

# **Crestone Peak Resources**

**DJ BASIN**

**S4-T1N-R65W**

**RUEGGE 30-4H-N165**

**OH**

**PLAN #1**

## **Anticollision Report**

**13 November, 2017**

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well RUEGGE 3O-4H-N165 - Slot RUEGGE 3
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 4938.00usft
<b>Reference Site:</b>	S4-T1N-R65W	<b>MD Reference:</b>	23' KB @ 4938.00usft
<b>Site Error:</b>	0.00usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	RUEGGE 3O-4H-N165	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	PLAN #1	<b>Offset TVD Reference:</b>	Offset Datum

<b>Reference</b>	PLAN #1		
<b>Filter type:</b>	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
<b>Interpolation Method:</b>	MD + Stations Interval 100.00usft	<b>Error Model:</b>	ISCWSA
<b>Depth Range:</b>	Unlimited	<b>Scan Method:</b>	Closest Approach 3D
<b>Results Limited by:</b>	Maximum center-center distance of 1,415.18usft	<b>Error Surface:</b>	Pedal Curve
<b>Warning Levels Evaluated at:</b>	2.00 Sigma		

<b>Survey Tool Program</b>	<b>Date</b>	11/12/2017		
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>
0.00	12,479.95	PLAN #1 (OH)	MWD+HDGM	OWSG MWD + HDGM

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<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 4938.00usft
<b>Reference Site:</b>	S4-T1N-R65W	<b>MD Reference:</b>	23' KB @ 4938.00usft
<b>Site Error:</b>	0.00usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	RUEGGE 30-4H-N165	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	PLAN #1	<b>Offset TVD Reference:</b>	Offset Datum

### Summary

Site Name Offset Well - Wellbore - Design	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance		Separation Factor	Warning
			Between Centres (usft)	Between Ellipses (usft)		
S4-T1N-R65W						
ANSCHUTZ 2 - KMG WELL - NO SURVEYS						Out of range
BANE 27N1-9HZ - KMG WELL - PLAN ONLY	7,160.20	12,129.83	435.96	318.44	3.710	CC
BANE 27N1-9HZ - KMG WELL - PLAN ONLY	7,200.00	12,141.69	437.62	318.02	3.659	ES, SF
BANE 27N2-9HZ - KMG WELL - SURVEYS	7,237.37	11,984.00	566.90	478.06	6.381	CC
BANE 27N2-9HZ - KMG WELL - SURVEYS	7,250.00	11,984.00	567.12	477.62	6.337	ES
BANE 27N2-9HZ - KMG WELL - SURVEYS	7,300.00	11,984.00	572.29	480.61	6.243	SF
BANE 28N1-9HZ - KMG WELL - PLAN ONLY						Out of range
BANE 28N2-9HZ - KMG WELL - SURVEYS						Out of range
BANE 28N3-9HZ - KMG WELL - SURVEYS	6,996.02	11,941.00	1,218.91	1,109.93	11.185	CC
BANE 28N3-9HZ - KMG WELL - SURVEYS	7,000.00	11,941.00	1,218.92	1,109.84	11.175	ES
BANE 28N3-9HZ - KMG WELL - SURVEYS	7,150.00	11,941.00	1,233.42	1,121.32	11.002	SF
BANE 2N1-9HZ - KMG WELL - NO SURVEYS						Out of range
BANE 2N2-9HZ - KMG WELL - NO SURVEYS						Out of range
BANE 2N3-9HZ - KMG WELL - SURVEYS	7,130.07	11,947.00	797.94	693.31	7.626	CC
BANE 2N3-9HZ - KMG WELL - SURVEYS	7,150.00	11,947.00	798.32	692.92	7.575	ES
BANE 2N3-9HZ - KMG WELL - SURVEYS	7,250.00	11,947.00	811.27	703.11	7.500	SF
BAT 28C-9HZ - KMG WELL - SURVEYS						Out of range
BAT 28N-9HZ - KMG WELL - SURVEYS						Out of range
BAT 29C-9HZ - KMG WELL - SURVEYS						Out of range
BAT 29N1-9HZ - KMG WELL - SURVEYS						Out of range
BAT 29N2-9HZ - KMG WELL - SURVEYS						Out of range
BAT 3N1-9HZ - KMG WELL - NO SURVEYS						Out of range
BAT 3N1-9HZX - KMG WELL - SURVEYS						Out of range
BAT 3N2-9HZ - KMG WELL - SURVEYS						Out of range
BAT 4C-9HZ - KMG WELL - SURVEYS						Out of range
BOYD 1N-32HZ - KMG WELL - SURVEYS						Out of range
BOYD 26N-32HZ - KMG WELL - SURVEYS						Out of range
BOYD 27C-5HZ - KMG WELL - SURVEYS						Out of range
BOYD 27N-5HZ - KMG WELL - SURVEYS						Out of range
BOYD 28C-32HZ - KMG WELL - SURVEYS						Out of range
BOYD 2N-32HZ - KMG WELL - SURVEYS						Out of range
BOYD 43-5 - KMG WELL - NO SURVEYS						Out of range
CHAPIN 33-4 - CPR WELL - GYRO	9,257.16	7,305.10	575.03	522.92	11.036	CC, ES
CHAPIN 33-4 - CPR WELL - GYRO	9,300.00	7,303.63	576.62	524.18	10.995	SF
CHAPIN 34-4 - CPR WELL - GYRO	4,034.65	3,826.67	654.48	624.38	21.744	CC
CHAPIN 34-4 - CPR WELL - GYRO	4,100.00	3,888.78	654.82	624.15	21.347	ES
CHAPIN 34-4 - CPR WELL - GYRO	8,600.00	7,268.42	781.57	733.25	16.173	SF
CHAPIN 43-4 - CPR WELL - GYRO	9,519.34	7,290.96	618.90	565.13	11.509	CC, ES
CHAPIN 43-4 - CPR WELL - GYRO	9,600.00	7,292.03	624.14	569.25	11.371	SF
CHAPIN 44-4 - CPR WELL - GYRO	8,200.00	7,289.40	368.67	321.32	7.786	SF
CHAPIN 44-4 - CPR WELL - GYRO	8,281.50	7,289.99	359.55	314.33	7.950	CC, ES
CHAVEZ 4A-4H - CPR WELL - SURVEYS	4,909.32	4,687.41	65.03	24.27	1.595	CC, ES, SF
CHAVEZ 4B-4H - CPR WELL - SURVEYS	9,051.84	8,173.19	232.72	193.16	5.883	CC
CHAVEZ 4B-4H - CPR WELL - SURVEYS	12,337.62	11,461.06	241.01	148.84	2.615	ES, SF
COLFER 13C-34HZ - KMG WELL - SURVEYS						Out of range
COLFER 13N-34HZ - KMG WELL - SURVEYS						Out of range
COLFER 14C-34HZX - KMG WELL - SURVEYS						Out of range
COLFER 14N-34HZ - KMG WELL - SURVEYS						Out of range
COLFER 35N-34HZ - KMG WELL - SURVEYS						Out of range
COLFER 36N-34HZ - KMG WELL - SURVEYS						Out of range
DREILING 27C-32HZ - KMG WELL - SURVEYS						Out of range
DREILING 27N-32HZ - KMG WELL - SURVEYS						Out of range
EARL YOUNG GAS UNIT 1 - KMG WELL - NO SURVEY						Out of range

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

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<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 4938.00usft
<b>Reference Site:</b>	S4-T1N-R65W	<b>MD Reference:</b>	23' KB @ 4938.00usft
<b>Site Error:</b>	0.00usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	RUEGGE 30-4H-N165	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	PLAN #1	<b>Offset TVD Reference:</b>	Offset Datum

### Summary

Site Name Offset Well - Wellbore - Design	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance		Separation Factor	Warning
			Between Centres (usft)	Between Ellipses (usft)		
S4-T1N-R65W						
ENGLISH FARMS 13N-9HZ - KMG WELL - SURVEYS						Out of range
ENGLISH FARMS 15C-8HZ - KMG WELL - SURVEYS						Out of range
ENGLISH FARMS 15N-8HZ - KMG WELL - SURVEYS						Out of range
ENGLISH FARMS 16N-8HZ - KMG WELL - SURVEYS						Out of range
ENGLISH FARMS 34C-9HZ - KMG WELL - SURVEYS						Out of range
ENGLISH FARMS 34N-9HZ - KMG WELL - SURVEYS						Out of range
ENGLISH FARMS 35N1-9HZ - KMG WELL - SURVEYS						Out of range
ENGLISH FARMS 36N-8HZ - KMG WELL - SURVEYS						Out of range
ENGLISH FARMS 37N-8HZ - KMG WELL - SURVEYS						Out of range
ENGLISH FARMS 38N-8HZ - KMG WELL - SURVEYS						Out of range
ENGLISH FARMS XX08-72HN - ENGLISH FARMS XX08						Out of range
GITTLEIN 1 - KMG WELL - NO SURVEYS						Out of range
GITTLEIN 11-4 - CPR WELL - GYRO						Out of range
GITTLEIN 12-4J - CPR WELL - SURVEYS						Out of range
GITTLEIN 21-4J - CPR WELL - SURVEYS						Out of range
GITTLEIN 22-4J - CPR WELL - SURVEYS						Out of range
GITTLEIN 29N-28HZ - KMG WELL - SURVEYS						Out of range
GITTLEIN 30C-28HZ - KMG WELL - SURVEYS						Out of range
GITTLEIN 30N-28HZ - KMG WELL - SURVEYS						Out of range
GITTLEIN 30N-28HZX - KMG WELL - SURVEYS						Out of range
GITTLEIN 30N-28HZXX - KMG WELL - SURVEYS						Out of range
GITTLEIN 3C-28HZ - KMG WELL - SURVEYS						Out of range
GITTLEIN 3N-28HZ - KMG WELL - SURVEYS						Out of range
GITTLEIN 4C-28HZ - KMG WELL - SURVEYS						Out of range
GITTLEIN 4C-28HZX - KMG WELL - SURVEYS						Out of range
GITTLEIN 4C-28HZXX - KMG WELL - SURVEYS						Out of range
GITTLEIN 4N-28HZ - KMG WELL - SURVEYS						Out of range
GREEN XX 8-3 - KMG WELL - NO SURVEYS						Out of range
HSR-DREILING 1-5A - KMG WELL - SURVEYS						Out of range
HSR-GITTLEIN 1A - KMG WELL - NO SURVEYS						Out of range
JOKER 1N1-9HZ - KMG WELL - SURVEYS	7,349.83	12,040.00	449.62	381.52	6.603	CC
JOKER 1N1-9HZ - KMG WELL - SURVEYS	7,350.00	12,040.00	449.62	381.52	6.603	ES, SF
JOKER 1N2-9HZ - KMG WELL - SURVEYS	7,332.99	11,954.00	581.02	492.68	6.577	CC, ES
JOKER 1N2-9HZ - KMG WELL - SURVEYS	7,350.00	11,954.00	581.44	492.93	6.569	SF
JOKER 1N3-9HZ - KMG WELL - SURVEYS	7,331.41	11,936.00	692.16	589.18	6.721	CC, ES, SF
JOKER 26N1-9HZ - KMG WELL - SURVEYS	7,400.90	12,052.00	805.99	705.29	8.004	CC, ES, SF
JOKER 26N2-9HZ - KMG WELL - SURVEYS	7,432.44	11,975.00	980.17	870.83	8.965	CC, ES
JOKER 26N2-9HZ - KMG WELL - SURVEYS	7,450.00	11,975.00	980.43	871.03	8.962	SF
JOKER 27N1-9HZ - KMG WELL - SURVEYS	7,242.93	11,921.00	467.30	390.83	6.111	CC
JOKER 27N1-9HZ - KMG WELL - SURVEYS	7,250.00	11,921.00	467.38	390.45	6.076	ES
JOKER 27N1-9HZ - KMG WELL - SURVEYS	7,350.00	11,921.00	486.24	403.73	5.893	SF
JOKER 27N2-9HZ - KMG WELL - SURVEYS	7,224.80	11,852.00	411.84	354.38	7.167	CC, ES
JOKER 27N2-9HZ - KMG WELL - SURVEYS	7,300.00	11,852.00	422.50	362.32	7.021	SF
MAYER 33-9P - KMG WELL - GYRO						Out of range
MAYER X 33-15DI - KMG WELL - GYRO						Out of range
MICHAEL R DREILING 1 - AMOCO WELL - NO SURVE						Out of range
MORITZ-ANSCHUTZ 1 - KMG WELL - NO SURVEYS	7,024.59	6,671.79	831.09	778.71	15.867	CC, ES
MORITZ-ANSCHUTZ 1 - KMG WELL - NO SURVEYS	7,150.00	6,788.66	842.76	788.55	15.547	SF
OLIN 1 - CPR WELL - GYRO	11,905.46	7,260.02	656.00	572.22	7.829	CC, ES, SF
OLIN 1-4 - CPR WELL - GYRO						Out of range
OLIN 31-4 - CPR WELL - SURVEYS	12,378.77	7,311.43	1,106.54	1,012.45	11.760	CC, ES
OLIN 31-4 - CPR WELL - SURVEYS	12,431.65	7,313.17	1,107.80	1,013.26	11.717	SF
OLIN 32-4 - CPR WELL - GYRO	11,053.79	7,260.87	1,035.14	963.15	14.378	CC, ES

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well RUEGGE 30-4H-N165 - Slot RUEGGE 3
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 4938.00usft
<b>Reference Site:</b>	S4-T1N-R65W	<b>MD Reference:</b>	23' KB @ 4938.00usft
<b>Site Error:</b>	0.00usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	RUEGGE 30-4H-N165	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	PLAN #1	<b>Offset TVD Reference:</b>	Offset Datum

### Summary

Site Name Offset Well - Wellbore - Design	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance		Separation Factor	Warning
			Between Centres (usft)	Between Ellipses (usft)		
S4-T1N-R65W						
OLIN 32-4 - CPR WELL - GYRO	11,100.00	7,261.33	1,036.17	963.94	14.346	SF
OLIN 41-4 - CPR WELL - SURVEYS	12,221.92	7,438.04	368.75	276.16	3.983	CC, ES
OLIN 41-4 - CPR WELL - SURVEYS	12,300.00	7,442.42	376.90	280.85	3.924	SF
OLIN 42-4A - CPR WELL - SURVEYS	10,941.47	7,524.97	345.73	263.27	4.193	CC, ES, SF
OTTESEN 1 - GREAT WESTERN - NO SURVEYS						Out of range
RANDLE RED XX 3-2D - KMG WELL - NO SURVEYS						Out of range
RANDLE RED XX 3-4DI - KMG WELL - NO SURVEYS						Out of range
RILEY 1 - CPR WELL - GYRO						Out of range
ROCKY 11-34A - KMG WELL - NO SURVEYS						Out of range
RUEGGE 3C-4H-N165 - OH - PLAN #1	200.00	202.00	120.00	119.00	119.984	CC, ES
RUEGGE 3C-4H-N165 - OH - PLAN #1	800.00	767.82	198.24	193.07	38.375	SF
RUEGGE 3D-4H-N165 - OH - PLAN #1	400.00	402.00	110.00	107.57	45.193	CC, ES
RUEGGE 3D-4H-N165 - OH - PLAN #1	800.00	783.30	157.01	151.83	30.356	SF
RUEGGE 3E-4H-N165 - OH - PLAN #1	400.00	401.00	100.00	97.57	41.145	CC, ES
RUEGGE 3E-4H-N165 - OH - PLAN #1	800.00	792.94	129.17	123.96	24.780	SF
RUEGGE 3F-4H-N165 - OH - PLAN #1	400.00	401.00	90.00	87.57	37.031	CC, ES
RUEGGE 3F-4H-N165 - OH - PLAN #1	800.00	799.70	113.98	108.71	21.642	SF
RUEGGE 3G-4H-N165 - OH - PLAN #1	400.00	401.00	80.00	77.57	32.916	CC, ES
RUEGGE 3G-4H-N165 - OH - PLAN #1	900.00	901.53	118.34	112.34	19.731	SF
RUEGGE 3H-4H-N165 - OH - PLAN #1	400.00	401.00	70.00	67.57	28.802	CC, ES
RUEGGE 3H-4H-N165 - OH - PLAN #1	800.00	800.30	94.22	88.95	17.884	SF
RUEGGE 3I-4H-N165 - OH - PLAN #1	300.00	301.00	60.00	58.29	35.017	CC, ES
RUEGGE 3I-4H-N165 - OH - PLAN #1	700.00	694.93	85.73	81.23	19.031	SF
RUEGGE 3J-4H-N165 - OH - PLAN #1	286.37	286.38	49.98	48.38	31.250	CC
RUEGGE 3J-4H-N165 - OH - PLAN #1	400.00	399.77	50.30	47.91	20.971	ES
RUEGGE 3J-4H-N165 - OH - PLAN #1	700.00	703.21	70.50	65.91	15.353	SF
RUEGGE 3K-4H-N165 - OH - PLAN #1	375.95	376.18	38.99	36.75	17.418	CC
RUEGGE 3K-4H-N165 - OH - PLAN #1	400.00	400.14	39.04	36.63	16.189	ES
RUEGGE 3K-4H-N165 - OH - PLAN #1	600.00	598.36	48.54	44.68	12.568	SF
RUEGGE 3L-4H-N165 - OH - PLAN #1	443.11	443.79	25.32	22.60	9.280	CC, ES
RUEGGE 3L-4H-N165 - OH - PLAN #1	12,431.65	12,038.73	1,181.86	1,028.62	7.713	SF
RUEGGE 3M-4H-N165 - OH - PLAN #1	400.00	400.00	20.00	17.57	8.241	CC
RUEGGE 3M-4H-N165 - OH - PLAN #1	500.00	500.46	20.29	17.17	6.502	ES
RUEGGE 3M-4H-N165 - OH - PLAN #1	900.00	902.05	28.26	22.25	4.704	SF
RUEGGE 3N-4H-N165 - OH - PLAN #1	359.01	359.20	6.46	4.34	3.044	CC, ES
RUEGGE 3N-4H-N165 - OH - PLAN #1	2,900.00	2,888.02	70.55	39.64	2.282	SF
RUEGGE 3P-4H-N165 - OH - PLAN #1	103.81	103.81	10.00	9.70	32.966	CC
RUEGGE 3P-4H-N165 - OH - PLAN #1	200.00	199.85	10.37	9.38	10.484	ES
RUEGGE 3P-4H-N165 - OH - PLAN #1	12,300.00	12,230.33	301.37	150.74	2.001	SF
RUEGGE 3Q-4H-N165 - OH - PLAN #1	400.00	400.00	20.00	17.57	8.241	CC
RUEGGE 3Q-4H-N165 - OH - PLAN #1	600.00	598.74	20.57	16.77	5.410	ES
RUEGGE 3Q-4H-N165 - OH - PLAN #1	1,200.00	1,194.63	32.97	24.43	3.860	SF
RUEGGE 3R-4H-N165 - OH - PLAN #1	109.08	108.08	30.00	29.66	88.885	CC
RUEGGE 3R-4H-N165 - OH - PLAN #1	200.00	198.48	30.51	29.53	31.009	ES
RUEGGE 3R-4H-N165 - OH - PLAN #1	12,431.65	12,728.80	800.03	641.68	5.052	SF
SPARBOE 7C-3HZ - KMG WELL - SURVEYS						Out of range
SPARBOE 7N-3HZ - KMG WELL - SURVEYS						Out of range
STELLING 1 - CPR WELL - GYRO	0.00	0.00	1,296.25			
STELLING 1 - CPR WELL - GYRO	400.00	385.98	1,297.10	1,295.29	714.506	ES
STELLING 1 - CPR WELL - GYRO	1,200.00	1,178.76	1,408.15	1,402.08	232.102	SF
STELLING 13-4 - CPR WELL - GYRO						Out of range
STELLING 14-4 - CPR WELL - GYRO						Out of range
STELLING 23-4 - CPR WELL - GYRO						Out of range

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

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<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 4938.00usft
<b>Reference Site:</b>	S4-T1N-R65W	<b>MD Reference:</b>	23' KB @ 4938.00usft
<b>Site Error:</b>	0.00usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	RUEGGE 3O-4H-N165	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	PLAN #1	<b>Offset TVD Reference:</b>	Offset Datum

Summary						
Site Name	Reference Measured Depth	Offset Measured Depth	Distance		Separation	Warning
Offset Well - Wellbore - Design	(usft)	(usft)	Between Centres (usft)	Between Ellipses (usft)	Factor	
S4-T1N-R65W						
STELLING 24-4 - CPR WELL - GYRO	0.00	0.00	204.39			
STELLING 24-4 - CPR WELL - GYRO	300.00	292.13	204.59	203.32	161.632	ES
STELLING 24-4 - CPR WELL - GYRO	1,300.00	1,278.28	330.57	323.87	49.337	SF
STELLING 3A-4H - CPR WELL - SURVEYS	294.32	286.38	165.08	163.74	122.915	CC
STELLING 3A-4H - CPR WELL - SURVEYS	300.00	291.95	165.08	163.71	119.883	ES
STELLING 3A-4H - CPR WELL - SURVEYS	1,200.00	1,154.09	319.64	312.62	45.536	SF
STELLING 3B-4H - CPR WELL - SURVEYS	480.00	471.35	131.19	128.73	53.418	CC
STELLING 3B-4H - CPR WELL - SURVEYS	500.00	491.13	131.26	128.68	50.831	ES
STELLING 3B-4H - CPR WELL - SURVEYS	1,300.00	1,284.58	216.84	208.66	26.510	SF
SUMMIT 14C-32HZ - KMG WELL - SURVEYS						Out of range
SUMMIT 36C-32HZ - KMG WELL - SURVEYS						Out of range
SUMMIT 36N-32HZ - KMG WELL - SURVEYS						Out of range
YOUNG EARL 1X - KMG WELL - NO SURVEYS						Out of range
ZIEMER 35C-5HZ - KMG WELL - SURVEYS						Out of range
ZIEMER 36N-5HZ - KMG WELL - SURVEYS						Out of range

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well RUEGGE 3O-4H-N165 - Slot RUEGGE 3
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 4938.00usft
<b>Reference Site:</b>	S4-T1N-R65W	<b>MD Reference:</b>	23' KB @ 4938.00usft
<b>Site Error:</b>	0.00usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	RUEGGE 3O-4H-N165	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	PLAN #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S4-T1N-R65W - BANE 27N1-9HZ - KMG WELL - PLAN ONLY													Offset Site Error:	0.00 usft
Survey Program: 2960-ISCWSA MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
5,900.00	5,600.55	11,808.08	6,974.64	36.70	83.60	125.28	-1,220.05	1,529.74	1,396.82	1,349.16	47.66	29.307		
6,000.00	5,694.35	11,808.08	6,974.64	37.40	83.60	125.28	-1,220.05	1,529.74	1,304.00	1,255.45	48.56	26.855		
6,100.00	5,788.14	12,232.67	6,971.60	38.11	90.27	176.34	-795.47	1,530.31	1,135.55	1,082.45	53.10	21.385		
6,200.00	5,881.94	12,216.58	6,971.72	38.82	90.01	174.50	-811.56	1,530.29	1,045.09	990.78	54.31	19.244		
6,300.00	5,975.73	12,200.49	6,971.83	39.53	89.76	172.62	-827.65	1,530.27	956.26	900.24	56.02	17.070		
6,400.00	6,069.52	12,184.40	6,971.95	40.23	89.51	170.70	-843.74	1,530.25	869.55	811.11	58.44	14.879		
6,500.00	6,163.32	12,168.31	6,972.06	40.94	89.26	168.75	-859.83	1,530.22	785.68	723.85	61.84	12.706		
6,600.00	6,257.11	12,152.22	6,972.18	41.65	89.00	166.76	-875.92	1,530.20	705.66	639.12	66.54	10.605		
6,700.00	6,350.90	12,136.12	6,972.29	42.36	88.75	164.74	-892.01	1,530.18	630.95	558.04	72.92	8.653		
6,800.00	6,444.70	12,120.03	6,972.41	43.06	88.50	162.70	-908.10	1,530.16	563.67	482.44	81.24	6.938		
6,847.81	6,489.54	12,112.34	6,972.46	43.40	88.38	161.71	-915.80	1,530.15	534.96	449.06	85.90	6.228		
6,850.00	6,491.60	12,111.99	6,972.47	43.42	88.37	161.98	-916.15	1,530.15	533.71	447.59	86.12	6.197		
6,900.00	6,538.72	12,105.83	6,972.51	43.76	88.28	169.29	-922.31	1,530.14	506.67	415.22	91.45	5.541		
6,950.00	6,586.11	12,103.14	6,972.53	44.07	88.23	178.56	-925.00	1,530.14	483.10	386.02	97.08	4.976		
7,000.00	6,633.53	12,103.94	6,972.52	44.36	88.25	-171.11	-924.20	1,530.14	463.73	360.95	102.78	4.512		
7,050.00	6,680.75	12,108.22	6,972.49	44.62	88.31	-160.74	-919.92	1,530.14	449.18	340.97	108.20	4.151		
7,100.00	6,727.53	12,115.97	6,972.44	44.85	88.44	-150.97	-912.17	1,530.15	439.89	326.89	113.00	3.893		
7,150.00	6,773.66	12,127.14	6,972.36	45.05	88.61	-141.99	-901.00	1,530.17	436.07	319.20	116.87	3.731		
7,160.20	6,782.97	12,129.83	6,972.34	45.08	88.65	-140.25	-898.30	1,530.17	435.96	318.44	117.52	3.710 CC		
7,200.00	6,818.91	12,141.69	6,972.25	45.22	88.84	-133.70	-886.45	1,530.19	437.62	318.02	119.60	3.659 ES, SF		
7,250.00	6,863.05	12,159.53	6,972.13	45.37	89.12	-125.92	-868.61	1,530.21	444.14	322.97	121.18	3.665		
7,300.00	6,905.88	12,180.59	6,971.98	45.49	89.45	-118.48	-847.55	1,530.24	455.02	333.31	121.71	3.738		
7,350.00	6,947.18	12,204.76	6,971.80	45.59	89.83	-111.29	-823.38	1,530.27	469.47	348.05	121.42	3.867		
7,400.00	6,986.75	12,231.93	6,971.61	45.67	90.26	-104.36	-796.22	1,530.31	486.66	366.12	120.54	4.037		
7,450.00	7,024.39	11,808.08	6,974.64	45.73	83.60	-141.84	-1,220.05	1,529.74	679.55	573.66	105.89	6.418		
7,500.00	7,059.94	11,808.08	6,974.64	45.77	83.60	-135.94	-1,220.05	1,529.74	716.55	611.85	104.69	6.844		
7,550.00	7,093.20	11,808.08	6,974.64	45.79	83.60	-129.60	-1,220.05	1,529.74	755.79	652.39	103.39	7.310		
7,600.00	7,124.03	11,808.08	6,974.64	45.80	83.60	-122.76	-1,220.05	1,529.74	796.75	694.71	102.04	7.808		
7,650.00	7,152.27	11,808.08	6,974.64	45.79	83.60	-115.43	-1,220.05	1,529.74	839.00	738.31	100.69	8.333		
7,700.00	7,177.77	11,808.08	6,974.64	45.77	83.60	-107.72	-1,220.05	1,529.74	882.16	782.81	99.35	8.879		
7,750.00	7,200.43	11,808.08	6,974.64	45.74	83.60	-99.82	-1,220.05	1,529.74	925.92	827.86	98.06	9.443		
7,800.00	7,220.13	11,808.08	6,974.64	45.70	83.60	-92.00	-1,220.05	1,529.74	969.98	873.18	96.80	10.020		
7,850.00	7,236.76	11,808.08	6,974.64	45.65	83.60	-84.54	-1,220.05	1,529.74	1,014.12	918.53	95.59	10.609		
7,900.00	7,250.26	11,808.08	6,974.64	45.60	83.60	-77.64	-1,220.05	1,529.74	1,058.11	963.69	94.42	11.207		
7,950.00	7,260.55	11,808.08	6,974.64	45.53	83.60	-71.44	-1,220.05	1,529.74	1,101.78	1,008.50	93.28	11.811		
8,000.00	7,267.59	11,808.08	6,974.64	45.47	83.60	-66.01	-1,220.05	1,529.74	1,144.96	1,052.78	92.18	12.421		
8,050.00	7,271.34	11,808.08	6,974.64	45.40	83.60	-61.32	-1,220.05	1,529.74	1,187.51	1,096.40	91.11	13.034		
8,081.65	7,272.00	11,808.08	6,974.64	45.36	83.60	-58.71	-1,220.05	1,529.74	1,214.05	1,123.62	90.44	13.424		
8,100.00	7,272.00	11,808.08	6,974.64	45.33	83.60	-58.71	-1,220.05	1,529.74	1,229.39	1,139.34	90.05	13.652		
8,200.00	7,272.00	11,808.08	6,974.64	45.20	83.60	-58.71	-1,220.05	1,529.74	1,314.33	1,226.27	88.06	14.925		
8,300.00	7,272.00	11,808.08	6,974.64	45.08	83.60	-58.71	-1,220.05	1,529.74	1,401.26	1,315.03	86.23	16.250		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well RUEGGE 3O-4H-N165 - Slot RUEGGE 3
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 4938.00usft
<b>Reference Site:</b>	S4-T1N-R65W	<b>MD Reference:</b>	23' KB @ 4938.00usft
<b>Site Error:</b>	0.00usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	RUEGGE 3O-4H-N165	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	PLAN #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S4-T1N-R65W - BANE 27N2-9HZ - KMG WELL - SURVEYS												Offset Site Error:	0.00 usft
Survey Program: 20-ISWWSA MWD												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
6,100.00	5,788.14	11,984.00	7,177.04	38.11	77.15	123.97	-1,245.65	1,635.72	1,407.28	1,358.88	48.41	29.073	
6,200.00	5,881.94	11,984.00	7,177.04	38.82	77.15	123.97	-1,245.65	1,635.72	1,313.32	1,264.17	49.15	26.720	
6,300.00	5,975.73	11,984.00	7,177.04	39.53	77.15	123.97	-1,245.65	1,635.72	1,220.32	1,170.23	50.09	24.363	
6,400.00	6,069.52	11,984.00	7,177.04	40.23	77.15	123.97	-1,245.65	1,635.72	1,128.51	1,077.22	51.29	22.003	
6,500.00	6,163.32	11,984.00	7,177.04	40.94	77.15	123.97	-1,245.65	1,635.72	1,038.22	985.37	52.85	19.645	
6,600.00	6,257.11	11,984.00	7,177.04	41.65	77.15	123.97	-1,245.65	1,635.72	949.88	894.97	54.90	17.301	
6,700.00	6,350.90	11,984.00	7,177.04	42.36	77.15	123.97	-1,245.65	1,635.72	864.08	806.44	57.64	14.991	
6,800.00	6,444.70	11,984.00	7,177.04	43.06	77.15	123.97	-1,245.65	1,635.72	781.66	720.36	61.30	12.752	
6,847.81	6,489.54	11,984.00	7,177.04	43.40	77.15	123.97	-1,245.65	1,635.72	743.78	680.33	63.46	11.721	
6,850.00	6,491.60	11,984.00	7,177.04	43.42	77.15	124.22	-1,245.65	1,635.72	742.07	678.51	63.56	11.675	
6,900.00	6,538.72	11,984.00	7,177.04	43.76	77.15	131.10	-1,245.65	1,635.72	704.51	638.33	66.18	10.645	
6,950.00	6,586.11	11,984.00	7,177.04	44.07	77.15	139.82	-1,245.65	1,635.72	670.05	600.88	69.16	9.688	
7,000.00	6,633.53	11,984.00	7,177.04	44.36	77.15	149.33	-1,245.65	1,635.72	639.37	566.89	72.48	8.821	
7,050.00	6,680.75	11,984.00	7,177.04	44.62	77.15	158.53	-1,245.65	1,635.72	613.22	537.17	76.05	8.063	
7,100.00	6,727.53	11,984.00	7,177.04	44.85	77.15	166.72	-1,245.65	1,635.72	592.31	512.57	79.74	7.428	
7,150.00	6,773.66	11,984.00	7,177.04	45.05	77.15	173.68	-1,245.65	1,635.72	577.33	493.98	83.35	6.927	
7,200.00	6,818.91	11,984.00	7,177.04	45.22	77.15	179.52	-1,245.65	1,635.72	568.82	482.15	86.67	6.563	
7,237.37	6,852.02	11,984.00	7,177.04	45.33	77.15	-176.69	-1,245.65	1,635.72	566.90	478.06	88.84	6.381 CC	
7,250.00	6,863.05	11,984.00	7,177.04	45.37	77.15	-175.50	-1,245.65	1,635.72	567.12	477.62	89.50	6.337 ES	
7,300.00	6,905.88	11,984.00	7,177.04	45.49	77.15	-171.13	-1,245.65	1,635.72	572.29	480.61	91.67	6.243 SF	
7,350.00	6,947.18	11,984.00	7,177.04	45.59	77.15	-167.15	-1,245.65	1,635.72	584.12	490.99	93.13	6.272	
7,400.00	6,986.75	11,984.00	7,177.04	45.67	77.15	-163.35	-1,245.65	1,635.72	602.17	508.30	93.88	6.414	
7,450.00	7,024.39	11,984.00	7,177.04	45.73	77.15	-159.57	-1,245.65	1,635.72	625.82	531.81	94.01	6.657	
7,500.00	7,059.94	11,984.00	7,177.04	45.77	77.15	-155.65	-1,245.65	1,635.72	654.35	560.24	94.11	6.953	
7,550.00	7,093.20	11,984.00	7,177.04	45.79	77.15	-151.43	-1,245.65	1,635.72	687.03	593.16	93.87	7.319	
7,600.00	7,124.03	11,984.00	7,177.04	45.80	77.15	-146.76	-1,245.65	1,635.72	723.14	629.82	93.32	7.749	
7,650.00	7,152.27	11,984.00	7,177.04	45.79	77.15	-141.49	-1,245.65	1,635.72	762.03	669.48	92.56	8.233	
7,700.00	7,177.77	11,984.00	7,177.04	45.77	77.15	-135.46	-1,245.65	1,635.72	803.13	711.47	91.66	8.762	
7,750.00	7,200.43	11,984.00	7,177.04	45.74	77.15	-128.56	-1,245.65	1,635.72	845.93	755.25	90.69	9.328	
7,800.00	7,220.13	11,984.00	7,177.04	45.70	77.15	-120.75	-1,245.65	1,635.72	889.99	800.33	89.66	9.926	
7,850.00	7,236.76	11,984.00	7,177.04	45.65	77.15	-112.14	-1,245.65	1,635.72	934.94	846.32	88.61	10.551	
7,900.00	7,250.26	11,984.00	7,177.04	45.60	77.15	-103.00	-1,245.65	1,635.72	980.44	892.88	87.56	11.197	
7,950.00	7,260.55	11,984.00	7,177.04	45.53	77.15	-93.78	-1,245.65	1,635.72	1,026.22	939.70	86.51	11.862	
8,000.00	7,267.59	11,984.00	7,177.04	45.47	77.15	-84.97	-1,245.65	1,635.72	1,072.03	986.55	85.47	12.542	
8,050.00	7,271.34	11,984.00	7,177.04	45.40	77.15	-76.97	-1,245.65	1,635.72	1,117.66	1,033.22	84.44	13.236	
8,081.65	7,272.00	11,984.00	7,177.04	45.36	77.15	-72.42	-1,245.65	1,635.72	1,146.36	1,062.56	83.79	13.681	
8,100.00	7,272.00	11,984.00	7,177.04	45.33	77.15	-72.42	-1,245.65	1,635.72	1,162.98	1,079.55	83.42	13.940	
8,200.00	7,272.00	11,984.00	7,177.04	45.20	77.15	-72.42	-1,245.65	1,635.72	1,254.38	1,172.82	81.56	15.379	
8,300.00	7,272.00	11,984.00	7,177.04	45.08	77.15	-72.42	-1,245.65	1,635.72	1,347.01	1,267.08	79.93	16.852	



# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well RUEGGE 3O-4H-N165 - Slot RUEGGE 3
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 4938.00usft
<b>Reference Site:</b>	S4-T1N-R65W	<b>MD Reference:</b>	23' KB @ 4938.00usft
<b>Site Error:</b>	0.00usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	RUEGGE 3O-4H-N165	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	PLAN #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S4-T1N-R65W - BANE 28N3-9HZ - KMG WELL - SURVEYS												Offset Site Error:	0.00 usft
Survey Program: 20-ISWWSA MWD												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
6,400.00	6,069.52	11,941.00	7,068.96	40.23	77.10	139.22	-1,278.48	790.97	1,384.90	1,297.60	87.30	15.864	
6,500.00	6,163.32	11,941.00	7,068.96	40.94	77.10	139.22	-1,278.48	790.97	1,339.41	1,248.11	91.30	14.671	
6,600.00	6,257.11	11,941.00	7,068.96	41.65	77.10	139.22	-1,278.48	790.97	1,300.03	1,204.73	95.30	13.641	
6,700.00	6,350.90	11,941.00	7,068.96	42.36	77.10	139.22	-1,278.48	790.97	1,267.34	1,168.13	99.21	12.775	
6,800.00	6,444.70	11,941.00	7,068.96	43.06	77.10	139.22	-1,278.48	790.97	1,241.86	1,138.97	102.90	12.069	
6,847.81	6,489.54	11,941.00	7,068.96	43.40	77.10	139.22	-1,278.48	790.97	1,232.37	1,127.82	104.55	11.788	
6,850.00	6,491.60	11,941.00	7,068.96	43.42	77.10	139.62	-1,278.48	790.97	1,231.98	1,127.36	104.62	11.776	
6,900.00	6,538.72	11,941.00	7,068.96	43.76	77.10	149.73	-1,278.48	790.97	1,224.59	1,118.35	106.24	11.527	
6,950.00	6,586.11	11,941.00	7,068.96	44.07	77.10	161.15	-1,278.48	790.97	1,220.21	1,112.48	107.73	11.326	
6,996.02	6,629.76	11,941.00	7,068.96	44.34	77.10	172.03	-1,278.48	790.97	1,218.91	1,109.93	108.98	11.185 CC	
7,000.00	6,633.53	11,941.00	7,068.96	44.36	77.10	172.96	-1,278.48	790.97	1,218.92	1,109.84	109.08	11.175 ES	
7,050.00	6,680.75	11,941.00	7,068.96	44.62	77.10	-175.87	-1,278.48	790.97	1,220.71	1,110.44	110.26	11.071	
7,100.00	6,727.53	11,941.00	7,068.96	44.85	77.10	-165.97	-1,278.48	790.97	1,225.56	1,114.29	111.27	11.014	
7,150.00	6,773.66	11,941.00	7,068.96	45.05	77.10	-157.51	-1,278.48	790.97	1,233.42	1,121.32	112.11	11.002 SF	
7,200.00	6,818.91	11,941.00	7,068.96	45.22	77.10	-150.32	-1,278.48	790.97	1,244.20	1,131.44	112.76	11.034	
7,250.00	6,863.05	11,941.00	7,068.96	45.37	77.10	-144.16	-1,278.48	790.97	1,257.76	1,144.51	113.25	11.106	
7,300.00	6,905.88	11,941.00	7,068.96	45.49	77.10	-138.76	-1,278.48	790.97	1,273.95	1,160.38	113.57	11.217	
7,350.00	6,947.18	11,941.00	7,068.96	45.59	77.10	-133.89	-1,278.48	790.97	1,292.60	1,178.85	113.74	11.364	
7,400.00	6,986.75	11,941.00	7,068.96	45.67	77.10	-129.40	-1,278.48	790.97	1,313.50	1,199.73	113.78	11.544	
7,450.00	7,024.39	11,941.00	7,068.96	45.73	77.10	-125.15	-1,278.48	790.97	1,336.47	1,222.77	113.70	11.755	
7,500.00	7,059.94	11,941.00	7,068.96	45.77	77.10	-121.06	-1,278.48	790.97	1,361.28	1,247.77	113.51	11.993	
7,550.00	7,093.20	11,941.00	7,068.96	45.79	77.10	-117.06	-1,278.48	790.97	1,387.71	1,274.48	113.23	12.255	

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well RUEGGE 3O-4H-N165 - Slot RUEGGE 3
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 4938.00usft
<b>Reference Site:</b>	S4-T1N-R65W	<b>MD Reference:</b>	23' KB @ 4938.00usft
<b>Site Error:</b>	0.00usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	RUEGGE 3O-4H-N165	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	PLAN #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S4-T1N-R65W - BANE 2N3-9HZ - KMG WELL - SURVEYS												Offset Site Error:	0.00 usft
Survey Program: 20-ISWWSA MWD												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
6,100.00	5,788.14	11,947.00	7,113.68	38.11	76.71	134.67	-1,244.96	1,279.29	1,388.67	1,330.92	57.75	24.047	
6,200.00	5,881.94	11,947.00	7,113.68	38.82	76.71	134.67	-1,244.96	1,279.29	1,306.38	1,246.14	60.24	21.686	
6,300.00	5,975.73	11,947.00	7,113.68	39.53	76.71	134.67	-1,244.96	1,279.29	1,226.71	1,163.53	63.19	19.415	
6,400.00	6,069.52	11,947.00	7,113.68	40.23	76.71	134.67	-1,244.96	1,279.29	1,150.23	1,083.58	66.65	17.258	
6,500.00	6,163.32	11,947.00	7,113.68	40.94	76.71	134.67	-1,244.96	1,279.29	1,077.61	1,006.92	70.69	15.244	
6,600.00	6,257.11	11,947.00	7,113.68	41.65	76.71	134.67	-1,244.96	1,279.29	1,009.68	934.34	75.34	13.402	
6,700.00	6,350.90	11,947.00	7,113.68	42.36	76.71	134.67	-1,244.96	1,279.29	947.46	866.87	80.59	11.757	
6,800.00	6,444.70	11,947.00	7,113.68	43.06	76.71	134.67	-1,244.96	1,279.29	892.12	805.78	86.35	10.332	
6,847.81	6,489.54	11,947.00	7,113.68	43.40	76.71	134.67	-1,244.96	1,279.29	868.50	779.27	89.23	9.733	
6,850.00	6,491.60	11,947.00	7,113.68	43.42	76.71	135.02	-1,244.96	1,279.29	867.46	778.10	89.36	9.707	
6,900.00	6,538.72	11,947.00	7,113.68	43.76	76.71	143.89	-1,244.96	1,279.29	845.68	753.26	92.41	9.151	
6,950.00	6,586.11	11,947.00	7,113.68	44.07	76.71	154.23	-1,244.96	1,279.29	827.61	732.18	95.43	8.673	
7,000.00	6,633.53	11,947.00	7,113.68	44.36	76.71	165.08	-1,244.96	1,279.29	813.60	715.28	98.32	8.275	
7,050.00	6,680.75	11,947.00	7,113.68	44.62	76.71	175.40	-1,244.96	1,279.29	803.92	702.93	100.99	7.960	
7,100.00	6,727.53	11,947.00	7,113.68	44.85	76.71	-175.45	-1,244.96	1,279.29	798.79	695.41	103.38	7.727	
7,130.07	6,755.37	11,947.00	7,113.68	44.97	76.71	-170.59	-1,244.96	1,279.29	797.94	693.31	104.63	7.626 CC	
7,150.00	6,773.66	11,947.00	7,113.68	45.05	76.71	-167.63	-1,244.96	1,279.29	798.32	692.92	105.39	7.575 ES	
7,200.00	6,818.91	11,947.00	7,113.68	45.22	76.71	-160.99	-1,244.96	1,279.29	802.51	695.51	107.00	7.500	
7,250.00	6,863.05	11,947.00	7,113.68	45.37	76.71	-155.28	-1,244.96	1,279.29	811.27	703.11	108.17	7.500 SF	
7,300.00	6,905.88	11,947.00	7,113.68	45.49	76.71	-150.21	-1,244.96	1,279.29	824.43	715.52	108.91	7.570	
7,350.00	6,947.18	11,947.00	7,113.68	45.59	76.71	-145.57	-1,244.96	1,279.29	841.70	732.45	109.25	7.704	
7,400.00	6,986.75	11,947.00	7,113.68	45.67	76.71	-141.17	-1,244.96	1,279.29	862.76	753.53	109.23	7.898	
7,450.00	7,024.39	11,947.00	7,113.68	45.73	76.71	-136.86	-1,244.96	1,279.29	887.24	778.33	108.91	8.146	
7,500.00	7,059.94	11,947.00	7,113.68	45.77	76.71	-132.53	-1,244.96	1,279.29	914.76	806.41	108.35	8.443	
7,550.00	7,093.20	11,947.00	7,113.68	45.79	76.71	-128.10	-1,244.96	1,279.29	944.92	837.33	107.59	8.783	
7,600.00	7,124.03	11,947.00	7,113.68	45.80	76.71	-123.51	-1,244.96	1,279.29	977.33	870.51	106.81	9.150	
7,650.00	7,152.27	11,947.00	7,113.68	45.79	76.71	-118.73	-1,244.96	1,279.29	1,011.63	905.49	106.14	9.531	
7,700.00	7,177.77	11,947.00	7,113.68	45.77	76.71	-113.76	-1,244.96	1,279.29	1,047.48	942.11	105.37	9.941	
7,750.00	7,200.43	11,947.00	7,113.68	45.74	76.71	-108.62	-1,244.96	1,279.29	1,084.55	980.02	104.53	10.375	
7,800.00	7,220.13	11,947.00	7,113.68	45.70	76.71	-103.36	-1,244.96	1,279.29	1,122.56	1,018.91	103.65	10.830	
7,850.00	7,236.76	11,947.00	7,113.68	45.65	76.71	-98.07	-1,244.96	1,279.29	1,161.23	1,058.49	102.74	11.303	
7,900.00	7,250.26	11,947.00	7,113.68	45.60	76.71	-92.83	-1,244.96	1,279.29	1,200.32	1,098.51	101.81	11.790	
7,950.00	7,260.55	11,947.00	7,113.68	45.53	76.71	-87.74	-1,244.96	1,279.29	1,239.62	1,138.75	100.87	12.289	
8,000.00	7,267.59	11,947.00	7,113.68	45.47	76.71	-82.89	-1,244.96	1,279.29	1,278.91	1,178.99	99.93	12.798	
8,050.00	7,271.34	11,947.00	7,113.68	45.40	76.71	-78.35	-1,244.96	1,279.29	1,318.03	1,219.04	98.99	13.315	
8,081.65	7,272.00	11,947.00	7,113.68	45.36	76.71	-75.67	-1,244.96	1,279.29	1,342.61	1,244.22	98.39	13.646	
8,100.00	7,272.00	11,947.00	7,113.68	45.33	76.71	-75.67	-1,244.96	1,279.29	1,356.87	1,258.82	98.04	13.839	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well RUEGGE 3O-4H-N165 - Slot RUEGGE 3
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 4938.00usft
<b>Reference Site:</b>	S4-T1N-R65W	<b>MD Reference:</b>	23' KB @ 4938.00usft
<b>Site Error:</b>	0.00usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	RUEGGE 3O-4H-N165	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	PLAN #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S4-T1N-R65W - CHAPIN 33-4 - CPR WELL - GYRO													Offset Site Error:	0.00 usft
Survey Program: 100-VESSI_GYROFLEX													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
8,000.00	7,267.59	7,331.85	7,329.38	45.47	12.74	-84.98	966.43	1,554.74	1,381.47	1,328.89	52.58	26.273		
8,050.00	7,271.34	7,333.59	7,331.12	45.40	12.74	-92.68	966.38	1,554.87	1,336.63	1,284.12	52.51	25.456		
8,081.65	7,272.00	7,333.42	7,330.95	45.36	12.74	-97.68	966.38	1,554.86	1,308.21	1,255.75	52.46	24.938		
8,100.00	7,272.00	7,333.03	7,330.56	45.33	12.74	-97.64	966.39	1,554.83	1,291.75	1,239.33	52.43	24.639		
8,200.00	7,272.00	7,330.87	7,328.40	45.20	12.74	-97.42	966.46	1,554.67	1,203.06	1,150.81	52.25	23.025		
8,300.00	7,272.00	7,328.65	7,326.19	45.08	12.73	-97.20	966.52	1,554.50	1,116.28	1,064.23	52.05	21.444		
8,400.00	7,272.00	7,326.38	7,323.93	44.97	12.73	-96.98	966.59	1,554.33	1,031.89	980.05	51.84	19.906		
8,500.00	7,272.00	7,324.05	7,321.61	44.87	12.73	-96.75	966.67	1,554.15	950.52	898.92	51.60	18.420		
8,600.00	7,272.00	7,321.66	7,319.23	44.78	12.72	-96.51	966.74	1,553.96	873.02	821.67	51.36	16.999		
8,700.00	7,272.00	7,319.22	7,316.79	44.70	12.72	-96.27	966.82	1,553.77	800.52	749.41	51.11	15.661		
8,800.00	7,272.00	7,316.70	7,314.29	44.62	12.71	-96.02	966.90	1,553.57	734.50	683.59	50.91	14.428		
8,900.00	7,272.00	7,314.12	7,311.72	44.56	12.71	-95.76	966.98	1,553.37	676.85	626.06	50.79	13.326		
9,000.00	7,272.00	7,311.48	7,309.08	44.51	12.70	-95.50	967.07	1,553.15	629.87	579.04	50.83	12.391		
9,100.00	7,272.00	7,308.76	7,306.37	44.48	12.70	-95.23	967.16	1,552.93	596.11	544.99	51.12	11.662		
9,200.00	7,272.00	7,307.05	7,304.67	44.46	12.70	-95.06	967.22	1,552.80	577.86	526.17	51.69	11.180		
9,257.16	7,272.00	7,305.10	7,302.73	44.47	12.69	-94.86	967.29	1,552.64	575.03	522.92	52.10	11.036 CC, ES		
9,300.00	7,272.00	7,303.63	7,301.27	44.47	12.69	-94.71	967.34	1,552.51	576.62	524.18	52.44	10.995 SF		
9,400.00	7,272.00	7,300.16	7,297.81	44.52	12.68	-94.37	967.46	1,552.22	592.48	539.20	53.28	11.121		
9,500.00	7,272.00	7,296.64	7,294.30	44.63	12.68	-94.02	967.58	1,551.92	624.14	570.09	54.05	11.547		
9,600.00	7,272.00	7,293.06	7,290.74	44.85	12.67	-93.66	967.71	1,551.62	669.37	614.69	54.68	12.242		
9,700.00	7,272.00	7,289.43	7,287.12	45.24	12.66	-93.30	967.84	1,551.32	725.62	670.48	55.14	13.159		
9,800.00	7,272.00	7,285.74	7,283.45	45.85	12.66	-92.93	967.97	1,551.01	790.55	735.09	55.46	14.255		
9,900.00	7,272.00	7,281.99	7,279.71	46.65	12.65	-92.56	968.11	1,550.69	862.20	806.54	55.66	15.490		
10,000.00	7,272.00	7,278.18	7,275.92	47.61	12.65	-92.18	968.25	1,550.37	939.03	883.24	55.79	16.831		
10,100.00	7,272.00	7,274.31	7,272.06	48.66	12.64	-91.80	968.39	1,550.05	1,019.88	964.01	55.86	18.256		
10,200.00	7,272.00	7,270.37	7,268.14	49.77	12.63	-91.41	968.54	1,549.72	1,103.85	1,047.95	55.90	19.746		
10,300.00	7,272.00	7,266.37	7,264.16	50.93	12.62	-91.01	968.69	1,549.38	1,190.29	1,134.38	55.92	21.287		
10,400.00	7,272.00	7,262.31	7,260.11	52.12	12.62	-90.61	968.85	1,549.04	1,278.70	1,222.78	55.92	22.868		
10,500.00	7,272.00	7,258.17	7,256.00	53.34	12.61	-90.20	969.00	1,548.69	1,368.69	1,312.79	55.91	24.481		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well RUEGGE 30-4H-N165 - Slot RUEGGE 3
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 4938.00usft
<b>Reference Site:</b>	S4-T1N-R65W	<b>MD Reference:</b>	23' KB @ 4938.00usft
<b>Site Error:</b>	0.00usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	RUEGGE 30-4H-N165	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	PLAN #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S4-T1N-R65W - CHAPIN 34-4 - CPR WELL - GYRO													Offset Site Error:	0.00 usft
Survey Program: 100-VESSI_GYROFLEX													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning	
0.00	0.00	0.00	0.00	0.00	0.00	86.14	85.49	1,268.62	1,271.56					
100.00	100.00	76.65	76.65	0.14	0.06	86.15	85.44	1,268.97	1,271.89	1,271.70	0.20	6,436.409		
200.00	200.00	177.96	177.96	0.50	0.21	86.15	85.40	1,269.98	1,272.88	1,272.17	0.71	1,788.972		
300.00	300.00	281.84	281.83	0.85	0.40	86.15	85.57	1,270.61	1,273.50	1,272.24	1.25	1,015.402		
400.00	400.00	381.55	381.54	1.21	0.58	86.14	85.72	1,271.07	1,273.97	1,272.18	1.79	711.778		
500.00	499.98	491.25	491.24	1.56	0.77	-30.39	85.75	1,271.28	1,272.67	1,270.34	2.33	546.846		
600.00	599.84	589.46	589.45	1.91	0.93	-30.56	85.71	1,271.05	1,267.92	1,265.08	2.84	446.460		
700.00	699.45	686.36	686.35	2.26	1.10	-30.84	85.83	1,271.03	1,260.40	1,257.04	3.36	374.872		
800.00	798.70	789.03	789.02	2.63	1.28	-31.24	85.88	1,271.01	1,249.92	1,246.02	3.90	320.229		
900.00	897.47	885.91	885.90	3.02	1.45	-31.76	86.04	1,270.86	1,236.41	1,231.96	4.44	278.393		
1,000.00	995.62	985.09	985.08	3.44	1.62	-32.42	86.15	1,270.79	1,220.10	1,215.11	4.99	244.302		
1,100.00	1,093.06	1,083.75	1,083.74	3.88	1.79	-33.20	85.91	1,270.65	1,200.88	1,195.32	5.56	216.000		
1,200.00	1,189.64	1,181.21	1,181.19	4.37	1.96	-34.10	85.06	1,270.48	1,178.85	1,172.71	6.14	192.002		
1,300.00	1,285.27	1,279.37	1,279.34	4.89	2.13	-35.17	84.03	1,270.21	1,154.06	1,147.32	6.74	171.184		
1,400.00	1,379.82	1,369.45	1,369.42	5.47	2.29	-36.35	83.14	1,269.96	1,126.76	1,119.40	7.36	153.164		
1,414.59	1,393.51	1,382.23	1,382.20	5.55	2.31	-36.53	83.03	1,269.96	1,122.61	1,115.16	7.45	150.652		
1,500.00	1,473.62	1,470.57	1,470.54	6.08	2.47	-37.49	82.35	1,269.80	1,098.18	1,090.16	8.01	137.055		
1,600.00	1,567.42	1,568.48	1,568.45	6.72	2.64	-38.63	81.79	1,268.76	1,069.11	1,060.43	8.68	123.177		
1,700.00	1,661.21	1,661.27	1,661.22	7.37	2.80	-39.77	81.42	1,267.69	1,040.38	1,031.02	9.36	111.148		
1,800.00	1,755.00	1,755.31	1,755.26	8.03	2.96	-41.00	81.10	1,266.66	1,012.14	1,002.08	10.06	100.578		
1,900.00	1,848.80	1,850.68	1,850.62	8.69	3.13	-42.29	80.48	1,265.53	984.21	973.42	10.79	91.239		
2,000.00	1,942.59	1,943.34	1,943.27	9.37	3.30	-43.61	79.68	1,264.36	956.67	945.14	11.53	82.985		
2,100.00	2,036.39	2,034.21	2,034.13	10.05	3.46	-44.94	78.47	1,263.60	929.92	917.63	12.29	75.682		
2,200.00	2,130.18	2,127.06	2,126.97	10.73	3.62	-46.36	77.20	1,263.04	903.91	890.84	13.07	69.169		
2,300.00	2,223.97	2,220.49	2,220.38	11.41	3.78	-47.84	75.44	1,262.63	878.48	864.61	13.87	63.343		
2,400.00	2,317.77	2,309.70	2,309.58	12.10	3.94	-49.33	73.86	1,262.55	854.02	839.33	14.69	58.144		
2,500.00	2,411.56	2,400.33	2,400.20	12.79	4.10	-50.91	72.41	1,262.88	830.69	815.16	15.53	53.491		
2,600.00	2,505.36	2,490.34	2,490.20	13.49	4.26	-52.58	71.29	1,263.52	808.53	792.13	16.39	49.322		
2,700.00	2,599.15	2,579.41	2,579.25	14.18	4.41	-54.33	70.60	1,264.52	787.73	770.45	17.28	45.592		
2,800.00	2,692.94	2,668.71	2,668.54	14.87	4.57	-56.17	70.21	1,266.03	768.44	750.25	18.18	42.260		
2,900.00	2,786.74	2,756.64	2,756.45	15.57	4.72	-58.10	70.68	1,267.77	750.81	731.70	19.11	39.286		
3,000.00	2,880.53	2,847.09	2,846.87	16.27	4.88	-60.17	71.69	1,270.12	735.05	714.99	20.06	36.644		
3,100.00	2,974.32	2,941.31	2,941.05	16.97	5.04	-62.41	72.71	1,272.81	720.63	699.61	21.03	34.275		
3,200.00	3,068.12	3,035.06	3,034.76	17.67	5.20	-64.74	74.06	1,275.25	707.46	685.45	22.01	32.149		
3,300.00	3,161.91	3,128.31	3,127.95	18.37	5.37	-67.08	75.01	1,278.22	695.80	672.81	22.99	30.263		
3,400.00	3,255.71	3,223.22	3,222.80	19.07	5.53	-69.54	76.06	1,281.22	685.52	661.53	23.99	28.581		
3,500.00	3,349.50	3,318.68	3,318.22	19.77	5.70	-72.08	77.06	1,284.16	676.55	651.57	24.98	27.083		
3,600.00	3,443.29	3,413.17	3,412.67	20.47	5.86	-74.69	78.36	1,286.62	668.98	643.01	25.97	25.758		
3,700.00	3,537.09	3,506.42	3,505.87	21.18	6.03	-77.33	79.91	1,288.94	663.12	636.17	26.95	24.603		
3,800.00	3,630.88	3,607.07	3,606.49	21.88	6.20	-80.25	81.35	1,290.98	658.48	630.55	27.93	23.577		
3,900.00	3,724.68	3,694.96	3,694.35	22.58	6.35	-82.84	82.84	1,292.55	655.60	626.74	28.86	22.714		
4,000.00	3,818.47	3,793.47	3,792.83	23.29	6.53	-85.75	84.52	1,294.49	654.58	624.79	29.79	21.974		
4,034.65	3,850.97	3,826.67	3,826.02	23.53	6.58	-86.73	84.91	1,295.14	654.48	624.38	30.10	21.744 CC		
4,100.00	3,912.26	3,888.78	3,888.12	23.99	6.69	-88.55	85.59	1,296.39	654.82	624.15	30.67	21.347 ES		
4,200.00	4,006.06	3,981.38	3,980.69	24.69	6.86	-91.25	86.60	1,298.37	656.81	625.29	31.52	20.838		
4,300.00	4,099.85	4,074.64	4,073.91	25.40	7.02	-93.93	87.76	1,300.61	660.71	628.38	32.33	20.438		
4,400.00	4,193.65	4,169.21	4,168.45	26.10	7.19	-96.63	89.03	1,302.77	666.30	633.20	33.10	20.130		
4,500.00	4,287.44	4,262.75	4,261.97	26.81	7.35	-99.30	90.49	1,304.27	673.51	639.68	33.82	19.912		
4,600.00	4,381.23	4,358.55	4,357.75	27.51	7.52	-101.99	92.00	1,305.73	682.36	647.84	34.52	19.770		
4,700.00	4,475.03	4,450.68	4,449.86	28.22	7.68	-104.51	93.22	1,307.16	692.54	657.38	35.15	19.700		
4,800.00	4,568.82	4,541.97	4,541.11	28.93	7.84	-106.95	95.05	1,308.50	704.82	669.07	35.75	19.716		
4,900.00	4,662.61	4,636.36	4,635.48	29.63	8.01	-109.39	96.90	1,309.79	718.50	682.18	36.32	19.782		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well RUEGGE 3O-4H-N165 - Slot RUEGGE 3
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 4938.00usft
<b>Reference Site:</b>	S4-T1N-R65W	<b>MD Reference:</b>	23' KB @ 4938.00usft
<b>Site Error:</b>	0.00usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	RUEGGE 3O-4H-N165	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	PLAN #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S4-T1N-R65W - CHAPIN 34-4 - CPR WELL - GYRO												Offset Site Error:	0.00 usft
Survey Program: 100-VESSI_GYROFLEX												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
5,000.00	4,756.41	4,729.00	4,728.09	30.34	8.17	-111.72	98.84	1,310.97	733.66	696.81	36.85	19.908	
5,100.00	4,850.20	4,821.47	4,820.54	31.04	8.33	-113.98	100.88	1,311.73	750.21	712.86	37.35	20.085	
5,200.00	4,944.00	4,911.26	4,910.29	31.75	8.49	-116.13	103.26	1,311.95	768.42	730.62	37.81	20.326	
5,300.00	5,037.79	5,008.28	5,007.28	32.46	8.66	-118.35	105.78	1,312.17	787.79	749.52	38.27	20.583	
5,400.00	5,131.58	5,091.58	5,090.54	33.16	8.80	-120.15	108.39	1,312.73	808.71	770.05	38.66	20.919	
5,500.00	5,225.38	5,192.41	5,191.29	33.87	8.98	-122.17	111.84	1,314.17	830.80	791.67	39.14	21.228	
5,600.00	5,319.17	5,286.13	5,284.96	34.58	9.15	-123.91	114.59	1,316.11	853.22	813.64	39.57	21.560	
5,700.00	5,412.97	5,383.70	5,382.47	35.28	9.32	-125.65	117.31	1,318.00	876.29	836.27	40.02	21.894	
5,800.00	5,506.76	5,477.62	5,476.35	35.99	9.48	-127.26	119.61	1,319.57	899.82	859.38	40.44	22.249	
5,900.00	5,600.55	5,578.43	5,577.12	36.70	9.66	-128.90	121.85	1,321.40	923.81	882.91	40.90	22.586	
6,000.00	5,694.35	5,670.59	5,669.26	37.40	9.82	-130.38	123.23	1,322.34	947.97	906.68	41.29	22.956	
6,100.00	5,788.14	5,767.56	5,766.22	38.11	9.99	-131.90	124.64	1,322.56	972.94	931.24	41.70	23.330	
6,200.00	5,881.94	5,855.99	5,854.65	38.82	10.15	-133.25	125.56	1,322.35	998.30	956.24	42.06	23.737	
6,300.00	5,975.73	5,948.42	5,947.06	39.53	10.31	-134.57	127.42	1,322.49	1,024.96	982.52	42.44	24.149	
6,400.00	6,069.52	6,054.73	6,053.34	40.23	10.50	-135.93	129.22	1,324.08	1,051.41	1,008.48	42.93	24.491	
6,500.00	6,163.32	6,203.43	6,201.88	40.94	10.76	-137.59	129.02	1,330.21	1,076.03	1,032.36	43.66	24.644	
6,600.00	6,257.11	6,306.76	6,304.97	41.65	10.94	-138.62	126.14	1,336.73	1,097.55	1,053.39	44.17	24.851	
6,700.00	6,350.90	6,386.11	6,384.18	42.36	11.08	-139.42	123.97	1,340.97	1,119.78	1,075.24	44.54	25.139	
6,800.00	6,444.70	6,469.04	6,467.01	43.06	11.23	-140.26	122.45	1,344.61	1,143.50	1,098.57	44.93	25.453	
6,847.81	6,489.54	6,508.40	6,506.34	43.40	11.30	-140.65	121.93	1,346.04	1,155.30	1,110.20	45.10	25.614	
6,850.00	6,491.60	6,510.15	6,508.09	43.42	11.30	-140.21	121.91	1,346.10	1,155.85	1,110.74	45.11	25.621	
6,900.00	6,538.72	6,550.16	6,548.08	43.76	11.37	-129.56	121.60	1,347.43	1,166.92	1,121.64	45.28	25.769	
6,950.00	6,586.11	6,590.27	6,588.17	44.07	11.44	-117.97	121.53	1,348.66	1,175.34	1,129.90	45.44	25.866	
7,000.00	6,633.53	6,634.18	6,632.06	44.36	11.52	-106.44	121.66	1,349.89	1,181.06	1,135.46	45.60	25.901	
7,050.00	6,680.75	6,679.07	6,676.93	44.62	11.60	-95.95	121.87	1,351.04	1,183.95	1,138.21	45.74	25.882	
7,100.00	6,727.53	6,724.39	6,722.24	44.85	11.68	-87.14	122.13	1,352.09	1,184.06	1,138.19	45.87	25.814	
7,150.00	6,773.66	6,769.77	6,767.62	45.05	11.76	-80.19	122.37	1,353.01	1,181.39	1,135.42	45.97	25.698	
7,200.00	6,818.91	6,814.96	6,812.80	45.22	11.84	-74.95	122.58	1,353.81	1,176.03	1,129.98	46.05	25.538	
7,250.00	6,863.05	6,860.51	6,858.34	45.37	11.92	-71.19	122.72	1,354.53	1,168.01	1,121.90	46.11	25.333	
7,300.00	6,905.88	6,904.60	6,902.42	45.49	12.00	-68.63	122.78	1,355.19	1,157.44	1,111.31	46.13	25.090	
7,350.00	6,947.18	6,944.41	6,942.23	45.59	12.07	-66.98	122.80	1,355.69	1,144.54	1,098.43	46.11	24.824	
7,400.00	6,986.75	6,982.73	6,980.55	45.67	12.13	-66.15	122.80	1,356.08	1,129.50	1,083.45	46.05	24.528	
7,450.00	7,024.39	7,019.89	7,017.71	45.73	12.20	-66.03	122.80	1,356.37	1,112.49	1,066.52	45.96	24.203	
7,500.00	7,059.94	7,055.63	7,053.45	45.77	12.26	-66.53	122.79	1,356.65	1,093.67	1,047.82	45.85	23.852	
7,550.00	7,093.20	7,089.08	7,086.89	45.79	12.32	-67.54	122.78	1,356.92	1,073.27	1,027.56	45.71	23.479	
7,600.00	7,124.03	7,120.39	7,118.20	45.80	12.38	-69.00	122.78	1,357.17	1,051.50	1,005.96	45.54	23.088	
7,650.00	7,152.27	7,149.23	7,147.05	45.79	12.43	-70.84	122.77	1,357.43	1,028.62	983.27	45.35	22.681	
7,700.00	7,177.77	7,175.30	7,173.11	45.77	12.47	-72.99	122.76	1,357.68	1,004.89	959.75	45.14	22.263	
7,750.00	7,200.43	7,198.46	7,196.27	45.74	12.51	-75.36	122.75	1,357.91	980.59	935.68	44.91	21.835	
7,800.00	7,220.13	7,219.14	7,216.95	45.70	12.55	-77.90	122.73	1,358.13	956.01	911.33	44.67	21.399	
7,850.00	7,236.76	7,236.48	7,234.29	45.65	12.58	-80.50	122.68	1,358.30	931.44	887.00	44.44	20.960	
7,900.00	7,250.26	7,250.39	7,248.20	45.60	12.61	-83.04	122.62	1,358.44	907.19	862.98	44.21	20.518	
7,950.00	7,260.55	7,260.84	7,258.64	45.53	12.62	-85.46	122.57	1,358.55	883.57	839.56	44.01	20.076	
8,000.00	7,267.59	7,267.82	7,265.63	45.47	12.64	-87.67	122.52	1,358.61	860.86	817.01	43.84	19.634	
8,050.00	7,271.34	7,271.35	7,269.16	45.40	12.64	-89.64	122.50	1,358.65	839.34	795.61	43.73	19.193	
8,081.65	7,272.00	7,271.82	7,269.63	45.36	12.64	-90.73	122.50	1,358.65	826.44	782.75	43.69	18.915	
8,100.00	7,272.00	7,271.69	7,269.50	45.33	12.64	-90.72	122.50	1,358.65	819.31	775.63	43.69	18.755	
8,200.00	7,272.00	7,271.02	7,268.82	45.20	12.64	-90.67	122.50	1,358.65	786.89	743.01	43.87	17.935	
8,300.00	7,272.00	7,270.35	7,268.16	45.08	12.64	-90.62	122.51	1,358.64	766.23	721.74	44.49	17.222	
8,400.00	7,272.00	7,269.70	7,267.50	44.97	12.64	-90.57	122.51	1,358.63	758.31	712.78	45.52	16.657	
8,410.42	7,272.00	7,269.63	7,267.44	44.96	12.64	-90.56	122.51	1,358.63	758.23	712.58	45.65	16.608	
8,500.00	7,272.00	7,269.06	7,266.86	44.87	12.64	-90.52	122.51	1,358.63	763.51	716.65	46.86	16.294	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well RUEGGE 3O-4H-N165 - Slot RUEGGE 3
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 4938.00usft
<b>Reference Site:</b>	S4-T1N-R65W	<b>MD Reference:</b>	23' KB @ 4938.00usft
<b>Site Error:</b>	0.00usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	RUEGGE 3O-4H-N165	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	PLAN #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design										S4-T1N-R65W - CHAPIN 34-4 - CPR WELL - GYRO				Offset Site Error:		0.00 usft	
Survey Program:										100-VESSI_GYROFLEX				Offset Well Error:		0.00 usft	
Reference		Offset		Semi Major Axis			Distance							Warning			
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor					
8,600.00	7,272.00	7,268.42	7,266.23	44.78	12.64	-90.47	122.52	1,358.62	781.57	733.25	48.33	16.173 SF					
8,700.00	7,272.00	7,267.81	7,265.61	44.70	12.64	-90.42	122.52	1,358.61	811.65	761.89	49.76	16.310					
8,800.00	7,272.00	7,267.20	7,265.00	44.62	12.64	-90.38	122.53	1,358.61	852.46	801.40	51.06	16.697					
8,900.00	7,272.00	7,266.60	7,264.40	44.56	12.63	-90.33	122.53	1,358.60	902.55	850.40	52.15	17.307					
9,000.00	7,272.00	7,266.01	7,263.82	44.51	12.63	-90.29	122.53	1,358.60	960.47	907.44	53.04	18.110					
9,100.00	7,272.00	7,265.43	7,263.24	44.48	12.63	-90.24	122.54	1,358.59	1,024.90	971.17	53.74	19.073					
9,200.00	7,272.00	7,264.86	7,262.67	44.46	12.63	-90.20	122.54	1,358.59	1,094.68	1,040.41	54.27	20.169					
9,300.00	7,272.00	7,264.30	7,262.11	44.47	12.63	-90.16	122.54	1,358.58	1,168.86	1,114.18	54.69	21.374					
9,400.00	7,272.00	7,263.75	7,261.56	44.52	12.63	-90.12	122.55	1,358.57	1,246.66	1,191.66	55.00	22.668					
9,500.00	7,272.00	7,263.21	7,261.02	44.63	12.63	-90.08	122.55	1,358.57	1,327.43	1,272.20	55.23	24.035					
9,600.00	7,272.00	7,262.68	7,260.48	44.85	12.63	-90.04	122.55	1,358.56	1,410.66	1,355.26	55.40	25.462					

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well RUEGGE 3O-4H-N165 - Slot RUEGGE 3
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 4938.00usft
<b>Reference Site:</b>	S4-T1N-R65W	<b>MD Reference:</b>	23' KB @ 4938.00usft
<b>Site Error:</b>	0.00usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	RUEGGE 3O-4H-N165	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	PLAN #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S4-T1N-R65W - CHAPIN 43-4 - CPR WELL - GYRO													Offset Site Error:	0.00 usft
Survey Program: 100-VESSI_GYROFLEX													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
8,300.00	7,272.00	7,275.22	7,273.03	45.08	12.66	88.15	1,216.91	2,747.02	1,367.33	1,310.17	57.16	23.922		
8,400.00	7,272.00	7,276.48	7,274.29	44.97	12.66	88.27	1,216.92	2,747.03	1,278.97	1,222.18	56.79	22.521		
8,500.00	7,272.00	7,277.75	7,275.56	44.87	12.66	88.39	1,216.94	2,747.04	1,192.45	1,136.08	56.37	21.154		
8,600.00	7,272.00	7,279.02	7,276.83	44.78	12.67	88.50	1,216.95	2,747.05	1,108.19	1,052.30	55.89	19.827		
8,700.00	7,272.00	7,280.29	7,278.10	44.70	12.67	88.62	1,216.97	2,747.06	1,026.77	971.41	55.35	18.550		
8,800.00	7,272.00	7,281.57	7,279.38	44.62	12.67	88.74	1,216.99	2,747.07	948.90	894.15	54.75	17.331		
8,900.00	7,272.00	7,282.86	7,280.67	44.56	12.67	88.86	1,217.00	2,747.08	875.54	821.44	54.10	16.184		
9,000.00	7,272.00	7,284.15	7,281.96	44.51	12.68	88.98	1,217.02	2,747.09	807.91	754.48	53.43	15.121		
9,100.00	7,272.00	7,285.45	7,283.26	44.48	12.68	89.10	1,217.03	2,747.10	747.57	694.76	52.81	14.156		
9,200.00	7,272.00	7,286.76	7,284.57	44.46	12.68	89.22	1,217.05	2,747.11	696.42	644.06	52.36	13.300		
9,300.00	7,272.00	7,288.07	7,285.88	44.47	12.68	89.34	1,217.07	2,747.12	656.62	604.37	52.25	12.567		
9,400.00	7,272.00	7,289.38	7,287.19	44.52	12.69	89.46	1,217.08	2,747.12	630.30	577.68	52.62	11.978		
9,500.00	7,272.00	7,290.70	7,288.51	44.63	12.69	89.58	1,217.10	2,747.13	619.21	565.67	53.54	11.566		
9,519.34	7,272.00	7,290.96	7,288.77	44.67	12.69	89.61	1,217.11	2,747.14	618.90	565.13	53.77	11.509 CC, ES		
9,600.00	7,272.00	7,292.03	7,289.84	44.85	12.69	89.71	1,217.12	2,747.14	624.14	569.25	54.89	11.371 SF		
9,700.00	7,272.00	7,293.36	7,291.17	45.24	12.69	89.83	1,217.14	2,747.15	644.73	588.30	56.43	11.426		
9,800.00	7,272.00	7,294.70	7,292.51	45.85	12.69	89.95	1,217.15	2,747.16	679.56	621.64	57.91	11.735		
9,900.00	7,272.00	7,296.04	7,293.85	46.65	12.70	90.08	1,217.17	2,747.17	726.58	667.39	59.19	12.276		
10,000.00	7,272.00	7,297.39	7,295.20	47.61	12.70	90.20	1,217.19	2,747.18	783.60	723.40	60.20	13.016		
10,100.00	7,272.00	7,298.75	7,296.56	48.66	12.70	90.33	1,217.21	2,747.19	848.61	787.64	60.97	13.918		
10,200.00	7,272.00	7,300.11	7,297.92	49.77	12.70	90.46	1,217.22	2,747.20	919.92	858.38	61.54	14.948		
10,300.00	7,272.00	7,301.48	7,299.29	50.93	12.71	90.58	1,217.24	2,747.21	996.17	934.22	61.95	16.080		
10,400.00	7,272.00	7,302.85	7,300.66	52.12	12.71	90.71	1,217.26	2,747.22	1,076.32	1,014.07	62.25	17.291		
10,500.00	7,272.00	7,304.23	7,302.04	53.34	12.71	90.84	1,217.28	2,747.22	1,159.55	1,097.09	62.46	18.565		
10,600.00	7,272.00	7,305.62	7,303.43	54.58	12.71	90.97	1,217.30	2,747.23	1,245.25	1,182.65	62.61	19.890		
10,700.00	7,272.00	7,307.01	7,304.82	55.84	12.72	91.09	1,217.31	2,747.24	1,332.95	1,270.23	62.71	21.255		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well RUEGGE 3O-4H-N165 - Slot RUEGGE 3
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 4938.00usft
<b>Reference Site:</b>	S4-T1N-R65W	<b>MD Reference:</b>	23' KB @ 4938.00usft
<b>Site Error:</b>	0.00usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	RUEGGE 3O-4H-N165	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	PLAN #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S4-T1N-R65W - CHAPIN 44-4 - CPR WELL - GYRO												Offset Site Error:	0.00 usft
Survey Program: 100-VESSI_GYROFLEX												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
4,500.00	4,287.44	4,265.05	4,264.49	26.81	7.39	-47.70	-79.12	2,437.25	1,404.58	1,374.21	30.38	46.239	
4,600.00	4,381.23	4,362.86	4,362.25	27.51	7.56	-48.84	-76.36	2,439.36	1,383.72	1,352.41	31.31	44.196	
4,700.00	4,475.03	4,466.52	4,465.84	28.22	7.74	-50.10	-73.37	2,441.11	1,363.02	1,330.76	32.26	42.251	
4,800.00	4,568.82	4,563.32	4,562.60	28.93	7.90	-51.30	-70.82	2,442.15	1,342.25	1,309.03	33.22	40.402	
4,900.00	4,662.61	4,651.34	4,650.58	29.63	8.05	-52.43	-68.46	2,443.21	1,322.23	1,288.03	34.20	38.667	
5,000.00	4,756.41	4,738.49	4,737.68	30.34	8.20	-53.58	-65.75	2,444.65	1,303.37	1,268.19	35.18	37.047	
5,100.00	4,850.20	4,827.80	4,826.93	31.04	8.36	-54.78	-63.00	2,446.50	1,285.53	1,249.35	36.18	35.532	
5,200.00	4,944.00	4,916.67	4,915.72	31.75	8.51	-56.02	-59.67	2,448.45	1,268.76	1,231.56	37.19	34.113	
5,300.00	5,037.79	5,009.00	5,007.94	32.46	8.67	-57.37	-55.67	2,450.42	1,252.95	1,214.73	38.22	32.779	
5,400.00	5,131.58	5,105.23	5,104.03	33.16	8.84	-58.84	-50.80	2,452.01	1,237.91	1,198.63	39.28	31.518	
5,500.00	5,225.38	5,212.07	5,210.70	33.87	9.03	-60.56	-44.85	2,452.57	1,223.09	1,182.74	40.36	30.307	
5,600.00	5,319.17	5,297.06	5,295.57	34.58	9.17	-61.94	-40.42	2,453.11	1,209.11	1,167.69	41.42	29.193	
5,700.00	5,412.97	5,410.04	5,408.45	35.28	9.37	-63.77	-35.75	2,453.86	1,195.53	1,153.02	42.51	28.125	
5,800.00	5,506.76	5,520.99	5,519.35	35.99	9.57	-65.59	-32.63	2,453.37	1,181.31	1,137.71	43.59	27.098	
5,900.00	5,600.55	5,620.93	5,619.28	36.70	9.74	-67.25	-30.83	2,452.52	1,167.14	1,122.48	44.67	26.129	
6,000.00	5,694.35	5,718.68	5,717.01	37.40	9.91	-68.89	-29.63	2,451.47	1,153.44	1,107.70	45.74	25.215	
6,100.00	5,788.14	5,809.18	5,807.50	38.11	10.07	-70.45	-28.44	2,450.33	1,140.65	1,093.84	46.82	24.365	
6,200.00	5,881.94	5,889.77	5,888.07	38.82	10.22	-71.86	-26.98	2,449.75	1,129.56	1,081.69	47.88	23.594	
6,300.00	5,975.73	5,981.18	5,979.47	39.53	10.38	-73.46	-25.30	2,450.00	1,120.18	1,071.25	48.93	22.893	
6,400.00	6,069.52	6,070.56	6,068.83	40.23	10.53	-74.99	-24.23	2,451.09	1,111.99	1,062.02	49.97	22.255	
6,500.00	6,163.32	6,162.16	6,160.41	40.94	10.69	-76.56	-23.24	2,452.89	1,105.16	1,054.17	50.99	21.674	
6,600.00	6,257.11	6,257.96	6,256.18	41.65	10.85	-78.18	-22.52	2,455.22	1,099.35	1,047.35	52.01	21.139	
6,700.00	6,350.90	6,357.32	6,355.50	42.36	11.02	-79.85	-22.35	2,457.89	1,094.21	1,041.20	53.01	20.642	
6,800.00	6,444.70	6,450.54	6,448.69	43.06	11.19	-81.43	-22.47	2,460.24	1,089.70	1,035.71	53.99	20.184	
6,847.81	6,489.54	6,492.45	6,490.59	43.40	11.26	-82.15	-22.34	2,461.29	1,088.04	1,033.59	54.44	19.984	
6,850.00	6,491.60	6,494.38	6,492.51	43.42	11.26	-81.74	-22.33	2,461.34	1,087.97	1,033.50	54.47	19.975	
6,900.00	6,538.72	6,536.60	6,534.72	43.76	11.33	-71.63	-22.04	2,462.46	1,085.05	1,030.13	54.92	19.757	
6,950.00	6,586.11	6,578.90	6,577.00	44.07	11.41	-60.25	-21.60	2,463.77	1,079.61	1,024.28	55.33	19.511	
7,000.00	6,633.53	6,625.98	6,624.05	44.36	11.49	-48.61	-20.98	2,465.36	1,071.56	1,015.84	55.72	19.231	
7,050.00	6,680.75	6,677.33	6,675.37	44.62	11.58	-37.70	-20.26	2,466.79	1,060.58	1,004.50	56.08	18.912	
7,100.00	6,727.53	6,730.93	6,728.96	44.85	11.67	-28.11	-19.57	2,467.94	1,046.58	990.17	56.41	18.553	
7,150.00	6,773.66	6,785.88	6,783.90	45.05	11.77	-19.96	-19.30	2,469.05	1,029.44	972.73	56.70	18.154	
7,200.00	6,818.91	6,833.85	6,831.86	45.22	11.85	-13.00	-19.38	2,469.99	1,009.28	952.33	56.96	17.721	
7,250.00	6,863.05	6,878.62	6,876.62	45.37	11.93	-7.01	-19.47	2,470.82	986.44	929.27	57.17	17.255	
7,300.00	6,905.88	6,922.43	6,920.42	45.49	12.00	-1.70	-19.54	2,471.57	961.02	903.67	57.35	16.757	
7,350.00	6,947.18	6,965.01	6,963.00	45.59	12.07	3.19	-19.57	2,472.14	933.10	875.61	57.50	16.229	
7,400.00	6,986.75	7,005.75	7,003.73	45.67	12.15	7.90	-19.56	2,472.52	902.84	845.23	57.61	15.671	
7,450.00	7,024.39	7,042.19	7,040.18	45.73	12.21	12.62	-19.49	2,472.78	870.47	812.78	57.69	15.090	
7,500.00	7,059.94	7,076.99	7,074.98	45.77	12.27	17.55	-19.34	2,472.98	836.18	778.46	57.72	14.487	
7,550.00	7,093.20	7,109.71	7,107.70	45.79	12.33	22.86	-19.14	2,473.13	800.21	742.50	57.71	13.865	
7,600.00	7,124.03	7,140.16	7,138.15	45.80	12.38	28.70	-18.95	2,473.31	762.79	705.13	57.66	13.229	
7,650.00	7,152.27	7,168.11	7,166.09	45.79	12.43	35.18	-18.77	2,473.52	724.20	666.65	57.55	12.585	
7,700.00	7,177.77	7,193.40	7,191.38	45.77	12.47	42.31	-18.62	2,473.76	684.78	627.41	57.37	11.937	
7,750.00	7,200.43	7,215.91	7,213.89	45.74	12.51	49.96	-18.48	2,474.01	644.91	587.81	57.11	11.293	
7,800.00	7,220.13	7,235.54	7,233.52	45.70	12.55	57.85	-18.36	2,474.24	605.04	548.30	56.74	10.663	
7,850.00	7,236.76	7,252.21	7,250.19	45.65	12.57	65.56	-18.25	2,474.44	565.69	509.44	56.26	10.056	
7,900.00	7,250.26	7,265.83	7,263.80	45.60	12.60	72.66	-18.16	2,474.62	527.49	471.88	55.61	9.486	
7,950.00	7,260.55	7,276.31	7,274.28	45.53	12.62	78.78	-18.09	2,474.76	491.17	436.41	54.77	8.969	
8,000.00	7,267.59	7,283.60	7,281.57	45.47	12.63	83.70	-18.03	2,474.86	457.61	403.92	53.69	8.523	
8,050.00	7,271.34	7,287.66	7,285.63	45.40	12.64	87.33	-18.01	2,474.91	427.79	375.43	52.36	8.170	
8,081.65	7,272.00	7,288.54	7,286.51	45.36	12.64	88.97	-18.00	2,474.93	411.35	359.97	51.39	8.005	
8,100.00	7,272.00	7,288.68	7,286.65	45.33	12.64	88.99	-18.00	2,474.93	402.76	351.97	50.79	7.930	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well RUEGGE 3O-4H-N165 - Slot RUEGGE 3
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 4938.00usft
<b>Reference Site:</b>	S4-T1N-R65W	<b>MD Reference:</b>	23' KB @ 4938.00usft
<b>Site Error:</b>	0.00usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	RUEGGE 3O-4H-N165	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	PLAN #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S4-T1N-R65W - CHAPIN 44-4 - CPR WELL - GYRO												Offset Site Error:	0.00 usft
Survey Program: 100-VESSI_GYROFLEX												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
8,200.00	7,272.00	7,289.40	7,287.37	45.20	12.64	89.10	-17.99	2,474.94	368.67	321.32	47.35	7.786	SF
8,281.50	7,272.00	7,289.99	7,287.96	45.10	12.64	89.20	-17.99	2,474.95	359.55	314.33	45.22	7.950	CC, ES
8,300.00	7,272.00	7,290.13	7,288.10	45.08	12.64	89.22	-17.99	2,474.95	360.02	315.09	44.94	8.012	
8,400.00	7,272.00	7,290.85	7,288.82	44.97	12.64	89.33	-17.98	2,474.96	378.57	333.54	45.03	8.407	
8,500.00	7,272.00	7,291.58	7,289.55	44.87	12.64	89.45	-17.98	2,474.97	420.73	373.71	47.02	8.948	
8,600.00	7,272.00	7,292.31	7,290.28	44.78	12.64	89.57	-17.97	2,474.98	480.33	430.92	49.41	9.722	
8,700.00	7,272.00	7,293.05	7,291.02	44.70	12.65	89.68	-17.97	2,474.99	551.74	500.29	51.44	10.725	
8,800.00	7,272.00	7,293.78	7,291.75	44.62	12.65	89.80	-17.96	2,475.00	630.96	577.95	53.00	11.904	
8,900.00	7,272.00	7,294.52	7,292.49	44.56	12.65	89.92	-17.96	2,475.01	715.40	661.23	54.17	13.207	
9,000.00	7,272.00	7,295.26	7,293.23	44.51	12.65	90.04	-17.95	2,475.02	803.43	748.38	55.04	14.596	
9,100.00	7,272.00	7,296.01	7,293.98	44.48	12.65	90.16	-17.94	2,475.03	893.97	838.26	55.71	16.046	
9,200.00	7,272.00	7,296.75	7,294.72	44.46	12.65	90.27	-17.94	2,475.04	986.35	930.12	56.23	17.541	
9,300.00	7,272.00	7,297.50	7,295.47	44.47	12.65	90.39	-17.93	2,475.05	1,080.08	1,023.44	56.64	19.069	
9,400.00	7,272.00	7,298.25	7,296.22	44.52	12.65	90.51	-17.93	2,475.06	1,174.84	1,117.87	56.97	20.622	
9,500.00	7,272.00	7,299.00	7,296.97	44.63	12.66	90.63	-17.92	2,475.08	1,270.41	1,213.17	57.24	22.193	
9,600.00	7,272.00	7,299.75	7,297.72	44.85	12.66	90.75	-17.92	2,475.09	1,366.61	1,309.14	57.47	23.780	

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well RUEGGE 30-4H-N165 - Slot RUEGGE 3
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 4938.00usft
<b>Reference Site:</b>	S4-T1N-R65W	<b>MD Reference:</b>	23' KB @ 4938.00usft
<b>Site Error:</b>	0.00usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	RUEGGE 30-4H-N165	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	PLAN #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S4-T1N-R65W - CHAVEZ 4A-4H - CPR WELL - SURVEYS													Offset Site Error: 0.00 usft	
Survey Program: 110-ISCWSA MWD													Offset Well Error: 0.00 usft	
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
1,600.00	1,567.42	1,700.91	1,697.23	6.72	3.64	-10.57	-517.00	1,562.25	1,413.29	1,404.14	9.14	154.563		
1,700.00	1,661.21	1,792.53	1,787.90	7.37	3.90	-10.40	-523.49	1,550.81	1,369.94	1,360.19	9.75	140.518		
1,800.00	1,755.00	1,892.29	1,886.69	8.03	4.18	-10.26	-529.31	1,538.30	1,326.23	1,315.86	10.37	127.886		
1,900.00	1,848.80	1,993.44	1,986.85	8.69	4.47	-10.15	-533.97	1,524.92	1,281.60	1,270.61	10.99	116.637		
2,000.00	1,942.59	2,066.92	2,059.65	9.37	4.68	-10.08	-537.22	1,515.53	1,237.33	1,225.75	11.58	106.858		
2,100.00	2,036.39	2,148.18	2,140.30	10.05	4.90	-10.03	-540.54	1,506.11	1,193.99	1,181.82	12.17	98.079		
2,200.00	2,130.18	2,224.16	2,215.76	10.73	5.11	-9.97	-543.83	1,497.92	1,151.45	1,138.67	12.78	90.117		
2,300.00	2,223.97	2,300.74	2,291.78	11.41	5.32	-9.82	-549.02	1,490.23	1,110.16	1,096.77	13.39	82.894		
2,400.00	2,317.77	2,381.96	2,372.46	12.10	5.54	-9.65	-554.80	1,482.90	1,069.89	1,055.87	14.02	76.324		
2,500.00	2,411.56	2,471.28	2,461.33	12.79	5.78	-9.53	-560.20	1,475.82	1,030.29	1,015.64	14.65	70.350		
2,600.00	2,505.36	2,583.35	2,572.61	13.49	6.10	-9.25	-568.13	1,465.12	989.53	974.26	15.28	64.767		
2,700.00	2,599.15	2,685.55	2,674.15	14.18	6.39	-9.12	-572.73	1,454.68	947.53	931.63	15.90	59.598		
2,800.00	2,692.94	2,788.45	2,776.34	14.87	6.68	-9.02	-576.32	1,443.03	904.29	887.78	16.50	54.797		
2,900.00	2,786.74	2,895.94	2,882.92	15.57	7.00	-8.94	-579.20	1,429.44	859.71	842.62	17.09	50.311		
3,000.00	2,880.53	2,987.14	2,973.12	16.27	7.28	-8.80	-581.80	1,416.24	813.58	795.88	17.70	45.968		
3,100.00	2,974.32	3,076.22	3,061.28	16.97	7.56	-8.66	-584.37	1,403.73	767.85	749.53	18.31	41.925		
3,200.00	3,068.12	3,170.26	3,154.23	17.67	7.86	-8.44	-587.47	1,389.81	721.58	702.66	18.92	38.141		
3,300.00	3,161.91	3,255.35	3,238.22	18.37	8.14	-8.13	-590.99	1,376.62	674.99	655.42	19.56	34.506		
3,400.00	3,255.71	3,334.87	3,316.81	19.07	8.40	-7.77	-594.97	1,365.19	629.60	609.36	20.24	31.110		
3,500.00	3,349.50	3,418.98	3,400.01	19.77	8.67	-7.28	-599.87	1,353.83	585.23	564.33	20.90	28.001		
3,600.00	3,443.29	3,505.06	3,485.17	20.47	8.94	-6.66	-605.51	1,342.70	541.60	520.04	21.56	25.116		
3,700.00	3,537.09	3,598.58	3,577.71	21.18	9.24	-5.87	-611.61	1,330.56	498.00	475.82	22.18	22.448		
3,800.00	3,630.88	3,683.59	3,661.80	21.88	9.51	-4.97	-617.46	1,319.55	454.63	431.75	22.88	19.873		
3,900.00	3,724.68	3,770.76	3,748.06	22.58	9.78	-3.84	-623.94	1,308.88	412.15	388.59	23.56	17.490		
4,000.00	3,818.47	3,857.46	3,834.01	23.29	10.04	-2.60	-629.93	1,299.19	370.56	346.29	24.27	15.270		
4,100.00	3,912.26	3,946.15	3,922.05	23.99	10.31	-1.14	-635.88	1,290.24	329.97	305.00	24.97	13.214		
4,200.00	4,006.06	4,037.86	4,013.06	24.69	10.58	0.85	-642.47	1,281.07	289.89	264.22	25.68	11.290		
4,300.00	4,099.85	4,129.71	4,104.11	25.40	10.87	3.65	-649.45	1,271.21	249.81	223.35	26.45	9.443		
4,400.00	4,193.65	4,219.97	4,193.44	26.10	11.15	7.75	-657.21	1,260.87	210.36	182.95	27.41	7.674		
4,500.00	4,287.44	4,310.91	4,283.55	26.81	11.43	13.40	-664.56	1,251.06	172.46	143.83	28.63	6.024		
4,600.00	4,381.23	4,402.70	4,374.74	27.51	11.69	21.11	-670.02	1,242.23	136.18	105.90	30.29	4.496		
4,700.00	4,475.03	4,494.56	4,466.16	28.22	11.93	32.89	-674.24	1,234.26	103.07	70.14	32.93	3.130		
4,800.00	4,568.82	4,586.25	4,557.54	28.93	12.16	52.03	-677.29	1,227.32	76.57	39.47	37.11	2.064		
4,900.00	4,662.61	4,678.65	4,649.75	29.63	12.38	79.90	-680.48	1,222.49	65.11	24.46	40.65	1.602		
4,909.32	4,671.36	4,687.41	4,658.50	29.70	12.40	82.71	-680.78	1,222.18	65.03	24.27	40.76	1.595 CC, ES, SF		
5,000.00	4,756.41	4,773.33	4,744.36	30.34	12.57	107.74	-683.69	1,220.51	71.97	32.08	39.89	1.804		
5,100.00	4,850.20	4,869.04	4,839.99	31.04	12.74	126.73	-687.26	1,221.23	90.43	52.55	37.88	2.387		
5,200.00	4,944.00	4,963.85	4,934.76	31.75	12.90	139.05	-689.83	1,222.44	114.63	78.14	36.48	3.142		
5,300.00	5,037.79	5,058.33	5,029.22	32.46	13.05	147.33	-691.55	1,223.45	142.32	106.54	35.77	3.978		
5,400.00	5,131.58	5,153.36	5,124.23	33.16	13.21	153.04	-692.98	1,224.75	171.62	136.06	35.56	4.826		
5,500.00	5,225.38	5,248.11	5,218.96	33.87	13.36	157.19	-694.01	1,226.27	201.84	166.22	35.62	5.666		
5,600.00	5,319.17	5,342.05	5,312.89	34.58	13.51	160.38	-694.48	1,227.93	232.71	196.88	35.82	6.496		
5,700.00	5,412.97	5,433.88	5,404.71	35.28	13.66	162.89	-694.34	1,229.01	264.75	228.66	36.09	7.337		
5,800.00	5,506.76	5,525.78	5,496.60	35.99	13.81	165.00	-693.44	1,229.39	298.03	261.61	36.42	8.184		
5,900.00	5,600.55	5,619.10	5,589.91	36.70	13.96	166.79	-692.08	1,229.63	331.87	295.04	36.83	9.011		
6,000.00	5,694.35	5,711.64	5,682.45	37.40	14.11	168.25	-690.64	1,229.63	366.20	328.93	37.27	9.825		
6,100.00	5,788.14	5,805.35	5,776.14	38.11	14.27	169.47	-689.17	1,229.55	400.79	363.03	37.76	10.613		
6,200.00	5,881.94	5,899.15	5,869.93	38.82	14.43	170.50	-687.70	1,229.54	435.45	397.17	38.28	11.376		
6,300.00	5,975.73	5,992.90	5,963.67	39.53	14.59	171.35	-686.46	1,229.48	470.19	431.39	38.81	12.116		
6,400.00	6,069.52	6,087.70	6,058.47	40.23	14.76	172.05	-685.53	1,229.51	504.81	465.45	39.37	12.823		
6,500.00	6,163.32	6,180.33	6,151.10	40.94	14.92	172.62	-684.86	1,229.41	539.55	499.64	39.91	13.520		
6,600.00	6,257.11	6,276.09	6,246.85	41.65	15.09	173.13	-684.32	1,229.34	574.23	533.73	40.50	14.179		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well RUEGGE 3O-4H-N165 - Slot RUEGGE 3
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 4938.00usft
<b>Reference Site:</b>	S4-T1N-R65W	<b>MD Reference:</b>	23' KB @ 4938.00usft
<b>Site Error:</b>	0.00usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	RUEGGE 3O-4H-N165	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	PLAN #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S4-T1N-R65W - CHAVEZ 4A-4H - CPR WELL - SURVEYS												Offset Site Error:	0.00 usft
Survey Program: 110-ISCWSA MWD												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
6,700.00	6,350.90	6,370.24	6,341.00	42.36	15.25	173.58	-683.81	1,229.68	608.56	567.49	41.07	14.818	
6,800.00	6,444.70	6,456.56	6,427.11	43.06	15.38	174.41	-678.64	1,231.18	643.57	602.04	41.53	15.497	
6,847.81	6,489.54	6,496.75	6,466.91	43.40	15.42	175.05	-673.31	1,232.64	660.76	619.03	41.73	15.835	
6,850.00	6,491.60	6,498.53	6,468.67	43.42	15.42	175.58	-673.03	1,232.71	661.56	619.82	41.74	15.850	
6,900.00	6,538.72	6,539.67	6,509.15	43.76	15.46	-171.70	-665.95	1,234.54	679.36	637.43	41.93	16.203	
6,950.00	6,586.11	6,586.45	6,554.75	44.07	15.48	-158.04	-655.91	1,237.27	696.21	654.08	42.12	16.528	
7,000.00	6,633.53	6,631.08	6,597.76	44.36	15.50	-144.49	-644.45	1,240.61	711.86	669.57	42.30	16.831	
7,050.00	6,680.75	6,674.93	6,639.35	44.62	15.51	-132.02	-631.20	1,244.59	726.32	683.87	42.45	17.111	
7,100.00	6,727.53	6,715.01	6,676.65	44.85	15.51	-121.23	-617.14	1,248.75	739.70	697.13	42.57	17.376	
7,150.00	6,773.66	6,753.88	6,712.05	45.05	15.51	-112.27	-601.69	1,253.13	752.09	709.42	42.67	17.625	
7,200.00	6,818.91	6,791.83	6,745.81	45.22	15.51	-104.96	-584.96	1,257.64	763.48	720.73	42.75	17.859	
7,250.00	6,863.05	6,824.07	6,773.81	45.37	15.50	-99.06	-569.46	1,261.49	774.03	731.24	42.79	18.088	
7,300.00	6,905.88	6,854.57	6,799.70	45.49	15.50	-94.28	-553.69	1,264.88	783.97	741.16	42.81	18.313	
7,350.00	6,947.18	6,890.84	6,829.76	45.59	15.50	-90.42	-533.75	1,268.64	793.16	750.31	42.85	18.509	
7,400.00	6,986.75	6,927.00	6,858.91	45.67	15.51	-87.30	-512.72	1,272.55	801.13	758.23	42.90	18.674	
7,450.00	7,024.39	6,959.00	6,883.84	45.73	15.51	-84.76	-492.97	1,276.00	808.13	765.20	42.93	18.825	
7,500.00	7,059.94	6,991.00	6,907.70	45.77	15.53	-82.68	-471.86	1,278.99	814.71	771.75	42.97	18.961	
7,550.00	7,093.20	7,004.60	6,917.38	45.79	15.54	-80.84	-462.36	1,280.03	820.97	778.06	42.91	19.130	
7,600.00	7,124.03	7,022.00	6,929.19	45.80	15.56	-79.30	-449.63	1,281.03	827.28	784.36	42.92	19.276	
7,650.00	7,152.27	7,037.57	6,939.16	45.79	15.58	-77.96	-437.68	1,281.56	833.65	790.69	42.96	19.406	
7,700.00	7,177.77	7,054.00	6,948.97	45.77	15.61	-76.82	-424.51	1,281.69	840.15	797.09	43.05	19.514	
7,750.00	7,200.43	7,069.04	6,957.33	45.74	15.64	-75.83	-412.01	1,281.44	846.70	803.48	43.22	19.591	
7,800.00	7,220.13	7,086.00	6,966.02	45.70	15.68	-75.02	-397.46	1,280.77	853.25	809.79	43.46	19.634	
7,850.00	7,236.76	7,108.32	6,976.46	45.65	15.73	-74.42	-377.79	1,279.44	859.59	815.82	43.77	19.639	
7,900.00	7,250.26	7,131.96	6,986.51	45.60	15.81	-73.99	-356.46	1,277.67	865.49	821.34	44.15	19.604	
7,950.00	7,260.55	7,149.00	6,993.22	45.53	15.87	-73.61	-340.88	1,276.13	870.98	826.35	44.63	19.515	
8,000.00	7,267.59	7,180.00	7,004.13	45.47	16.01	-73.62	-312.07	1,272.66	876.04	830.91	45.12	19.415	
8,050.00	7,271.34	7,197.25	7,009.43	45.40	16.10	-73.52	-295.82	1,270.33	880.78	835.03	45.76	19.250	
8,081.65	7,272.00	7,212.00	7,013.54	45.36	16.18	-73.61	-281.83	1,268.11	883.63	837.47	46.16	19.141	
8,100.00	7,272.00	7,220.21	7,015.66	45.33	16.23	-73.76	-274.01	1,266.80	885.34	838.93	46.41	19.075	
8,200.00	7,272.00	7,278.28	7,026.94	45.20	16.63	-74.65	-217.95	1,256.90	897.69	850.02	47.67	18.831	
8,300.00	7,272.00	7,338.30	7,031.68	45.08	17.12	-75.14	-159.16	1,245.93	914.41	865.51	48.91	18.696	
8,400.00	7,272.00	7,414.64	7,032.61	44.97	17.78	-75.46	-84.39	1,230.53	934.59	884.64	49.95	18.710	
8,500.00	7,272.00	7,581.90	7,034.36	44.87	19.43	-76.04	80.10	1,200.62	953.05	902.56	50.49	18.875	
8,600.00	7,272.00	7,764.48	7,034.91	44.78	21.51	-76.34	261.83	1,183.63	963.23	911.66	51.58	18.676	
8,700.00	7,272.00	7,935.15	7,035.27	44.70	23.61	-76.42	432.45	1,181.77	965.45	912.21	53.23	18.137	
8,800.00	7,272.00	8,069.82	7,034.92	44.62	25.32	-76.30	566.89	1,189.61	960.56	905.41	55.14	17.419	
8,900.00	7,272.00	8,158.53	7,035.00	44.56	26.44	-76.24	655.43	1,195.09	955.55	898.51	57.04	16.752	
9,000.00	7,272.00	8,248.54	7,034.82	44.51	27.66	-76.18	745.32	1,199.69	951.63	892.57	59.06	16.112	
9,100.00	7,272.00	8,355.79	7,033.78	44.48	29.20	-76.06	852.44	1,204.72	948.35	887.04	61.30	15.470	
9,200.00	7,272.00	8,455.51	7,034.13	44.46	30.63	-76.02	952.00	1,210.39	943.75	880.17	63.58	14.844	
9,300.00	7,272.00	8,566.28	7,034.67	44.47	32.27	-75.98	1,062.60	1,216.44	939.36	873.32	66.04	14.225	
9,400.00	7,272.00	8,662.00	7,036.43	44.52	33.67	-76.01	1,158.13	1,222.21	934.08	865.66	68.43	13.651	
9,500.00	7,272.00	8,757.23	7,037.06	44.63	35.10	-75.98	1,253.22	1,227.44	929.60	858.74	70.86	13.118	
9,600.00	7,272.00	8,843.54	7,037.28	44.85	36.41	-75.95	1,339.42	1,231.60	925.89	852.64	73.25	12.640	
9,700.00	7,272.00	8,938.75	7,037.29	45.24	37.90	-75.91	1,434.56	1,235.20	923.23	847.46	75.77	12.184	
9,800.00	7,272.00	9,030.15	7,037.07	45.85	39.34	-75.87	1,525.93	1,237.78	921.55	843.24	78.30	11.769	
9,900.00	7,272.00	9,124.65	7,037.28	46.65	40.82	-75.87	1,620.40	1,239.78	920.45	839.57	80.88	11.381	
10,000.00	7,272.00	9,231.79	7,038.19	47.61	42.54	-75.91	1,727.53	1,241.53	919.68	835.99	83.69	10.989	
10,100.00	7,272.00	9,332.09	7,039.16	48.66	44.19	-75.95	1,827.79	1,243.93	918.14	831.64	86.49	10.615	
10,200.00	7,272.00	9,433.13	7,039.06	49.77	45.87	-75.92	1,928.79	1,246.72	916.49	827.18	89.31	10.262	
10,300.00	7,272.00	9,529.87	7,038.35	50.93	47.44	-75.85	2,025.49	1,249.41	914.97	822.95	92.03	9.942	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well RUEGGE 3O-4H-N165 - Slot RUEGGE 3
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 4938.00usft
<b>Reference Site:</b>	S4-T1N-R65W	<b>MD Reference:</b>	23' KB @ 4938.00usft
<b>Site Error:</b>	0.00usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	RUEGGE 3O-4H-N165	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	PLAN #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S4-T1N-R65W - CHAVEZ 4A-4H - CPR WELL - SURVEYS													Offset Site Error:	0.00 usft
Survey Program: 110-ISCWSA MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
10,364.99	7,272.00	9,582.70	7,038.22	51.70	48.31	-75.84	2,078.31	1,250.43	914.46	820.78	93.68	9.761		
10,400.00	7,272.00	9,609.91	7,038.25	52.12	48.76	-75.84	2,105.52	1,250.58	914.62	820.06	94.56	9.672		
10,500.00	7,272.00	9,714.56	7,038.96	53.34	50.51	-75.91	2,210.17	1,250.07	915.96	818.43	97.53	9.391		
10,600.00	7,272.00	9,818.98	7,039.59	54.58	52.27	-75.94	2,314.57	1,251.33	915.64	815.11	100.52	9.109		
10,611.61	7,272.00	9,829.34	7,039.63	54.72	52.45	-75.94	2,324.93	1,251.43	915.63	814.79	100.84	9.080		
10,700.00	7,272.00	9,902.82	7,039.91	55.84	53.70	-75.97	2,398.41	1,251.61	916.24	813.05	103.20	8.878		
10,800.00	7,272.00	10,030.05	7,039.79	57.11	55.86	-75.98	2,525.63	1,251.97	917.16	810.57	106.59	8.605		
10,895.24	7,272.00	10,113.00	7,038.69	58.35	57.27	-75.89	2,608.54	1,254.12	916.10	806.93	109.17	8.392		
10,900.00	7,272.00	10,116.75	7,038.63	58.41	57.33	-75.89	2,612.29	1,254.17	916.10	806.81	109.29	8.382		
11,000.00	7,272.00	10,212.88	7,036.72	59.72	58.98	-75.78	2,708.40	1,254.91	916.84	804.69	112.15	8.175		
11,100.00	7,272.00	10,324.93	7,035.30	61.04	60.88	-75.68	2,820.42	1,256.93	916.36	801.09	115.27	7.950		
11,154.91	7,272.00	10,372.71	7,034.89	61.77	61.69	-75.65	2,868.20	1,257.73	916.14	799.36	116.78	7.845		
11,200.00	7,272.00	10,411.18	7,034.55	62.37	62.36	-75.63	2,906.66	1,258.07	916.30	798.30	118.01	7.765		
11,300.00	7,272.00	10,497.16	7,034.05	63.71	63.84	-75.62	2,992.64	1,257.74	917.82	797.07	120.75	7.601		
11,400.00	7,272.00	10,600.84	7,034.47	65.07	65.62	-75.68	3,096.31	1,256.29	920.09	796.21	123.88	7.427		
11,500.00	7,272.00	10,711.72	7,033.90	66.43	67.52	-75.66	3,207.18	1,256.45	921.05	793.94	127.10	7.246		
11,600.00	7,272.00	10,798.09	7,034.00	67.80	69.02	-75.69	3,293.55	1,256.18	922.35	792.45	129.90	7.101		
11,700.00	7,272.00	10,899.10	7,034.57	69.19	70.77	-75.76	3,394.55	1,254.76	924.58	791.56	133.02	6.951		
11,800.00	7,272.00	11,020.45	7,033.17	70.57	72.86	-75.69	3,515.88	1,255.20	925.53	789.07	136.46	6.783		
11,853.40	7,272.00	11,071.31	7,032.91	71.32	73.74	-75.67	3,566.74	1,255.86	925.45	787.41	138.04	6.704		
11,900.00	7,272.00	11,115.46	7,032.79	71.97	74.51	-75.66	3,610.89	1,256.29	925.52	786.09	139.43	6.638		
12,000.00	7,272.00	11,209.83	7,032.91	73.37	76.15	-75.68	3,705.26	1,256.47	926.29	783.87	142.42	6.504		
12,100.00	7,272.00	11,307.73	7,031.80	74.78	77.86	-75.62	3,803.14	1,257.28	926.78	781.35	145.44	6.372		
12,200.00	7,272.00	11,395.18	7,030.03	76.20	79.40	-75.53	3,890.57	1,256.94	928.65	780.43	148.23	6.265		
12,300.00	7,272.00	11,486.17	7,030.58	77.62	81.00	-75.60	3,981.54	1,255.18	931.40	780.22	151.18	6.161		
12,400.00	7,272.00	11,600.65	7,032.02	79.05	83.01	-75.74	4,095.98	1,253.05	933.87	779.15	154.73	6.036		
12,431.65	7,272.00	11,626.94	7,032.25	79.50	83.47	-75.76	4,122.26	1,252.68	934.56	778.95	155.61	6.006		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well RUEGGE 3O-4H-N165 - Slot RUEGGE 3
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 4938.00usft
<b>Reference Site:</b>	S4-T1N-R65W	<b>MD Reference:</b>	23' KB @ 4938.00usft
<b>Site Error:</b>	0.00usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	RUEGGE 3O-4H-N165	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	PLAN #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S4-T1N-R65W - CHAVEZ 4B-4H - CPR WELL - SURVEYS												Offset Site Error:	0.00 usft
Survey Program: 104-ISCWSA MWD												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
2,100.00	2,036.39	1,795.08	1,788.12	10.05	4.07	-12.09	-528.81	1,710.51	1,402.54	1,390.97	11.57	121.186	
2,200.00	2,130.18	1,909.17	1,900.61	10.73	4.42	-12.46	-533.19	1,729.03	1,384.80	1,372.54	12.26	112.972	
2,300.00	2,223.97	2,048.71	2,038.66	11.41	4.84	-12.93	-537.66	1,748.80	1,364.97	1,351.98	12.99	105.112	
2,400.00	2,317.77	2,153.53	2,142.64	12.10	5.14	-13.29	-540.83	1,761.65	1,343.28	1,329.62	13.66	98.369	
2,500.00	2,411.56	2,254.97	2,243.29	12.79	5.44	-13.59	-545.22	1,773.51	1,321.39	1,307.07	14.33	92.239	
2,600.00	2,505.36	2,376.82	2,364.36	13.49	5.78	-13.90	-551.20	1,785.86	1,298.13	1,283.12	15.02	86.443	
2,700.00	2,599.15	2,473.80	2,460.86	14.18	6.04	-14.21	-554.85	1,794.90	1,273.91	1,258.23	15.68	81.226	
2,800.00	2,692.94	2,579.74	2,566.21	14.87	6.33	-14.51	-559.77	1,804.83	1,250.00	1,233.64	16.36	76.415	
2,900.00	2,786.74	2,663.04	2,649.13	15.57	6.56	-14.79	-562.90	1,812.15	1,225.42	1,208.39	17.03	71.975	
3,000.00	2,880.53	2,737.90	2,723.46	16.27	6.78	-15.05	-566.06	1,820.43	1,203.00	1,185.30	17.70	67.980	
3,100.00	2,974.32	2,834.12	2,818.91	16.97	7.07	-15.38	-570.46	1,831.74	1,181.41	1,163.02	18.39	64.249	
3,200.00	3,068.12	2,934.94	2,918.93	17.67	7.37	-15.70	-575.93	1,843.18	1,159.63	1,140.55	19.09	60.757	
3,300.00	3,161.91	3,038.48	3,021.66	18.37	7.68	-16.01	-581.98	1,854.63	1,137.71	1,117.92	19.79	57.503	
3,400.00	3,255.71	3,141.21	3,123.71	19.07	7.98	-16.38	-586.97	1,865.28	1,114.95	1,094.46	20.49	54.426	
3,500.00	3,349.50	3,218.53	3,200.45	19.77	8.21	-16.61	-591.92	1,873.40	1,092.72	1,071.52	21.20	51.548	
3,600.00	3,443.29	3,285.81	3,266.89	20.47	8.43	-16.76	-597.54	1,882.25	1,073.28	1,051.37	21.91	48.975	
3,700.00	3,537.09	3,410.74	3,390.40	21.18	8.83	-17.12	-606.53	1,898.74	1,053.75	1,031.12	22.63	46.564	
3,800.00	3,630.88	3,526.93	3,505.69	21.88	9.18	-17.64	-611.77	1,912.20	1,032.26	1,008.92	23.34	44.232	
3,900.00	3,724.68	3,622.24	3,600.37	22.58	9.46	-18.06	-616.31	1,922.10	1,009.72	985.65	24.07	41.951	
4,000.00	3,818.47	3,717.29	3,694.65	23.29	9.74	-18.39	-622.65	1,932.39	987.93	963.13	24.80	39.833	
4,100.00	3,912.26	3,833.34	3,809.92	23.99	10.08	-18.90	-628.98	1,944.22	965.44	939.93	25.50	37.858	
4,200.00	4,006.06	3,918.96	3,895.08	24.69	10.32	-19.35	-632.57	1,952.32	942.11	915.83	26.27	35.858	
4,300.00	4,099.85	3,998.98	3,974.51	25.40	10.55	-19.81	-635.83	1,961.36	920.59	893.52	27.07	34.004	
4,400.00	4,193.65	4,092.87	4,067.54	26.10	10.84	-20.36	-639.94	1,973.36	900.62	872.77	27.86	32.332	
4,500.00	4,287.44	4,182.90	4,156.78	26.81	11.12	-20.96	-643.15	1,984.78	880.62	851.95	28.67	30.720	
4,600.00	4,381.23	4,268.11	4,241.03	27.51	11.40	-21.52	-646.79	1,997.06	862.42	832.92	29.50	29.235	
4,700.00	4,475.03	4,373.60	4,345.19	28.22	11.76	-22.11	-653.20	2,012.51	844.78	814.48	30.29	27.887	
4,800.00	4,568.82	4,478.82	4,449.31	28.93	12.10	-22.74	-659.37	2,026.28	825.60	794.51	31.10	26.550	
4,900.00	4,662.61	4,580.96	4,550.36	29.63	12.44	-23.28	-666.57	2,039.35	806.34	774.44	31.90	25.275	
5,000.00	4,756.41	4,685.98	4,654.40	30.34	12.77	-23.91	-673.43	2,051.88	786.26	753.55	32.71	24.037	
5,100.00	4,850.20	4,784.46	4,752.04	31.04	13.07	-24.55	-679.66	2,063.08	765.70	732.15	33.56	22.819	
5,200.00	4,944.00	4,889.36	4,856.13	31.75	13.38	-25.31	-685.70	2,074.61	744.85	710.47	34.39	21.662	
5,300.00	5,037.79	5,020.93	4,987.17	32.46	13.72	-26.54	-690.70	2,084.96	720.96	685.86	35.10	20.541	
5,400.00	5,131.58	5,127.72	5,093.81	33.16	13.96	-27.78	-692.93	2,090.19	694.46	658.46	35.99	19.293	
5,500.00	5,225.38	5,227.82	5,193.83	33.87	14.17	-29.08	-694.58	2,093.83	667.04	630.09	36.95	18.052	
5,600.00	5,319.17	5,323.21	5,289.16	34.58	14.36	-30.45	-695.95	2,097.05	639.70	601.73	37.97	16.846	
5,700.00	5,412.97	5,419.97	5,385.86	35.28	14.56	-31.98	-697.04	2,100.21	612.66	573.62	39.04	15.691	
5,800.00	5,506.76	5,523.23	5,489.09	35.99	14.75	-33.79	-698.10	2,102.78	585.35	545.22	40.13	14.586	
5,900.00	5,600.55	5,621.89	5,587.74	36.70	14.92	-35.88	-697.49	2,103.56	557.14	515.80	41.35	13.475	
6,000.00	5,694.35	5,715.88	5,681.72	37.40	15.08	-38.09	-696.94	2,104.11	529.47	486.80	42.67	12.407	
6,100.00	5,788.14	5,808.61	5,774.45	38.11	15.23	-40.46	-696.55	2,104.76	502.70	458.61	44.10	11.400	
6,200.00	5,881.94	5,901.42	5,867.25	38.82	15.39	-43.16	-695.45	2,105.54	477.22	431.58	45.64	10.456	
6,300.00	5,975.73	6,001.77	5,967.60	39.53	15.56	-46.35	-694.69	2,106.16	452.62	405.39	47.22	9.584	
6,400.00	6,069.52	6,097.74	6,063.56	40.23	15.72	-49.68	-694.85	2,105.42	427.83	378.90	48.93	8.743	
6,500.00	6,163.32	6,190.90	6,156.72	40.94	15.87	-53.26	-695.02	2,104.91	404.78	354.01	50.77	7.973	
6,600.00	6,257.11	6,283.10	6,248.92	41.65	16.02	-57.21	-695.00	2,104.38	383.64	330.92	52.72	7.277	
6,700.00	6,350.90	6,363.26	6,329.06	42.36	16.15	-61.06	-693.84	2,104.37	365.96	310.94	55.03	6.651	
6,800.00	6,444.70	6,424.97	6,390.35	43.06	16.24	-64.82	-687.06	2,105.43	357.73	300.29	57.44	6.228	
6,817.50	6,461.11	6,435.56	6,400.77	43.19	16.25	-65.54	-685.22	2,105.74	357.53	299.73	57.80	6.186	
6,847.81	6,489.54	6,453.85	6,418.69	43.40	16.27	-66.82	-681.60	2,106.38	358.12	299.76	58.37	6.136	
6,850.00	6,491.60	6,455.21	6,420.01	43.42	16.28	-66.49	-681.31	2,106.44	358.21	299.81	58.40	6.133	
6,900.00	6,538.72	6,485.81	6,449.68	43.76	16.31	-58.10	-673.88	2,107.58	360.54	301.44	59.10	6.100	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well RUEGGE 3O-4H-N165 - Slot RUEGGE 3
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 4938.00usft
<b>Reference Site:</b>	S4-T1N-R65W	<b>MD Reference:</b>	23' KB @ 4938.00usft
<b>Site Error:</b>	0.00usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	RUEGGE 3O-4H-N165	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	PLAN #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S4-T1N-R65W - CHAVEZ 4B-4H - CPR WELL - SURVEYS												Offset Site Error:	0.00 usft
Survey Program: 104-ISCWSA MWD												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
6,950.00	6,586.11	6,516.75	6,479.23	44.07	16.34	-48.57	-664.83	2,108.86	363.53	304.03	59.50	6.110	
7,000.00	6,633.53	6,550.99	6,511.45	44.36	16.37	-39.01	-653.33	2,110.26	366.72	307.03	59.70	6.143	
7,050.00	6,680.75	6,585.39	6,543.24	44.62	16.40	-30.26	-640.22	2,111.13	369.75	310.09	59.66	6.197	
7,100.00	6,727.53	6,618.18	6,572.83	44.85	16.41	-22.90	-626.11	2,111.30	372.65	313.31	59.33	6.281	
7,150.00	6,773.66	6,649.91	6,600.77	45.05	16.42	-17.07	-611.09	2,111.05	375.41	316.69	58.72	6.393	
7,200.00	6,818.91	6,680.49	6,627.08	45.22	16.43	-12.54	-595.51	2,111.13	378.16	320.32	57.83	6.539	
7,250.00	6,863.05	6,713.23	6,654.52	45.37	16.44	-9.23	-577.64	2,111.46	380.68	323.80	56.88	6.693	
7,300.00	6,905.88	6,746.98	6,682.06	45.49	16.45	-6.88	-558.14	2,111.43	382.50	326.68	55.82	6.852	
7,350.00	6,947.18	6,777.62	6,706.21	45.59	16.46	-5.06	-539.28	2,111.21	383.87	329.46	54.41	7.055	
7,400.00	6,986.75	6,808.36	6,729.51	45.67	16.48	-3.77	-519.24	2,110.91	384.87	332.01	52.86	7.281	
7,450.00	7,024.39	6,841.49	6,753.66	45.73	16.50	-2.92	-496.57	2,110.76	385.30	333.93	51.38	7.500	
7,500.00	7,059.94	6,879.27	6,780.46	45.77	16.54	-2.34	-469.96	2,111.52	384.58	334.33	50.24	7.654	
7,550.00	7,093.20	6,915.87	6,805.72	45.79	16.59	-1.84	-443.50	2,112.51	382.32	333.34	48.98	7.805	
7,600.00	7,124.03	6,949.87	6,828.29	45.80	16.65	-1.34	-418.09	2,113.80	378.87	331.40	47.47	7.981	
7,650.00	7,152.27	6,984.31	6,850.11	45.79	16.73	-0.89	-391.50	2,115.43	374.32	328.34	45.98	8.141	
7,700.00	7,177.77	7,026.45	6,875.87	45.77	16.85	-0.62	-358.21	2,117.44	368.04	322.80	45.24	8.135	
7,750.00	7,200.43	7,062.54	6,897.11	45.74	16.97	-0.23	-329.10	2,119.22	359.99	316.08	43.91	8.199	
7,800.00	7,220.13	7,097.36	6,916.57	45.70	17.11	0.19	-300.27	2,121.06	350.58	308.11	42.47	8.254	
7,850.00	7,236.76	7,130.99	6,934.13	45.65	17.27	0.62	-271.64	2,122.66	340.08	299.17	40.91	8.314	
7,900.00	7,250.26	7,162.00	6,949.06	45.60	17.42	0.93	-244.48	2,123.29	328.66	289.64	39.02	8.423	
7,950.00	7,260.55	7,191.04	6,961.49	45.53	17.58	1.20	-218.24	2,123.42	316.90	279.98	36.92	8.583	
8,000.00	7,267.59	7,221.26	6,972.71	45.47	17.76	1.39	-190.19	2,123.14	304.91	269.89	35.03	8.705	
8,050.00	7,271.34	7,254.50	6,983.36	45.40	17.98	1.66	-158.70	2,123.12	292.42	258.78	33.64	8.692	
8,081.65	7,272.00	7,276.48	6,989.62	45.36	18.13	1.95	-137.63	2,123.47	284.05	251.05	33.00	8.607	
8,100.00	7,272.00	7,288.48	6,992.74	45.33	18.23	2.00	-126.05	2,123.72	279.29	246.68	32.60	8.566	
8,200.00	7,272.00	7,358.93	7,006.75	45.20	18.82	2.37	-57.06	2,125.60	259.39	228.00	31.39	8.264	
8,300.00	7,272.00	7,441.36	7,016.96	45.08	19.61	2.82	24.68	2,127.98	247.20	215.41	31.79	7.776	
8,400.00	7,272.00	7,527.53	7,021.56	44.97	20.51	3.15	110.70	2,130.02	241.89	209.09	32.80	7.374	
8,500.00	7,272.00	7,621.71	7,022.88	44.87	21.56	3.15	204.86	2,130.94	240.48	206.49	33.99	7.075	
8,514.95	7,272.00	7,635.90	7,022.90	44.85	21.73	3.13	219.05	2,131.02	240.46	206.29	34.17	7.037	
8,600.00	7,272.00	7,719.70	7,022.34	44.78	22.73	2.90	302.84	2,130.93	240.97	205.86	35.11	6.864	
8,700.00	7,272.00	7,823.31	7,022.51	44.70	23.90	2.32	406.44	2,129.55	240.70	204.66	36.04	6.679	
8,800.00	7,272.00	7,924.35	7,023.46	44.62	25.13	1.25	507.41	2,126.08	239.62	202.81	36.81	6.509	
8,900.00	7,272.00	8,034.19	7,027.31	44.56	26.47	0.14	617.11	2,122.56	236.05	198.44	37.61	6.277	
9,000.00	7,272.00	8,123.02	7,030.14	44.51	27.73	-0.07	705.88	2,122.61	232.87	194.02	38.85	5.994	
9,051.84	7,272.00	8,173.19	7,030.28	44.49	28.47	-0.06	756.04	2,123.18	232.72	193.16	39.56	5.883 CC	
9,100.00	7,272.00	8,219.94	7,030.15	44.48	29.17	-0.19	802.79	2,123.14	232.86	192.70	40.16	5.798	
9,200.00	7,272.00	8,322.40	7,029.70	44.46	30.68	-0.94	905.23	2,121.15	233.34	192.19	41.15	5.670	
9,261.98	7,272.00	8,383.50	7,029.84	44.47	31.60	-1.67	966.28	2,118.81	233.26	191.54	41.72	5.591	
9,300.00	7,272.00	8,420.17	7,029.79	44.47	32.18	-2.12	1,002.92	2,117.38	233.38	191.29	42.09	5.545	
9,400.00	7,272.00	8,519.06	7,029.05	44.52	33.72	-3.26	1,101.74	2,113.68	234.35	191.28	43.06	5.442	
9,500.00	7,272.00	8,623.95	7,028.72	44.63	35.27	-4.05	1,206.60	2,111.52	234.88	190.75	44.12	5.323	
9,600.00	7,272.00	8,722.23	7,029.81	44.85	36.79	-5.31	1,304.79	2,107.46	234.20	189.01	45.18	5.183	
9,624.26	7,272.00	8,746.12	7,029.94	44.93	37.17	-5.60	1,328.67	2,106.53	234.17	188.72	45.45	5.152	
9,700.00	7,272.00	8,819.73	7,030.00	45.24	38.35	-6.47	1,402.22	2,103.71	234.50	188.16	46.34	5.060	
9,800.00	7,272.00	8,919.79	7,029.75	45.85	39.93	-7.70	1,502.20	2,099.65	235.38	187.85	47.53	4.952	
9,900.00	7,272.00	9,021.00	7,029.48	46.65	41.54	-8.83	1,603.34	2,095.93	236.32	187.51	48.81	4.842	
10,000.00	7,272.00	9,125.12	7,030.28	47.61	43.15	-9.25	1,707.44	2,095.38	235.81	185.61	50.20	4.697	
10,084.95	7,272.00	9,207.44	7,030.98	48.50	44.45	-9.29	1,789.76	2,096.21	235.10	183.64	51.46	4.569	
10,100.00	7,272.00	9,219.62	7,030.87	48.66	44.66	-9.25	1,801.93	2,096.49	235.20	183.50	51.70	4.549	
10,200.00	7,272.00	9,313.11	7,027.22	49.77	46.21	-8.76	1,895.31	2,098.89	238.74	185.48	53.27	4.482	
10,300.00	7,272.00	9,423.87	7,025.38	50.93	47.95	-8.47	2,006.02	2,101.01	240.24	185.58	54.66	4.395	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well RUEGGE 3O-4H-N165 - Slot RUEGGE 3
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 4938.00usft
<b>Reference Site:</b>	S4-T1N-R65W	<b>MD Reference:</b>	23' KB @ 4938.00usft
<b>Site Error:</b>	0.00usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	RUEGGE 3O-4H-N165	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	PLAN #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S4-T1N-R65W - CHAVEZ 4B-4H - CPR WELL - SURVEYS													Offset Site Error:	0.00 usft
Survey Program: 104-ISCWSA MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance				Total		Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Uncertainty Axis	Separation Factor		
10,400.00	7,272.00	9,525.40	7,026.80	52.12	49.60	-9.23	2,107.51	2,099.06	239.32	183.22	56.10	4.266		
10,430.66	7,272.00	9,553.18	7,027.15	52.49	50.07	-9.48	2,135.28	2,098.33	239.12	182.56	56.56	4.228		
10,500.00	7,272.00	9,615.48	7,026.38	53.34	51.16	-10.00	2,197.56	2,096.67	240.37	182.73	57.64	4.170		
10,600.00	7,272.00	9,716.46	7,024.27	54.58	52.86	-11.03	2,298.45	2,092.90	243.30	184.13	59.17	4.112		
10,700.00	7,272.00	9,816.41	7,022.61	55.84	54.53	-12.14	2,398.29	2,088.74	245.98	185.17	60.80	4.046		
10,800.00	7,272.00	9,916.07	7,021.67	57.11	56.18	-12.85	2,497.91	2,086.42	247.63	185.18	62.45	3.965		
10,900.00	7,272.00	10,022.99	7,020.69	58.41	57.98	-13.73	2,604.78	2,083.38	249.44	185.23	64.21	3.885		
11,000.00	7,272.00	10,124.83	7,021.86	59.72	59.68	-14.23	2,706.61	2,082.48	248.78	182.85	65.93	3.773		
11,032.96	7,272.00	10,155.92	7,022.13	60.15	60.22	-14.38	2,737.70	2,082.22	248.66	182.17	66.49	3.740		
11,100.00	7,272.00	10,225.33	7,022.46	61.04	61.41	-14.74	2,807.10	2,081.39	248.74	181.05	67.69	3.675		
11,200.00	7,272.00	10,326.37	7,025.12	62.37	63.12	-15.67	2,908.07	2,079.00	247.09	177.44	69.65	3.548		
11,300.00	7,272.00	10,425.31	7,027.23	63.71	64.83	-16.63	3,006.95	2,076.34	246.07	174.38	71.69	3.432		
11,400.00	7,272.00	10,524.50	7,028.52	65.07	66.55	-17.16	3,106.13	2,075.39	245.40	171.80	73.60	3.334		
11,500.00	7,272.00	10,624.89	7,029.52	66.43	68.28	-17.47	3,206.51	2,075.36	244.78	169.34	75.44	3.245		
11,559.07	7,272.00	10,682.29	7,029.96	67.24	69.27	-17.65	3,263.91	2,075.28	244.55	168.03	76.52	3.196		
11,600.00	7,272.00	10,722.84	7,029.99	67.80	69.97	-17.71	3,304.46	2,075.44	244.60	167.37	77.24	3.167		
11,700.00	7,272.00	10,822.81	7,030.03	69.19	71.70	-17.85	3,404.43	2,075.83	244.76	165.75	79.01	3.098		
11,800.00	7,272.00	10,921.14	7,029.50	70.57	73.42	-17.92	3,502.76	2,076.40	245.41	164.69	80.73	3.040		
11,900.00	7,272.00	11,022.17	7,028.95	71.97	75.14	-18.01	3,603.78	2,076.83	246.12	163.63	82.49	2.984		
12,000.00	7,272.00	11,124.95	7,029.52	73.37	76.86	-18.35	3,706.56	2,076.58	245.99	161.56	84.44	2.913		
12,100.00	7,272.00	11,227.30	7,031.89	74.78	78.61	-19.08	3,808.87	2,075.11	244.58	157.87	86.71	2.821		
12,200.00	7,272.00	11,329.51	7,034.58	76.20	80.39	-19.80	3,911.04	2,073.89	242.85	153.81	89.03	2.728		
12,300.00	7,272.00	11,425.31	7,036.96	77.62	82.06	-20.39	4,006.80	2,073.10	241.16	149.92	91.24	2.643		
12,337.62	7,272.00	11,461.06	7,037.60	78.16	82.68	-20.73	4,042.53	2,072.17	241.01	148.84	92.17	2.615 ES, SF		
12,400.00	7,272.00	11,460.00	7,037.58	79.05	82.66	-20.72	4,041.47	2,072.20	249.22	158.35	90.86	2.743		
12,431.65	7,272.00	11,460.00	7,037.58	79.50	82.66	-20.72	4,041.47	2,072.20	259.09	169.73	89.35	2.900		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well RUEGGE 3O-4H-N165 - Slot RUEGGE 3
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 4938.00usft
<b>Reference Site:</b>	S4-T1N-R65W	<b>MD Reference:</b>	23' KB @ 4938.00usft
<b>Site Error:</b>	0.00usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	RUEGGE 3O-4H-N165	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	PLAN #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S4-T1N-R65W - JOKER 1N1-9HZ - KMG WELL - SURVEYS											Offset Site Error: 0.00 usft		
Survey Program: 105-ISCWSA MWD											Offset Well Error: 0.00 usft		
Reference		Offset		Semi Major Axis			Distance					Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis		Separation Factor
6,200.00	5,881.94	12,040.00	7,186.26	38.82	77.22	33.03	-1,198.55	2,166.96	1,405.36	1,351.83	53.53	26.252	
6,300.00	5,975.73	12,040.00	7,186.26	39.53	77.22	33.03	-1,198.55	2,166.96	1,306.41	1,252.46	53.95	24.214	
6,400.00	6,069.52	12,040.00	7,186.26	40.23	77.22	33.03	-1,198.55	2,166.96	1,207.64	1,153.22	54.42	22.192	
6,500.00	6,163.32	12,040.00	7,186.26	40.94	77.22	33.03	-1,198.55	2,166.96	1,109.08	1,054.13	54.95	20.185	
6,600.00	6,257.11	12,040.00	7,186.26	41.65	77.22	33.03	-1,198.55	2,166.96	1,010.80	955.25	55.55	18.195	
6,700.00	6,350.90	12,040.00	7,186.26	42.36	77.22	33.03	-1,198.55	2,166.96	912.91	856.63	56.27	16.223	
6,800.00	6,444.70	12,040.00	7,186.26	43.06	77.22	33.03	-1,198.55	2,166.96	815.52	758.38	57.14	14.272	
6,847.81	6,489.54	12,040.00	7,186.26	43.40	77.22	33.03	-1,198.55	2,166.96	769.20	711.57	57.63	13.348	
6,850.00	6,491.60	12,040.00	7,186.26	43.42	77.22	33.81	-1,198.55	2,166.96	767.08	709.43	57.65	13.306	
6,900.00	6,538.72	12,040.00	7,186.26	43.76	77.22	50.76	-1,198.55	2,166.96	719.33	661.10	58.23	12.353	
6,950.00	6,586.11	12,040.00	7,186.26	44.07	77.22	66.52	-1,198.55	2,166.96	673.04	614.12	58.91	11.424	
7,000.00	6,633.53	12,040.00	7,186.26	44.36	77.22	81.11	-1,198.55	2,166.96	628.77	569.06	59.71	10.530	
7,050.00	6,680.75	12,040.00	7,186.26	44.62	77.22	94.02	-1,198.55	2,166.96	587.22	526.58	60.64	9.684	
7,100.00	6,727.53	12,040.00	7,186.26	44.85	77.22	104.89	-1,198.55	2,166.96	549.23	487.54	61.68	8.904	
7,150.00	6,773.66	12,040.00	7,186.26	45.05	77.22	113.71	-1,198.55	2,166.96	515.80	452.99	62.80	8.213	
7,200.00	6,818.91	12,040.00	7,186.26	45.22	77.22	120.72	-1,198.55	2,166.96	488.03	423.69	64.34	7.585	
7,250.00	6,863.05	12,040.00	7,186.26	45.37	77.22	126.25	-1,198.55	2,166.96	467.10	401.15	65.94	7.083	
7,300.00	6,905.88	12,040.00	7,186.26	45.49	77.22	130.58	-1,198.55	2,166.96	454.04	386.79	67.25	6.752	
7,349.83	6,947.04	12,040.00	7,186.26	45.59	77.22	133.94	-1,198.55	2,166.96	449.62	381.52	68.10	6.603 CC	
7,350.00	6,947.18	12,040.00	7,186.26	45.59	77.22	133.95	-1,198.55	2,166.96	449.62	381.52	68.10	6.603 ES, SF	
7,400.00	6,986.75	12,040.00	7,186.26	45.67	77.22	136.55	-1,198.55	2,166.96	454.10	385.66	68.44	6.635	
7,450.00	7,024.39	12,040.00	7,186.26	45.73	77.22	138.49	-1,198.55	2,166.96	467.21	398.85	68.36	6.835	
7,500.00	7,059.94	12,040.00	7,186.26	45.77	77.22	139.86	-1,198.55	2,166.96	488.20	420.15	68.04	7.175	
7,550.00	7,093.20	12,040.00	7,186.26	45.79	77.22	140.69	-1,198.55	2,166.96	516.00	448.32	67.68	7.624	
7,600.00	7,124.03	12,040.00	7,186.26	45.80	77.22	140.98	-1,198.55	2,166.96	549.47	482.06	67.41	8.151	
7,650.00	7,152.27	12,040.00	7,186.26	45.79	77.22	140.68	-1,198.55	2,166.96	587.48	520.21	67.27	8.733	
7,700.00	7,177.77	12,040.00	7,186.26	45.77	77.22	139.67	-1,198.55	2,166.96	629.05	561.81	67.24	9.355	
7,750.00	7,200.43	12,040.00	7,186.26	45.74	77.22	137.70	-1,198.55	2,166.96	673.34	606.05	67.29	10.007	
7,800.00	7,220.13	12,040.00	7,186.26	45.70	77.22	134.29	-1,198.55	2,166.96	719.64	652.29	67.35	10.685	
7,850.00	7,236.76	12,040.00	7,186.26	45.65	77.22	128.46	-1,198.55	2,166.96	767.40	699.98	67.41	11.384	
7,900.00	7,250.26	12,040.00	7,186.26	45.60	77.22	118.13	-1,198.55	2,166.96	816.13	748.69	67.44	12.102	
7,950.00	7,260.55	12,040.00	7,186.26	45.53	77.22	99.03	-1,198.55	2,166.96	865.47	798.04	67.43	12.836	
8,000.00	7,267.59	12,040.00	7,186.26	45.47	77.22	68.03	-1,198.55	2,166.96	915.09	847.72	67.37	13.584	
8,050.00	7,271.34	12,040.00	7,186.26	45.40	77.22	37.40	-1,198.55	2,166.96	964.72	897.46	67.26	14.343	
8,081.65	7,272.00	12,040.00	7,186.26	45.36	77.22	24.23	-1,198.55	2,166.96	996.04	928.87	67.17	14.829	
8,100.00	7,272.00	12,040.00	7,186.26	45.33	77.22	24.23	-1,198.55	2,166.96	1,014.17	947.06	67.11	15.111	
8,200.00	7,272.00	12,040.00	7,186.26	45.20	77.22	24.23	-1,198.55	2,166.96	1,113.10	1,046.25	66.85	16.652	
8,300.00	7,272.00	12,040.00	7,186.26	45.08	77.22	24.23	-1,198.55	2,166.96	1,212.20	1,145.57	66.63	18.193	
8,400.00	7,272.00	12,040.00	7,186.26	44.97	77.22	24.23	-1,198.55	2,166.96	1,311.44	1,244.99	66.45	19.736	
8,500.00	7,272.00	12,040.00	7,186.26	44.87	77.22	24.23	-1,198.55	2,166.96	1,410.78	1,344.48	66.30	21.279	



# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well RUEGGE 3O-4H-N165 - Slot RUEGGE 3
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 4938.00usft
<b>Reference Site:</b>	S4-T1N-R65W	<b>MD Reference:</b>	23' KB @ 4938.00usft
<b>Site Error:</b>	0.00usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	RUEGGE 3O-4H-N165	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	PLAN #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S4-T1N-R65W - JOKER 1N2-9HZ - KMG WELL - SURVEYS												Offset Site Error:	0.00 usft
Survey Program: 105-ISCWSA MWD												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
6,300.00	5,975.73	11,954.00	7,112.84	39.53	77.29	8.57	-1,250.25	2,378.73	1,354.92	1,292.86	62.06	21.832	
6,400.00	6,069.52	11,954.00	7,112.84	40.23	77.29	8.57	-1,250.25	2,378.73	1,259.56	1,196.29	63.27	19.906	
6,500.00	6,163.32	11,954.00	7,112.84	40.94	77.29	8.57	-1,250.25	2,378.73	1,164.99	1,100.32	64.67	18.014	
6,600.00	6,257.11	11,954.00	7,112.84	41.65	77.29	8.57	-1,250.25	2,378.73	1,071.39	1,005.10	66.29	16.162	
6,700.00	6,350.90	11,954.00	7,112.84	42.36	77.29	8.57	-1,250.25	2,378.73	979.07	910.87	68.20	14.356	
6,800.00	6,444.70	11,954.00	7,112.84	43.06	77.29	8.57	-1,250.25	2,378.73	888.41	817.96	70.46	12.609	
6,847.81	6,489.54	11,954.00	7,112.84	43.40	77.29	8.57	-1,250.25	2,378.73	845.82	774.13	71.69	11.799	
6,850.00	6,491.60	11,954.00	7,112.84	43.42	77.29	9.28	-1,250.25	2,378.73	843.88	772.13	71.75	11.762	
6,900.00	6,538.72	11,954.00	7,112.84	43.76	77.29	25.58	-1,250.25	2,378.73	800.54	727.13	73.41	10.906	
6,950.00	6,586.11	11,954.00	7,112.84	44.07	77.29	41.76	-1,250.25	2,378.73	759.24	684.03	75.21	10.095	
7,000.00	6,633.53	11,954.00	7,112.84	44.36	77.29	57.12	-1,250.25	2,378.73	720.56	643.42	77.14	9.341	
7,050.00	6,680.75	11,954.00	7,112.84	44.62	77.29	70.84	-1,250.25	2,378.73	685.14	605.98	79.16	8.655	
7,100.00	6,727.53	11,954.00	7,112.84	44.85	77.29	82.43	-1,250.25	2,378.73	653.70	572.47	81.23	8.048	
7,150.00	6,773.66	11,954.00	7,112.84	45.05	77.29	91.83	-1,250.25	2,378.73	627.00	543.76	83.24	7.532	
7,200.00	6,818.91	11,954.00	7,112.84	45.22	77.29	99.28	-1,250.25	2,378.73	605.80	520.70	85.10	7.118	
7,250.00	6,863.05	11,954.00	7,112.84	45.37	77.29	105.08	-1,250.25	2,378.73	590.81	504.13	86.68	6.816	
7,300.00	6,905.88	11,954.00	7,112.84	45.49	77.29	109.54	-1,250.25	2,378.73	582.58	494.74	87.84	6.632	
7,332.99	6,933.31	11,954.00	7,112.84	45.56	77.29	111.86	-1,250.25	2,378.73	581.02	492.68	88.34	6.577 CC, ES	
7,350.00	6,947.18	11,954.00	7,112.84	45.59	77.29	112.88	-1,250.25	2,378.73	581.44	492.93	88.51	6.569 SF	
7,400.00	6,986.75	11,954.00	7,112.84	45.67	77.29	115.29	-1,250.25	2,378.73	587.43	498.79	88.64	6.627	
7,450.00	7,024.39	11,954.00	7,112.84	45.73	77.29	116.87	-1,250.25	2,378.73	600.31	512.03	88.28	6.800	
7,500.00	7,059.94	11,954.00	7,112.84	45.77	77.29	117.70	-1,250.25	2,378.73	619.59	532.07	87.52	7.079	
7,550.00	7,093.20	11,954.00	7,112.84	45.79	77.29	117.81	-1,250.25	2,378.73	644.62	558.13	86.49	7.453	
7,600.00	7,124.03	11,954.00	7,112.84	45.80	77.29	117.18	-1,250.25	2,378.73	674.63	589.33	85.30	7.909	
7,650.00	7,152.27	11,954.00	7,112.84	45.79	77.29	115.76	-1,250.25	2,378.73	708.86	624.80	84.06	8.433	
7,700.00	7,177.77	11,954.00	7,112.84	45.77	77.29	113.44	-1,250.25	2,378.73	746.57	663.73	82.83	9.013	
7,750.00	7,200.43	11,954.00	7,112.84	45.74	77.29	110.08	-1,250.25	2,378.73	787.09	705.42	81.68	9.637	
7,800.00	7,220.13	11,954.00	7,112.84	45.70	77.29	105.45	-1,250.25	2,378.73	829.84	749.23	80.61	10.295	
7,850.00	7,236.76	11,954.00	7,112.84	45.65	77.29	99.33	-1,250.25	2,378.73	874.28	794.65	79.63	10.979	
7,900.00	7,250.26	11,954.00	7,112.84	45.60	77.29	91.50	-1,250.25	2,378.73	919.98	841.23	78.76	11.682	
7,950.00	7,260.55	11,954.00	7,112.84	45.53	77.29	81.91	-1,250.25	2,378.73	966.55	888.58	77.97	12.397	
8,000.00	7,267.59	11,954.00	7,112.84	45.47	77.29	70.90	-1,250.25	2,378.73	1,013.66	936.40	77.26	13.121	
8,050.00	7,271.34	11,954.00	7,112.84	45.40	77.29	59.28	-1,250.25	2,378.73	1,061.02	984.40	76.61	13.849	
8,081.65	7,272.00	11,954.00	7,112.84	45.36	77.29	52.07	-1,250.25	2,378.73	1,091.01	1,014.77	76.24	14.310	
8,100.00	7,272.00	11,954.00	7,112.84	45.33	77.29	52.07	-1,250.25	2,378.73	1,108.41	1,032.38	76.03	14.578	
8,200.00	7,272.00	11,954.00	7,112.84	45.20	77.29	52.07	-1,250.25	2,378.73	1,203.71	1,128.70	75.01	16.048	
8,300.00	7,272.00	11,954.00	7,112.84	45.08	77.29	52.07	-1,250.25	2,378.73	1,299.71	1,225.58	74.14	17.532	
8,400.00	7,272.00	11,954.00	7,112.84	44.97	77.29	52.07	-1,250.25	2,378.73	1,396.28	1,322.89	73.39	19.026	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well RUEGGE 3O-4H-N165 - Slot RUEGGE 3
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 4938.00usft
<b>Reference Site:</b>	S4-T1N-R65W	<b>MD Reference:</b>	23' KB @ 4938.00usft
<b>Site Error:</b>	0.00usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	RUEGGE 3O-4H-N165	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	PLAN #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S4-T1N-R65W - JOKER 1N3-9HZ - KMG WELL - SURVEYS												Offset Site Error:	0.00 usft
Survey Program: 105-ISCWSA MWD												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
6,300.00	5,975.73	11,936.00	7,017.22	39.53	77.77	-7.14	-1,204.00	2,577.77	1,384.00	1,312.37	71.62	19.324	
6,400.00	6,069.52	11,936.00	7,017.22	40.23	77.77	-7.14	-1,204.00	2,577.77	1,293.72	1,220.14	73.58	17.583	
6,500.00	6,163.32	11,936.00	7,017.22	40.94	77.77	-7.14	-1,204.00	2,577.77	1,204.98	1,129.18	75.80	15.897	
6,600.00	6,257.11	11,936.00	7,017.22	41.65	77.77	-7.14	-1,204.00	2,577.77	1,118.15	1,039.48	78.66	14.214	
6,700.00	6,350.90	11,936.00	7,017.22	42.36	77.77	-7.14	-1,204.00	2,577.77	1,033.69	951.78	81.91	12.619	
6,800.00	6,444.70	11,936.00	7,017.22	43.06	77.77	-7.14	-1,204.00	2,577.77	952.25	866.67	85.59	11.126	
6,847.81	6,489.54	11,936.00	7,017.22	43.40	77.77	-7.14	-1,204.00	2,577.77	914.62	827.12	87.50	10.452	
6,850.00	6,491.60	11,936.00	7,017.22	43.42	77.77	-6.50	-1,204.00	2,577.77	912.92	825.33	87.59	10.422	
6,900.00	6,538.72	11,936.00	7,017.22	43.76	77.77	8.54	-1,204.00	2,577.77	875.09	785.41	89.68	9.758	
6,950.00	6,586.11	11,936.00	7,017.22	44.07	77.77	24.03	-1,204.00	2,577.77	839.44	747.64	91.80	9.144	
7,000.00	6,633.53	11,936.00	7,017.22	44.36	77.77	39.06	-1,204.00	2,577.77	806.47	712.56	93.91	8.588	
7,050.00	6,680.75	11,936.00	7,017.22	44.62	77.77	52.66	-1,204.00	2,577.77	776.67	680.72	95.95	8.095	
7,100.00	6,727.53	11,936.00	7,017.22	44.85	77.77	64.26	-1,204.00	2,577.77	750.58	652.72	97.86	7.670	
7,150.00	6,773.66	11,936.00	7,017.22	45.05	77.77	73.72	-1,204.00	2,577.77	728.74	629.16	99.57	7.318	
7,200.00	6,818.91	11,936.00	7,017.22	45.22	77.77	81.24	-1,204.00	2,577.77	711.64	610.63	101.01	7.045	
7,250.00	6,863.05	11,936.00	7,017.22	45.37	77.77	87.11	-1,204.00	2,577.77	699.71	597.62	102.09	6.854	
7,300.00	6,905.88	11,936.00	7,017.22	45.49	77.77	91.59	-1,204.00	2,577.77	693.29	590.52	102.77	6.746	
7,331.41	6,932.01	11,936.00	7,017.22	45.56	77.77	93.81	-1,204.00	2,577.77	692.16	589.18	102.98	6.721	CC, ES, SF
7,350.00	6,947.18	11,936.00	7,017.22	45.59	77.77	94.93	-1,204.00	2,577.77	692.55	589.53	103.02	6.722	
7,400.00	6,986.75	11,936.00	7,017.22	45.67	77.77	97.29	-1,204.00	2,577.77	697.53	594.67	102.85	6.782	
7,450.00	7,024.39	11,936.00	7,017.22	45.73	77.77	98.80	-1,204.00	2,577.77	708.07	605.76	102.31	6.921	
7,500.00	7,059.94	11,936.00	7,017.22	45.77	77.77	99.54	-1,204.00	2,577.77	723.88	622.44	101.44	7.136	
7,550.00	7,093.20	11,936.00	7,017.22	45.79	77.77	99.55	-1,204.00	2,577.77	744.56	644.21	100.34	7.420	
7,600.00	7,124.03	11,936.00	7,017.22	45.80	77.77	98.86	-1,204.00	2,577.77	769.61	670.52	99.09	7.767	
7,650.00	7,152.27	11,936.00	7,017.22	45.79	77.77	97.47	-1,204.00	2,577.77	798.50	700.75	97.75	8.169	
7,700.00	7,177.77	11,936.00	7,017.22	45.77	77.77	95.36	-1,204.00	2,577.77	830.71	734.32	96.39	8.618	
7,750.00	7,200.43	11,936.00	7,017.22	45.74	77.77	92.52	-1,204.00	2,577.77	865.72	770.66	95.05	9.108	
7,800.00	7,220.13	11,936.00	7,017.22	45.70	77.77	88.91	-1,204.00	2,577.77	903.03	809.26	93.77	9.630	
7,850.00	7,236.76	11,936.00	7,017.22	45.65	77.77	84.54	-1,204.00	2,577.77	942.22	849.65	92.56	10.179	
7,900.00	7,250.26	11,936.00	7,017.22	45.60	77.77	79.43	-1,204.00	2,577.77	982.86	891.43	91.44	10.749	
7,950.00	7,260.55	11,936.00	7,017.22	45.53	77.77	73.66	-1,204.00	2,577.77	1,024.61	934.22	90.39	11.335	
8,000.00	7,267.59	11,936.00	7,017.22	45.47	77.77	67.37	-1,204.00	2,577.77	1,067.14	977.71	89.44	11.932	
8,050.00	7,271.34	11,936.00	7,017.22	45.40	77.77	60.77	-1,204.00	2,577.77	1,110.17	1,021.61	88.56	12.536	
8,081.65	7,272.00	11,936.00	7,017.22	45.36	77.77	56.53	-1,204.00	2,577.77	1,137.55	1,049.51	88.04	12.921	
8,100.00	7,272.00	11,936.00	7,017.22	45.33	77.77	56.53	-1,204.00	2,577.77	1,153.47	1,065.72	87.75	13.145	
8,200.00	7,272.00	11,936.00	7,017.22	45.20	77.77	56.53	-1,204.00	2,577.77	1,241.44	1,155.17	86.28	14.389	
8,300.00	7,272.00	11,936.00	7,017.22	45.08	77.77	56.53	-1,204.00	2,577.77	1,331.11	1,246.16	84.95	15.669	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well RUEGGE 3O-4H-N165 - Slot RUEGGE 3
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 4938.00usft
<b>Reference Site:</b>	S4-T1N-R65W	<b>MD Reference:</b>	23' KB @ 4938.00usft
<b>Site Error:</b>	0.00usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	RUEGGE 3O-4H-N165	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	PLAN #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S4-T1N-R65W - JOKER 26N1-9HZ - KMG WELL - SURVEYS												Offset Site Error:	0.00 usft
Survey Program: 105-ISCWSA MWD												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
6,500.00	6,163.32	12,052.00	7,160.49	40.94	78.30	-6.88	-1,247.02	2,670.77	1,377.00	1,302.30	74.70	18.435	
6,600.00	6,257.11	12,052.00	7,160.49	41.65	78.30	-6.88	-1,247.02	2,670.77	1,288.57	1,211.74	76.83	16.771	
6,700.00	6,350.90	12,052.00	7,160.49	42.36	78.30	-6.88	-1,247.02	2,670.77	1,201.96	1,122.45	79.51	15.117	
6,800.00	6,444.70	12,052.00	7,160.49	43.06	78.30	-6.88	-1,247.02	2,670.77	1,117.58	1,034.99	82.59	13.531	
6,847.81	6,489.54	12,052.00	7,160.49	43.40	78.30	-6.88	-1,247.02	2,670.77	1,078.19	994.00	84.20	12.806	
6,850.00	6,491.60	12,052.00	7,160.49	43.42	78.30	-6.21	-1,247.02	2,670.77	1,076.40	992.13	84.27	12.773	
6,900.00	6,538.72	12,052.00	7,160.49	43.76	78.30	9.48	-1,247.02	2,670.77	1,036.38	950.35	86.03	12.047	
6,950.00	6,586.11	12,052.00	7,160.49	44.07	78.30	25.55	-1,247.02	2,670.77	998.13	910.30	87.83	11.364	
7,000.00	6,633.53	12,052.00	7,160.49	44.36	78.30	41.11	-1,247.02	2,670.77	962.06	872.40	89.66	10.730	
7,050.00	6,680.75	12,052.00	7,160.49	44.62	78.30	55.19	-1,247.02	2,670.77	928.61	837.13	91.49	10.150	
7,100.00	6,727.53	12,052.00	7,160.49	44.85	78.30	67.22	-1,247.02	2,670.77	898.25	804.98	93.27	9.630	
7,150.00	6,773.66	12,052.00	7,160.49	45.05	78.30	77.09	-1,247.02	2,670.77	871.46	776.47	94.99	9.175	
7,200.00	6,818.91	12,052.00	7,160.49	45.22	78.30	85.01	-1,247.02	2,670.77	848.70	752.13	96.57	8.788	
7,250.00	6,863.05	12,052.00	7,160.49	45.37	78.30	91.28	-1,247.02	2,670.77	830.42	732.44	97.98	8.475	
7,300.00	6,905.88	12,052.00	7,160.49	45.49	78.30	96.19	-1,247.02	2,670.77	817.03	717.86	99.16	8.239	
7,350.00	6,947.18	12,052.00	7,160.49	45.59	78.30	99.97	-1,247.02	2,670.77	808.81	708.74	100.08	8.082	
7,400.00	6,986.75	12,052.00	7,160.49	45.67	78.30	102.82	-1,247.02	2,670.77	805.99	705.30	100.69	8.005	
7,400.90	6,987.44	12,052.00	7,160.49	45.67	78.30	102.87	-1,247.02	2,670.77	805.99	705.29	100.70	8.004	CC, ES, SF
7,450.00	7,024.39	12,052.00	7,160.49	45.73	78.30	104.87	-1,247.02	2,670.77	808.62	707.63	100.98	8.007	
7,500.00	7,059.94	12,052.00	7,160.49	45.77	78.30	106.20	-1,247.02	2,670.77	816.64	715.67	100.97	8.088	
7,550.00	7,093.20	12,052.00	7,160.49	45.79	78.30	106.89	-1,247.02	2,670.77	829.85	729.18	100.67	8.243	
7,600.00	7,124.03	12,052.00	7,160.49	45.80	78.30	106.97	-1,247.02	2,670.77	847.96	747.83	100.12	8.469	
7,650.00	7,152.27	12,052.00	7,160.49	45.79	78.30	106.45	-1,247.02	2,670.77	870.56	771.18	99.38	8.760	
7,700.00	7,177.77	12,052.00	7,160.49	45.77	78.30	105.31	-1,247.02	2,670.77	897.22	798.72	98.50	9.109	
7,750.00	7,200.43	12,052.00	7,160.49	45.74	78.30	103.55	-1,247.02	2,670.77	927.46	829.94	97.52	9.510	
7,800.00	7,220.13	12,052.00	7,160.49	45.70	78.30	101.11	-1,247.02	2,670.77	960.80	864.31	96.49	9.958	
7,850.00	7,236.76	12,052.00	7,160.49	45.65	78.30	97.96	-1,247.02	2,670.77	996.78	901.34	95.44	10.444	
7,900.00	7,250.26	12,052.00	7,160.49	45.60	78.30	94.04	-1,247.02	2,670.77	1,034.96	940.56	94.40	10.963	
7,950.00	7,260.55	12,052.00	7,160.49	45.53	78.30	89.33	-1,247.02	2,670.77	1,074.93	981.54	93.39	11.510	
8,000.00	7,267.59	12,052.00	7,160.49	45.47	78.30	83.82	-1,247.02	2,670.77	1,116.31	1,023.88	92.42	12.078	
8,050.00	7,271.34	12,052.00	7,160.49	45.40	78.30	77.57	-1,247.02	2,670.77	1,158.75	1,067.25	91.51	12.663	
8,081.65	7,272.00	12,052.00	7,160.49	45.36	78.30	73.29	-1,247.02	2,670.77	1,186.03	1,095.08	90.95	13.040	
8,100.00	7,272.00	12,052.00	7,160.49	45.33	78.30	73.29	-1,247.02	2,670.77	1,201.96	1,111.32	90.64	13.261	
8,200.00	7,272.00	12,052.00	7,160.49	45.20	78.30	73.29	-1,247.02	2,670.77	1,289.88	1,200.83	89.05	14.485	
8,300.00	7,272.00	12,052.00	7,160.49	45.08	78.30	73.29	-1,247.02	2,670.77	1,379.45	1,291.83	87.62	15.743	

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well RUEGGE 3O-4H-N165 - Slot RUEGGE 3
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 4938.00usft
<b>Reference Site:</b>	S4-T1N-R65W	<b>MD Reference:</b>	23' KB @ 4938.00usft
<b>Site Error:</b>	0.00usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	RUEGGE 3O-4H-N165	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	PLAN #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S4-T1N-R65W - JOKER 26N2-9HZ - KMG WELL - SURVEYS													Offset Site Error: 0.00 usft	
Survey Program: 107-ISCWSA MWD													Offset Well Error: 0.00 usft	
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
6,700.00	6,350.90	11,975.00	7,098.60	42.36	78.89	-16.40	-1,182.83	2,912.60	1,340.09	1,249.79	90.30	14.841		
6,800.00	6,444.70	11,975.00	7,098.60	43.06	78.89	-16.40	-1,182.83	2,912.60	1,264.32	1,170.83	93.50	13.522		
6,847.81	6,489.54	11,975.00	7,098.60	43.40	78.89	-16.40	-1,182.83	2,912.60	1,229.33	1,134.23	95.10	12.926		
6,850.00	6,491.60	11,975.00	7,098.60	43.42	78.89	-15.78	-1,182.83	2,912.60	1,227.74	1,132.57	95.18	12.899		
6,900.00	6,538.72	11,975.00	7,098.60	43.76	78.89	-1.16	-1,182.83	2,912.60	1,192.36	1,095.48	96.88	12.307		
6,950.00	6,586.11	11,975.00	7,098.60	44.07	78.89	14.15	-1,182.83	2,912.60	1,158.61	1,060.03	98.58	11.753		
7,000.00	6,633.53	11,975.00	7,098.60	44.36	78.89	29.21	-1,182.83	2,912.60	1,126.80	1,026.56	100.24	11.242		
7,050.00	6,680.75	11,975.00	7,098.60	44.62	78.89	42.99	-1,182.83	2,912.60	1,097.26	995.42	101.83	10.775		
7,100.00	6,727.53	11,975.00	7,098.60	44.85	78.89	54.88	-1,182.83	2,912.60	1,070.33	966.98	103.35	10.357		
7,150.00	6,773.66	11,975.00	7,098.60	45.05	78.89	64.71	-1,182.83	2,912.60	1,046.35	941.60	104.74	9.990		
7,200.00	6,818.91	11,975.00	7,098.60	45.22	78.89	72.67	-1,182.83	2,912.60	1,025.64	919.64	106.00	9.676		
7,250.00	6,863.05	11,975.00	7,098.60	45.37	78.89	79.03	-1,182.83	2,912.60	1,008.52	901.43	107.08	9.418		
7,300.00	6,905.88	11,975.00	7,098.60	45.49	78.89	84.06	-1,182.83	2,912.60	995.25	887.26	107.98	9.217		
7,350.00	6,947.18	11,975.00	7,098.60	45.59	78.89	88.00	-1,182.83	2,912.60	986.05	877.38	108.67	9.074		
7,400.00	6,986.75	11,975.00	7,098.60	45.67	78.89	91.03	-1,182.83	2,912.60	981.08	871.94	109.14	8.989		
7,432.44	7,011.40	11,975.00	7,098.60	45.71	78.89	92.57	-1,182.83	2,912.60	980.17	870.83	109.33	8.965 CC, ES		
7,450.00	7,024.39	11,975.00	7,098.60	45.73	78.89	93.27	-1,182.83	2,912.60	980.43	871.03	109.40	8.962 SF		
7,500.00	7,059.94	11,975.00	7,098.60	45.77	78.89	94.84	-1,182.83	2,912.60	984.12	874.67	109.45	8.992		
7,550.00	7,093.20	11,975.00	7,098.60	45.79	78.89	95.79	-1,182.83	2,912.60	992.07	882.77	109.31	9.076		
7,600.00	7,124.03	11,975.00	7,098.60	45.80	78.89	96.18	-1,182.83	2,912.60	1,004.15	895.16	108.99	9.213		
7,650.00	7,152.27	11,975.00	7,098.60	45.79	78.89	96.05	-1,182.83	2,912.60	1,020.16	911.62	108.53	9.399		
7,700.00	7,177.77	11,975.00	7,098.60	45.77	78.89	95.40	-1,182.83	2,912.60	1,039.83	931.87	107.96	9.632		
7,750.00	7,200.43	11,975.00	7,098.60	45.74	78.89	94.24	-1,182.83	2,912.60	1,062.87	955.58	107.29	9.906		
7,800.00	7,220.13	11,975.00	7,098.60	45.70	78.89	92.59	-1,182.83	2,912.60	1,088.95	982.40	106.56	10.220		
7,850.00	7,236.76	11,975.00	7,098.60	45.65	78.89	90.43	-1,182.83	2,912.60	1,117.75	1,011.97	105.78	10.567		
7,900.00	7,250.26	11,975.00	7,098.60	45.60	78.89	87.77	-1,182.83	2,912.60	1,148.92	1,043.95	104.98	10.945		
7,950.00	7,260.55	11,975.00	7,098.60	45.53	78.89	84.60	-1,182.83	2,912.60	1,182.13	1,077.97	104.16	11.349		
8,000.00	7,267.59	11,975.00	7,098.60	45.47	78.89	80.96	-1,182.83	2,912.60	1,217.06	1,113.71	103.36	11.775		
8,050.00	7,271.34	11,975.00	7,098.60	45.40	78.89	76.85	-1,182.83	2,912.60	1,253.40	1,150.84	102.57	12.220		
8,081.65	7,272.00	11,975.00	7,098.60	45.36	78.89	74.04	-1,182.83	2,912.60	1,277.00	1,174.93	102.08	12.510		
8,100.00	7,272.00	11,975.00	7,098.60	45.33	78.89	74.04	-1,182.83	2,912.60	1,290.86	1,189.07	101.80	12.681		
8,200.00	7,272.00	11,975.00	7,098.60	45.20	78.89	74.04	-1,182.83	2,912.60	1,368.24	1,267.93	100.31	13.640		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well RUEGGE 3O-4H-N165 - Slot RUEGGE 3
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 4938.00usft
<b>Reference Site:</b>	S4-T1N-R65W	<b>MD Reference:</b>	23' KB @ 4938.00usft
<b>Site Error:</b>	0.00usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	RUEGGE 3O-4H-N165	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	PLAN #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S4-T1N-R65W - JOKER 27N1-9HZ - KMG WELL - SURVEYS												Offset Site Error: 0.00 usft	
Survey Program: 103-ISCWSA MWD												Offset Well Error: 0.00 usft	
Reference		Offset		Semi Major Axis				Distance				Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis		Separation Factor
6,100.00	5,788.14	11,921.00	7,134.04	38.11	78.13	106.66	-1,252.68	1,810.89	1,379.97	1,331.65	48.32	28.558	
6,200.00	5,881.94	11,921.00	7,134.04	38.82	78.13	106.66	-1,252.68	1,810.89	1,283.05	1,234.43	48.62	26.387	
6,300.00	5,975.73	11,921.00	7,134.04	39.53	78.13	106.66	-1,252.68	1,810.89	1,186.65	1,137.65	49.00	24.219	
6,400.00	6,069.52	11,921.00	7,134.04	40.23	78.13	106.66	-1,252.68	1,810.89	1,090.89	1,041.41	49.47	22.051	
6,500.00	6,163.32	11,921.00	7,134.04	40.94	78.13	106.66	-1,252.68	1,810.89	995.96	945.87	50.09	19.883	
6,600.00	6,257.11	11,921.00	7,134.04	41.65	78.13	106.66	-1,252.68	1,810.89	902.13	851.20	50.93	17.713	
6,700.00	6,350.90	11,921.00	7,134.04	42.36	78.13	106.66	-1,252.68	1,810.89	809.77	757.67	52.10	15.542	
6,800.00	6,444.70	11,921.00	7,134.04	43.06	78.13	106.66	-1,252.68	1,810.89	719.47	665.66	53.80	13.372	
6,847.81	6,489.54	11,921.00	7,134.04	43.40	78.13	106.66	-1,252.68	1,810.89	677.26	622.37	54.89	12.338	
6,850.00	6,491.60	11,921.00	7,134.04	43.42	78.13	106.89	-1,252.68	1,810.89	675.34	620.39	54.95	12.291	
6,900.00	6,538.72	11,921.00	7,134.04	43.76	78.13	113.51	-1,252.68	1,810.89	632.87	576.49	56.39	11.224	
6,950.00	6,586.11	11,921.00	7,134.04	44.07	78.13	122.26	-1,252.68	1,810.89	593.27	535.06	58.21	10.191	
7,000.00	6,633.53	11,921.00	7,134.04	44.36	78.13	131.92	-1,252.68	1,810.89	557.36	496.88	60.49	9.215	
7,050.00	6,680.75	11,921.00	7,134.04	44.62	78.13	141.31	-1,252.68	1,810.89	526.10	462.86	63.24	8.319	
7,100.00	6,727.53	11,921.00	7,134.04	44.85	78.13	149.66	-1,252.68	1,810.89	500.51	434.08	66.43	7.534	
7,150.00	6,773.66	11,921.00	7,134.04	45.05	78.13	156.74	-1,252.68	1,810.89	481.65	411.70	69.94	6.886	
7,200.00	6,818.91	11,921.00	7,134.04	45.22	78.13	162.64	-1,252.68	1,810.89	470.40	396.86	73.54	6.396	
7,242.93	6,856.89	11,921.00	7,134.04	45.35	78.13	166.95	-1,252.68	1,810.89	467.30	390.83	76.47	6.111 CC	
7,250.00	6,863.05	11,921.00	7,134.04	45.37	78.13	167.60	-1,252.68	1,810.89	467.38	390.45	76.93	6.076 ES	
7,300.00	6,905.88	11,921.00	7,134.04	45.49	78.13	171.88	-1,252.68	1,810.89	472.76	392.96	79.81	5.924	
7,350.00	6,947.18	11,921.00	7,134.04	45.59	78.13	175.70	-1,252.68	1,810.89	486.24	403.73	82.51	5.893 SF	
7,400.00	6,986.75	11,921.00	7,134.04	45.67	78.13	179.26	-1,252.68	1,810.89	507.11	422.53	84.58	5.995	
7,450.00	7,024.39	11,921.00	7,134.04	45.73	78.13	-177.24	-1,252.68	1,810.89	534.41	448.49	85.92	6.220	
7,500.00	7,059.94	11,921.00	7,134.04	45.77	78.13	-173.62	-1,252.68	1,810.89	567.09	480.45	86.64	6.545	
7,550.00	7,093.20	11,921.00	7,134.04	45.79	78.13	-169.67	-1,252.68	1,810.89	604.13	517.24	86.90	6.952	
7,600.00	7,124.03	11,921.00	7,134.04	45.80	78.13	-165.14	-1,252.68	1,810.89	644.62	557.81	86.81	7.425	
7,650.00	7,152.27	11,921.00	7,134.04	45.79	78.13	-159.68	-1,252.68	1,810.89	687.77	601.27	86.50	7.951	
7,700.00	7,177.77	11,921.00	7,134.04	45.77	78.13	-152.81	-1,252.68	1,810.89	732.92	646.89	86.03	8.519	
7,750.00	7,200.43	11,921.00	7,134.04	45.74	78.13	-143.92	-1,252.68	1,810.89	779.52	694.06	85.46	9.121	
7,800.00	7,220.13	11,921.00	7,134.04	45.70	78.13	-132.34	-1,252.68	1,810.89	827.12	742.29	84.83	9.750	
7,850.00	7,236.76	11,921.00	7,134.04	45.65	78.13	-117.81	-1,252.68	1,810.89	875.34	791.19	84.15	10.402	
7,900.00	7,250.26	11,921.00	7,134.04	45.60	78.13	-101.35	-1,252.68	1,810.89	923.87	840.43	83.45	11.071	
7,950.00	7,260.55	11,921.00	7,134.04	45.53	78.13	-85.33	-1,252.68	1,810.89	972.45	889.73	82.72	11.756	
8,000.00	7,267.59	11,921.00	7,134.04	45.47	78.13	-71.85	-1,252.68	1,810.89	1,020.85	938.86	81.98	12.452	
8,050.00	7,271.34	11,921.00	7,134.04	45.40	78.13	-61.50	-1,252.68	1,810.89	1,068.86	987.63	81.23	13.159	
8,081.65	7,272.00	11,921.00	7,134.04	45.36	78.13	-56.38	-1,252.68	1,810.89	1,098.98	1,018.24	80.75	13.611	
8,100.00	7,272.00	11,921.00	7,134.04	45.33	78.13	-56.38	-1,252.68	1,810.89	1,116.39	1,035.92	80.47	13.874	
8,200.00	7,272.00	11,921.00	7,134.04	45.20	78.13	-56.38	-1,252.68	1,810.89	1,211.75	1,132.66	79.09	15.322	
8,300.00	7,272.00	11,921.00	7,134.04	45.08	78.13	-56.38	-1,252.68	1,810.89	1,307.80	1,229.91	77.89	16.790	
8,400.00	7,272.00	11,921.00	7,134.04	44.97	78.13	-56.38	-1,252.68	1,810.89	1,404.40	1,327.55	76.85	18.274	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well RUEGGE 3O-4H-N165 - Slot RUEGGE 3
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 4938.00usft
<b>Reference Site:</b>	S4-T1N-R65W	<b>MD Reference:</b>	23' KB @ 4938.00usft
<b>Site Error:</b>	0.00usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	RUEGGE 3O-4H-N165	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	PLAN #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S4-T1N-R65W - JOKER 27N2-9HZ - KMG WELL - SURVEYS													Offset Site Error: 0.00 usft	
Survey Program: 105-ISCWSA MWD													Offset Well Error: 0.00 usft	
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
6,100.00	5,788.14	11,852.00	7,050.02	38.11	78.37	72.20	-1,261.61	1,977.91	1,339.45	1,289.35	50.10	26.738		
6,200.00	5,881.94	11,852.00	7,050.02	38.82	78.37	72.20	-1,261.61	1,977.91	1,241.50	1,191.16	50.34	24.661		
6,300.00	5,975.73	11,852.00	7,050.02	39.53	78.37	72.20	-1,261.61	1,977.91	1,143.91	1,093.30	50.61	22.601		
6,400.00	6,069.52	11,852.00	7,050.02	40.23	78.37	72.20	-1,261.61	1,977.91	1,046.77	995.85	50.92	20.557		
6,500.00	6,163.32	11,852.00	7,050.02	40.94	78.37	72.20	-1,261.61	1,977.91	950.23	898.96	51.27	18.534		
6,600.00	6,257.11	11,852.00	7,050.02	41.65	78.37	72.20	-1,261.61	1,977.91	854.48	802.81	51.67	16.536		
6,700.00	6,350.90	11,852.00	7,050.02	42.36	78.37	72.20	-1,261.61	1,977.91	759.83	707.68	52.15	14.570		
6,800.00	6,444.70	11,852.00	7,050.02	43.06	78.37	72.20	-1,261.61	1,977.91	666.74	614.03	52.71	12.649		
6,847.81	6,489.54	11,852.00	7,050.02	43.40	78.37	72.20	-1,261.61	1,977.91	623.00	569.99	53.01	11.752		
6,850.00	6,491.60	11,852.00	7,050.02	43.42	78.37	72.59	-1,261.61	1,977.91	621.01	567.98	53.02	11.712		
6,900.00	6,538.72	11,852.00	7,050.02	43.76	78.37	82.44	-1,261.61	1,977.91	576.87	523.49	53.38	10.806		
6,950.00	6,586.11	11,852.00	7,050.02	44.07	78.37	93.65	-1,261.61	1,977.91	535.71	481.91	53.80	9.958		
7,000.00	6,633.53	11,852.00	7,050.02	44.36	78.37	105.16	-1,261.61	1,977.91	498.47	444.24	54.24	9.191		
7,050.00	6,680.75	11,852.00	7,050.02	44.62	78.37	115.91	-1,261.61	1,977.91	466.32	411.67	54.64	8.534		
7,100.00	6,727.53	11,852.00	7,050.02	44.85	78.37	125.25	-1,261.61	1,977.91	440.52	385.48	55.04	8.004		
7,150.00	6,773.66	11,852.00	7,050.02	45.05	78.37	132.99	-1,261.61	1,977.91	422.38	366.47	55.92	7.554		
7,200.00	6,818.91	11,852.00	7,050.02	45.22	78.37	139.26	-1,261.61	1,977.91	413.01	356.14	56.88	7.261		
7,224.80	6,840.96	11,852.00	7,050.02	45.30	78.37	141.91	-1,261.61	1,977.91	411.84	354.38	57.46	7.167 CC, ES		
7,250.00	6,863.05	11,852.00	7,050.02	45.37	78.37	144.34	-1,261.61	1,977.91	413.05	354.85	58.20	7.097		
7,300.00	6,905.88	11,852.00	7,050.02	45.49	78.37	148.47	-1,261.61	1,977.91	422.50	362.32	60.17	7.021 SF		
7,350.00	6,947.18	11,852.00	7,050.02	45.59	78.37	151.88	-1,261.61	1,977.91	440.70	377.99	62.71	7.028		
7,400.00	6,986.75	11,852.00	7,050.02	45.67	78.37	154.75	-1,261.61	1,977.91	466.55	401.21	65.35	7.140		
7,450.00	7,024.39	11,852.00	7,050.02	45.73	78.37	157.23	-1,261.61	1,977.91	498.76	431.07	67.68	7.369		
7,500.00	7,059.94	11,852.00	7,050.02	45.77	78.37	159.44	-1,261.61	1,977.91	536.03	466.47	69.56	7.706		
7,550.00	7,093.20	11,852.00	7,050.02	45.79	78.37	161.51	-1,261.61	1,977.91	577.22	506.25	70.97	8.134		
7,600.00	7,124.03	11,852.00	7,050.02	45.80	78.37	163.59	-1,261.61	1,977.91	621.37	549.39	71.98	8.633		
7,650.00	7,152.27	11,852.00	7,050.02	45.79	78.37	165.90	-1,261.61	1,977.91	667.71	595.04	72.67	9.188		
7,700.00	7,177.77	11,852.00	7,050.02	45.77	78.37	168.85	-1,261.61	1,977.91	715.60	642.48	73.12	9.786		
7,750.00	7,200.43	11,852.00	7,050.02	45.74	78.37	173.60	-1,261.61	1,977.91	764.55	691.17	73.38	10.419		
7,800.00	7,220.13	11,852.00	7,050.02	45.70	78.37	-175.37	-1,261.61	1,977.91	814.14	740.65	73.49	11.079		
7,850.00	7,236.76	11,852.00	7,050.02	45.65	78.37	-124.07	-1,261.61	1,977.91	864.05	790.57	73.48	11.760		
7,900.00	7,250.26	11,852.00	7,050.02	45.60	78.37	-48.14	-1,261.61	1,977.91	913.99	840.62	73.37	12.458		
7,950.00	7,260.55	11,852.00	7,050.02	45.53	78.37	-32.89	-1,261.61	1,977.91	963.75	890.57	73.18	13.169		
8,000.00	7,267.59	11,852.00	7,050.02	45.47	78.37	-27.66	-1,261.61	1,977.91	1,013.11	940.19	72.92	13.893		
8,050.00	7,271.34	11,852.00	7,050.02	45.40	78.37	-25.09	-1,261.61	1,977.91	1,061.92	989.31	72.61	14.625		
8,081.65	7,272.00	11,852.00	7,050.02	45.36	78.37	-24.07	-1,261.61	1,977.91	1,092.46	1,020.08	72.38	15.093		
8,100.00	7,272.00	11,852.00	7,050.02	45.33	78.37	-24.07	-1,261.61	1,977.91	1,110.09	1,037.85	72.25	15.366		
8,200.00	7,272.00	11,852.00	7,050.02	45.20	78.37	-24.07	-1,261.61	1,977.91	1,206.54	1,134.97	71.57	16.858		
8,300.00	7,272.00	11,852.00	7,050.02	45.08	78.37	-24.07	-1,261.61	1,977.91	1,303.53	1,232.54	70.99	18.363		
8,400.00	7,272.00	11,852.00	7,050.02	44.97	78.37	-24.07	-1,261.61	1,977.91	1,400.94	1,330.46	70.48	19.877		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well RUEGGE 3O-4H-N165 - Slot RUEGGE 3
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 4938.00usft
<b>Reference Site:</b>	S4-T1N-R65W	<b>MD Reference:</b>	23' KB @ 4938.00usft
<b>Site Error:</b>	0.00usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	RUEGGE 3O-4H-N165	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	PLAN #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S4-T1N-R65W - MORITZ-ANSCHUTZ 1 - KMG WELL - NO SURVEYS													Offset Site Error: 0.00 usft	
Survey Program: 100-ISCWSA MWD													Offset Well Error: 0.00 usft	
Reference				Offset			Semi Major Axis			Distance				Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Centre +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
5,000.00	4,756.41	4,771.41	4,771.41	30.34	10.60	26.65	-1,723.08	2,132.96	1,388.49	1,356.38	32.11	43.241		
5,100.00	4,850.20	4,865.20	4,865.20	31.04	10.81	27.30	-1,723.08	2,132.96	1,357.20	1,324.30	32.90	41.251		
5,200.00	4,944.00	4,959.00	4,959.00	31.75	11.02	27.98	-1,723.08	2,132.96	1,326.07	1,292.37	33.70	39.345		
5,300.00	5,037.79	5,052.79	5,052.79	32.46	11.23	28.69	-1,723.08	2,132.96	1,295.12	1,260.60	34.52	37.518		
5,400.00	5,131.58	5,146.58	5,146.58	33.16	11.44	29.43	-1,723.08	2,132.96	1,264.37	1,229.02	35.35	35.766		
5,500.00	5,225.38	5,240.38	5,240.38	33.87	11.65	30.21	-1,723.08	2,132.96	1,233.82	1,197.63	36.20	34.085		
5,600.00	5,319.17	5,334.17	5,334.17	34.58	11.87	31.03	-1,723.08	2,132.96	1,203.50	1,166.44	37.06	32.471		
5,700.00	5,412.97	5,427.97	5,427.97	35.28	12.08	31.89	-1,723.08	2,132.96	1,173.42	1,135.48	37.95	30.923		
5,800.00	5,506.76	5,521.76	5,521.76	35.99	12.29	32.79	-1,723.08	2,132.96	1,143.60	1,104.75	38.85	29.436		
5,900.00	5,600.55	5,615.55	5,615.55	36.70	12.50	33.74	-1,723.08	2,132.96	1,114.07	1,074.29	39.78	28.009		
6,000.00	5,694.35	5,709.35	5,709.35	37.40	12.71	34.74	-1,723.08	2,132.96	1,084.83	1,044.11	40.72	26.639		
6,100.00	5,788.14	5,803.14	5,803.14	38.11	12.92	35.79	-1,723.08	2,132.96	1,055.93	1,014.23	41.70	25.324		
6,200.00	5,881.94	5,903.06	5,896.94	38.82	13.14	36.89	-1,723.08	2,132.96	1,027.38	984.67	42.71	24.054		
6,300.00	5,975.73	6,009.27	5,990.73	39.53	13.38	38.06	-1,723.08	2,132.96	999.23	955.46	43.77	22.829		
6,400.00	6,069.52	6,084.52	6,084.52	40.23	13.55	39.29	-1,723.08	2,132.96	971.49	926.70	44.79	21.691		
6,500.00	6,163.32	6,178.32	6,178.32	40.94	13.76	40.59	-1,723.08	2,132.96	944.21	898.33	45.88	20.580		
6,600.00	6,257.11	6,272.11	6,272.11	41.65	13.97	41.96	-1,723.08	2,132.96	917.44	870.43	47.01	19.517		
6,700.00	6,350.90	6,365.90	6,365.90	42.36	14.18	43.41	-1,723.08	2,132.96	891.20	843.03	48.17	18.501		
6,800.00	6,444.70	6,459.70	6,459.70	43.06	14.40	44.94	-1,723.08	2,132.96	865.57	816.20	49.37	17.532		
6,847.81	6,489.54	6,504.54	6,504.54	43.40	14.50	45.70	-1,723.08	2,132.96	853.54	803.58	49.96	17.085		
6,850.00	6,491.60	6,506.60	6,506.60	43.42	14.50	46.18	-1,723.08	2,132.96	852.99	803.01	49.99	17.064		
6,900.00	6,538.72	6,553.72	6,553.72	43.76	14.61	58.00	-1,723.08	2,132.96	842.33	791.70	50.63	16.637		
6,950.00	6,586.11	6,601.11	6,601.11	44.07	14.71	70.88	-1,723.08	2,132.96	835.15	783.84	51.31	16.276		
7,000.00	6,633.53	6,648.53	6,648.53	44.36	14.82	83.88	-1,723.08	2,132.96	831.53	779.51	52.02	15.984		
7,024.59	6,656.79	6,671.79	6,671.79	44.49	14.87	90.00	-1,723.08	2,132.96	831.09	778.71	52.38	15.867	CC, ES	
7,050.00	6,680.75	6,704.25	6,695.75	44.62	14.95	95.99	-1,723.08	2,132.96	831.56	778.79	52.77	15.759		
7,100.00	6,727.53	6,742.53	6,742.53	44.85	15.03	106.55	-1,723.08	2,132.96	835.30	781.81	53.48	15.618		
7,150.00	6,773.66	6,788.66	6,788.66	45.05	15.13	115.40	-1,723.08	2,132.96	842.76	788.55	54.21	15.547	SF	
7,200.00	6,818.91	6,833.91	6,833.91	45.22	15.24	122.70	-1,723.08	2,132.96	853.93	799.02	54.91	15.550		
7,250.00	6,863.05	6,878.05	6,878.05	45.37	15.34	128.68	-1,723.08	2,132.96	868.78	813.19	55.59	15.627		
7,300.00	6,905.88	6,920.88	6,920.88	45.49	15.43	133.62	-1,723.08	2,132.96	887.24	831.00	56.24	15.776		
7,350.00	6,947.18	6,962.18	6,962.18	45.59	15.52	137.72	-1,723.08	2,132.96	909.19	852.35	56.84	15.995		
7,400.00	6,986.75	7,001.75	7,001.75	45.67	15.61	141.15	-1,723.08	2,132.96	934.50	877.10	57.40	16.282		
7,450.00	7,024.39	7,039.39	7,039.39	45.73	15.70	144.04	-1,723.08	2,132.96	963.01	905.11	57.90	16.632		
7,500.00	7,059.94	7,074.94	7,074.94	45.77	15.78	146.48	-1,723.08	2,132.96	994.55	936.19	58.36	17.043		
7,550.00	7,093.20	7,108.20	7,108.20	45.79	15.85	148.54	-1,723.08	2,132.96	1,028.91	970.15	58.76	17.511		
7,600.00	7,124.03	7,139.03	7,139.03	45.80	15.92	150.27	-1,723.08	2,132.96	1,065.89	1,006.78	59.11	18.032		
7,650.00	7,152.27	7,167.27	7,167.27	45.79	15.99	151.71	-1,723.08	2,132.96	1,105.26	1,045.84	59.42	18.601		
7,700.00	7,177.77	7,207.23	7,192.77	45.77	16.08	152.87	-1,723.08	2,132.96	1,146.79	1,087.07	59.71	19.205		
7,750.00	7,200.43	7,215.43	7,215.43	45.74	16.09	153.77	-1,723.08	2,132.96	1,190.24	1,130.34	59.90	19.871		
7,800.00	7,220.13	7,235.13	7,235.13	45.70	16.14	154.37	-1,723.08	2,132.96	1,235.36	1,175.29	60.08	20.563		
7,850.00	7,236.76	7,251.76	7,251.76	45.65	16.18	154.63	-1,723.08	2,132.96	1,281.92	1,221.70	60.22	21.286		
7,900.00	7,250.26	7,265.26	7,265.26	45.60	16.21	154.40	-1,723.08	2,132.96	1,329.66	1,269.33	60.34	22.038		
7,950.00	7,260.55	7,275.55	7,275.55	45.53	16.23	153.32	-1,723.08	2,132.96	1,378.34	1,317.92	60.42	22.813		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well RUEGGE 3O-4H-N165 - Slot RUEGGE 3
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 4938.00usft
<b>Reference Site:</b>	S4-T1N-R65W	<b>MD Reference:</b>	23' KB @ 4938.00usft
<b>Site Error:</b>	0.00usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	RUEGGE 3O-4H-N165	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	PLAN #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S4-T1N-R65W - OLIN 1 - CPR WELL - GYRO													Offset Site Error:	0.00 usft
Survey Program: 100-VESSI_GYROFLEX													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
10,700.00	7,272.00	7,246.74	7,245.40	55.84	12.55	-89.77	3,616.16	1,496.90	1,372.33	1,309.48	62.85	21.835		
10,800.00	7,272.00	7,247.90	7,246.56	57.11	12.56	-89.87	3,616.17	1,496.92	1,285.39	1,221.49	63.91	20.114		
10,900.00	7,272.00	7,249.05	7,247.71	58.41	12.56	-89.97	3,616.18	1,496.94	1,200.49	1,135.35	65.14	18.430		
11,000.00	7,272.00	7,250.19	7,248.85	59.72	12.56	-90.07	3,616.20	1,496.96	1,118.08	1,051.51	66.57	16.796		
11,100.00	7,272.00	7,251.31	7,249.97	61.04	12.56	-90.17	3,616.21	1,496.98	1,038.76	970.53	68.23	15.225		
11,200.00	7,272.00	7,252.43	7,251.09	62.37	12.56	-90.27	3,616.22	1,497.00	963.30	893.17	70.14	13.735		
11,300.00	7,272.00	7,253.54	7,252.19	63.71	12.57	-90.37	3,616.23	1,497.02	892.68	820.39	72.29	12.348		
11,400.00	7,272.00	7,254.63	7,253.29	65.07	12.57	-90.46	3,616.24	1,497.03	828.13	753.46	74.67	11.091		
11,500.00	7,272.00	7,255.72	7,254.38	66.43	12.57	-90.56	3,616.25	1,497.05	771.18	694.01	77.17	9.994		
11,600.00	7,272.00	7,256.79	7,255.45	67.80	12.57	-90.65	3,616.27	1,497.07	723.63	644.01	79.62	9.089		
11,700.00	7,272.00	7,257.86	7,256.52	69.19	12.57	-90.74	3,616.28	1,497.09	687.42	605.67	81.75	8.409		
11,800.00	7,272.00	7,258.92	7,257.57	70.57	12.58	-90.84	3,616.29	1,497.10	664.43	581.19	83.24	7.983		
11,900.00	7,272.00	7,259.96	7,258.62	71.97	12.58	-90.93	3,616.30	1,497.12	656.03	572.24	83.79	7.830		
11,905.46	7,272.00	7,260.02	7,258.68	72.05	12.58	-90.93	3,616.30	1,497.12	656.00	572.22	83.79	7.829 CC, ES, SF		
12,000.00	7,272.00	7,261.00	7,259.66	73.37	12.58	-91.02	3,616.31	1,497.14	662.78	579.50	83.29	7.958		
12,100.00	7,272.00	7,262.03	7,260.69	74.78	12.58	-91.11	3,616.32	1,497.16	684.24	602.40	81.84	8.361		
12,200.00	7,272.00	7,263.05	7,261.70	76.20	12.58	-91.20	3,616.33	1,497.17	719.09	639.37	79.72	9.020		
12,300.00	7,272.00	7,264.06	7,262.71	77.62	12.58	-91.29	3,616.34	1,497.19	765.50	688.23	77.27	9.907		
12,400.00	7,272.00	7,265.06	7,263.72	79.05	12.59	-91.37	3,616.35	1,497.20	821.52	746.75	74.76	10.988		
12,431.65	7,272.00	7,265.37	7,264.03	79.50	12.59	-91.40	3,616.35	1,497.21	840.95	766.96	73.99	11.366		



# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well RUEGGE 3O-4H-N165 - Slot RUEGGE 3
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 4938.00usft
<b>Reference Site:</b>	S4-T1N-R65W	<b>MD Reference:</b>	23' KB @ 4938.00usft
<b>Site Error:</b>	0.00usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	RUEGGE 3O-4H-N165	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	PLAN #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S4-T1N-R65W - OLIN 31-4 - CPR WELL - SURVEYS													Offset Site Error: 0.00 usft
Survey Program: 1160-ISCWSA MWD													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	
11,500.00	7,272.00	7,274.43	7,165.44	66.43	19.07	-85.36	4,092.84	1,054.40	1,412.68	1,335.94	76.74	18.410	
11,600.00	7,272.00	7,281.77	7,172.76	67.80	19.08	-85.74	4,093.14	1,054.05	1,352.83	1,274.01	78.83	17.162	
11,700.00	7,272.00	7,288.55	7,179.53	69.19	19.10	-86.09	4,093.40	1,053.74	1,297.92	1,216.89	81.03	16.018	
11,800.00	7,272.00	7,291.41	7,182.39	70.57	19.11	-86.24	4,093.51	1,053.61	1,248.60	1,165.33	83.27	14.995	
11,900.00	7,272.00	7,295.02	7,185.98	71.97	19.11	-86.42	4,093.64	1,053.44	1,205.56	1,120.02	85.54	14.093	
12,000.00	7,272.00	7,298.56	7,189.52	73.37	19.12	-86.61	4,093.77	1,053.28	1,169.50	1,081.74	87.76	13.325	
12,100.00	7,272.00	7,302.04	7,192.99	74.78	19.13	-86.79	4,093.90	1,053.12	1,141.08	1,051.23	89.84	12.701	
12,200.00	7,272.00	7,305.46	7,196.41	76.20	19.14	-86.96	4,094.03	1,052.96	1,120.87	1,029.19	91.69	12.225	
12,300.00	7,272.00	7,308.82	7,199.76	77.62	19.14	-87.14	4,094.15	1,052.80	1,109.34	1,016.15	93.19	11.904	
12,378.77	7,272.00	7,311.43	7,202.37	78.75	19.15	-87.27	4,094.24	1,052.68	1,106.54	1,012.45	94.10	11.760 CC, ES	
12,400.00	7,272.00	7,312.13	7,203.07	79.05	19.15	-87.31	4,094.27	1,052.65	1,106.75	1,012.46	94.29	11.738	
12,431.65	7,272.00	7,313.17	7,204.10	79.50	19.15	-87.36	4,094.31	1,052.60	1,107.80	1,013.26	94.54	11.717 SF	

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well RUEGGE 3O-4H-N165 - Slot RUEGGE 3
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 4938.00usft
<b>Reference Site:</b>	S4-T1N-R65W	<b>MD Reference:</b>	23' KB @ 4938.00usft
<b>Site Error:</b>	0.00usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	RUEGGE 3O-4H-N165	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	PLAN #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S4-T1N-R65W - OLIN 32-4 - CPR WELL - GYRO													Offset Site Error:	0.00 usft
Survey Program: 100-VESSI_GYROFLEX													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
10,100.00	7,272.00	7,251.23	7,248.62	48.66	12.72	-89.54	2,768.52	1,109.08	1,407.53	1,346.49	61.04	23.059		
10,200.00	7,272.00	7,252.25	7,249.65	49.77	12.72	-89.59	2,768.53	1,109.08	1,341.79	1,279.69	62.10	21.607		
10,300.00	7,272.00	7,253.27	7,250.67	50.93	12.72	-89.65	2,768.54	1,109.09	1,280.49	1,217.24	63.26	20.242		
10,400.00	7,272.00	7,254.29	7,251.69	52.12	12.73	-89.71	2,768.55	1,109.09	1,224.30	1,159.80	64.51	18.979		
10,500.00	7,272.00	7,255.30	7,252.70	53.34	12.73	-89.76	2,768.56	1,109.09	1,173.96	1,108.13	65.82	17.835		
10,600.00	7,272.00	7,256.31	7,253.71	54.58	12.73	-89.82	2,768.57	1,109.09	1,130.23	1,063.07	67.16	16.828		
10,700.00	7,272.00	7,257.32	7,254.72	55.84	12.73	-89.87	2,768.58	1,109.09	1,093.93	1,025.44	68.48	15.974		
10,800.00	7,272.00	7,258.33	7,255.73	57.11	12.73	-89.93	2,768.59	1,109.09	1,065.80	996.08	69.71	15.289		
10,900.00	7,272.00	7,259.33	7,256.73	58.41	12.74	-89.98	2,768.60	1,109.09	1,046.50	975.72	70.79	14.784		
11,000.00	7,272.00	7,260.33	7,257.73	59.72	12.74	-90.04	2,768.61	1,109.09	1,036.54	964.90	71.64	14.468		
11,053.79	7,272.00	7,260.87	7,258.26	60.43	12.74	-90.07	2,768.61	1,109.10	1,035.14	963.15	72.00	14.378 CC, ES		
11,100.00	7,272.00	7,261.33	7,258.72	61.04	12.74	-90.10	2,768.62	1,109.10	1,036.17	963.94	72.23	14.346 SF		
11,200.00	7,272.00	7,262.32	7,259.71	62.37	12.74	-90.15	2,768.63	1,109.10	1,045.41	972.89	72.53	14.414		
11,300.00	7,272.00	7,263.31	7,260.70	63.71	12.74	-90.21	2,768.64	1,109.10	1,064.02	991.48	72.53	14.669		
11,400.00	7,272.00	7,264.29	7,261.69	65.07	12.74	-90.26	2,768.65	1,109.10	1,091.50	1,019.21	72.29	15.100		
11,500.00	7,272.00	7,265.28	7,262.67	66.43	12.75	-90.31	2,768.66	1,109.10	1,127.21	1,055.38	71.82	15.694		
11,600.00	7,272.00	7,266.26	7,263.65	67.80	12.75	-90.37	2,768.67	1,109.10	1,170.40	1,099.19	71.20	16.438		
11,700.00	7,272.00	7,267.23	7,264.63	69.19	12.75	-90.42	2,768.67	1,109.10	1,220.27	1,149.79	70.48	17.315		
11,800.00	7,272.00	7,268.21	7,265.60	70.57	12.75	-90.48	2,768.68	1,109.10	1,276.04	1,206.35	69.69	18.311		
11,900.00	7,272.00	7,269.18	7,266.58	71.97	12.75	-90.53	2,768.69	1,109.11	1,336.98	1,268.10	68.88	19.411		
12,000.00	7,272.00	7,270.15	7,267.54	73.37	12.75	-90.58	2,768.70	1,109.11	1,402.40	1,334.33	68.07	20.602		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well RUEGGE 3O-4H-N165 - Slot RUEGGE 3
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 4938.00usft
<b>Reference Site:</b>	S4-T1N-R65W	<b>MD Reference:</b>	23' KB @ 4938.00usft
<b>Site Error:</b>	0.00usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	RUEGGE 3O-4H-N165	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	PLAN #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S4-T1N-R65W - OLIN 41-4 - CPR WELL - SURVEYS													Offset Site Error:	0.00 usft
Survey Program: 1129-ISCWSA MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
10,900.00	7,272.00	7,349.03	7,146.92	58.41	23.19	72.49	3,916.77	2,517.74	1,369.98	1,304.61	65.37	20.958		
11,000.00	7,272.00	7,357.84	7,155.69	59.72	23.21	73.79	3,917.33	2,518.41	1,274.16	1,208.96	65.21	19.540		
11,100.00	7,272.00	7,366.10	7,163.91	61.04	23.23	75.02	3,917.85	2,519.02	1,179.00	1,113.93	65.07	18.120		
11,200.00	7,272.00	7,374.00	7,171.77	62.37	23.25	76.20	3,918.33	2,519.60	1,084.65	1,019.68	64.97	16.696		
11,300.00	7,272.00	7,381.54	7,179.28	63.71	23.27	77.34	3,918.78	2,520.16	991.37	926.43	64.93	15.267		
11,400.00	7,272.00	7,387.41	7,185.12	65.07	23.29	78.24	3,919.13	2,520.58	899.48	834.45	65.03	13.831		
11,500.00	7,272.00	7,393.48	7,191.16	66.43	23.30	79.16	3,919.49	2,521.02	809.48	744.14	65.34	12.389		
11,600.00	7,272.00	7,399.61	7,197.26	67.80	23.31	80.10	3,919.86	2,521.46	722.06	656.07	65.99	10.942		
11,700.00	7,272.00	7,405.81	7,203.44	69.19	23.33	81.05	3,920.24	2,521.90	638.29	571.10	67.19	9.500		
11,800.00	7,272.00	7,412.07	7,209.68	70.57	23.35	82.02	3,920.62	2,522.33	559.80	490.56	69.23	8.086		
11,900.00	7,272.00	7,418.60	7,216.18	71.97	23.36	83.03	3,921.01	2,522.79	489.14	416.63	72.50	6.746		
12,000.00	7,272.00	7,424.89	7,222.44	73.37	23.38	84.00	3,921.38	2,523.22	430.19	352.48	77.71	5.536		
12,100.00	7,272.00	7,430.95	7,228.47	74.78	23.39	84.94	3,921.74	2,523.64	388.32	303.92	84.40	4.601		
12,200.00	7,272.00	7,436.79	7,234.29	76.20	23.40	85.85	3,922.07	2,524.05	369.40	278.12	91.28	4.047		
12,221.92	7,272.00	7,438.04	7,235.53	76.51	23.41	86.04	3,922.14	2,524.14	368.75	276.16	92.59	3.983 CC, ES		
12,300.00	7,272.00	7,442.42	7,239.90	77.62	23.42	86.72	3,922.39	2,524.44	376.90	280.85	96.05	3.924 SF		
12,400.00	7,272.00	7,448.21	7,245.66	79.05	23.43	87.62	3,922.70	2,524.84	409.38	311.98	97.39	4.203		
12,431.65	7,272.00	7,450.03	7,247.48	79.50	23.44	87.90	3,922.80	2,524.97	424.05	326.86	97.20	4.363		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well RUEGGE 3O-4H-N165 - Slot RUEGGE 3
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 4938.00usft
<b>Reference Site:</b>	S4-T1N-R65W	<b>MD Reference:</b>	23' KB @ 4938.00usft
<b>Site Error:</b>	0.00usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	RUEGGE 3O-4H-N165	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	PLAN #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S4-T1N-R65W - OLIN 42-4A - CPR WELL - SURVEYS												Offset Site Error: 0.00 usft		
Survey Program: 1021-ISCWSA MWD												Offset Well Error: 0.00 usft		
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
9,600.00	7,272.00	7,567.92	7,280.63	44.85	28.09	94.55	2,640.62	2,490.31	1,384.68	1,312.73	71.95	19.246		
9,700.00	7,272.00	7,564.45	7,277.17	45.24	28.08	93.98	2,640.73	2,490.16	1,288.14	1,216.15	71.99	17.893		
9,800.00	7,272.00	7,561.00	7,273.73	45.85	28.07	93.42	2,640.84	2,490.01	1,192.16	1,120.11	72.05	16.546		
9,900.00	7,272.00	7,557.59	7,270.32	46.65	28.07	92.86	2,640.95	2,489.86	1,096.88	1,024.75	72.14	15.206		
10,000.00	7,272.00	7,554.20	7,266.94	47.61	28.06	92.30	2,641.06	2,489.71	1,002.52	930.26	72.26	13.874		
10,100.00	7,272.00	7,550.84	7,263.58	48.66	28.06	91.75	2,641.17	2,489.56	909.36	836.92	72.44	12.553		
10,200.00	7,272.00	7,547.51	7,260.26	49.77	28.05	91.20	2,641.27	2,489.41	817.80	745.08	72.72	11.246		
10,300.00	7,272.00	7,544.21	7,256.96	50.93	28.04	90.66	2,641.38	2,489.26	728.44	655.31	73.13	9.961		
10,400.00	7,272.00	7,540.93	7,253.69	52.12	28.04	90.11	2,641.48	2,489.11	642.22	568.45	73.77	8.706		
10,500.00	7,272.00	7,537.69	7,250.45	53.34	28.03	89.58	2,641.58	2,488.96	560.57	485.81	74.76	7.498		
10,600.00	7,272.00	7,534.84	7,247.61	54.58	28.03	89.11	2,641.67	2,488.83	485.82	409.55	76.27	6.370		
10,700.00	7,272.00	7,532.01	7,244.78	55.84	28.02	88.64	2,641.76	2,488.70	421.64	343.24	78.40	5.378		
10,800.00	7,272.00	7,529.13	7,241.90	57.11	28.02	88.16	2,641.85	2,488.57	373.52	292.68	80.84	4.621		
10,900.00	7,272.00	7,526.20	7,238.98	58.41	28.01	87.68	2,641.95	2,488.44	348.20	265.79	82.41	4.225		
10,941.47	7,272.00	7,524.97	7,237.75	58.95	28.01	87.47	2,641.99	2,488.39	345.73	263.27	82.45	4.193 CC, ES, SF		
11,000.00	7,272.00	7,523.23	7,236.01	59.72	28.00	87.18	2,642.04	2,488.31	350.64	268.87	81.77	4.288		
11,100.00	7,272.00	7,520.20	7,232.99	61.04	28.00	86.68	2,642.14	2,488.18	380.31	300.66	79.65	4.775		
11,200.00	7,272.00	7,517.12	7,229.91	62.37	27.99	86.17	2,642.24	2,488.05	431.63	354.27	77.35	5.580		
11,300.00	7,272.00	7,513.99	7,226.79	63.71	27.99	85.65	2,642.35	2,487.92	497.94	422.43	75.51	6.594		
11,400.00	7,272.00	7,510.81	7,223.61	65.07	27.98	85.13	2,642.45	2,487.79	574.08	499.85	74.24	7.733		
11,500.00	7,272.00	7,507.72	7,220.53	66.43	27.98	84.62	2,642.56	2,487.66	656.64	583.29	73.35	8.952		
11,600.00	7,272.00	7,504.11	7,216.92	67.80	27.97	84.02	2,642.68	2,487.52	743.48	670.74	72.74	10.221		
11,700.00	7,272.00	7,500.48	7,213.30	69.19	27.96	83.42	2,642.80	2,487.37	833.26	760.97	72.29	11.527		
11,800.00	7,272.00	7,496.86	7,209.68	70.57	27.96	82.83	2,642.92	2,487.22	925.12	853.18	71.95	12.859		
11,900.00	7,272.00	7,493.24	7,206.06	71.97	27.95	82.23	2,643.05	2,487.07	1,018.51	946.83	71.68	14.209		
12,000.00	7,272.00	7,489.61	7,202.44	73.37	27.94	81.64	2,643.17	2,486.91	1,113.03	1,041.56	71.47	15.573		
12,100.00	7,272.00	7,485.98	7,198.81	74.78	27.94	81.04	2,643.29	2,486.75	1,208.43	1,137.12	71.31	16.947		
12,200.00	7,272.00	7,482.35	7,195.19	76.20	27.93	80.45	2,643.42	2,486.59	1,304.51	1,233.34	71.17	18.329		
12,300.00	7,272.00	12,300.00	7,178.74	77.62	37.69	77.78	2,644.05	2,485.81	1,401.10	1,320.34	80.77	17.347		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well RUEGGE 3O-4H-N165 - Slot RUEGGE 3
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 4938.00usft
<b>Reference Site:</b>	S4-T1N-R65W	<b>MD Reference:</b>	23' KB @ 4938.00usft
<b>Site Error:</b>	0.00usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	RUEGGE 3O-4H-N165	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	PLAN #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S4-T1N-R65W - RUEGGE 3C-4H-N165 - OH - PLAN #1													Offset Site Error: 0.00 usft	
Survey Program: 0-MWD+HDGM													Offset Well Error: 0.00 usft	
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
0.00	0.00	2.00	2.00	0.00	0.00	-98.45	-17.64	-118.70	120.00					
100.00	100.00	102.00	102.00	0.14	0.15	-98.45	-17.64	-118.70	120.00	119.72	0.28	423.742		
200.00	200.00	202.00	202.00	0.50	0.50	-98.45	-17.64	-118.70	120.00	119.00	1.00	119.984	CC, ES	
300.00	300.00	298.16	298.14	0.85	0.84	-98.75	-18.50	-120.14	121.62	119.92	1.70	71.693		
400.00	400.00	394.17	394.02	1.21	1.18	-99.59	-21.00	-124.35	126.36	123.97	2.39	52.808		
500.00	499.98	489.63	489.14	1.56	1.52	143.01	-25.12	-131.27	135.65	132.57	3.08	43.978		
600.00	599.84	584.04	582.89	1.91	1.88	142.49	-30.78	-140.79	150.81	147.03	3.78	39.933		
700.00	699.45	676.91	674.71	2.26	2.25	142.30	-37.88	-152.74	171.72	167.24	4.47	38.403		
800.00	798.70	767.82	764.10	2.63	2.64	142.32	-46.31	-166.90	198.24	193.07	5.17	38.375	SF	
900.00	897.47	856.35	850.62	3.02	3.04	142.44	-55.91	-183.04	230.22	224.36	5.86	39.298		
1,000.00	995.62	942.15	933.88	3.44	3.45	142.58	-66.51	-200.86	267.48	260.94	6.55	40.843		
1,100.00	1,093.06	1,024.94	1,013.58	3.88	3.87	142.69	-77.94	-220.08	309.84	302.61	7.23	42.866		
1,200.00	1,189.64	1,104.47	1,089.52	4.37	4.30	142.74	-90.02	-240.40	357.06	349.15	7.91	45.130		
1,300.00	1,285.27	1,190.46	1,171.26	4.89	4.79	142.88	-103.67	-263.34	407.86	399.20	8.67	47.053		
1,400.00	1,379.82	1,274.86	1,251.49	5.47	5.28	143.09	-117.06	-285.86	461.12	451.68	9.44	48.860		
1,414.59	1,393.51	1,287.04	1,263.07	5.55	5.35	143.12	-118.99	-289.11	469.09	459.54	9.56	49.085		
1,500.00	1,473.62	1,358.21	1,330.73	6.08	5.77	143.91	-130.29	-308.10	515.97	505.75	10.21	50.515		
1,600.00	1,567.42	1,441.54	1,409.94	6.72	6.26	144.68	-143.51	-330.33	570.91	559.92	10.99	51.935		
1,700.00	1,661.21	1,524.88	1,489.15	7.37	6.76	145.31	-156.73	-352.56	625.92	614.14	11.78	53.133		
1,800.00	1,755.00	1,608.21	1,568.37	8.03	7.26	145.83	-169.96	-374.80	680.97	668.40	12.58	54.153		
1,900.00	1,848.80	1,708.46	1,647.58	8.69	7.86	146.28	-183.18	-397.03	736.06	722.60	13.45	54.709		
2,000.00	1,942.59	1,774.87	1,726.80	9.37	8.27	146.67	-196.40	-419.26	791.17	776.99	14.18	55.789		
2,100.00	2,036.39	1,858.20	1,806.01	10.05	8.77	147.00	-209.63	-441.50	846.31	831.31	14.99	56.453		
2,200.00	2,130.18	1,941.53	1,885.23	10.73	9.28	147.30	-222.85	-463.73	901.46	885.65	15.80	57.037		
2,300.00	2,223.97	2,024.86	1,964.44	11.41	9.79	147.56	-236.07	-485.96	956.62	940.00	16.62	57.555		
2,400.00	2,317.77	2,108.19	2,043.66	12.10	10.30	147.79	-249.30	-508.20	1,011.80	994.36	17.44	58.016		
2,500.00	2,411.56	2,208.47	2,122.87	12.79	10.92	148.00	-262.52	-530.43	1,066.99	1,048.65	18.34	58.174		
2,600.00	2,505.36	2,274.86	2,202.08	13.49	11.33	148.19	-275.74	-552.66	1,122.19	1,103.11	19.08	58.801		
2,700.00	2,599.15	2,358.19	2,281.30	14.18	11.84	148.36	-288.97	-574.90	1,177.40	1,157.49	19.91	59.138		
2,800.00	2,692.94	2,441.52	2,360.51	14.87	12.35	148.52	-302.19	-597.13	1,232.61	1,211.88	20.74	59.443		
2,900.00	2,786.74	2,524.85	2,439.73	15.57	12.87	148.66	-315.41	-619.36	1,287.83	1,266.27	21.56	59.722		
3,000.00	2,880.53	2,608.18	2,518.94	16.27	13.38	148.79	-328.64	-641.60	1,343.06	1,320.66	22.39	59.976		
3,100.00	2,974.32	2,708.49	2,598.16	16.97	14.00	148.91	-341.86	-663.83	1,398.28	1,374.98	23.30	60.001		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well RUEGGE 3O-4H-N165 - Slot RUEGGE 3
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 4938.00usft
<b>Reference Site:</b>	S4-T1N-R65W	<b>MD Reference:</b>	23' KB @ 4938.00usft
<b>Site Error:</b>	0.00usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	RUEGGE 3O-4H-N165	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	PLAN #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S4-T1N-R65W - RUEGGE 3D-4H-N165 - OH - PLAN #1													Offset Site Error: 0.00 usft	
Survey Program: 0-MWD+HDGM													Offset Well Error: 0.00 usft	
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
0.00	0.00	2.00	2.00	0.00	0.00	-98.45	-16.17	-108.80	110.00					
100.00	100.00	102.00	102.00	0.14	0.15	-98.45	-16.17	-108.80	110.00	109.72	0.28	388.428		
200.00	200.00	202.00	202.00	0.50	0.50	-98.45	-16.17	-108.80	110.00	109.00	1.00	109.985		
300.00	300.00	302.00	302.00	0.85	0.86	-98.45	-16.17	-108.80	110.00	108.28	1.72	64.062		
400.00	400.00	402.00	402.00	1.21	1.22	-98.45	-16.17	-108.80	110.00	107.57	2.43	45.193	CC, ES	
500.00	499.98	498.52	498.50	1.56	1.55	145.15	-17.13	-110.20	113.00	109.89	3.12	36.257		
600.00	599.84	594.59	594.44	1.91	1.89	145.38	-19.92	-114.24	121.88	118.09	3.79	32.124		
700.00	699.45	689.67	689.18	2.26	2.22	145.69	-24.48	-120.85	136.58	132.09	4.48	30.479		
800.00	798.70	783.30	782.15	2.63	2.57	146.00	-30.72	-129.87	157.01	151.83	5.17	30.356	SF	
900.00	897.47	875.02	872.85	3.02	2.92	146.25	-38.49	-141.14	183.05	177.19	5.86	31.214		
1,000.00	995.62	964.46	960.81	3.44	3.28	146.43	-47.66	-154.42	214.56	208.01	6.56	32.726		
1,100.00	1,093.06	1,051.25	1,045.65	3.88	3.66	146.51	-58.05	-169.46	251.35	244.11	7.25	34.682		
1,200.00	1,189.64	1,135.10	1,127.06	4.37	4.04	146.49	-69.46	-185.99	293.23	285.29	7.94	36.953		
1,300.00	1,285.27	1,215.75	1,204.77	4.89	4.43	146.38	-81.71	-203.74	339.97	331.35	8.62	39.442		
1,400.00	1,379.82	1,300.95	1,284.53	5.47	4.86	146.27	-95.35	-223.49	390.88	381.52	9.36	41.750		
1,414.59	1,393.51	1,311.45	1,296.41	5.55	4.92	146.27	-97.39	-226.45	398.54	389.07	9.47	42.074		
1,500.00	1,473.62	1,383.99	1,365.83	6.08	5.30	146.78	-109.32	-243.73	443.53	433.40	10.12	43.819		
1,600.00	1,567.42	1,468.91	1,447.12	6.72	5.76	147.26	-123.29	-263.97	496.22	485.33	10.89	45.550		
1,700.00	1,661.21	1,553.83	1,528.41	7.37	6.22	147.65	-137.27	-284.20	548.94	537.26	11.68	47.009		
1,800.00	1,755.00	1,638.76	1,609.69	8.03	6.69	147.97	-151.24	-304.44	601.67	589.20	12.47	48.251		
1,900.00	1,848.80	1,723.68	1,690.98	8.69	7.16	148.24	-165.21	-324.67	654.41	641.14	13.27	49.317		
2,000.00	1,942.59	1,808.60	1,772.26	9.37	7.64	148.47	-179.18	-344.91	707.16	693.09	14.08	50.240		
2,100.00	2,036.39	1,906.47	1,853.55	10.05	8.19	148.67	-193.15	-365.14	759.92	744.98	14.95	50.843		
2,200.00	2,130.18	1,978.45	1,934.83	10.73	8.59	148.84	-207.12	-385.38	812.69	796.98	15.70	51.753		
2,300.00	2,223.97	2,063.37	2,016.12	11.41	9.08	148.99	-221.09	-405.61	865.46	848.93	16.52	52.379		
2,400.00	2,317.77	2,148.29	2,097.40	12.10	9.56	149.12	-235.06	-425.85	918.23	900.88	17.35	52.936		
2,500.00	2,411.56	2,233.22	2,178.69	12.79	10.05	149.24	-249.03	-446.08	971.00	952.83	18.17	53.435		
2,600.00	2,505.36	2,318.14	2,259.97	13.49	10.53	149.35	-263.00	-466.31	1,023.78	1,004.78	19.00	53.883		
2,700.00	2,599.15	2,403.06	2,341.26	14.18	11.02	149.45	-276.97	-486.55	1,076.56	1,056.73	19.83	54.288		
2,800.00	2,692.94	2,487.99	2,422.54	14.87	11.51	149.53	-290.94	-506.78	1,129.35	1,108.68	20.66	54.655		
2,900.00	2,786.74	2,572.91	2,503.83	15.57	12.00	149.61	-304.91	-527.02	1,182.13	1,160.63	21.50	54.989		
3,000.00	2,880.53	2,657.83	2,585.12	16.27	12.49	149.68	-318.88	-547.25	1,234.92	1,212.58	22.33	55.294		
3,100.00	2,974.32	2,742.76	2,666.40	16.97	12.98	149.75	-332.85	-567.49	1,287.70	1,264.53	23.17	55.574		
3,200.00	3,068.12	2,827.68	2,747.69	17.67	13.48	149.81	-346.82	-587.72	1,340.49	1,316.48	24.01	55.832		
3,300.00	3,161.91	2,912.60	2,828.97	18.37	13.97	149.87	-360.79	-607.96	1,393.28	1,368.43	24.85	56.069		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well RUEGGE 3O-4H-N165 - Slot RUEGGE 3
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 4938.00usft
<b>Reference Site:</b>	S4-T1N-R65W	<b>MD Reference:</b>	23' KB @ 4938.00usft
<b>Site Error:</b>	0.00usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	RUEGGE 3O-4H-N165	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	PLAN #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S4-T1N-R65W - RUEGGE 3E-4H-N165 - OH - PLAN #1													Offset Site Error:	0.00 usft
Survey Program: O-MWD+HDGM													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
0.00	0.00	1.00	1.00	0.00	0.00	-98.45	-14.70	-98.91	100.00					
100.00	100.00	101.00	101.00	0.14	0.14	-98.45	-14.70	-98.91	100.00	99.72	0.28	357.644		
200.00	200.00	201.00	201.00	0.50	0.50	-98.45	-14.70	-98.91	100.00	99.00	1.00	100.346		
300.00	300.00	301.00	301.00	0.85	0.86	-98.45	-14.70	-98.91	100.00	98.29	1.71	58.360		
400.00	400.00	401.00	401.00	1.21	1.22	-98.45	-14.70	-98.91	100.00	97.57	2.43	41.145 CC, ES		
500.00	499.98	500.98	500.98	1.56	1.58	145.62	-14.70	-98.91	101.44	98.30	3.14	32.346		
600.00	599.84	600.84	600.84	1.91	1.93	147.17	-14.70	-98.91	105.80	101.96	3.84	27.557		
700.00	699.45	697.32	697.30	2.26	2.27	148.91	-15.77	-100.17	114.60	110.07	4.53	25.307		
800.00	798.70	792.94	792.80	2.63	2.59	150.19	-18.90	-103.86	129.17	123.96	5.21	24.780 SF		
900.00	897.47	887.23	886.75	3.02	2.92	151.00	-24.01	-109.88	149.37	143.47	5.90	25.311		
1,000.00	995.62	979.77	978.66	3.44	3.25	151.40	-30.97	-118.07	175.06	168.47	6.59	26.554		
1,100.00	1,093.06	1,070.17	1,068.07	3.88	3.59	151.49	-39.62	-128.26	206.08	198.80	7.29	28.287		
1,200.00	1,189.64	1,158.10	1,154.57	4.37	3.93	151.36	-49.77	-140.22	242.26	234.28	7.98	30.361		
1,300.00	1,285.27	1,243.23	1,237.84	4.89	4.28	151.08	-61.24	-153.73	283.41	274.73	8.67	32.670		
1,400.00	1,379.82	1,325.33	1,317.61	5.47	4.64	150.69	-73.81	-168.54	329.32	319.96	9.37	35.162		
1,414.59	1,393.51	1,347.86	1,328.49	5.55	4.74	150.63	-75.65	-170.70	336.40	326.89	9.51	35.357		
1,500.00	1,473.62	1,411.03	1,400.45	6.08	5.03	150.70	-87.99	-185.24	378.27	368.16	10.11	37.414		
1,600.00	1,567.42	1,501.81	1,484.71	6.72	5.46	150.77	-102.44	-202.26	427.28	416.39	10.89	39.234		
1,700.00	1,661.21	1,585.36	1,568.97	7.37	5.86	150.82	-116.90	-219.28	476.29	464.64	11.65	40.869		
1,800.00	1,755.00	1,672.52	1,653.22	8.03	6.29	150.87	-131.35	-236.31	525.30	512.86	12.44	42.214		
1,900.00	1,848.80	1,759.69	1,737.48	8.69	6.72	150.90	-145.80	-253.33	574.31	561.07	13.24	43.369		
2,000.00	1,942.59	1,846.85	1,821.73	9.37	7.16	150.93	-160.26	-270.35	623.33	609.28	14.05	44.369		
2,100.00	2,036.39	1,934.02	1,905.99	10.05	7.60	150.96	-174.71	-287.37	672.34	657.48	14.86	45.241		
2,200.00	2,130.18	2,021.18	1,990.24	10.73	8.04	150.98	-189.16	-304.40	721.35	705.67	15.68	46.007		
2,300.00	2,223.97	2,108.34	2,074.50	11.41	8.49	151.00	-203.62	-321.42	770.37	753.86	16.50	46.684		
2,400.00	2,317.77	2,195.51	2,158.76	12.10	8.94	151.02	-218.07	-338.44	819.38	802.05	17.33	47.286		
2,500.00	2,411.56	2,282.67	2,243.01	12.79	9.39	151.03	-232.52	-355.47	868.39	850.23	18.16	47.824		
2,600.00	2,505.36	2,369.84	2,327.27	13.49	9.84	151.04	-246.98	-372.49	917.40	898.41	18.99	48.307		
2,700.00	2,599.15	2,457.00	2,411.52	14.18	10.29	151.06	-261.43	-389.51	966.42	946.59	19.83	48.743		
2,800.00	2,692.94	2,544.17	2,495.78	14.87	10.75	151.07	-275.88	-406.54	1,015.43	994.77	20.66	49.139		
2,900.00	2,786.74	2,631.33	2,580.03	15.57	11.21	151.08	-290.34	-423.56	1,064.44	1,042.94	21.50	49.499		
3,000.00	2,880.53	2,718.50	2,664.29	16.27	11.66	151.09	-304.79	-440.58	1,113.46	1,091.11	22.35	49.827		
3,100.00	2,974.32	2,805.66	2,748.54	16.97	12.12	151.09	-319.24	-457.60	1,162.47	1,139.28	23.19	50.129		
3,200.00	3,068.12	2,907.17	2,832.80	17.67	12.66	151.10	-333.70	-474.63	1,211.48	1,187.38	24.10	50.268		
3,300.00	3,161.91	2,979.99	2,917.06	18.37	13.04	151.11	-348.15	-491.65	1,260.50	1,235.62	24.88	50.661		
3,400.00	3,255.71	3,067.16	3,001.31	19.07	13.50	151.12	-362.60	-508.67	1,309.51	1,283.78	25.73	50.897		
3,500.00	3,349.50	3,154.32	3,085.57	19.77	13.96	151.12	-377.06	-525.70	1,358.52	1,331.95	26.58	51.116		
3,600.00	3,443.29	3,241.49	3,169.82	20.47	14.43	151.13	-391.51	-542.72	1,407.54	1,380.11	27.43	51.320		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well RUEGGE 3O-4H-N165 - Slot RUEGGE 3
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 4938.00usft
<b>Reference Site:</b>	S4-T1N-R65W	<b>MD Reference:</b>	23' KB @ 4938.00usft
<b>Site Error:</b>	0.00usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	RUEGGE 3O-4H-N165	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	PLAN #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S4-T1N-R65W - RUEGGE 3F-4H-N165 - OH - PLAN #1													Offset Site Error: 0.00 usft	
Survey Program: O-MWD+HDGM													Offset Well Error: 0.00 usft	
Reference		Offset		Semi Major Axis					Distance				Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
0.00	0.00	1.00	1.00	0.00	0.00	-98.45	-13.23	-89.02	90.00					
100.00	100.00	101.00	101.00	0.14	0.14	-98.45	-13.23	-89.02	90.00	89.72	0.28	321.880		
200.00	200.00	201.00	201.00	0.50	0.50	-98.45	-13.23	-89.02	90.00	89.00	1.00	90.312		
300.00	300.00	301.00	301.00	0.85	0.86	-98.45	-13.23	-89.02	90.00	88.29	1.71	52.524		
400.00	400.00	401.00	401.00	1.21	1.22	-98.45	-13.23	-89.02	90.00	87.57	2.43	37.031	CC, ES	
500.00	499.98	500.98	500.98	1.56	1.58	145.68	-13.23	-89.02	91.44	88.30	3.14	29.157		
600.00	599.84	600.84	600.84	1.91	1.93	147.40	-13.23	-89.02	95.81	91.97	3.84	24.955		
700.00	699.45	700.45	700.45	2.26	2.29	149.93	-13.23	-89.02	103.26	98.71	4.55	22.694		
800.00	798.70	799.70	799.70	2.63	2.65	152.89	-13.23	-89.02	113.98	108.71	5.27	21.642	SF	
900.00	897.47	895.31	895.30	3.02	2.98	155.37	-14.26	-90.23	129.33	123.37	5.96	21.685		
1,000.00	995.62	989.64	989.50	3.44	3.29	156.90	-17.29	-93.81	150.39	143.74	6.65	22.615		
1,100.00	1,093.06	1,082.26	1,081.81	3.88	3.61	157.67	-22.22	-99.62	176.92	169.58	7.34	24.116		
1,200.00	1,189.64	1,172.79	1,171.74	4.37	3.93	157.88	-28.89	-107.50	208.71	200.69	8.02	26.017		
1,300.00	1,285.27	1,260.87	1,258.88	4.89	4.25	157.74	-37.15	-117.24	245.60	236.89	8.71	28.204		
1,400.00	1,379.82	1,346.19	1,342.89	5.47	4.58	157.36	-46.80	-128.62	287.39	277.99	9.39	30.597		
1,414.59	1,393.51	1,358.39	1,354.86	5.55	4.62	157.29	-48.31	-130.40	293.88	284.38	9.50	30.940		
1,500.00	1,473.62	1,429.00	1,423.96	6.08	4.91	157.10	-57.71	-141.48	332.86	322.79	10.07	33.052		
1,600.00	1,567.42	1,510.00	1,502.76	6.72	5.24	156.66	-69.84	-155.79	380.15	369.40	10.74	35.384		
1,700.00	1,661.21	1,605.19	1,584.81	7.37	5.66	156.10	-83.70	-172.14	428.80	417.29	11.51	37.248		
1,800.00	1,755.00	1,682.05	1,669.18	8.03	6.01	155.63	-98.04	-189.05	477.57	465.34	12.23	39.038		
1,900.00	1,848.80	1,769.29	1,753.56	8.69	6.42	155.24	-112.37	-205.96	526.36	513.35	13.01	40.459		
2,000.00	1,942.59	1,856.53	1,837.93	9.37	6.83	154.92	-126.71	-222.87	575.17	561.37	13.80	41.690		
2,100.00	2,036.39	1,943.76	1,922.31	10.05	7.25	154.65	-141.05	-239.77	623.99	609.40	14.59	42.765		
2,200.00	2,130.18	2,031.00	2,006.68	10.73	7.68	154.42	-155.38	-256.68	672.82	657.42	15.39	43.709		
2,300.00	2,223.97	2,118.24	2,091.06	11.41	8.11	154.22	-169.72	-273.59	721.65	705.45	16.20	44.543		
2,400.00	2,317.77	2,205.48	2,175.44	12.10	8.54	154.04	-184.06	-290.50	770.49	753.48	17.01	45.284		
2,500.00	2,411.56	2,307.28	2,259.81	12.79	9.05	153.89	-198.39	-307.41	819.34	801.44	17.90	45.779		
2,600.00	2,505.36	2,379.96	2,344.19	13.49	9.42	153.75	-212.73	-324.32	868.19	849.53	18.66	46.539		
2,700.00	2,599.15	2,467.20	2,428.56	14.18	9.86	153.63	-227.07	-341.23	917.04	897.56	19.48	47.074		
2,800.00	2,692.94	2,554.44	2,512.94	14.87	10.31	153.52	-241.40	-358.14	965.89	945.59	20.31	47.558		
2,900.00	2,786.74	2,641.68	2,597.31	15.57	10.75	153.42	-255.74	-375.05	1,014.75	993.61	21.14	47.999		
3,000.00	2,880.53	2,728.92	2,681.69	16.27	11.20	153.33	-270.08	-391.96	1,063.61	1,041.64	21.98	48.401		
3,100.00	2,974.32	2,816.15	2,766.06	16.97	11.65	153.25	-284.41	-408.87	1,112.48	1,089.66	22.81	48.769		
3,200.00	3,068.12	2,903.39	2,850.44	17.67	12.10	153.18	-298.75	-425.77	1,161.34	1,137.69	23.65	49.107		
3,300.00	3,161.91	3,009.37	2,934.81	18.37	12.65	153.11	-313.09	-442.68	1,210.20	1,185.63	24.57	49.246		
3,400.00	3,255.71	3,077.87	3,019.19	19.07	13.01	153.04	-327.42	-459.59	1,259.07	1,233.74	25.33	49.706		
3,500.00	3,349.50	3,165.11	3,103.56	19.77	13.46	152.98	-341.76	-476.50	1,307.94	1,281.76	26.17	49.972		
3,600.00	3,443.29	3,252.35	3,187.94	20.47	13.92	152.93	-356.10	-493.41	1,356.81	1,329.79	27.02	50.219		
3,700.00	3,537.09	3,339.59	3,272.31	21.18	14.38	152.88	-370.43	-510.32	1,405.68	1,377.81	27.86	50.449		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well RUEGGE 3O-4H-N165 - Slot RUEGGE 3
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 4938.00usft
<b>Reference Site:</b>	S4-T1N-R65W	<b>MD Reference:</b>	23' KB @ 4938.00usft
<b>Site Error:</b>	0.00usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	RUEGGE 3O-4H-N165	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	PLAN #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S4-T1N-R65W - RUEGGE 3G-4H-N165 - OH - PLAN #1													Offset Site Error: 0.00 usft	
Survey Program: 0-MWD+HDGM													Offset Well Error: 0.00 usft	
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
0.00	0.00	1.00	1.00	0.00	0.00	-98.45	-11.76	-79.13	80.00					
100.00	100.00	101.00	101.00	0.14	0.14	-98.45	-11.76	-79.13	80.00	79.72	0.28	286.117		
200.00	200.00	201.00	201.00	0.50	0.50	-98.45	-11.76	-79.13	80.00	79.00	1.00	80.277		
300.00	300.00	301.00	301.00	0.85	0.86	-98.45	-11.76	-79.13	80.00	78.29	1.71	46.689		
400.00	400.00	401.00	401.00	1.21	1.22	-98.45	-11.76	-79.13	80.00	77.57	2.43	32.916 CC, ES		
500.00	499.98	500.98	500.98	1.56	1.58	145.76	-11.76	-79.13	81.44	78.30	3.14	25.969		
600.00	599.84	600.84	600.84	1.91	1.93	147.68	-11.76	-79.13	85.82	81.98	3.84	22.352		
700.00	699.45	700.45	700.45	2.26	2.29	150.46	-11.76	-79.13	93.30	88.75	4.55	20.505		
800.00	798.70	800.30	799.70	2.63	2.65	153.67	-11.76	-79.13	104.09	98.82	5.27	19.757		
900.00	897.47	901.53	898.47	3.02	3.01	156.91	-11.76	-79.13	118.34	112.34	6.00	19.731 SF		
1,000.00	995.62	996.62	996.62	3.44	3.35	159.93	-11.76	-79.13	136.13	129.42	6.71	20.293		
1,100.00	1,093.06	1,092.25	1,092.24	3.88	3.68	162.04	-13.05	-79.87	158.03	150.62	7.41	21.326		
1,200.00	1,189.64	1,186.69	1,186.55	4.37	3.99	162.93	-17.03	-82.17	184.43	176.33	8.10	22.768		
1,300.00	1,285.27	1,279.66	1,279.22	4.89	4.31	163.00	-23.57	-85.95	215.13	206.33	8.80	24.457		
1,400.00	1,379.82	1,370.87	1,369.84	5.47	4.62	162.53	-32.52	-91.12	250.00	240.50	9.50	26.318		
1,414.59	1,393.51	1,384.01	1,382.86	5.55	4.66	162.43	-34.02	-91.98	255.44	245.83	9.61	26.587		
1,500.00	1,473.62	1,460.48	1,458.50	6.08	4.94	161.88	-43.74	-97.60	287.87	277.66	10.21	28.197		
1,600.00	1,567.42	1,549.05	1,545.70	6.72	5.26	160.92	-57.19	-105.36	326.82	315.90	10.93	29.915		
1,700.00	1,661.21	1,633.99	1,628.85	7.37	5.59	159.80	-72.11	-114.17	367.05	355.41	11.63	31.547		
1,800.00	1,755.00	1,713.66	1,706.50	8.03	5.91	158.81	-86.62	-124.48	409.63	397.32	12.31	33.267		
1,900.00	1,848.80	1,794.83	1,785.27	8.69	6.25	157.93	-101.57	-137.10	454.63	441.62	13.02	34.927		
2,000.00	1,942.59	1,883.59	1,871.32	9.37	6.63	157.11	-117.95	-151.45	500.30	486.49	13.81	36.236		
2,100.00	2,036.39	1,972.35	1,957.36	10.05	7.03	156.43	-134.33	-165.81	546.03	531.42	14.61	37.377		
2,200.00	2,130.18	2,061.11	2,043.41	10.73	7.43	155.85	-150.72	-180.17	591.81	576.39	15.42	38.379		
2,300.00	2,223.97	2,149.86	2,129.45	11.41	7.83	155.36	-167.10	-194.52	637.63	621.39	16.24	39.263		
2,400.00	2,317.77	2,238.62	2,215.49	12.10	8.25	154.93	-183.48	-208.88	683.49	666.42	17.07	40.047		
2,500.00	2,411.56	2,327.38	2,301.54	12.79	8.67	154.55	-199.87	-223.23	729.37	711.47	17.90	40.746		
2,600.00	2,505.36	2,416.14	2,387.58	13.49	9.09	154.22	-216.25	-237.59	775.27	756.53	18.74	41.373		
2,700.00	2,599.15	2,504.90	2,473.63	14.18	9.52	153.93	-232.63	-251.94	821.19	801.61	19.58	41.936		
2,800.00	2,692.94	2,606.34	2,559.67	14.87	10.01	153.67	-249.02	-266.30	867.13	846.64	20.49	42.327		
2,900.00	2,786.74	2,682.41	2,645.71	15.57	10.38	153.43	-265.40	-280.66	913.08	891.80	21.28	42.907		
3,000.00	2,880.53	2,771.17	2,731.76	16.27	10.81	153.22	-281.78	-295.01	959.04	936.90	22.13	43.328		
3,100.00	2,974.32	2,859.93	2,817.80	16.97	11.25	153.03	-298.17	-309.37	1,005.01	982.02	22.99	43.713		
3,200.00	3,068.12	2,948.69	2,903.85	17.67	11.69	152.85	-314.55	-323.72	1,050.99	1,027.14	23.85	44.065		
3,300.00	3,161.91	3,037.45	2,989.89	18.37	12.13	152.69	-330.94	-338.08	1,096.97	1,072.26	24.71	44.390		
3,400.00	3,255.71	3,126.21	3,075.93	19.07	12.57	152.54	-347.32	-352.43	1,142.96	1,117.39	25.58	44.689		
3,500.00	3,349.50	3,214.97	3,161.98	19.77	13.02	152.40	-363.70	-366.79	1,188.96	1,162.52	26.44	44.966		
3,600.00	3,443.29	3,303.72	3,248.02	20.47	13.46	152.27	-380.09	-381.15	1,234.96	1,207.66	27.31	45.222		
3,700.00	3,537.09	3,392.48	3,334.07	21.18	13.91	152.16	-396.47	-395.50	1,280.97	1,252.79	28.18	45.461		
3,800.00	3,630.88	3,481.24	3,420.11	21.88	14.36	152.05	-412.85	-409.86	1,326.98	1,297.93	29.05	45.683		
3,900.00	3,724.68	3,570.00	3,506.15	22.58	14.81	151.94	-429.24	-424.21	1,373.00	1,343.08	29.92	45.890		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well RUEGGE 3O-4H-N165 - Slot RUEGGE 3
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 4938.00usft
<b>Reference Site:</b>	S4-T1N-R65W	<b>MD Reference:</b>	23' KB @ 4938.00usft
<b>Site Error:</b>	0.00usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	RUEGGE 3O-4H-N165	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	PLAN #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S4-T1N-R65W - RUEGGE 3H-4H-N165 - OH - PLAN #1												Offset Site Error:	0.00 usft
Survey Program: O-MWD+HDGM												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
0.00	0.00	1.00	1.00	0.00	0.00	-98.45	-10.29	-69.24	70.00				
100.00	100.00	101.00	101.00	0.14	0.14	-98.45	-10.29	-69.24	70.00	69.72	0.28	250.353	
200.00	200.00	201.00	201.00	0.50	0.50	-98.45	-10.29	-69.24	70.00	69.00	1.00	70.243	
300.00	300.00	301.00	301.00	0.85	0.86	-98.45	-10.29	-69.24	70.00	68.29	1.71	40.853	
400.00	400.00	401.00	401.00	1.21	1.22	-98.45	-10.29	-69.24	70.00	67.57	2.43	28.802 CC, ES	
500.00	499.98	500.98	500.98	1.56	1.58	145.86	-10.29	-69.24	71.44	68.30	3.14	22.780	
600.00	599.84	600.84	600.84	1.91	1.93	148.03	-10.29	-69.24	75.83	71.99	3.84	19.751	
700.00	699.45	700.45	700.45	2.26	2.29	151.13	-10.29	-69.24	83.35	78.80	4.55	18.319	
800.00	798.70	800.30	799.70	2.63	2.65	154.61	-10.29	-69.24	94.22	88.95	5.27	17.884 SF	
900.00	897.47	901.53	898.47	3.02	3.01	158.04	-10.29	-69.24	108.58	102.58	6.00	18.107	
1,000.00	995.62	1,003.38	996.62	3.44	3.38	161.15	-10.29	-69.24	126.51	119.78	6.73	18.795	
1,100.00	1,093.06	1,105.94	1,094.06	3.88	3.74	163.83	-10.29	-69.24	148.02	140.55	7.47	19.811	
1,200.00	1,189.64	1,190.64	1,190.64	4.37	4.05	166.09	-10.29	-69.24	173.07	164.92	8.15	21.233	
1,300.00	1,285.27	1,284.95	1,284.94	4.89	4.37	167.57	-11.41	-69.82	201.91	193.05	8.85	22.804	
1,400.00	1,379.82	1,377.85	1,377.73	5.47	4.68	168.04	-15.19	-71.79	234.75	225.20	9.55	24.593	
1,414.59	1,393.51	1,391.27	1,391.13	5.55	4.72	168.05	-15.95	-72.18	239.86	230.21	9.65	24.853	
1,500.00	1,473.62	1,469.61	1,469.21	6.08	4.99	167.93	-21.54	-75.09	270.28	260.04	10.24	26.401	
1,600.00	1,567.42	1,560.77	1,559.82	6.72	5.29	167.29	-30.42	-79.70	306.49	295.56	10.93	28.033	
1,700.00	1,661.21	1,651.16	1,649.30	7.37	5.61	166.29	-41.75	-85.59	343.43	331.79	11.64	29.498	
1,800.00	1,755.00	1,740.62	1,737.42	8.03	5.93	165.04	-55.42	-92.70	381.19	368.83	12.37	30.828	
1,900.00	1,848.80	1,829.75	1,824.70	8.69	6.27	163.63	-71.40	-101.01	419.87	406.76	13.11	32.033	
2,000.00	1,942.59	1,921.29	1,914.17	9.37	6.62	162.31	-88.59	-109.94	459.01	445.12	13.89	33.049	
2,100.00	2,036.39	2,012.83	2,003.64	10.05	6.99	161.19	-105.78	-118.88	498.33	483.64	14.69	33.933	
2,200.00	2,130.18	2,104.37	2,093.11	10.73	7.36	160.24	-122.97	-127.81	537.78	522.29	15.49	34.707	
2,300.00	2,223.97	2,204.08	2,182.58	11.41	7.78	159.41	-140.16	-136.75	577.34	561.00	16.35	35.314	
2,400.00	2,317.77	2,287.46	2,272.05	12.10	8.13	158.69	-157.35	-145.68	617.00	599.85	17.15	35.986	
2,500.00	2,411.56	2,379.00	2,361.52	12.79	8.52	158.06	-174.54	-154.62	656.72	638.74	17.98	36.519	
2,600.00	2,505.36	2,470.55	2,450.99	13.49	8.92	157.50	-191.73	-163.55	696.51	677.68	18.83	36.993	
2,700.00	2,599.15	2,562.09	2,540.46	14.18	9.32	157.00	-208.91	-172.49	736.34	716.66	19.68	37.418	
2,800.00	2,692.94	2,653.63	2,629.93	14.87	9.72	156.55	-226.10	-181.42	776.22	755.68	20.53	37.800	
2,900.00	2,786.74	2,745.17	2,719.40	15.57	10.13	156.14	-243.29	-190.35	816.13	794.74	21.40	38.145	
3,000.00	2,880.53	2,836.72	2,808.87	16.27	10.54	155.77	-260.48	-199.29	856.08	833.82	22.26	38.458	
3,100.00	2,974.32	2,928.26	2,898.34	16.97	10.95	155.44	-277.67	-208.22	896.05	872.92	23.13	38.743	
3,200.00	3,068.12	3,019.80	2,987.80	17.67	11.36	155.13	-294.86	-217.16	936.05	912.05	24.00	39.003	
3,300.00	3,161.91	3,111.35	3,077.27	18.37	11.78	154.85	-312.05	-226.09	976.06	951.19	24.87	39.240	
3,400.00	3,255.71	3,202.89	3,166.74	19.07	12.19	154.59	-329.24	-235.03	1,016.10	990.35	25.75	39.459	
3,500.00	3,349.50	3,305.57	3,256.21	19.77	12.67	154.35	-346.42	-243.96	1,056.15	1,029.47	26.68	39.586	
3,600.00	3,443.29	3,385.98	3,345.68	20.47	13.03	154.13	-363.61	-252.90	1,096.21	1,068.70	27.51	39.845	
3,700.00	3,537.09	3,477.52	3,435.15	21.18	13.46	153.92	-380.80	-261.83	1,136.29	1,107.90	28.40	40.017	
3,800.00	3,630.88	3,569.06	3,524.62	21.88	13.88	153.73	-397.99	-270.77	1,176.38	1,147.10	29.28	40.177	
3,900.00	3,724.68	3,660.60	3,614.09	22.58	14.30	153.55	-415.18	-279.70	1,216.48	1,186.32	30.17	40.325	
4,000.00	3,818.47	3,752.15	3,703.56	23.29	14.73	153.38	-432.37	-288.64	1,256.59	1,225.54	31.06	40.463	
4,100.00	3,912.26	3,843.69	3,793.03	23.99	15.15	153.22	-449.56	-297.57	1,296.71	1,264.77	31.94	40.592	
4,200.00	4,006.06	3,935.23	3,882.50	24.69	15.58	153.08	-466.75	-306.51	1,336.84	1,304.00	32.84	40.713	
4,300.00	4,099.85	4,026.78	3,971.97	25.40	16.01	152.94	-483.94	-315.44	1,376.97	1,343.24	33.73	40.826	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well RUEGGE 3O-4H-N165 - Slot RUEGGE 3
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 4938.00usft
<b>Reference Site:</b>	S4-T1N-R65W	<b>MD Reference:</b>	23' KB @ 4938.00usft
<b>Site Error:</b>	0.00usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	RUEGGE 3O-4H-N165	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	PLAN #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S4-T1N-R65W - RUEGGE 3I-4H-N165 - OH - PLAN #1												Offset Site Error:	0.00 usft
Survey Program: O-MWD+HDGM												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
0.00	0.00	1.00	1.00	0.00	0.00	-98.45	-8.82	-59.35	60.00	59.72	0.28	214.589	
100.00	100.00	101.00	101.00	0.14	0.14	-98.45	-8.82	-59.35	60.00	59.00	1.00	60.209	
200.00	200.00	201.00	201.00	0.50	0.50	-98.45	-8.82	-59.35	60.00	58.29	1.71	35.017 CC, ES	
300.00	300.00	301.00	301.00	0.85	0.86	-98.45	-8.82	-59.35	60.00	58.29	1.71	35.017 CC, ES	
400.00	400.00	400.10	400.08	1.21	1.20	-99.96	-10.50	-59.82	60.74	58.33	2.41	25.187	
500.00	499.98	498.97	498.81	1.56	1.54	140.29	-15.47	-61.22	64.51	61.42	3.10	20.833	
600.00	599.84	597.34	596.81	1.91	1.89	136.89	-23.66	-63.52	72.84	69.05	3.79	19.209	
700.00	699.45	694.93	693.68	2.26	2.25	133.91	-34.98	-66.70	85.73	81.23	4.51	19.031 SF	
800.00	798.70	791.63	789.22	2.63	2.62	131.55	-49.32	-70.74	103.09	97.86	5.23	19.699	
900.00	897.47	889.48	885.67	3.02	3.02	130.45	-65.17	-75.19	123.65	117.66	5.99	20.645	
1,000.00	995.62	986.83	981.64	3.44	3.43	130.60	-80.94	-79.62	146.43	139.66	6.77	21.643	
1,100.00	1,093.06	1,083.58	1,077.01	3.88	3.83	131.50	-96.61	-84.03	171.46	163.90	7.56	22.677	
1,200.00	1,189.64	1,179.61	1,171.67	4.37	4.24	132.80	-112.16	-88.40	198.84	190.46	8.38	23.733	
1,300.00	1,285.27	1,274.79	1,265.50	4.89	4.65	134.30	-127.58	-92.74	228.68	219.47	9.21	24.822	
1,400.00	1,379.82	1,369.01	1,358.38	5.47	5.05	135.88	-142.84	-97.03	261.10	251.04	10.06	25.943	
1,414.59	1,393.51	1,382.67	1,371.84	5.55	5.11	136.11	-145.05	-97.65	266.06	255.86	10.19	26.101	
1,500.00	1,473.62	1,462.57	1,450.60	6.08	5.45	137.72	-157.99	-101.29	295.31	284.39	10.92	27.032	
1,600.00	1,567.42	1,556.12	1,542.81	6.72	5.86	139.24	-173.15	-105.55	329.78	317.99	11.79	27.982	
1,700.00	1,661.21	1,649.67	1,635.03	7.37	6.26	140.48	-188.30	-109.81	364.41	351.76	12.65	28.807	
1,800.00	1,755.00	1,743.22	1,727.24	8.03	6.67	141.50	-203.45	-114.07	399.17	385.65	13.52	29.528	
1,900.00	1,848.80	1,836.76	1,819.46	8.69	7.07	142.35	-218.60	-118.33	434.02	419.63	14.39	30.163	
2,000.00	1,942.59	1,930.31	1,911.67	9.37	7.48	143.09	-233.75	-122.59	468.94	453.68	15.26	30.726	
2,100.00	2,036.39	2,023.86	2,003.88	10.05	7.89	143.72	-248.91	-126.85	503.92	487.79	16.14	31.228	
2,200.00	2,130.18	2,117.41	2,096.10	10.73	8.29	144.26	-264.06	-131.11	538.95	521.94	17.01	31.679	
2,300.00	2,223.97	2,210.95	2,188.31	11.41	8.70	144.74	-279.21	-135.37	574.02	556.13	17.89	32.085	
2,400.00	2,317.77	2,304.50	2,280.53	12.10	9.11	145.17	-294.36	-139.63	609.12	590.35	18.77	32.452	
2,500.00	2,411.56	2,401.95	2,372.74	12.79	9.54	145.55	-309.51	-143.88	644.24	624.58	19.67	32.759	
2,600.00	2,505.36	2,508.40	2,464.95	13.49	10.00	145.89	-324.67	-148.14	679.39	658.79	20.60	32.976	
2,700.00	2,599.15	2,585.14	2,557.17	14.18	10.34	146.20	-339.82	-152.40	714.55	693.14	21.41	33.372	
2,800.00	2,692.94	2,678.69	2,649.38	14.87	10.75	146.48	-354.97	-156.66	749.74	727.44	22.29	33.630	
2,900.00	2,786.74	2,772.24	2,741.60	15.57	11.16	146.73	-370.12	-160.92	784.93	761.76	23.18	33.867	
3,000.00	2,880.53	2,865.79	2,833.81	16.27	11.57	146.96	-385.27	-165.18	820.14	796.08	24.06	34.087	
3,100.00	2,974.32	2,959.33	2,926.02	16.97	11.98	147.17	-400.42	-169.44	855.36	830.42	24.94	34.291	
3,200.00	3,068.12	3,052.88	3,018.24	17.67	12.38	147.37	-415.58	-173.70	890.59	864.76	25.83	34.481	
3,300.00	3,161.91	3,146.43	3,110.45	18.37	12.79	147.55	-430.73	-177.96	925.83	899.11	26.71	34.658	
3,400.00	3,255.71	3,239.98	3,202.67	19.07	13.20	147.72	-445.88	-182.22	961.07	933.47	27.60	34.824	
3,500.00	3,349.50	3,333.52	3,294.88	19.77	13.61	147.87	-461.03	-186.48	996.32	967.84	28.48	34.979	
3,600.00	3,443.29	3,427.07	3,387.09	20.47	14.02	148.02	-476.18	-190.74	1,031.58	1,002.21	29.37	35.124	
3,700.00	3,537.09	3,520.62	3,479.31	21.18	14.43	148.15	-491.34	-195.00	1,066.84	1,036.59	30.26	35.261	
3,800.00	3,630.88	3,614.17	3,571.52	21.88	14.84	148.28	-506.49	-199.26	1,102.11	1,070.97	31.14	35.390	
3,900.00	3,724.68	3,707.71	3,663.74	22.58	15.26	148.40	-521.64	-203.52	1,137.38	1,105.35	32.03	35.511	
4,000.00	3,818.47	3,801.26	3,755.95	23.29	15.67	148.51	-536.79	-207.78	1,172.66	1,139.74	32.92	35.626	
4,100.00	3,912.26	3,905.19	3,848.16	23.99	16.12	148.62	-551.94	-212.04	1,207.94	1,174.09	33.85	35.687	
4,200.00	4,006.06	3,988.36	3,940.38	24.69	16.49	148.72	-567.09	-216.30	1,243.22	1,208.53	34.69	35.838	
4,300.00	4,099.85	4,081.90	4,032.59	25.40	16.90	148.81	-582.25	-220.56	1,278.51	1,242.93	35.58	35.935	
4,400.00	4,193.65	4,175.45	4,124.81	26.10	17.31	148.90	-597.40	-224.82	1,313.80	1,277.33	36.47	36.028	
4,500.00	4,287.44	4,269.00	4,217.02	26.81	17.72	148.98	-612.55	-229.08	1,349.09	1,311.74	37.35	36.116	
4,600.00	4,381.23	4,362.55	4,309.23	27.51	18.13	149.06	-627.70	-233.34	1,384.38	1,346.14	38.24	36.201	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well RUEGGE 3O-4H-N165 - Slot RUEGGE 3
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 4938.00usft
<b>Reference Site:</b>	S4-T1N-R65W	<b>MD Reference:</b>	23' KB @ 4938.00usft
<b>Site Error:</b>	0.00usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	RUEGGE 3O-4H-N165	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	PLAN #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S4-T1N-R65W - RUEGGE 3J-4H-N165 - OH - PLAN #1													Offset Site Error: 0.00 usft	
Survey Program: 0-MWD+HDGM													Offset Well Error: 0.00 usft	
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
0.00	0.00	0.00	0.00	0.00	0.00	-98.45	-7.35	-49.46	50.00					
100.00	100.00	100.00	100.00	0.14	0.14	-98.45	-7.35	-49.46	50.00	49.72	0.28	181.144		
200.00	200.00	200.00	200.00	0.50	0.50	-98.45	-7.35	-49.46	50.00	49.01	0.99	50.354		
286.37	286.37	286.38	286.37	0.81	0.79	-99.95	-8.63	-49.23	49.98	48.38	1.60	31.250 CC		
300.00	300.00	300.00	299.98	0.85	0.84	-100.45	-9.07	-49.16	49.99	48.29	1.70	29.487		
400.00	400.00	399.77	399.60	1.21	1.19	-106.41	-14.21	-48.25	50.30	47.91	2.40	20.971 ES		
500.00	499.98	499.13	498.59	1.56	1.55	129.05	-22.72	-46.76	53.09	49.98	3.11	17.088		
600.00	599.84	598.02	596.74	1.91	1.92	121.61	-34.54	-44.69	59.93	56.11	3.83	15.664		
700.00	699.45	703.21	694.36	2.26	2.34	115.99	-49.33	-42.10	70.50	65.91	4.59	15.353 SF		
800.00	798.70	804.05	792.29	2.63	2.76	113.69	-64.66	-39.41	83.14	77.78	5.36	15.511		
900.00	897.47	905.06	890.06	3.02	3.18	113.82	-79.98	-36.72	97.22	91.07	6.15	15.801		
1,000.00	995.62	1,006.34	987.55	3.44	3.60	115.46	-95.25	-34.04	112.76	105.78	6.97	16.168		
1,100.00	1,093.06	1,091.98	1,084.65	3.88	3.96	118.00	-110.46	-31.38	129.99	122.23	7.76	16.752		
1,200.00	1,189.64	1,189.79	1,181.24	4.37	4.38	121.01	-125.58	-28.73	149.21	140.59	8.62	17.308		
1,300.00	1,285.27	1,286.95	1,277.20	4.89	4.79	124.20	-140.61	-26.09	170.72	161.22	9.50	17.967		
1,400.00	1,379.82	1,383.36	1,372.41	5.47	5.20	127.39	-155.53	-23.48	194.80	184.40	10.40	18.732		
1,414.59	1,393.51	1,402.65	1,386.23	5.55	5.28	127.85	-157.69	-23.10	198.53	187.98	10.56	18.809		
1,500.00	1,473.62	1,479.23	1,467.10	6.08	5.61	130.58	-170.36	-20.88	220.83	209.53	11.30	19.541		
1,600.00	1,567.42	1,575.10	1,561.77	6.72	6.02	133.15	-185.18	-18.28	247.42	235.22	12.20	20.283		
1,700.00	1,661.21	1,670.96	1,656.44	7.37	6.43	135.22	-200.01	-15.68	274.38	261.28	13.09	20.955		
1,800.00	1,755.00	1,766.82	1,751.12	8.03	6.84	136.92	-214.84	-13.08	301.62	287.63	13.99	21.561		
1,900.00	1,848.80	1,862.69	1,845.79	8.69	7.25	138.35	-229.67	-10.48	329.06	314.18	14.88	22.109		
2,000.00	1,942.59	1,958.55	1,940.47	9.37	7.66	139.55	-244.50	-7.88	356.67	340.89	15.78	22.606		
2,100.00	2,036.39	2,054.41	2,035.14	10.05	8.07	140.58	-259.32	-5.28	384.40	367.73	16.67	23.056		
2,200.00	2,130.18	2,150.28	2,129.81	10.73	8.48	141.47	-274.15	-2.68	412.23	394.67	17.57	23.467		
2,300.00	2,223.97	2,246.14	2,224.49	11.41	8.89	142.25	-288.98	-0.08	440.14	421.68	18.46	23.842		
2,400.00	2,317.77	2,342.01	2,319.16	12.10	9.30	142.94	-303.81	2.52	468.12	448.77	19.35	24.186		
2,500.00	2,411.56	2,437.87	2,413.84	12.79	9.71	143.55	-318.64	5.12	496.16	475.91	20.25	24.502		
2,600.00	2,505.36	2,533.73	2,508.51	13.49	10.13	144.09	-333.47	7.72	524.23	503.09	21.14	24.794		
2,700.00	2,599.15	2,629.60	2,603.19	14.18	10.54	144.58	-348.29	10.32	552.35	530.32	22.04	25.063		
2,800.00	2,692.94	2,725.46	2,697.86	14.87	10.95	145.03	-363.12	12.92	580.51	557.57	22.93	25.313		
2,900.00	2,786.74	2,821.32	2,792.53	15.57	11.36	145.43	-377.95	15.52	608.69	584.86	23.83	25.545		
3,000.00	2,880.53	2,917.19	2,887.21	16.27	11.77	145.79	-392.78	18.12	636.89	612.17	24.72	25.761		
3,100.00	2,974.32	3,013.05	2,981.88	16.97	12.18	146.13	-407.61	20.72	665.12	639.50	25.62	25.962		
3,200.00	3,068.12	3,108.91	3,076.56	17.67	12.60	146.43	-422.44	23.32	693.37	666.86	26.51	26.151		
3,300.00	3,161.91	3,204.78	3,171.23	18.37	13.01	146.72	-437.26	25.92	721.64	694.23	27.41	26.328		
3,400.00	3,255.71	3,300.64	3,265.90	19.07	13.42	146.98	-452.09	28.52	749.92	721.61	28.31	26.494		
3,500.00	3,349.50	3,403.50	3,360.58	19.77	13.86	147.22	-466.92	31.12	778.21	748.98	29.23	26.622		
3,600.00	3,443.29	3,507.63	3,455.25	20.47	14.31	147.45	-481.75	33.72	806.51	776.35	30.16	26.739		
3,700.00	3,537.09	3,588.23	3,549.93	21.18	14.66	147.66	-496.58	36.32	834.83	803.84	30.99	26.936		
3,800.00	3,630.88	3,684.10	3,644.60	21.88	15.07	147.86	-511.40	38.92	863.15	831.27	31.89	27.067		
3,900.00	3,724.68	3,779.96	3,739.28	22.58	15.48	148.04	-526.23	41.52	891.49	858.70	32.79	27.191		
4,000.00	3,818.47	3,875.82	3,833.95	23.29	15.89	148.21	-541.06	44.12	919.83	886.15	33.68	27.309		
4,100.00	3,912.26	3,971.69	3,928.62	23.99	16.31	148.38	-555.89	46.72	948.18	913.60	34.58	27.421		
4,200.00	4,006.06	4,067.55	4,023.30	24.69	16.72	148.53	-570.72	49.32	976.54	941.06	35.48	27.527		
4,300.00	4,099.85	4,163.41	4,117.97	25.40	17.13	148.67	-585.55	51.92	1,004.90	968.53	36.37	27.628		
4,400.00	4,193.65	4,259.28	4,212.65	26.10	17.54	148.81	-600.37	54.52	1,033.27	996.00	37.27	27.724		
4,500.00	4,287.44	4,355.14	4,307.32	26.81	17.96	148.94	-615.20	57.12	1,061.64	1,023.47	38.17	27.816		
4,600.00	4,381.23	4,451.00	4,401.99	27.51	18.37	149.06	-630.03	59.72	1,090.02	1,050.95	39.06	27.904		
4,700.00	4,475.03	4,546.87	4,496.67	28.22	18.78	149.18	-644.86	62.32	1,118.40	1,078.44	39.96	27.988		
4,800.00	4,568.82	4,642.73	4,591.34	28.93	19.19	149.29	-659.69	64.92	1,146.79	1,105.93	40.86	28.068		
4,900.00	4,662.61	4,738.60	4,686.02	29.63	19.61	149.40	-674.51	67.52	1,175.18	1,133.42	41.76	28.144		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well RUEGGE 3O-4H-N165 - Slot RUEGGE 3
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 4938.00usft
<b>Reference Site:</b>	S4-T1N-R65W	<b>MD Reference:</b>	23' KB @ 4938.00usft
<b>Site Error:</b>	0.00usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	RUEGGE 3O-4H-N165	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	PLAN #1	<b>Offset TVD Reference:</b>	Offset Datum

<b>Offset Design</b> S4-T1N-R65W - RUEGGE 3J-4H-N165 - OH - PLAN #1													<b>Offset Site Error:</b>	0.00 usft
Survey Program: 0-MWD+HDGM													<b>Offset Well Error:</b>	0.00 usft
Reference		Offset		Semi Major Axis		Distance		Total		Separation		Warning		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Uncertainty Axis	Factor		
5,000.00	4,756.41	4,834.46	4,780.69	30.34	20.02	149.50	-689.34	70.12	1,203.57	1,160.92	42.65	28.218		
5,100.00	4,850.20	4,930.32	4,875.37	31.04	20.43	149.59	-704.17	72.72	1,231.97	1,188.42	43.55	28.288		
5,200.00	4,944.00	5,026.19	4,970.04	31.75	20.84	149.68	-719.00	75.32	1,260.37	1,215.92	44.45	28.356		
5,300.00	5,037.79	5,122.05	5,064.71	32.46	21.26	149.77	-733.83	77.92	1,288.77	1,243.42	45.35	28.421		
5,400.00	5,131.58	5,217.91	5,159.39	33.16	21.67	149.85	-748.66	80.52	1,317.17	1,270.93	46.24	28.483		
5,500.00	5,225.38	5,313.78	5,254.06	33.87	22.08	149.93	-763.48	83.12	1,345.58	1,298.44	47.14	28.543		
5,600.00	5,319.17	5,409.64	5,348.74	34.58	22.50	150.01	-778.31	85.72	1,373.99	1,325.95	48.04	28.601		
5,700.00	5,412.97	5,505.50	5,443.41	35.28	22.91	150.08	-793.14	88.32	1,402.40	1,353.46	48.94	28.657		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well RUEGGE 30-4H-N165 - Slot RUEGGE 3
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 4938.00usft
<b>Reference Site:</b>	S4-T1N-R65W	<b>MD Reference:</b>	23' KB @ 4938.00usft
<b>Site Error:</b>	0.00usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	RUEGGE 30-4H-N165	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	PLAN #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S4-T1N-R65W - RUEGGE 3K-4H-N165 - OH - PLAN #1													Offset Site Error: 0.00 usft	
Survey Program: 0-MWD+HDGM													Offset Well Error: 0.00 usft	
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
0.00	0.00	0.00	0.00	0.00	0.00	-98.45	-5.88	-39.57	40.00					
100.00	100.00	100.00	100.00	0.14	0.14	-98.45	-5.88	-39.57	40.00	39.72	0.28	144.916		
200.00	200.00	200.15	200.15	0.50	0.49	-99.07	-6.29	-39.41	39.90	38.92	0.99	40.466		
300.00	300.00	300.33	300.26	0.85	0.84	-104.07	-9.55	-38.13	39.31	37.62	1.69	23.237		
375.95	375.95	376.18	375.95	1.13	1.12	-111.34	-14.19	-36.32	38.99	36.75	2.24	17.418 CC		
400.00	400.00	400.14	399.83	1.21	1.20	-114.27	-16.05	-35.59	39.04	36.63	2.41	16.189 ES		
500.00	499.98	499.49	498.62	1.56	1.57	116.69	-25.71	-31.82	41.68	38.55	3.13	13.303		
600.00	599.84	598.36	596.54	1.91	1.97	106.29	-38.49	-26.82	48.54	44.68	3.86	12.568 SF		
700.00	699.45	702.68	694.10	2.26	2.40	99.54	-53.90	-20.80	58.67	54.04	4.63	12.673		
800.00	798.70	803.34	791.99	2.63	2.83	97.37	-69.64	-14.65	69.90	64.50	5.40	12.935		
900.00	897.47	904.04	889.84	3.02	3.26	98.19	-85.37	-8.50	81.62	75.41	6.21	13.146		
1,000.00	995.62	1,004.91	987.53	3.44	3.70	100.84	-101.08	-2.36	93.97	86.92	7.05	13.327		
1,100.00	1,093.06	1,106.06	1,084.93	3.88	4.14	104.62	-116.75	3.76	107.33	99.40	7.93	13.531		
1,200.00	1,189.64	1,207.62	1,181.94	4.37	4.58	109.03	-132.35	9.86	122.20	113.35	8.85	13.808		
1,300.00	1,285.27	1,309.70	1,278.43	4.89	5.03	113.70	-147.86	15.93	139.07	129.27	9.80	14.193		
1,400.00	1,379.82	1,387.57	1,374.29	5.47	5.37	118.35	-163.28	21.95	158.36	147.70	10.66	14.854		
1,414.59	1,393.51	1,401.70	1,388.21	5.55	5.43	119.02	-165.52	22.82	161.40	150.60	10.80	14.942		
1,500.00	1,473.62	1,484.38	1,469.68	6.08	5.79	122.80	-178.62	27.94	179.75	168.14	11.61	15.484		
1,600.00	1,567.42	1,581.18	1,565.07	6.72	6.22	126.36	-193.96	33.94	202.01	189.46	12.55	16.102		
1,700.00	1,661.21	1,677.98	1,660.46	7.37	6.64	129.20	-209.30	39.93	224.87	211.39	13.48	16.687		
1,800.00	1,755.00	1,774.77	1,755.84	8.03	7.07	131.53	-224.63	45.93	248.16	233.76	14.40	17.232		
1,900.00	1,848.80	1,871.57	1,851.23	8.69	7.50	133.45	-239.97	51.92	271.77	256.45	15.32	17.737		
2,000.00	1,942.59	1,968.37	1,946.62	9.37	7.92	135.07	-255.31	57.92	295.63	279.39	16.24	18.202		
2,100.00	2,036.39	2,065.17	2,042.01	10.05	8.35	136.44	-270.65	63.91	319.68	302.52	17.16	18.631		
2,200.00	2,130.18	2,161.97	2,137.40	10.73	8.78	137.63	-285.99	69.91	343.87	325.80	18.07	19.025		
2,300.00	2,223.97	2,258.77	2,232.78	11.41	9.20	138.66	-301.33	75.90	368.19	349.20	18.99	19.389		
2,400.00	2,317.77	2,355.57	2,328.17	12.10	9.63	139.56	-316.67	81.90	392.61	372.70	19.90	19.724		
2,500.00	2,411.56	2,452.37	2,423.56	12.79	10.06	140.35	-332.01	87.89	417.11	396.29	20.82	20.035		
2,600.00	2,505.36	2,549.17	2,518.95	13.49	10.49	141.06	-347.35	93.89	441.67	419.94	21.73	20.323		
2,700.00	2,599.15	2,645.97	2,614.33	14.18	10.91	141.69	-362.68	99.88	466.29	443.65	22.65	20.590		
2,800.00	2,692.94	2,742.76	2,709.72	14.87	11.34	142.26	-378.02	105.88	490.97	467.40	23.56	20.839		
2,900.00	2,786.74	2,839.56	2,805.11	15.57	11.77	142.78	-393.36	111.87	515.68	491.20	24.47	21.070		
3,000.00	2,880.53	2,936.36	2,900.50	16.27	12.20	143.25	-408.70	117.87	540.42	515.04	25.39	21.287		
3,100.00	2,974.32	3,033.16	2,995.89	16.97	12.62	143.68	-424.04	123.86	565.20	538.90	26.30	21.490		
3,200.00	3,068.12	3,129.96	3,091.27	17.67	13.05	144.07	-439.38	129.86	590.01	562.79	27.21	21.680		
3,300.00	3,161.91	3,226.76	3,186.66	18.37	13.48	144.43	-454.72	135.85	614.84	586.71	28.13	21.858		
3,400.00	3,255.71	3,323.56	3,282.05	19.07	13.91	144.76	-470.06	141.85	639.69	610.65	29.04	22.026		
3,500.00	3,349.50	3,420.36	3,377.44	19.77	14.33	145.07	-485.40	147.84	664.56	634.60	29.96	22.185		
3,600.00	3,443.29	3,517.16	3,472.82	20.47	14.76	145.35	-500.74	153.84	689.44	658.57	30.87	22.334		
3,700.00	3,537.09	3,613.96	3,568.21	21.18	15.19	145.62	-516.07	159.83	714.34	682.56	31.78	22.476		
3,800.00	3,630.88	3,710.75	3,663.60	21.88	15.62	145.86	-531.41	165.83	739.26	706.56	32.70	22.609		
3,900.00	3,724.68	3,807.55	3,758.99	22.58	16.05	146.10	-546.75	171.82	764.18	730.57	33.61	22.736		
4,000.00	3,818.47	3,904.35	3,854.38	23.29	16.47	146.31	-562.09	177.82	789.12	754.60	34.53	22.856		
4,100.00	3,912.26	4,001.15	3,949.76	23.99	16.90	146.52	-577.43	183.81	814.07	778.63	35.44	22.971		
4,200.00	4,006.06	4,097.95	4,045.15	24.69	17.33	146.71	-592.77	189.81	839.02	802.67	36.35	23.080		
4,300.00	4,099.85	4,205.25	4,140.54	25.40	17.80	146.89	-608.11	195.80	863.99	826.67	37.31	23.155		
4,400.00	4,193.65	4,308.45	4,235.93	26.10	18.26	147.06	-623.45	201.80	888.96	850.70	38.26	23.237		
4,500.00	4,287.44	4,388.35	4,331.31	26.81	18.61	147.22	-638.79	207.79	913.94	874.84	39.10	23.377		
4,600.00	4,381.23	4,485.15	4,426.70	27.51	19.04	147.37	-654.13	213.79	938.92	898.91	40.01	23.467		
4,700.00	4,475.03	4,581.95	4,522.09	28.22	19.47	147.52	-669.46	219.78	963.92	922.99	40.93	23.553		
4,800.00	4,568.82	4,678.74	4,617.48	28.93	19.90	147.65	-684.80	225.78	988.91	947.07	41.84	23.636		
4,900.00	4,662.61	4,775.54	4,712.87	29.63	20.32	147.78	-700.14	231.77	1,013.91	971.16	42.75	23.715		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well RUEGGE 3O-4H-N165 - Slot RUEGGE 3
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 4938.00usft
<b>Reference Site:</b>	S4-T1N-R65W	<b>MD Reference:</b>	23' KB @ 4938.00usft
<b>Site Error:</b>	0.00usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	RUEGGE 3O-4H-N165	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	PLAN #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S4-T1N-R65W - RUEGGE 3K-4H-N165 - OH - PLAN #1													Offset Site Error: 0.00 usft	
Survey Program: 0-MWD+HDGM													Offset Well Error: 0.00 usft	
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
5,000.00	4,756.41	4,872.34	4,808.25	30.34	20.75	147.91	-715.48	237.77	1,038.92	995.25	43.67	23.790		
5,100.00	4,850.20	4,969.14	4,903.64	31.04	21.18	148.02	-730.82	243.76	1,063.93	1,019.35	44.58	23.863		
5,200.00	4,944.00	5,065.94	4,999.03	31.75	21.61	148.14	-746.16	249.76	1,088.95	1,043.45	45.50	23.933		
5,300.00	5,037.79	5,162.74	5,094.42	32.46	22.04	148.25	-761.50	255.75	1,113.96	1,067.55	46.41	24.000		
5,400.00	5,131.58	5,259.54	5,189.80	33.16	22.47	148.35	-776.84	261.75	1,138.99	1,091.66	47.33	24.065		
5,500.00	5,225.38	5,356.34	5,285.19	33.87	22.89	148.45	-792.18	267.74	1,164.01	1,115.77	48.24	24.127		
5,600.00	5,319.17	5,453.14	5,380.58	34.58	23.32	148.54	-807.52	273.74	1,189.04	1,139.88	49.16	24.187		
5,700.00	5,412.97	5,549.94	5,475.97	35.28	23.75	148.63	-822.85	279.73	1,214.07	1,164.00	50.08	24.245		
5,800.00	5,506.76	5,646.73	5,571.35	35.99	24.18	148.72	-838.19	285.73	1,239.11	1,188.12	50.99	24.301		
5,900.00	5,600.55	5,743.53	5,666.74	36.70	24.61	148.80	-853.53	291.72	1,264.14	1,212.24	51.91	24.354		
6,000.00	5,694.35	5,840.33	5,762.13	37.40	25.03	148.88	-868.87	297.72	1,289.18	1,236.36	52.82	24.406		
6,100.00	5,788.14	5,937.13	5,857.52	38.11	25.46	148.96	-884.21	303.71	1,314.22	1,260.49	53.74	24.457		
6,200.00	5,881.94	6,033.93	5,952.91	38.82	25.89	149.03	-899.55	309.70	1,339.27	1,284.61	54.65	24.505		
6,300.00	5,975.73	6,130.73	6,048.29	39.53	26.32	149.11	-914.89	315.70	1,364.31	1,308.74	55.57	24.552		
6,400.00	6,069.52	6,227.53	6,143.68	40.23	26.75	149.17	-930.23	321.69	1,389.36	1,332.88	56.48	24.597		
6,500.00	6,163.32	6,324.33	6,239.07	40.94	27.17	149.24	-945.57	327.69	1,414.41	1,357.01	57.40	24.641		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well RUEGGE 3O-4H-N165 - Slot RUEGGE 3
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 4938.00usft
<b>Reference Site:</b>	S4-T1N-R65W	<b>MD Reference:</b>	23' KB @ 4938.00usft
<b>Site Error:</b>	0.00usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	RUEGGE 3O-4H-N165	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	PLAN #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S4-T1N-R65W - RUEGGE 3L-4H-N165 - OH - PLAN #1												Offset Site Error:	0.00 usft
Survey Program: O-MWD+HDGM												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	-98.45	-4.41	-29.67	30.00	29.72	0.28	108.688	
100.00	100.00	100.00	100.00	0.14	0.14	-98.45	-4.41	-29.67	30.00	29.72	0.28	108.688	
200.00	200.00	200.28	200.28	0.50	0.49	-99.16	-4.74	-29.38	29.76	28.78	0.99	30.128	
300.00	300.00	300.72	300.65	0.85	0.84	-105.26	-7.38	-27.05	28.04	26.35	1.70	16.528	
400.00	400.00	400.79	400.47	1.21	1.21	-119.40	-12.63	-22.41	25.72	23.31	2.42	10.641	
443.11	443.11	443.79	443.27	1.36	1.37	115.67	-15.68	-19.70	25.32	22.60	2.73	9.280 CC, ES	
500.00	499.98	500.43	499.56	1.56	1.58	104.42	-20.45	-15.49	26.04	22.90	3.14	8.291	
600.00	599.84	599.72	597.87	1.91	1.97	87.72	-30.80	-6.34	30.48	26.61	3.87	7.878	
700.00	699.45	698.64	695.29	2.26	2.39	76.79	-43.64	5.02	37.97	33.37	4.61	8.244	
800.00	798.70	797.49	792.02	2.63	2.83	70.55	-58.87	18.49	47.37	42.01	5.36	8.835	
900.00	897.47	897.07	889.30	3.02	3.29	68.99	-74.83	32.59	56.38	50.22	6.16	9.157	
1,000.00	995.62	1,003.26	986.66	3.44	3.79	70.74	-90.79	46.71	64.20	57.17	7.03	9.131	
1,100.00	1,093.06	1,096.37	1,084.00	3.88	4.23	74.77	-106.75	60.83	71.09	63.17	7.91	8.985	
1,200.00	1,189.64	1,204.14	1,181.18	4.37	4.75	80.57	-122.69	74.92	77.64	68.71	8.93	8.693	
1,300.00	1,285.27	1,304.93	1,278.09	4.89	5.23	87.71	-138.58	88.97	84.70	74.70	9.99	8.475	
1,400.00	1,379.82	1,406.12	1,374.62	5.47	5.72	95.73	-154.41	102.97	93.20	82.09	11.11	8.390	
1,414.59	1,393.51	1,408.25	1,388.66	5.55	5.73	96.94	-156.71	105.01	94.62	83.41	11.21	8.438	
1,500.00	1,473.62	1,507.62	1,470.84	6.08	6.21	103.60	-170.19	116.92	103.79	91.57	12.22	8.492	
1,600.00	1,567.42	1,590.88	1,567.06	6.72	6.61	109.98	-185.97	130.88	116.00	102.79	13.21	8.782	
1,700.00	1,661.21	1,689.38	1,663.28	7.37	7.09	115.10	-201.75	144.83	129.37	115.13	14.23	9.089	
1,800.00	1,755.00	1,787.88	1,759.50	8.03	7.57	119.26	-217.53	158.78	143.57	128.33	15.23	9.425	
1,900.00	1,848.80	1,886.38	1,855.72	8.69	8.05	122.65	-233.31	172.74	158.38	142.16	16.21	9.768	
2,000.00	1,942.59	1,984.87	1,951.94	9.37	8.53	125.46	-249.09	186.69	173.64	156.46	17.18	10.105	
2,100.00	2,036.39	2,083.37	2,048.16	10.05	9.00	127.82	-264.86	200.64	189.25	171.10	18.14	10.430	
2,200.00	2,130.18	2,181.87	2,144.38	10.73	9.48	129.81	-280.64	214.59	205.12	186.02	19.10	10.739	
2,300.00	2,223.97	2,280.37	2,240.60	11.41	9.96	131.52	-296.42	228.55	221.20	201.15	20.05	11.031	
2,400.00	2,317.77	2,378.87	2,336.82	12.10	10.44	133.00	-312.20	242.50	237.45	216.45	21.00	11.305	
2,500.00	2,411.56	2,477.37	2,433.04	12.79	10.92	134.28	-327.98	256.45	253.83	231.88	21.95	11.563	
2,600.00	2,505.36	2,575.87	2,529.26	13.49	11.41	135.41	-343.76	270.41	270.32	247.42	22.90	11.805	
2,700.00	2,599.15	2,674.36	2,625.48	14.18	11.89	136.41	-359.54	284.36	286.91	263.06	23.84	12.032	
2,800.00	2,692.94	2,772.86	2,721.71	14.87	12.37	137.31	-375.31	298.31	303.57	278.77	24.79	12.245	
2,900.00	2,786.74	2,871.36	2,817.93	15.57	12.85	138.10	-391.09	312.26	320.29	294.55	25.74	12.445	
3,000.00	2,880.53	2,969.86	2,914.15	16.27	13.33	138.82	-406.87	326.22	337.07	310.38	26.68	12.633	
3,100.00	2,974.32	3,068.36	3,010.37	16.97	13.81	139.47	-422.65	340.17	353.89	326.26	27.63	12.809	
3,200.00	3,068.12	3,166.86	3,106.59	17.67	14.29	140.07	-438.43	354.12	370.75	342.18	28.57	12.976	
3,300.00	3,161.91	3,265.35	3,202.81	18.37	14.77	140.61	-454.21	368.08	387.65	358.14	29.52	13.133	
3,400.00	3,255.71	3,363.85	3,299.03	19.07	15.25	141.10	-469.99	382.03	404.59	374.12	30.46	13.281	
3,500.00	3,349.50	3,462.35	3,395.25	19.77	15.74	141.56	-485.77	395.98	421.54	390.13	31.41	13.421	
3,600.00	3,443.29	3,560.85	3,491.47	20.47	16.22	141.98	-501.54	409.93	438.52	406.17	32.36	13.553	
3,700.00	3,537.09	3,659.35	3,587.69	21.18	16.70	142.37	-517.32	423.89	455.53	422.23	33.30	13.679	
3,800.00	3,630.88	3,757.85	3,683.91	21.88	17.18	142.73	-533.10	437.84	472.55	438.30	34.25	13.798	
3,900.00	3,724.68	3,856.35	3,780.13	22.58	17.66	143.06	-548.88	451.79	489.59	454.39	35.19	13.911	
4,000.00	3,818.47	3,954.84	3,876.35	23.29	18.14	143.38	-564.66	465.75	506.64	470.50	36.14	14.019	
4,100.00	3,912.26	4,053.34	3,972.57	23.99	18.63	143.67	-580.44	479.70	523.71	486.62	37.09	14.121	
4,200.00	4,006.06	4,151.84	4,068.79	24.69	19.11	143.95	-596.22	493.65	540.79	502.76	38.03	14.219	
4,300.00	4,099.85	4,250.34	4,165.01	25.40	19.59	144.20	-611.99	507.60	557.88	518.90	38.98	14.312	
4,400.00	4,193.65	4,348.84	4,261.23	26.10	20.07	144.45	-627.77	521.56	574.98	535.06	39.93	14.400	
4,500.00	4,287.44	4,447.34	4,357.45	26.81	20.55	144.67	-643.55	535.51	592.10	551.22	40.88	14.485	
4,600.00	4,381.23	4,545.83	4,453.67	27.51	21.04	144.89	-659.33	549.46	609.22	567.39	41.82	14.567	
4,700.00	4,475.03	4,644.33	4,549.89	28.22	21.52	145.09	-675.11	563.42	626.34	583.57	42.77	14.644	
4,800.00	4,568.82	4,742.83	4,646.11	28.93	22.00	145.29	-690.89	577.37	643.48	599.76	43.72	14.719	
4,900.00	4,662.61	4,841.33	4,742.33	29.63	22.48	145.47	-706.67	591.32	660.62	615.95	44.67	14.790	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well RUEGGE 3O-4H-N165 - Slot RUEGGE 3
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 4938.00usft
<b>Reference Site:</b>	S4-T1N-R65W	<b>MD Reference:</b>	23' KB @ 4938.00usft
<b>Site Error:</b>	0.00usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	RUEGGE 3O-4H-N165	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	PLAN #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S4-T1N-R65W - RUEGGE 3L-4H-N165 - OH - PLAN #1												Offset Site Error:	0.00 usft
Survey Program: O-MWD+HDGM												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
5,000.00	4,756.41	4,939.83	4,838.55	30.34	22.96	145.64	-722.45	605.27	677.77	632.16	45.61	14.859	
5,100.00	4,850.20	5,038.33	4,934.77	31.04	23.45	145.81	-738.22	619.23	694.92	648.36	46.56	14.925	
5,200.00	4,944.00	5,136.83	5,030.99	31.75	23.93	145.97	-754.00	633.18	712.08	664.57	47.51	14.988	
5,300.00	5,037.79	5,235.32	5,127.21	32.46	24.41	146.12	-769.78	647.13	729.25	680.79	48.46	15.049	
5,400.00	5,131.58	5,333.82	5,223.43	33.16	24.89	146.26	-785.56	661.09	746.41	697.01	49.41	15.108	
5,500.00	5,225.38	5,432.32	5,319.65	33.87	25.38	146.39	-801.34	675.04	763.59	713.23	50.35	15.164	
5,600.00	5,319.17	5,530.82	5,415.87	34.58	25.86	146.52	-817.12	688.99	780.76	729.46	51.30	15.219	
5,700.00	5,412.97	5,629.32	5,512.09	35.28	26.34	146.65	-832.90	702.94	797.95	745.69	52.25	15.271	
5,800.00	5,506.76	5,727.82	5,608.31	35.99	26.82	146.77	-848.68	716.90	815.13	761.93	53.20	15.322	
5,900.00	5,600.55	5,826.31	5,704.53	36.70	27.30	146.88	-864.45	730.85	832.32	778.17	54.15	15.371	
6,000.00	5,694.35	5,924.81	5,800.75	37.40	27.79	146.99	-880.23	744.80	849.51	794.41	55.10	15.418	
6,100.00	5,788.14	6,023.31	5,896.97	38.11	28.27	147.10	-896.01	758.76	866.70	810.66	56.05	15.464	
6,200.00	5,881.94	6,121.81	5,993.19	38.82	28.75	147.20	-911.79	772.71	883.90	826.90	57.00	15.508	
6,300.00	5,975.73	6,220.31	6,089.41	39.53	29.23	147.30	-927.57	786.66	901.10	843.15	57.94	15.551	
6,400.00	6,069.52	6,318.81	6,185.63	40.23	29.72	147.39	-943.35	800.61	918.30	859.41	58.89	15.593	
6,500.00	6,163.32	6,417.31	6,281.85	40.94	30.20	147.48	-959.13	814.57	935.50	875.66	59.84	15.633	
6,600.00	6,257.11	6,511.14	6,393.94	41.65	30.68	148.09	-969.02	830.91	951.94	891.27	60.67	15.690	
6,700.00	6,350.90	6,604.51	6,501.79	42.36	31.01	149.65	-961.53	846.81	967.14	906.16	60.98	15.861	
6,800.00	6,444.70	6,740.48	6,598.31	43.06	31.21	151.86	-940.25	861.19	982.24	921.34	60.89	16.130	
6,847.81	6,489.54	6,784.24	6,639.45	43.40	31.27	153.03	-926.69	867.37	989.85	929.09	60.76	16.291	
6,850.00	6,491.60	6,786.18	6,641.26	43.42	31.28	153.55	-926.03	867.64	990.21	929.45	60.76	16.298	
6,900.00	6,538.72	6,829.84	6,681.37	43.76	31.32	166.14	-909.89	873.69	998.74	938.15	60.59	16.485	
6,950.00	6,586.11	6,872.36	6,719.41	44.07	31.36	179.79	-891.82	879.46	1,007.85	947.45	60.41	16.685	
7,000.00	6,633.53	6,913.86	6,755.46	44.36	31.39	-166.45	-872.02	884.95	1,017.46	957.24	60.22	16.896	
7,050.00	6,680.75	6,954.46	6,789.56	44.62	31.40	-153.59	-850.63	890.18	1,027.46	967.43	60.03	17.117	
7,100.00	6,727.53	6,994.26	6,821.78	44.85	31.41	-142.29	-827.79	895.14	1,037.76	977.93	59.83	17.345	
7,150.00	6,773.66	7,033.36	6,852.15	45.05	31.41	-132.70	-803.64	899.85	1,048.26	988.62	59.64	17.577	
7,200.00	6,818.91	7,071.83	6,880.72	45.22	31.40	-124.70	-778.27	904.30	1,058.86	999.41	59.45	17.811	
7,250.00	6,863.05	7,109.73	6,907.50	45.37	31.38	-118.01	-751.79	908.50	1,069.48	1,010.22	59.26	18.046	
7,300.00	6,905.88	7,147.13	6,932.54	45.49	31.36	-112.40	-724.29	912.46	1,080.02	1,020.94	59.09	18.279	
7,350.00	6,947.18	7,184.09	6,955.85	45.59	31.34	-107.63	-695.85	916.17	1,090.40	1,031.48	58.92	18.507	
7,400.00	6,986.75	7,220.65	6,977.44	45.67	31.31	-103.56	-666.56	919.64	1,100.53	1,041.77	58.76	18.729	
7,450.00	7,024.39	7,256.86	6,997.34	45.73	31.28	-100.05	-636.49	922.88	1,110.34	1,051.72	58.62	18.943	
7,500.00	7,059.94	7,292.75	7,015.56	45.77	31.24	-97.00	-605.71	925.87	1,119.75	1,061.26	58.49	19.145	
7,550.00	7,093.20	7,328.36	7,032.10	45.79	31.20	-94.35	-574.31	928.62	1,128.69	1,070.31	58.38	19.334	
7,600.00	7,124.03	7,363.72	7,046.97	45.80	31.16	-92.04	-542.33	931.13	1,137.11	1,078.82	58.29	19.508	
7,650.00	7,152.27	7,400.00	7,060.60	45.79	31.12	-90.02	-508.79	933.48	1,144.94	1,086.72	58.22	19.666	
7,700.00	7,177.77	7,433.78	7,071.75	45.77	31.08	-88.29	-476.96	935.44	1,152.14	1,093.94	58.19	19.798	
7,750.00	7,200.43	7,468.54	7,081.67	45.74	31.04	-86.79	-443.70	937.24	1,158.65	1,100.46	58.19	19.911	
7,800.00	7,220.13	7,500.00	7,089.25	45.70	31.01	-85.53	-413.21	938.67	1,164.43	1,106.19	58.25	19.992	
7,850.00	7,236.76	7,537.62	7,096.57	45.65	30.96	-84.44	-376.34	940.13	1,169.44	1,111.16	58.29	20.063	
7,900.00	7,250.26	7,571.98	7,101.58	45.60	30.93	-83.57	-342.37	941.21	1,173.67	1,115.27	58.40	20.098	
7,950.00	7,260.55	7,606.24	7,104.96	45.53	30.89	-82.88	-308.29	942.06	1,177.06	1,118.52	58.54	20.106	
8,000.00	7,267.59	7,640.41	7,106.72	45.47	30.86	-82.38	-274.17	942.67	1,179.62	1,120.88	58.74	20.083	
8,050.00	7,271.34	7,680.96	7,107.00	45.40	30.83	-82.04	-233.63	943.13	1,181.25	1,122.34	58.91	20.052	
8,081.65	7,272.00	7,712.60	7,107.00	45.36	30.81	-81.97	-201.99	943.46	1,181.56	1,122.56	59.00	20.027	
8,100.00	7,272.00	7,730.95	7,107.00	45.33	30.80	-81.97	-183.64	943.65	1,181.56	1,122.49	59.07	20.003	
8,200.00	7,272.00	7,830.95	7,107.00	45.20	30.79	-81.97	-83.65	944.68	1,181.56	1,122.05	59.52	19.852	
8,300.00	7,272.00	7,930.95	7,107.00	45.08	30.87	-81.97	16.35	945.72	1,181.57	1,121.44	60.13	19.652	
8,400.00	7,272.00	8,030.95	7,107.00	44.97	31.05	-81.97	116.34	946.75	1,181.57	1,120.68	60.89	19.406	
8,500.00	7,272.00	8,130.95	7,107.00	44.87	31.37	-81.97	216.34	947.79	1,181.57	1,119.77	61.80	19.120	
8,600.00	7,272.00	8,230.95	7,107.00	44.78	31.82	-81.97	316.33	948.82	1,181.57	1,118.72	62.85	18.799	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well RUEGGE 3O-4H-N165 - Slot RUEGGE 3
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 4938.00usft
<b>Reference Site:</b>	S4-T1N-R65W	<b>MD Reference:</b>	23' KB @ 4938.00usft
<b>Site Error:</b>	0.00usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	RUEGGE 3O-4H-N165	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	PLAN #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S4-T1N-R65W - RUEGGE 3L-4H-N165 - OH - PLAN #1												Offset Site Error: 0.00 usft	
Survey Program: O-MWD+HDGM												Offset Well Error: 0.00 usft	
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	
8,700.00	7,272.00	8,330.95	7,107.00	44.70	32.40	-81.97	416.33	949.86	1,181.57	1,117.53	64.04	18.450	
8,800.00	7,272.00	8,430.95	7,107.00	44.62	33.08	-81.97	516.32	950.89	1,181.57	1,116.22	65.36	18.079	
8,900.00	7,272.00	8,530.95	7,107.00	44.56	33.84	-81.97	616.32	951.93	1,181.57	1,114.78	66.79	17.690	
9,000.00	7,272.00	8,630.95	7,107.00	44.51	34.68	-81.97	716.31	952.96	1,181.57	1,113.23	68.34	17.289	
9,100.00	7,272.00	8,730.95	7,107.00	44.48	35.57	-81.97	816.31	954.00	1,181.58	1,111.58	70.00	16.881	
9,200.00	7,272.00	8,830.95	7,107.00	44.46	36.52	-81.97	916.30	955.03	1,181.58	1,109.83	71.75	16.469	
9,300.00	7,272.00	8,930.95	7,107.00	44.47	37.51	-81.97	1,016.30	956.07	1,181.58	1,107.99	73.59	16.056	
9,400.00	7,272.00	9,030.95	7,107.00	44.52	38.54	-81.97	1,116.29	957.10	1,181.58	1,106.06	75.52	15.646	
9,500.00	7,272.00	9,130.95	7,107.00	44.63	39.60	-81.97	1,216.28	958.14	1,181.58	1,104.06	77.52	15.242	
9,600.00	7,272.00	9,230.95	7,107.00	44.85	40.70	-81.97	1,316.28	959.17	1,181.58	1,101.98	79.60	14.844	
9,700.00	7,272.00	9,330.95	7,107.00	45.24	41.83	-81.97	1,416.27	960.21	1,181.58	1,099.84	81.74	14.455	
9,800.00	7,272.00	9,430.95	7,107.00	45.85	42.99	-81.97	1,516.27	961.24	1,181.58	1,097.63	83.95	14.075	
9,900.00	7,272.00	9,530.95	7,107.00	46.65	44.17	-81.97	1,616.26	962.28	1,181.59	1,095.37	86.21	13.706	
10,000.00	7,272.00	9,630.95	7,107.00	47.61	45.38	-81.97	1,716.26	963.31	1,181.59	1,093.06	88.53	13.347	
10,100.00	7,272.00	9,730.95	7,107.00	48.66	46.61	-81.97	1,816.25	964.35	1,181.59	1,090.70	90.89	13.000	
10,200.00	7,272.00	9,830.95	7,107.00	49.77	47.86	-81.97	1,916.25	965.38	1,181.59	1,088.29	93.30	12.665	
10,300.00	7,272.00	9,930.95	7,107.00	50.93	49.12	-81.97	2,016.24	966.42	1,181.59	1,085.84	95.75	12.341	
10,400.00	7,272.00	10,030.95	7,107.00	52.12	50.40	-81.97	2,116.24	967.45	1,181.59	1,083.36	98.24	12.028	
10,500.00	7,272.00	10,130.95	7,107.00	53.34	51.70	-81.97	2,216.23	968.49	1,181.59	1,080.83	100.76	11.727	
10,600.00	7,272.00	10,230.95	7,107.00	54.58	53.02	-81.97	2,316.23	969.52	1,181.59	1,078.28	103.32	11.437	
10,700.00	7,272.00	10,330.95	7,107.00	55.84	54.34	-81.97	2,416.22	970.56	1,181.60	1,075.69	105.90	11.157	
10,800.00	7,272.00	10,430.95	7,107.00	57.11	55.68	-81.97	2,516.21	971.59	1,181.60	1,073.08	108.52	10.888	
10,900.00	7,272.00	10,530.95	7,107.00	58.41	57.03	-81.97	2,616.21	972.63	1,181.60	1,070.44	111.16	10.630	
11,000.00	7,272.00	10,630.95	7,107.00	59.72	58.39	-81.97	2,716.20	973.66	1,181.60	1,067.77	113.83	10.381	
11,100.00	7,272.00	10,730.95	7,107.00	61.04	59.77	-81.97	2,816.20	974.70	1,181.60	1,065.09	116.51	10.141	
11,200.00	7,272.00	10,830.95	7,107.00	62.37	61.15	-81.97	2,916.19	975.73	1,181.60	1,062.38	119.22	9.911	
11,300.00	7,272.00	10,930.95	7,107.00	63.71	62.54	-81.97	3,016.19	976.77	1,181.60	1,059.65	121.95	9.689	
11,400.00	7,272.00	11,030.95	7,107.00	65.07	63.94	-81.97	3,116.18	977.80	1,181.60	1,056.90	124.70	9.475	
11,500.00	7,272.00	11,130.95	7,107.00	66.43	65.34	-81.97	3,216.18	978.84	1,181.61	1,054.14	127.47	9.270	
11,600.00	7,272.00	11,230.95	7,107.00	67.80	66.76	-81.97	3,316.17	979.87	1,181.61	1,051.36	130.25	9.072	
11,700.00	7,272.00	11,330.95	7,107.00	69.19	68.18	-81.97	3,416.17	980.91	1,181.61	1,048.56	133.05	8.881	
11,800.00	7,272.00	11,430.95	7,107.00	70.57	69.60	-81.97	3,516.16	981.94	1,181.61	1,045.75	135.86	8.697	
11,900.00	7,272.00	11,530.95	7,107.00	71.97	71.04	-81.97	3,616.16	982.98	1,181.61	1,042.93	138.69	8.520	
12,000.00	7,272.00	11,630.95	7,107.00	73.37	72.48	-81.97	3,716.15	984.01	1,181.61	1,040.09	141.52	8.349	
12,100.00	7,272.00	11,730.95	7,107.00	74.78	73.92	-81.97	3,816.15	985.05	1,181.61	1,037.24	144.37	8.184	
12,200.00	7,272.00	11,830.95	7,107.00	76.20	75.37	-81.97	3,916.14	986.08	1,181.61	1,034.38	147.23	8.025	
12,300.00	7,272.00	11,930.95	7,107.00	77.62	76.82	-81.97	4,016.13	987.12	1,181.62	1,031.51	150.11	7.872	
12,400.00	7,272.00	12,030.95	7,107.00	79.05	78.28	-81.97	4,116.13	988.15	1,181.62	1,028.63	152.99	7.724	
12,431.65	7,272.00	12,038.73	7,107.00	79.50	78.40	-81.97	4,123.91	988.23	1,181.86	1,028.62	153.24	7.713 SF	

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well RUEGGE 3O-4H-N165 - Slot RUEGGE 3
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 4938.00usft
<b>Reference Site:</b>	S4-T1N-R65W	<b>MD Reference:</b>	23' KB @ 4938.00usft
<b>Site Error:</b>	0.00usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	RUEGGE 3O-4H-N165	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	PLAN #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S4-T1N-R65W - RUEGGE 3M-4H-N165 - OH - PLAN #1													Offset Site Error: 0.00 usft	
Survey Program: 0-MWD+HDGM													Offset Well Error: 0.00 usft	
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
0.00	0.00	0.00	0.00	0.00	0.00	-98.45	-2.94	-19.78	20.00					
100.00	100.00	100.00	100.00	0.14	0.14	-98.45	-2.94	-19.78	20.00	19.72	0.28	72.460		
200.00	200.00	200.00	200.00	0.50	0.50	-98.45	-2.94	-19.78	20.00	19.01	0.99	20.142		
300.00	300.00	300.00	300.00	0.85	0.85	-98.45	-2.94	-19.78	20.00	18.29	1.71	11.697		
400.00	400.00	400.00	400.00	1.21	1.21	-98.45	-2.94	-19.78	20.00	17.57	2.43	8.241 CC		
500.00	499.98	500.46	500.44	1.56	1.56	144.14	-4.09	-18.45	20.29	17.17	3.12	6.502 ES		
600.00	599.84	600.90	600.74	1.91	1.91	141.51	-7.53	-14.44	21.17	17.37	3.80	5.566		
700.00	699.45	701.32	700.77	2.26	2.26	137.60	-13.25	-7.77	22.74	18.23	4.51	5.043		
800.00	798.70	801.71	800.40	2.63	2.63	132.98	-21.26	1.55	25.07	19.83	5.24	4.785		
900.00	897.47	902.05	899.49	3.02	3.02	128.20	-31.52	13.51	28.26	22.25	6.01	4.704 SF		
1,000.00	995.62	1,002.34	997.91	3.44	3.44	123.67	-44.04	28.08	32.35	25.52	6.83	4.739		
1,100.00	1,093.06	1,102.55	1,095.53	3.88	3.88	119.62	-58.78	45.25	37.37	29.66	7.71	4.847		
1,200.00	1,189.64	1,202.42	1,192.25	4.37	4.35	117.54	-74.98	64.12	43.56	34.91	8.65	5.036		
1,300.00	1,285.27	1,302.09	1,288.76	4.89	4.84	119.35	-91.20	83.02	51.39	41.78	9.61	5.348		
1,400.00	1,379.82	1,401.53	1,385.05	5.47	5.33	123.43	-107.38	101.86	61.12	50.54	10.57	5.781		
1,414.59	1,393.51	1,416.00	1,399.06	5.55	5.40	124.13	-109.74	104.61	62.72	52.01	10.71	5.855		
1,500.00	1,473.62	1,500.75	1,481.12	6.08	5.83	127.89	-123.53	120.67	72.42	60.89	11.52	6.284		
1,600.00	1,567.42	1,599.97	1,577.20	6.72	6.34	131.17	-139.67	139.48	84.07	71.59	12.48	6.738		
1,700.00	1,661.21	1,699.19	1,673.27	7.37	6.85	133.65	-155.82	158.28	95.92	82.49	13.43	7.141		
1,800.00	1,755.00	1,801.59	1,769.35	8.03	7.38	135.58	-171.97	177.09	107.91	93.51	14.40	7.491		
1,900.00	1,848.80	1,902.37	1,865.42	8.69	7.90	137.12	-188.11	195.89	120.00	104.63	15.37	7.806		
2,000.00	1,942.59	2,003.15	1,961.49	9.37	8.43	138.38	-204.26	214.70	132.16	115.82	16.34	8.087		
2,100.00	2,036.39	2,103.93	2,057.57	10.05	8.95	139.43	-220.40	233.51	144.37	127.06	17.31	8.338		
2,200.00	2,130.18	2,204.71	2,153.64	10.73	9.48	140.32	-236.55	252.31	156.62	138.33	18.29	8.564		
2,300.00	2,223.97	2,305.49	2,249.72	11.41	10.01	141.07	-252.70	271.12	168.90	149.64	19.26	8.768		
2,400.00	2,317.77	2,406.27	2,345.79	12.10	10.55	141.73	-268.84	289.92	181.21	160.97	20.24	8.953		
2,500.00	2,411.56	2,507.05	2,441.86	12.79	11.08	142.30	-284.99	308.73	193.54	172.32	21.22	9.121		
2,600.00	2,505.36	2,592.17	2,537.94	13.49	11.53	142.80	-301.14	327.54	205.88	183.76	22.12	9.306		
2,700.00	2,599.15	2,708.61	2,634.01	14.18	12.15	143.24	-317.28	346.34	218.24	195.06	23.18	9.415		
2,800.00	2,692.94	2,809.39	2,730.09	14.87	12.68	143.64	-333.43	365.15	230.61	206.45	24.16	9.545		
2,900.00	2,786.74	2,889.83	2,826.16	15.57	13.11	144.00	-349.57	383.96	242.99	217.95	25.05	9.702		
3,000.00	2,880.53	2,989.05	2,922.24	16.27	13.64	144.32	-365.72	402.76	255.38	229.36	26.02	9.814		
3,100.00	2,974.32	3,088.27	3,018.31	16.97	14.17	144.61	-381.87	421.57	267.78	240.78	27.00	9.919		
3,200.00	3,068.12	3,187.49	3,114.38	17.67	14.69	144.88	-398.01	440.37	280.18	252.20	27.97	10.016		
3,300.00	3,161.91	3,286.71	3,210.46	18.37	15.22	145.12	-414.16	459.18	292.59	263.63	28.95	10.106		
3,400.00	3,255.71	3,385.93	3,306.53	19.07	15.75	145.35	-430.31	477.99	305.00	275.07	29.93	10.190		
3,500.00	3,349.50	3,485.15	3,402.61	19.77	16.28	145.55	-446.45	496.79	317.41	286.51	30.91	10.270		
3,600.00	3,443.29	3,584.37	3,498.68	20.47	16.81	145.75	-462.60	515.60	329.83	297.95	31.89	10.344		
3,700.00	3,537.09	3,683.59	3,594.75	21.18	17.34	145.92	-478.74	534.40	342.26	309.39	32.87	10.414		
3,800.00	3,630.88	3,782.81	3,690.83	21.88	17.87	146.09	-494.89	553.21	354.68	320.84	33.85	10.480		
3,900.00	3,724.68	3,882.03	3,786.90	22.58	18.40	146.24	-511.04	572.02	367.11	332.29	34.83	10.542		
4,000.00	3,818.47	3,981.25	3,882.98	23.29	18.93	146.39	-527.18	590.82	379.55	343.74	35.81	10.600		
4,100.00	3,912.26	4,080.47	3,979.05	23.99	19.46	146.52	-543.33	609.63	391.98	355.19	36.79	10.656		
4,200.00	4,006.06	4,179.69	4,075.12	24.69	19.99	146.65	-559.47	628.43	404.41	366.65	37.77	10.708		
4,300.00	4,099.85	4,278.91	4,171.20	25.40	20.53	146.76	-575.62	647.24	416.85	378.11	38.75	10.758		
4,400.00	4,193.65	4,378.13	4,267.27	26.10	21.06	146.88	-591.77	666.05	429.29	389.56	39.73	10.806		
4,500.00	4,287.44	4,477.35	4,363.35	26.81	21.59	146.98	-607.91	684.85	441.73	401.02	40.71	10.851		
4,600.00	4,381.23	4,576.57	4,459.42	27.51	22.12	147.08	-624.06	703.66	454.17	412.48	41.69	10.894		
4,700.00	4,475.03	4,675.79	4,555.49	28.22	22.65	147.18	-640.21	722.46	466.62	423.95	42.67	10.935		
4,800.00	4,568.82	4,775.01	4,651.57	28.93	23.18	147.27	-656.35	741.27	479.06	435.41	43.65	10.974		
4,900.00	4,662.61	4,874.23	4,747.64	29.63	23.71	147.35	-672.50	760.08	491.51	446.87	44.64	11.011		
5,000.00	4,756.41	4,973.45	4,843.72	30.34	24.25	147.43	-688.64	778.88	503.96	458.34	45.62	11.047		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well RUEGGE 3O-4H-N165 - Slot RUEGGE 3
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 4938.00usft
<b>Reference Site:</b>	S4-T1N-R65W	<b>MD Reference:</b>	23' KB @ 4938.00usft
<b>Site Error:</b>	0.00usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	RUEGGE 3O-4H-N165	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	PLAN #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S4-T1N-R65W - RUEGGE 3M-4H-N165 - OH - PLAN #1												Offset Site Error:	0.00 usft
Survey Program: O-MWD+HDGM												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
5,100.00	4,850.20	5,072.67	4,939.79	31.04	24.78	147.51	-704.79	797.69	516.40	469.80	46.60	11.081	
5,200.00	4,944.00	5,171.89	5,035.86	31.75	25.31	147.58	-720.94	816.49	528.85	481.27	47.58	11.114	
5,300.00	5,037.79	5,271.11	5,131.94	32.46	25.84	147.65	-737.08	835.30	541.30	492.73	48.57	11.146	
5,400.00	5,131.58	5,370.33	5,228.01	33.16	26.37	147.72	-753.23	854.11	553.75	504.20	49.55	11.176	
5,500.00	5,225.38	5,469.55	5,324.09	33.87	26.91	147.78	-769.37	872.91	566.20	515.67	50.53	11.205	
5,600.00	5,319.17	5,568.77	5,420.16	34.58	27.44	147.84	-785.52	891.72	578.65	527.14	51.51	11.233	
5,700.00	5,412.97	5,667.99	5,516.24	35.28	27.97	147.90	-801.67	910.53	591.10	538.61	52.50	11.260	
5,800.00	5,506.76	5,767.21	5,612.31	35.99	28.50	147.96	-817.81	929.33	603.56	550.08	53.48	11.286	
5,900.00	5,600.55	5,866.43	5,708.38	36.70	29.03	148.01	-833.96	948.14	616.01	561.55	54.46	11.311	
6,000.00	5,694.35	5,965.65	5,804.46	37.40	29.57	148.06	-850.11	966.94	628.46	573.02	55.45	11.335	
6,100.00	5,788.14	6,064.87	5,900.53	38.11	30.10	148.11	-866.25	985.75	640.92	584.49	56.43	11.358	
6,200.00	5,881.94	6,164.09	5,996.61	38.82	30.63	148.16	-882.40	1,004.56	653.37	595.96	57.41	11.380	
6,300.00	5,975.73	6,263.31	6,092.68	39.53	31.16	148.21	-898.54	1,023.36	665.83	607.43	58.40	11.402	
6,400.00	6,069.52	6,362.53	6,188.75	40.23	31.70	148.25	-914.69	1,042.17	678.28	618.90	59.38	11.423	
6,500.00	6,163.32	6,461.75	6,284.83	40.94	32.23	148.29	-930.84	1,060.97	690.74	630.38	60.36	11.443	
6,600.00	6,257.11	6,560.97	6,380.90	41.65	32.76	148.33	-946.98	1,079.78	703.20	641.85	61.35	11.463	
6,700.00	6,350.90	6,662.66	6,479.43	42.36	33.30	148.41	-963.14	1,099.07	715.62	653.28	62.33	11.481	
6,800.00	6,444.70	6,772.09	6,586.54	43.06	33.79	149.39	-969.04	1,120.16	727.03	664.11	62.92	11.555	
6,847.81	6,489.54	6,822.67	6,636.06	43.40	33.97	150.27	-966.12	1,129.97	732.14	669.16	62.98	11.626	
6,850.00	6,491.60	6,824.95	6,638.29	43.42	33.98	150.77	-965.91	1,130.41	732.37	669.39	62.97	11.630	
6,900.00	6,538.72	6,876.47	6,688.36	43.76	34.13	162.91	-959.12	1,140.37	737.81	674.87	62.94	11.723	
6,950.00	6,586.11	6,927.04	6,736.92	44.07	34.25	176.12	-948.90	1,150.07	743.50	680.65	62.85	11.830	
7,000.00	6,633.53	6,976.72	6,783.81	44.36	34.35	-170.54	-935.49	1,159.47	749.40	686.67	62.73	11.946	
7,050.00	6,680.75	7,025.56	6,828.91	44.62	34.43	-158.08	-919.10	1,168.54	755.48	692.89	62.60	12.069	
7,100.00	6,727.53	7,073.62	6,872.10	44.85	34.49	-147.17	-899.96	1,177.27	761.70	699.26	62.45	12.197	
7,150.00	6,773.66	7,120.94	6,913.31	45.05	34.53	-137.96	-878.26	1,185.63	768.02	705.73	62.30	12.329	
7,200.00	6,818.91	7,167.58	6,952.45	45.22	34.56	-130.30	-854.20	1,193.61	774.40	712.25	62.14	12.461	
7,250.00	6,863.05	7,213.58	6,989.46	45.37	34.57	-123.95	-827.98	1,201.19	780.77	718.78	62.00	12.593	
7,300.00	6,905.88	7,258.99	7,024.31	45.49	34.57	-118.65	-799.77	1,208.37	787.12	725.25	61.86	12.724	
7,350.00	6,947.18	7,303.85	7,056.93	45.59	34.56	-114.18	-769.74	1,215.12	793.37	731.64	61.73	12.851	
7,400.00	6,986.75	7,348.20	7,087.31	45.67	34.54	-110.37	-738.05	1,221.45	799.50	737.88	61.62	12.974	
7,450.00	7,024.39	7,392.09	7,115.41	45.73	34.51	-107.09	-704.87	1,227.34	805.45	743.93	61.52	13.092	
7,500.00	7,059.94	7,435.55	7,141.22	45.77	34.47	-104.26	-670.35	1,232.80	811.19	749.75	61.44	13.203	
7,550.00	7,093.20	7,478.61	7,164.72	45.79	34.42	-101.80	-634.62	1,237.81	816.66	755.29	61.38	13.306	
7,600.00	7,124.03	7,521.31	7,185.90	45.80	34.37	-99.65	-597.83	1,242.37	821.84	760.51	61.33	13.400	
7,650.00	7,152.27	7,563.67	7,204.74	45.79	34.32	-97.78	-560.12	1,246.48	826.68	765.37	61.31	13.483	
7,700.00	7,177.77	7,605.74	7,221.26	45.77	34.26	-96.15	-521.61	1,250.14	831.15	769.84	61.32	13.555	
7,750.00	7,200.43	7,647.53	7,235.44	45.74	34.20	-94.74	-482.44	1,253.35	835.23	773.88	61.35	13.615	
7,800.00	7,220.13	7,689.07	7,247.28	45.70	34.13	-93.53	-442.72	1,256.10	838.87	777.46	61.41	13.661	
7,850.00	7,236.76	7,730.38	7,256.81	45.65	34.06	-92.50	-402.59	1,258.40	842.05	780.55	61.50	13.692	
7,900.00	7,250.26	7,771.50	7,264.01	45.60	34.00	-91.65	-362.16	1,260.24	844.75	783.13	61.62	13.708	
7,950.00	7,260.55	7,812.44	7,268.91	45.53	33.93	-90.97	-321.54	1,261.63	846.96	785.17	61.79	13.708	
8,000.00	7,267.59	7,853.23	7,271.52	45.47	33.86	-90.44	-280.85	1,262.56	848.64	786.66	61.98	13.692	
8,050.00	7,271.34	7,902.84	7,272.00	45.40	33.78	-90.08	-236.94	1,263.11	849.77	787.59	62.18	13.666	
8,081.65	7,272.00	7,928.79	7,272.00	45.36	33.74	-90.00	-205.30	1,263.44	849.99	787.71	62.28	13.648	
8,100.00	7,272.00	7,947.15	7,272.00	45.33	33.71	-90.00	-186.95	1,263.63	849.99	787.64	62.35	13.632	
8,200.00	7,272.00	8,047.15	7,272.00	45.20	33.57	-90.00	-86.95	1,264.66	849.99	787.15	62.84	13.526	
8,300.00	7,272.00	8,147.15	7,272.00	45.08	33.46	-90.00	13.04	1,265.70	849.99	786.51	63.48	13.390	
8,400.00	7,272.00	8,247.15	7,272.00	44.97	33.38	-90.00	113.03	1,266.73	849.99	785.73	64.27	13.226	
8,500.00	7,272.00	8,347.15	7,272.00	44.87	33.33	-90.00	213.03	1,267.77	849.99	784.80	65.20	13.037	
8,600.00	7,272.00	8,447.15	7,272.00	44.78	33.35	-90.00	313.02	1,268.80	849.99	783.73	66.26	12.828	
8,700.00	7,272.00	8,547.15	7,272.00	44.70	33.52	-90.00	413.02	1,269.84	850.00	782.54	67.46	12.600	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well RUEGGE 3O-4H-N165 - Slot RUEGGE 3
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 4938.00usft
<b>Reference Site:</b>	S4-T1N-R65W	<b>MD Reference:</b>	23' KB @ 4938.00usft
<b>Site Error:</b>	0.00usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	RUEGGE 3O-4H-N165	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	PLAN #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S4-T1N-R65W - RUEGGE 3M-4H-N165 - OH - PLAN #1													Offset Site Error:	0.00 usft
Survey Program: O-MWD+HDGM													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
8,800.00	7,272.00	8,647.15	7,272.00	44.62	33.92	-90.00	513.01	1,270.88	850.00	781.22	68.78	12.358		
8,900.00	7,272.00	8,747.15	7,272.00	44.56	34.55	-90.00	613.01	1,271.91	850.00	779.78	70.22	12.105		
9,000.00	7,272.00	8,847.15	7,272.00	44.51	35.32	-90.00	713.00	1,272.95	850.00	778.24	71.76	11.845		
9,100.00	7,272.00	8,947.15	7,272.00	44.48	36.19	-90.00	813.00	1,273.98	850.00	776.59	73.41	11.579		
9,200.00	7,272.00	9,047.15	7,272.00	44.46	37.11	-90.00	912.99	1,275.02	850.00	774.85	75.15	11.310		
9,300.00	7,272.00	9,147.15	7,272.00	44.47	38.09	-90.00	1,012.99	1,276.05	850.00	773.01	76.99	11.041		
9,400.00	7,272.00	9,247.15	7,272.00	44.52	39.11	-90.00	1,112.98	1,277.09	850.00	771.10	78.90	10.773		
9,500.00	7,272.00	9,347.15	7,272.00	44.63	40.16	-90.00	1,212.98	1,278.12	850.00	769.10	80.90	10.507		
9,600.00	7,272.00	9,447.15	7,272.00	44.85	41.25	-90.00	1,312.97	1,279.16	850.00	767.04	82.96	10.246		
9,700.00	7,272.00	9,547.15	7,272.00	45.24	42.37	-90.00	1,412.97	1,280.19	850.00	764.91	85.09	9.989		
9,800.00	7,272.00	9,647.15	7,272.00	45.85	43.51	-90.00	1,512.96	1,281.23	850.01	762.72	87.29	9.738		
9,900.00	7,272.00	9,747.15	7,272.00	46.65	44.68	-90.00	1,612.95	1,282.26	850.01	760.47	89.54	9.493		
10,000.00	7,272.00	9,847.15	7,272.00	47.61	45.87	-90.00	1,712.95	1,283.30	850.01	758.17	91.84	9.255		
10,100.00	7,272.00	9,947.15	7,272.00	48.66	47.09	-90.00	1,812.94	1,284.33	850.01	755.82	94.19	9.024		
10,200.00	7,272.00	10,047.15	7,272.00	49.77	48.32	-90.00	1,912.94	1,285.37	850.01	753.42	96.59	8.800		
10,300.00	7,272.00	10,147.15	7,272.00	50.93	49.57	-90.00	2,012.93	1,286.40	850.01	750.98	99.03	8.583		
10,400.00	7,272.00	10,247.15	7,272.00	52.12	50.84	-90.00	2,112.93	1,287.44	850.01	748.50	101.51	8.374		
10,500.00	7,272.00	10,347.15	7,272.00	53.34	52.12	-90.00	2,212.92	1,288.48	850.01	745.99	104.02	8.171		
10,600.00	7,272.00	10,447.15	7,272.00	54.58	53.42	-90.00	2,312.92	1,289.51	850.01	743.44	106.57	7.976		
10,700.00	7,272.00	10,547.15	7,272.00	55.84	54.74	-90.00	2,412.91	1,290.55	850.01	740.86	109.15	7.788		
10,800.00	7,272.00	10,647.15	7,272.00	57.11	56.06	-90.00	2,512.91	1,291.58	850.01	738.26	111.76	7.606		
10,900.00	7,272.00	10,747.15	7,272.00	58.41	57.40	-90.00	2,612.90	1,292.62	850.02	735.62	114.39	7.431		
11,000.00	7,272.00	10,847.15	7,272.00	59.72	58.75	-90.00	2,712.90	1,293.65	850.02	732.96	117.06	7.262		
11,100.00	7,272.00	10,947.15	7,272.00	61.04	60.11	-90.00	2,812.89	1,294.69	850.02	730.28	119.74	7.099		
11,200.00	7,272.00	11,047.15	7,272.00	62.37	61.48	-90.00	2,912.88	1,295.72	850.02	727.57	122.45	6.942		
11,300.00	7,272.00	11,147.15	7,272.00	63.71	62.86	-90.00	3,012.88	1,296.76	850.02	724.84	125.18	6.791		
11,400.00	7,272.00	11,247.15	7,272.00	65.07	64.25	-90.00	3,112.87	1,297.79	850.02	722.10	127.92	6.645		
11,500.00	7,272.00	11,347.15	7,272.00	66.43	65.64	-90.00	3,212.87	1,298.83	850.02	719.33	130.69	6.504		
11,600.00	7,272.00	11,447.15	7,272.00	67.80	67.04	-90.00	3,312.86	1,299.86	850.02	716.55	133.47	6.369		
11,700.00	7,272.00	11,547.15	7,272.00	69.19	68.45	-90.00	3,412.86	1,300.90	850.02	713.75	136.27	6.238		
11,800.00	7,272.00	11,647.15	7,272.00	70.57	69.87	-90.00	3,512.85	1,301.93	850.02	710.94	139.08	6.112		
11,900.00	7,272.00	11,747.15	7,272.00	71.97	71.29	-90.00	3,612.85	1,302.97	850.02	708.11	141.91	5.990		
12,000.00	7,272.00	11,847.15	7,272.00	73.37	72.72	-90.00	3,712.84	1,304.00	850.03	705.28	144.75	5.872		
12,100.00	7,272.00	11,947.15	7,272.00	74.78	74.16	-90.00	3,812.84	1,305.04	850.03	702.42	147.60	5.759		
12,200.00	7,272.00	12,047.15	7,272.00	76.20	75.60	-90.00	3,912.83	1,306.08	850.03	699.56	150.47	5.649		
12,300.00	7,272.00	12,147.15	7,272.00	77.62	77.04	-90.00	4,012.83	1,307.11	850.03	696.68	153.34	5.543		
12,400.00	7,272.00	12,247.15	7,272.00	79.05	78.49	-90.00	4,112.82	1,308.15	850.03	693.80	156.23	5.441		
12,400.18	7,272.00	12,247.33	7,272.00	79.05	78.50	-90.00	4,113.00	1,308.15	850.03	693.79	156.24	5.441		
12,431.65	7,272.00	12,261.45	7,272.00	79.50	78.70	-90.00	4,127.13	1,308.29	850.21	693.68	156.52	5.432		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well RUEGGE 3O-4H-N165 - Slot RUEGGE 3
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 4938.00usft
<b>Reference Site:</b>	S4-T1N-R65W	<b>MD Reference:</b>	23' KB @ 4938.00usft
<b>Site Error:</b>	0.00usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	RUEGGE 3O-4H-N165	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	PLAN #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S4-T1N-R65W - RUEGGE 3N-4H-N165 - OH - PLAN #1												Offset Site Error:	0.00 usft
Survey Program: 0-MWD+HDGM												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	-98.45	-1.47	-9.89	10.00				
100.00	100.00	100.00	100.00	0.14	0.14	-98.45	-1.47	-9.89	10.00	9.72	0.28	36.231	
200.00	200.00	200.13	200.13	0.50	0.49	-100.13	-1.70	-9.52	9.67	8.68	0.99	9.780	
300.00	300.00	300.26	300.19	0.85	0.84	-118.45	-3.54	-6.54	7.44	5.75	1.70	4.383	
359.01	359.01	359.20	359.01	1.07	1.06	-148.22	-5.49	-3.40	6.46	4.34	2.12	3.044 CC, ES	
400.00	400.00	400.03	399.71	1.21	1.21	-175.06	-7.21	-0.62	7.25	4.83	2.42	2.997	
500.00	499.98	499.39	498.52	1.56	1.58	34.28	-12.68	8.20	13.70	10.58	3.12	4.384	
600.00	599.84	598.44	596.61	1.91	1.97	24.28	-19.92	19.88	21.88	18.07	3.82	5.734	
700.00	699.45	697.20	693.88	2.26	2.39	20.36	-28.91	34.40	30.42	25.91	4.51	6.740	
800.00	798.70	795.66	790.21	2.63	2.83	18.62	-39.63	51.69	39.08	33.86	5.22	7.491	
900.00	897.47	893.83	885.50	3.02	3.31	17.87	-52.05	71.73	47.78	41.85	5.93	8.062	
1,000.00	995.62	991.71	979.65	3.44	3.82	17.66	-66.13	94.46	56.50	49.86	6.65	8.503	
1,100.00	1,093.06	1,109.47	1,073.90	3.88	4.49	17.89	-81.78	119.72	64.70	57.22	7.48	8.653	
1,200.00	1,189.64	1,190.38	1,169.03	4.37	4.96	18.91	-97.75	145.50	69.90	61.70	8.20	8.524	
1,300.00	1,285.27	1,290.33	1,264.26	4.89	5.55	20.74	-113.74	171.30	71.85	62.81	9.04	7.952	
1,400.00	1,379.82	1,390.26	1,359.47	5.47	6.15	23.57	-129.72	197.09	70.65	60.73	9.93	7.118	
1,414.59	1,393.51	1,404.82	1,373.35	5.55	6.23	24.09	-132.05	200.85	70.23	60.17	10.06	6.979	
1,500.00	1,473.62	1,509.89	1,454.61	6.08	6.87	27.33	-145.69	222.87	67.66	56.68	10.98	6.162	
1,600.00	1,567.42	1,589.96	1,549.74	6.72	7.35	31.43	-161.66	248.64	64.96	53.01	11.95	5.438	
1,700.00	1,661.21	1,689.81	1,644.88	7.37	7.96	35.85	-177.63	274.41	62.61	49.52	13.09	4.782	
1,800.00	1,755.00	1,789.66	1,740.02	8.03	8.57	40.59	-193.60	300.19	60.66	46.32	14.35	4.228	
1,900.00	1,848.80	1,889.51	1,835.15	8.69	9.19	45.61	-209.57	325.96	59.16	43.45	15.71	3.766	
2,000.00	1,942.59	1,989.36	1,930.29	9.37	9.80	50.84	-225.54	351.74	58.13	40.96	17.18	3.384	
2,100.00	2,036.39	2,089.21	2,025.42	10.05	10.42	56.21	-241.51	377.51	57.61	38.88	18.73	3.076	
2,152.13	2,085.28	2,141.26	2,075.01	10.40	10.74	59.04	-249.84	390.95	57.54	37.98	19.56	2.942	
2,200.00	2,130.18	2,189.06	2,120.56	10.73	11.03	61.64	-257.48	403.29	57.60	37.26	20.33	2.833	
2,300.00	2,223.97	2,288.92	2,215.69	11.41	11.65	67.02	-273.45	429.06	58.10	36.14	21.96	2.645	
2,400.00	2,317.77	2,388.77	2,310.83	12.10	12.27	72.26	-289.42	454.84	59.11	35.52	23.58	2.506	
2,500.00	2,411.56	2,488.62	2,405.96	12.79	12.89	77.29	-305.40	480.61	60.59	35.42	25.17	2.407	
2,600.00	2,505.36	2,588.47	2,501.10	13.49	13.51	82.04	-321.37	506.39	62.52	35.81	26.71	2.341	
2,700.00	2,599.15	2,688.32	2,596.24	14.18	14.13	86.48	-337.34	532.16	64.85	36.67	28.17	2.302	
2,800.00	2,692.94	2,788.17	2,691.37	14.87	14.75	90.59	-353.31	557.94	67.54	37.96	29.58	2.283	
2,900.00	2,786.74	2,888.02	2,786.51	15.57	15.37	94.37	-369.28	583.71	70.55	39.64	30.92	2.282 SF	
3,000.00	2,880.53	2,987.87	2,881.64	16.27	15.99	97.82	-385.25	609.49	73.85	41.65	32.20	2.294	
3,100.00	2,974.32	3,087.72	2,976.78	16.97	16.61	100.97	-401.22	635.26	77.39	43.97	33.42	2.315	
3,200.00	3,068.12	3,187.57	3,071.91	17.67	17.23	103.84	-417.19	661.04	81.14	46.53	34.61	2.345	
3,300.00	3,161.91	3,287.42	3,167.05	18.37	17.85	106.45	-433.16	686.81	85.08	49.33	35.75	2.380	
3,400.00	3,255.71	3,387.27	3,262.19	19.07	18.47	108.82	-449.13	712.59	89.18	52.31	36.87	2.419	
3,500.00	3,349.50	3,487.13	3,357.32	19.77	19.09	110.98	-465.10	738.36	93.42	55.46	37.96	2.461	
3,600.00	3,443.29	3,586.98	3,452.46	20.47	19.72	112.95	-481.07	764.14	97.77	58.74	39.03	2.505	
3,700.00	3,537.09	3,686.83	3,547.59	21.18	20.34	114.76	-497.04	789.91	102.24	62.15	40.09	2.550	
3,800.00	3,630.88	3,786.68	3,642.73	21.88	20.96	116.41	-513.01	815.68	106.80	65.67	41.13	2.597	
3,900.00	3,724.68	3,886.53	3,737.86	22.58	21.58	117.92	-528.98	841.46	111.44	69.27	42.16	2.643	
4,000.00	3,818.47	3,986.38	3,833.00	23.29	22.20	119.31	-544.95	867.23	116.15	72.96	43.19	2.689	
4,100.00	3,912.26	4,086.23	3,928.14	23.99	22.83	120.59	-560.92	893.01	120.92	76.71	44.21	2.735	
4,200.00	4,006.06	4,186.08	4,023.27	24.69	23.45	121.78	-576.89	918.78	125.75	80.53	45.22	2.781	
4,300.00	4,099.85	4,285.93	4,118.41	25.40	24.07	122.88	-592.86	944.56	130.63	84.40	46.23	2.825	
4,400.00	4,193.65	4,385.78	4,213.54	26.10	24.70	123.89	-608.83	970.33	135.55	88.31	47.24	2.869	
4,500.00	4,287.44	4,485.63	4,308.68	26.81	25.32	124.84	-624.81	996.11	140.51	92.27	48.25	2.912	
4,600.00	4,381.23	4,585.48	4,403.81	27.51	25.94	125.72	-640.78	1,021.88	145.51	96.26	49.25	2.954	
4,700.00	4,475.03	4,685.34	4,498.95	28.22	26.56	126.54	-656.75	1,047.66	150.54	100.29	50.26	2.996	
4,800.00	4,568.82	4,785.19	4,594.08	28.93	27.19	127.31	-672.72	1,073.43	155.60	104.34	51.26	3.036	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well RUEGGE 3O-4H-N165 - Slot RUEGGE 3
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 4938.00usft
<b>Reference Site:</b>	S4-T1N-R65W	<b>MD Reference:</b>	23' KB @ 4938.00usft
<b>Site Error:</b>	0.00usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	RUEGGE 3O-4H-N165	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	PLAN #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S4-T1N-R65W - RUEGGE 3N-4H-N165 - OH - PLAN #1												Offset Site Error:	0.00 usft
Survey Program: O-MWD+HDGM												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
4,900.00	4,662.61	4,885.04	4,689.22	29.63	27.81	128.03	-688.69	1,099.21	160.69	108.43	52.26	3.075	
5,000.00	4,756.41	4,984.89	4,784.36	30.34	28.43	128.71	-704.66	1,124.98	165.80	112.53	53.27	3.113	
5,100.00	4,850.20	5,084.74	4,879.49	31.04	29.06	129.34	-720.63	1,150.76	170.93	116.66	54.27	3.150	
5,200.00	4,944.00	5,184.59	4,974.63	31.75	29.68	129.94	-736.60	1,176.53	176.08	120.81	55.27	3.186	
5,300.00	5,037.79	5,284.44	5,069.76	32.46	30.30	130.51	-752.57	1,202.31	181.25	124.97	56.27	3.221	
5,400.00	5,131.58	5,384.29	5,164.90	33.16	30.93	131.04	-768.54	1,228.08	186.43	129.16	57.28	3.255	
5,500.00	5,225.38	5,484.14	5,260.03	33.87	31.55	131.55	-784.51	1,253.86	191.64	133.35	58.28	3.288	
5,600.00	5,319.17	5,583.99	5,355.17	34.58	32.17	132.02	-800.48	1,279.63	196.85	137.56	59.29	3.320	
5,700.00	5,412.97	5,683.84	5,450.31	35.28	32.80	132.48	-816.45	1,305.41	202.08	141.79	60.29	3.352	
5,800.00	5,506.76	5,783.69	5,545.44	35.99	33.42	132.91	-832.42	1,331.18	207.32	146.02	61.30	3.382	
5,900.00	5,600.55	5,883.55	5,640.58	36.70	34.05	133.32	-848.39	1,356.95	212.57	150.26	62.31	3.412	
6,000.00	5,694.35	5,983.40	5,735.71	37.40	34.67	133.71	-864.36	1,382.73	217.83	154.52	63.31	3.441	
6,100.00	5,788.14	6,083.25	5,830.85	38.11	35.29	134.08	-880.33	1,408.50	223.10	158.78	64.32	3.469	
6,200.00	5,881.94	6,183.10	5,925.98	38.82	35.92	134.43	-896.30	1,434.28	228.38	163.05	65.33	3.496	
6,300.00	5,975.73	6,282.95	6,021.12	39.53	36.54	134.77	-912.27	1,460.05	233.67	167.33	66.34	3.522	
6,400.00	6,069.52	6,382.80	6,116.26	40.23	37.16	135.09	-928.24	1,485.83	238.96	171.62	67.35	3.548	
6,500.00	6,163.32	6,482.65	6,211.39	40.94	37.79	135.40	-944.22	1,511.60	244.27	175.91	68.36	3.573	
6,600.00	6,257.11	6,582.50	6,306.53	41.65	38.41	135.69	-960.19	1,537.38	249.58	180.21	69.37	3.598	
6,700.00	6,350.90	6,684.46	6,414.08	42.36	39.04	137.85	-969.54	1,566.61	252.49	183.00	69.48	3.634	
6,800.00	6,444.70	6,801.53	6,517.01	43.06	39.51	143.41	-962.14	1,594.75	252.05	184.32	67.74	3.721	
6,847.08	6,488.85	6,848.99	6,562.06	43.40	39.68	146.97	-953.78	1,607.12	251.79	185.38	66.42	3.791	
6,847.81	6,489.54	6,849.71	6,562.74	43.40	39.68	147.03	-953.63	1,607.31	251.79	185.40	66.39	3.792	
6,850.00	6,491.60	6,851.87	6,564.77	43.42	39.69	147.64	-953.17	1,607.87	251.80	185.47	66.33	3.796	
6,900.00	6,538.72	6,900.40	6,610.12	43.76	39.83	162.35	-941.26	1,620.35	252.53	187.69	64.84	3.895	
6,950.00	6,586.11	6,947.76	6,653.52	44.07	39.94	178.09	-926.58	1,632.34	254.56	191.10	63.46	4.011	
7,000.00	6,633.53	6,994.05	6,694.93	44.36	40.04	-166.13	-909.40	1,643.81	257.80	195.58	62.23	4.143	
7,050.00	6,680.75	7,039.36	6,734.34	44.62	40.11	-151.35	-889.93	1,654.75	262.16	201.02	61.14	4.288	
7,100.00	6,727.53	7,083.76	6,771.73	44.85	40.16	-138.25	-868.37	1,665.17	267.49	207.31	60.18	4.445	
7,150.00	6,773.66	7,127.35	6,807.09	45.05	40.20	-127.01	-844.91	1,675.06	273.65	214.33	59.32	4.613	
7,200.00	6,818.91	7,170.18	6,840.44	45.22	40.23	-117.49	-819.72	1,684.41	280.48	221.96	58.53	4.792	
7,250.00	6,863.05	7,212.32	6,871.78	45.37	40.24	-109.44	-792.96	1,693.23	287.84	230.08	57.76	4.983	
7,300.00	6,905.88	7,253.84	6,901.10	45.49	40.25	-102.61	-764.77	1,701.52	295.57	238.56	57.00	5.185	
7,350.00	6,947.18	7,294.79	6,928.43	45.59	40.24	-96.76	-735.29	1,709.28	303.53	247.28	56.24	5.397	
7,400.00	6,986.75	7,335.22	6,953.77	45.67	40.22	-91.74	-704.63	1,716.51	311.59	256.12	55.47	5.617	
7,450.00	7,024.39	7,375.18	6,977.13	45.73	40.19	-87.40	-672.91	1,723.20	319.65	264.95	54.70	5.844	
7,500.00	7,059.94	7,414.72	6,998.52	45.77	40.16	-83.63	-640.25	1,729.38	327.58	273.66	53.92	6.075	
7,550.00	7,093.20	7,453.86	7,017.96	45.79	40.12	-80.35	-606.75	1,735.02	335.31	282.13	53.17	6.306	
7,600.00	7,124.03	7,492.66	7,035.44	45.80	40.08	-77.50	-572.51	1,740.14	342.73	290.27	52.47	6.533	
7,650.00	7,152.27	7,531.14	7,051.00	45.79	40.03	-75.02	-537.62	1,744.75	349.79	297.97	51.82	6.750	
7,700.00	7,177.77	7,569.34	7,064.62	45.77	39.98	-72.87	-502.17	1,748.83	356.40	305.15	51.26	6.953	
7,750.00	7,200.43	7,607.29	7,076.33	45.74	39.93	-71.01	-466.25	1,752.39	362.53	311.73	50.80	7.136	
7,800.00	7,220.13	7,645.02	7,086.13	45.70	39.87	-69.43	-429.95	1,755.44	368.10	317.63	50.47	7.293	
7,850.00	7,236.76	7,682.55	7,094.04	45.65	39.81	-68.09	-393.35	1,757.98	373.09	322.80	50.29	7.419	
7,900.00	7,250.26	7,719.92	7,100.07	45.60	39.75	-66.97	-356.53	1,760.00	377.46	327.19	50.27	7.508	
7,950.00	7,260.55	7,757.15	7,104.21	45.53	39.69	-66.08	-319.57	1,761.52	381.17	330.74	50.42	7.560	
8,000.00	7,267.59	7,794.26	7,106.50	45.47	39.62	-65.38	-282.54	1,762.52	384.19	333.44	50.75	7.570	
8,050.00	7,271.34	7,834.70	7,107.00	45.40	39.56	-64.88	-242.11	1,763.08	386.46	335.38	51.07	7.567	
8,081.65	7,272.00	7,866.34	7,107.00	45.36	39.50	-64.76	-210.47	1,763.41	386.94	335.87	51.06	7.577	
8,100.00	7,272.00	7,884.69	7,107.00	45.33	39.47	-64.76	-192.12	1,763.60	386.94	335.85	51.09	7.574	
8,200.00	7,272.00	7,984.69	7,107.00	45.20	39.32	-64.76	-92.13	1,764.63	386.94	335.60	51.34	7.536	
8,300.00	7,272.00	8,084.69	7,107.00	45.08	39.18	-64.76	7.87	1,765.67	386.94	335.18	51.76	7.476	
8,400.00	7,272.00	8,184.69	7,107.00	44.97	39.05	-64.76	107.86	1,766.70	386.94	334.61	52.33	7.394	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well RUEGGE 3O-4H-N165 - Slot RUEGGE 3
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 4938.00usft
<b>Reference Site:</b>	S4-T1N-R65W	<b>MD Reference:</b>	23' KB @ 4938.00usft
<b>Site Error:</b>	0.00usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	RUEGGE 3O-4H-N165	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	PLAN #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S4-T1N-R65W - RUEGGE 3N-4H-N165 - OH - PLAN #1													Offset Site Error:	0.00 usft
Survey Program: O-MWD+HDGM													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
8,500.00	7,272.00	8,284.69	7,107.00	44.87	38.93	-64.76	207.85	1,767.74	386.94	333.88	53.06	7.292		
8,600.00	7,272.00	8,384.69	7,107.00	44.78	38.82	-64.76	307.85	1,768.77	386.94	333.00	53.94	7.173		
8,700.00	7,272.00	8,484.69	7,107.00	44.70	38.72	-64.76	407.84	1,769.81	386.94	331.98	54.96	7.040		
8,800.00	7,272.00	8,584.69	7,107.00	44.62	38.63	-64.76	507.84	1,770.85	386.94	330.83	56.12	6.895		
8,900.00	7,272.00	8,684.69	7,107.00	44.56	38.55	-64.76	607.83	1,771.88	386.94	329.54	57.40	6.742		
9,000.00	7,272.00	8,784.69	7,107.00	44.51	38.48	-64.76	707.83	1,772.92	386.94	328.15	58.80	6.581		
9,100.00	7,272.00	8,884.69	7,107.00	44.48	38.43	-64.76	807.82	1,773.95	386.94	326.64	60.30	6.417		
9,200.00	7,272.00	8,984.69	7,107.00	44.46	38.44	-64.76	907.82	1,774.99	386.94	325.03	61.91	6.250		
9,300.00	7,272.00	9,084.69	7,107.00	44.47	38.84	-64.76	1,007.81	1,776.03	386.94	323.33	63.61	6.083		
9,400.00	7,272.00	9,184.69	7,107.00	44.52	39.75	-64.76	1,107.81	1,777.06	386.94	321.54	65.40	5.916		
9,500.00	7,272.00	9,284.69	7,107.00	44.63	40.77	-64.76	1,207.80	1,778.10	386.94	319.67	67.27	5.752		
9,600.00	7,272.00	9,384.69	7,107.00	44.85	41.84	-64.76	1,307.80	1,779.13	386.94	317.73	69.22	5.590		
9,700.00	7,272.00	9,484.69	7,107.00	45.24	42.95	-64.76	1,407.79	1,780.17	386.94	315.72	71.23	5.433		
9,800.00	7,272.00	9,584.69	7,107.00	45.85	44.09	-64.76	1,507.79	1,781.20	386.94	313.65	73.30	5.279		
9,900.00	7,272.00	9,684.69	7,107.00	46.65	45.24	-64.76	1,607.78	1,782.24	386.95	311.52	75.42	5.130		
10,000.00	7,272.00	9,784.69	7,107.00	47.61	46.43	-64.76	1,707.77	1,783.28	386.95	309.34	77.60	4.986		
10,100.00	7,272.00	9,884.69	7,107.00	48.66	47.63	-64.76	1,807.77	1,784.31	386.95	307.11	79.83	4.847		
10,200.00	7,272.00	9,984.69	7,107.00	49.77	48.86	-64.76	1,907.76	1,785.35	386.95	304.84	82.10	4.713		
10,300.00	7,272.00	10,084.69	7,107.00	50.93	50.10	-64.76	2,007.76	1,786.38	386.95	302.53	84.41	4.584		
10,400.00	7,272.00	10,184.69	7,107.00	52.12	51.36	-64.76	2,107.75	1,787.42	386.95	300.19	86.76	4.460		
10,500.00	7,272.00	10,284.69	7,107.00	53.34	52.63	-64.76	2,207.75	1,788.46	386.95	297.80	89.14	4.341		
10,600.00	7,272.00	10,384.69	7,107.00	54.58	53.92	-64.76	2,307.74	1,789.49	386.95	295.39	91.56	4.226		
10,700.00	7,272.00	10,484.69	7,107.00	55.84	55.22	-64.76	2,407.74	1,790.53	386.95	292.95	94.00	4.116		
10,800.00	7,272.00	10,584.69	7,107.00	57.11	56.54	-64.76	2,507.73	1,791.56	386.95	290.48	96.47	4.011		
10,900.00	7,272.00	10,684.69	7,107.00	58.41	57.87	-64.76	2,607.73	1,792.60	386.95	287.98	98.97	3.910		
11,000.00	7,272.00	10,784.69	7,107.00	59.72	59.20	-64.76	2,707.72	1,793.63	386.95	285.47	101.48	3.813		
11,100.00	7,272.00	10,884.69	7,107.00	61.04	60.55	-64.76	2,807.72	1,794.67	386.95	282.93	104.02	3.720		
11,200.00	7,272.00	10,984.69	7,107.00	62.37	61.91	-64.76	2,907.71	1,795.71	386.95	280.37	106.58	3.631		
11,300.00	7,272.00	11,084.69	7,107.00	63.71	63.28	-64.76	3,007.70	1,796.74	386.95	277.79	109.16	3.545		
11,400.00	7,272.00	11,184.69	7,107.00	65.07	64.66	-64.76	3,107.70	1,797.78	386.95	275.20	111.75	3.463		
11,500.00	7,272.00	11,284.69	7,107.00	66.43	66.05	-64.76	3,207.69	1,798.81	386.95	272.59	114.36	3.384		
11,600.00	7,272.00	11,384.69	7,107.00	67.80	67.44	-64.76	3,307.69	1,799.85	386.95	269.96	116.99	3.308		
11,700.00	7,272.00	11,484.69	7,107.00	69.19	68.84	-64.76	3,407.68	1,800.89	386.95	267.33	119.63	3.235		
11,800.00	7,272.00	11,584.69	7,107.00	70.57	70.25	-64.76	3,507.68	1,801.92	386.95	264.67	122.28	3.165		
11,900.00	7,272.00	11,684.69	7,107.00	71.97	71.66	-64.76	3,607.67	1,802.96	386.95	262.01	124.94	3.097		
12,000.00	7,272.00	11,784.69	7,107.00	73.37	73.08	-64.76	3,707.67	1,803.99	386.95	259.34	127.62	3.032		
12,100.00	7,272.00	11,884.69	7,107.00	74.78	74.51	-64.76	3,807.66	1,805.03	386.95	256.65	130.30	2.970		
12,200.00	7,272.00	11,984.69	7,107.00	76.20	75.94	-64.76	3,907.66	1,806.06	386.95	253.95	133.00	2.909		
12,300.00	7,272.00	12,084.69	7,107.00	77.62	77.38	-64.76	4,007.65	1,807.10	386.95	251.25	135.71	2.851		
12,400.00	7,272.00	12,184.69	7,107.00	79.05	78.82	-64.76	4,107.65	1,808.14	386.95	248.53	138.42	2.796		
12,431.65	7,272.00	12,216.34	7,107.00	79.50	79.28	-64.76	4,139.29	1,808.46	386.95	247.67	139.28	2.778		



# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well RUEGGE 3O-4H-N165 - Slot RUEGGE 3
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 4938.00usft
<b>Reference Site:</b>	S4-T1N-R65W	<b>MD Reference:</b>	23' KB @ 4938.00usft
<b>Site Error:</b>	0.00usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	RUEGGE 3O-4H-N165	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	PLAN #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S4-T1N-R65W - RUEGGE 3P-4H-N165 - OH - PLAN #1													Offset Site Error: 0.00 usft	
Survey Program: 0-MWD+HDGM													Offset Well Error: 0.00 usft	
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
0.00	0.00	0.00	0.00	0.00	0.00	81.55	1.47	9.89	10.00					
100.00	100.00	100.00	100.00	0.14	0.14	81.55	1.47	9.89	10.00	9.72	0.28	36.228		
103.81	103.81	103.81	103.81	0.15	0.15	81.55	1.47	9.89	10.00	9.70	0.30	32.966 CC		
200.00	200.00	199.85	199.85	0.50	0.49	82.87	1.29	10.28	10.37	9.38	0.99	10.484 ES		
300.00	300.00	299.43	299.36	0.85	0.84	90.74	-0.17	13.42	13.44	11.74	1.70	7.900		
400.00	400.00	398.65	398.34	1.21	1.20	98.89	-3.08	19.67	19.98	17.56	2.42	8.258		
500.00	499.98	497.46	496.61	1.56	1.57	-12.84	-7.41	28.97	28.40	25.28	3.12	9.108		
600.00	599.84	595.98	594.18	1.91	1.96	-10.42	-13.14	41.30	36.90	33.09	3.81	9.692		
700.00	699.45	694.22	690.95	2.26	2.38	-9.04	-20.26	56.62	45.40	40.89	4.50	10.084		
800.00	798.70	792.18	786.81	2.63	2.82	-8.19	-28.76	74.88	53.86	48.65	5.20	10.354		
900.00	897.47	889.85	881.66	3.02	3.29	-7.66	-38.60	96.04	62.26	56.35	5.91	10.540		
1,000.00	995.62	987.26	975.39	3.44	3.80	-7.33	-49.76	120.04	70.59	63.97	6.62	10.667		
1,100.00	1,093.06	1,084.40	1,067.92	3.88	4.36	-7.14	-62.23	146.84	78.84	71.51	7.33	10.750		
1,200.00	1,189.64	1,181.27	1,159.14	4.37	4.96	-7.05	-75.97	176.39	87.00	78.94	8.06	10.791		
1,300.00	1,285.27	1,278.63	1,249.69	4.89	5.62	-7.03	-91.05	208.80	94.96	86.15	8.81	10.774		
1,400.00	1,379.82	1,378.47	1,342.19	5.47	6.33	-7.21	-106.89	242.88	100.46	90.82	9.64	10.424		
1,414.59	1,393.51	1,406.95	1,355.70	5.55	6.53	-7.26	-109.21	247.85	100.97	91.16	9.82	10.284		
1,500.00	1,473.62	1,478.42	1,434.79	6.08	7.05	-7.54	-122.76	276.99	103.76	93.28	10.48	9.902		
1,600.00	1,567.42	1,578.36	1,527.38	6.72	7.78	-7.85	-138.63	311.10	107.03	95.70	11.33	9.445		
1,700.00	1,661.21	1,678.31	1,619.98	7.37	8.52	-8.14	-154.49	345.21	110.30	98.11	12.19	9.046		
1,800.00	1,755.00	1,778.25	1,712.57	8.03	9.26	-8.42	-170.36	379.32	113.58	100.52	13.06	8.695		
1,900.00	1,848.80	1,878.19	1,805.16	8.69	10.01	-8.68	-186.22	413.43	116.86	102.92	13.94	8.384		
2,000.00	1,942.59	1,978.14	1,897.76	9.37	10.76	-8.93	-202.09	447.54	120.14	105.32	14.82	8.107		
2,100.00	2,036.39	2,078.08	1,990.35	10.05	11.52	-9.16	-217.95	481.66	123.42	107.71	15.71	7.858		
2,200.00	2,130.18	2,178.03	2,082.95	10.73	12.28	-9.38	-233.82	515.77	126.70	110.11	16.60	7.635		
2,300.00	2,223.97	2,277.97	2,175.54	11.41	13.03	-9.59	-249.68	549.88	129.99	112.50	17.49	7.432		
2,400.00	2,317.77	2,377.92	2,268.14	12.10	13.79	-9.79	-265.55	583.99	133.27	114.89	18.39	7.248		
2,500.00	2,411.56	2,477.86	2,360.73	12.79	14.55	-9.99	-281.41	618.10	136.56	117.27	19.29	7.080		
2,600.00	2,505.36	2,577.81	2,453.32	13.49	15.32	-10.17	-297.28	652.21	139.85	119.66	20.19	6.926		
2,700.00	2,599.15	2,677.75	2,545.92	14.18	16.08	-10.34	-313.14	686.32	143.14	122.05	21.10	6.785		
2,800.00	2,692.94	2,777.70	2,638.51	14.87	16.84	-10.51	-329.01	720.43	146.44	124.43	22.01	6.654		
2,900.00	2,786.74	2,877.64	2,731.11	15.57	17.61	-10.66	-344.87	754.54	149.73	126.81	22.92	6.534		
3,000.00	2,880.53	2,977.59	2,823.70	16.27	18.37	-10.82	-360.74	788.66	153.03	129.20	23.83	6.422		
3,100.00	2,974.32	3,077.53	2,916.30	16.97	19.14	-10.96	-376.60	822.77	156.32	131.58	24.74	6.318		
3,200.00	3,068.12	3,177.48	3,008.89	17.67	19.91	-11.10	-392.47	856.88	159.62	133.96	25.66	6.221		
3,300.00	3,161.91	3,277.42	3,101.49	18.37	20.67	-11.23	-408.33	890.99	162.92	136.34	26.58	6.130		
3,400.00	3,255.71	3,377.37	3,194.08	19.07	21.44	-11.36	-424.20	925.10	166.21	138.72	27.50	6.045		
3,500.00	3,349.50	3,477.31	3,286.67	19.77	22.21	-11.48	-440.07	959.21	169.51	141.10	28.42	5.965		
3,600.00	3,443.29	3,577.26	3,379.27	20.47	22.97	-11.60	-455.93	993.32	172.81	143.47	29.34	5.890		
3,700.00	3,537.09	3,677.20	3,471.86	21.18	23.74	-11.72	-471.80	1,027.43	176.12	145.85	30.26	5.819		
3,800.00	3,630.88	3,777.15	3,564.46	21.88	24.51	-11.83	-487.66	1,061.54	179.42	148.23	31.19	5.753		
3,900.00	3,724.68	3,877.09	3,657.05	22.58	25.28	-11.93	-503.53	1,095.65	182.72	150.61	32.11	5.690		
4,000.00	3,818.47	3,977.04	3,749.65	23.29	26.05	-12.03	-519.39	1,129.77	186.02	152.98	33.04	5.630		
4,100.00	3,912.26	4,076.98	3,842.24	23.99	26.82	-12.13	-535.26	1,163.88	189.33	155.36	33.97	5.574		
4,200.00	4,006.06	4,176.93	3,934.83	24.69	27.59	-12.23	-551.12	1,197.99	192.63	157.73	34.90	5.520		
4,300.00	4,099.85	4,276.87	4,027.43	25.40	28.35	-12.32	-566.99	1,232.10	195.93	160.11	35.83	5.469		
4,400.00	4,193.65	4,376.82	4,120.02	26.10	29.12	-12.41	-582.85	1,266.21	199.24	162.48	36.76	5.421		
4,500.00	4,287.44	4,476.76	4,212.62	26.81	29.89	-12.49	-598.72	1,300.32	202.54	164.86	37.69	5.374		
4,600.00	4,381.23	4,576.71	4,305.21	27.51	30.66	-12.58	-614.58	1,334.43	205.85	167.23	38.62	5.330		
4,700.00	4,475.03	4,676.65	4,397.81	28.22	31.43	-12.66	-630.45	1,368.54	209.16	169.61	39.55	5.288		
4,800.00	4,568.82	4,776.60	4,490.40	28.93	32.20	-12.74	-646.31	1,402.65	212.46	171.98	40.48	5.248		
4,900.00	4,662.61	4,876.54	4,583.00	29.63	32.97	-12.81	-662.18	1,436.76	215.77	174.35	41.42	5.210		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well RUEGGE 3O-4H-N165 - Slot RUEGGE 3
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 4938.00usft
<b>Reference Site:</b>	S4-T1N-R65W	<b>MD Reference:</b>	23' KB @ 4938.00usft
<b>Site Error:</b>	0.00usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	RUEGGE 3O-4H-N165	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	PLAN #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S4-T1N-R65W - RUEGGE 3P-4H-N165 - OH - PLAN #1												Offset Site Error:	0.00 usft
Survey Program: O-MWD+HDGM												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
5,000.00	4,756.41	4,976.49	4,675.59	30.34	33.74	-12.88	-678.04	1,470.88	219.08	176.72	42.35	5.173	
5,100.00	4,850.20	5,076.43	4,768.18	31.04	34.51	-12.96	-693.91	1,504.99	222.38	179.10	43.29	5.137	
5,200.00	4,944.00	5,176.38	4,860.78	31.75	35.28	-13.02	-709.78	1,539.10	225.69	181.47	44.22	5.104	
5,300.00	5,037.79	5,276.32	4,953.37	32.46	36.05	-13.09	-725.64	1,573.21	229.00	183.84	45.16	5.071	
5,400.00	5,131.58	5,376.27	5,045.97	33.16	36.82	-13.16	-741.51	1,607.32	232.31	186.21	46.10	5.040	
5,500.00	5,225.38	5,476.21	5,138.56	33.87	37.59	-13.22	-757.37	1,641.43	235.62	188.59	47.03	5.010	
5,600.00	5,319.17	5,576.16	5,231.16	34.58	38.36	-13.28	-773.24	1,675.54	238.93	190.96	47.97	4.981	
5,700.00	5,412.97	5,676.10	5,323.75	35.28	39.13	-13.34	-789.10	1,709.65	242.24	193.33	48.91	4.953	
5,800.00	5,506.76	5,776.05	5,416.34	35.99	39.90	-13.40	-804.97	1,743.76	245.55	195.70	49.85	4.926	
5,900.00	5,600.55	5,875.99	5,508.94	36.70	40.67	-13.46	-820.83	1,777.87	248.86	198.07	50.79	4.900	
6,000.00	5,694.35	5,975.94	5,601.53	37.40	41.44	-13.51	-836.70	1,811.99	252.17	200.44	51.73	4.875	
6,100.00	5,788.14	6,075.88	5,694.13	38.11	42.21	-13.57	-852.56	1,846.10	255.48	202.81	52.67	4.851	
6,200.00	5,881.94	6,175.83	5,786.72	38.82	42.99	-13.62	-868.43	1,880.21	258.79	205.18	53.61	4.828	
6,300.00	5,975.73	6,275.77	5,879.32	39.53	43.76	-13.67	-884.29	1,914.32	262.10	207.55	54.55	4.805	
6,400.00	6,069.52	6,375.72	5,971.91	40.23	44.53	-13.72	-900.16	1,948.43	265.41	209.92	55.49	4.783	
6,500.00	6,163.32	6,475.66	6,064.50	40.94	45.30	-13.77	-916.02	1,982.54	268.72	212.29	56.43	4.762	
6,600.00	6,257.11	6,575.61	6,157.10	41.65	46.07	-13.81	-931.89	2,016.65	272.03	214.66	57.37	4.742	
6,700.00	6,350.90	6,675.55	6,249.69	42.36	46.84	-13.86	-947.75	2,050.76	275.35	217.03	58.31	4.722	
6,800.00	6,444.70	6,776.47	6,343.21	43.06	47.61	-13.93	-963.64	2,085.21	278.64	219.36	59.27	4.701	
6,847.81	6,489.54	6,827.70	6,391.01	43.40	47.99	-14.53	-968.97	2,102.84	279.76	219.81	59.95	4.667	
6,850.00	6,491.60	6,830.05	6,393.20	43.42	48.01	-14.14	-969.13	2,103.65	279.79	219.81	59.99	4.664	
6,900.00	6,538.72	6,883.19	6,443.02	43.76	48.36	-4.55	-970.63	2,122.06	280.70	219.88	60.82	4.616	
6,950.00	6,586.11	6,935.95	6,492.44	44.07	48.69	6.09	-968.21	2,140.35	281.66	220.02	61.64	4.570	
7,000.00	6,633.53	6,988.33	6,541.19	44.36	48.98	16.85	-961.99	2,158.42	282.67	220.23	62.44	4.527	
7,050.00	6,680.75	7,040.31	6,589.02	44.62	49.23	26.72	-952.07	2,176.18	283.74	220.52	63.21	4.489	
7,100.00	6,727.53	7,091.91	6,635.68	44.85	49.45	35.06	-938.59	2,193.53	284.86	220.91	63.95	4.454	
7,150.00	6,773.66	7,143.11	6,680.97	45.05	49.63	41.73	-921.71	2,210.40	286.05	221.41	64.64	4.425	
7,200.00	6,818.91	7,193.92	6,724.67	45.22	49.79	46.87	-901.58	2,226.71	287.29	222.01	65.28	4.401	
7,250.00	6,863.05	7,244.34	6,766.60	45.37	49.92	50.76	-878.39	2,242.39	288.58	222.73	65.85	4.382	
7,300.00	6,905.88	7,294.39	6,806.59	45.49	50.03	53.67	-852.32	2,257.37	289.92	223.57	66.35	4.369	
7,350.00	6,947.18	7,344.06	6,844.49	45.59	50.11	55.80	-823.55	2,271.60	291.30	224.52	66.78	4.362	
7,400.00	6,986.75	7,393.38	6,880.18	45.67	50.17	57.35	-792.28	2,285.03	292.70	225.58	67.12	4.361	
7,450.00	7,024.39	7,442.35	6,913.52	45.73	50.21	58.45	-758.72	2,297.61	294.12	226.75	67.37	4.365	
7,500.00	7,059.94	7,490.98	6,944.42	45.77	50.23	59.19	-723.05	2,309.31	295.55	228.00	67.55	4.375	
7,550.00	7,093.20	7,539.29	6,972.80	45.79	50.24	59.66	-685.48	2,320.08	296.97	229.32	67.65	4.390	
7,600.00	7,124.03	7,587.28	6,998.57	45.80	50.24	59.92	-646.21	2,329.91	298.37	230.68	67.68	4.408	
7,650.00	7,152.27	7,634.99	7,021.68	45.79	50.22	60.01	-605.43	2,338.76	299.73	232.08	67.65	4.430	
7,700.00	7,177.77	7,682.41	7,042.07	45.77	50.19	59.97	-563.36	2,346.62	301.05	233.47	67.58	4.455	
7,750.00	7,200.43	7,729.56	7,059.71	45.74	50.15	59.82	-520.18	2,353.47	302.30	234.83	67.47	4.480	
7,800.00	7,220.13	7,776.47	7,074.58	45.70	50.11	59.59	-476.08	2,359.30	303.48	236.13	67.35	4.506	
7,850.00	7,236.76	7,823.14	7,086.65	45.65	50.06	59.30	-431.26	2,364.10	304.57	237.35	67.22	4.531	
7,900.00	7,250.26	7,869.60	7,095.91	45.60	50.00	58.96	-385.90	2,367.87	305.55	238.45	67.10	4.553	
7,950.00	7,260.55	7,915.86	7,102.38	45.53	49.94	58.58	-340.19	2,370.61	306.42	239.40	67.01	4.572	
8,000.00	7,267.59	7,961.93	7,106.06	45.47	49.88	58.16	-294.30	2,372.32	307.16	240.19	66.96	4.587	
8,050.00	7,271.34	8,008.55	7,107.00	45.40	49.82	57.71	-247.71	2,373.02	307.75	240.74	67.01	4.593	
8,081.65	7,272.00	8,040.18	7,107.00	45.36	49.78	57.59	-216.07	2,373.26	307.84	240.63	67.21	4.580	
8,100.00	7,272.00	8,058.53	7,107.00	45.33	49.76	57.58	-197.72	2,373.40	307.80	240.46	67.34	4.571	
8,200.00	7,272.00	8,158.53	7,107.00	45.20	49.63	57.56	-97.73	2,374.16	307.56	239.43	68.13	4.514	
8,300.00	7,272.00	8,258.53	7,107.00	45.08	49.52	57.53	2.27	2,374.92	307.33	238.30	69.03	4.452	
8,400.00	7,272.00	8,358.53	7,107.00	44.97	49.41	57.50	102.27	2,375.68	307.10	237.07	70.03	4.385	
8,500.00	7,272.00	8,458.53	7,107.00	44.87	49.31	57.47	202.26	2,376.44	306.86	235.75	71.12	4.315	
8,600.00	7,272.00	8,558.53	7,107.00	44.78	49.22	57.45	302.26	2,377.20	306.63	234.33	72.30	4.241	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well RUEGGE 3O-4H-N165 - Slot RUEGGE 3
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 4938.00usft
<b>Reference Site:</b>	S4-T1N-R65W	<b>MD Reference:</b>	23' KB @ 4938.00usft
<b>Site Error:</b>	0.00usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	RUEGGE 3O-4H-N165	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	PLAN #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S4-T1N-R65W - RUEGGE 3P-4H-N165 - OH - PLAN #1													Offset Site Error: 0.00 usft	
Survey Program: O-MWD+HDGM													Offset Well Error: 0.00 usft	
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
8,700.00	7,272.00	8,658.53	7,107.00	44.70	49.13	57.42	402.26	2,377.96	306.40	232.83	73.57	4.165		
8,800.00	7,272.00	8,758.53	7,107.00	44.62	49.06	57.39	502.25	2,378.72	306.16	231.24	74.92	4.086		
8,900.00	7,272.00	8,858.53	7,107.00	44.56	48.99	57.36	602.25	2,379.48	305.93	229.58	76.35	4.007		
9,000.00	7,272.00	8,958.53	7,107.00	44.51	48.93	57.33	702.25	2,380.24	305.70	227.84	77.86	3.927		
9,100.00	7,272.00	9,058.53	7,107.00	44.48	48.88	57.31	802.24	2,381.00	305.47	226.04	79.43	3.846		
9,200.00	7,272.00	9,158.53	7,107.00	44.46	48.84	57.28	902.24	2,381.76	305.23	224.17	81.06	3.765		
9,300.00	7,272.00	9,258.53	7,107.00	44.47	48.81	57.25	1,002.24	2,382.52	305.00	222.24	82.76	3.685		
9,400.00	7,272.00	9,358.53	7,107.00	44.52	48.80	57.22	1,102.23	2,383.27	304.77	220.25	84.52	3.606		
9,500.00	7,272.00	9,458.53	7,107.00	44.63	48.81	57.19	1,202.23	2,384.03	304.54	218.21	86.32	3.528		
9,600.00	7,272.00	9,558.53	7,107.00	44.85	48.85	57.16	1,302.23	2,384.79	304.30	216.12	88.18	3.451		
9,700.00	7,272.00	9,658.53	7,107.00	45.24	48.93	57.14	1,402.23	2,385.55	304.07	213.98	90.09	3.375		
9,800.00	7,272.00	9,758.53	7,107.00	45.85	49.08	57.11	1,502.22	2,386.31	303.84	211.80	92.03	3.301		
9,900.00	7,272.00	9,858.53	7,107.00	46.65	49.34	57.08	1,602.22	2,387.07	303.61	209.58	94.02	3.229		
10,000.00	7,272.00	9,958.53	7,107.00	47.61	49.76	57.05	1,702.22	2,387.83	303.37	207.32	96.05	3.158		
10,100.00	7,272.00	10,058.53	7,107.00	48.66	50.39	57.02	1,802.21	2,388.59	303.14	205.03	98.12	3.090		
10,200.00	7,272.00	10,158.53	7,107.00	49.77	51.21	56.99	1,902.21	2,389.35	302.91	202.70	100.21	3.023		
10,300.00	7,272.00	10,258.53	7,107.00	50.93	52.18	56.97	2,002.21	2,390.11	302.68	200.34	102.34	2.958		
10,400.00	7,272.00	10,358.53	7,107.00	52.12	53.26	56.94	2,102.20	2,390.87	302.45	197.95	104.50	2.894		
10,500.00	7,272.00	10,458.53	7,107.00	53.34	54.40	56.91	2,202.20	2,391.63	302.21	195.53	106.68	2.833		
10,600.00	7,272.00	10,558.52	7,107.00	54.58	55.58	56.88	2,302.20	2,392.39	301.98	193.09	108.90	2.773		
10,700.00	7,272.00	10,658.52	7,107.00	55.84	56.81	56.85	2,402.19	2,393.15	301.75	190.62	111.13	2.715		
10,800.00	7,272.00	10,758.52	7,107.00	57.11	58.06	56.82	2,502.19	2,393.91	301.52	188.13	113.39	2.659		
10,900.00	7,272.00	10,858.52	7,107.00	58.41	59.33	56.79	2,602.19	2,394.67	301.29	185.62	115.67	2.605		
11,000.00	7,272.00	10,958.52	7,107.00	59.72	60.62	56.77	2,702.18	2,395.43	301.06	183.09	117.97	2.552		
11,100.00	7,272.00	11,058.52	7,107.00	61.04	61.93	56.74	2,802.18	2,396.19	300.82	180.54	120.28	2.501		
11,200.00	7,272.00	11,158.52	7,107.00	62.37	63.25	56.71	2,902.18	2,396.95	300.59	177.97	122.62	2.451		
11,300.00	7,272.00	11,258.52	7,107.00	63.71	64.59	56.68	3,002.17	2,397.71	300.36	175.39	124.97	2.403		
11,400.00	7,272.00	11,358.52	7,107.00	65.07	65.93	56.65	3,102.17	2,398.47	300.13	172.79	127.34	2.357		
11,500.00	7,272.00	11,458.52	7,107.00	66.43	67.29	56.62	3,202.17	2,399.22	299.90	170.18	129.72	2.312		
11,600.00	7,272.00	11,558.52	7,107.00	67.80	68.66	56.59	3,302.16	2,399.98	299.67	167.56	132.11	2.268		
11,700.00	7,272.00	11,658.52	7,107.00	69.19	70.03	56.56	3,402.16	2,400.74	299.44	164.92	134.52	2.226		
11,800.00	7,272.00	11,758.52	7,107.00	70.57	71.42	56.53	3,502.16	2,401.50	299.21	162.27	136.94	2.185		
11,900.00	7,272.00	11,858.52	7,107.00	71.97	72.81	56.50	3,602.15	2,402.26	298.98	159.61	139.37	2.145		
12,000.00	7,272.00	11,958.52	7,107.00	73.37	74.21	56.47	3,702.15	2,403.02	298.74	156.93	141.81	2.107		
12,100.00	7,272.00	12,058.52	7,107.00	74.78	75.62	56.44	3,802.15	2,403.78	298.51	154.25	144.26	2.069		
12,200.00	7,272.00	12,158.52	7,107.00	76.20	77.03	56.42	3,902.14	2,404.54	298.28	151.56	146.72	2.033		
12,235.27	7,272.00	12,193.79	7,107.00	76.70	77.53	56.41	3,937.41	2,404.81	298.20	150.61	147.59	2.020		
12,300.00	7,272.00	12,230.33	7,107.00	77.62	78.04	56.65	3,973.85	2,407.47	301.37	150.74	150.63	2.001 SF		
12,400.00	7,272.00	12,288.50	7,107.00	79.05	78.80	57.74	4,030.84	2,418.84	317.09	162.98	154.11	2.058		
12,431.65	7,272.00	12,306.08	7,107.00	79.50	79.01	58.23	4,047.64	2,423.98	324.77	169.87	154.90	2.097		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well RUEGGE 3O-4H-N165 - Slot RUEGGE 3
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 4938.00usft
<b>Reference Site:</b>	S4-T1N-R65W	<b>MD Reference:</b>	23' KB @ 4938.00usft
<b>Site Error:</b>	0.00usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	RUEGGE 3O-4H-N165	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	PLAN #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S4-T1N-R65W - RUEGGE 3Q-4H-N165 - OH - PLAN #1													Offset Site Error:	0.00 usft
Survey Program: O-MWD+HDGM													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning	
0.00	0.00	0.00	0.00	0.00	0.00	81.55	2.94	19.78	20.00	19.72	0.28	72.456		
100.00	100.00	100.00	100.00	0.14	0.14	81.55	2.94	19.78	20.00	19.72	0.28	72.456		
200.00	200.00	200.00	200.00	0.50	0.50	81.55	2.94	19.78	20.00	19.01	0.99	20.141		
300.00	300.00	300.00	300.00	0.85	0.85	81.55	2.94	19.78	20.00	18.29	1.71	11.696		
400.00	400.00	400.00	400.00	1.21	1.21	81.55	2.94	19.78	20.00	17.57	2.43	8.241 CC		
500.00	499.98	499.37	499.35	1.56	1.56	-35.65	2.44	21.43	20.14	17.02	3.12	6.455		
600.00	599.84	598.74	598.58	1.91	1.91	-37.77	0.94	26.38	20.57	16.77	3.80	5.410 ES		
700.00	699.45	698.10	697.56	2.26	2.26	-41.08	-1.56	34.61	21.35	16.85	4.50	4.745		
800.00	798.70	797.45	796.17	2.63	2.63	-45.31	-5.06	46.12	22.55	17.34	5.22	4.324		
900.00	897.47	896.78	894.29	3.02	3.02	-50.09	-9.55	60.89	24.26	18.29	5.96	4.068		
1,000.00	995.62	996.09	991.79	3.44	3.43	-55.04	-15.02	78.91	26.53	19.78	6.75	3.928		
1,100.00	1,093.06	1,095.37	1,088.56	3.88	3.87	-59.84	-21.47	100.14	29.43	21.82	7.61	3.867		
1,200.00	1,189.64	1,194.63	1,184.48	4.37	4.35	-64.28	-28.88	124.56	32.97	24.43	8.54	3.860 SF		
1,300.00	1,285.27	1,293.85	1,279.42	4.89	4.87	-68.23	-37.26	152.13	37.16	27.59	9.57	3.884		
1,400.00	1,379.82	1,393.04	1,373.27	5.47	5.44	-71.68	-46.58	182.82	42.00	31.30	10.70	3.925		
1,414.59	1,393.51	1,407.51	1,386.87	5.55	5.52	-72.14	-48.02	187.56	42.75	31.88	10.87	3.932		
1,500.00	1,473.62	1,492.18	1,465.91	6.08	6.06	-73.26	-56.83	216.59	47.81	35.90	11.91	4.015		
1,600.00	1,567.42	1,591.10	1,557.07	6.72	6.75	-71.31	-67.99	253.31	55.16	42.06	13.10	4.210		
1,700.00	1,661.21	1,689.56	1,646.45	7.37	7.50	-67.16	-79.99	292.84	64.30	50.06	14.24	4.515		
1,800.00	1,755.00	1,788.16	1,734.69	8.03	8.32	-62.21	-92.78	334.95	75.43	60.11	15.32	4.923		
1,900.00	1,848.80	1,887.32	1,823.25	8.69	9.17	-58.33	-105.74	377.61	87.22	70.81	16.40	5.317		
2,000.00	1,942.59	1,986.47	1,911.80	9.37	10.04	-55.39	-118.70	420.28	99.31	81.82	17.49	5.677		
2,100.00	2,036.39	2,085.62	2,000.36	10.05	10.93	-53.08	-131.66	462.95	111.61	93.02	18.58	6.005		
2,200.00	2,130.18	2,184.77	2,088.92	10.73	11.82	-51.24	-144.62	505.62	124.04	104.36	19.68	6.302		
2,300.00	2,223.97	2,283.93	2,177.48	11.41	12.72	-49.73	-157.58	548.29	136.59	115.80	20.78	6.572		
2,400.00	2,317.77	2,383.08	2,266.04	12.10	13.63	-48.48	-170.54	590.96	149.20	127.31	21.89	6.816		
2,500.00	2,411.56	2,482.23	2,354.60	12.79	14.54	-47.42	-183.49	633.63	161.88	138.88	23.00	7.038		
2,600.00	2,505.36	2,581.38	2,443.15	13.49	15.46	-46.52	-196.45	676.30	174.61	150.49	24.12	7.240		
2,700.00	2,599.15	2,680.53	2,531.71	14.18	16.38	-45.74	-209.41	718.97	187.37	162.13	25.24	7.425		
2,800.00	2,692.94	2,779.69	2,620.27	14.87	17.31	-45.06	-222.37	761.64	200.16	173.80	26.36	7.594		
2,900.00	2,786.74	2,878.84	2,708.83	15.57	18.23	-44.46	-235.33	804.30	212.98	185.50	27.48	7.751		
3,000.00	2,880.53	2,977.99	2,797.39	16.27	19.16	-43.93	-248.29	846.97	225.81	197.21	28.60	7.894		
3,100.00	2,974.32	3,077.14	2,885.95	16.97	20.09	-43.45	-261.25	889.64	238.67	208.93	29.73	8.027		
3,200.00	3,068.12	3,176.30	2,974.50	17.67	21.02	-43.03	-274.21	932.31	251.53	220.67	30.86	8.151		
3,300.00	3,161.91	3,275.45	3,063.06	18.37	21.96	-42.64	-287.17	974.98	264.41	232.42	31.99	8.266		
3,400.00	3,255.71	3,374.60	3,151.62	19.07	22.89	-42.29	-300.13	1,017.65	277.30	244.18	33.12	8.372		
3,500.00	3,349.50	3,473.75	3,240.18	19.77	23.83	-41.97	-313.09	1,060.32	290.20	255.95	34.25	8.472		
3,600.00	3,443.29	3,572.90	3,328.74	20.47	24.77	-41.68	-326.05	1,102.99	303.11	267.72	35.39	8.566		
3,700.00	3,537.09	3,672.06	3,417.30	21.18	25.70	-41.42	-339.01	1,145.66	316.03	279.50	36.52	8.653		
3,800.00	3,630.88	3,771.21	3,505.85	21.88	26.64	-41.17	-351.97	1,188.33	328.95	291.29	37.66	8.735		
3,900.00	3,724.68	3,870.36	3,594.41	22.58	27.58	-40.94	-364.92	1,230.99	341.87	303.08	38.79	8.813		
4,000.00	3,818.47	3,969.51	3,682.97	23.29	28.52	-40.73	-377.88	1,273.66	354.81	314.88	39.93	8.886		
4,100.00	3,912.26	4,068.67	3,771.53	23.99	29.46	-40.54	-390.84	1,316.33	367.74	326.67	41.07	8.954		
4,200.00	4,006.06	4,167.82	3,860.09	24.69	30.40	-40.35	-403.80	1,359.00	380.68	338.47	42.21	9.019		
4,300.00	4,099.85	4,266.97	3,948.65	25.40	31.35	-40.18	-416.76	1,401.67	393.63	350.28	43.35	9.081		
4,400.00	4,193.65	4,366.12	4,037.20	26.10	32.29	-40.02	-429.72	1,444.34	406.57	362.09	44.48	9.140		
4,500.00	4,287.44	4,465.27	4,125.76	26.81	33.23	-39.87	-442.68	1,487.01	419.52	373.90	45.62	9.195		
4,600.00	4,381.23	4,564.43	4,214.32	27.51	34.17	-39.73	-455.64	1,529.68	432.47	385.71	46.77	9.248		
4,700.00	4,475.03	4,663.58	4,302.88	28.22	35.12	-39.60	-468.60	1,572.35	445.43	397.52	47.91	9.298		
4,800.00	4,568.82	4,762.73	4,391.44	28.93	36.06	-39.48	-481.56	1,615.01	458.39	409.34	49.05	9.346		
4,900.00	4,662.61	4,861.88	4,480.00	29.63	37.00	-39.36	-494.52	1,657.68	471.34	421.16	50.19	9.392		
5,000.00	4,756.41	4,961.04	4,568.55	30.34	37.95	-39.25	-507.48	1,700.35	484.30	432.97	51.33	9.435		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well RUEGGE 3O-4H-N165 - Slot RUEGGE 3
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 4938.00usft
<b>Reference Site:</b>	S4-T1N-R65W	<b>MD Reference:</b>	23' KB @ 4938.00usft
<b>Site Error:</b>	0.00usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	RUEGGE 3O-4H-N165	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	PLAN #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S4-T1N-R65W - RUEGGE 3Q-4H-N165 - OH - PLAN #1												Offset Site Error:	0.00 usft
Survey Program: O-MWD+HDGM												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
5,100.00	4,850.20	5,060.19	4,657.11	31.04	38.89	-39.14	-520.44	1,743.02	497.27	444.80	52.47	9.477	
5,200.00	4,944.00	5,159.34	4,745.67	31.75	39.84	-39.04	-533.39	1,785.69	510.23	456.62	53.61	9.517	
5,300.00	5,037.79	5,258.49	4,834.23	32.46	40.78	-38.94	-546.35	1,828.36	523.20	468.44	54.76	9.555	
5,400.00	5,131.58	5,357.64	4,922.79	33.16	41.72	-38.85	-559.31	1,871.03	536.16	480.26	55.90	9.591	
5,500.00	5,225.38	5,456.80	5,011.35	33.87	42.67	-38.76	-572.27	1,913.70	549.13	492.09	57.04	9.627	
5,600.00	5,319.17	5,555.95	5,099.90	34.58	43.62	-38.68	-585.23	1,956.37	562.10	503.91	58.19	9.660	
5,700.00	5,412.97	5,655.10	5,188.46	35.28	44.56	-38.60	-598.19	1,999.04	575.07	515.74	59.33	9.693	
5,800.00	5,506.76	5,754.25	5,277.02	35.99	45.51	-38.53	-611.15	2,041.70	588.04	527.57	60.47	9.724	
5,900.00	5,600.55	5,853.41	5,365.58	36.70	46.45	-38.46	-624.11	2,084.37	601.02	539.40	61.62	9.754	
6,000.00	5,694.35	5,952.56	5,454.14	37.40	47.40	-38.39	-637.07	2,127.04	613.99	551.23	62.76	9.783	
6,100.00	5,788.14	6,051.71	5,542.70	38.11	48.34	-38.32	-650.03	2,169.71	626.96	563.06	63.91	9.811	
6,200.00	5,881.94	6,150.86	5,631.25	38.82	49.29	-38.26	-662.99	2,212.38	639.94	574.89	65.05	9.838	
6,300.00	5,975.73	6,250.01	5,719.81	39.53	50.24	-38.19	-675.95	2,255.05	652.91	586.72	66.20	9.863	
6,400.00	6,069.52	6,349.17	5,808.37	40.23	51.18	-38.14	-688.91	2,297.72	665.89	598.55	67.34	9.888	
6,500.00	6,163.32	6,448.32	5,896.93	40.94	52.13	-38.08	-701.87	2,340.39	678.87	610.38	68.49	9.913	
6,600.00	6,257.11	6,547.47	5,985.49	41.65	53.07	-38.02	-714.82	2,383.06	691.85	622.22	69.63	9.936	
6,700.00	6,350.90	6,646.62	6,074.05	42.36	54.02	-37.97	-727.78	2,425.73	704.82	634.05	70.78	9.959	
6,800.00	6,444.70	6,745.77	6,162.60	43.06	54.97	-37.92	-740.74	2,468.39	717.80	645.88	71.92	9.980	
6,847.81	6,489.54	6,806.82	6,204.94	43.40	55.55	-37.90	-746.94	2,488.79	724.01	651.45	72.55	9.979	
6,850.00	6,491.60	6,804.65	6,206.88	43.42	55.53	-37.49	-747.22	2,489.73	724.29	651.74	72.55	9.983	
6,900.00	6,538.72	6,844.93	6,251.16	43.76	55.91	-27.12	-753.70	2,511.06	730.34	657.40	72.94	10.012	
6,950.00	6,586.11	6,894.34	6,295.29	44.07	56.39	-15.33	-760.16	2,532.33	735.59	662.42	73.17	10.053	
7,000.00	6,633.53	6,938.15	6,334.46	44.36	56.80	-3.21	-765.55	2,551.20	740.18	667.07	73.12	10.124	
7,050.00	6,680.75	6,977.92	6,370.18	44.62	57.17	8.05	-768.43	2,568.44	744.63	671.76	72.87	10.218	
7,100.00	6,727.53	7,017.98	6,406.24	44.85	57.52	17.85	-769.11	2,585.86	748.99	676.46	72.53	10.327	
7,150.00	6,773.66	7,058.37	6,442.57	45.05	57.87	26.03	-767.52	2,603.43	753.26	681.16	72.10	10.447	
7,200.00	6,818.91	7,099.12	6,479.07	45.22	58.20	32.73	-763.62	2,621.11	757.44	685.84	71.61	10.578	
7,250.00	6,863.05	7,140.28	6,515.66	45.37	58.51	38.21	-757.34	2,638.87	761.54	690.48	71.06	10.716	
7,300.00	6,905.88	7,181.89	6,552.25	45.49	58.80	42.73	-748.63	2,656.64	765.55	695.05	70.50	10.859	
7,350.00	6,947.18	7,224.00	6,588.75	45.59	59.08	46.52	-737.43	2,674.40	769.48	699.55	69.93	11.003	
7,400.00	6,986.75	7,266.64	6,625.03	45.67	59.34	49.73	-723.67	2,692.08	773.32	703.94	69.38	11.146	
7,450.00	7,024.39	7,309.89	6,660.99	45.73	59.58	52.50	-707.29	2,709.63	777.07	708.21	68.86	11.284	
7,500.00	7,059.94	7,353.78	6,696.50	45.77	59.80	54.93	-688.23	2,726.99	780.74	712.34	68.40	11.414	
7,550.00	7,093.20	7,398.37	6,731.43	45.79	60.00	57.08	-666.42	2,744.10	784.33	716.33	68.00	11.534	
7,600.00	7,124.03	7,443.73	6,765.62	45.80	60.18	59.02	-641.80	2,760.88	787.82	720.15	67.67	11.642	
7,650.00	7,152.27	7,489.92	6,798.91	45.79	60.34	60.78	-614.31	2,777.25	791.22	723.79	67.42	11.735	
7,700.00	7,177.77	7,536.99	6,831.11	45.77	60.48	62.40	-583.88	2,793.14	794.51	727.25	67.26	11.813	
7,750.00	7,200.43	7,585.03	6,862.04	45.74	60.61	63.90	-550.47	2,808.43	797.69	730.53	67.17	11.876	
7,800.00	7,220.13	7,634.09	6,891.47	45.70	60.71	65.29	-514.04	2,823.03	800.75	733.60	67.15	11.924	
7,850.00	7,236.76	7,684.25	6,919.15	45.65	60.79	66.60	-474.56	2,836.82	803.68	736.47	67.21	11.958	
7,900.00	7,250.26	7,735.58	6,944.82	45.60	60.86	67.83	-432.02	2,849.67	806.44	739.12	67.32	11.979	
7,950.00	7,260.55	7,788.15	6,968.19	45.53	60.90	68.99	-386.44	2,861.43	809.03	741.55	67.48	11.989	
8,000.00	7,267.59	7,842.02	6,988.94	45.47	60.93	70.07	-337.87	2,871.97	811.42	743.73	67.69	11.988	
8,050.00	7,271.34	7,897.26	7,006.73	45.40	60.94	71.09	-286.40	2,881.10	813.58	745.64	67.94	11.976	
8,081.65	7,272.00	7,932.95	7,016.31	45.36	60.94	71.70	-252.38	2,886.08	814.81	746.69	68.12	11.962	
8,100.00	7,272.00	7,953.99	7,021.23	45.33	60.94	72.08	-232.09	2,888.67	815.47	747.24	68.23	11.952	
8,200.00	7,272.00	8,073.31	7,038.85	45.20	60.88	73.44	-114.62	2,898.41	817.96	748.88	69.08	11.842	
8,300.00	7,272.00	8,184.11	7,041.00	45.08	60.81	73.60	-3.90	2,900.60	818.28	748.29	69.99	11.691	
8,400.00	7,272.00	8,284.11	7,041.00	44.97	60.75	73.60	96.09	2,901.63	818.28	747.47	70.81	11.556	
8,500.00	7,272.00	8,384.11	7,041.00	44.87	60.69	73.60	196.09	2,902.67	818.28	746.53	71.75	11.405	
8,600.00	7,272.00	8,484.11	7,041.00	44.78	60.64	73.60	296.08	2,903.71	818.28	745.48	72.80	11.240	
8,700.00	7,272.00	8,584.11	7,041.00	44.70	60.59	73.60	396.08	2,904.74	818.28	744.31	73.97	11.063	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well RUEGGE 3O-4H-N165 - Slot RUEGGE 3
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 4938.00usft
<b>Reference Site:</b>	S4-T1N-R65W	<b>MD Reference:</b>	23' KB @ 4938.00usft
<b>Site Error:</b>	0.00usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	RUEGGE 3O-4H-N165	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	PLAN #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S4-T1N-R65W - RUEGGE 3Q-4H-N165 - OH - PLAN #1													Offset Site Error:	0.00 usft
Survey Program: O-MWD+HDGM													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Distance								Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
8,800.00	7,272.00	8,684.11	7,041.00	44.62	60.55	73.60	496.07	2,905.78	818.28	743.04	75.24	10.876		
8,900.00	7,272.00	8,784.11	7,041.00	44.56	60.52	73.60	596.07	2,906.82	818.28	741.67	76.61	10.681		
9,000.00	7,272.00	8,884.11	7,041.00	44.51	60.50	73.60	696.06	2,907.85	818.28	740.20	78.08	10.480		
9,100.00	7,272.00	8,984.11	7,041.00	44.48	60.48	73.60	796.06	2,908.89	818.28	738.65	79.64	10.275		
9,200.00	7,272.00	9,084.11	7,041.00	44.46	60.47	73.60	896.05	2,909.93	818.28	737.00	81.28	10.068		
9,300.00	7,272.00	9,184.11	7,041.00	44.47	60.47	73.60	996.05	2,910.97	818.28	735.28	83.00	9.859		
9,400.00	7,272.00	9,284.11	7,041.00	44.52	60.48	73.60	1,096.04	2,912.00	818.28	733.49	84.80	9.650		
9,500.00	7,272.00	9,384.11	7,041.00	44.63	60.49	73.60	1,196.03	2,913.04	818.28	731.62	86.67	9.442		
9,600.00	7,272.00	9,484.11	7,041.00	44.85	60.52	73.60	1,296.03	2,914.08	818.29	729.69	88.60	9.236		
9,700.00	7,272.00	9,584.11	7,041.00	45.24	60.56	73.60	1,396.02	2,915.11	818.29	727.69	90.59	9.032		
9,800.00	7,272.00	9,684.11	7,041.00	45.85	60.61	73.60	1,496.02	2,916.15	818.29	725.64	92.65	8.832		
9,900.00	7,272.00	9,784.11	7,041.00	46.65	60.68	73.60	1,596.01	2,917.19	818.29	723.53	94.75	8.636		
10,000.00	7,272.00	9,884.11	7,041.00	47.61	60.77	73.60	1,696.01	2,918.22	818.29	721.38	96.91	8.444		
10,100.00	7,272.00	9,984.11	7,041.00	48.66	60.88	73.60	1,796.00	2,919.26	818.29	719.17	99.12	8.256		
10,200.00	7,272.00	10,084.11	7,041.00	49.77	61.02	73.60	1,896.00	2,920.30	818.29	716.93	101.36	8.073		
10,300.00	7,272.00	10,184.11	7,041.00	50.93	61.19	73.60	1,995.99	2,921.34	818.29	714.64	103.65	7.894		
10,400.00	7,272.00	10,284.11	7,041.00	52.12	61.39	73.60	2,095.99	2,922.37	818.29	712.31	105.98	7.721		
10,500.00	7,272.00	10,384.11	7,041.00	53.34	61.64	73.60	2,195.98	2,923.41	818.29	709.95	108.35	7.553		
10,600.00	7,272.00	10,484.11	7,041.00	54.58	61.95	73.60	2,295.98	2,924.45	818.29	707.55	110.74	7.389		
10,700.00	7,272.00	10,584.11	7,041.00	55.84	62.32	73.60	2,395.97	2,925.48	818.29	705.12	113.17	7.230		
10,800.00	7,272.00	10,684.11	7,041.00	57.11	62.76	73.60	2,495.97	2,926.52	818.30	702.66	115.63	7.077		
10,900.00	7,272.00	10,784.11	7,041.00	58.41	63.29	73.60	2,595.96	2,927.56	818.30	700.18	118.12	6.928		
11,000.00	7,272.00	10,884.11	7,041.00	59.72	63.92	73.60	2,695.95	2,928.60	818.30	697.66	120.63	6.783		
11,100.00	7,272.00	10,984.11	7,041.00	61.04	64.63	73.60	2,795.95	2,929.63	818.30	695.13	123.17	6.644		
11,200.00	7,272.00	11,084.11	7,041.00	62.37	65.44	73.60	2,895.94	2,930.67	818.30	692.57	125.73	6.508		
11,300.00	7,272.00	11,184.11	7,041.00	63.71	66.33	73.60	2,995.94	2,931.71	818.30	689.99	128.31	6.377		
11,400.00	7,272.00	11,284.11	7,041.00	65.07	67.30	73.60	3,095.93	2,932.74	818.30	687.39	130.91	6.251		
11,500.00	7,272.00	11,384.11	7,041.00	66.43	68.34	73.60	3,195.93	2,933.78	818.30	684.77	133.54	6.128		
11,600.00	7,272.00	11,484.11	7,041.00	67.80	69.43	73.60	3,295.92	2,934.82	818.30	682.13	136.17	6.009		
11,700.00	7,272.00	11,584.11	7,041.00	69.19	70.57	73.60	3,395.92	2,935.85	818.30	679.47	138.83	5.894		
11,800.00	7,272.00	11,684.11	7,041.00	70.57	71.76	73.60	3,495.91	2,936.89	818.30	676.80	141.50	5.783		
11,900.00	7,272.00	11,784.11	7,041.00	71.97	72.98	73.60	3,595.91	2,937.93	818.30	674.11	144.19	5.675		
12,000.00	7,272.00	11,884.11	7,041.00	73.37	74.23	73.60	3,695.90	2,938.97	818.30	671.41	146.89	5.571		
12,100.00	7,272.00	11,984.11	7,041.00	74.78	75.50	73.60	3,795.90	2,940.00	818.31	668.70	149.61	5.470		
12,200.00	7,272.00	12,084.11	7,041.00	76.20	76.80	73.60	3,895.89	2,941.04	818.31	665.97	152.34	5.372		
12,300.00	7,272.00	12,184.11	7,041.00	77.62	78.12	73.60	3,995.88	2,942.08	818.31	663.23	155.08	5.277		
12,400.00	7,272.00	12,284.11	7,041.00	79.05	79.45	73.60	4,095.88	2,943.11	818.31	660.48	157.83	5.185		
12,431.65	7,272.00	12,315.76	7,041.00	79.50	79.88	73.60	4,127.53	2,943.44	818.31	659.61	158.70	5.156		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well RUEGGE 3O-4H-N165 - Slot RUEGGE 3
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 4938.00usft
<b>Reference Site:</b>	S4-T1N-R65W	<b>MD Reference:</b>	23' KB @ 4938.00usft
<b>Site Error:</b>	0.00usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	RUEGGE 3O-4H-N165	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	PLAN #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S4-T1N-R65W - RUEGGE 3R-4H-N165 - OH - PLAN #1													Offset Site Error: 0.00 usft	
Survey Program: 0-MWD+HDGM													Offset Well Error: 0.00 usft	
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
0.00	0.00	1.00	-1.00	0.00	0.00	81.55	4.41	29.67	30.00					
100.00	100.00	101.00	99.00	0.14	0.14	81.55	4.41	29.67	30.00	29.72	0.28	107.291		
109.08	109.08	108.08	108.08	0.17	0.17	81.55	4.41	29.67	30.00	29.66	0.34	88.885 CC		
200.00	200.00	198.48	198.47	0.50	0.49	82.15	4.17	30.22	30.51	29.53	0.98	31.009 ES		
300.00	300.00	297.45	297.37	0.85	0.84	85.49	2.65	33.63	33.77	32.07	1.70	19.918		
400.00	400.00	396.05	395.71	1.21	1.20	90.34	-0.24	40.12	40.26	37.84	2.41	16.689		
500.00	499.98	494.23	493.33	1.56	1.57	-21.99	-4.49	49.66	48.57	45.45	3.11	15.609		
600.00	599.84	592.13	590.25	1.91	1.96	-19.23	-10.07	62.20	57.03	53.23	3.80	15.004		
700.00	699.45	689.73	686.36	2.26	2.37	-17.32	-16.98	77.71	65.56	61.07	4.50	14.576		
800.00	798.70	787.05	781.57	2.63	2.81	-15.98	-25.19	96.15	74.10	68.90	5.20	14.247		
900.00	897.47	884.10	875.76	3.02	3.28	-15.02	-34.67	117.46	82.61	76.70	5.91	13.975		
1,000.00	995.62	980.87	968.84	3.44	3.79	-14.34	-45.42	141.60	91.06	84.44	6.63	13.739		
1,100.00	1,093.06	1,077.37	1,060.73	3.88	4.35	-13.86	-57.41	168.53	99.45	92.09	7.35	13.524		
1,200.00	1,189.64	1,173.61	1,151.33	4.37	4.95	-13.54	-70.61	198.18	107.74	99.65	8.09	13.314		
1,300.00	1,285.27	1,269.60	1,240.55	4.89	5.61	-13.35	-85.00	230.50	115.93	107.09	8.84	13.109		
1,400.00	1,379.82	1,365.33	1,328.31	5.47	6.32	-13.25	-100.56	265.44	124.02	114.41	9.61	12.906		
1,414.59	1,393.51	1,379.28	1,340.99	5.55	6.43	-13.24	-102.93	270.75	125.18	115.46	9.72	12.879		
1,500.00	1,473.62	1,463.93	1,417.72	6.08	7.11	-13.21	-117.47	303.42	132.31	121.86	10.45	12.658		
1,600.00	1,567.42	1,563.58	1,508.03	6.72	7.92	-13.17	-134.60	341.89	140.69	129.35	11.33	12.413		
1,700.00	1,661.21	1,663.23	1,598.34	7.37	8.75	-13.14	-151.73	380.37	149.06	136.84	12.22	12.195		
1,800.00	1,755.00	1,762.88	1,688.65	8.03	9.59	-13.11	-168.86	418.84	157.43	144.31	13.12	11.999		
1,900.00	1,848.80	1,862.53	1,778.97	8.69	10.43	-13.08	-185.99	457.31	165.80	151.78	14.02	11.824		
2,000.00	1,942.59	1,962.17	1,869.28	9.37	11.28	-13.06	-203.11	495.78	174.18	159.25	14.93	11.666		
2,100.00	2,036.39	2,061.82	1,959.59	10.05	12.13	-13.04	-220.24	534.26	182.55	166.71	15.84	11.524		
2,200.00	2,130.18	2,161.47	2,049.90	10.73	12.99	-13.02	-237.37	572.73	190.92	174.17	16.76	11.394		
2,300.00	2,223.97	2,261.12	2,140.22	11.41	13.84	-13.00	-254.50	611.20	199.29	181.62	17.67	11.277		
2,400.00	2,317.77	2,360.77	2,230.53	12.10	14.70	-12.99	-271.63	649.67	207.67	189.07	18.59	11.169		
2,500.00	2,411.56	2,460.42	2,320.84	12.79	15.57	-12.97	-288.76	688.15	216.04	196.53	19.51	11.071		
2,600.00	2,505.36	2,560.07	2,411.15	13.49	16.43	-12.96	-305.89	726.62	224.41	203.97	20.44	10.980		
2,700.00	2,599.15	2,659.72	2,501.47	14.18	17.29	-12.94	-323.02	765.09	232.78	211.42	21.36	10.897		
2,800.00	2,692.94	2,759.37	2,591.78	14.87	18.16	-12.93	-340.15	803.56	241.16	218.87	22.29	10.820		
2,900.00	2,786.74	2,859.01	2,682.09	15.57	19.03	-12.92	-357.28	842.04	249.53	226.31	23.22	10.748		
3,000.00	2,880.53	2,956.47	2,770.35	16.27	19.88	-13.07	-373.39	880.09	258.19	234.07	24.13	10.702		
3,100.00	2,974.32	3,054.69	2,859.05	16.97	20.75	-13.72	-387.50	919.83	267.82	242.71	25.11	10.666		
3,200.00	3,068.12	3,154.16	2,948.86	17.67	21.64	-14.38	-401.59	960.22	277.58	251.46	26.12	10.626		
3,300.00	3,161.91	3,253.63	3,038.66	18.37	22.53	-15.00	-415.67	1,000.61	287.38	260.24	27.14	10.588		
3,400.00	3,255.71	3,353.10	3,128.47	19.07	23.42	-15.58	-429.76	1,040.99	297.21	269.04	28.17	10.551		
3,500.00	3,349.50	3,452.58	3,218.28	19.77	24.31	-16.12	-443.84	1,081.38	307.06	277.86	29.20	10.516		
3,600.00	3,443.29	3,552.05	3,308.08	20.47	25.20	-16.62	-457.93	1,121.77	316.94	286.71	30.23	10.483		
3,700.00	3,537.09	3,651.52	3,397.89	21.18	26.09	-17.10	-472.01	1,162.16	326.84	295.57	31.27	10.451		
3,800.00	3,630.88	3,751.00	3,487.70	21.88	26.98	-17.54	-486.10	1,202.55	336.77	304.45	32.32	10.421		
3,900.00	3,724.68	3,850.47	3,577.50	22.58	27.87	-17.97	-500.18	1,242.93	346.71	313.35	33.36	10.392		
4,000.00	3,818.47	3,949.94	3,667.31	23.29	28.76	-18.36	-514.27	1,283.32	356.67	322.26	34.41	10.364		
4,100.00	3,912.26	4,049.42	3,757.12	23.99	29.65	-18.74	-528.35	1,323.71	366.65	331.18	35.47	10.338		
4,200.00	4,006.06	4,148.89	3,846.92	24.69	30.55	-19.10	-542.44	1,364.10	376.64	340.12	36.52	10.312		
4,300.00	4,099.85	4,248.36	3,936.73	25.40	31.44	-19.43	-556.52	1,404.49	386.64	349.06	37.58	10.288		
4,400.00	4,193.65	4,347.83	4,026.54	26.10	32.33	-19.76	-570.61	1,444.88	396.66	358.02	38.64	10.265		
4,500.00	4,287.44	4,447.31	4,116.34	26.81	33.23	-20.06	-584.69	1,485.26	406.69	366.98	39.71	10.242		
4,600.00	4,381.23	4,546.78	4,206.15	27.51	34.12	-20.35	-598.78	1,525.65	416.73	375.96	40.77	10.221		
4,700.00	4,475.03	4,646.25	4,295.96	28.22	35.01	-20.63	-612.86	1,566.04	426.78	384.94	41.84	10.200		
4,800.00	4,568.82	4,745.73	4,385.77	28.93	35.91	-20.89	-626.95	1,606.43	436.84	393.93	42.91	10.180		
4,900.00	4,662.61	4,845.20	4,475.57	29.63	36.80	-21.14	-641.03	1,646.82	446.91	402.93	43.98	10.161		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well RUEGGE 3O-4H-N165 - Slot RUEGGE 3
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 4938.00usft
<b>Reference Site:</b>	S4-T1N-R65W	<b>MD Reference:</b>	23' KB @ 4938.00usft
<b>Site Error:</b>	0.00usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	RUEGGE 3O-4H-N165	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	PLAN #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S4-T1N-R65W - RUEGGE 3R-4H-N165 - OH - PLAN #1													Offset Site Error:	0.00 usft
Survey Program: O-MWD+HDGM													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
5,000.00	4,756.41	4,944.67	4,565.38	30.34	37.70	-21.39	-655.12	1,687.21	456.99	411.93	45.06	10.143		
5,100.00	4,850.20	5,044.14	4,655.19	31.04	38.59	-21.62	-669.20	1,727.59	467.07	420.94	46.13	10.125		
5,200.00	4,944.00	5,143.62	4,744.99	31.75	39.49	-21.84	-683.29	1,767.98	477.17	429.96	47.21	10.108		
5,300.00	5,037.79	5,243.09	4,834.80	32.46	40.39	-22.05	-697.37	1,808.37	487.26	438.98	48.28	10.092		
5,400.00	5,131.58	5,342.56	4,924.61	33.16	41.28	-22.25	-711.46	1,848.76	497.37	448.01	49.36	10.076		
5,500.00	5,225.38	5,442.04	5,014.41	33.87	42.18	-22.45	-725.54	1,889.15	507.48	457.04	50.44	10.061		
5,600.00	5,319.17	5,541.51	5,104.22	34.58	43.07	-22.64	-739.63	1,929.54	517.60	466.08	51.52	10.046		
5,700.00	5,412.97	5,640.98	5,194.03	35.28	43.97	-22.82	-753.71	1,969.92	527.72	475.12	52.60	10.032		
5,800.00	5,506.76	5,740.46	5,283.83	35.99	44.86	-22.99	-767.79	2,010.31	537.85	484.16	53.69	10.018		
5,900.00	5,600.55	5,839.93	5,373.64	36.70	45.76	-23.16	-781.88	2,050.70	547.98	493.21	54.77	10.005		
6,000.00	5,694.35	5,939.40	5,463.45	37.40	46.66	-23.32	-795.96	2,091.09	558.11	502.26	55.85	9.992		
6,100.00	5,788.14	6,038.87	5,553.25	38.11	47.55	-23.47	-810.05	2,131.48	568.25	511.31	56.94	9.980		
6,200.00	5,881.94	6,138.35	5,643.06	38.82	48.45	-23.62	-824.13	2,171.87	578.40	520.37	58.03	9.968		
6,300.00	5,975.73	6,237.82	5,732.87	39.53	49.35	-23.77	-838.22	2,212.25	588.55	529.43	59.11	9.956		
6,400.00	6,069.52	6,337.29	5,822.68	40.23	50.24	-23.91	-852.30	2,252.64	598.70	538.50	60.20	9.945		
6,500.00	6,163.32	6,436.77	5,912.48	40.94	51.14	-24.04	-866.39	2,293.03	608.85	547.56	61.29	9.934		
6,600.00	6,257.11	6,536.24	6,002.29	41.65	52.04	-24.17	-880.47	2,333.42	619.01	556.63	62.38	9.924		
6,700.00	6,350.90	6,635.71	6,092.10	42.36	52.93	-24.30	-894.56	2,373.81	629.17	565.71	63.47	9.914		
6,800.00	6,444.70	6,735.19	6,181.90	43.06	53.83	-24.42	-908.64	2,414.20	639.34	574.78	64.56	9.904		
6,847.81	6,489.54	6,782.74	6,224.84	43.40	54.26	-24.48	-915.38	2,433.50	644.20	579.12	65.08	9.899		
6,850.00	6,491.60	6,784.92	6,226.81	43.42	54.28	-24.07	-915.69	2,434.39	644.42	579.32	65.10	9.899		
6,900.00	6,538.72	6,834.64	6,271.69	43.76	54.73	-13.69	-922.72	2,454.58	649.50	583.97	65.53	9.911		
6,950.00	6,586.11	6,884.15	6,316.39	44.07	55.18	-1.92	-929.74	2,474.68	654.58	588.82	65.76	9.954		
7,000.00	6,633.53	6,933.21	6,360.68	44.36	55.62	10.27	-936.68	2,494.60	659.70	593.92	65.78	10.028		
7,050.00	6,680.75	6,981.59	6,404.36	44.62	56.05	21.85	-943.53	2,514.24	664.97	599.35	65.63	10.133		
7,100.00	6,727.53	7,029.04	6,447.20	44.85	56.48	32.14	-950.25	2,533.51	670.54	605.22	65.31	10.266		
7,150.00	6,773.66	7,075.34	6,489.00	45.05	56.90	40.93	-956.81	2,552.31	676.58	611.70	64.88	10.429		
7,200.00	6,818.91	7,120.26	6,529.56	45.22	57.31	48.33	-963.17	2,570.55	683.31	618.95	64.36	10.617		
7,250.00	6,863.05	7,170.07	6,574.71	45.37	57.74	54.69	-968.50	2,590.87	690.76	626.83	63.93	10.804		
7,300.00	6,905.88	7,221.78	6,621.80	45.49	58.17	60.04	-970.38	2,612.10	698.78	635.14	63.64	10.980		
7,350.00	6,947.18	7,275.61	6,670.82	45.59	58.59	64.60	-968.37	2,634.25	707.29	643.81	63.47	11.143		
7,400.00	6,986.75	7,331.81	6,721.67	45.67	58.98	68.54	-961.98	2,657.27	716.20	652.77	63.43	11.291		
7,450.00	7,024.39	7,390.64	6,774.22	45.73	59.36	71.98	-950.62	2,681.10	725.41	661.94	63.48	11.428		
7,500.00	7,059.94	7,452.35	6,828.22	45.77	59.70	75.01	-933.65	2,705.65	734.80	671.22	63.58	11.557		
7,550.00	7,093.20	7,517.24	6,883.31	45.79	60.01	77.71	-910.38	2,730.76	744.21	680.52	63.69	11.684		
7,600.00	7,124.03	7,585.55	6,938.96	45.80	60.28	80.13	-880.07	2,756.19	753.50	689.72	63.78	11.814		
7,650.00	7,152.27	7,657.49	6,994.43	45.79	60.52	82.28	-842.00	2,781.62	762.48	698.67	63.81	11.950		
7,700.00	7,177.77	7,733.23	7,048.71	45.77	60.70	84.19	-795.54	2,806.60	770.95	707.19	63.76	12.092		
7,750.00	7,200.43	7,812.79	7,100.56	45.74	60.83	85.86	-740.22	2,830.58	778.72	715.07	63.65	12.234		
7,800.00	7,220.13	7,896.06	7,148.47	45.70	60.92	87.28	-675.91	2,852.87	785.58	722.04	63.55	12.362		
7,850.00	7,236.76	7,982.75	7,190.73	45.65	60.95	88.43	-602.94	2,872.70	791.33	727.80	63.53	12.455		
7,900.00	7,250.26	8,072.31	7,225.61	45.60	60.94	89.30	-522.19	2,889.28	795.79	732.05	63.74	12.485		
7,950.00	7,260.55	8,164.01	7,251.51	45.53	60.88	89.87	-435.20	2,901.87	798.81	734.53	64.28	12.427		
8,000.00	7,267.59	8,256.90	7,267.19	45.47	60.81	90.13	-344.06	2,909.89	800.30	735.05	65.25	12.265		
8,050.00	7,271.34	8,349.94	7,271.98	45.40	60.71	90.08	-251.26	2,913.02	800.21	733.55	66.65	12.005		
8,081.63	7,272.00	8,378.78	7,272.00	45.36	60.68	90.07	-222.42	2,913.33	799.99	733.31	66.68	11.997		
8,081.65	7,272.00	8,378.80	7,272.00	45.36	60.68	90.07	-222.40	2,913.33	799.99	733.31	66.68	11.997		
8,100.00	7,272.00	8,402.84	7,272.00	45.33	60.65	90.07	-204.05	2,913.52	799.99	733.24	66.75	11.985		
8,200.00	7,272.00	8,502.84	7,272.00	45.20	60.55	90.07	-104.05	2,914.56	799.99	732.81	67.18	11.908		
8,300.00	7,272.00	8,602.84	7,272.00	45.08	60.46	90.07	-4.06	2,915.59	799.99	732.24	67.75	11.807		
8,400.00	7,272.00	8,702.84	7,272.00	44.97	60.37	90.07	95.94	2,916.63	799.99	731.52	68.47	11.684		
8,500.00	7,272.00	8,802.84	7,272.00	44.87	60.29	90.07	195.93	2,917.67	799.99	730.68	69.32	11.541		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well RUEGGE 3O-4H-N165 - Slot RUEGGE 3
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 4938.00usft
<b>Reference Site:</b>	S4-T1N-R65W	<b>MD Reference:</b>	23' KB @ 4938.00usft
<b>Site Error:</b>	0.00usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	RUEGGE 3O-4H-N165	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	PLAN #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S4-T1N-R65W - RUEGGE 3R-4H-N165 - OH - PLAN #1												Offset Site Error:	0.00 usft
Survey Program: O-MWD+HDGM												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
8,600.00	7,272.00	8,902.84	7,272.00	44.78	60.22	90.07	295.93	2,918.70	799.99	729.70	70.30	11.380	
8,700.00	7,272.00	8,997.16	7,272.00	44.70	60.15	90.07	395.92	2,919.74	800.00	728.62	71.37	11.209	
8,800.00	7,272.00	9,097.16	7,272.00	44.62	60.09	90.07	495.92	2,920.78	800.00	727.40	72.60	11.020	
8,900.00	7,272.00	9,202.84	7,272.00	44.56	60.03	90.07	595.91	2,921.82	800.00	726.03	73.97	10.815	
9,000.00	7,272.00	9,302.84	7,272.00	44.51	59.98	90.07	695.91	2,922.85	800.00	724.58	75.42	10.607	
9,100.00	7,272.00	9,402.84	7,272.00	44.48	59.94	90.07	795.90	2,923.89	800.00	723.03	76.97	10.394	
9,200.00	7,272.00	9,502.84	7,272.00	44.46	59.90	90.07	895.90	2,924.93	800.00	721.39	78.61	10.176	
9,300.00	7,272.00	9,602.84	7,272.00	44.47	59.87	90.07	995.89	2,925.96	800.00	719.65	80.35	9.956	
9,400.00	7,272.00	9,702.84	7,272.00	44.52	59.85	90.07	1,095.88	2,927.00	800.00	717.83	82.17	9.736	
9,500.00	7,272.00	9,802.84	7,272.00	44.63	59.84	90.07	1,195.88	2,928.04	800.00	715.94	84.07	9.516	
9,600.00	7,272.00	9,897.16	7,272.00	44.85	59.83	90.07	1,295.87	2,929.08	800.00	714.02	85.98	9.304	
9,700.00	7,272.00	10,002.84	7,272.00	45.24	59.84	90.07	1,395.87	2,930.11	800.00	711.93	88.08	9.083	
9,800.00	7,272.00	10,102.84	7,272.00	45.85	59.86	90.07	1,495.86	2,931.15	800.01	709.82	90.18	8.871	
9,900.00	7,272.00	10,197.16	7,272.00	46.65	59.90	90.07	1,595.86	2,932.19	800.01	707.72	92.28	8.669	
10,000.00	7,272.00	10,302.84	7,272.00	47.61	59.96	90.07	1,695.85	2,933.22	800.01	705.44	94.56	8.460	
10,100.00	7,272.00	10,402.84	7,272.00	48.66	60.04	90.07	1,795.85	2,934.26	800.01	703.18	96.83	8.262	
10,200.00	7,272.00	10,502.84	7,272.00	49.77	60.16	90.07	1,895.84	2,935.30	800.01	700.86	99.15	8.069	
10,300.00	7,272.00	10,602.84	7,272.00	50.93	60.31	90.07	1,995.84	2,936.34	800.01	698.50	101.51	7.881	
10,400.00	7,272.00	10,697.16	7,272.00	52.12	60.51	90.07	2,095.83	2,937.37	800.01	696.16	103.85	7.704	
10,500.00	7,272.00	10,802.84	7,272.00	53.34	60.81	90.07	2,195.83	2,938.41	800.01	693.65	106.36	7.522	
10,600.00	7,272.00	10,902.84	7,272.00	54.58	61.18	90.07	2,295.82	2,939.45	800.01	691.17	108.84	7.350	
10,700.00	7,272.00	11,002.84	7,272.00	55.84	61.66	90.07	2,395.81	2,940.48	800.01	688.66	111.35	7.185	
10,800.00	7,272.00	11,102.84	7,272.00	57.11	62.27	90.07	2,495.81	2,941.52	800.01	686.12	113.90	7.024	
10,900.00	7,272.00	11,202.84	7,272.00	58.41	63.01	90.07	2,595.80	2,942.56	800.01	683.54	116.47	6.869	
11,000.00	7,272.00	11,302.84	7,272.00	59.72	63.87	90.07	2,695.80	2,943.59	800.02	680.94	119.07	6.719	
11,100.00	7,272.00	11,402.84	7,272.00	61.04	64.84	90.07	2,795.79	2,944.63	800.02	678.32	121.70	6.574	
11,200.00	7,272.00	11,502.84	7,272.00	62.37	65.89	90.07	2,895.79	2,945.67	800.02	675.66	124.35	6.433	
11,300.00	7,272.00	11,602.84	7,272.00	63.71	67.01	90.07	2,995.78	2,946.71	800.02	672.99	127.03	6.298	
11,400.00	7,272.00	11,702.84	7,272.00	65.07	68.18	90.07	3,095.78	2,947.74	800.02	670.30	129.72	6.167	
11,500.00	7,272.00	11,797.16	7,272.00	66.43	69.32	90.07	3,195.77	2,948.78	800.02	667.66	132.36	6.044	
11,600.00	7,272.00	11,902.84	7,272.00	67.80	70.64	90.07	3,295.77	2,949.82	800.02	664.85	135.17	5.918	
11,700.00	7,272.00	12,002.84	7,272.00	69.19	71.91	90.07	3,395.76	2,950.85	800.02	662.10	137.93	5.800	
11,800.00	7,272.00	12,102.84	7,272.00	70.57	73.21	90.07	3,495.76	2,951.89	800.02	659.33	140.69	5.686	
11,900.00	7,272.00	12,202.84	7,272.00	71.97	74.52	90.07	3,595.75	2,952.93	800.02	656.54	143.48	5.576	
12,000.00	7,272.00	12,302.84	7,272.00	73.37	75.85	90.07	3,695.74	2,953.97	800.02	653.75	146.28	5.469	
12,100.00	7,272.00	12,402.84	7,272.00	74.78	77.20	90.07	3,795.74	2,955.00	800.03	650.93	149.09	5.366	
12,200.00	7,272.00	12,502.84	7,272.00	76.20	78.56	90.07	3,895.73	2,956.04	800.03	648.11	151.92	5.266	
12,300.00	7,272.00	12,602.84	7,272.00	77.62	79.93	90.07	3,995.73	2,957.08	800.03	645.27	154.76	5.170	
12,400.00	7,272.00	12,702.84	7,272.00	79.05	81.32	90.07	4,095.72	2,958.11	800.03	642.43	157.60	5.076	
12,431.65	7,272.00	12,728.80	7,272.00	79.50	81.79	90.07	4,127.37	2,958.44	800.03	641.68	158.34	5.052 SF	

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well RUEGGE 3O-4H-N165 - Slot RUEGGE 3
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 4938.00usft
<b>Reference Site:</b>	S4-T1N-R65W	<b>MD Reference:</b>	23' KB @ 4938.00usft
<b>Site Error:</b>	0.00usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	RUEGGE 3O-4H-N165	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	PLAN #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S4-T1N-R65W - STELLING 1 - CPR WELL - GYRO													Offset Site Error: 0.00 usft	
Survey Program: 77-VESSI_GYROFLEX													Offset Well Error: 0.00 usft	
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
0.00	0.00	0.00	0.00	0.00	0.00	-61.14	625.70	-1,135.21	1,296.25					
100.00	100.00	90.34	90.34	0.14	0.08	-61.15	625.56	-1,135.36	1,296.29	1,296.07	0.22	5,890.987		
200.00	200.00	189.15	189.15	0.50	0.26	-61.16	625.42	-1,135.63	1,296.46	1,295.71	0.75	1,723.955		
300.00	300.00	288.31	288.31	0.85	0.43	-61.15	625.66	-1,135.78	1,296.71	1,295.42	1.29	1,009.012		
400.00	400.00	385.98	385.98	1.21	0.60	-61.13	626.23	-1,135.90	1,297.10	1,295.29	1.82	714.506 ES		
500.00	499.98	489.61	489.60	1.56	0.78	-177.59	626.70	-1,136.01	1,299.16	1,296.81	2.35	553.955		
600.00	599.84	590.78	590.78	1.91	0.96	-177.57	627.28	-1,135.86	1,304.53	1,301.66	2.87	454.884		
700.00	699.45	693.60	693.59	2.26	1.14	-177.55	627.83	-1,135.47	1,313.16	1,309.76	3.40	386.412		
800.00	798.70	791.11	791.10	2.63	1.31	-177.54	628.30	-1,135.11	1,325.25	1,321.33	3.93	337.637		
900.00	897.47	890.28	890.27	3.02	1.49	-177.51	629.15	-1,134.60	1,340.84	1,336.38	4.46	300.721		
1,000.00	995.62	989.49	989.47	3.44	1.66	-177.49	629.95	-1,134.03	1,359.80	1,354.80	5.00	272.156		
1,100.00	1,093.06	1,085.45	1,085.43	3.88	1.83	-177.47	630.74	-1,133.51	1,382.19	1,376.66	5.53	249.854		
1,200.00	1,189.64	1,178.76	1,178.73	4.37	2.00	-177.43	631.98	-1,132.93	1,408.15	1,402.08	6.07	232.102 SF		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well RUEGGE 3O-4H-N165 - Slot RUEGGE 3
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 4938.00usft
<b>Reference Site:</b>	S4-T1N-R65W	<b>MD Reference:</b>	23' KB @ 4938.00usft
<b>Site Error:</b>	0.00usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	RUEGGE 3O-4H-N165	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	PLAN #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S4-T1N-R65W - STELLING 24-4 - CPR WELL - GYRO												Offset Site Error:	0.00 usft
Survey Program: 100-VESSI_GYROFLEX												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	-106.83	-59.16	-195.52	204.39				
100.00	100.00	92.34	92.34	0.14	0.07	-106.71	-58.78	-195.79	204.42	204.22	0.21	983.962	
200.00	200.00	193.44	193.43	0.50	0.24	-106.43	-57.85	-196.16	204.52	203.78	0.74	278.212	
240.82	240.82	233.83	233.82	0.64	0.31	-106.32	-57.45	-196.22	204.46	203.51	0.95	214.815	
300.00	300.00	292.13	292.11	0.85	0.42	-106.13	-56.82	-196.53	204.59	203.32	1.27	161.632 ES	
400.00	400.00	391.04	391.02	1.21	0.59	-105.77	-55.80	-197.56	205.29	203.50	1.80	114.208	
500.00	499.98	489.93	489.90	1.56	0.77	138.24	-55.41	-198.92	207.82	205.50	2.32	89.603	
600.00	599.84	589.55	589.50	1.91	0.94	139.26	-55.26	-200.55	213.29	210.45	2.84	75.075	
700.00	699.45	691.27	691.21	2.26	1.12	140.95	-54.46	-201.91	221.11	217.74	3.37	65.536	
800.00	798.70	790.31	790.24	2.63	1.30	142.91	-53.83	-202.59	231.28	227.37	3.91	59.126	
900.00	897.47	888.76	888.69	3.02	1.47	144.98	-53.86	-203.27	244.68	240.22	4.46	54.897	
1,000.00	995.62	986.97	986.89	3.44	1.64	146.97	-54.94	-203.84	261.28	256.27	5.01	52.157	
1,100.00	1,093.06	1,084.23	1,084.15	3.88	1.81	148.99	-56.23	-204.37	281.15	275.58	5.57	50.499	
1,200.00	1,189.64	1,181.57	1,181.47	4.37	1.98	151.02	-57.55	-204.86	304.31	298.17	6.13	49.628	
1,300.00	1,285.27	1,278.28	1,278.17	4.89	2.15	152.98	-58.99	-205.05	330.57	323.87	6.70	49.337 SF	
1,400.00	1,379.82	1,372.56	1,372.44	5.47	2.31	154.82	-60.39	-205.10	360.14	352.87	7.27	49.543	
1,414.59	1,393.51	1,386.14	1,386.02	5.55	2.33	155.08	-60.58	-205.13	364.75	357.40	7.36	49.584	
1,500.00	1,473.62	1,466.06	1,465.93	6.08	2.47	156.73	-61.54	-205.32	392.21	384.37	7.84	50.055	
1,600.00	1,567.42	1,562.15	1,562.02	6.72	2.64	158.52	-62.15	-205.38	424.56	416.16	8.40	50.534	
1,700.00	1,661.21	1,658.78	1,658.65	7.37	2.81	160.17	-62.04	-204.66	456.57	447.60	8.97	50.914	
1,800.00	1,755.00	1,753.97	1,753.83	8.03	2.97	161.52	-62.47	-203.64	488.47	478.94	9.53	51.253	
1,900.00	1,848.80	1,847.79	1,847.64	8.69	3.13	162.73	-62.54	-202.52	520.54	510.45	10.09	51.594	
2,000.00	1,942.59	1,939.31	1,939.16	9.37	3.29	163.71	-63.19	-201.73	552.99	542.35	10.64	51.963	
2,100.00	2,036.39	2,029.46	2,029.31	10.05	3.45	164.58	-63.64	-201.61	586.28	575.09	11.19	52.396	
2,200.00	2,130.18	2,121.73	2,121.58	10.73	3.61	165.36	-64.19	-201.82	619.99	608.25	11.75	52.786	
2,300.00	2,223.97	2,211.55	2,211.39	11.41	3.77	166.07	-64.29	-202.37	654.26	641.97	12.29	53.230	
2,400.00	2,317.77	2,302.59	2,302.42	12.10	3.93	166.70	-64.56	-203.41	689.07	676.22	12.84	53.654	
2,500.00	2,411.56	2,399.78	2,399.60	12.79	4.10	167.27	-65.35	-204.56	723.85	710.43	13.42	53.928	
2,600.00	2,505.36	2,492.84	2,492.66	13.49	4.26	167.79	-65.84	-205.38	758.48	744.50	13.98	54.238	
2,700.00	2,599.15	2,594.35	2,594.17	14.18	4.44	168.34	-66.04	-205.74	792.78	778.19	14.58	54.366	
2,800.00	2,692.94	2,683.70	2,683.52	14.87	4.60	168.78	-66.33	-205.79	826.82	811.70	15.13	54.660	
2,900.00	2,786.74	2,776.38	2,776.20	15.57	4.76	169.22	-66.23	-206.15	861.32	845.63	15.69	54.909	
3,000.00	2,880.53	2,870.07	2,869.89	16.27	4.92	169.65	-65.85	-206.44	895.86	879.61	16.25	55.129	
3,100.00	2,974.32	2,972.38	2,972.20	16.97	5.10	170.06	-66.05	-206.58	930.15	913.29	16.85	55.185	
3,200.00	3,068.12	3,062.44	3,062.26	17.67	5.26	170.40	-66.09	-206.06	963.87	946.46	17.40	55.385	
3,300.00	3,161.91	3,150.57	3,150.39	18.37	5.41	170.72	-65.89	-206.25	998.38	980.44	17.94	55.644	
3,400.00	3,255.71	3,242.42	3,242.23	19.07	5.57	171.04	-65.54	-206.67	1,033.19	1,014.69	18.50	55.849	
3,500.00	3,349.50	3,333.28	3,333.09	19.77	5.73	171.35	-64.82	-207.12	1,068.19	1,049.13	19.05	56.067	
3,600.00	3,443.29	3,421.82	3,421.62	20.47	5.89	171.66	-63.60	-207.74	1,103.57	1,083.98	19.59	56.329	
3,700.00	3,537.09	3,510.29	3,510.08	21.18	6.04	171.96	-62.19	-208.70	1,139.38	1,119.25	20.13	56.599	
3,800.00	3,630.88	3,598.22	3,597.98	21.88	6.20	172.19	-61.38	-210.26	1,175.63	1,154.96	20.67	56.878	
3,900.00	3,724.68	3,692.09	3,691.83	22.58	6.36	172.43	-60.41	-212.08	1,212.07	1,190.83	21.24	57.070	
4,000.00	3,818.47	3,800.12	3,799.83	23.29	6.55	172.77	-58.10	-213.07	1,247.97	1,226.10	21.88	57.048	
4,100.00	3,912.26	3,903.05	3,902.74	23.99	6.73	173.07	-56.12	-212.97	1,282.95	1,260.47	22.49	57.056	
4,200.00	4,006.06	3,993.29	3,992.96	24.69	6.89	173.34	-54.16	-212.58	1,317.74	1,294.71	23.03	57.210	
4,300.00	4,099.85	4,085.47	4,085.09	25.40	7.05	173.63	-51.51	-212.11	1,352.71	1,329.12	23.59	57.344	
4,400.00	4,193.65	4,190.25	4,189.83	26.10	7.23	173.93	-48.64	-211.29	1,387.44	1,363.23	24.21	57.314	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well RUEGGE 30-4H-N165 - Slot RUEGGE 3
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 4938.00usft
<b>Reference Site:</b>	S4-T1N-R65W	<b>MD Reference:</b>	23' KB @ 4938.00usft
<b>Site Error:</b>	0.00usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	RUEGGE 30-4H-N165	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	PLAN #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S4-T1N-R65W - STELLING 3A-4H - CPR WELL - SURVEYS													Offset Site Error: 0.00 usft	
Survey Program: 108-ISCWSA MWD													Offset Well Error: 0.00 usft	
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
0.00	0.00	0.00	0.00	0.00	0.00	-101.83	-34.02	-162.50	166.21					
100.00	100.00	92.83	92.83	0.14	0.09	-101.92	-34.23	-162.22	165.79	165.56	0.23	718.994		
200.00	200.00	192.58	192.58	0.50	0.29	-102.22	-35.00	-161.59	165.34	164.55	0.79	209.453		
294.32	294.32	286.38	286.32	0.83	0.51	-103.22	-37.75	-160.71	165.08	163.74	1.34	122.915 CC		
300.00	300.00	291.95	291.89	0.85	0.52	-103.31	-38.02	-160.65	165.08	163.71	1.38	119.883 ES		
400.00	400.00	390.56	390.21	1.21	0.78	-105.88	-45.35	-159.41	165.74	163.75	1.99	83.338		
500.00	499.98	487.04	486.01	1.56	1.05	134.13	-56.62	-157.64	168.82	166.21	2.61	64.692		
600.00	599.84	579.45	577.60	1.91	1.32	131.50	-68.81	-158.69	178.11	174.89	3.22	55.251		
700.00	699.45	672.97	670.19	2.26	1.59	130.27	-80.93	-163.66	193.64	189.82	3.82	50.740		
800.00	798.70	769.04	765.39	2.63	1.86	130.65	-91.22	-171.37	213.06	208.63	4.42	48.162		
900.00	897.47	863.46	858.89	3.02	2.15	131.61	-101.21	-179.92	235.66	230.61	5.04	46.741		
1,000.00	995.62	956.99	951.31	3.44	2.45	132.82	-111.71	-189.65	262.11	256.43	5.69	46.100		
1,100.00	1,093.06	1,058.77	1,051.98	3.88	2.75	134.33	-123.13	-199.42	290.34	283.99	6.35	45.701		
1,200.00	1,189.64	1,154.09	1,146.46	4.37	3.03	135.89	-133.13	-207.15	319.64	312.62	7.02	45.536 SF		
1,300.00	1,285.27	1,244.95	1,236.42	4.89	3.32	137.39	-142.91	-215.33	352.56	344.85	7.71	45.744		
1,400.00	1,379.82	1,336.82	1,327.33	5.47	3.61	138.93	-152.82	-224.02	388.73	380.31	8.42	46.184		
1,414.59	1,393.51	1,350.24	1,340.62	5.55	3.65	139.15	-154.24	-225.29	394.25	385.72	8.53	46.245		
1,500.00	1,473.62	1,430.72	1,420.32	6.08	3.89	140.86	-162.52	-232.82	426.71	417.59	9.13	46.747		
1,600.00	1,567.42	1,524.36	1,513.16	6.72	4.17	142.61	-171.63	-241.05	464.47	454.64	9.83	47.272		
1,700.00	1,661.21	1,608.86	1,596.90	7.37	4.43	143.96	-179.89	-248.70	502.81	492.32	10.49	47.913		
1,800.00	1,755.00	1,692.22	1,679.26	8.03	4.71	145.03	-188.93	-257.88	543.24	532.07	11.17	48.631		
1,900.00	1,848.80	1,787.66	1,773.50	8.69	5.03	146.08	-199.38	-268.69	584.16	572.25	11.91	49.029		
2,000.00	1,942.59	1,888.63	1,873.46	9.37	5.35	147.10	-209.71	-278.56	623.73	611.06	12.67	49.236		
2,100.00	2,036.39	1,987.15	1,971.18	10.05	5.64	148.05	-218.83	-287.09	662.34	648.95	13.39	49.452		
2,200.00	2,130.18	2,074.36	2,057.77	10.73	5.90	148.85	-226.35	-294.26	700.66	686.59	14.07	49.805		
2,300.00	2,223.97	2,172.21	2,154.75	11.41	6.19	149.55	-236.02	-302.95	739.76	724.95	14.80	49.970		
2,400.00	2,317.77	2,266.01	2,247.83	12.10	6.48	150.16	-245.24	-310.01	777.65	762.12	15.52	50.093		
2,500.00	2,411.56	2,367.33	2,348.27	12.79	6.79	150.67	-256.26	-317.56	815.58	799.29	16.29	50.071		
2,600.00	2,505.36	2,446.10	2,426.42	13.49	7.03	151.06	-264.38	-323.07	853.16	836.22	16.94	50.374		
2,700.00	2,599.15	2,527.34	2,506.89	14.18	7.29	151.44	-272.65	-330.60	892.77	875.18	17.59	50.750		
2,800.00	2,692.94	2,625.76	2,604.42	14.87	7.59	151.90	-282.16	-339.60	932.37	914.04	18.33	50.855		
2,900.00	2,786.74	2,721.99	2,699.84	15.57	7.89	152.29	-291.76	-347.63	971.25	952.19	19.07	50.944		
3,000.00	2,880.53	2,803.61	2,780.71	16.27	8.14	152.57	-300.35	-354.58	1,010.35	990.62	19.72	51.223		
3,100.00	2,974.32	2,877.44	2,853.77	16.97	8.38	152.83	-307.74	-362.20	1,051.08	1,030.74	20.34	51.684		
3,200.00	3,068.12	2,975.80	2,951.18	17.67	8.70	153.20	-316.75	-372.39	1,091.91	1,070.83	21.08	51.804		
3,300.00	3,161.91	3,046.37	3,021.01	18.37	8.92	153.44	-323.27	-380.27	1,133.52	1,111.86	21.66	52.332		
3,400.00	3,255.71	3,162.87	3,136.32	19.07	9.30	153.84	-333.54	-393.28	1,175.23	1,152.73	22.50	52.225		
3,500.00	3,349.50	3,264.30	3,236.81	19.77	9.61	154.12	-343.27	-402.93	1,215.38	1,192.12	23.26	52.253		
3,600.00	3,443.29	3,360.83	3,332.41	20.47	9.92	154.31	-353.71	-411.40	1,254.79	1,230.79	24.01	52.269		
3,700.00	3,537.09	3,443.28	3,414.00	21.18	10.19	154.45	-362.84	-418.92	1,294.53	1,269.85	24.68	52.452		
3,800.00	3,630.88	3,539.42	3,509.15	21.88	10.50	154.62	-373.33	-427.83	1,334.43	1,309.00	25.43	52.474		
3,900.00	3,724.68	3,634.54	3,603.29	22.58	10.81	154.76	-383.90	-436.37	1,374.06	1,347.89	26.17	52.498		
4,000.00	3,818.47	3,728.76	3,696.52	23.29	11.12	154.88	-394.66	-444.68	1,413.54	1,386.62	26.92	52.513		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well RUEGGE 30-4H-N165 - Slot RUEGGE 3
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 4938.00usft
<b>Reference Site:</b>	S4-T1N-R65W	<b>MD Reference:</b>	23' KB @ 4938.00usft
<b>Site Error:</b>	0.00usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	RUEGGE 30-4H-N165	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	PLAN #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S4-T1N-R65W - STELLING 3B-4H - CPR WELL - SURVEYS												Offset Site Error:	0.00 usft
Survey Program: 140-ISCWSA MWD												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	-100.12	-24.55	-137.59	140.28				
100.00	100.00	89.12	89.12	0.14	0.10	-100.19	-24.66	-137.21	139.41	139.18	0.23	596.920	
200.00	200.00	191.25	191.23	0.50	0.27	-100.60	-25.37	-135.60	137.99	137.23	0.76	180.462	
300.00	300.00	292.08	291.94	0.85	0.50	-102.20	-28.52	-131.96	135.06	133.71	1.36	99.647	
400.00	400.00	391.89	391.52	1.21	0.75	-104.82	-33.82	-127.85	132.30	130.34	1.96	67.540	
480.00	479.99	471.35	470.62	1.49	0.97	135.86	-40.33	-123.97	131.19	128.73	2.46	53.418 CC	
500.00	499.98	491.13	490.27	1.56	1.03	135.07	-42.34	-122.93	131.26	128.68	2.58	50.831 ES	
600.00	599.84	590.41	588.80	1.91	1.30	131.41	-53.31	-117.61	133.65	130.44	3.20	41.752	
700.00	699.45	690.48	688.08	2.26	1.59	128.85	-64.61	-112.12	138.70	134.86	3.84	36.103	
800.00	798.70	790.12	786.84	2.63	1.89	127.26	-76.41	-106.25	145.97	141.45	4.52	32.299	
900.00	897.47	889.38	885.22	3.02	2.21	126.79	-88.31	-100.46	155.52	150.31	5.22	29.819	
1,000.00	995.62	988.29	983.18	3.44	2.54	127.11	-100.64	-94.56	167.24	161.29	5.95	28.123	
1,100.00	1,093.06	1,086.05	1,079.72	3.88	2.88	127.59	-114.80	-88.57	181.79	175.09	6.70	27.119	
1,200.00	1,189.64	1,185.63	1,178.11	4.37	3.17	128.86	-128.85	-82.48	198.39	190.96	7.43	26.697	
1,300.00	1,285.27	1,284.58	1,276.00	4.89	3.47	130.80	-141.87	-76.27	216.84	208.66	8.18	26.510 SF	
1,400.00	1,379.82	1,381.97	1,372.43	5.47	3.77	133.12	-154.04	-70.14	237.66	228.72	8.94	26.597	
1,414.59	1,393.51	1,396.12	1,386.45	5.55	3.81	133.48	-155.76	-69.26	240.93	231.88	9.05	26.626	
1,500.00	1,473.62	1,478.70	1,468.29	6.08	4.06	135.76	-165.52	-64.20	260.40	250.71	9.69	26.878	
1,600.00	1,567.42	1,575.17	1,564.02	6.72	4.34	138.21	-176.12	-58.64	283.79	273.37	10.43	27.220	
1,700.00	1,661.21	1,673.78	1,661.85	7.37	4.65	140.33	-186.89	-52.55	307.19	296.02	11.17	27.491	
1,800.00	1,755.00	1,771.80	1,758.96	8.03	4.96	141.97	-198.40	-45.83	330.42	318.49	11.93	27.686	
1,900.00	1,848.80	1,868.90	1,855.14	8.69	5.27	143.36	-209.86	-38.91	353.62	340.93	12.69	27.871	
2,000.00	1,942.59	1,964.63	1,949.96	9.37	5.57	144.57	-221.18	-32.28	377.17	363.75	13.43	28.093	
2,100.00	2,036.39	2,058.91	2,043.42	10.05	5.86	145.68	-232.00	-26.14	401.25	387.10	14.15	28.359	
2,200.00	2,130.18	2,152.03	2,135.75	10.73	6.14	146.63	-242.90	-20.95	426.37	411.51	14.86	28.690	
2,300.00	2,223.97	2,251.63	2,234.65	11.41	6.44	147.70	-253.39	-15.72	451.82	436.24	15.59	28.985	
2,400.00	2,317.77	2,357.81	2,340.19	12.10	6.74	148.95	-262.52	-8.45	475.75	459.44	16.31	29.167	
2,500.00	2,411.56	2,455.98	2,437.76	12.79	7.01	150.11	-269.83	-0.44	498.51	481.54	16.98	29.366	
2,600.00	2,505.36	2,547.57	2,528.73	13.49	7.27	150.97	-277.87	6.45	522.11	504.48	17.63	29.619	
2,700.00	2,599.15	2,636.21	2,616.79	14.18	7.53	151.67	-286.29	12.17	546.87	528.60	18.27	29.929	
2,800.00	2,692.94	2,735.17	2,715.11	14.87	7.81	152.34	-296.09	17.61	572.64	553.66	18.98	30.170	
2,900.00	2,786.74	2,836.25	2,815.43	15.57	8.12	152.91	-306.67	23.91	597.74	578.03	19.71	30.321	
3,000.00	2,880.53	2,934.18	2,912.49	16.27	8.43	153.33	-317.79	30.79	622.10	601.65	20.45	30.424	
3,100.00	2,974.32	3,030.48	3,007.86	16.97	8.73	153.65	-329.40	37.28	646.75	625.57	21.18	30.531	
3,200.00	3,068.12	3,125.40	3,101.92	17.67	9.03	153.98	-340.46	43.71	671.40	649.50	21.90	30.656	
3,300.00	3,161.91	3,218.00	3,193.76	18.37	9.31	154.31	-350.84	49.48	696.62	674.02	22.60	30.829	
3,400.00	3,255.71	3,318.86	3,293.86	19.07	9.62	154.70	-361.54	55.54	722.10	698.77	23.33	30.953	
3,500.00	3,349.50	3,417.48	3,391.75	19.77	9.91	155.10	-371.42	62.34	746.76	722.72	24.04	31.065	
3,600.00	3,443.29	3,512.41	3,485.89	20.47	10.20	155.39	-381.83	68.65	771.66	746.91	24.74	31.184	
3,700.00	3,537.09	3,606.82	3,579.48	21.18	10.50	155.61	-392.75	74.67	796.79	771.33	25.46	31.299	
3,800.00	3,630.88	3,701.99	3,673.90	21.88	10.78	155.88	-403.03	80.51	822.22	796.06	26.16	31.432	
3,900.00	3,724.68	3,804.48	3,775.74	22.58	11.08	156.25	-412.68	87.05	847.52	820.64	26.88	31.533	
4,000.00	3,818.47	3,894.51	3,865.17	23.29	11.34	156.57	-421.00	93.09	872.55	845.03	27.52	31.706	
4,100.00	3,912.26	3,986.46	3,956.44	23.99	11.61	156.78	-430.89	98.23	898.55	870.35	28.20	31.862	
4,200.00	4,006.06	4,080.24	4,049.41	24.69	11.91	156.91	-442.20	103.15	924.81	895.89	28.92	31.978	
4,300.00	4,099.85	4,188.87	4,157.00	25.40	12.25	157.00	-455.95	109.04	950.89	921.13	29.75	31.958	
4,400.00	4,193.65	4,280.88	4,248.05	26.10	12.55	157.06	-467.93	114.78	976.11	945.63	30.48	32.027	
4,500.00	4,287.44	4,368.32	4,334.77	26.81	12.82	157.19	-478.04	119.55	1,002.22	971.08	31.14	32.180	
4,600.00	4,381.23	4,470.11	4,435.79	27.51	13.13	157.35	-489.42	124.70	1,028.74	996.84	31.90	32.248	
4,700.00	4,475.03	4,568.79	4,533.60	28.22	13.43	157.46	-501.22	130.32	1,054.60	1,021.95	32.65	32.299	
4,800.00	4,568.82	4,667.95	4,631.85	28.93	13.75	157.55	-513.28	136.03	1,080.36	1,046.95	33.41	32.337	
4,900.00	4,662.61	4,773.82	4,736.65	29.63	14.09	157.61	-526.82	142.63	1,105.62	1,071.40	34.23	32.303	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well RUEGGE 3O-4H-N165 - Slot RUEGGE 3
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 4938.00usft
<b>Reference Site:</b>	S4-T1N-R65W	<b>MD Reference:</b>	23' KB @ 4938.00usft
<b>Site Error:</b>	0.00usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	RUEGGE 3O-4H-N165	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	PLAN #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S4-T1N-R65W - STELLING 3B-4H - CPR WELL - SURVEYS													Offset Site Error: 0.00 usft
Survey Program: 140-ISCWSA MWD													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	
5,000.00	4,756.41	4,869.98	4,831.78	30.34	14.41	157.65	-539.35	149.02	1,130.47	1,095.48	34.98	32.316	
5,100.00	4,850.20	4,957.03	4,918.11	31.04	14.67	157.77	-548.98	154.56	1,155.75	1,120.12	35.63	32.434	
5,200.00	4,944.00	5,065.00	5,025.32	31.75	14.99	157.98	-559.68	161.52	1,181.09	1,144.69	36.40	32.449	
5,300.00	5,037.79	5,151.92	5,111.60	32.46	15.25	158.13	-568.52	167.20	1,206.31	1,169.28	37.04	32.569	
5,400.00	5,131.58	5,250.51	5,209.48	33.16	15.54	158.29	-578.65	173.33	1,231.85	1,194.09	37.75	32.629	
5,500.00	5,225.38	5,357.20	5,315.24	33.87	15.87	158.40	-590.77	180.38	1,256.90	1,218.36	38.54	32.610	
5,600.00	5,319.17	5,446.62	5,403.96	34.58	16.15	158.52	-600.22	186.44	1,281.87	1,242.67	39.21	32.695	
5,700.00	5,412.97	5,521.99	5,478.84	35.28	16.36	158.64	-607.62	190.78	1,307.91	1,268.15	39.76	32.893	
5,800.00	5,506.76	5,629.18	5,585.32	35.99	16.67	158.79	-618.58	196.29	1,334.53	1,294.00	40.54	32.923	
5,900.00	5,600.55	5,741.61	5,696.81	36.70	17.02	158.89	-631.12	203.55	1,359.73	1,318.38	41.36	32.877	
6,000.00	5,694.35	5,818.00	5,772.60	37.40	17.25	158.97	-639.45	208.27	1,385.29	1,343.35	41.94	33.028	
6,100.00	5,788.14	5,880.43	5,834.71	38.11	17.41	159.08	-645.04	211.05	1,412.74	1,370.35	42.39	33.330	

# Cathedral Energy Services

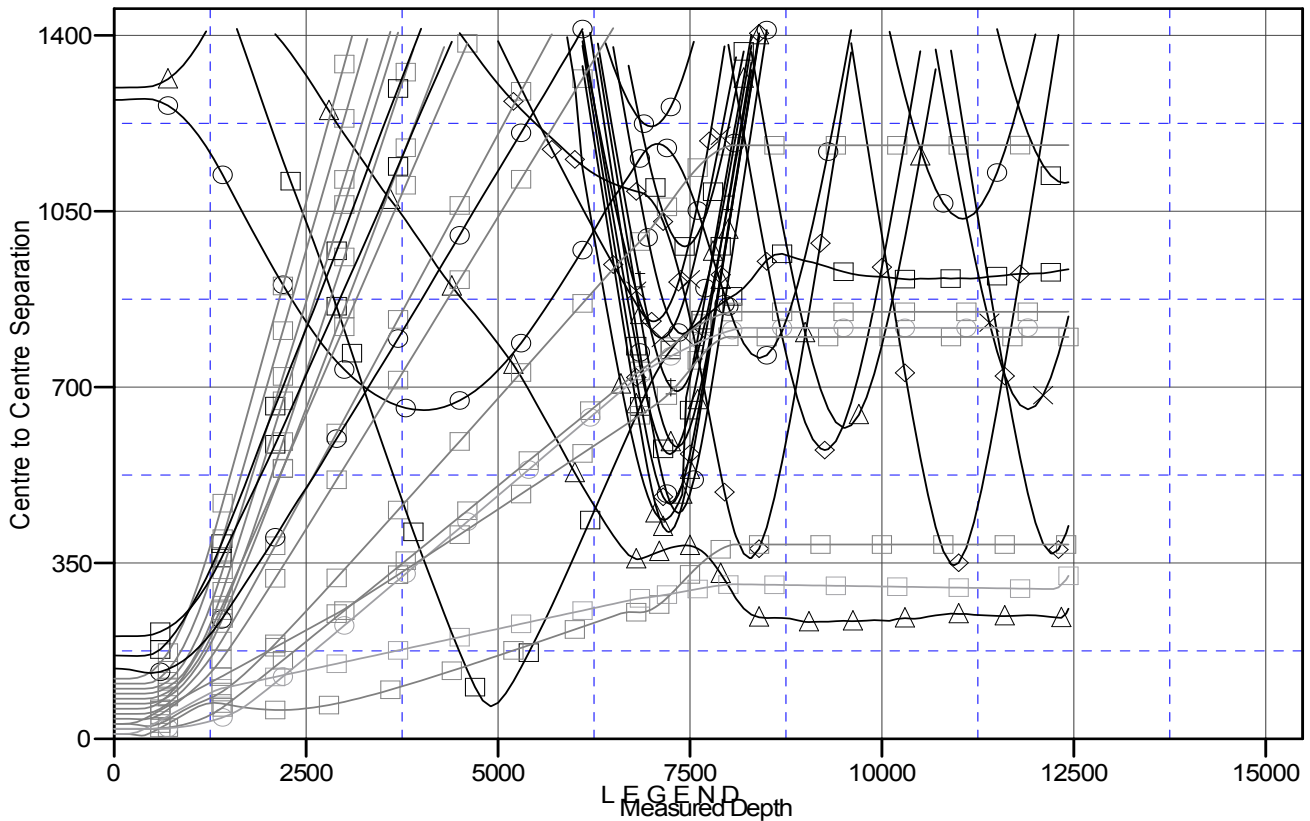
## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well RUEGGE 3O-4H-N165 - Slot RUEGGE 3
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 4938.00usft
<b>Reference Site:</b>	S4-T1N-R65W	<b>MD Reference:</b>	23' KB @ 4938.00usft
<b>Site Error:</b>	0.00usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	RUEGGE 3O-4H-N165	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	PLAN #1	<b>Offset TVD Reference:</b>	Offset Datum

Reference Depths are relative to 23' KB @ 4938.00usft  
Offset Depths are relative to Offset Datum  
Central Meridian is -105.500000 °

Coordinates are relative to: RUEGGE 3O-4H-N165 - Slot RUEGGE 3O-4H-N165  
Coordinate System is US State Plane 1983, Colorado Northern Zone  
Grid Convergence at Surface is: 0.54 °

### Ladder Plot



27N1-9HZ,KMG WELL,PLAN ONLY V0	JOKER26N2-9HZ,KMG WELL,SURVEYS V0	RUEGGE 3H-4H-N165,OH,PLAN#1 V0
27N2-9HZ,KMG WELL,SURVEYS V0	JOKER27N1-9HZ,KMG WELL,SURVEYS V0	RUEGGE 3I-4H-N165,OH,PLAN#1 V0
28N3-9HZ,KMG WELL,SURVEYS V0	JOKER27N2-9HZ,KMG WELL,SURVEYS V0	RUEGGE 3J-4H-N165,OH,PLAN#1 V0
2N3-9HZ,KMG WELL,SURVEYS V0	MORITZ-ANSCHUTZ 1,KMG WELL,NO SURVEYS V0	RUEGGE 3K-4H-N165,OH,PLAN#1 V0
N33-4,CPR WELL,GYRO V0	OLIN 1,CPR WELL,GYRO V0	RUEGGE 3L-4H-N165,OH,PLAN#1 V0
N34-4,CPR WELL,GYRO V0	OLIN 31-4,CPR WELL,SURVEYS V0	RUEGGE 3M-4H-N165,OH,PLAN#1 V0
N43-4,CPR WELL,GYRO V0	OLIN 32-4,CPR WELL,GYRO V0	RUEGGE 3N-4H-N165,OH,PLAN#1 V0
N44-4,CPR WELL,GYRO V0	OLIN 41-4,CPR WELL,SURVEYS V0	RUEGGE 3P-4H-N165,OH,PLAN#1 V0
EZ4A-4H,CPR WELL,SURVEYS V0	OLIN 42-4A,CPR WELL,SURVEYS V0	RUEGGE 3Q-4H-N165,OH,PLAN#1 V0
EZ4B-4H,CPR WELL,SURVEYS V0	RUEGGE 3C-4H-N165,OH,PLAN#1 V0	RUEGGE 3R-4H-N165,OH,PLAN#1 V0
R1N1-9HZ,KMG WELL,SURVEYS V0	RUEGGE 3D-4H-N165,OH,PLAN#1 V0	STELLING 1,CPR WELL,GYRO V0

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation