

# US ROCKIES WATTENBERG PLANNING

WELD-NAD83-UTMFT13N

2N-65W-20 Sarchet 1-20HZ Pad

SARCHET 38C-20HZ

Plan A

Plan: Permit Rev-2

## Sperry Drilling Services Proposal Report

23 April, 2015

Well Coordinates: 14,574,306.22 N, 1,730,002.65 E (40° 07' 48.72" N, 104° 40' 46.20" W)

Ground Level: 4,896.00 usft

Local Coordinate Origin:

Centered on Well SARCHET 38C-20HZ

Viewing Datum:

RKB = 17' @ 4913.00usft (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 1-20HZ Pad

Well: SARCHET 38C-20HZ

Wellbore: Plan A

Design: Permit Rev-2

# US ROCKIES WATTENBERG PLANNING

HALLIBURTON

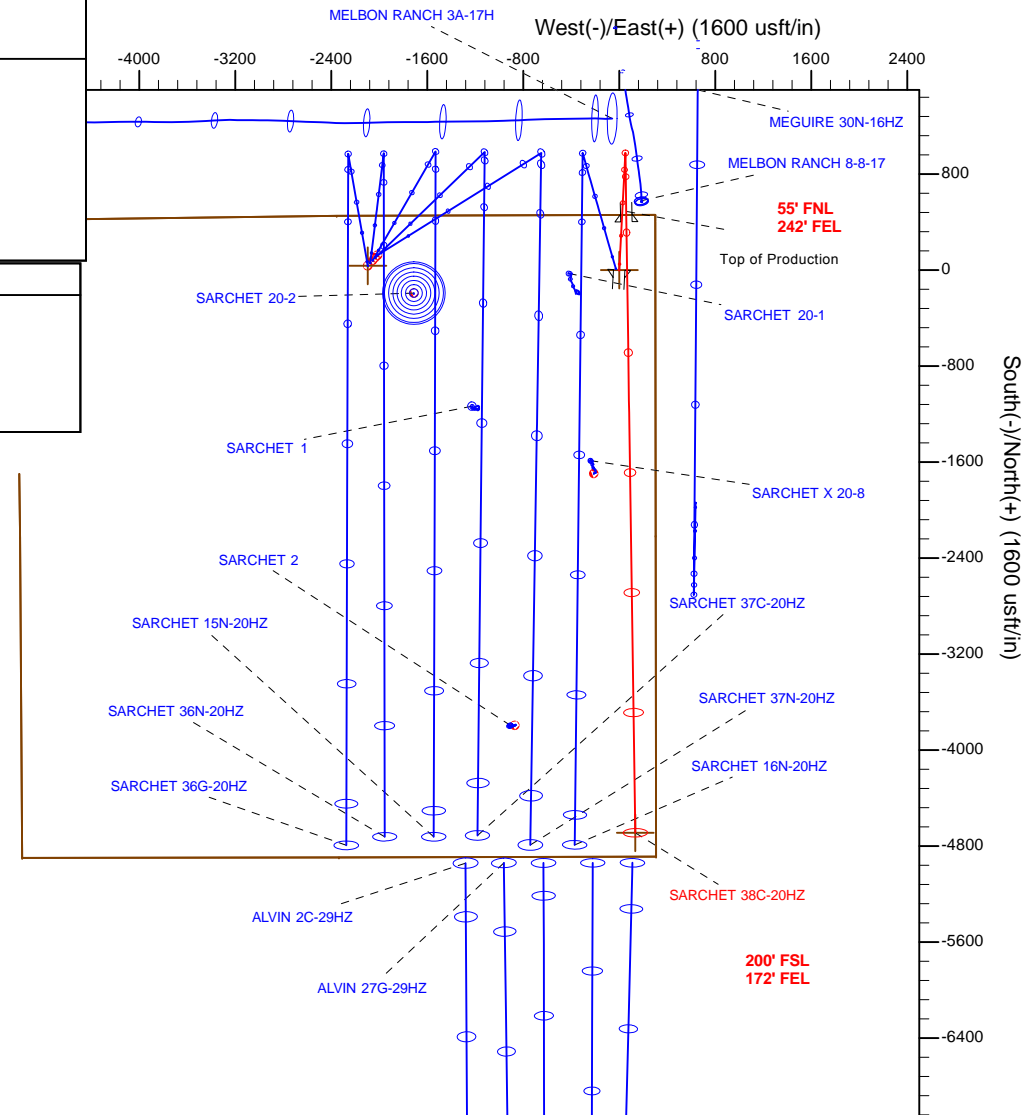
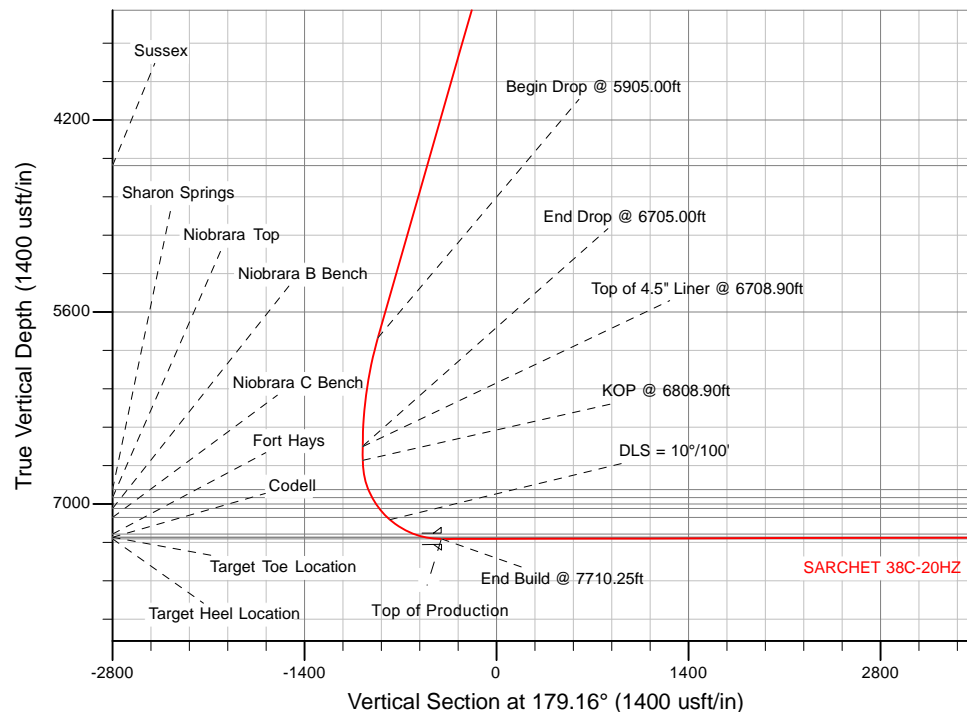
Sperry Drilling

## 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	2365.00	0.00	0.00	2365.00	0.00	0.00	0.00	0.00	0.00	
3	3165.00	16.00	3.00	3154.64	110.82	5.81	2.00	3.00	-110.73	
4	5905.00	16.00	3.00	5788.50	865.04	45.33	0.00	0.00	-864.28	
5	6705.00	0.00	0.00	6578.14	975.86	51.14	2.00	180.00	-975.01	
6	6808.90	0.00	0.00	6682.04	975.86	51.14	0.00	0.00	-975.01	
7	7710.25	90.14	179.16	7255.00	401.61	59.53	10.00	179.16	-400.70	
8	12801.74	90.14	179.16	7243.00	-4689.32	133.91	0.00	0.00	4690.78	SARCHET 38C-20HZ_BHL

## WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude
SARCHET 38C-20HZ_SHL	0.00	0.00	0.00	40.130199	-104.679499
SARCHET 38C-20HZ_BHL	7243.00	-4689.32	133.91	40.117322	-104.679020



WELL DETAILS: SARCHET 38C-20HZ

Ground Level: 4896.00

RKB = 17' @ 4913.00usft (D Rig)

Plan: Permit Rev-2 (SARCHET 38C-20HZ/Plan A)

Created By: Clint Eshelman

Date: 2/4/2015

Reviewed:

Date:

TVD MD

6808.90 KOP @ 6808.90ft

## Plan Report for SARCHET 38C-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
<b>SARCHET 38C-20HZ_SHL - 2N-R65W-Sec. 20_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
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
<b>9 5/8"</b>										
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
2,200.00	0.00	0.00	2,200.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2,300.00	0.00	0.00	2,300.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2,365.00	0.00	0.00	2,365.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Begin Nudge @ 2365.00ft</b>										
2,400.00	0.70	3.00	2,400.00	0.21	0.01	-0.21	2.00	2.00	0.00	3.00
2,500.00	2.70	3.00	2,499.95	3.18	0.17	-3.17	2.00	2.00	0.00	0.00
2,600.00	4.70	3.00	2,599.74	9.62	0.50	-9.61	2.00	2.00	0.00	0.00
2,700.00	6.70	3.00	2,699.24	19.54	1.02	-19.52	2.00	2.00	0.00	0.00
2,800.00	8.70	3.00	2,798.33	32.92	1.73	-32.89	2.00	2.00	0.00	0.00
2,900.00	10.70	3.00	2,896.90	49.74	2.61	-49.70	2.00	2.00	0.00	0.00
3,000.00	12.70	3.00	2,994.81	69.99	3.67	-69.93	2.00	2.00	0.00	0.00
3,100.00	14.70	3.00	3,091.96	93.64	4.91	-93.56	2.00	2.00	0.00	0.00
3,165.00	16.00	3.00	3,154.64	110.82	5.81	-110.73	2.00	2.00	0.00	0.00
<b>End Nudge @ 3165.00ft</b>										
3,200.00	16.00	3.00	3,188.29	120.46	6.31	-120.35	0.00	0.00	0.00	0.00
3,300.00	16.00	3.00	3,284.41	147.99	7.76	-147.86	0.00	0.00	0.00	0.00
3,400.00	16.00	3.00	3,380.54	175.51	9.20	-175.36	0.00	0.00	0.00	0.00
3,500.00	16.00	3.00	3,476.67	203.04	10.64	-202.86	0.00	0.00	0.00	0.00
3,600.00	16.00	3.00	3,572.79	230.56	12.08	-230.36	0.00	0.00	0.00	0.00
3,700.00	16.00	3.00	3,668.92	258.09	13.53	-257.86	0.00	0.00	0.00	0.00
3,800.00	16.00	3.00	3,765.04	285.61	14.97	-285.36	0.00	0.00	0.00	0.00
3,900.00	16.00	3.00	3,861.17	313.14	16.41	-312.87	0.00	0.00	0.00	0.00
4,000.00	16.00	3.00	3,957.30	340.67	17.85	-340.37	0.00	0.00	0.00	0.00
4,100.00	16.00	3.00	4,053.42	368.19	19.30	-367.87	0.00	0.00	0.00	0.00
4,200.00	16.00	3.00	4,149.55	395.72	20.74	-395.37	0.00	0.00	0.00	0.00
4,300.00	16.00	3.00	4,245.67	423.24	22.18	-422.87	0.00	0.00	0.00	0.00
4,400.00	16.00	3.00	4,341.80	450.77	23.62	-450.38	0.00	0.00	0.00	0.00
4,500.00	16.00	3.00	4,437.93	478.30	25.07	-477.88	0.00	0.00	0.00	0.00
4,598.90	16.00	3.00	4,533.00	505.52	26.49	-505.08	0.00	0.00	0.00	0.00
<b>Sussex</b>										
4,600.00	16.00	3.00	4,534.05	505.82	26.51	-505.38	0.00	0.00	0.00	0.00
4,700.00	16.00	3.00	4,630.18	533.35	27.95	-532.88	0.00	0.00	0.00	0.00
4,800.00	16.00	3.00	4,726.31	560.87	29.39	-560.38	0.00	0.00	0.00	0.00
4,900.00	16.00	3.00	4,822.43	588.40	30.84	-587.89	0.00	0.00	0.00	0.00

## Plan Report for SARCHET 38C-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	16.00	3.00	4,918.56	615.93	32.28	-615.39	0.00	0.00	0.00	0.00
5,100.00	16.00	3.00	5,014.68	643.45	33.72	-642.89	0.00	0.00	0.00	0.00
5,200.00	16.00	3.00	5,110.81	670.98	35.16	-670.39	0.00	0.00	0.00	0.00
5,300.00	16.00	3.00	5,206.94	698.50	36.61	-697.89	0.00	0.00	0.00	0.00
5,400.00	16.00	3.00	5,303.06	726.03	38.05	-725.39	0.00	0.00	0.00	0.00
5,500.00	16.00	3.00	5,399.19	753.56	39.49	-752.90	0.00	0.00	0.00	0.00
5,600.00	16.00	3.00	5,495.32	781.08	40.93	-780.40	0.00	0.00	0.00	0.00
5,700.00	16.00	3.00	5,591.44	808.61	42.38	-807.90	0.00	0.00	0.00	0.00
5,800.00	16.00	3.00	5,687.57	836.13	43.82	-835.40	0.00	0.00	0.00	0.00
5,900.00	16.00	3.00	5,783.69	863.66	45.26	-862.90	0.00	0.00	0.00	0.00
5,905.00	16.00	3.00	5,788.50	865.04	45.33	-864.28	0.00	0.00	0.00	0.00
<b>Begin Drop @ 5905.00ft</b>										
6,000.00	14.10	3.00	5,880.24	889.67	46.63	-888.89	2.00	-2.00	0.00	180.00
6,100.00	12.10	3.00	5,977.63	912.30	47.81	-911.50	2.00	-2.00	0.00	180.00
6,200.00	10.10	3.00	6,075.75	931.53	48.82	-930.71	2.00	-2.00	0.00	180.00
6,300.00	8.10	3.00	6,174.49	947.32	49.65	-946.49	2.00	-2.00	0.00	180.00
6,400.00	6.10	3.00	6,273.72	959.66	50.29	-958.82	2.00	-2.00	0.00	180.00
6,500.00	4.10	3.00	6,373.32	968.54	50.76	-967.69	2.00	-2.00	0.00	180.00
6,600.00	2.10	3.00	6,473.17	973.94	51.04	-973.09	2.00	-2.00	0.00	180.00
6,700.00	0.10	3.00	6,573.14	975.86	51.14	-975.00	2.00	-2.00	0.00	-180.00
6,705.00	0.00	0.00	6,578.14	975.86	51.14	-975.01	2.00	-2.00	0.00	-180.00
<b>End Drop @ 6705.00ft</b>										
6,708.90	0.00	0.00	6,582.04	975.86	51.14	-975.01	0.00	0.00	0.00	0.00
<b>Top of 4.5" Liner @ 6708.90ft</b>										
6,800.00	0.00	0.00	6,673.14	975.86	51.14	-975.01	0.00	0.00	0.00	0.00
6,808.90	0.00	0.00	6,682.04	975.86	51.14	-975.01	0.00	0.00	0.00	0.00
<b>KOP @ 6808.90ft</b>										
6,900.00	9.11	179.16	6,772.76	968.63	51.25	-967.78	10.00	10.00	0.00	179.16
7,000.00	19.11	179.16	6,869.62	944.29	51.60	-943.43	10.00	10.00	0.00	0.00
7,027.70	21.88	179.16	6,895.56	934.59	51.75	-933.74	10.00	10.00	0.00	0.00
<b>Sharon Springs</b>										
7,091.77	28.29	179.16	6,953.56	907.45	52.14	-906.59	10.00	10.00	0.00	0.00
<b>Niobrara Top</b>										
7,100.00	29.11	179.16	6,960.78	903.50	52.20	-902.63	10.00	10.00	0.00	0.00
7,187.16	37.83	179.16	7,033.42	855.48	52.90	-854.61	10.00	10.00	0.00	0.00
<b>Niobrara B Bench</b>										
7,200.00	39.11	179.16	7,043.47	847.50	53.02	-846.63	10.00	10.00	0.00	0.00
7,275.07	46.62	179.16	7,098.45	796.47	53.76	-795.60	10.00	10.00	0.00	0.00
<b>Niobrara C Bench</b>										
7,300.00	49.11	179.16	7,115.18	777.99	54.03	-777.11	10.00	10.00	0.00	0.00
<b>DLS = 10°/100'</b>										
7,400.00	59.11	179.16	7,173.73	697.08	55.22	-696.20	10.00	10.00	0.00	0.00
7,500.00	69.11	179.16	7,217.34	607.25	56.53	-606.35	10.00	10.00	0.00	0.00
7,508.51	69.96	179.16	7,220.31	599.27	56.64	-598.38	10.00	10.00	0.00	0.00
<b>Fort Hays</b>										
7,598.06	78.92	179.16	7,244.31	513.10	57.90	-512.20	10.00	10.00	0.00	0.00
<b>Codell</b>										
7,600.00	79.11	179.16	7,244.68	511.20	57.93	-510.29	10.00	10.00	0.00	0.00
7,700.00	89.11	179.16	7,254.93	411.86	59.38	-410.95	10.00	10.00	0.00	0.00
7,710.25	90.13	179.16	7,255.00	401.61	59.53	-400.70	10.00	10.00	0.00	0.00
<b>End Build @ 7710.25ft - Target Heel Location - Top of Production</b>										
7,800.00	90.14	179.16	7,254.79	311.87	60.84	-310.95	0.00	0.00	0.00	0.00
7,900.00	90.14	179.16	7,254.55	211.89	62.30	-210.95	0.00	0.00	0.00	0.00
8,000.00	90.14	179.16	7,254.32	111.90	63.77	-110.95	0.00	0.00	0.00	0.00
8,100.00	90.14	179.16	7,254.08	11.91	65.23	-10.95	0.00	0.00	0.00	0.00
8,200.00	90.14	179.16	7,253.84	-88.08	66.69	89.05	0.00	0.00	0.00	0.00
8,300.00	90.14	179.16	7,253.61	-188.07	68.15	189.05	0.00	0.00	0.00	0.00
8,400.00	90.14	179.16	7,253.37	-288.06	69.61	289.05	0.00	0.00	0.00	0.00

## Plan Report for SARCHET 38C-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	90.14	179.16	7,253.14	-388.05	71.07	389.05	0.00	0.00	0.00	0.00
8,600.00	90.14	179.16	7,252.90	-488.04	72.53	489.05	0.00	0.00	0.00	0.00
8,700.00	90.14	179.16	7,252.67	-588.03	73.99	589.05	0.00	0.00	0.00	0.00
8,800.00	90.14	179.16	7,252.43	-688.02	75.45	689.05	0.00	0.00	0.00	0.00
8,900.00	90.14	179.16	7,252.20	-788.00	76.91	789.05	0.00	0.00	0.00	0.00
9,000.00	90.14	179.16	7,251.96	-887.99	78.37	889.05	0.00	0.00	0.00	0.00
9,100.00	90.14	179.16	7,251.72	-987.98	79.83	989.05	0.00	0.00	0.00	0.00
9,200.00	90.14	179.16	7,251.49	-1,087.97	81.29	1,089.05	0.00	0.00	0.00	0.00
9,300.00	90.14	179.16	7,251.25	-1,187.96	82.76	1,189.05	0.00	0.00	0.00	0.00
9,400.00	90.14	179.16	7,251.02	-1,287.95	84.22	1,289.05	0.00	0.00	0.00	0.00
9,500.00	90.14	179.16	7,250.78	-1,387.94	85.68	1,389.05	0.00	0.00	0.00	0.00
9,600.00	90.14	179.16	7,250.55	-1,487.93	87.14	1,489.05	0.00	0.00	0.00	0.00
9,700.00	90.14	179.16	7,250.31	-1,587.92	88.60	1,589.05	0.00	0.00	0.00	0.00
9,800.00	90.14	179.16	7,250.07	-1,687.91	90.06	1,689.05	0.00	0.00	0.00	0.00
9,900.00	90.14	179.16	7,249.84	-1,787.90	91.52	1,789.05	0.00	0.00	0.00	0.00
10,000.00	90.14	179.16	7,249.60	-1,887.88	92.98	1,889.04	0.00	0.00	0.00	0.00
10,100.00	90.14	179.16	7,249.37	-1,987.87	94.44	1,989.04	0.00	0.00	0.00	0.00
10,200.00	90.14	179.16	7,249.13	-2,087.86	95.90	2,089.04	0.00	0.00	0.00	0.00
10,300.00	90.14	179.16	7,248.90	-2,187.85	97.36	2,189.04	0.00	0.00	0.00	0.00
10,400.00	90.14	179.16	7,248.66	-2,287.84	98.82	2,289.04	0.00	0.00	0.00	0.00
10,500.00	90.14	179.16	7,248.42	-2,387.83	100.29	2,389.04	0.00	0.00	0.00	0.00
10,600.00	90.14	179.16	7,248.19	-2,487.82	101.75	2,489.04	0.00	0.00	0.00	0.00
10,700.00	90.14	179.16	7,247.95	-2,587.81	103.21	2,589.04	0.00	0.00	0.00	0.00
10,800.00	90.14	179.16	7,247.72	-2,687.80	104.67	2,689.04	0.00	0.00	0.00	0.00
10,900.00	90.14	179.16	7,247.48	-2,787.79	106.13	2,789.04	0.00	0.00	0.00	0.00
11,000.00	90.14	179.16	7,247.25	-2,887.78	107.59	2,889.04	0.00	0.00	0.00	0.00
11,100.00	90.14	179.16	7,247.01	-2,987.76	109.05	2,989.04	0.00	0.00	0.00	0.00
11,200.00	90.14	179.16	7,246.77	-3,087.75	110.51	3,089.04	0.00	0.00	0.00	0.00
11,300.00	90.14	179.16	7,246.54	-3,187.74	111.97	3,189.04	0.00	0.00	0.00	0.00
11,400.00	90.14	179.16	7,246.30	-3,287.73	113.43	3,289.04	0.00	0.00	0.00	0.00
11,500.00	90.14	179.16	7,246.07	-3,387.72	114.89	3,389.04	0.00	0.00	0.00	0.00
11,600.00	90.14	179.16	7,245.83	-3,487.71	116.35	3,489.04	0.00	0.00	0.00	0.00
11,700.00	90.14	179.16	7,245.60	-3,587.70	117.82	3,589.04	0.00	0.00	0.00	0.00
11,800.00	90.14	179.16	7,245.36	-3,687.69	119.28	3,689.04	0.00	0.00	0.00	0.00
11,900.00	90.14	179.16	7,245.13	-3,787.68	120.74	3,789.04	0.00	0.00	0.00	0.00
12,000.00	90.14	179.16	7,244.89	-3,887.67	122.20	3,889.04	0.00	0.00	0.00	0.00
12,100.00	90.14	179.16	7,244.65	-3,987.65	123.66	3,989.04	0.00	0.00	0.00	0.00
12,200.00	90.14	179.16	7,244.42	-4,087.64	125.12	4,089.04	0.00	0.00	0.00	0.00
12,300.00	90.14	179.16	7,244.18	-4,187.63	126.58	4,189.04	0.00	0.00	0.00	0.00
12,400.00	90.14	179.16	7,243.95	-4,287.62	128.04	4,289.04	0.00	0.00	0.00	0.00
12,500.00	90.14	179.16	7,243.71	-4,387.61	129.50	4,389.04	0.00	0.00	0.00	0.00
12,600.00	90.14	179.16	7,243.48	-4,487.60	130.96	4,489.04	0.00	0.00	0.00	0.00
12,700.00	90.14	179.16	7,243.24	-4,587.59	132.42	4,589.04	0.00	0.00	0.00	0.00
12,800.00	90.14	179.16	7,243.00	-4,687.58	133.88	4,689.04	0.00	0.00	0.00	0.00
12,801.74	90.14	179.16	7,243.00	-4,689.32	133.91	4,690.78	0.00	0.00	0.00	0.00

TD Well @ 12801.74ft - Target Toe Location - SARCHET 38C-20HZ\_BHL - SARCHET 38C-20HZ\_BHL

## Plan Report for SARCHET 38C-20HZ - Permit Rev-2

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
2,365.00	2,365.00	0.00	0.00	Begin Nudge @ 2365.00ft
3,165.00	3,154.64	110.82	5.81	End Nudge @ 3165.00ft
5,905.00	5,788.50	865.04	45.33	Begin Drop @ 5905.00ft
6,705.00	6,578.14	975.86	51.14	End Drop @ 6705.00ft
6,708.90	6,582.04	975.86	51.14	Top of 4.5" Liner @ 6708.90ft
6,808.90	6,682.04	975.86	51.14	KOP @ 6808.90ft
7,300.00	7,115.18	777.99	54.03	DLS = 10°/100'
7,710.25	7,255.00	401.61	59.53	End Build @ 7710.25ft
12,801.74	7,243.00	-4,689.32	133.91	TD Well @ 12801.74ft

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin		Start TVD (usft)
				+N/_S (usft)	+E/-W (usft)	
User	No Target (Freehand)	179.16	Slot	0.00	0.00	0.00

Survey tool program

From (usft)	To (usft)	Survey/Plan	Survey Tool
0.00	7,710.25	Permit Rev-2	APC_ISCWSA REV 2 MWD+IFR1
7,710.25	12,801.74	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
7,710.25	7,255.00	Top of Production	5-1/2	7-7/8

Formation Details

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
4,598.90	4,533.00	Sussex		0.00	
7,027.70	6,895.56	Sharon Springs		0.00	
7,091.77	6,953.56	Niobrara Top		0.00	
7,187.16	7,033.42	Niobrara B Bench		0.00	
7,275.07	7,098.45	Niobrara C Bench		0.00	
7,508.51	7,220.31	Fort Hays		0.00	
7,598.06	7,244.31	Codell		0.00	
7,710.25	7,255.00	Target Heel Location		0.00	
12,801.74	7,243.00	Target Toe Location		0.00	

**Plan Report for SARCHET 38C-20HZ - Permit Rev-2**

*Targets associated with this wellbore*

Target Name	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Shape
SARCHET 38C-20HZ_SHL	0.00	0.00	0.00	Point
SARCHET 38C-20HZ_BHL	7,243.00	-4,704.32	133.91	Point
2N-R65W-Sec. 20_Section Lines	-18.00	35.78	-2,095.01	Polygon
SARCHET 38C-20HZ_BHL	7,243.00	-4,689.32	133.91	Point

## North Reference Sheet for 2N-65W-20 Sarchet 1-20HZ Pad - SARCHET 38C-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' @ 4913.00usft (D Rig). Northing and Easting are relative to SARCHET 38C-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: 0.99960918

Grid Coordinates of Well: 14,574,306.22 usft N, 1,730,002.65 usft E

Geographical Coordinates of Well: 40° 07' 48.72" N, 104° 40' 46.20" W

Grid Convergence at Surface is: 0.21°

Based upon Minimum Curvature type calculations, at a Measured Depth of 12,801.74usft the Bottom Hole Displacement is 4,691.23usft in the Direction of 178.36° (True).

Magnetic Convergence at surface is: -8.10° ( 2 February 2015, , IGRF2010)

