



**CRESTONE PEAK**  
RESOURCES

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

#### SECTION DETAILS

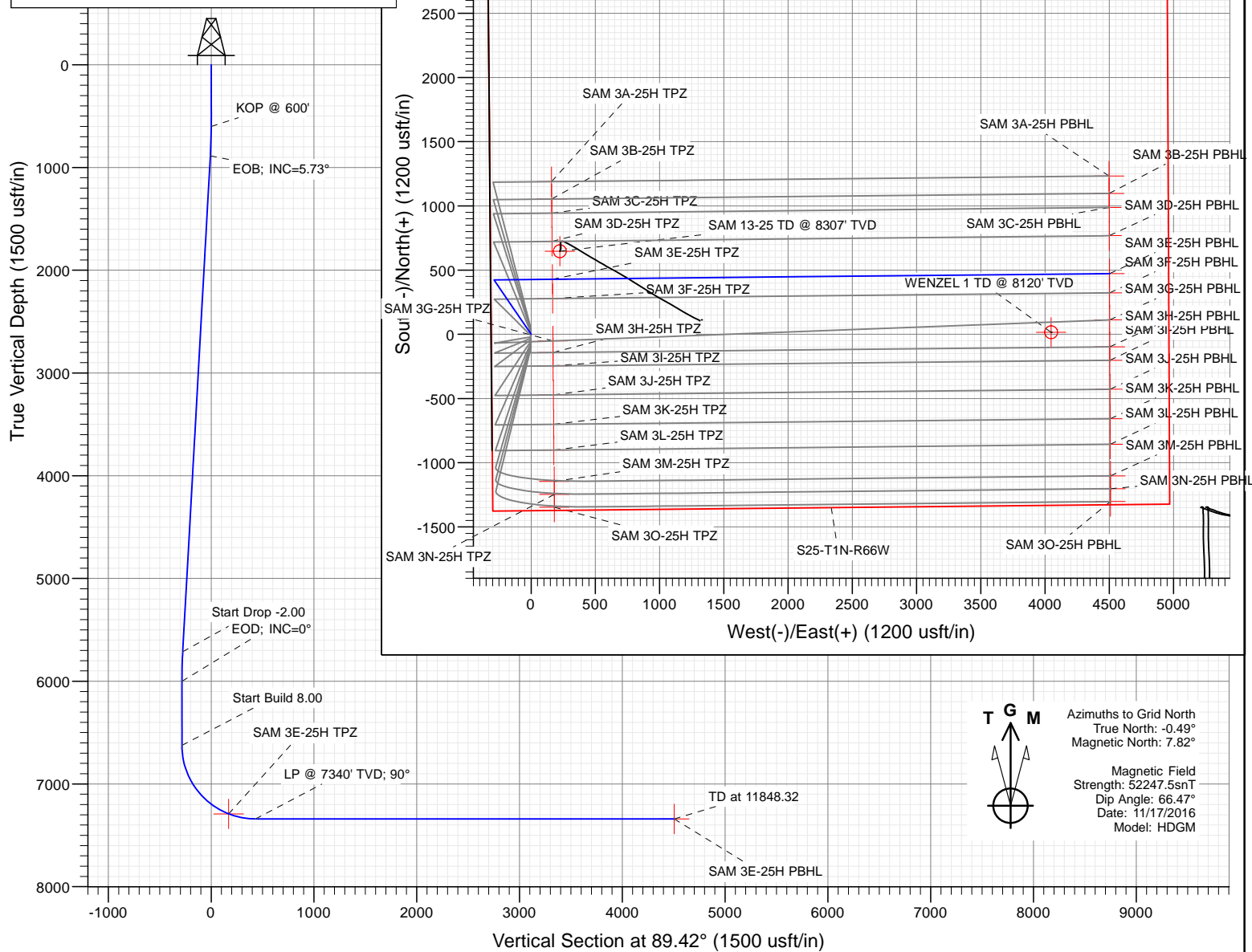
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	
3	886.57	5.73	325.74	886.09	11.84	-8.06	2.00	325.74	-7.94	
4	5738.64	5.73	325.74	5713.91	412.29	-280.88	0.00	0.00	-276.69	
5	6025.21	0.00	0.00	6000.00	424.13	-288.94	2.00	180.00	-284.63	
6	6649.01	0.00	0.00	6623.80	424.13	-288.94	0.00	0.00	-284.63	
7	7774.01	90.00	89.42	7340.00	431.41	427.22	8.00	89.42	431.57	
8	11848.32	90.00	89.42	7340.00	472.81	4501.31	0.00	0.00	4505.87	SAM 3E-25H PBHL

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

Name	Type	Target	No Target (Freehand)	Azimuth	Origin Type	N/S	E/W	From TVD
SAM 3E-25H TPZ				89.42				
SAM 3E-25H PBHL				89.42				

#### 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

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

+N/-S	+E/-W	Northing	Ground Level: Easting	5086.00	Latitude	Longitude
0.00	0.00	1250616.69	3214577.04		40.018785	-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 3E-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 3E-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 3E-25H-M166					
Well Position	+N/-S	0.00 usft	Northing:	1,250,616.69 usft	Latitude:	40.018785
	+E/-W	0.00 usft	Easting:	3,214,577.04 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</b>
			(°)	(°)	(nT)
	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)</b>	<b>+N/-S</b>	<b>+E/-W</b>	<b>Direction</b>
	(usft)	(usft)	(usft)	(°)
	0.00	0.00	0.00	89.42

<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	
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00	
886.57	5.73	325.74	886.09	11.84	-8.06	2.00	2.00	0.00	325.74	
5,738.64	5.73	325.74	5,713.91	412.29	-280.88	0.00	0.00	0.00	0.00	
6,025.21	0.00	0.00	6,000.00	424.13	-288.94	2.00	-2.00	0.00	180.00	
6,649.01	0.00	0.00	6,623.80	424.13	-288.94	0.00	0.00	0.00	0.00	
7,774.01	90.00	89.42	7,340.00	431.41	427.22	8.00	8.00	0.00	89.42	
11,848.32	90.00	89.42	7,340.00	472.81	4,501.31	0.00	0.00	0.00	0.00	SAM 3E-25H PBHL

# Cathedral Energy Services

## Planning Report

<b>Database:</b>	USA EDM 5000 Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well SAM 3E-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 3E-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	
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	KOP @ 600'
700.00	2.00	325.74	699.98	1.44	-0.98	-0.97	2.00	2.00	
800.00	4.00	325.74	799.84	5.77	-3.93	-3.87	2.00	2.00	
886.57	5.73	325.74	886.09	11.84	-8.06	-7.94	2.00	2.00	EOB; INC=5.73°
900.00	5.73	325.74	899.46	12.94	-8.82	-8.69	0.00	0.00	
1,000.00	5.73	325.74	998.96	21.20	-14.44	-14.23	0.00	0.00	
1,100.00	5.73	325.74	1,098.46	29.45	-20.06	-19.76	0.00	0.00	
1,200.00	5.73	325.74	1,197.96	37.70	-25.69	-25.30	0.00	0.00	
1,300.00	5.73	325.74	1,297.46	45.96	-31.31	-30.84	0.00	0.00	
1,400.00	5.73	325.74	1,396.96	54.21	-36.93	-36.38	0.00	0.00	
1,500.00	5.73	325.74	1,496.46	62.46	-42.55	-41.92	0.00	0.00	
1,600.00	5.73	325.74	1,595.96	70.72	-48.18	-47.46	0.00	0.00	
1,700.00	5.73	325.74	1,695.46	78.97	-53.80	-53.00	0.00	0.00	
1,800.00	5.73	325.74	1,794.96	87.22	-59.42	-58.54	0.00	0.00	
1,900.00	5.73	325.74	1,894.46	95.48	-65.04	-64.07	0.00	0.00	
2,000.00	5.73	325.74	1,993.96	103.73	-70.67	-69.61	0.00	0.00	
2,100.00	5.73	325.74	2,093.46	111.98	-76.29	-75.15	0.00	0.00	
2,200.00	5.73	325.74	2,192.96	120.24	-81.91	-80.69	0.00	0.00	
2,300.00	5.73	325.74	2,292.46	128.49	-87.53	-86.23	0.00	0.00	
2,400.00	5.73	325.74	2,391.96	136.74	-93.16	-91.77	0.00	0.00	
2,500.00	5.73	325.74	2,491.46	145.00	-98.78	-97.31	0.00	0.00	
2,600.00	5.73	325.74	2,590.96	153.25	-104.40	-102.85	0.00	0.00	
2,700.00	5.73	325.74	2,690.46	161.50	-110.03	-108.38	0.00	0.00	
2,800.00	5.73	325.74	2,789.96	169.76	-115.65	-113.92	0.00	0.00	
2,900.00	5.73	325.74	2,889.46	178.01	-121.27	-119.46	0.00	0.00	
3,000.00	5.73	325.74	2,988.96	186.26	-126.89	-125.00	0.00	0.00	
3,100.00	5.73	325.74	3,088.46	194.52	-132.52	-130.54	0.00	0.00	
3,200.00	5.73	325.74	3,187.96	202.77	-138.14	-136.08	0.00	0.00	
3,300.00	5.73	325.74	3,287.46	211.02	-143.76	-141.62	0.00	0.00	
3,400.00	5.73	325.74	3,386.96	219.28	-149.38	-147.16	0.00	0.00	
3,500.00	5.73	325.74	3,486.46	227.53	-155.01	-152.70	0.00	0.00	
3,600.00	5.73	325.74	3,585.96	235.78	-160.63	-158.23	0.00	0.00	
3,700.00	5.73	325.74	3,685.46	244.04	-166.25	-163.77	0.00	0.00	
3,800.00	5.73	325.74	3,784.96	252.29	-171.87	-169.31	0.00	0.00	
3,900.00	5.73	325.74	3,884.46	260.54	-177.50	-174.85	0.00	0.00	
4,000.00	5.73	325.74	3,983.96	268.80	-183.12	-180.39	0.00	0.00	
4,100.00	5.73	325.74	4,083.46	277.05	-188.74	-185.93	0.00	0.00	
4,200.00	5.73	325.74	4,182.96	285.30	-194.36	-191.47	0.00	0.00	
4,300.00	5.73	325.74	4,282.46	293.56	-199.99	-197.01	0.00	0.00	
4,400.00	5.73	325.74	4,381.96	301.81	-205.61	-202.54	0.00	0.00	
4,500.00	5.73	325.74	4,481.46	310.06	-211.23	-208.08	0.00	0.00	
4,600.00	5.73	325.74	4,580.96	318.32	-216.86	-213.62	0.00	0.00	
4,700.00	5.73	325.74	4,680.46	326.57	-222.48	-219.16	0.00	0.00	
4,800.00	5.73	325.74	4,779.96	334.82	-228.10	-224.70	0.00	0.00	
4,900.00	5.73	325.74	4,879.46	343.08	-233.72	-230.24	0.00	0.00	
5,000.00	5.73	325.74	4,978.96	351.33	-239.35	-235.78	0.00	0.00	

# Cathedral Energy Services

## Planning Report

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<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 3E-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	5.73	325.74	5,078.46	359.59	-244.97	-241.32	0.00	0.00	
5,200.00	5.73	325.74	5,177.96	367.84	-250.59	-246.85	0.00	0.00	
5,300.00	5.73	325.74	5,277.46	376.09	-256.21	-252.39	0.00	0.00	
5,400.00	5.73	325.74	5,376.96	384.35	-261.84	-257.93	0.00	0.00	
5,500.00	5.73	325.74	5,476.46	392.60	-267.46	-263.47	0.00	0.00	
5,600.00	5.73	325.74	5,575.96	400.85	-273.08	-269.01	0.00	0.00	
5,700.00	5.73	325.74	5,675.46	409.11	-278.70	-274.55	0.00	0.00	
5,738.64	5.73	325.74	5,713.91	412.29	-280.88	-276.69	0.00	0.00	Start Drop -2.00
5,800.00	4.50	325.74	5,775.02	416.82	-283.96	-279.72	2.00	-2.00	
5,900.00	2.50	325.74	5,874.83	421.87	-287.40	-283.11	2.00	-2.00	
6,000.00	0.50	325.74	5,974.79	424.04	-288.88	-284.57	2.00	-2.00	
6,025.21	0.00	0.00	6,000.00	424.13	-288.94	-284.63	2.00	-2.00	EOD; INC=0°
6,100.00	0.00	0.00	6,074.79	424.13	-288.94	-284.63	0.00	0.00	
6,200.00	0.00	0.00	6,174.79	424.13	-288.94	-284.63	0.00	0.00	
6,300.00	0.00	0.00	6,274.79	424.13	-288.94	-284.63	0.00	0.00	
6,400.00	0.00	0.00	6,374.79	424.13	-288.94	-284.63	0.00	0.00	
6,500.00	0.00	0.00	6,474.79	424.13	-288.94	-284.63	0.00	0.00	
6,600.00	0.00	0.00	6,574.79	424.13	-288.94	-284.63	0.00	0.00	
6,649.01	0.00	0.00	6,623.80	424.13	-288.94	-284.63	0.00	0.00	Start Build 8.00
6,700.00	4.08	89.42	6,674.75	424.15	-287.13	-282.82	8.00	8.00	
6,800.00	12.08	89.42	6,773.67	424.29	-273.08	-268.78	8.00	8.00	
6,900.00	20.08	89.42	6,869.68	424.57	-245.41	-241.10	8.00	8.00	
7,000.00	28.08	89.42	6,960.91	424.99	-204.65	-200.34	8.00	8.00	
7,100.00	36.08	89.42	7,045.57	425.53	-151.59	-147.27	8.00	8.00	
7,200.00	44.08	89.42	7,122.02	426.18	-87.26	-82.94	8.00	8.00	
7,300.00	52.08	89.42	7,188.78	426.93	-12.91	-8.59	8.00	8.00	
7,400.00	60.08	89.42	7,244.54	427.78	69.99	74.32	8.00	8.00	
7,500.00	68.08	89.42	7,288.22	428.69	159.86	164.19	8.00	8.00	
7,600.00	76.08	89.42	7,318.96	429.66	254.92	259.26	8.00	8.00	
7,700.00	84.08	89.42	7,336.18	430.66	353.34	357.68	8.00	8.00	
7,774.01	90.00	89.42	7,340.00	431.41	427.22	431.57	8.00	8.00	LP @ 7340' TVD; 90°
7,800.00	90.00	89.42	7,340.00	431.67	453.20	457.55	0.00	0.00	
7,900.00	90.00	89.42	7,340.00	432.69	553.20	557.55	0.00	0.00	
8,000.00	90.00	89.42	7,340.00	433.70	653.19	657.55	0.00	0.00	
8,100.00	90.00	89.42	7,340.00	434.72	753.19	757.55	0.00	0.00	
8,200.00	90.00	89.42	7,340.00	435.74	853.18	857.55	0.00	0.00	
8,300.00	90.00	89.42	7,340.00	436.75	953.18	957.55	0.00	0.00	
8,400.00	90.00	89.42	7,340.00	437.77	1,053.17	1,057.55	0.00	0.00	
8,500.00	90.00	89.42	7,340.00	438.78	1,153.17	1,157.55	0.00	0.00	
8,600.00	90.00	89.42	7,340.00	439.80	1,253.16	1,257.55	0.00	0.00	
8,700.00	90.00	89.42	7,340.00	440.82	1,353.16	1,357.55	0.00	0.00	
8,800.00	90.00	89.42	7,340.00	441.83	1,453.15	1,457.55	0.00	0.00	
8,900.00	90.00	89.42	7,340.00	442.85	1,553.15	1,557.55	0.00	0.00	
9,000.00	90.00	89.42	7,340.00	443.87	1,653.14	1,657.55	0.00	0.00	
9,100.00	90.00	89.42	7,340.00	444.88	1,753.14	1,757.55	0.00	0.00	
9,200.00	90.00	89.42	7,340.00	445.90	1,853.13	1,857.55	0.00	0.00	
9,300.00	90.00	89.42	7,340.00	446.91	1,953.13	1,957.55	0.00	0.00	
9,400.00	90.00	89.42	7,340.00	447.93	2,053.12	2,057.55	0.00	0.00	
9,500.00	90.00	89.42	7,340.00	448.95	2,153.12	2,157.55	0.00	0.00	
9,600.00	90.00	89.42	7,340.00	449.96	2,253.11	2,257.55	0.00	0.00	
9,700.00	90.00	89.42	7,340.00	450.98	2,353.11	2,357.55	0.00	0.00	
9,800.00	90.00	89.42	7,340.00	451.99	2,453.10	2,457.55	0.00	0.00	

# Cathedral Energy Services

## Planning Report

<b>Database:</b>	USA EDM 5000 Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well SAM 3E-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 3E-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	89.42	7,340.00	453.01	2,553.10	2,557.55	0.00	0.00	
10,000.00	90.00	89.42	7,340.00	454.03	2,653.09	2,657.55	0.00	0.00	
10,100.00	90.00	89.42	7,340.00	455.04	2,753.09	2,757.55	0.00	0.00	
10,200.00	90.00	89.42	7,340.00	456.06	2,853.08	2,857.55	0.00	0.00	
10,300.00	90.00	89.42	7,340.00	457.07	2,953.08	2,957.55	0.00	0.00	
10,400.00	90.00	89.42	7,340.00	458.09	3,053.07	3,057.55	0.00	0.00	
10,500.00	90.00	89.42	7,340.00	459.11	3,153.07	3,157.55	0.00	0.00	
10,600.00	90.00	89.42	7,340.00	460.12	3,253.06	3,257.55	0.00	0.00	
10,700.00	90.00	89.42	7,340.00	461.14	3,353.06	3,357.55	0.00	0.00	
10,800.00	90.00	89.42	7,340.00	462.16	3,453.05	3,457.55	0.00	0.00	
10,900.00	90.00	89.42	7,340.00	463.17	3,553.04	3,557.55	0.00	0.00	
11,000.00	90.00	89.42	7,340.00	464.19	3,653.04	3,657.55	0.00	0.00	
11,100.00	90.00	89.42	7,340.00	465.20	3,753.03	3,757.55	0.00	0.00	
11,200.00	90.00	89.42	7,340.00	466.22	3,853.03	3,857.55	0.00	0.00	
11,300.00	90.00	89.42	7,340.00	467.24	3,953.02	3,957.55	0.00	0.00	
11,400.00	90.00	89.42	7,340.00	468.25	4,053.02	4,057.55	0.00	0.00	
11,500.00	90.00	89.42	7,340.00	469.27	4,153.01	4,157.55	0.00	0.00	
11,600.00	90.00	89.42	7,340.00	470.28	4,253.01	4,257.55	0.00	0.00	
11,700.00	90.00	89.42	7,340.00	471.30	4,353.00	4,357.55	0.00	0.00	
11,800.00	90.00	89.42	7,340.00	472.32	4,453.00	4,457.55	0.00	0.00	
11,848.32	90.00	89.42	7,340.00	472.81	4,501.31	4,505.87	0.00	0.00	TD at 11848.32

### 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 3E-25H TPZ	0.00	0.00	7,290.54	428.75	165.75	1,251,045.44	3,214,742.79	40.019958	-104.733248
- plan misses target center by 0.02usft at 7506.32usft MD (7290.55 TVD, 428.75 N, 165.73 E)									
- Point									
SAM 3E-25H PBHL	0.00	0.00	7,340.00	472.81	4,501.31	1,251,089.50	3,219,078.36	40.019975	-104.717767
- plan hits target center									
- Point									

### Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Comment
600.00	600.00	0.00	0.00	KOP @ 600'
886.57	886.09	11.84	-8.06	EOB; INC=5.73°
5,738.64	5,713.91	412.29	-280.88	Start Drop -2.00
6,025.21	6,000.00	424.13	-288.94	EOD; INC=0°
6,649.01	6,623.80	424.13	-288.94	Start Build 8.00
7,774.01	7,340.00	431.41	427.22	LP @ 7340' TVD; 90°
11,848.32	7,340.00	472.81	4,501.31	TD at 11848.32

# **Crestone Peak Resources**

**DJ BASIN**

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

**SAM 3E-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 3E-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 3E-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	11,848.32	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 3E-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 3E-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 Offset Well - Wellbore - Design	Reference	Offset	Distance		Separation Factor	Warning
	Measured Depth (usft)	Measured Depth (usft)	Between Centres (usft)	Between Ellipses (usft)		
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	6,655.10	6,791.34	723.51	676.48	15.385	CC, ES
Beierle 2 (EXISTING) - CPR WELL - SURVEYS	6,700.00	6,835.64	724.90	677.66	15.345	SF
Beierle KE 26-361HN - GWOG WELL - GWOG WELL	7,260.09	11,225.30	413.69	345.84	6.097	CC
Beierle KE 26-361HN - GWOG WELL - GWOG WELL	7,300.00	11,225.24	416.71	344.30	5.755	ES
Beierle KE 26-361HN - GWOG WELL - GWOG WELL	7,400.00	11,225.09	449.36	368.30	5.543	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	504.51	465.51	1,330.56	1,328.46	633.693	CC, ES
Sam 1 (EXISTING) - CPR WELL - NO SURVEYS	1,100.00	500.00	1,459.86	1,454.58	276.912	SF
Sam 13-25 (EXISTING) - CPR WELL - SURVEYS	7,550.00	7,501.91	249.00	193.96	4.524	SF
Sam 13-25 (EXISTING) - CPR WELL - SURVEYS	7,585.22	7,512.52	246.63	192.31	4.540	CC, ES
SAM 3A-25H-M166 - OH - PLAN #1	200.00	200.00	40.07	39.07	40.351	CC, ES
SAM 3A-25H-M166 - OH - PLAN #1	11,848.32	12,015.62	763.09	462.57	2.539	SF
SAM 3B-25H-M166 - OH - PLAN #1	300.00	300.00	29.86	28.15	17.462	CC, ES
SAM 3B-25H-M166 - OH - PLAN #1	11,848.32	12,167.00	669.24	387.34	2.374	SF
SAM 3C-25H-M166 - OH - PLAN #1	400.00	400.00	20.03	17.60	8.254	CC, ES
SAM 3C-25H-M166 - OH - PLAN #1	11,848.32	11,910.55	515.08	213.08	1.706	SF
SAM 3D-25H-M166 - OH - PLAN #1	500.00	500.00	9.84	6.69	3.129	CC, ES
SAM 3D-25H-M166 - OH - PLAN #1	11,848.32	11,948.77	303.25	9.71	1.033	Level 2, SF
SAM 3F-25H-M166 - OH - PLAN #1	600.00	600.00	10.21	6.35	2.644	CC
SAM 3F-25H-M166 - OH - PLAN #1	11,848.32	11,909.47	165.60	-110.65	0.599	Level 1, ES, SF
SAM 3G-25H-M166 - OH - PLAN #1	600.00	600.00	20.04	16.18	5.190	CC, ES
SAM 3G-25H-M166 - OH - PLAN #1	11,848.32	11,825.78	360.27	59.30	1.197	Level 2, SF
SAM 3H-25H-M166 - OH - PLAN #1	600.00	600.00	30.24	26.38	7.832	CC, ES
SAM 3H-25H-M166 - OH - PLAN #1	11,848.32	12,070.04	618.55	338.50	2.209	SF
SAM 3I-25H-M166 - OH - PLAN #1	600.00	600.00	40.07	36.21	10.379	CC, ES
SAM 3I-25H-M166 - OH - PLAN #1	11,848.32	11,906.06	678.63	379.75	2.271	SF
SAM 3J-25H-M166 - OH - PLAN #1	600.00	600.00	49.91	46.05	12.928	CC, ES
SAM 3J-25H-M166 - OH - PLAN #1	11,848.32	11,845.06	900.13	599.24	2.992	SF
SAM 3K-25H-M166 - OH - PLAN #1	600.00	600.00	60.11	56.25	15.569	CC, ES
SAM 3K-25H-M166 - OH - PLAN #1	11,848.32	11,936.55	1,132.16	831.71	3.768	SF
SAM 3L-25H-M166 - OH - PLAN #1	500.00	500.00	69.95	66.81	22.252	CC, ES
SAM 3L-25H-M166 - OH - PLAN #1	11,848.32	11,886.52	1,329.98	1,028.58	4.413	SF
SAM 3M-25H-M166 - OH - PLAN #1	400.00	400.00	80.14	77.72	33.024	CC, ES
SAM 3M-25H-M166 - OH - PLAN #1	700.00	691.01	96.30	91.70	20.940	SF
SAM 3N-25H-M166 - OH - PLAN #1	300.00	300.00	89.98	88.27	52.623	CC, ES
SAM 3N-25H-M166 - OH - PLAN #1	700.00	685.69	117.64	112.98	25.209	SF
SAM 3O-25H-M166 - OH - PLAN #1	200.00	200.00	100.19	99.19	100.896	CC, ES
SAM 3O-25H-M166 - OH - PLAN #1	700.00	678.84	142.61	137.84	29.899	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 3E-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 3E-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)						
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	11,389.31	7,261.00	452.05	307.45	3.126	CC
Wenzel 1 (EXISTING) - CPR WELL - NO SURVEYS	11,400.00	7,261.00	452.17	307.31	3.121	ES, SF

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well SAM 3E-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 3E-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	
2,200.00	2,192.96	2,389.20	2,382.56	7.90	4.13	13.18	1,497.52	-619.50	1,490.97	1,479.59	11.38	130.985	
2,300.00	2,292.46	2,509.28	2,499.74	8.28	4.51	12.46	1,474.93	-632.77	1,467.79	1,455.76	12.03	122.009	
2,400.00	2,391.96	2,711.80	2,695.89	8.66	5.31	11.16	1,428.71	-652.36	1,440.86	1,427.97	12.89	111.767	
2,500.00	2,491.46	2,887.00	2,862.41	9.04	6.21	9.77	1,376.78	-668.28	1,407.65	1,393.89	13.76	102.327	
2,600.00	2,590.96	2,954.47	2,925.91	9.42	6.55	9.14	1,355.00	-675.04	1,372.60	1,358.20	14.40	95.317	
2,700.00	2,690.46	3,033.67	3,000.95	9.81	6.93	8.41	1,330.86	-682.75	1,339.29	1,324.22	15.07	88.874	
2,800.00	2,789.96	3,112.57	3,075.82	10.19	7.31	7.66	1,307.24	-690.58	1,306.85	1,291.10	15.75	82.966	
2,900.00	2,889.46	3,184.94	3,144.61	10.57	7.67	6.92	1,286.32	-698.86	1,276.17	1,259.72	16.45	77.574	
3,000.00	2,988.96	3,273.43	3,228.43	10.95	8.14	5.88	1,260.68	-710.92	1,246.70	1,229.45	17.24	72.294	
3,100.00	3,088.46	3,371.15	3,320.62	11.33	8.70	4.62	1,231.72	-725.45	1,217.64	1,199.52	18.12	67.188	
3,200.00	3,187.96	3,465.87	3,410.00	11.72	9.23	3.36	1,203.51	-739.14	1,188.84	1,169.84	18.99	62.596	
3,300.00	3,287.46	3,558.96	3,498.24	12.10	9.72	2.14	1,176.43	-751.19	1,160.46	1,140.63	19.84	58.496	
3,400.00	3,386.96	3,655.31	3,589.71	12.48	10.25	0.85	1,148.56	-763.00	1,132.44	1,111.72	20.72	54.642	
3,500.00	3,486.46	3,755.81	3,684.91	12.87	10.84	-0.59	1,118.82	-775.44	1,104.50	1,082.83	21.66	50.984	
3,600.00	3,585.96	3,851.59	3,775.45	13.25	11.41	-2.05	1,089.91	-787.23	1,076.67	1,054.06	22.61	47.610	
3,700.00	3,685.46	3,941.00	3,860.05	13.63	11.92	-3.46	1,063.13	-798.16	1,049.65	1,026.10	23.55	44.577	
3,800.00	3,784.96	4,038.06	3,951.93	14.01	12.48	-5.06	1,034.09	-809.80	1,023.26	998.74	24.51	41.740	
3,900.00	3,884.46	4,130.94	4,039.62	14.40	13.05	-6.70	1,005.67	-821.20	997.29	971.76	25.53	39.066	
4,000.00	3,983.96	4,212.88	4,116.94	14.78	13.53	-8.23	980.68	-831.77	972.63	946.12	26.51	36.686	
4,100.00	4,083.46	4,307.69	4,206.53	15.16	14.08	-10.07	952.25	-844.19	949.42	921.87	27.54	34.471	
4,200.00	4,182.96	4,405.11	4,298.69	15.55	14.64	-12.01	923.02	-856.19	926.71	898.12	28.59	32.417	
4,300.00	4,282.46	4,500.13	4,388.62	15.93	15.20	-13.97	894.48	-867.34	904.64	874.99	29.65	30.514	
4,400.00	4,381.96	4,611.95	4,494.01	16.31	15.90	-16.45	859.38	-880.20	882.72	851.92	30.80	28.657	
4,500.00	4,481.46	4,708.00	4,584.15	16.70	16.53	-18.73	827.85	-890.48	860.61	828.67	31.94	26.944	
4,600.00	4,580.96	4,786.60	4,658.04	17.08	17.01	-20.66	802.45	-899.06	840.35	807.35	33.01	25.461	
4,700.00	4,680.46	4,868.21	4,735.17	17.46	17.47	-22.67	777.48	-908.41	822.89	788.85	34.04	24.176	
4,800.00	4,779.96	4,958.55	4,820.92	17.85	17.97	-24.91	751.06	-918.90	807.70	772.63	35.08	23.028	
4,900.00	4,879.46	5,050.91	4,908.89	18.23	18.46	-27.19	724.84	-929.10	793.94	757.84	36.10	21.995	
5,000.00	4,978.96	5,140.18	4,994.38	18.61	18.93	-29.36	700.93	-938.46	781.87	744.80	37.07	21.094	
5,100.00	5,078.46	5,226.62	5,077.63	19.00	19.35	-31.39	679.47	-947.44	771.88	733.90	37.98	20.324	
5,200.00	5,177.96	5,314.96	5,163.22	19.38	19.76	-33.36	659.69	-956.76	764.19	725.35	38.84	19.673	
5,300.00	5,277.46	5,411.68	5,257.62	19.76	20.16	-35.34	640.86	-966.17	757.90	718.23	39.68	19.102	
5,400.00	5,376.96	5,512.23	5,356.51	20.15	20.53	-37.16	624.63	-974.29	752.09	711.64	40.45	18.593	
5,500.00	5,476.46	5,610.48	5,453.70	20.53	20.85	-38.70	611.86	-980.89	746.62	705.47	41.15	18.144	
5,600.00	5,575.96	5,705.55	5,548.07	20.91	21.11	-40.02	601.91	-986.73	741.85	700.05	41.79	17.750	
5,700.00	5,675.46	5,806.97	5,648.93	21.30	21.36	-41.30	593.27	-992.81	737.85	695.44	42.41	17.398	
5,738.64	5,713.91	5,850.84	5,692.66	21.45	21.46	-41.78	590.41	-994.82	736.05	693.40	42.64	17.260	
5,800.00	5,775.02	5,913.45	5,755.15	21.68	21.58	-42.31	587.28	-997.09	733.41	690.44	42.98	17.065	
5,900.00	5,874.83	6,026.63	5,868.25	22.04	21.75	-42.91	584.25	-999.75	730.63	687.16	43.48	16.805	
6,000.00	5,974.79	6,130.90	5,972.52	22.39	21.88	-43.09	583.52	-999.89	728.68	684.74	43.94	16.584	
6,025.21	6,000.00	6,156.37	5,997.98	22.48	21.91	-77.38	583.30	-999.91	728.57	684.52	44.06	16.538	
6,100.00	6,074.79	6,232.75	6,074.36	22.73	22.00	-77.44	582.57	-999.89	728.39	683.99	44.40	16.406	
6,200.00	6,174.79	6,335.30	6,176.91	23.07	22.13	-77.52	581.38	-999.60	727.87	683.01	44.86	16.225	
6,300.00	6,274.79	6,436.52	6,278.11	23.40	22.26	-77.61	580.07	-999.07	727.08	681.75	45.33	16.040	
6,400.00	6,374.79	6,537.71	6,379.29	23.74	22.39	-77.71	578.73	-998.38	726.13	680.33	45.80	15.855	
6,500.00	6,474.79	6,638.55	6,480.12	24.08	22.52	-77.81	577.26	-997.55	725.02	678.75	46.27	15.669	
6,600.00	6,574.79	6,737.07	6,578.62	24.42	22.66	-77.93	575.53	-996.87	723.97	677.21	46.76	15.483	
6,649.01	6,623.80	6,785.35	6,626.89	24.59	22.73	-78.00	574.55	-996.64	723.53	676.54	47.00	15.395	
6,655.10	6,629.88	6,791.34	6,632.88	24.61	22.73	-167.43	574.43	-996.61	723.51	676.48	47.03	15.385 CC, ES	
6,700.00	6,674.75	6,835.64	6,677.17	24.75	22.80	-167.51	573.44	-996.47	724.90	677.66	47.24	15.345 SF	
6,750.00	6,724.45	6,884.88	6,726.39	24.90	22.87	-167.60	572.27	-996.35	729.72	682.24	47.47	15.371	
6,800.00	6,773.67	6,933.62	6,775.12	25.05	22.95	-167.70	571.05	-996.28	737.95	690.25	47.70	15.470	

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 3E-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 3E-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		
6,850.00	6,822.16	6,981.62	6,823.10	25.19	23.02	-167.79	569.78	-996.26	749.58	701.66	47.92	15.641		
6,900.00	6,869.68	7,028.95	6,870.42	25.32	23.09	-167.87	568.46	-996.28	764.54	716.40	48.14	15.882		
6,950.00	6,916.01	7,075.51	6,916.95	25.45	23.17	-167.95	567.07	-996.31	782.74	734.39	48.34	16.191		
7,000.00	6,960.91	7,120.63	6,962.05	25.57	23.24	-167.99	565.63	-996.34	804.09	755.55	48.54	16.565		
7,050.00	7,004.17	7,164.08	7,005.48	25.69	23.32	-168.01	564.15	-996.36	828.51	779.78	48.73	17.003		
7,100.00	7,045.57	7,205.57	7,046.94	25.80	23.38	-167.98	562.66	-996.39	855.88	806.98	48.90	17.503		
7,150.00	7,084.92	7,244.25	7,085.59	25.93	23.45	-167.87	561.21	-996.44	886.09	837.03	49.07	18.060		
7,200.00	7,122.02	7,280.66	7,121.97	26.06	23.52	-167.68	559.80	-996.52	919.03	869.81	49.22	18.673		
7,250.00	7,156.70	7,314.61	7,155.89	26.24	23.58	-167.39	558.44	-996.62	954.53	905.17	49.36	19.340		
7,300.00	7,188.78	7,345.95	7,187.20	26.47	23.64	-166.95	557.15	-996.74	992.40	942.92	49.48	20.057		
7,350.00	7,218.11	7,374.51	7,215.75	26.76	23.69	-166.33	555.95	-996.86	1,032.47	982.88	49.59	20.820		
7,400.00	7,244.54	7,401.09	7,242.29	27.13	23.73	-165.48	554.80	-996.99	1,074.52	1,024.84	49.68	21.627		
7,450.00	7,267.95	7,426.78	7,267.96	27.58	23.78	-164.34	553.70	-997.08	1,118.30	1,068.54	49.76	22.472		
7,500.00	7,288.22	7,449.21	7,290.37	28.09	23.82	-162.71	552.76	-997.10	1,163.60	1,113.77	49.83	23.352		
7,550.00	7,305.25	7,468.23	7,309.38	28.68	23.85	-160.29	551.97	-997.08	1,210.20	1,160.32	49.88	24.260		
7,600.00	7,318.96	7,483.71	7,324.85	29.35	23.88	-156.53	551.33	-997.05	1,257.90	1,207.97	49.93	25.195		
7,650.00	7,329.29	7,495.53	7,336.65	30.08	23.90	-150.23	550.85	-997.00	1,306.46	1,256.50	49.96	26.151		
7,700.00	7,336.18	7,503.56	7,344.68	30.87	23.91	-138.43	550.53	-996.97	1,355.67	1,305.69	49.98	27.124		
7,750.00	7,339.60	7,507.72	7,348.83	31.72	23.92	-113.90	550.36	-996.94	1,405.27	1,355.28	49.99	28.109		
7,774.01	7,340.00	7,508.32	7,349.43	32.14	23.92	-95.32	550.34	-996.94	1,429.17	1,379.17	50.00	28.584		
7,800.00	7,340.00	7,508.46	7,349.58	32.62	23.92	-95.39	550.33	-996.94	1,455.05	1,405.05	50.00	29.100		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well SAM 3E-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 3E-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		
6,025.21	6,000.00	11,225.73	7,499.06	22.48	68.61	-90.48	423.91	-315.71	1,475.30	1,441.03	34.27	43.048		
6,100.00	6,074.79	11,225.73	7,499.06	22.73	68.61	-90.48	423.91	-315.71	1,400.53	1,366.20	34.33	40.797		
6,200.00	6,174.79	11,225.73	7,499.06	23.07	68.61	-90.48	423.91	-315.71	1,300.55	1,266.13	34.41	37.790		
6,300.00	6,274.79	11,225.73	7,499.06	23.40	68.61	-90.48	423.91	-315.71	1,200.57	1,166.06	34.51	34.789		
6,400.00	6,374.79	11,225.73	7,499.06	23.74	68.61	-90.48	423.91	-315.71	1,100.60	1,065.98	34.62	31.793		
6,500.00	6,474.79	11,225.73	7,499.06	24.08	68.61	-90.48	423.91	-315.71	1,000.63	965.89	34.74	28.806		
6,600.00	6,574.79	11,225.73	7,499.06	24.42	68.61	-90.48	423.91	-315.71	900.67	865.80	34.87	25.828		
6,649.01	6,623.80	11,225.73	7,499.06	24.59	68.61	-90.48	423.91	-315.71	851.68	816.73	34.94	24.372		
6,700.00	6,674.75	11,225.73	7,499.06	24.75	68.61	-179.97	423.91	-315.71	800.82	765.77	35.05	22.846		
6,750.00	6,724.45	11,225.72	7,499.06	24.90	68.61	-179.98	423.92	-315.71	751.37	716.13	35.24	21.321		
6,800.00	6,773.67	11,225.71	7,499.06	25.05	68.61	-179.98	423.93	-315.71	702.68	667.11	35.57	19.755		
6,850.00	6,822.16	11,225.68	7,499.06	25.19	68.61	-179.98	423.96	-315.71	655.19	619.05	36.14	18.128		
6,900.00	6,869.68	11,225.66	7,499.06	25.32	68.61	-179.97	423.98	-315.71	609.44	572.32	37.12	16.418		
6,950.00	6,916.01	11,225.62	7,499.06	25.45	68.61	-179.97	424.02	-315.71	566.11	527.40	38.70	14.627		
7,000.00	6,960.91	11,225.58	7,499.06	25.57	68.61	-179.97	424.06	-315.71	526.01	484.91	41.10	12.798		
7,050.00	7,004.17	11,225.54	7,499.06	25.69	68.61	-179.96	424.10	-315.71	490.17	445.69	44.48	11.019		
7,100.00	7,045.57	11,225.49	7,499.06	25.80	68.61	-179.96	424.15	-315.71	459.78	410.86	48.92	9.398		
7,150.00	7,084.92	11,225.43	7,499.06	25.93	68.60	-179.95	424.21	-315.71	436.14	381.81	54.33	8.027		
7,200.00	7,122.02	11,225.37	7,499.06	26.06	68.60	-179.94	424.27	-315.71	420.51	360.10	60.41	6.961		
7,250.00	7,156.70	11,225.31	7,499.06	26.24	68.60	-179.93	424.33	-315.71	413.88	347.25	66.63	6.212		
7,260.09	7,163.39	11,225.30	7,499.06	26.28	68.60	-179.93	424.34	-315.71	413.69	345.84	67.85	6.097 CC		
7,300.00	7,188.78	11,225.24	7,499.06	26.47	68.60	-179.92	424.40	-315.71	416.71	344.30	72.41	5.755 ES		
7,350.00	7,218.11	11,225.17	7,499.06	26.76	68.60	-179.91	424.47	-315.72	428.81	351.52	77.29	5.548		
7,400.00	7,244.54	11,225.09	7,499.06	27.13	68.60	-179.90	424.55	-315.72	449.36	368.30	81.06	5.543 SF		
7,450.00	7,267.95	11,225.01	7,499.06	27.58	68.60	-179.88	424.62	-315.72	477.18	393.41	83.78	5.696		
7,500.00	7,288.22	11,224.93	7,499.06	28.09	68.60	-179.86	424.71	-315.72	510.98	425.35	85.62	5.968		
7,550.00	7,305.25	11,224.85	7,499.06	28.68	68.60	-179.83	424.79	-315.72	549.49	462.66	86.83	6.328		
7,600.00	7,318.96	11,224.76	7,499.06	29.35	68.59	-179.80	424.88	-315.72	591.62	504.04	87.59	6.755		
7,650.00	7,329.29	11,224.68	7,499.06	30.08	68.59	-179.75	424.96	-315.72	636.49	548.43	88.06	7.228		
7,700.00	7,336.18	11,224.59	7,499.06	30.87	68.59	-179.67	425.05	-315.72	683.35	595.01	88.34	7.736		
7,750.00	7,339.60	11,224.50	7,499.06	31.72	68.59	-179.54	425.14	-315.72	731.61	643.11	88.50	8.267		
7,774.01	7,340.00	11,224.46	7,499.06	32.14	68.59	-179.44	425.18	-315.72	755.14	666.59	88.55	8.528		
7,800.00	7,340.00	11,224.41	7,499.06	32.62	68.59	-179.42	425.23	-315.72	780.72	692.13	88.60	8.812		
7,900.00	7,340.00	11,224.23	7,499.06	34.56	68.59	-179.34	425.41	-315.72	879.39	790.67	88.72	9.912		
8,000.00	7,340.00	11,224.05	7,499.06	36.68	68.58	-179.27	425.59	-315.72	978.32	889.52	88.80	11.017		
8,100.00	7,340.00	11,223.87	7,499.06	38.95	68.58	-179.19	425.76	-315.73	1,077.45	988.60	88.85	12.127		
8,200.00	7,340.00	11,223.70	7,499.06	41.34	68.58	-179.12	425.94	-315.73	1,176.73	1,087.84	88.89	13.239		
8,300.00	7,340.00	11,223.52	7,499.06	43.84	68.57	-179.04	426.12	-315.73	1,276.12	1,187.21	88.91	14.352		
8,400.00	7,340.00	11,223.34	7,499.06	46.42	68.57	-178.96	426.30	-315.73	1,375.60	1,286.67	88.93	15.468		
8,500.00	7,340.00	11,223.16	7,499.06	49.08	68.57	-178.89	426.48	-315.73	1,475.15	1,386.20	88.95	16.584		

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 3E-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 3E-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		Total		Separation		Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Uncertainty Axis	Factor	
0.00	0.00	0.00	0.00	0.00	0.00	85.12	113.26	1,325.73	1,331.13				
100.00	100.00	61.00	61.00	0.14	0.07	85.12	113.26	1,325.73	1,330.56	1,330.36	0.21	6,488.729	
200.00	200.00	161.00	161.00	0.50	0.18	85.12	113.26	1,325.73	1,330.56	1,329.89	0.67	1,975.769	
300.00	300.00	261.00	261.00	0.85	0.29	85.12	113.26	1,325.73	1,330.56	1,329.42	1.14	1,165.296	
400.00	400.00	361.00	361.00	1.21	0.40	85.12	113.26	1,325.73	1,330.56	1,328.95	1.61	826.331	
500.00	500.00	461.00	461.00	1.57	0.51	85.12	113.26	1,325.73	1,330.56	1,328.48	2.08	640.128	
504.51	504.51	465.51	465.51	1.59	0.51	85.12	113.26	1,325.73	1,330.56	1,328.46	2.10	633.693 CC, ES	
600.00	600.00	500.00	500.00	1.93	0.55	85.12	113.26	1,325.73	1,331.96	1,329.45	2.51	530.025	
700.00	699.98	500.00	500.00	2.29	0.55	119.22	113.26	1,325.73	1,341.11	1,338.08	3.03	442.516	
800.00	799.84	500.00	500.00	2.65	0.55	118.90	113.26	1,325.73	1,359.26	1,355.65	3.61	376.419	
886.57	886.09	500.00	500.00	2.96	0.55	118.49	113.26	1,325.73	1,381.94	1,377.82	4.12	335.413	
900.00	899.46	500.00	500.00	3.01	0.55	118.49	113.26	1,325.73	1,386.01	1,381.81	4.20	329.975	
1,000.00	998.96	500.00	500.00	3.37	0.55	118.49	113.26	1,325.73	1,419.89	1,415.14	4.76	298.586	
1,100.00	1,098.46	500.00	500.00	3.74	0.55	118.49	113.26	1,325.73	1,459.86	1,454.58	5.27	276.912 SF	

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well SAM 3E-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 3E-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							
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	85.37	106.22	1,312.91	1,317.31					
100.00	100.00	83.00	83.00	0.14	0.09	85.37	106.22	1,312.91	1,317.20	1,316.97	0.23	5,721.657		
200.00	200.00	183.00	183.00	0.50	0.20	85.37	106.22	1,312.91	1,317.20	1,316.50	0.70	1,882.331		
300.00	300.00	283.00	283.00	0.85	0.31	85.37	106.22	1,312.91	1,317.20	1,316.03	1.17	1,126.459		
400.00	400.00	383.00	383.00	1.21	0.43	85.37	106.22	1,312.91	1,317.20	1,315.56	1.64	803.717		
500.00	500.00	483.00	483.00	1.57	0.54	85.37	106.22	1,312.91	1,317.20	1,315.09	2.11	624.726		
600.00	600.00	583.00	583.00	1.93	0.65	85.37	106.22	1,312.91	1,317.20	1,314.62	2.58	510.939		
700.00	699.98	682.98	682.98	2.29	0.76	119.69	106.22	1,312.91	1,318.06	1,315.02	3.05	432.755		
800.00	799.84	782.84	782.84	2.65	0.87	119.84	106.22	1,312.91	1,320.66	1,317.15	3.51	375.928		
886.57	886.09	869.09	869.09	2.96	0.97	120.05	106.22	1,312.91	1,324.34	1,320.42	3.92	337.855		
900.00	899.46	882.46	882.46	3.01	0.98	120.10	106.22	1,312.91	1,325.01	1,321.03	3.98	332.612		
1,000.00	998.96	981.96	981.96	3.37	1.09	120.47	106.22	1,312.91	1,330.07	1,325.61	4.46	298.488		
1,100.00	1,098.46	1,081.46	1,081.46	3.74	1.20	120.84	106.22	1,312.91	1,335.18	1,330.25	4.93	270.754		
1,200.00	1,197.96	1,180.96	1,180.96	4.11	1.31	121.21	106.22	1,312.91	1,340.35	1,334.94	5.41	247.809		
1,300.00	1,297.46	1,280.46	1,280.46	4.49	1.42	121.57	106.22	1,312.91	1,345.57	1,339.68	5.89	228.537		
1,400.00	1,396.96	1,379.96	1,379.96	4.86	1.53	121.93	106.22	1,312.91	1,350.84	1,344.47	6.37	212.135		
1,500.00	1,496.46	1,469.94	1,469.94	5.24	1.72	122.25	106.36	1,313.20	1,356.50	1,349.57	6.93	195.856		
1,600.00	1,595.96	1,636.96	1,636.96	5.62	2.07	122.75	108.41	1,310.73	1,360.67	1,352.99	7.68	177.096		
1,700.00	1,695.46	1,845.73	1,844.78	6.00	2.55	123.14	116.30	1,293.81	1,358.35	1,349.79	8.56	158.651		
1,800.00	1,794.96	2,018.23	2,014.81	6.38	3.05	123.21	128.40	1,267.65	1,348.67	1,339.30	9.37	143.989		
1,900.00	1,894.46	2,185.94	2,177.82	6.76	3.68	122.94	147.70	1,233.45	1,333.81	1,323.60	10.21	130.624		
2,000.00	1,993.96	2,331.52	2,317.26	7.14	4.36	122.48	169.20	1,197.58	1,314.74	1,303.69	11.05	119.035		
2,100.00	2,093.46	2,463.21	2,441.97	7.52	5.08	121.98	189.71	1,160.63	1,292.13	1,280.25	11.88	108.769		
2,200.00	2,192.96	2,553.65	2,527.32	7.90	5.58	121.57	204.70	1,134.69	1,269.14	1,256.53	12.60	100.686		
2,300.00	2,292.46	2,644.99	2,613.71	8.28	6.06	121.18	219.41	1,108.97	1,246.72	1,233.38	13.34	93.490		
2,400.00	2,391.96	2,734.12	2,698.11	8.66	6.54	120.78	233.78	1,084.18	1,224.73	1,210.66	14.07	87.043		
2,500.00	2,491.46	2,820.20	2,780.01	9.04	7.01	120.41	247.05	1,061.28	1,203.96	1,189.16	14.81	81.319		
2,600.00	2,590.96	2,936.99	2,890.73	9.42	7.68	119.86	265.65	1,029.09	1,182.28	1,166.63	15.66	75.517		
2,700.00	2,690.46	3,033.14	2,981.84	9.81	8.25	119.41	280.54	1,002.23	1,160.34	1,143.88	16.46	70.506		
2,800.00	2,789.96	3,136.15	3,079.23	10.19	8.88	118.86	297.52	973.25	1,138.34	1,121.03	17.31	65.761		
2,900.00	2,889.46	3,243.15	3,179.89	10.57	9.59	118.19	316.24	942.21	1,115.62	1,097.40	18.22	61.229		
3,000.00	2,988.96	3,335.56	3,266.51	10.95	10.20	117.54	333.37	914.95	1,092.63	1,073.52	19.11	57.181		
3,100.00	3,088.46	3,430.71	3,355.86	11.33	10.80	116.84	351.03	887.39	1,070.32	1,050.31	20.01	53.502		
3,200.00	3,187.96	3,524.28	3,443.88	11.72	11.39	116.17	367.63	860.35	1,048.16	1,027.26	20.90	50.145		
3,300.00	3,287.46	3,620.87	3,534.78	12.10	12.00	115.43	385.09	832.72	1,026.49	1,004.66	21.83	47.027		
3,400.00	3,386.96	3,714.82	3,623.29	12.48	12.58	114.71	401.56	805.89	1,004.96	982.22	22.75	44.183		
3,500.00	3,486.46	3,806.31	3,709.67	12.87	13.15	114.00	417.38	780.22	984.07	960.40	23.67	41.575		
3,600.00	3,585.96	3,898.95	3,797.17	13.25	13.72	113.24	433.86	754.64	963.86	939.25	24.62	39.157		
3,700.00	3,685.46	3,999.28	3,892.18	13.63	14.34	112.43	450.82	727.24	944.00	918.42	25.58	36.906		
3,800.00	3,784.96	4,100.64	3,988.21	14.01	14.95	111.63	467.07	699.15	923.76	897.22	26.54	34.804		
3,900.00	3,884.46	4,191.69	4,074.49	14.40	15.51	110.88	481.59	673.96	903.72	876.22	27.50	32.862		
4,000.00	3,983.96	4,302.42	4,179.31	14.78	16.21	109.90	499.72	643.24	883.91	855.38	28.52	30.988		
4,100.00	4,083.46	4,400.81	4,272.41	15.16	16.82	109.06	514.43	615.02	863.02	833.51	29.51	29.243		
4,200.00	4,182.96	4,494.10	4,360.70	15.55	17.40	108.21	528.64	588.41	842.54	812.02	30.52	27.607		
4,300.00	4,282.46	4,597.55	4,458.16	15.93	18.09	107.10	545.93	558.38	822.16	790.55	31.61	26.012		
4,400.00	4,381.96	4,697.05	4,551.44	16.31	18.77	105.89	563.51	528.54	801.40	768.65	32.75	24.471		
4,500.00	4,481.46	4,784.00	4,633.20	16.70	19.34	104.82	578.58	503.06	781.53	747.66	33.87	23.076		
4,600.00	4,580.96	4,880.02	4,723.96	17.08	19.94	103.68	594.19	475.90	762.64	727.67	34.97	21.807		
4,700.00	4,680.46	4,975.00	4,813.73	17.46	20.55	102.49	609.80	449.10	744.19	708.08	36.11	20.610		
4,800.00	4,779.96	5,074.47	4,907.52	17.85	21.20	101.13	626.81	420.65	725.97	688.67	37.30	19.463		
4,900.00	4,879.46	5,161.00	4,989.31	18.23	21.75	99.91	641.44	396.48	708.71	670.24	38.47	18.421		
5,000.00	4,978.96	5,255.00	5,078.60	18.61	22.31	98.62	656.86	371.50	692.89	653.26	39.63	17.484		

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 3E-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 3E-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							
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	5,078.46	5,337.53	5,157.62	19.00	22.76	97.58	669.43	351.30	678.81	638.10	40.71	16.673	
5,200.00	5,177.96	5,425.45	5,242.67	19.38	23.20	96.68	681.11	332.35	666.82	625.10	41.72	15.985	
5,300.00	5,277.46	5,515.83	5,330.86	19.76	23.59	95.99	691.14	315.32	656.39	613.77	42.63	15.399	
5,400.00	5,376.96	5,606.85	5,420.29	20.15	23.94	95.52	699.26	300.49	647.32	603.88	43.44	14.900	
5,500.00	5,476.46	5,698.75	5,511.06	20.53	24.25	95.27	705.83	287.73	639.54	595.36	44.18	14.475	
5,600.00	5,575.96	5,794.35	5,605.76	20.91	24.54	95.14	711.81	276.00	632.75	587.88	44.87	14.101	
5,700.00	5,675.46	5,888.18	5,698.91	21.30	24.79	95.16	716.55	265.81	626.62	581.12	45.51	13.770	
5,738.64	5,713.91	5,924.00	5,734.54	21.45	24.88	95.22	718.03	262.42	624.55	578.81	45.74	13.655	
5,800.00	5,775.02	5,981.00	5,791.28	21.68	25.02	95.22	720.22	257.48	621.54	575.45	46.09	13.485	
5,900.00	5,874.83	6,079.71	5,889.66	22.04	25.23	95.11	723.18	250.05	616.97	570.31	46.66	13.224	
6,000.00	5,974.79	6,169.64	5,979.42	22.39	25.39	94.92	724.29	244.70	612.63	565.44	47.20	12.981	
6,025.21	6,000.00	6,191.62	6,001.38	22.48	25.42	60.58	724.48	243.77	611.82	564.50	47.33	12.927	
6,100.00	6,074.79	6,264.66	6,074.37	22.73	25.53	60.43	724.89	241.14	609.68	561.98	47.71	12.779	
6,200.00	6,174.79	6,362.86	6,172.53	23.07	25.66	60.31	724.75	238.32	607.12	558.93	48.19	12.599	
6,300.00	6,274.79	6,461.36	6,271.00	23.40	25.77	60.28	723.87	236.21	604.81	556.17	48.64	12.434	
6,400.00	6,374.79	6,560.88	6,370.50	23.74	25.87	60.32	722.53	234.56	602.71	553.63	49.08	12.281	
6,500.00	6,474.79	6,661.44	6,471.03	24.08	25.97	60.41	720.64	233.14	600.55	551.06	49.49	12.134	
6,600.00	6,574.79	6,761.96	6,571.52	24.42	26.07	60.55	718.19	231.92	598.30	548.40	49.90	11.990	
6,649.01	6,623.80	6,811.20	6,620.73	24.59	26.11	60.65	716.71	231.45	597.16	547.08	50.09	11.923	
6,700.00	6,674.75	6,862.35	6,671.85	24.75	26.16	-28.83	714.96	231.06	594.38	544.09	50.28	11.820	
6,750.00	6,724.45	6,912.23	6,721.70	24.90	26.20	-29.15	713.02	230.77	588.55	538.06	50.49	11.657	
6,800.00	6,773.67	6,962.72	6,772.13	25.05	26.24	-29.76	710.83	230.55	579.65	528.94	50.70	11.432	
6,850.00	6,822.16	7,012.65	6,822.00	25.19	26.27	-30.68	708.38	230.34	567.68	516.75	50.93	11.146	
6,900.00	6,869.68	7,061.09	6,870.37	25.32	26.31	-31.94	705.75	230.13	552.73	501.56	51.18	10.800	
6,950.00	6,916.01	7,107.19	6,916.39	25.45	26.34	-33.58	703.12	229.98	535.04	483.60	51.45	10.400	
7,000.00	6,960.91	7,151.78	6,960.91	25.57	26.37	-35.66	700.50	229.89	514.80	463.06	51.74	9.950	
7,050.00	7,004.17	7,194.43	7,003.48	25.69	26.39	-38.25	697.92	229.88	492.23	440.17	52.06	9.455	
7,100.00	7,045.57	7,235.36	7,044.33	25.80	26.42	-41.44	695.40	229.96	467.60	415.20	52.41	8.922	
7,150.00	7,084.92	7,274.37	7,083.26	25.93	26.44	-45.31	692.93	230.11	441.23	388.43	52.80	8.357	
7,200.00	7,122.02	7,311.28	7,120.10	26.06	26.46	-49.94	690.55	230.33	413.50	360.28	53.22	7.769	
7,250.00	7,156.70	7,346.57	7,155.30	26.24	26.48	-55.41	688.22	230.60	384.91	331.23	53.68	7.171	
7,300.00	7,188.78	7,380.06	7,188.71	26.47	26.50	-61.70	685.85	230.87	356.03	301.87	54.16	6.574	
7,350.00	7,218.11	7,410.72	7,219.28	26.76	26.52	-68.53	683.55	231.13	327.73	273.07	54.66	5.996	
7,400.00	7,244.54	7,438.32	7,246.80	27.13	26.53	-75.51	681.35	231.37	301.19	246.06	55.12	5.464	
7,450.00	7,267.95	7,462.75	7,271.14	27.58	26.54	-82.19	679.33	231.59	277.94	222.48	55.46	5.011	
7,500.00	7,288.22	7,483.98	7,292.29	28.09	26.55	-88.10	677.51	231.79	259.86	204.36	55.51	4.682	
7,550.00	7,305.25	7,501.91	7,310.16	28.68	26.55	-92.87	675.93	231.96	249.00	193.96	55.04	4.524 SF	
7,585.22	7,315.26	7,512.52	7,320.71	29.15	26.56	-95.41	674.97	232.06	246.63	192.31	54.33	4.540 CC, ES	
7,600.00	7,318.96	7,516.46	7,324.64	29.35	26.56	-96.26	674.61	232.10	247.06	193.14	53.92	4.582	
7,650.00	7,329.29	7,526.76	7,334.90	30.08	26.57	-97.97	673.67	232.20	254.84	202.57	52.27	4.875	
7,700.00	7,336.18	7,533.25	7,341.36	30.87	26.57	-98.01	673.10	232.25	271.91	221.50	50.41	5.394	
7,750.00	7,339.60	7,536.52	7,344.62	31.72	26.57	-96.48	672.81	232.27	296.82	248.15	48.67	6.099	
7,774.01	7,340.00	7,536.97	7,345.06	32.14	26.57	-95.18	672.77	232.27	311.05	263.10	47.94	6.488	
7,800.00	7,340.00	7,537.07	7,345.16	32.62	26.57	-95.20	672.76	232.27	327.76	280.51	47.26	6.936	
7,900.00	7,340.00	7,537.44	7,345.54	34.56	26.57	-95.29	672.73	232.27	401.40	355.60	45.80	8.764	
8,000.00	7,340.00	7,537.80	7,345.89	36.68	26.57	-95.38	672.70	232.27	484.58	439.34	45.24	10.711	
8,100.00	7,340.00	7,538.14	7,346.23	38.95	26.57	-95.46	672.67	232.27	573.16	528.08	45.08	12.715	
8,200.00	7,340.00	7,538.46	7,346.55	41.34	26.57	-95.53	672.64	232.28	664.99	619.91	45.08	14.751	
8,300.00	7,340.00	7,538.77	7,346.86	43.84	26.57	-95.60	672.62	232.28	758.88	713.73	45.15	16.808	
8,400.00	7,340.00	7,539.07	7,347.16	46.42	26.57	-95.67	672.59	232.28	854.16	808.92	45.24	18.880	
8,500.00	7,340.00	7,539.35	7,347.44	49.08	26.57	-95.74	672.57	232.28	950.41	905.08	45.34	20.962	
8,600.00	7,340.00	7,539.62	7,347.71	51.80	26.57	-95.80	672.54	232.28	1,047.37	1,001.93	45.44	23.052	

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 3E-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 3E-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												
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	7,539.88	7,347.97	54.57	26.57	-95.86	672.52	232.28	1,144.85	1,099.32	45.53	25.147							
8,800.00	7,340.00	7,540.13	7,348.22	57.39	26.57	-95.92	672.50	232.28	1,242.73	1,197.11	45.61	27.245							
8,900.00	7,340.00	7,540.37	7,348.46	60.25	26.57	-95.98	672.48	232.28	1,340.92	1,295.22	45.69	29.346							
9,000.00	7,340.00	7,540.60	7,348.68	63.14	26.57	-96.03	672.46	232.28	1,439.36	1,393.59	45.77	31.449							



# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well SAM 3E-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 3E-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						
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	-0.09	40.07	-0.07	40.07				
100.00	100.00	100.00	100.00	0.14	0.14	-0.09	40.07	-0.07	40.07	39.79	0.28	145.158	
200.00	200.00	200.00	200.00	0.50	0.50	-0.09	40.07	-0.07	40.07	39.07	0.99	40.351 CC, ES	
300.00	300.00	298.62	298.60	0.85	0.85	-0.67	41.71	-0.49	41.74	39.99	1.75	23.888	
400.00	400.00	397.02	396.86	1.21	1.21	-2.16	46.62	-1.76	46.76	44.23	2.53	18.487	
500.00	500.00	494.94	494.42	1.57	1.57	-4.04	54.75	-3.86	55.17	51.86	3.31	16.652	
600.00	600.00	592.19	590.96	1.93	1.93	-5.86	66.02	-6.77	66.98	62.89	4.09	16.372	
700.00	699.98	688.78	686.41	2.29	2.31	27.26	80.34	-10.48	80.62	75.76	4.85	16.609	
800.00	799.84	784.90	780.84	2.65	2.71	27.10	97.67	-14.96	94.50	88.89	5.61	16.858	
886.57	886.09	869.50	863.51	2.96	3.07	27.51	115.05	-19.45	106.27	100.06	6.21	17.124	
900.00	899.46	882.82	876.52	3.01	3.13	27.63	117.82	-20.17	107.95	101.65	6.30	17.146	
1,000.00	998.96	982.02	973.41	3.37	3.57	28.41	138.43	-25.49	120.49	113.49	6.99	17.231	
1,100.00	1,098.46	1,081.21	1,070.30	3.74	4.01	29.04	159.03	-30.82	133.04	125.34	7.70	17.280	
1,200.00	1,197.96	1,180.41	1,167.19	4.11	4.46	29.56	179.64	-36.15	145.61	137.20	8.42	17.304	
1,300.00	1,297.46	1,279.61	1,264.08	4.49	4.91	30.00	200.25	-41.47	158.19	149.05	9.14	17.310	
1,400.00	1,396.96	1,378.81	1,360.97	4.86	5.37	30.38	220.86	-46.80	170.77	160.91	9.87	17.306	
1,500.00	1,496.46	1,478.01	1,457.86	5.24	5.82	30.70	241.47	-52.13	183.37	172.76	10.60	17.295	
1,600.00	1,595.96	1,577.21	1,554.74	5.62	6.28	30.98	262.07	-57.46	195.96	184.62	11.34	17.281	
1,700.00	1,695.46	1,676.41	1,651.63	6.00	6.74	31.23	282.68	-62.78	208.57	196.48	12.08	17.264	
1,800.00	1,794.96	1,775.61	1,748.52	6.38	7.20	31.45	303.29	-68.11	221.17	208.35	12.82	17.245	
1,900.00	1,894.46	1,874.81	1,845.41	6.76	7.66	31.64	323.90	-73.44	233.78	220.21	13.57	17.227	
2,000.00	1,993.96	1,974.01	1,942.30	7.14	8.12	31.82	344.51	-78.77	246.39	232.07	14.32	17.208	
2,100.00	2,093.46	2,073.21	2,039.19	7.52	8.58	31.98	365.11	-84.09	259.00	243.93	15.07	17.189	
2,200.00	2,192.96	2,172.40	2,136.08	7.90	9.04	32.12	385.72	-89.42	271.61	255.79	15.82	17.171	
2,300.00	2,292.46	2,271.60	2,232.96	8.28	9.51	32.25	406.33	-94.75	284.23	267.66	16.57	17.153	
2,400.00	2,391.96	2,370.80	2,329.85	8.66	9.97	32.37	426.94	-100.07	296.84	279.52	17.32	17.136	
2,500.00	2,491.46	2,470.00	2,426.74	9.04	10.43	32.48	447.55	-105.40	309.46	291.39	18.08	17.119	
2,600.00	2,590.96	2,569.20	2,523.63	9.42	10.90	32.58	468.15	-110.73	322.08	303.25	18.83	17.104	
2,700.00	2,690.46	2,668.40	2,620.52	9.81	11.36	32.68	488.76	-116.06	334.70	315.11	19.59	17.088	
2,800.00	2,789.96	2,767.60	2,717.41	10.19	11.82	32.77	509.37	-121.38	347.32	326.98	20.34	17.074	
2,900.00	2,889.46	2,866.80	2,814.30	10.57	12.29	32.85	529.98	-126.71	359.94	338.84	21.10	17.060	
3,000.00	2,988.96	2,966.00	2,911.18	10.95	12.75	32.92	550.59	-132.04	372.57	350.71	21.86	17.047	
3,100.00	3,088.46	3,065.20	3,008.07	11.33	13.21	32.99	571.19	-137.37	385.19	362.57	22.61	17.034	
3,200.00	3,187.96	3,164.40	3,104.96	11.72	13.68	33.06	591.80	-142.69	397.81	374.44	23.37	17.022	
3,300.00	3,287.46	3,263.59	3,201.85	12.10	14.14	33.12	612.41	-148.02	410.43	386.31	24.13	17.010	
3,400.00	3,386.96	3,362.79	3,298.74	12.48	14.61	33.18	633.02	-153.35	423.06	398.17	24.89	16.999	
3,500.00	3,486.46	3,461.99	3,395.63	12.87	15.07	33.23	653.63	-158.67	435.68	410.04	25.65	16.988	
3,600.00	3,585.96	3,561.19	3,492.52	13.25	15.53	33.29	674.23	-164.00	448.31	421.90	26.40	16.978	
3,700.00	3,685.46	3,660.39	3,589.40	13.63	16.00	33.33	694.84	-169.33	460.93	433.77	27.16	16.968	
3,800.00	3,784.96	3,759.59	3,686.29	14.01	16.46	33.38	715.45	-174.66	473.56	445.63	27.92	16.959	
3,900.00	3,884.46	3,858.79	3,783.18	14.40	16.93	33.42	736.06	-179.98	486.18	457.50	28.68	16.950	
4,000.00	3,983.96	3,957.99	3,880.07	14.78	17.39	33.47	756.66	-185.31	498.81	469.37	29.44	16.941	
4,100.00	4,083.46	4,057.19	3,976.96	15.16	17.86	33.51	777.27	-190.64	511.44	481.23	30.20	16.933	
4,200.00	4,182.96	4,156.39	4,073.85	15.55	18.32	33.54	797.88	-195.97	524.06	493.10	30.96	16.925	
4,300.00	4,282.46	4,255.59	4,170.74	15.93	18.79	33.58	818.49	-201.29	536.69	504.97	31.72	16.917	
4,400.00	4,381.96	4,354.78	4,267.62	16.31	19.25	33.61	839.10	-206.62	549.32	516.83	32.48	16.910	
4,500.00	4,481.46	4,453.98	4,364.51	16.70	19.71	33.65	859.70	-211.95	561.94	528.70	33.25	16.903	
4,600.00	4,580.96	4,553.18	4,461.40	17.08	20.18	33.68	880.31	-217.27	574.57	540.56	34.01	16.896	
4,700.00	4,680.46	4,652.38	4,558.29	17.46	20.64	33.71	900.92	-222.60	587.20	552.43	34.77	16.889	
4,800.00	4,779.96	4,751.58	4,655.18	17.85	21.11	33.74	921.53	-227.93	599.83	564.30	35.53	16.883	
4,900.00	4,879.46	4,850.78	4,752.07	18.23	21.57	33.76	942.14	-233.26	612.45	576.16	36.29	16.877	
5,000.00	4,978.96	4,949.98	4,848.95	18.61	22.04	33.79	962.74	-238.58	625.08	588.03	37.05	16.871	

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 3E-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 3E-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							
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	5,078.46	5,049.18	4,945.84	19.00	22.50	33.82	983.35	-243.91	637.71	599.90	37.81	16.865	
5,200.00	5,177.96	5,148.38	5,042.73	19.38	22.97	33.84	1,003.96	-249.24	650.34	611.76	38.57	16.859	
5,300.00	5,277.46	5,247.58	5,139.62	19.76	23.43	33.86	1,024.57	-254.57	662.97	623.63	39.34	16.854	
5,400.00	5,376.96	5,346.77	5,236.51	20.15	23.90	33.89	1,045.18	-259.89	675.59	635.50	40.10	16.849	
5,500.00	5,476.46	5,445.97	5,333.40	20.53	24.36	33.91	1,065.78	-265.22	688.22	647.36	40.86	16.844	
5,600.00	5,575.96	5,545.17	5,430.29	20.91	24.83	33.93	1,086.39	-270.55	700.85	659.23	41.62	16.839	
5,700.00	5,675.46	5,644.37	5,527.17	21.30	25.29	33.95	1,107.00	-275.87	713.48	671.10	42.38	16.834	
5,738.64	5,713.91	5,682.70	5,564.61	21.45	25.47	33.96	1,114.96	-277.93	718.36	675.68	42.68	16.832	
5,800.00	5,775.02	5,756.40	5,636.69	21.68	25.81	34.03	1,129.82	-281.77	726.30	683.06	43.24	16.797	
5,900.00	5,874.83	5,888.37	5,766.64	22.04	26.38	34.07	1,152.05	-287.52	738.15	693.98	44.17	16.711	
6,000.00	5,974.79	6,021.24	5,898.40	22.39	26.90	34.01	1,168.55	-291.79	748.43	703.44	44.99	16.636	
6,025.21	6,000.00	6,054.87	5,931.86	22.48	27.02	-0.28	1,171.79	-292.62	750.77	705.59	45.18	16.619	
6,100.00	6,074.79	6,154.99	6,031.68	22.73	27.37	-0.42	1,179.17	-294.53	756.29	710.60	45.69	16.552	
6,200.00	6,174.79	6,289.45	6,166.05	23.07	27.78	-0.51	1,183.77	-295.72	759.72	713.43	46.29	16.411	
6,300.00	6,274.79	6,398.19	6,274.79	23.40	28.09	-0.52	1,183.96	-295.77	759.87	712.26	46.93	16.191	
6,400.00	6,374.79	6,498.19	6,374.79	23.74	28.37	-0.52	1,183.96	-295.77	759.87	712.26	47.60	15.962	
6,500.00	6,474.79	6,598.19	6,474.79	24.08	28.65	-0.52	1,183.96	-295.77	759.87	711.59	48.28	15.739	
6,600.00	6,574.79	6,698.19	6,574.79	24.42	28.93	-0.52	1,183.96	-295.77	759.87	710.91	48.96	15.522	
6,649.01	6,623.80	6,747.20	6,623.80	24.59	29.07	-0.52	1,183.96	-295.77	759.87	710.58	49.29	15.417	
6,684.74	6,659.52	6,782.92	6,659.52	24.70	29.17	-90.00	1,183.96	-295.77	759.86	710.35	49.52	15.345	
6,700.00	6,674.75	6,798.15	6,674.75	24.75	29.21	-90.07	1,183.96	-295.77	759.87	710.25	49.62	15.315	
6,750.00	6,724.45	6,848.10	6,724.45	24.90	29.36	-90.42	1,183.97	-295.10	759.89	709.97	49.91	15.225	
6,800.00	6,773.67	6,898.43	6,774.85	25.05	29.49	-90.78	1,184.01	-291.17	759.94	709.75	50.19	15.142	
6,850.00	6,822.16	6,949.10	6,824.96	25.19	29.62	-91.15	1,184.09	-283.66	760.02	709.56	50.45	15.063	
6,900.00	6,869.68	7,000.13	6,874.75	25.32	29.74	-91.50	1,184.20	-272.54	760.13	709.42	50.71	14.989	
6,950.00	6,916.01	7,051.52	6,923.96	25.45	29.86	-91.86	1,184.35	-257.78	760.27	709.30	50.96	14.918	
7,000.00	6,960.91	7,103.26	6,972.32	25.57	29.97	-92.20	1,184.54	-239.40	760.43	709.22	51.21	14.848	
7,050.00	7,004.17	7,155.36	7,019.54	25.69	30.07	-92.54	1,184.76	-217.41	760.62	709.14	51.47	14.777	
7,100.00	7,045.57	7,207.81	7,065.33	25.80	30.17	-92.86	1,185.02	-191.87	760.82	709.07	51.74	14.703	
7,150.00	7,084.92	7,260.60	7,109.41	25.93	30.26	-93.17	1,185.32	-162.85	761.04	708.99	52.05	14.622	
7,200.00	7,122.02	7,313.73	7,151.50	26.06	30.34	-93.46	1,185.64	-130.45	761.26	708.87	52.39	14.531	
7,250.00	7,156.70	7,367.17	7,191.29	26.24	30.41	-93.74	1,186.01	-94.80	761.50	708.70	52.79	14.424	
7,300.00	7,188.78	7,420.92	7,228.52	26.47	30.47	-94.00	1,186.40	-56.05	761.73	708.45	53.28	14.298	
7,350.00	7,218.11	7,474.96	7,262.92	26.76	30.52	-94.24	1,186.82	-14.39	761.95	708.10	53.86	14.148	
7,400.00	7,244.54	7,529.26	7,294.22	27.13	30.57	-94.45	1,187.28	29.97	762.17	707.62	54.55	13.971	
7,450.00	7,267.95	7,583.81	7,322.18	27.58	30.61	-94.65	1,187.75	76.78	762.38	706.99	55.39	13.765	
7,500.00	7,288.22	7,638.57	7,346.60	28.09	30.64	-94.81	1,188.25	125.79	762.56	706.19	56.37	13.528	
7,550.00	7,305.25	7,693.53	7,367.26	28.68	30.67	-94.96	1,188.77	176.69	762.72	705.22	57.51	13.263	
7,600.00	7,318.96	7,748.64	7,384.00	29.35	30.72	-95.07	1,189.30	229.18	762.86	704.05	58.80	12.973	
7,650.00	7,329.29	7,803.88	7,396.68	30.08	31.06	-95.16	1,189.85	282.93	762.96	702.70	60.27	12.660	
7,700.00	7,336.18	7,859.21	7,405.20	30.87	31.85	-95.22	1,190.40	337.59	763.04	701.16	61.88	12.332	
7,750.00	7,339.60	7,914.60	7,409.47	31.72	32.76	-95.26	1,190.96	392.80	763.08	699.46	63.61	11.996	
7,774.01	7,340.00	7,941.22	7,410.00	32.14	33.21	-95.26	1,191.23	419.40	763.08	698.60	64.48	11.834	
7,800.00	7,340.00	7,967.30	7,410.00	32.62	33.68	-95.26	1,191.50	445.48	763.08	697.66	65.42	11.664	
7,900.00	7,340.00	8,067.30	7,410.00	34.56	35.60	-95.26	1,192.51	545.48	763.08	693.83	69.25	11.019	
8,000.00	7,340.00	8,167.30	7,410.00	36.68	37.67	-95.26	1,193.53	645.47	763.08	689.65	73.43	10.392	
8,100.00	7,340.00	8,267.30	7,410.00	38.95	39.90	-95.26	1,194.55	745.47	763.08	685.17	77.91	9.794	
8,200.00	7,340.00	8,367.30	7,410.00	41.34	42.25	-95.26	1,195.56	845.46	763.08	680.44	82.64	9.234	
8,300.00	7,340.00	8,467.30	7,410.00	43.84	44.71	-95.26	1,196.58	945.46	763.08	675.50	87.58	8.713	
8,400.00	7,340.00	8,567.30	7,410.00	46.42	47.26	-95.26	1,197.59	1,045.45	763.08	670.39	92.70	8.232	
8,500.00	7,340.00	8,667.30	7,410.00	49.08	49.88	-95.26	1,198.61	1,145.45	763.08	665.12	97.96	7.790	
8,600.00	7,340.00	8,767.30	7,410.00	51.80	52.56	-95.26	1,199.63	1,245.44	763.08	659.73	103.35	7.383	

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 3E-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 3E-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		
8,700.00	7,340.00	8,867.30	7,410.00	54.57	55.31	-95.26	1,200.64	1,345.44	763.08	654.23	108.85	7.010		
8,800.00	7,340.00	8,967.30	7,410.00	57.39	58.09	-95.26	1,201.66	1,445.43	763.08	648.64	114.45	6.668		
8,900.00	7,340.00	9,067.30	7,410.00	60.25	60.92	-95.26	1,202.68	1,545.43	763.08	642.97	120.12	6.353		
9,000.00	7,340.00	9,167.30	7,410.00	63.14	63.79	-95.26	1,203.69	1,645.42	763.08	637.22	125.86	6.063		
9,100.00	7,340.00	9,267.30	7,410.00	66.06	66.68	-95.26	1,204.71	1,745.42	763.08	631.43	131.66	5.796		
9,200.00	7,340.00	9,367.30	7,410.00	69.00	69.61	-95.26	1,205.72	1,845.41	763.08	625.57	137.51	5.549		
9,300.00	7,340.00	9,467.30	7,410.00	71.97	72.55	-95.26	1,206.74	1,945.41	763.08	619.68	143.41	5.321		
9,400.00	7,340.00	9,567.30	7,410.00	74.95	75.52	-95.26	1,207.76	2,045.40	763.08	613.74	149.35	5.110		
9,500.00	7,340.00	9,667.30	7,410.00	77.96	78.51	-95.26	1,208.77	2,145.40	763.08	607.77	155.32	4.913		
9,600.00	7,340.00	9,767.30	7,410.00	80.98	81.51	-95.26	1,209.79	2,245.39	763.08	601.76	161.32	4.730		
9,700.00	7,340.00	9,867.30	7,410.00	84.01	84.53	-95.26	1,210.81	2,345.39	763.08	595.73	167.36	4.560		
9,800.00	7,340.00	9,967.30	7,410.00	87.06	87.56	-95.26	1,211.82	2,445.38	763.08	589.67	173.42	4.400		
9,900.00	7,340.00	10,067.30	7,410.00	90.11	90.61	-95.26	1,212.84	2,545.37	763.08	583.59	179.50	4.251		
10,000.00	7,340.00	10,167.30	7,410.00	93.18	93.66	-95.26	1,213.85	2,645.37	763.08	577.49	185.60	4.111		
10,100.00	7,340.00	10,267.30	7,410.00	96.26	96.72	-95.26	1,214.87	2,745.36	763.08	571.37	191.72	3.980		
10,200.00	7,340.00	10,367.30	7,410.00	99.34	99.80	-95.26	1,215.89	2,845.36	763.08	565.23	197.86	3.857		
10,300.00	7,340.00	10,467.30	7,410.00	102.43	102.88	-95.26	1,216.90	2,945.35	763.08	559.08	204.01	3.740		
10,400.00	7,340.00	10,567.30	7,410.00	105.53	105.97	-95.26	1,217.92	3,045.35	763.08	552.91	210.18	3.631		
10,500.00	7,340.00	10,667.30	7,410.00	108.64	109.06	-95.26	1,218.94	3,145.34	763.08	546.73	216.35	3.527		
10,600.00	7,340.00	10,767.30	7,410.00	111.75	112.16	-95.26	1,219.95	3,245.34	763.08	540.54	222.55	3.429		
10,700.00	7,340.00	10,867.30	7,410.00	114.86	115.27	-95.26	1,220.97	3,345.33	763.08	534.34	228.75	3.336		
10,800.00	7,340.00	10,967.30	7,410.00	117.98	118.38	-95.26	1,221.98	3,445.33	763.08	528.13	234.96	3.248		
10,900.00	7,340.00	11,067.30	7,410.00	121.11	121.50	-95.26	1,223.00	3,545.32	763.08	521.91	241.18	3.164		
11,000.00	7,340.00	11,167.30	7,410.00	124.24	124.62	-95.26	1,224.02	3,645.32	763.08	515.68	247.41	3.084		
11,100.00	7,340.00	11,267.30	7,410.00	127.37	127.75	-95.26	1,225.03	3,745.31	763.08	509.44	253.65	3.008		
11,200.00	7,340.00	11,367.30	7,410.00	130.51	130.88	-95.26	1,226.05	3,845.31	763.08	503.20	259.89	2.936		
11,300.00	7,340.00	11,467.30	7,410.00	133.65	134.01	-95.26	1,227.06	3,945.30	763.08	496.94	266.14	2.867		
11,400.00	7,340.00	11,567.30	7,410.00	136.79	137.15	-95.26	1,228.08	4,045.30	763.09	490.69	272.40	2.801		
11,500.00	7,340.00	11,667.30	7,410.00	139.94	140.29	-95.26	1,229.10	4,145.29	763.09	484.42	278.66	2.738		
11,600.00	7,340.00	11,767.30	7,410.00	143.09	143.43	-95.26	1,230.11	4,245.29	763.09	478.16	284.93	2.678		
11,700.00	7,340.00	11,867.30	7,410.00	146.24	146.58	-95.26	1,231.13	4,345.28	763.09	471.88	291.20	2.620		
11,800.00	7,340.00	11,967.30	7,410.00	149.39	149.73	-95.26	1,232.15	4,445.28	763.09	465.60	297.48	2.565		
11,848.32	7,340.00	12,015.62	7,410.00	150.91	151.25	-95.26	1,232.64	4,493.59	763.09	462.57	300.52	2.539 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 3E-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 3E-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
0.00	0.00	0.00	0.00	0.00	0.00	-0.50	29.86	-0.26	29.86				
100.00	100.00	100.00	100.00	0.14	0.14	-0.50	29.86	-0.26	29.86	29.58	0.28	108.172	
200.00	200.00	200.00	200.00	0.50	0.50	-0.50	29.86	-0.26	29.86	28.86	0.99	30.069	
300.00	300.00	300.00	300.00	0.85	0.85	-0.50	29.86	-0.26	29.86	28.15	1.71	17.462 CC, ES	
400.00	400.00	398.97	398.95	1.21	1.21	-1.33	31.50	-0.73	31.53	29.07	2.45	12.862	
500.00	500.00	497.70	497.54	1.57	1.57	-3.38	36.41	-2.15	36.55	33.34	3.22	11.360	
600.00	600.00	595.96	595.43	1.93	1.93	-5.76	44.53	-4.49	44.99	41.00	3.99	11.278	
700.00	699.98	693.73	692.50	2.29	2.29	27.06	55.81	-7.75	55.30	50.55	4.75	11.637	
800.00	799.84	791.14	788.74	2.65	2.67	26.95	70.21	-11.91	65.87	60.37	5.51	11.965	
886.57	886.09	875.16	871.30	2.96	3.01	27.50	85.14	-16.22	75.23	69.07	6.15	12.222	
900.00	899.46	888.22	884.09	3.01	3.06	27.63	87.67	-16.95	76.72	70.47	6.25	12.273	
1,000.00	998.96	987.57	981.37	3.37	3.48	28.44	107.06	-22.55	88.02	81.08	6.94	12.680	
1,100.00	1,098.46	1,086.92	1,078.65	3.74	3.91	29.06	126.45	-28.14	99.33	91.68	7.65	12.982	
1,200.00	1,197.96	1,186.27	1,175.94	4.11	4.34	29.55	145.85	-33.74	110.65	102.29	8.37	13.224	
1,300.00	1,297.46	1,285.63	1,273.22	4.49	4.78	29.96	165.24	-39.34	121.98	112.89	9.09	13.418	
1,400.00	1,396.96	1,384.98	1,370.50	4.86	5.22	30.29	184.63	-44.94	133.31	123.49	9.82	13.576	
1,500.00	1,496.46	1,484.33	1,467.78	5.24	5.66	30.57	204.02	-50.54	144.65	134.10	10.55	13.706	
1,600.00	1,595.96	1,583.69	1,565.06	5.62	6.11	30.81	223.41	-56.14	155.99	144.70	11.29	13.816	
1,700.00	1,695.46	1,683.04	1,662.34	6.00	6.56	31.02	242.80	-61.73	167.33	155.30	12.03	13.909	
1,800.00	1,794.96	1,782.39	1,759.62	6.38	7.00	31.20	262.19	-67.33	178.68	165.90	12.77	13.988	
1,900.00	1,894.46	1,881.75	1,856.90	6.76	7.45	31.36	281.59	-72.93	190.02	176.50	13.52	14.057	
2,000.00	1,993.96	1,981.10	1,954.19	7.14	7.90	31.51	300.98	-78.53	201.37	187.10	14.26	14.117	
2,100.00	2,093.46	2,080.45	2,051.47	7.52	8.35	31.63	320.37	-84.13	212.72	197.70	15.01	14.170	
2,200.00	2,192.96	2,179.81	2,148.75	7.90	8.80	31.75	339.76	-89.72	224.06	208.30	15.76	14.216	
2,300.00	2,292.46	2,279.16	2,246.03	8.28	9.25	31.85	359.15	-95.32	235.41	218.90	16.51	14.258	
2,400.00	2,391.96	2,378.51	2,343.31	8.66	9.71	31.94	378.54	-100.92	246.76	229.50	17.26	14.295	
2,500.00	2,491.46	2,477.86	2,440.59	9.04	10.16	32.03	397.93	-106.52	258.12	240.10	18.01	14.328	
2,600.00	2,590.96	2,577.22	2,537.87	9.42	10.61	32.11	417.32	-112.12	269.47	250.70	18.77	14.358	
2,700.00	2,690.46	2,676.57	2,635.16	9.81	11.06	32.18	436.72	-117.72	280.82	261.30	19.52	14.386	
2,800.00	2,789.96	2,775.92	2,732.44	10.19	11.52	32.25	456.11	-123.31	292.17	271.90	20.27	14.411	
2,900.00	2,889.46	2,875.28	2,829.72	10.57	11.97	32.31	475.50	-128.91	303.52	282.49	21.03	14.434	
3,000.00	2,988.96	2,974.63	2,927.00	10.95	12.42	32.37	494.89	-134.51	314.88	293.09	21.78	14.455	
3,100.00	3,088.46	3,073.98	3,024.28	11.33	12.88	32.42	514.28	-140.11	326.23	303.69	22.54	14.474	
3,200.00	3,187.96	3,173.34	3,121.56	11.72	13.33	32.47	533.67	-145.71	337.58	314.29	23.29	14.492	
3,300.00	3,287.46	3,272.69	3,218.84	12.10	13.78	32.51	553.06	-151.30	348.94	324.89	24.05	14.509	
3,400.00	3,386.96	3,372.04	3,316.12	12.48	14.24	32.56	572.46	-156.90	360.29	335.48	24.81	14.524	
3,500.00	3,486.46	3,471.39	3,413.41	12.87	14.69	32.60	591.85	-162.50	371.64	346.08	25.56	14.538	
3,600.00	3,585.96	3,570.75	3,510.69	13.25	15.15	32.64	611.24	-168.10	383.00	356.68	26.32	14.552	
3,700.00	3,685.46	3,670.10	3,607.97	13.63	15.60	32.67	630.63	-173.70	394.35	367.27	27.08	14.564	
3,800.00	3,784.96	3,769.45	3,705.25	14.01	16.06	32.71	650.02	-179.30	405.71	377.87	27.83	14.576	
3,900.00	3,884.46	3,868.81	3,802.53	14.40	16.51	32.74	669.41	-184.89	417.06	388.47	28.59	14.587	
4,000.00	3,983.96	3,968.16	3,899.81	14.78	16.96	32.77	688.80	-190.49	428.42	399.07	29.35	14.597	
4,100.00	4,083.46	4,067.51	3,997.09	15.16	17.42	32.80	708.20	-196.09	439.77	409.66	30.11	14.607	
4,200.00	4,182.96	4,166.87	4,094.38	15.55	17.87	32.82	727.59	-201.69	451.13	420.26	30.87	14.616	
4,300.00	4,282.46	4,266.22	4,191.66	15.93	18.33	32.85	746.98	-207.29	462.48	430.86	31.62	14.625	
4,400.00	4,381.96	4,365.57	4,288.94	16.31	18.78	32.88	766.37	-212.88	473.84	441.45	32.38	14.633	
4,500.00	4,481.46	4,464.92	4,386.22	16.70	19.24	32.90	785.76	-218.48	485.19	452.05	33.14	14.641	
4,600.00	4,580.96	4,564.28	4,483.50	17.08	19.69	32.92	805.15	-224.08	496.55	462.65	33.90	14.648	
4,700.00	4,680.46	4,663.63	4,580.78	17.46	20.15	32.94	824.54	-229.68	507.90	473.24	34.66	14.655	
4,800.00	4,779.96	4,762.98	4,678.06	17.85	20.60	32.96	843.94	-235.28	519.26	483.84	35.42	14.662	
4,900.00	4,879.46	4,862.34	4,775.34	18.23	21.06	32.98	863.33	-240.88	530.61	494.44	36.17	14.668	
5,000.00	4,978.96	4,961.69	4,872.63	18.61	21.51	33.00	882.72	-246.47	541.97	505.03	36.93	14.674	

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 3E-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 3E-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	5,078.46	5,061.04	4,969.91	19.00	21.97	33.02	902.11	-252.07	553.32	515.63	37.69	14.680		
5,200.00	5,177.96	5,160.40	5,067.19	19.38	22.42	33.04	921.50	-257.67	564.68	526.23	38.45	14.685		
5,300.00	5,277.46	5,259.75	5,164.47	19.76	22.88	33.06	940.89	-263.27	576.03	536.82	39.21	14.691		
5,400.00	5,376.96	5,359.10	5,261.75	20.15	23.33	33.07	960.28	-268.87	587.39	547.42	39.97	14.696		
5,500.00	5,476.46	5,458.45	5,359.03	20.53	23.79	33.09	979.68	-274.46	598.75	558.02	40.73	14.701		
5,600.00	5,575.96	5,567.92	5,466.30	20.91	24.28	33.11	1,000.64	-280.52	609.78	568.21	41.57	14.669		
5,700.00	5,675.46	5,693.61	5,590.27	21.30	24.82	33.25	1,020.53	-286.26	617.38	574.90	42.48	14.533		
5,738.64	5,713.91	5,742.35	5,638.56	21.45	25.01	33.34	1,026.83	-288.08	619.18	576.37	42.81	14.463		
5,800.00	5,775.02	5,819.84	5,715.55	21.68	25.31	33.50	1,035.23	-290.50	621.30	577.99	43.31	14.346		
5,900.00	5,874.83	5,946.29	5,841.61	22.04	25.75	33.68	1,044.62	-293.21	623.66	579.63	44.03	14.164		
6,000.00	5,974.79	6,072.84	5,968.09	22.39	26.14	33.76	1,048.66	-294.38	624.68	580.03	44.65	13.991		
6,025.21	6,000.00	6,104.76	6,000.00	22.48	26.24	-0.50	1,048.83	-294.43	624.72	579.93	44.79	13.948		
6,100.00	6,074.79	6,179.55	6,074.79	22.73	26.45	-0.50	1,048.83	-294.43	624.72	579.43	45.29	13.792		
6,200.00	6,174.79	6,279.55	6,174.79	23.07	26.74	-0.50	1,048.83	-294.43	624.72	578.75	45.97	13.590		
6,300.00	6,274.79	6,379.55	6,274.79	23.40	27.03	-0.50	1,048.83	-294.43	624.72	578.07	46.65	13.393		
6,400.00	6,374.79	6,479.55	6,374.79	23.74	27.32	-0.50	1,048.83	-294.43	624.72	577.40	47.32	13.201		
6,500.00	6,474.79	6,579.55	6,474.79	24.08	27.61	-0.50	1,048.83	-294.43	624.72	576.72	48.00	13.014		
6,600.00	6,574.79	6,679.55	6,574.79	24.42	27.91	-0.50	1,048.83	-294.43	624.72	576.04	48.68	12.832		
6,649.01	6,623.80	6,728.56	6,623.80	24.59	28.05	-0.50	1,048.83	-294.43	624.72	575.70	49.02	12.745		
6,684.12	6,658.89	6,763.65	6,658.89	24.70	28.16	-90.00	1,048.83	-294.43	624.72	575.47	49.25	12.685		
6,700.00	6,674.75	6,779.50	6,674.75	24.75	28.20	-90.09	1,048.83	-294.43	624.72	575.37	49.35	12.659		
6,750.00	6,724.45	6,829.21	6,724.45	24.90	28.35	-90.57	1,048.83	-294.43	624.75	575.10	49.65	12.584		
6,800.00	6,773.67	6,878.43	6,773.67	25.05	28.50	-91.34	1,048.83	-294.43	624.90	574.98	49.92	12.517		
6,850.00	6,822.16	6,926.92	6,822.16	25.19	28.64	-92.39	1,048.83	-294.43	625.31	575.12	50.19	12.460		
6,900.00	6,869.68	6,974.81	6,870.06	25.32	28.79	-93.68	1,048.83	-294.40	626.17	575.74	50.43	12.417		
6,950.00	6,916.01	7,025.54	6,920.73	25.45	28.93	-95.12	1,048.85	-292.16	627.54	576.90	50.64	12.392		
7,000.00	6,960.91	7,077.62	6,972.44	25.57	29.07	-96.55	1,048.91	-286.14	629.33	578.50	50.83	12.381		
7,050.00	7,004.17	7,131.13	7,024.98	25.69	29.21	-97.97	1,049.01	-276.06	631.53	580.52	51.01	12.381		
7,100.00	7,045.57	7,186.17	7,078.08	25.80	29.34	-99.36	1,049.16	-261.62	634.10	582.94	51.17	12.393		
7,150.00	7,084.92	7,242.84	7,131.43	25.93	29.47	-100.72	1,049.35	-242.55	637.00	585.69	51.31	12.416		
7,200.00	7,122.02	7,301.22	7,184.63	26.06	29.60	-102.05	1,049.60	-218.55	640.16	588.74	51.43	12.448		
7,250.00	7,156.70	7,361.38	7,237.22	26.24	29.71	-103.32	1,049.89	-189.38	643.53	591.99	51.54	12.487		
7,300.00	7,188.78	7,423.38	7,288.66	26.47	29.82	-104.55	1,050.25	-154.81	647.01	595.37	51.64	12.529		
7,350.00	7,218.11	7,487.25	7,338.33	26.76	29.92	-105.70	1,050.65	-114.68	650.54	598.77	51.76	12.567		
7,400.00	7,244.54	7,552.99	7,385.50	27.13	30.01	-106.77	1,051.12	-68.93	654.00	602.07	51.93	12.594		
7,450.00	7,267.95	7,620.57	7,429.41	27.58	30.08	-107.76	1,051.64	-17.60	657.32	605.13	52.19	12.594		
7,500.00	7,288.22	7,689.89	7,469.22	28.09	30.15	-108.63	1,052.22	39.12	660.40	607.81	52.58	12.559		
7,550.00	7,305.25	7,760.83	7,504.09	28.68	30.21	-109.39	1,052.84	100.86	663.13	609.96	53.17	12.472		
7,600.00	7,318.96	7,833.19	7,533.19	29.35	30.30	-110.01	1,053.52	167.07	665.44	611.44	54.00	12.322		
7,650.00	7,329.29	7,906.74	7,555.77	30.08	30.73	-110.49	1,054.23	237.03	667.25	612.13	55.12	12.104		
7,700.00	7,336.18	7,981.17	7,571.20	30.87	31.71	-110.82	1,054.97	309.81	668.50	611.93	56.57	11.817		
7,750.00	7,339.60	8,056.16	7,579.02	31.72	32.88	-110.99	1,055.72	384.35	669.15	610.82	58.33	11.472		
7,774.01	7,340.00	8,092.27	7,580.00	32.14	33.49	-111.02	1,056.09	420.44	669.24	609.96	59.28	11.290		
7,800.00	7,340.00	8,118.69	7,580.00	32.62	33.97	-111.02	1,056.36	446.86	669.24	609.06	60.17	11.122		
7,900.00	7,340.00	8,218.69	7,580.00	34.56	35.85	-111.02	1,057.38	546.85	669.24	605.45	63.79	10.492		
8,000.00	7,340.00	8,318.69	7,580.00	36.68	37.91	-111.02	1,058.39	646.85	669.24	601.50	67.74	9.880		
8,100.00	7,340.00	8,418.69	7,580.00	38.95	40.12	-111.02	1,059.41	746.84	669.24	597.26	71.98	9.298		
8,200.00	7,340.00	8,518.69	7,580.00	41.34	42.46	-111.02	1,060.42	846.84	669.24	592.78	76.45	8.754		
8,300.00	7,340.00	8,618.69	7,580.00	43.84	44.91	-111.02	1,061.44	946.83	669.24	588.11	81.13	8.249		
8,400.00	7,340.00	8,718.69	7,580.00	46.42	47.44	-111.02	1,062.46	1,046.83	669.24	583.27	85.97	7.785		
8,500.00	7,340.00	8,818.69	7,580.00	49.08	50.05	-111.02	1,063.47	1,146.82	669.24	578.29	90.95	7.359		
8,600.00	7,340.00	8,918.69	7,580.00	51.80	52.73	-111.02	1,064.49	1,246.82	669.24	573.19	96.04	6.968		

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 3E-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 3E-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	9,018.69	7,580.00	54.57	55.46	-111.02	1,065.51	1,346.81	669.24	567.99		101.24	6.610
8,800.00	7,340.00	9,118.69	7,580.00	57.39	58.24	-111.02	1,066.52	1,446.80	669.24	562.71		106.53	6.282
8,900.00	7,340.00	9,218.69	7,580.00	60.25	61.07	-111.02	1,067.54	1,546.80	669.24	557.35		111.88	5.982
9,000.00	7,340.00	9,318.69	7,580.00	63.14	63.93	-111.02	1,068.55	1,646.79	669.24	551.93		117.30	5.705
9,100.00	7,340.00	9,418.69	7,580.00	66.06	66.82	-111.02	1,069.57	1,746.79	669.24	546.46		122.78	5.451
9,200.00	7,340.00	9,518.69	7,580.00	69.00	69.73	-111.02	1,070.59	1,846.78	669.24	540.94		128.30	5.216
9,300.00	7,340.00	9,618.69	7,580.00	71.97	72.67	-111.02	1,071.60	1,946.78	669.24	535.37		133.87	4.999
9,400.00	7,340.00	9,718.69	7,580.00	74.95	75.64	-111.02	1,072.62	2,046.77	669.24	529.77		139.47	4.799
9,500.00	7,340.00	9,818.69	7,580.00	77.96	78.62	-111.02	1,073.64	2,146.77	669.24	524.13		145.10	4.612
9,600.00	7,340.00	9,918.69	7,580.00	80.98	81.62	-111.02	1,074.65	2,246.76	669.24	518.47		150.76	4.439
9,700.00	7,340.00	10,018.69	7,580.00	84.01	84.63	-111.02	1,075.67	2,346.76	669.24	512.78		156.45	4.278
9,800.00	7,340.00	10,118.69	7,580.00	87.06	87.66	-111.02	1,076.68	2,446.75	669.24	507.07		162.17	4.127
9,900.00	7,340.00	10,218.69	7,580.00	90.11	90.70	-111.02	1,077.70	2,546.75	669.24	501.34		167.90	3.986
10,000.00	7,340.00	10,318.69	7,580.00	93.18	93.75	-111.02	1,078.72	2,646.74	669.24	495.59		173.65	3.854
10,100.00	7,340.00	10,418.69	7,580.00	96.26	96.81	-111.02	1,079.73	2,746.74	669.24	489.82		179.42	3.730
10,200.00	7,340.00	10,518.69	7,580.00	99.34	99.88	-111.02	1,080.75	2,846.73	669.24	484.03		185.20	3.614
10,300.00	7,340.00	10,618.69	7,580.00	102.43	102.96	-111.02	1,081.76	2,946.73	669.24	478.24		191.00	3.504
10,400.00	7,340.00	10,718.69	7,580.00	105.53	106.05	-111.02	1,082.78	3,046.72	669.24	472.43		196.81	3.400
10,500.00	7,340.00	10,818.69	7,580.00	108.64	109.14	-111.02	1,083.80	3,146.72	669.24	466.60		202.63	3.303
10,600.00	7,340.00	10,918.69	7,580.00	111.75	112.24	-111.02	1,084.81	3,246.71	669.24	460.77		208.47	3.210
10,700.00	7,340.00	11,018.69	7,580.00	114.86	115.35	-111.02	1,085.83	3,346.71	669.24	454.93		214.31	3.123
10,800.00	7,340.00	11,118.69	7,580.00	117.98	118.46	-111.02	1,086.85	3,446.70	669.24	449.08		220.16	3.040
10,900.00	7,340.00	11,218.69	7,580.00	121.11	121.57	-111.02	1,087.86	3,546.70	669.24	443.22		226.02	2.961
11,000.00	7,340.00	11,318.69	7,580.00	124.24	124.69	-111.02	1,088.88	3,646.69	669.24	437.35		231.89	2.886
11,100.00	7,340.00	11,418.69	7,580.00	127.37	127.82	-111.02	1,089.89	3,746.69	669.24	431.48		237.76	2.815
11,200.00	7,340.00	11,518.69	7,580.00	130.51	130.94	-111.02	1,090.91	3,846.68	669.24	425.60		243.64	2.747
11,300.00	7,340.00	11,618.69	7,580.00	133.65	134.08	-111.02	1,091.93	3,946.68	669.24	419.71		249.53	2.682
11,400.00	7,340.00	11,718.69	7,580.00	136.79	137.21	-111.02	1,092.94	4,046.67	669.24	413.82		255.42	2.620
11,500.00	7,340.00	11,818.69	7,580.00	139.94	140.35	-111.02	1,093.96	4,146.67	669.24	407.92		261.32	2.561
11,600.00	7,340.00	11,918.69	7,580.00	143.09	143.49	-111.02	1,094.98	4,246.66	669.24	402.01		267.22	2.504
11,700.00	7,340.00	12,018.69	7,580.00	146.24	146.64	-111.02	1,095.99	4,346.66	669.24	396.11		273.13	2.450
11,800.00	7,340.00	12,118.69	7,580.00	149.39	149.78	-111.02	1,097.01	4,446.65	669.24	390.20		279.04	2.398
11,848.32	7,340.00	12,167.00	7,580.00	150.91	151.31	-111.02	1,097.50	4,494.97	669.24	387.34		281.90	2.374 SF

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well SAM 3E-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 3E-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: 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	-0.50	20.03	-0.17	20.03					
100.00	100.00	100.00	100.00	0.14	0.14	-0.50	20.03	-0.17	20.03	19.75	0.28	72.570		
200.00	200.00	200.00	200.00	0.50	0.50	-0.50	20.03	-0.17	20.03	19.04	0.99	20.173		
300.00	300.00	300.00	300.00	0.85	0.85	-0.50	20.03	-0.17	20.03	18.32	1.71	11.715		
400.00	400.00	400.00	400.00	1.21	1.21	-0.50	20.03	-0.17	20.03	17.60	2.43	8.254 CC, ES		
500.00	500.00	499.30	499.28	1.57	1.57	-1.84	21.67	-0.70	21.69	18.53	3.16	6.862		
600.00	600.00	598.36	598.20	1.93	1.93	-4.87	26.57	-2.26	26.73	22.81	3.92	6.824		
700.00	699.98	697.09	696.56	2.29	2.29	27.54	34.69	-4.86	33.65	28.97	4.67	7.200		
800.00	799.84	795.58	794.32	2.65	2.65	27.63	46.00	-8.47	40.87	35.44	5.43	7.531		
886.57	886.09	880.62	878.37	2.96	2.98	28.59	58.34	-12.41	47.35	41.27	6.08	7.792		
900.00	899.46	893.79	891.35	3.01	3.03	28.78	60.47	-13.09	48.40	42.22	6.18	7.837		
1,000.00	998.96	992.57	988.44	3.37	3.42	29.64	77.74	-18.61	57.67	50.77	6.90	8.359		
1,100.00	1,098.46	1,092.10	1,086.21	3.74	3.83	30.20	95.50	-24.29	67.31	59.70	7.61	8.847		
1,200.00	1,197.96	1,191.63	1,183.99	4.11	4.25	30.61	113.26	-29.96	76.95	68.63	8.33	9.243		
1,300.00	1,297.46	1,291.16	1,281.76	4.49	4.67	30.94	131.02	-35.63	86.60	77.55	9.05	9.569		
1,400.00	1,396.96	1,390.69	1,379.53	4.86	5.09	31.20	148.77	-41.31	96.25	86.48	9.78	9.843		
1,500.00	1,496.46	1,490.23	1,477.30	5.24	5.52	31.41	166.53	-46.98	105.91	95.39	10.51	10.074		
1,600.00	1,595.96	1,589.76	1,575.07	5.62	5.95	31.58	184.29	-52.66	115.56	104.31	11.25	10.272		
1,700.00	1,695.46	1,689.29	1,672.84	6.00	6.38	31.73	202.05	-58.33	125.22	113.23	11.99	10.444		
1,800.00	1,794.96	1,788.82	1,770.61	6.38	6.81	31.86	219.80	-64.00	134.87	122.14	12.73	10.594		
1,900.00	1,894.46	1,888.36	1,868.38	6.76	7.25	31.97	237.56	-69.68	144.53	131.05	13.47	10.726		
2,000.00	1,993.96	1,987.89	1,966.15	7.14	7.68	32.07	255.32	-75.35	154.19	139.97	14.22	10.843		
2,100.00	2,093.46	2,087.42	2,063.92	7.52	8.12	32.15	273.07	-81.03	163.84	148.88	14.97	10.948		
2,200.00	2,192.96	2,186.95	2,161.70	7.90	8.56	32.23	290.83	-86.70	173.50	157.79	15.71	11.042		
2,300.00	2,292.46	2,286.49	2,259.47	8.28	8.99	32.30	308.59	-92.37	183.16	166.70	16.46	11.126		
2,400.00	2,391.96	2,386.02	2,357.24	8.66	9.43	32.36	326.35	-98.05	192.82	175.61	17.21	11.203		
2,500.00	2,491.46	2,485.55	2,455.01	9.04	9.87	32.41	344.10	-103.72	202.47	184.51	17.96	11.273		
2,600.00	2,590.96	2,585.08	2,552.78	9.42	10.31	32.46	361.86	-109.39	212.13	193.42	18.71	11.337		
2,700.00	2,690.46	2,684.61	2,650.55	9.81	10.75	32.51	379.62	-115.07	221.79	202.33	19.46	11.396		
2,800.00	2,789.96	2,784.15	2,748.32	10.19	11.19	32.55	397.38	-120.74	231.45	211.24	20.21	11.450		
2,900.00	2,889.46	2,883.68	2,846.09	10.57	11.63	32.59	415.13	-126.42	241.11	220.14	20.97	11.499		
3,000.00	2,988.96	2,983.21	2,943.86	10.95	12.06	32.62	432.89	-132.09	250.77	229.05	21.72	11.546		
3,100.00	3,088.46	3,082.74	3,041.63	11.33	12.50	32.66	450.65	-137.76	260.43	237.95	22.47	11.589		
3,200.00	3,187.96	3,182.28	3,139.41	11.72	12.94	32.69	468.40	-143.44	270.09	246.86	23.23	11.629		
3,300.00	3,287.46	3,281.81	3,237.18	12.10	13.39	32.72	486.16	-149.11	279.75	255.77	23.98	11.666		
3,400.00	3,386.96	3,381.34	3,334.95	12.48	13.83	32.74	503.92	-154.78	289.40	264.67	24.73	11.701		
3,500.00	3,486.46	3,480.87	3,432.72	12.87	14.27	32.77	521.68	-160.46	299.06	273.58	25.49	11.734		
3,600.00	3,585.96	3,580.41	3,530.49	13.25	14.71	32.79	539.43	-166.13	308.72	282.48	26.24	11.764		
3,700.00	3,685.46	3,679.94	3,628.26	13.63	15.15	32.81	557.19	-171.81	318.38	291.39	27.00	11.793		
3,800.00	3,784.96	3,779.47	3,726.03	14.01	15.59	32.83	574.95	-177.48	328.04	300.29	27.75	11.821		
3,900.00	3,884.46	3,879.00	3,823.80	14.40	16.03	32.85	592.71	-183.15	337.70	309.19	28.51	11.846		
4,000.00	3,983.96	3,978.53	3,921.57	14.78	16.47	32.87	610.46	-188.83	347.36	318.10	29.26	11.871		
4,100.00	4,083.46	4,078.07	4,019.34	15.16	16.91	32.89	628.22	-194.50	357.02	327.00	30.02	11.894		
4,200.00	4,182.96	4,177.60	4,117.12	15.55	17.35	32.90	645.98	-200.17	366.68	335.91	30.77	11.916		
4,300.00	4,282.46	4,277.13	4,214.89	15.93	17.79	32.92	663.74	-205.85	376.34	344.81	31.53	11.937		
4,400.00	4,381.96	4,376.66	4,312.66	16.31	18.24	32.94	681.49	-211.52	386.00	353.72	32.28	11.956		
4,500.00	4,481.46	4,476.20	4,410.43	16.70	18.68	32.95	699.25	-217.20	395.66	362.62	33.04	11.975		
4,600.00	4,580.96	4,575.73	4,508.20	17.08	19.12	32.96	717.01	-222.87	405.32	371.52	33.80	11.993		
4,700.00	4,680.46	4,675.26	4,605.97	17.46	19.56	32.98	734.76	-228.54	414.98	380.43	34.55	12.010		
4,800.00	4,779.96	4,774.79	4,703.74	17.85	20.00	32.99	752.52	-234.22	424.64	389.33	35.31	12.027		
4,900.00	4,879.46	4,874.33	4,801.51	18.23	20.44	33.00	770.28	-239.89	434.30	398.23	36.06	12.042		
5,000.00	4,978.96	4,973.86	4,899.28	18.61	20.89	33.01	788.04	-245.56	443.96	407.14	36.82	12.057		

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 3E-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 3E-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: O-MWD+HDGM													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
5,100.00	5,078.46	5,073.39	4,997.05	19.00	21.33	33.02	805.79	-251.24	453.62	416.04	37.58	12.072		
5,200.00	5,177.96	5,172.92	5,094.83	19.38	21.77	33.03	823.55	-256.91	463.28	424.94	38.33	12.086		
5,300.00	5,277.46	5,272.46	5,192.60	19.76	22.21	33.04	841.31	-262.59	472.94	433.85	39.09	12.099		
5,400.00	5,376.96	5,371.99	5,290.37	20.15	22.65	33.05	859.07	-268.26	482.60	442.75	39.85	12.112		
5,500.00	5,476.46	5,471.52	5,388.14	20.53	23.10	33.06	876.82	-273.93	492.26	451.65	40.60	12.124		
5,600.00	5,575.96	5,575.66	5,490.46	20.91	23.56	33.07	895.28	-279.83	501.81	460.41	41.40	12.122		
5,700.00	5,675.46	5,695.71	5,609.01	21.30	24.06	33.20	913.26	-285.57	508.56	466.27	42.29	12.027		
5,738.64	5,713.91	5,742.23	5,655.14	21.45	24.24	33.29	918.95	-287.39	510.09	467.48	42.61	11.972		
5,800.00	5,775.02	5,816.17	5,728.66	21.68	24.52	33.46	926.52	-289.81	511.84	468.74	43.10	11.876		
5,900.00	5,874.83	5,936.79	5,848.94	22.04	24.95	33.65	934.99	-292.52	513.80	469.99	43.82	11.726		
6,000.00	5,974.79	6,057.49	5,969.57	22.39	25.33	33.73	938.64	-293.68	514.65	470.21	44.44	11.580		
6,025.21	6,000.00	6,087.93	6,000.00	22.48	25.43	-0.53	938.79	-293.73	514.68	470.10	44.58	11.544		
6,100.00	6,074.79	6,162.71	6,074.79	22.73	25.65	-0.53	938.79	-293.73	514.68	469.59	45.09	11.414		
6,200.00	6,174.79	6,262.71	6,174.79	23.07	25.95	-0.53	938.79	-293.73	514.68	468.91	45.77	11.245		
6,300.00	6,274.79	6,362.71	6,274.79	23.40	26.24	-0.53	938.79	-293.73	514.68	468.23	46.45	11.080		
6,400.00	6,374.79	6,462.71	6,374.79	23.74	26.54	-0.53	938.79	-293.73	514.68	467.55	47.13	10.920		
6,500.00	6,474.79	6,562.71	6,474.79	24.08	26.85	-0.53	938.79	-293.73	514.68	466.87	47.82	10.764		
6,600.00	6,574.79	6,662.71	6,574.79	24.42	27.15	-0.53	938.79	-293.73	514.68	466.18	48.50	10.612		
6,649.01	6,623.80	6,711.73	6,623.80	24.59	27.30	-0.53	938.79	-293.73	514.68	465.85	48.83	10.539		
6,700.00	6,674.75	6,762.68	6,674.71	24.75	27.45	-89.95	938.81	-291.92	514.68	465.52	49.17	10.468		
6,750.00	6,724.45	6,812.65	6,724.39	24.90	27.58	-89.95	938.86	-286.64	514.68	465.21	49.47	10.403		
6,800.00	6,773.67	6,862.61	6,773.57	25.05	27.72	-89.95	938.95	-277.90	514.68	464.91	49.77	10.341		
6,850.00	6,822.16	6,912.58	6,822.03	25.19	27.84	-89.95	939.08	-265.75	514.68	464.62	50.06	10.281		
6,900.00	6,869.68	6,962.55	6,869.53	25.32	27.96	-89.95	939.24	-250.26	514.69	464.34	50.35	10.223		
6,950.00	6,916.01	7,012.52	6,915.83	25.45	28.07	-89.96	939.43	-231.50	514.69	464.05	50.63	10.165		
7,000.00	6,960.91	7,062.49	6,960.71	25.57	28.17	-89.96	939.65	-209.55	514.69	463.76	50.92	10.107		
7,050.00	7,004.17	7,112.46	7,003.95	25.69	28.27	-89.96	939.91	-184.52	514.69	463.46	51.23	10.047		
7,100.00	7,045.57	7,162.43	7,045.34	25.80	28.36	-89.96	940.20	-156.54	514.69	463.14	51.56	9.983		
7,150.00	7,084.92	7,212.41	7,084.68	25.93	28.44	-89.96	940.51	-125.75	514.70	462.78	51.92	9.913		
7,200.00	7,122.02	7,262.38	7,121.78	26.06	28.51	-89.97	940.85	-92.28	514.70	462.36	52.34	9.835		
7,250.00	7,156.70	7,312.36	7,156.46	26.24	28.58	-89.97	941.22	-56.31	514.70	461.89	52.82	9.745		
7,300.00	7,188.78	7,362.34	7,188.55	26.47	28.64	-89.97	941.61	-18.01	514.71	461.33	53.38	9.642		
7,350.00	7,218.11	7,412.32	7,217.89	26.76	28.69	-89.97	942.03	22.44	514.71	460.66	54.04	9.524		
7,400.00	7,244.54	7,462.30	7,244.33	27.13	28.75	-89.98	942.46	64.84	514.71	459.89	54.82	9.389		
7,450.00	7,267.95	7,512.28	7,267.76	27.58	28.82	-89.98	942.92	108.98	514.72	458.99	55.73	9.236		
7,500.00	7,288.22	7,562.27	7,288.05	28.09	28.97	-89.98	943.38	154.65	514.72	457.95	56.77	9.067		
7,550.00	7,305.25	7,612.26	7,305.11	28.68	29.36	-89.99	943.87	201.62	514.72	456.77	57.95	8.882		
7,600.00	7,318.96	7,662.25	7,318.85	29.35	29.95	-89.99	944.36	249.68	514.73	455.46	59.27	8.684		
7,650.00	7,329.29	7,712.24	7,329.21	30.08	30.65	-89.99	944.86	298.57	514.73	454.01	60.72	8.477		
7,700.00	7,336.18	7,762.24	7,336.13	30.87	31.43	-89.99	945.37	348.07	514.74	452.43	62.30	8.262		
7,750.00	7,339.60	7,812.24	7,339.58	31.72	32.26	-90.00	945.88	397.94	514.74	450.76	63.98	8.045		
7,774.01	7,340.00	7,836.25	7,340.00	32.14	32.68	-90.00	946.12	421.95	514.74	449.92	64.82	7.941		
7,800.00	7,340.00	7,862.23	7,340.00	32.62	33.16	-90.00	946.39	447.93	514.74	448.97	65.77	7.826		
7,900.00	7,340.00	7,962.23	7,340.00	34.56	35.10	-90.00	947.41	547.93	514.75	445.11	69.64	7.392		
8,000.00	7,340.00	8,062.23	7,340.00	36.68	37.20	-90.00	948.44	647.92	514.76	440.91	73.85	6.970		
8,100.00	7,340.00	8,162.23	7,340.00	38.95	39.44	-90.00	949.46	747.92	514.77	436.40	78.36	6.569		
8,200.00	7,340.00	8,262.23	7,340.00	41.34	41.82	-90.00	950.49	847.91	514.78	431.65	83.13	6.193		
8,300.00	7,340.00	8,362.23	7,340.00	43.84	44.30	-90.00	951.51	947.91	514.79	426.69	88.10	5.843		
8,400.00	7,340.00	8,462.23	7,340.00	46.42	46.86	-90.00	952.54	1,047.90	514.79	421.55	93.25	5.521		
8,500.00	7,340.00	8,562.23	7,340.00	49.08	49.51	-90.00	953.56	1,147.89	514.80	416.26	98.54	5.224		
8,600.00	7,340.00	8,662.23	7,340.00	51.80	52.21	-90.00	954.58	1,247.89	514.81	410.85	103.96	4.952		
8,700.00	7,340.00	8,762.23	7,340.00	54.57	54.97	-90.00	955.61	1,347.88	514.82	405.33	109.49	4.702		

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 3E-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 3E-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					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	8,862.23	7,340.00	57.39	57.77	-90.00	956.63	1,447.88	514.83	399.71	115.11	4.472		
8,900.00	7,340.00	8,962.23	7,340.00	60.25	60.62	-90.00	957.66	1,547.87	514.84	394.02	120.81	4.261		
9,000.00	7,340.00	9,062.23	7,340.00	63.14	63.49	-90.00	958.68	1,647.87	514.84	388.26	126.58	4.067		
9,100.00	7,340.00	9,162.23	7,340.00	66.06	66.40	-90.00	959.71	1,747.86	514.85	382.44	132.41	3.888		
9,200.00	7,340.00	9,262.23	7,340.00	69.00	69.34	-90.00	960.73	1,847.86	514.86	376.57	138.29	3.723		
9,300.00	7,340.00	9,362.23	7,340.00	71.97	72.29	-90.00	961.76	1,947.85	514.87	370.65	144.22	3.570		
9,400.00	7,340.00	9,462.23	7,340.00	74.95	75.27	-90.00	962.78	2,047.85	514.88	364.70	150.18	3.428		
9,500.00	7,340.00	9,562.23	7,340.00	77.96	78.27	-90.00	963.80	2,147.84	514.89	358.70	156.18	3.297		
9,600.00	7,340.00	9,662.23	7,340.00	80.98	81.28	-90.00	964.83	2,247.84	514.89	352.68	162.21	3.174		
9,700.00	7,340.00	9,762.23	7,340.00	84.01	84.31	-90.00	965.85	2,347.83	514.90	346.63	168.27	3.060		
9,800.00	7,340.00	9,862.23	7,340.00	87.06	87.34	-90.00	966.88	2,447.83	514.91	340.55	174.36	2.953		
9,900.00	7,340.00	9,962.23	7,340.00	90.11	90.40	-90.00	967.90	2,547.82	514.92	334.45	180.47	2.853		
10,000.00	7,340.00	10,062.23	7,340.00	93.18	93.46	-90.00	968.93	2,647.82	514.93	328.33	186.60	2.760		
10,100.00	7,340.00	10,162.23	7,340.00	96.26	96.53	-90.00	969.95	2,747.81	514.94	322.19	192.74	2.672		
10,200.00	7,340.00	10,262.23	7,340.00	99.34	99.61	-90.00	970.98	2,847.81	514.94	316.04	198.91	2.589		
10,300.00	7,340.00	10,362.23	7,340.00	102.43	102.69	-90.00	972.00	2,947.80	514.95	309.87	205.09	2.511		
10,400.00	7,340.00	10,462.23	7,340.00	105.53	105.79	-90.00	973.02	3,047.80	514.96	303.68	211.28	2.437		
10,500.00	7,340.00	10,562.23	7,340.00	108.64	108.89	-90.00	974.05	3,147.79	514.97	297.48	217.49	2.368		
10,600.00	7,340.00	10,662.23	7,340.00	111.75	111.99	-90.00	975.07	3,247.78	514.98	291.27	223.70	2.302		
10,700.00	7,340.00	10,762.23	7,340.00	114.86	115.10	-90.00	976.10	3,347.78	514.99	285.05	229.93	2.240		
10,800.00	7,340.00	10,862.23	7,340.00	117.98	118.22	-90.00	977.12	3,447.77	514.99	278.82	236.17	2.181		
10,900.00	7,340.00	10,962.23	7,340.00	121.11	121.34	-90.00	978.15	3,547.77	515.00	272.59	242.42	2.124		
11,000.00	7,340.00	11,062.23	7,340.00	124.24	124.47	-90.00	979.17	3,647.76	515.01	266.34	248.67	2.071		
11,100.00	7,340.00	11,162.23	7,340.00	127.37	127.60	-90.00	980.20	3,747.76	515.02	260.08	254.94	2.020		
11,200.00	7,340.00	11,262.23	7,340.00	130.51	130.73	-90.00	981.22	3,847.75	515.03	253.82	261.21	1.972		
11,300.00	7,340.00	11,362.23	7,340.00	133.65	133.87	-90.00	982.24	3,947.75	515.04	247.55	267.48	1.925		
11,400.00	7,340.00	11,462.23	7,340.00	136.79	137.01	-90.00	983.27	4,047.74	515.04	241.28	273.77	1.881		
11,500.00	7,340.00	11,562.23	7,340.00	139.94	140.15	-90.00	984.29	4,147.74	515.05	234.99	280.06	1.839		
11,600.00	7,340.00	11,662.23	7,340.00	143.09	143.30	-90.00	985.32	4,247.73	515.06	228.71	286.35	1.799		
11,700.00	7,340.00	11,762.23	7,340.00	146.24	146.45	-90.00	986.34	4,347.73	515.07	222.42	292.65	1.760		
11,800.00	7,340.00	11,862.23	7,340.00	149.39	149.60	-90.00	987.37	4,447.72	515.08	216.12	298.96	1.723		
11,848.32	7,340.00	11,910.55	7,340.00	150.91	151.12	-90.00	987.86	4,496.04	515.08	213.08	302.01	1.706 SF		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well SAM 3E-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 3E-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						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	9.84	-0.08	9.84				
100.00	100.00	100.00	100.00	0.14	0.14	-0.50	9.84	-0.08	9.84	9.56	0.28	35.633	
200.00	200.00	200.00	200.00	0.50	0.50	-0.50	9.84	-0.08	9.84	8.84	0.99	9.905	
300.00	300.00	300.00	300.00	0.85	0.85	-0.50	9.84	-0.08	9.84	8.13	1.71	5.752	
400.00	400.00	400.00	400.00	1.21	1.21	-0.50	9.84	-0.08	9.84	7.41	2.43	4.053	
500.00	500.00	500.00	500.00	1.57	1.57	-0.50	9.84	-0.08	9.84	6.69	3.14	3.129 CC, ES	
600.00	600.00	599.64	599.62	1.93	1.93	-3.72	11.44	-0.74	11.47	7.59	3.87	2.960	
700.00	699.98	699.14	698.98	2.29	2.29	27.53	16.23	-2.72	14.93	10.31	4.62	3.232	
800.00	799.84	798.51	797.97	2.65	2.65	27.74	24.21	-5.99	18.65	13.28	5.36	3.476	
886.57	886.09	884.43	883.28	2.96	2.96	29.27	33.65	-9.88	22.07	16.06	6.01	3.671	
900.00	899.46	897.75	896.47	3.01	3.01	29.54	35.33	-10.57	22.65	16.54	6.11	3.706	
1,000.00	998.96	997.35	994.98	3.37	3.39	30.42	48.94	-16.16	28.08	21.24	6.83	4.108	
1,100.00	1,098.46	1,097.19	1,093.70	3.74	3.78	30.91	62.74	-21.84	33.68	26.13	7.55	4.460	
1,200.00	1,197.96	1,197.03	1,192.42	4.11	4.17	31.27	76.55	-27.52	39.28	31.01	8.27	4.748	
1,300.00	1,297.46	1,296.87	1,291.14	4.49	4.57	31.53	90.36	-33.20	44.89	35.88	9.00	4.987	
1,400.00	1,396.96	1,396.72	1,389.86	4.86	4.96	31.74	104.16	-38.87	50.49	40.76	9.73	5.188	
1,500.00	1,496.46	1,496.56	1,488.58	5.24	5.37	31.90	117.97	-44.55	56.10	45.63	10.47	5.359	
1,600.00	1,595.96	1,596.40	1,587.30	5.62	5.77	32.04	131.77	-50.23	61.70	50.50	11.20	5.507	
1,700.00	1,695.46	1,696.24	1,686.02	6.00	6.17	32.15	145.58	-55.91	67.31	55.37	11.94	5.636	
1,800.00	1,794.96	1,796.09	1,784.74	6.38	6.58	32.25	159.39	-61.58	72.91	60.23	12.68	5.749	
1,900.00	1,894.46	1,895.93	1,883.46	6.76	6.99	32.33	173.19	-67.26	78.52	65.10	13.42	5.849	
2,000.00	1,993.96	1,995.77	1,982.18	7.14	7.39	32.40	187.00	-72.94	84.13	69.96	14.17	5.939	
2,100.00	2,093.46	2,095.62	2,080.90	7.52	7.80	32.46	200.81	-78.62	89.73	74.82	14.91	6.018	
2,200.00	2,192.96	2,195.46	2,179.62	7.90	8.21	32.51	214.61	-84.29	95.34	79.69	15.65	6.090	
2,300.00	2,292.46	2,295.30	2,278.34	8.28	8.62	32.56	228.42	-89.97	100.95	84.55	16.40	6.156	
2,400.00	2,391.96	2,395.14	2,377.06	8.66	9.03	32.61	242.22	-95.65	106.55	89.41	17.14	6.215	
2,500.00	2,491.46	2,494.99	2,475.78	9.04	9.44	32.65	256.03	-101.33	112.16	94.27	17.89	6.269	
2,600.00	2,590.96	2,594.83	2,574.50	9.42	9.85	32.68	269.84	-107.00	117.77	99.13	18.64	6.319	
2,700.00	2,690.46	2,694.67	2,673.22	9.81	10.26	32.71	283.64	-112.68	123.38	103.99	19.38	6.365	
2,800.00	2,789.96	2,794.51	2,771.94	10.19	10.67	32.74	297.45	-118.36	128.98	108.85	20.13	6.407	
2,900.00	2,889.46	2,894.36	2,870.66	10.57	11.08	32.77	311.25	-124.03	134.59	113.71	20.88	6.446	
3,000.00	2,988.96	2,994.20	2,969.38	10.95	11.50	32.79	325.06	-129.71	140.20	118.57	21.63	6.482	
3,100.00	3,088.46	3,094.04	3,068.10	11.33	11.91	32.82	338.87	-135.39	145.80	123.43	22.38	6.516	
3,200.00	3,187.96	3,193.88	3,166.82	11.72	12.32	32.84	352.67	-141.07	151.41	128.29	23.12	6.548	
3,300.00	3,287.46	3,293.73	3,265.55	12.10	12.73	32.86	366.48	-146.74	157.02	133.15	23.87	6.577	
3,400.00	3,386.96	3,393.57	3,364.27	12.48	13.14	32.88	380.29	-152.42	162.63	138.00	24.62	6.605	
3,500.00	3,486.46	3,493.41	3,462.99	12.87	13.55	32.89	394.09	-158.10	168.23	142.86	25.37	6.631	
3,600.00	3,585.96	3,593.26	3,561.71	13.25	13.97	32.91	407.90	-163.78	173.84	147.72	26.12	6.655	
3,700.00	3,685.46	3,693.10	3,660.43	13.63	14.38	32.92	421.70	-169.45	179.45	152.58	26.87	6.678	
3,800.00	3,784.96	3,792.94	3,759.15	14.01	14.79	32.94	435.51	-175.13	185.06	157.44	27.62	6.700	
3,900.00	3,884.46	3,892.78	3,857.87	14.40	15.20	32.95	449.32	-180.81	190.66	162.29	28.37	6.721	
4,000.00	3,983.96	3,992.63	3,956.59	14.78	15.62	32.96	463.12	-186.49	196.27	167.15	29.12	6.740	
4,100.00	4,083.46	4,092.47	4,055.31	15.16	16.03	32.98	476.93	-192.16	201.88	172.01	29.87	6.759	
4,200.00	4,182.96	4,192.31	4,154.03	15.55	16.44	32.99	490.73	-197.84	207.49	176.87	30.62	6.776	
4,300.00	4,282.46	4,292.15	4,252.75	15.93	16.86	33.00	504.54	-203.52	213.09	181.72	31.37	6.793	
4,400.00	4,381.96	4,392.00	4,351.47	16.31	17.27	33.01	518.35	-209.19	218.70	186.58	32.12	6.809	
4,500.00	4,481.46	4,491.84	4,450.19	16.70	17.68	33.02	532.15	-214.87	224.31	191.44	32.87	6.824	
4,600.00	4,580.96	4,591.68	4,548.91	17.08	18.09	33.03	545.96	-220.55	229.92	196.29	33.62	6.839	
4,700.00	4,680.46	4,691.52	4,647.63	17.46	18.51	33.04	559.77	-226.23	235.52	201.15	34.37	6.852	
4,800.00	4,779.96	4,791.37	4,746.35	17.85	18.92	33.04	573.57	-231.90	241.13	206.01	35.12	6.866	
4,900.00	4,879.46	4,891.21	4,845.07	18.23	19.33	33.05	587.38	-237.58	246.74	210.87	35.87	6.878	
5,000.00	4,978.96	4,991.05	4,943.79	18.61	19.75	33.06	601.18	-243.26	252.34	215.72	36.62	6.890	

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

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well SAM 3E-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 3E-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		
5,100.00	5,078.46	5,090.90	5,042.51	19.00	20.16	33.07	614.99	-248.94	257.95	220.58	37.37	6.902		
5,200.00	5,177.96	5,190.74	5,141.23	19.38	20.57	33.07	628.80	-254.61	263.56	225.44	38.12	6.913		
5,300.00	5,277.46	5,290.58	5,239.95	19.76	20.99	33.08	642.60	-260.29	269.17	230.29	38.87	6.924		
5,400.00	5,376.96	5,390.42	5,338.67	20.15	21.40	33.09	656.41	-265.97	274.77	235.15	39.63	6.934		
5,500.00	5,476.46	5,490.27	5,437.39	20.53	21.81	33.09	670.21	-271.65	280.38	240.01	40.38	6.944		
5,600.00	5,575.96	5,590.11	5,536.11	20.91	22.23	33.10	684.02	-277.32	285.99	244.86	41.13	6.954		
5,700.00	5,675.46	5,696.63	5,641.56	21.30	22.66	33.17	697.95	-283.05	290.86	248.93	41.93	6.937		
5,738.64	5,713.91	5,739.29	5,683.93	21.45	22.83	33.27	702.60	-284.96	291.88	249.63	42.24	6.909		
5,800.00	5,775.02	5,807.08	5,751.38	21.68	23.09	33.45	708.78	-287.50	292.94	250.22	42.72	6.857		
5,900.00	5,874.83	5,917.59	5,861.63	22.04	23.48	33.65	715.68	-290.34	294.12	250.69	43.43	6.772		
6,000.00	5,974.79	6,028.14	5,972.13	22.39	23.85	33.74	718.65	-291.56	294.64	250.57	44.07	6.686		
6,025.21	6,000.00	6,056.01	6,000.00	22.48	23.94	-0.52	718.78	-291.61	294.66	250.44	44.22	6.664		
6,100.00	6,074.79	6,130.80	6,074.79	22.73	24.18	-0.52	718.78	-291.61	294.66	249.93	44.73	6.587		
6,200.00	6,174.79	6,230.80	6,174.79	23.07	24.49	-0.52	718.78	-291.61	294.66	249.24	45.42	6.488		
6,300.00	6,274.79	6,330.80	6,274.79	23.40	24.81	-0.52	718.78	-291.61	294.66	248.55	46.10	6.391		
6,400.00	6,374.79	6,430.80	6,374.79	23.74	25.13	-0.52	718.78	-291.61	294.66	247.87	46.79	6.297		
6,500.00	6,474.79	6,530.80	6,474.79	24.08	25.45	-0.52	718.78	-291.61	294.66	247.18	47.48	6.206		
6,600.00	6,574.79	6,630.80	6,574.79	24.42	25.77	-0.52	718.78	-291.61	294.66	246.49	48.17	6.117		
6,649.01	6,623.80	6,679.81	6,623.80	24.59	25.93	-0.52	718.78	-291.61	294.66	246.15	48.51	6.074		
6,670.40	6,645.18	6,701.19	6,645.18	24.66	25.99	-90.00	718.78	-291.61	294.66	246.01	48.65	6.057		
6,700.00	6,674.75	6,730.76	6,674.75	24.75	26.09	-90.29	718.78	-291.61	294.66	245.82	48.84	6.033		
6,750.00	6,724.45	6,780.74	6,724.72	24.90	26.25	-91.19	718.78	-290.95	294.72	245.60	49.12	6.000		
6,800.00	6,773.67	6,831.10	6,774.92	25.05	26.40	-92.13	718.82	-287.01	294.86	245.48	49.38	5.971		
6,850.00	6,822.16	6,881.82	6,825.06	25.19	26.54	-93.06	718.90	-279.49	295.08	245.45	49.63	5.946		
6,900.00	6,869.68	6,932.89	6,874.89	25.32	26.68	-93.98	719.01	-268.35	295.38	245.52	49.86	5.924		
6,950.00	6,916.01	6,984.31	6,924.13	25.45	26.81	-94.89	719.16	-253.57	295.74	245.66	50.08	5.905		
7,000.00	6,960.91	7,036.10	6,972.52	25.57	26.93	-95.76	719.35	-235.16	296.17	245.88	50.29	5.889		
7,050.00	7,004.17	7,088.23	7,019.77	25.69	27.05	-96.62	719.58	-213.14	296.65	246.16	50.49	5.875		
7,100.00	7,045.57	7,140.72	7,065.59	25.80	27.16	-97.43	719.84	-187.56	297.18	246.48	50.70	5.861		
7,150.00	7,084.92	7,193.55	7,109.69	25.93	27.26	-98.21	720.14	-158.50	297.74	246.82	50.92	5.847		
7,200.00	7,122.02	7,246.71	7,151.78	26.06	27.36	-98.95	720.47	-126.05	298.33	247.16	51.17	5.830		
7,250.00	7,156.70	7,300.19	7,191.59	26.24	27.45	-99.65	720.84	-90.36	298.92	247.46	51.46	5.808		
7,300.00	7,188.78	7,353.97	7,228.82	26.47	27.53	-100.29	721.23	-51.56	299.51	247.69	51.82	5.780		
7,350.00	7,218.11	7,408.04	7,263.20	26.76	27.63	-100.88	721.66	-9.86	300.09	247.82	52.27	5.741		
7,400.00	7,244.54	7,462.37	7,294.49	27.13	27.76	-101.41	722.12	34.55	300.64	247.81	52.83	5.691		
7,450.00	7,267.95	7,516.94	7,322.44	27.58	27.99	-101.88	722.60	81.40	301.16	247.64	53.52	5.627		
7,500.00	7,288.22	7,571.73	7,346.82	28.09	28.39	-102.30	723.10	130.44	301.62	247.26	54.36	5.548		
7,550.00	7,305.25	7,626.70	7,367.45	28.68	28.95	-102.64	723.62	181.38	302.03	246.65	55.37	5.454		
7,600.00	7,318.96	7,681.83	7,384.16	29.35	29.62	-102.92	724.16	233.90	302.36	245.81	56.56	5.346		
7,650.00	7,329.29	7,737.08	7,396.80	30.08	30.39	-103.13	724.71	287.67	302.63	244.71	57.91	5.225		
7,700.00	7,336.18	7,792.42	7,405.27	30.87	31.24	-103.28	725.27	342.34	302.81	243.37	59.44	5.094		
7,750.00	7,339.60	7,847.82	7,409.49	31.72	32.16	-103.35	725.84	397.56	302.90	241.78	61.12	4.956		
7,774.01	7,340.00	7,874.43	7,410.00	32.14	32.62	-103.36	726.11	424.16	302.92	240.94	61.98	4.887		
7,800.00	7,340.00	7,900.46	7,410.00	32.62	33.09	-103.36	726.38	450.19	302.92	240.02	62.90	4.816		
7,900.00	7,340.00	8,000.46	7,410.00	34.56	35.01	-103.36	727.40	550.18	302.93	236.25	66.67	4.543		
8,000.00	7,340.00	8,100.46	7,410.00	36.68	37.11	-103.36	728.42	650.17	302.93	232.13	70.80	4.279		
8,100.00	7,340.00	8,200.46	7,410.00	38.95	39.36	-103.36	729.45	750.17	302.94	227.72	75.22	4.027		
8,200.00	7,340.00	8,300.46	7,410.00	41.34	41.74	-103.36	730.47	850.16	302.95	223.06	79.89	3.792		
8,300.00	7,340.00	8,400.46	7,410.00	43.84	44.22	-103.36	731.50	950.16	302.96	218.20	84.76	3.574		
8,400.00	7,340.00	8,500.46	7,410.00	46.42	46.79	-103.36	732.52	1,050.15	302.97	213.17	89.80	3.374		
8,500.00	7,340.00	8,600.46	7,410.00	49.08	49.43	-103.36	733.55	1,150.15	302.98	208.00	94.98	3.190		
8,600.00	7,340.00	8,700.46	7,410.00	51.80	52.13	-103.36	734.57	1,250.14	302.98	202.70	100.28	3.021		

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 3E-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 3E-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		
8,700.00	7,340.00	8,800.46	7,410.00	54.57	54.89	-103.36	735.60	1,350.14	302.99	197.30	105.69	2.867		
8,800.00	7,340.00	8,900.46	7,410.00	57.39	57.70	-103.36	736.62	1,450.13	303.00	191.81	111.19	2.725		
8,900.00	7,340.00	9,000.46	7,410.00	60.25	60.54	-103.36	737.65	1,550.13	303.01	186.25	116.76	2.595		
9,000.00	7,340.00	9,100.46	7,410.00	63.14	63.42	-103.36	738.67	1,650.12	303.02	180.62	122.40	2.476		
9,100.00	7,340.00	9,200.46	7,410.00	66.06	66.33	-103.36	739.69	1,750.12	303.03	174.93	128.09	2.366		
9,200.00	7,340.00	9,300.46	7,410.00	69.00	69.27	-103.36	740.72	1,850.11	303.03	169.20	133.83	2.264		
9,300.00	7,340.00	9,400.46	7,410.00	71.97	72.23	-103.36	741.74	1,950.11	303.04	163.42	139.62	2.170		
9,400.00	7,340.00	9,500.46	7,410.00	74.95	75.20	-103.36	742.77	2,050.10	303.05	157.60	145.45	2.084		
9,500.00	7,340.00	9,600.46	7,410.00	77.96	78.20	-103.35	743.79	2,150.10	303.06	151.75	151.30	2.003		
9,600.00	7,340.00	9,700.46	7,410.00	80.98	81.21	-103.35	744.82	2,250.09	303.07	145.87	157.19	1.928		
9,700.00	7,340.00	9,800.46	7,410.00	84.01	84.24	-103.35	745.84	2,350.09	303.07	139.97	163.11	1.858		
9,800.00	7,340.00	9,900.46	7,410.00	87.06	87.28	-103.35	746.87	2,450.08	303.08	134.03	169.05	1.793		
9,900.00	7,340.00	10,000.46	7,410.00	90.11	90.33	-103.35	747.89	2,550.08	303.09	128.08	175.01	1.732		
10,000.00	7,340.00	10,100.46	7,410.00	93.18	93.39	-103.35	748.92	2,650.07	303.10	122.11	180.99	1.675		
10,100.00	7,340.00	10,200.46	7,410.00	96.26	96.46	-103.35	749.94	2,750.06	303.11	116.12	186.99	1.621		
10,200.00	7,340.00	10,300.46	7,410.00	99.34	99.54	-103.35	750.97	2,850.06	303.12	110.12	193.00	1.571		
10,300.00	7,340.00	10,400.46	7,410.00	102.43	102.63	-103.35	751.99	2,950.05	303.12	104.10	199.03	1.523		
10,400.00	7,340.00	10,500.46	7,410.00	105.53	105.73	-103.35	753.01	3,050.05	303.13	98.06	205.07	1.478 Level 3		
10,500.00	7,340.00	10,600.46	7,410.00	108.64	108.83	-103.35	754.04	3,150.04	303.14	92.02	211.12	1.436 Level 3		
10,600.00	7,340.00	10,700.46	7,410.00	111.75	111.93	-103.35	755.06	3,250.04	303.15	85.96	217.19	1.396 Level 3		
10,700.00	7,340.00	10,800.46	7,410.00	114.86	115.05	-103.35	756.09	3,350.03	303.16	79.89	223.26	1.358 Level 3		
10,800.00	7,340.00	10,900.46	7,410.00	117.98	118.16	-103.35	757.11	3,450.03	303.16	73.82	229.35	1.322 Level 3		
10,900.00	7,340.00	11,000.46	7,410.00	121.11	121.28	-103.35	758.14	3,550.02	303.17	67.73	235.44	1.288 Level 3		
11,000.00	7,340.00	11,100.46	7,410.00	124.24	124.41	-103.35	759.16	3,650.02	303.18	61.64	241.54	1.255 Level 3		
11,100.00	7,340.00	11,200.46	7,410.00	127.37	127.54	-103.35	760.19	3,750.01	303.19	55.54	247.65	1.224 Level 2		
11,200.00	7,340.00	11,300.46	7,410.00	130.51	130.67	-103.35	761.21	3,850.01	303.20	49.44	253.76	1.195 Level 2		
11,300.00	7,340.00	11,400.46	7,410.00	133.65	133.81	-103.35	762.24	3,950.00	303.21	43.32	259.88	1.167 Level 2		
11,400.00	7,340.00	11,500.46	7,410.00	136.79	136.95	-103.35	763.26	4,050.00	303.21	37.20	266.01	1.140 Level 2		
11,500.00	7,340.00	11,600.46	7,410.00	139.94	140.10	-103.35	764.28	4,149.99	303.22	31.08	272.14	1.114 Level 2		
11,600.00	7,340.00	11,700.46	7,410.00	143.09	143.24	-103.35	765.31	4,249.99	303.23	24.95	278.28	1.090 Level 2		
11,700.00	7,340.00	11,800.46	7,410.00	146.24	146.39	-103.35	766.33	4,349.98	303.24	18.82	284.42	1.066 Level 2		
11,800.00	7,340.00	11,900.46	7,410.00	149.39	149.54	-103.35	767.36	4,449.98	303.25	12.68	290.57	1.044 Level 2		
11,848.32	7,340.00	11,948.77	7,410.00	150.91	151.07	-103.35	767.85	4,498.29	303.25	9.71	293.54	1.033 Level 2, SF		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well SAM 3E-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 3E-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	-178.92	-10.21	-0.19	10.21					
100.00	100.00	100.00	100.00	0.14	0.14	-178.92	-10.21	-0.19	10.21	9.93	0.28	36.981		
200.00	200.00	200.00	200.00	0.50	0.50	-178.92	-10.21	-0.19	10.21	9.21	0.99	10.280		
300.00	300.00	300.00	300.00	0.85	0.85	-178.92	-10.21	-0.19	10.21	8.50	1.71	5.970		
400.00	400.00	400.00	400.00	1.21	1.21	-178.92	-10.21	-0.19	10.21	7.78	2.43	4.206		
500.00	500.00	500.00	500.00	1.57	1.57	-178.92	-10.21	-0.19	10.21	7.06	3.14	3.247		
600.00	600.00	600.00	600.00	1.93	1.93	-178.92	-10.21	-0.19	10.21	6.35	3.86	2.644 CC		
700.00	699.98	699.98	699.98	2.29	2.29	-149.60	-10.21	-0.19	11.68	7.10	4.58	2.551		
800.00	799.84	799.84	799.84	2.65	2.65	-158.86	-10.21	-0.19	16.40	11.11	5.29	3.099		
886.57	886.09	886.09	886.09	2.96	2.96	-165.32	-10.21	-0.19	23.41	17.49	5.92	3.956		
900.00	899.46	899.46	899.46	3.01	3.00	-166.11	-10.21	-0.19	24.70	18.69	6.01	4.107		
1,000.00	998.96	998.96	998.96	3.37	3.36	-170.09	-10.21	-0.19	34.48	27.76	6.73	5.125		
1,100.00	1,098.46	1,099.88	1,099.86	3.74	3.72	-171.59	-8.98	-1.43	42.73	35.28	7.45	5.736		
1,200.00	1,197.96	1,201.27	1,201.10	4.11	4.08	-171.24	-5.24	-5.22	47.67	39.50	8.18	5.829		
1,300.00	1,297.46	1,301.90	1,301.39	4.49	4.44	-169.79	0.54	-11.06	49.88	40.98	8.90	5.603		
1,400.00	1,396.96	1,401.87	1,401.01	4.86	4.80	-168.36	6.50	-17.08	51.84	42.22	9.62	5.388		
1,500.00	1,496.46	1,501.84	1,500.62	5.24	5.17	-167.02	12.45	-23.10	53.83	43.48	10.34	5.204		
1,600.00	1,595.96	1,601.81	1,600.23	5.62	5.53	-165.79	18.40	-29.12	55.84	44.77	11.07	5.045		
1,700.00	1,695.46	1,701.79	1,699.85	6.00	5.90	-164.64	24.35	-35.14	57.88	46.09	11.80	4.907		
1,800.00	1,794.96	1,801.76	1,799.46	6.38	6.26	-163.56	30.31	-41.16	59.94	47.42	12.52	4.786		
1,900.00	1,894.46	1,901.73	1,899.07	6.76	6.63	-162.56	36.26	-47.18	62.03	48.77	13.25	4.680		
2,000.00	1,993.96	2,001.70	1,998.69	7.14	7.00	-161.63	42.21	-53.20	64.13	50.14	13.99	4.585		
2,100.00	2,093.46	2,101.68	2,098.30	7.52	7.37	-160.75	48.16	-59.22	66.24	51.52	14.72	4.500		
2,200.00	2,192.96	2,201.65	2,197.91	7.90	7.74	-159.93	54.12	-65.24	68.37	52.92	15.45	4.425		
2,300.00	2,292.46	2,301.62	2,297.53	8.28	8.12	-159.16	60.07	-71.26	70.51	54.33	16.19	4.356		
2,400.00	2,391.96	2,401.60	2,397.14	8.66	8.49	-158.44	66.02	-77.28	72.67	55.74	16.92	4.294		
2,500.00	2,491.46	2,501.57	2,496.76	9.04	8.86	-157.75	71.97	-83.31	74.83	57.17	17.66	4.237		
2,600.00	2,590.96	2,601.54	2,596.37	9.42	9.23	-157.11	77.93	-89.33	77.01	58.61	18.40	4.186		
2,700.00	2,690.46	2,701.51	2,695.98	9.81	9.61	-156.50	83.88	-95.35	79.19	60.06	19.14	4.138		
2,800.00	2,789.96	2,801.49	2,795.60	10.19	9.98	-155.92	89.83	-101.37	81.39	61.51	19.88	4.095		
2,900.00	2,889.46	2,901.46	2,895.21	10.57	10.35	-155.38	95.78	-107.39	83.59	62.97	20.62	4.055		
3,000.00	2,988.96	3,001.43	2,994.82	10.95	10.73	-154.86	101.74	-113.41	85.80	64.44	21.36	4.018		
3,100.00	3,088.46	3,101.40	3,094.44	11.33	11.10	-154.36	107.69	-119.43	88.01	65.92	22.10	3.983		
3,200.00	3,187.96	3,201.38	3,194.05	11.72	11.48	-153.90	113.64	-125.45	90.23	67.40	22.84	3.951		
3,300.00	3,287.46	3,301.35	3,293.66	12.10	11.85	-153.45	119.59	-131.47	92.46	68.88	23.58	3.921		
3,400.00	3,386.96	3,401.32	3,393.28	12.48	12.23	-153.03	125.55	-137.49	94.69	70.37	24.32	3.893		
3,500.00	3,486.46	3,501.29	3,492.89	12.87	12.60	-152.62	131.50	-143.51	96.93	71.87	25.06	3.867		
3,600.00	3,585.96	3,601.27	3,592.50	13.25	12.98	-152.23	137.45	-149.53	99.17	73.37	25.81	3.843		
3,700.00	3,685.46	3,701.24	3,692.12	13.63	13.35	-151.87	143.40	-155.55	101.42	74.87	26.55	3.820		
3,800.00	3,784.96	3,801.21	3,791.73	14.01	13.73	-151.51	149.36	-161.57	103.67	76.38	27.29	3.798		
3,900.00	3,884.46	3,901.19	3,891.35	14.40	14.10	-151.17	155.31	-167.59	105.92	77.89	28.04	3.778		
4,000.00	3,983.96	4,001.16	3,990.96	14.78	14.48	-150.85	161.26	-173.61	108.18	79.40	28.78	3.759		
4,100.00	4,083.46	4,101.13	4,090.57	15.16	14.85	-150.54	167.21	-179.63	110.44	80.92	29.52	3.741		
4,200.00	4,182.96	4,201.10	4,190.19	15.55	15.23	-150.24	173.17	-185.65	112.71	82.44	30.27	3.723		
4,300.00	4,282.46	4,301.08	4,289.80	15.93	15.60	-149.95	179.12	-191.67	114.97	83.96	31.01	3.707		
4,400.00	4,381.96	4,401.05	4,389.41	16.31	15.98	-149.68	185.07	-197.69	117.24	85.49	31.76	3.692		
4,500.00	4,481.46	4,501.02	4,489.03	16.70	16.35	-149.41	191.02	-203.71	119.52	87.01	32.50	3.677		
4,600.00	4,580.96	4,600.99	4,588.64	17.08	16.73	-149.16	196.98	-209.73	121.79	88.54	33.25	3.663		
4,700.00	4,680.46	4,700.97	4,688.25	17.46	17.11	-148.91	202.93	-215.75	124.07	90.07	33.99	3.650		
4,800.00	4,779.96	4,800.94	4,787.87	17.85	17.48	-148.67	208.88	-221.77	126.35	91.61	34.74	3.637		
4,900.00	4,879.46	4,900.91	4,887.48	18.23	17.86	-148.44	214.84	-227.79	128.63	93.14	35.49	3.625		
5,000.00	4,978.96	5,000.88	4,987.09	18.61	18.23	-148.22	220.79	-233.81	130.91	94.68	36.23	3.613		

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 3E-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 3E-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 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)			
5,100.00	5,078.46	5,100.86	5,086.71	19.00	18.61	-148.01	226.74	-239.83	133.20	96.22	36.98	3.602	
5,200.00	5,177.96	5,200.83	5,186.32	19.38	18.99	-147.80	232.69	-245.85	135.49	97.76	37.72	3.592	
5,300.00	5,277.46	5,300.80	5,285.93	19.76	19.36	-147.60	238.65	-251.87	137.78	99.31	38.47	3.581	
5,400.00	5,376.96	5,400.78	5,385.55	20.15	19.74	-147.41	244.60	-257.89	140.07	100.85	39.22	3.572	
5,500.00	5,476.46	5,500.75	5,485.16	20.53	20.11	-147.23	250.55	-263.91	142.36	102.40	39.96	3.562	
5,600.00	5,575.96	5,600.72	5,584.78	20.91	20.49	-147.04	256.50	-269.93	144.65	103.94	40.71	3.553	
5,700.00	5,675.46	5,700.69	5,684.39	21.30	20.87	-146.87	262.46	-275.95	146.95	105.49	41.46	3.545	
5,738.64	5,713.91	5,739.32	5,722.88	21.45	21.01	-146.80	264.76	-278.28	147.83	106.09	41.74	3.541	
5,800.00	5,775.02	5,800.00	5,783.35	21.68	21.24	-146.61	268.29	-281.85	148.78	106.58	42.20	3.526	
5,900.00	5,874.83	5,896.13	5,879.31	22.04	21.59	-146.34	272.27	-285.87	149.68	106.78	42.90	3.489	
6,000.00	5,974.79	5,992.55	5,975.69	22.39	21.93	-146.22	273.98	-287.61	150.06	106.51	43.56	3.445	
6,025.21	6,000.00	6,016.86	6,000.00	22.48	22.02	179.52	274.05	-287.68	150.08	106.37	43.72	3.433	
6,100.00	6,074.79	6,091.65	6,074.79	22.73	22.27	179.52	274.05	-287.68	150.08	105.85	44.23	3.393	
6,200.00	6,174.79	6,191.65	6,174.79	23.07	22.62	179.52	274.05	-287.68	150.08	105.15	44.93	3.341	
6,300.00	6,274.79	6,291.65	6,274.79	23.40	22.96	179.52	274.05	-287.68	150.08	104.46	45.62	3.290	
6,400.00	6,374.79	6,391.65	6,374.79	23.74	23.31	179.52	274.05	-287.68	150.08	103.76	46.32	3.240	
6,500.00	6,474.79	6,491.65	6,474.79	24.08	23.65	179.52	274.05	-287.68	150.08	103.07	47.01	3.192	
6,600.00	6,574.79	6,591.65	6,574.79	24.42	24.00	179.52	274.05	-287.68	150.08	102.37	47.71	3.146	
6,649.01	6,623.80	6,640.66	6,623.80	24.59	24.16	179.52	274.05	-287.68	150.08	102.03	48.05	3.123	
6,649.03	6,623.81	6,640.67	6,623.81	24.59	24.17	179.52	274.05	-287.68	150.08	102.03	48.05	3.123	
6,700.00	6,674.75	6,691.60	6,674.75	24.75	24.34	90.79	274.05	-287.68	150.10	101.68	48.41	3.100	
6,750.00	6,724.45	6,741.61	6,724.74	24.90	24.51	92.55	274.06	-287.01	150.23	101.45	48.78	3.080	
6,800.00	6,773.67	6,792.02	6,774.99	25.05	24.67	94.39	274.10	-283.07	150.53	101.38	49.15	3.063	
6,850.00	6,822.16	6,842.78	6,825.17	25.19	24.82	96.21	274.18	-275.53	150.98	101.47	49.51	3.050	
6,900.00	6,869.68	6,893.89	6,875.04	25.32	24.97	98.00	274.29	-264.37	151.57	101.72	49.85	3.041	
6,950.00	6,916.01	6,945.36	6,924.33	25.45	25.11	99.73	274.44	-249.57	152.29	102.12	50.17	3.036	
7,000.00	6,960.91	6,997.19	6,972.75	25.57	25.25	101.41	274.63	-231.13	153.13	102.67	50.46	3.035	
7,050.00	7,004.17	7,049.37	7,020.03	25.69	25.39	103.02	274.85	-209.07	154.07	103.35	50.71	3.038	
7,100.00	7,045.57	7,101.90	7,065.87	25.80	25.53	104.55	275.11	-183.45	155.09	104.15	50.94	3.045	
7,150.00	7,084.92	7,154.78	7,110.00	25.93	25.68	105.99	275.41	-154.35	156.16	105.03	51.14	3.054	
7,200.00	7,122.02	7,207.98	7,152.11	26.06	25.85	107.35	275.74	-121.85	157.27	105.95	51.32	3.065	
7,250.00	7,156.70	7,261.49	7,191.91	26.24	26.04	108.60	276.10	-86.10	158.39	106.89	51.50	3.076	
7,300.00	7,188.78	7,315.31	7,229.14	26.47	26.29	109.75	276.50	-47.26	159.50	107.80	51.70	3.085	
7,350.00	7,218.11	7,369.42	7,263.52	26.76	26.58	110.79	276.92	-5.50	160.57	108.62	51.96	3.091	
7,400.00	7,244.54	7,423.78	7,294.79	27.13	26.95	111.73	277.37	38.95	161.59	109.30	52.29	3.090	
7,450.00	7,267.95	7,478.38	7,322.72	27.58	27.39	112.54	277.85	85.85	162.52	109.79	52.73	3.082	
7,500.00	7,288.22	7,533.19	7,347.07	28.09	27.91	113.25	278.35	134.94	163.36	110.04	53.32	3.064	
7,550.00	7,305.25	7,588.18	7,367.67	28.68	28.52	113.83	278.87	185.91	164.09	110.01	54.07	3.035	
7,600.00	7,318.96	7,643.33	7,384.33	29.35	29.22	114.30	279.40	238.46	164.68	109.67	55.01	2.994	
7,650.00	7,329.29	7,698.59	7,396.92	30.08	30.00	114.65	279.95	292.25	165.14	108.98	56.15	2.941	
7,700.00	7,336.18	7,753.94	7,405.34	30.87	30.86	114.88	280.50	346.94	165.44	107.94	57.50	2.877	
7,750.00	7,339.60	7,809.34	7,409.52	31.72	31.80	114.99	281.06	402.17	165.59	106.55	59.04	2.805	
7,774.01	7,340.00	7,835.93	7,410.00	32.14	32.26	115.01	281.33	428.75	165.60	105.75	59.85	2.767	
7,800.00	7,340.00	7,861.91	7,410.00	32.62	32.74	115.01	281.60	454.73	165.60	104.89	60.72	2.727	
7,900.00	7,340.00	7,961.91	7,410.00	34.56	34.69	115.01	282.61	554.72	165.60	101.34	64.26	2.577	
8,000.00	7,340.00	8,061.91	7,410.00	36.68	36.80	115.01	283.63	654.72	165.60	97.49	68.11	2.431	
8,100.00	7,340.00	8,161.91	7,410.00	38.95	39.06	115.01	284.65	754.71	165.60	93.37	72.24	2.293	
8,200.00	7,340.00	8,261.91	7,410.00	41.34	41.45	115.01	285.66	854.71	165.60	89.02	76.58	2.162	
8,300.00	7,340.00	8,361.91	7,410.00	43.84	43.94	115.01	286.68	954.70	165.60	84.48	81.12	2.041	
8,400.00	7,340.00	8,461.91	7,410.00	46.42	46.52	115.01	287.70	1,054.70	165.60	79.78	85.82	1.930	
8,500.00	7,340.00	8,561.91	7,410.00	49.08	49.17	115.01	288.71	1,154.69	165.60	74.95	90.65	1.827	
8,600.00	7,340.00	8,661.91	7,410.00	51.80	51.88	115.01	289.73	1,254.69	165.60	70.00	95.60	1.732	

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 3E-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 3E-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 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)			
8,700.00	7,340.00	8,761.91	7,410.00	54.57	54.65	115.01	290.74	1,354.68	165.60	64.96	100.64	1.645	
8,800.00	7,340.00	8,861.91	7,410.00	57.39	57.46	115.01	291.76	1,454.68	165.60	59.83	105.77	1.566	
8,900.00	7,340.00	8,961.91	7,410.00	60.25	60.32	115.01	292.78	1,554.67	165.60	54.63	110.97	1.492 Level 3	
9,000.00	7,340.00	9,061.91	7,410.00	63.14	63.21	115.01	293.79	1,654.67	165.60	49.37	116.23	1.425 Level 3	
9,100.00	7,340.00	9,161.91	7,410.00	66.06	66.12	115.01	294.81	1,754.66	165.60	44.06	121.55	1.362 Level 3	
9,200.00	7,340.00	9,261.91	7,410.00	69.00	69.06	115.01	295.82	1,854.66	165.60	38.69	126.91	1.305 Level 3	
9,300.00	7,340.00	9,361.91	7,410.00	71.97	72.03	115.01	296.84	1,954.65	165.60	33.29	132.31	1.252 Level 3	
9,400.00	7,340.00	9,461.91	7,410.00	74.95	75.01	115.01	297.86	2,054.65	165.60	27.85	137.76	1.202 Level 2	
9,500.00	7,340.00	9,561.91	7,410.00	77.96	78.02	115.01	298.87	2,154.64	165.60	22.37	143.23	1.156 Level 2	
9,600.00	7,340.00	9,661.91	7,410.00	80.98	81.03	115.01	299.89	2,254.64	165.60	16.87	148.73	1.113 Level 2	
9,700.00	7,340.00	9,761.91	7,410.00	84.01	84.07	115.01	300.91	2,354.63	165.60	11.34	154.26	1.074 Level 2	
9,800.00	7,340.00	9,861.91	7,410.00	87.06	87.11	115.01	301.92	2,454.63	165.60	5.79	159.81	1.036 Level 2	
9,900.00	7,340.00	9,961.91	7,410.00	90.11	90.17	115.01	302.94	2,554.62	165.60	0.22	165.39	1.001 Level 2	
10,000.00	7,340.00	10,061.91	7,410.00	93.18	93.23	115.01	303.95	2,654.62	165.60	-5.37	170.98	0.969 Level 1	
10,100.00	7,340.00	10,161.91	7,410.00	96.26	96.31	115.01	304.97	2,754.61	165.60	-10.98	176.59	0.938 Level 1	
10,200.00	7,340.00	10,261.91	7,410.00	99.34	99.39	115.01	305.99	2,854.61	165.60	-16.61	182.21	0.909 Level 1	
10,300.00	7,340.00	10,361.91	7,410.00	102.43	102.48	115.01	307.00	2,954.60	165.60	-22.24	187.85	0.882 Level 1	
10,400.00	7,340.00	10,461.91	7,410.00	105.53	105.58	115.01	308.02	3,054.60	165.60	-27.90	193.50	0.856 Level 1	
10,500.00	7,340.00	10,561.91	7,410.00	108.64	108.68	115.01	309.03	3,154.59	165.60	-33.56	199.16	0.832 Level 1	
10,600.00	7,340.00	10,661.91	7,410.00	111.75	111.79	115.01	310.05	3,254.59	165.60	-39.23	204.83	0.808 Level 1	
10,700.00	7,340.00	10,761.91	7,410.00	114.86	114.91	115.01	311.07	3,354.58	165.60	-44.91	210.52	0.787 Level 1	
10,800.00	7,340.00	10,861.91	7,410.00	117.98	118.03	115.01	312.08	3,454.58	165.60	-50.61	216.21	0.766 Level 1	
10,900.00	7,340.00	10,961.91	7,410.00	121.11	121.15	115.01	313.10	3,554.57	165.60	-56.31	221.91	0.746 Level 1	
11,000.00	7,340.00	11,061.91	7,410.00	124.24	124.28	115.01	314.12	3,654.56	165.60	-62.01	227.62	0.728 Level 1	
11,100.00	7,340.00	11,161.91	7,410.00	127.37	127.41	115.01	315.13	3,754.56	165.60	-67.73	233.33	0.710 Level 1	
11,200.00	7,340.00	11,261.91	7,410.00	130.51	130.55	115.01	316.15	3,854.55	165.60	-73.45	239.05	0.693 Level 1	
11,300.00	7,340.00	11,361.91	7,410.00	133.65	133.69	115.01	317.16	3,954.55	165.60	-79.18	244.78	0.677 Level 1	
11,400.00	7,340.00	11,461.91	7,410.00	136.79	136.83	115.01	318.18	4,054.54	165.60	-84.91	250.52	0.661 Level 1	
11,500.00	7,340.00	11,561.91	7,410.00	139.94	139.98	115.01	319.20	4,154.54	165.60	-90.65	256.26	0.646 Level 1	
11,600.00	7,340.00	11,661.91	7,410.00	143.09	143.12	115.01	320.21	4,254.53	165.60	-96.40	262.00	0.632 Level 1	
11,700.00	7,340.00	11,761.91	7,410.00	146.24	146.28	115.01	321.23	4,354.53	165.60	-102.15	267.75	0.618 Level 1	
11,800.00	7,340.00	11,861.91	7,410.00	149.39	149.43	115.01	322.24	4,454.52	165.60	-107.90	273.50	0.605 Level 1	
11,846.69	7,340.00	11,908.61	7,410.00	150.86	150.90	115.01	322.72	4,501.21	165.60	-110.59	276.19	0.600 Level 1	
11,848.32	7,340.00	11,909.47	7,410.00	150.91	150.93	115.01	322.73	4,502.08	165.60	-110.65	276.25	0.599 Level 1, ES, SF	



# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well SAM 3E-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 3E-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	-179.69	-20.04	-0.11	20.04					
100.00	100.00	100.00	100.00	0.14	0.14	-179.69	-20.04	-0.11	20.04	19.76	0.28	72.592		
200.00	200.00	200.00	200.00	0.50	0.50	-179.69	-20.04	-0.11	20.04	19.04	0.99	20.179		
300.00	300.00	300.00	300.00	0.85	0.85	-179.69	-20.04	-0.11	20.04	18.33	1.71	11.718		
400.00	400.00	400.00	400.00	1.21	1.21	-179.69	-20.04	-0.11	20.04	17.61	2.43	8.256		
500.00	500.00	500.00	500.00	1.57	1.57	-179.69	-20.04	-0.11	20.04	16.89	3.14	6.374		
600.00	600.00	600.00	600.00	1.93	1.93	-179.69	-20.04	-0.11	20.04	16.18	3.86	5.190 CC, ES		
700.00	699.98	699.98	699.98	2.29	2.29	-148.05	-20.04	-0.11	21.50	16.92	4.58	4.697		
800.00	799.84	799.84	799.84	2.65	2.65	-154.11	-20.04	-0.11	26.09	20.79	5.29	4.927		
886.57	886.09	886.16	886.14	2.96	2.95	-157.40	-20.24	-1.39	32.76	26.85	5.91	5.544		
900.00	899.46	899.54	899.52	3.01	2.99	-157.53	-20.31	-1.81	33.98	27.97	6.01	5.658		
1,000.00	998.96	999.15	999.03	3.37	3.34	-156.46	-21.02	-6.37	42.98	36.28	6.71	6.409		
1,100.00	1,098.46	1,098.74	1,098.49	3.74	3.68	-155.41	-21.79	-11.23	51.99	44.58	7.42	7.012		
1,200.00	1,197.96	1,198.33	1,197.96	4.11	4.03	-154.68	-22.55	-16.08	61.01	52.89	8.13	7.507		
1,300.00	1,297.46	1,297.92	1,297.43	4.49	4.39	-154.14	-23.31	-20.94	70.04	61.20	8.84	7.920		
1,400.00	1,396.96	1,397.51	1,396.90	4.86	4.74	-153.72	-24.08	-25.79	79.08	69.51	9.56	8.270		
1,500.00	1,496.46	1,497.10	1,496.37	5.24	5.10	-153.38	-24.84	-30.65	88.11	77.83	10.28	8.569		
1,600.00	1,595.96	1,596.69	1,595.83	5.62	5.45	-153.11	-25.61	-35.51	97.15	86.15	11.01	8.827		
1,700.00	1,695.46	1,696.28	1,695.30	6.00	5.81	-152.88	-26.37	-40.36	106.19	94.46	11.73	9.053		
1,800.00	1,794.96	1,795.87	1,794.77	6.38	6.17	-152.69	-27.13	-45.22	115.24	102.78	12.46	9.252		
1,900.00	1,894.46	1,895.46	1,894.24	6.76	6.53	-152.53	-27.90	-50.08	124.28	111.10	13.18	9.428		
2,000.00	1,993.96	1,995.05	1,993.71	7.14	6.89	-152.39	-28.66	-54.93	133.32	119.42	13.91	9.585		
2,100.00	2,093.46	2,094.64	2,093.18	7.52	7.25	-152.27	-29.43	-59.79	142.37	127.73	14.64	9.727		
2,200.00	2,192.96	2,194.23	2,192.64	7.90	7.61	-152.16	-30.19	-64.64	151.42	136.05	15.37	9.854		
2,300.00	2,292.46	2,293.82	2,292.11	8.28	7.97	-152.06	-30.95	-69.50	160.46	144.37	16.09	9.970		
2,400.00	2,391.96	2,393.41	2,391.58	8.66	8.33	-151.98	-31.72	-74.36	169.51	152.68	16.82	10.075		
2,500.00	2,491.46	2,493.00	2,491.05	9.04	8.69	-151.90	-32.48	-79.21	178.56	161.00	17.55	10.172		
2,600.00	2,590.96	2,592.59	2,590.52	9.42	9.06	-151.83	-33.25	-84.07	187.60	169.32	18.28	10.260		
2,700.00	2,690.46	2,692.18	2,689.99	9.81	9.42	-151.77	-34.01	-88.93	196.65	177.64	19.01	10.342		
2,800.00	2,789.96	2,791.77	2,789.45	10.19	9.78	-151.71	-34.77	-93.78	205.70	185.95	19.75	10.417		
2,900.00	2,889.46	2,891.36	2,888.92	10.57	10.14	-151.66	-35.54	-98.64	214.75	194.27	20.48	10.487		
3,000.00	2,988.96	2,990.95	2,988.39	10.95	10.51	-151.61	-36.30	-103.50	223.79	202.59	21.21	10.552		
3,100.00	3,088.46	3,090.54	3,087.86	11.33	10.87	-151.57	-37.07	-108.35	232.84	210.90	21.94	10.613		
3,200.00	3,187.96	3,190.13	3,187.33	11.72	11.23	-151.52	-37.83	-113.21	241.89	219.22	22.67	10.670		
3,300.00	3,287.46	3,289.71	3,286.79	12.10	11.60	-151.49	-38.59	-118.06	250.94	227.54	23.40	10.723		
3,400.00	3,386.96	3,389.30	3,386.26	12.48	11.96	-151.45	-39.36	-122.92	259.99	235.85	24.13	10.772		
3,500.00	3,486.46	3,488.89	3,485.73	12.87	12.32	-151.42	-40.12	-127.78	269.04	244.17	24.87	10.819		
3,600.00	3,585.96	3,588.48	3,585.20	13.25	12.69	-151.39	-40.89	-132.63	278.08	252.49	25.60	10.863		
3,700.00	3,685.46	3,688.07	3,684.67	13.63	13.05	-151.36	-41.65	-137.49	287.13	260.80	26.33	10.905		
3,800.00	3,784.96	3,787.66	3,784.14	14.01	13.41	-151.33	-42.41	-142.35	296.18	269.12	27.06	10.944		
3,900.00	3,884.46	3,887.25	3,883.60	14.40	13.78	-151.30	-43.18	-147.20	305.23	277.43	27.80	10.981		
4,000.00	3,983.96	3,986.84	3,983.07	14.78	14.14	-151.28	-43.94	-152.06	314.28	285.75	28.53	11.016		
4,100.00	4,083.46	4,086.43	4,082.54	15.16	14.50	-151.26	-44.71	-156.91	323.33	294.07	29.26	11.050		
4,200.00	4,182.96	4,186.02	4,182.01	15.55	14.87	-151.23	-45.47	-161.77	332.38	302.38	29.99	11.081		
4,300.00	4,282.46	4,285.61	4,281.48	15.93	15.23	-151.21	-46.23	-166.63	341.43	310.70	30.73	11.112		
4,400.00	4,381.96	4,385.20	4,380.95	16.31	15.59	-151.19	-47.00	-171.48	350.48	319.02	31.46	11.140		
4,500.00	4,481.46	4,484.79	4,480.41	16.70	15.96	-151.18	-47.76	-176.34	359.53	327.33	32.19	11.168		
4,600.00	4,580.96	4,584.38	4,579.88	17.08	16.32	-151.16	-48.53	-181.20	368.57	335.65	32.93	11.194		
4,700.00	4,680.46	4,683.97	4,679.35	17.46	16.69	-151.14	-49.29	-186.05	377.62	343.96	33.66	11.219		
4,800.00	4,779.96	4,783.56	4,778.82	17.85	17.05	-151.13	-50.05	-190.91	386.67	352.28	34.39	11.243		
4,900.00	4,879.46	4,883.15	4,878.29	18.23	17.41	-151.11	-50.82	-195.76	395.72	360.60	35.13	11.266		
5,000.00	4,978.96	4,982.74	4,977.75	18.61	17.78	-151.10	-51.58	-200.62	404.77	368.91	35.86	11.288		

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 3E-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 3E-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				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	5,078.46	5,082.33	5,077.22	19.00	18.14	-151.08	-52.35	-205.48	413.82	377.23	36.59	11.309		
5,200.00	5,177.96	5,181.92	5,176.69	19.38	18.51	-151.07	-53.11	-210.33	422.87	385.55	37.33	11.329		
5,300.00	5,277.46	5,281.51	5,276.16	19.76	18.87	-151.06	-53.87	-215.19	431.92	393.86	38.06	11.349		
5,400.00	5,376.96	5,381.10	5,375.63	20.15	19.24	-151.04	-54.64	-220.05	440.97	402.18	38.79	11.367		
5,500.00	5,476.46	5,480.69	5,475.10	20.53	19.60	-151.03	-55.40	-224.90	450.02	410.49	39.53	11.385		
5,600.00	5,575.96	5,580.28	5,574.56	20.91	19.96	-151.02	-56.17	-229.76	459.07	418.81	40.26	11.403		
5,700.00	5,675.46	5,679.87	5,674.03	21.30	20.33	-151.01	-56.93	-234.61	468.12	427.13	40.99	11.420		
5,738.64	5,713.91	5,718.35	5,712.47	21.45	20.47	-151.01	-57.23	-236.49	471.61	430.34	41.28	11.426		
5,800.00	5,775.02	5,779.50	5,773.55	21.68	20.69	-151.01	-57.69	-239.47	476.59	434.87	41.73	11.422		
5,900.00	5,874.83	5,879.32	5,873.24	22.04	21.06	-150.83	-58.46	-244.34	482.26	439.80	42.45	11.359		
6,000.00	5,974.79	5,979.21	5,973.01	22.39	21.42	-150.43	-59.23	-249.21	484.89	441.71	43.18	11.230		
6,025.21	6,000.00	6,004.40	5,998.17	22.48	21.52	175.45	-59.42	-250.44	485.08	441.72	43.36	11.187		
6,100.00	6,074.79	6,079.09	6,072.77	22.73	21.79	175.88	-59.99	-254.08	485.38	441.48	43.90	11.057		
6,200.00	6,174.79	6,178.97	6,172.53	23.07	22.15	176.46	-60.76	-258.95	485.82	441.21	44.61	10.889		
6,300.00	6,274.79	6,278.85	6,272.28	23.40	22.52	177.04	-61.52	-263.82	486.31	440.98	45.33	10.728		
6,400.00	6,374.79	6,378.73	6,372.04	23.74	22.88	177.62	-62.29	-268.69	486.85	440.80	46.05	10.572		
6,500.00	6,474.79	6,478.61	6,471.80	24.08	23.25	178.19	-63.06	-273.56	487.44	440.67	46.77	10.422		
6,600.00	6,574.79	6,578.48	6,571.55	24.42	23.62	178.77	-63.82	-278.43	488.08	440.59	47.49	10.278		
6,649.01	6,623.80	6,627.88	6,620.92	24.59	23.79	178.97	-64.18	-280.12	488.39	440.56	47.84	10.210		
6,700.00	6,674.75	6,679.57	6,672.57	24.75	23.96	89.55	-64.41	-278.45	488.64	440.47	48.17	10.143		
6,750.00	6,724.45	6,730.27	6,722.98	24.90	24.11	89.55	-64.51	-273.21	488.79	440.30	48.49	10.081		
6,800.00	6,773.67	6,780.98	6,772.91	25.05	24.26	89.56	-64.47	-264.41	488.84	440.05	48.79	10.019		
6,850.00	6,822.16	6,831.69	6,822.09	25.19	24.41	89.56	-64.29	-252.10	488.78	439.70	49.09	9.958		
6,900.00	6,869.68	6,882.40	6,870.28	25.32	24.55	89.57	-63.97	-236.35	488.63	439.26	49.37	9.896		
6,950.00	6,916.01	6,933.11	6,917.24	25.45	24.69	89.58	-63.53	-217.24	488.38	438.72	49.66	9.834		
7,000.00	6,960.91	6,983.80	6,962.71	25.57	24.84	89.60	-62.94	-194.85	488.03	438.08	49.96	9.769		
7,050.00	7,004.17	7,034.49	7,006.48	25.69	24.99	89.61	-62.23	-169.32	487.59	437.33	50.26	9.701		
7,100.00	7,045.57	7,085.16	7,048.32	25.80	25.15	89.63	-61.40	-140.76	487.05	436.46	50.59	9.628		
7,150.00	7,084.92	7,135.81	7,088.02	25.93	25.33	89.65	-60.44	-109.34	486.42	435.47	50.95	9.546		
7,200.00	7,122.02	7,186.44	7,125.38	26.06	25.53	89.67	-59.37	-75.20	485.71	434.34	51.37	9.455		
7,250.00	7,156.70	7,237.05	7,160.22	26.24	25.77	89.69	-58.18	-38.53	484.91	433.05	51.86	9.351		
7,300.00	7,188.78	7,287.62	7,192.36	26.47	26.06	89.72	-56.90	0.48	484.03	431.60	52.43	9.232		
7,350.00	7,218.11	7,338.17	7,221.66	26.76	26.39	89.74	-55.51	41.63	483.07	429.97	53.10	9.097		
7,400.00	7,244.54	7,388.68	7,247.96	27.13	26.79	89.77	-54.03	84.71	482.05	428.15	53.89	8.944		
7,450.00	7,267.95	7,439.15	7,271.14	27.58	27.26	89.80	-52.48	129.50	480.96	426.14	54.82	8.774		
7,500.00	7,288.22	7,489.58	7,291.10	28.09	27.79	89.83	-50.84	175.78	479.80	423.93	55.88	8.587		
7,550.00	7,305.25	7,539.97	7,307.73	28.68	28.40	89.86	-49.14	223.30	478.60	421.52	57.08	8.385		
7,600.00	7,318.96	7,590.32	7,320.97	29.35	29.08	89.89	-47.38	271.84	477.34	418.92	58.42	8.170		
7,650.00	7,329.29	7,640.62	7,330.76	30.08	29.83	89.92	-45.57	321.14	476.05	416.14	59.90	7.947		
7,700.00	7,336.18	7,690.88	7,337.06	30.87	30.63	89.95	-43.73	370.95	474.71	413.21	61.51	7.718		
7,750.00	7,339.60	7,741.09	7,339.85	31.72	31.49	89.98	-41.85	421.04	473.35	410.13	63.21	7.488		
7,774.01	7,340.00	7,765.15	7,340.00	32.14	31.92	90.00	-40.94	445.09	472.69	408.62	64.07	7.378		
7,800.00	7,340.00	7,791.13	7,340.00	32.62	32.40	90.00	-39.96	471.04	471.97	406.95	65.02	7.259		
7,900.00	7,340.00	7,891.09	7,340.00	34.56	34.37	90.00	-36.18	570.93	469.20	400.28	68.93	6.807		
8,000.00	7,340.00	7,991.05	7,340.00	36.68	36.50	90.00	-32.40	670.82	466.44	393.26	73.18	6.374		
8,100.00	7,340.00	8,091.01	7,340.00	38.95	38.78	90.00	-28.62	770.71	463.67	385.94	77.73	5.965		
8,200.00	7,340.00	8,190.98	7,340.00	41.34	41.19	90.00	-24.85	870.61	460.91	378.38	82.53	5.585		
8,300.00	7,340.00	8,290.94	7,340.00	43.84	43.69	90.00	-21.07	970.50	458.15	370.62	87.53	5.234		
8,400.00	7,340.00	8,390.90	7,340.00	46.42	46.28	90.00	-17.29	1,070.39	455.38	362.68	92.70	4.912		
8,500.00	7,340.00	8,490.86	7,340.00	49.08	48.94	90.00	-13.51	1,170.28	452.62	354.60	98.02	4.618		
8,600.00	7,340.00	8,590.82	7,340.00	51.80	51.66	90.00	-9.73	1,270.17	449.85	346.39	103.46	4.348		
8,700.00	7,340.00	8,690.79	7,340.00	54.57	54.43	90.00	-5.95	1,370.06	447.09	338.09	109.01	4.102		

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 3E-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 3E-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							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning	
8,800.00	7,340.00	8,790.75	7,340.00	57.39	57.25	90.00	-2.18	1,469.95	444.33	329.69	114.64	3.876		
8,900.00	7,340.00	8,890.71	7,340.00	60.25	60.11	90.00	1.60	1,569.84	441.56	321.21	120.35	3.669		
9,000.00	7,340.00	8,990.67	7,340.00	63.14	62.99	90.00	5.38	1,669.73	438.80	312.67	126.13	3.479		
9,100.00	7,340.00	9,090.63	7,340.00	66.06	65.91	90.00	9.16	1,769.62	436.03	304.07	131.96	3.304		
9,200.00	7,340.00	9,190.59	7,340.00	69.00	68.85	90.00	12.94	1,869.51	433.27	295.42	137.85	3.143		
9,300.00	7,340.00	9,290.56	7,340.00	71.97	71.81	90.00	16.72	1,969.40	430.51	286.73	143.77	2.994		
9,400.00	7,340.00	9,390.52	7,340.00	74.95	74.79	90.00	20.49	2,069.29	427.74	278.00	149.74	2.857		
9,500.00	7,340.00	9,490.48	7,340.00	77.96	77.79	90.00	24.27	2,169.18	424.98	269.23	155.74	2.729		
9,600.00	7,340.00	9,590.44	7,340.00	80.98	80.80	90.00	28.05	2,269.07	422.21	260.44	161.78	2.610		
9,700.00	7,340.00	9,690.40	7,340.00	84.01	83.83	90.00	31.83	2,368.96	419.45	251.61	167.84	2.499		
9,800.00	7,340.00	9,790.37	7,340.00	87.06	86.87	90.00	35.61	2,468.85	416.69	242.77	173.92	2.396		
9,900.00	7,340.00	9,890.33	7,340.00	90.11	89.92	90.00	39.39	2,568.74	413.92	233.90	180.02	2.299		
10,000.00	7,340.00	9,990.29	7,340.00	93.18	92.98	90.00	43.16	2,668.63	411.16	225.01	186.15	2.209		
10,100.00	7,340.00	10,090.25	7,340.00	96.26	96.05	90.00	46.94	2,768.52	408.39	216.10	192.29	2.124		
10,200.00	7,340.00	10,190.21	7,340.00	99.34	99.12	90.00	50.72	2,868.41	405.63	207.18	198.45	2.044		
10,300.00	7,340.00	10,290.17	7,340.00	102.43	102.20	90.00	54.50	2,968.30	402.86	198.24	204.63	1.969		
10,400.00	7,340.00	10,390.14	7,340.00	105.53	105.29	90.00	58.28	3,068.19	400.10	189.29	210.81	1.898		
10,500.00	7,340.00	10,490.10	7,340.00	108.64	108.39	90.00	62.05	3,168.08	397.34	180.32	217.01	1.831		
10,600.00	7,340.00	10,590.06	7,340.00	111.75	111.49	90.00	65.83	3,267.97	394.57	171.35	223.23	1.768		
10,700.00	7,340.00	10,690.02	7,340.00	114.86	114.60	90.00	69.61	3,367.86	391.81	162.36	229.45	1.708		
10,800.00	7,340.00	10,789.98	7,340.00	117.98	117.71	90.00	73.39	3,467.75	389.04	153.37	235.68	1.651		
10,900.00	7,340.00	10,889.95	7,340.00	121.11	120.83	90.00	77.17	3,567.65	386.28	144.36	241.92	1.597		
11,000.00	7,340.00	10,989.91	7,340.00	124.24	123.95	90.00	80.95	3,667.54	383.52	135.35	248.17	1.545		
11,100.00	7,340.00	11,089.87	7,340.00	127.37	127.07	90.00	84.72	3,767.43	380.75	126.33	254.42	1.497	Level 3	
11,200.00	7,340.00	11,189.83	7,340.00	130.51	130.20	90.00	88.50	3,867.32	377.99	117.30	260.68	1.450	Level 3	
11,300.00	7,340.00	11,289.79	7,340.00	133.65	133.33	90.00	92.28	3,967.21	375.22	108.27	266.95	1.406	Level 3	
11,400.00	7,340.00	11,389.75	7,340.00	136.79	136.46	90.00	96.06	4,067.10	372.46	99.23	273.23	1.363	Level 3	
11,500.00	7,340.00	11,489.72	7,340.00	139.94	139.59	90.00	99.84	4,166.99	369.70	90.19	279.51	1.323	Level 3	
11,600.00	7,340.00	11,589.68	7,340.00	143.09	142.73	90.00	103.62	4,266.88	366.93	81.14	285.80	1.284	Level 3	
11,700.00	7,340.00	11,689.64	7,340.00	146.24	145.87	90.00	107.39	4,366.77	364.17	72.08	292.09	1.247	Level 2	
11,800.00	7,340.00	11,789.60	7,340.00	149.39	149.02	90.00	111.17	4,466.66	361.40	63.02	298.38	1.211	Level 2	
11,846.15	7,340.00	11,825.78	7,340.00	150.85	150.15	90.00	112.54	4,502.81	360.26	59.32	300.94	1.197	Level 2	
11,848.32	7,340.00	11,825.78	7,340.00	150.91	150.15	90.00	112.54	4,502.81	360.27	59.30	300.98	1.197	Level 2, SF	

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well SAM 3E-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 3E-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: 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	-30.24	-0.02	30.24	29.96	0.28	109.542		
100.00	100.00	100.00	100.00	0.14	0.14	-179.96	-30.24	-0.02	30.24	29.24	0.99	30.450		
200.00	200.00	200.00	200.00	0.50	0.50	-179.96	-30.24	-0.02	30.24	28.53	1.71	17.683		
300.00	300.00	300.00	300.00	0.85	0.85	-179.96	-30.24	-0.02	30.24	27.81	2.43	12.459		
400.00	400.00	400.00	400.00	1.21	1.21	-179.96	-30.24	-0.02	30.24	27.09	3.14	9.618		
500.00	500.00	500.00	500.00	1.57	1.57	-179.96	-30.24	-0.02	30.24	26.38	3.86	7.832 CC, ES		
600.00	600.00	600.00	600.00	1.93	1.93	-179.96	-30.24	-0.02	31.69	27.12	4.58	6.925		
700.00	699.98	699.98	699.98	2.29	2.29	-147.46	-30.24	-0.02	36.22	30.92	5.29	6.841		
800.00	799.84	799.84	799.84	2.65	2.65	-151.88	-30.24	-0.02	42.83	36.92	5.92	7.239		
886.57	886.09	886.09	886.09	2.96	2.96	-156.45	-30.24	-0.02	44.07	38.05	6.02	7.326		
900.00	899.46	899.46	899.46	3.01	3.00	-157.15	-30.24	-0.02	53.64	46.92	6.72	7.984		
1,000.00	998.96	998.71	998.69	3.37	3.35	-159.49	-30.88	-1.59	63.75	56.34	7.42	8.597		
1,100.00	1,098.46	1,097.94	1,097.79	3.74	3.69	-158.09	-32.79	-6.29	74.11	65.99	8.12	9.125		
1,200.00	1,197.96	1,197.38	1,197.03	4.11	4.03	-156.24	-35.12	-12.01	84.52	75.69	8.83	9.570		
1,300.00	1,297.46	1,296.82	1,296.28	4.49	4.38	-154.83	-37.46	-17.74	94.97	85.43	9.55	9.948		
1,400.00	1,396.96	1,396.25	1,395.52	4.86	4.73	-153.74	-39.79	-23.46	105.45	95.19	10.26	10.274		
1,500.00	1,496.46	1,495.69	1,494.77	5.24	5.08	-152.86	-42.12	-29.19	115.95	104.97	10.98	10.556		
1,600.00	1,595.96	1,595.13	1,594.01	5.62	5.44	-152.14	-44.46	-34.91	126.47	114.76	11.71	10.802		
1,700.00	1,695.46	1,694.57	1,693.26	6.00	5.79	-151.54	-46.79	-40.64	136.99	124.56	12.43	11.019		
1,800.00	1,794.96	1,794.00	1,792.50	6.38	6.15	-151.04	-49.12	-46.36	147.53	134.37	13.16	11.212		
1,900.00	1,894.46	1,893.44	1,891.75	6.76	6.51	-150.60	-51.46	-52.09	158.07	144.19	13.89	11.384		
2,000.00	1,993.96	1,992.88	1,990.99	7.14	6.87	-150.22	-53.79	-57.81	168.62	154.01	14.61	11.539		
2,100.00	2,093.46	2,092.32	2,090.24	7.52	7.23	-149.89	-56.12	-63.54	179.17	163.83	15.34	11.678		
2,200.00	2,192.96	2,191.75	2,189.48	7.90	7.60	-149.60	-58.46	-69.26	189.73	173.66	16.07	11.805		
2,300.00	2,292.46	2,291.19	2,288.73	8.28	7.96	-149.34	-60.79	-74.99	200.29	183.49	16.80	11.920		
2,400.00	2,391.96	2,390.63	2,387.98	8.66	8.32	-149.11	-63.12	-80.71	210.86	193.32	17.53	12.026		
2,500.00	2,491.46	2,490.07	2,487.22	9.04	8.69	-148.91	-65.46	-86.44	221.42	203.16	18.27	12.123		
2,600.00	2,590.96	2,589.50	2,586.47	9.42	9.05	-148.72	-67.79	-92.16	231.99	213.00	19.00	12.212		
2,700.00	2,690.46	2,688.94	2,685.71	9.81	9.41	-148.55	-70.12	-97.89	242.56	222.83	19.73	12.294		
2,800.00	2,789.96	2,788.38	2,784.96	10.19	9.78	-148.39	-72.46	-103.61	253.14	232.67	20.46	12.370		
2,900.00	2,889.46	2,887.82	2,884.20	10.57	10.14	-148.25	-74.79	-109.34	263.71	242.51	21.20	12.441		
3,000.00	2,988.96	2,987.26	2,983.45	10.95	10.51	-148.11	-77.12	-115.06	274.28	252.36	21.93	12.507		
3,100.00	3,088.46	3,086.69	3,082.69	11.33	10.88	-147.99	-79.46	-120.79	284.86	262.20	22.66	12.569		
3,200.00	3,187.96	3,186.13	3,181.94	11.72	11.24	-147.88	-81.79	-126.52	295.44	272.04	23.40	12.627		
3,300.00	3,287.46	3,285.57	3,281.18	12.10	11.61	-147.78	-84.12	-132.24	306.02	281.88	24.13	12.681		
3,400.00	3,386.96	3,385.01	3,380.43	12.48	11.97	-147.68	-86.46	-137.97	316.60	291.73	24.87	12.732		
3,500.00	3,486.46	3,484.44	3,479.67	12.87	12.34	-147.59	-88.79	-143.69	327.17	301.57	25.60	12.780		
3,600.00	3,585.96	3,583.88	3,578.92	13.25	12.71	-147.50	-91.12	-149.42	337.75	311.42	26.34	12.825		
3,700.00	3,685.46	3,683.32	3,678.16	13.63	13.07	-147.42	-93.46	-155.14	348.34	321.27	27.07	12.868		
3,800.00	3,784.96	3,782.76	3,777.41	14.01	13.44	-147.35	-95.79	-160.87	358.92	331.11	27.81	12.908		
3,900.00	3,884.46	3,882.19	3,876.65	14.40	13.81	-147.28	-98.12	-166.59	369.50	340.96	28.54	12.946		
4,000.00	3,983.96	3,981.63	3,975.90	14.78	14.17	-147.21	-100.46	-172.32	380.08	350.81	29.28	12.983		
4,100.00	4,083.46	4,081.07	4,075.15	15.16	14.54	-147.15	-102.79	-178.04	390.66	360.65	30.01	13.017		
4,200.00	4,182.96	4,180.51	4,174.39	15.55	14.91	-147.09	-105.12	-183.77	401.25	370.50	30.75	13.050		
4,300.00	4,282.46	4,279.94	4,273.64	15.93	15.28	-147.03	-107.45	-189.49	411.83	380.35	31.48	13.081		
4,400.00	4,381.96	4,379.38	4,372.88	16.31	15.64	-146.98	-109.79	-195.22	422.41	390.20	32.22	13.111		
4,500.00	4,481.46	4,478.82	4,472.13	16.70	16.01	-146.93	-112.12	-200.94	433.00	400.04	32.95	13.139		
4,600.00	4,580.96	4,578.26	4,571.37	17.08	16.38	-146.88	-114.45	-206.67	443.58	409.89	33.69	13.166		
4,700.00	4,680.46	4,677.70	4,670.62	17.46	16.75	-146.84	-116.79	-212.39	454.17	419.74	34.43	13.192		
4,800.00	4,779.96	4,777.13	4,769.86	17.85	17.11	-146.79	-119.12	-218.12	464.75	429.59	35.16	13.217		
4,900.00	4,879.46	4,876.57	4,869.11	18.23	17.48	-146.75	-121.45	-223.84	475.34	439.44	35.90	13.241		
5,000.00	4,978.96	4,976.01	4,968.35	18.61	17.85	-146.71	-123.79	-229.57						

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 3E-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 3E-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: 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	5,078.46	5,075.45	5,067.60	19.00	18.22	-146.67	-126.12	-235.29	485.92	449.29	36.63	13.264	
5,200.00	5,177.96	5,174.88	5,166.84	19.38	18.59	-146.64	-128.45	-241.02	496.51	459.14	37.37	13.286	
5,300.00	5,277.46	5,274.32	5,266.09	19.76	18.95	-146.60	-130.79	-246.74	507.10	468.99	38.11	13.307	
5,400.00	5,376.96	5,373.76	5,365.33	20.15	19.32	-146.57	-133.12	-252.47	517.68	478.84	38.84	13.327	
5,500.00	5,476.46	5,473.20	5,464.58	20.53	19.69	-146.54	-135.45	-258.19	528.27	488.69	39.58	13.347	
5,600.00	5,575.96	5,572.63	5,563.82	20.91	20.06	-146.51	-137.79	-263.92	538.85	498.54	40.32	13.366	
5,700.00	5,675.46	5,672.07	5,663.07	21.30	20.43	-146.48	-140.12	-269.64	549.44	508.39	41.05	13.384	
5,738.64	5,713.91	5,710.49	5,701.42	21.45	20.57	-146.47	-141.02	-271.86	553.53	512.19	41.34	13.390	
5,800.00	5,775.02	5,771.56	5,762.37	21.68	20.79	-146.48	-142.46	-275.37	559.48	517.69	41.79	13.388	
5,900.00	5,874.83	5,874.40	5,865.02	22.04	21.17	-146.33	-144.75	-280.99	566.74	524.20	42.54	13.323	
6,000.00	5,974.79	5,982.22	5,972.79	22.39	21.55	-146.24	-145.90	-283.82	569.96	526.67	43.30	13.165	
6,025.21	6,000.00	6,009.43	6,000.00	22.48	21.65	179.50	-145.95	-283.94	570.10	526.62	43.48	13.111	
6,100.00	6,074.79	6,084.21	6,074.79	22.73	21.90	179.50	-145.95	-283.94	570.10	526.11	43.99	12.960	
6,200.00	6,174.79	6,184.21	6,174.79	23.07	22.23	179.50	-145.95	-283.94	570.10	525.43	44.67	12.762	
6,300.00	6,274.79	6,284.21	6,274.79	23.40	22.56	179.50	-145.95	-283.94	570.10	524.74	45.35	12.570	
6,400.00	6,374.79	6,384.21	6,374.79	23.74	22.90	179.50	-145.95	-283.94	570.10	524.06	46.04	12.383	
6,500.00	6,474.79	6,484.21	6,474.79	24.08	23.23	179.50	-145.95	-283.94	570.10	523.38	46.72	12.202	
6,600.00	6,574.79	6,584.21	6,574.79	24.42	23.57	179.50	-145.95	-283.94	570.10	522.69	47.41	12.025	
6,649.01	6,623.80	6,633.23	6,623.80	24.59	23.74	179.50	-145.95	-283.94	570.10	522.35	47.74	11.941	
6,649.01	6,623.80	6,633.23	6,623.80	24.59	23.74	179.50	-145.95	-283.94	570.10	522.35	47.74	11.941	
6,700.00	6,674.75	6,684.17	6,674.75	24.75	23.91	90.26	-145.95	-283.94	570.10	522.02	48.09	11.856	
6,750.00	6,724.45	6,733.88	6,724.45	24.90	24.08	90.79	-145.95	-283.94	570.15	521.74	48.42	11.776	
6,800.00	6,773.67	6,783.10	6,773.67	25.05	24.24	91.64	-145.95	-283.94	570.34	521.60	48.74	11.702	
6,850.00	6,822.16	6,831.59	6,822.16	25.19	24.41	92.78	-145.95	-283.94	570.82	521.76	49.06	11.635	
6,900.00	6,869.68	6,879.50	6,870.07	25.32	24.57	94.19	-145.95	-283.91	571.82	522.44	49.38	11.580	
6,950.00	6,916.01	6,930.36	6,920.87	25.45	24.73	95.76	-145.92	-281.66	573.35	523.65	49.70	11.536	
7,000.00	6,960.91	6,982.57	6,972.72	25.57	24.89	97.32	-145.86	-275.61	575.36	525.34	50.02	11.503	
7,050.00	7,004.17	7,036.23	7,025.40	25.69	25.05	98.87	-145.76	-265.47	577.81	527.48	50.33	11.481	
7,100.00	7,045.57	7,091.43	7,078.64	25.80	25.21	100.38	-145.61	-250.96	580.66	530.04	50.62	11.471	
7,150.00	7,084.92	7,148.26	7,132.13	25.93	25.37	101.87	-145.42	-231.78	583.85	532.96	50.90	11.471	
7,200.00	7,122.02	7,206.81	7,185.46	26.06	25.54	103.30	-145.17	-207.65	587.33	536.17	51.16	11.481	
7,250.00	7,156.70	7,267.15	7,238.16	26.24	25.71	104.68	-144.87	-178.31	591.02	539.61	51.40	11.498	
7,300.00	7,188.78	7,329.34	7,289.70	26.47	25.90	106.00	-144.52	-143.55	594.82	543.18	51.64	11.518	
7,350.00	7,218.11	7,393.39	7,339.43	26.76	26.12	107.24	-144.11	-103.21	598.65	546.75	51.90	11.536	
7,400.00	7,244.54	7,459.31	7,386.63	27.13	26.40	108.39	-143.64	-57.23	602.41	550.22	52.19	11.542	
7,450.00	7,267.95	7,527.07	7,430.53	27.58	26.76	109.43	-143.12	-5.66	605.99	553.41	52.57	11.526	
7,500.00	7,288.22	7,596.56	7,470.28	28.09	27.22	110.36	-142.54	51.30	609.29	556.21	53.08	11.478	
7,550.00	7,305.25	7,667.64	7,505.05	28.68	27.82	111.16	-141.91	113.27	612.21	558.43	53.78	11.383	
7,600.00	7,318.96	7,740.14	7,534.00	29.35	28.57	111.82	-141.23	179.69	614.67	559.95	54.72	11.234	
7,650.00	7,329.29	7,813.78	7,556.38	30.08	29.49	112.32	-140.52	249.82	616.57	560.64	55.93	11.024	
7,700.00	7,336.18	7,888.29	7,571.58	30.87	30.56	112.65	-139.78	322.72	617.86	560.42	57.44	10.756	
7,750.00	7,339.60	7,963.31	7,579.15	31.72	31.78	112.81	-139.02	397.32	618.49	559.24	59.25	10.438	
7,774.01	7,340.00	7,999.02	7,580.00	32.14	32.40	112.83	-138.66	433.01	618.55	558.35	60.21	10.274	
7,800.00	7,340.00	8,025.01	7,580.00	32.62	32.88	112.83	-138.39	459.00	618.55	557.46	61.10	10.124	
7,900.00	7,340.00	8,125.01	7,580.00	34.56	34.81	112.83	-137.38	558.99	618.55	553.87	64.68	9.563	
8,000.00	7,340.00	8,225.01	7,580.00	36.68	36.91	112.83	-136.36	658.99	618.55	549.96	68.59	9.018	
8,100.00	7,340.00	8,325.01	7,580.00	38.95	39.16	112.83	-135.35	758.98	618.55	545.77	72.78	8.499	
8,200.00	7,340.00	8,425.01	7,580.00	41.34	41.54	112.83	-134.33	858.98	618.55	541.35	77.20	8.012	
8,300.00	7,340.00	8,525.01	7,580.00	43.84	44.02	112.83	-133.31	958.97	618.55	536.74	81.82	7.560	
8,400.00	7,340.00	8,625.01	7,580.00	46.42	46.59	112.83	-132.30	1,058.97	618.55	531.96	86.59	7.143	
8,500.00	7,340.00	8,725.01	7,580.00	49.08	49.24	112.83	-131.28	1,158.96	618.55	527.05	91.51	6.760	
8,600.00	7,340.00	8,825.01	7,580.00	51.80	51.94	112.83	-130.26	1,258.96	618.55	522.02	96.53	6.408	

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 3E-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 3E-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: O-MWD+HDGM													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
8,700.00	7,340.00	8,925.01	7,580.00	54.57	54.71	112.83	-129.25	1,358.95	618.55	516.89	101.66	6.084		
8,800.00	7,340.00	9,025.01	7,580.00	57.39	57.52	112.83	-128.23	1,458.95	618.55	511.68	106.88	5.788		
8,900.00	7,340.00	9,125.01	7,580.00	60.25	60.37	112.83	-127.21	1,558.94	618.55	506.39	112.16	5.515		
9,000.00	7,340.00	9,225.01	7,580.00	63.14	63.25	112.83	-126.20	1,658.94	618.55	501.04	117.51	5.264		
9,100.00	7,340.00	9,325.01	7,580.00	66.06	66.16	112.83	-125.18	1,758.93	618.55	495.63	122.92	5.032		
9,200.00	7,340.00	9,425.01	7,580.00	69.00	69.10	112.83	-124.17	1,858.93	618.55	490.18	128.37	4.819		
9,300.00	7,340.00	9,525.01	7,580.00	71.97	72.06	112.83	-123.15	1,958.92	618.55	484.69	133.86	4.621		
9,400.00	7,340.00	9,625.01	7,580.00	74.95	75.04	112.83	-122.13	2,058.92	618.55	479.16	139.39	4.437		
9,500.00	7,340.00	9,725.01	7,580.00	77.96	78.04	112.83	-121.12	2,158.91	618.55	473.59	144.96	4.267		
9,600.00	7,340.00	9,825.01	7,580.00	80.98	81.06	112.83	-120.10	2,258.91	618.55	468.00	150.55	4.109		
9,700.00	7,340.00	9,925.01	7,580.00	84.01	84.09	112.83	-119.08	2,358.90	618.55	462.38	156.17	3.961		
9,800.00	7,340.00	10,025.01	7,580.00	87.06	87.13	112.83	-118.07	2,458.90	618.55	456.74	161.81	3.823		
9,900.00	7,340.00	10,125.01	7,580.00	90.11	90.18	112.83	-117.05	2,558.89	618.55	451.07	167.47	3.693		
10,000.00	7,340.00	10,225.01	7,580.00	93.18	93.25	112.83	-116.03	2,658.89	618.55	445.39	173.16	3.572		
10,100.00	7,340.00	10,325.01	7,580.00	96.26	96.32	112.83	-115.02	2,758.88	618.55	439.69	178.86	3.458		
10,200.00	7,340.00	10,425.01	7,580.00	99.34	99.40	112.83	-114.00	2,858.88	618.55	433.98	184.57	3.351		
10,300.00	7,340.00	10,525.01	7,580.00	102.43	102.49	112.83	-112.99	2,958.87	618.55	428.25	190.30	3.250		
10,400.00	7,340.00	10,625.01	7,580.00	105.53	105.59	112.83	-111.97	3,058.86	618.55	422.51	196.04	3.155		
10,500.00	7,340.00	10,725.01	7,580.00	108.64	108.69	112.83	-110.95	3,158.86	618.55	416.75	201.80	3.065		
10,600.00	7,340.00	10,825.01	7,580.00	111.75	111.80	112.83	-109.94	3,258.85	618.55	410.99	207.56	2.980		
10,700.00	7,340.00	10,925.01	7,580.00	114.86	114.91	112.83	-108.92	3,358.85	618.55	405.21	213.33	2.899		
10,800.00	7,340.00	11,025.01	7,580.00	117.98	118.03	112.83	-107.90	3,458.84	618.55	399.43	219.12	2.823		
10,900.00	7,340.00	11,125.01	7,580.00	121.11	121.16	112.83	-106.89	3,558.84	618.55	393.64	224.91	2.750		
11,000.00	7,340.00	11,225.01	7,580.00	124.24	124.28	112.83	-105.87	3,658.83	618.55	387.84	230.71	2.681		
11,100.00	7,340.00	11,325.01	7,580.00	127.37	127.41	112.83	-104.85	3,758.83	618.55	382.03	236.52	2.615		
11,200.00	7,340.00	11,425.01	7,580.00	130.51	130.55	112.83	-103.84	3,858.82	618.55	376.22	242.33	2.552		
11,300.00	7,340.00	11,525.01	7,580.00	133.65	133.69	112.83	-102.82	3,958.82	618.55	370.40	248.15	2.493		
11,400.00	7,340.00	11,625.01	7,580.00	136.79	136.83	112.83	-101.81	4,058.81	618.55	364.57	253.98	2.435		
11,500.00	7,340.00	11,725.01	7,580.00	139.94	139.97	112.83	-100.79	4,158.81	618.55	358.74	259.81	2.381		
11,600.00	7,340.00	11,825.01	7,580.00	143.09	143.12	112.83	-99.77	4,258.80	618.55	352.90	265.64	2.328		
11,700.00	7,340.00	11,925.01	7,580.00	146.24	146.27	112.83	-98.76	4,358.80	618.55	347.06	271.48	2.278		
11,800.00	7,340.00	12,025.01	7,580.00	149.39	149.42	112.83	-97.74	4,458.79	618.55	341.22	277.33	2.230		
11,843.15	7,340.00	12,068.15	7,580.00	150.75	150.79	112.83	-97.30	4,501.94	618.54	338.69	279.85	2.210		
11,848.32	7,340.00	12,070.04	7,580.00	150.91	150.84	112.83	-97.28	4,503.82	618.55	338.50	280.05	2.209 SF		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well SAM 3E-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 3E-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: 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	39.80	0.28	145.173		
200.00	200.00	200.00	200.00	0.50	0.50	179.91	-40.07	0.07	40.07	39.08	0.99	40.355		
300.00	300.00	300.00	300.00	0.85	0.85	179.91	-40.07	0.07	40.07	38.36	1.71	23.435		
400.00	400.00	400.00	400.00	1.21	1.21	179.91	-40.07	0.07	40.07	37.64	2.43	16.512		
500.00	500.00	500.00	500.00	1.57	1.57	179.91	-40.07	0.07	40.07	36.93	3.14	12.746		
600.00	600.00	600.00	600.00	1.93	1.93	179.91	-40.07	0.07	40.07	36.21	3.86	10.379 CC, ES		
700.00	699.98	699.98	699.98	2.29	2.29	-147.17	-40.07	0.07	41.53	36.95	4.58	9.073		
800.00	799.84	799.84	799.84	2.65	2.65	-150.66	-40.07	0.07	46.01	40.72	5.29	8.691		
886.57	886.09	885.34	885.33	2.96	2.94	-153.27	-40.83	-0.95	53.15	47.24	5.90	9.001		
900.00	899.46	898.57	898.55	3.01	2.99	-153.51	-41.08	-1.29	54.56	48.55	6.00	9.090		
1,000.00	998.96	996.93	996.77	3.37	3.32	-153.45	-44.11	-5.36	65.97	59.27	6.69	9.854		
1,100.00	1,098.46	1,095.35	1,094.85	3.74	3.66	-151.41	-48.98	-11.93	78.94	71.54	7.40	10.674		
1,200.00	1,197.96	1,194.41	1,193.52	4.11	4.01	-149.61	-54.26	-19.02	92.31	84.21	8.10	11.393		
1,300.00	1,297.46	1,293.48	1,292.19	4.49	4.36	-148.27	-59.53	-26.12	105.75	96.93	8.81	11.997		
1,400.00	1,396.96	1,392.55	1,390.86	4.86	4.72	-147.23	-64.80	-33.22	119.23	109.70	9.53	12.509		
1,500.00	1,496.46	1,491.61	1,489.53	5.24	5.08	-146.41	-70.08	-40.31	132.74	122.49	10.25	12.948		
1,600.00	1,595.96	1,590.68	1,588.20	5.62	5.44	-145.73	-75.35	-47.41	146.28	135.30	10.97	13.328		
1,700.00	1,695.46	1,689.74	1,686.88	6.00	5.81	-145.17	-80.62	-54.50	159.83	148.13	11.70	13.660		
1,800.00	1,794.96	1,788.81	1,785.55	6.38	6.18	-144.70	-85.90	-61.60	173.39	160.96	12.43	13.952		
1,900.00	1,894.46	1,887.88	1,884.22	6.76	6.54	-144.29	-91.17	-68.70	186.97	173.81	13.16	14.211		
2,000.00	1,993.96	1,986.94	1,982.89	7.14	6.91	-143.95	-96.45	-75.79	200.55	186.66	13.89	14.442		
2,100.00	2,093.46	2,086.01	2,081.56	7.52	7.29	-143.64	-101.72	-82.89	214.14	199.52	14.62	14.649		
2,200.00	2,192.96	2,185.08	2,180.23	7.90	7.66	-143.37	-106.99	-89.98	227.73	212.38	15.35	14.836		
2,300.00	2,292.46	2,284.14	2,278.90	8.28	8.03	-143.13	-112.27	-97.08	241.33	225.24	16.08	15.005		
2,400.00	2,391.96	2,383.21	2,377.57	8.66	8.40	-142.92	-117.54	-104.18	254.93	238.11	16.82	15.159		
2,500.00	2,491.46	2,482.28	2,476.24	9.04	8.78	-142.73	-122.81	-111.27	268.53	250.98	17.55	15.300		
2,600.00	2,590.96	2,581.34	2,574.92	9.42	9.15	-142.56	-128.09	-118.37	282.14	263.85	18.29	15.429		
2,700.00	2,690.46	2,680.41	2,673.59	9.81	9.53	-142.40	-133.36	-125.47	295.75	276.73	19.02	15.548		
2,800.00	2,789.96	2,779.48	2,772.26	10.19	9.90	-142.26	-138.63	-132.56	309.36	289.60	19.76	15.657		
2,900.00	2,889.46	2,878.54	2,870.93	10.57	10.28	-142.12	-143.91	-139.66	322.98	302.48	20.49	15.759		
3,000.00	2,988.96	2,977.61	2,969.60	10.95	10.66	-142.00	-149.18	-146.75	336.59	315.36	21.23	15.853		
3,100.00	3,088.46	3,076.68	3,068.27	11.33	11.03	-141.89	-154.45	-153.85	350.21	328.24	21.97	15.941		
3,200.00	3,187.96	3,175.74	3,166.94	11.72	11.41	-141.79	-159.73	-160.95	363.82	341.12	22.71	16.023		
3,300.00	3,287.46	3,274.81	3,265.61	12.10	11.79	-141.69	-165.00	-168.04	377.44	354.00	23.44	16.100		
3,400.00	3,386.96	3,373.87	3,364.29	12.48	12.16	-141.61	-170.28	-175.14	391.06	366.88	24.18	16.172		
3,500.00	3,486.46	3,472.94	3,462.96	12.87	12.54	-141.52	-175.55	-182.24	404.68	379.76	24.92	16.240		
3,600.00	3,585.96	3,572.01	3,561.63	13.25	12.92	-141.45	-180.82	-189.33	418.30	392.64	25.66	16.303		
3,700.00	3,685.46	3,671.07	3,660.30	13.63	13.30	-141.37	-186.10	-196.43	431.92	405.53	26.40	16.363		
3,800.00	3,784.96	3,770.14	3,758.97	14.01	13.67	-141.31	-191.37	-203.52	445.55	418.41	27.13	16.420		
3,900.00	3,884.46	3,869.21	3,857.64	14.40	14.05	-141.24	-196.64	-210.62	459.17	431.30	27.87	16.473		
4,000.00	3,983.96	3,968.27	3,956.31	14.78	14.43	-141.18	-201.92	-217.72	472.79	444.18	28.61	16.524		
4,100.00	4,083.46	4,067.34	4,054.98	15.16	14.81	-141.12	-207.19	-224.81	486.42	457.07	29.35	16.572		
4,200.00	4,182.96	4,166.41	4,153.65	15.55	15.19	-141.07	-212.46	-231.91	500.04	469.95	30.09	16.618		
4,300.00	4,282.46	4,265.47	4,252.33	15.93	15.57	-141.02	-217.74	-239.00	513.67	482.84	30.83	16.661		
4,400.00	4,381.96	4,364.54	4,351.00	16.31	15.94	-140.97	-223.01	-246.10	527.29	495.72	31.57	16.703		
4,500.00	4,481.46	4,463.61	4,449.67	16.70	16.32	-140.92	-228.28	-253.20	540.92	508.61	32.31	16.742		
4,600.00	4,580.96	4,562.67	4,548.34	17.08	16.70	-140.88	-233.56	-260.29	554.54	521.49	33.05	16.780		
4,700.00	4,680.46	4,661.74	4,647.01	17.46	17.08	-140.84	-238.83	-267.39	568.17	534.38	33.79	16.816		
4,800.00	4,779.96	4,761.02	4,745.89	17.85	17.46	-140.80	-244.12	-274.50	581.80	547.27	34.53	16.849		
4,900.00	4,879.46	4,875.79	4,860.39	18.23	17.89	-140.93	-248.82	-280.83	594.08	558.71	35.37	16.795		
5,000.00	4,978.96	4,991.06	4,975.60	18.61	18.30	-141.38	-250.79	-283.48	603.75	567.57	36.18	16.687		

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 3E-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 3E-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	5,078.46	5,093.92	5,078.46	19.00	18.63	-141.98	-250.85	-283.56	611.66	574.76	36.90	16.578	
5,200.00	5,177.96	5,193.42	5,177.96	19.38	18.95	-142.55	-250.85	-283.56	619.57	581.97	37.60	16.480	
5,300.00	5,277.46	5,292.92	5,277.46	19.76	19.28	-143.10	-250.85	-283.56	627.54	589.24	38.30	16.387	
5,400.00	5,376.96	5,392.42	5,376.96	20.15	19.60	-143.64	-250.85	-283.56	635.57	596.57	39.00	16.298	
5,500.00	5,476.46	5,491.92	5,476.46	20.53	19.93	-144.17	-250.85	-283.56	643.65	603.95	39.70	16.214	
5,600.00	5,575.96	5,591.42	5,575.96	20.91	20.25	-144.68	-250.85	-283.56	651.79	611.39	40.40	16.134	
5,700.00	5,675.46	5,690.92	5,675.46	21.30	20.58	-145.18	-250.85	-283.56	659.97	618.87	41.10	16.058	
5,738.64	5,713.91	5,729.36	5,713.91	21.45	20.71	-145.37	-250.85	-283.56	663.15	621.78	41.37	16.029	
5,800.00	5,775.02	5,790.48	5,775.02	21.68	20.91	-145.69	-250.85	-283.56	667.67	625.87	41.80	15.973	
5,900.00	5,874.83	5,890.29	5,874.83	22.04	21.24	-146.04	-250.85	-283.56	672.73	630.23	42.50	15.830	
6,000.00	5,974.79	5,990.25	5,974.79	22.39	21.57	-146.19	-250.85	-283.56	674.91	631.73	43.19	15.628	
6,025.21	6,000.00	6,015.46	6,000.00	22.48	21.65	179.54	-250.85	-283.56	675.00	631.64	43.36	15.568	
6,100.00	6,074.79	6,090.25	6,074.79	22.73	21.90	179.54	-250.85	-283.56	675.00	631.13	43.87	15.387	
6,200.00	6,174.79	6,190.25	6,174.79	23.07	22.24	179.54	-250.85	-283.56	675.00	630.45	44.55	15.151	
6,300.00	6,274.79	6,290.25	6,274.79	23.40	22.57	179.54	-250.85	-283.56	675.00	629.77	45.24	14.922	
6,400.00	6,374.79	6,390.25	6,374.79	23.74	22.91	179.54	-250.85	-283.56	675.00	629.08	45.92	14.699	
6,500.00	6,474.79	6,490.25	6,474.79	24.08	23.24	179.54	-250.85	-283.56	675.00	628.39	46.61	14.482	
6,600.00	6,574.79	6,590.25	6,574.79	24.42	23.58	179.54	-250.85	-283.56	675.00	627.71	47.30	14.272	
6,649.01	6,623.80	6,639.26	6,623.80	24.59	23.74	179.54	-250.85	-283.56	675.00	627.37	47.63	14.171	
6,700.00	6,674.75	6,690.20	6,674.75	24.75	23.91	90.28	-250.85	-283.56	675.01	627.03	47.98	14.070	
6,750.00	6,724.45	6,740.27	6,724.80	24.90	24.08	90.67	-250.84	-282.89	675.05	626.75	48.30	13.976	
6,800.00	6,773.67	6,790.76	6,775.13	25.05	24.24	91.08	-250.80	-278.93	675.12	626.51	48.62	13.887	
6,850.00	6,822.16	6,841.61	6,825.40	25.19	24.39	91.49	-250.73	-271.37	675.23	626.31	48.92	13.802	
6,900.00	6,869.68	6,892.81	6,875.35	25.32	24.55	91.89	-250.61	-260.17	675.37	626.15	49.22	13.721	
6,950.00	6,916.01	6,944.37	6,924.71	25.45	24.69	92.28	-250.46	-245.32	675.54	626.02	49.52	13.642	
7,000.00	6,960.91	6,996.29	6,973.21	25.57	24.84	92.66	-250.27	-226.82	675.74	625.92	49.81	13.565	
7,050.00	7,004.17	7,048.56	7,020.55	25.69	24.98	93.03	-250.05	-204.69	675.96	625.84	50.12	13.488	
7,100.00	7,045.57	7,101.17	7,066.45	25.80	25.12	93.39	-249.79	-178.99	676.19	625.76	50.43	13.408	
7,150.00	7,084.92	7,154.13	7,110.61	25.93	25.27	93.73	-249.49	-149.79	676.44	625.66	50.78	13.321	
7,200.00	7,122.02	7,207.41	7,152.75	26.06	25.44	94.05	-249.16	-117.20	676.70	625.53	51.17	13.225	
7,250.00	7,156.70	7,261.01	7,192.57	26.24	25.63	94.35	-248.80	-81.35	676.96	625.35	51.62	13.115	
7,300.00	7,188.78	7,314.90	7,229.80	26.47	25.87	94.63	-248.40	-42.40	677.22	625.08	52.14	12.987	
7,350.00	7,218.11	7,369.07	7,264.16	26.76	26.16	94.89	-247.97	-0.55	677.47	624.70	52.77	12.838	
7,400.00	7,244.54	7,423.50	7,295.40	27.13	26.53	95.12	-247.52	44.00	677.71	624.19	53.52	12.663	
7,450.00	7,267.95	7,478.15	7,323.28	27.58	26.97	95.32	-247.04	91.00	677.93	623.53	54.40	12.462	
7,500.00	7,288.22	7,533.01	7,347.57	28.09	27.49	95.50	-246.54	140.17	678.12	622.69	55.43	12.233	
7,550.00	7,305.25	7,588.05	7,368.09	28.68	28.11	95.64	-246.03	191.22	678.29	621.67	56.62	11.979	
7,600.00	7,318.96	7,643.23	7,384.67	29.35	28.81	95.76	-245.49	243.83	678.43	620.45	57.97	11.702	
7,650.00	7,329.29	7,698.52	7,397.17	30.08	29.60	95.85	-244.94	297.67	678.53	619.05	59.48	11.408	
7,700.00	7,336.18	7,753.88	7,405.49	30.87	30.48	95.90	-244.39	352.39	678.59	617.46	61.14	11.100	
7,750.00	7,339.60	7,809.29	7,409.56	31.72	31.42	95.92	-243.83	407.63	678.62	615.70	62.92	10.786	
7,774.01	7,340.00	7,835.75	7,410.00	32.14	31.89	95.92	-243.56	434.08	678.62	614.81	63.81	10.635	
7,800.00	7,340.00	7,861.73	7,410.00	32.62	32.38	95.92	-243.29	460.06	678.62	613.86	64.76	10.479	
7,900.00	7,340.00	7,961.73	7,410.00	34.56	34.35	95.92	-242.28	560.06	678.62	609.96	68.66	9.884	
8,000.00	7,340.00	8,061.73	7,410.00	36.68	36.48	95.92	-241.26	660.05	678.62	605.73	72.89	9.311	
8,100.00	7,340.00	8,161.73	7,410.00	38.95	38.77	95.92	-240.25	760.05	678.62	601.21	77.41	8.766	
8,200.00	7,340.00	8,261.73	7,410.00	41.34	41.17	95.92	-239.23	860.04	678.62	596.43	82.19	8.257	
8,300.00	7,340.00	8,361.73	7,410.00	43.84	43.68	95.92	-238.21	960.04	678.62	591.45	87.17	7.785	
8,400.00	7,340.00	8,461.73	7,410.00	46.42	46.28	95.92	-237.20	1,060.03	678.62	586.30	92.32	7.351	
8,500.00	7,340.00	8,561.73	7,410.00	49.08	48.95	95.92	-236.18	1,160.03	678.62	581.00	97.62	6.952	
8,600.00	7,340.00	8,661.73	7,410.00	51.80	51.68	95.92	-235.16	1,260.02	678.62	575.58	103.04	6.586	
8,700.00	7,340.00	8,761.73	7,410.00	54.57	54.46	95.92	-234.15	1,360.02	678.62	570.05	108.57	6.251	

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 3E-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 3E-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
8,800.00	7,340.00	8,861.73	7,410.00	57.39	57.29	95.92	-233.13	1,460.01	678.62	564.44	114.18	5.943	
8,900.00	7,340.00	8,961.73	7,410.00	60.25	60.15	95.92	-232.12	1,560.01	678.62	558.74	119.88	5.661	
9,000.00	7,340.00	9,061.73	7,410.00	63.14	63.05	95.92	-231.10	1,660.00	678.62	552.99	125.63	5.402	
9,100.00	7,340.00	9,161.73	7,410.00	66.06	65.98	95.92	-230.08	1,760.00	678.62	547.17	131.45	5.163	
9,200.00	7,340.00	9,261.73	7,410.00	69.00	68.93	95.92	-229.07	1,859.99	678.62	541.30	137.32	4.942	
9,300.00	7,340.00	9,361.73	7,410.00	71.97	71.90	95.92	-228.05	1,959.99	678.62	535.39	143.23	4.738	
9,400.00	7,340.00	9,461.73	7,410.00	74.95	74.89	95.92	-227.03	2,059.98	678.62	529.44	149.18	4.549	
9,500.00	7,340.00	9,561.73	7,410.00	77.96	77.90	95.92	-226.02	2,159.98	678.62	523.46	155.16	4.374	
9,600.00	7,340.00	9,661.73	7,410.00	80.98	80.93	95.92	-225.00	2,259.97	678.62	517.45	161.17	4.210	
9,700.00	7,340.00	9,761.73	7,410.00	84.01	83.96	95.92	-223.99	2,359.97	678.62	511.40	167.21	4.058	
9,800.00	7,340.00	9,861.73	7,410.00	87.06	87.01	95.92	-222.97	2,459.96	678.62	505.34	173.28	3.916	
9,900.00	7,340.00	9,961.73	7,410.00	90.11	90.07	95.92	-221.95	2,559.96	678.62	499.25	179.37	3.783	
10,000.00	7,340.00	10,061.73	7,410.00	93.18	93.15	95.92	-220.94	2,659.95	678.62	493.14	185.48	3.659	
10,100.00	7,340.00	10,161.73	7,410.00	96.26	96.23	95.92	-219.92	2,759.95	678.62	487.02	191.60	3.542	
10,200.00	7,340.00	10,261.73	7,410.00	99.34	99.31	95.92	-218.90	2,859.94	678.62	480.88	197.74	3.432	
10,300.00	7,340.00	10,361.73	7,410.00	102.43	102.41	95.92	-217.89	2,959.94	678.62	474.72	203.90	3.328	
10,400.00	7,340.00	10,461.73	7,410.00	105.53	105.51	95.92	-216.87	3,059.93	678.62	468.55	210.07	3.230	
10,500.00	7,340.00	10,561.73	7,410.00	108.64	108.62	95.92	-215.86	3,159.93	678.62	462.37	216.25	3.138	
10,600.00	7,340.00	10,661.73	7,410.00	111.75	111.73	95.92	-214.84	3,259.92	678.62	456.17	222.44	3.051	
10,700.00	7,340.00	10,761.73	7,410.00	114.86	114.85	95.92	-213.82	3,359.91	678.62	449.97	228.65	2.968	
10,800.00	7,340.00	10,861.73	7,410.00	117.98	117.97	95.92	-212.81	3,459.91	678.62	443.76	234.86	2.889	
10,900.00	7,340.00	10,961.73	7,410.00	121.11	121.10	95.92	-211.79	3,559.90	678.62	437.53	241.08	2.815	
11,000.00	7,340.00	11,061.73	7,410.00	124.24	124.23	95.92	-210.77	3,659.90	678.62	431.30	247.31	2.744	
11,100.00	7,340.00	11,161.73	7,410.00	127.37	127.37	95.92	-209.76	3,759.89	678.62	425.07	253.55	2.676	
11,200.00	7,340.00	11,261.73	7,410.00	130.51	130.50	95.92	-208.74	3,859.89	678.62	418.82	259.80	2.612	
11,300.00	7,340.00	11,361.73	7,410.00	133.65	133.65	95.92	-207.73	3,959.88	678.62	412.57	266.05	2.551	
11,400.00	7,340.00	11,461.73	7,410.00	136.79	136.79	95.92	-206.71	4,059.88	678.62	406.31	272.30	2.492	
11,500.00	7,340.00	11,561.73	7,410.00	139.94	139.94	95.92	-205.69	4,159.87	678.62	400.05	278.57	2.436	
11,600.00	7,340.00	11,661.73	7,410.00	143.09	143.09	95.92	-204.68	4,259.87	678.62	393.78	284.84	2.382	
11,700.00	7,340.00	11,761.73	7,410.00	146.24	146.24	95.92	-203.66	4,359.86	678.62	387.51	291.11	2.331	
11,800.00	7,340.00	11,861.73	7,410.00	149.39	148.57	95.92	-202.64	4,459.86	678.62	382.05	296.57	2.288	
11,842.87	7,340.00	11,904.60	7,410.00	150.74	149.35	95.92	-202.21	4,502.72	678.62	379.93	298.69	2.272	
11,848.32	7,340.00	11,906.06	7,410.00	150.91	149.38	95.92	-202.19	4,504.19	678.63	379.75	298.88	2.271 SF	



# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well SAM 3E-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 3E-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	-179.85	-49.91	-0.13	49.91				
100.00	100.00	100.00	100.00	0.14	0.14	-179.85	-49.91	-0.13	49.91	49.64	0.28	180.829	
200.00	200.00	200.00	200.00	0.50	0.50	-179.85	-49.91	-0.13	49.91	48.92	0.99	50.267	
300.00	300.00	300.00	300.00	0.85	0.85	-179.85	-49.91	-0.13	49.91	48.20	1.71	29.190	
400.00	400.00	400.00	400.00	1.21	1.21	-179.85	-49.91	-0.13	49.91	47.49	2.43	20.567	
500.00	500.00	500.00	500.00	1.57	1.57	-179.85	-49.91	-0.13	49.91	46.77	3.14	15.877	
600.00	600.00	600.00	600.00	1.93	1.93	-179.85	-49.91	-0.13	49.91	46.05	3.86	12.928 CC, ES	
700.00	699.98	699.98	699.98	2.29	2.29	-146.67	-49.91	-0.13	51.36	46.79	4.58	11.222	
800.00	799.84	798.28	798.26	2.65	2.63	-148.49	-51.32	-1.06	57.18	51.90	5.28	10.828	
886.57	886.09	882.83	882.71	2.96	2.91	-149.52	-54.78	-3.34	66.87	60.98	5.89	11.357	
900.00	899.46	895.88	895.73	3.01	2.95	-149.63	-55.50	-3.82	68.73	62.74	5.98	11.484	
1,000.00	998.96	992.70	992.19	3.37	3.28	-149.54	-62.38	-8.36	84.07	77.39	6.68	12.579	
1,100.00	1,098.46	1,091.30	1,090.28	3.74	3.63	-148.91	-70.72	-13.87	100.70	93.32	7.38	13.650	
1,200.00	1,197.96	1,189.90	1,188.38	4.11	3.98	-148.45	-79.07	-19.38	117.33	109.26	8.08	14.526	
1,300.00	1,297.46	1,288.51	1,286.47	4.49	4.34	-148.11	-87.41	-24.89	133.97	125.19	8.78	15.252	
1,400.00	1,396.96	1,387.11	1,384.57	4.86	4.71	-147.85	-95.76	-30.40	150.62	141.12	9.50	15.863	
1,500.00	1,496.46	1,485.71	1,482.66	5.24	5.07	-147.64	-104.10	-35.90	167.27	157.06	10.21	16.383	
1,600.00	1,595.96	1,584.31	1,580.76	5.62	5.44	-147.46	-112.44	-41.41	183.92	172.99	10.93	16.832	
1,700.00	1,695.46	1,682.92	1,678.85	6.00	5.81	-147.32	-120.79	-46.92	200.57	188.92	11.65	17.222	
1,800.00	1,794.96	1,781.52	1,776.95	6.38	6.19	-147.20	-129.13	-52.43	217.22	204.85	12.37	17.564	
1,900.00	1,894.46	1,880.12	1,875.04	6.76	6.56	-147.09	-137.48	-57.94	233.87	220.78	13.09	17.866	
2,000.00	1,993.96	1,978.73	1,973.13	7.14	6.94	-147.00	-145.82	-63.45	250.52	236.71	13.81	18.135	
2,100.00	2,093.46	2,077.33	2,071.23	7.52	7.31	-146.92	-154.16	-68.96	267.18	252.64	14.54	18.375	
2,200.00	2,192.96	2,175.93	2,169.32	7.90	7.69	-146.85	-162.51	-74.47	283.83	268.56	15.27	18.592	
2,300.00	2,292.46	2,274.53	2,267.42	8.28	8.07	-146.79	-170.85	-79.98	300.48	284.49	15.99	18.788	
2,400.00	2,391.96	2,373.14	2,365.51	8.66	8.45	-146.73	-179.20	-85.49	317.14	300.42	16.72	18.966	
2,500.00	2,491.46	2,471.74	2,463.61	9.04	8.83	-146.68	-187.54	-90.99	333.79	316.34	17.45	19.129	
2,600.00	2,590.96	2,570.34	2,561.70	9.42	9.21	-146.64	-195.88	-96.50	350.45	332.27	18.18	19.278	
2,700.00	2,690.46	2,669.95	2,659.80	9.81	9.59	-146.59	-204.23	-102.01	367.10	348.19	18.91	19.415	
2,800.00	2,789.96	2,767.55	2,757.89	10.19	9.97	-146.56	-212.57	-107.52	383.76	364.12	19.64	19.541	
2,900.00	2,889.46	2,866.15	2,855.99	10.57	10.35	-146.52	-220.92	-113.03	400.41	380.05	20.37	19.658	
3,000.00	2,988.96	2,964.76	2,954.08	10.95	10.73	-146.49	-229.26	-118.54	417.07	395.97	21.10	19.767	
3,100.00	3,088.46	3,063.36	3,052.18	11.33	11.12	-146.46	-237.60	-124.05	433.73	411.89	21.83	19.868	
3,200.00	3,187.96	3,161.96	3,150.27	11.72	11.50	-146.43	-245.95	-129.56	450.38	427.82	22.56	19.962	
3,300.00	3,287.46	3,260.56	3,248.37	12.10	11.88	-146.41	-254.29	-135.07	467.04	443.74	23.29	20.050	
3,400.00	3,386.96	3,359.17	3,346.46	12.48	12.26	-146.38	-262.64	-140.58	483.69	459.67	24.03	20.133	
3,500.00	3,486.46	3,457.77	3,444.55	12.87	12.65	-146.36	-270.98	-146.08	500.35	475.59	24.76	20.210	
3,600.00	3,585.96	3,556.37	3,542.65	13.25	13.03	-146.34	-279.32	-151.59	517.01	491.52	25.49	20.283	
3,700.00	3,685.46	3,654.98	3,640.74	13.63	13.41	-146.32	-287.67	-157.10	533.66	507.44	26.22	20.352	
3,800.00	3,784.96	3,753.58	3,738.84	14.01	13.80	-146.30	-296.01	-162.61	550.32	523.36	26.95	20.416	
3,900.00	3,884.46	3,852.18	3,836.93	14.40	14.18	-146.29	-304.36	-168.12	566.97	539.29	27.69	20.478	
4,000.00	3,983.96	3,950.78	3,935.03	14.78	14.56	-146.27	-312.70	-173.63	583.63	555.21	28.42	20.536	
4,100.00	4,083.46	4,049.39	4,033.12	15.16	14.95	-146.25	-321.04	-179.14	600.29	571.13	29.15	20.591	
4,200.00	4,182.96	4,147.99	4,131.22	15.55	15.33	-146.24	-329.39	-184.65	616.94	587.06	29.89	20.643	
4,300.00	4,282.46	4,246.59	4,229.31	15.93	15.71	-146.23	-337.73	-190.16	633.60	602.98	30.62	20.692	
4,400.00	4,381.96	4,345.20	4,327.41	16.31	16.10	-146.21	-346.08	-195.66	650.26	618.90	31.35	20.740	
4,500.00	4,481.46	4,443.80	4,425.50	16.70	16.48	-146.20	-354.42	-201.17	666.91	634.83	32.09	20.785	
4,600.00	4,580.96	4,542.40	4,523.60	17.08	16.87	-146.19	-362.77	-206.68	683.57	650.75	32.82	20.828	
4,700.00	4,680.46	4,641.01	4,621.69	17.46	17.25	-146.18	-371.11	-212.19	700.23	666.67	33.55	20.869	
4,800.00	4,779.96	4,739.61	4,719.79	17.85	17.63	-146.17	-379.45	-217.70	716.88	682.60	34.29	20.908	
4,900.00	4,879.46	4,838.21	4,817.88	18.23	18.02	-146.16	-387.80	-223.21	733.54	698.52	35.02	20.945	
5,000.00	4,978.96	4,936.81	4,915.97	18.61	18.40	-146.15	-396.14	-228.72	750.20	714.44	35.76	20.981	

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 3E-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 3E-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		
5,100.00	5,078.46	5,035.42	5,014.07	19.00	18.79	-146.14	-404.49	-234.23	766.85	730.36	36.49	21.016		
5,200.00	5,177.96	5,134.02	5,112.16	19.38	19.17	-146.13	-412.83	-239.74	783.51	746.29	37.22	21.049		
5,300.00	5,277.46	5,232.62	5,210.26	19.76	19.56	-146.12	-421.17	-245.25	800.17	762.21	37.96	21.080		
5,400.00	5,376.96	5,331.23	5,308.35	20.15	19.94	-146.11	-429.52	-250.75	816.82	778.13	38.69	21.111		
5,500.00	5,476.46	5,429.83	5,406.45	20.53	20.32	-146.11	-437.86	-256.26	833.48	794.05	39.43	21.140		
5,600.00	5,575.96	5,528.43	5,504.54	20.91	20.71	-146.10	-446.21	-261.77	850.14	809.98	40.16	21.168		
5,700.00	5,675.46	5,627.03	5,602.64	21.30	21.09	-146.09	-454.55	-267.28	866.79	825.90	40.90	21.196		
5,738.64	5,713.91	5,665.13	5,640.54	21.45	21.24	-146.09	-457.77	-269.41	873.23	832.05	41.18	21.206		
5,800.00	5,775.02	5,725.72	5,700.82	21.68	21.48	-146.17	-462.90	-272.80	882.91	841.29	41.63	21.210		
5,900.00	5,874.83	5,856.41	5,831.05	22.04	21.97	-146.20	-471.80	-278.67	894.78	852.22	42.57	21.022		
6,000.00	5,974.79	5,991.35	5,965.90	22.39	22.46	-146.21	-475.79	-281.31	899.91	856.46	43.45	20.712		
6,025.21	6,000.00	6,025.45	6,000.00	22.48	22.57	179.52	-475.96	-281.42	900.12	856.47	43.65	20.619		
6,100.00	6,074.79	6,100.24	6,074.79	22.73	22.80	179.52	-475.96	-281.42	900.12	855.97	44.15	20.386		
6,200.00	6,174.79	6,200.24	6,174.79	23.07	23.11	179.52	-475.96	-281.42	900.12	855.30	44.82	20.082		
6,300.00	6,274.79	6,300.24	6,274.79	23.40	23.42	179.52	-475.96	-281.42	900.12	854.63	45.49	19.786		
6,400.00	6,374.79	6,400.24	6,374.79	23.74	23.73	179.52	-475.96	-281.42	900.12	853.96	46.17	19.498		
6,500.00	6,474.79	6,500.24	6,474.79	24.08	24.05	179.52	-475.96	-281.42	900.12	853.29	46.84	19.218		
6,600.00	6,574.79	6,600.24	6,574.79	24.42	24.36	179.52	-475.96	-281.42	900.12	852.61	47.51	18.945		
6,649.01	6,623.80	6,649.25	6,623.80	24.59	24.52	179.52	-475.96	-281.42	900.12	852.28	47.84	18.814		
6,700.00	6,674.75	6,700.36	6,674.86	24.75	24.67	90.10	-475.94	-279.60	900.12	851.95	48.18	18.684		
6,750.00	6,724.45	6,750.47	6,724.68	24.90	24.82	90.10	-475.89	-274.28	900.12	851.64	48.49	18.565		
6,800.00	6,773.67	6,800.58	6,774.01	25.05	24.97	90.10	-475.80	-265.49	900.12	851.34	48.78	18.451		
6,850.00	6,822.16	6,850.69	6,822.59	25.19	25.11	90.10	-475.68	-253.28	900.12	851.05	49.07	18.343		
6,900.00	6,869.68	6,900.80	6,870.21	25.32	25.24	90.10	-475.52	-237.70	900.12	850.77	49.35	18.238		
6,950.00	6,916.01	6,950.90	6,916.61	25.45	25.36	90.09	-475.33	-218.83	900.12	850.49	49.63	18.136		
7,000.00	6,960.91	7,001.01	6,961.58	25.57	25.48	90.09	-475.10	-196.77	900.12	850.21	49.92	18.033		
7,050.00	7,004.17	7,051.10	7,004.90	25.69	25.59	90.09	-474.85	-171.61	900.12	849.91	50.21	17.928		
7,100.00	7,045.57	7,101.20	7,046.35	25.80	25.69	90.08	-474.56	-143.50	900.12	849.60	50.52	17.815		
7,150.00	7,084.92	7,151.29	7,085.72	25.93	25.80	90.08	-474.25	-112.56	900.12	849.25	50.88	17.692		
7,200.00	7,122.02	7,201.37	7,122.84	26.06	25.90	90.07	-473.91	-78.95	900.12	848.84	51.28	17.554		
7,250.00	7,156.70	7,251.45	7,157.51	26.24	26.02	90.07	-473.54	-42.83	900.12	848.38	51.75	17.394		
7,300.00	7,188.78	7,301.52	7,189.57	26.47	26.17	90.06	-473.15	-4.38	900.12	847.82	52.30	17.210		
7,350.00	7,218.11	7,351.59	7,218.86	26.76	26.39	90.06	-472.73	36.21	900.12	847.17	52.96	16.997		
7,400.00	7,244.54	7,401.65	7,245.24	27.13	26.71	90.05	-472.30	78.74	900.12	846.39	53.73	16.752		
7,450.00	7,267.95	7,451.70	7,268.59	27.58	27.12	90.05	-471.85	123.00	900.12	845.49	54.63	16.475		
7,500.00	7,288.22	7,501.75	7,288.78	28.09	27.61	90.04	-471.39	168.78	900.12	844.44	55.68	16.167		
7,550.00	7,305.25	7,551.79	7,305.73	28.68	28.20	90.03	-470.91	215.85	900.12	843.26	56.87	15.829		
7,600.00	7,318.96	7,601.82	7,319.34	29.35	28.86	90.02	-470.42	263.98	900.12	841.93	58.20	15.467		
7,650.00	7,329.29	7,651.84	7,329.56	30.08	29.59	90.02	-469.92	312.93	900.12	840.46	59.66	15.087		
7,700.00	7,336.18	7,701.86	7,336.34	30.87	30.39	90.01	-469.42	362.47	900.12	838.86	61.26	14.694		
7,750.00	7,339.60	7,751.87	7,339.65	31.72	31.24	90.00	-468.91	412.36	900.12	837.16	62.96	14.297		
7,774.01	7,340.00	7,775.88	7,340.00	32.14	31.67	90.00	-468.67	436.37	900.12	836.31	63.81	14.106		
7,800.00	7,340.00	7,801.87	7,340.00	32.62	32.15	90.00	-468.40	462.35	900.12	835.36	64.76	13.899		
7,900.00	7,340.00	7,901.87	7,340.00	34.56	34.11	90.00	-467.39	562.35	900.12	831.46	68.66	13.109		
8,000.00	7,340.00	8,001.87	7,340.00	36.68	36.25	90.00	-466.37	662.34	900.12	827.20	72.92	12.344		
8,100.00	7,340.00	8,101.87	7,340.00	38.95	38.54	90.00	-465.35	762.34	900.12	822.65	77.48	11.618		
8,200.00	7,340.00	8,201.87	7,340.00	41.34	40.95	90.00	-464.34	862.33	900.12	817.84	82.28	10.940		
8,300.00	7,340.00	8,301.87	7,340.00	43.84	43.47	90.00	-463.32	962.33	900.12	812.83	87.29	10.312		
8,400.00	7,340.00	8,401.87	7,340.00	46.42	46.07	90.00	-462.31	1,062.32	900.12	807.65	92.47	9.734		
8,500.00	7,340.00	8,501.87	7,340.00	49.08	48.74	90.00	-461.29	1,162.32	900.12	802.32	97.80	9.204		
8,600.00	7,340.00	8,601.87	7,340.00	51.80	51.47	90.00	-460.27	1,262.31	900.12	796.87	103.25	8.718		
8,700.00	7,340.00	8,701.87	7,340.00	54.57	54.26	90.00	-459.26	1,362.31	900.12	791.31	108.81	8.272		

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 3E-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 3E-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
8,800.00	7,340.00	8,801.87	7,340.00	57.39	57.09	90.00	-458.24	1,462.30	900.12	785.66	114.46	7.864	
8,900.00	7,340.00	8,901.87	7,340.00	60.25	59.96	90.00	-457.22	1,562.30	900.12	779.94	120.18	7.490	
9,000.00	7,340.00	9,001.87	7,340.00	63.14	62.86	90.00	-456.21	1,662.29	900.12	774.15	125.97	7.145	
9,100.00	7,340.00	9,101.87	7,340.00	66.06	65.79	90.00	-455.19	1,762.29	900.12	768.30	131.82	6.828	
9,200.00	7,340.00	9,201.87	7,340.00	69.00	68.74	90.00	-454.18	1,862.28	900.12	762.40	137.72	6.536	
9,300.00	7,340.00	9,301.87	7,340.00	71.97	71.71	90.00	-453.16	1,962.28	900.12	756.46	143.66	6.266	
9,400.00	7,340.00	9,401.87	7,340.00	74.95	74.71	90.00	-452.14	2,062.27	900.12	750.48	149.64	6.015	
9,500.00	7,340.00	9,501.87	7,340.00	77.96	77.72	90.00	-451.13	2,162.26	900.12	744.46	155.66	5.783	
9,600.00	7,340.00	9,601.87	7,340.00	80.98	80.74	90.00	-450.11	2,262.26	900.12	738.42	161.70	5.566	
9,700.00	7,340.00	9,701.87	7,340.00	84.01	83.78	90.00	-449.09	2,362.25	900.12	732.34	167.78	5.365	
9,800.00	7,340.00	9,801.87	7,340.00	87.06	86.84	90.00	-448.08	2,462.25	900.12	726.24	173.87	5.177	
9,900.00	7,340.00	9,901.87	7,340.00	90.11	89.90	90.00	-447.06	2,562.24	900.12	720.13	179.99	5.001	
10,000.00	7,340.00	10,001.87	7,340.00	93.18	92.97	90.00	-446.05	2,662.24	900.12	713.99	186.13	4.836	
10,100.00	7,340.00	10,101.87	7,340.00	96.26	96.05	90.00	-445.03	2,762.23	900.12	707.83	192.29	4.681	
10,200.00	7,340.00	10,201.87	7,340.00	99.34	99.14	90.00	-444.01	2,862.23	900.12	701.66	198.46	4.535	
10,300.00	7,340.00	10,301.87	7,340.00	102.43	102.24	90.00	-443.00	2,962.22	900.12	695.47	204.65	4.398	
10,400.00	7,340.00	10,401.87	7,340.00	105.53	105.34	90.00	-441.98	3,062.22	900.12	689.27	210.85	4.269	
10,500.00	7,340.00	10,501.87	7,340.00	108.64	108.45	90.00	-440.96	3,162.21	900.12	683.05	217.07	4.147	
10,600.00	7,340.00	10,601.87	7,340.00	111.75	111.56	90.00	-439.95	3,262.21	900.12	676.83	223.29	4.031	
10,700.00	7,340.00	10,701.87	7,340.00	114.86	114.68	90.00	-438.93	3,362.20	900.12	670.59	229.53	3.922	
10,800.00	7,340.00	10,801.87	7,340.00	117.98	117.80	90.00	-437.92	3,462.20	900.12	664.35	235.77	3.818	
10,900.00	7,340.00	10,901.87	7,340.00	121.11	120.93	90.00	-436.90	3,562.19	900.12	658.09	242.03	3.719	
11,000.00	7,340.00	11,001.87	7,340.00	124.24	124.06	90.00	-435.88	3,662.19	900.12	651.83	248.29	3.625	
11,100.00	7,340.00	11,101.87	7,340.00	127.37	127.20	90.00	-434.87	3,762.18	900.12	645.56	254.56	3.536	
11,200.00	7,340.00	11,201.87	7,340.00	130.51	130.34	90.00	-433.85	3,862.18	900.12	639.28	260.83	3.451	
11,300.00	7,340.00	11,301.87	7,340.00	133.65	133.48	90.00	-432.83	3,962.17	900.12	633.00	267.12	3.370	
11,400.00	7,340.00	11,401.87	7,340.00	136.79	136.63	90.00	-431.82	4,062.17	900.12	626.71	273.40	3.292	
11,500.00	7,340.00	11,501.87	7,340.00	139.94	139.78	90.00	-430.80	4,162.16	900.12	620.42	279.70	3.218	
11,600.00	7,340.00	11,601.87	7,340.00	143.09	142.93	90.00	-429.79	4,262.16	900.12	614.12	286.00	3.147	
11,700.00	7,340.00	11,701.87	7,340.00	146.24	146.08	90.00	-428.77	4,362.15	900.12	607.81	292.30	3.079	
11,800.00	7,340.00	11,801.87	7,340.00	149.39	149.21	90.00	-427.75	4,462.15	900.12	601.53	298.59	3.015	
11,842.40	7,340.00	11,844.27	7,340.00	150.73	149.98	90.00	-427.32	4,504.55	900.12	599.42	300.70	2.993	
11,848.32	7,340.00	11,845.06	7,340.00	150.91	150.00	90.00	-427.31	4,505.33	900.13	599.24	300.89	2.992 SF	

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well SAM 3E-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 3E-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: 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	-60.11	-0.04	60.11				
100.00	100.00	100.00	100.00	0.14	0.14	-179.96	-60.11	-0.04	60.11	59.83	0.28	217.764	
200.00	200.00	200.00	200.00	0.50	0.50	-179.96	-60.11	-0.04	60.11	59.11	0.99	60.534	
300.00	300.00	300.00	300.00	0.85	0.85	-179.96	-60.11	-0.04	60.11	58.40	1.71	35.153	
400.00	400.00	400.00	400.00	1.21	1.21	-179.96	-60.11	-0.04	60.11	57.68	2.43	24.768	
500.00	500.00	500.00	500.00	1.57	1.57	-179.96	-60.11	-0.04	60.11	56.96	3.14	19.120	
600.00	600.00	600.00	600.00	1.93	1.93	-179.96	-60.11	-0.04	60.11	56.25	3.86	15.569	CC, ES
700.00	699.98	698.02	698.00	2.29	2.27	-145.93	-61.65	-0.71	63.12	58.56	4.56	13.828	
800.00	799.84	795.51	795.35	2.65	2.59	-146.52	-66.23	-2.69	72.15	66.87	5.27	13.684	
886.57	886.09	879.07	878.63	2.96	2.88	-147.12	-72.57	-5.43	84.78	78.89	5.89	14.391	
900.00	899.46	891.94	891.43	3.01	2.92	-147.22	-73.75	-5.94	87.11	81.12	5.99	14.544	
1,000.00	998.96	987.21	986.03	3.37	3.26	-147.42	-84.09	-10.41	106.15	99.46	6.69	15.856	
1,100.00	1,098.46	1,084.55	1,082.42	3.74	3.62	-147.16	-96.51	-15.78	127.05	119.67	7.38	17.207	
1,200.00	1,197.96	1,182.33	1,179.25	4.11	3.99	-146.96	-109.02	-21.19	147.98	139.90	8.08	18.324	
1,300.00	1,297.46	1,280.12	1,276.08	4.49	4.36	-146.81	-121.53	-26.60	168.91	160.13	8.78	19.243	
1,400.00	1,396.96	1,377.90	1,372.91	4.86	4.75	-146.70	-134.04	-32.01	189.84	180.36	9.48	20.017	
1,500.00	1,496.46	1,475.69	1,469.75	5.24	5.13	-146.61	-146.54	-37.41	210.77	200.58	10.19	20.676	
1,600.00	1,595.96	1,573.47	1,566.58	5.62	5.52	-146.53	-159.05	-42.82	231.70	220.79	10.91	21.242	
1,700.00	1,695.46	1,671.25	1,663.41	6.00	5.91	-146.47	-171.56	-48.23	252.63	241.01	11.62	21.733	
1,800.00	1,794.96	1,769.04	1,760.24	6.38	6.30	-146.42	-184.07	-53.64	273.56	261.22	12.34	22.164	
1,900.00	1,894.46	1,866.82	1,857.07	6.76	6.70	-146.37	-196.57	-59.05	294.50	281.43	13.06	22.544	
2,000.00	1,993.96	1,964.61	1,953.90	7.14	7.10	-146.33	-209.08	-64.45	315.43	301.64	13.79	22.881	
2,100.00	2,093.46	2,062.39	2,050.73	7.52	7.49	-146.30	-221.59	-69.86	336.36	321.85	14.51	23.183	
2,200.00	2,192.96	2,160.18	2,147.56	7.90	7.89	-146.27	-234.10	-75.27	357.29	342.06	15.23	23.454	
2,300.00	2,292.46	2,257.96	2,244.39	8.28	8.29	-146.24	-246.60	-80.68	378.22	362.27	15.96	23.700	
2,400.00	2,391.96	2,355.75	2,341.22	8.66	8.69	-146.22	-259.11	-86.09	399.16	382.47	16.69	23.922	
2,500.00	2,491.46	2,453.53	2,438.05	9.04	9.09	-146.20	-271.62	-91.49	420.09	402.68	17.41	24.125	
2,600.00	2,590.96	2,551.31	2,534.88	9.42	9.49	-146.18	-284.13	-96.90	441.02	422.88	18.14	24.311	
2,700.00	2,690.46	2,649.10	2,631.71	9.81	9.89	-146.16	-296.63	-102.31	461.95	443.09	18.87	24.482	
2,800.00	2,789.96	2,746.88	2,728.54	10.19	10.30	-146.14	-309.14	-107.72	482.89	463.29	19.60	24.639	
2,900.00	2,889.46	2,844.67	2,825.37	10.57	10.70	-146.13	-321.65	-113.13	503.82	483.49	20.33	24.785	
3,000.00	2,988.96	2,942.45	2,922.20	10.95	11.10	-146.11	-334.16	-118.54	524.75	503.69	21.06	24.920	
3,100.00	3,088.46	3,040.24	3,019.03	11.33	11.51	-146.10	-346.67	-123.94	545.69	523.90	21.79	25.045	
3,200.00	3,187.96	3,138.02	3,115.86	11.72	11.91	-146.09	-359.17	-129.35	566.62	544.10	22.52	25.162	
3,300.00	3,287.46	3,235.81	3,212.69	12.10	12.31	-146.08	-371.68	-134.76	587.55	564.30	23.25	25.271	
3,400.00	3,386.96	3,333.59	3,309.52	12.48	12.72	-146.07	-384.19	-140.17	608.48	584.50	23.98	25.374	
3,500.00	3,486.46	3,431.38	3,406.35	12.87	13.12	-146.06	-396.70	-145.58	629.42	604.70	24.71	25.470	
3,600.00	3,585.96	3,529.16	3,503.18	13.25	13.53	-146.05	-409.20	-150.98	650.35	624.90	25.44	25.560	
3,700.00	3,685.46	3,626.94	3,600.01	13.63	13.93	-146.04	-421.71	-156.39	671.28	645.11	26.18	25.645	
3,800.00	3,784.96	3,724.73	3,696.84	14.01	14.34	-146.03	-434.22	-161.80	692.21	665.31	26.91	25.725	
3,900.00	3,884.46	3,822.51	3,793.67	14.40	14.74	-146.02	-446.73	-167.21	713.15	685.51	27.64	25.801	
4,000.00	3,983.96	3,920.30	3,890.50	14.78	15.15	-146.02	-459.23	-172.62	734.08	705.71	28.37	25.872	
4,100.00	4,083.46	4,018.08	3,987.33	15.16	15.55	-146.01	-471.74	-178.02	755.01	725.91	29.11	25.940	
4,200.00	4,182.96	4,115.87	4,084.17	15.55	15.96	-146.00	-484.25	-183.43	775.95	746.11	29.84	26.005	
4,300.00	4,282.46	4,213.65	4,181.00	15.93	16.36	-146.00	-496.76	-188.84	796.88	766.31	30.57	26.066	
4,400.00	4,381.96	4,311.44	4,277.83	16.31	16.77	-145.99	-509.26	-194.25	817.81	786.51	31.30	26.124	
4,500.00	4,481.46	4,409.22	4,374.66	16.70	17.17	-145.99	-521.77	-199.66	838.74	806.71	32.04	26.180	
4,600.00	4,580.96	4,507.00	4,471.49	17.08	17.58	-145.98	-534.28	-205.06	859.68	826.91	32.77	26.233	
4,700.00	4,680.46	4,604.79	4,568.32	17.46	17.98	-145.98	-546.79	-210.47	880.61	847.11	33.50	26.283	
4,800.00	4,779.96	4,702.57	4,665.15	17.85	18.39	-145.97	-559.29	-215.88	901.54	867.31	34.24	26.332	
4,900.00	4,879.46	4,800.36	4,761.98	18.23	18.80	-145.97	-571.80	-221.29	922.48	887.50	34.97	26.378	
5,000.00	4,978.96	4,898.14	4,858.81	18.61	19.20	-145.96	-584.31	-226.70	943.41	907.70	35.71	26.422	

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 3E-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 3E-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									
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Centre +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning			
5,100.00	5,078.46	4,995.93	4,955.64	19.00	19.61	-145.96	-596.82	-232.11	964.34	927.90	36.44	26.464				
5,200.00	5,177.96	5,093.71	5,052.47	19.38	20.01	-145.96	-609.33	-237.51	985.28	948.10	37.17	26.505				
5,300.00	5,277.46	5,191.50	5,149.30	19.76	20.42	-145.95	-621.83	-242.92	1,006.21	968.30	37.91	26.544				
5,400.00	5,376.96	5,289.28	5,246.13	20.15	20.83	-145.95	-634.34	-248.33	1,027.14	988.50	38.64	26.581				
5,500.00	5,476.46	5,387.07	5,342.96	20.53	21.23	-145.95	-646.85	-253.74	1,048.07	1,008.70	39.38	26.617				
5,600.00	5,575.96	5,484.85	5,439.79	20.91	21.64	-145.94	-659.36	-259.15	1,069.01	1,028.90	40.11	26.652				
5,700.00	5,675.46	5,582.63	5,536.62	21.30	22.04	-145.94	-671.86	-264.55	1,089.94	1,049.10	40.84	26.685				
5,738.64	5,713.91	5,620.42	5,574.04	21.45	22.20	-145.94	-676.70	-266.64	1,098.03	1,056.90	41.13	26.698				
5,800.00	5,775.02	5,698.69	5,651.61	21.68	22.52	-146.06	-686.29	-270.79	1,110.07	1,068.36	41.71	26.612				
5,900.00	5,874.83	5,852.62	5,804.82	22.04	23.11	-146.18	-699.70	-276.59	1,123.80	1,081.03	42.77	26.273				
6,000.00	5,974.79	6,008.52	5,960.57	22.39	23.66	-146.23	-705.56	-279.12	1,129.73	1,086.01	43.72	25.843				
6,025.21	6,000.00	6,047.95	6,000.00	22.48	23.78	179.51	-705.81	-279.23	1,129.98	1,086.05	43.93	25.724				
6,100.00	6,074.79	6,122.74	6,074.79	22.73	24.00	179.51	-705.81	-279.23	1,129.98	1,085.56	44.42	25.438				
6,200.00	6,174.79	6,222.74	6,174.79	23.07	24.29	179.51	-705.81	-279.23	1,129.98	1,084.90	45.08	25.064				
6,300.00	6,274.79	6,322.74	6,274.79	23.40	24.58	179.51	-705.81	-279.23	1,129.98	1,084.23	45.75	24.701				
6,400.00	6,374.79	6,422.74	6,374.79	23.74	24.88	179.51	-705.81	-279.23	1,129.98	1,083.57	46.41	24.347				
6,500.00	6,474.79	6,522.74	6,474.79	24.08	25.17	179.51	-705.81	-279.23	1,129.98	1,082.90	47.08	24.002				
6,600.00	6,574.79	6,622.74	6,574.79	24.42	25.47	179.51	-705.81	-279.23	1,129.98	1,082.23	47.75	23.666				
6,649.01	6,623.80	6,671.75	6,623.80	24.59	25.62	179.51	-705.81	-279.23	1,129.98	1,081.90	48.08	23.505				
6,700.00	6,674.75	6,722.69	6,674.75	24.75	25.77	90.18	-705.81	-279.23	1,129.98	1,081.58	48.41	23.343				
6,750.00	6,724.45	6,772.77	6,724.81	24.90	25.92	90.41	-705.80	-278.56	1,130.01	1,081.29	48.72	23.194				
6,800.00	6,773.67	6,823.28	6,775.16	25.05	26.07	90.66	-705.76	-274.60	1,130.05	1,081.03	49.02	23.052				
6,850.00	6,822.16	6,874.15	6,825.45	25.19	26.21	90.90	-705.68	-267.03	1,130.12	1,080.80	49.32	22.916				
6,900.00	6,869.68	6,925.38	6,875.42	25.32	26.35	91.14	-705.57	-255.82	1,130.20	1,080.60	49.60	22.786				
6,950.00	6,916.01	6,976.96	6,924.80	25.45	26.48	91.38	-705.42	-240.96	1,130.31	1,080.43	49.88	22.660				
7,000.00	6,960.91	7,028.90	6,973.32	25.57	26.60	91.61	-705.23	-222.44	1,130.43	1,080.27	50.16	22.537				
7,050.00	7,004.17	7,081.19	7,020.67	25.69	26.72	91.83	-705.01	-200.29	1,130.56	1,080.11	50.44	22.412				
7,100.00	7,045.57	7,133.82	7,066.58	25.80	26.82	92.04	-704.74	-174.57	1,130.70	1,079.96	50.74	22.283				
7,150.00	7,084.92	7,186.80	7,110.76	25.93	26.92	92.24	-704.45	-145.35	1,130.85	1,079.78	51.07	22.143				
7,200.00	7,122.02	7,240.10	7,152.90	26.06	27.01	92.43	-704.12	-112.74	1,131.00	1,079.56	51.44	21.986				
7,250.00	7,156.70	7,293.72	7,192.73	26.24	27.10	92.61	-703.75	-76.87	1,131.16	1,079.29	51.87	21.807				
7,300.00	7,188.78	7,347.63	7,229.95	26.47	27.17	92.78	-703.36	-37.89	1,131.32	1,078.93	52.38	21.598				
7,350.00	7,218.11	7,401.81	7,264.31	26.76	27.25	92.93	-702.93	3.99	1,131.47	1,078.47	52.99	21.352				
7,400.00	7,244.54	7,456.25	7,295.54	27.13	27.33	93.07	-702.48	48.56	1,131.61	1,077.88	53.73	21.063				
7,450.00	7,267.95	7,510.92	7,323.41	27.58	27.46	93.19	-702.00	95.58	1,131.74	1,077.14	54.60	20.729				
7,500.00	7,288.22	7,565.79	7,347.69	28.09	27.76	93.30	-701.50	144.77	1,131.85	1,076.23	55.62	20.350				
7,550.00	7,305.25	7,620.84	7,368.20	28.68	28.29	93.38	-700.98	195.83	1,131.95	1,075.15	56.80	19.928				
7,600.00	7,318.96	7,676.03	7,384.75	29.35	28.95	93.45	-700.44	248.46	1,132.03	1,073.89	58.14	19.469				
7,650.00	7,329.29	7,731.32	7,397.23	30.08	29.72	93.50	-699.90	302.31	1,132.09	1,072.45	59.64	18.981				
7,700.00	7,336.18	7,786.69	7,405.53	30.87	30.57	93.53	-699.34	357.04	1,132.13	1,070.84	61.29	18.473				
7,750.00	7,339.60	7,842.10	7,409.58	31.72	31.50	93.55	-698.78	412.29	1,132.14	1,069.09	63.06	17.955				
7,774.01	7,340.00	7,868.53	7,410.00	32.14	31.97	93.54	-698.51	438.70	1,132.14	1,068.20	63.94	17.706				
7,800.00	7,340.00	7,894.51	7,410.00	32.62	32.44	93.54	-698.25	464.69	1,132.14	1,067.26	64.88	17.449				
7,900.00	7,340.00	7,994.51	7,410.00	34.56	34.39	93.54	-697.23	564.68	1,132.14	1,063.38	68.76	16.465				
8,000.00	7,340.00	8,094.51	7,410.00	36.68	36.51	93.54	-696.21	664.68	1,132.14	1,059.15	72.99	15.511				
8,100.00	7,340.00	8,194.51	7,410.00	38.95	38.78	93.54	-695.20	764.67	1,132.14	1,054.62	77.52	14.605				
8,200.00	7,340.00	8,294.51	7,410.00	41.34	41.18	93.54	-694.18	864.67	1,132.14	1,049.85	82.30	13.757				
8,300.00	7,340.00	8,394.51	7,410.00	43.84	43.68	93.54	-693.17	964.66	1,132.14	1,044.86	87.28	12.971				
8,400.00	7,340.00	8,494.51	7,410.00	46.42	46.27	93.54	-692.15	1,064.66	1,132.14	1,039.70	92.44	12.247				
8,500.00	7,340.00	8,594.51	7,410.00	49.08	48.93	93.54	-691.13	1,164.65	1,132.14	1,034.39	97.75	11.582				
8,600.00	7,340.00	8,694.51	7,410.00	51.80	51.65	93.54	-690.12	1,264.65	1,132.14	1,028.96	103.18	10.972				
8,700.00	7,340.00	8,794.51	7,410.00	54.57	54.42	93.54	-689.10	1,364.64	1,132.14	1,023.42	108.72	10.413				

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 3E-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 3E-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							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning	
8,800.00	7,340.00	8,894.51	7,410.00	57.39	57.24	93.54	-688.08	1,464.64	1,132.14	1,017.79	114.35	9.901		
8,900.00	7,340.00	8,994.51	7,410.00	60.25	60.10	93.54	-687.07	1,564.63	1,132.14	1,012.09	120.06	9.430		
9,000.00	7,340.00	9,094.51	7,410.00	63.14	62.99	93.54	-686.05	1,664.63	1,132.14	1,006.31	125.83	8.998		
9,100.00	7,340.00	9,194.51	7,410.00	66.06	65.91	93.54	-685.04	1,764.62	1,132.14	1,000.48	131.66	8.599		
9,200.00	7,340.00	9,294.51	7,410.00	69.00	68.86	93.54	-684.02	1,864.62	1,132.14	994.60	137.54	8.231		
9,300.00	7,340.00	9,394.51	7,410.00	71.97	71.82	93.54	-683.00	1,964.61	1,132.14	988.67	143.47	7.891		
9,400.00	7,340.00	9,494.51	7,410.00	74.95	74.81	93.54	-681.99	2,064.61	1,132.14	982.71	149.43	7.576		
9,500.00	7,340.00	9,594.51	7,410.00	77.96	77.82	93.54	-680.97	2,164.60	1,132.14	976.71	155.43	7.284		
9,600.00	7,340.00	9,694.51	7,410.00	80.98	80.84	93.54	-679.95	2,264.60	1,132.14	970.68	161.46	7.012		
9,700.00	7,340.00	9,794.51	7,410.00	84.01	83.87	93.54	-678.94	2,364.59	1,132.14	964.62	167.52	6.758		
9,800.00	7,340.00	9,894.51	7,410.00	87.06	86.92	93.54	-677.92	2,464.59	1,132.14	958.54	173.61	6.521		
9,900.00	7,340.00	9,994.51	7,410.00	90.11	89.98	93.54	-676.91	2,564.58	1,132.14	952.43	179.71	6.300		
10,000.00	7,340.00	10,094.51	7,410.00	93.18	93.04	93.54	-675.89	2,664.57	1,132.14	946.31	185.84	6.092		
10,100.00	7,340.00	10,194.51	7,410.00	96.26	96.12	93.54	-674.87	2,764.57	1,132.14	940.16	191.98	5.897		
10,200.00	7,340.00	10,294.51	7,410.00	99.34	99.20	93.54	-673.86	2,864.56	1,132.14	934.00	198.14	5.714		
10,300.00	7,340.00	10,394.51	7,410.00	102.43	102.30	93.54	-672.84	2,964.56	1,132.14	927.83	204.31	5.541		
10,400.00	7,340.00	10,494.51	7,410.00	105.53	105.40	93.54	-671.82	3,064.55	1,132.14	921.64	210.50	5.378		
10,500.00	7,340.00	10,594.51	7,410.00	108.64	108.50	93.54	-670.81	3,164.55	1,132.14	915.44	216.70	5.224		
10,600.00	7,340.00	10,694.51	7,410.00	111.75	111.61	93.54	-669.79	3,264.54	1,132.14	909.23	222.91	5.079		
10,700.00	7,340.00	10,794.51	7,410.00	114.86	114.73	93.54	-668.78	3,364.54	1,132.14	903.00	229.14	4.941		
10,800.00	7,340.00	10,894.51	7,410.00	117.98	117.85	93.54	-667.76	3,464.53	1,132.14	896.77	235.37	4.810		
10,900.00	7,340.00	10,994.51	7,410.00	121.11	120.98	93.54	-666.74	3,564.53	1,132.14	890.53	241.61	4.686		
11,000.00	7,340.00	11,094.51	7,410.00	124.24	124.11	93.54	-665.73	3,664.52	1,132.14	884.28	247.86	4.568		
11,100.00	7,340.00	11,194.51	7,410.00	127.37	127.24	93.54	-664.71	3,764.52	1,132.14	878.02	254.12	4.455		
11,200.00	7,340.00	11,294.51	7,410.00	130.51	130.38	93.54	-663.69	3,864.51	1,132.14	871.76	260.38	4.348		
11,300.00	7,340.00	11,394.51	7,410.00	133.65	133.52	93.54	-662.68	3,964.51	1,132.14	865.49	266.65	4.246		
11,400.00	7,340.00	11,494.51	7,410.00	136.79	136.66	93.54	-661.66	4,064.50	1,132.14	859.21	272.93	4.148		
11,500.00	7,340.00	11,594.51	7,410.00	139.94	139.81	93.54	-660.65	4,164.50	1,132.14	852.93	279.21	4.055		
11,600.00	7,340.00	11,694.51	7,410.00	143.09	142.96	93.54	-659.63	4,264.49	1,132.14	846.64	285.50	3.966		
11,700.00	7,340.00	11,794.51	7,410.00	146.24	146.11	93.54	-658.61	4,364.49	1,132.14	840.35	291.79	3.880		
11,800.00	7,340.00	11,894.51	7,410.00	149.39	149.26	93.54	-657.60	4,464.48	1,132.14	834.05	298.08	3.798		
11,841.91	7,340.00	11,936.42	7,410.00	150.71	150.10	93.54	-657.17	4,506.39	1,132.14	831.90	300.24	3.771		
11,848.32	7,340.00	11,936.55	7,410.00	150.91	150.10	93.54	-657.17	4,506.52	1,132.16	831.71	300.44	3.768 SF		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well SAM 3E-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 3E-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							
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	-179.81	-69.95	-0.24	69.95				
100.00	100.00	100.00	100.00	0.14	0.14	-179.81	-69.95	-0.24	69.95	69.68	0.28	253.436	
200.00	200.00	200.00	200.00	0.50	0.50	-179.81	-69.95	-0.24	69.95	68.96	0.99	70.450	
300.00	300.00	300.00	300.00	0.85	0.85	-179.81	-69.95	-0.24	69.95	68.24	1.71	40.911	
400.00	400.00	400.00	400.00	1.21	1.21	-179.81	-69.95	-0.24	69.95	67.53	2.43	28.825	
500.00	500.00	500.00	500.00	1.57	1.57	-179.81	-69.95	-0.24	69.95	66.81	3.14	22.252	CC, ES
600.00	600.00	597.69	597.68	1.93	1.91	-179.39	-71.53	-0.76	71.58	67.73	3.85	18.587	
700.00	699.98	695.07	694.92	2.29	2.23	-144.65	-76.26	-2.33	77.87	73.31	4.57	17.058	
800.00	799.84	791.60	791.10	2.65	2.57	-144.82	-84.03	-4.90	90.22	84.93	5.29	17.054	
886.57	886.09	874.08	873.02	2.96	2.86	-145.28	-93.10	-7.91	105.75	99.83	5.92	17.867	
900.00	899.46	886.77	885.59	3.01	2.91	-145.38	-94.70	-8.44	108.53	102.51	6.02	18.034	
1,000.00	998.96	981.39	979.14	3.37	3.26	-145.78	-108.18	-12.91	130.89	124.17	6.72	19.482	
1,100.00	1,098.46	1,078.64	1,075.14	3.74	3.64	-145.96	-122.94	-17.81	154.18	146.78	7.40	20.840	
1,200.00	1,197.96	1,175.89	1,171.14	4.11	4.03	-146.09	-137.70	-22.70	177.47	169.37	8.09	21.935	
1,300.00	1,297.46	1,273.14	1,267.14	4.49	4.42	-146.19	-152.46	-27.60	200.75	191.96	8.79	22.841	
1,400.00	1,396.96	1,370.39	1,363.14	4.86	4.82	-146.26	-167.22	-32.49	224.04	214.55	9.49	23.601	
1,500.00	1,496.46	1,467.64	1,459.14	5.24	5.22	-146.33	-181.98	-37.39	247.33	237.13	10.20	24.246	
1,600.00	1,595.96	1,564.89	1,555.13	5.62	5.62	-146.38	-196.74	-42.29	270.62	259.70	10.91	24.798	
1,700.00	1,695.46	1,662.14	1,651.13	6.00	6.03	-146.42	-211.50	-47.18	293.91	282.28	11.63	25.277	
1,800.00	1,794.96	1,759.39	1,747.13	6.38	6.44	-146.46	-226.26	-52.08	317.19	304.85	12.34	25.695	
1,900.00	1,894.46	1,856.64	1,843.13	6.76	6.85	-146.50	-241.02	-56.97	340.48	327.42	13.06	26.064	
2,000.00	1,993.96	1,953.89	1,939.13	7.14	7.26	-146.52	-255.78	-61.87	363.77	349.99	13.78	26.390	
2,100.00	2,093.46	2,051.14	2,035.13	7.52	7.67	-146.55	-270.54	-66.76	387.06	372.55	14.51	26.682	
2,200.00	2,192.96	2,148.39	2,131.13	7.90	8.08	-146.57	-285.30	-71.66	410.35	395.12	15.23	26.944	
2,300.00	2,292.46	2,245.64	2,227.13	8.28	8.50	-146.59	-300.06	-76.55	433.64	417.68	15.95	27.180	
2,400.00	2,391.96	2,342.89	2,323.13	8.66	8.91	-146.61	-314.82	-81.45	456.93	440.25	16.68	27.394	
2,500.00	2,491.46	2,440.14	2,419.12	9.04	9.33	-146.62	-329.58	-86.34	480.22	462.81	17.41	27.589	
2,600.00	2,590.96	2,537.39	2,515.12	9.42	9.74	-146.64	-344.34	-91.24	503.50	485.37	18.13	27.768	
2,700.00	2,690.46	2,634.64	2,611.12	9.81	10.16	-146.65	-359.10	-96.13	526.79	507.93	18.86	27.932	
2,800.00	2,789.96	2,731.89	2,707.12	10.19	10.57	-146.66	-373.86	-101.03	550.08	530.49	19.59	28.082	
2,900.00	2,889.46	2,829.15	2,803.12	10.57	10.99	-146.68	-388.62	-105.92	573.37	553.06	20.32	28.222	
3,000.00	2,988.96	2,926.40	2,899.12	10.95	11.41	-146.69	-403.38	-110.82	596.66	575.62	21.05	28.351	
3,100.00	3,088.46	3,023.65	2,995.12	11.33	11.82	-146.70	-418.14	-115.71	619.95	598.18	21.78	28.471	
3,200.00	3,187.96	3,120.90	3,091.12	11.72	12.24	-146.70	-432.90	-120.61	643.24	620.73	22.50	28.582	
3,300.00	3,287.46	3,218.15	3,187.12	12.10	12.66	-146.71	-447.66	-125.51	666.53	643.29	23.24	28.686	
3,400.00	3,386.96	3,315.40	3,283.11	12.48	13.08	-146.72	-462.42	-130.40	689.82	665.85	23.97	28.784	
3,500.00	3,486.46	3,412.65	3,379.11	12.87	13.49	-146.73	-477.18	-135.30	713.11	688.41	24.70	28.875	
3,600.00	3,585.96	3,509.90	3,475.11	13.25	13.91	-146.73	-491.93	-140.19	736.40	710.97	25.43	28.961	
3,700.00	3,685.46	3,607.15	3,571.11	13.63	14.33	-146.74	-506.69	-145.09	759.69	733.53	26.16	29.042	
3,800.00	3,784.96	3,704.40	3,667.11	14.01	14.75	-146.75	-521.45	-149.98	782.98	756.09	26.89	29.118	
3,900.00	3,884.46	3,801.65	3,763.11	14.40	15.17	-146.75	-536.21	-154.88	806.26	778.64	27.62	29.190	
4,000.00	3,983.96	3,898.90	3,859.11	14.78	15.59	-146.76	-550.97	-159.77	829.55	801.20	28.35	29.258	
4,100.00	4,083.46	3,996.15	3,955.11	15.16	16.01	-146.76	-565.73	-164.67	852.84	823.76	29.08	29.323	
4,200.00	4,182.96	4,093.40	4,051.11	15.55	16.42	-146.77	-580.49	-169.56	876.13	846.32	29.82	29.384	
4,300.00	4,282.46	4,190.65	4,147.10	15.93	16.84	-146.77	-595.25	-174.46	899.42	868.87	30.55	29.442	
4,400.00	4,381.96	4,287.90	4,243.10	16.31	17.26	-146.78	-610.01	-179.35	922.71	891.43	31.28	29.497	
4,500.00	4,481.46	4,385.15	4,339.10	16.70	17.68	-146.78	-624.77	-184.25	946.00	913.99	32.01	29.550	
4,600.00	4,580.96	4,482.40	4,435.10	17.08	18.10	-146.78	-639.53	-189.14	969.29	936.54	32.75	29.600	
4,700.00	4,680.46	4,579.65	4,531.10	17.46	18.52	-146.79	-654.29	-194.04	992.58	959.10	33.48	29.648	
4,800.00	4,779.96	4,676.90	4,627.10	17.85	18.94	-146.79	-669.05	-198.94	1,015.87	981.66	34.21	29.693	
4,900.00	4,879.46	4,774.15	4,723.10	18.23	19.36	-146.79	-683.81	-203.83	1,039.16	1,004.21	34.94	29.737	
5,000.00	4,978.96	4,871.40	4,819.10	18.61	19.78	-146.80	-698.57	-208.73	1,062.45	1,026.77	35.68	29.779	

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 3E-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 3E-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: 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	5,078.46	4,968.65	4,915.10	19.00	20.20	-146.80	-713.33	-213.62	1,085.74	1,049.32	36.41	29.819	
5,200.00	5,177.96	5,065.90	5,011.09	19.38	20.62	-146.80	-728.09	-218.52	1,109.03	1,071.88	37.14	29.857	
5,300.00	5,277.46	5,163.15	5,107.09	19.76	21.04	-146.81	-742.85	-223.41	1,132.31	1,094.44	37.88	29.894	
5,400.00	5,376.96	5,260.40	5,203.09	20.15	21.46	-146.81	-757.61	-228.31	1,155.60	1,116.99	38.61	29.929	
5,500.00	5,476.46	5,357.65	5,299.09	20.53	21.88	-146.81	-772.37	-233.20	1,178.89	1,139.55	39.34	29.963	
5,600.00	5,575.96	5,454.90	5,395.09	20.91	22.30	-146.81	-787.13	-238.10	1,202.18	1,162.10	40.08	29.996	
5,700.00	5,675.46	5,552.15	5,491.09	21.30	22.72	-146.82	-801.89	-242.99	1,225.47	1,184.66	40.81	30.027	
5,738.64	5,713.91	5,589.73	5,528.18	21.45	22.88	-146.82	-807.59	-244.88	1,234.47	1,193.38	41.10	30.039	
5,800.00	5,775.02	5,649.52	5,587.21	21.68	23.14	-146.96	-816.67	-247.89	1,248.23	1,206.68	41.54	30.046	
5,900.00	5,874.83	5,747.46	5,683.88	22.04	23.56	-147.08	-831.53	-252.82	1,268.34	1,226.06	42.27	30.005	
6,000.00	5,974.79	5,845.87	5,781.03	22.39	23.98	-147.09	-846.47	-257.78	1,285.57	1,242.58	42.99	29.903	
6,025.21	6,000.00	5,870.75	5,805.59	22.48	24.09	178.66	-850.25	-259.03	1,289.47	1,246.30	43.17	29.868	
6,100.00	6,074.79	5,944.58	5,878.47	22.73	24.41	178.83	-861.45	-262.75	1,300.75	1,257.04	43.71	29.761	
6,200.00	6,174.79	6,069.70	6,002.08	23.07	24.94	179.12	-879.84	-268.84	1,315.51	1,270.89	44.62	29.484	
6,300.00	6,274.79	6,245.97	6,177.28	23.40	25.64	179.39	-897.96	-274.86	1,325.76	1,279.97	45.79	28.954	
6,400.00	6,374.79	6,423.94	6,355.02	23.74	26.25	179.51	-905.86	-277.47	1,330.18	1,283.40	46.79	28.431	
6,500.00	6,474.79	6,543.70	6,474.79	24.08	26.59	179.51	-906.19	-277.59	1,330.37	1,282.88	47.50	28.011	
6,600.00	6,574.79	6,643.70	6,574.79	24.42	26.87	179.51	-906.19	-277.59	1,330.37	1,282.22	48.15	27.628	
6,649.01	6,623.80	6,692.72	6,623.80	24.59	27.01	179.51	-906.19	-277.59	1,330.37	1,281.90	48.48	27.443	
6,700.00	6,674.75	6,743.86	6,674.91	24.75	27.15	90.09	-906.18	-275.76	1,330.37	1,281.57	48.80	27.260	
6,750.00	6,724.45	6,794.02	6,724.77	24.90	27.29	90.09	-906.12	-270.43	1,330.37	1,281.26	49.11	27.091	
6,800.00	6,773.67	6,844.18	6,774.14	25.05	27.42	90.09	-906.03	-261.63	1,330.37	1,280.97	49.40	26.931	
6,850.00	6,822.16	6,894.33	6,822.77	25.19	27.54	90.09	-905.90	-249.40	1,330.37	1,280.69	49.68	26.778	
6,900.00	6,869.68	6,944.49	6,870.42	25.32	27.66	90.09	-905.74	-233.79	1,330.37	1,280.41	49.96	26.631	
6,950.00	6,916.01	6,994.63	6,916.86	25.45	27.77	90.09	-905.55	-214.89	1,330.37	1,280.14	50.23	26.487	
7,000.00	6,960.91	7,044.78	6,961.86	25.57	27.87	90.08	-905.32	-192.79	1,330.36	1,279.87	50.50	26.344	
7,050.00	7,004.17	7,094.92	7,005.19	25.69	27.96	90.08	-905.07	-167.60	1,330.36	1,279.58	50.78	26.198	
7,100.00	7,045.57	7,145.05	7,046.66	25.80	28.04	90.08	-904.78	-139.44	1,330.36	1,279.27	51.09	26.042	
7,150.00	7,084.92	7,195.17	7,086.04	25.93	28.12	90.07	-904.46	-108.45	1,330.36	1,278.93	51.42	25.870	
7,200.00	7,122.02	7,245.29	7,123.16	26.06	28.18	90.07	-904.12	-74.80	1,330.35	1,278.54	51.81	25.676	
7,250.00	7,156.70	7,295.40	7,157.83	26.24	28.24	90.06	-903.74	-38.63	1,330.35	1,278.08	52.27	25.453	
7,300.00	7,188.78	7,345.50	7,189.89	26.47	28.29	90.06	-903.35	-0.14	1,330.35	1,277.54	52.80	25.194	
7,350.00	7,218.11	7,395.60	7,219.16	26.76	28.34	90.05	-902.93	40.49	1,330.34	1,276.90	53.44	24.893	
7,400.00	7,244.54	7,445.68	7,245.52	27.13	28.37	90.05	-902.50	83.06	1,330.34	1,276.14	54.20	24.546	
7,450.00	7,267.95	7,495.75	7,268.84	27.58	28.40	90.04	-902.04	127.36	1,330.34	1,275.25	55.08	24.151	
7,500.00	7,288.22	7,545.82	7,289.01	28.09	28.44	90.03	-901.57	173.17	1,330.33	1,274.22	56.11	23.710	
7,550.00	7,305.25	7,595.87	7,305.92	28.68	28.65	90.03	-901.09	220.27	1,330.33	1,273.05	57.28	23.226	
7,600.00	7,318.96	7,645.92	7,319.49	29.35	29.25	90.02	-900.60	268.43	1,330.32	1,271.73	58.59	22.706	
7,650.00	7,329.29	7,695.95	7,329.67	30.08	29.96	90.02	-900.10	317.40	1,330.32	1,270.28	60.04	22.157	
7,700.00	7,336.18	7,745.97	7,336.41	30.87	30.75	90.01	-899.59	366.95	1,330.31	1,268.70	61.62	21.590	
7,750.00	7,339.60	7,795.98	7,339.67	31.72	31.60	90.00	-899.08	416.84	1,330.31	1,267.01	63.30	21.015	
7,774.01	7,340.00	7,819.99	7,340.00	32.14	32.02	90.00	-898.83	440.85	1,330.31	1,266.16	64.15	20.738	
7,800.00	7,340.00	7,845.98	7,340.00	32.62	32.51	90.00	-898.56	466.84	1,330.31	1,265.20	65.10	20.434	
7,900.00	7,340.00	7,945.98	7,340.00	34.56	34.46	90.00	-897.54	566.83	1,330.30	1,261.32	68.98	19.285	
8,000.00	7,340.00	8,045.98	7,340.00	36.68	36.58	90.00	-896.52	666.83	1,330.29	1,257.08	73.21	18.171	
8,100.00	7,340.00	8,145.98	7,340.00	38.95	38.84	90.00	-895.49	766.82	1,330.28	1,252.54	77.74	17.113	
8,200.00	7,340.00	8,245.98	7,340.00	41.34	41.23	90.00	-894.47	866.82	1,330.27	1,247.76	82.51	16.122	
8,300.00	7,340.00	8,345.98	7,340.00	43.84	43.73	90.00	-893.44	966.81	1,330.26	1,242.76	87.50	15.203	
8,400.00	7,340.00	8,445.98	7,340.00	46.42	46.31	90.00	-892.42	1,066.81	1,330.25	1,237.59	92.66	14.356	
8,500.00	7,340.00	8,545.98	7,340.00	49.08	48.96	90.00	-891.39	1,166.80	1,330.25	1,232.27	97.97	13.578	
8,600.00	7,340.00	8,645.98	7,340.00	51.80	51.68	90.00	-890.37	1,266.80	1,330.24	1,226.83	103.41	12.864	
8,700.00	7,340.00	8,745.98	7,340.00	54.57	54.45	90.00	-889.34	1,366.79	1,330.23	1,221.28	108.95	12.209	

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 3E-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 3E-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						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	8,845.98	7,340.00	57.39	57.27	90.00	-888.32	1,466.78	1,330.22	1,215.63	114.59	11.609		
8,900.00	7,340.00	8,945.98	7,340.00	60.25	60.12	90.00	-887.29	1,566.78	1,330.21	1,209.91	120.30	11.058		
9,000.00	7,340.00	9,045.98	7,340.00	63.14	63.01	90.00	-886.27	1,666.77	1,330.20	1,204.13	126.08	10.551		
9,100.00	7,340.00	9,145.98	7,340.00	66.06	65.93	90.00	-885.24	1,766.77	1,330.19	1,198.28	131.91	10.084		
9,200.00	7,340.00	9,245.98	7,340.00	69.00	68.87	90.00	-884.22	1,866.76	1,330.19	1,192.38	137.80	9.653		
9,300.00	7,340.00	9,345.98	7,340.00	71.97	71.83	90.00	-883.19	1,966.76	1,330.18	1,186.44	143.74	9.254		
9,400.00	7,340.00	9,445.98	7,340.00	74.95	74.82	90.00	-882.17	2,066.75	1,330.17	1,180.46	149.71	8.885		
9,500.00	7,340.00	9,545.98	7,340.00	77.96	77.82	90.00	-881.14	2,166.75	1,330.16	1,174.44	155.72	8.542		
9,600.00	7,340.00	9,645.98	7,340.00	80.98	80.84	90.00	-880.12	2,266.74	1,330.15	1,168.39	161.76	8.223		
9,700.00	7,340.00	9,745.98	7,340.00	84.01	83.87	90.00	-879.09	2,366.74	1,330.14	1,162.32	167.82	7.926		
9,800.00	7,340.00	9,845.98	7,340.00	87.06	86.92	90.00	-878.07	2,466.73	1,330.13	1,156.22	173.92	7.648		
9,900.00	7,340.00	9,945.98	7,340.00	90.11	89.97	90.00	-877.04	2,566.73	1,330.12	1,150.10	180.03	7.388		
10,000.00	7,340.00	10,045.98	7,340.00	93.18	93.04	90.00	-876.02	2,666.72	1,330.12	1,143.95	186.16	7.145		
10,100.00	7,340.00	10,145.98	7,340.00	96.26	96.11	90.00	-875.00	2,766.72	1,330.11	1,137.79	192.32	6.916		
10,200.00	7,340.00	10,245.98	7,340.00	99.34	99.20	90.00	-873.97	2,866.71	1,330.10	1,131.61	198.48	6.701		
10,300.00	7,340.00	10,345.98	7,340.00	102.43	102.29	90.00	-872.95	2,966.71	1,330.09	1,125.42	204.67	6.499		
10,400.00	7,340.00	10,445.98	7,340.00	105.53	105.39	90.00	-871.92	3,066.70	1,330.08	1,119.22	210.87	6.308		
10,500.00	7,340.00	10,545.98	7,340.00	108.64	108.49	90.00	-870.90	3,166.70	1,330.07	1,113.00	217.08	6.127		
10,600.00	7,340.00	10,645.98	7,340.00	111.75	111.60	90.00	-869.87	3,266.69	1,330.06	1,106.77	223.30	5.956		
10,700.00	7,340.00	10,745.98	7,340.00	114.86	114.72	90.00	-868.85	3,366.69	1,330.06	1,100.53	229.53	5.795		
10,800.00	7,340.00	10,845.98	7,340.00	117.98	117.84	90.00	-867.82	3,466.68	1,330.05	1,094.28	235.77	5.641		
10,900.00	7,340.00	10,945.98	7,340.00	121.11	120.96	90.00	-866.80	3,566.67	1,330.04	1,088.02	242.02	5.496		
11,000.00	7,340.00	11,045.98	7,340.00	124.24	124.09	90.00	-865.77	3,666.67	1,330.03	1,081.75	248.28	5.357		
11,100.00	7,340.00	11,145.98	7,340.00	127.37	127.22	90.00	-864.75	3,766.66	1,330.02	1,075.47	254.55	5.225		
11,200.00	7,340.00	11,245.98	7,340.00	130.51	130.36	90.00	-863.72	3,866.66	1,330.01	1,069.19	260.82	5.099		
11,300.00	7,340.00	11,345.98	7,340.00	133.65	133.50	90.00	-862.70	3,966.65	1,330.00	1,062.90	267.10	4.979		
11,400.00	7,340.00	11,445.98	7,340.00	136.79	136.64	90.00	-861.67	4,066.65	1,330.00	1,056.61	273.39	4.865		
11,500.00	7,340.00	11,545.98	7,340.00	139.94	139.79	90.00	-860.65	4,166.64	1,329.99	1,050.31	279.68	4.755		
11,600.00	7,340.00	11,645.98	7,340.00	143.09	142.93	90.00	-859.62	4,266.64	1,329.98	1,044.00	285.98	4.651		
11,700.00	7,340.00	11,745.98	7,340.00	146.24	146.08	90.00	-858.60	4,366.63	1,329.97	1,037.69	292.28	4.550		
11,800.00	7,340.00	11,845.98	7,340.00	149.39	149.24	90.00	-857.57	4,466.63	1,329.96	1,031.37	298.59	4.454		
11,840.65	7,340.00	11,886.52	7,340.00	150.67	150.52	90.00	-857.16	4,507.16	1,329.96	1,028.81	301.15	4.416		
11,848.32	7,340.00	11,886.52	7,340.00	150.91	150.52	90.00	-857.16	4,507.16	1,329.98	1,028.58	301.40	4.413 SF		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well SAM 3E-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 3E-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: 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	-179.89	-80.14	-0.15	80.14				
100.00	100.00	100.00	100.00	0.14	0.14	-179.89	-80.14	-0.15	80.14	79.87	0.28	290.355	
200.00	200.00	200.00	200.00	0.50	0.50	-179.89	-80.14	-0.15	80.14	79.15	0.99	80.713	
300.00	300.00	300.00	300.00	0.85	0.85	-179.89	-80.14	-0.15	80.14	78.43	1.71	46.871	
400.00	400.00	400.00	400.00	1.21	1.21	-179.89	-80.14	-0.15	80.14	77.72	2.43	33.024 CC, ES	
500.00	500.00	497.34	497.32	1.57	1.55	-179.58	-81.73	-0.61	81.78	78.64	3.14	26.060	
600.00	600.00	594.46	594.31	1.93	1.88	-178.69	-86.48	-1.97	86.69	82.83	3.86	22.444	
700.00	699.98	691.01	690.51	2.29	2.21	-143.66	-94.34	-4.23	96.30	91.70	4.60	20.940 SF	
800.00	799.84	786.42	785.24	2.65	2.56	-143.59	-105.15	-7.35	111.93	106.59	5.34	20.973	
886.57	886.09	867.72	865.65	2.96	2.87	-143.89	-116.75	-10.69	130.23	124.26	5.97	21.821	
900.00	899.46	880.77	878.52	3.01	2.92	-143.99	-118.79	-11.28	133.41	127.35	6.06	22.006	
1,000.00	998.96	977.91	974.38	3.37	3.30	-144.63	-133.94	-15.64	157.08	150.34	6.73	23.325	
1,100.00	1,098.46	1,075.06	1,070.23	3.74	3.70	-145.10	-149.09	-20.00	180.76	173.34	7.42	24.362	
1,200.00	1,197.96	1,172.20	1,166.09	4.11	4.09	-145.46	-164.25	-24.36	204.45	196.34	8.11	25.199	
1,300.00	1,297.46	1,269.35	1,261.95	4.49	4.50	-145.75	-179.40	-28.73	228.15	219.34	8.81	25.885	
1,400.00	1,396.96	1,366.50	1,357.81	4.86	4.90	-145.98	-194.55	-33.09	251.86	242.34	9.52	26.457	
1,500.00	1,496.46	1,463.64	1,453.66	5.24	5.31	-146.17	-209.71	-37.45	275.56	265.33	10.23	26.940	
1,600.00	1,595.96	1,560.79	1,549.52	5.62	5.72	-146.34	-224.86	-41.82	299.27	288.33	10.94	27.352	
1,700.00	1,695.46	1,657.93	1,645.38	6.00	6.13	-146.47	-240.01	-46.18	322.98	311.32	11.66	27.707	
1,800.00	1,794.96	1,755.08	1,741.24	6.38	6.55	-146.59	-255.17	-50.54	346.69	334.32	12.37	28.017	
1,900.00	1,894.46	1,852.22	1,837.09	6.76	6.96	-146.70	-270.32	-54.91	370.41	357.31	13.09	28.289	
2,000.00	1,993.96	1,949.37	1,932.95	7.14	7.38	-146.79	-285.47	-59.27	394.12	380.31	13.81	28.529	
2,100.00	2,093.46	2,046.52	2,028.81	7.52	7.79	-146.87	-300.62	-63.63	417.83	403.30	14.54	28.743	
2,200.00	2,192.96	2,143.66	2,124.66	7.90	8.21	-146.94	-315.78	-68.00	441.55	426.29	15.26	28.935	
2,300.00	2,292.46	2,240.81	2,220.52	8.28	8.63	-147.01	-330.93	-72.36	465.27	449.28	15.98	29.107	
2,400.00	2,391.96	2,337.95	2,316.38	8.66	9.05	-147.07	-346.08	-76.72	488.98	472.27	16.71	29.264	
2,500.00	2,491.46	2,435.10	2,412.24	9.04	9.46	-147.12	-361.24	-81.09	512.70	495.27	17.44	29.405	
2,600.00	2,590.96	2,532.24	2,508.09	9.42	9.88	-147.17	-376.39	-85.45	536.42	518.26	18.16	29.535	
2,700.00	2,690.46	2,629.39	2,603.95	9.81	10.30	-147.21	-391.54	-89.81	560.14	541.25	18.89	29.654	
2,800.00	2,789.96	2,726.54	2,699.81	10.19	10.72	-147.25	-406.70	-94.18	583.85	564.24	19.62	29.763	
2,900.00	2,889.46	2,823.68	2,795.67	10.57	11.14	-147.29	-421.85	-98.54	607.57	587.23	20.34	29.864	
3,000.00	2,988.96	2,920.83	2,891.52	10.95	11.56	-147.33	-437.00	-102.90	631.29	610.22	21.07	29.957	
3,100.00	3,088.46	3,017.97	2,987.38	11.33	11.98	-147.36	-452.16	-107.27	655.01	633.21	21.80	30.043	
3,200.00	3,187.96	3,115.12	3,083.24	11.72	12.40	-147.39	-467.31	-111.63	678.73	656.20	22.53	30.124	
3,300.00	3,287.46	3,212.26	3,179.10	12.10	12.82	-147.42	-482.46	-115.99	702.45	679.19	23.26	30.199	
3,400.00	3,386.96	3,309.41	3,274.95	12.48	13.24	-147.44	-497.61	-120.36	726.17	702.18	23.99	30.269	
3,500.00	3,486.46	3,406.56	3,370.81	12.87	13.66	-147.47	-512.77	-124.72	749.89	725.17	24.72	30.335	
3,600.00	3,585.96	3,503.70	3,466.67	13.25	14.08	-147.49	-527.92	-129.08	773.61	748.16	25.45	30.396	
3,700.00	3,685.46	3,600.85	3,562.53	13.63	14.50	-147.51	-543.07	-133.45	797.33	771.15	26.18	30.454	
3,800.00	3,784.96	3,697.99	3,658.38	14.01	14.92	-147.53	-558.23	-137.81	821.05	794.14	26.91	30.509	
3,900.00	3,884.46	3,795.14	3,754.24	14.40	15.34	-147.55	-573.38	-142.17	844.77	817.13	27.64	30.560	
4,000.00	3,983.96	3,892.28	3,850.10	14.78	15.76	-147.57	-588.53	-146.54	868.49	840.11	28.37	30.609	
4,100.00	4,083.46	3,989.43	3,945.95	15.16	16.18	-147.59	-603.69	-150.90	892.21	863.10	29.10	30.655	
4,200.00	4,182.96	4,086.58	4,041.81	15.55	16.60	-147.60	-618.84	-155.26	915.93	886.09	29.84	30.699	
4,300.00	4,282.46	4,183.72	4,137.67	15.93	17.02	-147.62	-633.99	-159.63	939.65	909.08	30.57	30.740	
4,400.00	4,381.96	4,280.87	4,233.53	16.31	17.44	-147.63	-649.14	-163.99	963.37	932.07	31.30	30.780	
4,500.00	4,481.46	4,378.01	4,329.38	16.70	17.87	-147.65	-664.30	-168.35	987.09	955.06	32.03	30.817	
4,600.00	4,580.96	4,475.16	4,425.24	17.08	18.29	-147.66	-679.45	-172.71	1,010.81	978.05	32.76	30.853	
4,700.00	4,680.46	4,572.30	4,521.10	17.46	18.71	-147.67	-694.60	-177.08	1,034.53	1,001.04	33.49	30.887	
4,800.00	4,779.96	4,669.45	4,616.96	17.85	19.13	-147.69	-709.76	-181.44	1,058.25	1,024.03	34.23	30.919	
4,900.00	4,879.46	4,766.60	4,712.81	18.23	19.55	-147.70	-724.91	-185.80	1,081.97	1,047.01	34.96	30.950	
5,000.00	4,978.96	4,863.74	4,808.67	18.61	19.97	-147.71	-740.06	-190.17	1,105.69	1,070.00	35.69	30.980	

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 3E-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 3E-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: 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	5,078.46	4,960.89	4,904.53	19.00	20.39	-147.72	-755.22	-194.53	1,129.41	1,092.99	36.42	31.008		
5,200.00	5,177.96	5,058.03	5,000.39	19.38	20.81	-147.73	-770.37	-198.89	1,153.13	1,115.98	37.16	31.036		
5,300.00	5,277.46	5,155.18	5,096.24	19.76	21.24	-147.74	-785.52	-203.26	1,176.86	1,138.97	37.89	31.062		
5,400.00	5,376.96	5,252.32	5,192.10	20.15	21.66	-147.75	-800.67	-207.62	1,200.58	1,161.96	38.62	31.087		
5,500.00	5,476.46	5,349.47	5,287.96	20.53	22.08	-147.76	-815.83	-211.98	1,224.30	1,184.94	39.35	31.111		
5,600.00	5,575.96	5,446.62	5,383.82	20.91	22.50	-147.77	-830.98	-216.35	1,248.02	1,207.93	40.09	31.134		
5,700.00	5,675.46	5,543.76	5,479.67	21.30	22.92	-147.78	-846.13	-220.71	1,271.74	1,230.92	40.82	31.156		
5,738.64	5,713.91	5,581.30	5,516.71	21.45	23.08	-147.78	-851.99	-222.40	1,280.90	1,239.80	41.10	31.164		
5,800.00	5,775.02	5,641.03	5,575.66	21.68	23.34	-147.92	-861.31	-225.08	1,294.92	1,253.37	41.55	31.165		
5,900.00	5,874.83	5,738.89	5,672.21	22.04	23.77	-148.06	-876.57	-229.47	1,315.43	1,273.15	42.28	31.115		
6,000.00	5,974.79	5,837.25	5,769.27	22.39	24.19	-148.09	-891.91	-233.89	1,333.04	1,290.04	43.00	31.003		
6,025.21	6,000.00	5,862.11	5,793.80	22.48	24.30	177.66	-895.79	-235.01	1,337.02	1,293.84	43.18	30.966		
6,100.00	6,074.79	5,935.91	5,866.62	22.73	24.62	177.82	-907.30	-238.32	1,348.56	1,304.85	43.71	30.851		
6,200.00	6,174.79	6,034.58	5,963.99	23.07	25.05	178.04	-922.69	-242.76	1,364.00	1,319.57	44.43	30.702		
6,300.00	6,274.79	6,133.26	6,061.35	23.40	25.48	178.24	-938.08	-247.19	1,379.47	1,334.32	45.14	30.557		
6,400.00	6,374.79	6,231.93	6,158.72	23.74	25.91	178.45	-953.48	-251.62	1,394.95	1,349.09	45.86	30.418		
6,500.00	6,474.79	6,330.61	6,256.08	24.08	26.34	178.65	-968.87	-256.05	1,410.45	1,363.87	46.58	30.283		
6,600.00	6,574.79	6,429.28	6,353.45	24.42	26.76	178.84	-984.26	-260.48	1,425.96	1,378.67	47.29	30.152		
6,649.01	6,623.80	6,477.64	6,401.17	24.59	26.97	178.94	-991.80	-262.66	1,433.57	1,385.93	47.64	30.090		
6,700.00	6,674.75	6,527.83	6,450.69	24.75	27.19	89.05	-999.63	-264.91	1,441.47	1,393.47	48.00	30.032		
6,750.00	6,724.45	6,576.63	6,498.84	24.90	27.40	88.72	-1,007.24	-267.10	1,449.19	1,400.86	48.33	29.984		
6,800.00	6,773.67	6,624.79	6,546.36	25.05	27.61	88.53	-1,014.75	-269.26	1,456.89	1,408.24	48.66	29.943		
6,850.00	6,822.16	6,672.07	6,593.02	25.19	27.82	88.44	-1,022.13	-271.39	1,464.62	1,415.65	48.97	29.908		
6,900.00	6,869.68	6,718.24	6,638.57	25.32	28.02	88.46	-1,029.33	-273.46	1,472.42	1,423.15	49.27	29.882		
6,950.00	6,916.01	6,764.38	6,684.11	25.45	28.22	88.57	-1,036.53	-275.38	1,480.38	1,430.80	49.58	29.858		
7,000.00	6,960.91	6,814.10	6,733.21	25.57	28.42	88.75	-1,044.26	-274.87	1,488.44	1,438.53	49.91	29.820		
7,050.00	7,004.17	6,865.59	6,783.91	25.69	28.63	88.95	-1,052.21	-270.71	1,496.56	1,446.29	50.26	29.775		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well SAM 3E-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 3E-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: 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	-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	89.70	0.28	325.986		
200.00	200.00	200.00	200.00	0.50	0.50	-179.96	-89.98	-0.06	89.98	88.99	0.99	90.617		
300.00	300.00	300.00	300.00	0.85	0.85	-179.96	-89.98	-0.06	89.98	88.27	1.71	52.623 CC, ES		
400.00	400.00	397.02	397.00	1.21	1.19	-179.70	-91.57	-0.48	91.62	89.19	2.43	37.727		
500.00	500.00	493.81	493.66	1.57	1.52	-178.97	-96.32	-1.74	96.54	93.37	3.17	30.484		
600.00	600.00	590.16	589.66	1.93	1.86	-177.90	-104.17	-3.81	104.76	100.84	3.92	26.749		
700.00	699.98	685.69	684.53	2.29	2.21	-142.76	-115.04	-6.68	117.64	112.98	4.67	25.209 SF		
800.00	799.84	779.82	777.58	2.65	2.58	-142.55	-128.74	-10.30	136.48	131.07	5.41	25.224		
886.57	886.09	863.82	860.38	2.96	2.92	-142.85	-142.40	-13.91	156.48	150.47	6.00	26.073		
900.00	899.46	876.84	873.22	3.01	2.97	-142.97	-144.52	-14.47	159.74	153.64	6.09	26.212		
1,000.00	998.96	973.82	968.82	3.37	3.37	-143.71	-160.30	-18.64	184.03	177.26	6.77	27.193		
1,100.00	1,098.46	1,070.80	1,064.41	3.74	3.78	-144.28	-176.08	-22.80	208.35	200.89	7.46	27.947		
1,200.00	1,197.96	1,167.78	1,160.01	4.11	4.19	-144.73	-191.86	-26.97	232.68	224.53	8.15	28.548		
1,300.00	1,297.46	1,264.76	1,255.61	4.49	4.60	-145.10	-207.63	-31.14	257.02	248.17	8.85	29.035		
1,400.00	1,396.96	1,361.74	1,351.20	4.86	5.02	-145.40	-223.41	-35.31	281.37	271.81	9.56	29.437		
1,500.00	1,496.46	1,458.72	1,446.80	5.24	5.43	-145.65	-239.19	-39.47	305.73	295.46	10.27	29.773		
1,600.00	1,595.96	1,555.70	1,542.40	5.62	5.85	-145.87	-254.97	-43.64	330.09	319.11	10.98	30.057		
1,700.00	1,695.46	1,652.68	1,638.00	6.00	6.27	-146.06	-270.75	-47.81	354.46	342.76	11.70	30.300		
1,800.00	1,794.96	1,749.66	1,733.59	6.38	6.69	-146.22	-286.53	-51.98	378.83	366.41	12.42	30.511		
1,900.00	1,894.46	1,846.64	1,829.19	6.76	7.11	-146.36	-302.30	-56.14	403.20	390.06	13.14	30.694		
2,000.00	1,993.96	1,943.62	1,924.79	7.14	7.54	-146.49	-318.08	-60.31	427.57	413.72	13.86	30.855		
2,100.00	2,093.46	2,040.60	2,020.38	7.52	7.96	-146.60	-333.86	-64.48	451.95	437.37	14.58	30.998		
2,200.00	2,192.96	2,137.58	2,115.98	7.90	8.38	-146.71	-349.64	-68.65	476.33	461.02	15.30	31.125		
2,300.00	2,292.46	2,234.56	2,211.58	8.28	8.80	-146.80	-365.42	-72.82	500.70	484.68	16.03	31.239		
2,400.00	2,391.96	2,331.54	2,307.18	8.66	9.23	-146.88	-381.20	-76.98	525.08	508.33	16.75	31.342		
2,500.00	2,491.46	2,428.52	2,402.77	9.04	9.65	-146.96	-396.97	-81.15	549.46	531.98	17.48	31.435		
2,600.00	2,590.96	2,525.50	2,498.37	9.42	10.07	-147.03	-412.75	-85.32	573.84	555.64	18.21	31.519		
2,700.00	2,690.46	2,622.48	2,593.97	9.81	10.50	-147.09	-428.53	-89.49	598.23	579.29	18.93	31.596		
2,800.00	2,789.96	2,719.46	2,689.56	10.19	10.92	-147.15	-444.31	-93.65	622.61	602.95	19.66	31.667		
2,900.00	2,889.46	2,816.44	2,785.16	10.57	11.35	-147.20	-460.09	-97.82	646.99	626.60	20.39	31.732		
3,000.00	2,988.96	2,913.42	2,880.76	10.95	11.77	-147.25	-475.87	-101.99	671.38	650.26	21.12	31.792		
3,100.00	3,088.46	3,010.40	2,976.35	11.33	12.20	-147.30	-491.65	-106.16	695.76	673.91	21.85	31.847		
3,200.00	3,187.96	3,107.38	3,071.95	11.72	12.62	-147.34	-507.42	-110.32	720.14	697.57	22.58	31.899		
3,300.00	3,287.46	3,204.36	3,167.55	12.10	13.04	-147.38	-523.20	-114.49	744.53	721.22	23.31	31.947		
3,400.00	3,386.96	3,301.34	3,263.15	12.48	13.47	-147.42	-538.98	-118.66	768.91	744.88	24.04	31.991		
3,500.00	3,486.46	3,398.32	3,358.74	12.87	13.89	-147.46	-554.76	-122.83	793.30	768.53	24.77	32.033		
3,600.00	3,585.96	3,495.30	3,454.34	13.25	14.32	-147.49	-570.54	-126.99	817.69	792.19	25.50	32.072		
3,700.00	3,685.46	3,592.28	3,549.94	13.63	14.74	-147.52	-586.32	-131.16	842.07	815.85	26.23	32.109		
3,800.00	3,784.96	3,689.26	3,645.53	14.01	15.17	-147.55	-602.09	-135.33	866.46	839.50	26.96	32.143		
3,900.00	3,884.46	3,786.24	3,741.13	14.40	15.59	-147.58	-617.87	-139.50	890.84	863.16	27.69	32.175		
4,000.00	3,983.96	3,883.22	3,836.73	14.78	16.02	-147.61	-633.65	-143.66	915.23	886.81	28.42	32.206		
4,100.00	4,083.46	3,980.20	3,932.33	15.16	16.45	-147.63	-649.43	-147.83	939.62	910.47	29.15	32.235		
4,200.00	4,182.96	4,077.18	4,027.92	15.55	16.87	-147.66	-665.21	-152.00	964.00	934.12	29.88	32.262		
4,300.00	4,282.46	4,174.16	4,123.52	15.93	17.30	-147.68	-680.99	-156.17	988.39	957.78	30.61	32.288		
4,400.00	4,381.96	4,271.14	4,219.12	16.31	17.72	-147.70	-696.76	-160.34	1,012.78	981.44	31.34	32.313		
4,500.00	4,481.46	4,368.12	4,314.71	16.70	18.15	-147.72	-712.54	-164.50	1,037.17	1,005.09	32.07	32.336		
4,600.00	4,580.96	4,465.10	4,410.31	17.08	18.57	-147.74	-728.32	-168.67	1,061.55	1,028.75	32.81	32.358		
4,700.00	4,680.46	4,562.08	4,505.91	17.46	19.00	-147.76	-744.10	-172.84	1,085.94	1,052.40	33.54	32.379		
4,800.00	4,779.96	4,659.06	4,601.50	17.85	19.42	-147.78	-759.88	-177.01	1,110.33	1,076.06	34.27	32.399		
4,900.00	4,879.46	4,756.04	4,697.10	18.23	19.85	-147.80	-775.66	-181.17	1,134.72	1,099.71	35.00	32.418		
5,000.00	4,978.96	4,853.02	4,792.70	18.61	20.28	-147.81	-791.43	-185.34	1,159.10	1,123.37	35.73	32.437		

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 3E-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 3E-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: 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	5,078.46	4,950.00	4,888.30	19.00	20.70	-147.83	-807.21	-189.51	1,183.49	1,147.03	36.47	32.454		
5,200.00	5,177.96	5,046.98	4,983.89	19.38	21.13	-147.85	-822.99	-193.68	1,207.88	1,170.68	37.20	32.471		
5,300.00	5,277.46	5,143.96	5,079.49	19.76	21.55	-147.86	-838.77	-197.84	1,232.27	1,194.34	37.93	32.487		
5,400.00	5,376.96	5,240.94	5,175.09	20.15	21.98	-147.87	-854.55	-202.01	1,256.66	1,217.99	38.66	32.502		
5,500.00	5,476.46	5,337.92	5,270.68	20.53	22.40	-147.89	-870.33	-206.18	1,281.05	1,241.65	39.40	32.517		
5,600.00	5,575.96	5,434.90	5,366.28	20.91	22.83	-147.90	-886.10	-210.35	1,305.43	1,265.31	40.13	32.531		
5,700.00	5,675.46	5,531.88	5,461.88	21.30	23.26	-147.91	-901.88	-214.51	1,329.82	1,288.96	40.86	32.545		
5,738.64	5,713.91	5,569.36	5,498.82	21.45	23.42	-147.92	-907.98	-216.12	1,339.25	1,298.10	41.14	32.550		
5,800.00	5,775.02	5,629.00	5,557.61	21.68	23.68	-148.07	-917.68	-218.69	1,353.67	1,312.08	41.59	32.546		
5,900.00	5,874.83	5,726.71	5,653.92	22.04	24.11	-148.22	-933.58	-222.89	1,374.85	1,332.53	42.32	32.487		
6,000.00	5,974.79	5,824.95	5,750.77	22.39	24.54	-148.27	-949.56	-227.11	1,393.12	1,350.08	43.04	32.368		
6,025.21	6,000.00	5,849.79	5,775.25	22.48	24.65	177.47	-953.61	-228.18	1,397.27	1,354.05	43.22	32.329		
6,100.00	6,074.79	5,923.51	5,847.92	22.73	24.98	177.63	-965.60	-231.34	1,409.30	1,365.55	43.76	32.208		
6,200.00	6,174.79	6,022.09	5,945.09	23.07	25.41	177.83	-981.64	-235.58	1,425.41	1,380.94	44.47	32.052		
6,300.00	6,274.79	6,120.66	6,042.26	23.40	25.84	178.02	-997.68	-239.82	1,441.53	1,396.34	45.19	31.901		
6,400.00	6,374.79	6,219.24	6,139.43	23.74	26.27	178.21	-1,013.71	-244.05	1,457.67	1,411.77	45.90	31.754		
6,500.00	6,474.79	6,317.81	6,236.60	24.08	26.71	178.40	-1,029.75	-248.29	1,473.82	1,427.20	46.62	31.613		
6,600.00	6,574.79	6,416.38	6,333.76	24.42	27.14	178.58	-1,045.79	-252.52	1,489.99	1,442.66	47.34	31.476		
6,649.01	6,623.80	6,464.70	6,381.39	24.59	27.35	178.67	-1,053.65	-254.60	1,497.92	1,450.23	47.69	31.410		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well SAM 3E-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 3E-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 3O-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	-179.85	-100.19	-0.25	100.19				
100.00	100.00	100.00	100.00	0.14	0.14	-179.85	-100.19	-0.25	100.19	99.91	0.28	362.962	
200.00	200.00	200.00	200.00	0.50	0.50	-179.85	-100.19	-0.25	100.19	99.19	0.99	100.896 CC, ES	
300.00	300.00	296.68	296.66	0.85	0.83	-179.64	-101.77	-0.64	101.83	100.10	1.73	59.017	
400.00	400.00	393.13	392.99	1.21	1.17	-179.03	-106.51	-1.80	106.75	104.27	2.48	42.984	
500.00	500.00	489.15	488.66	1.57	1.51	-178.14	-114.35	-3.72	114.97	111.72	3.25	35.383	
600.00	600.00	584.52	583.37	1.93	1.87	-177.09	-125.22	-6.37	126.48	122.46	4.01	31.519	
700.00	699.98	678.84	676.62	2.29	2.25	-141.95	-138.97	-9.73	142.61	137.84	4.77	29.899 SF	
800.00	799.84	773.81	770.05	2.65	2.64	-141.72	-155.51	-13.77	164.30	158.82	5.48	29.974	
886.57	886.09	857.69	852.49	2.96	3.00	-142.00	-170.52	-17.44	185.66	179.61	6.06	30.658	
900.00	899.46	870.66	865.23	3.01	3.06	-142.12	-172.84	-18.01	189.13	182.98	6.15	30.748	
1,000.00	998.96	967.23	960.15	3.37	3.48	-142.85	-190.11	-22.23	214.98	208.16	6.83	31.482	
1,100.00	1,098.46	1,063.79	1,055.07	3.74	3.90	-143.43	-207.39	-26.45	240.86	233.35	7.51	32.057	
1,200.00	1,197.96	1,160.36	1,149.98	4.11	4.33	-143.89	-224.66	-30.67	266.76	258.55	8.21	32.503	
1,300.00	1,297.46	1,256.93	1,244.90	4.49	4.76	-144.28	-241.94	-34.89	292.67	283.77	8.91	32.857	
1,400.00	1,396.96	1,353.50	1,339.82	4.86	5.19	-144.60	-259.21	-39.11	318.60	308.98	9.61	33.143	
1,500.00	1,496.46	1,450.06	1,434.73	5.24	5.62	-144.87	-276.49	-43.33	344.53	334.20	10.32	33.376	
1,600.00	1,595.96	1,546.63	1,529.65	5.62	6.05	-145.10	-293.76	-47.55	370.46	359.43	11.04	33.571	
1,700.00	1,695.46	1,643.20	1,624.56	6.00	6.48	-145.31	-311.04	-51.77	396.40	384.65	11.75	33.734	
1,800.00	1,794.96	1,739.77	1,719.48	6.38	6.92	-145.48	-328.31	-55.99	422.35	409.88	12.47	33.873	
1,900.00	1,894.46	1,836.34	1,814.40	6.76	7.35	-145.64	-345.59	-60.21	448.30	435.11	13.19	33.992	
2,000.00	1,993.96	1,932.90	1,909.31	7.14	7.79	-145.78	-362.86	-64.43	474.25	460.34	13.91	34.096	
2,100.00	2,093.46	2,029.47	2,004.23	7.52	8.22	-145.91	-380.13	-68.65	500.20	485.57	14.63	34.186	
2,200.00	2,192.96	2,126.04	2,099.15	7.90	8.66	-146.02	-397.41	-72.87	526.16	510.80	15.36	34.265	
2,300.00	2,292.46	2,222.61	2,194.06	8.28	9.09	-146.13	-414.68	-77.09	552.11	536.03	16.08	34.335	
2,400.00	2,391.96	2,319.17	2,288.98	8.66	9.53	-146.22	-431.96	-81.31	578.07	561.27	16.81	34.398	
2,500.00	2,491.46	2,415.74	2,383.90	9.04	9.96	-146.30	-449.23	-85.54	604.03	586.50	17.53	34.453	
2,600.00	2,590.96	2,512.31	2,478.81	9.42	10.40	-146.38	-466.51	-89.76	629.99	611.74	18.26	34.504	
2,700.00	2,690.46	2,608.88	2,573.73	9.81	10.83	-146.46	-483.78	-93.98	655.96	636.97	18.99	34.549	
2,800.00	2,789.96	2,705.45	2,668.64	10.19	11.27	-146.52	-501.06	-98.20	681.92	662.21	19.71	34.590	
2,900.00	2,889.46	2,802.01	2,763.56	10.57	11.71	-146.58	-518.33	-102.42	707.88	687.44	20.44	34.627	
3,000.00	2,988.96	2,898.58	2,858.48	10.95	12.14	-146.64	-535.61	-106.64	733.85	712.68	21.17	34.662	
3,100.00	3,088.46	2,995.15	2,953.39	11.33	12.58	-146.69	-552.88	-110.86	759.82	737.91	21.90	34.693	
3,200.00	3,187.96	3,091.72	3,048.31	11.72	13.02	-146.74	-570.16	-115.08	785.78	763.15	22.63	34.722	
3,300.00	3,287.46	3,188.28	3,143.23	12.10	13.45	-146.79	-587.43	-119.30	811.75	788.39	23.36	34.749	
3,400.00	3,386.96	3,284.85	3,238.14	12.48	13.89	-146.84	-604.71	-123.52	837.72	813.62	24.09	34.773	
3,500.00	3,486.46	3,381.42	3,333.06	12.87	14.33	-146.88	-621.98	-127.74	863.68	838.86	24.82	34.796	
3,600.00	3,585.96	3,477.99	3,427.97	13.25	14.76	-146.92	-639.26	-131.96	889.65	864.10	25.55	34.817	
3,700.00	3,685.46	3,574.56	3,522.89	13.63	15.20	-146.95	-656.53	-136.18	915.62	889.34	26.28	34.837	
3,800.00	3,784.96	3,671.12	3,617.81	14.01	15.64	-146.99	-673.81	-140.40	941.59	914.57	27.01	34.855	
3,900.00	3,884.46	3,767.69	3,712.72	14.40	16.08	-147.02	-691.08	-144.62	967.56	939.81	27.75	34.873	
4,000.00	3,983.96	3,864.26	3,807.64	14.78	16.51	-147.05	-708.36	-148.85	993.53	965.05	28.48	34.889	
4,100.00	4,083.46	3,960.83	3,902.56	15.16	16.95	-147.08	-725.63	-153.07	1,019.50	990.29	29.21	34.904	
4,200.00	4,182.96	4,057.39	3,997.47	15.55	17.39	-147.11	-742.91	-157.29	1,045.46	1,015.52	29.94	34.918	
4,300.00	4,282.46	4,153.96	4,092.39	15.93	17.82	-147.14	-760.18	-161.51	1,071.43	1,040.76	30.67	34.932	
4,400.00	4,381.96	4,250.53	4,187.30	16.31	18.26	-147.16	-777.46	-165.73	1,097.40	1,066.00	31.40	34.944	
4,500.00	4,481.46	4,347.10	4,282.22	16.70	18.70	-147.18	-794.73	-169.95	1,123.38	1,091.24	32.14	34.956	
4,600.00	4,580.96	4,443.67	4,377.14	17.08	19.14	-147.21	-812.00	-174.17	1,149.35	1,116.48	32.87	34.968	
4,700.00	4,680.46	4,540.23	4,472.05	17.46	19.57	-147.23	-829.28	-178.39	1,175.32	1,141.72	33.60	34.978	
4,800.00	4,779.96	4,636.80	4,566.97	17.85	20.01	-147.25	-846.55	-182.61	1,201.29	1,166.95	34.33	34.988	
4,900.00	4,879.46	4,733.37	4,661.89	18.23	20.45	-147.27	-863.83	-186.83	1,227.26	1,192.19	35.07	34.998	
5,000.00	4,978.96	4,829.94	4,756.80	18.61	20.88	-147.29	-881.10	-191.05	1,253.23	1,217.43	35.80	35.007	

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 3E-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 3E-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 3O-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	5,078.46	4,926.50	4,851.72	19.00	21.32	-147.31	-898.38	-195.27	1,279.20	1,242.67	36.53	35.016	
5,200.00	5,177.96	5,023.07	4,946.64	19.38	21.76	-147.33	-915.65	-199.49	1,305.17	1,267.91	37.27	35.024	
5,300.00	5,277.46	5,119.64	5,041.55	19.76	22.20	-147.34	-932.93	-203.71	1,331.14	1,293.15	38.00	35.032	
5,400.00	5,376.96	5,216.21	5,136.47	20.15	22.63	-147.36	-950.20	-207.93	1,357.11	1,318.38	38.73	35.039	
5,500.00	5,476.46	5,312.78	5,231.38	20.53	23.07	-147.38	-967.48	-212.15	1,383.09	1,343.62	39.46	35.046	
5,600.00	5,575.96	5,409.34	5,326.30	20.91	23.51	-147.39	-984.75	-216.38	1,409.06	1,368.86	40.20	35.053	
5,700.00	5,675.46	5,505.91	5,421.22	21.30	23.95	-147.41	-1,002.03	-220.60	1,435.03	1,394.10	40.93	35.059	
5,738.64	5,713.91	5,543.22	5,457.89	21.45	24.12	-147.41	-1,008.70	-222.23	1,445.07	1,403.85	41.21	35.062	
5,800.00	5,775.02	5,602.62	5,516.27	21.68	24.38	-147.58	-1,019.33	-224.82	1,460.47	1,418.80	41.66	35.054	
5,900.00	5,874.83	5,699.97	5,611.95	22.04	24.83	-147.76	-1,036.74	-229.08	1,483.26	1,440.87	42.39	34.990	

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well SAM 3E-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 3E-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	Separation Factor		
10,000.00	7,340.00	7,261.00	7,261.00	93.18	8.15	90.00	16.12	4,046.92	1,461.00	1,413.72	47.28	30.902		
10,100.00	7,340.00	7,261.00	7,261.00	96.26	8.15	90.00	16.12	4,046.92	1,366.26	1,316.73	49.54	27.582		
10,200.00	7,340.00	7,261.00	7,261.00	99.34	8.15	90.00	16.12	4,046.92	1,272.32	1,220.11	52.21	24.368		
10,300.00	7,340.00	7,261.00	7,261.00	102.43	8.15	90.00	16.12	4,046.92	1,179.38	1,123.98	55.40	21.288		
10,400.00	7,340.00	7,261.00	7,261.00	105.53	8.15	90.00	16.12	4,046.92	1,087.70	1,028.48	59.21	18.369		
10,500.00	7,340.00	7,261.00	7,261.00	108.64	8.15	90.00	16.12	4,046.92	997.61	933.82	63.79	15.639		
10,600.00	7,340.00	7,261.00	7,261.00	111.75	8.15	90.00	16.12	4,046.92	909.59	840.29	69.31	13.124		
10,700.00	7,340.00	7,261.00	7,261.00	114.86	8.15	90.00	16.12	4,046.92	824.32	748.35	75.96	10.852		
10,800.00	7,340.00	7,261.00	7,261.00	117.98	8.15	90.00	16.12	4,046.92	742.72	658.74	83.98	8.844		
10,900.00	7,340.00	7,261.00	7,261.00	121.11	8.15	90.00	16.12	4,046.92	666.16	572.61	93.55	7.121		
11,000.00	7,340.00	7,261.00	7,261.00	124.24	8.15	90.00	16.12	4,046.92	596.58	491.87	104.71	5.697		
11,100.00	7,340.00	7,261.00	7,261.00	127.37	8.15	90.00	16.12	4,046.92	536.70	419.62	117.08	4.584		
11,200.00	7,340.00	7,261.00	7,261.00	130.51	8.15	90.00	16.12	4,046.92	490.09	360.62	129.47	3.785		
11,300.00	7,340.00	7,261.00	7,261.00	133.65	8.15	90.00	16.12	4,046.92	460.79	321.17	139.61	3.300		
11,389.31	7,340.00	7,261.00	7,261.00	136.45	8.15	90.00	16.12	4,046.92	452.05	307.45	144.60	3.126 CC		
11,400.00	7,340.00	7,261.00	7,261.00	136.79	8.15	90.00	16.12	4,046.92	452.17	307.31	144.87	3.121 ES, SF		
11,500.00	7,340.00	7,261.00	7,261.00	139.94	8.15	90.00	16.12	4,046.92	465.40	321.50	143.90	3.234		
11,600.00	7,340.00	7,261.00	7,261.00	143.09	8.15	90.00	16.12	4,046.92	498.74	360.95	137.78	3.620		
11,700.00	7,340.00	7,261.00	7,261.00	146.24	8.15	90.00	16.12	4,046.92	548.52	419.63	128.89	4.256		
11,800.00	7,340.00	7,261.00	7,261.00	149.39	8.15	90.00	16.12	4,046.92	610.75	491.42	119.33	5.118		
11,848.32	7,340.00	7,261.00	7,261.00	150.91	8.15	90.00	16.12	4,046.92	644.23	529.38	114.86	5.609		



# Cathedral Energy Services

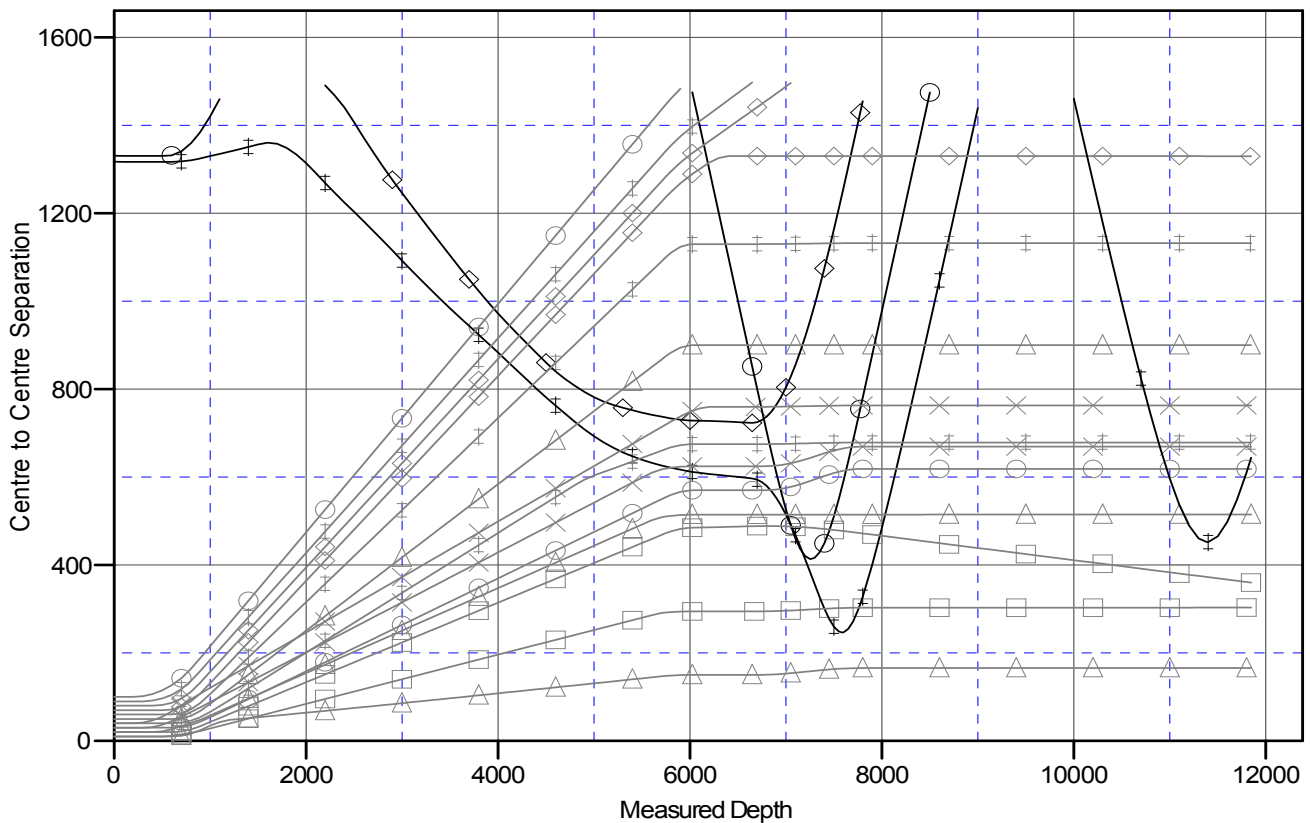
## Anticollision Report

<b>Company:</b>	Crestone Peak Resources	<b>Local Co-ordinate Reference:</b>	Well SAM 3E-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 3E-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

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 3E-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	—■— SAM3D-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	—○— SAM3H-25H-M166, OH, PLAN#1 V0	—○— 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	
M3C-25H-M166, OH, PLAN#1 V0	—◆— SAM3K-25H-M166, OH, PLAN#1 V0	