

US ROCKIES WATTENBERG PLANNING

WELD-NAD83-UTMFT13N

3N-67W-15 Viper Pad

Viper Pyro 41N-14ZR

Plan A

Plan: Permit Rev-1

Sperry Drilling Services

Proposal Report

07 June, 2015

Well Coordinates: 14,610,779.29 N, 1,672,431.25 E (40° 13' 50.68" N, 104° 53' 07.07" W)

Ground Level: 4,794.00 usft

Local Coordinate Origin:

Viewing Datum:

TVDs to System:

North Reference:

Unit System:

Centered on Well Viper Pyro 41N-14ZR

RKB = 7' @ 4801.00usft (Cathedral)

N

True

Dec-Deg - API - US Survey Feet - Custom

Version: 5000.1 Build: 73

HALLIBURTON

Project: WELD-NAD83-UTMFT13N
Site: 3N-67W-15 Viper Pad
Well: Viper Pyro 41N-14ZR
Wellbore: Plan A
Design: Permit Rev-1

US ROCKIES WATTENBERG PLANNING

HALLIBURTON
Sperry Drilling

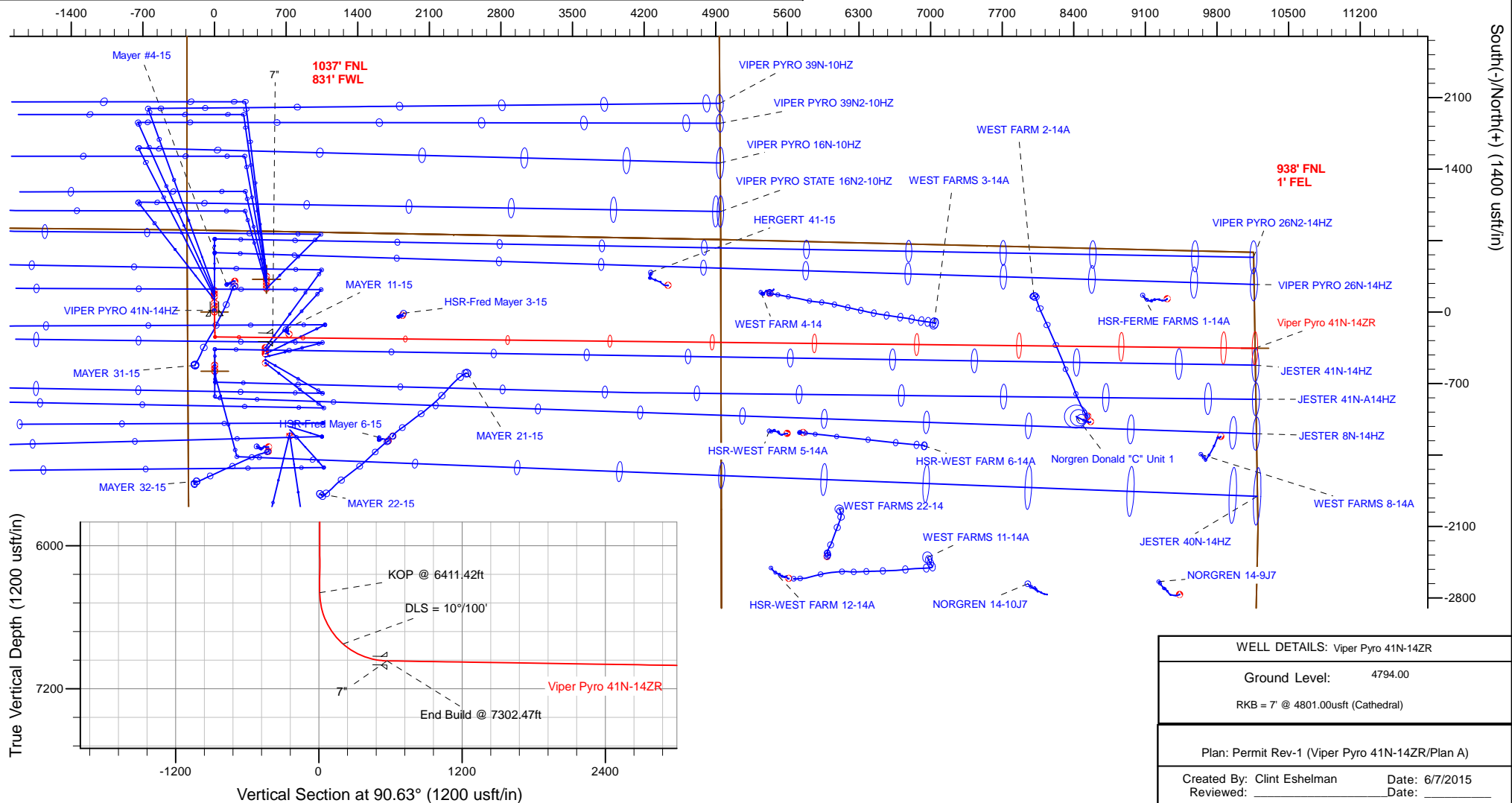
SECTION DETAILS

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	250.00	0.00	0.00	250.00	0.00	0.00	0.00	0.00	0.00	
3	916.67	10.00	179.00	913.29	-58.02	1.01	1.50	179.00	1.65	
4	1732.67	10.00	179.00	1716.89	-199.70	3.49	0.00	0.00	5.68	
5	2232.67	0.00	0.00	2214.36	-243.21	4.25	2.00	180.00	6.92	
6	6411.42	0.00	0.00	6393.11	-243.21	4.25	0.00	0.00	6.92	
7	7302.47	89.11	90.63	6966.00	-249.37	568.22	10.00	90.63	570.93	
8	16906.78	89.11	90.63	7116.00	-354.28	10170.79	0.00	0.00	10174.07	VIPER 41N BHL

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
Viper Pyro 41N-14HZR_SHL	0.00	0.00	0.00	40.230745	-104.885296	Point
VIPER 41N BHL	7116.00	-354.28	10170.79	40.229766	-104.848856	Point

Vest(-)/East(+) (1400 usft/in)



Plan Report for Viper Pyro 41N-14ZR - 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
3N-R67W-Sec. 9_Section Lines - 3N-R67W-Sec. 10_Section Lines - 3N-R67W-Sec. 15_Section Lines - 3N-R67W-Sec. 14_Section Lines - Viper Pyro										
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	179.00	300.00	-0.33	0.01	0.01	1.50	1.50	0.00	179.00
400.00	2.25	179.00	399.96	-2.94	0.05	0.08	1.50	1.50	0.00	0.00
500.00	3.75	179.00	499.82	-8.18	0.14	0.23	1.50	1.50	0.00	0.00
600.00	5.25	179.00	599.51	-16.02	0.28	0.46	1.50	1.50	0.00	0.00
700.00	6.75	179.00	698.96	-26.47	0.46	0.75	1.50	1.50	0.00	0.00
800.00	8.25	179.00	798.10	-39.52	0.69	1.12	1.50	1.50	0.00	0.00
801.92	8.28	179.00	800.00	-39.80	0.69	1.13	1.50	1.50	0.00	0.00
9 5/8"										
900.00	9.75	179.00	896.87	-55.16	0.96	1.57	1.50	1.50	0.00	0.00
916.67	10.00	179.00	913.29	-58.02	1.01	1.65	1.50	1.50	0.00	0.00
End Nudge @ 916.67ft										
1,000.00	10.00	179.00	995.35	-72.49	1.27	2.06	0.00	0.00	0.00	0.00
1,100.00	10.00	179.00	1,093.84	-89.85	1.57	2.56	0.00	0.00	0.00	0.00
1,200.00	10.00	179.00	1,192.32	-107.21	1.87	3.05	0.00	0.00	0.00	0.00
1,300.00	10.00	179.00	1,290.80	-124.58	2.17	3.54	0.00	0.00	0.00	0.00
1,400.00	10.00	179.00	1,389.28	-141.94	2.48	4.04	0.00	0.00	0.00	0.00
1,500.00	10.00	179.00	1,487.76	-159.30	2.78	4.53	0.00	0.00	0.00	0.00
1,600.00	10.00	179.00	1,586.24	-176.66	3.08	5.03	0.00	0.00	0.00	0.00
1,700.00	10.00	179.00	1,684.72	-194.02	3.39	5.52	0.00	0.00	0.00	0.00
1,732.67	10.00	179.00	1,716.89	-199.70	3.49	5.68	0.00	0.00	0.00	0.00
Begin Drop @ 1732.67ft										
1,800.00	8.65	179.00	1,783.33	-210.61	3.68	5.99	2.00	-2.00	0.00	180.00
1,900.00	6.65	179.00	1,882.44	-223.92	3.91	6.37	2.00	-2.00	0.00	180.00
2,000.00	4.65	179.00	1,981.94	-233.77	4.08	6.65	2.00	-2.00	0.00	180.00
2,100.00	2.65	179.00	2,081.74	-240.14	4.19	6.83	2.00	-2.00	0.00	180.00
2,200.00	0.65	179.00	2,181.69	-243.03	4.24	6.91	2.00	-2.00	0.00	180.00
2,232.67	0.00	0.00	2,214.36	-243.21	4.25	6.92	2.00	-2.00	0.00	-180.00
End Drop @ 2232.67ft										
2,300.00	0.00	0.00	2,281.69	-243.21	4.25	6.92	0.00	0.00	0.00	0.00
2,400.00	0.00	0.00	2,381.69	-243.21	4.25	6.92	0.00	0.00	0.00	0.00
2,500.00	0.00	0.00	2,481.69	-243.21	4.25	6.92	0.00	0.00	0.00	0.00
2,600.00	0.00	0.00	2,581.69	-243.21	4.25	6.92	0.00	0.00	0.00	0.00
2,700.00	0.00	0.00	2,681.69	-243.21	4.25	6.92	0.00	0.00	0.00	0.00
2,800.00	0.00	0.00	2,781.69	-243.21	4.25	6.92	0.00	0.00	0.00	0.00
2,900.00	0.00	0.00	2,881.69	-243.21	4.25	6.92	0.00	0.00	0.00	0.00
3,000.00	0.00	0.00	2,981.69	-243.21	4.25	6.92	0.00	0.00	0.00	0.00
3,100.00	0.00	0.00	3,081.69	-243.21	4.25	6.92	0.00	0.00	0.00	0.00
3,200.00	0.00	0.00	3,181.69	-243.21	4.25	6.92	0.00	0.00	0.00	0.00
3,300.00	0.00	0.00	3,281.69	-243.21	4.25	6.92	0.00	0.00	0.00	0.00
3,400.00	0.00	0.00	3,381.69	-243.21	4.25	6.92	0.00	0.00	0.00	0.00
3,500.00	0.00	0.00	3,481.69	-243.21	4.25	6.92	0.00	0.00	0.00	0.00
3,600.00	0.00	0.00	3,581.69	-243.21	4.25	6.92	0.00	0.00	0.00	0.00
3,700.00	0.00	0.00	3,681.69	-243.21	4.25	6.92	0.00	0.00	0.00	0.00
3,800.00	0.00	0.00	3,781.69	-243.21	4.25	6.92	0.00	0.00	0.00	0.00
3,900.00	0.00	0.00	3,881.69	-243.21	4.25	6.92	0.00	0.00	0.00	0.00
4,000.00	0.00	0.00	3,981.69	-243.21	4.25	6.92	0.00	0.00	0.00	0.00
4,100.00	0.00	0.00	4,081.69	-243.21	4.25	6.92	0.00	0.00	0.00	0.00
4,200.00	0.00	0.00	4,181.69	-243.21	4.25	6.92	0.00	0.00	0.00	0.00
4,300.00	0.00	0.00	4,281.69	-243.21	4.25	6.92	0.00	0.00	0.00	0.00
4,400.00	0.00	0.00	4,381.69	-243.21	4.25	6.92	0.00	0.00	0.00	0.00
4,500.00	0.00	0.00	4,481.69	-243.21	4.25	6.92	0.00	0.00	0.00	0.00
4,600.00	0.00	0.00	4,581.69	-243.21	4.25	6.92	0.00	0.00	0.00	0.00

Plan Report for Viper Pyro 41N-14ZR - 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 (°)
4,700.00	0.00	0.00	4,681.69	-243.21	4.25	6.92	0.00	0.00	0.00	0.00
4,800.00	0.00	0.00	4,781.69	-243.21	4.25	6.92	0.00	0.00	0.00	0.00
4,900.00	0.00	0.00	4,881.69	-243.21	4.25	6.92	0.00	0.00	0.00	0.00
5,000.00	0.00	0.00	4,981.69	-243.21	4.25	6.92	0.00	0.00	0.00	0.00
5,100.00	0.00	0.00	5,081.69	-243.21	4.25	6.92	0.00	0.00	0.00	0.00
5,200.00	0.00	0.00	5,181.69	-243.21	4.25	6.92	0.00	0.00	0.00	0.00
5,300.00	0.00	0.00	5,281.69	-243.21	4.25	6.92	0.00	0.00	0.00	0.00
5,400.00	0.00	0.00	5,381.69	-243.21	4.25	6.92	0.00	0.00	0.00	0.00
5,500.00	0.00	0.00	5,481.69	-243.21	4.25	6.92	0.00	0.00	0.00	0.00
5,600.00	0.00	0.00	5,581.69	-243.21	4.25	6.92	0.00	0.00	0.00	0.00
5,700.00	0.00	0.00	5,681.69	-243.21	4.25	6.92	0.00	0.00	0.00	0.00
5,800.00	0.00	0.00	5,781.69	-243.21	4.25	6.92	0.00	0.00	0.00	0.00
5,900.00	0.00	0.00	5,881.69	-243.21	4.25	6.92	0.00	0.00	0.00	0.00
6,000.00	0.00	0.00	5,981.69	-243.21	4.25	6.92	0.00	0.00	0.00	0.00
6,100.00	0.00	0.00	6,081.69	-243.21	4.25	6.92	0.00	0.00	0.00	0.00
6,200.00	0.00	0.00	6,181.69	-243.21	4.25	6.92	0.00	0.00	0.00	0.00
6,300.00	0.00	0.00	6,281.69	-243.21	4.25	6.92	0.00	0.00	0.00	0.00
6,400.00	0.00	0.00	6,381.69	-243.21	4.25	6.92	0.00	0.00	0.00	0.00
6,411.42	0.00	0.00	6,393.11	-243.21	4.25	6.92	0.00	0.00	0.00	0.00
KOP @ 6411.42ft										
6,500.00	8.86	90.63	6,481.34	-243.29	11.08	13.75	10.00	10.00	0.00	90.63
6,600.00	18.86	90.63	6,578.30	-243.55	35.00	37.67	10.00	10.00	0.00	0.00
6,700.00	28.86	90.63	6,669.64	-243.99	75.39	78.07	10.00	10.00	0.00	0.00
6,800.00	38.86	90.63	6,752.58	-244.60	131.03	133.71	10.00	10.00	0.00	0.00
6,900.00	48.86	90.63	6,824.59	-245.35	200.23	202.91	10.00	10.00	0.00	0.00
DLS = 10°/100'										
7,000.00	58.86	90.63	6,883.50	-246.23	280.88	283.57	10.00	10.00	0.00	0.00
7,100.00	68.86	90.63	6,927.50	-247.21	370.53	373.22	10.00	10.00	0.00	0.00
7,200.00	78.86	90.63	6,955.27	-248.26	466.46	469.16	10.00	10.00	0.00	0.00
7,300.00	88.86	90.63	6,965.95	-249.35	565.75	568.46	10.00	10.00	0.00	0.00
7,302.47	89.11	90.63	6,966.00	-249.37	568.22	570.93	10.00	10.00	0.00	0.00
End Build @ 7302.47ft - 7"										
7,400.00	89.11	90.63	6,967.52	-250.44	665.73	668.45	0.00	0.00	0.00	0.00
7,500.00	89.11	90.63	6,969.08	-251.53	765.71	768.43	0.00	0.00	0.00	0.00
7,600.00	89.11	90.63	6,970.64	-252.62	865.70	868.42	0.00	0.00	0.00	0.00
7,700.00	89.11	90.63	6,972.21	-253.72	965.68	968.41	0.00	0.00	0.00	0.00
7,800.00	89.11	90.63	6,973.77	-254.81	1,065.66	1,068.40	0.00	0.00	0.00	0.00
7,900.00	89.11	90.63	6,975.33	-255.90	1,165.64	1,168.38	0.00	0.00	0.00	0.00
8,000.00	89.11	90.63	6,976.89	-256.99	1,265.62	1,268.37	0.00	0.00	0.00	0.00
8,100.00	89.11	90.63	6,978.45	-258.09	1,365.60	1,368.36	0.00	0.00	0.00	0.00
8,200.00	89.11	90.63	6,980.01	-259.18	1,465.59	1,468.35	0.00	0.00	0.00	0.00
8,300.00	89.11	90.63	6,981.58	-260.27	1,565.57	1,568.34	0.00	0.00	0.00	0.00
8,400.00	89.11	90.63	6,983.14	-261.36	1,665.55	1,668.32	0.00	0.00	0.00	0.00
8,500.00	89.11	90.63	6,984.70	-262.45	1,765.53	1,768.31	0.00	0.00	0.00	0.00
8,600.00	89.11	90.63	6,986.26	-263.55	1,865.51	1,868.30	0.00	0.00	0.00	0.00
8,700.00	89.11	90.63	6,987.82	-264.64	1,965.50	1,968.29	0.00	0.00	0.00	0.00
8,800.00	89.11	90.63	6,989.39	-265.73	2,065.48	2,068.27	0.00	0.00	0.00	0.00
8,900.00	89.11	90.63	6,990.95	-266.82	2,165.46	2,168.26	0.00	0.00	0.00	0.00
9,000.00	89.11	90.63	6,992.51	-267.92	2,265.44	2,268.25	0.00	0.00	0.00	0.00
9,100.00	89.11	90.63	6,994.07	-269.01	2,365.42	2,368.24	0.00	0.00	0.00	0.00
9,200.00	89.11	90.63	6,995.63	-270.10	2,465.41	2,468.23	0.00	0.00	0.00	0.00
9,300.00	89.11	90.63	6,997.19	-271.19	2,565.39	2,568.21	0.00	0.00	0.00	0.00
9,400.00	89.11	90.63	6,998.76	-272.29	2,665.37	2,668.20	0.00	0.00	0.00	0.00
9,500.00	89.11	90.63	7,000.32	-273.38	2,765.35	2,768.19	0.00	0.00	0.00	0.00
9,600.00	89.11	90.63	7,001.88	-274.47	2,865.33	2,868.18	0.00	0.00	0.00	0.00
9,700.00	89.11	90.63	7,003.44	-275.56	2,965.31	2,968.16	0.00	0.00	0.00	0.00
9,800.00	89.11	90.63	7,005.00	-276.66	3,065.30	3,068.15	0.00	0.00	0.00	0.00
9,900.00	89.11	90.63	7,006.57	-277.75	3,165.28	3,168.14	0.00	0.00	0.00	0.00
10,000.00	89.11	90.63	7,008.13	-278.84	3,265.26	3,268.13	0.00	0.00	0.00	0.00

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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 (°)
10,100.00	89.11	90.63	7,009.69	-279.93	3,365.24	3,368.12	0.00	0.00	0.00	0.00
10,200.00	89.11	90.63	7,011.25	-281.02	3,465.22	3,468.10	0.00	0.00	0.00	0.00
10,300.00	89.11	90.63	7,012.81	-282.12	3,565.21	3,568.09	0.00	0.00	0.00	0.00
10,400.00	89.11	90.63	7,014.38	-283.21	3,665.19	3,668.08	0.00	0.00	0.00	0.00
10,500.00	89.11	90.63	7,015.94	-284.30	3,765.17	3,768.07	0.00	0.00	0.00	0.00
10,600.00	89.11	90.63	7,017.50	-285.39	3,865.15	3,868.06	0.00	0.00	0.00	0.00
10,700.00	89.11	90.63	7,019.06	-286.49	3,965.13	3,968.04	0.00	0.00	0.00	0.00
10,800.00	89.11	90.63	7,020.62	-287.58	4,065.11	4,068.03	0.00	0.00	0.00	0.00
10,900.00	89.11	90.63	7,022.18	-288.67	4,165.10	4,168.02	0.00	0.00	0.00	0.00
11,000.00	89.11	90.63	7,023.75	-289.76	4,265.08	4,268.01	0.00	0.00	0.00	0.00
11,100.00	89.11	90.63	7,025.31	-290.86	4,365.06	4,367.99	0.00	0.00	0.00	0.00
11,200.00	89.11	90.63	7,026.87	-291.95	4,465.04	4,467.98	0.00	0.00	0.00	0.00
11,300.00	89.11	90.63	7,028.43	-293.04	4,565.02	4,567.97	0.00	0.00	0.00	0.00
11,400.00	89.11	90.63	7,029.99	-294.13	4,665.01	4,667.96	0.00	0.00	0.00	0.00
11,500.00	89.11	90.63	7,031.56	-295.22	4,764.99	4,767.95	0.00	0.00	0.00	0.00
11,600.00	89.11	90.63	7,033.12	-296.32	4,864.97	4,867.93	0.00	0.00	0.00	0.00
11,700.00	89.11	90.63	7,034.68	-297.41	4,964.95	4,967.92	0.00	0.00	0.00	0.00
11,800.00	89.11	90.63	7,036.24	-298.50	5,064.93	5,067.91	0.00	0.00	0.00	0.00
11,900.00	89.11	90.63	7,037.80	-299.59	5,164.91	5,167.90	0.00	0.00	0.00	0.00
12,000.00	89.11	90.63	7,039.36	-300.69	5,264.90	5,267.88	0.00	0.00	0.00	0.00
12,100.00	89.11	90.63	7,040.93	-301.78	5,364.88	5,367.87	0.00	0.00	0.00	0.00
12,200.00	89.11	90.63	7,042.49	-302.87	5,464.86	5,467.86	0.00	0.00	0.00	0.00
12,300.00	89.11	90.63	7,044.05	-303.96	5,564.84	5,567.85	0.00	0.00	0.00	0.00
12,400.00	89.11	90.63	7,045.61	-305.06	5,664.82	5,667.84	0.00	0.00	0.00	0.00
12,500.00	89.11	90.63	7,047.17	-306.15	5,764.81	5,767.82	0.00	0.00	0.00	0.00
12,600.00	89.11	90.63	7,048.74	-307.24	5,864.79	5,867.81	0.00	0.00	0.00	0.00
12,700.00	89.11	90.63	7,050.30	-308.33	5,964.77	5,967.80	0.00	0.00	0.00	0.00
12,800.00	89.11	90.63	7,051.86	-309.42	6,064.75	6,067.79	0.00	0.00	0.00	0.00
12,900.00	89.11	90.63	7,053.42	-310.52	6,164.73	6,167.77	0.00	0.00	0.00	0.00
13,000.00	89.11	90.63	7,054.98	-311.61	6,264.71	6,267.76	0.00	0.00	0.00	0.00
13,100.00	89.11	90.63	7,056.54	-312.70	6,364.70	6,367.75	0.00	0.00	0.00	0.00
13,200.00	89.11	90.63	7,058.11	-313.79	6,464.68	6,467.74	0.00	0.00	0.00	0.00
13,300.00	89.11	90.63	7,059.67	-314.89	6,564.66	6,567.73	0.00	0.00	0.00	0.00
13,400.00	89.11	90.63	7,061.23	-315.98	6,664.64	6,667.71	0.00	0.00	0.00	0.00
13,500.00	89.11	90.63	7,062.79	-317.07	6,764.62	6,767.70	0.00	0.00	0.00	0.00
13,600.00	89.11	90.63	7,064.35	-318.16	6,864.61	6,867.69	0.00	0.00	0.00	0.00
13,700.00	89.11	90.63	7,065.92	-319.26	6,964.59	6,967.68	0.00	0.00	0.00	0.00
13,800.00	89.11	90.63	7,067.48	-320.35	7,064.57	7,067.66	0.00	0.00	0.00	0.00
13,900.00	89.11	90.63	7,069.04	-321.44	7,164.55	7,167.65	0.00	0.00	0.00	0.00
14,000.00	89.11	90.63	7,070.60	-322.53	7,264.53	7,267.64	0.00	0.00	0.00	0.00
14,100.00	89.11	90.63	7,072.16	-323.62	7,364.52	7,367.63	0.00	0.00	0.00	0.00
14,200.00	89.11	90.63	7,073.72	-324.72	7,464.50	7,467.62	0.00	0.00	0.00	0.00
14,300.00	89.11	90.63	7,075.29	-325.81	7,564.48	7,567.60	0.00	0.00	0.00	0.00
14,400.00	89.11	90.63	7,076.85	-326.90	7,664.46	7,667.59	0.00	0.00	0.00	0.00
14,500.00	89.11	90.63	7,078.41	-327.99	7,764.44	7,767.58	0.00	0.00	0.00	0.00
14,600.00	89.11	90.63	7,079.97	-329.09	7,864.42	7,867.57	0.00	0.00	0.00	0.00
14,700.00	89.11	90.63	7,081.53	-330.18	7,964.41	7,967.56	0.00	0.00	0.00	0.00
14,800.00	89.11	90.63	7,083.10	-331.27	8,064.39	8,067.54	0.00	0.00	0.00	0.00
14,900.00	89.11	90.63	7,084.66	-332.36	8,164.37	8,167.53	0.00	0.00	0.00	0.00
15,000.00	89.11	90.63	7,086.22	-333.46	8,264.35	8,267.52	0.00	0.00	0.00	0.00
15,100.00	89.11	90.63	7,087.78	-334.55	8,364.33	8,367.51	0.00	0.00	0.00	0.00
15,200.00	89.11	90.63	7,089.34	-335.64	8,464.32	8,467.49	0.00	0.00	0.00	0.00
15,300.00	89.11	90.63	7,090.90	-336.73	8,564.30	8,567.48	0.00	0.00	0.00	0.00
15,400.00	89.11	90.63	7,092.47	-337.82	8,664.28	8,667.47	0.00	0.00	0.00	0.00
15,500.00	89.11	90.63	7,094.03	-338.92	8,764.26	8,767.46	0.00	0.00	0.00	0.00
15,600.00	89.11	90.63	7,095.59	-340.01	8,864.24	8,867.45	0.00	0.00	0.00	0.00
15,700.00	89.11	90.63	7,097.15	-341.10	8,964.22	8,967.43	0.00	0.00	0.00	0.00
15,800.00	89.11	90.63	7,098.71	-342.19	9,064.21	9,067.42	0.00	0.00	0.00	0.00
15,900.00	89.11	90.63	7,100.28	-343.29	9,164.19	9,167.41	0.00	0.00	0.00	0.00
16,000.00	89.11	90.63	7,101.84	-344.38	9,264.17	9,267.40	0.00	0.00	0.00	0.00

Plan Report for Viper Pyro 41N-14ZR - 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 (°)
16,100.00	89.11	90.63	7,103.40	-345.47	9,364.15	9,367.38	0.00	0.00	0.00	0.00
16,200.00	89.11	90.63	7,104.96	-346.56	9,464.13	9,467.37	0.00	0.00	0.00	0.00
16,300.00	89.11	90.63	7,106.52	-347.66	9,564.12	9,567.36	0.00	0.00	0.00	0.00
16,400.00	89.11	90.63	7,108.08	-348.75	9,664.10	9,667.35	0.00	0.00	0.00	0.00
16,500.00	89.11	90.63	7,109.65	-349.84	9,764.08	9,767.34	0.00	0.00	0.00	0.00
16,600.00	89.11	90.63	7,111.21	-350.93	9,864.06	9,867.32	0.00	0.00	0.00	0.00
16,700.00	89.11	90.63	7,112.77	-352.03	9,964.04	9,967.31	0.00	0.00	0.00	0.00
16,800.00	89.11	90.63	7,114.33	-353.12	10,064.02	10,067.30	0.00	0.00	0.00	0.00
16,900.00	89.11	90.63	7,115.89	-354.21	10,164.01	10,167.29	0.00	0.00	0.00	0.00
16,906.78	89.11	90.63	7,116.00	-354.28	10,170.79	10,174.07	0.00	0.00	0.00	0.00

TD Well @ 16906.78ft - VIPER 41N BHL

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
916.67	913.29	-58.02	1.01	End Nudge @ 916.67ft
1,732.67	1,716.89	-199.70	3.49	Begin Drop @ 1732.67ft
2,232.67	2,214.36	-243.21	4.25	End Drop @ 2232.67ft
6,411.42	6,393.11	-243.21	4.25	KOP @ 6411.42ft
6,900.00	6,824.59	-245.35	200.23	DLS = 10°/100'
7,302.47	6,966.00	-249.37	568.22	End Build @ 7302.47ft
16,906.78	7,116.00	-354.28	10,170.79	TD Well @ 16906.78ft

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin		Start TVD (usft)
				+N/_S (usft)	+E/-W (usft)	
User	No Target (Freehand)	90.63	Slot	0.00	0.00	0.00

Survey tool program

From (usft)	To (usft)	Survey/Plan	Survey Tool
0.00	800.00	Permit Rev-1	APC_ISCWSA REV 2
			MWD
800.00	7,302.47	Permit Rev-1	APC_ISCWSA REV 2
			MWD+IFR1+MSA
7,302.47	16,906.78	Permit Rev-1	APC_ISCWSA REV 2
			MWD+IFR1+MSA

Casing Details

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
801.92	800.00	9 5/8"	9-5/8	13-1/2
7,302.47	6,966.00	7"	7	8-3/4

Plan Report for Viper Pyro 41N-14ZR - Permit Rev-1***Targets associated with this wellbore***

Target Name	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Shape
Viper Pyro 41N-14HZR_SHL	0.00	0.00	0.00	Point
3N-R67W-Sec. 9_Section Lines	-9.00	320.60	507.97	Polygon
3N-R67W-Sec. 10_Section Lines	-9.00	320.60	507.97	Polygon
3N-R67W-Sec. 15_Section Lines	-9.00	320.60	507.97	Polygon
3N-R67W-Sec. 14_Section Lines	-9.00	-579.96	3.35	Polygon
VIPER 41N BHL	7,116.00	-354.28	10,170.79	Point

Directional Difficulty Index

Average Dogleg over Survey:	0.65 °/100usft	Maximum Dogleg over Survey:	10.00 °/100usft at 7,302.47 usft
Net Tortousity applicable to Plans:	0.65 °/100usft	Directional Difficulty Index:	6.657

Audit Info

North Reference Sheet for 3N-67W-15 Viper Pad - Viper Pyro 41N-14ZR - 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 = 7' @ 4801.00usft (Cathedral). Northing and Easting are relative to Viper Pyro 41N-14ZR

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: 0.99960117

Grid Coordinates of Well: 14,610,779.29 usft N, 1,672,431.25 usft E

Geographical Coordinates of Well: 40° 13' 50.68" N, 104° 53' 07.07" W

Grid Convergence at Surface is: 0.07°

Based upon Minimum Curvature type calculations, at a Measured Depth of 16,906.78usft the Bottom Hole Displacement is 10,176.95usft in the Direction of 92.00° (True).

Magnetic Convergence at surface is: -8.30° (7 June 2015, , IGRF2010)

