

DIRECTIONAL SURVEY REPORT



Company :	Crestone Peak Resources	Gyrodata Job Number:	RM0218GDM248
Field :	Weld County, CO	Survey Calculation Method:	MINIMUM CURVATURE
Rig / Platform :	Ensign 122	TVD Reference Datum:	Rotary Table
Well :	Templin , #1	TVD Reference Elevation:	13.00 ft.
Survey Date :	17-Feb-18	Sea Bed / Ground Level Elevation:	
Survey Section :	4.5" DP	Horizontal Co-ordinates Reference :	Wellhead
North Reference :	TRUE	Closure Reference	Wellhead
Grid Correction :	NA	Vertical Section Reference	Wellhead

Site			
Latitude (°) :	40.026839°	Longitude (°) :	-104.719647°
Northing:		Easting:	
Well:			
Co-ordinates			
+N / -S:		+E / -W:	
Survey coordinates obtained from:			

Vertical Section :			
Co-ordinates			
+N / -S (ft) :	0	+E / -W (ft):	0
		Azimuth (°) :	

Survey Tool Program			
From (ft / m) :	0	To (ft / m) :	7979
Tool Type :	GYRO SECTION CAAT 3 AXIS	Description :	Multishot - Drop (x4 go devil)

Operator	
Engineer:	John Keeth

MEASURED DEPTH feet	INCL deg.	AZIMUTH deg.	VERTICAL DEPTH feet	NS ft.	EW ft.	DOGLEG SEVERITY deg./100 ft.	CLOSURE Distance ft	CLOSURE AZIMUTH deg.
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

0 - 7979 FT. RATE GYROSCOPIC MULTISHOT SURVEY RAN INSIDE 4.5" DRILLPIPE								
ALL MEASURED DEPTHS AND COORDINATES REFERENCED TO ENSIGN 122, R.K.B. OF 13 FT.								

82.00	0.66	251.48	82.00	-0.15	-0.45	0.80	0.47	251.48
125.00	0.85	241.57	124.99	-0.38	-0.96	0.53	1.04	248.44
210.00	0.66	233.93	209.99	-0.97	-1.91	0.25	2.14	243.14
295.00	0.55	239.44	294.98	-1.46	-2.66	0.15	3.04	241.17
381.00	0.61	237.04	380.98	-1.92	-3.40	0.08	3.91	240.50
466.00	0.57	238.31	465.97	-2.39	-4.14	0.05	4.78	239.98
554.00	0.40	244.07	553.97	-2.76	-4.79	0.20	5.52	240.07
639.00	0.51	240.36	638.97	-3.07	-5.38	0.13	6.20	240.28
727.00	0.34	256.82	726.97	-3.33	-5.98	0.24	6.84	240.91
814.00	0.22	267.90	813.96	-3.39	-6.40	0.15	7.24	242.07
900.00	0.68	271.33	899.96	-3.39	-7.07	0.54	7.84	244.42
985.00	0.46	225.81	984.96	-3.61	-7.82	0.57	8.61	245.21
1071.00	0.67	215.66	1070.95	-4.26	-8.36	0.27	9.38	243.00
1156.00	0.50	197.80	1155.95	-5.02	-8.76	0.29	10.10	240.21
1242.00	0.50	198.28	1241.95	-5.73	-9.00	0.00	10.67	237.50
1327.00	0.50	211.35	1326.94	-6.40	-9.31	0.13	11.29	235.48
1413.00	0.43	209.63	1412.94	-7.00	-9.66	0.08	11.93	234.07
1498.00	0.48	213.39	1497.94	-7.58	-10.01	0.07	12.56	232.89

MEASURED DEPTH	INCL	AZIMUTH	VERTICAL DEPTH	NS	EW	DOGLEG SEVERITY	CLOSURE Distance	CLOSURE AZIMUTH
1584.00	0.40	212.96	1583.93	-8.13	-10.38	0.09	13.18	231.93
1669.00	0.31	222.28	1668.93	-8.55	-10.69	0.13	13.69	231.36
1757.00	0.28	218.49	1756.93	-8.89	-10.99	0.04	14.13	231.01
1845.00	0.28	216.50	1844.93	-9.23	-11.25	0.01	14.55	230.62
1930.00	0.24	230.35	1929.93	-9.51	-11.51	0.09	14.93	230.42
2016.00	0.16	226.16	2015.93	-9.71	-11.73	0.09	15.23	230.39
2103.00	0.21	197.86	2102.93	-9.95	-11.87	0.12	15.49	230.04
2189.00	0.17	202.93	2188.93	-10.21	-11.97	0.05	15.73	229.52
2274.00	0.21	161.16	2273.93	-10.48	-11.97	0.17	15.91	228.79
2362.00	0.26	165.15	2361.93	-10.82	-11.86	0.06	16.06	227.62
2449.00	0.32	173.55	2448.93	-11.26	-11.79	0.08	16.30	226.32
2537.00	0.33	197.59	2536.92	-11.74	-11.83	0.15	16.67	225.23
2626.00	0.41	219.34	2625.92	-12.23	-12.11	0.18	17.22	224.72
2714.00	0.49	220.30	2713.92	-12.76	-12.56	0.09	17.90	224.53
2802.00	0.60	243.38	2801.92	-13.26	-13.21	0.28	18.72	224.90
2889.00	0.67	249.35	2888.91	-13.64	-14.10	0.11	19.61	225.94
2974.00	0.60	250.66	2973.91	-13.96	-14.98	0.08	20.48	227.01
3064.00	0.84	255.42	3063.90	-14.28	-16.06	0.27	21.50	228.35
3152.00	0.85	258.72	3151.89	-14.57	-17.33	0.06	22.64	229.93
3237.00	0.97	259.23	3236.88	-14.83	-18.65	0.14	23.83	231.51
3323.00	0.97	255.65	3322.87	-15.15	-20.07	0.07	25.15	232.96
3409.00	1.21	263.99	3408.85	-15.42	-21.68	0.33	26.61	234.57
3495.00	1.24	267.49	3494.83	-15.56	-23.51	0.09	28.20	236.51
3580.00	1.11	277.40	3579.81	-15.49	-25.25	0.28	29.63	238.46
3666.00	1.21	287.32	3665.79	-15.12	-26.94	0.26	30.89	240.70
3753.00	1.07	280.78	3752.78	-14.69	-28.62	0.22	32.17	242.83
3838.00	0.96	276.51	3837.76	-14.46	-30.10	0.16	33.40	244.34

MEASURED DEPTH	INCL	AZIMUTH	VERTICAL DEPTH	NS	EW	DOGLEG SEVERITY	CLOSURE Distance	CLOSURE AZIMUTH
3924.00	0.81	276.64	3923.75	-14.31	-31.42	0.17	34.53	245.52
4012.00	0.87	277.48	4011.74	-14.15	-32.70	0.07	35.64	246.60
4099.00	0.87	280.77	4098.73	-13.94	-34.01	0.06	36.76	247.71
4185.00	0.85	285.09	4184.72	-13.65	-35.27	0.08	37.82	248.83
4270.00	0.78	289.03	4269.72	-13.30	-36.42	0.11	38.77	249.94
4358.00	0.72	285.65	4357.71	-12.96	-37.52	0.08	39.69	250.95
4443.00	0.71	287.35	4442.70	-12.66	-38.54	0.03	40.56	251.82
4529.00	0.78	289.45	4528.69	-12.30	-39.60	0.09	41.46	252.74
4619.00	0.76	290.17	4618.69	-11.89	-40.74	0.02	42.44	253.73
4706.00	0.57	298.23	4705.68	-11.49	-41.66	0.24	43.21	254.58
4792.00	0.78	298.16	4791.67	-11.01	-42.55	0.24	43.95	255.49
4877.00	0.80	300.69	4876.67	-10.43	-43.57	0.05	44.80	256.53
4963.00	0.78	297.85	4962.66	-9.85	-44.61	0.05	45.68	257.54
5048.00	0.74	302.55	5047.65	-9.29	-45.58	0.09	46.52	258.48
5136.00	0.67	304.29	5135.64	-8.69	-46.48	0.08	47.29	259.41
5222.00	0.50	312.86	5221.64	-8.15	-47.17	0.22	47.87	260.19
5307.00	0.41	346.27	5306.64	-7.61	-47.52	0.32	48.12	260.91
5392.00	0.50	44.77	5391.64	-7.05	-47.33	0.53	47.85	261.53
5478.00	0.67	16.00	5477.63	-6.30	-46.93	0.39	47.35	262.36
5563.00	0.81	44.82	5562.62	-5.39	-46.37	0.46	46.68	263.36
5649.00	0.80	43.11	5648.62	-4.52	-45.53	0.03	45.75	264.32
5739.00	0.51	39.63	5738.61	-3.76	-44.84	0.33	45.00	265.21
5824.00	0.44	32.67	5823.61	-3.19	-44.42	0.11	44.54	265.89
5910.00	0.29	42.49	5909.60	-2.75	-44.10	0.19	44.19	266.43
5997.00	0.27	32.18	5996.60	-2.42	-43.84	0.06	43.91	266.84
6085.00	0.34	19.09	6084.60	-1.99	-43.65	0.11	43.69	267.38
6174.00	0.33	12.71	6173.60	-1.50	-43.50	0.04	43.53	268.03

MEASURED DEPTH	INCL	AZIMUTH	VERTICAL DEPTH	NS	EW	DOGLEG SEVERITY	CLOSURE Distance	CLOSURE AZIMUTH
6260.00	0.48	357.97	6259.60	-0.89	-43.46	0.21	43.47	268.82
6345.00	0.92	341.80	6344.59	0.11	-43.69	0.56	43.69	270.14
6431.00	1.35	331.72	6430.58	1.66	-44.38	0.55	44.41	272.14
6516.00	1.87	332.20	6515.54	3.77	-45.50	0.61	45.66	274.73
6602.00	2.17	337.66	6601.49	6.51	-46.78	0.41	47.23	277.93
6689.00	2.35	345.25	6688.42	9.76	-47.86	0.40	48.84	281.53
6775.00	2.56	342.77	6774.34	13.30	-48.88	0.27	50.65	285.22
6860.00	2.36	346.18	6859.26	16.81	-49.86	0.29	52.61	288.64
6946.00	2.27	349.74	6945.19	20.21	-50.58	0.20	54.47	291.78
7032.00	2.24	350.70	7031.13	23.54	-51.16	0.06	56.31	294.71
7117.00	2.14	352.88	7116.06	26.76	-51.62	0.15	58.15	297.40
7203.00	1.93	355.04	7202.01	29.79	-51.95	0.26	59.88	299.84
7288.00	1.80	353.88	7286.97	32.55	-52.21	0.16	61.53	301.94
7374.00	1.61	350.58	7372.93	35.08	-52.55	0.25	63.19	303.73
7461.00	1.68	353.36	7459.89	37.56	-52.90	0.12	64.88	305.37
7547.00	1.52	350.25	7545.86	39.93	-53.24	0.21	66.55	306.87
7632.00	1.38	3.42	7630.83	42.06	-53.37	0.42	67.95	308.24
7720.00	0.57	6.57	7718.82	43.56	-53.26	0.92	68.80	309.28
7805.00	0.92	25.03	7803.81	44.60	-52.92	0.49	69.20	310.12
7893.00	0.77	24.20	7891.80	45.77	-52.38	0.17	69.56	311.15
7979.00	1.14	8.56	7977.79	47.15	-52.01	0.52	70.20	312.19

Final Station Closure:

Distance: 70.20 ft Az: 312.19°