



**CRESTONE PEAK**  
RESOURCES

Project: DJ BASIN  
Site: S25-T1N-R66W (SAM)  
Well: SAM 3C-25H-M166  
Wellbore: OH  
Design: PLAN #1

# SECTION DETAILS

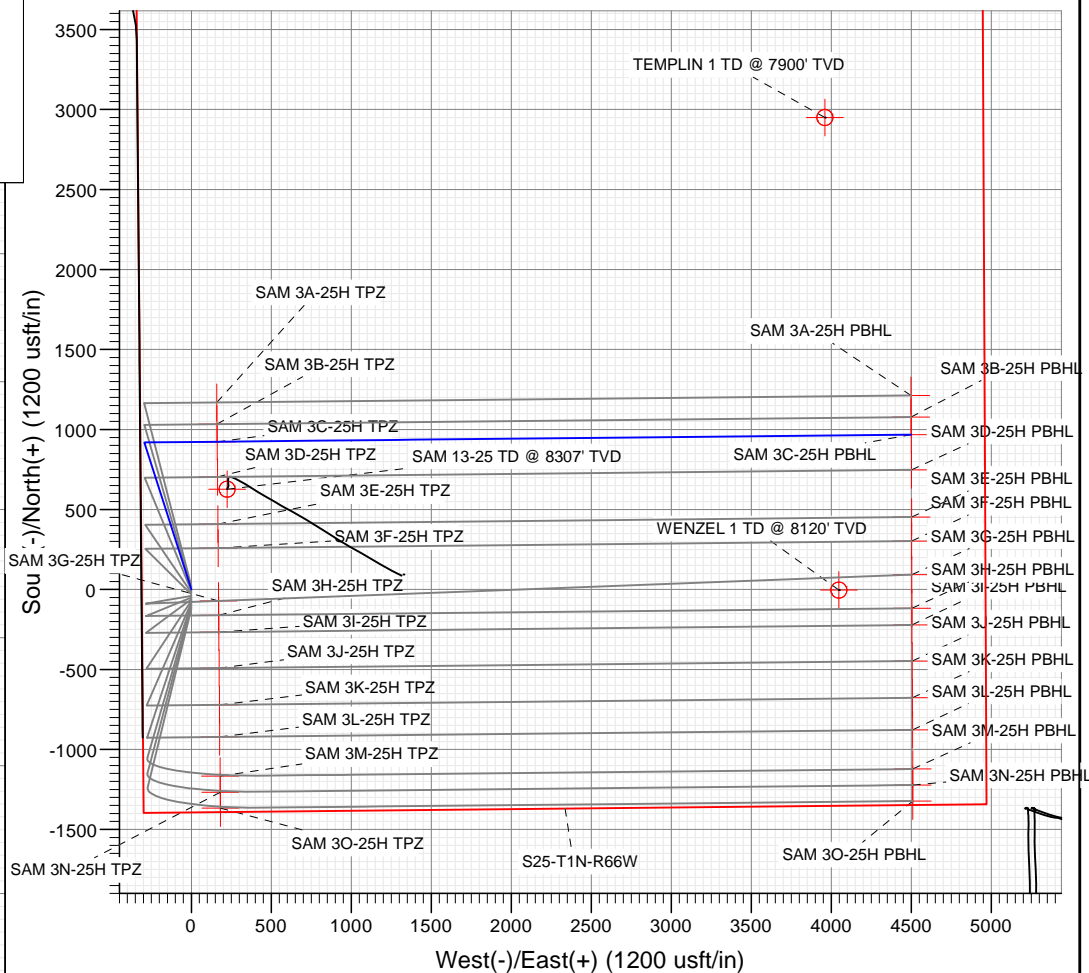
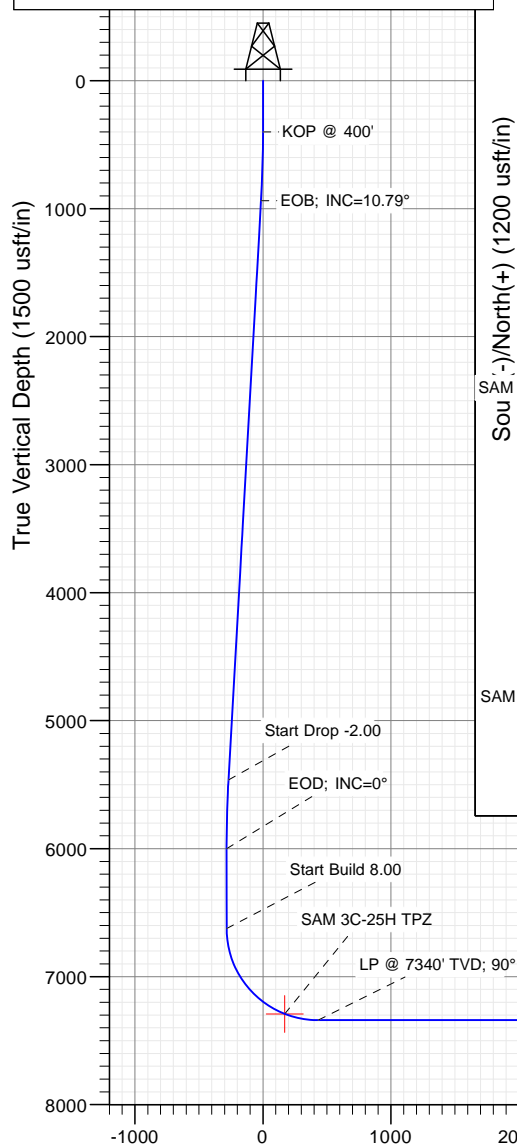
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	
3	939.74	10.79	342.28	936.56	48.29	-15.43	2.00	342.28	-14.93	
4	5548.18	10.79	342.28	5463.44	870.47	-278.13	0.00	0.00	-269.15	
5	6087.93	0.00	0.00	6000.00	918.76	-293.56	2.00	180.00	-284.08	
6	6711.73	0.00	0.00	6623.80	918.76	-293.56	0.00	0.00	-284.08	
7	7836.73	90.00	89.41	7340.00	926.10	422.60	8.00	89.41	432.11	
8	11913.53	90.00	89.41	7340.00	967.86	4499.18	0.00	0.00	4508.91	SAM 3C-25H PBHL

PLAN #1  
SAM 3C-25H-M166  
16XXX LR  
23 KB @ 5100.00usft  
Ground Level @ 5086.00  
North American Datum 1983  
Well SAM 3C-25H-M166, Grid North

Name	Type	Target	No Target (Freehand)	Azimuth	Origin	Type	N/S	E/W	From	TVD
SAM 3C-25H TPZ				89.41			N/S	0.00	0.00	7290.62
SAM 3C-25H PBHL							+N/-S	+E/-W	Latitude	Longitude
							7290.62	923.42	40.021371	-104.733248
							7340.00	967.86	40.021389	-104.717759

## FORMATION TOP DETAILS

No formation data is available



Azimuths to Grid North  
True North: -0.49°  
Magnetic North: 7.82°

Magnetic Field  
Strength: 52247.5nT  
Dip Angle: 66.47°  
Date: 11/17/2016  
Model: HDGM

## Vertical Section at 89.41° (1500 usft/in)

## WELL DETAILS: SAM 3C-25H-M166

+N/-S	+E/-W	Northing	Ground Level:	5086.00	Latitude	Longitude
0.00	0.00	1250636.72	Easting	3214576.87	40.018840	-104.733853

**CATHEDRAL**



# Cathedral Energy Services

## Planning Report

<b>Database:</b>	USA EDM 5000 Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well SAM 3C-25H-M166
<b>Company:</b>	Crestone Peak Resources	<b>TVD Reference:</b>	23' KB @ 5109.00usft
<b>Project:</b>	DJ BASIN	<b>MD Reference:</b>	23' KB @ 5109.00usft
<b>Site:</b>	S25-T1N-R66W (SAM)	<b>North Reference:</b>	Grid
<b>Well:</b>	SAM 3C-25H-M166	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	PLAN #1		

<b>Project</b>	DJ BASIN		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	Colorado Northern Zone		

Site		S25-T1N-R66W (SAM)			
Site Position:		Northing:	1,250,656.77 usft	Latitude:	40.018895
From:	Lat/Long	Easting:	3,214,576.98 usft	Longitude:	-104.733852
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.50 °

Well	SAM 3C-25H-M166					
Well Position	+N/-S	0.00 usft	Northing:	1,250,636.72 usft	Latitude:	40.018840
	+E/-W	0.00 usft	Easting:	3,214,576.87 usft	Longitude:	-104.733853
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	5,086.00 usft

<b>Wellbore</b>	OH				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	HDGM	11/17/2016	8.32	66.47	52,248

<b>Design</b>	PLAN #1				
<b>Audit Notes:</b>					
<b>Version:</b>	<b>Phase:</b>	PLAN	<b>Tie On Depth:</b>	0.00	
<b>Vertical Section:</b>	<b>Depth From (TVD) (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Direction (°)</b>	
	0.00	0.00	0.00	89.41	

<b>Plan Sections</b>										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00	
939.74	10.79	342.28	936.56	48.29	-15.43	2.00	2.00	0.00	342.28	
5,548.18	10.79	342.28	5,463.44	870.47	-278.13	0.00	0.00	0.00	0.00	
6,087.93	0.00	0.00	6,000.00	918.76	-293.56	2.00	-2.00	0.00	180.00	
6,711.73	0.00	0.00	6,623.80	918.76	-293.56	0.00	0.00	0.00	0.00	
7,836.73	90.00	89.41	7,340.00	926.10	422.60	8.00	8.00	0.00	89.41	
11,913.53	90.00	89.41	7,340.00	967.86	4,499.18	0.00	0.00	0.00	0.00	SAM 3C-25H PBHL

# Cathedral Energy Services

## Planning Report

<b>Database:</b>	USA EDM 5000 Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well SAM 3C-25H-M166
<b>Company:</b>	Crestone Peak Resources	<b>TVD Reference:</b>	23' KB @ 5109.00usft
<b>Project:</b>	DJ BASIN	<b>MD Reference:</b>	23' KB @ 5109.00usft
<b>Site:</b>	S25-T1N-R66W (SAM)	<b>North Reference:</b>	Grid
<b>Well:</b>	SAM 3C-25H-M166	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	PLAN #1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100u)	Comments / Formations
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	KOP @ 400'
500.00	2.00	342.28	499.98	1.66	-0.53	-0.51	2.00	2.00	
600.00	4.00	342.28	599.84	6.65	-2.12	-2.06	2.00	2.00	
700.00	6.00	342.28	699.45	14.95	-4.78	-4.62	2.00	2.00	
800.00	8.00	342.28	798.70	26.56	-8.49	-8.21	2.00	2.00	
900.00	10.00	342.28	897.47	41.46	-13.25	-12.82	2.00	2.00	
939.74	10.79	342.28	936.56	48.29	-15.43	-14.93	2.00	2.00	EOB; INC=10.79°
1,000.00	10.79	342.28	995.75	59.04	-18.86	-18.26	0.00	0.00	
1,100.00	10.79	342.28	1,093.98	76.88	-24.56	-23.77	0.00	0.00	
1,200.00	10.79	342.28	1,192.21	94.72	-30.27	-29.29	0.00	0.00	
1,300.00	10.79	342.28	1,290.44	112.56	-35.97	-34.80	0.00	0.00	
1,400.00	10.79	342.28	1,388.67	130.40	-41.67	-40.32	0.00	0.00	
1,500.00	10.79	342.28	1,486.90	148.24	-47.37	-45.84	0.00	0.00	
1,600.00	10.79	342.28	1,585.13	166.08	-53.07	-51.35	0.00	0.00	
1,700.00	10.79	342.28	1,683.36	183.93	-58.77	-56.87	0.00	0.00	
1,800.00	10.79	342.28	1,781.59	201.77	-64.47	-62.39	0.00	0.00	
1,900.00	10.79	342.28	1,879.82	219.61	-70.17	-67.90	0.00	0.00	
2,000.00	10.79	342.28	1,978.05	237.45	-75.87	-73.42	0.00	0.00	
2,100.00	10.79	342.28	2,076.28	255.29	-81.57	-78.94	0.00	0.00	
2,200.00	10.79	342.28	2,174.51	273.13	-87.27	-84.45	0.00	0.00	
2,300.00	10.79	342.28	2,272.74	290.97	-92.97	-89.97	0.00	0.00	
2,400.00	10.79	342.28	2,370.97	308.81	-98.67	-95.49	0.00	0.00	
2,500.00	10.79	342.28	2,469.20	326.65	-104.37	-101.00	0.00	0.00	
2,600.00	10.79	342.28	2,567.43	344.49	-110.07	-106.52	0.00	0.00	
2,700.00	10.79	342.28	2,665.66	362.33	-115.77	-112.03	0.00	0.00	
2,800.00	10.79	342.28	2,763.89	380.17	-121.47	-117.55	0.00	0.00	
2,900.00	10.79	342.28	2,862.12	398.01	-127.17	-123.07	0.00	0.00	
3,000.00	10.79	342.28	2,960.35	415.86	-132.87	-128.58	0.00	0.00	
3,100.00	10.79	342.28	3,058.58	433.70	-138.57	-134.10	0.00	0.00	
3,200.00	10.79	342.28	3,156.82	451.54	-144.27	-139.62	0.00	0.00	
3,300.00	10.79	342.28	3,255.05	469.38	-149.97	-145.13	0.00	0.00	
3,400.00	10.79	342.28	3,353.28	487.22	-155.67	-150.65	0.00	0.00	
3,500.00	10.79	342.28	3,451.51	505.06	-161.38	-156.17	0.00	0.00	
3,600.00	10.79	342.28	3,549.74	522.90	-167.08	-161.68	0.00	0.00	
3,700.00	10.79	342.28	3,647.97	540.74	-172.78	-167.20	0.00	0.00	
3,800.00	10.79	342.28	3,746.20	558.58	-178.48	-172.72	0.00	0.00	
3,900.00	10.79	342.28	3,844.43	576.42	-184.18	-178.23	0.00	0.00	
4,000.00	10.79	342.28	3,942.66	594.26	-189.88	-183.75	0.00	0.00	
4,100.00	10.79	342.28	4,040.89	612.10	-195.58	-189.26	0.00	0.00	
4,200.00	10.79	342.28	4,139.12	629.94	-201.28	-194.78	0.00	0.00	
4,300.00	10.79	342.28	4,237.35	647.78	-206.98	-200.30	0.00	0.00	
4,400.00	10.79	342.28	4,335.58	665.63	-212.68	-205.81	0.00	0.00	
4,500.00	10.79	342.28	4,433.81	683.47	-218.38	-211.33	0.00	0.00	
4,600.00	10.79	342.28	4,532.04	701.31	-224.08	-216.85	0.00	0.00	
4,700.00	10.79	342.28	4,630.27	719.15	-229.78	-222.36	0.00	0.00	
4,800.00	10.79	342.28	4,728.50	736.99	-235.48	-227.88	0.00	0.00	
4,900.00	10.79	342.28	4,826.73	754.83	-241.18	-233.40	0.00	0.00	
5,000.00	10.79	342.28	4,924.96	772.67	-246.88	-238.91	0.00	0.00	

# Cathedral Energy Services

## Planning Report

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<b>Company:</b>	Crestone Peak Resources	<b>TVD Reference:</b>	23' KB @ 5109.00usft
<b>Project:</b>	DJ BASIN	<b>MD Reference:</b>	23' KB @ 5109.00usft
<b>Site:</b>	S25-T1N-R66W (SAM)	<b>North Reference:</b>	Grid
<b>Well:</b>	SAM 3C-25H-M166	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	PLAN #1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100u)	Comments / Formations
5,100.00	10.79	342.28	5,023.19	790.51	-252.58	-244.43	0.00	0.00	
5,200.00	10.79	342.28	5,121.42	808.35	-258.28	-249.95	0.00	0.00	
5,300.00	10.79	342.28	5,219.65	826.19	-263.98	-255.46	0.00	0.00	
5,400.00	10.79	342.28	5,317.88	844.03	-269.68	-260.98	0.00	0.00	
5,500.00	10.79	342.28	5,416.11	861.87	-275.38	-266.49	0.00	0.00	
5,548.18	10.79	342.28	5,463.44	870.47	-278.13	-269.15	0.00	0.00	Start Drop -2.00
5,600.00	9.76	342.28	5,514.43	879.28	-280.94	-271.88	2.00	-2.00	
5,700.00	7.76	342.28	5,613.26	893.78	-285.58	-276.36	2.00	-2.00	
5,800.00	5.76	342.28	5,712.56	904.99	-289.16	-279.83	2.00	-2.00	
5,900.00	3.76	342.28	5,812.21	912.89	-291.68	-282.27	2.00	-2.00	
6,000.00	1.76	342.28	5,912.09	917.47	-293.15	-283.69	2.00	-2.00	
6,087.93	0.00	0.00	6,000.00	918.76	-293.56	-284.08	2.00	-2.00	EOD; INC=0°
6,100.00	0.00	0.00	6,012.07	918.76	-293.56	-284.08	0.00	0.00	
6,200.00	0.00	0.00	6,112.07	918.76	-293.56	-284.08	0.00	0.00	
6,300.00	0.00	0.00	6,212.07	918.76	-293.56	-284.08	0.00	0.00	
6,400.00	0.00	0.00	6,312.07	918.76	-293.56	-284.08	0.00	0.00	
6,500.00	0.00	0.00	6,412.07	918.76	-293.56	-284.08	0.00	0.00	
6,600.00	0.00	0.00	6,512.07	918.76	-293.56	-284.08	0.00	0.00	
6,700.00	0.00	0.00	6,612.07	918.76	-293.56	-284.08	0.00	0.00	
6,711.73	0.00	0.00	6,623.80	918.76	-293.56	-284.08	0.00	0.00	Start Build 8.00
6,800.00	7.06	89.41	6,711.85	918.82	-288.13	-278.65	8.00	8.00	
6,900.00	15.06	89.41	6,809.91	919.01	-268.96	-259.48	8.00	8.00	
7,000.00	23.06	89.41	6,904.35	919.35	-236.33	-226.85	8.00	8.00	
7,100.00	31.06	89.41	6,993.33	919.81	-190.87	-181.39	8.00	8.00	
7,200.00	39.06	89.41	7,075.12	920.40	-133.48	-123.99	8.00	8.00	
7,300.00	47.06	89.41	7,148.12	921.10	-65.26	-55.77	8.00	8.00	
7,400.00	55.06	89.41	7,210.92	921.90	12.46	21.95	8.00	8.00	
7,500.00	63.06	89.41	7,262.29	922.77	98.16	107.65	8.00	8.00	
7,600.00	71.06	89.41	7,301.23	923.72	190.17	199.67	8.00	8.00	
7,700.00	79.06	89.41	7,326.99	924.70	286.71	296.21	8.00	8.00	
7,800.00	87.06	89.41	7,339.06	925.72	385.89	395.40	8.00	8.00	
7,836.73	90.00	89.41	7,340.00	926.10	422.60	432.11	8.00	8.00	LP @ 7340' TVD; 90°
7,900.00	90.00	89.41	7,340.00	926.75	485.87	495.39	0.00	0.00	
8,000.00	90.00	89.41	7,340.00	927.77	585.86	595.39	0.00	0.00	
8,100.00	90.00	89.41	7,340.00	928.79	685.86	695.39	0.00	0.00	
8,200.00	90.00	89.41	7,340.00	929.82	785.85	795.39	0.00	0.00	
8,300.00	90.00	89.41	7,340.00	930.84	885.85	895.39	0.00	0.00	
8,400.00	90.00	89.41	7,340.00	931.87	985.84	995.39	0.00	0.00	
8,500.00	90.00	89.41	7,340.00	932.89	1,085.84	1,095.39	0.00	0.00	
8,600.00	90.00	89.41	7,340.00	933.92	1,185.83	1,195.39	0.00	0.00	
8,700.00	90.00	89.41	7,340.00	934.94	1,285.83	1,295.39	0.00	0.00	
8,800.00	90.00	89.41	7,340.00	935.97	1,385.82	1,395.39	0.00	0.00	
8,900.00	90.00	89.41	7,340.00	936.99	1,485.82	1,495.39	0.00	0.00	
9,000.00	90.00	89.41	7,340.00	938.01	1,585.81	1,595.39	0.00	0.00	
9,100.00	90.00	89.41	7,340.00	939.04	1,685.80	1,695.39	0.00	0.00	
9,200.00	90.00	89.41	7,340.00	940.06	1,785.80	1,795.39	0.00	0.00	
9,300.00	90.00	89.41	7,340.00	941.09	1,885.79	1,895.39	0.00	0.00	
9,400.00	90.00	89.41	7,340.00	942.11	1,985.79	1,995.39	0.00	0.00	
9,500.00	90.00	89.41	7,340.00	943.14	2,085.78	2,095.39	0.00	0.00	
9,600.00	90.00	89.41	7,340.00	944.16	2,185.78	2,195.39	0.00	0.00	
9,700.00	90.00	89.41	7,340.00	945.19	2,285.77	2,295.39	0.00	0.00	
9,800.00	90.00	89.41	7,340.00	946.21	2,385.77	2,395.39	0.00	0.00	

# Cathedral Energy Services

## Planning Report

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<b>Company:</b>	Crestone Peak Resources	<b>TVD Reference:</b>	23' KB @ 5109.00usft
<b>Project:</b>	DJ BASIN	<b>MD Reference:</b>	23' KB @ 5109.00usft
<b>Site:</b>	S25-T1N-R66W (SAM)	<b>North Reference:</b>	Grid
<b>Well:</b>	SAM 3C-25H-M166	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	PLAN #1		

### Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100u)	Comments / Formations
9,900.00	90.00	89.41	7,340.00	947.23	2,485.76	2,495.39	0.00	0.00	
10,000.00	90.00	89.41	7,340.00	948.26	2,585.76	2,595.39	0.00	0.00	
10,100.00	90.00	89.41	7,340.00	949.28	2,685.75	2,695.39	0.00	0.00	
10,200.00	90.00	89.41	7,340.00	950.31	2,785.75	2,795.39	0.00	0.00	
10,300.00	90.00	89.41	7,340.00	951.33	2,885.74	2,895.39	0.00	0.00	
10,400.00	90.00	89.41	7,340.00	952.36	2,985.74	2,995.39	0.00	0.00	
10,500.00	90.00	89.41	7,340.00	953.38	3,085.73	3,095.39	0.00	0.00	
10,600.00	90.00	89.41	7,340.00	954.41	3,185.73	3,195.39	0.00	0.00	
10,700.00	90.00	89.41	7,340.00	955.43	3,285.72	3,295.39	0.00	0.00	
10,800.00	90.00	89.41	7,340.00	956.45	3,385.72	3,395.39	0.00	0.00	
10,900.00	90.00	89.41	7,340.00	957.48	3,485.71	3,495.39	0.00	0.00	
11,000.00	90.00	89.41	7,340.00	958.50	3,585.71	3,595.39	0.00	0.00	
11,100.00	90.00	89.41	7,340.00	959.53	3,685.70	3,695.39	0.00	0.00	
11,200.00	90.00	89.41	7,340.00	960.55	3,785.69	3,795.39	0.00	0.00	
11,300.00	90.00	89.41	7,340.00	961.58	3,885.69	3,895.39	0.00	0.00	
11,400.00	90.00	89.41	7,340.00	962.60	3,985.68	3,995.39	0.00	0.00	
11,500.00	90.00	89.41	7,340.00	963.63	4,085.68	4,095.39	0.00	0.00	
11,600.00	90.00	89.41	7,340.00	964.65	4,185.67	4,195.39	0.00	0.00	
11,700.00	90.00	89.41	7,340.00	965.67	4,285.67	4,295.39	0.00	0.00	
11,800.00	90.00	89.41	7,340.00	966.70	4,385.66	4,395.39	0.00	0.00	
11,900.00	90.00	89.41	7,340.00	967.72	4,485.66	4,495.39	0.00	0.00	
11,913.53	90.00	89.41	7,340.00	967.86	4,499.18	4,508.91	0.00	0.00	TD at 11913.53

### Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
SAM 3C-25H PBHL	0.00	0.00	7,340.00	967.86	4,499.18	1,251,604.58	3,219,076.05	40.021389	-104.717759
- plan hits target center									
- Point									
SAM 3C-25H TPZ	0.00	0.00	7,340.00	923.42	161.47	1,251,560.14	3,214,738.34	40.021371	-104.733248
- plan misses target center by 46.19usft at 7588.67usft MD (7297.47 TVD, 923.61 N, 179.48 E)									
- Point									

### Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Comment
400.00	400.00	0.00	0.00	KOP @ 400'
939.74	936.56	48.29	-15.43	EOB; INC=10.79°
5,548.18	5,463.44	870.47	-278.13	Start Drop -2.00
6,087.93	6,000.00	918.76	-293.56	EOD; INC=0°
6,711.73	6,623.80	918.76	-293.56	Start Build 8.00
7,836.73	7,340.00	926.10	422.60	LP @ 7340' TVD; 90°
11,913.53	7,340.00	967.86	4,499.18	TD at 11913.53

# **Crestone Peak Resources**

**DJ BASIN**

**S25-T1N-R66W (SAM)**

**SAM 3C-25H-M166**

**OH**

**PLAN #1**

## **Anticollision Report**

**18 November, 2016**

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well SAM 3C-25H-M166
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 5109.00usft
<b>Reference Site:</b>	S25-T1N-R66W (SAM)	<b>MD Reference:</b>	23' KB @ 5109.00usft
<b>Site Error:</b>	0.00usft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	SAM 3C-25H-M166	<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 1,500.00usft	<b>Error Surface:</b>	Elliptical Conic
<b>Warning Levels Evaluated at:</b>	2.00 Sigma		

<b>Survey Tool Program</b>	<b>Date</b>	11/18/2016		
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>
0.00	11,913.53	PLAN #1 (OH)	MWD+HDGM	OWSG MWD + HDGM

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well SAM 3C-25H-M166
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 5109.00usft
<b>Reference Site:</b>	S25-T1N-R66W (SAM)	<b>MD Reference:</b>	23' KB @ 5109.00usft
<b>Site Error:</b>	0.00usft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	SAM 3C-25H-M166	<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)	Distance Between Ellipses (usft)	Separation Factor	Warning
S25-T1N-R66W (SAM)						
Bare Spaces 11-36 (EXISTING) - CPR WELL - NO SURV						Out of range
Beierle 1 (EXISTING) - CPR WELL - NO SURVEYS						Out of range
Beierle 1-A (EXISTING) - CPR WELL - NO SURVEYS						Out of range
Beierle 2 (EXISTING) - CPR WELL - SURVEYS	4,737.60	4,738.47	667.54	631.42	18.482	CC, ES
Beierle 2 (EXISTING) - CPR WELL - SURVEYS	6,750.00	6,811.73	792.78	746.42	17.099	SF
Beierle KE 26-361HN - GWOG WELL - GWOG WELL	7,323.03	10,710.59	413.37	350.18	6.542	CC
Beierle KE 26-361HN - GWOG WELL - GWOG WELL	7,350.00	10,710.55	414.76	348.67	6.276	ES
Beierle KE 26-361HN - GWOG WELL - GWOG WELL	7,450.00	10,710.40	442.98	368.45	5.943	SF
Gilmore 1-30 (EXISTING) - CPR WELL - NO SURVEYS						Out of range
Lehl 1 (EXISTING) - CPR WELL - NO SURVEYS						Out of range
Lochbuie 1 (EXISTING) - CPR WELL - NO SURVEYS						Out of range
Lochbuie 21-31 (EXISTING) - CPR WELL - GYRO						Out of range
Lochbuie 2A-31H-D165 (EXISTING) - CPR WELL - SUR						Out of range
Lochbuie 2B-31H-D165 (EXISTING) - CPR WELL - SUR						Out of range
Lochbuie 2C-31H-D165 (EXISTING) - CPR WELL - SUR						Out of range
Lochbuie 2D-31H-D165 (EXISTING) - CPR WELL - SUR						Out of range
Lochbuie 2E-31H-D165 (EXISTING) - CPR WELL - SUR						Out of range
Lochbuie 2F-31H-D165 (PLAN) - CPR WELL - PLAN ON						Out of range
Lochbuie 2G-31H-D165 (EXISTING) - CPR WELL - SUR						Out of range
Lochbuie 2H-31H-D165 (EXISTING) - CPR WELL - SUR						Out of range
Lutz 1-A (EXISTING) - CPR WELL - NO SURVEYS						Out of range
Sam 1 (EXISTING) - CPR WELL - NO SURVEYS	400.00	361.00	1,329.18	1,327.57	825.472	CC
Sam 1 (EXISTING) - CPR WELL - NO SURVEYS	500.00	460.98	1,329.59	1,327.51	639.940	ES
Sam 1 (EXISTING) - CPR WELL - NO SURVEYS	1,100.00	500.00	1,460.15	1,454.80	273.031	SF
Sam 13-25 (EXISTING) - CPR WELL - SURVEYS	7,633.91	7,463.54	265.93	212.69	4.995	CC
Sam 13-25 (EXISTING) - CPR WELL - SURVEYS	7,650.00	7,467.83	266.37	212.44	4.939	ES
Sam 13-25 (EXISTING) - CPR WELL - SURVEYS	7,700.00	7,479.01	273.30	217.56	4.903	SF
SAM 3A-25H-M166 - OH - PLAN #1	200.00	200.00	20.04	19.04	20.179	CC
SAM 3A-25H-M166 - OH - PLAN #1	11,913.53	12,018.55	254.60	-35.43	0.878	Level 1, ES, SF
SAM 3B-25H-M166 - OH - PLAN #1	300.00	300.00	9.83	8.12	5.747	CC, ES
SAM 3B-25H-M166 - OH - PLAN #1	11,913.53	12,169.93	263.86	124.50	1.893	SF
SAM 3D-25H-M166 - OH - PLAN #1	400.00	400.00	10.20	7.77	4.201	CC
SAM 3D-25H-M166 - OH - PLAN #1	11,913.53	11,950.31	230.89	-59.43	0.795	Level 1, ES, SF
SAM 3E-25H-M166 - OH - PLAN #1	400.00	400.00	20.03	17.60	8.254	CC, ES
SAM 3E-25H-M166 - OH - PLAN #1	11,913.53	11,848.32	515.09	213.02	1.705	SF
SAM 3F-25H-M166 - OH - PLAN #1	400.00	400.00	30.24	27.81	12.459	CC, ES
SAM 3F-25H-M166 - OH - PLAN #1	11,913.53	11,909.47	668.84	367.94	2.223	SF
SAM 3G-25H-M166 - OH - PLAN #1	400.00	400.00	40.07	37.64	16.510	CC, ES
SAM 3G-25H-M166 - OH - PLAN #1	11,913.53	11,825.78	875.36	574.11	2.906	SF
SAM 3H-25H-M166 - OH - PLAN #1	400.00	400.00	50.27	47.84	20.713	CC, ES
SAM 3H-25H-M166 - OH - PLAN #1	11,913.53	12,070.04	1,111.41	815.54	3.756	SF
SAM 3I-25H-M166 - OH - PLAN #1	400.00	400.00	60.10	57.67	24.765	CC, ES
SAM 3I-25H-M166 - OH - PLAN #1	11,913.53	11,906.06	1,192.15	891.96	3.971	SF
SAM 3J-25H-M166 - OH - PLAN #1	400.00	400.00	69.94	67.52	28.820	CC, ES
SAM 3J-25H-M166 - OH - PLAN #1	11,913.53	11,845.06	1,415.22	1,114.05	4.699	SF
SAM 3K-25H-M166 - OH - PLAN #1	400.00	400.00	80.14	77.71	33.021	CC, ES
SAM 3K-25H-M166 - OH - PLAN #1	700.00	696.54	96.72	92.15	21.152	SF
SAM 3L-25H-M166 - OH - PLAN #1	400.00	400.00	89.98	87.56	37.078	CC, ES
SAM 3L-25H-M166 - OH - PLAN #1	700.00	692.56	111.33	106.76	24.357	SF
SAM 3M-25H-M166 - OH - PLAN #1	400.00	400.00	100.17	97.75	41.278	CC, ES
SAM 3M-25H-M166 - OH - PLAN #1	700.00	687.48	129.58	124.98	28.165	SF
SAM 3N-25H-M166 - OH - PLAN #1	300.00	300.00	110.01	108.30	64.337	CC, ES
SAM 3N-25H-M166 - OH - PLAN #1	700.00	681.18	150.70	146.04	32.306	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 SAM 3C-25H-M166
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 5109.00usft
<b>Reference Site:</b>	S25-T1N-R66W (SAM)	<b>MD Reference:</b>	23' KB @ 5109.00usft
<b>Site Error:</b>	0.00usft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	SAM 3C-25H-M166	<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						
S25-T1N-R66W (SAM)						
SAM 3O-25H-M166 - OH - PLAN #1	200.00	200.00	120.22	119.22	121.067	CC, ES
SAM 3O-25H-M166 - OH - PLAN #1	700.00	673.39	175.42	170.65	36.824	SF
State 7-36 CG (EXISTING) - CPR WELL - NO SURVEYS						Out of range
Templin 1 (EXISTING) - CPR WELL - NO SURVEYS						Out of range
Wenzel 1 (EXISTING) - CPR WELL - NO SURVEYS	11,451.51	7,261.00	967.09	822.30	6.679	CC
Wenzel 1 (EXISTING) - CPR WELL - NO SURVEYS	11,500.00	7,261.00	968.31	822.28	6.631	ES, SF

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well SAM 3C-25H-M166
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 5109.00usft
<b>Reference Site:</b>	S25-T1N-R66W (SAM)	<b>MD Reference:</b>	23' KB @ 5109.00usft
<b>Site Error:</b>	0.00usft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	SAM 3C-25H-M166	<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 S25-T1N-R66W (SAM) - Beierle 2 (EXISTING) - CPR WELL - SURVEYS												Offset Site Error:	0.00 usft
Survey Program: 1357-ISCWSA MWD												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	
1,600.00	1,585.13	1,645.92	1,644.53	5.99	2.36	-4.46	1,548.44	-613.38	1,492.90	1,485.12	7.78	191.990	
1,700.00	1,683.36	1,746.85	1,745.30	6.43	2.56	-4.37	1,545.94	-608.43	1,470.18	1,461.83	8.35	176.135	
1,800.00	1,781.59	1,902.00	1,900.03	6.86	2.93	-4.30	1,537.84	-600.80	1,444.82	1,435.78	9.04	159.816	
1,900.00	1,879.82	2,021.94	2,019.42	7.30	3.22	-4.44	1,526.85	-598.27	1,417.08	1,407.44	9.64	147.061	
2,000.00	1,978.05	2,112.87	2,109.72	7.74	3.43	-4.75	1,516.35	-600.24	1,388.77	1,378.61	10.17	136.612	
2,100.00	2,076.28	2,200.70	2,196.78	8.17	3.63	-5.16	1,505.60	-604.71	1,360.96	1,350.26	10.70	127.244	
2,200.00	2,174.51	2,331.22	2,325.65	8.61	3.96	-5.97	1,487.22	-614.09	1,332.41	1,321.11	11.31	117.837	
2,300.00	2,272.74	2,443.22	2,435.37	9.05	4.30	-6.90	1,467.65	-625.06	1,301.97	1,290.04	11.93	109.154	
2,400.00	2,370.97	2,571.40	2,560.13	9.49	4.73	-8.17	1,442.06	-639.44	1,270.28	1,257.66	12.62	100.684	
2,500.00	2,469.20	2,742.01	2,724.88	9.93	5.45	-9.99	1,400.55	-654.70	1,234.11	1,220.70	13.41	92.004	
2,600.00	2,567.43	2,887.00	2,862.41	10.37	6.21	-11.92	1,356.75	-668.11	1,193.68	1,179.45	14.23	83.901	
2,700.00	2,665.66	2,954.58	2,926.01	10.81	6.56	-12.96	1,334.93	-674.88	1,152.35	1,137.42	14.93	77.172	
2,800.00	2,763.89	3,032.44	2,999.78	11.26	6.93	-14.17	1,311.21	-682.46	1,112.92	1,097.26	15.66	71.062	
2,900.00	2,862.12	3,109.94	3,073.32	11.70	7.29	-15.44	1,287.98	-690.13	1,074.64	1,058.23	16.41	65.477	
3,000.00	2,960.35	3,180.43	3,140.32	12.14	7.64	-16.68	1,267.58	-698.13	1,038.47	1,021.28	17.19	60.398	
3,100.00	3,058.58	3,262.81	3,218.40	12.58	8.08	-18.30	1,243.77	-709.18	1,004.15	986.08	18.07	55.573	
3,200.00	3,156.82	3,353.98	3,304.43	13.02	8.60	-20.28	1,216.82	-722.72	971.05	952.01	19.04	50.998	
3,300.00	3,255.05	3,445.20	3,390.48	13.47	9.11	-22.38	1,189.62	-736.05	938.83	918.79	20.04	46.858	
3,400.00	3,353.28	3,537.50	3,477.85	13.91	9.60	-24.57	1,162.55	-748.42	907.57	886.54	21.03	43.156	
3,500.00	3,451.51	3,628.03	3,563.85	14.35	10.10	-26.78	1,136.50	-759.41	877.30	855.25	22.05	39.781	
3,600.00	3,549.74	3,721.06	3,652.00	14.79	10.63	-29.22	1,109.14	-771.01	848.23	825.09	23.14	36.652	
3,700.00	3,647.97	3,812.47	3,738.50	15.24	11.18	-31.79	1,081.76	-782.21	820.28	796.01	24.28	33.791	
3,800.00	3,746.20	3,899.75	3,820.99	15.68	11.69	-34.40	1,055.36	-792.99	794.02	768.60	25.41	31.242	
3,900.00	3,844.43	3,989.37	3,905.87	16.12	12.20	-37.19	1,028.72	-803.81	769.85	743.27	26.58	28.968	
4,000.00	3,942.66	4,078.97	3,990.59	16.57	12.73	-40.15	1,001.61	-814.57	747.51	719.74	27.77	26.913	
4,100.00	4,040.89	4,163.30	4,070.13	17.01	13.24	-43.11	975.69	-825.14	727.72	698.75	28.98	25.115	
4,200.00	4,139.12	4,246.81	4,149.00	17.45	13.73	-46.14	950.49	-836.09	711.27	681.12	30.15	23.593	
4,300.00	4,237.35	4,339.68	4,236.76	17.90	14.26	-49.61	922.58	-848.08	697.52	666.18	31.34	22.255	
4,400.00	4,335.58	4,433.42	4,325.51	18.34	14.81	-53.19	894.56	-859.30	685.99	653.48	32.51	21.099	
4,500.00	4,433.81	4,520.78	4,408.13	18.78	15.33	-56.62	868.13	-869.64	677.32	643.71	33.61	20.150	
4,600.00	4,532.04	4,619.02	4,500.65	19.23	15.95	-60.64	837.05	-880.79	671.20	636.43	34.77	19.305	
4,700.00	4,630.27	4,707.86	4,584.02	19.67	16.52	-64.39	807.86	-890.29	667.84	632.05	35.79	18.659	
4,737.60	4,667.21	4,738.47	4,612.74	19.84	16.71	-65.69	797.80	-893.57	667.54	631.42	36.12	18.482 CC, ES	
4,800.00	4,728.50	4,789.80	4,661.05	20.11	17.03	-67.83	781.42	-899.24	668.36	631.73	36.63	18.246	
4,900.00	4,826.73	4,875.05	4,741.65	20.56	17.51	-71.27	755.41	-909.03	672.88	635.52	37.36	18.012	
5,000.00	4,924.96	4,966.69	4,828.65	21.00	18.01	-74.82	728.68	-919.65	680.63	642.59	38.04	17.891	
5,100.00	5,023.19	5,061.74	4,919.24	21.45	18.52	-78.36	701.83	-930.08	690.70	652.02	38.68	17.858	
5,200.00	5,121.42	5,156.43	5,010.00	21.89	19.01	-81.67	676.72	-939.98	702.70	663.47	39.23	17.913	
5,300.00	5,219.65	5,250.60	5,100.81	22.33	19.47	-84.70	653.84	-949.79	716.56	676.85	39.71	18.045	
5,400.00	5,317.88	5,354.72	5,201.94	22.78	19.93	-87.71	631.55	-960.60	731.62	691.39	40.23	18.186	
5,500.00	5,416.11	5,472.59	5,317.44	23.22	20.40	-90.71	610.60	-971.12	745.88	705.07	40.81	18.278	
5,548.18	5,463.44	5,528.36	5,372.43	23.44	20.59	-92.00	602.31	-975.28	752.12	711.07	41.05	18.322	
5,600.00	5,514.43	5,587.48	5,430.91	23.66	20.78	-93.36	594.57	-979.25	758.40	717.10	41.30	18.364	
5,700.00	5,613.26	5,694.18	5,536.77	24.08	21.08	-95.42	582.97	-985.86	769.67	727.95	41.72	18.448	
5,800.00	5,712.56	5,807.55	5,649.51	24.47	21.36	-97.05	573.19	-992.67	780.14	737.97	42.17	18.502	
5,900.00	5,812.21	5,932.11	5,773.78	24.83	21.61	-98.23	566.52	-997.53	787.05	744.40	42.65	18.454	
6,000.00	5,912.09	6,065.07	5,906.68	25.16	21.80	-98.85	563.95	-999.68	790.05	746.94	43.10	18.330	
6,087.93	6,000.00	6,151.76	5,993.37	25.43	21.90	-116.72	563.31	-999.74	790.60	747.13	43.47	18.188	
6,100.00	6,012.07	6,163.97	6,005.59	25.46	21.92	-116.72	563.20	-999.75	790.65	747.13	43.52	18.167	
6,200.00	6,112.07	6,265.12	6,106.72	25.76	22.04	-116.79	562.20	-999.66	791.02	747.07	43.95	17.998	
6,300.00	6,212.07	6,366.24	6,207.84	26.06	22.17	-116.89	560.94	-999.28	791.25	746.87	44.38	17.828	
6,400.00	6,312.07	6,467.44	6,309.03	26.36	22.30	-116.99	559.65	-998.70	791.32	746.50	44.82	17.656	

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 SAM 3C-25H-M166
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 5109.00usft
<b>Reference Site:</b>	S25-T1N-R66W (SAM)	<b>MD Reference:</b>	23' KB @ 5109.00usft
<b>Site Error:</b>	0.00usft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	SAM 3C-25H-M166	<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 S25-T1N-R66W (SAM) - Beierle 2 (EXISTING) - CPR WELL - SURVEYS													Offset Site Error: 0.00 usft	
Survey Program: 1357-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		
6,500.00	6,412.07	6,567.93	6,409.51	26.66	22.43	-117.10	558.27	-997.97	791.29	746.03	45.26	17.484		
6,578.72	6,490.79	6,646.22	6,487.79	26.89	22.53	-117.20	557.11	-997.32	791.24	745.64	45.61	17.350		
6,600.00	6,512.07	6,666.79	6,508.36	26.96	22.56	-117.23	556.77	-997.15	791.25	745.55	45.70	17.314		
6,700.00	6,612.07	6,763.43	6,604.98	27.26	22.70	-117.36	554.98	-996.56	791.56	745.41	46.14	17.154		
6,711.73	6,623.80	6,774.76	6,616.31	27.30	22.71	-117.38	554.75	-996.51	791.62	745.43	46.20	17.136		
6,750.00	6,662.06	6,811.73	6,653.26	27.41	22.76	153.14	553.95	-996.37	792.78	746.42	46.37	17.099 SF		
6,800.00	6,711.85	6,860.30	6,701.82	27.55	22.84	153.05	552.83	-996.23	797.12	750.53	46.60	17.107		
6,850.00	6,761.22	6,908.50	6,750.01	27.68	22.91	152.95	551.66	-996.14	804.63	757.79	46.84	17.179		
6,900.00	6,809.91	6,956.04	6,797.53	27.81	22.98	152.82	550.43	-996.10	815.27	768.19	47.08	17.315		
6,950.00	6,857.70	7,002.66	6,844.13	27.93	23.05	152.67	549.17	-996.09	829.02	781.69	47.34	17.514		
7,000.00	6,904.35	7,048.43	6,889.88	28.05	23.12	152.48	547.86	-996.12	845.82	798.23	47.60	17.771		
7,050.00	6,949.64	7,092.89	6,934.32	28.15	23.20	152.23	546.49	-996.15	865.61	817.76	47.85	18.088		
7,100.00	6,993.33	7,135.78	6,977.19	28.25	23.27	151.90	545.09	-996.17	888.31	840.20	48.11	18.463		
7,150.00	7,035.23	7,176.89	7,018.27	28.34	23.34	151.47	543.67	-996.20	913.84	865.48	48.36	18.895		
7,200.00	7,075.12	7,215.80	7,057.16	28.42	23.40	150.90	542.25	-996.23	942.11	893.49	48.61	19.380		
7,250.00	7,112.81	7,252.18	7,093.51	28.49	23.47	150.16	540.88	-996.28	973.00	924.15	48.85	19.917		
7,300.00	7,148.12	7,286.19	7,127.50	28.56	23.53	149.20	539.55	-996.36	1,006.40	957.31	49.09	20.500		
7,350.00	7,180.88	7,317.68	7,158.96	28.62	23.58	147.97	538.29	-996.46	1,042.16	992.84	49.32	21.131		
7,400.00	7,210.92	7,346.48	7,187.74	28.68	23.64	146.40	537.10	-996.56	1,080.09	1,030.56	49.53	21.805		
7,450.00	7,238.10	7,372.46	7,213.70	28.73	23.68	144.37	536.00	-996.68	1,120.04	1,070.31	49.73	22.520		
7,500.00	7,262.29	7,395.93	7,237.14	28.80	23.72	141.78	535.00	-996.79	1,161.80	1,111.88	49.92	23.273		
7,550.00	7,283.37	7,419.44	7,260.63	28.92	23.77	138.57	533.99	-996.88	1,205.13	1,155.04	50.09	24.058		
7,600.00	7,301.23	7,439.52	7,280.69	29.23	23.80	134.35	533.14	-996.92	1,249.82	1,199.57	50.25	24.872		
7,650.00	7,315.80	7,456.04	7,297.20	29.79	23.83	128.75	532.44	-996.92	1,295.66	1,245.27	50.39	25.713		
7,700.00	7,326.99	7,468.87	7,310.02	30.47	23.85	121.28	531.91	-996.91	1,342.44	1,291.93	50.51	26.575		
7,750.00	7,334.76	7,477.89	7,319.03	31.23	23.87	111.39	531.54	-996.89	1,389.95	1,339.33	50.62	27.457		
7,800.00	7,339.06	7,483.00	7,324.13	32.05	23.88	98.85	531.33	-996.87	1,437.96	1,387.24	50.72	28.353		
7,836.73	7,340.00	7,484.20	7,325.34	32.69	23.88	88.24	531.28	-996.87	1,473.40	1,422.63	50.78	29.018		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well SAM 3C-25H-M166
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 5109.00usft
<b>Reference Site:</b>	S25-T1N-R66W (SAM)	<b>MD Reference:</b>	23' KB @ 5109.00usft
<b>Site Error:</b>	0.00usft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	SAM 3C-25H-M166	<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 S25-T1N-R66W (SAM) - Beierle KE 26-361HN - GWOG WELL - GWOG WELL													Offset Site Error: 0.00 usft	
Survey Program: 16-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		
6,087.93	6,000.00	10,711.05	7,499.06	25.43	60.40	-90.48	918.54	-319.85	1,475.29	1,443.45	31.84	46.328		
6,100.00	6,012.07	10,711.05	7,499.06	25.46	60.40	-90.48	918.54	-319.85	1,463.22	1,431.37	31.85	45.938		
6,200.00	6,112.07	10,711.05	7,499.06	25.76	60.40	-90.48	918.54	-319.85	1,363.24	1,331.32	31.91	42.715		
6,300.00	6,212.07	10,711.05	7,499.06	26.06	60.40	-90.48	918.54	-319.85	1,263.26	1,231.27	31.99	39.495		
6,400.00	6,312.07	10,711.05	7,499.06	26.36	60.40	-90.48	918.54	-319.85	1,163.28	1,131.22	32.07	36.278		
6,500.00	6,412.07	10,711.05	7,499.06	26.66	60.40	-90.48	918.54	-319.85	1,063.31	1,031.15	32.16	33.067		
6,600.00	6,512.07	10,711.05	7,499.06	26.96	60.40	-90.48	918.54	-319.85	963.34	931.08	32.26	29.863		
6,700.00	6,612.07	10,711.05	7,499.06	27.26	60.40	-90.48	918.54	-319.85	863.38	831.01	32.38	26.667		
6,711.73	6,623.80	10,711.05	7,499.06	27.30	60.40	-90.48	918.54	-319.85	851.66	819.27	32.39	26.293		
6,750.00	6,662.06	10,711.05	7,499.06	27.41	60.40	-179.96	918.54	-319.85	813.46	781.00	32.46	25.062		
6,800.00	6,711.85	10,711.04	7,499.06	27.55	60.40	-179.97	918.55	-319.85	763.87	731.25	32.61	23.422		
6,850.00	6,761.22	10,711.03	7,499.06	27.68	60.40	-179.98	918.56	-319.85	714.94	682.05	32.89	21.737		
6,900.00	6,809.91	10,711.01	7,499.06	27.81	60.40	-179.98	918.59	-319.85	667.09	633.72	33.37	19.991		
6,950.00	6,857.70	10,710.98	7,499.06	27.93	60.40	-179.97	918.61	-319.85	620.83	586.65	34.18	18.162		
7,000.00	6,904.35	10,710.94	7,499.06	28.05	60.40	-179.97	918.65	-319.85	576.79	541.28	35.51	16.244		
7,050.00	6,949.64	10,710.90	7,499.06	28.15	60.40	-179.97	918.69	-319.85	535.75	498.21	37.55	14.269		
7,100.00	6,993.33	10,710.86	7,499.06	28.25	60.40	-179.96	918.73	-319.85	498.70	458.22	40.47	12.321		
7,150.00	7,035.23	10,710.81	7,499.06	28.34	60.40	-179.96	918.78	-319.85	466.76	422.37	44.39	10.516		
7,200.00	7,075.12	10,710.75	7,499.06	28.42	60.40	-179.95	918.84	-319.85	441.24	392.00	49.24	8.961		
7,250.00	7,112.81	10,710.69	7,499.06	28.49	60.40	-179.94	918.90	-319.85	423.41	368.63	54.79	7.728		
7,300.00	7,148.12	10,710.63	7,499.06	28.56	60.40	-179.93	918.97	-319.85	414.38	353.80	60.59	6.840		
7,323.03	7,163.54	10,710.59	7,499.06	28.59	60.39	-179.93	919.00	-319.85	413.37	350.18	63.19	6.542 CC		
7,350.00	7,180.88	10,710.55	7,499.06	28.62	60.39	-179.92	919.04	-319.85	414.76	348.67	66.09	6.276 ES		
7,400.00	7,210.92	10,710.48	7,499.06	28.68	60.39	-179.91	919.11	-319.85	424.51	353.70	70.82	5.995		
7,450.00	7,238.10	10,710.40	7,499.06	28.73	60.39	-179.90	919.19	-319.85	442.98	368.45	74.53	5.943 SF		
7,500.00	7,262.29	10,710.32	7,499.06	28.80	60.39	-179.88	919.27	-319.86	469.06	391.82	77.24	6.073		
7,550.00	7,283.37	10,710.24	7,499.06	28.92	60.39	-179.86	919.36	-319.86	501.44	422.35	79.09	6.340		
7,600.00	7,301.23	10,710.15	7,499.06	29.23	60.39	-179.83	919.44	-319.86	538.85	458.55	80.30	6.711		
7,650.00	7,315.80	10,710.06	7,499.06	29.79	60.39	-179.80	919.53	-319.86	580.16	499.10	81.06	7.157		
7,700.00	7,326.99	10,709.97	7,499.06	30.47	60.38	-179.75	919.62	-319.86	624.40	542.87	81.52	7.659		
7,750.00	7,334.76	10,709.88	7,499.06	31.23	60.38	-179.68	919.72	-319.86	670.81	589.01	81.80	8.201		
7,800.00	7,339.06	10,709.78	7,499.06	32.05	60.38	-179.56	919.81	-319.86	718.76	636.80	81.96	8.770		
7,836.73	7,340.00	10,709.71	7,499.06	32.69	60.38	-179.41	919.88	-319.86	754.67	672.64	82.03	9.200		
7,900.00	7,340.00	10,709.60	7,499.06	33.85	60.38	-179.36	920.00	-319.86	817.00	734.89	82.11	9.950		
8,000.00	7,340.00	10,709.41	7,499.06	35.85	60.38	-179.28	920.18	-319.86	915.77	833.58	82.19	11.142		
8,100.00	7,340.00	10,709.22	7,499.06	38.01	60.37	-179.20	920.37	-319.86	1,014.79	932.54	82.24	12.339		
8,200.00	7,340.00	10,709.04	7,499.06	40.31	60.37	-179.12	920.56	-319.87	1,113.97	1,031.70	82.28	13.539		
8,300.00	7,340.00	10,708.85	7,499.06	42.73	60.37	-179.05	920.74	-319.87	1,213.30	1,131.00	82.30	14.743		
8,400.00	7,340.00	10,708.66	7,499.06	45.25	60.36	-178.97	920.93	-319.87	1,312.72	1,230.41	82.31	15.948		
8,500.00	7,340.00	10,708.48	7,499.06	47.85	60.36	-178.89	921.12	-319.87	1,412.23	1,329.91	82.32	17.154		

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 SAM 3C-25H-M166
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 5109.00usft
<b>Reference Site:</b>	S25-T1N-R66W (SAM)	<b>MD Reference:</b>	23' KB @ 5109.00usft
<b>Site Error:</b>	0.00usft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	SAM 3C-25H-M166	<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 S25-T1N-R66W (SAM) - Sam 1 (EXISTING) - CPR WELL - NO SURVEYS													Offset Site Error: 0.00 usft
Survey Program: 500-ISCWSA MWD													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	
0.00	0.00	0.00	0.00	0.00	0.00	85.98	93.23	1,325.90	1,329.75				
100.00	100.00	61.00	61.00	0.14	0.07	85.98	93.23	1,325.90	1,329.18	1,328.97	0.21	6,481.987	
200.00	200.00	161.00	161.00	0.50	0.18	85.98	93.23	1,325.90	1,329.18	1,328.50	0.67	1,973.716	
300.00	300.00	261.00	261.00	0.85	0.29	85.98	93.23	1,325.90	1,329.18	1,328.04	1.14	1,164.086	
400.00	400.00	361.00	361.00	1.21	0.40	85.98	93.23	1,325.90	1,329.18	1,327.57	1.61	825.472 CC	
500.00	499.98	460.98	460.98	1.57	0.51	103.76	93.23	1,325.90	1,329.59	1,327.51	2.08	639.940 ES	
600.00	599.84	500.00	500.00	1.93	0.55	103.78	93.23	1,325.90	1,332.24	1,329.72	2.51	530.207	
700.00	699.45	500.00	500.00	2.30	0.55	103.58	93.23	1,325.90	1,342.60	1,339.57	3.03	442.433	
800.00	798.70	500.00	500.00	2.67	0.55	103.21	93.23	1,325.90	1,361.06	1,357.44	3.62	375.795	
900.00	897.47	500.00	500.00	3.05	0.55	102.68	93.23	1,325.90	1,387.26	1,383.04	4.22	328.618	
939.74	936.56	500.00	500.00	3.21	0.55	102.42	93.23	1,325.90	1,399.73	1,395.27	4.46	314.013	
1,000.00	995.75	500.00	500.00	3.45	0.55	102.42	93.23	1,325.90	1,420.63	1,415.83	4.80	295.710	
1,100.00	1,093.98	500.00	500.00	3.86	0.55	102.42	93.23	1,325.90	1,460.15	1,454.80	5.35	273.031 SF	

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well SAM 3C-25H-M166
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 5109.00usft
<b>Reference Site:</b>	S25-T1N-R66W (SAM)	<b>MD Reference:</b>	23' KB @ 5109.00usft
<b>Site Error:</b>	0.00usft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	SAM 3C-25H-M166	<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 S25-T1N-R66W (SAM) - Sam 13-25 (EXISTING) - CPR WELL - SURVEYS													Offset Site Error: 0.00 usft	
Survey Program: 1386-ISCWSA MWD													Offset Well Error: 0.00 usft	
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
0.00	0.00	0.00	0.00	0.00	0.00	86.24	86.19	1,313.08	1,316.02					
100.00	100.00	83.00	83.00	0.14	0.09	86.24	86.19	1,313.08	1,315.91	1,315.68	0.23	5,716.049		
200.00	200.00	183.00	183.00	0.50	0.20	86.24	86.19	1,313.08	1,315.91	1,315.21	0.70	1,880.486		
300.00	300.00	283.00	283.00	0.85	0.31	86.24	86.19	1,313.08	1,315.91	1,314.74	1.17	1,125.355		
400.00	400.00	383.00	383.00	1.21	0.43	86.24	86.19	1,313.08	1,315.91	1,314.27	1.64	802.929		
500.00	499.98	482.98	482.98	1.57	0.54	104.03	86.19	1,313.08	1,316.33	1,314.22	2.11	624.581		
600.00	599.84	582.84	582.84	1.93	0.65	104.23	86.19	1,313.08	1,317.61	1,315.03	2.58	511.379		
700.00	699.45	682.45	682.45	2.30	0.76	104.55	86.19	1,313.08	1,319.78	1,316.73	3.05	432.777		
800.00	798.70	781.70	781.70	2.67	0.87	105.00	86.19	1,313.08	1,322.91	1,319.38	3.53	374.718		
900.00	897.47	880.47	880.47	3.05	0.98	105.56	86.19	1,313.08	1,327.08	1,323.06	4.02	329.855		
939.74	936.56	919.56	919.56	3.21	1.02	105.82	86.19	1,313.08	1,329.05	1,324.83	4.22	314.677		
1,000.00	995.75	978.75	978.75	3.45	1.09	106.27	86.19	1,313.08	1,332.22	1,327.69	4.53	294.069		
1,100.00	1,093.98	1,076.98	1,076.98	3.86	1.20	107.03	86.19	1,313.08	1,337.68	1,332.63	5.05	265.136		
1,200.00	1,192.21	1,175.21	1,175.21	4.28	1.31	107.78	86.19	1,313.08	1,343.37	1,337.81	5.57	241.368		
1,300.00	1,290.44	1,273.44	1,273.44	4.71	1.41	108.53	86.19	1,313.08	1,349.31	1,343.22	6.09	221.569		
1,400.00	1,388.67	1,371.67	1,371.67	5.13	1.52	109.27	86.19	1,313.08	1,355.47	1,348.85	6.62	204.867		
1,500.00	1,486.90	1,461.60	1,461.60	5.56	1.70	109.93	86.30	1,313.32	1,362.12	1,354.90	7.21	188.811		
1,600.00	1,585.13	1,620.26	1,620.22	5.99	2.04	111.04	88.04	1,311.58	1,367.87	1,359.87	8.00	170.941		
1,700.00	1,683.36	1,831.63	1,830.79	6.43	2.52	112.31	95.59	1,295.68	1,367.25	1,358.32	8.94	153.002		
1,800.00	1,781.59	2,019.13	2,015.69	6.86	3.05	113.24	108.46	1,267.66	1,358.79	1,348.98	9.82	138.412		
1,900.00	1,879.82	2,197.00	2,188.48	7.30	3.73	113.80	129.19	1,231.08	1,344.43	1,333.72	10.71	125.529		
2,000.00	1,978.05	2,347.47	2,332.44	7.74	4.45	114.11	151.59	1,193.51	1,325.38	1,313.81	11.57	114.589		
2,100.00	2,076.28	2,474.44	2,452.57	8.17	5.15	114.35	171.50	1,157.56	1,302.74	1,290.37	12.37	105.287		
2,200.00	2,174.51	2,565.24	2,538.26	8.61	5.64	114.48	186.58	1,131.58	1,279.86	1,266.76	13.10	97.704		
2,300.00	2,272.74	2,656.79	2,624.88	9.05	6.13	114.65	201.27	1,105.84	1,257.56	1,243.74	13.83	90.959		
2,400.00	2,370.97	2,743.82	2,707.32	9.49	6.59	114.81	215.29	1,081.71	1,235.68	1,221.13	14.55	84.953		
2,500.00	2,469.20	2,836.19	2,795.23	9.93	7.10	115.01	229.48	1,057.20	1,215.05	1,199.77	15.28	79.513		
2,600.00	2,567.43	2,949.17	2,902.27	10.37	7.75	115.24	247.54	1,025.85	1,193.11	1,177.04	16.07	74.240		
2,700.00	2,665.66	3,046.78	2,994.76	10.81	8.33	115.47	262.68	998.59	1,171.12	1,154.29	16.83	69.591		
2,800.00	2,763.89	3,154.79	3,096.80	11.26	9.00	115.68	280.67	968.09	1,148.69	1,131.06	17.63	65.165		
2,900.00	2,862.12	3,265.51	3,200.86	11.70	9.74	115.84	300.30	935.77	1,125.14	1,106.69	18.45	60.975		
3,000.00	2,960.35	3,355.48	3,285.19	12.14	10.33	115.93	317.09	909.33	1,101.27	1,082.02	19.24	57.224		
3,100.00	3,058.58	3,450.73	3,374.68	12.58	10.92	116.04	334.56	881.76	1,077.89	1,057.86	20.03	53.806		
3,200.00	3,156.82	3,544.34	3,462.76	13.02	11.51	116.19	351.23	854.78	1,054.73	1,033.92	20.82	50.669		
3,300.00	3,255.05	3,642.06	3,554.72	13.47	12.13	116.34	368.82	826.82	1,031.76	1,010.15	21.61	47.750		
3,400.00	3,353.28	3,733.12	3,640.57	13.91	12.69	116.51	384.67	800.89	1,009.02	986.65	22.38	45.093		
3,500.00	3,451.51	3,827.17	3,729.36	14.35	13.28	116.69	401.07	774.59	986.81	963.65	23.15	42.619		
3,600.00	3,549.74	3,918.56	3,815.73	14.79	13.84	116.86	417.22	749.46	965.03	941.10	23.93	40.326		
3,700.00	3,647.97	4,018.44	3,910.34	15.24	14.45	117.11	433.92	722.13	943.56	918.87	24.69	38.213		
3,800.00	3,746.20	4,117.05	4,003.76	15.68	15.05	117.43	449.60	694.76	921.84	896.41	25.43	36.243		
3,900.00	3,844.43	4,210.64	4,092.44	16.12	15.63	117.72	464.74	668.96	900.31	874.12	26.18	34.385		
4,000.00	3,942.66	4,319.56	4,195.53	16.57	16.31	118.09	482.30	638.49	878.38	851.46	26.92	32.630		
4,100.00	4,040.89	4,414.28	4,285.17	17.01	16.90	118.52	496.37	611.35	856.03	828.40	27.63	30.982		
4,200.00	4,139.12	4,514.94	4,380.38	17.45	17.54	118.94	511.98	582.63	833.75	805.40	28.34	29.417		
4,300.00	4,237.35	4,624.21	4,483.19	17.90	18.27	119.33	530.56	550.62	810.42	781.35	29.07	27.880		
4,400.00	4,335.58	4,720.12	4,573.07	18.34	18.92	119.64	547.57	521.81	786.24	756.42	29.82	26.366		
4,500.00	4,433.81	4,805.12	4,653.14	18.78	19.47	119.97	562.08	497.24	763.34	732.77	30.58	24.965		
4,600.00	4,532.04	4,900.02	4,742.88	19.23	20.07	120.42	577.34	470.45	741.38	710.10	31.28	23.702		
4,700.00	4,630.27	5,001.35	4,838.60	19.67	20.72	120.88	594.27	441.79	719.28	687.31	31.97	22.497		
4,800.00	4,728.50	5,097.25	4,929.01	20.11	21.34	121.32	610.66	414.33	696.80	664.12	32.68	21.321		
4,900.00	4,826.73	5,184.13	5,011.24	20.56	21.88	121.74	625.26	390.41	675.50	642.09	33.41	20.220		
5,000.00	4,924.96	5,270.77	5,093.63	21.00	22.39	122.21	639.35	367.63	655.64	621.53	34.11	19.222		

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 SAM 3C-25H-M166
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 5109.00usft
<b>Reference Site:</b>	S25-T1N-R66W (SAM)	<b>MD Reference:</b>	23' KB @ 5109.00usft
<b>Site Error:</b>	0.00usft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	SAM 3C-25H-M166	<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 S25-T1N-R66W (SAM) - Sam 13-25 (EXISTING) - CPR WELL - SURVEYS													Offset Site Error: 0.00 usft	
Survey Program: 1386-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		
5,100.00	5,023.19	5,350.00	5,169.64	21.45	22.83	122.72	651.17	348.64	638.43	603.64	34.79	18.349		
5,200.00	5,121.42	5,427.71	5,244.87	21.89	23.21	123.33	661.36	332.07	624.38	588.97	35.41	17.632		
5,300.00	5,219.65	5,509.08	5,324.25	22.33	23.56	124.08	670.43	316.68	613.37	577.41	35.95	17.060		
5,400.00	5,317.88	5,590.87	5,404.55	22.78	23.88	124.96	677.95	303.10	605.32	568.89	36.43	16.616		
5,500.00	5,416.11	5,675.89	5,488.45	23.22	24.17	125.97	684.24	290.92	600.20	563.34	36.85	16.286		
5,548.18	5,463.44	5,718.43	5,530.54	23.44	24.31	126.49	687.12	285.38	598.53	561.48	37.05	16.155		
5,600.00	5,514.43	5,765.26	5,576.91	23.66	24.45	127.02	690.08	279.62	596.95	559.69	37.26	16.022		
5,700.00	5,613.26	5,854.35	5,665.29	24.08	24.70	127.89	694.95	269.45	593.60	555.94	37.66	15.762		
5,800.00	5,712.56	5,942.02	5,752.47	24.47	24.93	128.57	698.71	260.97	590.29	552.23	38.06	15.511		
5,900.00	5,812.21	6,032.47	5,842.55	24.83	25.13	129.04	702.00	253.63	586.59	548.12	38.47	15.249		
6,000.00	5,912.09	6,121.02	5,930.87	25.16	25.31	129.36	703.74	247.48	582.44	543.58	38.86	14.989		
6,087.93	6,000.00	6,195.79	6,005.54	25.43	25.43	111.74	704.49	243.78	578.93	539.75	39.18	14.777		
6,100.00	6,012.07	6,207.16	6,016.91	25.46	25.45	111.75	704.57	243.34	578.46	539.23	39.23	14.746		
6,200.00	6,112.07	6,301.26	6,110.95	25.76	25.58	111.83	704.91	240.16	575.19	535.54	39.65	14.507		
6,300.00	6,212.07	6,395.49	6,205.15	26.06	25.69	111.96	704.48	237.73	572.96	532.91	40.06	14.304		
6,400.00	6,312.07	6,491.83	6,301.47	26.36	25.80	112.13	703.48	235.83	571.52	531.05	40.47	14.121		
6,500.00	6,412.07	6,589.34	6,398.95	26.66	25.90	112.32	702.02	234.31	570.65	529.75	40.90	13.954		
6,600.00	6,512.07	6,687.14	6,496.72	26.96	26.00	112.56	700.04	232.98	570.16	528.85	41.31	13.800		
6,661.78	6,573.85	6,747.29	6,556.85	27.15	26.06	112.72	698.56	232.26	570.06	528.49	41.57	13.714		
6,700.00	6,612.07	6,784.04	6,593.59	27.26	26.09	112.83	697.53	231.87	570.11	528.39	41.72	13.665		
6,711.73	6,623.80	6,795.32	6,604.86	27.30	26.10	112.87	697.18	231.77	570.15	528.38	41.77	13.651		
6,750.00	6,662.06	6,832.08	6,641.60	27.41	26.13	23.64	695.99	231.45	569.39	527.48	41.91	13.587		
6,800.00	6,711.85	6,879.91	6,689.40	27.55	26.17	24.11	694.27	231.12	565.75	523.68	42.07	13.448		
6,850.00	6,761.22	6,927.40	6,736.85	27.68	26.21	24.84	692.36	230.88	559.13	516.92	42.21	13.247		
6,900.00	6,809.91	6,974.79	6,784.18	27.81	26.25	25.86	690.23	230.67	549.59	507.26	42.33	12.983		
6,950.00	6,857.70	7,021.25	6,830.59	27.93	26.28	27.22	687.90	230.47	537.20	494.76	42.43	12.660		
7,000.00	6,904.35	7,066.64	6,875.91	28.05	26.31	28.95	685.41	230.28	522.09	479.58	42.51	12.280		
7,050.00	6,949.64	7,110.83	6,920.03	28.15	26.34	31.09	682.88	230.14	504.45	461.86	42.58	11.846		
7,100.00	6,993.33	7,153.39	6,962.52	28.25	26.37	33.69	680.37	230.06	484.46	441.81	42.65	11.360		
7,150.00	7,035.23	7,194.01	7,003.06	28.34	26.39	36.82	677.92	230.05	462.43	419.71	42.72	10.826		
7,200.00	7,075.12	7,232.79	7,041.77	28.42	26.42	40.54	675.53	230.12	438.67	395.87	42.81	10.247		
7,250.00	7,112.81	7,269.55	7,078.45	28.49	26.44	44.90	673.21	230.26	413.60	370.65	42.96	9.628		
7,300.00	7,148.12	7,304.11	7,112.94	28.56	26.46	49.92	670.99	230.46	387.73	344.52	43.21	8.974		
7,350.00	7,180.88	7,336.22	7,144.98	28.62	26.48	55.51	668.88	230.69	361.70	318.08	43.62	8.292		
7,400.00	7,210.92	7,365.33	7,174.02	28.68	26.49	61.46	666.88	230.92	336.38	291.96	44.42	7.572		
7,450.00	7,238.10	7,391.72	7,200.34	28.73	26.51	67.51	664.96	231.14	312.89	267.27	45.61	6.859		
7,500.00	7,262.29	7,415.24	7,223.79	28.80	26.52	73.30	663.17	231.34	292.57	245.31	47.25	6.191		
7,550.00	7,283.37	7,435.84	7,244.32	28.92	26.53	78.47	661.53	231.52	277.00	227.67	49.33	5.615		
7,600.00	7,301.23	7,453.41	7,261.84	29.23	26.53	82.71	660.08	231.68	267.82	216.15	51.67	5.183		
7,633.91	7,311.47	7,463.54	7,271.93	29.60	26.54	84.93	659.23	231.77	265.93	212.69	53.24	4.995 CC		
7,650.00	7,315.80	7,467.83	7,276.20	29.79	26.54	85.79	658.87	231.81	266.37	212.44	53.93	4.939 ES		
7,700.00	7,326.99	7,479.01	7,287.34	30.47	26.54	87.57	657.91	231.91	273.30	217.56	55.74	4.903 SF		
7,750.00	7,334.76	7,486.91	7,295.21	31.23	26.55	87.97	657.22	231.99	288.38	231.50	56.88	5.070		
7,800.00	7,339.06	7,491.48	7,299.76	32.05	26.55	86.95	656.82	232.03	310.61	253.24	57.37	5.414		
7,836.73	7,340.00	7,492.69	7,300.97	32.69	26.55	85.29	656.72	232.04	330.70	273.30	57.40	5.762		
7,900.00	7,340.00	7,493.23	7,301.50	33.85	26.55	85.40	656.67	232.05	371.25	314.21	57.05	6.508		
8,000.00	7,340.00	7,494.07	7,302.34	35.85	26.55	85.58	656.59	232.06	446.25	390.18	56.07	7.959		
8,100.00	7,340.00	7,494.92	7,303.19	38.01	26.55	85.77	656.52	232.06	529.58	474.52	55.06	9.618		
8,200.00	7,340.00	7,495.76	7,304.03	40.31	26.55	85.95	656.44	232.07	617.87	563.69	54.19	11.403		
8,300.00	7,340.00	7,496.61	7,304.88	42.73	26.55	86.13	656.37	232.08	709.28	655.81	53.47	13.266		
8,400.00	7,340.00	7,497.47	7,305.72	45.25	26.55	86.31	656.29	232.09	802.74	749.86	52.88	15.181		
8,500.00	7,340.00	7,498.32	7,306.58	47.85	26.55	86.49	656.22	232.10	897.60	845.20	52.40	17.130		

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 SAM 3C-25H-M166
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 5109.00usft
<b>Reference Site:</b>	S25-T1N-R66W (SAM)	<b>MD Reference:</b>	23' KB @ 5109.00usft
<b>Site Error:</b>	0.00usft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	SAM 3C-25H-M166	<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													S25-T1N-R66W (SAM) - Sam 13-25 (EXISTING) - CPR WELL - SURVEYS		Offset Site Error:		0.00 usft	
Survey Program:													1386-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						
8,600.00	7,340.00	7,499.18	7,307.43	50.51	26.55	86.67	656.14	232.10	993.48	941.47	52.00	19.104						
8,700.00	7,340.00	7,500.03	7,308.28	53.24	26.55	86.86	656.06	232.11	1,090.09	1,038.42	51.68	21.095						
8,800.00	7,340.00	7,500.89	7,309.14	56.02	26.55	87.04	655.99	232.12	1,187.27	1,135.87	51.40	23.099						
8,900.00	7,340.00	7,501.76	7,310.00	58.84	26.55	87.22	655.91	232.13	1,284.87	1,233.71	51.17	25.111						
9,000.00	7,340.00	7,502.62	7,310.86	61.69	26.55	87.41	655.83	232.14	1,382.82	1,331.86	50.97	27.131						
9,100.00	7,340.00	7,503.49	7,311.72	64.59	26.55	87.59	655.76	232.15	1,481.05	1,430.25	50.80	29.155						



# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well SAM 3C-25H-M166
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 5109.00usft
<b>Reference Site:</b>	S25-T1N-R66W (SAM)	<b>MD Reference:</b>	23' KB @ 5109.00usft
<b>Site Error:</b>	0.00usft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	SAM 3C-25H-M166	<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 S25-T1N-R66W (SAM) - SAM 3A-25H-M166 - 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	0.31	20.04	0.11	20.04					
100.00	100.00	100.00	100.00	0.14	0.14	0.31	20.04	0.11	20.04	19.76	0.28	72.592		
200.00	200.00	200.00	200.00	0.50	0.50	0.31	20.04	0.11	20.04	19.04	0.99	20.179 CC		
300.00	300.00	299.29	299.27	0.85	0.85	-0.85	21.70	-0.32	21.72	19.97	1.75	12.409		
400.00	400.00	398.34	398.18	1.21	1.22	-3.45	26.68	-1.61	26.79	24.26	2.54	10.563		
500.00	499.98	497.08	496.54	1.57	1.58	12.17	34.94	-3.74	33.61	30.28	3.32	10.120		
600.00	599.84	595.58	594.32	1.93	1.94	11.05	46.44	-6.72	40.43	36.33	4.10	9.864		
700.00	699.45	693.86	691.41	2.30	2.33	10.50	61.15	-10.52	47.24	42.37	4.87	9.692		
800.00	798.70	791.91	787.70	2.67	2.74	10.29	79.03	-15.14	54.02	48.38	5.65	9.565		
900.00	897.47	891.20	884.72	3.05	3.17	10.42	99.53	-20.44	59.89	53.53	6.36	9.421		
939.74	936.56	930.92	923.51	3.21	3.34	10.62	107.78	-22.58	61.32	54.69	6.64	9.239		
1,000.00	995.75	991.15	982.34	3.45	3.61	10.99	120.29	-25.81	63.09	56.02	7.07	8.927		
1,100.00	1,093.98	1,091.11	1,079.96	3.86	4.06	11.57	141.06	-31.18	66.02	58.23	7.79	8.474		
1,200.00	1,192.21	1,191.06	1,177.59	4.28	4.51	12.09	161.82	-36.55	68.96	60.44	8.53	8.089		
1,300.00	1,290.44	1,291.02	1,275.22	4.71	4.97	12.57	182.59	-41.91	71.91	62.64	9.27	7.759		
1,400.00	1,388.67	1,390.97	1,372.84	5.13	5.42	13.02	203.35	-47.28	74.86	64.84	10.02	7.474		
1,500.00	1,486.90	1,490.93	1,470.47	5.56	5.88	13.43	224.12	-52.65	77.81	67.04	10.77	7.225		
1,600.00	1,585.13	1,590.88	1,568.10	5.99	6.35	13.81	244.88	-58.02	80.77	69.24	11.53	7.006		
1,700.00	1,683.36	1,690.83	1,665.72	6.43	6.81	14.16	265.65	-63.39	83.73	71.44	12.29	6.812		
1,800.00	1,781.59	1,790.79	1,763.35	6.86	7.27	14.49	286.41	-68.75	86.70	73.64	13.06	6.640		
1,900.00	1,879.82	1,890.74	1,860.98	7.30	7.73	14.80	307.18	-74.12	89.66	75.84	13.82	6.486		
2,000.00	1,978.05	1,990.70	1,958.60	7.74	8.20	15.08	327.94	-79.49	92.63	78.04	14.60	6.347		
2,100.00	2,076.28	2,090.65	2,056.23	8.17	8.66	15.35	348.71	-84.86	95.60	80.24	15.37	6.221		
2,200.00	2,174.51	2,190.61	2,153.86	8.61	9.13	15.61	369.47	-90.22	98.58	82.44	16.14	6.107		
2,300.00	2,272.74	2,290.56	2,251.48	9.05	9.60	15.85	390.24	-95.59	101.55	84.64	16.92	6.003		
2,400.00	2,370.97	2,390.52	2,349.11	9.49	10.06	16.07	411.00	-100.96	104.53	86.84	17.69	5.908		
2,500.00	2,469.20	2,490.47	2,446.74	9.93	10.53	16.28	431.77	-106.33	107.51	89.04	18.47	5.820		
2,600.00	2,567.43	2,590.43	2,544.36	10.37	10.99	16.48	452.53	-111.70	110.49	91.24	19.25	5.739		
2,700.00	2,665.66	2,690.38	2,641.99	10.81	11.46	16.67	473.30	-117.06	113.47	93.44	20.03	5.664		
2,800.00	2,763.89	2,790.34	2,739.62	11.26	11.93	16.85	494.06	-122.43	116.45	95.64	20.81	5.595		
2,900.00	2,862.12	2,890.29	2,837.24	11.70	12.40	17.03	514.83	-127.80	119.44	97.84	21.60	5.531		
3,000.00	2,960.35	2,990.25	2,934.87	12.14	12.86	17.19	535.59	-133.17	122.42	100.04	22.38	5.470		
3,100.00	3,058.58	3,090.20	3,032.50	12.58	13.33	17.34	556.36	-138.54	125.41	102.24	23.16	5.414		
3,200.00	3,156.82	3,190.16	3,130.12	13.02	13.80	17.49	577.12	-143.90	128.39	104.45	23.95	5.362		
3,300.00	3,255.05	3,290.11	3,227.75	13.47	14.27	17.63	597.89	-149.27	131.38	106.65	24.73	5.312		
3,400.00	3,353.28	3,390.07	3,325.38	13.91	14.73	17.77	618.65	-154.64	134.37	108.85	25.52	5.266		
3,500.00	3,451.51	3,490.02	3,423.00	14.35	15.20	17.90	639.42	-160.01	137.36	111.05	26.30	5.222		
3,600.00	3,549.74	3,589.98	3,520.63	14.79	15.67	18.02	660.18	-165.37	140.35	113.26	27.09	5.181		
3,700.00	3,647.97	3,689.93	3,618.26	15.24	16.14	18.14	680.95	-170.74	143.34	115.46	27.87	5.142		
3,800.00	3,746.20	3,789.89	3,715.88	15.68	16.60	18.26	701.71	-176.11	146.33	117.66	28.66	5.105		
3,900.00	3,844.43	3,889.84	3,813.51	16.12	17.07	18.37	722.48	-181.48	149.32	119.87	29.45	5.070		
4,000.00	3,942.66	3,989.80	3,911.14	16.57	17.54	18.47	743.24	-186.85	152.31	122.07	30.24	5.037		
4,100.00	4,040.89	4,089.75	4,008.76	17.01	18.01	18.57	764.01	-192.21	155.30	124.28	31.02	5.006		
4,200.00	4,139.12	4,189.71	4,106.39	17.45	18.48	18.67	784.77	-197.58	158.29	126.48	31.81	4.976		
4,300.00	4,237.35	4,289.66	4,204.02	17.90	18.95	18.76	805.54	-202.95	161.29	128.68	32.60	4.947		
4,400.00	4,335.58	4,389.62	4,301.64	18.34	19.41	18.85	826.30	-208.32	164.28	130.89	33.39	4.920		
4,500.00	4,433.81	4,489.57	4,399.27	18.78	19.88	18.94	847.07	-213.69	167.27	133.09	34.18	4.894		
4,600.00	4,532.04	4,589.53	4,496.90	19.23	20.35	19.02	867.83	-219.05	170.27	135.30	34.97	4.869		
4,700.00	4,630.27	4,689.48	4,594.52	19.67	20.82	19.10	888.60	-224.42	173.26	137.50	35.76	4.845		
4,800.00	4,728.50	4,789.44	4,692.15	20.11	21.29	19.18	909.36	-229.79	176.26	139.71	36.55	4.823		
4,900.00	4,826.73	4,889.39	4,789.78	20.56	21.76	19.26	930.13	-235.16	179.25	141.91	37.34	4.801		
5,000.00	4,924.96	4,989.35	4,887.40	21.00	22.22	19.33	950.89	-240.52	182.25	144.12	38.13	4.780		

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 SAM 3C-25H-M166
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 5109.00usft
<b>Reference Site:</b>	S25-T1N-R66W (SAM)	<b>MD Reference:</b>	23' KB @ 5109.00usft
<b>Site Error:</b>	0.00usft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	SAM 3C-25H-M166	<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 S25-T1N-R66W (SAM) - SAM 3A-25H-M166 - 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	5,023.19	5,089.30	4,985.03	21.45	22.69	19.40	971.66	-245.89	185.24	146.32	38.92	4.760		
5,200.00	5,121.42	5,189.25	5,082.66	21.89	23.16	19.47	992.42	-251.26	188.24	148.53	39.71	4.740		
5,300.00	5,219.65	5,289.21	5,180.28	22.33	23.63	19.54	1,013.19	-256.63	191.24	150.74	40.50	4.722		
5,400.00	5,317.88	5,389.16	5,277.91	22.78	24.10	19.60	1,033.95	-262.00	194.23	152.94	41.29	4.704		
5,500.00	5,416.11	5,489.12	5,375.54	23.22	24.57	19.66	1,054.72	-267.36	197.23	155.15	42.08	4.687		
5,548.18	5,463.44	5,537.28	5,422.58	23.44	24.79	19.69	1,064.72	-269.95	198.67	156.21	42.46	4.679		
5,600.00	5,514.43	5,589.06	5,473.15	23.66	25.03	19.69	1,075.48	-272.73	200.67	157.80	42.87	4.681		
5,700.00	5,613.26	5,688.85	5,570.61	24.08	25.50	19.46	1,096.21	-278.09	207.01	163.39	43.62	4.745		
5,800.00	5,712.56	5,794.96	5,674.55	24.47	25.99	19.02	1,116.88	-283.43	215.35	170.96	44.39	4.851		
5,900.00	5,812.21	5,902.55	5,780.67	24.83	26.44	18.57	1,134.06	-287.87	223.44	178.34	45.10	4.954		
6,000.00	5,912.09	6,010.51	5,887.73	25.16	26.86	18.12	1,147.41	-291.32	231.23	185.50	45.73	5.056		
6,087.93	6,000.00	6,105.71	5,982.52	25.43	27.20	0.01	1,155.93	-293.53	237.81	191.60	46.22	5.146		
6,100.00	6,012.07	6,118.81	5,995.58	25.46	27.25	-0.05	1,156.86	-293.77	238.68	192.40	46.28	5.157		
6,200.00	6,112.07	6,227.55	6,104.17	25.76	27.60	-0.38	1,162.38	-295.20	243.76	197.00	46.76	5.213		
6,300.00	6,212.07	6,335.48	6,212.07	26.06	27.91	-0.48	1,163.93	-295.60	245.18	197.96	47.22	5.192		
6,400.00	6,312.07	6,435.48	6,312.07	26.36	28.19	-0.48	1,163.93	-295.60	245.18	197.30	47.88	5.121		
6,500.00	6,412.07	6,535.48	6,412.07	26.66	28.47	-0.48	1,163.93	-295.60	245.18	196.64	48.54	5.051		
6,600.00	6,512.07	6,635.48	6,512.07	26.96	28.75	-0.48	1,163.93	-295.60	245.18	195.98	49.20	4.983		
6,700.00	6,612.07	6,735.48	6,612.07	27.26	29.04	-0.48	1,163.93	-295.60	245.18	195.31	49.87	4.917		
6,711.73	6,623.80	6,747.20	6,623.80	27.30	29.07	-0.48	1,163.93	-295.60	245.18	195.24	49.95	4.909		
6,737.84	6,649.91	6,773.31	6,649.91	27.38	29.14	-90.00	1,163.93	-295.60	245.18	195.07	50.11	4.893		
6,750.00	6,662.06	6,785.46	6,662.06	27.41	29.18	-90.13	1,163.93	-295.60	245.18	195.00	50.18	4.886		
6,800.00	6,711.85	6,835.37	6,711.97	27.55	29.32	-91.10	1,163.94	-295.37	245.23	194.80	50.42	4.863		
6,850.00	6,761.22	6,885.64	6,762.14	27.68	29.45	-92.23	1,163.97	-292.33	245.37	194.74	50.63	4.847		
6,900.00	6,809.91	6,936.26	6,812.31	27.81	29.59	-93.36	1,164.03	-285.73	245.61	194.80	50.81	4.834		
6,950.00	6,857.70	6,987.23	6,862.23	27.93	29.71	-94.47	1,164.14	-275.51	245.94	194.96	50.97	4.825		
7,000.00	6,904.35	7,038.56	6,911.65	28.05	29.83	-95.56	1,164.28	-261.66	246.35	195.23	51.12	4.819		
7,050.00	6,949.64	7,090.24	6,960.27	28.15	29.94	-96.62	1,164.46	-244.18	246.84	195.59	51.25	4.817		
7,100.00	6,993.33	7,142.28	7,007.83	28.25	30.05	-97.65	1,164.67	-223.08	247.39	196.03	51.36	4.817		
7,150.00	7,035.23	7,194.67	7,054.04	28.34	30.15	-98.64	1,164.92	-198.41	248.01	196.54	51.47	4.819		
7,200.00	7,075.12	7,247.41	7,098.60	28.42	30.24	-99.58	1,165.21	-170.23	248.66	197.09	51.57	4.821		
7,250.00	7,112.81	7,300.48	7,141.23	28.49	30.32	-100.48	1,165.53	-138.65	249.35	197.66	51.69	4.824		
7,300.00	7,148.12	7,353.87	7,181.64	28.56	30.39	-101.32	1,165.88	-103.77	250.05	198.21	51.84	4.823		
7,350.00	7,180.88	7,407.57	7,219.55	28.62	30.45	-102.10	1,166.27	-65.76	250.76	198.71	52.05	4.818		
7,400.00	7,210.92	7,461.56	7,254.68	28.68	30.51	-102.81	1,166.69	-24.78	251.45	199.13	52.32	4.806		
7,450.00	7,238.10	7,515.82	7,286.78	28.73	30.56	-103.47	1,167.13	18.95	252.11	199.41	52.70	4.784		
7,500.00	7,262.29	7,570.33	7,315.61	28.80	30.60	-104.04	1,167.60	65.20	252.73	199.53	53.20	4.751		
7,550.00	7,283.37	7,625.06	7,340.92	28.92	30.63	-104.55	1,168.09	113.70	253.29	199.44	53.85	4.704		
7,600.00	7,301.23	7,679.99	7,362.53	29.23	30.66	-104.98	1,168.61	164.18	253.78	199.11	54.67	4.642		
7,650.00	7,315.80	7,735.07	7,380.26	29.79	30.70	-105.33	1,169.14	216.32	254.20	198.52	55.68	4.566		
7,700.00	7,326.99	7,790.29	7,393.95	30.47	30.91	-105.61	1,169.68	269.80	254.52	197.65	56.87	4.475		
7,750.00	7,334.76	7,845.61	7,403.50	31.23	31.64	-105.80	1,170.23	324.27	254.76	196.49	58.27	4.372		
7,800.00	7,339.06	7,901.00	7,408.81	32.05	32.53	-105.91	1,170.79	379.38	254.89	195.05	59.84	4.259		
7,836.73	7,340.00	7,941.70	7,410.00	32.69	33.22	-105.94	1,171.21	420.06	254.92	193.82	61.11	4.172		
7,900.00	7,340.00	8,005.02	7,410.00	33.85	34.37	-105.94	1,171.85	483.38	254.92	191.57	63.35	4.024		
8,000.00	7,340.00	8,105.02	7,410.00	35.85	36.35	-105.94	1,172.87	583.37	254.91	187.71	67.19	3.794		
8,100.00	7,340.00	8,205.02	7,410.00	38.01	38.49	-105.94	1,173.88	683.37	254.90	183.53	71.37	3.572		
8,200.00	7,340.00	8,305.02	7,410.00	40.31	40.76	-105.94	1,174.90	783.36	254.89	179.07	75.82	3.362		
8,300.00	7,340.00	8,405.02	7,410.00	42.73	43.16	-105.94	1,175.92	883.36	254.89	174.39	80.50	3.166		
8,400.00	7,340.00	8,505.02	7,410.00	45.25	45.65	-105.94	1,176.93	983.35	254.88	169.51	85.37	2.986		
8,500.00	7,340.00	8,605.02	7,410.00	47.85	48.23	-105.94	1,177.95	1,083.35	254.87	164.47	90.40	2.819		
8,600.00	7,340.00	8,705.02	7,410.00	50.51	50.88	-105.94	1,178.96	1,183.34	254.86	159.30	95.56	2.667		

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 SAM 3C-25H-M166
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 5109.00usft
<b>Reference Site:</b>	S25-T1N-R66W (SAM)	<b>MD Reference:</b>	23' KB @ 5109.00usft
<b>Site Error:</b>	0.00usft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	SAM 3C-25H-M166	<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 S25-T1N-R66W (SAM) - SAM 3A-25H-M166 - 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				Total		Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Uncertainty Axis	Separation Factor		
8,700.00	7,340.00	8,805.02	7,410.00	53.24	53.59	-105.94	1,179.98	1,283.34	254.85	154.01	100.84	2.527		
8,800.00	7,340.00	8,905.02	7,410.00	56.02	56.35	-105.94	1,181.00	1,383.33	254.85	148.63	106.21	2.399		
8,900.00	7,340.00	9,005.02	7,410.00	58.84	59.15	-105.94	1,182.01	1,483.33	254.84	143.16	111.67	2.282		
9,000.00	7,340.00	9,105.02	7,410.00	61.69	62.00	-105.94	1,183.03	1,583.32	254.83	137.63	117.20	2.174		
9,100.00	7,340.00	9,205.02	7,410.00	64.59	64.88	-105.94	1,184.05	1,683.32	254.82	132.03	122.80	2.075		
9,200.00	7,340.00	9,305.02	7,410.00	67.50	67.78	-105.94	1,185.06	1,783.31	254.81	126.37	128.44	1.984		
9,300.00	7,340.00	9,405.02	7,410.00	70.45	70.71	-105.95	1,186.08	1,883.30	254.81	120.67	134.13	1.900		
9,400.00	7,340.00	9,505.02	7,410.00	73.41	73.67	-105.95	1,187.09	1,983.30	254.80	114.93	139.87	1.822		
9,500.00	7,340.00	9,605.02	7,410.00	76.40	76.65	-105.95	1,188.11	2,083.29	254.79	109.15	145.64	1.749		
9,600.00	7,340.00	9,705.02	7,410.00	79.40	79.64	-105.95	1,189.13	2,183.29	254.78	103.34	151.44	1.682		
9,700.00	7,340.00	9,805.02	7,410.00	82.42	82.65	-105.95	1,190.14	2,283.28	254.77	97.51	157.27	1.620		
9,800.00	7,340.00	9,905.02	7,410.00	85.45	85.67	-105.95	1,191.16	2,383.28	254.77	91.64	163.13	1.562		
9,900.00	7,340.00	10,005.02	7,410.00	88.49	88.71	-105.95	1,192.17	2,483.27	254.76	85.75	169.01	1.507		
10,000.00	7,340.00	10,105.02	7,410.00	91.55	91.76	-105.95	1,193.19	2,583.27	254.75	79.85	174.90	1.457 Level 3		
10,100.00	7,340.00	10,205.02	7,410.00	94.61	94.81	-105.95	1,194.21	2,683.26	254.74	73.92	180.82	1.409 Level 3		
10,200.00	7,340.00	10,305.02	7,410.00	97.69	97.88	-105.95	1,195.22	2,783.26	254.74	67.98	186.76	1.364 Level 3		
10,300.00	7,340.00	10,405.02	7,410.00	100.77	100.96	-105.95	1,196.24	2,883.25	254.73	62.02	192.71	1.322 Level 3		
10,400.00	7,340.00	10,505.02	7,410.00	103.86	104.04	-105.95	1,197.26	2,983.25	254.72	56.05	198.67	1.282 Level 3		
10,500.00	7,340.00	10,605.02	7,410.00	106.96	107.13	-105.95	1,198.27	3,083.24	254.71	50.06	204.65	1.245 Level 2		
10,600.00	7,340.00	10,705.02	7,410.00	110.06	110.23	-105.95	1,199.29	3,183.24	254.70	44.07	210.64	1.209 Level 2		
10,700.00	7,340.00	10,805.02	7,410.00	113.17	113.33	-105.95	1,200.30	3,283.23	254.70	38.06	216.64	1.176 Level 2		
10,800.00	7,340.00	10,905.02	7,410.00	116.28	116.44	-105.95	1,201.32	3,383.23	254.69	32.04	222.65	1.144 Level 2		
10,900.00	7,340.00	11,005.02	7,410.00	119.40	119.56	-105.95	1,202.34	3,483.22	254.68	26.02	228.66	1.114 Level 2		
11,000.00	7,340.00	11,105.02	7,410.00	122.52	122.68	-105.95	1,203.35	3,583.22	254.67	19.98	234.69	1.085 Level 2		
11,100.00	7,340.00	11,205.02	7,410.00	125.65	125.80	-105.95	1,204.37	3,683.21	254.66	13.94	240.72	1.058 Level 2		
11,200.00	7,340.00	11,305.02	7,410.00	128.78	128.93	-105.95	1,205.39	3,783.21	254.66	7.89	246.76	1.032 Level 2		
11,300.00	7,340.00	11,405.02	7,410.00	131.92	132.06	-105.96	1,206.40	3,883.20	254.65	1.84	252.81	1.007 Level 2		
11,400.00	7,340.00	11,505.02	7,410.00	135.05	135.19	-105.96	1,207.42	3,983.20	254.64	-4.23	258.87	0.984 Level 1		
11,500.00	7,340.00	11,605.02	7,410.00	138.19	138.33	-105.96	1,208.43	4,083.19	254.63	-10.29	264.92	0.961 Level 1		
11,600.00	7,340.00	11,705.02	7,410.00	141.34	141.47	-105.96	1,209.45	4,183.19	254.62	-16.36	270.99	0.940 Level 1		
11,700.00	7,340.00	11,805.02	7,410.00	144.49	144.62	-105.96	1,210.47	4,283.18	254.62	-22.44	277.06	0.919 Level 1		
11,800.00	7,340.00	11,905.02	7,410.00	147.64	147.76	-105.96	1,211.48	4,383.18	254.61	-28.52	283.13	0.899 Level 1		
11,900.00	7,340.00	12,005.02	7,410.00	150.79	150.91	-105.96	1,212.50	4,483.17	254.60	-34.61	289.21	0.880 Level 1		
11,913.53	7,340.00	12,018.55	7,410.00	151.21	151.34	-105.96	1,212.64	4,496.70	254.60	-35.43	290.03	0.878 Level 1, 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 SAM 3C-25H-M166
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 5109.00usft
<b>Reference Site:</b>	S25-T1N-R66W (SAM)	<b>MD Reference:</b>	23' KB @ 5109.00usft
<b>Site Error:</b>	0.00usft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	SAM 3C-25H-M166	<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 S25-T1N-R66W (SAM) - SAM 3B-25H-M166 - 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	-0.50	9.83	-0.08	9.83					
100.00	100.00	100.00	100.00	0.14	0.14	-0.50	9.83	-0.08	9.83	9.55	0.28	35.602		
200.00	200.00	200.00	200.00	0.50	0.50	-0.50	9.83	-0.08	9.83	8.83	0.99	9.897		
300.00	300.00	300.00	300.00	0.85	0.85	-0.50	9.83	-0.08	9.83	8.12	1.71	5.747	CC, ES	
400.00	400.00	399.63	399.61	1.21	1.21	-2.82	11.49	-0.57	11.51	9.06	2.45	4.691		
500.00	499.98	499.12	498.96	1.57	1.57	12.02	16.47	-2.00	14.92	11.70	3.22	4.629		
600.00	599.84	598.49	597.95	1.93	1.94	10.52	24.75	-4.39	18.34	14.35	4.00	4.591		
700.00	699.45	697.75	696.47	2.30	2.31	9.76	36.31	-7.73	21.77	17.00	4.77	4.564		
800.00	798.70	796.88	794.40	2.67	2.69	9.43	51.12	-12.01	25.19	19.64	5.54	4.544		
900.00	897.47	896.00	891.71	3.05	3.09	9.38	69.16	-17.21	28.57	22.26	6.31	4.529		
939.74	936.56	935.73	930.62	3.21	3.26	9.52	76.92	-19.45	29.51	22.93	6.58	4.483		
1,000.00	995.75	995.98	989.61	3.45	3.52	9.86	88.67	-22.85	30.52	23.51	7.02	4.351		
1,100.00	1,093.98	1,095.97	1,087.51	3.86	3.95	10.37	108.19	-28.48	32.21	24.47	7.74	4.162		
1,200.00	1,192.21	1,195.95	1,185.41	4.28	4.38	10.84	127.70	-34.12	33.89	25.42	8.47	4.002		
1,300.00	1,290.44	1,295.94	1,283.31	4.71	4.82	11.26	147.22	-39.75	35.58	26.37	9.21	3.864		
1,400.00	1,388.67	1,395.92	1,381.21	5.13	5.27	11.64	166.73	-45.38	37.27	27.32	9.96	3.744		
1,500.00	1,486.90	1,495.91	1,479.11	5.56	5.71	11.98	186.25	-51.02	38.96	28.26	10.71	3.639		
1,600.00	1,585.13	1,595.89	1,577.01	5.99	6.16	12.30	205.76	-56.65	40.66	29.20	11.46	3.547		
1,700.00	1,683.36	1,695.88	1,674.91	6.43	6.61	12.60	225.28	-62.28	42.35	30.13	12.22	3.466		
1,800.00	1,781.59	1,795.86	1,772.81	6.86	7.06	12.87	244.79	-67.92	44.05	31.07	12.98	3.393		
1,900.00	1,879.82	1,895.85	1,870.71	7.30	7.52	13.12	264.31	-73.55	45.74	32.00	13.74	3.328		
2,000.00	1,978.05	1,995.84	1,968.62	7.74	7.97	13.35	283.82	-79.19	47.44	32.93	14.51	3.270		
2,100.00	2,076.28	2,095.82	2,066.52	8.17	8.42	13.57	303.34	-84.82	49.14	33.86	15.28	3.217		
2,200.00	2,174.51	2,195.81	2,164.42	8.61	8.87	13.77	322.85	-90.45	50.84	34.79	16.05	3.168		
2,300.00	2,272.74	2,295.79	2,262.32	9.05	9.33	13.96	342.37	-96.09	52.54	35.72	16.82	3.124		
2,400.00	2,370.97	2,395.78	2,360.22	9.49	9.78	14.14	361.88	-101.72	54.24	36.65	17.59	3.084		
2,500.00	2,469.20	2,495.76	2,458.12	9.93	10.24	14.31	381.40	-107.35	55.94	37.58	18.36	3.047		
2,600.00	2,567.43	2,595.75	2,556.02	10.37	10.69	14.46	400.91	-112.99	57.64	38.50	19.13	3.012		
2,700.00	2,665.66	2,695.73	2,653.92	10.81	11.15	14.61	420.43	-118.62	59.34	39.43	19.91	2.981		
2,800.00	2,763.89	2,795.72	2,751.82	11.26	11.61	14.75	439.94	-124.26	61.04	40.36	20.68	2.951		
2,900.00	2,862.12	2,895.70	2,849.72	11.70	12.06	14.88	459.46	-129.89	62.74	41.28	21.46	2.924		
3,000.00	2,960.35	2,995.69	2,947.62	12.14	12.52	15.01	478.97	-135.52	64.44	42.21	22.23	2.898		
3,100.00	3,058.58	3,095.68	3,045.52	12.58	12.98	15.13	498.49	-141.16	66.14	43.13	23.01	2.874		
3,200.00	3,156.82	3,195.66	3,143.42	13.02	13.43	15.24	518.00	-146.79	67.85	44.06	23.79	2.852		
3,300.00	3,255.05	3,295.65	3,241.32	13.47	13.89	15.35	537.52	-152.43	69.55	44.98	24.57	2.831		
3,400.00	3,353.28	3,395.63	3,339.22	13.91	14.35	15.45	557.03	-158.06	71.25	45.91	25.34	2.811		
3,500.00	3,451.51	3,495.62	3,437.12	14.35	14.80	15.55	576.54	-163.69	72.96	46.83	26.12	2.793		
3,600.00	3,549.74	3,595.60	3,535.02	14.79	15.26	15.64	596.06	-169.33	74.66	47.76	26.90	2.775		
3,700.00	3,647.97	3,695.59	3,632.92	15.24	15.72	15.73	615.57	-174.96	76.36	48.68	27.68	2.759		
3,800.00	3,746.20	3,795.57	3,730.83	15.68	16.17	15.81	635.09	-180.59	78.07	49.61	28.46	2.743		
3,900.00	3,844.43	3,895.56	3,828.73	16.12	16.63	15.89	654.60	-186.23	79.77	50.53	29.24	2.728		
4,000.00	3,942.66	3,995.54	3,926.63	16.57	17.09	15.97	674.12	-191.86	81.47	51.45	30.02	2.714		
4,100.00	4,040.89	4,095.53	4,024.53	17.01	17.55	16.05	693.63	-197.50	83.18	52.38	30.80	2.700		
4,200.00	4,139.12	4,195.51	4,122.43	17.45	18.00	16.12	713.15	-203.13	84.88	53.30	31.58	2.688		
4,300.00	4,237.35	4,295.50	4,220.33	17.90	18.46	16.19	732.66	-208.76	86.59	54.22	32.36	2.675		
4,400.00	4,335.58	4,395.49	4,318.23	18.34	18.92	16.25	752.18	-214.40	88.29	55.15	33.14	2.664		
4,500.00	4,433.81	4,495.47	4,416.13	18.78	19.38	16.32	771.69	-220.03	90.00	56.07	33.93	2.653		
4,600.00	4,532.04	4,595.46	4,514.03	19.23	19.84	16.38	791.21	-225.66	91.70	56.99	34.71	2.642		
4,700.00	4,630.27	4,695.44	4,611.93	19.67	20.29	16.44	810.72	-231.30	93.41	57.92	35.49	2.632		
4,800.00	4,728.50	4,795.43	4,709.83	20.11	20.75	16.49	830.24	-236.93	95.11	58.84	36.27	2.622		
4,900.00	4,826.73	4,895.41	4,807.73	20.56	21.21	16.55	849.75	-242.57	96.82	59.76	37.05	2.613		
5,000.00	4,924.96	4,995.40	4,905.63	21.00	21.67	16.60	869.27	-248.20	98.52	60.69	37.83	2.604		

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 SAM 3C-25H-M166
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 5109.00usft
<b>Reference Site:</b>	S25-T1N-R66W (SAM)	<b>MD Reference:</b>	23' KB @ 5109.00usft
<b>Site Error:</b>	0.00usft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	SAM 3C-25H-M166	<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 S25-T1N-R66W (SAM) - SAM 3B-25H-M166 - OH - PLAN #1												Offset Site Error:	0.00 usft
Survey Program: O-MWD+HDGM												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
5,100.00	5,023.19	5,095.38	5,003.53	21.45	22.13	16.65	888.78	-253.83	100.23	61.61	38.62	2.595	
5,200.00	5,121.42	5,195.37	5,101.43	21.89	22.58	16.70	908.30	-259.47	101.93	62.53	39.40	2.587	
5,300.00	5,219.65	5,295.35	5,199.33	22.33	23.04	16.75	927.81	-265.10	103.64	63.46	40.18	2.579	
5,400.00	5,317.88	5,395.34	5,297.23	22.78	23.50	16.80	947.33	-270.74	105.34	64.38	40.96	2.572	
5,500.00	5,416.11	5,495.33	5,395.13	23.22	23.96	16.84	966.84	-276.37	107.05	65.30	41.75	2.564	
5,548.18	5,463.44	5,544.43	5,443.24	23.44	24.18	16.88	976.32	-279.10	107.76	65.63	42.14	2.557	
5,600.00	5,514.43	5,598.20	5,496.08	23.66	24.42	16.97	985.88	-281.87	108.18	65.62	42.56	2.542	
5,700.00	5,613.26	5,701.99	5,598.56	24.08	24.85	17.11	1,001.64	-286.41	108.86	65.55	43.31	2.513	
5,800.00	5,712.56	5,805.80	5,701.58	24.47	25.26	17.22	1,013.82	-289.93	109.39	65.39	44.00	2.486	
5,900.00	5,812.21	5,909.62	5,805.02	24.83	25.63	17.30	1,022.41	-292.41	109.76	65.16	44.60	2.461	
6,000.00	5,912.09	6,013.46	5,908.71	25.16	25.96	17.35	1,027.40	-293.85	109.98	64.85	45.13	2.437	
6,087.93	6,000.00	6,104.76	6,000.00	25.43	26.24	-0.36	1,028.80	-294.25	110.04	64.51	45.53	2.417	
6,100.00	6,012.07	6,116.83	6,012.07	25.46	26.27	-0.36	1,028.80	-294.25	110.04	64.43	45.61	2.412	
6,200.00	6,112.07	6,216.83	6,112.07	25.76	26.56	-0.36	1,028.80	-294.25	110.04	63.76	46.28	2.378	
6,300.00	6,212.07	6,316.83	6,212.07	26.06	26.85	-0.36	1,028.80	-294.25	110.04	63.10	46.94	2.344	
6,400.00	6,312.07	6,416.83	6,312.07	26.36	27.14	-0.36	1,028.80	-294.25	110.04	62.44	47.60	2.312	
6,500.00	6,412.07	6,516.83	6,412.07	26.66	27.43	-0.36	1,028.80	-294.25	110.04	61.77	48.27	2.280	
6,600.00	6,512.07	6,616.83	6,512.07	26.96	27.72	-0.36	1,028.80	-294.25	110.04	61.10	48.94	2.249	
6,700.00	6,612.07	6,716.83	6,612.07	27.26	28.02	-0.36	1,028.80	-294.25	110.04	60.43	49.61	2.218	
6,711.73	6,623.80	6,728.56	6,623.80	27.30	28.05	-0.36	1,028.80	-294.25	110.04	60.35	49.69	2.215	
6,736.62	6,648.69	6,753.44	6,648.69	27.37	28.13	-90.00	1,028.80	-294.25	110.04	60.20	49.83	2.208	
6,750.00	6,662.06	6,766.81	6,662.06	27.41	28.17	-90.31	1,028.80	-294.25	110.04	60.14	49.90	2.205	
6,800.00	6,711.85	6,816.61	6,711.85	27.55	28.31	-92.58	1,028.80	-294.25	110.15	60.07	50.08	2.200	
6,850.00	6,761.22	6,865.97	6,761.22	27.68	28.46	-96.55	1,028.80	-294.25	110.79	60.60	50.19	2.208	
6,900.00	6,809.91	6,914.67	6,809.91	27.81	28.61	-101.98	1,028.80	-294.25	112.66	62.35	50.31	2.239	
6,950.00	6,857.70	6,962.46	6,857.70	27.93	28.75	-108.45	1,028.80	-294.25	116.69	66.11	50.58	2.307	
7,000.00	6,904.35	7,012.55	6,907.76	28.05	28.89	-115.45	1,028.81	-292.90	123.27	72.43	50.84	2.425	
7,050.00	6,949.64	7,064.31	6,959.27	28.15	29.03	-121.76	1,028.86	-287.86	131.63	80.60	51.03	2.580	
7,100.00	6,993.33	7,117.48	7,011.66	28.25	29.17	-127.30	1,028.95	-278.83	141.36	90.31	51.05	2.769	
7,150.00	7,035.23	7,172.17	7,064.68	28.34	29.31	-132.10	1,029.09	-265.51	152.10	101.29	50.80	2.994	
7,200.00	7,075.12	7,228.46	7,118.04	28.42	29.44	-136.21	1,029.27	-247.61	163.47	113.25	50.22	3.255	
7,250.00	7,112.81	7,286.44	7,171.35	28.49	29.57	-139.74	1,029.50	-224.86	175.18	125.93	49.25	3.557	
7,300.00	7,148.12	7,346.19	7,224.18	28.56	29.68	-142.74	1,029.79	-196.99	186.95	139.08	47.87	3.906	
7,350.00	7,180.88	7,407.77	7,275.99	28.62	29.79	-145.30	1,030.12	-163.76	198.54	152.46	46.07	4.309	
7,400.00	7,210.92	7,471.21	7,326.19	28.68	29.89	-147.48	1,030.52	-125.00	209.72	165.84	43.88	4.780	
7,450.00	7,238.10	7,536.52	7,374.08	28.73	29.98	-149.32	1,030.97	-80.62	220.29	178.99	41.30	5.334	
7,500.00	7,262.29	7,603.68	7,418.89	28.80	30.06	-150.87	1,031.48	-30.63	230.06	191.68	38.38	5.994	
7,550.00	7,283.37	7,672.62	7,459.82	28.92	30.13	-152.16	1,032.04	24.80	238.87	203.64	35.23	6.781	
7,600.00	7,301.23	7,743.20	7,496.00	29.23	30.19	-153.21	1,032.65	85.37	246.55	214.59	31.95	7.715	
7,650.00	7,315.80	7,815.26	7,526.61	29.79	30.27	-154.04	1,033.32	150.57	252.96	224.17	28.79	8.786	
7,700.00	7,326.99	7,888.56	7,550.86	30.47	30.56	-154.66	1,034.02	219.70	257.99	231.99	26.00	9.924	
7,750.00	7,334.76	7,962.82	7,568.10	31.23	31.44	-155.09	1,034.75	291.90	261.54	237.52	24.02	10.888	
7,800.00	7,339.06	8,037.71	7,577.82	32.05	32.58	-155.33	1,035.51	366.12	263.54	240.28	23.26	11.329	
7,836.73	7,340.00	8,092.92	7,580.00	32.69	33.50	-155.38	1,036.07	421.27	264.00	240.36	23.64	11.168	
7,900.00	7,340.00	8,156.41	7,580.00	33.85	34.67	-155.38	1,036.71	484.75	264.00	239.07	24.93	10.589	
8,000.00	7,340.00	8,256.41	7,580.00	35.85	36.62	-155.38	1,037.73	584.75	263.99	236.89	27.10	9.741	
8,100.00	7,340.00	8,356.41	7,580.00	38.01	38.74	-155.38	1,038.75	684.74	263.99	234.57	29.42	8.973	
8,200.00	7,340.00	8,456.41	7,580.00	40.31	41.00	-155.39	1,039.76	784.73	263.99	232.13	31.86	8.287	
8,300.00	7,340.00	8,556.41	7,580.00	42.73	43.38	-155.39	1,040.78	884.73	263.98	229.60	34.39	7.677	
8,400.00	7,340.00	8,656.41	7,580.00	45.25	45.86	-155.39	1,041.79	984.72	263.98	226.99	36.99	7.137	
8,500.00	7,340.00	8,756.41	7,580.00	47.85	48.42	-155.39	1,042.81	1,084.72	263.98	224.33	39.65	6.658	
8,600.00	7,340.00	8,856.41	7,580.00	50.51	51.06	-155.39	1,043.83	1,184.71	263.97	221.61	42.36	6.232	

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 SAM 3C-25H-M166
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 5109.00usft
<b>Reference Site:</b>	S25-T1N-R66W (SAM)	<b>MD Reference:</b>	23' KB @ 5109.00usft
<b>Site Error:</b>	0.00usft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	SAM 3C-25H-M166	<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 S25-T1N-R66W (SAM) - SAM 3B-25H-M166 - 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		
8,700.00	7,340.00	8,956.41	7,580.00	53.24	53.76	-155.39	1,044.84	1,284.71	263.97	218.86	45.11	5.852		
8,800.00	7,340.00	9,056.41	7,580.00	56.02	56.51	-155.40	1,045.86	1,384.70	263.97	216.08	47.89	5.512		
8,900.00	7,340.00	9,156.41	7,580.00	58.84	59.31	-155.40	1,046.88	1,484.70	263.96	213.27	50.70	5.207		
9,000.00	7,340.00	9,256.41	7,580.00	61.69	62.14	-155.40	1,047.89	1,584.69	263.96	210.43	53.53	4.931		
9,100.00	7,340.00	9,356.41	7,580.00	64.59	65.01	-155.40	1,048.91	1,684.69	263.96	207.58	56.38	4.682		
9,200.00	7,340.00	9,456.41	7,580.00	67.50	67.91	-155.40	1,049.92	1,784.68	263.95	204.71	59.24	4.455		
9,300.00	7,340.00	9,556.41	7,580.00	70.45	70.84	-155.40	1,050.94	1,884.68	263.95	201.83	62.12	4.249		
9,400.00	7,340.00	9,656.41	7,580.00	73.41	73.79	-155.41	1,051.96	1,984.67	263.94	198.93	65.01	4.060		
9,500.00	7,340.00	9,756.41	7,580.00	76.40	76.76	-155.41	1,052.97	2,084.67	263.94	196.03	67.92	3.886		
9,600.00	7,340.00	9,856.41	7,580.00	79.40	79.75	-155.41	1,053.99	2,184.66	263.94	193.11	70.83	3.726		
9,700.00	7,340.00	9,956.41	7,580.00	82.42	82.76	-155.41	1,055.00	2,284.66	263.93	190.19	73.75	3.579		
9,800.00	7,340.00	10,056.41	7,580.00	85.45	85.77	-155.41	1,056.02	2,384.65	263.93	187.26	76.67	3.442		
9,900.00	7,340.00	10,156.41	7,580.00	88.49	88.81	-155.41	1,057.04	2,484.65	263.93	184.32	79.61	3.315		
10,000.00	7,340.00	10,256.41	7,580.00	91.55	91.85	-155.42	1,058.05	2,584.64	263.92	181.38	82.55	3.197		
10,100.00	7,340.00	10,356.41	7,580.00	94.61	94.91	-155.42	1,059.07	2,684.64	263.92	178.43	85.49	3.087		
10,200.00	7,340.00	10,456.41	7,580.00	97.69	97.97	-155.42	1,060.09	2,784.63	263.92	175.48	88.44	2.984		
10,300.00	7,340.00	10,556.41	7,580.00	100.77	101.04	-155.42	1,061.10	2,884.63	263.91	172.52	91.39	2.888		
10,400.00	7,340.00	10,656.41	7,580.00	103.86	104.13	-155.42	1,062.12	2,984.62	263.91	169.56	94.35	2.797		
10,500.00	7,340.00	10,756.41	7,580.00	106.96	107.21	-155.42	1,063.13	3,084.62	263.91	166.60	97.31	2.712		
10,600.00	7,340.00	10,856.41	7,580.00	110.06	110.31	-155.43	1,064.15	3,184.61	263.90	163.63	100.27	2.632		
10,700.00	7,340.00	10,956.41	7,580.00	113.17	113.41	-155.43	1,065.17	3,284.61	263.90	160.67	103.23	2.556		
10,800.00	7,340.00	11,056.41	7,580.00	116.28	116.52	-155.43	1,066.18	3,384.60	263.90	157.70	106.20	2.485		
10,900.00	7,340.00	11,156.41	7,580.00	119.40	119.63	-155.43	1,067.20	3,484.60	263.89	154.72	109.17	2.417		
11,000.00	7,340.00	11,256.41	7,580.00	122.52	122.75	-155.43	1,068.22	3,584.59	263.89	151.75	112.14	2.353		
11,100.00	7,340.00	11,356.41	7,580.00	125.65	125.87	-155.43	1,069.23	3,684.59	263.89	148.77	115.12	2.292		
11,200.00	7,340.00	11,456.41	7,580.00	128.78	129.00	-155.44	1,070.25	3,784.58	263.88	145.79	118.09	2.235		
11,300.00	7,340.00	11,556.41	7,580.00	131.92	132.13	-155.44	1,071.26	3,884.57	263.88	142.81	121.07	2.180		
11,400.00	7,340.00	11,656.41	7,580.00	135.05	135.26	-155.44	1,072.28	3,984.57	263.88	139.83	124.05	2.127		
11,500.00	7,340.00	11,756.41	7,580.00	138.19	138.40	-155.44	1,073.30	4,084.56	263.87	136.85	127.02	2.077		
11,600.00	7,340.00	11,856.41	7,580.00	141.34	141.54	-155.44	1,074.31	4,184.56	263.87	133.86	130.01	2.030		
11,700.00	7,340.00	11,956.41	7,580.00	144.49	144.68	-155.44	1,075.33	4,284.55	263.87	130.88	132.99	1.984		
11,800.00	7,340.00	12,056.41	7,580.00	147.64	147.82	-155.45	1,076.34	4,384.55	263.86	127.89	135.97	1.941		
11,900.00	7,340.00	12,156.41	7,580.00	150.79	150.97	-155.45	1,077.36	4,484.54	263.86	124.91	138.95	1.899		
11,913.53	7,340.00	12,169.93	7,580.00	151.21	151.40	-155.45	1,077.50	4,498.07	263.86	124.50	139.36	1.893 SF		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well SAM 3C-25H-M166
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 5109.00usft
<b>Reference Site:</b>	S25-T1N-R66W (SAM)	<b>MD Reference:</b>	23' KB @ 5109.00usft
<b>Site Error:</b>	0.00usft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	SAM 3C-25H-M166	<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 S25-T1N-R66W (SAM) - SAM 3D-25H-M166 - 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	179.50	-10.20	0.09	10.20							
100.00	100.00	100.00	100.00	0.14	0.14	179.50	-10.20	0.09	10.20	9.92	0.28	36.937				
200.00	200.00	200.00	200.00	0.50	0.50	179.50	-10.20	0.09	10.20	9.20	0.99	10.268				
300.00	300.00	300.00	300.00	0.85	0.85	179.50	-10.20	0.09	10.20	8.49	1.71	5.963				
400.00	400.00	400.00	400.00	1.21	1.21	179.50	-10.20	0.09	10.20	7.77	2.43	4.201 CC				
500.00	499.98	499.98	499.98	1.57	1.57	-165.26	-10.20	0.09	11.87	8.73	3.14	3.776				
600.00	599.84	600.37	600.35	1.93	1.93	-168.07	-8.57	-0.58	15.30	11.43	3.88	3.946				
700.00	699.45	700.89	700.72	2.30	2.29	-168.99	-3.68	-2.59	18.80	14.17	4.63	4.061				
800.00	798.70	801.52	800.96	2.67	2.66	-168.90	4.47	-5.94	22.35	16.96	5.39	4.145				
900.00	897.47	902.27	900.95	3.05	3.03	-168.21	15.88	-10.64	25.94	19.78	6.16	4.212				
939.74	936.56	942.23	940.48	3.21	3.18	-167.84	21.29	-12.86	27.41	20.95	6.46	4.243				
1,000.00	995.75	1,002.44	1,000.01	3.45	3.41	-167.42	29.61	-16.28	29.85	22.95	6.89	4.330				
1,100.00	1,093.98	1,102.35	1,098.80	3.86	3.80	-166.85	43.43	-21.96	33.90	26.28	7.62	4.448				
1,200.00	1,192.21	1,202.27	1,197.60	4.28	4.19	-166.41	57.24	-27.64	37.95	29.60	8.36	4.542				
1,300.00	1,290.44	1,302.19	1,296.39	4.71	4.59	-166.05	71.06	-33.33	42.01	32.91	9.10	4.618				
1,400.00	1,388.67	1,402.11	1,395.19	5.13	4.99	-165.76	84.88	-39.01	46.07	36.23	9.84	4.681				
1,500.00	1,486.90	1,502.02	1,493.98	5.56	5.39	-165.51	98.69	-44.69	50.13	39.53	10.59	4.733				
1,600.00	1,585.13	1,601.94	1,592.78	5.99	5.79	-165.30	112.51	-50.37	54.18	42.84	11.34	4.777				
1,700.00	1,683.36	1,701.86	1,691.57	6.43	6.20	-165.12	126.33	-56.05	58.24	46.15	12.10	4.815				
1,800.00	1,781.59	1,801.78	1,790.36	6.86	6.60	-164.96	140.14	-61.73	62.30	49.45	12.85	4.848				
1,900.00	1,879.82	1,901.69	1,889.16	7.30	7.01	-164.82	153.96	-67.42	66.37	52.76	13.61	4.877				
2,000.00	1,978.05	2,001.61	1,987.95	7.74	7.42	-164.70	167.78	-73.10	70.43	56.06	14.37	4.902				
2,100.00	2,076.28	2,101.53	2,086.75	8.17	7.83	-164.59	181.59	-78.78	74.49	59.36	15.13	4.925				
2,200.00	2,174.51	2,201.45	2,185.54	8.61	8.24	-164.50	195.41	-84.46	78.55	62.66	15.89	4.945				
2,300.00	2,272.74	2,301.36	2,284.34	9.05	8.65	-164.41	209.23	-90.14	82.61	65.96	16.65	4.962				
2,400.00	2,370.97	2,401.28	2,383.13	9.49	9.06	-164.33	223.04	-95.82	86.67	69.26	17.41	4.979				
2,500.00	2,469.20	2,501.20	2,481.92	9.93	9.47	-164.26	236.86	-101.51	90.73	72.56	18.17	4.993				
2,600.00	2,567.43	2,601.12	2,580.72	10.37	9.88	-164.19	250.68	-107.19	94.80	75.86	18.93	5.006				
2,700.00	2,665.66	2,701.03	2,679.51	10.81	10.29	-164.13	264.49	-112.87	98.86	79.16	19.70	5.019				
2,800.00	2,763.89	2,800.95	2,778.31	11.26	10.70	-164.07	278.31	-118.55	102.92	82.46	20.46	5.030				
2,900.00	2,862.12	2,900.87	2,877.10	11.70	11.11	-164.02	292.12	-124.23	106.98	85.76	21.23	5.040				
3,000.00	2,960.35	3,000.79	2,975.90	12.14	11.52	-163.97	305.94	-129.91	111.05	89.05	21.99	5.049				
3,100.00	3,058.58	3,100.70	3,074.69	12.58	11.93	-163.93	319.76	-135.59	115.11	92.35	22.76	5.058				
3,200.00	3,156.82	3,200.62	3,173.48	13.02	12.35	-163.89	333.57	-141.28	119.17	95.65	23.52	5.066				
3,300.00	3,255.05	3,300.54	3,272.28	13.47	12.76	-163.85	347.39	-146.96	123.24	98.95	24.29	5.074				
3,400.00	3,353.28	3,400.46	3,371.07	13.91	13.17	-163.81	361.21	-152.64	127.30	102.24	25.05	5.081				
3,500.00	3,451.51	3,500.37	3,469.87	14.35	13.58	-163.78	375.02	-158.32	131.36	105.54	25.82	5.088				
3,600.00	3,549.74	3,600.29	3,568.66	14.79	14.00	-163.75	388.84	-164.00	135.42	108.84	26.59	5.094				
3,700.00	3,647.97	3,700.21	3,667.46	15.24	14.41	-163.71	402.66	-169.68	139.49	112.13	27.35	5.099				
3,800.00	3,746.20	3,800.12	3,766.25	15.68	14.82	-163.69	416.47	-175.37	143.55	115.43	28.12	5.105				
3,900.00	3,844.43	3,900.04	3,865.04	16.12	15.23	-163.66	430.29	-181.05	147.61	118.73	28.89	5.110				
4,000.00	3,942.66	3,999.96	3,963.84	16.57	15.65	-163.63	444.11	-186.73	151.68	122.02	29.65	5.115				
4,100.00	4,040.89	4,099.88	4,062.63	17.01	16.06	-163.61	457.92	-192.41	155.74	125.32	30.42	5.119				
4,200.00	4,139.12	4,199.79	4,161.43	17.45	16.47	-163.59	471.74	-198.09	159.80	128.61	31.19	5.124				
4,300.00	4,237.35	4,299.71	4,260.22	17.90	16.89	-163.57	485.56	-203.77	163.87	131.91	31.96	5.128				
4,400.00	4,335.58	4,399.63	4,359.02	18.34	17.30	-163.54	499.37	-209.46	167.93	135.21	32.72	5.132				
4,500.00	4,433.81	4,499.55	4,457.81	18.78	17.71	-163.52	513.19	-215.14	171.99	138.50	33.49	5.136				
4,600.00	4,532.04	4,599.46	4,556.60	19.23	18.13	-163.51	527.00	-220.82	176.05	141.80	34.26	5.139				
4,700.00	4,630.27	4,699.38	4,655.40	19.67	18.54	-163.49	540.82	-226.50	180.12	145.09	35.03	5.142				
4,800.00	4,728.50	4,799.30	4,754.19	20.11	18.95	-163.47	554.64	-232.18	184.18	148.39	35.79	5.146				
4,900.00	4,826.73	4,899.22	4,852.99	20.56	19.37	-163.45	568.45	-237.86	188.24	151.68	36.56	5.149				
5,000.00	4,924.96	4,999.13	4,951.78	21.00	19.78	-163.44	582.27	-243.55	192.31	154.98	37.33	5.152				

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 SAM 3C-25H-M166
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 5109.00usft
<b>Reference Site:</b>	S25-T1N-R66W (SAM)	<b>MD Reference:</b>	23' KB @ 5109.00usft
<b>Site Error:</b>	0.00usft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	SAM 3C-25H-M166	<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 S25-T1N-R66W (SAM) - SAM 3D-25H-M166 - OH - PLAN #1												Offset Site Error:	0.00 usft
Survey Program: O-MWD+HDGM												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
5,100.00	5,023.19	5,099.05	5,050.58	21.45	20.19	-163.42	596.09	-249.23	196.37	158.27	38.10	5.154	
5,200.00	5,121.42	5,198.97	5,149.37	21.89	20.61	-163.41	609.90	-254.91	200.43	161.57	38.87	5.157	
5,300.00	5,219.65	5,298.89	5,248.16	22.33	21.02	-163.39	623.72	-260.59	204.50	164.86	39.63	5.160	
5,400.00	5,317.88	5,398.80	5,346.96	22.78	21.43	-163.38	637.54	-266.27	208.56	168.16	40.40	5.162	
5,500.00	5,416.11	5,498.72	5,445.75	23.22	21.85	-163.37	651.35	-271.95	212.62	171.45	41.17	5.165	
5,548.18	5,463.44	5,546.86	5,493.36	23.44	22.05	-163.36	658.01	-274.69	214.58	173.04	41.54	5.166	
5,600.00	5,514.43	5,598.65	5,544.56	23.66	22.26	-163.33	665.17	-277.64	216.24	174.30	41.94	5.156	
5,700.00	5,613.26	5,693.85	5,638.81	24.08	22.65	-163.15	677.60	-282.75	217.70	175.03	42.67	5.101	
5,800.00	5,712.56	5,787.23	5,731.61	24.47	23.01	-163.01	687.09	-286.65	218.74	175.40	43.35	5.046	
5,900.00	5,812.21	5,880.59	5,824.69	24.83	23.35	-162.91	693.78	-289.40	219.48	175.52	43.96	4.993	
6,000.00	5,912.09	5,973.94	5,917.94	25.16	23.67	-162.85	697.66	-290.99	219.91	175.39	44.51	4.940	
6,087.93	6,000.00	6,056.01	6,000.00	25.43	23.94	179.45	698.74	-291.44	220.03	175.08	44.95	4.895	
6,100.00	6,012.07	6,068.09	6,012.07	25.46	23.98	179.45	698.74	-291.44	220.03	175.00	45.03	4.886	
6,200.00	6,112.07	6,168.09	6,112.07	25.76	24.29	179.45	698.74	-291.44	220.03	174.32	45.70	4.814	
6,300.00	6,212.07	6,268.09	6,212.07	26.06	24.61	179.45	698.74	-291.44	220.03	173.65	46.38	4.744	
6,400.00	6,312.07	6,368.09	6,312.07	26.36	24.93	179.45	698.74	-291.44	220.03	172.97	47.05	4.676	
6,500.00	6,412.07	6,468.09	6,412.07	26.66	25.25	179.45	698.74	-291.44	220.03	172.30	47.73	4.610	
6,600.00	6,512.07	6,568.09	6,512.07	26.96	25.57	179.45	698.74	-291.44	220.03	171.62	48.41	4.545	
6,700.00	6,612.07	6,668.09	6,612.07	27.26	25.89	179.45	698.74	-291.44	220.03	170.94	49.08	4.483	
6,711.73	6,623.80	6,679.81	6,623.80	27.30	25.93	179.45	698.74	-291.44	220.03	170.86	49.16	4.475	
6,711.73	6,623.80	6,679.81	6,623.80	27.30	25.93	179.45	698.74	-291.44	220.03	170.86	49.16	4.475	
6,750.00	6,662.06	6,718.07	6,662.06	27.41	26.05	90.30	698.74	-291.44	220.03	170.59	49.43	4.451	
6,800.00	6,711.85	6,768.00	6,711.99	27.55	26.21	91.38	698.75	-291.21	220.09	170.27	49.82	4.418	
6,850.00	6,761.22	6,818.31	6,762.19	27.68	26.36	92.65	698.78	-288.17	220.26	170.04	50.23	4.385	
6,900.00	6,809.91	6,868.97	6,812.41	27.81	26.50	93.90	698.85	-281.55	220.54	169.91	50.63	4.356	
6,950.00	6,857.70	6,919.98	6,862.37	27.93	26.64	95.13	698.95	-271.32	220.92	169.88	51.04	4.328	
7,000.00	6,904.35	6,971.35	6,911.83	28.05	26.78	96.34	699.09	-257.45	221.39	169.95	51.44	4.304	
7,050.00	6,949.64	7,023.08	6,960.49	28.15	26.90	97.51	699.27	-239.94	221.95	170.11	51.84	4.282	
7,100.00	6,993.33	7,075.16	7,008.08	28.25	27.02	98.65	699.49	-218.81	222.58	170.36	52.22	4.262	
7,150.00	7,035.23	7,127.60	7,054.31	28.34	27.13	99.74	699.74	-194.10	223.27	170.67	52.59	4.245	
7,200.00	7,075.12	7,180.37	7,098.89	28.42	27.24	100.78	700.03	-165.88	224.00	171.04	52.97	4.229	
7,250.00	7,112.81	7,233.48	7,141.54	28.49	27.33	101.76	700.36	-134.25	224.77	171.43	53.34	4.214	
7,300.00	7,148.12	7,286.91	7,181.96	28.56	27.42	102.68	700.71	-99.32	225.55	171.81	53.74	4.197	
7,350.00	7,180.88	7,340.65	7,219.87	28.62	27.51	103.53	701.10	-61.26	226.34	172.16	54.18	4.178	
7,400.00	7,210.92	7,394.67	7,255.00	28.68	27.60	104.32	701.52	-20.23	227.10	172.43	54.67	4.154	
7,450.00	7,238.10	7,448.97	7,287.08	28.73	27.72	105.02	701.97	23.54	227.83	172.59	55.24	4.124	
7,500.00	7,262.29	7,503.50	7,315.88	28.80	27.91	105.65	702.45	69.84	228.51	172.59	55.93	4.086	
7,550.00	7,283.37	7,558.26	7,341.17	28.92	28.27	106.19	702.94	118.38	229.13	172.39	56.74	4.038	
7,600.00	7,301.23	7,613.20	7,362.75	29.23	28.80	106.66	703.46	168.90	229.67	171.97	57.70	3.980	
7,650.00	7,315.80	7,668.31	7,380.43	29.79	29.45	107.03	704.00	221.07	230.12	171.31	58.82	3.912	
7,700.00	7,326.99	7,723.54	7,394.08	30.47	30.19	107.32	704.54	274.58	230.48	170.38	60.10	3.835	
7,750.00	7,334.76	7,778.87	7,403.58	31.23	31.02	107.52	705.10	329.07	230.73	169.17	61.55	3.749	
7,800.00	7,339.06	7,834.26	7,408.85	32.05	31.93	107.63	705.67	384.19	230.86	167.71	63.16	3.655	
7,836.73	7,340.00	7,874.95	7,410.00	32.69	32.63	107.65	706.08	424.85	230.89	166.47	64.42	3.584	
7,900.00	7,340.00	7,938.22	7,410.00	33.85	33.81	107.65	706.73	488.12	230.89	164.24	66.65	3.464	
8,000.00	7,340.00	8,038.22	7,410.00	35.85	35.80	107.65	707.76	588.12	230.89	160.46	70.43	3.278	
8,100.00	7,340.00	8,138.22	7,410.00	38.01	37.96	107.65	708.78	688.11	230.89	156.36	74.53	3.098	
8,200.00	7,340.00	8,238.22	7,410.00	40.31	40.26	107.65	709.81	788.11	230.89	152.00	78.89	2.927	
8,300.00	7,340.00	8,338.22	7,410.00	42.73	42.67	107.65	710.83	888.10	230.89	147.42	83.48	2.766	
8,400.00	7,340.00	8,438.22	7,410.00	45.25	45.19	107.65	711.86	988.10	230.89	142.64	88.25	2.616	
8,500.00	7,340.00	8,538.22	7,410.00	47.85	47.78	107.65	712.88	1,088.09	230.89	137.71	93.18	2.478	
8,600.00	7,340.00	8,638.22	7,410.00	50.51	50.45	107.65	713.90	1,188.09	230.89	132.64	98.25	2.350	

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 SAM 3C-25H-M166
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 5109.00usft
<b>Reference Site:</b>	S25-T1N-R66W (SAM)	<b>MD Reference:</b>	23' KB @ 5109.00usft
<b>Site Error:</b>	0.00usft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	SAM 3C-25H-M166	<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 S25-T1N-R66W (SAM) - SAM 3D-25H-M166 - OH - PLAN #1													Offset Site Error:	0.00 usft
Survey Program: O-MWD+HDGM													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning	
8,700.00	7,340.00	8,738.22	7,410.00	53.24	53.18	107.65	714.93	1,288.08	230.89	127.46	103.43	2.232		
8,800.00	7,340.00	8,838.22	7,410.00	56.02	55.95	107.65	715.95	1,388.07	230.89	122.18	108.71	2.124		
8,900.00	7,340.00	8,938.22	7,410.00	58.84	58.77	107.65	716.98	1,488.07	230.89	116.81	114.08	2.024		
9,000.00	7,340.00	9,038.22	7,410.00	61.69	61.63	107.65	718.00	1,588.06	230.89	111.37	119.52	1.932		
9,100.00	7,340.00	9,138.22	7,410.00	64.59	64.52	107.65	719.03	1,688.06	230.89	105.87	125.02	1.847		
9,200.00	7,340.00	9,238.22	7,410.00	67.50	67.44	107.65	720.05	1,788.05	230.89	100.31	130.58	1.768		
9,300.00	7,340.00	9,338.22	7,410.00	70.45	70.38	107.65	721.08	1,888.05	230.89	94.70	136.19	1.695		
9,400.00	7,340.00	9,438.22	7,410.00	73.41	73.35	107.65	722.10	1,988.04	230.89	89.04	141.85	1.628		
9,500.00	7,340.00	9,538.22	7,410.00	76.40	76.34	107.65	723.13	2,088.04	230.89	83.35	147.54	1.565		
9,600.00	7,340.00	9,638.22	7,410.00	79.40	79.34	107.65	724.15	2,188.03	230.89	77.63	153.26	1.506		
9,700.00	7,340.00	9,738.22	7,410.00	82.42	82.36	107.65	725.17	2,288.03	230.89	71.87	159.02	1.452 Level 3		
9,800.00	7,340.00	9,838.22	7,410.00	85.45	85.39	107.65	726.20	2,388.02	230.89	66.09	164.80	1.401 Level 3		
9,900.00	7,340.00	9,938.22	7,410.00	88.49	88.43	107.65	727.22	2,488.02	230.89	60.28	170.61	1.353 Level 3		
10,000.00	7,340.00	10,038.22	7,410.00	91.55	91.49	107.65	728.25	2,588.01	230.89	54.45	176.44	1.309 Level 3		
10,100.00	7,340.00	10,138.22	7,410.00	94.61	94.55	107.65	729.27	2,688.01	230.89	48.60	182.29	1.267 Level 3		
10,200.00	7,340.00	10,238.22	7,410.00	97.69	97.63	107.65	730.30	2,788.00	230.89	42.73	188.15	1.227 Level 2		
10,300.00	7,340.00	10,338.22	7,410.00	100.77	100.71	107.65	731.32	2,888.00	230.89	36.85	194.04	1.190 Level 2		
10,400.00	7,340.00	10,438.22	7,410.00	103.86	103.80	107.65	732.35	2,987.99	230.89	30.95	199.94	1.155 Level 2		
10,500.00	7,340.00	10,538.22	7,410.00	106.96	106.90	107.65	733.37	3,087.99	230.89	25.04	205.85	1.122 Level 2		
10,600.00	7,340.00	10,638.22	7,410.00	110.06	110.00	107.65	734.40	3,187.98	230.89	19.11	211.77	1.090 Level 2		
10,700.00	7,340.00	10,738.22	7,410.00	113.17	113.11	107.65	735.42	3,287.98	230.89	13.18	217.71	1.061 Level 2		
10,800.00	7,340.00	10,838.22	7,410.00	116.28	116.22	107.65	736.44	3,387.97	230.89	7.23	223.66	1.032 Level 2		
10,900.00	7,340.00	10,938.22	7,410.00	119.40	119.34	107.65	737.47	3,487.96	230.89	1.27	229.61	1.006 Level 2		
11,000.00	7,340.00	11,038.22	7,410.00	122.52	122.47	107.65	738.49	3,587.96	230.89	-4.69	235.58	0.980 Level 1		
11,100.00	7,340.00	11,138.22	7,410.00	125.65	125.59	107.65	739.52	3,687.95	230.89	-10.66	241.55	0.956 Level 1		
11,200.00	7,340.00	11,238.22	7,410.00	128.78	128.72	107.65	740.54	3,787.95	230.89	-16.65	247.53	0.933 Level 1		
11,300.00	7,340.00	11,338.22	7,410.00	131.92	131.86	107.65	741.57	3,887.94	230.89	-22.64	253.52	0.911 Level 1		
11,400.00	7,340.00	11,438.22	7,410.00	135.05	135.00	107.65	742.59	3,987.94	230.89	-28.63	259.52	0.890 Level 1		
11,500.00	7,340.00	11,538.22	7,410.00	138.19	138.14	107.65	743.62	4,087.93	230.89	-34.63	265.52	0.870 Level 1		
11,600.00	7,340.00	11,638.22	7,410.00	141.34	141.28	107.65	744.64	4,187.93	230.89	-40.64	271.53	0.850 Level 1		
11,700.00	7,340.00	11,738.22	7,410.00	144.49	144.43	107.65	745.67	4,287.92	230.89	-46.65	277.54	0.832 Level 1		
11,800.00	7,340.00	11,838.22	7,410.00	147.64	147.58	107.65	746.69	4,387.92	230.89	-52.67	283.56	0.814 Level 1		
11,900.00	7,340.00	11,938.22	7,410.00	150.79	150.73	107.65	747.71	4,487.91	230.89	-58.70	289.58	0.797 Level 1		
11,911.87	7,340.00	11,950.09	7,410.00	151.16	151.11	107.65	747.84	4,499.78	230.89	-59.41	290.30	0.795 Level 1		
11,913.53	7,340.00	11,950.31	7,410.00	151.21	151.11	107.65	747.84	4,500.00	230.89	-59.43	290.32	0.795 Level 1, 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 SAM 3C-25H-M166
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 5109.00usft
<b>Reference Site:</b>	S25-T1N-R66W (SAM)	<b>MD Reference:</b>	23' KB @ 5109.00usft
<b>Site Error:</b>	0.00usft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	SAM 3C-25H-M166	<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 S25-T1N-R66W (SAM) - SAM 3E-25H-M166 - 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	179.50	-20.03	0.17	20.03					
100.00	100.00	100.00	100.00	0.14	0.14	179.50	-20.03	0.17	20.03	19.75	0.28	72.570		
200.00	200.00	200.00	200.00	0.50	0.50	179.50	-20.03	0.17	20.03	19.04	0.99	20.173		
300.00	300.00	300.00	300.00	0.85	0.85	179.50	-20.03	0.17	20.03	18.32	1.71	11.715		
400.00	400.00	400.00	400.00	1.21	1.21	179.50	-20.03	0.17	20.03	17.60	2.43	8.254 CC, ES		
500.00	499.98	499.98	499.98	1.57	1.57	-164.13	-20.03	0.17	21.70	18.56	3.14	6.903		
600.00	599.84	599.84	599.84	1.93	1.93	-167.17	-20.03	0.17	26.78	22.91	3.86	6.929		
700.00	699.45	700.52	700.50	2.30	2.29	-168.99	-18.57	-0.82	33.77	29.18	4.60	7.349		
800.00	798.70	801.42	801.26	2.67	2.65	-168.82	-14.18	-3.81	41.08	35.74	5.34	7.692		
900.00	897.47	902.29	901.73	3.05	3.02	-167.57	-6.90	-8.77	48.75	42.66	6.09	8.004		
939.74	936.56	941.87	941.11	3.21	3.16	-167.15	-3.63	-11.00	52.31	45.93	6.38	8.197		
1,000.00	995.75	1,001.84	1,000.79	3.45	3.38	-166.72	1.32	-14.37	58.11	51.30	6.82	8.524		
1,100.00	1,093.98	1,101.37	1,099.82	3.86	3.75	-166.17	9.53	-19.97	67.76	60.21	7.55	8.978		
1,200.00	1,192.21	1,200.91	1,198.86	4.28	4.12	-165.76	17.75	-25.56	77.40	69.12	8.28	9.346		
1,300.00	1,290.44	1,300.44	1,297.89	4.71	4.49	-165.44	25.96	-31.16	87.05	78.03	9.02	9.651		
1,400.00	1,388.67	1,399.97	1,396.93	5.13	4.86	-165.19	34.18	-36.76	96.70	86.94	9.76	9.906		
1,500.00	1,486.90	1,499.50	1,495.96	5.56	5.24	-164.98	42.39	-42.35	106.36	95.85	10.51	10.124		
1,600.00	1,585.13	1,599.04	1,595.00	5.99	5.61	-164.80	50.61	-47.95	116.01	104.76	11.25	10.311		
1,700.00	1,683.36	1,698.57	1,694.03	6.43	5.99	-164.65	58.82	-53.55	125.67	113.67	12.00	10.473		
1,800.00	1,781.59	1,798.10	1,793.07	6.86	6.37	-164.53	67.04	-59.14	135.32	122.57	12.75	10.615		
1,900.00	1,879.82	1,897.63	1,892.10	7.30	6.75	-164.42	75.25	-64.74	144.98	131.48	13.50	10.741		
2,000.00	1,978.05	1,997.17	1,991.14	7.74	7.13	-164.32	83.47	-70.33	154.63	140.39	14.25	10.853		
2,100.00	2,076.28	2,096.70	2,090.17	8.17	7.50	-164.24	91.68	-75.93	164.29	149.29	15.00	10.953		
2,200.00	2,174.51	2,196.23	2,189.20	8.61	7.88	-164.16	99.90	-81.53	173.95	158.20	15.75	11.043		
2,300.00	2,272.74	2,295.76	2,288.24	9.05	8.26	-164.09	108.11	-87.12	183.61	167.10	16.50	11.125		
2,400.00	2,370.97	2,395.29	2,387.27	9.49	8.64	-164.03	116.33	-92.72	193.27	176.01	17.26	11.199		
2,500.00	2,469.20	2,494.83	2,486.31	9.93	9.02	-163.98	124.54	-98.32	202.92	184.91	18.01	11.267		
2,600.00	2,567.43	2,594.36	2,585.34	10.37	9.40	-163.93	132.76	-103.91	212.58	193.82	18.76	11.329		
2,700.00	2,665.66	2,693.89	2,684.38	10.81	9.78	-163.88	140.97	-109.51	222.24	202.72	19.52	11.386		
2,800.00	2,763.89	2,793.42	2,783.41	11.26	10.16	-163.84	149.18	-115.11	231.90	211.63	20.27	11.439		
2,900.00	2,862.12	2,892.96	2,882.45	11.70	10.54	-163.80	157.40	-120.70	241.56	220.53	21.03	11.488		
3,000.00	2,960.35	2,992.49	2,981.48	12.14	10.92	-163.77	165.61	-126.30	251.22	229.43	21.78	11.533		
3,100.00	3,058.58	3,092.02	3,080.52	12.58	11.30	-163.73	173.83	-131.89	260.88	238.34	22.54	11.575		
3,200.00	3,156.82	3,191.55	3,179.55	13.02	11.69	-163.70	182.04	-137.49	270.54	247.24	23.29	11.614		
3,300.00	3,255.05	3,291.09	3,278.59	13.47	12.07	-163.67	190.26	-143.09	280.19	256.15	24.05	11.651		
3,400.00	3,353.28	3,390.62	3,377.62	13.91	12.45	-163.65	198.47	-148.68	289.85	265.05	24.80	11.685		
3,500.00	3,451.51	3,490.15	3,476.66	14.35	12.83	-163.62	206.69	-154.28	299.51	273.95	25.56	11.718		
3,600.00	3,549.74	3,589.68	3,575.69	14.79	13.21	-163.60	214.90	-159.88	309.17	282.86	26.32	11.748		
3,700.00	3,647.97	3,689.21	3,674.73	15.24	13.59	-163.58	223.12	-165.47	318.83	291.76	27.07	11.777		
3,800.00	3,746.20	3,788.75	3,773.76	15.68	13.97	-163.56	231.33	-171.07	328.49	300.66	27.83	11.804		
3,900.00	3,844.43	3,888.28	3,872.80	16.12	14.35	-163.54	239.55	-176.66	338.15	309.57	28.59	11.830		
4,000.00	3,942.66	3,987.81	3,971.83	16.57	14.73	-163.52	247.76	-182.26	347.81	318.47	29.34	11.854		
4,100.00	4,040.89	4,087.34	4,070.87	17.01	15.12	-163.50	255.98	-187.86	357.47	327.37	30.10	11.877		
4,200.00	4,139.12	4,186.88	4,169.90	17.45	15.50	-163.49	264.19	-193.45	367.13	336.27	30.85	11.899		
4,300.00	4,237.35	4,286.41	4,268.93	17.90	15.88	-163.47	272.41	-199.05	376.79	345.18	31.61	11.919		
4,400.00	4,335.58	4,385.94	4,367.97	18.34	16.26	-163.46	280.62	-204.65	386.45	354.08	32.37	11.939		
4,500.00	4,433.81	4,485.47	4,467.00	18.78	16.64	-163.44	288.84	-210.24	396.11	362.98	33.12	11.958		
4,600.00	4,532.04	4,585.01	4,566.04	19.23	17.02	-163.43	297.05	-215.84	405.77	371.89	33.88	11.976		
4,700.00	4,630.27	4,684.54	4,665.07	19.67	17.40	-163.42	305.27	-221.44	415.43	380.79	34.64	11.993		
4,800.00	4,728.50	4,784.07	4,764.11	20.11	17.79	-163.40	313.48	-227.03	425.09	389.69	35.40	12.010		
4,900.00	4,826.73	4,883.60	4,863.14	20.56	18.17	-163.39	321.69	-232.63	434.75	398.59	36.15	12.025		
5,000.00	4,924.96	4,983.13	4,962.18	21.00	18.55	-163.38	329.91	-238.22	444.41	407.50	36.91	12.040		

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 SAM 3C-25H-M166
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 5109.00usft
<b>Reference Site:</b>	S25-T1N-R66W (SAM)	<b>MD Reference:</b>	23' KB @ 5109.00usft
<b>Site Error:</b>	0.00usft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	SAM 3C-25H-M166	<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 S25-T1N-R66W (SAM) - SAM 3E-25H-M166 - OH - PLAN #1												Offset Site Error:	0.00 usft
Survey Program: O-MWD+HDGM												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
5,100.00	5,023.19	5,082.67	5,061.21	21.45	18.93	-163.37	338.12	-243.82	454.07	416.40	37.67	12.055	
5,200.00	5,121.42	5,182.20	5,160.25	21.89	19.31	-163.36	346.34	-249.42	463.73	425.30	38.42	12.069	
5,300.00	5,219.65	5,281.73	5,259.28	22.33	19.69	-163.35	354.55	-255.01	473.39	434.20	39.18	12.082	
5,400.00	5,317.88	5,381.26	5,358.32	22.78	20.07	-163.34	362.77	-260.61	483.05	443.11	39.94	12.095	
5,500.00	5,416.11	5,480.80	5,457.35	23.22	20.46	-163.33	370.98	-266.21	492.70	452.01	40.70	12.107	
5,548.18	5,463.44	5,528.75	5,505.07	23.44	20.64	-163.33	374.94	-268.90	497.36	456.30	41.06	12.113	
5,600.00	5,514.43	5,580.37	5,556.43	23.66	20.84	-163.33	379.20	-271.80	501.92	460.46	41.45	12.108	
5,700.00	5,613.26	5,680.16	5,655.72	24.08	21.22	-163.25	387.44	-277.42	508.18	465.98	42.21	12.040	
5,800.00	5,712.56	5,774.72	5,749.83	24.47	21.58	-163.06	395.05	-282.61	511.34	468.42	42.92	11.914	
5,900.00	5,812.21	5,861.72	5,836.59	24.83	21.90	-162.92	400.25	-286.14	513.26	469.72	43.54	11.788	
6,000.00	5,912.09	5,948.72	5,923.51	25.16	22.21	-162.84	403.26	-288.19	514.37	470.25	44.12	11.660	
6,087.93	6,000.00	6,025.21	6,000.00	25.43	22.48	179.47	404.10	-288.77	514.68	470.10	44.58	11.544	
6,100.00	6,012.07	6,037.29	6,012.07	25.46	22.52	179.47	404.10	-288.77	514.68	470.02	44.67	11.523	
6,200.00	6,112.07	6,137.29	6,112.07	25.76	22.85	179.47	404.10	-288.77	514.68	469.34	45.34	11.351	
6,300.00	6,212.07	6,237.29	6,212.07	26.06	23.19	179.47	404.10	-288.77	514.68	468.66	46.02	11.183	
6,400.00	6,312.07	6,337.29	6,312.07	26.36	23.53	179.47	404.10	-288.77	514.68	467.98	46.70	11.020	
6,500.00	6,412.07	6,437.29	6,412.07	26.66	23.87	179.47	404.10	-288.77	514.68	467.30	47.39	10.861	
6,600.00	6,512.07	6,537.29	6,512.07	26.96	24.21	179.47	404.10	-288.77	514.68	466.61	48.07	10.707	
6,700.00	6,612.07	6,637.29	6,612.07	27.26	24.55	179.47	404.10	-288.77	514.68	465.93	48.75	10.557	
6,711.73	6,623.80	6,649.01	6,623.80	27.30	24.59	179.47	404.10	-288.77	514.68	465.85	48.83	10.539	
6,750.00	6,662.06	6,687.31	6,662.06	27.41	24.71	90.05	404.11	-287.74	514.68	465.60	49.08	10.486	
6,800.00	6,711.85	6,737.34	6,711.90	27.55	24.87	90.05	404.16	-283.33	514.68	465.29	49.40	10.420	
6,850.00	6,761.22	6,787.37	6,761.30	27.68	25.01	90.05	404.24	-275.45	514.68	464.99	49.70	10.357	
6,900.00	6,809.91	6,837.40	6,810.02	27.81	25.15	90.05	404.35	-264.13	514.68	464.70	49.99	10.296	
6,950.00	6,857.70	6,887.43	6,857.84	27.93	25.29	90.05	404.50	-249.45	514.69	464.41	50.28	10.237	
7,000.00	6,904.35	6,937.46	6,904.51	28.05	25.42	90.05	404.68	-231.47	514.69	464.13	50.56	10.179	
7,050.00	6,949.64	6,987.48	6,949.81	28.15	25.54	90.05	404.90	-210.27	514.69	463.84	50.85	10.122	
7,100.00	6,993.33	7,037.51	6,993.53	28.25	25.66	90.05	405.14	-185.96	514.69	463.54	51.15	10.062	
7,150.00	7,035.23	7,087.54	7,035.43	28.34	25.77	90.04	405.42	-158.66	514.69	463.22	51.47	9.999	
7,200.00	7,075.12	7,137.56	7,075.33	28.42	25.89	90.04	405.73	-128.51	514.70	462.87	51.83	9.931	
7,250.00	7,112.81	7,187.58	7,113.03	28.49	26.03	90.04	406.06	-95.64	514.70	462.47	52.23	9.855	
7,300.00	7,148.12	7,237.61	7,148.34	28.56	26.19	90.04	406.42	-60.23	514.70	462.01	52.69	9.769	
7,350.00	7,180.88	7,287.63	7,181.09	28.62	26.41	90.03	406.81	-22.44	514.70	461.47	53.23	9.669	
7,400.00	7,210.92	7,337.64	7,211.12	28.68	26.69	90.03	407.21	17.55	514.71	460.84	53.87	9.555	
7,450.00	7,238.10	7,387.66	7,238.29	28.73	27.04	90.03	407.64	59.53	514.71	460.09	54.62	9.424	
7,500.00	7,262.29	7,437.68	7,262.47	28.80	27.47	90.02	408.08	103.30	514.71	459.22	55.49	9.275	
7,550.00	7,283.37	7,487.69	7,283.52	28.92	27.96	90.02	408.54	148.65	514.72	458.22	56.50	9.110	
7,600.00	7,301.23	7,537.70	7,301.37	29.23	28.54	90.02	409.02	195.35	514.72	457.08	57.65	8.929	
7,650.00	7,315.80	7,587.71	7,315.90	29.79	29.18	90.01	409.51	243.19	514.73	455.79	58.93	8.734	
7,700.00	7,326.99	7,637.71	7,327.07	30.47	29.90	90.01	410.00	291.92	514.73	454.37	60.36	8.528	
7,750.00	7,334.76	7,687.72	7,334.81	31.23	30.68	90.01	410.50	341.31	514.73	452.83	61.90	8.315	
7,800.00	7,339.06	7,737.72	7,339.08	32.05	31.51	90.00	411.01	391.12	514.74	451.17	63.56	8.098	
7,836.73	7,340.00	7,774.45	7,340.00	32.69	32.15	90.00	411.38	427.83	514.74	449.90	64.84	7.939	
7,900.00	7,340.00	7,837.72	7,340.00	33.85	33.35	90.00	412.02	491.10	514.75	447.55	67.19	7.661	
8,000.00	7,340.00	7,937.72	7,340.00	35.85	35.36	90.00	413.04	591.09	514.76	443.56	71.19	7.231	
8,100.00	7,340.00	8,037.72	7,340.00	38.01	37.53	90.00	414.06	691.09	514.76	439.24	75.52	6.816	
8,200.00	7,340.00	8,137.72	7,340.00	40.31	39.85	90.00	415.07	791.08	514.77	434.64	80.13	6.424	
8,300.00	7,340.00	8,237.72	7,340.00	42.73	42.28	90.00	416.09	891.08	514.78	429.80	84.98	6.058	
8,400.00	7,340.00	8,337.72	7,340.00	45.25	44.81	90.00	417.11	991.07	514.79	424.77	90.02	5.719	
8,500.00	7,340.00	8,437.72	7,340.00	47.85	47.42	90.00	418.12	1,091.07	514.80	419.57	95.23	5.406	
8,600.00	7,340.00	8,537.72	7,340.00	50.51	50.11	90.00	419.14	1,191.06	514.81	414.23	100.57	5.119	
8,700.00	7,340.00	8,637.72	7,340.00	53.24	52.85	90.00	420.15	1,291.06	514.81	408.77	106.04	4.855	

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 SAM 3C-25H-M166
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 5109.00usft
<b>Reference Site:</b>	S25-T1N-R66W (SAM)	<b>MD Reference:</b>	23' KB @ 5109.00usft
<b>Site Error:</b>	0.00usft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	SAM 3C-25H-M166	<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 S25-T1N-R66W (SAM) - SAM 3E-25H-M166 - 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				Total Uncertainty Axis	Separation Factor	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)				
8,800.00	7,340.00	8,737.72	7,340.00	56.02	55.63	90.00	421.17	1,391.05	514.82	403.22	111.60	4.613		
8,900.00	7,340.00	8,837.72	7,340.00	58.84	58.47	90.00	422.19	1,491.05	514.83	397.57	117.26	4.391		
9,000.00	7,340.00	8,937.72	7,340.00	61.69	61.34	90.00	423.20	1,591.04	514.84	391.85	122.98	4.186		
9,100.00	7,340.00	9,037.72	7,340.00	64.59	64.24	90.00	424.22	1,691.04	514.85	386.07	128.78	3.998		
9,200.00	7,340.00	9,137.72	7,340.00	67.50	67.17	90.00	425.23	1,791.03	514.86	380.23	134.62	3.824		
9,300.00	7,340.00	9,237.72	7,340.00	70.45	70.12	90.00	426.25	1,891.03	514.86	374.34	140.52	3.664		
9,400.00	7,340.00	9,337.72	7,340.00	73.41	73.09	90.00	427.27	1,991.02	514.87	368.41	146.46	3.515		
9,500.00	7,340.00	9,437.72	7,340.00	76.40	76.09	90.00	428.28	2,091.02	514.88	362.44	152.44	3.378		
9,600.00	7,340.00	9,537.72	7,340.00	79.40	79.10	90.00	429.30	2,191.01	514.89	356.43	158.45	3.249		
9,700.00	7,340.00	9,637.72	7,340.00	82.42	82.12	90.00	430.32	2,291.01	514.90	350.40	164.50	3.130		
9,800.00	7,340.00	9,737.72	7,340.00	85.45	85.16	90.00	431.33	2,391.00	514.91	344.34	170.57	3.019		
9,900.00	7,340.00	9,837.72	7,340.00	88.49	88.21	90.00	432.35	2,491.00	514.91	338.25	176.66	2.915		
10,000.00	7,340.00	9,937.72	7,340.00	91.55	91.27	90.00	433.36	2,590.99	514.92	332.14	182.78	2.817		
10,100.00	7,340.00	10,037.72	7,340.00	94.61	94.34	90.00	434.38	2,690.98	514.93	326.02	188.91	2.726		
10,200.00	7,340.00	10,137.72	7,340.00	97.69	97.42	90.00	435.40	2,790.98	514.94	319.87	195.07	2.640		
10,300.00	7,340.00	10,237.72	7,340.00	100.77	100.51	90.00	436.41	2,890.97	514.95	313.71	201.24	2.559		
10,400.00	7,340.00	10,337.72	7,340.00	103.86	103.60	90.00	437.43	2,990.97	514.95	307.53	207.42	2.483		
10,500.00	7,340.00	10,437.72	7,340.00	106.96	106.70	90.00	438.44	3,090.96	514.96	301.34	213.62	2.411		
10,600.00	7,340.00	10,537.72	7,340.00	110.06	109.81	90.00	439.46	3,190.96	514.97	295.14	219.83	2.343		
10,700.00	7,340.00	10,637.72	7,340.00	113.17	112.92	90.00	440.48	3,290.95	514.98	288.93	226.05	2.278		
10,800.00	7,340.00	10,737.72	7,340.00	116.28	116.04	90.00	441.49	3,390.95	514.99	282.70	232.28	2.217		
10,900.00	7,340.00	10,837.72	7,340.00	119.40	119.16	90.00	442.51	3,490.94	515.00	276.47	238.53	2.159		
11,000.00	7,340.00	10,937.72	7,340.00	122.52	122.29	90.00	443.52	3,590.94	515.00	270.23	244.78	2.104		
11,100.00	7,340.00	11,037.72	7,340.00	125.65	125.42	90.00	444.54	3,690.93	515.01	263.98	251.03	2.052		
11,200.00	7,340.00	11,137.72	7,340.00	128.78	128.55	90.00	445.56	3,790.93	515.02	257.72	257.30	2.002		
11,300.00	7,340.00	11,237.72	7,340.00	131.92	131.69	90.00	446.57	3,890.92	515.03	251.46	263.57	1.954		
11,400.00	7,340.00	11,337.72	7,340.00	135.05	134.83	90.00	447.59	3,990.92	515.04	245.18	269.85	1.909		
11,500.00	7,340.00	11,437.72	7,340.00	138.19	137.98	90.00	448.61	4,090.91	515.05	238.91	276.14	1.865		
11,600.00	7,340.00	11,537.72	7,340.00	141.34	141.12	90.00	449.62	4,190.91	515.05	232.62	282.43	1.824		
11,700.00	7,340.00	11,637.72	7,340.00	144.49	144.27	90.00	450.64	4,290.90	515.06	226.33	288.73	1.784		
11,800.00	7,340.00	11,737.72	7,340.00	147.64	147.43	90.00	451.65	4,390.90	515.07	220.04	295.03	1.746		
11,900.00	7,340.00	11,837.72	7,340.00	150.79	150.58	90.00	452.67	4,490.89	515.08	213.74	301.34	1.709		
11,900.11	7,340.00	11,837.83	7,340.00	150.79	150.58	90.00	452.67	4,491.00	515.08	213.74	301.34	1.709		
11,913.53	7,340.00	11,848.32	7,340.00	151.21	150.91	90.00	452.78	4,501.49	515.09	213.02	302.07	1.705 SF		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well SAM 3C-25H-M166
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 5109.00usft
<b>Reference Site:</b>	S25-T1N-R66W (SAM)	<b>MD Reference:</b>	23' KB @ 5109.00usft
<b>Site Error:</b>	0.00usft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	SAM 3C-25H-M166	<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 S25-T1N-R66W (SAM) - SAM 3F-25H-M166 - 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	-179.96	-30.24	-0.02	30.24					
100.00	100.00	100.00	100.00	0.14	0.14	-179.96	-30.24	-0.02	30.24	29.96	0.28	109.542		
200.00	200.00	200.00	200.00	0.50	0.50	-179.96	-30.24	-0.02	30.24	29.24	0.99	30.450		
300.00	300.00	300.00	300.00	0.85	0.85	-179.96	-30.24	-0.02	30.24	28.53	1.71	17.683		
400.00	400.00	400.00	400.00	1.21	1.21	-179.96	-30.24	-0.02	30.24	27.81	2.43	12.459	CC, ES	
500.00	499.98	499.98	499.98	1.57	1.57	-163.19	-30.24	-0.02	31.90	28.76	3.14	10.146		
600.00	599.84	599.84	599.84	1.93	1.93	-165.51	-30.24	-0.02	36.94	33.08	3.86	9.559		
700.00	699.45	699.45	699.45	2.30	2.29	-168.23	-30.24	-0.02	45.43	40.85	4.59	9.907		
800.00	798.70	798.70	798.70	2.67	2.64	-170.67	-30.24	-0.02	57.42	52.11	5.31	10.818		
900.00	897.47	897.47	897.47	3.05	3.00	-172.62	-30.24	-0.02	72.90	66.87	6.03	12.091		
939.74	936.56	936.56	936.56	3.21	3.14	-173.27	-30.24	-0.02	80.02	73.70	6.32	12.663		
1,000.00	995.75	995.75	995.75	3.45	3.35	-174.10	-30.24	-0.02	91.24	84.49	6.75	13.516		
1,100.00	1,093.98	1,097.08	1,097.07	3.86	3.71	-174.66	-29.08	-1.19	108.55	101.07	7.48	14.511		
1,200.00	1,192.21	1,199.51	1,199.35	4.28	4.08	-174.14	-25.35	-4.96	122.92	114.70	8.22	14.947		
1,300.00	1,290.44	1,300.35	1,299.85	4.71	4.44	-173.03	-19.58	-10.80	134.85	125.89	8.96	15.048		
1,400.00	1,388.67	1,399.64	1,398.78	5.13	4.79	-172.05	-13.67	-16.78	146.55	136.86	9.69	15.122		
1,500.00	1,486.90	1,498.92	1,497.71	5.56	5.15	-171.21	-7.76	-22.75	158.30	147.87	10.43	15.184		
1,600.00	1,585.13	1,598.20	1,596.63	5.99	5.52	-170.48	-1.84	-28.73	170.07	158.91	11.16	15.237		
1,700.00	1,683.36	1,697.48	1,695.56	6.43	5.88	-169.85	4.07	-34.71	181.87	169.97	11.90	15.282		
1,800.00	1,781.59	1,796.77	1,794.49	6.86	6.25	-169.30	9.98	-40.69	193.69	181.04	12.64	15.321		
1,900.00	1,879.82	1,896.05	1,893.41	7.30	6.61	-168.81	15.89	-46.67	205.52	192.13	13.38	15.355		
2,000.00	1,978.05	1,995.33	1,992.34	7.74	6.98	-168.37	21.80	-52.65	217.36	203.24	14.13	15.385		
2,100.00	2,076.28	2,094.62	2,091.27	8.17	7.35	-167.98	27.71	-58.63	229.22	214.35	14.87	15.411		
2,200.00	2,174.51	2,193.90	2,190.19	8.61	7.72	-167.62	33.62	-64.60	241.09	225.47	15.62	15.434		
2,300.00	2,272.74	2,293.18	2,289.12	9.05	8.08	-167.30	39.54	-70.58	252.96	236.59	16.37	15.455		
2,400.00	2,370.97	2,392.47	2,388.05	9.49	8.45	-167.01	45.45	-76.56	264.84	247.73	17.12	15.474		
2,500.00	2,469.20	2,491.75	2,486.97	9.93	8.82	-166.75	51.36	-82.54	276.73	258.86	17.86	15.490		
2,600.00	2,567.43	2,591.03	2,585.90	10.37	9.19	-166.50	57.27	-88.52	288.62	270.01	18.61	15.506		
2,700.00	2,665.66	2,690.32	2,684.83	10.81	9.56	-166.28	63.18	-94.50	300.52	281.15	19.36	15.519		
2,800.00	2,763.89	2,789.60	2,783.75	11.26	9.94	-166.07	69.09	-100.48	312.42	292.31	20.11	15.532		
2,900.00	2,862.12	2,888.88	2,882.68	11.70	10.31	-165.88	75.00	-106.46	324.33	303.46	20.87	15.543		
3,000.00	2,960.35	2,988.16	2,981.60	12.14	10.68	-165.70	80.92	-112.43	336.23	314.62	21.62	15.554		
3,100.00	3,058.58	3,087.45	3,080.53	12.58	11.05	-165.53	86.83	-118.41	348.15	325.78	22.37	15.564		
3,200.00	3,156.82	3,186.73	3,179.46	13.02	11.42	-165.38	92.74	-124.39	360.06	336.94	23.12	15.572		
3,300.00	3,255.05	3,286.01	3,278.38	13.47	11.79	-165.23	98.65	-130.37	371.98	348.10	23.87	15.581		
3,400.00	3,353.28	3,385.30	3,377.31	13.91	12.17	-165.09	104.56	-136.35	383.90	359.27	24.63	15.588		
3,500.00	3,451.51	3,484.58	3,476.24	14.35	12.54	-164.96	110.47	-142.33	395.82	370.44	25.38	15.596		
3,600.00	3,549.74	3,583.86	3,575.16	14.79	12.91	-164.84	116.39	-148.31	407.74	381.61	26.13	15.602		
3,700.00	3,647.97	3,683.15	3,674.09	15.24	13.28	-164.73	122.30	-154.29	419.67	392.78	26.89	15.608		
3,800.00	3,746.20	3,782.43	3,773.02	15.68	13.66	-164.62	128.21	-160.26	431.59	403.95	27.64	15.614		
3,900.00	3,844.43	3,881.71	3,871.94	16.12	14.03	-164.52	134.12	-166.24	443.52	415.12	28.39	15.620		
4,000.00	3,942.66	3,981.00	3,970.87	16.57	14.40	-164.42	140.03	-172.22	455.45	426.30	29.15	15.625		
4,100.00	4,040.89	4,080.28	4,069.80	17.01	14.77	-164.33	145.94	-178.20	467.38	437.48	29.90	15.630		
4,200.00	4,139.12	4,179.56	4,168.72	17.45	15.15	-164.24	151.85	-184.18	479.31	448.65	30.66	15.634		
4,300.00	4,237.35	4,278.84	4,267.65	17.90	15.52	-164.16	157.77	-190.16	491.24	459.83	31.41	15.638		
4,400.00	4,335.58	4,378.13	4,366.57	18.34	15.89	-164.08	163.68	-196.14	503.18	471.01	32.17	15.642		
4,500.00	4,433.81	4,477.41	4,465.50	18.78	16.27	-164.01	169.59	-202.11	515.11	482.19	32.92	15.646		
4,600.00	4,532.04	4,576.69	4,564.43	19.23	16.64	-163.93	175.50	-208.09	527.05	493.37	33.68	15.650		
4,700.00	4,630.27	4,675.98	4,663.35	19.67	17.01	-163.87	181.41	-214.07	538.98	504.55	34.43	15.653		
4,800.00	4,728.50	4,775.26	4,762.28	20.11	17.39	-163.80	187.32	-220.05	550.92	515.73	35.19	15.657		
4,900.00	4,826.73	4,874.54	4,861.21	20.56	17.76	-163.74	193.24	-226.03	562.86	526.91	35.94	15.660		
5,000.00	4,924.96	4,973.83	4,960.13	21.00	18.13	-163.68	199.15	-232.01	574.79	538.10	36.70	15.663		

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 SAM 3C-25H-M166
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 5109.00usft
<b>Reference Site:</b>	S25-T1N-R66W (SAM)	<b>MD Reference:</b>	23' KB @ 5109.00usft
<b>Site Error:</b>	0.00usft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	SAM 3C-25H-M166	<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 S25-T1N-R66W (SAM) - SAM 3F-25H-M166 - 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				Total		Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Uncertainty Axis	Separation Factor		
5,100.00	5,023.19	5,073.11	5,059.06	21.45	18.51	-163.62	205.06	-237.99	586.73	549.28	37.45	15.666		
5,200.00	5,121.42	5,172.39	5,157.99	21.89	18.88	-163.56	210.97	-243.97	598.67	560.46	38.21	15.668		
5,300.00	5,219.65	5,271.68	5,256.91	22.33	19.25	-163.51	216.88	-249.94	610.61	571.65	38.96	15.671		
5,400.00	5,317.88	5,370.96	5,355.84	22.78	19.63	-163.46	222.79	-255.92	622.55	582.83	39.72	15.673		
5,500.00	5,416.11	5,470.24	5,454.77	23.22	20.00	-163.41	228.70	-261.90	634.49	594.02	40.48	15.676		
5,548.18	5,463.44	5,518.08	5,502.43	23.44	20.18	-163.39	231.55	-264.78	640.25	599.40	40.84	15.677		
5,600.00	5,514.43	5,569.58	5,553.74	23.66	20.37	-163.38	234.62	-267.88	645.99	604.75	41.23	15.667		
5,700.00	5,613.26	5,669.19	5,653.00	24.08	20.75	-163.30	240.55	-273.88	654.54	612.56	41.98	15.591		
5,800.00	5,712.56	5,769.02	5,752.47	24.47	21.12	-163.11	246.49	-279.89	659.77	617.04	42.73	15.441		
5,900.00	5,812.21	5,855.52	5,838.75	24.83	21.44	-162.93	250.83	-284.28	662.63	619.27	43.37	15.280		
6,000.00	5,912.09	5,941.37	5,924.52	25.16	21.75	-162.83	253.32	-286.80	664.30	620.34	43.96	15.112		
6,087.93	6,000.00	6,016.86	6,000.00	25.43	22.02	179.48	254.02	-287.51	664.76	620.32	44.45	14.956		
6,100.00	6,012.07	6,028.93	6,012.07	25.46	22.06	179.48	254.02	-287.51	664.76	620.23	44.53	14.928		
6,200.00	6,112.07	6,128.93	6,112.07	25.76	22.40	179.48	254.02	-287.51	664.76	619.55	45.21	14.704		
6,300.00	6,212.07	6,228.93	6,212.07	26.06	22.75	179.48	254.02	-287.51	664.76	618.87	45.89	14.486		
6,400.00	6,312.07	6,328.93	6,312.07	26.36	23.09	179.48	254.02	-287.51	664.76	618.19	46.57	14.274		
6,500.00	6,412.07	6,428.93	6,412.07	26.66	23.43	179.48	254.02	-287.51	664.76	617.51	47.26	14.067		
6,600.00	6,512.07	6,528.93	6,512.07	26.96	23.78	179.48	254.02	-287.51	664.76	616.82	47.94	13.866		
6,700.00	6,612.07	6,628.93	6,612.07	27.26	24.12	179.48	254.02	-287.51	664.76	616.14	48.63	13.671		
6,711.73	6,623.80	6,640.66	6,623.80	27.30	24.16	179.48	254.02	-287.51	664.76	616.06	48.71	13.649		
6,750.00	6,662.06	6,678.91	6,662.06	27.41	24.30	90.15	254.02	-287.51	664.77	615.80	48.97	13.576		
6,800.00	6,711.85	6,728.86	6,712.00	27.55	24.47	90.51	254.03	-287.28	664.79	615.48	49.31	13.483		
6,850.00	6,761.22	6,779.21	6,762.25	27.68	24.63	90.93	254.06	-284.23	664.85	615.21	49.64	13.394		
6,900.00	6,809.91	6,829.91	6,812.50	27.81	24.78	91.34	254.12	-277.60	664.95	614.98	49.97	13.308		
6,950.00	6,857.70	6,880.97	6,862.51	27.93	24.93	91.75	254.23	-267.36	665.08	614.79	50.29	13.225		
7,000.00	6,904.35	6,932.38	6,912.00	28.05	25.08	92.16	254.37	-253.46	665.24	614.63	50.61	13.144		
7,050.00	6,949.64	6,984.15	6,960.69	28.15	25.22	92.55	254.55	-235.93	665.43	614.50	50.93	13.065		
7,100.00	6,993.33	7,036.27	7,008.31	28.25	25.36	92.93	254.76	-214.76	665.65	614.39	51.26	12.985		
7,150.00	7,035.23	7,088.75	7,054.57	28.34	25.50	93.30	255.01	-190.01	665.88	614.28	51.60	12.904		
7,200.00	7,075.12	7,141.56	7,099.17	28.42	25.64	93.65	255.30	-161.75	666.13	614.16	51.97	12.818		
7,250.00	7,112.81	7,194.71	7,141.83	28.49	25.80	93.98	255.62	-130.08	666.40	614.02	52.37	12.724		
7,300.00	7,148.12	7,248.18	7,182.26	28.56	25.99	94.30	255.98	-95.10	666.66	613.83	52.83	12.619		
7,350.00	7,180.88	7,301.95	7,220.17	28.62	26.22	94.59	256.37	-56.99	666.93	613.57	53.36	12.499		
7,400.00	7,210.92	7,356.00	7,255.30	28.68	26.50	94.86	256.78	-15.92	667.19	613.21	53.98	12.359		
7,450.00	7,238.10	7,410.33	7,287.37	28.73	26.85	95.11	257.23	27.90	667.44	612.73	54.71	12.199		
7,500.00	7,262.29	7,464.89	7,316.15	28.80	27.27	95.32	257.70	74.24	667.68	612.11	55.57	12.015		
7,550.00	7,283.37	7,519.67	7,341.41	28.92	27.78	95.51	258.19	122.83	667.89	611.32	56.57	11.806		
7,600.00	7,301.23	7,574.63	7,362.96	29.23	28.37	95.67	258.71	173.38	668.08	610.36	57.72	11.574		
7,650.00	7,315.80	7,629.76	7,380.60	29.79	29.04	95.80	259.24	225.58	668.23	609.21	59.03	11.321		
7,700.00	7,326.99	7,685.00	7,394.21	30.47	29.81	95.90	259.78	279.11	668.36	607.87	60.48	11.051		
7,750.00	7,334.76	7,740.34	7,403.67	31.23	30.65	95.97	260.34	333.62	668.44	606.36	62.08	10.767		
7,800.00	7,339.06	7,795.74	7,408.89	32.05	31.56	96.01	260.90	388.75	668.49	604.68	63.81	10.477		
7,836.73	7,340.00	7,836.37	7,410.00	32.69	32.27	96.01	261.31	429.36	668.50	603.35	65.14	10.262		
7,900.00	7,340.00	7,899.64	7,410.00	33.85	33.44	96.01	261.95	492.62	668.50	601.05	67.46	9.910		
8,000.00	7,340.00	7,999.64	7,410.00	35.85	35.45	96.01	262.97	592.62	668.51	597.08	71.43	9.359		
8,100.00	7,340.00	8,099.64	7,410.00	38.01	37.62	96.01	263.98	692.61	668.52	592.79	75.73	8.828		
8,200.00	7,340.00	8,199.64	7,410.00	40.31	39.93	96.01	265.00	792.61	668.53	588.22	80.30	8.325		
8,300.00	7,340.00	8,299.64	7,410.00	42.73	42.36	96.01	266.02	892.60	668.54	583.42	85.11	7.855		
8,400.00	7,340.00	8,399.64	7,410.00	45.25	44.89	96.01	267.03	992.60	668.54	578.42	90.12	7.418		
8,500.00	7,340.00	8,499.64	7,410.00	47.85	47.50	96.01	268.05	1,092.59	668.55	573.26	95.29	7.016		
8,600.00	7,340.00	8,599.64	7,410.00	50.51	50.18	96.01	269.06	1,192.59	668.56	567.96	100.60	6.646		
8,700.00	7,340.00	8,699.64	7,410.00	53.24	52.92	96.01	270.08	1,292.58	668.57	562.54	106.02	6.306		

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 SAM 3C-25H-M166
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 5109.00usft
<b>Reference Site:</b>	S25-T1N-R66W (SAM)	<b>MD Reference:</b>	23' KB @ 5109.00usft
<b>Site Error:</b>	0.00usft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	SAM 3C-25H-M166	<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 S25-T1N-R66W (SAM) - SAM 3F-25H-M166 - 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				Separation Factor	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)			
8,800.00	7,340.00	8,799.64	7,410.00	56.02	55.70	96.01	271.10	1,392.58	668.58	557.02	111.55	5.993	
8,900.00	7,340.00	8,899.64	7,410.00	58.84	58.53	96.01	272.11	1,492.57	668.59	551.42	117.17	5.706	
9,000.00	7,340.00	8,999.64	7,410.00	61.69	61.40	96.01	273.13	1,592.57	668.59	545.74	122.86	5.442	
9,100.00	7,340.00	9,099.64	7,410.00	64.59	64.30	96.01	274.15	1,692.56	668.60	539.99	128.61	5.199	
9,200.00	7,340.00	9,199.64	7,410.00	67.50	67.23	96.01	275.16	1,792.56	668.61	534.19	134.42	4.974	
9,300.00	7,340.00	9,299.64	7,410.00	70.45	70.18	96.01	276.18	1,892.55	668.62	528.34	140.28	4.766	
9,400.00	7,340.00	9,399.64	7,410.00	73.41	73.15	96.01	277.19	1,992.55	668.63	522.44	146.19	4.574	
9,500.00	7,340.00	9,499.64	7,410.00	76.40	76.14	96.01	278.21	2,092.54	668.64	516.51	152.13	4.395	
9,600.00	7,340.00	9,599.64	7,410.00	79.40	79.15	96.01	279.23	2,192.54	668.64	510.54	158.10	4.229	
9,700.00	7,340.00	9,699.64	7,410.00	82.42	82.17	96.01	280.24	2,292.53	668.65	504.54	164.11	4.074	
9,800.00	7,340.00	9,799.64	7,410.00	85.45	85.21	96.01	281.26	2,392.53	668.66	498.51	170.15	3.930	
9,900.00	7,340.00	9,899.64	7,410.00	88.49	88.26	96.01	282.27	2,492.52	668.67	492.46	176.20	3.795	
10,000.00	7,340.00	9,999.64	7,410.00	91.55	91.32	96.01	283.29	2,592.52	668.68	486.39	182.29	3.668	
10,100.00	7,340.00	10,099.64	7,410.00	94.61	94.39	96.01	284.31	2,692.51	668.68	480.30	188.39	3.550	
10,200.00	7,340.00	10,199.64	7,410.00	97.69	97.47	96.01	285.32	2,792.50	668.69	474.19	194.50	3.438	
10,300.00	7,340.00	10,299.64	7,410.00	100.77	100.55	96.01	286.34	2,892.50	668.70	468.06	200.64	3.333	
10,400.00	7,340.00	10,399.64	7,410.00	103.86	103.65	96.01	287.36	2,992.49	668.71	461.92	206.79	3.234	
10,500.00	7,340.00	10,499.64	7,410.00	106.96	106.75	96.01	288.37	3,092.49	668.72	455.77	212.95	3.140	
10,600.00	7,340.00	10,599.64	7,410.00	110.06	109.85	96.01	289.39	3,192.48	668.73	449.60	219.13	3.052	
10,700.00	7,340.00	10,699.64	7,410.00	113.17	112.97	96.01	290.40	3,292.48	668.73	443.42	225.31	2.968	
10,800.00	7,340.00	10,799.64	7,410.00	116.28	116.08	96.01	291.42	3,392.47	668.74	437.23	231.51	2.889	
10,900.00	7,340.00	10,899.64	7,410.00	119.40	119.20	96.01	292.44	3,492.47	668.75	431.03	237.72	2.813	
11,000.00	7,340.00	10,999.64	7,410.00	122.52	122.33	96.01	293.45	3,592.46	668.76	424.82	243.94	2.742	
11,100.00	7,340.00	11,099.64	7,410.00	125.65	125.46	96.01	294.47	3,692.46	668.77	418.61	250.16	2.673	
11,200.00	7,340.00	11,199.64	7,410.00	128.78	128.60	96.01	295.48	3,792.45	668.78	412.38	256.39	2.608	
11,300.00	7,340.00	11,299.64	7,410.00	131.92	131.73	96.01	296.50	3,892.45	668.78	406.15	262.63	2.546	
11,400.00	7,340.00	11,399.64	7,410.00	135.05	134.87	96.01	297.52	3,992.44	668.79	399.91	268.88	2.487	
11,500.00	7,340.00	11,499.64	7,410.00	138.19	138.02	96.01	298.53	4,092.44	668.80	393.67	275.13	2.431	
11,600.00	7,340.00	11,599.64	7,410.00	141.34	141.16	96.01	299.55	4,192.43	668.81	387.42	281.39	2.377	
11,700.00	7,340.00	11,699.64	7,410.00	144.49	144.31	96.01	300.57	4,292.43	668.82	381.17	287.65	2.325	
11,800.00	7,340.00	11,799.64	7,410.00	147.64	147.46	96.01	301.58	4,392.42	668.82	374.91	293.92	2.276	
11,900.00	7,340.00	11,899.64	7,410.00	150.79	150.62	96.01	302.60	4,492.42	668.83	368.64	300.19	2.228	
11,900.04	7,340.00	11,899.68	7,410.00	150.79	150.62	96.01	302.60	4,492.46	668.83	368.64	300.20	2.228	
11,913.53	7,340.00	11,909.47	7,410.00	151.21	150.93	96.01	302.70	4,502.25	668.84	367.94	300.90	2.223 SF	



# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well SAM 3C-25H-M166
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 5109.00usft
<b>Reference Site:</b>	S25-T1N-R66W (SAM)	<b>MD Reference:</b>	23' KB @ 5109.00usft
<b>Site Error:</b>	0.00usft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	SAM 3C-25H-M166	<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 S25-T1N-R66W (SAM) - SAM 3G-25H-M166 - 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	179.91	-40.07	0.07	40.07					
100.00	100.00	100.00	100.00	0.14	0.14	179.91	-40.07	0.07	40.07	39.79	0.28	145.158		
200.00	200.00	200.00	200.00	0.50	0.50	179.91	-40.07	0.07	40.07	39.07	0.99	40.351		
300.00	300.00	300.00	300.00	0.85	0.85	179.91	-40.07	0.07	40.07	38.36	1.71	23.432		
400.00	400.00	400.00	400.00	1.21	1.21	179.91	-40.07	0.07	40.07	37.64	2.43	16.510	CC, ES	
500.00	499.98	499.98	499.98	1.57	1.57	-163.09	-40.07	0.07	41.73	38.59	3.14	13.273		
600.00	599.84	599.84	599.84	1.93	1.93	-164.93	-40.07	0.07	46.77	42.90	3.86	12.101		
700.00	699.45	699.45	699.45	2.30	2.29	-167.24	-40.07	0.07	55.23	50.64	4.59	12.043		
800.00	798.70	798.70	798.70	2.67	2.64	-169.49	-40.07	0.07	67.17	61.86	5.31	12.654		
900.00	897.47	897.44	897.43	3.05	2.99	-170.26	-40.32	-1.57	82.61	76.59	6.02	13.720		
939.74	936.56	936.53	936.48	3.21	3.12	-169.97	-40.57	-3.15	89.71	83.40	6.31	14.227		
1,000.00	995.75	995.73	995.60	3.45	3.33	-169.40	-41.03	-6.03	100.89	94.16	6.73	14.992		
1,100.00	1,093.98	1,093.98	1,093.74	3.86	3.67	-168.69	-41.78	-10.82	119.45	112.02	7.44	16.064		
1,200.00	1,192.21	1,192.23	1,191.87	4.28	4.01	-168.17	-42.53	-15.61	138.04	129.89	8.15	16.939		
1,300.00	1,290.44	1,290.48	1,290.00	4.71	4.36	-167.77	-43.29	-20.40	156.63	147.76	8.87	17.666		
1,400.00	1,388.67	1,388.73	1,388.13	5.13	4.71	-167.45	-44.04	-25.19	175.22	165.63	9.59	18.277		
1,500.00	1,486.90	1,486.99	1,486.26	5.56	5.06	-167.20	-44.79	-29.98	193.82	183.51	10.31	18.798		
1,600.00	1,585.13	1,585.24	1,584.40	5.99	5.41	-166.99	-45.55	-34.78	212.42	201.39	11.04	19.247		
1,700.00	1,683.36	1,683.49	1,682.53	6.43	5.76	-166.81	-46.30	-39.57	231.03	219.26	11.76	19.637		
1,800.00	1,781.59	1,781.74	1,780.66	6.86	6.12	-166.66	-47.06	-44.36	249.64	237.14	12.49	19.980		
1,900.00	1,879.82	1,879.99	1,878.79	7.30	6.47	-166.54	-47.81	-49.15	268.24	255.02	13.22	20.283		
2,000.00	1,978.05	1,978.25	1,976.92	7.74	6.83	-166.42	-48.56	-53.94	286.85	272.90	13.96	20.553		
2,100.00	2,076.28	2,076.50	2,075.06	8.17	7.18	-166.32	-49.32	-58.73	305.46	290.77	14.69	20.795		
2,200.00	2,174.51	2,174.75	2,173.19	8.61	7.54	-166.24	-50.07	-63.52	324.07	308.65	15.42	21.012		
2,300.00	2,272.74	2,273.00	2,271.32	9.05	7.90	-166.16	-50.82	-68.31	342.69	326.53	16.16	21.209		
2,400.00	2,370.97	2,371.25	2,369.45	9.49	8.25	-166.09	-51.58	-73.10	361.30	344.41	16.89	21.389		
2,500.00	2,469.20	2,469.50	2,467.58	9.93	8.61	-166.03	-52.33	-77.90	379.91	362.28	17.63	21.552		
2,600.00	2,567.43	2,567.76	2,565.72	10.37	8.97	-165.97	-53.09	-82.69	398.52	380.16	18.36	21.702		
2,700.00	2,665.66	2,666.01	2,663.85	10.81	9.32	-165.92	-53.84	-87.48	417.14	398.04	19.10	21.840		
2,800.00	2,763.89	2,764.26	2,761.98	11.26	9.68	-165.87	-54.59	-92.27	435.75	415.91	19.84	21.968		
2,900.00	2,862.12	2,862.51	2,860.11	11.70	10.04	-165.83	-55.35	-97.06	454.36	433.79	20.57	22.086		
3,000.00	2,960.35	2,960.76	2,958.24	12.14	10.40	-165.79	-56.10	-101.85	472.98	451.67	21.31	22.195		
3,100.00	3,058.58	3,059.01	3,056.38	12.58	10.75	-165.75	-56.85	-106.64	491.59	469.55	22.05	22.297		
3,200.00	3,156.82	3,157.27	3,154.51	13.02	11.11	-165.72	-57.61	-111.43	510.21	487.42	22.78	22.392		
3,300.00	3,255.05	3,255.52	3,252.64	13.47	11.47	-165.68	-58.36	-116.22	528.82	505.30	23.52	22.481		
3,400.00	3,353.28	3,353.77	3,350.77	13.91	11.83	-165.65	-59.12	-121.01	547.44	523.18	24.26	22.565		
3,500.00	3,451.51	3,452.02	3,448.90	14.35	12.19	-165.63	-59.87	-125.81	566.05	541.05	25.00	22.643		
3,600.00	3,549.74	3,550.27	3,547.04	14.79	12.55	-165.60	-60.62	-130.60	584.67	558.93	25.74	22.717		
3,700.00	3,647.97	3,648.53	3,645.17	15.24	12.90	-165.58	-61.38	-135.39	603.28	576.81	26.48	22.786		
3,800.00	3,746.20	3,746.78	3,743.30	15.68	13.26	-165.55	-62.13	-140.18	621.90	594.68	27.21	22.852		
3,900.00	3,844.43	3,845.03	3,841.43	16.12	13.62	-165.53	-62.88	-144.97	640.51	612.56	27.95	22.914		
4,000.00	3,942.66	3,943.28	3,939.56	16.57	13.98	-165.51	-63.64	-149.76	659.13	630.44	28.69	22.972		
4,100.00	4,040.89	4,041.53	4,037.70	17.01	14.34	-165.49	-64.39	-154.55	677.75	648.31	29.43	23.028		
4,200.00	4,139.12	4,139.78	4,135.83	17.45	14.70	-165.47	-65.15	-159.34	696.36	666.19	30.17	23.081		
4,300.00	4,237.35	4,238.04	4,233.96	17.90	15.06	-165.46	-65.90	-164.13	714.98	684.07	30.91	23.131		
4,400.00	4,335.58	4,336.29	4,332.09	18.34	15.42	-165.44	-66.65	-168.92	733.59	701.94	31.65	23.179		
4,500.00	4,433.81	4,434.54	4,430.22	18.78	15.78	-165.42	-67.41	-173.72	752.21	719.82	32.39	23.225		
4,600.00	4,532.04	4,532.79	4,528.36	19.23	16.13	-165.41	-68.16	-178.51	770.82	737.70	33.13	23.268		
4,700.00	4,630.27	4,631.04	4,626.49	19.67	16.49	-165.40	-68.91	-183.30	789.44	755.57	33.87	23.310		
4,800.00	4,728.50	4,729.29	4,724.62	20.11	16.85	-165.38	-69.67	-188.09	808.06	773.45	34.61	23.349		
4,900.00	4,826.73	4,827.55	4,822.75	20.56	17.21	-165.37	-70.42	-192.88	826.67	791.33	35.35	23.387		
5,000.00	4,924.96	4,925.80	4,920.88	21.00	17.57	-165.36	-71.18	-197.67	845.29	809.20	36.09	23.424		

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 SAM 3C-25H-M166
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 5109.00usft
<b>Reference Site:</b>	S25-T1N-R66W (SAM)	<b>MD Reference:</b>	23' KB @ 5109.00usft
<b>Site Error:</b>	0.00usft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	SAM 3C-25H-M166	<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 S25-T1N-R66W (SAM) - SAM 3G-25H-M166 - 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	5,023.19	5,024.05	5,019.02	21.45	17.93	-165.34	-71.93	-202.46	863.90	827.08	36.83	23.459				
5,200.00	5,121.42	5,122.30	5,117.15	21.89	18.29	-165.33	-72.68	-207.25	882.52	844.95	37.57	23.492				
5,300.00	5,219.65	5,220.55	5,215.28	22.33	18.65	-165.32	-73.44	-212.04	901.14	862.83	38.31	23.524				
5,400.00	5,317.88	5,318.81	5,313.41	22.78	19.01	-165.31	-74.19	-216.84	919.75	880.71	39.05	23.555				
5,500.00	5,416.11	5,417.06	5,411.54	23.22	19.37	-165.30	-74.94	-221.63	938.37	898.58	39.79	23.585				
5,548.18	5,463.44	5,464.40	5,458.83	23.44	19.54	-165.30	-75.31	-223.93	947.34	907.20	40.14	23.599				
5,600.00	5,514.43	5,515.39	5,509.76	23.66	19.73	-165.33	-75.70	-226.42	956.54	916.01	40.53	23.603				
5,700.00	5,613.26	5,614.21	5,608.46	24.08	20.09	-165.35	-76.46	-231.24	971.77	930.51	41.26	23.552				
5,800.00	5,712.56	5,713.48	5,707.61	24.47	20.45	-165.30	-77.22	-236.08	983.65	941.66	41.99	23.425				
5,900.00	5,812.21	5,813.07	5,807.08	24.83	20.82	-165.18	-77.98	-240.94	992.18	949.47	42.72	23.228				
6,000.00	5,912.09	5,912.87	5,906.75	25.16	21.18	-164.99	-78.75	-245.80	997.36	953.93	43.43	22.963				
6,087.93	6,000.00	6,000.68	5,994.46	25.43	21.50	177.51	-79.42	-250.09	999.14	955.09	44.06	22.679				
6,100.00	6,012.07	6,012.74	6,006.50	25.46	21.55	177.54	-79.51	-250.67	999.21	955.07	44.14	22.636				
6,200.00	6,112.07	6,112.62	6,106.26	25.76	21.91	177.82	-80.28	-255.54	999.78	954.93	44.85	22.293				
6,300.00	6,212.07	6,212.50	6,206.01	26.06	22.28	178.10	-81.05	-260.41	1,000.37	954.82	45.55	21.960				
6,400.00	6,312.07	6,312.37	6,305.77	26.36	22.64	178.38	-81.81	-265.28	1,000.99	954.73	46.26	21.638				
6,500.00	6,412.07	6,412.25	6,405.53	26.66	23.01	178.66	-82.58	-270.15	1,001.63	954.66	46.97	21.325				
6,600.00	6,512.07	6,512.13	6,505.28	26.96	23.37	178.94	-83.34	-275.02	1,002.30	954.62	47.68	21.023				
6,700.00	6,612.07	6,612.58	6,605.62	27.26	23.74	179.21	-84.11	-279.72	1,002.98	954.60	48.39	20.729				
6,711.73	6,623.80	6,624.72	6,617.75	27.30	23.78	179.22	-84.19	-279.93	1,003.06	954.59	48.47	20.695				
6,750.00	6,662.06	6,664.34	6,657.36	27.41	23.91	89.81	-84.39	-279.16	1,003.26	954.53	48.73	20.589				
6,800.00	6,711.85	6,716.12	6,708.96	27.55	24.07	89.81	-84.53	-274.86	1,003.43	954.39	49.05	20.459				
6,850.00	6,761.22	6,767.93	6,760.12	27.68	24.22	89.81	-84.52	-266.84	1,003.51	954.15	49.36	20.332				
6,900.00	6,809.91	6,819.73	6,810.58	27.81	24.37	89.82	-84.37	-255.15	1,003.48	953.83	49.65	20.209				
6,950.00	6,857.70	6,871.54	6,860.06	27.93	24.52	89.82	-84.08	-239.84	1,003.35	953.41	49.95	20.088				
7,000.00	6,904.35	6,923.33	6,908.29	28.05	24.67	89.82	-83.65	-221.01	1,003.12	952.89	50.24	19.968				
7,050.00	6,949.64	6,975.09	6,955.01	28.15	24.81	89.83	-83.08	-198.75	1,002.80	952.27	50.53	19.846				
7,100.00	6,993.33	7,026.82	6,999.97	28.25	24.96	89.83	-82.38	-173.20	1,002.37	951.54	50.83	19.719				
7,150.00	7,035.23	7,078.51	7,042.94	28.34	25.13	89.84	-81.54	-144.50	1,001.85	950.69	51.16	19.583				
7,200.00	7,075.12	7,130.15	7,083.68	28.42	25.31	89.85	-80.58	-112.82	1,001.23	949.72	51.52	19.435				
7,250.00	7,112.81	7,181.72	7,121.99	28.49	25.51	89.85	-79.50	-78.32	1,000.53	948.60	51.93	19.268				
7,300.00	7,148.12	7,233.22	7,157.68	28.56	25.75	89.86	-78.31	-41.22	999.74	947.34	52.40	19.078				
7,350.00	7,180.88	7,284.65	7,190.55	28.62	26.04	89.87	-77.00	-1.71	998.87	945.91	52.96	18.861				
7,400.00	7,210.92	7,335.99	7,220.46	28.68	26.38	89.88	-75.60	39.99	997.92	944.30	53.62	18.611				
7,450.00	7,238.10	7,387.24	7,247.25	28.73	26.78	89.89	-74.11	83.63	996.90	942.51	54.39	18.328				
7,500.00	7,262.29	7,438.39	7,270.82	28.80	27.25	89.90	-72.53	129.00	995.82	940.52	55.30	18.008				
7,550.00	7,283.37	7,489.44	7,291.05	28.92	27.79	89.91	-70.88	175.83	994.67	938.33	56.34	17.655				
7,600.00	7,301.23	7,540.38	7,307.85	29.23	28.40	89.92	-69.16	223.87	993.47	935.94	57.52	17.271				
7,650.00	7,315.80	7,591.21	7,321.18	29.79	29.09	89.93	-67.38	272.88	992.21	933.37	58.85	16.861				
7,700.00	7,326.99	7,641.93	7,330.97	30.47	29.85	89.94	-65.56	322.60	990.92	930.61	60.31	16.431				
7,750.00	7,334.76	7,692.52	7,337.21	31.23	30.66	89.96	-63.70	372.76	989.59	927.70	61.89	15.989				
7,800.00	7,339.06	7,743.00	7,339.89	32.05	31.53	89.97	-61.81	423.12	988.23	924.65	63.58	15.543				
7,836.73	7,340.00	7,779.82	7,340.00	32.69	32.19	90.00	-60.42	459.91	987.22	922.34	64.88	15.215				
7,900.00	7,340.00	7,843.07	7,340.00	33.85	33.42	90.00	-58.03	523.12	985.47	918.21	67.27	14.650				
8,000.00	7,340.00	7,943.03	7,340.00	35.85	35.47	90.00	-54.25	623.01	982.72	911.40	71.32	13.780				
8,100.00	7,340.00	8,042.99	7,340.00	38.01	37.68	90.00	-50.47	722.90	979.96	904.27	75.69	12.947				
8,200.00	7,340.00	8,142.95	7,340.00	40.31	40.03	90.00	-46.69	822.79	977.21	896.87	80.34	12.164				
8,300.00	7,340.00	8,242.91	7,340.00	42.73	42.48	90.00	-42.91	922.68	974.45	889.24	85.21	11.436				
8,400.00	7,340.00	8,342.88	7,340.00	45.25	45.03	90.00	-39.13	1,022.57	971.70	881.42	90.27	10.764				
8,500.00	7,340.00	8,442.84	7,340.00	47.85	47.66	90.00	-35.36	1,122.46	968.94	873.44	95.50	10.146				
8,600.00	7,340.00	8,542.80	7,340.00	50.51	50.35	90.00	-31.58	1,222.35	966.18	865.33	100.86	9.580				
8,700.00	7,340.00	8,642.76	7,340.00	53.24	53.10	90.00	-27.80	1,322.24	963.43	857.09	106.33	9.060				

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 SAM 3C-25H-M166
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 5109.00usft
<b>Reference Site:</b>	S25-T1N-R66W (SAM)	<b>MD Reference:</b>	23' KB @ 5109.00usft
<b>Site Error:</b>	0.00usft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	SAM 3C-25H-M166	<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 S25-T1N-R66W (SAM) - SAM 3G-25H-M166 - 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	7,340.00	8,742.72	7,340.00	56.02	55.90	90.00	-24.02	1,422.13	960.67	848.77	111.91	8.585		
8,900.00	7,340.00	8,842.69	7,340.00	58.84	58.73	90.00	-20.24	1,522.02	957.92	840.35	117.57	8.148		
9,000.00	7,340.00	8,942.65	7,340.00	61.69	61.60	90.00	-16.46	1,621.91	955.16	831.87	123.30	7.747		
9,100.00	7,340.00	9,042.61	7,340.00	64.59	64.51	90.00	-12.69	1,721.80	952.41	823.32	129.09	7.378		
9,200.00	7,340.00	9,142.57	7,340.00	67.50	67.44	90.00	-8.91	1,821.69	949.65	814.71	134.94	7.038		
9,300.00	7,340.00	9,242.53	7,340.00	70.45	70.39	90.00	-5.13	1,921.58	946.89	806.06	140.83	6.723		
9,400.00	7,340.00	9,342.50	7,340.00	73.41	73.36	90.00	-1.35	2,021.47	944.14	797.37	146.77	6.433		
9,500.00	7,340.00	9,442.46	7,340.00	76.40	76.35	90.00	2.43	2,121.37	941.38	788.63	152.75	6.163		
9,600.00	7,340.00	9,542.42	7,340.00	79.40	79.36	90.00	6.21	2,221.26	938.63	779.87	158.76	5.912		
9,700.00	7,340.00	9,642.38	7,340.00	82.42	82.38	90.00	9.98	2,321.15	935.87	771.08	164.79	5.679		
9,800.00	7,340.00	9,742.34	7,340.00	85.45	85.41	90.00	13.76	2,421.04	933.11	762.26	170.86	5.461		
9,900.00	7,340.00	9,842.31	7,340.00	88.49	88.45	90.00	17.54	2,520.93	930.36	753.41	176.95	5.258		
10,000.00	7,340.00	9,942.27	7,340.00	91.55	91.51	90.00	21.32	2,620.82	927.60	744.55	183.06	5.067		
10,100.00	7,340.00	10,042.23	7,340.00	94.61	94.57	90.00	25.10	2,720.71	924.85	735.66	189.18	4.889		
10,200.00	7,340.00	10,142.19	7,340.00	97.69	97.64	90.00	28.87	2,820.60	922.09	726.76	195.33	4.721		
10,300.00	7,340.00	10,242.15	7,340.00	100.77	100.72	90.00	32.65	2,920.49	919.34	717.84	201.49	4.563		
10,400.00	7,340.00	10,342.12	7,340.00	103.86	103.81	90.00	36.43	3,020.38	916.58	708.91	207.67	4.414		
10,500.00	7,340.00	10,442.08	7,340.00	106.96	106.90	90.00	40.21	3,120.27	913.82	699.97	213.86	4.273		
10,600.00	7,340.00	10,542.04	7,340.00	110.06	110.00	90.00	43.99	3,220.16	911.07	691.01	220.06	4.140		
10,700.00	7,340.00	10,642.00	7,340.00	113.17	113.11	90.00	47.77	3,320.05	908.31	682.04	226.27	4.014		
10,800.00	7,340.00	10,741.96	7,340.00	116.28	116.22	90.00	51.54	3,419.94	905.56	673.06	232.49	3.895		
10,900.00	7,340.00	10,841.93	7,340.00	119.40	119.33	90.00	55.32	3,519.83	902.80	664.08	238.73	3.782		
11,000.00	7,340.00	10,941.89	7,340.00	122.52	122.45	90.00	59.10	3,619.72	900.05	655.08	244.97	3.674		
11,100.00	7,340.00	11,041.85	7,340.00	125.65	125.57	90.00	62.88	3,719.61	897.29	646.08	251.21	3.572		
11,200.00	7,340.00	11,141.81	7,340.00	128.78	128.69	90.00	66.66	3,819.51	894.53	637.06	257.47	3.474		
11,300.00	7,340.00	11,241.77	7,340.00	131.92	131.82	90.00	70.44	3,919.40	891.78	628.04	263.73	3.381		
11,400.00	7,340.00	11,341.74	7,340.00	135.05	134.95	90.00	74.21	4,019.29	889.02	619.02	270.00	3.293		
11,500.00	7,340.00	11,441.70	7,340.00	138.19	138.09	90.00	77.99	4,119.18	886.27	609.99	276.28	3.208		
11,600.00	7,340.00	11,541.66	7,340.00	141.34	141.22	90.00	81.77	4,219.07	883.51	600.95	282.56	3.127		
11,700.00	7,340.00	11,641.62	7,340.00	144.49	144.36	90.00	85.55	4,318.96	880.75	591.91	288.84	3.049		
11,800.00	7,340.00	11,741.58	7,340.00	147.64	147.51	90.00	89.33	4,418.85	878.00	582.86	295.14	2.975		
11,900.00	7,340.00	11,825.78	7,340.00	150.79	150.15	90.00	92.51	4,502.98	875.39	574.47	300.91	2.909		
11,908.36	7,340.00	11,825.78	7,340.00	151.05	150.15	90.00	92.51	4,502.98	875.35	574.22	301.13	2.907		
11,913.53	7,340.00	11,825.78	7,340.00	151.21	150.15	90.00	92.51	4,502.98	875.36	574.11	301.25	2.906 SF		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well SAM 3C-25H-M166
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 5109.00usft
<b>Reference Site:</b>	S25-T1N-R66W (SAM)	<b>MD Reference:</b>	23' KB @ 5109.00usft
<b>Site Error:</b>	0.00usft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	SAM 3C-25H-M166	<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 S25-T1N-R66W (SAM) - SAM 3H-25H-M166 - 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	179.82	-50.27	0.15	50.27					
100.00	100.00	100.00	100.00	0.14	0.14	179.82	-50.27	0.15	50.27	49.99	0.28	182.109		
200.00	200.00	200.00	200.00	0.50	0.50	179.82	-50.27	0.15	50.27	49.27	0.99	50.623		
300.00	300.00	300.00	300.00	0.85	0.85	179.82	-50.27	0.15	50.27	48.56	1.71	29.397		
400.00	400.00	400.00	400.00	1.21	1.21	179.82	-50.27	0.15	50.27	47.84	2.43	20.713 CC, ES		
500.00	499.98	499.98	499.98	1.57	1.57	-163.03	-50.27	0.15	51.93	48.79	3.14	16.517		
600.00	599.84	599.84	599.84	1.93	1.93	-164.54	-50.27	0.15	56.96	53.09	3.86	14.739		
700.00	699.45	699.45	699.45	2.30	2.29	-166.53	-50.27	0.15	65.40	60.82	4.59	14.261		
800.00	798.70	798.70	798.70	2.67	2.64	-168.59	-50.27	0.15	77.31	72.00	5.31	14.564		
900.00	897.47	897.47	897.47	3.05	3.00	-170.45	-50.27	0.15	92.70	86.67	6.03	15.372		
939.74	936.56	936.27	936.26	3.21	3.13	-170.98	-50.35	-0.06	99.83	93.52	6.32	15.808		
1,000.00	995.75	994.93	994.91	3.45	3.34	-171.19	-50.86	-1.30	111.30	104.56	6.74	16.517		
1,100.00	1,093.98	1,092.16	1,092.01	3.86	3.67	-170.33	-52.68	-5.78	130.94	123.50	7.43	17.618		
1,200.00	1,192.21	1,190.11	1,189.77	4.28	4.00	-169.24	-54.98	-11.42	150.91	142.77	8.14	18.548		
1,300.00	1,290.44	1,288.06	1,287.54	4.71	4.35	-168.40	-57.28	-17.06	170.92	162.07	8.85	19.321		
1,400.00	1,388.67	1,386.01	1,385.30	5.13	4.69	-167.73	-59.58	-22.70	190.96	181.40	9.56	19.971		
1,500.00	1,486.90	1,483.96	1,483.06	5.56	5.04	-167.19	-61.88	-28.34	211.02	200.74	10.28	20.525		
1,600.00	1,585.13	1,581.91	1,580.82	5.99	5.39	-166.75	-64.18	-33.98	231.09	220.09	11.00	21.002		
1,700.00	1,683.36	1,679.86	1,678.58	6.43	5.74	-166.37	-66.47	-39.62	251.18	239.45	11.73	21.416		
1,800.00	1,781.59	1,777.81	1,776.34	6.86	6.09	-166.05	-68.77	-45.26	271.27	258.82	12.46	21.779		
1,900.00	1,879.82	1,875.76	1,874.10	7.30	6.45	-165.78	-71.07	-50.90	291.37	278.19	13.18	22.099		
2,000.00	1,978.05	1,973.71	1,971.86	7.74	6.80	-165.54	-73.37	-56.54	311.48	297.56	13.92	22.384		
2,100.00	2,076.28	2,071.66	2,069.62	8.17	7.16	-165.33	-75.67	-62.18	331.59	316.94	14.65	22.639		
2,200.00	2,174.51	2,169.61	2,167.38	8.61	7.51	-165.14	-77.97	-67.81	351.71	336.33	15.38	22.868		
2,300.00	2,272.74	2,267.56	2,265.14	9.05	7.87	-164.98	-80.27	-73.45	371.83	355.71	16.11	23.075		
2,400.00	2,370.97	2,365.51	2,362.90	9.49	8.23	-164.83	-82.56	-79.09	391.95	375.10	16.85	23.262		
2,500.00	2,469.20	2,463.46	2,460.66	9.93	8.59	-164.70	-84.86	-84.73	412.07	394.49	17.58	23.434		
2,600.00	2,567.43	2,561.41	2,558.42	10.37	8.95	-164.57	-87.16	-90.37	432.20	413.87	18.32	23.591		
2,700.00	2,665.66	2,659.36	2,656.18	10.81	9.31	-164.46	-89.46	-96.01	452.32	433.27	19.06	23.735		
2,800.00	2,763.89	2,757.31	2,753.94	11.26	9.67	-164.36	-91.76	-101.65	472.45	452.66	19.79	23.868		
2,900.00	2,862.12	2,855.26	2,851.70	11.70	10.02	-164.27	-94.06	-107.29	492.58	472.05	20.53	23.991		
3,000.00	2,960.35	2,953.20	2,949.46	12.14	10.38	-164.18	-96.35	-112.93	512.71	491.44	21.27	24.105		
3,100.00	3,058.58	3,051.15	3,047.22	12.58	10.74	-164.10	-98.65	-118.57	532.84	510.84	22.01	24.211		
3,200.00	3,156.82	3,149.10	3,144.98	13.02	11.11	-164.03	-100.95	-124.21	552.98	530.23	22.75	24.309		
3,300.00	3,255.05	3,247.05	3,242.74	13.47	11.47	-163.96	-103.25	-129.85	573.11	549.62	23.49	24.402		
3,400.00	3,353.28	3,345.00	3,340.50	13.91	11.83	-163.90	-105.55	-135.49	593.25	569.02	24.23	24.488		
3,500.00	3,451.51	3,442.95	3,438.26	14.35	12.19	-163.84	-107.85	-141.13	613.38	588.42	24.97	24.569		
3,600.00	3,549.74	3,540.90	3,536.03	14.79	12.55	-163.78	-110.14	-146.77	633.52	607.81	25.71	24.645		
3,700.00	3,647.97	3,638.85	3,633.79	15.24	12.91	-163.73	-112.44	-152.41	653.65	627.21	26.45	24.717		
3,800.00	3,746.20	3,736.80	3,731.55	15.68	13.27	-163.68	-114.74	-158.05	673.79	646.60	27.19	24.785		
3,900.00	3,844.43	3,834.75	3,829.31	16.12	13.63	-163.63	-117.04	-163.69	693.93	666.00	27.93	24.849		
4,000.00	3,942.66	3,932.70	3,927.07	16.57	13.99	-163.59	-119.34	-169.33	714.07	685.40	28.67	24.909		
4,100.00	4,040.89	4,030.65	4,024.83	17.01	14.36	-163.55	-121.64	-174.97	734.20	704.80	29.41	24.967		
4,200.00	4,139.12	4,128.60	4,122.59	17.45	14.72	-163.51	-123.93	-180.61	754.34	724.19	30.15	25.021		
4,300.00	4,237.35	4,226.55	4,220.35	17.90	15.08	-163.47	-126.23	-186.25	774.48	743.59	30.89	25.073		
4,400.00	4,335.58	4,324.50	4,318.11	18.34	15.44	-163.44	-128.53	-191.88	794.62	762.99	31.63	25.122		
4,500.00	4,433.81	4,422.45	4,415.87	18.78	15.80	-163.40	-130.83	-197.52	814.76	782.39	32.37	25.169		
4,600.00	4,532.04	4,520.40	4,513.63	19.23	16.17	-163.37	-133.13	-203.16	834.90	801.79	33.11	25.213		
4,700.00	4,630.27	4,618.35	4,611.39	19.67	16.53	-163.34	-135.43	-208.80	855.04	821.18	33.85	25.256		
4,800.00	4,728.50	4,716.30	4,709.15	20.11	16.89	-163.31	-137.72	-214.44	875.18	840.58	34.60	25.297		
4,900.00	4,826.73	4,814.25	4,806.91	20.56	17.25	-163.28	-140.02	-220.08	895.32	859.98	35.34	25.336		
5,000.00	4,924.96	4,912.20	4,904.67	21.00	17.61	-163.26	-142.32	-225.72	915.46	879.38	36.08	25.373		

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 SAM 3C-25H-M166
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 5109.00usft
<b>Reference Site:</b>	S25-T1N-R66W (SAM)	<b>MD Reference:</b>	23' KB @ 5109.00usft
<b>Site Error:</b>	0.00usft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	SAM 3C-25H-M166	<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 S25-T1N-R66W (SAM) - SAM 3H-25H-M166 - 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	5,023.19	5,010.15	5,002.43	21.45	17.98	-163.23	-144.62	-231.36	935.60	898.78	36.82	25.409			
5,200.00	5,121.42	5,108.10	5,100.19	21.89	18.34	-163.21	-146.92	-237.00	955.74	918.18	37.56	25.443			
5,300.00	5,219.65	5,206.05	5,197.95	22.33	18.70	-163.18	-149.22	-242.64	975.88	937.58	38.31	25.476			
5,400.00	5,317.88	5,304.00	5,295.71	22.78	19.06	-163.16	-151.51	-248.28	996.02	956.98	39.05	25.508			
5,500.00	5,416.11	5,401.95	5,393.47	23.22	19.43	-163.14	-153.81	-253.92	1,016.17	976.38	39.79	25.538			
5,548.18	5,463.44	5,449.15	5,440.58	23.44	19.60	-163.13	-154.92	-256.64	1,025.87	985.72	40.15	25.552			
5,600.00	5,514.43	5,499.99	5,491.32	23.66	19.79	-163.17	-156.11	-259.56	1,035.87	995.34	40.53	25.557			
5,700.00	5,613.26	5,598.55	5,589.69	24.08	20.15	-163.19	-158.43	-265.24	1,052.67	1,011.40	41.27	25.508			
5,800.00	5,712.56	5,697.61	5,688.55	24.47	20.52	-163.14	-160.75	-270.94	1,066.16	1,024.16	42.00	25.384			
5,900.00	5,812.21	5,797.02	5,787.78	24.83	20.89	-163.02	-163.08	-276.67	1,076.36	1,033.63	42.73	25.191			
6,000.00	5,912.09	5,907.28	5,897.88	25.16	21.29	-162.85	-165.29	-282.08	1,082.91	1,039.40	43.52	24.884			
6,087.93	6,000.00	6,009.43	6,000.00	25.43	21.65	179.48	-165.98	-283.77	1,084.78	1,040.57	44.21	24.534			
6,100.00	6,012.07	6,021.50	6,012.07	25.46	21.69	179.48	-165.98	-283.77	1,084.78	1,040.49	44.30	24.490			
6,200.00	6,112.07	6,121.50	6,112.07	25.76	22.02	179.48	-165.98	-283.77	1,084.78	1,039.82	44.96	24.126			
6,300.00	6,212.07	6,221.50	6,212.07	26.06	22.35	179.48	-165.98	-283.77	1,084.78	1,039.15	45.63	23.772			
6,400.00	6,312.07	6,321.50	6,312.07	26.36	22.69	179.48	-165.98	-283.77	1,084.78	1,038.48	46.30	23.428			
6,500.00	6,412.07	6,421.50	6,412.07	26.66	23.02	179.48	-165.98	-283.77	1,084.78	1,037.81	46.97	23.093			
6,600.00	6,512.07	6,521.50	6,512.07	26.96	23.36	179.48	-165.98	-283.77	1,084.78	1,037.13	47.65	22.766			
6,700.00	6,612.07	6,621.50	6,612.07	27.26	23.70	179.48	-165.98	-283.77	1,084.78	1,036.46	48.32	22.449			
6,711.73	6,623.80	6,633.23	6,623.80	27.30	23.74	179.48	-165.98	-283.77	1,084.78	1,036.38	48.40	22.412			
6,750.00	6,662.06	6,671.48	6,662.06	27.41	23.87	90.12	-165.98	-283.77	1,084.78	1,036.13	48.66	22.295			
6,800.00	6,711.85	6,721.28	6,711.85	27.55	24.03	90.35	-165.98	-283.77	1,084.80	1,035.82	48.98	22.146			
6,850.00	6,761.22	6,770.64	6,761.22	27.68	24.20	90.76	-165.98	-283.77	1,084.88	1,035.57	49.31	22.001			
6,900.00	6,809.91	6,819.34	6,809.91	27.81	24.36	91.32	-165.98	-283.77	1,085.09	1,035.45	49.64	21.861			
6,950.00	6,857.70	6,867.13	6,857.70	27.93	24.53	92.03	-165.98	-283.77	1,085.54	1,035.58	49.96	21.729			
7,000.00	6,904.35	6,917.33	6,907.87	28.05	24.69	92.85	-165.96	-282.41	1,086.29	1,036.00	50.29	21.599			
7,050.00	6,949.64	6,969.22	6,959.51	28.15	24.85	93.68	-165.91	-277.34	1,087.30	1,036.67	50.63	21.474			
7,100.00	6,993.33	7,022.54	7,012.04	28.25	25.01	94.50	-165.82	-268.26	1,088.55	1,037.57	50.98	21.354			
7,150.00	7,035.23	7,077.38	7,065.20	28.34	25.17	95.32	-165.68	-254.87	1,090.02	1,038.69	51.33	21.237			
7,200.00	7,075.12	7,133.84	7,118.70	28.42	25.33	96.12	-165.50	-236.87	1,091.68	1,039.99	51.69	21.121			
7,250.00	7,112.81	7,191.99	7,172.14	28.49	25.49	96.91	-165.27	-214.00	1,093.51	1,041.45	52.06	21.004			
7,300.00	7,148.12	7,251.92	7,225.09	28.56	25.66	97.67	-164.98	-185.97	1,095.48	1,043.01	52.46	20.881			
7,350.00	7,180.88	7,313.68	7,277.01	28.62	25.85	98.41	-164.64	-152.55	1,097.52	1,044.62	52.90	20.747			
7,400.00	7,210.92	7,377.30	7,327.28	28.68	26.06	99.11	-164.25	-113.59	1,099.61	1,046.21	53.40	20.594			
7,450.00	7,238.10	7,442.80	7,375.21	28.73	26.32	99.77	-163.79	-68.98	1,101.67	1,047.70	53.97	20.413			
7,500.00	7,262.29	7,510.14	7,420.02	28.80	26.66	100.38	-163.28	-18.75	1,103.66	1,049.01	54.65	20.194			
7,550.00	7,283.37	7,579.25	7,460.90	28.92	27.10	100.92	-162.72	36.93	1,105.52	1,050.03	55.49	19.924			
7,600.00	7,301.23	7,649.99	7,496.99	29.23	27.65	101.40	-162.10	97.73	1,107.19	1,050.69	56.49	19.599			
7,650.00	7,315.80	7,722.18	7,527.45	29.79	28.37	101.80	-161.43	163.14	1,108.61	1,050.88	57.73	19.203			
7,700.00	7,326.99	7,795.58	7,551.52	30.47	29.24	102.11	-160.73	232.45	1,109.74	1,050.55	59.19	18.749			
7,750.00	7,334.76	7,869.92	7,568.54	31.23	30.29	102.33	-159.99	304.78	1,110.54	1,049.64	60.90	18.235			
7,800.00	7,339.06	7,944.86	7,578.01	32.05	31.47	102.45	-159.24	379.08	1,110.98	1,048.15	62.83	17.683			
7,836.73	7,340.00	7,999.46	7,580.00	32.69	32.41	102.47	-158.68	433.63	1,111.07	1,046.71	64.36	17.263			
7,900.00	7,340.00	8,062.73	7,580.00	33.85	33.59	102.47	-158.04	496.89	1,111.07	1,044.42	66.65	16.669			
8,000.00	7,340.00	8,162.73	7,580.00	35.85	35.58	102.47	-157.02	596.89	1,111.08	1,040.54	70.54	15.751			
8,100.00	7,340.00	8,262.73	7,580.00	38.01	37.74	102.47	-156.01	696.88	1,111.09	1,036.33	74.76	14.863			
8,200.00	7,340.00	8,362.73	7,580.00	40.31	40.04	102.47	-154.99	796.88	1,111.10	1,031.86	79.24	14.022			
8,300.00	7,340.00	8,462.73	7,580.00	42.73	42.46	102.47	-153.98	896.87	1,111.10	1,027.15	83.96	13.234			
8,400.00	7,340.00	8,562.73	7,580.00	45.25	44.98	102.47	-152.96	996.87	1,111.11	1,022.25	88.87	12.503			
8,500.00	7,340.00	8,662.73	7,580.00	47.85	47.58	102.47	-151.94	1,096.86	1,111.12	1,017.18	93.94	11.828			
8,600.00	7,340.00	8,762.73	7,580.00	50.51	50.25	102.47	-150.93	1,196.86	1,111.13	1,011.98	99.15	11.207			
8,700.00	7,340.00	8,862.73	7,580.00	53.24	52.98	102.47	-149.91	1,296.85	1,111.14	1,006.66	104.47	10.636			

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 SAM 3C-25H-M166
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 5109.00usft
<b>Reference Site:</b>	S25-T1N-R66W (SAM)	<b>MD Reference:</b>	23' KB @ 5109.00usft
<b>Site Error:</b>	0.00usft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	SAM 3C-25H-M166	<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 S25-T1N-R66W (SAM) - SAM 3H-25H-M166 - 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	7,340.00	8,962.73	7,580.00	56.02	55.76	102.47	-148.89	1,396.85	1,111.14	1,001.25	109.90	10.111	
8,900.00	7,340.00	9,062.73	7,580.00	58.84	58.59	102.47	-147.88	1,496.84	1,111.15	995.74	115.41	9.628	
9,000.00	7,340.00	9,162.73	7,580.00	61.69	61.45	102.47	-146.86	1,596.84	1,111.16	990.16	121.00	9.183	
9,100.00	7,340.00	9,262.73	7,580.00	64.59	64.34	102.47	-145.84	1,696.83	1,111.17	984.52	126.65	8.774	
9,200.00	7,340.00	9,362.73	7,580.00	67.50	67.27	102.47	-144.83	1,796.83	1,111.18	978.82	132.35	8.396	
9,300.00	7,340.00	9,462.73	7,580.00	70.45	70.22	102.47	-143.81	1,896.82	1,111.18	973.07	138.11	8.046	
9,400.00	7,340.00	9,562.73	7,580.00	73.41	73.18	102.47	-142.80	1,996.82	1,111.19	967.28	143.91	7.722	
9,500.00	7,340.00	9,662.73	7,580.00	76.40	76.17	102.47	-141.78	2,096.81	1,111.20	961.45	149.74	7.421	
9,600.00	7,340.00	9,762.73	7,580.00	79.40	79.18	102.47	-140.76	2,196.81	1,111.21	955.59	155.62	7.141	
9,700.00	7,340.00	9,862.73	7,580.00	82.42	82.20	102.47	-139.75	2,296.80	1,111.22	949.70	161.52	6.880	
9,800.00	7,340.00	9,962.73	7,580.00	85.45	85.23	102.47	-138.73	2,396.80	1,111.22	943.78	167.45	6.636	
9,900.00	7,340.00	10,062.73	7,580.00	88.49	88.28	102.47	-137.71	2,496.79	1,111.23	937.83	173.40	6.409	
10,000.00	7,340.00	10,162.73	7,580.00	91.55	91.34	102.47	-136.70	2,596.79	1,111.24	931.87	179.37	6.195	
10,100.00	7,340.00	10,262.73	7,580.00	94.61	94.41	102.47	-135.68	2,696.78	1,111.25	925.88	185.37	5.995	
10,200.00	7,340.00	10,362.73	7,580.00	97.69	97.48	102.47	-134.66	2,796.78	1,111.25	919.88	191.38	5.807	
10,300.00	7,340.00	10,462.73	7,580.00	100.77	100.57	102.47	-133.65	2,896.77	1,111.26	913.86	197.41	5.629	
10,400.00	7,340.00	10,562.73	7,580.00	103.86	103.66	102.47	-132.63	2,996.76	1,111.27	907.82	203.45	5.462	
10,500.00	7,340.00	10,662.73	7,580.00	106.96	106.76	102.47	-131.62	3,096.76	1,111.28	901.77	209.51	5.304	
10,600.00	7,340.00	10,762.73	7,580.00	110.06	109.86	102.47	-130.60	3,196.75	1,111.29	895.71	215.57	5.155	
10,700.00	7,340.00	10,862.73	7,580.00	113.17	112.97	102.47	-129.58	3,296.75	1,111.29	889.64	221.65	5.014	
10,800.00	7,340.00	10,962.73	7,580.00	116.28	116.09	102.47	-128.57	3,396.74	1,111.30	883.56	227.75	4.880	
10,900.00	7,340.00	11,062.73	7,580.00	119.40	119.21	102.47	-127.55	3,496.74	1,111.31	877.46	233.85	4.752	
11,000.00	7,340.00	11,162.73	7,580.00	122.52	122.34	102.47	-126.53	3,596.73	1,111.32	871.36	239.95	4.631	
11,100.00	7,340.00	11,262.73	7,580.00	125.65	125.46	102.47	-125.52	3,696.73	1,111.33	865.25	246.07	4.516	
11,200.00	7,340.00	11,362.73	7,580.00	128.78	128.60	102.47	-124.50	3,796.72	1,111.33	859.14	252.20	4.407	
11,300.00	7,340.00	11,462.73	7,580.00	131.92	131.73	102.47	-123.48	3,896.72	1,111.34	853.01	258.33	4.302	
11,400.00	7,340.00	11,562.73	7,580.00	135.05	134.87	102.47	-122.47	3,996.71	1,111.35	846.88	264.47	4.202	
11,500.00	7,340.00	11,662.73	7,580.00	138.19	138.02	102.47	-121.45	4,096.71	1,111.36	840.74	270.61	4.107	
11,600.00	7,340.00	11,762.73	7,580.00	141.34	141.16	102.47	-120.44	4,196.70	1,111.36	834.60	276.76	4.016	
11,700.00	7,340.00	11,862.73	7,580.00	144.49	144.31	102.47	-119.42	4,296.70	1,111.37	828.45	282.92	3.928	
11,800.00	7,340.00	11,962.73	7,580.00	147.64	147.46	102.47	-118.40	4,396.69	1,111.38	822.30	289.08	3.845	
11,900.00	7,340.00	12,062.73	7,580.00	150.79	150.61	102.47	-117.39	4,496.69	1,111.39	816.14	295.25	3.764	
11,900.04	7,340.00	12,062.78	7,580.00	150.79	150.62	102.47	-117.39	4,496.73	1,111.39	816.14	295.25	3.764	
11,913.53	7,340.00	12,070.04	7,580.00	151.21	150.84	102.47	-117.31	4,504.00	1,111.41	815.54	295.87	3.756 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 SAM 3C-25H-M166
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 5109.00usft
<b>Reference Site:</b>	S25-T1N-R66W (SAM)	<b>MD Reference:</b>	23' KB @ 5109.00usft
<b>Site Error:</b>	0.00usft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	SAM 3C-25H-M166	<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 S25-T1N-R66W (SAM) - SAM 3I-25H-M166 - 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	179.77	-60.10	0.24	60.10					
100.00	100.00	100.00	100.00	0.14	0.14	179.77	-60.10	0.24	60.10	59.83	0.28	217.741		
200.00	200.00	200.00	200.00	0.50	0.50	179.77	-60.10	0.24	60.10	59.11	0.99	60.527		
300.00	300.00	300.00	300.00	0.85	0.85	179.77	-60.10	0.24	60.10	58.39	1.71	35.149		
400.00	400.00	400.00	400.00	1.21	1.21	179.77	-60.10	0.24	60.10	57.67	2.43	24.765 CC, ES		
500.00	499.98	499.98	499.98	1.57	1.57	-162.99	-60.10	0.24	61.77	58.62	3.14	19.645		
600.00	599.84	599.84	599.84	1.93	1.93	-164.27	-60.10	0.24	66.79	62.93	3.86	17.283		
700.00	699.45	699.45	699.45	2.30	2.29	-166.03	-60.10	0.24	75.22	70.63	4.59	16.401		
800.00	798.70	798.70	798.70	2.67	2.64	-167.92	-60.10	0.24	87.10	81.79	5.31	16.408		
900.00	897.47	895.77	895.75	3.05	2.98	-168.87	-61.06	-1.05	103.25	97.24	6.01	17.169		
939.74	936.56	934.02	933.97	3.21	3.11	-168.84	-61.97	-2.28	111.07	104.78	6.29	17.645		
1,000.00	995.75	991.72	991.58	3.45	3.30	-168.48	-63.93	-4.91	123.83	117.12	6.71	18.455		
1,100.00	1,093.98	1,087.63	1,087.16	3.86	3.63	-167.20	-68.60	-11.20	146.26	138.85	7.40	19.760		
1,200.00	1,192.21	1,184.93	1,184.07	4.28	3.97	-166.02	-73.78	-18.17	169.13	161.03	8.10	20.869		
1,300.00	1,290.44	1,282.22	1,280.98	4.71	4.32	-165.13	-78.96	-25.14	192.06	183.25	8.81	21.790		
1,400.00	1,388.67	1,379.52	1,377.89	5.13	4.67	-164.42	-84.14	-32.11	215.03	205.50	9.53	22.563		
1,500.00	1,486.90	1,476.82	1,474.80	5.56	5.02	-163.86	-89.32	-39.08	238.02	227.77	10.25	23.221		
1,600.00	1,585.13	1,574.11	1,571.71	5.99	5.38	-163.39	-94.50	-46.05	261.02	250.05	10.97	23.786		
1,700.00	1,683.36	1,671.41	1,668.62	6.43	5.74	-162.99	-99.68	-53.02	284.05	272.35	11.70	24.277		
1,800.00	1,781.59	1,768.71	1,765.52	6.86	6.10	-162.66	-104.86	-59.99	307.08	294.65	12.43	24.706		
1,900.00	1,879.82	1,866.01	1,862.43	7.30	6.46	-162.37	-110.04	-66.96	330.12	316.96	13.16	25.085		
2,000.00	1,978.05	1,963.30	1,959.34	7.74	6.83	-162.12	-115.22	-73.93	353.17	339.27	13.89	25.421		
2,100.00	2,076.28	2,060.60	2,056.25	8.17	7.19	-161.91	-120.40	-80.90	376.22	361.59	14.63	25.721		
2,200.00	2,174.51	2,157.90	2,153.16	8.61	7.56	-161.71	-125.58	-87.86	399.28	383.91	15.36	25.991		
2,300.00	2,272.74	2,255.19	2,250.07	9.05	7.92	-161.54	-130.76	-94.83	422.34	406.24	16.10	26.235		
2,400.00	2,370.97	2,352.49	2,346.98	9.49	8.29	-161.38	-135.93	-101.80	445.40	428.57	16.84	26.456		
2,500.00	2,469.20	2,449.79	2,443.89	9.93	8.66	-161.24	-141.11	-108.77	468.47	450.90	17.57	26.657		
2,600.00	2,567.43	2,547.08	2,540.79	10.37	9.02	-161.12	-146.29	-115.74	491.54	473.23	18.31	26.842		
2,700.00	2,665.66	2,644.38	2,637.70	10.81	9.39	-161.00	-151.47	-122.71	514.61	495.56	19.05	27.011		
2,800.00	2,763.89	2,741.68	2,734.61	11.26	9.76	-160.90	-156.65	-129.68	537.69	517.89	19.79	27.167		
2,900.00	2,862.12	2,838.98	2,831.52	11.70	10.13	-160.80	-161.83	-136.65	560.76	540.23	20.53	27.311		
3,000.00	2,960.35	2,936.27	2,928.43	12.14	10.50	-160.71	-167.01	-143.62	583.84	562.56	21.27	27.444		
3,100.00	3,058.58	3,033.57	3,025.34	12.58	10.87	-160.63	-172.19	-150.59	606.92	584.90	22.01	27.568		
3,200.00	3,156.82	3,130.87	3,122.25	13.02	11.24	-160.55	-177.37	-157.56	630.00	607.24	22.76	27.684		
3,300.00	3,255.05	3,228.16	3,219.16	13.47	11.61	-160.48	-182.55	-164.53	653.08	629.58	23.50	27.792		
3,400.00	3,353.28	3,325.46	3,316.07	13.91	11.98	-160.42	-187.73	-171.50	676.16	651.92	24.24	27.893		
3,500.00	3,451.51	3,422.76	3,412.97	14.35	12.35	-160.36	-192.91	-178.47	699.24	674.25	24.98	27.988		
3,600.00	3,549.74	3,520.06	3,509.88	14.79	12.72	-160.30	-198.09	-185.44	722.32	696.59	25.73	28.077		
3,700.00	3,647.97	3,617.35	3,606.79	15.24	13.09	-160.24	-203.27	-192.41	745.40	718.93	26.47	28.161		
3,800.00	3,746.20	3,714.65	3,703.70	15.68	13.46	-160.19	-208.45	-199.38	768.49	741.27	27.21	28.240		
3,900.00	3,844.43	3,811.95	3,800.61	16.12	13.83	-160.15	-213.62	-206.35	791.57	763.61	27.96	28.314		
4,000.00	3,942.66	3,909.24	3,897.52	16.57	14.20	-160.10	-218.80	-213.31	814.66	785.96	28.70	28.385		
4,100.00	4,040.89	4,006.54	3,994.43	17.01	14.58	-160.06	-223.98	-220.28	837.74	808.30	29.44	28.452		
4,200.00	4,139.12	4,103.84	4,091.34	17.45	14.95	-160.02	-229.16	-227.25	860.83	830.64	30.19	28.515		
4,300.00	4,237.35	4,201.13	4,188.24	17.90	15.32	-159.98	-234.34	-234.22	883.91	852.98	30.93	28.575		
4,400.00	4,335.58	4,298.43	4,285.15	18.34	15.69	-159.94	-239.52	-241.19	907.00	875.32	31.68	28.633		
4,500.00	4,433.81	4,395.73	4,382.06	18.78	16.06	-159.91	-244.70	-248.16	930.09	897.66	32.42	28.687		
4,600.00	4,532.04	4,493.03	4,478.97	19.23	16.43	-159.88	-249.88	-255.13	953.17	920.01	33.17	28.739		
4,700.00	4,630.27	4,590.32	4,575.88	19.67	16.81	-159.84	-255.06	-262.10	976.26	942.35	33.91	28.789		
4,800.00	4,728.50	4,687.62	4,672.79	20.11	17.18	-159.82	-260.24	-269.07	999.35	964.69	34.66	28.836		
4,900.00	4,826.73	4,792.23	4,777.00	20.56	17.58	-159.79	-265.70	-276.41	1,022.34	986.89	35.46	28.835		
5,000.00	4,924.96	4,918.36	4,902.92	21.00	18.04	-159.94	-269.90	-282.07	1,043.40	1,007.01	36.38	28.677		

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 SAM 3C-25H-M166
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 5109.00usft
<b>Reference Site:</b>	S25-T1N-R66W (SAM)	<b>MD Reference:</b>	23' KB @ 5109.00usft
<b>Site Error:</b>	0.00usft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	SAM 3C-25H-M166	<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 S25-T1N-R66W (SAM) - SAM 3I-25H-M166 - OH - PLAN #1												Offset Site Error:	0.00 usft
Survey Program: O-MWD+HDGM												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
5,100.00	5,023.19	5,038.65	5,023.19	21.45	18.45	-160.30	-270.88	-283.39	1,061.84	1,024.61	37.23	28.520	
5,200.00	5,121.42	5,136.88	5,121.42	21.89	18.77	-160.63	-270.88	-283.39	1,079.52	1,041.59	37.93	28.459	
5,300.00	5,219.65	5,235.11	5,219.65	22.33	19.09	-160.95	-270.88	-283.39	1,097.25	1,058.61	38.63	28.401	
5,400.00	5,317.88	5,333.34	5,317.88	22.78	19.41	-161.27	-270.88	-283.39	1,115.00	1,075.66	39.34	28.346	
5,500.00	5,416.11	5,431.57	5,416.11	23.22	19.73	-161.57	-270.88	-283.39	1,132.78	1,092.74	40.04	28.292	
5,548.18	5,463.44	5,478.90	5,463.44	23.44	19.88	-161.71	-270.88	-283.39	1,141.36	1,100.99	40.38	28.267	
5,600.00	5,514.43	5,529.89	5,514.43	23.66	20.05	-161.91	-270.88	-283.39	1,150.16	1,109.42	40.74	28.231	
5,700.00	5,613.26	5,628.72	5,613.26	24.08	20.38	-162.24	-270.88	-283.39	1,164.66	1,123.22	41.44	28.105	
5,800.00	5,712.56	5,728.02	5,712.56	24.47	20.70	-162.48	-270.88	-283.39	1,175.88	1,133.75	42.13	27.909	
5,900.00	5,812.21	5,827.67	5,812.21	24.83	21.03	-162.65	-270.88	-283.39	1,183.80	1,140.98	42.82	27.646	
6,000.00	5,912.09	5,927.55	5,912.09	25.16	21.36	-162.74	-270.88	-283.39	1,188.40	1,144.90	43.50	27.320	
6,087.93	6,000.00	6,015.46	6,000.00	25.43	21.65	179.51	-270.88	-283.39	1,189.68	1,145.59	44.09	26.982	
6,100.00	6,012.07	6,027.53	6,012.07	25.46	21.69	179.51	-270.88	-283.39	1,189.68	1,145.51	44.17	26.933	
6,200.00	6,112.07	6,127.53	6,112.07	25.76	22.03	179.51	-270.88	-283.39	1,189.68	1,144.84	44.84	26.531	
6,300.00	6,212.07	6,227.53	6,212.07	26.06	22.36	179.51	-270.88	-283.39	1,189.68	1,144.17	45.51	26.139	
6,400.00	6,312.07	6,327.53	6,312.07	26.36	22.70	179.51	-270.88	-283.39	1,189.68	1,143.50	46.19	25.759	
6,500.00	6,412.07	6,427.53	6,412.07	26.66	23.03	179.51	-270.88	-283.39	1,189.68	1,142.82	46.86	25.388	
6,600.00	6,512.07	6,527.53	6,512.07	26.96	23.37	179.51	-270.88	-283.39	1,189.68	1,142.15	47.54	25.027	
6,700.00	6,612.07	6,627.53	6,612.07	27.26	23.70	179.51	-270.88	-283.39	1,189.68	1,141.47	48.21	24.676	
6,711.73	6,623.80	6,639.26	6,623.80	27.30	23.74	179.51	-270.88	-283.39	1,189.68	1,141.39	48.29	24.636	
6,750.00	6,662.06	6,677.52	6,662.06	27.41	23.87	90.15	-270.88	-283.39	1,189.69	1,141.14	48.55	24.506	
6,800.00	6,711.85	6,727.49	6,712.03	27.55	24.04	90.35	-270.88	-283.16	1,189.70	1,140.83	48.87	24.343	
6,850.00	6,761.22	6,777.93	6,762.36	27.68	24.20	90.58	-270.85	-280.10	1,189.74	1,140.55	49.19	24.187	
6,900.00	6,809.91	6,826.72	6,812.71	27.81	24.36	90.81	-270.78	-273.45	1,189.80	1,140.30	49.50	24.037	
6,950.00	6,857.70	6,874.86	6,862.79	27.93	24.51	91.04	-270.68	-263.17	1,189.88	1,140.08	49.80	23.892	
7,000.00	6,904.35	6,931.36	6,912.36	28.05	24.65	91.26	-270.53	-249.23	1,189.98	1,139.87	50.10	23.751	
7,050.00	6,949.64	6,983.22	6,961.13	28.15	24.80	91.48	-270.36	-231.63	1,190.09	1,139.68	50.40	23.611	
7,100.00	6,993.33	7,035.44	7,008.82	28.25	24.94	91.69	-270.14	-210.40	1,190.21	1,139.50	50.71	23.471	
7,150.00	7,035.23	7,088.00	7,055.13	28.34	25.08	91.90	-269.89	-185.57	1,190.35	1,139.31	51.03	23.325	
7,200.00	7,075.12	7,140.90	7,099.78	28.42	25.23	92.09	-269.60	-157.22	1,190.49	1,139.11	51.38	23.169	
7,250.00	7,112.81	7,194.13	7,142.47	28.49	25.39	92.28	-269.28	-125.45	1,190.64	1,138.87	51.77	22.998	
7,300.00	7,148.12	7,247.67	7,182.91	28.56	25.58	92.45	-268.92	-90.38	1,190.79	1,138.58	52.22	22.805	
7,350.00	7,180.88	7,301.52	7,220.83	28.62	25.80	92.61	-268.53	-52.16	1,190.94	1,138.20	52.74	22.582	
7,400.00	7,210.92	7,355.64	7,255.94	28.68	26.08	92.76	-268.11	-10.99	1,191.09	1,137.73	53.36	22.322	
7,450.00	7,238.10	7,410.03	7,287.99	28.73	26.43	92.89	-267.67	32.93	1,191.23	1,137.14	54.09	22.022	
7,500.00	7,262.29	7,464.65	7,316.72	28.80	26.85	93.01	-267.19	79.37	1,191.36	1,136.40	54.96	21.677	
7,550.00	7,283.37	7,519.48	7,341.93	28.92	27.35	93.11	-266.70	128.04	1,191.48	1,135.51	55.97	21.287	
7,600.00	7,301.23	7,574.49	7,363.40	29.23	27.95	93.20	-266.19	178.67	1,191.58	1,134.44	57.14	20.855	
7,650.00	7,315.80	7,629.65	7,380.97	29.79	28.63	93.27	-265.65	230.94	1,191.66	1,133.20	58.46	20.384	
7,700.00	7,326.99	7,684.92	7,394.49	30.47	29.40	93.32	-265.11	284.52	1,191.73	1,131.79	59.94	19.882	
7,750.00	7,334.76	7,740.28	7,403.84	31.23	30.26	93.35	-264.56	339.06	1,191.77	1,130.21	61.56	19.359	
7,800.00	7,339.06	7,795.68	7,408.96	32.05	31.18	93.37	-263.99	394.21	1,191.80	1,128.49	63.31	18.825	
7,836.73	7,340.00	7,836.18	7,410.00	32.69	31.90	93.37	-263.58	434.69	1,191.80	1,127.14	64.66	18.431	
7,900.00	7,340.00	7,899.45	7,410.00	33.85	33.08	93.37	-262.94	497.96	1,191.80	1,124.80	67.00	17.788	
8,000.00	7,340.00	7,999.45	7,410.00	35.85	35.12	93.37	-261.92	597.95	1,191.81	1,120.80	71.01	16.783	
8,100.00	7,340.00	8,099.45	7,410.00	38.01	37.31	93.37	-260.91	697.95	1,191.82	1,116.46	75.36	15.815	
8,200.00	7,340.00	8,199.45	7,410.00	40.31	39.65	93.37	-259.89	797.94	1,191.83	1,111.85	79.98	14.902	
8,300.00	7,340.00	8,299.45	7,410.00	42.73	42.10	93.37	-258.88	897.94	1,191.84	1,107.00	84.83	14.049	
8,400.00	7,340.00	8,399.45	7,410.00	45.25	44.64	93.37	-257.86	997.93	1,191.85	1,101.97	89.88	13.260	
8,500.00	7,340.00	8,499.45	7,410.00	47.85	47.27	93.37	-256.84	1,097.93	1,191.85	1,096.76	95.09	12.534	
8,600.00	7,340.00	8,599.45	7,410.00	50.51	49.97	93.37	-255.83	1,197.92	1,191.86	1,091.42	100.44	11.866	
8,700.00	7,340.00	8,699.45	7,410.00	53.24	52.72	93.37	-254.81	1,297.92	1,191.87	1,085.97	105.90	11.254	

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 SAM 3C-25H-M166
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 5109.00usft
<b>Reference Site:</b>	S25-T1N-R66W (SAM)	<b>MD Reference:</b>	23' KB @ 5109.00usft
<b>Site Error:</b>	0.00usft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	SAM 3C-25H-M166	<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 S25-T1N-R66W (SAM) - SAM 3I-25H-M166 - 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	7,340.00	8,799.45	7,410.00	56.02	55.52	93.37	-253.79	1,397.91	1,191.88	1,080.41	111.47	10.692		
8,900.00	7,340.00	8,899.45	7,410.00	58.84	58.36	93.37	-252.78	1,497.91	1,191.89	1,074.77	117.12	10.177		
9,000.00	7,340.00	8,999.45	7,410.00	61.69	61.24	93.37	-251.76	1,597.90	1,191.89	1,069.05	122.85	9.702		
9,100.00	7,340.00	9,099.45	7,410.00	64.59	64.15	93.37	-250.75	1,697.90	1,191.90	1,063.27	128.64	9.266		
9,200.00	7,340.00	9,199.45	7,410.00	67.50	67.08	93.37	-249.73	1,797.89	1,191.91	1,057.43	134.48	8.863		
9,300.00	7,340.00	9,299.45	7,410.00	70.45	70.04	93.37	-248.71	1,897.89	1,191.92	1,051.55	140.37	8.491		
9,400.00	7,340.00	9,399.45	7,410.00	73.41	73.02	93.37	-247.70	1,997.88	1,191.93	1,045.62	146.31	8.147		
9,500.00	7,340.00	9,499.45	7,410.00	76.40	76.02	93.37	-246.68	2,097.88	1,191.94	1,039.65	152.28	7.827		
9,600.00	7,340.00	9,599.45	7,410.00	79.40	79.04	93.37	-245.66	2,197.87	1,191.94	1,033.65	158.29	7.530		
9,700.00	7,340.00	9,699.45	7,410.00	82.42	82.07	93.37	-244.65	2,297.87	1,191.95	1,027.63	164.33	7.254		
9,800.00	7,340.00	9,799.45	7,410.00	85.45	85.11	93.37	-243.63	2,397.86	1,191.96	1,021.57	170.39	6.995		
9,900.00	7,340.00	9,899.45	7,410.00	88.49	88.17	93.37	-242.62	2,497.86	1,191.97	1,015.49	176.48	6.754		
10,000.00	7,340.00	9,999.45	7,410.00	91.55	91.23	93.37	-241.60	2,597.85	1,191.98	1,009.39	182.59	6.528		
10,100.00	7,340.00	10,099.45	7,410.00	94.61	94.31	93.37	-240.58	2,697.84	1,191.99	1,003.27	188.72	6.316		
10,200.00	7,340.00	10,199.45	7,410.00	97.69	97.39	93.37	-239.57	2,797.84	1,191.99	997.13	194.86	6.117		
10,300.00	7,340.00	10,299.45	7,410.00	100.77	100.48	93.37	-238.55	2,897.83	1,192.00	990.98	201.03	5.930		
10,400.00	7,340.00	10,399.45	7,410.00	103.86	103.58	93.37	-237.53	2,997.83	1,192.01	984.81	207.20	5.753		
10,500.00	7,340.00	10,499.45	7,410.00	106.96	106.68	93.37	-236.52	3,097.82	1,192.02	978.62	213.39	5.586		
10,600.00	7,340.00	10,599.45	7,410.00	110.06	109.79	93.37	-235.50	3,197.82	1,192.03	972.43	219.60	5.428		
10,700.00	7,340.00	10,699.45	7,410.00	113.17	112.91	93.37	-234.49	3,297.81	1,192.03	966.22	225.81	5.279		
10,800.00	7,340.00	10,799.45	7,410.00	116.28	116.03	93.37	-233.47	3,397.81	1,192.04	960.01	232.03	5.137		
10,900.00	7,340.00	10,899.45	7,410.00	119.40	119.15	93.37	-232.45	3,497.80	1,192.05	953.78	238.27	5.003		
11,000.00	7,340.00	10,999.45	7,410.00	122.52	122.28	93.37	-231.44	3,597.80	1,192.06	947.55	244.51	4.875		
11,100.00	7,340.00	11,099.45	7,410.00	125.65	125.41	93.37	-230.42	3,697.79	1,192.07	941.31	250.76	4.754		
11,200.00	7,340.00	11,199.45	7,410.00	128.78	128.55	93.37	-229.40	3,797.79	1,192.08	935.06	257.02	4.638		
11,300.00	7,340.00	11,299.45	7,410.00	131.92	131.69	93.37	-228.39	3,897.78	1,192.08	928.80	263.28	4.528		
11,400.00	7,340.00	11,399.45	7,410.00	135.05	134.83	93.37	-227.37	3,997.78	1,192.09	922.54	269.55	4.422		
11,500.00	7,340.00	11,499.45	7,410.00	138.19	137.98	93.37	-226.36	4,097.77	1,192.10	916.27	275.83	4.322		
11,600.00	7,340.00	11,599.45	7,410.00	141.34	141.13	93.37	-225.34	4,197.77	1,192.11	909.99	282.12	4.226		
11,700.00	7,340.00	11,699.45	7,410.00	144.49	144.28	93.37	-224.32	4,297.76	1,192.12	903.71	288.40	4.134		
11,800.00	7,340.00	11,799.45	7,410.00	147.64	147.43	93.37	-223.31	4,397.76	1,192.12	897.43	294.70	4.045		
11,900.00	7,340.00	11,899.45	7,410.00	150.79	149.26	93.37	-222.29	4,497.75	1,192.13	892.46	299.67	3.978		
11,900.38	7,340.00	11,899.84	7,410.00	150.80	149.27	93.37	-222.29	4,498.13	1,192.13	892.44	299.69	3.978		
11,913.53	7,340.00	11,906.06	7,410.00	151.21	149.38	93.37	-222.22	4,504.36	1,192.15	891.96	300.20	3.971 SF		



# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well SAM 3C-25H-M166
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 5109.00usft
<b>Reference Site:</b>	S25-T1N-R66W (SAM)	<b>MD Reference:</b>	23' KB @ 5109.00usft
<b>Site Error:</b>	0.00usft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	SAM 3C-25H-M166	<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 S25-T1N-R66W (SAM) - SAM 3J-25H-M166 - 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	179.96	-69.94	0.04	69.94				
100.00	100.00	100.00	100.00	0.14	0.14	179.96	-69.94	0.04	69.94	69.67	0.28	253.395	
200.00	200.00	200.00	200.00	0.50	0.50	179.96	-69.94	0.04	69.94	68.95	0.99	70.438	
300.00	300.00	300.00	300.00	0.85	0.85	179.96	-69.94	0.04	69.94	68.23	1.71	40.904	
400.00	400.00	400.00	400.00	1.21	1.21	179.96	-69.94	0.04	69.94	67.52	2.43	28.820 CC, ES	
500.00	499.98	499.98	499.98	1.57	1.57	-162.73	-69.94	0.04	71.61	68.46	3.14	22.774	
600.00	599.84	599.84	599.84	1.93	1.93	-163.86	-69.94	0.04	76.62	72.76	3.86	19.826	
700.00	699.45	699.45	699.45	2.30	2.29	-165.45	-69.94	0.04	85.03	80.44	4.59	18.540	
800.00	798.70	796.12	796.10	2.67	2.62	-166.57	-71.29	-0.84	98.18	92.89	5.29	18.553	
900.00	897.47	891.45	891.31	3.05	2.94	-166.75	-75.28	-3.48	117.31	111.32	5.99	19.585	
939.74	936.56	928.85	928.61	3.21	3.07	-166.64	-77.57	-4.99	126.54	120.27	6.27	20.176	
1,000.00	995.75	985.09	984.62	3.45	3.26	-166.36	-81.77	-7.77	141.69	135.00	6.69	21.190	
1,100.00	1,093.98	1,081.40	1,080.43	3.86	3.59	-165.74	-89.92	-13.14	167.74	160.36	7.37	22.752	
1,200.00	1,192.21	1,177.93	1,176.47	4.28	3.94	-165.29	-98.08	-18.54	193.80	185.74	8.07	24.027	
1,300.00	1,290.44	1,274.46	1,272.50	4.71	4.29	-164.95	-106.25	-23.93	219.88	211.11	8.77	25.078	
1,400.00	1,388.67	1,370.99	1,368.54	5.13	4.65	-164.67	-114.42	-29.32	245.96	236.49	9.47	25.961	
1,500.00	1,486.90	1,467.53	1,464.57	5.56	5.00	-164.46	-122.59	-34.72	272.05	261.86	10.19	26.710	
1,600.00	1,585.13	1,564.06	1,560.61	5.99	5.37	-164.27	-130.76	-40.11	298.14	287.24	10.90	27.353	
1,700.00	1,683.36	1,660.59	1,656.64	6.43	5.73	-164.12	-138.93	-45.50	324.23	312.61	11.62	27.910	
1,800.00	1,781.59	1,757.13	1,752.68	6.86	6.09	-163.99	-147.10	-50.90	350.32	337.99	12.34	28.397	
1,900.00	1,879.82	1,853.66	1,848.71	7.30	6.46	-163.88	-155.27	-56.29	376.42	363.36	13.06	28.827	
2,000.00	1,978.05	1,950.19	1,944.75	7.74	6.83	-163.79	-163.44	-61.68	402.51	388.73	13.78	29.208	
2,100.00	2,076.28	2,046.72	2,040.78	8.17	7.20	-163.70	-171.60	-67.08	428.61	414.11	14.51	29.548	
2,200.00	2,174.51	2,143.26	2,136.82	8.61	7.57	-163.63	-179.77	-72.47	454.71	439.48	15.23	29.854	
2,300.00	2,272.74	2,239.79	2,232.85	9.05	7.94	-163.56	-187.94	-77.86	480.81	464.85	15.96	30.130	
2,400.00	2,370.97	2,336.32	2,328.89	9.49	8.31	-163.50	-196.11	-83.26	506.91	490.22	16.69	30.380	
2,500.00	2,469.20	2,432.86	2,424.92	9.93	8.68	-163.44	-204.28	-88.65	533.01	515.59	17.41	30.608	
2,600.00	2,567.43	2,529.39	2,520.96	10.37	9.05	-163.39	-212.45	-94.04	559.11	540.96	18.14	30.817	
2,700.00	2,665.66	2,625.92	2,616.99	10.81	9.42	-163.35	-220.62	-99.44	585.21	566.33	18.87	31.008	
2,800.00	2,763.89	2,722.45	2,713.03	11.26	9.80	-163.31	-228.79	-104.83	611.31	591.70	19.60	31.184	
2,900.00	2,862.12	2,818.99	2,809.06	11.70	10.17	-163.27	-236.96	-110.22	637.41	617.07	20.33	31.347	
3,000.00	2,960.35	2,915.52	2,905.10	12.14	10.54	-163.24	-245.12	-115.62	663.51	642.44	21.06	31.499	
3,100.00	3,058.58	3,012.05	3,001.14	12.58	10.92	-163.20	-253.29	-121.01	689.61	667.81	21.80	31.639	
3,200.00	3,156.82	3,108.59	3,097.17	13.02	11.29	-163.17	-261.46	-126.40	715.71	693.18	22.53	31.770	
3,300.00	3,255.05	3,205.12	3,193.21	13.47	11.67	-163.15	-269.63	-131.80	741.81	718.55	23.26	31.892	
3,400.00	3,353.28	3,301.65	3,289.24	13.91	12.04	-163.12	-277.80	-137.19	767.92	743.92	23.99	32.006	
3,500.00	3,451.51	3,398.18	3,385.28	14.35	12.41	-163.10	-285.97	-142.58	794.02	769.29	24.73	32.113	
3,600.00	3,549.74	3,494.72	3,481.31	14.79	12.79	-163.07	-294.14	-147.98	820.12	794.66	25.46	32.214	
3,700.00	3,647.97	3,591.25	3,577.35	15.24	13.16	-163.05	-302.31	-153.37	846.22	820.03	26.19	32.309	
3,800.00	3,746.20	3,687.78	3,673.38	15.68	13.54	-163.03	-310.48	-158.76	872.32	845.40	26.93	32.398	
3,900.00	3,844.43	3,784.32	3,769.42	16.12	13.91	-163.02	-318.64	-164.16	898.43	870.77	27.66	32.482	
4,000.00	3,942.66	3,880.85	3,865.45	16.57	14.29	-163.00	-326.81	-169.55	924.53	896.14	28.39	32.562	
4,100.00	4,040.89	3,977.38	3,961.49	17.01	14.67	-162.98	-334.98	-174.94	950.63	921.50	29.13	32.638	
4,200.00	4,139.12	4,073.91	4,057.52	17.45	15.04	-162.96	-343.15	-180.34	976.73	946.87	29.86	32.709	
4,300.00	4,237.35	4,170.45	4,153.56	17.90	15.42	-162.95	-351.32	-185.73	1,002.84	972.24	30.60	32.778	
4,400.00	4,335.58	4,266.98	4,249.59	18.34	15.79	-162.94	-359.49	-191.12	1,028.94	997.61	31.33	32.842	
4,500.00	4,433.81	4,363.51	4,345.63	18.78	16.17	-162.92	-367.66	-196.52	1,055.04	1,022.98	32.06	32.904	
4,600.00	4,532.04	4,460.05	4,441.66	19.23	16.54	-162.91	-375.83	-201.91	1,081.15	1,048.35	32.80	32.963	
4,700.00	4,630.27	4,556.58	4,537.70	19.67	16.92	-162.90	-383.99	-207.30	1,107.25	1,073.71	33.53	33.019	
4,800.00	4,728.50	4,653.11	4,633.73	20.11	17.30	-162.89	-392.16	-212.69	1,133.35	1,099.08	34.27	33.072	
4,900.00	4,826.73	4,749.64	4,729.77	20.56	17.67	-162.87	-400.33	-218.09	1,159.45	1,124.45	35.00	33.124	
5,000.00	4,924.96	4,846.18	4,825.80	21.00	18.05	-162.86	-408.50	-223.48	1,185.56	1,149.82	35.74	33.173	

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 SAM 3C-25H-M166
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 5109.00usft
<b>Reference Site:</b>	S25-T1N-R66W (SAM)	<b>MD Reference:</b>	23' KB @ 5109.00usft
<b>Site Error:</b>	0.00usft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	SAM 3C-25H-M166	<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 S25-T1N-R66W (SAM) - SAM 3J-25H-M166 - 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		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)				Between Centres (usft)	Between Ellipses (usft)	
5,100.00	5,023.19	4,942.71	4,921.84	21.45	18.43	-162.85	-416.67	-228.87	1,211.66	1,175.19	36.47	33.220		
5,200.00	5,121.42	5,039.24	5,017.88	21.89	18.80	-162.84	-424.84	-234.27	1,237.76	1,200.55	37.21	33.265		
5,300.00	5,219.65	5,135.78	5,113.91	22.33	19.18	-162.83	-433.01	-239.66	1,263.87	1,225.92	37.94	33.308		
5,400.00	5,317.88	5,232.31	5,209.95	22.78	19.55	-162.83	-441.18	-245.05	1,289.97	1,251.29	38.68	33.349		
5,500.00	5,416.11	5,328.84	5,305.98	23.22	19.93	-162.82	-449.35	-250.45	1,316.07	1,276.66	39.42	33.389		
5,548.18	5,463.44	5,375.35	5,352.25	23.44	20.11	-162.81	-453.28	-253.05	1,328.65	1,288.88	39.77	33.408		
5,600.00	5,514.43	5,425.49	5,402.13	23.66	20.31	-162.88	-457.52	-255.85	1,341.74	1,301.59	40.15	33.418		
5,700.00	5,613.26	5,522.84	5,498.98	24.08	20.69	-162.97	-465.76	-261.29	1,364.55	1,323.67	40.88	33.378		
5,800.00	5,712.56	5,620.88	5,596.51	24.47	21.07	-162.99	-474.06	-266.76	1,384.10	1,342.49	41.61	33.265		
5,900.00	5,812.21	5,719.49	5,694.61	24.83	21.45	-162.95	-482.40	-272.27	1,400.38	1,358.04	42.33	33.082		
6,000.00	5,912.09	5,876.72	5,851.33	25.16	22.05	-162.82	-492.77	-279.12	1,411.62	1,368.18	43.44	32.492		
6,087.93	6,000.00	6,025.45	6,000.00	25.43	22.57	179.50	-495.99	-281.25	1,414.81	1,370.42	44.39	31.874		
6,100.00	6,012.07	6,037.52	6,012.07	25.46	22.61	179.50	-495.99	-281.25	1,414.81	1,370.34	44.47	31.817		
6,200.00	6,112.07	6,137.52	6,112.07	25.76	22.91	179.50	-495.99	-281.25	1,414.81	1,369.68	45.12	31.355		
6,300.00	6,212.07	6,237.52	6,212.07	26.06	23.22	179.50	-495.99	-281.25	1,414.81	1,369.03	45.78	30.905		
6,400.00	6,312.07	6,337.52	6,312.07	26.36	23.54	179.50	-495.99	-281.25	1,414.81	1,368.37	46.44	30.467		
6,500.00	6,412.07	6,437.52	6,412.07	26.66	23.85	179.50	-495.99	-281.25	1,414.81	1,367.71	47.10	30.039		
6,600.00	6,512.07	6,537.52	6,512.07	26.96	24.16	179.50	-495.99	-281.25	1,414.81	1,367.05	47.76	29.623		
6,700.00	6,612.07	6,637.52	6,612.07	27.26	24.48	179.50	-495.99	-281.25	1,414.81	1,366.38	48.42	29.217		
6,711.73	6,623.80	6,649.25	6,623.80	27.30	24.52	179.50	-495.99	-281.25	1,414.81	1,366.30	48.50	29.170		
6,750.00	6,662.06	6,687.64	6,662.17	27.41	24.64	90.09	-495.98	-280.22	1,414.81	1,366.06	48.75	29.022		
6,800.00	6,711.85	6,737.78	6,712.10	27.55	24.79	90.09	-495.94	-275.78	1,414.81	1,365.75	49.06	28.840		
6,850.00	6,761.22	6,787.92	6,761.61	27.68	24.93	90.09	-495.86	-267.86	1,414.81	1,365.45	49.35	28.667		
6,900.00	6,809.91	6,838.06	6,810.43	27.81	25.07	90.09	-495.74	-256.50	1,414.81	1,365.17	49.64	28.501		
6,950.00	6,857.70	6,888.20	6,858.34	27.93	25.20	90.08	-495.59	-241.76	1,414.81	1,364.89	49.92	28.341		
7,000.00	6,904.35	6,938.34	6,905.10	28.05	25.33	90.08	-495.41	-223.69	1,414.81	1,364.61	50.20	28.185		
7,050.00	6,949.64	6,988.47	6,950.47	28.15	25.45	90.08	-495.19	-202.41	1,414.81	1,364.34	50.47	28.030		
7,100.00	6,993.33	7,038.59	6,994.25	28.25	25.56	90.08	-494.94	-178.01	1,414.81	1,364.05	50.76	27.872		
7,150.00	7,035.23	7,088.71	7,036.20	28.34	25.67	90.07	-494.67	-150.60	1,414.82	1,363.75	51.07	27.704		
7,200.00	7,075.12	7,138.83	7,076.13	28.42	25.77	90.07	-494.36	-120.34	1,414.82	1,363.41	51.41	27.521		
7,250.00	7,112.81	7,188.94	7,113.84	28.49	25.88	90.06	-494.02	-87.36	1,414.82	1,363.03	51.79	27.316		
7,300.00	7,148.12	7,239.04	7,149.15	28.56	25.99	90.06	-493.66	-51.83	1,414.82	1,362.58	52.24	27.082		
7,350.00	7,180.88	7,289.13	7,181.89	28.62	26.13	90.06	-493.28	-13.93	1,414.83	1,362.06	52.77	26.810		
7,400.00	7,210.92	7,339.22	7,211.89	28.68	26.33	90.05	-492.87	26.16	1,414.83	1,361.43	53.40	26.496		
7,450.00	7,238.10	7,389.30	7,239.01	28.73	26.62	90.05	-492.44	68.25	1,414.83	1,360.70	54.14	26.135		
7,500.00	7,262.29	7,439.37	7,263.12	28.80	27.01	90.04	-492.00	112.12	1,414.84	1,359.84	55.00	25.724		
7,550.00	7,283.37	7,489.43	7,284.11	28.92	27.49	90.03	-491.53	157.55	1,414.84	1,358.84	56.00	25.263		
7,600.00	7,301.23	7,539.48	7,301.86	29.23	28.05	90.03	-491.06	204.33	1,414.84	1,357.70	57.15	24.758		
7,650.00	7,315.80	7,589.52	7,316.31	29.79	28.69	90.02	-490.57	252.23	1,414.85	1,356.41	58.44	24.212		
7,700.00	7,326.99	7,639.55	7,327.37	30.47	29.41	90.02	-490.08	301.01	1,414.85	1,354.99	59.86	23.636		
7,750.00	7,334.76	7,689.57	7,335.00	31.23	30.19	90.01	-489.57	350.44	1,414.86	1,353.44	61.41	23.038		
7,800.00	7,339.06	7,739.59	7,339.16	32.05	31.03	90.00	-489.07	400.26	1,414.86	1,351.78	63.08	22.429		
7,836.73	7,340.00	7,776.32	7,340.00	32.69	31.68	90.00	-488.69	436.98	1,414.86	1,350.50	64.37	21.982		
7,900.00	7,340.00	7,839.59	7,340.00	33.85	32.89	90.00	-488.05	500.25	1,414.87	1,348.14	66.73	21.202		
8,000.00	7,340.00	7,939.59	7,340.00	35.85	34.92	90.00	-487.03	600.24	1,414.88	1,344.13	70.75	19.998		
8,100.00	7,340.00	8,039.59	7,340.00	38.01	37.11	90.00	-486.02	700.24	1,414.89	1,339.78	75.10	18.839		
8,200.00	7,340.00	8,139.59	7,340.00	40.31	39.45	90.00	-485.00	800.23	1,414.89	1,335.16	79.73	17.745		
8,300.00	7,340.00	8,239.59	7,340.00	42.73	41.90	90.00	-483.99	900.23	1,414.90	1,330.30	84.60	16.725		
8,400.00	7,340.00	8,339.59	7,340.00	45.25	44.45	90.00	-482.97	1,000.22	1,414.91	1,325.25	89.66	15.782		
8,500.00	7,340.00	8,439.59	7,340.00	47.85	47.08	90.00	-481.95	1,100.22	1,414.92	1,320.04	94.88	14.913		
8,600.00	7,340.00	8,539.59	7,340.00	50.51	49.77	90.00	-480.94	1,200.21	1,414.93	1,314.69	100.24	14.115		
8,700.00	7,340.00	8,639.59	7,340.00	53.24	52.52	90.00	-479.92	1,300.21	1,414.93	1,309.22	105.72	13.384		

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 SAM 3C-25H-M166
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 5109.00usft
<b>Reference Site:</b>	S25-T1N-R66W (SAM)	<b>MD Reference:</b>	23' KB @ 5109.00usft
<b>Site Error:</b>	0.00usft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	SAM 3C-25H-M166	<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 S25-T1N-R66W (SAM) - SAM 3J-25H-M166 - 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	7,340.00	8,739.59	7,340.00	56.02	55.33	90.00	-478.90	1,400.20	1,414.94	1,303.65	111.30	12.713		
8,900.00	7,340.00	8,839.59	7,340.00	58.84	58.17	90.00	-477.89	1,500.20	1,414.95	1,297.99	116.96	12.098		
9,000.00	7,340.00	8,939.59	7,340.00	61.69	61.05	90.00	-476.87	1,600.19	1,414.96	1,292.26	122.70	11.532		
9,100.00	7,340.00	9,039.59	7,340.00	64.59	63.96	90.00	-475.86	1,700.18	1,414.97	1,286.47	128.50	11.011		
9,200.00	7,340.00	9,139.59	7,340.00	67.50	66.90	90.00	-474.84	1,800.18	1,414.98	1,280.62	134.36	10.531		
9,300.00	7,340.00	9,239.59	7,340.00	70.45	69.86	90.00	-473.82	1,900.17	1,414.98	1,274.72	140.26	10.088		
9,400.00	7,340.00	9,339.59	7,340.00	73.41	72.84	90.00	-472.81	2,000.17	1,414.99	1,268.78	146.21	9.678		
9,500.00	7,340.00	9,439.59	7,340.00	76.40	75.84	90.00	-471.79	2,100.16	1,415.00	1,262.80	152.20	9.297		
9,600.00	7,340.00	9,539.59	7,340.00	79.40	78.86	90.00	-470.77	2,200.16	1,415.01	1,256.79	158.22	8.943		
9,700.00	7,340.00	9,639.59	7,340.00	82.42	81.89	90.00	-469.76	2,300.15	1,415.02	1,250.75	164.27	8.614		
9,800.00	7,340.00	9,739.59	7,340.00	85.45	84.94	90.00	-468.74	2,400.15	1,415.02	1,244.68	170.34	8.307		
9,900.00	7,340.00	9,839.59	7,340.00	88.49	87.99	90.00	-467.73	2,500.14	1,415.03	1,238.59	176.44	8.020		
10,000.00	7,340.00	9,939.59	7,340.00	91.55	91.06	90.00	-466.71	2,600.14	1,415.04	1,232.48	182.56	7.751		
10,100.00	7,340.00	10,039.59	7,340.00	94.61	94.13	90.00	-465.69	2,700.13	1,415.05	1,226.34	188.70	7.499		
10,200.00	7,340.00	10,139.59	7,340.00	97.69	97.22	90.00	-464.68	2,800.13	1,415.06	1,220.19	194.86	7.262		
10,300.00	7,340.00	10,239.59	7,340.00	100.77	100.31	90.00	-463.66	2,900.12	1,415.07	1,214.03	201.04	7.039		
10,400.00	7,340.00	10,339.59	7,340.00	103.86	103.41	90.00	-462.64	3,000.12	1,415.07	1,207.85	207.23	6.829		
10,500.00	7,340.00	10,439.59	7,340.00	106.96	106.51	90.00	-461.63	3,100.11	1,415.08	1,201.65	213.43	6.630		
10,600.00	7,340.00	10,539.59	7,340.00	110.06	109.62	90.00	-460.61	3,200.11	1,415.09	1,195.45	219.64	6.443		
10,700.00	7,340.00	10,639.59	7,340.00	113.17	112.74	90.00	-459.59	3,300.10	1,415.10	1,189.23	225.87	6.265		
10,800.00	7,340.00	10,739.59	7,340.00	116.28	115.86	90.00	-458.58	3,400.10	1,415.11	1,183.00	232.10	6.097		
10,900.00	7,340.00	10,839.59	7,340.00	119.40	118.98	90.00	-457.56	3,500.09	1,415.11	1,176.77	238.35	5.937		
11,000.00	7,340.00	10,939.59	7,340.00	122.52	122.11	90.00	-456.55	3,600.09	1,415.12	1,170.52	244.60	5.785		
11,100.00	7,340.00	11,039.59	7,340.00	125.65	125.25	90.00	-455.53	3,700.08	1,415.13	1,164.27	250.86	5.641		
11,200.00	7,340.00	11,139.59	7,340.00	128.78	128.38	90.00	-454.51	3,800.08	1,415.14	1,158.01	257.13	5.504		
11,300.00	7,340.00	11,239.59	7,340.00	131.92	131.52	90.00	-453.50	3,900.07	1,415.15	1,151.74	263.41	5.372		
11,400.00	7,340.00	11,339.59	7,340.00	135.05	134.67	90.00	-452.48	4,000.07	1,415.16	1,145.47	269.69	5.247		
11,500.00	7,340.00	11,439.59	7,340.00	138.19	137.82	90.00	-451.46	4,100.06	1,415.16	1,139.19	275.98	5.128		
11,600.00	7,340.00	11,539.59	7,340.00	141.34	140.96	90.00	-450.45	4,200.06	1,415.17	1,132.90	282.27	5.014		
11,700.00	7,340.00	11,639.59	7,340.00	144.49	144.12	90.00	-449.43	4,300.05	1,415.18	1,126.61	288.57	4.904		
11,800.00	7,340.00	11,739.59	7,340.00	147.64	147.27	90.00	-448.42	4,400.05	1,415.19	1,120.31	294.87	4.799		
11,900.00	7,340.00	11,839.59	7,340.00	150.79	149.90	90.00	-447.40	4,500.04	1,415.20	1,114.54	300.65	4.707		
11,913.53	7,340.00	11,845.06	7,340.00	151.21	150.00	90.00	-447.34	4,505.51	1,415.22	1,114.05	301.17	4.699 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 SAM 3C-25H-M166
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 5109.00usft
<b>Reference Site:</b>	S25-T1N-R66W (SAM)	<b>MD Reference:</b>	23' KB @ 5109.00usft
<b>Site Error:</b>	0.00usft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	SAM 3C-25H-M166	<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 S25-T1N-R66W (SAM) - SAM 3K-25H-M166 - 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	179.91	-80.14	0.13	80.14					
100.00	100.00	100.00	100.00	0.14	0.14	179.91	-80.14	0.13	80.14	79.86	0.28	290.331		
200.00	200.00	200.00	200.00	0.50	0.50	179.91	-80.14	0.13	80.14	79.15	0.99	80.706		
300.00	300.00	300.00	300.00	0.85	0.85	179.91	-80.14	0.13	80.14	78.43	1.71	46.867		
400.00	400.00	400.00	400.00	1.21	1.21	179.91	-80.14	0.13	80.14	77.71	2.43	33.021	CC, ES	
500.00	499.98	499.98	499.98	1.57	1.57	-162.74	-80.14	0.13	81.80	78.66	3.14	26.017		
600.00	599.84	599.84	599.84	1.93	1.93	-163.73	-80.14	0.13	86.81	82.95	3.86	22.464		
700.00	699.45	696.54	696.52	2.30	2.26	-164.68	-81.63	-0.51	96.72	92.15	4.57	21.152	SF	
800.00	798.70	792.07	791.92	2.67	2.58	-165.10	-86.05	-2.42	112.97	107.69	5.28	21.401		
900.00	897.47	885.87	885.40	3.05	2.90	-165.12	-93.22	-5.52	135.44	129.45	5.99	22.626		
939.74	936.56	922.55	921.87	3.21	3.03	-165.05	-96.79	-7.07	146.06	139.79	6.27	23.294		
1,000.00	995.75	977.61	976.51	3.45	3.23	-164.92	-102.95	-9.73	163.38	156.69	6.69	24.436		
1,100.00	1,093.98	1,071.74	1,069.74	3.86	3.57	-164.54	-114.90	-14.90	193.55	186.19	7.36	26.283		
1,200.00	1,192.21	1,167.05	1,164.12	4.28	3.93	-164.25	-127.10	-20.17	223.82	215.77	8.05	27.820		
1,300.00	1,290.44	1,262.35	1,258.49	4.71	4.30	-164.03	-139.29	-25.44	254.08	245.35	8.74	29.076		
1,400.00	1,388.67	1,357.66	1,352.87	5.13	4.67	-163.86	-151.48	-30.71	284.35	274.92	9.44	30.132		
1,500.00	1,486.90	1,452.96	1,447.24	5.56	5.04	-163.71	-163.67	-35.98	314.63	304.49	10.14	31.027		
1,600.00	1,585.13	1,548.27	1,541.62	5.99	5.42	-163.60	-175.86	-41.26	344.90	334.05	10.85	31.794		
1,700.00	1,683.36	1,643.57	1,635.99	6.43	5.80	-163.50	-188.05	-46.53	375.18	363.62	11.56	32.459		
1,800.00	1,781.59	1,738.88	1,730.37	6.86	6.18	-163.42	-200.24	-51.80	405.45	393.18	12.27	33.039		
1,900.00	1,879.82	1,834.18	1,824.75	7.30	6.57	-163.35	-212.43	-57.07	435.73	422.74	12.99	33.550		
2,000.00	1,978.05	1,929.49	1,919.12	7.74	6.95	-163.28	-224.62	-62.34	466.01	452.30	13.71	34.002		
2,100.00	2,076.28	2,024.79	2,013.50	8.17	7.34	-163.23	-236.81	-67.61	496.28	481.86	14.42	34.406		
2,200.00	2,174.51	2,120.10	2,107.87	8.61	7.73	-163.18	-249.00	-72.88	526.56	511.42	15.15	34.768		
2,300.00	2,272.74	2,215.40	2,202.25	9.05	8.12	-163.14	-261.19	-78.15	556.84	540.97	15.87	35.095		
2,400.00	2,370.97	2,310.71	2,296.62	9.49	8.51	-163.10	-273.38	-83.42	587.12	570.53	16.59	35.391		
2,500.00	2,469.20	2,406.01	2,391.00	9.93	8.90	-163.06	-285.57	-88.69	617.40	600.08	17.31	35.660		
2,600.00	2,567.43	2,501.32	2,485.37	10.37	9.29	-163.03	-297.76	-93.96	647.68	629.64	18.04	35.906		
2,700.00	2,665.66	2,596.62	2,579.75	10.81	9.68	-163.00	-309.95	-99.24	677.95	659.19	18.76	36.132		
2,800.00	2,763.89	2,691.93	2,674.12	11.26	10.07	-162.98	-322.14	-104.51	708.23	688.74	19.49	36.340		
2,900.00	2,862.12	2,787.24	2,768.50	11.70	10.46	-162.95	-334.33	-109.78	738.51	718.30	20.22	36.532		
3,000.00	2,960.35	2,882.54	2,862.87	12.14	10.86	-162.93	-346.52	-115.05	768.79	747.85	20.94	36.709		
3,100.00	3,058.58	2,977.85	2,957.25	12.58	11.25	-162.91	-358.71	-120.32	799.07	777.40	21.67	36.874		
3,200.00	3,156.82	3,073.15	3,051.62	13.02	11.64	-162.89	-370.91	-125.59	829.35	806.95	22.40	37.028		
3,300.00	3,255.05	3,168.46	3,146.00	13.47	12.04	-162.87	-383.10	-130.86	859.63	836.51	23.13	37.171		
3,400.00	3,353.28	3,263.76	3,240.37	13.91	12.43	-162.86	-395.29	-136.13	889.91	866.06	23.85	37.305		
3,500.00	3,451.51	3,359.07	3,334.75	14.35	12.82	-162.84	-407.48	-141.40	920.19	895.61	24.58	37.431		
3,600.00	3,549.74	3,454.37	3,429.12	14.79	13.22	-162.83	-419.67	-146.67	950.47	925.16	25.31	37.549		
3,700.00	3,647.97	3,549.68	3,523.50	15.24	13.61	-162.81	-431.86	-151.95	980.75	954.71	26.04	37.660		
3,800.00	3,746.20	3,644.98	3,617.87	15.68	14.01	-162.80	-444.05	-157.22	1,011.03	984.26	26.77	37.765		
3,900.00	3,844.43	3,740.29	3,712.25	16.12	14.40	-162.79	-456.24	-162.49	1,041.31	1,013.81	27.50	37.863		
4,000.00	3,942.66	3,835.59	3,806.63	16.57	14.79	-162.78	-468.43	-167.76	1,071.59	1,043.36	28.23	37.957		
4,100.00	4,040.89	3,930.90	3,901.00	17.01	15.19	-162.77	-480.62	-173.03	1,101.87	1,072.91	28.96	38.045		
4,200.00	4,139.12	4,026.20	3,995.38	17.45	15.58	-162.76	-492.81	-178.30	1,132.15	1,102.46	29.69	38.129		
4,300.00	4,237.35	4,121.51	4,089.75	17.90	15.98	-162.75	-505.00	-183.57	1,162.43	1,132.01	30.42	38.208		
4,400.00	4,335.58	4,216.81	4,184.13	18.34	16.37	-162.74	-517.19	-188.84	1,192.71	1,161.56	31.15	38.284		
4,500.00	4,433.81	4,312.12	4,278.50	18.78	16.77	-162.73	-529.38	-194.11	1,222.99	1,191.11	31.89	38.356		
4,600.00	4,532.04	4,407.42	4,372.88	19.23	17.16	-162.72	-541.57	-199.38	1,253.27	1,220.66	32.62	38.424		
4,700.00	4,630.27	4,502.73	4,467.25	19.67	17.56	-162.71	-553.76	-204.66	1,283.55	1,250.20	33.35	38.490		
4,800.00	4,728.50	4,598.03	4,561.63	20.11	17.96	-162.71	-565.95	-209.93	1,313.83	1,279.75	34.08	38.552		
4,900.00	4,826.73	4,693.34	4,656.00	20.56	18.35	-162.70	-578.14	-215.20	1,344.11	1,309.30	34.81	38.612		
5,000.00	4,924.96	4,788.64	4,750.38	21.00	18.75	-162.69	-590.33	-220.47	1,374.39	1,338.85	35.54	38.669		

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

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well SAM 3C-25H-M166
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 5109.00usft
<b>Reference Site:</b>	S25-T1N-R66W (SAM)	<b>MD Reference:</b>	23' KB @ 5109.00usft
<b>Site Error:</b>	0.00usft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	SAM 3C-25H-M166	<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											S25-T1N-R66W (SAM) - SAM 3K-25H-M166 - 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	5,023.19	4,883.95	4,844.75	21.45	19.14	-162.69	-602.52	-225.74	1,404.67	1,368.40	36.27	38.723				
5,200.00	5,121.42	4,979.25	4,939.13	21.89	19.54	-162.68	-614.72	-231.01	1,434.95	1,397.95	37.01	38.776				
5,300.00	5,219.65	5,074.56	5,033.50	22.33	19.93	-162.67	-626.91	-236.28	1,465.23	1,427.50	37.74	38.826				
5,400.00	5,317.88	5,169.86	5,127.88	22.78	20.33	-162.67	-639.10	-241.55	1,495.52	1,457.04	38.47	38.874				

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well SAM 3C-25H-M166
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 5109.00usft
<b>Reference Site:</b>	S25-T1N-R66W (SAM)	<b>MD Reference:</b>	23' KB @ 5109.00usft
<b>Site Error:</b>	0.00usft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	SAM 3C-25H-M166	<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 S25-T1N-R66W (SAM) - SAM 3L-25H-M166 - 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					Separation Factor	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			
0.00	0.00	0.00	0.00	0.00	0.00	-179.96	-89.98	-0.06	89.98					
100.00	100.00	100.00	100.00	0.14	0.14	-179.96	-89.98	-0.06	89.98	89.71	0.28	326.001		
200.00	200.00	200.00	200.00	0.50	0.50	-179.96	-89.98	-0.06	89.98	88.99	0.99	90.621		
300.00	300.00	300.00	300.00	0.85	0.85	-179.96	-89.98	-0.06	89.98	88.27	1.71	52.625		
400.00	400.00	400.00	400.00	1.21	1.21	-179.96	-89.98	-0.06	89.98	87.56	2.43	37.078 CC, ES		
500.00	499.98	499.98	499.98	1.57	1.57	-162.56	-89.98	-0.06	91.65	88.50	3.14	29.148		
600.00	599.84	596.72	596.71	1.93	1.90	-163.11	-91.53	-0.58	98.24	94.39	3.85	25.488		
700.00	699.45	692.56	692.41	2.30	2.23	-163.47	-96.12	-2.10	111.33	106.76	4.57	24.357 SF		
800.00	798.70	786.89	786.41	2.67	2.55	-163.64	-103.61	-4.58	130.80	125.51	5.29	24.721		
900.00	897.47	879.18	878.07	3.05	2.88	-163.65	-113.77	-7.95	156.52	150.52	6.01	26.063		
939.74	936.56	915.18	913.72	3.21	3.01	-163.62	-118.49	-9.52	168.44	162.15	6.29	26.777		
1,000.00	995.75	969.67	967.57	3.45	3.22	-163.62	-126.43	-12.15	187.72	181.01	6.70	28.003		
1,100.00	1,093.98	1,064.22	1,060.90	3.86	3.58	-163.56	-140.78	-16.91	220.29	212.92	7.37	29.893		
1,200.00	1,192.21	1,158.76	1,154.23	4.28	3.96	-163.51	-155.13	-21.67	252.87	244.82	8.05	31.413		
1,300.00	1,290.44	1,253.31	1,247.56	4.71	4.34	-163.48	-169.48	-26.43	285.44	276.70	8.74	32.669		
1,400.00	1,388.67	1,347.85	1,340.89	5.13	4.72	-163.45	-183.83	-31.19	318.02	308.58	9.43	33.719		
1,500.00	1,486.90	1,442.40	1,434.22	5.56	5.11	-163.42	-198.18	-35.95	350.59	340.46	10.13	34.608		
1,600.00	1,585.13	1,536.95	1,527.55	5.99	5.51	-163.41	-212.53	-40.71	383.16	372.33	10.83	35.368		
1,700.00	1,683.36	1,631.49	1,620.88	6.43	5.90	-163.39	-226.88	-45.46	415.74	404.20	11.54	36.024		
1,800.00	1,781.59	1,726.04	1,714.21	6.86	6.30	-163.38	-241.23	-50.22	448.31	436.06	12.25	36.597		
1,900.00	1,879.82	1,820.58	1,807.53	7.30	6.69	-163.36	-255.57	-54.98	480.89	467.93	12.96	37.100		
2,000.00	1,978.05	1,915.13	1,900.86	7.74	7.09	-163.35	-269.92	-59.74	513.46	499.79	13.68	37.545		
2,100.00	2,076.28	2,009.67	1,994.19	8.17	7.49	-163.35	-284.27	-64.50	546.04	531.65	14.39	37.941		
2,200.00	2,174.51	2,104.22	2,087.52	8.61	7.89	-163.34	-298.62	-69.26	578.61	563.50	15.11	38.296		
2,300.00	2,272.74	2,198.76	2,180.85	9.05	8.30	-163.33	-312.97	-74.02	611.19	595.36	15.83	38.616		
2,400.00	2,370.97	2,293.31	2,274.18	9.49	8.70	-163.32	-327.32	-78.78	643.76	627.21	16.55	38.906		
2,500.00	2,469.20	2,387.86	2,367.51	9.93	9.10	-163.32	-341.67	-83.54	676.34	659.07	17.27	39.169		
2,600.00	2,567.43	2,482.40	2,460.84	10.37	9.51	-163.31	-356.02	-88.30	708.91	690.92	17.99	39.409		
2,700.00	2,665.66	2,576.95	2,554.17	10.81	9.91	-163.31	-370.37	-93.06	741.49	722.77	18.71	39.629		
2,800.00	2,763.89	2,671.49	2,647.50	11.26	10.31	-163.30	-384.72	-97.82	774.06	754.63	19.43	39.832		
2,900.00	2,862.12	2,766.04	2,740.83	11.70	10.72	-163.30	-399.07	-102.57	806.63	786.48	20.16	40.019		
3,000.00	2,960.35	2,860.58	2,834.16	12.14	11.12	-163.29	-413.42	-107.33	839.21	818.33	20.88	40.191		
3,100.00	3,058.58	2,955.13	2,927.48	12.58	11.53	-163.29	-427.77	-112.09	871.78	850.18	21.60	40.352		
3,200.00	3,156.82	3,049.68	3,020.81	13.02	11.94	-163.29	-442.12	-116.85	904.36	882.03	22.33	40.501		
3,300.00	3,255.05	3,144.22	3,114.14	13.47	12.34	-163.29	-456.47	-121.61	936.93	913.88	23.05	40.640		
3,400.00	3,353.28	3,238.77	3,207.47	13.91	12.75	-163.28	-470.82	-126.37	969.51	945.73	23.78	40.770		
3,500.00	3,451.51	3,333.31	3,300.80	14.35	13.15	-163.28	-485.16	-131.13	1,002.08	977.58	24.51	40.892		
3,600.00	3,549.74	3,427.86	3,394.13	14.79	13.56	-163.28	-499.51	-135.89	1,034.66	1,009.43	25.23	41.006		
3,700.00	3,647.97	3,522.40	3,487.46	15.24	13.97	-163.28	-513.86	-140.65	1,067.23	1,041.27	25.96	41.114		
3,800.00	3,746.20	3,616.95	3,580.79	15.68	14.37	-163.27	-528.21	-145.41	1,099.81	1,073.12	26.68	41.215		
3,900.00	3,844.43	3,711.50	3,674.12	16.12	14.78	-163.27	-542.56	-150.17	1,132.38	1,104.97	27.41	41.310		
4,000.00	3,942.66	3,806.04	3,767.45	16.57	15.19	-163.27	-556.91	-154.93	1,164.96	1,136.82	28.14	41.400		
4,100.00	4,040.89	3,900.59	3,860.78	17.01	15.59	-163.27	-571.26	-159.68	1,197.53	1,168.66	28.87	41.486		
4,200.00	4,139.12	3,995.13	3,954.11	17.45	16.00	-163.27	-585.61	-164.44	1,230.11	1,200.51	29.59	41.567		
4,300.00	4,237.35	4,089.68	4,047.43	17.90	16.41	-163.26	-599.96	-169.20	1,262.68	1,232.36	30.32	41.643		
4,400.00	4,335.58	4,184.22	4,140.76	18.34	16.82	-163.26	-614.31	-173.96	1,295.25	1,264.21	31.05	41.716		
4,500.00	4,433.81	4,278.77	4,234.09	18.78	17.22	-163.26	-628.66	-178.72	1,327.83	1,296.05	31.78	41.786		
4,600.00	4,532.04	4,373.32	4,327.42	19.23	17.63	-163.26	-643.01	-183.48	1,360.40	1,327.90	32.51	41.852		
4,700.00	4,630.27	4,467.86	4,420.75	19.67	18.04	-163.26	-657.36	-188.24	1,392.98	1,359.75	33.23	41.915		
4,800.00	4,728.50	4,562.41	4,514.08	20.11	18.45	-163.26	-671.71	-193.00	1,425.55	1,391.59	33.96	41.975		
4,900.00	4,826.73	4,656.95	4,607.41	20.56	18.85	-163.26	-686.06	-197.76	1,458.13	1,423.44	34.69	42.032		
5,000.00	4,924.96	4,751.50	4,700.74	21.00	19.26	-163.25	-700.41	-202.52	1,490.70	1,455.28	35.42	42.087		

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 SAM 3C-25H-M166
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 5109.00usft
<b>Reference Site:</b>	S25-T1N-R66W (SAM)	<b>MD Reference:</b>	23' KB @ 5109.00usft
<b>Site Error:</b>	0.00usft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	SAM 3C-25H-M166	<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

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well SAM 3C-25H-M166
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 5109.00usft
<b>Reference Site:</b>	S25-T1N-R66W (SAM)	<b>MD Reference:</b>	23' KB @ 5109.00usft
<b>Site Error:</b>	0.00usft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	SAM 3C-25H-M166	<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 S25-T1N-R66W (SAM) - SAM 3M-25H-M166 - 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	179.99	-100.17	0.03	100.17					
100.00	100.00	100.00	100.00	0.14	0.14	179.99	-100.17	0.03	100.17	99.90	0.28	362.921		
200.00	200.00	200.00	200.00	0.50	0.50	179.99	-100.17	0.03	100.17	99.18	0.99	100.884		
300.00	300.00	300.00	300.00	0.85	0.85	179.99	-100.17	0.03	100.17	98.46	1.71	58.585		
400.00	400.00	400.00	400.00	1.21	1.21	179.99	-100.17	0.03	100.17	97.75	2.43	41.278	CC, ES	
500.00	499.98	496.65	496.63	1.57	1.54	-162.31	-101.74	-0.43	103.46	100.32	3.14	32.976		
600.00	599.84	592.67	592.53	1.93	1.87	-162.34	-106.40	-1.77	113.28	109.42	3.87	29.308		
700.00	699.45	687.48	687.00	2.30	2.20	-162.38	-114.02	-3.96	129.58	124.98	4.60	28.165	SF	
800.00	798.70	780.49	779.37	2.67	2.54	-162.39	-124.42	-6.96	152.22	146.89	5.33	28.553		
900.00	897.47	871.44	869.31	3.05	2.88	-162.38	-137.36	-10.68	181.04	175.00	6.05	29.945		
939.74	936.56	909.04	906.42	3.21	3.03	-162.39	-143.23	-12.37	193.90	187.58	6.32	30.683		
1,000.00	995.75	965.93	962.55	3.45	3.25	-162.55	-152.10	-14.93	213.77	207.05	6.72	31.817		
1,100.00	1,093.98	1,060.33	1,055.70	3.86	3.64	-162.76	-166.83	-19.17	246.76	239.37	7.39	33.392		
1,200.00	1,192.21	1,154.73	1,148.85	4.28	4.02	-162.92	-181.55	-23.41	279.74	271.67	8.07	34.659		
1,300.00	1,290.44	1,249.13	1,242.00	4.71	4.41	-163.05	-196.28	-27.65	312.73	303.97	8.76	35.698		
1,400.00	1,388.67	1,343.53	1,335.14	5.13	4.81	-163.15	-211.00	-31.89	345.71	336.26	9.46	36.563		
1,500.00	1,486.90	1,437.93	1,428.29	5.56	5.20	-163.24	-225.73	-36.13	378.70	368.55	10.16	37.292		
1,600.00	1,585.13	1,532.33	1,521.44	5.99	5.60	-163.31	-240.45	-40.37	411.69	400.83	10.86	37.913		
1,700.00	1,683.36	1,626.73	1,614.59	6.43	6.00	-163.37	-255.18	-44.61	444.68	433.11	11.57	38.448		
1,800.00	1,781.59	1,721.13	1,707.74	6.86	6.40	-163.42	-269.90	-48.85	477.67	465.39	12.28	38.913		
1,900.00	1,879.82	1,815.53	1,800.89	7.30	6.81	-163.47	-284.63	-53.09	510.66	497.67	12.99	39.321		
2,000.00	1,978.05	1,909.93	1,894.04	7.74	7.21	-163.51	-299.35	-57.33	543.65	529.95	13.70	39.681		
2,100.00	2,076.28	2,004.34	1,987.19	8.17	7.61	-163.54	-314.08	-61.57	576.64	562.22	14.42	40.001		
2,200.00	2,174.51	2,098.74	2,080.34	8.61	8.02	-163.57	-328.80	-65.81	609.63	594.50	15.13	40.287		
2,300.00	2,272.74	2,193.14	2,173.48	9.05	8.42	-163.60	-343.53	-70.05	642.62	626.77	15.85	40.545		
2,400.00	2,370.97	2,287.54	2,266.63	9.49	8.83	-163.63	-358.25	-74.29	675.61	659.04	16.57	40.777		
2,500.00	2,469.20	2,381.94	2,359.78	9.93	9.23	-163.65	-372.98	-78.53	708.60	691.32	17.29	40.989		
2,600.00	2,567.43	2,476.34	2,452.93	10.37	9.64	-163.67	-387.70	-82.77	741.59	723.59	18.01	41.181		
2,700.00	2,665.66	2,570.74	2,546.08	10.81	10.05	-163.69	-402.42	-87.01	774.59	755.86	18.73	41.358		
2,800.00	2,763.89	2,665.14	2,639.23	11.26	10.45	-163.71	-417.15	-91.25	807.58	788.13	19.45	41.519		
2,900.00	2,862.12	2,759.54	2,732.38	11.70	10.86	-163.72	-431.87	-95.49	840.57	820.39	20.17	41.669		
3,000.00	2,960.35	2,853.94	2,825.53	12.14	11.27	-163.74	-446.60	-99.73	873.56	852.66	20.90	41.807		
3,100.00	3,058.58	2,948.34	2,918.68	12.58	11.68	-163.75	-461.32	-103.97	906.55	884.93	21.62	41.934		
3,200.00	3,156.82	3,042.75	3,011.83	13.02	12.08	-163.77	-476.05	-108.21	939.54	917.20	22.34	42.053		
3,300.00	3,255.05	3,137.15	3,104.97	13.47	12.49	-163.78	-490.77	-112.45	972.53	949.47	23.07	42.164		
3,400.00	3,353.28	3,231.55	3,198.12	13.91	12.90	-163.79	-505.50	-116.69	1,005.52	981.74	23.79	42.267		
3,500.00	3,451.51	3,325.95	3,291.27	14.35	13.31	-163.80	-520.22	-120.93	1,038.52	1,014.00	24.51	42.364		
3,600.00	3,549.74	3,420.35	3,384.42	14.79	13.72	-163.81	-534.95	-125.17	1,071.51	1,046.27	25.24	42.455		
3,700.00	3,647.97	3,514.75	3,477.57	15.24	14.13	-163.82	-549.67	-129.41	1,104.50	1,078.54	25.96	42.540		
3,800.00	3,746.20	3,609.15	3,570.72	15.68	14.53	-163.83	-564.40	-133.65	1,137.49	1,110.80	26.69	42.620		
3,900.00	3,844.43	3,703.55	3,663.87	16.12	14.94	-163.84	-579.12	-137.89	1,170.48	1,143.07	27.41	42.696		
4,000.00	3,942.66	3,797.95	3,757.02	16.57	15.35	-163.84	-593.85	-142.13	1,203.47	1,175.33	28.14	42.767		
4,100.00	4,040.89	3,892.35	3,850.17	17.01	15.76	-163.85	-608.57	-146.37	1,236.47	1,207.60	28.87	42.835		
4,200.00	4,139.12	3,986.75	3,943.31	17.45	16.17	-163.86	-623.30	-150.61	1,269.46	1,239.87	29.59	42.899		
4,300.00	4,237.35	4,081.15	4,036.46	17.90	16.58	-163.86	-638.02	-154.85	1,302.45	1,272.13	30.32	42.960		
4,400.00	4,335.58	4,175.56	4,129.61	18.34	16.99	-163.87	-652.75	-159.09	1,335.44	1,304.40	31.04	43.017		
4,500.00	4,433.81	4,269.96	4,222.76	18.78	17.40	-163.88	-667.47	-163.33	1,368.43	1,336.66	31.77	43.072		
4,600.00	4,532.04	4,364.36	4,315.91	19.23	17.81	-163.88	-682.20	-167.57	1,401.42	1,368.93	32.50	43.124		
4,700.00	4,630.27	4,458.76	4,409.06	19.67	18.22	-163.89	-696.92	-171.81	1,434.42	1,401.19	33.22	43.174		
4,800.00	4,728.50	4,553.16	4,502.21	20.11	18.62	-163.89	-711.65	-176.05	1,467.41	1,433.46	33.95	43.221		

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 SAM 3C-25H-M166
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 5109.00usft
<b>Reference Site:</b>	S25-T1N-R66W (SAM)	<b>MD Reference:</b>	23' KB @ 5109.00usft
<b>Site Error:</b>	0.00usft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	SAM 3C-25H-M166	<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 S25-T1N-R66W (SAM) - SAM 3N-25H-M166 - OH - PLAN #1													Offset Site Error: 0.00 usft	
Survey Program: O-MWD+HDGM													Offset Well Error: 0.00 usft	
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
0.00	0.00	0.00	0.00	0.00	0.00	179.94	-110.01	0.11	110.01					
100.00	100.00	100.00	100.00	0.14	0.14	179.94	-110.01	0.11	110.01	109.73	0.28	398.553		
200.00	200.00	200.00	200.00	0.50	0.50	179.94	-110.01	0.11	110.01	109.02	0.99	110.789		
300.00	300.00	300.00	300.00	0.85	0.85	179.94	-110.01	0.11	110.01	108.30	1.71	64.337 CC, ES		
400.00	400.00	396.38	396.37	1.21	1.19	-179.84	-111.58	-0.30	111.64	109.21	2.43	46.017		
500.00	499.98	492.44	492.29	1.57	1.52	-161.74	-116.26	-1.54	118.17	115.01	3.16	37.347		
600.00	599.84	587.57	587.08	1.93	1.85	-161.48	-123.95	-3.57	131.23	127.31	3.92	33.505		
700.00	699.45	681.18	680.06	2.30	2.20	-161.33	-134.49	-6.36	150.70	146.04	4.66	32.306 SF		
800.00	798.70	772.74	770.60	2.67	2.55	-161.26	-147.64	-9.83	176.45	171.05	5.40	32.680		
900.00	897.47	867.18	863.70	3.05	2.93	-161.31	-162.98	-13.88	207.21	201.13	6.08	34.092		
939.74	936.56	904.70	900.67	3.21	3.08	-161.39	-169.08	-15.49	220.31	213.97	6.35	34.705		
1,000.00	995.75	961.44	956.61	3.45	3.32	-161.64	-178.31	-17.93	240.56	233.81	6.75	35.640		
1,100.00	1,093.98	1,055.61	1,049.44	3.86	3.71	-161.98	-193.64	-21.98	274.17	266.75	7.42	36.935		
1,200.00	1,192.21	1,149.78	1,142.27	4.28	4.11	-162.25	-208.96	-26.03	307.79	299.68	8.11	37.973		
1,300.00	1,290.44	1,243.96	1,235.10	4.71	4.51	-162.46	-224.28	-30.07	341.41	332.61	8.80	38.817		
1,400.00	1,388.67	1,338.13	1,327.93	5.13	4.92	-162.63	-239.60	-34.12	375.03	365.54	9.49	39.515		
1,500.00	1,486.90	1,432.30	1,420.76	5.56	5.32	-162.78	-254.92	-38.17	408.66	398.47	10.19	40.100		
1,600.00	1,585.13	1,526.47	1,513.59	5.99	5.73	-162.90	-270.24	-42.21	442.29	431.39	10.89	40.596		
1,700.00	1,683.36	1,620.64	1,606.41	6.43	6.13	-163.01	-285.57	-46.26	475.92	464.32	11.60	41.021		
1,800.00	1,781.59	1,714.82	1,699.24	6.86	6.54	-163.10	-300.89	-50.31	509.55	497.24	12.31	41.389		
1,900.00	1,879.82	1,808.99	1,792.07	7.30	6.95	-163.18	-316.21	-54.35	543.18	530.16	13.02	41.710		
2,000.00	1,978.05	1,903.16	1,884.90	7.74	7.36	-163.25	-331.53	-58.40	576.82	563.08	13.74	41.992		
2,100.00	2,076.28	1,997.33	1,977.73	8.17	7.77	-163.32	-346.85	-62.45	610.45	596.00	14.45	42.242		
2,200.00	2,174.51	2,091.50	2,070.56	8.61	8.18	-163.37	-362.17	-66.49	644.09	628.92	15.17	42.466		
2,300.00	2,272.74	2,185.68	2,163.39	9.05	8.59	-163.42	-377.49	-70.54	677.72	661.84	15.88	42.666		
2,400.00	2,370.97	2,279.85	2,256.22	9.49	9.00	-163.47	-392.82	-74.59	711.36	694.75	16.60	42.846		
2,500.00	2,469.20	2,374.02	2,349.05	9.93	9.41	-163.51	-408.14	-78.64	744.99	727.67	17.32	43.009		
2,600.00	2,567.43	2,468.19	2,441.88	10.37	9.82	-163.55	-423.46	-82.68	778.63	760.59	18.04	43.158		
2,700.00	2,665.66	2,562.36	2,534.70	10.81	10.23	-163.59	-438.78	-86.73	812.27	793.50	18.76	43.293		
2,800.00	2,763.89	2,656.54	2,627.53	11.26	10.65	-163.62	-454.10	-90.78	845.90	826.42	19.48	43.417		
2,900.00	2,862.12	2,750.71	2,720.36	11.70	11.06	-163.65	-469.42	-94.82	879.54	859.34	20.20	43.532		
3,000.00	2,960.35	2,844.88	2,813.19	12.14	11.47	-163.68	-484.75	-98.87	913.18	892.25	20.93	43.637		
3,100.00	3,058.58	2,939.05	2,906.02	12.58	11.88	-163.70	-500.07	-102.92	946.82	925.17	21.65	43.735		
3,200.00	3,156.82	3,033.22	2,998.85	13.02	12.30	-163.73	-515.39	-106.96	980.45	958.08	22.37	43.825		
3,300.00	3,255.05	3,127.40	3,091.68	13.47	12.71	-163.75	-530.71	-111.01	1,014.09	991.00	23.10	43.910		
3,400.00	3,353.28	3,221.57	3,184.51	13.91	13.12	-163.77	-546.03	-115.06	1,047.73	1,023.91	23.82	43.988		
3,500.00	3,451.51	3,315.74	3,277.34	14.35	13.53	-163.79	-561.35	-119.10	1,081.37	1,056.83	24.54	44.061		
3,600.00	3,549.74	3,409.91	3,370.17	14.79	13.95	-163.81	-576.67	-123.15	1,115.01	1,089.74	25.27	44.130		
3,700.00	3,647.97	3,504.08	3,462.99	15.24	14.36	-163.82	-592.00	-127.20	1,148.64	1,122.65	25.99	44.195		
3,800.00	3,746.20	3,598.26	3,555.82	15.68	14.77	-163.84	-607.32	-131.25	1,182.28	1,155.57	26.72	44.255		
3,900.00	3,844.43	3,692.43	3,648.65	16.12	15.18	-163.86	-622.64	-135.29	1,215.92	1,188.48	27.44	44.312		
4,000.00	3,942.66	3,786.60	3,741.48	16.57	15.60	-163.87	-637.96	-139.34	1,249.56	1,221.39	28.16	44.366		
4,100.00	4,040.89	3,880.77	3,834.31	17.01	16.01	-163.89	-653.28	-143.39	1,283.20	1,254.31	28.89	44.417		
4,200.00	4,139.12	3,974.94	3,927.14	17.45	16.42	-163.90	-668.60	-147.43	1,316.84	1,287.22	29.62	44.465		
4,300.00	4,237.35	4,069.11	4,019.97	17.90	16.84	-163.91	-683.92	-151.48	1,350.48	1,320.14	30.34	44.510		
4,400.00	4,335.58	4,163.29	4,112.80	18.34	17.25	-163.92	-699.25	-155.53	1,384.11	1,353.05	31.07	44.553		
4,500.00	4,433.81	4,257.46	4,205.63	18.78	17.66	-163.93	-714.57	-159.57	1,417.75	1,385.96	31.79	44.594		
4,600.00	4,532.04	4,351.63	4,298.46	19.23	18.07	-163.94	-729.89	-163.62	1,451.39	1,418.87	32.52	44.633		
4,700.00	4,630.27	4,445.80	4,391.29	19.67	18.49	-163.96	-745.21	-167.67	1,485.03	1,451.79	33.24	44.670		

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 SAM 3C-25H-M166
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 5109.00usft
<b>Reference Site:</b>	S25-T1N-R66W (SAM)	<b>MD Reference:</b>	23' KB @ 5109.00usft
<b>Site Error:</b>	0.00usft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	SAM 3C-25H-M166	<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 S25-T1N-R66W (SAM) - SAM 3C-25H-M166 - 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					Separation Factor	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			
0.00	0.00	0.00	0.00	0.00	0.00	-179.96	-120.22	-0.08	120.22					
100.00	100.00	100.00	100.00	0.14	0.14	-179.96	-120.22	-0.08	120.22	119.94	0.28	435.528		
200.00	200.00	200.00	200.00	0.50	0.50	-179.96	-120.22	-0.08	120.22	119.22	0.99	121.067 CC, ES		
300.00	300.00	296.05	296.03	0.85	0.83	-179.78	-121.78	-0.46	121.85	120.12	1.72	70.729		
400.00	400.00	391.88	391.73	1.21	1.16	-179.27	-126.46	-1.61	126.74	124.26	2.48	51.146		
500.00	499.98	487.12	486.64	1.57	1.50	-160.96	-134.18	-3.49	136.53	133.29	3.24	42.087		
600.00	599.84	581.14	580.02	1.93	1.86	-160.56	-144.81	-6.09	152.80	148.79	4.01	38.099		
700.00	699.45	673.39	671.23	2.30	2.22	-160.34	-158.12	-9.34	175.42	170.65	4.76	36.824 SF		
800.00	798.70	765.60	761.98	2.67	2.61	-160.25	-174.07	-13.24	204.02	198.55	5.47	37.281		
900.00	897.47	860.22	854.97	3.05	3.01	-160.38	-191.00	-17.38	236.35	230.22	6.13	38.556		
939.74	936.56	897.51	891.63	3.21	3.17	-160.47	-197.67	-19.01	250.06	243.65	6.41	39.030		
1,000.00	995.75	953.92	947.07	3.45	3.42	-160.76	-207.76	-21.47	271.22	264.41	6.81	39.843		
1,100.00	1,093.98	1,047.53	1,039.08	3.86	3.83	-161.15	-224.51	-25.56	306.35	298.87	7.48	40.975		
1,200.00	1,192.21	1,141.14	1,131.09	4.28	4.24	-161.46	-241.25	-29.65	341.49	333.33	8.16	41.870		
1,300.00	1,290.44	1,234.74	1,223.09	4.71	4.66	-161.71	-258.00	-33.75	376.64	367.79	8.84	42.591		
1,400.00	1,388.67	1,328.35	1,315.10	5.13	5.07	-161.92	-274.74	-37.84	411.79	402.25	9.54	43.181		
1,500.00	1,486.90	1,421.96	1,407.11	5.56	5.49	-162.09	-291.49	-41.93	446.95	436.71	10.23	43.671		
1,600.00	1,585.13	1,515.57	1,499.12	5.99	5.91	-162.24	-308.23	-46.02	482.11	471.17	10.94	44.083		
1,700.00	1,683.36	1,609.18	1,591.12	6.43	6.33	-162.37	-324.98	-50.11	517.27	505.63	11.64	44.432		
1,800.00	1,781.59	1,702.78	1,683.13	6.86	6.75	-162.49	-341.72	-54.20	552.43	540.08	12.35	44.733		
1,900.00	1,879.82	1,796.39	1,775.14	7.30	7.17	-162.58	-358.47	-58.29	587.60	574.54	13.06	44.993		
2,000.00	1,978.05	1,890.00	1,867.14	7.74	7.59	-162.67	-375.22	-62.38	622.77	608.99	13.77	45.221		
2,100.00	2,076.28	1,983.61	1,959.15	8.17	8.01	-162.75	-391.96	-66.48	657.94	643.45	14.49	45.421		
2,200.00	2,174.51	2,077.22	2,051.16	8.61	8.44	-162.82	-408.71	-70.57	693.10	677.90	15.20	45.598		
2,300.00	2,272.74	2,170.83	2,143.17	9.05	8.86	-162.89	-425.45	-74.66	728.28	712.36	15.92	45.756		
2,400.00	2,370.97	2,264.43	2,235.17	9.49	9.28	-162.95	-442.20	-78.75	763.45	746.81	16.63	45.898		
2,500.00	2,469.20	2,358.04	2,327.18	9.93	9.70	-163.00	-458.94	-82.84	798.62	781.27	17.35	46.026		
2,600.00	2,567.43	2,451.65	2,419.19	10.37	10.12	-163.05	-475.69	-86.93	833.79	815.72	18.07	46.141		
2,700.00	2,665.66	2,545.26	2,511.20	10.81	10.55	-163.09	-492.43	-91.02	868.96	850.17	18.79	46.246		
2,800.00	2,763.89	2,638.87	2,603.20	11.26	10.97	-163.13	-509.18	-95.11	904.14	884.63	19.51	46.342		
2,900.00	2,862.12	2,732.47	2,695.21	11.70	11.39	-163.17	-525.92	-99.21	939.31	919.08	20.23	46.430		
3,000.00	2,960.35	2,826.08	2,787.22	12.14	11.82	-163.21	-542.67	-103.30	974.48	953.53	20.95	46.511		
3,100.00	3,058.58	2,919.69	2,879.23	12.58	12.24	-163.24	-559.41	-107.39	1,009.66	987.99	21.67	46.585		
3,200.00	3,156.82	3,013.30	2,971.23	13.02	12.66	-163.27	-576.16	-111.48	1,044.83	1,022.44	22.40	46.654		
3,300.00	3,255.05	3,106.91	3,063.24	13.47	13.09	-163.30	-592.91	-115.57	1,080.01	1,056.89	23.12	46.717		
3,400.00	3,353.28	3,200.52	3,155.25	13.91	13.51	-163.33	-609.65	-119.66	1,115.18	1,091.34	23.84	46.776		
3,500.00	3,451.51	3,294.12	3,247.25	14.35	13.93	-163.35	-626.40	-123.75	1,150.36	1,125.79	24.56	46.832		
3,600.00	3,549.74	3,387.73	3,339.26	14.79	14.36	-163.37	-643.14	-127.84	1,185.53	1,160.25	25.29	46.883		
3,700.00	3,647.97	3,481.34	3,431.27	15.24	14.78	-163.40	-659.89	-131.94	1,220.71	1,194.70	26.01	46.931		
3,800.00	3,746.20	3,574.95	3,523.28	15.68	15.20	-163.42	-676.63	-136.03	1,255.89	1,229.15	26.73	46.976		
3,900.00	3,844.43	3,668.56	3,615.28	16.12	15.63	-163.44	-693.38	-140.12	1,291.06	1,263.60	27.46	47.018		
4,000.00	3,942.66	3,762.16	3,707.29	16.57	16.05	-163.46	-710.12	-144.21	1,326.24	1,298.05	28.18	47.058		
4,100.00	4,040.89	3,855.77	3,799.30	17.01	16.47	-163.47	-726.87	-148.30	1,361.41	1,332.51	28.91	47.096		
4,200.00	4,139.12	3,949.38	3,891.31	17.45	16.90	-163.49	-743.61	-152.39	1,396.59	1,366.96	29.63	47.131		
4,300.00	4,237.35	4,042.99	3,983.31	17.90	17.32	-163.51	-760.36	-156.48	1,431.77	1,401.41	30.36	47.164		
4,400.00	4,335.58	4,136.60	4,075.32	18.34	17.75	-163.52	-777.10	-160.57	1,466.94	1,435.86	31.08	47.196		

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 SAM 3C-25H-M166
<b>Project:</b>	DJ BASIN	<b>TVD Reference:</b>	23' KB @ 5109.00usft
<b>Reference Site:</b>	S25-T1N-R66W (SAM)	<b>MD Reference:</b>	23' KB @ 5109.00usft
<b>Site Error:</b>	0.00usft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	SAM 3C-25H-M166	<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 S25-T1N-R66W (SAM) - Wenzel 1 (EXISTING) - CPR WELL - NO SURVEYS												Offset Site Error:	0.00 usft
Survey Program: 8120-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		
10,400.00	7,340.00	7,261.00	7,261.00	103.86	8.15	90.00	-3.91	4,047.10	1,428.61	1,345.30	83.31	17.148	
10,500.00	7,340.00	7,261.00	7,261.00	106.96	8.15	90.00	-3.91	4,047.10	1,356.70	1,268.00	88.70	15.296	
10,600.00	7,340.00	7,261.00	7,261.00	110.06	8.15	90.00	-3.91	4,047.10	1,288.54	1,194.02	94.51	13.633	
10,700.00	7,340.00	7,261.00	7,261.00	113.17	8.15	90.00	-3.91	4,047.10	1,224.76	1,124.02	100.74	12.158	
10,800.00	7,340.00	7,261.00	7,261.00	116.28	8.15	90.00	-3.91	4,047.10	1,166.07	1,058.78	107.30	10.868	
10,900.00	7,340.00	7,261.00	7,261.00	119.40	8.15	90.00	-3.91	4,047.10	1,113.29	999.22	114.07	9.760	
11,000.00	7,340.00	7,261.00	7,261.00	122.52	8.15	90.00	-3.91	4,047.10	1,067.30	946.41	120.89	8.829	
11,100.00	7,340.00	7,261.00	7,261.00	125.65	8.15	90.00	-3.91	4,047.10	1,028.99	901.49	127.50	8.071	
11,200.00	7,340.00	7,261.00	7,261.00	128.78	8.15	90.00	-3.91	4,047.10	999.26	865.65	133.61	7.479	
11,300.00	7,340.00	7,261.00	7,261.00	131.92	8.15	90.00	-3.91	4,047.10	978.89	839.96	138.92	7.046	
11,400.00	7,340.00	7,261.00	7,261.00	135.05	8.15	90.00	-3.91	4,047.10	968.46	825.33	143.13	6.766	
11,451.51	7,340.00	7,261.00	7,261.00	136.67	8.15	90.00	-3.91	4,047.10	967.09	822.30	144.79	6.679 CC	
11,500.00	7,340.00	7,261.00	7,261.00	138.19	8.15	90.00	-3.91	4,047.10	968.31	822.28	146.02	6.631 ES, SF	
11,600.00	7,340.00	7,261.00	7,261.00	141.34	8.15	90.00	-3.91	4,047.10	978.42	830.92	147.51	6.633	
11,700.00	7,340.00	7,261.00	7,261.00	144.49	8.15	90.00	-3.91	4,047.10	998.51	850.89	147.61	6.764	
11,800.00	7,340.00	7,261.00	7,261.00	147.64	8.15	90.00	-3.91	4,047.10	1,027.96	881.47	146.50	7.017	
11,900.00	7,340.00	7,261.00	7,261.00	150.79	8.15	90.00	-3.91	4,047.10	1,066.03	921.64	144.39	7.383	
11,913.53	7,340.00	7,261.00	7,261.00	151.21	8.15	90.00	-3.91	4,047.10	1,071.79	927.75	144.04	7.441	

# Cathedral Energy Services

## Anticollision Report

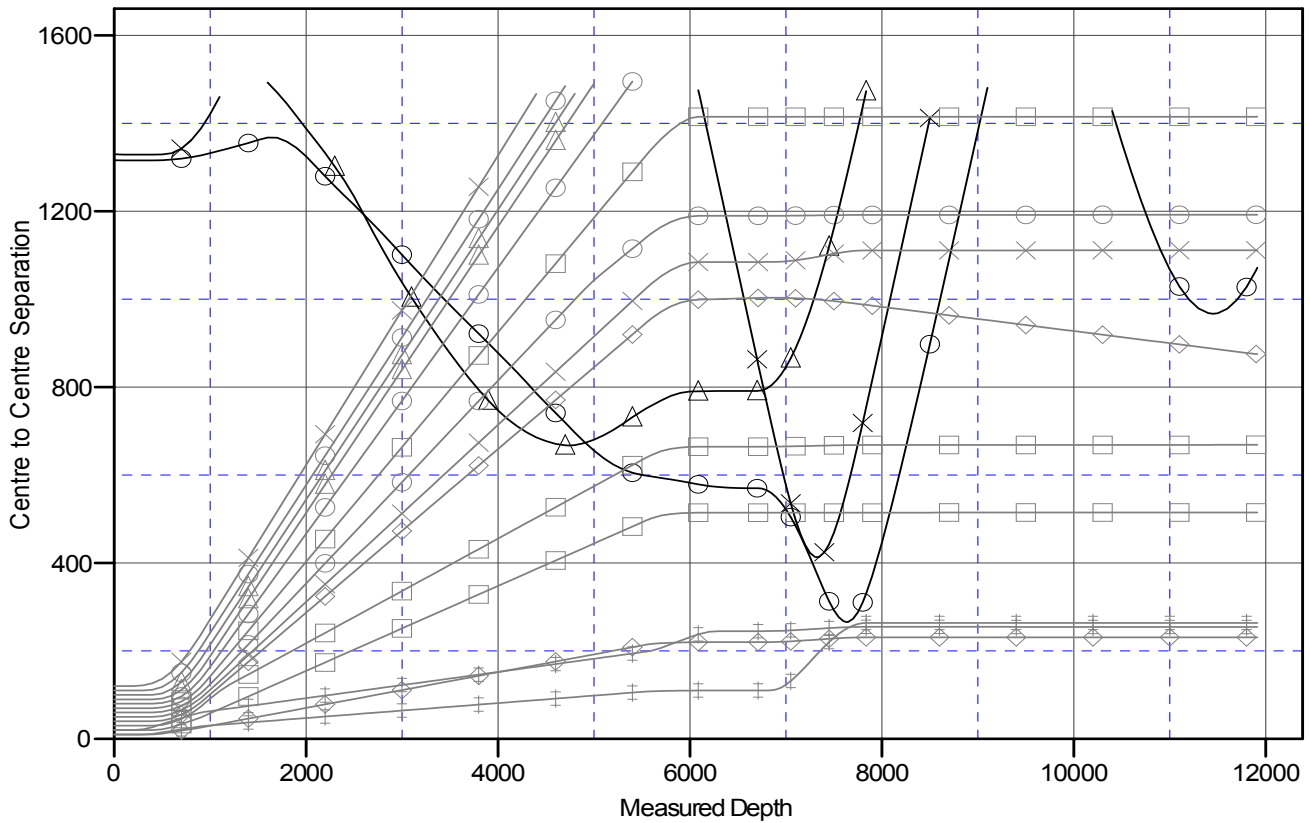
**Company:** Crestone Peak Resources  
**Project:** DJ BASIN  
**Reference Site:** S25-T1N-R66W (SAM)  
**Site Error:** 0.00usft  
**Reference Well:** SAM 3C-25H-M166  
**Well Error:** 0.00usft  
**Reference Wellbore:** OH  
**Reference Design:** PLAN #1

**Local Co-ordinate Reference:** Well SAM 3C-25H-M166  
**TVD Reference:** 23' KB @ 5109.00usft  
**MD Reference:** 23' KB @ 5109.00usft  
**North Reference:** Grid  
**Survey Calculation Method:** Minimum Curvature  
**Output errors are at** 2.00 sigma  
**Database:** USA EDM 5000 Multi Users DB  
**Offset TVD Reference:** Offset Datum

Reference Depths are relative to 23' KB @ 5109.00usft  
 Offset Depths are relative to Offset Datum  
 Central Meridian is -105.500000 °

Coordinates are relative to: SAM 3C-25H-M166  
 Coordinate System is US State Plane 1983, Colorado Northern Zone  
 Grid Convergence at Surface is: 0.50°

### Ladder Plot



### LEGEND

ere 2 (EXISTING), CPR WELL, SURVEYS V0	—■— SAM3E-25H-M166, OH, PLAN#1 V0	—▲— SAM3L-25H-M166, OH, PLAN#1 V0
ere KE 26-361HN, GWOG WELL, GWOG WELL V0	—■— SAM3F-25H-M166, OH, PLAN#1 V0	—▲— SAM3M-25H-M166, OH, PLAN#1 V0
ni 1 (EXISTING), CPR WELL, NO SURVEYS V0	—◆— SAM3G-25H-M166, OH, PLAN#1 V0	—○— SAM3N-25H-M166, OH, PLAN#1 V0
ni 13-25 (EXISTING), CPR WELL, SURVEYS V0	—X— SAM3H-25H-M166, OH, PLAN#1 V0	—X— SAM3O-25H-M166, OH, PLAN#1 V0
M3A-25H-M166, OH, PLAN#1 V0	—○— SAM3I-25H-M166, OH, PLAN#1 V0	—●— Wenzel 1 (EXISTING), CPR WELL, NO SURV
M3B-25H-M166, OH, PLAN#1 V0	—■— SAM3J-25H-M166, OH, PLAN#1 V0	
M3D-25H-M166, OH, PLAN#1 V0	—○— SAM3K-25H-M166, OH, PLAN#1 V0	