

# US ROCKIES WATTENBERG PLANNING

WELD-NAD83-UTMFT13N

5N-68W-12 Miracle 40-12HZ Pad

MIRACLE 40N-11HZ

Plan A

Plan: Permit Rev-1

## Sperry Drilling Services Proposal Report

15 December, 2014

Well Coordinates: 14,677,318.87 N, 1,655,575.85 E (40° 24' 48.63" N, 104° 56' 43.94" W)

Ground Level: 4,948.00 usft

Local Coordinate Origin:

Centered on Well MIRACLE 40N-11HZ

Viewing Datum:

RKB = 17' @ 4965.00usft (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-68W-12 Miracle 40-12HZ Pad  
Well: MIRACLE 40N-11HZ  
Wellbore: Plan A  
Design: Permit Rev-1

# US ROCKIES WATTENBERG PLANNING

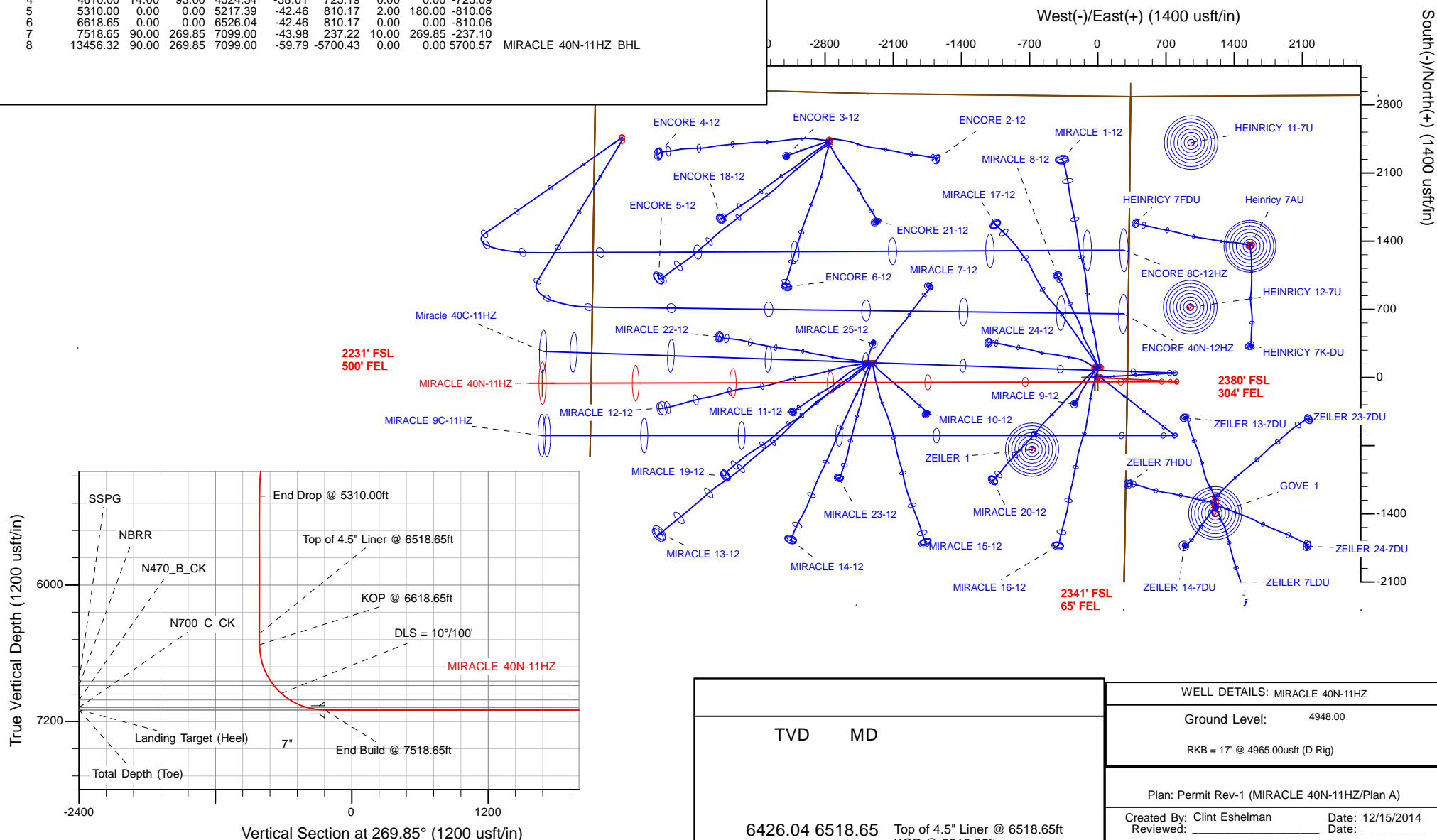
**HALLIBURTON**  
Sperry Drilling

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	1260.00	0.00	0.00	1260.00	0.00	0.00	0.00	0.00	0.00	
3	1960.00	14.00	93.00	1953.06	-4.45	84.98	2.00	93.00	-84.97	
4	4610.00	14.00	93.00	4524.34	-38.01	725.19	0.00	0.00	-725.09	
5	5310.00	0.00	0.00	5217.39	-42.46	810.17	2.00	180.00	-810.06	
6	6618.65	0.00	0.00	6526.04	-42.46	810.17	0.00	0.00	-810.06	
7	7518.65	90.00	269.85	7099.00	-43.98	237.22	10.00	269.85	-237.10	
8	13456.32	90.00	269.85	7099.00	-59.79	-5700.43	0.00	0.00	5700.57	MIRACLE 40N-11HZ_BHL

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Polygon
5N-R67W-Sec. 7_Section Lines	0.00	2886.50	336.89	40.421435	-104.944330	Polygon
5N-R68W-Sec. 11_Section Lines	0.00	0.36	-30.06	40.413510	-104.945648	Polygon
5N-R68W-Sec. 12_Section Lines	0.00	0.36	-30.06	40.413510	-104.945648	Polygon
MIRACLE 40N-11HZ_SHL	0.00	0.00	0.00	40.413509	-104.945540	
MIRACLE 40N-11HZ_BHL	7099.00	-59.79	-5700.43	40.413343	-104.966019	



## Plan Report for MIRACLE 40N-11HZ - 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>MIRACLE 40N-11HZ_SHL - 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
245.00	0.00	0.00	245.00	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
704.00	0.00	0.00	704.00	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
1,260.00	0.00	0.00	1,260.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Begin Nudge @ 1260.00ft</b>										
1,300.00	0.80	93.00	1,300.00	-0.01	0.28	-0.28	2.00	2.00	0.00	93.00
1,400.00	2.80	93.00	1,399.94	-0.18	3.42	-3.41	2.00	2.00	0.00	0.00
1,500.00	4.80	93.00	1,499.72	-0.53	10.03	-10.03	2.00	2.00	0.00	0.00
1,600.00	6.80	93.00	1,599.20	-1.05	20.12	-20.12	2.00	2.00	0.00	0.00
1,700.00	8.80	93.00	1,698.27	-1.76	33.68	-33.67	2.00	2.00	0.00	0.00
1,800.00	10.80	93.00	1,796.81	-2.66	50.67	-50.67	2.00	2.00	0.00	0.00
1,900.00	12.80	93.00	1,894.69	-3.73	71.09	-71.08	2.00	2.00	0.00	0.00
1,960.00	14.00	93.00	1,953.06	-4.45	84.98	-84.97	2.00	2.00	0.00	0.00
<b>End Nudge @ 1960.00ft</b>										
2,000.00	14.00	93.00	1,991.87	-4.96	94.64	-94.63	0.00	0.00	0.00	0.00
2,100.00	14.00	93.00	2,088.90	-6.23	118.80	-118.79	0.00	0.00	0.00	0.00
2,200.00	14.00	93.00	2,185.93	-7.49	142.96	-142.94	0.00	0.00	0.00	0.00
2,300.00	14.00	93.00	2,282.96	-8.76	167.12	-167.10	0.00	0.00	0.00	0.00
2,400.00	14.00	93.00	2,379.99	-10.02	191.28	-191.25	0.00	0.00	0.00	0.00
2,500.00	14.00	93.00	2,477.01	-11.29	215.44	-215.41	0.00	0.00	0.00	0.00
2,600.00	14.00	93.00	2,574.04	-12.56	239.60	-239.56	0.00	0.00	0.00	0.00
2,700.00	14.00	93.00	2,671.07	-13.82	263.76	-263.72	0.00	0.00	0.00	0.00
2,800.00	14.00	93.00	2,768.10	-15.09	287.92	-287.88	0.00	0.00	0.00	0.00
2,900.00	14.00	93.00	2,865.13	-16.36	312.07	-312.03	0.00	0.00	0.00	0.00
3,000.00	14.00	93.00	2,962.16	-17.62	336.23	-336.19	0.00	0.00	0.00	0.00
3,100.00	14.00	93.00	3,059.19	-18.89	360.39	-360.34	0.00	0.00	0.00	0.00
3,200.00	14.00	93.00	3,156.22	-20.15	384.55	-384.50	0.00	0.00	0.00	0.00
3,300.00	14.00	93.00	3,253.25	-21.42	408.71	-408.65	0.00	0.00	0.00	0.00
3,400.00	14.00	93.00	3,350.28	-22.69	432.87	-432.81	0.00	0.00	0.00	0.00
3,500.00	14.00	93.00	3,447.31	-23.95	457.03	-456.96	0.00	0.00	0.00	0.00
3,515.14	14.00	93.00	3,462.00	-24.14	460.69	-460.62	0.00	0.00	0.00	0.00
<b>Parkman</b>										
3,600.00	14.00	93.00	3,544.34	-25.22	481.19	-481.12	0.00	0.00	0.00	0.00
3,700.00	14.00	93.00	3,641.37	-26.48	505.35	-505.28	0.00	0.00	0.00	0.00
3,800.00	14.00	93.00	3,738.40	-27.75	529.51	-529.43	0.00	0.00	0.00	0.00
3,900.00	14.00	93.00	3,835.43	-29.02	553.67	-553.59	0.00	0.00	0.00	0.00
4,000.00	14.00	93.00	3,932.46	-30.28	577.82	-577.74	0.00	0.00	0.00	0.00
4,100.00	14.00	93.00	4,029.49	-31.55	601.98	-601.90	0.00	0.00	0.00	0.00
4,200.00	14.00	93.00	4,126.52	-32.81	626.14	-626.05	0.00	0.00	0.00	0.00
4,300.00	14.00	93.00	4,223.55	-34.08	650.30	-650.21	0.00	0.00	0.00	0.00
4,400.00	14.00	93.00	4,320.58	-35.35	674.46	-674.37	0.00	0.00	0.00	0.00
4,500.00	14.00	93.00	4,417.61	-36.61	698.62	-698.52	0.00	0.00	0.00	0.00
4,600.00	14.00	93.00	4,514.64	-37.88	722.78	-722.68	0.00	0.00	0.00	0.00

## Plan Report for MIRACLE 40N-11HZ - 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 (°)
4,610.00	14.00	93.00	4,524.34	-38.01	725.19	-725.09	0.00	0.00	0.00	0.00
<b>Begin Drop @ 4610.00ft</b>										
4,630.25	13.60	93.00	4,544.00	-38.26	730.02	-729.91	2.00	-2.00	0.00	180.00
<b>Sussex</b>										
4,700.00	12.20	93.00	4,611.99	-39.07	745.56	-745.46	2.00	-2.00	0.00	-180.00
4,800.00	10.20	93.00	4,710.08	-40.09	764.96	-764.85	2.00	-2.00	0.00	180.00
4,900.00	8.20	93.00	4,808.79	-40.93	780.93	-780.82	2.00	-2.00	0.00	180.00
5,000.00	6.20	93.00	4,908.00	-41.58	793.44	-793.33	2.00	-2.00	0.00	180.00
5,100.00	4.20	93.00	5,007.58	-42.06	802.49	-802.38	2.00	-2.00	0.00	180.00
5,200.00	2.20	93.00	5,107.42	-42.35	808.07	-807.95	2.00	-2.00	0.00	180.00
5,300.00	0.20	93.00	5,207.39	-42.46	810.16	-810.04	2.00	-2.00	0.00	180.00
5,310.00	0.00	0.00	5,217.39	-42.46	810.17	-810.06	2.00	-2.00	-930.00	-180.00
<b>End Drop @ 5310.00ft</b>										
5,400.00	0.00	0.00	5,307.39	-42.46	810.17	-810.06	0.00	0.00	0.00	180.00
5,500.00	0.00	0.00	5,407.39	-42.46	810.17	-810.06	0.00	0.00	0.00	0.00
5,600.00	0.00	0.00	5,507.39	-42.46	810.17	-810.06	0.00	0.00	0.00	0.00
5,700.00	0.00	0.00	5,607.39	-42.46	810.17	-810.06	0.00	0.00	0.00	0.00
5,800.00	0.00	0.00	5,707.39	-42.46	810.17	-810.06	0.00	0.00	0.00	0.00
5,900.00	0.00	0.00	5,807.39	-42.46	810.17	-810.06	0.00	0.00	0.00	0.00
6,000.00	0.00	0.00	5,907.39	-42.46	810.17	-810.06	0.00	0.00	0.00	0.00
6,100.00	0.00	0.00	6,007.39	-42.46	810.17	-810.06	0.00	0.00	0.00	0.00
6,200.00	0.00	0.00	6,107.39	-42.46	810.17	-810.06	0.00	0.00	0.00	0.00
6,300.00	0.00	0.00	6,207.39	-42.46	810.17	-810.06	0.00	0.00	0.00	0.00
6,400.00	0.00	0.00	6,307.39	-42.46	810.17	-810.06	0.00	0.00	0.00	0.00
6,500.00	0.00	0.00	6,407.39	-42.46	810.17	-810.06	0.00	0.00	0.00	0.00
6,518.65	0.00	0.00	6,426.04	-42.46	810.17	-810.06	0.00	0.00	0.00	0.00
<b>Top of 4.5" Liner @ 6518.65ft</b>										
6,600.00	0.00	0.00	6,507.39	-42.46	810.17	-810.06	0.00	0.00	0.00	0.00
6,618.65	0.00	0.00	6,526.04	-42.46	810.17	-810.06	0.00	0.00	0.00	0.00
<b>KOP @ 6618.65ft</b>										
6,700.00	8.13	269.85	6,607.12	-42.47	804.41	-804.29	10.00	10.00	0.00	269.85
6,800.00	18.13	269.85	6,704.38	-42.54	781.71	-781.60	10.00	10.00	0.00	0.00
6,900.00	28.13	269.85	6,796.22	-42.64	742.47	-742.36	10.00	10.00	0.00	0.00
6,956.92	33.83	269.85	6,845.00	-42.72	713.19	-713.07	10.00	10.00	0.00	0.00
<b>SSPG</b>										
7,000.00	38.13	269.85	6,879.85	-42.78	687.88	-687.77	10.00	10.00	0.00	0.00
7,006.57	38.79	269.85	6,885.00	-42.80	683.79	-683.68	10.00	10.00	0.00	0.00
<b>NBRR</b>										
7,100.00	48.13	269.85	6,952.74	-42.97	619.60	-619.48	10.00	10.00	0.00	0.00
<b>DLS = 10°/100'</b>										
7,196.88	57.82	269.85	7,011.00	-43.17	542.34	-542.22	10.00	10.00	0.00	0.00
<b>N470_B_CK</b>										
7,200.00	58.13	269.85	7,012.65	-43.18	539.69	-539.58	10.00	10.00	0.00	0.00
7,300.00	68.13	269.85	7,057.79	-43.42	450.60	-450.48	10.00	10.00	0.00	0.00
7,366.81	74.82	269.85	7,079.00	-43.59	387.29	-387.17	10.00	10.00	0.00	0.00
<b>N700_C_CK</b>										
7,400.00	78.13	269.85	7,086.76	-43.67	355.02	-354.91	10.00	10.00	0.00	0.00
7,500.00	88.13	269.85	7,098.70	-43.94	255.87	-255.75	10.00	10.00	0.00	0.00
7,518.65	90.00	269.85	7,099.00	-43.98	237.22	-237.10	10.00	10.00	0.00	0.00
<b>End Build @ 7518.65ft - 7"</b>										
7,600.00	90.00	269.85	7,099.00	-44.20	155.87	-155.75	0.00	0.00	0.00	0.00
7,700.00	90.00	269.85	7,099.00	-44.47	55.87	-55.75	0.00	0.00	0.00	0.00
7,800.00	90.00	269.85	7,099.00	-44.73	-44.13	44.25	0.00	0.00	0.00	0.00
7,815.65	90.00	269.85	7,099.00	-44.78	-59.78	59.90	0.00	0.00	0.00	0.00
<b>Landing Target (Heel)</b>										
7,900.00	90.00	269.85	7,099.00	-45.00	-144.13	144.25	0.00	0.00	0.00	0.00
8,000.00	90.00	269.85	7,099.00	-45.27	-244.13	244.25	0.00	0.00	0.00	0.00
8,100.00	90.00	269.85	7,099.00	-45.53	-344.13	344.25	0.00	0.00	0.00	0.00

## Plan Report for MIRACLE 40N-11HZ - 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 (°)
8,200.00	90.00	269.85	7,099.00	-45.80	-444.13	444.25	0.00	0.00	0.00	0.00
8,300.00	90.00	269.85	7,099.00	-46.06	-544.13	544.25	0.00	0.00	0.00	0.00
8,400.00	90.00	269.85	7,099.00	-46.33	-644.13	644.25	0.00	0.00	0.00	0.00
8,500.00	90.00	269.85	7,099.00	-46.60	-744.13	744.25	0.00	0.00	0.00	0.00
8,600.00	90.00	269.85	7,099.00	-46.86	-844.13	844.25	0.00	0.00	0.00	0.00
8,700.00	90.00	269.85	7,099.00	-47.13	-944.13	944.25	0.00	0.00	0.00	0.00
8,800.00	90.00	269.85	7,099.00	-47.40	-1,044.13	1,044.25	0.00	0.00	0.00	0.00
8,900.00	90.00	269.85	7,099.00	-47.66	-1,144.13	1,144.25	0.00	0.00	0.00	0.00
9,000.00	90.00	269.85	7,099.00	-47.93	-1,244.13	1,244.25	0.00	0.00	0.00	0.00
9,100.00	90.00	269.85	7,099.00	-48.19	-1,344.13	1,344.25	0.00	0.00	0.00	0.00
9,200.00	90.00	269.85	7,099.00	-48.46	-1,444.13	1,444.25	0.00	0.00	0.00	0.00
9,300.00	90.00	269.85	7,099.00	-48.73	-1,544.13	1,544.25	0.00	0.00	0.00	0.00
9,400.00	90.00	269.85	7,099.00	-48.99	-1,644.12	1,644.25	0.00	0.00	0.00	0.00
9,500.00	90.00	269.85	7,099.00	-49.26	-1,744.12	1,744.25	0.00	0.00	0.00	0.00
9,600.00	90.00	269.85	7,099.00	-49.53	-1,844.12	1,844.25	0.00	0.00	0.00	0.00
9,700.00	90.00	269.85	7,099.00	-49.79	-1,944.12	1,944.25	0.00	0.00	0.00	0.00
9,800.00	90.00	269.85	7,099.00	-50.06	-2,044.12	2,044.25	0.00	0.00	0.00	0.00
9,900.00	90.00	269.85	7,099.00	-50.32	-2,144.12	2,144.25	0.00	0.00	0.00	0.00
10,000.00	90.00	269.85	7,099.00	-50.59	-2,244.12	2,244.25	0.00	0.00	0.00	0.00
10,100.00	90.00	269.85	7,099.00	-50.86	-2,344.12	2,344.25	0.00	0.00	0.00	0.00
10,200.00	90.00	269.85	7,099.00	-51.12	-2,444.12	2,444.25	0.00	0.00	0.00	0.00
10,300.00	90.00	269.85	7,099.00	-51.39	-2,544.12	2,544.25	0.00	0.00	0.00	0.00
10,400.00	90.00	269.85	7,099.00	-51.65	-2,644.12	2,644.25	0.00	0.00	0.00	0.00
10,500.00	90.00	269.85	7,099.00	-51.92	-2,744.12	2,744.25	0.00	0.00	0.00	0.00
10,600.00	90.00	269.85	7,099.00	-52.19	-2,844.12	2,844.25	0.00	0.00	0.00	0.00
10,700.00	90.00	269.85	7,099.00	-52.45	-2,944.12	2,944.25	0.00	0.00	0.00	0.00
10,800.00	90.00	269.85	7,099.00	-52.72	-3,044.12	3,044.25	0.00	0.00	0.00	0.00
10,900.00	90.00	269.85	7,099.00	-52.99	-3,144.12	3,144.25	0.00	0.00	0.00	0.00
11,000.00	90.00	269.85	7,099.00	-53.25	-3,244.12	3,244.25	0.00	0.00	0.00	0.00
11,100.00	90.00	269.85	7,099.00	-53.52	-3,344.12	3,344.25	0.00	0.00	0.00	0.00
11,200.00	90.00	269.85	7,099.00	-53.78	-3,444.12	3,444.25	0.00	0.00	0.00	0.00
11,300.00	90.00	269.85	7,099.00	-54.05	-3,544.12	3,544.25	0.00	0.00	0.00	0.00
11,400.00	90.00	269.85	7,099.00	-54.32	-3,644.12	3,644.25	0.00	0.00	0.00	0.00
11,500.00	90.00	269.85	7,099.00	-54.58	-3,744.12	3,744.25	0.00	0.00	0.00	0.00
11,600.00	90.00	269.85	7,099.00	-54.85	-3,844.12	3,844.25	0.00	0.00	0.00	0.00
11,700.00	90.00	269.85	7,099.00	-55.12	-3,944.12	3,944.25	0.00	0.00	0.00	0.00
11,800.00	90.00	269.85	7,099.00	-55.38	-4,044.12	4,044.25	0.00	0.00	0.00	0.00
11,900.00	90.00	269.85	7,099.00	-55.65	-4,144.12	4,144.25	0.00	0.00	0.00	0.00
12,000.00	90.00	269.85	7,099.00	-55.91	-4,244.12	4,244.25	0.00	0.00	0.00	0.00
12,100.00	90.00	269.85	7,099.00	-56.18	-4,344.12	4,344.25	0.00	0.00	0.00	0.00
12,200.00	90.00	269.85	7,099.00	-56.45	-4,444.11	4,444.25	0.00	0.00	0.00	0.00
12,300.00	90.00	269.85	7,099.00	-56.71	-4,544.11	4,544.25	0.00	0.00	0.00	0.00
12,400.00	90.00	269.85	7,099.00	-56.98	-4,644.11	4,644.25	0.00	0.00	0.00	0.00
12,500.00	90.00	269.85	7,099.00	-57.25	-4,744.11	4,744.25	0.00	0.00	0.00	0.00
12,600.00	90.00	269.85	7,099.00	-57.51	-4,844.11	4,844.25	0.00	0.00	0.00	0.00
12,700.00	90.00	269.85	7,099.00	-57.78	-4,944.11	4,944.25	0.00	0.00	0.00	0.00
12,800.00	90.00	269.85	7,099.00	-58.04	-5,044.11	5,044.25	0.00	0.00	0.00	0.00
12,900.00	90.00	269.85	7,099.00	-58.31	-5,144.11	5,144.25	0.00	0.00	0.00	0.00
13,000.00	90.00	269.85	7,099.00	-58.58	-5,244.11	5,244.25	0.00	0.00	0.00	0.00
13,100.00	90.00	269.85	7,099.00	-58.84	-5,344.11	5,344.25	0.00	0.00	0.00	0.00
13,200.00	90.00	269.85	7,099.00	-59.11	-5,444.11	5,444.25	0.00	0.00	0.00	0.00
13,300.00	90.00	269.85	7,099.00	-59.37	-5,544.11	5,544.25	0.00	0.00	0.00	0.00
13,400.00	90.00	269.85	7,099.00	-59.64	-5,644.11	5,644.25	0.00	0.00	0.00	0.00
13,456.32	90.00	269.85	7,099.00	-59.79	-5,700.43	5,700.57	0.00	0.00	0.00	0.00

TD Well @ 13456.32ft - Total Depth (Toe) - MIRACLE 40N-11HZ\_BHL

## Plan Report for MIRACLE 40N-11HZ - Permit Rev-1

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
1,260.00	1,260.00	0.00	0.00	Begin Nudge @ 1260.00ft
1,960.00	1,953.06	-4.45	84.98	End Nudge @ 1960.00ft
4,610.00	4,524.34	-38.01	725.19	Begin Drop @ 4610.00ft
5,310.00	5,217.39	-42.46	810.17	End Drop @ 5310.00ft
6,518.65	6,426.04	-42.46	810.17	Top of 4.5" Liner @ 6518.65ft
6,618.65	6,526.04	-42.46	810.17	KOP @ 6618.65ft
7,100.00	6,952.74	-42.97	619.60	DLS = 10°/100'
7,518.65	7,099.00	-43.98	237.22	End Build @ 7518.65ft
13,456.32	7,099.00	-59.79	-5,700.43	TD Well @ 13456.32ft

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin		Start TVD (usft)
				+N/-S (usft)	+E/-W (usft)	
User	No Target (Freehand)	269.85	Slot	0.00	0.00	0.00

Survey tool program

From (usft)	To (usft)	Survey/Plan	Survey Tool
0.00	7,518.65	Permit Rev-1	MWD+IFR1
7,518.65	13,456.32	Permit Rev-1	MWD+IFR1

Casing Details

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
704.00	704.00	9 5/8"	9-5/8	13-1/2
7,518.65	7,099.00	7"	7	8-3/4

Formation Details

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
245.00	245.00	Base Fox Hills		0.00	
704.00	704.00	Surface Csg Setting Depth		0.00	
3,515.14	3,462.00	Parkman		0.00	
4,630.25	4,544.00	Sussex		0.00	
6,956.92	6,845.00	SSPG		0.00	
7,006.57	6,885.00	NBRR		0.00	
7,196.88	7,011.00	N470_B_CK		0.00	
7,366.81	7,079.00	N700_C_CK		0.00	
7,815.65	7,099.00	Landing Target (Heel)		0.00	
13,456.32	7,099.00	Total Depth (Toe)		0.00	

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Plan Report for MIRACLE 40N-11HZ - Permit Rev-1

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*Targets associated with this wellbore*

Target Name	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Shape
MIRACLE 40N-11HZ_BHL	7,099.00	-59.79	-5,700.43	Point
MIRACLE 40N-11HZ_SHL	0.00	0.00	0.00	Point
5N-R68W-Sec. 12_Section Lines	0.00	0.36	-30.06	Polygon
5N-R67W-Sec. 7_Section Lines	0.00	2,886.50	336.89	Polygon
5N-R68W-Sec. 11_Section Lines	0.00	0.36	-30.06	Polygon

## North Reference Sheet for 5N-68W-12 Miracle 40-12HZ Pad - MIRACLE 40N-11HZ - 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' @ 4965.00usft (D Rig). Northing and Easting are relative to MIRACLE 40N-11HZ

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: 0.99960026

Grid Coordinates of Well: 14,677,318.87 usft N, 1,655,575.85 usft E

Geographical Coordinates of Well: 40° 24' 48.63" N, 104° 56' 43.94" W

Grid Convergence at Surface is: 0.04°

Based upon Minimum Curvature type calculations, at a Measured Depth of 13,456.32usft the Bottom Hole Displacement is 5,700.74usft in the Direction of 269.40° (True).

Magnetic Convergence at surface is: -8.46° (15 December 2014, , IGRF2010)

