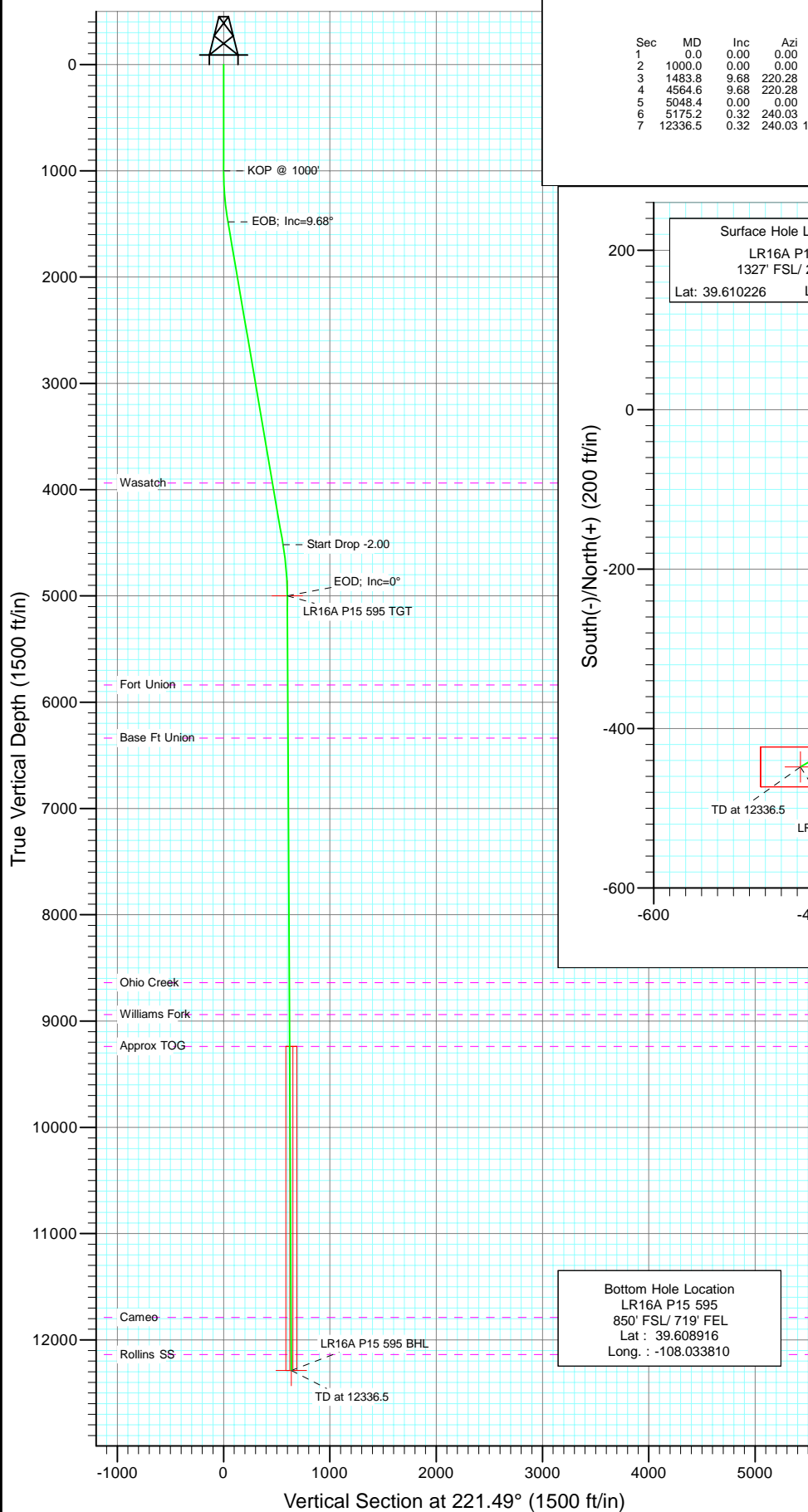
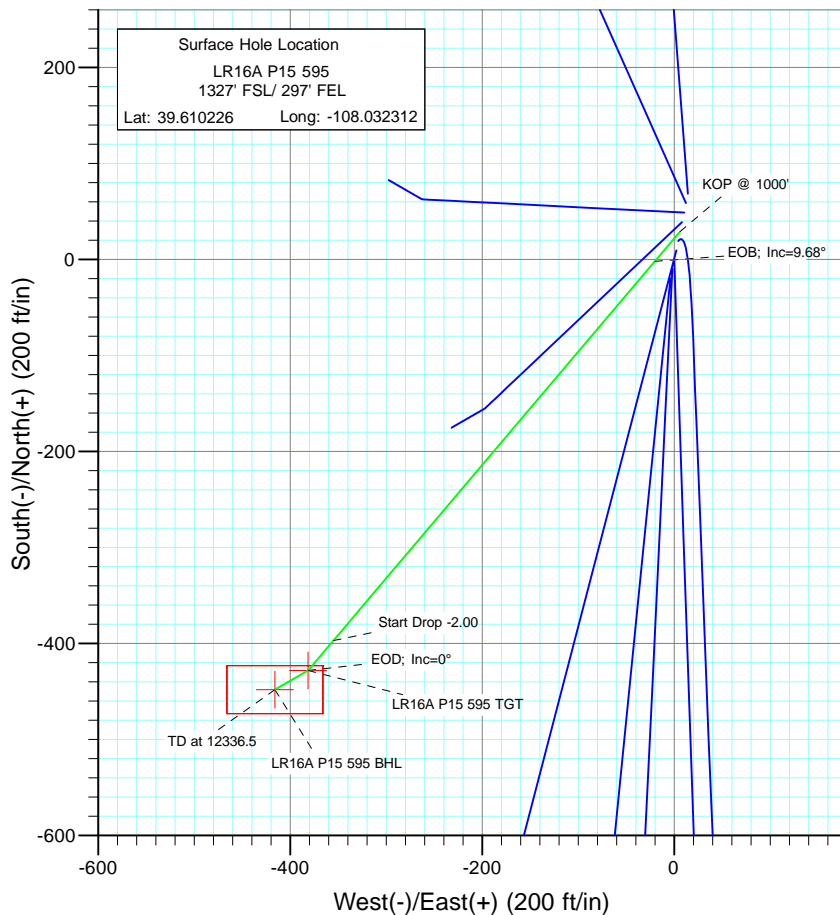




Project: Garfield County
Site: SESE S15-T5S-R95W (P15 595)
Well: LR16A P15 595
Wellbore: DD
Design: Plan #1



SECTION DETAILS										
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
1	0.0	0.00	0.00	0.0	29.1	6.2	0.00	0.00	0.0	
2	1000.0	0.00	0.00	1000.0	29.1	6.2	0.00	0.00	0.0	
3	1483.8	9.68	220.28	1481.5	-2.0	-20.1	2.00	220.28	40.7	
4	4564.6	9.68	220.28	4518.5	-397.0	-354.9	0.00	0.00	558.4	
5	5048.4	0.00	0.00	5000.0	-428.1	-381.3	2.00	180.00	599.2	LR16A P15 595 TGT
6	5175.2	0.32	240.03	5126.7	-428.2	-381.6	0.25	240.03	599.5	
7	12336.5	0.32	240.03	12288.0	-448.0	-415.9	0.00	0.00	637.0	LR16A P15 595 BHL



Azimuths to True North
Magnetic North: 10.45°

Magnetic Field
Strength: 52392.6snT
Dip Angle: 65.86°
Date: 9/21/2010
Model: IGRF200510

FORMATION TOP DETAILS

TVDPPath	MDPath	Formation
3938.0	3975.7	Wasatch
5838.0	5886.4	Fort Union
6338.0	6386.4	Base Ft Union
8638.0	8686.5	Ohio Creek
8938.0	8986.5	Williams Fork
9238.0	9286.5	Approx TOG
11788.0	11836.5	Cameo
12138.0	12186.5	Rollins SS

DESIGN DETAILS: Plan #1

105XXX; BH
KBE @ 8400.0ft (Patterson 302)

Target	Azimuth	Origin	N/S	E/W	From TVD
LR16A P15 595 BHL	221.49	Slot	29.1	6.2	0.0

Cathedral Energy Services

Planning Report

Database:	EDM 5000.1 US Multi Users DB	Local Co-ordinate Reference:	Site SESE S15-T5S-R95W (P15 595)
Company:	Berry Petroleum Company (NAD 83)	TVD Reference:	KBE @ 8400.0ft (Patterson 302)
Project:	Garfield County	MD Reference:	KBE @ 8400.0ft (Patterson 302)
Site:	SESE S15-T5S-R95W (P15 595)	North Reference:	True
Well:	LR16A P15 595	Survey Calculation Method:	Minimum Curvature
Wellbore:	DD		
Design:	Plan #1		

Project	Garfield County		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Central Zone		

Site		SESE S15-T5S-R95W (P15 595)			
Site Position:		Northing:	1,657,070.66 ft	Latitude:	39.610146
From:	Lat/Long	Easting:	2,286,630.08 ft	Longitude:	-108.032334
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence:	-1.60 °

Well	LR16A P15 595					
Well Position	+N/-S	29.1 ft	Northing:	1,657,099.60 ft	Latitude:	39.610226
	+E/-W	6.2 ft	Easting:	2,286,637.09 ft	Longitude:	-108.032312
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	8,385.0 ft

Wellbore	DD				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	9/21/2010	10.45	65.86	52,393

Design	Plan #1			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	29.1	6.2	221.49

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.0	0.00	0.00	0.0	29.1	6.2	0.00	0.00	0.00	0.00	
1,000.0	0.00	0.00	1,000.0	29.1	6.2	0.00	0.00	0.00	0.00	
1,483.8	9.68	220.28	1,481.5	-2.0	-20.1	2.00	2.00	0.00	220.28	
4,564.6	9.68	220.28	4,518.5	-397.0	-354.9	0.00	0.00	0.00	0.00	
5,048.4	0.00	0.00	5,000.0	-428.1	-381.3	2.00	-2.00	0.00	180.00	LR16A P15 595 TGT
5,175.2	0.32	240.03	5,126.7	-428.2	-381.6	0.25	0.25	-94.66	240.03	
12,336.5	0.32	240.03	12,288.0	-448.0	-415.9	0.00	0.00	0.00	0.00	LR16A P15 595 BHL

Cathedral Energy Services

Planning Report

Database:	EDM 5000.1 US Multi Users DB	Local Co-ordinate Reference:	Site SESE S15-T5S-R95W (P15 595)
Company:	Berry Petroleum Company (NAD 83)	TVD Reference:	KBE @ 8400.0ft (Patterson 302)
Project:	Garfield County	MD Reference:	KBE @ 8400.0ft (Patterson 302)
Site:	SESE S15-T5S-R95W (P15 595)	North Reference:	True
Well:	LR16A P15 595	Survey Calculation Method:	Minimum Curvature
Wellbore:	DD		
Design:	Plan #1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
0.0	0.00	0.00	0.0	29.1	6.2	0.0	0.00	0.00	
30.0	0.00	0.00	30.0	29.1	6.2	0.0	0.00	0.00	
60.0	0.00	0.00	60.0	29.1	6.2	0.0	0.00	0.00	
90.0	0.00	0.00	90.0	29.1	6.2	0.0	0.00	0.00	
120.0	0.00	0.00	120.0	29.1	6.2	0.0	0.00	0.00	
150.0	0.00	0.00	150.0	29.1	6.2	0.0	0.00	0.00	
180.0	0.00	0.00	180.0	29.1	6.2	0.0	0.00	0.00	
210.0	0.00	0.00	210.0	29.1	6.2	0.0	0.00	0.00	
240.0	0.00	0.00	240.0	29.1	6.2	0.0	0.00	0.00	
270.0	0.00	0.00	270.0	29.1	6.2	0.0	0.00	0.00	
300.0	0.00	0.00	300.0	29.1	6.2	0.0	0.00	0.00	
330.0	0.00	0.00	330.0	29.1	6.2	0.0	0.00	0.00	
360.0	0.00	0.00	360.0	29.1	6.2	0.0	0.00	0.00	
390.0	0.00	0.00	390.0	29.1	6.2	0.0	0.00	0.00	
420.0	0.00	0.00	420.0	29.1	6.2	0.0	0.00	0.00	
450.0	0.00	0.00	450.0	29.1	6.2	0.0	0.00	0.00	
480.0	0.00	0.00	480.0	29.1	6.2	0.0	0.00	0.00	
510.0	0.00	0.00	510.0	29.1	6.2	0.0	0.00	0.00	
540.0	0.00	0.00	540.0	29.1	6.2	0.0	0.00	0.00	
570.0	0.00	0.00	570.0	29.1	6.2	0.0	0.00	0.00	
600.0	0.00	0.00	600.0	29.1	6.2	0.0	0.00	0.00	
630.0	0.00	0.00	630.0	29.1	6.2	0.0	0.00	0.00	
660.0	0.00	0.00	660.0	29.1	6.2	0.0	0.00	0.00	
690.0	0.00	0.00	690.0	29.1	6.2	0.0	0.00	0.00	
720.0	0.00	0.00	720.0	29.1	6.2	0.0	0.00	0.00	
750.0	0.00	0.00	750.0	29.1	6.2	0.0	0.00	0.00	
780.0	0.00	0.00	780.0	29.1	6.2	0.0	0.00	0.00	
810.0	0.00	0.00	810.0	29.1	6.2	0.0	0.00	0.00	
840.0	0.00	0.00	840.0	29.1	6.2	0.0	0.00	0.00	
870.0	0.00	0.00	870.0	29.1	6.2	0.0	0.00	0.00	
900.0	0.00	0.00	900.0	29.1	6.2	0.0	0.00	0.00	
930.0	0.00	0.00	930.0	29.1	6.2	0.0	0.00	0.00	
960.0	0.00	0.00	960.0	29.1	6.2	0.0	0.00	0.00	
990.0	0.00	0.00	990.0	29.1	6.2	0.0	0.00	0.00	
1,000.0	0.00	0.00	1,000.0	29.1	6.2	0.0	0.00	0.00	KOP @ 1000'
1,020.0	0.40	220.28	1,020.0	29.1	6.2	0.1	2.00	2.00	
1,050.0	1.00	220.28	1,050.0	28.8	5.9	0.4	2.00	2.00	
1,080.0	1.60	220.28	1,080.0	28.3	5.5	1.1	2.00	2.00	
1,110.0	2.20	220.28	1,110.0	27.5	4.8	2.1	2.00	2.00	
1,140.0	2.80	220.28	1,139.9	26.5	4.0	3.4	2.00	2.00	
1,170.0	3.40	220.28	1,169.9	25.3	2.9	5.0	2.00	2.00	
1,200.0	4.00	220.28	1,199.8	23.8	1.7	7.0	2.00	2.00	
1,230.0	4.60	220.28	1,229.8	22.1	0.2	9.2	2.00	2.00	
1,260.0	5.20	220.28	1,259.6	20.1	-1.4	11.8	2.00	2.00	
1,290.0	5.80	220.28	1,289.5	17.9	-3.3	14.7	2.00	2.00	
1,320.0	6.40	220.28	1,319.3	15.5	-5.3	17.8	2.00	2.00	
1,350.0	7.00	220.28	1,349.1	12.8	-7.6	21.3	2.00	2.00	
1,380.0	7.60	220.28	1,378.9	9.9	-10.1	25.2	2.00	2.00	
1,410.0	8.20	220.28	1,408.6	6.8	-12.7	29.3	2.00	2.00	
1,440.0	8.80	220.28	1,438.3	3.4	-15.6	33.7	2.00	2.00	
1,470.0	9.40	220.28	1,467.9	-0.2	-18.7	38.5	2.00	2.00	
1,483.8	9.68	220.28	1,481.5	-2.0	-20.1	40.7	2.00	2.00	EOB; Inc=9.68°

Cathedral Energy Services

Planning Report

Database:	EDM 5000.1 US Multi Users DB	Local Co-ordinate Reference:	Site SESE S15-T5S-R95W (P15 595)
Company:	Berry Petroleum Company (NAD 83)	TVD Reference:	KBE @ 8400.0ft (Patterson 302)
Project:	Garfield County	MD Reference:	KBE @ 8400.0ft (Patterson 302)
Site:	SESE S15-T5S-R95W (P15 595)	North Reference:	True
Well:	LR16A P15 595	Survey Calculation Method:	Minimum Curvature
Wellbore:	DD		
Design:	Plan #1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
1,500.0	9.68	220.28	1,497.5	-4.0	-21.9	43.5	0.00	0.00	
1,530.0	9.68	220.28	1,527.0	-7.9	-25.2	48.5	0.00	0.00	
1,560.0	9.68	220.28	1,556.6	-11.7	-28.4	53.5	0.00	0.00	
1,590.0	9.68	220.28	1,586.2	-15.6	-31.7	58.6	0.00	0.00	
1,620.0	9.68	220.28	1,615.8	-19.4	-34.9	63.6	0.00	0.00	
1,650.0	9.68	220.28	1,645.3	-23.3	-38.2	68.7	0.00	0.00	
1,680.0	9.68	220.28	1,674.9	-27.1	-41.5	73.7	0.00	0.00	
1,710.0	9.68	220.28	1,704.5	-31.0	-44.7	78.8	0.00	0.00	
1,740.0	9.68	220.28	1,734.1	-34.8	-48.0	83.8	0.00	0.00	
1,770.0	9.68	220.28	1,763.6	-38.7	-51.2	88.8	0.00	0.00	
1,800.0	9.68	220.28	1,793.2	-42.5	-54.5	93.9	0.00	0.00	
1,830.0	9.68	220.28	1,822.8	-46.4	-57.8	98.9	0.00	0.00	
1,860.0	9.68	220.28	1,852.4	-50.2	-61.0	104.0	0.00	0.00	
1,890.0	9.68	220.28	1,881.9	-54.0	-64.3	109.0	0.00	0.00	
1,920.0	9.68	220.28	1,911.5	-57.9	-67.5	114.0	0.00	0.00	
1,950.0	9.68	220.28	1,941.1	-61.7	-70.8	119.1	0.00	0.00	
1,980.0	9.68	220.28	1,970.6	-65.6	-74.1	124.1	0.00	0.00	
2,010.0	9.68	220.28	2,000.2	-69.4	-77.3	129.2	0.00	0.00	
2,040.0	9.68	220.28	2,029.8	-73.3	-80.6	134.2	0.00	0.00	
2,070.0	9.68	220.28	2,059.4	-77.1	-83.8	139.2	0.00	0.00	
2,100.0	9.68	220.28	2,088.9	-81.0	-87.1	144.3	0.00	0.00	
2,130.0	9.68	220.28	2,118.5	-84.8	-90.4	149.3	0.00	0.00	
2,160.0	9.68	220.28	2,148.1	-88.7	-93.6	154.4	0.00	0.00	
2,190.0	9.68	220.28	2,177.7	-92.5	-96.9	159.4	0.00	0.00	
2,220.0	9.68	220.28	2,207.2	-96.4	-100.1	164.4	0.00	0.00	
2,250.0	9.68	220.28	2,236.8	-100.2	-103.4	169.5	0.00	0.00	
2,280.0	9.68	220.28	2,266.4	-104.1	-106.7	174.5	0.00	0.00	
2,310.0	9.68	220.28	2,296.0	-107.9	-109.9	179.6	0.00	0.00	
2,340.0	9.68	220.28	2,325.5	-111.7	-113.2	184.6	0.00	0.00	
2,370.0	9.68	220.28	2,355.1	-115.6	-116.4	189.7	0.00	0.00	
2,400.0	9.68	220.28	2,384.7	-119.4	-119.7	194.7	0.00	0.00	
2,430.0	9.68	220.28	2,414.2	-123.3	-123.0	199.7	0.00	0.00	
2,460.0	9.68	220.28	2,443.8	-127.1	-126.2	204.8	0.00	0.00	
2,490.0	9.68	220.28	2,473.4	-131.0	-129.5	209.8	0.00	0.00	

Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
LR16A P15 595 TGT	0.00	0.00	5,000.0	-428.1	-381.3	1,656,653.38	2,286,237.05	39.608971	-108.033687
- hit/miss target									
- Shape									
- plan misses target center by 2556.4ft at 2490.0ft MD (2473.4 TVD, -131.0 N, -129.5 E)									
- Point									
LR16A P15 595 BHL	0.00	0.00	12,288.0	-448.0	-415.9	1,656,634.39	2,286,201.89	39.608916	-108.033810
- plan misses target center by 9823.9ft at 2490.0ft MD (2473.4 TVD, -131.0 N, -129.5 E)									
- Rectangle (sides W50.0 H100.0 D0.0)									

Cathedral Energy Services

Planning Report

Database:	EDM 5000.1 US Multi Users DB	Local Co-ordinate Reference:	Site SESE S15-T5S-R95W (P15 595)
Company:	Berry Petroleum Company (NAD 83)	TVD Reference:	KBE @ 8400.0ft (Patterson 302)
Project:	Garfield County	MD Reference:	KBE @ 8400.0ft (Patterson 302)
Site:	SESE S15-T5S-R95W (P15 595)	North Reference:	True
Well:	LR16A P15 595	Survey Calculation Method:	Minimum Curvature
Wellbore:	DD		
Design:	Plan #1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
2,500.0	9.68	220.28	2,483.2	-132.3	-130.6	211.5	0.00	0.00	
2,600.0	9.68	220.28	2,581.8	-145.1	-141.4	228.3	0.00	0.00	
2,700.0	9.68	220.28	2,680.4	-157.9	-152.3	245.1	0.00	0.00	
2,800.0	9.68	220.28	2,779.0	-170.7	-163.2	261.9	0.00	0.00	
2,900.0	9.68	220.28	2,877.6	-183.5	-174.0	278.7	0.00	0.00	
3,000.0	9.68	220.28	2,976.1	-196.4	-184.9	295.5	0.00	0.00	
3,100.0	9.68	220.28	3,074.7	-209.2	-195.8	312.3	0.00	0.00	
3,200.0	9.68	220.28	3,173.3	-222.0	-206.6	329.1	0.00	0.00	
3,300.0	9.68	220.28	3,271.9	-234.8	-217.5	345.9	0.00	0.00	
3,400.0	9.68	220.28	3,370.4	-247.7	-228.4	362.7	0.00	0.00	
3,500.0	9.68	220.28	3,469.0	-260.5	-239.2	379.5	0.00	0.00	
3,600.0	9.68	220.28	3,567.6	-273.3	-250.1	396.3	0.00	0.00	
3,700.0	9.68	220.28	3,666.2	-286.1	-261.0	413.1	0.00	0.00	
3,800.0	9.68	220.28	3,764.8	-298.9	-271.8	429.9	0.00	0.00	
3,900.0	9.68	220.28	3,863.3	-311.8	-282.7	446.7	0.00	0.00	
3,975.7	9.68	220.28	3,938.0	-321.5	-290.9	459.5	0.00	0.00	Wasatch
4,000.0	9.68	220.28	3,961.9	-324.6	-293.6	463.5	0.00	0.00	
4,100.0	9.68	220.28	4,060.5	-337.4	-304.4	480.3	0.00	0.00	
4,200.0	9.68	220.28	4,159.1	-350.2	-315.3	497.1	0.00	0.00	
4,300.0	9.68	220.28	4,257.6	-363.0	-326.2	513.9	0.00	0.00	
4,400.0	9.68	220.28	4,356.2	-375.9	-337.0	530.7	0.00	0.00	
4,500.0	9.68	220.28	4,454.8	-388.7	-347.9	547.6	0.00	0.00	
4,564.6	9.68	220.28	4,518.5	-397.0	-354.9	558.4	0.00	0.00	Start Drop -2.00
4,600.0	8.97	220.28	4,553.4	-401.3	-358.6	564.1	2.00	-2.00	
4,700.0	6.97	220.28	4,652.4	-411.9	-367.6	578.0	2.00	-2.00	
4,800.0	4.97	220.28	4,751.9	-419.9	-374.3	588.4	2.00	-2.00	
4,900.0	2.97	220.28	4,851.7	-425.1	-378.8	595.3	2.00	-2.00	
5,000.0	0.97	220.28	4,951.6	-427.8	-381.0	598.7	2.00	-2.00	
5,048.4	0.00	0.00	5,000.0	-428.1	-381.3	599.2	2.00	-2.00	EOD; Inc=0° - LR16A P15 595 TGT
5,100.0	0.13	240.03	5,051.6	-428.1	-381.3	599.2	0.25	0.25	
5,175.2	0.32	240.03	5,126.7	-428.2	-381.6	599.5	0.25	0.25	
5,200.0	0.32	240.03	5,151.6	-428.3	-381.7	599.6	0.00	0.00	
5,300.0	0.32	240.03	5,251.6	-428.6	-382.2	600.1	0.00	0.00	
5,400.0	0.32	240.03	5,351.6	-428.9	-382.6	600.7	0.00	0.00	
5,500.0	0.32	240.03	5,451.6	-429.1	-383.1	601.2	0.00	0.00	
5,600.0	0.32	240.03	5,551.6	-429.4	-383.6	601.7	0.00	0.00	
5,700.0	0.32	240.03	5,651.6	-429.7	-384.1	602.2	0.00	0.00	
5,800.0	0.32	240.03	5,751.6	-430.0	-384.5	602.8	0.00	0.00	
5,886.4	0.32	240.03	5,838.0	-430.2	-385.0	603.2	0.00	0.00	Fort Union
5,900.0	0.32	240.03	5,851.6	-430.2	-385.0	603.3	0.00	0.00	
6,000.0	0.32	240.03	5,951.6	-430.5	-385.5	603.8	0.00	0.00	
6,100.0	0.32	240.03	6,051.6	-430.8	-386.0	604.3	0.00	0.00	
6,200.0	0.32	240.03	6,151.6	-431.1	-386.5	604.9	0.00	0.00	
6,300.0	0.32	240.03	6,251.6	-431.4	-386.9	605.4	0.00	0.00	
6,386.4	0.32	240.03	6,338.0	-431.6	-387.4	605.8	0.00	0.00	Base Ft Union
6,400.0	0.32	240.03	6,351.6	-431.6	-387.4	605.9	0.00	0.00	
6,500.0	0.32	240.03	6,451.6	-431.9	-387.9	606.4	0.00	0.00	
6,600.0	0.32	240.03	6,551.6	-432.2	-388.4	607.0	0.00	0.00	
6,700.0	0.32	240.03	6,651.6	-432.5	-388.9	607.5	0.00	0.00	
6,800.0	0.32	240.03	6,751.6	-432.7	-389.3	608.0	0.00	0.00	
6,900.0	0.32	240.03	6,851.6	-433.0	-389.8	608.5	0.00	0.00	
7,000.0	0.32	240.03	6,951.6	-433.3	-390.3	609.1	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	EDM 5000.1 US Multi Users DB	Local Co-ordinate Reference:	Site SESE S15-T5S-R95W (P15 595)
Company:	Berry Petroleum Company (NAD 83)	TVD Reference:	KBE @ 8400.0ft (Patterson 302)
Project:	Garfield County	MD Reference:	KBE @ 8400.0ft (Patterson 302)
Site:	SESE S15-T5S-R95W (P15 595)	North Reference:	True
Well:	LR16A P15 595	Survey Calculation Method:	Minimum Curvature
Wellbore:	DD		
Design:	Plan #1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
7,100.0	0.32	240.03	7,051.6	-433.6	-390.8	609.6	0.00	0.00	
7,200.0	0.32	240.03	7,151.6	-433.8	-391.3	610.1	0.00	0.00	
7,300.0	0.32	240.03	7,251.6	-434.1	-391.7	610.6	0.00	0.00	
7,400.0	0.32	240.03	7,351.6	-434.4	-392.2	611.2	0.00	0.00	
7,500.0	0.32	240.03	7,451.5	-434.7	-392.7	611.7	0.00	0.00	
7,600.0	0.32	240.03	7,551.5	-434.9	-393.2	612.2	0.00	0.00	
7,700.0	0.32	240.03	7,651.5	-435.2	-393.6	612.7	0.00	0.00	
7,800.0	0.32	240.03	7,751.5	-435.5	-394.1	613.2	0.00	0.00	
7,900.0	0.32	240.03	7,851.5	-435.8	-394.6	613.8	0.00	0.00	
8,000.0	0.32	240.03	7,951.5	-436.0	-395.1	614.3	0.00	0.00	
8,100.0	0.32	240.03	8,051.5	-436.3	-395.6	614.8	0.00	0.00	
8,200.0	0.32	240.03	8,151.5	-436.6	-396.0	615.3	0.00	0.00	
8,300.0	0.32	240.03	8,251.5	-436.9	-396.5	615.9	0.00	0.00	
8,400.0	0.32	240.03	8,351.5	-437.2	-397.0	616.4	0.00	0.00	
8,500.0	0.32	240.03	8,451.5	-437.4	-397.5	616.9	0.00	0.00	
8,600.0	0.32	240.03	8,551.5	-437.7	-398.0	617.4	0.00	0.00	
8,686.5	0.32	240.03	8,638.0	-437.9	-398.4	617.9	0.00	0.00	Ohio Creek
8,700.0	0.32	240.03	8,651.5	-438.0	-398.4	618.0	0.00	0.00	
8,800.0	0.32	240.03	8,751.5	-438.3	-398.9	618.5	0.00	0.00	
8,900.0	0.32	240.03	8,851.5	-438.5	-399.4	619.0	0.00	0.00	
8,986.5	0.32	240.03	8,938.0	-438.8	-399.8	619.5	0.00	0.00	Williams Fork
9,000.0	0.32	240.03	8,951.5	-438.8	-399.9	619.5	0.00	0.00	
9,100.0	0.32	240.03	9,051.5	-439.1	-400.4	620.1	0.00	0.00	
9,200.0	0.32	240.03	9,151.5	-439.4	-400.8	620.6	0.00	0.00	
9,286.5	0.32	240.03	9,238.0	-439.6	-401.2	621.0	0.00	0.00	Approx TOG
9,300.0	0.32	240.03	9,251.5	-439.6	-401.3	621.1	0.00	0.00	
9,400.0	0.32	240.03	9,351.5	-439.9	-401.8	621.6	0.00	0.00	
9,500.0	0.32	240.03	9,451.5	-440.2	-402.3	622.2	0.00	0.00	
9,600.0	0.32	240.03	9,551.5	-440.5	-402.8	622.7	0.00	0.00	
9,700.0	0.32	240.03	9,651.5	-440.7	-403.2	623.2	0.00	0.00	
9,800.0	0.32	240.03	9,751.5	-441.0	-403.7	623.7	0.00	0.00	
9,900.0	0.32	240.03	9,851.5	-441.3	-404.2	624.3	0.00	0.00	
10,000.0	0.32	240.03	9,951.5	-441.6	-404.7	624.8	0.00	0.00	
10,100.0	0.32	240.03	10,051.5	-441.8	-405.1	625.3	0.00	0.00	
10,200.0	0.32	240.03	10,151.5	-442.1	-405.6	625.8	0.00	0.00	
10,300.0	0.32	240.03	10,251.5	-442.4	-406.1	626.4	0.00	0.00	
10,400.0	0.32	240.03	10,351.5	-442.7	-406.6	626.9	0.00	0.00	
10,500.0	0.32	240.03	10,451.5	-443.0	-407.1	627.4	0.00	0.00	
10,600.0	0.32	240.03	10,551.5	-443.2	-407.5	627.9	0.00	0.00	
10,700.0	0.32	240.03	10,651.5	-443.5	-408.0	628.5	0.00	0.00	
10,800.0	0.32	240.03	10,751.5	-443.8	-408.5	629.0	0.00	0.00	
10,900.0	0.32	240.03	10,851.5	-444.1	-409.0	629.5	0.00	0.00	
11,000.0	0.32	240.03	10,951.5	-444.3	-409.5	630.0	0.00	0.00	
11,100.0	0.32	240.03	11,051.5	-444.6	-409.9	630.5	0.00	0.00	
11,200.0	0.32	240.03	11,151.5	-444.9	-410.4	631.1	0.00	0.00	
11,300.0	0.32	240.03	11,251.5	-445.2	-410.9	631.6	0.00	0.00	
11,400.0	0.32	240.03	11,351.5	-445.4	-411.4	632.1	0.00	0.00	
11,500.0	0.32	240.03	11,451.5	-445.7	-411.9	632.6	0.00	0.00	
11,600.0	0.32	240.03	11,551.5	-446.0	-412.3	633.2	0.00	0.00	
11,700.0	0.32	240.03	11,651.5	-446.3	-412.8	633.7	0.00	0.00	
11,800.0	0.32	240.03	11,751.5	-446.5	-413.3	634.2	0.00	0.00	
11,836.5	0.32	240.03	11,788.0	-446.6	-413.5	634.4	0.00	0.00	Cameo

Cathedral Energy Services

Planning Report

Database:	EDM 5000.1 US Multi Users DB	Local Co-ordinate Reference:	Site SESE S15-T5S-R95W (P15 595)
Company:	Berry Petroleum Company (NAD 83)	TVD Reference:	KBE @ 8400.0ft (Patterson 302)
Project:	Garfield County	MD Reference:	KBE @ 8400.0ft (Patterson 302)
Site:	SESE S15-T5S-R95W (P15 595)	North Reference:	True
Well:	LR16A P15 595	Survey Calculation Method:	Minimum Curvature
Wellbore:	DD		
Design:	Plan #1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
11,900.0	0.32	240.03	11,851.5	-446.8	-413.8	634.7	0.00	0.00	
12,000.0	0.32	240.03	11,951.5	-447.1	-414.2	635.3	0.00	0.00	
12,100.0	0.32	240.03	12,051.5	-447.4	-414.7	635.8	0.00	0.00	
12,186.5	0.32	240.03	12,138.0	-447.6	-415.1	636.2	0.00	0.00	Rollins SS
12,200.0	0.32	240.03	12,151.5	-447.7	-415.2	636.3	0.00	0.00	
12,300.0	0.32	240.03	12,251.5	-447.9	-415.7	636.8	0.00	0.00	
12,336.5	0.32	240.03	12,288.0	-448.0	-415.9	637.0	0.00	0.00	TD at 12336.5 - LR16A P15 595 BHL

Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
LR16A P15 595 TGT - plan hits target center - Point	0.00	0.00	5,000.0	-428.1	-381.3	1,656,653.38	2,286,237.05	39.608971	-108.033687
LR16A P15 595 BHL - plan hits target center - Rectangle (sides W50.0 H100.0 D0.0)	0.00	0.00	12,288.0	-448.0	-415.9	1,656,634.39	2,286,201.89	39.608916	-108.033810

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,975.7	3,938.0	Wasatch		0.00	
5,886.4	5,838.0	Fort Union		0.00	
6,386.4	6,338.0	Base Ft Union		0.00	
8,686.5	8,638.0	Ohio Creek		0.00	
8,986.5	8,938.0	Williams Fork		0.00	
9,286.5	9,238.0	Approx TOG		0.00	
11,836.5	11,788.0	Cameo		0.00	
12,186.5	12,138.0	Rollins SS		0.00	

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	+E/-W (ft)	Comment
1,000.0	1,000.0	29.1	6.2	KOP @ 1000'
1,483.8	1,481.5	-2.0	-20.1	EOB; Inc=9.68°
4,564.6	4,518.5	-397.0	-354.9	Start Drop -2.00
5,048.4	5,000.0	-428.1	-381.3	EOD; Inc=0°
12,336.5	12,288.0	-448.0	-415.9	TD at 12336.5

Berry Petroleum Company (NAD 83)

Garfield County

SESE S15-T5S-R95W (P15 595)

LR16A P15 595

DD

Plan #1

Anticollision Report

23 September, 2010

Cathedral Energy Services

Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Site SESE S15-T5S-R95W (P15 595)
Project:	Garfield County	TVD Reference:	KBE @ 8400.0ft (Patterson 302)
Reference Site:	SESE S15-T5S-R95W (P15 595)	MD Reference:	KBE @ 8400.0ft (Patterson 302)
Site Error:	0.0ft	North Reference:	True
Reference Well:	LR16A P15 595	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	EDM 5000.1 US 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:	Systematic Ellipse
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 100.0ft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma		

Survey Tool Program		Date	9/23/2010		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
0.0	12,336.5	Plan #1 (DD)	MWD	Geolink MWD	

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
NESE S15-T5S-R95 (P15 595)						
LR09B P15 595 - DD - Plan #1	500.0	500.0	30.2	28.5	17.811	CC, ES
LR09B P15 595 - DD - Plan #1	700.0	698.0	36.0	33.6	15.068	SF
LR09C P15 595 - DD - Plan #1	1,000.0	1,000.0	20.1	16.7	5.853	CC, ES
LR09C P15 595 - DD - Plan #1	1,100.0	1,100.1	21.4	17.6	5.650	SF
LR09D P15 595 - DD - Plan #1	500.0	500.0	40.2	38.5	23.735	CC, ES
LR09D P15 595 - DD - Plan #1	700.0	697.0	46.8	44.4	19.606	SF
LR16B P15 595 - DD - Plan #1	1,000.0	1,000.0	10.0	6.6	2.920	CC
LR16B P15 595 - DD - Plan #1	1,200.0	1,200.6	10.5	6.3	2.526	ES, SF
SESE S15-T5S-R95W (P15 595)						
LR01A P15 595 - DD - Plan #1	200.0	200.0	39.8	39.2	61.666	CC, ES
LR01A P15 595 - DD - Plan #1	600.0	592.1	67.0	65.0	32.181	SF
LR01B P15 595 - DD - Plan #1	200.0	200.0	49.8	49.2	77.192	CC, ES
LR01B P15 595 - DD - Plan #1	600.0	590.8	77.1	75.0	36.978	SF
LR01D P15 595 - DD - Plan #1	363.8	363.8	7.8	6.6	6.370	CC, ES
LR01D P15 595 - DD - Plan #1	400.0	400.0	8.0	6.7	5.973	SF
LR16C P15 595 - DD - Plan #1	600.0	600.0	20.1	18.0	9.822	CC, ES
LR16C P15 595 - DD - Plan #1	700.0	699.3	21.8	19.4	9.114	SF
LR16D P15 595 - DD - Plan #1	500.0	500.0	29.8	28.1	17.595	CC, ES
LR16D P15 595 - DD - Plan #1	700.0	697.7	36.5	34.1	15.281	SF

Cathedral Energy Services

Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Site SESE S15-T5S-R95W (P15 595)
Project:	Garfield County	TVD Reference:	KBE @ 8400.0ft (Patterson 302)
Reference Site:	SESE S15-T5S-R95W (P15 595)	MD Reference:	KBE @ 8400.0ft (Patterson 302)
Site Error:	0.0ft	North Reference:	True
Reference Well:	LR16A P15 595	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design NESE S15-T5S-R95 (P15 595) - LR09B P15 595 - DD - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance					Separation Factor	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis			
0.0	0.0	0.0	0.0	0.0	0.0	11.86	58.6	12.4	30.2					
100.0	100.0	100.0	100.0	0.1	0.1	11.86	58.6	12.4	30.2	29.9	0.30	101.625		
200.0	200.0	200.0	200.0	0.3	0.3	11.86	58.6	12.4	30.2	29.5	0.65	46.693		
300.0	300.0	300.0	300.0	0.5	0.5	11.86	58.6	12.4	30.2	29.2	0.99	30.309		
400.0	400.0	400.0	400.0	0.7	0.7	11.86	58.6	12.4	30.2	28.8	1.34	22.437		
500.0	500.0	500.0	500.0	0.8	0.8	11.86	58.6	12.4	30.2	28.5	1.69	17.811 CC, ES		
600.0	600.0	599.1	599.1	1.0	1.0	10.04	60.2	11.7	31.6	29.5	2.04	15.472		
700.0	700.0	698.0	697.8	1.2	1.2	5.46	64.9	9.6	36.0	33.6	2.39	15.068 SF		
800.0	800.0	796.4	795.9	1.4	1.4	-0.04	72.6	6.2	43.7	41.0	2.74	15.962		
900.0	900.0	894.1	892.9	1.5	1.6	-5.06	83.4	1.4	54.9	51.8	3.09	17.747		
1,000.0	1,000.0	991.5	989.1	1.7	1.9	-9.09	97.0	-4.7	69.5	66.1	3.46	20.078		
1,100.0	1,100.0	1,090.1	1,086.4	1.9	2.2	128.51	111.5	-11.1	86.3	82.5	3.79	22.803		

Cathedral Energy Services

Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Site SESE S15-T5S-R95W (P15 595)
Project:	Garfield County	TVD Reference:	KBE @ 8400.0ft (Patterson 302)
Reference Site:	SESE S15-T5S-R95W (P15 595)	MD Reference:	KBE @ 8400.0ft (Patterson 302)
Site Error:	0.0ft	North Reference:	True
Reference Well:	LR16A P15 595	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design NESE S15-T5S-R95 (P15 595) - LR09C P15 595 - DD - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Total Uncertainty Axis	Separation Factor		
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)				
0.0	0.0	0.0	0.0	0.0	0.0	12.12	48.8	10.4	20.1					
100.0	100.0	100.0	100.0	0.1	0.1	12.12	48.8	10.4	20.1	19.8	0.30	67.821		
200.0	200.0	200.0	200.0	0.3	0.3	12.12	48.8	10.4	20.1	19.5	0.65	31.161		
300.0	300.0	300.0	300.0	0.5	0.5	12.12	48.8	10.4	20.1	19.1	0.99	20.227		
400.0	400.0	400.0	400.0	0.7	0.7	12.12	48.8	10.4	20.1	18.8	1.34	14.973		
500.0	500.0	500.0	500.0	0.8	0.8	12.12	48.8	10.4	20.1	18.4	1.69	11.886		
600.0	600.0	600.0	600.0	1.0	1.0	12.12	48.8	10.4	20.1	18.1	2.04	9.854		
700.0	700.0	700.0	700.0	1.2	1.2	12.12	48.8	10.4	20.1	17.7	2.39	8.416		
800.0	800.0	800.0	800.0	1.4	1.4	12.12	48.8	10.4	20.1	17.4	2.74	7.344		
900.0	900.0	900.0	900.0	1.5	1.5	12.12	48.8	10.4	20.1	17.0	3.09	6.514		
1,000.0	1,000.0	1,000.0	1,000.0	1.7	1.7	12.12	48.8	10.4	20.1	16.7	3.44	5.853 CC, ES		
1,100.0	1,100.0	1,100.1	1,100.1	1.9	1.9	149.42	48.9	8.7	21.4	17.6	3.79	5.650 SF		
1,200.0	1,199.8	1,200.0	1,199.9	2.1	2.1	143.64	49.2	3.5	25.4	21.3	4.14	6.133		
1,300.0	1,299.5	1,299.8	1,299.4	2.3	2.3	139.99	49.5	-3.7	32.4	27.9	4.51	7.176		
1,400.0	1,398.7	1,399.3	1,398.6	2.5	2.5	140.77	49.9	-10.8	42.0	37.2	4.89	8.603		
1,483.8	1,481.5	1,482.4	1,481.5	2.7	2.6	142.99	50.2	-16.8	52.3	47.0	5.21	10.038		
1,500.0	1,497.5	1,498.5	1,497.6	2.7	2.6	143.49	50.2	-18.0	54.4	49.2	5.27	10.330		
1,600.0	1,596.1	1,597.5	1,596.4	3.0	2.8	145.87	50.6	-25.1	67.9	62.2	5.66	11.990		
1,700.0	1,694.6	1,696.6	1,695.2	3.3	3.0	147.47	51.0	-32.2	81.5	75.4	6.06	13.438		
1,800.0	1,793.2	1,795.7	1,794.0	3.6	3.2	148.60	51.3	-39.3	95.1	88.6	6.46	14.706		

Cathedral Energy Services

Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Site SESE S15-T5S-R95W (P15 595)
Project:	Garfield County	TVD Reference:	KBE @ 8400.0ft (Patterson 302)
Reference Site:	SESE S15-T5S-R95W (P15 595)	MD Reference:	KBE @ 8400.0ft (Patterson 302)
Site Error:	0.0ft	North Reference:	True
Reference Well:	LR16A P15 595	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design NESE S15-T5S-R95 (P15 595) - LR09D P15 595 - DD - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance					Separation Factor	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis			
0.0	0.0	0.0	0.0	0.0	0.0	11.73	68.5	14.4	40.2					
100.0	100.0	100.0	100.0	0.1	0.1	11.73	68.5	14.4	40.2	39.9	0.30	135.431		
200.0	200.0	200.0	200.0	0.3	0.3	11.73	68.5	14.4	40.2	39.5	0.65	62.225		
300.0	300.0	300.0	300.0	0.5	0.5	11.73	68.5	14.4	40.2	39.2	0.99	40.392		
400.0	400.0	400.0	400.0	0.7	0.7	11.73	68.5	14.4	40.2	38.8	1.34	29.900		
500.0	500.0	500.0	500.0	0.8	0.8	11.73	68.5	14.4	40.2	38.5	1.69	23.735 CC, ES		
600.0	600.0	598.6	598.6	1.0	1.0	11.09	70.2	14.2	41.8	39.8	2.04	20.510		
700.0	700.0	697.0	696.9	1.2	1.2	9.43	75.2	13.9	46.8	44.4	2.39	19.606 SF		
800.0	800.0	796.4	796.0	1.4	1.4	7.54	82.6	13.3	54.1	51.4	2.74	19.735		
900.0	900.0	896.2	895.4	1.5	1.6	6.09	90.1	12.7	61.5	58.4	3.10	19.851		
1,000.0	1,000.0	995.9	994.9	1.7	1.8	4.95	97.6	12.1	68.9	65.5	3.46	19.940		
1,100.0	1,100.0	1,095.5	1,094.2	1.9	2.0	144.42	105.1	11.6	77.8	74.0	3.78	20.568		
1,200.0	1,199.8	1,194.8	1,193.2	2.1	2.2	145.47	112.5	11.0	89.5	85.3	4.13	21.672		

Cathedral Energy Services

Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Site SESE S15-T5S-R95W (P15 595)
Project:	Garfield County	TVD Reference:	KBE @ 8400.0ft (Patterson 302)
Reference Site:	SESE S15-T5S-R95W (P15 595)	MD Reference:	KBE @ 8400.0ft (Patterson 302)
Site Error:	0.0ft	North Reference:	True
Reference Well:	LR16A P15 595	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design NESE S15-T5S-R95 (P15 595) - LR16B P15 595 - DD - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Total Uncertainty Axis	Separation Factor	Warning			
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)						
0.0	0.0	0.0	0.0	0.0	0.0	11.33	39.0	8.2	10.0					
100.0	100.0	100.0	100.0	0.1	0.1	11.33	39.0	8.2	10.0	9.7	0.30	33.835		
200.0	200.0	200.0	200.0	0.3	0.3	11.33	39.0	8.2	10.0	9.4	0.65	15.546		
300.0	300.0	300.0	300.0	0.5	0.5	11.33	39.0	8.2	10.0	9.0	0.99	10.091		
400.0	400.0	400.0	400.0	0.7	0.7	11.33	39.0	8.2	10.0	8.7	1.34	7.470		
500.0	500.0	500.0	500.0	0.8	0.8	11.33	39.0	8.2	10.0	8.3	1.69	5.930		
600.0	600.0	600.0	600.0	1.0	1.0	11.33	39.0	8.2	10.0	8.0	2.04	4.916		
700.0	700.0	700.0	700.0	1.2	1.2	11.33	39.0	8.2	10.0	7.6	2.39	4.199		
800.0	800.0	800.0	800.0	1.4	1.4	11.33	39.0	8.2	10.0	7.3	2.74	3.664		
900.0	900.0	900.0	900.0	1.5	1.5	11.33	39.0	8.2	10.0	6.9	3.09	3.250		
1,000.0	1,000.0	1,000.0	1,000.0	1.7	1.7	11.33	39.0	8.2	10.0	6.6	3.44	2.920 CC		
1,100.0	1,100.0	1,100.3	1,100.3	1.9	1.9	150.11	37.8	6.9	10.1	6.4	3.79	2.677		
1,200.0	1,199.8	1,200.6	1,200.4	2.1	2.1	147.40	34.1	3.1	10.5	6.3	4.14	2.526 ES, SF		
1,300.0	1,299.5	1,300.6	1,300.2	2.3	2.3	147.57	29.1	-2.3	12.0	7.5	4.49	2.677		
1,400.0	1,398.7	1,400.5	1,399.7	2.5	2.5	154.05	23.9	-7.7	16.6	11.8	4.84	3.436		
1,483.8	1,481.5	1,484.0	1,483.0	2.7	2.6	159.77	19.7	-12.2	23.1	18.0	5.12	4.506		
1,500.0	1,497.5	1,500.1	1,499.1	2.7	2.7	160.72	18.8	-13.1	24.6	19.4	5.18	4.745		
1,600.0	1,596.1	1,599.7	1,598.4	3.0	2.9	164.70	13.8	-18.5	33.9	28.3	5.53	6.126		
1,700.0	1,694.6	1,699.2	1,697.7	3.3	3.1	166.96	8.7	-23.9	43.3	37.4	5.88	7.356		
1,800.0	1,793.2	1,798.8	1,796.9	3.6	3.3	168.42	3.6	-29.3	52.7	46.4	6.23	8.454		
1,900.0	1,891.8	1,898.3	1,896.2	3.9	3.5	169.43	-1.5	-34.6	62.1	55.5	6.58	9.438		
2,000.0	1,990.4	1,997.9	1,995.5	4.2	3.7	170.18	-6.6	-40.0	71.6	64.7	6.93	10.324		
2,100.0	2,088.9	2,097.4	2,094.8	4.5	3.9	170.75	-11.7	-45.4	81.1	73.8	7.29	11.125		
2,200.0	2,187.5	2,196.9	2,194.0	4.8	4.1	171.20	-16.8	-50.8	90.5	82.9	7.64	11.854		

Cathedral Energy Services

Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Site SESE S15-T5S-R95W (P15 595)
Project:	Garfield County	TVD Reference:	KBE @ 8400.0ft (Patterson 302)
Reference Site:	SESE S15-T5S-R95W (P15 595)	MD Reference:	KBE @ 8400.0ft (Patterson 302)
Site Error:	0.0ft	North Reference:	True
Reference Well:	LR16A P15 595	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design SESE S15-T5S-R95W (P15 595) - LR01A P15 595 - DD - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance					Separation Factor	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis			
0.0	0.0	0.0	0.0	0.0	0.0	-168.16	-9.8	-2.0	39.8					
100.0	100.0	100.0	100.0	0.1	0.1	-168.16	-9.8	-2.0	39.8	39.5	0.30	134.215		
200.0	200.0	200.0	200.0	0.3	0.3	-168.16	-9.8	-2.0	39.8	39.2	0.65	61.666 CC, ES		
300.0	300.0	298.6	298.6	0.5	0.5	-168.53	-11.5	-2.1	41.5	40.5	0.99	41.798		
400.0	400.0	397.0	396.8	0.7	0.7	-169.48	-16.6	-2.3	46.6	45.3	1.35	34.652		
500.0	500.0	494.9	494.4	0.8	0.9	-170.67	-25.0	-2.7	55.1	53.4	1.71	32.298		
600.0	600.0	592.1	590.9	1.0	1.2	-171.83	-36.6	-3.2	67.0	65.0	2.08	32.181 SF		
700.0	700.0	688.4	686.1	1.2	1.5	-172.81	-51.3	-3.9	82.3	79.8	2.48	33.225		
800.0	800.0	786.9	783.0	1.4	1.8	-173.58	-68.1	-4.7	99.3	96.5	2.89	34.429		

Cathedral Energy Services

Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Site SESE S15-T5S-R95W (P15 595)
Project:	Garfield County	TVD Reference:	KBE @ 8400.0ft (Patterson 302)
Reference Site:	SESE S15-T5S-R95W (P15 595)	MD Reference:	KBE @ 8400.0ft (Patterson 302)
Site Error:	0.0ft	North Reference:	True
Reference Well:	LR16A P15 595	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design SESE S15-T5S-R95W (P15 595) - LR01B P15 595 - DD - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning	
0.0	0.0	0.0	0.0	0.0	0.0	-168.26	-19.7	-3.9	49.8					
100.0	100.0	100.0	100.0	0.1	0.1	-168.26	-19.7	-3.9	49.8	49.6	0.30	168.006		
200.0	200.0	200.0	200.0	0.3	0.3	-168.26	-19.7	-3.9	49.8	49.2	0.65	77.192 CC, ES		
300.0	300.0	298.3	298.2	0.5	0.5	-168.46	-21.4	-4.1	51.6	50.6	0.99	51.919		
400.0	400.0	396.3	396.1	0.7	0.7	-168.98	-26.4	-4.6	56.7	55.3	1.35	42.125		
500.0	500.0	493.9	493.3	0.8	0.9	-169.66	-34.7	-5.4	65.2	63.5	1.71	38.176		
600.0	600.0	590.8	589.5	1.0	1.2	-170.36	-46.2	-6.6	77.1	75.0	2.08	36.978 SF		
700.0	700.0	686.8	684.4	1.2	1.5	-170.99	-60.7	-8.0	92.3	89.8	2.48	37.222		

Cathedral Energy Services

Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Site SESE S15-T5S-R95W (P15 595)
Project:	Garfield County	TVD Reference:	KBE @ 8400.0ft (Patterson 302)
Reference Site:	SESE S15-T5S-R95W (P15 595)	MD Reference:	KBE @ 8400.0ft (Patterson 302)
Site Error:	0.0ft	North Reference:	True
Reference Well:	LR16A P15 595	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design SESE S15-T5S-R95W (P15 595) - LR01D P15 595 - DD - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	-168.67	19.3	4.2	10.0					
100.0	100.0	100.0	100.0	0.1	0.1	-168.67	19.3	4.2	10.0	9.7	0.30	33.821		
200.0	200.0	200.0	200.0	0.3	0.3	-168.67	19.3	4.2	10.0	9.4	0.65	15.539		
300.0	300.0	300.3	300.2	0.5	0.5	-175.13	20.5	5.5	8.6	7.6	1.00	8.643		
363.8	363.8	363.8	363.8	0.6	0.6	174.10	21.4	7.0	7.8	6.6	1.22	6.370 CC, ES		
400.0	400.0	400.0	399.9	0.7	0.7	168.24	21.2	7.8	8.0	6.7	1.35	5.973 SF		
500.0	500.0	499.6	499.4	0.8	0.9	160.17	18.5	10.0	11.3	9.6	1.69	6.680		
600.0	600.0	598.9	598.5	1.0	1.0	160.85	12.3	12.0	17.8	15.8	2.04	8.728		
700.0	700.0	697.7	696.9	1.2	1.3	163.82	2.8	13.8	27.6	25.2	2.41	11.464		
800.0	800.0	795.7	794.0	1.4	1.5	166.69	-10.0	15.5	40.7	37.9	2.79	14.585		
900.0	900.0	892.7	889.7	1.5	1.8	169.03	-26.0	16.9	57.0	53.9	3.19	17.892		
1,000.0	1,000.0	988.6	983.7	1.7	2.2	170.86	-44.9	18.1	76.7	73.1	3.61	21.245		
1,100.0	1,100.0	1,083.3	1,075.9	1.9	2.5	-48.39	-66.6	19.1	98.5	94.7	3.76	26.198		

Cathedral Energy Services

Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Site SESE S15-T5S-R95W (P15 595)
Project:	Garfield County	TVD Reference:	KBE @ 8400.0ft (Patterson 302)
Reference Site:	SESE S15-T5S-R95W (P15 595)	MD Reference:	KBE @ 8400.0ft (Patterson 302)
Site Error:	0.0ft	North Reference:	True
Reference Well:	LR16A P15 595	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design SESE S15-T5S-R95W (P15 595) - LR16C P15 595 - DD - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	-168.66	9.5	2.3	20.1					
100.0	100.0	100.0	100.0	0.1	0.1	-168.66	9.5	2.3	20.1	19.8	0.30	67.599		
200.0	200.0	200.0	200.0	0.3	0.3	-168.66	9.5	2.3	20.1	19.4	0.65	31.059		
300.0	300.0	300.0	300.0	0.5	0.5	-168.66	9.5	2.3	20.1	19.1	0.99	20.161		
400.0	400.0	400.0	400.0	0.7	0.7	-168.66	9.5	2.3	20.1	18.7	1.34	14.924		
500.0	500.0	500.0	500.0	0.8	0.8	-168.66	9.5	2.3	20.1	18.4	1.69	11.847		
600.0	600.0	600.0	600.0	1.0	1.0	-168.66	9.5	2.3	20.1	18.0	2.04	9.822 CC, ES		
700.0	700.0	699.3	699.2	1.2	1.2	-168.40	7.8	1.8	21.8	19.4	2.39	9.114 SF		
800.0	800.0	798.3	798.1	1.4	1.4	-167.83	2.8	0.5	27.0	24.2	2.74	9.835		
900.0	900.0	896.9	896.3	1.5	1.6	-167.24	-5.4	-1.6	35.6	32.5	3.10	11.474		
1,000.0	1,000.0	994.7	993.5	1.7	1.8	-166.78	-16.8	-4.6	47.6	44.2	3.47	13.711		
1,100.0	1,100.0	1,091.9	1,089.5	1.9	2.1	-27.32	-31.3	-8.4	61.5	57.7	3.77	16.300		
1,200.0	1,199.8	1,190.6	1,186.6	2.1	2.4	-28.64	-48.2	-12.8	74.6	70.5	4.12	18.103		
1,300.0	1,299.5	1,290.0	1,284.5	2.3	2.7	-30.72	-65.3	-17.2	84.8	80.3	4.48	18.949		
1,400.0	1,398.7	1,389.6	1,382.5	2.5	3.0	-33.52	-82.4	-21.7	92.2	87.3	4.84	19.029		
1,483.8	1,481.5	1,473.2	1,464.7	2.7	3.3	-36.47	-96.7	-25.4	96.4	91.2	5.18	18.612		
1,500.0	1,497.5	1,489.3	1,480.6	2.7	3.3	-37.11	-99.5	-26.1	97.0	91.8	5.25	18.492		

Cathedral Energy Services

Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Site SESE S15-T5S-R95W (P15 595)
Project:	Garfield County	TVD Reference:	KBE @ 8400.0ft (Patterson 302)
Reference Site:	SESE S15-T5S-R95W (P15 595)	MD Reference:	KBE @ 8400.0ft (Patterson 302)
Site Error:	0.0ft	North Reference:	True
Reference Well:	LR16A P15 595	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design SESE S15-T5S-R95W (P15 595) - LR16D P15 595 - DD - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance					Separation Factor	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis			
0.0	0.0	0.0	0.0	0.0	0.0	-167.99	0.0	0.0	29.8					
100.0	100.0	100.0	100.0	0.1	0.1	-167.99	0.0	0.0	29.8	29.5	0.30	100.395		
200.0	200.0	200.0	200.0	0.3	0.3	-167.99	0.0	0.0	29.8	29.1	0.65	46.128		
300.0	300.0	300.0	300.0	0.5	0.5	-167.99	0.0	0.0	29.8	28.8	0.99	29.942		
400.0	400.0	400.0	400.0	0.7	0.7	-167.99	0.0	0.0	29.8	28.4	1.34	22.165		
500.0	500.0	500.0	500.0	0.8	0.8	-167.99	0.0	0.0	29.8	28.1	1.69	17.595 CC, ES		
600.0	600.0	599.0	598.9	1.0	1.0	-168.74	-1.7	0.1	31.5	29.4	2.04	15.420		
700.0	700.0	697.7	697.5	1.2	1.2	-170.58	-6.8	0.2	36.5	34.1	2.39	15.281 SF		
800.0	800.0	795.9	795.4	1.4	1.4	-172.71	-15.3	0.5	45.0	42.2	2.75	16.388		
900.0	900.0	893.5	892.3	1.5	1.6	-174.62	-27.0	0.9	56.9	53.8	3.11	18.280		
1,000.0	1,000.0	990.2	987.8	1.7	1.9	-176.15	-41.8	1.4	72.1	68.7	3.49	20.655		
1,100.0	1,100.0	1,085.9	1,081.9	1.9	2.2	-38.05	-59.7	2.0	89.4	85.6	3.77	23.739		

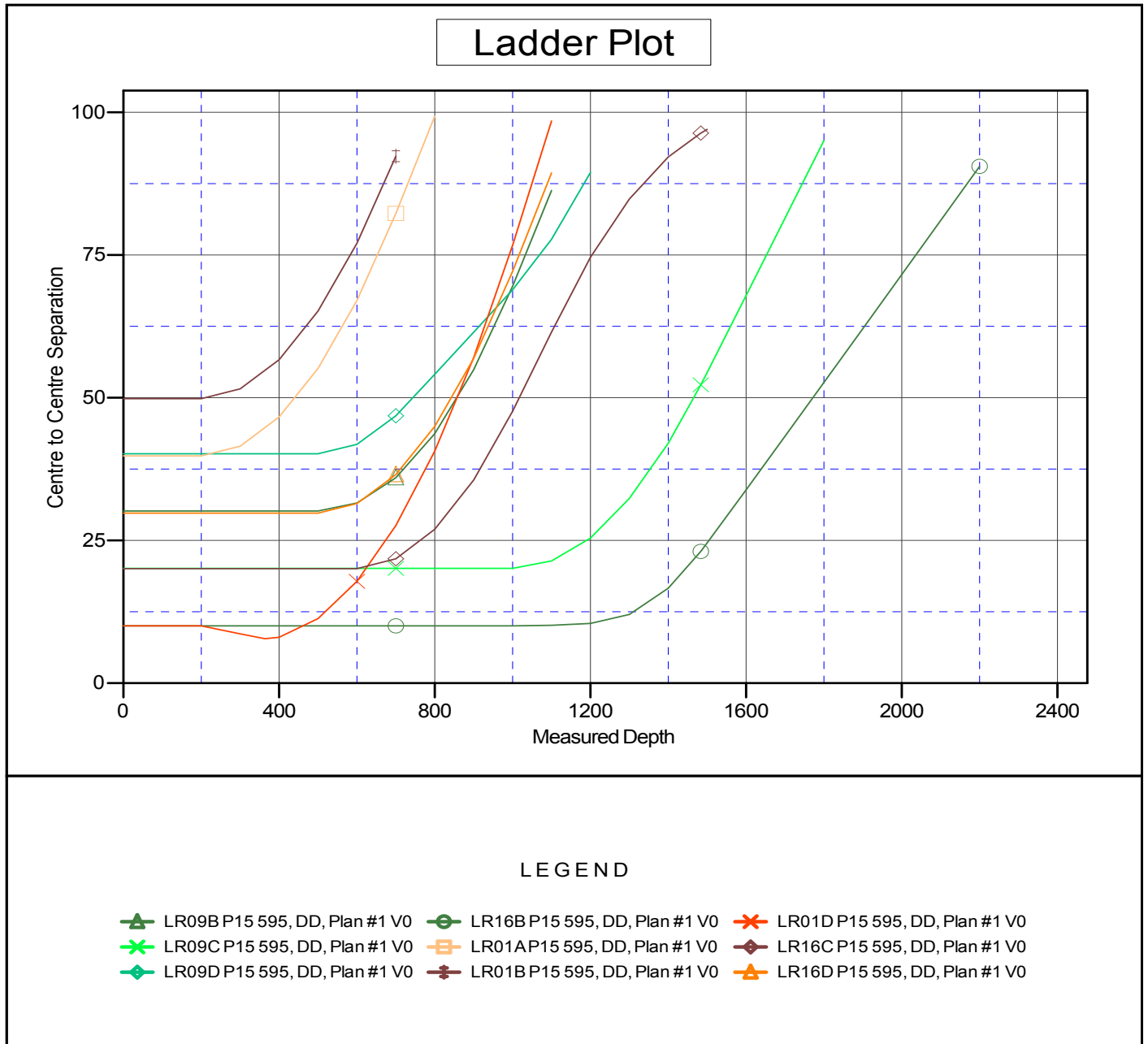
Cathedral Energy Services

Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Site SESE S15-T5S-R95W (P15 595)
Project:	Garfield County	TVD Reference:	KBE @ 8400.0ft (Patterson 302)
Reference Site:	SESE S15-T5S-R95W (P15 595)	MD Reference:	KBE @ 8400.0ft (Patterson 302)
Site Error:	0.0ft	North Reference:	True
Reference Well:	LR16A P15 595	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Reference Depths are relative to KBE @ 8400.0ft (Patterson 302)
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000 °

Coordinates are relative to: SESE S15-T5S-R95W (P15 595)
Coordinate System is US State Plane 1983, Colorado Central Zone
Grid Convergence at Surface is: -1.60°



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