

# US ROCKIES WATTENBERG PLANNING

WELD-NAD83-UTMFT13N

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

MIRACLE 9C-11HZ

Plan B

Plan: Permit Rev-2

## Sperry Drilling Services Proposal Report

18 December, 2014

Well Coordinates: 14,677,318.16 N, 1,655,605.63 E (40° 24' 48.63" N, 104° 56' 43.56" W)

Ground Level: 4,948.00 usft

Local Coordinate Origin:

Centered on Well MIRACLE 9C-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**

Design: Permit Rev-2

# US ROCKIES WATTENBERG PLANNING

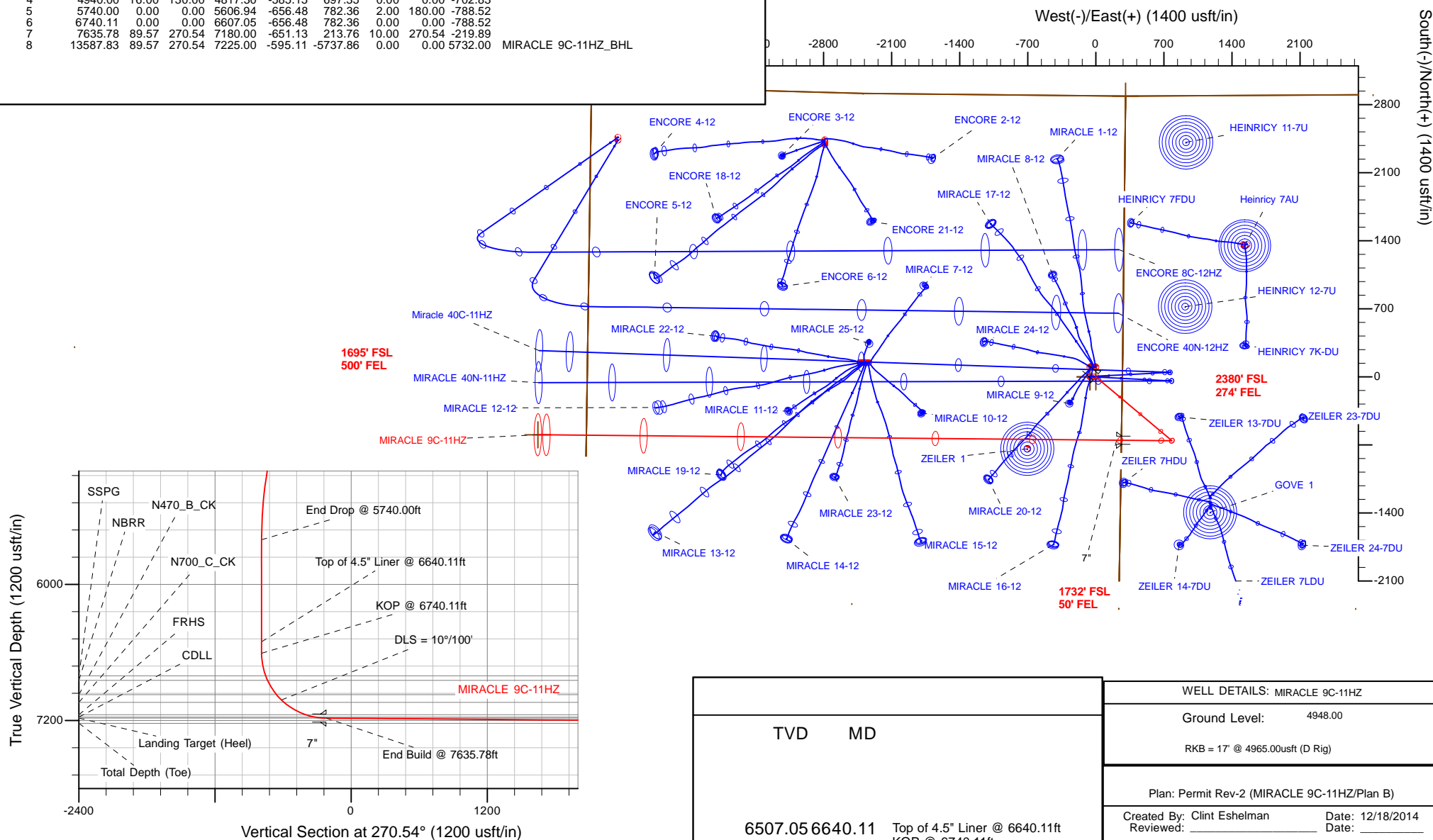
## Sperry Drilling

## 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	1240.00	0.00	0.00	1240.00	0.00	0.00	0.00	0.00	0.00	
3	2040.00	16.00	130.00	2029.64	-71.33	85.01	2.00	130.00	-85.68	
4	5740.00	16.00	130.00	4817.30	-585.15	697.35	0.00	0.00	-702.83	
5	4740.00	0.00	0.00	5606.94	-656.48	782.36	2.00	180.00	-788.52	
6	6741.00	0.00	0.00	6607.05	-656.48	782.36	0.00	0.00	-689.00	
7	7635.78	89.57	270.54	7180.00	-651.13	213.76	10.00	270.54	-219.89	
8	13587.83	89.57	270.54	7225.00	-595.11	-5737.86	0.00	0.00	5732.00	MIRACLE 9C-11HZ_BHL

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	
5N-R67W-Sec. 7_ Section Lines	0.00	2887.23	307.11	40.421435	-104.944330	Polygon
5N-R68W-Sec. 11_ Section Lines	0.00	1.09	-59.85	40.413510	-104.945648	Polygon
5N-R68W-Sec. 12_ Section Lines	0.00	1.09	-59.85	40.413510	-104.945648	Polygon
MIRACLE 9C-11HZ_SHL	0.00	0.00	0.00	40.413507	-104.945433	
MIRACLE 9C-11HZ_BHL	7225.00	-595.11	-5737.86	40.411871	-104.966046	



## Plan Report for MIRACLE 9C-11HZ - 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>MIRACLE 9C-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
1,240.00	0.00	0.00	1,240.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Begin Nudge @ 1240.00ft</b>										
1,300.00	1.20	130.00	1,300.00	-0.40	0.48	-0.49	2.00	2.00	0.00	130.00
1,400.00	3.20	130.00	1,399.92	-2.87	3.42	-3.45	2.00	2.00	0.00	0.00
1,500.00	5.20	130.00	1,499.64	-7.58	9.03	-9.10	2.00	2.00	0.00	0.00
1,600.00	7.20	130.00	1,599.05	-14.52	17.30	-17.44	2.00	2.00	0.00	0.00
1,700.00	9.20	130.00	1,698.03	-23.69	28.23	-28.45	2.00	2.00	0.00	0.00
1,800.00	11.20	130.00	1,796.44	-35.07	41.79	-42.12	2.00	2.00	0.00	0.00
1,900.00	13.20	130.00	1,894.18	-48.65	57.98	-58.44	2.00	2.00	0.00	0.00
2,000.00	15.20	130.00	1,991.12	-64.42	76.77	-77.38	2.00	2.00	0.00	0.00
2,040.00	16.00	130.00	2,029.64	-71.33	85.01	-85.68	2.00	2.00	0.00	0.00
<b>End Nudge @ 2040.00ft</b>										
2,100.00	16.00	130.00	2,087.32	-81.97	97.68	-98.45	0.00	0.00	0.00	0.00
2,200.00	16.00	130.00	2,183.44	-99.68	118.80	-119.73	0.00	0.00	0.00	0.00
2,300.00	16.00	130.00	2,279.57	-117.40	139.91	-141.01	0.00	0.00	0.00	0.00
2,400.00	16.00	130.00	2,375.70	-135.12	161.03	-162.29	0.00	0.00	0.00	0.00
2,500.00	16.00	130.00	2,471.82	-152.84	182.14	-183.57	0.00	0.00	0.00	0.00
2,600.00	16.00	130.00	2,567.95	-170.55	203.26	-204.86	0.00	0.00	0.00	0.00
2,700.00	16.00	130.00	2,664.08	-188.27	224.37	-226.14	0.00	0.00	0.00	0.00
2,800.00	16.00	130.00	2,760.20	-205.99	245.49	-247.42	0.00	0.00	0.00	0.00
2,900.00	16.00	130.00	2,856.33	-223.71	266.60	-268.70	0.00	0.00	0.00	0.00
3,000.00	16.00	130.00	2,952.45	-241.42	287.72	-289.98	0.00	0.00	0.00	0.00
3,100.00	16.00	130.00	3,048.58	-259.14	308.83	-311.26	0.00	0.00	0.00	0.00
3,200.00	16.00	130.00	3,144.71	-276.86	329.95	-332.54	0.00	0.00	0.00	0.00
3,300.00	16.00	130.00	3,240.83	-294.58	351.06	-353.82	0.00	0.00	0.00	0.00
3,400.00	16.00	130.00	3,336.96	-312.29	372.18	-375.10	0.00	0.00	0.00	0.00
3,489.51	16.00	130.00	3,423.00	-328.15	391.08	-394.15	0.00	0.00	0.00	0.00
<b>Parkman</b>										
3,500.00	16.00	130.00	3,433.08	-330.01	393.29	-396.39	0.00	0.00	0.00	0.00
3,600.00	16.00	130.00	3,529.21	-347.73	414.41	-417.67	0.00	0.00	0.00	0.00
3,700.00	16.00	130.00	3,625.34	-365.45	435.52	-438.95	0.00	0.00	0.00	0.00
3,800.00	16.00	130.00	3,721.46	-383.16	456.64	-460.23	0.00	0.00	0.00	0.00
3,900.00	16.00	130.00	3,817.59	-400.88	477.75	-481.51	0.00	0.00	0.00	0.00
4,000.00	16.00	130.00	3,913.72	-418.60	498.87	-502.79	0.00	0.00	0.00	0.00
4,100.00	16.00	130.00	4,009.84	-436.32	519.98	-524.07	0.00	0.00	0.00	0.00
4,200.00	16.00	130.00	4,105.97	-454.04	541.10	-545.35	0.00	0.00	0.00	0.00
4,300.00	16.00	130.00	4,202.09	-471.75	562.21	-566.63	0.00	0.00	0.00	0.00
4,400.00	16.00	130.00	4,298.22	-489.47	583.33	-587.92	0.00	0.00	0.00	0.00
4,500.00	16.00	130.00	4,394.35	-507.19	604.44	-609.20	0.00	0.00	0.00	0.00
4,600.00	16.00	130.00	4,490.47	-524.91	625.56	-630.48	0.00	0.00	0.00	0.00

## Plan Report for MIRACLE 9C-11HZ - 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 (°)
4,615.11	16.00	130.00	4,505.00	-527.58	628.75	-633.69	0.00	0.00	0.00	0.00
<b>Sussex</b>										
4,700.00	16.00	130.00	4,586.60	-542.62	646.67	-651.76	0.00	0.00	0.00	0.00
4,800.00	16.00	130.00	4,682.73	-560.34	667.79	-673.04	0.00	0.00	0.00	0.00
4,900.00	16.00	130.00	4,778.85	-578.06	688.90	-694.32	0.00	0.00	0.00	0.00
4,940.00	16.00	130.00	4,817.30	-585.15	697.35	-702.83	0.00	0.00	0.00	0.00
<b>Begin Drop @ 4940.00ft</b>										
5,000.00	14.80	130.00	4,875.15	-595.39	709.56	-715.13	2.00	-2.00	0.00	180.00
5,100.00	12.80	130.00	4,972.25	-610.72	727.83	-733.55	2.00	-2.00	0.00	180.00
5,200.00	10.80	130.00	5,070.14	-623.86	743.49	-749.34	2.00	-2.00	0.00	180.00
5,300.00	8.80	130.00	5,168.67	-634.80	756.53	-762.48	2.00	-2.00	0.00	180.00
5,400.00	6.80	130.00	5,267.74	-643.53	766.93	-772.96	2.00	-2.00	0.00	180.00
5,500.00	4.80	130.00	5,367.23	-650.02	774.67	-780.76	2.00	-2.00	0.00	180.00
5,600.00	2.80	130.00	5,467.00	-654.28	779.74	-785.87	2.00	-2.00	0.00	180.00
5,700.00	0.80	130.00	5,566.95	-656.30	782.15	-788.30	2.00	-2.00	0.00	180.00
5,740.00	0.00	0.00	5,606.94	-656.48	782.36	-788.52	2.00	-2.00	-325.00	-180.00
<b>End Drop @ 5740.00ft</b>										
5,800.00	0.00	0.00	5,666.94	-656.48	782.36	-788.52	0.00	0.00	0.00	180.00
5,900.00	0.00	0.00	5,766.94	-656.48	782.36	-788.52	0.00	0.00	0.00	0.00
6,000.00	0.00	0.00	5,866.94	-656.48	782.36	-788.52	0.00	0.00	0.00	0.00
6,100.00	0.00	0.00	5,966.94	-656.48	782.36	-788.52	0.00	0.00	0.00	0.00
6,200.00	0.00	0.00	6,066.94	-656.48	782.36	-788.52	0.00	0.00	0.00	0.00
6,300.00	0.00	0.00	6,166.94	-656.48	782.36	-788.52	0.00	0.00	0.00	0.00
6,400.00	0.00	0.00	6,266.94	-656.48	782.36	-788.52	0.00	0.00	0.00	0.00
6,500.00	0.00	0.00	6,366.94	-656.48	782.36	-788.52	0.00	0.00	0.00	0.00
6,600.00	0.00	0.00	6,466.94	-656.48	782.36	-788.52	0.00	0.00	0.00	0.00
6,640.11	0.00	0.00	6,507.05	-656.48	782.36	-788.52	0.00	0.00	0.00	0.00
<b>Top of 4.5" Liner @ 6640.11ft</b>										
6,700.00	0.00	0.00	6,566.94	-656.48	782.36	-788.52	0.00	0.00	0.00	0.00
6,740.11	0.00	0.00	6,607.05	-656.48	782.36	-788.52	0.00	0.00	0.00	0.00
<b>KOP @ 6740.11ft</b>										
6,800.00	5.99	270.54	6,666.84	-656.45	779.24	-785.39	10.00	10.00	0.00	270.54
6,900.00	15.99	270.54	6,764.88	-656.27	760.20	-766.35	10.00	10.00	0.00	0.00
6,943.29	20.32	270.54	6,806.00	-656.15	746.72	-752.87	10.00	10.00	0.00	0.00
<b>SSPG</b>										
6,986.59	24.65	270.54	6,846.00	-655.99	730.16	-736.31	10.00	10.00	0.00	0.00
<b>NBRR</b>										
7,000.00	25.99	270.54	6,858.12	-655.94	724.43	-730.58	10.00	10.00	0.00	0.00
7,100.00	35.99	270.54	6,943.74	-655.45	673.01	-679.15	10.00	10.00	0.00	0.00
7,135.76	39.56	270.54	6,972.00	-655.25	651.11	-657.25	10.00	10.00	0.00	0.00
<b>N470_B_CK</b>										
7,200.00	45.99	270.54	7,019.13	-654.83	607.50	-613.65	10.00	10.00	0.00	0.00
<b>DLS = 10°/100'</b>										
7,230.92	49.08	270.54	7,040.00	-654.62	584.70	-590.84	10.00	10.00	0.00	0.00
<b>N700_C_CK</b>										
7,300.00	55.99	270.54	7,082.00	-654.10	529.90	-536.04	10.00	10.00	0.00	0.00
7,400.00	65.99	270.54	7,130.43	-653.28	442.56	-448.70	10.00	10.00	0.00	0.00
7,453.84	71.37	270.54	7,150.00	-652.81	392.43	-398.56	10.00	10.00	0.00	0.00
<b>FRHS</b>										
7,500.00	75.99	270.54	7,162.97	-652.39	348.14	-354.28	10.00	10.00	0.00	0.00
7,532.84	79.27	270.54	7,170.00	-652.09	316.07	-322.20	10.00	10.00	0.00	0.00
<b>CDLL</b>										
7,600.00	85.99	270.54	7,178.61	-651.46	249.51	-255.63	10.00	10.00	0.00	0.00
7,635.78	89.57	270.54	7,180.00	-651.13	213.76	-219.89	10.00	10.00	0.00	0.00
<b>End Build @ 7635.78ft - Landing Target (Heel) - 7"</b>										
7,700.00	89.57	270.54	7,180.48	-650.52	149.55	-155.67	0.00	0.00	0.00	0.00
7,800.00	89.57	270.54	7,181.24	-649.58	49.55	-55.67	0.00	0.00	0.00	0.00
7,900.00	89.57	270.54	7,181.99	-648.64	-50.44	44.32	0.00	0.00	0.00	0.00

## Plan Report for MIRACLE 9C-11HZ - 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 (°)
8,000.00	89.57	270.54	7,182.75	-647.70	-150.43	144.32	0.00	0.00	0.00	0.00
8,100.00	89.57	270.54	7,183.51	-646.76	-250.43	244.32	0.00	0.00	0.00	0.00
8,200.00	89.57	270.54	7,184.26	-645.82	-350.42	344.32	0.00	0.00	0.00	0.00
8,300.00	89.57	270.54	7,185.02	-644.88	-450.41	444.31	0.00	0.00	0.00	0.00
8,400.00	89.57	270.54	7,185.77	-643.94	-550.40	544.31	0.00	0.00	0.00	0.00
8,500.00	89.57	270.54	7,186.53	-642.99	-650.40	644.31	0.00	0.00	0.00	0.00
8,600.00	89.57	270.54	7,187.29	-642.05	-750.39	744.30	0.00	0.00	0.00	0.00
8,700.00	89.57	270.54	7,188.04	-641.11	-850.38	844.30	0.00	0.00	0.00	0.00
8,800.00	89.57	270.54	7,188.80	-640.17	-950.37	944.30	0.00	0.00	0.00	0.00
8,900.00	89.57	270.54	7,189.55	-639.23	-1,050.37	1,044.30	0.00	0.00	0.00	0.00
9,000.00	89.57	270.54	7,190.31	-638.29	-1,150.36	1,144.29	0.00	0.00	0.00	0.00
9,100.00	89.57	270.54	7,191.07	-637.35	-1,250.35	1,244.29	0.00	0.00	0.00	0.00
9,200.00	89.57	270.54	7,191.82	-636.41	-1,350.35	1,344.29	0.00	0.00	0.00	0.00
9,300.00	89.57	270.54	7,192.58	-635.46	-1,450.34	1,444.28	0.00	0.00	0.00	0.00
9,400.00	89.57	270.54	7,193.34	-634.52	-1,550.33	1,544.28	0.00	0.00	0.00	0.00
9,500.00	89.57	270.54	7,194.09	-633.58	-1,650.32	1,644.28	0.00	0.00	0.00	0.00
9,600.00	89.57	270.54	7,194.85	-632.64	-1,750.32	1,744.28	0.00	0.00	0.00	0.00
9,700.00	89.57	270.54	7,195.60	-631.70	-1,850.31	1,844.27	0.00	0.00	0.00	0.00
9,800.00	89.57	270.54	7,196.36	-630.76	-1,950.30	1,944.27	0.00	0.00	0.00	0.00
9,900.00	89.57	270.54	7,197.12	-629.82	-2,050.29	2,044.27	0.00	0.00	0.00	0.00
10,000.00	89.57	270.54	7,197.87	-628.88	-2,150.29	2,144.26	0.00	0.00	0.00	0.00
10,100.00	89.57	270.54	7,198.63	-627.93	-2,250.28	2,244.26	0.00	0.00	0.00	0.00
10,200.00	89.57	270.54	7,199.38	-626.99	-2,350.27	2,344.26	0.00	0.00	0.00	0.00
10,300.00	89.57	270.54	7,200.14	-626.05	-2,450.27	2,444.26	0.00	0.00	0.00	0.00
10,400.00	89.57	270.54	7,200.90	-625.11	-2,550.26	2,544.25	0.00	0.00	0.00	0.00
10,500.00	89.57	270.54	7,201.65	-624.17	-2,650.25	2,644.25	0.00	0.00	0.00	0.00
10,600.00	89.57	270.54	7,202.41	-623.23	-2,750.24	2,744.25	0.00	0.00	0.00	0.00
10,700.00	89.57	270.54	7,203.16	-622.29	-2,850.24	2,844.24	0.00	0.00	0.00	0.00
10,800.00	89.57	270.54	7,203.92	-621.35	-2,950.23	2,944.24	0.00	0.00	0.00	0.00
10,900.00	89.57	270.54	7,204.68	-620.41	-3,050.22	3,044.24	0.00	0.00	0.00	0.00
11,000.00	89.57	270.54	7,205.43	-619.46	-3,150.21	3,144.24	0.00	0.00	0.00	0.00
11,100.00	89.57	270.54	7,206.19	-618.52	-3,250.21	3,244.23	0.00	0.00	0.00	0.00
11,200.00	89.57	270.54	7,206.95	-617.58	-3,350.20	3,344.23	0.00	0.00	0.00	0.00
11,300.00	89.57	270.54	7,207.70	-616.64	-3,450.19	3,444.23	0.00	0.00	0.00	0.00
11,400.00	89.57	270.54	7,208.46	-615.70	-3,550.19	3,544.22	0.00	0.00	0.00	0.00
11,500.00	89.57	270.54	7,209.21	-614.76	-3,650.18	3,644.22	0.00	0.00	0.00	0.00
11,600.00	89.57	270.54	7,209.97	-613.82	-3,750.17	3,744.22	0.00	0.00	0.00	0.00
11,700.00	89.57	270.54	7,210.73	-612.88	-3,850.16	3,844.22	0.00	0.00	0.00	0.00
11,800.00	89.57	270.54	7,211.48	-611.93	-3,950.16	3,944.21	0.00	0.00	0.00	0.00
11,900.00	89.57	270.54	7,212.24	-610.99	-4,050.15	4,044.21	0.00	0.00	0.00	0.00
12,000.00	89.57	270.54	7,212.99	-610.05	-4,150.14	4,144.21	0.00	0.00	0.00	0.00
12,100.00	89.57	270.54	7,213.75	-609.11	-4,250.13	4,244.20	0.00	0.00	0.00	0.00
12,200.00	89.57	270.54	7,214.51	-608.17	-4,350.13	4,344.20	0.00	0.00	0.00	0.00
12,300.00	89.57	270.54	7,215.26	-607.23	-4,450.12	4,444.20	0.00	0.00	0.00	0.00
12,400.00	89.57	270.54	7,216.02	-606.29	-4,550.11	4,544.20	0.00	0.00	0.00	0.00
12,500.00	89.57	270.54	7,216.77	-605.35	-4,650.11	4,644.19	0.00	0.00	0.00	0.00
12,600.00	89.57	270.54	7,217.53	-604.40	-4,750.10	4,744.19	0.00	0.00	0.00	0.00
12,700.00	89.57	270.54	7,218.29	-603.46	-4,850.09	4,844.19	0.00	0.00	0.00	0.00
12,800.00	89.57	270.54	7,219.04	-602.52	-4,950.08	4,944.18	0.00	0.00	0.00	0.00
12,900.00	89.57	270.54	7,219.80	-601.58	-5,050.08	5,044.18	0.00	0.00	0.00	0.00
13,000.00	89.57	270.54	7,220.56	-600.64	-5,150.07	5,144.18	0.00	0.00	0.00	0.00
13,100.00	89.57	270.54	7,221.31	-599.70	-5,250.06	5,244.18	0.00	0.00	0.00	0.00
13,200.00	89.57	270.54	7,222.07	-598.76	-5,350.05	5,344.17	0.00	0.00	0.00	0.00
13,300.00	89.57	270.54	7,222.82	-597.82	-5,450.05	5,444.17	0.00	0.00	0.00	0.00
13,400.00	89.57	270.54	7,223.58	-596.87	-5,550.04	5,544.17	0.00	0.00	0.00	0.00
13,500.00	89.57	270.54	7,224.34	-595.93	-5,650.03	5,644.16	0.00	0.00	0.00	0.00
13,587.83	89.57	270.54	7,225.00	-595.11	-5,737.86	5,731.99	0.00	0.00	0.00	0.00

TD Well @ 13587.83ft - MIRACLE 9C-11HZ\_BHL

## Plan Report for MIRACLE 9C-11HZ - Permit Rev-2

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
1,240.00	1,240.00	0.00	0.00	Begin Nudge @ 1240.00ft
2,040.00	2,029.64	-71.33	85.01	End Nudge @ 2040.00ft
4,940.00	4,817.30	-585.15	697.35	Begin Drop @ 4940.00ft
5,740.00	5,606.94	-656.48	782.36	End Drop @ 5740.00ft
6,640.11	6,507.05	-656.48	782.36	Top of 4.5" Liner @ 6640.11ft
6,740.11	6,607.05	-656.48	782.36	KOP @ 6740.11ft
7,200.00	7,019.13	-654.83	607.50	DLS = 10"/100'
7,635.78	7,180.00	-651.13	213.76	End Build @ 7635.78ft
13,587.83	7,225.00	-595.11	-5,737.86	TD Well @ 13587.83ft

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin		Start TVD (usft)
				+N/_S (usft)	+E/-W (usft)	
User	No Target (Freehand)	270.54	Slot	0.00	0.00	0.00

Survey tool program

From (usft)	To (usft)	Survey/Plan	Survey Tool
0.00	7,635.78	Permit Rev-2	MWD+IFR1
7,635.78	13,587.83	Permit Rev-2	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
7,635.78	7,180.00	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	
3,489.51	3,423.00	Parkman		0.00	
4,615.11	4,505.00	Sussex		0.00	
6,943.29	6,806.00	SSPG		0.00	
6,986.59	6,846.00	NBRR		0.00	
7,135.76	6,972.00	N470_B_CK		0.00	
7,230.92	7,040.00	N700_C_CK		0.00	
7,453.84	7,150.00	FRHS		0.00	
7,532.84	7,170.00	CDLL		0.00	
7,635.78	7,180.00	Landing Target (Heel)		0.00	
13,587.83	7,225.00	Total Depth (Toe)		0.00	

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Plan Report for MIRACLE 9C-11HZ - Permit Rev-2

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*Targets associated with this wellbore*

Target Name	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Shape
MIRACLE 9C-11HZ_BHL	7,225.00	-595.11	-5,737.86	Point
MIRACLE 9C-11HZ_SHL	0.00	0.00	0.00	Point
5N-R68W-Sec. 12_Section Lines	0.00	1.09	-59.85	Polygon
5N-R67W-Sec. 7_Section Lines	0.00	2,887.23	307.11	Polygon
5N-R68W-Sec. 11_Section Lines	0.00	1.09	-59.85	Polygon

## North Reference Sheet for 5N-68W-12 Miracle 40-12HZ Pad - MIRACLE 9C-11HZ - 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' @ 4965.00usft (D Rig). Northing and Easting are relative to MIRACLE 9C- 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: 14,677,318.16 usft N, 1,655,605.63 usft E

Geographical Coordinates of Well: 40° 24' 48.63" N, 104° 56' 43.56" W

Grid Convergence at Surface is: 0.04°

Based upon Minimum Curvature type calculations, at a Measured Depth of 13,587.83usft the Bottom Hole Displacement is 5,768.63usft in the Direction of 264.08° (True).

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

