



**CRESTONE PEAK**  
RESOURCES

SURVEY DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Vsect	Departure	Annotation
7863.22	75.58	1.50	7296.17	-235.13	-1308.46	-215.92	2237.51	TPZ - 7863.22 (460 FSL, 770 FWL)
12135.00	91.10	356.92	7270.96	4030.12	-1347.14	4049.43	6504.61	LAST SURVEY - 12135.00' MD
12202.00	91.10	356.92	7269.68	4097.01	-1350.74	4116.37	6571.59	PTB - 12202.00' MD (473 FNL, 692 FWL)

FINAL  
RUEGGE 3E-4H-N165  
358337 185085 379437 185174  
23 KB @ 4939.00usf  
Ground Level @ 4916.00  
North American Datum 1983  
Well RUEGGE 3E-4H-N165 - Slot RUEGGE 3E-4H-N165 SHL True North

Name	Type	User	Target	No Target (Freehand)	Azimuth	Origin	Type	N/S	E/W	From	TVD	Latitude	Longitude
RUEGGE 3E-4H-N165 BHL					7276.00	4110.72	-1343.02	40.086517	-104.675786				
RUEGGE 3E TOT					7282.00	2580.00	-1300.00	40.082315	-104.675632				
RUEGGE 3E - 1881' VS					7291.00	1862.22	-1294.63	40.080345	-104.675612				
RUEGGE 3E - 2716' VS					7291.00	2697.19	-1302.71	40.082637	-104.675641				
RUEGGE 3E - 234' VS					7320.00	-252.77	-1278.76	40.074539	-104.675555				
RUEGGE 3E - 756' VS					7329.00	737.22	-1286.21	40.077257	-104.675582				
RUEGGE 3E-4H-N165 TPZ					7330.00	-235.13	-1278.93	40.074587	-104.675556				

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

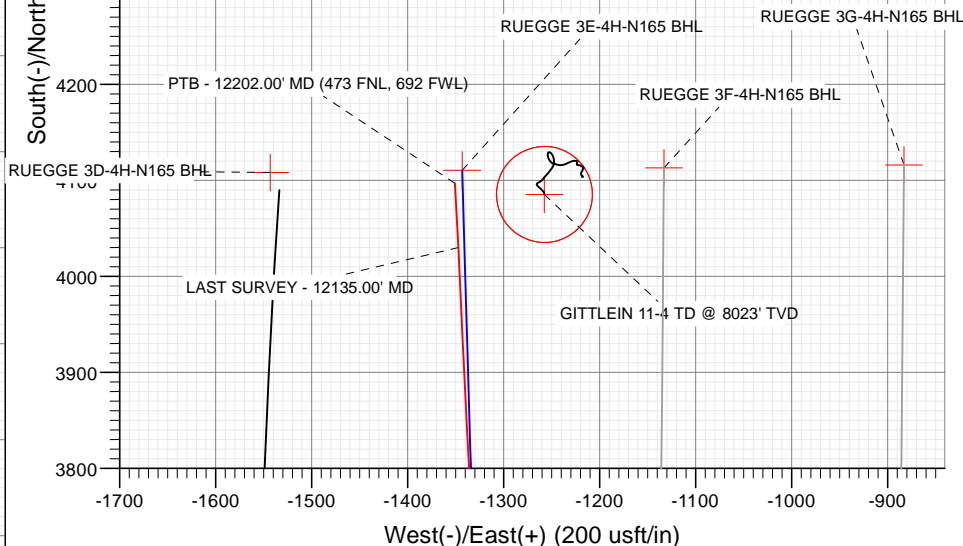
True Vertical Depth (200 usf/in)



Azimuths to True North  
Magnetic North: 8.17°

Magnetic Field  
Strength: 52118.4nT  
Dip Angle: 66.47°  
Date: 6/1/2018  
Model: HDGM\_FILE

South(-)/North(+) (200 usf/in)



Vertical Section at 359.16° (200 usf/in)

PTB - 12202.00' MD (473 FNL, 692 FWL)  
LAST SURVEY - 12135.00' MD

WELL DETAILS: RUEGGE 3E-4H-N165

+N/-S	+E/-W	Northing	Easting	4916.00	Latitude	Longitude
0.00	0.00	1271336.81	3231991.72		40.075233	-104.670986

**CATHEDRAL**



# Cathedral Energy Services

## Survey Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well RUEGGE 3E-4H-N165 - Slot RUEGGE 3E-4
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 4939.00usft
<b>Site:</b>	S4-T1N-R65W (RUEGGE)	<b>MD Reference:</b>	23' KB @ 4939.00usft
<b>Well:</b>	RUEGGE 3E-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

<b>Project</b>	DJ BASIN		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	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:	-104.671056
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.54 °

Well	RUEGGE 3E-4H-N165 - Slot RUEGGE 3E-4H-N165 SHL					
Well Position	+N/-S	0.00 usft	Northing:	1,271,336.81 usft	Latitude:	40.075233
	+E/-W	0.00 usft	Easting:	3,231,991.72 usft	Longitude:	-104.670986
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	4,916.00 usft

<b>Wellbore</b>	OH				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	HDGM_FILE	6/1/2018	8.17	66.47	52,118.40000000

<b>Design</b>	FINAL				
<b>Audit Notes:</b>					
<b>Version:</b>	1.0	<b>Phase:</b>	ACTUAL	<b>Tie On Depth:</b>	0.00
<b>Vertical Section:</b>	<b>Depth From (TVD) (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Direction (°)</b>	
	0.00	0.00	0.00	359.16	

<b>Survey Program</b>	<b>Date</b>	6/7/2018			
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
114.00	2,352.00	Survey #1 (OH)	VESSI_GYROFLEX	VESSI Gyroflex Gyro	
2,565.00	12,202.00	Survey #2 (OH)	MWD+HDGM	OWSG MWD + HDGM	

<b>Survey</b>									
<b>Measured Depth (usft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Vertical Section (usft)</b>	<b>Dogleg Rate (°/100usf)</b>	<b>Build Rate (°/100u)</b>	<b>Formations / Comments</b>
10.00	0.00	0.00	10.00	0.00	0.00	0.00	0.00	0.00	
114.00	0.16	134.63	114.00	-0.10	0.10	-0.10	0.15	0.15	
205.00	0.21	175.34	205.00	-0.36	0.21	-0.36	0.15	0.05	
297.00	0.27	124.69	297.00	-0.65	0.40	-0.65	0.23	0.07	
388.00	0.40	151.95	388.00	-1.05	0.72	-1.06	0.22	0.14	
469.00	0.32	177.45	469.00	-1.53	0.87	-1.54	0.22	-0.10	
553.00	0.21	118.71	552.99	-1.84	1.01	-1.85	0.33	-0.13	
636.00	1.80	232.14	635.98	-2.71	0.12	-2.71	2.28	1.92	
718.00	3.65	245.69	717.89	-4.57	-3.28	-4.52	2.37	2.26	
777.00	5.50	247.91	776.70	-6.41	-7.61	-6.30	3.15	3.14	
859.00	6.30	245.64	858.26	-9.74	-15.35	-9.52	1.02	0.98	
942.00	6.67	238.68	940.73	-14.13	-23.62	-13.78	1.05	0.45	

# Cathedral Energy Services

## Survey Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well RUEGGE 3E-4H-N165 - Slot RUEGGE 3E-4
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 4939.00usft
<b>Site:</b>	S4-T1N-R65W (RUEGGE)	<b>MD Reference:</b>	23' KB @ 4939.00usft
<b>Well:</b>	RUEGGE 3E-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 (°/100usf)	Build Rate (°/100u)	Formations / Comments
1,025.00	7.39	232.44	1,023.11	-19.89	-31.97	-19.42	1.26	0.87	
1,108.00	8.47	227.06	1,105.31	-27.31	-40.67	-26.71	1.58	1.30	
1,191.00	10.05	227.74	1,187.23	-36.34	-50.51	-35.60	1.91	1.90	
1,274.00	11.93	227.23	1,268.70	-47.04	-62.17	-46.12	2.27	2.27	
1,357.00	14.35	230.36	1,349.53	-59.43	-76.39	-58.30	3.04	2.92	
1,440.00	15.51	230.35	1,429.72	-73.07	-92.85	-71.70	1.40	1.40	
1,522.00	16.12	230.03	1,508.62	-87.38	-110.02	-85.76	0.75	0.74	
1,605.00	16.74	231.31	1,588.23	-102.25	-128.18	-100.36	0.86	0.75	
1,689.00	16.50	228.02	1,668.72	-117.79	-146.49	-115.63	1.16	-0.29	
1,775.00	14.97	226.20	1,751.50	-133.65	-163.59	-131.24	1.87	-1.78	
1,857.00	14.83	225.71	1,830.74	-148.31	-178.74	-145.67	0.23	-0.17	
1,939.00	13.84	229.47	1,910.19	-162.01	-193.71	-159.15	1.66	-1.21	
2,023.00	12.55	229.63	1,991.97	-174.45	-208.30	-171.38	1.54	-1.54	
2,103.00	11.93	229.04	2,070.15	-185.50	-221.17	-182.24	0.79	-0.77	
2,186.00	12.59	229.10	2,151.26	-197.05	-234.48	-193.59	0.80	0.80	
2,269.00	13.33	231.95	2,232.14	-208.87	-248.85	-205.20	1.18	0.89	
2,352.00	13.26	234.63	2,312.92	-220.28	-264.15	-216.38	0.75	-0.08	
2,565.00	15.03	231.76	2,519.45	-251.51	-305.77	-247.01	0.89	0.83	
2,659.00	16.00	231.85	2,610.03	-267.06	-325.53	-262.26	1.03	1.03	
2,754.00	14.15	230.89	2,701.75	-282.48	-344.83	-277.39	1.96	-1.95	
2,848.00	14.33	225.96	2,792.87	-297.81	-362.11	-292.47	1.30	0.19	
2,943.00	15.34	222.80	2,884.70	-315.20	-379.10	-309.61	1.36	1.06	
3,037.00	16.92	222.10	2,975.00	-334.48	-396.72	-328.63	1.69	1.68	
3,132.00	15.29	221.31	3,066.27	-354.15	-414.26	-348.03	1.73	-1.72	
3,227.00	13.76	224.91	3,158.23	-371.56	-430.51	-365.21	1.87	-1.61	
3,322.00	14.02	230.01	3,250.46	-386.95	-447.30	-380.36	1.32	0.27	
3,416.00	14.50	235.90	3,341.57	-400.87	-465.77	-394.00	1.62	0.51	
3,511.00	16.13	234.49	3,433.19	-415.20	-486.36	-408.03	1.76	1.72	
3,605.00	14.06	231.85	3,523.94	-429.84	-505.97	-422.38	2.32	-2.20	
3,700.00	13.71	240.55	3,616.18	-442.51	-524.85	-434.77	2.23	-0.37	
3,794.00	15.56	230.80	3,707.14	-455.96	-544.33	-447.93	3.27	1.97	
3,889.00	16.52	218.40	3,798.46	-474.60	-562.60	-466.30	3.74	1.01	
3,984.00	15.34	219.72	3,889.81	-494.85	-579.02	-486.31	1.30	-1.24	
4,079.00	15.65	225.61	3,981.37	-513.48	-596.20	-504.69	1.69	0.33	
4,173.00	16.08	227.81	4,071.79	-531.09	-614.91	-522.02	0.79	0.46	
4,268.00	17.71	228.69	4,162.68	-549.47	-635.51	-540.09	1.74	1.72	
4,373.00	16.26	231.59	4,263.10	-569.15	-659.03	-559.42	1.60	-1.38	
4,468.00	15.25	234.66	4,354.53	-584.64	-679.64	-574.61	1.38	-1.06	
4,563.00	17.01	240.20	4,445.80	-598.77	-701.90	-588.42	2.46	1.85	
4,657.00	18.19	232.99	4,535.41	-614.44	-725.55	-603.74	2.63	1.26	
4,752.00	16.13	231.41	4,626.17	-631.60	-747.71	-620.57	2.22	-2.17	
4,847.00	14.55	226.32	4,717.79	-648.07	-766.65	-636.76	2.18	-1.66	
4,941.00	15.38	220.95	4,808.60	-665.64	-783.36	-654.09	1.72	0.88	
5,036.00	14.41	229.57	4,900.42	-682.83	-800.62	-671.02	2.54	-1.02	
5,131.00	14.63	232.64	4,992.39	-697.77	-819.15	-685.69	0.84	0.23	
5,225.00	14.77	235.19	5,083.31	-711.82	-838.43	-699.45	0.70	0.15	
5,320.00	15.56	228.16	5,175.01	-727.23	-857.86	-714.58	2.11	0.83	
5,415.00	16.66	230.01	5,266.28	-744.48	-877.79	-731.53	1.28	1.16	
5,509.00	15.25	229.83	5,356.66	-761.12	-897.56	-747.88	1.50	-1.50	
5,603.00	12.52	231.06	5,447.90	-775.50	-914.94	-762.00	2.92	-2.90	
5,698.00	14.15	228.51	5,540.34	-789.66	-931.65	-775.92	1.82	1.72	
5,792.00	13.32	227.55	5,631.65	-804.58	-948.24	-790.60	0.92	-0.88	
5,887.00	13.14	225.26	5,724.13	-819.57	-963.99	-805.35	0.58	-0.19	

# Cathedral Energy Services

## Survey Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well RUEGGE 3E-4H-N165 - Slot RUEGGE 3E-4
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 4939.00usft
<b>Site:</b>	S4-T1N-R65W (RUEGGE)	<b>MD Reference:</b>	23' KB @ 4939.00usft
<b>Well:</b>	RUEGGE 3E-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 (°/100usf)	Build Rate (°/100u)	Formations / Comments
5,982.00	13.76	222.62	5,816.52	-835.49	-979.31	-821.04	0.92	0.65	
6,076.00	14.72	230.80	5,907.64	-851.26	-996.14	-836.57	2.37	1.02	
6,171.00	15.29	236.51	5,999.41	-865.80	-1,015.94	-850.82	1.67	0.60	
6,266.00	14.06	236.25	6,091.31	-879.13	-1,035.98	-863.84	1.30	-1.29	
6,360.00	14.41	233.35	6,182.42	-892.45	-1,054.86	-876.89	0.84	0.37	
6,455.00	13.93	227.28	6,274.54	-907.27	-1,072.74	-891.44	1.64	-0.51	
6,549.00	13.58	226.23	6,365.84	-922.58	-1,089.02	-906.51	0.46	-0.37	
6,644.00	11.82	242.40	6,458.54	-934.81	-1,105.71	-918.50	4.16	-1.85	
6,739.00	17.10	286.52	6,550.76	-935.34	-1,127.80	-918.71	12.45	5.56	
6,833.00	20.48	315.17	6,639.93	-919.71	-1,152.70	-902.72	10.33	3.60	
6,928.00	25.71	314.91	6,727.29	-893.36	-1,179.03	-875.98	5.51	5.51	
7,023.00	26.37	318.34	6,812.65	-863.05	-1,207.65	-845.25	1.73	0.69	
7,117.00	32.96	330.47	6,894.36	-825.13	-1,234.18	-806.95	9.45	7.01	
7,212.00	39.46	340.48	6,971.03	-774.09	-1,257.05	-755.58	9.23	6.84	
7,306.00	41.53	340.05	7,042.51	-716.64	-1,277.67	-697.83	2.22	2.20	
7,401.00	48.52	348.22	7,109.67	-652.06	-1,295.71	-633.00	9.54	7.36	
7,496.00	57.17	356.31	7,167.06	-577.17	-1,305.58	-557.97	11.34	9.11	
7,591.00	66.67	357.54	7,211.72	-493.57	-1,310.03	-474.32	10.06	10.00	
7,685.00	72.11	358.85	7,244.80	-405.67	-1,312.78	-386.38	5.93	5.79	
7,780.00	72.77	2.81	7,273.47	-315.13	-1,311.46	-295.87	4.03	0.69	
7,863.22	75.58	1.50	7,296.17	-235.13	-1,308.46	-215.92	3.70	3.38	TPZ - 7863.22 (460 FSL, 770 FWL)
7,875.00	75.98	1.32	7,299.06	-223.71	-1,308.18	-204.51	3.70	3.38	
7,969.00	88.29	358.77	7,311.90	-130.78	-1,308.13	-111.59	13.37	13.10	
8,064.00	98.13	1.05	7,306.59	-36.05	-1,308.29	-16.87	10.63	10.36	
8,159.00	95.05	0.17	7,295.68	58.30	-1,307.29	77.46	3.37	-3.24	
8,253.00	88.15	4.39	7,293.06	152.11	-1,303.55	171.20	8.60	-7.34	
8,348.00	86.05	4.48	7,297.87	246.70	-1,296.21	265.68	2.21	-2.21	
8,443.00	85.39	1.05	7,304.96	341.31	-1,291.64	360.21	3.67	-0.69	
8,538.00	84.46	1.67	7,313.36	435.91	-1,289.40	454.77	1.18	-0.98	
8,633.00	86.57	0.08	7,320.79	530.60	-1,287.95	549.42	2.78	2.22	
8,727.00	90.75	358.94	7,322.99	624.55	-1,288.76	643.37	4.61	4.45	
8,822.00	90.66	358.68	7,321.82	719.52	-1,290.73	738.36	0.29	-0.09	
8,916.00	90.00	358.77	7,321.28	813.49	-1,292.82	832.36	0.71	-0.70	
9,011.00	91.80	0.26	7,319.79	908.47	-1,293.63	927.34	2.46	1.89	
9,105.00	92.51	359.56	7,316.25	1,002.40	-1,293.77	1,021.26	1.06	0.76	
9,200.00	90.09	0.52	7,314.10	1,097.37	-1,293.71	1,116.22	2.74	-2.55	
9,294.00	89.82	0.17	7,314.17	1,191.37	-1,293.14	1,210.20	0.47	-0.29	
9,389.00	91.27	0.35	7,313.27	1,286.36	-1,292.71	1,305.18	1.54	1.53	
9,484.00	91.23	359.82	7,311.19	1,381.34	-1,292.57	1,400.14	0.56	-0.04	
9,579.00	92.73	1.14	7,307.91	1,476.27	-1,291.77	1,495.05	2.10	1.58	
9,673.00	92.90	0.61	7,303.29	1,570.15	-1,290.34	1,588.90	0.59	0.18	
9,768.00	92.55	0.26	7,298.78	1,665.04	-1,289.62	1,683.77	0.52	-0.37	
9,863.00	92.51	0.61	7,294.58	1,759.94	-1,288.90	1,778.65	0.37	-0.04	
9,958.00	92.07	0.08	7,290.79	1,854.87	-1,288.33	1,873.55	0.72	-0.46	
10,052.00	91.45	359.47	7,287.90	1,948.82	-1,288.70	1,967.50	0.93	-0.66	
10,147.00	91.01	359.65	7,285.86	2,043.79	-1,289.43	2,062.48	0.50	-0.46	
10,241.00	90.31	358.77	7,284.78	2,137.78	-1,290.72	2,156.47	1.20	-0.74	
10,336.00	89.74	358.41	7,284.74	2,232.75	-1,293.06	2,251.46	0.71	-0.60	
10,430.00	89.08	358.33	7,285.71	2,326.70	-1,295.73	2,345.45	0.71	-0.70	
10,526.00	88.68	357.89	7,287.58	2,422.63	-1,298.90	2,441.42	0.62	-0.42	
10,620.00	89.65	359.65	7,288.95	2,516.60	-1,300.92	2,535.40	2.14	1.03	
10,715.00	89.65	0.08	7,289.53	2,611.60	-1,301.14	2,630.39	0.45	0.00	
10,810.00	89.34	0.00	7,290.37	2,706.59	-1,301.07	2,725.37	0.34	-0.33	

# Cathedral Energy Services

## Survey Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well RUEGGE 3E-4H-N165 - Slot RUEGGE 3E-4
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 4939.00usft
<b>Site:</b>	S4-T1N-R65W (RUEGGE)	<b>MD Reference:</b>	23' KB @ 4939.00usft
<b>Well:</b>	RUEGGE 3E-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 (°/100usf)	Build Rate (°/100u)	Formations / Comments
10,904.00	88.90	0.44	7,291.81	2,800.58	-1,300.71	2,819.35	0.66	-0.47	
10,999.00	88.86	0.96	7,293.67	2,895.55	-1,299.55	2,914.29	0.55	-0.04	
11,093.00	90.13	358.50	7,294.50	2,989.54	-1,300.00	3,008.28	2.95	1.35	
11,187.00	90.35	358.06	7,294.11	3,083.50	-1,302.82	3,102.26	0.52	0.23	
11,282.00	89.91	357.54	7,293.89	3,178.43	-1,306.46	3,197.24	0.72	-0.46	
11,377.00	91.36	357.01	7,292.84	3,273.31	-1,310.98	3,292.18	1.63	1.53	
11,471.00	91.98	357.89	7,290.10	3,367.17	-1,315.16	3,386.09	1.14	0.66	
11,566.00	91.93	357.18	7,286.86	3,462.03	-1,319.24	3,481.00	0.75	-0.05	
11,660.00	91.71	357.18	7,283.87	3,555.87	-1,323.87	3,574.90	0.23	-0.23	
11,756.00	91.76	357.18	7,280.96	3,651.71	-1,328.59	3,670.79	0.05	0.05	
11,850.00	91.63	357.27	7,278.18	3,745.56	-1,333.14	3,764.70	0.17	-0.14	
11,945.00	91.45	356.74	7,275.63	3,840.39	-1,338.10	3,859.60	0.59	-0.19	
12,040.00	91.54	357.71	7,273.15	3,935.25	-1,342.69	3,954.51	1.03	0.09	
12,135.00	91.10	356.92	7,270.96	4,030.12	-1,347.14	4,049.43	0.95	-0.46	LAST SURVEY - 12135.00' MD
12,202.00	91.10	356.92	7,269.68	4,097.01	-1,350.74	4,116.37	0.00	0.00	PTB - 12202.00' MD (473 FNL, 692 FWL)

# Cathedral Energy Services

## Survey Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well RUEGGE 3E-4H-N165 - Slot RUEGGE 3E-4
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 4939.00usft
<b>Site:</b>	S4-T1N-R65W (RUEGGE)	<b>MD Reference:</b>	23' KB @ 4939.00usft
<b>Well:</b>	RUEGGE 3E-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

Targets									
Target Name									
- hit/miss target	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- Shape	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)		
RUEGGE 3E-4H-N165 1	0.00	0.00	7,330.00	-235.13	-1,278.93	1,271,089.73	3,230,715.04	40.074587	-104.675556
- actual wellpath misses target center by 43.99usft at 7872.23usft MD (7298.39 TVD, -226.40 N, -1308.24 E)									
- Point									
RUEGGE 3E TGT	0.00	0.00	7,282.00	2,580.00	-1,300.00	1,273,904.54	3,230,667.65	40.082315	-104.675632
- actual wellpath misses target center by 7.43usft at 10683.36usft MD (7289.34 TVD, 2579.95 N, -1301.14 E)									
- Point									
RUEGGE 3E (-234' VS)	0.00	0.00	7,320.00	-252.77	-1,278.76	1,271,072.09	3,230,715.38	40.074539	-104.675555
- actual wellpath misses target center by 40.70usft at 7853.83usft MD (7293.80 TVD, -244.21 N, -1308.71 E)									
- Point									
RUEGGE 3E - 756' VS	0.00	0.00	7,329.00	737.22	-1,286.21	1,272,061.97	3,230,698.67	40.077257	-104.675582
- actual wellpath misses target center by 8.86usft at 8839.55usft MD (7321.64 TVD, 737.07 N, -1291.13 E)									
- Point									
RUEGGE 3E-4H-N165 E	0.00	0.00	7,276.00	4,110.72	-1,343.02	1,275,434.79	3,230,610.33	40.086517	-104.675786
- actual wellpath misses target center by 16.96usft at 12202.00usft MD (7269.68 TVD, 4097.01 N, -1350.74 E)									
- Point									
RUEGGE 3E - 1881' VS	0.00	0.00	7,291.00	1,862.22	-1,294.63	1,273,186.84	3,230,679.74	40.080345	-104.675612
- actual wellpath misses target center by 6.33usft at 9965.37usft MD (7290.53 TVD, 1862.23 N, -1288.32 E)									
- Point									
RUEGGE 3E - 2716' VS	0.00	0.00	7,291.00	2,697.19	-1,302.71	1,274,021.70	3,230,663.85	40.082637	-104.675641
- actual wellpath misses target center by 1.79usft at 10800.60usft MD (7290.26 TVD, 2697.20 N, -1301.07 E)									
- Point									

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
7,863.22	7,296.17	-235.13	-1,308.46	TPZ - 7863.22 (460 FSL, 770 FWL)
12,135.00	7,270.96	4,030.12	-1,347.14	LAST SURVEY - 12135.00' MD
12,202.00	7,269.68	4,097.01	-1,350.74	PTB - 12202.00' MD (473 FNL, 692 FWL)

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