

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well SAM 3N-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 3N-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 3N-25H-M166					
Well Position	+N/-S	0.00 usft	Northing:	1,250,526.71 usft	Latitude:	40.018538
	+E/-W	0.00 usft	Easting:	3,214,576.98 usft	Longitude:	-104.733856
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) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.00	0.00	0.00	89.41	

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	
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00	
784.38	9.69	194.80	782.08	-39.50	-10.43	2.00	2.00	0.00	194.80	
6,931.73	9.69	194.80	6,841.77	-1,039.66	-274.61	0.00	0.00	0.00	0.00	
8,088.71	90.00	89.41	7,580.00	-1,153.83	442.08	8.00	6.94	-9.11	-105.17	
12,155.71	90.00	89.41	7,580.00	-1,112.15	4,508.87	0.00	0.00	0.00	0.00	SAM 3N-25H PBHL

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well SAM 3N-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 3N-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	KOP @ 300'
400.00	2.00	194.80	399.98	-1.69	-0.45	-0.46	2.00	2.00	
500.00	4.00	194.80	499.84	-6.75	-1.78	-1.85	2.00	2.00	
600.00	6.00	194.80	599.45	-15.17	-4.01	-4.16	2.00	2.00	
700.00	8.00	194.80	698.70	-26.96	-7.12	-7.40	2.00	2.00	
784.38	9.69	194.80	782.08	-39.50	-10.43	-10.84	2.00	2.00	EOB; INC=9.69°
800.00	9.69	194.80	797.47	-42.04	-11.10	-11.54	0.00	0.00	
900.00	9.69	194.80	896.05	-58.31	-15.40	-16.00	0.00	0.00	
1,000.00	9.69	194.80	994.62	-74.58	-19.70	-20.47	0.00	0.00	
1,100.00	9.69	194.80	1,093.19	-90.85	-24.00	-24.93	0.00	0.00	
1,200.00	9.69	194.80	1,191.77	-107.12	-28.29	-29.39	0.00	0.00	
1,300.00	9.69	194.80	1,290.34	-123.39	-32.59	-33.86	0.00	0.00	
1,400.00	9.69	194.80	1,388.92	-139.66	-36.89	-38.32	0.00	0.00	
1,500.00	9.69	194.80	1,487.49	-155.93	-41.19	-42.79	0.00	0.00	
1,600.00	9.69	194.80	1,586.06	-172.20	-45.48	-47.25	0.00	0.00	
1,700.00	9.69	194.80	1,684.64	-188.47	-49.78	-51.72	0.00	0.00	
1,800.00	9.69	194.80	1,783.21	-204.74	-54.08	-56.18	0.00	0.00	
1,900.00	9.69	194.80	1,881.79	-221.01	-58.38	-60.65	0.00	0.00	
2,000.00	9.69	194.80	1,980.36	-237.28	-62.67	-65.11	0.00	0.00	
2,100.00	9.69	194.80	2,078.93	-253.55	-66.97	-69.58	0.00	0.00	
2,200.00	9.69	194.80	2,177.51	-269.82	-71.27	-74.04	0.00	0.00	
2,300.00	9.69	194.80	2,276.08	-286.08	-75.56	-78.51	0.00	0.00	
2,400.00	9.69	194.80	2,374.66	-302.35	-79.86	-82.97	0.00	0.00	
2,500.00	9.69	194.80	2,473.23	-318.62	-84.16	-87.44	0.00	0.00	
2,600.00	9.69	194.80	2,571.80	-334.89	-88.46	-91.90	0.00	0.00	
2,700.00	9.69	194.80	2,670.38	-351.16	-92.75	-96.37	0.00	0.00	
2,800.00	9.69	194.80	2,768.95	-367.43	-97.05	-100.83	0.00	0.00	
2,900.00	9.69	194.80	2,867.53	-383.70	-101.35	-105.29	0.00	0.00	
3,000.00	9.69	194.80	2,966.10	-399.97	-105.65	-109.76	0.00	0.00	
3,100.00	9.69	194.80	3,064.67	-416.24	-109.94	-114.22	0.00	0.00	
3,200.00	9.69	194.80	3,163.25	-432.51	-114.24	-118.69	0.00	0.00	
3,300.00	9.69	194.80	3,261.82	-448.78	-118.54	-123.15	0.00	0.00	
3,400.00	9.69	194.80	3,360.40	-465.05	-122.84	-127.62	0.00	0.00	
3,500.00	9.69	194.80	3,458.97	-481.32	-127.13	-132.08	0.00	0.00	
3,600.00	9.69	194.80	3,557.54	-497.59	-131.43	-136.55	0.00	0.00	
3,700.00	9.69	194.80	3,656.12	-513.86	-135.73	-141.01	0.00	0.00	
3,800.00	9.69	194.80	3,754.69	-530.13	-140.03	-145.48	0.00	0.00	
3,900.00	9.69	194.80	3,853.27	-546.40	-144.32	-149.94	0.00	0.00	
4,000.00	9.69	194.80	3,951.84	-562.67	-148.62	-154.41	0.00	0.00	
4,100.00	9.69	194.80	4,050.41	-578.94	-152.92	-158.87	0.00	0.00	
4,200.00	9.69	194.80	4,148.99	-595.21	-157.21	-163.34	0.00	0.00	
4,300.00	9.69	194.80	4,247.56	-611.48	-161.51	-167.80	0.00	0.00	
4,400.00	9.69	194.80	4,346.14	-627.75	-165.81	-172.27	0.00	0.00	
4,500.00	9.69	194.80	4,444.71	-644.02	-170.11	-176.73	0.00	0.00	
4,600.00	9.69	194.80	4,543.28	-660.29	-174.40	-181.19	0.00	0.00	
4,700.00	9.69	194.80	4,641.86	-676.56	-178.70	-185.66	0.00	0.00	
4,800.00	9.69	194.80	4,740.43	-692.83	-183.00	-190.12	0.00	0.00	
4,900.00	9.69	194.80	4,839.01	-709.10	-187.30	-194.59	0.00	0.00	
5,000.00	9.69	194.80	4,937.58	-725.37	-191.59	-199.05	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well SAM 3N-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 3N-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	9.69	194.80	5,036.15	-741.64	-195.89	-203.52	0.00	0.00	
5,200.00	9.69	194.80	5,134.73	-757.91	-200.19	-207.98	0.00	0.00	
5,300.00	9.69	194.80	5,233.30	-774.18	-204.49	-212.45	0.00	0.00	
5,400.00	9.69	194.80	5,331.88	-790.45	-208.78	-216.91	0.00	0.00	
5,500.00	9.69	194.80	5,430.45	-806.72	-213.08	-221.38	0.00	0.00	
5,600.00	9.69	194.80	5,529.02	-822.99	-217.38	-225.84	0.00	0.00	
5,700.00	9.69	194.80	5,627.60	-839.26	-221.68	-230.31	0.00	0.00	
5,800.00	9.69	194.80	5,726.17	-855.53	-225.97	-234.77	0.00	0.00	
5,900.00	9.69	194.80	5,824.75	-871.79	-230.27	-239.24	0.00	0.00	
6,000.00	9.69	194.80	5,923.32	-888.06	-234.57	-243.70	0.00	0.00	
6,100.00	9.69	194.80	6,021.89	-904.33	-238.87	-248.16	0.00	0.00	
6,200.00	9.69	194.80	6,120.47	-920.60	-243.16	-252.63	0.00	0.00	
6,300.00	9.69	194.80	6,219.04	-936.87	-247.46	-257.09	0.00	0.00	
6,400.00	9.69	194.80	6,317.62	-953.14	-251.76	-261.56	0.00	0.00	
6,500.00	9.69	194.80	6,416.19	-969.41	-256.05	-266.02	0.00	0.00	
6,600.00	9.69	194.80	6,514.76	-985.68	-260.35	-270.49	0.00	0.00	
6,700.00	9.69	194.80	6,613.34	-1,001.95	-264.65	-274.95	0.00	0.00	
6,800.00	9.69	194.80	6,711.91	-1,018.22	-268.95	-279.42	0.00	0.00	
6,900.00	9.69	194.80	6,810.49	-1,034.49	-273.24	-283.88	0.00	0.00	
6,931.73	9.69	194.80	6,841.77	-1,039.66	-274.61	-285.30	0.00	0.00	START BUILD
7,000.00	9.78	162.07	6,909.10	-1,050.74	-274.29	-285.09	8.00	0.14	
7,100.00	14.32	129.55	7,006.98	-1,066.72	-262.12	-273.09	8.00	4.54	
7,200.00	21.01	114.79	7,102.25	-1,082.14	-236.26	-247.39	8.00	6.69	
7,300.00	28.37	107.16	7,193.07	-1,096.69	-197.22	-208.51	8.00	7.35	
7,400.00	35.98	102.52	7,277.67	-1,110.09	-145.77	-157.19	8.00	7.61	
7,500.00	43.72	99.33	7,354.40	-1,122.07	-82.89	-94.44	8.00	7.74	
7,600.00	51.52	96.93	7,421.76	-1,132.41	-9.82	-21.48	8.00	7.80	
7,700.00	59.36	95.01	7,478.44	-1,140.90	72.02	60.27	8.00	7.84	
7,800.00	67.23	93.38	7,523.35	-1,147.38	161.04	149.22	8.00	7.87	
7,900.00	75.11	91.92	7,555.61	-1,151.72	255.51	243.64	8.00	7.88	
8,000.00	83.00	90.57	7,574.59	-1,153.84	353.59	341.69	8.00	7.89	
8,088.71	90.00	89.41	7,580.00	-1,153.83	442.08	430.18	8.00	7.89	LP @ 7580' TVD; 90°
8,100.00	90.00	89.41	7,580.00	-1,153.71	453.37	441.46	0.00	0.00	
8,200.00	90.00	89.41	7,580.00	-1,152.69	553.36	541.46	0.00	0.00	
8,300.00	90.00	89.41	7,580.00	-1,151.66	653.36	641.46	0.00	0.00	
8,400.00	90.00	89.41	7,580.00	-1,150.64	753.35	741.46	0.00	0.00	
8,500.00	90.00	89.41	7,580.00	-1,149.61	853.35	841.46	0.00	0.00	
8,600.00	90.00	89.41	7,580.00	-1,148.59	953.34	941.46	0.00	0.00	
8,700.00	90.00	89.41	7,580.00	-1,147.56	1,053.34	1,041.46	0.00	0.00	
8,800.00	90.00	89.41	7,580.00	-1,146.54	1,153.33	1,141.46	0.00	0.00	
8,900.00	90.00	89.41	7,580.00	-1,145.51	1,253.33	1,241.46	0.00	0.00	
9,000.00	90.00	89.41	7,580.00	-1,144.49	1,353.32	1,341.46	0.00	0.00	
9,100.00	90.00	89.41	7,580.00	-1,143.46	1,453.32	1,441.46	0.00	0.00	
9,200.00	90.00	89.41	7,580.00	-1,142.44	1,553.31	1,541.46	0.00	0.00	
9,300.00	90.00	89.41	7,580.00	-1,141.41	1,653.31	1,641.46	0.00	0.00	
9,400.00	90.00	89.41	7,580.00	-1,140.39	1,753.30	1,741.46	0.00	0.00	
9,500.00	90.00	89.41	7,580.00	-1,139.36	1,853.29	1,841.46	0.00	0.00	
9,600.00	90.00	89.41	7,580.00	-1,138.34	1,953.29	1,941.46	0.00	0.00	
9,700.00	90.00	89.41	7,580.00	-1,137.31	2,053.28	2,041.46	0.00	0.00	
9,800.00	90.00	89.41	7,580.00	-1,136.29	2,153.28	2,141.46	0.00	0.00	
9,900.00	90.00	89.41	7,580.00	-1,135.26	2,253.27	2,241.46	0.00	0.00	
10,000.00	90.00	89.41	7,580.00	-1,134.24	2,353.27	2,341.46	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well SAM 3N-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 3N-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
10,100.00	90.00	89.41	7,580.00	-1,133.21	2,453.26	2,441.46	0.00	0.00	
10,200.00	90.00	89.41	7,580.00	-1,132.19	2,553.26	2,541.46	0.00	0.00	
10,300.00	90.00	89.41	7,580.00	-1,131.16	2,653.25	2,641.46	0.00	0.00	
10,400.00	90.00	89.41	7,580.00	-1,130.14	2,753.25	2,741.46	0.00	0.00	
10,500.00	90.00	89.41	7,580.00	-1,129.11	2,853.24	2,841.46	0.00	0.00	
10,600.00	90.00	89.41	7,580.00	-1,128.09	2,953.24	2,941.46	0.00	0.00	
10,700.00	90.00	89.41	7,580.00	-1,127.06	3,053.23	3,041.46	0.00	0.00	
10,800.00	90.00	89.41	7,580.00	-1,126.04	3,153.23	3,141.46	0.00	0.00	
10,900.00	90.00	89.41	7,580.00	-1,125.01	3,253.22	3,241.46	0.00	0.00	
11,000.00	90.00	89.41	7,580.00	-1,123.99	3,353.22	3,341.46	0.00	0.00	
11,100.00	90.00	89.41	7,580.00	-1,122.97	3,453.21	3,441.46	0.00	0.00	
11,200.00	90.00	89.41	7,580.00	-1,121.94	3,553.21	3,541.46	0.00	0.00	
11,300.00	90.00	89.41	7,580.00	-1,120.92	3,653.20	3,641.46	0.00	0.00	
11,400.00	90.00	89.41	7,580.00	-1,119.89	3,753.20	3,741.46	0.00	0.00	
11,500.00	90.00	89.41	7,580.00	-1,118.87	3,853.19	3,841.46	0.00	0.00	
11,600.00	90.00	89.41	7,580.00	-1,117.84	3,953.18	3,941.46	0.00	0.00	
11,700.00	90.00	89.41	7,580.00	-1,116.82	4,053.18	4,041.46	0.00	0.00	
11,800.00	90.00	89.41	7,580.00	-1,115.79	4,153.17	4,141.46	0.00	0.00	
11,900.00	90.00	89.41	7,580.00	-1,114.77	4,253.17	4,241.46	0.00	0.00	
12,000.00	90.00	89.41	7,580.00	-1,113.74	4,353.16	4,341.46	0.00	0.00	
12,100.00	90.00	89.41	7,580.00	-1,112.72	4,453.16	4,441.46	0.00	0.00	
12,155.71	90.00	89.41	7,580.00	-1,112.15	4,508.87	4,497.18	0.00	0.00	TD at 12155.71

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 3N-25H TPZ	0.00	0.00	7,580.00	-1,156.51	180.29	1,249,370.20	3,214,757.27	40.015359	-104.733248
- plan misses target center by 46.36usft at 7836.91usft MD (7536.77 TVD, -1149.24 N, 195.38 E)									
- Point									
SAM 3N-25H PBHL	0.00	0.00	7,580.00	-1,112.15	4,508.87	1,249,414.57	3,219,085.85	40.015377	-104.717793
- plan hits target center									
- Point									

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
300.00	300.00	0.00	0.00	KOP @ 300'
784.38	782.08	-39.50	-10.43	EOB; INC=9.69°
6,931.73	6,841.77	-1,039.66	-274.61	START BUILD
8,088.71	7,580.00	-1,153.83	442.08	LP @ 7580' TVD; 90°
12,155.71	7,580.00	-1,112.15	4,508.87	TD at 12155.71

Crestone Peak Resources

DJ BASIN

S25-T1N-R66W (SAM)

SAM 3N-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 3N-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 3N-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	12,155.71	PLAN #1 (OH)	MWD+HDGM	OWSG MWD + HDGM

Cathedral Energy Services

Anticollision Report

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well SAM 3N-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 3N-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)						
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						Out of range
Beierle KE 26-361HN - GWOG WELL - GWOG WELL	7,424.09	12,555.47	387.31	320.39	5.788	CC
Beierle KE 26-361HN - GWOG WELL - GWOG WELL	7,450.00	12,555.47	388.43	319.93	5.670	ES
Beierle KE 26-361HN - GWOG WELL - GWOG WELL	7,550.00	12,555.47	412.93	337.32	5.462	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	12,155.71	7,301.08	877.37	797.89	11.039	CC, ES, SF
Lochbuie 2B-31H-D165 (EXISTING) - CPR WELL - SUR	12,155.71	7,350.00	1,115.20	1,055.14	18.570	CC, ES, SF
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	12,155.71	7,294.20	902.83	825.59	11.688	CC, ES, SF
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	300.00	261.00	1,341.28	1,340.14	1,174.686	CC, ES
Sam 1 (EXISTING) - CPR WELL - NO SURVEYS	1,100.00	500.00	1,488.47	1,483.17	280.462	SF
Sam 13-25 (EXISTING) - CPR WELL - SURVEYS	300.00	283.00	1,327.55	1,326.38	1,135.311	CC
Sam 13-25 (EXISTING) - CPR WELL - SURVEYS	3,100.00	3,279.12	1,341.54	1,319.74	61.538	ES
Sam 13-25 (EXISTING) - CPR WELL - SURVEYS	4,600.00	4,652.00	1,489.56	1,452.83	40.552	SF
SAM 3A-25H-M166 - OH - PLAN #1	200.00	200.00	130.05	129.05	130.968	CC, ES
SAM 3A-25H-M166 - OH - PLAN #1	700.00	669.60	196.69	191.94	41.418	SF
SAM 3B-25H-M166 - OH - PLAN #1	300.00	300.00	119.84	118.13	70.084	CC, ES
SAM 3B-25H-M166 - OH - PLAN #1	700.00	678.03	172.10	167.44	36.923	SF
SAM 3C-25H-M166 - OH - PLAN #1	300.00	300.00	110.01	108.30	64.337	CC, ES
SAM 3C-25H-M166 - OH - PLAN #1	700.00	684.95	151.15	146.55	32.874	SF
SAM 3D-25H-M166 - OH - PLAN #1	300.00	300.00	99.81	98.10	58.374	CC, ES
SAM 3D-25H-M166 - OH - PLAN #1	700.00	690.78	132.97	128.41	29.183	SF
SAM 3E-25H-M166 - OH - PLAN #1	300.00	300.00	89.98	88.27	52.623	CC, ES
SAM 3E-25H-M166 - OH - PLAN #1	784.38	775.65	134.29	129.15	26.100	SF
SAM 3F-25H-M166 - OH - PLAN #1	300.00	300.00	79.77	78.06	46.654	CC, ES
SAM 3F-25H-M166 - OH - PLAN #1	800.00	797.47	122.31	117.04	23.247	SF
SAM 3G-25H-M166 - OH - PLAN #1	300.00	300.00	69.94	68.23	40.904	CC, ES
SAM 3G-25H-M166 - OH - PLAN #1	12,155.71	11,782.08	1,335.69	1,041.35	4.538	SF
SAM 3H-25H-M166 - OH - PLAN #1	300.00	300.00	59.74	58.03	34.940	CC, ES
SAM 3H-25H-M166 - OH - PLAN #1	12,155.71	12,063.79	1,104.84	803.38	3.665	SF
SAM 3I-25H-M166 - OH - PLAN #1	300.00	300.00	49.91	48.20	29.188	CC, ES
SAM 3I-25H-M166 - OH - PLAN #1	12,155.71	11,900.52	1,014.28	718.66	3.431	SF
SAM 3J-25H-M166 - OH - PLAN #1	300.00	300.00	40.07	38.36	23.432	CC, ES
SAM 3J-25H-M166 - OH - PLAN #1	12,155.71	11,840.65	811.13	524.05	2.825	SF
SAM 3K-25H-M166 - OH - PLAN #1	300.00	300.00	29.87	28.16	17.470	CC, ES
SAM 3K-25H-M166 - OH - PLAN #1	12,155.71	11,933.30	570.85	283.99	1.990	SF
SAM 3L-25H-M166 - OH - PLAN #1	300.00	300.00	20.03	18.32	11.712	CC, ES
SAM 3L-25H-M166 - OH - PLAN #1	12,155.71	11,884.63	420.24	171.74	1.691	SF
SAM 3M-25H-M166 - OH - PLAN #1	300.00	300.00	9.84	8.13	5.752	CC, ES
SAM 3M-25H-M166 - OH - PLAN #1	12,155.71	11,974.34	197.13	34.95	1.216	Level 2, SF
SAM 3O-25H-M166 - OH - PLAN #1	200.00	200.00	10.21	9.21	10.280	CC, ES
SAM 3O-25H-M166 - OH - PLAN #1	12,155.71	11,932.12	260.07	119.72	1.853	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 3N-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 3N-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	Offset	Distance		Separation	Warning
	Measured	Measured	Between	Between		
Offset Well - Wellbore - Design	Depth	Depth	Centres	Ellipses	Factor	
(usft) (usft) (usft) (usft)						
S25-T1N-R66W (SAM)						
State 7-36 CG (EXISTING) - CPR WELL - NO SURVEYS						Out of range
Templin 1 (EXISTING) - CPR WELL - NO SURVEYS						Out of range
Wenzel 1 (EXISTING) - CPR WELL - NO SURVEYS	11,706.34	7,501.00	1,222.91	1,077.82	8.428	CC, ES
Wenzel 1 (EXISTING) - CPR WELL - NO SURVEYS	11,800.00	7,501.00	1,226.50	1,079.33	8.334	SF

Cathedral Energy Services

Anticollision Report

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well SAM 3N-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 3N-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						
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
6,100.00	6,021.89	12,555.47	7,499.06	25.75	91.41	164.59	-815.80	-304.51	1,457.34	1,410.88	46.46	31.366	
6,200.00	6,120.47	12,555.47	7,499.06	26.19	91.41	164.59	-815.80	-304.51	1,360.02	1,313.21	46.82	29.049	
6,300.00	6,219.04	12,555.47	7,499.06	26.63	91.41	164.59	-815.80	-304.51	1,263.13	1,215.90	47.23	26.745	
6,400.00	6,317.62	12,555.47	7,499.06	27.07	91.41	164.59	-815.80	-304.51	1,166.76	1,119.05	47.70	24.459	
6,500.00	6,416.19	12,555.47	7,499.06	27.51	91.41	164.59	-815.80	-304.51	1,071.05	1,022.80	48.25	22.196	
6,600.00	6,514.76	12,555.47	7,499.06	27.95	91.41	164.59	-815.80	-304.51	976.21	927.30	48.91	19.961	
6,700.00	6,613.34	12,555.47	7,499.06	28.39	91.41	164.59	-815.80	-304.51	882.50	832.81	49.68	17.762	
6,800.00	6,711.91	12,555.47	7,499.06	28.82	91.41	164.59	-815.80	-304.51	790.34	739.71	50.63	15.611	
6,900.00	6,810.49	12,555.47	7,499.06	29.26	91.41	164.59	-815.80	-304.51	700.33	648.13	52.20	13.416	
6,931.73	6,841.77	12,555.47	7,499.06	29.40	91.41	164.59	-815.80	-304.51	672.36	619.53	52.82	12.729	
6,950.00	6,859.78	12,555.47	7,499.06	29.48	91.41	170.52	-815.80	-304.51	656.41	603.21	53.20	12.339	
7,000.00	6,909.10	12,555.47	7,499.06	29.69	91.41	-172.38	-815.80	-304.51	613.53	559.24	54.29	11.301	
7,050.00	6,958.25	12,555.47	7,499.06	29.89	91.41	-159.12	-815.80	-304.51	572.13	516.68	55.45	10.319	
7,100.00	7,006.98	12,555.47	7,499.06	30.07	91.41	-151.16	-815.80	-304.51	532.78	476.14	56.64	9.406	
7,150.00	7,055.06	12,555.47	7,499.06	30.24	91.41	-146.73	-815.80	-304.51	496.20	438.35	57.85	8.577	
7,200.00	7,102.25	12,555.47	7,499.06	30.40	91.41	-144.21	-815.80	-304.51	463.22	404.16	59.07	7.842	
7,250.00	7,148.33	12,555.47	7,499.06	30.55	91.41	-142.63	-815.80	-304.51	434.86	374.55	60.31	7.210	
7,300.00	7,193.07	12,555.47	7,499.06	30.69	91.41	-141.45	-815.80	-304.51	412.22	350.53	61.69	6.682	
7,350.00	7,236.26	12,555.47	7,499.06	30.81	91.41	-140.37	-815.80	-304.51	396.38	333.01	63.38	6.254	
7,400.00	7,277.67	12,555.47	7,499.06	30.92	91.41	-139.20	-815.80	-304.51	388.28	322.67	65.61	5.918	
7,424.09	7,296.93	12,555.47	7,499.06	30.97	91.41	-138.57	-815.80	-304.51	387.31	320.39	66.92	5.788 CC	
7,450.00	7,317.11	12,555.47	7,499.06	31.03	91.41	-137.83	-815.80	-304.51	388.43	319.93	68.50	5.670 ES	
7,500.00	7,354.40	12,555.47	7,499.06	31.12	91.41	-136.16	-815.80	-304.51	396.83	324.89	71.94	5.516	
7,550.00	7,389.33	12,555.47	7,499.06	31.21	91.41	-134.11	-815.80	-304.51	412.93	337.32	75.60	5.462 SF	
7,600.00	7,421.76	12,555.47	7,499.06	31.28	91.41	-131.61	-815.80	-304.51	435.80	356.62	79.18	5.504	
7,650.00	7,451.51	12,555.47	7,499.06	31.35	91.41	-128.55	-815.80	-304.51	464.35	381.86	82.48	5.629	
7,700.00	7,478.44	12,555.47	7,499.06	31.42	91.41	-124.86	-815.80	-304.51	497.47	412.03	85.44	5.822	
7,750.00	7,502.43	12,555.47	7,499.06	31.48	91.41	-120.44	-815.80	-304.51	534.17	446.10	88.07	6.065	
7,800.00	7,523.35	12,555.47	7,499.06	31.56	91.41	-115.21	-815.80	-304.51	573.60	483.20	90.40	6.345	
7,850.00	7,541.11	12,555.47	7,499.06	31.66	91.41	-109.14	-815.80	-304.51	615.06	522.56	92.50	6.649	
7,900.00	7,555.61	12,555.47	7,499.06	31.82	91.41	-102.26	-815.80	-304.51	657.99	563.59	94.40	6.970	
7,950.00	7,566.79	12,555.47	7,499.06	32.11	91.41	-94.75	-815.80	-304.51	701.93	605.79	96.14	7.301	
8,000.00	7,574.59	12,555.47	7,499.06	32.60	91.41	-86.87	-815.80	-304.51	746.50	648.76	97.75	7.637	
8,050.00	7,578.97	12,555.47	7,499.06	33.25	91.41	-78.98	-815.80	-304.51	791.41	692.17	99.24	7.975	
8,088.71	7,580.00	12,555.47	7,499.06	33.84	91.41	-73.11	-815.80	-304.51	826.24	725.92	100.32	8.236	
8,100.00	7,580.00	12,555.47	7,499.06	34.02	91.41	-73.11	-815.80	-304.51	836.40	735.79	100.62	8.313	
8,200.00	7,580.00	12,555.47	7,499.06	35.78	91.41	-73.11	-815.80	-304.51	927.60	824.68	102.92	9.012	
8,300.00	7,580.00	12,555.47	7,499.06	37.77	91.41	-73.11	-815.80	-304.51	1,020.45	915.73	104.72	9.745	
8,400.00	7,580.00	12,555.47	7,499.06	39.92	91.41	-73.11	-815.80	-304.51	1,114.54	1,008.40	106.14	10.501	
8,500.00	7,580.00	12,555.47	7,499.06	42.22	91.41	-73.11	-815.80	-304.51	1,209.57	1,102.29	107.28	11.275	
8,600.00	7,580.00	12,555.47	7,499.06	44.63	91.41	-73.11	-815.80	-304.51	1,305.35	1,197.13	108.22	12.062	
8,700.00	7,580.00	12,555.47	7,499.06	47.13	91.41	-73.11	-815.80	-304.51	1,401.72	1,292.71	109.01	12.859	
8,800.00	7,580.00	12,555.47	7,499.06	49.72	91.41	-73.11	-815.80	-304.51	1,498.56	1,388.90	109.67	13.665	

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 3N-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 3N-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) - Lochbuie 2A-31H-D165 (EXISTING) - CPR WELL - SURVEYS													Offset Site Error: 0.00 usft
Survey Program: 164-ISCWSA MWD													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	
11,500.00	7,580.00	7,305.05	7,154.62	130.37	21.40	45.22	-1,461.89	5,231.29	1,463.70	1,407.21	56.49	25.912	
11,600.00	7,580.00	7,304.44	7,154.19	133.50	21.40	45.15	-1,461.45	5,231.30	1,370.23	1,311.81	58.42	23.455	
11,700.00	7,580.00	7,303.82	7,153.77	136.63	21.40	45.08	-1,461.00	5,231.30	1,277.74	1,216.98	60.76	21.030	
11,800.00	7,580.00	7,303.21	7,153.35	139.77	21.40	45.01	-1,460.56	5,231.30	1,186.47	1,122.88	63.59	18.659	
11,900.00	7,580.00	7,302.61	7,152.93	142.91	21.40	44.94	-1,460.12	5,231.30	1,096.72	1,029.70	67.02	16.364	
12,000.00	7,580.00	7,302.01	7,152.52	146.05	21.40	44.87	-1,459.69	5,231.30	1,008.91	937.73	71.18	14.174	
12,100.00	7,580.00	7,301.41	7,152.10	149.20	21.40	44.81	-1,459.26	5,231.31	923.57	847.35	76.22	12.116	
12,155.71	7,580.00	7,301.08	7,151.87	150.95	21.40	44.77	-1,459.02	5,231.31	877.37	797.89	79.48	11.039 CC, ES, SF	

Cathedral Energy Services

Anticollision Report

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well SAM 3N-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 3N-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) - Lochbuie 2B-31H-D165 (EXISTING) - CPR WELL - SURVEYS				Offset Site Error:		0.00 usft	
Survey Program:				133-ISCWSA MWD										Offset Well Error:		0.00 usft	
Reference		Offset		Semi Major Axis			Distance										
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre	Centre	Between Centres	Between Ellipses	Total Uncertainty	Separation Factor	Warning				
(usft)	(usft)	(usft)	(usft)	(usft)	(usft)	(°)	+N/-S (usft)	+E/-W (usft)	(usft)	(usft)	Axis						
11,800.00	7,580.00	7,350.00	7,294.79	139.77	18.02	51.97	-1,373.86	5,571.75	1,457.53	1,404.18	53.35	27.318					
11,900.00	7,580.00	7,350.00	7,294.79	142.91	18.02	51.97	-1,373.86	5,571.75	1,360.60	1,305.86	54.74	24.854					
12,000.00	7,580.00	7,350.00	7,294.79	146.05	18.02	51.97	-1,373.86	5,571.75	1,264.15	1,207.68	56.47	22.386					
12,100.00	7,580.00	7,350.00	7,294.79	149.20	18.02	51.97	-1,373.86	5,571.75	1,168.29	1,109.66	58.62	19.928					
12,155.71	7,580.00	7,350.00	7,294.79	150.95	18.02	51.97	-1,373.86	5,571.75	1,115.20	1,055.14	60.05	18.570	CC, ES, SF				

Cathedral Energy Services

Anticollision Report

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well SAM 3N-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 3N-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) - Lochbuie 2E-31H-D165 (EXISTING) - CPR WELL - SURVEYS													Offset Site Error: 0.00 usft
Survey Program: 164-ISCWSA MWD													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	
11,500.00	7,580.00	7,298.08	7,149.79	130.37	21.42	45.90	-1,456.51	5,270.53	1,496.42	1,440.60	55.82	26.808	
11,600.00	7,580.00	7,297.48	7,149.37	133.50	21.42	45.83	-1,456.08	5,270.53	1,402.33	1,344.72	57.61	24.342	
11,700.00	7,580.00	7,296.88	7,148.95	136.63	21.42	45.76	-1,455.65	5,270.53	1,309.10	1,249.33	59.78	21.900	
11,800.00	7,580.00	7,296.29	7,148.54	139.77	21.42	45.69	-1,455.23	5,270.53	1,216.96	1,154.56	62.40	19.502	
11,900.00	7,580.00	7,295.70	7,148.12	142.91	21.42	45.63	-1,454.80	5,270.54	1,126.16	1,060.56	65.59	17.169	
12,000.00	7,580.00	7,295.11	7,147.71	146.05	21.42	45.56	-1,454.38	5,270.54	1,037.04	967.57	69.47	14.927	
12,100.00	7,580.00	7,294.52	7,147.30	149.20	21.42	45.49	-1,453.97	5,270.54	950.10	875.91	74.19	12.806	
12,155.71	7,580.00	7,294.20	7,147.07	150.95	21.42	45.45	-1,453.74	5,270.54	902.83	825.59	77.25	11.688 CC, ES, SF	

Cathedral Energy Services

Anticollision Report

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well SAM 3N-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 3N-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	81.28	203.24	1,325.79	1,341.85					
100.00	100.00	61.00	61.00	0.14	0.07	81.28	203.24	1,325.79	1,341.28	1,341.08	0.21	6,541.012		
200.00	200.00	161.00	161.00	0.50	0.18	81.28	203.24	1,325.79	1,341.28	1,340.61	0.67	1,991.689		
300.00	300.00	261.00	261.00	0.85	0.29	81.28	203.24	1,325.79	1,341.28	1,340.14	1.14	1,174.686	CC, ES	
400.00	399.98	360.98	360.98	1.20	0.40	-113.57	203.24	1,325.79	1,341.98	1,340.38	1.59	841.695		
500.00	499.84	460.84	460.84	1.54	0.51	-113.73	203.24	1,325.79	1,344.08	1,342.04	2.04	657.382		
600.00	599.45	500.00	500.00	1.90	0.55	-113.76	203.24	1,325.79	1,348.97	1,346.50	2.48	544.552		
700.00	698.70	500.00	500.00	2.27	0.55	-113.52	203.24	1,325.79	1,362.04	1,359.04	3.00	453.539		
784.38	782.08	500.00	500.00	2.60	0.55	-113.19	203.24	1,325.79	1,379.68	1,376.17	3.50	393.881		
800.00	797.47	500.00	500.00	2.66	0.55	-113.19	203.24	1,325.79	1,383.57	1,379.97	3.60	384.419		
900.00	896.05	500.00	500.00	3.07	0.55	-113.19	203.24	1,325.79	1,412.34	1,408.14	4.20	336.553		
1,000.00	994.62	500.00	500.00	3.48	0.55	-113.19	203.24	1,325.79	1,447.45	1,442.68	4.77	303.384		
1,100.00	1,093.19	500.00	500.00	3.90	0.55	-113.19	203.24	1,325.79	1,488.47	1,483.17	5.31	280.462	SF	

Cathedral Energy Services

Anticollision Report

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well SAM 3N-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 3N-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
0.00	0.00	0.00	0.00	0.00	0.00	81.50	196.20	1,312.97	1,327.66				
100.00	100.00	83.00	83.00	0.14	0.09	81.50	196.20	1,312.97	1,327.55	1,327.32	0.23	5,766.623	
200.00	200.00	183.00	183.00	0.50	0.20	81.50	196.20	1,312.97	1,327.55	1,326.85	0.70	1,897.124	
300.00	300.00	283.00	283.00	0.85	0.31	81.50	196.20	1,312.97	1,327.55	1,326.38	1.17	1,135.311 CC	
400.00	399.98	382.98	382.98	1.20	0.43	-113.35	196.20	1,312.97	1,328.24	1,326.62	1.62	818.360	
500.00	499.84	482.84	482.84	1.54	0.54	-113.52	196.20	1,312.97	1,330.33	1,328.25	2.07	641.295	
600.00	599.45	582.45	582.45	1.90	0.65	-113.80	196.20	1,312.97	1,333.83	1,331.29	2.54	525.113	
700.00	698.70	681.70	681.70	2.27	0.76	-114.18	196.20	1,312.97	1,338.82	1,335.80	3.02	443.251	
784.38	782.08	765.08	765.08	2.60	0.85	-114.58	196.20	1,312.97	1,344.23	1,340.79	3.44	390.894	
800.00	797.47	780.47	780.47	2.66	0.87	-114.68	196.20	1,312.97	1,345.34	1,341.82	3.52	382.402	
900.00	896.05	879.05	879.05	3.07	0.98	-115.32	196.20	1,312.97	1,352.53	1,348.51	4.03	336.023	
1,000.00	994.62	977.62	977.62	3.48	1.09	-115.96	196.20	1,312.97	1,359.90	1,355.36	4.54	299.639	
1,100.00	1,093.19	1,076.19	1,076.19	3.90	1.20	-116.58	196.20	1,312.97	1,367.44	1,362.38	5.06	270.471	
1,200.00	1,191.77	1,174.77	1,174.77	4.33	1.30	-117.20	196.20	1,312.97	1,375.13	1,369.56	5.58	246.636	
1,300.00	1,290.34	1,273.34	1,273.34	4.75	1.41	-117.82	196.20	1,312.97	1,383.00	1,376.90	6.10	226.836	
1,400.00	1,388.92	1,371.92	1,371.92	5.18	1.52	-118.42	196.20	1,312.97	1,391.02	1,384.40	6.62	210.152	
1,500.00	1,487.49	1,461.10	1,461.09	5.61	1.70	-118.97	196.31	1,313.20	1,399.48	1,392.27	7.21	194.134	
1,600.00	1,586.06	1,605.14	1,605.11	6.04	2.01	-119.90	197.76	1,311.99	1,407.44	1,399.49	7.95	177.007	
1,700.00	1,684.64	1,773.34	1,772.89	6.48	2.37	-121.20	202.84	1,301.65	1,410.87	1,402.10	8.77	160.881	
1,800.00	1,783.21	1,948.37	1,946.19	6.91	2.83	-122.85	212.43	1,279.39	1,408.74	1,399.11	9.63	146.219	
1,900.00	1,881.79	2,087.91	2,082.86	7.35	3.29	-124.46	225.55	1,254.57	1,403.85	1,393.39	10.46	134.177	
2,000.00	1,980.36	2,218.25	2,208.92	7.78	3.82	-126.21	242.21	1,226.00	1,396.74	1,385.40	11.34	123.183	
2,100.00	2,078.93	2,350.43	2,335.26	8.22	4.46	-128.19	262.06	1,192.61	1,388.20	1,375.88	12.31	112.727	
2,200.00	2,177.51	2,464.67	2,443.35	8.65	5.09	-130.01	279.93	1,160.27	1,378.00	1,364.72	13.28	103.760	
2,300.00	2,276.08	2,548.52	2,522.47	9.09	5.55	-131.39	293.83	1,136.21	1,368.97	1,354.84	14.13	96.868	
2,400.00	2,374.66	2,637.76	2,606.87	9.53	6.02	-132.86	308.24	1,111.05	1,361.33	1,346.32	15.01	90.699	
2,500.00	2,473.23	2,723.53	2,688.07	9.96	6.48	-134.27	322.06	1,087.15	1,355.06	1,339.18	15.88	85.315	
2,600.00	2,571.80	2,803.99	2,764.57	10.40	6.92	-135.57	334.57	1,065.60	1,350.57	1,333.83	16.73	80.703	
2,700.00	2,670.38	2,913.43	2,868.43	10.84	7.54	-137.37	351.86	1,035.77	1,346.87	1,329.10	17.77	75.787	
2,800.00	2,768.95	3,008.32	2,958.32	11.27	8.10	-138.95	366.64	1,009.23	1,343.62	1,324.86	18.76	71.640	
2,900.00	2,867.53	3,093.77	3,039.21	11.71	8.61	-140.38	380.37	985.32	1,341.74	1,322.04	19.70	68.114	
3,000.00	2,966.10	3,189.40	3,129.39	12.15	9.23	-142.04	396.66	957.99	1,341.06	1,320.31	20.75	64.621	
3,014.07	2,979.97	3,202.21	3,141.44	12.21	9.31	-142.26	398.90	954.27	1,341.05	1,320.15	20.90	64.162	
3,100.00	3,064.67	3,279.12	3,213.61	12.59	9.83	-143.64	412.82	931.61	1,341.54	1,319.74	21.80	61.538 ES	
3,200.00	3,163.25	3,359.16	3,288.65	13.03	10.35	-145.08	427.79	908.15	1,343.76	1,320.98	22.77	59.004	
3,300.00	3,261.82	3,461.00	3,384.34	13.46	10.99	-146.88	446.38	878.67	1,347.29	1,323.42	23.87	56.441	
3,400.00	3,360.40	3,543.37	3,461.84	13.90	11.51	-148.32	461.06	854.95	1,351.95	1,327.12	24.84	54.436	
3,500.00	3,458.97	3,639.44	3,552.25	14.34	12.12	-149.99	478.37	827.46	1,358.09	1,332.19	25.90	52.440	
3,600.00	3,557.54	3,731.79	3,639.30	14.78	12.69	-151.56	494.45	801.16	1,365.15	1,338.24	26.91	50.727	
3,700.00	3,656.12	3,812.96	3,715.94	15.22	13.19	-152.91	508.54	778.43	1,373.64	1,345.80	27.84	49.338	
3,800.00	3,754.69	3,904.25	3,802.19	15.66	13.76	-154.41	524.76	753.25	1,383.80	1,354.96	28.84	47.988	
3,900.00	3,853.27	4,008.90	3,901.30	16.09	14.39	-156.08	542.38	724.65	1,394.55	1,364.64	29.91	46.619	
4,000.00	3,951.84	4,111.57	3,998.57	16.53	15.02	-157.68	558.76	696.17	1,405.47	1,374.50	30.97	45.381	
4,100.00	4,050.41	4,188.46	4,071.43	16.97	15.50	-158.87	571.04	674.90	1,417.46	1,385.63	31.83	44.532	
4,200.00	4,148.99	4,304.93	4,181.69	17.41	16.22	-160.64	590.08	642.58	1,430.76	1,397.76	33.00	43.362	
4,300.00	4,247.56	4,405.96	4,277.30	17.85	16.85	-162.15	605.16	613.61	1,443.34	1,409.30	34.03	42.410	
4,400.00	4,346.14	4,482.26	4,349.50	18.29	17.33	-163.28	616.74	591.85	1,457.12	1,422.24	34.88	41.779	
4,500.00	4,444.71	4,564.84	4,427.42	18.73	17.87	-164.50	630.29	568.07	1,472.68	1,436.90	35.78	41.160	
4,600.00	4,543.28	4,652.00	4,509.25	19.16	18.46	-165.82	645.47	542.19	1,489.56	1,452.83	36.73	40.552 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 3N-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 3N-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	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	130.05	0.00	130.05					
100.00	100.00	100.00	100.00	0.14	0.14	0.00	130.05	0.00	130.05	129.77	0.28	471.143		
200.00	200.00	200.00	200.00	0.50	0.50	0.00	130.05	0.00	130.05	129.05	0.99	130.968 CC, ES		
300.00	300.00	295.75	295.74	0.85	0.84	-0.18	131.60	-0.40	131.67	129.93	1.73	75.902		
400.00	399.98	391.18	391.04	1.20	1.19	164.68	136.22	-1.60	138.20	135.71	2.49	55.464		
500.00	499.84	485.68	485.21	1.54	1.54	164.38	143.83	-3.57	151.29	148.04	3.25	46.543		
600.00	599.45	578.67	577.57	1.90	1.88	164.15	154.24	-6.26	170.84	166.83	4.01	42.643		
700.00	698.70	669.60	667.50	2.27	2.23	163.97	167.23	-9.61	196.69	191.94	4.75	41.418 SF		
784.38	782.08	744.36	741.09	2.60	2.54	163.84	179.97	-12.91	223.28	217.91	5.36	41.625		
800.00	797.47	757.99	754.47	2.66	2.59	163.84	182.49	-13.56	228.63	223.14	5.48	41.711		
900.00	896.05	846.35	840.91	3.07	2.97	163.80	200.22	-18.14	264.36	258.21	6.15	42.993		
1,000.00	994.62	939.48	931.87	3.48	3.38	163.74	219.57	-23.15	300.79	293.99	6.79	44.271		
1,100.00	1,093.19	1,032.61	1,022.83	3.90	3.79	163.68	238.92	-28.15	337.21	329.76	7.45	45.238		
1,200.00	1,191.77	1,125.74	1,113.79	4.33	4.21	163.64	258.26	-33.15	373.64	365.52	8.13	45.986		
1,300.00	1,290.34	1,218.86	1,204.75	4.75	4.64	163.61	277.61	-38.15	410.07	401.26	8.80	46.574		
1,400.00	1,388.92	1,311.99	1,295.71	5.18	5.06	163.58	296.96	-43.15	446.50	437.01	9.49	47.043		
1,500.00	1,487.49	1,405.12	1,386.67	5.61	5.49	163.55	316.30	-48.15	482.92	472.74	10.18	47.423		
1,600.00	1,586.06	1,498.25	1,477.62	6.04	5.92	163.53	335.65	-53.15	519.35	508.47	10.88	47.736		
1,700.00	1,684.64	1,591.38	1,568.58	6.48	6.35	163.51	355.00	-58.15	555.78	544.20	11.58	47.995		
1,800.00	1,783.21	1,684.51	1,659.54	6.91	6.78	163.50	374.34	-63.16	592.21	579.93	12.28	48.213		
1,900.00	1,881.79	1,777.64	1,750.50	7.35	7.21	163.48	393.69	-68.16	628.64	615.65	12.99	48.398		
2,000.00	1,980.36	1,870.77	1,841.46	7.78	7.64	163.47	413.04	-73.16	665.06	651.37	13.70	48.556		
2,100.00	2,078.93	1,963.90	1,932.42	8.22	8.07	163.46	432.39	-78.16	701.49	687.09	14.41	48.692		
2,200.00	2,177.51	2,057.02	2,023.38	8.65	8.51	163.45	451.73	-83.16	737.92	722.80	15.12	48.810		
2,300.00	2,276.08	2,150.15	2,114.34	9.09	8.94	163.44	471.08	-88.16	774.35	758.52	15.83	48.914		
2,400.00	2,374.66	2,243.28	2,205.30	9.53	9.38	163.43	490.43	-93.16	810.78	794.23	16.54	49.005		
2,500.00	2,473.23	2,336.41	2,296.26	9.96	9.81	163.42	509.77	-98.16	847.20	829.95	17.26	49.086		
2,600.00	2,571.80	2,429.54	2,387.22	10.40	10.24	163.42	529.12	-103.17	883.63	865.66	17.98	49.158		
2,700.00	2,670.38	2,522.67	2,478.18	10.84	10.68	163.41	548.47	-108.17	920.06	901.37	18.69	49.222		
2,800.00	2,768.95	2,615.80	2,569.14	11.27	11.11	163.40	567.81	-113.17	956.49	937.08	19.41	49.280		
2,900.00	2,867.53	2,708.93	2,660.10	11.71	11.55	163.40	587.16	-118.17	992.92	972.79	20.13	49.332		
3,000.00	2,966.10	2,802.06	2,751.06	12.15	11.98	163.39	606.51	-123.17	1,029.35	1,008.50	20.85	49.379		
3,100.00	3,064.67	2,895.18	2,842.02	12.59	12.42	163.39	625.85	-128.17	1,065.77	1,044.21	21.56	49.421		
3,200.00	3,163.25	2,988.31	2,932.98	13.03	12.85	163.38	645.20	-133.17	1,102.20	1,079.92	22.28	49.460		
3,300.00	3,261.82	3,081.44	3,023.94	13.46	13.29	163.38	664.55	-138.17	1,138.63	1,115.63	23.00	49.496		
3,400.00	3,360.40	3,174.57	3,114.90	13.90	13.72	163.38	683.89	-143.18	1,175.06	1,151.33	23.72	49.528		
3,500.00	3,458.97	3,267.70	3,205.86	14.34	14.16	163.37	703.24	-148.18	1,211.49	1,187.04	24.45	49.558		
3,600.00	3,557.54	3,360.83	3,296.82	14.78	14.60	163.37	722.59	-153.18	1,247.91	1,222.75	25.17	49.586		
3,700.00	3,656.12	3,453.96	3,387.78	15.22	15.03	163.37	741.94	-158.18	1,284.34	1,258.45	25.89	49.611		
3,800.00	3,754.69	3,547.09	3,478.74	15.66	15.47	163.36	761.28	-163.18	1,320.77	1,294.16	26.61	49.635		
3,900.00	3,853.27	3,640.21	3,569.70	16.09	15.90	163.36	780.63	-168.18	1,357.20	1,329.87	27.33	49.657		
4,000.00	3,951.84	3,733.34	3,660.66	16.53	16.34	163.36	799.98	-173.18	1,393.63	1,365.57	28.05	49.677		
4,100.00	4,050.41	3,826.47	3,751.62	16.97	16.78	163.35	819.32	-178.19	1,430.05	1,401.28	28.78	49.696		
4,200.00	4,148.99	3,919.60	3,842.58	17.41	17.21	163.35	838.67	-183.19	1,466.48	1,436.98	29.50	49.713		

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 3N-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 3N-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							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning	
0.00	0.00	0.00	0.00	0.00	0.00	-0.09	119.84	-0.20	119.84					
100.00	100.00	100.00	100.00	0.14	0.14	-0.09	119.84	-0.20	119.84	119.56	0.28	434.154		
200.00	200.00	200.00	200.00	0.50	0.50	-0.09	119.84	-0.20	119.84	118.84	0.99	120.685		
300.00	300.00	300.00	300.00	0.85	0.85	-0.09	119.84	-0.20	119.84	118.13	1.71	70.084 CC, ES		
400.00	399.98	396.03	396.01	1.20	1.20	165.09	121.38	-0.64	123.13	120.71	2.43	50.746		
500.00	499.84	491.44	491.30	1.54	1.55	165.02	125.98	-1.97	133.00	129.83	3.17	41.983		
600.00	599.45	585.63	585.16	1.90	1.89	164.92	133.51	-4.14	149.36	145.45	3.92	38.125		
700.00	698.70	678.03	676.93	2.27	2.23	164.80	143.76	-7.10	172.10	167.44	4.66	36.923 SF		
784.38	782.08	754.21	752.31	2.60	2.52	164.68	154.36	-10.16	196.13	190.85	5.28	37.149		
800.00	797.47	768.12	766.04	2.66	2.58	164.69	156.50	-10.78	201.01	195.62	5.40	37.244		
900.00	896.05	856.13	852.65	3.07	2.93	164.58	171.54	-15.12	233.91	227.81	6.09	38.390		
1,000.00	994.62	947.37	942.01	3.48	3.31	164.36	189.20	-20.22	268.97	262.22	6.75	39.857		
1,100.00	1,093.19	1,040.95	1,033.65	3.90	3.71	164.18	207.46	-25.49	304.20	296.78	7.42	41.011		
1,200.00	1,191.77	1,134.54	1,125.28	4.33	4.12	164.03	225.73	-30.77	339.43	331.34	8.09	41.946		
1,300.00	1,290.34	1,228.12	1,216.91	4.75	4.53	163.91	243.99	-36.04	374.66	365.89	8.78	42.697		
1,400.00	1,388.92	1,321.71	1,308.55	5.18	4.94	163.82	262.26	-41.31	409.90	400.43	9.46	43.309		
1,500.00	1,487.49	1,415.30	1,400.18	5.61	5.36	163.73	280.52	-46.58	445.13	434.97	10.16	43.815		
1,600.00	1,586.06	1,508.88	1,491.81	6.04	5.77	163.66	298.79	-51.86	480.37	469.51	10.86	44.240		
1,700.00	1,684.64	1,602.47	1,583.45	6.48	6.19	163.60	317.06	-57.13	515.60	504.04	11.56	44.599		
1,800.00	1,783.21	1,696.05	1,675.08	6.91	6.61	163.55	335.32	-62.40	550.84	538.57	12.27	44.907		
1,900.00	1,881.79	1,789.64	1,766.72	7.35	7.04	163.51	353.59	-67.68	586.08	573.10	12.97	45.173		
2,000.00	1,980.36	1,883.22	1,858.35	7.78	7.46	163.46	371.85	-72.95	621.31	607.63	13.68	45.404		
2,100.00	2,078.93	1,976.81	1,949.98	8.22	7.88	163.43	390.12	-78.22	656.55	642.15	14.40	45.607		
2,200.00	2,177.51	2,070.39	2,041.62	8.65	8.31	163.39	408.38	-83.50	691.79	676.68	15.11	45.787		
2,300.00	2,276.08	2,163.98	2,133.25	9.09	8.73	163.36	426.65	-88.77	727.03	711.20	15.82	45.946		
2,400.00	2,374.66	2,257.56	2,224.88	9.53	9.16	163.34	444.92	-94.04	762.26	745.72	16.54	46.089		
2,500.00	2,473.23	2,351.15	2,316.52	9.96	9.58	163.31	463.18	-99.32	797.50	780.25	17.26	46.217		
2,600.00	2,571.80	2,444.73	2,408.15	10.40	10.01	163.29	481.45	-104.59	832.74	814.77	17.97	46.333		
2,700.00	2,670.38	2,538.32	2,499.79	10.84	10.43	163.27	499.71	-109.86	867.98	849.29	18.69	46.438		
2,800.00	2,768.95	2,631.90	2,591.42	11.27	10.86	163.25	517.98	-115.14	903.22	883.81	19.41	46.534		
2,900.00	2,867.53	2,725.49	2,683.05	11.71	11.29	163.23	536.24	-120.41	938.45	918.32	20.13	46.621		
3,000.00	2,966.10	2,819.07	2,774.69	12.15	11.71	163.22	554.51	-125.68	973.69	952.84	20.85	46.701		
3,100.00	3,064.67	2,912.66	2,866.32	12.59	12.14	163.20	572.77	-130.96	1,008.93	987.36	21.57	46.775		
3,200.00	3,163.25	3,006.24	2,957.95	13.03	12.57	163.19	591.04	-136.23	1,044.17	1,021.88	22.29	46.842		
3,300.00	3,261.82	3,099.83	3,049.59	13.46	12.99	163.17	609.31	-141.50	1,079.41	1,056.40	23.01	46.905		
3,400.00	3,360.40	3,193.41	3,141.22	13.90	13.42	163.16	627.57	-146.78	1,114.65	1,090.91	23.73	46.964		
3,500.00	3,458.97	3,287.00	3,232.86	14.34	13.85	163.15	645.84	-152.05	1,149.89	1,125.43	24.46	47.018		
3,600.00	3,557.54	3,380.58	3,324.49	14.78	14.28	163.14	664.10	-157.32	1,185.12	1,159.94	25.18	47.068		
3,700.00	3,656.12	3,474.17	3,416.12	15.22	14.70	163.13	682.37	-162.59	1,220.36	1,194.46	25.90	47.115		
3,800.00	3,754.69	3,567.75	3,507.76	15.66	15.13	163.12	700.63	-167.87	1,255.60	1,228.98	26.62	47.160		
3,900.00	3,853.27	3,661.34	3,599.39	16.09	15.56	163.11	718.90	-173.14	1,290.84	1,263.49	27.35	47.201		
4,000.00	3,951.84	3,754.93	3,691.02	16.53	15.99	163.10	737.17	-178.41	1,326.08	1,298.01	28.07	47.240		
4,100.00	4,050.41	3,848.51	3,782.66	16.97	16.42	163.09	755.43	-183.69	1,361.32	1,332.52	28.79	47.276		
4,200.00	4,148.99	3,942.10	3,874.29	17.41	16.84	163.08	773.70	-188.96	1,396.56	1,367.04	29.52	47.311		
4,300.00	4,247.56	4,035.68	3,965.93	17.85	17.27	163.08	791.96	-194.23	1,431.80	1,401.55	30.24	47.343		
4,400.00	4,346.14	4,129.27	4,057.56	18.29	17.70	163.07	810.23	-199.51	1,467.03	1,436.07	30.97	47.374		

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 3N-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 3N-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	-0.06	110.01	-0.11	110.01					
100.00	100.00	100.00	100.00	0.14	0.14	-0.06	110.01	-0.11	110.01	109.73	0.28	398.553		
200.00	200.00	200.00	200.00	0.50	0.50	-0.06	110.01	-0.11	110.01	109.02	0.99	110.789		
300.00	300.00	300.00	300.00	0.85	0.85	-0.06	110.01	-0.11	110.01	108.30	1.71	64.337 CC, ES		
400.00	399.98	399.98	399.98	1.20	1.21	165.37	110.01	-0.11	111.70	109.29	2.41	46.303		
500.00	499.84	496.09	496.07	1.54	1.56	165.71	111.54	-0.60	118.36	115.23	3.12	37.902		
600.00	599.45	591.27	591.13	1.90	1.90	165.89	116.09	-2.05	131.54	127.68	3.86	34.087		
700.00	698.70	684.95	684.48	2.27	2.24	165.92	123.50	-4.42	151.15	146.55	4.60	32.874 SF		
784.38	782.08	762.42	761.45	2.60	2.53	165.85	131.82	-7.08	172.59	167.37	5.22	33.085		
800.00	797.47	776.58	775.50	2.66	2.58	165.85	133.55	-7.63	177.00	171.66	5.33	33.181		
900.00	896.05	866.32	864.26	3.07	2.92	165.69	146.08	-11.64	206.88	200.85	6.04	34.277		
1,000.00	994.62	955.47	952.00	3.48	3.27	165.36	161.11	-16.44	239.53	232.81	6.72	35.639		
1,100.00	1,093.19	1,049.64	1,044.51	3.90	3.66	165.02	177.91	-21.80	273.14	265.75	7.39	36.973		
1,200.00	1,191.77	1,143.81	1,137.02	4.33	4.05	164.75	194.71	-27.17	306.75	298.69	8.07	38.021		
1,300.00	1,290.34	1,237.99	1,229.52	4.75	4.44	164.54	211.51	-32.54	340.37	331.62	8.76	38.877		
1,400.00	1,388.92	1,332.16	1,322.03	5.18	4.84	164.36	228.31	-37.91	374.00	364.55	9.45	39.583		
1,500.00	1,487.49	1,426.33	1,414.53	5.61	5.25	164.21	245.11	-43.28	407.63	397.48	10.15	40.173		
1,600.00	1,586.06	1,520.50	1,507.04	6.04	5.65	164.09	261.91	-48.65	441.25	430.41	10.85	40.673		
1,700.00	1,684.64	1,614.67	1,599.54	6.48	6.06	163.98	278.71	-54.01	474.88	463.33	11.55	41.100		
1,800.00	1,783.21	1,708.85	1,692.05	6.91	6.47	163.89	295.51	-59.38	508.52	496.25	12.26	41.470		
1,900.00	1,881.79	1,803.02	1,784.55	7.35	6.88	163.81	312.31	-64.75	542.15	529.18	12.97	41.792		
2,000.00	1,980.36	1,897.19	1,877.06	7.78	7.29	163.74	329.12	-70.12	575.78	562.10	13.68	42.075		
2,100.00	2,078.93	1,991.36	1,969.56	8.22	7.70	163.67	345.92	-75.49	609.42	595.02	14.40	42.325		
2,200.00	2,177.51	2,085.53	2,062.07	8.65	8.11	163.62	362.72	-80.85	643.05	627.94	15.11	42.548		
2,300.00	2,276.08	2,179.71	2,154.58	9.09	8.52	163.57	379.52	-86.22	676.69	660.86	15.83	42.747		
2,400.00	2,374.66	2,273.88	2,247.08	9.53	8.94	163.52	396.32	-91.59	710.32	693.78	16.55	42.927		
2,500.00	2,473.23	2,368.05	2,339.59	9.96	9.35	163.48	413.12	-96.96	743.96	726.69	17.27	43.089		
2,600.00	2,571.80	2,462.22	2,432.09	10.40	9.77	163.44	429.92	-102.33	777.60	759.61	17.98	43.236		
2,700.00	2,670.38	2,556.39	2,524.60	10.84	10.18	163.40	446.72	-107.70	811.23	792.53	18.70	43.371		
2,800.00	2,768.95	2,650.57	2,617.10	11.27	10.60	163.37	463.52	-113.06	844.87	825.44	19.42	43.494		
2,900.00	2,867.53	2,744.74	2,709.61	11.71	11.01	163.34	480.32	-118.43	878.51	858.36	20.15	43.607		
3,000.00	2,966.10	2,838.91	2,802.11	12.15	11.43	163.31	497.13	-123.80	912.14	891.28	20.87	43.711		
3,100.00	3,064.67	2,933.08	2,894.62	12.59	11.84	163.29	513.93	-129.17	945.78	924.19	21.59	43.808		
3,200.00	3,163.25	3,027.25	2,987.13	13.03	12.26	163.26	530.73	-134.54	979.42	957.11	22.31	43.897		
3,300.00	3,261.82	3,121.43	3,079.63	13.46	12.68	163.24	547.53	-139.91	1,013.06	990.02	23.03	43.980		
3,400.00	3,360.40	3,215.60	3,172.14	13.90	13.09	163.22	564.33	-145.27	1,046.69	1,022.94	23.76	44.057		
3,500.00	3,458.97	3,309.77	3,264.64	14.34	13.51	163.20	581.13	-150.64	1,080.33	1,055.85	24.48	44.130		
3,600.00	3,557.54	3,403.94	3,357.15	14.78	13.93	163.18	597.93	-156.01	1,113.97	1,088.77	25.20	44.197		
3,700.00	3,656.12	3,498.11	3,449.65	15.22	14.34	163.16	614.73	-161.38	1,147.61	1,121.68	25.93	44.260		
3,800.00	3,754.69	3,592.28	3,542.16	15.66	14.76	163.15	631.53	-166.75	1,181.25	1,154.60	26.65	44.320		
3,900.00	3,853.27	3,686.46	3,634.66	16.09	15.18	163.13	648.33	-172.11	1,214.89	1,187.51	27.38	44.376		
4,000.00	3,951.84	3,780.63	3,727.17	16.53	15.59	163.12	665.14	-177.48	1,248.53	1,220.42	28.10	44.429		
4,100.00	4,050.41	3,874.80	3,819.67	16.97	16.01	163.10	681.94	-182.85	1,282.16	1,253.34	28.83	44.478		
4,200.00	4,148.99	3,968.97	3,912.18	17.41	16.43	163.09	698.74	-188.22	1,315.80	1,286.25	29.55	44.525		
4,300.00	4,247.56	4,063.14	4,004.69	17.85	16.85	163.08	715.54	-193.59	1,349.44	1,319.16	30.28	44.570		
4,400.00	4,346.14	4,157.32	4,097.19	18.29	17.26	163.07	732.34	-198.96	1,383.08	1,352.08	31.00	44.612		
4,500.00	4,444.71	4,251.49	4,189.70	18.73	17.68	163.05	749.14	-204.32	1,416.72	1,384.99	31.73	44.652		
4,600.00	4,543.28	4,345.66	4,282.20	19.16	18.10	163.04	765.94	-209.69	1,450.36	1,417.90	32.45	44.690		
4,700.00	4,641.86	4,439.83	4,374.71	19.60	18.52	163.03	782.74	-215.06	1,484.00	1,450.82	33.18	44.726		

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 3N-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 3N-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	
0.00	0.00	0.00	0.00	0.00	0.00	-0.01	99.81	-0.02	99.81					
100.00	100.00	100.00	100.00	0.14	0.14	-0.01	99.81	-0.02	99.81	99.54	0.28	361.617		
200.00	200.00	200.00	200.00	0.50	0.50	-0.01	99.81	-0.02	99.81	98.82	0.99	100.522		
300.00	300.00	300.00	300.00	0.85	0.85	-0.01	99.81	-0.02	99.81	98.10	1.71	58.374 CC, ES		
400.00	399.98	399.98	399.98	1.20	1.21	165.43	99.81	-0.02	101.50	99.09	2.41	42.077		
500.00	499.84	499.84	499.84	1.54	1.57	166.12	99.81	-0.02	106.58	103.46	3.11	34.228		
600.00	599.45	595.91	595.89	1.90	1.92	166.75	101.30	-0.63	116.58	112.75	3.83	30.454		
700.00	698.70	690.78	690.64	2.27	2.26	166.99	105.69	-2.44	132.97	128.41	4.56	29.183 SF		
784.38	782.08	769.50	769.10	2.60	2.54	166.96	111.53	-4.84	151.69	146.52	5.17	29.327		
800.00	797.47	783.91	783.45	2.66	2.60	166.95	112.82	-5.37	155.59	150.30	5.29	29.415		
900.00	896.05	875.38	874.31	3.07	2.93	166.67	122.53	-9.36	182.24	176.24	5.99	30.403		
1,000.00	994.62	967.68	965.64	3.48	3.28	166.14	134.81	-14.41	211.46	204.77	6.68	31.632		
1,100.00	1,093.19	1,063.14	1,060.03	3.90	3.65	165.67	148.02	-19.84	241.19	233.82	7.37	32.739		
1,200.00	1,191.77	1,158.60	1,154.42	4.33	4.02	165.31	161.22	-25.27	270.94	262.87	8.06	33.601		
1,300.00	1,290.34	1,254.06	1,248.80	4.75	4.40	165.02	174.42	-30.70	300.69	291.93	8.76	34.314		
1,400.00	1,388.92	1,349.52	1,343.19	5.18	4.78	164.78	187.62	-36.13	330.45	320.99	9.47	34.905		
1,500.00	1,487.49	1,444.98	1,437.58	5.61	5.16	164.58	200.82	-41.56	360.22	350.04	10.17	35.402		
1,600.00	1,586.06	1,540.44	1,531.97	6.04	5.54	164.41	214.02	-46.98	389.99	379.10	10.89	35.826		
1,700.00	1,684.64	1,635.90	1,626.35	6.48	5.93	164.26	227.22	-52.41	419.76	408.16	11.60	36.190		
1,800.00	1,783.21	1,731.36	1,720.74	6.91	6.32	164.13	240.42	-57.84	449.53	437.22	12.31	36.506		
1,900.00	1,881.79	1,826.82	1,815.13	7.35	6.71	164.02	253.62	-63.27	479.31	466.27	13.03	36.783		
2,000.00	1,980.36	1,922.28	1,909.52	7.78	7.09	163.93	266.82	-68.70	509.08	495.33	13.75	37.028		
2,100.00	2,078.93	2,017.74	2,003.90	8.22	7.48	163.84	280.02	-74.12	538.86	524.39	14.47	37.245		
2,200.00	2,177.51	2,113.20	2,098.29	8.65	7.87	163.76	293.22	-79.55	568.64	553.45	15.19	37.439		
2,300.00	2,276.08	2,208.66	2,192.68	9.09	8.27	163.69	306.42	-84.98	598.42	582.51	15.91	37.613		
2,400.00	2,374.66	2,304.12	2,287.07	9.53	8.66	163.63	319.62	-90.41	628.20	611.57	16.63	37.771		
2,500.00	2,473.23	2,399.59	2,381.45	9.96	9.05	163.57	332.82	-95.84	657.98	640.62	17.35	37.914		
2,600.00	2,571.80	2,495.05	2,475.84	10.40	9.44	163.52	346.02	-101.27	687.76	669.68	18.08	38.044		
2,700.00	2,670.38	2,590.51	2,570.23	10.84	9.83	163.47	359.22	-106.69	717.54	698.74	18.80	38.164		
2,800.00	2,768.95	2,685.97	2,664.62	11.27	10.23	163.43	372.42	-112.12	747.32	727.80	19.53	38.273		
2,900.00	2,867.53	2,781.43	2,759.00	11.71	10.62	163.38	385.62	-117.55	777.11	756.86	20.25	38.374		
3,000.00	2,966.10	2,876.89	2,853.39	12.15	11.01	163.35	398.82	-122.98	806.89	785.91	20.98	38.468		
3,100.00	3,064.67	2,972.35	2,947.78	12.59	11.41	163.31	412.02	-128.41	836.67	814.97	21.70	38.554		
3,200.00	3,163.25	3,067.81	3,042.17	13.03	11.80	163.28	425.22	-133.83	866.46	844.03	22.43	38.635		
3,300.00	3,261.82	3,163.27	3,136.55	13.46	12.19	163.25	438.42	-139.26	896.24	873.09	23.15	38.710		
3,400.00	3,360.40	3,258.73	3,230.94	13.90	12.59	163.22	451.62	-144.69	926.02	902.15	23.88	38.780		
3,500.00	3,458.97	3,354.19	3,325.33	14.34	12.98	163.19	464.82	-150.12	955.81	931.20	24.61	38.845		
3,600.00	3,557.54	3,449.65	3,419.72	14.78	13.37	163.17	478.02	-155.55	985.59	960.26	25.33	38.906		
3,700.00	3,656.12	3,545.11	3,514.10	15.22	13.77	163.14	491.22	-160.98	1,015.38	989.32	26.06	38.964		
3,800.00	3,754.69	3,640.57	3,608.49	15.66	14.16	163.12	504.42	-166.40	1,045.16	1,018.38	26.79	39.018		
3,900.00	3,853.27	3,736.03	3,702.88	16.09	14.56	163.10	517.62	-171.83	1,074.95	1,047.43	27.51	39.069		
4,000.00	3,951.84	3,831.49	3,797.27	16.53	14.95	163.08	530.82	-177.26	1,104.73	1,076.49	28.24	39.118		
4,100.00	4,050.41	3,926.95	3,891.65	16.97	15.35	163.06	544.02	-182.69	1,134.52	1,105.55	28.97	39.163		
4,200.00	4,148.99	4,022.41	3,986.04	17.41	15.74	163.04	557.22	-188.12	1,164.30	1,134.61	29.70	39.207		
4,300.00	4,247.56	4,117.88	4,080.43	17.85	16.13	163.02	570.42	-193.54	1,194.09	1,163.66	30.42	39.248		
4,400.00	4,346.14	4,213.34	4,174.82	18.29	16.53	163.01	583.62	-198.97	1,223.87	1,192.72	31.15	39.287		
4,500.00	4,444.71	4,308.80	4,269.20	18.73	16.92	162.99	596.82	-204.40	1,253.66	1,221.78	31.88	39.324		
4,600.00	4,543.28	4,404.26	4,363.59	19.16	17.32	162.98	610.02	-209.83	1,283.45	1,250.84	32.61	39.359		
4,700.00	4,641.86	4,499.72	4,457.98	19.60	17.71	162.96	623.22	-215.26	1,313.23	1,279.89	33.34	39.392		
4,800.00	4,740.43	4,595.18	4,552.37	20.04	18.11	162.95	636.42	-220.69	1,343.02	1,308.95	34.07	39.424		
4,900.00	4,839.01	4,690.64	4,646.75	20.48	18.50	162.94	649.62	-226.11	1,372.80	1,338.01	34.79	39.455		
5,000.00	4,937.58	4,786.10	4,741.14	20.92	18.90	162.93	662.82	-231.54	1,402.59	1,367.07	35.52	39.484		

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 3N-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 3N-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						
5,100.00	5,036.15	4,881.56	4,835.53	21.36	19.29	162.91	676.02	-236.97	1,432.37	1,396.12	36.25	39.512						
5,200.00	5,134.73	4,977.02	4,929.92	21.80	19.69	162.90	689.22	-242.40	1,462.16	1,425.18	36.98	39.539						
5,300.00	5,233.30	5,072.48	5,024.31	22.24	20.08	162.89	702.42	-247.83	1,491.95	1,454.24	37.71	39.564						

Cathedral Energy Services

Anticollision Report

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well SAM 3N-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 3N-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							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	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	89.98	0.06	89.98					
100.00	100.00	100.00	100.00	0.14	0.14	0.04	89.98	0.06	89.98	89.70	0.28	325.986		
200.00	200.00	200.00	200.00	0.50	0.50	0.04	89.98	0.06	89.98	88.99	0.99	90.617		
300.00	300.00	300.00	300.00	0.85	0.85	0.04	89.98	0.06	89.98	88.27	1.71	52.623 CC, ES		
400.00	399.98	399.98	399.98	1.20	1.21	165.51	89.98	0.06	91.67	89.26	2.41	38.000		
500.00	499.84	499.84	499.84	1.54	1.57	166.26	89.98	0.06	96.74	93.63	3.11	31.071		
600.00	599.45	599.45	599.45	1.90	1.93	167.35	89.98	0.06	105.23	101.41	3.82	27.519		
700.00	698.70	695.58	695.56	2.27	2.27	168.09	91.30	-0.83	118.46	113.92	4.54	26.108		
784.38	782.08	775.65	775.54	2.60	2.56	168.13	94.43	-2.97	134.29	129.15	5.15	26.100 SF		
800.00	797.47	790.35	790.21	2.66	2.61	168.11	95.20	-3.50	137.65	132.38	5.26	26.161		
900.00	896.05	883.80	883.34	3.07	2.95	167.57	101.59	-7.85	160.58	154.61	5.97	26.917		
1,000.00	994.62	980.66	979.71	3.48	3.30	166.84	109.58	-13.29	184.87	178.21	6.66	27.740		
1,100.00	1,093.19	1,077.64	1,076.20	3.90	3.66	166.27	117.58	-18.74	209.19	201.82	7.37	28.389		
1,200.00	1,191.77	1,174.62	1,172.70	4.33	4.02	165.83	125.59	-24.20	233.52	225.44	8.08	28.904		
1,300.00	1,290.34	1,271.60	1,269.19	4.75	4.38	165.46	133.59	-29.65	257.87	249.07	8.79	29.326		
1,400.00	1,388.92	1,368.58	1,365.69	5.18	4.75	165.16	141.60	-35.10	282.22	272.71	9.51	29.676		
1,500.00	1,487.49	1,465.56	1,462.18	5.61	5.11	164.91	149.60	-40.55	306.58	296.35	10.23	29.971		
1,600.00	1,586.06	1,562.54	1,558.68	6.04	5.48	164.69	157.61	-46.01	330.94	319.99	10.95	30.222		
1,700.00	1,684.64	1,659.52	1,655.17	6.48	5.84	164.51	165.61	-51.46	355.30	343.63	11.67	30.438		
1,800.00	1,783.21	1,756.50	1,751.67	6.91	6.21	164.35	173.61	-56.91	379.67	367.28	12.40	30.626		
1,900.00	1,881.79	1,853.48	1,848.16	7.35	6.58	164.20	181.62	-62.37	404.04	390.92	13.12	30.791		
2,000.00	1,980.36	1,950.46	1,944.66	7.78	6.95	164.08	189.62	-67.82	428.42	414.57	13.85	30.937		
2,100.00	2,078.93	2,047.44	2,041.15	8.22	7.32	163.96	197.63	-73.27	452.79	438.22	14.57	31.067		
2,200.00	2,177.51	2,144.42	2,137.65	8.65	7.69	163.86	205.63	-78.72	477.17	461.87	15.30	31.183		
2,300.00	2,276.08	2,241.40	2,234.14	9.09	8.06	163.77	213.63	-84.18	501.55	485.52	16.03	31.288		
2,400.00	2,374.66	2,338.38	2,330.64	9.53	8.43	163.69	221.64	-89.63	525.93	509.17	16.76	31.383		
2,500.00	2,473.23	2,435.36	2,427.14	9.96	8.80	163.61	229.64	-95.08	550.31	532.82	17.49	31.469		
2,600.00	2,571.80	2,532.34	2,523.63	10.40	9.17	163.54	237.65	-100.54	574.69	556.47	18.22	31.547		
2,700.00	2,670.38	2,629.32	2,620.13	10.84	9.54	163.48	245.65	-105.99	599.07	580.13	18.95	31.619		
2,800.00	2,768.95	2,726.30	2,716.62	11.27	9.91	163.42	253.65	-111.44	623.45	603.78	19.68	31.685		
2,900.00	2,867.53	2,823.28	2,813.12	11.71	10.28	163.37	261.66	-116.89	647.84	627.43	20.41	31.747		
3,000.00	2,966.10	2,920.26	2,909.61	12.15	10.65	163.32	269.66	-122.35	672.22	651.08	21.14	31.803		
3,100.00	3,064.67	3,017.24	3,006.11	12.59	11.02	163.27	277.67	-127.80	696.61	674.74	21.87	31.856		
3,200.00	3,163.25	3,114.22	3,102.60	13.03	11.39	163.23	285.67	-133.25	720.99	698.39	22.60	31.904		
3,300.00	3,261.82	3,211.20	3,199.10	13.46	11.76	163.19	293.67	-138.71	745.37	722.05	23.33	31.950		
3,400.00	3,360.40	3,308.18	3,295.59	13.90	12.13	163.15	301.68	-144.16	769.76	745.70	24.06	31.992		
3,500.00	3,458.97	3,405.16	3,392.09	14.34	12.50	163.11	309.68	-149.61	794.15	769.35	24.79	32.032		
3,600.00	3,557.54	3,502.14	3,488.58	14.78	12.87	163.08	317.69	-155.06	818.53	793.01	25.52	32.070		
3,700.00	3,656.12	3,599.12	3,585.08	15.22	13.25	163.05	325.69	-160.52	842.92	816.66	26.26	32.105		
3,800.00	3,754.69	3,696.10	3,681.57	15.66	13.62	163.02	333.70	-165.97	867.30	840.32	26.99	32.138		
3,900.00	3,853.27	3,793.08	3,778.07	16.09	13.99	162.99	341.70	-171.42	891.69	863.97	27.72	32.169		
4,000.00	3,951.84	3,890.06	3,874.56	16.53	14.36	162.96	349.70	-176.88	916.08	887.63	28.45	32.199		
4,100.00	4,050.41	3,987.04	3,971.06	16.97	14.73	162.94	357.71	-182.33	940.46	911.28	29.18	32.227		
4,200.00	4,148.99	4,084.02	4,067.55	17.41	15.10	162.91	365.71	-187.78	964.85	934.94	29.91	32.253		
4,300.00	4,247.56	4,181.00	4,164.05	17.85	15.47	162.89	373.72	-193.23	989.24	958.59	30.65	32.278		
4,400.00	4,346.14	4,277.98	4,260.54	18.29	15.85	162.87	381.72	-198.69	1,013.62	982.25	31.38	32.302		
4,500.00	4,444.71	4,374.96	4,357.04	18.73	16.22	162.85	389.72	-204.14	1,038.01	1,005.90	32.11	32.325		
4,600.00	4,543.28	4,471.94	4,453.53	19.16	16.59	162.83	397.73	-209.59	1,062.40	1,029.56	32.84	32.346		
4,700.00	4,641.86	4,568.92	4,550.03	19.60	16.96	162.81	405.73	-215.04	1,086.79	1,053.21	33.58	32.367		
4,800.00	4,740.43	4,665.90	4,646.53	20.04	17.33	162.79	413.74	-220.50	1,111.17	1,076.87	34.31	32.387		
4,900.00	4,839.01	4,762.88	4,743.02	20.48	17.70	162.77	421.74	-225.95	1,135.56	1,100.52	35.04	32.405		
5,000.00	4,937.58	4,859.86	4,839.52	20.92	18.08	162.76	429.74	-231.40	1,159.95	1,124.18	35.78	32.423		

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 3N-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 3N-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	5,036.15	4,956.84	4,936.01	21.36	18.45	162.74	437.75	-236.86	1,184.34	1,147.83	36.51	32.441		
5,200.00	5,134.73	5,053.82	5,032.51	21.80	18.82	162.72	445.75	-242.31	1,208.73	1,171.49	37.24	32.457		
5,300.00	5,233.30	5,150.80	5,129.00	22.24	19.19	162.71	453.76	-247.76	1,233.12	1,195.14	37.97	32.473		
5,400.00	5,331.88	5,247.78	5,225.50	22.68	19.56	162.70	461.76	-253.21	1,257.50	1,218.80	38.71	32.488		
5,500.00	5,430.45	5,344.76	5,321.99	23.12	19.93	162.68	469.77	-258.67	1,281.89	1,242.45	39.44	32.503		
5,600.00	5,529.02	5,441.74	5,418.49	23.55	20.31	162.67	477.77	-264.12	1,306.28	1,266.11	40.17	32.516		
5,700.00	5,627.60	5,538.72	5,514.98	23.99	20.68	162.66	485.77	-269.57	1,330.67	1,289.76	40.91	32.530		
5,800.00	5,726.17	5,635.70	5,611.48	24.43	21.05	162.64	493.78	-275.03	1,355.06	1,313.42	41.64	32.543		
5,900.00	5,824.75	5,732.68	5,707.97	24.87	21.42	162.63	501.78	-280.48	1,379.45	1,337.07	42.37	32.555		
6,000.00	5,923.32	5,894.18	5,869.02	25.31	22.02	162.71	511.63	-287.19	1,401.74	1,358.21	43.53	32.199		
6,100.00	6,021.89	6,047.10	6,021.89	25.75	22.55	162.96	514.11	-288.88	1,419.33	1,374.78	44.54	31.863		
6,200.00	6,120.47	6,145.68	6,120.47	26.19	22.88	163.15	514.11	-288.88	1,435.44	1,390.18	45.26	31.715		
6,300.00	6,219.04	6,244.25	6,219.04	26.63	23.22	163.34	514.11	-288.88	1,451.57	1,405.60	45.98	31.572		
6,400.00	6,317.62	6,342.83	6,317.62	27.07	23.55	163.53	514.11	-288.88	1,467.72	1,421.03	46.69	31.434		
6,500.00	6,416.19	6,441.40	6,416.19	27.51	23.88	163.72	514.11	-288.88	1,483.89	1,436.48	47.41	31.300		

Cathedral Energy Services

Anticollision Report

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well SAM 3N-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 3N-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				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)			
0.00	0.00	0.00	0.00	0.00	0.00	-0.09	79.77	-0.13	79.77				
100.00	100.00	100.00	100.00	0.14	0.14	-0.09	79.77	-0.13	79.77	79.50	0.28	289.011	
200.00	200.00	200.00	200.00	0.50	0.50	-0.09	79.77	-0.13	79.77	78.78	0.99	80.339	
300.00	300.00	300.00	300.00	0.85	0.85	-0.09	79.77	-0.13	79.77	78.06	1.71	46.654 CC, ES	
400.00	399.98	399.98	399.98	1.20	1.21	165.42	79.77	-0.13	81.46	79.05	2.41	33.769	
500.00	499.84	499.84	499.84	1.54	1.57	166.27	79.77	-0.13	86.54	83.42	3.11	27.792	
600.00	599.45	599.45	599.45	1.90	1.93	167.48	79.77	-0.13	95.03	91.20	3.82	24.850	
700.00	698.70	698.70	698.70	2.27	2.28	168.85	79.77	-0.13	106.96	102.42	4.54	23.564	
784.38	782.08	782.08	782.08	2.60	2.58	170.00	79.77	-0.13	119.72	114.57	5.15	23.265	
800.00	797.47	797.47	797.47	2.66	2.64	170.22	79.77	-0.13	122.31	117.04	5.26	23.247 SF	
900.00	896.05	896.05	896.05	3.07	2.99	171.39	79.77	-0.13	138.92	132.95	5.97	23.267	
1,000.00	994.62	994.62	994.62	3.48	3.34	172.32	79.77	-0.13	155.59	148.90	6.68	23.278	
1,100.00	1,093.19	1,089.93	1,089.92	3.90	3.68	172.67	80.77	-1.13	173.16	165.78	7.38	23.453	
1,200.00	1,191.77	1,184.34	1,184.21	4.33	4.02	172.19	83.94	-4.34	192.70	184.63	8.08	23.854	
1,300.00	1,290.34	1,279.45	1,279.03	4.75	4.36	171.16	89.19	-9.65	214.11	205.33	8.78	24.391	
1,400.00	1,388.92	1,376.96	1,376.19	5.18	4.71	170.18	94.99	-15.52	235.96	226.47	9.49	24.857	
1,500.00	1,487.49	1,474.47	1,473.35	5.61	5.07	169.37	100.80	-21.39	257.87	247.66	10.21	25.256	
1,600.00	1,586.06	1,571.98	1,570.51	6.04	5.42	168.68	106.60	-27.26	279.83	268.90	10.93	25.599	
1,700.00	1,684.64	1,669.49	1,667.66	6.48	5.78	168.09	112.41	-33.14	301.81	290.16	11.65	25.898	
1,800.00	1,783.21	1,767.00	1,764.82	6.91	6.14	167.59	118.22	-39.01	323.83	311.45	12.38	26.161	
1,900.00	1,881.79	1,864.51	1,861.98	7.35	6.50	167.14	124.02	-44.88	345.86	332.75	13.10	26.393	
2,000.00	1,980.36	1,962.02	1,959.14	7.78	6.86	166.75	129.83	-50.75	367.91	354.08	13.83	26.600	
2,100.00	2,078.93	2,059.53	2,056.30	8.22	7.22	166.41	135.63	-56.62	389.97	375.41	14.56	26.786	
2,200.00	2,177.51	2,157.04	2,153.46	8.65	7.58	166.10	141.44	-62.50	412.05	396.76	15.29	26.952	
2,300.00	2,276.08	2,254.55	2,250.62	9.09	7.94	165.82	147.25	-68.37	434.14	418.12	16.02	27.103	
2,400.00	2,374.66	2,352.06	2,347.78	9.53	8.30	165.57	153.05	-74.24	456.23	439.48	16.75	27.240	
2,500.00	2,473.23	2,449.57	2,444.94	9.96	8.67	165.35	158.86	-80.11	478.34	460.86	17.48	27.366	
2,600.00	2,571.80	2,547.08	2,542.10	10.40	9.03	165.14	164.66	-85.98	500.45	482.23	18.21	27.480	
2,700.00	2,670.38	2,644.59	2,639.26	10.84	9.39	164.95	170.47	-91.85	522.56	503.62	18.94	27.586	
2,800.00	2,768.95	2,742.10	2,736.42	11.27	9.76	164.77	176.27	-97.73	544.68	525.01	19.68	27.683	
2,900.00	2,867.53	2,839.61	2,833.58	11.71	10.12	164.61	182.08	-103.60	566.81	546.40	20.41	27.773	
3,000.00	2,966.10	2,937.12	2,930.74	12.15	10.49	164.46	187.89	-109.47	588.93	567.79	21.14	27.857	
3,100.00	3,064.67	3,034.63	3,027.90	12.59	10.85	164.33	193.69	-115.34	611.07	589.19	21.87	27.935	
3,200.00	3,163.25	3,132.14	3,125.06	13.03	11.22	164.20	199.50	-121.21	633.20	610.59	22.61	28.007	
3,300.00	3,261.82	3,229.65	3,222.22	13.46	11.58	164.08	205.30	-127.09	655.34	632.00	23.34	28.075	
3,400.00	3,360.40	3,327.16	3,319.38	13.90	11.95	163.97	211.11	-132.96	677.48	653.40	24.08	28.139	
3,500.00	3,458.97	3,424.67	3,416.54	14.34	12.31	163.86	216.92	-138.83	699.62	674.81	24.81	28.198	
3,600.00	3,557.54	3,522.18	3,513.70	14.78	12.68	163.76	222.72	-144.70	721.77	696.22	25.55	28.254	
3,700.00	3,656.12	3,619.69	3,610.86	15.22	13.04	163.67	228.53	-150.57	743.92	717.64	26.28	28.307	
3,800.00	3,754.69	3,717.20	3,708.02	15.66	13.41	163.59	234.33	-156.45	766.06	739.05	27.02	28.357	
3,900.00	3,853.27	3,814.71	3,805.18	16.09	13.78	163.50	240.14	-162.32	788.21	760.46	27.75	28.404	
4,000.00	3,951.84	3,912.22	3,902.34	16.53	14.14	163.43	245.95	-168.19	810.37	781.88	28.49	28.449	
4,100.00	4,050.41	4,009.73	3,999.50	16.97	14.51	163.35	251.75	-174.06	832.52	803.30	29.22	28.491	
4,200.00	4,148.99	4,107.24	4,096.66	17.41	14.87	163.28	257.56	-179.93	854.67	824.72	29.96	28.531	
4,300.00	4,247.56	4,204.75	4,193.82	17.85	15.24	163.22	263.36	-185.81	876.83	846.14	30.69	28.569	
4,400.00	4,346.14	4,302.26	4,290.98	18.29	15.61	163.15	269.17	-191.68	898.99	867.56	31.43	28.606	
4,500.00	4,444.71	4,399.77	4,388.14	18.73	15.97	163.09	274.98	-197.55	921.14	888.98	32.16	28.640	
4,600.00	4,543.28	4,497.28	4,485.29	19.16	16.34	163.04	280.78	-203.42	943.30	910.40	32.90	28.673	
4,700.00	4,641.86	4,594.79	4,582.45	19.60	16.71	162.98	286.59	-209.29	965.46	931.83	33.63	28.705	
4,800.00	4,740.43	4,692.30	4,679.61	20.04	17.07	162.93	292.39	-215.16	987.62	953.25	34.37	28.735	
4,900.00	4,839.01	4,789.81	4,776.77	20.48	17.44	162.88	298.20	-221.04	1,009.78	974.68	35.11	28.763	
5,000.00	4,937.58	4,887.32	4,873.93	20.92	17.81	162.83	304.01	-226.91	1,031.94	996.10	35.84	28.791	

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 3N-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 3N-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		
5,100.00	5,036.15	4,984.83	4,971.09	21.36	18.17	162.79	309.81	-232.78	1,054.11	1,017.53	36.58	28.817		
5,200.00	5,134.73	5,082.34	5,068.25	21.80	18.54	162.74	315.62	-238.65	1,076.27	1,038.95	37.32	28.843		
5,300.00	5,233.30	5,179.85	5,165.41	22.24	18.91	162.70	321.42	-244.52	1,098.43	1,060.38	38.05	28.867		
5,400.00	5,331.88	5,277.36	5,262.57	22.68	19.27	162.66	327.23	-250.40	1,120.60	1,081.81	38.79	28.890		
5,500.00	5,430.45	5,374.87	5,359.73	23.12	19.64	162.62	333.04	-256.27	1,142.76	1,103.23	39.52	28.913		
5,600.00	5,529.02	5,472.38	5,456.89	23.55	20.01	162.58	338.84	-262.14	1,164.92	1,124.66	40.26	28.934		
5,700.00	5,627.60	5,569.89	5,554.05	23.99	20.37	162.55	344.65	-268.01	1,187.09	1,146.09	41.00	28.955		
5,800.00	5,726.17	5,667.40	5,651.21	24.43	20.74	162.51	350.45	-273.88	1,209.26	1,167.52	41.73	28.975		
5,900.00	5,824.75	5,764.91	5,748.37	24.87	21.11	162.48	356.26	-279.76	1,231.42	1,188.95	42.47	28.994		
6,000.00	5,923.32	5,904.07	5,887.24	25.31	21.62	162.53	362.47	-286.04	1,252.12	1,208.63	43.49	28.790		
6,100.00	6,021.89	6,038.75	6,021.89	25.75	22.09	162.77	364.03	-287.62	1,269.30	1,224.88	44.42	28.575		
6,200.00	6,120.47	6,137.33	6,120.47	26.19	22.43	162.99	364.03	-287.62	1,285.41	1,240.27	45.14	28.478		
6,300.00	6,219.04	6,235.90	6,219.04	26.63	22.77	163.21	364.03	-287.62	1,301.53	1,255.68	45.85	28.386		
6,400.00	6,317.62	6,334.47	6,317.62	27.07	23.11	163.42	364.03	-287.62	1,317.67	1,271.10	46.57	28.296		
6,500.00	6,416.19	6,433.05	6,416.19	27.51	23.45	163.63	364.03	-287.62	1,333.82	1,286.54	47.28	28.209		
6,600.00	6,514.76	6,531.62	6,514.76	27.95	23.79	163.83	364.03	-287.62	1,349.99	1,301.99	48.00	28.125		
6,700.00	6,613.34	6,630.20	6,613.34	28.39	24.13	164.02	364.03	-287.62	1,366.18	1,317.46	48.72	28.043		
6,800.00	6,711.91	6,728.88	6,712.02	28.82	24.47	164.23	364.04	-287.39	1,382.38	1,332.95	49.43	27.966		
6,900.00	6,810.49	6,826.35	6,808.99	29.26	24.77	164.79	364.13	-278.30	1,398.63	1,348.53	50.10	27.918		
6,931.73	6,841.77	6,856.32	6,838.46	29.40	24.86	165.07	364.18	-272.86	1,403.84	1,353.55	50.30	27.911		
6,950.00	6,859.78	6,873.36	6,855.10	29.48	24.91	174.02	364.22	-269.22	1,406.87	1,356.46	50.41	27.909		
7,000.00	6,909.10	6,919.52	6,899.71	29.69	25.04	-161.11	364.34	-257.38	1,415.21	1,364.50	50.70	27.911		
7,050.00	6,958.25	6,965.04	6,942.86	29.89	25.17	-140.97	364.49	-242.92	1,423.61	1,372.63	50.98	27.924		
7,100.00	7,006.98	7,009.97	6,984.47	30.07	25.29	-127.05	364.66	-225.98	1,432.01	1,380.77	51.25	27.944		
7,150.00	7,055.06	7,054.37	7,024.47	30.24	25.41	-117.58	364.86	-206.72	1,440.38	1,388.88	51.50	27.969		
7,200.00	7,102.25	7,100.00	7,064.25	30.40	25.53	-110.85	365.08	-184.38	1,448.65	1,396.90	51.75	27.992		
7,250.00	7,148.33	7,141.73	7,099.31	30.55	25.64	-105.87	365.31	-161.77	1,456.78	1,404.79	51.99	28.021		
7,300.00	7,193.07	7,184.79	7,134.05	30.69	25.77	-101.99	365.57	-136.34	1,464.72	1,412.48	52.24	28.038		
7,350.00	7,236.26	7,227.47	7,166.92	30.81	25.92	-98.86	365.85	-109.11	1,472.42	1,419.91	52.50	28.044		
7,400.00	7,277.67	7,269.83	7,197.87	30.92	26.08	-96.28	366.14	-80.21	1,479.84	1,427.05	52.79	28.033		
7,450.00	7,317.11	7,311.88	7,226.86	31.03	26.27	-94.11	366.45	-49.76	1,486.93	1,433.82	53.11	27.998		
7,500.00	7,354.40	7,350.00	7,251.55	31.12	26.46	-92.28	366.75	-20.72	1,493.66	1,440.22	53.44	27.951		
7,550.00	7,389.33	7,395.22	7,278.78	31.21	26.75	-90.67	367.11	15.36	1,499.98	1,446.08	53.90	27.830		

Cathedral Energy Services

Anticollision Report

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well SAM 3N-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 3N-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					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	69.94	-0.04	69.94					
100.00	100.00	100.00	100.00	0.14	0.14	-0.04	69.94	-0.04	69.94	69.67	0.28	253.395		
200.00	200.00	200.00	200.00	0.50	0.50	-0.04	69.94	-0.04	69.94	68.95	0.99	70.438		
300.00	300.00	300.00	300.00	0.85	0.85	-0.04	69.94	-0.04	69.94	68.23	1.71	40.904 CC, ES		
400.00	399.98	399.98	399.98	1.20	1.21	165.52	69.94	-0.04	71.63	69.22	2.41	29.694		
500.00	499.84	499.84	499.84	1.54	1.57	166.47	69.94	-0.04	76.71	73.60	3.11	24.636		
600.00	599.45	599.45	599.45	1.90	1.93	167.81	69.94	-0.04	85.21	81.38	3.82	22.283		
700.00	698.70	698.70	698.70	2.27	2.28	169.28	69.94	-0.04	97.16	92.62	4.54	21.404		
784.38	782.08	782.08	782.08	2.60	2.58	170.49	69.94	-0.04	109.93	104.79	5.15	21.364		
800.00	797.47	797.47	797.47	2.66	2.64	170.71	69.94	-0.04	112.53	107.27	5.26	21.389		
900.00	896.05	897.20	897.18	3.07	2.99	171.22	69.69	-1.67	128.73	122.77	5.97	21.576		
1,000.00	994.62	996.51	996.38	3.48	3.33	170.47	68.98	-6.18	144.20	137.53	6.67	21.617		
1,100.00	1,093.19	1,095.30	1,095.05	3.90	3.67	169.75	68.22	-11.00	159.61	152.23	7.38	21.628		
1,200.00	1,191.77	1,194.08	1,193.72	4.33	4.02	169.16	67.46	-15.81	175.04	166.94	8.09	21.625		
1,300.00	1,290.34	1,292.87	1,292.39	4.75	4.37	168.67	66.70	-20.63	190.48	181.67	8.81	21.615		
1,400.00	1,388.92	1,391.66	1,391.05	5.18	4.72	168.25	65.95	-25.45	205.93	196.40	9.53	21.600		
1,500.00	1,487.49	1,490.45	1,489.72	5.61	5.07	167.88	65.19	-30.26	221.40	211.14	10.26	21.582		
1,600.00	1,586.06	1,589.24	1,588.39	6.04	5.43	167.57	64.43	-35.08	236.87	225.88	10.98	21.564		
1,700.00	1,684.64	1,688.03	1,687.06	6.48	5.78	167.29	63.67	-39.90	252.34	240.63	11.71	21.545		
1,800.00	1,783.21	1,786.81	1,785.73	6.91	6.14	167.05	62.92	-44.72	267.83	255.38	12.44	21.526		
1,900.00	1,881.79	1,885.60	1,884.39	7.35	6.49	166.83	62.16	-49.53	283.31	270.14	13.17	21.508		
2,000.00	1,980.36	1,984.39	1,983.06	7.78	6.85	166.64	61.40	-54.35	298.80	284.90	13.90	21.490		
2,100.00	2,078.93	2,083.18	2,081.73	8.22	7.21	166.46	60.64	-59.17	314.30	299.66	14.64	21.473		
2,200.00	2,177.51	2,181.97	2,180.40	8.65	7.57	166.30	59.88	-63.98	329.79	314.42	15.37	21.457		
2,300.00	2,276.08	2,280.75	2,279.06	9.09	7.92	166.16	59.13	-68.80	345.29	329.19	16.10	21.442		
2,400.00	2,374.66	2,379.54	2,377.73	9.53	8.28	166.02	58.37	-73.62	360.79	343.95	16.84	21.427		
2,500.00	2,473.23	2,478.33	2,476.40	9.96	8.64	165.90	57.61	-78.44	376.29	358.72	17.57	21.413		
2,600.00	2,571.80	2,577.12	2,575.07	10.40	9.00	165.79	56.85	-83.25	391.79	373.49	18.31	21.400		
2,700.00	2,670.38	2,675.91	2,673.73	10.84	9.36	165.69	56.09	-88.07	407.30	388.26	19.04	21.388		
2,800.00	2,768.95	2,774.69	2,772.40	11.27	9.72	165.59	55.34	-92.89	422.80	403.03	19.78	21.376		
2,900.00	2,867.53	2,873.48	2,871.07	11.71	10.08	165.50	54.58	-97.70	438.31	417.80	20.52	21.365		
3,000.00	2,966.10	2,972.27	2,969.74	12.15	10.44	165.42	53.82	-102.52	453.82	432.57	21.25	21.354		
3,100.00	3,064.67	3,071.06	3,068.41	12.59	10.80	165.34	53.06	-107.34	469.33	447.34	21.99	21.344		
3,200.00	3,163.25	3,169.85	3,167.07	13.03	11.16	165.27	52.31	-112.16	484.84	462.11	22.73	21.334		
3,300.00	3,261.82	3,268.64	3,265.74	13.46	11.52	165.20	51.55	-116.97	500.35	476.88	23.46	21.324		
3,400.00	3,360.40	3,367.42	3,364.41	13.90	11.88	165.14	50.79	-121.79	515.86	491.66	24.20	21.316		
3,500.00	3,458.97	3,466.21	3,463.08	14.34	12.24	165.08	50.03	-126.61	531.37	506.43	24.94	21.307		
3,600.00	3,557.54	3,565.00	3,561.74	14.78	12.60	165.02	49.27	-131.42	546.88	521.21	25.68	21.299		
3,700.00	3,656.12	3,663.79	3,660.41	15.22	12.96	164.97	48.52	-136.24	562.39	535.98	26.41	21.291		
3,800.00	3,754.69	3,762.58	3,759.08	15.66	13.32	164.92	47.76	-141.06	577.91	550.75	27.15	21.284		
3,900.00	3,853.27	3,861.36	3,857.75	16.09	13.68	164.87	47.00	-145.88	593.42	565.53	27.89	21.277		
4,000.00	3,951.84	3,960.15	3,956.42	16.53	14.04	164.82	46.24	-150.69	608.93	580.30	28.63	21.270		
4,100.00	4,050.41	4,058.94	4,055.08	16.97	14.40	164.78	45.48	-155.51	624.45	595.08	29.37	21.264		
4,200.00	4,148.99	4,157.73	4,153.75	17.41	14.76	164.74	44.73	-160.33	639.96	609.86	30.11	21.257		
4,300.00	4,247.56	4,256.52	4,252.42	17.85	15.12	164.70	43.97	-165.15	655.48	624.63	30.84	21.251		
4,400.00	4,346.14	4,355.31	4,351.09	18.29	15.49	164.66	43.21	-169.96	670.99	639.41	31.58	21.246		
4,500.00	4,444.71	4,454.09	4,449.75	18.73	15.85	164.62	42.45	-174.78	686.51	654.19	32.32	21.240		
4,600.00	4,543.28	4,552.88	4,548.42	19.16	16.21	164.59	41.70	-179.60	702.02	668.96	33.06	21.235		
4,700.00	4,641.86	4,651.67	4,647.09	19.60	16.57	164.56	40.94	-184.41	717.54	683.74	33.80	21.229		
4,800.00	4,740.43	4,750.46	4,745.76	20.04	16.93	164.53	40.18	-189.23	733.05	698.52	34.54	21.224		
4,900.00	4,839.01	4,849.25	4,844.43	20.48	17.29	164.50	39.42	-194.05	748.57	713.29	35.28	21.220		
5,000.00	4,937.58	4,948.03	4,943.09	20.92	17.65	164.47	38.66	-198.87	764.09	728.07	36.02	21.215		

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 3N-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 3N-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
5,100.00	5,036.15	5,046.82	5,041.76	21.36	18.01	164.44	37.91	-203.68	779.60	742.85	36.76	21.211	
5,200.00	5,134.73	5,145.61	5,140.43	21.80	18.37	164.41	37.15	-208.50	795.12	757.62	37.49	21.206	
5,300.00	5,233.30	5,244.40	5,239.10	22.24	18.74	164.39	36.39	-213.32	810.64	772.40	38.23	21.202	
5,400.00	5,331.88	5,343.19	5,337.76	22.68	19.10	164.36	35.63	-218.13	826.15	787.18	38.97	21.198	
5,500.00	5,430.45	5,441.98	5,436.43	23.12	19.46	164.34	34.87	-222.95	841.67	801.96	39.71	21.194	
5,600.00	5,529.02	5,540.76	5,535.10	23.55	19.82	164.32	34.12	-227.77	857.19	816.74	40.45	21.190	
5,700.00	5,627.60	5,639.55	5,633.77	23.99	20.18	164.29	33.36	-232.59	872.70	831.51	41.19	21.187	
5,800.00	5,726.17	5,738.34	5,732.43	24.43	20.54	164.27	32.60	-237.40	888.22	846.29	41.93	21.183	
5,900.00	5,824.75	5,837.13	5,831.10	24.87	20.90	164.25	31.84	-242.22	903.74	861.07	42.67	21.180	
6,000.00	5,923.32	5,935.92	5,929.77	25.31	21.26	164.23	31.09	-247.04	919.26	875.85	43.41	21.176	
6,100.00	6,021.89	6,034.70	6,028.44	25.75	21.63	164.21	30.33	-251.85	934.78	890.63	44.15	21.173	
6,200.00	6,120.47	6,133.49	6,127.11	26.19	21.99	164.19	29.57	-256.67	950.29	905.40	44.89	21.170	
6,300.00	6,219.04	6,232.28	6,225.77	26.63	22.35	164.18	28.81	-261.49	965.81	920.18	45.63	21.167	
6,400.00	6,317.62	6,331.07	6,324.44	27.07	22.71	164.16	28.05	-266.31	981.33	934.96	46.37	21.164	
6,500.00	6,416.19	6,429.86	6,423.11	27.51	23.07	164.14	27.30	-271.12	996.85	949.74	47.11	21.161	
6,600.00	6,514.76	6,528.65	6,521.78	27.95	23.43	164.12	26.54	-275.94	1,012.37	964.52	47.85	21.158	
6,700.00	6,613.34	6,626.44	6,619.47	28.39	23.78	164.15	25.81	-280.05	1,027.90	979.33	48.57	21.162	
6,800.00	6,711.91	6,720.89	6,713.69	28.82	24.08	164.70	25.48	-274.38	1,043.72	994.50	49.21	21.209	
6,900.00	6,810.49	6,811.15	6,802.28	29.26	24.35	165.85	25.60	-257.44	1,060.24	1,010.47	49.77	21.302	
6,931.73	6,841.77	6,838.51	6,828.64	29.40	24.43	166.30	25.72	-250.12	1,065.74	1,015.81	49.93	21.344	
6,950.00	6,859.78	6,854.01	6,843.45	29.48	24.47	175.38	25.81	-245.53	1,068.97	1,018.95	50.02	21.371	
7,000.00	6,909.10	6,895.96	6,882.97	29.69	24.59	-159.44	26.11	-231.50	1,078.01	1,027.77	50.25	21.454	
7,050.00	6,958.25	6,937.26	6,921.02	29.89	24.71	-138.99	26.50	-215.46	1,087.28	1,036.82	50.46	21.548	
7,100.00	7,006.98	6,977.98	6,957.57	30.07	24.82	-124.78	26.96	-197.52	1,096.70	1,046.05	50.65	21.652	
7,150.00	7,055.06	7,018.18	6,992.59	30.24	24.94	-115.03	27.50	-177.81	1,106.21	1,055.38	50.83	21.762	
7,200.00	7,102.25	7,057.91	7,026.06	30.40	25.06	-108.06	28.12	-156.43	1,115.73	1,064.73	51.00	21.876	
7,250.00	7,148.33	7,100.00	7,060.17	30.55	25.20	-102.78	28.85	-131.78	1,125.19	1,074.00	51.19	21.980	
7,300.00	7,193.07	7,136.16	7,088.28	30.69	25.33	-98.69	29.55	-109.05	1,134.53	1,083.19	51.34	22.099	
7,350.00	7,236.26	7,174.77	7,116.98	30.81	25.48	-95.35	30.35	-83.24	1,143.69	1,092.17	51.52	22.199	
7,400.00	7,277.67	7,213.09	7,144.04	30.92	25.65	-92.57	31.22	-56.14	1,152.59	1,100.87	51.72	22.285	
7,450.00	7,317.11	7,250.00	7,168.71	31.03	25.84	-90.22	32.12	-28.70	1,161.20	1,109.26	51.94	22.358	
7,500.00	7,354.40	7,288.99	7,193.19	31.12	26.06	-88.19	33.12	1.62	1,169.44	1,117.21	52.23	22.391	
7,550.00	7,389.33	7,326.63	7,215.23	31.21	26.31	-86.45	34.14	32.12	1,177.28	1,124.72	52.56	22.398	
7,600.00	7,421.76	7,364.11	7,235.55	31.28	26.59	-84.94	35.22	63.59	1,184.66	1,131.70	52.96	22.368	
7,650.00	7,451.51	7,400.00	7,253.43	31.35	26.88	-83.64	36.29	94.68	1,191.54	1,138.12	53.42	22.305	
7,700.00	7,478.44	7,438.69	7,270.95	31.42	27.25	-82.50	37.49	129.15	1,197.88	1,143.86	54.02	22.174	
7,750.00	7,502.43	7,475.83	7,285.98	31.48	27.64	-81.54	38.69	163.09	1,203.66	1,148.95	54.71	22.002	
7,800.00	7,523.35	7,512.90	7,299.21	31.56	28.06	-80.73	39.92	197.70	1,208.83	1,153.33	55.50	21.781	
7,850.00	7,541.11	7,550.00	7,310.64	31.66	28.52	-80.06	41.18	232.96	1,213.37	1,156.96	56.40	21.512	
7,900.00	7,555.61	7,586.93	7,320.19	31.82	29.03	-79.53	42.48	268.61	1,217.26	1,159.82	57.44	21.192	
7,950.00	7,566.79	7,623.93	7,327.90	32.11	29.57	-79.13	43.80	304.76	1,220.47	1,161.89	58.59	20.832	
8,000.00	7,574.59	7,660.93	7,333.73	32.60	30.15	-78.86	45.15	341.28	1,223.00	1,163.16	59.84	20.438	
8,050.00	7,578.97	7,700.00	7,337.83	33.25	30.78	-78.71	46.59	380.10	1,224.84	1,163.61	61.23	20.003	
8,088.71	7,580.00	7,726.68	7,339.41	33.84	31.25	-78.68	47.59	406.71	1,225.78	1,163.46	62.32	19.670	
8,100.00	7,580.00	7,735.06	7,339.70	34.02	31.39	-78.69	47.90	415.08	1,226.00	1,163.36	62.65	19.570	
8,200.00	7,580.00	7,827.87	7,340.00	35.78	33.12	-78.73	51.41	507.82	1,228.63	1,162.48	66.15	18.574	
8,300.00	7,580.00	7,927.83	7,340.00	37.77	35.14	-78.76	55.19	607.71	1,231.33	1,161.19	70.14	17.555	
8,400.00	7,580.00	8,027.79	7,340.00	39.92	37.33	-78.78	58.97	707.60	1,234.03	1,159.58	74.45	16.575	
8,500.00	7,580.00	8,127.75	7,340.00	42.22	39.66	-78.81	62.74	807.49	1,236.73	1,157.71	79.03	15.649	
8,600.00	7,580.00	8,227.72	7,340.00	44.63	42.10	-78.83	66.52	907.38	1,239.44	1,155.61	83.83	14.785	
8,700.00	7,580.00	8,327.68	7,340.00	47.13	44.64	-78.86	70.30	1,007.27	1,242.14	1,153.32	88.82	13.985	
8,800.00	7,580.00	8,427.64	7,340.00	49.72	47.25	-78.88	74.08	1,107.16	1,244.84	1,150.88	93.96	13.248	

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 3N-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 3N-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						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	8,527.60	7,340.00	52.37	49.94	-78.90	77.86	1,207.05	1,247.55	1,148.30	99.24	12.571		
9,000.00	7,580.00	8,627.56	7,340.00	55.08	52.68	-78.93	81.64	1,306.94	1,250.25	1,145.61	104.64	11.948		
9,100.00	7,580.00	8,727.53	7,340.00	57.84	55.47	-78.95	85.41	1,406.83	1,252.96	1,142.83	110.13	11.377		
9,200.00	7,580.00	8,827.49	7,340.00	60.65	58.30	-78.98	89.19	1,506.73	1,255.66	1,139.96	115.70	10.853		
9,300.00	7,580.00	8,927.45	7,340.00	63.49	61.17	-79.00	92.97	1,606.62	1,258.36	1,137.02	121.35	10.370		
9,400.00	7,580.00	9,027.41	7,340.00	66.37	64.06	-79.02	96.75	1,706.51	1,261.07	1,134.02	127.05	9.926		
9,500.00	7,580.00	9,127.37	7,340.00	69.28	66.99	-79.05	100.53	1,806.40	1,263.77	1,130.96	132.81	9.515		
9,600.00	7,580.00	9,227.34	7,340.00	72.21	69.94	-79.07	104.31	1,906.29	1,266.48	1,127.86	138.62	9.136		
9,700.00	7,580.00	9,327.30	7,340.00	75.16	72.91	-79.10	108.08	2,006.18	1,269.19	1,124.71	144.48	8.785		
9,800.00	7,580.00	9,427.26	7,340.00	78.13	75.89	-79.12	111.86	2,106.07	1,271.89	1,121.53	150.36	8.459		
9,900.00	7,580.00	9,527.22	7,340.00	81.12	78.90	-79.14	115.64	2,205.96	1,274.60	1,118.31	156.29	8.155		
10,000.00	7,580.00	9,627.19	7,340.00	84.13	81.92	-79.17	119.42	2,305.85	1,277.30	1,115.06	162.24	7.873		
10,100.00	7,580.00	9,727.15	7,340.00	87.15	84.95	-79.19	123.20	2,405.74	1,280.01	1,111.79	168.22	7.609		
10,200.00	7,580.00	9,827.11	7,340.00	90.18	87.99	-79.21	126.98	2,505.63	1,282.72	1,108.50	174.22	7.363		
10,300.00	7,580.00	9,927.07	7,340.00	93.23	91.04	-79.24	130.75	2,605.52	1,285.42	1,105.18	180.24	7.132		
10,400.00	7,580.00	10,027.03	7,340.00	96.28	94.10	-79.26	134.53	2,705.41	1,288.13	1,101.84	186.29	6.915		
10,500.00	7,580.00	10,127.00	7,340.00	99.35	97.18	-79.28	138.31	2,805.30	1,290.84	1,098.49	192.35	6.711		
10,600.00	7,580.00	10,226.96	7,340.00	102.42	100.25	-79.30	142.09	2,905.19	1,293.55	1,095.12	198.43	6.519		
10,700.00	7,580.00	10,326.92	7,340.00	105.50	103.34	-79.33	145.87	3,005.08	1,296.25	1,091.73	204.52	6.338		
10,800.00	7,580.00	10,426.88	7,340.00	108.59	106.43	-79.35	149.64	3,104.97	1,298.96	1,088.34	210.62	6.167		
10,900.00	7,580.00	10,526.84	7,340.00	111.69	109.53	-79.37	153.42	3,204.87	1,301.67	1,084.93	216.74	6.006		
11,000.00	7,580.00	10,626.81	7,340.00	114.79	112.63	-79.39	157.20	3,304.76	1,304.38	1,081.50	222.87	5.853		
11,100.00	7,580.00	10,726.77	7,340.00	117.90	115.74	-79.42	160.98	3,404.65	1,307.09	1,078.07	229.01	5.707		
11,200.00	7,580.00	10,826.73	7,340.00	121.01	118.85	-79.44	164.76	3,504.54	1,309.79	1,074.63	235.17	5.570		
11,300.00	7,580.00	10,926.69	7,340.00	124.12	121.97	-79.46	168.54	3,604.43	1,312.50	1,071.18	241.33	5.439		
11,400.00	7,580.00	11,026.65	7,340.00	127.25	125.09	-79.48	172.31	3,704.32	1,315.21	1,067.72	247.49	5.314		
11,500.00	7,580.00	11,126.62	7,340.00	130.37	128.22	-79.50	176.09	3,804.21	1,317.92	1,064.25	253.67	5.195		
11,600.00	7,580.00	11,226.58	7,340.00	133.50	131.35	-79.53	179.87	3,904.10	1,320.63	1,060.78	259.85	5.082		
11,700.00	7,580.00	11,326.54	7,340.00	136.63	134.48	-79.55	183.65	4,003.99	1,323.34	1,057.30	266.05	4.974		
11,800.00	7,580.00	11,426.50	7,340.00	139.77	137.61	-79.57	187.43	4,103.88	1,326.05	1,053.81	272.24	4.871		
11,900.00	7,580.00	11,526.46	7,340.00	142.91	140.75	-79.59	191.21	4,203.77	1,328.76	1,050.31	278.45	4.772		
12,000.00	7,580.00	11,626.43	7,340.00	146.05	143.89	-79.61	194.98	4,303.66	1,331.47	1,046.81	284.66	4.677		
12,100.00	7,580.00	11,726.39	7,340.00	149.20	147.03	-79.63	198.76	4,403.55	1,334.18	1,043.31	290.87	4.587		
12,155.71	7,580.00	11,782.08	7,340.00	150.95	148.78	-79.64	200.87	4,459.21	1,335.69	1,041.35	294.34	4.538 SF		

Cathedral Energy Services

Anticollision Report

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well SAM 3N-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 3N-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 3H-25H-M166 - OH - PLAN #1													Offset Site Error:	0.00 usft
Survey Program: O-MWD+HDGM													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning	
0.00	0.00	0.00	0.00	0.00	0.00	0.04	59.74	0.04	59.74					
100.00	100.00	100.00	100.00	0.14	0.14	0.04	59.74	0.04	59.74	59.47	0.28	216.444		
200.00	200.00	200.00	200.00	0.50	0.50	0.04	59.74	0.04	59.74	58.75	0.99	60.167		
300.00	300.00	300.00	300.00	0.85	0.85	0.04	59.74	0.04	59.74	58.03	1.71	34.940	CC, ES	
400.00	399.98	399.98	399.98	1.20	1.21	165.65	59.74	0.04	61.43	59.02	2.41	25.467		
500.00	499.84	499.84	499.84	1.54	1.57	166.75	59.74	0.04	66.52	63.40	3.11	21.362		
600.00	599.45	599.45	599.45	1.90	1.93	168.24	59.74	0.04	75.03	71.20	3.82	19.620		
700.00	698.70	698.70	698.70	2.27	2.28	169.83	59.74	0.04	86.99	82.46	4.54	19.166		
784.38	782.08	782.08	782.08	2.60	2.58	171.11	59.74	0.04	99.79	94.65	5.15	19.394		
800.00	797.47	797.47	797.47	2.66	2.64	171.33	59.74	0.04	102.39	97.13	5.26	19.463		
900.00	896.05	896.05	896.05	3.07	2.99	172.55	59.74	0.04	119.06	113.09	5.97	19.942		
1,000.00	994.62	996.92	996.90	3.48	3.34	172.89	59.12	-1.47	134.96	128.27	6.68	20.191		
1,100.00	1,093.19	1,097.85	1,097.70	3.90	3.69	171.98	57.19	-6.22	149.17	141.77	7.40	20.166		
1,200.00	1,191.77	1,196.87	1,196.52	4.33	4.03	170.89	54.87	-11.92	162.88	154.77	8.11	20.092		
1,300.00	1,290.34	1,295.88	1,295.34	4.75	4.37	169.98	52.54	-17.62	176.64	167.82	8.82	20.023		
1,400.00	1,388.92	1,394.89	1,394.16	5.18	4.72	169.19	50.22	-23.32	190.44	180.89	9.54	19.958		
1,500.00	1,487.49	1,493.90	1,492.98	5.61	5.07	168.51	47.90	-29.02	204.26	194.00	10.27	19.898		
1,600.00	1,586.06	1,592.92	1,591.81	6.04	5.43	167.92	45.57	-34.72	218.11	207.12	10.99	19.843		
1,700.00	1,684.64	1,691.93	1,690.63	6.48	5.78	167.40	43.25	-40.42	231.98	220.26	11.72	19.792		
1,800.00	1,783.21	1,790.94	1,789.45	6.91	6.14	166.93	40.93	-46.12	245.87	233.42	12.45	19.745		
1,900.00	1,881.79	1,889.95	1,888.27	7.35	6.50	166.52	38.61	-51.82	259.77	246.59	13.19	19.701		
2,000.00	1,980.36	1,988.97	1,987.09	7.78	6.86	166.15	36.28	-57.52	273.69	259.77	13.92	19.661		
2,100.00	2,078.93	2,087.98	2,085.91	8.22	7.22	165.81	33.96	-63.23	287.61	272.96	14.66	19.624		
2,200.00	2,177.51	2,186.99	2,184.73	8.65	7.58	165.51	31.64	-68.93	301.55	286.15	15.39	19.590		
2,300.00	2,276.08	2,286.00	2,283.55	9.09	7.94	165.23	29.31	-74.63	315.49	299.36	16.13	19.558		
2,400.00	2,374.66	2,385.02	2,382.37	9.53	8.30	164.98	26.99	-80.33	329.43	312.56	16.87	19.528		
2,500.00	2,473.23	2,484.03	2,481.19	9.96	8.66	164.74	24.67	-86.03	343.39	325.78	17.61	19.500		
2,600.00	2,571.80	2,583.04	2,580.01	10.40	9.03	164.53	22.34	-91.73	357.35	339.00	18.35	19.474		
2,700.00	2,670.38	2,682.05	2,678.83	10.84	9.39	164.33	20.02	-97.43	371.31	352.22	19.09	19.450		
2,800.00	2,768.95	2,781.07	2,777.66	11.27	9.75	164.14	17.70	-103.13	385.28	365.44	19.83	19.427		
2,900.00	2,867.53	2,880.08	2,876.48	11.71	10.12	163.97	15.37	-108.83	399.25	378.67	20.57	19.405		
3,000.00	2,966.10	2,979.09	2,975.30	12.15	10.48	163.81	13.05	-114.53	413.22	391.90	21.32	19.385		
3,100.00	3,064.67	3,078.10	3,074.12	12.59	10.84	163.66	10.73	-120.23	427.20	405.14	22.06	19.366		
3,200.00	3,163.25	3,177.12	3,172.94	13.03	11.21	163.52	8.40	-125.93	441.18	418.37	22.80	19.348		
3,300.00	3,261.82	3,276.13	3,271.76	13.46	11.57	163.39	6.08	-131.63	455.16	431.61	23.55	19.331		
3,400.00	3,360.40	3,375.14	3,370.58	13.90	11.94	163.27	3.76	-137.33	469.14	444.85	24.29	19.315		
3,500.00	3,458.97	3,474.15	3,469.40	14.34	12.30	163.15	1.43	-143.04	483.13	458.10	25.03	19.299		
3,600.00	3,557.54	3,573.16	3,568.22	14.78	12.67	163.04	-0.89	-148.74	497.12	471.34	25.78	19.285		
3,700.00	3,656.12	3,672.18	3,667.04	15.22	13.03	162.94	-3.21	-154.44	511.11	484.58	26.52	19.271		
3,800.00	3,754.69	3,771.19	3,765.86	15.66	13.40	162.84	-5.54	-160.14	525.10	497.83	27.27	19.258		
3,900.00	3,853.27	3,870.20	3,864.69	16.09	13.76	162.75	-7.86	-165.84	539.09	511.08	28.01	19.246		
4,000.00	3,951.84	3,969.21	3,963.51	16.53	14.13	162.66	-10.18	-171.54	553.08	524.33	28.76	19.234		
4,100.00	4,050.41	4,068.23	4,062.33	16.97	14.49	162.57	-12.51	-177.24	567.08	537.58	29.50	19.222		
4,200.00	4,148.99	4,167.24	4,161.15	17.41	14.86	162.49	-14.83	-182.94	581.08	550.83	30.25	19.211		
4,300.00	4,247.56	4,266.25	4,259.97	17.85	15.23	162.42	-17.15	-188.64	595.07	564.08	30.99	19.201		
4,400.00	4,346.14	4,365.26	4,358.79	18.29	15.59	162.34	-19.48	-194.34	609.07	577.33	31.74	19.191		
4,500.00	4,444.71	4,464.28	4,457.61	18.73	15.96	162.27	-21.80	-200.04	623.07	590.59	32.48	19.181		
4,600.00	4,543.28	4,563.29	4,556.43	19.16	16.32	162.21	-24.12	-205.74	637.07	603.84	33.23	19.172		
4,700.00	4,641.86	4,662.30	4,655.25	19.60	16.69	162.14	-26.45	-211.44	651.07	617.10	33.98	19.163		
4,800.00	4,740.43	4,761.31	4,754.07	20.04	17.06	162.08	-28.77	-217.14	665.07	630.35	34.72	19.155		
4,900.00	4,839.01	4,860.33	4,852.89	20.48	17.42	162.02	-31.09	-222.85	679.08	643.61	35.47	19.147		
5,000.00	4,937.58	4,959.34	4,951.72	20.92	17.79	161.97	-33.42	-228.55	693.08	656.87	36.21	19.139		

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 3N-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 3N-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 3H-25H-M166 - OH - PLAN #1												Offset Site Error:	0.00 usft
Survey Program: O-MWD+HDGM												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
5,100.00	5,036.15	5,058.35	5,050.54	21.36	18.15	161.91	-35.74	-234.25	707.08	670.12	36.96	19.131	
5,200.00	5,134.73	5,157.36	5,149.36	21.80	18.52	161.86	-38.06	-239.95	721.09	683.38	37.71	19.124	
5,300.00	5,233.30	5,256.38	5,248.18	22.24	18.89	161.81	-40.39	-245.65	735.09	696.64	38.45	19.117	
5,400.00	5,331.88	5,355.39	5,347.00	22.68	19.25	161.76	-42.71	-251.35	749.10	709.90	39.20	19.110	
5,500.00	5,430.45	5,454.40	5,445.82	23.12	19.62	161.72	-45.03	-257.05	763.11	723.16	39.95	19.104	
5,600.00	5,529.02	5,553.41	5,544.64	23.55	19.99	161.67	-47.36	-262.75	777.11	736.42	40.69	19.097	
5,700.00	5,627.60	5,652.43	5,643.46	23.99	20.35	161.63	-49.68	-268.45	791.12	749.68	41.44	19.091	
5,800.00	5,726.17	5,751.44	5,742.28	24.43	20.72	161.59	-52.00	-274.15	805.13	762.94	42.19	19.085	
5,900.00	5,824.75	5,848.83	5,839.49	24.87	21.08	161.55	-54.27	-279.71	819.15	776.23	42.92	19.085	
6,000.00	5,923.32	5,939.33	5,929.91	25.31	21.40	161.65	-55.64	-283.08	833.86	790.27	43.59	19.130	
6,100.00	6,021.89	6,031.32	6,021.89	25.75	21.72	161.93	-55.97	-283.88	849.56	805.31	44.25	19.200	
6,200.00	6,120.47	6,129.89	6,120.47	26.19	22.05	162.27	-55.97	-283.88	865.60	820.65	44.94	19.260	
6,300.00	6,219.04	6,228.47	6,219.04	26.63	22.38	162.60	-55.97	-283.88	881.66	836.02	45.64	19.319	
6,400.00	6,317.62	6,327.04	6,317.62	27.07	22.71	162.92	-55.97	-283.88	897.75	851.42	46.33	19.376	
6,500.00	6,416.19	6,425.61	6,416.19	27.51	23.04	163.23	-55.97	-283.88	913.87	866.84	47.03	19.431	
6,600.00	6,514.76	6,524.19	6,514.76	27.95	23.37	163.53	-55.97	-283.88	930.01	882.28	47.73	19.485	
6,700.00	6,613.34	6,622.76	6,613.34	28.39	23.70	163.82	-55.97	-283.88	946.18	897.75	48.43	19.537	
6,800.00	6,711.91	6,721.34	6,711.91	28.82	24.03	164.10	-55.97	-283.88	962.37	913.24	49.13	19.589	
6,900.00	6,810.49	6,819.91	6,810.49	29.26	24.37	164.37	-55.97	-283.88	978.58	928.75	49.83	19.638	
6,931.73	6,841.77	6,851.19	6,841.77	29.40	24.47	164.45	-55.97	-283.88	983.73	933.68	50.05	19.654	
6,950.00	6,859.78	6,869.21	6,859.78	29.48	24.53	173.27	-55.97	-283.88	986.70	936.52	50.18	19.663	
7,000.00	6,909.10	6,918.43	6,908.98	29.69	24.69	-162.30	-55.95	-282.45	994.82	944.30	50.52	19.692	
7,050.00	6,958.25	6,967.62	6,957.92	29.89	24.85	-142.58	-55.90	-277.67	1,002.91	952.07	50.84	19.727	
7,100.00	7,006.98	7,016.78	7,006.40	30.07	24.99	-129.07	-55.82	-269.54	1,010.93	959.78	51.14	19.766	
7,150.00	7,055.06	7,065.94	7,054.20	30.24	25.14	-120.01	-55.70	-258.11	1,018.84	967.41	51.44	19.808	
7,200.00	7,102.25	7,115.10	7,101.10	30.40	25.28	-113.68	-55.56	-243.42	1,026.61	974.89	51.72	19.851	
7,250.00	7,148.33	7,164.28	7,146.91	30.55	25.42	-109.05	-55.37	-225.55	1,034.19	982.20	51.99	19.892	
7,300.00	7,193.07	7,213.49	7,191.40	30.69	25.56	-105.52	-55.16	-204.56	1,041.56	989.29	52.26	19.930	
7,350.00	7,236.26	7,262.73	7,234.38	30.81	25.70	-102.73	-54.92	-180.55	1,048.66	996.12	52.54	19.960	
7,400.00	7,277.67	7,312.01	7,275.65	30.92	25.84	-100.47	-54.64	-153.62	1,055.47	1,002.64	52.83	19.978	
7,450.00	7,317.11	7,361.36	7,315.01	31.03	26.01	-98.60	-54.34	-123.88	1,061.96	1,008.81	53.15	19.980	
7,500.00	7,354.40	7,410.75	7,352.27	31.12	26.19	-97.03	-54.01	-91.46	1,068.10	1,014.58	53.51	19.959	
7,550.00	7,389.33	7,460.21	7,387.25	31.21	26.40	-95.69	-53.66	-56.51	1,073.84	1,019.91	53.93	19.910	
7,600.00	7,421.76	7,509.74	7,419.77	31.28	26.66	-94.56	-53.28	-19.18	1,079.18	1,024.75	54.43	19.827	
7,650.00	7,451.51	7,559.33	7,449.68	31.35	26.96	-93.58	-52.87	20.37	1,084.07	1,029.05	55.02	19.704	
7,700.00	7,478.44	7,608.99	7,476.81	31.42	27.32	-92.75	-52.45	61.95	1,088.50	1,032.79	55.71	19.538	
7,750.00	7,502.43	7,658.71	7,501.02	31.48	27.74	-92.05	-52.01	105.36	1,092.44	1,035.91	56.53	19.326	
7,800.00	7,523.35	7,708.49	7,522.19	31.56	28.22	-91.47	-51.55	150.40	1,095.88	1,038.40	57.48	19.066	
7,850.00	7,541.11	7,758.33	7,540.20	31.66	28.78	-90.99	-51.08	196.86	1,098.80	1,040.23	58.57	18.761	
7,900.00	7,555.61	7,808.22	7,554.94	31.82	29.41	-90.61	-50.60	244.50	1,101.18	1,041.38	59.80	18.414	
7,950.00	7,566.79	7,858.14	7,566.34	32.11	30.11	-90.32	-50.10	293.10	1,103.02	1,041.85	61.17	18.032	
8,000.00	7,574.59	7,908.10	7,574.34	32.60	30.87	-90.13	-49.60	342.40	1,104.30	1,041.63	62.67	17.621	
8,050.00	7,578.97	7,958.08	7,578.88	33.25	31.69	-90.02	-49.09	392.16	1,105.01	1,040.73	64.29	17.189	
8,088.71	7,580.00	7,996.79	7,580.00	33.84	32.36	-90.00	-48.70	430.85	1,105.18	1,039.58	65.60	16.846	
8,100.00	7,580.00	8,008.08	7,580.00	34.02	32.57	-90.00	-48.59	442.14	1,105.18	1,039.17	66.01	16.744	
8,200.00	7,580.00	8,108.08	7,580.00	35.78	34.46	-90.00	-47.57	542.13	1,105.17	1,035.43	69.74	15.848	
8,300.00	7,580.00	8,208.08	7,580.00	37.77	36.53	-90.00	-46.55	642.13	1,105.16	1,031.33	73.84	14.967	
8,400.00	7,580.00	8,308.08	7,580.00	39.92	38.76	-90.00	-45.54	742.12	1,105.16	1,026.90	78.25	14.123	
8,500.00	7,580.00	8,408.08	7,580.00	42.22	41.12	-90.00	-44.52	842.11	1,105.15	1,022.22	82.92	13.327	
8,600.00	7,580.00	8,508.08	7,580.00	44.63	43.59	-90.00	-43.51	942.11	1,105.14	1,017.32	87.82	12.584	
8,700.00	7,580.00	8,608.08	7,580.00	47.13	46.14	-90.00	-42.49	1,042.10	1,105.13	1,012.23	92.90	11.896	
8,800.00	7,580.00	8,708.08	7,580.00	49.72	48.78	-90.00	-41.47	1,142.10	1,105.12	1,006.99	98.13	11.262	

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 3N-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 3N-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 3H-25H-M166 - OH - PLAN #1												Offset Site Error: 0.00 usft	
Survey Program: O-MWD+HDGM												Offset Well Error: 0.00 usft	
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	
8,900.00	7,580.00	8,808.08	7,580.00	52.37	51.48	-90.00	-40.46	1,242.09	1,105.11	1,001.61	103.50	10.678	
9,000.00	7,580.00	8,908.08	7,580.00	55.08	54.23	-90.00	-39.44	1,342.09	1,105.10	996.13	108.98	10.141	
9,100.00	7,580.00	9,008.08	7,580.00	57.84	57.04	-90.00	-38.42	1,442.08	1,105.10	990.54	114.56	9.647	
9,200.00	7,580.00	9,108.08	7,580.00	60.65	59.88	-90.00	-37.41	1,542.08	1,105.09	984.87	120.22	9.192	
9,300.00	7,580.00	9,208.08	7,580.00	63.49	62.76	-90.00	-36.39	1,642.07	1,105.08	979.13	125.95	8.774	
9,400.00	7,580.00	9,308.08	7,580.00	66.37	65.66	-90.00	-35.37	1,742.07	1,105.07	973.32	131.75	8.388	
9,500.00	7,580.00	9,408.08	7,580.00	69.28	68.60	-90.00	-34.36	1,842.06	1,105.06	967.47	137.60	8.031	
9,600.00	7,580.00	9,508.08	7,580.00	72.21	71.56	-90.00	-33.34	1,942.06	1,105.05	961.56	143.49	7.701	
9,700.00	7,580.00	9,608.08	7,580.00	75.16	74.54	-90.00	-32.32	2,042.05	1,105.05	955.61	149.44	7.395	
9,800.00	7,580.00	9,708.08	7,580.00	78.13	77.53	-90.00	-31.31	2,142.05	1,105.04	949.62	155.41	7.110	
9,900.00	7,580.00	9,808.08	7,580.00	81.12	80.55	-90.00	-30.29	2,242.04	1,105.03	943.60	161.43	6.845	
10,000.00	7,580.00	9,908.08	7,580.00	84.13	83.57	-90.00	-29.28	2,342.04	1,105.02	937.55	167.47	6.598	
10,100.00	7,580.00	10,008.08	7,580.00	87.15	86.61	-90.00	-28.26	2,442.03	1,105.01	931.48	173.53	6.368	
10,200.00	7,580.00	10,108.08	7,580.00	90.18	89.67	-90.00	-27.24	2,542.03	1,105.00	925.38	179.63	6.152	
10,300.00	7,580.00	10,208.08	7,580.00	93.23	92.73	-90.00	-26.23	2,642.02	1,104.99	919.25	185.74	5.949	
10,400.00	7,580.00	10,308.08	7,580.00	96.28	95.80	-90.00	-25.21	2,742.02	1,104.99	913.11	191.87	5.759	
10,500.00	7,580.00	10,408.08	7,580.00	99.35	98.88	-90.00	-24.19	2,842.01	1,104.98	906.95	198.02	5.580	
10,600.00	7,580.00	10,508.08	7,580.00	102.42	101.97	-90.00	-23.18	2,942.01	1,104.97	900.78	204.19	5.411	
10,700.00	7,580.00	10,608.08	7,580.00	105.50	105.06	-90.00	-22.16	3,042.00	1,104.96	894.59	210.37	5.252	
10,800.00	7,580.00	10,708.08	7,580.00	108.59	108.17	-90.00	-21.14	3,142.00	1,104.95	888.38	216.57	5.102	
10,900.00	7,580.00	10,808.08	7,580.00	111.69	111.27	-90.00	-20.13	3,241.99	1,104.94	882.17	222.78	4.960	
11,000.00	7,580.00	10,908.08	7,580.00	114.79	114.39	-90.00	-19.11	3,341.99	1,104.94	875.94	228.99	4.825	
11,100.00	7,580.00	11,008.08	7,580.00	117.90	117.50	-90.00	-18.10	3,441.98	1,104.93	869.70	235.22	4.697	
11,200.00	7,580.00	11,108.08	7,580.00	121.01	120.63	-90.00	-17.08	3,541.98	1,104.92	863.46	241.46	4.576	
11,300.00	7,580.00	11,208.08	7,580.00	124.12	123.75	-90.00	-16.06	3,641.97	1,104.91	857.20	247.71	4.460	
11,400.00	7,580.00	11,308.08	7,580.00	127.25	126.88	-90.00	-15.05	3,741.97	1,104.90	850.94	253.97	4.351	
11,500.00	7,580.00	11,408.08	7,580.00	130.37	130.02	-90.00	-14.03	3,841.96	1,104.89	844.66	260.23	4.246	
11,600.00	7,580.00	11,508.08	7,580.00	133.50	133.16	-90.00	-13.01	3,941.95	1,104.88	838.38	266.50	4.146	
11,700.00	7,580.00	11,608.08	7,580.00	136.63	136.30	-90.00	-12.00	4,041.95	1,104.88	832.10	272.78	4.050	
11,800.00	7,580.00	11,708.08	7,580.00	139.77	139.44	-90.00	-10.98	4,141.94	1,104.87	825.81	279.06	3.959	
11,900.00	7,580.00	11,808.08	7,580.00	142.91	142.59	-90.00	-9.96	4,241.94	1,104.86	819.51	285.35	3.872	
12,000.00	7,580.00	11,908.08	7,580.00	146.05	145.74	-90.00	-8.95	4,341.93	1,104.85	813.21	291.64	3.788	
12,100.00	7,580.00	12,008.08	7,580.00	149.20	148.89	-90.00	-7.93	4,441.93	1,104.84	806.90	297.94	3.708	
12,155.71	7,580.00	12,063.79	7,580.00	150.95	150.65	-90.00	-7.37	4,497.64	1,104.84	803.38	301.46	3.665 SF	

Cathedral Energy Services

Anticollision Report

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well SAM 3N-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 3N-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						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	0.15	49.91	0.13	49.91					
100.00	100.00	100.00	100.00	0.14	0.14	0.15	49.91	0.13	49.91	49.63	0.28	180.813		
200.00	200.00	200.00	200.00	0.50	0.50	0.15	49.91	0.13	49.91	48.92	0.99	50.262		
300.00	300.00	300.00	300.00	0.85	0.85	0.15	49.91	0.13	49.91	48.20	1.71	29.188 CC, ES		
400.00	399.98	399.98	399.98	1.20	1.21	165.83	49.91	0.13	51.60	49.19	2.41	21.390		
500.00	499.84	499.84	499.84	1.54	1.57	167.11	49.91	0.13	56.69	53.57	3.11	18.206		
600.00	599.45	599.45	599.45	1.90	1.93	168.78	49.91	0.13	65.21	61.39	3.82	17.054		
700.00	698.70	698.70	698.70	2.27	2.28	170.50	49.91	0.13	77.21	72.67	4.54	17.009		
784.38	782.08	782.08	782.08	2.60	2.58	171.83	49.91	0.13	90.03	84.88	5.15	17.497		
800.00	797.47	797.47	797.47	2.66	2.64	172.06	49.91	0.13	92.63	87.37	5.26	17.608		
900.00	896.05	896.66	898.64	3.07	2.99	172.66	48.90	-1.23	108.17	102.20	5.97	18.118		
1,000.00	994.62	1,000.62	1,000.45	3.48	3.33	171.88	45.72	-5.51	121.27	114.59	6.69	18.136		
1,100.00	1,093.19	1,101.59	1,101.06	3.90	3.68	170.24	40.66	-12.31	132.26	124.86	7.41	17.856		
1,200.00	1,191.77	1,200.94	1,200.02	4.33	4.03	168.72	35.37	-19.43	143.01	134.88	8.12	17.604		
1,300.00	1,290.34	1,300.30	1,298.98	4.75	4.38	167.40	30.09	-26.54	153.84	144.99	8.85	17.388		
1,400.00	1,388.92	1,399.65	1,397.94	5.18	4.74	166.27	24.80	-33.66	164.73	155.16	9.58	17.201		
1,500.00	1,487.49	1,499.00	1,496.90	5.61	5.11	165.27	19.51	-40.78	175.69	165.38	10.31	17.039		
1,600.00	1,586.06	1,598.36	1,595.85	6.04	5.47	164.39	14.22	-47.90	186.69	175.64	11.05	16.895		
1,700.00	1,684.64	1,697.71	1,694.81	6.48	5.84	163.60	8.93	-55.01	197.73	185.94	11.79	16.769		
1,800.00	1,783.21	1,797.07	1,793.77	6.91	6.21	162.91	3.64	-62.13	208.80	196.26	12.54	16.656		
1,900.00	1,881.79	1,896.42	1,892.73	7.35	6.58	162.28	-1.65	-69.25	219.90	206.62	13.28	16.555		
2,000.00	1,980.36	1,995.78	1,991.69	7.78	6.95	161.71	-6.94	-76.36	231.02	216.99	14.03	16.463		
2,100.00	2,078.93	2,095.13	2,090.64	8.22	7.32	161.19	-12.22	-83.48	242.17	227.38	14.78	16.381		
2,200.00	2,177.51	2,194.49	2,189.60	8.65	7.69	160.72	-17.51	-90.60	253.33	237.79	15.54	16.306		
2,300.00	2,276.08	2,293.84	2,288.56	9.09	8.07	160.29	-22.80	-97.71	264.51	248.22	16.29	16.237		
2,400.00	2,374.66	2,393.20	2,387.52	9.53	8.44	159.89	-28.09	-104.83	275.70	258.65	17.05	16.174		
2,500.00	2,473.23	2,492.55	2,486.48	9.96	8.82	159.53	-33.38	-111.95	286.90	269.10	17.80	16.117		
2,600.00	2,571.80	2,591.90	2,585.43	10.40	9.19	159.19	-38.67	-119.06	298.11	279.55	18.56	16.063		
2,700.00	2,670.38	2,691.26	2,684.39	10.84	9.57	158.88	-43.96	-126.18	309.34	290.02	19.32	16.014		
2,800.00	2,768.95	2,790.61	2,783.35	11.27	9.95	158.59	-49.25	-133.30	320.57	300.49	20.08	15.968		
2,900.00	2,867.53	2,889.97	2,882.31	11.71	10.32	158.31	-54.54	-140.41	331.81	310.97	20.83	15.926		
3,000.00	2,966.10	2,989.32	2,981.27	12.15	10.70	158.06	-59.82	-147.53	343.05	321.46	21.59	15.886		
3,100.00	3,064.67	3,088.68	3,080.23	12.59	11.08	157.82	-65.11	-154.65	354.30	331.95	22.36	15.849		
3,200.00	3,163.25	3,188.03	3,179.18	13.03	11.46	157.60	-70.40	-161.76	365.56	342.45	23.12	15.814		
3,300.00	3,261.82	3,287.39	3,278.14	13.46	11.83	157.39	-75.69	-168.88	376.83	352.95	23.88	15.781		
3,400.00	3,360.40	3,386.74	3,377.10	13.90	12.21	157.19	-80.98	-176.00	388.09	363.45	24.64	15.751		
3,500.00	3,458.97	3,486.10	3,476.06	14.34	12.59	157.01	-86.27	-183.11	399.36	373.96	25.40	15.722		
3,600.00	3,557.54	3,585.45	3,575.02	14.78	12.97	156.83	-91.56	-190.23	410.64	384.48	26.16	15.694		
3,700.00	3,656.12	3,684.80	3,673.97	15.22	13.35	156.66	-96.85	-197.35	421.92	394.99	26.93	15.669		
3,800.00	3,754.69	3,784.16	3,772.93	15.66	13.73	156.50	-102.14	-204.47	433.20	405.51	27.69	15.644		
3,900.00	3,853.27	3,883.51	3,871.89	16.09	14.11	156.35	-107.42	-211.58	444.49	416.03	28.45	15.621		
4,000.00	3,951.84	3,982.87	3,970.85	16.53	14.49	156.21	-112.71	-218.70	455.78	426.56	29.22	15.599		
4,100.00	4,050.41	4,082.22	4,069.81	16.97	14.87	156.08	-118.00	-225.82	467.07	437.09	29.98	15.578		
4,200.00	4,148.99	4,181.58	4,168.76	17.41	15.24	155.95	-123.29	-232.93	478.36	447.62	30.75	15.558		
4,300.00	4,247.56	4,280.93	4,267.72	17.85	15.62	155.82	-128.58	-240.05	489.66	458.15	31.51	15.539		
4,400.00	4,346.14	4,380.29	4,366.68	18.29	16.00	155.71	-133.87	-247.17	500.96	468.68	32.28	15.521		
4,500.00	4,444.71	4,479.64	4,465.64	18.73	16.38	155.59	-139.16	-254.28	512.26	479.22	33.04	15.504		
4,600.00	4,543.28	4,578.99	4,564.60	19.16	16.76	155.49	-144.45	-261.40	523.56	489.75	33.81	15.487		
4,700.00	4,641.86	4,678.35	4,663.55	19.60	17.14	155.38	-149.74	-268.52	534.86	500.29	34.57	15.472		
4,800.00	4,740.43	4,776.25	4,761.07	20.04	17.52	155.29	-154.92	-275.49	546.19	510.87	35.33	15.462		
4,900.00	4,839.01	4,867.51	4,852.11	20.48	17.86	155.39	-158.59	-280.44	558.48	522.47	36.01	15.508		
5,000.00	4,937.58	4,958.29	4,942.84	20.92	18.18	155.74	-160.53	-283.04	572.22	535.55	36.67	15.605		

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 3N-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 3N-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
5,100.00	5,036.15	5,051.61	5,036.15	21.36	18.50	156.32	-160.87	-283.50	587.34	550.02	37.31	15.740	
5,200.00	5,134.73	5,150.19	5,134.73	21.80	18.81	156.97	-160.87	-283.50	602.82	564.83	37.99	15.868	
5,300.00	5,233.30	5,248.76	5,233.30	22.24	19.13	157.57	-160.87	-283.50	618.37	579.71	38.67	15.992	
5,400.00	5,331.88	5,347.33	5,331.88	22.68	19.45	158.15	-160.87	-283.50	633.99	594.65	39.35	16.113	
5,500.00	5,430.45	5,445.91	5,430.45	23.12	19.78	158.70	-160.87	-283.50	649.67	609.64	40.03	16.230	
5,600.00	5,529.02	5,544.48	5,529.02	23.55	20.10	159.23	-160.87	-283.50	665.41	624.70	40.71	16.345	
5,700.00	5,627.60	5,643.06	5,627.60	23.99	20.42	159.73	-160.87	-283.50	681.20	639.80	41.40	16.456	
5,800.00	5,726.17	5,741.63	5,726.17	24.43	20.75	160.21	-160.87	-283.50	697.03	654.95	42.08	16.563	
5,900.00	5,824.75	5,840.20	5,824.75	24.87	21.07	160.67	-160.87	-283.50	712.91	670.14	42.77	16.668	
6,000.00	5,923.32	5,938.78	5,923.32	25.31	21.40	161.10	-160.87	-283.50	728.84	685.38	43.46	16.770	
6,100.00	6,021.89	6,037.35	6,021.89	25.75	21.73	161.52	-160.87	-283.50	744.80	700.65	44.15	16.869	
6,200.00	6,120.47	6,135.93	6,120.47	26.19	22.06	161.92	-160.87	-283.50	760.80	715.96	44.84	16.965	
6,300.00	6,219.04	6,234.50	6,219.04	26.63	22.38	162.31	-160.87	-283.50	776.84	731.30	45.54	17.059	
6,400.00	6,317.62	6,333.07	6,317.62	27.07	22.71	162.68	-160.87	-283.50	792.91	746.67	46.23	17.150	
6,500.00	6,416.19	6,431.65	6,416.19	27.51	23.04	163.03	-160.87	-283.50	809.01	762.08	46.93	17.239	
6,600.00	6,514.76	6,530.22	6,514.76	27.95	23.38	163.37	-160.87	-283.50	825.14	777.51	47.63	17.325	
6,700.00	6,613.34	6,628.80	6,613.34	28.39	23.71	163.70	-160.87	-283.50	841.29	792.97	48.33	17.409	
6,800.00	6,711.91	6,727.37	6,711.91	28.82	24.04	164.03	-160.87	-283.50	857.47	808.45	49.02	17.491	
6,900.00	6,810.49	6,825.95	6,810.49	29.26	24.37	164.36	-160.87	-283.50	873.65	823.93	49.71	17.569	
6,931.73	6,841.77	6,856.23	6,838.70	29.40	24.44	165.38	-160.72	-268.69	878.96	829.12	49.84	17.635	
6,950.00	6,859.78	6,872.22	6,855.36	29.48	24.48	174.44	-160.68	-265.04	882.01	832.07	49.94	17.661	
7,000.00	6,909.10	6,918.45	6,900.03	29.69	24.62	-160.42	-160.56	-253.17	890.47	840.27	50.20	17.738	
7,050.00	6,958.25	6,964.04	6,943.24	29.89	24.75	-140.01	-160.42	-238.66	899.03	848.59	50.44	17.823	
7,100.00	7,006.98	7,009.03	6,984.89	30.07	24.87	-125.85	-160.24	-221.68	907.65	856.98	50.67	17.914	
7,150.00	7,055.06	7,053.48	7,024.92	30.24	24.99	-116.15	-160.05	-202.37	916.26	865.38	50.88	18.010	
7,200.00	7,102.25	7,097.44	7,063.25	30.40	25.11	-109.22	-159.83	-180.86	924.80	873.72	51.08	18.106	
7,250.00	7,148.33	7,140.95	7,099.82	30.55	25.23	-104.02	-159.59	-157.30	933.22	881.94	51.27	18.201	
7,300.00	7,193.07	7,184.05	7,134.57	30.69	25.36	-99.96	-159.33	-131.82	941.46	889.98	51.47	18.290	
7,350.00	7,236.26	7,226.77	7,167.44	30.81	25.50	-96.66	-159.05	-104.53	949.47	897.78	51.69	18.370	
7,400.00	7,277.67	7,269.17	7,198.39	30.92	25.66	-93.93	-158.76	-75.58	957.20	905.28	51.92	18.437	
7,450.00	7,317.11	7,311.25	7,227.37	31.03	25.85	-91.62	-158.45	-45.06	964.61	912.42	52.18	18.485	
7,500.00	7,354.40	7,350.00	7,252.42	31.12	26.05	-89.66	-158.15	-15.51	971.64	919.19	52.46	18.523	
7,550.00	7,389.33	7,394.65	7,279.26	31.21	26.32	-87.94	-157.79	20.16	978.25	925.38	52.87	18.505	
7,600.00	7,421.76	7,436.01	7,302.10	31.28	26.62	-86.46	-157.43	54.64	984.40	931.09	53.31	18.464	
7,650.00	7,451.51	7,477.19	7,322.82	31.35	26.96	-85.19	-157.07	90.21	990.07	936.22	53.85	18.386	
7,700.00	7,478.44	7,518.20	7,341.38	31.42	27.34	-84.09	-156.70	126.77	995.21	940.73	54.48	18.267	
7,750.00	7,502.43	7,559.06	7,357.77	31.48	27.77	-83.16	-156.32	164.19	999.79	944.57	55.22	18.106	
7,800.00	7,523.35	7,600.00	7,372.03	31.56	28.24	-82.37	-155.93	202.56	1,003.79	947.72	56.07	17.901	
7,850.00	7,541.11	7,640.45	7,383.94	31.66	28.77	-81.72	-155.54	241.21	1,007.19	950.13	57.06	17.653	
7,900.00	7,555.61	7,681.01	7,393.67	31.82	29.35	-81.20	-155.14	280.58	1,009.97	951.81	58.16	17.365	
7,950.00	7,566.79	7,721.50	7,401.14	32.11	29.96	-80.81	-154.73	320.37	1,012.11	952.73	59.38	17.044	
8,000.00	7,574.59	7,761.95	7,406.35	32.60	30.61	-80.54	-154.33	360.48	1,013.60	952.89	60.71	16.695	
8,050.00	7,578.97	7,800.00	7,409.18	33.25	31.26	-80.39	-153.94	398.41	1,014.43	952.34	62.09	16.337	
8,088.71	7,580.00	7,834.26	7,410.00	33.84	31.86	-80.35	-153.59	432.66	1,014.62	951.29	63.33	16.022	
8,093.56	7,580.00	7,838.37	7,410.00	33.91	31.94	-80.35	-153.55	436.76	1,014.62	951.14	63.48	15.982	
8,100.00	7,580.00	7,844.81	7,410.00	34.02	32.06	-80.35	-153.49	443.20	1,014.62	950.91	63.71	15.925	
8,200.00	7,580.00	7,944.81	7,410.00	35.78	34.00	-80.35	-152.47	543.20	1,014.61	947.15	67.46	15.040	
8,300.00	7,580.00	8,044.81	7,410.00	37.77	36.11	-80.35	-151.45	643.19	1,014.60	943.05	71.56	14.179	
8,400.00	7,580.00	8,144.81	7,410.00	39.92	38.37	-80.35	-150.44	743.19	1,014.59	938.63	75.96	13.357	
8,500.00	7,580.00	8,244.81	7,410.00	42.22	40.76	-80.35	-149.42	843.18	1,014.59	933.97	80.62	12.585	
8,600.00	7,580.00	8,344.81	7,410.00	44.63	43.25	-80.35	-148.40	943.18	1,014.58	929.08	85.49	11.867	
8,700.00	7,580.00	8,444.81	7,410.00	47.13	45.84	-80.35	-147.39	1,043.17	1,014.57	924.02	90.55	11.205	

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 3N-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 3N-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							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	8,544.81	7,410.00	49.72	48.49	-80.35	-146.37	1,143.17	1,014.56	918.81	95.75	10.596		
8,900.00	7,580.00	8,644.81	7,410.00	52.37	51.21	-80.35	-145.36	1,243.16	1,014.55	913.46	101.09	10.036		
9,000.00	7,580.00	8,744.81	7,410.00	55.08	53.99	-80.35	-144.34	1,343.16	1,014.54	908.01	106.53	9.523		
9,100.00	7,580.00	8,844.81	7,410.00	57.84	56.81	-80.35	-143.32	1,443.15	1,014.53	902.47	112.07	9.053		
9,200.00	7,580.00	8,944.81	7,410.00	60.65	59.66	-80.35	-142.31	1,543.15	1,014.53	896.84	117.69	8.621		
9,300.00	7,580.00	9,044.81	7,410.00	63.49	62.56	-80.35	-141.29	1,643.14	1,014.52	891.15	123.37	8.223		
9,400.00	7,580.00	9,144.81	7,410.00	66.37	65.48	-80.35	-140.27	1,743.14	1,014.51	885.39	129.12	7.857		
9,500.00	7,580.00	9,244.81	7,410.00	69.28	68.43	-80.35	-139.26	1,843.13	1,014.50	879.59	134.91	7.520		
9,600.00	7,580.00	9,344.81	7,410.00	72.21	71.40	-80.35	-138.24	1,943.13	1,014.49	873.73	140.76	7.207		
9,700.00	7,580.00	9,444.81	7,410.00	75.16	74.38	-80.35	-137.23	2,043.12	1,014.48	867.84	146.64	6.918		
9,800.00	7,580.00	9,544.81	7,410.00	78.13	77.39	-80.35	-136.21	2,143.12	1,014.48	861.91	152.56	6.650		
9,900.00	7,580.00	9,644.81	7,410.00	81.12	80.41	-80.35	-135.19	2,243.11	1,014.47	855.95	158.51	6.400		
10,000.00	7,580.00	9,744.81	7,410.00	84.13	83.45	-80.35	-134.18	2,343.11	1,014.46	849.97	164.49	6.167		
10,100.00	7,580.00	9,844.81	7,410.00	87.15	86.50	-80.35	-133.16	2,443.10	1,014.45	843.95	170.50	5.950		
10,200.00	7,580.00	9,944.81	7,410.00	90.18	89.56	-80.35	-132.15	2,543.09	1,014.44	837.92	176.52	5.747		
10,300.00	7,580.00	10,044.81	7,410.00	93.23	92.63	-80.35	-131.13	2,643.09	1,014.43	831.86	182.57	5.556		
10,400.00	7,580.00	10,144.81	7,410.00	96.28	95.70	-80.35	-130.11	2,743.08	1,014.42	825.79	188.64	5.378		
10,500.00	7,580.00	10,244.81	7,410.00	99.35	98.79	-80.35	-129.10	2,843.08	1,014.42	819.69	194.72	5.210		
10,600.00	7,580.00	10,344.81	7,410.00	102.42	101.88	-80.35	-128.08	2,943.07	1,014.41	813.59	200.82	5.051		
10,700.00	7,580.00	10,444.81	7,410.00	105.50	104.98	-80.35	-127.06	3,043.07	1,014.40	807.47	206.93	4.902		
10,800.00	7,580.00	10,544.81	7,410.00	108.59	108.09	-80.35	-126.05	3,143.06	1,014.39	801.33	213.06	4.761		
10,900.00	7,580.00	10,644.81	7,410.00	111.69	111.20	-80.35	-125.03	3,243.06	1,014.38	795.19	219.19	4.628		
11,000.00	7,580.00	10,744.81	7,410.00	114.79	114.32	-80.35	-124.02	3,343.05	1,014.37	789.03	225.34	4.502		
11,100.00	7,580.00	10,844.81	7,410.00	117.90	117.44	-80.35	-123.00	3,443.05	1,014.36	782.87	231.50	4.382		
11,200.00	7,580.00	10,944.81	7,410.00	121.01	120.57	-80.35	-121.98	3,543.04	1,014.36	776.69	237.66	4.268		
11,300.00	7,580.00	11,044.81	7,410.00	124.12	123.70	-80.35	-120.97	3,643.04	1,014.35	770.51	243.84	4.160		
11,400.00	7,580.00	11,144.81	7,410.00	127.25	126.84	-80.35	-119.95	3,743.03	1,014.34	764.32	250.02	4.057		
11,500.00	7,580.00	11,244.81	7,410.00	130.37	129.97	-80.35	-118.93	3,843.03	1,014.33	758.12	256.21	3.959		
11,600.00	7,580.00	11,344.81	7,410.00	133.50	133.11	-80.35	-117.92	3,943.02	1,014.32	751.92	262.40	3.865		
11,700.00	7,580.00	11,444.81	7,410.00	136.63	136.26	-80.35	-116.90	4,043.02	1,014.31	745.71	268.61	3.776		
11,800.00	7,580.00	11,544.81	7,410.00	139.77	139.41	-80.35	-115.89	4,143.01	1,014.31	739.49	274.81	3.691		
11,900.00	7,580.00	11,644.81	7,410.00	142.91	142.56	-80.35	-114.87	4,243.01	1,014.30	733.27	281.03	3.609		
12,000.00	7,580.00	11,744.81	7,410.00	146.05	145.71	-80.35	-113.85	4,343.00	1,014.29	727.04	287.25	3.531		
12,100.00	7,580.00	11,844.81	7,410.00	149.20	148.26	-80.35	-112.84	4,443.00	1,014.28	721.40	292.88	3.463		
12,155.71	7,580.00	11,900.52	7,410.00	150.95	149.28	-80.35	-112.27	4,498.71	1,014.28	718.66	295.61	3.431 SF		

Cathedral Energy Services

Anticollision Report

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well SAM 3N-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 3N-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					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	-0.09	40.07	-0.07	40.07					
100.00	100.00	100.00	100.00	0.14	0.14	-0.09	40.07	-0.07	40.07	39.79	0.28	145.158		
200.00	200.00	200.00	200.00	0.50	0.50	-0.09	40.07	-0.07	40.07	39.07	0.99	40.351		
300.00	300.00	300.00	300.00	0.85	0.85	-0.09	40.07	-0.07	40.07	38.36	1.71	23.432 CC, ES		
400.00	399.98	399.98	399.98	1.20	1.21	165.72	40.07	-0.07	41.76	39.34	2.41	17.310		
500.00	499.84	499.84	499.84	1.54	1.57	167.27	40.07	-0.07	46.85	43.73	3.11	15.045		
600.00	599.45	599.45	599.45	1.90	1.93	169.23	40.07	-0.07	55.38	51.56	3.82	14.482		
700.00	698.70	698.70	698.70	2.27	2.28	171.13	40.07	-0.07	67.39	62.85	4.54	14.848		
784.38	782.08	784.17	784.16	2.60	2.58	172.16	39.04	-0.75	79.16	74.01	5.14	15.390		
800.00	797.47	800.04	800.02	2.66	2.63	172.26	38.61	-1.03	81.32	76.06	5.26	15.462		
900.00	896.05	902.11	901.94	3.07	2.97	172.21	34.12	-3.99	93.32	87.34	5.98	15.614		
1,000.00	994.62	1,004.40	1,003.83	3.48	3.33	171.28	26.61	-8.95	102.17	95.46	6.71	15.229		
1,100.00	1,093.19	1,104.08	1,103.00	3.90	3.67	170.18	18.17	-14.52	109.87	102.45	7.42	14.812		
1,200.00	1,191.77	1,203.77	1,202.17	4.33	4.03	169.23	9.74	-20.09	117.60	109.47	8.13	14.457		
1,300.00	1,290.34	1,303.45	1,301.34	4.75	4.40	168.40	1.30	-25.66	125.37	116.51	8.86	14.152		
1,400.00	1,388.92	1,403.13	1,400.51	5.18	4.76	167.66	-7.13	-31.23	133.15	123.56	9.59	13.889		
1,500.00	1,487.49	1,502.81	1,499.68	5.61	5.14	167.00	-15.57	-36.80	140.96	130.64	10.32	13.659		
1,600.00	1,586.06	1,602.50	1,598.84	6.04	5.51	166.42	-24.00	-42.37	148.78	137.72	11.06	13.456		
1,700.00	1,684.64	1,702.18	1,698.01	6.48	5.89	165.89	-32.44	-47.94	156.61	144.82	11.80	13.277		
1,800.00	1,783.21	1,801.86	1,797.18	6.91	6.26	165.41	-40.87	-53.51	164.46	151.92	12.54	13.118		
1,900.00	1,881.79	1,901.55	1,896.35	7.35	6.64	164.98	-49.31	-59.07	172.31	159.03	13.28	12.975		
2,000.00	1,980.36	2,001.23	1,995.52	7.78	7.02	164.58	-57.74	-64.64	180.18	166.15	14.03	12.846		
2,100.00	2,078.93	2,100.91	2,094.69	8.22	7.40	164.22	-66.18	-70.21	188.05	173.28	14.77	12.729		
2,200.00	2,177.51	2,200.59	2,193.86	8.65	7.79	163.89	-74.62	-75.78	195.94	180.41	15.52	12.623		
2,300.00	2,276.08	2,300.28	2,293.03	9.09	8.17	163.58	-83.05	-81.35	203.82	187.55	16.27	12.527		
2,400.00	2,374.66	2,399.96	2,392.20	9.53	8.55	163.29	-91.49	-86.92	211.71	194.69	17.02	12.438		
2,500.00	2,473.23	2,499.64	2,491.37	9.96	8.94	163.03	-99.92	-92.49	219.61	201.84	17.77	12.356		
2,600.00	2,571.80	2,599.32	2,590.53	10.40	9.32	162.78	-108.36	-98.06	227.51	208.99	18.53	12.281		
2,700.00	2,670.38	2,699.01	2,689.70	10.84	9.71	162.55	-116.79	-103.63	235.42	216.14	19.28	12.211		
2,800.00	2,768.95	2,798.69	2,788.87	11.27	10.09	162.34	-125.23	-109.20	243.33	223.29	20.03	12.147		
2,900.00	2,867.53	2,898.37	2,888.04	11.71	10.48	162.14	-133.66	-114.77	251.24	230.45	20.79	12.087		
3,000.00	2,966.10	2,998.06	2,987.21	12.15	10.86	161.95	-142.10	-120.34	259.15	237.61	21.54	12.030		
3,100.00	3,064.67	3,097.74	3,086.38	12.59	11.25	161.77	-150.53	-125.91	267.07	244.77	22.30	11.978		
3,200.00	3,163.25	3,197.42	3,185.55	13.03	11.64	161.60	-158.97	-131.48	274.99	251.94	23.05	11.929		
3,300.00	3,261.82	3,297.10	3,284.72	13.46	12.02	161.44	-167.41	-137.04	282.91	259.10	23.81	11.883		
3,400.00	3,360.40	3,396.79	3,383.89	13.90	12.41	161.29	-175.84	-142.61	290.84	266.27	24.57	11.839		
3,500.00	3,458.97	3,496.47	3,483.05	14.34	12.80	161.15	-184.28	-148.18	298.76	273.44	25.32	11.799		
3,600.00	3,557.54	3,596.15	3,582.22	14.78	13.18	161.02	-192.71	-153.75	306.69	280.61	26.08	11.760		
3,700.00	3,656.12	3,695.83	3,681.39	15.22	13.57	160.89	-201.15	-159.32	314.62	287.78	26.84	11.723		
3,800.00	3,754.69	3,795.52	3,780.56	15.66	13.96	160.77	-209.58	-164.89	322.55	294.96	27.59	11.689		
3,900.00	3,853.27	3,895.20	3,879.73	16.09	14.35	160.65	-218.02	-170.46	330.48	302.13	28.35	11.656		
4,000.00	3,951.84	3,994.88	3,978.90	16.53	14.73	160.54	-226.45	-176.03	338.42	309.31	29.11	11.625		
4,100.00	4,050.41	4,094.57	4,078.07	16.97	15.12	160.44	-234.89	-181.60	346.35	316.48	29.87	11.596		
4,200.00	4,148.99	4,194.25	4,177.24	17.41	15.51	160.34	-243.32	-187.17	354.29	323.66	30.63	11.568		
4,300.00	4,247.56	4,293.93	4,276.41	17.85	15.90	160.24	-251.76	-192.74	362.22	330.84	31.39	11.541		
4,400.00	4,346.14	4,393.61	4,375.58	18.29	16.29	160.15	-260.19	-198.31	370.16	338.02	32.15	11.515		
4,500.00	4,444.71	4,493.30	4,474.74	18.73	16.67	160.06	-268.63	-203.88	378.10	345.19	32.90	11.491		
4,600.00	4,543.28	4,592.98	4,573.91	19.16	17.06	159.98	-277.07	-209.45	386.04	352.37	33.66	11.467		
4,700.00	4,641.86	4,692.66	4,673.08	19.60	17.45	159.90	-285.50	-215.01	393.98	359.56	34.42	11.445		
4,800.00	4,740.43	4,792.35	4,772.25	20.04	17.84	159.82	-293.94	-220.58	401.92	366.74	35.18	11.424		
4,900.00	4,839.01	4,892.03	4,871.42	20.48	18.23	159.75	-302.37	-226.15	409.86	373.92	35.94	11.403		
5,000.00	4,937.58	4,991.71	4,970.59	20.92	18.62	159.67	-310.81	-231.72	417.80	381.10	36.70	11.384		

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 3N-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 3N-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	5,036.15	5,091.39	5,069.76	21.36	19.01	159.61	-319.24	-237.29	425.75	388.28	37.46	11.365	
5,200.00	5,134.73	5,191.08	5,168.93	21.80	19.39	159.54	-327.68	-242.86	433.69	395.47	38.22	11.346	
5,300.00	5,233.30	5,290.76	5,268.10	22.24	19.78	159.47	-336.11	-248.43	441.63	402.65	38.98	11.329	
5,400.00	5,331.88	5,390.44	5,367.26	22.68	20.17	159.41	-344.55	-254.00	449.58	409.84	39.74	11.312	
5,500.00	5,430.45	5,490.12	5,466.43	23.12	20.56	159.35	-352.98	-259.57	457.52	417.02	40.50	11.296	
5,600.00	5,529.02	5,589.81	5,565.60	23.55	20.95	159.30	-361.42	-265.14	465.47	424.21	41.26	11.280	
5,700.00	5,627.60	5,689.49	5,664.77	23.99	21.34	159.24	-369.86	-270.71	473.42	431.39	42.02	11.265	
5,800.00	5,726.17	5,782.87	5,757.71	24.43	21.70	159.22	-377.42	-275.70	481.72	438.98	42.74	11.271	
5,900.00	5,824.75	5,870.74	5,845.37	24.87	22.03	159.38	-382.50	-279.05	492.16	448.78	43.38	11.346	
6,000.00	5,923.32	5,958.04	5,932.59	25.31	22.34	159.73	-385.32	-280.92	504.96	460.99	43.97	11.483	
6,100.00	6,021.89	6,047.34	6,021.89	25.75	22.64	160.26	-385.98	-281.36	520.09	475.54	44.55	11.675	
6,200.00	6,120.47	6,145.92	6,120.47	26.19	22.94	160.86	-385.98	-281.36	535.98	490.78	45.21	11.856	
6,300.00	6,219.04	6,244.49	6,219.04	26.63	23.25	161.44	-385.98	-281.36	551.93	506.06	45.87	12.032	
6,400.00	6,317.62	6,343.07	6,317.62	27.07	23.55	161.98	-385.98	-281.36	567.93	521.39	46.54	12.203	
6,500.00	6,416.19	6,441.64	6,416.19	27.51	23.86	162.49	-385.98	-281.36	583.98	536.77	47.21	12.370	
6,600.00	6,514.76	6,540.21	6,514.76	27.95	24.17	162.97	-385.98	-281.36	600.07	552.18	47.88	12.532	
6,700.00	6,613.34	6,638.79	6,613.34	28.39	24.48	163.43	-385.98	-281.36	616.20	567.64	48.56	12.689	
6,800.00	6,711.91	6,737.65	6,711.98	28.82	24.79	164.36	-385.93	-275.91	632.33	583.13	49.20	12.852	
6,900.00	6,810.49	6,832.24	6,804.81	29.26	25.06	166.33	-385.75	-258.11	648.95	599.24	49.70	13.057	
6,931.73	6,841.77	6,860.87	6,832.35	29.40	25.13	167.12	-385.67	-250.32	654.51	604.68	49.83	13.135	
6,950.00	6,859.78	6,877.07	6,847.79	29.48	25.17	176.39	-385.62	-245.43	657.79	607.89	49.90	13.183	
7,000.00	6,909.10	6,920.86	6,888.94	29.69	25.29	-157.90	-385.47	-230.47	667.02	616.95	50.07	13.323	
7,050.00	6,958.25	6,963.91	6,928.43	29.89	25.39	-136.97	-385.29	-213.34	676.52	626.31	50.21	13.474	
7,100.00	7,006.98	7,006.29	6,966.23	30.07	25.49	-122.31	-385.10	-194.19	686.21	635.88	50.33	13.634	
7,150.00	7,055.06	7,050.00	7,003.96	30.24	25.59	-112.10	-384.87	-172.14	696.01	645.55	50.46	13.794	
7,200.00	7,102.25	7,089.29	7,036.67	30.40	25.67	-104.79	-384.65	-150.38	705.81	655.29	50.52	13.971	
7,250.00	7,148.33	7,130.02	7,069.27	30.55	25.75	-99.20	-384.40	-125.97	715.54	664.95	50.59	14.143	
7,300.00	7,193.07	7,170.31	7,100.09	30.69	25.84	-94.76	-384.14	-100.04	725.13	674.46	50.67	14.312	
7,350.00	7,236.26	7,210.19	7,129.13	30.81	25.92	-91.14	-383.86	-72.70	734.49	683.75	50.74	14.475	
7,400.00	7,277.67	7,250.00	7,156.54	30.92	26.02	-88.10	-383.57	-43.85	743.56	692.73	50.84	14.626	
7,450.00	7,317.11	7,288.93	7,181.76	31.03	26.13	-85.52	-383.27	-14.20	752.27	701.31	50.96	14.762	
7,500.00	7,354.40	7,327.85	7,205.32	31.12	26.28	-83.30	-382.95	16.77	760.56	709.43	51.12	14.876	
7,550.00	7,389.33	7,366.52	7,227.04	31.21	26.48	-81.38	-382.63	48.76	768.37	717.02	51.35	14.965	
7,600.00	7,421.76	7,400.00	7,244.42	31.28	26.69	-79.76	-382.34	77.37	775.67	724.13	51.53	15.051	
7,650.00	7,451.51	7,443.20	7,264.84	31.35	27.04	-78.28	-381.95	115.44	782.35	730.34	52.01	15.042	
7,700.00	7,478.44	7,481.28	7,280.91	31.42	27.41	-77.03	-381.60	149.95	788.44	735.94	52.49	15.020	
7,750.00	7,502.43	7,519.20	7,295.06	31.48	27.82	-75.97	-381.24	185.12	793.87	740.79	53.08	14.956	
7,800.00	7,523.35	7,557.00	7,307.30	31.56	28.26	-75.08	-380.88	220.88	798.62	744.83	53.78	14.849	
7,850.00	7,541.11	7,600.00	7,318.91	31.66	28.83	-74.32	-380.46	262.27	802.67	747.95	54.72	14.669	
7,900.00	7,555.61	7,632.31	7,325.98	31.82	29.30	-73.75	-380.14	293.79	805.94	750.37	55.57	14.503	
7,950.00	7,566.79	7,669.85	7,332.40	32.11	29.87	-73.31	-379.76	330.77	808.48	751.83	56.65	14.271	
8,000.00	7,574.59	7,707.34	7,336.88	32.60	30.48	-73.00	-379.38	367.99	810.25	752.40	57.85	14.006	
8,050.00	7,578.97	7,750.00	7,339.59	33.25	31.21	-72.83	-378.95	410.56	811.26	751.99	59.27	13.688	
8,088.71	7,580.00	7,774.25	7,340.00	33.84	31.64	-72.80	-378.70	434.80	811.46	751.20	60.26	13.467	
8,093.45	7,580.00	7,778.39	7,340.00	33.91	31.72	-72.80	-378.66	438.94	811.46	751.05	60.41	13.434	
8,100.00	7,580.00	7,784.94	7,340.00	34.02	31.84	-72.80	-378.60	445.49	811.46	750.83	60.63	13.384	
8,200.00	7,580.00	7,884.94	7,340.00	35.78	33.77	-72.80	-377.58	545.49	811.45	747.17	64.28	12.623	
8,300.00	7,580.00	7,984.94	7,340.00	37.77	35.89	-72.80	-376.56	645.48	811.44	743.16	68.28	11.884	
8,400.00	7,580.00	8,084.94	7,340.00	39.92	38.15	-72.80	-375.55	745.48	811.43	738.85	72.58	11.180	
8,500.00	7,580.00	8,184.94	7,340.00	42.22	40.54	-72.80	-374.53	845.47	811.43	734.29	77.13	10.520	
8,600.00	7,580.00	8,284.94	7,340.00	44.63	43.04	-72.80	-373.51	945.46	811.42	729.53	81.89	9.909	
8,700.00	7,580.00	8,384.94	7,340.00	47.13	45.63	-72.80	-372.50	1,045.46	811.41	724.59	86.82	9.346	

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 3N-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 3N-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				Total		Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Uncertainty Axis	Separation Factor		
8,800.00	7,580.00	8,484.94	7,340.00	49.72	48.29	-72.80	-371.48	1,145.45	811.40	719.50	91.90	8.829		
8,900.00	7,580.00	8,584.94	7,340.00	52.37	51.01	-72.80	-370.47	1,245.45	811.39	714.29	97.11	8.356		
9,000.00	7,580.00	8,684.94	7,340.00	55.08	53.79	-72.80	-369.45	1,345.44	811.38	708.97	102.41	7.923		
9,100.00	7,580.00	8,784.94	7,340.00	57.84	56.61	-72.79	-368.43	1,445.44	811.38	703.57	107.81	7.526		
9,200.00	7,580.00	8,884.94	7,340.00	60.65	59.47	-72.79	-367.42	1,545.43	811.37	698.08	113.28	7.162		
9,300.00	7,580.00	8,984.94	7,340.00	63.49	62.37	-72.79	-366.40	1,645.43	811.36	692.54	118.82	6.828		
9,400.00	7,580.00	9,084.94	7,340.00	66.37	65.29	-72.79	-365.38	1,745.42	811.35	686.93	124.42	6.521		
9,500.00	7,580.00	9,184.94	7,340.00	69.28	68.24	-72.79	-364.37	1,845.42	811.34	681.28	130.06	6.238		
9,600.00	7,580.00	9,284.94	7,340.00	72.21	71.21	-72.79	-363.35	1,945.41	811.34	675.58	135.75	5.977		
9,700.00	7,580.00	9,384.94	7,340.00	75.16	74.20	-72.79	-362.34	2,045.41	811.33	669.85	141.48	5.735		
9,800.00	7,580.00	9,484.94	7,340.00	78.13	77.21	-72.79	-361.32	2,145.40	811.32	664.08	147.24	5.510		
9,900.00	7,580.00	9,584.94	7,340.00	81.12	80.23	-72.79	-360.30	2,245.40	811.31	658.28	153.03	5.302		
10,000.00	7,580.00	9,684.94	7,340.00	84.13	83.27	-72.79	-359.29	2,345.39	811.30	652.45	158.85	5.107		
10,100.00	7,580.00	9,784.94	7,340.00	87.15	86.32	-72.79	-358.27	2,445.39	811.29	646.60	164.69	4.926		
10,200.00	7,580.00	9,884.94	7,340.00	90.18	89.38	-72.79	-357.25	2,545.38	811.29	640.73	170.56	4.757		
10,300.00	7,580.00	9,984.94	7,340.00	93.23	92.45	-72.79	-356.24	2,645.38	811.28	634.84	176.44	4.598		
10,400.00	7,580.00	10,084.94	7,340.00	96.28	95.53	-72.79	-355.22	2,745.37	811.27	628.93	182.34	4.449		
10,500.00	7,580.00	10,184.94	7,340.00	99.35	98.62	-72.79	-354.21	2,845.37	811.26	623.01	188.25	4.309		
10,600.00	7,580.00	10,284.94	7,340.00	102.42	101.71	-72.79	-353.19	2,945.36	811.25	617.07	194.18	4.178		
10,700.00	7,580.00	10,384.94	7,340.00	105.50	104.81	-72.79	-352.17	3,045.36	811.25	611.12	200.13	4.054		
10,800.00	7,580.00	10,484.94	7,340.00	108.59	107.92	-72.79	-351.16	3,145.35	811.24	605.16	206.08	3.937		
10,900.00	7,580.00	10,584.94	7,340.00	111.69	111.03	-72.79	-350.14	3,245.35	811.23	599.18	212.05	3.826		
11,000.00	7,580.00	10,684.94	7,340.00	114.79	114.15	-72.79	-349.12	3,345.34	811.22	593.20	218.02	3.721		
11,100.00	7,580.00	10,784.94	7,340.00	117.90	117.28	-72.79	-348.11	3,445.34	811.21	587.21	224.01	3.621		
11,200.00	7,580.00	10,884.94	7,340.00	121.01	120.40	-72.79	-347.09	3,545.33	811.20	581.20	230.00	3.527		
11,300.00	7,580.00	10,984.94	7,340.00	124.12	123.53	-72.79	-346.08	3,645.33	811.20	575.20	236.00	3.437		
11,400.00	7,580.00	11,084.94	7,340.00	127.25	126.67	-72.79	-345.06	3,745.32	811.19	569.18	242.01	3.352		
11,500.00	7,580.00	11,184.94	7,340.00	130.37	129.81	-72.79	-344.04	3,845.32	811.18	563.16	248.02	3.271		
11,600.00	7,580.00	11,284.94	7,340.00	133.50	132.95	-72.79	-343.03	3,945.31	811.17	557.13	254.05	3.193		
11,700.00	7,580.00	11,384.94	7,340.00	136.63	136.10	-72.79	-342.01	4,045.30	811.16	551.09	260.07	3.119		
11,800.00	7,580.00	11,484.94	7,340.00	139.77	139.24	-72.79	-340.99	4,145.30	811.16	545.05	266.10	3.048		
11,900.00	7,580.00	11,584.94	7,340.00	142.91	142.39	-72.79	-339.98	4,245.29	811.15	539.00	272.14	2.981		
12,000.00	7,580.00	11,684.94	7,340.00	146.05	145.55	-72.79	-338.96	4,345.29	811.14	532.95	278.18	2.916		
12,100.00	7,580.00	11,784.94	7,340.00	149.20	148.70	-72.79	-337.95	4,445.28	811.13	526.90	284.23	2.854		
12,155.71	7,580.00	11,840.65	7,340.00	150.95	149.92	-72.79	-337.38	4,501.00	811.13	524.05	287.08	2.825 SF		

Cathedral Energy Services

Anticollision Report

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well SAM 3N-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 3N-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	0.04	29.87	0.02	29.87					
100.00	100.00	100.00	100.00	0.14	0.14	0.04	29.87	0.02	29.87	29.60	0.28	108.222		
200.00	200.00	200.00	200.00	0.50	0.50	0.04	29.87	0.02	29.87	28.88	0.99	30.083		
300.00	300.00	300.00	300.00	0.85	0.85	0.04	29.87	0.02	29.87	28.16	1.71	17.470 CC, ES		
400.00	399.98	399.98	399.98	1.20	1.21	166.04	29.87	0.02	31.56	29.15	2.41	13.084		
500.00	499.84	499.84	499.84	1.54	1.57	168.00	29.87	0.02	36.66	33.55	3.11	11.775		
600.00	599.45	599.45	599.45	1.90	1.93	170.26	29.87	0.02	45.22	41.40	3.82	11.827		
700.00	698.70	700.59	700.57	2.27	2.27	171.82	28.25	-0.68	55.61	51.08	4.54	12.258		
784.38	782.08	786.23	786.10	2.60	2.56	172.37	24.32	-2.38	64.45	59.30	5.15	12.516		
800.00	797.47	802.11	801.95	2.66	2.62	172.42	23.33	-2.81	66.05	60.78	5.27	12.543		
900.00	896.05	904.18	903.61	3.07	2.97	172.24	15.06	-6.38	74.31	68.30	6.01	12.374		
1,000.00	994.62	1,006.52	1,005.16	3.48	3.33	171.35	3.45	-11.40	79.17	72.41	6.76	11.718		
1,100.00	1,093.19	1,106.46	1,104.12	3.90	3.70	170.24	-9.34	-16.93	82.54	75.08	7.47	11.057		
1,200.00	1,191.77	1,206.39	1,203.07	4.33	4.08	169.22	-22.12	-22.46	85.95	77.76	8.19	10.500		
1,300.00	1,290.34	1,306.32	1,302.03	4.75	4.47	168.28	-34.90	-27.98	89.38	80.46	8.91	10.028		
1,400.00	1,388.92	1,406.25	1,400.99	5.18	4.86	167.41	-47.68	-33.51	92.83	83.18	9.65	9.623		
1,500.00	1,487.49	1,506.18	1,499.94	5.61	5.25	166.60	-60.46	-39.04	96.30	85.91	10.39	9.272		
1,600.00	1,586.06	1,606.11	1,598.90	6.04	5.65	165.85	-73.25	-44.56	99.78	88.65	11.13	8.966		
1,700.00	1,684.64	1,706.04	1,697.85	6.48	6.05	165.15	-86.03	-50.09	103.29	91.41	11.88	8.697		
1,800.00	1,783.21	1,805.97	1,796.81	6.91	6.45	164.49	-98.81	-55.62	106.81	94.18	12.63	8.459		
1,900.00	1,881.79	1,905.90	1,895.76	7.35	6.86	163.88	-111.59	-61.14	110.34	96.96	13.38	8.247		
2,000.00	1,980.36	2,005.83	1,994.72	7.78	7.26	163.30	-124.37	-66.67	113.88	99.74	14.14	8.056		
2,100.00	2,078.93	2,105.76	2,093.68	8.22	7.67	162.76	-137.16	-72.20	117.43	102.54	14.89	7.885		
2,200.00	2,177.51	2,205.70	2,192.63	8.65	8.08	162.25	-149.94	-77.73	121.00	105.34	15.65	7.729		
2,300.00	2,276.08	2,305.63	2,291.59	9.09	8.49	161.77	-162.72	-83.25	124.57	108.15	16.42	7.588		
2,400.00	2,374.66	2,405.56	2,390.54	9.53	8.90	161.32	-175.50	-88.78	128.15	110.97	17.18	7.459		
2,500.00	2,473.23	2,505.49	2,489.50	9.96	9.30	160.89	-188.29	-94.31	131.74	113.80	17.95	7.341		
2,600.00	2,571.80	2,605.42	2,588.46	10.40	9.72	160.49	-201.07	-99.83	135.34	116.62	18.71	7.232		
2,700.00	2,670.38	2,705.35	2,687.41	10.84	10.13	160.10	-213.85	-105.36	138.94	119.46	19.48	7.132		
2,800.00	2,768.95	2,805.28	2,786.37	11.27	10.54	159.74	-226.63	-110.89	142.55	122.30	20.25	7.039		
2,900.00	2,867.53	2,905.21	2,885.32	11.71	10.95	159.39	-239.41	-116.41	146.16	125.14	21.02	6.953		
3,000.00	2,966.10	3,005.14	2,984.28	12.15	11.36	159.06	-252.20	-121.94	149.78	127.99	21.79	6.873		
3,100.00	3,064.67	3,105.07	3,083.23	12.59	11.77	158.75	-264.98	-127.47	153.40	130.84	22.56	6.798		
3,200.00	3,163.25	3,205.00	3,182.19	13.03	12.19	158.45	-277.76	-132.99	157.03	133.69	23.34	6.729		
3,300.00	3,261.82	3,304.93	3,281.15	13.46	12.60	158.16	-290.54	-138.52	160.66	136.55	24.11	6.663		
3,400.00	3,360.40	3,404.87	3,380.10	13.90	13.01	157.89	-303.32	-144.05	164.30	139.41	24.89	6.602		
3,500.00	3,458.97	3,504.80	3,479.06	14.34	13.43	157.62	-316.11	-149.57	167.94	142.28	25.66	6.544		
3,600.00	3,557.54	3,604.73	3,578.01	14.78	13.84	157.37	-328.89	-155.10	171.58	145.14	26.44	6.490		
3,700.00	3,656.12	3,704.66	3,676.97	15.22	14.25	157.13	-341.67	-160.63	175.23	148.01	27.21	6.439		
3,800.00	3,754.69	3,804.59	3,775.92	15.66	14.67	156.90	-354.45	-166.15	178.87	150.88	27.99	6.390		
3,900.00	3,853.27	3,904.52	3,874.88	16.09	15.08	156.68	-367.24	-171.68	182.53	153.76	28.77	6.345		
4,000.00	3,951.84	4,004.45	3,973.84	16.53	15.49	156.47	-380.02	-177.21	186.18	156.63	29.55	6.301		
4,100.00	4,050.41	4,104.38	4,072.79	16.97	15.91	156.26	-392.80	-182.73	189.84	159.51	30.33	6.260		
4,200.00	4,148.99	4,204.31	4,171.75	17.41	16.32	156.07	-405.58	-188.26	193.50	162.39	31.10	6.221		
4,300.00	4,247.56	4,304.24	4,270.70	17.85	16.74	155.88	-418.36	-193.79	197.16	165.27	31.88	6.184		
4,400.00	4,346.14	4,404.17	4,369.66	18.29	17.15	155.69	-431.15	-199.31	200.82	168.16	32.66	6.148		
4,500.00	4,444.71	4,504.11	4,468.62	18.73	17.57	155.52	-443.93	-204.84	204.48	171.04	33.44	6.114		
4,600.00	4,543.28	4,604.04	4,567.57	19.16	17.98	155.35	-456.71	-210.37	208.15	173.93	34.22	6.082		
4,700.00	4,641.86	4,703.97	4,666.53	19.60	18.40	155.18	-469.49	-215.90	211.82	176.82	35.01	6.051		
4,800.00	4,740.43	4,803.90	4,765.48	20.04	18.81	155.03	-482.28	-221.42	215.49	179.70	35.79	6.022		
4,900.00	4,839.01	4,903.83	4,864.44	20.48	19.23	154.87	-495.06	-226.95	219.16	182.60	36.57	5.993		
5,000.00	4,937.58	5,003.76	4,963.39	20.92	19.64	154.73	-507.84	-232.48	222.84	185.49	37.35	5.966		

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 3N-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 3N-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
5,100.00	5,036.15	5,103.69	5,062.35	21.36	20.05	154.58	-520.62	-238.00	226.51	188.38	38.13	5.940	
5,200.00	5,134.73	5,203.62	5,161.31	21.80	20.47	154.44	-533.40	-243.53	230.19	191.27	38.91	5.915	
5,300.00	5,233.30	5,303.55	5,260.26	22.24	20.88	154.31	-546.19	-249.06	233.87	194.17	39.70	5.891	
5,400.00	5,331.88	5,403.48	5,359.22	22.68	21.30	154.18	-558.97	-254.58	237.54	197.07	40.48	5.868	
5,500.00	5,430.45	5,503.41	5,458.17	23.12	21.72	154.05	-571.75	-260.11	241.22	199.96	41.26	5.846	
5,600.00	5,529.02	5,603.34	5,557.13	23.55	22.13	153.93	-584.53	-265.64	244.91	202.86	42.04	5.825	
5,700.00	5,627.60	5,700.00	5,652.91	23.99	22.53	153.88	-596.46	-270.79	249.01	206.20	42.80	5.818	
5,800.00	5,726.17	5,792.58	5,744.97	24.43	22.89	154.18	-605.39	-274.65	255.52	212.05	43.47	5.878	
5,900.00	5,824.75	5,885.13	5,837.27	24.87	23.23	154.83	-611.58	-277.33	264.73	220.65	44.08	6.006	
6,000.00	5,923.32	5,977.03	5,929.09	25.31	23.55	155.77	-615.02	-278.82	276.67	232.05	44.61	6.202	
6,100.00	6,021.89	6,069.84	6,021.89	25.75	23.85	156.96	-615.83	-279.17	291.31	246.20	45.10	6.459	
6,200.00	6,120.47	6,168.42	6,120.47	26.19	24.13	158.18	-615.83	-279.17	306.90	261.20	45.70	6.715	
6,300.00	6,219.04	6,266.99	6,219.04	26.63	24.42	159.29	-615.83	-279.17	322.61	276.30	46.31	6.966	
6,400.00	6,317.62	6,365.56	6,317.62	27.07	24.71	160.30	-615.83	-279.17	338.43	291.50	46.93	7.211	
6,500.00	6,416.19	6,464.14	6,416.19	27.51	25.00	161.21	-615.83	-279.17	354.34	306.78	47.56	7.451	
6,600.00	6,514.76	6,562.71	6,514.76	27.95	25.29	162.05	-615.83	-279.17	370.33	322.14	48.20	7.684	
6,700.00	6,613.34	6,661.29	6,613.34	28.39	25.59	162.82	-615.83	-279.17	386.40	337.56	48.84	7.912	
6,800.00	6,711.91	6,760.01	6,712.06	28.82	25.88	163.56	-615.83	-278.94	402.52	353.03	49.49	8.134	
6,900.00	6,810.49	6,857.68	6,809.23	29.26	26.17	165.47	-615.73	-269.81	418.78	368.75	50.03	8.371	
6,931.73	6,841.77	6,887.71	6,838.75	29.40	26.25	166.39	-615.68	-264.35	424.11	373.96	50.16	8.456	
6,950.00	6,859.78	6,904.78	6,855.42	29.48	26.29	175.74	-615.64	-260.69	427.25	377.03	50.22	8.507	
7,000.00	6,909.10	6,950.00	6,899.13	29.69	26.41	-158.39	-615.52	-249.11	436.05	385.69	50.37	8.657	
7,050.00	6,958.25	6,996.62	6,943.33	29.89	26.53	-137.26	-615.37	-234.30	445.09	394.56	50.52	8.809	
7,100.00	7,006.98	7,041.63	6,984.99	30.07	26.63	-122.46	-615.20	-217.30	454.27	403.63	50.64	8.971	
7,150.00	7,055.06	7,086.10	7,025.03	30.24	26.73	-112.19	-615.00	-197.98	463.53	412.80	50.73	9.137	
7,200.00	7,102.25	7,130.07	7,063.37	30.40	26.82	-104.75	-614.78	-176.46	472.77	421.97	50.80	9.306	
7,250.00	7,148.33	7,173.59	7,099.94	30.55	26.90	-99.09	-614.54	-152.88	481.92	431.07	50.86	9.476	
7,300.00	7,193.07	7,216.69	7,134.69	30.69	26.97	-94.61	-614.29	-127.39	490.92	440.01	50.90	9.644	
7,350.00	7,236.26	7,259.43	7,167.57	30.81	27.04	-90.95	-614.01	-100.09	499.68	448.73	50.95	9.808	
7,400.00	7,277.67	7,300.00	7,197.22	30.92	27.11	-87.92	-613.73	-72.41	508.16	457.20	50.96	9.971	
7,450.00	7,317.11	7,343.93	7,227.50	31.03	27.17	-85.30	-613.40	-40.59	516.28	465.19	51.09	10.105	
7,500.00	7,354.40	7,385.76	7,254.46	31.12	27.22	-83.08	-613.08	-8.63	524.00	472.78	51.22	10.231	
7,550.00	7,389.33	7,427.34	7,279.38	31.21	27.28	-81.16	-612.74	24.66	531.26	479.86	51.40	10.336	
7,600.00	7,421.76	7,468.71	7,302.21	31.28	27.35	-79.51	-612.39	59.15	538.02	486.37	51.65	10.416	
7,650.00	7,451.51	7,509.89	7,322.92	31.35	27.46	-78.08	-612.03	94.73	544.24	492.25	51.99	10.468	
7,700.00	7,478.44	7,550.00	7,341.09	31.42	27.65	-76.86	-611.66	130.48	549.89	497.48	52.41	10.493	
7,750.00	7,502.43	7,591.77	7,357.86	31.48	27.98	-75.80	-611.28	168.73	554.92	501.92	53.00	10.471	
7,800.00	7,523.35	7,632.52	7,372.04	31.56	28.42	-74.92	-610.89	206.93	559.31	505.62	53.69	10.418	
7,850.00	7,541.11	7,673.17	7,384.00	31.66	28.91	-74.20	-610.49	245.76	563.04	508.53	54.51	10.330	
7,900.00	7,555.61	7,713.73	7,393.71	31.82	29.46	-73.62	-610.09	285.14	566.08	510.62	55.46	10.207	
7,950.00	7,566.79	7,750.00	7,400.50	32.11	29.99	-73.19	-609.73	320.76	568.45	512.01	56.44	10.072	
8,000.00	7,574.59	7,794.68	7,406.38	32.60	30.70	-72.89	-609.28	365.04	570.06	512.30	57.77	9.869	
8,050.00	7,578.97	7,835.10	7,409.30	33.25	31.38	-72.72	-608.87	405.35	570.98	511.87	59.11	9.660	
8,088.71	7,580.00	7,866.75	7,410.00	33.84	31.93	-72.68	-608.55	436.99	571.18	510.96	60.22	9.485	
8,093.32	7,580.00	7,870.91	7,410.00	33.91	32.01	-72.68	-608.51	441.15	571.18	510.81	60.37	9.461	
8,100.00	7,580.00	7,877.59	7,410.00	34.02	32.13	-72.68	-608.44	447.83	571.18	510.59	60.60	9.426	
8,200.00	7,580.00	7,977.59	7,410.00	35.78	34.06	-72.68	-607.42	547.82	571.18	506.94	64.23	8.892	
8,300.00	7,580.00	8,077.59	7,410.00	37.77	36.15	-72.68	-606.41	647.82	571.17	502.95	68.22	8.373	
8,400.00	7,580.00	8,177.59	7,410.00	39.92	38.40	-72.68	-605.39	747.81	571.16	498.66	72.50	7.878	
8,500.00	7,580.00	8,277.59	7,410.00	42.22	40.77	-72.68	-604.37	847.81	571.15	494.12	77.04	7.414	
8,600.00	7,580.00	8,377.59	7,410.00	44.63	43.25	-72.68	-603.36	947.80	571.14	489.36	81.78	6.984	
8,700.00	7,580.00	8,477.59	7,410.00	47.13	45.83	-72.68	-602.34	1,047.80	571.13	484.43	86.70	6.587	

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 3N-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 3N-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	8,577.59	7,410.00	49.72	48.47	-72.68	-601.33	1,147.79	571.13	479.35	91.77	6.223		
8,900.00	7,580.00	8,677.59	7,410.00	52.37	51.19	-72.68	-600.31	1,247.79	571.12	474.15	96.97	5.890		
9,000.00	7,580.00	8,777.59	7,410.00	55.08	53.95	-72.68	-599.29	1,347.78	571.11	468.85	102.26	5.585		
9,100.00	7,580.00	8,877.59	7,410.00	57.84	56.76	-72.68	-598.28	1,447.78	571.10	463.45	107.65	5.305		
9,200.00	7,580.00	8,977.59	7,410.00	60.65	59.61	-72.68	-597.26	1,547.77	571.09	457.98	113.12	5.049		
9,300.00	7,580.00	9,077.59	7,410.00	63.49	62.50	-72.68	-596.24	1,647.76	571.09	452.44	118.65	4.813		
9,400.00	7,580.00	9,177.59	7,410.00	66.37	65.42	-72.68	-595.23	1,747.76	571.08	446.84	124.24	4.597		
9,500.00	7,580.00	9,277.59	7,410.00	69.28	68.36	-72.68	-594.21	1,847.75	571.07	441.19	129.88	4.397		
9,600.00	7,580.00	9,377.59	7,410.00	72.21	71.32	-72.68	-593.20	1,947.75	571.06	435.50	135.56	4.213		
9,700.00	7,580.00	9,477.59	7,410.00	75.16	74.31	-72.68	-592.18	2,047.74	571.05	429.77	141.28	4.042		
9,800.00	7,580.00	9,577.59	7,410.00	78.13	77.31	-72.68	-591.16	2,147.74	571.04	424.01	147.04	3.884		
9,900.00	7,580.00	9,677.59	7,410.00	81.12	80.33	-72.68	-590.15	2,247.73	571.04	418.21	152.82	3.737		
10,000.00	7,580.00	9,777.59	7,410.00	84.13	83.36	-72.68	-589.13	2,347.73	571.03	412.39	158.63	3.600		
10,100.00	7,580.00	9,877.59	7,410.00	87.15	86.40	-72.68	-588.11	2,447.72	571.02	406.55	164.47	3.472		
10,200.00	7,580.00	9,977.59	7,410.00	90.18	89.46	-72.68	-587.10	2,547.72	571.01	400.68	170.33	3.352		
10,300.00	7,580.00	10,077.59	7,410.00	93.23	92.52	-72.68	-586.08	2,647.71	571.00	394.80	176.21	3.241		
10,400.00	7,580.00	10,177.59	7,410.00	96.28	95.60	-72.68	-585.07	2,747.71	571.00	388.90	182.10	3.136		
10,500.00	7,580.00	10,277.59	7,410.00	99.35	98.68	-72.68	-584.05	2,847.70	570.99	382.98	188.01	3.037		
10,600.00	7,580.00	10,377.59	7,410.00	102.42	101.77	-72.68	-583.03	2,947.70	570.98	377.04	193.94	2.944		
10,700.00	7,580.00	10,477.59	7,410.00	105.50	104.87	-72.68	-582.02	3,047.69	570.97	371.10	199.87	2.857		
10,800.00	7,580.00	10,577.59	7,410.00	108.59	107.98	-72.68	-581.00	3,147.69	570.96	365.14	205.82	2.774		
10,900.00	7,580.00	10,677.59	7,410.00	111.69	111.09	-72.68	-579.98	3,247.68	570.95	359.17	211.78	2.696		
11,000.00	7,580.00	10,777.59	7,410.00	114.79	114.20	-72.68	-578.97	3,347.68	570.95	353.19	217.75	2.622		
11,100.00	7,580.00	10,877.59	7,410.00	117.90	117.32	-72.68	-577.95	3,447.67	570.94	347.20	223.74	2.552		
11,200.00	7,580.00	10,977.59	7,410.00	121.01	120.45	-72.68	-576.94	3,547.67	570.93	341.21	229.72	2.485		
11,300.00	7,580.00	11,077.59	7,410.00	124.12	123.58	-72.68	-575.92	3,647.66	570.92	335.20	235.72	2.422		
11,400.00	7,580.00	11,177.59	7,410.00	127.25	126.71	-72.68	-574.90	3,747.66	570.91	329.19	241.72	2.362		
11,500.00	7,580.00	11,277.59	7,410.00	130.37	129.85	-72.68	-573.89	3,847.65	570.91	323.17	247.74	2.304		
11,600.00	7,580.00	11,377.59	7,410.00	133.50	132.98	-72.68	-572.87	3,947.65	570.90	317.14	253.75	2.250		
11,700.00	7,580.00	11,477.59	7,410.00	136.63	136.13	-72.68	-571.85	4,047.64	570.89	311.11	259.78	2.198		
11,800.00	7,580.00	11,577.59	7,410.00	139.77	139.27	-72.68	-570.84	4,147.64	570.88	305.08	265.80	2.148		
11,900.00	7,580.00	11,677.59	7,410.00	142.91	142.42	-72.68	-569.82	4,247.63	570.87	299.04	271.84	2.100		
12,000.00	7,580.00	11,777.59	7,410.00	146.05	145.57	-72.67	-568.81	4,347.63	570.86	292.99	277.87	2.054		
12,100.00	7,580.00	11,877.59	7,410.00	149.20	148.73	-72.67	-567.79	4,447.62	570.86	286.94	283.92	2.011		
12,155.71	7,580.00	11,933.30	7,410.00	150.95	150.04	-72.67	-567.22	4,503.33	570.85	283.99	286.86	1.990 SF		

Cathedral Energy Services

Anticollision Report

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well SAM 3N-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 3N-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							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	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	72.554	
200.00	200.00	200.00	200.00	0.50	0.50	-0.50	20.03	-0.17	20.03	19.03	0.99	20.169	
300.00	300.00	300.00	300.00	0.85	0.85	-0.50	20.03	-0.17	20.03	18.32	1.71	11.712 CC, ES	
400.00	399.98	399.98	399.98	1.20	1.21	165.92	20.03	-0.17	21.71	19.30	2.41	9.002	
500.00	499.84	499.84	499.84	1.54	1.57	168.62	20.03	-0.17	26.82	23.71	3.11	8.614	
600.00	599.45	600.63	600.61	1.90	1.92	170.77	18.35	-0.73	33.70	29.88	3.82	8.816	
700.00	698.70	701.67	701.50	2.27	2.26	171.88	13.29	-2.41	40.62	36.07	4.55	8.927	
784.38	782.08	787.12	786.64	2.60	2.55	172.35	6.38	-4.70	46.46	41.28	5.18	8.967	
800.00	797.47	802.96	802.39	2.66	2.61	172.40	4.84	-5.21	47.50	42.20	5.30	8.962	
900.00	896.05	904.59	903.24	3.07	2.97	172.23	-7.05	-9.15	52.14	46.08	6.06	8.608	
1,000.00	994.62	1,005.57	1,003.01	3.48	3.35	171.41	-21.87	-14.07	53.67	46.88	6.79	7.899	
1,100.00	1,093.19	1,105.56	1,101.72	3.90	3.75	170.52	-37.04	-19.10	54.69	47.19	7.51	7.287	
1,200.00	1,191.77	1,205.55	1,200.42	4.33	4.15	169.66	-52.22	-24.13	55.73	47.50	8.23	6.774	
1,300.00	1,290.34	1,305.55	1,299.13	4.75	4.55	168.84	-67.40	-29.17	56.78	47.82	8.96	6.339	
1,400.00	1,388.92	1,405.54	1,397.83	5.18	4.96	168.05	-82.57	-34.20	57.84	48.15	9.69	5.967	
1,500.00	1,487.49	1,505.53	1,496.53	5.61	5.38	167.28	-97.75	-39.23	58.91	48.48	10.43	5.646	
1,600.00	1,586.06	1,605.52	1,595.24	6.04	5.79	166.54	-112.92	-44.27	59.99	48.81	11.18	5.366	
1,700.00	1,684.64	1,705.51	1,693.94	6.48	6.21	165.83	-128.10	-49.30	61.08	49.15	11.93	5.120	
1,800.00	1,783.21	1,805.50	1,792.65	6.91	6.63	165.14	-143.28	-54.33	62.18	49.50	12.68	4.903	
1,900.00	1,881.79	1,905.49	1,891.35	7.35	7.05	164.48	-158.45	-59.37	63.29	49.85	13.44	4.709	
2,000.00	1,980.36	2,005.48	1,990.06	7.78	7.48	163.84	-173.63	-64.40	64.41	50.21	14.20	4.536	
2,100.00	2,078.93	2,105.48	2,088.76	8.22	7.90	163.22	-188.80	-69.43	65.53	50.57	14.96	4.380	
2,200.00	2,177.51	2,205.47	2,187.47	8.65	8.33	162.62	-203.98	-74.47	66.66	50.94	15.73	4.239	
2,300.00	2,276.08	2,305.46	2,286.17	9.09	8.75	162.05	-219.16	-79.50	67.80	51.31	16.49	4.111	
2,400.00	2,374.66	2,405.45	2,384.88	9.53	9.18	161.49	-234.33	-84.53	68.95	51.68	17.26	3.994	
2,500.00	2,473.23	2,505.44	2,483.58	9.96	9.60	160.95	-249.51	-89.57	70.10	52.06	18.03	3.887	
2,600.00	2,571.80	2,605.43	2,582.29	10.40	10.03	160.43	-264.68	-94.60	71.25	52.45	18.81	3.788	
2,700.00	2,670.38	2,705.42	2,680.99	10.84	10.46	159.92	-279.86	-99.63	72.42	52.83	19.58	3.698	
2,800.00	2,768.95	2,805.41	2,779.70	11.27	10.89	159.43	-295.03	-104.67	73.59	53.23	20.36	3.614	
2,900.00	2,867.53	2,905.41	2,878.40	11.71	11.32	158.96	-310.21	-109.70	74.76	53.62	21.14	3.536	
3,000.00	2,966.10	3,005.40	2,977.10	12.15	11.75	158.50	-325.39	-114.73	75.94	54.02	21.92	3.464	
3,100.00	3,064.67	3,105.39	3,075.81	12.59	12.17	158.05	-340.56	-119.77	77.12	54.42	22.70	3.397	
3,200.00	3,163.25	3,205.38	3,174.51	13.03	12.60	157.62	-355.74	-124.80	78.31	54.83	23.49	3.334	
3,300.00	3,261.82	3,305.37	3,273.22	13.46	13.03	157.20	-370.91	-129.83	79.50	55.23	24.27	3.276	
3,400.00	3,360.40	3,405.36	3,371.92	13.90	13.46	156.79	-386.09	-134.87	80.70	55.64	25.06	3.221	
3,500.00	3,458.97	3,505.35	3,470.63	14.34	13.89	156.40	-401.27	-139.90	81.90	56.06	25.85	3.169	
3,600.00	3,557.54	3,605.34	3,569.33	14.78	14.32	156.02	-416.44	-144.93	83.11	56.47	26.63	3.120	
3,700.00	3,656.12	3,705.34	3,668.04	15.22	14.75	155.64	-431.62	-149.97	84.31	56.89	27.42	3.075	
3,800.00	3,754.69	3,805.33	3,766.74	15.66	15.18	155.28	-446.79	-155.00	85.53	57.31	28.21	3.031	
3,900.00	3,853.27	3,905.32	3,865.45	16.09	15.61	154.93	-461.97	-160.03	86.74	57.73	29.01	2.990	
4,000.00	3,951.84	4,005.31	3,964.15	16.53	16.05	154.59	-477.14	-165.07	87.96	58.16	29.80	2.952	
4,100.00	4,050.41	4,105.30	4,062.86	16.97	16.48	154.26	-492.32	-170.10	89.18	58.59	30.59	2.915	
4,200.00	4,148.99	4,205.29	4,161.56	17.41	16.91	153.93	-507.50	-175.13	90.40	59.01	31.39	2.880	
4,300.00	4,247.56	4,305.28	4,260.26	17.85	17.34	153.62	-522.67	-180.17	91.63	59.45	32.18	2.847	
4,400.00	4,346.14	4,405.27	4,358.97	18.29	17.77	153.31	-537.85	-185.20	92.86	59.88	32.98	2.816	
4,500.00	4,444.71	4,505.27	4,457.67	18.73	18.20	153.01	-553.02	-190.23	94.09	60.31	33.78	2.786	
4,600.00	4,543.28	4,605.26	4,556.38	19.16	18.63	152.72	-568.20	-195.27	95.33	60.75	34.58	2.757	
4,700.00	4,641.86	4,705.25	4,655.08	19.60	19.06	152.44	-583.38	-200.30	96.56	61.19	35.38	2.730	
4,800.00	4,740.43	4,805.24	4,753.79	20.04	19.49	152.16	-598.55	-205.33	97.80	61.63	36.17	2.704	
4,900.00	4,839.01	4,905.23	4,852.49	20.48	19.92	151.89	-613.73	-210.37	99.04	62.07	36.98	2.679	
5,000.00	4,937.58	5,005.22	4,951.20	20.92	20.36	151.63	-628.90	-215.40	100.29	62.51	37.78	2.655	

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 3N-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 3N-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							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	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	5,036.15	5,105.21	5,049.90	21.36	20.79	151.37	-644.08	-220.43	101.53	62.95	38.58	2.632	
5,200.00	5,134.73	5,205.20	5,148.61	21.80	21.22	151.12	-659.26	-225.47	102.78	63.40	39.38	2.610	
5,300.00	5,233.30	5,305.19	5,247.31	22.24	21.65	150.88	-674.43	-230.50	104.03	63.85	40.18	2.589	
5,400.00	5,331.88	5,405.19	5,346.02	22.68	22.08	150.64	-689.61	-235.53	105.28	64.29	40.99	2.569	
5,500.00	5,430.45	5,505.18	5,444.72	23.12	22.51	150.41	-704.78	-240.57	106.53	64.74	41.79	2.549	
5,600.00	5,529.02	5,605.17	5,543.42	23.55	22.95	150.18	-719.96	-245.60	107.79	65.19	42.60	2.531	
5,700.00	5,627.60	5,705.16	5,642.13	23.99	23.38	149.96	-735.13	-250.63	109.04	65.64	43.40	2.513	
5,800.00	5,726.17	5,805.15	5,740.83	24.43	23.81	149.74	-750.31	-255.67	110.30	66.10	44.21	2.495	
5,900.00	5,824.75	5,905.14	5,839.54	24.87	24.24	149.53	-765.49	-260.70	111.56	66.55	45.01	2.478	
6,000.00	5,923.32	6,005.13	5,938.24	25.31	24.67	149.32	-780.66	-265.73	112.82	67.00	45.82	2.462	
6,100.00	6,021.89	6,102.03	6,034.12	25.75	25.08	149.55	-793.95	-270.14	115.38	68.82	46.56	2.478	
6,200.00	6,120.47	6,200.00	6,131.48	26.19	25.47	150.65	-804.24	-273.55	120.77	73.58	47.19	2.559	
6,300.00	6,219.04	6,294.57	6,225.77	26.63	25.81	152.37	-811.18	-275.85	129.04	81.39	47.65	2.708	
6,400.00	6,317.62	6,389.91	6,321.01	27.07	26.14	154.55	-815.18	-277.18	140.33	92.29	48.04	2.921	
6,500.00	6,416.19	6,485.10	6,416.19	27.51	26.43	156.93	-816.21	-277.52	154.70	106.33	48.37	3.198	
6,600.00	6,514.76	6,583.68	6,514.76	27.95	26.70	159.15	-816.21	-277.52	170.34	121.48	48.86	3.486	
6,700.00	6,613.34	6,682.25	6,613.34	28.39	26.98	160.99	-816.21	-277.52	186.18	136.79	49.39	3.769	
6,800.00	6,711.91	6,781.18	6,712.04	28.82	27.25	164.11	-816.16	-272.07	202.09	152.24	49.85	4.054	
6,900.00	6,810.49	6,875.83	6,804.93	29.26	27.50	169.99	-815.98	-254.24	219.41	169.46	49.95	4.392	
6,931.73	6,841.77	6,904.47	6,832.49	29.40	27.57	172.21	-815.90	-246.45	225.72	175.79	49.92	4.521	
6,950.00	6,859.78	6,920.68	6,847.94	29.48	27.60	-177.66	-815.85	-241.55	229.56	179.67	49.89	4.601	
7,000.00	6,909.10	6,964.50	6,889.11	29.69	27.70	-149.82	-815.69	-226.57	240.67	190.88	49.79	4.834	
7,050.00	6,958.25	7,007.57	6,928.62	29.89	27.79	-127.07	-815.52	-209.42	252.42	202.79	49.64	5.086	
7,100.00	7,006.98	7,050.00	6,966.45	30.07	27.88	-110.87	-815.32	-190.24	264.60	215.17	49.42	5.354	
7,150.00	7,055.06	7,091.77	7,002.52	30.24	27.95	-99.43	-815.10	-169.20	277.00	227.85	49.15	5.636	
7,200.00	7,102.25	7,133.01	7,036.88	30.40	28.02	-91.02	-814.87	-146.40	289.45	240.64	48.81	5.930	
7,250.00	7,148.33	7,173.75	7,069.48	30.55	28.09	-84.57	-814.62	-121.97	301.81	253.39	48.41	6.234	
7,300.00	7,193.07	7,214.05	7,100.31	30.69	28.14	-79.44	-814.35	-96.02	313.95	265.97	47.98	6.544	
7,350.00	7,236.26	7,250.00	7,126.53	30.81	28.19	-75.36	-814.10	-71.44	325.78	278.52	47.25	6.894	
7,400.00	7,277.67	7,293.49	7,156.56	30.92	28.24	-71.78	-813.78	-39.99	337.13	290.09	47.03	7.168	
7,450.00	7,317.11	7,332.71	7,181.96	31.03	28.28	-68.86	-813.47	-10.11	347.99	301.43	46.56	7.473	
7,500.00	7,354.40	7,371.64	7,205.52	31.12	28.32	-66.37	-813.16	20.87	358.27	312.15	46.12	7.768	
7,550.00	7,389.33	7,410.32	7,227.22	31.21	28.35	-64.25	-812.83	52.88	367.91	322.18	45.73	8.045	
7,600.00	7,421.76	7,450.00	7,247.66	31.28	28.38	-62.42	-812.48	86.88	376.85	331.37	45.48	8.285	
7,650.00	7,451.51	7,487.02	7,265.00	31.35	28.40	-60.88	-812.14	119.59	385.04	339.85	45.19	8.520	
7,700.00	7,478.44	7,525.10	7,281.05	31.42	28.42	-59.56	-811.79	154.11	392.45	347.36	45.09	8.703	
7,750.00	7,502.43	7,563.03	7,295.19	31.48	28.47	-58.44	-811.43	189.30	399.04	353.92	45.12	8.845	
7,800.00	7,523.35	7,600.00	7,307.16	31.56	28.69	-57.52	-811.07	224.27	404.77	359.53	45.25	8.946	
7,850.00	7,541.11	7,638.53	7,317.70	31.66	29.15	-56.75	-810.69	261.33	409.63	364.00	45.63	8.977	
7,900.00	7,555.61	7,676.15	7,326.05	31.82	29.68	-56.15	-810.32	297.99	413.59	367.45	46.14	8.964	
7,950.00	7,566.79	7,713.69	7,332.46	32.11	30.24	-55.70	-809.94	334.98	416.64	369.83	46.82	8.900	
8,000.00	7,574.59	7,750.00	7,336.80	32.60	30.82	-55.39	-809.57	371.03	418.77	371.15	47.62	8.793	
8,050.00	7,578.97	7,788.65	7,339.41	33.25	31.47	-55.21	-809.17	409.58	419.96	371.29	48.68	8.628	
8,088.71	7,580.00	7,817.72	7,340.00	33.84	31.98	-55.17	-808.87	438.64	420.24	370.68	49.56	8.479	
8,092.52	7,580.00	7,821.44	7,340.00	33.90	32.05	-55.17	-808.84	442.36	420.24	370.56	49.68	8.459	
8,100.00	7,580.00	7,828.91	7,340.00	34.02	32.19	-55.17	-808.76	449.83	420.24	370.33	49.91	8.420	
8,200.00	7,580.00	7,928.91	7,340.00	35.78	34.11	-55.17	-807.74	549.83	420.24	367.11	53.13	7.909	
8,300.00	7,580.00	8,028.91	7,340.00	37.77	36.20	-55.17	-806.71	649.82	420.24	363.58	56.67	7.416	
8,400.00	7,580.00	8,128.91	7,340.00	39.92	38.45	-55.17	-805.69	749.82	420.24	359.78	60.47	6.950	
8,500.00	7,580.00	8,228.91	7,340.00	42.22	40.82	-55.17	-804.66	849.81	420.24	355.76	64.49	6.517	
8,600.00	7,580.00	8,328.91	7,340.00	44.63	43.29	-55.17	-803.64	949.81	420.24	351.56	68.69	6.118	
8,700.00	7,580.00	8,428.91	7,340.00	47.13	45.86	-55.17	-802.61	1,049.80	420.24	347.20	73.04	5.754	

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 3N-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 3N-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	8,528.91	7,340.00	49.72	48.50	-55.17	-801.59	1,149.80	420.24	342.73		77.51	5.422
8,900.00	7,580.00	8,628.91	7,340.00	52.37	51.21	-55.17	-800.56	1,249.79	420.24	338.15		82.09	5.119
9,000.00	7,580.00	8,728.91	7,340.00	55.08	53.97	-55.17	-799.54	1,349.79	420.24	333.48		86.76	4.844
9,100.00	7,580.00	8,828.91	7,340.00	57.84	56.78	-55.17	-798.51	1,449.78	420.24	328.74		91.50	4.593
9,200.00	7,580.00	8,928.91	7,340.00	60.65	59.63	-55.17	-797.49	1,549.78	420.24	323.94		96.31	4.364
9,300.00	7,580.00	9,028.91	7,340.00	63.49	62.51	-55.17	-796.46	1,649.77	420.24	319.08		101.17	4.154
9,400.00	7,580.00	9,128.91	7,340.00	66.37	65.43	-55.17	-795.44	1,749.76	420.24	314.17		106.07	3.962
9,500.00	7,580.00	9,228.91	7,340.00	69.28	68.36	-55.17	-794.41	1,849.76	420.24	309.22		111.02	3.785
9,600.00	7,580.00	9,328.91	7,340.00	72.21	71.33	-55.17	-793.39	1,949.75	420.24	304.24		116.00	3.623
9,700.00	7,580.00	9,428.91	7,340.00	75.16	74.31	-55.17	-792.36	2,049.75	420.24	299.23		121.01	3.473
9,800.00	7,580.00	9,528.91	7,340.00	78.13	77.31	-55.17	-791.34	2,149.74	420.24	294.19		126.05	3.334
9,900.00	7,580.00	9,628.91	7,340.00	81.12	80.32	-55.17	-790.31	2,249.74	420.24	289.12		131.12	3.205
10,000.00	7,580.00	9,728.91	7,340.00	84.13	83.35	-55.17	-789.29	2,349.73	420.24	284.04		136.20	3.085
10,100.00	7,580.00	9,828.91	7,340.00	87.15	86.40	-55.17	-788.26	2,449.73	420.24	278.93		141.31	2.974
10,200.00	7,580.00	9,928.91	7,340.00	90.18	89.45	-55.17	-787.24	2,549.72	420.24	273.81		146.43	2.870
10,300.00	7,580.00	10,028.91	7,340.00	93.23	92.51	-55.17	-786.22	2,649.72	420.24	268.67		151.57	2.773
10,400.00	7,580.00	10,128.91	7,340.00	96.28	95.59	-55.17	-785.19	2,749.71	420.24	263.52		156.72	2.681
10,500.00	7,580.00	10,228.91	7,340.00	99.35	98.67	-55.17	-784.17	2,849.71	420.24	258.36		161.88	2.596
10,600.00	7,580.00	10,328.91	7,340.00	102.42	101.76	-55.17	-783.14	2,949.70	420.24	253.18		167.06	2.516
10,700.00	7,580.00	10,428.91	7,340.00	105.50	104.86	-55.17	-782.12	3,049.70	420.24	248.00		172.24	2.440
10,800.00	7,580.00	10,528.91	7,340.00	108.59	107.96	-55.17	-781.09	3,149.69	420.24	242.80		177.44	2.368
10,900.00	7,580.00	10,628.91	7,340.00	111.69	111.07	-55.17	-780.07	3,249.69	420.24	237.60		182.64	2.301
11,000.00	7,580.00	10,728.91	7,340.00	114.79	114.18	-55.17	-779.04	3,349.68	420.24	232.39		187.85	2.237
11,100.00	7,580.00	10,828.91	7,340.00	117.90	117.30	-55.17	-778.02	3,449.68	420.24	227.17		193.07	2.177
11,200.00	7,580.00	10,928.91	7,340.00	121.01	120.43	-55.17	-776.99	3,549.67	420.24	221.94		198.30	2.119
11,300.00	7,580.00	11,028.91	7,340.00	124.12	123.55	-55.17	-775.97	3,649.67	420.24	216.71		203.53	2.065
11,400.00	7,580.00	11,128.91	7,340.00	127.25	126.69	-55.17	-774.94	3,749.66	420.24	211.47		208.77	2.013
11,500.00	7,580.00	11,228.91	7,340.00	130.37	129.82	-55.17	-773.92	3,849.65	420.24	206.23		214.01	1.964
11,600.00	7,580.00	11,328.91	7,340.00	133.50	132.96	-55.17	-772.89	3,949.65	420.24	200.98		219.26	1.917
11,700.00	7,580.00	11,428.91	7,340.00	136.63	136.10	-55.17	-771.87	4,049.64	420.24	195.73		224.51	1.872
11,800.00	7,580.00	11,528.91	7,340.00	139.77	139.25	-55.17	-770.84	4,149.64	420.24	190.47		229.77	1.829
11,900.00	7,580.00	11,628.91	7,340.00	142.91	142.40	-55.17	-769.82	4,249.63	420.24	185.21		235.03	1.788
12,000.00	7,580.00	11,728.91	7,340.00	146.05	145.55	-55.17	-768.79	4,349.63	420.24	179.94		240.29	1.749
12,100.00	7,580.00	11,828.91	7,340.00	149.20	148.70	-55.17	-767.77	4,449.62	420.24	174.68		245.56	1.711
12,155.71	7,580.00	11,884.63	7,340.00	150.95	150.46	-55.17	-767.20	4,505.33	420.24	171.74		248.50	1.691 SF

Cathedral Energy Services

Anticollision Report

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well SAM 3N-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 3N-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	-0.50	9.84	-0.08	9.84					
100.00	100.00	100.00	100.00	0.14	0.14	-0.50	9.84	-0.08	9.84	9.56	0.28	35.633		
200.00	200.00	200.00	200.00	0.50	0.50	-0.50	9.84	-0.08	9.84	8.84	0.99	9.905		
300.00	300.00	300.00	300.00	0.85	0.85	-0.50	9.84	-0.08	9.84	8.13	1.71	5.752 CC, ES		
400.00	399.98	399.98	399.98	1.20	1.21	166.99	9.84	-0.08	11.53	9.12	2.41	4.779		
500.00	499.84	500.37	500.35	1.54	1.56	169.85	8.15	-0.57	14.95	11.83	3.12	4.797		
600.00	599.45	600.89	600.72	1.90	1.90	171.40	3.07	-2.03	18.39	14.55	3.85	4.782		
700.00	698.70	701.52	700.97	2.27	2.25	172.25	-5.40	-4.47	21.84	17.24	4.60	4.749		
784.38	782.08	786.54	785.37	2.60	2.56	172.63	-15.19	-7.29	24.73	19.49	5.24	4.717		
800.00	797.47	802.28	800.96	2.66	2.62	172.67	-17.26	-7.89	25.23	19.86	5.36	4.703		
900.00	896.05	902.85	900.31	3.07	3.00	172.30	-32.25	-12.20	26.59	20.49	6.11	4.355		
1,000.00	994.62	1,002.85	998.98	3.48	3.40	171.72	-47.85	-16.70	27.25	20.43	6.81	4.000		
1,100.00	1,093.19	1,102.85	1,097.65	3.90	3.81	171.17	-63.45	-21.19	27.90	20.37	7.53	3.706		
1,200.00	1,191.77	1,202.84	1,196.32	4.33	4.22	170.65	-79.05	-25.68	28.56	20.31	8.25	3.460		
1,300.00	1,290.34	1,302.84	1,295.00	4.75	4.64	170.15	-94.65	-30.17	29.22	20.23	8.98	3.252		
1,400.00	1,388.92	1,402.84	1,393.67	5.18	5.05	169.67	-110.24	-34.66	29.88	20.16	9.72	3.074		
1,500.00	1,487.49	1,502.84	1,492.34	5.61	5.48	169.21	-125.84	-39.15	30.54	20.08	10.46	2.920		
1,600.00	1,586.06	1,602.83	1,591.01	6.04	5.90	168.77	-141.44	-43.64	31.21	20.00	11.20	2.786		
1,700.00	1,684.64	1,702.83	1,689.68	6.48	6.32	168.35	-157.04	-48.13	31.87	19.92	11.95	2.667		
1,800.00	1,783.21	1,802.83	1,788.35	6.91	6.75	167.95	-172.63	-52.63	32.54	19.84	12.70	2.563		
1,900.00	1,881.79	1,902.83	1,887.02	7.35	7.18	167.56	-188.23	-57.12	33.21	19.76	13.45	2.469		
2,000.00	1,980.36	2,002.82	1,985.70	7.78	7.61	167.19	-203.83	-61.61	33.89	19.68	14.20	2.386		
2,100.00	2,078.93	2,102.82	2,084.37	8.22	8.03	166.83	-219.43	-66.10	34.56	19.60	14.96	2.310		
2,200.00	2,177.51	2,202.82	2,183.04	8.65	8.46	166.49	-235.03	-70.59	35.23	19.52	15.72	2.242		
2,300.00	2,276.08	2,302.82	2,281.71	9.09	8.89	166.16	-250.62	-75.08	35.91	19.43	16.47	2.180		
2,400.00	2,374.66	2,402.81	2,380.38	9.53	9.32	165.84	-266.22	-79.57	36.58	19.35	17.23	2.123		
2,500.00	2,473.23	2,502.81	2,479.05	9.96	9.75	165.53	-281.82	-84.07	37.26	19.27	17.99	2.071		
2,600.00	2,571.80	2,602.81	2,577.72	10.40	10.19	165.24	-297.42	-88.56	37.94	19.19	18.76	2.023		
2,700.00	2,670.38	2,702.81	2,676.40	10.84	10.62	164.95	-313.02	-93.05	38.62	19.10	19.52	1.979		
2,800.00	2,768.95	2,802.80	2,775.07	11.27	11.05	164.68	-328.61	-97.54	39.30	19.02	20.28	1.938		
2,900.00	2,867.53	2,902.80	2,873.74	11.71	11.48	164.41	-344.21	-102.03	39.98	18.94	21.05	1.900		
3,000.00	2,966.10	3,002.80	2,972.41	12.15	11.91	164.15	-359.81	-106.52	40.67	18.85	21.81	1.864		
3,100.00	3,064.67	3,102.80	3,071.08	12.59	12.34	163.91	-375.41	-111.01	41.35	18.77	22.58	1.831		
3,200.00	3,163.25	3,202.79	3,169.75	13.03	12.78	163.67	-391.00	-115.50	42.03	18.69	23.35	1.801		
3,300.00	3,261.82	3,302.79	3,268.42	13.46	13.21	163.43	-406.60	-120.00	42.72	18.61	24.11	1.772		
3,400.00	3,360.40	3,402.79	3,367.09	13.90	13.64	163.21	-422.20	-124.49	43.40	18.52	24.88	1.744		
3,500.00	3,458.97	3,502.79	3,465.77	14.34	14.07	162.99	-437.80	-128.98	44.09	18.44	25.65	1.719		
3,600.00	3,557.54	3,602.78	3,564.44	14.78	14.51	162.78	-453.40	-133.47	44.78	18.36	26.42	1.695		
3,700.00	3,656.12	3,702.78	3,663.11	15.22	14.94	162.57	-468.99	-137.96	45.46	18.27	27.19	1.672		
3,800.00	3,754.69	3,802.78	3,761.78	15.66	15.37	162.37	-484.59	-142.45	46.15	18.19	27.96	1.651		
3,900.00	3,853.27	3,902.78	3,860.45	16.09	15.81	162.18	-500.19	-146.94	46.84	18.11	28.73	1.630		
4,000.00	3,951.84	4,002.77	3,959.12	16.53	16.24	161.99	-515.79	-151.44	47.53	18.03	29.50	1.611		
4,100.00	4,050.41	4,102.77	4,057.79	16.97	16.67	161.81	-531.38	-155.93	48.22	17.94	30.28	1.593		
4,200.00	4,148.99	4,202.77	4,156.47	17.41	17.11	161.63	-546.98	-160.42	48.91	17.86	31.05	1.575		
4,300.00	4,247.56	4,302.77	4,255.14	17.85	17.54	161.46	-562.58	-164.91	49.60	17.78	31.82	1.559		
4,400.00	4,346.14	4,402.76	4,353.81	18.29	17.97	161.29	-578.18	-169.40	50.29	17.70	32.59	1.543		
4,500.00	4,444.71	4,502.76	4,452.48	18.73	18.41	161.13	-593.78	-173.89	50.98	17.61	33.37	1.528		
4,600.00	4,543.28	4,602.76	4,551.15	19.16	18.84	160.97	-609.37	-178.38	51.67	17.53	34.14	1.513		
4,700.00	4,641.86	4,702.76	4,649.82	19.60	19.27	160.81	-624.97	-182.87	52.36	17.45	34.92	1.500 Level 3		
4,800.00	4,740.43	4,802.75	4,748.49	20.04	19.71	160.66	-640.57	-187.37	53.06	17.37	35.69	1.487 Level 3		
4,900.00	4,839.01	4,902.75	4,847.17	20.48	20.14	160.52	-656.17	-191.86	53.75	17.28	36.47	1.474 Level 3		
5,000.00	4,937.58	5,002.75	4,945.84	20.92	20.57	160.37	-671.77	-196.35	54.44	17.20	37.24	1.462 Level 3		

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 3N-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 3N-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)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
5,100.00	5,036.15	5,102.75	5,044.51	21.36	21.01	160.23	-687.36	-200.84	55.14	17.12	38.02	1.450	Level 3	
5,200.00	5,134.73	5,202.74	5,143.18	21.80	21.44	160.10	-702.96	-205.33	55.83	17.04	38.79	1.439	Level 3	
5,300.00	5,233.30	5,302.74	5,241.85	22.24	21.88	159.97	-718.56	-209.82	56.52	16.95	39.57	1.428	Level 3	
5,400.00	5,331.88	5,402.74	5,340.52	22.68	22.31	159.84	-734.16	-214.31	57.22	16.87	40.35	1.418	Level 3	
5,500.00	5,430.45	5,502.74	5,439.19	23.12	22.74	159.71	-749.75	-218.80	57.91	16.79	41.12	1.408	Level 3	
5,600.00	5,529.02	5,602.73	5,537.86	23.55	23.18	159.59	-765.35	-223.30	58.61	16.71	41.90	1.399	Level 3	
5,700.00	5,627.60	5,702.73	5,636.54	23.99	23.61	159.47	-780.95	-227.79	59.30	16.62	42.68	1.390	Level 3	
5,800.00	5,726.17	5,802.73	5,735.21	24.43	24.05	159.35	-796.55	-232.28	60.00	16.54	43.45	1.381	Level 3	
5,900.00	5,824.75	5,902.73	5,833.88	24.87	24.48	159.24	-812.15	-236.77	60.69	16.46	44.23	1.372	Level 3	
6,000.00	5,923.32	6,002.72	5,932.55	25.31	24.91	159.12	-827.74	-241.26	61.39	16.38	45.01	1.364	Level 3	
6,100.00	6,021.89	6,102.72	6,031.22	25.75	25.35	159.01	-843.34	-245.75	62.09	16.30	45.79	1.356	Level 3	
6,200.00	6,120.47	6,202.72	6,129.89	26.19	25.78	158.91	-858.94	-250.24	62.78	16.21	46.57	1.348	Level 3	
6,300.00	6,219.04	6,302.72	6,228.56	26.63	26.22	158.80	-874.54	-254.74	63.48	16.13	47.35	1.341	Level 3	
6,400.00	6,317.62	6,402.71	6,327.24	27.07	26.65	158.70	-890.14	-259.23	64.17	16.05	48.12	1.334	Level 3	
6,500.00	6,416.19	6,502.71	6,425.91	27.51	27.08	158.60	-905.73	-263.72	64.87	15.97	48.90	1.327	Level 3	
6,600.00	6,514.76	6,602.71	6,524.58	27.95	27.52	158.50	-921.33	-268.21	65.57	15.89	49.68	1.320	Level 3	
6,700.00	6,613.34	6,702.71	6,623.25	28.39	27.95	158.40	-936.93	-272.70	66.27	15.80	50.46	1.313	Level 3	
6,800.00	6,711.91	6,803.17	6,722.43	28.82	28.38	160.01	-952.59	-275.22	66.77	15.68	51.09	1.307	Level 3	
6,900.00	6,810.49	6,902.04	6,819.55	29.26	28.76	171.91	-967.80	-265.48	67.76	16.68	51.08	1.326	Level 3	
6,931.73	6,841.77	6,932.41	6,849.02	29.40	28.86	177.64	-972.38	-259.78	69.27	18.15	51.12	1.355	Level 3	
6,950.00	6,859.78	6,950.00	6,865.97	29.48	28.92	-170.25	-975.02	-255.90	70.57	19.38	51.19	1.379	Level 3	
7,000.00	6,909.10	6,996.37	6,910.17	29.69	29.07	-137.78	-981.86	-243.66	75.39	24.00	51.38	1.467	Level 3	
7,050.00	6,958.25	7,042.39	6,953.17	29.89	29.21	-111.22	-988.48	-228.69	81.66	30.18	51.49	1.586		
7,100.00	7,006.98	7,087.76	6,994.54	30.07	29.34	-92.12	-994.83	-211.22	88.96	37.63	51.34	1.733		
7,150.00	7,055.06	7,132.52	7,034.22	30.24	29.45	-78.53	-1,000.88	-191.42	96.91	46.03	50.88	1.905		
7,200.00	7,102.25	7,176.72	7,072.13	30.40	29.56	-68.58	-1,006.63	-169.44	105.23	55.10	50.13	2.099		
7,250.00	7,148.33	7,220.40	7,108.21	30.55	29.65	-61.05	-1,012.07	-145.44	113.69	64.58	49.11	2.315		
7,300.00	7,193.07	7,263.61	7,142.42	30.69	29.74	-55.20	-1,017.20	-119.56	122.13	74.26	47.87	2.551		
7,350.00	7,236.26	7,306.37	7,174.70	30.81	29.82	-50.54	-1,022.01	-91.94	130.41	83.98	46.43	2.809		
7,400.00	7,277.67	7,350.00	7,205.90	30.92	29.90	-46.72	-1,026.62	-61.80	138.45	93.30	45.15	3.067		
7,450.00	7,317.11	7,390.72	7,233.33	31.03	29.96	-43.68	-1,030.64	-31.99	146.14	103.01	43.13	3.389		
7,500.00	7,354.40	7,432.37	7,259.62	31.12	30.02	-41.13	-1,034.46	0.08	153.44	112.10	41.33	3.712		
7,550.00	7,389.33	7,473.72	7,283.85	31.21	30.07	-39.00	-1,037.94	33.40	160.28	120.80	39.49	4.059		
7,600.00	7,421.76	7,514.79	7,306.01	31.28	30.12	-37.21	-1,041.08	67.83	166.64	129.00	37.64	4.427		
7,650.00	7,451.51	7,555.62	7,326.07	31.35	30.17	-35.72	-1,043.88	103.28	172.46	136.68	35.78	4.820		
7,700.00	7,478.44	7,600.00	7,345.57	31.42	30.24	-34.43	-1,046.55	143.05	177.77	142.93	34.84	5.102		
7,750.00	7,502.43	7,636.66	7,359.82	31.48	30.30	-33.44	-1,048.46	176.77	182.40	150.03	32.36	5.636		
7,800.00	7,523.35	7,676.92	7,373.48	31.56	30.41	-32.59	-1,050.22	214.59	186.46	155.59	30.87	6.040		
7,850.00	7,541.11	7,717.05	7,384.99	31.66	30.59	-31.90	-1,051.65	253.00	189.90	160.27	29.62	6.410		
7,900.00	7,555.61	7,757.06	7,394.34	31.82	30.90	-31.36	-1,052.73	291.88	192.69	164.04	28.65	6.725		
7,950.00	7,566.79	7,800.00	7,401.97	32.11	31.39	-30.95	-1,053.50	334.13	194.87	166.46	28.40	6.861		
8,000.00	7,574.59	7,836.84	7,406.51	32.60	31.90	-30.69	-1,053.84	370.68	196.32	168.55	27.77	7.070		
8,050.00	7,578.97	7,876.66	7,409.32	33.25	32.52	-30.54	-1,053.88	410.40	197.14	169.22	27.92	7.060		
8,088.71	7,580.00	7,908.04	7,410.00	33.84	33.03	-30.50	-1,053.67	441.76	197.31	168.97	28.34	6.963		
8,092.80	7,580.00	7,911.43	7,410.00	33.90	33.09	-30.50	-1,053.64	445.15	197.31	168.91	28.40	6.947		
8,100.00	7,580.00	7,918.63	7,410.00	34.02	33.22	-30.50	-1,053.56	452.35	197.31	168.75	28.56	6.908		
8,200.00	7,580.00	8,018.63	7,410.00	35.78	35.07	-30.50	-1,052.55	552.35	197.30	166.43	30.88	6.390		
8,300.00	7,580.00	8,118.63	7,410.00	37.77	37.10	-30.50	-1,051.53	652.34	197.30	163.90	33.40	5.907		
8,400.00	7,580.00	8,218.63	7,410.00	39.92	39.30	-30.50	-1,050.51	752.33	197.30	161.20	36.10	5.466		
8,500.00	7,580.00	8,318.63	7,410.00	42.22	41.64	-30.50	-1,049.50	852.33	197.29	158.37	38.92	5.069		
8,600.00	7,580.00	8,418.63	7,410.00	44.63	44.08	-30.49	-1,048.48	952.32	197.29	155.43	41.86	4.713		
8,700.00	7,580.00	8,518.63	7,410.00	47.13	46.61	-30.49	-1,047.46	1,052.32	197.28	152.41	44.88	4.396		

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 3N-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 3N-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)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)		Total Uncertainty Axis	Separation Factor
8,800.00	7,580.00	8,618.63	7,410.00	49.72	49.22	-30.49	-1,046.45	1,152.31	197.28	149.31		47.97	4.113
8,900.00	7,580.00	8,718.63	7,410.00	52.37	51.90	-30.49	-1,045.43	1,252.31	197.27	146.16		51.11	3.860
9,000.00	7,580.00	8,818.63	7,410.00	55.08	54.64	-30.48	-1,044.42	1,352.30	197.27	142.97		54.30	3.633
9,100.00	7,580.00	8,918.63	7,410.00	57.84	57.42	-30.48	-1,043.40	1,452.30	197.27	139.73		57.54	3.429
9,200.00	7,580.00	9,018.63	7,410.00	60.65	60.25	-30.48	-1,042.38	1,552.29	197.26	136.46		60.80	3.244
9,300.00	7,580.00	9,118.63	7,410.00	63.49	63.11	-30.48	-1,041.37	1,652.29	197.26	133.16		64.09	3.078
9,400.00	7,580.00	9,218.63	7,410.00	66.37	66.00	-30.48	-1,040.35	1,752.28	197.25	129.85		67.41	2.926
9,500.00	7,580.00	9,318.63	7,410.00	69.28	68.92	-30.47	-1,039.33	1,852.28	197.25	126.51		70.74	2.788
9,600.00	7,580.00	9,418.63	7,410.00	72.21	71.87	-30.47	-1,038.32	1,952.27	197.24	123.15		74.10	2.662
9,700.00	7,580.00	9,518.63	7,410.00	75.16	74.83	-30.47	-1,037.30	2,052.27	197.24	119.78		77.46	2.546
9,800.00	7,580.00	9,618.63	7,410.00	78.13	77.82	-30.47	-1,036.28	2,152.26	197.24	116.39		80.84	2.440
9,900.00	7,580.00	9,718.63	7,410.00	81.12	80.82	-30.47	-1,035.27	2,252.26	197.23	112.99		84.24	2.341
10,000.00	7,580.00	9,818.63	7,410.00	84.13	83.84	-30.46	-1,034.25	2,352.25	197.23	109.59		87.64	2.250
10,100.00	7,580.00	9,918.63	7,410.00	87.15	86.87	-30.46	-1,033.24	2,452.25	197.22	106.17		91.05	2.166
10,200.00	7,580.00	10,018.63	7,410.00	90.18	89.91	-30.46	-1,032.22	2,552.24	197.22	102.75		94.47	2.088
10,300.00	7,580.00	10,118.63	7,410.00	93.23	92.96	-30.46	-1,031.20	2,652.24	197.21	99.32		97.90	2.014
10,400.00	7,580.00	10,218.63	7,410.00	96.28	96.03	-30.46	-1,030.19	2,752.23	197.21	95.88		101.33	1.946
10,500.00	7,580.00	10,318.63	7,410.00	99.35	99.10	-30.45	-1,029.17	2,852.23	197.21	92.44		104.77	1.882
10,600.00	7,580.00	10,418.63	7,410.00	102.42	102.18	-30.45	-1,028.15	2,952.22	197.20	88.99		108.21	1.822
10,700.00	7,580.00	10,518.63	7,410.00	105.50	105.27	-30.45	-1,027.14	3,052.22	197.20	85.54		111.66	1.766
10,800.00	7,580.00	10,618.63	7,410.00	108.59	108.37	-30.45	-1,026.12	3,152.21	197.19	82.08		115.11	1.713
10,900.00	7,580.00	10,718.63	7,410.00	111.69	111.47	-30.44	-1,025.10	3,252.21	197.19	78.62		118.57	1.663
11,000.00	7,580.00	10,818.63	7,410.00	114.79	114.57	-30.44	-1,024.09	3,352.20	197.18	75.15		122.03	1.616
11,100.00	7,580.00	10,918.63	7,410.00	117.90	117.69	-30.44	-1,023.07	3,452.20	197.18	71.69		125.49	1.571
11,200.00	7,580.00	11,018.63	7,410.00	121.01	120.80	-30.44	-1,022.05	3,552.19	197.18	68.22		128.96	1.529
11,300.00	7,580.00	11,118.63	7,410.00	124.12	123.93	-30.44	-1,021.04	3,652.19	197.17	64.74		132.43	1.489 Level 3
11,400.00	7,580.00	11,218.63	7,410.00	127.25	127.05	-30.43	-1,020.02	3,752.18	197.17	61.27		135.90	1.451 Level 3
11,500.00	7,580.00	11,318.63	7,410.00	130.37	130.18	-30.43	-1,019.01	3,852.17	197.16	57.79		139.37	1.415 Level 3
11,600.00	7,580.00	11,418.63	7,410.00	133.50	133.32	-30.43	-1,017.99	3,952.17	197.16	54.31		142.84	1.380 Level 3
11,700.00	7,580.00	11,518.63	7,410.00	136.63	136.45	-30.43	-1,016.97	4,052.16	197.15	50.83		146.32	1.347 Level 3
11,800.00	7,580.00	11,618.63	7,410.00	139.77	139.59	-30.43	-1,015.96	4,152.16	197.15	47.35		149.80	1.316 Level 3
11,900.00	7,580.00	11,718.63	7,410.00	142.91	142.74	-30.42	-1,014.94	4,252.15	197.15	43.87		153.28	1.286 Level 3
12,000.00	7,580.00	11,818.63	7,410.00	146.05	145.88	-30.42	-1,013.92	4,352.15	197.14	40.38		156.76	1.258 Level 3
12,100.00	7,580.00	11,918.63	7,410.00	149.20	149.03	-30.42	-1,012.91	4,452.14	197.14	36.90		160.24	1.230 Level 2
12,155.71	7,580.00	11,974.34	7,410.00	150.95	150.78	-30.42	-1,012.34	4,507.85	197.13	34.95		162.18	1.216 Level 2, SF

Cathedral Energy Services

Anticollision Report

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well SAM 3N-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 3N-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: 0-MWD+HDGM													Offset Well Error: 0.00 usft	
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
0.00	0.00	0.00	0.00	0.00	0.00	-178.92	-10.21	-0.19	10.21					
100.00	100.00	100.00	100.00	0.14	0.14	-178.92	-10.21	-0.19	10.21	9.93	0.28	36.981		
200.00	200.00	200.00	200.00	0.50	0.50	-178.92	-10.21	-0.19	10.21	9.21	0.99	10.280	CC, ES	
300.00	300.00	299.61	299.59	0.85	0.84	-177.10	-11.89	-0.60	11.91	10.17	1.74	6.851		
400.00	399.98	399.09	398.93	1.20	1.19	-9.58	-16.92	-1.83	15.34	12.84	2.49	6.147		
500.00	499.84	498.44	497.90	1.54	1.55	-8.31	-25.29	-3.88	18.76	15.51	3.26	5.764		
600.00	599.45	597.68	596.40	1.90	1.92	-7.60	-36.98	-6.73	22.18	18.16	4.03	5.509		
700.00	698.70	696.80	694.31	2.27	2.32	-7.24	-51.95	-10.39	25.58	20.78	4.80	5.328		
784.38	782.08	780.84	776.95	2.60	2.67	-7.19	-66.79	-14.02	28.00	22.59	5.41	5.177		
800.00	797.47	796.45	792.30	2.66	2.74	-7.24	-69.58	-14.70	28.26	22.74	5.51	5.124		
900.00	896.05	896.44	890.58	3.07	3.17	-7.50	-87.47	-19.07	29.90	23.69	6.21	4.814		
1,000.00	994.62	996.43	988.85	3.48	3.60	-7.73	-105.36	-23.44	31.54	24.61	6.92	4.556		
1,100.00	1,093.19	1,096.41	1,087.13	3.90	4.04	-7.95	-123.24	-27.81	33.18	25.53	7.64	4.341		
1,200.00	1,191.77	1,196.40	1,185.41	4.33	4.49	-8.14	-141.13	-32.18	34.82	26.45	8.37	4.159		
1,300.00	1,290.34	1,296.39	1,283.68	4.75	4.93	-8.31	-159.02	-36.55	36.46	27.36	9.11	4.004		
1,400.00	1,388.92	1,396.37	1,381.96	5.18	5.38	-8.47	-176.90	-40.92	38.10	28.26	9.84	3.871		
1,500.00	1,487.49	1,496.36	1,480.24	5.61	5.82	-8.62	-194.79	-45.29	39.74	29.16	10.59	3.755		
1,600.00	1,586.06	1,596.35	1,578.51	6.04	6.27	-8.76	-212.67	-49.66	41.39	30.06	11.33	3.653		
1,700.00	1,684.64	1,696.33	1,676.79	6.48	6.72	-8.88	-230.56	-54.03	43.03	30.95	12.08	3.563		
1,800.00	1,783.21	1,796.32	1,775.06	6.91	7.17	-9.00	-248.45	-58.40	44.67	31.85	12.83	3.483		
1,900.00	1,881.79	1,896.31	1,873.34	7.35	7.62	-9.10	-266.33	-62.77	46.32	32.74	13.58	3.411		
2,000.00	1,980.36	1,996.29	1,971.62	7.78	8.07	-9.20	-284.22	-67.14	47.96	33.63	14.33	3.347		
2,100.00	2,078.93	2,096.28	2,069.89	8.22	8.52	-9.30	-302.11	-71.51	49.60	34.52	15.08	3.289		
2,200.00	2,177.51	2,196.26	2,168.17	8.65	8.97	-9.38	-319.99	-75.88	51.25	35.41	15.84	3.236		
2,300.00	2,276.08	2,296.25	2,266.45	9.09	9.42	-9.47	-337.88	-80.25	52.89	36.30	16.59	3.187		
2,400.00	2,374.66	2,396.24	2,364.72	9.53	9.87	-9.54	-355.77	-84.62	54.53	37.18	17.35	3.143		
2,500.00	2,473.23	2,496.22	2,463.00	9.96	10.33	-9.61	-373.65	-88.99	56.18	38.07	18.11	3.103		
2,600.00	2,571.80	2,596.21	2,561.28	10.40	10.78	-9.68	-391.54	-93.36	57.82	38.96	18.86	3.065		
2,700.00	2,670.38	2,696.20	2,659.55	10.84	11.23	-9.75	-409.42	-97.73	59.47	39.84	19.62	3.031		
2,800.00	2,768.95	2,796.18	2,757.83	11.27	11.68	-9.81	-427.31	-102.10	61.11	40.73	20.38	2.999		
2,900.00	2,867.53	2,896.17	2,856.11	11.71	12.13	-9.87	-445.20	-106.47	62.75	41.62	21.14	2.969		
3,000.00	2,966.10	2,996.16	2,954.38	12.15	12.58	-9.92	-463.08	-110.84	64.40	42.50	21.90	2.941		
3,100.00	3,064.67	3,096.14	3,052.66	12.59	13.04	-9.97	-480.97	-115.21	66.04	43.39	22.66	2.915		
3,200.00	3,163.25	3,196.13	3,150.94	13.03	13.49	-10.02	-498.86	-119.58	67.69	44.27	23.42	2.890		
3,300.00	3,261.82	3,296.12	3,249.21	13.46	13.94	-10.07	-516.74	-123.95	69.33	45.15	24.18	2.868		
3,400.00	3,360.40	3,396.10	3,347.49	13.90	14.39	-10.12	-534.63	-128.32	70.98	46.04	24.94	2.846		
3,500.00	3,458.97	3,496.09	3,445.77	14.34	14.85	-10.16	-552.52	-132.69	72.62	46.92	25.70	2.826		
3,600.00	3,557.54	3,596.08	3,544.04	14.78	15.30	-10.20	-570.40	-137.06	74.27	47.81	26.46	2.807		
3,700.00	3,656.12	3,696.06	3,642.32	15.22	15.75	-10.24	-588.29	-141.43	75.91	48.69	27.22	2.789		
3,800.00	3,754.69	3,796.05	3,740.60	15.66	16.20	-10.28	-606.17	-145.80	77.55	49.57	27.98	2.772		
3,900.00	3,853.27	3,896.03	3,838.87	16.09	16.66	-10.31	-624.06	-150.17	79.20	50.46	28.74	2.755		
4,000.00	3,951.84	3,996.02	3,937.15	16.53	17.11	-10.35	-641.95	-154.54	80.84	51.34	29.51	2.740		
4,100.00	4,050.41	4,096.01	4,035.42	16.97	17.56	-10.38	-659.83	-158.91	82.49	52.22	30.27	2.725		
4,200.00	4,148.99	4,195.99	4,133.70	17.41	18.01	-10.41	-677.72	-163.28	84.13	53.10	31.03	2.711		
4,300.00	4,247.56	4,295.98	4,231.98	17.85	18.47	-10.44	-695.61	-167.65	85.78	53.99	31.79	2.698		
4,400.00	4,346.14	4,395.97	4,330.25	18.29	18.92	-10.47	-713.49	-172.02	87.42	54.87	32.55	2.686		
4,500.00	4,444.71	4,495.95	4,428.53	18.73	19.37	-10.50	-731.38	-176.39	89.07	55.75	33.32	2.673		
4,600.00	4,543.28	4,595.94	4,526.81	19.16	19.83	-10.53	-749.27	-180.76	90.71	56.63	34.08	2.662		
4,700.00	4,641.86	4,695.93	4,625.08	19.60	20.28	-10.56	-767.15	-185.13	92.36	57.52	34.84	2.651		
4,800.00	4,740.43	4,795.91	4,723.36	20.04	20.73	-10.58	-785.04	-189.50	94.00	58.40	35.60	2.640		
4,900.00	4,839.01	4,895.90	4,821.64	20.48	21.18	-10.61	-802.92	-193.87	95.65	59.28	36.37	2.630		
5,000.00	4,937.58	4,995.89	4,919.91	20.92	21.64	-10.63	-820.81	-198.24	97.29	60.16	37.13	2.620		

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 3N-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 3N-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				Total Uncertainty Axis	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
5,100.00	5,036.15	5,095.87	5,018.19	21.36	22.09	-10.65	-838.70	-202.61	98.94	61.05	37.89	2.611	
5,200.00	5,134.73	5,195.86	5,116.47	21.80	22.54	-10.68	-856.58	-206.98	100.58	61.93	38.65	2.602	
5,300.00	5,233.30	5,295.85	5,214.74	22.24	23.00	-10.70	-874.47	-211.35	102.23	62.81	39.42	2.593	
5,400.00	5,331.88	5,395.83	5,313.02	22.68	23.45	-10.72	-892.36	-215.72	103.87	63.69	40.18	2.585	
5,500.00	5,430.45	5,495.82	5,411.30	23.12	23.90	-10.74	-910.24	-220.09	105.52	64.57	40.94	2.577	
5,600.00	5,529.02	5,595.80	5,509.57	23.55	24.35	-10.76	-928.13	-224.46	107.16	65.45	41.71	2.569	
5,700.00	5,627.60	5,695.79	5,607.85	23.99	24.81	-10.78	-946.02	-228.83	108.81	66.34	42.47	2.562	
5,800.00	5,726.17	5,795.78	5,706.13	24.43	25.26	-10.80	-963.90	-233.20	110.45	67.22	43.23	2.555	
5,900.00	5,824.75	5,895.76	5,804.40	24.87	25.71	-10.81	-981.79	-237.57	112.10	68.10	44.00	2.548	
6,000.00	5,923.32	5,995.75	5,902.68	25.31	26.17	-10.83	-999.67	-241.94	113.74	68.98	44.76	2.541	
6,100.00	6,021.89	6,095.74	6,000.95	25.75	26.62	-10.85	-1,017.56	-246.31	115.39	69.86	45.52	2.535	
6,200.00	6,120.47	6,195.72	6,099.23	26.19	27.07	-10.87	-1,035.45	-250.68	117.03	70.75	46.29	2.528	
6,300.00	6,219.04	6,295.71	6,197.51	26.63	27.52	-10.88	-1,053.33	-255.05	118.68	71.63	47.05	2.522	
6,400.00	6,317.62	6,395.70	6,295.78	27.07	27.98	-10.90	-1,071.22	-259.42	120.32	72.51	47.81	2.516	
6,500.00	6,416.19	6,495.68	6,394.06	27.51	28.43	-10.91	-1,089.11	-263.79	121.97	73.39	48.58	2.511	
6,600.00	6,514.76	6,595.67	6,492.34	27.95	28.88	-10.93	-1,106.99	-268.16	123.61	74.27	49.34	2.505	
6,700.00	6,613.34	6,695.66	6,590.61	28.39	29.34	-10.94	-1,124.88	-272.53	125.26	75.15	50.10	2.500	
6,800.00	6,711.91	6,796.34	6,689.60	28.82	29.78	-13.38	-1,142.84	-271.55	126.63	75.63	51.00	2.483	
6,900.00	6,810.49	6,893.84	6,784.46	29.26	30.15	-21.60	-1,159.92	-257.28	129.09	76.78	52.30	2.468	
6,931.73	6,841.77	6,923.55	6,812.88	29.40	30.25	-25.14	-1,165.01	-250.34	130.90	78.10	52.80	2.479	
6,950.00	6,859.78	6,940.38	6,828.86	29.48	30.31	-18.81	-1,167.86	-245.88	132.28	79.19	53.09	2.492	
7,000.00	6,909.10	6,985.91	6,871.52	29.69	30.46	-0.81	-1,175.46	-231.91	136.99	83.26	53.73	2.550	
7,050.00	6,958.25	7,030.68	6,912.53	29.89	30.59	12.97	-1,182.74	-215.52	142.89	88.78	54.11	2.641	
7,100.00	7,006.98	7,074.75	6,951.84	30.07	30.72	21.08	-1,189.69	-196.88	149.72	95.56	54.17	2.764	
7,150.00	7,055.06	7,118.17	6,989.41	30.24	30.83	25.28	-1,196.30	-176.15	157.24	103.34	53.90	2.917	
7,200.00	7,102.25	7,161.00	7,025.19	30.40	30.93	27.24	-1,202.56	-153.47	165.21	111.88	53.34	3.097	
7,250.00	7,148.33	7,200.00	7,056.56	30.55	31.02	28.18	-1,208.03	-130.96	173.49	121.45	52.04	3.334	
7,300.00	7,193.07	7,245.06	7,091.24	30.69	31.12	28.05	-1,214.04	-102.85	181.79	130.34	51.45	3.533	
7,350.00	7,236.26	7,286.38	7,121.47	30.81	31.20	27.76	-1,219.25	-75.16	190.09	139.88	50.21	3.786	
7,400.00	7,277.67	7,327.28	7,149.79	30.92	31.27	27.28	-1,224.09	-46.06	198.22	149.40	48.82	4.060	
7,450.00	7,317.11	7,367.81	7,176.20	31.03	31.33	26.73	-1,228.58	-15.66	206.09	158.77	47.32	4.355	
7,500.00	7,354.40	7,407.99	7,200.68	31.12	31.40	26.16	-1,232.70	15.93	213.62	167.86	45.76	4.668	
7,550.00	7,389.33	7,450.00	7,224.37	31.21	31.46	25.54	-1,236.65	50.39	220.74	176.26	44.48	4.962	
7,600.00	7,421.76	7,487.46	7,243.78	31.28	31.51	25.07	-1,239.85	82.26	227.37	184.77	42.60	5.337	
7,650.00	7,451.51	7,526.81	7,262.39	31.35	31.57	24.58	-1,242.88	116.80	233.49	192.42	41.07	5.685	
7,700.00	7,478.44	7,565.94	7,279.01	31.42	31.63	24.15	-1,245.54	152.12	239.04	199.40	39.63	6.031	
7,750.00	7,502.43	7,600.00	7,291.91	31.48	31.69	23.83	-1,247.56	183.57	244.05	206.28	37.77	6.461	
7,800.00	7,523.35	7,643.67	7,306.28	31.56	31.79	23.44	-1,249.75	224.74	248.31	211.09	37.22	6.672	
7,850.00	7,541.11	7,682.31	7,316.92	31.66	31.92	23.16	-1,251.31	261.85	251.97	215.63	36.34	6.933	
7,900.00	7,555.61	7,720.84	7,325.55	31.82	32.10	22.94	-1,252.49	299.38	254.96	219.22	35.74	7.134	
7,950.00	7,566.79	7,759.28	7,332.17	32.11	32.36	22.77	-1,253.31	337.23	257.26	221.81	35.45	7.258	
8,000.00	7,574.59	7,800.00	7,337.00	32.60	32.75	22.65	-1,253.77	377.66	258.87	223.30	35.57	7.278	
8,050.00	7,578.97	7,836.00	7,339.38	33.25	33.19	22.60	-1,253.84	413.57	259.74	223.85	35.89	7.237	
8,088.71	7,580.00	7,866.12	7,340.00	33.84	33.62	22.59	-1,253.65	443.68	259.94	223.50	36.44	7.133	
8,089.29	7,580.00	7,866.12	7,340.00	33.85	33.62	22.59	-1,253.65	443.68	259.94	223.48	36.45	7.131	
8,100.00	7,580.00	7,876.82	7,340.00	34.02	33.78	22.59	-1,253.54	454.38	259.94	223.31	36.63	7.096	
8,200.00	7,580.00	7,976.82	7,340.00	35.78	35.49	22.59	-1,252.52	554.38	259.94	221.58	38.36	6.776	
8,300.00	7,580.00	8,076.82	7,340.00	37.77	37.47	22.59	-1,251.51	654.37	259.94	219.73	40.21	6.464	
8,400.00	7,580.00	8,176.82	7,340.00	39.92	39.62	22.59	-1,250.49	754.37	259.95	217.77	42.18	6.163	
8,500.00	7,580.00	8,276.82	7,340.00	42.22	41.93	22.59	-1,249.47	854.36	259.95	215.71	44.24	5.876	
8,600.00	7,580.00	8,376.82	7,340.00	44.63	44.34	22.59	-1,248.46	954.36	259.95	213.56	46.39	5.604	
8,700.00	7,580.00	8,476.82	7,340.00	47.13	46.86	22.60	-1,247.44	1,054.35	259.96	211.35	48.61	5.348	

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 3N-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 3N-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		
8,800.00	7,580.00	8,576.82	7,340.00	49.72	49.45	22.60	-1,246.42	1,154.35	259.96	209.07	50.89	5.108		
8,900.00	7,580.00	8,676.82	7,340.00	52.37	52.12	22.60	-1,245.41	1,254.34	259.96	206.73	53.23	4.884		
9,000.00	7,580.00	8,776.82	7,340.00	55.08	54.84	22.60	-1,244.39	1,354.34	259.97	204.35	55.61	4.674		
9,100.00	7,580.00	8,876.82	7,340.00	57.84	57.61	22.60	-1,243.37	1,454.33	259.97	201.93	58.04	4.479		
9,200.00	7,580.00	8,976.82	7,340.00	60.65	60.43	22.60	-1,242.36	1,554.33	259.97	199.46	60.51	4.296		
9,300.00	7,580.00	9,076.82	7,340.00	63.49	63.28	22.61	-1,241.34	1,654.32	259.97	196.97	63.01	4.126		
9,400.00	7,580.00	9,176.82	7,340.00	66.37	66.17	22.61	-1,240.33	1,754.32	259.98	194.44	65.54	3.967		
9,500.00	7,580.00	9,276.82	7,340.00	69.28	69.08	22.61	-1,239.31	1,854.31	259.98	191.89	68.09	3.818		
9,600.00	7,580.00	9,376.82	7,340.00	72.21	72.02	22.61	-1,238.29	1,954.31	259.98	189.32	70.67	3.679		
9,700.00	7,580.00	9,476.82	7,340.00	75.16	74.98	22.61	-1,237.28	2,054.30	259.99	186.72	73.27	3.549		
9,800.00	7,580.00	9,576.82	7,340.00	78.13	77.96	22.62	-1,236.26	2,154.30	259.99	184.11	75.88	3.426		
9,900.00	7,580.00	9,676.82	7,340.00	81.12	80.96	22.62	-1,235.24	2,254.29	259.99	181.48	78.52	3.311		
10,000.00	7,580.00	9,776.82	7,340.00	84.13	83.97	22.62	-1,234.23	2,354.28	260.00	178.83	81.17	3.203		
10,100.00	7,580.00	9,876.82	7,340.00	87.15	86.99	22.62	-1,233.21	2,454.28	260.00	176.17	83.83	3.101		
10,200.00	7,580.00	9,976.82	7,340.00	90.18	90.03	22.62	-1,232.19	2,554.27	260.00	173.50	86.51	3.006		
10,300.00	7,580.00	10,076.82	7,340.00	93.23	93.08	22.62	-1,231.18	2,654.27	260.01	170.81	89.19	2.915		
10,400.00	7,580.00	10,176.82	7,340.00	96.28	96.14	22.63	-1,230.16	2,754.26	260.01	168.12	91.89	2.830		
10,500.00	7,580.00	10,276.82	7,340.00	99.35	99.21	22.63	-1,229.14	2,854.26	260.01	165.41	94.60	2.749		
10,600.00	7,580.00	10,376.82	7,340.00	102.42	102.29	22.63	-1,228.13	2,954.25	260.02	162.70	97.32	2.672		
10,700.00	7,580.00	10,476.82	7,340.00	105.50	105.37	22.63	-1,227.11	3,054.25	260.02	159.98	100.04	2.599		
10,800.00	7,580.00	10,576.82	7,340.00	108.59	108.46	22.63	-1,226.10	3,154.24	260.02	157.25	102.77	2.530		
10,900.00	7,580.00	10,676.82	7,340.00	111.69	111.56	22.63	-1,225.08	3,254.24	260.03	154.52	105.51	2.464		
11,000.00	7,580.00	10,776.82	7,340.00	114.79	114.67	22.64	-1,224.06	3,354.23	260.03	151.77	108.26	2.402		
11,100.00	7,580.00	10,876.82	7,340.00	117.90	117.78	22.64	-1,223.05	3,454.23	260.03	149.02	111.01	2.342		
11,200.00	7,580.00	10,976.82	7,340.00	121.01	120.89	22.64	-1,222.03	3,554.22	260.04	146.27	113.77	2.286		
11,300.00	7,580.00	11,076.82	7,340.00	124.12	124.01	22.64	-1,221.01	3,654.22	260.04	143.51	116.53	2.232		
11,400.00	7,580.00	11,176.82	7,340.00	127.25	127.14	22.64	-1,220.00	3,754.21	260.04	140.75	119.30	2.180		
11,500.00	7,580.00	11,276.82	7,340.00	130.37	130.26	22.64	-1,218.98	3,854.21	260.05	137.98	122.07	2.130		
11,600.00	7,580.00	11,376.82	7,340.00	133.50	133.39	22.65	-1,217.96	3,954.20	260.05	135.21	124.84	2.083		
11,700.00	7,580.00	11,476.82	7,340.00	136.63	136.53	22.65	-1,216.95	4,054.20	260.05	132.43	127.62	2.038		
11,800.00	7,580.00	11,576.82	7,340.00	139.77	139.67	22.65	-1,215.93	4,154.19	260.06	129.65	130.41	1.994		
11,900.00	7,580.00	11,676.82	7,340.00	142.91	142.81	22.65	-1,214.91	4,254.19	260.06	126.86	133.19	1.952		
12,000.00	7,580.00	11,776.82	7,340.00	146.05	145.95	22.65	-1,213.90	4,354.18	260.06	124.08	135.98	1.912		
12,100.00	7,580.00	11,876.82	7,340.00	149.20	149.10	22.65	-1,212.88	4,454.18	260.07	121.29	138.78	1.874		
12,105.47	7,580.00	11,882.29	7,340.00	149.37	149.27	22.65	-1,212.83	4,459.65	260.07	121.13	138.93	1.872		
12,155.71	7,580.00	11,932.12	7,340.00	150.95	150.84	22.66	-1,212.32	4,509.47	260.07	119.72	140.35	1.853 SF		

Cathedral Energy Services

Anticollision Report

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well SAM 3N-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 3N-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		
10,900.00	7,580.00	7,501.00	7,501.00	111.69	8.42	-90.00	106.10	4,046.99	1,464.82	1,358.38	106.45	13.761		
11,000.00	7,580.00	7,501.00	7,501.00	114.79	8.42	-90.00	106.10	4,046.99	1,412.24	1,300.28	111.96	12.613		
11,100.00	7,580.00	7,501.00	7,501.00	117.90	8.42	-90.00	106.10	4,046.99	1,364.98	1,247.43	117.55	11.612		
11,200.00	7,580.00	7,501.00	7,501.00	121.01	8.42	-90.00	106.10	4,046.99	1,323.59	1,200.51	123.08	10.754		
11,300.00	7,580.00	7,501.00	7,501.00	124.12	8.42	-90.00	106.10	4,046.99	1,288.65	1,160.22	128.44	10.034		
11,400.00	7,580.00	7,501.00	7,501.00	127.25	8.42	-90.00	106.10	4,046.99	1,260.70	1,127.25	133.45	9.447		
11,500.00	7,580.00	7,501.00	7,501.00	130.37	8.42	-90.00	106.10	4,046.99	1,240.20	1,102.23	137.97	8.989		
11,600.00	7,580.00	7,501.00	7,501.00	133.50	8.42	-90.00	106.10	4,046.99	1,227.53	1,085.70	141.83	8.655		
11,700.00	7,580.00	7,501.00	7,501.00	136.63	8.42	-90.00	106.10	4,046.99	1,222.93	1,078.00	144.93	8.438		
11,706.34	7,580.00	7,501.00	7,501.00	136.83	8.42	-90.00	106.10	4,046.99	1,222.91	1,077.82	145.10	8.428 CC, ES		
11,800.00	7,580.00	7,501.00	7,501.00	139.77	8.42	-90.00	106.10	4,046.99	1,226.50	1,079.33	147.17	8.334 SF		
11,900.00	7,580.00	7,501.00	7,501.00	142.91	8.42	-90.00	106.10	4,046.99	1,238.15	1,089.63	148.52	8.337		
12,000.00	7,580.00	7,501.00	7,501.00	146.05	8.42	-90.00	106.10	4,046.99	1,257.68	1,108.67	149.01	8.440		
12,100.00	7,580.00	7,501.00	7,501.00	149.20	8.42	-90.00	106.10	4,046.99	1,284.71	1,136.02	148.69	8.640		
12,155.71	7,580.00	7,501.00	7,501.00	150.95	8.42	-90.00	106.10	4,046.99	1,302.86	1,154.65	148.21	8.791		

Cathedral Energy Services

Anticollision Report

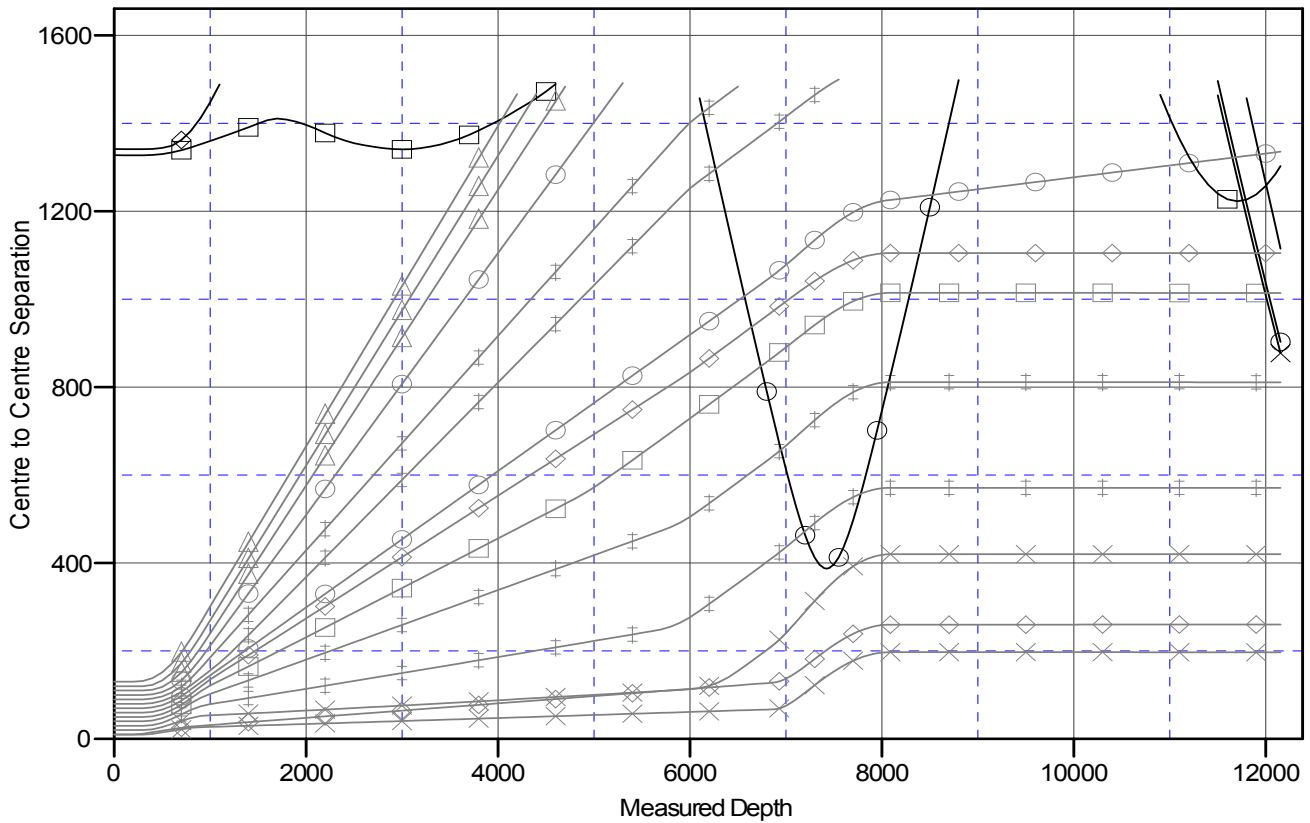
Company: Crestone Peak Resources
Project: DJ BASIN
Reference Site: S25-T1N-R66W (SAM)
Site Error: 0.00usft
Reference Well: SAM 3N-25H-M166
Well Error: 0.00usft
Reference Wellbore: OH
Reference Design: PLAN #1

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

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

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

Ladder Plot



LEGEND

HN, GWOG WELL, GWOG WELL V0	▲ SAM3B-25H-M166, OH, PLAN#1 V0	■ SAM3I-25H-M166, OH, PLAN#1 V0
HD165 (EXISTING), CPR WELL, SURVEYS V0	▲ SAM3C-25H-M166, OH, PLAN#1 V0	■ SAM3J-25H-M166, OH, PLAN#1 V0
HD165 (EXISTING), CPR WELL, SURVEYS V0	○ SAM3D-25H-M166, OH, PLAN#1 V0	■ SAM3K-25H-M166, OH, PLAN#1 V0
HD165 (EXISTING), CPR WELL, SURVEYS V0	■ SAM3E-25H-M166, OH, PLAN#1 V0	× SAM3L-25H-M166, OH, PLAN#1 V0
3), CPR WELL, NO SURVEYS V0	■ SAM3F-25H-M166, OH, PLAN#1 V0	× SAM3M-25H-M166, OH, PLAN#1 V0
TING), CPR WELL, SURVEYS V0	○ SAM3G-25H-M166, OH, PLAN#1 V0	■ SAM3O-25H-M166, OH, PLAN#1 V0
36, OH, PLAN#1 V0	■ SAM3H-25H-M166, OH, PLAN#1 V0	■ Wenzel 1 (EXISTING), CPR WELL, NO S