

US ROCKIES WATTENBERG PLANNING

WELD-NAD83-UTMFT13N

2N-65W-20 Sarchet 2-20HZ Pad

SARCHET 37C-20HZ

Plan A

Plan: Permit Rev-2

Sperry Drilling Services Proposal Report

23 April, 2015

Well Coordinates: 14,574,400.93 N, 1,727,968.23 E (40° 07' 49.72" N, 104° 41' 12.39" W)

Ground Level: 4,914.00 usft

Local Coordinate Origin:

Centered on Well SARCHET 37C-20HZ

Viewing Datum:

RKB = 17' @ 4931.00usft (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: 2N-65W-20 Sarchet 2-20HZ Pad

Well: SARCHET 37C-20HZ

Wellbore: Plan A

Design: Permit Rev-2

US ROCKIES WATTENBERG PLANNING

HALLIBURTON

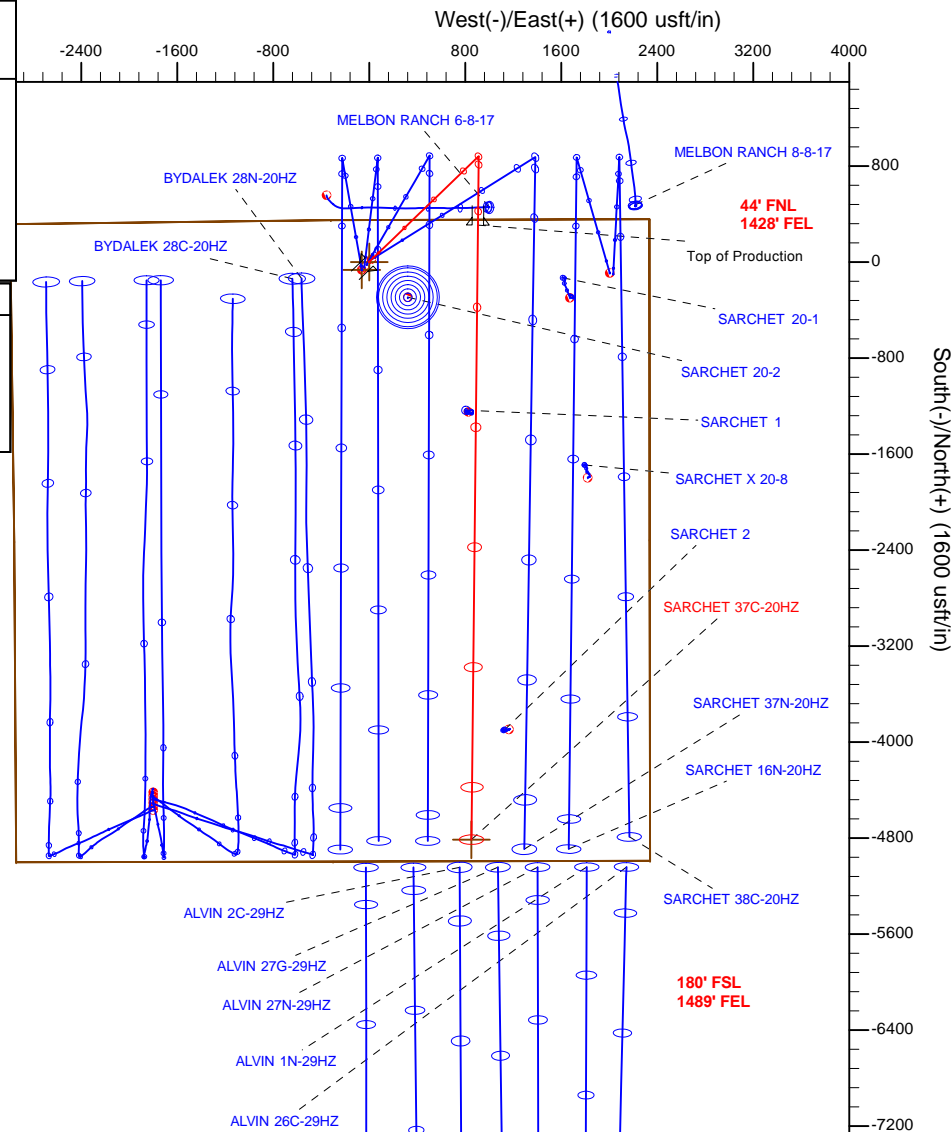
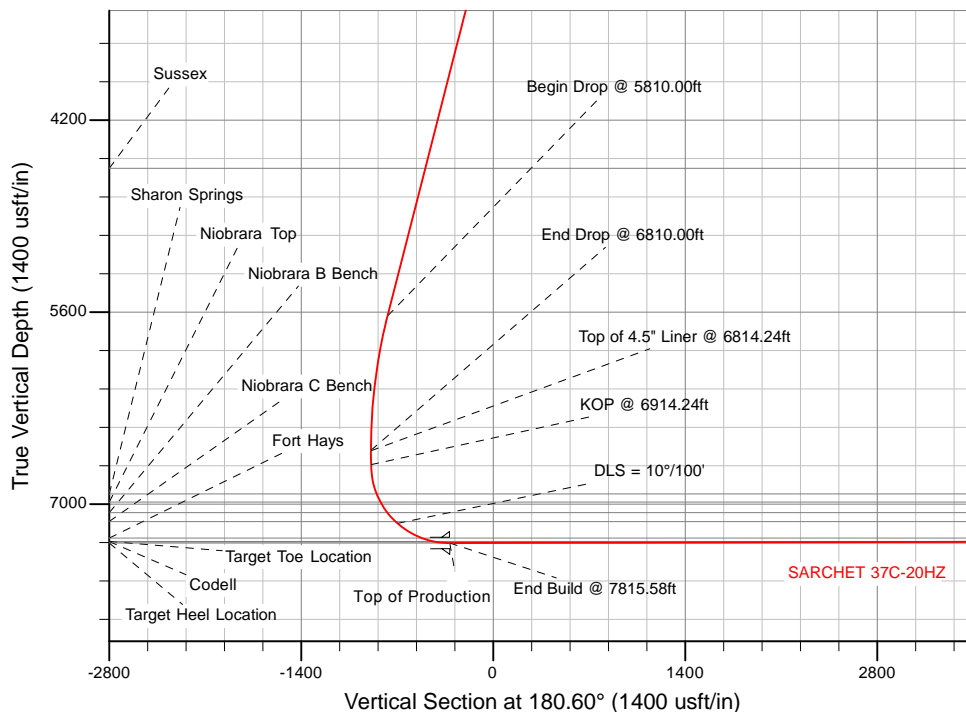
Sperry Drilling

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	2110.00	0.00	0.00	2110.00	0.00	0.00	0.00	0.00	0.00	
3	3110.00	20.00	46.00	3089.82	120.01	124.28	2.00	46.00	-121.31	
4	5810.00	20.00	46.00	5626.99	761.50	788.56	0.00	0.00	-769.72	
5	6810.00	0.00	0.00	6606.80	881.51	912.84	2.00	-180.00	-891.03	
6	6914.24	0.00	0.00	6711.04	881.51	912.84	0.00	0.00	-891.03	
7	7815.58	90.13	180.60	7284.00	307.25	906.77	10.00	180.60	-316.73	
8	12936.95	90.13	180.60	7272.00	-4813.82	852.70	0.00	0.00	4804.63	SARCHET 37C-20HZ_BHL

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude
SARCHET 37C-20HZ_SHL	0.00	0.00	0.00	40.130479	-104.686776
SARCHET 37C-20HZ_BHL	7272.00	-4813.82	852.70	40.117260	-104.683726



WELL DETAILS: SARCHET 37C-20HZ

Ground Level: 4914.00

RKB = 17' @ 4931.00usft (D Rig)

Plan: Permit Rev-2 (SARCHET 37C-20HZ/Plan A)

Created By: Clint Eshelman

Reviewed:

Date: 2/4/2015

Date:

TVD MD
6711.04 6914.24 KOP @ 6914.24ft

Plan Report for SARCHET 37C-20HZ - 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
SARCHET 37C-20HZ_SHL - 2N-R65W-Sec. 20_Section Lines										
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
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
1,200.00	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
9 5/8"										
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,900.00	0.00	0.00	1,900.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2,100.00	0.00	0.00	2,100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2,110.00	0.00	0.00	2,110.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Begin Nudge @ 2110.00ft										
2,200.00	1.80	46.00	2,199.99	0.98	1.02	-0.99	2.00	2.00	0.00	46.00
2,300.00	3.80	46.00	2,299.86	4.38	4.53	-4.42	2.00	2.00	0.00	0.00
2,400.00	5.80	46.00	2,399.50	10.19	10.55	-10.30	2.00	2.00	0.00	0.00
2,500.00	7.80	46.00	2,498.80	18.41	19.07	-18.61	2.00	2.00	0.00	0.00
2,600.00	9.80	46.00	2,597.61	29.04	30.07	-29.35	2.00	2.00	0.00	0.00
2,700.00	11.80	46.00	2,695.84	42.05	43.55	-42.51	2.00	2.00	0.00	0.00
2,800.00	13.80	46.00	2,793.35	57.44	59.49	-58.06	2.00	2.00	0.00	0.00
2,900.00	15.80	46.00	2,890.03	75.19	77.86	-76.00	2.00	2.00	0.00	0.00
3,000.00	17.80	46.00	2,985.75	95.26	98.65	-96.29	2.00	2.00	0.00	0.00
3,100.00	19.80	46.00	3,080.41	117.65	121.83	-118.92	2.00	2.00	0.00	0.00
3,110.00	20.00	46.00	3,089.82	120.01	124.28	-121.31	2.00	2.00	0.00	0.00
End Nudge @ 3110.00ft										
3,200.00	20.00	46.00	3,174.39	141.40	146.42	-142.92	0.00	0.00	0.00	0.00
3,300.00	20.00	46.00	3,268.36	165.16	171.02	-166.94	0.00	0.00	0.00	0.00
3,400.00	20.00	46.00	3,362.33	188.91	195.63	-190.95	0.00	0.00	0.00	0.00
3,500.00	20.00	46.00	3,456.30	212.67	220.23	-214.97	0.00	0.00	0.00	0.00
3,600.00	20.00	46.00	3,550.26	236.43	244.83	-238.98	0.00	0.00	0.00	0.00
3,700.00	20.00	46.00	3,644.23	260.19	269.44	-263.00	0.00	0.00	0.00	0.00
3,800.00	20.00	46.00	3,738.20	283.95	294.04	-287.01	0.00	0.00	0.00	0.00
3,900.00	20.00	46.00	3,832.17	307.71	318.64	-311.03	0.00	0.00	0.00	0.00
4,000.00	20.00	46.00	3,926.14	331.47	343.24	-335.04	0.00	0.00	0.00	0.00
4,100.00	20.00	46.00	4,020.11	355.23	367.85	-359.06	0.00	0.00	0.00	0.00
4,200.00	20.00	46.00	4,114.08	378.98	392.45	-383.07	0.00	0.00	0.00	0.00
4,300.00	20.00	46.00	4,208.05	402.74	417.05	-407.09	0.00	0.00	0.00	0.00
4,400.00	20.00	46.00	4,302.02	426.50	441.66	-431.10	0.00	0.00	0.00	0.00
4,500.00	20.00	46.00	4,395.99	450.26	466.26	-455.12	0.00	0.00	0.00	0.00
4,600.00	20.00	46.00	4,489.96	474.02	490.86	-479.13	0.00	0.00	0.00	0.00
4,664.96	20.00	46.00	4,551.00	489.45	506.84	-494.73	0.00	0.00	0.00	0.00
Sussex										
4,700.00	20.00	46.00	4,583.93	497.78	515.46	-503.15	0.00	0.00	0.00	0.00
4,800.00	20.00	46.00	4,677.90	521.54	540.07	-527.16	0.00	0.00	0.00	0.00
4,900.00	20.00	46.00	4,771.87	545.30	564.67	-551.18	0.00	0.00	0.00	0.00

Plan Report for SARCHET 37C-20HZ - 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 (°)
5,000.00	20.00	46.00	4,865.83	569.05	589.27	-575.19	0.00	0.00	0.00	0.00
5,100.00	20.00	46.00	4,959.80	592.81	613.88	-599.21	0.00	0.00	0.00	0.00
5,200.00	20.00	46.00	5,053.77	616.57	638.48	-623.22	0.00	0.00	0.00	0.00
5,300.00	20.00	46.00	5,147.74	640.33	663.08	-647.24	0.00	0.00	0.00	0.00
5,400.00	20.00	46.00	5,241.71	664.09	687.68	-671.25	0.00	0.00	0.00	0.00
5,500.00	20.00	46.00	5,335.68	687.85	712.29	-695.27	0.00	0.00	0.00	0.00
5,600.00	20.00	46.00	5,429.65	711.61	736.89	-719.28	0.00	0.00	0.00	0.00
5,700.00	20.00	46.00	5,523.62	735.37	761.49	-743.30	0.00	0.00	0.00	0.00
5,800.00	20.00	46.00	5,617.59	759.12	786.10	-767.31	0.00	0.00	0.00	0.00
5,810.00	20.00	46.00	5,626.99	761.50	788.56	-769.72	0.00	0.00	0.00	0.00
Begin Drop @ 5810.00ft										
5,900.00	18.20	46.00	5,712.03	781.96	809.74	-790.39	2.00	-2.00	0.00	-180.00
6,000.00	16.20	46.00	5,807.55	802.50	831.01	-811.16	2.00	-2.00	0.00	-180.00
6,100.00	14.20	46.00	5,904.05	820.71	849.87	-829.56	2.00	-2.00	0.00	-180.00
6,200.00	12.20	46.00	6,001.40	836.57	866.29	-845.60	2.00	-2.00	0.00	-180.00
6,300.00	10.20	46.00	6,099.49	850.06	880.27	-859.23	2.00	-2.00	0.00	-180.00
6,400.00	8.20	46.00	6,198.20	861.17	891.77	-870.46	2.00	-2.00	0.00	-180.00
6,500.00	6.20	46.00	6,297.41	869.87	900.78	-879.26	2.00	-2.00	0.00	-180.00
6,600.00	4.20	46.00	6,396.99	876.17	907.30	-885.62	2.00	-2.00	0.00	-180.00
6,700.00	2.20	46.00	6,496.83	880.05	911.32	-889.54	2.00	-2.00	0.00	-180.00
6,800.00	0.20	46.00	6,596.80	881.50	912.82	-891.01	2.00	-2.00	0.00	-180.00
6,810.00	0.00	0.00	6,606.80	881.51	912.84	-891.03	2.00	-2.00	-460.00	-180.00
End Drop @ 6810.00ft										
6,814.24	0.00	0.00	6,611.04	881.51	912.84	-891.03	0.00	0.00	0.00	180.00
Top of 4.5" Liner @ 6814.24ft										
6,900.00	0.00	0.00	6,696.80	881.51	912.84	-891.03	0.00	0.00	0.00	0.00
6,914.24	0.00	0.00	6,711.04	881.51	912.84	-891.03	0.00	0.00	0.00	0.00
KOP @ 6914.24ft										
7,000.00	8.58	180.60	6,796.48	875.11	912.77	-884.62	10.00	10.00	-209.18	-179.40
7,100.00	18.58	180.60	6,893.56	851.67	912.52	-861.18	10.00	10.00	0.00	0.00
7,134.71	22.05	180.60	6,926.11	839.62	912.39	-849.13	10.00	10.00	0.00	0.00
Sharon Springs										
7,198.87	28.46	180.60	6,984.11	812.26	912.10	-821.77	10.00	10.00	0.00	0.00
Niobrara Top										
7,200.00	28.58	180.60	6,985.10	811.72	912.10	-821.23	10.00	10.00	0.00	0.00
7,291.74	37.75	180.60	7,061.82	761.59	911.57	-771.10	10.00	10.00	0.00	0.00
Niobrara B Bench										
7,300.00	38.58	180.60	7,068.31	756.49	911.52	-766.00	10.00	10.00	0.00	0.00
7,379.78	46.55	180.60	7,127.02	702.58	910.95	-712.08	10.00	10.00	0.00	0.00
Niobrara C Bench										
7,400.00	48.58	180.60	7,140.66	687.65	910.79	-697.15	10.00	10.00	0.00	0.00
DLS = 10°/100'										
7,500.00	58.58	180.60	7,199.96	607.29	909.94	-616.79	10.00	10.00	0.00	0.00
7,600.00	68.58	180.60	7,244.41	517.86	909.00	-527.35	10.00	10.00	0.00	0.00
7,611.62	69.74	180.60	7,248.54	507.00	908.88	-516.49	10.00	10.00	0.00	0.00
Fort Hays										
7,699.47	78.52	180.60	7,272.54	422.58	907.99	-432.07	10.00	10.00	0.00	0.00
Codell										
7,700.00	78.58	180.60	7,272.65	422.07	907.98	-431.55	10.00	10.00	0.00	0.00
7,800.00	88.58	180.60	7,283.82	322.83	906.94	-332.31	10.00	10.00	0.00	0.00
7,815.58	90.13	180.60	7,284.00	307.25	906.77	-316.73	10.00	10.00	0.00	0.00
End Build @ 7815.58ft - Target Heel Location - Top of Production										
7,900.00	90.13	180.60	7,283.80	222.83	905.88	-232.31	0.00	0.00	0.00	0.00
8,000.00	90.13	180.60	7,283.57	122.84	904.82	-132.31	0.00	0.00	0.00	0.00
8,100.00	90.13	180.60	7,283.33	22.85	903.77	-32.31	0.00	0.00	0.00	0.00
8,200.00	90.13	180.60	7,283.10	-77.15	902.71	67.69	0.00	0.00	0.00	0.00
8,300.00	90.13	180.60	7,282.86	-177.14	901.66	167.69	0.00	0.00	0.00	0.00
8,400.00	90.13	180.60	7,282.63	-277.14	900.60	267.69	0.00	0.00	0.00	0.00

Plan Report for SARCHET 37C-20HZ - 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 (°)
8,500.00	90.13	180.60	7,282.39	-377.13	899.55	367.69	0.00	0.00	0.00	0.00
8,600.00	90.13	180.60	7,282.16	-477.13	898.49	467.69	0.00	0.00	0.00	0.00
8,700.00	90.13	180.60	7,281.93	-577.12	897.43	567.69	0.00	0.00	0.00	0.00
8,800.00	90.13	180.60	7,281.69	-677.11	896.38	667.69	0.00	0.00	0.00	0.00
8,900.00	90.13	180.60	7,281.46	-777.11	895.32	767.69	0.00	0.00	0.00	0.00
9,000.00	90.13	180.60	7,281.22	-877.10	894.27	867.69	0.00	0.00	0.00	0.00
9,100.00	90.13	180.60	7,280.99	-977.10	893.21	967.69	0.00	0.00	0.00	0.00
9,200.00	90.13	180.60	7,280.75	-1,077.09	892.15	1,067.69	0.00	0.00	0.00	0.00
9,300.00	90.13	180.60	7,280.52	-1,177.08	891.10	1,167.69	0.00	0.00	0.00	0.00
9,400.00	90.13	180.60	7,280.29	-1,277.08	890.04	1,267.69	0.00	0.00	0.00	0.00
9,500.00	90.13	180.60	7,280.05	-1,377.07	888.99	1,367.69	0.00	0.00	0.00	0.00
9,600.00	90.13	180.60	7,279.82	-1,477.07	887.93	1,467.69	0.00	0.00	0.00	0.00
9,700.00	90.13	180.60	7,279.58	-1,577.06	886.88	1,567.69	0.00	0.00	0.00	0.00
9,800.00	90.13	180.60	7,279.35	-1,677.06	885.82	1,667.69	0.00	0.00	0.00	0.00
9,900.00	90.13	180.60	7,279.11	-1,777.05	884.76	1,767.69	0.00	0.00	0.00	0.00
10,000.00	90.13	180.60	7,278.88	-1,877.04	883.71	1,867.69	0.00	0.00	0.00	0.00
10,100.00	90.13	180.60	7,278.65	-1,977.04	882.65	1,967.69	0.00	0.00	0.00	0.00
10,200.00	90.13	180.60	7,278.41	-2,077.03	881.60	2,067.69	0.00	0.00	0.00	0.00
10,300.00	90.13	180.60	7,278.18	-2,177.03	880.54	2,167.69	0.00	0.00	0.00	0.00
10,400.00	90.13	180.60	7,277.94	-2,277.02	879.49	2,267.69	0.00	0.00	0.00	0.00
10,500.00	90.13	180.60	7,277.71	-2,377.01	878.43	2,367.69	0.00	0.00	0.00	0.00
10,600.00	90.13	180.60	7,277.47	-2,477.01	877.37	2,467.68	0.00	0.00	0.00	0.00
10,700.00	90.13	180.60	7,277.24	-2,577.00	876.32	2,567.68	0.00	0.00	0.00	0.00
10,800.00	90.13	180.60	7,277.01	-2,677.00	875.26	2,667.68	0.00	0.00	0.00	0.00
10,900.00	90.13	180.60	7,276.77	-2,776.99	874.21	2,767.68	0.00	0.00	0.00	0.00
11,000.00	90.13	180.60	7,276.54	-2,876.98	873.15	2,867.68	0.00	0.00	0.00	0.00
11,100.00	90.13	180.60	7,276.30	-2,976.98	872.09	2,967.68	0.00	0.00	0.00	0.00
11,200.00	90.13	180.60	7,276.07	-3,076.97	871.04	3,067.68	0.00	0.00	0.00	0.00
11,300.00	90.13	180.60	7,275.83	-3,176.97	869.98	3,167.68	0.00	0.00	0.00	0.00
11,400.00	90.13	180.60	7,275.60	-3,276.96	868.93	3,267.68	0.00	0.00	0.00	0.00
11,500.00	90.13	180.60	7,275.37	-3,376.96	867.87	3,367.68	0.00	0.00	0.00	0.00
11,600.00	90.13	180.60	7,275.13	-3,476.95	866.82	3,467.68	0.00	0.00	0.00	0.00
11,700.00	90.13	180.60	7,274.90	-3,576.94	865.76	3,567.68	0.00	0.00	0.00	0.00
11,800.00	90.13	180.60	7,274.66	-3,676.94	864.70	3,667.68	0.00	0.00	0.00	0.00
11,900.00	90.13	180.60	7,274.43	-3,776.93	863.65	3,767.68	0.00	0.00	0.00	0.00
12,000.00	90.13	180.60	7,274.19	-3,876.93	862.59	3,867.68	0.00	0.00	0.00	0.00
12,100.00	90.13	180.60	7,273.96	-3,976.92	861.54	3,967.68	0.00	0.00	0.00	0.00
12,200.00	90.13	180.60	7,273.73	-4,076.91	860.48	4,067.68	0.00	0.00	0.00	0.00
12,300.00	90.13	180.60	7,273.49	-4,176.91	859.42	4,167.68	0.00	0.00	0.00	0.00
12,400.00	90.13	180.60	7,273.26	-4,276.90	858.37	4,267.68	0.00	0.00	0.00	0.00
12,500.00	90.13	180.60	7,273.02	-4,376.90	857.31	4,367.68	0.00	0.00	0.00	0.00
12,600.00	90.13	180.60	7,272.79	-4,476.89	856.26	4,467.68	0.00	0.00	0.00	0.00
12,700.00	90.13	180.60	7,272.56	-4,576.89	855.20	4,567.68	0.00	0.00	0.00	0.00
12,800.00	90.13	180.60	7,272.32	-4,676.88	854.15	4,667.68	0.00	0.00	0.00	0.00
12,900.00	90.13	180.60	7,272.09	-4,776.87	853.09	4,767.68	0.00	0.00	0.00	0.00
12,936.94	90.13	180.60	7,272.00	-4,813.81	852.70	4,804.62	0.00	0.00	0.00	0.00

Target Toe Location

12,936.95	90.13	180.60	7,272.00	-4,813.82	852.70	4,804.63	0.00	0.00	0.00	0.00
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TD Well @ 12936.95ft - SARCHET 37C-20HZ_BHL

Plan Report for SARCHET 37C-20HZ - Permit Rev-2**Plan Annotations**

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
2,110.00	2,110.00	0.00	0.00	Begin Nudge @ 2110.00ft
3,110.00	3,089.82	120.01	124.28	End Nudge @ 3110.00ft
5,810.00	5,626.99	761.50	788.56	Begin Drop @ 5810.00ft
6,810.00	6,606.80	881.51	912.84	End Drop @ 6810.00ft
6,814.24	6,611.04	881.51	912.84	Top of 4.5" Liner @ 6814.24ft
6,914.24	6,711.04	881.51	912.84	KOP @ 6914.24ft
7,400.00	7,140.66	687.65	910.79	DLS = 10°/100'
7,815.58	7,284.00	307.25	906.77	End Build @ 7815.58ft
12,936.95	7,272.00	-4,813.82	852.70	TD Well @ 12936.95ft

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin		Start TVD (usft)
				+N/_S (usft)	+E/-W (usft)	
User	No Target (Freehand)	180.60	Slot	0.00	0.00	0.00

Survey tool program

From (usft)	To (usft)	Survey/Plan	Survey Tool
0.00	7,815.58	Permit Rev-2	APC_ISCWSA REV 2 MWD+IFR1
7,815.58	12,936.95	Permit Rev-2	APC_ISCWSA REV 2 MWD+IFR1

Casing Details

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
1,400.00	1,400.00	9 5/8"	9-5/8	13-1/2
7,815.58	7,284.00	Top of Production	5-1/2	7-7/8

Formation Details

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
4,664.96	4,551.00	Sussex		0.00	
7,134.71	6,926.11	Sharon Springs		0.00	
7,198.87	6,984.11	Niobrara Top		0.00	
7,291.74	7,061.82	Niobrara B Bench		0.00	
7,379.78	7,127.02	Niobrara C Bench		0.00	
7,611.62	7,248.54	Fort Hays		0.00	
7,699.47	7,272.54	Codell		0.00	
7,815.58	7,284.00	Target Heel Location		0.00	
12,936.94	7,272.00	Target Toe Location		0.00	

Plan Report for SARCHET 37C-20HZ - Permit Rev-2

Targets associated with this wellbore

Target Name	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Shape
SARCHET 37C-20HZ_BHL	7,272.00	-4,813.82	852.70	Point
SARCHET 37C-20HZ_SHL	0.00	0.00	0.00	Point
2N-R65W-Sec. 20_Section Lines	0.00	-66.28	-60.94	Polygon

North Reference Sheet for 2N-65W-20 Sarchet 2-20HZ Pad - SARCHET 37C-20HZ - 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' @ 4931.00usft (D Rig). Northing and Easting are relative to SARCHET 37C-20HZ

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: 0.99960877

Grid Coordinates of Well: 14,574,400.93 usft N, 1,727,968.23 usft E

Geographical Coordinates of Well: 40° 07' 49.72" N, 104° 41' 12.39" W

Grid Convergence at Surface is: 0.20°

Based upon Minimum Curvature type calculations, at a Measured Depth of 12,936.95usft the Bottom Hole Displacement is 4,888.76usft in the Direction of 169.96° (True).

Magnetic Convergence at surface is: -8.11° (2 February 2015, , IGRF2010)

