

# US ROCKIES WATTENBERG PLANNING

WELD-NAD83-UTMFT13N

VIPER PAD

VIPER PYRO STATE 16N2-10HZ

Plan A

Plan: PERMIT REV-2

## Sperry Drilling Services Proposal Report

06 January, 2015

Well Coordinates: 14,610,899.24 N, 1,672,430.53 E (40° 13' 51.87" N, 104° 53' 07.07" W)

Ground Level: 4,794.00 usft

Local Coordinate Origin: Centered on Well VIPER PYRO STATE 16N2-10HZ

Viewing Datum: RKB = 17' @ 4811.00usft (Drilling 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: VIPER PAD  
Well: VIPER PYRO STATE 16N2-10HZ  
Wellbore: Plan A  
Design: PERMIT REV-2

# US ROCKIES WATTENBERG PLANNING

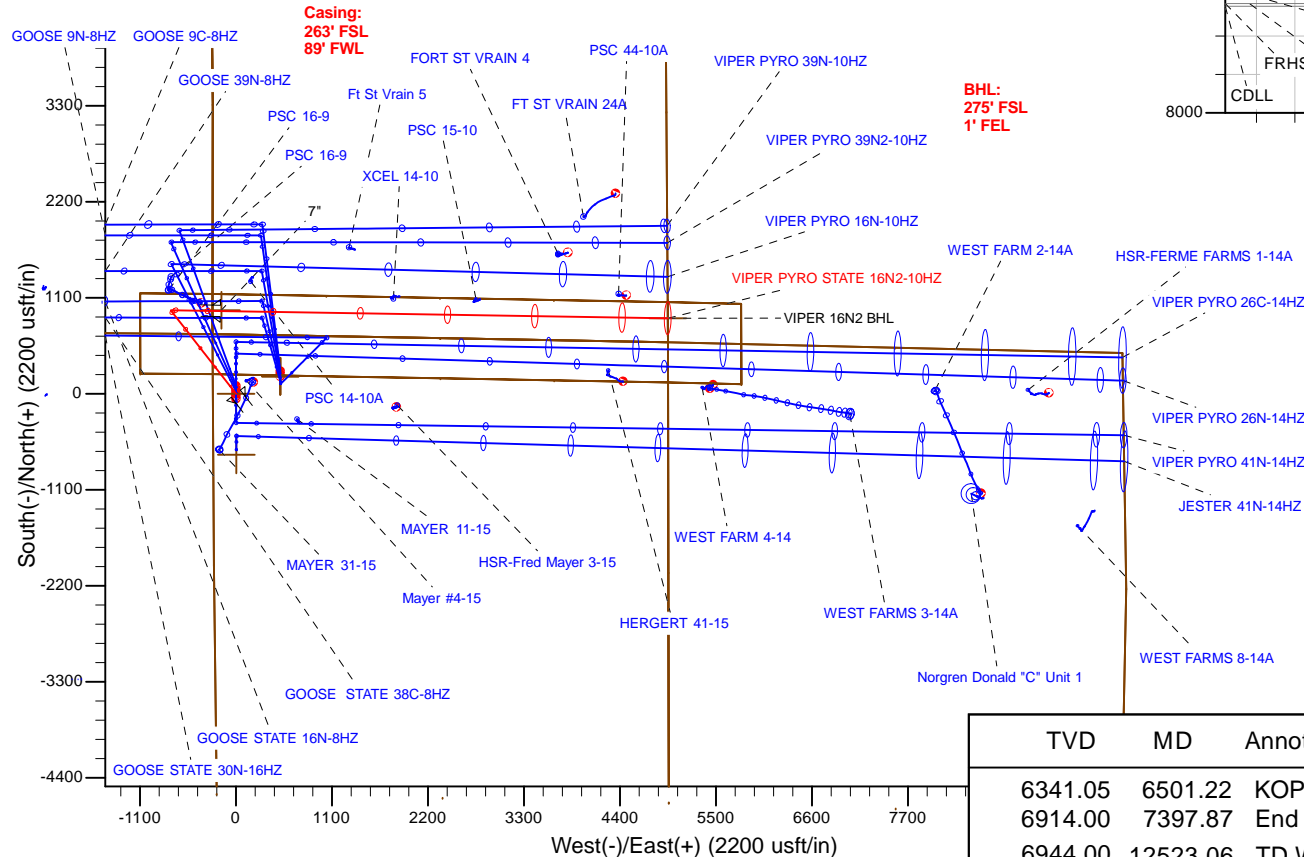
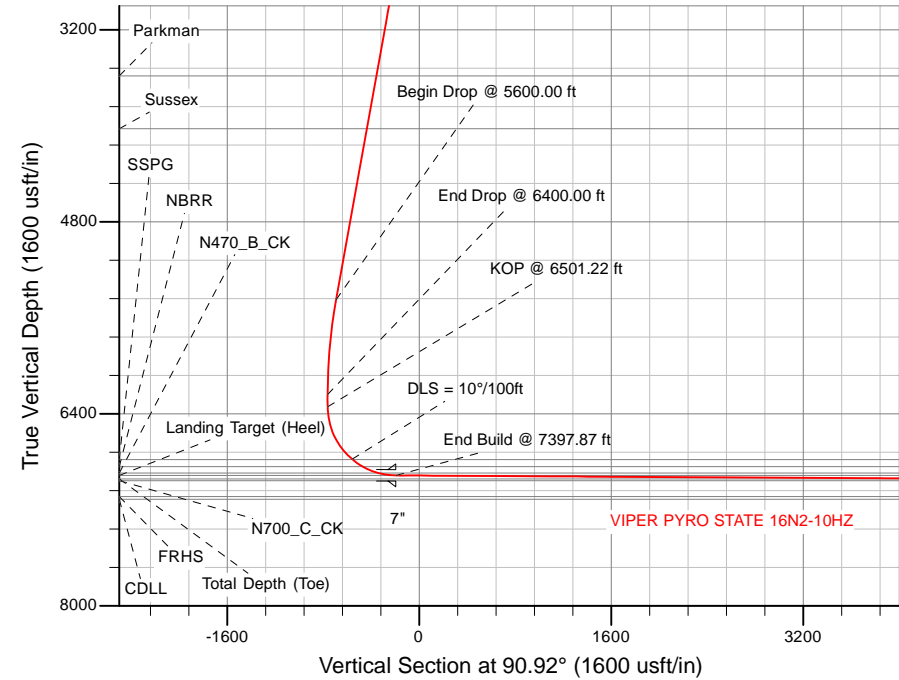
**HALLIBURTON**  
Sperry Drilling

## 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	1200.00	0.00	0.00	1200.00	0.00	0.00	0.00	0.00	0.00	
3	2000.00	16.00	322.00	1989.64	87.45	-68.32	2.00	322.00	-69.72	
4	5600.00	16.00	322.00	5450.18	869.39	-679.24	0.00	0.00	-693.11	
5	6400.00	0.00	0.00	6239.83	956.84	-747.57	2.00	180.00	-762.83	
6	6501.22	0.00	0.00	6341.05	956.84	-747.57	0.00	0.00	-762.83	
7	7397.87	89.66	90.92	6914.00	947.65	-178.04	10.00	90.92	-193.23	
8	12523.06	89.66	90.92	6944.00	865.00	4946.41	0.00	0.00	4931.88	VIPER 16N2 BHL

## WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
VIPER 16N2 SHL	0.00	0.00	0.00	40.231074	-104.885298	Polygon
3N-R67W-Sec. 10 Section Lines	1.00	200.65	508.53	40.231625	-104.883476	Polygon
3N-R67W-Sec. 14 Section Lines	1.00	-699.91	3.91	40.229152	-104.885284	Polygon
3N-R67W-Sec. 15 Section Lines	1.00	200.65	508.53	40.231625	-104.883476	Polygon
3N-R67W-Sec. 9 Section Lines	1.00	200.65	508.53	40.231625	-104.883476	Polygon
VIPER 16N2 BHL	6944.00	865.00	4946.41	40.233448	-104.867575	Point



TVD	MD	Annotation
6341.05	6501.22	KOP @ 6501.22 ft
6914.00	7397.87	End Build @ 7397.87 ft
6944.00	12523.06	TD Well @ 12523.06 ft

WELL DETAILS: VIPER PYRO STATE 16N2-10HZ	
Ground Level:	4794.00
RKB = 17' @ 4811.00usft (Drilling Rig)	
Plan: PERMIT REV-2 (VIPER PYRO STATE 16N2-10HZ/Plan A)	
Created By: Katie Benner	Date: 1/6/2014
Reviewed:	Date:

## Plan Report for VIPER PYRO STATE 16N2-10HZ - 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>Tie On to Surface @ 0.00 ft - VIPER 16N2 SHL</b>										
1.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>3N-R67W-Sec. 9_Section Lines - 3N-R67W-Sec. 15_Section Lines - 3N-R67W-Sec. 14_Section Lines - 3N-R67W-Sec. 10_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
744.00	0.00	0.00	744.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>9 5/8"</b>										
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
<b>Begin Nudge @ 1200.00 ft</b>										
1,300.00	2.00	322.00	1,299.98	1.38	-1.07	-1.10	2.00	2.00	0.00	322.00
1,400.00	4.00	322.00	1,399.84	5.50	-4.30	-4.38	2.00	2.00	0.00	0.00
1,500.00	6.00	322.00	1,499.45	12.37	-9.66	-9.86	2.00	2.00	0.00	0.00
1,600.00	8.00	322.00	1,598.70	21.97	-17.16	-17.52	2.00	2.00	0.00	0.00
1,700.00	10.00	322.00	1,697.47	34.30	-26.80	-27.34	2.00	2.00	0.00	0.00
1,800.00	12.00	322.00	1,795.62	49.33	-38.54	-39.33	2.00	2.00	0.00	0.00
1,900.00	14.00	322.00	1,893.06	67.06	-52.39	-53.46	2.00	2.00	0.00	0.00
2,000.00	16.00	322.00	1,989.64	87.45	-68.32	-69.72	2.00	2.00	0.00	0.00
<b>End Nudge @ 2000.00 ft</b>										
2,100.00	16.00	322.00	2,085.77	109.17	-85.29	-87.04	0.00	0.00	0.00	0.00
2,200.00	16.00	322.00	2,181.90	130.89	-102.26	-104.35	0.00	0.00	0.00	0.00
2,300.00	16.00	322.00	2,278.02	152.61	-119.23	-121.67	0.00	0.00	0.00	0.00
2,400.00	16.00	322.00	2,374.15	174.33	-136.20	-138.99	0.00	0.00	0.00	0.00
2,500.00	16.00	322.00	2,470.27	196.05	-153.17	-156.30	0.00	0.00	0.00	0.00
2,600.00	16.00	322.00	2,566.40	217.77	-170.14	-173.62	0.00	0.00	0.00	0.00
2,700.00	16.00	322.00	2,662.53	239.49	-187.11	-190.94	0.00	0.00	0.00	0.00
2,800.00	16.00	322.00	2,758.65	261.22	-204.08	-208.25	0.00	0.00	0.00	0.00
2,900.00	16.00	322.00	2,854.78	282.94	-221.05	-225.57	0.00	0.00	0.00	0.00
3,000.00	16.00	322.00	2,950.90	304.66	-238.02	-242.88	0.00	0.00	0.00	0.00
3,100.00	16.00	322.00	3,047.03	326.38	-254.99	-260.20	0.00	0.00	0.00	0.00
3,200.00	16.00	322.00	3,143.16	348.10	-271.96	-277.52	0.00	0.00	0.00	0.00
3,300.00	16.00	322.00	3,239.28	369.82	-288.93	-294.83	0.00	0.00	0.00	0.00
3,400.00	16.00	322.00	3,335.41	391.54	-305.90	-312.15	0.00	0.00	0.00	0.00
3,500.00	16.00	322.00	3,431.54	413.26	-322.87	-329.47	0.00	0.00	0.00	0.00
3,600.00	16.00	322.00	3,527.66	434.98	-339.84	-346.78	0.00	0.00	0.00	0.00
3,659.65	16.00	322.00	3,585.00	447.94	-349.97	-357.11	0.00	0.00	0.00	0.00
<b>Parkman</b>										
3,700.00	16.00	322.00	3,623.79	456.70	-356.81	-364.10	0.00	0.00	0.00	0.00
3,800.00	16.00	322.00	3,719.91	478.42	-373.78	-381.42	0.00	0.00	0.00	0.00
3,900.00	16.00	322.00	3,816.04	500.14	-390.75	-398.73	0.00	0.00	0.00	0.00
4,000.00	16.00	322.00	3,912.17	521.86	-407.72	-416.05	0.00	0.00	0.00	0.00
4,100.00	16.00	322.00	4,008.29	543.58	-424.69	-433.37	0.00	0.00	0.00	0.00
4,116.34	16.00	322.00	4,024.00	547.13	-427.47	-436.20	0.00	0.00	0.00	0.00
<b>Sussex</b>										
4,200.00	16.00	322.00	4,104.42	565.30	-441.66	-450.68	0.00	0.00	0.00	0.00
4,300.00	16.00	322.00	4,200.54	587.02	-458.63	-468.00	0.00	0.00	0.00	0.00
4,400.00	16.00	322.00	4,296.67	608.74	-475.60	-485.32	0.00	0.00	0.00	0.00
4,500.00	16.00	322.00	4,392.80	630.46	-492.57	-502.63	0.00	0.00	0.00	0.00

## Plan Report for VIPER PYRO STATE 16N2-10HZ - 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 (°)
4,600.00	16.00	322.00	4,488.92	652.18	-509.54	-519.95	0.00	0.00	0.00	0.00
4,700.00	16.00	322.00	4,585.05	673.91	-526.51	-537.26	0.00	0.00	0.00	0.00
4,800.00	16.00	322.00	4,681.18	695.63	-543.48	-554.58	0.00	0.00	0.00	0.00
4,900.00	16.00	322.00	4,777.30	717.35	-560.45	-571.90	0.00	0.00	0.00	0.00
5,000.00	16.00	322.00	4,873.43	739.07	-577.42	-589.21	0.00	0.00	0.00	0.00
5,100.00	16.00	322.00	4,969.55	760.79	-594.39	-606.53	0.00	0.00	0.00	0.00
5,200.00	16.00	322.00	5,065.68	782.51	-611.36	-623.85	0.00	0.00	0.00	0.00
5,300.00	16.00	322.00	5,161.81	804.23	-628.33	-641.16	0.00	0.00	0.00	0.00
5,400.00	16.00	322.00	5,257.93	825.95	-645.30	-658.48	0.00	0.00	0.00	0.00
5,500.00	16.00	322.00	5,354.06	847.67	-662.27	-675.80	0.00	0.00	0.00	0.00
5,600.00	16.00	322.00	5,450.18	869.39	-679.24	-693.11	0.00	0.00	0.00	0.00
<b>Begin Drop @ 5600.00 ft</b>										
5,700.00	14.00	322.00	5,546.77	889.78	-695.18	-709.37	2.00	-2.00	0.00	180.00
5,800.00	12.00	322.00	5,644.20	907.51	-709.02	-723.50	2.00	-2.00	0.00	180.00
5,900.00	10.00	322.00	5,742.36	922.54	-720.77	-735.49	2.00	-2.00	0.00	180.00
6,000.00	8.00	322.00	5,841.13	934.87	-730.40	-745.32	2.00	-2.00	0.00	180.00
6,100.00	6.00	322.00	5,940.38	944.47	-737.90	-752.97	2.00	-2.00	0.00	180.00
6,200.00	4.00	322.00	6,039.99	951.34	-743.27	-758.45	2.00	-2.00	0.00	180.00
6,300.00	2.00	322.00	6,139.85	955.47	-746.49	-761.74	2.00	-2.00	0.00	180.00
6,400.00	0.00	0.00	6,239.83	956.84	-747.57	-762.83	2.00	-2.00	0.00	180.00
<b>End Drop @ 6400.00 ft</b>										
6,500.00	0.00	0.00	6,339.83	956.84	-747.57	-762.83	0.00	0.00	0.00	0.00
6,501.22	0.00	0.00	6,341.05	956.84	-747.57	-762.83	0.00	0.00	0.00	0.00
<b>KOP @ 6501.22 ft</b>										
6,600.00	9.88	90.92	6,439.34	956.70	-739.07	-754.34	10.00	10.00	0.00	90.92
6,700.00	19.88	90.92	6,535.86	956.29	-713.43	-728.70	10.00	10.00	0.00	0.00
6,800.00	29.88	90.92	6,626.47	955.61	-671.42	-686.68	10.00	10.00	0.00	0.00
6,900.00	39.88	90.92	6,708.40	954.69	-614.32	-629.57	10.00	10.00	0.00	0.00
7,000.00	49.88	90.92	6,779.17	953.56	-543.86	-559.10	10.00	10.00	0.00	0.00
<b>DLS = 10°/100ft</b>										
7,004.41	50.32	90.92	6,782.00	953.50	-540.48	-555.72	10.00	10.00	0.00	0.00
<b>SSPG</b>										
7,100.00	59.88	90.92	6,836.63	952.24	-462.18	-477.41	10.00	10.00	0.00	0.00
7,108.82	60.76	90.92	6,841.00	952.11	-454.52	-469.75	10.00	10.00	0.00	0.00
<b>NBRR</b>										
7,200.00	69.88	90.92	6,879.03	950.78	-371.77	-386.98	10.00	10.00	0.00	0.00
7,249.37	74.81	90.92	6,894.00	950.02	-324.75	-339.96	10.00	10.00	0.00	0.00
<b>N470_B_CK</b>										
7,300.00	79.88	90.92	6,905.09	949.22	-275.36	-290.57	10.00	10.00	0.00	0.00
7,397.87	89.66	90.92	6,914.00	947.65	-178.03	-193.23	10.00	10.00	0.00	0.00
<b>End Build @ 7397.87 ft - Landing Target (Heel) - 7"</b>										
7,400.00	89.66	90.92	6,914.01	947.62	-175.90	-191.10	0.00	0.00	0.00	0.00
7,406.89	89.66	90.92	6,914.05	947.51	-169.02	-184.21	0.00	0.00	0.00	0.00
<b>VIPER 16N2 PH</b>										
7,500.00	89.66	90.92	6,914.59	946.01	-75.92	-91.10	0.00	0.00	0.00	0.00
7,600.00	89.66	90.92	6,915.18	944.39	24.07	8.90	0.00	0.00	0.00	0.00
7,700.00	89.66	90.92	6,915.76	942.78	124.05	108.90	0.00	0.00	0.00	0.00
7,800.00	89.66	90.92	6,916.35	941.17	224.04	208.90	0.00	0.00	0.00	0.00
7,900.00	89.66	90.92	6,916.94	939.56	324.02	308.90	0.00	0.00	0.00	0.00
8,000.00	89.66	90.92	6,917.52	937.94	424.01	408.89	0.00	0.00	0.00	0.00
8,100.00	89.66	90.92	6,918.11	936.33	523.99	508.89	0.00	0.00	0.00	0.00
8,200.00	89.66	90.92	6,918.69	934.72	623.98	608.89	0.00	0.00	0.00	0.00
8,300.00	89.66	90.92	6,919.28	933.11	723.96	708.89	0.00	0.00	0.00	0.00
8,400.00	89.66	90.92	6,919.86	931.49	823.95	808.89	0.00	0.00	0.00	0.00
8,500.00	89.66	90.92	6,920.45	929.88	923.94	908.89	0.00	0.00	0.00	0.00
8,600.00	89.66	90.92	6,921.03	928.27	1,023.92	1,008.88	0.00	0.00	0.00	0.00
8,700.00	89.66	90.92	6,921.62	926.65	1,123.91	1,108.88	0.00	0.00	0.00	0.00
8,800.00	89.66	90.92	6,922.20	925.04	1,223.89	1,208.88	0.00	0.00	0.00	0.00
8,900.00	89.66	90.92	6,922.79	923.43	1,323.88	1,308.88	0.00	0.00	0.00	0.00

## Plan Report for VIPER PYRO STATE 16N2-10HZ - 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 (°)
9,000.00	89.66	90.92	6,923.38	921.82	1,423.86	1,408.88	0.00	0.00	0.00	0.00
9,100.00	89.66	90.92	6,923.96	920.20	1,523.85	1,508.88	0.00	0.00	0.00	0.00
9,200.00	89.66	90.92	6,924.55	918.59	1,623.83	1,608.87	0.00	0.00	0.00	0.00
9,300.00	89.66	90.92	6,925.13	916.98	1,723.82	1,708.87	0.00	0.00	0.00	0.00
9,400.00	89.66	90.92	6,925.72	915.37	1,823.80	1,808.87	0.00	0.00	0.00	0.00
9,500.00	89.66	90.92	6,926.30	913.75	1,923.79	1,908.87	0.00	0.00	0.00	0.00
9,600.00	89.66	90.92	6,926.89	912.14	2,023.77	2,008.87	0.00	0.00	0.00	0.00
9,700.00	89.66	90.92	6,927.47	910.53	2,123.76	2,108.87	0.00	0.00	0.00	0.00
9,800.00	89.66	90.92	6,928.06	908.91	2,223.74	2,208.86	0.00	0.00	0.00	0.00
9,900.00	89.66	90.92	6,928.64	907.30	2,323.73	2,308.86	0.00	0.00	0.00	0.00
10,000.00	89.66	90.92	6,929.23	905.69	2,423.71	2,408.86	0.00	0.00	0.00	0.00
10,100.00	89.66	90.92	6,929.81	904.08	2,523.70	2,508.86	0.00	0.00	0.00	0.00
10,200.00	89.66	90.92	6,930.40	902.46	2,623.69	2,608.86	0.00	0.00	0.00	0.00
10,300.00	89.66	90.92	6,930.99	900.85	2,723.67	2,708.85	0.00	0.00	0.00	0.00
10,400.00	89.66	90.92	6,931.57	899.24	2,823.66	2,808.85	0.00	0.00	0.00	0.00
10,500.00	89.66	90.92	6,932.16	897.63	2,923.64	2,908.85	0.00	0.00	0.00	0.00
10,600.00	89.66	90.92	6,932.74	896.01	3,023.63	3,008.85	0.00	0.00	0.00	0.00
10,700.00	89.66	90.92	6,933.33	894.40	3,123.61	3,108.85	0.00	0.00	0.00	0.00
10,800.00	89.66	90.92	6,933.91	892.79	3,223.60	3,208.85	0.00	0.00	0.00	0.00
10,900.00	89.66	90.92	6,934.50	891.17	3,323.58	3,308.84	0.00	0.00	0.00	0.00
11,000.00	89.66	90.92	6,935.08	889.56	3,423.57	3,408.84	0.00	0.00	0.00	0.00
11,100.00	89.66	90.92	6,935.67	887.95	3,523.55	3,508.84	0.00	0.00	0.00	0.00
11,200.00	89.66	90.92	6,936.25	886.34	3,623.54	3,608.84	0.00	0.00	0.00	0.00
11,300.00	89.66	90.92	6,936.84	884.72	3,723.52	3,708.84	0.00	0.00	0.00	0.00
11,400.00	89.66	90.92	6,937.43	883.11	3,823.51	3,808.84	0.00	0.00	0.00	0.00
11,500.00	89.66	90.92	6,938.01	881.50	3,923.49	3,908.83	0.00	0.00	0.00	0.00
11,600.00	89.66	90.92	6,938.60	879.89	4,023.48	4,008.83	0.00	0.00	0.00	0.00
11,700.00	89.66	90.92	6,939.18	878.27	4,123.46	4,108.83	0.00	0.00	0.00	0.00
11,800.00	89.66	90.92	6,939.77	876.66	4,223.45	4,208.83	0.00	0.00	0.00	0.00
11,900.00	89.66	90.92	6,940.35	875.05	4,323.43	4,308.83	0.00	0.00	0.00	0.00
12,000.00	89.66	90.92	6,940.94	873.43	4,423.42	4,408.83	0.00	0.00	0.00	0.00
12,100.00	89.66	90.92	6,941.52	871.82	4,523.41	4,508.82	0.00	0.00	0.00	0.00
12,200.00	89.66	90.92	6,942.11	870.21	4,623.39	4,608.82	0.00	0.00	0.00	0.00
12,300.00	89.66	90.92	6,942.69	868.60	4,723.38	4,708.82	0.00	0.00	0.00	0.00
12,400.00	89.66	90.92	6,943.28	866.98	4,823.36	4,808.82	0.00	0.00	0.00	0.00
12,500.00	89.66	90.92	6,943.86	865.37	4,923.35	4,908.82	0.00	0.00	0.00	0.00
12,523.06	89.66	90.92	6,944.00	865.00	4,946.40	4,931.88	0.00	0.00	0.00	0.00

TD Well @ 12523.06 ft - Total Depth (Toe) - VIPER 16N2 BHL

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
0.00	0.00	0.00	0.00	Tie On to Surface @ 0.00 ft
1,200.00	1,200.00	0.00	0.00	Begin Nudge @ 1200.00 ft
2,000.00	1,989.64	87.45	-68.32	End Nudge @ 2000.00 ft
5,600.00	5,450.18	869.39	-679.24	Begin Drop @ 5600.00 ft
6,400.00	6,239.83	956.84	-747.57	End Drop @ 6400.00 ft
6,501.22	6,341.05	956.84	-747.57	KOP @ 6501.22 ft
7,000.00	6,779.17	953.56	-543.86	DLS = 10°/100ft
7,397.87	6,914.00	947.65	-178.03	End Build @ 7397.87 ft
12,523.06	6,944.00	865.00	4,946.40	TD Well @ 12523.06 ft

## Plan Report for VIPER PYRO STATE 16N2-10HZ - PERMIT REV-2

**Vertical Section Information**

Angle Type	Target	Azimuth (°)	Origin Type	Origin +N/-S (usft)	Origin +E/-W (usft)	Start TVD (usft)
User	No Target (Freehand)	90.92	Slot	0.00	0.00	0.00

**Survey tool program**

From (usft)	To (usft)	Survey/Plan	Survey Tool
0.00	7,397.87	PERMIT REV-2	MWD+IFR1
7,397.87	12,523.06	PERMIT REV-2	MWD+IFR1

**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
7,397.87	6,914.00	7"	7	8-3/4

**Formation Details**

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,659.65	3,585.00	Parkman		0.00	
4,116.34	4,024.00	Sussex		0.00	
7,004.41	6,782.00	SSPG		0.00	
7,108.82	6,841.00	NBRR		0.00	
7,249.37	6,894.00	N470_B_CK		0.00	
7,397.87	6,914.00	Landing Target (Heel)		0.00	
12,523.06	6,944.00	Total Depth (Toe)		0.00	

**Targets associated with this wellbore**

Target Name	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Shape
3N-R67W-Sec. 9_Section Lines	1.00	200.65	508.53	Polygon
VIPER 16N2 BHL	6,944.00	865.00	4,946.41	Point
3N-R67W-Sec. 15_Section Lines	1.00	200.65	508.53	Polygon
3N-R67W-Sec. 14_Section Lines	1.00	-699.91	3.91	Polygon
VIPER 16N2 SHL	0.00	0.00	0.00	Polygon
VIPER 16N2 PH	6,914.00	957.73	-168.85	Point
3N-R67W-Sec. 10_Section Lines	1.00	200.65	508.53	Polygon

**North Reference Sheet for VIPER PAD - VIPER PYRO STATE 16N2-10HZ - 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 (Drilling Rig). Northing and Easting are relative to VIPER PYRO STATE 16N2-10HZ

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: 14,610,899.24 usft N, 1,672,430.53 usft E

Geographical Coordinates of Well: 40° 13' 51.87" N, 104° 53' 07.07" W

Grid Convergence at Surface is: 0.07°

Based upon Minimum Curvature type calculations, at a Measured Depth of 12,523.06usft the Bottom Hole Displacement is 5,021.47usft in the Direction of 80.08° ( True).

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

