



**CRESTONE PEAK**  
RESOURCES

# **Crestone Peak Resources**

**DJ BASIN**

**S4-T1N-R65W (RUEGGE)**

**RUEGGE 3M-4H-N165 - Slot RUEGGE 3M-4H-N165 SHL**

**OH**

**Design: FINAL**

## **Standard Survey Report**

**09 October, 2019**





**CRESTONE PEAK**  
RESOURCES

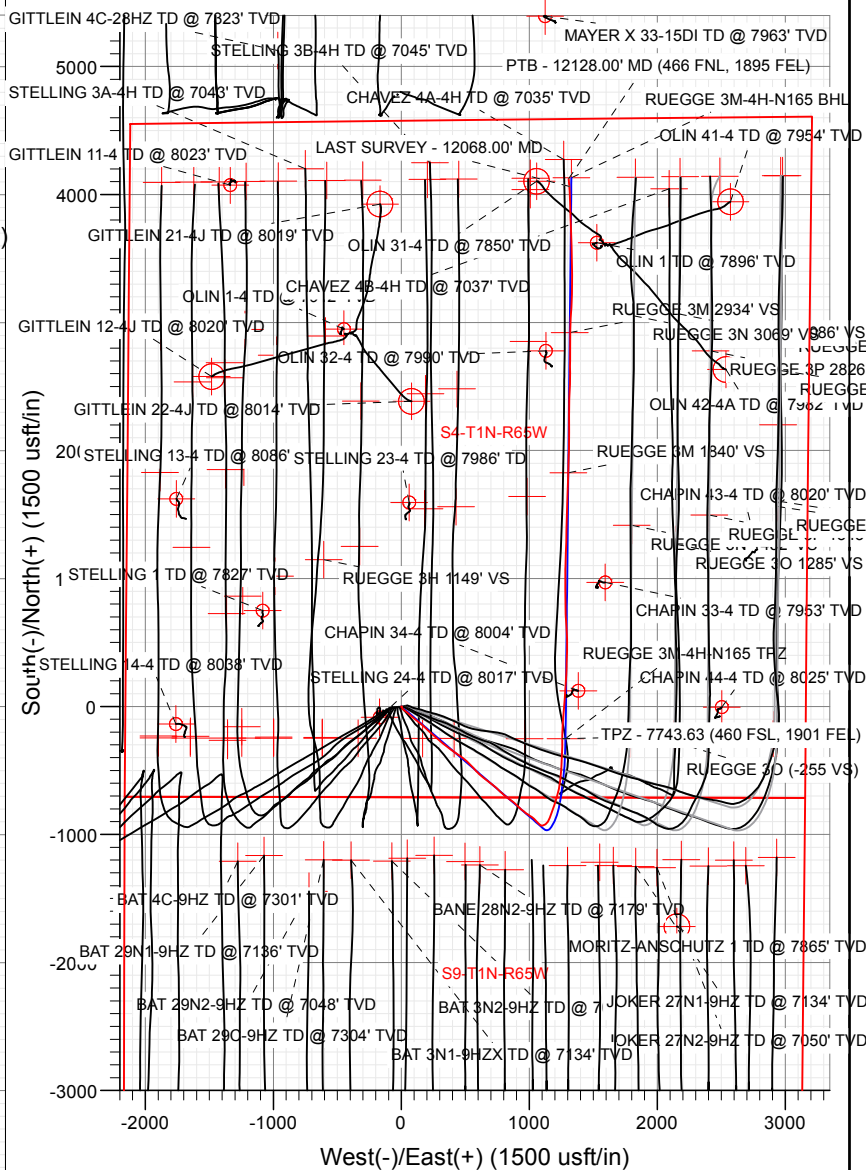
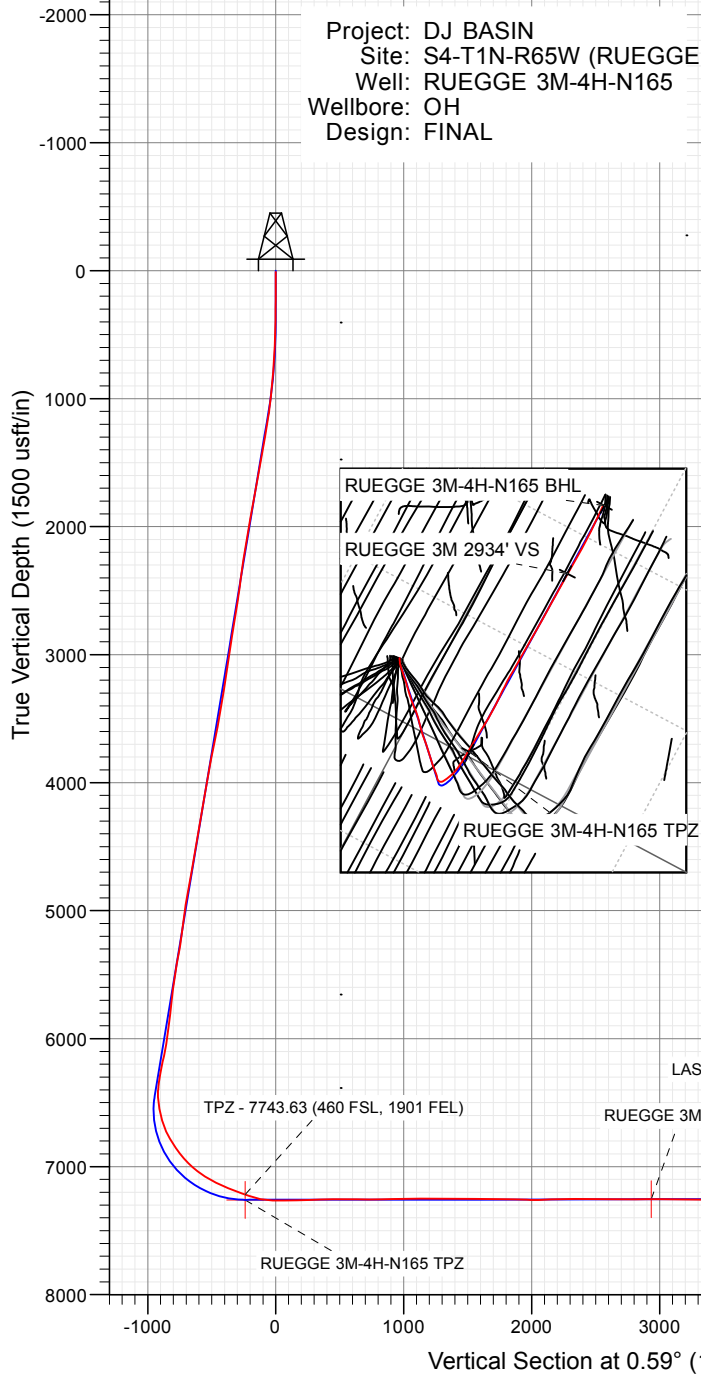
# SECTION DETAILS

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	400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	
3	1124.96	14.50	130.67	1117.25	-59.46	69.21	2.00	130.67	-58.74	
4	6626.12	14.50	130.67	6443.20	-957.02	1113.89	0.00	0.00	-945.50	
5	7867.40	90.03	0.59	7259.00	-251.56	1282.71	8.00	-129.16	-238.33	RUEGGE 3M-4H-N165 TPZ
6	9945.74	90.03	0.59	7258.00	1826.67	1304.23	0.00	0.00	1840.00	RUEGGE 3M 1840' VS
7	9954.92	90.21	0.59	7257.98	1835.86	1304.32	2.00	0.00	1849.19	
8	11029.18	90.21	0.59	7254.02	2910.05	1315.44	0.00	0.00	2923.44	
9	11039.74	90.00	0.59	7254.00	2920.61	1315.55	2.00	-180.00	2934.00	RUEGGE 3M 2934' VS
10	12249.26	90.00	0.59	7254.00	4130.07	1328.07	0.00	0.00	4143.52	RUEGGE 3M-4H-N165 BHL

FINAL  
RUEGGE 3M-4H-N165  
360731 185110 385137 185200  
23' LB @ 4938.00usft  
Ground Level @ 4915.00  
North American Datum 1983  
Well RUEGGE 3M-4H-N165 - Slot RUEGGE 3M-4H-N165 SHL True North

Type	User	Target	No Target (Freehand)	Azimuth	Origin	Type	N/S	E/W	From	TVD
Name										
RUEGGE 3M 2934' VS				7254.00	2920.61	1315.55	40.083283	-104.666001		
RUEGGE 3M-4H-N165 BHL				7254.00	4130.07	1328.07	40.086603	-104.665966		
RUEGGE 3M 1840' VS				7258.00	1826.67	1304.23	40.080280	-104.666042		
RUEGGE 3M-4H-N165 TPZ				7259.00	-251.56	1282.71	40.074575	-104.666119		

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



Azimuths to True North  
Magnetic North: 8.17°  
Magnetic Field  
Strength: 52106.3nT  
Dip Angle: 66.47°  
Date: 7/7/2018  
Model: HDGM\_FILE

## WELL DETAILS: RUEGGE 3M-4H-N165

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	1271349.30	3232070.73	40.075265	-104.670703	

**CATHEDRAL**



<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well RUEGGE 3M-4H-N165 - Slot RUEGGE 3M-4H-N165 SHL
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' LB @ 4938.00usft
<b>Site:</b>	S4-T1N-R65W (RUEGGE)	<b>MD Reference:</b>	23' LB @ 4938.00usft
<b>Well:</b>	RUEGGE 3M-4H-N165	<b>North Reference:</b>	True
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	FINAL	<b>Database:</b>	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 3M-4H-N165 - Slot RUEGGE 3M-4H-N165 SHL					
Well Position	+N/-S	0.00 usft	Northing:	1,271,349.30 usft	Latitude:	40.075265
	+E/-W	0.00 usft	Easting:	3,232,070.74 usft	Longitude:	-104.670703
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	4,915.00 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM_FILE	7/7/2018	8.17	66.47	52,106.30000000

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	10/9/2019		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
108.00	2,423.00	Survey #1 (OH)	VESSI_GYROFLEX	VESSI Gyroflex Gyro	
2,558.00	12,128.00	Survey #2 (OH)	MWD+HDGM	OWSG MWD + HDGM	

Survey										
	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)
	10.00	0.00	0.00	10.00	0.00	0.00	0.00	0.00	0.00	0.00
	108.00	0.13	179.56	108.00	-0.11	0.00	-0.11	0.13	0.13	0.00
	169.00	0.64	134.89	169.00	-0.42	0.24	-0.42	0.91	0.84	-73.23
	230.00	0.62	184.75	230.00	-0.99	0.46	-0.99	0.87	-0.03	81.74
	291.00	0.67	172.61	290.99	-1.67	0.48	-1.67	0.24	0.08	-19.90
	352.00	1.16	124.43	351.98	-2.38	1.03	-2.36	1.43	0.80	-78.98
	413.00	1.02	129.17	412.97	-3.07	1.96	-3.05	0.27	-0.23	7.77
	475.00	1.34	115.11	474.96	-3.72	3.04	-3.69	0.69	0.52	-22.68
	556.00	2.87	166.28	555.91	-6.10	4.38	-6.05	2.82	1.89	63.17

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well RUEGGE 3M-4H-N165 - Slot RUEGGE 3M-4H-N165 SHL
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' LB @ 4938.00usft
<b>Site:</b>	S4-T1N-R65W (RUEGGE)	<b>MD Reference:</b>	23' LB @ 4938.00usft
<b>Well:</b>	RUEGGE 3M-4H-N165	<b>North Reference:</b>	True
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	FINAL	<b>Database:</b>	USA EDM 5000 Multi Users DB

Survey									
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)
642.00	3.98	157.93	641.75	-10.95	6.02	-10.89	1.41	1.29	-9.71
701.00	4.19	152.62	700.60	-14.77	7.78	-14.68	0.73	0.36	-9.00
785.00	5.49	138.20	784.31	-20.49	11.87	-20.36	2.11	1.55	-17.17
867.00	7.49	130.72	865.78	-26.90	18.53	-26.71	2.64	2.44	-9.12
950.00	9.50	122.40	947.87	-34.10	28.42	-33.80	2.83	2.42	-10.02
1,032.00	11.12	127.54	1,028.54	-42.54	40.40	-42.12	2.27	1.98	6.27
1,115.00	12.86	132.82	1,109.73	-53.70	53.52	-53.14	2.48	2.10	6.36
1,221.00	15.91	129.88	1,212.40	-71.04	73.33	-70.28	2.96	2.88	-2.77
1,304.00	14.80	130.49	1,292.43	-85.21	90.12	-84.28	1.35	-1.34	0.73
1,386.00	14.27	130.32	1,371.81	-98.55	105.79	-97.46	0.65	-0.65	-0.21
1,468.00	15.40	128.21	1,451.07	-111.83	122.06	-110.57	1.53	1.38	-2.57
1,529.00	15.36	128.43	1,509.89	-121.86	134.75	-120.47	0.12	-0.07	0.36
1,612.00	15.63	130.00	1,589.87	-135.88	151.92	-134.31	0.60	0.33	1.89
1,696.00	15.72	132.04	1,670.75	-150.77	169.04	-149.03	0.66	0.11	2.43
1,780.00	15.79	132.27	1,751.59	-166.08	185.95	-164.16	0.11	0.08	0.27
1,860.00	15.24	134.04	1,828.68	-180.71	201.57	-178.63	0.91	-0.69	2.21
1,943.00	15.17	133.94	1,908.77	-195.83	217.23	-193.58	0.09	-0.08	-0.12
2,028.00	14.63	134.52	1,990.91	-211.07	232.89	-208.67	0.66	-0.64	0.68
2,117.00	14.89	129.14	2,076.98	-226.17	249.77	-223.59	1.57	0.29	-6.04
2,207.00	14.41	128.34	2,164.06	-240.42	267.53	-237.65	0.58	-0.53	-0.89
2,296.00	12.47	129.06	2,250.61	-253.35	283.67	-250.41	2.19	-2.18	0.81
2,386.00	13.08	129.59	2,338.39	-265.96	299.07	-262.87	0.69	0.68	0.59
2,423.00	13.19	130.87	2,374.42	-271.39	305.49	-268.23	0.84	0.30	3.46
2,558.00	11.16	131.56	2,506.37	-290.14	326.91	-286.76	1.51	-1.50	0.51
2,653.00	13.80	129.45	2,599.12	-303.44	342.54	-299.89	2.82	2.78	-2.22
2,747.00	15.82	126.81	2,690.00	-318.24	361.46	-314.50	2.27	2.15	-2.81
2,841.00	14.41	124.70	2,780.74	-332.58	381.34	-328.63	1.61	-1.50	-2.24
2,936.00	16.57	126.29	2,872.29	-347.33	401.98	-343.17	2.32	2.27	1.67
3,030.00	16.00	125.06	2,962.52	-362.70	423.38	-358.32	0.71	-0.61	-1.31
3,125.00	14.63	122.68	3,054.14	-376.70	444.20	-372.11	1.59	-1.44	-2.51
3,231.00	15.51	128.75	3,156.50	-392.80	466.52	-387.98	1.70	0.83	5.73
3,325.00	13.58	127.87	3,247.48	-407.44	485.04	-402.43	2.07	-2.05	-0.94
3,420.00	13.01	128.22	3,339.94	-420.91	502.24	-415.71	0.61	-0.60	0.37
3,515.00	13.67	135.04	3,432.38	-435.47	518.58	-430.10	1.79	0.69	7.18
3,609.00	14.50	133.67	3,523.55	-451.45	534.94	-445.92	0.95	0.88	-1.46
3,704.00	16.30	137.71	3,615.14	-469.53	552.51	-463.81	2.20	1.89	4.25
3,798.00	16.08	137.18	3,705.41	-488.83	570.24	-482.94	0.28	-0.23	-0.56
3,893.00	15.51	138.06	3,796.83	-507.93	587.67	-501.85	0.65	-0.60	0.93
3,988.00	14.19	133.67	3,888.65	-525.42	604.58	-519.17	1.82	-1.39	-4.62
4,082.00	14.59	130.15	3,979.71	-541.01	621.97	-534.58	1.02	0.43	-3.74
4,177.00	15.47	128.57	4,071.46	-556.63	641.02	-550.00	1.02	0.93	-1.66
4,272.00	16.57	127.60	4,162.76	-572.79	661.66	-565.95	1.19	1.16	-1.02

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well RUEGGE 3M-4H-N165 - Slot RUEGGE 3M-4H-N165 SHL
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' LB @ 4938.00usft
<b>Site:</b>	S4-T1N-R65W (RUEGGE)	<b>MD Reference:</b>	23' LB @ 4938.00usft
<b>Well:</b>	RUEGGE 3M-4H-N165	<b>North Reference:</b>	True
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	FINAL	<b>Database:</b>	USA EDM 5000 Multi Users DB

Survey									
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)
4,366.00	17.53	128.04	4,252.63	-589.69	683.43	-582.63	1.03	1.02	0.47
4,461.00	15.07	125.14	4,343.81	-605.62	704.80	-598.33	2.73	-2.59	-3.05
4,556.00	14.77	126.46	4,435.61	-619.93	724.64	-612.43	0.48	-0.32	1.39
4,650.00	14.33	134.20	4,526.60	-635.16	742.62	-627.48	2.12	-0.47	8.23
4,745.00	14.11	134.99	4,618.69	-651.54	759.23	-643.69	0.31	-0.23	0.83
4,840.00	14.06	134.46	4,710.83	-667.81	775.66	-659.79	0.15	-0.05	-0.56
4,934.00	17.36	131.38	4,801.31	-685.08	794.34	-676.87	3.62	3.51	-3.28
5,029.00	14.99	128.57	4,892.54	-702.12	814.58	-693.69	2.63	-2.49	-2.96
5,124.00	12.79	128.31	4,984.76	-716.30	832.44	-707.69	2.32	-2.32	-0.27
5,218.00	13.45	123.91	5,076.31	-728.85	849.68	-720.06	1.27	0.70	-4.68
5,313.00	13.98	122.86	5,168.60	-741.24	868.49	-732.25	0.62	0.56	-1.11
5,408.00	12.83	133.58	5,261.02	-754.74	885.77	-745.57	2.88	-1.21	11.28
5,502.00	14.46	136.48	5,352.37	-770.44	901.41	-761.12	1.88	1.73	3.09
5,596.00	14.11	135.51	5,443.46	-787.13	917.52	-777.64	0.45	-0.37	-1.03
5,690.00	12.66	128.75	5,534.91	-801.75	933.59	-792.09	2.27	-1.54	-7.19
5,785.00	11.34	127.16	5,627.84	-813.91	949.15	-804.09	1.43	-1.39	-1.67
5,880.00	10.11	128.57	5,721.17	-824.75	963.11	-814.79	1.32	-1.29	1.48
5,975.00	12.00	125.32	5,814.41	-835.66	977.69	-825.55	2.09	1.99	-3.42
6,070.00	12.35	125.23	5,907.27	-847.23	994.05	-836.95	0.37	0.37	-0.09
6,164.00	14.90	121.28	5,998.62	-859.30	1,012.59	-848.83	2.89	2.71	-4.20
6,259.00	17.05	131.65	6,089.97	-874.91	1,033.45	-864.22	3.75	2.26	10.92
6,353.00	16.35	137.97	6,180.01	-893.89	1,052.60	-883.01	2.07	-0.74	6.72
6,447.00	14.59	135.07	6,270.60	-912.10	1,069.82	-901.04	2.04	-1.87	-3.09
6,543.00	11.43	128.83	6,364.13	-926.63	1,085.78	-915.40	3.60	-3.29	-6.50
6,637.00	13.84	80.23	6,456.09	-930.58	1,104.17	-919.16	11.24	2.56	-51.70
6,732.00	16.52	52.37	6,547.89	-920.39	1,126.09	-908.74	8.09	2.82	-29.33
6,827.00	17.75	34.09	6,638.74	-900.13	1,144.92	-888.29	5.79	1.29	-19.24
6,921.00	25.49	20.29	6,726.11	-869.23	1,160.00	-857.24	9.80	8.23	-14.68
7,016.00	34.72	19.67	6,808.21	-824.48	1,176.23	-812.33	9.72	9.72	-0.65
7,110.00	38.41	18.80	6,883.70	-771.61	1,194.66	-759.27	3.96	3.93	-0.93
7,205.00	43.86	17.04	6,955.22	-712.16	1,213.83	-699.62	5.86	5.74	-1.85
7,300.00	51.55	10.97	7,019.14	-644.04	1,230.58	-631.33	9.37	8.09	-6.39
7,395.00	56.82	6.84	7,074.72	-567.97	1,242.41	-555.15	6.57	5.55	-4.35
7,489.00	63.33	3.77	7,121.60	-486.90	1,249.87	-474.01	7.48	6.93	-3.27
7,584.00	67.37	2.10	7,161.22	-400.69	1,254.26	-387.76	4.54	4.25	-1.76
7,679.00	69.61	0.69	7,196.05	-312.34	1,256.41	-299.39	2.73	2.36	-1.48
7,743.63	70.70	0.69	7,217.99	-251.56	1,257.14	-238.60	1.68	1.68	0.00
TPZ - 7743.63 (460 FSL, 1901 FEL)									
7,773.00	71.19	0.69	7,227.58	-223.80	1,257.47	-210.84	1.68	1.68	0.00
7,868.00	77.70	4.29	7,253.05	-132.43	1,261.49	-119.44	7.76	6.85	3.79
7,962.00	89.34	5.08	7,263.64	-39.51	1,269.12	-26.44	12.41	12.38	0.84
8,057.00	90.53	3.94	7,263.75	55.19	1,276.59	68.34	1.73	1.25	-1.20
8,152.00	91.23	3.24	7,262.29	150.00	1,282.53	163.19	1.04	0.74	-0.74

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well RUEGGE 3M-4H-N165 - Slot RUEGGE 3M-4H-N165 SHL
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' LB @ 4938.00usft
<b>Site:</b>	S4-T1N-R65W (RUEGGE)	<b>MD Reference:</b>	23' LB @ 4938.00usft
<b>Well:</b>	RUEGGE 3M-4H-N165	<b>North Reference:</b>	True
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	FINAL	<b>Database:</b>	USA EDM 5000 Multi Users DB

Survey										
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)	
8,247.00	92.73	3.24	7,259.01	244.78	1,287.90	258.03	1.58	1.58	0.00	
8,341.00	90.57	1.57	7,256.30	338.65	1,291.84	351.94	2.90	-2.30	-1.78	
8,436.00	91.10	1.04	7,254.92	433.62	1,294.00	446.92	0.79	0.56	-0.56	
8,531.00	90.22	358.40	7,253.82	528.60	1,293.54	541.89	2.93	-0.93	-2.78	
8,626.00	88.11	356.21	7,255.21	623.48	1,289.07	636.72	3.20	-2.22	-2.31	
8,720.00	90.62	358.05	7,256.25	717.34	1,284.37	730.53	3.31	2.67	1.96	
8,815.00	91.23	359.29	7,254.71	812.30	1,282.16	825.46	1.45	0.64	1.31	
8,910.00	91.58	359.55	7,252.39	907.27	1,281.20	920.41	0.46	0.37	0.27	
9,004.00	89.87	359.28	7,251.20	1,001.25	1,280.24	1,014.38	1.84	-1.82	-0.29	
9,098.00	90.84	2.89	7,250.61	1,095.21	1,282.02	1,108.36	3.98	1.03	3.84	
9,193.00	89.74	1.83	7,250.13	1,190.13	1,285.93	1,203.31	1.61	-1.16	-1.12	
9,288.00	90.09	0.87	7,250.27	1,285.10	1,288.17	1,298.30	1.08	0.37	-1.01	
9,382.00	90.00	1.74	7,250.20	1,379.08	1,290.31	1,392.29	0.93	-0.10	0.93	
9,477.00	89.30	1.48	7,250.78	1,474.04	1,292.98	1,487.27	0.79	-0.74	-0.27	
9,572.00	89.69	1.04	7,251.62	1,569.01	1,295.07	1,582.26	0.62	0.41	-0.46	
9,667.00	89.17	3.33	7,252.56	1,663.93	1,298.69	1,677.21	2.47	-0.55	2.41	
9,761.00	89.25	0.78	7,253.86	1,757.85	1,302.06	1,771.17	2.71	0.09	-2.71	
9,856.00	88.51	2.10	7,255.72	1,852.80	1,304.45	1,866.14	1.59	-0.78	1.39	
9,951.00	88.20	2.10	7,258.44	1,947.70	1,307.93	1,961.06	0.33	-0.33	0.00	
10,045.00	90.70	0.87	7,259.35	2,041.65	1,310.37	2,055.04	2.96	2.66	-1.31	
10,140.00	90.70	358.23	7,258.18	2,136.64	1,309.62	2,150.01	2.78	0.00	-2.78	
10,234.00	93.08	0.60	7,255.08	2,230.57	1,308.66	2,243.92	3.57	2.53	2.52	
10,329.00	91.49	1.22	7,251.30	2,325.47	1,310.17	2,338.84	1.80	-1.67	0.65	
10,424.00	89.21	2.80	7,250.72	2,420.40	1,313.50	2,433.80	2.92	-2.40	1.66	
10,519.00	88.42	1.30	7,252.68	2,515.32	1,316.90	2,528.75	1.78	-0.83	-1.58	
10,613.00	88.77	359.46	7,254.99	2,609.29	1,317.52	2,622.71	1.99	0.37	-1.96	
10,708.00	90.00	0.95	7,256.01	2,704.28	1,317.86	2,717.70	2.03	1.29	1.57	
10,803.00	91.10	359.81	7,255.09	2,799.27	1,318.49	2,812.69	1.67	1.16	-1.20	
10,897.00	91.10	0.87	7,253.29	2,893.25	1,319.05	2,906.67	1.13	0.00	1.13	
10,991.00	88.64	2.01	7,253.50	2,987.21	1,321.41	3,000.66	2.88	-2.62	1.21	
11,086.00	89.34	3.85	7,255.18	3,082.06	1,326.26	3,095.56	2.07	0.74	1.94	
11,180.00	88.37	1.74	7,257.06	3,175.93	1,330.85	3,189.46	2.47	-1.03	-2.24	
11,275.00	89.60	0.43	7,258.74	3,270.89	1,332.64	3,284.44	1.89	1.29	-1.38	
11,370.00	91.41	2.27	7,257.90	3,365.85	1,334.88	3,379.42	2.72	1.91	1.94	
11,464.00	88.51	357.35	7,257.97	3,459.81	1,334.57	3,473.37	6.08	-3.09	-5.23	
11,559.00	88.20	358.05	7,260.69	3,554.70	1,330.76	3,568.21	0.81	-0.33	0.74	
11,653.00	88.95	358.49	7,263.03	3,648.62	1,327.92	3,662.10	0.92	0.80	0.47	
11,749.00	89.39	357.88	7,264.42	3,744.56	1,324.88	3,758.01	0.78	0.46	-0.64	
11,843.00	90.22	358.14	7,264.74	3,838.51	1,321.62	3,851.91	0.93	0.88	0.28	
11,938.00	90.92	357.79	7,263.80	3,933.44	1,318.25	3,946.81	0.82	0.74	-0.37	
12,033.00	91.98	357.88	7,261.39	4,028.34	1,314.66	4,041.67	1.12	1.12	0.09	
12,068.00	92.20	355.77	7,260.12	4,063.26	1,312.72	4,076.56	6.06	0.63	-6.03	
LAST SURVEY - 12068.00' MD										

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well RUEGGE 3M-4H-N165 - Slot RUEGGE 3M-4H-N165 SHL
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' LB @ 4938.00usft
<b>Site:</b>	S4-T1N-R65W (RUEGGE)	<b>MD Reference:</b>	23' LB @ 4938.00usft
<b>Well:</b>	RUEGGE 3M-4H-N165	<b>North Reference:</b>	True
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	FINAL	<b>Database:</b>	USA EDM 5000 Multi Users DB

Survey									
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)
12,128.00	92.20	355.77	7,257.81	4,123.06	1,308.30	4,136.31	0.00	0.00	0.00
PTB - 12128.00' MD (466 FNL, 1895 FEL)									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
RUEGGE 3M-4H-N165 I - hit/miss target - Shape - Point	0.00	0.00	7,254.00	4,130.07	1,328.07	1,275,491.61	3,233,360.13	40.086603	-104.665957
- actual wellpath misses target center by 21.33usft at 12128.00usft MD (7257.81 TVD, 4123.06 N, 1308.30 E)									
RUEGGE 3M 2934' VS - actual wellpath misses target center by 4.13usft at 10924.27usft MD (7252.94 TVD, 2920.51 N, 1319.54 E) - Point	0.00	0.00	7,254.00	2,920.61	1,315.55	1,274,282.09	3,233,358.92	40.083283	-104.666002
RUEGGE 3M-4H-N165 ` - actual wellpath misses target center by 46.33usft at 7757.31usft MD (7222.49 TVD, -238.64 N, 1257.30 E) - Point	0.00	0.00	7,259.00	-251.56	1,282.71	1,271,109.75	3,233,355.74	40.074575	-104.666120

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
7,743.63	7,217.99	-251.56	1,257.14	TPZ - 7743.63 (460 FSL, 1901 FEL)
12,068.00	7,260.12	4,063.26	1,312.72	LAST SURVEY - 12068.00' MD
12,128.00	7,257.81	4,123.06	1,308.30	PTB - 12128.00' MD (466 FNL, 1895 FEL)

Checked By: \_\_\_\_\_ Approved By: \_\_\_\_\_ Date: \_\_\_\_\_