



CRESTONE PEAK
RESOURCES

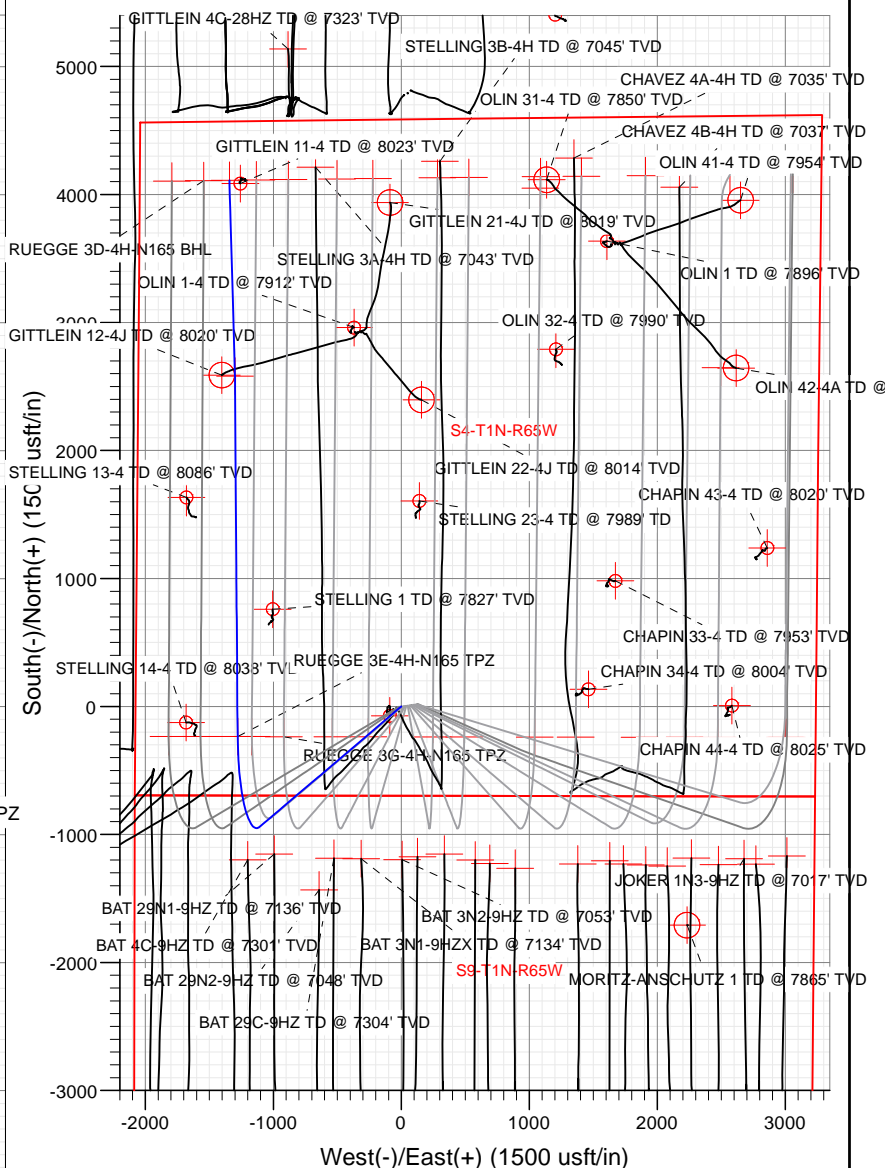
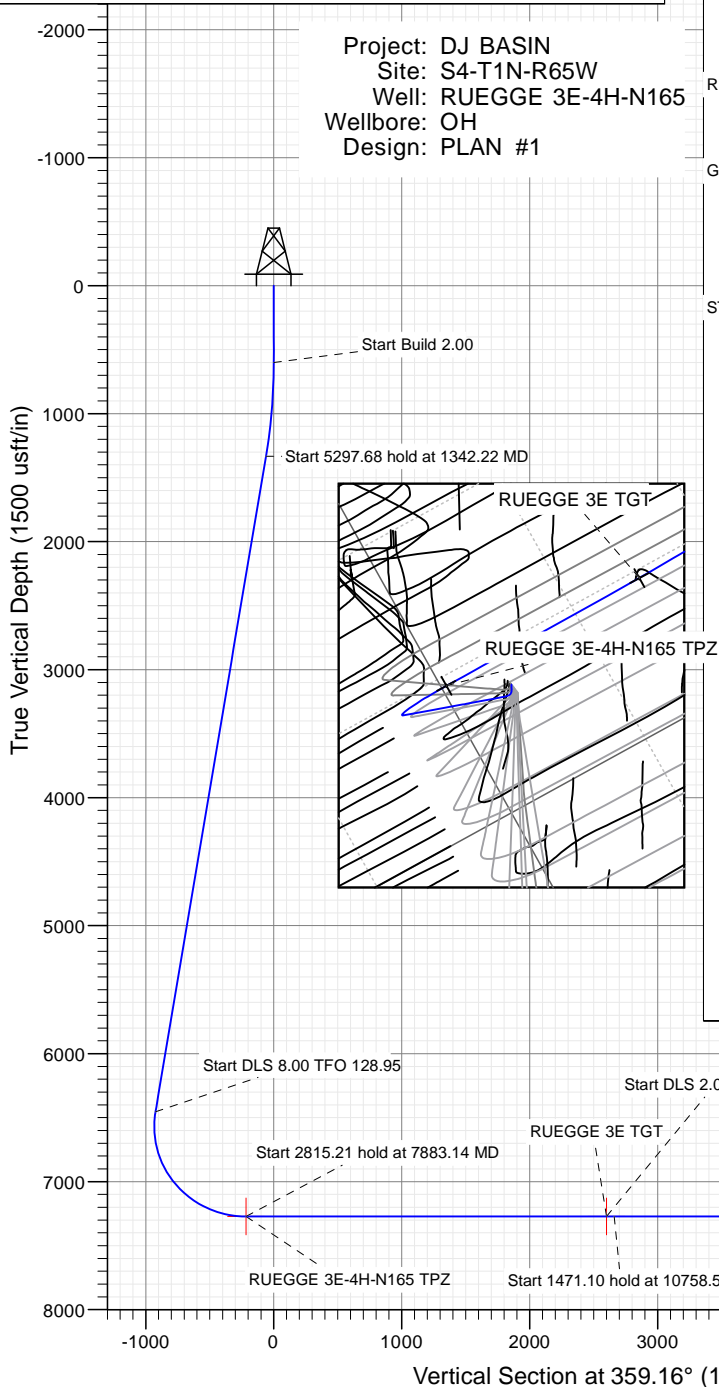
SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	
3	1342.22	14.84	229.67	1333.94	-61.88	-72.88	2.00	229.67	-60.81	
4	6639.90	14.84	229.67	6454.81	-940.33	-1107.50	0.00	0.00	-923.99	
5	7883.14	90.00	359.57	7272.00	-235.13	-1278.93	8.00	128.95	-216.36	RUEGGE 3E-4H-N165 TPZ
6	10698.35	90.00	359.57	7272.00	2580.00	-1300.00	0.00	0.00	2598.78	RUEGGE 3E TGT
7	10758.58	90.00	358.37	7272.00	2640.22	-1301.08	2.00	-90.00	2659.01	
8	12229.68	90.00	358.37	7272.00	4110.72	-1343.02	0.00	0.00	4129.97	RUEGGE 3E-4H-N165 BHL

PLAN #1
RUEGGE 3E-4H-N165
23' KB @ 4939.00usft
Ground Level @ 4916.00
North American Datum 1983
Well RUEGGE 3E-4H-N165 - Slot RUEGGE 3E-4H-N165 SHL True North

Type	User	Target	No Target (Freehand)	Azimuth	Origin	Type	N/S	E/W	From	TVD
Name										
RUEGGE 3E TGT				7272.00			+N/-S	+E/-W	Latitude	Longitude
RUEGGE 3E-4H-N165 BHL				7272.00			4110.72	-1343.02	40.086517	-104.675786
RUEGGE 3E-4H-N165 TPZ				7272.00			-235.13	-1278.93	40.074587	-104.675556

Project: DJ BASIN
Site: S4-T1N-R65W
Well: RUEGGE 3E-4H-N165
Wellbore: OH
Design: PLAN #1



Azimuths to True North
Magnetic North: 8.22°

Magnetic Field
Strength: 52188.7snT
Dip Angle: 66.50°
Date: 11/2/2017
Model: HDGM

WELL DETAILS: RUEGGE 3E-4H-N165

4916.00
+N/-S 0.00 +E/-W 0.00 Northing 1271336.81 Easting 3231991.72 Latitude 40.075233 Longitude -104.675556 Slot RUEGGE 3E-4H-N165 SHL

CATHEDRAL



Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well RUEGGE 3E-4H-N165 - Slot RUEGGE 3E-
Company:	Crestone Peak Resources	TVD Reference:	23' KB @ 4939.00usft
Project:	DJ BASIN	MD Reference:	23' KB @ 4939.00usft
Site:	S4-T1N-R65W	North Reference:	True
Well:	RUEGGE 3E-4H-N165	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	PLAN #1		

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			
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

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination	Dip Angle	Field Strength
			(°)	(°)	(nT)
	HDGM	11/2/2017	8.22	66.50	52,188.70000000

Design	PLAN #1			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction
	(usft)	(usft)	(usft)	(°)
	0.00	0.00	0.00	359.16

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,342.22	14.84	229.67	1,333.94	-61.88	-72.88	2.00	2.00	0.00	229.67	
6,639.90	14.84	229.67	6,454.81	-940.33	-1,107.50	0.00	0.00	0.00	0.00	
7,883.14	90.00	359.57	7,272.00	-235.13	-1,278.93	8.00	6.05	10.45	128.95	RUEGGE 3E-4H-N16
10,698.35	90.00	359.57	7,272.00	2,580.00	-1,300.00	0.00	0.00	0.00	0.00	RUEGGE 3E TGT
10,758.58	90.00	358.37	7,272.00	2,640.22	-1,301.08	2.00	0.00	-2.00	-90.00	
12,229.68	90.00	358.37	7,272.00	4,110.72	-1,343.02	0.00	0.00	0.00	0.00	RUEGGE 3E-4H-N16

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well RUEGGE 3E-4H-N165 - Slot RUEGGE 3E-
Company:	Crestone Peak Resources	TVD Reference:	23' KB @ 4939.00usft
Project:	DJ BASIN	MD Reference:	23' KB @ 4939.00usft
Site:	S4-T1N-R65W	North Reference:	True
Well:	RUEGGE 3E-4H-N165	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	PLAN #1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100u)	Comments / Formations
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	
700.00	2.00	229.67	699.98	-1.13	-1.33	-1.11	2.00	2.00	
800.00	4.00	229.67	799.84	-4.52	-5.32	-4.44	2.00	2.00	
900.00	6.00	229.67	899.45	-10.16	-11.96	-9.98	2.00	2.00	
1,000.00	8.00	229.67	998.70	-18.04	-21.25	-17.73	2.00	2.00	
1,100.00	10.00	229.67	1,097.47	-28.17	-33.18	-27.68	2.00	2.00	
1,200.00	12.00	229.67	1,195.62	-40.52	-47.72	-39.81	2.00	2.00	
1,300.00	14.00	229.67	1,293.06	-55.08	-64.87	-54.12	2.00	2.00	
1,342.22	14.84	229.67	1,333.94	-61.88	-72.88	-60.81	2.00	2.00	
1,400.00	14.84	229.67	1,389.80	-71.46	-84.17	-70.22	0.00	0.00	
1,500.00	14.84	229.67	1,486.46	-88.05	-103.70	-86.52	0.00	0.00	
1,600.00	14.84	229.67	1,583.12	-104.63	-123.23	-102.81	0.00	0.00	
1,700.00	14.84	229.67	1,679.78	-121.21	-142.76	-119.10	0.00	0.00	
1,800.00	14.84	229.67	1,776.45	-137.79	-162.29	-135.40	0.00	0.00	
1,900.00	14.84	229.67	1,873.11	-154.37	-181.82	-151.69	0.00	0.00	
2,000.00	14.84	229.67	1,969.77	-170.95	-201.35	-167.98	0.00	0.00	
2,100.00	14.84	229.67	2,066.43	-187.54	-220.88	-184.28	0.00	0.00	
2,200.00	14.84	229.67	2,163.10	-204.12	-240.41	-200.57	0.00	0.00	
2,300.00	14.84	229.67	2,259.76	-220.70	-259.94	-216.86	0.00	0.00	
2,400.00	14.84	229.67	2,356.42	-237.28	-279.46	-233.16	0.00	0.00	
2,500.00	14.84	229.67	2,453.08	-253.86	-298.99	-249.45	0.00	0.00	
2,600.00	14.84	229.67	2,549.75	-270.44	-318.52	-265.74	0.00	0.00	
2,700.00	14.84	229.67	2,646.41	-287.03	-338.05	-282.04	0.00	0.00	
2,800.00	14.84	229.67	2,743.07	-303.61	-357.58	-298.33	0.00	0.00	
2,900.00	14.84	229.67	2,839.73	-320.19	-377.11	-314.63	0.00	0.00	
3,000.00	14.84	229.67	2,936.40	-336.77	-396.64	-330.92	0.00	0.00	
3,100.00	14.84	229.67	3,033.06	-353.35	-416.17	-347.21	0.00	0.00	
3,200.00	14.84	229.67	3,129.72	-369.93	-435.70	-363.51	0.00	0.00	
3,300.00	14.84	229.67	3,226.38	-386.52	-455.23	-379.80	0.00	0.00	
3,400.00	14.84	229.67	3,323.05	-403.10	-474.76	-396.09	0.00	0.00	
3,500.00	14.84	229.67	3,419.71	-419.68	-494.29	-412.39	0.00	0.00	
3,600.00	14.84	229.67	3,516.37	-436.26	-513.82	-428.68	0.00	0.00	
3,700.00	14.84	229.67	3,613.03	-452.84	-533.35	-444.97	0.00	0.00	
3,800.00	14.84	229.67	3,709.70	-469.42	-552.88	-461.27	0.00	0.00	
3,900.00	14.84	229.67	3,806.36	-486.01	-572.41	-477.56	0.00	0.00	
4,000.00	14.84	229.67	3,903.02	-502.59	-591.94	-493.85	0.00	0.00	
4,100.00	14.84	229.67	3,999.68	-519.17	-611.47	-510.15	0.00	0.00	
4,200.00	14.84	229.67	4,096.35	-535.75	-631.00	-526.44	0.00	0.00	
4,300.00	14.84	229.67	4,193.01	-552.33	-650.53	-542.74	0.00	0.00	
4,400.00	14.84	229.67	4,289.67	-568.91	-670.06	-559.03	0.00	0.00	
4,500.00	14.84	229.67	4,386.33	-585.50	-689.59	-575.32	0.00	0.00	
4,600.00	14.84	229.67	4,483.00	-602.08	-709.12	-591.62	0.00	0.00	
4,700.00	14.84	229.67	4,579.66	-618.66	-728.65	-607.91	0.00	0.00	
4,800.00	14.84	229.67	4,676.32	-635.24	-748.18	-624.20	0.00	0.00	
4,900.00	14.84	229.67	4,772.98	-651.82	-767.71	-640.50	0.00	0.00	
5,000.00	14.84	229.67	4,869.65	-668.40	-787.23	-656.79	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well RUEGGE 3E-4H-N165 - Slot RUEGGE 3E-
Company:	Crestone Peak Resources	TVD Reference:	23' KB @ 4939.00usft
Project:	DJ BASIN	MD Reference:	23' KB @ 4939.00usft
Site:	S4-T1N-R65W	North Reference:	True
Well:	RUEGGE 3E-4H-N165	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	PLAN #1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100u)	Comments / Formations
5,100.00	14.84	229.67	4,966.31	-684.99	-806.76	-673.08	0.00	0.00	
5,200.00	14.84	229.67	5,062.97	-701.57	-826.29	-689.38	0.00	0.00	
5,300.00	14.84	229.67	5,159.63	-718.15	-845.82	-705.67	0.00	0.00	
5,400.00	14.84	229.67	5,256.30	-734.73	-865.35	-721.96	0.00	0.00	
5,500.00	14.84	229.67	5,352.96	-751.31	-884.88	-738.26	0.00	0.00	
5,600.00	14.84	229.67	5,449.62	-767.89	-904.41	-754.55	0.00	0.00	
5,700.00	14.84	229.67	5,546.28	-784.48	-923.94	-770.85	0.00	0.00	
5,800.00	14.84	229.67	5,642.95	-801.06	-943.47	-787.14	0.00	0.00	
5,900.00	14.84	229.67	5,739.61	-817.64	-963.00	-803.43	0.00	0.00	
6,000.00	14.84	229.67	5,836.27	-834.22	-982.53	-819.73	0.00	0.00	
6,100.00	14.84	229.67	5,932.93	-850.80	-1,002.06	-836.02	0.00	0.00	
6,200.00	14.84	229.67	6,029.60	-867.38	-1,021.59	-852.31	0.00	0.00	
6,300.00	14.84	229.67	6,126.26	-883.97	-1,041.12	-868.61	0.00	0.00	
6,400.00	14.84	229.67	6,222.92	-900.55	-1,060.65	-884.90	0.00	0.00	
6,500.00	14.84	229.67	6,319.58	-917.13	-1,080.18	-901.19	0.00	0.00	
6,600.00	14.84	229.67	6,416.25	-933.71	-1,099.71	-917.49	0.00	0.00	
6,639.90	14.84	229.67	6,454.81	-940.33	-1,107.50	-923.99	0.00	0.00	
6,700.00	12.39	247.36	6,513.25	-947.79	-1,119.33	-931.28	8.00	-4.09	
6,800.00	11.96	285.94	6,611.16	-949.08	-1,139.22	-932.28	8.00	-0.42	
6,900.00	16.10	314.78	6,708.27	-936.45	-1,159.06	-919.35	8.00	4.13	
7,000.00	22.39	330.00	6,802.69	-910.14	-1,178.46	-892.77	8.00	6.29	
7,100.00	29.49	338.50	6,892.59	-870.68	-1,197.03	-853.04	8.00	7.10	
7,200.00	36.94	343.88	6,976.21	-818.83	-1,214.42	-800.94	8.00	7.44	
7,300.00	44.55	347.65	7,051.93	-755.59	-1,230.29	-737.48	8.00	7.61	
7,400.00	52.26	350.52	7,118.27	-682.21	-1,244.33	-663.89	8.00	7.71	
7,500.00	60.03	352.84	7,173.94	-600.10	-1,256.26	-581.62	8.00	7.77	
7,600.00	67.83	354.82	7,217.86	-510.87	-1,265.86	-492.25	8.00	7.80	
7,700.00	75.65	356.59	7,249.18	-416.24	-1,272.94	-397.54	8.00	7.82	
7,800.00	83.48	358.24	7,267.28	-318.08	-1,277.35	-299.32	8.00	7.83	
7,883.14	90.00	359.57	7,272.00	-235.13	-1,278.93	-216.36	8.00	7.84	
7,900.00	90.00	359.57	7,272.00	-218.27	-1,279.06	-199.50	0.00	0.00	
8,000.00	90.00	359.57	7,272.00	-118.28	-1,279.81	-99.50	0.00	0.00	
8,100.00	90.00	359.57	7,272.00	-18.28	-1,280.55	0.50	0.00	0.00	
8,200.00	90.00	359.57	7,272.00	81.72	-1,281.30	100.49	0.00	0.00	
8,300.00	90.00	359.57	7,272.00	181.71	-1,282.05	200.49	0.00	0.00	
8,400.00	90.00	359.57	7,272.00	281.71	-1,282.80	300.49	0.00	0.00	
8,500.00	90.00	359.57	7,272.00	381.71	-1,283.55	400.48	0.00	0.00	
8,600.00	90.00	359.57	7,272.00	481.71	-1,284.30	500.48	0.00	0.00	
8,700.00	90.00	359.57	7,272.00	581.70	-1,285.04	600.48	0.00	0.00	
8,800.00	90.00	359.57	7,272.00	681.70	-1,285.79	700.48	0.00	0.00	
8,900.00	90.00	359.57	7,272.00	781.70	-1,286.54	800.47	0.00	0.00	
9,000.00	90.00	359.57	7,272.00	881.69	-1,287.29	900.47	0.00	0.00	
9,100.00	90.00	359.57	7,272.00	981.69	-1,288.04	1,000.47	0.00	0.00	
9,200.00	90.00	359.57	7,272.00	1,081.69	-1,288.79	1,100.47	0.00	0.00	
9,300.00	90.00	359.57	7,272.00	1,181.69	-1,289.53	1,200.46	0.00	0.00	
9,400.00	90.00	359.57	7,272.00	1,281.68	-1,290.28	1,300.46	0.00	0.00	
9,500.00	90.00	359.57	7,272.00	1,381.68	-1,291.03	1,400.46	0.00	0.00	
9,600.00	90.00	359.57	7,272.00	1,481.68	-1,291.78	1,500.46	0.00	0.00	
9,700.00	90.00	359.57	7,272.00	1,581.68	-1,292.53	1,600.45	0.00	0.00	
9,800.00	90.00	359.57	7,272.00	1,681.67	-1,293.28	1,700.45	0.00	0.00	
9,900.00	90.00	359.57	7,272.00	1,781.67	-1,294.03	1,800.45	0.00	0.00	
10,000.00	90.00	359.57	7,272.00	1,881.67	-1,294.77	1,900.45	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well RUEGGE 3E-4H-N165 - Slot RUEGGE 3E-
Company:	Crestone Peak Resources	TVD Reference:	23' KB @ 4939.00usft
Project:	DJ BASIN	MD Reference:	23' KB @ 4939.00usft
Site:	S4-T1N-R65W	North Reference:	True
Well:	RUEGGE 3E-4H-N165	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	PLAN #1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100u)	Comments / Formations
10,100.00	90.00	359.57	7,272.00	1,981.66	-1,295.52	2,000.44	0.00	0.00	
10,200.00	90.00	359.57	7,272.00	2,081.66	-1,296.27	2,100.44	0.00	0.00	
10,300.00	90.00	359.57	7,272.00	2,181.66	-1,297.02	2,200.44	0.00	0.00	
10,400.00	90.00	359.57	7,272.00	2,281.66	-1,297.77	2,300.44	0.00	0.00	
10,500.00	90.00	359.57	7,272.00	2,381.65	-1,298.52	2,400.43	0.00	0.00	
10,600.00	90.00	359.57	7,272.00	2,481.65	-1,299.26	2,500.43	0.00	0.00	
10,698.35	90.00	359.57	7,272.00	2,580.00	-1,300.00	2,598.78	0.00	0.00	
10,700.00	90.00	359.54	7,272.00	2,581.65	-1,300.01	2,600.43	2.00	0.00	
10,758.58	90.00	358.37	7,272.00	2,640.22	-1,301.08	2,659.01	2.00	0.00	
10,800.00	90.00	358.37	7,272.00	2,681.62	-1,302.26	2,700.42	0.00	0.00	
10,900.00	90.00	358.37	7,272.00	2,781.58	-1,305.11	2,800.41	0.00	0.00	
11,000.00	90.00	358.37	7,272.00	2,881.54	-1,307.97	2,900.40	0.00	0.00	
11,100.00	90.00	358.37	7,272.00	2,981.50	-1,310.82	3,000.39	0.00	0.00	
11,200.00	90.00	358.37	7,272.00	3,081.46	-1,313.67	3,100.38	0.00	0.00	
11,300.00	90.00	358.37	7,272.00	3,181.42	-1,316.52	3,200.37	0.00	0.00	
11,400.00	90.00	358.37	7,272.00	3,281.38	-1,319.37	3,300.37	0.00	0.00	
11,500.00	90.00	358.37	7,272.00	3,381.33	-1,322.22	3,400.36	0.00	0.00	
11,600.00	90.00	358.37	7,272.00	3,481.29	-1,325.07	3,500.35	0.00	0.00	
11,700.00	90.00	358.37	7,272.00	3,581.25	-1,327.92	3,600.34	0.00	0.00	
11,800.00	90.00	358.37	7,272.00	3,681.21	-1,330.77	3,700.33	0.00	0.00	
11,900.00	90.00	358.37	7,272.00	3,781.17	-1,333.62	3,800.32	0.00	0.00	
12,000.00	90.00	358.37	7,272.00	3,881.13	-1,336.47	3,900.31	0.00	0.00	
12,100.00	90.00	358.37	7,272.00	3,981.09	-1,339.32	4,000.30	0.00	0.00	
12,200.00	90.00	358.37	7,272.00	4,081.05	-1,342.17	4,100.29	0.00	0.00	
12,229.68	90.00	358.37	7,272.00	4,110.72	-1,343.02	4,129.97	0.00	0.00	

Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
RUEGGE 3E-4H-N165 1 - hit/miss target - Shape - Point	0.00	0.00	7,272.00	-235.13	-1,278.93	1,271,089.73	3,230,715.04	40.074587	-104.675556
RUEGGE 3E TGT - plan hits target center - Point	0.00	0.00	7,272.00	2,580.00	-1,300.00	1,273,904.54	3,230,667.65	40.082315	-104.675632
RUEGGE 3E-4H-N165 E - plan hits target center - Point	0.00	0.00	7,272.00	4,110.72	-1,343.02	1,275,434.79	3,230,610.33	40.086517	-104.675786