	179.39	6,958.54	392.59	4.59	-392.55	10.00	10.00	0.06	0.20
<b>Build Rate = 10.00/100ft</b>										
7,100.00	43.89	179.43	7,036.28	329.88	5.23	-329.84	10.00	10.00	0.04	0.14
7,172.17	51.11	179.45	7,085.00	276.71	5.75	-276.67	10.00	10.00	0.03	0.11
<b>Sharon Springs</b>										
7,200.00	53.89	179.45	7,101.94	254.63	5.97	-254.59	10.00	10.00	0.02	0.10
7,285.51	62.44	179.47	7,147.00	182.05	6.65	-182.01	10.00	10.00	0.02	0.10
<b>Niobrara A</b>										
7,300.00	63.89	179.47	7,153.54	169.13	6.77	-169.08	10.00	10.00	0.02	0.09
7,400.00	73.89	179.49	7,189.51	75.96	7.61	-75.91	10.00	10.00	0.02	0.09
7,405.47	74.44	179.49	7,191.00	70.69	7.66	-70.64	10.00	10.00	0.01	0.08
<b>Niobrara B</b>										
7,500.00	83.89	179.50	7,208.75	-22.04	8.48	22.09	10.00	10.00	0.01	0.08
7,561.08	90.00	179.51	7,212.00	-83.00	9.00	83.06	10.00	10.00	0.01	0.08
<b>End Build @ 7561.08ft - Niobrara B TL (Heel) - 7" Intermediate Casing - Morning Fresh 14N-22HZ_Casing Point</b>										
7,600.00	90.00	179.51	7,212.00	-121.92	9.33	121.98	0.00	0.00	0.00	0.08
7,700.00	90.00	179.51	7,212.00	-221.92	10.19	221.98	0.00	0.00	0.00	0.00
7,800.00	90.00	179.51	7,212.00	-321.91	11.04	321.98	0.00	0.00	0.00	0.00
7,900.00	90.00	179.51	7,212.00	-421.91	11.89	421.98	0.00	0.00	0.00	0.00
8,000.00	90.00	179.51	7,212.00	-521.90	12.75	521.98	0.00	0.00	0.00	0.00
8,100.00	90.00	179.51	7,212.00	-621.90	13.60	621.98	0.00	0.00	0.00	0.00
8,200.00	90.00	179.51	7,212.00	-721.90	14.45	721.98	0.00	0.00	0.00	0.00
8,300.00	90.00	179.51	7,212.00	-821.89	15.31	821.98	0.00	0.00	0.00	0.00
8,400.00	90.00	179.51	7,212.00	-921.89	16.16	921.98	0.00	0.00	0.00	0.00
8,500.00	90.00	179.51	7,212.00	-1,021.89	17.01	1,021.98	0.00	0.00	0.00	0.00
8,600.00	90.00	179.51	7,212.00	-1,121.88	17.87	1,121.98	0.00	0.00	0.00	0.00
8,700.00	90.00	179.51	7,212.00	-1,221.88	18.72	1,221.97	0.00	0.00	0.00	0.00
8,800.00	90.00	179.51	7,212.00	-1,321.88	19.57	1,321.97	0.00	0.00	0.00	0.00
8,900.00	90.00	179.51	7,212.00	-1,421.87	20.43	1,421.97	0.00	0.00	0.00	0.00
9,000.00	90.00	179.51	7,212.00	-1,521.87	21.28	1,521.97	0.00	0.00	0.00	0.00
9,100.00	90.00	179.51	7,212.00	-1,621.86	22.14	1,621.97	0.00	0.00	0.00	0.00

**Plan Report for Morning Fresh 14N-22HZ - Plan A 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 (°)
9,200.00	90.00	179.51	7,212.00	-1,721.86	22.99	1,721.97	0.00	0.00	0.00	0.00
9,300.00	90.00	179.51	7,212.00	-1,821.86	23.84	1,821.97	0.00	0.00	0.00	0.00
9,400.00	90.00	179.51	7,212.00	-1,921.85	24.70	1,921.97	0.00	0.00	0.00	0.00
9,500.00	90.00	179.51	7,212.00	-2,021.85	25.55	2,021.97	0.00	0.00	0.00	0.00
9,600.00	90.00	179.51	7,212.00	-2,121.85	26.40	2,121.97	0.00	0.00	0.00	0.00
9,700.00	90.00	179.51	7,212.00	-2,221.84	27.26	2,221.97	0.00	0.00	0.00	0.00
9,800.00	90.00	179.51	7,212.00	-2,321.84	28.11	2,321.97	0.00	0.00	0.00	0.00
9,900.00	90.00	179.51	7,212.00	-2,421.84	28.96	2,421.97	0.00	0.00	0.00	0.00
10,000.00	90.00	179.51	7,212.00	-2,521.83	29.82	2,521.97	0.00	0.00	0.00	0.00
<b>Hold Angle @ 90.00</b>										
10,100.00	90.00	179.51	7,212.00	-2,621.83	30.67	2,621.97	0.00	0.00	0.00	0.00
10,200.00	90.00	179.51	7,212.00	-2,721.82	31.52	2,721.97	0.00	0.00	0.00	0.00
10,300.00	90.00	179.51	7,212.00	-2,821.82	32.38	2,821.97	0.00	0.00	0.00	0.00
10,400.00	90.00	179.51	7,212.00	-2,921.82	33.23	2,921.97	0.00	0.00	0.00	0.00
10,500.00	90.00	179.51	7,212.00	-3,021.81	34.08	3,021.97	0.00	0.00	0.00	0.00
10,600.00	90.00	179.51	7,212.00	-3,121.81	34.94	3,121.97	0.00	0.00	0.00	0.00
10,700.00	90.00	179.51	7,212.00	-3,221.81	35.79	3,221.97	0.00	0.00	0.00	0.00
10,800.00	90.00	179.51	7,212.00	-3,321.80	36.64	3,321.97	0.00	0.00	0.00	0.00
10,900.00	90.00	179.51	7,212.00	-3,421.80	37.50	3,421.97	0.00	0.00	0.00	0.00
11,000.00	90.00	179.51	7,212.00	-3,521.80	38.35	3,521.97	0.00	0.00	0.00	0.00
11,100.00	90.00	179.51	7,212.00	-3,621.79	39.21	3,621.97	0.00	0.00	0.00	0.00
11,200.00	90.00	179.51	7,212.00	-3,721.79	40.06	3,721.97	0.00	0.00	0.00	0.00
11,300.00	90.00	179.51	7,212.00	-3,821.78	40.91	3,821.97	0.00	0.00	0.00	0.00
11,400.00	90.00	179.51	7,212.00	-3,921.78	41.77	3,921.97	0.00	0.00	0.00	0.00
11,500.00	90.00	179.51	7,212.00	-4,021.78	42.62	4,021.97	0.00	0.00	0.00	0.00
11,600.00	90.00	179.51	7,212.00	-4,121.77	43.47	4,121.97	0.00	0.00	0.00	0.00
11,700.00	90.00	179.51	7,212.00	-4,221.77	44.33	4,221.97	0.00	0.00	0.00	0.00
11,800.00	90.00	179.51	7,212.00	-4,321.77	45.18	4,321.97	0.00	0.00	0.00	0.00
11,900.00	90.00	179.51	7,212.00	-4,421.76	46.03	4,421.97	0.00	0.00	0.00	0.00
12,000.00	90.00	179.51	7,212.00	-4,521.76	46.89	4,521.97	0.00	0.00	0.00	0.00
12,100.00	90.00	179.51	7,212.00	-4,621.76	47.74	4,621.97	0.00	0.00	0.00	0.00
12,149.87	90.00	179.51	7,212.00	-4,671.62	48.17	4,671.84	0.00	0.00	0.00	0.00
<b>Morning Fresh 14N-22HZ_BHL</b>										
12,149.90	90.00	179.51	7,212.00	-4,671.65	48.17	4,671.87	0.00	0.00	0.00	0.00
<b>Niobrara B TL (Toe)</b>										
12,149.91	90.00	179.51	7,212.00	-4,671.66	48.17	4,671.87	0.00	0.00	0.00	0.00

**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	1.75	0.01	Nudge Rate = 2.00/100ft
1,360.03	1,359.67	11.79	0.08	End Nudge @ 1360.03ft
4,000.00	3,988.78	251.08	1.68	Hold Angle @ 5.20
6,609.08	6,587.12	487.57	3.26	Begin Build @ 6609.08ft
7,000.00	6,958.54	392.59	4.59	Build Rate = 10.00/100ft
7,561.08	7,212.00	-83.00	9.00	End Build @ 7561.08ft
10,000.00	7,212.00	-2,521.83	29.82	Hold Angle @ 90.00
12,149.91	7,212.00	-4,671.66	48.17	Total Depth @ 12149.91ft

## Plan Report for Morning Fresh 14N-22HZ - Plan A Rev 0 Permit

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin +N/_S (ft)	Origin +E/-W (ft)	Start TVD (ft)
Target	Morning Fresh 14N-22HZ_BHL	179.63	Slot	0.00	0.00	0.00

Survey tool program

From (ft)	To (ft)	Survey/Plan	Survey Tool
0.00	12,149.91	Plan A Rev 0 Permit	MWD

Casing Details

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
7,561.08	7,212.00	7" Intermediate Casing	7	8-3/4

Formation Details

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
751.00	751.00	Fox Hills		0.00	
4,025.33	4,014.00	Parkman		0.00	
4,520.37	4,507.00	Sussex		0.00	
7,172.17	7,085.00	Sharon Springs		0.00	
7,285.51	7,147.00	Niobrara A		0.00	
7,405.47	7,191.00	Niobrara B		0.00	
7,561.08	7,212.00	Niobrara B TL (Heel)		0.00	
12,149.90	7,212.00	Niobrara B TL (Toe)		0.00	

Targets associated with this wellbore

Target Name	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Shape
Morning Fresh 14N-22HZ_SHL	0.00	0.00	0.00	Point
Morning Fresh 14N-22HZ_Casing Point	7,212.00	-83.00	9.00	Point
Morning Fresh 14N-22HZ_Section Lines	0.00	0.00	0.00	Polygon
Morning Fresh 14N-22HZ_BHL	7,212.00	-4,671.78	30.17	Point
Morning Fresh 14N-22HZ_Setback Lines	0.00	0.00	0.00	Polygon

# North Reference Sheet for Sec. 22-T3N-R66W - Morning Fresh 14N-22HZ - Plan A 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 @ 4903.00ft (Drilling Rig). Northing and Easting are relative to Morning Fresh 14N-22HZ  
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: 0.99995703

Grid Coordinates of Well: 1,322,497.50 ft N, 3,204,992.92 ft E  
Geographical Coordinates of Well: 40° 12' 58.77" N, 104° 45' 57.41" W  
Grid Convergence at Surface is: 0.47°

Based upon Minimum Curvature type calculations, at a Measured Depth of 12,149.91ft  
the Bottom Hole Displacement is 4,671.91ft in the Direction of 179.41° (True).

Magnetic Convergence at surface is: -8.25° (20 September 2012, , BGGM2012)

