



CRESTONE PEAK
RESOURCES

SECTION DETAILS

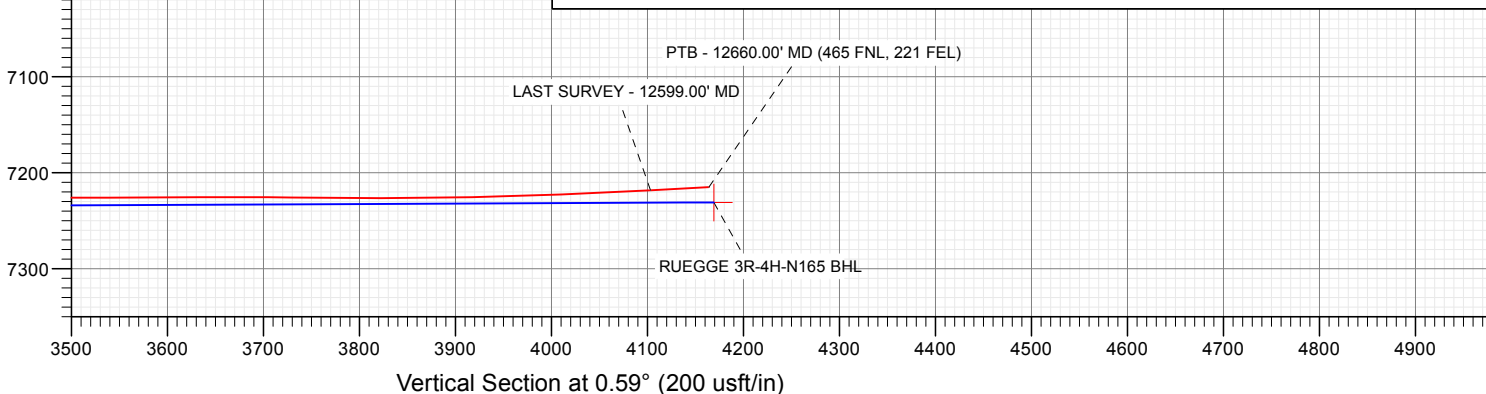
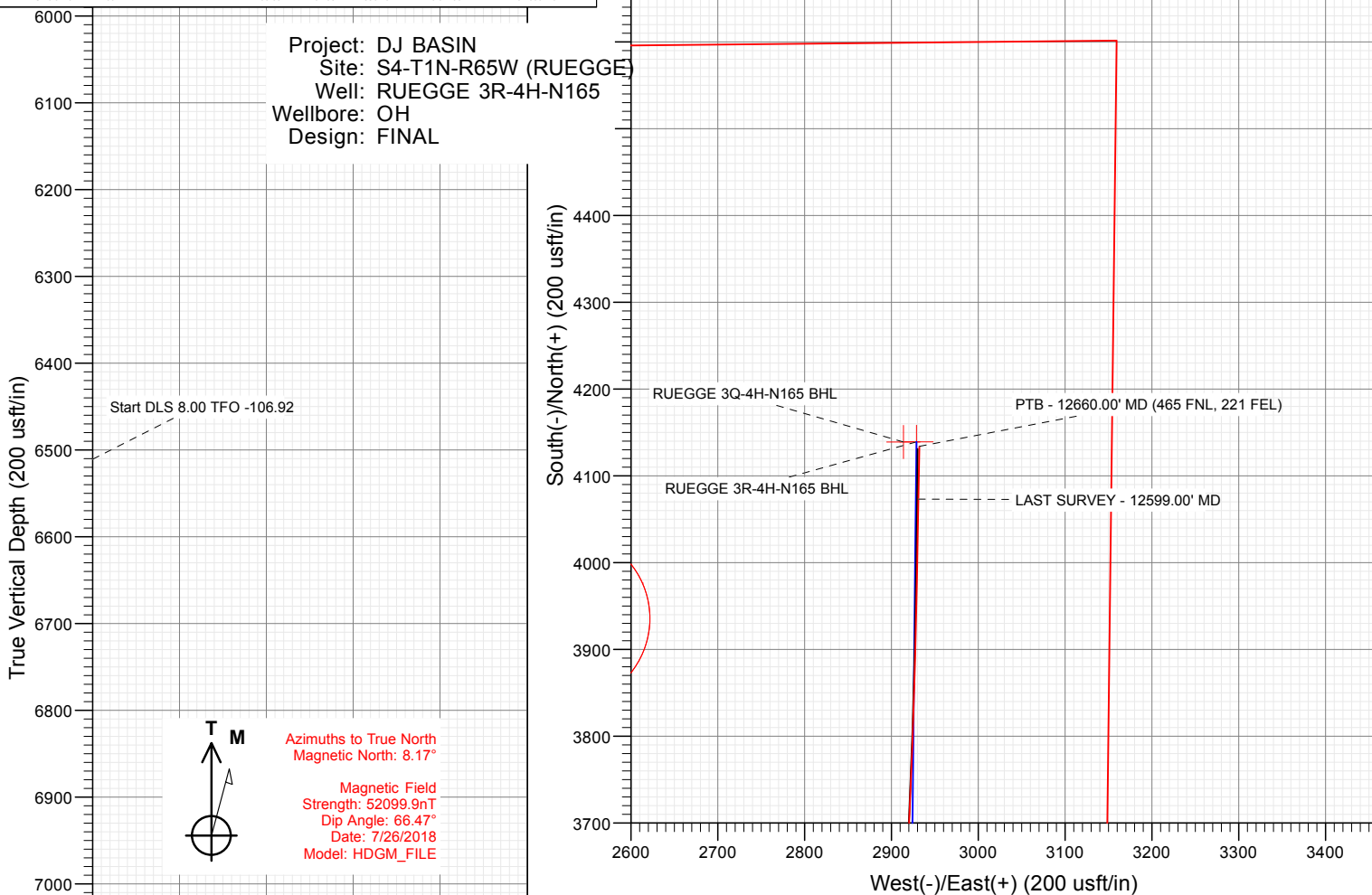
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	140.00	0.00	0.00	140.00	0.00	0.00	0.00	0.00	0.00	
3	1390.00	25.00	114.00	1350.71	-109.17	245.20	2.00	114.00	-106.64	
4	2890.00	25.00	114.00	2710.17	-367.01	824.32	0.00	0.00	-358.51	
5	2993.95	25.56	109.31	2804.18	-383.36	865.56	2.00	-76.52	-374.43	
6	7102.61	25.56	109.31	6510.75	-969.55	2538.51	0.00	0.00	-943.36	
7	8329.18	90.19	0.59	7253.00	-261.68	2883.29	8.00	-106.92	-231.98	RUEGGE 3R-4H-N165 TPZ
8	10186.17	90.19	0.59	7247.00	1595.19	2902.55	0.00	0.00	1625.00	RUEGGE 3R-4H-N165 1625' VS
9	10202.34	90.51	0.59	7246.90	1611.37	2902.72	2.00	0.00	1641.17	
10	11195.96	90.51	0.59	7238.08	2604.88	2913.03	0.00	0.00	2634.74	
11	11208.21	90.26	0.59	7238.00	2617.14	2913.15	2.00	-180.00	2647.00	RUEGGE 3R-4H-N165 2647' VS
12	12730.46	90.26	0.59	7231.00	4139.29	2928.94	0.00	0.00	4169.23	RUEGGE 3R-4H-N165 BHL

FINAL
RUEGGE 3R-4H-N165
361337 185126 400737 185215
23 KB @ 4937.00usft
Ground Level @ 4914.00
North American Datum 1983

Well RUEGGE 3R-4H-N165 - Slot RUEGGE 3R-4H-N165 SHL True North

Type	User	Target	No Target (Freehand)	Azimuth	Origin	Type	N/S	E/W	From	TVD
				0.59	Slot		0.00	0.00	0.00	0.00
Name				TVD	+N/-S	+E/-W	Latitude	Longitude		
RUEGGE 3R-4H-N165 BHL				7231.00	4139.29	2928.94	40.086648	-104.660058		
RUEGGE 3R-4H-N165 2647' VS				7238.00	2617.14	2913.15	40.082469	-104.660115		
RUEGGE 3R-4H-N165 1625' VS				7247.00	1595.19	2902.55	40.079664	-104.660154		
RUEGGE 3R-4H-N165 TPZ				7253.00	-261.68	2883.29	40.074567	-104.660223		

Project: DJ BASIN
Site: S4-T1N-R65W (RUEGGE)
Well: RUEGGE 3R-4H-N165
Wellbore: OH
Design: FINAL



WELL DETAILS: RUEGGE 3R-4H-N165

+N/-S	+E/-W	Northing	Easting	4914.00	Latitude	Longitude	Slot
0.00	0.00	1271357.12	3232120.12		40.075285	-104.670526	

CATHEDRAL



Crestone Peak Resources

DJ BASIN

S4-T1N-R65W (RUEGGE)

RUEGGE 3R-4H-N165 - Slot RUEGGE 3R-4H-N165 SHL

OH

Design: FINAL

Survey Report - Geographic

09 August, 2018

Survey Report - Geographic

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well RUEGGE 3R-4H-N165 - Slot RUEGGE 3R-4H-N165 SHL
Project:	DJ BASIN	TVD Reference:	23' KB @ 4937.00usft
Site:	S4-T1N-R65W (RUEGGE)	MD Reference:	23' KB @ 4937.00usft
Well:	RUEGGE 3R-4H-N165	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	FINAL	Database:	USA EDM 5000 Multi Users DB

Project	DJ BASIN		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Northern Zone		

Site		S4-T1N-R65W (RUEGGE)			
Site Position:		Northing:	1,271,333.68 usft	Latitude:	40.075225
From:	Map	Easting:	3,231,971.96 usft	Longitude:	-104.671057
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.54 °

Well		RUEGGE 3R-4H-N165 - Slot RUEGGE 3R-4H-N165 SHL				
Well Position	+N/-S	0.00 usft	Northing:	1,271,357.12 usft	Latitude:	40.075286
	+E/-W	0.00 usft	Easting:	3,232,120.12 usft	Longitude:	-104.670527
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	4,914.00 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM_FILE	7/26/2018	8.17	66.47	52,099.90000000

Design	FINAL				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.00	0.00	0.00	0.59	

Survey Program	Date	8/9/2018			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
109.00	2,529.00	Survey #1 (OH)	VESSI_GYROFLEX	VESSI Gyroflex Gyro	
2,653.00	12,660.00	Survey #2 (OH)	MWD+HDGM	OWSG MWD + HDGM	

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
10.00	0.00	0.00	10.00	0.00	0.00	1,271,357.12	3,232,120.12	40.075286	-104.670527	
109.00	0.59	147.90	109.00	-0.43	0.27	1,271,356.69	3,232,120.40	40.075284	-104.670526	
201.00	2.45	139.73	200.96	-2.33	1.79	1,271,354.80	3,232,121.94	40.075279	-104.670520	
292.00	2.69	114.84	291.87	-4.71	4.99	1,271,352.45	3,232,125.15	40.075273	-104.670509	
384.00	4.76	112.38	383.67	-7.08	10.48	1,271,350.14	3,232,130.67	40.075266	-104.670489	
486.00	7.23	115.02	485.11	-11.40	20.21	1,271,345.90	3,232,140.44	40.075254	-104.670454	
545.00	8.56	116.48	543.55	-14.93	27.50	1,271,342.44	3,232,147.76	40.075245	-104.670428	
629.00	10.00	111.70	626.45	-20.41	39.88	1,271,337.07	3,232,160.19	40.075230	-104.670384	
713.00	10.82	114.00	709.06	-26.32	53.86	1,271,331.30	3,232,174.22	40.075213	-104.670334	
797.00	12.75	115.36	791.29	-33.50	69.44	1,271,324.27	3,232,189.87	40.075194	-104.670278	

Survey Report - Geographic

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well RUEGGE 3R-4H-N165 - Slot RUEGGE 3R-4H-N165 SHL
Project:	DJ BASIN	TVD Reference:	23' KB @ 4937.00usft
Site:	S4-T1N-R65W (RUEGGE)	MD Reference:	23' KB @ 4937.00usft
Well:	RUEGGE 3R-4H-N165	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	FINAL	Database:	USA EDM 5000 Multi Users DB

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
879.00	15.40	113.31	870.82	-41.68	87.62	1,271,316.26	3,232,208.12	40.075171	-104.670213
961.00	18.40	113.16	949.27	-51.08	109.52	1,271,307.06	3,232,230.11	40.075145	-104.670135
1,044.00	19.10	110.68	1,027.87	-61.03	134.27	1,271,297.34	3,232,254.95	40.075118	-104.670047
1,127.00	18.08	114.68	1,106.54	-71.20	158.68	1,271,287.40	3,232,279.46	40.075090	-104.669960
1,209.00	19.83	116.55	1,184.09	-82.73	182.68	1,271,276.09	3,232,303.57	40.075058	-104.669874
1,291.00	22.59	112.64	1,260.53	-95.02	209.67	1,271,264.06	3,232,330.67	40.075025	-104.669777
1,374.00	24.70	112.29	1,336.56	-107.73	240.43	1,271,251.64	3,232,361.55	40.074990	-104.669667
1,458.00	25.06	112.85	1,412.76	-121.30	273.06	1,271,238.38	3,232,394.31	40.074953	-104.669551
1,540.00	25.77	117.19	1,486.83	-136.19	304.92	1,271,223.79	3,232,426.31	40.074912	-104.669437
1,625.00	26.62	118.98	1,563.11	-153.86	338.02	1,271,206.43	3,232,459.56	40.074863	-104.669319
1,708.00	26.75	116.27	1,637.27	-171.14	371.04	1,271,189.46	3,232,492.74	40.074816	-104.669201
1,789.00	26.81	114.56	1,709.58	-186.80	404.00	1,271,174.11	3,232,525.85	40.074773	-104.669083
1,871.00	26.60	116.25	1,782.83	-202.60	437.28	1,271,158.61	3,232,559.28	40.074729	-104.668964
1,956.00	25.46	115.22	1,859.21	-218.80	470.88	1,271,142.73	3,232,593.03	40.074685	-104.668844
2,046.00	24.24	112.96	1,940.88	-234.25	505.39	1,271,127.60	3,232,627.68	40.074642	-104.668721
2,136.00	23.31	110.94	2,023.24	-247.83	539.04	1,271,114.34	3,232,661.45	40.074605	-104.668600
2,225.00	23.07	107.51	2,105.05	-259.37	572.11	1,271,103.11	3,232,694.64	40.074574	-104.668482
2,315.00	23.95	108.19	2,187.58	-270.37	606.29	1,271,092.42	3,232,728.91	40.074543	-104.668360
2,404.00	25.33	107.80	2,268.48	-281.83	641.58	1,271,081.29	3,232,764.31	40.074512	-104.668234
2,494.00	26.02	107.13	2,349.59	-293.53	678.77	1,271,069.94	3,232,801.61	40.074480	-104.668101
2,529.00	25.79	105.86	2,381.07	-297.88	693.43	1,271,065.74	3,232,816.31	40.074468	-104.668049
2,653.00	24.70	105.37	2,493.23	-312.12	744.36	1,271,051.98	3,232,867.37	40.074429	-104.667867
2,748.00	26.81	110.11	2,578.80	-324.75	783.63	1,271,039.71	3,232,906.75	40.074394	-104.667726
2,843.00	24.92	108.88	2,664.28	-338.59	822.69	1,271,026.24	3,232,945.94	40.074356	-104.667587
2,937.00	26.24	117.85	2,749.09	-354.71	859.82	1,271,010.46	3,232,983.22	40.074312	-104.667454
3,032.00	25.01	117.94	2,834.75	-373.93	896.13	1,270,991.58	3,233,019.71	40.074259	-104.667324
3,127.00	27.03	116.79	2,920.12	-393.07	933.14	1,270,972.79	3,233,056.90	40.074206	-104.667192
3,232.00	26.24	116.09	3,013.97	-414.04	975.29	1,270,952.22	3,233,099.24	40.074149	-104.667042
3,326.00	24.65	114.60	3,098.85	-431.34	1,011.78	1,270,935.26	3,233,135.89	40.074101	-104.666911
3,421.00	26.32	108.36	3,184.62	-446.22	1,049.79	1,270,920.73	3,233,174.04	40.074061	-104.666775
3,516.00	24.43	107.48	3,270.45	-458.76	1,088.52	1,270,908.56	3,233,212.88	40.074026	-104.666637
3,610.00	26.10	112.84	3,355.47	-472.62	1,126.12	1,270,895.05	3,233,250.61	40.073988	-104.666503
3,705.00	24.39	111.34	3,441.39	-487.87	1,163.65	1,270,880.15	3,233,288.29	40.073946	-104.666368
3,800.00	24.39	105.19	3,527.93	-500.15	1,200.86	1,270,868.22	3,233,325.61	40.073912	-104.666235
3,895.00	27.25	105.89	3,613.44	-511.25	1,240.72	1,270,857.49	3,233,365.56	40.073882	-104.666093
3,989.00	25.36	104.31	3,697.70	-522.12	1,280.92	1,270,847.00	3,233,405.87	40.073852	-104.665949
4,084.00	22.98	102.38	3,784.37	-531.13	1,318.76	1,270,838.35	3,233,443.79	40.073827	-104.665814
4,178.00	24.13	107.74	3,870.54	-540.92	1,354.98	1,270,828.90	3,233,480.11	40.073801	-104.665685
4,273.00	26.02	114.33	3,956.60	-555.42	1,392.48	1,270,814.74	3,233,517.73	40.073761	-104.665551
4,368.00	23.95	113.10	4,042.71	-571.57	1,429.20	1,270,798.94	3,233,554.61	40.073716	-104.665420
4,462.00	28.70	114.86	4,126.94	-588.56	1,467.25	1,270,782.31	3,233,592.82	40.073670	-104.665284
4,557.00	28.52	114.60	4,210.34	-607.59	1,508.57	1,270,763.67	3,233,634.31	40.073618	-104.665136
4,652.00	25.88	112.84	4,294.83	-625.08	1,548.31	1,270,746.55	3,233,674.21	40.073569	-104.664994
4,747.00	25.53	112.31	4,380.42	-640.90	1,586.36	1,270,731.08	3,233,712.40	40.073526	-104.664858
4,841.00	25.27	112.31	4,465.34	-656.21	1,623.66	1,270,716.13	3,233,749.85	40.073484	-104.664725
4,936.00	23.77	111.17	4,551.77	-670.82	1,660.27	1,270,701.86	3,233,786.60	40.073444	-104.664594
5,031.00	24.83	109.94	4,638.35	-684.54	1,696.88	1,270,688.48	3,233,823.33	40.073406	-104.664463
5,125.00	26.28	108.62	4,723.15	-697.91	1,735.15	1,270,675.47	3,233,861.73	40.073370	-104.664326
5,219.00	26.32	107.48	4,807.42	-710.82	1,774.75	1,270,662.93	3,233,901.44	40.073334	-104.664185
5,314.00	23.20	104.05	4,893.68	-721.69	1,813.00	1,270,652.42	3,233,939.80	40.073304	-104.664048
5,408.00	23.95	108.36	4,979.85	-732.19	1,849.08	1,270,642.25	3,233,975.97	40.073275	-104.663919
5,503.00	24.96	104.93	5,066.33	-743.43	1,886.75	1,270,631.37	3,234,013.74	40.073245	-104.663785
5,598.00	22.76	111.26	5,153.22	-755.26	1,923.25	1,270,619.88	3,234,050.35	40.073212	-104.663654
5,692.00	26.28	116.18	5,238.73	-771.04	1,958.89	1,270,604.43	3,234,086.13	40.073169	-104.663527

Survey Report - Geographic

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well RUEGGE 3R-4H-N165 - Slot RUEGGE 3R-4H-N165 SHL
Project:	DJ BASIN	TVD Reference:	23' KB @ 4937.00usft
Site:	S4-T1N-R65W (RUEGGE)	MD Reference:	23' KB @ 4937.00usft
Well:	RUEGGE 3R-4H-N165	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	FINAL	Database:	USA EDM 5000 Multi Users DB

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
5,786.00	27.86	110.38	5,322.45	-787.88	1,998.16	1,270,587.96	3,234,125.56	40.073122	-104.663387
5,881.00	24.96	107.92	5,407.53	-801.78	2,038.05	1,270,574.44	3,234,165.58	40.073084	-104.663244
5,976.00	26.46	112.31	5,493.13	-815.98	2,076.71	1,270,560.59	3,234,204.37	40.073045	-104.663106
6,071.00	23.77	110.47	5,579.14	-830.71	2,114.23	1,270,546.21	3,234,242.03	40.073005	-104.662972
6,166.00	23.07	108.36	5,666.31	-843.27	2,149.84	1,270,533.99	3,234,277.75	40.072970	-104.662845
6,261.00	24.21	105.81	5,753.34	-854.44	2,186.25	1,270,523.16	3,234,314.26	40.072940	-104.662714
6,356.00	25.44	105.54	5,839.56	-865.22	2,224.65	1,270,512.74	3,234,352.76	40.072910	-104.662577
6,451.00	27.11	110.03	5,924.75	-878.10	2,264.65	1,270,500.24	3,234,392.89	40.072875	-104.662434
6,545.00	27.95	111.52	6,008.11	-893.52	2,305.27	1,270,485.20	3,234,433.64	40.072832	-104.662289
6,640.00	25.14	112.31	6,093.09	-909.35	2,344.65	1,270,469.74	3,234,473.18	40.072789	-104.662148
6,735.00	25.71	106.95	6,178.90	-923.02	2,383.04	1,270,456.43	3,234,511.69	40.072751	-104.662011
6,830.00	25.36	109.32	6,264.62	-935.76	2,421.95	1,270,444.05	3,234,550.72	40.072716	-104.661872
6,924.00	24.17	105.10	6,349.98	-947.43	2,459.53	1,270,432.73	3,234,588.41	40.072684	-104.661738
7,019.00	26.46	105.37	6,435.85	-958.11	2,498.72	1,270,422.42	3,234,627.70	40.072655	-104.661598
7,114.00	26.50	95.96	6,520.92	-965.92	2,540.23	1,270,415.00	3,234,669.27	40.072634	-104.661450
7,208.00	29.84	71.35	6,604.06	-960.60	2,583.40	1,270,420.72	3,234,712.40	40.072648	-104.661295
7,303.00	34.23	53.95	6,684.75	-937.26	2,627.51	1,270,444.48	3,234,756.29	40.072712	-104.661138
7,398.00	34.01	47.80	6,763.42	-903.68	2,668.81	1,270,478.44	3,234,797.27	40.072804	-104.660990
7,492.00	33.84	36.90	6,841.49	-865.05	2,704.04	1,270,517.39	3,234,832.13	40.072910	-104.660864
7,587.00	36.83	32.15	6,918.99	-819.77	2,735.08	1,270,562.96	3,234,862.75	40.073035	-104.660753
7,681.00	44.30	25.91	6,990.38	-766.30	2,764.47	1,270,616.71	3,234,891.64	40.073182	-104.660648
7,775.00	55.15	20.90	7,051.08	-700.52	2,792.67	1,270,682.75	3,234,919.22	40.073362	-104.660547
7,870.00	62.23	18.71	7,100.42	-624.19	2,820.09	1,270,759.33	3,234,945.93	40.073572	-104.660449
7,965.00	69.96	15.54	7,138.90	-541.24	2,845.58	1,270,842.51	3,234,970.64	40.073799	-104.660358
8,060.00	72.38	11.24	7,169.57	-453.80	2,866.37	1,270,930.15	3,234,990.61	40.074039	-104.660284
8,154.00	74.31	7.72	7,196.52	-364.99	2,881.18	1,271,019.09	3,235,004.59	40.074283	-104.660231
8,248.00	80.55	6.23	7,216.97	-273.97	2,892.30	1,271,110.21	3,235,014.86	40.074533	-104.660191
8,260.51	81.60	5.64	7,218.91	-261.68	2,893.58	1,271,122.52	3,235,016.02	40.074567	-104.660187
TPZ - 8260.51' MD (460 FSL, 214 FEL)									
8,343.00	88.51	1.83	7,226.02	-179.73	2,898.92	1,271,204.51	3,235,020.59	40.074792	-104.660168
8,438.00	87.89	358.05	7,229.00	-84.80	2,898.82	1,271,299.44	3,235,019.61	40.075052	-104.660168
8,533.00	87.89	357.26	7,232.50	10.06	2,894.94	1,271,394.25	3,235,014.84	40.075313	-104.660182
8,627.00	88.55	357.00	7,235.42	103.90	2,890.23	1,271,488.04	3,235,009.25	40.075570	-104.660199
8,722.00	88.77	356.12	7,237.64	198.70	2,884.53	1,271,582.79	3,235,002.67	40.075831	-104.660219
8,817.00	87.50	358.93	7,240.73	293.55	2,880.43	1,271,677.59	3,234,997.68	40.076091	-104.660233
8,911.00	88.73	0.43	7,243.83	387.49	2,879.91	1,271,771.53	3,234,996.28	40.076349	-104.660235
9,006.00	89.39	359.90	7,245.39	482.48	2,880.18	1,271,866.51	3,234,995.66	40.076610	-104.660234
9,100.00	89.78	359.64	7,246.07	576.47	2,879.80	1,271,960.50	3,234,994.41	40.076868	-104.660236
9,195.00	89.39	2.54	7,246.75	671.44	2,881.61	1,272,055.48	3,234,995.33	40.077128	-104.660229
9,290.00	89.60	2.27	7,247.59	766.35	2,885.60	1,272,150.43	3,234,998.42	40.077389	-104.660215
9,384.00	89.60	2.10	7,248.25	860.28	2,889.18	1,272,244.39	3,235,001.13	40.077647	-104.660202
9,479.00	90.13	2.45	7,248.47	955.21	2,892.95	1,272,339.34	3,235,004.01	40.077907	-104.660188
9,574.00	90.88	2.54	7,247.63	1,050.11	2,897.09	1,272,434.28	3,235,007.26	40.078168	-104.660174
9,668.00	90.75	2.01	7,246.30	1,144.03	2,900.82	1,272,528.23	3,235,010.11	40.078426	-104.660160
9,763.00	90.88	1.83	7,244.95	1,238.97	2,904.00	1,272,623.19	3,235,012.41	40.078686	-104.660149
9,858.00	90.88	1.92	7,243.49	1,333.91	2,907.11	1,272,718.16	3,235,014.63	40.078947	-104.660138
9,952.00	91.19	1.83	7,241.79	1,427.84	2,910.18	1,272,812.11	3,235,016.82	40.079205	-104.660127
10,047.00	87.76	2.01	7,242.66	1,522.77	2,913.37	1,272,907.07	3,235,019.12	40.079465	-104.660115
10,142.00	87.76	2.10	7,246.37	1,617.63	2,916.77	1,273,001.96	3,235,021.63	40.079726	-104.660103
10,236.00	87.89	1.83	7,249.94	1,711.51	2,919.99	1,273,095.87	3,235,023.98	40.079983	-104.660091
10,331.00	87.36	1.48	7,253.88	1,806.39	2,922.73	1,273,190.76	3,235,025.83	40.080244	-104.660082
10,425.00	89.69	0.07	7,256.30	1,900.34	2,924.00	1,273,284.72	3,235,026.22	40.080502	-104.660077
10,520.00	89.87	359.90	7,256.66	1,995.34	2,923.98	1,273,379.72	3,235,025.31	40.080763	-104.660077
10,614.00	89.69	359.02	7,257.02	2,089.33	2,923.09	1,273,473.70	3,235,023.54	40.081021	-104.660080

Survey Report - Geographic

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well RUEGGE 3R-4H-N165 - Slot RUEGGE 3R-4H-N165 SHL
Project:	DJ BASIN	TVD Reference:	23' KB @ 4937.00usft
Site:	S4-T1N-R65W (RUEGGE)	MD Reference:	23' KB @ 4937.00usft
Well:	RUEGGE 3R-4H-N165	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	FINAL	Database:	USA EDM 5000 Multi Users DB

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
10,709.00	90.92	358.49	7,256.52	2,184.31	2,921.03	1,273,568.65	3,235,020.59	40.081281	-104.660088
10,804.00	91.63	358.49	7,254.40	2,279.25	2,918.53	1,273,663.57	3,235,017.20	40.081542	-104.660096
10,899.00	91.71	357.88	7,251.63	2,374.16	2,915.52	1,273,758.45	3,235,013.30	40.081803	-104.660107
10,993.00	92.02	0.16	7,248.57	2,468.09	2,913.91	1,273,852.36	3,235,010.82	40.082060	-104.660113
11,088.00	92.07	359.64	7,245.18	2,563.03	2,913.75	1,273,947.29	3,235,009.76	40.082321	-104.660113
11,183.00	92.15	358.93	7,241.69	2,657.96	2,912.56	1,274,042.20	3,235,007.69	40.082582	-104.660118
11,278.00	91.58	2.01	7,238.59	2,752.89	2,913.34	1,274,137.14	3,235,007.58	40.082842	-104.660115
11,372.00	91.71	1.83	7,235.90	2,846.80	2,916.49	1,274,231.07	3,235,009.85	40.083100	-104.660104
11,467.00	91.89	1.31	7,232.91	2,941.72	2,919.09	1,274,326.01	3,235,011.57	40.083361	-104.660094
11,562.00	92.37	0.51	7,229.38	3,036.64	2,920.60	1,274,420.94	3,235,012.19	40.083621	-104.660089
11,656.00	90.09	0.51	7,227.36	3,130.61	2,921.43	1,274,514.91	3,235,012.14	40.083879	-104.660086
11,751.00	90.79	359.81	7,226.63	3,225.61	2,921.70	1,274,609.91	3,235,011.52	40.084140	-104.660085
11,845.00	90.09	359.55	7,225.91	3,319.60	2,921.17	1,274,703.89	3,235,010.12	40.084398	-104.660087
11,939.00	89.78	0.07	7,226.02	3,413.60	2,920.86	1,274,797.89	3,235,008.92	40.084656	-104.660088
12,034.00	90.13	359.81	7,226.09	3,508.60	2,920.76	1,274,892.88	3,235,007.94	40.084917	-104.660088
12,129.00	90.48	358.84	7,225.59	3,603.59	2,919.64	1,274,987.86	3,235,005.93	40.085178	-104.660092
12,224.00	89.21	2.27	7,225.84	3,698.57	2,920.56	1,275,082.84	3,235,005.96	40.085438	-104.660089
12,318.00	90.04	2.18	7,226.46	3,792.50	2,924.21	1,275,176.80	3,235,008.73	40.085696	-104.660076
12,413.00	91.10	1.66	7,225.51	3,887.44	2,927.40	1,275,271.76	3,235,011.03	40.085957	-104.660064
12,506.00	92.46	1.04	7,222.63	3,980.36	2,929.59	1,275,364.71	3,235,012.35	40.086212	-104.660056
12,599.00	92.90	0.95	7,218.28	4,073.25	2,931.20	1,275,457.60	3,235,013.09	40.086467	-104.660050
LAST SURVEY - 12599.00' MD									
12,660.00	92.90	0.95	7,215.19	4,134.16	2,932.21	1,275,518.52	3,235,013.53	40.086634	-104.660047
PTB - 12660.00' MD (465 FNL, 221 FEL)									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
RUEGGE 3R-4H-N165 I - hit/miss target - Shape - Point	0.00	0.00	7,231.00	4,139.29	2,928.94	1,275,523.62	3,235,010.22	40.086648	-104.660058
- actual wellpath misses target center by 16.94usft at 12660.00usft MD (7215.19 TVD, 4134.16 N, 2932.21 E)									
RUEGGE 3R-4H-N165 J - hit/miss target - Shape - Point	0.00	0.00	7,238.00	2,617.14	2,913.15	1,274,001.39	3,235,008.67	40.082470	-104.660116
- actual wellpath misses target center by 5.20usft at 11142.34usft MD (7243.20 TVD, 2617.33 N, 2913.21 E)									
RUEGGE 3R-4H-N165 K - hit/miss target - Shape - Point	0.00	0.00	7,247.00	1,595.19	2,902.55	1,272,979.39	3,235,007.63	40.079664	-104.660154
- actual wellpath misses target center by 13.48usft at 10119.11usft MD (7245.48 TVD, 1594.77 N, 2915.94 E)									
RUEGGE 3R-4H-N165 L - hit/miss target - Shape - Point	0.00	0.00	7,253.00	-261.68	2,883.29	1,271,122.41	3,235,005.74	40.074567	-104.660223
- actual wellpath misses target center by 35.43usft at 8262.78usft MD (7219.23 TVD, -259.44 N, 2893.80 E)									

Survey Report - Geographic

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well RUEGGE 3R-4H-N165 - Slot RUEGGE 3R-4H-N165 SHL
Project:	DJ BASIN	TVD Reference:	23' KB @ 4937.00usft
Site:	S4-T1N-R65W (RUEGGE)	MD Reference:	23' KB @ 4937.00usft
Well:	RUEGGE 3R-4H-N165	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	FINAL	Database:	USA EDM 5000 Multi Users DB

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
8,260.51	7,218.91	-261.68	2,893.58	TPZ - 8260.51' MD (460 FSL, 214 FEL)
12,599.00	7,218.28	4,073.25	2,931.20	LAST SURVEY - 12599.00' MD
12,660.00	7,215.19	4,134.16	2,932.21	PTB - 12660.00' MD (465 FNL, 221 FEL)

Checked By: _____	Approved By: _____	Date: _____
-------------------	--------------------	-------------