

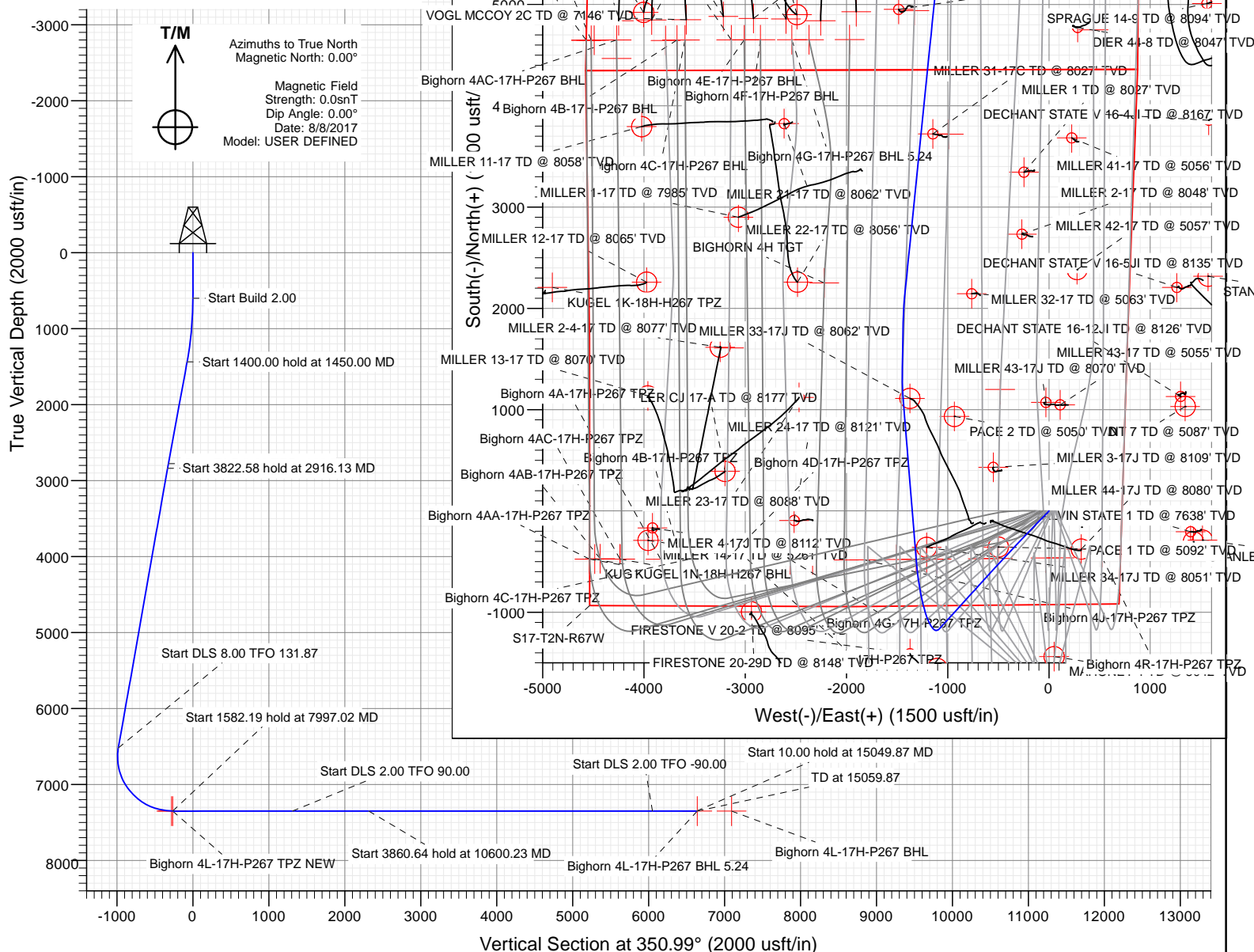


SECTION DETAILS										
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	
3	1450.00	17.00	224.00	1437.58	-90.05	-86.96	2.00	224.00	-75.32	
4	2850.00	17.00	224.00	2776.41	-384.49	-371.29	0.00	0.00	-321.63	
5	2916.13	15.76	222.40	2839.86	-398.07	-384.06	2.00	-160.80	-333.05	
6	6738.71	15.76	222.40	6518.79	-1164.63	-1083.99	0.00	0.00	-980.61	
7	7997.02	90.00	355.36	7350.00	-477.00	-1312.00	8.00	131.87	-265.76	Bighorn 4L-17H-P267 TPZ NEW
8	9579.21	90.00	355.36	7350.00	1100.00	-1440.00	0.00	0.00	1311.84	
9	9861.22	90.00	1.00	7350.00	1381.76	-1448.95	2.00	90.00	1591.52	
10	10361.22	90.00	1.00	7350.00	1881.68	-1440.23	0.00	0.00	2083.92	
11	10600.23	90.00	5.78	7350.00	2120.20	-1426.10	2.00	90.00	2317.28	
12	14460.87	90.00	5.78	7350.00	5961.21	-1037.29	0.00	0.00	6050.10	
3	15049.87	90.00	354.00	7350.00	6549.18	-1038.42	2.00	-90.00	6630.99	
4	15059.87	90.00	354.00	7350.00	6559.12	-1039.47	0.00	0.00	6640.98	Bighorn 4L-17H-P267 BHL 5.24

PLAN #3
BIGHORN 4L-17H-P267
23' KB @ 4983.00usft
Ground Level @ 4960.00
North American Datum 1983
Well BIGHORN 4L-17H-P267, True North

Type TD	Target No Target (Freehand)	Azimuth 350.99	Origin Type Slot	N/S 0.00	E/W 0.00	From TVD 0.00
Name	TVD	+N/-S	+E/-W	Latitude	Longitude	
Bighorn 4L-17H-P267 BHL	7350.00	7010.24	-1085.96	40.152926	-104.911654	
Bighorn 4L-17H-P267 BHL 5.24	7350.00	6559.12	-1039.47	41.151688	-104.911488	
Bighorn 4L-17H-P267 TPZ	7350.00	-476.08	-1208.75	40.132375	-104.912092	
Bighorn 4L-17H-P267 TPZ NEW	7350.00	-477.00	-1312.00	40.132372	-104.912461	

Project: DJ BASIN
Site: BIGHORN
Well: BIGHORN 4L-17H-P267
Wellbore: OH
Design: PLAN #3



WELL DETAILS: BIGHORN 4L-17H-P267

			4960.00		
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.00	0.00	1292097.00	3165589.18	40.133682	-104.907769



Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well BIGHORN 4L-17H-P267
Company:	Crestone Peak Resources	TVD Reference:	23' KB @ 4983.00usft
Project:	DJ BASIN	MD Reference:	23' KB @ 4983.00usft
Site:	BIGHORN	North Reference:	True
Well:	BIGHORN 4L-17H-P267	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	PLAN #3		

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		BIGHORN			
Site Position:		Northing:	1,292,097.01 usft	Latitude:	40.133684
From:	Lat/Long	Easting:	3,165,479.29 usft	Longitude:	-104.908162
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.38 °

Well	BIGHORN 4L-17H-P267					
Well Position	+N/-S	0.00 usft	Northing:	1,292,097.00 usft	Latitude:	40.133682
	+E/-W	0.00 usft	Easting:	3,165,589.18 usft	Longitude:	-104.907769
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	4,960.00 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	User Defined	8/8/2017	0.00	0.00	0.00000000

Design	PLAN #3			
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	350.99

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	
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,450.00	17.00	224.00	1,437.58	-90.05	-86.96	2.00	2.00	0.00	224.00	
2,850.00	17.00	224.00	2,776.41	-384.49	-371.29	0.00	0.00	0.00	0.00	
2,916.13	15.76	222.40	2,839.86	-398.07	-384.06	2.00	-1.88	-2.42	-160.80	
6,738.71	15.76	222.40	6,518.79	-1,164.63	-1,083.99	0.00	0.00	0.00	0.00	
7,997.02	90.00	355.36	7,350.00	-477.00	-1,312.00	8.00	5.90	10.57	131.87	Bighorn 4L-17H-P267
9,579.21	90.00	355.36	7,350.00	1,100.00	-1,440.00	0.00	0.00	0.00	0.00	
9,861.22	90.00	1.00	7,350.00	1,381.76	-1,448.95	2.00	0.00	2.00	90.00	
10,361.22	90.00	1.00	7,350.00	1,881.68	-1,440.23	0.00	0.00	0.00	0.00	
10,600.23	90.00	5.78	7,350.00	2,120.20	-1,426.10	2.00	0.00	2.00	90.00	
14,460.87	90.00	5.78	7,350.00	5,961.21	-1,037.29	0.00	0.00	0.00	0.00	
15,049.87	90.00	354.00	7,350.00	6,549.18	-1,038.42	2.00	0.00	-2.00	-90.00	
15,059.87	90.00	354.00	7,350.00	6,559.12	-1,039.47	0.00	0.00	0.00	0.00	Bighorn 4L-17H-P267

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well BIGHORN 4L-17H-P267
Company:	Crestone Peak Resources	TVD Reference:	23' KB @ 4983.00usft
Project:	DJ BASIN	MD Reference:	23' KB @ 4983.00usft
Site:	BIGHORN	North Reference:	True
Well:	BIGHORN 4L-17H-P267	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	PLAN #3		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100u)	Comments / Formations
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	
700.00	2.00	224.00	699.98	-1.26	-1.21	-1.05	2.00	2.00	
800.00	4.00	224.00	799.84	-5.02	-4.85	-4.20	2.00	2.00	
900.00	6.00	224.00	899.45	-11.29	-10.90	-9.44	2.00	2.00	
1,000.00	8.00	224.00	998.70	-20.06	-19.37	-16.78	2.00	2.00	
1,100.00	10.00	224.00	1,097.47	-31.31	-30.23	-26.19	2.00	2.00	
1,200.00	12.00	224.00	1,195.62	-45.03	-43.49	-37.67	2.00	2.00	
1,300.00	14.00	224.00	1,293.06	-61.21	-59.11	-51.21	2.00	2.00	
1,400.00	16.00	224.00	1,389.64	-79.83	-77.09	-66.78	2.00	2.00	
1,450.00	17.00	224.00	1,437.58	-90.05	-86.96	-75.32	2.00	2.00	
1,500.00	17.00	224.00	1,485.40	-100.56	-97.11	-84.12	0.00	0.00	
1,600.00	17.00	224.00	1,581.03	-121.59	-117.42	-101.71	0.00	0.00	
1,700.00	17.00	224.00	1,676.66	-142.62	-137.73	-119.31	0.00	0.00	
1,800.00	17.00	224.00	1,772.29	-163.66	-158.04	-136.90	0.00	0.00	
1,900.00	17.00	224.00	1,867.92	-184.69	-178.35	-154.49	0.00	0.00	
2,000.00	17.00	224.00	1,963.55	-205.72	-198.66	-172.09	0.00	0.00	
2,100.00	17.00	224.00	2,059.18	-226.75	-218.97	-189.68	0.00	0.00	
2,200.00	17.00	224.00	2,154.81	-247.78	-239.28	-207.27	0.00	0.00	
2,300.00	17.00	224.00	2,250.44	-268.81	-259.59	-224.87	0.00	0.00	
2,400.00	17.00	224.00	2,346.07	-289.84	-279.90	-242.46	0.00	0.00	
2,500.00	17.00	224.00	2,441.70	-310.88	-300.21	-260.05	0.00	0.00	
2,600.00	17.00	224.00	2,537.33	-331.91	-320.52	-277.65	0.00	0.00	
2,700.00	17.00	224.00	2,632.96	-352.94	-340.83	-295.24	0.00	0.00	
2,800.00	17.00	224.00	2,728.59	-373.97	-361.14	-312.83	0.00	0.00	
2,850.00	17.00	224.00	2,776.41	-384.49	-371.29	-321.63	0.00	0.00	
2,900.00	16.06	222.81	2,824.34	-394.82	-381.07	-330.30	2.00	-1.88	
2,916.13	15.76	222.40	2,839.86	-398.07	-384.06	-333.05	2.00	-1.87	
3,000.00	15.76	222.40	2,920.57	-414.89	-399.42	-347.26	0.00	0.00	
3,100.00	15.76	222.40	3,016.82	-434.94	-417.73	-364.20	0.00	0.00	
3,200.00	15.76	222.40	3,113.06	-455.00	-436.04	-381.14	0.00	0.00	
3,300.00	15.76	222.40	3,209.30	-475.05	-454.35	-398.08	0.00	0.00	
3,400.00	15.76	222.40	3,305.54	-495.10	-472.66	-415.02	0.00	0.00	
3,500.00	15.76	222.40	3,401.79	-515.16	-490.97	-431.96	0.00	0.00	
3,600.00	15.76	222.40	3,498.03	-535.21	-509.28	-448.90	0.00	0.00	
3,700.00	15.76	222.40	3,594.27	-555.26	-527.59	-465.84	0.00	0.00	
3,800.00	15.76	222.40	3,690.51	-575.32	-545.90	-482.78	0.00	0.00	
3,900.00	15.76	222.40	3,786.75	-595.37	-564.21	-499.72	0.00	0.00	
4,000.00	15.76	222.40	3,883.00	-615.43	-582.52	-516.66	0.00	0.00	
4,100.00	15.76	222.40	3,979.24	-635.48	-600.83	-533.60	0.00	0.00	
4,200.00	15.76	222.40	4,075.48	-655.53	-619.14	-550.54	0.00	0.00	
4,300.00	15.76	222.40	4,171.72	-675.59	-637.46	-567.48	0.00	0.00	
4,400.00	15.76	222.40	4,267.97	-695.64	-655.77	-584.42	0.00	0.00	
4,500.00	15.76	222.40	4,364.21	-715.69	-674.08	-601.36	0.00	0.00	
4,600.00	15.76	222.40	4,460.45	-735.75	-692.39	-618.30	0.00	0.00	
4,700.00	15.76	222.40	4,556.69	-755.80	-710.70	-635.24	0.00	0.00	
4,800.00	15.76	222.40	4,652.94	-775.85	-729.01	-652.18	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well BIGHORN 4L-17H-P267
Company:	Crestone Peak Resources	TVD Reference:	23' KB @ 4983.00usft
Project:	DJ BASIN	MD Reference:	23' KB @ 4983.00usft
Site:	BIGHORN	North Reference:	True
Well:	BIGHORN 4L-17H-P267	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	PLAN #3		

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
4,900.00	15.76	222.40	4,749.18	-795.91	-747.32	-669.12	0.00	0.00	
5,000.00	15.76	222.40	4,845.42	-815.96	-765.63	-686.06	0.00	0.00	
5,100.00	15.76	222.40	4,941.66	-836.01	-783.94	-703.01	0.00	0.00	
5,200.00	15.76	222.40	5,037.91	-856.07	-802.25	-719.95	0.00	0.00	
5,300.00	15.76	222.40	5,134.15	-876.12	-820.56	-736.89	0.00	0.00	
5,400.00	15.76	222.40	5,230.39	-896.18	-838.87	-753.83	0.00	0.00	
5,500.00	15.76	222.40	5,326.63	-916.23	-857.18	-770.77	0.00	0.00	
5,600.00	15.76	222.40	5,422.87	-936.28	-875.49	-787.71	0.00	0.00	
5,700.00	15.76	222.40	5,519.12	-956.34	-893.80	-804.65	0.00	0.00	
5,800.00	15.76	222.40	5,615.36	-976.39	-912.11	-821.59	0.00	0.00	
5,900.00	15.76	222.40	5,711.60	-996.44	-930.42	-838.53	0.00	0.00	
6,000.00	15.76	222.40	5,807.84	-1,016.50	-948.73	-855.47	0.00	0.00	
6,100.00	15.76	222.40	5,904.09	-1,036.55	-967.04	-872.41	0.00	0.00	
6,200.00	15.76	222.40	6,000.33	-1,056.60	-985.35	-889.35	0.00	0.00	
6,300.00	15.76	222.40	6,096.57	-1,076.66	-1,003.66	-906.29	0.00	0.00	
6,400.00	15.76	222.40	6,192.81	-1,096.71	-1,021.97	-923.23	0.00	0.00	
6,500.00	15.76	222.40	6,289.06	-1,116.76	-1,040.28	-940.17	0.00	0.00	
6,600.00	15.76	222.40	6,385.30	-1,136.82	-1,058.59	-957.11	0.00	0.00	
6,700.00	15.76	222.40	6,481.54	-1,156.87	-1,076.90	-974.05	0.00	0.00	
6,738.71	15.76	222.40	6,518.79	-1,164.63	-1,083.99	-980.61	0.00	0.00	
6,800.00	12.99	238.84	6,578.19	-1,174.35	-1,095.51	-988.40	8.00	-4.51	
6,900.00	11.88	276.30	6,675.99	-1,179.05	-1,115.39	-989.93	8.00	-1.12	
7,000.00	15.48	307.13	6,773.27	-1,169.85	-1,136.29	-977.57	8.00	3.60	
7,100.00	21.54	323.82	6,868.12	-1,146.94	-1,157.79	-951.58	8.00	6.07	
7,200.00	28.55	333.05	6,958.69	-1,110.76	-1,179.49	-912.45	8.00	7.00	
7,300.00	35.94	338.81	7,043.23	-1,062.02	-1,200.96	-860.95	8.00	7.39	
7,400.00	43.53	342.80	7,120.09	-1,001.66	-1,221.79	-798.08	8.00	7.59	
7,500.00	51.22	345.81	7,187.77	-930.86	-1,241.55	-725.06	8.00	7.69	
7,600.00	58.97	348.22	7,244.96	-851.01	-1,259.88	-643.32	8.00	7.75	
7,700.00	66.76	350.27	7,290.54	-763.64	-1,276.42	-554.44	8.00	7.79	
7,800.00	74.57	352.09	7,323.63	-670.47	-1,290.83	-460.16	8.00	7.81	
7,900.00	82.40	353.78	7,343.57	-573.30	-1,302.85	-362.31	8.00	7.83	
7,988.19	89.31	355.22	7,349.95	-485.80	-1,311.27	-274.57	8.00	7.83	Bighorn 4L-17H-P267 TPZ
7,997.02	90.00	355.36	7,350.00	-477.00	-1,312.00	-265.76	8.00	7.83	Bighorn 4L-17H-P267 TPZ NEW
8,000.00	90.00	355.36	7,350.00	-474.03	-1,312.24	-262.79	0.00	0.00	
8,100.00	90.00	355.36	7,350.00	-374.36	-1,320.33	-163.08	0.00	0.00	
8,200.00	90.00	355.36	7,350.00	-274.69	-1,328.42	-63.37	0.00	0.00	
8,300.00	90.00	355.36	7,350.00	-175.01	-1,336.51	36.34	0.00	0.00	
8,400.00	90.00	355.36	7,350.00	-75.34	-1,344.60	136.05	0.00	0.00	
8,500.00	90.00	355.36	7,350.00	24.33	-1,352.69	235.76	0.00	0.00	
8,600.00	90.00	355.36	7,350.00	124.00	-1,360.78	335.47	0.00	0.00	
8,700.00	90.00	355.36	7,350.00	223.68	-1,368.87	435.18	0.00	0.00	
8,800.00	90.00	355.36	7,350.00	323.35	-1,376.96	534.89	0.00	0.00	
8,900.00	90.00	355.36	7,350.00	423.02	-1,385.05	634.60	0.00	0.00	
9,000.00	90.00	355.36	7,350.00	522.69	-1,393.14	734.31	0.00	0.00	
9,100.00	90.00	355.36	7,350.00	622.36	-1,401.23	834.02	0.00	0.00	
9,200.00	90.00	355.36	7,350.00	722.04	-1,409.32	933.73	0.00	0.00	
9,300.00	90.00	355.36	7,350.00	821.71	-1,417.41	1,033.44	0.00	0.00	
9,400.00	90.00	355.36	7,350.00	921.38	-1,425.50	1,133.15	0.00	0.00	
9,500.00	90.00	355.36	7,350.00	1,021.05	-1,433.59	1,232.86	0.00	0.00	
9,579.21	90.00	355.36	7,350.00	1,100.00	-1,440.00	1,311.84	0.00	0.00	
9,600.00	90.00	355.78	7,350.00	1,120.73	-1,441.61	1,332.56	2.00	0.00	

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well BIGHORN 4L-17H-P267
Company:	Crestone Peak Resources	TVD Reference:	23' KB @ 4983.00usft
Project:	DJ BASIN	MD Reference:	23' KB @ 4983.00usft
Site:	BIGHORN	North Reference:	True
Well:	BIGHORN 4L-17H-P267	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	PLAN #3		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100u)	Comments / Formations
9,700.00	90.00	357.78	7,350.00	1,220.57	-1,447.23	1,432.05	2.00	0.00	
9,800.00	90.00	359.78	7,350.00	1,320.54	-1,449.37	1,531.12	2.00	0.00	
9,861.22	90.00	1.00	7,350.00	1,381.76	-1,448.95	1,591.52	2.00	0.00	
9,900.00	90.00	1.00	7,350.00	1,420.53	-1,448.28	1,629.71	0.00	0.00	
10,000.00	90.00	1.00	7,350.00	1,520.52	-1,446.53	1,728.19	0.00	0.00	
10,100.00	90.00	1.00	7,350.00	1,620.50	-1,444.79	1,826.67	0.00	0.00	
10,200.00	90.00	1.00	7,350.00	1,720.49	-1,443.04	1,925.15	0.00	0.00	
10,300.00	90.00	1.00	7,350.00	1,820.47	-1,441.30	2,023.63	0.00	0.00	
10,361.22	90.00	1.00	7,350.00	1,881.68	-1,440.23	2,083.92	0.00	0.00	
10,400.00	90.00	1.78	7,350.00	1,920.45	-1,439.29	2,122.06	2.00	0.00	
10,500.00	90.00	3.78	7,350.00	2,020.33	-1,434.45	2,219.95	2.00	0.00	
10,600.00	90.00	5.78	7,350.00	2,119.98	-1,426.12	2,317.07	2.00	0.00	
10,600.23	90.00	5.78	7,350.00	2,120.20	-1,426.10	2,317.28	2.00	0.00	
10,700.00	90.00	5.78	7,350.00	2,219.47	-1,416.05	2,413.76	0.00	0.00	
10,800.00	90.00	5.78	7,350.00	2,318.96	-1,405.98	2,510.44	0.00	0.00	
10,900.00	90.00	5.78	7,350.00	2,418.45	-1,395.91	2,607.13	0.00	0.00	
11,000.00	90.00	5.78	7,350.00	2,517.94	-1,385.84	2,703.82	0.00	0.00	
11,100.00	90.00	5.78	7,350.00	2,617.43	-1,375.77	2,800.51	0.00	0.00	
11,200.00	90.00	5.78	7,350.00	2,716.92	-1,365.70	2,897.20	0.00	0.00	
11,300.00	90.00	5.78	7,350.00	2,816.42	-1,355.62	2,993.89	0.00	0.00	
11,400.00	90.00	5.78	7,350.00	2,915.91	-1,345.55	3,090.58	0.00	0.00	
11,500.00	90.00	5.78	7,350.00	3,015.40	-1,335.48	3,187.27	0.00	0.00	
11,600.00	90.00	5.78	7,350.00	3,114.89	-1,325.41	3,283.96	0.00	0.00	
11,700.00	90.00	5.78	7,350.00	3,214.38	-1,315.34	3,380.64	0.00	0.00	
11,800.00	90.00	5.78	7,350.00	3,313.87	-1,305.27	3,477.33	0.00	0.00	
11,900.00	90.00	5.78	7,350.00	3,413.37	-1,295.20	3,574.02	0.00	0.00	
12,000.00	90.00	5.78	7,350.00	3,512.86	-1,285.13	3,670.71	0.00	0.00	
12,100.00	90.00	5.78	7,350.00	3,612.35	-1,275.06	3,767.40	0.00	0.00	
12,200.00	90.00	5.78	7,350.00	3,711.84	-1,264.99	3,864.09	0.00	0.00	
12,300.00	90.00	5.78	7,350.00	3,811.33	-1,254.92	3,960.78	0.00	0.00	
12,400.00	90.00	5.78	7,350.00	3,910.82	-1,244.84	4,057.47	0.00	0.00	
12,500.00	90.00	5.78	7,350.00	4,010.32	-1,234.77	4,154.16	0.00	0.00	
12,600.00	90.00	5.78	7,350.00	4,109.81	-1,224.70	4,250.84	0.00	0.00	
12,700.00	90.00	5.78	7,350.00	4,209.30	-1,214.63	4,347.53	0.00	0.00	
12,800.00	90.00	5.78	7,350.00	4,308.79	-1,204.56	4,444.22	0.00	0.00	
12,900.00	90.00	5.78	7,350.00	4,408.28	-1,194.49	4,540.91	0.00	0.00	
13,000.00	90.00	5.78	7,350.00	4,507.77	-1,184.42	4,637.60	0.00	0.00	
13,100.00	90.00	5.78	7,350.00	4,607.26	-1,174.35	4,734.29	0.00	0.00	
13,200.00	90.00	5.78	7,350.00	4,706.76	-1,164.28	4,830.98	0.00	0.00	
13,300.00	90.00	5.78	7,350.00	4,806.25	-1,154.21	4,927.67	0.00	0.00	
13,400.00	90.00	5.78	7,350.00	4,905.74	-1,144.13	5,024.36	0.00	0.00	
13,500.00	90.00	5.78	7,350.00	5,005.23	-1,134.06	5,121.05	0.00	0.00	
13,600.00	90.00	5.78	7,350.00	5,104.72	-1,123.99	5,217.73	0.00	0.00	
13,700.00	90.00	5.78	7,350.00	5,204.21	-1,113.92	5,314.42	0.00	0.00	
13,800.00	90.00	5.78	7,350.00	5,303.71	-1,103.85	5,411.11	0.00	0.00	
13,900.00	90.00	5.78	7,350.00	5,403.20	-1,093.78	5,507.80	0.00	0.00	
14,000.00	90.00	5.78	7,350.00	5,502.69	-1,083.71	5,604.49	0.00	0.00	
14,100.00	90.00	5.78	7,350.00	5,602.18	-1,073.64	5,701.18	0.00	0.00	
14,200.00	90.00	5.78	7,350.00	5,701.67	-1,063.57	5,797.87	0.00	0.00	
14,300.00	90.00	5.78	7,350.00	5,801.16	-1,053.50	5,894.56	0.00	0.00	
14,400.00	90.00	5.78	7,350.00	5,900.66	-1,043.42	5,991.25	0.00	0.00	
14,460.87	90.00	5.78	7,350.00	5,961.21	-1,037.29	6,050.10	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well BIGHORN 4L-17H-P267
Company:	Crestone Peak Resources	TVD Reference:	23' KB @ 4983.00usft
Project:	DJ BASIN	MD Reference:	23' KB @ 4983.00usft
Site:	BIGHORN	North Reference:	True
Well:	BIGHORN 4L-17H-P267	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	PLAN #3		

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
14,500.00	90.00	5.00	7,350.00	6,000.17	-1,033.62	6,088.00	2.00	0.00	
14,600.00	90.00	3.00	7,350.00	6,099.92	-1,026.65	6,185.43	2.00	0.00	
14,700.00	90.00	1.00	7,350.00	6,199.86	-1,023.16	6,283.59	2.00	0.00	
14,800.00	90.00	359.00	7,350.00	6,299.85	-1,023.17	6,382.35	2.00	0.00	
14,900.00	90.00	357.00	7,350.00	6,399.79	-1,026.66	6,481.60	2.00	0.00	
15,000.00	90.00	355.00	7,350.00	6,499.54	-1,033.64	6,581.22	2.00	0.00	
15,049.87	90.00	354.00	7,350.00	6,549.18	-1,038.42	6,630.99	2.00	0.00	
15,059.87	90.00	354.00	7,350.00	6,559.12	-1,039.47	6,640.98	0.00	0.00	Bighorn 4L-17H-P267 BHL 5.24 - Bighorn 4L-17

Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
Bighorn 4L-17H-P267 TI - hit/miss target - Shape - Point	0.00	0.00	7,350.00	-476.08	-1,208.75	1,291,612.86	3,164,383.63	40.132375	-104.912092
Bighorn 4L-17H-P267 BI - plan misses target center by 102.98usft at 7989.46usft MD (7349.96 TVD, -484.53 N, -1311.38 E) - Point	0.00	0.00	7,350.00	6,559.12	-1,039.47	1,298,649.03	3,164,505.93	40.151688	-104.911488
Bighorn 4L-17H-P267 TI - plan hits target center - Point	0.00	0.00	7,350.00	-477.00	-1,312.00	1,291,611.25	3,164,280.39	40.132372	-104.912461
Bighorn 4L-17H-P267 BI - plan misses target center by 453.51usft at 15059.87usft MD (7350.00 TVD, 6559.12 N, -1039.47 E) - Point	0.00	0.00	7,350.00	7,010.24	-1,085.96	1,299,099.83	3,164,456.43	40.152926	-104.911654

Crestone Peak Resources

DJ BASIN

BIGHORN

BIGHORN 4L-17H-P267

OH

PLAN #3

Anticollision Summary Report

24 May, 2018

Cathedral Energy Services

Anticollision Summary Report

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well BIGHORN 4L-17H-P267
Project:	DJ BASIN	TVD Reference:	23' KB @ 4983.00usft
Reference Site:	BIGHORN	MD Reference:	23' KB @ 4983.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	BIGHORN 4L-17H-P267	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	PLAN #3	Offset TVD Reference:	Offset Datum

Reference	PLAN #3		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	MD Interval 100.00usft	Error Model:	ISCWSA
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 1,933.21 usft	Error Surface:	Pedal Curve
Warning Levels Evaluated at:	2.00 Sigma	Casing Method:	Not applied

Survey Tool Program	Date	5/24/2018			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
0.00	2,000.00	PLAN #3 (OH)	VESSI_GYROFLEX	VESSI Gyroflex Gyro	
2,001.00	15,059.87	PLAN #3 (OH)	MWD+HDGM	OWSG MWD + HDGM	

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						
BIGHORN						
BIGHORN 4A-17H-P267 - OH - PLAN #2	500.00	499.00	109.89	108.36	71.873	CC, ES
BIGHORN 4A-17H-P267 - OH - PLAN #2	6,700.00	6,307.67	1,922.16	1,838.45	22.962	SF
BIGHORN 4AA-17H-P267 - OH - PLAN #1	200.00	199.00	139.81	139.32	290.229	CC, ES
BIGHORN 4AA-17H-P267 - OH - PLAN #1	5,600.00	5,120.67	1,911.54	1,854.11	33.288	SF
BIGHORN 4AB-17H-P267 - OH - PLAN #2	300.00	299.00	130.02	129.19	156.505	CC, ES
BIGHORN 4AB-17H-P267 - OH - PLAN #2	5,700.00	5,202.26	1,926.40	1,856.79	27.675	SF
BIGHORN 4AC-17H-P267 - OH - PLAN #1	400.00	399.00	119.95	118.78	101.670	CC, ES
BIGHORN 4AC-17H-P267 - OH - PLAN #1	6,100.00	5,633.72	1,915.27	1,843.78	26.792	SF
BIGHORN 4B-17H-P267 - OH - PLAN #2	600.00	599.00	99.82	97.94	53.154	CC
BIGHORN 4B-17H-P267 - OH - PLAN #2	800.00	793.86	100.14	97.56	38.926	ES
BIGHORN 4B-17H-P267 - OH - PLAN #2	1,600.00	1,570.76	114.67	109.23	21.075	SF
BIGHORN 4C-17H-P267 - OH - PLAN #1	200.00	199.00	90.04	89.55	186.907	CC, ES
BIGHORN 4C-17H-P267 - OH - PLAN #1	6,800.00	6,432.20	1,834.50	1,754.54	22.945	SF
BIGHORN 4D-17H-P267 - OH - PLAN #3	934.98	928.31	75.77	72.72	24.847	CC, ES
BIGHORN 4D-17H-P267 - OH - PLAN #3	12,700.00	13,275.29	1,926.03	1,635.04	6.619	SF
BIGHORN 4E-17H-P267 - OH - PLAN #1	251.43	250.43	69.90	69.24	105.667	CC
BIGHORN 4E-17H-P267 - OH - PLAN #1	300.00	298.95	69.93	69.10	84.121	ES
BIGHORN 4E-17H-P267 - OH - PLAN #1	13,300.00	13,528.64	1,863.46	1,544.30	5.839	SF
BIGHORN 4F-17H-P267 - OH - PLAN #1	1,037.81	1,032.81	49.62	46.20	14.507	CC, ES
BIGHORN 4F-17H-P267 - OH - PLAN #1	13,200.00	13,738.15	1,693.12	1,378.85	5.387	SF
BIGHORN 4G-17H-P267 - OH - PLAN #4	1,040.19	1,037.31	36.34	32.90	10.565	CC, ES
BIGHORN 4G-17H-P267 - OH - PLAN #4	13,200.00	13,484.21	1,375.18	1,059.86	4.361	SF
BIGHORN 4H-17H-P267 - OH - PLAN #1	237.67	236.67	39.98	39.37	65.181	CC
BIGHORN 4H-17H-P267 - OH - PLAN #1	300.00	298.93	40.04	39.21	48.171	ES
BIGHORN 4H-17H-P267 - OH - PLAN #1	12,000.00	12,147.96	871.72	617.18	3.425	SF
BIGHORN 4I-17H-P267 - OH - PLAN #1	336.55	335.55	29.92	28.96	31.213	CC
BIGHORN 4I-17H-P267 - OH - PLAN #1	400.00	398.93	30.00	28.82	25.419	ES
BIGHORN 4I-17H-P267 - OH - PLAN #1	13,100.00	13,406.94	809.74	501.74	2.629	SF
BIGHORN 4J-17H-P267 - OH - PLAN #3	400.00	399.00	19.85	18.67	16.828	CC, ES
BIGHORN 4J-17H-P267 - OH - PLAN #3	15,059.87	15,178.35	630.16	303.65	1.930	SF
BIGHORN 4K-17H-P267 - OH - PLAN #2	500.00	499.00	9.79	8.26	6.404	CC
BIGHORN 4K-17H-P267 - OH - PLAN #2	11,900.00	11,883.74	109.27	-95.59	0.533	Level 1, SF
BIGHORN 4K-17H-P267 - OH - PLAN #2	13,300.00	13,280.50	192.67	-116.89	0.622	Level 1, ES
BIGHORN 4M-17H-P267 - OH - PLAN #1	257.33	257.34	10.03	9.34	14.662	CC
BIGHORN 4M-17H-P267 - OH - PLAN #1	15,059.87	15,145.65	174.33	-71.32	0.710	Level 1, ES, SF
BIGHORN 4N-17H-P267 - OH - PLAN #2	619.89	620.15	18.07	16.12	9.238	CC

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

Cathedral Energy Services

Anticollision Summary Report

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well BIGHORN 4L-17H-P267
Project:	DJ BASIN	TVD Reference:	23' KB @ 4983.00usft
Reference Site:	BIGHORN	MD Reference:	23' KB @ 4983.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	BIGHORN 4L-17H-P267	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	PLAN #3	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						
BIGHORN						
BIGHORN 4N-17H-P267 - OH - PLAN #2	14,600.00	14,440.31	381.18	-14.81	0.963	Level 1, ES, SF
BIGHORN 4O-17H-P267 - OH - PLAN #2	555.23	555.57	27.97	26.24	16.161	CC, ES
BIGHORN 4O-17H-P267 - OH - PLAN #2	15,059.87	14,901.81	704.48	281.75	1.666	SF
BIGHORN 4P-17H-P267 - OH - PLAN #3	292.31	292.32	39.96	39.15	49.576	CC
BIGHORN 4P-17H-P267 - OH - PLAN #3	300.00	300.01	39.96	39.12	47.977	ES
BIGHORN 4P-17H-P267 - OH - PLAN #3	14,900.00	14,717.37	988.45	572.59	2.377	SF
BIGHORN 4Q-17H-P267 - OH - PLAN #3	400.00	400.00	50.05	48.87	42.359	CC
BIGHORN 4Q-17H-P267 - OH - PLAN #3	500.00	499.91	50.13	48.60	32.749	ES
BIGHORN 4Q-17H-P267 - OH - PLAN #3	15,059.87	15,067.81	1,452.26	1,028.54	3.427	SF
BIGHORN 4R-17H-P267 - OH - PLAN #2	300.00	300.00	60.12	59.28	72.210	CC, ES
BIGHORN 4R-17H-P267 - OH - PLAN #2	15,059.87	14,825.20	1,608.22	1,184.66	3.797	SF
BIGHORN 4S-17H-P267 - OH - PLAN #3	200.00	200.00	70.18	69.70	145.167	CC, ES
BIGHORN 4S-17H-P267 - OH - PLAN #3	14,700.00	14,508.14	1,932.42	1,620.09	6.187	SF

Cathedral Energy Services

Anticollision Summary Report

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well BIGHORN 4L-17H-P267
Project:	DJ BASIN	TVD Reference:	23' KB @ 4983.00usft
Reference Site:	BIGHORN	MD Reference:	23' KB @ 4983.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	BIGHORN 4L-17H-P267	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	PLAN #3	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						
S17-T2N-R67W (OFFSETS)						
ABBEY STATE V16-77HN - KMG WELL - SURVEYS						Out of range
ALFRED D SATER UNIT 2 - KMG WELL - GYRO						Out of range
ALVIN STATE 1 - PDC WELL - GYRO	519.48	526.48	1,513.39	1,511.76	926.529	CC
ALVIN STATE 1 - PDC WELL - GYRO	600.00	597.82	1,513.64	1,511.74	798.121	ES
ALVIN STATE 1 - PDC WELL - GYRO	3,100.00	3,044.90	1,917.75	1,904.46	144.397	SF
ASPEN STATE V16-75HN - KMG WELL - SURVEYS						Out of range
CHENG 3-8A - KMG WELL - SURVEYS						Out of range
CIRBO 4-6-5 - CPR WELL - SURVEYS						Out of range
CIRBO 6-4-5 - CPR WELL - SURVEYS						Out of range
DECHANT 2-16 - KMG WELL - GYRO						Out of range
DECHANT 6 - KPK WELL - NO SURVEYS						Out of range
DECHANT 7 - KPK WELL - NO SURVEYS	600.00	590.00	1,694.68	1,691.81	590.113	CC, ES
DECHANT 7 - KPK WELL - NO SURVEYS	1,800.00	1,762.29	1,919.98	1,910.76	208.244	SF
DECHANT 8 - GERRITY WELL - NO SURVEYS						Out of range
DECHANT STATE 1 - KPK WELL - SURVEYS						Out of range
DECHANT STATE GAS U 9 - KMG WELL - GYRO	608.68	639.50	1,849.92	1,847.94	937.996	CC, ES
DECHANT STATE GAS U 9 - KMG WELL - GYRO	1,400.00	1,430.99	1,924.74	1,919.95	402.073	SF
DECHANT STATE V 16-11JI - KMG WELL - GYRO						Out of range
DECHANT STATE V 16-12JI - KMG WELL - GYRO	656.88	687.30	1,788.63	1,786.47	831.227	CC, ES
DECHANT STATE V 16-12JI - KMG WELL - GYRO	1,500.00	1,520.06	1,911.36	1,906.23	372.967	SF
DECHANT STATE V 16-14JI - KMG WELL - GYRO						Out of range
DECHANT STATE V 16-4JI - KMG WELL - GYRO						Out of range
DECHANT STATE V 16-5JI - KMG WELL - GYRO						Out of range
DECHANT V 16-3JI - KMG WELL - GYRO						Out of range
DECHANT-STATE 2 - KPK WELL - NO SURVEYS						Out of range
DECHANT-STATE 3 - KPK WELL - NO SURVEYS	600.00	602.00	1,542.16	1,539.25	530.221	CC, ES
DECHANT-STATE 3 - KPK WELL - NO SURVEYS	3,000.00	2,922.57	1,918.87	1,900.90	106.760	SF
DECHANT-STATE 4 - KPK WELL - NO SURVEYS						Out of range
DECHANT-STATE 5 - KPK WELL - NO SURVEYS						Out of range
DIER 1 - CPR WELL - GYRO	14,830.00	7,358.57	1,178.71	960.83	5.410	CC, ES
DIER 1 - CPR WELL - GYRO	14,900.00	7,359.36	1,181.64	961.73	5.373	SF
DIER 13-8 - CPR WELL - SURVEYS						Out of range
DIER 14-8 - CPR WELL - SURVEYS						Out of range
DIER 23-8 - CPR WELL - SURVEYS	15,059.87	7,490.59	1,276.67	1,051.67	5.674	CC, ES, SF
DIER 24-8 - CPR WELL - SURVEYS	13,274.26	7,596.80	1,378.99	1,200.58	7.729	CC
DIER 24-8 - CPR WELL - SURVEYS	13,300.00	7,595.12	1,379.23	1,199.74	7.684	ES
DIER 24-8 - CPR WELL - SURVEYS	13,500.00	7,579.05	1,397.23	1,211.23	7.512	SF
DIER 33-8 - CPR WELL - GYRO	14,872.64	7,306.65	179.96	-38.80	0.823	Level 1, CC, ES, SF
DIER 34-8 - CPR WELL - GYRO	13,402.17	7,308.64	336.41	158.65	1.892	CC, ES, SF
DIER 44-8 - CPR WELL - GYRO	13,415.24	7,268.47	1,406.57	1,228.80	7.912	CC, ES
DIER 44-8 - CPR WELL - GYRO	13,500.00	7,265.95	1,409.12	1,230.28	7.879	SF
DIER 4-4-8 - CPR WELL - SURVEYS	15,059.87	7,360.80	835.88	629.95	4.059	CC, ES, SF
DIER 4-8 - CPR WELL - GYRO						Out of range
DIER 8-4-8 - CPR WELL - SURVEYS	15,059.87	7,382.31	1,842.07	1,617.90	8.217	CC, ES, SF
DIER 8-6-8 - CPR WELL - SURVEYS	14,304.28	7,511.52	1,832.46	1,621.84	8.701	CC, ES
DIER 8-6-8 - CPR WELL - SURVEYS	14,400.00	7,510.99	1,834.95	1,623.10	8.661	SF
DIER J1A - CPR WELL - GYRO	14,040.89	7,332.18	502.89	307.32	2.571	CC, ES, SF
ELKHORN CO B 3 - KPK WELL - NO SURVEYS						Out of range
ELKHORN CO UNIT 2 - KMG WELL - GYRO						Out of range
ELKHORN CO-B 6 - KPK WELL - NO SURVEYS						Out of range
ELKHORN CO-B 7 - KPK WELL - NO SURVEYS						Out of range
ELKHORN COMPANY B 2 - KMG WELL - GYRO						Out of range
FIRESTONE 20-29D - KMG WELL - SURVEYS	7,300.00	7,106.47	1,739.49	1,686.69	32.944	SF

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

Cathedral Energy Services

Anticollision Summary Report

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well BIGHORN 4L-17H-P267
Project:	DJ BASIN	TVD Reference:	23' KB @ 4983.00usft
Reference Site:	BIGHORN	MD Reference:	23' KB @ 4983.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	BIGHORN 4L-17H-P267	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	PLAN #3	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						
S17-T2N-R67W (OFFSETS)						
FIRESTONE 20-29D - KMG WELL - SURVEYS	7,728.23	7,370.26	1,682.26	1,632.60	33.877	CC, ES
FIRESTONE V 20-04D - KMG WELL - SURVEYS						Out of range
FIRESTONE V 20-08D - KMG WELL - SURVEYS	2,802.68	2,411.39	1,709.24	1,698.37	157.190	CC, ES
FIRESTONE V 20-08D - KMG WELL - SURVEYS	4,800.00	4,164.98	1,922.92	1,891.47	61.144	SF
FIRESTONE V 20-18D - KMG WELL - SURVEYS	6,980.00	6,866.68	1,207.56	1,164.90	28.309	CC, ES
FIRESTONE V 20-18D - KMG WELL - SURVEYS	7,300.00	7,164.02	1,269.92	1,223.82	27.550	SF
FIRESTONE V 20-2 - KMG WELL - GYRO	7,006.21	6,773.90	348.96	304.73	7.890	CC, ES
FIRESTONE V 20-2 - KMG WELL - GYRO	7,100.00	6,863.85	354.60	308.93	7.764	SF
FIRESTONE V 20-3 - KMG WELL - GYRO	7,000.00	6,806.88	1,421.62	1,384.33	38.122	SF
FIRESTONE V 20-3 - KMG WELL - GYRO	7,226.67	7,007.95	1,404.83	1,368.69	38.865	CC, ES
HOMESTEAD 22-4 - KMG WELL - SURVEYS						Out of range
HOMESTEAD 29-4 - KMG WELL - SURVEYS						Out of range
HOMESTEAD 31-4 - KMG WELL - SURVEYS						Out of range
HOMESTEAD 4-4 - KMG WELL - GYRO						Out of range
HSR-DODERO 6-4A - KMG WELL - GYRO						Out of range
HSR-MCHALE 7-5A - KMG WELL - GYRO						Out of range
HSR-RHOADES 8-5A - KMG WELL - GYRO						Out of range
HSR-SATER 1-8A - KMG WELL - GYRO						Out of range
HSR-VOGL 3-5A - KMG WELL - GYRO						Out of range
MAHONEY 1 - KPK WELL - NO SURVEYS	4,666.99	4,521.93	1,021.98	982.04	25.591	CC
MAHONEY 1 - KPK WELL - NO SURVEYS	4,800.00	4,649.94	1,022.62	981.07	24.617	ES
MAHONEY 1 - KPK WELL - NO SURVEYS	5,300.00	5,042.00	1,040.16	993.33	22.212	SF
MAHONEY 2 - KPK WELL - NO SURVEYS						Out of range
MAHONEY-PERRIN 2 - KPK WELL - NO SURVEYS	5,421.60	5,050.00	728.98	694.72	21.277	CC, ES, SF
MCCLAY 5-4A - KMG WELL - GYRO						Out of range
MCCOY 1 - CPR WELL - GYRO						Out of range
MCCOY 13-5 - CPR WELL - GYRO						Out of range
MCCOY 14-5 - CPR WELL - GYRO						Out of range
MCCOY 23-5 - CPR WELL - GYRO						Out of range
MCCOY 24-5 - CPR WELL - GYRO						Out of range
MCCOY 2-4-5 - CPR WELL - SURVEYS						Out of range
MCHALE 2-5 - KMG WELL - GYRO						Out of range
MCHALE UNIT 1 - KMG WELL - GYRO						Out of range
MCHALE-B 1 - AMOCO WELL - NO SURVEYS						Out of range
MERLE L MCHALE UNIT 2 - KMG WELL - GYRO						Out of range
MILLER 1 - EXTRACTION WELL - GYRO	11,941.02	7,339.30	1,063.41	925.66	7.720	CC, ES
MILLER 1 - EXTRACTION WELL - GYRO	12,000.00	7,338.94	1,065.05	926.74	7.701	SF
MILLER 11-17 - CPR WELL - SURVEYS						Out of range
MILLER 1-17 - CPR WELL - SURVEYS	11,700.45	6,804.64	952.99	836.67	8.193	CC, ES
MILLER 1-17 - CPR WELL - SURVEYS	11,800.00	6,790.00	957.99	839.27	8.070	SF
MILLER 12-17 - CPR WELL - SURVEYS						Out of range
MILLER 13-17 - CPR WELL - SURVEYS						Out of range
MILLER 14-17 - EXTRACTION WELL - NO SURVEYS						Out of range
MILLER 21-17 - CPR WELL - GYRO	12,174.19	7,310.26	1,355.17	1,211.18	9.411	CC
MILLER 21-17 - CPR WELL - GYRO	12,200.00	7,310.30	1,355.42	1,210.45	9.350	ES
MILLER 21-17 - CPR WELL - GYRO	12,400.00	7,310.64	1,373.86	1,222.87	9.099	SF
MILLER 2-17 - CPR WELL - GYRO	11,331.10	7,315.52	1,096.87	975.55	9.042	CC, ES
MILLER 2-17 - CPR WELL - GYRO	11,400.00	7,314.30	1,099.03	977.04	9.009	SF
MILLER 22-17 - CPR WELL - SURVEYS	10,669.07	7,806.48	1,105.20	983.68	9.095	CC
MILLER 22-17 - CPR WELL - SURVEYS	10,700.00	7,803.33	1,105.63	982.82	9.002	ES
MILLER 22-17 - CPR WELL - SURVEYS	10,900.00	7,780.76	1,128.80	999.43	8.726	SF
MILLER 23-17 - CPR WELL - SURVEYS	9,632.82	7,728.06	1,055.90	960.58	11.078	CC, ES
MILLER 23-17 - CPR WELL - SURVEYS	9,800.00	7,735.19	1,073.81	975.84	10.961	SF

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

Cathedral Energy Services

Anticollision Summary Report

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well BIGHORN 4L-17H-P267
Project:	DJ BASIN	TVD Reference:	23' KB @ 4983.00usft
Reference Site:	BIGHORN	MD Reference:	23' KB @ 4983.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	BIGHORN 4L-17H-P267	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	PLAN #3	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						
S17-T2N-R67W (OFFSETS)						
MILLER 24-17 - CPR WELL - GYRO	8,473.46	7,332.95	1,158.59	1,105.24	21.716	CC, ES
MILLER 24-17 - CPR WELL - GYRO	8,900.00	7,335.87	1,234.61	1,175.13	20.758	SF
MILLER 2-4-17 - CPR WELL - SURVEYS	10,067.64	7,545.96	1,803.31	1,697.42	17.029	CC
MILLER 2-4-17 - CPR WELL - SURVEYS	10,100.00	7,545.99	1,803.60	1,696.81	16.889	ES
MILLER 2-4-17 - CPR WELL - SURVEYS	10,500.00	7,546.38	1,857.67	1,741.84	16.037	SF
MILLER 31-17C - EXTRACTION WELL - GYRO	12,219.60	7,312.08	151.25	5.97	1.041	Level 2, CC, ES, SF
MILLER 3-17J - CPR WELL - GYRO	1,130.73	1,109.71	613.29	609.54	163.717	CC
MILLER 3-17J - CPR WELL - GYRO	1,200.00	1,176.85	613.50	609.51	153.760	ES
MILLER 3-17J - CPR WELL - GYRO	9,000.00	7,323.00	846.12	781.96	13.188	SF
MILLER 32-17 - EXTRACTION WELL - GYRO						Out of range
MILLER 33-17J - CPR WELL - SURVEYS	9,564.62	7,638.84	102.12	7.90	1.084	Level 2, CC, ES, SF
MILLER 34-17J - CPR WELL - SURVEYS	8,119.24	7,443.72	149.26	98.65	2.949	CC, ES
MILLER 34-17J - CPR WELL - SURVEYS	8,200.00	7,439.84	169.66	112.08	2.947	SF
MILLER 41-17 - EXTRACTION WELL - GYRO						Out of range
MILLER 4-17J - CPR WELL - GYRO						Out of range
MILLER 42-17 - EXTRACTION WELL - NO SURVEYS						Out of range
MILLER 43-17 - EXTRACTION WELL - GYRO	490.75	472.76	1,062.90	1,061.40	707.996	CC
MILLER 43-17 - EXTRACTION WELL - GYRO	601.44	583.90	1,063.02	1,061.13	562.107	ES
MILLER 43-17 - EXTRACTION WELL - GYRO	4,400.00	4,273.86	1,909.17	1,890.10	100.147	SF
MILLER 43-17J - EXTRACTION WELL - GYRO	608.63	599.11	1,049.50	1,047.57	543.800	CC, ES
MILLER 43-17J - EXTRACTION WELL - GYRO	9,900.00	7,313.58	1,447.41	1,364.77	17.515	SF
MILLER 44-17J - CPR WELL - SURVEYS	2,602.91	2,532.10	337.03	325.86	30.160	CC, ES
MILLER 44-17J - CPR WELL - SURVEYS	3,300.00	3,203.20	389.46	372.55	23.031	SF
MILLER CJ 17-A - CPR WELL - SURVEYS	8,999.69	7,483.88	1,839.08	1,762.86	24.126	CC
MILLER CJ 17-A - CPR WELL - SURVEYS	9,000.00	7,483.89	1,839.08	1,762.85	24.124	ES
MILLER CJ 17-A - CPR WELL - SURVEYS	9,500.00	7,497.71	1,905.87	1,819.19	21.987	SF
PACE 1 - GO PUMPING & CONS WELL - NO SURVEYS	3,092.52	3,003.38	114.31	93.27	5.432	CC
PACE 1 - GO PUMPING & CONS WELL - NO SURVEYS	3,100.00	3,003.82	114.33	93.22	5.417	ES
PACE 1 - GO PUMPING & CONS WELL - NO SURVEYS	3,200.00	3,100.06	117.98	95.94	5.353	SF
PACE 2 - TEXAS TEA WELL - NO SURVEYS	600.00	575.00	1,320.39	1,317.58	469.647	CC
PACE 2 - TEXAS TEA WELL - NO SURVEYS	1,000.00	973.70	1,321.16	1,316.22	267.363	ES
PACE 2 - TEXAS TEA WELL - NO SURVEYS	5,300.00	5,050.00	1,813.84	1,772.93	44.333	SF
PACE 3 - DENVER EAST MACHINERY WELL - NO SUR	600.00	590.00	358.76	355.89	125.378	CC
PACE 3 - DENVER EAST MACHINERY WELL - NO SUR	700.00	689.98	359.29	355.89	105.834	ES
PACE 3 - DENVER EAST MACHINERY WELL - NO SUR	5,100.00	4,931.66	1,295.73	1,263.82	40.597	SF
PERRIN GU 1 - KMG WELL - GYRO	6,724.83	6,543.82	1,144.78	1,091.53	21.498	CC
PERRIN GU 1 - KMG WELL - GYRO	6,800.00	6,623.08	1,145.23	1,091.24	21.213	ES
PERRIN GU 1 - KMG WELL - GYRO	6,900.00	6,720.35	1,154.49	1,099.80	21.107	SF
PERRIN GU 2-20 - KMG WELL - GYRO						Out of range
PERRIN V 20-5D - KMG WELL - GYRO						Out of range
PERRIN V 20-7DI - KMG WELL - GYRO						Out of range
PERRIN-MAHONEY 1 - KPK WELL - NO SURVEYS						Out of range
PROMINENCE 4-8 - KMG WELL - GYRO						Out of range
RHOADES 1-5A - KMG WELL - GYRO						Out of range
ROBERT E BALDWIN 2 - KMG WELL - GYRO						Out of range
RUCA 20-1HZ - KMG - PLAN ONLY	7,846.30	7,873.31	497.42	426.66	7.030	CC, ES
RUCA 20-1HZ - KMG - PLAN ONLY	7,900.00	7,838.54	498.99	427.85	7.015	SF
RUCA 20-2HZ - KMG - PLAN ONLY	7,960.82	7,783.73	165.15	94.81	2.348	CC, ES, SF
RUCA 20-3HZ - KMG - PLAN ONLY	7,759.09	7,813.68	15.98	-51.43	0.237	Level 1, CC, ES, SF
RUCA 20-4HZ - KMG - PLAN ONLY	4,194.43	4,286.30	177.49	138.75	4.581	CC
RUCA 20-4HZ - KMG - PLAN ONLY	4,200.00	4,308.94	177.51	138.56	4.557	ES
RUCA 20-4HZ - KMG - PLAN ONLY	7,624.70	7,821.24	257.19	191.68	3.926	SF
RUCA 20-5HZ - KMG - PLAN ONLY	4,133.06	4,241.75	8.36	-29.87	0.219	Level 1, CC, ES, SF

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

Cathedral Energy Services

Anticollision Summary Report

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well BIGHORN 4L-17H-P267
Project:	DJ BASIN	TVD Reference:	23' KB @ 4983.00usft
Reference Site:	BIGHORN	MD Reference:	23' KB @ 4983.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	BIGHORN 4L-17H-P267	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	PLAN #3	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						
S17-T2N-R67W (OFFSETS)						
RUCA 20-6HZ - KMG - PLAN ONLY	4,216.07	4,326.98	164.55	125.95	4.262	CC, ES, SF
RUCA 20-7HZ - KMG - PLAN ONLY	3,883.57	4,000.56	466.98	431.52	13.168	CC
RUCA 20-7HZ - KMG - PLAN ONLY	3,900.00	4,014.42	467.06	431.43	13.109	ES
RUCA 20-7HZ - KMG - PLAN ONLY	4,000.00	4,101.24	471.15	434.66	12.910	SF
RUCA 20-8HZ - KMG - PLAN ONLY	3,581.42	3,713.05	670.49	638.05	20.664	CC
RUCA 20-8HZ - KMG - PLAN ONLY	3,600.00	3,728.30	670.58	637.91	20.528	ES
RUCA 20-8HZ - KMG - PLAN ONLY	3,900.00	3,974.53	694.75	659.29	19.592	SF
RUCA 20-9HZ - KMG - PLAN ONLY	3,402.80	3,524.86	831.68	801.32	27.394	CC, ES
RUCA 20-9HZ - KMG - PLAN ONLY	8,500.00	7,334.09	1,837.70	1,763.78	24.859	SF
SATER 21-8 - KMG WELL - SURVEYS						Out of range
SATER 24-8 - KMG WELL - SURVEYS	15,059.87	7,490.93	785.33	607.54	4.417	CC, ES, SF
SATER 24C-5HZ - KMG WELL - SURVEYS	15,059.87	7,286.00	988.03	781.58	4.786	CC, ES, SF
SATER 24N-5HZ - KMG WELL - SURVEYS	15,059.87	7,099.99	570.89	444.49	4.517	CC, ES, SF
SATER 25C-5HZ - KMG WELL - SURVEYS	15,059.87	7,116.71	694.74	513.75	3.839	CC, ES, SF
SATER 2-8 - KMG WELL - SURVEYS						Out of range
SATER 28-8 - KMG WELL - SURVEYS						Out of range
SATER 40N-5HZ - KMG WELL - SURVEYS	15,059.87	7,117.48	1,420.77	1,205.81	6.610	CC, ES, SF
SATER 7-8 - KMG WELL - SURVEYS	15,059.87	7,346.37	1,021.71	948.28	13.914	CC, ES, SF
SATER 8-8 - KMG WELL - SURVEYS	15,059.87	7,752.64	1,692.84	1,509.25	9.221	CC, ES, SF
SATER ALFRED D UNIT 1 (P&A) - KMG WELL - GYRO	15,059.87	7,269.33	1,517.94	1,445.43	20.936	CC, ES, SF
SCOTT 1C-32HZ - KMG WELL - SURVEYS						Out of range
SCOTT 26N-32HZ - KMG WELL - SURVEYS						Out of range
SCOTT 27N-32HZ - KMG WELL - SURVEYS						Out of range
SCOTT 28C-32HZ - KMG WELL - SURVEYS						Out of range
SHELEY 1 - CPR WELL - GYRO						Out of range
SHELEY 14-4 - CPR WELL - GYRO						Out of range
SHELEY 24-4 - MACHII-ROSS WELL - GYRO						Out of range
SHELEY 3A-4H - CPR WELL - SURVEYS						Out of range
SHELEY 3B-4H - CPR WELL - SURVEYS						Out of range
SHELEY 4-6-4 - CPR WELL - SURVEYS						Out of range
SPRAGUE 11-9 - CPR WELL - GYRO						Out of range
SPRAGUE 13-9 - CPR WELL - GYRO						Out of range
SPRAGUE 14-9 - CPR WELL - GYRO						Out of range
SPRAGUE 24-9 - CPR WELL - GYRO						Out of range
SPRAGUE 2-4-9 - CPR WELL - SURVEYS						Out of range
SPRAGUE 2-8-9 - CPR WELL - SURVEYS						Out of range
SPRAGUE 3A-9H-N267 - CPR WELL - SURVEYS						Out of range
SPRAGUE 3AA-9H-N267 - CPR WELL - SURVEYS						Out of range
SPRAGUE 3B-9H-N267 - CPR WELL - SURVEYS						Out of range
SPRAGUE 3C-9H-N267 - CPR WELL - SURVEYS						Out of range
SPRAGUE 3D-9H-N267 - CPR WELL - SURVEYS						Out of range
SPRAGUE 3E-9H-N267 - CPR WELL - SURVEYS						Out of range
SPRAGUE 3E-9HX1-N267 - CPR WELL - SURVEYS						Out of range
SPRAGUE 3F-9H-N267 - CPR WELL - SURVEYS						Out of range
SPRAGUE 3G-9H-N267 - CPR WELL - SURVEYS						Out of range
SPRAGUE 3H-9H-N267 - CPR WELL - SURVEYS						Out of range
SPRAGUE 3I-9H-N267 - CPR WELL - SURVEYS						Out of range
SPRAGUE 3J-9H-N267 - CPR WELL - SURVEYS						Out of range
SPRAGUE 4-6-9 - CPR WELL - SURVEYS						Out of range
SPRAGUE 4-8-9 - CPR WELL - SURVEYS						Out of range
STANLEY #2 - GERRITY WELL - NO SURVEYS	600.00	636.00	1,457.25	1,454.23	481.421	CC, ES
STANLEY #2 - GERRITY WELL - NO SURVEYS	3,500.00	3,437.79	1,927.72	1,905.10	85.240	SF
STANLEY 3 - GERRITY WELL - NO SURVEYS						Out of range

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

Cathedral Energy Services

Anticollision Summary Report

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well BIGHORN 4L-17H-P267
Project:	DJ BASIN	TVD Reference:	23' KB @ 4983.00usft
Reference Site:	BIGHORN	MD Reference:	23' KB @ 4983.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	BIGHORN 4L-17H-P267	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	PLAN #3	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						
S17-T2N-R67W (OFFSETS)						
TEETS PERRIN 1 - KPK WELL - NO SURVEYS						Out of range
TEETS-PERRIN 2 - KPK WELL - NO SURVEYS	5,725.91	5,100.00	1,729.50	1,692.17	46.335	CC, ES
TEETS-PERRIN 2 - KPK WELL - NO SURVEYS	5,900.00	5,100.00	1,738.24	1,700.54	46.109	SF
TEETS-PERRIN 3 - KPK WELL - NO SURVEYS						Out of range
TEETS-PERRIN 4 - KPK WELL - NO SURVEYS						Out of range
TEETS-PERRIN 5 - KPK WELL - NO SURVEYS	5,314.22	4,711.00	1,652.96	1,620.20	50.463	CC, ES
TEETS-PERRIN 5 - KPK WELL - NO SURVEYS	5,400.00	4,711.00	1,655.18	1,622.23	50.236	SF
TOWNSEND 33-5 - CPR WELL - GYRO						Out of range
TOWNSEND 34-5 - CPR WELL - GYRO						Out of range
TOWNSEND 43-5 - CPR WELL - GYRO						Out of range
TOWNSEND 44-5 - CPR WELL - GYRO						Out of range
VOGL 21-5 - KMG WELL - SURVEYS						Out of range
VOGL 21-5X - KMG WELL - SURVEYS						Out of range
VOGL 5-5 - KMG WELL - GYRO						Out of range
VOGL 5-8A - KMG WELL - GYRO						Out of range
VOGL 6-5A - KMG WELL - GYRO						Out of range
VOGL GEIST 2A-5H-E267 - CPR WELL - SURVEYS						Out of range
VOGL GEIST 2B-5H-E267 - CPR WELL - SURVEYS						Out of range
VOGL GEIST 2C-5H-E267 - CPR WELL - SURVEYS						Out of range
VOGL GEIST 2D-5H-F267 - CPR WELL - SURVEYS						Out of range
VOGL GEIST 2E-5H-F267 - CPR WELL - SURVEYS						Out of range
VOGL GEIST 2F-5H-F267 - CPR WELL - SURVEYS						Out of range
VOGL MCCOY 2A-5H-E267 - CPR WELL - SURVEYS						Out of range
VOGL MCCOY 2B-5H-E267 - CPR WELL - SURVEYS						Out of range
VOGL MCCOY 2C-5H-E267 - CPR WELL - SURVEYS						Out of range
VOGL MCCOY 2D-5H-E267 - CPR WELL - SURVEYS						Out of range
VOGL MCCOY 2E-5H-F267 - CPR WELL - SURVEYS	13,177.90	14,740.00	1,762.39	1,464.43	5.915	CC
VOGL MCCOY 2E-5H-F267 - CPR WELL - SURVEYS	13,200.00	14,740.00	1,762.53	1,463.83	5.901	ES
VOGL MCCOY 2E-5H-F267 - CPR WELL - SURVEYS	13,400.00	14,740.00	1,776.33	1,472.95	5.855	SF
VOGL MCCOY 2F-5H-F267 - CPR WELL - SURVEYS	13,205.56	15,187.00	1,447.85	1,151.48	4.885	CC
VOGL MCCOY 2F-5H-F267 - CPR WELL - SURVEYS	13,300.00	15,187.00	1,450.93	1,151.43	4.845	ES, SF
VOGL MCCOY 2G-5H-F267 - CPR WELL - SURVEYS	13,222.05	14,805.00	1,102.79	805.79	3.713	CC
VOGL MCCOY 2G-5H-F267 - CPR WELL - SURVEYS	13,300.00	14,809.71	1,105.53	805.37	3.683	ES
VOGL MCCOY 2G-5H-F267 - CPR WELL - SURVEYS	15,059.87	13,038.44	1,154.24	836.99	3.638	SF
VOGL MCCOY 2H-5H-F267 - CPR WELL - SURVEYS	13,345.97	15,000.00	769.46	474.16	2.606	CC
VOGL MCCOY 2H-5H-F267 - CPR WELL - SURVEYS	13,400.00	15,000.00	771.36	473.31	2.588	ES, SF

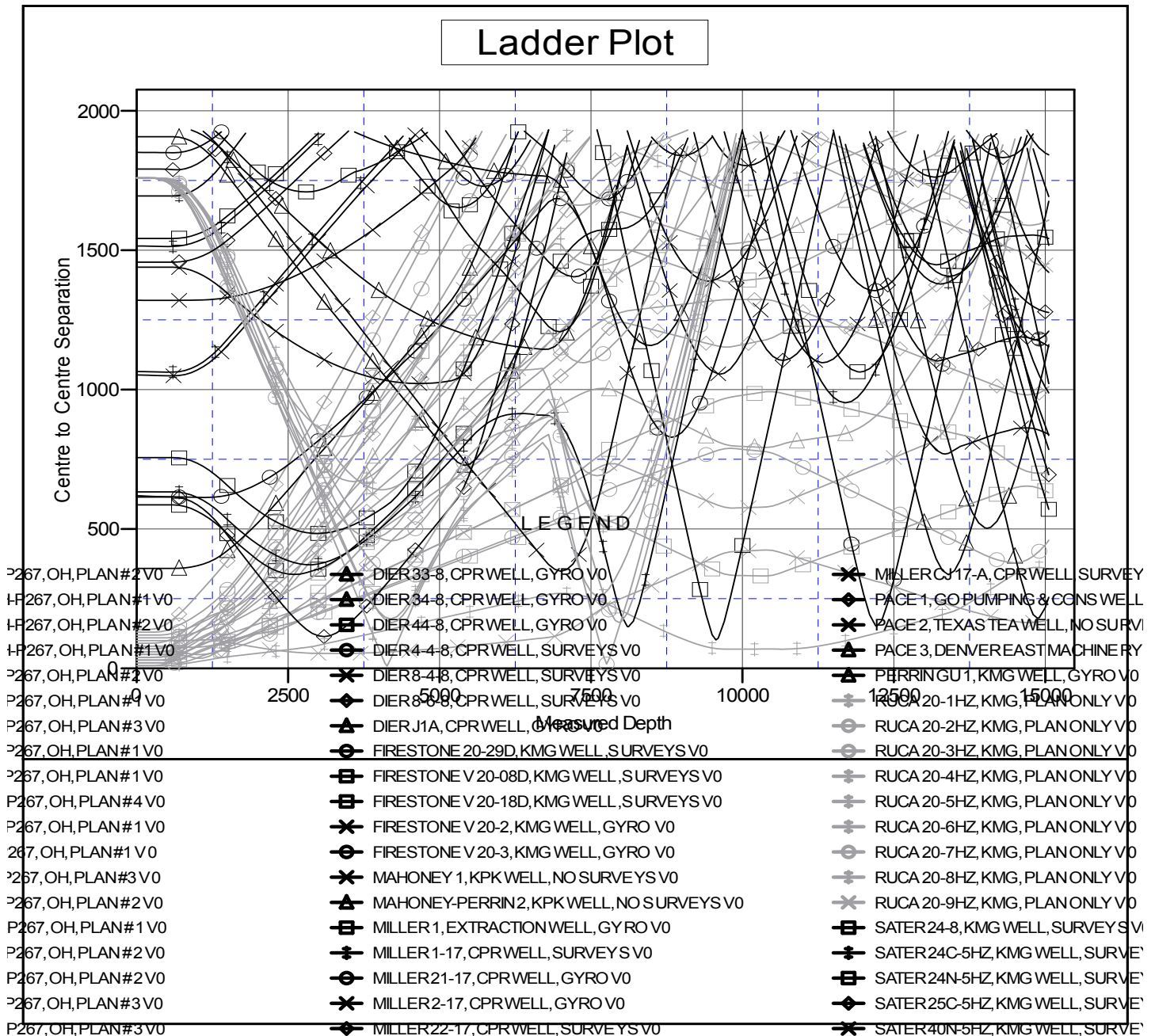
Cathedral Energy Services

Anticollision Summary Report

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well BIGHORN 4L-17H-P267
Project:	DJ BASIN	TVD Reference:	23' KB @ 4983.00usft
Reference Site:	BIGHORN	MD Reference:	23' KB @ 4983.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	BIGHORN 4L-17H-P267	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	PLAN #3	Offset TVD Reference:	Offset Datum

Reference Depths are relative to 23' KB @ 4983.00usft
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000

Coordinates are relative to: BIGHORN 4L-17H-P267
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.38°



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

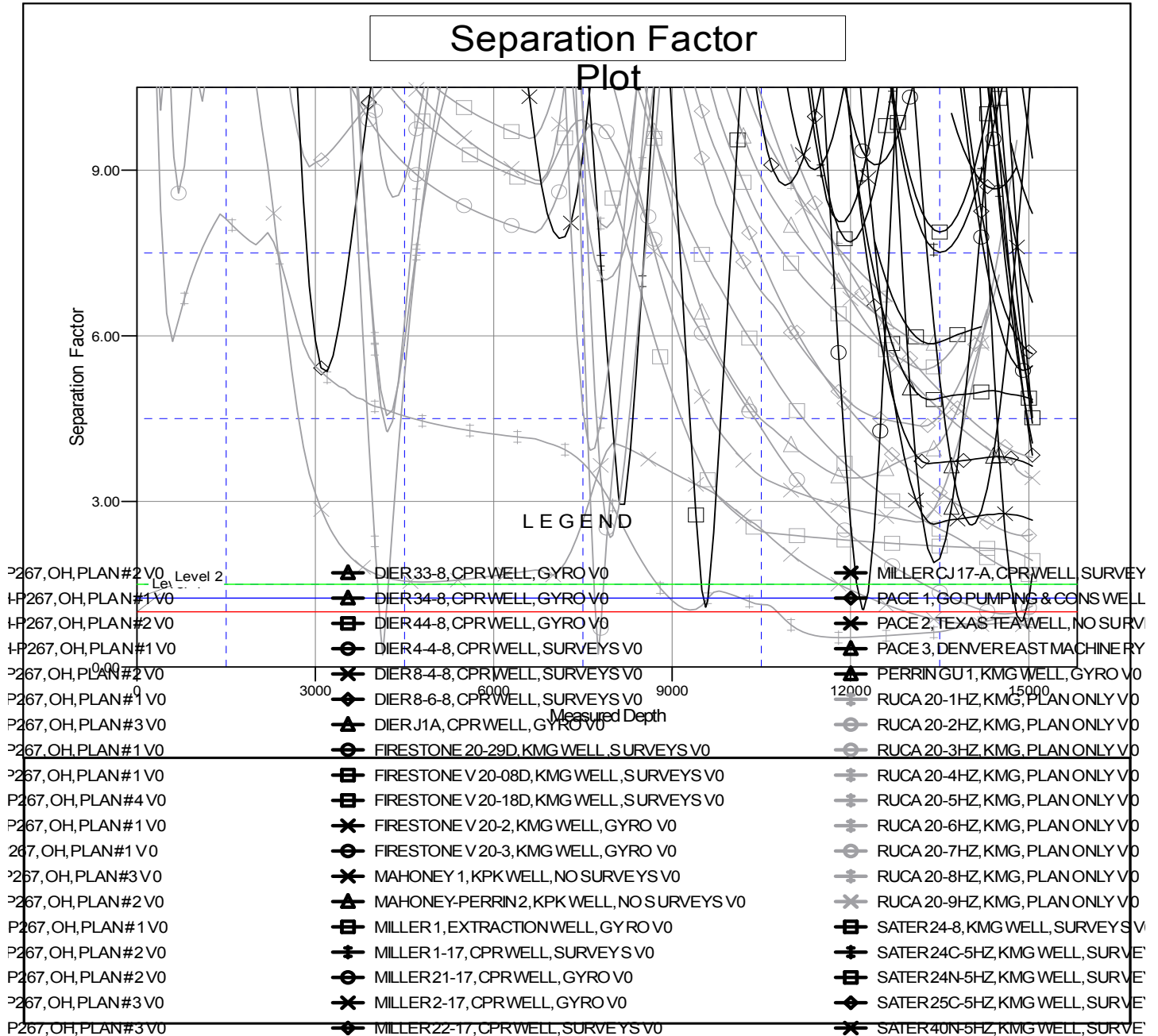
Cathedral Energy Services

Anticollision Summary Report

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