

# US ROCKIES WATTENBERG PLANNING

WELD-NAD83-UTMFT13N

Skim 35-21HZ Pad

SKIM 13N-28HZ

Plan B

Plan: Permit Rev-2

## Sperry Drilling Services

### Proposal Report

22 October, 2014

Well Coordinates: 14,601,715.23 N, 1,731,608.36 E (40° 12' 19.62" N, 104° 40' 24.22" W)

Ground Level: 4,847.00 usft

Local Coordinate Origin:

Centered on Well SKIM 13N-28HZ

Viewing Datum:

RKB = 17' @ 4864.00usft (D Rig)

TVDs to System:

N

North Reference:

True

Unit System:

API - US Survey Feet - Custom

Version: 5000.1 Build: 70

**HALLIBURTON**

Project: WELD-NAD83-UTMFT13N  
 Site: Skim 35-21HZ Pad  
 Well: SKIM 13N-28HZ  
 Wellbore: Plan B  
 Design: Permit Rev-2

# US ROCKIES WATTENBERG PLANNING

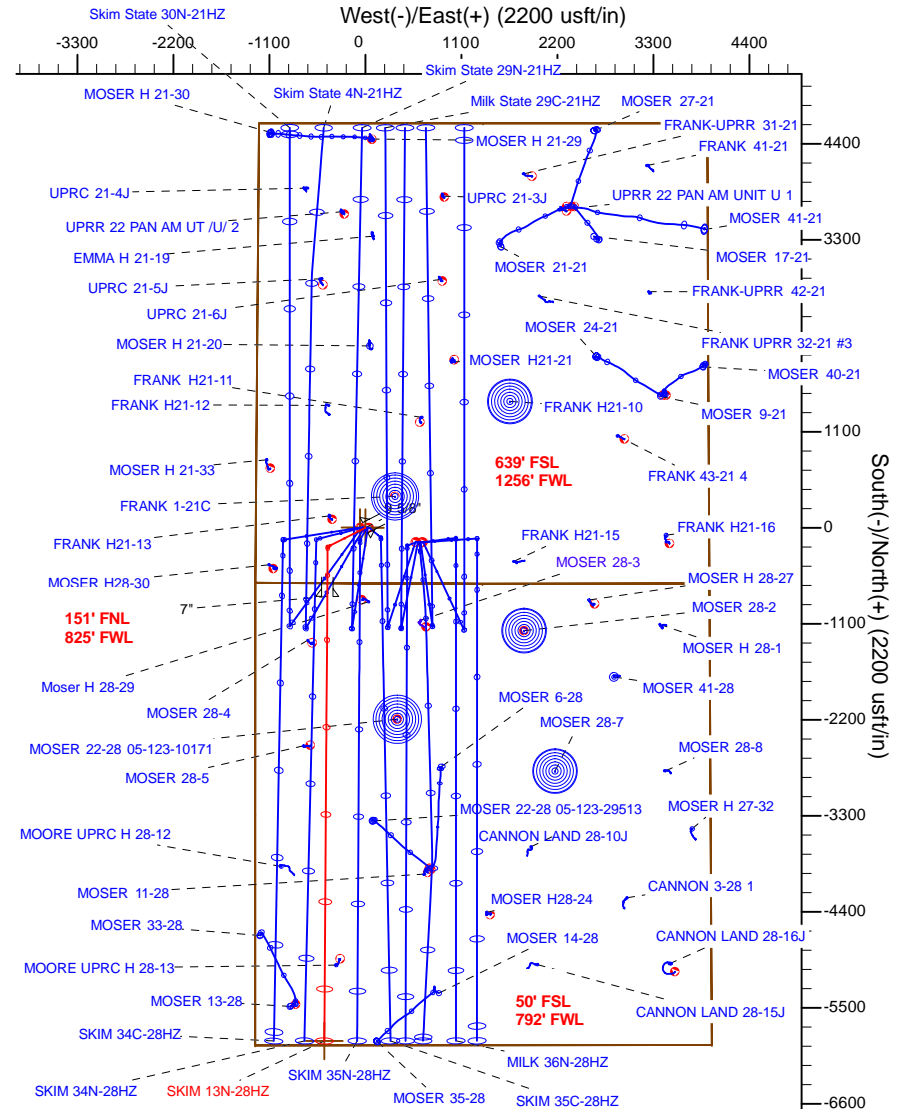
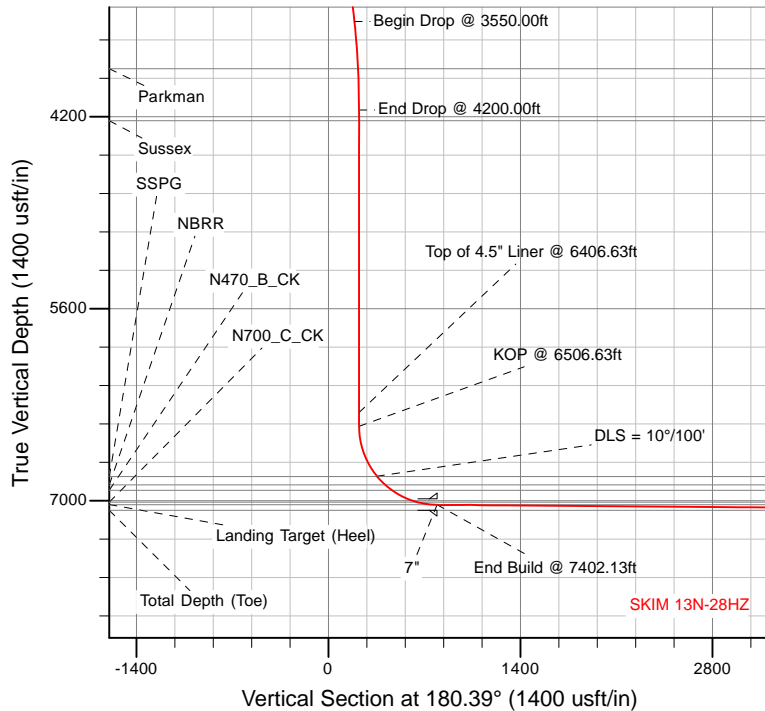


### SECTION DETAILS

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	2050.00	13.00	243.00	2044.44	-33.33	-65.42	2.00	243.00	33.78	
4	3550.00	13.00	243.00	3505.99	-186.52	-366.07	0.00	0.00	189.01	
5	4200.00	0.00	0.00	4150.43	-219.86	-431.49	2.00	180.00	222.79	
6	6506.63	0.00	0.00	6457.06	-219.86	-431.49	0.00	0.00	222.79	
7	7402.13	89.55	180.39	7030.00	-788.30	-435.39	10.00	180.39	791.25	
8	12494.86	89.55	180.39	7070.00	-5880.76	-470.31	0.00	0.00	5883.82	SKIM 13N-28HZ_BHL

### WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Polygon
Sec. 28 and 21-T3N-R65W	0.00	0.73	-60.03	40.205452	-104.673609	
SKIM 13N-28HZ_SHL	0.00	0.00	0.00	40.205450	-104.673394	
SKIM 13N-28HZ_BHL	7070.00	-5880.76	-470.31	40.189301	-104.675078	



TVD MD  
 6357.06 6406.63 Top of 4.5" Liner @ 6406.63ft  
 6457.06 6506.63 KOP @ 6506.63ft

### WELL DETAILS: SKIM 13N-28HZ

Ground Level: 4847.00

RKB = 17' @ 4864.00usft (D Rig)

Plan: Permit Rev-2 (SKIM 13N-28HZ/Plan B)

Created By: Clint Eshelman Date: 10/22/2014  
 Reviewed: \_\_\_\_\_ Date: \_\_\_\_\_



Plan Report for SKIM 13N-28HZ - Permit Rev-2

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>SKIM 13N-28HZ_SHL - Sec. 28 and 21-T3N-R65W</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
623.00	0.00	0.00	623.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Base Fox Hills</b>										
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
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,136.00	0.00	0.00	1,136.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Surface Csg Setting Depth - 9 5/8"</b>										
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
<b>Begin Nudge @ 1400.00ft</b>										
1,500.00	2.00	243.00	1,499.98	-0.79	-1.55	0.80	2.00	2.00	0.00	243.00
1,600.00	4.00	243.00	1,599.84	-3.17	-6.22	3.21	2.00	2.00	0.00	0.00
1,700.00	6.00	243.00	1,699.45	-7.12	-13.98	7.22	2.00	2.00	0.00	0.00
1,800.00	8.00	243.00	1,798.70	-12.66	-24.84	12.83	2.00	2.00	0.00	0.00
1,900.00	10.00	243.00	1,897.47	-19.76	-38.78	20.02	2.00	2.00	0.00	0.00
2,000.00	12.00	243.00	1,995.62	-28.42	-55.78	28.80	2.00	2.00	0.00	0.00
2,050.00	13.00	243.00	2,044.44	-33.33	-65.42	33.78	2.00	2.00	0.00	0.00
<b>End Nudge @ 2050.00ft</b>										
2,100.00	13.00	243.00	2,093.16	-38.44	-75.44	38.95	0.00	0.00	0.00	0.00
2,200.00	13.00	243.00	2,190.59	-48.65	-95.49	49.30	0.00	0.00	0.00	0.00
2,300.00	13.00	243.00	2,288.03	-58.87	-115.53	59.65	0.00	0.00	0.00	0.00
2,400.00	13.00	243.00	2,385.47	-69.08	-135.57	70.00	0.00	0.00	0.00	0.00
2,500.00	13.00	243.00	2,482.90	-79.29	-155.62	80.35	0.00	0.00	0.00	0.00
2,600.00	13.00	243.00	2,580.34	-89.50	-175.66	90.70	0.00	0.00	0.00	0.00
2,700.00	13.00	243.00	2,677.78	-99.72	-195.70	101.05	0.00	0.00	0.00	0.00
2,800.00	13.00	243.00	2,775.21	-109.93	-215.75	111.39	0.00	0.00	0.00	0.00
2,900.00	13.00	243.00	2,872.65	-120.14	-235.79	121.74	0.00	0.00	0.00	0.00
3,000.00	13.00	243.00	2,970.09	-130.35	-255.83	132.09	0.00	0.00	0.00	0.00
3,100.00	13.00	243.00	3,067.53	-140.57	-275.88	142.44	0.00	0.00	0.00	0.00
3,200.00	13.00	243.00	3,164.96	-150.78	-295.92	152.79	0.00	0.00	0.00	0.00
3,300.00	13.00	243.00	3,262.40	-160.99	-315.96	163.14	0.00	0.00	0.00	0.00
3,400.00	13.00	243.00	3,359.84	-171.20	-336.01	173.49	0.00	0.00	0.00	0.00
3,500.00	13.00	243.00	3,457.27	-181.42	-356.05	183.84	0.00	0.00	0.00	0.00
3,550.00	13.00	243.00	3,505.99	-186.52	-366.07	189.01	0.00	0.00	0.00	0.00
<b>Begin Drop @ 3550.00ft</b>										
3,600.00	12.00	243.00	3,554.81	-191.44	-375.71	193.99	2.00	-2.00	0.00	180.00
3,700.00	10.00	243.00	3,652.96	-200.10	-392.71	202.77	2.00	-2.00	0.00	180.00
3,800.00	8.00	243.00	3,751.73	-207.20	-406.65	209.96	2.00	-2.00	0.00	180.00
3,899.02	6.02	243.00	3,850.00	-212.68	-417.42	215.52	2.00	-2.00	0.00	180.00
<b>Parkman</b>										
3,900.00	6.00	243.00	3,850.98	-212.73	-417.51	215.57	2.00	-2.00	0.00	-180.00
4,000.00	4.00	243.00	3,950.59	-216.69	-425.27	219.58	2.00	-2.00	0.00	180.00
4,100.00	2.00	243.00	4,050.45	-219.06	-429.94	221.99	2.00	-2.00	0.00	180.00
4,200.00	0.00	0.00	4,150.43	-219.86	-431.49	222.79	2.00	-2.00	117.00	180.00
<b>End Drop @ 4200.00ft</b>										
4,279.57	0.00	0.00	4,230.00	-219.86	-431.49	222.79	0.00	0.00	0.00	180.00
<b>Sussex</b>										

## Plan Report for SKIM 13N-28HZ - Permit Rev-2

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 (°)
4,300.00	0.00	0.00	4,250.43	-219.86	-431.49	222.79	0.00	0.00	0.00	0.00
4,400.00	0.00	0.00	4,350.43	-219.86	-431.49	222.79	0.00	0.00	0.00	0.00
4,500.00	0.00	0.00	4,450.43	-219.86	-431.49	222.79	0.00	0.00	0.00	0.00
4,600.00	0.00	0.00	4,550.43	-219.86	-431.49	222.79	0.00	0.00	0.00	0.00
4,700.00	0.00	0.00	4,650.43	-219.86	-431.49	222.79	0.00	0.00	0.00	0.00
4,800.00	0.00	0.00	4,750.43	-219.86	-431.49	222.79	0.00	0.00	0.00	0.00
4,900.00	0.00	0.00	4,850.43	-219.86	-431.49	222.79	0.00	0.00	0.00	0.00
5,000.00	0.00	0.00	4,950.43	-219.86	-431.49	222.79	0.00	0.00	0.00	0.00
5,100.00	0.00	0.00	5,050.43	-219.86	-431.49	222.79	0.00	0.00	0.00	0.00
5,200.00	0.00	0.00	5,150.43	-219.86	-431.49	222.79	0.00	0.00	0.00	0.00
5,300.00	0.00	0.00	5,250.43	-219.86	-431.49	222.79	0.00	0.00	0.00	0.00
5,400.00	0.00	0.00	5,350.43	-219.86	-431.49	222.79	0.00	0.00	0.00	0.00
5,500.00	0.00	0.00	5,450.43	-219.86	-431.49	222.79	0.00	0.00	0.00	0.00
5,600.00	0.00	0.00	5,550.43	-219.86	-431.49	222.79	0.00	0.00	0.00	0.00
5,700.00	0.00	0.00	5,650.43	-219.86	-431.49	222.79	0.00	0.00	0.00	0.00
5,800.00	0.00	0.00	5,750.43	-219.86	-431.49	222.79	0.00	0.00	0.00	0.00
5,900.00	0.00	0.00	5,850.43	-219.86	-431.49	222.79	0.00	0.00	0.00	0.00
6,000.00	0.00	0.00	5,950.43	-219.86	-431.49	222.79	0.00	0.00	0.00	0.00
6,100.00	0.00	0.00	6,050.43	-219.86	-431.49	222.79	0.00	0.00	0.00	0.00
6,200.00	0.00	0.00	6,150.43	-219.86	-431.49	222.79	0.00	0.00	0.00	0.00
6,300.00	0.00	0.00	6,250.43	-219.86	-431.49	222.79	0.00	0.00	0.00	0.00
6,400.00	0.00	0.00	6,350.43	-219.86	-431.49	222.79	0.00	0.00	0.00	0.00
6,406.63	0.00	0.00	6,357.06	-219.86	-431.49	222.79	0.00	0.00	0.00	0.00
<b>Top of 4.5" Liner @ 6406.63ft</b>										
6,500.00	0.00	0.00	6,450.43	-219.86	-431.49	222.79	0.00	0.00	0.00	0.00
6,506.63	0.00	0.00	6,457.06	-219.86	-431.49	222.79	0.00	0.00	0.00	0.00
<b>KOP @ 6506.63ft</b>										
6,600.00	9.34	180.39	6,550.02	-227.45	-431.54	230.38	10.00	10.00	0.00	180.39
6,700.00	19.34	180.39	6,646.78	-252.18	-431.71	255.11	10.00	10.00	0.00	0.00
6,800.00	29.34	180.39	6,737.78	-293.33	-432.00	296.27	10.00	10.00	0.00	0.00
6,900.00	39.34	180.39	6,820.25	-349.67	-432.38	352.60	10.00	10.00	0.00	0.00
<b>DLS = 10°/100'</b>										
6,904.87	39.82	180.39	6,824.00	-352.77	-432.40	355.71	10.00	10.00	0.00	0.00
<b>SSPG</b>										
6,988.35	48.17	180.39	6,884.00	-410.71	-432.80	413.64	10.00	10.00	0.00	0.00
<b>NBRR</b>										
7,000.00	49.34	180.39	6,891.68	-419.47	-432.86	422.40	10.00	10.00	0.00	0.00
7,052.47	54.58	180.39	6,924.00	-460.77	-433.14	463.71	10.00	10.00	0.00	0.00
<b>N470_B_CK</b>										
7,100.00	59.34	180.39	6,949.91	-500.61	-433.42	503.54	10.00	10.00	0.00	0.00
7,200.00	69.34	180.39	6,993.16	-590.63	-434.03	593.57	10.00	10.00	0.00	0.00
7,254.73	74.81	180.39	7,010.00	-642.68	-434.39	645.62	10.00	10.00	0.00	0.00
<b>N700_C_CK</b>										
7,300.00	79.34	180.39	7,020.12	-686.79	-434.69	689.73	10.00	10.00	0.00	0.00
7,400.00	89.34	180.39	7,029.98	-786.17	-435.38	789.12	10.00	10.00	0.00	0.00
7,402.13	89.55	180.39	7,030.00	-788.30	-435.39	791.25	10.00	10.00	0.00	0.00
<b>End Build @ 7402.13ft - Landing Target (Heel) - 7"</b>										
7,500.00	89.55	180.39	7,030.77	-886.17	-436.06	889.11	0.00	0.00	0.00	0.00
7,600.00	89.55	180.39	7,031.55	-986.16	-436.75	989.11	0.00	0.00	0.00	0.00
7,700.00	89.55	180.39	7,032.34	-1,086.15	-437.43	1,089.11	0.00	0.00	0.00	0.00
7,800.00	89.55	180.39	7,033.12	-1,186.15	-438.12	1,189.10	0.00	0.00	0.00	0.00
7,900.00	89.55	180.39	7,033.91	-1,286.14	-438.80	1,289.10	0.00	0.00	0.00	0.00
8,000.00	89.55	180.39	7,034.70	-1,386.14	-439.49	1,389.10	0.00	0.00	0.00	0.00
8,100.00	89.55	180.39	7,035.48	-1,486.13	-440.18	1,489.09	0.00	0.00	0.00	0.00
8,200.00	89.55	180.39	7,036.27	-1,586.13	-440.86	1,589.09	0.00	0.00	0.00	0.00
8,300.00	89.55	180.39	7,037.05	-1,686.12	-441.55	1,689.09	0.00	0.00	0.00	0.00
8,400.00	89.55	180.39	7,037.84	-1,786.12	-442.23	1,789.09	0.00	0.00	0.00	0.00
8,500.00	89.55	180.39	7,038.62	-1,886.11	-442.92	1,889.08	0.00	0.00	0.00	0.00
8,600.00	89.55	180.39	7,039.41	-1,986.11	-443.60	1,989.08	0.00	0.00	0.00	0.00



Plan Report for SKIM 13N-28HZ - Permit Rev-2

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)	Tooface Azimuth (°)
8,700.00	89.55	180.39	7,040.19	-2,086.10	-444.29	2,089.08	0.00	0.00	0.00	0.00
8,800.00	89.55	180.39	7,040.98	-2,186.09	-444.98	2,189.07	0.00	0.00	0.00	0.00
8,900.00	89.55	180.39	7,041.76	-2,286.09	-445.66	2,289.07	0.00	0.00	0.00	0.00
9,000.00	89.55	180.39	7,042.55	-2,386.08	-446.35	2,389.07	0.00	0.00	0.00	0.00
9,100.00	89.55	180.39	7,043.34	-2,486.08	-447.03	2,489.06	0.00	0.00	0.00	0.00
9,200.00	89.55	180.39	7,044.12	-2,586.07	-447.72	2,589.06	0.00	0.00	0.00	0.00
9,300.00	89.55	180.39	7,044.91	-2,686.07	-448.40	2,689.06	0.00	0.00	0.00	0.00
9,400.00	89.55	180.39	7,045.69	-2,786.06	-449.09	2,789.05	0.00	0.00	0.00	0.00
9,500.00	89.55	180.39	7,046.48	-2,886.06	-449.78	2,889.05	0.00	0.00	0.00	0.00
9,600.00	89.55	180.39	7,047.26	-2,986.05	-450.46	2,989.05	0.00	0.00	0.00	0.00
9,700.00	89.55	180.39	7,048.05	-3,086.05	-451.15	3,089.05	0.00	0.00	0.00	0.00
9,800.00	89.55	180.39	7,048.83	-3,186.04	-451.83	3,189.04	0.00	0.00	0.00	0.00
9,900.00	89.55	180.39	7,049.62	-3,286.04	-452.52	3,289.04	0.00	0.00	0.00	0.00
10,000.00	89.55	180.39	7,050.40	-3,386.03	-453.20	3,389.04	0.00	0.00	0.00	0.00
10,100.00	89.55	180.39	7,051.19	-3,486.02	-453.89	3,489.03	0.00	0.00	0.00	0.00
10,200.00	89.55	180.39	7,051.98	-3,586.02	-454.57	3,589.03	0.00	0.00	0.00	0.00
10,300.00	89.55	180.39	7,052.76	-3,686.01	-455.26	3,689.03	0.00	0.00	0.00	0.00
10,400.00	89.55	180.39	7,053.55	-3,786.01	-455.95	3,789.02	0.00	0.00	0.00	0.00
10,500.00	89.55	180.39	7,054.33	-3,886.00	-456.63	3,889.02	0.00	0.00	0.00	0.00
10,600.00	89.55	180.39	7,055.12	-3,986.00	-457.32	3,989.02	0.00	0.00	0.00	0.00
10,700.00	89.55	180.39	7,055.90	-4,085.99	-458.00	4,089.01	0.00	0.00	0.00	0.00
10,800.00	89.55	180.39	7,056.69	-4,185.99	-458.69	4,189.01	0.00	0.00	0.00	0.00
10,900.00	89.55	180.39	7,057.47	-4,285.98	-459.37	4,289.01	0.00	0.00	0.00	0.00
11,000.00	89.55	180.39	7,058.26	-4,385.98	-460.06	4,389.01	0.00	0.00	0.00	0.00
11,100.00	89.55	180.39	7,059.04	-4,485.97	-460.75	4,489.00	0.00	0.00	0.00	0.00
11,200.00	89.55	180.39	7,059.83	-4,585.96	-461.43	4,589.00	0.00	0.00	0.00	0.00
11,300.00	89.55	180.39	7,060.62	-4,685.96	-462.12	4,689.00	0.00	0.00	0.00	0.00
11,400.00	89.55	180.39	7,061.40	-4,785.95	-462.80	4,788.99	0.00	0.00	0.00	0.00
11,500.00	89.55	180.39	7,062.19	-4,885.95	-463.49	4,888.99	0.00	0.00	0.00	0.00
11,600.00	89.55	180.39	7,062.97	-4,985.94	-464.17	4,988.99	0.00	0.00	0.00	0.00
11,700.00	89.55	180.39	7,063.76	-5,085.94	-464.86	5,088.98	0.00	0.00	0.00	0.00
11,800.00	89.55	180.39	7,064.54	-5,185.93	-465.55	5,188.98	0.00	0.00	0.00	0.00
11,900.00	89.55	180.39	7,065.33	-5,285.93	-466.23	5,288.98	0.00	0.00	0.00	0.00
12,000.00	89.55	180.39	7,066.11	-5,385.92	-466.92	5,388.97	0.00	0.00	0.00	0.00
12,100.00	89.55	180.39	7,066.90	-5,485.92	-467.60	5,488.97	0.00	0.00	0.00	0.00
12,200.00	89.55	180.39	7,067.68	-5,585.91	-468.29	5,588.97	0.00	0.00	0.00	0.00
12,300.00	89.55	180.39	7,068.47	-5,685.90	-468.97	5,688.97	0.00	0.00	0.00	0.00
12,400.00	89.55	180.39	7,069.25	-5,785.90	-469.66	5,788.96	0.00	0.00	0.00	0.00
12,494.86	89.55	180.39	7,070.00	-5,880.75	-470.31	5,883.82	0.00	0.00	0.00	0.00

TD Well @ 12494.86ft - Total Depth (Toe) - SKIM 13N-28HZ\_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
2,050.00	2,044.44	-33.33	-65.42	End Nudge @ 2050.00ft
3,550.00	3,505.99	-186.52	-366.07	Begin Drop @ 3550.00ft
4,200.00	4,150.43	-219.86	-431.49	End Drop @ 4200.00ft
6,406.63	6,357.06	-219.86	-431.49	Top of 4.5" Liner @ 6406.63ft
6,506.63	6,457.06	-219.86	-431.49	KOP @ 6506.63ft
6,900.00	6,820.25	-349.67	-432.38	DLS = 10°/100'
7,402.13	7,030.00	-788.30	-435.39	End Build @ 7402.13ft
12,494.86	7,070.00	-5,880.75	-470.31	TD Well @ 12494.86ft

**Plan Report for SKIM 13N-28HZ - Permit Rev-2**

**Vertical Section Information**

Angle Type	Target	Azimuth (°)	Origin Type	Origin +N/_S (usft)	Origin +E/-W (usft)	Start TVD (usft)
User	No Target (Freehand)	180.39	Slot	0.00	0.00	0.00

**Survey tool program**

From (usft)	To (usft)	Survey/Plan	Survey Tool
0.00	7,402.13	Permit Rev-2	MWD+IFR1
7,402.13	12,494.86	Permit Rev-2	MWD+IFR1

**Casing Details**

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
1,136.00	1,136.00	9 5/8"	9-5/8	13-1/2
7,402.13	7,030.00	7"	7	8-3/4

**Formation Details**

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
623.00	623.00	Base Fox Hills		0.00	
1,136.00	1,136.00	Surface Csg Setting Depth		0.00	
3,899.02	3,850.00	Parkman		0.00	
4,279.57	4,230.00	Sussex		0.00	
6,904.87	6,824.00	SSPG		0.00	
6,988.35	6,884.00	NBRR		0.00	
7,052.47	6,924.00	N470_B_CK		0.00	
7,254.73	7,010.00	N700_C_CK		0.00	
7,402.13	7,030.00	Landing Target (Heel)		0.00	
12,494.86	7,070.00	Total Depth (Toe)		0.00	

***Targets associated with this wellbore***

Target Name	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Shape
SKIM 13N-28HZ_BHL	7,070.00	-5,880.76	-470.31	Point
SKIM 13N-28HZ_SHL	0.00	0.00	0.00	Point
Sec. 28 and 21-T3N-R65W	0.00	0.73	-60.03	Polygon

**North Reference Sheet for Skim 35-21HZ Pad - SKIM 13N-28HZ - Plan B**

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' @ 4864.00usft (D Rig). Northing and Easting are relative to SKIM 13N-28HZ  
 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: 0.99960951

Grid Coordinates of Well: 14,601,715.23 usft N, 1,731,608.36 usft E  
 Geographical Coordinates of Well: 40° 12' 19.62" N, 104° 40' 24.22" W  
 Grid Convergence at Surface is: 0.21°

Based upon Minimum Curvature type calculations, at a Measured Depth of 12,494.86usft  
 the Bottom Hole Displacement is 5,899.53usft in the Direction of 184.57° ( True).

Magnetic Convergence at surface is: -8.14° (10 October 2014, , IGRF2010)

