

# **Crestone Peak Resources**

**DJ BASIN**

**S4-T1N-R65W**

**RUEGGE 3J-4H-N165**

**OH**

**PLAN #1**

## **Anticollision Report**

**12 November, 2017**

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well RUEGGE 3J-4H-N165 - Slot RUEGGE 3J
<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 3J-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>	Stations	<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	12,188.01	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 3J-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	7,058.10	12,147.34	1,399.51	1,277.58	11.477	CC, ES
BANE 27N1-9HZ - KMG WELL - PLAN ONLY	7,200.00	12,227.17	1,404.29	1,281.01	11.391	SF
BANE 27N2-9HZ - KMG WELL - SURVEYS						Out of range
BANE 28N1-9HZ - KMG WELL - PLAN ONLY	7,057.47	12,242.77	347.67	226.82	2.877	CC, ES, SF
BANE 28N2-9HZ - KMG WELL - SURVEYS	7,043.78	12,058.00	607.70	527.26	7.555	CC, ES, SF
BANE 28N3-9HZ - KMG WELL - SURVEYS	6,972.30	11,941.00	765.51	674.01	8.366	CC, ES, 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	7,017.90	11,947.00	1,207.64	1,104.24	11.680	CC, ES
BANE 2N3-9HZ - KMG WELL - SURVEYS	7,050.00	11,947.00	1,208.29	1,104.81	11.677	SF
BAT 28C-9HZ - KMG WELL - SURVEYS	7,126.51	12,133.00	435.46	381.99	8.144	CC, ES
BAT 28C-9HZ - KMG WELL - SURVEYS	7,150.00	12,133.00	436.46	382.79	8.132	SF
BAT 28N-9HZ - KMG WELL - SURVEYS	7,048.22	11,953.00	337.11	285.32	6.509	CC
BAT 28N-9HZ - KMG WELL - SURVEYS	7,050.00	11,953.00	337.12	285.32	6.508	ES, SF
BAT 29C-9HZ - KMG WELL - SURVEYS	7,121.42	12,205.00	879.72	778.74	8.712	CC, ES
BAT 29C-9HZ - KMG WELL - SURVEYS	7,200.00	12,205.00	885.35	783.25	8.672	SF
BAT 29N1-9HZ - KMG WELL - SURVEYS	7,029.23	12,122.00	1,266.27	1,157.29	11.620	CC
BAT 29N1-9HZ - KMG WELL - SURVEYS	7,050.00	12,122.00	1,266.51	1,157.22	11.588	ES
BAT 29N1-9HZ - KMG WELL - SURVEYS	7,150.00	12,122.00	1,274.55	1,164.06	11.536	SF
BAT 29N2-9HZ - KMG WELL - SURVEYS	6,918.19	11,735.00	1,026.64	928.25	10.434	CC, ES
BAT 29N2-9HZ - KMG WELL - SURVEYS	6,950.00	11,735.00	1,027.51	928.68	10.397	SF
BAT 3N1-9HZ - KMG WELL - NO SURVEYS						Out of range
BAT 3N1-9HZX - KMG WELL - SURVEYS	7,030.29	12,010.00	650.82	551.86	6.577	CC, ES
BAT 3N1-9HZX - KMG WELL - SURVEYS	7,050.00	12,010.00	651.27	551.93	6.556	SF
BAT 3N2-9HZ - KMG WELL - SURVEYS	6,984.09	11,878.00	396.91	319.59	5.133	CC, ES
BAT 3N2-9HZ - KMG WELL - SURVEYS	7,000.00	11,878.00	397.38	319.69	5.115	SF
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	9,055.38	7,203.00	1,391.59	1,341.44	27.750	CC, ES
CHAPIN 33-4 - CPR WELL - GYRO	9,300.00	7,192.77	1,412.88	1,360.45	26.945	SF
CHAPIN 34-4 - CPR WELL - GYRO	8,204.80	7,312.32	1,208.79	1,165.17	27.711	CC, ES
CHAPIN 34-4 - CPR WELL - GYRO	8,400.00	7,310.58	1,224.45	1,179.82	27.436	SF
CHAPIN 43-4 - CPR WELL - GYRO						Out of range
CHAPIN 44-4 - CPR WELL - GYRO						Out of range
CHAVEZ 4A-4H - CPR WELL - SURVEYS	8,490.47	7,910.26	1,068.61	1,012.43	19.021	CC
CHAVEZ 4A-4H - CPR WELL - SURVEYS	12,188.01	11,646.98	1,108.64	945.11	6.780	ES, SF
CHAVEZ 4B-4H - CPR WELL - SURVEYS						Out of range
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 3J-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	11,961.25	7,519.29	360.69	262.20	3.662	CC, ES, SF
GITTLEIN 22-4J - CPR WELL - SURVEYS	10,464.36	7,445.98	139.54	67.61	1.940	CC, ES, SF
GITTLEIN 29N-28HZ - KMG WELL - SURVEYS	12,188.01	6,851.00	903.88	847.81	16.120	CC, ES, SF
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	12,188.01	6,857.00	866.29	811.86	15.915	CC, ES, SF
GITTLEIN 4C-28HZ - KMG WELL - SURVEYS	12,188.01	7,010.00	1,321.87	1,235.82	15.361	CC, ES, SF
GITTLEIN 4C-28HZX - KMG WELL - SURVEYS	12,188.01	7,030.81	1,336.30	1,251.20	15.703	CC, ES, SF
GITTLEIN 4C-28HZXX - KMG WELL - SURVEYS	12,188.01	7,031.02	1,325.15	1,240.18	15.595	CC, ES, SF
GITTLEIN 4N-28HZ - KMG WELL - SURVEYS	12,188.01	6,821.06	1,212.83	1,136.77	15.945	CC, ES, SF
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						Out of range
JOKER 1N2-9HZ - KMG WELL - SURVEYS						Out of range
JOKER 1N3-9HZ - KMG WELL - SURVEYS						Out of range
JOKER 26N1-9HZ - KMG WELL - SURVEYS						Out of range
JOKER 26N2-9HZ - KMG WELL - SURVEYS						Out of range
JOKER 27N1-9HZ - KMG WELL - SURVEYS						Out of range
JOKER 27N2-9HZ - KMG WELL - SURVEYS						Out of range
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						Out of range
OLIN 1 - CPR WELL - GYRO	11,700.27	7,290.76	1,318.59	1,234.12	15.610	CC, ES
OLIN 1 - CPR WELL - GYRO	11,900.00	7,292.53	1,333.63	1,246.86	15.369	SF
OLIN 1-4 - CPR WELL - GYRO	11,014.66	7,330.47	645.34	570.55	8.628	CC, ES, SF
OLIN 31-4 - CPR WELL - SURVEYS	12,178.27	7,453.27	864.42	767.31	8.901	CC
OLIN 31-4 - CPR WELL - SURVEYS	12,188.01	7,453.44	864.48	767.27	8.893	ES, SF
OLIN 32-4 - CPR WELL - GYRO	10,849.70	7,321.65	936.98	864.43	12.916	CC, ES
OLIN 32-4 - CPR WELL - GYRO	11,000.00	7,323.29	948.96	874.81	12.799	SF
OLIN 41-4 - CPR WELL - SURVEYS						Out of range
OLIN 42-4A - CPR WELL - SURVEYS						Out of range
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

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 3J-4H-N165 - Slot RUEGGE 3J
<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 3J-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						
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	70.00	69.00	69.991	CC, ES
RUEGGE 3C-4H-N165 - OH - PLAN #1	700.00	686.33	113.70	109.12	24.838	SF
RUEGGE 3D-4H-N165 - OH - PLAN #1	200.00	202.00	60.00	59.00	59.992	CC
RUEGGE 3D-4H-N165 - OH - PLAN #1	400.00	401.84	60.58	58.18	25.180	ES
RUEGGE 3D-4H-N165 - OH - PLAN #1	700.00	694.78	83.29	78.74	18.272	SF
RUEGGE 3E-4H-N165 - OH - PLAN #1	200.00	201.00	50.00	49.00	50.173	CC
RUEGGE 3E-4H-N165 - OH - PLAN #1	400.00	400.84	50.66	48.26	21.088	ES
RUEGGE 3E-4H-N165 - OH - PLAN #1	651.76	650.45	62.28	58.04	14.720	SF
RUEGGE 3F-4H-N165 - OH - PLAN #1	200.00	201.00	40.00	39.00	40.139	CC
RUEGGE 3F-4H-N165 - OH - PLAN #1	400.00	400.84	40.78	38.38	16.975	ES
RUEGGE 3F-4H-N165 - OH - PLAN #1	651.76	650.89	54.20	49.96	12.797	SF
RUEGGE 3G-4H-N165 - OH - PLAN #1	200.00	201.00	30.00	29.00	30.104	CC
RUEGGE 3G-4H-N165 - OH - PLAN #1	300.00	300.98	30.10	28.40	17.718	ES
RUEGGE 3G-4H-N165 - OH - PLAN #1	12,188.01	12,031.04	1,187.51	1,032.98	7.684	SF
RUEGGE 3H-4H-N165 - OH - PLAN #1	200.00	201.00	20.00	19.00	20.070	CC
RUEGGE 3H-4H-N165 - OH - PLAN #1	300.00	300.98	20.12	18.42	11.846	ES
RUEGGE 3H-4H-N165 - OH - PLAN #1	12,188.01	12,154.60	787.75	631.19	5.032	SF
RUEGGE 3I-4H-N165 - OH - PLAN #1	200.00	201.00	10.00	9.00	10.035	CC
RUEGGE 3I-4H-N165 - OH - PLAN #1	300.00	300.98	10.20	8.50	6.003	ES
RUEGGE 3I-4H-N165 - OH - PLAN #1	12,188.01	12,018.80	536.45	385.48	3.553	SF
RUEGGE 3K-4H-N165 - OH - PLAN #1	108.09	108.09	10.00	9.67	29.939	CC
RUEGGE 3K-4H-N165 - OH - PLAN #1	200.00	199.96	10.11	9.12	10.255	ES
RUEGGE 3K-4H-N165 - OH - PLAN #1	12,188.01	12,018.91	304.01	166.14	2.205	SF
RUEGGE 3L-4H-N165 - OH - PLAN #1	104.21	104.21	20.00	19.69	65.321	CC
RUEGGE 3L-4H-N165 - OH - PLAN #1	200.00	199.81	20.24	19.25	20.521	ES
RUEGGE 3L-4H-N165 - OH - PLAN #1	12,188.01	12,021.70	836.49	682.26	5.424	SF
RUEGGE 3M-4H-N165 - OH - PLAN #1	266.91	266.91	29.99	28.53	20.501	CC
RUEGGE 3M-4H-N165 - OH - PLAN #1	400.00	399.84	30.62	28.22	12.764	ES
RUEGGE 3M-4H-N165 - OH - PLAN #1	12,188.01	12,237.89	1,126.59	969.41	7.168	SF
RUEGGE 3N-4H-N165 - OH - PLAN #1	103.52	103.52	40.00	39.70	132.767	CC
RUEGGE 3N-4H-N165 - OH - PLAN #1	200.00	199.47	40.33	39.34	40.876	ES
RUEGGE 3N-4H-N165 - OH - PLAN #1	651.76	643.74	72.44	68.18	16.978	SF
RUEGGE 3O-4H-N165 - OH - PLAN #1	286.38	286.37	49.98	48.38	31.250	CC
RUEGGE 3O-4H-N165 - OH - PLAN #1	400.00	399.84	50.30	47.91	20.970	ES
RUEGGE 3O-4H-N165 - OH - PLAN #1	700.00	695.01	70.14	65.57	15.369	SF
RUEGGE 3P-4H-N165 - OH - PLAN #1	103.42	103.42	60.00	59.70	199.658	CC
RUEGGE 3P-4H-N165 - OH - PLAN #1	200.00	199.14	60.36	59.37	61.206	ES
RUEGGE 3P-4H-N165 - OH - PLAN #1	800.00	782.14	119.81	114.40	22.128	SF
RUEGGE 3Q-4H-N165 - OH - PLAN #1	302.19	302.17	69.98	68.27	40.910	CC
RUEGGE 3Q-4H-N165 - OH - PLAN #1	400.00	399.84	70.17	67.77	29.250	ES
RUEGGE 3Q-4H-N165 - OH - PLAN #1	800.00	789.27	103.40	98.09	19.478	SF
RUEGGE 3R-4H-N165 - OH - PLAN #1	108.81	107.81	80.00	79.66	238.375	CC
RUEGGE 3R-4H-N165 - OH - PLAN #1	200.00	197.59	80.52	79.54	82.067	ES
RUEGGE 3R-4H-N165 - OH - PLAN #1	900.00	869.61	164.56	158.38	26.637	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	1,256.85			
STELLING 1 - CPR WELL - GYRO	8,800.00	7,309.98	1,257.85	1,209.92	26.245	ES
STELLING 1 - CPR WELL - GYRO	9,000.00	7,318.55	1,276.51	1,226.97	25.767	SF
STELLING 13-4 - CPR WELL - GYRO						Out of range
STELLING 14-4 - CPR WELL - GYRO						Out of range

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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 3J-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 (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)		Separation Factor	Warning
Offset Well - Wellbore - Design						
S4-T1N-R65W						
STELLING 23-4 - CPR WELL - GYRO	9,653.05	7,334.15	118.37	61.39	2.077	CC, ES, SF
STELLING 24-4 - CPR WELL - GYRO	333.70	325.74	154.91	153.48	108.607	CC
STELLING 24-4 - CPR WELL - GYRO	400.00	391.35	154.99	153.22	87.540	ES
STELLING 24-4 - CPR WELL - GYRO	8,016.24	7,329.43	336.07	293.36	7.868	SF
STELLING 3A-4H - CPR WELL - SURVEYS	312.19	303.87	115.18	113.75	80.341	CC
STELLING 3A-4H - CPR WELL - SURVEYS	500.00	488.88	116.05	113.45	44.609	ES
STELLING 3A-4H - CPR WELL - SURVEYS	12,188.01	11,586.07	991.99	841.82	6.606	SF
STELLING 3B-4H - CPR WELL - SURVEYS	1,977.45	1,966.57	36.25	24.62	3.119	CC
STELLING 3B-4H - CPR WELL - SURVEYS	2,000.00	1,989.03	36.29	24.57	3.097	ES
STELLING 3B-4H - CPR WELL - SURVEYS	2,100.00	2,088.74	37.31	25.15	3.067	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 3J-4H-N165 - Slot RUEGGE 3J
<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 3J-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	
6,850.00	6,772.76	12,075.41	6,972.73	28.32	87.80	83.60	-945.38	1,579.56	1,412.74	1,293.65	119.08	11.863	
6,900.00	6,821.16	12,087.48	6,972.64	28.40	87.99	85.40	-933.31	1,579.57	1,406.97	1,287.09	119.88	11.736	
6,950.00	6,868.58	12,102.90	6,972.53	28.47	88.23	86.23	-917.88	1,579.60	1,402.91	1,282.30	120.61	11.632	
7,000.00	6,914.78	12,121.61	6,972.40	28.54	88.52	86.45	-899.18	1,579.62	1,400.46	1,279.20	121.26	11.549	
7,050.00	6,959.54	12,143.50	6,972.24	28.59	88.87	86.24	-877.29	1,579.65	1,399.53	1,277.68	121.85	11.486	
7,058.10	6,966.64	12,147.34	6,972.21	28.60	88.93	86.17	-873.45	1,579.65	1,399.51	1,277.58	121.94	11.477	CC, ES
7,100.00	7,002.64	12,168.47	6,972.06	28.63	89.26	85.71	-852.31	1,579.68	1,399.97	1,277.60	122.37	11.440	
7,150.00	7,043.88	12,196.41	6,971.86	28.67	89.70	84.92	-824.38	1,579.72	1,401.62	1,278.77	122.85	11.409	
7,200.00	7,083.04	12,227.17	6,971.64	28.70	90.18	83.95	-793.62	1,579.76	1,404.29	1,281.01	123.28	11.391	SF

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well RUEGGE 3J-4H-N165 - Slot RUEGGE 3J
<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 3J-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 28N1-9HZ - KMG WELL - PLAN ONLY											Offset Site Error: 0.00 usft		
Survey Program: 2000-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
5,700.00	5,635.49	12,298.37	7,006.00	23.74	90.19	-110.32	-816.86	528.49	1,374.65	1,315.46	59.19	23.224	
5,800.00	5,734.25	12,282.91	7,006.00	24.18	89.95	-108.42	-832.32	528.45	1,279.33	1,219.03	60.30	21.216	
5,900.00	5,833.01	12,267.45	7,006.00	24.61	89.70	-106.45	-847.78	528.41	1,184.57	1,122.96	61.62	19.225	
6,000.00	5,931.77	12,251.99	7,006.00	25.04	89.46	-104.41	-863.24	528.37	1,090.54	1,027.33	63.20	17.254	
6,100.00	6,030.53	12,236.52	7,006.00	25.47	89.22	-102.30	-878.71	528.33	997.42	932.28	65.14	15.313	
6,200.00	6,129.29	12,221.06	7,006.00	25.90	88.97	-100.13	-894.17	528.29	905.51	837.99	67.52	13.411	
6,300.00	6,228.05	12,205.60	7,006.00	26.33	88.73	-97.89	-909.63	528.25	815.21	744.71	70.50	11.563	
6,400.00	6,326.81	12,190.14	7,006.00	26.76	88.49	-95.59	-925.09	528.22	727.13	652.86	74.27	9.791	
6,500.00	6,425.57	12,174.68	7,006.00	27.19	88.25	-93.24	-940.55	528.18	642.17	563.11	79.06	8.122	
6,584.00	6,508.53	12,161.69	7,006.00	27.55	88.04	-91.23	-953.54	528.14	574.23	490.15	84.08	6.829	
6,600.00	6,524.35	12,159.40	7,006.00	27.62	88.00	-87.58	-955.83	528.14	561.73	476.58	85.16	6.597	
6,650.00	6,574.08	12,154.51	7,006.00	27.81	87.93	-69.80	-960.72	528.12	523.61	434.82	88.80	5.897	
6,700.00	6,624.03	12,153.10	7,006.00	27.97	87.91	13.53	-962.13	528.12	487.43	394.59	92.85	5.250	
6,750.00	6,673.96	12,155.18	7,006.00	28.10	87.94	72.77	-960.05	528.13	453.87	356.64	97.24	4.668	
6,800.00	6,723.62	12,160.74	7,006.00	28.22	88.03	84.31	-954.49	528.14	423.69	321.75	101.94	4.156	
6,850.00	6,772.76	12,169.75	7,006.00	28.32	88.17	88.81	-945.48	528.16	397.68	290.44	107.24	3.708	
6,900.00	6,821.16	12,182.17	7,006.00	28.40	88.36	90.53	-933.06	528.19	376.59	264.39	112.20	3.356	
6,950.00	6,868.58	12,197.93	7,006.00	28.47	88.61	90.50	-917.30	528.24	361.04	244.68	116.37	3.103	
7,000.00	6,914.78	12,216.97	7,006.00	28.54	88.91	89.13	-898.26	528.28	351.42	232.11	119.31	2.945	
7,050.00	6,959.54	12,239.19	7,006.00	28.59	89.26	86.68	-876.04	528.34	347.73	226.96	120.77	2.879	
7,057.47	6,966.09	12,242.77	7,006.00	28.60	89.32	86.23	-872.46	528.35	347.67	226.82	120.85	2.877 CC, ES, SF	
7,100.00	7,002.64	12,264.47	7,006.00	28.63	89.66	83.33	-850.76	528.41	349.58	228.85	120.72	2.896	
7,150.00	7,043.88	12,292.70	7,006.00	28.67	90.10	79.29	-822.53	528.48	356.23	236.81	119.42	2.983	
7,200.00	7,083.04	12,323.75	7,006.00	28.70	90.59	74.79	-791.49	528.56	366.74	249.50	117.24	3.128	
7,250.00	7,119.94	11,907.94	7,006.00	28.73	84.06	118.81	-1,207.29	527.49	588.65	513.64	75.01	7.848	
7,300.00	7,154.41	11,907.94	7,006.00	28.76	84.06	114.98	-1,207.29	527.49	626.17	553.48	72.69	8.614	
7,350.00	7,186.26	11,907.94	7,006.00	28.79	84.06	110.22	-1,207.29	527.49	666.28	595.70	70.58	9.440	
7,400.00	7,215.35	11,907.94	7,006.00	28.82	84.06	104.44	-1,207.29	527.49	708.35	639.66	68.69	10.312	
7,450.00	7,241.54	11,907.94	7,006.00	28.85	84.06	97.63	-1,207.29	527.49	751.87	684.85	67.02	11.219	
7,500.00	7,264.69	11,907.94	7,006.00	28.90	84.06	89.89	-1,207.29	527.49	796.41	730.87	65.54	12.152	
7,550.00	7,284.70	11,907.94	7,006.00	28.95	84.06	81.51	-1,207.29	527.49	841.60	777.37	64.23	13.103	
7,600.00	7,301.47	11,907.94	7,006.00	29.01	84.06	72.89	-1,207.29	527.49	887.15	824.08	63.07	14.067	
7,650.00	7,314.91	11,907.94	7,006.00	29.08	84.06	64.51	-1,207.29	527.49	932.79	870.77	62.02	15.040	
7,700.00	7,324.96	11,907.94	7,006.00	29.16	84.06	56.75	-1,207.29	527.49	978.31	917.23	61.08	16.017	
7,750.00	7,331.58	11,907.94	7,006.00	29.25	84.06	49.84	-1,207.29	527.49	1,023.51	963.29	60.22	16.997	
7,800.00	7,334.72	11,907.94	7,006.00	29.36	84.06	43.87	-1,207.29	527.49	1,068.23	1,008.81	59.42	17.977	
7,820.07	7,335.00	11,907.94	7,006.00	29.41	84.06	41.72	-1,207.29	527.49	1,086.01	1,026.89	59.12	18.371	
7,900.00	7,335.00	11,907.94	7,006.00	29.62	84.06	41.72	-1,207.29	527.49	1,157.22	1,099.20	58.02	19.944	
8,000.00	7,335.00	11,907.94	7,006.00	29.96	84.06	41.72	-1,207.29	527.49	1,247.80	1,190.90	56.90	21.928	
8,100.00	7,335.00	11,907.94	7,006.00	30.39	84.06	41.72	-1,207.29	527.49	1,339.72	1,283.72	56.01	23.921	

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 3J-4H-N165 - Slot RUEGGE 3J
<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 3J-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 28N2-9HZ - 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
6,000.00	5,931.77	12,058.00	7,179.70	25.04	78.39	-58.54	-1,233.12	642.46	1,344.15	1,288.83	55.32	24.299	
6,100.00	6,030.53	12,058.00	7,179.70	25.47	78.39	-58.54	-1,233.12	642.46	1,251.63	1,194.92	56.71	22.071	
6,200.00	6,129.29	12,058.00	7,179.70	25.90	78.39	-58.54	-1,233.12	642.46	1,160.35	1,102.01	58.34	19.889	
6,300.00	6,228.05	12,058.00	7,179.70	26.33	78.39	-58.54	-1,233.12	642.46	1,070.63	1,010.36	60.27	17.763	
6,400.00	6,326.81	12,058.00	7,179.70	26.76	78.39	-58.54	-1,233.12	642.46	982.90	920.33	62.58	15.707	
6,500.00	6,425.57	12,058.00	7,179.70	27.19	78.39	-58.54	-1,233.12	642.46	897.74	832.41	65.33	13.742	
6,584.00	6,508.53	12,058.00	7,179.70	27.55	78.39	-58.54	-1,233.12	642.46	828.77	760.71	68.06	12.176	
6,600.00	6,524.35	12,058.00	7,179.70	27.62	78.39	-55.25	-1,233.12	642.46	815.99	747.37	68.62	11.891	
6,650.00	6,574.08	12,058.00	7,179.70	27.81	78.39	-38.52	-1,233.12	642.46	777.43	707.03	70.39	11.044	
6,700.00	6,624.03	12,058.00	7,179.70	27.97	78.39	44.04	-1,233.12	642.46	741.32	669.18	72.15	10.275	
6,750.00	6,673.96	12,058.00	7,179.70	28.10	78.39	102.99	-1,233.12	642.46	708.26	634.43	73.82	9.594	
6,800.00	6,723.62	12,058.00	7,179.70	28.22	78.39	114.81	-1,233.12	642.46	678.83	603.48	75.35	9.008	
6,850.00	6,772.76	12,058.00	7,179.70	28.32	78.39	120.19	-1,233.12	642.46	653.71	576.56	77.15	8.473	
6,900.00	6,821.16	12,058.00	7,179.70	28.40	78.39	123.39	-1,233.12	642.46	633.51	554.82	78.69	8.051	
6,950.00	6,868.58	12,058.00	7,179.70	28.47	78.39	125.43	-1,233.12	642.46	618.83	539.03	79.81	7.754	
7,000.00	6,914.78	12,058.00	7,179.70	28.54	78.39	126.71	-1,233.12	642.46	610.15	529.75	80.40	7.589	
7,043.78	6,954.06	12,058.00	7,179.70	28.58	78.39	127.32	-1,233.12	642.46	607.70	527.26	80.44	7.555 CC, ES, SF	
7,050.00	6,959.54	12,058.00	7,179.70	28.59	78.39	127.37	-1,233.12	642.46	607.75	527.35	80.40	7.559	
7,100.00	7,002.64	12,058.00	7,179.70	28.63	78.39	127.52	-1,233.12	642.46	611.73	531.91	79.81	7.664	
7,150.00	7,043.88	12,058.00	7,179.70	28.67	78.39	127.18	-1,233.12	642.46	621.94	543.26	78.68	7.904	
7,200.00	7,083.04	12,058.00	7,179.70	28.70	78.39	126.36	-1,233.12	642.46	638.04	560.92	77.12	8.274	
7,250.00	7,119.94	12,058.00	7,179.70	28.73	78.39	125.05	-1,233.12	642.46	659.52	584.28	75.24	8.766	
7,300.00	7,154.41	12,058.00	7,179.70	28.76	78.39	123.21	-1,233.12	642.46	685.78	612.60	73.18	9.371	
7,350.00	7,186.26	12,058.00	7,179.70	28.79	78.39	120.80	-1,233.12	642.46	716.16	645.11	71.05	10.080	
7,400.00	7,215.35	12,058.00	7,179.70	28.82	78.39	117.74	-1,233.12	642.46	750.04	681.10	68.94	10.879	
7,450.00	7,241.54	12,058.00	7,179.70	28.85	78.39	113.98	-1,233.12	642.46	786.81	719.90	66.91	11.759	
7,500.00	7,264.69	12,058.00	7,179.70	28.90	78.39	109.45	-1,233.12	642.46	825.91	760.91	65.00	12.707	
7,550.00	7,284.70	12,058.00	7,179.70	28.95	78.39	104.09	-1,233.12	642.46	866.85	803.63	63.22	13.713	
7,600.00	7,301.47	12,058.00	7,179.70	29.01	78.39	97.91	-1,233.12	642.46	909.20	847.63	61.57	14.766	
7,650.00	7,314.91	12,058.00	7,179.70	29.08	78.39	91.01	-1,233.12	642.46	952.57	892.51	60.06	15.860	
7,700.00	7,324.96	12,058.00	7,179.70	29.16	78.39	83.57	-1,233.12	642.46	996.65	937.96	58.68	16.984	
7,750.00	7,331.58	12,058.00	7,179.70	29.25	78.39	75.89	-1,233.12	642.46	1,041.12	983.71	57.41	18.134	
7,800.00	7,334.72	12,058.00	7,179.70	29.36	78.39	68.30	-1,233.12	642.46	1,085.76	1,029.51	56.25	19.303	
7,820.07	7,335.00	12,058.00	7,179.70	29.41	78.39	65.35	-1,233.12	642.46	1,103.66	1,047.85	55.81	19.776	
7,900.00	7,335.00	12,058.00	7,179.70	29.62	78.39	65.35	-1,233.12	642.46	1,175.50	1,121.26	54.23	21.675	
8,000.00	7,335.00	12,058.00	7,179.70	29.96	78.39	65.35	-1,233.12	642.46	1,266.73	1,214.11	52.63	24.070	
8,100.00	7,335.00	12,058.00	7,179.70	30.39	78.39	65.35	-1,233.12	642.46	1,359.20	1,307.84	51.36	26.463	

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 3J-4H-N165 - Slot RUEGGE 3J
<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 3J-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							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		
6,000.00	5,931.77	11,941.00	7,068.96	25.04	77.10	-60.44	-1,271.13	840.43	1,348.21	1,285.65	62.55	21.553		
6,100.00	6,030.53	11,941.00	7,068.96	25.47	77.10	-60.44	-1,271.13	840.43	1,263.78	1,199.06	64.72	19.528		
6,200.00	6,129.29	11,941.00	7,068.96	25.90	77.10	-60.44	-1,271.13	840.43	1,181.78	1,114.60	67.17	17.593		
6,300.00	6,228.05	11,941.00	7,068.96	26.33	77.10	-60.44	-1,271.13	840.43	1,102.75	1,032.80	69.95	15.766		
6,400.00	6,326.81	11,941.00	7,068.96	26.76	77.10	-60.44	-1,271.13	840.43	1,027.39	954.32	73.07	14.061		
6,500.00	6,425.57	11,941.00	7,068.96	27.19	77.10	-60.44	-1,271.13	840.43	956.55	880.02	76.53	12.499		
6,584.00	6,508.53	11,941.00	7,068.96	27.55	77.10	-60.44	-1,271.13	840.43	901.33	821.32	80.01	11.266		
6,600.00	6,524.35	11,941.00	7,068.96	27.62	77.10	-57.77	-1,271.13	840.43	891.37	810.64	80.73	11.042		
6,650.00	6,574.08	11,941.00	7,068.96	27.81	77.10	-42.75	-1,271.13	840.43	862.08	779.13	82.95	10.393		
6,700.00	6,624.03	11,941.00	7,068.96	27.97	77.10	38.40	-1,271.13	840.43	835.91	750.86	85.05	9.829		
6,750.00	6,673.96	11,941.00	7,068.96	28.10	77.10	96.18	-1,271.13	840.43	813.29	726.32	86.97	9.352		
6,800.00	6,723.62	11,941.00	7,068.96	28.22	77.10	107.03	-1,271.13	840.43	794.65	706.02	88.64	8.965		
6,850.00	6,772.76	11,941.00	7,068.96	28.32	77.10	111.59	-1,271.13	840.43	780.37	690.39	89.98	8.673		
6,900.00	6,821.16	11,941.00	7,068.96	28.40	77.10	114.09	-1,271.13	840.43	770.74	679.82	90.93	8.477		
6,950.00	6,868.58	11,941.00	7,068.96	28.47	77.10	115.52	-1,271.13	840.43	766.01	674.58	91.43	8.378		
6,972.30	6,889.35	11,941.00	7,068.96	28.50	77.10	115.91	-1,271.13	840.43	765.51	674.01	91.51	8.366 CC, ES, SF		
7,000.00	6,914.78	11,941.00	7,068.96	28.54	77.10	116.24	-1,271.13	840.43	766.28	674.81	91.47	8.377		
7,050.00	6,959.54	11,941.00	7,068.96	28.59	77.10	116.39	-1,271.13	840.43	771.55	680.50	91.05	8.474		
7,100.00	7,002.64	11,941.00	7,068.96	28.63	77.10	116.06	-1,271.13	840.43	781.69	691.48	90.21	8.665		
7,150.00	7,043.88	11,941.00	7,068.96	28.67	77.10	115.27	-1,271.13	840.43	796.46	707.46	89.00	8.949		
7,200.00	7,083.04	11,941.00	7,068.96	28.70	77.10	114.03	-1,271.13	840.43	815.55	728.05	87.50	9.321		
7,250.00	7,119.94	11,941.00	7,068.96	28.73	77.10	112.35	-1,271.13	840.43	838.57	752.78	85.79	9.775		
7,300.00	7,154.41	11,941.00	7,068.96	28.76	77.10	110.20	-1,271.13	840.43	865.10	781.16	83.94	10.306		
7,350.00	7,186.26	11,941.00	7,068.96	28.79	77.10	107.58	-1,271.13	840.43	894.70	812.68	82.02	10.909		
7,400.00	7,215.35	11,941.00	7,068.96	28.82	77.10	104.47	-1,271.13	840.43	926.95	846.87	80.08	11.575		
7,450.00	7,241.54	11,941.00	7,068.96	28.85	77.10	100.86	-1,271.13	840.43	961.42	883.26	78.16	12.300		
7,500.00	7,264.69	11,941.00	7,068.96	28.90	77.10	96.78	-1,271.13	840.43	997.74	921.43	76.30	13.076		
7,550.00	7,284.70	11,941.00	7,068.96	28.95	77.10	92.24	-1,271.13	840.43	1,035.53	961.01	74.51	13.897		
7,600.00	7,301.47	11,941.00	7,068.96	29.01	77.10	87.32	-1,271.13	840.43	1,074.47	1,001.66	72.81	14.757		
7,650.00	7,314.91	11,941.00	7,068.96	29.08	77.10	82.11	-1,271.13	840.43	1,114.25	1,043.06	71.19	15.651		
7,700.00	7,324.96	11,941.00	7,068.96	29.16	77.10	76.73	-1,271.13	840.43	1,154.62	1,084.95	69.67	16.574		
7,750.00	7,331.58	11,941.00	7,068.96	29.25	77.10	71.32	-1,271.13	840.43	1,195.31	1,127.09	68.23	17.520		
7,800.00	7,334.72	11,941.00	7,068.96	29.36	77.10	66.01	-1,271.13	840.43	1,236.12	1,169.25	66.87	18.486		
7,820.07	7,335.00	11,941.00	7,068.96	29.41	77.10	63.93	-1,271.13	840.43	1,252.48	1,186.13	66.35	18.878		
7,900.00	7,335.00	11,941.00	7,068.96	29.62	77.10	63.93	-1,271.13	840.43	1,318.43	1,254.02	64.40	20.472		
8,000.00	7,335.00	11,941.00	7,068.96	29.96	77.10	63.93	-1,271.13	840.43	1,402.98	1,340.73	62.25	22.538		

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 3J-4H-N165 - Slot RUEGGE 3J
<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 3J-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		Highside Toolface (°)	Distance		Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)					
6,400.00	6,326.81	11,947.00	7,113.68	26.76	76.71	-70.47	-1,237.60	1,328.75	1,414.04	1,325.59	88.44	15.988	
6,500.00	6,425.57	11,947.00	7,113.68	27.19	76.71	-70.47	-1,237.60	1,328.75	1,359.53	1,267.80	91.73	14.821	
6,584.00	6,508.53	11,947.00	7,113.68	27.55	76.71	-70.47	-1,237.60	1,328.75	1,317.87	1,223.38	94.49	13.947	
6,600.00	6,524.35	11,947.00	7,113.68	27.62	76.71	-68.09	-1,237.60	1,328.75	1,310.43	1,215.42	95.01	13.793	
6,650.00	6,574.08	11,947.00	7,113.68	27.81	76.71	-53.86	-1,237.60	1,328.75	1,288.52	1,191.95	96.57	13.343	
6,700.00	6,624.03	11,947.00	7,113.68	27.97	76.71	26.72	-1,237.60	1,328.75	1,268.85	1,170.82	98.02	12.944	
6,750.00	6,673.96	11,947.00	7,113.68	28.10	76.71	84.10	-1,237.60	1,328.75	1,251.62	1,152.28	99.34	12.599	
6,800.00	6,723.62	11,947.00	7,113.68	28.22	76.71	94.70	-1,237.60	1,328.75	1,237.02	1,136.52	100.51	12.308	
6,850.00	6,772.76	11,947.00	7,113.68	28.32	76.71	99.15	-1,237.60	1,328.75	1,225.23	1,123.72	101.51	12.070	
6,900.00	6,821.16	11,947.00	7,113.68	28.40	76.71	101.65	-1,237.60	1,328.75	1,216.36	1,114.05	102.32	11.888	
6,950.00	6,868.58	11,947.00	7,113.68	28.47	76.71	103.20	-1,237.60	1,328.75	1,210.54	1,107.62	102.92	11.762	
7,000.00	6,914.78	11,947.00	7,113.68	28.54	76.71	104.14	-1,237.60	1,328.75	1,207.84	1,104.53	103.31	11.692	
7,017.90	6,930.99	11,947.00	7,113.68	28.56	76.71	104.36	-1,237.60	1,328.75	1,207.64	1,104.24	103.39	11.680 CC, ES	
7,050.00	6,959.54	11,947.00	7,113.68	28.59	76.71	104.62	-1,237.60	1,328.75	1,208.29	1,104.81	103.48	11.677 SF	
7,100.00	7,002.64	11,947.00	7,113.68	28.63	76.71	104.74	-1,237.60	1,328.75	1,211.88	1,108.45	103.43	11.717	
7,150.00	7,043.88	11,947.00	7,113.68	28.67	76.71	104.52	-1,237.60	1,328.75	1,218.57	1,115.40	103.17	11.811	
7,200.00	7,083.04	11,947.00	7,113.68	28.70	76.71	104.00	-1,237.60	1,328.75	1,228.28	1,125.56	102.72	11.958	
7,250.00	7,119.94	11,947.00	7,113.68	28.73	76.71	103.18	-1,237.60	1,328.75	1,240.89	1,138.81	102.08	12.156	
7,300.00	7,154.41	11,947.00	7,113.68	28.76	76.71	102.08	-1,237.60	1,328.75	1,256.25	1,154.96	101.30	12.402	
7,350.00	7,186.26	11,947.00	7,113.68	28.79	76.71	100.71	-1,237.60	1,328.75	1,274.19	1,173.82	100.37	12.695	
7,400.00	7,215.35	11,947.00	7,113.68	28.82	76.71	99.07	-1,237.60	1,328.75	1,294.52	1,195.17	99.34	13.031	
7,450.00	7,241.54	11,947.00	7,113.68	28.85	76.71	97.17	-1,237.60	1,328.75	1,317.02	1,218.80	98.23	13.408	
7,500.00	7,264.69	11,947.00	7,113.68	28.90	76.71	95.01	-1,237.60	1,328.75	1,341.49	1,244.45	97.05	13.823	
7,550.00	7,284.70	11,947.00	7,113.68	28.95	76.71	92.62	-1,237.60	1,328.75	1,367.70	1,271.88	95.82	14.273	
7,600.00	7,301.47	11,947.00	7,113.68	29.01	76.71	90.00	-1,237.60	1,328.75	1,395.43	1,300.86	94.57	14.755	

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 3J-4H-N165 - Slot RUEGGE 3J
<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 3J-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 - BAT 28C-9HZ - KMG WELL - SURVEYS													Offset Site Error: 0.00 usft	
Survey Program: 9-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		
6,000.00	5,931.77	12,133.00	7,284.43	25.04	78.07	55.80	-1,181.32	75.82	1,374.33	1,329.54	44.79	30.686		
6,100.00	6,030.53	12,133.00	7,284.43	25.47	78.07	55.80	-1,181.32	75.82	1,275.03	1,229.99	45.04	28.310		
6,200.00	6,129.29	12,133.00	7,284.43	25.90	78.07	55.80	-1,181.32	75.82	1,175.85	1,130.53	45.32	25.948		
6,300.00	6,228.05	12,133.00	7,284.43	26.33	78.07	55.80	-1,181.32	75.82	1,076.82	1,031.19	45.63	23.600		
6,400.00	6,326.81	12,133.00	7,284.43	26.76	78.07	55.80	-1,181.32	75.82	977.99	932.00	45.99	21.265		
6,500.00	6,425.57	12,133.00	7,284.43	27.19	78.07	55.80	-1,181.32	75.82	879.42	832.99	46.43	18.941		
6,584.00	6,508.53	12,133.00	7,284.43	27.55	78.07	55.80	-1,181.32	75.82	796.89	750.01	46.88	16.997		
6,600.00	6,524.35	12,133.00	7,284.43	27.62	78.07	53.36	-1,181.32	75.82	781.24	734.26	46.98	16.628		
6,650.00	6,574.08	12,133.00	7,284.43	27.81	78.07	56.47	-1,181.32	75.82	732.85	685.54	47.31	15.490		
6,700.00	6,624.03	12,133.00	7,284.43	27.97	78.07	129.72	-1,181.32	75.82	685.60	637.92	47.68	14.379		
6,750.00	6,673.96	12,133.00	7,284.43	28.10	78.07	-178.02	-1,181.32	75.82	639.99	591.88	48.11	13.303		
6,800.00	6,723.62	12,133.00	7,284.43	28.22	78.07	-171.13	-1,181.32	75.82	596.65	548.04	48.62	12.273		
6,850.00	6,772.76	12,133.00	7,284.43	28.32	78.07	-169.41	-1,181.32	75.82	556.35	507.13	49.22	11.302		
6,900.00	6,821.16	12,133.00	7,284.43	28.40	78.07	-168.88	-1,181.32	75.82	520.02	470.07	49.94	10.413		
6,950.00	6,868.58	12,133.00	7,284.43	28.47	78.07	-168.69	-1,181.32	75.82	488.72	437.96	50.76	9.629		
7,000.00	6,914.78	12,133.00	7,284.43	28.54	78.07	-168.59	-1,181.32	75.82	463.65	412.02	51.62	8.981		
7,050.00	6,959.54	12,133.00	7,284.43	28.59	78.07	-168.46	-1,181.32	75.82	445.99	393.53	52.47	8.501		
7,100.00	7,002.64	12,133.00	7,284.43	28.63	78.07	-168.27	-1,181.32	75.82	436.74	383.56	53.18	8.213		
7,126.51	7,024.75	12,133.00	7,284.43	28.65	78.07	-168.13	-1,181.32	75.82	435.46	381.99	53.47	8.144 CC, ES		
7,150.00	7,043.88	12,133.00	7,284.43	28.67	78.07	-167.98	-1,181.32	75.82	436.46	382.79	53.67	8.132 SF		
7,200.00	7,083.04	12,133.00	7,284.43	28.70	78.07	-167.56	-1,181.32	75.82	445.19	391.26	53.92	8.256		
7,250.00	7,119.94	12,133.00	7,284.43	28.73	78.07	-166.99	-1,181.32	75.82	462.36	407.90	54.46	8.491		
7,300.00	7,154.41	12,133.00	7,284.43	28.76	78.07	-166.22	-1,181.32	75.82	487.01	431.95	55.06	8.845		
7,350.00	7,186.26	12,133.00	7,284.43	28.79	78.07	-165.20	-1,181.32	75.82	517.97	462.54	55.43	9.344		
7,400.00	7,215.35	12,133.00	7,284.43	28.82	78.07	-163.84	-1,181.32	75.82	554.03	498.41	55.62	9.960		
7,450.00	7,241.54	12,133.00	7,284.43	28.85	78.07	-162.00	-1,181.32	75.82	594.12	538.45	55.68	10.671		
7,500.00	7,264.69	12,133.00	7,284.43	28.90	78.07	-159.46	-1,181.32	75.82	637.30	581.68	55.62	11.458		
7,550.00	7,284.70	12,133.00	7,284.43	28.95	78.07	-155.79	-1,181.32	75.82	682.79	627.30	55.48	12.306		
7,600.00	7,301.47	12,133.00	7,284.43	29.01	78.07	-150.25	-1,181.32	75.82	729.96	674.68	55.28	13.205		
7,650.00	7,314.91	12,133.00	7,284.43	29.08	78.07	-141.30	-1,181.32	75.82	778.29	723.27	55.02	14.146		
7,700.00	7,324.96	12,133.00	7,284.43	29.16	78.07	-125.89	-1,181.32	75.82	827.38	772.66	54.72	15.120		
7,750.00	7,331.58	12,133.00	7,284.43	29.25	78.07	-100.18	-1,181.32	75.82	876.86	822.48	54.38	16.124		
7,800.00	7,334.72	12,133.00	7,284.43	29.36	78.07	-69.24	-1,181.32	75.82	926.46	872.44	54.02	17.151		
7,820.07	7,335.00	12,133.00	7,284.43	29.41	78.07	-58.77	-1,181.32	75.82	946.35	892.48	53.87	17.568		
7,900.00	7,335.00	12,133.00	7,284.43	29.62	78.07	-58.77	-1,181.32	75.82	1,025.56	972.26	53.30	19.241		
8,000.00	7,335.00	12,133.00	7,284.43	29.96	78.07	-58.77	-1,181.32	75.82	1,124.80	1,072.08	52.72	21.337		
8,100.00	7,335.00	12,133.00	7,284.43	30.39	78.07	-58.77	-1,181.32	75.82	1,224.16	1,171.93	52.23	23.436		
8,200.00	7,335.00	12,133.00	7,284.43	30.88	78.07	-58.77	-1,181.32	75.82	1,323.62	1,271.79	51.83	25.537		

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 3J-4H-N165 - Slot RUEGGE 3J
<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 3J-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 - BAT 28N-9HZ - KMG WELL - SURVEYS													Offset Site Error:	0.00 usft
Survey Program: 20-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	5,833.01	11,953.00	7,124.83	24.61	78.12	-32.53	-1,159.53	285.94	1,318.82	1,273.79	45.04	29.284		
6,000.00	5,931.77	11,953.00	7,124.83	25.04	78.12	-32.53	-1,159.53	285.94	1,219.54	1,174.24	45.30	26.924		
6,100.00	6,030.53	11,953.00	7,124.83	25.47	78.12	-32.53	-1,159.53	285.94	1,120.38	1,074.80	45.58	24.580		
6,200.00	6,129.29	11,953.00	7,124.83	25.90	78.12	-32.53	-1,159.53	285.94	1,021.39	975.49	45.90	22.253		
6,300.00	6,228.05	11,953.00	7,124.83	26.33	78.12	-32.53	-1,159.53	285.94	922.61	876.34	46.27	19.941		
6,400.00	6,326.81	11,953.00	7,124.83	26.76	78.12	-32.53	-1,159.53	285.94	824.13	777.42	46.70	17.646		
6,500.00	6,425.57	11,953.00	7,124.83	27.19	78.12	-32.53	-1,159.53	285.94	726.06	678.81	47.25	15.367		
6,584.00	6,508.53	11,953.00	7,124.83	27.55	78.12	-32.53	-1,159.53	285.94	644.14	596.30	47.84	13.464		
6,600.00	6,524.35	11,953.00	7,124.83	27.62	78.12	-27.48	-1,159.53	285.94	628.64	580.67	47.97	13.105		
6,650.00	6,574.08	11,953.00	7,124.83	27.81	78.12	-7.54	-1,159.53	285.94	580.87	532.48	48.39	12.004		
6,700.00	6,624.03	11,953.00	7,124.83	27.97	78.12	76.23	-1,159.53	285.94	534.60	485.76	48.84	10.946		
6,750.00	6,673.96	11,953.00	7,124.83	28.10	78.12	135.44	-1,159.53	285.94	490.48	441.17	49.32	9.946		
6,800.00	6,723.62	11,953.00	7,124.83	28.22	78.12	147.12	-1,159.53	285.94	449.41	399.60	49.81	9.022		
6,850.00	6,772.76	11,953.00	7,124.83	28.32	78.12	152.20	-1,159.53	285.94	412.53	362.23	50.30	8.201		
6,900.00	6,821.16	11,953.00	7,124.83	28.40	78.12	155.10	-1,159.53	285.94	381.24	330.55	50.69	7.521		
6,950.00	6,868.58	11,953.00	7,124.83	28.47	78.12	156.91	-1,159.53	285.94	357.20	306.35	50.85	7.025		
7,000.00	6,914.78	11,953.00	7,124.83	28.54	78.12	158.04	-1,159.53	285.94	342.07	290.74	51.32	6.665		
7,048.22	6,957.97	11,953.00	7,124.83	28.59	78.12	158.67	-1,159.53	285.94	337.11	285.32	51.79	6.509 CC		
7,050.00	6,959.54	11,953.00	7,124.83	28.59	78.12	158.68	-1,159.53	285.94	337.12	285.32	51.80	6.508 ES, SF		
7,100.00	7,002.64	11,953.00	7,124.83	28.63	78.12	158.93	-1,159.53	285.94	342.82	290.92	51.91	6.605		
7,150.00	7,043.88	11,953.00	7,124.83	28.67	78.12	158.81	-1,159.53	285.94	358.64	306.83	51.81	6.922		
7,200.00	7,083.04	11,953.00	7,124.83	28.70	78.12	158.31	-1,159.53	285.94	383.25	331.52	51.73	7.409		
7,250.00	7,119.94	11,953.00	7,124.83	28.73	78.12	157.38	-1,159.53	285.94	414.99	363.23	51.76	8.018		
7,300.00	7,154.41	11,953.00	7,124.83	28.76	78.12	155.92	-1,159.53	285.94	452.22	400.34	51.87	8.718		
7,350.00	7,186.26	11,953.00	7,124.83	28.79	78.12	153.74	-1,159.53	285.94	493.54	441.52	52.02	9.487		
7,400.00	7,215.35	11,953.00	7,124.83	28.82	78.12	150.49	-1,159.53	285.94	537.84	485.68	52.15	10.312		
7,450.00	7,241.54	11,953.00	7,124.83	28.85	78.12	145.55	-1,159.53	285.94	584.24	532.00	52.23	11.185		
7,500.00	7,264.69	11,953.00	7,124.83	28.90	78.12	137.74	-1,159.53	285.94	632.08	579.83	52.25	12.098		
7,550.00	7,284.70	11,953.00	7,124.83	28.95	78.12	124.76	-1,159.53	285.94	680.86	628.66	52.19	13.045		
7,600.00	7,301.47	11,953.00	7,124.83	29.01	78.12	103.44	-1,159.53	285.94	730.16	678.08	52.08	14.020		
7,650.00	7,314.91	11,953.00	7,124.83	29.08	78.12	75.14	-1,159.53	285.94	779.68	727.78	51.90	15.021		
7,700.00	7,324.96	11,953.00	7,124.83	29.16	78.12	50.68	-1,159.53	285.94	829.15	777.48	51.68	16.045		
7,750.00	7,331.58	11,953.00	7,124.83	29.25	78.12	35.10	-1,159.53	285.94	878.37	826.97	51.40	17.088		
7,800.00	7,334.72	11,953.00	7,124.83	29.36	78.12	25.69	-1,159.53	285.94	927.15	876.06	51.09	18.148		
7,820.07	7,335.00	11,953.00	7,124.83	29.41	78.12	23.00	-1,159.53	285.94	946.56	895.61	50.95	18.578		
7,900.00	7,335.00	11,953.00	7,124.83	29.62	78.12	23.00	-1,159.53	285.94	1,023.92	973.47	50.45	20.295		
8,000.00	7,335.00	11,953.00	7,124.83	29.96	78.12	23.00	-1,159.53	285.94	1,121.21	1,071.27	49.94	22.451		
8,100.00	7,335.00	11,953.00	7,124.83	30.39	78.12	23.00	-1,159.53	285.94	1,218.93	1,169.40	49.53	24.610		
8,200.00	7,335.00	11,953.00	7,124.83	30.88	78.12	23.00	-1,159.53	285.94	1,317.00	1,267.81	49.20	26.770		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well RUEGGE 3J-4H-N165 - Slot RUEGGE 3J
<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 3J-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 - BAT 29C-9HZ - KMG WELL - SURVEYS													Offset Site Error: 0.00 usft	
Survey Program: 20-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	6,129.29	12,205.00	7,304.30	25.90	79.42	91.10	-1,193.48	-576.56	1,403.10	1,335.04	68.06	20.615		
6,300.00	6,228.05	12,205.00	7,304.30	26.33	79.42	91.10	-1,193.48	-576.56	1,320.85	1,250.09	70.76	18.665		
6,400.00	6,326.81	12,205.00	7,304.30	26.76	79.42	91.10	-1,193.48	-576.56	1,241.22	1,167.41	73.80	16.818		
6,500.00	6,425.57	12,205.00	7,304.30	27.19	79.42	91.10	-1,193.48	-576.56	1,164.72	1,087.52	77.21	15.086		
6,584.00	6,508.53	12,205.00	7,304.30	27.55	79.42	91.10	-1,193.48	-576.56	1,103.37	1,023.02	80.36	13.731		
6,600.00	6,524.35	12,205.00	7,304.30	27.62	79.42	91.55	-1,193.48	-576.56	1,092.06	1,011.07	80.99	13.484		
6,650.00	6,574.08	12,205.00	7,304.30	27.81	79.42	100.19	-1,193.48	-576.56	1,057.80	974.78	83.02	12.741		
6,700.00	6,624.03	12,205.00	7,304.30	27.97	79.42	175.83	-1,193.48	-576.56	1,025.50	940.36	85.14	12.045		
6,750.00	6,673.96	12,205.00	7,304.30	28.10	79.42	-131.04	-1,193.48	-576.56	995.52	908.21	87.31	11.402		
6,800.00	6,723.62	12,205.00	7,304.30	28.22	79.42	-124.04	-1,193.48	-576.56	968.22	878.71	89.51	10.817		
6,850.00	6,772.76	12,205.00	7,304.30	28.32	79.42	-122.56	-1,193.48	-576.56	943.98	852.27	91.70	10.294		
6,900.00	6,821.16	12,205.00	7,304.30	28.40	79.42	-122.40	-1,193.48	-576.56	923.15	829.32	93.83	9.838		
6,950.00	6,868.58	12,205.00	7,304.30	28.47	79.42	-122.59	-1,193.48	-576.56	906.09	810.25	95.84	9.454		
7,000.00	6,914.78	12,205.00	7,304.30	28.54	79.42	-122.80	-1,193.48	-576.56	893.08	795.42	97.66	9.145		
7,050.00	6,959.54	12,205.00	7,304.30	28.59	79.42	-122.90	-1,193.48	-576.56	884.38	785.13	99.24	8.911		
7,100.00	7,002.64	12,205.00	7,304.30	28.63	79.42	-122.81	-1,193.48	-576.56	880.14	779.61	100.53	8.755		
7,121.42	7,020.54	12,205.00	7,304.30	28.65	79.42	-122.70	-1,193.48	-576.56	879.72	778.74	100.98	8.712 CC, ES		
7,150.00	7,043.88	12,205.00	7,304.30	28.67	79.42	-122.49	-1,193.48	-576.56	880.47	778.98	101.49	8.676		
7,200.00	7,083.04	12,205.00	7,304.30	28.70	79.42	-121.91	-1,193.48	-576.56	885.35	783.25	102.10	8.672 SF		
7,250.00	7,119.94	12,205.00	7,304.30	28.73	79.42	-121.06	-1,193.48	-576.56	894.68	792.33	102.36	8.741		
7,300.00	7,154.41	12,205.00	7,304.30	28.76	79.42	-119.91	-1,193.48	-576.56	908.29	806.00	102.29	8.880		
7,350.00	7,186.26	12,205.00	7,304.30	28.79	79.42	-118.44	-1,193.48	-576.56	925.91	824.00	101.92	9.085		
7,400.00	7,215.35	12,205.00	7,304.30	28.82	79.42	-116.64	-1,193.48	-576.56	947.25	845.96	101.29	9.352		
7,450.00	7,241.54	12,205.00	7,304.30	28.85	79.42	-114.47	-1,193.48	-576.56	971.95	871.50	100.46	9.675		
7,500.00	7,264.69	12,205.00	7,304.30	28.90	79.42	-111.92	-1,193.48	-576.56	999.66	900.20	99.46	10.051		
7,550.00	7,284.70	12,205.00	7,304.30	28.95	79.42	-108.97	-1,193.48	-576.56	1,030.00	931.66	98.34	10.474		
7,600.00	7,301.47	12,205.00	7,304.30	29.01	79.42	-105.61	-1,193.48	-576.56	1,062.60	965.46	97.14	10.939		
7,650.00	7,314.91	12,205.00	7,304.30	29.08	79.42	-101.85	-1,193.48	-576.56	1,097.11	1,001.21	95.89	11.441		
7,700.00	7,324.96	12,205.00	7,304.30	29.16	79.42	-97.69	-1,193.48	-576.56	1,133.20	1,038.57	94.63	11.976		
7,750.00	7,331.58	12,205.00	7,304.30	29.25	79.42	-93.19	-1,193.48	-576.56	1,170.55	1,077.19	93.36	12.538		
7,800.00	7,334.72	12,205.00	7,304.30	29.36	79.42	-88.41	-1,193.48	-576.56	1,208.87	1,116.70	92.17	13.115		
7,820.07	7,335.00	12,205.00	7,304.30	29.41	79.42	-86.43	-1,193.48	-576.56	1,224.46	1,132.73	91.73	13.349		
7,900.00	7,335.00	12,205.00	7,304.30	29.62	79.42	-86.43	-1,193.48	-576.56	1,287.75	1,197.75	90.01	14.307		
8,000.00	7,335.00	12,205.00	7,304.30	29.96	79.42	-86.43	-1,193.48	-576.56	1,369.39	1,281.39	88.00	15.562		

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 3J-4H-N165 - Slot RUEGGE 3J
<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 3J-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 - BAT 29N1-9HZ - 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							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		
6,500.00	6,425.57	12,122.00	7,136.98	27.19	82.44	94.69	-1,159.92	-1,042.96	1,410.44	1,315.03	95.40	14.784		
6,584.00	6,508.53	12,122.00	7,136.98	27.55	82.44	94.69	-1,159.92	-1,042.96	1,371.48	1,273.56	97.91	14.007		
6,600.00	6,524.35	12,122.00	7,136.98	27.62	82.44	95.79	-1,159.92	-1,042.96	1,364.53	1,266.15	98.39	13.869		
6,650.00	6,574.08	12,122.00	7,136.98	27.81	82.44	106.33	-1,159.92	-1,042.96	1,344.09	1,244.23	99.86	13.460		
6,700.00	6,624.03	12,122.00	7,136.98	27.97	82.44	-176.34	-1,159.92	-1,042.96	1,325.68	1,224.38	101.30	13.087		
6,750.00	6,673.96	12,122.00	7,136.98	28.10	82.44	-121.73	-1,159.92	-1,042.96	1,309.48	1,206.79	102.69	12.752		
6,800.00	6,723.62	12,122.00	7,136.98	28.22	82.44	-113.43	-1,159.92	-1,042.96	1,295.67	1,191.64	104.03	12.455		
6,850.00	6,772.76	12,122.00	7,136.98	28.32	82.44	-110.82	-1,159.92	-1,042.96	1,284.38	1,179.09	105.29	12.198		
6,900.00	6,821.16	12,122.00	7,136.98	28.40	82.44	-109.69	-1,159.92	-1,042.96	1,275.74	1,169.27	106.47	11.982		
6,950.00	6,868.58	12,122.00	7,136.98	28.47	82.44	-109.05	-1,159.92	-1,042.96	1,269.84	1,162.30	107.54	11.808		
7,000.00	6,914.78	12,122.00	7,136.98	28.54	82.44	-108.55	-1,159.92	-1,042.96	1,266.75	1,158.27	108.48	11.677		
7,029.23	6,941.14	12,122.00	7,136.98	28.57	82.44	-108.27	-1,159.92	-1,042.96	1,266.27	1,157.29	108.98	11.620 CC		
7,050.00	6,959.54	12,122.00	7,136.98	28.59	82.44	-108.05	-1,159.92	-1,042.96	1,266.51	1,157.22	109.30	11.588 ES		
7,100.00	7,002.64	12,122.00	7,136.98	28.63	82.44	-107.46	-1,159.92	-1,042.96	1,269.12	1,159.15	109.96	11.541		
7,150.00	7,043.88	12,122.00	7,136.98	28.67	82.44	-106.74	-1,159.92	-1,042.96	1,274.55	1,164.06	110.49	11.536 SF		
7,200.00	7,083.04	12,122.00	7,136.98	28.70	82.44	-105.86	-1,159.92	-1,042.96	1,282.73	1,171.87	110.86	11.570		
7,250.00	7,119.94	12,122.00	7,136.98	28.73	82.44	-104.81	-1,159.92	-1,042.96	1,293.58	1,182.48	111.10	11.644		
7,300.00	7,154.41	12,122.00	7,136.98	28.76	82.44	-103.57	-1,159.92	-1,042.96	1,306.98	1,195.78	111.19	11.754		
7,350.00	7,186.26	12,122.00	7,136.98	28.79	82.44	-102.13	-1,159.92	-1,042.96	1,322.78	1,211.61	111.16	11.899		
7,400.00	7,215.35	12,122.00	7,136.98	28.82	82.44	-100.50	-1,159.92	-1,042.96	1,340.82	1,229.80	111.02	12.077		
7,450.00	7,241.54	12,122.00	7,136.98	28.85	82.44	-98.68	-1,159.92	-1,042.96	1,360.94	1,250.16	110.78	12.285		
7,500.00	7,264.69	12,122.00	7,136.98	28.90	82.44	-96.66	-1,159.92	-1,042.96	1,382.94	1,272.49	110.45	12.521		
7,550.00	7,284.70	12,122.00	7,136.98	28.95	82.44	-94.46	-1,159.92	-1,042.96	1,406.63	1,296.58	110.05	12.782		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well RUEGGE 3J-4H-N165 - Slot RUEGGE 3J
<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 3J-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 - BAT 29N2-9HZ - KMG WELL - SURVEYS												Offset Site Error:	0.00 usft
Survey Program: 20-ISOWSA 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
6,200.00	6,129.29	11,735.00	7,048.01	25.90	75.23	75.20	-1,440.02	-691.34	1,353.20	1,277.52	75.68	17.881	
6,300.00	6,228.05	11,735.00	7,048.01	26.33	75.23	75.20	-1,440.02	-691.34	1,284.80	1,205.93	78.87	16.289	
6,400.00	6,326.81	11,735.00	7,048.01	26.76	75.23	75.20	-1,440.02	-691.34	1,220.78	1,138.50	82.28	14.837	
6,500.00	6,425.57	11,735.00	7,048.01	27.19	75.23	75.20	-1,440.02	-691.34	1,161.84	1,076.00	85.84	13.534	
6,584.00	6,508.53	11,735.00	7,048.01	27.55	75.23	75.20	-1,440.02	-691.34	1,116.86	1,027.95	88.90	12.562	
6,600.00	6,524.35	11,735.00	7,048.01	27.62	75.23	76.25	-1,440.02	-691.34	1,108.87	1,019.39	89.49	12.392	
6,650.00	6,574.08	11,735.00	7,048.01	27.81	75.23	86.72	-1,440.02	-691.34	1,085.98	994.71	91.27	11.899	
6,700.00	6,624.03	11,735.00	7,048.01	27.97	75.23	164.13	-1,440.02	-691.34	1,066.44	973.47	92.96	11.472	
6,750.00	6,673.96	11,735.00	7,048.01	28.10	75.23	-141.08	-1,440.02	-691.34	1,050.54	956.02	94.53	11.114	
6,800.00	6,723.62	11,735.00	7,048.01	28.22	75.23	-132.50	-1,440.02	-691.34	1,038.54	942.61	95.93	10.826	
6,850.00	6,772.76	11,735.00	7,048.01	28.32	75.23	-129.53	-1,440.02	-691.34	1,030.62	933.49	97.13	10.611	
6,900.00	6,821.16	11,735.00	7,048.01	28.40	75.23	-127.97	-1,440.02	-691.34	1,026.93	928.82	98.10	10.468	
6,918.19	6,838.54	11,735.00	7,048.01	28.43	75.23	-127.53	-1,440.02	-691.34	1,026.64	928.25	98.40	10.434 CC, ES	
6,950.00	6,868.58	11,735.00	7,048.01	28.47	75.23	-126.83	-1,440.02	-691.34	1,027.51	928.68	98.83	10.397 SF	
7,000.00	6,914.78	11,735.00	7,048.01	28.54	75.23	-125.77	-1,440.02	-691.34	1,032.37	933.08	99.29	10.398	
7,050.00	6,959.54	11,735.00	7,048.01	28.59	75.23	-124.62	-1,440.02	-691.34	1,041.41	941.92	99.49	10.467	
7,100.00	7,002.64	11,735.00	7,048.01	28.63	75.23	-123.29	-1,440.02	-691.34	1,054.50	955.05	99.45	10.603	
7,150.00	7,043.88	11,735.00	7,048.01	28.67	75.23	-121.74	-1,440.02	-691.34	1,071.41	972.23	99.18	10.802	
7,200.00	7,083.04	11,735.00	7,048.01	28.70	75.23	-119.93	-1,440.02	-691.34	1,091.90	993.17	98.72	11.060	
7,250.00	7,119.94	11,735.00	7,048.01	28.73	75.23	-117.80	-1,440.02	-691.34	1,115.65	1,017.55	98.10	11.373	
7,300.00	7,154.41	11,735.00	7,048.01	28.76	75.23	-115.35	-1,440.02	-691.34	1,142.37	1,045.03	97.35	11.735	
7,350.00	7,186.26	11,735.00	7,048.01	28.79	75.23	-112.53	-1,440.02	-691.34	1,171.73	1,075.23	96.50	12.142	
7,400.00	7,215.35	11,735.00	7,048.01	28.82	75.23	-109.33	-1,440.02	-691.34	1,203.38	1,107.80	95.58	12.590	
7,450.00	7,241.54	11,735.00	7,048.01	28.85	75.23	-105.74	-1,440.02	-691.34	1,237.01	1,142.37	94.65	13.070	
7,500.00	7,264.69	11,735.00	7,048.01	28.90	75.23	-101.77	-1,440.02	-691.34	1,272.31	1,178.44	93.87	13.554	
7,550.00	7,284.70	11,735.00	7,048.01	28.95	75.23	-97.44	-1,440.02	-691.34	1,308.97	1,215.90	93.07	14.064	
7,600.00	7,301.47	11,735.00	7,048.01	29.01	75.23	-92.81	-1,440.02	-691.34	1,346.71	1,254.46	92.25	14.598	
7,650.00	7,314.91	11,735.00	7,048.01	29.08	75.23	-87.93	-1,440.02	-691.34	1,385.27	1,293.83	91.44	15.150	



# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well RUEGGE 3J-4H-N165 - Slot RUEGGE 3J
<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 3J-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 - BAT 3N1-9HZX - 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						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		
6,000.00	5,931.77	12,010.00	7,134.61	25.04	79.01	84.87	-1,196.11	-363.55	1,335.15	1,276.31	58.84	22.692		
6,100.00	6,030.53	12,010.00	7,134.61	25.47	79.01	84.87	-1,196.11	-363.55	1,245.34	1,184.41	60.92	20.441		
6,200.00	6,129.29	12,010.00	7,134.61	25.90	79.01	84.87	-1,196.11	-363.55	1,157.20	1,093.82	63.37	18.260		
6,300.00	6,228.05	12,010.00	7,134.61	26.33	79.01	84.87	-1,196.11	-363.55	1,071.14	1,004.89	66.25	16.167		
6,400.00	6,326.81	12,010.00	7,134.61	26.76	79.01	84.87	-1,196.11	-363.55	987.71	918.06	69.65	14.181		
6,500.00	6,425.57	12,010.00	7,134.61	27.19	79.01	84.87	-1,196.11	-363.55	907.65	833.99	73.65	12.323		
6,584.00	6,508.53	12,010.00	7,134.61	27.55	79.01	84.87	-1,196.11	-363.55	843.68	766.15	77.53	10.882		
6,600.00	6,524.35	12,010.00	7,134.61	27.62	79.01	85.25	-1,196.11	-363.55	831.94	753.61	78.32	10.622		
6,650.00	6,574.08	12,010.00	7,134.61	27.81	79.01	93.81	-1,196.11	-363.55	796.70	715.79	80.91	9.847		
6,700.00	6,624.03	12,010.00	7,134.61	27.97	79.01	169.51	-1,196.11	-363.55	764.05	680.43	83.62	9.137		
6,750.00	6,673.96	12,010.00	7,134.61	28.10	79.01	-137.18	-1,196.11	-363.55	734.52	648.11	86.41	8.500		
6,800.00	6,723.62	12,010.00	7,134.61	28.22	79.01	-129.90	-1,196.11	-363.55	708.64	619.43	89.21	7.944		
6,850.00	6,772.76	12,010.00	7,134.61	28.32	79.01	-128.06	-1,196.11	-363.55	686.95	595.05	91.91	7.475		
6,900.00	6,821.16	12,010.00	7,134.61	28.40	79.01	-127.49	-1,196.11	-363.55	669.98	575.59	94.39	7.098		
6,950.00	6,868.58	12,010.00	7,134.61	28.47	79.01	-127.21	-1,196.11	-363.55	658.17	561.65	96.53	6.818		
7,000.00	6,914.78	12,010.00	7,134.61	28.54	79.01	-126.91	-1,196.11	-363.55	651.87	553.67	98.21	6.638		
7,030.29	6,942.08	12,010.00	7,134.61	28.57	79.01	-126.64	-1,196.11	-363.55	650.82	551.86	98.96	6.577 CC, ES		
7,050.00	6,959.54	12,010.00	7,134.61	28.59	79.01	-126.43	-1,196.11	-363.55	651.27	551.93	99.34	6.556 SF		
7,100.00	7,002.64	12,010.00	7,134.61	28.63	79.01	-125.69	-1,196.11	-363.55	656.37	556.50	99.88	6.572		
7,150.00	7,043.88	12,010.00	7,134.61	28.67	79.01	-124.66	-1,196.11	-363.55	667.04	567.20	99.84	6.681		
7,200.00	7,083.04	12,010.00	7,134.61	28.70	79.01	-123.27	-1,196.11	-363.55	682.95	583.66	99.29	6.879		
7,250.00	7,119.94	12,010.00	7,134.61	28.73	79.01	-121.50	-1,196.11	-363.55	703.68	605.38	98.30	7.158		
7,300.00	7,154.41	12,010.00	7,134.61	28.76	79.01	-119.31	-1,196.11	-363.55	728.72	631.72	97.00	7.513		
7,350.00	7,186.26	12,010.00	7,134.61	28.79	79.01	-116.64	-1,196.11	-363.55	757.53	662.06	95.47	7.935		
7,400.00	7,215.35	12,010.00	7,134.61	28.82	79.01	-113.47	-1,196.11	-363.55	789.56	695.34	94.21	8.381		
7,450.00	7,241.54	12,010.00	7,134.61	28.85	79.01	-109.75	-1,196.11	-363.55	824.29	731.43	92.86	8.877		
7,500.00	7,264.69	12,010.00	7,134.61	28.90	79.01	-105.45	-1,196.11	-363.55	861.23	769.78	91.46	9.417		
7,550.00	7,284.70	12,010.00	7,134.61	28.95	79.01	-100.59	-1,196.11	-363.55	899.96	809.91	90.04	9.995		
7,600.00	7,301.47	12,010.00	7,134.61	29.01	79.01	-95.21	-1,196.11	-363.55	940.06	851.41	88.64	10.605		
7,650.00	7,314.91	12,010.00	7,134.61	29.08	79.01	-89.39	-1,196.11	-363.55	981.18	893.90	87.28	11.242		
7,700.00	7,324.96	12,010.00	7,134.61	29.16	79.01	-83.28	-1,196.11	-363.55	1,023.03	937.06	85.96	11.901		
7,750.00	7,331.58	12,010.00	7,134.61	29.25	79.01	-77.06	-1,196.11	-363.55	1,065.31	980.61	84.69	12.578		
7,800.00	7,334.72	12,010.00	7,134.61	29.36	79.01	-70.92	-1,196.11	-363.55	1,107.78	1,024.30	83.48	13.270		
7,820.07	7,335.00	12,010.00	7,134.61	29.41	79.01	-68.52	-1,196.11	-363.55	1,124.83	1,041.83	83.01	13.551		
7,900.00	7,335.00	12,010.00	7,134.61	29.62	79.01	-68.52	-1,196.11	-363.55	1,193.48	1,112.25	81.22	14.694		
8,000.00	7,335.00	12,010.00	7,134.61	29.96	79.01	-68.52	-1,196.11	-363.55	1,281.20	1,201.99	79.21	16.175		
8,100.00	7,335.00	12,010.00	7,134.61	30.39	79.01	-68.52	-1,196.11	-363.55	1,370.60	1,293.19	77.41	17.706		

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 3J-4H-N165 - Slot RUEGGE 3J
<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 3J-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 - BAT 3N2-9HZ - KMG WELL - SURVEYS											Offset Site Error: 0.00 usft		
Survey Program: 20-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	
5,800.00	5,734.25	11,878.00	7,053.25	24.18	78.38	63.54	-1,203.22	-44.09	1,366.36	1,319.83	46.53	29.363	
5,900.00	5,833.01	11,878.00	7,053.25	24.61	78.38	63.54	-1,203.22	-44.09	1,268.66	1,221.56	47.10	26.935	
6,000.00	5,931.77	11,878.00	7,053.25	25.04	78.38	63.54	-1,203.22	-44.09	1,171.35	1,123.57	47.77	24.519	
6,100.00	6,030.53	11,878.00	7,053.25	25.47	78.38	63.54	-1,203.22	-44.09	1,074.53	1,025.94	48.59	22.114	
6,200.00	6,129.29	11,878.00	7,053.25	25.90	78.38	63.54	-1,203.22	-44.09	978.35	928.74	49.61	19.722	
6,300.00	6,228.05	11,878.00	7,053.25	26.33	78.38	63.54	-1,203.22	-44.09	883.01	832.11	50.90	17.346	
6,400.00	6,326.81	11,878.00	7,053.25	26.76	78.38	63.54	-1,203.22	-44.09	788.84	736.24	52.60	14.996	
6,500.00	6,425.57	11,878.00	7,053.25	27.19	78.38	63.54	-1,203.22	-44.09	696.29	641.40	54.89	12.684	
6,584.00	6,508.53	11,878.00	7,053.25	27.55	78.38	63.54	-1,203.22	-44.09	620.34	562.86	57.48	10.792	
6,600.00	6,524.35	11,878.00	7,053.25	27.62	78.38	63.32	-1,203.22	-44.09	606.17	548.10	58.06	10.440	
6,650.00	6,574.08	11,878.00	7,053.25	27.81	78.38	70.62	-1,203.22	-44.09	563.27	503.19	60.08	9.375	
6,700.00	6,624.03	11,878.00	7,053.25	27.97	78.38	145.74	-1,203.22	-44.09	523.09	460.66	62.43	8.379	
6,750.00	6,673.96	11,878.00	7,053.25	28.10	78.38	-161.12	-1,203.22	-44.09	486.51	421.41	65.11	7.473	
6,800.00	6,723.62	11,878.00	7,053.25	28.22	78.38	-153.76	-1,203.22	-44.09	454.60	386.56	68.04	6.681	
6,850.00	6,772.76	11,878.00	7,053.25	28.32	78.38	-151.71	-1,203.22	-44.09	428.56	357.49	71.07	6.030	
6,900.00	6,821.16	11,878.00	7,053.25	28.40	78.38	-150.85	-1,203.22	-44.09	409.67	335.76	73.92	5.542	
6,950.00	6,868.58	11,878.00	7,053.25	28.47	78.38	-150.25	-1,203.22	-44.09	399.04	322.81	76.23	5.235	
6,984.09	6,900.22	11,878.00	7,053.25	28.52	78.38	-149.81	-1,203.22	-44.09	396.91	319.59	77.33	5.133 CC, ES	
7,000.00	6,914.78	11,878.00	7,053.25	28.54	78.38	-149.59	-1,203.22	-44.09	397.38	319.69	77.69	5.115 SF	
7,050.00	6,959.54	11,878.00	7,053.25	28.59	78.38	-148.72	-1,203.22	-44.09	404.81	326.67	78.13	5.181	
7,100.00	7,002.64	11,878.00	7,053.25	28.63	78.38	-147.55	-1,203.22	-44.09	420.81	342.82	77.99	5.396	
7,150.00	7,043.88	11,878.00	7,053.25	28.67	78.38	-145.99	-1,203.22	-44.09	444.39	366.76	77.62	5.725	
7,200.00	7,083.04	11,878.00	7,053.25	28.70	78.38	-143.92	-1,203.22	-44.09	474.31	397.58	76.73	6.182	
7,250.00	7,119.94	11,878.00	7,053.25	28.73	78.38	-141.21	-1,203.22	-44.09	509.33	433.78	75.55	6.742	
7,300.00	7,154.41	11,878.00	7,053.25	28.76	78.38	-137.66	-1,203.22	-44.09	548.32	474.06	74.25	7.385	
7,350.00	7,186.26	11,878.00	7,053.25	28.79	78.38	-133.01	-1,203.22	-44.09	590.31	517.37	72.95	8.092	
7,400.00	7,215.35	11,878.00	7,053.25	28.82	78.38	-126.90	-1,203.22	-44.09	634.54	562.85	71.70	8.850	
7,450.00	7,241.54	11,878.00	7,053.25	28.85	78.38	-118.94	-1,203.22	-44.09	680.37	609.85	70.52	9.648	
7,500.00	7,264.69	11,878.00	7,053.25	28.90	78.38	-108.77	-1,203.22	-44.09	727.30	657.87	69.43	10.475	
7,550.00	7,284.70	11,878.00	7,053.25	28.95	78.38	-96.45	-1,203.22	-44.09	774.92	706.51	68.42	11.327	
7,600.00	7,301.47	11,878.00	7,053.25	29.01	78.38	-82.81	-1,203.22	-44.09	822.90	755.43	67.47	12.196	
7,650.00	7,314.91	11,878.00	7,053.25	29.08	78.38	-69.37	-1,203.22	-44.09	870.96	804.37	66.59	13.079	
7,700.00	7,324.96	11,878.00	7,053.25	29.16	78.38	-57.54	-1,203.22	-44.09	918.88	853.12	65.76	13.973	
7,750.00	7,331.58	11,878.00	7,053.25	29.25	78.38	-47.91	-1,203.22	-44.09	966.47	901.49	64.98	14.874	
7,800.00	7,334.72	11,878.00	7,053.25	29.36	78.38	-40.36	-1,203.22	-44.09	1,013.54	949.32	64.22	15.781	
7,820.07	7,335.00	11,878.00	7,053.25	29.41	78.38	-37.84	-1,203.22	-44.09	1,032.26	968.33	63.93	16.147	
7,900.00	7,335.00	11,878.00	7,053.25	29.62	78.38	-37.84	-1,203.22	-44.09	1,106.98	1,044.14	62.85	17.614	
8,000.00	7,335.00	11,878.00	7,053.25	29.96	78.38	-37.84	-1,203.22	-44.09	1,201.41	1,139.75	61.66	19.483	
8,100.00	7,335.00	11,878.00	7,053.25	30.39	78.38	-37.84	-1,203.22	-44.09	1,296.67	1,236.03	60.64	21.382	
8,200.00	7,335.00	11,878.00	7,053.25	30.88	78.38	-37.84	-1,203.22	-44.09	1,392.60	1,332.85	59.75	23.305	

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 3J-4H-N165 - Slot RUEGGE 3J
<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 3J-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											
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					
8,800.00	7,335.00	7,213.25	7,211.27	35.25	12.53	85.64	978.15	1,594.40	1,414.79	1,367.37	47.42	29.836						
8,900.00	7,335.00	7,209.51	7,207.54	36.16	12.53	85.49	978.31	1,594.09	1,400.22	1,351.72	48.50	28.872						
9,000.00	7,335.00	7,205.32	7,203.37	37.13	12.52	85.32	978.49	1,593.74	1,392.69	1,343.12	49.57	28.098						
9,055.38	7,335.00	7,203.00	7,201.06	37.68	12.51	85.22	978.59	1,593.55	1,391.59	1,341.44	50.15	27.750	CC, ES					
9,100.00	7,335.00	7,201.13	7,199.20	38.13	12.51	85.14	978.67	1,593.40	1,392.30	1,341.70	50.60	27.518						
9,200.00	7,335.00	7,196.95	7,195.04	39.17	12.50	84.97	978.84	1,593.05	1,399.07	1,347.51	51.56	27.135						
9,300.00	7,335.00	7,192.77	7,190.87	40.25	12.50	84.80	979.02	1,592.70	1,412.88	1,360.45	52.44	26.945	SF					

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well RUEGGE 3J-4H-N165 - Slot RUEGGE 3J
<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 3J-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		Highside Toolface (°)	Distance		Total Uncertainty Axis	Separation Factor	Warning		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)					
0.00	0.00	0.00	0.00	0.00	0.00	85.97	92.84	1,318.08	1,321.40				
100.00	100.00	76.27	76.27	0.14	0.06	85.97	92.80	1,318.42	1,321.74	0.20	6,698.853		
200.00	200.00	177.54	177.54	0.50	0.21	85.98	92.75	1,319.43	1,322.73	0.71	1,860.976		
300.00	299.98	281.56	281.55	0.84	0.40	-84.15	92.92	1,320.06	1,323.16	1.24	1,068.040		
400.00	399.84	381.13	381.12	1.19	0.58	-84.38	93.07	1,320.52	1,323.11	1.76	751.103		
500.00	499.45	490.83	490.82	1.55	0.77	-84.81	93.10	1,320.74	1,322.50	2.31	571.377		
600.00	598.70	588.38	588.36	1.93	0.93	-85.34	93.06	1,320.51	1,321.21	2.86	461.756		
651.76	649.89	638.10	638.09	2.13	1.02	-85.68	93.15	1,320.47	1,320.56	3.15	418.890		
700.00	697.53	684.44	684.43	2.33	1.10	-86.00	93.18	1,320.48	1,320.02	3.43	385.022		
800.00	796.29	786.56	786.55	2.74	1.28	-86.69	93.23	1,320.47	1,319.00	4.02	328.382		
900.00	895.05	883.51	883.50	3.16	1.45	-87.36	93.39	1,320.32	1,318.04	4.60	286.508		
1,000.00	993.81	983.31	983.30	3.57	1.62	-88.05	93.50	1,320.25	1,317.35	5.19	253.694		
1,100.00	1,092.57	1,083.92	1,083.91	4.00	1.79	-88.73	93.26	1,320.10	1,316.72	5.79	227.454		
1,200.00	1,191.33	1,183.95	1,183.93	4.42	1.97	-89.37	92.39	1,319.93	1,316.15	6.39	206.085		
1,300.00	1,290.09	1,285.83	1,285.81	4.84	2.14	-90.03	91.32	1,319.64	1,315.60	6.99	188.254		
1,393.30	1,382.23	1,372.36	1,372.33	5.24	2.30	-90.58	90.47	1,319.42	1,315.28	7.54	174.526		
1,400.00	1,388.85	1,378.46	1,378.44	5.27	2.31	-90.62	90.41	1,319.42	1,315.29	7.58	173.624		
1,500.00	1,487.61	1,489.54	1,489.50	5.70	2.50	-91.35	89.58	1,319.09	1,315.14	8.20	160.480		
1,600.00	1,586.36	1,590.69	1,590.65	6.12	2.68	-92.03	89.04	1,317.96	1,314.39	8.80	149.397		
1,700.00	1,685.12	1,687.85	1,687.80	6.55	2.85	-92.69	88.69	1,316.86	1,313.84	9.39	139.850		
1,800.00	1,783.88	1,788.77	1,788.72	6.98	3.02	-93.37	88.27	1,315.73	1,313.49	10.00	131.372		
1,900.00	1,882.64	1,890.14	1,890.08	7.41	3.20	-94.05	87.53	1,314.47	1,313.12	10.60	123.846		
1,975.64	1,957.34	1,961.65	1,961.58	7.73	3.33	-94.52	86.82	1,313.63	1,312.96	11.05	118.806		
2,000.00	1,981.40	1,984.46	1,984.38	7.84	3.37	-94.66	86.53	1,313.42	1,312.98	11.20	117.280		
2,100.00	2,080.16	2,080.50	2,080.41	8.26	3.54	-95.27	85.19	1,312.76	1,313.32	11.79	111.389		
2,200.00	2,178.92	2,179.59	2,179.49	8.69	3.71	-95.89	83.63	1,312.25	1,313.93	12.39	106.044		
2,300.00	2,277.68	2,272.89	2,272.77	9.12	3.88	-96.45	81.81	1,311.99	1,314.83	12.98	101.299		
2,400.00	2,376.44	2,365.53	2,365.40	9.55	4.04	-97.01	80.32	1,312.16	1,316.39	13.57	97.031		
2,500.00	2,475.20	2,458.57	2,458.43	9.98	4.20	-97.58	78.95	1,312.73	1,318.56	14.15	93.162		
2,600.00	2,573.96	2,549.62	2,549.47	10.41	4.36	-98.15	78.18	1,313.57	1,321.36	14.73	89.677		
2,700.00	2,672.72	2,640.25	2,640.09	10.84	4.52	-98.72	77.59	1,314.99	1,324.98	15.31	86.522		
2,800.00	2,771.48	2,730.40	2,730.22	11.27	4.68	-99.31	77.83	1,316.66	1,329.33	15.89	83.656		
2,900.00	2,870.23	2,819.16	2,818.95	11.70	4.83	-99.91	78.73	1,318.81	1,334.64	16.46	81.072		
3,000.00	2,968.99	2,916.20	2,915.94	12.13	5.00	-100.55	79.77	1,321.57	1,340.53	17.05	78.618		
3,100.00	3,067.75	3,016.22	3,015.92	12.56	5.17	-101.22	81.14	1,324.20	1,346.52	17.65	76.308		
3,200.00	3,166.51	3,107.89	3,107.54	12.99	5.33	-101.82	82.18	1,326.99	1,352.97	18.22	74.252		
3,300.00	3,265.27	3,209.07	3,208.66	13.42	5.51	-102.47	83.25	1,330.24	1,359.73	18.82	72.259		
3,400.00	3,364.03	3,308.96	3,308.50	13.85	5.68	-103.10	84.31	1,333.32	1,366.53	19.41	70.402		
3,500.00	3,462.79	3,412.61	3,412.11	14.28	5.86	-103.77	85.71	1,336.06	1,373.21	20.01	68.623		
3,600.00	3,561.55	3,509.05	3,508.50	14.71	6.03	-104.41	87.30	1,338.46	1,380.06	20.59	67.012		
3,700.00	3,660.31	3,619.58	3,619.00	15.14	6.22	-105.12	88.88	1,340.65	1,386.52	21.21	65.374		
3,800.00	3,759.07	3,710.84	3,710.22	15.57	6.38	-105.73	90.52	1,342.32	1,393.20	21.78	63.971		
3,900.00	3,857.83	3,814.38	3,813.73	16.00	6.56	-106.39	92.12	1,344.35	1,400.07	22.38	62.570		
4,000.00	3,956.59	3,912.66	3,911.99	16.43	6.74	-107.00	93.19	1,346.33	1,406.93	22.96	61.276		
4,100.00	4,055.34	4,006.36	4,005.66	16.86	6.90	-107.57	94.26	1,348.41	1,414.17	23.53	60.092		
7,500.00	7,264.69	7,245.81	7,243.62	28.90	12.60	75.28	130.00	1,407.85	1,395.37	41.07	33.972		
7,550.00	7,284.70	7,267.11	7,264.92	28.95	12.64	78.20	129.88	1,408.06	1,372.76	41.20	33.316		
7,600.00	7,301.47	7,284.74	7,282.55	29.01	12.67	80.95	129.75	1,408.23	1,350.80	41.34	32.679		
7,650.00	7,314.91	7,298.66	7,296.47	29.08	12.69	83.45	129.63	1,408.37	1,329.77	41.47	32.064		
7,700.00	7,324.96	7,308.85	7,306.65	29.16	12.71	85.67	129.53	1,408.46	1,309.94	41.61	31.479		
7,750.00	7,331.58	7,313.39	7,311.19	29.25	12.72	87.48	129.49	1,408.51	1,291.54	41.75	30.931		
7,800.00	7,334.72	7,315.82	7,313.62	29.36	12.72	89.03	129.46	1,408.54	1,274.77	41.91	30.420		

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 3J-4H-N165 - Slot RUEGGE 3J
<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 3J-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
7,820.07	7,335.00	7,315.89	7,313.69	29.41	12.72	89.56	129.46	1,408.54	1,268.53	1,226.57	41.97	30.227	
7,900.00	7,335.00	7,315.13	7,312.93	29.62	12.72	89.52	129.47	1,408.53	1,246.62	1,204.38	42.24	29.514	
8,000.00	7,335.00	7,314.20	7,312.00	29.96	12.72	89.48	129.48	1,408.52	1,226.01	1,183.37	42.64	28.754	
8,100.00	7,335.00	7,313.28	7,311.08	30.39	12.72	89.44	129.49	1,408.51	1,213.32	1,170.23	43.10	28.154	
8,200.00	7,335.00	7,312.37	7,310.17	30.88	12.72	89.39	129.50	1,408.50	1,208.80	1,165.20	43.59	27.728	
8,204.80	7,335.00	7,312.32	7,310.13	30.91	12.71	89.39	129.50	1,408.50	1,208.79	1,165.17	43.62	27.711	CC, ES
8,300.00	7,335.00	7,311.47	7,309.27	31.45	12.71	89.35	129.51	1,408.49	1,212.53	1,168.42	44.11	27.487	
8,400.00	7,335.00	7,310.58	7,308.38	32.09	12.71	89.31	129.52	1,408.48	1,224.45	1,179.82	44.63	27.436	SF
8,500.00	7,335.00	7,309.70	7,307.50	32.80	12.71	89.27	129.53	1,408.48	1,244.31	1,199.19	45.12	27.575	
8,600.00	7,335.00	7,308.83	7,306.63	33.56	12.71	89.22	129.54	1,408.47	1,271.75	1,226.17	45.58	27.901	
8,700.00	7,335.00	7,307.97	7,305.77	34.38	12.71	89.18	129.54	1,408.46	1,306.28	1,260.29	45.99	28.403	
8,800.00	7,335.00	7,307.12	7,304.92	35.25	12.71	89.14	129.55	1,408.45	1,347.37	1,301.02	46.35	29.070	
8,900.00	7,335.00	7,306.93	7,304.73	36.16	12.71	89.13	129.55	1,408.44	1,394.43	1,347.78	46.65	29.890	

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well RUEGGE 3J-4H-N165 - Slot RUEGGE 3J
<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 3J-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
2,900.00	2,870.23	3,068.96	3,054.10	11.70	7.54	-73.50	-576.80	1,454.23	1,413.97	1,395.68	18.29	77.309	
3,000.00	2,968.99	3,181.75	3,165.58	12.13	7.90	-73.96	-580.55	1,437.50	1,395.15	1,376.18	18.96	73.579	
3,100.00	3,067.75	3,269.55	3,252.24	12.56	8.19	-74.30	-584.29	1,423.96	1,375.95	1,356.34	19.62	70.141	
3,200.00	3,166.51	3,351.13	3,332.89	12.99	8.45	-74.59	-588.51	1,412.41	1,358.12	1,337.85	20.27	67.009	
3,300.00	3,265.27	3,439.54	3,420.35	13.42	8.73	-74.89	-593.81	1,400.59	1,341.21	1,320.28	20.93	64.094	
3,400.00	3,364.03	3,535.10	3,514.90	13.85	9.03	-75.19	-600.18	1,388.31	1,324.92	1,303.32	21.59	61.354	
3,500.00	3,462.79	3,634.73	3,613.46	14.28	9.35	-75.53	-606.60	1,375.28	1,308.42	1,286.15	22.27	58.756	
3,600.00	3,561.55	3,723.29	3,701.07	14.71	9.63	-75.80	-613.12	1,364.05	1,292.44	1,269.51	22.93	56.353	
3,700.00	3,660.31	3,809.17	3,786.12	15.14	9.90	-76.07	-619.30	1,353.90	1,277.34	1,253.75	23.59	54.136	
3,800.00	3,759.07	3,892.96	3,869.25	15.57	10.15	-76.37	-624.92	1,345.01	1,263.44	1,239.19	24.25	52.108	
3,900.00	3,857.83	3,989.54	3,965.11	16.00	10.43	-76.71	-631.62	1,335.42	1,250.26	1,225.35	24.91	50.184	
4,000.00	3,956.59	4,100.01	4,074.69	16.43	10.77	-77.09	-639.73	1,323.95	1,236.72	1,211.12	25.60	48.306	
4,100.00	4,055.34	4,204.03	4,177.66	16.86	11.10	-77.40	-648.49	1,312.13	1,222.30	1,196.01	26.29	46.494	
4,200.00	4,154.10	4,292.58	4,265.37	17.29	11.37	-77.67	-655.87	1,302.41	1,208.30	1,181.34	26.96	44.822	
4,300.00	4,252.86	4,379.07	4,351.25	17.72	11.62	-78.02	-661.40	1,293.87	1,195.32	1,167.72	27.61	43.296	
4,400.00	4,351.62	4,467.99	4,439.71	18.15	11.87	-78.46	-665.79	1,285.94	1,183.31	1,155.07	28.25	41.890	
4,500.00	4,450.38	4,555.11	4,526.49	18.58	12.09	-78.95	-668.96	1,278.96	1,172.25	1,143.38	28.88	40.596	
4,600.00	4,549.14	4,629.37	4,600.56	19.01	12.27	-79.39	-671.39	1,274.20	1,162.89	1,133.38	29.51	39.408	
4,700.00	4,647.90	4,700.61	4,671.69	19.44	12.42	-79.81	-673.88	1,271.21	1,155.84	1,125.67	30.17	38.316	
4,800.00	4,746.66	4,772.25	4,743.27	19.87	12.57	-80.24	-676.30	1,269.97	1,151.34	1,120.53	30.81	37.370	
4,900.00	4,845.42	4,849.45	4,820.42	20.30	12.71	-80.70	-679.21	1,270.42	1,149.23	1,117.80	31.44	36.555	
5,000.00	4,944.18	4,949.83	4,920.75	20.73	12.87	-81.33	-682.17	1,271.74	1,148.02	1,115.96	32.06	35.808	
5,100.00	5,042.94	5,050.10	5,020.99	21.16	13.04	-82.01	-684.06	1,272.81	1,146.75	1,114.08	32.68	35.095	
5,200.00	5,141.70	5,144.32	5,115.19	21.59	13.19	-82.67	-685.50	1,274.07	1,145.92	1,112.63	33.29	34.421	
5,300.00	5,240.46	5,240.83	5,211.69	22.02	13.35	-83.36	-686.59	1,275.60	1,145.53	1,111.63	33.91	33.786	
5,337.25	5,277.24	5,276.42	5,247.27	22.18	13.40	-83.63	-686.86	1,276.22	1,145.50	1,111.37	34.13	33.559	
5,400.00	5,339.21	5,340.23	5,311.07	22.45	13.51	-84.11	-687.12	1,277.36	1,145.55	1,111.03	34.52	33.189	
5,500.00	5,437.97	5,449.16	5,419.99	22.88	13.68	-84.97	-688.89	1,278.58	1,145.18	1,110.06	35.12	32.610	
5,600.00	5,536.73	5,551.44	5,522.26	23.31	13.85	-85.82	-685.74	1,278.91	1,144.33	1,108.61	35.72	32.036	
5,700.00	5,635.49	5,652.07	5,622.88	23.74	14.02	-86.69	-684.22	1,279.13	1,143.67	1,107.35	36.32	31.486	
5,800.00	5,734.25	5,752.11	5,722.91	24.18	14.18	-87.55	-682.65	1,279.05	1,143.00	1,106.07	36.93	30.952	
5,900.00	5,833.01	5,849.75	5,820.53	24.61	14.35	-88.39	-681.12	1,279.00	1,142.60	1,105.06	37.54	30.439	
6,000.00	5,931.77	5,949.54	5,920.31	25.04	14.52	-89.25	-679.64	1,278.98	1,142.48	1,104.33	38.14	29.952	
6,037.00	5,968.31	5,986.90	5,957.67	25.20	14.58	-89.57	-679.17	1,278.94	1,142.45	1,104.08	38.37	29.776	
6,100.00	6,030.53	6,047.12	6,017.88	25.47	14.69	-90.07	-678.53	1,278.93	1,142.53	1,103.77	38.75	29.481	
6,200.00	6,129.29	6,149.06	6,119.82	25.90	14.86	-90.92	-677.71	1,278.93	1,142.82	1,103.46	39.36	29.035	
6,300.00	6,228.05	6,246.21	6,216.97	26.33	15.04	-91.71	-677.12	1,278.79	1,143.16	1,103.18	39.98	28.597	
6,400.00	6,326.81	6,339.55	6,310.31	26.76	15.20	-92.46	-676.82	1,278.97	1,144.00	1,103.40	40.60	28.179	
6,500.00	6,425.57	6,411.52	6,382.25	27.19	15.32	-93.10	-675.14	1,279.56	1,146.23	1,104.99	41.24	27.794	
6,584.00	6,508.53	6,459.51	6,430.04	27.55	15.38	-93.66	-670.95	1,280.73	1,150.80	1,109.04	41.76	27.561	
6,600.00	6,524.35	6,469.05	6,439.50	27.62	15.39	-92.16	-669.81	1,281.04	1,151.93	1,110.08	41.85	27.527	
6,650.00	6,574.08	6,501.38	6,471.49	27.81	15.42	-80.48	-665.24	1,282.29	1,155.45	1,113.34	42.11	27.439	
6,700.00	6,624.03	6,532.69	6,502.30	27.97	15.45	-2.13	-659.93	1,283.66	1,158.82	1,116.49	42.33	27.374	
6,750.00	6,673.96	6,561.98	6,530.95	28.10	15.47	53.35	-654.02	1,285.20	1,162.15	1,119.63	42.52	27.334	
6,800.00	6,723.62	6,591.15	6,559.31	28.22	15.49	62.38	-647.45	1,287.05	1,165.40	1,122.73	42.67	27.311	
6,850.00	6,772.76	6,619.59	6,586.74	28.32	15.50	65.57	-640.24	1,289.14	1,168.58	1,125.78	42.80	27.302	
6,900.00	6,821.16	6,647.65	6,613.56	28.40	15.51	67.12	-632.34	1,291.49	1,171.67	1,128.76	42.91	27.305	
6,950.00	6,868.58	6,674.00	6,638.48	28.47	15.51	68.01	-624.15	1,293.95	1,174.69	1,131.70	42.99	27.323	
7,000.00	6,914.78	6,705.00	6,667.41	28.54	15.51	68.61	-613.48	1,297.13	1,177.61	1,134.54	43.07	27.342	
7,050.00	6,959.54	6,737.00	6,696.78	28.59	15.51	69.07	-601.27	1,300.65	1,180.39	1,137.25	43.14	27.363	
7,100.00	7,002.64	6,763.25	6,720.47	28.63	15.51	69.42	-590.36	1,303.68	1,182.96	1,139.78	43.18	27.398	
7,150.00	7,043.88	6,794.74	6,748.37	28.67	15.50	69.77	-576.26	1,307.45	1,185.31	1,142.09	43.23	27.420	

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 3J-4H-N165 - Slot RUEGGE 3J
<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 3J-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			
7,200.00	7,083.04	6,834.37	6,782.62	28.70	15.50	70.19	-556.89	1,312.13	1,187.28	1,143.97	43.31	27.413				
7,250.00	7,119.94	6,877.59	6,818.87	28.73	15.50	70.67	-533.82	1,316.72	1,188.49	1,145.07	43.42	27.374				
7,300.00	7,154.41	6,909.13	6,844.62	28.76	15.50	71.08	-515.91	1,320.03	1,189.28	1,145.80	43.48	27.350				
7,350.00	7,186.26	6,942.82	6,871.35	28.79	15.51	71.56	-495.75	1,323.76	1,189.94	1,146.37	43.57	27.310				
7,400.00	7,215.35	6,990.44	6,907.29	28.82	15.53	72.23	-464.89	1,328.41	1,190.04	1,146.30	43.74	27.208				
7,450.00	7,241.54	7,093.39	6,969.58	28.85	15.69	72.93	-383.65	1,329.82	1,188.21	1,143.97	44.24	26.859				
7,500.00	7,264.69	7,160.20	6,997.37	28.90	15.92	73.08	-323.18	1,324.44	1,184.10	1,139.43	44.68	26.504				
7,550.00	7,284.70	7,234.15	7,018.98	28.95	16.32	73.06	-253.32	1,313.97	1,177.82	1,132.53	45.29	26.004				
7,600.00	7,301.47	7,268.42	7,025.53	29.01	16.56	73.33	-220.21	1,308.08	1,170.69	1,125.06	45.63	25.656				
7,650.00	7,314.91	7,303.55	7,029.61	29.08	16.83	73.59	-185.88	1,301.89	1,163.44	1,117.44	46.00	25.292				
7,700.00	7,324.96	7,352.03	7,032.02	29.16	17.24	73.74	-138.35	1,292.70	1,155.61	1,109.06	46.55	24.827				
7,750.00	7,331.58	7,418.62	7,032.67	29.25	17.81	73.88	-73.16	1,279.14	1,146.87	1,099.60	47.27	24.264				
7,800.00	7,334.72	7,455.00	7,033.23	29.36	18.15	74.47	-37.61	1,271.41	1,136.79	1,089.06	47.73	23.815				
7,820.07	7,335.00	7,466.99	7,033.36	29.41	18.27	74.76	-25.87	1,268.98	1,132.72	1,084.82	47.90	23.646				
7,900.00	7,335.00	7,513.27	7,033.73	29.62	18.73	74.66	19.65	1,260.60	1,117.87	1,069.27	48.59	23.004				
8,000.00	7,335.00	7,577.92	7,034.33	29.96	19.39	74.54	83.51	1,250.62	1,101.98	1,052.36	49.62	22.208				
8,100.00	7,335.00	7,643.97	7,034.65	30.39	20.11	74.44	149.07	1,242.60	1,089.30	1,038.53	50.77	21.455				
8,200.00	7,335.00	7,710.09	7,034.93	30.88	20.87	74.36	214.89	1,236.38	1,079.40	1,027.38	52.02	20.750				
8,300.00	7,335.00	7,772.00	7,034.89	31.45	21.60	74.30	276.69	1,232.77	1,072.98	1,019.71	53.27	20.141				
8,400.00	7,335.00	7,843.93	7,034.78	32.09	22.47	74.25	348.59	1,230.88	1,069.66	1,014.90	54.76	19.534				
8,490.47	7,335.00	7,910.26	7,035.21	32.73	23.29	74.27	414.92	1,230.70	1,068.61	1,012.43	56.18	19.021 CC				
8,500.00	7,335.00	7,915.36	7,035.24	32.80	23.36	74.27	420.03	1,230.77	1,068.64	1,012.35	56.30	18.982				
8,600.00	7,335.00	7,972.51	7,035.01	33.56	24.08	74.28	477.13	1,232.86	1,071.37	1,013.73	57.64	18.588				
8,700.00	7,335.00	8,061.31	7,034.90	34.38	25.21	74.34	565.75	1,238.49	1,076.69	1,017.11	59.58	18.070				
8,800.00	7,335.00	8,174.04	7,035.00	35.25	26.64	74.43	678.27	1,245.39	1,081.77	1,019.75	62.02	17.441				
8,900.00	7,335.00	8,284.35	7,034.50	36.16	28.17	74.47	788.45	1,250.71	1,085.75	1,021.16	64.58	16.811				
9,000.00	7,335.00	8,371.14	7,033.72	37.13	29.42	74.48	875.13	1,255.02	1,089.96	1,023.19	66.77	16.323				
9,100.00	7,335.00	8,478.65	7,034.19	38.13	30.96	74.58	982.46	1,261.00	1,094.42	1,024.99	69.42	15.764				
9,200.00	7,335.00	8,569.35	7,034.71	39.17	32.32	74.66	1,073.02	1,266.09	1,098.87	1,027.06	71.81	15.302				
9,300.00	7,335.00	8,677.71	7,036.73	40.25	33.91	74.84	1,181.17	1,272.52	1,103.31	1,028.73	74.59	14.792				
9,400.00	7,335.00	8,776.03	7,037.11	41.35	35.39	74.92	1,279.34	1,277.89	1,107.69	1,030.48	77.21	14.347				
9,500.00	7,335.00	8,890.47	7,037.24	42.49	37.14	74.98	1,393.67	1,282.86	1,111.03	1,030.82	80.21	13.851				
9,600.00	7,335.00	9,002.32	7,037.13	43.66	38.90	75.01	1,505.46	1,286.52	1,113.42	1,030.20	83.22	13.379				
9,700.00	7,335.00	9,113.81	7,037.22	44.85	40.65	75.04	1,616.92	1,289.04	1,114.80	1,028.56	86.24	12.927				
9,800.00	7,335.00	9,213.13	7,037.97	46.06	42.24	75.09	1,716.23	1,290.59	1,115.31	1,026.24	89.07	12.522				
9,900.00	7,335.00	9,307.77	7,038.95	47.29	43.79	75.15	1,810.83	1,292.79	1,116.49	1,024.62	91.87	12.153				
10,000.00	7,335.00	9,398.25	7,039.41	48.55	45.30	75.20	1,901.28	1,295.10	1,118.05	1,023.43	94.62	11.816				
10,100.00	7,335.00	9,500.99	7,038.50	49.82	46.98	75.18	2,003.98	1,298.11	1,120.31	1,022.72	97.59	11.479				
10,200.00	7,335.00	9,638.88	7,038.35	51.11	49.24	75.18	2,141.84	1,299.97	1,120.96	1,019.68	101.27	11.069				
10,300.00	7,335.00	9,724.85	7,039.05	52.41	50.68	75.20	2,227.81	1,299.59	1,119.61	1,015.60	104.01	10.764				
10,305.64	7,335.00	9,728.82	7,039.08	52.49	50.75	75.20	2,231.77	1,299.63	1,119.60	1,015.45	104.15	10.750				
10,400.00	7,335.00	9,821.19	7,039.60	53.73	52.31	75.24	2,324.14	1,300.80	1,119.87	1,012.90	106.97	10.469				
10,500.00	7,335.00	9,941.03	7,040.08	55.07	54.35	75.24	2,443.97	1,300.65	1,118.79	1,008.39	110.40	10.134				
10,558.02	7,335.00	9,981.63	7,040.08	55.85	55.04	75.24	2,484.57	1,300.63	1,118.29	1,006.44	111.85	9.998				
10,600.00	7,335.00	10,010.04	7,039.95	56.41	55.52	75.23	2,512.98	1,300.98	1,118.51	1,005.65	112.86	9.911				
10,700.00	7,335.00	10,111.72	7,038.71	57.77	57.25	75.20	2,614.62	1,303.55	1,120.49	1,004.55	115.94	9.664				
10,800.00	7,335.00	10,215.61	7,036.67	59.14	59.03	75.09	2,718.48	1,304.38	1,120.95	1,001.87	119.08	9.413				
10,900.00	7,335.00	10,302.98	7,035.49	60.51	60.50	75.05	2,805.83	1,305.89	1,122.17	1,000.29	121.88	9.207				
11,000.00	7,335.00	10,426.98	7,034.41	61.90	62.63	75.00	2,929.82	1,307.58	1,122.92	997.48	125.44	8.952				
11,100.00	7,335.00	10,553.40	7,034.31	63.30	64.81	74.97	3,056.23	1,306.35	1,121.16	992.14	129.02	8.690				
11,200.00	7,335.00	10,630.94	7,034.22	64.70	66.14	74.94	3,133.75	1,305.61	1,119.46	987.71	131.76	8.496				
11,300.00	7,335.00	10,729.77	7,033.89	66.12	67.83	74.92	3,232.58	1,305.95	1,119.08	984.22	134.86	8.298				

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 3J-4H-N165 - Slot RUEGGE 3J
<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 3J-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	
11,400.00	7,335.00	10,849.77	7,034.31	67.53	69.92	74.91	3,352.57	1,304.85	1,117.26	978.89	138.36	8.075	
11,500.00	7,335.00	10,931.30	7,034.22	68.96	71.32	74.89	3,434.09	1,303.98	1,115.50	974.30	141.20	7.900	
11,539.91	7,335.00	10,962.82	7,033.65	69.53	71.87	74.86	3,465.62	1,303.97	1,115.35	973.06	142.29	7.839	
11,600.00	7,335.00	11,014.26	7,033.21	70.39	72.75	74.84	3,517.04	1,304.55	1,115.66	971.64	144.01	7.747	
11,700.00	7,335.00	11,124.01	7,032.78	71.83	74.66	74.82	3,626.78	1,305.81	1,116.07	968.71	147.36	7.574	
11,800.00	7,335.00	11,224.29	7,032.87	73.28	76.41	74.82	3,727.07	1,305.97	1,115.40	964.85	150.55	7.409	
11,805.14	7,335.00	11,228.04	7,032.85	73.35	76.47	74.82	3,730.82	1,305.99	1,115.40	964.71	150.69	7.402	
11,900.00	7,335.00	11,325.70	7,031.46	74.73	78.17	74.75	3,828.46	1,306.77	1,115.73	962.00	153.73	7.258	
12,000.00	7,335.00	11,461.10	7,030.17	76.18	80.56	74.65	3,963.83	1,305.29	1,114.23	956.74	157.49	7.075	
12,100.00	7,335.00	11,549.98	7,031.66	77.64	82.12	74.68	4,052.67	1,302.90	1,110.49	949.93	160.56	6.916	
12,188.01	7,335.00	11,646.98	7,032.46	78.93	83.82	74.69	4,149.66	1,301.74	1,108.64	945.11	163.53	6.780 ES, SF	



# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well RUEGGE 3J-4H-N165 - Slot RUEGGE 3J
<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 3J-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 - GITTLEIN 21-4J - CPR WELL - SURVEYS													Offset Site Error:	0.00 usft
Survey Program: 1154-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		
10,600.00	7,335.00	7,370.42	7,174.64	56.41	22.35	-67.49	3,884.68	-129.73	1,402.51	1,356.78	45.73	30.669		
10,700.00	7,335.00	7,386.74	7,190.87	57.77	22.39	-69.73	3,886.45	-129.68	1,306.68	1,260.07	46.61	28.032		
10,800.00	7,335.00	7,401.71	7,205.75	59.14	22.43	-71.84	3,888.01	-129.67	1,211.40	1,163.72	47.68	25.409		
10,900.00	7,335.00	7,414.43	7,218.41	60.51	22.46	-73.67	3,889.29	-129.66	1,116.80	1,067.84	48.96	22.810		
11,000.00	7,335.00	7,426.17	7,230.09	61.90	22.49	-75.40	3,890.45	-129.67	1,023.13	972.58	50.55	20.240		
11,100.00	7,335.00	7,437.45	7,241.32	63.30	22.52	-77.08	3,891.54	-129.67	930.64	878.10	52.54	17.713		
11,200.00	7,335.00	7,448.31	7,252.13	64.70	22.55	-78.73	3,892.57	-129.68	839.76	784.70	55.06	15.251		
11,300.00	7,335.00	7,458.76	7,262.54	66.12	22.57	-80.32	3,893.54	-129.69	751.06	692.77	58.28	12.886		
11,400.00	7,335.00	7,468.83	7,272.56	67.53	22.60	-81.88	3,894.46	-129.71	665.43	603.00	62.42	10.660		
11,500.00	7,335.00	7,478.54	7,282.23	68.96	22.62	-83.39	3,895.33	-129.72	584.23	516.50	67.73	8.626		
11,600.00	7,335.00	7,487.91	7,291.56	70.39	22.65	-84.86	3,896.16	-129.74	509.59	435.19	74.40	6.849		
11,700.00	7,335.00	7,496.95	7,300.57	71.83	22.67	-86.28	3,896.94	-129.76	444.84	362.52	82.32	5.404		
11,800.00	7,335.00	7,505.84	7,309.43	73.28	22.69	-87.69	3,897.69	-129.78	394.88	304.27	90.61	4.358		
11,900.00	7,335.00	7,514.32	7,317.88	74.73	22.71	-89.03	3,898.39	-129.80	365.82	268.89	96.94	3.774		
11,961.25	7,335.00	7,519.29	7,322.83	75.62	22.72	-89.81	3,898.79	-129.82	360.69	262.20	98.49	3.662 CC, ES, SF		
12,000.00	7,335.00	7,522.34	7,325.88	76.18	22.73	-90.30	3,899.03	-129.83	362.76	264.42	98.34	3.689		
12,100.00	7,335.00	7,529.93	7,333.44	77.64	22.75	-91.50	3,899.63	-129.85	386.31	291.99	94.32	4.096		
12,188.01	7,335.00	7,536.21	7,339.71	78.93	22.76	-92.49	3,900.11	-129.86	425.69	337.47	88.22	4.826		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well RUEGGE 3J-4H-N165 - Slot RUEGGE 3J
<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 3J-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 - GITTLEIN 22-4J - CPR WELL - SURVEYS													Offset Site Error: 0.00 usft	
Survey Program: 1012-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		
9,100.00	7,335.00	7,498.08	7,384.88	38.13	19.21	-114.52	2,397.97	82.85	1,370.37	1,326.39	43.98	31.162		
9,200.00	7,335.00	7,494.61	7,381.42	39.17	19.20	-113.27	2,398.11	82.61	1,271.00	1,226.99	44.01	28.880		
9,300.00	7,335.00	7,490.99	7,377.82	40.25	19.19	-111.94	2,398.25	82.37	1,171.73	1,127.68	44.05	26.597		
9,400.00	7,335.00	7,487.33	7,374.17	41.35	19.18	-110.57	2,398.39	82.12	1,072.59	1,028.47	44.12	24.313		
9,500.00	7,335.00	7,483.63	7,370.47	42.49	19.17	-109.16	2,398.54	81.87	973.60	929.40	44.20	22.027		
9,600.00	7,335.00	7,479.87	7,366.73	43.66	19.16	-107.72	2,398.69	81.62	874.83	830.51	44.32	19.738		
9,700.00	7,335.00	7,476.07	7,362.94	44.85	19.15	-106.24	2,398.85	81.36	776.35	731.85	44.50	17.446		
9,800.00	7,335.00	7,472.21	7,359.10	46.06	19.14	-104.72	2,399.00	81.11	678.29	633.52	44.77	15.150		
9,900.00	7,335.00	7,468.31	7,355.21	47.29	19.14	-103.17	2,399.16	80.84	580.88	535.67	45.21	12.849		
10,000.00	7,335.00	7,464.42	7,351.33	48.55	19.13	-101.61	2,399.32	80.58	484.48	438.53	45.95	10.544		
10,100.00	7,335.00	7,460.69	7,347.61	49.82	19.12	-100.10	2,399.48	80.33	389.86	342.57	47.29	8.244		
10,200.00	7,335.00	7,456.83	7,343.76	51.11	19.11	-98.53	2,399.64	80.07	298.71	248.76	49.95	5.981		
10,300.00	7,335.00	7,452.83	7,339.78	52.41	19.10	-96.90	2,399.82	79.80	215.49	159.92	55.57	3.878		
10,400.00	7,335.00	7,448.71	7,335.67	53.73	19.09	-95.21	2,400.00	79.51	153.64	87.52	66.12	2.324		
10,464.36	7,335.00	7,445.98	7,332.95	54.59	19.08	-94.09	2,400.12	79.31	139.54	67.61	71.93	1.940	CC, ES, SF	
10,500.00	7,335.00	7,444.44	7,331.41	55.07	19.08	-93.46	2,400.19	79.21	144.01	72.25	71.76	2.007		
10,600.00	7,335.00	7,440.02	7,327.01	56.41	19.06	-91.64	2,400.39	78.89	194.51	131.62	62.89	3.093		
10,700.00	7,335.00	7,435.44	7,322.44	57.77	19.05	-89.77	2,400.60	78.56	273.66	218.37	55.29	4.949		
10,800.00	7,335.00	7,430.77	7,317.79	59.14	19.04	-87.87	2,400.82	78.21	363.18	312.03	51.15	7.101		
10,900.00	7,335.00	7,426.01	7,313.06	60.51	19.03	-85.96	2,401.05	77.86	457.02	408.16	48.86	9.353		
11,000.00	7,335.00	7,421.14	7,308.20	61.90	19.02	-84.01	2,401.28	77.49	552.98	505.47	47.51	11.639		
11,100.00	7,335.00	7,416.14	7,303.23	63.30	19.00	-82.04	2,401.53	77.10	650.13	603.47	46.66	13.934		
11,200.00	7,335.00	7,411.02	7,298.13	64.70	18.99	-80.05	2,401.78	76.70	747.99	701.90	46.09	16.229		
11,300.00	7,335.00	7,406.20	7,293.33	66.12	18.98	-78.21	2,402.02	76.31	846.33	800.63	45.70	18.521		
11,400.00	7,335.00	7,399.99	7,287.15	67.53	18.96	-75.90	2,402.34	75.81	944.98	899.56	45.43	20.803		
11,500.00	7,335.00	7,393.40	7,280.59	68.96	18.94	-73.51	2,402.68	75.27	1,043.86	998.63	45.23	23.077		
11,600.00	7,335.00	7,386.40	7,273.62	70.39	18.92	-71.05	2,403.06	74.69	1,142.91	1,097.81	45.10	25.344		
11,700.00	7,335.00	7,378.93	7,266.19	71.83	18.90	-68.53	2,403.47	74.07	1,242.07	1,197.07	45.00	27.603		
11,800.00	7,335.00	7,371.09	7,258.39	73.28	18.88	-66.00	2,403.92	73.41	1,341.33	1,296.40	44.93	29.855		

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 3J-4H-N165 - Slot RUEGGE 3J
<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 3J-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 - GITTLEIN 29N-28HZ - KMG WELL - SURVEYS													<b>Offset Site Error:</b>	0.00 usft
<b>Survey Program:</b> 100-VESSI_GYROFLEX, 1140-ISCWSA MWD													<b>Offset Well Error:</b>	0.00 usft
<b>Reference</b>		<b>Offset</b>		<b>Semi Major Axis</b>		<b>Distance</b>		<b>Total</b>		<b>Separation</b>		<b>Warning</b>		
<b>Measured Depth (usft)</b>	<b>Vertical Depth (usft)</b>	<b>Measured Depth (usft)</b>	<b>Vertical Depth (usft)</b>	<b>Reference (usft)</b>	<b>Offset (usft)</b>	<b>Highside Toolface (°)</b>	<b>Offset Wellbore Centre +N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Between Centres (usft)</b>	<b>Between Ellipses (usft)</b>	<b>Uncertainty Axis</b>	<b>Factor</b>		
11,600.00	7,335.00	6,735.67	6,711.33	70.39	12.11	-31.10	4,691.61	-137.58	1,363.36	1,318.96	44.40	30.706		
11,700.00	7,335.00	6,756.00	6,729.24	71.83	12.14	-31.97	4,701.07	-139.28	1,279.59	1,233.86	45.73	27.984		
11,800.00	7,335.00	6,756.00	6,729.24	73.28	12.14	-31.97	4,701.07	-139.28	1,197.78	1,150.51	47.26	25.342		
11,900.00	7,335.00	6,787.84	6,756.68	74.73	12.18	-33.37	4,716.98	-141.99	1,117.78	1,068.70	49.09	22.771		
12,000.00	7,335.00	6,803.00	6,769.46	76.18	12.20	-34.05	4,725.05	-143.12	1,040.45	989.25	51.20	20.321		
12,100.00	7,335.00	6,826.54	6,788.81	77.64	12.23	-35.11	4,738.36	-144.73	966.13	912.50	53.64	18.012		
12,188.01	7,335.00	6,851.00	6,808.11	78.93	12.27	-36.21	4,753.29	-146.30	903.88	847.81	56.07	16.120	CC, ES, SF	

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 3J-4H-N165 - Slot RUEGGE 3J
<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 3J-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 - GITTLEIN 3N-28HZ - KMG WELL - SURVEYS													<b>Offset Site Error:</b> 0.00 usft
Survey Program: 100-VESSI_GYROFLEX, 1215-ISCWSA MWD													<b>Offset Well Error:</b> 0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Total Uncertainty Axis	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
11,600.00	7,335.00	6,787.87	6,733.38	70.39	14.89	25.21	4,695.60	519.80	1,338.94	1,294.36	44.58	30.036	
11,700.00	7,335.00	6,810.00	6,752.84	71.83	14.95	26.32	4,705.03	524.50	1,252.98	1,207.34	45.64	27.455	
11,800.00	7,335.00	6,810.00	6,752.84	73.28	14.95	26.32	4,705.03	524.50	1,168.50	1,121.69	46.81	24.965	
11,900.00	7,335.00	6,810.00	6,752.84	74.73	14.95	26.32	4,705.03	524.50	1,086.65	1,038.42	48.23	22.529	
12,000.00	7,335.00	6,839.30	6,777.80	76.18	15.04	27.85	4,718.89	531.06	1,006.65	956.56	50.10	20.094	
12,100.00	7,335.00	6,857.00	6,792.34	77.64	15.10	28.83	4,728.04	535.32	930.17	877.90	52.27	17.794	
12,188.01	7,335.00	6,857.00	6,792.34	78.93	15.10	28.83	4,728.04	535.32	866.29	811.86	54.43	15.915 CC, ES, SF	

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 3J-4H-N165 - Slot RUEGGE 3J
<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 3J-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 - GITTLEIN 4C-28HZ - KMG WELL - SURVEYS												<b>Offset Site Error:</b>	0.00 usft
Survey Program: 25-ISCWSA MWD												<b>Offset Well Error:</b>	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
12,000.00	7,335.00	6,963.00	6,946.21	76.18	14.63	-71.13	4,657.97	-912.05	1,408.76	1,328.81	79.94	17.622	
12,100.00	7,335.00	6,989.79	6,970.82	77.64	14.67	-72.26	4,668.40	-913.69	1,360.12	1,276.93	83.19	16.350	
12,188.01	7,335.00	7,010.00	6,989.10	78.93	14.70	-73.11	4,676.92	-915.14	1,321.87	1,235.82	86.05	15.361	CC, ES, SF

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well RUEGGE 3J-4H-N165 - Slot RUEGGE 3J
<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 3J-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 - GITTLEIN 4C-28HZX - KMG WELL - SURVEYS												<b>Offset Site Error:</b>	0.00 usft
Survey Program: 25-ISCWSA MWD												<b>Offset Well Error:</b>	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
12,100.00	7,335.00	7,013.00	6,981.42	77.64	14.64	-72.68	4,718.04	-909.20	1,377.45	1,295.18	82.27	16.743	
12,188.01	7,335.00	7,030.81	6,996.47	78.93	14.67	-73.36	4,727.53	-908.48	1,336.30	1,251.20	85.10	15.703	CC, ES, SF

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well RUEGGE 3J-4H-N165 - Slot RUEGGE 3J
<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 3J-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 - GITTLEIN 4C-28HZXX - KMG WELL - SURVEYS		Offset Site Error:		0.00 usft	
Survey Program:												25-ISCWSA MWD		Offset Well Error:		0.00 usft	
Reference		Offset		Semi Major Axis			Distance							Warning			
Measured	Vertical	Measured	Vertical	Reference	Offset	Highside	Offset Wellbore Centre		Between	Between	Total	Separation					
Depth	Depth	Depth	Depth	Reference	Offset	Toolface	+N/-S	+E/-W	Centres	Ellipses	Uncertainty	Factor					
(usft)	(usft)	(usft)	(usft)	(usft)	(usft)	(°)	(usft)	(usft)	(usft)	(usft)	Axis						
12,100.00	7,335.00	7,013.00	6,981.42	77.64	14.64	-72.51	4,716.25	-897.08	1,366.53	1,284.41	82.13	16.639					
12,188.01	7,335.00	7,031.02	6,996.65	78.93	14.67	-73.20	4,725.86	-896.36	1,325.15	1,240.18	84.97	15.595	CC, ES, SF				

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well RUEGGE 3J-4H-N165 - Slot RUEGGE 3J
<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 3J-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 - GITTLEIN 4N-28HZ - KMG WELL - SURVEYS			Offset Site Error:		0.00 usft
Survey Program:		25-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				
11,900.00	7,335.00	6,762.00	6,727.73	74.73	14.73	-54.92	4,721.16	-632.83	1,380.14	1,312.94	67.20	20.538				
12,000.00	7,335.00	6,785.47	6,747.48	76.18	14.76	-55.84	4,733.79	-633.81	1,317.90	1,247.76	70.14	18.790				
12,100.00	7,335.00	6,809.00	6,766.56	77.64	14.79	-56.74	4,747.49	-635.06	1,260.06	1,186.83	73.24	17.205				
12,188.01	7,335.00	6,821.06	6,776.09	78.93	14.81	-57.21	4,754.86	-635.77	1,212.83	1,136.77	76.06	15.945	CC, ES, SF			



# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well RUEGGE 3J-4H-N165 - Slot RUEGGE 3J
<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 3J-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	
11,200.00	7,335.00	7,286.18	7,284.83	64.70	12.62	88.86	3,623.90	1,547.00	1,410.30	1,336.79	73.50	19.187	
11,300.00	7,335.00	7,287.11	7,285.76	66.12	12.62	88.90	3,623.91	1,547.02	1,378.00	1,301.93	76.08	18.114	
11,400.00	7,335.00	7,288.03	7,286.69	67.53	12.63	88.94	3,623.92	1,547.03	1,352.35	1,273.82	78.52	17.222	
11,500.00	7,335.00	7,288.95	7,287.60	68.96	12.63	88.98	3,623.93	1,547.05	1,333.71	1,252.94	80.78	16.511	
11,600.00	7,335.00	7,289.86	7,288.51	70.39	12.63	89.02	3,623.94	1,547.06	1,322.40	1,239.62	82.78	15.976	
11,700.00	7,335.00	7,290.76	7,289.41	71.83	12.63	89.06	3,623.95	1,547.08	1,318.59	1,234.13	84.46	15.611	
11,700.27	7,335.00	7,290.76	7,289.41	71.84	12.63	89.06	3,623.95	1,547.08	1,318.59	1,234.12	84.47	15.610	CC, ES
11,800.00	7,335.00	7,291.65	7,290.30	73.28	12.63	89.10	3,623.95	1,547.09	1,322.36	1,236.55	85.81	15.411	
11,900.00	7,335.00	7,292.53	7,291.19	74.73	12.63	89.14	3,623.96	1,547.11	1,333.63	1,246.86	86.78	15.369	SF
12,000.00	7,335.00	7,293.41	7,292.06	76.18	12.64	89.18	3,623.97	1,547.12	1,352.23	1,264.85	87.38	15.475	
12,100.00	7,335.00	7,294.28	7,292.93	77.64	12.64	89.21	3,623.98	1,547.13	1,377.85	1,290.21	87.63	15.723	
12,188.01	7,335.00	7,295.04	7,293.69	78.93	12.64	89.25	3,623.98	1,547.15	1,405.90	1,318.31	87.60	16.050	

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well RUEGGE 3J-4H-N165 - Slot RUEGGE 3J
<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 3J-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 1-4 - 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
9,800.00	7,335.00	7,332.33	7,331.43	46.06	12.72	-90.39	2,954.59	-422.27	1,375.45	1,330.93	44.52	30.895	
9,900.00	7,335.00	7,332.17	7,331.27	47.29	12.71	-90.38	2,954.59	-422.27	1,288.00	1,242.29	45.71	28.175	
10,000.00	7,335.00	7,332.01	7,331.11	48.55	12.71	-90.36	2,954.59	-422.27	1,202.50	1,155.36	47.14	25.509	
10,100.00	7,335.00	7,331.85	7,330.95	49.82	12.71	-90.35	2,954.59	-422.27	1,119.41	1,070.57	48.84	22.919	
10,200.00	7,335.00	7,331.69	7,330.79	51.11	12.71	-90.34	2,954.59	-422.27	1,039.30	988.44	50.86	20.433	
10,300.00	7,335.00	7,331.54	7,330.64	52.41	12.71	-90.32	2,954.59	-422.27	962.92	909.68	53.24	18.086	
10,400.00	7,335.00	7,331.38	7,330.48	53.73	12.71	-90.31	2,954.59	-422.27	891.22	835.22	56.01	15.913	
10,500.00	7,335.00	7,331.23	7,330.33	55.07	12.71	-90.30	2,954.59	-422.27	825.44	766.29	59.15	13.955	
10,600.00	7,335.00	7,331.08	7,330.18	56.41	12.71	-90.28	2,954.59	-422.28	767.08	704.48	62.60	12.253	
10,700.00	7,335.00	7,330.93	7,330.03	57.77	12.71	-90.27	2,954.59	-422.28	717.97	651.77	66.20	10.845	
10,800.00	7,335.00	7,330.78	7,329.88	59.14	12.71	-90.26	2,954.59	-422.28	680.11	610.45	69.66	9.763	
10,900.00	7,335.00	7,330.64	7,329.73	60.51	12.71	-90.24	2,954.59	-422.28	655.45	582.86	72.59	9.029	
11,000.00	7,335.00	7,330.49	7,329.59	61.90	12.71	-90.23	2,954.59	-422.28	645.51	570.91	74.60	8.653	
11,014.66	7,335.00	7,330.47	7,329.57	62.11	12.71	-90.23	2,954.59	-422.28	645.34	570.55	74.80	8.628	CC, ES, SF
11,100.00	7,335.00	7,330.34	7,329.44	63.30	12.71	-90.22	2,954.59	-422.28	650.96	575.54	75.42	8.631	
11,200.00	7,335.00	7,330.20	7,329.30	64.70	12.71	-90.20	2,954.59	-422.28	671.43	596.37	75.06	8.945	
11,300.00	7,335.00	7,330.06	7,329.16	66.12	12.71	-90.19	2,954.59	-422.28	705.61	631.88	73.73	9.570	
11,400.00	7,335.00	7,329.92	7,329.02	67.53	12.71	-90.18	2,954.59	-422.28	751.63	679.86	71.78	10.472	
11,500.00	7,335.00	7,329.78	7,328.88	68.96	12.71	-90.17	2,954.59	-422.28	807.48	737.97	69.51	11.617	
11,600.00	7,335.00	7,329.64	7,328.74	70.39	12.71	-90.15	2,954.59	-422.28	871.26	804.08	67.18	12.969	
11,700.00	7,335.00	7,329.50	7,328.60	71.83	12.71	-90.14	2,954.59	-422.28	941.36	876.43	64.93	14.499	
11,800.00	7,335.00	7,329.37	7,328.47	73.28	12.71	-90.13	2,954.59	-422.28	1,016.47	953.63	62.84	16.176	
11,900.00	7,335.00	7,329.23	7,328.33	74.73	12.71	-90.12	2,954.59	-422.28	1,095.58	1,034.63	60.95	17.976	
12,000.00	7,335.00	7,329.10	7,328.20	76.18	12.71	-90.11	2,954.59	-422.28	1,177.86	1,118.60	59.26	19.877	
12,100.00	7,335.00	7,328.97	7,328.06	77.64	12.71	-90.09	2,954.59	-422.28	1,262.70	1,204.95	57.75	21.864	
12,188.01	7,335.00	7,328.85	7,327.95	78.93	12.71	-90.08	2,954.59	-422.28	1,339.11	1,282.53	56.58	23.669	

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well RUEGGE 3J-4H-N165 - Slot RUEGGE 3J
<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 3J-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	
11,100.00	7,335.00	7,431.82	7,322.60	63.30	19.40	90.30	4,105.25	1,097.31	1,381.83	1,317.54	64.28	21.495	
11,200.00	7,335.00	7,433.99	7,324.77	64.70	19.40	90.45	4,105.30	1,097.24	1,305.33	1,238.40	66.93	19.504	
11,300.00	7,335.00	7,436.11	7,326.89	66.12	19.41	90.59	4,105.34	1,097.18	1,232.19	1,162.34	69.85	17.640	
11,400.00	7,335.00	7,438.20	7,328.98	67.53	19.41	90.73	4,105.39	1,097.11	1,163.06	1,090.00	73.06	15.920	
11,500.00	7,335.00	7,440.24	7,331.02	68.96	19.41	90.86	4,105.43	1,097.05	1,098.68	1,022.17	76.51	14.359	
11,600.00	7,335.00	7,442.25	7,333.03	70.39	19.42	91.00	4,105.47	1,096.99	1,039.95	959.79	80.16	12.973	
11,700.00	7,335.00	7,444.25	7,335.03	71.83	19.42	91.13	4,105.51	1,096.93	987.87	903.97	83.90	11.775	
11,800.00	7,335.00	7,446.22	7,336.99	73.28	19.43	91.26	4,105.55	1,096.87	943.54	855.98	87.56	10.776	
11,900.00	7,335.00	7,448.14	7,338.91	74.73	19.43	91.39	4,105.59	1,096.81	908.09	817.13	90.96	9.984	
12,000.00	7,335.00	7,450.02	7,340.79	76.18	19.43	91.51	4,105.62	1,096.75	882.61	788.75	93.85	9.404	
12,100.00	7,335.00	7,451.86	7,342.63	77.64	19.44	91.63	4,105.66	1,096.70	867.96	771.93	96.03	9.039	
12,178.27	7,335.00	7,453.27	7,344.04	78.79	19.44	91.73	4,105.69	1,096.65	864.42	767.31	97.12	8.901 CC	
12,188.01	7,335.00	7,453.44	7,344.21	78.93	19.44	91.74	4,105.69	1,096.65	864.48	767.27	97.21	8.893 ES, SF	

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well RUEGGE 3J-4H-N165 - Slot RUEGGE 3J
<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 3J-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		
9,800.00	7,335.00	7,311.02	7,308.41	46.06	12.83	89.29	2,776.45	1,158.61	1,407.01	1,358.46	48.55	28.979		
9,900.00	7,335.00	7,311.97	7,309.37	47.29	12.83	89.35	2,776.46	1,158.61	1,334.08	1,283.79	50.28	26.532		
10,000.00	7,335.00	7,312.94	7,310.33	48.55	12.83	89.41	2,776.47	1,158.61	1,264.85	1,212.61	52.24	24.212		
10,100.00	7,335.00	7,313.92	7,311.31	49.82	12.83	89.47	2,776.48	1,158.61	1,199.96	1,145.54	54.43	22.047		
10,200.00	7,335.00	7,314.91	7,312.30	51.11	12.83	89.53	2,776.49	1,158.62	1,140.17	1,083.34	56.83	20.063		
10,300.00	7,335.00	7,315.91	7,313.30	52.41	12.84	89.59	2,776.50	1,158.62	1,086.31	1,026.90	59.41	18.286		
10,400.00	7,335.00	7,316.92	7,314.32	53.73	12.84	89.65	2,776.51	1,158.62	1,039.30	977.20	62.10	16.736		
10,500.00	7,335.00	7,317.95	7,315.35	55.07	12.84	89.72	2,776.52	1,158.62	1,000.10	935.29	64.81	15.432		
10,600.00	7,335.00	7,318.99	7,316.39	56.41	12.84	89.78	2,776.53	1,158.62	969.68	902.26	67.41	14.384		
10,700.00	7,335.00	7,320.05	7,317.44	57.77	12.84	89.84	2,776.54	1,158.62	948.86	879.09	69.77	13.600		
10,800.00	7,335.00	7,321.11	7,318.51	59.14	12.84	89.91	2,776.55	1,158.62	938.30	866.55	71.74	13.079		
10,849.70	7,335.00	7,321.65	7,319.04	59.82	12.85	89.94	2,776.56	1,158.62	936.98	864.43	72.54	12.916 CC, ES		
10,900.00	7,335.00	7,322.19	7,319.59	60.51	12.85	89.97	2,776.56	1,158.62	938.33	865.11	73.22	12.815		
11,000.00	7,335.00	7,323.29	7,320.68	61.90	12.85	90.04	2,776.58	1,158.63	948.96	874.81	74.14	12.799 SF		
11,100.00	7,335.00	7,324.40	7,321.79	63.30	12.85	90.11	2,776.59	1,158.63	969.83	895.32	74.51	13.016		
11,200.00	7,335.00	7,325.52	7,322.92	64.70	12.85	90.18	2,776.60	1,158.63	1,000.31	925.94	74.38	13.449		
11,300.00	7,335.00	7,326.66	7,324.05	66.12	12.85	90.25	2,776.61	1,158.63	1,039.56	965.72	73.83	14.080		
11,400.00	7,335.00	7,327.81	7,325.21	67.53	12.86	90.32	2,776.63	1,158.63	1,086.61	1,013.63	72.98	14.889		
11,500.00	7,335.00	7,328.98	7,326.38	68.96	12.86	90.39	2,776.64	1,158.63	1,140.51	1,068.59	71.92	15.858		
11,600.00	7,335.00	7,330.17	7,327.56	70.39	12.86	90.46	2,776.65	1,158.63	1,200.34	1,129.61	70.73	16.970		
11,700.00	7,335.00	7,331.37	7,328.76	71.83	12.86	90.54	2,776.67	1,158.63	1,265.25	1,195.76	69.49	18.208		
11,800.00	7,335.00	7,332.59	7,329.98	73.28	12.86	90.61	2,776.68	1,158.64	1,334.50	1,266.26	68.24	19.557		
11,900.00	7,335.00	7,333.82	7,331.21	74.73	12.87	90.69	2,776.69	1,158.64	1,407.45	1,340.44	67.01	21.004		

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 3J-4H-N165 - Slot RUEGGE 3J
<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 3J-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	-10.29	-69.24	70.00					
100.00	100.00	102.00	102.00	0.14	0.15	-98.45	-10.29	-69.24	70.00	69.72	0.28	247.184		
200.00	200.00	202.00	202.00	0.50	0.50	-98.45	-10.29	-69.24	70.00	69.00	1.00	69.991	CC, ES	
300.00	299.98	299.71	299.69	0.84	0.84	92.30	-11.18	-70.73	71.70	70.01	1.69	42.494		
400.00	399.84	397.23	397.07	1.19	1.19	94.53	-13.76	-75.07	76.74	74.36	2.38	32.281		
500.00	499.45	494.31	493.79	1.55	1.54	97.64	-18.01	-82.22	85.32	82.23	3.09	27.619		
600.00	598.70	590.73	589.52	1.93	1.91	101.04	-23.89	-92.11	97.63	93.81	3.82	25.544		
651.76	649.89	640.31	638.58	2.13	2.11	102.75	-27.55	-98.26	105.51	101.30	4.21	25.049		
700.00	697.53	686.33	683.99	2.33	2.29	104.23	-31.34	-104.63	113.70	109.12	4.58	24.838	SF	
800.00	796.29	781.16	777.18	2.74	2.70	106.07	-40.32	-119.73	132.77	127.43	5.34	24.849		
900.00	895.05	875.07	868.84	3.16	3.12	106.71	-50.76	-137.29	154.45	148.34	6.12	25.248		
1,000.00	993.81	967.88	958.72	3.57	3.57	106.55	-62.58	-157.16	178.63	171.73	6.90	25.893		
1,100.00	1,092.57	1,059.42	1,046.59	4.00	4.05	105.91	-75.69	-179.21	205.26	197.58	7.67	26.745		
1,200.00	1,191.33	1,152.50	1,135.17	4.42	4.57	104.99	-90.29	-203.75	234.03	225.55	8.49	27.573		
1,300.00	1,290.09	1,248.11	1,226.06	4.84	5.12	104.21	-105.46	-229.26	263.15	253.82	9.33	28.202		
1,400.00	1,388.85	1,343.72	1,316.95	5.27	5.68	103.58	-120.64	-254.77	292.31	282.13	10.18	28.713		
1,500.00	1,487.61	1,439.33	1,407.83	5.70	6.25	103.07	-135.81	-280.28	321.49	310.46	11.03	29.136		
1,600.00	1,586.36	1,534.94	1,498.72	6.12	6.82	102.64	-150.98	-305.79	350.69	338.80	11.89	29.492		
1,700.00	1,685.12	1,630.55	1,589.61	6.55	7.39	102.28	-166.15	-331.30	379.91	367.16	12.75	29.796		
1,800.00	1,783.88	1,726.16	1,680.50	6.98	7.97	101.96	-181.32	-356.81	409.14	395.53	13.61	30.057		
1,900.00	1,882.64	1,821.77	1,771.38	7.41	8.55	101.70	-196.50	-382.32	438.38	423.90	14.48	30.284		
2,000.00	1,981.40	1,917.38	1,862.27	7.84	9.14	101.46	-211.67	-407.83	467.62	452.28	15.34	30.483		
2,100.00	2,080.16	2,013.00	1,953.16	8.26	9.72	101.25	-226.84	-433.34	496.88	480.67	16.21	30.659		
2,200.00	2,178.92	2,108.61	2,044.05	8.69	10.31	101.07	-242.01	-458.85	526.13	509.06	17.07	30.816		
2,300.00	2,277.68	2,204.22	2,134.93	9.12	10.89	100.90	-257.18	-484.36	555.40	537.46	17.94	30.956		
2,400.00	2,376.44	2,300.17	2,225.82	9.55	11.48	100.75	-272.36	-509.87	584.66	565.85	18.81	31.080		
2,500.00	2,475.20	2,404.56	2,316.71	9.98	12.13	100.62	-287.53	-535.38	613.93	594.21	19.72	31.127		
2,600.00	2,573.96	2,508.95	2,407.60	10.41	12.77	100.50	-302.70	-560.89	643.21	622.57	20.64	31.169		
2,700.00	2,672.72	2,586.66	2,498.49	10.84	13.25	100.38	-317.87	-586.40	672.48	651.06	21.42	31.396		
2,800.00	2,771.48	2,682.27	2,589.37	11.27	13.84	100.28	-333.04	-611.91	701.76	679.47	22.29	31.483		
2,900.00	2,870.23	2,777.88	2,680.26	11.70	14.43	100.19	-348.22	-637.42	731.04	707.87	23.16	31.562		
3,000.00	2,968.99	2,873.49	2,771.15	12.13	15.02	100.10	-363.39	-662.93	760.32	736.28	24.03	31.636		
3,100.00	3,067.75	2,969.11	2,862.04	12.56	15.61	100.02	-378.56	-688.44	789.60	764.69	24.91	31.704		
3,200.00	3,166.51	3,064.72	2,952.92	12.99	16.21	99.95	-393.73	-713.94	818.88	793.10	25.78	31.768		
3,300.00	3,265.27	3,160.33	3,043.81	13.42	16.80	99.88	-408.90	-739.45	848.17	821.52	26.65	31.826		
3,400.00	3,364.03	3,255.94	3,134.70	13.85	17.39	99.81	-424.08	-764.96	877.45	849.93	27.52	31.881		
3,500.00	3,462.79	3,351.55	3,225.59	14.28	17.98	99.75	-439.25	-790.47	906.74	878.34	28.40	31.932		
3,600.00	3,561.55	3,447.16	3,316.47	14.71	18.58	99.69	-454.42	-815.98	936.03	906.76	29.27	31.980		
3,700.00	3,660.31	3,542.77	3,407.36	15.14	19.17	99.64	-469.59	-841.49	965.31	935.17	30.14	32.025		
3,800.00	3,759.07	3,638.38	3,498.25	15.57	19.76	99.59	-484.76	-867.00	994.60	963.59	31.02	32.068		
3,900.00	3,857.83	3,733.99	3,589.14	16.00	20.36	99.54	-499.94	-892.51	1,023.89	992.00	31.89	32.107		
4,000.00	3,956.59	3,829.61	3,680.02	16.43	20.95	99.50	-515.11	-918.02	1,053.18	1,020.42	32.76	32.145		
4,100.00	4,055.34	3,925.22	3,770.91	16.86	21.54	99.45	-530.28	-943.53	1,082.47	1,048.84	33.64	32.180		
4,200.00	4,154.10	4,020.83	3,861.80	17.29	22.14	99.41	-545.45	-969.04	1,111.77	1,077.25	34.51	32.214		
4,300.00	4,252.86	4,116.44	3,952.69	17.72	22.73	99.38	-560.62	-994.55	1,141.06	1,105.67	35.39	32.246		
4,400.00	4,351.62	4,212.05	4,043.57	18.15	23.33	99.34	-575.80	-1,020.06	1,170.35	1,134.09	36.26	32.276		
4,500.00	4,450.38	4,307.66	4,134.46	18.58	23.92	99.31	-590.97	-1,045.57	1,199.64	1,162.51	37.14	32.304		
4,600.00	4,549.14	4,403.27	4,225.35	19.01	24.51	99.27	-606.14	-1,071.08	1,228.93	1,190.92	38.01	32.331		
4,700.00	4,647.90	4,501.12	4,316.24	19.44	25.12	99.24	-621.31	-1,096.59	1,258.23	1,219.33	38.90	32.348		
4,800.00	4,746.66	4,605.51	4,407.12	19.87	25.77	99.21	-636.48	-1,122.10	1,287.52	1,247.71	39.81	32.338		
4,900.00	4,845.42	4,690.11	4,498.01	20.30	26.30	99.18	-651.66	-1,147.61	1,316.82	1,276.18	40.64	32.405		
5,000.00	4,944.18	4,785.72	4,588.90	20.73	26.89	99.16	-666.83	-1,173.12	1,346.11	1,304.60	41.51	32.427		

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 3J-4H-N165 - Slot RUEGGE 3J
<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 3J-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					
5,100.00	5,042.94	4,881.33	4,679.79	21.16	27.49	99.13	-682.00	-1,198.63	1,375.40	1,333.02	42.39	32.449					
5,200.00	5,141.70	4,976.94	4,770.67	21.59	28.08	99.11	-697.17	-1,224.14	1,404.70	1,361.44	43.26	32.469					

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well RUEGGE 3J-4H-N165 - Slot RUEGGE 3J
<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 3J-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							
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	2.00	2.00	0.00	0.00	-98.45	-8.82	-59.35	60.00	59.72	0.28	211.870	
100.00	100.00	102.00	102.00	0.14	0.15	-98.45	-8.82	-59.35	60.00	59.00	1.00	59.992 CC	
200.00	200.00	202.00	202.00	0.50	0.50	-98.45	-8.82	-59.35	60.00	58.37	1.70	35.289	
300.00	299.98	301.98	301.98	0.84	0.86	93.15	-8.82	-59.35	60.07	58.18	2.41	25.180 ES	
400.00	399.84	401.84	401.84	1.19	1.22	98.08	-8.82	-59.35	60.58	58.18	2.41	25.180 ES	
500.00	499.45	499.76	499.74	1.55	1.56	104.80	-9.81	-60.78	63.76	60.65	3.11	20.507	
600.00	598.70	597.47	597.32	1.93	1.90	111.36	-12.69	-64.95	71.39	67.57	3.82	18.671	
651.76	649.89	647.88	647.57	2.13	2.07	114.35	-14.91	-68.17	77.10	72.89	4.20	18.338	
700.00	697.53	694.78	694.26	2.33	2.24	116.68	-17.43	-71.82	83.29	78.74	4.56	18.272 SF	
800.00	796.29	791.80	790.58	2.74	2.60	119.35	-24.02	-81.36	97.91	92.61	5.30	18.465	
900.00	895.05	888.35	888.99	3.16	2.97	119.95	-32.41	-93.52	114.55	108.49	6.06	18.903	
1,000.00	993.81	984.23	980.19	3.57	3.36	119.22	-42.55	-108.20	133.09	126.26	6.83	19.483	
1,100.00	1,092.57	1,079.22	1,072.88	4.00	3.78	117.70	-54.35	-125.30	153.59	145.97	7.61	20.171	
1,200.00	1,191.33	1,173.15	1,163.79	4.42	4.22	115.72	-67.74	-144.68	176.18	167.77	8.40	20.965	
1,300.00	1,290.09	1,266.94	1,253.80	4.84	4.69	113.52	-82.72	-166.38	200.92	191.71	9.21	21.819	
1,400.00	1,388.85	1,363.36	1,346.09	5.27	5.19	111.58	-98.58	-189.36	226.48	216.42	10.05	22.531	
1,500.00	1,487.61	1,459.79	1,438.39	5.70	5.71	110.04	-114.45	-212.34	252.22	241.32	10.90	23.138	
1,600.00	1,586.36	1,556.22	1,530.69	6.12	6.23	108.79	-130.31	-235.31	278.11	266.36	11.75	23.661	
1,700.00	1,685.12	1,652.64	1,622.98	6.55	6.76	107.74	-146.17	-258.29	304.10	291.49	12.61	24.116	
1,800.00	1,783.88	1,749.07	1,715.28	6.98	7.30	106.86	-162.03	-281.26	330.17	316.71	13.47	24.514	
1,900.00	1,882.64	1,845.50	1,807.58	7.41	7.84	106.11	-177.90	-304.24	356.31	341.98	14.33	24.865	
2,000.00	1,981.40	1,941.93	1,899.87	7.84	8.39	105.46	-193.76	-327.22	382.49	367.30	15.19	25.177	
2,100.00	2,080.16	2,038.35	1,992.17	8.26	8.93	104.90	-209.62	-350.19	408.71	392.66	16.06	25.456	
2,200.00	2,178.92	2,134.78	2,084.47	8.69	9.48	104.40	-225.48	-373.17	434.97	418.05	16.92	25.706	
2,300.00	2,277.68	2,231.21	2,176.76	9.12	10.04	103.96	-241.35	-396.14	461.25	443.46	17.79	25.933	
2,400.00	2,376.44	2,327.63	2,269.06	9.55	10.59	103.57	-257.21	-419.12	487.55	468.90	18.65	26.138	
2,500.00	2,475.20	2,424.06	2,361.36	9.98	11.14	103.22	-273.07	-442.10	513.88	494.36	19.52	26.325	
2,600.00	2,573.96	2,520.49	2,453.65	10.41	11.70	102.90	-288.94	-465.07	540.22	519.83	20.39	26.497	
2,700.00	2,672.72	2,616.92	2,545.95	10.84	12.26	102.61	-304.80	-488.05	566.57	545.32	21.26	26.654	
2,800.00	2,771.48	2,713.34	2,638.25	11.27	12.81	102.35	-320.66	-511.02	592.94	570.81	22.13	26.799	
2,900.00	2,870.23	2,809.77	2,730.54	11.70	13.37	102.10	-336.52	-534.00	619.32	596.32	22.99	26.933	
3,000.00	2,968.99	2,906.20	2,822.84	12.13	13.93	101.88	-352.39	-556.97	645.70	621.84	23.86	27.057	
3,100.00	3,067.75	3,002.62	2,915.14	12.56	14.49	101.68	-368.25	-579.95	672.10	647.36	24.73	27.173	
3,200.00	3,166.51	3,099.05	3,007.43	12.99	15.05	101.49	-384.11	-602.93	698.50	672.90	25.60	27.280	
3,300.00	3,265.27	3,195.48	3,099.73	13.42	15.61	101.32	-399.97	-625.90	724.91	698.43	26.48	27.381	
3,400.00	3,364.03	3,308.09	3,192.03	13.85	16.27	101.15	-415.84	-648.88	751.32	723.90	27.42	27.396	
3,500.00	3,462.79	3,388.33	3,284.32	14.28	16.74	101.00	-431.70	-671.85	777.74	749.53	28.22	27.563	
3,600.00	3,561.55	3,484.76	3,376.62	14.71	17.30	100.86	-447.56	-694.83	804.17	775.08	29.09	27.646	
3,700.00	3,660.31	3,581.19	3,468.92	15.14	17.86	100.73	-463.43	-717.81	830.60	800.64	29.96	27.724	
3,800.00	3,759.07	3,677.61	3,561.21	15.57	18.42	100.60	-479.29	-740.78	857.03	826.20	30.83	27.797	
3,900.00	3,857.83	3,774.04	3,653.51	16.00	18.99	100.49	-495.15	-763.76	883.47	851.76	31.70	27.867	
4,000.00	3,956.59	3,870.47	3,745.81	16.43	19.55	100.38	-511.01	-786.73	909.90	877.33	32.58	27.932	
4,100.00	4,055.34	3,966.90	3,838.11	16.86	20.11	100.27	-526.88	-809.71	936.35	902.90	33.45	27.994	
4,200.00	4,154.10	4,063.32	3,930.40	17.29	20.68	100.18	-542.74	-832.68	962.79	928.47	34.32	28.053	
4,300.00	4,252.86	4,159.75	4,022.70	17.72	21.24	100.08	-558.60	-855.66	989.24	954.05	35.19	28.109	
4,400.00	4,351.62	4,256.18	4,115.00	18.15	21.80	99.99	-574.46	-878.64	1,015.69	979.62	36.07	28.163	
4,500.00	4,450.38	4,352.61	4,207.29	18.58	22.37	99.91	-590.33	-901.61	1,042.14	1,005.20	36.94	28.213	
4,600.00	4,549.14	4,449.03	4,299.59	19.01	22.93	99.83	-606.19	-924.59	1,068.59	1,030.78	37.81	28.262	
4,700.00	4,647.90	4,545.46	4,391.89	19.44	23.50	99.76	-622.05	-947.56	1,095.05	1,056.37	38.68	28.308	
4,800.00	4,746.66	4,641.89	4,484.18	19.87	24.06	99.68	-637.92	-970.54	1,121.51	1,081.95	39.56	28.352	
4,900.00	4,845.42	4,738.31	4,576.48	20.30	24.63	99.62	-653.78	-993.52	1,147.97	1,107.54	40.43	28.394	
5,000.00	4,944.18	4,834.74	4,668.78	20.73	25.19	99.55	-669.64	-1,016.49	1,174.43	1,133.12	41.30	28.434	

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 3J-4H-N165 - Slot RUEGGE 3J
<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 3J-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	
5,100.00	5,042.94	4,931.17	4,761.07	21.16	25.75	99.49	-685.50	-1,039.47	1,200.89	1,158.71	42.18	28.472	
5,200.00	5,141.70	5,027.60	4,853.37	21.59	26.32	99.43	-701.37	-1,062.44	1,227.35	1,184.30	43.05	28.509	
5,300.00	5,240.46	5,124.02	4,945.67	22.02	26.88	99.37	-717.23	-1,085.42	1,253.82	1,209.89	43.92	28.545	
5,400.00	5,339.21	5,220.45	5,037.96	22.45	27.45	99.31	-733.09	-1,108.40	1,280.28	1,235.48	44.80	28.579	
5,500.00	5,437.97	5,316.88	5,130.26	22.88	28.01	99.26	-748.95	-1,131.37	1,306.75	1,261.08	45.67	28.611	
5,600.00	5,536.73	5,413.30	5,222.56	23.31	28.58	99.21	-764.82	-1,154.35	1,333.22	1,286.67	46.55	28.643	
5,700.00	5,635.49	5,509.73	5,314.85	23.74	29.15	99.16	-780.68	-1,177.32	1,359.68	1,312.26	47.42	28.673	
5,800.00	5,734.25	5,606.16	5,407.15	24.18	29.71	99.12	-796.54	-1,200.30	1,386.15	1,337.86	48.29	28.702	
5,900.00	5,833.01	5,702.59	5,499.45	24.61	30.28	99.07	-812.41	-1,223.27	1,412.62	1,363.45	49.17	28.730	



# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well RUEGGE 3J-4H-N165 - Slot RUEGGE 3J
<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 3J-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: 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	-7.35	-49.46	50.00					
100.00	100.00	101.00	101.00	0.14	0.14	-98.45	-7.35	-49.46	50.00	49.72	0.28	178.822		
200.00	200.00	201.00	201.00	0.50	0.50	-98.45	-7.35	-49.46	50.00	49.00	1.00	50.173 CC		
300.00	299.98	300.98	300.98	0.84	0.86	93.49	-7.35	-49.46	50.08	48.38	1.70	29.480		
400.00	399.84	400.84	400.84	1.19	1.22	99.38	-7.35	-49.46	50.66	48.26	2.40	21.088 ES		
500.00	499.45	500.45	500.45	1.55	1.57	108.68	-7.35	-49.46	52.79	49.67	3.12	16.908		
600.00	598.70	599.70	599.70	1.93	1.93	120.03	-7.35	-49.46	57.88	54.02	3.85	15.014		
651.76	649.89	650.45	650.45	2.13	2.10	125.63	-7.64	-49.80	62.28	58.04	4.23	14.720 SF		
700.00	697.53	697.79	697.77	2.33	2.27	129.85	-8.43	-50.73	67.41	62.83	4.58	14.721		
800.00	796.29	796.11	795.96	2.74	2.60	135.03	-11.69	-54.57	79.57	74.28	5.29	15.038		
900.00	895.05	894.52	894.00	3.16	2.94	136.75	-17.14	-60.99	92.87	86.86	6.02	15.438		
1,000.00	993.81	992.77	991.54	3.57	3.30	136.26	-24.75	-69.95	106.95	100.20	6.76	15.825		
1,100.00	1,092.57	1,090.64	1,088.24	4.00	3.66	134.33	-34.48	-81.41	121.86	114.34	7.52	16.201		
1,200.00	1,191.33	1,187.90	1,183.79	4.42	4.05	131.48	-46.26	-95.28	137.87	129.56	8.31	16.599		
1,300.00	1,290.09	1,284.35	1,277.86	4.84	4.46	128.10	-60.00	-111.47	155.30	146.19	9.11	17.052		
1,400.00	1,388.85	1,380.72	1,371.16	5.27	4.89	124.48	-75.62	-129.86	174.42	164.49	9.93	17.566		
1,500.00	1,487.61	1,478.22	1,465.40	5.70	5.35	121.38	-91.78	-148.90	194.37	183.60	10.77	18.040		
1,600.00	1,586.36	1,575.71	1,559.65	6.12	5.81	118.86	-107.95	-167.94	214.77	203.14	11.62	18.476		
1,700.00	1,685.12	1,673.21	1,653.89	6.55	6.29	116.78	-124.12	-186.98	235.50	223.02	12.48	18.873		
1,800.00	1,783.88	1,770.71	1,748.13	6.98	6.77	115.04	-140.28	-206.02	256.48	243.14	13.33	19.234		
1,900.00	1,882.64	1,868.21	1,842.38	7.41	7.26	113.55	-156.45	-225.07	277.65	263.46	14.19	19.562		
2,000.00	1,981.40	1,965.71	1,936.62	7.84	7.76	112.28	-172.62	-244.11	298.98	283.93	15.05	19.861		
2,100.00	2,080.16	2,063.21	2,030.87	8.26	8.26	111.18	-188.78	-263.15	320.43	304.52	15.92	20.134		
2,200.00	2,178.92	2,160.70	2,125.11	8.69	8.76	110.22	-204.95	-282.19	341.98	325.20	16.78	20.383		
2,300.00	2,277.68	2,258.20	2,219.36	9.12	9.26	109.37	-221.12	-301.23	363.61	345.97	17.64	20.612		
2,400.00	2,376.44	2,355.70	2,313.60	9.55	9.77	108.61	-237.28	-320.27	385.31	366.81	18.50	20.822		
2,500.00	2,475.20	2,453.20	2,407.84	9.98	10.27	107.94	-253.45	-339.31	407.07	387.70	19.37	21.016		
2,600.00	2,573.96	2,550.70	2,502.09	10.41	10.78	107.33	-269.62	-358.35	428.87	408.64	20.23	21.195		
2,700.00	2,672.72	2,648.20	2,596.33	10.84	11.29	106.78	-285.78	-377.39	450.72	429.62	21.10	21.361		
2,800.00	2,771.48	2,745.69	2,690.58	11.27	11.81	106.29	-301.95	-396.44	472.60	450.63	21.97	21.515		
2,900.00	2,870.23	2,843.19	2,784.82	11.70	12.32	105.83	-318.12	-415.48	494.51	471.68	22.83	21.659		
3,000.00	2,968.99	2,940.69	2,879.07	12.13	12.83	105.42	-334.28	-434.52	516.45	492.75	23.70	21.793		
3,100.00	3,067.75	3,038.19	2,973.31	12.56	13.35	105.04	-350.45	-453.56	538.41	513.85	24.56	21.918		
3,200.00	3,166.51	3,135.69	3,067.56	12.99	13.87	104.69	-366.62	-472.60	560.40	534.97	25.43	22.035		
3,300.00	3,265.27	3,233.19	3,161.80	13.42	14.38	104.36	-382.79	-491.64	582.40	556.10	26.30	22.145		
3,400.00	3,364.03	3,330.68	3,256.04	13.85	14.90	104.06	-398.95	-510.68	604.42	577.25	27.17	22.249		
3,500.00	3,462.79	3,428.18	3,350.29	14.28	15.42	103.78	-415.12	-529.72	626.45	598.42	28.03	22.346		
3,600.00	3,561.55	3,525.68	3,444.53	14.71	15.93	103.52	-431.29	-548.76	648.50	619.60	28.90	22.438		
3,700.00	3,660.31	3,623.18	3,538.78	15.14	16.45	103.28	-447.45	-567.80	670.56	640.79	29.77	22.525		
3,800.00	3,759.07	3,720.68	3,633.02	15.57	16.97	103.05	-463.62	-586.85	692.63	661.99	30.64	22.607		
3,900.00	3,857.83	3,818.18	3,727.27	16.00	17.49	102.84	-479.79	-605.89	714.71	683.20	31.51	22.685		
4,000.00	3,956.59	3,915.67	3,821.51	16.43	18.01	102.63	-495.95	-624.93	736.80	704.42	32.37	22.759		
4,100.00	4,055.34	4,013.17	3,915.75	16.86	18.53	102.44	-512.12	-643.97	758.89	725.65	33.24	22.829		
4,200.00	4,154.10	4,110.67	4,010.00	17.29	19.05	102.27	-528.29	-663.01	781.00	746.89	34.11	22.896		
4,300.00	4,252.86	4,208.17	4,104.24	17.72	19.57	102.10	-544.45	-682.05	803.11	768.13	34.98	22.960		
4,400.00	4,351.62	4,305.67	4,198.49	18.15	20.09	101.94	-560.62	-701.09	825.23	789.38	35.85	23.020		
4,500.00	4,450.38	4,403.17	4,292.73	18.58	20.61	101.79	-576.79	-720.13	847.35	810.63	36.72	23.078		
4,600.00	4,549.14	4,500.66	4,386.98	19.01	21.13	101.64	-592.95	-739.17	869.48	831.89	37.59	23.133		
4,700.00	4,647.90	4,601.84	4,481.22	19.44	21.68	101.50	-609.12	-758.22	891.61	853.14	38.47	23.176		
4,800.00	4,746.66	4,695.66	4,575.46	19.87	22.18	101.37	-625.29	-777.26	913.75	874.42	39.32	23.237		
4,900.00	4,845.42	4,806.84	4,669.71	20.30	22.77	101.25	-641.45	-796.30	935.89	895.63	40.26	23.248		
5,000.00	4,944.18	4,909.34	4,763.95	20.73	23.32	101.13	-657.62	-815.34	958.04	916.89	41.15	23.282		

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 3J-4H-N165 - Slot RUEGGE 3J
<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 3J-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: 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		
5,100.00	5,042.94	4,988.16	4,858.20	21.16	23.74	101.02	-673.79	-834.38	980.19	938.25	41.93	23.376		
5,200.00	5,141.70	5,085.65	4,952.44	21.59	24.27	100.91	-689.95	-853.42	1,002.34	959.54	42.80	23.419		
5,300.00	5,240.46	5,183.15	5,046.69	22.02	24.79	100.81	-706.12	-872.46	1,024.50	980.83	43.67	23.460		
5,400.00	5,339.21	5,280.65	5,140.93	22.45	25.31	100.71	-722.29	-891.50	1,046.66	1,002.12	44.54	23.499		
5,500.00	5,437.97	5,378.15	5,235.17	22.88	25.83	100.62	-738.45	-910.54	1,068.82	1,023.41	45.41	23.537		
5,600.00	5,536.73	5,475.65	5,329.42	23.31	26.35	100.52	-754.62	-929.59	1,090.98	1,044.70	46.28	23.574		
5,700.00	5,635.49	5,573.15	5,423.66	23.74	26.88	100.44	-770.79	-948.63	1,113.15	1,066.00	47.15	23.609		
5,800.00	5,734.25	5,670.64	5,517.91	24.18	27.40	100.35	-786.96	-967.67	1,135.32	1,087.30	48.02	23.643		
5,900.00	5,833.01	5,768.14	5,612.15	24.61	27.92	100.27	-803.12	-986.71	1,157.49	1,108.60	48.89	23.676		
6,000.00	5,931.77	5,865.64	5,706.40	25.04	28.45	100.20	-819.29	-1,005.75	1,179.67	1,129.91	49.76	23.708		
6,100.00	6,030.53	5,963.14	5,800.64	25.47	28.97	100.12	-835.46	-1,024.79	1,201.84	1,151.21	50.63	23.738		
6,200.00	6,129.29	6,060.64	5,894.89	25.90	29.49	100.05	-851.62	-1,043.83	1,224.02	1,172.52	51.50	23.768		
6,300.00	6,228.05	6,158.14	5,989.13	26.33	30.02	99.98	-867.79	-1,062.87	1,246.20	1,193.83	52.37	23.796		
6,400.00	6,326.81	6,255.63	6,083.37	26.76	30.54	99.91	-883.96	-1,081.91	1,268.38	1,215.14	53.24	23.824		
6,500.00	6,425.57	6,353.13	6,177.62	27.19	31.06	99.85	-900.12	-1,100.95	1,290.57	1,236.45	54.11	23.851		
6,584.00	6,508.53	6,435.03	6,256.79	27.55	31.50	99.79	-913.70	-1,116.95	1,309.20	1,254.36	54.84	23.872		
6,600.00	6,524.35	6,450.63	6,271.86	27.62	31.59	101.78	-916.29	-1,120.00	1,312.75	1,257.77	54.98	23.878		
6,650.00	6,574.08	6,500.76	6,318.85	27.81	31.85	114.85	-924.35	-1,129.49	1,323.87	1,268.48	55.39	23.903		
6,700.00	6,624.03	6,547.48	6,365.48	27.97	32.11	-165.64	-932.35	-1,138.91	1,334.99	1,279.26	55.73	23.956		
6,750.00	6,673.96	6,595.11	6,411.52	28.10	32.36	-109.21	-940.25	-1,148.21	1,346.11	1,290.08	56.03	24.025		
6,800.00	6,723.62	6,641.90	6,456.75	28.22	32.61	-99.44	-948.01	-1,157.35	1,357.27	1,300.98	56.29	24.111		
6,850.00	6,772.76	6,687.62	6,501.16	28.32	32.84	-95.62	-954.01	-1,166.34	1,368.49	1,311.98	56.51	24.215		
6,900.00	6,821.16	6,734.29	6,546.79	28.40	33.06	-93.52	-957.15	-1,175.59	1,379.77	1,323.06	56.71	24.330		
6,950.00	6,868.58	6,781.95	6,593.49	28.47	33.26	-92.14	-957.23	-1,185.08	1,391.06	1,334.17	56.88	24.454		
7,000.00	6,914.78	6,830.72	6,641.16	28.54	33.43	-91.14	-954.02	-1,194.80	1,402.29	1,345.26	57.03	24.587		
7,050.00	6,959.54	6,880.69	6,689.67	28.59	33.58	-90.38	-947.31	-1,204.71	1,413.43	1,356.27	57.17	24.725		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well RUEGGE 3J-4H-N165 - Slot RUEGGE 3J
<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 3J-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							
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	-5.88	-39.57	40.00				
100.00	100.00	101.00	101.00	0.14	0.14	-98.45	-5.88	-39.57	40.00	39.72	0.28	143.058	
200.00	200.00	201.00	201.00	0.50	0.50	-98.45	-5.88	-39.57	40.00	39.00	1.00	40.139	CC
300.00	299.98	300.98	300.98	0.84	0.86	93.98	-5.88	-39.57	40.08	38.39	1.70	23.597	
400.00	399.84	400.84	400.84	1.19	1.22	101.31	-5.88	-39.57	40.78	38.38	2.40	16.975	ES
500.00	499.45	500.45	500.45	1.55	1.57	112.60	-5.88	-39.57	43.35	40.23	3.12	13.883	
600.00	598.70	600.30	599.70	1.93	1.93	125.61	-5.88	-39.57	49.35	45.49	3.86	12.799	
651.76	649.89	650.89	650.89	2.13	2.11	132.10	-5.88	-39.57	54.20	49.96	4.24	12.797	SF
700.00	697.53	701.47	698.53	2.33	2.29	137.49	-5.88	-39.57	59.58	54.98	4.60	12.956	
800.00	796.29	797.29	797.29	2.74	2.64	145.93	-5.88	-39.57	71.99	66.68	5.31	13.557	
900.00	895.05	896.14	896.12	3.16	2.98	150.73	-6.92	-40.80	85.44	79.43	6.02	14.197	
1,000.00	993.81	995.30	995.15	3.57	3.31	152.24	-10.18	-44.64	99.10	92.37	6.72	14.736	
1,100.00	1,092.57	1,094.54	1,094.02	4.00	3.65	151.62	-15.66	-51.10	112.61	105.16	7.45	15.122	
1,200.00	1,191.33	1,193.63	1,192.39	4.42	4.00	149.56	-23.34	-60.16	126.08	117.89	8.19	15.397	
1,300.00	1,290.09	1,292.33	1,289.91	4.84	4.37	146.50	-33.17	-71.75	139.80	130.85	8.95	15.617	
1,400.00	1,388.85	1,390.41	1,386.23	5.27	4.75	142.74	-45.09	-85.81	154.19	144.45	9.74	15.834	
1,500.00	1,487.61	1,487.64	1,481.05	5.70	5.15	138.55	-59.00	-102.21	169.73	159.18	10.55	16.092	
1,600.00	1,586.36	1,584.64	1,574.97	6.12	5.57	134.20	-74.68	-120.71	186.76	175.38	11.38	16.412	
1,700.00	1,685.12	1,682.17	1,669.30	6.55	6.01	130.45	-90.71	-139.61	204.83	192.60	12.23	16.749	
1,800.00	1,783.88	1,779.71	1,763.64	6.98	6.47	127.32	-106.74	-158.52	223.61	210.52	13.08	17.091	
1,900.00	1,882.64	1,877.24	1,857.97	7.41	6.93	124.66	-122.77	-177.42	242.95	229.00	13.94	17.425	
2,000.00	1,981.40	1,974.77	1,952.30	7.84	7.40	122.40	-138.79	-196.33	262.71	247.91	14.80	17.747	
2,100.00	2,080.16	2,072.31	2,046.63	8.26	7.88	120.46	-154.82	-215.23	282.82	267.16	15.67	18.053	
2,200.00	2,178.92	2,169.84	2,140.96	8.69	8.36	118.77	-170.85	-234.14	303.21	286.68	16.53	18.343	
2,300.00	2,277.68	2,267.37	2,235.30	9.12	8.85	117.30	-186.88	-253.04	323.81	306.42	17.39	18.616	
2,400.00	2,376.44	2,364.91	2,329.63	9.55	9.34	116.00	-202.91	-271.94	344.60	326.34	18.26	18.872	
2,500.00	2,475.20	2,462.44	2,423.96	9.98	9.84	114.85	-218.94	-290.85	365.53	346.41	19.13	19.113	
2,600.00	2,573.96	2,559.97	2,518.29	10.41	10.33	113.82	-234.97	-309.75	386.60	366.61	19.99	19.338	
2,700.00	2,672.72	2,657.51	2,612.62	10.84	10.83	112.90	-250.99	-328.66	407.77	386.91	20.86	19.550	
2,800.00	2,771.48	2,755.04	2,706.96	11.27	11.34	112.07	-267.02	-347.56	429.03	407.30	21.72	19.749	
2,900.00	2,870.23	2,852.58	2,801.29	11.70	11.84	111.32	-283.05	-366.47	450.37	427.78	22.59	19.936	
3,000.00	2,968.99	2,950.11	2,895.62	12.13	12.35	110.64	-299.08	-385.37	471.77	448.32	23.46	20.112	
3,100.00	3,067.75	3,047.64	2,989.95	12.56	12.85	110.01	-315.11	-404.28	493.24	468.92	24.32	20.277	
3,200.00	3,166.51	3,145.18	3,084.28	12.99	13.36	109.44	-331.14	-423.18	514.76	489.56	25.19	20.434	
3,300.00	3,265.27	3,242.71	3,178.61	13.42	13.87	108.92	-347.16	-442.08	536.32	510.26	26.06	20.581	
3,400.00	3,364.03	3,340.24	3,272.95	13.85	14.38	108.43	-363.19	-460.99	557.92	530.99	26.93	20.720	
3,500.00	3,462.79	3,437.78	3,367.28	14.28	14.89	107.98	-379.22	-479.89	579.56	551.76	27.79	20.852	
3,600.00	3,561.55	3,535.31	3,461.61	14.71	15.40	107.56	-395.25	-498.80	601.23	572.56	28.66	20.977	
3,700.00	3,660.31	3,632.84	3,555.94	15.14	15.91	107.17	-411.28	-517.70	622.92	593.39	29.53	21.095	
3,800.00	3,759.07	3,730.38	3,650.27	15.57	16.43	106.81	-427.31	-536.61	644.65	614.25	30.40	21.207	
3,900.00	3,857.83	3,827.91	3,744.61	16.00	16.94	106.47	-443.34	-555.51	666.39	635.13	31.27	21.314	
4,000.00	3,956.59	3,925.44	3,838.94	16.43	17.46	106.16	-459.36	-574.42	688.16	656.02	32.13	21.416	
4,100.00	4,055.34	4,022.98	3,933.27	16.86	17.97	105.86	-475.39	-593.32	709.94	676.94	33.00	21.512	
4,200.00	4,154.10	4,120.51	4,027.60	17.29	18.49	105.58	-491.42	-612.22	731.75	697.88	33.87	21.605	
4,300.00	4,252.86	4,218.05	4,121.93	17.72	19.00	105.31	-507.45	-631.13	753.56	718.83	34.74	21.693	
4,400.00	4,351.62	4,315.58	4,216.27	18.15	19.52	105.06	-523.48	-650.03	775.40	739.79	35.61	21.777	
4,500.00	4,450.38	4,413.11	4,310.60	18.58	20.03	104.83	-539.51	-668.94	797.24	760.77	36.48	21.857	
4,600.00	4,549.14	4,510.65	4,404.93	19.01	20.55	104.61	-555.54	-687.84	819.10	781.76	37.34	21.934	
4,700.00	4,647.90	4,608.18	4,499.26	19.44	21.07	104.40	-571.56	-706.75	840.97	802.76	38.21	22.008	
4,800.00	4,746.66	4,705.71	4,593.59	19.87	21.58	104.19	-587.59	-725.65	862.85	823.77	39.08	22.079	
4,900.00	4,845.42	4,803.25	4,687.93	20.30	22.10	104.00	-603.62	-744.56	884.74	844.79	39.95	22.146	
5,000.00	4,944.18	4,900.78	4,782.26	20.73	22.62	103.82	-619.65	-763.46	906.64	865.82	40.82	22.211	

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 3J-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: 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		
5,100.00	5,042.94	4,998.31	4,876.59	21.16	23.14	103.65	-635.68	-782.36	928.54	886.86	41.69	22.274		
5,200.00	5,141.70	5,095.85	4,970.92	21.59	23.65	103.48	-651.71	-801.27	950.46	907.90	42.56	22.334		
5,300.00	5,240.46	5,206.62	5,065.25	22.02	24.24	103.33	-667.74	-820.17	972.38	928.89	43.49	22.360		
5,400.00	5,339.21	5,290.92	5,159.59	22.45	24.69	103.18	-683.76	-839.08	994.31	950.01	44.29	22.447		
5,500.00	5,437.97	5,388.45	5,253.92	22.88	25.21	103.03	-699.79	-857.98	1,016.24	971.08	45.16	22.501		
5,600.00	5,536.73	5,485.98	5,348.25	23.31	25.73	102.89	-715.82	-876.89	1,038.18	992.15	46.03	22.553		
5,700.00	5,635.49	5,583.52	5,442.58	23.74	26.25	102.76	-731.85	-895.79	1,060.13	1,013.22	46.90	22.603		
5,800.00	5,734.25	5,681.05	5,536.91	24.18	26.77	102.64	-747.88	-914.69	1,082.08	1,034.30	47.77	22.651		
5,900.00	5,833.01	5,778.58	5,631.25	24.61	27.29	102.51	-763.91	-933.60	1,104.03	1,055.39	48.64	22.697		
6,000.00	5,931.77	5,876.12	5,725.58	25.04	27.81	102.40	-779.93	-952.50	1,125.99	1,076.48	49.51	22.742		
6,100.00	6,030.53	5,973.65	5,819.91	25.47	28.33	102.28	-795.96	-971.41	1,147.96	1,097.58	50.38	22.786		
6,200.00	6,129.29	6,071.18	5,914.24	25.90	28.84	102.18	-811.99	-990.31	1,169.93	1,118.67	51.25	22.828		
6,300.00	6,228.05	6,168.72	6,008.57	26.33	29.36	102.07	-828.02	-1,009.22	1,191.90	1,139.78	52.12	22.868		
6,400.00	6,326.81	6,266.25	6,102.91	26.76	29.88	101.97	-844.05	-1,028.12	1,213.87	1,160.88	52.99	22.908		
6,500.00	6,425.57	6,363.79	6,197.24	27.19	30.40	101.87	-860.08	-1,047.03	1,235.85	1,181.99	53.86	22.946		
6,584.00	6,508.53	6,444.66	6,275.47	27.55	30.83	101.80	-873.29	-1,062.70	1,254.32	1,199.74	54.58	22.981		
6,600.00	6,524.35	6,458.87	6,289.27	27.62	30.91	103.80	-875.27	-1,065.47	1,257.86	1,203.16	54.70	22.995		
6,650.00	6,574.08	6,503.28	6,332.59	27.81	31.12	116.99	-879.67	-1,074.12	1,268.95	1,213.90	55.05	23.050		
6,700.00	6,624.03	6,547.69	6,376.11	27.97	31.32	-163.24	-881.32	-1,082.80	1,280.06	1,224.72	55.35	23.129		
6,750.00	6,673.96	6,592.13	6,419.68	28.10	31.49	-106.44	-880.21	-1,091.46	1,291.15	1,235.56	55.58	23.229		
6,800.00	6,723.62	6,636.64	6,463.17	28.22	31.64	-96.20	-876.35	-1,100.08	1,302.15	1,246.37	55.78	23.343		
6,850.00	6,772.76	6,681.26	6,506.44	28.32	31.77	-91.90	-869.72	-1,108.64	1,313.02	1,257.07	55.95	23.468		
6,900.00	6,821.16	6,726.01	6,549.36	28.40	31.88	-89.33	-860.32	-1,117.10	1,323.70	1,267.61	56.09	23.600		
6,950.00	6,868.58	6,770.93	6,591.79	28.47	31.98	-87.51	-848.16	-1,125.44	1,334.16	1,277.95	56.20	23.739		
7,000.00	6,914.78	6,816.06	6,633.57	28.54	32.06	-86.10	-833.24	-1,133.63	1,344.33	1,288.04	56.29	23.882		
7,050.00	6,959.54	6,861.42	6,674.56	28.59	32.12	-84.94	-815.57	-1,141.65	1,354.17	1,297.81	56.36	24.027		
7,100.00	7,002.64	6,907.04	6,714.61	28.63	32.16	-83.96	-795.17	-1,149.45	1,363.64	1,307.23	56.41	24.172		
7,150.00	7,043.88	6,952.95	6,753.55	28.67	32.19	-83.12	-772.06	-1,157.00	1,372.70	1,316.24	56.46	24.314		
7,200.00	7,083.04	6,999.19	6,791.21	28.70	32.21	-82.39	-746.27	-1,164.28	1,381.30	1,324.81	56.49	24.453		
7,250.00	7,119.94	7,045.77	6,827.43	28.73	32.21	-81.75	-717.83	-1,171.26	1,389.41	1,332.89	56.52	24.584		
7,300.00	7,154.41	7,092.71	6,862.03	28.76	32.19	-81.20	-686.81	-1,177.89	1,396.98	1,340.44	56.54	24.706		
7,350.00	7,186.26	7,140.05	6,894.82	28.79	32.16	-80.74	-653.26	-1,184.13	1,403.99	1,347.42	56.57	24.817		
7,400.00	7,215.35	7,187.79	6,925.62	28.82	32.12	-80.35	-617.27	-1,189.97	1,410.40	1,353.79	56.61	24.913		

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<b>Site Error:</b>	0.00usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	RUEGGE 3J-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: 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	-4.41	-29.67	30.00				
100.00	100.00	101.00	101.00	0.14	0.14	-98.45	-4.41	-29.67	30.00	29.72	0.28	107.295	
200.00	200.00	201.00	201.00	0.50	0.50	-98.45	-4.41	-29.67	30.00	29.00	1.00	30.104	
200.00	200.00	201.00	201.00	0.50	0.50	-98.45	-4.41	-29.67	30.00	29.00	1.00	30.104	CC
300.00	299.98	300.98	300.98	0.84	0.86	94.81	-4.41	-29.67	30.10	28.40	1.70	17.718	ES
400.00	399.84	400.84	400.84	1.19	1.22	104.47	-4.41	-29.67	30.98	28.58	2.40	12.893	
500.00	499.45	500.45	500.45	1.55	1.57	118.65	-4.41	-29.67	34.22	31.09	3.12	10.958	
600.00	598.70	600.30	599.70	1.93	1.93	133.42	-4.41	-29.67	41.48	37.63	3.85	10.764	
651.76	649.89	650.89	650.89	2.13	2.11	140.11	-4.41	-29.67	47.11	42.87	4.23	11.132	
700.00	697.53	701.47	698.53	2.33	2.29	145.33	-4.41	-29.67	53.17	48.58	4.59	11.578	
800.00	796.29	802.71	797.29	2.74	2.66	153.00	-4.41	-29.67	66.73	61.41	5.32	12.545	
900.00	895.05	903.95	896.05	3.16	3.02	158.04	-4.41	-29.67	81.06	75.02	6.04	13.411	
1,000.00	993.81	994.81	994.81	3.57	3.35	161.55	-4.41	-29.67	95.83	89.09	6.73	14.231	
1,100.00	1,092.57	1,095.62	1,095.60	4.00	3.69	163.47	-5.79	-30.47	109.98	102.53	7.45	14.768	
1,200.00	1,191.33	1,197.16	1,197.00	4.42	4.03	163.57	-10.28	-33.07	122.24	114.08	8.16	14.988	
1,300.00	1,290.09	1,299.07	1,298.53	4.84	4.37	162.36	-17.92	-37.47	132.57	123.69	8.88	14.932	
1,400.00	1,388.85	1,401.11	1,399.80	5.27	4.72	160.06	-28.69	-43.69	141.12	131.50	9.62	14.674	
1,500.00	1,487.61	1,503.01	1,500.43	5.70	5.09	156.80	-42.56	-51.70	148.21	137.84	10.38	14.280	
1,600.00	1,586.36	1,604.52	1,600.05	6.12	5.47	152.64	-59.44	-61.45	154.30	143.13	11.17	13.812	
1,700.00	1,685.12	1,700.20	1,693.41	6.55	5.85	148.02	-76.81	-73.12	161.66	149.68	11.98	13.492	
1,800.00	1,783.88	1,803.90	1,786.51	6.98	6.29	143.02	-94.45	-87.85	172.12	159.26	12.85	13.392	
1,900.00	1,882.64	1,905.74	1,881.66	7.41	6.73	138.32	-112.57	-103.72	184.40	170.66	13.74	13.424	
2,000.00	1,981.40	2,007.59	1,976.81	7.84	7.18	134.22	-130.69	-119.60	197.77	183.14	14.63	13.517	
2,100.00	2,080.16	2,090.57	2,071.97	8.26	7.56	130.65	-148.81	-135.47	212.03	196.58	15.44	13.729	
2,200.00	2,178.92	2,188.72	2,167.12	8.69	8.01	127.53	-166.92	-151.35	227.00	210.67	16.33	13.903	
2,300.00	2,277.68	2,286.88	2,262.27	9.12	8.48	124.80	-185.04	-167.23	242.55	225.34	17.21	14.094	
2,400.00	2,376.44	2,385.03	2,357.43	9.55	8.94	122.40	-203.16	-183.10	258.58	240.49	18.09	14.292	
2,500.00	2,475.20	2,483.19	2,452.58	9.98	9.41	120.28	-221.28	-198.98	275.01	256.04	18.98	14.493	
2,600.00	2,573.96	2,581.34	2,547.73	10.41	9.89	118.40	-239.40	-214.85	291.77	271.91	19.86	14.694	
2,700.00	2,672.72	2,679.50	2,642.89	10.84	10.36	116.72	-257.51	-230.73	308.80	288.06	20.74	14.892	
2,800.00	2,771.48	2,777.65	2,738.04	11.27	10.85	115.22	-275.63	-246.60	326.06	304.44	21.62	15.085	
2,900.00	2,870.23	2,875.81	2,833.19	11.70	11.33	113.87	-293.75	-262.48	343.52	321.02	22.49	15.272	
3,000.00	2,968.99	2,973.97	2,928.35	12.13	11.82	112.65	-311.87	-278.35	361.14	337.77	23.37	15.453	
3,100.00	3,067.75	3,072.12	3,023.50	12.56	12.30	111.54	-329.99	-294.23	378.92	354.67	24.25	15.627	
3,200.00	3,166.51	3,170.28	3,118.65	12.99	12.79	110.53	-348.10	-310.10	396.81	371.69	25.12	15.795	
3,300.00	3,265.27	3,268.43	3,213.81	13.42	13.29	109.61	-366.22	-325.98	414.82	388.82	26.00	15.956	
3,400.00	3,364.03	3,366.59	3,308.96	13.85	13.78	108.77	-384.34	-341.86	432.92	406.05	26.87	16.110	
3,500.00	3,462.79	3,464.74	3,404.12	14.28	14.27	107.99	-402.46	-357.73	451.10	423.36	27.75	16.258	
3,600.00	3,561.55	3,562.90	3,499.27	14.71	14.77	107.27	-420.58	-373.61	469.36	440.74	28.62	16.400	
3,700.00	3,660.31	3,661.05	3,594.42	15.14	15.27	106.61	-438.69	-389.48	487.69	458.20	29.49	16.535	
3,800.00	3,759.07	3,759.21	3,689.58	15.57	15.76	106.00	-456.81	-405.36	506.07	475.71	30.37	16.665	
3,900.00	3,857.83	3,857.36	3,784.73	16.00	16.26	105.42	-474.93	-421.23	524.51	493.27	31.24	16.790	
4,000.00	3,956.59	3,955.52	3,879.88	16.43	16.76	104.89	-493.05	-437.11	542.99	510.88	32.11	16.909	
4,100.00	4,055.34	4,053.67	3,975.04	16.86	17.26	104.39	-511.17	-452.98	561.52	528.53	32.98	17.024	
4,200.00	4,154.10	4,151.83	4,070.19	17.29	17.76	103.93	-529.28	-468.86	580.08	546.23	33.86	17.133	
4,300.00	4,252.86	4,249.98	4,165.34	17.72	18.26	103.49	-547.40	-484.74	598.68	563.95	34.73	17.239	
4,400.00	4,351.62	4,348.14	4,260.50	18.15	18.77	103.08	-565.52	-500.61	617.32	581.71	35.60	17.340	
4,500.00	4,450.38	4,446.30	4,355.65	18.58	19.27	102.69	-583.64	-516.49	635.98	599.50	36.47	17.437	
4,600.00	4,549.14	4,544.45	4,450.80	19.01	19.77	102.33	-601.76	-532.36	654.66	617.32	37.34	17.530	
4,700.00	4,647.90	4,642.61	4,545.96	19.44	20.28	101.98	-619.87	-548.24	673.37	635.16	38.22	17.620	
4,800.00	4,746.66	4,740.76	4,641.11	19.87	20.78	101.66	-637.99	-564.11	692.11	653.02	39.09	17.706	
4,900.00	4,845.42	4,838.92	4,736.26	20.30	21.28	101.35	-656.11	-579.99	710.86	670.90	39.96	17.790	

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 3J-4H-N165 - Slot RUEGGE 3J
<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 3J-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: 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	4,944.18	4,937.07	4,831.42	20.73	21.79	101.05	-674.23	-595.86	729.63	688.80	40.83	17.870	
5,100.00	5,042.94	5,035.23	4,926.57	21.16	22.29	100.77	-692.35	-611.74	748.42	706.72	41.70	17.947	
5,200.00	5,141.70	5,133.38	5,021.72	21.59	22.80	100.51	-710.46	-627.62	767.23	724.66	42.57	18.021	
5,300.00	5,240.46	5,231.54	5,116.88	22.02	23.30	100.26	-728.58	-643.49	786.05	742.61	43.45	18.093	
5,400.00	5,339.21	5,329.69	5,212.03	22.45	23.81	100.02	-746.70	-659.37	804.89	760.57	44.32	18.162	
5,500.00	5,437.97	5,427.85	5,307.18	22.88	24.31	99.79	-764.82	-675.24	823.74	778.55	45.19	18.229	
5,600.00	5,536.73	5,526.00	5,402.34	23.31	24.82	99.57	-782.94	-691.12	842.60	796.54	46.06	18.294	
5,700.00	5,635.49	5,624.16	5,497.49	23.74	25.33	99.36	-801.05	-706.99	861.47	814.54	46.93	18.356	
5,800.00	5,734.25	5,722.31	5,592.64	24.18	25.83	99.16	-819.17	-722.87	880.35	832.55	47.80	18.417	
5,900.00	5,833.01	5,820.47	5,687.80	24.61	26.34	98.97	-837.29	-738.74	899.24	850.57	48.67	18.475	
6,000.00	5,931.77	5,918.63	5,782.95	25.04	26.85	98.78	-855.41	-754.62	918.15	868.60	49.55	18.532	
6,100.00	6,030.53	6,016.78	5,878.10	25.47	27.35	98.61	-873.53	-770.50	937.06	886.64	50.42	18.586	
6,200.00	6,129.29	6,114.94	5,973.26	25.90	27.86	98.44	-891.64	-786.37	955.98	904.69	51.29	18.639	
6,300.00	6,228.05	6,213.09	6,068.41	26.33	28.37	98.27	-909.76	-802.25	974.90	922.74	52.16	18.691	
6,400.00	6,326.81	6,311.25	6,163.57	26.76	28.88	98.12	-927.88	-818.12	993.84	940.81	53.03	18.741	
6,500.00	6,425.57	6,409.40	6,258.72	27.19	29.39	97.96	-946.00	-834.00	1,012.78	958.88	53.90	18.789	
6,584.00	6,508.53	6,493.38	6,340.69	27.55	29.79	98.05	-957.79	-847.64	1,028.64	974.01	54.63	18.828	
6,600.00	6,524.35	6,509.33	6,356.39	27.62	29.86	100.08	-958.94	-850.25	1,031.65	976.89	54.77	18.837	
6,650.00	6,574.08	6,559.03	6,405.39	27.81	30.05	113.37	-960.24	-858.36	1,041.14	985.99	55.14	18.881	
6,700.00	6,624.03	6,608.48	6,454.13	27.97	30.21	-166.75	-958.12	-866.39	1,050.67	995.22	55.46	18.946	
6,750.00	6,673.96	6,657.71	6,502.40	28.10	30.35	-109.83	-952.62	-874.32	1,060.22	1,004.51	55.71	19.030	
6,800.00	6,723.62	6,706.73	6,549.98	28.22	30.46	-99.45	-943.83	-882.11	1,069.72	1,013.80	55.93	19.127	
6,850.00	6,772.76	6,755.56	6,596.68	28.32	30.55	-95.01	-931.81	-889.73	1,079.14	1,023.03	56.11	19.234	
6,900.00	6,821.16	6,804.23	6,642.32	28.40	30.63	-92.29	-916.65	-897.15	1,088.42	1,032.16	56.25	19.348	
6,950.00	6,868.58	6,852.75	6,686.70	28.47	30.68	-90.31	-898.45	-904.34	1,097.52	1,041.14	56.37	19.469	
7,000.00	6,914.78	6,901.13	6,729.66	28.54	30.72	-88.72	-877.31	-911.26	1,106.39	1,049.92	56.46	19.595	
7,050.00	6,959.54	6,949.40	6,771.02	28.59	30.74	-87.38	-853.34	-917.90	1,114.98	1,058.45	56.53	19.724	
7,100.00	7,002.64	6,997.58	6,810.62	28.63	30.74	-86.22	-826.65	-924.22	1,123.27	1,066.69	56.58	19.853	
7,150.00	7,043.88	7,045.67	6,848.30	28.67	30.73	-85.18	-797.39	-930.21	1,131.19	1,074.58	56.61	19.982	
7,200.00	7,083.04	7,093.69	6,883.91	28.70	30.70	-84.25	-765.68	-935.83	1,138.73	1,082.09	56.63	20.107	
7,250.00	7,119.94	7,141.65	6,917.30	28.73	30.67	-83.41	-731.67	-941.07	1,145.82	1,089.18	56.65	20.227	
7,300.00	7,154.41	7,189.56	6,948.35	28.76	30.62	-82.65	-695.52	-945.90	1,152.46	1,095.79	56.66	20.339	
7,350.00	7,186.26	7,237.43	6,976.92	28.79	30.57	-81.97	-657.37	-950.31	1,158.59	1,101.91	56.68	20.441	
7,400.00	7,215.35	7,285.27	7,002.91	28.82	30.50	-81.36	-617.42	-954.27	1,164.19	1,107.49	56.70	20.531	
7,450.00	7,241.54	7,333.07	7,026.19	28.85	30.44	-80.82	-575.82	-957.77	1,169.23	1,112.50	56.74	20.607	
7,500.00	7,264.69	7,380.85	7,046.67	28.90	30.36	-80.35	-532.77	-960.80	1,173.70	1,116.91	56.79	20.667	
7,550.00	7,284.70	7,428.61	7,064.27	28.95	30.28	-79.95	-488.46	-963.35	1,177.56	1,120.70	56.86	20.710	
7,600.00	7,301.47	7,476.34	7,078.91	29.01	30.20	-79.61	-443.09	-965.39	1,180.79	1,123.84	56.95	20.734	
7,650.00	7,314.91	7,524.05	7,090.54	29.08	30.12	-79.33	-396.85	-966.93	1,183.39	1,126.32	57.06	20.738	
7,700.00	7,324.96	7,571.73	7,099.10	29.16	30.05	-79.12	-349.96	-967.96	1,185.33	1,128.13	57.20	20.722	
7,750.00	7,331.58	7,619.39	7,104.56	29.25	29.97	-78.97	-302.63	-968.47	1,186.62	1,129.25	57.37	20.685	
7,800.00	7,334.72	7,667.02	7,106.90	29.36	29.90	-78.89	-255.07	-968.46	1,187.24	1,129.68	57.55	20.628	
7,820.07	7,335.00	7,686.48	7,107.00	29.41	29.87	-78.88	-235.60	-968.32	1,187.30	1,129.66	57.64	20.599	
7,900.00	7,335.00	7,766.42	7,107.00	29.62	29.78	-78.88	-155.67	-967.66	1,187.30	1,129.24	58.06	20.451	
8,000.00	7,335.00	7,866.42	7,107.00	29.96	29.73	-78.88	-55.67	-966.83	1,187.30	1,128.59	58.71	20.223	
8,100.00	7,335.00	7,966.42	7,107.00	30.39	29.78	-78.88	44.32	-966.00	1,187.30	1,127.78	59.52	19.948	
8,200.00	7,335.00	8,066.42	7,107.00	30.88	29.98	-78.88	144.32	-965.18	1,187.30	1,126.82	60.48	19.632	
8,300.00	7,335.00	8,166.42	7,107.00	31.45	30.37	-78.88	244.32	-964.35	1,187.30	1,125.72	61.58	19.281	
8,400.00	7,335.00	8,266.42	7,107.00	32.09	30.91	-78.88	344.31	-963.53	1,187.30	1,124.48	62.81	18.902	
8,500.00	7,335.00	8,366.42	7,107.00	32.80	31.57	-78.88	444.31	-962.70	1,187.30	1,123.12	64.18	18.500	
8,600.00	7,335.00	8,466.42	7,107.00	33.56	32.32	-78.88	544.31	-961.87	1,187.29	1,121.64	65.66	18.083	
8,700.00	7,335.00	8,566.42	7,107.00	34.38	33.13	-78.88	644.30	-961.05	1,187.29	1,120.05	67.25	17.655	

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 3J-4H-N165 - Slot RUEGGE 3J
<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 3J-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: 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	7,335.00	8,666.42	7,107.00	35.25	34.00	-78.88	744.30	-960.22	1,187.29	1,118.35	68.94	17.221		
8,900.00	7,335.00	8,766.42	7,107.00	36.16	34.92	-78.88	844.30	-959.39	1,187.29	1,116.56	70.73	16.785		
9,000.00	7,335.00	8,866.42	7,107.00	37.13	35.89	-78.88	944.29	-958.57	1,187.29	1,114.68	72.61	16.351		
9,100.00	7,335.00	8,966.42	7,107.00	38.13	36.90	-78.88	1,044.29	-957.74	1,187.29	1,112.72	74.58	15.921		
9,200.00	7,335.00	9,066.42	7,107.00	39.17	37.94	-78.88	1,144.29	-956.91	1,187.29	1,110.68	76.61	15.497		
9,300.00	7,335.00	9,166.42	7,107.00	40.25	39.02	-78.88	1,244.28	-956.09	1,187.29	1,108.57	78.72	15.082		
9,400.00	7,335.00	9,266.42	7,107.00	41.35	40.13	-78.88	1,344.28	-955.26	1,187.29	1,106.40	80.89	14.677		
9,500.00	7,335.00	9,366.42	7,107.00	42.49	41.27	-78.88	1,444.28	-954.43	1,187.29	1,104.17	83.12	14.283		
9,600.00	7,335.00	9,466.42	7,107.00	43.66	42.44	-78.88	1,544.27	-953.61	1,187.29	1,101.88	85.41	13.901		
9,700.00	7,335.00	9,566.42	7,107.00	44.85	43.63	-78.88	1,644.27	-952.78	1,187.29	1,099.54	87.75	13.531		
9,800.00	7,335.00	9,666.42	7,107.00	46.06	44.84	-78.88	1,744.27	-951.95	1,187.29	1,097.16	90.13	13.173		
9,900.00	7,335.00	9,766.42	7,107.00	47.29	46.08	-78.88	1,844.26	-951.13	1,187.29	1,094.73	92.56	12.828		
10,000.00	7,335.00	9,866.42	7,107.00	48.55	47.33	-78.88	1,944.26	-950.30	1,187.29	1,092.27	95.02	12.495		
10,100.00	7,335.00	9,966.42	7,107.00	49.82	48.60	-78.88	2,044.26	-949.47	1,187.29	1,089.76	97.52	12.174		
10,200.00	7,335.00	10,066.42	7,107.00	51.11	49.89	-78.88	2,144.25	-948.65	1,187.29	1,087.23	100.06	11.866		
10,300.00	7,335.00	10,166.42	7,107.00	52.41	51.19	-78.88	2,244.25	-947.82	1,187.29	1,084.66	102.63	11.569		
10,400.00	7,335.00	10,266.42	7,107.00	53.73	52.51	-78.88	2,344.25	-946.99	1,187.29	1,082.06	105.23	11.283		
10,500.00	7,335.00	10,366.42	7,107.00	55.07	53.84	-78.88	2,444.24	-946.17	1,187.29	1,079.44	107.85	11.009		
10,600.00	7,335.00	10,466.42	7,107.00	56.41	55.19	-78.88	2,544.24	-945.34	1,187.29	1,076.79	110.50	10.745		
10,700.00	7,335.00	10,566.42	7,107.00	57.77	56.54	-78.88	2,644.24	-944.51	1,187.29	1,074.12	113.17	10.491		
10,800.00	7,335.00	10,666.42	7,107.00	59.14	57.91	-78.88	2,744.23	-943.69	1,187.29	1,071.42	115.86	10.247		
10,900.00	7,335.00	10,766.42	7,107.00	60.51	59.28	-78.88	2,844.23	-942.86	1,187.29	1,068.71	118.58	10.013		
11,000.00	7,335.00	10,866.42	7,107.00	61.90	60.67	-78.88	2,944.23	-942.03	1,187.29	1,065.98	121.31	9.787		
11,100.00	7,335.00	10,966.42	7,107.00	63.30	62.06	-78.88	3,044.22	-941.21	1,187.29	1,063.22	124.06	9.570		
11,200.00	7,335.00	11,066.42	7,107.00	64.70	63.46	-78.88	3,144.22	-940.38	1,187.29	1,060.46	126.83	9.361		
11,300.00	7,335.00	11,166.42	7,107.00	66.12	64.87	-78.88	3,244.22	-939.55	1,187.29	1,057.67	129.61	9.160		
11,400.00	7,335.00	11,266.42	7,107.00	67.53	66.29	-78.88	3,344.21	-938.73	1,187.29	1,054.88	132.41	8.967		
11,500.00	7,335.00	11,366.42	7,107.00	68.96	67.72	-78.88	3,444.21	-937.90	1,187.29	1,052.07	135.22	8.781		
11,600.00	7,335.00	11,466.42	7,107.00	70.39	69.15	-78.88	3,544.20	-937.08	1,187.28	1,049.24	138.04	8.601		
11,700.00	7,335.00	11,566.42	7,107.00	71.83	70.58	-78.88	3,644.20	-936.25	1,187.28	1,046.41	140.88	8.428		
11,800.00	7,335.00	11,666.42	7,107.00	73.28	72.02	-78.88	3,744.20	-935.42	1,187.28	1,043.56	143.72	8.261		
11,900.00	7,335.00	11,766.42	7,107.00	74.73	73.47	-78.88	3,844.19	-934.60	1,187.28	1,040.70	146.58	8.100		
12,000.00	7,335.00	11,866.42	7,107.00	76.18	74.92	-78.88	3,944.19	-933.77	1,187.28	1,037.84	149.45	7.945		
12,100.00	7,335.00	11,966.42	7,107.00	77.64	76.38	-78.88	4,044.19	-932.94	1,187.28	1,034.96	152.32	7.795		
12,167.72	7,335.00	12,034.14	7,107.00	78.63	77.30	-78.88	4,111.90	-932.38	1,187.28	1,033.12	154.17	7.701		
12,188.01	7,335.00	12,031.04	7,107.00	78.93	77.26	-78.88	4,108.80	-932.41	1,187.51	1,032.98	154.53	7.684 SF		



# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well RUEGGE 3J-4H-N165 - Slot RUEGGE 3J
<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 3J-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: 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	1.00	1.00	0.00	0.00	-98.45	-2.94	-19.78	20.00				
100.00	100.00	101.00	101.00	0.14	0.14	-98.45	-2.94	-19.78	20.00	19.72	0.28	71.531	
200.00	200.00	201.00	201.00	0.50	0.50	-98.45	-2.94	-19.78	20.00	19.00	1.00	20.070	
200.00	200.00	201.00	201.00	0.50	0.50	-98.45	-2.94	-19.78	20.00	19.00	1.00	20.070	CC
300.00	299.98	300.98	300.98	0.84	0.86	96.46	-2.94	-19.78	20.12	18.42	1.70	11.846	ES
400.00	399.84	400.84	400.84	1.19	1.22	110.51	-2.94	-19.78	21.35	18.95	2.40	8.886	
500.00	499.45	500.45	500.45	1.55	1.57	128.89	-2.94	-19.78	25.74	22.62	3.12	8.243	
600.00	598.70	600.30	599.70	1.93	1.93	144.59	-2.94	-19.78	34.73	30.88	3.85	9.019	
651.76	649.89	650.89	650.89	2.13	2.11	150.69	-2.94	-19.78	41.24	37.01	4.23	9.756	
700.00	697.53	701.47	698.53	2.33	2.29	155.11	-2.94	-19.78	48.00	43.42	4.59	10.470	
800.00	796.29	802.71	797.29	2.74	2.66	161.16	-2.94	-19.78	62.62	57.32	5.31	11.797	
900.00	895.05	903.95	896.05	3.16	3.02	164.90	-2.94	-19.78	77.67	71.63	6.03	12.873	
1,000.00	993.81	1,005.19	994.81	3.57	3.38	167.42	-2.94	-19.78	92.93	86.17	6.76	13.749	
1,100.00	1,092.57	1,106.43	1,093.57	4.00	3.75	169.23	-2.94	-19.78	108.32	100.83	7.49	14.468	
1,200.00	1,191.33	1,192.33	1,192.33	4.42	4.05	170.59	-2.94	-19.78	123.79	115.63	8.16	15.170	
1,300.00	1,290.09	1,294.26	1,294.24	4.84	4.40	171.21	-4.32	-20.50	138.27	129.38	8.88	15.567	
1,400.00	1,388.85	1,397.10	1,396.95	5.27	4.74	170.71	-8.95	-22.91	150.30	140.71	9.60	15.664	
1,500.00	1,487.61	1,500.37	1,499.82	5.70	5.09	169.31	-16.90	-27.04	159.93	149.62	10.32	15.503	
1,600.00	1,586.36	1,603.79	1,602.46	6.12	5.44	167.11	-28.15	-32.89	167.31	156.26	11.05	15.142	
1,700.00	1,685.12	1,707.10	1,704.46	6.55	5.81	164.13	-42.66	-40.43	172.71	160.91	11.80	14.638	
1,800.00	1,783.88	1,810.03	1,805.43	6.98	6.19	160.36	-60.35	-49.63	176.53	163.95	12.57	14.039	
1,900.00	1,882.64	1,909.22	1,902.37	7.41	6.57	156.40	-78.98	-59.31	180.13	166.75	13.37	13.468	
2,000.00	1,981.40	2,008.38	1,999.29	7.84	6.97	152.61	-97.60	-68.99	184.57	170.37	14.19	13.003	
2,100.00	2,080.16	2,107.54	2,096.21	8.26	7.37	149.01	-116.22	-78.66	189.78	174.75	15.03	12.625	
2,200.00	2,178.92	2,206.71	2,193.12	8.69	7.79	145.62	-134.84	-88.34	195.71	179.83	15.89	12.321	
2,300.00	2,277.68	2,305.87	2,290.04	9.12	8.21	142.43	-153.45	-98.02	202.30	185.55	16.75	12.077	
2,400.00	2,376.44	2,405.03	2,386.96	9.55	8.63	139.45	-172.07	-107.70	209.47	191.84	17.62	11.885	
2,500.00	2,475.20	2,504.19	2,483.87	9.98	9.06	136.67	-190.69	-117.38	217.17	198.67	18.51	11.736	
2,600.00	2,573.96	2,603.35	2,580.79	10.41	9.50	134.09	-209.31	-127.06	225.36	205.96	19.39	11.621	
2,700.00	2,672.72	2,702.52	2,677.70	10.84	9.94	131.69	-227.93	-136.73	233.97	213.68	20.28	11.536	
2,800.00	2,771.48	2,801.68	2,774.62	11.27	10.38	129.46	-246.55	-146.41	242.96	221.78	21.17	11.475	
2,900.00	2,870.23	2,900.84	2,871.54	11.70	10.82	127.39	-265.17	-156.09	252.29	230.22	22.07	11.433	
3,000.00	2,968.99	3,000.00	2,968.45	12.13	11.27	125.47	-283.79	-165.77	261.93	238.97	22.96	11.408	
3,100.00	3,067.75	3,099.17	3,065.37	12.56	11.72	123.69	-302.41	-175.45	271.84	247.99	23.85	11.396	
3,200.00	3,166.51	3,201.67	3,162.29	12.99	12.19	122.03	-321.03	-185.13	281.99	257.23	24.76	11.388	
3,300.00	3,265.27	3,302.51	3,259.20	13.42	12.65	120.49	-339.65	-194.80	292.36	266.70	25.66	11.393	
3,400.00	3,364.03	3,396.65	3,356.12	13.85	13.08	119.06	-358.27	-204.48	302.93	276.40	26.53	11.419	
3,500.00	3,462.79	3,504.19	3,453.04	14.28	13.58	117.72	-376.89	-214.16	313.67	286.22	27.46	11.424	
3,600.00	3,561.55	3,605.02	3,549.95	14.71	14.05	116.47	-395.51	-223.84	324.58	296.22	28.35	11.447	
3,700.00	3,660.31	3,705.86	3,646.87	15.14	14.51	115.31	-414.13	-233.52	335.62	306.37	29.25	11.474	
3,800.00	3,759.07	3,806.70	3,743.78	15.57	14.98	114.21	-432.75	-243.20	346.80	316.65	30.14	11.505	
3,900.00	3,857.83	3,907.54	3,840.70	16.00	15.45	113.19	-451.37	-252.87	358.09	327.05	31.04	11.537	
4,000.00	3,956.59	4,008.37	3,937.62	16.43	15.92	112.23	-469.99	-262.55	369.49	337.56	31.93	11.572	
4,100.00	4,055.34	4,109.21	4,034.53	16.86	16.39	111.32	-488.61	-272.23	380.98	348.16	32.82	11.608	
4,200.00	4,154.10	4,189.95	4,131.45	17.29	16.77	110.47	-507.22	-281.91	392.56	358.95	33.62	11.678	
4,300.00	4,252.86	4,289.11	4,228.37	17.72	17.24	109.67	-525.84	-291.59	404.23	369.73	34.50	11.717	
4,400.00	4,351.62	4,388.27	4,325.28	18.15	17.70	108.91	-544.46	-301.27	415.97	380.59	35.38	11.757	
4,500.00	4,450.38	4,487.44	4,422.20	18.58	18.17	108.20	-563.08	-310.94	427.77	391.51	36.26	11.798	
4,600.00	4,549.14	4,586.60	4,519.12	19.01	18.63	107.52	-581.70	-320.62	439.64	402.50	37.14	11.838	
4,700.00	4,647.90	4,685.76	4,616.03	19.44	19.10	106.88	-600.32	-330.30	451.57	413.55	38.02	11.878	
4,800.00	4,746.66	4,784.92	4,712.95	19.87	19.57	106.27	-618.94	-339.98	463.55	424.65	38.89	11.918	
4,900.00	4,845.42	4,884.09	4,809.87	20.30	20.04	105.69	-637.56	-349.66	475.58	435.81	39.77	11.958	

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 3J-4H-N165 - Slot RUEGGE 3J
<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 3J-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
5,000.00	4,944.18	4,983.25	4,906.78	20.73	20.50	105.14	-656.18	-359.34	487.65	447.00	40.65	11.997	
5,100.00	5,042.94	5,082.41	5,003.70	21.16	20.97	104.62	-674.80	-369.02	499.77	458.24	41.52	12.036	
5,200.00	5,141.70	5,181.57	5,100.61	21.59	21.44	104.12	-693.42	-378.69	511.92	469.52	42.40	12.074	
5,300.00	5,240.46	5,280.73	5,197.53	22.02	21.91	103.64	-712.04	-388.37	524.11	480.84	43.27	12.112	
5,400.00	5,339.21	5,379.90	5,294.45	22.45	22.38	103.19	-730.66	-398.05	536.34	492.19	44.15	12.149	
5,500.00	5,437.97	5,479.06	5,391.36	22.88	22.85	102.76	-749.28	-407.73	548.60	503.58	45.02	12.185	
5,600.00	5,536.73	5,578.22	5,488.28	23.31	23.32	102.34	-767.90	-417.41	560.88	514.99	45.89	12.221	
5,700.00	5,635.49	5,677.38	5,585.20	23.74	23.79	101.95	-786.52	-427.09	573.20	526.43	46.77	12.256	
5,800.00	5,734.25	5,776.55	5,682.11	24.18	24.26	101.57	-805.14	-436.76	585.54	537.90	47.64	12.291	
5,900.00	5,833.01	5,875.71	5,779.03	24.61	24.73	101.20	-823.76	-446.44	597.90	549.39	48.51	12.325	
6,000.00	5,931.77	5,974.87	5,875.95	25.04	25.20	100.85	-842.38	-456.12	610.29	560.91	49.39	12.358	
6,100.00	6,030.53	6,074.03	5,972.86	25.47	25.68	100.52	-860.99	-465.80	622.70	572.44	50.26	12.390	
6,200.00	6,129.29	6,173.19	6,069.78	25.90	26.15	100.19	-879.61	-475.48	635.13	584.00	51.13	12.422	
6,300.00	6,228.05	6,272.36	6,166.69	26.33	26.62	99.88	-898.23	-485.16	647.58	595.58	52.00	12.453	
6,400.00	6,326.81	6,371.52	6,263.61	26.76	27.09	99.59	-916.85	-494.83	660.05	607.18	52.87	12.484	
6,500.00	6,425.57	6,470.68	6,360.53	27.19	27.56	99.30	-935.47	-504.51	672.53	618.79	53.74	12.514	
6,584.00	6,508.53	6,554.08	6,442.08	27.55	27.96	99.08	-950.92	-512.65	683.03	628.56	54.47	12.539	
6,600.00	6,524.35	6,570.04	6,457.77	27.62	28.03	100.95	-953.35	-514.22	685.03	630.42	54.61	12.545	
6,650.00	6,574.08	6,619.95	6,507.14	27.81	28.23	113.73	-958.69	-519.11	691.32	636.32	55.00	12.570	
6,700.00	6,624.03	6,669.88	6,556.79	27.97	28.41	-166.90	-960.56	-524.01	697.64	642.31	55.32	12.610	
6,750.00	6,673.96	6,719.85	6,606.48	28.10	28.56	-110.47	-958.95	-528.88	703.95	648.36	55.60	12.662	
6,800.00	6,723.62	6,769.86	6,655.99	28.22	28.68	-100.58	-953.86	-533.70	710.24	654.41	55.83	12.722	
6,850.00	6,772.76	6,819.92	6,705.07	28.32	28.79	-96.61	-945.30	-538.45	716.45	660.42	56.03	12.787	
6,900.00	6,821.16	6,870.04	6,753.50	28.40	28.88	-94.35	-933.30	-543.11	722.58	666.37	56.20	12.856	
6,950.00	6,868.58	6,920.21	6,801.02	28.47	28.95	-92.81	-917.90	-547.66	728.58	672.23	56.35	12.929	
7,000.00	6,914.78	6,970.44	6,847.42	28.54	29.01	-91.65	-899.18	-552.06	734.43	677.95	56.47	13.005	
7,050.00	6,959.54	7,020.74	6,892.46	28.59	29.05	-90.71	-877.21	-556.31	740.09	683.52	56.58	13.082	
7,100.00	7,002.64	7,071.11	6,935.91	28.63	29.08	-89.93	-852.09	-560.37	745.55	688.89	56.66	13.159	
7,150.00	7,043.88	7,121.55	6,977.55	28.67	29.10	-89.25	-823.91	-564.23	750.77	694.04	56.73	13.235	
7,200.00	7,083.04	7,172.06	7,017.18	28.70	29.10	-88.66	-792.82	-567.87	755.73	698.94	56.78	13.309	
7,250.00	7,119.94	7,222.63	7,054.57	28.73	29.10	-88.13	-758.96	-571.26	760.40	703.56	56.84	13.379	
7,300.00	7,154.41	7,273.28	7,089.55	28.76	29.09	-87.67	-722.48	-574.40	764.76	707.88	56.88	13.444	
7,350.00	7,186.26	7,323.98	7,121.91	28.79	29.08	-87.25	-683.56	-577.26	768.80	711.86	56.93	13.504	
7,400.00	7,215.35	7,374.75	7,151.48	28.82	29.06	-86.88	-642.40	-579.82	772.48	715.49	56.99	13.555	
7,450.00	7,241.54	7,425.56	7,178.10	28.85	29.04	-86.55	-599.18	-582.08	775.80	718.74	57.05	13.598	
7,500.00	7,264.69	7,476.42	7,201.63	28.90	29.02	-86.27	-554.15	-584.02	778.73	721.59	57.13	13.630	
7,550.00	7,284.70	7,527.32	7,221.94	28.95	29.01	-86.02	-507.51	-585.63	781.26	724.03	57.23	13.652	
7,600.00	7,301.47	7,578.25	7,238.91	29.01	29.01	-85.81	-459.52	-586.90	783.38	726.04	57.34	13.661	
7,650.00	7,314.91	7,629.20	7,252.45	29.08	29.01	-85.64	-410.42	-587.83	785.08	727.60	57.48	13.658	
7,700.00	7,324.96	7,680.16	7,262.48	29.16	29.02	-85.51	-360.47	-588.40	786.35	728.70	57.64	13.641	
7,750.00	7,331.58	7,731.12	7,268.96	29.25	29.05	-85.41	-309.94	-588.62	787.18	729.35	57.83	13.612	
7,800.00	7,334.72	7,782.07	7,271.84	29.36	29.09	-85.35	-259.09	-588.48	787.57	729.53	58.04	13.569	
7,820.07	7,335.00	7,802.41	7,272.00	29.41	29.11	-85.34	-238.74	-588.33	787.61	729.48	58.13	13.549	
7,900.00	7,335.00	7,882.35	7,272.00	29.62	29.23	-85.34	-158.81	-587.67	787.61	729.05	58.56	13.450	
8,000.00	7,335.00	7,982.35	7,272.00	29.96	29.46	-85.34	-58.81	-586.84	787.61	728.38	59.23	13.298	
8,100.00	7,335.00	8,082.35	7,272.00	30.39	29.80	-85.34	41.18	-586.02	787.61	727.55	60.06	13.114	
8,200.00	7,335.00	8,182.35	7,272.00	30.88	30.23	-85.34	141.18	-585.19	787.61	726.57	61.04	12.903	
8,300.00	7,335.00	8,282.35	7,272.00	31.45	30.75	-85.34	241.18	-584.36	787.61	725.44	62.16	12.670	
8,400.00	7,335.00	8,382.35	7,272.00	32.09	31.36	-85.34	341.17	-583.54	787.61	724.18	63.42	12.418	
8,500.00	7,335.00	8,482.35	7,272.00	32.80	32.03	-85.34	441.17	-582.71	787.61	722.79	64.81	12.152	
8,600.00	7,335.00	8,582.35	7,272.00	33.56	32.78	-85.34	541.17	-581.88	787.60	721.28	66.32	11.876	
8,700.00	7,335.00	8,682.35	7,272.00	34.38	33.59	-85.34	641.16	-581.06	787.60	719.66	67.94	11.592	

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 3J-4H-N165 - Slot RUEGGE 3J
<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 3J-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						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	7,335.00	8,782.35	7,272.00	35.25	34.45	-85.34	741.16	-580.23	787.60	717.94	69.67	11.305		
8,900.00	7,335.00	8,882.35	7,272.00	36.16	35.37	-85.34	841.16	-579.40	787.60	716.12	71.49	11.017		
9,000.00	7,335.00	8,982.35	7,272.00	37.13	36.32	-85.34	941.15	-578.58	787.60	714.21	73.40	10.730		
9,100.00	7,335.00	9,082.35	7,272.00	38.13	37.33	-85.34	1,041.15	-577.75	787.60	712.21	75.39	10.447		
9,200.00	7,335.00	9,182.35	7,272.00	39.17	38.37	-85.34	1,141.14	-576.93	787.60	710.14	77.46	10.168		
9,300.00	7,335.00	9,282.35	7,272.00	40.25	39.44	-85.34	1,241.14	-576.10	787.60	708.00	79.60	9.894		
9,400.00	7,335.00	9,382.35	7,272.00	41.35	40.55	-85.34	1,341.14	-575.27	787.60	705.80	81.81	9.627		
9,500.00	7,335.00	9,482.35	7,272.00	42.49	41.69	-85.34	1,441.13	-574.45	787.60	703.53	84.07	9.368		
9,600.00	7,335.00	9,582.35	7,272.00	43.66	42.86	-85.34	1,541.13	-573.62	787.60	701.21	86.39	9.117		
9,700.00	7,335.00	9,682.35	7,272.00	44.85	44.05	-85.34	1,641.13	-572.79	787.60	698.84	88.76	8.873		
9,800.00	7,335.00	9,782.35	7,272.00	46.06	45.26	-85.34	1,741.12	-571.97	787.60	696.42	91.18	8.638		
9,900.00	7,335.00	9,882.35	7,272.00	47.29	46.50	-85.34	1,841.12	-571.14	787.60	693.96	93.64	8.411		
10,000.00	7,335.00	9,982.35	7,272.00	48.55	47.75	-85.34	1,941.12	-570.31	787.60	691.46	96.14	8.192		
10,100.00	7,335.00	10,082.35	7,272.00	49.82	49.03	-85.34	2,041.11	-569.49	787.60	688.92	98.68	7.981		
10,200.00	7,335.00	10,182.35	7,272.00	51.11	50.32	-85.34	2,141.11	-568.66	787.60	686.35	101.25	7.779		
10,300.00	7,335.00	10,282.35	7,272.00	52.41	51.63	-85.34	2,241.11	-567.83	787.60	683.75	103.85	7.584		
10,400.00	7,335.00	10,382.35	7,272.00	53.73	52.95	-85.34	2,341.10	-567.01	787.60	681.12	106.49	7.396		
10,500.00	7,335.00	10,482.35	7,272.00	55.07	54.28	-85.34	2,441.10	-566.18	787.60	678.46	109.14	7.216		
10,600.00	7,335.00	10,582.35	7,272.00	56.41	55.63	-85.34	2,541.10	-565.36	787.60	675.77	111.83	7.043		
10,700.00	7,335.00	10,682.35	7,272.00	57.77	56.99	-85.34	2,641.09	-564.53	787.60	673.06	114.54	6.876		
10,800.00	7,335.00	10,782.35	7,272.00	59.14	58.36	-85.34	2,741.09	-563.70	787.60	670.33	117.27	6.716		
10,900.00	7,335.00	10,882.35	7,272.00	60.51	59.74	-85.34	2,841.09	-562.88	787.60	667.58	120.02	6.562		
11,000.00	7,335.00	10,982.35	7,272.00	61.90	61.12	-85.34	2,941.08	-562.05	787.60	664.82	122.78	6.414		
11,100.00	7,335.00	11,082.35	7,272.00	63.30	62.52	-85.34	3,041.08	-561.22	787.60	662.03	125.57	6.272		
11,200.00	7,335.00	11,182.35	7,272.00	64.70	63.93	-85.34	3,141.08	-560.40	787.60	659.23	128.37	6.135		
11,300.00	7,335.00	11,282.35	7,272.00	66.12	65.34	-85.34	3,241.07	-559.57	787.60	656.41	131.19	6.003		
11,400.00	7,335.00	11,382.35	7,272.00	67.53	66.76	-85.34	3,341.07	-558.74	787.60	653.57	134.02	5.877		
11,500.00	7,335.00	11,482.35	7,272.00	68.96	68.19	-85.34	3,441.07	-557.92	787.60	650.73	136.87	5.754		
11,600.00	7,335.00	11,582.35	7,272.00	70.39	69.62	-85.34	3,541.06	-557.09	787.60	647.87	139.73	5.637		
11,700.00	7,335.00	11,682.35	7,272.00	71.83	71.06	-85.34	3,641.06	-556.26	787.60	645.00	142.60	5.523		
11,800.00	7,335.00	11,782.35	7,272.00	73.28	72.51	-85.34	3,741.06	-555.44	787.60	642.11	145.48	5.414		
11,900.00	7,335.00	11,882.35	7,272.00	74.73	73.96	-85.34	3,841.05	-554.61	787.60	639.22	148.38	5.308		
12,000.00	7,335.00	11,982.35	7,272.00	76.18	75.42	-85.34	3,941.05	-553.79	787.60	636.32	151.28	5.206		
12,100.00	7,335.00	12,082.35	7,272.00	77.64	76.88	-85.34	4,041.05	-552.96	787.60	633.41	154.19	5.108		
12,174.32	7,335.00	12,156.66	7,272.00	78.73	77.96	-85.34	4,115.36	-552.34	787.60	631.24	156.36	5.037		
12,188.01	7,335.00	12,154.60	7,272.00	78.93	77.93	-85.34	4,113.29	-552.36	787.75	631.19	156.56	5.032 SF		

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 3J-4H-N165 - Slot RUEGGE 3J
<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 3J-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: 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	-98.46	-1.47	-9.89	10.00				
100.00	100.00	101.00	101.00	0.14	0.14	-98.46	-1.47	-9.89	10.00	9.72	0.28	35.768	
200.00	200.00	201.00	201.00	0.50	0.50	-98.46	-1.47	-9.89	10.00	9.00	1.00	10.036	
200.00	200.00	201.00	201.00	0.50	0.50	-98.46	-1.47	-9.89	10.00	9.00	1.00	10.035 CC	
300.00	299.98	300.98	300.98	0.84	0.86	101.33	-1.47	-9.89	10.20	8.50	1.70	6.003 ES	
400.00	399.84	400.87	400.85	1.19	1.20	117.59	-3.18	-10.37	12.15	9.77	2.39	5.090	
500.00	499.45	500.83	500.66	1.55	1.55	126.30	-8.24	-11.80	16.20	13.11	3.09	5.247	
600.00	598.70	600.81	600.26	1.93	1.90	129.47	-16.66	-14.16	21.84	18.03	3.82	5.725	
651.76	649.89	652.55	651.66	2.13	2.09	129.89	-22.33	-15.76	25.32	21.11	4.21	6.019	
700.00	697.53	700.79	699.49	2.33	2.27	129.26	-28.42	-17.47	28.62	24.05	4.57	6.258	
800.00	796.29	800.74	798.20	2.74	2.66	124.27	-43.45	-21.69	35.01	29.64	5.37	6.522	
900.00	895.05	900.47	896.51	3.16	3.07	119.18	-59.60	-26.23	41.48	35.29	6.19	6.703	
1,000.00	993.81	1,000.21	994.82	3.57	3.48	115.47	-75.76	-30.78	48.18	41.16	7.02	6.863	
1,100.00	1,092.57	1,099.94	1,093.14	4.00	3.90	112.68	-91.91	-35.32	55.04	47.18	7.86	7.002	
1,200.00	1,191.33	1,200.33	1,191.45	4.42	4.33	110.52	-108.06	-39.86	62.00	53.29	8.71	7.120	
1,300.00	1,290.09	1,300.60	1,289.76	4.84	4.76	108.79	-124.22	-44.40	69.03	59.47	9.56	7.222	
1,400.00	1,388.85	1,400.86	1,388.07	5.27	5.19	107.38	-140.37	-48.94	76.11	65.70	10.41	7.311	
1,500.00	1,487.61	1,501.13	1,486.38	5.70	5.62	106.21	-156.52	-53.48	83.22	71.96	11.27	7.388	
1,600.00	1,586.36	1,601.40	1,584.69	6.12	6.05	105.23	-172.68	-58.02	90.37	78.25	12.12	7.456	
1,700.00	1,685.12	1,701.66	1,683.00	6.55	6.49	104.39	-188.83	-62.57	97.54	84.56	12.98	7.516	
1,800.00	1,783.88	1,801.93	1,781.32	6.98	6.92	103.66	-204.99	-67.11	104.73	90.89	13.84	7.570	
1,900.00	1,882.64	1,897.80	1,879.63	7.41	7.34	103.03	-221.14	-71.65	111.93	97.26	14.67	7.627	
2,000.00	1,981.40	2,002.46	1,977.94	7.84	7.79	102.48	-237.29	-76.19	119.14	103.59	15.55	7.661	
2,100.00	2,080.16	2,102.73	2,076.25	8.26	8.23	101.99	-253.45	-80.73	126.37	109.96	16.41	7.700	
2,200.00	2,178.92	2,203.00	2,174.56	8.69	8.67	101.55	-269.60	-85.27	133.60	116.33	17.27	7.735	
2,300.00	2,277.68	2,303.26	2,272.87	9.12	9.11	101.15	-285.75	-89.81	140.84	122.71	18.13	7.768	
2,400.00	2,376.44	2,403.53	2,371.18	9.55	9.54	100.80	-301.91	-94.36	148.08	129.09	18.99	7.797	
2,500.00	2,475.20	2,503.80	2,469.50	9.98	9.98	100.48	-318.06	-98.90	155.33	135.48	19.85	7.824	
2,600.00	2,573.96	2,604.06	2,567.81	10.41	10.42	100.18	-334.22	-103.44	162.59	141.88	20.71	7.849	
2,700.00	2,672.72	2,704.33	2,666.12	10.84	10.86	99.92	-350.37	-107.98	169.85	148.27	21.57	7.873	
2,800.00	2,771.48	2,804.60	2,764.43	11.27	11.30	99.67	-366.52	-112.52	177.11	154.67	22.44	7.894	
2,900.00	2,870.23	2,904.86	2,862.74	11.70	11.74	99.44	-382.68	-117.06	184.37	161.08	23.30	7.914	
3,000.00	2,968.99	3,005.13	2,961.05	12.13	12.18	99.23	-398.83	-121.60	191.64	167.48	24.16	7.933	
3,100.00	3,067.75	3,105.40	3,059.36	12.56	12.61	99.04	-414.98	-126.15	198.91	173.89	25.02	7.950	
3,200.00	3,166.51	3,205.66	3,157.68	12.99	13.05	98.86	-431.14	-130.69	206.18	180.30	25.88	7.966	
3,300.00	3,265.27	3,294.07	3,255.99	13.42	13.44	98.69	-447.29	-135.23	213.46	186.77	26.69	7.997	
3,400.00	3,364.03	3,406.20	3,354.30	13.85	13.93	98.53	-463.45	-139.77	220.73	193.13	27.60	7.996	
3,500.00	3,462.79	3,506.46	3,452.61	14.28	14.37	98.39	-479.60	-144.31	228.01	199.54	28.47	8.010	
3,600.00	3,561.55	3,606.73	3,550.92	14.71	14.81	98.25	-495.75	-148.85	235.29	205.96	29.33	8.022	
3,700.00	3,660.31	3,707.00	3,649.23	15.14	15.25	98.12	-511.91	-153.39	242.57	212.38	30.19	8.035	
3,800.00	3,759.07	3,807.26	3,747.55	15.57	15.69	98.00	-528.06	-157.93	249.85	218.80	31.05	8.046	
3,900.00	3,857.83	3,907.53	3,845.86	16.00	16.13	97.88	-544.21	-162.48	257.13	225.22	31.91	8.057	
4,000.00	3,956.59	4,007.80	3,944.17	16.43	16.57	97.77	-560.37	-167.02	264.41	231.64	32.78	8.067	
4,100.00	4,055.34	4,108.07	4,042.48	16.86	17.01	97.67	-576.52	-171.56	271.70	238.06	33.64	8.077	
4,200.00	4,154.10	4,208.33	4,140.79	17.29	17.45	97.57	-592.68	-176.10	278.98	244.48	34.50	8.086	
4,300.00	4,252.86	4,308.60	4,239.10	17.72	17.89	97.48	-608.83	-180.64	286.27	250.90	35.36	8.095	
4,400.00	4,351.62	4,408.87	4,337.41	18.15	18.33	97.39	-624.98	-185.18	293.55	257.33	36.23	8.103	
4,500.00	4,450.38	4,509.13	4,435.73	18.58	18.77	97.31	-641.14	-189.72	300.84	263.75	37.09	8.111	
4,600.00	4,549.14	4,609.40	4,534.04	19.01	19.21	97.23	-657.29	-194.27	308.13	270.18	37.95	8.119	
4,700.00	4,647.90	4,709.67	4,632.35	19.44	19.65	97.15	-673.44	-198.81	315.42	276.60	38.81	8.127	
4,800.00	4,746.66	4,809.93	4,730.66	19.87	20.09	97.08	-689.60	-203.35	322.70	283.03	39.68	8.134	
4,900.00	4,845.42	4,889.80	4,828.97	20.30	20.44	97.01	-705.75	-207.89	329.99	289.54	40.45	8.158	

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 3J-4H-N165 - Slot RUEGGE 3J
<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 3J-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: 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	4,944.18	4,989.53	4,927.28	20.73	20.88	96.94	-721.91	-212.43	337.28	295.97	41.31	8.165	
5,100.00	5,042.94	5,089.27	5,025.59	21.16	21.32	96.88	-738.06	-216.97	344.57	302.40	42.17	8.171	
5,200.00	5,141.70	5,189.00	5,123.91	21.59	21.76	96.82	-754.21	-221.51	351.86	308.83	43.03	8.177	
5,300.00	5,240.46	5,288.73	5,222.22	22.02	22.19	96.76	-770.37	-226.06	359.15	315.26	43.89	8.183	
5,400.00	5,339.21	5,388.47	5,320.53	22.45	22.63	96.70	-786.52	-230.60	366.44	321.69	44.75	8.189	
5,500.00	5,437.97	5,488.20	5,418.84	22.88	23.07	96.65	-802.67	-235.14	373.74	328.12	45.61	8.194	
5,600.00	5,536.73	5,587.93	5,517.15	23.31	23.51	96.60	-818.83	-239.68	381.03	334.56	46.47	8.199	
5,700.00	5,635.49	5,687.67	5,615.46	23.74	23.95	96.55	-834.98	-244.22	388.32	340.99	47.33	8.204	
5,800.00	5,734.25	5,787.40	5,713.77	24.18	24.39	96.50	-851.14	-248.76	395.61	347.42	48.19	8.209	
5,900.00	5,833.01	5,887.13	5,812.09	24.61	24.82	96.45	-867.29	-253.30	402.90	353.85	49.05	8.214	
6,000.00	5,931.77	5,986.87	5,910.40	25.04	25.26	96.41	-883.44	-257.84	410.20	360.28	49.91	8.218	
6,100.00	6,030.53	6,086.60	6,008.71	25.47	25.70	96.37	-899.60	-262.39	417.49	366.72	50.77	8.223	
6,200.00	6,129.29	6,186.33	6,107.02	25.90	26.14	96.32	-915.75	-266.93	424.78	373.15	51.63	8.227	
6,300.00	6,228.05	6,286.07	6,205.33	26.33	26.58	96.28	-931.90	-271.47	432.08	379.58	52.49	8.231	
6,400.00	6,326.81	6,385.80	6,303.64	26.76	27.01	96.24	-948.06	-276.01	439.37	386.02	53.35	8.235	
6,500.00	6,425.57	6,488.49	6,405.46	27.19	27.42	96.82	-964.96	-280.67	446.39	392.18	54.21	8.234	
6,584.00	6,508.53	6,573.17	6,490.00	27.55	27.67	98.64	-958.95	-284.46	451.96	397.11	54.85	8.240	
6,600.00	6,524.35	6,588.90	6,505.66	27.62	27.71	100.89	-957.67	-285.15	453.05	398.09	54.96	8.243	
6,650.00	6,574.08	6,637.58	6,553.90	27.81	27.81	114.87	-951.50	-287.26	456.69	401.42	55.26	8.264	
6,700.00	6,624.03	6,685.54	6,600.90	27.97	27.91	-164.60	-942.24	-289.29	460.60	405.09	55.50	8.299	
6,750.00	6,673.96	6,732.83	6,646.54	28.10	27.98	-107.05	-930.05	-291.24	464.76	409.07	55.68	8.346	
6,800.00	6,723.62	6,779.49	6,690.69	28.22	28.05	-96.09	-915.08	-293.09	469.12	413.30	55.81	8.405	
6,850.00	6,772.76	6,825.56	6,733.24	28.32	28.10	-91.08	-897.52	-294.85	473.64	417.74	55.90	8.473	
6,900.00	6,821.16	6,871.08	6,774.08	28.40	28.14	-87.84	-877.51	-296.52	478.28	422.34	55.95	8.549	
6,950.00	6,868.58	6,916.09	6,813.14	28.47	28.18	-85.37	-855.22	-298.09	483.00	427.05	55.95	8.633	
7,000.00	6,914.78	6,960.62	6,850.33	28.54	28.21	-83.33	-830.78	-299.55	487.74	431.82	55.92	8.722	
7,050.00	6,959.54	7,004.71	6,885.60	28.59	28.23	-81.57	-804.36	-300.92	492.47	436.61	55.86	8.817	
7,100.00	7,002.64	7,048.40	6,918.87	28.63	28.24	-80.02	-776.09	-302.17	497.14	441.37	55.77	8.915	
7,150.00	7,043.88	7,091.72	6,950.10	28.67	28.26	-78.63	-746.10	-303.33	501.70	446.04	55.65	9.015	
7,200.00	7,083.04	7,134.69	6,979.24	28.70	28.27	-77.38	-714.54	-304.37	506.11	450.59	55.53	9.115	
7,250.00	7,119.94	7,177.36	7,006.24	28.73	28.29	-76.25	-681.53	-305.31	510.35	454.95	55.39	9.213	
7,300.00	7,154.41	7,219.74	7,031.08	28.76	28.30	-75.23	-647.21	-306.14	514.36	459.10	55.26	9.308	
7,350.00	7,186.26	7,261.87	7,053.72	28.79	28.32	-74.32	-611.69	-306.86	518.12	462.98	55.14	9.397	
7,400.00	7,215.35	7,303.78	7,074.13	28.82	28.34	-73.51	-575.10	-307.47	521.59	466.57	55.03	9.479	
7,450.00	7,241.54	7,345.48	7,092.28	28.85	28.36	-72.80	-537.56	-307.98	524.75	469.82	54.94	9.552	
7,500.00	7,264.69	7,387.01	7,108.16	28.90	28.40	-72.17	-499.20	-308.37	527.58	472.70	54.88	9.614	
7,550.00	7,284.70	7,428.39	7,121.75	28.95	28.44	-71.64	-460.12	-308.66	530.04	475.19	54.85	9.663	
7,600.00	7,301.47	7,469.64	7,133.03	29.01	28.48	-71.20	-420.45	-308.84	532.13	477.26	54.87	9.698	
7,650.00	7,314.91	7,510.79	7,141.99	29.08	28.54	-70.84	-380.29	-308.91	533.82	478.89	54.93	9.719	
7,700.00	7,324.96	7,551.86	7,148.62	29.16	28.60	-70.57	-339.77	-308.87	535.10	480.07	55.03	9.724	
7,750.00	7,331.58	7,592.86	7,152.91	29.25	28.67	-70.39	-299.00	-308.72	535.96	480.78	55.18	9.712	
7,800.00	7,334.72	7,633.83	7,154.87	29.36	28.75	-70.30	-258.08	-308.47	536.40	481.02	55.39	9.685	
7,820.07	7,335.00	7,650.86	7,155.00	29.41	28.79	-70.28	-241.06	-308.34	536.46	480.98	55.48	9.669	
7,900.00	7,335.00	7,730.79	7,155.00	29.62	29.00	-70.28	-161.13	-307.68	536.46	480.52	55.93	9.591	
8,000.00	7,335.00	7,830.79	7,155.00	29.96	29.33	-70.28	-61.13	-306.85	536.46	479.83	56.63	9.473	
8,100.00	7,335.00	7,930.79	7,155.00	30.39	29.74	-70.28	38.87	-306.03	536.46	478.98	57.48	9.333	
8,200.00	7,335.00	8,030.79	7,155.00	30.88	30.23	-70.28	138.86	-305.20	536.46	477.99	58.47	9.175	
8,300.00	7,335.00	8,130.79	7,155.00	31.45	30.80	-70.28	238.86	-304.37	536.46	476.87	59.59	9.002	
8,400.00	7,335.00	8,230.79	7,155.00	32.09	31.44	-70.28	338.86	-303.55	536.46	475.61	60.85	8.817	
8,500.00	7,335.00	8,330.79	7,155.00	32.80	32.15	-70.28	438.85	-302.72	536.46	474.24	62.22	8.622	
8,600.00	7,335.00	8,430.79	7,155.00	33.56	32.92	-70.28	538.85	-301.89	536.46	472.75	63.71	8.420	
8,700.00	7,335.00	8,530.79	7,155.00	34.38	33.75	-70.28	638.85	-301.07	536.46	471.16	65.30	8.215	

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 3J-4H-N165 - Slot RUEGGE 3J
<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 3J-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: 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	7,335.00	8,630.79	7,155.00	35.25	34.63	-70.28	738.84	-300.24	536.46	469.47		66.99	8.008
8,900.00	7,335.00	8,730.79	7,155.00	36.16	35.56	-70.28	838.84	-299.41	536.46	467.68		68.77	7.800
9,000.00	7,335.00	8,830.79	7,155.00	37.13	36.53	-70.28	938.84	-298.59	536.46	465.82		70.64	7.594
9,100.00	7,335.00	8,930.79	7,155.00	38.13	37.54	-70.28	1,038.83	-297.76	536.46	463.88		72.58	7.391
9,200.00	7,335.00	9,030.79	7,155.00	39.17	38.59	-70.28	1,138.83	-296.94	536.46	461.86		74.59	7.192
9,300.00	7,335.00	9,130.79	7,155.00	40.25	39.68	-70.28	1,238.83	-296.11	536.46	459.78		76.67	6.997
9,400.00	7,335.00	9,230.79	7,155.00	41.35	40.80	-70.28	1,338.82	-295.28	536.46	457.65		78.81	6.807
9,500.00	7,335.00	9,330.79	7,155.00	42.49	41.95	-70.28	1,438.82	-294.46	536.46	455.45		81.01	6.622
9,600.00	7,335.00	9,430.79	7,155.00	43.66	43.12	-70.28	1,538.82	-293.63	536.46	453.20		83.25	6.444
9,700.00	7,335.00	9,530.79	7,155.00	44.85	44.32	-70.28	1,638.81	-292.80	536.46	450.91		85.55	6.271
9,800.00	7,335.00	9,630.79	7,155.00	46.06	45.54	-70.28	1,738.81	-291.98	536.46	448.57		87.88	6.104
9,900.00	7,335.00	9,730.79	7,155.00	47.29	46.79	-70.28	1,838.81	-291.15	536.46	446.20		90.26	5.944
10,000.00	7,335.00	9,830.79	7,155.00	48.55	48.05	-70.28	1,938.80	-290.32	536.46	443.78		92.67	5.789
10,100.00	7,335.00	9,930.79	7,155.00	49.82	49.33	-70.28	2,038.80	-289.50	536.46	441.34		95.12	5.640
10,200.00	7,335.00	10,030.79	7,155.00	51.11	50.63	-70.28	2,138.80	-288.67	536.46	438.86		97.60	5.496
10,300.00	7,335.00	10,130.79	7,155.00	52.41	51.94	-70.28	2,238.79	-287.85	536.46	436.35		100.11	5.359
10,400.00	7,335.00	10,230.79	7,155.00	53.73	53.27	-70.28	2,338.79	-287.02	536.46	433.81		102.64	5.226
10,500.00	7,335.00	10,330.79	7,155.00	55.07	54.61	-70.28	2,438.79	-286.19	536.45	431.25		105.21	5.099
10,600.00	7,335.00	10,430.79	7,155.00	56.41	55.96	-70.28	2,538.78	-285.37	536.45	428.66		107.79	4.977
10,700.00	7,335.00	10,530.79	7,155.00	57.77	57.33	-70.28	2,638.78	-284.54	536.45	426.06		110.40	4.859
10,800.00	7,335.00	10,630.79	7,155.00	59.14	58.70	-70.28	2,738.78	-283.71	536.45	423.43		113.02	4.746
10,900.00	7,335.00	10,730.79	7,155.00	60.51	60.09	-70.28	2,838.77	-282.89	536.45	420.79		115.67	4.638
11,000.00	7,335.00	10,830.79	7,155.00	61.90	61.48	-70.28	2,938.77	-282.06	536.45	418.12		118.33	4.534
11,100.00	7,335.00	10,930.79	7,155.00	63.30	62.88	-70.28	3,038.77	-281.23	536.45	415.44		121.01	4.433
11,200.00	7,335.00	11,030.79	7,155.00	64.70	64.29	-70.28	3,138.76	-280.41	536.45	412.75		123.71	4.337
11,300.00	7,335.00	11,130.79	7,155.00	66.12	65.71	-70.28	3,238.76	-279.58	536.45	410.04		126.41	4.244
11,400.00	7,335.00	11,230.79	7,155.00	67.53	67.14	-70.28	3,338.76	-278.76	536.45	407.32		129.14	4.154
11,500.00	7,335.00	11,330.79	7,155.00	68.96	68.57	-70.28	3,438.75	-277.93	536.45	404.58		131.87	4.068
11,600.00	7,335.00	11,430.79	7,155.00	70.39	70.01	-70.28	3,538.75	-277.10	536.45	401.83		134.62	3.985
11,700.00	7,335.00	11,530.79	7,155.00	71.83	71.45	-70.28	3,638.75	-276.28	536.45	399.08		137.38	3.905
11,800.00	7,335.00	11,630.79	7,155.00	73.28	72.90	-70.28	3,738.74	-275.45	536.45	396.31		140.15	3.828
11,900.00	7,335.00	11,730.79	7,155.00	74.73	74.35	-70.28	3,838.74	-274.62	536.45	393.53		142.92	3.753
12,000.00	7,335.00	11,830.79	7,155.00	76.18	75.81	-70.28	3,938.73	-273.80	536.45	390.74		145.71	3.682
12,100.00	7,335.00	11,930.79	7,155.00	77.64	77.28	-70.28	4,038.73	-272.97	536.45	387.94		148.51	3.612
12,188.01	7,335.00	12,018.80	7,155.00	78.93	78.57	-70.28	4,126.74	-272.24	536.45	385.48		150.98	3.553 SF

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well RUEGGE 3J-4H-N165 - Slot RUEGGE 3J
<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 3J-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							
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	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	
108.09	108.09	108.09	108.09	0.17	0.17	81.55	1.47	9.89	10.00	9.67	0.33	29.939 CC	
200.00	200.00	199.96	199.95	0.50	0.49	83.96	1.06	10.05	10.11	9.12	0.99	10.255 ES	
300.00	299.98	299.82	299.75	0.84	0.84	-77.63	-2.18	11.32	11.03	9.35	1.68	6.580	
400.00	399.84	399.61	399.29	1.19	1.20	-71.93	-8.65	13.85	12.78	10.40	2.38	5.365	
500.00	499.45	499.32	498.46	1.55	1.57	-68.85	-18.34	17.63	15.23	12.12	3.11	4.892	
600.00	598.70	598.96	597.12	1.93	1.97	-67.69	-31.23	22.67	18.32	14.44	3.87	4.728	
651.76	649.89	650.53	647.99	2.13	2.18	-67.65	-39.13	25.76	20.14	15.86	4.28	4.704	
700.00	697.53	701.26	695.50	2.33	2.39	-68.10	-46.77	28.75	21.82	17.14	4.68	4.663	
800.00	796.29	801.32	793.98	2.74	2.82	-68.85	-62.61	34.94	25.32	19.82	5.50	4.604	
900.00	895.05	898.62	892.46	3.16	3.24	-69.41	-78.45	41.13	28.81	22.50	6.32	4.562	
1,000.00	993.81	1,001.44	990.95	3.57	3.68	-69.86	-94.28	47.31	32.31	25.15	7.16	4.511	
1,100.00	1,092.57	1,101.50	1,089.43	4.00	4.12	-70.22	-110.12	53.50	35.82	27.81	8.00	4.475	
1,200.00	1,191.33	1,201.56	1,187.91	4.42	4.55	-70.51	-125.96	59.69	39.32	30.47	8.85	4.445	
1,300.00	1,290.09	1,301.63	1,286.39	4.84	4.99	-70.76	-141.79	65.88	42.82	33.13	9.69	4.418	
1,400.00	1,388.85	1,401.69	1,384.87	5.27	5.43	-70.96	-157.63	72.07	46.33	35.79	10.54	4.395	
1,500.00	1,487.61	1,501.75	1,483.35	5.70	5.87	-71.14	-173.47	78.26	49.83	38.44	11.39	4.375	
1,600.00	1,586.36	1,601.81	1,581.83	6.12	6.31	-71.30	-189.30	84.45	53.33	41.10	12.24	4.358	
1,700.00	1,685.12	1,701.87	1,680.32	6.55	6.75	-71.43	-205.14	90.64	56.84	43.75	13.09	4.342	
1,800.00	1,783.88	1,801.93	1,778.80	6.98	7.19	-71.56	-220.98	96.83	60.35	46.40	13.94	4.328	
1,900.00	1,882.64	1,898.00	1,877.28	7.41	7.61	-71.66	-236.81	103.02	63.85	49.07	14.78	4.321	
2,000.00	1,981.40	2,002.06	1,975.76	7.84	8.07	-71.76	-252.65	109.21	67.36	51.71	15.65	4.304	
2,100.00	2,080.16	2,097.88	2,074.24	8.26	8.49	-71.85	-268.48	115.40	70.86	54.38	16.48	4.299	
2,200.00	2,178.92	2,202.18	2,172.72	8.69	8.95	-71.92	-284.32	121.59	74.37	57.01	17.36	4.285	
2,300.00	2,277.68	2,302.24	2,271.20	9.12	9.40	-72.00	-300.16	127.78	77.88	59.67	18.21	4.276	
2,400.00	2,376.44	2,402.30	2,369.69	9.55	9.84	-72.06	-315.99	133.97	81.38	62.32	19.06	4.269	
2,500.00	2,475.20	2,502.36	2,468.17	9.98	10.28	-72.12	-331.83	140.15	84.89	64.97	19.92	4.261	
2,600.00	2,573.96	2,602.43	2,566.65	10.41	10.72	-72.18	-347.67	146.34	88.40	67.62	20.78	4.255	
2,700.00	2,672.72	2,702.49	2,665.13	10.84	11.16	-72.23	-363.50	152.53	91.90	70.27	21.63	4.249	
2,800.00	2,771.48	2,802.55	2,763.61	11.27	11.60	-72.27	-379.34	158.72	95.41	72.92	22.49	4.243	
2,900.00	2,870.23	2,897.39	2,862.09	11.70	12.02	-72.32	-395.18	164.91	98.92	75.60	23.32	4.242	
3,000.00	2,968.99	3,002.67	2,960.57	12.13	12.49	-72.36	-411.01	171.10	102.42	78.22	24.20	4.233	
3,100.00	3,067.75	3,102.73	3,059.06	12.56	12.93	-72.40	-426.85	177.29	105.93	80.88	25.05	4.228	
3,200.00	3,166.51	3,202.79	3,157.54	12.99	13.37	-72.43	-442.69	183.48	109.44	83.53	25.91	4.224	
3,300.00	3,265.27	3,302.86	3,256.02	13.42	13.81	-72.47	-458.52	189.67	112.94	86.18	26.77	4.220	
3,400.00	3,364.03	3,402.92	3,354.50	13.85	14.26	-72.50	-474.36	195.86	116.45	88.83	27.62	4.216	
3,500.00	3,462.79	3,502.98	3,452.98	14.28	14.70	-72.53	-490.19	202.05	119.96	91.48	28.48	4.212	
3,600.00	3,561.55	3,603.04	3,551.46	14.71	15.14	-72.55	-506.03	208.24	123.46	94.13	29.33	4.209	
3,700.00	3,660.31	3,703.10	3,649.94	15.14	15.58	-72.58	-521.87	214.43	126.97	96.78	30.19	4.206	
3,800.00	3,759.07	3,803.16	3,748.43	15.57	16.03	-72.61	-537.70	220.62	130.48	99.43	31.05	4.202	
3,900.00	3,857.83	3,903.23	3,846.91	16.00	16.47	-72.63	-553.54	226.81	133.99	102.08	31.90	4.200	
4,000.00	3,956.59	4,003.29	3,945.39	16.43	16.91	-72.65	-569.38	233.00	137.49	104.73	32.76	4.197	
4,100.00	4,055.34	4,103.35	4,043.87	16.86	17.35	-72.67	-585.21	239.18	141.00	107.38	33.62	4.194	
4,200.00	4,154.10	4,203.41	4,142.35	17.29	17.80	-72.69	-601.05	245.37	144.51	110.03	34.47	4.192	
4,300.00	4,252.86	4,303.47	4,240.83	17.72	18.24	-72.71	-616.89	251.56	148.02	112.68	35.33	4.189	
4,400.00	4,351.62	4,403.53	4,339.31	18.15	18.68	-72.73	-632.72	257.75	151.52	115.33	36.19	4.187	
4,500.00	4,450.38	4,503.59	4,437.80	18.58	19.12	-72.75	-648.56	263.94	155.03	117.98	37.05	4.185	
4,600.00	4,549.14	4,603.66	4,536.28	19.01	19.56	-72.77	-664.40	270.13	158.54	120.63	37.90	4.183	
4,700.00	4,647.90	4,703.72	4,634.76	19.44	20.01	-72.78	-680.23	276.32	162.04	123.28	38.76	4.181	
4,800.00	4,746.66	4,803.78	4,733.24	19.87	20.45	-72.80	-696.07	282.51	165.55	125.94	39.62	4.179	
4,900.00	4,845.42	4,903.84	4,831.72	20.30	20.89	-72.81	-711.90	288.70	169.06	128.59	40.47	4.177	

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 3J-4H-N165 - Slot RUEGGE 3J
<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 3J-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: 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	4,944.18	5,003.90	4,930.20	20.73	21.33	-72.83	-727.74	294.89	172.57	131.24	41.33	4.175	
5,100.00	5,042.94	5,096.04	5,028.68	21.16	21.74	-72.84	-743.58	301.08	176.07	133.92	42.15	4.177	
5,200.00	5,141.70	5,195.97	5,127.17	21.59	22.18	-72.85	-759.41	307.27	179.58	136.57	43.01	4.175	
5,300.00	5,240.46	5,304.09	5,225.65	22.02	22.66	-72.87	-775.25	313.46	183.09	139.19	43.90	4.170	
5,400.00	5,339.21	5,404.15	5,324.13	22.45	23.10	-72.88	-791.09	319.65	186.60	141.84	44.76	4.169	
5,500.00	5,437.97	5,495.79	5,422.61	22.88	23.51	-72.89	-806.92	325.84	190.10	144.52	45.58	4.171	
5,600.00	5,536.73	5,604.27	5,521.09	23.31	23.99	-72.90	-822.76	332.02	193.61	147.14	46.47	4.166	
5,700.00	5,635.49	5,704.33	5,619.57	23.74	24.43	-72.91	-838.60	338.21	197.12	149.79	47.33	4.165	
5,800.00	5,734.25	5,795.61	5,718.06	24.18	24.84	-72.92	-854.43	344.40	200.63	152.48	48.15	4.167	
5,900.00	5,833.01	5,904.46	5,816.54	24.61	25.32	-72.93	-870.27	350.59	204.13	155.09	49.05	4.162	
6,000.00	5,931.77	6,004.52	5,915.02	25.04	25.76	-72.94	-886.11	356.78	207.64	157.74	49.90	4.161	
6,100.00	6,030.53	6,095.42	6,013.50	25.47	26.16	-72.95	-901.94	362.97	211.15	160.43	50.72	4.163	
6,200.00	6,129.29	6,195.36	6,111.98	25.90	26.60	-72.96	-917.78	369.16	214.66	163.08	51.58	4.162	
6,300.00	6,228.05	6,304.70	6,210.46	26.33	27.09	-72.97	-933.62	375.35	218.16	165.69	52.47	4.158	
6,400.00	6,326.81	6,395.24	6,308.94	26.76	27.49	-72.98	-949.45	381.54	221.67	168.38	53.29	4.160	
6,500.00	6,425.57	6,497.62	6,410.42	27.19	27.90	-74.22	-960.83	387.96	224.72	170.50	54.22	4.145	
6,584.00	6,508.53	6,581.81	6,494.38	27.55	28.14	-77.92	-959.44	393.36	226.87	171.80	55.07	4.120	
6,600.00	6,524.35	6,597.45	6,509.92	27.62	28.18	-77.15	-958.10	394.37	227.38	172.15	55.23	4.117	
6,650.00	6,574.08	6,645.81	6,557.76	27.81	28.29	-67.75	-951.79	397.49	229.35	173.69	55.66	4.121	
6,700.00	6,624.03	6,693.46	6,604.37	27.97	28.38	8.32	-942.42	400.56	231.87	175.89	55.98	4.142	
6,750.00	6,673.96	6,740.44	6,649.61	28.10	28.45	61.55	-930.17	403.56	234.89	178.70	56.19	4.180	
6,800.00	6,723.62	6,786.79	6,693.37	28.22	28.52	68.36	-915.19	406.49	238.35	182.05	56.30	4.234	
6,850.00	6,772.76	6,832.54	6,735.53	28.32	28.57	69.38	-897.66	409.34	242.17	185.87	56.30	4.301	
6,900.00	6,821.16	6,877.74	6,775.99	28.40	28.61	68.84	-877.72	412.11	246.29	190.09	56.20	4.383	
6,950.00	6,868.58	6,922.43	6,814.69	28.47	28.64	67.73	-855.53	414.77	250.64	194.64	56.00	4.476	
7,000.00	6,914.78	6,966.65	6,851.53	28.54	28.67	66.40	-831.24	417.34	255.14	199.43	55.71	4.580	
7,050.00	6,959.54	7,010.42	6,886.47	28.59	28.69	65.01	-805.00	419.80	259.72	204.38	55.34	4.693	
7,100.00	7,002.64	7,053.79	6,919.44	28.63	28.70	63.62	-776.93	422.14	264.32	209.42	54.91	4.814	
7,150.00	7,043.88	7,096.79	6,950.40	28.67	28.71	62.29	-747.18	424.38	268.88	214.46	54.42	4.941	
7,200.00	7,083.04	7,139.45	6,979.29	28.70	28.72	61.04	-715.88	426.49	273.34	219.44	53.90	5.071	
7,250.00	7,119.94	7,181.79	7,006.08	28.73	28.73	59.88	-683.16	428.48	277.64	224.28	53.37	5.203	
7,300.00	7,154.41	7,223.86	7,030.74	28.76	28.74	58.81	-649.14	430.34	281.74	228.91	52.83	5.333	
7,350.00	7,186.26	7,265.67	7,053.23	28.79	28.75	57.85	-613.94	432.08	285.59	233.28	52.31	5.460	
7,400.00	7,215.35	7,307.26	7,073.53	28.82	28.76	56.99	-577.68	433.68	289.15	237.33	51.82	5.580	
7,450.00	7,241.54	7,348.65	7,091.62	28.85	28.78	56.23	-540.49	435.15	292.39	241.00	51.39	5.690	
7,500.00	7,264.69	7,389.87	7,107.47	28.90	28.80	55.57	-502.47	436.48	295.28	244.26	51.02	5.788	
7,550.00	7,284.70	7,430.94	7,121.06	28.95	28.83	55.02	-463.73	437.67	297.78	247.06	50.72	5.871	
7,600.00	7,301.47	7,471.89	7,132.38	29.01	28.86	54.56	-424.40	438.72	299.89	249.37	50.52	5.936	
7,650.00	7,314.91	7,512.74	7,141.43	29.08	28.90	54.20	-384.58	439.63	301.58	251.16	50.41	5.982	
7,700.00	7,324.96	7,553.51	7,148.18	29.16	28.95	53.93	-344.38	440.40	302.83	252.42	50.41	6.007	
7,750.00	7,331.58	7,594.24	7,152.63	29.25	29.01	53.77	-303.91	441.02	303.64	253.12	50.51	6.011	
7,800.00	7,334.72	7,634.93	7,154.78	29.36	29.07	53.70	-263.28	441.49	304.00	253.27	50.73	5.993	
7,820.07	7,335.00	7,654.13	7,155.00	29.41	29.11	53.70	-247.25	441.64	304.02	253.16	50.85	5.978	
7,900.00	7,335.00	7,730.90	7,155.00	29.62	29.29	53.70	-167.32	442.30	304.02	252.68	51.34	5.922	
8,000.00	7,335.00	7,830.90	7,155.00	29.96	29.59	53.70	-67.33	443.12	304.02	251.95	52.06	5.839	
8,100.00	7,335.00	7,930.90	7,155.00	30.39	29.97	53.70	32.67	443.95	304.02	251.10	52.92	5.745	
8,200.00	7,335.00	8,030.90	7,155.00	30.88	30.45	53.70	132.67	444.78	304.02	250.12	53.90	5.641	
8,300.00	7,335.00	8,130.90	7,155.00	31.45	31.00	53.70	232.66	445.60	304.02	249.03	54.99	5.529	
8,400.00	7,335.00	8,230.90	7,155.00	32.09	31.62	53.70	332.66	446.43	304.02	247.82	56.19	5.410	
8,500.00	7,335.00	8,330.90	7,155.00	32.80	32.32	53.70	432.66	447.26	304.02	246.52	57.50	5.288	
8,600.00	7,335.00	8,430.90	7,155.00	33.56	33.08	53.70	532.65	448.08	304.02	245.12	58.90	5.162	
8,700.00	7,335.00	8,530.90	7,155.00	34.38	33.89	53.70	632.65	448.91	304.01	243.63	60.39	5.034	

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 3J-4H-N165 - Slot RUEGGE 3J
<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 3J-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							
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
8,800.00	7,335.00	8,630.90	7,155.00	35.25	34.77	53.70	732.65	449.73	304.01	242.06	61.96	4.907	
8,900.00	7,335.00	8,730.90	7,155.00	36.16	35.69	53.70	832.64	450.56	304.01	240.41	63.61	4.780	
9,000.00	7,335.00	8,830.90	7,155.00	37.13	36.65	53.70	932.64	451.39	304.01	238.69	65.33	4.654	
9,100.00	7,335.00	8,930.90	7,155.00	38.13	37.66	53.70	1,032.64	452.21	304.01	236.91	67.11	4.530	
9,200.00	7,335.00	9,030.90	7,155.00	39.17	38.70	53.70	1,132.63	453.04	304.01	235.06	68.95	4.409	
9,300.00	7,335.00	9,130.90	7,155.00	40.25	39.79	53.70	1,232.63	453.86	304.01	233.16	70.85	4.291	
9,400.00	7,335.00	9,230.90	7,155.00	41.35	40.90	53.70	1,332.63	454.69	304.01	231.21	72.80	4.176	
9,500.00	7,335.00	9,330.90	7,155.00	42.49	42.04	53.70	1,432.62	455.52	304.01	229.21	74.80	4.064	
9,600.00	7,335.00	9,430.90	7,155.00	43.66	43.21	53.70	1,532.62	456.34	304.01	227.17	76.84	3.956	
9,700.00	7,335.00	9,530.90	7,155.00	44.85	44.41	53.70	1,632.62	457.17	304.01	225.09	78.92	3.852	
9,800.00	7,335.00	9,630.90	7,155.00	46.06	45.62	53.70	1,732.61	458.00	304.01	222.97	81.04	3.751	
9,900.00	7,335.00	9,730.90	7,155.00	47.29	46.86	53.70	1,832.61	458.82	304.01	220.82	83.19	3.654	
10,000.00	7,335.00	9,830.90	7,155.00	48.55	48.12	53.70	1,932.61	459.65	304.01	218.64	85.38	3.561	
10,100.00	7,335.00	9,930.90	7,155.00	49.82	49.40	53.70	2,032.60	460.47	304.01	216.43	87.59	3.471	
10,200.00	7,335.00	10,030.90	7,155.00	51.11	50.69	53.70	2,132.60	461.30	304.01	214.19	89.83	3.384	
10,300.00	7,335.00	10,130.90	7,155.00	52.41	52.00	53.70	2,232.60	462.13	304.01	211.92	92.09	3.301	
10,400.00	7,335.00	10,230.90	7,155.00	53.73	53.33	53.70	2,332.59	462.95	304.01	209.63	94.38	3.221	
10,500.00	7,335.00	10,330.90	7,155.00	55.07	54.66	53.70	2,432.59	463.78	304.01	207.32	96.69	3.144	
10,600.00	7,335.00	10,430.90	7,155.00	56.41	56.01	53.70	2,532.59	464.60	304.01	204.99	99.02	3.070	
10,700.00	7,335.00	10,530.90	7,155.00	57.77	57.37	53.70	2,632.58	465.43	304.01	202.64	101.37	2.999	
10,800.00	7,335.00	10,630.90	7,155.00	59.14	58.74	53.70	2,732.58	466.26	304.01	200.28	103.74	2.931	
10,900.00	7,335.00	10,730.90	7,155.00	60.51	60.13	53.70	2,832.58	467.08	304.01	197.90	106.12	2.865	
11,000.00	7,335.00	10,830.90	7,155.00	61.90	61.52	53.70	2,932.57	467.91	304.01	195.50	108.51	2.802	
11,100.00	7,335.00	10,930.90	7,155.00	63.30	62.92	53.70	3,032.57	468.73	304.01	193.09	110.93	2.741	
11,200.00	7,335.00	11,030.90	7,155.00	64.70	64.32	53.70	3,132.57	469.56	304.01	190.66	113.35	2.682	
11,300.00	7,335.00	11,130.90	7,155.00	66.12	65.74	53.70	3,232.56	470.39	304.01	188.23	115.79	2.626	
11,400.00	7,335.00	11,230.90	7,155.00	67.53	67.16	53.70	3,332.56	471.21	304.01	185.78	118.24	2.571	
11,500.00	7,335.00	11,330.90	7,155.00	68.96	68.59	53.70	3,432.55	472.04	304.01	183.32	120.70	2.519	
11,600.00	7,335.00	11,430.90	7,155.00	70.39	70.03	53.70	3,532.55	472.87	304.01	180.85	123.17	2.468	
11,700.00	7,335.00	11,530.90	7,155.00	71.83	71.47	53.70	3,632.55	473.69	304.01	178.37	125.65	2.420	
11,800.00	7,335.00	11,630.90	7,155.00	73.28	72.91	53.70	3,732.54	474.52	304.01	175.88	128.14	2.373	
11,900.00	7,335.00	11,730.90	7,155.00	74.73	74.37	53.70	3,832.54	475.34	304.01	173.38	130.63	2.327	
12,000.00	7,335.00	11,830.90	7,155.00	76.18	75.82	53.70	3,932.54	476.17	304.01	170.87	133.14	2.283	
12,100.00	7,335.00	11,930.90	7,155.00	77.64	77.28	53.70	4,032.53	477.00	304.01	168.36	135.65	2.241	
12,188.01	7,335.00	12,018.91	7,155.00	78.93	78.57	53.70	4,120.54	477.72	304.01	166.14	137.87	2.205 SF	



# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well RUEGGE 3J-4H-N165 - Slot RUEGGE 3J
<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 3J-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: 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	2.94	19.78	20.00					
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		
104.21	104.21	104.21	104.21	0.15	0.15	81.55	2.94	19.78	20.00	19.69	0.31	65.321 CC		
200.00	200.00	199.81	199.80	0.50	0.49	82.57	2.62	20.07	20.24	19.25	0.99	20.521 ES		
300.00	299.98	299.35	299.29	0.84	0.84	-84.51	0.02	22.36	22.14	20.46	1.68	13.191		
400.00	399.84	398.78	398.47	1.19	1.20	-83.70	-5.15	26.93	25.82	23.44	2.38	10.833		
500.00	499.45	498.03	497.18	1.55	1.57	-84.40	-12.88	33.77	31.25	28.13	3.12	10.030		
600.00	598.70	597.06	595.25	1.93	1.96	-85.86	-23.14	42.84	38.43	34.55	3.88	9.909		
651.76	649.89	648.21	645.70	2.13	2.18	-86.72	-29.43	48.41	42.84	38.55	4.29	9.988		
700.00	697.53	695.82	692.52	2.33	2.38	-87.15	-35.89	54.12	47.40	42.73	4.68	10.137		
800.00	796.29	794.50	789.10	2.74	2.82	-85.83	-51.05	67.52	58.22	52.72	5.50	10.590		
900.00	895.05	906.16	886.14	3.16	3.34	-84.32	-66.96	81.59	69.60	63.21	6.39	10.890		
1,000.00	993.81	1,006.83	983.18	3.57	3.81	-83.23	-82.87	95.67	81.01	73.76	7.24	11.184		
1,100.00	1,092.57	1,107.49	1,080.22	4.00	4.29	-82.41	-98.79	109.74	92.44	84.34	8.10	11.411		
1,200.00	1,191.33	1,208.15	1,177.26	4.42	4.77	-81.77	-114.70	123.81	103.88	94.92	8.96	11.591		
1,300.00	1,290.09	1,308.82	1,274.30	4.84	5.25	-81.26	-130.61	137.88	115.34	105.51	9.83	11.738		
1,400.00	1,388.85	1,409.48	1,371.34	5.27	5.74	-80.84	-146.52	151.95	126.80	116.11	10.69	11.860		
1,500.00	1,487.61	1,489.86	1,468.38	5.70	6.12	-80.49	-162.44	166.02	138.27	126.81	11.47	12.057		
1,600.00	1,586.36	1,589.19	1,565.42	6.12	6.60	-80.20	-178.35	180.10	149.75	137.42	12.33	12.144		
1,700.00	1,685.12	1,688.53	1,662.45	6.55	7.09	-79.94	-194.26	194.17	161.23	148.03	13.19	12.220		
1,800.00	1,783.88	1,787.87	1,759.49	6.98	7.57	-79.72	-210.18	208.24	172.71	158.65	14.06	12.285		
1,900.00	1,882.64	1,887.20	1,856.53	7.41	8.05	-79.53	-226.09	222.31	184.19	169.26	14.92	12.343		
2,000.00	1,981.40	1,986.54	1,953.57	7.84	8.53	-79.36	-242.00	236.38	195.67	179.88	15.79	12.394		
2,100.00	2,080.16	2,085.88	2,050.61	8.26	9.02	-79.21	-257.91	250.45	207.16	190.50	16.65	12.439		
2,200.00	2,178.92	2,185.21	2,147.65	8.69	9.50	-79.07	-273.83	264.53	218.64	201.12	17.52	12.480		
2,300.00	2,277.68	2,284.55	2,244.69	9.12	9.98	-78.95	-289.74	278.60	230.13	211.75	18.39	12.517		
2,400.00	2,376.44	2,383.89	2,341.73	9.55	10.47	-78.84	-305.65	292.67	241.62	222.37	19.25	12.550		
2,500.00	2,475.20	2,483.22	2,438.77	9.98	10.95	-78.74	-321.57	306.74	253.11	232.99	20.12	12.580		
2,600.00	2,573.96	2,582.56	2,535.81	10.41	11.44	-78.65	-337.48	320.81	264.60	243.61	20.99	12.608		
2,700.00	2,672.72	2,681.90	2,632.84	10.84	11.92	-78.57	-353.39	334.88	276.09	254.24	21.85	12.634		
2,800.00	2,771.48	2,781.23	2,729.88	11.27	12.41	-78.49	-369.31	348.96	287.58	264.86	22.72	12.657		
2,900.00	2,870.23	2,880.57	2,826.92	11.70	12.89	-78.42	-385.22	363.03	299.07	275.48	23.59	12.679		
3,000.00	2,968.99	2,979.91	2,923.96	12.13	13.38	-78.35	-401.13	377.10	310.57	286.11	24.46	12.699		
3,100.00	3,067.75	3,079.25	3,021.00	12.56	13.86	-78.29	-417.04	391.17	322.06	296.73	25.32	12.717		
3,200.00	3,166.51	3,178.58	3,118.04	12.99	14.35	-78.23	-432.96	405.24	333.55	307.36	26.19	12.735		
3,300.00	3,265.27	3,277.92	3,215.08	13.42	14.83	-78.18	-448.87	419.31	345.04	317.98	27.06	12.751		
3,400.00	3,364.03	3,377.26	3,312.12	13.85	15.32	-78.13	-464.78	433.39	356.54	328.61	27.93	12.766		
3,500.00	3,462.79	3,476.59	3,409.16	14.28	15.81	-78.08	-480.70	447.46	368.03	339.24	28.80	12.780		
3,600.00	3,561.55	3,575.93	3,506.20	14.71	16.29	-78.04	-496.61	461.53	379.53	349.86	29.66	12.794		
3,700.00	3,660.31	3,675.27	3,603.23	15.14	16.78	-78.00	-512.52	475.60	391.02	360.49	30.53	12.806		
3,800.00	3,759.07	3,774.60	3,700.27	15.57	17.26	-77.96	-528.43	489.67	402.52	371.11	31.40	12.818		
3,900.00	3,857.83	3,873.94	3,797.31	16.00	17.75	-77.92	-544.35	503.74	414.01	381.74	32.27	12.829		
4,000.00	3,956.59	3,973.28	3,894.35	16.43	18.23	-77.89	-560.26	517.82	425.50	392.37	33.14	12.840		
4,100.00	4,055.34	4,072.61	3,991.39	16.86	18.72	-77.85	-576.17	531.89	437.00	402.99	34.01	12.850		
4,200.00	4,154.10	4,171.95	4,088.43	17.29	19.21	-77.82	-592.09	545.96	448.49	413.62	34.88	12.860		
4,300.00	4,252.86	4,271.29	4,185.47	17.72	19.69	-77.79	-608.00	560.03	459.99	424.24	35.74	12.869		
4,400.00	4,351.62	4,370.62	4,282.51	18.15	20.18	-77.76	-623.91	574.10	471.48	434.87	36.61	12.877		
4,500.00	4,450.38	4,469.96	4,379.55	18.58	20.67	-77.74	-639.83	588.17	482.98	445.50	37.48	12.885		
4,600.00	4,549.14	4,569.30	4,476.59	19.01	21.15	-77.71	-655.74	602.25	494.48	456.12	38.35	12.893		
4,700.00	4,647.90	4,668.63	4,573.63	19.44	21.64	-77.69	-671.65	616.32	505.97	466.75	39.22	12.901		
4,800.00	4,746.66	4,767.97	4,670.66	19.87	22.12	-77.66	-687.56	630.39	517.47	477.38	40.09	12.908		
4,900.00	4,845.42	4,867.31	4,767.70	20.30	22.61	-77.64	-703.48	644.46	528.96	488.00	40.96	12.915		

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 3J-4H-N165 - Slot RUEGGE 3J
<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 3J-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	
5,000.00	4,944.18	4,966.65	4,864.74	20.73	23.10	-77.62	-719.39	658.53	540.46	498.63	41.83	12.921	
5,100.00	5,042.94	5,065.98	4,961.78	21.16	23.58	-77.60	-735.30	672.60	551.95	509.26	42.70	12.927	
5,200.00	5,141.70	5,165.32	5,058.82	21.59	24.07	-77.58	-751.22	686.68	563.45	519.89	43.57	12.933	
5,300.00	5,240.46	5,264.66	5,155.86	22.02	24.55	-77.56	-767.13	700.75	574.95	530.51	44.43	12.939	
5,400.00	5,339.21	5,363.99	5,252.90	22.45	25.04	-77.54	-783.04	714.82	586.44	541.14	45.30	12.945	
5,500.00	5,437.97	5,463.33	5,349.94	22.88	25.53	-77.52	-798.96	728.89	597.94	551.77	46.17	12.950	
5,600.00	5,536.73	5,562.67	5,446.98	23.31	26.01	-77.51	-814.87	742.96	609.44	562.39	47.04	12.955	
5,700.00	5,635.49	5,662.00	5,544.02	23.74	26.50	-77.49	-830.78	757.03	620.93	573.02	47.91	12.960	
5,800.00	5,734.25	5,761.34	5,641.05	24.18	26.99	-77.48	-846.69	771.11	632.43	583.65	48.78	12.965	
5,900.00	5,833.01	5,860.68	5,738.09	24.61	27.47	-77.46	-862.61	785.18	643.92	594.27	49.65	12.969	
6,000.00	5,931.77	5,960.01	5,835.13	25.04	27.96	-77.45	-878.52	799.25	655.42	604.90	50.52	12.974	
6,100.00	6,030.53	6,059.35	5,932.17	25.47	28.45	-77.43	-894.43	813.32	666.92	615.53	51.39	12.978	
6,200.00	6,129.29	6,158.69	6,029.21	25.90	28.93	-77.42	-910.35	827.39	678.41	626.16	52.26	12.982	
6,300.00	6,228.05	6,258.02	6,126.25	26.33	29.42	-77.41	-926.26	841.46	689.91	636.78	53.13	12.986	
6,400.00	6,326.81	6,357.36	6,223.29	26.76	29.90	-77.39	-942.17	855.53	701.41	647.41	54.00	12.990	
6,500.00	6,425.57	6,457.23	6,320.98	27.19	30.38	-77.45	-957.29	869.71	712.89	658.02	54.87	12.992	
6,584.00	6,508.53	6,540.97	6,403.68	27.55	30.72	-78.17	-961.68	881.80	722.47	666.86	55.61	12.992	
6,600.00	6,524.35	6,556.66	6,419.19	27.62	30.77	-76.80	-961.41	884.08	724.31	668.56	55.75	12.993	
6,650.00	6,574.08	6,605.34	6,467.25	27.81	30.92	-65.58	-958.41	891.16	730.16	674.03	56.13	13.008	
6,700.00	6,624.03	6,653.51	6,514.49	27.97	31.04	12.25	-952.19	898.15	736.12	679.67	56.45	13.041	
6,750.00	6,673.96	6,701.19	6,560.74	28.10	31.14	67.15	-942.89	905.03	742.16	685.45	56.71	13.087	
6,800.00	6,723.62	6,748.42	6,605.84	28.22	31.22	75.55	-930.63	911.78	748.25	691.33	56.92	13.145	
6,850.00	6,772.76	6,795.22	6,649.64	28.32	31.29	78.07	-915.54	918.36	754.34	697.25	57.10	13.212	
6,900.00	6,821.16	6,841.62	6,692.01	28.40	31.34	78.92	-897.76	924.76	760.40	703.17	57.23	13.287	
6,950.00	6,868.58	6,887.66	6,732.83	28.47	31.37	79.09	-877.41	930.96	766.40	709.07	57.33	13.368	
7,000.00	6,914.78	6,933.35	6,771.98	28.54	31.40	78.93	-854.64	936.94	772.29	714.88	57.40	13.454	
7,050.00	6,959.54	6,978.73	6,809.36	28.59	31.41	78.61	-829.57	942.68	778.03	720.59	57.44	13.544	
7,100.00	7,002.64	7,023.82	6,844.86	28.63	31.41	78.20	-802.34	948.17	783.60	726.14	57.46	13.637	
7,150.00	7,043.88	7,068.64	6,878.40	28.67	31.40	77.75	-773.08	953.39	788.96	731.50	57.46	13.730	
7,200.00	7,083.04	7,113.22	6,909.90	28.70	31.38	77.28	-741.92	958.34	794.08	736.63	57.45	13.822	
7,250.00	7,119.94	7,157.59	6,939.28	28.73	31.36	76.81	-709.01	962.99	798.93	741.50	57.43	13.911	
7,300.00	7,154.41	7,201.76	6,966.47	28.76	31.32	76.36	-674.48	967.33	803.47	746.06	57.41	13.996	
7,350.00	7,186.26	7,245.77	6,991.40	28.79	31.29	75.94	-638.46	971.37	807.69	750.30	57.39	14.075	
7,400.00	7,215.35	7,289.62	7,014.03	28.82	31.24	75.55	-601.09	975.07	811.55	754.18	57.37	14.145	
7,450.00	7,241.54	7,333.34	7,034.29	28.85	31.20	75.20	-562.50	978.44	815.05	757.67	57.37	14.206	
7,500.00	7,264.69	7,376.95	7,052.14	28.90	31.15	74.88	-522.83	981.47	818.14	760.75	57.39	14.256	
7,550.00	7,284.70	7,420.46	7,067.53	28.95	31.10	74.62	-482.22	984.15	820.83	763.40	57.43	14.293	
7,600.00	7,301.47	7,463.91	7,080.44	29.01	31.05	74.40	-440.81	986.47	823.09	765.60	57.49	14.317	
7,650.00	7,314.91	7,507.29	7,090.82	29.08	31.00	74.22	-398.74	988.43	824.92	767.33	57.58	14.325	
7,700.00	7,324.96	7,550.64	7,098.66	29.16	30.95	74.10	-356.14	990.02	826.29	768.59	57.71	14.319	
7,750.00	7,331.58	7,593.97	7,103.93	29.25	30.91	74.03	-313.16	991.24	827.21	769.35	57.86	14.296	
7,800.00	7,334.72	7,637.30	7,106.62	29.36	30.86	74.00	-269.93	992.08	827.68	769.63	58.05	14.258	
7,820.07	7,335.00	7,654.69	7,106.98	29.41	30.85	74.01	-252.55	992.31	827.73	769.60	58.13	14.239	
7,900.00	7,335.00	7,733.71	7,107.00	29.62	30.80	74.01	-173.53	993.14	827.89	769.30	58.58	14.132	
8,000.00	7,335.00	7,833.71	7,107.00	29.96	30.80	74.02	-73.54	994.17	828.09	768.81	59.28	13.969	
8,100.00	7,335.00	7,933.71	7,107.00	30.39	30.87	74.02	26.46	995.21	828.29	768.16	60.12	13.776	
8,200.00	7,335.00	8,033.71	7,107.00	30.88	31.06	74.03	126.45	996.24	828.49	767.38	61.11	13.557	
8,300.00	7,335.00	8,133.71	7,107.00	31.45	31.38	74.03	226.44	997.27	828.69	766.46	62.23	13.316	
8,400.00	7,335.00	8,233.71	7,107.00	32.09	31.83	74.03	326.44	998.31	828.89	765.41	63.48	13.057	
8,500.00	7,335.00	8,333.71	7,107.00	32.80	32.41	74.04	426.43	999.34	829.09	764.24	64.85	12.785	
8,600.00	7,335.00	8,433.71	7,107.00	33.56	33.10	74.04	526.43	1,000.38	829.29	762.96	66.33	12.502	
8,700.00	7,335.00	8,533.70	7,107.00	34.38	33.87	74.05	626.42	1,001.41	829.49	761.57	67.92	12.213	

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 3J-4H-N165 - Slot RUEGGE 3J
<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 3J-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: 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		
8,800.00	7,335.00	8,633.70	7,107.00	35.25	34.70	74.05	726.42	1,002.45	829.69	760.08	69.61	11.920		
8,900.00	7,335.00	8,733.70	7,107.00	36.16	35.60	74.05	826.41	1,003.48	829.89	758.51	71.39	11.626		
9,000.00	7,335.00	8,833.70	7,107.00	37.13	36.54	74.06	926.41	1,004.52	830.09	756.84	73.25	11.333		
9,100.00	7,335.00	8,933.70	7,107.00	38.13	37.53	74.06	1,026.40	1,005.55	830.29	755.10	75.19	11.043		
9,200.00	7,335.00	9,033.70	7,107.00	39.17	38.57	74.07	1,126.39	1,006.59	830.49	753.29	77.20	10.757		
9,300.00	7,335.00	9,133.70	7,107.00	40.25	39.63	74.07	1,226.39	1,007.62	830.69	751.41	79.28	10.477		
9,400.00	7,335.00	9,233.70	7,107.00	41.35	40.73	74.07	1,326.38	1,008.66	830.89	749.47	81.43	10.204		
9,500.00	7,335.00	9,333.70	7,107.00	42.49	41.86	74.08	1,426.38	1,009.69	831.09	747.47	83.63	9.938		
9,600.00	7,335.00	9,433.70	7,107.00	43.66	43.02	74.08	1,526.37	1,010.73	831.30	745.41	85.88	9.680		
9,700.00	7,335.00	9,533.70	7,107.00	44.85	44.21	74.09	1,626.37	1,011.76	831.50	743.31	88.18	9.429		
9,800.00	7,335.00	9,633.70	7,107.00	46.06	45.41	74.09	1,726.36	1,012.80	831.70	741.17	90.53	9.187		
9,900.00	7,335.00	9,733.70	7,107.00	47.29	46.64	74.09	1,826.36	1,013.83	831.90	738.98	92.92	8.953		
10,000.00	7,335.00	9,833.70	7,107.00	48.55	47.89	74.10	1,926.35	1,014.86	832.10	736.75	95.34	8.727		
10,100.00	7,335.00	9,933.70	7,107.00	49.82	49.16	74.10	2,026.34	1,015.90	832.30	734.49	97.81	8.510		
10,200.00	7,335.00	10,033.70	7,107.00	51.11	50.44	74.11	2,126.34	1,016.93	832.50	732.19	100.30	8.300		
10,300.00	7,335.00	10,133.70	7,107.00	52.41	51.74	74.11	2,226.33	1,017.97	832.70	729.87	102.83	8.098		
10,400.00	7,335.00	10,233.70	7,107.00	53.73	53.05	74.11	2,326.33	1,019.00	832.90	727.51	105.38	7.903		
10,500.00	7,335.00	10,333.70	7,107.00	55.07	54.38	74.12	2,426.32	1,020.04	833.10	725.13	107.97	7.716		
10,600.00	7,335.00	10,433.70	7,107.00	56.41	55.72	74.12	2,526.32	1,021.07	833.30	722.73	110.57	7.536		
10,700.00	7,335.00	10,533.70	7,107.00	57.77	57.07	74.12	2,626.31	1,022.11	833.50	720.30	113.20	7.363		
10,800.00	7,335.00	10,633.70	7,107.00	59.14	58.43	74.13	2,726.31	1,023.14	833.70	717.85	115.85	7.196		
10,900.00	7,335.00	10,733.70	7,107.00	60.51	59.80	74.13	2,826.30	1,024.18	833.90	715.38	118.52	7.036		
11,000.00	7,335.00	10,833.70	7,107.00	61.90	61.19	74.14	2,926.29	1,025.21	834.10	712.89	121.21	6.881		
11,100.00	7,335.00	10,933.70	7,107.00	63.30	62.58	74.14	3,026.29	1,026.25	834.30	710.39	123.92	6.733		
11,200.00	7,335.00	11,033.70	7,107.00	64.70	63.98	74.14	3,126.28	1,027.28	834.50	707.87	126.64	6.590		
11,300.00	7,335.00	11,133.70	7,107.00	66.12	65.38	74.15	3,226.28	1,028.32	834.70	705.33	129.38	6.452		
11,400.00	7,335.00	11,233.70	7,107.00	67.53	66.80	74.15	3,326.27	1,029.35	834.91	702.78	132.13	6.319		
11,500.00	7,335.00	11,333.70	7,107.00	68.96	68.22	74.16	3,426.27	1,030.39	835.11	700.21	134.89	6.191		
11,600.00	7,335.00	11,433.70	7,107.00	70.39	69.64	74.16	3,526.26	1,031.42	835.31	697.63	137.67	6.067		
11,700.00	7,335.00	11,533.70	7,107.00	71.83	71.08	74.16	3,626.25	1,032.46	835.51	695.04	140.46	5.948		
11,800.00	7,335.00	11,633.70	7,107.00	73.28	72.52	74.17	3,726.25	1,033.49	835.71	692.44	143.26	5.833		
11,900.00	7,335.00	11,733.70	7,107.00	74.73	73.96	74.17	3,826.24	1,034.52	835.91	689.83	146.08	5.722		
12,000.00	7,335.00	11,833.70	7,107.00	76.18	75.41	74.18	3,926.24	1,035.56	836.11	687.21	148.90	5.615		
12,100.00	7,335.00	11,933.70	7,107.00	77.64	76.86	74.18	4,026.23	1,036.59	836.31	684.58	151.73	5.512		
12,188.01	7,335.00	12,021.70	7,107.00	78.93	78.15	74.18	4,114.24	1,037.50	836.49	682.26	154.23	5.424 SF		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well RUEGGE 3J-4H-N165 - Slot RUEGGE 3J
<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 3J-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	81.55	4.41	29.67	30.00						
100.00	100.00	100.00	100.00	0.14	0.14	81.55	4.41	29.67	30.00	29.72	0.28	108.684			
200.00	200.00	200.00	200.00	0.50	0.50	81.55	4.41	29.67	30.00	29.01	0.99	30.212			
266.91	266.91	266.91	266.91	0.73	0.74	-90.00	4.41	29.67	29.99	28.53	1.46	20.501 CC			
300.00	299.98	300.02	299.98	0.84	0.86	-91.84	4.41	29.67	30.00	28.31	1.70	17.700			
400.00	399.84	399.84	399.84	1.19	1.21	-101.65	4.41	29.67	30.62	28.22	2.40	12.764 ES			
500.00	499.45	499.15	499.13	1.55	1.56	-113.45	3.29	30.98	33.92	30.81	3.11	10.922			
600.00	598.70	598.52	598.36	1.93	1.90	-122.07	-0.07	34.89	40.68	36.86	3.82	10.647			
651.76	649.89	649.94	649.62	2.13	2.08	-125.14	-2.69	37.94	45.35	41.14	4.20	10.789			
700.00	697.53	697.88	697.34	2.33	2.25	-126.98	-5.67	41.41	50.08	45.52	4.56	10.986			
800.00	796.29	797.33	796.05	2.74	2.61	-127.41	-13.51	50.55	60.04	54.73	5.32	11.295			
900.00	895.05	896.66	894.17	3.16	3.00	-124.89	-23.56	62.26	70.17	64.07	6.10	11.498			
1,000.00	993.81	995.64	991.36	3.57	3.41	-120.59	-35.78	76.49	80.83	73.91	6.92	11.678			
1,100.00	1,092.57	1,094.04	1,087.27	4.00	3.84	-115.24	-50.09	93.15	92.60	84.83	7.77	11.919			
1,200.00	1,191.33	1,207.53	1,182.62	4.42	4.38	-109.80	-66.01	111.70	105.81	97.10	8.71	12.149			
1,300.00	1,290.09	1,308.87	1,278.15	4.84	4.87	-105.50	-82.07	130.40	119.81	110.21	9.60	12.482			
1,400.00	1,388.85	1,389.79	1,373.68	5.27	5.27	-102.12	-98.12	149.10	134.33	123.94	10.39	12.929			
1,500.00	1,487.61	1,488.45	1,469.21	5.70	5.77	-99.40	-114.18	167.80	149.23	137.97	11.27	13.245			
1,600.00	1,586.36	1,587.11	1,564.74	6.12	6.27	-97.17	-130.23	186.49	164.40	152.26	12.14	13.539			
1,700.00	1,685.12	1,685.77	1,660.27	6.55	6.78	-95.32	-146.29	205.19	179.77	166.75	13.02	13.808			
1,800.00	1,783.88	1,784.43	1,755.80	6.98	7.29	-93.77	-162.34	223.89	195.30	181.40	13.90	14.054			
1,900.00	1,882.64	1,883.09	1,851.34	7.41	7.80	-92.44	-178.40	242.59	210.94	196.17	14.77	14.280			
2,000.00	1,981.40	1,981.74	1,946.87	7.84	8.31	-91.30	-194.45	261.29	226.68	211.03	15.65	14.487			
2,100.00	2,080.16	2,080.40	2,042.40	8.26	8.83	-90.30	-210.50	279.99	242.50	225.98	16.52	14.676			
2,200.00	2,178.92	2,179.06	2,137.93	8.69	9.35	-89.43	-226.56	298.69	258.38	240.98	17.40	14.850			
2,300.00	2,277.68	2,277.72	2,233.46	9.12	9.87	-88.66	-242.61	317.39	274.31	256.04	18.28	15.010			
2,400.00	2,376.44	2,376.38	2,328.99	9.55	10.39	-87.97	-258.67	336.09	290.29	271.13	19.15	15.157			
2,500.00	2,475.20	2,475.04	2,424.52	9.98	10.91	-87.35	-274.72	354.79	306.30	286.27	20.03	15.294			
2,600.00	2,573.96	2,573.70	2,520.05	10.41	11.43	-86.80	-290.78	373.49	322.34	301.44	20.90	15.420			
2,700.00	2,672.72	2,672.36	2,615.58	10.84	11.95	-86.30	-306.83	392.19	338.41	316.63	21.78	15.538			
2,800.00	2,771.48	2,771.02	2,711.12	11.27	12.48	-85.84	-322.89	410.89	354.50	331.84	22.66	15.648			
2,900.00	2,870.23	2,869.68	2,806.65	11.70	13.00	-85.42	-338.94	429.59	370.61	347.08	23.53	15.750			
3,000.00	2,968.99	2,968.34	2,902.18	12.13	13.53	-85.04	-355.00	448.29	386.74	362.33	24.41	15.845			
3,100.00	3,067.75	3,067.00	2,997.71	12.56	14.05	-84.69	-371.05	466.99	402.89	377.60	25.28	15.935			
3,200.00	3,166.51	3,165.65	3,093.24	12.99	14.58	-84.37	-387.11	485.69	419.05	392.89	26.16	16.019			
3,300.00	3,265.27	3,264.31	3,188.77	13.42	15.10	-84.07	-403.16	504.39	435.22	408.18	27.04	16.098			
3,400.00	3,364.03	3,362.97	3,284.30	13.85	15.63	-83.79	-419.22	523.09	451.40	423.48	27.91	16.172			
3,500.00	3,462.79	3,461.63	3,379.83	14.28	16.16	-83.53	-435.27	541.79	467.59	438.80	28.79	16.242			
3,600.00	3,561.55	3,560.29	3,475.36	14.71	16.68	-83.29	-451.33	560.49	483.79	454.12	29.67	16.308			
3,700.00	3,660.31	3,658.95	3,570.90	15.14	17.21	-83.06	-467.38	579.19	500.00	469.45	30.54	16.371			
3,800.00	3,759.07	3,757.61	3,666.43	15.57	17.74	-82.85	-483.44	597.89	516.21	484.79	31.42	16.430			
3,900.00	3,857.83	3,856.27	3,761.96	16.00	18.26	-82.65	-499.49	616.59	532.43	500.14	32.29	16.487			
4,000.00	3,956.59	3,954.93	3,857.49	16.43	18.79	-82.46	-515.55	635.29	548.66	515.49	33.17	16.540			
4,100.00	4,055.34	4,053.59	3,953.02	16.86	19.32	-82.28	-531.60	653.99	564.89	530.84	34.05	16.591			
4,200.00	4,154.10	4,152.25	4,048.55	17.29	19.85	-82.12	-547.66	672.69	581.13	546.21	34.92	16.640			
4,300.00	4,252.86	4,250.91	4,144.08	17.72	20.38	-81.96	-563.71	691.39	597.37	561.57	35.80	16.686			
4,400.00	4,351.62	4,349.56	4,239.61	18.15	20.90	-81.81	-579.77	710.09	613.62	576.94	36.68	16.730			
4,500.00	4,450.38	4,448.22	4,335.14	18.58	21.43	-81.67	-595.82	728.79	629.87	592.31	37.55	16.772			
4,600.00	4,549.14	4,546.88	4,430.67	19.01	21.96	-81.53	-611.88	747.49	646.12	607.69	38.43	16.812			
4,700.00	4,647.90	4,645.54	4,526.21	19.44	22.49	-81.41	-627.93	766.19	662.38	623.07	39.31	16.851			
4,800.00	4,746.66	4,744.20	4,621.74	19.87	23.02	-81.28	-643.99	784.89	678.64	638.45	40.18	16.888			
4,900.00	4,845.42	4,842.86	4,717.27	20.30	23.55	-81.17	-660.04	803.59	694.90	653.84	41.06	16.923			

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 3J-4H-N165 - Slot RUEGGE 3J
<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 3J-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
5,000.00	4,944.18	4,941.52	4,812.80	20.73	24.07	-81.06	-676.10	822.29	711.17	669.23	41.94	16.957	
5,100.00	5,042.94	5,040.18	4,908.33	21.16	24.60	-80.95	-692.15	840.99	727.44	684.62	42.82	16.990	
5,200.00	5,141.70	5,138.84	5,003.86	21.59	25.13	-80.85	-708.21	859.69	743.71	700.01	43.69	17.021	
5,300.00	5,240.46	5,237.50	5,099.39	22.02	25.66	-80.75	-724.26	878.39	759.98	715.41	44.57	17.051	
5,400.00	5,339.21	5,336.16	5,194.92	22.45	26.19	-80.66	-740.32	897.09	776.25	730.81	45.45	17.081	
5,500.00	5,437.97	5,434.82	5,290.45	22.88	26.72	-80.57	-756.37	915.79	792.53	746.21	46.32	17.108	
5,600.00	5,536.73	5,533.47	5,385.99	23.31	27.25	-80.49	-772.43	934.49	808.81	761.61	47.20	17.135	
5,700.00	5,635.49	5,632.13	5,481.52	23.74	27.78	-80.40	-788.48	953.19	825.09	777.01	48.08	17.161	
5,800.00	5,734.25	5,730.79	5,577.05	24.18	28.31	-80.32	-804.54	971.89	841.37	792.41	48.96	17.186	
5,900.00	5,833.01	5,829.45	5,672.58	24.61	28.84	-80.25	-820.59	990.59	857.65	807.82	49.83	17.211	
6,000.00	5,931.77	5,928.11	5,768.11	25.04	29.37	-80.18	-836.65	1,009.29	873.94	823.23	50.71	17.234	
6,100.00	6,030.53	6,026.77	5,863.64	25.47	29.90	-80.11	-852.70	1,027.99	890.22	838.64	51.59	17.257	
6,200.00	6,129.29	6,125.43	5,959.17	25.90	30.42	-80.04	-868.76	1,046.69	906.51	854.04	52.46	17.279	
6,300.00	6,228.05	6,224.09	6,054.70	26.33	30.95	-79.97	-884.81	1,065.39	922.80	869.46	53.34	17.300	
6,400.00	6,326.81	6,322.75	6,150.23	26.76	31.48	-79.91	-900.86	1,084.09	939.09	884.87	54.22	17.320	
6,500.00	6,425.57	6,421.41	6,245.77	27.19	32.01	-79.85	-916.92	1,102.79	955.38	900.28	55.10	17.340	
6,584.00	6,508.53	6,504.28	6,326.01	27.55	32.46	-79.80	-930.41	1,118.49	969.06	913.23	55.83	17.356	
6,600.00	6,524.35	6,520.06	6,341.29	27.62	32.54	-78.28	-932.97	1,121.49	971.67	915.70	55.97	17.360	
6,650.00	6,574.08	6,569.28	6,388.95	27.81	32.81	-66.42	-940.98	1,130.81	979.79	923.43	56.36	17.384	
6,700.00	6,624.03	6,618.14	6,436.26	27.97	33.07	12.22	-948.93	1,140.08	987.88	931.19	56.69	17.426	
6,750.00	6,673.96	6,665.93	6,482.61	28.10	33.32	68.06	-956.21	1,149.15	995.97	939.03	56.95	17.489	
6,800.00	6,723.62	6,713.69	6,529.26	28.22	33.55	77.39	-960.62	1,158.32	1,004.12	946.96	57.17	17.565	
6,850.00	6,772.76	6,762.09	6,576.72	28.32	33.75	80.82	-961.84	1,167.68	1,012.30	954.95	57.35	17.651	
6,900.00	6,821.16	6,811.19	6,624.83	28.40	33.93	82.55	-959.75	1,177.20	1,020.46	962.95	57.51	17.745	
6,950.00	6,868.58	6,861.02	6,673.40	28.47	34.09	83.57	-954.19	1,186.85	1,028.56	970.92	57.64	17.846	
7,000.00	6,914.78	6,911.65	6,722.22	28.54	34.22	84.24	-945.03	1,196.59	1,036.57	978.83	57.75	17.950	
7,050.00	6,959.54	6,963.09	6,771.04	28.59	34.33	84.71	-932.15	1,206.36	1,044.45	986.61	57.84	18.057	
7,100.00	7,002.64	7,015.41	6,819.63	28.63	34.42	85.06	-915.41	1,216.13	1,052.15	994.23	57.92	18.164	
7,150.00	7,043.88	7,068.63	6,867.68	28.67	34.49	85.32	-894.73	1,225.84	1,059.64	1,001.64	58.00	18.270	
7,200.00	7,083.04	7,122.78	6,914.88	28.70	34.53	85.53	-870.01	1,235.41	1,066.85	1,008.79	58.06	18.373	
7,250.00	7,119.94	7,177.89	6,960.89	28.73	34.56	85.71	-841.18	1,244.80	1,073.76	1,015.63	58.13	18.472	
7,300.00	7,154.41	7,233.96	7,005.32	28.76	34.57	85.86	-808.24	1,253.91	1,080.31	1,022.12	58.19	18.564	
7,350.00	7,186.26	7,291.02	7,047.79	28.79	34.56	85.99	-771.19	1,262.68	1,086.47	1,028.21	58.26	18.649	
7,400.00	7,215.35	7,349.04	7,087.86	28.82	34.54	86.11	-730.09	1,271.02	1,092.18	1,033.84	58.33	18.723	
7,450.00	7,241.54	7,408.00	7,125.10	28.85	34.50	86.22	-685.07	1,278.84	1,097.40	1,038.98	58.42	18.784	
7,500.00	7,264.69	7,467.86	7,159.06	28.90	34.44	86.32	-636.32	1,286.05	1,102.10	1,043.58	58.52	18.832	
7,550.00	7,284.70	7,528.58	7,189.29	28.95	34.36	86.41	-584.09	1,292.56	1,106.23	1,047.59	58.65	18.863	
7,600.00	7,301.47	7,590.07	7,215.37	29.01	34.28	86.50	-528.72	1,298.29	1,109.76	1,050.97	58.79	18.875	
7,650.00	7,314.91	7,652.25	7,236.90	29.08	34.19	86.57	-470.61	1,303.14	1,112.66	1,053.69	58.97	18.868	
7,700.00	7,324.96	7,715.00	7,253.53	29.16	34.09	86.64	-410.24	1,307.05	1,114.90	1,055.72	59.18	18.840	
7,750.00	7,331.58	7,778.22	7,264.97	29.25	33.98	86.70	-348.16	1,309.95	1,116.46	1,057.04	59.42	18.790	
7,800.00	7,334.72	7,841.76	7,271.02	29.36	33.88	86.75	-284.96	1,311.80	1,117.32	1,057.63	59.69	18.718	
7,820.07	7,335.00	7,867.31	7,271.90	29.41	33.84	86.76	-259.42	1,312.24	1,117.47	1,057.66	59.81	18.683	
7,900.00	7,335.00	7,949.89	7,272.00	29.62	33.71	86.77	-176.85	1,313.11	1,117.64	1,057.41	60.23	18.556	
8,000.00	7,335.00	8,049.89	7,272.00	29.96	33.57	86.77	-76.85	1,314.15	1,117.85	1,056.99	60.87	18.365	
8,100.00	7,335.00	8,149.89	7,272.00	30.39	33.46	86.77	23.14	1,315.18	1,118.06	1,056.40	61.66	18.134	
8,200.00	7,335.00	8,249.89	7,272.00	30.88	33.37	86.77	123.13	1,316.22	1,118.27	1,055.68	62.60	17.865	
8,300.00	7,335.00	8,349.89	7,272.00	31.45	33.33	86.77	223.13	1,317.25	1,118.48	1,054.80	63.67	17.566	
8,400.00	7,335.00	8,449.89	7,272.00	32.09	33.36	86.77	323.12	1,318.29	1,118.69	1,053.80	64.89	17.240	
8,500.00	7,335.00	8,549.89	7,272.00	32.80	33.53	86.77	423.12	1,319.32	1,118.90	1,052.67	66.23	16.894	
8,600.00	7,335.00	8,649.89	7,272.00	33.56	33.93	86.77	523.11	1,320.36	1,119.10	1,051.41	67.69	16.532	
8,700.00	7,335.00	8,749.89	7,272.00	34.38	34.57	86.77	623.11	1,321.39	1,119.31	1,050.05	69.27	16.160	

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 3J-4H-N165 - Slot RUEGGE 3J
<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 3J-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		
8,800.00	7,335.00	8,849.89	7,272.00	35.25	35.35	86.77	723.10	1,322.43	1,119.52	1,048.58	70.94	15.781		
8,900.00	7,335.00	8,949.89	7,272.00	36.16	36.21	86.77	823.10	1,323.47	1,119.73	1,047.01	72.72	15.398		
9,000.00	7,335.00	9,049.89	7,272.00	37.13	37.14	86.78	923.09	1,324.50	1,119.94	1,045.35	74.58	15.016		
9,100.00	7,335.00	9,149.89	7,272.00	38.13	38.12	86.78	1,023.08	1,325.54	1,120.15	1,043.61	76.53	14.636		
9,200.00	7,335.00	9,249.89	7,272.00	39.17	39.14	86.78	1,123.08	1,326.57	1,120.36	1,041.79	78.56	14.261		
9,300.00	7,335.00	9,349.89	7,272.00	40.25	40.19	86.78	1,223.07	1,327.61	1,120.56	1,039.90	80.66	13.892		
9,400.00	7,335.00	9,449.89	7,272.00	41.35	41.28	86.78	1,323.07	1,328.64	1,120.77	1,037.95	82.83	13.532		
9,500.00	7,335.00	9,549.89	7,272.00	42.49	42.40	86.78	1,423.06	1,329.68	1,120.98	1,035.93	85.05	13.180		
9,600.00	7,335.00	9,649.89	7,272.00	43.66	43.54	86.78	1,523.06	1,330.71	1,121.19	1,033.85	87.34	12.838		
9,700.00	7,335.00	9,749.89	7,272.00	44.85	44.71	86.78	1,623.05	1,331.75	1,121.40	1,031.73	89.67	12.505		
9,800.00	7,335.00	9,849.89	7,272.00	46.06	45.90	86.78	1,723.05	1,332.78	1,121.61	1,029.55	92.06	12.184		
9,900.00	7,335.00	9,949.89	7,272.00	47.29	47.12	86.78	1,823.04	1,333.82	1,121.82	1,027.33	94.49	11.873		
10,000.00	7,335.00	10,049.89	7,272.00	48.55	48.35	86.78	1,923.03	1,334.85	1,122.02	1,025.07	96.96	11.573		
10,100.00	7,335.00	10,149.89	7,272.00	49.82	49.61	86.78	2,023.03	1,335.89	1,122.23	1,022.77	99.46	11.283		
10,200.00	7,335.00	10,249.89	7,272.00	51.11	50.87	86.78	2,123.02	1,336.92	1,122.44	1,020.43	102.01	11.004		
10,300.00	7,335.00	10,349.89	7,272.00	52.41	52.16	86.78	2,223.02	1,337.96	1,122.65	1,018.07	104.58	10.734		
10,400.00	7,335.00	10,449.89	7,272.00	53.73	53.46	86.78	2,323.01	1,338.99	1,122.86	1,015.67	107.19	10.475		
10,500.00	7,335.00	10,549.89	7,272.00	55.07	54.77	86.78	2,423.01	1,340.03	1,123.07	1,013.24	109.83	10.226		
10,600.00	7,335.00	10,649.89	7,272.00	56.41	56.10	86.78	2,523.00	1,341.06	1,123.28	1,010.79	112.49	9.986		
10,700.00	7,335.00	10,749.89	7,272.00	57.77	57.44	86.79	2,623.00	1,342.10	1,123.48	1,008.31	115.17	9.755		
10,800.00	7,335.00	10,849.89	7,272.00	59.14	58.79	86.79	2,722.99	1,343.13	1,123.69	1,005.81	117.88	9.532		
10,900.00	7,335.00	10,949.89	7,272.00	60.51	60.15	86.79	2,822.98	1,344.17	1,123.90	1,003.29	120.61	9.318		
11,000.00	7,335.00	11,049.89	7,272.00	61.90	61.52	86.79	2,922.98	1,345.20	1,124.11	1,000.75	123.36	9.112		
11,100.00	7,335.00	11,149.89	7,272.00	63.30	62.90	86.79	3,022.97	1,346.24	1,124.32	998.19	126.13	8.914		
11,200.00	7,335.00	11,249.89	7,272.00	64.70	64.28	86.79	3,122.97	1,347.27	1,124.53	995.61	128.92	8.723		
11,300.00	7,335.00	11,349.89	7,272.00	66.12	65.68	86.79	3,222.96	1,348.31	1,124.74	993.02	131.72	8.539		
11,400.00	7,335.00	11,449.89	7,272.00	67.53	67.08	86.79	3,322.96	1,349.34	1,124.94	990.41	134.54	8.362		
11,500.00	7,335.00	11,549.89	7,272.00	68.96	68.49	86.79	3,422.95	1,350.38	1,125.15	987.79	137.37	8.191		
11,600.00	7,335.00	11,649.89	7,272.00	70.39	69.91	86.79	3,522.95	1,351.41	1,125.36	985.15	140.21	8.026		
11,700.00	7,335.00	11,749.89	7,272.00	71.83	71.33	86.79	3,622.94	1,352.45	1,125.57	982.50	143.07	7.867		
11,800.00	7,335.00	11,849.89	7,272.00	73.28	72.76	86.79	3,722.93	1,353.48	1,125.78	979.84	145.94	7.714		
11,900.00	7,335.00	11,949.89	7,272.00	74.73	74.20	86.79	3,822.93	1,354.52	1,125.99	977.17	148.82	7.566		
12,000.00	7,335.00	12,049.88	7,272.00	76.18	75.64	86.79	3,922.92	1,355.55	1,126.20	974.48	151.71	7.423		
12,100.00	7,335.00	12,149.88	7,272.00	77.64	77.08	86.79	4,022.92	1,356.59	1,126.40	971.79	154.61	7.285		
12,188.01	7,335.00	12,237.89	7,272.00	78.93	78.36	86.79	4,110.92	1,357.50	1,126.59	969.41	157.17	7.168 SF		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well RUEGGE 3J-4H-N165 - Slot RUEGGE 3J
<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 3J-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
0.00	0.00	0.00	0.00	0.00	0.00	81.55	5.88	39.56	40.00				
100.00	100.00	100.00	100.00	0.14	0.14	81.55	5.88	39.56	40.00	39.72	0.28	144.913	
103.52	103.52	103.52	103.52	0.15	0.15	81.55	5.88	39.56	40.00	39.70	0.30	132.767 CC	
200.00	200.00	199.47	199.47	0.50	0.49	81.94	5.66	39.93	40.33	39.34	0.99	40.876 ES	
300.00	299.98	298.32	298.26	0.84	0.84	-87.45	3.86	42.83	41.25	41.25	1.68	25.558	
400.00	399.84	396.99	396.68	1.19	1.20	-88.37	0.28	48.61	48.04	45.66	2.38	20.163	
500.00	499.45	495.34	494.50	1.55	1.56	-90.30	-5.07	57.24	55.73	52.62	3.11	17.923	
600.00	598.70	593.26	591.50	1.93	1.95	-92.64	-12.15	68.66	66.05	62.18	3.86	17.099	
651.76	649.89	643.74	641.30	2.13	2.16	-93.86	-16.47	75.64	72.44	68.18	4.27	16.978 SF	
700.00	697.53	690.67	687.47	2.33	2.36	-94.80	-20.91	82.81	79.03	74.38	4.65	17.004	
800.00	796.29	787.51	782.26	2.74	2.79	-95.20	-31.33	99.61	94.38	88.93	5.45	17.312	
900.00	895.05	883.58	875.59	3.16	3.26	-94.23	-43.32	118.97	111.99	105.72	6.27	17.864	
1,000.00	993.81	978.68	967.17	3.57	3.75	-92.52	-56.81	140.74	131.91	124.82	7.09	18.598	
1,100.00	1,092.57	1,074.16	1,058.30	4.00	4.28	-90.48	-71.81	164.95	154.08	146.15	7.93	19.426	
1,200.00	1,191.33	1,171.43	1,150.97	4.42	4.85	-88.80	-87.37	190.06	176.80	168.00	8.80	20.094	
1,300.00	1,290.09	1,268.70	1,243.65	4.84	5.42	-87.50	-102.93	215.17	199.64	189.97	9.67	20.645	
1,400.00	1,388.85	1,365.96	1,336.33	5.27	6.00	-86.47	-118.48	240.28	222.55	212.01	10.54	21.106	
1,500.00	1,487.61	1,463.23	1,429.00	5.70	6.59	-85.63	-134.04	265.39	245.52	234.10	11.42	21.496	
1,600.00	1,586.36	1,560.50	1,521.68	6.12	7.18	-84.94	-149.60	290.49	268.53	256.23	12.30	21.831	
1,700.00	1,685.12	1,657.77	1,614.36	6.55	7.77	-84.35	-165.16	315.60	291.57	278.39	13.18	22.122	
1,800.00	1,783.88	1,755.04	1,707.03	6.98	8.36	-83.85	-180.71	340.71	314.63	300.57	14.06	22.376	
1,900.00	1,882.64	1,852.31	1,799.71	7.41	8.96	-83.42	-196.27	365.82	337.72	322.77	14.94	22.600	
2,000.00	1,981.40	1,949.58	1,892.39	7.84	9.56	-83.04	-211.83	390.93	360.82	344.99	15.83	22.798	
2,100.00	2,080.16	2,046.85	1,985.06	8.26	10.16	-82.71	-227.39	416.04	383.93	367.22	16.71	22.976	
2,200.00	2,178.92	2,144.12	2,077.74	8.69	10.76	-82.42	-242.94	441.14	407.05	389.46	17.59	23.136	
2,300.00	2,277.68	2,241.39	2,170.41	9.12	11.36	-82.16	-258.50	466.25	430.19	411.71	18.48	23.280	
2,400.00	2,376.44	2,338.66	2,263.09	9.55	11.96	-81.92	-274.06	491.36	453.33	433.96	19.36	23.411	
2,500.00	2,475.20	2,435.93	2,355.77	9.98	12.56	-81.71	-289.62	516.47	476.48	456.23	20.25	23.530	
2,600.00	2,573.96	2,533.20	2,448.44	10.41	13.16	-81.52	-305.18	541.58	499.63	478.49	21.14	23.639	
2,700.00	2,672.72	2,630.47	2,541.12	10.84	13.77	-81.34	-320.73	566.69	522.79	500.76	22.02	23.740	
2,800.00	2,771.48	2,727.74	2,633.80	11.27	14.37	-81.18	-336.29	591.80	545.95	523.04	22.91	23.832	
2,900.00	2,870.23	2,825.01	2,726.47	11.70	14.97	-81.04	-351.85	616.90	569.11	545.32	23.79	23.918	
3,000.00	2,968.99	2,922.28	2,819.15	12.13	15.58	-80.90	-367.41	642.01	592.28	567.60	24.68	23.997	
3,100.00	3,067.75	3,019.55	2,911.83	12.56	16.18	-80.77	-382.96	667.12	615.46	589.89	25.57	24.071	
3,200.00	3,166.51	3,116.82	3,004.50	12.99	16.79	-80.66	-398.52	692.23	638.63	612.17	26.46	24.140	
3,300.00	3,265.27	3,214.09	3,097.18	13.42	17.39	-80.55	-414.08	717.34	661.81	634.46	27.34	24.204	
3,400.00	3,364.03	3,311.36	3,189.85	13.85	18.00	-80.45	-429.64	742.45	684.99	656.76	28.23	24.264	
3,500.00	3,462.79	3,408.63	3,282.53	14.28	18.60	-80.35	-445.19	767.56	708.17	679.05	29.12	24.320	
3,600.00	3,561.55	3,505.90	3,375.21	14.71	19.21	-80.26	-460.75	792.66	731.35	701.34	30.01	24.373	
3,700.00	3,660.31	3,603.17	3,467.88	15.14	19.82	-80.18	-476.31	817.77	754.53	723.64	30.89	24.423	
3,800.00	3,759.07	3,700.44	3,560.56	15.57	20.42	-80.10	-491.87	842.88	777.72	745.94	31.78	24.470	
3,900.00	3,857.83	3,797.71	3,653.24	16.00	21.03	-80.03	-507.42	867.99	800.91	768.24	32.67	24.515	
4,000.00	3,956.59	3,905.02	3,745.91	16.43	21.70	-79.96	-522.98	893.10	824.09	790.49	33.61	24.521	
4,100.00	4,055.34	4,007.75	3,838.59	16.86	22.34	-79.89	-538.54	918.21	847.28	812.76	34.52	24.543	
4,200.00	4,154.10	4,089.52	3,931.27	17.29	22.85	-79.83	-554.10	943.32	870.47	835.14	35.34	24.635	
4,300.00	4,252.86	4,186.79	4,023.94	17.72	23.45	-79.77	-569.65	968.42	893.66	857.44	36.22	24.671	
4,400.00	4,351.62	4,284.06	4,116.62	18.15	24.06	-79.72	-585.21	993.53	916.86	879.74	37.11	24.705	
4,500.00	4,450.38	4,381.33	4,209.30	18.58	24.67	-79.66	-600.77	1,018.64	940.05	902.05	38.00	24.737	
4,600.00	4,549.14	4,478.60	4,301.97	19.01	25.27	-79.61	-616.33	1,043.75	963.24	924.35	38.89	24.768	
4,700.00	4,647.90	4,575.87	4,394.65	19.44	25.88	-79.56	-631.89	1,068.86	986.44	946.66	39.78	24.798	
4,800.00	4,746.66	4,673.13	4,487.32	19.87	26.49	-79.52	-647.44	1,093.97	1,009.63	968.96	40.67	24.826	
4,900.00	4,845.42	4,770.40	4,580.00	20.30	27.10	-79.47	-663.00	1,119.08	1,032.83	991.27	41.56	24.853	

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 3J-4H-N165 - Slot RUEGGE 3J
<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 3J-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							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	4,944.18	4,867.67	4,672.68	20.73	27.70	-79.43	-678.56	1,144.18	1,056.02	1,013.58	42.45	24.879		
5,100.00	5,042.94	4,964.94	4,765.35	21.16	28.31	-79.39	-694.12	1,169.29	1,079.22	1,035.88	43.34	24.904		
5,200.00	5,141.70	5,062.21	4,858.03	21.59	28.92	-79.35	-709.67	1,194.40	1,102.42	1,058.19	44.22	24.928		
5,300.00	5,240.46	5,159.48	4,950.71	22.02	29.52	-79.32	-725.23	1,219.51	1,125.61	1,080.50	45.11	24.951		
5,400.00	5,339.21	5,256.75	5,043.38	22.45	30.13	-79.28	-740.79	1,244.62	1,148.81	1,102.81	46.00	24.972		
5,500.00	5,437.97	5,354.02	5,136.06	22.88	30.74	-79.25	-756.35	1,269.73	1,172.01	1,125.12	46.89	24.993		
5,600.00	5,536.73	5,451.29	5,228.74	23.31	31.35	-79.21	-771.90	1,294.83	1,195.21	1,147.42	47.78	25.014		
5,700.00	5,635.49	5,548.56	5,321.41	23.74	31.95	-79.18	-787.46	1,319.94	1,218.41	1,169.73	48.67	25.033		
5,800.00	5,734.25	5,645.83	5,414.09	24.18	32.56	-79.15	-803.02	1,345.05	1,241.61	1,192.04	49.56	25.052		
5,900.00	5,833.01	5,743.10	5,506.77	24.61	33.17	-79.12	-818.58	1,370.16	1,264.80	1,214.35	50.45	25.070		
6,000.00	5,931.77	5,840.37	5,599.44	25.04	33.78	-79.10	-834.13	1,395.27	1,288.00	1,236.66	51.34	25.087		
6,100.00	6,030.53	5,937.64	5,692.12	25.47	34.38	-79.07	-849.69	1,420.38	1,311.20	1,258.97	52.23	25.104		
6,200.00	6,129.29	6,034.91	5,784.79	25.90	34.99	-79.04	-865.25	1,445.49	1,334.40	1,281.28	53.12	25.120		
6,300.00	6,228.05	6,132.18	5,877.47	26.33	35.60	-79.02	-880.81	1,470.59	1,357.61	1,303.59	54.01	25.136		
6,400.00	6,326.81	6,229.45	5,970.15	26.76	36.21	-78.99	-896.36	1,495.70	1,380.81	1,325.90	54.90	25.151		
6,500.00	6,425.57	6,326.72	6,062.82	27.19	36.81	-78.97	-911.92	1,520.81	1,404.01	1,348.22	55.79	25.165		



# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well RUEGGE 3J-4H-N165 - Slot RUEGGE 3J
<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 3J-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 30-4H-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	81.55	7.35	49.46	50.00					
100.00	100.00	100.00	100.00	0.14	0.14	81.55	7.35	49.46	50.00	49.72	0.28	181.144		
200.00	200.00	200.00	200.00	0.50	0.50	81.55	7.35	49.46	50.00	49.01	0.99	50.354		
286.38	286.37	286.37	286.37	0.79	0.81	-90.00	7.35	49.46	49.98	48.38	1.60	31.250 CC		
300.00	299.98	300.02	299.98	0.84	0.86	-90.51	7.35	49.46	49.99	48.29	1.70	29.486		
400.00	399.84	399.84	399.84	1.19	1.21	-96.46	7.35	49.46	50.30	47.91	2.40	20.970 ES		
500.00	499.45	498.35	498.33	1.55	1.56	-104.40	6.57	50.95	53.05	49.94	3.10	17.084		
600.00	598.70	596.77	596.62	1.93	1.90	-111.64	4.23	55.45	59.77	55.95	3.82	15.634		
651.76	649.89	647.63	647.33	2.13	2.07	-114.78	2.41	58.94	64.77	60.56	4.21	15.399		
700.00	697.53	695.01	694.49	2.33	2.24	-117.07	0.34	62.92	70.14	65.57	4.56	15.369 SF		
800.00	796.29	793.16	791.92	2.74	2.61	-119.24	-5.09	73.35	82.49	77.17	5.32	15.512		
900.00	895.05	891.03	888.63	3.16	2.99	-118.96	-12.04	86.69	96.21	90.12	6.09	15.793		
1,000.00	993.81	988.40	984.27	3.57	3.39	-117.16	-20.47	102.86	111.30	104.41	6.89	16.163		
1,100.00	1,092.57	1,085.05	1,078.54	4.00	3.82	-114.46	-30.31	121.75	127.99	120.29	7.70	16.622		
1,200.00	1,191.33	1,180.77	1,171.14	4.42	4.27	-111.28	-41.50	143.24	146.56	138.03	8.53	17.189		
1,300.00	1,290.09	1,275.37	1,261.81	4.84	4.76	-107.91	-53.96	167.15	167.29	157.93	9.36	17.868		
1,400.00	1,388.85	1,368.66	1,350.31	5.27	5.28	-104.55	-67.59	193.32	190.40	180.20	10.20	18.669		
1,500.00	1,487.61	1,462.30	1,438.21	5.70	5.85	-101.29	-82.49	221.93	215.91	204.86	11.05	19.543		
1,600.00	1,586.36	1,558.16	1,528.02	6.12	6.45	-98.56	-97.98	251.66	242.34	230.40	11.93	20.308		
1,700.00	1,685.12	1,654.02	1,617.82	6.55	7.07	-96.37	-113.47	281.40	269.18	256.36	12.82	20.998		
1,800.00	1,783.88	1,749.88	1,707.63	6.98	7.71	-94.57	-128.96	311.14	296.33	282.62	13.71	21.618		
1,900.00	1,882.64	1,845.74	1,797.44	7.41	8.35	-93.07	-144.45	340.88	323.71	309.11	14.60	22.178		
2,000.00	1,981.40	1,941.60	1,887.24	7.84	8.99	-91.80	-159.94	370.62	351.26	335.77	15.49	22.683		
2,100.00	2,080.16	2,037.47	1,977.05	8.26	9.64	-90.72	-175.43	400.35	378.95	362.57	16.38	23.140		
2,200.00	2,178.92	2,133.33	2,066.85	8.69	10.30	-89.79	-190.92	430.09	406.74	389.47	17.27	23.556		
2,300.00	2,277.68	2,229.19	2,156.66	9.12	10.96	-88.97	-206.41	459.83	434.62	416.46	18.16	23.935		
2,400.00	2,376.44	2,325.05	2,246.47	9.55	11.62	-88.25	-221.90	489.57	462.58	443.53	19.05	24.281		
2,500.00	2,475.20	2,420.91	2,336.27	9.98	12.29	-87.62	-237.39	519.31	490.59	470.65	19.94	24.599		
2,600.00	2,573.96	2,516.77	2,426.08	10.41	12.95	-87.05	-252.89	549.04	518.65	497.82	20.84	24.892		
2,700.00	2,672.72	2,612.64	2,515.88	10.84	13.62	-86.54	-268.38	578.78	546.76	525.03	21.73	25.162		
2,800.00	2,771.48	2,708.50	2,605.69	11.27	14.29	-86.08	-283.87	608.52	574.90	552.28	22.62	25.412		
2,900.00	2,870.23	2,804.36	2,695.50	11.70	14.96	-85.67	-299.36	638.26	603.07	579.55	23.52	25.644		
3,000.00	2,968.99	2,900.22	2,785.30	12.13	15.64	-85.29	-314.85	668.00	631.27	606.86	24.41	25.860		
3,100.00	3,067.75	2,996.08	2,875.11	12.56	16.31	-84.94	-330.34	697.73	659.49	634.19	25.31	26.061		
3,200.00	3,166.51	3,108.06	2,964.91	12.99	17.10	-84.62	-345.83	727.47	687.73	661.45	26.29	26.163		
3,300.00	3,265.27	3,187.81	3,054.72	13.42	17.66	-84.33	-361.32	757.21	716.00	688.90	27.10	26.425		
3,400.00	3,364.03	3,283.67	3,144.53	13.85	18.34	-84.06	-376.81	786.95	744.27	716.28	27.99	26.590		
3,500.00	3,462.79	3,379.53	3,234.33	14.28	19.01	-83.81	-392.30	816.69	772.56	743.68	28.89	26.745		
3,600.00	3,561.55	3,475.39	3,324.14	14.71	19.69	-83.57	-407.79	846.42	800.87	771.08	29.78	26.891		
3,700.00	3,660.31	3,571.25	3,413.95	15.14	20.37	-83.36	-423.28	876.16	829.18	798.50	30.68	27.028		
3,800.00	3,759.07	3,667.11	3,503.75	15.57	21.04	-83.15	-438.77	905.90	857.51	825.93	31.57	27.158		
3,900.00	3,857.83	3,762.97	3,593.56	16.00	21.72	-82.96	-454.26	935.64	885.84	853.37	32.47	27.281		
4,000.00	3,956.59	3,858.84	3,683.36	16.43	22.40	-82.78	-469.75	965.38	914.18	880.82	33.37	27.398		
4,100.00	4,055.34	3,954.70	3,773.17	16.86	23.08	-82.62	-485.24	995.11	942.53	908.27	34.26	27.509		
4,200.00	4,154.10	4,050.56	3,862.98	17.29	23.76	-82.46	-500.73	1,024.85	970.89	935.73	35.16	27.613		
4,300.00	4,252.86	4,146.42	3,952.78	17.72	24.44	-82.31	-516.22	1,054.59	999.26	963.20	36.06	27.713		
4,400.00	4,351.62	4,242.28	4,042.59	18.15	25.12	-82.17	-531.71	1,084.33	1,027.63	990.67	36.95	27.808		
4,500.00	4,450.38	4,338.14	4,132.39	18.58	25.80	-82.03	-547.21	1,114.07	1,056.00	1,018.15	37.85	27.899		
4,600.00	4,549.14	4,434.01	4,222.20	19.01	26.48	-81.91	-562.70	1,143.80	1,084.38	1,045.63	38.75	27.985		
4,700.00	4,647.90	4,529.87	4,312.01	19.44	27.16	-81.79	-578.19	1,173.54	1,112.77	1,073.12	39.65	28.068		
4,800.00	4,746.66	4,625.73	4,401.81	19.87	27.84	-81.67	-593.68	1,203.28	1,141.15	1,100.61	40.54	28.147		
4,900.00	4,845.42	4,721.59	4,491.62	20.30	28.53	-81.57	-609.17	1,233.02	1,169.55	1,128.11	41.44	28.222		

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 3J-4H-N165 - Slot RUEGGE 3J
<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 3J-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						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	4,944.18	4,817.45	4,581.43	20.73	29.21	-81.46	-624.66	1,262.76	1,197.94	1,155.61	42.34	28.294	
5,100.00	5,042.94	4,913.31	4,671.23	21.16	29.89	-81.36	-640.15	1,292.49	1,226.34	1,183.11	43.24	28.364	
5,200.00	5,141.70	5,009.18	4,761.04	21.59	30.57	-81.27	-655.64	1,322.23	1,254.75	1,210.61	44.13	28.430	
5,300.00	5,240.46	5,105.04	4,850.84	22.02	31.25	-81.18	-671.13	1,351.97	1,283.15	1,238.12	45.03	28.494	
5,400.00	5,339.21	5,200.90	4,940.65	22.45	31.93	-81.10	-686.62	1,381.71	1,311.56	1,265.63	45.93	28.555	
5,500.00	5,437.97	5,303.24	5,030.46	22.88	32.66	-81.01	-702.11	1,411.45	1,339.97	1,293.11	46.86	28.593	
5,600.00	5,536.73	5,392.62	5,120.26	23.31	33.30	-80.93	-717.60	1,441.18	1,368.39	1,320.66	47.73	28.671	
5,700.00	5,635.49	5,488.48	5,210.07	23.74	33.98	-80.86	-733.09	1,470.92	1,396.80	1,348.18	48.63	28.725	

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well RUEGGE 3J-4H-N165 - Slot RUEGGE 3J
<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 3J-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							
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	8.82	59.35	60.00					
100.00	100.00	100.00	100.00	0.14	0.14	81.55	8.82	59.35	60.00	59.72	0.28	217.372		
103.42	103.42	103.42	103.42	0.15	0.15	81.55	8.82	59.35	60.00	59.70	0.30	199.658 CC		
200.00	200.00	199.14	199.13	0.50	0.49	81.77	8.64	59.73	60.36	59.37	0.99	61.206 ES		
300.00	299.98	297.32	297.26	0.84	0.84	-88.11	7.22	62.78	63.18	61.50	1.68	37.648		
400.00	399.84	395.28	394.98	1.19	1.19	-89.23	4.39	68.86	68.76	66.38	2.38	28.904		
500.00	499.45	492.86	492.04	1.55	1.56	-91.21	0.17	77.93	77.18	74.08	3.10	24.888		
600.00	598.70	589.93	588.20	1.93	1.94	-93.59	-5.40	89.91	88.53	84.69	3.85	23.009		
651.76	649.89	639.92	637.53	2.13	2.15	-94.86	-8.81	97.24	95.59	91.34	4.25	22.508		
700.00	697.53	686.36	683.23	2.33	2.34	-95.94	-12.30	104.74	102.86	98.24	4.62	22.251		
800.00	796.29	782.14	777.02	2.74	2.77	-96.96	-20.49	122.32	119.81	114.40	5.41	22.128 SF		
900.00	895.05	877.09	869.31	3.16	3.23	-96.81	-29.90	142.55	139.19	132.97	6.22	22.382		
1,000.00	993.81	971.02	959.83	3.57	3.71	-95.94	-40.48	165.28	160.96	153.93	7.03	22.893		
1,100.00	1,092.57	1,063.74	1,048.33	4.00	4.24	-94.64	-52.14	190.35	185.16	177.31	7.85	23.602		
1,200.00	1,191.33	1,155.09	1,134.60	4.42	4.79	-93.12	-64.81	217.57	211.85	203.19	8.66	24.460		
1,300.00	1,290.09	1,244.92	1,218.45	4.84	5.38	-91.51	-78.39	246.75	241.06	231.59	9.47	25.458		
1,400.00	1,388.85	1,339.49	1,306.14	5.27	6.05	-89.96	-93.34	278.88	271.78	261.43	10.34	26.273		
1,500.00	1,487.61	1,434.42	1,394.16	5.70	6.73	-88.71	-108.35	311.12	302.64	291.42	11.23	26.954		
1,600.00	1,586.36	1,529.35	1,482.17	6.12	7.41	-87.70	-123.35	343.37	333.62	321.50	12.11	27.538		
1,700.00	1,685.12	1,624.29	1,570.19	6.55	8.11	-86.85	-138.36	375.62	364.67	351.66	13.00	28.043		
1,800.00	1,783.88	1,719.22	1,658.20	6.98	8.81	-86.14	-153.37	407.87	395.78	381.89	13.89	28.484		
1,900.00	1,882.64	1,814.15	1,746.22	7.41	9.52	-85.53	-168.38	440.12	426.94	412.15	14.79	28.872		
2,000.00	1,981.40	1,909.08	1,834.23	7.84	10.22	-85.01	-183.38	472.37	458.14	442.45	15.68	29.216		
2,100.00	2,080.16	2,004.01	1,922.25	8.26	10.94	-84.55	-198.39	504.62	489.36	472.79	16.58	29.523		
2,200.00	2,178.92	2,101.06	2,010.27	8.69	11.67	-84.15	-213.40	536.87	520.61	503.13	17.48	29.779		
2,300.00	2,277.68	2,206.13	2,098.28	9.12	12.46	-83.79	-228.41	569.11	551.89	533.45	18.43	29.939		
2,400.00	2,376.44	2,288.80	2,186.30	9.55	13.08	-83.47	-243.41	601.36	583.17	563.91	19.26	30.272		
2,500.00	2,475.20	2,383.74	2,274.31	9.98	13.80	-83.19	-258.42	633.61	614.48	594.32	20.16	30.477		
2,600.00	2,573.96	2,478.67	2,362.33	10.41	14.52	-82.93	-273.43	665.86	645.80	624.74	21.06	30.665		
2,700.00	2,672.72	2,573.60	2,450.34	10.84	15.24	-82.69	-288.44	698.11	677.12	655.16	21.96	30.837		
2,800.00	2,771.48	2,668.53	2,538.36	11.27	15.96	-82.48	-303.44	730.36	708.46	685.60	22.86	30.996		
2,900.00	2,870.23	2,763.46	2,626.38	11.70	16.68	-82.28	-318.45	762.61	739.80	716.05	23.76	31.142		
3,000.00	2,968.99	2,858.39	2,714.39	12.13	17.41	-82.10	-333.46	794.85	771.16	746.50	24.66	31.278		
3,100.00	3,067.75	2,953.32	2,802.41	12.56	18.13	-81.94	-348.46	827.10	802.51	776.96	25.55	31.404		
3,200.00	3,166.51	3,048.26	2,890.42	12.99	18.85	-81.78	-363.47	859.35	833.88	807.42	26.45	31.521		
3,300.00	3,265.27	3,143.19	2,978.44	13.42	19.58	-81.64	-378.48	891.60	865.25	837.89	27.35	31.630		
3,400.00	3,364.03	3,238.12	3,066.45	13.85	20.30	-81.51	-393.49	923.85	896.62	868.37	28.26	31.733		
3,500.00	3,462.79	3,333.05	3,154.47	14.28	21.03	-81.38	-408.49	956.10	928.00	898.84	29.16	31.829		
3,600.00	3,561.55	3,427.98	3,242.49	14.71	21.75	-81.27	-423.50	988.35	959.38	929.32	30.06	31.919		
3,700.00	3,660.31	3,522.91	3,330.50	15.14	22.48	-81.16	-438.51	1,020.60	990.76	959.81	30.96	32.004		
3,800.00	3,759.07	3,617.84	3,418.52	15.57	23.20	-81.06	-453.52	1,052.84	1,022.15	990.29	31.86	32.084		
3,900.00	3,857.83	3,712.77	3,506.53	16.00	23.93	-80.96	-468.52	1,085.09	1,053.54	1,020.78	32.76	32.159		
4,000.00	3,956.59	3,807.71	3,594.55	16.43	24.66	-80.87	-483.53	1,117.34	1,084.93	1,051.27	33.66	32.231		
4,100.00	4,055.34	3,902.64	3,682.56	16.86	25.38	-80.79	-498.54	1,149.59	1,116.33	1,081.77	34.56	32.298		
4,200.00	4,154.10	4,002.43	3,770.58	17.29	26.15	-80.71	-513.55	1,181.84	1,147.73	1,112.24	35.49	32.339		
4,300.00	4,252.86	4,107.50	3,858.60	17.72	26.95	-80.63	-528.55	1,214.09	1,179.13	1,142.68	36.45	32.352		
4,400.00	4,351.62	4,187.43	3,946.61	18.15	27.56	-80.56	-543.56	1,246.34	1,210.53	1,173.26	37.27	32.481		
4,500.00	4,450.38	4,282.36	4,034.63	18.58	28.29	-80.49	-558.57	1,278.58	1,241.93	1,203.76	38.17	32.535		
4,600.00	4,549.14	4,377.29	4,122.64	19.01	29.02	-80.43	-573.57	1,310.83	1,273.33	1,234.26	39.07	32.588		
4,700.00	4,647.90	4,472.23	4,210.66	19.44	29.74	-80.36	-588.58	1,343.08	1,304.74	1,264.76	39.98	32.638		
4,800.00	4,746.66	4,567.16	4,298.67	19.87	30.47	-80.31	-603.59	1,375.33	1,336.14	1,295.27	40.88	32.685		
4,900.00	4,845.42	4,662.09	4,386.69	20.30	31.20	-80.25	-618.60	1,407.58	1,367.55	1,325.77	41.78	32.731		

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 3J-4H-N165 - Slot RUEGGE 3J
<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 3J-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			
5,000.00	4,944.18	4,757.02	4,474.71	20.73	31.93	-80.20	-633.60	1,439.83	1,398.96	1,356.28	42.68	32.774			

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well RUEGGE 3J-4H-N165 - Slot RUEGGE 3J
<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 3J-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: 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	81.55	10.29	69.24	70.00				
100.00	100.00	100.00	100.00	0.14	0.14	81.55	10.29	69.24	70.00	69.72	0.28	253.601	
200.00	200.00	200.00	200.00	0.50	0.50	81.55	10.29	69.24	70.00	69.01	0.99	70.496	
300.00	299.98	300.02	299.98	0.84	0.86	-89.94	10.29	69.24	69.98	68.28	1.70	41.279	
302.19	302.17	302.17	302.17	0.85	0.86	-90.00	10.29	69.24	69.98	68.27	1.71	40.910 CC	
400.00	399.84	399.84	399.84	1.19	1.21	-94.20	10.29	69.24	70.17	67.77	2.40	29.250 ES	
500.00	499.45	497.56	497.54	1.55	1.55	-100.16	9.75	70.81	72.64	69.54	3.10	23.406	
600.00	598.70	595.08	594.93	1.93	1.89	-106.26	8.13	75.52	79.25	75.43	3.82	20.740	
651.76	649.89	645.42	645.12	2.13	2.07	-109.18	6.88	79.18	84.33	80.13	4.20	20.067	
700.00	697.53	692.29	691.78	2.33	2.24	-111.54	5.45	83.33	89.93	85.37	4.56	19.724	
800.00	796.29	789.27	788.07	2.74	2.60	-114.49	1.71	94.21	103.40	98.09	5.31	19.478 SF	
900.00	895.05	885.87	883.54	3.16	2.97	-115.43	-3.07	108.11	118.96	112.89	6.07	19.597	
1,000.00	993.81	981.86	977.87	3.57	3.37	-115.01	-8.85	124.93	136.44	129.59	6.85	19.928	
1,100.00	1,092.57	1,077.04	1,070.76	4.00	3.79	-113.72	-15.59	144.55	155.86	148.23	7.64	20.411	
1,200.00	1,191.33	1,171.22	1,161.94	4.42	4.23	-111.90	-23.24	166.82	177.35	168.91	8.43	21.027	
1,300.00	1,290.09	1,264.21	1,251.16	4.84	4.71	-109.80	-31.75	191.58	201.03	191.79	9.24	21.750	
1,400.00	1,388.85	1,355.83	1,338.19	5.27	5.22	-107.58	-41.05	218.65	227.04	216.99	10.05	22.587	
1,500.00	1,487.61	1,445.94	1,422.86	5.70	5.77	-105.34	-51.07	247.82	255.48	244.62	10.86	23.529	
1,600.00	1,586.36	1,534.40	1,504.99	6.12	6.35	-103.16	-61.75	278.89	286.41	274.76	11.66	24.569	
1,700.00	1,685.12	1,621.09	1,584.45	6.55	6.97	-101.09	-73.00	311.65	319.88	307.43	12.45	25.700	
1,800.00	1,783.88	1,705.91	1,661.15	6.98	7.63	-99.14	-84.77	345.90	355.88	342.66	13.22	26.918	
1,900.00	1,882.64	1,792.97	1,738.87	7.41	8.36	-97.26	-97.52	383.00	394.17	380.13	14.04	28.070	
2,000.00	1,981.40	1,884.40	1,820.32	7.84	9.15	-95.60	-111.01	422.28	433.12	418.18	14.93	29.002	
2,100.00	2,080.16	1,975.83	1,901.77	8.26	9.96	-94.21	-124.51	461.56	472.32	456.49	15.83	29.841	
2,200.00	2,178.92	2,067.26	1,983.22	8.69	10.78	-93.03	-138.00	500.84	511.73	495.01	16.72	30.598	
2,300.00	2,277.68	2,158.69	2,064.68	9.12	11.61	-92.01	-151.50	540.12	551.30	533.68	17.62	31.284	
2,400.00	2,376.44	2,250.12	2,146.13	9.55	12.45	-91.14	-165.00	579.39	590.99	572.47	18.52	31.908	
2,500.00	2,475.20	2,341.55	2,227.58	9.98	13.29	-90.37	-178.49	618.67	630.79	611.37	19.42	32.478	
2,600.00	2,573.96	2,432.98	2,309.03	10.41	14.14	-89.69	-191.99	657.95	670.67	650.35	20.32	32.999	
2,700.00	2,672.72	2,524.41	2,390.48	10.84	14.99	-89.09	-205.49	697.23	710.62	689.40	21.23	33.478	
2,800.00	2,771.48	2,615.84	2,471.93	11.27	15.85	-88.55	-218.98	736.51	750.63	728.50	22.13	33.919	
2,900.00	2,870.23	2,707.27	2,553.39	11.70	16.70	-88.07	-232.48	775.79	790.70	767.66	23.03	34.327	
3,000.00	2,968.99	2,801.30	2,634.84	12.13	17.59	-87.63	-245.97	815.07	830.80	806.85	23.96	34.682	
3,100.00	3,067.75	2,909.87	2,716.29	12.56	18.62	-87.23	-259.47	854.35	870.94	845.98	24.96	34.888	
3,200.00	3,166.51	2,981.56	2,797.74	12.99	19.29	-86.87	-272.97	893.63	911.12	885.36	25.75	35.382	
3,300.00	3,265.27	3,072.99	2,879.19	13.42	20.16	-86.54	-286.46	932.91	951.32	924.66	26.66	35.686	
3,400.00	3,364.03	3,164.42	2,960.65	13.85	21.03	-86.23	-299.96	972.19	991.54	963.98	27.57	35.971	
3,500.00	3,462.79	3,255.85	3,042.10	14.28	21.90	-85.95	-313.46	1,011.47	1,031.79	1,003.32	28.47	36.238	
3,600.00	3,561.55	3,347.28	3,123.55	14.71	22.77	-85.69	-326.95	1,050.75	1,072.06	1,042.68	29.38	36.488	
3,700.00	3,660.31	3,438.71	3,205.00	15.14	23.64	-85.45	-340.45	1,090.03	1,112.34	1,082.05	30.29	36.724	
3,800.00	3,759.07	3,530.14	3,286.45	15.57	24.51	-85.23	-353.94	1,129.30	1,152.64	1,121.44	31.20	36.946	
3,900.00	3,857.83	3,621.57	3,367.90	16.00	25.39	-85.02	-367.44	1,168.58	1,192.96	1,160.85	32.11	37.155	
4,000.00	3,956.59	3,713.00	3,449.36	16.43	26.26	-84.82	-380.94	1,207.86	1,233.28	1,200.27	33.02	37.353	
4,100.00	4,055.34	3,804.43	3,530.81	16.86	27.14	-84.64	-394.43	1,247.14	1,273.62	1,239.69	33.93	37.540	
4,200.00	4,154.10	3,895.86	3,612.26	17.29	28.01	-84.47	-407.93	1,286.42	1,313.97	1,279.13	34.84	37.718	
4,300.00	4,252.86	3,987.29	3,693.71	17.72	28.89	-84.31	-421.42	1,325.70	1,354.33	1,318.58	35.75	37.886	
4,400.00	4,351.62	4,078.72	3,775.16	18.15	29.76	-84.15	-434.92	1,364.98	1,394.69	1,358.03	36.66	38.046	

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 3J-4H-N165 - Slot RUEGGE 3J
<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 3J-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	11.76	79.13	80.00					
100.00	100.00	101.00	99.00	0.14	0.14	81.55	11.76	79.13	80.00	79.72	0.28	286.113		
108.81	108.81	107.81	107.81	0.17	0.17	81.55	11.76	79.13	80.00	79.66	0.34	238.375 CC		
200.00	200.00	197.59	197.59	0.50	0.48	81.75	11.55	79.67	80.52	79.54	0.98	82.067 ES		
300.00	299.98	295.09	295.02	0.84	0.83	-88.20	10.27	83.05	83.71	82.04	1.67	50.043		
400.00	399.84	392.34	392.01	1.19	1.18	-89.19	7.81	89.51	89.78	87.41	2.37	37.854		
500.00	499.45	489.15	488.29	1.55	1.55	-90.97	4.21	98.99	98.79	95.70	3.09	31.966		
600.00	598.70	585.38	583.58	1.93	1.93	-93.17	-0.52	111.43	110.86	107.03	3.83	28.928		
651.76	649.89	634.90	632.44	2.13	2.14	-94.38	-3.40	118.99	118.34	114.11	4.23	27.992		
700.00	697.53	680.89	677.68	2.33	2.33	-95.47	-6.33	126.72	126.04	121.44	4.60	27.399		
800.00	796.29	775.69	770.49	2.74	2.76	-96.77	-13.20	144.78	144.02	138.63	5.38	26.752		
900.00	895.05	869.61	861.75	3.16	3.21	-97.08	-21.08	165.51	164.56	158.38	6.18	26.637 SF		
1,000.00	993.81	962.46	951.21	3.57	3.69	-96.72	-29.91	188.73	187.58	180.60	6.98	26.876		
1,100.00	1,092.57	1,054.08	1,038.65	4.00	4.21	-95.93	-39.63	214.29	213.07	205.29	7.78	27.378		
1,200.00	1,191.33	1,144.29	1,123.85	4.42	4.76	-94.88	-50.17	241.99	241.05	232.46	8.59	28.066		
1,300.00	1,290.09	1,232.96	1,206.64	4.84	5.35	-93.69	-61.45	271.66	271.52	262.13	9.39	28.912		
1,400.00	1,388.85	1,319.97	1,286.89	5.27	5.98	-92.45	-73.39	303.08	304.48	294.30	10.19	29.890		
1,500.00	1,487.61	1,411.54	1,364.20	5.70	6.69	-91.20	-85.88	335.93	339.93	328.93	11.01	30.887		
1,600.00	1,586.36	1,502.42	1,447.94	6.12	7.44	-89.95	-100.00	373.04	376.78	364.90	11.88	31.707		
1,700.00	1,685.12	1,590.26	1,531.69	6.55	8.18	-88.92	-114.11	410.15	413.76	401.01	12.75	32.459		
1,800.00	1,783.88	1,682.94	1,615.43	6.98	8.96	-88.07	-128.22	447.26	450.83	437.18	13.64	33.048		
1,900.00	1,882.64	1,775.62	1,699.18	7.41	9.76	-87.34	-142.33	484.37	487.97	473.43	14.54	33.565		
2,000.00	1,981.40	1,868.30	1,782.93	7.84	10.56	-86.72	-156.44	521.48	525.18	509.74	15.44	34.021		
2,100.00	2,080.16	1,960.98	1,866.67	8.26	11.36	-86.17	-170.55	558.59	562.43	546.09	16.34	34.427		
2,200.00	2,178.92	2,053.66	1,950.42	8.69	12.17	-85.70	-184.66	595.70	599.71	582.48	17.24	34.791		
2,300.00	2,277.68	2,146.34	2,034.16	9.12	12.98	-85.28	-198.77	632.81	637.03	618.89	18.14	35.118		
2,400.00	2,376.44	2,239.02	2,117.91	9.55	13.79	-84.91	-212.88	669.92	674.38	655.34	19.04	35.414		
2,500.00	2,475.20	2,331.70	2,201.66	9.98	14.61	-84.57	-226.99	707.03	711.75	691.80	19.95	35.683		
2,600.00	2,573.96	2,424.38	2,285.40	10.41	15.43	-84.27	-241.10	744.14	749.13	728.28	20.85	35.929		
2,700.00	2,672.72	2,517.06	2,369.15	10.84	16.25	-84.00	-255.21	781.24	786.54	764.78	21.76	36.154		
2,800.00	2,771.48	2,609.74	2,452.89	11.27	17.07	-83.75	-269.32	818.35	823.95	801.29	22.66	36.361		
2,900.00	2,870.23	2,702.42	2,536.64	11.70	17.89	-83.53	-283.43	855.46	861.38	837.82	23.57	36.552		
3,000.00	2,968.99	2,804.90	2,620.38	12.13	18.80	-83.32	-297.54	892.57	898.82	874.29	24.53	36.644		
3,100.00	3,067.75	2,887.78	2,704.13	12.56	19.53	-83.13	-311.65	929.68	936.27	910.89	25.38	36.892		
3,200.00	3,166.51	2,980.46	2,787.88	12.99	20.36	-82.95	-325.76	966.79	973.73	947.44	26.29	37.044		
3,300.00	3,265.27	3,073.14	2,871.62	13.42	21.18	-82.79	-339.87	1,003.90	1,011.19	984.00	27.19	37.186		
3,400.00	3,364.03	3,165.82	2,955.37	13.85	22.01	-82.64	-353.98	1,041.01	1,048.66	1,020.56	28.10	37.318		
3,500.00	3,462.79	3,258.50	3,039.11	14.28	22.83	-82.50	-368.09	1,078.12	1,086.14	1,057.13	29.01	37.442		
3,600.00	3,561.55	3,351.18	3,122.86	14.71	23.66	-82.37	-382.20	1,115.23	1,123.62	1,093.71	29.92	37.559		
3,700.00	3,660.31	3,443.86	3,206.60	15.14	24.49	-82.24	-396.31	1,152.34	1,161.11	1,130.28	30.82	37.668		
3,800.00	3,759.07	3,536.54	3,290.35	15.57	25.31	-82.13	-410.42	1,189.45	1,198.60	1,166.87	31.73	37.771		
3,900.00	3,857.83	3,629.22	3,374.10	16.00	26.14	-82.02	-424.53	1,226.56	1,236.09	1,203.45	32.64	37.868		
4,000.00	3,956.59	3,721.90	3,457.84	16.43	26.97	-81.92	-438.64	1,263.67	1,273.59	1,240.04	33.55	37.960		
4,100.00	4,055.34	3,814.58	3,541.59	16.86	27.80	-81.82	-452.75	1,300.78	1,311.09	1,276.63	34.46	38.047		
4,200.00	4,154.10	3,907.26	3,625.33	17.29	28.62	-81.73	-466.87	1,337.89	1,348.60	1,313.23	35.37	38.129		
4,300.00	4,252.86	4,000.06	3,709.08	17.72	29.45	-81.64	-480.98	1,375.00	1,386.11	1,349.83	36.28	38.206		

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 3J-4H-N165 - Slot RUEGGE 3J
<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 3J-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-VESI_GYROFLEX													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Total Uncertainty Axis	Separation Factor	Warning			
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)						
0.00	0.00	0.00	0.00	0.00	0.00	-59.76	633.05	-1,085.75	1,256.85					
100.00	100.00	90.50	90.50	0.14	0.08	-59.76	632.91	-1,085.90	1,256.88	1,256.66	0.22	5,705.515		
200.00	200.00	189.28	189.28	0.50	0.26	-59.78	632.77	-1,086.17	1,257.05	1,256.30	0.75	1,671.259		
300.00	299.98	288.29	288.29	0.84	0.43	130.21	633.00	-1,086.32	1,258.42	1,257.15	1.27	990.021		
400.00	399.84	385.80	385.79	1.19	0.60	130.35	633.58	-1,086.44	1,262.22	1,260.43	1.79	704.964		
500.00	499.45	489.43	489.43	1.55	0.78	130.59	634.04	-1,086.56	1,268.21	1,265.87	2.33	543.403		
600.00	598.70	589.20	589.20	1.93	0.96	130.91	634.61	-1,086.41	1,276.37	1,273.49	2.88	442.896		
651.76	649.89	642.56	642.55	2.13	1.05	131.12	634.94	-1,086.23	1,281.45	1,278.27	3.17	403.717		
700.00	697.53	691.31	691.30	2.33	1.14	131.39	635.17	-1,086.02	1,286.42	1,282.98	3.44	373.433		
800.00	796.29	788.17	788.16	2.74	1.31	131.92	635.63	-1,085.67	1,296.87	1,292.87	4.00	324.182		
900.00	895.05	886.70	886.69	3.16	1.48	132.47	636.46	-1,085.17	1,307.52	1,302.96	4.56	286.556		
1,000.00	993.81	987.15	987.13	3.57	1.66	133.02	637.28	-1,084.59	1,318.21	1,313.08	5.13	256.922		
1,100.00	1,092.57	1,083.67	1,083.65	4.00	1.83	133.54	638.07	-1,084.06	1,329.05	1,323.36	5.69	233.453		
1,200.00	1,191.33	1,178.25	1,178.22	4.42	2.00	134.06	639.32	-1,083.48	1,340.23	1,333.97	6.25	214.358		
1,300.00	1,290.09	1,283.86	1,283.80	4.84	2.19	134.67	641.37	-1,082.21	1,351.40	1,344.57	6.83	197.811		
1,400.00	1,388.85	1,387.60	1,387.49	5.27	2.37	135.29	643.59	-1,080.25	1,362.27	1,354.86	7.41	183.906		
1,500.00	1,487.61	1,488.00	1,487.84	5.70	2.55	135.88	645.74	-1,078.04	1,373.03	1,365.06	7.98	172.138		
1,600.00	1,586.36	1,589.71	1,589.51	6.12	2.73	136.46	647.51	-1,075.79	1,383.68	1,375.14	8.55	161.884		
1,700.00	1,685.12	1,682.94	1,682.70	6.55	2.89	136.98	649.30	-1,073.75	1,394.59	1,385.49	9.10	153.230		
1,800.00	1,783.88	1,781.95	1,781.68	6.98	3.07	137.52	650.97	-1,071.95	1,405.79	1,396.12	9.67	145.436		
8,200.00	7,335.00	7,284.40	7,283.09	30.88	12.79	-88.00	725.39	-1,052.59	1,385.39	1,342.93	42.46	32.628		
8,300.00	7,335.00	7,288.65	7,287.34	31.45	12.79	-88.19	725.59	-1,052.65	1,346.56	1,303.29	43.26	31.124		
8,400.00	7,335.00	7,292.90	7,291.59	32.09	12.80	-88.39	725.79	-1,052.70	1,314.19	1,270.04	44.15	29.770		
8,500.00	7,335.00	7,297.16	7,295.84	32.80	12.81	-88.58	725.99	-1,052.76	1,288.77	1,243.69	45.08	28.587		
8,600.00	7,335.00	7,301.43	7,300.11	33.56	12.82	-88.77	726.19	-1,052.82	1,270.71	1,224.67	46.05	27.596		
8,700.00	7,335.00	7,305.70	7,304.37	34.38	12.82	-88.97	726.39	-1,052.88	1,260.34	1,213.34	47.01	26.813		
8,781.50	7,335.00	7,309.19	7,307.85	35.09	12.83	-89.13	726.56	-1,052.93	1,257.71	1,209.95	47.76	26.331		
8,800.00	7,335.00	7,309.98	7,308.65	35.25	12.83	-89.16	726.59	-1,052.95	1,257.85	1,209.92	47.93	26.245 ES		
8,900.00	7,335.00	7,314.26	7,312.92	36.16	12.84	-89.36	726.80	-1,053.01	1,263.27	1,214.49	48.78	25.897		
9,000.00	7,335.00	7,318.55	7,317.21	37.13	12.85	-89.55	727.00	-1,053.08	1,276.51	1,226.97	49.54	25.767 SF		
9,100.00	7,335.00	7,322.85	7,321.50	38.13	12.86	-89.75	727.20	-1,053.14	1,297.34	1,247.14	50.19	25.847		
9,200.00	7,335.00	7,327.15	7,325.79	39.17	12.86	-89.95	727.41	-1,053.21	1,325.38	1,274.65	50.73	26.126		
9,300.00	7,335.00	7,331.45	7,330.09	40.25	12.87	-90.14	727.61	-1,053.28	1,360.20	1,309.05	51.15	26.592		
9,400.00	7,335.00	7,335.77	7,334.40	41.35	12.88	-90.34	727.81	-1,053.36	1,401.29	1,349.83	51.46	27.229		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well RUEGGE 3J-4H-N165 - Slot RUEGGE 3J
<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 3J-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 23-4 - 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	7,335.00	7,311.58	7,309.34	31.45	12.81	-79.16	1,588.24	93.43	1,357.98	1,319.49	38.49	35.282		
8,400.00	7,335.00	7,313.61	7,311.37	32.09	12.82	-80.11	1,588.28	93.43	1,258.40	1,219.89	38.52	32.673		
8,500.00	7,335.00	7,315.58	7,313.34	32.80	12.82	-81.04	1,588.31	93.43	1,158.90	1,120.35	38.55	30.063		
8,600.00	7,335.00	7,317.48	7,315.24	33.56	12.82	-81.94	1,588.34	93.43	1,059.48	1,020.89	38.59	27.452		
8,700.00	7,335.00	7,316.65	7,314.41	34.38	12.82	-81.55	1,588.35	93.43	960.21	921.58	38.63	24.855		
8,800.00	7,335.00	7,318.48	7,316.24	35.25	12.83	-82.42	1,588.38	93.43	861.08	822.37	38.71	22.244		
8,900.00	7,335.00	7,320.32	7,318.07	36.16	12.83	-83.29	1,588.41	93.43	762.17	723.35	38.82	19.633		
9,000.00	7,335.00	7,322.15	7,319.91	37.13	12.83	-84.17	1,588.45	93.43	663.58	624.59	38.99	17.021		
9,100.00	7,335.00	7,323.99	7,321.75	38.13	12.84	-85.05	1,588.48	93.43	565.48	526.24	39.25	14.409		
9,200.00	7,335.00	7,325.83	7,323.58	39.17	12.84	-85.93	1,588.52	93.43	468.18	428.50	39.68	11.799		
9,300.00	7,335.00	7,327.66	7,325.42	40.25	12.84	-86.82	1,588.55	93.43	372.31	331.82	40.49	9.196		
9,400.00	7,335.00	7,329.50	7,327.26	41.35	12.85	-87.70	1,588.58	93.43	279.33	237.17	42.15	6.626		
9,500.00	7,335.00	7,331.34	7,329.09	42.49	12.85	-88.59	1,588.62	93.43	193.46	147.42	46.04	4.202		
9,600.00	7,335.00	7,333.18	7,330.93	43.66	12.85	-89.48	1,588.65	93.43	129.71	75.62	54.09	2.398		
9,653.05	7,335.00	7,334.15	7,331.91	44.29	12.85	-89.96	1,588.67	93.42	118.37	61.39	56.98	2.077	CC, ES, SF	
9,700.00	7,335.00	7,335.02	7,332.77	44.85	12.86	-90.37	1,588.69	93.42	127.34	72.03	55.30	2.303		
9,800.00	7,335.00	7,336.86	7,334.61	46.06	12.86	-91.26	1,588.72	93.42	188.68	141.02	47.65	3.959		
9,900.00	7,335.00	7,338.70	7,336.45	47.29	12.86	-92.15	1,588.75	93.42	273.82	230.34	43.47	6.299		
10,000.00	7,335.00	7,340.54	7,338.29	48.55	12.87	-93.04	1,588.79	93.42	366.53	324.96	41.57	8.816		
10,100.00	7,335.00	7,342.38	7,340.13	49.82	12.87	-93.93	1,588.82	93.42	462.29	421.66	40.62	11.380		
10,200.00	7,335.00	7,344.23	7,341.98	51.11	12.87	-94.82	1,588.86	93.42	559.52	519.43	40.09	13.956		
10,300.00	7,335.00	7,346.07	7,343.82	52.41	12.88	-95.70	1,588.89	93.41	657.58	617.81	39.77	16.533		
10,400.00	7,335.00	7,347.91	7,345.66	53.73	12.88	-96.58	1,588.92	93.41	756.15	716.58	39.57	19.109		
10,500.00	7,335.00	7,349.76	7,347.51	55.07	12.88	-97.46	1,588.96	93.41	855.04	815.60	39.44	21.681		
10,600.00	7,335.00	7,351.60	7,349.35	56.41	12.89	-98.34	1,588.99	93.40	954.16	914.81	39.35	24.249		
10,700.00	7,335.00	7,353.45	7,351.20	57.77	12.89	-99.21	1,589.03	93.40	1,053.44	1,014.15	39.29	26.813		
10,800.00	7,335.00	7,355.30	7,353.05	59.14	12.89	-100.08	1,589.06	93.40	1,152.85	1,113.60	39.25	29.372		
10,900.00	7,335.00	7,357.14	7,354.89	60.51	12.90	-100.94	1,589.10	93.39	1,252.34	1,213.12	39.23	31.927		
11,000.00	7,335.00	7,358.99	7,356.74	61.90	12.90	-101.80	1,589.13	93.39	1,351.91	1,312.70	39.21	34.477		

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 3J-4H-N165 - Slot RUEGGE 3J
<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 3J-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	-109.53	-51.81	-146.06	155.14				
100.00	100.00	92.57	92.56	0.14	0.07	-109.36	-51.43	-146.33	155.11	154.90	0.21	746.278	
200.00	200.00	193.40	193.39	0.50	0.24	-108.99	-50.50	-146.71	155.15	154.42	0.73	211.094	
300.00	299.98	292.38	292.37	0.84	0.42	81.99	-49.47	-147.08	154.92	153.67	1.25	123.802	
333.70	333.65	325.74	325.73	0.96	0.48	82.65	-49.10	-147.37	154.91	153.48	1.43	108.607 CC	
400.00	399.84	391.35	391.33	1.19	0.59	84.36	-48.44	-148.10	154.99	153.22	1.77	87.540 ES	
500.00	499.45	490.16	490.13	1.55	0.77	87.78	-48.06	-149.47	155.65	153.34	2.31	67.451	
600.00	598.70	589.10	589.05	1.93	0.94	92.31	-47.91	-151.08	157.26	154.39	2.86	54.907	
651.76	649.89	640.93	640.87	2.13	1.03	95.25	-47.49	-151.93	158.57	155.41	3.16	50.165	
700.00	697.53	689.42	689.36	2.33	1.12	98.11	-47.13	-152.44	159.96	156.51	3.44	46.476	
800.00	796.29	788.07	788.01	2.74	1.30	103.72	-46.49	-153.11	163.68	159.66	4.02	40.680	
900.00	895.05	887.28	887.21	3.16	1.47	108.85	-46.50	-153.81	168.84	164.23	4.61	36.660	
1,000.00	993.81	986.52	986.44	3.57	1.64	113.32	-47.58	-154.38	174.91	169.72	5.18	33.747	
1,100.00	1,092.57	1,085.35	1,085.26	4.00	1.81	117.39	-48.90	-154.92	181.88	176.12	5.75	31.608	
1,200.00	1,191.33	1,184.84	1,184.74	4.42	1.98	121.16	-50.25	-155.41	189.64	183.32	6.32	30.000	
1,300.00	1,290.09	1,284.42	1,284.31	4.84	2.16	124.64	-51.74	-155.59	197.82	190.94	6.88	28.741	
1,400.00	1,388.85	1,382.95	1,382.83	5.27	2.33	127.81	-53.18	-155.67	206.59	199.15	7.44	27.775	
1,500.00	1,487.61	1,481.30	1,481.18	5.70	2.50	130.77	-54.34	-155.91	216.24	208.26	7.99	27.070	
1,600.00	1,586.36	1,580.35	1,580.23	6.12	2.67	133.67	-54.79	-155.84	226.57	218.03	8.54	26.545	
1,700.00	1,685.12	1,680.86	1,680.73	6.55	2.84	136.57	-54.77	-154.99	237.09	228.01	9.08	26.106	
1,800.00	1,783.88	1,779.38	1,779.24	6.98	3.01	139.13	-55.15	-153.87	247.68	238.06	9.62	25.745	
1,900.00	1,882.64	1,878.84	1,878.69	7.41	3.18	141.53	-55.35	-152.75	258.84	248.68	10.16	25.475	
2,000.00	1,981.40	1,975.85	1,975.70	7.84	3.35	143.53	-56.06	-152.15	270.42	259.72	10.69	25.289	
2,100.00	2,080.16	2,074.15	2,073.99	8.26	3.53	145.32	-56.54	-152.23	282.96	271.73	11.23	25.197	
2,200.00	2,178.92	2,170.95	2,170.80	8.69	3.70	146.90	-56.98	-152.61	295.99	284.23	11.76	25.167	
2,300.00	2,277.68	2,269.25	2,269.09	9.12	3.87	148.34	-57.03	-153.51	309.87	297.57	12.30	25.198	
2,400.00	2,376.44	2,369.48	2,369.31	9.55	4.05	149.56	-57.73	-154.80	323.68	310.83	12.84	25.200	
2,500.00	2,475.20	2,467.43	2,467.25	9.98	4.22	150.70	-58.44	-155.72	337.38	323.99	13.38	25.214	
2,600.00	2,573.96	2,567.73	2,567.55	10.41	4.39	151.88	-58.60	-156.29	351.42	337.49	13.93	25.236	
2,700.00	2,672.72	2,666.08	2,665.90	10.84	4.57	153.00	-58.94	-156.28	365.10	350.64	14.46	25.248	
2,800.00	2,771.48	2,762.80	2,762.62	11.27	4.74	154.01	-58.93	-156.65	379.42	364.43	14.99	25.313	
2,900.00	2,870.23	2,862.25	2,862.07	11.70	4.91	155.02	-58.50	-156.95	394.15	378.62	15.53	25.382	
3,000.00	2,968.99	2,963.62	2,963.44	12.13	5.09	155.93	-58.68	-157.16	408.44	392.36	16.08	25.403	
3,100.00	3,067.75	3,060.98	3,060.80	12.56	5.26	156.84	-58.74	-156.61	422.51	405.90	16.61	25.440	
3,200.00	3,166.51	3,157.67	3,157.48	12.99	5.43	157.63	-58.52	-156.82	437.32	420.18	17.14	25.521	
3,300.00	3,265.27	3,254.96	3,254.77	13.42	5.60	158.35	-58.12	-157.27	452.49	434.83	17.67	25.612	
3,400.00	3,364.03	3,350.87	3,350.68	13.85	5.76	159.04	-57.27	-157.76	468.16	449.97	18.19	25.736	
3,500.00	3,462.79	3,446.92	3,446.71	14.28	5.93	159.70	-55.85	-158.52	484.54	465.82	18.72	25.889	
3,600.00	3,561.55	3,546.12	3,545.90	14.71	6.10	160.28	-54.39	-159.79	501.21	481.95	19.26	26.026	
3,700.00	3,660.31	3,644.09	3,643.84	15.14	6.28	160.71	-53.72	-161.77	517.59	497.79	19.80	26.146	
3,800.00	3,759.07	3,739.91	3,739.63	15.57	6.44	161.19	-52.12	-163.27	534.64	514.32	20.32	26.309	
3,900.00	3,857.83	3,841.35	3,841.05	16.00	6.62	161.81	-49.83	-163.62	551.69	530.81	20.87	26.430	
4,000.00	3,956.59	3,940.59	3,940.28	16.43	6.79	162.42	-48.10	-163.38	568.07	546.65	21.41	26.528	
4,100.00	4,055.34	4,034.95	4,034.60	16.86	6.96	163.02	-45.60	-162.90	585.18	563.25	21.93	26.687	
4,200.00	4,154.10	4,134.58	4,134.19	17.29	7.13	163.62	-42.79	-162.39	602.51	580.04	22.47	26.815	
4,300.00	4,252.86	4,234.73	4,234.30	17.72	7.31	164.25	-40.11	-161.26	619.51	596.50	23.01	26.920	
4,400.00	4,351.62	4,330.23	4,329.75	18.15	7.47	164.81	-37.46	-160.15	636.65	613.12	23.53	27.054	
4,500.00	4,450.38	4,424.77	4,424.24	18.58	7.64	165.33	-34.25	-159.47	654.58	630.53	24.05	27.221	
4,600.00	4,549.14	4,525.93	4,525.33	19.01	7.81	165.87	-30.95	-158.61	672.40	647.80	24.60	27.335	
4,700.00	4,647.90	4,623.43	4,622.78	19.44	7.98	166.35	-27.86	-157.81	690.21	665.07	25.13	27.465	
4,800.00	4,746.66	4,720.66	4,719.97	19.87	8.15	166.74	-25.07	-157.81	708.09	682.42	25.66	27.592	
4,900.00	4,845.42	4,814.09	4,813.36	20.30	8.32	167.07	-22.05	-158.27	726.52	700.34	26.18	27.756	

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 3J-4H-N165 - Slot RUEGGE 3J
<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 3J-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
5,000.00	4,944.18	4,914.31	4,913.51	20.73	8.49	167.43	-18.53	-158.63	745.18	718.46	26.73	27.883	
5,100.00	5,042.94	5,021.41	5,020.57	21.16	8.68	167.80	-15.55	-158.44	763.00	735.69	27.31	27.938	
5,200.00	5,141.70	5,122.42	5,121.55	21.59	8.86	168.17	-13.21	-157.65	780.20	752.34	27.86	28.001	
5,300.00	5,240.46	5,225.17	5,224.25	22.02	9.04	168.62	-10.77	-155.55	797.04	768.62	28.42	28.044	
5,400.00	5,339.21	5,329.36	5,328.37	22.45	9.22	169.11	-8.80	-152.51	813.17	784.19	28.98	28.055	
5,500.00	5,437.97	5,428.73	5,427.69	22.88	9.39	169.53	-7.31	-149.77	829.04	799.52	29.53	28.079	
5,600.00	5,536.73	5,526.98	5,525.93	23.31	9.56	169.85	-6.31	-148.07	844.86	814.80	30.06	28.103	
5,700.00	5,635.49	5,622.82	5,621.75	23.74	9.73	170.14	-5.17	-146.81	861.00	830.41	30.59	28.147	
5,800.00	5,734.25	5,724.30	5,723.21	24.18	9.91	170.40	-4.10	-145.85	877.15	846.01	31.14	28.164	
5,900.00	5,833.01	5,825.37	5,824.28	24.61	10.08	170.64	-3.62	-144.92	892.78	861.08	31.70	28.166	
6,000.00	5,931.77	5,918.43	5,917.34	25.04	10.25	170.85	-2.71	-144.30	908.97	876.76	32.21	28.219	
6,100.00	6,030.53	6,029.65	6,028.56	25.47	10.44	171.07	-2.46	-143.63	924.49	891.67	32.81	28.175	
6,200.00	6,129.29	6,130.35	6,129.25	25.90	10.61	171.24	-3.07	-143.15	939.30	905.93	33.36	28.155	
6,300.00	6,228.05	6,230.10	6,228.99	26.33	10.79	171.44	-3.35	-141.98	954.19	920.28	33.91	28.142	
6,400.00	6,326.81	6,337.45	6,336.33	26.76	10.97	171.62	-4.56	-141.05	968.39	933.90	34.49	28.081	
6,500.00	6,425.57	6,443.66	6,442.51	27.19	11.16	171.84	-6.17	-139.17	981.97	946.92	35.06	28.011	
6,584.00	6,508.53	6,535.71	6,534.51	27.55	11.32	172.02	-8.42	-137.40	992.61	957.06	35.55	27.924	
6,600.00	6,524.35	6,552.90	6,551.69	27.62	11.34	173.80	-8.95	-137.14	994.39	958.75	35.64	27.902	
6,650.00	6,574.08	6,606.94	6,605.70	27.81	11.44	-173.79	-10.83	-136.53	997.65	961.73	35.92	27.774	
6,700.00	6,624.03	6,661.59	6,660.31	27.97	11.53	-94.98	-13.09	-136.25	997.38	961.19	36.19	27.557	
6,750.00	6,673.96	6,714.63	6,713.28	28.10	11.62	-39.29	-15.64	-136.29	993.59	957.14	36.45	27.262	
6,800.00	6,723.62	6,763.95	6,762.54	28.22	11.71	-30.29	-18.10	-136.41	986.46	949.79	36.68	26.897	
6,850.00	6,772.76	6,812.58	6,811.11	28.32	11.79	-27.36	-20.53	-136.53	976.11	939.22	36.89	26.457	
6,900.00	6,821.16	6,860.30	6,858.77	28.40	11.88	-26.32	-22.90	-136.65	962.61	925.50	37.10	25.945	
6,950.00	6,868.58	6,906.87	6,905.28	28.47	11.96	-26.19	-25.22	-136.76	946.03	908.74	37.30	25.364	
7,000.00	6,914.78	6,952.06	6,950.42	28.54	12.04	-26.66	-27.48	-136.87	926.50	889.02	37.48	24.718	
7,050.00	6,959.54	6,995.65	6,993.96	28.59	12.11	-27.61	-29.65	-136.98	904.14	866.49	37.66	24.010	
7,100.00	7,002.64	7,037.44	7,035.69	28.63	12.18	-29.01	-31.73	-137.08	879.11	841.29	37.82	23.244	
7,150.00	7,043.88	7,077.21	7,075.41	28.67	12.25	-30.87	-33.71	-137.18	851.56	813.59	37.98	22.424	
7,200.00	7,083.04	7,114.77	7,112.93	28.70	12.32	-33.22	-35.59	-137.27	821.71	783.59	38.12	21.555	
7,250.00	7,119.94	7,149.95	7,148.06	28.73	12.38	-36.11	-37.34	-137.36	789.76	751.50	38.26	20.642	
7,300.00	7,154.41	7,182.56	7,180.63	28.76	12.44	-39.62	-38.96	-137.44	755.97	717.58	38.40	19.689	
7,350.00	7,186.26	7,212.46	7,210.49	28.79	12.49	-43.79	-40.45	-137.51	720.61	682.08	38.53	18.702	
7,400.00	7,215.35	7,239.48	7,237.48	28.82	12.54	-48.66	-41.80	-137.57	683.99	645.32	38.67	17.688	
7,450.00	7,241.54	7,263.51	7,261.48	28.85	12.58	-54.17	-43.00	-137.63	646.45	607.63	38.82	16.653	
7,500.00	7,264.69	7,284.43	7,282.37	28.90	12.62	-60.21	-44.04	-137.68	608.39	569.41	38.98	15.607	
7,550.00	7,284.70	7,302.13	7,300.05	28.95	12.65	-66.52	-44.92	-137.73	570.25	531.08	39.17	14.559	
7,600.00	7,301.47	7,316.53	7,314.43	29.01	12.67	-72.78	-45.64	-137.76	532.55	493.16	39.39	13.521	
7,650.00	7,314.91	7,327.55	7,325.44	29.08	12.69	-78.60	-46.19	-137.79	495.88	456.23	39.65	12.507	
7,700.00	7,324.96	7,335.15	7,333.03	29.16	12.71	-83.66	-46.57	-137.81	460.93	420.97	39.96	11.533	
7,750.00	7,331.58	7,339.28	7,337.16	29.25	12.71	-87.73	-46.77	-137.82	428.50	388.16	40.34	10.622	
7,800.00	7,334.72	7,339.93	7,337.81	29.36	12.71	-90.69	-46.81	-137.82	399.48	358.71	40.78	9.797	
7,820.07	7,335.00	7,339.21	7,337.09	29.41	12.71	-91.55	-46.77	-137.82	389.02	348.05	40.96	9.497	
7,900.00	7,335.00	7,335.23	7,333.11	29.62	12.71	-90.87	-46.57	-137.81	355.56	313.80	41.76	8.515	
8,000.00	7,335.00	7,330.24	7,328.13	29.96	12.70	-90.02	-46.32	-137.80	336.46	293.85	42.61	7.896	
8,016.24	7,335.00	7,329.43	7,327.32	30.03	12.70	-89.88	-46.28	-137.79	336.07	293.36	42.71	7.868 SF	
8,100.00	7,335.00	7,325.26	7,323.15	30.39	12.69	-89.17	-46.08	-137.78	346.33	303.42	42.91	8.072	
8,200.00	7,335.00	7,320.27	7,318.17	30.88	12.68	-88.32	-45.83	-137.77	382.92	340.31	42.61	8.986	
8,300.00	7,335.00	7,315.29	7,313.19	31.45	12.67	-87.48	-45.58	-137.76	439.62	397.56	42.06	10.452	
8,400.00	7,335.00	7,310.30	7,308.21	32.09	12.66	-86.63	-45.33	-137.75	509.75	468.25	41.51	12.281	
8,500.00	7,335.00	7,305.32	7,303.23	32.80	12.65	-85.78	-45.08	-137.73	588.54	547.50	41.05	14.338	
8,600.00	7,335.00	7,300.33	7,298.25	33.56	12.64	-84.94	-44.83	-137.72	672.96	632.27	40.69	16.538	

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 3J-4H-N165 - Slot RUEGGE 3J
<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 3J-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 - STELLING 24-4 - CPR WELL - GYRO												<b>Offset Site Error:</b>	0.00 usft
Survey Program: 100-VESSI_GYROFLEX												<b>Offset Well Error:</b>	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
8,700.00	7,335.00	7,295.35	7,293.27	34.38	12.64	-84.10	-44.58	-137.71	761.12	720.70	40.42	18.831	
8,800.00	7,335.00	7,290.36	7,288.29	35.25	12.63	-83.26	-44.34	-137.70	851.88	811.67	40.21	21.187	
8,900.00	7,335.00	7,285.37	7,283.31	36.16	12.62	-82.42	-44.09	-137.69	944.47	904.43	40.05	23.584	
9,000.00	7,335.00	7,280.39	7,278.33	37.13	12.61	-81.59	-43.84	-137.67	1,038.42	998.50	39.92	26.012	
9,100.00	7,335.00	7,275.40	7,273.36	38.13	12.60	-80.76	-43.59	-137.66	1,133.38	1,093.56	39.82	28.462	
9,200.00	7,335.00	7,270.42	7,268.38	39.17	12.59	-79.94	-43.34	-137.65	1,229.12	1,189.38	39.74	30.926	
9,300.00	7,335.00	7,265.43	7,263.40	40.25	12.58	-79.11	-43.09	-137.64	1,325.47	1,285.79	39.68	33.402	

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well RUEGGE 3J-4H-N165 - Slot RUEGGE 3J
<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 3J-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							
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	-103.28	-26.67	-113.04	116.42				
100.00	100.00	92.56	92.56	0.14	0.09	-103.41	-26.88	-112.76	115.92	115.69	0.23	503.355	
200.00	200.00	192.36	192.35	0.50	0.29	-103.85	-27.65	-112.13	115.49	114.70	0.79	146.399	
300.00	299.98	291.84	291.78	0.84	0.52	85.39	-30.66	-111.19	115.19	113.83	1.36	84.568	
312.19	312.17	303.87	303.79	0.88	0.55	85.29	-31.30	-111.06	115.18	113.75	1.43	80.341 CC	
400.00	399.84	390.99	390.63	1.19	0.78	84.25	-38.04	-109.94	115.44	113.48	1.96	58.827	
500.00	499.45	488.88	487.83	1.55	1.05	82.73	-49.51	-108.17	116.05	113.45	2.60	44.609 ES	
600.00	598.70	583.95	582.06	1.93	1.33	82.58	-62.06	-109.39	119.64	116.38	3.26	36.744	
651.76	649.89	632.96	630.57	2.13	1.48	83.29	-68.58	-111.66	123.01	119.42	3.59	34.243	
700.00	697.53	679.85	677.01	2.33	1.61	84.47	-74.39	-114.68	126.85	122.94	3.91	32.450	
800.00	796.29	777.60	773.87	2.74	1.88	87.59	-84.76	-122.65	136.26	131.68	4.58	29.732	
900.00	895.05	874.80	870.11	3.16	2.18	90.35	-95.10	-131.58	147.05	141.77	5.28	27.876	
1,000.00	993.81	973.22	967.35	3.57	2.50	92.57	-106.23	-141.89	159.50	153.51	5.99	26.629	
1,100.00	1,092.57	1,076.03	1,069.08	4.00	2.80	94.59	-117.62	-151.41	170.93	164.23	6.69	25.531	
1,200.00	1,191.33	1,174.29	1,166.47	4.42	3.09	96.45	-127.93	-159.44	181.41	174.02	7.39	24.536	
1,300.00	1,290.09	1,272.21	1,263.40	4.84	3.41	98.00	-138.52	-168.42	193.08	184.96	8.12	23.786	
1,400.00	1,388.85	1,371.24	1,361.42	5.27	3.72	99.44	-149.09	-177.83	205.19	196.36	8.84	23.220	
1,500.00	1,487.61	1,472.06	1,461.30	5.70	4.02	100.90	-159.24	-187.04	217.07	207.52	9.54	22.743	
1,600.00	1,586.36	1,570.72	1,559.13	6.12	4.30	102.30	-168.73	-195.62	228.66	218.41	10.24	22.321	
1,700.00	1,685.12	1,664.22	1,651.60	6.55	4.61	103.29	-178.49	-205.23	241.88	230.93	10.94	22.101	
1,800.00	1,783.88	1,763.63	1,749.75	6.98	4.95	104.09	-189.45	-216.61	256.28	244.59	11.69	21.923	
1,900.00	1,882.64	1,867.17	1,852.19	7.41	5.28	104.98	-200.24	-227.12	269.50	257.06	12.43	21.673	
2,000.00	1,981.40	1,968.77	1,952.93	7.84	5.58	106.00	-209.88	-236.12	281.60	268.44	13.15	21.413	
2,100.00	2,080.16	2,067.11	2,050.58	8.26	5.87	107.10	-218.32	-244.17	293.23	279.37	13.86	21.161	
2,200.00	2,178.92	2,168.33	2,150.90	8.69	6.18	107.88	-228.29	-253.18	305.49	290.91	14.58	20.951	
2,300.00	2,277.68	2,269.07	2,250.86	9.12	6.49	108.64	-238.22	-260.79	316.46	301.15	15.31	20.674	
2,400.00	2,376.44	2,372.25	2,353.14	9.55	6.80	109.19	-249.43	-268.43	327.17	311.13	16.04	20.395	
2,500.00	2,475.20	2,463.73	2,443.89	9.98	7.09	109.73	-258.84	-275.12	337.96	321.21	16.74	20.188	
2,600.00	2,573.96	2,561.18	2,540.41	10.41	7.39	110.25	-268.61	-284.31	350.85	333.39	17.46	20.097	
2,700.00	2,672.72	2,663.89	2,642.24	10.84	7.71	110.84	-278.55	-293.39	363.26	345.08	18.19	19.974	
2,800.00	2,771.48	2,763.68	2,741.16	11.27	8.02	111.30	-288.78	-301.63	375.03	356.12	18.91	19.832	
2,900.00	2,870.23	2,853.19	2,829.78	11.70	8.30	111.65	-298.02	-310.08	387.96	368.36	19.60	19.791	
3,000.00	2,968.99	2,954.27	2,929.85	12.13	8.63	112.12	-307.50	-320.78	402.21	381.88	20.33	19.781	
3,100.00	3,067.75	3,045.37	3,020.01	12.56	8.92	112.53	-315.83	-330.69	416.84	395.82	21.02	19.829	
3,200.00	3,166.51	3,150.88	3,124.42	12.99	9.26	112.99	-325.24	-342.63	431.96	410.19	21.77	19.840	
3,300.00	3,265.27	3,256.85	3,229.44	13.42	9.59	113.42	-335.14	-352.80	445.33	422.82	22.51	19.782	
3,400.00	3,364.03	3,358.29	3,329.89	13.85	9.91	113.66	-346.08	-361.72	457.60	434.36	23.25	19.682	
3,500.00	3,462.79	3,454.33	3,424.93	14.28	10.22	113.83	-356.72	-370.50	470.15	446.17	23.98	19.610	
3,600.00	3,561.55	3,554.92	3,524.49	14.71	10.55	114.01	-367.66	-379.78	482.81	458.10	24.71	19.535	
3,700.00	3,660.31	3,655.75	3,624.28	15.14	10.88	114.16	-378.96	-388.79	495.14	469.69	25.45	19.452	
3,800.00	3,759.07	3,756.81	3,724.30	15.57	11.20	114.29	-390.45	-397.62	507.23	481.03	26.19	19.365	
3,900.00	3,857.83	3,855.39	3,822.04	16.00	11.51	114.55	-400.59	-405.48	518.86	491.95	26.91	19.278	
4,000.00	3,956.59	3,948.81	3,914.73	16.43	11.79	114.89	-409.00	-413.59	531.52	503.90	27.61	19.248	
4,100.00	4,055.34	4,046.71	4,011.73	16.86	12.10	115.14	-418.42	-422.86	544.78	516.45	28.33	19.228	
4,200.00	4,154.10	4,142.00	4,106.07	17.29	12.41	115.33	-428.07	-432.17	558.22	529.16	29.05	19.212	
4,300.00	4,252.86	4,239.14	4,202.03	17.72	12.74	115.40	-438.53	-443.03	572.81	543.03	29.79	19.230	
4,400.00	4,351.62	4,344.34	4,306.24	18.15	13.07	115.63	-448.69	-453.29	586.35	555.82	30.53	19.207	
4,500.00	4,450.38	4,443.08	4,404.13	18.58	13.38	115.90	-457.71	-462.49	599.64	568.39	31.25	19.190	
4,600.00	4,549.14	4,538.79	4,498.83	19.01	13.70	116.01	-467.76	-472.03	613.17	581.20	31.97	19.178	
4,700.00	4,647.90	4,637.03	4,595.86	19.44	14.04	116.03	-478.88	-482.65	627.28	594.56	32.72	19.170	
4,800.00	4,746.66	4,738.94	4,696.41	19.87	14.40	115.96	-491.34	-493.61	641.08	607.60	33.49	19.144	
4,900.00	4,845.42	4,840.27	4,796.42	20.30	14.75	115.90	-503.85	-504.09	654.46	620.22	34.25	19.111	

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 3J-4H-N165 - Slot RUEGGE 3J
<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 3J-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							
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	4,944.18	4,930.80	4,885.86	20.73	15.05	115.92	-514.19	-513.48	668.14	633.17	34.97	19.108	
5,100.00	5,042.94	5,022.11	4,976.07	21.16	15.36	116.00	-523.54	-524.09	683.31	647.62	35.68	19.149	
5,200.00	5,141.70	5,124.51	5,077.24	21.59	15.70	116.11	-533.61	-536.28	698.89	662.47	36.42	19.187	
5,300.00	5,240.46	5,227.45	5,179.20	22.02	16.03	116.34	-542.46	-547.26	713.63	676.47	37.16	19.207	
5,400.00	5,339.21	5,329.13	5,279.83	22.45	16.37	116.48	-552.35	-558.03	727.98	690.09	37.89	19.212	
5,500.00	5,437.97	5,445.02	5,394.68	22.88	16.73	116.68	-563.47	-568.75	741.13	702.49	38.64	19.182	
5,600.00	5,536.73	5,540.61	5,489.50	23.31	17.02	116.86	-572.55	-576.68	753.39	714.03	39.35	19.145	
5,700.00	5,635.49	5,636.90	5,584.86	23.74	17.34	116.95	-582.74	-585.41	766.05	725.97	40.09	19.111	
5,800.00	5,734.25	5,743.59	5,690.47	24.18	17.69	117.01	-594.58	-594.73	778.25	737.42	40.83	19.061	
5,900.00	5,833.01	5,842.11	5,787.93	24.61	18.01	117.02	-606.26	-603.20	790.11	748.53	41.57	19.005	
6,000.00	5,931.77	5,940.83	5,885.58	25.04	18.34	117.03	-617.89	-611.84	802.13	759.81	42.31	18.956	
6,100.00	6,030.53	6,040.15	5,983.87	25.47	18.66	117.06	-629.37	-620.31	814.01	770.95	43.05	18.908	
6,200.00	6,129.29	6,133.93	6,076.67	25.90	18.96	117.09	-639.97	-628.67	826.32	782.54	43.78	18.873	
6,300.00	6,228.05	6,242.54	6,184.48	26.33	19.27	117.33	-649.34	-637.82	839.04	794.55	44.48	18.863	
6,400.00	6,326.81	6,364.31	6,306.02	26.76	19.54	118.04	-654.64	-642.79	848.86	803.78	45.08	18.829	
6,500.00	6,425.57	6,459.30	6,400.98	27.19	19.69	118.87	-655.02	-644.21	857.72	812.04	45.69	18.775	
6,584.00	6,508.53	6,511.71	6,453.20	27.55	19.73	119.60	-650.80	-644.85	867.46	821.27	46.19	18.779	
6,600.00	6,524.35	6,521.53	6,462.92	27.62	19.73	121.64	-649.41	-644.93	869.59	823.31	46.27	18.792	
6,650.00	6,574.08	6,547.00	6,487.99	27.81	19.73	134.88	-644.92	-645.15	876.27	829.78	46.50	18.845	
6,700.00	6,624.03	6,578.00	6,518.18	27.97	19.71	-145.26	-637.91	-645.60	883.05	836.41	46.64	18.934	
6,750.00	6,673.96	6,601.71	6,540.99	28.10	19.68	-88.49	-631.49	-646.20	889.94	843.22	46.72	19.049	
6,800.00	6,723.62	6,630.14	6,567.98	28.22	19.65	-78.24	-622.60	-647.14	896.84	850.10	46.74	19.187	
6,850.00	6,772.76	6,660.03	6,595.90	28.32	19.60	-73.97	-612.01	-648.24	903.52	856.80	46.72	19.340	
6,900.00	6,821.16	6,696.19	6,629.15	28.40	19.53	-71.45	-597.88	-649.73	909.81	863.15	46.66	19.497	
6,950.00	6,868.58	6,735.33	6,664.59	28.47	19.45	-69.76	-581.33	-651.15	915.24	868.65	46.58	19.647	
7,000.00	6,914.78	6,769.00	6,694.46	28.54	19.37	-68.57	-565.83	-652.31	919.97	873.50	46.47	19.796	
7,050.00	6,959.54	6,817.64	6,736.30	28.59	19.23	-67.65	-541.07	-653.33	923.83	877.49	46.34	19.935	
7,100.00	7,002.64	6,866.25	6,776.95	28.63	19.08	-66.99	-514.43	-653.06	925.95	879.76	46.19	20.046	
7,150.00	7,043.88	6,901.10	6,805.16	28.67	18.96	-66.57	-493.98	-652.48	927.08	881.05	46.03	20.142	
7,200.00	7,083.04	6,927.00	6,825.40	28.70	18.87	-66.29	-477.83	-652.03	927.67	881.82	45.85	20.233	
7,250.00	7,119.94	6,959.00	6,849.57	28.73	18.75	-66.14	-456.87	-651.66	927.87	882.20	45.66	20.320	
7,300.00	7,154.41	6,991.00	6,872.97	28.76	18.63	-66.14	-435.04	-651.67	927.69	882.22	45.48	20.398	
7,350.00	7,186.26	7,014.00	6,889.28	28.79	18.55	-66.21	-418.83	-651.91	927.15	881.85	45.30	20.468	
7,400.00	7,215.35	7,046.90	6,911.65	28.82	18.44	-66.44	-394.72	-652.44	926.27	881.13	45.14	20.521	
7,450.00	7,241.54	7,080.71	6,933.33	28.85	18.32	-66.77	-368.77	-652.75	924.72	879.73	44.99	20.552	
7,500.00	7,264.69	7,112.51	6,952.33	28.90	18.20	-67.16	-343.28	-652.88	922.65	877.78	44.87	20.562	
7,550.00	7,284.70	7,141.40	6,968.31	28.95	18.10	-67.58	-319.21	-652.95	920.20	875.42	44.78	20.551	
7,600.00	7,301.47	7,171.10	6,983.37	29.01	17.99	-68.08	-293.63	-653.06	917.49	872.77	44.71	20.519	
7,650.00	7,314.91	7,202.12	6,997.53	29.08	17.89	-68.64	-266.03	-653.10	914.47	869.78	44.69	20.463	
7,700.00	7,324.96	7,235.26	7,011.04	29.16	17.78	-69.30	-235.77	-653.09	911.10	866.40	44.70	20.382	
7,750.00	7,331.58	7,266.67	7,022.48	29.25	17.69	-70.01	-206.52	-653.07	907.38	862.62	44.76	20.271	
7,800.00	7,334.72	7,295.66	7,031.67	29.36	17.62	-70.74	-179.03	-653.13	903.51	858.64	44.87	20.137	
7,820.07	7,335.00	7,308.00	7,035.11	29.41	17.59	-71.06	-167.18	-653.19	901.95	857.03	44.92	20.079	
7,900.00	7,335.00	7,362.48	7,046.96	29.62	17.50	-71.79	-114.03	-653.31	896.99	851.80	45.19	19.850	
8,000.00	7,335.00	7,435.00	7,056.00	29.96	17.48	-72.34	-42.11	-653.02	893.55	847.89	45.66	19.568	
8,046.62	7,335.00	7,465.51	7,057.53	30.16	17.51	-72.44	-11.65	-652.97	893.14	847.18	45.96	19.433	
8,100.00	7,335.00	7,501.07	7,058.10	30.39	17.59	-72.48	23.92	-653.23	893.67	847.35	46.32	19.294	
8,200.00	7,335.00	7,579.18	7,058.60	30.88	17.88	-72.57	101.97	-655.54	897.05	850.00	47.05	19.067	
8,300.00	7,335.00	7,698.98	7,062.14	31.45	18.50	-72.90	221.62	-660.47	900.99	853.14	47.86	18.827	
8,400.00	7,335.00	7,795.50	7,068.39	32.09	19.09	-73.36	317.86	-664.26	903.66	854.76	48.90	18.481	
8,500.00	7,335.00	7,902.83	7,076.10	32.80	19.92	-73.92	424.82	-668.40	906.14	855.88	50.26	18.028	
8,600.00	7,335.00	8,021.10	7,080.29	33.56	21.05	-74.21	543.00	-669.44	906.77	854.77	52.00	17.438	

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 3J-4H-N165 - Slot RUEGGE 3J
<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 3J-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	
8,621.54	7,335.00	8,041.53	7,080.44	33.73	21.26	-74.22	563.43	-669.31	906.77	854.39	52.38	17.311	
8,700.00	7,335.00	8,114.67	7,080.82	34.38	22.01	-74.25	636.56	-668.95	906.92	853.14	53.78	16.862	
8,800.00	7,335.00	8,211.78	7,080.10	35.25	23.12	-74.22	733.67	-668.85	907.82	852.08	55.74	16.287	
8,900.00	7,335.00	8,313.34	7,079.03	36.16	24.30	-74.17	835.22	-668.94	908.99	851.25	57.74	15.742	
9,000.00	7,335.00	8,418.39	7,078.70	37.13	25.48	-74.15	940.28	-668.40	909.36	849.64	59.73	15.226	
9,100.00	7,335.00	8,510.28	7,077.44	38.13	26.71	-74.08	1,032.15	-667.65	909.77	847.78	61.99	14.676	
9,200.00	7,335.00	8,597.35	7,075.45	39.17	27.91	-73.98	1,119.20	-668.25	911.82	847.54	64.28	14.185	
9,300.00	7,335.00	8,703.48	7,073.30	40.25	29.36	-73.88	1,225.30	-669.09	913.93	847.30	66.63	13.716	
9,400.00	7,335.00	8,799.82	7,071.40	41.35	30.71	-73.79	1,321.62	-669.82	916.00	846.98	69.02	13.272	
9,500.00	7,335.00	8,892.33	7,069.47	42.49	32.06	-73.71	1,414.10	-670.93	918.54	847.06	71.48	12.851	
9,600.00	7,335.00	8,985.40	7,068.77	43.66	33.45	-73.73	1,507.13	-673.43	922.11	848.04	74.07	12.450	
9,700.00	7,335.00	9,083.50	7,067.89	44.85	35.02	-73.74	1,605.19	-676.19	925.85	849.05	76.80	12.055	
9,800.00	7,335.00	9,195.41	7,066.26	46.06	36.77	-73.71	1,717.04	-679.35	929.84	850.23	79.61	11.680	
9,900.00	7,335.00	9,297.54	7,064.16	47.29	38.38	-73.62	1,819.14	-680.69	932.47	850.10	82.36	11.322	
10,000.00	7,335.00	9,398.79	7,063.59	48.55	39.87	-73.63	1,920.37	-681.98	934.63	849.59	85.05	10.990	
10,100.00	7,335.00	9,482.70	7,063.56	49.82	41.19	-73.67	2,004.26	-684.04	937.80	850.06	87.74	10.689	
10,200.00	7,335.00	9,559.27	7,063.22	51.11	42.45	-73.72	2,080.75	-687.42	942.98	852.59	90.39	10.432	
10,300.00	7,335.00	9,693.68	7,062.58	52.41	44.62	-73.80	2,215.03	-692.94	947.91	854.36	93.56	10.132	
10,400.00	7,335.00	9,784.54	7,061.54	53.73	46.14	-73.78	2,305.87	-694.87	951.09	854.68	96.41	9.865	
10,500.00	7,335.00	9,877.47	7,059.96	55.07	47.66	-73.75	2,398.73	-697.98	955.54	856.30	99.24	9.628	
10,600.00	7,335.00	9,991.97	7,059.31	56.41	49.48	-73.79	2,513.18	-701.27	959.24	857.02	102.22	9.384	
10,700.00	7,335.00	10,114.74	7,056.87	57.77	51.52	-73.67	2,635.92	-701.76	960.95	855.65	105.30	9.126	
10,800.00	7,335.00	10,210.77	7,055.51	59.14	53.06	-73.60	2,731.94	-701.23	961.62	853.48	108.15	8.892	
10,900.00	7,335.00	10,300.79	7,054.00	60.51	54.57	-73.54	2,821.94	-701.76	963.43	852.38	111.04	8.676	
11,000.00	7,335.00	10,389.66	7,052.63	61.90	56.09	-73.49	2,910.79	-702.92	965.93	851.98	113.95	8.477	
11,100.00	7,335.00	10,484.41	7,051.71	63.30	57.69	-73.49	3,005.50	-705.44	969.55	852.64	116.91	8.293	
11,200.00	7,335.00	10,589.72	7,050.19	64.70	59.47	-73.47	3,110.77	-708.10	973.18	853.22	119.95	8.113	
11,300.00	7,335.00	10,706.10	7,049.78	66.12	61.39	-73.49	3,227.13	-709.74	975.39	852.34	123.06	7.926	
11,400.00	7,335.00	10,803.85	7,050.11	67.53	63.02	-73.53	3,324.87	-710.69	977.02	850.95	126.07	7.750	
11,500.00	7,335.00	10,897.99	7,048.93	68.96	64.67	-73.50	3,419.00	-711.58	979.08	849.98	129.10	7.584	
11,600.00	7,335.00	10,995.34	7,047.72	70.39	66.32	-73.46	3,516.34	-712.80	981.43	849.32	132.11	7.429	
11,700.00	7,335.00	11,086.52	7,046.86	71.83	67.89	-73.46	3,607.49	-714.79	984.58	849.48	135.09	7.288	
11,800.00	7,335.00	11,214.76	7,045.30	73.28	70.05	-73.41	3,735.70	-716.35	986.93	848.61	138.32	7.135	
11,900.00	7,335.00	11,318.31	7,045.96	74.73	71.77	-73.46	3,839.25	-716.27	987.47	846.07	141.40	6.983	
12,000.00	7,335.00	11,412.61	7,045.91	76.18	73.41	-73.47	3,933.55	-715.91	987.92	843.45	144.47	6.838	
12,100.00	7,335.00	11,497.41	7,045.55	77.64	74.88	-73.47	4,018.35	-716.57	989.59	842.13	147.46	6.711	
12,188.01	7,335.00	11,586.07	7,044.41	78.93	76.41	-73.44	4,106.99	-718.03	991.99	841.82	150.17	6.606 SF	

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well RUEGGE 3J-4H-N165 - Slot RUEGGE 3J
<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 3J-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	-101.05	-17.20	-88.13	90.60				
100.00	100.00	88.71	88.71	0.14	0.09	-101.16	-17.31	-87.75	89.45	89.21	0.23	383.738	
200.00	200.00	190.01	190.00	0.50	0.27	-101.80	-18.00	-86.18	88.06	87.30	0.76	115.612	
300.00	299.98	290.53	290.40	0.84	0.50	86.83	-21.11	-82.56	85.13	83.80	1.34	63.658	
400.00	399.84	390.50	390.14	1.19	0.75	86.31	-26.38	-78.46	82.05	80.12	1.93	42.560	
500.00	499.45	490.35	489.50	1.55	1.03	85.81	-34.91	-73.51	78.69	76.12	2.57	30.671	
600.00	598.70	590.10	588.49	1.93	1.30	85.98	-45.93	-68.17	75.30	72.09	3.21	23.424	
651.76	649.89	641.96	639.95	2.13	1.45	87.15	-51.65	-65.42	73.50	69.94	3.56	20.635	
700.00	697.53	690.34	687.93	2.33	1.59	88.37	-57.25	-62.67	71.70	67.81	3.89	18.431	
800.00	796.29	790.21	786.93	2.74	1.89	90.85	-69.07	-56.79	67.92	63.32	4.60	14.776	
900.00	895.05	890.04	885.87	3.16	2.21	93.48	-81.05	-50.97	64.36	59.05	5.31	12.120	
1,000.00	993.81	990.05	984.91	3.57	2.55	95.95	-93.52	-44.99	60.83	54.79	6.04	10.068	
1,100.00	1,092.57	1,089.95	1,083.56	4.00	2.89	96.66	-108.02	-38.87	57.37	50.57	6.79	8.443	
1,200.00	1,191.33	1,189.92	1,182.35	4.42	3.19	97.94	-122.08	-32.76	53.90	46.42	7.49	7.199	
1,300.00	1,290.09	1,289.97	1,281.33	4.84	3.49	100.48	-135.21	-26.46	50.29	42.12	8.17	6.155	
1,400.00	1,388.85	1,389.75	1,380.14	5.27	3.79	104.21	-147.64	-20.20	46.85	38.02	8.83	5.307	
1,500.00	1,487.61	1,489.47	1,478.98	5.70	4.09	109.33	-159.41	-14.09	43.90	34.46	9.44	4.651	
1,600.00	1,586.36	1,589.24	1,577.99	6.12	4.39	116.20	-170.28	-8.37	41.97	31.99	9.98	4.205	
1,700.00	1,685.12	1,689.48	1,677.41	6.55	4.70	123.80	-181.32	-2.05	40.13	29.66	10.46	3.835	
1,800.00	1,783.88	1,789.55	1,776.54	6.98	5.02	131.41	-193.16	4.88	38.08	27.16	10.92	3.488	
1,900.00	1,882.64	1,889.35	1,875.39	7.41	5.33	139.95	-204.92	11.99	36.66	25.34	11.31	3.240	
1,977.45	1,959.13	1,966.57	1,951.88	7.74	5.57	146.66	-214.05	17.31	36.25	24.62	11.62	3.119 CC	
2,000.00	1,981.40	1,989.03	1,974.14	7.84	5.64	148.63	-216.66	18.81	36.29	24.57	11.71	3.097 ES	
2,100.00	2,080.16	2,088.74	2,072.99	8.26	5.95	156.80	-228.12	25.08	37.31	25.15	12.17	3.067 SF	
2,200.00	2,178.92	2,188.19	2,171.63	8.69	6.25	163.13	-239.55	30.38	39.47	26.76	12.71	3.106	
2,300.00	2,277.68	2,287.49	2,270.29	9.12	6.54	169.86	-249.36	35.96	43.49	30.19	13.31	3.268	
2,400.00	2,376.44	2,386.60	2,368.81	9.55	6.82	177.90	-257.33	43.29	49.37	35.37	14.01	3.525	
2,500.00	2,475.20	2,486.83	2,468.40	9.98	7.10	-175.00	-265.06	51.44	56.28	41.50	14.78	3.807	
2,600.00	2,573.96	2,586.97	2,567.86	10.41	7.39	-170.43	-274.20	58.60	62.45	46.90	15.55	4.016	
2,700.00	2,672.72	2,687.09	2,667.34	10.84	7.68	-167.90	-284.04	64.29	68.16	51.90	16.26	4.192	
2,800.00	2,771.48	2,787.35	2,766.92	11.27	7.97	-165.57	-294.06	70.22	73.85	56.87	16.98	4.349	
2,900.00	2,870.23	2,887.70	2,866.43	11.70	8.28	-162.90	-305.05	76.98	78.77	61.03	17.74	4.441	
3,000.00	2,968.99	2,988.23	2,966.01	12.13	8.60	-160.34	-316.97	83.89	82.97	64.46	18.51	4.483	
3,100.00	3,067.75	3,087.60	3,064.46	12.56	8.91	-158.11	-328.75	90.65	87.30	68.01	19.29	4.526	
3,200.00	3,166.51	3,187.17	3,163.17	12.99	9.22	-156.37	-340.08	97.07	92.14	72.10	20.04	4.597	
3,300.00	3,265.27	3,286.39	3,261.62	13.42	9.52	-155.20	-350.85	102.94	97.42	76.65	20.77	4.691	
3,400.00	3,364.03	3,385.58	3,360.09	13.85	9.81	-153.84	-360.80	109.61	103.76	82.24	21.51	4.823	
3,500.00	3,462.79	3,486.64	3,460.34	14.28	10.12	-152.51	-371.57	116.42	109.55	87.30	22.25	4.923	
3,600.00	3,561.55	3,586.87	3,559.70	14.71	10.43	-151.32	-383.13	122.88	114.46	91.47	22.99	4.978	
3,700.00	3,660.31	3,685.51	3,657.54	15.14	10.73	-150.46	-394.00	128.96	119.81	96.09	23.73	5.049	
3,800.00	3,759.07	3,783.65	3,755.04	15.57	11.02	-149.85	-403.44	135.10	126.54	102.10	24.44	5.177	
3,900.00	3,857.83	3,884.40	3,855.13	16.00	11.31	-149.15	-412.65	141.92	133.92	108.77	25.15	5.325	
4,000.00	3,956.59	3,986.94	3,956.92	16.43	11.62	-148.72	-423.60	147.72	139.47	113.65	25.82	5.402	
4,100.00	4,055.34	4,087.90	4,057.00	16.86	11.93	-148.28	-435.79	152.99	143.57	117.06	26.51	5.416	
4,200.00	4,154.10	4,188.71	4,156.85	17.29	12.25	-147.69	-448.58	158.48	147.19	119.97	27.22	5.407	
4,300.00	4,252.86	4,287.06	4,254.17	17.72	12.57	-146.84	-461.33	164.60	150.87	122.88	27.99	5.390	
4,400.00	4,351.62	4,385.94	4,352.26	18.15	12.87	-146.54	-472.64	169.88	155.63	126.93	28.70	5.423	
4,500.00	4,450.38	4,486.64	4,452.17	18.58	13.18	-146.33	-484.02	175.09	160.46	131.09	29.37	5.463	
4,600.00	4,549.14	4,586.97	4,551.62	19.01	13.49	-145.87	-496.08	180.81	164.84	134.75	30.08	5.479	
4,700.00	4,647.90	4,686.85	4,650.58	19.44	13.81	-145.37	-508.24	186.61	169.13	138.32	30.81	5.489	
4,800.00	4,746.66	4,788.12	4,750.78	19.87	14.14	-144.61	-521.41	193.04	172.91	141.36	31.56	5.480	
4,900.00	4,845.42	4,885.69	4,847.33	20.30	14.45	-143.85	-533.91	199.52	177.02	144.66	32.35	5.471	

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 3J-4H-N165 - Slot RUEGGE 3J
<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 3J-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
5,000.00	4,944.18	4,981.97	4,942.89	20.73	14.74	-143.56	-544.00	205.53	183.07	149.98	33.10	5.532	
5,100.00	5,042.94	5,082.53	5,042.71	21.16	15.04	-143.23	-554.15	212.17	189.64	155.84	33.80	5.611	
5,200.00	5,141.70	5,182.44	5,141.91	21.59	15.34	-142.99	-564.22	218.55	196.12	161.62	34.50	5.685	
5,300.00	5,240.46	5,283.74	5,242.44	22.02	15.64	-142.72	-574.91	224.91	202.15	166.95	35.19	5.744	
5,400.00	5,339.21	5,383.12	5,340.94	22.45	15.95	-142.25	-586.33	231.60	207.55	171.61	35.94	5.775	
5,500.00	5,437.97	5,481.63	5,438.73	22.88	16.25	-142.01	-596.29	238.07	214.10	177.44	36.66	5.840	
5,600.00	5,536.73	5,582.95	5,539.41	23.31	16.54	-142.14	-606.41	243.23	220.08	182.79	37.30	5.901	
5,700.00	5,635.49	5,683.25	5,638.97	23.74	16.84	-142.03	-617.11	249.03	225.78	187.80	37.98	5.944	
5,800.00	5,734.25	5,782.83	5,737.69	24.18	17.15	-141.65	-628.36	255.66	231.34	192.62	38.72	5.975	
5,900.00	5,833.01	5,878.77	5,833.05	24.61	17.41	-141.84	-637.56	260.45	237.63	198.23	39.40	6.032	
6,000.00	5,931.77	5,977.26	5,931.33	25.04	17.64	-142.98	-643.69	262.52	245.58	205.69	39.89	6.156	
6,100.00	6,030.53	6,072.42	6,026.35	25.47	17.83	-144.33	-648.66	263.41	254.04	213.67	40.37	6.293	
6,200.00	6,129.29	6,165.94	6,119.85	25.90	18.00	-145.95	-650.76	263.67	265.05	224.27	40.78	6.500	
6,300.00	6,228.05	6,263.47	6,217.38	26.33	18.15	-147.76	-651.16	263.38	277.76	236.64	41.12	6.755	
6,400.00	6,326.81	6,359.20	6,313.10	26.76	18.28	-149.49	-651.03	262.67	291.07	249.60	41.47	7.019	
6,500.00	6,425.57	6,436.74	6,390.55	27.19	18.36	-150.97	-647.53	262.22	308.79	267.00	41.79	7.390	
6,584.00	6,508.53	6,499.69	6,453.13	27.55	18.39	-152.09	-640.90	262.98	329.02	287.10	41.92	7.849	
6,600.00	6,524.35	6,512.00	6,465.32	27.62	18.39	-150.68	-639.22	263.22	333.23	291.29	41.94	7.946	
6,650.00	6,574.08	6,553.60	6,506.43	27.81	18.39	-139.24	-632.87	263.96	345.00	302.98	42.02	8.211	
6,700.00	6,624.03	6,593.17	6,545.38	27.97	18.39	-61.02	-625.92	264.51	354.60	312.56	42.04	8.434	
6,750.00	6,673.96	6,639.51	6,590.76	28.10	18.37	-5.66	-616.57	265.07	362.12	319.98	42.14	8.593	
6,800.00	6,723.62	6,681.56	6,631.87	28.22	18.34	3.34	-607.74	265.32	366.68	324.52	42.16	8.697	
6,850.00	6,772.76	6,720.92	6,670.08	28.32	18.31	6.59	-598.32	265.66	369.31	327.20	42.12	8.769	
6,900.00	6,821.16	6,761.06	6,708.81	28.40	18.28	8.25	-587.78	266.08	369.79	327.73	42.06	8.792	
6,950.00	6,868.58	6,799.00	6,745.12	28.47	18.23	9.29	-576.79	266.36	368.26	326.33	41.93	8.783	
7,000.00	6,914.78	6,830.00	6,774.46	28.54	18.19	10.03	-566.78	266.52	365.22	323.65	41.57	8.786	
7,050.00	6,959.54	6,862.00	6,804.09	28.59	18.13	10.60	-554.72	266.74	361.48	320.34	41.14	8.787	
7,100.00	7,002.64	6,893.00	6,831.91	28.63	18.06	11.08	-541.07	267.13	357.47	316.88	40.59	8.807	
7,150.00	7,043.88	6,918.09	6,853.72	28.67	17.99	11.50	-528.66	267.53	353.04	313.33	39.71	8.890	
7,200.00	7,083.04	6,944.56	6,875.92	28.70	17.90	11.87	-514.26	267.89	348.32	309.57	38.74	8.990	
7,250.00	7,119.94	6,970.26	6,896.40	28.73	17.81	12.17	-498.75	268.14	343.66	306.05	37.61	9.136	
7,300.00	7,154.41	6,995.86	6,915.62	28.76	17.72	12.42	-481.86	268.28	339.13	302.76	36.37	9.326	
7,350.00	7,186.26	7,020.00	6,932.53	28.79	17.62	12.63	-464.63	268.38	334.83	299.90	34.93	9.585	
7,400.00	7,215.35	7,051.00	6,952.26	28.82	17.48	12.79	-440.74	268.42	330.97	297.14	33.83	9.782	
7,450.00	7,241.54	7,070.13	6,963.20	28.85	17.39	12.91	-425.05	268.34	327.38	295.37	32.01	10.229	
7,500.00	7,264.69	7,095.48	6,976.15	28.90	17.27	12.97	-403.26	268.09	324.34	293.77	30.57	10.610	
7,550.00	7,284.70	7,123.42	6,988.52	28.95	17.13	12.97	-378.23	267.67	321.58	292.22	29.36	10.952	
7,600.00	7,301.47	7,154.48	7,000.58	29.01	16.97	12.95	-349.62	267.07	318.44	290.00	28.44	11.196	
7,650.00	7,314.91	7,178.00	7,008.33	29.08	16.86	12.96	-327.41	266.64	315.28	287.86	27.42	11.499	
7,700.00	7,324.96	7,209.00	7,016.37	29.16	16.72	12.95	-297.49	266.14	312.24	285.28	26.96	11.582	
7,750.00	7,331.58	7,237.55	7,021.51	29.25	16.59	12.92	-269.42	265.55	309.48	282.74	26.74	11.574	
7,800.00	7,334.72	7,270.00	7,025.40	29.36	16.45	12.81	-237.22	264.51	306.29	279.43	26.87	11.401	
7,820.07	7,335.00	7,286.32	7,026.76	29.41	16.39	12.75	-220.97	263.88	304.74	277.77	26.97	11.299	
7,900.00	7,335.00	7,349.31	7,029.05	29.62	16.16	12.27	-158.09	261.28	300.92	273.36	27.56	10.920	
8,000.00	7,335.00	7,444.76	7,029.76	29.96	15.99	11.59	-62.69	258.30	299.36	271.11	28.25	10.595	
8,052.35	7,335.00	7,494.03	7,029.68	30.19	16.02	11.26	-13.43	256.96	299.07	270.36	28.71	10.417	
8,100.00	7,335.00	7,538.86	7,029.28	30.39	16.16	11.07	31.39	256.39	299.31	270.12	29.18	10.256	
8,200.00	7,335.00	7,637.75	7,027.80	30.88	16.57	10.99	130.26	257.07	300.74	270.53	30.21	9.956	
8,300.00	7,335.00	7,742.34	7,027.13	31.45	17.08	10.87	234.85	257.41	301.27	270.16	31.11	9.683	
8,400.00	7,335.00	7,844.26	7,027.68	32.09	17.69	10.74	336.76	257.46	300.59	268.44	32.16	9.348	
8,500.00	7,335.00	7,943.25	7,028.16	32.80	18.49	10.63	435.75	257.60	299.99	266.64	33.35	8.996	
8,600.00	7,335.00	8,043.57	7,028.61	33.56	19.43	10.63	536.07	258.34	299.53	264.96	34.58	8.663	

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 3J-4H-N165 - Slot RUEGGE 3J
<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 3J-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
8,700.00	7,335.00	8,144.40	7,029.43	34.38	20.42	10.55	636.89	258.62	298.63	262.84	35.79	8.343	
8,800.00	7,335.00	8,247.72	7,030.88	35.25	21.54	10.64	740.20	259.68	297.29	260.28	37.01	8.032	
8,900.00	7,335.00	8,349.82	7,033.55	36.16	22.73	10.86	842.25	261.14	294.83	256.49	38.34	7.690	
9,000.00	7,335.00	8,449.71	7,037.06	37.13	24.00	11.23	942.06	263.22	291.62	251.80	39.82	7.323	
9,100.00	7,335.00	8,544.07	7,039.04	38.13	25.26	11.65	1,036.36	265.81	289.95	248.38	41.57	6.975	
9,173.32	7,335.00	8,615.23	7,039.66	38.89	26.28	12.04	1,107.48	268.27	289.72	246.89	42.83	6.765	
9,200.00	7,335.00	8,641.58	7,039.79	39.17	26.65	12.18	1,133.81	269.18	289.73	246.46	43.27	6.695	
9,300.00	7,335.00	8,738.48	7,039.68	40.25	28.08	12.61	1,230.66	272.21	290.35	245.34	45.00	6.452	
9,400.00	7,335.00	8,840.57	7,038.76	41.35	29.59	12.90	1,332.72	274.79	291.61	245.11	46.50	6.271	
9,500.00	7,335.00	8,940.96	7,038.39	42.49	31.07	13.12	1,433.08	276.86	292.24	244.18	48.06	6.081	
9,564.71	7,335.00	9,006.69	7,038.49	43.25	32.06	13.18	1,498.80	277.70	292.21	243.20	49.01	5.962	
9,600.00	7,335.00	9,041.30	7,038.46	43.66	32.58	13.20	1,533.42	278.08	292.26	242.69	49.57	5.896	
9,700.00	7,335.00	9,141.01	7,038.14	44.85	34.18	13.18	1,633.12	278.87	292.57	241.48	51.09	5.727	
9,800.00	7,335.00	9,240.39	7,037.41	46.06	35.76	13.03	1,732.49	279.06	293.14	240.58	52.56	5.577	
9,900.00	7,335.00	9,343.98	7,037.62	47.29	37.36	12.85	1,836.09	278.96	292.73	238.87	53.85	5.436	
10,000.00	7,335.00	9,444.14	7,037.62	48.55	39.00	12.52	1,936.24	278.05	292.34	237.12	55.22	5.294	
10,100.00	7,335.00	9,545.61	7,038.21	49.82	40.64	11.85	2,037.67	275.26	291.01	234.66	56.35	5.164	
10,200.00	7,335.00	9,644.57	7,038.43	51.11	42.28	11.15	2,136.59	272.42	290.05	232.47	57.58	5.038	
10,300.00	7,335.00	9,744.11	7,038.39	52.41	43.97	10.41	2,236.09	269.44	289.38	230.62	58.76	4.925	
10,400.00	7,335.00	9,845.91	7,038.92	53.73	45.65	9.58	2,337.82	265.96	288.12	228.33	59.79	4.819	
10,500.00	7,335.00	9,944.34	7,039.25	55.07	47.30	8.71	2,436.18	262.29	287.07	226.11	60.96	4.709	
10,557.55	7,335.00	9,999.99	7,039.14	55.84	48.22	8.37	2,491.82	261.04	286.91	225.16	61.75	4.646	
10,600.00	7,335.00	10,042.00	7,039.00	56.41	48.92	8.22	2,533.82	260.61	286.95	224.61	62.34	4.603	
10,700.00	7,335.00	10,143.86	7,039.09	57.77	50.61	8.08	2,635.68	260.78	286.76	223.07	63.70	4.502	
10,790.07	7,335.00	10,232.54	7,039.21	59.00	52.12	7.76	2,724.35	259.88	286.42	221.45	64.97	4.409	
10,800.00	7,335.00	10,242.24	7,039.18	59.14	52.29	7.72	2,734.06	259.75	286.42	221.32	65.10	4.399	
10,900.00	7,335.00	10,339.69	7,038.63	60.51	53.96	7.53	2,831.50	259.66	286.86	220.22	66.63	4.305	
11,000.00	7,335.00	10,442.36	7,038.05	61.90	55.67	7.65	2,934.16	261.20	287.51	219.42	68.08	4.223	
11,100.00	7,335.00	10,540.59	7,037.73	63.30	57.37	7.73	3,032.38	262.43	287.88	218.17	69.72	4.129	
11,200.00	7,335.00	10,642.79	7,037.52	64.70	59.11	7.73	3,134.58	263.31	288.09	216.96	71.14	4.050	
11,300.00	7,335.00	10,743.06	7,037.66	66.12	60.80	7.80	3,234.84	264.51	288.01	215.33	72.69	3.962	
11,400.00	7,335.00	10,843.51	7,038.11	67.53	62.49	7.97	3,335.27	266.13	287.67	213.39	74.28	3.873	
11,467.72	7,335.00	10,910.21	7,038.28	68.50	63.65	8.00	3,401.97	266.80	287.52	212.14	75.39	3.814	
11,500.00	7,335.00	10,941.96	7,038.24	68.96	64.22	7.99	3,433.72	267.04	287.56	211.66	75.90	3.789	
11,600.00	7,335.00	11,040.65	7,037.84	70.39	65.98	7.94	3,532.41	267.61	287.92	210.46	77.46	3.717	
11,700.00	7,335.00	11,144.48	7,037.49	71.83	67.75	7.69	3,636.24	267.29	288.11	209.44	78.67	3.662	
11,800.00	7,335.00	11,246.81	7,038.59	73.28	69.48	7.29	3,738.55	265.97	286.76	206.91	79.85	3.591	
11,900.00	7,335.00	11,347.23	7,039.92	74.73	71.22	6.75	3,838.94	263.90	285.09	204.05	81.04	3.518	
12,000.00	7,335.00	11,446.92	7,041.15	76.18	72.95	6.18	3,938.60	261.74	283.53	201.27	82.27	3.447	
12,100.00	7,335.00	11,546.46	7,042.12	77.64	74.71	5.50	4,038.09	259.07	282.20	198.76	83.45	3.382	
12,188.01	7,335.00	11,635.55	7,043.19	78.93	76.23	4.89	4,127.14	256.72	280.87	196.45	84.42	3.327	

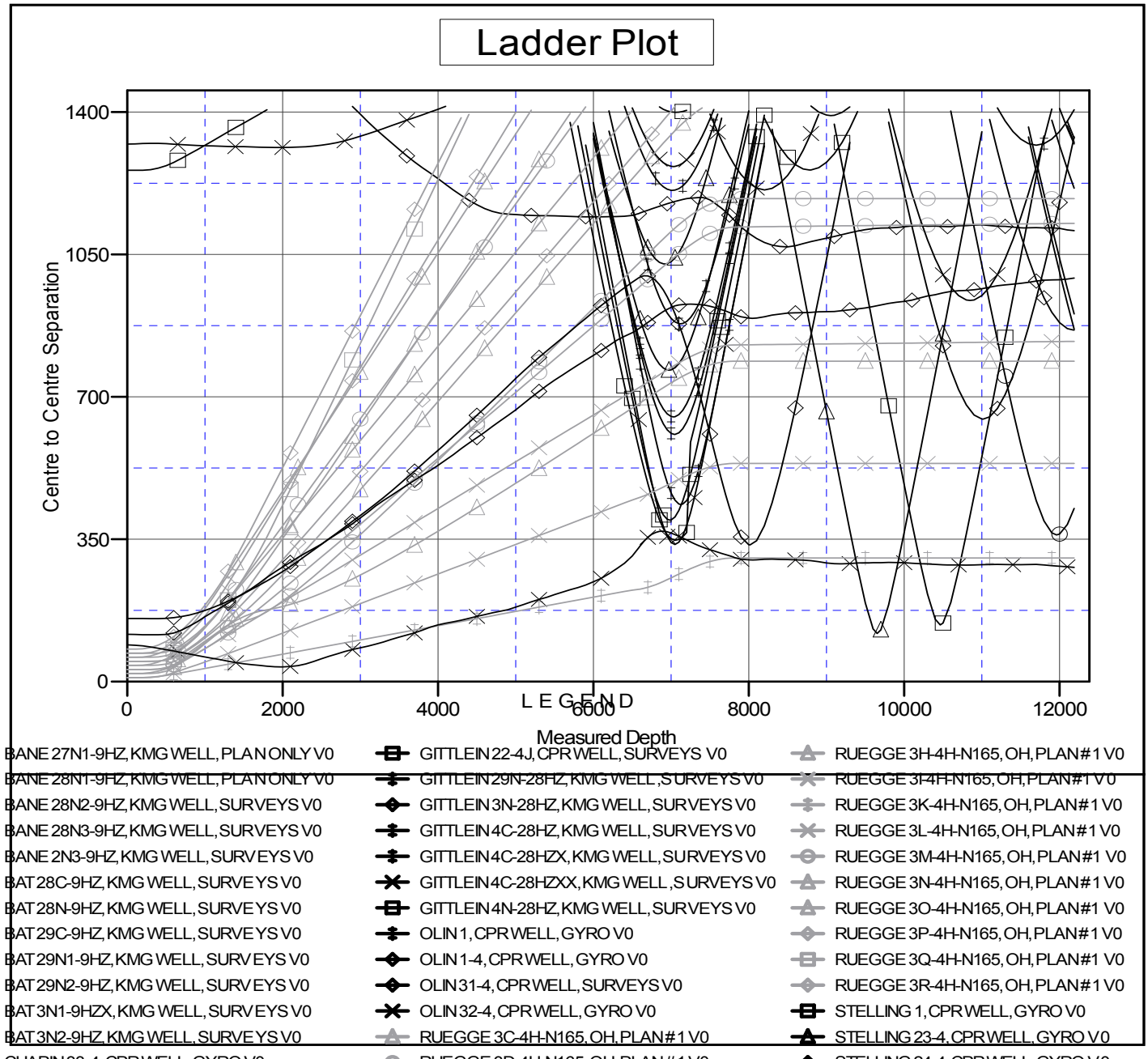
# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well RUEGGE 3J-4H-N165 - Slot RUEGGE 3J
<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 3J-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 3J-4H-N165 - Slot RUEGGE 3J-4H-N165 S  
Coordinate System is US State Plane 1983, Colorado Northern Zone  
Grid Convergence at Surface is: 0.54°



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