



CRESTONE PEAK
RESOURCES

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

SECTION DETAILS

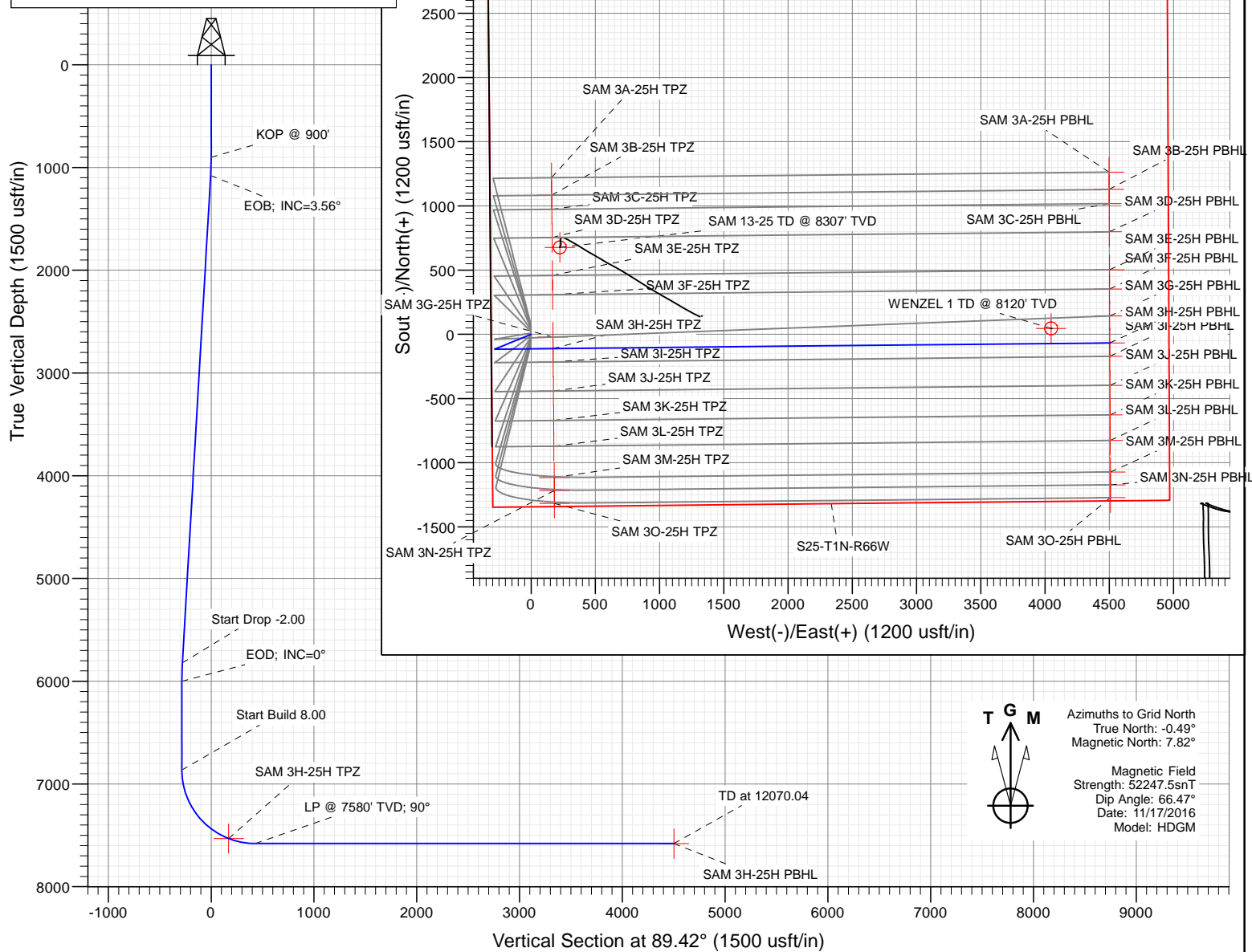
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	
3	1078.23	3.56	247.83	1078.11	-2.09	-5.13	2.00	247.83	-5.15	
4	5831.20	3.56	247.83	5821.89	-113.62	-278.79	0.00	0.00	-279.92	
5	6009.43	0.00	0.00	6000.00	-115.71	-283.92	2.00	180.00	-285.08	
6	6873.23	0.00	0.00	6863.80	-115.71	-283.92	0.00	0.00	-285.08	
7	7998.23	90.00	89.42	7580.00	-108.43	432.24	8.00	89.42	431.12	
8	12070.04	90.00	89.42	7580.00	-67.05	4503.84	0.00	0.00	4502.93	SAM 3H-25H PBHL

FORMATION TOP DETAILS

No formation data is available

PLAN #1
SAM 3H-25H-M166
16XXX LR
23 KB @ 5109.00usft
Ground Level @ 5086.00
North American Datum 1983
Well SAM 3H-25H-M166, Grid North

Type	Target	No Target (Freehand)	Azimuth	Origin Type	N/S	E/W	From TVD	Longitude
Name			TVD					
SAM 3G-25H TPZ			7290.27	-N/-S	+E/-W	Latitude		-104.733584
SAM 3G-25H PBHL			7340.00	-21.11	169.82	40.018640		-104.733584
SAM 3H-25H TPZ			7530.53	-111.09	170.69	40.018383		-104.733248
SAM 3H-25H PBHL			7580.00	-67.05	4503.84	40.018410		-104.717776



Cathedral Energy Services

Planning Report

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

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

Site		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 3H-25H-M166					
Well Position	+N/-S	0.00 usft	Northing:	1,250,586.46 usft	Latitude:	40.018702
	+E/-W	0.00 usft	Easting:	3,214,577.02 usft	Longitude:	-104.733854
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	5,086.00 usft

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

Design	PLAN #1			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction
	(usft)	(usft)	(usft)	(°)
	0.00	0.00	0.00	89.42

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,078.23	3.56	247.83	1,078.11	-2.09	-5.13	2.00	2.00	0.00	247.83	
5,831.20	3.56	247.83	5,821.89	-113.62	-278.79	0.00	0.00	0.00	0.00	
6,009.43	0.00	0.00	6,000.00	-115.71	-283.92	2.00	-2.00	0.00	180.00	
6,873.23	0.00	0.00	6,863.80	-115.71	-283.92	0.00	0.00	0.00	0.00	
7,998.23	90.00	89.42	7,580.00	-108.43	432.24	8.00	8.00	0.00	89.42	
12,070.04	90.00	89.42	7,580.00	-67.05	4,503.84	0.00	0.00	0.00	0.00	SAM 3H-25H PBHL

Cathedral Energy Services

Planning Report

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

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100u)	Comments / Formations
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	KOP @ 900'
1,000.00	2.00	247.83	999.98	-0.66	-1.62	-1.62	2.00	2.00	
1,078.23	3.56	247.83	1,078.11	-2.09	-5.13	-5.15	2.00	2.00	EOB; INC=3.56°
1,100.00	3.56	247.83	1,099.84	-2.60	-6.39	-6.41	0.00	0.00	
1,200.00	3.56	247.83	1,199.65	-4.95	-12.14	-12.19	0.00	0.00	
1,300.00	3.56	247.83	1,299.46	-7.30	-17.90	-17.97	0.00	0.00	
1,400.00	3.56	247.83	1,399.26	-9.64	-23.66	-23.76	0.00	0.00	
1,500.00	3.56	247.83	1,499.07	-11.99	-29.42	-29.54	0.00	0.00	
1,600.00	3.56	247.83	1,598.88	-14.33	-35.17	-35.32	0.00	0.00	
1,700.00	3.56	247.83	1,698.68	-16.68	-40.93	-41.10	0.00	0.00	
1,800.00	3.56	247.83	1,798.49	-19.03	-46.69	-46.88	0.00	0.00	
1,900.00	3.56	247.83	1,898.30	-21.37	-52.45	-52.66	0.00	0.00	
2,000.00	3.56	247.83	1,998.10	-23.72	-58.20	-58.44	0.00	0.00	
2,100.00	3.56	247.83	2,097.91	-26.07	-63.96	-64.22	0.00	0.00	
2,200.00	3.56	247.83	2,197.71	-28.41	-69.72	-70.00	0.00	0.00	
2,300.00	3.56	247.83	2,297.52	-30.76	-75.48	-75.78	0.00	0.00	
2,400.00	3.56	247.83	2,397.33	-33.11	-81.23	-81.57	0.00	0.00	
2,500.00	3.56	247.83	2,497.13	-35.45	-86.99	-87.35	0.00	0.00	
2,600.00	3.56	247.83	2,596.94	-37.80	-92.75	-93.13	0.00	0.00	
2,700.00	3.56	247.83	2,696.75	-40.15	-98.51	-98.91	0.00	0.00	
2,800.00	3.56	247.83	2,796.55	-42.49	-104.26	-104.69	0.00	0.00	
2,900.00	3.56	247.83	2,896.36	-44.84	-110.02	-110.47	0.00	0.00	
3,000.00	3.56	247.83	2,996.17	-47.19	-115.78	-116.25	0.00	0.00	
3,100.00	3.56	247.83	3,095.97	-49.53	-121.54	-122.03	0.00	0.00	
3,200.00	3.56	247.83	3,195.78	-51.88	-127.29	-127.81	0.00	0.00	
3,300.00	3.56	247.83	3,295.59	-54.22	-133.05	-133.59	0.00	0.00	
3,400.00	3.56	247.83	3,395.39	-56.57	-138.81	-139.38	0.00	0.00	
3,500.00	3.56	247.83	3,495.20	-58.92	-144.57	-145.16	0.00	0.00	
3,600.00	3.56	247.83	3,595.01	-61.26	-150.33	-150.94	0.00	0.00	
3,700.00	3.56	247.83	3,694.81	-63.61	-156.08	-156.72	0.00	0.00	
3,800.00	3.56	247.83	3,794.62	-65.96	-161.84	-162.50	0.00	0.00	
3,900.00	3.56	247.83	3,894.43	-68.30	-167.60	-168.28	0.00	0.00	
4,000.00	3.56	247.83	3,994.23	-70.65	-173.36	-174.06	0.00	0.00	
4,100.00	3.56	247.83	4,094.04	-73.00	-179.11	-179.84	0.00	0.00	
4,200.00	3.56	247.83	4,193.85	-75.34	-184.87	-185.62	0.00	0.00	
4,300.00	3.56	247.83	4,293.65	-77.69	-190.63	-191.40	0.00	0.00	
4,400.00	3.56	247.83	4,393.46	-80.04	-196.39	-197.19	0.00	0.00	
4,500.00	3.56	247.83	4,493.27	-82.38	-202.14	-202.97	0.00	0.00	
4,600.00	3.56	247.83	4,593.07	-84.73	-207.90	-208.75	0.00	0.00	
4,700.00	3.56	247.83	4,692.88	-87.08	-213.66	-214.53	0.00	0.00	
4,800.00	3.56	247.83	4,792.68	-89.42	-219.42	-220.31	0.00	0.00	
4,900.00	3.56	247.83	4,892.49	-91.77	-225.17	-226.09	0.00	0.00	
5,000.00	3.56	247.83	4,992.30	-94.11	-230.93	-231.87	0.00	0.00	

Cathedral Energy Services

Planning Report

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Project:	DJ BASIN	MD Reference:	23' KB @ 5109.00usft
Site:	S25-T1N-R66W (SAM)	North Reference:	Grid
Well:	SAM 3H-25H-M166	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	PLAN #1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100u)	Comments / Formations
5,100.00	3.56	247.83	5,092.10	-96.46	-236.69	-237.65	0.00	0.00	
5,200.00	3.56	247.83	5,191.91	-98.81	-242.45	-243.43	0.00	0.00	
5,300.00	3.56	247.83	5,291.72	-101.15	-248.20	-249.21	0.00	0.00	
5,400.00	3.56	247.83	5,391.52	-103.50	-253.96	-255.00	0.00	0.00	
5,500.00	3.56	247.83	5,491.33	-105.85	-259.72	-260.78	0.00	0.00	
5,600.00	3.56	247.83	5,591.14	-108.19	-265.48	-266.56	0.00	0.00	
5,700.00	3.56	247.83	5,690.94	-110.54	-271.23	-272.34	0.00	0.00	
5,800.00	3.56	247.83	5,790.75	-112.89	-276.99	-278.12	0.00	0.00	
5,831.20	3.56	247.83	5,821.89	-113.62	-278.79	-279.92	0.00	0.00	Start Drop -2.00
5,900.00	2.19	247.83	5,890.60	-114.92	-281.98	-283.13	2.00	-2.00	
6,000.00	0.19	247.83	5,990.57	-115.70	-283.91	-285.06	2.00	-2.00	
6,009.43	0.00	0.00	6,000.00	-115.71	-283.92	-285.08	2.00	-2.00	EOD; INC=0°
6,100.00	0.00	0.00	6,090.57	-115.71	-283.92	-285.08	0.00	0.00	
6,200.00	0.00	0.00	6,190.57	-115.71	-283.92	-285.08	0.00	0.00	
6,300.00	0.00	0.00	6,290.57	-115.71	-283.92	-285.08	0.00	0.00	
6,400.00	0.00	0.00	6,390.57	-115.71	-283.92	-285.08	0.00	0.00	
6,500.00	0.00	0.00	6,490.57	-115.71	-283.92	-285.08	0.00	0.00	
6,600.00	0.00	0.00	6,590.57	-115.71	-283.92	-285.08	0.00	0.00	
6,700.00	0.00	0.00	6,690.57	-115.71	-283.92	-285.08	0.00	0.00	
6,800.00	0.00	0.00	6,790.57	-115.71	-283.92	-285.08	0.00	0.00	
6,873.23	0.00	0.00	6,863.80	-115.71	-283.92	-285.08	0.00	0.00	Start Build 8.00
6,900.00	2.14	89.42	6,890.57	-115.70	-283.42	-284.58	8.00	8.00	
7,000.00	10.14	89.42	6,989.91	-115.60	-272.73	-273.89	8.00	8.00	
7,100.00	18.14	89.42	7,086.80	-115.35	-248.32	-249.47	8.00	8.00	
7,200.00	26.14	89.42	7,179.35	-114.97	-210.66	-211.81	8.00	8.00	
7,300.00	34.14	89.42	7,265.76	-114.46	-160.49	-161.64	8.00	8.00	
7,400.00	42.14	89.42	7,344.35	-113.83	-98.78	-99.93	8.00	8.00	
7,500.00	50.14	89.42	7,413.58	-113.10	-26.74	-27.88	8.00	8.00	
7,600.00	58.14	89.42	7,472.11	-112.27	54.24	53.10	8.00	8.00	
7,700.00	66.14	89.42	7,518.80	-111.38	142.57	141.44	8.00	8.00	
7,800.00	74.14	89.42	7,552.74	-110.42	236.54	235.41	8.00	8.00	
7,900.00	82.14	89.42	7,573.27	-109.43	334.33	333.20	8.00	8.00	
7,998.23	90.00	89.42	7,580.00	-108.43	432.24	431.12	8.00	8.00	LP @ 7580' TVD; 90°
8,000.00	90.00	89.42	7,580.00	-108.41	434.01	432.89	0.00	0.00	
8,100.00	90.00	89.42	7,580.00	-107.40	534.01	532.89	0.00	0.00	
8,200.00	90.00	89.42	7,580.00	-106.38	634.00	632.89	0.00	0.00	
8,300.00	90.00	89.42	7,580.00	-105.36	734.00	732.89	0.00	0.00	
8,400.00	90.00	89.42	7,580.00	-104.35	833.99	832.89	0.00	0.00	
8,500.00	90.00	89.42	7,580.00	-103.33	933.99	932.89	0.00	0.00	
8,600.00	90.00	89.42	7,580.00	-102.31	1,033.98	1,032.89	0.00	0.00	
8,700.00	90.00	89.42	7,580.00	-101.30	1,133.98	1,132.89	0.00	0.00	
8,800.00	90.00	89.42	7,580.00	-100.28	1,233.97	1,232.89	0.00	0.00	
8,900.00	90.00	89.42	7,580.00	-99.27	1,333.97	1,332.89	0.00	0.00	
9,000.00	90.00	89.42	7,580.00	-98.25	1,433.96	1,432.89	0.00	0.00	
9,100.00	90.00	89.42	7,580.00	-97.23	1,533.96	1,532.89	0.00	0.00	
9,200.00	90.00	89.42	7,580.00	-96.22	1,633.95	1,632.89	0.00	0.00	
9,300.00	90.00	89.42	7,580.00	-95.20	1,733.95	1,732.89	0.00	0.00	
9,400.00	90.00	89.42	7,580.00	-94.18	1,833.94	1,832.89	0.00	0.00	
9,500.00	90.00	89.42	7,580.00	-93.17	1,933.93	1,932.89	0.00	0.00	
9,600.00	90.00	89.42	7,580.00	-92.15	2,033.93	2,032.89	0.00	0.00	
9,700.00	90.00	89.42	7,580.00	-91.13	2,133.92	2,132.89	0.00	0.00	
9,800.00	90.00	89.42	7,580.00	-90.12	2,233.92	2,232.89	0.00	0.00	

Cathedral Energy Services

Planning Report

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

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100u)	Comments / Formations
9,900.00	90.00	89.42	7,580.00	-89.10	2,333.91	2,332.89	0.00	0.00	
10,000.00	90.00	89.42	7,580.00	-88.09	2,433.91	2,432.89	0.00	0.00	
10,100.00	90.00	89.42	7,580.00	-87.07	2,533.90	2,532.89	0.00	0.00	
10,200.00	90.00	89.42	7,580.00	-86.05	2,633.90	2,632.89	0.00	0.00	
10,300.00	90.00	89.42	7,580.00	-85.04	2,733.89	2,732.89	0.00	0.00	
10,400.00	90.00	89.42	7,580.00	-84.02	2,833.89	2,832.89	0.00	0.00	
10,500.00	90.00	89.42	7,580.00	-83.00	2,933.88	2,932.89	0.00	0.00	
10,600.00	90.00	89.42	7,580.00	-81.99	3,033.88	3,032.89	0.00	0.00	
10,700.00	90.00	89.42	7,580.00	-80.97	3,133.87	3,132.89	0.00	0.00	
10,800.00	90.00	89.42	7,580.00	-79.95	3,233.87	3,232.89	0.00	0.00	
10,900.00	90.00	89.42	7,580.00	-78.94	3,333.86	3,332.89	0.00	0.00	
11,000.00	90.00	89.42	7,580.00	-77.92	3,433.86	3,432.89	0.00	0.00	
11,100.00	90.00	89.42	7,580.00	-76.91	3,533.85	3,532.89	0.00	0.00	
11,200.00	90.00	89.42	7,580.00	-75.89	3,633.85	3,632.89	0.00	0.00	
11,300.00	90.00	89.42	7,580.00	-74.87	3,733.84	3,732.89	0.00	0.00	
11,400.00	90.00	89.42	7,580.00	-73.86	3,833.84	3,832.89	0.00	0.00	
11,500.00	90.00	89.42	7,580.00	-72.84	3,933.83	3,932.89	0.00	0.00	
11,600.00	90.00	89.42	7,580.00	-71.82	4,033.83	4,032.89	0.00	0.00	
11,700.00	90.00	89.42	7,580.00	-70.81	4,133.82	4,132.89	0.00	0.00	
11,800.00	90.00	89.42	7,580.00	-69.79	4,233.82	4,232.89	0.00	0.00	
11,900.00	90.00	89.42	7,580.00	-68.77	4,333.81	4,332.89	0.00	0.00	
12,000.00	90.00	89.42	7,580.00	-67.76	4,433.81	4,432.89	0.00	0.00	
12,070.04	90.00	89.42	7,580.00	-67.05	4,503.84	4,502.93	0.00	0.00	TD at 12070.04

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 3H-25H PBHL	0.00	0.00	7,580.00	-67.05	4,503.84	1,250,519.41	3,219,080.86	40.018410	-104.717776
- plan hits target center									
- Point									
SAM 3G-25H TPZ	0.00	0.00	7,290.27	-21.11	169.92	1,250,565.34	3,214,746.94	40.018640	-104.733248
- plan misses target center by 234.26usft at 7618.13usft MD (7481.48 TVD, -112.12 N, 69.75 E)									
- Point									
SAM 3G-25H PBHL	0.00	0.00	7,340.00	142.78	4,502.83	1,250,729.23	3,219,079.85	40.018986	-104.717773
- plan misses target center by 318.79usft at 12070.04usft MD (7580.00 TVD, -67.05 N, 4503.84 E)									
- Point									
SAM 3H-25H TPZ	0.00	0.00	7,530.53	-111.09	170.69	1,250,475.37	3,214,747.72	40.018393	-104.733248
- plan misses target center by 0.01usft at 7730.46usft MD (7530.52 TVD, -111.09 N, 170.68 E)									
- Point									

Cathedral Energy Services

Planning Report

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

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
900.00	900.00	0.00	0.00	KOP @ 900'
1,078.23	1,078.11	-2.09	-5.13	EOB; INC=3.56°
5,831.20	5,821.89	-113.62	-278.79	Start Drop -2.00
6,009.43	6,000.00	-115.71	-283.92	EOD; INC=0°
6,873.23	6,863.80	-115.71	-283.92	Start Build 8.00
7,998.23	7,580.00	-108.43	432.24	LP @ 7580' TVD; 90°
12,070.04	7,580.00	-67.05	4,503.84	TD at 12070.04

Crestone Peak Resources

DJ BASIN

S25-T1N-R66W (SAM)

SAM 3H-25H-M166

OH

PLAN #1

Anticollision Report

18 November, 2016

Cathedral Energy Services

Anticollision Report

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well SAM 3H-25H-M166
Project:	DJ BASIN	TVD Reference:	23' KB @ 5109.00usft
Reference Site:	S25-T1N-R66W (SAM)	MD Reference:	23' KB @ 5109.00usft
Site Error:	0.00usft	North Reference:	Grid
Reference Well:	SAM 3H-25H-M166	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	PLAN #1	Offset TVD Reference:	Offset Datum

Reference	PLAN #1		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	Stations	Error Model:	ISCWSA
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 1,500.00usft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma		

Survey Tool Program	Date	11/18/2016		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.00	12,070.04	PLAN #1 (OH)	MWD+HDGM	OWSG MWD + HDGM

Cathedral Energy Services

Anticollision Report

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well SAM 3H-25H-M166
Project:	DJ BASIN	TVD Reference:	23' KB @ 5109.00usft
Reference Site:	S25-T1N-R66W (SAM)	MD Reference:	23' KB @ 5109.00usft
Site Error:	0.00usft	North Reference:	Grid
Reference Well:	SAM 3H-25H-M166	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	PLAN #1	Offset TVD Reference:	Offset Datum

Summary

Site Name Offset Well - Wellbore - Design	Reference Measured	Offset	Distance		Separation Factor	Warning
	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	6,894.78	7,062.14	1,008.63	961.89	21.577	CC
Beierle 2 (EXISTING) - CPR WELL - SURVEYS	6,900.00	7,067.52	1,008.65	961.87	21.565	ES
Beierle 2 (EXISTING) - CPR WELL - SURVEYS	7,000.00	7,170.06	1,013.90	966.61	21.438	SF
Beierle KE 26-361HN - GWOG WELL - GWOG WELL	7,366.18	11,795.54	246.08	162.76	2.954	CC
Beierle KE 26-361HN - GWOG WELL - GWOG WELL	7,400.00	11,795.50	249.18	160.03	2.795	ES
Beierle KE 26-361HN - GWOG WELL - GWOG WELL	7,450.00	11,795.44	264.54	169.47	2.782	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	1,333.49	1,331.39	635.089	CC, ES
Sam 1 (EXISTING) - CPR WELL - NO SURVEYS	1,200.00	500.00	1,499.48	1,493.76	261.812	SF
Sam 13-25 (EXISTING) - CPR WELL - SURVEYS	7,808.69	7,757.45	801.52	745.90	14.410	CC, ES
Sam 13-25 (EXISTING) - CPR WELL - SURVEYS	7,850.00	7,765.64	802.58	746.84	14.398	SF
SAM 3A-25H-M166 - OH - PLAN #1	200.00	200.00	70.30	69.31	70.801	CC, ES
SAM 3A-25H-M166 - OH - PLAN #1	12,070.04	12,012.33	1,340.77	1,040.72	4.468	SF
SAM 3B-25H-M166 - OH - PLAN #1	300.00	300.00	60.09	58.38	35.144	CC, ES
SAM 3B-25H-M166 - OH - PLAN #1	12,070.04	12,163.72	1,194.81	892.79	3.956	SF
SAM 3C-25H-M166 - OH - PLAN #1	400.00	400.00	50.27	47.84	20.713	CC, ES
SAM 3C-25H-M166 - OH - PLAN #1	12,070.04	11,907.22	1,111.39	815.70	3.759	SF
SAM 3D-25H-M166 - OH - PLAN #1	500.00	500.00	40.07	36.93	12.746	CC, ES
SAM 3D-25H-M166 - OH - PLAN #1	12,070.04	11,945.44	881.69	584.84	2.970	SF
SAM 3E-25H-M166 - OH - PLAN #1	600.00	600.00	30.24	26.38	7.832	CC, ES
SAM 3E-25H-M166 - OH - PLAN #1	12,070.04	11,845.03	618.54	338.58	2.209	SF
SAM 3F-25H-M166 - OH - PLAN #1	900.00	900.00	20.03	14.02	3.332	CC, ES
SAM 3F-25H-M166 - OH - PLAN #1	12,070.04	11,906.95	453.11	171.76	1.611	SF
SAM 3G-25H-M166 - OH - PLAN #1	892.63	892.65	10.09	4.14	1.696	CC
SAM 3G-25H-M166 - OH - PLAN #1	900.00	900.01	10.09	4.09	1.681	ES
SAM 3G-25H-M166 - OH - PLAN #1	12,070.04	11,818.86	318.71	113.23	1.551	SF
SAM 3I-25H-M166 - OH - PLAN #1	800.00	800.00	9.84	4.54	1.858	CC, ES
SAM 3I-25H-M166 - OH - PLAN #1	12,070.04	11,906.06	199.77	29.98	1.177	Level 2, SF
SAM 3J-25H-M166 - OH - PLAN #1	700.00	700.00	19.68	15.10	4.298	CC, ES
SAM 3J-25H-M166 - OH - PLAN #1	12,070.04	11,845.06	408.07	160.44	1.648	SF
SAM 3K-25H-M166 - OH - PLAN #1	600.00	600.00	29.87	26.01	7.737	CC, ES
SAM 3K-25H-M166 - OH - PLAN #1	12,070.04	11,936.55	585.13	295.96	2.023	SF
SAM 3L-25H-M166 - OH - PLAN #1	500.00	500.00	39.72	36.57	12.634	CC, ES
SAM 3L-25H-M166 - OH - PLAN #1	12,070.04	11,886.52	796.88	508.08	2.759	SF
SAM 3M-25H-M166 - OH - PLAN #1	400.00	400.00	49.91	47.48	20.565	CC, ES
SAM 3M-25H-M166 - OH - PLAN #1	12,070.04	11,975.04	1,019.32	721.31	3.420	SF
SAM 3N-25H-M166 - OH - PLAN #1	300.00	300.00	59.74	58.03	34.940	CC, ES
SAM 3N-25H-M166 - OH - PLAN #1	12,070.04	12,155.71	1,104.85	803.17	3.662	SF

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

Cathedral Energy Services

Anticollision Report

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well SAM 3H-25H-M166
Project:	DJ BASIN	TVD Reference:	23' KB @ 5109.00usft
Reference Site:	S25-T1N-R66W (SAM)	MD Reference:	23' KB @ 5109.00usft
Site Error:	0.00usft	North Reference:	Grid
Reference Well:	SAM 3H-25H-M166	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	PLAN #1	Offset TVD Reference:	Offset Datum

Summary						
Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
S25-T1N-R66W (SAM)						
SAM 3O-25H-M166 - OH - PLAN #1	200.00	200.00	69.95	68.96	70.445	CC, ES
SAM 3O-25H-M166 - OH - PLAN #1	12,070.04	11,932.12	1,228.70	932.02	4.142	SF
State 7-36 CG (EXISTING) - CPR WELL - NO SURVEYS						Out of range
Templin 1 (EXISTING) - CPR WELL - NO SURVEYS						Out of range
Wenzel 1 (EXISTING) - CPR WELL - NO SURVEYS	11,614.32	7,501.00	118.04	-26.87	0.815	Level 1, CC, ES, SF

Cathedral Energy Services

Anticollision Report

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well SAM 3H-25H-M166
Project:	DJ BASIN	TVD Reference:	23' KB @ 5109.00usft
Reference Site:	S25-T1N-R66W (SAM)	MD Reference:	23' KB @ 5109.00usft
Site Error:	0.00usft	North Reference:	Grid
Reference Well:	SAM 3H-25H-M166	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	PLAN #1	Offset TVD Reference:	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				
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	
3,000.00	2,996.17	3,362.51	3,312.47	10.56	8.65	88.08	1,264.54	-724.14	1,480.77	1,463.18	17.59	84.168		
3,100.00	3,095.97	3,460.56	3,404.98	10.92	9.20	87.31	1,235.32	-738.38	1,459.01	1,440.57	18.44	79.142		
3,200.00	3,195.78	3,553.54	3,493.09	11.29	9.69	86.62	1,208.21	-750.52	1,437.51	1,418.27	19.24	74.720		
3,300.00	3,295.59	3,655.71	3,590.10	11.66	10.25	85.88	1,178.68	-763.03	1,416.13	1,396.04	20.09	70.473		
3,400.00	3,395.39	3,761.99	3,690.75	12.03	10.88	85.06	1,147.21	-776.17	1,394.39	1,373.40	21.00	66.407		
3,500.00	3,495.20	3,861.63	3,784.93	12.40	11.47	84.26	1,117.10	-788.46	1,372.34	1,350.45	21.89	62.684		
3,600.00	3,595.01	3,950.91	3,869.44	12.77	11.98	83.53	1,090.43	-799.34	1,350.78	1,328.03	22.75	59.375		
3,700.00	3,694.81	4,056.43	3,969.30	13.14	12.59	82.64	1,058.75	-811.99	1,329.25	1,305.58	23.67	56.150		
3,800.00	3,794.62	4,151.42	4,058.93	13.50	13.17	81.79	1,029.60	-823.77	1,307.61	1,283.01	24.60	53.156		
3,900.00	3,894.43	4,234.37	4,137.24	13.87	13.66	81.01	1,004.48	-834.60	1,286.93	1,261.44	25.49	50.493		
4,000.00	3,994.23	4,336.70	4,233.94	14.24	14.25	80.02	973.75	-847.86	1,266.74	1,240.30	26.44	47.909		
4,100.00	4,094.04	4,436.43	4,328.36	14.61	14.83	79.08	943.93	-859.80	1,246.51	1,219.13	27.39	45.513		
4,200.00	4,193.85	4,545.82	4,431.75	14.98	15.49	77.99	910.66	-872.76	1,226.14	1,197.75	28.39	43.186		
4,300.00	4,293.65	4,665.43	4,544.23	15.35	16.25	76.74	872.15	-885.93	1,204.13	1,174.68	29.45	40.882		
4,400.00	4,393.46	4,751.98	4,625.44	15.72	16.79	75.79	843.70	-895.20	1,181.88	1,151.45	30.43	38.845		
4,500.00	4,493.27	4,827.94	4,697.06	16.09	17.24	74.96	819.88	-903.74	1,161.50	1,130.14	31.36	37.041		
4,600.00	4,593.07	4,909.27	4,774.10	16.46	17.70	74.06	795.61	-913.20	1,142.94	1,110.66	32.29	35.400		
4,700.00	4,692.88	5,003.26	4,863.44	16.83	18.21	73.04	768.45	-923.89	1,125.38	1,092.13	33.25	33.848		
4,800.00	4,792.68	5,090.00	4,946.26	17.20	18.67	72.12	744.41	-933.22	1,108.74	1,074.56	34.18	32.439		
4,900.00	4,892.49	5,172.22	5,025.19	17.57	19.09	71.30	723.00	-941.77	1,093.51	1,058.43	35.07	31.176		
5,000.00	4,992.30	5,250.29	5,100.51	17.94	19.46	70.55	704.18	-949.91	1,080.08	1,044.15	35.94	30.054		
5,100.00	5,092.10	5,331.20	5,179.02	18.31	19.83	69.82	686.55	-958.40	1,068.67	1,031.90	36.78	29.057		
5,200.00	5,191.91	5,416.19	5,262.03	18.68	20.18	69.17	670.29	-966.55	1,058.86	1,021.28	37.59	28.170		
5,300.00	5,291.72	5,503.18	5,347.58	19.05	20.50	68.63	656.20	-973.61	1,050.36	1,012.01	38.35	27.390		
5,400.00	5,391.52	5,589.96	5,433.36	19.42	20.79	68.23	644.54	-979.56	1,043.10	1,004.05	39.06	26.708		
5,500.00	5,491.33	5,675.99	5,518.70	19.79	21.03	67.92	635.03	-984.91	1,037.17	997.45	39.72	26.114		
5,600.00	5,591.14	5,762.00	5,604.17	20.16	21.26	67.68	627.04	-990.22	1,032.52	992.16	40.35	25.588		
5,700.00	5,690.94	5,858.00	5,699.80	20.53	21.48	67.52	620.23	-995.08	1,028.65	987.68	40.96	25.111		
5,800.00	5,790.75	5,953.00	5,794.65	20.90	21.65	67.54	616.07	-998.33	1,025.55	984.04	41.51	24.704		
5,831.20	5,821.89	5,978.95	5,820.59	21.01	21.69	67.56	615.35	-999.02	1,024.75	983.09	41.66	24.595		
5,900.00	5,890.60	6,049.45	5,891.06	21.27	21.78	67.65	614.30	-999.82	1,023.26	981.25	42.01	24.358		
6,009.43	6,000.00	6,161.58	6,003.19	21.65	21.92	-44.48	613.49	-999.90	1,021.96	979.44	42.52	24.036		
6,100.00	6,090.57	6,255.20	6,096.81	21.95	22.03	-44.51	612.57	-999.83	1,021.28	978.34	42.94	23.785		
6,200.00	6,190.57	6,358.90	6,200.50	22.28	22.16	-44.54	611.30	-999.47	1,020.16	976.76	43.40	23.504		
6,300.00	6,290.57	6,459.97	6,301.56	22.62	22.29	-44.57	610.01	-998.90	1,018.86	974.99	43.87	23.225		
6,400.00	6,390.57	6,561.94	6,403.52	22.95	22.42	-44.60	608.63	-998.17	1,017.39	973.05	44.34	22.947		
6,500.00	6,490.57	6,663.43	6,505.00	23.29	22.56	-44.63	607.09	-997.33	1,015.73	970.92	44.81	22.669		
6,600.00	6,590.57	6,764.12	6,605.66	23.62	22.70	-44.67	605.23	-996.71	1,013.98	968.70	45.28	22.391		
6,700.00	6,690.57	6,864.78	6,706.30	23.96	22.84	-44.75	602.99	-996.37	1,012.16	966.39	45.77	22.113		
6,800.00	6,790.57	6,965.42	6,806.90	24.30	22.99	-44.85	600.45	-996.25	1,010.28	964.01	46.27	21.836		
6,873.23	6,863.80	7,039.89	6,881.35	24.55	23.11	-44.93	598.38	-996.27	1,008.85	962.22	46.64	21.633		
6,894.78	6,885.35	7,062.14	6,903.58	24.62	23.15	-134.40	597.71	-996.28	1,008.63	961.89	46.74	21.577 CC		
6,900.00	6,890.57	7,067.52	6,908.97	24.63	23.16	-134.41	597.55	-996.28	1,008.65	961.87	46.77	21.565 ES		
6,950.00	6,940.43	7,118.99	6,960.41	24.79	23.24	-134.55	595.92	-996.32	1,010.08	963.05	47.03	21.478		
7,000.00	6,989.91	7,170.06	7,011.45	24.94	23.33	-134.69	594.18	-996.35	1,013.90	966.61	47.30	21.438 SF		
7,050.00	7,038.79	7,220.01	7,061.36	25.09	23.41	-134.83	592.36	-996.39	1,020.15	972.58	47.57	21.445		
7,100.00	7,086.80	7,268.32	7,109.64	25.24	23.50	-134.95	590.52	-996.47	1,028.91	981.05	47.85	21.501		
7,150.00	7,133.74	7,315.49	7,156.77	25.38	23.58	-135.03	588.64	-996.60	1,040.20	992.06	48.14	21.608		
7,200.00	7,179.35	7,361.27	7,202.52	25.52	23.66	-135.05	586.75	-996.78	1,054.07	1,005.64	48.43	21.766		
7,250.00	7,223.43	7,406.10	7,247.30	25.66	23.74	-135.00	584.82	-996.99	1,070.53	1,021.82	48.71	21.977		
7,300.00	7,265.76	7,450.85	7,292.01	25.81	23.82	-134.88	582.93	-997.08	1,089.53	1,040.54	48.99	22.239		
7,350.00	7,306.13	7,493.77	7,334.90	25.97	23.90	-134.63	581.16	-996.99	1,111.03	1,061.77	49.26	22.552		

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

Cathedral Energy Services

Anticollision Report

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well SAM 3H-25H-M166
Project:	DJ BASIN	TVD Reference:	23' KB @ 5109.00usft
Reference Site:	S25-T1N-R66W (SAM)	MD Reference:	23' KB @ 5109.00usft
Site Error:	0.00usft	North Reference:	Grid
Reference Well:	SAM 3H-25H-M166	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	PLAN #1	Offset TVD Reference:	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	
7,400.00	7,344.35	7,534.66	7,375.76	26.14	23.97	-134.22	579.52	-996.75	1,135.02	1,085.48	49.53	22.914	
7,450.00	7,380.22	7,573.34	7,414.40	26.35	24.04	-133.62	578.01	-996.38	1,161.43	1,111.64	49.80	23.324	
7,500.00	7,413.58	7,611.23	7,452.26	26.60	24.11	-132.84	576.53	-995.90	1,190.20	1,140.16	50.05	23.781	
7,550.00	7,444.26	7,646.97	7,487.96	26.89	24.17	-131.81	575.01	-995.36	1,221.21	1,170.92	50.30	24.281	
7,600.00	7,472.11	7,679.69	7,520.64	27.24	24.23	-130.45	573.52	-994.79	1,254.37	1,203.83	50.53	24.822	
7,650.00	7,497.00	7,709.22	7,550.14	27.65	24.29	-128.69	572.09	-994.23	1,289.56	1,238.80	50.76	25.403	
7,700.00	7,518.80	7,735.41	7,576.28	28.13	24.33	-126.44	570.76	-993.68	1,326.66	1,275.67	50.99	26.020	
7,750.00	7,537.41	7,758.10	7,598.94	28.68	24.37	-123.59	569.55	-993.17	1,365.51	1,314.31	51.20	26.671	
7,800.00	7,552.74	7,776.00	7,616.80	29.30	24.41	-119.96	568.56	-992.74	1,405.93	1,354.53	51.40	27.353	
7,850.00	7,564.72	7,789.54	7,630.32	29.99	24.43	-115.42	567.80	-992.41	1,447.76	1,396.17	51.59	28.062	
7,900.00	7,573.27	7,798.83	7,639.59	30.74	24.45	-109.85	567.28	-992.19	1,490.77	1,439.00	51.77	28.796	

Cathedral Energy Services

Anticollision Report

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well SAM 3H-25H-M166
Project:	DJ BASIN	TVD Reference:	23' KB @ 5109.00usft
Reference Site:	S25-T1N-R66W (SAM)	MD Reference:	23' KB @ 5109.00usft
Site Error:	0.00usft	North Reference:	Grid
Reference Well:	SAM 3H-25H-M166	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	PLAN #1	Offset TVD Reference:	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
6,009.43	6,000.00	11,795.83	7,499.06	21.65	78.18	-90.48	-115.94	-310.92	1,475.31	1,437.27	38.04	38.786	
6,100.00	6,090.57	11,795.83	7,499.06	21.95	78.18	-90.48	-115.94	-310.92	1,384.75	1,346.63	38.12	36.331	
6,200.00	6,190.57	11,795.83	7,499.06	22.28	78.18	-90.48	-115.94	-310.92	1,284.77	1,246.56	38.21	33.623	
6,300.00	6,290.57	11,795.83	7,499.06	22.62	78.18	-90.48	-115.94	-310.92	1,184.79	1,146.47	38.32	30.920	
6,400.00	6,390.57	11,795.83	7,499.06	22.95	78.18	-90.48	-115.94	-310.92	1,084.82	1,046.38	38.44	28.224	
6,500.00	6,490.57	11,795.83	7,499.06	23.29	78.18	-90.48	-115.94	-310.92	984.85	946.29	38.57	25.535	
6,600.00	6,590.57	11,795.83	7,499.06	23.62	78.18	-90.48	-115.94	-310.92	884.90	846.18	38.72	22.856	
6,700.00	6,690.57	11,795.83	7,499.06	23.96	78.18	-90.48	-115.94	-310.92	784.95	746.06	38.88	20.186	
6,800.00	6,790.57	11,795.83	7,499.06	24.30	78.18	-90.48	-115.94	-310.92	685.02	645.93	39.08	17.528	
6,873.23	6,863.80	11,795.83	7,499.06	24.55	78.18	-90.48	-115.94	-310.92	611.85	572.60	39.25	15.588	
6,900.00	6,890.57	11,795.83	7,499.06	24.63	78.18	-179.94	-115.94	-310.92	585.14	545.80	39.33	14.876	
6,950.00	6,940.43	11,795.82	7,499.06	24.79	78.18	-179.96	-115.93	-310.92	535.54	495.93	39.60	13.522	
7,000.00	6,989.91	11,795.81	7,499.06	24.94	78.18	-179.97	-115.92	-310.92	486.65	446.51	40.13	12.126	
7,050.00	7,038.79	11,795.79	7,499.06	25.09	78.18	-179.97	-115.90	-310.92	438.98	397.83	41.15	10.667	
7,100.00	7,086.80	11,795.77	7,499.06	25.24	78.18	-179.96	-115.87	-310.92	393.27	350.21	43.06	9.133	
7,150.00	7,133.74	11,795.74	7,499.06	25.38	78.18	-179.96	-115.84	-310.92	350.53	304.14	46.39	7.556	
7,200.00	7,179.35	11,795.70	7,499.06	25.52	78.18	-179.95	-115.81	-310.92	312.24	260.50	51.74	6.035	
7,250.00	7,223.43	11,795.66	7,499.06	25.66	78.17	-179.95	-115.76	-310.92	280.45	220.92	59.52	4.712	
7,300.00	7,265.76	11,795.61	7,499.06	25.81	78.17	-179.94	-115.72	-310.92	257.75	188.28	69.47	3.710	
7,350.00	7,306.13	11,795.56	7,499.06	25.97	78.17	-179.93	-115.66	-310.92	246.79	166.68	80.11	3.081	
7,366.18	7,318.75	11,795.54	7,499.06	26.02	78.17	-179.92	-115.64	-310.92	246.08	162.76	83.31	2.954 CC	
7,400.00	7,344.35	11,795.50	7,499.06	26.14	78.17	-179.91	-115.61	-310.92	249.18	160.03	89.15	2.795 ES	
7,450.00	7,380.22	11,795.44	7,499.06	26.35	78.17	-179.89	-115.54	-310.92	264.54	169.47	95.08	2.782 SF	
7,500.00	7,413.58	11,795.37	7,499.06	26.60	78.17	-179.87	-115.48	-310.92	290.76	192.77	98.00	2.967	
7,550.00	7,444.26	11,795.30	7,499.06	26.89	78.17	-179.85	-115.41	-310.92	325.12	226.17	98.95	3.286	
7,600.00	7,472.11	11,795.23	7,499.06	27.24	78.17	-179.81	-115.33	-310.92	365.18	266.26	98.92	3.692	
7,650.00	7,497.00	11,795.15	7,499.06	27.65	78.17	-179.76	-115.25	-310.92	409.11	310.59	98.52	4.152	
7,700.00	7,518.80	11,795.07	7,499.06	28.13	78.16	-179.68	-115.17	-310.92	455.61	357.55	98.07	4.646	
7,750.00	7,537.41	11,794.99	7,499.06	28.68	78.16	-179.54	-115.09	-310.92	503.78	406.09	97.69	5.157	
7,800.00	7,552.74	11,794.90	7,499.06	29.30	78.16	-179.25	-115.01	-310.92	552.97	455.54	97.43	5.676	
7,850.00	7,564.72	11,794.82	7,499.06	29.99	78.16	-178.24	-114.92	-310.92	602.73	505.44	97.29	6.195	
7,900.00	7,573.27	11,794.73	7,499.06	30.74	78.16	-7.24	-114.83	-310.93	652.70	555.44	97.26	6.711	
7,950.00	7,578.38	11,794.64	7,499.06	31.55	78.16	-1.26	-114.74	-310.93	702.64	605.31	97.33	7.219	
7,998.23	7,580.00	11,794.55	7,499.06	32.38	78.16	-0.72	-114.66	-310.93	750.57	653.11	97.45	7.702	
8,000.00	7,580.00	11,794.55	7,499.06	32.42	78.16	-0.73	-114.65	-310.93	752.32	654.86	97.46	7.719	
8,100.00	7,580.00	11,794.37	7,499.06	34.29	78.15	-0.82	-114.48	-310.93	851.46	753.72	97.73	8.712	
8,200.00	7,580.00	11,794.19	7,499.06	36.35	78.15	-0.92	-114.30	-310.93	950.77	852.84	97.94	9.708	
8,300.00	7,580.00	11,794.01	7,499.06	38.57	78.15	-1.02	-114.12	-310.93	1,050.22	952.13	98.09	10.707	
8,400.00	7,580.00	11,793.83	7,499.06	40.92	78.14	-1.12	-113.94	-310.93	1,149.76	1,051.55	98.22	11.707	
8,500.00	7,580.00	11,793.66	7,499.06	43.38	78.14	-1.21	-113.76	-310.93	1,249.38	1,151.06	98.32	12.708	
8,600.00	7,580.00	11,793.48	7,499.06	45.93	78.14	-1.31	-113.58	-310.94	1,349.05	1,250.65	98.40	13.710	
8,700.00	7,580.00	11,793.30	7,499.06	48.56	78.13	-1.41	-113.40	-310.94	1,448.77	1,350.29	98.48	14.712	

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

Cathedral Energy Services

Anticollision Report

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well SAM 3H-25H-M166
Project:	DJ BASIN	TVD Reference:	23' KB @ 5109.00usft
Reference Site:	S25-T1N-R66W (SAM)	MD Reference:	23' KB @ 5109.00usft
Site Error:	0.00usft	North Reference:	Grid
Reference Well:	SAM 3H-25H-M166	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	PLAN #1	Offset TVD Reference:	Offset Datum

Offset Design S25-T1N-R66W (SAM) - Sam 1 (EXISTING) - CPR WELL - NO SURVEYS													Offset Site Error:	0.00 usft
Survey Program: 500-ISCWSA MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
0.00	0.00	0.00	0.00	0.00	0.00	83.82	143.49	1,325.75	1,334.06					
100.00	100.00	61.00	61.00	0.14	0.07	83.82	143.49	1,325.75	1,333.49	1,333.29	0.21	6,503.031		
200.00	200.00	161.00	161.00	0.50	0.18	83.82	143.49	1,325.75	1,333.49	1,332.82	0.67	1,980.124		
300.00	300.00	261.00	261.00	0.85	0.29	83.82	143.49	1,325.75	1,333.49	1,332.35	1.14	1,167.865		
400.00	400.00	361.00	361.00	1.21	0.40	83.82	143.49	1,325.75	1,333.49	1,331.88	1.61	828.152		
500.00	500.00	461.00	461.00	1.57	0.51	83.82	143.49	1,325.75	1,333.49	1,331.41	2.08	641.539		
504.51	504.51	465.51	465.51	1.59	0.51	83.82	143.49	1,325.75	1,333.49	1,331.39	2.10	635.089	CC, ES	
600.00	600.00	500.00	500.00	1.93	0.55	83.82	143.49	1,325.75	1,334.89	1,332.37	2.51	531.221		
700.00	700.00	500.00	500.00	2.29	0.55	83.82	143.49	1,325.75	1,343.18	1,340.15	3.03	443.272		
800.00	800.00	500.00	500.00	2.65	0.55	83.82	143.49	1,325.75	1,358.80	1,355.19	3.61	376.454		
900.00	900.00	500.00	500.00	3.01	0.55	83.82	143.49	1,325.75	1,381.49	1,377.30	4.20	329.166		
1,000.00	999.98	500.00	500.00	3.35	0.55	-163.82	143.49	1,325.75	1,412.51	1,407.75	4.76	296.996		
1,078.23	1,078.11	500.00	500.00	3.62	0.55	-163.64	143.49	1,325.75	1,443.29	1,438.13	5.16	279.452		
1,100.00	1,099.84	500.00	500.00	3.69	0.55	-163.64	143.49	1,325.75	1,452.75	1,447.47	5.28	275.355		
1,200.00	1,199.65	500.00	500.00	4.04	0.55	-163.64	143.49	1,325.75	1,499.48	1,493.76	5.73	261.812	SF	

Cathedral Energy Services

Anticollision Report

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well SAM 3H-25H-M166
Project:	DJ BASIN	TVD Reference:	23' KB @ 5109.00usft
Reference Site:	S25-T1N-R66W (SAM)	MD Reference:	23' KB @ 5109.00usft
Site Error:	0.00usft	North Reference:	Grid
Reference Well:	SAM 3H-25H-M166	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	PLAN #1	Offset TVD Reference:	Offset Datum

Offset Design S25-T1N-R66W (SAM) - Sam 13-25 (EXISTING) - CPR WELL - SURVEYS													Offset Site Error: 0.00 usft	
Survey Program: 1386-ISCWSA MWD													Offset Well Error: 0.00 usft	
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
0.00	0.00	0.00	0.00	0.00	0.00	84.07	136.46	1,312.93	1,320.11					
100.00	100.00	83.00	83.00	0.14	0.09	84.07	136.46	1,312.93	1,320.00	1,319.77	0.23	5,733.825		
200.00	200.00	183.00	183.00	0.50	0.20	84.07	136.46	1,312.93	1,320.00	1,319.30	0.70	1,886.334		
300.00	300.00	283.00	283.00	0.85	0.31	84.07	136.46	1,312.93	1,320.00	1,318.83	1.17	1,128.854		
400.00	400.00	383.00	383.00	1.21	0.43	84.07	136.46	1,312.93	1,320.00	1,318.36	1.64	805.426		
500.00	500.00	483.00	483.00	1.57	0.54	84.07	136.46	1,312.93	1,320.00	1,317.89	2.11	626.055		
600.00	600.00	583.00	583.00	1.93	0.65	84.07	136.46	1,312.93	1,320.00	1,317.42	2.58	512.025		
700.00	700.00	683.00	683.00	2.29	0.76	84.07	136.46	1,312.93	1,320.00	1,316.95	3.05	433.134		
800.00	800.00	783.00	783.00	2.65	0.87	84.07	136.46	1,312.93	1,320.00	1,316.48	3.52	375.308		
900.00	900.00	883.00	883.00	3.01	0.98	84.07	136.46	1,312.93	1,320.00	1,316.01	3.99	331.103		
1,000.00	999.98	982.98	982.98	3.35	1.09	-163.77	136.46	1,312.93	1,321.68	1,317.23	4.44	297.390		
1,078.23	1,078.11	1,061.11	1,061.11	3.62	1.18	-163.80	136.46	1,312.93	1,325.32	1,320.53	4.80	276.321		
1,100.00	1,099.84	1,082.84	1,082.84	3.69	1.20	-163.81	136.46	1,312.93	1,326.62	1,321.73	4.90	271.003		
1,200.00	1,199.65	1,182.65	1,182.65	4.04	1.31	-163.89	136.46	1,312.93	1,332.60	1,327.25	5.35	249.232		
1,300.00	1,299.46	1,282.46	1,282.46	4.39	1.42	-163.96	136.46	1,312.93	1,338.57	1,332.77	5.80	230.717		
1,400.00	1,399.26	1,382.26	1,382.26	4.74	1.54	-164.04	136.46	1,312.93	1,344.55	1,338.29	6.26	214.803		
1,500.00	1,499.07	1,472.06	1,472.06	5.10	1.73	-164.11	136.60	1,313.23	1,350.88	1,344.08	6.80	198.705		
1,600.00	1,598.88	1,636.84	1,636.79	5.45	2.07	-164.32	138.64	1,310.76	1,355.71	1,348.18	7.53	180.119		
1,700.00	1,698.68	1,834.43	1,833.58	5.81	2.52	-164.85	145.99	1,295.20	1,354.54	1,346.18	8.36	162.070		
1,800.00	1,798.49	1,999.74	1,996.68	6.17	2.99	-165.55	156.94	1,270.90	1,346.59	1,337.46	9.13	147.457		
1,900.00	1,898.30	2,158.09	2,150.94	6.53	3.56	-166.58	174.24	1,239.73	1,334.43	1,324.48	9.95	134.117		
2,000.00	1,998.10	2,298.04	2,285.33	6.90	4.20	-167.77	194.38	1,206.29	1,318.73	1,307.94	10.79	122.205		
2,100.00	2,097.91	2,438.78	2,418.92	7.26	4.95	-169.11	216.04	1,167.72	1,299.96	1,288.26	11.70	111.128		
2,200.00	2,197.71	2,526.71	2,501.88	7.63	5.44	-170.02	230.45	1,142.39	1,280.38	1,267.92	12.45	102.815		
2,300.00	2,297.52	2,617.22	2,587.42	7.99	5.91	-170.98	245.22	1,116.77	1,261.66	1,248.44	13.22	95.428		
2,400.00	2,397.33	2,709.00	2,674.30	8.36	6.41	-171.97	259.97	1,091.13	1,243.69	1,229.67	14.01	88.753		
2,500.00	2,497.13	2,789.00	2,750.28	8.72	6.84	-172.83	272.56	1,069.47	1,226.89	1,212.12	14.77	83.059		
2,600.00	2,596.94	2,904.19	2,859.69	9.09	7.49	-174.09	290.62	1,038.32	1,210.56	1,194.86	15.70	77.116		
2,700.00	2,696.75	3,000.18	2,950.62	9.45	8.05	-175.19	305.65	1,011.45	1,193.72	1,177.14	16.58	72.007		
2,800.00	2,796.55	3,094.30	3,039.71	9.82	8.61	-176.31	320.72	985.12	1,177.44	1,159.97	17.47	67.384		
2,900.00	2,896.36	3,197.93	3,137.41	10.19	9.29	-177.64	338.41	955.47	1,161.35	1,142.88	18.47	62.866		
3,000.00	2,996.17	3,294.36	3,227.89	10.56	9.93	-178.97	355.91	927.06	1,145.36	1,125.88	19.48	58.784		
3,100.00	3,095.97	3,382.03	3,310.12	10.92	10.50	179.77	372.35	901.50	1,130.49	1,110.03	20.46	55.241		
3,200.00	3,195.78	3,480.93	3,403.10	11.29	11.11	178.35	390.14	872.85	1,116.24	1,094.75	21.50	51.930		
3,300.00	3,295.59	3,570.45	3,487.32	11.66	11.68	177.04	406.25	847.17	1,102.92	1,080.42	22.50	49.020		
3,400.00	3,395.39	3,668.59	3,579.70	12.03	12.30	175.58	423.76	819.06	1,090.30	1,066.74	23.56	46.275		
3,500.00	3,495.20	3,760.03	3,665.98	12.40	12.86	174.23	439.54	793.17	1,078.46	1,053.87	24.59	43.863		
3,600.00	3,595.01	3,847.83	3,748.86	12.77	13.41	172.90	455.05	768.72	1,067.90	1,042.29	25.61	41.696		
3,700.00	3,694.81	3,944.37	3,840.17	13.14	14.00	171.44	471.89	742.29	1,058.39	1,031.70	26.69	39.660		
3,800.00	3,794.62	4,049.59	3,939.84	13.50	14.64	169.86	489.22	713.35	1,049.04	1,021.24	27.80	37.738		
3,900.00	3,894.43	4,145.89	4,031.09	13.87	15.23	168.42	504.38	686.58	1,039.81	1,010.94	28.87	36.013		
4,000.00	3,994.23	4,235.10	4,115.61	14.24	15.78	167.04	519.14	662.14	1,032.01	1,002.08	29.93	34.484		
4,100.00	4,094.04	4,351.40	4,225.64	14.61	16.51	165.22	537.37	629.19	1,023.71	992.58	31.13	32.881		
4,200.00	4,193.85	4,444.50	4,313.79	14.98	17.09	163.77	551.15	602.57	1,015.53	983.31	32.22	31.519		
4,300.00	4,293.65	4,534.49	4,398.82	15.35	17.67	162.31	565.46	576.86	1,008.76	975.44	33.32	30.279		
4,400.00	4,393.46	4,631.06	4,489.61	15.72	18.32	160.64	582.03	548.42	1,002.93	968.44	34.49	29.078		
4,500.00	4,493.27	4,724.44	4,577.12	16.09	18.95	158.96	598.59	520.37	997.96	962.30	35.66	27.984		
4,600.00	4,593.07	4,817.53	4,664.86	16.46	19.55	157.35	614.39	493.56	994.34	957.54	36.79	27.026		
4,700.00	4,692.88	4,913.49	4,755.63	16.83	20.15	155.74	629.78	466.49	991.39	953.48	37.91	26.151		
4,800.00	4,792.68	5,004.91	4,841.95	17.20	20.74	154.17	645.15	440.62	989.76	950.75	39.01	25.371		
4,900.00	4,892.49	5,099.54	4,931.17	17.57	21.36	152.52	661.32	413.53	989.03	948.90	40.13	24.644		
4,907.14	4,899.62	5,105.84	4,937.12	17.60	21.40	152.41	662.39	411.76	989.03	948.82	40.21	24.597		

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

Cathedral Energy Services

Anticollision Report

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well SAM 3H-25H-M166
Project:	DJ BASIN	TVD Reference:	23' KB @ 5109.00usft
Reference Site:	S25-T1N-R66W (SAM)	MD Reference:	23' KB @ 5109.00usft
Site Error:	0.00usft	North Reference:	Grid
Reference Well:	SAM 3H-25H-M166	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	PLAN #1	Offset TVD Reference:	Offset Datum

Offset Design S25-T1N-R66W (SAM) - Sam 13-25 (EXISTING) - CPR WELL - SURVEYS													Offset Site Error: 0.00 usft	
Survey Program: 1386-ISCWSA MWD													Offset Well Error: 0.00 usft	
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
5,000.00	4,992.30	5,189.32	5,016.17	17.94	21.91	151.01	676.38	388.86	989.68	948.50	41.18	24.032		
5,100.00	5,092.10	5,282.01	5,104.37	18.31	22.45	149.53	691.37	364.64	991.53	949.34	42.19	23.499		
5,200.00	5,191.91	5,375.98	5,194.72	18.68	22.96	148.22	705.01	342.74	994.46	951.32	43.14	23.051		
5,300.00	5,291.72	5,476.23	5,292.14	19.05	23.42	147.05	717.22	322.51	997.88	953.85	44.03	22.662		
5,400.00	5,391.52	5,578.38	5,392.26	19.42	23.83	146.09	727.17	304.89	1,001.32	956.47	44.85	22.327		
5,500.00	5,491.33	5,677.63	5,490.18	19.79	24.18	145.37	734.63	290.53	1,004.70	959.12	45.58	22.041		
5,600.00	5,591.14	5,777.24	5,588.79	20.16	24.49	144.77	741.06	278.03	1,008.39	962.11	46.27	21.792		
5,700.00	5,690.94	5,878.68	5,689.46	20.53	24.77	144.28	746.36	266.78	1,011.92	964.98	46.93	21.561		
5,800.00	5,790.75	5,975.53	5,785.83	20.90	25.00	143.93	750.26	257.95	1,015.54	968.00	47.54	21.361		
5,831.20	5,821.89	6,005.22	5,815.40	21.01	25.07	143.85	751.35	255.56	1,016.76	969.04	47.73	21.304		
5,900.00	5,890.60	6,085.33	5,895.26	21.27	25.24	143.66	753.52	249.68	1,018.49	970.35	48.14	21.158		
6,009.43	6,000.00	6,190.00	5,999.76	21.65	25.42	31.23	754.71	243.85	1,018.06	969.35	48.71	20.901		
6,100.00	6,090.57	6,278.87	6,088.58	21.95	25.55	31.06	755.16	240.70	1,016.79	967.65	49.14	20.690		
6,200.00	6,190.57	6,382.59	6,192.25	22.28	25.68	30.94	754.85	237.87	1,015.13	965.52	49.61	20.462		
6,300.00	6,290.57	6,483.65	6,293.29	22.62	25.79	30.87	753.85	235.82	1,013.24	963.18	50.06	20.240		
6,400.00	6,390.57	6,586.69	6,396.30	22.95	25.90	30.83	752.33	234.19	1,011.17	960.66	50.50	20.022		
6,500.00	6,490.57	6,690.48	6,500.06	23.29	26.00	30.82	750.23	232.78	1,008.73	957.79	50.94	19.802		
6,600.00	6,590.57	6,795.42	6,604.96	23.62	26.10	30.85	747.45	231.61	1,005.88	954.51	51.37	19.582		
6,700.00	6,690.57	6,901.10	6,710.57	23.96	26.19	30.92	743.71	230.85	1,002.48	950.69	51.78	19.359		
6,800.00	6,790.57	7,010.52	6,819.88	24.30	26.27	31.04	738.73	230.36	998.35	946.17	52.18	19.133		
6,873.23	6,863.80	7,087.93	6,897.16	24.55	26.33	31.16	734.47	230.05	994.74	942.27	52.47	18.959		
6,900.00	6,890.57	7,115.16	6,924.36	24.63	26.35	-58.36	732.89	229.98	993.11	940.54	52.57	18.891		
6,950.00	6,940.43	7,165.52	6,974.62	24.79	26.38	-58.76	729.91	229.89	988.65	935.89	52.76	18.738		
7,000.00	6,989.91	7,215.09	7,024.10	24.94	26.41	-59.45	726.89	229.93	982.38	929.43	52.95	18.555		
7,050.00	7,038.79	7,264.08	7,072.99	25.09	26.44	-60.44	723.82	230.08	974.38	921.26	53.12	18.341		
7,100.00	7,086.80	7,312.28	7,121.09	25.24	26.47	-61.73	720.72	230.36	964.77	911.47	53.30	18.101		
7,150.00	7,133.74	7,363.13	7,171.83	25.38	26.49	-63.38	717.31	230.75	953.61	900.16	53.45	17.842		
7,200.00	7,179.35	7,414.91	7,223.46	25.52	26.52	-65.40	713.46	231.18	940.88	887.30	53.58	17.561		
7,250.00	7,223.43	7,464.16	7,272.55	25.66	26.54	-67.71	709.45	231.62	926.79	873.10	53.70	17.259		
7,300.00	7,265.76	7,511.25	7,319.46	25.81	26.56	-70.30	705.32	232.07	911.67	857.86	53.81	16.943		
7,350.00	7,306.13	7,548.48	7,356.53	25.97	26.58	-72.85	702.03	232.33	895.94	841.98	53.97	16.602		
7,400.00	7,344.35	7,581.29	7,389.25	26.14	26.60	-75.46	699.47	232.23	880.26	826.12	54.14	16.260		
7,450.00	7,380.22	7,615.00	7,422.88	26.35	26.62	-78.27	697.20	231.81	865.00	810.72	54.29	15.933		
7,500.00	7,413.58	7,639.04	7,446.87	26.60	26.64	-80.70	695.77	231.39	850.54	796.05	54.49	15.609		
7,550.00	7,444.26	7,664.19	7,471.98	26.89	26.67	-83.17	694.42	230.96	837.30	782.62	54.67	15.314		
7,600.00	7,472.11	7,686.97	7,494.73	27.24	26.69	-85.47	693.33	230.57	825.62	770.76	54.86	15.049		
7,650.00	7,497.00	7,709.00	7,516.74	27.65	26.71	-87.62	692.38	230.20	815.90	760.86	55.04	14.823		
7,700.00	7,518.80	7,726.14	7,533.86	28.13	26.73	-89.33	691.71	229.92	808.46	753.22	55.24	14.636		
7,750.00	7,537.41	7,742.27	7,549.98	28.68	26.75	-90.80	691.11	229.67	803.59	748.17	55.42	14.500		
7,800.00	7,552.74	7,755.46	7,563.16	29.30	26.76	-91.87	690.65	229.47	801.57	745.98	55.59	14.419		
7,808.69	7,555.07	7,757.45	7,565.15	29.42	26.77	-92.01	690.58	229.44	801.52	745.90	55.62	14.410 CC, ES		
7,850.00	7,564.72	7,765.64	7,573.33	29.99	26.77	-92.49	690.30	229.31	802.58	746.84	55.74	14.398 SF		
7,900.00	7,573.27	7,772.73	7,580.41	30.74	26.78	-92.66	690.07	229.21	806.74	750.88	55.86	14.441		
7,950.00	7,578.38	7,776.69	7,584.37	31.55	26.79	-92.35	689.95	229.15	814.07	758.12	55.95	14.551		
7,998.23	7,580.00	7,777.51	7,585.19	32.38	26.79	-91.59	689.92	229.14	824.08	768.10	55.99	14.720		
8,000.00	7,580.00	7,777.49	7,585.17	32.42	26.79	-91.59	689.92	229.14	824.50	768.52	55.99	14.727		
8,100.00	7,580.00	7,776.13	7,583.81	34.29	26.79	-91.49	689.97	229.16	853.90	797.94	55.96	15.258		
8,200.00	7,580.00	7,774.76	7,582.45	36.35	26.79	-91.39	690.01	229.18	893.59	837.74	55.85	16.001		
8,300.00	7,580.00	7,773.39	7,581.08	38.57	26.78	-91.29	690.05	229.20	942.25	886.59	55.66	16.928		
8,400.00	7,580.00	7,772.01	7,579.70	40.92	26.78	-91.19	690.10	229.22	998.58	943.13	55.45	18.008		
8,500.00	7,580.00	7,770.62	7,578.31	43.38	26.78	-91.10	690.14	229.24	1,061.37	1,006.13	55.24	19.213		
8,600.00	7,580.00	7,769.22	7,576.91	45.93	26.78	-91.00	690.19	229.26	1,129.53	1,074.48	55.05	20.519		

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

Cathedral Energy Services

Anticollision Report

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well SAM 3H-25H-M166
Project:	DJ BASIN	TVD Reference:	23' KB @ 5109.00usft
Reference Site:	S25-T1N-R66W (SAM)	MD Reference:	23' KB @ 5109.00usft
Site Error:	0.00usft	North Reference:	Grid
Reference Well:	SAM 3H-25H-M166	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	PLAN #1	Offset TVD Reference:	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	7,580.00	7,767.82	7,575.51	48.56	26.78	-90.89	690.23	229.28	1,202.14	1,147.24	54.91	21.894		
8,800.00	7,580.00	7,766.40	7,574.10	51.26	26.78	-90.79	690.28	229.30	1,278.46	1,223.59	54.87	23.298		
8,900.00	7,580.00	7,764.98	7,572.68	54.01	26.77	-90.69	690.33	229.32	1,357.86	1,303.00	54.86	24.753		
9,000.00	7,580.00	7,763.55	7,571.25	56.81	26.77	-90.59	690.37	229.34	1,439.82	1,384.97	54.85	26.249		

Cathedral Energy Services

Anticollision Report

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well SAM 3H-25H-M166
Project:	DJ BASIN	TVD Reference:	23' KB @ 5109.00usft
Reference Site:	S25-T1N-R66W (SAM)	MD Reference:	23' KB @ 5109.00usft
Site Error:	0.00usft	North Reference:	Grid
Reference Well:	SAM 3H-25H-M166	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	PLAN #1	Offset TVD Reference:	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	-0.04	70.30	-0.05	70.30				
100.00	100.00	100.00	100.00	0.14	0.14	-0.04	70.30	-0.05	70.30	70.03	0.28	254.699	
200.00	200.00	200.00	200.00	0.50	0.50	-0.04	70.30	-0.05	70.30	69.31	0.99	70.801	CC, ES
300.00	300.00	297.64	297.62	0.85	0.85	-0.37	71.91	-0.46	71.95	70.21	1.74	41.286	
400.00	400.00	395.06	394.90	1.21	1.20	-1.28	76.73	-1.71	76.92	74.40	2.52	30.525	
500.00	500.00	492.02	491.52	1.57	1.56	-2.55	84.70	-3.77	85.21	81.91	3.30	25.834	
600.00	600.00	588.32	587.13	1.93	1.92	-3.96	95.74	-6.62	96.83	92.76	4.07	23.786	
700.00	700.00	683.74	681.45	2.29	2.29	-5.33	109.75	-10.24	111.78	106.94	4.83	23.123	
800.00	800.00	778.10	774.18	2.65	2.68	-6.58	126.58	-14.60	130.01	124.43	5.59	23.277	
900.00	900.00	873.91	867.82	3.01	3.09	-7.66	146.20	-19.67	150.99	144.71	6.28	24.060	
1,000.00	999.98	971.51	963.15	3.35	3.52	103.81	166.48	-24.91	172.73	165.78	6.94	24.877	
1,078.23	1,078.11	1,047.71	1,037.58	3.62	3.86	104.02	182.31	-29.00	190.31	182.84	7.46	25.494	
1,100.00	1,099.84	1,068.90	1,058.27	3.69	3.96	104.24	186.71	-30.14	195.28	187.66	7.61	25.654	
1,200.00	1,199.65	1,166.20	1,153.31	4.04	4.40	105.14	206.93	-35.37	218.12	209.83	8.29	26.311	
1,300.00	1,299.46	1,263.50	1,248.34	4.39	4.84	105.87	227.14	-40.59	241.01	232.03	8.98	26.842	
1,400.00	1,399.26	1,360.81	1,343.38	4.74	5.29	106.47	247.35	-45.82	263.93	254.26	9.68	27.276	
1,500.00	1,499.07	1,458.11	1,438.42	5.10	5.73	106.98	267.57	-51.04	286.88	276.50	10.38	27.637	
1,600.00	1,598.88	1,555.41	1,533.46	5.45	6.18	107.41	287.78	-56.27	309.84	298.75	11.09	27.940	
1,700.00	1,698.68	1,652.72	1,628.49	5.81	6.63	107.78	308.00	-61.49	332.81	321.01	11.80	28.196	
1,800.00	1,798.49	1,750.02	1,723.53	6.17	7.08	108.11	328.21	-66.72	355.80	343.28	12.52	28.416	
1,900.00	1,898.30	1,847.32	1,818.57	6.53	7.53	108.39	348.42	-71.94	378.80	365.56	13.24	28.607	
2,000.00	1,998.10	1,944.63	1,913.61	6.90	7.99	108.64	368.64	-77.17	401.80	387.84	13.96	28.772	
2,100.00	2,097.91	2,041.93	2,008.64	7.26	8.44	108.87	388.85	-82.39	424.81	410.12	14.69	28.918	
2,200.00	2,197.71	2,139.24	2,103.68	7.63	8.89	109.07	409.07	-87.62	447.83	432.41	15.42	29.047	
2,300.00	2,297.52	2,236.54	2,198.72	7.99	9.34	109.25	429.28	-92.85	470.85	454.71	16.15	29.161	
2,400.00	2,397.33	2,333.84	2,293.75	8.36	9.80	109.42	449.50	-98.07	493.88	477.00	16.88	29.263	
2,500.00	2,497.13	2,431.15	2,388.79	8.72	10.25	109.57	469.71	-103.30	516.91	499.30	17.61	29.355	
2,600.00	2,596.94	2,528.45	2,483.83	9.09	10.71	109.71	489.92	-108.52	539.94	521.60	18.34	29.438	
2,700.00	2,696.75	2,625.75	2,578.87	9.45	11.16	109.83	510.14	-113.75	562.98	543.90	19.08	29.513	
2,800.00	2,796.55	2,723.06	2,673.90	9.82	11.61	109.95	530.35	-118.97	586.01	566.20	19.81	29.581	
2,900.00	2,896.36	2,820.36	2,768.94	10.19	12.07	110.06	550.57	-124.20	609.05	588.51	20.55	29.644	
3,000.00	2,996.17	2,917.66	2,863.98	10.56	12.52	110.16	570.78	-129.42	632.09	610.81	21.28	29.701	
3,100.00	3,095.97	3,014.97	2,959.01	10.92	12.98	110.25	590.99	-134.65	655.14	633.12	22.02	29.754	
3,200.00	3,195.78	3,112.27	3,054.05	11.29	13.43	110.33	611.21	-139.87	678.18	655.43	22.76	29.802	
3,300.00	3,295.59	3,209.58	3,149.09	11.66	13.89	110.42	631.42	-145.10	701.23	677.73	23.49	29.847	
3,400.00	3,395.39	3,306.88	3,244.13	12.03	14.34	110.49	651.64	-150.33	724.27	700.04	24.23	29.889	
3,500.00	3,495.20	3,404.18	3,339.16	12.40	14.80	110.56	671.85	-155.55	747.32	722.35	24.97	29.927	
3,600.00	3,595.01	3,501.49	3,434.20	12.77	15.25	110.63	692.07	-160.78	770.37	744.66	25.71	29.964	
3,700.00	3,694.81	3,598.79	3,529.24	13.14	15.71	110.69	712.28	-166.00	793.42	766.97	26.45	29.997	
3,800.00	3,794.62	3,696.09	3,624.27	13.50	16.17	110.75	732.49	-171.23	816.47	789.28	27.19	30.029	
3,900.00	3,894.43	3,793.40	3,719.31	13.87	16.62	110.81	752.71	-176.45	839.53	811.60	27.93	30.058	
4,000.00	3,994.23	3,890.70	3,814.35	14.24	17.08	110.86	772.92	-181.68	862.58	833.91	28.67	30.086	
4,100.00	4,094.04	3,988.00	3,909.39	14.61	17.53	110.91	793.14	-186.90	885.63	856.22	29.41	30.112	
4,200.00	4,193.85	4,085.31	4,004.42	14.98	17.99	110.96	813.35	-192.13	908.69	878.53	30.15	30.137	
4,300.00	4,293.65	4,182.61	4,099.46	15.35	18.44	111.00	833.56	-197.35	931.74	900.85	30.89	30.160	
4,400.00	4,393.46	4,279.91	4,194.50	15.72	18.90	111.05	853.78	-202.58	954.80	923.16	31.63	30.182	
4,500.00	4,493.27	4,377.22	4,289.54	16.09	19.36	111.09	873.99	-207.81	977.85	945.47	32.38	30.203	
4,600.00	4,593.07	4,474.52	4,384.57	16.46	19.81	111.13	894.21	-213.03	1,000.91	967.79	33.12	30.223	
4,700.00	4,692.88	4,571.83	4,479.61	16.83	20.27	111.16	914.42	-218.26	1,023.96	990.10	33.86	30.241	
4,800.00	4,792.68	4,669.13	4,574.65	17.20	20.72	111.20	934.64	-223.48	1,047.02	1,012.42	34.60	30.259	
4,900.00	4,892.49	4,766.43	4,669.68	17.57	21.18	111.23	954.85	-228.71	1,070.08	1,034.73	35.34	30.276	
5,000.00	4,992.30	4,863.74	4,764.72	17.94	21.63	111.27	975.06	-233.93	1,093.13	1,057.05	36.09	30.292	

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

Cathedral Energy Services

Anticollision Report

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well SAM 3H-25H-M166
Project:	DJ BASIN	TVD Reference:	23' KB @ 5109.00usft
Reference Site:	S25-T1N-R66W (SAM)	MD Reference:	23' KB @ 5109.00usft
Site Error:	0.00usft	North Reference:	Grid
Reference Well:	SAM 3H-25H-M166	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	PLAN #1	Offset TVD Reference:	Offset Datum

Offset Design S25-T1N-R66W (SAM) - SAM 3A-25H-M166 - OH - PLAN #1													Offset Site Error: 0.00 usft	
Survey Program: 0-MWD+HDGM													Offset Well Error: 0.00 usft	
Reference				Offset			Semi Major Axis			Distance				Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
5,100.00	5,092.10	4,961.04	4,859.76	18.31	22.09	111.30	995.28	-239.16	1,116.19	1,079.36	36.83	30.307		
5,200.00	5,191.91	5,058.34	4,954.80	18.68	22.55	111.33	1,015.49	-244.38	1,139.25	1,101.68	37.57	30.322		
5,300.00	5,291.72	5,155.65	5,049.83	19.05	23.00	111.36	1,035.71	-249.61	1,162.31	1,123.99	38.31	30.336		
5,400.00	5,391.52	5,252.95	5,144.87	19.42	23.46	111.39	1,055.92	-254.84	1,185.37	1,146.31	39.06	30.349		
5,500.00	5,491.33	5,350.25	5,239.91	19.79	23.92	111.41	1,076.13	-260.06	1,208.43	1,168.63	39.80	30.362		
5,600.00	5,591.14	5,447.56	5,334.94	20.16	24.37	111.44	1,096.35	-265.29	1,231.49	1,190.94	40.54	30.374		
5,700.00	5,690.94	5,544.86	5,429.98	20.53	24.83	111.46	1,116.56	-270.51	1,254.55	1,213.26	41.29	30.386		
5,800.00	5,790.75	5,642.16	5,525.02	20.90	25.28	111.49	1,136.78	-275.74	1,277.60	1,235.57	42.03	30.397		
5,831.20	5,821.89	5,672.52	5,554.67	21.01	25.43	111.49	1,143.08	-277.37	1,284.80	1,242.54	42.26	30.400		
5,900.00	5,890.60	5,767.54	5,647.62	21.27	25.86	111.76	1,162.15	-282.30	1,299.98	1,257.01	42.98	30.247		
6,009.43	6,000.00	5,961.38	5,838.94	21.65	26.67	-0.27	1,192.08	-290.03	1,317.69	1,273.42	44.27	29.766		
6,100.00	6,090.57	6,124.59	6,001.35	21.95	27.27	-0.44	1,207.52	-294.03	1,326.28	1,281.11	45.16	29.365		
6,200.00	6,190.57	6,306.25	6,182.85	22.28	27.83	-0.51	1,214.15	-295.74	1,329.94	1,283.96	45.97	28.929		
6,300.00	6,290.57	6,413.98	6,290.57	22.62	28.13	-0.51	1,214.20	-295.75	1,329.96	1,283.33	46.64	28.517		
6,400.00	6,390.57	6,513.98	6,390.57	22.95	28.41	-0.51	1,214.20	-295.75	1,329.96	1,282.66	47.30	28.117		
6,500.00	6,490.57	6,613.98	6,490.57	23.29	28.69	-0.51	1,214.20	-295.75	1,329.96	1,282.00	47.97	27.727		
6,600.00	6,590.57	6,713.98	6,590.57	23.62	28.98	-0.51	1,214.20	-295.75	1,329.96	1,281.33	48.63	27.347		
6,700.00	6,690.57	6,813.98	6,690.57	23.96	29.26	-0.51	1,214.20	-295.75	1,329.96	1,280.66	49.30	26.977		
6,703.91	6,694.48	6,817.88	6,694.48	23.97	29.27	-0.51	1,214.20	-295.75	1,329.96	1,280.64	49.33	26.963		
6,800.00	6,790.57	6,913.17	6,789.48	24.30	29.53	-0.23	1,214.27	-289.33	1,329.99	1,280.03	49.95	26.624		
6,873.23	6,863.80	6,983.74	6,858.84	24.55	29.70	0.32	1,214.40	-276.48	1,330.14	1,279.70	50.44	26.373		
6,900.00	6,890.57	7,008.93	6,883.25	24.63	29.76	-88.84	1,214.46	-270.24	1,330.25	1,279.64	50.61	26.285		
6,950.00	6,940.43	7,055.47	6,927.70	24.79	29.87	-88.36	1,214.60	-256.48	1,330.53	1,279.61	50.92	26.128		
7,000.00	6,989.91	7,100.00	6,969.31	24.94	29.96	-87.91	1,214.76	-240.64	1,330.90	1,279.67	51.23	25.979		
7,050.00	7,038.79	7,146.71	7,011.80	25.09	30.06	-87.44	1,214.96	-221.29	1,331.35	1,279.82	51.53	25.835		
7,100.00	7,086.80	7,191.49	7,051.28	25.24	30.14	-87.00	1,215.17	-200.16	1,331.87	1,280.03	51.83	25.696		
7,150.00	7,133.74	7,235.76	7,088.93	25.38	30.22	-86.57	1,215.41	-176.90	1,332.44	1,280.31	52.13	25.560		
7,200.00	7,179.35	7,279.56	7,124.71	25.52	30.29	-86.16	1,215.67	-151.63	1,333.06	1,280.63	52.44	25.423		
7,250.00	7,223.43	7,322.93	7,158.54	25.66	30.35	-85.77	1,215.94	-124.50	1,333.72	1,280.96	52.75	25.282		
7,300.00	7,265.76	7,365.90	7,190.38	25.81	30.40	-85.39	1,216.23	-95.66	1,334.40	1,281.31	53.09	25.134		
7,350.00	7,306.13	7,408.50	7,220.18	25.97	30.46	-85.04	1,216.54	-65.23	1,335.09	1,281.64	53.46	24.974		
7,400.00	7,344.35	7,450.00	7,247.42	26.14	30.50	-84.71	1,216.86	-33.93	1,335.79	1,281.93	53.86	24.800		
7,450.00	7,380.22	7,492.75	7,273.54	26.35	30.54	-84.39	1,217.21	-0.10	1,336.48	1,282.14	54.34	24.596		
7,500.00	7,413.58	7,534.44	7,297.02	26.60	30.57	-84.11	1,217.56	34.34	1,337.14	1,282.27	54.87	24.368		
7,550.00	7,444.26	7,575.89	7,318.35	26.89	30.60	-83.84	1,217.92	69.88	1,337.78	1,282.29	55.49	24.109		
7,600.00	7,472.11	7,617.13	7,337.48	27.24	30.62	-83.61	1,218.29	106.40	1,338.37	1,282.18	56.20	23.816		
7,650.00	7,497.00	7,658.17	7,354.41	27.65	30.65	-83.40	1,218.67	143.78	1,338.92	1,281.91	57.00	23.490		
7,700.00	7,518.80	7,700.00	7,369.43	28.13	30.67	-83.21	1,219.06	182.81	1,339.40	1,281.48	57.92	23.123		
7,750.00	7,537.41	7,739.80	7,381.59	28.68	30.70	-83.06	1,219.45	220.70	1,339.82	1,280.88	58.95	22.729		
7,800.00	7,552.74	7,780.43	7,391.81	29.30	30.83	-82.93	1,219.85	260.01	1,340.17	1,280.08	60.09	22.301		
7,850.00	7,564.72	7,820.96	7,399.76	29.99	31.29	-82.83	1,220.25	299.75	1,340.45	1,279.10	61.35	21.850		
7,900.00	7,573.27	7,861.44	7,405.45	30.74	31.89	-82.76	1,220.66	339.82	1,340.64	1,277.94	62.71	21.380		
7,950.00	7,578.38	7,900.00	7,408.76	31.55	32.51	-82.73	1,221.05	378.23	1,340.76	1,276.63	64.13	20.908		
7,998.23	7,580.00	7,942.20	7,410.00	32.38	33.23	-82.72	1,221.48	420.41	1,340.78	1,275.12	65.66	20.419		
8,000.00	7,580.00	7,942.29	7,410.00	32.42	33.23	-82.72	1,221.48	420.50	1,340.78	1,275.09	65.70	20.409		
8,100.00	7,580.00	8,042.29	7,410.00	34.29	35.11	-82.72	1,222.50	520.49	1,340.78	1,271.38	69.40	19.319		
8,200.00	7,580.00	8,142.29	7,410.00	36.35	37.14	-82.72	1,223.51	620.49	1,340.78	1,267.33	73.45	18.254		
8,300.00	7,580.00	8,242.29	7,410.00	38.57	39.33	-82.72	1,224.53	720.48	1,340.78	1,262.97	77.81	17.231		
8,400.00	7,580.00	8,342.29	7,410.00	40.92	41.65	-82.72	1,225.54	820.48	1,340.78	1,258.35	82.43	16.265		
8,500.00	7,580.00	8,442.29	7,410.00	43.38	44.09	-82.72	1,226.56	920.47	1,340.78	1,253.51	87.27	15.363		
8,600.00	7,580.00	8,542.29	7,410.00	45.93	46.61	-82.72	1,227.58	1,020.47	1,340.78	1,248.48	92.30	14.527		
8,700.00	7,580.00	8,642.29	7,410.00	48.56	49.22	-82.72	1,228.59	1,120.46	1,340.78	1,243.30	97.48	13.754		

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

Cathedral Energy Services

Anticollision Report

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well SAM 3H-25H-M166
Project:	DJ BASIN	TVD Reference:	23' KB @ 5109.00usft
Reference Site:	S25-T1N-R66W (SAM)	MD Reference:	23' KB @ 5109.00usft
Site Error:	0.00usft	North Reference:	Grid
Reference Well:	SAM 3H-25H-M166	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	PLAN #1	Offset TVD Reference:	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							
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	7,580.00	8,742.29	7,410.00	51.26	51.89	-82.72	1,229.61	1,220.46	1,340.78	1,237.98	102.80	13.043		
8,900.00	7,580.00	8,842.29	7,410.00	54.01	54.62	-82.72	1,230.63	1,320.45	1,340.78	1,232.55	108.23	12.389		
9,000.00	7,580.00	8,942.29	7,410.00	56.81	57.39	-82.72	1,231.64	1,420.45	1,340.78	1,227.03	113.75	11.787		
9,100.00	7,580.00	9,042.29	7,410.00	59.65	60.21	-82.72	1,232.66	1,520.44	1,340.78	1,221.42	119.36	11.233		
9,200.00	7,580.00	9,142.29	7,410.00	62.52	63.07	-82.72	1,233.67	1,620.44	1,340.78	1,215.73	125.05	10.722		
9,300.00	7,580.00	9,242.29	7,410.00	65.43	65.96	-82.72	1,234.69	1,720.43	1,340.78	1,209.99	130.79	10.251		
9,400.00	7,580.00	9,342.29	7,410.00	68.36	68.87	-82.72	1,235.71	1,820.42	1,340.78	1,204.19	136.59	9.816		
9,500.00	7,580.00	9,442.29	7,410.00	71.32	71.82	-82.72	1,236.72	1,920.42	1,340.78	1,198.34	142.44	9.413		
9,600.00	7,580.00	9,542.29	7,410.00	74.29	74.78	-82.72	1,237.74	2,020.41	1,340.78	1,192.45	148.33	9.039		
9,700.00	7,580.00	9,642.29	7,410.00	77.29	77.76	-82.72	1,238.76	2,120.41	1,340.78	1,186.52	154.26	8.692		
9,800.00	7,580.00	9,742.29	7,410.00	80.30	80.76	-82.72	1,239.77	2,220.40	1,340.78	1,180.56	160.22	8.368		
9,900.00	7,580.00	9,842.29	7,410.00	83.33	83.77	-82.72	1,240.79	2,320.40	1,340.78	1,174.56	166.21	8.067		
10,000.00	7,580.00	9,942.29	7,410.00	86.37	86.80	-82.72	1,241.80	2,420.39	1,340.78	1,168.54	172.23	7.785		
10,100.00	7,580.00	10,042.29	7,410.00	89.42	89.84	-82.72	1,242.82	2,520.39	1,340.78	1,162.50	178.28	7.521		
10,200.00	7,580.00	10,142.29	7,410.00	92.48	92.90	-82.72	1,243.84	2,620.38	1,340.78	1,156.44	184.34	7.273		
10,300.00	7,580.00	10,242.29	7,410.00	95.55	95.96	-82.72	1,244.85	2,720.38	1,340.78	1,150.35	190.43	7.041		
10,400.00	7,580.00	10,342.29	7,410.00	98.63	99.03	-82.72	1,245.87	2,820.37	1,340.78	1,144.25	196.53	6.822		
10,500.00	7,580.00	10,442.29	7,410.00	101.72	102.11	-82.72	1,246.88	2,920.37	1,340.78	1,138.13	202.65	6.616		
10,600.00	7,580.00	10,542.29	7,410.00	104.81	105.19	-82.72	1,247.90	3,020.36	1,340.78	1,132.00	208.78	6.422		
10,700.00	7,580.00	10,642.29	7,410.00	107.91	108.29	-82.72	1,248.92	3,120.36	1,340.78	1,125.85	214.93	6.238		
10,800.00	7,580.00	10,742.29	7,410.00	111.02	111.39	-82.72	1,249.93	3,220.35	1,340.78	1,119.69	221.09	6.065		
10,900.00	7,580.00	10,842.29	7,410.00	114.13	114.49	-82.72	1,250.95	3,320.35	1,340.78	1,113.52	227.26	5.900		
11,000.00	7,580.00	10,942.29	7,410.00	117.25	117.60	-82.72	1,251.97	3,420.34	1,340.78	1,107.34	233.44	5.744		
11,100.00	7,580.00	11,042.29	7,410.00	120.37	120.72	-82.72	1,252.98	3,520.34	1,340.78	1,101.15	239.63	5.595		
11,200.00	7,580.00	11,142.29	7,410.00	123.50	123.84	-82.72	1,254.00	3,620.33	1,340.78	1,094.95	245.83	5.454		
11,300.00	7,580.00	11,242.29	7,410.00	126.63	126.97	-82.72	1,255.01	3,720.33	1,340.78	1,088.74	252.03	5.320		
11,400.00	7,580.00	11,342.29	7,410.00	129.77	130.09	-82.72	1,256.03	3,820.32	1,340.78	1,082.53	258.25	5.192		
11,500.00	7,580.00	11,442.29	7,410.00	132.90	133.23	-82.72	1,257.05	3,920.32	1,340.78	1,076.30	264.47	5.070		
11,600.00	7,580.00	11,542.29	7,410.00	136.04	136.36	-82.72	1,258.06	4,020.31	1,340.78	1,070.07	270.70	4.953		
11,700.00	7,580.00	11,642.29	7,410.00	139.19	139.50	-82.72	1,259.08	4,120.31	1,340.78	1,063.84	276.94	4.841		
11,800.00	7,580.00	11,742.29	7,410.00	142.33	142.64	-82.72	1,260.10	4,220.30	1,340.78	1,057.60	283.18	4.735		
11,900.00	7,580.00	11,842.29	7,410.00	145.48	145.79	-82.72	1,261.11	4,320.30	1,340.78	1,051.35	289.42	4.633		
12,000.00	7,580.00	11,942.29	7,410.00	148.64	148.94	-82.72	1,262.13	4,420.29	1,340.77	1,045.10	295.68	4.535		
12,070.04	7,580.00	12,012.33	7,410.00	150.84	151.14	-82.72	1,262.84	4,490.33	1,340.77	1,040.72	300.06	4.468 SF		

Cathedral Energy Services

Anticollision Report

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well SAM 3H-25H-M166
Project:	DJ BASIN	TVD Reference:	23' KB @ 5109.00usft
Reference Site:	S25-T1N-R66W (SAM)	MD Reference:	23' KB @ 5109.00usft
Site Error:	0.00usft	North Reference:	Grid
Reference Well:	SAM 3H-25H-M166	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	PLAN #1	Offset TVD Reference:	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	-0.23	60.09	-0.24	60.09				
100.00	100.00	100.00	100.00	0.14	0.14	-0.23	60.09	-0.24	60.09	59.82	0.28	217.711	
200.00	200.00	200.00	200.00	0.50	0.50	-0.23	60.09	-0.24	60.09	59.10	0.99	60.519	
300.00	300.00	300.00	300.00	0.85	0.85	-0.23	60.09	-0.24	60.09	58.38	1.71	35.144 CC, ES	
400.00	400.00	397.98	397.96	1.21	1.21	-0.65	61.70	-0.70	61.74	59.29	2.45	25.232	
500.00	500.00	495.74	495.59	1.57	1.56	-1.80	66.51	-2.09	66.69	63.49	3.21	20.787	
600.00	600.00	593.04	592.53	1.93	1.92	-3.38	74.48	-4.39	74.98	71.01	3.97	18.867	
700.00	700.00	689.67	688.47	2.29	2.27	-5.06	85.52	-7.58	86.62	81.88	4.74	18.289	
800.00	800.00	785.41	783.09	2.65	2.64	-6.66	99.51	-11.62	101.60	96.11	5.49	18.508	
900.00	900.00	880.07	876.12	3.01	3.03	-8.06	116.32	-16.47	119.89	113.66	6.23	19.243	
1,000.00	999.98	977.68	971.69	3.35	3.44	103.25	135.37	-21.97	140.42	133.53	6.89	20.369	
1,078.23	1,078.11	1,054.11	1,046.52	3.62	3.77	103.54	150.29	-26.28	157.05	149.63	7.42	21.164	
1,100.00	1,099.84	1,075.35	1,067.33	3.69	3.86	103.79	154.43	-27.47	161.75	154.18	7.57	21.373	
1,200.00	1,199.65	1,172.95	1,162.88	4.04	4.28	104.78	173.48	-32.97	183.36	175.12	8.25	22.233	
1,300.00	1,299.46	1,270.54	1,258.44	4.39	4.71	105.56	192.53	-38.47	205.02	196.09	8.94	22.941	
1,400.00	1,399.26	1,368.13	1,354.00	4.74	5.15	106.20	211.58	-43.97	226.71	217.08	9.64	23.530	
1,500.00	1,499.07	1,465.72	1,449.55	5.10	5.58	106.72	230.62	-49.47	248.42	238.08	10.34	24.026	
1,600.00	1,598.88	1,563.31	1,545.11	5.45	6.02	107.16	249.67	-54.97	270.15	259.10	11.05	24.449	
1,700.00	1,698.68	1,660.90	1,640.67	5.81	6.46	107.54	268.72	-60.47	291.89	280.13	11.76	24.812	
1,800.00	1,798.49	1,758.50	1,736.23	6.17	6.90	107.86	287.77	-65.97	313.64	301.16	12.48	25.128	
1,900.00	1,898.30	1,856.09	1,831.78	6.53	7.34	108.14	306.81	-71.47	335.40	322.20	13.20	25.404	
2,000.00	1,998.10	1,953.68	1,927.34	6.90	7.78	108.38	325.86	-76.96	357.16	343.24	13.93	25.647	
2,100.00	2,097.91	2,051.27	2,022.90	7.26	8.22	108.60	344.91	-82.46	378.94	364.28	14.65	25.863	
2,200.00	2,197.71	2,148.86	2,118.45	7.63	8.66	108.80	363.96	-87.96	400.71	385.33	15.38	26.056	
2,300.00	2,297.52	2,246.46	2,214.01	7.99	9.11	108.97	383.00	-93.46	422.49	406.38	16.11	26.229	
2,400.00	2,397.33	2,344.05	2,309.57	8.36	9.55	109.13	402.05	-98.96	444.27	427.44	16.84	26.385	
2,500.00	2,497.13	2,441.64	2,405.12	8.72	9.99	109.27	421.10	-104.46	466.06	448.49	17.57	26.526	
2,600.00	2,596.94	2,539.23	2,500.68	9.09	10.44	109.40	440.15	-109.96	487.85	469.54	18.30	26.655	
2,700.00	2,696.75	2,636.82	2,596.24	9.45	10.88	109.52	459.19	-115.46	509.64	490.60	19.04	26.772	
2,800.00	2,796.55	2,734.41	2,691.79	9.82	11.33	109.63	478.24	-120.96	531.43	511.66	19.77	26.880	
2,900.00	2,896.36	2,832.01	2,787.35	10.19	11.77	109.73	497.29	-126.46	553.22	532.72	20.51	26.979	
3,000.00	2,996.17	2,929.60	2,882.91	10.56	12.22	109.82	516.34	-131.95	575.02	553.78	21.24	27.071	
3,100.00	3,095.97	3,027.19	2,978.46	10.92	12.66	109.91	535.39	-137.45	596.82	574.84	21.98	27.155	
3,200.00	3,195.78	3,124.78	3,074.02	11.29	13.11	109.98	554.43	-142.95	618.61	595.90	22.71	27.234	
3,300.00	3,295.59	3,222.37	3,169.58	11.66	13.55	110.06	573.48	-148.45	640.41	616.96	23.45	27.307	
3,400.00	3,395.39	3,319.97	3,265.14	12.03	14.00	110.13	592.53	-153.95	662.21	638.02	24.19	27.375	
3,500.00	3,495.20	3,417.56	3,360.69	12.40	14.45	110.19	611.58	-159.45	684.01	659.09	24.93	27.439	
3,600.00	3,595.01	3,515.15	3,456.25	12.77	14.89	110.26	630.62	-164.95	705.82	680.15	25.67	27.499	
3,700.00	3,694.81	3,612.74	3,551.81	13.14	15.34	110.31	649.67	-170.45	727.62	701.21	26.41	27.555	
3,800.00	3,794.62	3,710.33	3,647.36	13.50	15.78	110.37	668.72	-175.95	749.42	722.28	27.15	27.607	
3,900.00	3,894.43	3,807.92	3,742.92	13.87	16.23	110.42	687.77	-181.44	771.22	743.34	27.89	27.657	
4,000.00	3,994.23	3,905.52	3,838.48	14.24	16.68	110.47	706.81	-186.94	793.03	764.40	28.63	27.704	
4,100.00	4,094.04	4,003.11	3,934.03	14.61	17.12	110.51	725.86	-192.44	814.83	785.47	29.37	27.748	
4,200.00	4,193.85	4,100.70	4,029.59	14.98	17.57	110.55	744.91	-197.94	836.64	806.53	30.11	27.790	
4,300.00	4,293.65	4,198.29	4,125.15	15.35	18.02	110.60	763.96	-203.44	858.44	827.60	30.85	27.829	
4,400.00	4,393.46	4,295.88	4,220.70	15.72	18.46	110.63	783.00	-208.94	880.25	848.66	31.59	27.867	
4,500.00	4,493.27	4,393.48	4,316.26	16.09	18.91	110.67	802.05	-214.44	902.06	869.73	32.33	27.903	
4,600.00	4,593.07	4,491.07	4,411.82	16.46	19.36	110.71	821.10	-219.94	923.86	890.79	33.07	27.937	
4,700.00	4,692.88	4,588.66	4,507.37	16.83	19.80	110.74	840.15	-225.44	945.67	911.86	33.81	27.969	
4,800.00	4,792.68	4,686.25	4,602.93	17.20	20.25	110.77	859.20	-230.93	967.48	932.92	34.55	28.000	
4,900.00	4,892.49	4,783.84	4,698.49	17.57	20.70	110.80	878.24	-236.43	989.29	953.99	35.29	28.029	
5,000.00	4,992.30	4,881.43	4,794.04	17.94	21.15	110.83	897.29	-241.93	1,011.09	975.06	36.04	28.057	

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

Cathedral Energy Services

Anticollision Report

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well SAM 3H-25H-M166
Project:	DJ BASIN	TVD Reference:	23' KB @ 5109.00usft
Reference Site:	S25-T1N-R66W (SAM)	MD Reference:	23' KB @ 5109.00usft
Site Error:	0.00usft	North Reference:	Grid
Reference Well:	SAM 3H-25H-M166	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	PLAN #1	Offset TVD Reference:	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		
5,100.00	5,092.10	4,979.03	4,889.60	18.31	21.59	110.86	916.34	-247.43	1,032.90	996.12	36.78	28.084		
5,200.00	5,191.91	5,076.62	4,985.16	18.68	22.04	110.89	935.39	-252.93	1,054.71	1,017.19	37.52	28.110		
5,300.00	5,291.72	5,174.21	5,080.72	19.05	22.49	110.91	954.43	-258.43	1,076.52	1,038.26	38.26	28.135		
5,400.00	5,391.52	5,271.80	5,176.27	19.42	22.93	110.94	973.48	-263.93	1,098.33	1,059.32	39.01	28.158		
5,500.00	5,491.33	5,369.39	5,271.83	19.79	23.38	110.96	992.53	-269.43	1,120.14	1,080.39	39.75	28.181		
5,600.00	5,591.14	5,466.99	5,367.39	20.16	23.83	110.99	1,011.58	-274.93	1,141.94	1,101.45	40.49	28.203		
5,700.00	5,690.94	5,594.11	5,492.05	20.53	24.40	111.03	1,035.45	-281.82	1,163.17	1,121.72	41.45	28.060		
5,800.00	5,790.75	5,756.89	5,652.99	20.90	25.07	111.18	1,058.80	-288.56	1,179.81	1,137.24	42.57	27.714		
5,831.20	5,821.89	5,808.22	5,703.99	21.01	25.27	111.25	1,064.33	-290.16	1,183.89	1,141.00	42.89	27.601		
5,900.00	5,890.60	5,922.18	5,817.54	21.27	25.67	111.51	1,073.47	-292.80	1,190.69	1,147.14	43.55	27.342		
6,009.43	6,000.00	6,104.76	6,000.00	21.65	26.24	-0.50	1,079.06	-294.41	1,194.82	1,150.40	44.42	26.898		
6,100.00	6,090.57	6,195.33	6,090.57	21.95	26.50	-0.50	1,079.06	-294.41	1,194.82	1,149.80	45.02	26.539		
6,200.00	6,190.57	6,295.33	6,190.57	22.28	26.79	-0.50	1,079.06	-294.41	1,194.82	1,149.13	45.69	26.153		
6,300.00	6,290.57	6,395.33	6,290.57	22.62	27.08	-0.50	1,079.06	-294.41	1,194.82	1,148.47	46.35	25.777		
6,400.00	6,390.57	6,495.33	6,390.57	22.95	27.37	-0.50	1,079.06	-294.41	1,194.82	1,147.80	47.02	25.410		
6,500.00	6,490.57	6,595.33	6,490.57	23.29	27.66	-0.50	1,079.06	-294.41	1,194.82	1,147.13	47.69	25.053		
6,600.00	6,590.57	6,695.33	6,590.57	23.62	27.96	-0.50	1,079.06	-294.41	1,194.82	1,146.46	48.36	24.706		
6,700.00	6,690.57	6,795.33	6,690.57	23.96	28.25	-0.50	1,079.06	-294.41	1,194.82	1,145.78	49.03	24.367		
6,800.00	6,790.57	6,895.33	6,790.57	24.30	28.55	-0.50	1,079.06	-294.41	1,194.82	1,145.11	49.71	24.037		
6,873.23	6,863.80	6,968.56	6,863.80	24.55	28.77	-0.50	1,079.06	-294.41	1,194.82	1,144.62	50.20	23.800		
6,900.00	6,890.57	6,995.27	6,890.51	24.63	28.84	-89.92	1,079.07	-293.91	1,194.82	1,144.44	50.38	23.718		
6,950.00	6,940.43	7,045.16	6,940.25	24.79	28.98	-89.92	1,079.10	-290.32	1,194.82	1,144.13	50.69	23.572		
7,000.00	6,989.91	7,095.04	6,989.63	24.94	29.12	-89.92	1,079.18	-283.27	1,194.82	1,143.83	50.99	23.433		
7,050.00	7,038.79	7,144.93	7,038.39	25.09	29.24	-89.92	1,079.28	-272.80	1,194.82	1,143.54	51.28	23.299		
7,100.00	7,086.80	7,194.82	7,086.32	25.24	29.36	-89.92	1,079.42	-258.97	1,194.82	1,143.25	51.57	23.170		
7,150.00	7,133.74	7,244.71	7,133.16	25.38	29.48	-89.93	1,079.60	-241.83	1,194.82	1,142.97	51.85	23.044		
7,200.00	7,179.35	7,294.61	7,178.70	25.52	29.58	-89.93	1,079.80	-221.47	1,194.82	1,142.68	52.13	22.918		
7,250.00	7,223.43	7,344.50	7,222.72	25.66	29.68	-89.93	1,080.04	-197.99	1,194.82	1,142.39	52.43	22.791		
7,300.00	7,265.76	7,394.41	7,265.00	25.81	29.77	-89.93	1,080.31	-171.50	1,194.82	1,142.08	52.73	22.657		
7,350.00	7,306.13	7,444.31	7,305.33	25.97	29.85	-89.94	1,080.61	-142.13	1,194.82	1,141.75	53.07	22.513		
7,400.00	7,344.35	7,494.23	7,343.53	26.14	29.93	-89.94	1,080.94	-110.01	1,194.82	1,141.37	53.45	22.354		
7,450.00	7,380.22	7,544.14	7,379.40	26.35	29.99	-89.94	1,081.29	-75.32	1,194.82	1,140.93	53.89	22.173		
7,500.00	7,413.58	7,594.07	7,412.77	26.60	30.05	-89.95	1,081.67	-38.20	1,194.82	1,140.42	54.39	21.966		
7,550.00	7,444.26	7,643.99	7,443.47	26.89	30.11	-89.95	1,082.07	1.15	1,194.82	1,139.83	54.99	21.727		
7,600.00	7,472.11	7,693.93	7,471.37	27.24	30.15	-89.96	1,082.49	42.56	1,194.82	1,139.12	55.69	21.454		
7,650.00	7,497.00	7,743.87	7,496.31	27.65	30.20	-89.96	1,082.93	85.81	1,194.82	1,138.30	56.51	21.142		
7,700.00	7,518.80	7,793.82	7,518.19	28.13	30.24	-89.97	1,083.38	130.70	1,194.82	1,137.35	57.46	20.792		
7,750.00	7,537.41	7,843.78	7,536.88	28.68	30.33	-89.97	1,083.85	177.02	1,194.82	1,136.27	58.55	20.406		
7,800.00	7,552.74	7,893.74	7,552.31	29.30	30.60	-89.98	1,084.34	224.53	1,194.82	1,135.04	59.78	19.988		
7,850.00	7,564.72	7,943.72	7,564.38	29.99	31.18	-89.98	1,084.83	273.01	1,194.82	1,133.68	61.14	19.543		
7,900.00	7,573.27	7,993.70	7,573.05	30.74	31.89	-89.99	1,085.33	322.22	1,194.82	1,132.19	62.63	19.079		
7,950.00	7,578.38	8,043.68	7,578.26	31.55	32.68	-89.99	1,085.83	371.92	1,194.82	1,130.59	64.23	18.602		
7,998.23	7,580.00	8,091.91	7,580.00	32.38	33.48	-90.00	1,086.32	420.10	1,194.82	1,128.95	65.87	18.140		
8,000.00	7,580.00	8,093.68	7,580.00	32.42	33.51	-90.00	1,086.34	421.87	1,194.82	1,128.89	65.93	18.123		
8,100.00	7,580.00	8,193.68	7,580.00	34.29	35.35	-90.00	1,087.36	521.87	1,194.82	1,125.18	69.64	17.158		
8,200.00	7,580.00	8,293.68	7,580.00	36.35	37.38	-90.00	1,088.37	621.86	1,194.82	1,121.11	73.71	16.210		
8,300.00	7,580.00	8,393.68	7,580.00	38.57	39.55	-90.00	1,089.39	721.86	1,194.82	1,116.72	78.10	15.299		
8,400.00	7,580.00	8,493.68	7,580.00	40.92	41.86	-90.00	1,090.41	821.85	1,194.82	1,112.06	82.75	14.439		
8,500.00	7,580.00	8,593.68	7,580.00	43.38	44.28	-90.00	1,091.42	921.84	1,194.82	1,107.19	87.63	13.635		
8,600.00	7,580.00	8,693.68	7,580.00	45.93	46.80	-90.00	1,092.44	1,021.84	1,194.82	1,102.12	92.69	12.890		
8,700.00	7,580.00	8,793.68	7,580.00	48.56	49.39	-90.00	1,093.46	1,121.83	1,194.82	1,096.90	97.91	12.203		
8,800.00	7,580.00	8,893.68	7,580.00	51.26	52.05	-90.00	1,094.47	1,221.83	1,194.81	1,091.55	103.27	11.570		

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

Cathedral Energy Services

Anticollision Report

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well SAM 3H-25H-M166
Project:	DJ BASIN	TVD Reference:	23' KB @ 5109.00usft
Reference Site:	S25-T1N-R66W (SAM)	MD Reference:	23' KB @ 5109.00usft
Site Error:	0.00usft	North Reference:	Grid
Reference Well:	SAM 3H-25H-M166	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	PLAN #1	Offset TVD Reference:	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		
8,900.00	7,580.00	8,993.68	7,580.00	54.01	54.77	-90.00	1,095.49	1,321.82	1,194.81	1,086.08	108.74	10.988		
9,000.00	7,580.00	9,093.68	7,580.00	56.81	57.54	-90.00	1,096.50	1,421.82	1,194.81	1,080.51	114.31	10.453		
9,100.00	7,580.00	9,193.68	7,580.00	59.65	60.36	-90.00	1,097.52	1,521.81	1,194.81	1,074.86	119.96	9.960		
9,200.00	7,580.00	9,293.68	7,580.00	62.52	63.21	-90.00	1,098.54	1,621.81	1,194.81	1,069.13	125.68	9.507		
9,300.00	7,580.00	9,393.68	7,580.00	65.43	66.09	-90.00	1,099.55	1,721.80	1,194.81	1,063.34	131.47	9.088		
9,400.00	7,580.00	9,493.68	7,580.00	68.36	69.00	-90.00	1,100.57	1,821.80	1,194.81	1,057.50	137.32	8.701		
9,500.00	7,580.00	9,593.68	7,580.00	71.32	71.94	-90.00	1,101.58	1,921.79	1,194.81	1,051.60	143.21	8.343		
9,600.00	7,580.00	9,693.68	7,580.00	74.29	74.89	-90.00	1,102.60	2,021.79	1,194.81	1,045.67	149.15	8.011		
9,700.00	7,580.00	9,793.68	7,580.00	77.29	77.87	-90.00	1,103.62	2,121.78	1,194.81	1,039.69	155.12	7.703		
9,800.00	7,580.00	9,893.68	7,580.00	80.30	80.87	-90.00	1,104.63	2,221.78	1,194.81	1,033.69	161.13	7.415		
9,900.00	7,580.00	9,993.68	7,580.00	83.33	83.88	-90.00	1,105.65	2,321.77	1,194.81	1,027.65	167.16	7.148		
10,000.00	7,580.00	10,093.68	7,580.00	86.37	86.90	-90.00	1,106.67	2,421.77	1,194.81	1,021.58	173.23	6.897		
10,100.00	7,580.00	10,193.68	7,580.00	89.42	89.94	-90.00	1,107.68	2,521.76	1,194.81	1,015.49	179.32	6.663		
10,200.00	7,580.00	10,293.68	7,580.00	92.48	92.99	-90.00	1,108.70	2,621.76	1,194.81	1,009.38	185.43	6.444		
10,300.00	7,580.00	10,393.68	7,580.00	95.55	96.05	-90.00	1,109.71	2,721.75	1,194.81	1,003.25	191.56	6.237		
10,400.00	7,580.00	10,493.68	7,580.00	98.63	99.12	-90.00	1,110.73	2,821.75	1,194.81	997.10	197.71	6.043		
10,500.00	7,580.00	10,593.68	7,580.00	101.72	102.19	-90.00	1,111.75	2,921.74	1,194.81	990.94	203.87	5.861		
10,600.00	7,580.00	10,693.68	7,580.00	104.81	105.28	-90.00	1,112.76	3,021.74	1,194.81	984.76	210.05	5.688		
10,700.00	7,580.00	10,793.68	7,580.00	107.91	108.37	-90.00	1,113.78	3,121.73	1,194.81	978.57	216.25	5.525		
10,800.00	7,580.00	10,893.68	7,580.00	111.02	111.47	-90.00	1,114.80	3,221.73	1,194.81	972.36	222.45	5.371		
10,900.00	7,580.00	10,993.68	7,580.00	114.13	114.57	-90.00	1,115.81	3,321.72	1,194.81	966.14	228.67	5.225		
11,000.00	7,580.00	11,093.68	7,580.00	117.25	117.68	-90.00	1,116.83	3,421.72	1,194.81	959.92	234.90	5.087		
11,100.00	7,580.00	11,193.68	7,580.00	120.37	120.79	-90.00	1,117.84	3,521.71	1,194.81	953.68	241.13	4.955		
11,200.00	7,580.00	11,293.68	7,580.00	123.50	123.91	-90.00	1,118.86	3,621.71	1,194.81	947.43	247.38	4.830		
11,300.00	7,580.00	11,393.68	7,580.00	126.63	127.03	-90.00	1,119.88	3,721.70	1,194.81	941.18	253.63	4.711		
11,400.00	7,580.00	11,493.68	7,580.00	129.77	130.16	-90.00	1,120.89	3,821.70	1,194.81	934.91	259.90	4.597		
11,500.00	7,580.00	11,593.68	7,580.00	132.90	133.29	-90.00	1,121.91	3,921.69	1,194.81	928.64	266.16	4.489		
11,600.00	7,580.00	11,693.68	7,580.00	136.04	136.43	-90.00	1,122.92	4,021.68	1,194.81	922.37	272.44	4.386		
11,700.00	7,580.00	11,793.68	7,580.00	139.19	139.57	-90.00	1,123.94	4,121.68	1,194.81	916.09	278.72	4.287		
11,800.00	7,580.00	11,893.68	7,580.00	142.33	142.71	-90.00	1,124.96	4,221.67	1,194.81	909.80	285.01	4.192		
11,900.00	7,580.00	11,993.68	7,580.00	145.48	145.85	-90.00	1,125.97	4,321.67	1,194.81	903.50	291.30	4.102		
12,000.00	7,580.00	12,093.68	7,580.00	148.64	149.00	-90.00	1,126.99	4,421.66	1,194.81	897.21	297.60	4.015		
12,070.04	7,580.00	12,163.72	7,580.00	150.84	151.20	-90.00	1,127.70	4,491.70	1,194.81	892.79	302.02	3.956 SF		

Cathedral Energy Services

Anticollision Report

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well SAM 3H-25H-M166
Project:	DJ BASIN	TVD Reference:	23' KB @ 5109.00usft
Reference Site:	S25-T1N-R66W (SAM)	MD Reference:	23' KB @ 5109.00usft
Site Error:	0.00usft	North Reference:	Grid
Reference Well:	SAM 3H-25H-M166	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	PLAN #1	Offset TVD Reference:	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					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	-0.18	50.27	-0.15	50.27					
100.00	100.00	100.00	100.00	0.14	0.14	-0.18	50.27	-0.15	50.27	49.99	0.28	182.109		
200.00	200.00	200.00	200.00	0.50	0.50	-0.18	50.27	-0.15	50.27	49.27	0.99	50.623		
300.00	300.00	300.00	300.00	0.85	0.85	-0.18	50.27	-0.15	50.27	48.56	1.71	29.397		
400.00	400.00	400.00	400.00	1.21	1.21	-0.18	50.27	-0.15	50.27	47.84	2.43	20.713 CC, ES		
500.00	500.00	498.32	498.30	1.57	1.57	-0.74	51.87	-0.67	51.91	48.75	3.16	16.441		
600.00	600.00	596.40	596.25	1.93	1.92	-2.23	56.68	-2.20	56.84	52.94	3.91	14.548		
700.00	700.00	694.03	693.51	2.29	2.28	-4.20	64.63	-4.74	65.12	60.46	4.66	13.968		
800.00	800.00	790.97	789.76	2.65	2.63	-6.23	75.64	-8.26	76.78	71.36	5.41	14.180		
900.00	900.00	887.03	884.68	3.01	3.00	-8.08	89.61	-12.72	91.79	85.63	6.16	14.907		
1,000.00	999.98	983.55	979.59	3.35	3.39	103.05	106.37	-18.08	110.19	103.34	6.86	16.072		
1,078.23	1,078.11	1,060.24	1,054.92	3.62	3.70	103.42	120.05	-22.45	125.53	118.15	7.38	17.009		
1,100.00	1,099.84	1,081.57	1,075.87	3.69	3.79	103.71	123.86	-23.67	129.87	122.34	7.53	17.251		
1,200.00	1,199.65	1,179.52	1,172.09	4.04	4.20	104.83	141.33	-29.25	149.84	141.63	8.21	18.249		
1,300.00	1,299.46	1,277.47	1,268.31	4.39	4.61	105.68	158.81	-34.84	169.85	160.94	8.90	19.079		
1,400.00	1,399.26	1,375.42	1,364.52	4.74	5.03	106.35	176.28	-40.42	189.89	180.28	9.60	19.776		
1,500.00	1,499.07	1,473.37	1,460.74	5.10	5.45	106.90	193.76	-46.00	209.94	199.64	10.31	20.368		
1,600.00	1,598.88	1,571.32	1,556.96	5.45	5.87	107.35	211.23	-51.59	230.02	219.00	11.02	20.876		
1,700.00	1,698.68	1,669.27	1,653.17	5.81	6.29	107.73	228.71	-57.17	250.10	238.37	11.73	21.316		
1,800.00	1,798.49	1,767.22	1,749.39	6.17	6.72	108.05	246.18	-62.75	270.20	257.75	12.45	21.701		
1,900.00	1,898.30	1,865.17	1,845.60	6.53	7.15	108.32	263.66	-68.34	290.30	277.13	13.17	22.039		
2,000.00	1,998.10	1,963.12	1,941.82	6.90	7.57	108.56	281.13	-73.92	310.40	296.51	13.90	22.338		
2,100.00	2,097.91	2,061.07	2,038.04	7.26	8.00	108.78	298.61	-79.50	330.52	315.89	14.62	22.605		
2,200.00	2,197.71	2,159.02	2,134.25	7.63	8.43	108.96	316.08	-85.09	350.63	335.28	15.35	22.845		
2,300.00	2,297.52	2,256.97	2,230.47	7.99	8.86	109.13	333.56	-90.67	370.75	354.67	16.08	23.061		
2,400.00	2,397.33	2,354.92	2,326.69	8.36	9.29	109.28	351.03	-96.25	390.87	374.06	16.81	23.256		
2,500.00	2,497.13	2,452.87	2,422.90	8.72	9.72	109.42	368.51	-101.84	410.99	393.46	17.54	23.434		
2,600.00	2,596.94	2,550.82	2,519.12	9.09	10.16	109.54	385.98	-107.42	431.12	412.85	18.27	23.597		
2,700.00	2,696.75	2,648.77	2,615.34	9.45	10.59	109.65	403.46	-113.01	451.25	432.24	19.00	23.746		
2,800.00	2,796.55	2,746.72	2,711.55	9.82	11.02	109.75	420.93	-118.59	471.37	451.64	19.74	23.883		
2,900.00	2,896.36	2,844.67	2,807.77	10.19	11.45	109.85	438.41	-124.17	491.50	471.03	20.47	24.009		
3,000.00	2,996.17	2,942.62	2,903.99	10.56	11.89	109.93	455.88	-129.76	511.64	490.43	21.21	24.126		
3,100.00	3,095.97	3,040.57	3,000.20	10.92	12.32	110.01	473.36	-135.34	531.77	509.83	21.94	24.235		
3,200.00	3,195.78	3,138.52	3,096.42	11.29	12.75	110.09	490.83	-140.92	551.90	529.22	22.68	24.336		
3,300.00	3,295.59	3,236.47	3,192.64	11.66	13.18	110.15	508.31	-146.51	572.03	548.62	23.42	24.430		
3,400.00	3,395.39	3,334.42	3,288.85	12.03	13.62	110.22	525.78	-152.09	592.17	568.02	24.15	24.518		
3,500.00	3,495.20	3,432.37	3,385.07	12.40	14.05	110.28	543.26	-157.67	612.30	587.41	24.89	24.600		
3,600.00	3,595.01	3,530.32	3,481.29	12.77	14.49	110.33	560.73	-163.26	632.44	606.81	25.63	24.678		
3,700.00	3,694.81	3,628.27	3,577.50	13.14	14.92	110.39	578.21	-168.84	652.58	626.21	26.37	24.751		
3,800.00	3,794.62	3,726.22	3,673.72	13.50	15.35	110.44	595.68	-174.42	672.71	645.61	27.10	24.819		
3,900.00	3,894.43	3,824.17	3,769.94	13.87	15.79	110.48	613.16	-180.01	692.85	665.01	27.84	24.884		
4,000.00	3,994.23	3,922.12	3,866.15	14.24	16.22	110.53	630.63	-185.59	712.99	684.41	28.58	24.945		
4,100.00	4,094.04	4,020.07	3,962.37	14.61	16.66	110.57	648.11	-191.18	733.13	703.81	29.32	25.003		
4,200.00	4,193.85	4,118.02	4,058.59	14.98	17.09	110.61	665.58	-196.76	753.27	723.20	30.06	25.058		
4,300.00	4,293.65	4,215.97	4,154.80	15.35	17.52	110.64	683.06	-202.34	773.40	742.60	30.80	25.110		
4,400.00	4,393.46	4,313.92	4,251.02	15.72	17.96	110.68	700.53	-207.93	793.54	762.00	31.54	25.159		
4,500.00	4,493.27	4,411.87	4,347.24	16.09	18.39	110.71	718.01	-213.51	813.68	781.40	32.28	25.206		
4,600.00	4,593.07	4,509.82	4,443.45	16.46	18.83	110.75	735.48	-219.09	833.82	800.80	33.02	25.251		
4,700.00	4,692.88	4,607.77	4,539.67	16.83	19.26	110.78	752.96	-224.68	853.96	820.20	33.76	25.294		
4,800.00	4,792.68	4,705.72	4,635.89	17.20	19.70	110.81	770.43	-230.26	874.10	839.60	34.50	25.335		
4,900.00	4,892.49	4,803.67	4,732.10	17.57	20.13	110.83	787.91	-235.84	894.24	859.00	35.24	25.374		
5,000.00	4,992.30	4,901.62	4,828.32	17.94	20.57	110.86	805.38	-241.43	914.38	878.40	35.98	25.411		

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

Cathedral Energy Services

Anticollision Report

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well SAM 3H-25H-M166
Project:	DJ BASIN	TVD Reference:	23' KB @ 5109.00usft
Reference Site:	S25-T1N-R66W (SAM)	MD Reference:	23' KB @ 5109.00usft
Site Error:	0.00usft	North Reference:	Grid
Reference Well:	SAM 3H-25H-M166	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	PLAN #1	Offset TVD Reference:	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		
5,100.00	5,092.10	4,999.57	4,924.54	18.31	21.00	110.89	822.86	-247.01	934.52	897.80	36.72	25.447		
5,200.00	5,191.91	5,097.52	5,020.75	18.68	21.44	110.91	840.33	-252.59	954.66	917.20	37.47	25.481		
5,300.00	5,291.72	5,195.47	5,116.97	19.05	21.87	110.93	857.81	-258.18	974.81	936.60	38.21	25.514		
5,400.00	5,391.52	5,293.42	5,213.19	19.42	22.30	110.96	875.28	-263.76	994.95	956.00	38.95	25.546		
5,500.00	5,491.33	5,391.37	5,309.40	19.79	22.74	110.98	892.76	-269.35	1,015.09	975.40	39.69	25.576		
5,600.00	5,591.14	5,489.32	5,405.62	20.16	23.17	111.00	910.23	-274.93	1,035.23	994.80	40.43	25.605		
5,700.00	5,690.94	5,608.53	5,522.84	20.53	23.70	111.03	930.91	-281.53	1,054.98	1,013.64	41.33	25.524		
5,800.00	5,790.75	5,761.61	5,674.39	20.90	24.32	111.18	951.34	-288.06	1,070.63	1,028.23	42.40	25.249		
5,831.20	5,821.89	5,809.82	5,722.33	21.01	24.50	111.25	956.18	-289.61	1,074.47	1,031.76	42.71	25.156		
5,900.00	5,890.60	5,916.75	5,828.92	21.27	24.88	111.50	964.16	-292.16	1,080.89	1,037.54	43.35	24.933		
6,009.43	6,000.00	6,087.93	6,000.00	21.65	25.43	-0.52	969.03	-293.71	1,084.78	1,040.57	44.21	24.534		
6,100.00	6,090.57	6,178.50	6,090.57	21.95	25.70	-0.52	969.03	-293.71	1,084.78	1,039.96	44.82	24.203		
6,200.00	6,190.57	6,278.50	6,190.57	22.28	25.99	-0.52	969.03	-293.71	1,084.78	1,039.29	45.49	23.847		
6,300.00	6,290.57	6,378.50	6,290.57	22.62	26.29	-0.52	969.03	-293.71	1,084.78	1,038.62	46.16	23.501		
6,400.00	6,390.57	6,478.50	6,390.57	22.95	26.59	-0.52	969.03	-293.71	1,084.78	1,037.95	46.83	23.164		
6,500.00	6,490.57	6,578.50	6,490.57	23.29	26.89	-0.52	969.03	-293.71	1,084.78	1,037.28	47.50	22.836		
6,600.00	6,590.57	6,678.50	6,590.57	23.62	27.20	-0.52	969.03	-293.71	1,084.78	1,036.60	48.18	22.516		
6,601.06	6,591.64	6,679.56	6,591.64	23.63	27.20	-0.52	969.03	-293.71	1,084.78	1,036.60	48.18	22.513		
6,700.00	6,690.57	6,778.19	6,690.17	23.96	27.49	-0.35	969.06	-290.63	1,084.79	1,035.95	48.84	22.210		
6,800.00	6,790.57	6,875.29	6,785.95	24.30	27.75	0.46	969.22	-275.12	1,084.97	1,035.47	49.50	21.918		
6,873.23	6,863.80	6,942.91	6,850.99	24.55	27.92	1.44	969.41	-256.73	1,085.53	1,035.54	49.99	21.716		
6,900.00	6,890.57	6,966.83	6,873.54	24.63	27.97	-87.56	969.49	-248.76	1,085.88	1,035.72	50.16	21.648		
6,950.00	6,940.43	7,010.89	6,914.34	24.79	28.07	-86.77	969.66	-232.14	1,086.68	1,036.21	50.48	21.529		
7,000.00	6,989.91	7,054.22	6,953.39	24.94	28.16	-86.01	969.85	-213.38	1,087.68	1,036.90	50.78	21.419		
7,050.00	7,038.79	7,096.88	6,990.65	25.09	28.24	-85.26	970.06	-192.63	1,088.84	1,037.77	51.08	21.318		
7,100.00	7,086.80	7,138.92	7,026.11	25.24	28.32	-84.54	970.29	-170.05	1,090.15	1,038.78	51.37	21.223		
7,150.00	7,133.74	7,180.41	7,059.74	25.38	28.39	-83.84	970.54	-145.77	1,091.58	1,039.92	51.65	21.133		
7,200.00	7,179.35	7,221.38	7,091.51	25.52	28.45	-83.16	970.81	-119.91	1,093.09	1,041.15	51.94	21.045		
7,250.00	7,223.43	7,261.88	7,121.42	25.66	28.51	-82.52	971.09	-92.61	1,094.68	1,042.44	52.24	20.956		
7,300.00	7,265.76	7,300.00	7,148.12	25.81	28.56	-81.93	971.37	-65.41	1,096.31	1,043.77	52.53	20.869		
7,350.00	7,306.13	7,341.65	7,175.59	25.97	28.61	-81.33	971.69	-34.11	1,097.94	1,045.06	52.89	20.760		
7,400.00	7,344.35	7,381.00	7,199.83	26.14	28.66	-80.78	972.00	-3.13	1,099.58	1,046.31	53.27	20.643		
7,450.00	7,380.22	7,420.03	7,222.16	26.35	28.70	-80.27	972.33	28.88	1,101.17	1,047.48	53.69	20.508		
7,500.00	7,413.58	7,458.78	7,242.57	26.60	28.74	-79.80	972.67	61.82	1,102.71	1,048.53	54.18	20.352		
7,550.00	7,444.26	7,500.00	7,262.29	26.89	28.80	-79.36	973.04	98.00	1,104.18	1,049.40	54.77	20.159		
7,600.00	7,472.11	7,535.57	7,277.61	27.24	28.88	-78.99	973.37	130.10	1,105.53	1,050.13	55.40	19.956		
7,650.00	7,497.00	7,573.66	7,292.23	27.65	29.04	-78.65	973.73	165.26	1,106.78	1,050.63	56.15	19.711		
7,700.00	7,518.80	7,611.58	7,304.90	28.13	29.35	-78.35	974.09	201.00	1,107.89	1,050.88	57.00	19.436		
7,750.00	7,537.41	7,650.00	7,315.80	28.68	29.79	-78.09	974.47	237.83	1,108.85	1,050.88	57.97	19.128		
7,800.00	7,552.74	7,687.04	7,324.41	29.30	30.29	-77.89	974.84	273.86	1,109.65	1,050.61	59.04	18.794		
7,850.00	7,564.72	7,724.63	7,331.24	29.99	30.84	-77.72	975.22	310.81	1,110.28	1,050.05	60.23	18.434		
7,900.00	7,573.27	7,762.14	7,336.12	30.74	31.43	-77.61	975.60	348.00	1,110.73	1,049.21	61.52	18.055		
7,950.00	7,578.38	7,800.00	7,339.06	31.55	32.05	-77.54	975.99	385.73	1,110.99	1,048.08	62.91	17.660		
7,998.23	7,580.00	7,836.73	7,340.00	32.38	32.69	-77.53	976.36	422.45	1,111.07	1,046.73	64.34	17.268		
7,999.46	7,580.00	7,836.73	7,340.00	32.41	32.69	-77.53	976.36	422.45	1,111.07	1,046.71	64.36	17.263		
8,000.00	7,580.00	7,837.18	7,340.00	32.42	32.70	-77.53	976.37	422.90	1,111.07	1,046.69	64.38	17.258		
8,100.00	7,580.00	7,937.18	7,340.00	34.29	34.59	-77.53	977.39	522.89	1,111.08	1,043.02	68.06	16.325		
8,200.00	7,580.00	8,037.18	7,340.00	36.35	36.65	-77.53	978.42	622.89	1,111.08	1,039.01	72.07	15.416		
8,300.00	7,580.00	8,137.18	7,340.00	38.57	38.87	-77.53	979.44	722.88	1,111.09	1,034.70	76.39	14.544		
8,400.00	7,580.00	8,237.18	7,340.00	40.92	41.21	-77.53	980.47	822.88	1,111.10	1,030.13	80.97	13.722		
8,500.00	7,580.00	8,337.18	7,340.00	43.38	43.67	-77.53	981.49	922.87	1,111.11	1,025.34	85.76	12.956		
8,600.00	7,580.00	8,437.18	7,340.00	45.93	46.21	-77.53	982.51	1,022.87	1,111.12	1,020.38	90.74	12.246		

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

Cathedral Energy Services

Anticollision Report

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well SAM 3H-25H-M166
Project:	DJ BASIN	TVD Reference:	23' KB @ 5109.00usft
Reference Site:	S25-T1N-R66W (SAM)	MD Reference:	23' KB @ 5109.00usft
Site Error:	0.00usft	North Reference:	Grid
Reference Well:	SAM 3H-25H-M166	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	PLAN #1	Offset TVD Reference:	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		
8,700.00	7,580.00	8,537.18	7,340.00	48.56	48.84	-77.53	983.54	1,122.86	1,111.12	1,015.26	95.86	11.591		
8,800.00	7,580.00	8,637.18	7,340.00	51.26	51.53	-77.53	984.56	1,222.86	1,111.13	1,010.02	101.12	10.989		
8,900.00	7,580.00	8,737.18	7,340.00	54.01	54.27	-77.53	985.59	1,322.85	1,111.14	1,004.66	106.48	10.435		
9,000.00	7,580.00	8,837.18	7,340.00	56.81	57.06	-77.53	986.61	1,422.85	1,111.15	999.21	111.94	9.926		
9,100.00	7,580.00	8,937.18	7,340.00	59.65	59.90	-77.53	987.64	1,522.84	1,111.15	993.67	117.48	9.458		
9,200.00	7,580.00	9,037.18	7,340.00	62.52	62.77	-77.53	988.66	1,622.84	1,111.16	988.07	123.09	9.027		
9,300.00	7,580.00	9,137.18	7,340.00	65.43	65.67	-77.53	989.69	1,722.83	1,111.17	982.41	128.76	8.629		
9,400.00	7,580.00	9,237.18	7,340.00	68.36	68.60	-77.53	990.71	1,822.83	1,111.18	976.69	134.49	8.262		
9,500.00	7,580.00	9,337.18	7,340.00	71.32	71.55	-77.53	991.73	1,922.82	1,111.19	970.92	140.26	7.922		
9,600.00	7,580.00	9,437.18	7,340.00	74.29	74.52	-77.53	992.76	2,022.81	1,111.19	965.12	146.08	7.607		
9,700.00	7,580.00	9,537.18	7,340.00	77.29	77.52	-77.53	993.78	2,122.81	1,111.20	959.28	151.93	7.314		
9,800.00	7,580.00	9,637.18	7,340.00	80.30	80.52	-77.53	994.81	2,222.80	1,111.21	953.40	157.81	7.041		
9,900.00	7,580.00	9,737.18	7,340.00	83.33	83.55	-77.53	995.83	2,322.80	1,111.22	947.50	163.72	6.787		
10,000.00	7,580.00	9,837.18	7,340.00	86.37	86.58	-77.53	996.86	2,422.79	1,111.23	941.57	169.66	6.550		
10,100.00	7,580.00	9,937.18	7,340.00	89.42	89.63	-77.53	997.88	2,522.79	1,111.23	935.61	175.62	6.328		
10,200.00	7,580.00	10,037.18	7,340.00	92.48	92.69	-77.53	998.91	2,622.78	1,111.24	929.64	181.60	6.119		
10,300.00	7,580.00	10,137.18	7,340.00	95.55	95.76	-77.53	999.93	2,722.78	1,111.25	923.65	187.60	5.923		
10,400.00	7,580.00	10,237.18	7,340.00	98.63	98.83	-77.53	1,000.95	2,822.77	1,111.26	917.64	193.62	5.739		
10,500.00	7,580.00	10,337.18	7,340.00	101.72	101.92	-77.53	1,001.98	2,922.77	1,111.27	911.61	199.65	5.566		
10,600.00	7,580.00	10,437.18	7,340.00	104.81	105.01	-77.53	1,003.00	3,022.76	1,111.27	905.57	205.70	5.402		
10,700.00	7,580.00	10,537.18	7,340.00	107.91	108.11	-77.53	1,004.03	3,122.76	1,111.28	899.52	211.76	5.248		
10,800.00	7,580.00	10,637.18	7,340.00	111.02	111.21	-77.53	1,005.05	3,222.75	1,111.29	893.45	217.84	5.101		
10,900.00	7,580.00	10,737.18	7,340.00	114.13	114.32	-77.53	1,006.08	3,322.75	1,111.30	887.38	223.92	4.963		
11,000.00	7,580.00	10,837.18	7,340.00	117.25	117.44	-77.53	1,007.10	3,422.74	1,111.30	881.29	230.02	4.831		
11,100.00	7,580.00	10,937.18	7,340.00	120.37	120.56	-77.53	1,008.13	3,522.74	1,111.31	875.19	236.12	4.707		
11,200.00	7,580.00	11,037.18	7,340.00	123.50	123.68	-77.53	1,009.15	3,622.73	1,111.32	869.09	242.23	4.588		
11,300.00	7,580.00	11,137.18	7,340.00	126.63	126.81	-77.53	1,010.17	3,722.73	1,111.33	862.98	248.35	4.475		
11,400.00	7,580.00	11,237.18	7,340.00	129.77	129.95	-77.53	1,011.20	3,822.72	1,111.34	856.86	254.48	4.367		
11,500.00	7,580.00	11,337.18	7,340.00	132.90	133.08	-77.53	1,012.22	3,922.71	1,111.34	850.73	260.61	4.264		
11,600.00	7,580.00	11,437.18	7,340.00	136.04	136.22	-77.53	1,013.25	4,022.71	1,111.35	844.60	266.75	4.166		
11,700.00	7,580.00	11,537.18	7,340.00	139.19	139.36	-77.53	1,014.27	4,122.70	1,111.36	838.46	272.90	4.072		
11,800.00	7,580.00	11,637.18	7,340.00	142.33	142.51	-77.53	1,015.30	4,222.70	1,111.37	832.31	279.05	3.983		
11,900.00	7,580.00	11,737.18	7,340.00	145.48	145.66	-77.53	1,016.32	4,322.69	1,111.38	826.16	285.21	3.897		
12,000.00	7,580.00	11,837.18	7,340.00	148.64	148.81	-77.53	1,017.35	4,422.69	1,111.38	820.01	291.38	3.814		
12,070.04	7,580.00	11,907.22	7,340.00	150.84	151.01	-77.53	1,018.06	4,492.72	1,111.39	815.70	295.69	3.759 SF		

Cathedral Energy Services

Anticollision Report

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well SAM 3H-25H-M166
Project:	DJ BASIN	TVD Reference:	23' KB @ 5109.00usft
Reference Site:	S25-T1N-R66W (SAM)	MD Reference:	23' KB @ 5109.00usft
Site Error:	0.00usft	North Reference:	Grid
Reference Well:	SAM 3H-25H-M166	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	PLAN #1	Offset TVD Reference:	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	-0.09	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	39.80	0.28	145.173		
200.00	200.00	200.00	200.00	0.50	0.50	-0.09	40.07	-0.07	40.07	39.08	0.99	40.355		
300.00	300.00	300.00	300.00	0.85	0.85	-0.09	40.07	-0.07	40.07	38.36	1.71	23.435		
400.00	400.00	400.00	400.00	1.21	1.21	-0.09	40.07	-0.07	40.07	37.64	2.43	16.512		
500.00	500.00	500.00	500.00	1.57	1.57	-0.09	40.07	-0.07	40.07	36.93	3.14	12.746	CC, ES	
600.00	600.00	598.68	598.66	1.93	1.93	-0.98	41.64	-0.71	41.67	37.80	3.87	10.769		
700.00	700.00	697.13	696.98	2.29	2.28	-3.27	46.34	-2.64	46.52	41.90	4.61	10.088		
800.00	800.00	795.12	794.60	2.65	2.64	-6.16	54.12	-5.84	54.70	49.34	5.36	10.211		
900.00	900.00	892.42	891.19	3.01	2.99	-9.00	64.89	-10.27	66.29	60.19	6.10	10.867		
1,000.00	999.98	990.43	988.14	3.35	3.36	101.72	78.22	-15.75	81.00	74.20	6.80	11.912		
1,078.23	1,078.11	1,067.69	1,064.53	3.62	3.66	102.27	88.90	-20.15	93.22	85.89	7.33	12.720		
1,100.00	1,099.84	1,089.17	1,085.77	3.69	3.75	102.63	91.87	-21.37	96.68	89.20	7.48	12.926		
1,200.00	1,199.65	1,187.86	1,183.35	4.04	4.13	103.99	105.52	-26.98	112.64	104.47	8.17	13.786		
1,300.00	1,299.46	1,286.55	1,280.93	4.39	4.52	105.02	119.16	-32.59	128.65	119.78	8.87	14.505		
1,400.00	1,399.26	1,385.23	1,378.50	4.74	4.92	105.82	132.81	-38.20	144.69	135.12	9.57	15.112		
1,500.00	1,499.07	1,483.92	1,476.08	5.10	5.32	106.46	146.46	-43.81	160.75	150.47	10.28	15.630		
1,600.00	1,598.88	1,582.61	1,573.66	5.45	5.71	106.98	160.10	-49.43	176.83	165.83	11.00	16.077		
1,700.00	1,698.68	1,681.30	1,671.24	5.81	6.11	107.42	173.75	-55.04	192.91	181.20	11.72	16.466		
1,800.00	1,798.49	1,779.98	1,768.82	6.17	6.51	107.78	187.40	-60.65	209.01	196.58	12.44	16.807		
1,900.00	1,898.30	1,878.67	1,866.40	6.53	6.92	108.10	201.04	-66.26	225.12	211.96	13.16	17.108		
2,000.00	1,998.10	1,977.36	1,963.97	6.90	7.32	108.37	214.69	-71.87	241.23	227.34	13.88	17.376		
2,100.00	2,097.91	2,076.05	2,061.55	7.26	7.72	108.61	228.34	-77.48	257.34	242.73	14.61	17.615		
2,200.00	2,197.71	2,174.73	2,159.13	7.63	8.13	108.83	241.98	-83.10	273.46	258.13	15.34	17.831		
2,300.00	2,297.52	2,273.42	2,256.71	7.99	8.53	109.01	255.63	-88.71	289.58	273.52	16.07	18.025		
2,400.00	2,397.33	2,372.11	2,354.29	8.36	8.94	109.18	269.27	-94.32	305.71	288.91	16.80	18.202		
2,500.00	2,497.13	2,470.80	2,451.87	8.72	9.34	109.33	282.92	-99.93	321.84	304.31	17.53	18.364		
2,600.00	2,596.94	2,569.48	2,549.44	9.09	9.75	109.47	296.57	-105.54	337.97	319.71	18.26	18.511		
2,700.00	2,696.75	2,668.17	2,647.02	9.45	10.15	109.59	310.21	-111.15	354.10	335.11	18.99	18.647		
2,800.00	2,796.55	2,766.86	2,744.60	9.82	10.56	109.71	323.86	-116.77	370.23	350.51	19.72	18.772		
2,900.00	2,896.36	2,865.55	2,842.18	10.19	10.97	109.81	337.51	-122.38	386.36	365.91	20.46	18.888		
3,000.00	2,996.17	2,964.24	2,939.76	10.56	11.37	109.91	351.15	-127.99	402.50	381.31	21.19	18.995		
3,100.00	3,095.97	3,062.92	3,037.34	10.92	11.78	110.00	364.80	-133.60	418.63	396.71	21.92	19.095		
3,200.00	3,195.78	3,161.61	3,134.91	11.29	12.19	110.08	378.45	-139.21	434.77	412.11	22.66	19.188		
3,300.00	3,295.59	3,260.30	3,232.49	11.66	12.59	110.15	392.09	-144.82	450.91	427.51	23.39	19.275		
3,400.00	3,395.39	3,358.99	3,330.07	12.03	13.00	110.22	405.74	-150.44	467.05	442.92	24.13	19.356		
3,500.00	3,495.20	3,457.67	3,427.65	12.40	13.41	110.29	419.39	-156.05	483.19	458.32	24.87	19.432		
3,600.00	3,595.01	3,556.36	3,525.23	12.77	13.81	110.35	433.03	-161.66	499.33	473.72	25.60	19.504		
3,700.00	3,694.81	3,655.05	3,622.81	13.14	14.22	110.41	446.68	-167.27	515.47	489.13	26.34	19.572		
3,800.00	3,794.62	3,753.74	3,720.38	13.50	14.63	110.46	460.32	-172.88	531.61	504.53	27.07	19.635		
3,900.00	3,894.43	3,852.42	3,817.96	13.87	15.04	110.51	473.97	-178.49	547.75	519.94	27.81	19.695		
4,000.00	3,994.23	3,951.11	3,915.54	14.24	15.45	110.56	487.62	-184.11	563.89	535.34	28.55	19.752		
4,100.00	4,094.04	4,049.80	4,013.12	14.61	15.85	110.61	501.26	-189.72	580.03	550.75	29.28	19.806		
4,200.00	4,193.85	4,148.49	4,110.70	14.98	16.26	110.65	514.91	-195.33	596.17	566.15	30.02	19.858		
4,300.00	4,293.65	4,247.17	4,208.27	15.35	16.67	110.69	528.56	-200.94	612.32	581.56	30.76	19.906		
4,400.00	4,393.46	4,345.86	4,305.85	15.72	17.08	110.73	542.20	-206.55	628.46	596.96	31.50	19.953		
4,500.00	4,493.27	4,444.55	4,403.43	16.09	17.49	110.77	555.85	-212.16	644.60	612.37	32.24	19.997		
4,600.00	4,593.07	4,543.24	4,501.01	16.46	17.89	110.80	569.50	-217.78	660.74	627.77	32.97	20.039		
4,700.00	4,692.88	4,641.92	4,598.59	16.83	18.30	110.84	583.14	-223.39	676.89	643.18	33.71	20.079		
4,800.00	4,792.68	4,740.61	4,696.17	17.20	18.71	110.87	596.79	-229.00	693.03	658.58	34.45	20.117		
4,900.00	4,892.49	4,839.30	4,793.74	17.57	19.12	110.90	610.44	-234.61	709.18	673.99	35.19	20.154		
5,000.00	4,992.30	4,937.99	4,891.32	17.94	19.53	110.93	624.08	-240.22	725.32	689.39	35.93	20.189		

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

Cathedral Energy Services

Anticollision Report

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well SAM 3H-25H-M166
Project:	DJ BASIN	TVD Reference:	23' KB @ 5109.00usft
Reference Site:	S25-T1N-R66W (SAM)	MD Reference:	23' KB @ 5109.00usft
Site Error:	0.00usft	North Reference:	Grid
Reference Well:	SAM 3H-25H-M166	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	PLAN #1	Offset TVD Reference:	Offset Datum

Offset Design S25-T1N-R66W (SAM) - SAM 3D-25H-M166 - OH - PLAN #1												Offset Site Error:	0.00 usft
Survey Program: O-MWD+HDGM												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
5,100.00	5,092.10	5,036.67	4,988.90	18.31	19.94	110.95	637.73	-245.83	741.46	704.80	36.66	20.223	
5,200.00	5,191.91	5,135.36	5,086.48	18.68	20.34	110.98	651.37	-251.45	757.61	720.20	37.40	20.255	
5,300.00	5,291.72	5,234.05	5,184.06	19.05	20.75	111.01	665.02	-257.06	773.75	735.61	38.14	20.286	
5,400.00	5,391.52	5,332.74	5,281.64	19.42	21.16	111.03	678.67	-262.67	789.90	751.02	38.88	20.316	
5,500.00	5,491.33	5,431.43	5,379.21	19.79	21.57	111.05	692.31	-268.28	806.04	766.42	39.62	20.344	
5,600.00	5,591.14	5,530.11	5,476.79	20.16	21.98	111.08	705.96	-273.89	822.19	781.83	40.36	20.372	
5,700.00	5,690.94	5,629.82	5,575.38	20.53	22.39	111.10	719.75	-279.56	838.33	797.22	41.11	20.395	
5,800.00	5,790.75	5,766.30	5,710.78	20.90	22.93	111.21	735.47	-286.03	852.17	810.07	42.10	20.244	
5,831.20	5,821.89	5,809.18	5,753.47	21.01	23.09	111.28	739.18	-287.55	855.59	813.20	42.39	20.185	
5,900.00	5,890.60	5,904.17	5,848.23	21.27	23.44	111.52	745.29	-290.07	861.29	818.30	43.00	20.032	
6,009.43	6,000.00	6,056.01	6,000.00	21.65	23.94	-0.51	749.01	-291.60	864.76	820.91	43.85	19.722	
6,100.00	6,090.57	6,146.59	6,090.57	21.95	24.23	-0.51	749.01	-291.60	864.76	820.30	44.46	19.451	
6,200.00	6,190.57	6,246.59	6,190.57	22.28	24.54	-0.51	749.01	-291.60	864.76	819.62	45.13	19.159	
6,300.00	6,290.57	6,346.59	6,290.57	22.62	24.86	-0.51	749.01	-291.60	864.76	818.94	45.81	18.876	
6,400.00	6,390.57	6,446.59	6,390.57	22.95	25.18	-0.51	749.01	-291.60	864.76	818.27	46.49	18.601	
6,500.00	6,490.57	6,546.59	6,490.57	23.29	25.50	-0.51	749.01	-291.60	864.76	817.59	47.17	18.333	
6,600.00	6,590.57	6,646.59	6,590.57	23.62	25.82	-0.51	749.01	-291.60	864.76	816.91	47.85	18.073	
6,700.00	6,690.57	6,746.59	6,690.57	23.96	26.14	-0.51	749.01	-291.60	864.76	816.22	48.53	17.819	
6,700.08	6,690.65	6,746.66	6,690.65	23.96	26.14	-0.51	749.01	-291.60	864.76	816.22	48.53	17.819	
6,800.00	6,790.57	6,845.85	6,789.55	24.30	26.44	-0.08	749.08	-285.17	864.79	815.59	49.20	17.578	
6,873.23	6,863.80	6,916.46	6,858.95	24.55	26.63	0.77	749.21	-272.30	865.01	815.33	49.68	17.412	
6,900.00	6,890.57	6,941.67	6,883.37	24.63	26.70	-88.25	749.27	-266.05	865.18	815.33	49.85	17.354	
6,950.00	6,940.43	6,988.23	6,927.84	24.79	26.82	-87.52	749.41	-252.28	865.61	815.45	50.17	17.255	
7,000.00	6,989.91	7,034.17	6,970.75	24.94	26.93	-86.80	749.58	-235.89	866.17	815.71	50.47	17.163	
7,050.00	7,038.79	7,079.52	7,011.99	25.09	27.03	-86.10	749.78	-217.04	866.86	816.09	50.76	17.077	
7,100.00	7,086.80	7,124.32	7,051.48	25.24	27.13	-85.43	749.99	-195.89	867.65	816.60	51.05	16.996	
7,150.00	7,133.74	7,168.61	7,089.14	25.38	27.21	-84.77	750.23	-172.60	868.52	817.19	51.33	16.920	
7,200.00	7,179.35	7,212.44	7,124.92	25.52	27.30	-84.14	750.49	-147.31	869.48	817.86	51.62	16.845	
7,250.00	7,223.43	7,255.82	7,158.75	25.66	27.37	-83.54	750.77	-120.16	870.48	818.58	51.91	16.770	
7,300.00	7,265.76	7,300.00	7,191.45	25.81	27.45	-82.95	751.07	-90.47	871.53	819.31	52.22	16.690	
7,350.00	7,306.13	7,341.43	7,220.39	25.97	27.51	-82.42	751.38	-60.84	872.59	820.04	52.55	16.605	
7,400.00	7,344.35	7,383.72	7,248.12	26.14	27.58	-81.91	751.70	-28.92	873.66	820.74	52.93	16.507	
7,450.00	7,380.22	7,425.70	7,273.74	26.35	27.67	-81.44	752.04	4.33	874.71	821.36	53.35	16.395	
7,500.00	7,413.58	7,467.40	7,297.21	26.60	27.77	-81.00	752.40	38.79	875.74	821.89	53.85	16.264	
7,550.00	7,444.26	7,508.87	7,318.52	26.89	27.94	-80.60	752.76	74.35	876.71	822.30	54.41	16.112	
7,600.00	7,472.11	7,550.00	7,337.60	27.24	28.20	-80.24	753.13	110.79	877.62	822.55	55.07	15.936	
7,650.00	7,497.00	7,591.16	7,354.56	27.65	28.57	-79.92	753.52	148.29	878.46	822.62	55.84	15.731	
7,700.00	7,518.80	7,632.05	7,369.25	28.13	29.01	-79.64	753.91	186.44	879.21	822.48	56.72	15.500	
7,750.00	7,537.41	7,672.80	7,381.70	28.68	29.50	-79.41	754.31	225.23	879.86	822.14	57.72	15.244	
7,800.00	7,552.74	7,713.43	7,391.89	29.30	30.05	-79.21	754.71	264.55	880.40	821.57	58.83	14.966	
7,850.00	7,564.72	7,750.00	7,399.15	29.99	30.57	-79.07	755.08	300.39	880.84	820.85	59.99	14.684	
7,900.00	7,573.27	7,794.45	7,405.50	30.74	31.27	-78.96	755.53	344.37	881.13	819.74	61.39	14.352	
7,950.00	7,578.38	7,834.88	7,408.89	31.55	31.94	-78.90	755.94	384.65	881.31	818.47	62.84	14.025	
7,998.23	7,580.00	7,874.81	7,410.00	32.38	32.63	-78.88	756.35	424.56	881.36	817.04	64.33	13.701	
7,999.34	7,580.00	7,874.81	7,410.00	32.40	32.63	-78.88	756.35	424.56	881.36	817.02	64.35	13.697	
8,000.00	7,580.00	7,875.40	7,410.00	32.42	32.64	-78.88	756.36	425.15	881.36	816.99	64.37	13.692	
8,100.00	7,580.00	7,975.40	7,410.00	34.29	34.53	-78.88	757.38	525.15	881.37	813.31	68.06	12.949	
8,200.00	7,580.00	8,075.40	7,410.00	36.35	36.58	-78.88	758.40	625.14	881.38	809.28	72.10	12.224	
8,300.00	7,580.00	8,175.40	7,410.00	38.57	38.80	-78.88	759.43	725.14	881.39	804.94	76.45	11.530	
8,400.00	7,580.00	8,275.40	7,410.00	40.92	41.14	-78.88	760.45	825.13	881.40	800.35	81.05	10.875	
8,500.00	7,580.00	8,375.40	7,410.00	43.38	43.60	-78.88	761.48	925.13	881.40	795.54	85.87	10.265	
8,600.00	7,580.00	8,475.40	7,410.00	45.93	46.14	-78.88	762.50	1,025.12	881.41	790.54	90.87	9.700	

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

Cathedral Energy Services

Anticollision Report

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well SAM 3H-25H-M166
Project:	DJ BASIN	TVD Reference:	23' KB @ 5109.00usft
Reference Site:	S25-T1N-R66W (SAM)	MD Reference:	23' KB @ 5109.00usft
Site Error:	0.00usft	North Reference:	Grid
Reference Well:	SAM 3H-25H-M166	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	PLAN #1	Offset TVD Reference:	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	7,580.00	8,575.40	7,410.00	48.56	48.77	-78.88	763.53	1,125.11	881.42	785.40	96.02	9.179		
8,800.00	7,580.00	8,675.40	7,410.00	51.26	51.46	-78.88	764.55	1,225.11	881.43	780.12	101.31	8.701		
8,900.00	7,580.00	8,775.40	7,410.00	54.01	54.20	-78.88	765.58	1,325.10	881.44	774.74	106.70	8.261		
9,000.00	7,580.00	8,875.40	7,410.00	56.81	56.99	-78.88	766.60	1,425.10	881.44	769.25	112.19	7.857		
9,100.00	7,580.00	8,975.40	7,410.00	59.65	59.83	-78.88	767.63	1,525.09	881.45	763.69	117.76	7.485		
9,200.00	7,580.00	9,075.40	7,410.00	62.52	62.70	-78.88	768.65	1,625.09	881.46	758.06	123.40	7.143		
9,300.00	7,580.00	9,175.40	7,410.00	65.43	65.60	-78.88	769.67	1,725.08	881.47	752.37	129.10	6.828		
9,400.00	7,580.00	9,275.40	7,410.00	68.36	68.53	-78.88	770.70	1,825.08	881.48	746.62	134.86	6.536		
9,500.00	7,580.00	9,375.40	7,410.00	71.32	71.48	-78.88	771.72	1,925.07	881.48	740.82	140.66	6.267		
9,600.00	7,580.00	9,475.40	7,410.00	74.29	74.46	-78.88	772.75	2,025.07	881.49	734.99	146.50	6.017		
9,700.00	7,580.00	9,575.40	7,410.00	77.29	77.45	-78.88	773.77	2,125.06	881.50	729.12	152.38	5.785		
9,800.00	7,580.00	9,675.40	7,410.00	80.30	80.46	-78.88	774.80	2,225.06	881.51	723.21	158.30	5.569		
9,900.00	7,580.00	9,775.40	7,410.00	83.33	83.48	-78.88	775.82	2,325.05	881.52	717.28	164.24	5.367		
10,000.00	7,580.00	9,875.40	7,410.00	86.37	86.52	-78.88	776.85	2,425.05	881.52	711.32	170.20	5.179		
10,100.00	7,580.00	9,975.40	7,410.00	89.42	89.57	-78.88	777.87	2,525.04	881.53	705.34	176.20	5.003		
10,200.00	7,580.00	10,075.40	7,410.00	92.48	92.63	-78.88	778.90	2,625.04	881.54	699.33	182.21	4.838		
10,300.00	7,580.00	10,175.40	7,410.00	95.55	95.69	-78.88	779.92	2,725.03	881.55	693.31	188.24	4.683		
10,400.00	7,580.00	10,275.40	7,410.00	98.63	98.77	-78.88	780.94	2,825.03	881.56	687.27	194.29	4.537		
10,500.00	7,580.00	10,375.40	7,410.00	101.72	101.86	-78.88	781.97	2,925.02	881.56	681.22	200.35	4.400		
10,600.00	7,580.00	10,475.40	7,410.00	104.81	104.95	-78.88	782.99	3,025.02	881.57	675.15	206.43	4.271		
10,700.00	7,580.00	10,575.40	7,410.00	107.91	108.05	-78.88	784.02	3,125.01	881.58	669.06	212.52	4.148		
10,800.00	7,580.00	10,675.40	7,410.00	111.02	111.15	-78.88	785.04	3,225.00	881.59	662.97	218.62	4.033		
10,900.00	7,580.00	10,775.40	7,410.00	114.13	114.27	-78.88	786.07	3,325.00	881.60	656.86	224.73	3.923		
11,000.00	7,580.00	10,875.40	7,410.00	117.25	117.38	-78.88	787.09	3,424.99	881.60	650.75	230.86	3.819		
11,100.00	7,580.00	10,975.40	7,410.00	120.37	120.50	-78.88	788.12	3,524.99	881.61	644.62	236.99	3.720		
11,200.00	7,580.00	11,075.40	7,410.00	123.50	123.63	-78.88	789.14	3,624.98	881.62	638.49	243.13	3.626		
11,300.00	7,580.00	11,175.40	7,410.00	126.63	126.76	-78.88	790.17	3,724.98	881.63	632.35	249.28	3.537		
11,400.00	7,580.00	11,275.40	7,410.00	129.77	129.89	-78.88	791.19	3,824.97	881.64	626.20	255.44	3.451		
11,500.00	7,580.00	11,375.40	7,410.00	132.90	133.03	-78.88	792.21	3,924.97	881.64	620.04	261.60	3.370		
11,600.00	7,580.00	11,475.40	7,410.00	136.04	136.17	-78.88	793.24	4,024.96	881.65	613.88	267.77	3.293		
11,700.00	7,580.00	11,575.40	7,410.00	139.19	139.31	-78.88	794.26	4,124.96	881.66	607.71	273.95	3.218		
11,800.00	7,580.00	11,675.40	7,410.00	142.33	142.45	-78.88	795.29	4,224.95	881.67	601.54	280.13	3.147		
11,900.00	7,580.00	11,775.40	7,410.00	145.48	145.60	-78.88	796.31	4,324.95	881.68	595.36	286.32	3.079		
12,000.00	7,580.00	11,875.40	7,410.00	148.64	148.75	-78.88	797.34	4,424.94	881.68	589.17	292.51	3.014		
12,070.04	7,580.00	11,945.44	7,410.00	150.84	150.96	-78.88	798.05	4,494.98	881.69	584.84	296.85	2.970 SF		

Cathedral Energy Services

Anticollision Report

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well SAM 3H-25H-M166
Project:	DJ BASIN	TVD Reference:	23' KB @ 5109.00usft
Reference Site:	S25-T1N-R66W (SAM)	MD Reference:	23' KB @ 5109.00usft
Site Error:	0.00usft	North Reference:	Grid
Reference Well:	SAM 3H-25H-M166	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	PLAN #1	Offset TVD Reference:	Offset Datum

Offset Design S25-T1N-R66W (SAM) - SAM 3E-25H-M166 - OH - PLAN #1													Offset Site Error:	0.00 usft
Survey Program: O-MWD+HDGM													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						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	0.04	30.24	0.02	30.24					
100.00	100.00	100.00	100.00	0.14	0.14	0.04	30.24	0.02	30.24	29.96	0.28	109.542		
200.00	200.00	200.00	200.00	0.50	0.50	0.04	30.24	0.02	30.24	29.24	0.99	30.450		
300.00	300.00	300.00	300.00	0.85	0.85	0.04	30.24	0.02	30.24	28.53	1.71	17.683		
400.00	400.00	400.00	400.00	1.21	1.21	0.04	30.24	0.02	30.24	27.81	2.43	12.459		
500.00	500.00	500.00	500.00	1.57	1.57	0.04	30.24	0.02	30.24	27.09	3.14	9.618		
600.00	600.00	600.00	600.00	1.93	1.93	0.04	30.24	0.02	30.24	26.38	3.86	7.832 CC, ES		
700.00	700.00	699.10	699.08	2.29	2.28	-1.71	31.65	-0.95	31.68	27.10	4.58	6.914		
800.00	800.00	797.96	797.80	2.65	2.64	-6.09	35.89	-3.83	36.16	30.84	5.31	6.803		
900.00	900.00	896.48	895.96	3.01	3.00	-11.34	42.89	-8.60	43.93	37.88	6.05	7.262		
1,000.00	999.98	996.00	994.98	3.35	3.36	98.32	51.10	-14.20	53.50	46.76	6.75	7.931		
1,078.23	1,078.11	1,073.82	1,072.41	3.62	3.65	99.12	57.53	-18.57	61.38	54.09	7.29	8.424		
1,100.00	1,099.84	1,095.47	1,093.95	3.69	3.73	99.61	59.31	-19.79	63.62	56.19	7.44	8.554		
1,200.00	1,199.65	1,194.91	1,192.89	4.04	4.10	101.48	67.52	-25.38	73.98	65.84	8.14	9.091		
1,300.00	1,299.46	1,294.35	1,291.83	4.39	4.47	102.89	75.73	-30.97	84.39	75.55	8.84	9.543		
1,400.00	1,399.26	1,393.78	1,390.77	4.74	4.84	103.98	83.93	-36.56	94.84	85.29	9.55	9.927		
1,500.00	1,499.07	1,493.22	1,489.71	5.10	5.22	104.86	92.14	-42.15	105.32	95.05	10.27	10.256		
1,600.00	1,598.88	1,592.66	1,588.65	5.45	5.59	105.58	100.35	-47.75	115.82	104.83	10.99	10.542		
1,700.00	1,698.68	1,692.10	1,687.59	5.81	5.97	106.18	108.55	-53.34	126.34	114.63	11.71	10.791		
1,800.00	1,798.49	1,791.54	1,786.53	6.17	6.34	106.69	116.76	-58.93	136.86	124.43	12.43	11.011		
1,900.00	1,898.30	1,890.97	1,885.47	6.53	6.72	107.13	124.97	-64.52	147.40	134.24	13.15	11.206		
2,000.00	1,998.10	1,990.41	1,984.41	6.90	7.10	107.51	133.18	-70.11	157.94	144.06	13.88	11.379		
2,100.00	2,097.91	2,089.85	2,083.36	7.26	7.48	107.84	141.38	-75.70	168.49	153.88	14.61	11.535		
2,200.00	2,197.71	2,189.29	2,182.30	7.63	7.86	108.13	149.59	-81.29	179.04	163.71	15.33	11.676		
2,300.00	2,297.52	2,288.72	2,281.24	7.99	8.24	108.39	157.80	-86.88	189.60	173.54	16.06	11.803		
2,400.00	2,397.33	2,388.16	2,380.18	8.36	8.62	108.62	166.00	-92.47	200.16	183.37	16.79	11.920		
2,500.00	2,497.13	2,487.60	2,479.12	8.72	8.99	108.83	174.21	-98.06	210.73	193.20	17.52	12.026		
2,600.00	2,596.94	2,587.04	2,578.06	9.09	9.37	109.01	182.42	-103.66	221.29	203.04	18.25	12.123		
2,700.00	2,696.75	2,686.47	2,677.00	9.45	9.75	109.19	190.62	-109.25	231.86	212.88	18.99	12.213		
2,800.00	2,796.55	2,785.91	2,775.94	9.82	10.13	109.34	198.83	-114.84	242.43	222.72	19.72	12.296		
2,900.00	2,896.36	2,885.35	2,874.88	10.19	10.51	109.49	207.04	-120.43	253.01	232.56	20.45	12.372		
3,000.00	2,996.17	2,984.79	2,973.82	10.56	10.89	109.62	215.25	-126.02	263.58	242.40	21.18	12.444		
3,100.00	3,095.97	3,084.22	3,072.76	10.92	11.27	109.74	223.45	-131.61	274.15	252.24	21.92	12.510		
3,200.00	3,195.78	3,183.66	3,171.70	11.29	11.66	109.85	231.66	-137.20	284.73	262.08	22.65	12.572		
3,300.00	3,295.59	3,283.10	3,270.64	11.66	12.04	109.96	239.87	-142.79	295.31	271.93	23.38	12.630		
3,400.00	3,395.39	3,382.54	3,369.58	12.03	12.42	110.05	248.07	-148.38	305.89	281.77	24.12	12.684		
3,500.00	3,495.20	3,481.98	3,468.52	12.40	12.80	110.14	256.28	-153.97	316.46	291.61	24.85	12.735		
3,600.00	3,595.01	3,581.41	3,567.46	12.77	13.18	110.23	264.49	-159.57	327.04	301.46	25.58	12.783		
3,700.00	3,694.81	3,680.85	3,666.40	13.14	13.56	110.31	272.69	-165.16	337.62	311.31	26.32	12.828		
3,800.00	3,794.62	3,780.29	3,765.34	13.50	13.94	110.38	280.90	-170.75	348.20	321.15	27.05	12.871		
3,900.00	3,894.43	3,879.73	3,864.29	13.87	14.32	110.45	289.11	-176.34	358.79	331.00	27.79	12.912		
4,000.00	3,994.23	3,979.16	3,963.23	14.24	14.70	110.52	297.31	-181.93	369.37	340.85	28.52	12.950		
4,100.00	4,094.04	4,078.60	4,062.17	14.61	15.08	110.58	305.52	-187.52	379.95	350.69	29.26	12.986		
4,200.00	4,193.85	4,178.04	4,161.11	14.98	15.46	110.64	313.73	-193.11	390.53	360.54	29.99	13.021		
4,300.00	4,293.65	4,277.48	4,260.05	15.35	15.84	110.70	321.94	-198.70	401.12	370.39	30.73	13.054		
4,400.00	4,393.46	4,376.91	4,358.99	15.72	16.22	110.75	330.14	-204.29	411.70	380.24	31.46	13.085		
4,500.00	4,493.27	4,476.35	4,457.93	16.09	16.61	110.80	338.35	-209.88	422.28	390.08	32.20	13.115		
4,600.00	4,593.07	4,575.79	4,556.87	16.46	16.99	110.85	346.56	-215.48	432.87	399.93	32.93	13.143		
4,700.00	4,692.88	4,675.23	4,655.81	16.83	17.37	110.90	354.76	-221.07	443.45	409.78	33.67	13.170		
4,800.00	4,792.68	4,774.67	4,754.75	17.20	17.75	110.94	362.97	-226.66	454.04	419.63	34.41	13.196		
4,900.00	4,892.49	4,874.10	4,853.69	17.57	18.13	110.98	371.18	-232.25	464.62	429.48	35.14	13.221		
5,000.00	4,992.30	4,973.54	4,952.63	17.94	18.51	111.02	379.38	-237.84	475.21	439.33	35.88	13.245		

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

Cathedral Energy Services

Anticollision Report

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well SAM 3H-25H-M166
Project:	DJ BASIN	TVD Reference:	23' KB @ 5109.00usft
Reference Site:	S25-T1N-R66W (SAM)	MD Reference:	23' KB @ 5109.00usft
Site Error:	0.00usft	North Reference:	Grid
Reference Well:	SAM 3H-25H-M166	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	PLAN #1	Offset TVD Reference:	Offset Datum

Offset Design S25-T1N-R66W (SAM) - SAM 3E-25H-M166 - OH - PLAN #1													Offset Site Error: 0.00 usft	
Survey Program: 0-MWD+HDGM													Offset Well Error: 0.00 usft	
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
5,100.00	5,092.10	5,072.98	5,051.57	18.31	18.89	111.06	387.59	-243.43	485.79	449.18	36.61	13.268		
5,200.00	5,191.91	5,172.42	5,150.51	18.68	19.27	111.10	395.80	-249.02	496.38	459.03	37.35	13.290		
5,300.00	5,291.72	5,271.85	5,249.45	19.05	19.66	111.13	404.00	-254.61	506.96	468.88	38.09	13.311		
5,400.00	5,391.52	5,371.29	5,348.39	19.42	20.04	111.16	412.21	-260.20	517.55	478.73	38.82	13.331		
5,500.00	5,491.33	5,470.73	5,447.33	19.79	20.42	111.20	420.42	-265.79	528.14	488.58	39.56	13.351		
5,600.00	5,591.14	5,570.17	5,546.27	20.16	20.80	111.23	428.63	-271.39	538.72	498.43	40.30	13.369		
5,700.00	5,690.94	5,669.60	5,645.22	20.53	21.18	111.26	436.83	-276.98	549.31	508.28	41.03	13.388		
5,800.00	5,790.75	5,774.95	5,750.06	20.90	21.58	111.30	445.34	-282.77	559.74	517.92	41.81	13.387		
5,831.20	5,821.89	5,812.08	5,787.06	21.01	21.72	111.35	447.82	-284.46	562.54	520.46	42.08	13.368		
5,900.00	5,890.60	5,894.19	5,869.03	21.27	22.02	111.55	451.89	-287.23	567.25	524.60	42.65	13.300		
6,009.43	6,000.00	6,025.21	6,000.00	21.65	22.48	-0.50	454.37	-288.92	570.10	526.62	43.48	13.111		
6,100.00	6,090.57	6,115.79	6,090.57	21.95	22.78	-0.50	454.37	-288.92	570.10	526.00	44.10	12.928		
6,200.00	6,190.57	6,215.79	6,190.57	22.28	23.12	-0.50	454.37	-288.92	570.10	525.32	44.78	12.731		
6,300.00	6,290.57	6,315.79	6,290.57	22.62	23.46	-0.50	454.37	-288.92	570.10	524.64	45.46	12.540		
6,400.00	6,390.57	6,415.79	6,390.57	22.95	23.80	-0.50	454.37	-288.92	570.10	523.95	46.15	12.354		
6,500.00	6,490.57	6,515.79	6,490.57	23.29	24.13	-0.50	454.37	-288.92	570.10	523.27	46.83	12.174		
6,600.00	6,590.57	6,615.79	6,590.57	23.62	24.47	-0.50	454.37	-288.92	570.10	522.58	47.52	11.998		
6,604.20	6,594.78	6,619.99	6,594.78	23.64	24.49	-0.50	454.37	-288.92	570.10	522.55	47.55	11.991		
6,700.00	6,690.57	6,715.52	6,690.21	23.96	24.80	-0.19	454.40	-285.84	570.11	521.92	48.19	11.830		
6,800.00	6,790.57	6,812.69	6,786.06	24.30	25.08	1.37	454.56	-270.30	570.45	521.60	48.84	11.679		
6,873.23	6,863.80	6,880.35	6,851.14	24.55	25.27	3.21	454.74	-251.88	571.49	522.18	49.31	11.590		
6,900.00	6,890.57	6,904.28	6,873.70	24.63	25.33	-85.40	454.82	-243.91	572.14	522.68	49.47	11.566		
6,950.00	6,940.43	6,950.00	6,916.01	24.79	25.45	-83.87	455.00	-226.60	573.66	523.91	49.75	11.530		
7,000.00	6,989.91	6,991.72	6,953.58	24.94	25.55	-82.47	455.18	-208.48	575.53	525.53	50.00	11.511		
7,050.00	7,038.79	7,034.40	6,990.86	25.09	25.65	-81.07	455.39	-187.72	577.72	527.49	50.22	11.503		
7,100.00	7,086.80	7,076.47	7,026.32	25.24	25.75	-79.72	455.62	-165.11	580.16	529.74	50.42	11.506		
7,150.00	7,133.74	7,117.97	7,059.96	25.38	25.85	-78.42	455.87	-140.81	582.83	532.23	50.60	11.519		
7,200.00	7,179.35	7,158.95	7,091.73	25.52	25.95	-77.18	456.13	-114.93	585.66	534.91	50.75	11.540		
7,250.00	7,223.43	7,200.00	7,122.02	25.66	26.06	-75.99	456.42	-87.24	588.61	537.71	50.89	11.565		
7,300.00	7,265.76	7,239.56	7,149.67	25.81	26.20	-74.88	456.70	-58.95	591.62	540.59	51.03	11.594		
7,350.00	7,306.13	7,279.26	7,175.80	25.97	26.37	-73.84	457.01	-29.07	594.65	543.47	51.17	11.620		
7,400.00	7,344.35	7,318.62	7,200.03	26.14	26.57	-72.86	457.32	1.94	597.65	546.31	51.34	11.640		
7,450.00	7,380.22	7,357.66	7,222.35	26.35	26.82	-71.96	457.65	33.97	600.58	549.03	51.55	11.651		
7,500.00	7,413.58	7,400.00	7,244.54	26.60	27.13	-71.07	458.01	70.01	603.41	551.54	51.87	11.633		
7,550.00	7,444.26	7,434.93	7,261.22	26.89	27.44	-70.38	458.33	100.70	606.06	553.91	52.15	11.622		
7,600.00	7,472.11	7,473.22	7,277.76	27.24	27.81	-69.70	458.68	135.23	608.53	555.97	52.57	11.576		
7,650.00	7,497.00	7,511.32	7,292.36	27.65	28.23	-69.10	459.03	170.41	610.79	557.70	53.09	11.505		
7,700.00	7,518.80	7,550.00	7,305.25	28.13	28.68	-68.58	459.40	206.87	612.80	559.06	53.74	11.403		
7,750.00	7,537.41	7,587.04	7,315.73	28.68	29.17	-68.15	459.77	242.39	614.54	560.05	54.49	11.277		
7,800.00	7,552.74	7,624.72	7,324.50	29.30	29.71	-67.79	460.14	279.03	615.98	560.59	55.39	11.121		
7,850.00	7,564.72	7,662.30	7,331.31	29.99	30.27	-67.51	460.51	315.99	617.12	560.71	56.41	10.939		
7,900.00	7,573.27	7,700.00	7,336.18	30.74	30.87	-67.32	460.89	353.36	617.93	560.37	57.57	10.734		
7,950.00	7,578.38	7,737.30	7,339.06	31.55	31.50	-67.20	461.27	390.54	618.41	559.57	58.85	10.509		
7,998.23	7,580.00	7,774.01	7,340.00	32.38	32.14	-67.17	461.64	427.24	618.55	558.36	60.19	10.276		
8,000.00	7,580.00	7,774.99	7,340.00	32.42	32.16	-67.17	461.65	428.22	618.55	558.31	60.24	10.268		
8,004.34	7,580.00	7,779.33	7,340.00	32.50	32.24	-67.17	461.70	432.56	618.55	558.17	60.39	10.243		
8,100.00	7,580.00	7,874.99	7,340.00	34.29	34.07	-67.17	462.67	528.21	618.55	554.80	63.75	9.703		
8,200.00	7,580.00	7,974.99	7,340.00	36.35	36.15	-67.17	463.69	628.21	618.55	550.97	67.59	9.152		
8,300.00	7,580.00	8,074.99	7,340.00	38.57	38.38	-67.17	464.70	728.20	618.55	546.84	71.71	8.626		
8,400.00	7,580.00	8,174.99	7,340.00	40.92	40.74	-67.17	465.72	828.20	618.55	542.48	76.08	8.131		
8,500.00	7,580.00	8,274.99	7,340.00	43.38	43.21	-67.17	466.73	928.19	618.55	537.91	80.65	7.670		
8,600.00	7,580.00	8,374.99	7,340.00	45.93	45.78	-67.17	467.75	1,028.19	618.55	533.17	85.38	7.244		

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

Cathedral Energy Services

Anticollision Report

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well SAM 3H-25H-M166
Project:	DJ BASIN	TVD Reference:	23' KB @ 5109.00usft
Reference Site:	S25-T1N-R66W (SAM)	MD Reference:	23' KB @ 5109.00usft
Site Error:	0.00usft	North Reference:	Grid
Reference Well:	SAM 3H-25H-M166	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	PLAN #1	Offset TVD Reference:	Offset Datum

Offset Design S25-T1N-R66W (SAM) - SAM 3E-25H-M166 - OH - PLAN #1													Offset Site Error: 0.00 usft	
Survey Program: O-MWD+HDGM													Offset Well Error: 0.00 usft	
Reference		Offset		Semi Major Axis			Distance							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	7,580.00	8,474.99	7,340.00	48.56	48.42	-67.17	468.77	1,128.18	618.55	528.29	90.27	6.853		
8,800.00	7,580.00	8,574.99	7,340.00	51.26	51.12	-67.17	469.78	1,228.18	618.55	523.28	95.27	6.493		
8,900.00	7,580.00	8,674.99	7,340.00	54.01	53.88	-67.17	470.80	1,328.17	618.55	518.18	100.37	6.163		
9,000.00	7,580.00	8,774.99	7,340.00	56.81	56.68	-67.17	471.81	1,428.17	618.55	512.99	105.57	5.859		
9,100.00	7,580.00	8,874.99	7,340.00	59.65	59.53	-67.17	472.83	1,528.16	618.55	507.72	110.83	5.581		
9,200.00	7,580.00	8,974.99	7,340.00	62.52	62.41	-67.17	473.85	1,628.16	618.55	502.38	116.17	5.325		
9,300.00	7,580.00	9,074.99	7,340.00	65.43	65.33	-67.17	474.86	1,728.15	618.55	496.99	121.56	5.088		
9,400.00	7,580.00	9,174.99	7,340.00	68.36	68.26	-67.17	475.88	1,828.15	618.55	491.55	127.00	4.870		
9,500.00	7,580.00	9,274.99	7,340.00	71.32	71.22	-67.17	476.90	1,928.14	618.55	486.07	132.48	4.669		
9,600.00	7,580.00	9,374.99	7,340.00	74.29	74.21	-67.17	477.91	2,028.14	618.55	480.54	138.01	4.482		
9,700.00	7,580.00	9,474.99	7,340.00	77.29	77.21	-67.17	478.93	2,128.13	618.55	474.99	143.56	4.309		
9,800.00	7,580.00	9,574.99	7,340.00	80.30	80.22	-67.17	479.94	2,228.13	618.55	469.40	149.15	4.147		
9,900.00	7,580.00	9,674.99	7,340.00	83.33	83.25	-67.17	480.96	2,328.12	618.55	463.79	154.76	3.997		
10,000.00	7,580.00	9,774.99	7,340.00	86.37	86.29	-67.17	481.98	2,428.12	618.55	458.15	160.40	3.856		
10,100.00	7,580.00	9,874.99	7,340.00	89.42	89.35	-67.17	482.99	2,528.11	618.55	452.49	166.06	3.725		
10,200.00	7,580.00	9,974.99	7,340.00	92.48	92.41	-67.17	484.01	2,628.11	618.55	446.81	171.73	3.602		
10,300.00	7,580.00	10,074.99	7,340.00	95.55	95.49	-67.17	485.02	2,728.10	618.55	441.12	177.43	3.486		
10,400.00	7,580.00	10,174.99	7,340.00	98.63	98.57	-67.17	486.04	2,828.10	618.55	435.41	183.14	3.377		
10,500.00	7,580.00	10,274.99	7,340.00	101.72	101.66	-67.17	487.06	2,928.09	618.55	429.68	188.87	3.275		
10,600.00	7,580.00	10,374.99	7,340.00	104.81	104.76	-67.17	488.07	3,028.09	618.55	423.94	194.61	3.178		
10,700.00	7,580.00	10,474.99	7,340.00	107.91	107.86	-67.17	489.09	3,128.08	618.55	418.19	200.36	3.087		
10,800.00	7,580.00	10,574.99	7,340.00	111.02	110.97	-67.17	490.11	3,228.07	618.55	412.43	206.12	3.001		
10,900.00	7,580.00	10,674.99	7,340.00	114.13	114.08	-67.17	491.12	3,328.07	618.55	406.66	211.89	2.919		
11,000.00	7,580.00	10,774.99	7,340.00	117.25	117.20	-67.17	492.14	3,428.06	618.55	400.88	217.67	2.842		
11,100.00	7,580.00	10,874.99	7,340.00	120.37	120.33	-67.17	493.15	3,528.06	618.55	395.09	223.46	2.768		
11,200.00	7,580.00	10,974.99	7,340.00	123.50	123.46	-67.17	494.17	3,628.05	618.55	389.29	229.26	2.698		
11,300.00	7,580.00	11,074.99	7,340.00	126.63	126.59	-67.17	495.19	3,728.05	618.55	383.48	235.06	2.631		
11,400.00	7,580.00	11,174.99	7,340.00	129.77	129.72	-67.17	496.20	3,828.04	618.55	377.67	240.88	2.568		
11,500.00	7,580.00	11,274.99	7,340.00	132.90	132.86	-67.17	497.22	3,928.04	618.55	371.85	246.69	2.507		
11,600.00	7,580.00	11,374.99	7,340.00	136.04	136.01	-67.17	498.23	4,028.03	618.55	366.03	252.52	2.450		
11,700.00	7,580.00	11,474.99	7,340.00	139.19	139.15	-67.17	499.25	4,128.03	618.55	360.20	258.35	2.394		
11,800.00	7,580.00	11,574.99	7,340.00	142.33	142.30	-67.17	500.27	4,228.02	618.55	354.36	264.18	2.341		
11,900.00	7,580.00	11,674.99	7,340.00	145.48	145.45	-67.17	501.28	4,328.02	618.55	348.52	270.02	2.291		
12,000.00	7,580.00	11,774.99	7,340.00	148.64	148.60	-67.17	502.30	4,428.01	618.55	342.68	275.87	2.242		
12,070.04	7,580.00	11,845.03	7,340.00	150.84	150.81	-67.17	503.01	4,498.05	618.54	338.58	279.96	2.209 SF		

Cathedral Energy Services

Anticollision Report

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well SAM 3H-25H-M166
Project:	DJ BASIN	TVD Reference:	23' KB @ 5109.00usft
Reference Site:	S25-T1N-R66W (SAM)	MD Reference:	23' KB @ 5109.00usft
Site Error:	0.00usft	North Reference:	Grid
Reference Well:	SAM 3H-25H-M166	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	PLAN #1	Offset TVD Reference:	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							
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		
500.00	500.00	500.00	500.00	1.57	1.57	-0.50	20.03	-0.17	20.03	16.89	3.14	6.372		
600.00	600.00	600.00	600.00	1.93	1.93	-0.50	20.03	-0.17	20.03	16.17	3.86	5.188		
700.00	700.00	700.00	700.00	2.29	2.29	-0.50	20.03	-0.17	20.03	15.45	4.58	4.376		
800.00	800.00	800.00	800.00	2.65	2.65	-0.50	20.03	-0.17	20.03	14.74	5.29	3.783		
900.00	900.00	900.00	900.00	3.01	3.01	-0.50	20.03	-0.17	20.03	14.02	6.01	3.332 CC, ES		
1,000.00	999.98	999.98	999.98	3.35	3.36	116.15	20.03	-0.17	20.74	14.02	6.72	3.088		
1,078.23	1,078.11	1,077.77	1,077.76	3.62	3.64	122.51	20.77	-0.92	23.25	15.99	7.26	3.202		
1,100.00	1,099.84	1,099.40	1,099.38	3.69	3.72	123.88	21.24	-1.40	24.37	16.95	7.41	3.287		
1,200.00	1,199.65	1,198.70	1,198.54	4.04	4.07	125.36	24.87	-5.07	30.67	22.56	8.11	3.781		
1,300.00	1,299.46	1,298.11	1,297.62	4.39	4.43	122.58	30.55	-10.82	38.55	29.73	8.82	4.373		
1,400.00	1,399.26	1,397.77	1,396.92	4.74	4.79	120.41	36.49	-16.82	46.69	37.17	9.52	4.903		
1,500.00	1,499.07	1,497.42	1,496.22	5.10	5.15	118.88	42.42	-22.82	54.88	44.65	10.24	5.361		
1,600.00	1,598.88	1,597.08	1,595.51	5.45	5.51	117.75	48.35	-28.82	63.10	52.15	10.95	5.761		
1,700.00	1,698.68	1,696.73	1,694.81	5.81	5.88	116.88	54.29	-34.82	71.34	59.67	11.67	6.112		
1,800.00	1,798.49	1,796.39	1,794.11	6.17	6.24	116.19	60.22	-40.82	79.59	67.19	12.39	6.422		
1,900.00	1,898.30	1,896.04	1,893.40	6.53	6.61	115.63	66.16	-46.82	87.85	74.73	13.11	6.698		
2,000.00	1,998.10	1,995.70	1,992.70	6.90	6.98	115.16	72.09	-52.82	96.11	82.27	13.84	6.945		
2,100.00	2,097.91	2,095.35	2,092.00	7.26	7.35	114.77	78.02	-58.82	104.38	89.82	14.57	7.167		
2,200.00	2,197.71	2,195.01	2,191.30	7.63	7.72	114.44	83.96	-64.83	112.66	97.37	15.29	7.367		
2,300.00	2,297.52	2,294.66	2,290.59	7.99	8.09	114.15	89.89	-70.83	120.94	104.92	16.02	7.549		
2,400.00	2,397.33	2,394.32	2,389.89	8.36	8.46	113.90	95.82	-76.83	129.22	112.47	16.75	7.715		
2,500.00	2,497.13	2,493.97	2,489.19	8.72	8.83	113.68	101.76	-82.83	137.50	120.03	17.48	7.867		
2,600.00	2,596.94	2,593.63	2,588.48	9.09	9.20	113.49	107.69	-88.83	145.79	127.58	18.21	8.007		
2,700.00	2,696.75	2,693.28	2,687.78	9.45	9.58	113.31	113.62	-94.83	154.08	135.14	18.94	8.135		
2,800.00	2,796.55	2,792.94	2,787.08	9.82	9.95	113.15	119.56	-100.83	162.36	142.69	19.67	8.254		
2,900.00	2,896.36	2,892.59	2,886.37	10.19	10.32	113.01	125.49	-106.83	170.65	150.25	20.40	8.364		
3,000.00	2,996.17	2,992.25	2,985.67	10.56	10.69	112.88	131.43	-112.83	178.94	157.81	21.13	8.467		
3,100.00	3,095.97	3,091.90	3,084.97	10.92	11.07	112.77	137.36	-118.84	187.23	165.37	21.87	8.562		
3,200.00	3,195.78	3,191.56	3,184.27	11.29	11.44	112.66	143.29	-124.84	195.53	172.93	22.60	8.652		
3,300.00	3,295.59	3,291.21	3,283.56	11.66	11.81	112.56	149.23	-130.84	203.82	180.48	23.33	8.735		
3,400.00	3,395.39	3,390.87	3,382.86	12.03	12.19	112.47	155.16	-136.84	212.11	188.04	24.07	8.813		
3,500.00	3,495.20	3,490.52	3,482.16	12.40	12.56	112.39	161.09	-142.84	220.40	195.60	24.80	8.887		
3,600.00	3,595.01	3,590.18	3,581.45	12.77	12.93	112.31	167.03	-148.84	228.70	203.16	25.53	8.956		
3,700.00	3,694.81	3,689.83	3,680.75	13.14	13.31	112.24	172.96	-154.84	236.99	210.72	26.27	9.022		
3,800.00	3,794.62	3,789.49	3,780.05	13.50	13.68	112.17	178.89	-160.84	245.29	218.28	27.00	9.083		
3,900.00	3,894.43	3,889.14	3,879.35	13.87	14.06	112.11	184.83	-166.84	253.58	225.84	27.74	9.142		
4,000.00	3,994.23	3,988.80	3,978.64	14.24	14.43	112.05	190.76	-172.85	261.88	233.40	28.47	9.197		
4,100.00	4,094.04	4,088.45	4,077.94	14.61	14.80	111.99	196.70	-178.85	270.17	240.96	29.21	9.250		
4,200.00	4,193.85	4,188.11	4,177.24	14.98	15.18	111.94	202.63	-184.85	278.47	248.52	29.94	9.300		
4,300.00	4,293.65	4,287.76	4,276.53	15.35	15.55	111.89	208.56	-190.85	286.76	256.09	30.68	9.347		
4,400.00	4,393.46	4,387.42	4,375.83	15.72	15.93	111.85	214.50	-196.85	295.06	263.65	31.41	9.393		
4,500.00	4,493.27	4,487.07	4,475.13	16.09	16.30	111.80	220.43	-202.85	303.36	271.21	32.15	9.436		
4,600.00	4,593.07	4,586.73	4,574.42	16.46	16.68	111.76	226.36	-208.85	311.65	278.77	32.89	9.477		
4,700.00	4,692.88	4,686.38	4,673.72	16.83	17.05	111.72	232.30	-214.85	319.95	286.33	33.62	9.516		
4,800.00	4,792.68	4,786.04	4,773.02	17.20	17.43	111.68	238.23	-220.85	328.25	293.89	34.36	9.554		
4,900.00	4,892.49	4,885.69	4,872.32	17.57	17.80	111.65	244.17	-226.85	336.54	301.45	35.09	9.590		
5,000.00	4,992.30	4,985.35	4,971.61	17.94	18.18	111.62	250.10	-232.86	344.84	309.01	35.83	9.625		

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

Cathedral Energy Services

Anticollision Report

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well SAM 3H-25H-M166
Project:	DJ BASIN	TVD Reference:	23' KB @ 5109.00usft
Reference Site:	S25-T1N-R66W (SAM)	MD Reference:	23' KB @ 5109.00usft
Site Error:	0.00usft	North Reference:	Grid
Reference Well:	SAM 3H-25H-M166	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	PLAN #1	Offset TVD Reference:	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							
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	5,092.10	5,085.00	5,070.91	18.31	18.55	111.58	256.03	-238.86	353.14	316.57	36.57	9.658		
5,200.00	5,191.91	5,184.66	5,170.21	18.68	18.92	111.55	261.97	-244.86	361.43	324.13	37.30	9.690		
5,300.00	5,291.72	5,284.31	5,269.50	19.05	19.30	111.52	267.90	-250.86	369.73	331.69	38.04	9.720		
5,400.00	5,391.52	5,383.97	5,368.80	19.42	19.67	111.50	273.83	-256.86	378.03	339.25	38.77	9.750		
5,500.00	5,491.33	5,483.62	5,468.10	19.79	20.05	111.47	279.77	-262.86	386.33	346.82	39.51	9.778		
5,600.00	5,591.14	5,583.28	5,567.39	20.16	20.42	111.44	285.70	-268.86	394.62	354.38	40.25	9.805		
5,700.00	5,690.94	5,682.93	5,666.69	20.53	20.80	111.42	291.63	-274.86	402.92	361.94	40.98	9.831		
5,800.00	5,790.75	5,783.57	5,766.97	20.90	21.18	111.40	297.62	-280.91	411.21	369.48	41.73	9.855		
5,831.20	5,821.89	5,818.22	5,801.52	21.01	21.31	111.42	299.45	-282.77	413.59	371.61	41.98	9.851		
5,900.00	5,890.60	5,894.80	5,877.97	21.27	21.59	111.57	302.46	-285.81	417.59	375.06	42.53	9.818		
6,009.43	6,000.00	6,016.86	6,000.00	21.65	22.02	-0.51	304.29	-287.66	420.02	376.67	43.35	9.690		
6,100.00	6,090.57	6,107.43	6,090.57	21.95	22.33	-0.51	304.29	-287.66	420.02	376.05	43.96	9.554		
6,200.00	6,190.57	6,207.43	6,190.57	22.28	22.67	-0.51	304.29	-287.66	420.02	375.37	44.65	9.408		
6,300.00	6,290.57	6,307.43	6,290.57	22.62	23.02	-0.51	304.29	-287.66	420.02	374.69	45.33	9.266		
6,400.00	6,390.57	6,407.43	6,390.57	22.95	23.36	-0.51	304.29	-287.66	420.02	374.00	46.01	9.128		
6,500.00	6,490.57	6,507.43	6,490.57	23.29	23.70	-0.51	304.29	-287.66	420.02	373.32	46.70	8.994		
6,600.00	6,590.57	6,607.43	6,590.57	23.62	24.05	-0.51	304.29	-287.66	420.02	372.63	47.39	8.864		
6,700.00	6,690.57	6,707.43	6,690.57	23.96	24.40	-0.51	304.29	-287.66	420.02	371.94	48.07	8.737		
6,700.21	6,690.78	6,707.64	6,690.78	23.96	24.40	-0.51	304.29	-287.66	420.02	371.94	48.08	8.736		
6,800.00	6,790.57	6,806.78	6,789.63	24.30	24.71	0.37	304.36	-281.22	420.08	371.34	48.74	8.619		
6,873.23	6,863.80	6,877.45	6,859.09	24.55	24.92	2.12	304.49	-268.33	420.51	371.30	49.21	8.546		
6,900.00	6,890.57	6,902.68	6,883.53	24.63	24.99	-86.48	304.55	-262.08	420.86	371.48	49.37	8.524		
6,950.00	6,940.43	6,950.00	6,928.71	24.79	25.13	-84.95	304.69	-248.04	421.72	372.06	49.66	8.492		
7,000.00	6,989.91	6,995.26	6,970.97	24.94	25.25	-83.51	304.86	-231.86	422.86	372.94	49.92	8.470		
7,050.00	7,038.79	7,040.64	7,012.23	25.09	25.37	-82.09	305.05	-212.99	424.24	374.08	50.16	8.457		
7,100.00	7,086.80	7,085.47	7,051.74	25.24	25.49	-80.71	305.26	-191.81	425.84	375.46	50.38	8.453		
7,150.00	7,133.74	7,129.79	7,089.41	25.38	25.61	-79.39	305.50	-168.49	427.61	377.04	50.57	8.456		
7,200.00	7,179.35	7,173.64	7,125.20	25.52	25.74	-78.13	305.76	-143.17	429.53	378.80	50.73	8.466		
7,250.00	7,223.43	7,217.05	7,159.04	25.66	25.88	-76.93	306.03	-115.99	431.56	380.67	50.89	8.481		
7,300.00	7,265.76	7,260.05	7,190.88	25.81	26.04	-75.80	306.33	-87.09	433.65	382.62	51.03	8.498		
7,350.00	7,306.13	7,300.00	7,218.85	25.97	26.21	-74.78	306.62	-58.58	435.79	384.67	51.12	8.524		
7,400.00	7,344.35	7,345.00	7,248.40	26.14	26.44	-73.74	306.96	-24.65	437.91	386.57	51.35	8.529		
7,450.00	7,380.22	7,387.00	7,274.00	26.35	26.69	-72.82	307.30	8.63	440.01	388.45	51.56	8.535		
7,500.00	7,413.58	7,428.72	7,297.46	26.60	26.99	-71.98	307.65	43.12	442.03	390.21	51.82	8.531		
7,550.00	7,444.26	7,470.19	7,318.76	26.89	27.32	-71.21	308.01	78.70	443.96	391.81	52.15	8.513		
7,600.00	7,472.11	7,511.45	7,337.86	27.24	27.70	-70.53	308.38	115.26	445.76	393.19	52.57	8.480		
7,650.00	7,497.00	7,550.00	7,353.78	27.65	28.08	-69.95	308.74	150.36	447.41	394.38	53.03	8.436		
7,700.00	7,518.80	7,593.41	7,369.42	28.13	28.58	-69.40	309.15	190.85	448.88	395.13	53.74	8.353		
7,750.00	7,537.41	7,634.16	7,381.84	28.68	29.10	-68.96	309.55	229.66	450.15	395.63	54.52	8.257		
7,800.00	7,552.74	7,674.80	7,392.01	29.30	29.66	-68.59	309.95	268.99	451.22	395.78	55.44	8.139		
7,850.00	7,564.72	7,715.35	7,399.92	29.99	30.26	-68.31	310.35	308.75	452.05	395.56	56.49	8.003		
7,900.00	7,573.27	7,755.82	7,405.55	30.74	30.90	-68.12	310.76	348.83	452.65	394.98	57.68	7.848		
7,950.00	7,578.38	7,800.00	7,409.11	31.55	31.63	-67.99	311.21	392.85	453.03	393.96	59.06	7.670		
7,952.17	7,578.52	7,800.00	7,409.11	31.59	31.63	-67.99	311.21	392.85	453.02	393.93	59.09	7.666		
7,998.23	7,580.00	7,835.66	7,410.00	32.38	32.26	-67.96	311.57	428.50	453.11	392.72	60.40	7.502		
8,000.00	7,580.00	7,836.91	7,410.00	32.42	32.28	-67.96	311.58	429.74	453.11	392.66	60.45	7.496		
8,004.11	7,580.00	7,841.02	7,410.00	32.49	32.36	-67.96	311.62	433.85	453.11	392.52	60.59	7.478		
8,100.00	7,580.00	7,936.91	7,410.00	34.29	34.19	-67.96	312.60	529.74	453.11	389.13	63.98	7.082		
8,200.00	7,580.00	8,036.91	7,410.00	36.35	36.26	-67.96	313.61	629.73	453.11	385.28	67.83	6.680		
8,300.00	7,580.00	8,136.91	7,410.00	38.57	38.48	-67.96	314.63	729.73	453.11	381.14	71.98	6.295		
8,400.00	7,580.00	8,236.91	7,410.00	40.92	40.84	-67.96	315.65	829.72	453.11	376.75	76.37	5.934		
8,500.00	7,580.00	8,336.91	7,410.00	43.38	43.30	-67.96	316.66	929.72	453.11	372.16	80.96	5.597		

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

Cathedral Energy Services

Anticollision Report

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well SAM 3H-25H-M166
Project:	DJ BASIN	TVD Reference:	23' KB @ 5109.00usft
Reference Site:	S25-T1N-R66W (SAM)	MD Reference:	23' KB @ 5109.00usft
Site Error:	0.00usft	North Reference:	Grid
Reference Well:	SAM 3H-25H-M166	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	PLAN #1	Offset TVD Reference:	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						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
8,600.00	7,580.00	8,436.91	7,410.00	45.93	45.86	-67.96	317.68	1,029.71	453.11	367.39	85.72	5.286		
8,700.00	7,580.00	8,536.91	7,410.00	48.56	48.50	-67.96	318.69	1,129.71	453.11	362.49	90.63	5.000		
8,800.00	7,580.00	8,636.91	7,410.00	51.26	51.20	-67.96	319.71	1,229.70	453.11	357.46	95.66	4.737		
8,900.00	7,580.00	8,736.91	7,410.00	54.01	53.95	-67.96	320.73	1,329.70	453.11	352.32	100.79	4.496		
9,000.00	7,580.00	8,836.91	7,410.00	56.81	56.76	-67.96	321.74	1,429.69	453.11	347.10	106.01	4.274		
9,100.00	7,580.00	8,936.91	7,410.00	59.65	59.60	-67.96	322.76	1,529.69	453.11	341.81	111.31	4.071		
9,200.00	7,580.00	9,036.91	7,410.00	62.52	62.48	-67.96	323.77	1,629.68	453.11	336.44	116.67	3.884		
9,300.00	7,580.00	9,136.91	7,410.00	65.43	65.39	-67.96	324.79	1,729.68	453.11	331.02	122.09	3.711		
9,400.00	7,580.00	9,236.91	7,410.00	68.36	68.33	-67.96	325.81	1,829.67	453.11	325.55	127.56	3.552		
9,500.00	7,580.00	9,336.91	7,410.00	71.32	71.29	-67.96	326.82	1,929.67	453.11	320.04	133.07	3.405		
9,600.00	7,580.00	9,436.91	7,410.00	74.29	74.27	-67.96	327.84	2,029.66	453.11	314.49	138.62	3.269		
9,700.00	7,580.00	9,536.91	7,410.00	77.29	77.26	-67.96	328.85	2,129.66	453.11	308.90	144.21	3.142		
9,800.00	7,580.00	9,636.91	7,410.00	80.30	80.28	-67.96	329.87	2,229.65	453.11	303.28	149.83	3.024		
9,900.00	7,580.00	9,736.91	7,410.00	83.33	83.31	-67.96	330.89	2,329.65	453.11	297.64	155.47	2.914		
10,000.00	7,580.00	9,836.91	7,410.00	86.37	86.35	-67.96	331.90	2,429.64	453.11	291.97	161.14	2.812		
10,100.00	7,580.00	9,936.91	7,410.00	89.42	89.40	-67.96	332.92	2,529.64	453.11	286.28	166.83	2.716		
10,200.00	7,580.00	10,036.91	7,410.00	92.48	92.46	-67.96	333.94	2,629.63	453.11	280.58	172.53	2.626		
10,300.00	7,580.00	10,136.91	7,410.00	95.55	95.54	-67.96	334.95	2,729.63	453.11	274.85	178.26	2.542		
10,400.00	7,580.00	10,236.91	7,410.00	98.63	98.62	-67.96	335.97	2,829.62	453.11	269.11	184.00	2.463		
10,500.00	7,580.00	10,336.91	7,410.00	101.72	101.71	-67.96	336.98	2,929.62	453.11	263.35	189.76	2.388		
10,600.00	7,580.00	10,436.91	7,410.00	104.81	104.80	-67.96	338.00	3,029.61	453.11	257.58	195.53	2.317		
10,700.00	7,580.00	10,536.91	7,410.00	107.91	107.91	-67.96	339.02	3,129.60	453.11	251.80	201.31	2.251		
10,800.00	7,580.00	10,636.91	7,410.00	111.02	111.01	-67.96	340.03	3,229.60	453.11	246.01	207.10	2.188		
10,900.00	7,580.00	10,736.91	7,410.00	114.13	114.13	-67.96	341.05	3,329.59	453.11	240.20	212.91	2.128		
11,000.00	7,580.00	10,836.91	7,410.00	117.25	117.25	-67.96	342.06	3,429.59	453.11	234.39	218.72	2.072		
11,100.00	7,580.00	10,936.91	7,410.00	120.37	120.37	-67.96	343.08	3,529.58	453.11	228.57	224.54	2.018		
11,200.00	7,580.00	11,036.91	7,410.00	123.50	123.50	-67.96	344.10	3,629.58	453.11	222.74	230.37	1.967		
11,300.00	7,580.00	11,136.91	7,410.00	126.63	126.63	-67.96	345.11	3,729.57	453.11	216.90	236.20	1.918		
11,400.00	7,580.00	11,236.91	7,410.00	129.77	129.76	-67.96	346.13	3,829.57	453.11	211.06	242.05	1.872		
11,500.00	7,580.00	11,336.91	7,410.00	132.90	132.90	-67.96	347.15	3,929.56	453.11	205.21	247.90	1.828		
11,600.00	7,580.00	11,436.91	7,410.00	136.04	136.05	-67.96	348.16	4,029.56	453.11	199.35	253.75	1.786		
11,700.00	7,580.00	11,536.91	7,410.00	139.19	139.19	-67.96	349.18	4,129.55	453.11	193.49	259.61	1.745		
11,800.00	7,580.00	11,636.91	7,410.00	142.33	142.34	-67.96	350.19	4,229.55	453.11	187.63	265.48	1.707		
11,900.00	7,580.00	11,736.91	7,410.00	145.48	145.49	-67.96	351.21	4,329.54	453.11	181.75	271.35	1.670		
12,000.00	7,580.00	11,836.91	7,410.00	148.64	148.64	-67.96	352.23	4,429.54	453.11	175.88	277.23	1.634		
12,070.04	7,580.00	11,906.95	7,410.00	150.84	150.85	-67.96	352.94	4,499.57	453.11	171.76	281.34	1.611 SF		

Cathedral Energy Services

Anticollision Report

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well SAM 3H-25H-M166
Project:	DJ BASIN	TVD Reference:	23' KB @ 5109.00usft
Reference Site:	S25-T1N-R66W (SAM)	MD Reference:	23' KB @ 5109.00usft
Site Error:	0.00usft	North Reference:	Grid
Reference Well:	SAM 3H-25H-M166	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	PLAN #1	Offset TVD Reference:	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							
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	10.20	-0.09	10.20				
100.00	100.00	100.00	100.00	0.14	0.14	-0.50	10.20	-0.09	10.20	9.92	0.28	36.952	
200.00	200.00	200.00	200.00	0.50	0.50	-0.50	10.20	-0.09	10.20	9.21	0.99	10.272	
300.00	300.00	300.00	300.00	0.85	0.85	-0.50	10.20	-0.09	10.20	8.49	1.71	5.965	
400.00	400.00	400.00	400.00	1.21	1.21	-0.50	10.20	-0.09	10.20	7.77	2.43	4.203	
500.00	500.00	500.00	500.00	1.57	1.57	-0.50	10.20	-0.09	10.20	7.06	3.14	3.244	
600.00	600.00	600.00	600.00	1.93	1.93	-0.50	10.20	-0.09	10.20	6.34	3.86	2.642	
700.00	700.00	700.00	700.00	2.29	2.29	-0.50	10.20	-0.09	10.20	5.62	4.58	2.228	
800.00	800.00	800.00	800.00	2.65	2.65	-0.50	10.20	-0.09	10.20	4.91	5.29	1.926	
892.63	892.63	892.65	892.63	2.98	2.97	-8.94	9.97	-1.57	10.09	4.14	5.95	1.696 CC	
900.00	900.00	900.01	899.99	3.01	3.00	-10.35	9.93	-1.81	10.09	4.09	6.00	1.681 ES	
1,000.00	999.98	999.95	999.82	3.35	3.34	86.33	9.21	-6.39	10.96	4.27	6.69	1.638	
1,078.23	1,078.11	1,078.17	1,077.95	3.62	3.61	86.77	8.61	-10.20	11.84	4.61	7.23	1.638	
1,100.00	1,099.84	1,099.94	1,099.69	3.69	3.69	88.29	8.44	-11.27	12.07	4.69	7.38	1.636	
1,200.00	1,199.65	1,199.92	1,199.55	4.04	4.04	94.57	7.67	-16.14	13.24	5.16	8.08	1.639	
1,300.00	1,299.46	1,299.91	1,299.41	4.39	4.39	99.77	6.91	-21.02	14.54	5.76	8.78	1.656	
1,400.00	1,399.26	1,399.89	1,399.27	4.74	4.75	104.09	6.14	-25.89	15.94	6.45	9.49	1.680	
1,500.00	1,499.07	1,499.87	1,499.14	5.10	5.11	107.70	5.37	-30.77	17.41	7.21	10.20	1.707	
1,600.00	1,598.88	1,599.86	1,599.00	5.45	5.46	110.74	4.61	-35.64	18.95	8.03	10.91	1.736	
1,700.00	1,698.68	1,699.84	1,698.86	5.81	5.82	113.31	3.84	-40.52	20.53	8.90	11.63	1.765	
1,800.00	1,798.49	1,799.83	1,798.72	6.17	6.18	115.52	3.07	-45.39	22.14	9.79	12.34	1.793	
1,900.00	1,898.30	1,899.81	1,898.58	6.53	6.54	117.42	2.30	-50.27	23.78	10.72	13.06	1.821	
2,000.00	1,998.10	1,999.79	1,998.45	6.90	6.91	119.07	1.54	-55.14	25.45	11.66	13.78	1.846	
2,100.00	2,097.91	2,099.78	2,098.31	7.26	7.27	120.52	0.77	-60.02	27.13	12.63	14.50	1.871	
2,200.00	2,197.71	2,199.76	2,198.17	7.63	7.63	121.80	0.00	-64.90	28.83	13.61	15.22	1.894	
2,300.00	2,297.52	2,299.74	2,298.03	7.99	7.99	122.94	-0.76	-69.77	30.54	14.60	15.94	1.916	
2,400.00	2,397.33	2,399.73	2,397.89	8.36	8.36	123.96	-1.53	-74.65	32.26	15.60	16.66	1.936	
2,500.00	2,497.13	2,499.71	2,497.75	8.72	8.72	124.87	-2.30	-79.52	33.99	16.61	17.38	1.955	
2,600.00	2,596.94	2,599.69	2,597.62	9.09	9.08	125.69	-3.06	-84.40	35.73	17.63	18.11	1.973	
2,700.00	2,696.75	2,699.68	2,697.48	9.45	9.45	126.44	-3.83	-89.27	37.48	18.65	18.83	1.990	
2,800.00	2,796.55	2,799.66	2,797.34	9.82	9.81	127.12	-4.60	-94.15	39.23	19.68	19.55	2.007	
2,900.00	2,896.36	2,899.65	2,897.20	10.19	10.17	127.75	-5.37	-99.02	40.99	20.71	20.27	2.022	
3,000.00	2,996.17	2,999.63	2,997.06	10.56	10.54	128.32	-6.13	-103.90	42.75	21.75	21.00	2.036	
3,100.00	3,095.97	3,099.61	3,096.92	10.92	10.90	128.84	-6.90	-108.78	44.51	22.79	21.72	2.049	
3,200.00	3,195.78	3,199.60	3,196.79	11.29	11.27	129.33	-7.67	-113.65	46.28	23.84	22.44	2.062	
3,300.00	3,295.59	3,299.58	3,296.65	11.66	11.63	129.78	-8.43	-118.53	48.05	24.88	23.17	2.074	
3,400.00	3,395.39	3,399.56	3,396.51	12.03	12.00	130.20	-9.20	-123.40	49.83	25.93	23.89	2.086	
3,500.00	3,495.20	3,499.55	3,496.37	12.40	12.36	130.59	-9.97	-128.28	51.60	26.99	24.62	2.096	
3,600.00	3,595.01	3,599.53	3,596.23	12.77	12.73	130.95	-10.73	-133.15	53.38	28.04	25.34	2.107	
3,700.00	3,694.81	3,699.51	3,696.09	13.14	13.09	131.29	-11.50	-138.03	55.16	29.10	26.06	2.116	
3,800.00	3,794.62	3,799.50	3,795.96	13.50	13.46	131.61	-12.27	-142.90	56.95	30.16	26.79	2.126	
3,900.00	3,894.43	3,899.48	3,895.82	13.87	13.82	131.91	-13.04	-147.78	58.73	31.22	27.51	2.135	
4,000.00	3,994.23	3,999.47	3,995.68	14.24	14.19	132.19	-13.80	-152.65	60.52	32.28	28.24	2.143	
4,100.00	4,094.04	4,099.45	4,095.54	14.61	14.55	132.46	-14.57	-157.53	62.30	33.34	28.96	2.151	
4,200.00	4,193.85	4,199.43	4,195.40	14.98	14.92	132.71	-15.34	-162.41	64.09	34.41	29.69	2.159	
4,300.00	4,293.65	4,299.42	4,295.26	15.35	15.28	132.94	-16.10	-167.28	65.88	35.47	30.41	2.166	
4,400.00	4,393.46	4,399.40	4,395.13	15.72	15.65	133.17	-16.87	-172.16	67.67	36.54	31.14	2.173	
4,500.00	4,493.27	4,499.38	4,494.99	16.09	16.01	133.38	-17.64	-177.03	69.47	37.60	31.86	2.180	
4,600.00	4,593.07	4,599.37	4,594.85	16.46	16.38	133.58	-18.40	-181.91	71.26	38.67	32.59	2.187	
4,700.00	4,692.88	4,699.35	4,694.71	16.83	16.74	133.78	-19.17	-186.78	73.05	39.74	33.31	2.193	
4,800.00	4,792.68	4,799.33	4,794.57	17.20	17.11	133.96	-19.94	-191.66	74.85	40.81	34.04	2.199	
4,900.00	4,892.49	4,899.32	4,894.44	17.57	17.47	134.13	-20.71	-196.53	76.64	41.88	34.76	2.205	

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

Cathedral Energy Services

Anticollision Report

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well SAM 3H-25H-M166
Project:	DJ BASIN	TVD Reference:	23' KB @ 5109.00usft
Reference Site:	S25-T1N-R66W (SAM)	MD Reference:	23' KB @ 5109.00usft
Site Error:	0.00usft	North Reference:	Grid
Reference Well:	SAM 3H-25H-M166	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	PLAN #1	Offset TVD Reference:	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							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
5,000.00	4,992.30	4,999.30	4,994.30	17.94	17.84	134.30	-21.47	-201.41	78.44	42.95	35.49	2.210	
5,100.00	5,092.10	5,099.28	5,094.16	18.31	18.21	134.46	-22.24	-206.28	80.23	44.02	36.21	2.216	
5,200.00	5,191.91	5,199.27	5,194.02	18.68	18.57	134.61	-23.01	-211.16	82.03	45.09	36.94	2.221	
5,300.00	5,291.72	5,299.25	5,293.88	19.05	18.94	134.76	-23.77	-216.04	83.83	46.16	37.67	2.226	
5,400.00	5,391.52	5,399.24	5,393.74	19.42	19.30	134.90	-24.54	-220.91	85.63	47.24	38.39	2.230	
5,500.00	5,491.33	5,499.22	5,493.61	19.79	19.67	135.03	-25.31	-225.79	87.42	48.31	39.12	2.235	
5,600.00	5,591.14	5,599.20	5,593.47	20.16	20.03	135.16	-26.07	-230.66	89.22	49.38	39.84	2.239	
5,700.00	5,690.94	5,699.19	5,693.33	20.53	20.40	135.28	-26.84	-235.54	91.02	50.46	40.57	2.244	
5,800.00	5,790.75	5,799.17	5,793.19	20.90	20.76	135.40	-27.61	-240.41	92.82	51.53	41.29	2.248	
5,831.20	5,821.89	5,830.36	5,824.34	21.01	20.88	135.44	-27.85	-241.93	93.38	51.86	41.52	2.249	
5,900.00	5,890.60	5,899.16	5,893.06	21.27	21.13	135.17	-28.38	-245.29	94.04	52.01	42.02	2.238	
6,009.43	6,000.00	6,008.52	6,002.29	21.65	21.53	21.06	-29.22	-250.62	92.71	49.89	42.82	2.165	
6,100.00	6,090.57	6,098.99	6,092.64	21.95	21.86	18.61	-29.91	-255.03	90.56	47.07	43.49	2.082	
6,200.00	6,190.57	6,198.87	6,192.40	22.28	22.23	15.77	-30.68	-259.90	88.38	44.16	44.22	1.998	
6,300.00	6,290.57	6,298.75	6,292.16	22.62	22.59	12.80	-31.44	-264.77	86.43	41.47	44.96	1.922	
6,400.00	6,390.57	6,398.62	6,391.91	22.95	22.96	9.70	-32.21	-269.64	84.72	39.03	45.70	1.854	
6,500.00	6,490.57	6,498.50	6,491.67	23.29	23.32	6.49	-32.97	-274.51	83.28	36.84	46.44	1.793	
6,600.00	6,590.57	6,598.35	6,591.40	23.62	23.69	3.17	-33.74	-279.38	82.10	34.93	47.17	1.740	
6,674.98	6,665.55	6,672.54	6,665.55	23.88	23.93	3.54	-34.15	-278.88	81.71	34.05	47.67	1.714	
6,700.00	6,690.57	6,697.18	6,690.12	23.96	24.01	4.84	-34.23	-277.02	81.78	33.97	47.81	1.711	
6,800.00	6,790.57	6,793.55	6,785.19	24.30	24.30	15.27	-34.20	-261.66	84.66	36.51	48.16	1.758	
6,873.23	6,863.80	6,860.71	6,849.81	24.55	24.49	26.30	-33.89	-243.49	92.33	44.46	47.87	1.929	
6,900.00	6,890.57	6,884.47	6,872.23	24.63	24.56	-58.84	-33.72	-235.62	96.66	49.07	47.59	2.031	
6,950.00	6,940.43	6,928.26	6,912.81	24.79	24.68	-51.91	-33.34	-219.19	105.91	59.03	46.87	2.259	
7,000.00	6,989.91	6,971.33	6,951.67	24.94	24.80	-46.24	-32.86	-200.64	116.21	70.26	45.95	2.529	
7,050.00	7,038.79	7,013.76	6,988.80	25.09	24.93	-41.63	-32.30	-180.12	127.12	82.26	44.86	2.834	
7,100.00	7,086.80	7,055.59	7,024.14	25.24	25.05	-37.89	-31.66	-157.77	138.31	94.68	43.63	3.170	
7,150.00	7,133.74	7,100.00	7,060.17	25.38	25.20	-34.65	-30.89	-131.83	149.57	106.78	42.79	3.495	
7,200.00	7,179.35	7,137.65	7,089.41	25.52	25.33	-32.31	-30.17	-108.12	160.61	119.74	40.87	3.930	
7,250.00	7,223.43	7,177.98	7,119.30	25.66	25.50	-30.23	-29.32	-81.07	171.40	132.03	39.37	4.353	
7,300.00	7,265.76	7,217.90	7,147.34	25.81	25.68	-28.51	-28.41	-52.68	181.80	143.98	37.82	4.807	
7,350.00	7,306.13	7,257.45	7,173.51	25.97	25.88	-27.07	-27.44	-23.05	191.73	155.49	36.24	5.291	
7,400.00	7,344.35	7,300.00	7,199.80	26.14	26.13	-25.81	-26.33	10.38	201.16	165.99	35.17	5.720	
7,450.00	7,380.22	7,335.56	7,220.22	26.35	26.37	-24.89	-25.35	39.47	209.92	176.87	33.05	6.351	
7,500.00	7,413.58	7,374.19	7,240.73	26.60	26.67	-24.07	-24.23	72.19	218.08	186.58	31.50	6.923	
7,550.00	7,444.26	7,412.59	7,259.34	26.89	27.00	-23.40	-23.07	105.75	225.57	195.55	30.02	7.515	
7,600.00	7,472.11	7,450.00	7,275.71	27.24	27.36	-22.87	-21.89	139.36	232.35	203.83	28.53	8.146	
7,650.00	7,497.00	7,488.77	7,290.80	27.65	27.78	-22.44	-20.63	175.04	238.40	211.01	27.39	8.705	
7,700.00	7,518.80	7,526.61	7,303.65	28.13	28.23	-22.12	-19.36	210.61	243.69	217.36	26.33	9.255	
7,750.00	7,537.41	7,564.32	7,314.56	28.68	28.72	-21.90	-18.06	246.68	248.22	222.73	25.49	9.737	
7,800.00	7,552.74	7,600.00	7,323.13	29.30	29.21	-21.76	-16.80	281.29	251.97	227.20	24.78	10.170	
7,850.00	7,564.72	7,639.44	7,330.57	29.99	29.81	-21.71	-15.38	319.99	254.91	230.22	24.70	10.321	
7,900.00	7,573.27	7,676.90	7,335.66	30.74	30.41	-21.75	-14.01	357.07	257.06	232.27	24.80	10.366	
7,950.00	7,578.38	7,714.32	7,338.80	31.55	31.03	-21.86	-12.62	394.33	258.41	233.16	25.25	10.234	
7,998.23	7,580.00	7,750.00	7,339.98	32.38	31.65	-22.04	-11.28	429.96	258.95	232.94	26.01	9.956	
8,000.00	7,580.00	7,751.73	7,339.99	32.42	31.68	-22.05	-11.21	431.70	258.96	232.91	26.05	9.941	
8,100.00	7,580.00	7,850.34	7,340.00	34.29	33.56	-22.61	-7.48	530.23	259.99	231.64	28.36	9.168	
8,200.00	7,580.00	7,950.30	7,340.00	36.35	35.63	-23.17	-3.71	630.12	261.07	230.19	30.88	8.454	
8,300.00	7,580.00	8,050.26	7,340.00	38.57	37.85	-23.72	0.07	730.01	262.17	228.57	33.59	7.804	
8,400.00	7,580.00	8,150.22	7,340.00	40.92	40.20	-24.27	3.85	829.90	263.29	226.81	36.48	7.218	
8,500.00	7,580.00	8,250.18	7,340.00	43.38	42.67	-24.82	7.63	929.79	264.44	224.92	39.52	6.691	
8,600.00	7,580.00	8,350.15	7,340.00	45.93	45.22	-25.36	11.41	1,029.68	265.61	222.91	42.70	6.220	

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

Cathedral Energy Services

Anticollision Report

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well SAM 3H-25H-M166
Project:	DJ BASIN	TVD Reference:	23' KB @ 5109.00usft
Reference Site:	S25-T1N-R66W (SAM)	MD Reference:	23' KB @ 5109.00usft
Site Error:	0.00usft	North Reference:	Grid
Reference Well:	SAM 3H-25H-M166	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	PLAN #1	Offset TVD Reference:	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		
8,700.00	7,580.00	8,450.11	7,340.00	48.56	47.85	-25.90	15.19	1,129.57	266.81	220.79	46.02	5.798		
8,800.00	7,580.00	8,550.07	7,340.00	51.26	50.55	-26.43	18.96	1,229.46	268.03	218.57	49.46	5.419		
8,900.00	7,580.00	8,650.03	7,340.00	54.01	53.30	-26.95	22.74	1,329.35	269.27	216.26	53.01	5.079		
9,000.00	7,580.00	8,749.99	7,340.00	56.81	56.10	-27.48	26.52	1,429.24	270.54	213.85	56.68	4.773		
9,100.00	7,580.00	8,849.96	7,340.00	59.65	58.94	-27.99	30.30	1,529.13	271.82	211.37	60.45	4.497		
9,200.00	7,580.00	8,949.92	7,340.00	62.52	61.81	-28.50	34.08	1,629.02	273.13	208.81	64.32	4.246		
9,300.00	7,580.00	9,049.88	7,340.00	65.43	64.72	-29.01	37.85	1,728.91	274.46	206.18	68.29	4.019		
9,400.00	7,580.00	9,149.84	7,340.00	68.36	67.65	-29.51	41.63	1,828.80	275.81	203.47	72.34	3.813		
9,500.00	7,580.00	9,249.80	7,340.00	71.32	70.60	-30.01	45.41	1,928.69	277.18	200.70	76.48	3.624		
9,600.00	7,580.00	9,349.76	7,340.00	74.29	73.58	-30.50	49.19	2,028.58	278.58	197.87	80.71	3.452		
9,700.00	7,580.00	9,449.73	7,340.00	77.29	76.57	-30.99	52.97	2,128.47	279.99	194.97	85.02	3.293		
9,800.00	7,580.00	9,549.69	7,340.00	80.30	79.57	-31.47	56.75	2,228.36	281.42	192.01	89.41	3.148		
9,900.00	7,580.00	9,649.65	7,340.00	83.33	82.60	-31.95	60.52	2,328.25	282.88	189.00	93.87	3.013		
10,000.00	7,580.00	9,749.61	7,340.00	86.37	85.63	-32.42	64.30	2,428.14	284.35	185.94	98.41	2.889		
10,100.00	7,580.00	9,849.57	7,340.00	89.42	88.67	-32.89	68.08	2,528.04	285.84	182.82	103.02	2.775		
10,200.00	7,580.00	9,949.53	7,340.00	92.48	91.73	-33.35	71.86	2,627.93	287.35	179.66	107.70	2.668		
10,300.00	7,580.00	10,049.50	7,340.00	95.55	94.79	-33.81	75.64	2,727.82	288.88	176.44	112.44	2.569		
10,400.00	7,580.00	10,149.46	7,340.00	98.63	97.87	-34.26	79.42	2,827.71	290.43	173.18	117.25	2.477		
10,500.00	7,580.00	10,249.42	7,340.00	101.72	100.95	-34.71	83.19	2,927.60	291.99	169.87	122.12	2.391		
10,600.00	7,580.00	10,349.38	7,340.00	104.81	104.03	-35.15	86.97	3,027.49	293.58	166.52	127.05	2.311		
10,700.00	7,580.00	10,449.34	7,340.00	107.91	107.13	-35.59	90.75	3,127.38	295.18	163.13	132.05	2.235		
10,800.00	7,580.00	10,549.31	7,340.00	111.02	110.23	-36.03	94.53	3,227.27	296.80	159.70	137.09	2.165		
10,900.00	7,580.00	10,649.27	7,340.00	114.13	113.33	-36.46	98.31	3,327.16	298.43	156.23	142.20	2.099		
11,000.00	7,580.00	10,749.23	7,340.00	117.25	116.44	-36.88	102.09	3,427.05	300.08	152.73	147.35	2.036		
11,100.00	7,580.00	10,849.19	7,340.00	120.37	119.56	-37.30	105.86	3,526.94	301.75	149.19	152.56	1.978		
11,200.00	7,580.00	10,949.15	7,340.00	123.50	122.67	-37.71	109.64	3,626.83	303.43	145.61	157.82	1.923		
11,300.00	7,580.00	11,049.11	7,340.00	126.63	125.79	-38.13	113.42	3,726.72	305.13	142.00	163.13	1.870		
11,400.00	7,580.00	11,149.08	7,340.00	129.77	128.92	-38.53	117.20	3,826.61	306.85	138.36	168.49	1.821		
11,500.00	7,580.00	11,249.04	7,340.00	132.90	132.05	-38.93	120.98	3,926.50	308.57	134.69	173.89	1.775		
11,600.00	7,580.00	11,349.00	7,340.00	136.04	135.18	-39.33	124.75	4,026.39	310.32	130.99	179.33	1.730		
11,700.00	7,580.00	11,448.96	7,340.00	139.19	138.32	-39.72	128.53	4,126.28	312.08	127.26	184.82	1.689		
11,800.00	7,580.00	11,548.92	7,340.00	142.33	141.45	-40.11	132.31	4,226.17	313.85	123.50	190.35	1.649		
11,900.00	7,580.00	11,648.89	7,340.00	145.48	144.59	-40.49	136.09	4,326.06	315.64	119.72	195.92	1.611		
12,000.00	7,580.00	11,748.85	7,340.00	148.64	147.73	-40.87	139.87	4,425.95	317.44	115.91	201.53	1.575		
12,070.04	7,580.00	11,818.86	7,340.00	150.84	149.94	-41.14	142.51	4,495.91	318.71	113.23	205.48	1.551 SF		

Cathedral Energy Services

Anticollision Report

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well SAM 3H-25H-M166
Project:	DJ BASIN	TVD Reference:	23' KB @ 5109.00usft
Reference Site:	S25-T1N-R66W (SAM)	MD Reference:	23' KB @ 5109.00usft
Site Error:	0.00usft	North Reference:	Grid
Reference Well:	SAM 3H-25H-M166	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	PLAN #1	Offset TVD Reference:	Offset Datum

Offset Design S25-T1N-R66W (SAM) - SAM 3I-25H-M166 - OH - PLAN #1												Offset Site Error:	0.00 usft
Survey Program: O-MWD+HDGM												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	179.50	-9.84	0.08	9.84				
100.00	100.00	100.00	100.00	0.14	0.14	179.50	-9.84	0.08	9.84	9.56	0.28	35.633	
200.00	200.00	200.00	200.00	0.50	0.50	179.50	-9.84	0.08	9.84	8.84	0.99	9.905	
300.00	300.00	300.00	300.00	0.85	0.85	179.50	-9.84	0.08	9.84	8.13	1.71	5.752	
400.00	400.00	400.00	400.00	1.21	1.21	179.50	-9.84	0.08	9.84	7.41	2.43	4.053	
500.00	500.00	500.00	500.00	1.57	1.57	179.50	-9.84	0.08	9.84	6.69	3.14	3.129	
600.00	600.00	600.00	600.00	1.93	1.93	179.50	-9.84	0.08	9.84	5.97	3.86	2.548	
700.00	700.00	700.00	700.00	2.29	2.29	179.50	-9.84	0.08	9.84	5.26	4.58	2.149	
800.00	800.00	800.00	800.00	2.65	2.65	179.50	-9.84	0.08	9.84	4.54	5.29	1.858 CC, ES	
900.00	900.00	899.76	899.74	3.01	2.99	-173.13	-10.87	-1.31	10.95	4.95	6.00	1.825	
1,000.00	999.98	999.37	999.21	3.35	3.33	-51.57	-13.97	-5.48	13.88	7.19	6.69	2.075	
1,078.23	1,078.11	1,077.31	1,076.88	3.62	3.60	-48.43	-17.79	-10.62	16.67	9.44	7.23	2.306	
1,100.00	1,099.84	1,099.07	1,098.55	3.69	3.67	-48.18	-18.95	-12.17	17.39	10.01	7.38	2.357	
1,200.00	1,199.65	1,199.01	1,198.10	4.04	4.02	-47.27	-24.27	-19.33	20.67	12.61	8.06	2.563	
1,300.00	1,299.46	1,298.96	1,297.65	4.39	4.38	-46.61	-29.59	-26.49	23.96	15.20	8.76	2.736	
1,400.00	1,399.26	1,398.90	1,397.19	4.74	4.74	-46.11	-34.91	-33.65	27.25	17.79	9.46	2.881	
1,500.00	1,499.07	1,498.85	1,496.74	5.10	5.10	-45.71	-40.23	-40.81	30.54	20.38	10.16	3.005	
1,600.00	1,598.88	1,598.79	1,596.29	5.45	5.47	-45.40	-45.55	-47.97	33.83	22.96	10.87	3.112	
1,700.00	1,698.68	1,698.74	1,695.83	5.81	5.84	-45.13	-50.87	-55.13	37.13	25.55	11.58	3.206	
1,800.00	1,798.49	1,798.68	1,795.38	6.17	6.21	-44.92	-56.19	-62.29	40.42	28.13	12.29	3.288	
1,900.00	1,898.30	1,898.63	1,894.93	6.53	6.58	-44.73	-61.51	-69.45	43.72	30.71	13.01	3.360	
2,000.00	1,998.10	1,998.58	1,994.47	6.90	6.96	-44.57	-66.83	-76.61	47.01	33.29	13.73	3.425	
2,100.00	2,097.91	2,098.52	2,094.02	7.26	7.33	-44.43	-72.15	-83.77	50.31	35.86	14.45	3.483	
2,200.00	2,197.71	2,198.47	2,193.57	7.63	7.71	-44.31	-77.47	-90.93	53.60	38.44	15.16	3.535	
2,300.00	2,297.52	2,298.41	2,293.11	7.99	8.08	-44.20	-82.79	-98.08	56.90	41.01	15.89	3.582	
2,400.00	2,397.33	2,398.36	2,392.66	8.36	8.46	-44.11	-88.11	-105.24	60.20	43.59	16.61	3.625	
2,500.00	2,497.13	2,498.30	2,492.21	8.72	8.84	-44.02	-93.43	-112.40	63.49	46.16	17.33	3.664	
2,600.00	2,596.94	2,598.25	2,591.76	9.09	9.22	-43.94	-98.75	-119.56	66.79	48.74	18.05	3.700	
2,700.00	2,696.75	2,698.20	2,691.30	9.45	9.60	-43.87	-104.07	-126.72	70.09	51.31	18.78	3.733	
2,800.00	2,796.55	2,798.14	2,790.85	9.82	9.98	-43.81	-109.39	-133.88	73.38	53.88	19.50	3.763	
2,900.00	2,896.36	2,898.09	2,890.40	10.19	10.35	-43.75	-114.71	-141.04	76.68	56.45	20.23	3.791	
3,000.00	2,996.17	2,998.03	2,989.94	10.56	10.73	-43.70	-120.03	-148.20	79.98	59.03	20.95	3.817	
3,100.00	3,095.97	3,097.98	3,089.49	10.92	11.11	-43.65	-125.35	-155.36	83.27	61.60	21.68	3.841	
3,200.00	3,195.78	3,197.92	3,189.04	11.29	11.49	-43.60	-130.67	-162.52	86.57	64.17	22.40	3.864	
3,300.00	3,295.59	3,297.87	3,288.58	11.66	11.87	-43.56	-135.99	-169.68	89.87	66.74	23.13	3.885	
3,400.00	3,395.39	3,397.81	3,388.13	12.03	12.25	-43.52	-141.31	-176.84	93.17	69.31	23.86	3.905	
3,500.00	3,495.20	3,497.76	3,487.68	12.40	12.64	-43.49	-146.63	-183.99	96.46	71.88	24.58	3.924	
3,600.00	3,595.01	3,597.71	3,587.22	12.77	13.02	-43.45	-151.95	-191.15	99.76	74.45	25.31	3.941	
3,700.00	3,694.81	3,697.65	3,686.77	13.14	13.40	-43.42	-157.27	-198.31	103.06	77.02	26.04	3.958	
3,800.00	3,794.62	3,797.60	3,786.32	13.50	13.78	-43.39	-162.59	-205.47	106.36	79.59	26.77	3.973	
3,900.00	3,894.43	3,897.54	3,885.86	13.87	14.16	-43.36	-167.92	-212.63	109.65	82.16	27.50	3.988	
4,000.00	3,994.23	3,997.49	3,985.41	14.24	14.54	-43.34	-173.24	-219.79	112.95	84.73	28.22	4.002	
4,100.00	4,094.04	4,097.43	4,084.96	14.61	14.92	-43.31	-178.56	-226.95	116.25	87.30	28.95	4.015	
4,200.00	4,193.85	4,197.38	4,184.50	14.98	15.31	-43.29	-183.88	-234.11	119.55	89.86	29.68	4.028	
4,300.00	4,293.65	4,297.32	4,284.05	15.35	15.69	-43.27	-189.20	-241.27	122.84	92.43	30.41	4.040	
4,400.00	4,393.46	4,397.27	4,383.60	15.72	16.07	-43.24	-194.52	-248.43	126.14	95.00	31.14	4.051	
4,500.00	4,493.27	4,497.22	4,483.14	16.09	16.45	-43.22	-199.84	-255.59	129.44	97.57	31.87	4.062	
4,600.00	4,593.07	4,597.16	4,582.69	16.46	16.83	-43.21	-205.16	-262.75	132.74	100.14	32.60	4.072	
4,700.00	4,692.88	4,697.11	4,682.24	16.83	17.21	-43.19	-210.48	-269.90	136.03	102.71	33.33	4.082	
4,800.00	4,792.68	4,798.73	4,783.47	17.20	17.60	-43.22	-215.73	-276.97	139.10	105.04	34.07	4.083	
4,900.00	4,892.49	4,903.16	4,887.73	17.57	17.99	-43.86	-219.30	-281.78	139.61	104.79	34.82	4.010	
5,000.00	4,992.30	5,007.43	4,991.97	17.94	18.35	-45.30	-220.61	-283.54	137.00	101.46	35.54	3.855	

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

Cathedral Energy Services

Anticollision Report

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well SAM 3H-25H-M166
Project:	DJ BASIN	TVD Reference:	23' KB @ 5109.00usft
Reference Site:	S25-T1N-R66W (SAM)	MD Reference:	23' KB @ 5109.00usft
Site Error:	0.00usft	North Reference:	Grid
Reference Well:	SAM 3H-25H-M166	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	PLAN #1	Offset TVD Reference:	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							
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	5,092.10	5,107.56	5,092.10	18.31	18.68	-47.21	-220.62	-283.55	132.70	96.44	36.26	3.659	
5,200.00	5,191.91	5,207.37	5,191.91	18.68	19.00	-49.24	-220.62	-283.55	128.55	91.56	37.00	3.475	
5,300.00	5,291.72	5,307.18	5,291.72	19.05	19.32	-51.40	-220.62	-283.55	124.58	86.85	37.73	3.302	
5,400.00	5,391.52	5,406.98	5,391.52	19.42	19.65	-53.70	-220.62	-283.55	120.79	82.32	38.47	3.140	
5,500.00	5,491.33	5,506.79	5,491.33	19.79	19.98	-56.15	-220.62	-283.55	117.22	78.00	39.22	2.989	
5,600.00	5,591.14	5,606.60	5,591.14	20.16	20.30	-58.75	-220.62	-283.55	113.86	73.90	39.96	2.849	
5,700.00	5,690.94	5,706.40	5,690.94	20.53	20.63	-61.49	-220.62	-283.55	110.76	70.05	40.72	2.720	
5,800.00	5,790.75	5,806.21	5,790.75	20.90	20.96	-64.39	-220.62	-283.55	107.93	66.46	41.47	2.603	
5,831.20	5,821.89	5,837.35	5,821.89	21.01	21.06	-65.32	-220.62	-283.55	107.10	65.40	41.71	2.568	
5,900.00	5,890.60	5,906.06	5,890.60	21.27	21.29	-67.00	-220.62	-283.55	105.71	63.49	42.22	2.504	
6,009.43	6,000.00	6,015.46	6,000.00	21.65	21.65	179.80	-220.62	-283.55	104.91	61.92	42.98	2.441	
6,100.00	6,090.57	6,106.03	6,090.57	21.95	21.96	179.80	-220.62	-283.55	104.91	61.31	43.59	2.407	
6,200.00	6,190.57	6,206.03	6,190.57	22.28	22.29	179.80	-220.62	-283.55	104.91	60.64	44.26	2.370	
6,300.00	6,290.57	6,306.03	6,290.57	22.62	22.62	179.80	-220.62	-283.55	104.91	59.97	44.94	2.334	
6,400.00	6,390.57	6,406.03	6,390.57	22.95	22.96	179.80	-220.62	-283.55	104.91	59.29	45.61	2.300	
6,500.00	6,490.57	6,506.03	6,490.57	23.29	23.29	179.80	-220.62	-283.55	104.91	58.61	46.29	2.266	
6,600.00	6,590.57	6,606.03	6,590.57	23.62	23.63	179.80	-220.62	-283.55	104.91	57.94	46.97	2.233	
6,700.00	6,690.57	6,706.03	6,690.57	23.96	23.97	179.80	-220.62	-283.55	104.91	57.26	47.65	2.202	
6,734.68	6,725.26	6,740.73	6,725.26	24.08	24.08	179.42	-220.61	-282.85	104.90	57.02	47.89	2.191	
6,800.00	6,790.57	6,805.54	6,789.79	24.30	24.29	176.27	-220.55	-277.08	105.06	56.70	48.36	2.172	
6,873.23	6,863.80	6,876.33	6,859.36	24.55	24.50	169.31	-220.42	-264.15	106.65	57.76	48.89	2.181	
6,900.00	6,890.57	6,901.59	6,883.83	24.63	24.57	76.74	-220.35	-257.88	107.93	58.89	49.04	2.201	
6,950.00	6,940.43	6,948.27	6,928.40	24.79	24.70	71.16	-220.21	-244.04	111.15	61.95	49.19	2.259	
7,000.00	6,989.91	6,994.30	6,971.38	24.94	24.83	66.02	-220.05	-227.57	115.29	66.14	49.15	2.346	
7,050.00	7,038.79	7,039.74	7,012.68	25.09	24.95	61.36	-219.85	-208.65	120.18	71.28	48.90	2.458	
7,100.00	7,086.80	7,084.62	7,052.22	25.24	25.07	57.19	-219.64	-187.42	125.63	77.20	48.43	2.594	
7,150.00	7,133.74	7,129.00	7,089.92	25.38	25.20	53.49	-219.40	-164.04	131.46	83.70	47.76	2.752	
7,200.00	7,179.35	7,172.89	7,125.72	25.52	25.33	50.23	-219.14	-138.66	137.53	90.61	46.92	2.931	
7,250.00	7,223.43	7,216.34	7,159.57	25.66	25.47	47.36	-218.87	-111.42	143.70	97.77	45.94	3.128	
7,300.00	7,265.76	7,259.39	7,191.41	25.81	25.62	44.85	-218.57	-82.46	149.86	105.03	44.83	3.343	
7,350.00	7,306.13	7,300.00	7,219.80	25.97	25.79	42.75	-218.28	-53.43	155.93	112.57	43.36	3.596	
7,400.00	7,344.35	7,344.40	7,248.90	26.14	26.02	40.75	-217.94	-19.91	161.77	119.36	42.41	3.814	
7,450.00	7,380.22	7,386.43	7,274.49	26.35	26.27	39.09	-217.60	13.42	167.36	126.20	41.16	4.066	
7,500.00	7,413.58	7,428.18	7,297.93	26.60	26.56	37.65	-217.25	47.96	172.64	132.71	39.92	4.324	
7,550.00	7,444.26	7,469.68	7,319.19	26.89	26.89	36.41	-216.88	83.59	177.54	138.80	38.74	4.583	
7,600.00	7,472.11	7,510.95	7,338.26	27.24	27.27	35.34	-216.51	120.19	182.02	144.38	37.64	4.836	
7,650.00	7,497.00	7,550.00	7,354.32	27.65	27.66	34.47	-216.15	155.77	186.07	149.64	36.43	5.107	
7,700.00	7,518.80	7,592.95	7,369.73	28.13	28.16	33.67	-215.74	195.85	189.61	153.75	35.87	5.286	
7,750.00	7,537.41	7,633.72	7,382.11	28.68	28.69	33.05	-215.35	234.69	192.66	157.40	35.27	5.463	
7,800.00	7,552.74	7,674.37	7,392.22	29.30	29.25	32.55	-214.95	274.05	195.19	160.28	34.90	5.592	
7,850.00	7,564.72	7,714.92	7,400.08	29.99	29.86	32.16	-214.54	313.83	197.17	162.37	34.81	5.665	
7,900.00	7,573.27	7,755.40	7,405.66	30.74	30.50	31.89	-214.14	353.92	198.60	163.61	34.99	5.676	
7,950.00	7,578.38	7,800.00	7,409.18	31.55	31.26	31.72	-213.68	398.37	199.52	163.93	35.59	5.606	
7,952.41	7,578.53	7,800.00	7,409.18	31.60	31.26	31.72	-213.68	398.37	199.51	163.95	35.56	5.611	
7,998.23	7,580.00	7,834.95	7,410.00	32.38	31.88	31.68	-213.33	433.31	199.76	163.56	36.21	5.517	
8,000.00	7,580.00	7,836.72	7,410.00	32.42	31.91	31.68	-213.31	435.08	199.76	163.52	36.24	5.512	
8,100.00	7,580.00	7,936.72	7,410.00	34.29	33.84	31.68	-212.30	535.07	199.76	161.31	38.45	5.195	
8,200.00	7,580.00	8,036.72	7,410.00	36.35	35.93	31.68	-211.28	635.07	199.76	158.92	40.85	4.891	
8,300.00	7,580.00	8,136.72	7,410.00	38.57	38.18	31.68	-210.26	735.06	199.76	156.35	43.41	4.602	
8,400.00	7,580.00	8,236.72	7,410.00	40.92	40.56	31.68	-209.25	835.06	199.76	153.64	46.12	4.332	
8,500.00	7,580.00	8,336.72	7,410.00	43.38	43.05	31.68	-208.23	935.05	199.76	150.82	48.94	4.082	
8,600.00	7,580.00	8,436.72	7,410.00	45.93	45.62	31.68	-207.21	1,035.05	199.76	147.90	51.87	3.852	

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

Cathedral Energy Services

Anticollision Report

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well SAM 3H-25H-M166
Project:	DJ BASIN	TVD Reference:	23' KB @ 5109.00usft
Reference Site:	S25-T1N-R66W (SAM)	MD Reference:	23' KB @ 5109.00usft
Site Error:	0.00usft	North Reference:	Grid
Reference Well:	SAM 3H-25H-M166	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	PLAN #1	Offset TVD Reference:	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							
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	7,580.00	8,536.72	7,410.00	48.56	48.27	31.68	-206.20	1,135.04	199.76	144.89	54.87	3.641	
8,800.00	7,580.00	8,636.72	7,410.00	51.26	50.99	31.68	-205.18	1,235.04	199.76	141.82	57.95	3.447	
8,900.00	7,580.00	8,736.72	7,410.00	54.01	53.76	31.68	-204.17	1,335.03	199.76	138.68	61.08	3.271	
9,000.00	7,580.00	8,836.72	7,410.00	56.81	56.58	31.68	-203.15	1,435.03	199.76	135.50	64.27	3.108	
9,100.00	7,580.00	8,936.72	7,410.00	59.65	59.43	31.68	-202.13	1,535.02	199.76	132.27	67.49	2.960	
9,200.00	7,580.00	9,036.72	7,410.00	62.52	62.32	31.68	-201.12	1,635.02	199.76	129.00	70.76	2.823	
9,300.00	7,580.00	9,136.72	7,410.00	65.43	65.24	31.68	-200.10	1,735.01	199.76	125.71	74.06	2.697	
9,400.00	7,580.00	9,236.72	7,410.00	68.36	68.19	31.68	-199.08	1,835.01	199.76	122.38	77.38	2.581	
9,500.00	7,580.00	9,336.72	7,410.00	71.32	71.15	31.68	-198.07	1,935.00	199.76	119.03	80.74	2.474	
9,600.00	7,580.00	9,436.72	7,410.00	74.29	74.14	31.68	-197.05	2,035.00	199.76	115.65	84.11	2.375	
9,700.00	7,580.00	9,536.72	7,410.00	77.29	77.15	31.68	-196.04	2,134.99	199.76	112.26	87.50	2.283	
9,800.00	7,580.00	9,636.72	7,410.00	80.30	80.17	31.68	-195.02	2,234.99	199.76	108.85	90.91	2.197	
9,900.00	7,580.00	9,736.72	7,410.00	83.33	83.20	31.68	-194.00	2,334.98	199.76	105.43	94.34	2.118	
10,000.00	7,580.00	9,836.72	7,410.00	86.37	86.25	31.68	-192.99	2,434.98	199.76	101.99	97.78	2.043	
10,100.00	7,580.00	9,936.72	7,410.00	89.42	89.31	31.68	-191.97	2,534.97	199.76	98.54	101.23	1.973	
10,200.00	7,580.00	10,036.72	7,410.00	92.48	92.38	31.68	-190.95	2,634.96	199.76	95.07	104.69	1.908	
10,300.00	7,580.00	10,136.72	7,410.00	95.55	95.45	31.68	-189.94	2,734.96	199.76	91.60	108.16	1.847	
10,400.00	7,580.00	10,236.72	7,410.00	98.63	98.54	31.68	-188.92	2,834.95	199.76	88.12	111.65	1.789	
10,500.00	7,580.00	10,336.72	7,410.00	101.72	101.63	31.68	-187.91	2,934.95	199.76	84.63	115.14	1.735	
10,600.00	7,580.00	10,436.72	7,410.00	104.81	104.73	31.68	-186.89	3,034.94	199.76	81.13	118.63	1.684	
10,700.00	7,580.00	10,536.72	7,410.00	107.91	107.84	31.68	-185.87	3,134.94	199.76	77.63	122.14	1.636	
10,800.00	7,580.00	10,636.72	7,410.00	111.02	110.95	31.68	-184.86	3,234.93	199.76	74.12	125.65	1.590	
10,900.00	7,580.00	10,736.72	7,410.00	114.13	114.07	31.68	-183.84	3,334.93	199.76	70.60	129.16	1.547	
11,000.00	7,580.00	10,836.72	7,410.00	117.25	117.19	31.68	-182.82	3,434.92	199.76	67.08	132.69	1.506	
11,100.00	7,580.00	10,936.72	7,410.00	120.37	120.32	31.68	-181.81	3,534.92	199.76	63.55	136.21	1.467 Level 3	
11,200.00	7,580.00	11,036.72	7,410.00	123.50	123.45	31.68	-180.79	3,634.91	199.76	60.02	139.74	1.430 Level 3	
11,300.00	7,580.00	11,136.72	7,410.00	126.63	126.58	31.68	-179.78	3,734.91	199.76	56.49	143.28	1.394 Level 3	
11,400.00	7,580.00	11,236.72	7,410.00	129.77	129.72	31.68	-178.76	3,834.90	199.76	52.95	146.82	1.361 Level 3	
11,500.00	7,580.00	11,336.72	7,410.00	132.90	132.86	31.68	-177.74	3,934.90	199.76	49.40	150.36	1.329 Level 3	
11,600.00	7,580.00	11,436.72	7,410.00	136.04	136.00	31.68	-176.73	4,034.89	199.76	45.86	153.91	1.298 Level 3	
11,700.00	7,580.00	11,536.72	7,410.00	139.19	139.15	31.68	-175.71	4,134.89	199.76	42.31	157.46	1.269 Level 3	
11,800.00	7,580.00	11,636.72	7,410.00	142.33	142.30	31.68	-174.69	4,234.88	199.77	38.76	161.01	1.241 Level 2	
11,900.00	7,580.00	11,736.72	7,410.00	145.48	145.45	31.68	-173.68	4,334.88	199.77	35.20	164.56	1.214 Level 2	
12,000.00	7,580.00	11,836.72	7,410.00	148.64	148.12	31.68	-172.66	4,434.87	199.77	31.93	167.84	1.190 Level 2	
12,007.54	7,580.00	11,844.26	7,410.00	148.87	148.26	31.68	-172.59	4,442.41	199.77	31.72	168.05	1.189 Level 2	
12,070.04	7,580.00	11,906.06	7,410.00	150.84	149.38	31.68	-171.96	4,504.21	199.77	29.98	169.79	1.177 Level 2, SF	

Cathedral Energy Services

Anticollision Report

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well SAM 3H-25H-M166
Project:	DJ BASIN	TVD Reference:	23' KB @ 5109.00usft
Reference Site:	S25-T1N-R66W (SAM)	MD Reference:	23' KB @ 5109.00usft
Site Error:	0.00usft	North Reference:	Grid
Reference Well:	SAM 3H-25H-M166	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	PLAN #1	Offset TVD Reference:	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		
0.00	0.00	0.00	0.00	0.00	0.00	-179.68	-19.68	-0.11	19.68					
100.00	100.00	100.00	100.00	0.14	0.14	-179.68	-19.68	-0.11	19.68	19.40	0.28	71.288		
200.00	200.00	200.00	200.00	0.50	0.50	-179.68	-19.68	-0.11	19.68	18.68	0.99	19.816		
300.00	300.00	300.00	300.00	0.85	0.85	-179.68	-19.68	-0.11	19.68	17.97	1.71	11.508		
400.00	400.00	400.00	400.00	1.21	1.21	-179.68	-19.68	-0.11	19.68	17.25	2.43	8.108		
500.00	500.00	500.00	500.00	1.57	1.57	-179.68	-19.68	-0.11	19.68	16.53	3.14	6.259		
600.00	600.00	600.00	600.00	1.93	1.93	-179.68	-19.68	-0.11	19.68	15.82	3.86	5.097		
700.00	700.00	700.00	700.00	2.29	2.29	-179.68	-19.68	-0.11	19.68	15.10	4.58	4.298 CC, ES		
800.00	800.00	799.39	799.37	2.65	2.63	-177.13	-21.12	-1.06	21.15	15.87	5.28	4.003		
900.00	900.00	898.54	898.38	3.01	2.96	-171.28	-25.42	-3.90	25.76	19.77	5.99	4.301		
1,000.00	999.98	997.41	996.88	3.35	3.30	-55.32	-32.54	-8.60	32.79	26.10	6.69	4.902		
1,078.23	1,078.11	1,075.46	1,074.52	3.62	3.57	-55.66	-39.15	-12.96	38.04	30.83	7.22	5.272		
1,100.00	1,099.84	1,097.19	1,096.14	3.69	3.65	-56.12	-40.99	-14.18	39.34	31.98	7.36	5.344		
1,200.00	1,199.65	1,197.00	1,195.44	4.04	4.01	-57.88	-49.43	-19.76	45.33	37.28	8.05	5.631		
1,300.00	1,299.46	1,296.81	1,294.74	4.39	4.37	-59.24	-57.88	-25.33	51.34	42.60	8.74	5.872		
1,400.00	1,399.26	1,396.62	1,394.03	4.74	4.74	-60.30	-66.33	-30.91	57.38	47.94	9.45	6.074		
1,500.00	1,499.07	1,496.44	1,493.33	5.10	5.11	-61.17	-74.77	-36.49	63.44	53.29	10.15	6.247		
1,600.00	1,598.88	1,596.25	1,592.63	5.45	5.49	-61.88	-83.22	-42.06	69.51	58.64	10.87	6.396		
1,700.00	1,698.68	1,696.06	1,691.93	5.81	5.86	-62.48	-91.66	-47.64	75.58	64.00	11.58	6.526		
1,800.00	1,798.49	1,795.87	1,791.23	6.17	6.24	-62.99	-100.11	-53.21	81.67	69.37	12.30	6.639		
1,900.00	1,898.30	1,895.69	1,890.52	6.53	6.62	-63.43	-108.56	-58.79	87.76	74.74	13.02	6.739		
2,000.00	1,998.10	1,995.50	1,989.82	6.90	7.00	-63.81	-117.00	-64.37	93.85	80.11	13.75	6.828		
2,100.00	2,097.91	2,095.31	2,089.12	7.26	7.38	-64.14	-125.45	-69.94	99.95	85.48	14.47	6.907		
2,200.00	2,197.71	2,195.12	2,188.42	7.63	7.76	-64.44	-133.90	-75.52	106.05	90.85	15.20	6.978		
2,300.00	2,297.52	2,294.94	2,287.71	7.99	8.15	-64.70	-142.34	-81.10	112.15	96.23	15.93	7.042		
2,400.00	2,397.33	2,394.75	2,387.01	8.36	8.53	-64.94	-150.79	-86.67	118.26	101.60	16.65	7.101		
2,500.00	2,497.13	2,494.56	2,486.31	8.72	8.92	-65.15	-159.24	-92.25	124.37	106.98	17.39	7.154		
2,600.00	2,596.94	2,594.37	2,585.61	9.09	9.30	-65.35	-167.68	-97.83	130.47	112.36	18.12	7.202		
2,700.00	2,696.75	2,694.18	2,684.91	9.45	9.69	-65.52	-176.13	-103.40	136.58	117.74	18.85	7.247		
2,800.00	2,796.55	2,794.00	2,784.20	9.82	10.07	-65.69	-184.57	-108.98	142.70	123.12	19.58	7.288		
2,900.00	2,896.36	2,893.81	2,883.50	10.19	10.46	-65.83	-193.02	-114.56	148.81	128.49	20.31	7.326		
3,000.00	2,996.17	2,993.62	2,982.80	10.56	10.85	-65.97	-201.47	-120.13	154.92	133.87	21.05	7.361		
3,100.00	3,095.97	3,093.43	3,082.10	10.92	11.23	-66.10	-209.91	-125.71	161.04	139.25	21.78	7.393		
3,200.00	3,195.78	3,193.25	3,181.39	11.29	11.62	-66.21	-218.36	-131.29	167.15	144.63	22.52	7.424		
3,300.00	3,295.59	3,293.06	3,280.69	11.66	12.01	-66.32	-226.81	-136.86	173.27	150.01	23.25	7.452		
3,400.00	3,395.39	3,392.87	3,379.99	12.03	12.39	-66.42	-235.25	-142.44	179.38	155.39	23.99	7.479		
3,500.00	3,495.20	3,492.68	3,479.29	12.40	12.78	-66.52	-243.70	-148.02	185.50	160.78	24.72	7.503		
3,600.00	3,595.01	3,592.50	3,578.59	12.77	13.17	-66.61	-252.15	-153.59	191.61	166.16	25.46	7.527		
3,700.00	3,694.81	3,692.31	3,677.88	13.14	13.56	-66.69	-260.59	-159.17	197.73	171.54	26.19	7.549		
3,800.00	3,794.62	3,792.12	3,777.18	13.50	13.95	-66.77	-269.04	-164.75	203.85	176.92	26.93	7.569		
3,900.00	3,894.43	3,891.93	3,876.48	13.87	14.33	-66.84	-277.48	-170.32	209.97	182.30	27.67	7.589		
4,000.00	3,994.23	3,991.75	3,975.78	14.24	14.72	-66.91	-285.93	-175.90	216.09	187.68	28.40	7.607		
4,100.00	4,094.04	4,091.56	4,075.08	14.61	15.11	-66.97	-294.38	-181.48	222.20	193.06	29.14	7.625		
4,200.00	4,193.85	4,191.37	4,174.37	14.98	15.50	-67.04	-302.82	-187.05	228.32	198.44	29.88	7.642		
4,300.00	4,293.65	4,291.18	4,273.67	15.35	15.89	-67.09	-311.27	-192.63	234.44	203.83	30.62	7.657		
4,400.00	4,393.46	4,390.99	4,372.97	15.72	16.28	-67.15	-319.72	-198.20	240.56	209.21	31.35	7.672		
4,500.00	4,493.27	4,490.81	4,472.27	16.09	16.66	-67.20	-328.16	-203.78	246.68	214.59	32.09	7.687		
4,600.00	4,593.07	4,590.62	4,571.56	16.46	17.05	-67.25	-336.61	-209.36	252.80	219.97	32.83	7.700		
4,700.00	4,692.88	4,690.43	4,670.86	16.83	17.44	-67.30	-345.06	-214.93	258.92	225.35	33.57	7.713		
4,800.00	4,792.68	4,790.24	4,770.16	17.20	17.83	-67.35	-353.50	-220.51	265.04	230.74	34.31	7.726		
4,900.00	4,892.49	4,890.06	4,869.46	17.57	18.22	-67.39	-361.95	-226.09	271.16	236.12	35.04	7.738		
5,000.00	4,992.30	4,989.87	4,968.76	17.94	18.61	-67.43	-370.39	-231.66	277.28	241.50	35.78	7.749		

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

Cathedral Energy Services

Anticollision Report

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well SAM 3H-25H-M166
Project:	DJ BASIN	TVD Reference:	23' KB @ 5109.00usft
Reference Site:	S25-T1N-R66W (SAM)	MD Reference:	23' KB @ 5109.00usft
Site Error:	0.00usft	North Reference:	Grid
Reference Well:	SAM 3H-25H-M166	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	PLAN #1	Offset TVD Reference:	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
5,100.00	5,092.10	5,089.68	5,068.05	18.31	19.00	-67.47	-378.84	-237.24	283.40	246.88	36.52	7.760	
5,200.00	5,191.91	5,189.49	5,167.35	18.68	19.39	-67.51	-387.29	-242.82	289.52	252.26	37.26	7.770	
5,300.00	5,291.72	5,289.31	5,266.65	19.05	19.78	-67.55	-395.73	-248.39	295.64	257.65	38.00	7.780	
5,400.00	5,391.52	5,389.12	5,365.95	19.42	20.17	-67.58	-404.18	-253.97	301.77	263.03	38.74	7.790	
5,500.00	5,491.33	5,488.93	5,465.25	19.79	20.56	-67.62	-412.63	-259.55	307.89	268.41	39.48	7.799	
5,600.00	5,591.14	5,588.74	5,564.54	20.16	20.94	-67.65	-421.07	-265.12	314.01	273.79	40.22	7.808	
5,700.00	5,690.94	5,688.55	5,663.84	20.53	21.33	-67.68	-429.52	-270.70	320.13	279.17	40.96	7.817	
5,800.00	5,790.75	5,794.02	5,768.82	20.90	21.74	-67.77	-437.93	-276.25	325.78	284.05	41.74	7.806	
5,831.20	5,821.89	5,828.46	5,803.17	21.01	21.87	-67.87	-440.08	-277.67	327.00	285.01	41.99	7.788	
5,900.00	5,890.60	5,904.47	5,879.06	21.27	22.15	-68.12	-443.60	-279.99	328.88	286.37	42.52	7.735	
6,009.43	6,000.00	6,025.45	6,000.00	21.65	22.57	179.56	-445.73	-281.40	330.03	286.74	43.28	7.625	
6,100.00	6,090.57	6,116.03	6,090.57	21.95	22.85	179.56	-445.73	-281.40	330.03	286.15	43.88	7.522	
6,200.00	6,190.57	6,216.03	6,190.57	22.28	23.16	179.56	-445.73	-281.40	330.03	285.49	44.54	7.410	
6,300.00	6,290.57	6,316.03	6,290.57	22.62	23.47	179.56	-445.73	-281.40	330.03	284.83	45.20	7.302	
6,400.00	6,390.57	6,416.03	6,390.57	22.95	23.78	179.56	-445.73	-281.40	330.03	284.17	45.86	7.197	
6,500.00	6,490.57	6,516.03	6,490.57	23.29	24.10	179.56	-445.73	-281.40	330.03	283.50	46.52	7.094	
6,600.00	6,590.57	6,616.03	6,590.57	23.62	24.41	179.56	-445.73	-281.40	330.03	282.84	47.19	6.994	
6,667.78	6,658.36	6,683.82	6,658.36	23.85	24.62	179.42	-445.72	-280.57	330.03	282.38	47.64	6.927	
6,700.00	6,690.57	6,715.91	6,690.36	23.96	24.72	179.02	-445.70	-278.30	330.03	282.17	47.86	6.896	
6,800.00	6,790.57	6,813.29	6,786.41	24.30	25.00	176.32	-445.54	-262.70	330.53	281.97	48.57	6.806	
6,873.23	6,863.80	6,881.08	6,851.60	24.55	25.19	173.13	-445.35	-244.21	332.25	283.16	49.08	6.769	
6,900.00	6,890.57	6,905.05	6,874.20	24.63	25.25	82.33	-445.27	-236.20	333.33	284.08	49.25	6.768	
6,950.00	6,940.43	6,950.00	6,915.79	24.79	25.36	79.77	-445.09	-219.18	335.86	286.33	49.54	6.780	
7,000.00	6,989.91	6,992.64	6,954.18	24.94	25.46	77.37	-444.91	-200.65	338.99	289.25	49.74	6.815	
7,050.00	7,038.79	7,035.38	6,991.49	25.09	25.55	75.04	-444.69	-179.82	342.64	292.76	49.88	6.869	
7,100.00	7,086.80	7,077.50	7,026.98	25.24	25.64	72.81	-444.46	-157.14	346.71	296.77	49.94	6.942	
7,150.00	7,133.74	7,119.05	7,060.63	25.38	25.73	70.71	-444.22	-132.77	351.12	301.19	49.93	7.033	
7,200.00	7,179.35	7,160.09	7,092.41	25.52	25.82	68.72	-443.95	-106.82	355.77	305.93	49.84	7.138	
7,250.00	7,223.43	7,200.00	7,121.85	25.66	25.90	66.89	-443.68	-79.88	360.58	310.91	49.67	7.260	
7,300.00	7,265.76	7,240.78	7,150.33	25.81	26.00	65.15	-443.38	-50.71	365.47	315.97	49.50	7.383	
7,350.00	7,306.13	7,280.52	7,176.45	25.97	26.11	63.55	-443.08	-20.76	370.35	321.07	49.28	7.515	
7,400.00	7,344.35	7,319.91	7,200.65	26.14	26.25	62.09	-442.76	10.30	375.16	326.11	49.05	7.648	
7,450.00	7,380.22	7,358.98	7,222.94	26.35	26.44	60.76	-442.44	42.39	379.82	330.98	48.84	7.777	
7,500.00	7,413.58	7,400.00	7,244.42	26.60	26.69	59.50	-442.08	77.33	384.29	335.54	48.74	7.884	
7,550.00	7,444.26	7,436.30	7,261.73	26.89	26.99	58.47	-441.76	109.22	388.47	339.91	48.56	8.000	
7,600.00	7,472.11	7,474.61	7,278.23	27.24	27.34	57.51	-441.41	143.79	392.35	343.82	48.54	8.084	
7,650.00	7,497.00	7,512.72	7,292.78	27.65	27.74	56.67	-441.05	179.02	395.88	347.26	48.62	8.142	
7,700.00	7,518.80	7,550.00	7,305.18	28.13	28.17	55.96	-440.69	214.16	399.01	350.20	48.81	8.175	
7,750.00	7,537.41	7,588.47	7,316.04	28.68	28.68	55.34	-440.32	251.06	401.71	352.52	49.20	8.165	
7,800.00	7,552.74	7,626.16	7,324.74	29.30	29.21	54.85	-439.94	287.72	403.97	354.24	49.72	8.124	
7,850.00	7,564.72	7,663.75	7,331.49	29.99	29.78	54.47	-439.57	324.70	405.74	355.33	50.41	8.048	
7,900.00	7,573.27	7,700.00	7,336.15	30.74	30.35	54.20	-439.20	360.64	407.03	355.78	51.25	7.943	
7,950.00	7,578.38	7,738.75	7,339.12	31.55	31.02	54.03	-438.81	399.27	407.80	355.49	52.31	7.796	
7,998.23	7,580.00	7,775.09	7,340.00	32.38	31.65	53.97	-438.44	435.59	408.07	354.60	53.47	7.632	
8,000.00	7,580.00	7,776.86	7,340.00	32.42	31.69	53.97	-438.42	437.37	408.07	354.55	53.52	7.625	
8,100.00	7,580.00	7,876.86	7,340.00	34.29	33.62	53.97	-437.41	537.36	408.07	351.42	56.65	7.203	
8,200.00	7,580.00	7,976.86	7,340.00	36.35	35.71	53.97	-436.39	637.36	408.07	348.00	60.07	6.794	
8,300.00	7,580.00	8,076.86	7,340.00	38.57	37.97	53.97	-435.37	737.35	408.07	344.33	63.73	6.403	
8,400.00	7,580.00	8,176.86	7,340.00	40.92	40.35	53.97	-434.36	837.35	408.07	340.45	67.61	6.035	
8,500.00	7,580.00	8,276.86	7,340.00	43.38	42.84	53.97	-433.34	937.34	408.07	336.40	71.67	5.694	
8,600.00	7,580.00	8,376.86	7,340.00	45.93	45.42	53.97	-432.32	1,037.34	408.07	332.19	75.87	5.378	
8,700.00	7,580.00	8,476.86	7,340.00	48.56	48.07	53.97	-431.31	1,137.33	408.07	327.86	80.20	5.088	

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

Cathedral Energy Services

Anticollision Report

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well SAM 3H-25H-M166
Project:	DJ BASIN	TVD Reference:	23' KB @ 5109.00usft
Reference Site:	S25-T1N-R66W (SAM)	MD Reference:	23' KB @ 5109.00usft
Site Error:	0.00usft	North Reference:	Grid
Reference Well:	SAM 3H-25H-M166	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	PLAN #1	Offset TVD Reference:	Offset Datum

Offset Design S25-T1N-R66W (SAM) - SAM 3J-25H-M166 - OH - PLAN #1													Offset Site Error:	0.00 usft
Survey Program: 0-MWD+HDGM													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
8,800.00	7,580.00	8,576.86	7,340.00	51.26	50.79	53.97	-430.29	1,237.32	408.07	323.43	84.64	4.821		
8,900.00	7,580.00	8,676.86	7,340.00	54.01	53.56	53.97	-429.28	1,337.32	408.07	318.90	89.16	4.577		
9,000.00	7,580.00	8,776.86	7,340.00	56.81	56.38	53.97	-428.26	1,437.31	408.07	314.30	93.76	4.352		
9,100.00	7,580.00	8,876.86	7,340.00	59.65	59.24	53.97	-427.24	1,537.31	408.07	309.63	98.43	4.146		
9,200.00	7,580.00	8,976.86	7,340.00	62.52	62.13	53.97	-426.23	1,637.30	408.07	304.91	103.16	3.956		
9,300.00	7,580.00	9,076.86	7,340.00	65.43	65.05	53.97	-425.21	1,737.30	408.07	300.13	107.93	3.781		
9,400.00	7,580.00	9,176.86	7,340.00	68.36	68.00	53.97	-424.19	1,837.29	408.07	295.31	112.75	3.619		
9,500.00	7,580.00	9,276.86	7,340.00	71.32	70.97	53.97	-423.18	1,937.29	408.07	290.46	117.61	3.470		
9,600.00	7,580.00	9,376.86	7,340.00	74.29	73.96	53.97	-422.16	2,037.28	408.07	285.57	122.50	3.331		
9,700.00	7,580.00	9,476.86	7,340.00	77.29	76.97	53.97	-421.15	2,137.28	408.07	280.65	127.42	3.203		
9,800.00	7,580.00	9,576.86	7,340.00	80.30	79.99	53.97	-420.13	2,237.27	408.07	275.70	132.37	3.083		
9,900.00	7,580.00	9,676.86	7,340.00	83.33	83.02	53.97	-419.11	2,337.27	408.07	270.73	137.34	2.971		
10,000.00	7,580.00	9,776.86	7,340.00	86.37	86.07	53.97	-418.10	2,437.26	408.07	265.74	142.33	2.867		
10,100.00	7,580.00	9,876.86	7,340.00	89.42	89.13	53.97	-417.08	2,537.26	408.07	260.73	147.34	2.770		
10,200.00	7,580.00	9,976.86	7,340.00	92.48	92.20	53.97	-416.06	2,637.25	408.07	255.70	152.37	2.678		
10,300.00	7,580.00	10,076.86	7,340.00	95.55	95.28	53.97	-415.05	2,737.25	408.07	250.66	157.41	2.592		
10,400.00	7,580.00	10,176.86	7,340.00	98.63	98.37	53.97	-414.03	2,837.24	408.07	245.60	162.46	2.512		
10,500.00	7,580.00	10,276.86	7,340.00	101.72	101.46	53.98	-413.02	2,937.24	408.07	240.53	167.53	2.436		
10,600.00	7,580.00	10,376.86	7,340.00	104.81	104.56	53.98	-412.00	3,037.23	408.07	235.45	172.61	2.364		
10,700.00	7,580.00	10,476.86	7,340.00	107.91	107.67	53.98	-410.98	3,137.23	408.07	230.36	177.70	2.296		
10,800.00	7,580.00	10,576.86	7,340.00	111.02	110.78	53.98	-409.97	3,237.22	408.07	225.26	182.81	2.232		
10,900.00	7,580.00	10,676.86	7,340.00	114.13	113.90	53.98	-408.95	3,337.22	408.07	220.15	187.92	2.172		
11,000.00	7,580.00	10,776.86	7,340.00	117.25	117.02	53.98	-407.93	3,437.21	408.07	215.03	193.03	2.114		
11,100.00	7,580.00	10,876.86	7,340.00	120.37	120.15	53.98	-406.92	3,537.21	408.07	209.91	198.16	2.059		
11,200.00	7,580.00	10,976.86	7,340.00	123.50	123.28	53.98	-405.90	3,637.20	408.07	204.78	203.29	2.007		
11,300.00	7,580.00	11,076.86	7,340.00	126.63	126.42	53.98	-404.88	3,737.20	408.07	199.64	208.43	1.958		
11,400.00	7,580.00	11,176.86	7,340.00	129.77	129.55	53.98	-403.87	3,837.19	408.07	194.49	213.58	1.911		
11,500.00	7,580.00	11,276.86	7,340.00	132.90	132.70	53.98	-402.85	3,937.19	408.07	189.34	218.73	1.866		
11,600.00	7,580.00	11,376.86	7,340.00	136.04	135.84	53.98	-401.84	4,037.18	408.07	184.19	223.88	1.823		
11,700.00	7,580.00	11,476.86	7,340.00	139.19	138.99	53.98	-400.82	4,137.18	408.07	179.03	229.04	1.782		
11,800.00	7,580.00	11,576.86	7,340.00	142.33	142.14	53.98	-399.80	4,237.17	408.07	173.86	234.21	1.742		
11,900.00	7,580.00	11,676.86	7,340.00	145.48	145.29	53.98	-398.79	4,337.16	408.07	168.69	239.38	1.705		
12,000.00	7,580.00	11,776.86	7,340.00	148.64	148.45	53.98	-397.77	4,437.16	408.07	163.52	244.55	1.669		
12,007.14	7,580.00	11,784.00	7,340.00	148.86	148.67	53.98	-397.70	4,444.30	408.07	163.15	244.92	1.666		
12,070.04	7,580.00	11,845.06	7,340.00	150.84	150.00	53.98	-397.08	4,505.35	408.07	160.44	247.64	1.648 SF		

Cathedral Energy Services

Anticollision Report

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well SAM 3H-25H-M166
Project:	DJ BASIN	TVD Reference:	23' KB @ 5109.00usft
Reference Site:	S25-T1N-R66W (SAM)	MD Reference:	23' KB @ 5109.00usft
Site Error:	0.00usft	North Reference:	Grid
Reference Well:	SAM 3H-25H-M166	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	PLAN #1	Offset TVD Reference:	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	-29.87	-0.02	29.87					
100.00	100.00	100.00	100.00	0.14	0.14	-179.96	-29.87	-0.02	29.87	29.60	0.28	108.222		
200.00	200.00	200.00	200.00	0.50	0.50	-179.96	-29.87	-0.02	29.87	28.88	0.99	30.083		
300.00	300.00	300.00	300.00	0.85	0.85	-179.96	-29.87	-0.02	29.87	28.16	1.71	17.470		
400.00	400.00	400.00	400.00	1.21	1.21	-179.96	-29.87	-0.02	29.87	27.44	2.43	12.309		
500.00	500.00	500.00	500.00	1.57	1.57	-179.96	-29.87	-0.02	29.87	26.73	3.14	9.502		
600.00	600.00	600.00	600.00	1.93	1.93	-179.96	-29.87	-0.02	29.87	26.01	3.86	7.737	CC, ES	
700.00	700.00	699.01	698.99	2.29	2.27	-178.72	-31.44	-0.70	31.47	26.90	4.57	6.888		
800.00	800.00	797.79	797.63	2.65	2.60	-175.68	-36.14	-2.73	36.32	31.04	5.28	6.879		
900.00	900.00	896.10	895.57	3.01	2.94	-172.10	-43.90	-6.09	44.55	38.55	6.00	7.425		
1,000.00	999.98	993.86	992.62	3.35	3.28	-58.02	-54.68	-10.75	55.28	48.58	6.71	8.243		
1,078.23	1,078.11	1,071.48	1,069.49	3.62	3.57	-58.46	-64.61	-15.04	63.88	56.65	7.23	8.832		
1,100.00	1,099.84	1,093.13	1,090.93	3.69	3.65	-58.81	-67.37	-16.24	66.12	58.74	7.38	8.963		
1,200.00	1,199.65	1,192.58	1,189.41	4.04	4.03	-60.18	-80.10	-21.74	76.45	68.39	8.06	9.484		
1,300.00	1,299.46	1,292.04	1,287.89	4.39	4.41	-61.22	-92.82	-27.24	86.80	78.05	8.76	9.914		
1,400.00	1,399.26	1,391.49	1,386.37	4.74	4.80	-62.04	-105.54	-32.74	97.18	87.73	9.46	10.276		
1,500.00	1,499.07	1,490.94	1,484.85	5.10	5.19	-62.70	-118.26	-38.24	107.58	97.41	10.16	10.583		
1,600.00	1,598.88	1,590.39	1,583.33	5.45	5.59	-63.25	-130.98	-43.74	117.99	107.11	10.88	10.847		
1,700.00	1,698.68	1,689.84	1,681.81	5.81	5.99	-63.70	-143.70	-49.24	128.40	116.81	11.59	11.075		
1,800.00	1,798.49	1,789.29	1,780.29	6.17	6.39	-64.09	-156.42	-54.74	138.83	126.51	12.31	11.274		
1,900.00	1,898.30	1,888.74	1,878.77	6.53	6.79	-64.43	-169.14	-60.24	149.25	136.22	13.04	11.449		
2,000.00	1,998.10	1,988.19	1,977.25	6.90	7.19	-64.72	-181.86	-65.74	159.69	145.93	13.76	11.604		
2,100.00	2,097.91	2,087.65	2,075.73	7.26	7.60	-64.97	-194.58	-71.24	170.12	155.64	14.49	11.742		
2,200.00	2,197.71	2,187.10	2,174.22	7.63	8.00	-65.20	-207.30	-76.74	180.56	165.35	15.22	11.866		
2,300.00	2,297.52	2,286.55	2,272.70	7.99	8.41	-65.40	-220.02	-82.24	191.01	175.06	15.95	11.977		
2,400.00	2,397.33	2,386.00	2,371.18	8.36	8.81	-65.58	-232.75	-87.74	201.45	184.77	16.68	12.078		
2,500.00	2,497.13	2,485.45	2,469.66	8.72	9.22	-65.74	-245.47	-93.24	211.90	194.48	17.41	12.170		
2,600.00	2,596.94	2,584.90	2,568.14	9.09	9.63	-65.89	-258.19	-98.74	222.34	204.20	18.14	12.254		
2,700.00	2,696.75	2,684.35	2,666.62	9.45	10.04	-66.02	-270.91	-104.24	232.79	213.91	18.88	12.331		
2,800.00	2,796.55	2,783.80	2,765.10	9.82	10.45	-66.14	-283.63	-109.74	243.24	223.63	19.61	12.402		
2,900.00	2,896.36	2,883.26	2,863.58	10.19	10.86	-66.25	-296.35	-115.24	253.69	233.34	20.35	12.467		
3,000.00	2,996.17	2,982.71	2,962.06	10.56	11.27	-66.36	-309.07	-120.74	264.14	243.06	21.09	12.527		
3,100.00	3,095.97	3,082.16	3,060.54	10.92	11.68	-66.45	-321.79	-126.24	274.60	252.77	21.82	12.583		
3,200.00	3,195.78	3,181.61	3,159.02	11.29	12.09	-66.54	-334.51	-131.74	285.05	262.49	22.56	12.635		
3,300.00	3,295.59	3,281.06	3,257.50	11.66	12.50	-66.62	-347.23	-137.24	295.50	272.20	23.30	12.684		
3,400.00	3,395.39	3,380.51	3,355.99	12.03	12.91	-66.70	-359.95	-142.74	305.96	281.92	24.04	12.729		
3,500.00	3,495.20	3,479.96	3,454.47	12.40	13.32	-66.77	-372.67	-148.24	316.41	291.64	24.77	12.772		
3,600.00	3,595.01	3,579.41	3,552.95	12.77	13.73	-66.84	-385.40	-153.74	326.87	301.35	25.51	12.812		
3,700.00	3,694.81	3,678.87	3,651.43	13.14	14.15	-66.90	-398.12	-159.24	337.32	311.07	26.25	12.849		
3,800.00	3,794.62	3,778.32	3,749.91	13.50	14.56	-66.96	-410.84	-164.74	347.78	320.79	26.99	12.885		
3,900.00	3,894.43	3,877.77	3,848.39	13.87	14.97	-67.01	-423.56	-170.25	358.23	330.50	27.73	12.918		
4,000.00	3,994.23	3,977.22	3,946.87	14.24	15.38	-67.07	-436.28	-175.75	368.69	340.22	28.47	12.949		
4,100.00	4,094.04	4,076.67	4,045.35	14.61	15.79	-67.12	-449.00	-181.25	379.15	349.94	29.21	12.979		
4,200.00	4,193.85	4,176.12	4,143.83	14.98	16.21	-67.16	-461.72	-186.75	389.61	359.65	29.95	13.007		
4,300.00	4,293.65	4,275.57	4,242.31	15.35	16.62	-67.21	-474.44	-192.25	400.06	369.37	30.69	13.034		
4,400.00	4,393.46	4,375.02	4,340.79	15.72	17.03	-67.25	-487.16	-197.75	410.52	379.09	31.43	13.060		
4,500.00	4,493.27	4,474.48	4,439.27	16.09	17.44	-67.29	-499.88	-203.25	420.98	388.80	32.17	13.084		
4,600.00	4,593.07	4,573.93	4,537.76	16.46	17.86	-67.33	-512.60	-208.75	431.44	398.52	32.92	13.107		
4,700.00	4,692.88	4,673.38	4,636.24	16.83	18.27	-67.36	-525.32	-214.25	441.89	408.24	33.66	13.129		
4,800.00	4,792.68	4,772.83	4,734.72	17.20	18.68	-67.40	-538.04	-219.75	452.35	417.95	34.40	13.150		
4,900.00	4,892.49	4,872.28	4,833.20	17.57	19.09	-67.43	-550.77	-225.25	462.81	427.67	35.14	13.170		
5,000.00	4,992.30	4,971.73	4,931.68	17.94	19.51	-67.46	-563.49	-230.75	473.27	437.39	35.88	13.190		

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

Cathedral Energy Services

Anticollision Report

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well SAM 3H-25H-M166
Project:	DJ BASIN	TVD Reference:	23' KB @ 5109.00usft
Reference Site:	S25-T1N-R66W (SAM)	MD Reference:	23' KB @ 5109.00usft
Site Error:	0.00usft	North Reference:	Grid
Reference Well:	SAM 3H-25H-M166	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	PLAN #1	Offset TVD Reference:	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)	Centre +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning	
5,100.00	5,092.10	5,071.18	5,030.16	18.31	19.92	-67.49	-576.21	-236.25	483.73	447.11	36.62	13.208		
5,200.00	5,191.91	5,170.63	5,128.64	18.68	20.33	-67.52	-588.93	-241.75	494.19	456.82	37.37	13.226		
5,300.00	5,291.72	5,270.09	5,227.12	19.05	20.75	-67.55	-601.65	-247.25	504.65	466.54	38.11	13.243		
5,400.00	5,391.52	5,369.54	5,325.60	19.42	21.16	-67.58	-614.37	-252.75	515.11	476.26	38.85	13.259		
5,500.00	5,491.33	5,468.99	5,424.08	19.79	21.57	-67.60	-627.09	-258.25	525.57	485.97	39.59	13.275		
5,600.00	5,591.14	5,568.44	5,522.56	20.16	21.99	-67.63	-639.81	-263.75	536.03	495.69	40.33	13.290		
5,700.00	5,690.94	5,672.23	5,625.36	20.53	22.42	-67.66	-652.99	-269.45	546.40	505.29	41.11	13.291		
5,800.00	5,790.75	5,793.26	5,745.64	20.90	22.89	-67.83	-665.19	-274.72	554.14	512.16	41.99	13.198		
5,831.20	5,821.89	5,831.12	5,783.38	21.01	23.04	-67.93	-668.04	-275.96	555.77	513.52	42.25	13.156		
5,900.00	5,890.60	5,914.75	5,866.85	21.27	23.34	-68.17	-672.73	-277.98	558.33	515.54	42.79	13.048		
6,009.43	6,000.00	6,047.95	6,000.00	21.65	23.78	179.52	-675.57	-279.21	559.88	516.33	43.56	12.854		
6,100.00	6,090.57	6,138.52	6,090.57	21.95	24.04	179.52	-675.57	-279.21	559.88	515.74	44.14	12.683		
6,200.00	6,190.57	6,238.52	6,190.57	22.28	24.34	179.52	-675.57	-279.21	559.88	515.09	44.80	12.498		
6,300.00	6,290.57	6,338.52	6,290.57	22.62	24.63	179.52	-675.57	-279.21	559.88	514.43	45.45	12.319		
6,400.00	6,390.57	6,438.52	6,390.57	22.95	24.92	179.52	-675.57	-279.21	559.88	513.78	46.11	12.143		
6,500.00	6,490.57	6,538.52	6,490.57	23.29	25.22	179.52	-675.57	-279.21	559.88	513.12	46.76	11.973		
6,600.00	6,590.57	6,638.52	6,590.57	23.62	25.52	179.52	-675.57	-279.21	559.88	512.46	47.42	11.806		
6,700.00	6,690.57	6,738.52	6,690.57	23.96	25.82	179.52	-675.57	-279.21	559.88	511.80	48.08	11.644		
6,740.72	6,731.29	6,779.26	6,731.29	24.10	25.94	179.42	-675.56	-278.23	559.88	511.53	48.35	11.579		
6,800.00	6,790.57	6,838.07	6,789.83	24.30	26.11	178.86	-675.51	-272.75	559.91	511.15	48.76	11.484		
6,873.23	6,863.80	6,908.88	6,859.42	24.55	26.31	177.53	-675.37	-259.80	560.20	510.94	49.26	11.372		
6,900.00	6,890.57	6,934.16	6,883.90	24.63	26.37	87.50	-675.31	-253.52	560.44	511.00	49.45	11.334		
6,950.00	6,940.43	6,980.85	6,928.48	24.79	26.49	86.37	-675.17	-239.67	561.07	511.29	49.78	11.272		
7,000.00	6,989.91	7,026.90	6,971.47	24.94	26.60	85.26	-675.00	-223.20	561.90	511.81	50.09	11.218		
7,050.00	7,038.79	7,072.35	7,012.78	25.09	26.70	84.18	-674.81	-204.26	562.92	512.53	50.39	11.172		
7,100.00	7,086.80	7,117.25	7,052.33	25.24	26.79	83.14	-674.59	-183.02	564.10	513.44	50.66	11.134		
7,150.00	7,133.74	7,161.63	7,090.04	25.38	26.88	82.13	-674.36	-159.62	565.42	514.50	50.93	11.103		
7,200.00	7,179.35	7,205.54	7,125.85	25.52	26.95	81.16	-674.10	-134.23	566.86	515.69	51.18	11.077		
7,250.00	7,223.43	7,250.00	7,160.45	25.66	27.03	80.22	-673.81	-106.32	568.39	516.96	51.43	11.052		
7,300.00	7,265.76	7,292.06	7,191.53	25.81	27.09	79.36	-673.53	-78.00	569.98	518.31	51.67	11.031		
7,350.00	7,306.13	7,334.74	7,221.32	25.97	27.15	78.53	-673.22	-47.44	571.60	519.66	51.93	11.006		
7,400.00	7,344.35	7,377.08	7,249.03	26.14	27.21	77.75	-672.89	-15.43	573.22	521.00	52.23	10.976		
7,450.00	7,380.22	7,419.12	7,274.61	26.35	27.27	77.03	-672.55	17.92	574.83	522.27	52.56	10.937		
7,500.00	7,413.58	7,460.87	7,298.04	26.60	27.34	76.36	-672.20	52.47	576.39	523.44	52.94	10.887		
7,550.00	7,444.26	7,500.00	7,318.13	26.89	27.42	75.78	-671.86	86.03	577.88	524.52	53.36	10.829		
7,600.00	7,472.11	7,543.66	7,338.35	27.24	27.61	75.21	-671.47	124.72	579.27	525.32	53.96	10.736		
7,650.00	7,497.00	7,584.75	7,355.19	27.65	27.92	74.73	-671.09	162.19	580.56	525.94	54.61	10.630		
7,700.00	7,518.80	7,625.66	7,369.80	28.13	28.34	74.30	-670.70	200.40	581.71	526.33	55.38	10.503		
7,750.00	7,537.41	7,666.43	7,382.17	28.68	28.83	73.94	-670.30	239.24	582.71	526.44	56.27	10.355		
7,800.00	7,552.74	7,707.09	7,392.28	29.30	29.37	73.65	-669.90	278.61	583.56	526.27	57.28	10.187		
7,850.00	7,564.72	7,750.00	7,400.50	29.99	29.99	73.40	-669.47	320.72	584.23	525.77	58.47	9.993		
7,900.00	7,573.27	7,788.13	7,405.69	30.74	30.60	73.25	-669.09	358.49	584.72	525.02	59.70	9.795		
7,950.00	7,578.38	7,828.56	7,408.98	31.55	31.27	73.15	-668.68	398.78	585.02	523.93	61.08	9.577		
7,998.23	7,580.00	7,867.73	7,410.00	32.38	31.95	73.11	-668.28	437.93	585.12	522.61	62.52	9.360		
8,000.00	7,580.00	7,869.51	7,410.00	32.42	31.98	73.11	-668.27	439.70	585.12	522.54	62.58	9.350		
8,100.00	7,580.00	7,969.51	7,410.00	34.29	33.90	73.11	-667.25	539.70	585.12	518.92	66.20	8.838		
8,200.00	7,580.00	8,069.51	7,410.00	36.35	35.98	73.11	-666.23	639.69	585.12	514.96	70.16	8.340		
8,300.00	7,580.00	8,169.51	7,410.00	38.57	38.21	73.11	-665.22	739.69	585.12	510.70	74.42	7.863		
8,400.00	7,580.00	8,269.51	7,410.00	40.92	40.58	73.11	-664.20	839.68	585.12	506.20	78.92	7.414		
8,500.00	7,580.00	8,369.51	7,410.00	43.38	43.05	73.11	-663.18	939.68	585.12	501.48	83.64	6.996		
8,600.00	7,580.00	8,469.51	7,410.00	45.93	45.62	73.11	-662.17	1,039.67	585.12	496.59	88.53	6.609		
8,700.00	7,580.00	8,569.51	7,410.00	48.56	48.26	73.11	-661.15	1,139.67	585.12	491.55	93.58	6.253		

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

Cathedral Energy Services

Anticollision Report

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well SAM 3H-25H-M166
Project:	DJ BASIN	TVD Reference:	23' KB @ 5109.00usft
Reference Site:	S25-T1N-R66W (SAM)	MD Reference:	23' KB @ 5109.00usft
Site Error:	0.00usft	North Reference:	Grid
Reference Well:	SAM 3H-25H-M166	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	PLAN #1	Offset TVD Reference:	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							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	7,580.00	8,669.51	7,410.00	51.26	50.97	73.11	-660.14	1,239.66	585.12	486.38	98.74	5.926		
8,900.00	7,580.00	8,769.51	7,410.00	54.01	53.73	73.11	-659.12	1,339.66	585.12	481.10	104.02	5.625		
9,000.00	7,580.00	8,869.51	7,410.00	56.81	56.53	73.11	-658.10	1,439.65	585.12	475.74	109.39	5.349		
9,100.00	7,580.00	8,969.51	7,410.00	59.65	59.38	73.11	-657.09	1,539.65	585.12	470.29	114.83	5.096		
9,200.00	7,580.00	9,069.51	7,410.00	62.52	62.27	73.11	-656.07	1,639.64	585.12	464.78	120.34	4.862		
9,300.00	7,580.00	9,169.51	7,410.00	65.43	65.18	73.11	-655.05	1,739.63	585.12	459.21	125.92	4.647		
9,400.00	7,580.00	9,269.51	7,410.00	68.36	68.12	73.11	-654.04	1,839.63	585.12	453.58	131.54	4.448		
9,500.00	7,580.00	9,369.51	7,410.00	71.32	71.08	73.11	-653.02	1,939.62	585.12	447.91	137.21	4.264		
9,600.00	7,580.00	9,469.51	7,410.00	74.29	74.06	73.11	-652.01	2,039.62	585.12	442.21	142.92	4.094		
9,700.00	7,580.00	9,569.51	7,410.00	77.29	77.06	73.11	-650.99	2,139.61	585.12	436.46	148.66	3.936		
9,800.00	7,580.00	9,669.51	7,410.00	80.30	80.08	73.11	-649.97	2,239.61	585.12	430.69	154.44	3.789		
9,900.00	7,580.00	9,769.51	7,410.00	83.33	83.11	73.11	-648.96	2,339.60	585.12	424.88	160.24	3.652		
10,000.00	7,580.00	9,869.51	7,410.00	86.37	86.16	73.11	-647.94	2,439.60	585.12	419.06	166.07	3.523		
10,100.00	7,580.00	9,969.51	7,410.00	89.42	89.21	73.11	-646.92	2,539.59	585.12	413.21	171.92	3.403		
10,200.00	7,580.00	10,069.51	7,410.00	92.48	92.28	73.11	-645.91	2,639.59	585.12	407.33	177.79	3.291		
10,300.00	7,580.00	10,169.51	7,410.00	95.55	95.35	73.11	-644.89	2,739.58	585.12	401.45	183.68	3.186		
10,400.00	7,580.00	10,269.51	7,410.00	98.63	98.43	73.11	-643.88	2,839.58	585.12	395.54	189.58	3.086		
10,500.00	7,580.00	10,369.51	7,410.00	101.72	101.52	73.11	-642.86	2,939.57	585.12	389.62	195.51	2.993		
10,600.00	7,580.00	10,469.51	7,410.00	104.81	104.62	73.11	-641.84	3,039.57	585.12	383.68	201.44	2.905		
10,700.00	7,580.00	10,569.51	7,410.00	107.91	107.73	73.11	-640.83	3,139.56	585.12	377.74	207.39	2.821		
10,800.00	7,580.00	10,669.51	7,410.00	111.02	110.83	73.11	-639.81	3,239.56	585.12	371.78	213.35	2.743		
10,900.00	7,580.00	10,769.51	7,410.00	114.13	113.95	73.11	-638.79	3,339.55	585.12	365.81	219.32	2.668		
11,000.00	7,580.00	10,869.51	7,410.00	117.25	117.07	73.11	-637.78	3,439.55	585.13	359.83	225.29	2.597		
11,100.00	7,580.00	10,969.51	7,410.00	120.37	120.19	73.11	-636.76	3,539.54	585.13	353.84	231.28	2.530		
11,200.00	7,580.00	11,069.51	7,410.00	123.50	123.32	73.11	-635.75	3,639.54	585.13	347.85	237.28	2.466		
11,300.00	7,580.00	11,169.51	7,410.00	126.63	126.46	73.11	-634.73	3,739.53	585.13	341.84	243.28	2.405		
11,400.00	7,580.00	11,269.51	7,410.00	129.77	129.59	73.11	-633.71	3,839.53	585.13	335.83	249.29	2.347		
11,500.00	7,580.00	11,369.51	7,410.00	132.90	132.73	73.11	-632.70	3,939.52	585.13	329.81	255.31	2.292		
11,600.00	7,580.00	11,469.51	7,410.00	136.04	135.87	73.11	-631.68	4,039.52	585.13	323.79	261.34	2.239		
11,700.00	7,580.00	11,569.51	7,410.00	139.19	139.02	73.11	-630.66	4,139.51	585.13	317.76	267.37	2.188		
11,800.00	7,580.00	11,669.51	7,410.00	142.33	142.17	73.11	-629.65	4,239.51	585.13	311.73	273.40	2.140		
11,900.00	7,580.00	11,769.51	7,410.00	145.48	145.32	73.11	-628.63	4,339.50	585.13	305.68	279.44	2.094		
12,000.00	7,580.00	11,869.51	7,410.00	148.64	148.47	73.11	-627.62	4,439.50	585.13	299.64	285.49	2.050		
12,006.73	7,580.00	11,876.24	7,410.00	148.85	148.68	73.11	-627.55	4,446.23	585.13	299.23	285.89	2.047		
12,070.04	7,580.00	11,936.55	7,410.00	150.84	150.10	73.11	-626.93	4,506.54	585.13	295.96	289.17	2.023 SF		

Cathedral Energy Services

Anticollision Report

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well SAM 3H-25H-M166
Project:	DJ BASIN	TVD Reference:	23' KB @ 5109.00usft
Reference Site:	S25-T1N-R66W (SAM)	MD Reference:	23' KB @ 5109.00usft
Site Error:	0.00usft	North Reference:	Grid
Reference Well:	SAM 3H-25H-M166	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	PLAN #1	Offset TVD Reference:	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		
0.00	0.00	0.00	0.00	0.00	0.00	-179.69	-39.72	-0.22	39.72					
100.00	100.00	100.00	100.00	0.14	0.14	-179.69	-39.72	-0.22	39.72	39.44	0.28	143.895		
200.00	200.00	200.00	200.00	0.50	0.50	-179.69	-39.72	-0.22	39.72	38.73	0.99	40.000		
300.00	300.00	300.00	300.00	0.85	0.85	-179.69	-39.72	-0.22	39.72	38.01	1.71	23.228		
400.00	400.00	400.00	400.00	1.21	1.21	-179.69	-39.72	-0.22	39.72	37.29	2.43	16.366		
500.00	500.00	500.00	500.00	1.57	1.57	-179.69	-39.72	-0.22	39.72	36.57	3.14	12.634	CC, ES	
600.00	600.00	598.66	598.64	1.93	1.91	-178.96	-41.33	-0.75	41.36	37.50	3.85	10.730		
700.00	700.00	697.09	696.93	2.29	2.24	-177.08	-46.15	-2.35	46.31	41.74	4.57	10.127		
800.00	800.00	795.05	794.53	2.65	2.58	-174.73	-54.13	-5.00	54.63	49.33	5.30	10.304		
900.00	900.00	892.32	891.10	3.01	2.93	-172.43	-65.18	-8.66	66.35	60.32	6.03	10.999		
1,000.00	999.98	989.66	987.31	3.35	3.29	-59.10	-79.20	-13.31	80.41	73.68	6.73	11.946		
1,078.23	1,078.11	1,067.19	1,063.83	3.62	3.60	-59.64	-90.96	-17.21	90.82	83.57	7.25	12.528		
1,100.00	1,099.84	1,088.78	1,085.15	3.69	3.68	-59.98	-94.24	-18.30	93.57	86.17	7.40	12.651		
1,200.00	1,199.65	1,187.95	1,183.04	4.04	4.07	-61.28	-109.29	-23.29	106.24	98.16	8.08	13.145		
1,300.00	1,299.46	1,287.11	1,280.93	4.39	4.48	-62.31	-124.34	-28.28	118.96	110.18	8.78	13.554		
1,400.00	1,399.26	1,386.28	1,378.82	4.74	4.88	-63.13	-139.39	-33.28	131.70	122.22	9.48	13.894		
1,500.00	1,499.07	1,485.45	1,476.72	5.10	5.29	-63.81	-154.44	-38.27	144.47	134.28	10.19	14.181		
1,600.00	1,598.88	1,584.62	1,574.61	5.45	5.70	-64.38	-169.50	-43.26	157.26	146.35	10.90	14.425		
1,700.00	1,698.68	1,683.79	1,672.50	5.81	6.12	-64.87	-184.55	-48.25	170.05	158.43	11.62	14.636		
1,800.00	1,798.49	1,782.95	1,770.39	6.17	6.54	-65.29	-199.60	-53.24	182.86	170.52	12.34	14.818		
1,900.00	1,898.30	1,882.12	1,868.28	6.53	6.95	-65.65	-214.65	-58.24	195.68	182.61	13.06	14.978		
2,000.00	1,998.10	1,981.29	1,966.18	6.90	7.37	-65.97	-229.70	-63.23	208.50	194.71	13.79	15.119		
2,100.00	2,097.91	2,080.46	2,064.07	7.26	7.79	-66.25	-244.75	-68.22	221.33	206.81	14.52	15.244		
2,200.00	2,197.71	2,179.63	2,161.96	7.63	8.22	-66.50	-259.80	-73.21	234.16	218.91	15.25	15.355		
2,300.00	2,297.52	2,278.80	2,259.85	7.99	8.64	-66.72	-274.85	-78.20	247.00	231.02	15.98	15.455		
2,400.00	2,397.33	2,377.96	2,357.75	8.36	9.06	-66.92	-289.90	-83.19	259.84	243.12	16.71	15.546		
2,500.00	2,497.13	2,477.13	2,455.64	8.72	9.48	-67.11	-304.95	-88.19	272.68	255.23	17.45	15.627		
2,600.00	2,596.94	2,576.30	2,553.53	9.09	9.91	-67.27	-320.01	-93.18	285.53	267.34	18.18	15.702		
2,700.00	2,696.75	2,675.47	2,651.42	9.45	10.33	-67.43	-335.06	-98.17	298.37	279.45	18.92	15.770		
2,800.00	2,796.55	2,774.64	2,749.31	9.82	10.76	-67.57	-350.11	-103.16	311.22	291.57	19.66	15.832		
2,900.00	2,896.36	2,873.81	2,847.21	10.19	11.18	-67.69	-365.16	-108.15	324.07	303.68	20.40	15.890		
3,000.00	2,996.17	2,972.97	2,945.10	10.56	11.61	-67.81	-380.21	-113.15	336.93	315.79	21.13	15.943		
3,100.00	3,095.97	3,072.14	3,042.99	10.92	12.03	-67.92	-395.26	-118.14	349.78	327.91	21.87	15.992		
3,200.00	3,195.78	3,171.31	3,140.88	11.29	12.46	-68.02	-410.31	-123.13	362.64	340.02	22.61	16.037		
3,300.00	3,295.59	3,270.48	3,238.78	11.66	12.88	-68.12	-425.36	-128.12	375.49	352.14	23.35	16.080		
3,400.00	3,395.39	3,369.65	3,336.67	12.03	13.31	-68.21	-440.41	-133.11	388.35	364.26	24.09	16.119		
3,500.00	3,495.20	3,468.82	3,434.56	12.40	13.74	-68.29	-455.46	-138.10	401.21	376.38	24.83	16.156		
3,600.00	3,595.01	3,567.98	3,532.45	12.77	14.16	-68.37	-470.51	-143.10	414.07	388.49	25.57	16.191		
3,700.00	3,694.81	3,667.15	3,630.34	13.14	14.59	-68.44	-485.57	-148.09	426.93	400.61	26.32	16.223		
3,800.00	3,794.62	3,766.32	3,728.24	13.50	15.02	-68.51	-500.62	-153.08	439.79	412.73	27.06	16.254		
3,900.00	3,894.43	3,865.49	3,826.13	13.87	15.44	-68.58	-515.67	-158.07	452.65	424.85	27.80	16.283		
4,000.00	3,994.23	3,964.66	3,924.02	14.24	15.87	-68.64	-530.72	-163.06	465.51	436.97	28.54	16.310		
4,100.00	4,094.04	4,063.83	4,021.91	14.61	16.30	-68.70	-545.77	-168.06	478.37	449.09	29.28	16.336		
4,200.00	4,193.85	4,162.99	4,119.81	14.98	16.72	-68.75	-560.82	-173.05	491.23	461.21	30.03	16.360		
4,300.00	4,293.65	4,262.16	4,217.70	15.35	17.15	-68.80	-575.87	-178.04	504.10	473.33	30.77	16.383		
4,400.00	4,393.46	4,361.33	4,315.59	15.72	17.58	-68.85	-590.92	-183.03	516.96	485.45	31.51	16.405		
4,500.00	4,493.27	4,460.50	4,413.48	16.09	18.01	-68.90	-605.97	-188.02	529.82	497.57	32.26	16.425		
4,600.00	4,593.07	4,559.67	4,511.38	16.46	18.43	-68.95	-621.02	-193.02	542.69	509.69	33.00	16.445		
4,700.00	4,692.88	4,658.83	4,609.27	16.83	18.86	-68.99	-636.08	-198.01	555.55	521.81	33.74	16.464		
4,800.00	4,792.68	4,758.00	4,707.16	17.20	19.29	-69.03	-651.13	-203.00	568.42	533.93	34.49	16.482		
4,900.00	4,892.49	4,857.17	4,805.05	17.57	19.72	-69.07	-666.18	-207.99	581.28	546.05	35.23	16.499		
5,000.00	4,992.30	4,956.34	4,902.94	17.94	20.15	-69.11	-681.23	-212.98	594.15	558.17	35.98	16.516		

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

Cathedral Energy Services

Anticollision Report

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well SAM 3H-25H-M166
Project:	DJ BASIN	TVD Reference:	23' KB @ 5109.00usft
Reference Site:	S25-T1N-R66W (SAM)	MD Reference:	23' KB @ 5109.00usft
Site Error:	0.00usft	North Reference:	Grid
Reference Well:	SAM 3H-25H-M166	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	PLAN #1	Offset TVD Reference:	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	5,092.10	5,055.51	5,000.84	18.31	20.57	-69.14	-696.28	-217.97	607.01	570.29	36.72	16.531		
5,200.00	5,191.91	5,154.68	5,098.73	18.68	21.00	-69.18	-711.33	-222.97	619.88	582.41	37.46	16.546		
5,300.00	5,291.72	5,253.84	5,196.62	19.05	21.43	-69.21	-726.38	-227.96	632.74	594.53	38.21	16.561		
5,400.00	5,391.52	5,353.01	5,294.51	19.42	21.86	-69.24	-741.43	-232.95	645.61	606.66	38.95	16.574		
5,500.00	5,491.33	5,452.18	5,392.41	19.79	22.28	-69.27	-756.48	-237.94	658.47	618.78	39.70	16.588		
5,600.00	5,591.14	5,551.35	5,490.30	20.16	22.71	-69.30	-771.53	-242.93	671.34	630.90	40.44	16.600		
5,700.00	5,690.94	5,650.52	5,588.19	20.53	23.14	-69.33	-786.59	-247.93	684.21	643.02	41.19	16.612		
5,800.00	5,790.75	5,749.69	5,686.08	20.90	23.57	-69.36	-801.64	-252.92	697.07	655.14	41.93	16.624		
5,831.20	5,821.89	5,780.62	5,716.62	21.01	23.70	-69.37	-806.33	-254.47	701.09	658.92	42.16	16.628		
5,900.00	5,890.60	5,848.81	5,783.93	21.27	24.00	-69.49	-816.68	-257.91	710.23	667.56	42.67	16.644		
6,009.43	6,000.00	5,957.02	5,890.75	21.65	24.46	178.36	-833.10	-263.35	725.96	682.51	43.45	16.708		
6,100.00	6,090.57	6,058.52	5,991.01	21.95	24.90	178.78	-848.11	-268.33	739.30	695.13	44.17	16.738		
6,200.00	6,190.57	6,190.12	6,121.65	22.28	25.43	179.19	-863.09	-273.30	750.63	705.58	45.05	16.662		
6,300.00	6,290.57	6,322.91	6,254.06	22.62	25.91	179.43	-872.43	-276.40	757.63	711.79	45.84	16.527		
6,400.00	6,390.57	6,456.33	6,387.41	22.95	26.35	179.52	-875.93	-277.56	760.25	713.72	46.53	16.338		
6,500.00	6,490.57	6,559.49	6,490.57	23.29	26.64	179.52	-875.96	-277.57	760.27	713.10	47.18	16.115		
6,600.00	6,590.57	6,659.49	6,590.57	23.62	26.91	179.52	-875.96	-277.57	760.27	712.45	47.83	15.896		
6,678.59	6,669.17	6,738.11	6,669.17	23.89	27.13	179.41	-875.94	-276.13	760.27	711.93	48.34	15.727		
6,700.00	6,690.57	6,759.43	6,690.42	23.96	27.19	179.29	-875.93	-274.46	760.27	711.79	48.48	15.681		
6,800.00	6,790.57	6,856.89	6,786.54	24.30	27.45	178.11	-875.77	-258.83	760.48	711.32	49.16	15.469		
6,873.23	6,863.80	6,924.73	6,851.78	24.55	27.61	176.72	-875.58	-240.32	761.21	711.54	49.67	15.326		
6,900.00	6,890.57	6,950.00	6,875.59	24.63	27.67	86.66	-875.49	-231.85	761.68	711.83	49.85	15.279		
6,950.00	6,940.43	6,992.90	6,915.28	24.79	27.76	85.57	-875.32	-215.58	762.78	712.60	50.18	15.202		
7,000.00	6,989.91	7,036.35	6,954.40	24.94	27.85	84.48	-875.13	-196.70	764.15	713.67	50.48	15.137		
7,050.00	7,038.79	7,079.12	6,991.73	25.09	27.93	83.41	-874.92	-175.84	765.77	715.00	50.77	15.083		
7,100.00	7,086.80	7,121.26	7,027.23	25.24	28.00	82.38	-874.68	-153.14	767.59	716.55	51.04	15.038		
7,150.00	7,133.74	7,162.83	7,060.88	25.38	28.07	81.39	-874.43	-128.74	769.59	718.29	51.30	15.002		
7,200.00	7,179.35	7,200.00	7,089.72	25.52	28.13	80.51	-874.19	-105.31	771.72	720.21	51.51	14.981		
7,250.00	7,223.43	7,244.46	7,122.57	25.66	28.18	79.52	-873.89	-75.36	773.94	722.16	51.78	14.946		
7,300.00	7,265.76	7,284.61	7,150.58	25.81	28.23	78.66	-873.59	-46.61	776.22	724.19	52.03	14.919		
7,350.00	7,306.13	7,324.36	7,176.69	25.97	28.27	77.84	-873.28	-16.64	778.53	726.24	52.29	14.888		
7,400.00	7,344.35	7,363.76	7,200.88	26.14	28.31	77.07	-872.97	14.45	780.83	728.25	52.58	14.850		
7,450.00	7,380.22	7,400.00	7,221.60	26.35	28.34	76.40	-872.66	44.18	783.08	730.21	52.87	14.811		
7,500.00	7,413.58	7,441.64	7,243.51	26.60	28.37	75.70	-872.30	79.58	785.25	731.95	53.30	14.732		
7,550.00	7,444.26	7,480.18	7,261.92	26.89	28.39	75.10	-871.95	113.43	787.31	733.54	53.77	14.643		
7,600.00	7,472.11	7,518.50	7,278.40	27.24	28.42	74.56	-871.60	148.02	789.23	734.92	54.31	14.531		
7,650.00	7,497.00	7,556.62	7,292.93	27.65	28.46	74.08	-871.24	183.25	791.00	736.04	54.95	14.394		
7,700.00	7,518.80	7,600.00	7,307.16	28.13	28.69	73.62	-870.82	224.23	792.60	736.80	55.79	14.207		
7,750.00	7,537.41	7,632.38	7,316.15	28.68	29.07	73.30	-870.50	255.32	793.94	737.36	56.58	14.032		
7,800.00	7,552.74	7,670.07	7,324.83	29.30	29.59	73.01	-870.12	291.99	795.09	737.52	57.57	13.811		
7,850.00	7,564.72	7,707.66	7,331.56	29.99	30.14	72.78	-869.74	328.98	795.99	737.32	58.68	13.565		
7,900.00	7,573.27	7,750.00	7,336.80	30.74	30.82	72.60	-869.31	370.98	796.67	736.69	59.98	13.282		
7,950.00	7,578.38	7,782.67	7,339.14	31.55	31.37	72.51	-868.98	403.56	797.06	735.81	61.24	13.014		
7,998.23	7,580.00	7,819.15	7,340.00	32.38	32.01	72.48	-868.60	440.03	797.20	734.57	62.63	12.728		
8,000.00	7,580.00	7,820.93	7,340.00	32.42	32.04	72.48	-868.59	441.80	797.20	734.50	62.69	12.716		
8,100.00	7,580.00	7,920.93	7,340.00	34.29	33.95	72.48	-867.56	541.80	797.19	730.90	66.29	12.026		
8,200.00	7,580.00	8,020.93	7,340.00	36.35	36.03	72.48	-866.54	641.79	797.18	726.96	70.23	11.352		
8,300.00	7,580.00	8,120.93	7,340.00	38.57	38.26	72.48	-865.51	741.79	797.17	722.71	74.46	10.706		
8,400.00	7,580.00	8,220.93	7,340.00	40.92	40.62	72.48	-864.49	841.78	797.17	718.22	78.94	10.098		
8,500.00	7,580.00	8,320.93	7,340.00	43.38	43.09	72.48	-863.46	941.78	797.16	713.52	83.64	9.531		
8,600.00	7,580.00	8,420.93	7,340.00	45.93	45.65	72.48	-862.44	1,041.77	797.15	708.64	88.50	9.007		
8,700.00	7,580.00	8,520.93	7,340.00	48.56	48.29	72.48	-861.41	1,141.77	797.14	703.62	93.52	8.524		

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

Cathedral Energy Services

Anticollision Report

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well SAM 3H-25H-M166
Project:	DJ BASIN	TVD Reference:	23' KB @ 5109.00usft
Reference Site:	S25-T1N-R66W (SAM)	MD Reference:	23' KB @ 5109.00usft
Site Error:	0.00usft	North Reference:	Grid
Reference Well:	SAM 3H-25H-M166	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	PLAN #1	Offset TVD Reference:	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	7,580.00	8,620.93	7,340.00	51.26	50.99	72.48	-860.39	1,241.76	797.13	698.47	98.67	8.079		
8,900.00	7,580.00	8,720.93	7,340.00	54.01	53.75	72.48	-859.36	1,341.76	797.13	693.21	103.92	7.671		
9,000.00	7,580.00	8,820.93	7,340.00	56.81	56.56	72.48	-858.34	1,441.75	797.12	687.86	109.26	7.296		
9,100.00	7,580.00	8,920.93	7,340.00	59.65	59.40	72.48	-857.31	1,541.74	797.11	682.43	114.68	6.951		
9,200.00	7,580.00	9,020.93	7,340.00	62.52	62.28	72.48	-856.29	1,641.74	797.10	676.93	120.17	6.633		
9,300.00	7,580.00	9,120.93	7,340.00	65.43	65.19	72.48	-855.26	1,741.73	797.09	671.38	125.72	6.340		
9,400.00	7,580.00	9,220.93	7,340.00	68.36	68.13	72.48	-854.24	1,841.73	797.09	665.77	131.32	6.070		
9,500.00	7,580.00	9,320.93	7,340.00	71.32	71.09	72.48	-853.21	1,941.72	797.08	660.11	136.96	5.820		
9,600.00	7,580.00	9,420.93	7,340.00	74.29	74.07	72.48	-852.19	2,041.72	797.07	654.42	142.65	5.588		
9,700.00	7,580.00	9,520.93	7,340.00	77.29	77.07	72.48	-851.16	2,141.71	797.06	648.69	148.37	5.372		
9,800.00	7,580.00	9,620.93	7,340.00	80.30	80.08	72.48	-850.14	2,241.71	797.05	642.93	154.12	5.172		
9,900.00	7,580.00	9,720.93	7,340.00	83.33	83.11	72.48	-849.11	2,341.70	797.05	637.14	159.90	4.985		
10,000.00	7,580.00	9,820.93	7,340.00	86.37	86.15	72.48	-848.09	2,441.70	797.04	631.33	165.71	4.810		
10,100.00	7,580.00	9,920.93	7,340.00	89.42	89.21	72.48	-847.07	2,541.69	797.03	625.49	171.54	4.646		
10,200.00	7,580.00	10,020.93	7,340.00	92.48	92.27	72.48	-846.04	2,641.69	797.02	619.63	177.39	4.493		
10,300.00	7,580.00	10,120.93	7,340.00	95.55	95.34	72.47	-845.02	2,741.68	797.01	613.76	183.26	4.349		
10,400.00	7,580.00	10,220.93	7,340.00	98.63	98.42	72.47	-843.99	2,841.68	797.01	607.87	189.14	4.214		
10,500.00	7,580.00	10,320.93	7,340.00	101.72	101.51	72.47	-842.97	2,941.67	797.00	601.96	195.04	4.086		
10,600.00	7,580.00	10,420.93	7,340.00	104.81	104.61	72.47	-841.94	3,041.67	796.99	596.04	200.95	3.966		
10,700.00	7,580.00	10,520.93	7,340.00	107.91	107.71	72.47	-840.92	3,141.66	796.98	590.10	206.88	3.852		
10,800.00	7,580.00	10,620.93	7,340.00	111.02	110.82	72.47	-839.89	3,241.66	796.97	584.16	212.81	3.745		
10,900.00	7,580.00	10,720.93	7,340.00	114.13	113.93	72.47	-838.87	3,341.65	796.97	578.20	218.76	3.643		
11,000.00	7,580.00	10,820.93	7,340.00	117.25	117.05	72.47	-837.84	3,441.65	796.96	572.24	224.72	3.546		
11,100.00	7,580.00	10,920.93	7,340.00	120.37	120.18	72.47	-836.82	3,541.64	796.95	566.26	230.69	3.455		
11,200.00	7,580.00	11,020.93	7,340.00	123.50	123.30	72.47	-835.79	3,641.63	796.94	560.28	236.66	3.367		
11,300.00	7,580.00	11,120.93	7,340.00	126.63	126.44	72.47	-834.77	3,741.63	796.93	554.29	242.64	3.284		
11,400.00	7,580.00	11,220.93	7,340.00	129.77	129.57	72.47	-833.74	3,841.62	796.93	548.29	248.63	3.205		
11,500.00	7,580.00	11,320.93	7,340.00	132.90	132.71	72.47	-832.72	3,941.62	796.92	542.29	254.63	3.130		
11,600.00	7,580.00	11,420.93	7,340.00	136.04	135.85	72.47	-831.69	4,041.61	796.91	536.28	260.63	3.058		
11,700.00	7,580.00	11,520.93	7,340.00	139.19	139.00	72.47	-830.67	4,141.61	796.90	530.26	266.64	2.989		
11,800.00	7,580.00	11,620.93	7,340.00	142.33	142.14	72.47	-829.64	4,241.60	796.89	524.24	272.66	2.923		
11,900.00	7,580.00	11,720.93	7,340.00	145.48	145.29	72.47	-828.62	4,341.60	796.88	518.21	278.67	2.860		
12,000.00	7,580.00	11,820.93	7,340.00	148.64	148.45	72.47	-827.59	4,441.59	796.88	512.18	284.70	2.799		
12,062.50	7,580.00	11,883.43	7,340.00	150.61	150.42	72.47	-826.95	4,504.09	796.87	508.41	288.47	2.762		
12,070.04	7,580.00	11,886.52	7,340.00	150.84	150.52	72.47	-826.92	4,507.18	796.88	508.08	288.80	2.759 SF		

Cathedral Energy Services

Anticollision Report

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well SAM 3H-25H-M166
Project:	DJ BASIN	TVD Reference:	23' KB @ 5109.00usft
Reference Site:	S25-T1N-R66W (SAM)	MD Reference:	23' KB @ 5109.00usft
Site Error:	0.00usft	North Reference:	Grid
Reference Well:	SAM 3H-25H-M166	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	PLAN #1	Offset TVD Reference:	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					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	-179.85	-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	49.63	0.28	180.813		
200.00	200.00	200.00	200.00	0.50	0.50	-179.85	-49.91	-0.13	49.91	48.92	0.99	50.262		
300.00	300.00	300.00	300.00	0.85	0.85	-179.85	-49.91	-0.13	49.91	48.20	1.71	29.188		
400.00	400.00	400.00	400.00	1.21	1.21	-179.85	-49.91	-0.13	49.91	47.48	2.43	20.565 CC, ES		
500.00	500.00	498.31	498.29	1.57	1.55	-179.34	-51.53	-0.60	51.56	48.42	3.14	16.411		
600.00	600.00	596.40	596.24	1.93	1.88	-177.98	-56.38	-1.99	56.54	52.66	3.87	14.606		
700.00	700.00	694.02	693.50	2.29	2.22	-176.18	-64.39	-4.30	64.86	60.25	4.61	14.068		
800.00	800.00	790.96	789.75	2.65	2.57	-174.33	-75.51	-7.50	76.57	71.21	5.35	14.305		
900.00	900.00	887.65	885.31	3.01	2.94	-172.65	-89.63	-11.57	91.56	85.48	6.08	15.069		
1,000.00	999.98	986.47	982.82	3.35	3.34	-59.71	-105.04	-16.00	106.76	100.01	6.74	15.828		
1,078.23	1,078.11	1,063.95	1,059.28	3.62	3.65	-60.26	-117.13	-19.48	117.45	110.18	7.27	16.156		
1,100.00	1,099.84	1,085.53	1,080.57	3.69	3.74	-60.57	-120.49	-20.45	120.28	112.86	7.42	16.217		
1,200.00	1,199.65	1,184.64	1,178.36	4.04	4.14	-61.80	-135.95	-24.90	133.33	125.23	8.11	16.450		
1,300.00	1,299.46	1,283.75	1,276.15	4.39	4.56	-62.82	-151.41	-29.36	146.44	137.63	8.80	16.634		
1,400.00	1,399.26	1,382.85	1,373.95	4.74	4.97	-63.66	-166.87	-33.81	159.58	150.07	9.51	16.783		
1,500.00	1,499.07	1,481.96	1,471.74	5.10	5.39	-64.38	-182.33	-38.26	172.74	162.53	10.22	16.905		
1,600.00	1,598.88	1,581.07	1,569.53	5.45	5.81	-65.00	-197.79	-42.71	185.94	175.00	10.93	17.005		
1,700.00	1,698.68	1,680.18	1,667.33	5.81	6.23	-65.54	-213.25	-47.16	199.15	187.49	11.65	17.089		
1,800.00	1,798.49	1,779.28	1,765.12	6.17	6.65	-66.00	-228.71	-51.61	212.37	200.00	12.38	17.160		
1,900.00	1,898.30	1,878.39	1,862.91	6.53	7.07	-66.42	-244.16	-56.06	225.61	212.51	13.10	17.220		
2,000.00	1,998.10	1,977.50	1,960.71	6.90	7.50	-66.79	-259.62	-60.52	238.86	225.03	13.83	17.272		
2,100.00	2,097.91	2,076.61	2,058.50	7.26	7.92	-67.12	-275.08	-64.97	252.12	237.56	14.56	17.317		
2,200.00	2,197.71	2,175.71	2,156.29	7.63	8.35	-67.41	-290.54	-69.42	265.38	250.09	15.29	17.356		
2,300.00	2,297.52	2,274.82	2,254.08	7.99	8.77	-67.68	-306.00	-73.87	278.65	262.63	16.02	17.390		
2,400.00	2,397.33	2,373.93	2,351.88	8.36	9.20	-67.92	-321.46	-78.32	291.93	275.17	16.76	17.421		
2,500.00	2,497.13	2,473.04	2,449.67	8.72	9.63	-68.15	-336.92	-82.77	305.21	287.72	17.49	17.448		
2,600.00	2,596.94	2,572.14	2,547.46	9.09	10.05	-68.35	-352.38	-87.22	318.49	300.26	18.23	17.472		
2,700.00	2,696.75	2,671.25	2,645.26	9.45	10.48	-68.54	-367.84	-91.67	331.78	312.82	18.97	17.493		
2,800.00	2,796.55	2,770.36	2,743.05	9.82	10.91	-68.71	-383.30	-96.13	345.07	325.37	19.70	17.513		
2,900.00	2,896.36	2,869.47	2,840.84	10.19	11.34	-68.87	-398.75	-100.58	358.37	337.93	20.44	17.531		
3,000.00	2,996.17	2,968.57	2,938.64	10.56	11.76	-69.02	-414.21	-105.03	371.67	350.48	21.18	17.547		
3,100.00	3,095.97	3,067.68	3,036.43	10.92	12.19	-69.16	-429.67	-109.48	384.96	363.04	21.92	17.561		
3,200.00	3,195.78	3,166.79	3,134.22	11.29	12.62	-69.29	-445.13	-113.93	398.27	375.60	22.66	17.575		
3,300.00	3,295.59	3,265.90	3,232.02	11.66	13.05	-69.41	-460.59	-118.38	411.57	388.17	23.40	17.587		
3,400.00	3,395.39	3,365.00	3,329.81	12.03	13.48	-69.52	-476.05	-122.83	424.87	400.73	24.14	17.598		
3,500.00	3,495.20	3,464.11	3,427.60	12.40	13.91	-69.63	-491.51	-127.29	438.18	413.30	24.88	17.608		
3,600.00	3,595.01	3,563.22	3,525.40	12.77	14.34	-69.73	-506.97	-131.74	451.49	425.86	25.63	17.618		
3,700.00	3,694.81	3,662.33	3,623.19	13.14	14.76	-69.82	-522.43	-136.19	464.80	438.43	26.37	17.627		
3,800.00	3,794.62	3,761.43	3,720.98	13.50	15.19	-69.91	-537.89	-140.64	478.11	451.00	27.11	17.635		
3,900.00	3,894.43	3,860.54	3,818.78	13.87	15.62	-70.00	-553.34	-145.09	491.42	463.57	27.85	17.643		
4,000.00	3,994.23	3,959.65	3,916.57	14.24	16.05	-70.08	-568.80	-149.54	504.73	476.14	28.60	17.650		
4,100.00	4,094.04	4,058.76	4,014.36	14.61	16.48	-70.15	-584.26	-153.99	518.05	488.71	29.34	17.656		
4,200.00	4,193.85	4,157.86	4,112.16	14.98	16.91	-70.22	-599.72	-158.44	531.36	501.28	30.08	17.663		
4,300.00	4,293.65	4,256.97	4,209.95	15.35	17.34	-70.29	-615.18	-162.90	544.68	513.85	30.83	17.669		
4,400.00	4,393.46	4,356.08	4,307.74	15.72	17.77	-70.36	-630.64	-167.35	557.99	526.42	31.57	17.674		
4,500.00	4,493.27	4,455.19	4,405.53	16.09	18.20	-70.42	-646.10	-171.80	571.31	538.99	32.32	17.679		
4,600.00	4,593.07	4,554.29	4,503.33	16.46	18.63	-70.48	-661.56	-176.25	584.63	551.57	33.06	17.684		
4,700.00	4,692.88	4,653.40	4,601.12	16.83	19.06	-70.54	-677.02	-180.70	597.94	564.14	33.80	17.689		
4,800.00	4,792.68	4,752.51	4,698.91	17.20	19.49	-70.59	-692.48	-185.15	611.26	576.71	34.55	17.693		
4,900.00	4,892.49	4,851.62	4,796.71	17.57	19.92	-70.64	-707.93	-189.60	624.58	589.29	35.29	17.697		
5,000.00	4,992.30	4,950.72	4,894.50	17.94	20.35	-70.69	-723.39	-194.06	637.90	601.86	36.04	17.701		

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

Cathedral Energy Services

Anticollision Report

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well SAM 3H-25H-M166
Project:	DJ BASIN	TVD Reference:	23' KB @ 5109.00usft
Reference Site:	S25-T1N-R66W (SAM)	MD Reference:	23' KB @ 5109.00usft
Site Error:	0.00usft	North Reference:	Grid
Reference Well:	SAM 3H-25H-M166	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	PLAN #1	Offset TVD Reference:	Offset Datum

Offset Design S25-T1N-R66W (SAM) - SAM 3M-25H-M166 - OH - PLAN #1													Offset Site Error: 0.00 usft			
Survey Program: 0-MWD+HDGM															Offset Well Error: 0.00 usft	
Reference		Offset		Semi Major Axis			Distance									
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	5,092.10	5,049.83	4,992.29	18.31	20.78	-70.74	-738.85	-198.51	651.22	614.44	36.78	17.705				
5,200.00	5,191.91	5,148.94	5,090.09	18.68	21.21	-70.79	-754.31	-202.96	664.54	627.01	37.53	17.708				
5,300.00	5,291.72	5,248.05	5,187.88	19.05	21.64	-70.83	-769.77	-207.41	677.86	639.59	38.27	17.712				
5,400.00	5,391.52	5,347.15	5,285.67	19.42	22.07	-70.87	-785.23	-211.86	691.18	652.16	39.02	17.715				
5,500.00	5,491.33	5,446.26	5,383.47	19.79	22.50	-70.91	-800.69	-216.31	704.50	664.74	39.76	17.718				
5,600.00	5,591.14	5,545.37	5,481.26	20.16	22.93	-70.95	-816.15	-220.76	717.82	677.32	40.51	17.721				
5,700.00	5,690.94	5,644.48	5,579.05	20.53	23.36	-70.99	-831.61	-225.22	731.15	689.89	41.25	17.723				
5,800.00	5,790.75	5,743.58	5,676.85	20.90	23.79	-71.03	-847.07	-229.67	744.47	702.47	42.00	17.726				
5,831.20	5,821.89	5,774.50	5,707.35	21.01	23.92	-71.04	-851.89	-231.06	748.62	706.39	42.23	17.727				
5,900.00	5,890.60	5,842.65	5,774.60	21.27	24.22	-71.18	-862.52	-234.12	758.06	715.32	42.74	17.737				
6,009.43	6,000.00	5,950.81	5,881.32	21.65	24.69	176.63	-879.39	-238.97	774.15	730.63	43.52	17.789				
6,100.00	6,090.57	6,040.18	5,969.51	21.95	25.08	176.99	-893.33	-242.99	788.05	743.90	44.15	17.851				
6,200.00	6,190.57	6,138.86	6,066.88	22.28	25.50	177.36	-908.72	-247.42	803.43	758.59	44.84	17.917				
6,300.00	6,290.57	6,237.53	6,164.24	22.62	25.93	177.73	-924.11	-251.85	818.84	773.31	45.54	17.982				
6,400.00	6,390.57	6,336.21	6,261.61	22.95	26.36	178.08	-939.50	-256.28	834.29	788.05	46.23	18.045				
6,500.00	6,490.57	6,434.88	6,358.97	23.29	26.79	178.42	-954.90	-260.72	849.76	802.83	46.93	18.107				
6,600.00	6,590.57	6,533.55	6,456.34	23.62	27.22	178.74	-970.29	-265.15	865.26	817.63	47.63	18.167				
6,700.00	6,690.57	6,632.23	6,553.70	23.96	27.65	179.06	-985.68	-269.58	880.79	832.46	48.33	18.226				
6,800.00	6,790.57	6,730.90	6,651.07	24.30	28.07	179.36	-1,001.07	-274.01	896.34	847.31	49.03	18.283				
6,873.23	6,863.80	6,803.24	6,722.49	24.55	28.38	179.45	-1,012.34	-275.26	907.74	858.20	49.54	18.324				
6,900.00	6,890.57	6,829.68	6,748.58	24.63	28.49	89.64	-1,016.44	-273.99	911.91	862.19	49.72	18.341				
6,950.00	6,940.43	6,878.99	6,797.04	24.79	28.68	88.93	-1,024.03	-269.01	919.67	869.63	50.04	18.377				
7,000.00	6,989.91	6,928.23	6,844.98	24.94	28.85	88.24	-1,031.50	-260.68	927.38	877.02	50.35	18.418				
7,050.00	7,038.79	6,977.40	6,892.19	25.09	29.01	87.55	-1,038.82	-249.06	934.99	884.34	50.65	18.461				
7,100.00	7,086.80	7,026.53	6,938.45	25.24	29.16	86.89	-1,045.96	-234.21	942.47	891.54	50.93	18.506				
7,150.00	7,133.74	7,075.61	6,983.57	25.38	29.30	86.24	-1,052.89	-216.20	949.78	898.58	51.20	18.549				
7,200.00	7,179.35	7,124.67	7,027.35	25.52	29.43	85.62	-1,059.58	-195.11	956.89	905.41	51.48	18.589				
7,250.00	7,223.43	7,173.70	7,069.59	25.66	29.55	85.03	-1,065.99	-171.06	963.76	912.00	51.76	18.621				
7,300.00	7,265.76	7,222.73	7,110.10	25.81	29.66	84.46	-1,072.10	-144.15	970.35	918.30	52.05	18.643				
7,350.00	7,306.13	7,271.76	7,148.70	25.97	29.76	83.93	-1,077.88	-114.49	976.64	924.27	52.37	18.649				
7,400.00	7,344.35	7,320.79	7,185.21	26.14	29.85	83.43	-1,083.31	-82.24	982.60	929.87	52.73	18.635				
7,450.00	7,380.22	7,369.83	7,219.47	26.35	29.93	82.96	-1,088.36	-47.52	988.18	935.04	53.15	18.594				
7,500.00	7,413.58	7,418.89	7,251.32	26.60	30.00	82.53	-1,093.00	-10.51	993.38	939.75	53.63	18.521				
7,550.00	7,444.26	7,467.97	7,280.60	26.89	30.06	82.13	-1,097.22	28.64	998.16	943.95	54.21	18.412				
7,600.00	7,472.11	7,517.07	7,307.18	27.24	30.12	81.77	-1,100.99	69.74	1,002.50	947.60	54.89	18.262				
7,650.00	7,497.00	7,566.19	7,330.93	27.65	30.19	81.46	-1,104.30	112.60	1,006.37	950.68	55.70	18.069				
7,700.00	7,518.80	7,615.34	7,351.74	28.13	30.26	81.18	-1,107.13	157.02	1,009.77	953.15	56.63	17.833				
7,750.00	7,537.41	7,664.50	7,369.49	28.68	30.37	80.94	-1,109.46	202.79	1,012.67	954.98	57.69	17.553				
7,800.00	7,552.74	7,713.68	7,384.11	29.30	30.57	80.75	-1,111.29	249.71	1,015.06	956.16	58.89	17.235				
7,850.00	7,564.72	7,762.88	7,395.52	29.99	30.96	80.60	-1,112.60	297.53	1,016.92	956.69	60.23	16.883				
7,900.00	7,573.27	7,812.08	7,403.66	30.74	31.55	80.49	-1,113.39	346.04	1,018.26	956.56	61.70	16.503				
7,950.00	7,578.38	7,861.29	7,408.49	31.55	32.27	80.42	-1,113.65	395.01	1,019.05	955.77	63.28	16.104				
7,998.23	7,580.00	7,908.78	7,410.00	32.38	33.04	80.40	-1,113.41	442.46	1,019.30	954.41	64.90	15.707				
8,000.00	7,580.00	7,910.55	7,410.00	32.42	33.08	80.40	-1,113.39	444.23	1,019.30	954.34	64.96	15.691				
8,100.00	7,580.00	8,010.55	7,410.00	34.29	34.90	80.40	-1,112.37	544.22	1,019.30	950.66	68.64	14.849				
8,200.00	7,580.00	8,110.55	7,410.00	36.35	36.93	80.40	-1,111.36	644.22	1,019.30	946.62	72.69	14.023				
8,300.00	7,580.00	8,210.55	7,410.00	38.57	39.12	80.40	-1,110.34	744.21	1,019.30	942.27	77.04	13.232				
8,400.00	7,580.00	8,310.55	7,410.00	40.92	41.44	80.40	-1,109.32	844.21	1,019.30	937.66	81.65	12.485				
8,500.00	7,580.00	8,410.55	7,410.00	43.38	43.87	80.40	-1,108.31	944.20	1,019.30	932.83	86.47	11.788				
8,600.00	7,580.00	8,510.55	7,410.00	45.93	46.40	80.40	-1,107.29	1,044.20	1,019.30	927.82	91.48	11.142				
8,700.00	7,580.00	8,610.55	7,410.00	48.56	49.01	80.40	-1,106.27	1,144.19	1,019.30	922.66	96.65	10.547				
8,800.00	7,580.00	8,710.55	7,410.00	51.26	51.68	80.40	-1,105.26	1,244.19	1,019.30	917.36	101.94	9.999				

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

Cathedral Energy Services

Anticollision Report

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well SAM 3H-25H-M166
Project:	DJ BASIN	TVD Reference:	23' KB @ 5109.00usft
Reference Site:	S25-T1N-R66W (SAM)	MD Reference:	23' KB @ 5109.00usft
Site Error:	0.00usft	North Reference:	Grid
Reference Well:	SAM 3H-25H-M166	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	PLAN #1	Offset TVD Reference:	Offset Datum

Offset Design S25-T1N-R66W (SAM) - SAM 3M-25H-M166 - OH - PLAN #1													Offset Site Error: 0.00 usft	
Survey Program: 0-MWD+HDGM													Offset Well Error: 0.00 usft	
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Centre +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
8,900.00	7,580.00	8,810.55	7,410.00	54.01	54.41	80.40	-1,104.24	1,344.18	1,019.30	911.95	107.35	9.495		
9,000.00	7,580.00	8,910.55	7,410.00	56.81	57.19	80.40	-1,103.22	1,444.18	1,019.30	906.45	112.85	9.032		
9,100.00	7,580.00	9,010.55	7,410.00	59.65	60.01	80.40	-1,102.21	1,544.17	1,019.30	900.87	118.44	8.606		
9,200.00	7,580.00	9,110.55	7,410.00	62.52	62.87	80.40	-1,101.19	1,644.17	1,019.30	895.21	124.10	8.214		
9,300.00	7,580.00	9,210.55	7,410.00	65.43	65.76	80.40	-1,100.18	1,744.16	1,019.30	889.49	129.81	7.852		
9,400.00	7,580.00	9,310.55	7,410.00	68.36	68.68	80.40	-1,099.16	1,844.16	1,019.30	883.72	135.59	7.518		
9,500.00	7,580.00	9,410.55	7,410.00	71.32	71.63	80.40	-1,098.14	1,944.15	1,019.30	877.90	141.41	7.208		
9,600.00	7,580.00	9,510.55	7,410.00	74.29	74.59	80.40	-1,097.13	2,044.14	1,019.30	872.04	147.27	6.921		
9,700.00	7,580.00	9,610.55	7,410.00	77.29	77.58	80.40	-1,096.11	2,144.14	1,019.30	866.14	153.17	6.655		
9,800.00	7,580.00	9,710.55	7,410.00	80.30	80.58	80.40	-1,095.09	2,244.13	1,019.30	860.21	159.10	6.407		
9,900.00	7,580.00	9,810.55	7,410.00	83.33	83.59	80.40	-1,094.08	2,344.13	1,019.30	854.24	165.06	6.175		
10,000.00	7,580.00	9,910.55	7,410.00	86.37	86.62	80.40	-1,093.06	2,444.12	1,019.30	848.26	171.05	5.959		
10,100.00	7,580.00	10,010.55	7,410.00	89.42	89.66	80.40	-1,092.04	2,544.12	1,019.30	842.25	177.06	5.757		
10,200.00	7,580.00	10,110.55	7,410.00	92.48	92.72	80.40	-1,091.03	2,644.11	1,019.30	836.21	183.09	5.567		
10,300.00	7,580.00	10,210.55	7,410.00	95.55	95.78	80.40	-1,090.01	2,744.11	1,019.30	830.16	189.14	5.389		
10,400.00	7,580.00	10,310.55	7,410.00	98.63	98.85	80.40	-1,089.00	2,844.10	1,019.30	824.09	195.21	5.222		
10,500.00	7,580.00	10,410.55	7,410.00	101.72	101.93	80.40	-1,087.98	2,944.10	1,019.30	818.01	201.30	5.064		
10,600.00	7,580.00	10,510.55	7,410.00	104.81	105.02	80.40	-1,086.96	3,044.09	1,019.30	811.91	207.39	4.915		
10,700.00	7,580.00	10,610.55	7,410.00	107.91	108.12	80.40	-1,085.95	3,144.09	1,019.30	805.80	213.51	4.774		
10,800.00	7,580.00	10,710.55	7,410.00	111.02	111.22	80.40	-1,084.93	3,244.08	1,019.30	799.67	219.63	4.641		
10,900.00	7,580.00	10,810.55	7,410.00	114.13	114.32	80.40	-1,083.91	3,344.08	1,019.30	793.54	225.77	4.515		
11,000.00	7,580.00	10,910.55	7,410.00	117.25	117.43	80.40	-1,082.90	3,444.07	1,019.30	787.39	231.91	4.395		
11,100.00	7,580.00	11,010.55	7,410.00	120.37	120.55	80.40	-1,081.88	3,544.07	1,019.30	781.23	238.07	4.282		
11,200.00	7,580.00	11,110.55	7,410.00	123.50	123.67	80.40	-1,080.86	3,644.06	1,019.30	775.07	244.23	4.173		
11,300.00	7,580.00	11,210.55	7,410.00	126.63	126.80	80.40	-1,079.85	3,744.06	1,019.30	768.90	250.41	4.071		
11,400.00	7,580.00	11,310.55	7,410.00	129.77	129.93	80.40	-1,078.83	3,844.05	1,019.30	762.72	256.59	3.973		
11,500.00	7,580.00	11,410.55	7,410.00	132.90	133.06	80.40	-1,077.81	3,944.05	1,019.30	756.53	262.77	3.879		
11,600.00	7,580.00	11,510.55	7,410.00	136.04	136.20	80.40	-1,076.80	4,044.04	1,019.30	750.34	268.97	3.790		
11,700.00	7,580.00	11,610.55	7,410.00	139.19	139.34	80.40	-1,075.78	4,144.04	1,019.30	744.14	275.17	3.704		
11,800.00	7,580.00	11,710.55	7,410.00	142.33	142.48	80.40	-1,074.77	4,244.03	1,019.30	737.93	281.37	3.623		
11,900.00	7,580.00	11,810.55	7,410.00	145.48	145.63	80.40	-1,073.75	4,344.03	1,019.30	731.72	287.58	3.544		
12,000.00	7,580.00	11,910.55	7,410.00	148.64	148.78	80.40	-1,072.73	4,444.02	1,019.30	725.51	293.80	3.469		
12,061.53	7,580.00	11,972.08	7,410.00	150.58	150.71	80.40	-1,072.11	4,505.55	1,019.30	721.68	297.62	3.425		
12,070.04	7,580.00	11,975.04	7,410.00	150.84	150.81	80.40	-1,072.08	4,508.51	1,019.32	721.31	298.01	3.420 SF		

Cathedral Energy Services

Anticollision Report

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well SAM 3H-25H-M166
Project:	DJ BASIN	TVD Reference:	23' KB @ 5109.00usft
Reference Site:	S25-T1N-R66W (SAM)	MD Reference:	23' KB @ 5109.00usft
Site Error:	0.00usft	North Reference:	Grid
Reference Well:	SAM 3H-25H-M166	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	PLAN #1	Offset TVD Reference:	Offset Datum

Offset Design S25-T1N-R66W (SAM) - SAM 3N-25H-M166 - OH - PLAN #1													Offset Site Error:	0.00 usft
Survey Program: O-MWD+HDGM													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance					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	-59.74	-0.04	59.74					
100.00	100.00	100.00	100.00	0.14	0.14	-179.96	-59.74	-0.04	59.74	59.47	0.28	216.444		
200.00	200.00	200.00	200.00	0.50	0.50	-179.96	-59.74	-0.04	59.74	58.75	0.99	60.167		
300.00	300.00	300.00	300.00	0.85	0.85	-179.96	-59.74	-0.04	59.74	58.03	1.71	34.940 CC, ES		
400.00	400.00	397.98	397.97	1.21	1.19	-179.56	-61.36	-0.47	61.40	58.97	2.43	25.243		
500.00	500.00	495.74	495.59	1.57	1.53	-178.48	-66.21	-1.75	66.38	63.20	3.18	20.905		
600.00	600.00	593.04	592.53	1.93	1.87	-177.02	-74.22	-3.87	74.70	70.77	3.93	19.010		
700.00	700.00	689.67	688.47	2.29	2.23	-175.44	-85.33	-6.80	86.37	81.69	4.68	18.441		
800.00	800.00	785.45	783.13	2.65	2.60	-173.96	-99.42	-10.52	101.38	95.95	5.43	18.672		
900.00	900.00	884.03	880.30	3.01	3.00	-172.72	-115.45	-14.76	118.05	111.94	6.11	19.335		
1,000.00	999.98	982.76	977.62	3.35	3.41	-59.98	-131.52	-19.00	133.89	127.11	6.78	19.755		
1,078.23	1,078.11	1,060.16	1,053.92	3.62	3.73	-60.45	-144.11	-22.33	145.09	137.78	7.30	19.863		
1,100.00	1,099.84	1,081.72	1,075.17	3.69	3.82	-60.71	-147.62	-23.25	148.06	140.61	7.45	19.868		
1,200.00	1,199.65	1,180.73	1,172.77	4.04	4.24	-61.82	-163.73	-27.51	161.77	153.62	8.14	19.865		
1,300.00	1,299.46	1,279.74	1,270.37	4.39	4.67	-62.75	-179.84	-31.76	175.52	166.68	8.84	19.848		
1,400.00	1,399.26	1,378.75	1,367.97	4.74	5.09	-63.54	-195.94	-36.02	189.32	179.77	9.55	19.824		
1,500.00	1,499.07	1,477.77	1,465.57	5.10	5.52	-64.23	-212.05	-40.27	203.14	192.88	10.26	19.795		
1,600.00	1,598.88	1,576.78	1,563.18	5.45	5.94	-64.83	-228.16	-44.53	216.99	206.01	10.98	19.764		
1,700.00	1,698.68	1,675.79	1,660.78	5.81	6.37	-65.35	-244.27	-48.78	230.86	219.16	11.70	19.732		
1,800.00	1,798.49	1,774.80	1,758.38	6.17	6.80	-65.82	-260.38	-53.04	244.75	232.32	12.42	19.700		
1,900.00	1,898.30	1,873.82	1,855.98	6.53	7.23	-66.24	-276.49	-57.29	258.65	245.50	13.15	19.669		
2,000.00	1,998.10	1,972.83	1,953.58	6.90	7.66	-66.61	-292.60	-61.55	272.56	258.68	13.88	19.639		
2,100.00	2,097.91	2,071.84	2,051.18	7.26	8.09	-66.95	-308.71	-65.80	286.48	271.87	14.61	19.610		
2,200.00	2,197.71	2,170.85	2,148.78	7.63	8.53	-67.26	-324.82	-70.06	300.42	285.07	15.34	19.582		
2,300.00	2,297.52	2,269.87	2,246.38	7.99	8.96	-67.54	-340.93	-74.31	314.36	298.28	16.08	19.555		
2,400.00	2,397.33	2,368.88	2,343.98	8.36	9.39	-67.79	-357.03	-78.57	328.30	311.49	16.81	19.530		
2,500.00	2,497.13	2,467.89	2,441.58	8.72	9.82	-68.03	-373.14	-82.82	342.26	324.71	17.55	19.506		
2,600.00	2,596.94	2,566.90	2,539.18	9.09	10.25	-68.24	-389.25	-87.08	356.21	337.93	18.28	19.483		
2,700.00	2,696.75	2,665.92	2,636.78	9.45	10.69	-68.45	-405.36	-91.33	370.18	351.16	19.02	19.461		
2,800.00	2,796.55	2,764.93	2,734.38	9.82	11.12	-68.63	-421.47	-95.59	384.14	364.38	19.76	19.441		
2,900.00	2,896.36	2,863.94	2,831.98	10.19	11.55	-68.80	-437.58	-99.84	398.11	377.61	20.50	19.421		
3,000.00	2,996.17	2,962.95	2,929.58	10.56	11.99	-68.96	-453.69	-104.10	412.09	390.85	21.24	19.402		
3,100.00	3,095.97	3,061.97	3,027.18	10.92	12.42	-69.12	-469.80	-108.35	426.06	404.08	21.98	19.385		
3,200.00	3,195.78	3,160.98	3,124.78	11.29	12.85	-69.26	-485.91	-112.61	440.04	417.32	22.72	19.368		
3,300.00	3,295.59	3,259.99	3,222.38	11.66	13.29	-69.39	-502.02	-116.86	454.02	430.56	23.46	19.352		
3,400.00	3,395.39	3,359.00	3,319.98	12.03	13.72	-69.51	-518.13	-121.12	468.01	443.80	24.20	19.336		
3,500.00	3,495.20	3,458.02	3,417.59	12.40	14.16	-69.63	-534.23	-125.37	481.99	457.05	24.95	19.322		
3,600.00	3,595.01	3,557.03	3,515.19	12.77	14.59	-69.74	-550.34	-129.63	495.98	470.29	25.69	19.308		
3,700.00	3,694.81	3,656.04	3,612.79	13.14	15.02	-69.84	-566.45	-133.88	509.97	483.54	26.43	19.294		
3,800.00	3,794.62	3,755.05	3,710.39	13.50	15.46	-69.94	-582.56	-138.14	523.96	496.79	27.17	19.281		
3,900.00	3,894.43	3,854.07	3,807.99	13.87	15.89	-70.04	-598.67	-142.39	537.96	510.04	27.92	19.269		
4,000.00	3,994.23	3,953.08	3,905.59	14.24	16.33	-70.13	-614.78	-146.65	551.95	523.29	28.66	19.257		
4,100.00	4,094.04	4,052.09	4,003.19	14.61	16.76	-70.21	-630.89	-150.90	565.94	536.54	29.41	19.246		
4,200.00	4,193.85	4,151.10	4,100.79	14.98	17.20	-70.29	-647.00	-155.16	579.94	549.79	30.15	19.235		
4,300.00	4,293.65	4,250.12	4,198.39	15.35	17.63	-70.37	-663.11	-159.41	593.94	563.04	30.89	19.225		
4,400.00	4,393.46	4,349.13	4,295.99	15.72	18.06	-70.44	-679.22	-163.67	607.94	576.30	31.64	19.215		
4,500.00	4,493.27	4,448.14	4,393.59	16.09	18.50	-70.51	-695.33	-167.92	621.94	589.55	32.38	19.206		
4,600.00	4,593.07	4,547.15	4,491.19	16.46	18.93	-70.58	-711.43	-172.18	635.94	602.81	33.13	19.196		
4,700.00	4,692.88	4,646.17	4,588.79	16.83	19.37	-70.64	-727.54	-176.43	649.94	616.06	33.87	19.187		
4,800.00	4,792.68	4,745.18	4,686.39	17.20	19.80	-70.70	-743.65	-180.69	663.94	629.32	34.62	19.179		
4,900.00	4,892.49	4,844.19	4,783.99	17.57	20.24	-70.76	-759.76	-184.94	677.94	642.58	35.36	19.171		
5,000.00	4,992.30	4,943.20	4,881.59	17.94	20.67	-70.82	-775.87	-189.20	691.95	655.84	36.11	19.163		

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

Cathedral Energy Services

Anticollision Report

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well SAM 3H-25H-M166
Project:	DJ BASIN	TVD Reference:	23' KB @ 5109.00usft
Reference Site:	S25-T1N-R66W (SAM)	MD Reference:	23' KB @ 5109.00usft
Site Error:	0.00usft	North Reference:	Grid
Reference Well:	SAM 3H-25H-M166	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	PLAN #1	Offset TVD Reference:	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	5,092.10	5,042.22	4,979.19	18.31	21.11	-70.87	-791.98	-193.45	705.95	669.09	36.85	19.155		
5,200.00	5,191.91	5,141.23	5,076.79	18.68	21.54	-70.92	-808.09	-197.71	719.95	682.35	37.60	19.148		
5,300.00	5,291.72	5,240.24	5,174.39	19.05	21.98	-70.97	-824.20	-201.96	733.96	695.61	38.35	19.140		
5,400.00	5,391.52	5,339.25	5,271.99	19.42	22.41	-71.02	-840.31	-206.22	747.96	708.87	39.09	19.134		
5,500.00	5,491.33	5,438.27	5,369.60	19.79	22.84	-71.07	-856.42	-210.47	761.97	722.13	39.84	19.127		
5,600.00	5,591.14	5,537.28	5,467.20	20.16	23.28	-71.11	-872.52	-214.73	775.98	735.39	40.58	19.120		
5,700.00	5,690.94	5,636.29	5,564.80	20.53	23.71	-71.16	-888.63	-218.98	789.98	748.65	41.33	19.114		
5,800.00	5,790.75	5,735.30	5,662.40	20.90	24.15	-71.20	-904.74	-223.24	803.99	761.91	42.08	19.108		
5,831.20	5,821.89	5,766.19	5,692.84	21.01	24.28	-71.21	-909.77	-224.56	808.36	766.05	42.31	19.106		
5,900.00	5,890.60	5,834.28	5,759.96	21.27	24.58	-71.37	-920.85	-227.49	818.26	775.44	42.82	19.110		
6,009.43	6,000.00	5,942.33	5,866.47	21.65	25.06	176.40	-938.42	-232.13	835.09	791.49	43.60	19.154		
6,100.00	6,090.57	6,031.61	5,954.48	21.95	25.45	176.72	-952.95	-235.97	849.58	805.36	44.23	19.209		
6,200.00	6,190.57	6,130.18	6,051.65	22.28	25.88	177.07	-968.99	-240.21	865.62	820.70	44.92	19.269		
6,300.00	6,290.57	6,228.76	6,148.81	22.62	26.32	177.40	-985.03	-244.44	881.68	836.06	45.62	19.327		
6,400.00	6,390.57	6,327.33	6,245.98	22.95	26.75	177.72	-1,001.06	-248.68	897.78	851.46	46.32	19.384		
6,500.00	6,490.57	6,425.91	6,343.15	23.29	27.18	178.03	-1,017.10	-252.91	913.89	866.88	47.01	19.439		
6,600.00	6,590.57	6,524.48	6,440.32	23.62	27.61	178.33	-1,033.14	-257.15	930.04	882.32	47.71	19.492		
6,700.00	6,690.57	6,623.05	6,537.49	23.96	28.05	178.62	-1,049.18	-261.39	946.21	897.79	48.41	19.544		
6,800.00	6,790.57	6,721.63	6,634.66	24.30	28.48	178.90	-1,065.22	-265.62	962.40	913.28	49.11	19.595		
6,873.23	6,863.80	6,793.81	6,705.81	24.55	28.80	179.09	-1,076.96	-268.72	974.27	924.64	49.63	19.631		
6,900.00	6,890.57	6,820.17	6,731.80	24.63	28.91	89.43	-1,081.25	-269.86	978.60	928.79	49.81	19.646		
6,950.00	6,940.43	6,869.16	6,780.08	24.79	29.13	89.11	-1,089.22	-271.96	986.70	936.56	50.14	19.678		
7,000.00	6,989.91	6,917.62	6,827.86	24.94	29.34	88.98	-1,097.10	-274.05	994.80	944.34	50.46	19.716		
7,050.00	7,038.79	6,966.47	6,876.03	25.09	29.55	89.00	-1,105.05	-275.30	1,002.94	952.17	50.76	19.757		
7,100.00	7,086.80	7,016.40	6,925.25	25.24	29.76	89.03	-1,113.13	-273.29	1,011.08	960.01	51.07	19.797		
7,150.00	7,133.74	7,067.26	6,975.12	25.38	29.95	89.06	-1,121.28	-267.67	1,019.19	967.81	51.38	19.836		
7,200.00	7,179.35	7,119.08	7,025.42	25.52	30.14	89.11	-1,129.46	-258.27	1,027.21	975.52	51.69	19.872		
7,250.00	7,223.43	7,171.94	7,075.89	25.66	30.31	89.15	-1,137.63	-244.92	1,035.11	983.10	52.00	19.904		
7,300.00	7,265.76	7,225.87	7,126.25	25.81	30.48	89.21	-1,145.74	-227.44	1,042.83	990.50	52.33	19.929		
7,350.00	7,306.13	7,280.93	7,176.18	25.97	30.63	89.27	-1,153.74	-205.70	1,050.33	997.67	52.67	19.943		
7,400.00	7,344.35	7,337.14	7,225.31	26.14	30.78	89.34	-1,161.56	-179.56	1,057.56	1,004.53	53.03	19.943		
7,450.00	7,380.22	7,394.54	7,273.24	26.35	30.91	89.41	-1,169.13	-148.93	1,064.46	1,011.03	53.43	19.923		
7,500.00	7,413.58	7,453.13	7,319.51	26.60	31.03	89.49	-1,176.39	-113.75	1,070.99	1,017.10	53.88	19.876		
7,550.00	7,444.26	7,512.91	7,363.65	26.89	31.14	89.56	-1,183.25	-74.05	1,077.08	1,022.67	54.41	19.796		
7,600.00	7,472.11	7,573.86	7,405.13	27.24	31.24	89.64	-1,189.62	-29.87	1,082.70	1,027.67	55.03	19.674		
7,650.00	7,497.00	7,635.93	7,443.41	27.65	31.33	89.72	-1,195.43	18.61	1,087.79	1,032.02	55.77	19.504		
7,700.00	7,518.80	7,699.05	7,477.96	28.13	31.42	89.79	-1,200.57	71.17	1,092.30	1,035.65	56.66	19.280		
7,750.00	7,537.41	7,763.14	7,508.23	28.68	31.50	89.85	-1,204.98	127.46	1,096.19	1,038.48	57.72	18.993		
7,800.00	7,552.74	7,828.07	7,533.72	29.30	31.61	89.91	-1,208.56	187.05	1,099.42	1,040.47	58.96	18.648		
7,850.00	7,564.72	7,893.71	7,553.97	29.99	31.79	89.95	-1,211.26	249.40	1,101.96	1,041.58	60.38	18.249		
7,900.00	7,573.27	7,959.88	7,568.60	30.74	32.19	89.98	-1,213.01	313.89	1,103.78	1,041.77	62.01	17.801		
7,950.00	7,578.38	8,026.42	7,577.33	31.55	32.93	90.00	-1,213.77	379.82	1,104.86	1,041.05	63.80	17.317		
7,998.23	7,580.00	8,090.24	7,580.00	32.38	33.86	90.00	-1,213.55	443.57	1,105.18	1,039.53	65.65	16.833		
8,000.00	7,580.00	8,092.01	7,580.00	32.42	33.89	90.00	-1,213.54	445.34	1,105.18	1,039.46	65.72	16.817		
8,100.00	7,580.00	8,192.01	7,580.00	34.29	35.64	90.00	-1,212.51	545.33	1,105.17	1,035.75	69.42	15.919		
8,200.00	7,580.00	8,292.01	7,580.00	36.35	37.61	90.00	-1,211.49	645.33	1,105.16	1,031.67	73.50	15.037		
8,300.00	7,580.00	8,392.01	7,580.00	38.57	39.75	90.00	-1,210.46	745.32	1,105.16	1,027.27	77.89	14.189		
8,400.00	7,580.00	8,492.01	7,580.00	40.92	42.04	90.00	-1,209.44	845.32	1,105.15	1,022.61	82.54	13.389		
8,500.00	7,580.00	8,592.01	7,580.00	43.38	44.43	90.00	-1,208.41	945.31	1,105.14	1,017.72	87.42	12.642		
8,600.00	7,580.00	8,692.01	7,580.00	45.93	46.93	90.00	-1,207.39	1,045.31	1,105.13	1,012.65	92.48	11.950		
8,700.00	7,580.00	8,792.01	7,580.00	48.56	49.51	90.00	-1,206.36	1,145.30	1,105.12	1,007.42	97.71	11.311		
8,800.00	7,580.00	8,892.01	7,580.00	51.26	52.16	90.00	-1,205.34	1,245.30	1,105.11	1,002.05	103.06	10.723		

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

Cathedral Energy Services

Anticollision Report

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well SAM 3H-25H-M166
Project:	DJ BASIN	TVD Reference:	23' KB @ 5109.00usft
Reference Site:	S25-T1N-R66W (SAM)	MD Reference:	23' KB @ 5109.00usft
Site Error:	0.00usft	North Reference:	Grid
Reference Well:	SAM 3H-25H-M166	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	PLAN #1	Offset TVD Reference:	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
8,900.00	7,580.00	8,992.01	7,580.00	54.01	54.86	90.00	-1,204.31	1,345.29	1,105.11	996.57	108.53	10.182	
9,000.00	7,580.00	9,092.01	7,580.00	56.81	57.62	90.00	-1,203.29	1,445.29	1,105.10	990.99	114.10	9.685	
9,100.00	7,580.00	9,192.01	7,580.00	59.65	60.43	90.00	-1,202.26	1,545.28	1,105.09	985.33	119.76	9.228	
9,200.00	7,580.00	9,292.01	7,580.00	62.52	63.27	90.00	-1,201.24	1,645.28	1,105.08	979.59	125.49	8.806	
9,300.00	7,580.00	9,392.01	7,580.00	65.43	66.14	90.00	-1,200.21	1,745.27	1,105.07	973.79	131.28	8.418	
9,400.00	7,580.00	9,492.01	7,580.00	68.36	69.04	90.00	-1,199.19	1,845.27	1,105.06	967.94	137.12	8.059	
9,500.00	7,580.00	9,592.01	7,580.00	71.32	71.97	90.00	-1,198.16	1,945.26	1,105.05	962.04	143.02	7.727	
9,600.00	7,580.00	9,692.01	7,580.00	74.29	74.92	90.00	-1,197.14	2,045.25	1,105.05	956.09	148.96	7.419	
9,700.00	7,580.00	9,792.01	7,580.00	77.29	77.90	90.00	-1,196.11	2,145.25	1,105.04	950.11	154.93	7.132	
9,800.00	7,580.00	9,892.01	7,580.00	80.30	80.88	90.00	-1,195.09	2,245.24	1,105.03	944.09	160.94	6.866	
9,900.00	7,580.00	9,992.01	7,580.00	83.33	83.89	90.00	-1,194.06	2,345.24	1,105.02	938.04	166.98	6.618	
10,000.00	7,580.00	10,092.01	7,580.00	86.37	86.91	90.00	-1,193.04	2,445.23	1,105.01	931.97	173.05	6.386	
10,100.00	7,580.00	10,192.01	7,580.00	89.42	89.94	90.00	-1,192.01	2,545.23	1,105.00	925.87	179.14	6.169	
10,200.00	7,580.00	10,292.01	7,580.00	92.48	92.99	90.00	-1,190.99	2,645.22	1,104.99	919.75	185.25	5.965	
10,300.00	7,580.00	10,392.01	7,580.00	95.55	96.04	90.00	-1,189.96	2,745.22	1,104.99	913.61	191.38	5.774	
10,400.00	7,580.00	10,492.01	7,580.00	98.63	99.10	90.00	-1,188.94	2,845.21	1,104.98	907.45	197.53	5.594	
10,500.00	7,580.00	10,592.01	7,580.00	101.72	102.18	90.00	-1,187.91	2,945.21	1,104.97	901.27	203.69	5.425	
10,600.00	7,580.00	10,692.01	7,580.00	104.81	105.26	90.00	-1,186.89	3,045.20	1,104.96	895.09	209.88	5.265	
10,700.00	7,580.00	10,792.01	7,580.00	107.91	108.35	90.00	-1,185.87	3,145.20	1,104.95	888.88	216.07	5.114	
10,800.00	7,580.00	10,892.01	7,580.00	111.02	111.44	90.00	-1,184.84	3,245.19	1,104.94	882.67	222.28	4.971	
10,900.00	7,580.00	10,992.01	7,580.00	114.13	114.54	90.00	-1,183.82	3,345.19	1,104.94	876.44	228.49	4.836	
11,000.00	7,580.00	11,092.01	7,580.00	117.25	117.65	90.00	-1,182.79	3,445.18	1,104.93	870.20	234.72	4.707	
11,100.00	7,580.00	11,192.01	7,580.00	120.37	120.76	90.00	-1,181.77	3,545.18	1,104.92	863.96	240.96	4.585	
11,200.00	7,580.00	11,292.01	7,580.00	123.50	123.88	90.00	-1,180.74	3,645.17	1,104.91	857.70	247.21	4.470	
11,300.00	7,580.00	11,392.01	7,580.00	126.63	127.00	90.00	-1,179.72	3,745.17	1,104.90	851.44	253.46	4.359	
11,400.00	7,580.00	11,492.01	7,580.00	129.77	130.12	90.00	-1,178.69	3,845.16	1,104.89	845.17	259.73	4.254	
11,500.00	7,580.00	11,592.01	7,580.00	132.90	133.25	90.00	-1,177.67	3,945.15	1,104.88	838.89	266.00	4.154	
11,600.00	7,580.00	11,692.01	7,580.00	136.04	136.38	90.00	-1,176.64	4,045.15	1,104.88	832.60	272.27	4.058	
11,700.00	7,580.00	11,792.01	7,580.00	139.19	139.52	90.00	-1,175.62	4,145.14	1,104.87	826.31	278.56	3.966	
11,800.00	7,580.00	11,892.01	7,580.00	142.33	142.66	90.00	-1,174.59	4,245.14	1,104.86	820.02	284.84	3.879	
11,900.00	7,580.00	11,992.01	7,580.00	145.48	145.80	90.00	-1,173.57	4,345.13	1,104.85	813.71	291.14	3.795	
12,000.00	7,580.00	12,092.01	7,580.00	148.64	148.94	90.00	-1,172.54	4,445.13	1,104.84	807.41	297.44	3.715	
12,061.80	7,580.00	12,153.82	7,580.00	150.58	150.89	90.00	-1,171.91	4,506.93	1,104.84	803.50	301.33	3.667	
12,070.04	7,580.00	12,155.71	7,580.00	150.84	150.95	90.00	-1,171.89	4,508.83	1,104.85	803.17	301.69	3.662 SF	

Cathedral Energy Services

Anticollision Report

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well SAM 3H-25H-M166
Project:	DJ BASIN	TVD Reference:	23' KB @ 5109.00usft
Reference Site:	S25-T1N-R66W (SAM)	MD Reference:	23' KB @ 5109.00usft
Site Error:	0.00usft	North Reference:	Grid
Reference Well:	SAM 3H-25H-M166	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	PLAN #1	Offset TVD Reference:	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	-179.81	-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	69.67	0.28	253.420	
200.00	200.00	200.00	200.00	0.50	0.50	-179.81	-69.95	-0.24	69.95	68.96	0.99	70.445 CC, ES	
300.00	300.00	297.64	297.62	0.85	0.83	-179.49	-71.57	-0.63	71.61	69.88	1.73	41.405	
400.00	400.00	395.06	394.91	1.21	1.17	-178.64	-76.40	-1.81	76.59	74.10	2.49	30.731	
500.00	500.00	492.03	491.52	1.57	1.52	-177.45	-84.40	-3.77	84.90	81.64	3.26	26.020	
600.00	600.00	588.33	587.14	1.93	1.88	-176.12	-95.48	-6.47	96.56	92.53	4.03	23.953	
700.00	700.00	683.75	681.46	2.29	2.27	-174.83	-109.53	-9.91	111.53	106.74	4.79	23.279	
800.00	800.00	780.24	776.37	2.65	2.67	-173.67	-126.43	-14.03	129.38	123.88	5.50	23.533	
900.00	900.00	878.53	872.98	3.01	3.09	-172.75	-144.01	-18.33	147.67	141.50	6.16	23.954	
1,000.00	999.98	976.99	969.75	3.35	3.52	-60.08	-161.62	-22.63	165.12	158.28	6.84	24.140	
1,078.23	1,078.11	1,054.20	1,045.64	3.62	3.86	-60.43	-175.43	-26.01	177.59	170.22	7.37	24.109	
1,100.00	1,099.84	1,075.70	1,066.77	3.69	3.95	-60.66	-179.28	-26.95	180.92	173.41	7.51	24.079	
1,200.00	1,199.65	1,174.47	1,163.85	4.04	4.39	-61.60	-196.95	-31.27	196.24	188.04	8.20	23.918	
1,300.00	1,299.46	1,273.25	1,260.94	4.39	4.83	-62.41	-214.62	-35.58	211.61	202.71	8.90	23.764	
1,400.00	1,399.26	1,372.02	1,358.02	4.74	5.27	-63.11	-232.29	-39.90	227.02	217.40	9.61	23.619	
1,500.00	1,499.07	1,470.79	1,455.10	5.10	5.71	-63.72	-249.96	-44.22	242.45	232.12	10.32	23.483	
1,600.00	1,598.88	1,569.56	1,552.18	5.45	6.15	-64.26	-267.63	-48.53	257.91	246.86	11.04	23.357	
1,700.00	1,698.68	1,668.33	1,649.26	5.81	6.60	-64.74	-285.30	-52.85	273.38	261.62	11.76	23.240	
1,800.00	1,798.49	1,767.10	1,746.35	6.17	7.04	-65.16	-302.96	-57.17	288.87	276.39	12.49	23.133	
1,900.00	1,898.30	1,865.87	1,843.43	6.53	7.48	-65.54	-320.63	-61.48	304.38	291.17	13.21	23.033	
2,000.00	1,998.10	1,964.64	1,940.51	6.90	7.93	-65.89	-338.30	-65.80	319.90	305.96	13.94	22.941	
2,100.00	2,097.91	2,063.41	2,037.59	7.26	8.37	-66.20	-355.97	-70.12	335.43	320.75	14.68	22.855	
2,200.00	2,197.71	2,162.18	2,134.67	7.63	8.82	-66.49	-373.64	-74.43	350.97	335.56	15.41	22.776	
2,300.00	2,297.52	2,260.96	2,231.76	7.99	9.26	-66.75	-391.31	-78.75	366.51	350.37	16.14	22.703	
2,400.00	2,397.33	2,359.73	2,328.84	8.36	9.71	-66.99	-408.98	-83.07	382.06	365.18	16.88	22.634	
2,500.00	2,497.13	2,458.50	2,425.92	8.72	10.16	-67.21	-426.65	-87.39	397.62	380.01	17.62	22.570	
2,600.00	2,596.94	2,557.27	2,523.00	9.09	10.60	-67.41	-444.32	-91.70	413.19	394.83	18.36	22.510	
2,700.00	2,696.75	2,656.04	2,620.08	9.45	11.05	-67.60	-461.98	-96.02	428.76	409.66	19.09	22.454	
2,800.00	2,796.55	2,754.81	2,717.17	9.82	11.49	-67.78	-479.65	-100.34	444.33	424.49	19.83	22.402	
2,900.00	2,896.36	2,853.58	2,814.25	10.19	11.94	-67.95	-497.32	-104.65	459.91	439.33	20.57	22.353	
3,000.00	2,996.17	2,952.35	2,911.33	10.56	12.39	-68.10	-514.99	-108.97	475.49	454.17	21.32	22.306	
3,100.00	3,095.97	3,051.12	3,008.41	10.92	12.83	-68.24	-532.66	-113.29	491.07	469.01	22.06	22.263	
3,200.00	3,195.78	3,149.90	3,105.49	11.29	13.28	-68.38	-550.33	-117.60	506.65	483.85	22.80	22.222	
3,300.00	3,295.59	3,248.67	3,202.57	11.66	13.73	-68.51	-568.00	-121.92	522.24	498.70	23.54	22.183	
3,400.00	3,395.39	3,347.44	3,299.66	12.03	14.17	-68.62	-585.67	-126.24	537.83	513.55	24.29	22.146	
3,500.00	3,495.20	3,446.21	3,396.74	12.40	14.62	-68.74	-603.34	-130.55	553.43	528.40	25.03	22.111	
3,600.00	3,595.01	3,544.98	3,493.82	12.77	15.07	-68.84	-621.00	-134.87	569.02	543.25	25.77	22.078	
3,700.00	3,694.81	3,643.75	3,590.90	13.14	15.51	-68.95	-638.67	-139.19	584.62	558.10	26.52	22.046	
3,800.00	3,794.62	3,742.52	3,687.98	13.50	15.96	-69.04	-656.34	-143.51	600.22	572.96	27.26	22.016	
3,900.00	3,894.43	3,841.29	3,785.07	13.87	16.41	-69.13	-674.01	-147.82	615.82	587.81	28.01	21.988	
4,000.00	3,994.23	3,940.06	3,882.15	14.24	16.86	-69.22	-691.68	-152.14	631.42	602.67	28.75	21.961	
4,100.00	4,094.04	4,038.84	3,979.23	14.61	17.30	-69.30	-709.35	-156.46	647.02	617.53	29.50	21.935	
4,200.00	4,193.85	4,137.61	4,076.31	14.98	17.75	-69.38	-727.02	-160.77	662.63	632.38	30.24	21.910	
4,300.00	4,293.65	4,236.38	4,173.39	15.35	18.20	-69.45	-744.69	-165.09	678.23	647.24	30.99	21.886	
4,400.00	4,393.46	4,335.15	4,270.48	15.72	18.64	-69.53	-762.36	-169.41	693.84	662.11	31.73	21.864	
4,500.00	4,493.27	4,433.92	4,367.56	16.09	19.09	-69.59	-780.03	-173.72	709.45	676.97	32.48	21.842	
4,600.00	4,593.07	4,532.69	4,464.64	16.46	19.54	-69.66	-797.69	-178.04	725.06	691.83	33.23	21.821	
4,700.00	4,692.88	4,631.46	4,561.72	16.83	19.99	-69.72	-815.36	-182.36	740.67	706.69	33.97	21.801	
4,800.00	4,792.68	4,730.23	4,658.80	17.20	20.43	-69.78	-833.03	-186.67	756.28	721.56	34.72	21.782	
4,900.00	4,892.49	4,829.00	4,755.89	17.57	20.88	-69.84	-850.70	-190.99	771.89	736.42	35.47	21.763	
5,000.00	4,992.30	4,927.77	4,852.97	17.94	21.33	-69.89	-868.37	-195.31	787.50	751.28	36.21	21.746	

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

Cathedral Energy Services

Anticollision Report

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well SAM 3H-25H-M166
Project:	DJ BASIN	TVD Reference:	23' KB @ 5109.00usft
Reference Site:	S25-T1N-R66W (SAM)	MD Reference:	23' KB @ 5109.00usft
Site Error:	0.00usft	North Reference:	Grid
Reference Well:	SAM 3H-25H-M166	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	PLAN #1	Offset TVD Reference:	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	
5,100.00	5,092.10	5,026.55	4,950.05	18.31	21.78	-69.95	-886.04	-199.63	803.11	766.15	36.96	21.728		
5,200.00	5,191.91	5,125.32	5,047.13	18.68	22.22	-70.00	-903.71	-203.94	818.72	781.02	37.71	21.712		
5,300.00	5,291.72	5,224.09	5,144.21	19.05	22.67	-70.05	-921.38	-208.26	834.34	795.88	38.46	21.696		
5,400.00	5,391.52	5,322.86	5,241.29	19.42	23.12	-70.10	-939.05	-212.58	849.95	810.75	39.20	21.681		
5,500.00	5,491.33	5,421.63	5,338.38	19.79	23.56	-70.14	-956.71	-216.89	865.57	825.62	39.95	21.666		
5,600.00	5,591.14	5,520.40	5,435.46	20.16	24.01	-70.19	-974.38	-221.21	881.18	840.48	40.70	21.652		
5,700.00	5,690.94	5,619.17	5,532.54	20.53	24.46	-70.23	-992.05	-225.53	896.80	855.35	41.45	21.638		
5,800.00	5,790.75	5,717.94	5,629.62	20.90	24.91	-70.27	-1,009.72	-229.84	912.41	870.22	42.19	21.624		
5,831.20	5,821.89	5,748.76	5,659.91	21.01	25.05	-70.28	-1,015.23	-231.19	917.29	874.86	42.43	21.620		
5,900.00	5,890.60	5,816.67	5,726.66	21.27	25.35	-70.47	-1,027.38	-234.16	928.30	885.37	42.94	21.620		
6,009.43	6,000.00	5,924.42	5,832.57	21.65	25.84	177.23	-1,046.66	-238.87	946.96	903.24	43.72	21.660		
6,100.00	6,090.57	6,013.45	5,920.07	21.95	26.25	177.51	-1,062.58	-242.76	962.98	918.63	44.35	21.713		
6,200.00	6,190.57	6,111.74	6,016.68	22.28	26.69	177.81	-1,080.17	-247.06	980.70	935.65	45.05	21.770		
6,300.00	6,290.57	6,210.03	6,113.29	22.62	27.14	178.10	-1,097.75	-251.35	998.44	952.70	45.75	21.825		
6,400.00	6,390.57	6,308.32	6,209.90	22.95	27.58	178.38	-1,115.33	-255.65	1,016.21	969.77	46.45	21.879		
6,500.00	6,490.57	6,406.61	6,306.51	23.29	28.03	178.65	-1,132.92	-259.94	1,034.00	986.86	47.15	21.932		
6,600.00	6,590.57	6,504.90	6,403.12	23.62	28.47	178.91	-1,150.50	-264.24	1,051.81	1,003.97	47.85	21.982		
6,700.00	6,690.57	6,603.19	6,499.73	23.96	28.92	179.16	-1,168.08	-268.54	1,069.65	1,021.10	48.55	22.032		
6,800.00	6,790.57	6,701.48	6,596.34	24.30	29.36	179.41	-1,185.66	-272.83	1,087.50	1,038.25	49.25	22.080		
6,873.23	6,863.80	6,773.55	6,667.22	24.55	29.68	179.42	-1,198.54	-273.03	1,100.58	1,050.81	49.77	22.115		
6,900.00	6,890.57	6,799.85	6,693.04	24.63	29.79	89.56	-1,203.21	-271.31	1,105.36	1,055.41	49.95	22.130		
6,950.00	6,940.43	6,848.86	6,740.93	24.79	29.99	88.72	-1,211.84	-265.54	1,114.27	1,064.00	50.27	22.164		
7,000.00	6,989.91	6,897.75	6,788.21	24.94	30.16	87.90	-1,220.33	-256.48	1,123.12	1,072.54	50.58	22.205		
7,050.00	7,038.79	6,946.53	6,834.67	25.09	30.33	87.10	-1,228.64	-244.20	1,131.86	1,080.98	50.87	22.249		
7,100.00	7,086.80	6,995.23	6,880.13	25.24	30.49	86.32	-1,236.74	-228.76	1,140.44	1,089.29	51.15	22.295		
7,150.00	7,133.74	7,043.85	6,924.39	25.38	30.63	85.57	-1,244.59	-210.26	1,148.84	1,097.41	51.43	22.339		
7,200.00	7,179.35	7,092.41	6,967.27	25.52	30.76	84.84	-1,252.15	-188.77	1,157.00	1,105.30	51.70	22.380		
7,250.00	7,223.43	7,140.94	7,008.59	25.66	30.89	84.14	-1,259.41	-164.41	1,164.89	1,112.91	51.97	22.413		
7,300.00	7,265.76	7,189.42	7,048.17	25.81	31.00	83.48	-1,266.32	-137.28	1,172.46	1,120.20	52.27	22.433		
7,350.00	7,306.13	7,237.89	7,085.85	25.97	31.10	82.85	-1,272.85	-107.51	1,179.69	1,127.10	52.58	22.434		
7,400.00	7,344.35	7,286.35	7,121.45	26.14	31.20	82.27	-1,278.99	-75.23	1,186.52	1,133.58	52.94	22.411		
7,450.00	7,380.22	7,334.81	7,154.83	26.35	31.28	81.72	-1,284.70	-40.58	1,192.94	1,139.58	53.36	22.357		
7,500.00	7,413.58	7,383.27	7,185.83	26.60	31.36	81.21	-1,289.95	-3.71	1,198.91	1,145.07	53.84	22.266		
7,550.00	7,444.26	7,431.75	7,214.32	26.89	31.43	80.75	-1,294.73	35.20	1,204.40	1,149.98	54.42	22.132		
7,600.00	7,472.11	7,480.23	7,240.17	27.24	31.50	80.34	-1,299.00	75.99	1,209.38	1,154.29	55.10	21.951		
7,650.00	7,497.00	7,528.74	7,263.25	27.65	31.57	79.97	-1,302.76	118.48	1,213.83	1,157.94	55.89	21.718		
7,700.00	7,518.80	7,577.26	7,283.46	28.13	31.65	79.64	-1,305.98	162.46	1,217.73	1,160.92	56.81	21.435		
7,750.00	7,537.41	7,625.80	7,300.70	28.68	31.75	79.37	-1,308.65	207.75	1,221.06	1,163.20	57.86	21.102		
7,800.00	7,552.74	7,674.35	7,314.89	29.30	31.89	79.14	-1,310.76	254.12	1,223.80	1,164.75	59.05	20.723		
7,850.00	7,564.72	7,722.92	7,325.96	29.99	32.11	78.97	-1,312.29	301.38	1,225.95	1,165.57	60.38	20.305		
7,900.00	7,573.27	7,771.50	7,333.86	30.74	32.47	78.84	-1,313.24	349.29	1,227.48	1,165.65	61.82	19.854		
7,950.00	7,578.38	7,820.08	7,338.54	31.55	32.99	78.76	-1,313.60	397.63	1,228.39	1,165.01	63.38	19.380		
7,998.23	7,580.00	7,866.97	7,340.00	32.38	33.63	78.74	-1,313.38	444.49	1,228.68	1,163.71	64.98	18.910		
8,000.00	7,580.00	7,868.74	7,340.00	32.42	33.65	78.74	-1,313.37	446.26	1,228.68	1,163.64	65.04	18.892		
8,100.00	7,580.00	7,968.74	7,340.00	34.29	35.35	78.74	-1,312.35	546.26	1,228.68	1,159.98	68.71	17.883		
8,200.00	7,580.00	8,068.74	7,340.00	36.35	37.30	78.74	-1,311.33	646.25	1,228.68	1,155.97	72.72	16.897		
8,300.00	7,580.00	8,168.74	7,340.00	38.57	39.45	78.74	-1,310.32	746.24	1,228.68	1,151.65	77.03	15.950		
8,400.00	7,580.00	8,268.74	7,340.00	40.92	41.74	78.74	-1,309.30	846.24	1,228.68	1,147.08	81.61	15.056		
8,500.00	7,580.00	8,368.74	7,340.00	43.38	44.15	78.74	-1,308.28	946.23	1,228.68	1,142.29	86.40	14.222		
8,600.00	7,580.00	8,468.74	7,340.00	45.93	46.65	78.74	-1,307.27	1,046.23	1,228.68	1,137.31	91.37	13.447		
8,700.00	7,580.00	8,568.74	7,340.00	48.56	49.24	78.74	-1,306.25	1,146.22	1,228.68	1,132.18	96.50	12.733		
8,800.00	7,580.00	8,668.74	7,340.00	51.26	51.90	78.74	-1,305.23	1,246.22	1,228.68	1,126.93	101.76	12.075		

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

Cathedral Energy Services

Anticollision Report

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well SAM 3H-25H-M166
Project:	DJ BASIN	TVD Reference:	23' KB @ 5109.00usft
Reference Site:	S25-T1N-R66W (SAM)	MD Reference:	23' KB @ 5109.00usft
Site Error:	0.00usft	North Reference:	Grid
Reference Well:	SAM 3H-25H-M166	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	PLAN #1	Offset TVD Reference:	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					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
8,900.00	7,580.00	8,768.74	7,340.00	54.01	54.62	78.74	-1,304.22	1,346.21	1,228.68	1,121.55	107.13	11.469	
9,000.00	7,580.00	8,868.74	7,340.00	56.81	57.39	78.74	-1,303.20	1,446.21	1,228.68	1,116.09	112.59	10.913	
9,100.00	7,580.00	8,968.74	7,340.00	59.65	60.20	78.74	-1,302.18	1,546.20	1,228.68	1,110.54	118.14	10.400	
9,200.00	7,580.00	9,068.74	7,340.00	62.52	63.05	78.74	-1,301.17	1,646.20	1,228.68	1,104.92	123.76	9.928	
9,300.00	7,580.00	9,168.74	7,340.00	65.43	65.93	78.74	-1,300.15	1,746.19	1,228.68	1,099.24	129.45	9.492	
9,400.00	7,580.00	9,268.74	7,340.00	68.36	68.85	78.74	-1,299.13	1,846.19	1,228.68	1,093.50	135.18	9.089	
9,500.00	7,580.00	9,368.74	7,340.00	71.32	71.78	78.74	-1,298.12	1,946.18	1,228.68	1,087.71	140.97	8.716	
9,600.00	7,580.00	9,468.74	7,340.00	74.29	74.74	78.74	-1,297.10	2,046.18	1,228.68	1,081.89	146.79	8.370	
9,700.00	7,580.00	9,568.74	7,340.00	77.29	77.72	78.74	-1,296.09	2,146.17	1,228.68	1,076.02	152.66	8.049	
9,800.00	7,580.00	9,668.74	7,340.00	80.30	80.71	78.74	-1,295.07	2,246.17	1,228.68	1,070.13	158.56	7.749	
9,900.00	7,580.00	9,768.74	7,340.00	83.33	83.72	78.74	-1,294.05	2,346.16	1,228.68	1,064.20	164.48	7.470	
10,000.00	7,580.00	9,868.74	7,340.00	86.37	86.75	78.74	-1,293.04	2,446.16	1,228.68	1,058.25	170.43	7.209	
10,100.00	7,580.00	9,968.74	7,340.00	89.42	89.79	78.74	-1,292.02	2,546.15	1,228.68	1,052.27	176.41	6.965	
10,200.00	7,580.00	10,068.74	7,340.00	92.48	92.83	78.74	-1,291.00	2,646.15	1,228.68	1,046.27	182.41	6.736	
10,300.00	7,580.00	10,168.74	7,340.00	95.55	95.89	78.74	-1,289.99	2,746.14	1,228.68	1,040.25	188.43	6.521	
10,400.00	7,580.00	10,268.74	7,340.00	98.63	98.96	78.74	-1,288.97	2,846.14	1,228.68	1,034.22	194.46	6.318	
10,500.00	7,580.00	10,368.74	7,340.00	101.72	102.04	78.74	-1,287.95	2,946.13	1,228.68	1,028.17	200.51	6.128	
10,600.00	7,580.00	10,468.74	7,340.00	104.81	105.12	78.74	-1,286.94	3,046.13	1,228.68	1,022.10	206.58	5.948	
10,700.00	7,580.00	10,568.74	7,340.00	107.91	108.21	78.74	-1,285.92	3,146.12	1,228.68	1,016.02	212.66	5.778	
10,800.00	7,580.00	10,668.74	7,340.00	111.02	111.31	78.74	-1,284.90	3,246.12	1,228.68	1,009.93	218.75	5.617	
10,900.00	7,580.00	10,768.74	7,340.00	114.13	114.42	78.74	-1,283.89	3,346.11	1,228.68	1,003.83	224.85	5.464	
11,000.00	7,580.00	10,868.74	7,340.00	117.25	117.53	78.74	-1,282.87	3,446.11	1,228.68	997.72	230.96	5.320	
11,100.00	7,580.00	10,968.74	7,340.00	120.37	120.64	78.74	-1,281.86	3,546.10	1,228.68	991.59	237.09	5.182	
11,200.00	7,580.00	11,068.74	7,340.00	123.50	123.76	78.74	-1,280.84	3,646.10	1,228.68	985.46	243.22	5.052	
11,300.00	7,580.00	11,168.74	7,340.00	126.63	126.88	78.74	-1,279.82	3,746.09	1,228.68	979.32	249.36	4.927	
11,400.00	7,580.00	11,268.74	7,340.00	129.77	130.01	78.74	-1,278.81	3,846.08	1,228.68	973.18	255.50	4.809	
11,500.00	7,580.00	11,368.74	7,340.00	132.90	133.14	78.74	-1,277.79	3,946.08	1,228.68	967.02	261.66	4.696	
11,600.00	7,580.00	11,468.74	7,340.00	136.04	136.28	78.74	-1,276.77	4,046.07	1,228.68	960.86	267.82	4.588	
11,700.00	7,580.00	11,568.74	7,340.00	139.19	139.41	78.74	-1,275.76	4,146.07	1,228.68	954.70	273.98	4.485	
11,800.00	7,580.00	11,668.74	7,340.00	142.33	142.56	78.74	-1,274.74	4,246.06	1,228.68	948.52	280.16	4.386	
11,900.00	7,580.00	11,768.74	7,340.00	145.48	145.70	78.74	-1,273.72	4,346.06	1,228.68	942.35	286.33	4.291	
12,000.00	7,580.00	11,868.74	7,340.00	148.64	148.85	78.74	-1,272.71	4,446.05	1,228.68	936.16	292.52	4.200	
12,061.09	7,580.00	11,929.83	7,340.00	150.56	150.77	78.74	-1,272.09	4,507.14	1,228.68	932.39	296.29	4.147	
12,070.04	7,580.00	11,932.12	7,340.00	150.84	150.84	78.74	-1,272.06	4,509.43	1,228.70	932.02	296.68	4.142 SF	

Cathedral Energy Services

Anticollision Report

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well SAM 3H-25H-M166
Project:	DJ BASIN	TVD Reference:	23' KB @ 5109.00usft
Reference Site:	S25-T1N-R66W (SAM)	MD Reference:	23' KB @ 5109.00usft
Site Error:	0.00usft	North Reference:	Grid
Reference Well:	SAM 3H-25H-M166	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	PLAN #1	Offset TVD Reference:	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	
10,200.00	7,580.00	7,501.00	7,501.00	92.48	8.42	-90.00	46.36	4,046.94	1,419.23	1,383.26	35.97	39.454	
10,300.00	7,580.00	7,501.00	7,501.00	95.55	8.42	-90.00	46.36	4,046.94	1,319.61	1,283.36	36.25	36.407	
10,400.00	7,580.00	7,501.00	7,501.00	98.63	8.42	-90.00	46.36	4,046.94	1,220.04	1,183.45	36.59	33.345	
10,500.00	7,580.00	7,501.00	7,501.00	101.72	8.42	-90.00	46.36	4,046.94	1,120.55	1,083.52	37.03	30.264	
10,600.00	7,580.00	7,501.00	7,501.00	104.81	8.42	-90.00	46.36	4,046.94	1,021.16	983.57	37.60	27.162	
10,700.00	7,580.00	7,501.00	7,501.00	107.91	8.42	-90.00	46.36	4,046.94	921.90	883.55	38.35	24.038	
10,800.00	7,580.00	7,501.00	7,501.00	111.02	8.42	-90.00	46.36	4,046.94	822.83	783.44	39.38	20.892	
10,900.00	7,580.00	7,501.00	7,501.00	114.13	8.42	-90.00	46.36	4,046.94	724.00	683.17	40.83	17.731	
11,000.00	7,580.00	7,501.00	7,501.00	117.25	8.42	-90.00	46.36	4,046.94	625.55	582.62	42.94	14.570	
11,100.00	7,580.00	7,501.00	7,501.00	120.37	8.42	-90.00	46.36	4,046.94	527.69	481.57	46.12	11.442	
11,200.00	7,580.00	7,501.00	7,501.00	123.50	8.42	-90.00	46.36	4,046.94	430.80	379.61	51.19	8.416	
11,300.00	7,580.00	7,501.00	7,501.00	126.63	8.42	-90.00	46.36	4,046.94	335.75	275.96	59.79	5.615	
11,400.00	7,580.00	7,501.00	7,501.00	129.77	8.42	-90.00	46.36	4,046.94	244.67	169.11	75.56	3.238	
11,500.00	7,580.00	7,501.00	7,501.00	132.90	8.42	-90.00	46.36	4,046.94	164.32	58.39	105.93	1.551	
11,600.00	7,580.00	7,501.00	7,501.00	136.04	8.42	-90.00	46.36	4,046.94	118.90	-24.65	143.55	0.828 Level 1	
11,614.32	7,580.00	7,501.00	7,501.00	136.49	8.42	-90.00	46.36	4,046.94	118.04	-26.87	144.91	0.815 Level 1, CC, ES, SF	
11,700.00	7,580.00	7,501.00	7,501.00	139.19	8.42	-90.00	46.36	4,046.94	145.86	23.88	121.98	1.196 Level 2	
11,800.00	7,580.00	7,501.00	7,501.00	142.33	8.42	-90.00	46.36	4,046.94	220.03	132.19	87.84	2.505	
11,900.00	7,580.00	7,501.00	7,501.00	145.48	8.42	-90.00	46.36	4,046.94	309.11	240.05	69.06	4.476	
12,000.00	7,580.00	7,501.00	7,501.00	148.64	8.42	-90.00	46.36	4,046.94	403.34	344.56	58.78	6.862	
12,070.04	7,580.00	7,501.00	7,501.00	150.84	8.42	-90.00	46.36	4,046.94	470.76	416.56	54.20	8.685	

Cathedral Energy Services

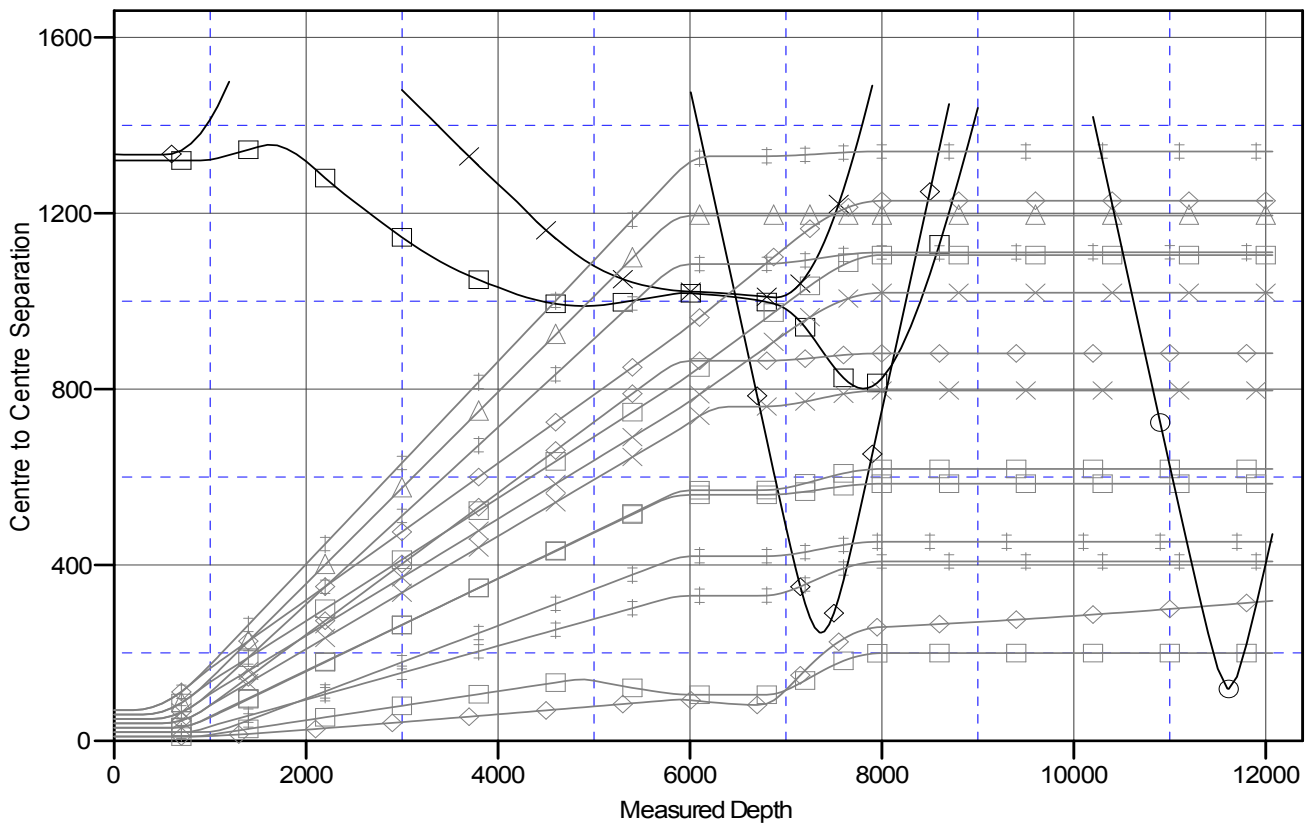
Anticollision Report

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well SAM 3H-25H-M166
Project:	DJ BASIN	TVD Reference:	23' KB @ 5109.00usft
Reference Site:	S25-T1N-R66W (SAM)	MD Reference:	23' KB @ 5109.00usft
Site Error:	0.00usft	North Reference:	Grid
Reference Well:	SAM 3H-25H-M166	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	PLAN #1	Offset TVD Reference:	Offset Datum

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

Coordinates are relative to: SAM 3H-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	■ SAM3E-25H-M166, OH, PLAN#1 V0	✕ SAM3M-25H-M166, OH, PLAN#1 V0
ni 1 (EXISTING), CPR WELL, NO SURVEYS V0	◆ SAM3F-25H-M166, OH, PLAN#1 V0	■ SAM3N-25H-M166, OH, PLAN#1 V0
ni 13-25 (EXISTING), CPR WELL, SURVEYS V0	◆ SAM3G-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	