

Job Number: 05152013  
 Company: Nighthawk Productions  
 Lease/Well: Taos 1-10  
 Location: Limon CO  
 Rig Name: Extreme #11  
 RKB:  
 G.L. or M.S.L.:

State/Country: Colorado/USA  
 Declination: 7.81  
 Grid:  
 File name: C:\WINSERVE\05152013.SVY  
 Date/Time: 25-May-13 / 08:45  
 Curve Name: Taos 1-10 as drilled



WINSERVE SURVEY CALCULATIONS  
 Minimum Curvature Method  
 Vertical Section Plane 113.14  
 Vertical Section Referenced to Wellhead  
 Rectangular Coordinates Referenced to Wellhead

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	CLOSURE Distance FT	CLOSURE Direction Deg	Dogleg Severity Deg/100
VES Gyro survey Tie in	.57	89.84	256.00	.34	.90	.69	.96	69.16	.00
347.00	.80	131.70	346.99	-.08	1.83	1.71	1.83	92.46	.59
408.00	.70	146.90	407.98	-.67	2.35	2.42	2.44	106.01	.36
469.00	.80	133.50	468.98	-1.28	2.86	3.13	3.13	114.09	.33
561.00	1.50	134.00	560.96	-2.56	4.19	4.86	4.91	121.39	.76
652.00	1.30	136.30	651.93	-4.13	5.76	6.92	7.09	125.64	.23
746.00	1.80	120.00	745.90	-5.64	7.78	9.37	9.61	125.95	.70
838.00	2.30	107.10	837.84	-6.91	10.79	12.64	12.81	122.61	.74
940.00	2.60	101.30	939.75	-7.96	15.02	16.94	17.00	117.93	.38
1026.00	2.50	102.00	1025.66	-8.73	18.77	20.69	20.70	114.96	.12
1111.00	2.20	109.60	1110.59	-9.67	22.12	24.14	24.14	113.61	.51
1197.00	2.30	105.40	1196.52	-10.68	25.33	27.49	27.49	112.85	.22

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	CLOSURE		Dogleg Severity Deg/100
							Distance FT	Direction Deg	
1282.00	2.40	109.20	1281.45	-11.72	28.66	30.96	30.96	112.23	.22
1368.00	1.90	113.80	1367.39	-12.88	31.66	34.18	34.19	112.14	.61
1453.00	1.80	122.40	1452.35	-14.17	34.08	36.91	36.91	112.57	.35
1539.00	1.50	119.10	1538.31	-15.44	36.21	39.36	39.36	113.09	.37
1626.00	1.80	114.50	1625.28	-16.56	38.44	41.86	41.86	113.30	.38
1712.00	1.50	124.00	1711.24	-17.75	40.61	44.31	44.32	113.61	.47
1797.00	1.30	113.80	1796.22	-18.76	42.41	46.37	46.37	113.86	.38
1883.00	1.50	109.90	1882.19	-19.54	44.36	48.47	48.47	113.77	.26
1968.00	1.20	114.70	1967.17	-20.29	46.22	50.47	50.47	113.70	.38
2054.00	1.60	127.00	2053.14	-21.39	47.99	52.54	52.54	114.02	.58
2139.00	1.50	135.60	2138.11	-22.90	49.72	54.72	54.74	114.73	.30
2225.00	1.70	129.80	2224.08	-24.52	51.49	56.98	57.03	115.46	.30
2310.00	1.40	122.80	2309.04	-25.89	53.33	59.21	59.28	115.89	.42
2395.00	2.00	102.40	2394.01	-26.77	55.65	61.69	61.75	115.69	.99
2483.00	2.00	98.70	2481.95	-27.33	58.67	64.69	64.72	114.98	.15
2568.00	2.10	98.90	2566.90	-27.79	61.67	67.63	67.65	114.26	.12
2654.00	2.30	98.00	2652.84	-28.28	64.94	70.83	70.83	113.53	.24
2740.00	2.00	96.60	2738.78	-28.69	68.14	73.93	73.93	112.83	.35
2825.00	2.30	103.60	2823.72	-29.26	71.27	77.03	77.04	112.32	.47
2911.00	2.30	114.00	2909.65	-30.37	74.52	80.46	80.47	112.17	.48
2996.00	2.40	116.80	2994.58	-31.87	77.67	83.94	83.95	112.31	.18
3081.00	2.40	118.40	3079.50	-33.51	80.82	87.49	87.50	112.52	.08
3167.00	2.20	118.60	3165.43	-35.16	83.86	90.93	90.93	112.75	.23
3252.00	2.50	126.60	3250.36	-37.05	86.78	94.35	94.35	113.12	.52
3337.00	1.30	116.60	3335.31	-38.58	89.13	97.12	97.12	113.41	1.46
3425.00	1.30	117.00	3423.29	-39.48	90.91	99.11	99.11	113.48	.01
3512.00	1.40	107.30	3510.27	-40.25	92.80	101.15	101.16	113.45	.29
3602.00	1.40	124.00	3600.24	-41.19	94.76	103.33	103.33	113.49	.45
3688.00	1.50	133.00	3686.21	-42.55	96.46	105.42	105.43	113.80	.29
3773.00	1.50	131.60	3771.18	-44.04	98.10	107.52	107.54	114.18	.04
3859.00	1.40	142.50	3857.15	-45.62	99.59	109.50	109.54	114.61	.34
3944.00	1.10	122.40	3942.14	-46.88	100.91	111.21	111.27	114.92	.62
4030.00	1.30	124.40	4028.12	-47.88	102.41	112.98	113.05	115.06	.24
4115.00	1.80	107.10	4113.09	-48.82	104.48	115.26	115.32	115.04	.80

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	CLOSURE		Dogleg Severity Deg/100
							Distance FT	Direction Deg	
4201.00	1.60	101.90	4199.05	-49.46	106.95	117.78	117.83	114.82	.29
4288.00	1.70	103.40	4286.01	-50.01	109.39	120.24	120.28	114.57	.13
4374.00	1.80	95.50	4371.97	-50.43	111.98	122.79	122.81	114.25	.30
4459.00	1.60	93.60	4456.93	-50.64	114.49	125.18	125.19	113.86	.24
4545.00	1.50	74.30	4542.90	-50.41	116.77	127.19	127.19	113.35	.61
4634.00	1.90	72.70	4631.86	-49.65	119.30	129.22	129.22	112.60	.45
4720.00	1.80	77.40	4717.82	-48.94	121.98	131.40	131.43	111.86	.21
4807.00	1.80	79.50	4804.78	-48.39	124.66	133.64	133.72	111.21	.08
4893.00	2.00	70.20	4890.73	-47.63	127.40	135.87	136.01	110.50	.43
4980.00	1.80	103.40	4977.68	-47.44	130.15	138.32	138.53	110.02	1.27
5067.00	2.00	106.60	5064.64	-48.19	132.94	141.18	141.40	109.92	.26
5147.00	2.20	106.20	5144.58	-49.01	135.75	144.09	144.33	109.85	.25
5233.00	2.00	109.10	5230.52	-49.97	138.75	147.23	147.48	109.80	.26
5318.00	2.00	109.80	5315.47	-50.95	141.55	150.19	150.44	109.80	.03
5404.00	2.00	112.80	5401.42	-52.04	144.35	153.19	153.44	109.83	.12
5489.00	1.90	115.90	5486.37	-53.23	146.98	156.08	156.32	109.91	.17
5575.00	1.80	106.10	5572.33	-54.23	149.56	158.84	159.09	109.93	.39
5660.00	1.40	96.60	5657.29	-54.72	151.88	161.16	161.43	109.81	.56
5746.00	1.60	105.20	5743.26	-55.16	154.08	163.36	163.65	109.70	.35
5831.00	2.70	115.70	5828.20	-56.34	157.03	166.53	166.83	109.74	1.37
5917.00	2.80	126.50	5914.10	-58.46	160.54	170.60	170.85	110.01	.61
6004.00	1.60	140.30	6001.04	-60.66	163.02	173.75	173.95	110.41	1.50
6090.00	1.40	141.10	6087.01	-62.40	164.45	175.74	175.89	110.78	.23
6175.00	1.70	135.10	6171.98	-64.10	165.99	177.83	177.94	111.12	.40
6261.00	1.30	131.90	6257.95	-65.66	167.62	179.94	180.02	111.39	.48
6346.00	1.30	128.60	6342.93	-66.90	169.09	181.78	181.85	111.59	.09
6431.00	1.80	123.30	6427.90	-68.24	170.96	184.02	184.08	111.76	.61
6517.00	1.60	127.20	6513.86	-69.71	173.05	186.52	186.56	111.94	.27
6603.00	1.40	124.50	6599.83	-71.03	174.87	188.71	188.74	112.11	.25
6690.00	2.30	106.10	6686.78	-72.11	177.42	191.49	191.52	112.12	1.23
6776.00	2.10	101.00	6772.72	-72.89	180.63	194.74	194.78	111.98	.33
6864.00	2.00	101.50	6860.66	-73.51	183.71	197.82	197.87	111.81	.12
6949.00	2.10	106.60	6945.61	-74.25	186.66	200.82	200.88	111.69	.24
7035.00	2.50	122.20	7031.54	-75.70	189.76	204.24	204.30	111.75	.86

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	CLOSURE		Dogleg Severity Deg/100
							Distance FT	Direction Deg	
7123.00	2.50	120.80	7119.46	-77.70	193.03	208.03	208.08	111.93	.07
7210.00	2.40	117.50	7206.38	-79.52	196.27	211.73	211.77	112.05	.20
7295.00	1.80	106.60	7291.32	-80.72	199.13	214.83	214.87	112.07	.84
7381.00	1.70	116.40	7377.28	-81.67	201.57	217.45	217.49	112.06	.37
7466.00	1.50	138.80	7462.25	-83.07	203.43	219.71	219.74	112.21	.77
7552.00	1.20	114.00	7548.22	-84.28	205.00	221.62	221.65	112.35	.76
7641.00	1.10	107.00	7637.21	-84.91	206.66	223.41	223.43	112.34	.19
7728.00	1.90	103.60	7724.18	-85.49	208.86	225.66	225.69	112.26	.92
7771.00	2.40	110.30	7767.15	-85.97	210.40	227.26	227.29	112.23	1.30
7813.00	2.90	111.90	7809.10	-86.68	212.21	229.20	229.23	112.22	1.20
7855.00	3.00	115.20	7851.04	-87.54	214.19	231.36	231.39	112.23	.47
7898.00	2.60	111.30	7893.99	-88.37	216.12	233.46	233.49	112.24	1.03
7941.00	2.20	113.60	7936.96	-89.06	217.78	235.26	235.29	112.24	.96
<b>Bit Projection to TD</b>									
8005.00	2.20	113.60	8000.91	-90.04	220.04	237.72	237.75	112.26	.00