

US ROCKIES WATTENBERG PLANNING

WELD-NAD83-UTMFT13N

VIPER PAD

VIPER PYRO 26N-14HZ

Plan A

Plan: PERMIT REV-1

Sperry Drilling Services Proposal Report

02 January, 2015

Well Coordinates: 14,610,839.15 N, 1,672,430.89 E (40° 13' 51.27" N, 104° 53' 07.07" W)

Ground Level: 4,794.00 usft

Local Coordinate Origin:

Centered on Well VIPER PYRO 26N-14HZ

Viewing Datum:

RKB = 17' @ 4811.00usft (COGCC)

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: VIPER PAD
Well: VIPER PYRO 26N-14HZ
Wellbore: Plan A
Design: PERMIT REV-1

US ROCKIES WATTENBERG PLANNING

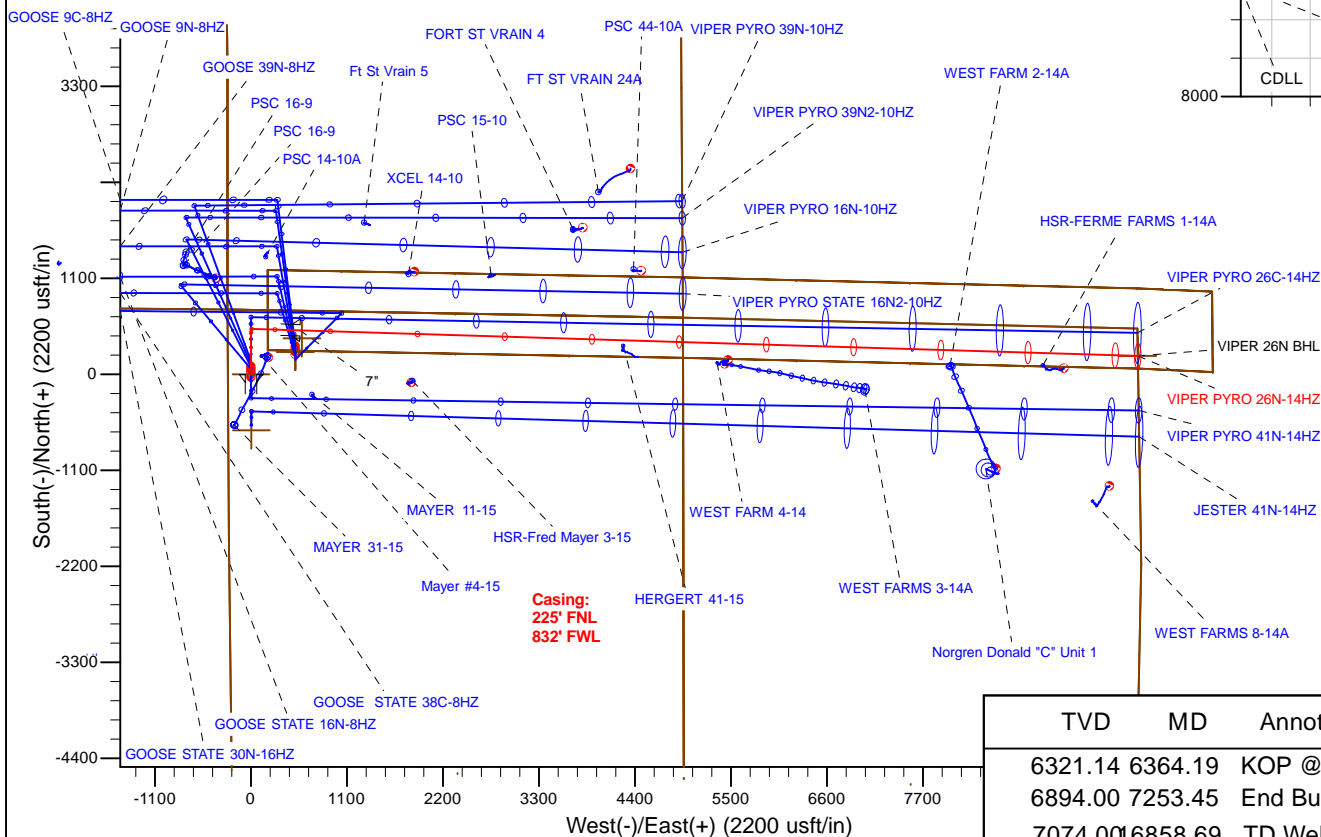
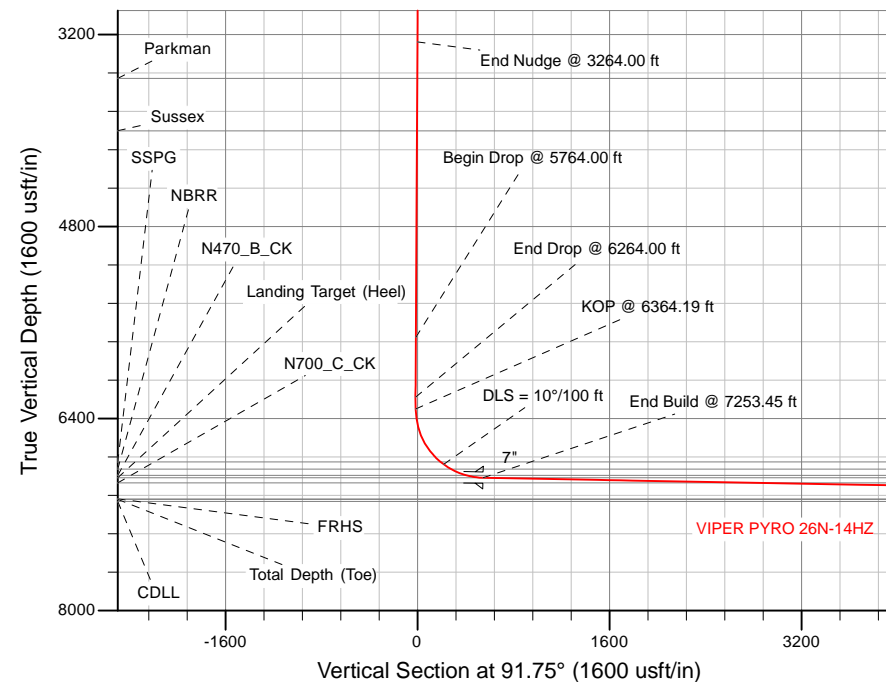
HALLIBURTON
Sperry Drilling

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	2764.00	0.00	0.00	2764.00	0.00	0.00	0.00	0.00	0.00	
3	3264.00	10.00	0.00	3261.47	43.52	0.00	2.00	0.00	-1.33	
4	5764.00	10.00	0.00	5723.48	477.64	0.00	0.00	0.00	-14.59	
5	6264.00	0.00	0.00	6220.95	521.17	0.00	2.00	180.00	-15.92	
6	6364.19	0.00	0.00	6321.14	521.17	0.00	0.00	0.00	-15.92	
7	7253.45	88.93	91.75	6894.00	504.02	561.96	10.00	91.75	546.30	
8	16858.69	88.93	91.75	7074.00	211.11	10161.04	0.00	0.00	0149.85	VIPER 26N BHL

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N-S	+E-W	Latitude	Longitude	Shape
VIPER 26N SHL	0.00	0.00	0.00	40.230909	-104.885297	Polygon
3N-R67W-Sec. 10 Section Lines	1.00	260.74	508.25	40.231625	-104.883476	Polygon
3N-R67W-Sec. 14 Section Lines	1.00	-639.82	3.63	40.229152	-104.885284	Polygon
3N-R67W-Sec. 15 Section Lines	1.00	260.74	508.25	40.231625	-104.883476	Polygon
3N-R67W-Sec. 9 Section Lines	1.00	260.74	508.25	40.231625	-104.883476	Polygon
VIPER 26N BHL	7074.00	211.11	10161.04	40.231483	-104.848891	Point



BHL:
315' FNL
1' FEL

TVD MD Annotation

6321.14 6364.19 KOP @ 6364.19 ft
6894.00 7253.45 End Build @ 7253.45 ft
7074.00 16858.69 TD Well @ 16858.69 ft

WELL DETAILS: VIPER PYRO 26N-14HZ

Ground Level: 4794.00
RKB = 17' @ 4811.00usft (COGCC)

Plan: PERMIT REV-1 (VIPER PYRO 26N-14HZ/Plan A)

Created By: Katie Benner Date: 1/5/2015
Reviewed: Date:

Plan Report for VIPER PYRO 26N-14HZ - 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
Tie On to Surface @ 0.00 ft - VIPER 26N SHL										
1.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3N-R67W-Sec. 9_Section Lines - 3N-R67W-Sec. 15_Section Lines - 3N-R67W-Sec. 14_Section Lines - 3N-R67W-Sec. 10_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
744.00	0.00	0.00	744.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9 5/8"										
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
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
2,500.00	0.00	0.00	2,500.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2,600.00	0.00	0.00	2,600.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2,700.00	0.00	0.00	2,700.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2,764.00	0.00	0.00	2,764.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Begin Nudge @ 2764.00 ft										
2,800.00	0.72	0.00	2,800.00	0.23	0.00	-0.01	2.00	2.00	0.00	0.00
2,900.00	2.72	0.00	2,899.95	3.23	0.00	-0.10	2.00	2.00	0.00	0.00
3,000.00	4.72	0.00	2,999.73	9.72	0.00	-0.30	2.00	2.00	0.00	0.00
3,100.00	6.72	0.00	3,099.23	19.68	0.00	-0.60	2.00	2.00	0.00	0.00
3,200.00	8.72	0.00	3,198.32	33.11	0.00	-1.01	2.00	2.00	0.00	0.00
3,264.00	10.00	0.00	3,261.47	43.52	0.00	-1.33	2.00	2.00	0.00	0.00
End Nudge @ 3264.00 ft										
3,300.00	10.00	0.00	3,296.92	49.77	0.00	-1.52	0.00	0.00	0.00	0.00
3,400.00	10.00	0.00	3,395.40	67.14	0.00	-2.05	0.00	0.00	0.00	0.00
3,500.00	10.00	0.00	3,493.88	84.50	0.00	-2.58	0.00	0.00	0.00	0.00
3,572.22	10.00	0.00	3,565.00	97.04	0.00	-2.96	0.00	0.00	0.00	0.00
Parkman										
3,600.00	10.00	0.00	3,592.36	101.87	0.00	-3.11	0.00	0.00	0.00	0.00
3,700.00	10.00	0.00	3,690.84	119.23	0.00	-3.64	0.00	0.00	0.00	0.00
3,800.00	10.00	0.00	3,789.32	136.60	0.00	-4.17	0.00	0.00	0.00	0.00
3,900.00	10.00	0.00	3,887.80	153.96	0.00	-4.70	0.00	0.00	0.00	0.00
4,000.00	10.00	0.00	3,986.28	171.33	0.00	-5.23	0.00	0.00	0.00	0.00
4,017.99	10.00	0.00	4,004.00	174.45	0.00	-5.33	0.00	0.00	0.00	0.00
Sussex										
4,100.00	10.00	0.00	4,084.76	188.69	0.00	-5.76	0.00	0.00	0.00	0.00
4,200.00	10.00	0.00	4,183.25	206.06	0.00	-6.29	0.00	0.00	0.00	0.00
4,300.00	10.00	0.00	4,281.73	223.42	0.00	-6.82	0.00	0.00	0.00	0.00

Plan Report for VIPER PYRO 26N-14HZ - 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	10.00	0.00	4,380.21	240.79	0.00	-7.35	0.00	0.00	0.00	0.00
4,500.00	10.00	0.00	4,478.69	258.15	0.00	-7.88	0.00	0.00	0.00	0.00
4,600.00	10.00	0.00	4,577.17	275.52	0.00	-8.41	0.00	0.00	0.00	0.00
4,700.00	10.00	0.00	4,675.65	292.88	0.00	-8.94	0.00	0.00	0.00	0.00
4,800.00	10.00	0.00	4,774.13	310.25	0.00	-9.47	0.00	0.00	0.00	0.00
4,900.00	10.00	0.00	4,872.61	327.61	0.00	-10.00	0.00	0.00	0.00	0.00
5,000.00	10.00	0.00	4,971.09	344.98	0.00	-10.54	0.00	0.00	0.00	0.00
5,100.00	10.00	0.00	5,069.57	362.34	0.00	-11.07	0.00	0.00	0.00	0.00
5,200.00	10.00	0.00	5,168.05	379.71	0.00	-11.60	0.00	0.00	0.00	0.00
5,300.00	10.00	0.00	5,266.53	397.07	0.00	-12.13	0.00	0.00	0.00	0.00
5,400.00	10.00	0.00	5,365.01	414.44	0.00	-12.66	0.00	0.00	0.00	0.00
5,500.00	10.00	0.00	5,463.50	431.80	0.00	-13.19	0.00	0.00	0.00	0.00
5,600.00	10.00	0.00	5,561.98	449.16	0.00	-13.72	0.00	0.00	0.00	0.00
5,700.00	10.00	0.00	5,660.46	466.53	0.00	-14.25	0.00	0.00	0.00	0.00
5,764.00	10.00	0.00	5,723.48	477.64	0.00	-14.59	0.00	0.00	0.00	0.00
Begin Drop @ 5764.00 ft										
5,800.00	9.28	0.00	5,758.98	483.67	0.00	-14.77	2.00	-2.00	0.00	180.00
5,900.00	7.28	0.00	5,857.93	498.07	0.00	-15.21	2.00	-2.00	0.00	180.00
6,000.00	5.28	0.00	5,957.32	509.01	0.00	-15.54	2.00	-2.00	0.00	180.00
6,100.00	3.28	0.00	6,057.04	516.47	0.00	-15.77	2.00	-2.00	0.00	180.00
6,200.00	1.28	0.00	6,156.96	520.45	0.00	-15.89	2.00	-2.00	0.00	180.00
6,264.00	0.00	0.00	6,220.95	521.17	0.00	-15.92	2.00	-2.00	0.00	-180.00
End Drop @ 6264.00 ft										
6,300.00	0.00	0.00	6,256.95	521.17	0.00	-15.92	0.00	0.00	0.00	0.00
6,364.19	0.00	0.00	6,321.14	521.17	0.00	-15.92	0.00	0.00	0.00	0.00
KOP @ 6364.19 ft										
6,400.00	3.58	91.75	6,356.93	521.13	1.12	-14.80	10.00	10.00	0.00	91.75
6,500.00	13.58	91.75	6,455.68	520.68	16.01	0.10	10.00	10.00	0.00	0.00
6,600.00	23.58	91.75	6,550.35	519.71	47.82	31.93	10.00	10.00	0.00	0.00
6,700.00	33.58	91.75	6,638.05	518.25	95.58	79.71	10.00	10.00	0.00	0.00
6,800.00	43.58	91.75	6,716.13	516.35	157.83	141.99	10.00	10.00	0.00	0.00
6,867.23	50.30	91.75	6,762.00	514.85	206.91	191.09	10.00	10.00	0.00	0.00
SSPG										
6,900.00	53.58	91.75	6,782.20	514.07	232.69	216.89	10.00	10.00	0.00	0.00
DLS = 10°/100 ft										
6,971.60	60.74	91.75	6,821.00	512.23	292.78	277.01	10.00	10.00	0.00	0.00
NBRR										
7,000.00	63.58	91.75	6,834.26	511.47	317.88	302.11	10.00	10.00	0.00	0.00
7,100.00	73.58	91.75	6,870.73	508.63	410.81	395.09	10.00	10.00	0.00	0.00
7,111.98	74.78	91.75	6,874.00	508.28	422.34	406.62	10.00	10.00	0.00	0.00
N470_B_CK										
7,200.00	83.58	91.75	6,890.51	505.64	508.67	492.99	10.00	10.00	0.00	0.00
7,253.45	88.93	91.75	6,894.00	504.02	561.96	546.30	10.00	10.00	0.00	0.00
End Build @ 7253.45 ft - Landing Target (Heel) - 7"										
7,276.99	88.93	91.75	6,894.44	503.30	585.48	569.83	0.00	0.00	0.00	0.00
VIPER 26N PH										
7,300.00	88.93	91.75	6,894.87	502.60	608.48	592.84	0.00	0.00	0.00	0.00
7,400.00	88.93	91.75	6,896.74	499.55	708.41	692.83	0.00	0.00	0.00	0.00
7,500.00	88.93	91.75	6,898.62	496.50	808.35	792.81	0.00	0.00	0.00	0.00
7,600.00	88.93	91.75	6,900.49	493.45	908.28	892.79	0.00	0.00	0.00	0.00
7,700.00	88.93	91.75	6,902.37	490.40	1,008.22	992.77	0.00	0.00	0.00	0.00
7,800.00	88.93	91.75	6,904.24	487.35	1,108.16	1,092.76	0.00	0.00	0.00	0.00
7,900.00	88.93	91.75	6,906.11	484.30	1,208.09	1,192.74	0.00	0.00	0.00	0.00
8,000.00	88.93	91.75	6,907.99	481.25	1,308.03	1,292.72	0.00	0.00	0.00	0.00
8,100.00	88.93	91.75	6,909.86	478.20	1,407.96	1,392.70	0.00	0.00	0.00	0.00
8,200.00	88.93	91.75	6,911.74	475.15	1,507.90	1,492.69	0.00	0.00	0.00	0.00
8,300.00	88.93	91.75	6,913.61	472.10	1,607.84	1,592.67	0.00	0.00	0.00	0.00
8,400.00	88.93	91.75	6,915.48	469.05	1,707.77	1,692.65	0.00	0.00	0.00	0.00
8,500.00	88.93	91.75	6,917.36	466.00	1,807.71	1,792.63	0.00	0.00	0.00	0.00

Plan Report for VIPER PYRO 26N-14HZ - 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 (°)
8,600.00	88.93	91.75	6,919.23	462.96	1,907.64	1,892.62	0.00	0.00	0.00	0.00
8,700.00	88.93	91.75	6,921.11	459.91	2,007.58	1,992.60	0.00	0.00	0.00	0.00
8,800.00	88.93	91.75	6,922.98	456.86	2,107.52	2,092.58	0.00	0.00	0.00	0.00
8,900.00	88.93	91.75	6,924.85	453.81	2,207.45	2,192.56	0.00	0.00	0.00	0.00
9,000.00	88.93	91.75	6,926.73	450.76	2,307.39	2,292.55	0.00	0.00	0.00	0.00
9,100.00	88.93	91.75	6,928.60	447.71	2,407.32	2,392.53	0.00	0.00	0.00	0.00
9,200.00	88.93	91.75	6,930.48	444.66	2,507.26	2,492.51	0.00	0.00	0.00	0.00
9,300.00	88.93	91.75	6,932.35	441.61	2,607.20	2,592.49	0.00	0.00	0.00	0.00
9,400.00	88.93	91.75	6,934.22	438.56	2,707.13	2,692.48	0.00	0.00	0.00	0.00
9,500.00	88.93	91.75	6,936.10	435.51	2,807.07	2,792.46	0.00	0.00	0.00	0.00
9,548.14	88.93	91.75	6,937.00	434.04	2,855.18	2,840.59	0.00	0.00	0.00	0.00
N700_C_CK										
9,600.00	88.93	91.75	6,937.97	432.46	2,907.00	2,892.44	0.00	0.00	0.00	0.00
9,700.00	88.93	91.75	6,939.85	429.41	3,006.94	2,992.42	0.00	0.00	0.00	0.00
9,800.00	88.93	91.75	6,941.72	426.36	3,106.88	3,092.41	0.00	0.00	0.00	0.00
9,900.00	88.93	91.75	6,943.59	423.31	3,206.81	3,192.39	0.00	0.00	0.00	0.00
10,000.00	88.93	91.75	6,945.47	420.26	3,306.75	3,292.37	0.00	0.00	0.00	0.00
10,100.00	88.93	91.75	6,947.34	417.21	3,406.68	3,392.35	0.00	0.00	0.00	0.00
10,200.00	88.93	91.75	6,949.22	414.16	3,506.62	3,492.34	0.00	0.00	0.00	0.00
10,300.00	88.93	91.75	6,951.09	411.11	3,606.55	3,592.32	0.00	0.00	0.00	0.00
10,400.00	88.93	91.75	6,952.96	408.07	3,706.49	3,692.30	0.00	0.00	0.00	0.00
10,500.00	88.93	91.75	6,954.84	405.02	3,806.43	3,792.28	0.00	0.00	0.00	0.00
10,600.00	88.93	91.75	6,956.71	401.97	3,906.36	3,892.27	0.00	0.00	0.00	0.00
10,700.00	88.93	91.75	6,958.59	398.92	4,006.30	3,992.25	0.00	0.00	0.00	0.00
10,800.00	88.93	91.75	6,960.46	395.87	4,106.23	4,092.23	0.00	0.00	0.00	0.00
10,900.00	88.93	91.75	6,962.33	392.82	4,206.17	4,192.21	0.00	0.00	0.00	0.00
11,000.00	88.93	91.75	6,964.21	389.77	4,306.11	4,292.19	0.00	0.00	0.00	0.00
11,100.00	88.93	91.75	6,966.08	386.72	4,406.04	4,392.18	0.00	0.00	0.00	0.00
11,200.00	88.93	91.75	6,967.96	383.67	4,505.98	4,492.16	0.00	0.00	0.00	0.00
11,300.00	88.93	91.75	6,969.83	380.62	4,605.91	4,592.14	0.00	0.00	0.00	0.00
11,400.00	88.93	91.75	6,971.70	377.57	4,705.85	4,692.12	0.00	0.00	0.00	0.00
11,500.00	88.93	91.75	6,973.58	374.52	4,805.79	4,792.11	0.00	0.00	0.00	0.00
11,600.00	88.93	91.75	6,975.45	371.47	4,905.72	4,892.09	0.00	0.00	0.00	0.00
11,700.00	88.93	91.75	6,977.33	368.42	5,005.66	4,992.07	0.00	0.00	0.00	0.00
11,800.00	88.93	91.75	6,979.20	365.37	5,105.59	5,092.05	0.00	0.00	0.00	0.00
11,900.00	88.93	91.75	6,981.07	362.32	5,205.53	5,192.04	0.00	0.00	0.00	0.00
12,000.00	88.93	91.75	6,982.95	359.27	5,305.47	5,292.02	0.00	0.00	0.00	0.00
12,100.00	88.93	91.75	6,984.82	356.22	5,405.40	5,392.00	0.00	0.00	0.00	0.00
12,200.00	88.93	91.75	6,986.70	353.17	5,505.34	5,491.98	0.00	0.00	0.00	0.00
12,300.00	88.93	91.75	6,988.57	350.13	5,605.27	5,591.97	0.00	0.00	0.00	0.00
12,400.00	88.93	91.75	6,990.44	347.08	5,705.21	5,691.95	0.00	0.00	0.00	0.00
12,500.00	88.93	91.75	6,992.32	344.03	5,805.15	5,791.93	0.00	0.00	0.00	0.00
12,600.00	88.93	91.75	6,994.19	340.98	5,905.08	5,891.91	0.00	0.00	0.00	0.00
12,700.00	88.93	91.75	6,996.07	337.93	6,005.02	5,991.90	0.00	0.00	0.00	0.00
12,800.00	88.93	91.75	6,997.94	334.88	6,104.95	6,091.88	0.00	0.00	0.00	0.00
12,900.00	88.93	91.75	6,999.81	331.83	6,204.89	6,191.86	0.00	0.00	0.00	0.00
13,000.00	88.93	91.75	7,001.69	328.78	6,304.82	6,291.84	0.00	0.00	0.00	0.00
13,100.00	88.93	91.75	7,003.56	325.73	6,404.76	6,391.83	0.00	0.00	0.00	0.00
13,200.00	88.93	91.75	7,005.44	322.68	6,504.70	6,491.81	0.00	0.00	0.00	0.00
13,300.00	88.93	91.75	7,007.31	319.63	6,604.63	6,591.79	0.00	0.00	0.00	0.00
13,400.00	88.93	91.75	7,009.18	316.58	6,704.57	6,691.77	0.00	0.00	0.00	0.00
13,500.00	88.93	91.75	7,011.06	313.53	6,804.50	6,791.76	0.00	0.00	0.00	0.00
13,600.00	88.93	91.75	7,012.93	310.48	6,904.44	6,891.74	0.00	0.00	0.00	0.00
13,700.00	88.93	91.75	7,014.81	307.43	7,004.38	6,991.72	0.00	0.00	0.00	0.00
13,800.00	88.93	91.75	7,016.68	304.38	7,104.31	7,091.70	0.00	0.00	0.00	0.00
13,900.00	88.93	91.75	7,018.55	301.33	7,204.25	7,191.69	0.00	0.00	0.00	0.00
14,000.00	88.93	91.75	7,020.43	298.28	7,304.18	7,291.67	0.00	0.00	0.00	0.00
14,100.00	88.93	91.75	7,022.30	295.23	7,404.12	7,391.65	0.00	0.00	0.00	0.00
14,200.00	88.93	91.75	7,024.18	292.19	7,504.06	7,491.63	0.00	0.00	0.00	0.00

Plan Report for VIPER PYRO 26N-14HZ - 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 (°)
14,300.00	88.93	91.75	7,026.05	289.14	7,603.99	7,591.62	0.00	0.00	0.00	0.00
14,400.00	88.93	91.75	7,027.92	286.09	7,703.93	7,691.60	0.00	0.00	0.00	0.00
14,500.00	88.93	91.75	7,029.80	283.04	7,803.86	7,791.58	0.00	0.00	0.00	0.00
14,600.00	88.93	91.75	7,031.67	279.99	7,903.80	7,891.56	0.00	0.00	0.00	0.00
14,700.00	88.93	91.75	7,033.55	276.94	8,003.74	7,991.55	0.00	0.00	0.00	0.00
14,800.00	88.93	91.75	7,035.42	273.89	8,103.67	8,091.53	0.00	0.00	0.00	0.00
14,900.00	88.93	91.75	7,037.29	270.84	8,203.61	8,191.51	0.00	0.00	0.00	0.00
15,000.00	88.93	91.75	7,039.17	267.79	8,303.54	8,291.49	0.00	0.00	0.00	0.00
15,100.00	88.93	91.75	7,041.04	264.74	8,403.48	8,391.47	0.00	0.00	0.00	0.00
15,200.00	88.93	91.75	7,042.92	261.69	8,503.42	8,491.46	0.00	0.00	0.00	0.00
15,300.00	88.93	91.75	7,044.79	258.64	8,603.35	8,591.44	0.00	0.00	0.00	0.00
15,400.00	88.93	91.75	7,046.66	255.59	8,703.29	8,691.42	0.00	0.00	0.00	0.00
15,500.00	88.93	91.75	7,048.54	252.54	8,803.22	8,791.40	0.00	0.00	0.00	0.00
15,600.00	88.93	91.75	7,050.41	249.49	8,903.16	8,891.39	0.00	0.00	0.00	0.00
15,700.00	88.93	91.75	7,052.29	246.44	9,003.09	8,991.37	0.00	0.00	0.00	0.00
15,800.00	88.93	91.75	7,054.16	243.39	9,103.03	9,091.35	0.00	0.00	0.00	0.00
15,900.00	88.93	91.75	7,056.03	240.34	9,202.97	9,191.33	0.00	0.00	0.00	0.00
16,000.00	88.93	91.75	7,057.91	237.29	9,302.90	9,291.32	0.00	0.00	0.00	0.00
16,100.00	88.93	91.75	7,059.78	234.25	9,402.84	9,391.30	0.00	0.00	0.00	0.00
16,200.00	88.93	91.75	7,061.66	231.20	9,502.77	9,491.28	0.00	0.00	0.00	0.00
16,300.00	88.93	91.75	7,063.53	228.15	9,602.71	9,591.26	0.00	0.00	0.00	0.00
16,400.00	88.93	91.75	7,065.40	225.10	9,702.65	9,691.25	0.00	0.00	0.00	0.00
16,500.00	88.93	91.75	7,067.28	222.05	9,802.58	9,791.23	0.00	0.00	0.00	0.00
16,600.00	88.93	91.75	7,069.15	219.00	9,902.52	9,891.21	0.00	0.00	0.00	0.00
16,698.60	88.93	91.75	7,071.00	215.99	10,001.06	9,989.80	0.00	0.00	0.00	0.00
FRHS										
16,700.00	88.93	91.75	7,071.03	215.95	10,002.45	9,991.19	0.00	0.00	0.00	0.00
16,800.00	88.93	91.75	7,072.90	212.90	10,102.39	10,091.18	0.00	0.00	0.00	0.00
16,858.69	88.93	91.75	7,074.00	211.11	10,161.04	10,149.85	0.00	0.00	0.00	0.00
TD Well @ 16858.69 ft - Total Depth (Toe) - VIPER 26N BHL										

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	+E/-W (usft)	Comment
0.00	0.00	0.00	0.00	Tie On to Surface @ 0.00 ft
2,764.00	2,764.00	0.00	0.00	Begin Nudge @ 2764.00 ft
3,264.00	3,261.47	43.52	0.00	End Nudge @ 3264.00 ft
5,764.00	5,723.48	477.64	0.00	Begin Drop @ 5764.00 ft
6,264.00	6,220.95	521.17	0.00	End Drop @ 6264.00 ft
6,364.19	6,321.14	521.17	0.00	KOP @ 6364.19 ft
6,900.00	6,782.20	514.07	232.69	DLS = 10°/100 ft
7,253.45	6,894.00	504.02	561.96	End Build @ 7253.45 ft
16,858.69	7,074.00	211.11	10,161.04	TD Well @ 16858.69 ft

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin +N/_S (usft)	+E/-W (usft)	Start TVD (usft)
User	No Target (Freehand)	91.75	Slot	0.00	0.00	0.00

Plan Report for VIPER PYRO 26N-14HZ - PERMIT REV-1

Survey tool program

From (usft)	To (usft)	Survey/Plan	Survey Tool
0.00	7,253.45	PERMIT REV-1	MWD+IFR+MS
7,253.45	16,858.69	PERMIT REV-1	MWD+IFR+MS

Casing Details

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
744.00	744.00	9 5/8"	9-5/8	13-1/2
7,253.45	6,894.00	7"	7	8-3/4

Formation Details

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,572.22	3,565.00	Parkman			
4,017.99	4,004.00	Sussex			
6,867.23	6,762.00	SSPG			
6,971.60	6,821.00	NBRR			
7,111.98	6,874.00	N470_B_CK			
7,253.45	6,894.00	Landing Target (Heel)		0.00	
9,548.14	6,937.00	N700_C_CK			
16,698.60	7,071.00	FRHS			
16,858.69	7,074.00	Total Depth (Toe)			

Targets associated with this wellbore

Target Name	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Shape
3N-R67W-Sec. 9_Section Lines	1.00	260.74	508.25	Polygon
VIPER 26N BHL	7,074.00	211.11	10,161.04	Point
VIPER 26N PH	6,894.00	414.05	582.76	Point
3N-R67W-Sec. 15_Section Lines	1.00	260.74	508.25	Polygon
3N-R67W-Sec. 14_Section Lines	1.00	-639.82	3.63	Polygon
VIPER 26N SHL	0.00	0.00	0.00	Polygon
3N-R67W-Sec. 10_Section Lines	1.00	260.74	508.25	Polygon

North Reference Sheet for VIPER PAD - VIPER PYRO 26N-14HZ - 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' @ 4811.00usft (COGCC). Northing and Easting are relative to VIPER PYRO 26N-14HZ

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: 0.99960117

Grid Coordinates of Well: 14,610,839.15 usft N, 1,672,430.89 usft E

Geographical Coordinates of Well: 40° 13' 51.27" N, 104° 53' 07.07" W

Grid Convergence at Surface is: 0.07°

Based upon Minimum Curvature type calculations, at a Measured Depth of 16,858.69usft the Bottom Hole Displacement is 10,163.23usft in the Direction of 88.81° (True).

Magnetic Convergence at surface is: -8.36° (31 December 2014, , IGRF2010)

