

US ROCKIES WATTENBERG PLANNING

WELD-NAD83-UTMFT13N

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

SARCHET 36G-20HZ

Plan A

Plan: Permit Rev-2

Sperry Drilling Services Proposal Report

04 February, 2015

Well Coordinates: 14,574,334.44 N, 1,727,907.53 E (40° 07' 49.07" N, 104° 41' 13.18" W)

Ground Level: 4,914.00 usft

Local Coordinate Origin:

Centered on Well SARCHET 36G-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 36G-20HZ
Wellbore: Plan A
Design: Permit Rev-2

US ROCKIES WATTENBERG PLANNING

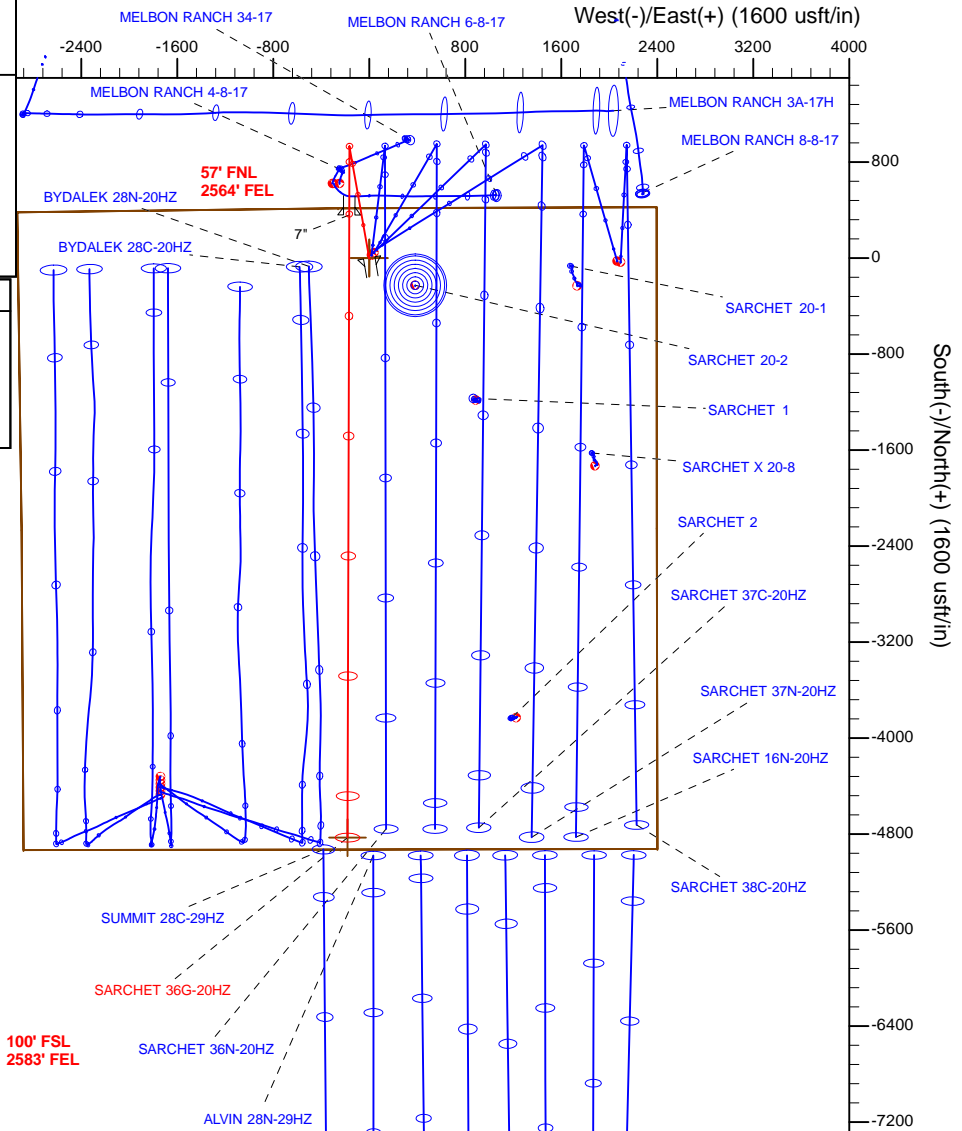
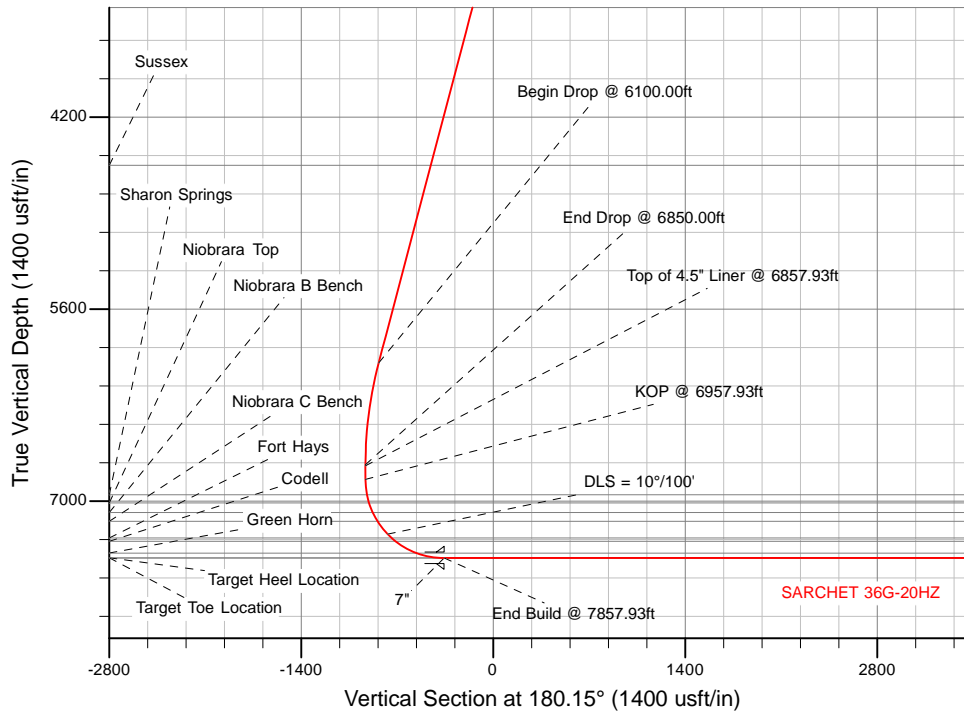
HALLIBURTON
Sperry Drilling

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	2450.00	0.00	0.00	2450.00	0.00	0.00	0.00	0.00	0.00	
3	3200.00	15.00	350.00	3191.46	96.13	-16.95	2.00	350.00	-96.09	
4	6100.00	15.00	350.00	5992.65	835.30	-147.29	0.00	0.00	-834.92	
5	6850.00	0.00	0.00	6734.11	931.44	-164.24	2.00	180.00	-931.00	
6	6957.93	0.00	0.00	6842.04	931.44	-164.24	0.00	0.00	-931.00	
7	7857.93	90.00	180.15	7415.00	358.48	-165.78	10.00	180.15	-358.05	
8	13046.53	90.00	180.15	7415.00	-4830.10	-179.77	0.00	0.00	4830.55	SARCHET 36G-20HZ_BHL

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude
SARCHET 36G-20HZ_SHL	0.00	0.00	0.00	40.130297	-104.686994
SARCHET 36G-20HZ_BHL	7415.00	-4830.10	-179.77	40.117033	-104.687637



WELL DETAILS: SARCHET 36G-20HZ	
Ground Level:	4914.00
RKB = 17' @ 4931.00usft (D Rig)	
Plan: Permit Rev-2 (SARCHET 36G-20HZ/Plan A)	
Created By: Clint Eshelman	Date: 2/4/2015
Reviewed:	Date:

TVD	MD
6742.04	6857.93
6842.04	6957.93
Top of 4.5" Liner @ 6857.93ft	
KOP @ 6957.93ft	

Plan Report for SARCHET 36G-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
2N-R65W-Sec. 20_Section Lines - SARCHET 36G-20HZ_SHL										
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
2,200.00	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
2,400.00	0.00	0.00	2,400.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2,450.00	0.00	0.00	2,450.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Begin Nudge @ 2450.00ft										
2,500.00	1.00	350.00	2,500.00	0.43	-0.08	-0.43	2.00	2.00	0.00	350.00
2,600.00	3.00	350.00	2,599.93	3.87	-0.68	-3.86	2.00	2.00	0.00	0.00
2,700.00	5.00	350.00	2,699.68	10.74	-1.89	-10.73	2.00	2.00	0.00	0.00
2,800.00	7.00	350.00	2,799.13	21.03	-3.71	-21.02	2.00	2.00	0.00	0.00
2,900.00	9.00	350.00	2,898.15	34.73	-6.12	-34.72	2.00	2.00	0.00	0.00
3,000.00	11.00	350.00	2,996.63	51.83	-9.14	-51.81	2.00	2.00	0.00	0.00
3,100.00	13.00	350.00	3,094.44	72.31	-12.75	-72.28	2.00	2.00	0.00	0.00
3,200.00	15.00	350.00	3,191.46	96.13	-16.95	-96.09	2.00	2.00	0.00	0.00
End Nudge @ 3200.00ft										
3,300.00	15.00	350.00	3,288.05	121.62	-21.45	-121.56	0.00	0.00	0.00	0.00
3,400.00	15.00	350.00	3,384.65	147.11	-25.94	-147.04	0.00	0.00	0.00	0.00
3,500.00	15.00	350.00	3,481.24	172.60	-30.43	-172.52	0.00	0.00	0.00	0.00
3,600.00	15.00	350.00	3,577.83	198.09	-34.93	-197.99	0.00	0.00	0.00	0.00
3,700.00	15.00	350.00	3,674.42	223.58	-39.42	-223.47	0.00	0.00	0.00	0.00
3,800.00	15.00	350.00	3,771.02	249.06	-43.92	-248.95	0.00	0.00	0.00	0.00
3,900.00	15.00	350.00	3,867.61	274.55	-48.41	-274.43	0.00	0.00	0.00	0.00
4,000.00	15.00	350.00	3,964.20	300.04	-52.91	-299.90	0.00	0.00	0.00	0.00
4,100.00	15.00	350.00	4,060.80	325.53	-57.40	-325.38	0.00	0.00	0.00	0.00
4,200.00	15.00	350.00	4,157.39	351.02	-61.89	-350.86	0.00	0.00	0.00	0.00
4,300.00	15.00	350.00	4,253.98	376.51	-66.39	-376.33	0.00	0.00	0.00	0.00
4,400.00	15.00	350.00	4,350.57	402.00	-70.88	-401.81	0.00	0.00	0.00	0.00
4,500.00	15.00	350.00	4,447.17	427.49	-75.38	-427.29	0.00	0.00	0.00	0.00
4,600.00	15.00	350.00	4,543.76	452.97	-79.87	-452.76	0.00	0.00	0.00	0.00
4,607.50	15.00	350.00	4,551.00	454.89	-80.21	-454.67	0.00	0.00	0.00	0.00
Sussex										
4,700.00	15.00	350.00	4,640.35	478.46	-84.37	-478.24	0.00	0.00	0.00	0.00
4,800.00	15.00	350.00	4,736.94	503.95	-88.86	-503.72	0.00	0.00	0.00	0.00
4,900.00	15.00	350.00	4,833.54	529.44	-93.35	-529.19	0.00	0.00	0.00	0.00
5,000.00	15.00	350.00	4,930.13	554.93	-97.85	-554.67	0.00	0.00	0.00	0.00

Plan Report for SARCHET 36G-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 (°)
5,100.00	15.00	350.00	5,026.72	580.42	-102.34	-580.15	0.00	0.00	0.00	0.00
5,200.00	15.00	350.00	5,123.31	605.91	-106.84	-605.62	0.00	0.00	0.00	0.00
5,300.00	15.00	350.00	5,219.91	631.40	-111.33	-631.10	0.00	0.00	0.00	0.00
5,400.00	15.00	350.00	5,316.50	656.88	-115.83	-656.58	0.00	0.00	0.00	0.00
5,500.00	15.00	350.00	5,413.09	682.37	-120.32	-682.06	0.00	0.00	0.00	0.00
5,600.00	15.00	350.00	5,509.68	707.86	-124.82	-707.53	0.00	0.00	0.00	0.00
5,700.00	15.00	350.00	5,606.28	733.35	-129.31	-733.01	0.00	0.00	0.00	0.00
5,800.00	15.00	350.00	5,702.87	758.84	-133.80	-758.49	0.00	0.00	0.00	0.00
5,900.00	15.00	350.00	5,799.46	784.33	-138.30	-783.96	0.00	0.00	0.00	0.00
6,000.00	15.00	350.00	5,896.05	809.82	-142.79	-809.44	0.00	0.00	0.00	0.00
6,100.00	15.00	350.00	5,992.65	835.30	-147.29	-834.92	0.00	0.00	0.00	0.00
Begin Drop @ 6100.00ft										
6,200.00	13.00	350.00	6,089.67	859.13	-151.49	-858.73	2.00	-2.00	0.00	180.00
6,300.00	11.00	350.00	6,187.48	879.60	-155.10	-879.19	2.00	-2.00	0.00	180.00
6,400.00	9.00	350.00	6,285.96	896.70	-158.11	-896.29	2.00	-2.00	0.00	180.00
6,500.00	7.00	350.00	6,384.98	910.41	-160.53	-909.98	2.00	-2.00	0.00	180.00
6,600.00	5.00	350.00	6,484.43	920.70	-162.34	-920.27	2.00	-2.00	0.00	180.00
6,700.00	3.00	350.00	6,584.18	927.57	-163.56	-927.14	2.00	-2.00	0.00	180.00
6,800.00	1.00	350.00	6,684.11	931.01	-164.16	-930.57	2.00	-2.00	0.00	180.00
6,850.00	0.00	0.00	6,734.11	931.44	-164.24	-931.00	2.00	-2.00	20.00	180.00
End Drop @ 6850.00ft										
6,857.93	0.00	0.00	6,742.04	931.44	-164.24	-931.00	0.00	0.00	0.00	0.00
Top of 4.5" Liner @ 6857.93ft										
6,900.00	0.00	0.00	6,784.11	931.44	-164.24	-931.00	0.00	0.00	0.00	0.00
6,957.93	0.00	0.00	6,842.04	931.44	-164.24	-931.00	0.00	0.00	0.00	0.00
KOP @ 6957.93ft										
7,000.00	4.21	180.15	6,884.07	929.89	-164.24	-929.46	10.00	10.00	-427.49	-179.85
7,071.05	11.31	180.15	6,954.42	920.31	-164.27	-919.87	10.00	10.00	0.00	0.00
Sharon Springs										
7,100.00	14.21	180.15	6,982.66	913.91	-164.28	-913.48	10.00	10.00	0.00	0.00
7,130.93	17.30	180.15	7,012.42	905.52	-164.31	-905.08	10.00	10.00	0.00	0.00
Niobrara Top										
7,200.00	24.21	180.15	7,076.97	881.06	-164.37	-880.62	10.00	10.00	0.00	0.00
7,205.54	24.76	180.15	7,082.01	878.76	-164.38	-878.33	10.00	10.00	0.00	0.00
Niobrara B Bench										
7,280.17	32.22	180.15	7,147.56	843.18	-164.48	-842.75	10.00	10.00	0.00	0.00
Niobrara C Bench										
7,300.00	34.21	180.15	7,164.15	832.32	-164.50	-831.89	10.00	10.00	0.00	0.00
7,400.00	44.21	180.15	7,241.54	769.19	-164.67	-768.76	10.00	10.00	0.00	0.00
DLS = 10°/100'										
7,440.23	48.23	180.15	7,269.37	740.15	-164.75	-739.71	10.00	10.00	0.00	0.00
Fort Hays										
7,477.66	51.97	180.15	7,293.37	711.44	-164.83	-711.01	10.00	10.00	0.00	0.00
Codell										
7,500.00	54.21	180.15	7,306.79	693.58	-164.88	-693.15	10.00	10.00	0.00	0.00
7,600.00	64.21	180.15	7,357.91	607.79	-165.11	-607.35	10.00	10.00	0.00	0.00
7,653.26	69.53	180.15	7,378.83	558.83	-165.24	-558.39	10.00	10.00	0.00	0.00
Green Horn										
7,700.00	74.21	180.15	7,393.37	514.42	-165.36	-513.98	10.00	10.00	0.00	0.00
7,800.00	84.21	180.15	7,412.07	416.31	-165.63	-415.88	10.00	10.00	0.00	0.00
7,857.93	90.00	180.15	7,415.00	358.49	-165.78	-358.05	10.00	10.00	0.00	0.00
End Build @ 7857.93ft - Target Heel Location - 7"										
7,900.00	90.00	180.15	7,415.00	316.41	-165.90	-315.98	0.00	0.00	0.00	0.00
8,000.00	90.00	180.15	7,415.00	216.41	-166.17	-215.98	0.00	0.00	0.00	0.00
8,100.00	90.00	180.15	7,415.00	116.41	-166.43	-115.98	0.00	0.00	0.00	0.00
8,200.00	90.00	180.15	7,415.00	16.41	-166.70	-15.98	0.00	0.00	0.00	0.00
8,300.00	90.00	180.15	7,415.00	-83.59	-166.97	84.02	0.00	0.00	0.00	0.00
8,400.00	90.00	180.15	7,415.00	-183.59	-167.24	184.02	0.00	0.00	0.00	0.00

Plan Report for SARCHET 36G-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	90.00	180.15	7,415.00	-283.59	-167.51	284.02	0.00	0.00	0.00	0.00
8,600.00	90.00	180.15	7,415.00	-383.59	-167.78	384.02	0.00	0.00	0.00	0.00
8,700.00	90.00	180.15	7,415.00	-483.59	-168.05	484.02	0.00	0.00	0.00	0.00
8,800.00	90.00	180.15	7,415.00	-583.59	-168.32	584.02	0.00	0.00	0.00	0.00
8,900.00	90.00	180.15	7,415.00	-683.58	-168.59	684.02	0.00	0.00	0.00	0.00
9,000.00	90.00	180.15	7,415.00	-783.58	-168.86	784.02	0.00	0.00	0.00	0.00
9,100.00	90.00	180.15	7,415.00	-883.58	-169.13	884.02	0.00	0.00	0.00	0.00
9,200.00	90.00	180.15	7,415.00	-983.58	-169.40	984.02	0.00	0.00	0.00	0.00
9,300.00	90.00	180.15	7,415.00	-1,083.58	-169.67	1,084.02	0.00	0.00	0.00	0.00
9,400.00	90.00	180.15	7,415.00	-1,183.58	-169.94	1,184.02	0.00	0.00	0.00	0.00
9,500.00	90.00	180.15	7,415.00	-1,283.58	-170.21	1,284.02	0.00	0.00	0.00	0.00
9,600.00	90.00	180.15	7,415.00	-1,383.58	-170.48	1,384.02	0.00	0.00	0.00	0.00
9,700.00	90.00	180.15	7,415.00	-1,483.58	-170.75	1,484.02	0.00	0.00	0.00	0.00
9,800.00	90.00	180.15	7,415.00	-1,583.58	-171.02	1,584.02	0.00	0.00	0.00	0.00
9,900.00	90.00	180.15	7,415.00	-1,683.58	-171.29	1,684.02	0.00	0.00	0.00	0.00
10,000.00	90.00	180.15	7,415.00	-1,783.58	-171.56	1,784.02	0.00	0.00	0.00	0.00
10,100.00	90.00	180.15	7,415.00	-1,883.58	-171.83	1,884.02	0.00	0.00	0.00	0.00
10,200.00	90.00	180.15	7,415.00	-1,983.58	-172.10	1,984.02	0.00	0.00	0.00	0.00
10,300.00	90.00	180.15	7,415.00	-2,083.58	-172.37	2,084.02	0.00	0.00	0.00	0.00
10,400.00	90.00	180.15	7,415.00	-2,183.58	-172.64	2,184.02	0.00	0.00	0.00	0.00
10,500.00	90.00	180.15	7,415.00	-2,283.58	-172.90	2,284.02	0.00	0.00	0.00	0.00
10,600.00	90.00	180.15	7,415.00	-2,383.58	-173.17	2,384.02	0.00	0.00	0.00	0.00
10,700.00	90.00	180.15	7,415.00	-2,483.58	-173.44	2,484.02	0.00	0.00	0.00	0.00
10,800.00	90.00	180.15	7,415.00	-2,583.58	-173.71	2,584.02	0.00	0.00	0.00	0.00
10,900.00	90.00	180.15	7,415.00	-2,683.58	-173.98	2,684.02	0.00	0.00	0.00	0.00
11,000.00	90.00	180.15	7,415.00	-2,783.58	-174.25	2,784.02	0.00	0.00	0.00	0.00
11,100.00	90.00	180.15	7,415.00	-2,883.58	-174.52	2,884.02	0.00	0.00	0.00	0.00
11,200.00	90.00	180.15	7,415.00	-2,983.58	-174.79	2,984.02	0.00	0.00	0.00	0.00
11,300.00	90.00	180.15	7,415.00	-3,083.58	-175.06	3,084.02	0.00	0.00	0.00	0.00
11,400.00	90.00	180.15	7,415.00	-3,183.58	-175.33	3,184.02	0.00	0.00	0.00	0.00
11,500.00	90.00	180.15	7,415.00	-3,283.58	-175.60	3,284.02	0.00	0.00	0.00	0.00
11,600.00	90.00	180.15	7,415.00	-3,383.58	-175.87	3,384.02	0.00	0.00	0.00	0.00
11,700.00	90.00	180.15	7,415.00	-3,483.57	-176.14	3,484.02	0.00	0.00	0.00	0.00
11,800.00	90.00	180.15	7,415.00	-3,583.57	-176.41	3,584.02	0.00	0.00	0.00	0.00
11,900.00	90.00	180.15	7,415.00	-3,683.57	-176.68	3,684.02	0.00	0.00	0.00	0.00
12,000.00	90.00	180.15	7,415.00	-3,783.57	-176.95	3,784.02	0.00	0.00	0.00	0.00
12,100.00	90.00	180.15	7,415.00	-3,883.57	-177.22	3,884.02	0.00	0.00	0.00	0.00
12,200.00	90.00	180.15	7,415.00	-3,983.57	-177.49	3,984.02	0.00	0.00	0.00	0.00
12,300.00	90.00	180.15	7,415.00	-4,083.57	-177.76	4,084.02	0.00	0.00	0.00	0.00
12,400.00	90.00	180.15	7,415.00	-4,183.57	-178.03	4,184.02	0.00	0.00	0.00	0.00
12,500.00	90.00	180.15	7,415.00	-4,283.57	-178.30	4,284.02	0.00	0.00	0.00	0.00
12,600.00	90.00	180.15	7,415.00	-4,383.57	-178.57	4,384.02	0.00	0.00	0.00	0.00
12,700.00	90.00	180.15	7,415.00	-4,483.57	-178.84	4,484.02	0.00	0.00	0.00	0.00
12,800.00	90.00	180.15	7,415.00	-4,583.57	-179.11	4,584.02	0.00	0.00	0.00	0.00
12,900.00	90.00	180.15	7,415.00	-4,683.57	-179.37	4,684.02	0.00	0.00	0.00	0.00
13,000.00	90.00	180.15	7,415.00	-4,783.57	-179.64	4,784.02	0.00	0.00	0.00	0.00
13,046.53	90.00	180.15	7,415.00	-4,830.10	-179.77	4,830.55	0.00	0.00	0.00	0.00

TD Well @ 13046.53ft - Target Toe Location - SARCHET 36G-20HZ_BHL

Plan Report for SARCHET 36G-20HZ - Permit Rev-2

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
2,450.00	2,450.00	0.00	0.00	Begin Nudge @ 2450.00ft
3,200.00	3,191.46	96.13	-16.95	End Nudge @ 3200.00ft
6,100.00	5,992.65	835.30	-147.29	Begin Drop @ 6100.00ft
6,850.00	6,734.11	931.44	-164.24	End Drop @ 6850.00ft
6,857.93	6,742.04	931.44	-164.24	Top of 4.5" Liner @ 6857.93ft
6,957.93	6,842.04	931.44	-164.24	KOP @ 6957.93ft
7,400.00	7,241.54	769.19	-164.67	DLS = 10°/100'
7,857.93	7,415.00	358.48	-165.78	End Build @ 7857.93ft
13,046.53	7,415.00	-4,830.10	-179.77	TD Well @ 13046.53ft

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin		Start TVD (usft)
				+N/-S (usft)	+E/-W (usft)	
User	No Target (Freehand)	180.15	Slot	0.00	0.00	0.00

Survey tool program

From (usft)	To (usft)	Survey/Plan	Survey Tool
0.00	7,857.93	Permit Rev-2	MWD+IFR1
7,857.93	13,046.53	Permit 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
7,857.93	7,415.00	7"	7	8-3/4

Formation Details

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
4,607.50	4,551.00	Sussex		0.00	
7,071.05	6,954.42	Sharon Springs		0.00	
7,130.93	7,012.42	Niobrara Top		0.00	
7,205.54	7,082.01	Niobrara B Bench		0.00	
7,280.17	7,147.56	Niobrara C Bench		0.00	
7,440.23	7,269.37	Fort Hays		0.00	
7,477.66	7,293.37	Codell		0.00	
7,653.26	7,378.83	Green Horn		0.00	
7,857.93	7,415.00	Target Heel Location		0.00	
13,046.53	7,415.00	Target Toe Location		0.00	

Targets associated with this wellbore

Target Name	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Shape
SARCHET 36G-20HZ_BHL	7,415.00	-4,830.10	-179.77	Point
2N-R65W-Sec. 20_Section Lines	0.00	0.00	0.00	Polygon
SARCHET 36G-20HZ_SHL	0.00	0.00	0.00	Point

North Reference Sheet for 2N-65W-20 Sarchet 2-20HZ Pad - SARCHET 36G-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 36G-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: 0.99960875

Grid Coordinates of Well: 14,574,334.44 usft N, 1,727,907.53 usft E

Geographical Coordinates of Well: 40° 07' 49.07" N, 104° 41' 13.18" W

Grid Convergence at Surface is: 0.20°

Based upon Minimum Curvature type calculations, at a Measured Depth of 13,046.53usft the Bottom Hole Displacement is 4,833.44usft in the Direction of 182.13° (True).

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

