

# US ROCKIES WATTENBERG PLANNING

WELD-NAD83-UTMFT13N

5N-R68W-12 Encore 41N-12HZ Pad

ENCORE 26N-12HZ

Plan A

Plan: Permit Rev-1

## Sperry Drilling Services Proposal Report

15 December, 2014

Well Coordinates: 14,679,869.16 N, 1,650,690.77 E (40° 25' 13.87" N, 104° 57' 47.11" W)

Ground Level: 4,990.00 usft

Local Coordinate Origin:

Centered on Well ENCORE 26N-12HZ

Viewing Datum:

RKB = 17' @ 5007.00usft (D Rig)

TVDs to System:

N

North Reference:

True

Unit System:

Dec-Deg - API - US Survey Feet - Custom

Version: 5000.1 Build: 70

**HALLIBURTON**

Project: WELD-NAD83-UTMFT13N  
Site: 5N-R68W-12 Encore 41N-12HZ Pad  
Well: ENCORE 26N-12HZ  
Wellbore: Plan A  
Design: Permit Rev-1

# US ROCKIES WATTENBERG PLANNING

**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	1530.00	0.00	0.00	1530.00	0.00	0.00	0.00	0.00	0.00	
3	2730.00	24.00	278.00	2695.21	34.47	-245.26	2.00	278.00	-245.22	
4	5580.00	24.00	278.00	5298.82	195.80	-1393.18	0.00	0.00	1392.91	
5	6780.00	0.00	0.00	6464.03	230.27	-1638.45	2.00	180.00	-1638.12	
6	6884.01	0.00	0.00	6568.04	230.27	-1638.45	0.00	0.00	-1638.12	
7	7781.25	89.72	89.92	7141.00	231.07	-1068.24	10.00	89.92	-1067.92	
8	14018.87	89.72	89.92	7171.00	239.80	5169.29	0.00	0.00	5169.62	ENCORE 26N-12HZ_BHL

## WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Polygon
ENCORE 26N-12HZ_SHL	0.00	0.00	0.00	40.420519	-104.963086	Polygon
5N-R67W-Sec. 7_Section Lines	42.00	334.24	5220.33	40.421435	-104.944330	Polygon
5N-R68W-Sec. 11_Section Lines	42.00	-2551.97	4853.94	40.413510	-104.945648	Polygon
5N-R68W-Sec. 12_Section Lines	42.00	-2551.97	4853.94	40.413510	-104.945648	Polygon
ENCORE 26N-12HZ_BHL	7171.00	239.80	5169.29	40.421176	-104.944513	Polygon

West(-)/East(+) (1400 usft/in)

2100 2800 3500 4200 4900 5600 6300 7000

South(-)/North(+) (1400 usft/in)

1400

700

0

-700

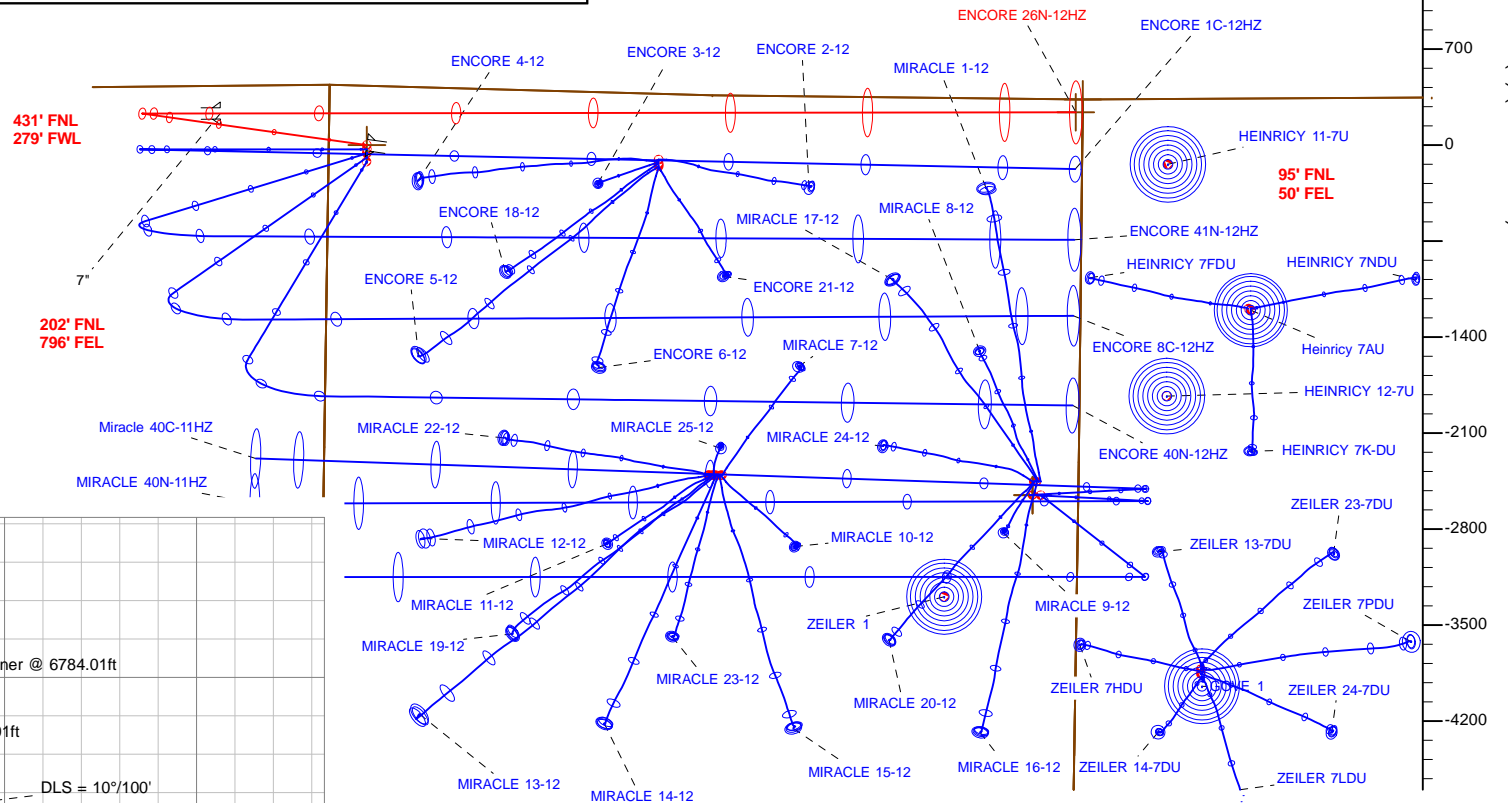
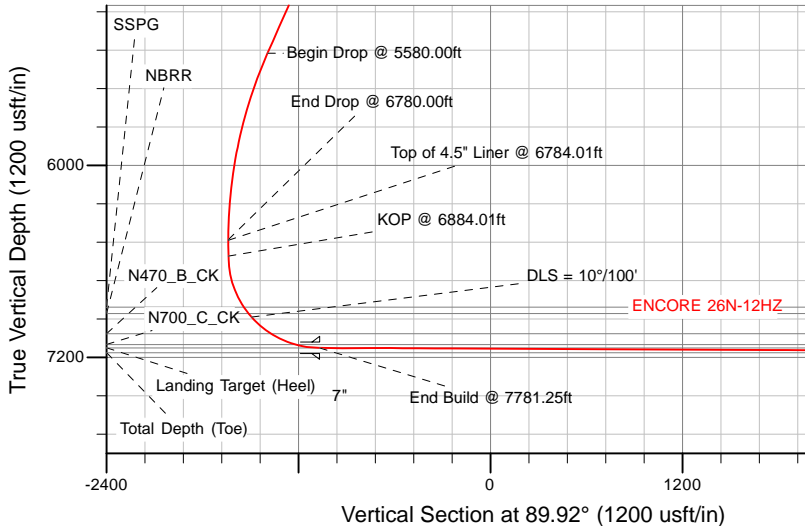
-1400

-2100

-2800

-3500

-4200



TVD MD

6468.04 6784.01 Top of 4.5" Liner @ 6784.01ft  
6568.04 6884.01 KOP @ 6884.01ft

WELL DETAILS: ENCORE 26N-12HZ

Ground Level: 4990.00

RKB = 17' @ 5007.00usft (D Rig)

Plan: Permit Rev-1 (ENCORE 26N-12HZ/Plan A)

Created By: Clint Eshelman

Reviewed: \_\_\_\_\_

Date: 12/15/2014

Date: \_\_\_\_\_

## Plan Report for ENCORE 26N-12HZ - Permit Rev-1

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
<b>ENCORE 26N-12HZ_SHL</b>										
42.00	0.00	0.00	42.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>5N-R68W-Sec. 12_Section Lines - 5N-R67W-Sec. 7_Section Lines - 5N-R68W-Sec. 11_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
287.00	0.00	0.00	287.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Base Fox Hills</b>										
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
746.00	0.00	0.00	746.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Surface Csg Setting Depth - 9 5/8"</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
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
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,530.00	0.00	0.00	1,530.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Begin Nudge @ 1530.00ft</b>										
1,600.00	1.40	278.00	1,599.99	0.12	-0.85	-0.85	2.00	2.00	0.00	278.00
1,700.00	3.40	278.00	1,699.90	0.70	-4.99	-4.99	2.00	2.00	0.00	0.00
1,800.00	5.40	278.00	1,799.60	1.77	-12.59	-12.59	2.00	2.00	0.00	0.00
1,900.00	7.40	278.00	1,898.97	3.32	-23.63	-23.62	2.00	2.00	0.00	0.00
2,000.00	9.40	278.00	1,997.89	5.35	-38.09	-38.09	2.00	2.00	0.00	0.00
2,100.00	11.40	278.00	2,096.25	7.87	-55.97	-55.96	2.00	2.00	0.00	0.00
2,200.00	13.40	278.00	2,193.91	10.85	-77.23	-77.22	2.00	2.00	0.00	0.00
2,300.00	15.40	278.00	2,290.76	14.32	-101.86	-101.84	2.00	2.00	0.00	0.00
2,400.00	17.40	278.00	2,386.69	18.24	-129.82	-129.79	2.00	2.00	0.00	0.00
2,500.00	19.40	278.00	2,481.57	22.64	-161.07	-161.04	2.00	2.00	0.00	0.00
2,600.00	21.40	278.00	2,575.29	27.49	-195.59	-195.55	2.00	2.00	0.00	0.00
2,700.00	23.40	278.00	2,667.74	32.79	-233.32	-233.28	2.00	2.00	0.00	0.00
2,730.00	24.00	278.00	2,695.21	34.47	-245.26	-245.22	2.00	2.00	0.00	0.00
<b>End Nudge @ 2730.00ft</b>										
2,800.00	24.00	278.00	2,759.16	38.43	-273.46	-273.40	0.00	0.00	0.00	0.00
2,900.00	24.00	278.00	2,850.52	44.09	-313.74	-313.67	0.00	0.00	0.00	0.00
3,000.00	24.00	278.00	2,941.87	49.75	-354.01	-353.94	0.00	0.00	0.00	0.00
3,100.00	24.00	278.00	3,033.23	55.41	-394.29	-394.21	0.00	0.00	0.00	0.00
3,200.00	24.00	278.00	3,124.58	61.07	-434.57	-434.48	0.00	0.00	0.00	0.00
3,300.00	24.00	278.00	3,215.94	66.74	-474.85	-474.75	0.00	0.00	0.00	0.00
3,400.00	24.00	278.00	3,307.29	72.40	-515.13	-515.02	0.00	0.00	0.00	0.00
3,500.00	24.00	278.00	3,398.64	78.06	-555.40	-555.29	0.00	0.00	0.00	0.00
3,600.00	24.00	278.00	3,490.00	83.72	-595.68	-595.56	0.00	0.00	0.00	0.00
3,615.33	24.00	278.00	3,504.00	84.59	-601.85	-601.74	0.00	0.00	0.00	0.00
<b>Parkman</b>										
3,700.00	24.00	278.00	3,581.35	89.38	-635.96	-635.83	0.00	0.00	0.00	0.00
3,800.00	24.00	278.00	3,672.71	95.04	-676.24	-676.10	0.00	0.00	0.00	0.00
3,900.00	24.00	278.00	3,764.06	100.70	-716.51	-716.37	0.00	0.00	0.00	0.00
4,000.00	24.00	278.00	3,855.42	106.36	-756.79	-756.64	0.00	0.00	0.00	0.00
4,100.00	24.00	278.00	3,946.77	112.02	-797.07	-796.91	0.00	0.00	0.00	0.00
4,200.00	24.00	278.00	4,038.13	117.68	-837.35	-837.18	0.00	0.00	0.00	0.00
4,300.00	24.00	278.00	4,129.48	123.34	-877.63	-877.45	0.00	0.00	0.00	0.00

## Plan Report for ENCORE 26N-12HZ - Permit Rev-1

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 (°)
4,400.00	24.00	278.00	4,220.84	129.00	-917.90	-917.72	0.00	0.00	0.00	0.00
4,500.00	24.00	278.00	4,312.19	134.66	-958.18	-957.99	0.00	0.00	0.00	0.00
4,600.00	24.00	278.00	4,403.54	140.32	-998.46	-998.26	0.00	0.00	0.00	0.00
4,700.00	24.00	278.00	4,494.90	145.98	-1,038.74	-1,038.53	0.00	0.00	0.00	0.00
4,799.72	24.00	278.00	4,586.00	151.63	-1,078.90	-1,078.69	0.00	0.00	0.00	0.00
<b>Sussex</b>										
4,800.00	24.00	278.00	4,586.25	151.65	-1,079.01	-1,078.80	0.00	0.00	0.00	0.00
4,900.00	24.00	278.00	4,677.61	157.31	-1,119.29	-1,119.07	0.00	0.00	0.00	0.00
5,000.00	24.00	278.00	4,768.96	162.97	-1,159.57	-1,159.34	0.00	0.00	0.00	0.00
5,100.00	24.00	278.00	4,860.32	168.63	-1,199.85	-1,199.61	0.00	0.00	0.00	0.00
5,200.00	24.00	278.00	4,951.67	174.29	-1,240.13	-1,239.88	0.00	0.00	0.00	0.00
5,300.00	24.00	278.00	5,043.03	179.95	-1,280.40	-1,280.15	0.00	0.00	0.00	0.00
5,400.00	24.00	278.00	5,134.38	185.61	-1,320.68	-1,320.42	0.00	0.00	0.00	0.00
5,500.00	24.00	278.00	5,225.74	191.27	-1,360.96	-1,360.69	0.00	0.00	0.00	0.00
5,580.00	24.00	278.00	5,298.82	195.80	-1,393.18	-1,392.91	0.00	0.00	0.00	0.00
<b>Begin Drop @ 5580.00ft</b>										
5,600.00	23.60	278.00	5,317.12	196.92	-1,401.17	-1,400.90	2.00	-2.00	0.00	180.00
5,700.00	21.60	278.00	5,409.43	202.27	-1,439.23	-1,438.94	2.00	-2.00	0.00	180.00
5,800.00	19.60	278.00	5,503.04	207.17	-1,474.07	-1,473.78	2.00	-2.00	0.00	180.00
5,900.00	17.60	278.00	5,597.81	211.61	-1,505.65	-1,505.35	2.00	-2.00	0.00	180.00
6,000.00	15.60	278.00	5,693.64	215.58	-1,533.94	-1,533.64	2.00	-2.00	0.00	180.00
6,100.00	13.60	278.00	5,790.40	219.09	-1,558.90	-1,558.59	2.00	-2.00	0.00	180.00
6,200.00	11.60	278.00	5,887.99	222.13	-1,580.50	-1,580.19	2.00	-2.00	0.00	180.00
6,300.00	9.60	278.00	5,986.28	224.69	-1,598.72	-1,598.40	2.00	-2.00	0.00	180.00
6,400.00	7.60	278.00	6,085.15	226.77	-1,613.52	-1,613.21	2.00	-2.00	0.00	180.00
6,500.00	5.60	278.00	6,184.48	228.37	-1,624.91	-1,624.59	2.00	-2.00	0.00	180.00
6,600.00	3.60	278.00	6,284.15	229.48	-1,632.85	-1,632.53	2.00	-2.00	0.00	180.00
6,700.00	1.60	278.00	6,384.04	230.11	-1,637.34	-1,637.02	2.00	-2.00	0.00	180.00
6,780.00	0.00	0.00	6,464.03	230.27	-1,638.45	-1,638.12	2.00	-2.00	102.50	180.00
<b>End Drop @ 6780.00ft</b>										
6,784.01	0.00	0.00	6,468.04	230.27	-1,638.45	-1,638.12	0.00	0.00	0.00	0.00
<b>Top of 4.5" Liner @ 6784.01ft</b>										
6,800.00	0.00	0.00	6,484.03	230.27	-1,638.45	-1,638.12	0.00	0.00	0.00	0.00
6,884.01	0.00	0.00	6,568.04	230.27	-1,638.45	-1,638.12	0.00	0.00	0.00	0.00
<b>KOP @ 6884.01ft</b>										
6,900.00	1.60	89.92	6,584.03	230.27	-1,638.22	-1,637.90	10.00	10.00	562.35	89.92
7,000.00	11.60	89.92	6,683.24	230.28	-1,626.75	-1,626.42	10.00	10.00	0.00	0.00
7,100.00	21.60	89.92	6,778.95	230.32	-1,598.21	-1,597.89	10.00	10.00	0.00	0.00
7,200.00	31.60	89.92	6,868.26	230.39	-1,553.50	-1,553.17	10.00	10.00	0.00	0.00
7,222.28	33.83	89.92	6,887.00	230.40	-1,541.46	-1,541.13	10.00	10.00	0.00	0.00
<b>SSPG</b>										
7,271.93	38.79	89.92	6,927.00	230.45	-1,512.06	-1,511.74	10.00	10.00	0.00	0.00
<b>NBRR</b>										
7,300.00	41.60	89.92	6,948.44	230.47	-1,493.95	-1,493.63	10.00	10.00	0.00	0.00
<b>DLS = 10°/100'</b>										
7,400.00	51.60	89.92	7,017.06	230.57	-1,421.39	-1,421.06	10.00	10.00	0.00	0.00
7,462.24	57.82	89.92	7,053.00	230.64	-1,370.61	-1,370.28	10.00	10.00	0.00	0.00
<b>N470_B_CK</b>										
7,500.00	61.60	89.92	7,072.04	230.69	-1,338.01	-1,337.69	10.00	10.00	0.00	0.00
7,600.00	71.60	89.92	7,111.71	230.82	-1,246.35	-1,246.03	10.00	10.00	0.00	0.00
7,632.17	74.82	89.92	7,121.00	230.86	-1,215.56	-1,215.23	10.00	10.00	0.00	0.00
<b>N700_C_CK</b>										
7,700.00	81.60	89.92	7,134.85	230.95	-1,149.20	-1,148.87	10.00	10.00	0.00	0.00
7,781.25	89.72	89.92	7,140.99	231.07	-1,068.25	-1,067.92	10.00	10.00	0.00	0.00
<b>End Build @ 7781.25ft - Landing Target (Heel) - 7"</b>										
7,800.00	89.72	89.92	7,141.09	231.09	-1,049.50	-1,049.17	0.00	0.00	0.00	0.00
7,900.00	89.72	89.92	7,141.57	231.23	-949.50	-949.18	0.00	0.00	0.00	0.00
8,000.00	89.72	89.92	7,142.05	231.37	-849.50	-849.18	0.00	0.00	0.00	0.00

## Plan Report for ENCORE 26N-12HZ - Permit Rev-1

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 (°)
8,100.00	89.72	89.92	7,142.53	231.51	-749.50	-749.18	0.00	0.00	0.00	0.00
8,200.00	89.72	89.92	7,143.01	231.65	-649.50	-649.18	0.00	0.00	0.00	0.00
8,300.00	89.72	89.92	7,143.49	231.79	-549.50	-549.18	0.00	0.00	0.00	0.00
8,400.00	89.72	89.92	7,143.97	231.93	-449.51	-449.18	0.00	0.00	0.00	0.00
8,500.00	89.72	89.92	7,144.45	232.07	-349.51	-349.18	0.00	0.00	0.00	0.00
8,600.00	89.72	89.92	7,144.93	232.21	-249.51	-249.18	0.00	0.00	0.00	0.00
8,700.00	89.72	89.92	7,145.41	232.35	-149.51	-149.19	0.00	0.00	0.00	0.00
8,800.00	89.72	89.92	7,145.90	232.49	-49.51	-49.19	0.00	0.00	0.00	0.00
8,900.00	89.72	89.92	7,146.38	232.63	50.49	50.81	0.00	0.00	0.00	0.00
9,000.00	89.72	89.92	7,146.86	232.77	150.49	150.81	0.00	0.00	0.00	0.00
9,100.00	89.72	89.92	7,147.34	232.91	250.49	250.81	0.00	0.00	0.00	0.00
9,200.00	89.72	89.92	7,147.82	233.05	350.48	350.81	0.00	0.00	0.00	0.00
9,300.00	89.72	89.92	7,148.30	233.19	450.48	450.81	0.00	0.00	0.00	0.00
9,400.00	89.72	89.92	7,148.78	233.33	550.48	550.81	0.00	0.00	0.00	0.00
9,500.00	89.72	89.92	7,149.26	233.47	650.48	650.81	0.00	0.00	0.00	0.00
9,600.00	89.72	89.92	7,149.74	233.61	750.48	750.80	0.00	0.00	0.00	0.00
9,700.00	89.72	89.92	7,150.22	233.75	850.48	850.80	0.00	0.00	0.00	0.00
9,800.00	89.72	89.92	7,150.71	233.89	950.48	950.80	0.00	0.00	0.00	0.00
9,900.00	89.72	89.92	7,151.19	234.03	1,050.48	1,050.80	0.00	0.00	0.00	0.00
10,000.00	89.72	89.92	7,151.67	234.17	1,150.47	1,150.80	0.00	0.00	0.00	0.00
10,100.00	89.72	89.92	7,152.15	234.31	1,250.47	1,250.80	0.00	0.00	0.00	0.00
10,200.00	89.72	89.92	7,152.63	234.45	1,350.47	1,350.80	0.00	0.00	0.00	0.00
10,300.00	89.72	89.92	7,153.11	234.59	1,450.47	1,450.80	0.00	0.00	0.00	0.00
10,400.00	89.72	89.92	7,153.59	234.73	1,550.47	1,550.80	0.00	0.00	0.00	0.00
10,500.00	89.72	89.92	7,154.07	234.87	1,650.47	1,650.79	0.00	0.00	0.00	0.00
10,600.00	89.72	89.92	7,154.55	235.01	1,750.47	1,750.79	0.00	0.00	0.00	0.00
10,700.00	89.72	89.92	7,155.04	235.15	1,850.47	1,850.79	0.00	0.00	0.00	0.00
10,800.00	89.72	89.92	7,155.52	235.29	1,950.46	1,950.79	0.00	0.00	0.00	0.00
10,900.00	89.72	89.92	7,156.00	235.43	2,050.46	2,050.79	0.00	0.00	0.00	0.00
11,000.00	89.72	89.92	7,156.48	235.57	2,150.46	2,150.79	0.00	0.00	0.00	0.00
11,100.00	89.72	89.92	7,156.96	235.71	2,250.46	2,250.79	0.00	0.00	0.00	0.00
11,200.00	89.72	89.92	7,157.44	235.85	2,350.46	2,350.79	0.00	0.00	0.00	0.00
11,300.00	89.72	89.92	7,157.92	235.99	2,450.46	2,450.78	0.00	0.00	0.00	0.00
11,400.00	89.72	89.92	7,158.40	236.13	2,550.46	2,550.78	0.00	0.00	0.00	0.00
11,500.00	89.72	89.92	7,158.88	236.27	2,650.46	2,650.78	0.00	0.00	0.00	0.00
11,600.00	89.72	89.92	7,159.36	236.41	2,750.45	2,750.78	0.00	0.00	0.00	0.00
11,700.00	89.72	89.92	7,159.85	236.55	2,850.45	2,850.78	0.00	0.00	0.00	0.00
11,800.00	89.72	89.92	7,160.33	236.69	2,950.45	2,950.78	0.00	0.00	0.00	0.00
11,900.00	89.72	89.92	7,160.81	236.83	3,050.45	3,050.78	0.00	0.00	0.00	0.00
12,000.00	89.72	89.92	7,161.29	236.97	3,150.45	3,150.78	0.00	0.00	0.00	0.00
12,100.00	89.72	89.92	7,161.77	237.11	3,250.45	3,250.78	0.00	0.00	0.00	0.00
12,200.00	89.72	89.92	7,162.25	237.25	3,350.45	3,350.77	0.00	0.00	0.00	0.00
12,300.00	89.72	89.92	7,162.73	237.39	3,450.45	3,450.77	0.00	0.00	0.00	0.00
12,400.00	89.72	89.92	7,163.21	237.53	3,550.44	3,550.77	0.00	0.00	0.00	0.00
12,500.00	89.72	89.92	7,163.69	237.67	3,650.44	3,650.77	0.00	0.00	0.00	0.00
12,600.00	89.72	89.92	7,164.17	237.81	3,750.44	3,750.77	0.00	0.00	0.00	0.00
12,700.00	89.72	89.92	7,164.66	237.95	3,850.44	3,850.77	0.00	0.00	0.00	0.00
12,800.00	89.72	89.92	7,165.14	238.09	3,950.44	3,950.77	0.00	0.00	0.00	0.00
12,900.00	89.72	89.92	7,165.62	238.23	4,050.44	4,050.77	0.00	0.00	0.00	0.00
13,000.00	89.72	89.92	7,166.10	238.37	4,150.44	4,150.77	0.00	0.00	0.00	0.00
13,100.00	89.72	89.92	7,166.58	238.51	4,250.43	4,250.76	0.00	0.00	0.00	0.00
13,200.00	89.72	89.92	7,167.06	238.65	4,350.43	4,350.76	0.00	0.00	0.00	0.00
13,300.00	89.72	89.92	7,167.54	238.79	4,450.43	4,450.76	0.00	0.00	0.00	0.00
13,400.00	89.72	89.92	7,168.02	238.93	4,550.43	4,550.76	0.00	0.00	0.00	0.00
13,500.00	89.72	89.92	7,168.50	239.07	4,650.43	4,650.76	0.00	0.00	0.00	0.00
13,600.00	89.72	89.92	7,168.99	239.21	4,750.43	4,750.76	0.00	0.00	0.00	0.00
13,700.00	89.72	89.92	7,169.47	239.35	4,850.43	4,850.76	0.00	0.00	0.00	0.00
13,800.00	89.72	89.92	7,169.95	239.49	4,950.43	4,950.76	0.00	0.00	0.00	0.00
13,900.00	89.72	89.92	7,170.43	239.63	5,050.42	5,050.75	0.00	0.00	0.00	0.00
14,000.00	89.72	89.92	7,170.91	239.77	5,150.42	5,150.75	0.00	0.00	0.00	0.00

## Plan Report for ENCORE 26N-12HZ - Permit Rev-1

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 (°)
14,018.87	89.72	89.92	7,171.00	239.80	5,169.29	5,169.62	0.00	0.00	0.00	0.00
TD Well @ 14018.87ft - ENCORE 26N-12HZ_BHL										

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
1,530.00	1,530.00	0.00	0.00	Begin Nudge @ 1530.00ft
2,730.00	2,695.21	34.47	-245.26	End Nudge @ 2730.00ft
5,580.00	5,298.82	195.80	-1,393.18	Begin Drop @ 5580.00ft
6,780.00	6,464.03	230.27	-1,638.45	End Drop @ 6780.00ft
6,784.01	6,468.04	230.27	-1,638.45	Top of 4.5" Liner @ 6784.01ft
6,884.01	6,568.04	230.27	-1,638.45	KOP @ 6884.01ft
7,300.00	6,948.44	230.47	-1,493.95	DLS = 10°/100'
7,781.25	7,140.99	231.07	-1,068.25	End Build @ 7781.25ft
14,018.87	7,171.00	239.80	5,169.29	TD Well @ 14018.87ft

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin		Start TVD (usft)
				+N/_S (usft)	+E/-W (usft)	
User	No Target (Freehand)	89.92	Slot	0.00	0.00	0.00

Survey tool program

From (usft)	To (usft)	Survey/Plan	Survey Tool
0.00	7,781.25	Permit Rev-1	MWD+IFR1
7,781.25	14,018.87	Permit Rev-1	MWD+IFR1

Casing Details

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
746.00	746.00	9 5/8"	9-5/8	13-1/2
7,781.25	7,140.99	7"	7	8-3/4

Formation Details

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
287.00	287.00	Base Fox Hills		0.00	
746.00	746.00	Surface Csg Setting Depth		0.00	
3,615.33	3,504.00	Parkman		0.00	
4,799.72	4,586.00	Sussex		0.00	
7,222.28	6,887.00	SSPG		0.00	
7,271.93	6,927.00	NBRR		0.00	
7,462.24	7,053.00	N470_B_CK		0.00	
7,632.17	7,121.00	N700_C_CK		0.00	
7,781.25	7,140.99	Landing Target (Heel)		0.00	
14,018.87	7,171.00	Total Depth (Toe)		0.00	

## Plan Report for ENCORE 26N-12HZ - Permit Rev-1

### Targets associated with this wellbore

Target Name	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Shape
ENCORE 26N-12HZ_BHL	7,171.00	239.80	5,169.29	Point
5N-R68W-Sec. 12_Section Lines	42.00	-2,551.97	4,853.94	Polygon
ENCORE 26N-12HZ_SHL	0.00	0.00	0.00	Point
5N-R67W-Sec. 7_Section Lines	42.00	334.24	5,220.33	Polygon
5N-R68W-Sec. 11_Section Lines	42.00	-2,551.97	4,853.94	Polygon

## North Reference Sheet for 5N-R68W-12 Encore 41N-12HZ Pad - ENCORE 26N-12HZ - 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' @ 5007.00usft (D Rig). Northing and Easting are relative to ENCORE 26N-12HZ

Coordinate System is Universal Transverse Mercator (US Survey Feet), Zone 13N (108 W to 102 W) using datum North American Datum 1983, ellipsoid

Projection method is Transverse Mercator (Gauss-Kruger)

Central Meridian is -105.00°, Longitude Origin:0.000000°, Latitude Origin:0.000000°

False Easting: 1,640,416.67usft, False Northing: 0.00usft, Scale Reduction: 0.99960012

Grid Coordinates of Well: 14,679,869.16 usft N, 1,650,690.77 usft E

Geographical Coordinates of Well: 40° 25' 13.87" N, 104° 57' 47.11" W

Grid Convergence at Surface is: 0.02°

Based upon Minimum Curvature type calculations, at a Measured Depth of 14,018.87usft  
the Bottom Hole Displacement is 5,174.85usft in the Direction of 87.34° ( True).

Magnetic Convergence at surface is: -8.48° (15 December 2014, , IGRF2010)

