

Well Name: HOGNOSE VIPER 23 FED 1H

Sub-Division DELAWARE BASIN		Region DELAWARE BASIN EAST		Field Name JOHNSON RANCH		County LEA		State/Province NM					
Surface Legal Location Sec 23 23S 33E		API/UWI 3002541975		Latitude (°) 32° 17' 0.051" N		Longitude (°) 103° 32' 54.384" W		Orig KB Elevation (ft) 3,707.20		Ground Elev MSL (ft) 3,682.20		KB - GL (ft) 25.00	
Wellbores													
Wellbore Name OH		Parent Wellbore OH				SAP Well ID 38011				Vertical Section Direction (°) 357.28			
Kick Offs & Key Depths													
Date 3/1/2015				Type Kick Off				Top Depth (ftKB) 10,674.0					
Actual Deviation Survey EXTREME , Proposed? No				Definitive? Yes		Proposed? No		Proposed Deviation Survey					
Deviation Survey													
Date 2/16/2015		Description EXTREME											
MD Tie In (ftKB) 0.00		TVD Tie In (ftKB) 0.00		Inclination Tie In (°) 0.00		Azimuth Tie In (°) 0.00		NSTie In (ft) 0.00		EWTie In (ft) 0.00			
Survey Data													
Date	MD (ftKB)	Incl (°)	Azm (°)	TVD (ftKB)	VS (ft)	N/S (ft)	E/W (ft)	DLS (°/100ft)	Survey Tool	Survey Company			
2/17/2015	107.00	1.01	145.23	106.99	-0.80	-0.77	-0.54	-0.94	MWD	EXTREME			
2/17/2015	223.00	1.41	124.36	222.97	-2.53	-2.42	-2.30	-0.51	MWD	EXTREME			
2/17/2015	254.00	1.58	117.46	253.96	-2.97	-2.83	-2.99	-0.80	MWD	EXTREME			
2/17/2015	314.00	1.71	129.24	313.93	-3.99	-3.78	-4.42	-0.60	MWD	EXTREME			
2/17/2015	502.00	1.49	127.35	501.86	-7.43	-7.04	-8.54	-0.12	MWD	EXTREME			
2/17/2015	594.00	1.58	140.44	593.83	-9.22	-8.74	-10.29	-0.39	MWD	EXTREME			
2/17/2015	682.00	1.32	149.63	681.80	-11.09	-10.55	-11.58	-0.40	MWD	EXTREME			
2/17/2015	775.00	0.88	153.23	774.78	-12.69	-12.11	-12.44	-0.48	MWD	EXTREME			
2/17/2015	835.00	1.01	172.04	834.77	-13.64	-13.05	-12.72	-0.56	MWD	EXTREME			
2/17/2015	898.00	1.01	181.44	897.76	-14.74	-14.15	-12.79	-0.26	MWD	EXTREME			
2/17/2015	1,030.00	0.70	187.86	1,029.75	-16.70	-16.11	-12.65	-0.25	MWD	EXTREME			
2/17/2015	1,092.00	0.70	166.94	1,091.75	-17.44	-16.86	-12.68	-0.41	MWD	EXTREME			
2/17/2015	1,151.00	0.41	189.84	1,150.74	-18.00	-17.42	-12.73	-0.61	MWD	EXTREME			
2/17/2015	1,212.00	0.62	186.15	1,211.74	-18.54	-17.96	-12.65	-0.35	MWD	EXTREME			
2/17/2015	1,340.00	0.31	215.37	1,339.74	-19.50	-18.93	-12.38	-0.30	MWD	EXTREME			
3/2/2015	1,461.00	0.59	263.45	1,460.73	-19.80	-19.27	-11.57	-0.37	MWD	EXTREME			
2/22/2015	1,581.00	0.79	324.05	1,580.72	-19.15	-18.67	-10.47	-0.60	MWD	EXTREME			
2/22/2015	1,770.00	1.32	340.28	1,769.69	-15.97	-15.57	-8.97	-0.32	MWD	EXTREME			
3/2/2015	1,866.00	1.25	348.76	1,865.67	-13.88	-13.50	-8.39	-0.21	MWD	EXTREME			
3/2/2015	1,962.00	1.38	339.98	1,961.64	-11.74	-11.39	-7.79	-0.25	MWD	EXTREME			
3/2/2015	2,060.00	1.42	336.31	2,059.61	-9.48	-9.16	-6.90	-0.10	MWD	EXTREME			
2/22/2015	2,144.00	1.49	335.87	2,143.59	-7.49	-7.21	-6.04	-0.08	MWD	EXTREME			
2/22/2015	2,332.00	1.49	317.85	2,331.52	-3.33	-3.17	-3.40	-0.25	MWD	EXTREME			
2/22/2015	2,426.00	1.41	323.74	2,425.49	-1.42	-1.33	-1.89	-0.18	MWD	EXTREME			
2/22/2015	2,520.00	1.71	14.14	2,519.46	-0.88	-0.96	-1.55	-1.44	MWD	EXTREME			
2/22/2015	2,618.00	1.71	318.64	2,617.43	-3.43	-3.47	-0.94	-1.62	MWD	EXTREME			
2/22/2015	2,717.00	1.58	324.66	2,716.39	-5.73	-5.70	-0.82	-0.22	MWD	EXTREME			
2/23/2015	2,903.00	1.80	333.67	2,902.30	-10.57	-10.41	-3.60	-0.19	MWD	EXTREME			
2/23/2015	3,089.00	1.89	342.74	3,088.21	-16.21	-15.95	-5.81	-0.16	MWD	EXTREME			
2/23/2015	3,184.00	2.02	351.64	3,183.15	-19.39	-19.11	-6.51	-0.35	MWD	EXTREME			
2/23/2015	3,277.00	2.11	3.47	3,276.09	-22.73	-22.44	-6.65	-0.47	MWD	EXTREME			
2/23/2015	3,374.00	2.20	3.11	3,373.03	-26.35	-26.08	-6.44	-0.09	MWD	EXTREME			
2/23/2015	3,467.00	2.29	11.55	3,465.95	-29.93	-29.68	-5.97	-0.37	MWD	EXTREME			
2/23/2015	3,561.00	2.11	10.54	3,559.88	-33.44	-33.22	-5.28	-0.20	MWD	EXTREME			
2/23/2015	3,656.00	1.89	18.45	3,654.83	-36.60	-36.43	-4.46	-0.37	MWD	EXTREME			
2/23/2015	3,750.00	2.02	11.85	3,748.77	-39.65	-39.52	-3.63	-0.28	MWD	EXTREME			
2/24/2015	3,847.00	2.11	12.74	3,845.71	-43.02	-42.93	-2.89	-0.10	MWD	EXTREME			
2/24/2015	3,941.00	1.58	14.63	3,939.66	-45.93	-45.88	-2.18	-0.57	MWD	EXTREME			
2/24/2015	4,036.00	1.32	11.64	4,034.63	-48.24	-48.22	-1.63	-0.28	MWD	EXTREME			
2/24/2015	4,131.00	1.01	28.65	4,129.61	-50.01	-50.02	-1.00	-0.49	MWD	EXTREME			
2/24/2015	4,225.00	1.10	29.57	4,223.59	-51.48	-51.53	-0.16	-0.10	MWD	EXTREME			
2/24/2015	4,319.00	1.41	27.06	4,317.57	-53.25	-53.35	-0.81	-0.33	MWD	EXTREME			
2/24/2015	4,413.00	2.02	74.97	4,411.53	-54.61	-54.81	-2.94	-1.60	MWD	EXTREME			
2/24/2015	4,510.00	3.91	90.83	4,508.40	-54.77	-55.20	-7.89	-2.11	MWD	EXTREME			
2/24/2015	4,612.00	4.22	95.66	4,610.14	-54.00	-54.78	-15.11	-0.45	MWD	EXTREME			
2/24/2015	4,697.00	3.91	93.95	4,694.93	-53.21	-54.27	-21.11	-0.39	MWD	EXTREME			
2/24/2015	4,790.00	5.01	98.56	4,787.65	-52.05	-53.45	-28.29	-1.24	MWD	EXTREME			
2/24/2015	4,884.00	5.80	98.74	4,881.23	-50.30	-52.12	-37.04	-0.84	MWD	EXTREME			
2/24/2015	4,978.00	6.68	100.06	4,974.67	-48.15	-50.44	-47.12	-0.95	MWD	EXTREME			
2/24/2015	5,090.00	6.11	101.56	5,085.97	-45.24	-48.11	-59.37	-0.53	MWD	EXTREME			
3/2/2015	5,227.00	5.03	97.75	5,222.33	-42.35	-45.84	-72.47	-0.83	MWD	EXTREME			
2/27/2015	5,364.00	3.91	100.85	5,358.91	-40.16	-44.15	-83.01	-0.84	MWD	EXTREME			
2/24/2015	5,557.00	3.78	98.74	5,551.47	-37.35	-41.94	-95.76	-0.10	MWD	EXTREME			
2/24/2015	5,745.00	3.69	98.87	5,739.07	-34.91	-40.07	-107.86	-0.05	MWD	EXTREME			
2/24/2015	5,934.00	3.69	100.15	5,927.68	-32.33	-38.06	-119.86	-0.04	MWD	EXTREME			
2/24/2015	6,029.00	3.69	99.75	6,022.48	-30.99	-37.00	-125.88	-0.03	MWD	EXTREME			
2/24/2015	6,124.00	3.52	98.65	6,117.30	-29.75	-36.05	-131.77	-0.19	MWD	EXTREME			
2/24/2015	6,218.00	3.21	98.17	6,211.13	-28.69	-35.24	-137.23	-0.33	MWD	EXTREME			
2/24/2015	6,312.00	2.81	99.14	6,305.00	-27.72	-34.50	-142.11	-0.43	MWD	EXTREME			
2/24/2015	6,407.00	2.81	99.27	6,399.89	-26.75	-33.75	-146.71	-0.01	MWD	EXTREME			
2/24/2015	6,497.00	2.59	98.34	6,489.79	-25.91	-33.10	-150.90	-0.25	MWD	EXTREME			
2/24/2015	6,595.00	2.59	98.96	6,587.69	-25.03	-32.44	-155.28	-0.03	MWD	EXTREME			
2/24/2015	6,690.00	2.59	98.43	6,682.59	-24.18	-31.79	-159.52	-0.03	MWD	EXTREME			
2/24/2015	6,784.00	2.42	95.75	6,776.50	-23.48	-31.28	-163.60	-0.22	MWD	EXTREME			
2/27/2015	6,878.00	2.20	91.27	6,870.43	-23.06	-31.04	-167.37	-0.30	MWD	EXTREME			
2/27/2015	6,973.00	2.02	95.05	6,965.36	-22.71	-30.85	-170.86	-0.24	MWD	EXTREME			

SEP 25 2015



Directional Survey

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2/27/2015	7,067.00	1.89	97.07	7,059.31	22.22	30.52	174.05	0.16	MWD	EXTREME			
2/27/2015	7,162.00	1.89	101.86	7,154.26	21.56	30.00	177.14	0.17	MWD	EXTREME			
2/27/2015	7,256.00	1.80	104.45	7,248.21	20.74	29.31	180.09	0.13	MWD	EXTREME			
2/27/2015	7,346.00	1.71	105.64	7,338.17	19.90	28.60	182.75	0.11	MWD	EXTREME			
2/27/2015	7,441.00	1.71	114.87	7,433.12	18.79	27.62	185.40	0.29	MWD	EXTREME			
2/27/2015	7,632.00	1.58	121.55	7,624.04	15.99	25.05	190.23	0.12	MWD	EXTREME			
2/27/2015	7,726.00	1.58	126.56	7,718.01	14.44	23.60	192.37	0.15	MWD	EXTREME			
2/27/2015	7,819.00	1.49	133.94	7,810.98	12.75	21.99	194.28	0.23	MWD	EXTREME			
2/27/2015	8,008.00	1.58	143.96	7,999.91	8.78	18.18	197.58	0.15	MWD	EXTREME			
2/27/2015	8,102.00	1.71	156.35	8,093.87	6.39	15.85	198.90	0.40	MWD	EXTREME			
2/27/2015	8,196.00	1.80	159.25	8,187.83	3.68	13.18	199.99	0.13	MWD	EXTREME			
2/27/2015	8,291.00	1.49	168.74	8,282.79	1.04	10.58	200.76	0.43	MWD	EXTREME			
2/27/2015	8,385.00	1.41	177.05	8,376.76	-1.33	8.22	201.06	0.24	MWD	EXTREME			
2/28/2015	8,480.00	1.41	178.37	8,471.73	-3.67	5.89	201.15	0.03	MWD	EXTREME			
3/2/2015	8,590.00	1.38	184.92	8,581.69	-6.33	3.21	201.07	0.15	MWD	EXTREME			
2/28/2015	8,690.00	1.32	188.04	8,681.67	-8.66	0.87	200.81	0.09	MWD	EXTREME			
2/28/2015	8,860.00	1.19	203.24	8,851.63	-12.17	-2.69	199.84	0.21	MWD	EXTREME			
2/28/2015	8,955.00	1.19	211.06	8,946.61	-13.87	-4.44	198.94	0.17	MWD	EXTREME			
2/28/2015	9,050.00	1.19	216.84	9,041.59	-15.45	-6.07	197.84	0.13	MWD	EXTREME			
2/28/2015	9,144.00	1.01	219.89	9,135.57	-16.82	-7.49	196.72	0.20	MWD	EXTREME			
2/28/2015	9,236.00	1.10	229.56	9,227.55	-17.95	-8.68	195.53	0.22	MWD	EXTREME			
2/28/2015	9,330.00	1.32	225.83	9,321.53	-19.22	-10.02	194.07	0.25	MWD	EXTREME			
2/28/2015	9,424.00	1.41	245.74	9,415.51	-20.36	-11.25	192.24	0.51	MWD	EXTREME			
2/28/2015	9,519.00	1.89	241.74	9,510.47	-21.47	-12.48	189.79	0.52	MWD	EXTREME			
2/28/2015	9,612.00	2.20	241.98	9,603.41	-22.89	-14.04	186.87	0.33	MWD	EXTREME			
2/28/2015	9,708.00	2.20	241.96	9,699.34	-24.47	-15.77	183.61	0.00	MWD	EXTREME			
2/28/2015	9,804.00	2.20	246.84	9,795.27	-25.90	-17.36	180.29	0.20	MWD	EXTREME			
2/28/2015	9,901.00	2.29	251.76	9,892.19	-27.07	-18.70	176.74	0.22	MWD	EXTREME			
2/28/2015	9,995.00	2.29	259.67	9,986.12	-27.82	-19.63	173.11	0.34	MWD	EXTREME			
2/28/2015	10,090.00	2.29	270.74	10,081.04	-27.96	-19.94	169.34	0.46	MWD	EXTREME			
2/28/2015	10,184.00	2.25	277.86	10,174.97	-27.50	-19.67	165.64	0.30	MWD	EXTREME			
2/28/2015	10,279.00	2.68	281.46	10,269.88	-26.62	-18.97	161.61	0.48	MWD	EXTREME			
2/28/2015	10,373.00	2.29	279.44	10,363.79	-25.68	-18.23	157.61	0.43	MWD	EXTREME			
2/28/2015	10,468.00	1.80	282.74	10,458.73	-24.89	-17.58	154.28	0.53	MWD	EXTREME			
2/28/2015	10,562.00	1.49	276.94	10,552.69	-24.29	-17.11	151.63	0.37	MWD	EXTREME			
3/2/2015	10,611.00	1.64	273.48	10,601.67	-24.11	-16.99	150.30	0.36	MWD	WEATHERFORD DIRECTIO...			
3/2/2015	10,684.00	1.95	316.40	10,674.64	-23.05	-16.03	148.40	1.84	MWD	WEATHERFORD DIRECTIO...			
3/2/2015	10,715.00	5.53	333.82	10,705.57	-21.28	-14.31	147.37	11.99	MWD	WEATHERFORD DIRECTIO...			
3/2/2015	10,747.00	9.16	339.84	10,737.30	-17.44	-10.53	145.81	11.58	MWD	WEATHERFORD DIRECTIO...			
3/2/2015	10,778.00	12.88	340.25	10,767.73	-11.78	-4.96	143.80	12.00	MWD	WEATHERFORD DIRECTIO...			
3/2/2015	10,810.00	16.85	340.11	10,798.65	-3.93	2.76	141.01	12.41	MWD	WEATHERFORD DIRECTIO...			
3/3/2015	10,841.00	21.10	339.81	10,827.96	5.69	12.23	137.56	13.71	MWD	WEATHERFORD DIRECTIO...			
3/3/2015	10,873.00	25.09	340.86	10,857.39	17.69	24.05	133.34	12.53	MWD	WEATHERFORD DIRECTIO...			
3/3/2015	10,904.00	29.19	340.09	10,884.97	31.23	37.37	128.61	13.27	MWD	WEATHERFORD DIRECTIO...			
3/3/2015	10,936.00	32.50	338.03	10,912.44	46.80	52.68	122.73	10.86	MWD	WEATHERFORD DIRECTIO...			
3/3/2015	10,967.00	36.72	336.82	10,937.95	63.35	68.93	115.97	13.79	MWD	WEATHERFORD DIRECTIO...			
3/3/2015	10,999.00	40.92	336.57	10,962.87	82.13	87.35	108.03	13.13	MWD	WEATHERFORD DIRECTIO...			
3/3/2015	11,030.00	44.53	338.19	10,985.64	101.90	106.77	99.95	12.17	MWD	WEATHERFORD DIRECTIO...			
3/3/2015	11,062.00	46.58	340.19	11,008.05	123.62	128.12	91.84	7.81	MWD	WEATHERFORD DIRECTIO...			
3/3/2015	11,093.00	49.64	341.54	11,028.75	145.75	149.92	84.29	10.39	MWD	WEATHERFORD DIRECTIO...			
3/3/2015	11,125.00	51.31	343.73	11,049.11	169.63	173.48	76.93	7.42	MWD	WEATHERFORD DIRECTIO...			
3/3/2015	11,156.00	54.20	344.71	11,067.87	193.67	197.22	70.22	9.66	MWD	WEATHERFORD DIRECTIO...			
3/3/2015	11,188.00	57.36	344.31	11,085.87	219.47	222.72	63.15	9.93	MWD	WEATHERFORD DIRECTIO...			
3/3/2015	11,219.00	61.01	344.35	11,101.75	245.41	248.35	55.96	11.77	MWD	WEATHERFORD DIRECTIO...			
3/3/2015	11,251.00	65.25	344.50	11,116.20	273.24	275.84	48.30	13.26	MWD	WEATHERFORD DIRECTIO...			
3/3/2015	11,283.00	69.57	344.05	11,128.49	302.02	304.27	40.29	13.56	MWD	WEATHERFORD DIRECTIO...			
3/3/2015	11,313.00	74.20	344.62	11,137.82	329.80	331.72	32.60	15.54	MWD	WEATHERFORD DIRECTIO...			
3/2/2015	11,345.00	78.89	346.43	11,145.26	360.26	361.84	24.83	15.65	MWD	WEATHERFORD DIRECTIO...			
3/4/2015	11,376.00	82.92	348.49	11,150.16	390.41	391.72	18.19	14.56	MWD	WEATHERFORD DIRECTIO...			
3/4/2015	11,407.00	85.09	350.69	11,153.40	420.96	422.04	12.62	9.94	MWD	WEATHERFORD DIRECTIO...			
3/4/2015	11,470.00	85.59	350.58	11,158.52	483.33	483.99	2.40	0.81	MWD	WEATHERFORD DIRECTIO...			
3/4/2015	11,565.00	86.01	350.89	11,165.48	577.46	577.50	12.85	0.55	MWD	WEATHERFORD DIRECTIO...			
3/4/2015	11,659.00	86.50	351.81	11,171.62	670.76	670.23	26.96	1.11	MWD	WEATHERFORD DIRECTIO...			
3/4/2015	11,754.00	87.00	352.94	11,177.00	765.25	764.24	39.55	1.30	MWD	WEATHERFORD DIRECTIO...			
3/4/2015	11,848.00	87.13	354.13	11,181.82	858.93	857.52	50.12	1.27	MWD	WEATHERFORD DIRECTIO...			
3/4/2015	11,943.00	87.41	354.45	11,186.34	953.69	951.94	59.56	0.45	MWD	WEATHERFORD DIRECTIO...			
3/4/2015	12,037.00	87.55	354.92	11,190.47	1,047.50	1,045.44	68.26	0.52	MWD	WEATHERFORD DIRECTIO...			
3/4/2015	12,131.00	88.25	355.02	11,193.92	1,141.36	1,139.02	76.49	0.75	MWD	WEATHERFORD DIRECTIO...			
3/4/2015	12,222.00	89.09	355.38	11,196.03	1,232.28	1,229.67	84.10	1.00	MWD	WEATHERFORD DIRECTIO...			
3/4/2015	12,320.00	89.93	356.43	11,196.87	1,330.24	1,327.42	91.10	1.37	MWD	WEATHERFORD DIRECTIO...			
3/4/2015	12,414.00	90.70	357.19	11,196.35	1,424.24	1,421.27	96.33	1.15	MWD	WEATHERFORD DIRECTIO...			
3/4/2015	12,508.00	91.12	357.50	11,194.86	1,518.23	1,515.15	100.69	0.56	MWD	WEATHERFORD DIRECTIO...			
3/4/2015	12,603.00	90.56	358.33	11,193.47	1,613.21	1,610.08	104.14	1.05	MWD	WEATHERFORD DIRECTIO...			
3/4/2015	12,698.00	89.51	358.84	11,193.41	1,708.18	1,705.05	106.49	1.23	MWD	WEATHERFORD DIRECTIO...			
3/4/2015	12,792.00	89.30	357.62	11,194.38	1,802.16	1,799.00	109.39	1.32	MWD	WEATHERFORD DIRECTIO...			



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Report Printed: 8/3/2015