

US ROCKIES WATTENBERG PLANNING

WELD-NAD83-UTMFT13N
1N-66W-08 Gabel 2-8HZ Pad
GABEL 15N-8HZ

Plan A

Plan: Permit Rev-1

Sperry Drilling Services Proposal Report

17 June, 2015

Well Coordinates: 14,552,592.51 N, 1,696,826.37 E (40° 04' 15.02" N, 104° 47' 54.11" W)

Ground Level: 4,938.00 usft

Local Coordinate Origin:

Viewing Datum:

TVDs to System:

North Reference:

Unit System:

Centered on Well GABEL 15N-8HZ

RKB = 17' @ 4955.00usft (D Rig)

N

True

Dec-Deg - API - US Survey Feet - Custom

Version: 5000.1 Build: 73

HALLIBURTON

Project: WELD-NAD83-UTMFT13N
Site: 1N-66W-08 Gabel 2-8HZ Pad
Well: GABEL 15N-8HZ
Wellbore: Plan A
Design: Permit Rev-1



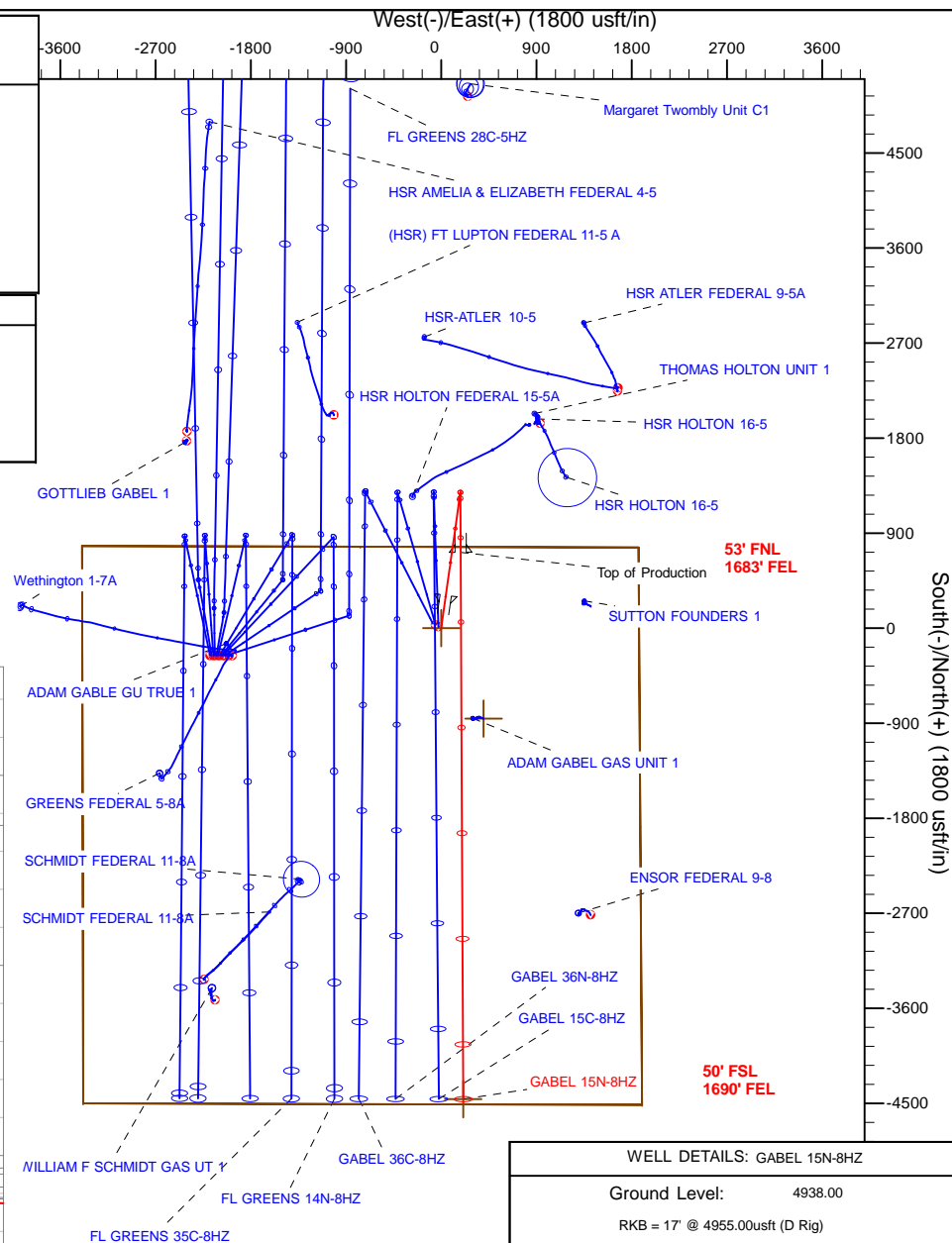
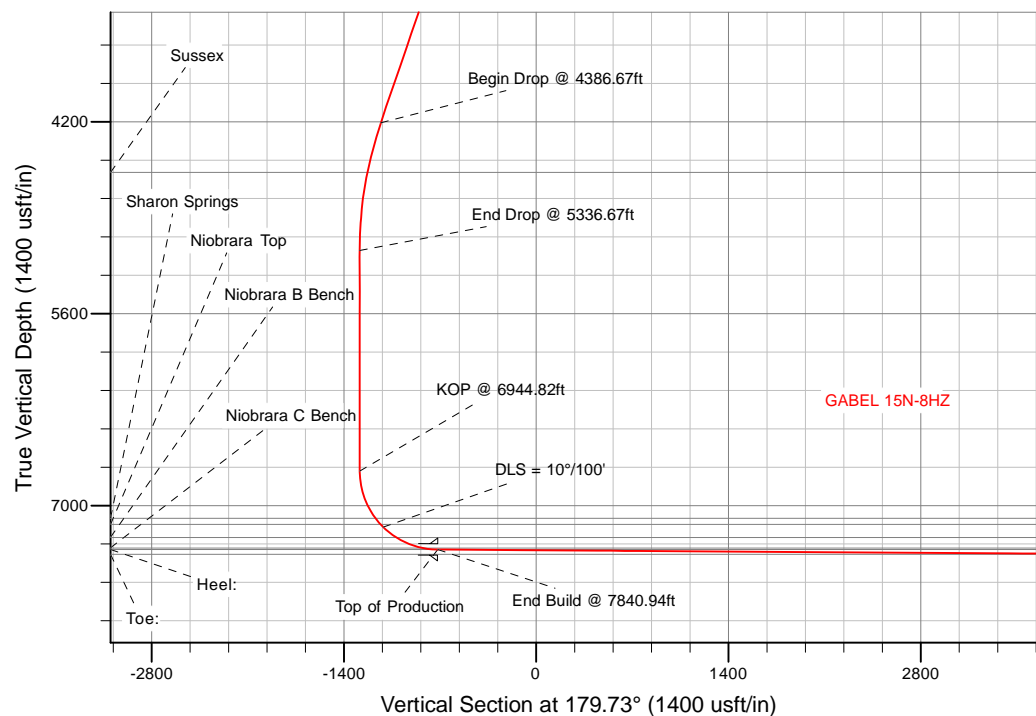
HALLIBURTON
Sperry Drilling

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	250.00	0.00	0.00	250.00	0.00	0.00	0.00	0.00	0.00	
3	1516.67	19.00	8.00	1493.58	206.08	28.96	1.50	8.00	-205.94	
4	4386.67	19.00	8.00	4207.22	1131.37	159.00	0.00	0.00	-1130.60	
5	5336.67	0.00	0.00	5139.90	1285.92	180.72	2.00	-180.00	-1285.06	
6	6944.82	0.00	0.00	6748.05	1285.92	180.72	0.00	0.00	-1285.06	
7	7840.94	89.61	179.73	7321.00	716.85	183.39	10.00	179.73	-715.97	
8	13018.75	89.61	179.73	7356.00	-4460.79	207.62	0.00	0.00	4461.71	GABEL 15N-8HZ_BHL

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
GABEL 15N-8HZ_SHL	0.00	0.00	0.00	40.070838	-104.798365	Point
GABEL 15N-8HZ_BHL	7356.00	-4460.79	207.62	40.058588	-104.797623	Point



WELL DETAILS: GABEL 15N-8HZ

Ground Level: 4938.00

RKB = 17' @ 4955.00usft (D Rig)

Plan: Permit Rev-1 (GABEL 15N-8HZ/Plan A)

Created By: Clint Eshelman

Date: 6/17/2015

Reviewed: _____

Date: _____

Plan Report for GABEL 15N-8HZ - 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
GABEL 15N-8HZ_SHL										
8.00	0.00	0.00	8.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1N-R66W-Sec. 8_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
250.00	0.00	0.00	250.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Begin Nudge @ 250.00ft										
300.00	0.75	8.00	300.00	0.32	0.05	-0.32	1.50	1.50	0.00	8.00
400.00	2.25	8.00	399.96	2.92	0.41	-2.91	1.50	1.50	0.00	0.00
500.00	3.75	8.00	499.82	8.10	1.14	-8.09	1.50	1.50	0.00	0.00
600.00	5.25	8.00	599.51	15.87	2.23	-15.86	1.50	1.50	0.00	0.00
700.00	6.75	8.00	698.96	26.22	3.68	-26.20	1.50	1.50	0.00	0.00
800.00	8.25	8.00	798.10	39.14	5.50	-39.12	1.50	1.50	0.00	0.00
900.00	9.75	8.00	896.87	54.63	7.68	-54.60	1.50	1.50	0.00	0.00
1,000.00	11.25	8.00	995.19	72.68	10.21	-72.63	1.50	1.50	0.00	0.00
1,100.00	12.75	8.00	1,093.00	93.27	13.11	-93.21	1.50	1.50	0.00	0.00
1,200.00	14.25	8.00	1,190.24	116.39	16.36	-116.31	1.50	1.50	0.00	0.00
1,300.00	15.75	8.00	1,286.83	142.01	19.96	-141.92	1.50	1.50	0.00	0.00
1,400.00	17.25	8.00	1,382.71	170.14	23.91	-170.02	1.50	1.50	0.00	0.00
1,414.98	17.47	8.00	1,397.00	174.56	24.53	-174.45	1.50	1.50	0.00	0.00
Fox Hills										
1,500.00	18.75	8.00	1,477.81	200.74	28.21	-200.60	1.50	1.50	0.00	0.00
1,516.67	19.00	8.00	1,493.58	206.08	28.96	-205.94	1.50	1.50	0.00	0.00
End Nudge @ 1516.67ft										
1,600.00	19.00	8.00	1,572.37	232.95	32.74	-232.79	0.00	0.00	0.00	0.00
1,700.00	19.00	8.00	1,666.92	265.19	37.27	-265.01	0.00	0.00	0.00	0.00
1,800.00	19.00	8.00	1,761.48	297.43	41.80	-297.22	0.00	0.00	0.00	0.00
1,840.74	19.00	8.00	1,800.00	310.56	43.65	-310.35	0.00	0.00	0.00	0.00
9 5/8"										
1,900.00	19.00	8.00	1,856.03	329.67	46.33	-329.44	0.00	0.00	0.00	0.00
2,000.00	19.00	8.00	1,950.58	361.91	50.86	-361.66	0.00	0.00	0.00	0.00
2,100.00	19.00	8.00	2,045.13	394.14	55.39	-393.88	0.00	0.00	0.00	0.00
2,200.00	19.00	8.00	2,139.68	426.38	59.92	-426.10	0.00	0.00	0.00	0.00
2,300.00	19.00	8.00	2,234.23	458.62	64.46	-458.32	0.00	0.00	0.00	0.00
2,400.00	19.00	8.00	2,328.79	490.86	68.99	-490.53	0.00	0.00	0.00	0.00
2,500.00	19.00	8.00	2,423.34	523.10	73.52	-522.75	0.00	0.00	0.00	0.00
2,600.00	19.00	8.00	2,517.89	555.34	78.05	-554.97	0.00	0.00	0.00	0.00
2,700.00	19.00	8.00	2,612.44	587.58	82.58	-587.19	0.00	0.00	0.00	0.00
2,800.00	19.00	8.00	2,706.99	619.82	87.11	-619.41	0.00	0.00	0.00	0.00
2,900.00	19.00	8.00	2,801.55	652.06	91.64	-651.63	0.00	0.00	0.00	0.00
3,000.00	19.00	8.00	2,896.10	684.30	96.17	-683.84	0.00	0.00	0.00	0.00
3,100.00	19.00	8.00	2,990.65	716.54	100.70	-716.06	0.00	0.00	0.00	0.00
3,200.00	19.00	8.00	3,085.20	748.78	105.23	-748.28	0.00	0.00	0.00	0.00
3,300.00	19.00	8.00	3,179.75	781.02	109.77	-780.50	0.00	0.00	0.00	0.00
3,400.00	19.00	8.00	3,274.31	813.26	114.30	-812.72	0.00	0.00	0.00	0.00
3,500.00	19.00	8.00	3,368.86	845.50	118.83	-844.94	0.00	0.00	0.00	0.00
3,600.00	19.00	8.00	3,463.41	877.74	123.36	-877.15	0.00	0.00	0.00	0.00
3,700.00	19.00	8.00	3,557.96	909.98	127.89	-909.37	0.00	0.00	0.00	0.00
3,800.00	19.00	8.00	3,652.51	942.22	132.42	-941.59	0.00	0.00	0.00	0.00
3,900.00	19.00	8.00	3,747.06	974.46	136.95	-973.81	0.00	0.00	0.00	0.00
4,000.00	19.00	8.00	3,841.62	1,006.70	141.48	-1,006.03	0.00	0.00	0.00	0.00
4,100.00	19.00	8.00	3,936.17	1,038.94	146.01	-1,038.24	0.00	0.00	0.00	0.00
4,200.00	19.00	8.00	4,030.72	1,071.18	150.55	-1,070.46	0.00	0.00	0.00	0.00
4,300.00	19.00	8.00	4,125.27	1,103.42	155.08	-1,102.68	0.00	0.00	0.00	0.00
4,386.67	19.00	8.00	4,207.22	1,131.37	159.00	-1,130.60	0.00	0.00	0.00	0.00
Begin Drop @ 4386.67ft										

Plan Report for GABEL 15N-8HZ - 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 (°)
4,400.00	18.73	8.00	4,219.83	1,135.64	159.60	-1,134.87	2.00	-2.00	0.00	-180.00
4,500.00	16.73	8.00	4,315.08	1,165.80	163.84	-1,165.01	2.00	-2.00	0.00	-180.00
4,600.00	14.73	8.00	4,411.33	1,192.65	167.62	-1,191.84	2.00	-2.00	0.00	-180.00
4,700.00	12.73	8.00	4,508.46	1,216.15	170.92	-1,215.34	2.00	-2.00	0.00	-180.00
4,762.94	11.47	8.00	4,570.00	1,229.22	172.76	-1,228.40	2.00	-2.00	0.00	-180.00
Sussex										
4,800.00	10.73	8.00	4,606.37	1,236.29	173.75	-1,235.46	2.00	-2.00	0.00	-180.00
4,900.00	8.73	8.00	4,704.92	1,253.03	176.10	-1,252.19	2.00	-2.00	0.00	-180.00
5,000.00	6.73	8.00	4,804.01	1,266.36	177.97	-1,265.50	2.00	-2.00	0.00	-180.00
5,100.00	4.73	8.00	4,903.50	1,276.25	179.37	-1,275.39	2.00	-2.00	0.00	-180.00
5,200.00	2.73	8.00	5,003.29	1,282.70	180.27	-1,281.83	2.00	-2.00	0.00	-180.00
5,300.00	0.73	8.00	5,103.24	1,285.69	180.69	-1,284.83	2.00	-2.00	0.00	-180.00
5,336.67	0.00	0.00	5,139.90	1,285.92	180.72	-1,285.06	2.00	-2.00	-21.82	-180.00
End Drop @ 5336.67ft										
5,400.00	0.00	0.00	5,203.23	1,285.92	180.72	-1,285.06	0.00	0.00	0.00	0.00
5,500.00	0.00	0.00	5,303.23	1,285.92	180.72	-1,285.06	0.00	0.00	0.00	0.00
5,600.00	0.00	0.00	5,403.23	1,285.92	180.72	-1,285.06	0.00	0.00	0.00	0.00
5,700.00	0.00	0.00	5,503.23	1,285.92	180.72	-1,285.06	0.00	0.00	0.00	0.00
5,800.00	0.00	0.00	5,603.23	1,285.92	180.72	-1,285.06	0.00	0.00	0.00	0.00
5,900.00	0.00	0.00	5,703.23	1,285.92	180.72	-1,285.06	0.00	0.00	0.00	0.00
6,000.00	0.00	0.00	5,803.23	1,285.92	180.72	-1,285.06	0.00	0.00	0.00	0.00
6,100.00	0.00	0.00	5,903.23	1,285.92	180.72	-1,285.06	0.00	0.00	0.00	0.00
6,200.00	0.00	0.00	6,003.23	1,285.92	180.72	-1,285.06	0.00	0.00	0.00	0.00
6,300.00	0.00	0.00	6,103.23	1,285.92	180.72	-1,285.06	0.00	0.00	0.00	0.00
6,400.00	0.00	0.00	6,203.23	1,285.92	180.72	-1,285.06	0.00	0.00	0.00	0.00
6,500.00	0.00	0.00	6,303.23	1,285.92	180.72	-1,285.06	0.00	0.00	0.00	0.00
6,600.00	0.00	0.00	6,403.23	1,285.92	180.72	-1,285.06	0.00	0.00	0.00	0.00
6,700.00	0.00	0.00	6,503.23	1,285.92	180.72	-1,285.06	0.00	0.00	0.00	0.00
6,800.00	0.00	0.00	6,603.23	1,285.92	180.72	-1,285.06	0.00	0.00	0.00	0.00
6,900.00	0.00	0.00	6,703.23	1,285.92	180.72	-1,285.06	0.00	0.00	0.00	0.00
6,944.82	0.00	0.00	6,748.05	1,285.92	180.72	-1,285.06	0.00	0.00	0.00	0.00
KOP @ 6944.82ft										
7,000.00	5.52	179.73	6,803.15	1,283.27	180.74	-1,282.40	10.00	10.00	325.72	179.73
7,100.00	15.52	179.73	6,901.34	1,265.04	180.82	-1,264.17	10.00	10.00	0.00	0.00
7,200.00	25.52	179.73	6,994.88	1,230.03	180.99	-1,229.17	10.00	10.00	0.00	0.00
7,300.00	35.52	179.73	7,080.92	1,179.32	181.22	-1,178.45	10.00	10.00	0.00	0.00
7,314.86	37.00	179.73	7,092.90	1,170.53	181.26	-1,169.66	10.00	10.00	0.00	0.00
Sharon Springs										
7,372.22	42.74	179.73	7,136.90	1,133.77	181.44	-1,132.90	10.00	10.00	0.00	0.00
Niobrara Top										
7,400.00	45.52	179.73	7,156.84	1,114.43	181.53	-1,113.56	10.00	10.00	0.00	0.00
DLS = 10°/100'										
7,500.00	55.52	179.73	7,220.34	1,037.35	181.89	-1,036.48	10.00	10.00	0.00	0.00
7,522.04	57.72	179.73	7,232.47	1,018.95	181.97	-1,018.08	10.00	10.00	0.00	0.00
Niobrara B Bench										
7,600.00	65.52	179.73	7,269.50	950.41	182.30	-949.54	10.00	10.00	0.00	0.00
7,700.00	75.52	179.73	7,302.80	856.25	182.74	-855.38	10.00	10.00	0.00	0.00
7,731.44	78.66	179.73	7,309.83	825.61	182.88	-824.74	10.00	10.00	0.00	0.00
Niobrara C Bench										
7,800.00	85.52	179.73	7,319.26	757.74	183.20	-756.87	10.00	10.00	0.00	0.00
7,840.94	89.61	179.73	7,321.00	716.85	183.39	-715.98	10.00	10.00	0.00	0.00
End Build @ 7840.94ft - Heel: - Top of Production										
7,900.00	89.61	179.73	7,321.40	657.79	183.66	-656.92	0.00	0.00	0.00	0.00
7,988.96	89.61	179.73	7,322.00	568.84	184.08	-567.96	0.00	0.00	0.00	0.00
GABEL 15N-8HZ_Heel										
8,000.00	89.61	179.73	7,322.07	557.80	184.13	-556.92	0.00	0.00	0.00	0.00
8,100.00	89.61	179.73	7,322.75	457.80	184.60	-456.92	0.00	0.00	0.00	0.00
8,200.00	89.61	179.73	7,323.42	357.80	185.07	-356.93	0.00	0.00	0.00	0.00
8,300.00	89.61	179.73	7,324.10	257.81	185.54	-256.93	0.00	0.00	0.00	0.00

Plan Report for GABEL 15N-8HZ - 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 (°)
8,400.00	89.61	179.73	7,324.78	157.81	186.00	-156.93	0.00	0.00	0.00	0.00
8,500.00	89.61	179.73	7,325.45	57.81	186.47	-56.93	0.00	0.00	0.00	0.00
8,600.00	89.61	179.73	7,326.13	-42.18	186.94	43.07	0.00	0.00	0.00	0.00
8,700.00	89.61	179.73	7,326.80	-142.18	187.41	143.06	0.00	0.00	0.00	0.00
8,800.00	89.61	179.73	7,327.48	-242.18	187.88	243.06	0.00	0.00	0.00	0.00
8,900.00	89.61	179.73	7,328.16	-342.17	188.34	343.06	0.00	0.00	0.00	0.00
9,000.00	89.61	179.73	7,328.83	-442.17	188.81	443.06	0.00	0.00	0.00	0.00
9,100.00	89.61	179.73	7,329.51	-542.17	189.28	543.05	0.00	0.00	0.00	0.00
9,200.00	89.61	179.73	7,330.18	-642.16	189.75	643.05	0.00	0.00	0.00	0.00
9,300.00	89.61	179.73	7,330.86	-742.16	190.22	743.05	0.00	0.00	0.00	0.00
9,400.00	89.61	179.73	7,331.54	-842.16	190.68	843.05	0.00	0.00	0.00	0.00
9,500.00	89.61	179.73	7,332.21	-942.15	191.15	943.04	0.00	0.00	0.00	0.00
9,600.00	89.61	179.73	7,332.89	-1,042.15	191.62	1,043.04	0.00	0.00	0.00	0.00
9,700.00	89.61	179.73	7,333.56	-1,142.15	192.09	1,143.04	0.00	0.00	0.00	0.00
9,800.00	89.61	179.73	7,334.24	-1,242.14	192.56	1,243.04	0.00	0.00	0.00	0.00
9,900.00	89.61	179.73	7,334.92	-1,342.14	193.02	1,343.04	0.00	0.00	0.00	0.00
10,000.00	89.61	179.73	7,335.59	-1,442.14	193.49	1,443.03	0.00	0.00	0.00	0.00
10,100.00	89.61	179.73	7,336.27	-1,542.13	193.96	1,543.03	0.00	0.00	0.00	0.00
10,200.00	89.61	179.73	7,336.94	-1,642.13	194.43	1,643.03	0.00	0.00	0.00	0.00
10,300.00	89.61	179.73	7,337.62	-1,742.13	194.90	1,743.03	0.00	0.00	0.00	0.00
10,400.00	89.61	179.73	7,338.30	-1,842.12	195.36	1,843.02	0.00	0.00	0.00	0.00
10,500.00	89.61	179.73	7,338.97	-1,942.12	195.83	1,943.02	0.00	0.00	0.00	0.00
10,600.00	89.61	179.73	7,339.65	-2,042.12	196.30	2,043.02	0.00	0.00	0.00	0.00
10,700.00	89.61	179.73	7,340.32	-2,142.11	196.77	2,143.02	0.00	0.00	0.00	0.00
10,800.00	89.61	179.73	7,341.00	-2,242.11	197.24	2,243.01	0.00	0.00	0.00	0.00
10,900.00	89.61	179.73	7,341.68	-2,342.11	197.70	2,343.01	0.00	0.00	0.00	0.00
11,000.00	89.61	179.73	7,342.35	-2,442.10	198.17	2,443.01	0.00	0.00	0.00	0.00
11,100.00	89.61	179.73	7,343.03	-2,542.10	198.64	2,543.01	0.00	0.00	0.00	0.00
11,200.00	89.61	179.73	7,343.70	-2,642.10	199.11	2,643.01	0.00	0.00	0.00	0.00
11,300.00	89.61	179.73	7,344.38	-2,742.09	199.58	2,743.00	0.00	0.00	0.00	0.00
11,400.00	89.61	179.73	7,345.06	-2,842.09	200.04	2,843.00	0.00	0.00	0.00	0.00
11,500.00	89.61	179.73	7,345.73	-2,942.09	200.51	2,943.00	0.00	0.00	0.00	0.00
11,600.00	89.61	179.73	7,346.41	-3,042.08	200.98	3,043.00	0.00	0.00	0.00	0.00
11,700.00	89.61	179.73	7,347.08	-3,142.08	201.45	3,142.99	0.00	0.00	0.00	0.00
11,800.00	89.61	179.73	7,347.76	-3,242.08	201.92	3,242.99	0.00	0.00	0.00	0.00
11,900.00	89.61	179.73	7,348.44	-3,342.07	202.38	3,342.99	0.00	0.00	0.00	0.00
12,000.00	89.61	179.73	7,349.11	-3,442.07	202.85	3,442.99	0.00	0.00	0.00	0.00
12,100.00	89.61	179.73	7,349.79	-3,542.07	203.32	3,542.99	0.00	0.00	0.00	0.00
12,200.00	89.61	179.73	7,350.46	-3,642.06	203.79	3,642.98	0.00	0.00	0.00	0.00
12,300.00	89.61	179.73	7,351.14	-3,742.06	204.26	3,742.98	0.00	0.00	0.00	0.00
12,400.00	89.61	179.73	7,351.82	-3,842.06	204.72	3,842.98	0.00	0.00	0.00	0.00
12,500.00	89.61	179.73	7,352.49	-3,942.05	205.19	3,942.98	0.00	0.00	0.00	0.00
12,600.00	89.61	179.73	7,353.17	-4,042.05	205.66	4,042.97	0.00	0.00	0.00	0.00
12,700.00	89.61	179.73	7,353.85	-4,142.05	206.13	4,142.97	0.00	0.00	0.00	0.00
12,800.00	89.61	179.73	7,354.52	-4,242.04	206.60	4,242.97	0.00	0.00	0.00	0.00
12,900.00	89.61	179.73	7,355.20	-4,342.04	207.06	4,342.97	0.00	0.00	0.00	0.00
13,000.00	89.61	179.73	7,355.87	-4,442.04	207.53	4,442.96	0.00	0.00	0.00	0.00
13,018.75	89.61	179.73	7,356.00	-4,460.79	207.62	4,461.71	0.00	0.00	0.00	0.00

TD Well @ 13018.75ft - Toe: - GABEL 15N-8HZ_BHL

Plan Report for GABEL 15N-8HZ - Permit Rev-1**Plan Annotations**

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
250.00	250.00	0.00	0.00	Begin Nudge @ 250.00ft
1,516.67	1,493.58	206.08	28.96	End Nudge @ 1516.67ft
4,386.67	4,207.22	1,131.37	159.00	Begin Drop @ 4386.67ft
5,336.67	5,139.90	1,285.92	180.72	End Drop @ 5336.67ft
6,944.82	6,748.05	1,285.92	180.72	KOP @ 6944.82ft
7,400.00	7,156.84	1,114.43	181.53	DLS = 10°/100'
7,840.94	7,321.00	716.85	183.39	End Build @ 7840.94ft
13,018.75	7,356.00	-4,460.79	207.62	TD Well @ 13018.75ft

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin		Start TVD (usft)
				+N/_S (usft)	+E/-W (usft)	
User	No Target (Freehand)	179.73	Slot	0.00	0.00	0.00

Survey tool program

From (usft)	To (usft)	Survey/Plan	Survey Tool
0.00	7,840.94	Permit Rev-1	APC_ISCWSA REV 2 MWD+IFR1
7,840.94	13,018.75	Permit Rev-1	APC_ISCWSA REV 2 MWD+IFR1

Casing Details

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
1,840.74	1,800.00	9 5/8"	9-5/8	13-1/2
7,840.94	7,321.00	Top of Production	5-1/2	7-7/8

Formation Details

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,414.98	1,397.00	Fox Hills		0.00	
4,762.94	4,570.00	Sussex		0.00	
7,314.86	7,092.90	Sharon Springs		0.00	
7,372.22	7,136.90	Niobrara Top		0.00	
7,522.04	7,232.47	Niobrara B Bench		0.00	
7,731.44	7,309.83	Niobrara C Bench		0.00	
7,840.94	7,321.00	Heel:		0.00	
13,018.75	7,356.00	Toe:		0.00	

Plan Report for GABEL 15N-8HZ - Permit Rev-1

Targets associated with this wellbore

Target Name	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Shape
GABEL 15N-8HZ_SHL	0.00	0.00	0.00	Point
1N-R66W-Sec. 8_Section Lines	8.00	-857.93	399.51	Polygon
GABEL 15N-8HZ_Heel	7,321.00	568.80	177.09	Point
GABEL 15N-8HZ_BHL	7,356.00	-4,460.79	207.62	Point

Directional Difficulty Index

Average Dogleg over Survey:	0.98 °/100usft	Maximum Dogleg over Survey:	10.00 °/100usft at 7,840.94 usft
Net Tortousity applicable to Plans:	0.98 °/100usft	Directional Difficulty Index:	6.307

Audit Info

North Reference Sheet for 1N-66W-08 Gabel 2-8HZ Pad - GABEL 15N-8HZ - 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' @ 4955.00usft (D Rig). Northing and Easting are relative to GABEL 15N-8HZ

Coordinate System is Universal Transverse Mercator (US Survey Feet), Zone 13N (108 W to 102 W) using datum North American Datum 1983, ellipsoid GRS 1980

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: 0.99960364

Grid Coordinates of Well: 14,552,592.51 usft N, 1,696,826.37 usft E

Geographical Coordinates of Well: 40° 04' 15.02" N, 104° 47' 54.11" W

Grid Convergence at Surface is: 0.13°

Based upon Minimum Curvature type calculations, at a Measured Depth of 13,018.75usft the Bottom Hole Displacement is 4,465.61usft in the Direction of 177.34° (True).

Magnetic Convergence at surface is: -8.19° (17 June 2015, , IGRF2010)

