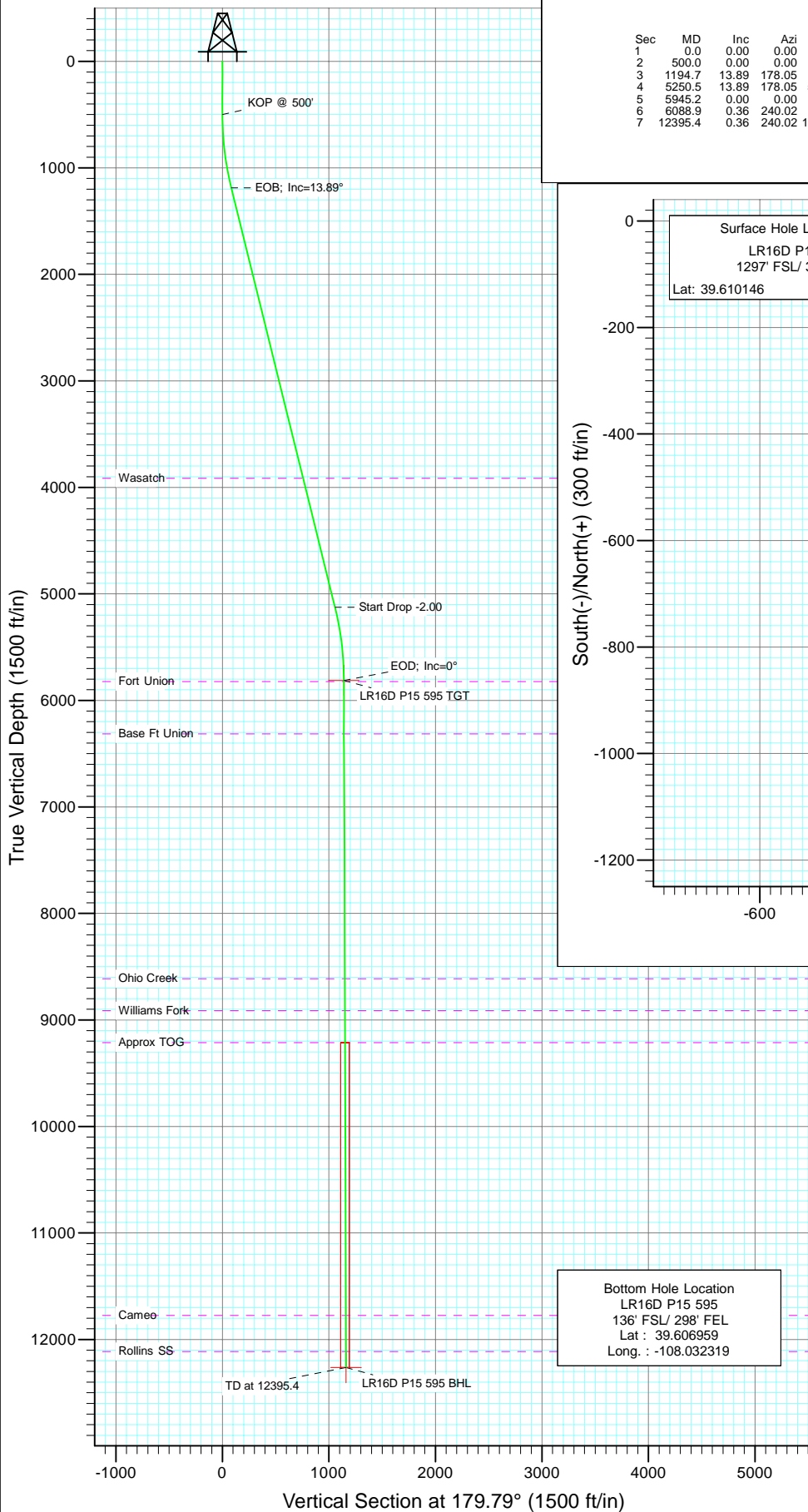
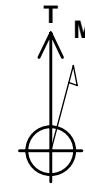
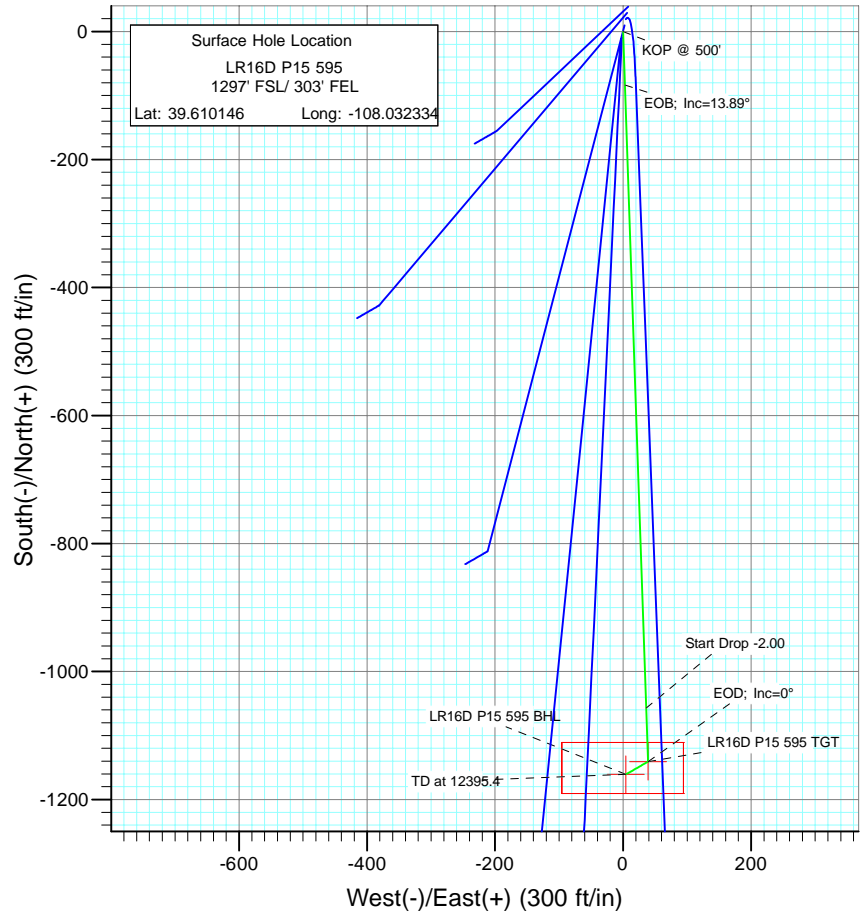




Project: Garfield County
Site: SESE S15-T5S-R95W (P15 595)
Well: LR16D P15 595
Wellbore: DD
Design: Plan #1



SECTION DETAILS										
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VFace	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	500.0	0.00	0.00	500.0	0.0	0.0	0.00	0.00	0.0	
3	1194.7	13.89	178.05	1187.9	-83.8	2.9	2.00	178.05	83.8	
4	5250.5	13.89	178.05	5125.1	-1057.1	36.0	0.00	0.00	1057.2	
5	5945.2	0.00	0.00	5813.0	-1140.9	38.8	2.00	180.00	1141.0	LR16D P15 595 TGT
6	6088.9	0.36	240.02	5956.6	-1141.1	38.5	0.25	240.02	1141.2	
7	12395.4	0.36	240.02	12263.0	-1160.9	4.2	0.00	0.00	1160.9	LR16D 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
3913.0	4001.9	Wasatch
5823.0	5955.2	Fort Union
6313.0	6445.3	Base Ft Union
8613.0	8745.3	Ohio Creek
8913.0	9045.3	Williams Fork
9213.0	9345.3	Approx TOG
11773.0	11905.4	Cameo
12113.0	12245.4	Rollins SS

DESIGN DETAILS: Plan #1

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

Target	Azimuth	Origin	N/S	E/W	From TVD
LR16D P15 595 BHL	179.79	Slot	0.0	0.0	0.0

Cathedral Energy Services

Planning Report

Database:	EDM 5000.1 US Multi Users DB	Local Co-ordinate Reference:	Well LR16D 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:	LR16D 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	LR16D P15 595					
Well Position	+N/-S	0.0 ft	Northing:	1,657,070.65 ft	Latitude:	39.610146
	+E/-W	0.0 ft	Easting:	2,286,630.08 ft	Longitude:	-108.032334
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	0.0	0.0	179.79

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	0.0	0.0	0.00	0.00	0.00	0.00	
500.0	0.00	0.00	500.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,194.7	13.89	178.05	1,187.9	-83.8	2.9	2.00	2.00	0.00	178.05	
5,250.5	13.89	178.05	5,125.1	-1,057.1	36.0	0.00	0.00	0.00	0.00	
5,945.2	0.00	0.00	5,813.0	-1,140.9	38.8	2.00	-2.00	0.00	180.00	LR16D P15 595 TGT
6,088.9	0.36	240.02	5,956.6	-1,141.1	38.5	0.25	0.25	-83.54	240.02	
12,395.4	0.36	240.02	12,263.0	-1,160.9	4.2	0.00	0.00	0.00	0.00	LR16D P15 595 BHL

Cathedral Energy Services

Planning Report

Database:	EDM 5000.1 US Multi Users DB	Local Co-ordinate Reference:	Well LR16D 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:	LR16D 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	0.0	0.0	0.0	0.00	0.00	
30.0	0.00	0.00	30.0	0.0	0.0	0.0	0.00	0.00	
60.0	0.00	0.00	60.0	0.0	0.0	0.0	0.00	0.00	
90.0	0.00	0.00	90.0	0.0	0.0	0.0	0.00	0.00	
120.0	0.00	0.00	120.0	0.0	0.0	0.0	0.00	0.00	
150.0	0.00	0.00	150.0	0.0	0.0	0.0	0.00	0.00	
180.0	0.00	0.00	180.0	0.0	0.0	0.0	0.00	0.00	
210.0	0.00	0.00	210.0	0.0	0.0	0.0	0.00	0.00	
240.0	0.00	0.00	240.0	0.0	0.0	0.0	0.00	0.00	
270.0	0.00	0.00	270.0	0.0	0.0	0.0	0.00	0.00	
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	
330.0	0.00	0.00	330.0	0.0	0.0	0.0	0.00	0.00	
360.0	0.00	0.00	360.0	0.0	0.0	0.0	0.00	0.00	
390.0	0.00	0.00	390.0	0.0	0.0	0.0	0.00	0.00	
420.0	0.00	0.00	420.0	0.0	0.0	0.0	0.00	0.00	
450.0	0.00	0.00	450.0	0.0	0.0	0.0	0.00	0.00	
480.0	0.00	0.00	480.0	0.0	0.0	0.0	0.00	0.00	
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	KOP @ 500'
510.0	0.20	178.05	510.0	0.0	0.0	0.0	2.00	2.00	
540.0	0.80	178.05	540.0	-0.3	0.0	0.3	2.00	2.00	
570.0	1.40	178.05	570.0	-0.9	0.0	0.9	2.00	2.00	
600.0	2.00	178.05	600.0	-1.7	0.1	1.7	2.00	2.00	
630.0	2.60	178.05	630.0	-2.9	0.1	2.9	2.00	2.00	
660.0	3.20	178.05	659.9	-4.5	0.2	4.5	2.00	2.00	
690.0	3.80	178.05	689.9	-6.3	0.2	6.3	2.00	2.00	
720.0	4.40	178.05	719.8	-8.4	0.3	8.4	2.00	2.00	
750.0	5.00	178.05	749.7	-10.9	0.4	10.9	2.00	2.00	
780.0	5.60	178.05	779.6	-13.7	0.5	13.7	2.00	2.00	
810.0	6.20	178.05	809.4	-16.7	0.6	16.7	2.00	2.00	
840.0	6.80	178.05	839.2	-20.1	0.7	20.1	2.00	2.00	
870.0	7.40	178.05	869.0	-23.8	0.8	23.8	2.00	2.00	
900.0	8.00	178.05	898.7	-27.9	0.9	27.9	2.00	2.00	
930.0	8.60	178.05	928.4	-32.2	1.1	32.2	2.00	2.00	
960.0	9.20	178.05	958.0	-36.8	1.3	36.8	2.00	2.00	
990.0	9.80	178.05	987.6	-41.8	1.4	41.8	2.00	2.00	
1,020.0	10.40	178.05	1,017.1	-47.0	1.6	47.0	2.00	2.00	
1,050.0	11.00	178.05	1,046.6	-52.6	1.8	52.6	2.00	2.00	
1,080.0	11.60	178.05	1,076.0	-58.5	2.0	58.5	2.00	2.00	
1,110.0	12.20	178.05	1,105.4	-64.7	2.2	64.7	2.00	2.00	
1,140.0	12.80	178.05	1,134.7	-71.2	2.4	71.2	2.00	2.00	
1,170.0	13.40	178.05	1,163.9	-77.9	2.7	78.0	2.00	2.00	
1,194.7	13.89	178.05	1,187.9	-83.8	2.9	83.8	2.00	2.00	EOB; Inc=13.89°
1,200.0	13.89	178.05	1,193.1	-85.0	2.9	85.1	0.00	0.00	
1,230.0	13.89	178.05	1,222.2	-92.2	3.1	92.3	0.00	0.00	
1,260.0	13.89	178.05	1,251.3	-99.4	3.4	99.5	0.00	0.00	
1,290.0	13.89	178.05	1,280.4	-106.6	3.6	106.7	0.00	0.00	
1,320.0	13.89	178.05	1,309.5	-113.8	3.9	113.9	0.00	0.00	
1,350.0	13.89	178.05	1,338.7	-121.0	4.1	121.1	0.00	0.00	
1,380.0	13.89	178.05	1,367.8	-128.2	4.4	128.3	0.00	0.00	
1,410.0	13.89	178.05	1,396.9	-135.4	4.6	135.5	0.00	0.00	
1,440.0	13.89	178.05	1,426.0	-142.6	4.9	142.7	0.00	0.00	
1,470.0	13.89	178.05	1,455.2	-149.8	5.1	149.9	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	EDM 5000.1 US Multi Users DB	Local Co-ordinate Reference:	Well LR16D 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:	LR16D 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	13.89	178.05	1,484.3	-157.0	5.3	157.1	0.00	0.00	
1,530.0	13.89	178.05	1,513.4	-164.2	5.6	164.3	0.00	0.00	
1,560.0	13.89	178.05	1,542.5	-171.4	5.8	171.5	0.00	0.00	
1,590.0	13.89	178.05	1,571.6	-178.6	6.1	178.7	0.00	0.00	
1,620.0	13.89	178.05	1,600.8	-185.8	6.3	185.9	0.00	0.00	
1,650.0	13.89	178.05	1,629.9	-193.0	6.6	193.1	0.00	0.00	
1,680.0	13.89	178.05	1,659.0	-200.2	6.8	200.3	0.00	0.00	
1,710.0	13.89	178.05	1,688.1	-207.4	7.1	207.5	0.00	0.00	
1,740.0	13.89	178.05	1,717.3	-214.6	7.3	214.7	0.00	0.00	
1,770.0	13.89	178.05	1,746.4	-221.8	7.6	221.9	0.00	0.00	
1,800.0	13.89	178.05	1,775.5	-229.0	7.8	229.1	0.00	0.00	
1,830.0	13.89	178.05	1,804.6	-236.2	8.0	236.3	0.00	0.00	
1,860.0	13.89	178.05	1,833.7	-243.4	8.3	243.5	0.00	0.00	
1,890.0	13.89	178.05	1,862.9	-250.6	8.5	250.7	0.00	0.00	
1,920.0	13.89	178.05	1,892.0	-257.8	8.8	257.9	0.00	0.00	
1,950.0	13.89	178.05	1,921.1	-265.0	9.0	265.1	0.00	0.00	
1,980.0	13.89	178.05	1,950.2	-272.2	9.3	272.3	0.00	0.00	
2,010.0	13.89	178.05	1,979.4	-279.4	9.5	279.5	0.00	0.00	
2,040.0	13.89	178.05	2,008.5	-286.6	9.8	286.7	0.00	0.00	
2,070.0	13.89	178.05	2,037.6	-293.8	10.0	293.9	0.00	0.00	
2,100.0	13.89	178.05	2,066.7	-301.0	10.3	301.1	0.00	0.00	
2,130.0	13.89	178.05	2,095.8	-308.2	10.5	308.3	0.00	0.00	
2,160.0	13.89	178.05	2,125.0	-315.4	10.7	315.5	0.00	0.00	
2,190.0	13.89	178.05	2,154.1	-322.6	11.0	322.7	0.00	0.00	
2,220.0	13.89	178.05	2,183.2	-329.8	11.2	329.9	0.00	0.00	
2,250.0	13.89	178.05	2,212.3	-337.0	11.5	337.1	0.00	0.00	
2,280.0	13.89	178.05	2,241.5	-344.2	11.7	344.3	0.00	0.00	
2,310.0	13.89	178.05	2,270.6	-351.4	12.0	351.5	0.00	0.00	
2,340.0	13.89	178.05	2,299.7	-358.6	12.2	358.7	0.00	0.00	
2,370.0	13.89	178.05	2,328.8	-365.8	12.5	365.9	0.00	0.00	
2,400.0	13.89	178.05	2,357.9	-373.0	12.7	373.1	0.00	0.00	
2,430.0	13.89	178.05	2,387.1	-380.2	12.9	380.3	0.00	0.00	
2,460.0	13.89	178.05	2,416.2	-387.4	13.2	387.5	0.00	0.00	
2,490.0	13.89	178.05	2,445.3	-394.6	13.4	394.7	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
LR16D P15 595 TGT	0.00	0.00	5,813.0	-1,140.9	38.8	1,655,929.11	2,286,637.12	39.607014	-108.032196
- hit/miss target									
- Shape									
- plan misses target center by 3449.5ft at 2490.0ft MD (2445.3 TVD, -394.6 N, 13.4 E)									
- Point									
LR16D P15 595 BHL	0.00	0.00	12,263.0	-1,160.9	4.2	1,655,910.12	2,286,601.95	39.606959	-108.032319
- plan misses target center by 9847.5ft at 2490.0ft MD (2445.3 TVD, -394.6 N, 13.4 E)									
- Polygon									
Point 1			12,263.0	50.0	90.0	1,655,957.59	2,286,693.31		
Point 2			12,263.0	50.0	-100.0	1,655,962.88	2,286,503.38		
Point 3			12,263.0	-30.0	-100.0	1,655,882.91	2,286,501.15		
Point 4			12,263.0	-30.0	90.0	1,655,877.62	2,286,691.08		

Cathedral Energy Services

Planning Report

Database:	EDM 5000.1 US Multi Users DB	Local Co-ordinate Reference:	Well LR16D 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:	LR16D 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	13.89	178.05	2,455.0	-397.0	13.5	397.1	0.00	0.00	
2,600.0	13.89	178.05	2,552.1	-421.0	14.3	421.1	0.00	0.00	
2,700.0	13.89	178.05	2,649.2	-445.0	15.2	445.1	0.00	0.00	
2,800.0	13.89	178.05	2,746.2	-469.0	16.0	469.1	0.00	0.00	
2,900.0	13.89	178.05	2,843.3	-493.0	16.8	493.1	0.00	0.00	
3,000.0	13.89	178.05	2,940.4	-517.0	17.6	517.1	0.00	0.00	
3,100.0	13.89	178.05	3,037.5	-541.0	18.4	541.1	0.00	0.00	
3,200.0	13.89	178.05	3,134.5	-565.0	19.2	565.1	0.00	0.00	
3,300.0	13.89	178.05	3,231.6	-589.0	20.1	589.1	0.00	0.00	
3,400.0	13.89	178.05	3,328.7	-613.0	20.9	613.1	0.00	0.00	
3,500.0	13.89	178.05	3,425.8	-637.0	21.7	637.1	0.00	0.00	
3,600.0	13.89	178.05	3,522.8	-661.0	22.5	661.1	0.00	0.00	
3,700.0	13.89	178.05	3,619.9	-685.0	23.3	685.1	0.00	0.00	
3,800.0	13.89	178.05	3,717.0	-709.0	24.1	709.1	0.00	0.00	
3,900.0	13.89	178.05	3,814.1	-733.0	25.0	733.1	0.00	0.00	
4,000.0	13.89	178.05	3,911.1	-757.0	25.8	757.1	0.00	0.00	
4,001.9	13.89	178.05	3,913.0	-757.5	25.8	757.6	0.00	0.00	Wasatch
4,100.0	13.89	178.05	4,008.2	-781.0	26.6	781.1	0.00	0.00	
4,200.0	13.89	178.05	4,105.3	-805.0	27.4	805.1	0.00	0.00	
4,300.0	13.89	178.05	4,202.4	-829.0	28.2	829.1	0.00	0.00	
4,400.0	13.89	178.05	4,299.4	-853.0	29.0	853.1	0.00	0.00	
4,500.0	13.89	178.05	4,396.5	-877.0	29.9	877.1	0.00	0.00	
4,600.0	13.89	178.05	4,493.6	-901.0	30.7	901.1	0.00	0.00	
4,700.0	13.89	178.05	4,590.7	-925.0	31.5	925.1	0.00	0.00	
4,800.0	13.89	178.05	4,687.7	-949.0	32.3	949.1	0.00	0.00	
4,900.0	13.89	178.05	4,784.8	-973.0	33.1	973.1	0.00	0.00	
5,000.0	13.89	178.05	4,881.9	-997.0	33.9	997.1	0.00	0.00	
5,100.0	13.89	178.05	4,978.9	-1,021.0	34.8	1,021.1	0.00	0.00	
5,200.0	13.89	178.05	5,076.0	-1,045.0	35.6	1,045.1	0.00	0.00	
5,250.5	13.89	178.05	5,125.1	-1,057.1	36.0	1,057.2	0.00	0.00	Start Drop -2.00
5,300.0	12.90	178.05	5,173.2	-1,068.6	36.4	1,068.7	2.00	-2.00	
5,400.0	10.90	178.05	5,271.0	-1,089.2	37.1	1,089.3	2.00	-2.00	
5,500.0	8.90	178.05	5,369.5	-1,106.4	37.7	1,106.5	2.00	-2.00	
5,600.0	6.90	178.05	5,468.6	-1,120.1	38.1	1,120.3	2.00	-2.00	
5,700.0	4.90	178.05	5,568.1	-1,130.4	38.5	1,130.5	2.00	-2.00	
5,800.0	2.90	178.05	5,667.8	-1,137.2	38.7	1,137.4	2.00	-2.00	
5,900.0	0.90	178.05	5,767.8	-1,140.5	38.8	1,140.7	2.00	-2.00	
5,945.2	0.00	0.00	5,813.0	-1,140.9	38.8	1,141.0	2.00	-2.00	EOD; Inc=0° - LR16D P15 595 TGT
5,955.2	0.03	240.02	5,823.0	-1,140.9	38.8	1,141.0	0.25	0.25	Fort Union
6,000.0	0.14	240.02	5,867.8	-1,140.9	38.8	1,141.1	0.25	0.25	
6,088.9	0.36	240.02	5,956.6	-1,141.1	38.5	1,141.3	0.25	0.25	
6,100.0	0.36	240.02	5,967.8	-1,141.2	38.4	1,141.3	0.00	0.00	
6,200.0	0.36	240.02	6,067.8	-1,141.5	37.9	1,141.6	0.00	0.00	
6,300.0	0.36	240.02	6,167.7	-1,141.8	37.3	1,141.9	0.00	0.00	
6,400.0	0.36	240.02	6,267.7	-1,142.1	36.8	1,142.2	0.00	0.00	
6,445.3	0.36	240.02	6,313.0	-1,142.2	36.5	1,142.4	0.00	0.00	Base Ft Union
6,500.0	0.36	240.02	6,367.7	-1,142.4	36.2	1,142.5	0.00	0.00	
6,600.0	0.36	240.02	6,467.7	-1,142.7	35.7	1,142.8	0.00	0.00	
6,700.0	0.36	240.02	6,567.7	-1,143.0	35.1	1,143.2	0.00	0.00	
6,800.0	0.36	240.02	6,667.7	-1,143.3	34.6	1,143.5	0.00	0.00	
6,900.0	0.36	240.02	6,767.7	-1,143.7	34.1	1,143.8	0.00	0.00	
7,000.0	0.36	240.02	6,867.7	-1,144.0	33.5	1,144.1	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	EDM 5000.1 US Multi Users DB	Local Co-ordinate Reference:	Well LR16D 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:	LR16D 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	0.36	240.02	6,967.7	-1,144.3	33.0	1,144.4	0.00	0.00	
7,200.0	0.36	240.02	7,067.7	-1,144.6	32.4	1,144.7	0.00	0.00	
7,300.0	0.36	240.02	7,167.7	-1,144.9	31.9	1,145.0	0.00	0.00	
7,400.0	0.36	240.02	7,267.7	-1,145.2	31.3	1,145.3	0.00	0.00	
7,500.0	0.36	240.02	7,367.7	-1,145.5	30.8	1,145.6	0.00	0.00	
7,600.0	0.36	240.02	7,467.7	-1,145.9	30.3	1,146.0	0.00	0.00	
7,700.0	0.36	240.02	7,567.7	-1,146.2	29.7	1,146.3	0.00	0.00	
7,800.0	0.36	240.02	7,667.7	-1,146.5	29.2	1,146.6	0.00	0.00	
7,900.0	0.36	240.02	7,767.7	-1,146.8	28.6	1,146.9	0.00	0.00	
8,000.0	0.36	240.02	7,867.7	-1,147.1	28.1	1,147.2	0.00	0.00	
8,100.0	0.36	240.02	7,967.7	-1,147.4	27.5	1,147.5	0.00	0.00	
8,200.0	0.36	240.02	8,067.7	-1,147.7	27.0	1,147.8	0.00	0.00	
8,300.0	0.36	240.02	8,167.7	-1,148.0	26.5	1,148.1	0.00	0.00	
8,400.0	0.36	240.02	8,267.7	-1,148.4	25.9	1,148.4	0.00	0.00	
8,500.0	0.36	240.02	8,367.7	-1,148.7	25.4	1,148.8	0.00	0.00	
8,600.0	0.36	240.02	8,467.7	-1,149.0	24.8	1,149.1	0.00	0.00	
8,700.0	0.36	240.02	8,567.7	-1,149.3	24.3	1,149.4	0.00	0.00	
8,745.3	0.36	240.02	8,613.0	-1,149.4	24.0	1,149.5	0.00	0.00	Ohio Creek
8,800.0	0.36	240.02	8,667.7	-1,149.6	23.7	1,149.7	0.00	0.00	
8,900.0	0.36	240.02	8,767.7	-1,149.9	23.2	1,150.0	0.00	0.00	
9,000.0	0.36	240.02	8,867.7	-1,150.2	22.7	1,150.3	0.00	0.00	
9,045.3	0.36	240.02	8,913.0	-1,150.4	22.4	1,150.5	0.00	0.00	Williams Fork
9,100.0	0.36	240.02	8,967.7	-1,150.5	22.1	1,150.6	0.00	0.00	
9,200.0	0.36	240.02	9,067.7	-1,150.9	21.6	1,150.9	0.00	0.00	
9,300.0	0.36	240.02	9,167.7	-1,151.2	21.0	1,151.2	0.00	0.00	
9,345.3	0.36	240.02	9,213.0	-1,151.3	20.8	1,151.4	0.00	0.00	Approx TOG
9,400.0	0.36	240.02	9,267.7	-1,151.5	20.5	1,151.6	0.00	0.00	
9,500.0	0.36	240.02	9,367.7	-1,151.8	19.9	1,151.9	0.00	0.00	
9,600.0	0.36	240.02	9,467.7	-1,152.1	19.4	1,152.2	0.00	0.00	
9,700.0	0.36	240.02	9,567.7	-1,152.4	18.9	1,152.5	0.00	0.00	
9,800.0	0.36	240.02	9,667.7	-1,152.7	18.3	1,152.8	0.00	0.00	
9,900.0	0.36	240.02	9,767.7	-1,153.1	17.8	1,153.1	0.00	0.00	
10,000.0	0.36	240.02	9,867.7	-1,153.4	17.2	1,153.4	0.00	0.00	
10,100.0	0.36	240.02	9,967.7	-1,153.7	16.7	1,153.7	0.00	0.00	
10,200.0	0.36	240.02	10,067.7	-1,154.0	16.1	1,154.0	0.00	0.00	
10,300.0	0.36	240.02	10,167.7	-1,154.3	15.6	1,154.4	0.00	0.00	
10,400.0	0.36	240.02	10,267.7	-1,154.6	15.1	1,154.7	0.00	0.00	
10,500.0	0.36	240.02	10,367.7	-1,154.9	14.5	1,155.0	0.00	0.00	
10,600.0	0.36	240.02	10,467.7	-1,155.2	14.0	1,155.3	0.00	0.00	
10,700.0	0.36	240.02	10,567.7	-1,155.6	13.4	1,155.6	0.00	0.00	
10,800.0	0.36	240.02	10,667.7	-1,155.9	12.9	1,155.9	0.00	0.00	
10,900.0	0.36	240.02	10,767.7	-1,156.2	12.3	1,156.2	0.00	0.00	
11,000.0	0.36	240.02	10,867.7	-1,156.5	11.8	1,156.5	0.00	0.00	
11,100.0	0.36	240.02	10,967.7	-1,156.8	11.3	1,156.8	0.00	0.00	
11,200.0	0.36	240.02	11,067.7	-1,157.1	10.7	1,157.2	0.00	0.00	
11,300.0	0.36	240.02	11,167.7	-1,157.4	10.2	1,157.5	0.00	0.00	
11,400.0	0.36	240.02	11,267.6	-1,157.7	9.6	1,157.8	0.00	0.00	
11,500.0	0.36	240.02	11,367.6	-1,158.1	9.1	1,158.1	0.00	0.00	
11,600.0	0.36	240.02	11,467.6	-1,158.4	8.5	1,158.4	0.00	0.00	
11,700.0	0.36	240.02	11,567.6	-1,158.7	8.0	1,158.7	0.00	0.00	
11,800.0	0.36	240.02	11,667.6	-1,159.0	7.5	1,159.0	0.00	0.00	
11,900.0	0.36	240.02	11,767.6	-1,159.3	6.9	1,159.3	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	EDM 5000.1 US Multi Users DB	Local Co-ordinate Reference:	Well LR16D 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:	LR16D 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
11,905.4	0.36	240.02	11,773.0	-1,159.3	6.9	1,159.3	0.00	0.00	Cameo
12,000.0	0.36	240.02	11,867.6	-1,159.6	6.4	1,159.6	0.00	0.00	
12,100.0	0.36	240.02	11,967.6	-1,159.9	5.8	1,160.0	0.00	0.00	
12,200.0	0.36	240.02	12,067.6	-1,160.3	5.3	1,160.3	0.00	0.00	
12,245.4	0.36	240.02	12,113.0	-1,160.4	5.0	1,160.4	0.00	0.00	Rollins SS
12,300.0	0.36	240.02	12,167.6	-1,160.6	4.7	1,160.6	0.00	0.00	
12,395.4	0.36	240.02	12,263.0	-1,160.9	4.2	1,160.9	0.00	0.00	LR16D 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
LR16D P15 595 TGT - plan hits target center - Point	0.00	0.00	5,813.0	-1,140.9	38.8	1,655,929.11	2,286,637.12	39.607014	-108.032196
LR16D P15 595 BHL - plan hits target center - Polygon	0.00	0.00	12,263.0	-1,160.9	4.2	1,655,910.12	2,286,601.95	39.606959	-108.032319
Point 1			12,263.0	50.0	90.0	1,655,957.59	2,286,693.31		
Point 2			12,263.0	50.0	-100.0	1,655,962.88	2,286,503.38		
Point 3			12,263.0	-30.0	-100.0	1,655,882.91	2,286,501.15		
Point 4			12,263.0	-30.0	90.0	1,655,877.62	2,286,691.08		

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
4,001.9	3,913.0	Wasatch		0.00	
5,955.2	5,823.0	Fort Union		0.00	
6,445.3	6,313.0	Base Ft Union		0.00	
8,745.3	8,613.0	Ohio Creek		0.00	
9,045.3	8,913.0	Williams Fork		0.00	
9,345.3	9,213.0	Approx TOG		0.00	
11,905.4	11,773.0	Cameo		0.00	
12,245.4	12,113.0	Rollins SS		0.00	

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	+E/-W (ft)	Comment
500.0	500.0	0.0	0.0	KOP @ 500'
1,194.7	1,187.9	-83.8	2.9	EOB; Inc=13.89°
5,250.5	5,125.1	-1,057.1	36.0	Start Drop -2.00
5,945.2	5,813.0	-1,140.9	38.8	EOD; Inc=0°
12,395.4	12,263.0	-1,160.9	4.2	TD at 12395.4

Berry Petroleum Company (NAD 83)

Garfield County

SESE S15-T5S-R95W

LR16D P15 595

DD

Plan #1

Anticollision Report

22 September, 2010

Cathedral Energy Services

Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Well LR16D P15 595
Project:	Garfield County	TVD Reference:	KBE @ 8400.0ft (Patterson 302)
Reference Site:	SESE S15-T5S-R95W	MD Reference:	KBE @ 8400.0ft (Patterson 302)
Site Error:	0.0ft	North Reference:	True
Reference Well:	LR16D 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	9/22/2010		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
0.0	12,395.4	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)						
LR01A P15 595 - DD - Plan #1	200.0	200.0	10.0	9.4	15.533	CC, ES
LR01A P15 595 - DD - Plan #1	7,115.6	7,079.4	88.8	41.8	1.891	SF
LR01D P15 595 - DD - Plan #1	823.5	825.2	15.7	12.7	5.109	CC
LR01D P15 595 - DD - Plan #1	900.0	901.7	16.1	12.6	4.595	ES
LR01D P15 595 - DD - Plan #1	3,500.0	3,501.1	42.0	25.6	2.563	SF
LR09B P15 595 - DD - Plan #1	500.0	500.0	59.9	58.2	35.406	CC, ES
LR09B P15 595 - DD - Plan #1	700.0	695.8	72.5	70.1	30.398	SF
LR09C P15 595 - DD - Plan #1	500.0	500.0	49.9	48.2	29.481	CC, ES
LR09C P15 595 - DD - Plan #1	700.0	699.8	56.7	54.3	23.745	SF
LR09D P15 595 - DD - Plan #1	500.0	500.0	70.0	68.3	41.330	CC, ES
LR09D P15 595 - DD - Plan #1	700.0	694.5	83.3	81.0	35.029	SF
LR16A P15 595 - DD - Plan #1	500.0	500.0	29.8	28.1	17.598	CC, ES
LR16A P15 595 - DD - Plan #1	700.0	699.8	36.6	34.2	15.328	SF
LR16B P15 595 - DD - Plan #1	500.0	500.0	39.8	38.1	23.525	CC, ES
LR16B P15 595 - DD - Plan #1	700.0	699.8	46.6	44.2	19.528	SF
SESE S15-T5S-R95W						
LR01B P15 595 - DD - Plan #1	200.0	200.0	20.1	19.4	31.066	CC, ES
LR01B P15 595 - DD - Plan #1	3,400.0	3,387.0	83.8	59.4	3.430	SF
LR16C P15 595 - DD - Plan #1	500.0	500.0	9.7	8.0	5.750	CC, ES
LR16C P15 595 - DD - Plan #1	600.0	600.0	11.4	9.4	5.598	SF

Cathedral Energy Services

Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Well LR16D P15 595
Project:	Garfield County	TVD Reference:	KBE @ 8400.0ft (Patterson 302)
Reference Site:	SESE S15-T5S-R95W	MD Reference:	KBE @ 8400.0ft (Patterson 302)
Site Error:	0.0ft	North Reference:	True
Reference Well:	LR16D 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) - 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				Total	Separation	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)	Uncertainty Axis	Factor		
0.0	0.0	0.0	0.0	0.0	0.0	-168.66	-9.8	-2.0	10.0					
100.0	100.0	100.0	100.0	0.1	0.1	-168.66	-9.8	-2.0	10.0	9.7	0.30	33.807		
200.0	200.0	200.0	200.0	0.3	0.3	-168.66	-9.8	-2.0	10.0	9.4	0.65	15.533 CC, ES		
300.0	300.0	299.6	299.6	0.5	0.5	-169.93	-11.6	-2.1	11.8	10.8	0.99	11.820		
400.0	400.0	399.0	398.8	0.7	0.7	-172.17	-16.7	-2.3	16.9	15.6	1.34	12.613		
500.0	500.0	497.9	497.4	0.8	0.9	-173.89	-25.3	-2.7	25.6	23.9	1.69	15.132		
600.0	600.0	596.3	595.0	1.0	1.2	7.29	-37.2	-3.3	35.9	33.9	2.04	17.644		
700.0	699.8	694.4	691.9	1.2	1.5	7.21	-52.3	-4.0	46.2	43.9	2.38	19.417		
800.0	799.5	794.0	790.1	1.4	1.8	7.53	-69.4	-4.8	54.7	52.0	2.73	20.056		
900.0	898.7	893.9	888.5	1.7	2.1	8.23	-86.4	-5.6	59.8	56.7	3.08	19.426		
1,000.0	997.5	993.9	987.0	1.9	2.5	9.32	-103.5	-6.4	61.4	58.0	3.43	17.907		
1,100.0	1,095.6	1,093.8	1,085.5	2.3	2.8	10.97	-120.6	-7.2	59.6	55.8	3.79	15.736		
1,194.7	1,187.9	1,188.4	1,178.6	2.7	3.1	13.37	-136.7	-8.0	54.8	50.7	4.15	13.217		
1,200.0	1,193.1	1,193.7	1,183.9	2.7	3.1	13.54	-137.6	-8.1	54.5	50.3	4.17	13.064		
1,300.0	1,290.1	1,293.4	1,282.1	3.1	3.5	17.15	-154.6	-8.9	48.0	43.4	4.61	10.404		
1,400.0	1,387.2	1,393.1	1,380.4	3.5	3.8	21.86	-171.7	-9.7	41.7	36.6	5.14	8.119		
1,500.0	1,484.3	1,492.9	1,478.7	3.9	4.2	28.16	-188.7	-10.5	35.9	30.0	5.82	6.158		
1,600.0	1,581.4	1,592.6	1,576.9	4.4	4.5	36.78	-205.8	-11.3	30.6	23.8	6.76	4.521		
1,700.0	1,678.4	1,692.3	1,675.2	4.8	4.9	48.57	-222.8	-12.1	26.3	18.2	8.06	3.259		
1,800.0	1,775.5	1,792.1	1,773.5	5.2	5.2	64.01	-239.8	-12.9	23.4	13.8	9.64	2.431		
1,883.4	1,856.4	1,875.2	1,855.4	5.6	5.5	78.92	-254.0	-13.6	22.6	11.8	10.88	2.081		
1,900.0	1,872.6	1,891.8	1,871.7	5.7	5.5	81.96	-256.9	-13.7	22.7	11.6	11.09	2.045		
2,000.0	1,969.6	1,991.6	1,970.0	6.1	5.9	99.35	-273.9	-14.5	24.2	12.2	11.93	2.026		
2,100.0	2,066.7	2,091.3	2,068.3	6.6	6.2	113.59	-290.9	-15.3	27.6	15.4	12.19	2.261		
2,200.0	2,163.8	2,191.0	2,166.5	7.0	6.6	124.24	-308.0	-16.2	32.2	20.1	12.18	2.647		
2,300.0	2,260.9	2,290.8	2,264.8	7.5	6.9	131.99	-325.0	-17.0	37.8	25.6	12.14	3.109		
2,400.0	2,357.9	2,390.5	2,363.1	7.9	7.3	137.70	-342.0	-17.8	43.8	31.6	12.15	3.603		
2,500.0	2,455.0	2,490.2	2,461.3	8.4	7.6	142.00	-359.1	-18.6	50.1	37.9	12.22	4.102		
2,600.0	2,552.1	2,590.0	2,559.6	8.8	7.9	145.32	-376.1	-19.4	56.7	44.3	12.34	4.592		
2,700.0	2,649.2	2,689.7	2,657.9	9.3	8.3	147.94	-393.1	-20.2	63.4	50.9	12.52	5.065		
2,800.0	2,746.2	2,789.4	2,756.1	9.7	8.6	150.06	-410.2	-21.0	70.2	57.5	12.73	5.517		
2,900.0	2,843.3	2,889.2	2,854.4	10.2	9.0	151.80	-427.2	-21.8	77.1	64.1	12.97	5.946		
3,000.0	2,940.4	2,988.9	2,952.7	10.6	9.3	153.26	-444.2	-22.6	84.1	70.8	13.23	6.353		
3,100.0	3,037.5	3,088.7	3,050.9	11.1	9.7	154.49	-461.3	-23.4	91.1	77.6	13.51	6.739		
3,200.0	3,134.5	3,188.4	3,149.2	11.5	10.0	155.54	-478.3	-24.3	98.1	84.3	13.81	7.104		
6,900.0	6,767.7	6,866.8	6,773.4	23.3	22.7	52.81	-1,106.6	-54.1	95.9	52.3	43.50	2.203		
7,000.0	6,867.7	6,965.4	6,870.6	23.4	23.1	43.08	-1,123.4	-54.9	90.9	45.2	45.63	1.991		
7,100.0	6,967.7	7,064.0	6,967.7	23.5	23.4	32.59	-1,140.2	-55.7	88.8	41.9	46.86	1.895		
7,115.6	6,983.4	7,079.4	6,982.9	23.5	23.4	30.92	-1,142.9	-55.9	88.8	41.8	46.95	1.891 SF		
7,200.0	7,067.7	7,162.5	7,064.8	23.6	23.7	21.99	-1,157.1	-56.5	89.9	42.9	46.94	1.915		
7,300.0	7,167.7	7,261.1	7,162.0	23.7	24.1	11.97	-1,173.9	-57.3	94.0	48.0	45.97	2.045		

Cathedral Energy Services

Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Well LR16D P15 595
Project:	Garfield County	TVD Reference:	KBE @ 8400.0ft (Patterson 302)
Reference Site:	SESE S15-T5S-R95W	MD Reference:	KBE @ 8400.0ft (Patterson 302)
Site Error:	0.0ft	North Reference:	True
Reference Well:	LR16D 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) - LR01D P15 595 - DD - Plan #1													Offset Site Error:	0.0 ft
Survey Program: O-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance				Total Uncertainty Axis	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)				
0.0	0.0	0.0	0.0	0.0	0.0	12.35	19.3	4.2	19.8					
100.0	100.0	100.0	100.0	0.1	0.1	12.35	19.3	4.2	19.8	19.5	0.30	66.592		
200.0	200.0	200.0	200.0	0.3	0.3	12.35	19.3	4.2	19.8	19.1	0.65	30.596		
300.0	300.0	299.4	299.4	0.5	0.5	14.86	20.5	5.4	21.2	20.2	0.99	21.355		
400.0	400.0	400.1	400.0	0.7	0.7	20.25	21.3	7.8	22.7	21.3	1.35	16.816		
500.0	500.0	500.7	500.6	0.8	0.9	28.56	18.5	10.1	21.0	19.3	1.70	12.341		
600.0	600.0	601.2	600.9	1.0	1.1	-137.26	12.2	12.1	18.4	16.3	2.07	8.874		
700.0	699.8	701.5	700.7	1.2	1.3	-122.50	2.4	13.9	16.6	14.1	2.48	6.690		
800.0	799.5	801.7	799.9	1.4	1.5	-105.85	-10.9	15.5	15.8	12.8	2.95	5.344		
823.5	822.8	825.2	823.1	1.5	1.6	-101.84	-14.5	15.9	15.7	12.7	3.08	5.109 CC		
900.0	898.7	901.7	898.5	1.7	1.8	-88.99	-27.6	17.0	16.1	12.6	3.49	4.595 ES		
1,000.0	997.5	1,001.6	996.3	1.9	2.2	-73.72	-47.7	18.3	17.3	13.3	4.06	4.267		
1,100.0	1,095.6	1,101.3	1,093.2	2.3	2.6	-60.90	-71.1	19.3	19.3	14.7	4.60	4.206		
1,194.7	1,187.9	1,195.9	1,184.9	2.7	3.0	-54.78	-94.8	20.2	20.8	15.7	5.13	4.057		
1,200.0	1,193.1	1,201.2	1,190.0	2.7	3.1	-54.66	-96.1	20.3	20.9	15.7	5.16	4.038		
1,300.0	1,290.1	1,301.2	1,286.8	3.1	3.5	-52.50	-121.2	21.3	21.6	15.8	5.80	3.725		
1,400.0	1,387.2	1,401.2	1,383.6	3.5	4.0	-50.49	-146.2	22.2	22.4	15.9	6.42	3.485		
1,500.0	1,484.3	1,501.2	1,480.4	3.9	4.4	-48.61	-171.3	23.2	23.2	16.1	7.02	3.298		
1,600.0	1,581.4	1,601.2	1,577.2	4.4	4.9	-46.86	-196.3	24.2	24.0	16.4	7.61	3.152		
1,700.0	1,678.4	1,701.2	1,674.0	4.8	5.3	-45.22	-221.4	25.2	24.8	16.7	8.18	3.036		
1,800.0	1,775.5	1,801.2	1,770.8	5.2	5.8	-43.70	-246.4	26.1	25.7	17.0	8.73	2.943		
1,900.0	1,872.6	1,901.2	1,867.6	5.7	6.2	-42.27	-271.4	27.1	26.6	17.3	9.26	2.868		
2,000.0	1,969.6	2,001.2	1,964.4	6.1	6.7	-40.94	-296.5	28.1	27.5	17.7	9.78	2.807		
2,100.0	2,066.7	2,101.2	2,061.2	6.6	7.2	-39.69	-321.5	29.1	28.4	18.1	10.29	2.758		
2,200.0	2,163.8	2,201.2	2,158.0	7.0	7.6	-38.52	-346.6	30.1	29.3	18.5	10.78	2.718		
2,300.0	2,260.9	2,301.2	2,254.8	7.5	8.1	-37.42	-371.6	31.0	30.2	19.0	11.26	2.685		
2,400.0	2,357.9	2,401.2	2,351.6	7.9	8.6	-36.39	-396.7	32.0	31.2	19.4	11.73	2.658		
2,500.0	2,455.0	2,501.1	2,448.4	8.4	9.0	-35.42	-421.7	33.0	32.1	19.9	12.19	2.636		
2,600.0	2,552.1	2,601.1	2,545.2	8.8	9.5	-34.50	-446.8	34.0	33.1	20.4	12.64	2.618		
2,700.0	2,649.2	2,701.1	2,642.0	9.3	10.0	-33.64	-471.8	34.9	34.0	21.0	13.08	2.604		
2,800.0	2,746.2	2,801.1	2,738.8	9.7	10.4	-32.82	-496.8	35.9	35.0	21.5	13.51	2.592		
2,900.0	2,843.3	2,901.1	2,835.6	10.2	10.9	-32.05	-521.9	36.9	36.0	22.1	13.94	2.583		
3,000.0	2,940.4	3,001.1	2,932.4	10.6	11.4	-31.32	-546.9	37.9	37.0	22.6	14.36	2.576		
3,100.0	3,037.5	3,101.1	3,029.2	11.1	11.9	-30.63	-572.0	38.8	38.0	23.2	14.77	2.571		
3,200.0	3,134.5	3,201.1	3,126.0	11.5	12.3	-29.97	-597.0	39.8	39.0	23.8	15.18	2.568		
3,300.0	3,231.6	3,301.1	3,222.9	12.0	12.8	-29.35	-622.1	40.8	40.0	24.4	15.59	2.565		
3,400.0	3,328.7	3,401.1	3,319.7	12.4	13.3	-28.75	-647.1	41.8	41.0	25.0	15.99	2.564		
3,500.0	3,425.8	3,501.1	3,416.5	12.9	13.7	-28.19	-672.2	42.7	42.0	25.6	16.39	2.563 SF		
3,600.0	3,522.8	3,601.1	3,513.3	13.3	14.2	-27.65	-697.2	43.7	43.0	26.2	16.78	2.564		
3,700.0	3,619.9	3,701.1	3,610.1	13.8	14.7	-27.14	-722.3	44.7	44.1	26.9	17.18	2.565		
3,800.0	3,717.0	3,801.1	3,706.9	14.2	15.1	-26.65	-747.3	45.7	45.1	27.5	17.56	2.566		
3,900.0	3,814.1	3,901.1	3,803.7	14.7	15.6	-26.18	-772.3	46.7	46.1	28.2	17.95	2.568		
4,000.0	3,911.1	4,001.1	3,900.5	15.1	16.1	-25.73	-797.4	47.6	47.1	28.8	18.33	2.571		
4,100.0	4,008.2	4,101.1	3,997.3	15.6	16.5	-25.30	-822.4	48.6	48.2	29.5	18.72	2.574		
4,200.0	4,105.3	4,201.0	4,094.1	16.0	17.0	-24.89	-847.5	49.6	49.2	30.1	19.09	2.577		
4,300.0	4,202.4	4,301.0	4,190.9	16.5	17.5	-24.50	-872.5	50.6	50.2	30.8	19.47	2.580		
4,400.0	4,299.4	4,401.0	4,287.7	16.9	18.0	-24.12	-897.6	51.5	51.3	31.4	19.85	2.584		
4,500.0	4,396.5	4,501.0	4,384.5	17.4	18.4	-23.76	-922.6	52.5	52.3	32.1	20.22	2.587		
4,600.0	4,493.6	4,601.0	4,481.3	17.8	18.9	-23.41	-947.7	53.5	53.4	32.8	20.60	2.591		
4,700.0	4,590.7	4,701.0	4,578.1	18.3	19.4	-23.07	-972.7	54.5	54.4	33.4	20.97	2.595		
4,800.0	4,687.7	4,801.0	4,674.9	18.7	19.8	-22.75	-997.8	55.4	55.5	34.1	21.34	2.599		
4,900.0	4,784.8	4,901.0	4,771.7	19.2	20.3	-22.44	-1,022.8	56.4	56.5	34.8	21.71	2.603		

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

Cathedral Energy Services

Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Well LR16D P15 595
Project:	Garfield County	TVD Reference:	KBE @ 8400.0ft (Patterson 302)
Reference Site:	SESE S15-T5S-R95W	MD Reference:	KBE @ 8400.0ft (Patterson 302)
Site Error:	0.0ft	North Reference:	True
Reference Well:	LR16D 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													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 +N/-S	+E/-W	Between Centres	Between Ellipses	Total Uncertainty Axis	Separation Factor			
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	(ft)	(ft)	(ft)	(ft)					
5,000.0	4,881.9	5,001.0	4,868.5	19.7	20.8	-22.14	-1,047.8	57.4	57.6	35.5	22.08	2.607			
5,100.0	4,978.9	5,101.0	4,965.3	20.1	21.2	-21.85	-1,072.9	58.4	58.6	36.2	22.45	2.612			
5,200.0	5,076.0	5,201.0	5,062.1	20.6	21.7	-21.58	-1,097.9	59.3	59.7	36.9	22.81	2.616			
5,250.5	5,125.1	5,251.5	5,111.0	20.8	22.0	-21.44	-1,110.6	59.8	60.2	37.2	23.00	2.618			
5,300.0	5,173.2	5,301.0	5,158.9	21.0	22.2	-21.17	-1,123.0	60.3	61.1	38.0	23.13	2.643			
5,400.0	5,271.0	5,400.9	5,255.6	21.4	22.7	-19.86	-1,148.0	61.3	65.4	42.4	23.07	2.837			
5,500.0	5,369.5	5,500.5	5,352.1	21.7	23.1	-17.85	-1,173.0	62.3	73.1	50.4	22.74	3.215			
5,600.0	5,468.6	5,599.9	5,448.2	22.0	23.6	-15.59	-1,197.8	63.2	84.2	61.8	22.32	3.771			
5,700.0	5,568.1	5,698.7	5,543.9	22.2	24.1	-13.39	-1,222.6	64.2	98.7	76.7	21.95	4.497			

Cathedral Energy Services

Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Well LR16D P15 595
Project:	Garfield County	TVD Reference:	KBE @ 8400.0ft (Patterson 302)
Reference Site:	SESE S15-T5S-R95W	MD Reference:	KBE @ 8400.0ft (Patterson 302)
Site Error:	0.0ft	North Reference:	True
Reference Well:	LR16D 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						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	11.94	58.6	12.4	59.9					
100.0	100.0	100.0	100.0	0.1	0.1	11.94	58.6	12.4	59.9	59.6	0.30	202.020		
200.0	200.0	200.0	200.0	0.3	0.3	11.94	58.6	12.4	59.9	59.3	0.65	92.820		
300.0	300.0	300.0	300.0	0.5	0.5	11.94	58.6	12.4	59.9	58.9	0.99	60.252		
400.0	400.0	400.0	400.0	0.7	0.7	11.94	58.6	12.4	59.9	58.6	1.34	44.602		
500.0	500.0	500.0	500.0	0.8	0.8	11.94	58.6	12.4	59.9	58.2	1.69	35.406 CC, ES		
600.0	600.0	598.2	598.2	1.0	1.0	-167.37	60.2	11.7	63.0	61.0	2.04	30.919		
700.0	699.8	695.8	695.6	1.2	1.2	-170.49	64.8	9.7	72.5	70.1	2.38	30.398 SF		
800.0	799.5	792.0	791.5	1.4	1.4	-174.18	72.2	6.4	88.5	85.7	2.73	32.441		

Cathedral Energy Services

Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Well LR16D P15 595
Project:	Garfield County	TVD Reference:	KBE @ 8400.0ft (Patterson 302)
Reference Site:	SESE S15-T5S-R95W	MD Reference:	KBE @ 8400.0ft (Patterson 302)
Site Error:	0.0ft	North Reference:	True
Reference Well:	LR16D 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					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	12.06	48.8	10.4	49.9					
100.0	100.0	100.0	100.0	0.1	0.1	12.06	48.8	10.4	49.9	49.6	0.30	168.216		
200.0	200.0	200.0	200.0	0.3	0.3	12.06	48.8	10.4	49.9	49.3	0.65	77.288		
300.0	300.0	300.0	300.0	0.5	0.5	12.06	48.8	10.4	49.9	48.9	0.99	50.170		
400.0	400.0	400.0	400.0	0.7	0.7	12.06	48.8	10.4	49.9	48.6	1.34	37.139		
500.0	500.0	500.0	500.0	0.8	0.8	12.06	48.8	10.4	49.9	48.2	1.69	29.481 CC, ES		
600.0	600.0	600.0	600.0	1.0	1.0	-166.45	48.8	10.4	51.6	49.6	2.04	25.280		
700.0	699.8	699.8	699.8	1.2	1.2	-167.67	48.8	10.4	56.7	54.3	2.39	23.745 SF		
800.0	799.5	799.5	799.5	1.4	1.4	-169.27	48.8	10.4	65.2	62.5	2.73	23.877		
900.0	898.7	898.7	898.7	1.7	1.5	-170.92	48.8	10.4	77.3	74.2	3.07	25.131		
1,000.0	997.5	997.5	997.5	1.9	1.7	-172.40	48.8	10.4	92.7	89.3	3.41	27.185		

Cathedral Energy Services

Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Well LR16D P15 595
Project:	Garfield County	TVD Reference:	KBE @ 8400.0ft (Patterson 302)
Reference Site:	SESE S15-T5S-R95W	MD Reference:	KBE @ 8400.0ft (Patterson 302)
Site Error:	0.0ft	North Reference:	True
Reference Well:	LR16D 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	11.85	68.5	14.4	70.0					
100.0	100.0	100.0	100.0	0.1	0.1	11.85	68.5	14.4	70.0	69.7	0.30	235.825		
200.0	200.0	200.0	200.0	0.3	0.3	11.85	68.5	14.4	70.0	69.3	0.65	108.352		
300.0	300.0	300.0	300.0	0.5	0.5	11.85	68.5	14.4	70.0	69.0	0.99	70.334		
400.0	400.0	400.0	400.0	0.7	0.7	11.85	68.5	14.4	70.0	68.6	1.34	52.065		
500.0	500.0	500.0	500.0	0.8	0.8	11.85	68.5	14.4	70.0	68.3	1.69	41.330 CC, ES		
600.0	600.0	597.6	597.6	1.0	1.0	-166.87	70.1	14.2	73.3	71.3	2.04	35.982		
700.0	699.8	694.5	694.3	1.2	1.2	-168.54	75.1	13.9	83.3	81.0	2.38	35.029 SF		
800.0	799.5	792.6	792.1	1.4	1.4	-170.50	82.3	13.3	99.1	96.4	2.72	36.438		

Cathedral Energy Services

Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Well LR16D P15 595
Project:	Garfield County	TVD Reference:	KBE @ 8400.0ft (Patterson 302)
Reference Site:	SESE S15-T5S-R95W	MD Reference:	KBE @ 8400.0ft (Patterson 302)
Site Error:	0.0ft	North Reference:	True
Reference Well:	LR16D 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) - LR16A 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	12.01	29.1	6.2	29.8					
100.0	100.0	100.0	100.0	0.1	0.1	12.01	29.1	6.2	29.8	29.5	0.30	100.410		
200.0	200.0	200.0	200.0	0.3	0.3	12.01	29.1	6.2	29.8	29.1	0.65	46.134		
300.0	300.0	300.0	300.0	0.5	0.5	12.01	29.1	6.2	29.8	28.8	0.99	29.947		
400.0	400.0	400.0	400.0	0.7	0.7	12.01	29.1	6.2	29.8	28.4	1.34	22.168		
500.0	500.0	500.0	500.0	0.8	0.8	12.01	29.1	6.2	29.8	28.1	1.69	17.598 CC, ES		
600.0	600.0	600.0	600.0	1.0	1.0	-166.80	29.1	6.2	31.5	29.4	2.04	15.425		
700.0	699.8	699.8	699.8	1.2	1.2	-168.65	29.1	6.2	36.6	34.2	2.39	15.328 SF		
800.0	799.5	799.5	799.5	1.4	1.4	-170.80	29.1	6.2	45.2	42.4	2.73	16.536		
900.0	898.7	898.7	898.7	1.7	1.5	-172.72	29.1	6.2	57.2	54.2	3.07	18.629		
1,000.0	997.5	997.5	997.5	1.9	1.7	-174.25	29.1	6.2	72.8	69.4	3.41	21.350		
1,100.0	1,095.6	1,098.1	1,098.1	2.3	1.9	-176.10	27.9	5.1	90.5	86.8	3.74	24.169		

Cathedral Energy Services

Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Well LR16D P15 595
Project:	Garfield County	TVD Reference:	KBE @ 8400.0ft (Patterson 302)
Reference Site:	SESE S15-T5S-R95W	MD Reference:	KBE @ 8400.0ft (Patterson 302)
Site Error:	0.0ft	North Reference:	True
Reference Well:	LR16D 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			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	11.84	39.0	8.2	39.8					
100.0	100.0	100.0	100.0	0.1	0.1	11.84	39.0	8.2	39.8	39.5	0.30	134.229		
200.0	200.0	200.0	200.0	0.3	0.3	11.84	39.0	8.2	39.8	39.2	0.65	61.673		
300.0	300.0	300.0	300.0	0.5	0.5	11.84	39.0	8.2	39.8	38.8	0.99	40.033		
400.0	400.0	400.0	400.0	0.7	0.7	11.84	39.0	8.2	39.8	38.5	1.34	29.635		
500.0	500.0	500.0	500.0	0.8	0.8	11.84	39.0	8.2	39.8	38.1	1.69	23.525 CC, ES		
600.0	600.0	600.0	600.0	1.0	1.0	-166.78	39.0	8.2	41.5	39.5	2.04	20.341		
700.0	699.8	699.8	699.8	1.2	1.2	-168.23	39.0	8.2	46.6	44.2	2.39	19.528 SF		
800.0	799.5	799.5	799.5	1.4	1.4	-170.04	39.0	8.2	55.2	52.5	2.73	20.200		
900.0	898.7	898.7	898.7	1.7	1.5	-171.80	39.0	8.2	67.2	64.2	3.07	21.875		
1,000.0	997.5	997.5	997.5	1.9	1.7	-173.31	39.0	8.2	82.7	79.3	3.41	24.264		

Cathedral Energy Services

Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Well LR16D P15 595
Project:	Garfield County	TVD Reference:	KBE @ 8400.0ft (Patterson 302)
Reference Site:	SESE S15-T5S-R95W	MD Reference:	KBE @ 8400.0ft (Patterson 302)
Site Error:	0.0ft	North Reference:	True
Reference Well:	LR16D 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 - 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						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	-168.66	-19.7	-3.9	20.1				
100.0	100.0	100.0	100.0	0.1	0.1	-168.66	-19.7	-3.9	20.1	19.8	0.30	67.613	
200.0	200.0	200.0	200.0	0.3	0.3	-168.66	-19.7	-3.9	20.1	19.4	0.65	31.066	CC, ES
300.0	300.0	299.3	299.2	0.5	0.5	-169.11	-21.4	-4.1	21.8	20.8	0.99	21.926	
400.0	400.0	398.3	398.1	0.7	0.7	-170.10	-26.5	-4.6	27.0	25.6	1.34	20.101	
500.0	500.0	496.9	496.3	0.8	0.9	-171.11	-35.0	-5.5	35.6	33.9	1.69	21.074	
600.0	600.0	594.9	593.7	1.0	1.2	10.38	-46.7	-6.6	45.9	43.9	2.03	22.570	
700.0	699.8	692.7	690.2	1.2	1.5	10.55	-61.7	-8.1	56.2	53.8	2.38	23.627	
800.0	799.5	790.0	785.9	1.4	1.8	11.05	-79.9	-10.0	66.5	63.8	2.72	24.405	
900.0	898.7	889.6	883.3	1.7	2.2	11.85	-100.3	-12.0	75.1	72.1	3.08	24.427	
1,000.0	997.5	989.4	981.0	1.9	2.6	13.04	-120.6	-14.0	80.4	77.0	3.43	23.416	
1,100.0	1,095.6	1,089.4	1,078.9	2.3	3.0	14.68	-141.1	-16.1	82.3	78.5	3.80	21.641	
1,194.7	1,187.9	1,184.0	1,171.5	2.7	3.3	16.81	-160.4	-18.0	81.1	76.9	4.18	19.408	
1,200.0	1,193.1	1,189.3	1,176.7	2.7	3.4	16.95	-161.5	-18.1	80.9	76.7	4.20	19.269	
1,300.0	1,290.1	1,289.2	1,274.4	3.1	3.8	19.66	-181.9	-20.1	78.2	73.6	4.65	16.827	
1,400.0	1,387.2	1,389.1	1,372.2	3.5	4.1	22.56	-202.3	-22.2	75.7	70.6	5.15	14.711	
1,500.0	1,484.3	1,489.0	1,470.0	3.9	4.5	25.65	-222.7	-24.2	73.4	67.7	5.71	12.866	
1,600.0	1,581.4	1,588.9	1,567.7	4.4	4.9	28.94	-243.1	-26.2	71.3	65.0	6.33	11.258	
1,700.0	1,678.4	1,688.8	1,665.5	4.8	5.3	32.41	-263.5	-28.3	69.5	62.4	7.04	9.864	
1,800.0	1,775.5	1,788.7	1,763.3	5.2	5.7	36.05	-283.9	-30.3	67.9	60.1	7.84	8.666	
1,900.0	1,872.6	1,888.6	1,861.0	5.7	6.1	39.84	-304.3	-32.4	66.6	57.9	8.71	7.647	
2,000.0	1,969.6	1,988.5	1,958.8	6.1	6.5	43.77	-324.7	-34.4	65.7	56.0	9.67	6.788	
2,100.0	2,066.7	2,088.4	2,056.6	6.6	6.9	47.80	-345.1	-36.4	65.0	54.3	10.70	6.074	
2,200.0	2,163.8	2,188.3	2,154.3	7.0	7.3	51.89	-365.5	-38.5	64.7	52.9	11.79	5.486	
2,249.8	2,212.2	2,238.0	2,203.0	7.2	7.5	53.93	-375.7	-39.5	64.6	52.3	12.35	5.234	
2,300.0	2,260.9	2,288.1	2,252.1	7.5	7.7	56.00	-385.9	-40.5	64.7	51.8	12.92	5.006	
2,400.0	2,357.9	2,388.0	2,349.8	7.9	8.1	60.08	-406.3	-42.5	65.0	50.9	14.07	4.619	
2,500.0	2,455.0	2,487.9	2,447.6	8.4	8.5	64.11	-426.7	-44.6	65.7	50.4	15.24	4.309	
2,600.0	2,552.1	2,587.8	2,545.4	8.8	8.9	68.04	-447.1	-46.6	66.6	50.2	16.39	4.065	
2,700.0	2,649.2	2,687.7	2,643.1	9.3	9.3	71.83	-467.5	-48.6	67.9	50.4	17.53	3.875	
2,800.0	2,746.2	2,787.6	2,740.9	9.7	9.7	75.47	-487.9	-50.7	69.5	50.9	18.64	3.729	
2,900.0	2,843.3	2,887.5	2,838.7	10.2	10.1	78.94	-508.3	-52.7	71.3	51.6	19.71	3.620	
3,000.0	2,940.4	2,987.4	2,936.4	10.6	10.5	82.22	-528.7	-54.8	73.4	52.7	20.73	3.541	
3,100.0	3,037.5	3,087.3	3,034.2	11.1	10.9	85.32	-549.1	-56.8	75.7	54.0	21.72	3.486	
3,200.0	3,134.5	3,187.2	3,132.0	11.5	11.3	88.22	-569.5	-58.8	78.2	55.6	22.66	3.452	
3,300.0	3,231.6	3,287.1	3,229.7	12.0	11.7	90.93	-590.0	-60.9	81.0	57.4	23.57	3.435	
3,400.0	3,328.7	3,387.0	3,327.5	12.4	12.1	93.46	-610.4	-62.9	83.8	59.4	24.44	3.430	SF
3,500.0	3,425.8	3,486.9	3,425.3	12.9	12.5	95.82	-630.8	-64.9	86.9	61.6	25.27	3.437	
3,600.0	3,522.8	3,586.7	3,523.0	13.3	12.9	98.02	-651.2	-67.0	90.0	64.0	26.07	3.453	
3,700.0	3,619.9	3,686.6	3,620.8	13.8	13.3	100.07	-671.6	-69.0	93.3	66.5	26.85	3.476	
3,800.0	3,717.0	3,786.5	3,718.6	14.2	13.7	101.97	-692.0	-71.0	96.7	69.1	27.60	3.504	

Cathedral Energy Services

Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Well LR16D P15 595
Project:	Garfield County	TVD Reference:	KBE @ 8400.0ft (Patterson 302)
Reference Site:	SESE S15-T5S-R95W	MD Reference:	KBE @ 8400.0ft (Patterson 302)
Site Error:	0.0ft	North Reference:	True
Reference Well:	LR16D 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 - 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	13.39	9.5	2.3	9.7				
100.0	100.0	100.0	100.0	0.1	0.1	13.39	9.5	2.3	9.7	9.4	0.30	32.811	
200.0	200.0	200.0	200.0	0.3	0.3	13.39	9.5	2.3	9.7	9.1	0.65	15.075	
300.0	300.0	300.0	300.0	0.5	0.5	13.39	9.5	2.3	9.7	8.7	0.99	9.786	
400.0	400.0	400.0	400.0	0.7	0.7	13.39	9.5	2.3	9.7	8.4	1.34	7.244	
500.0	500.0	500.0	500.0	0.8	0.8	13.39	9.5	2.3	9.7	8.0	1.69	5.750 CC, ES	
600.0	600.0	600.0	600.0	1.0	1.0	-166.97	9.5	2.3	11.4	9.4	2.04	5.598 SF	
700.0	699.8	700.4	700.4	1.2	1.2	-171.96	7.8	1.8	14.8	12.4	2.39	6.211	
800.0	799.5	800.9	800.7	1.4	1.4	-178.22	2.7	0.5	18.4	15.7	2.73	6.723	
900.0	898.7	901.4	900.9	1.7	1.6	175.00	-5.9	-1.7	22.3	19.2	3.08	7.221	
1,000.0	997.5	1,002.1	1,000.8	1.9	1.8	168.20	-17.8	-4.8	26.7	23.2	3.45	7.723	
1,100.0	1,095.6	1,102.8	1,100.2	2.3	2.1	161.69	-33.1	-8.8	31.8	27.9	3.87	8.198	
1,194.7	1,187.9	1,197.3	1,193.2	2.7	2.4	157.29	-49.3	-13.1	38.3	34.0	4.32	8.872	
1,200.0	1,193.1	1,202.6	1,198.4	2.7	2.4	157.14	-50.2	-13.3	38.8	34.4	4.34	8.923	
1,300.0	1,290.1	1,302.2	1,296.4	3.1	2.7	154.85	-67.3	-17.8	47.3	42.5	4.85	9.766	
1,400.0	1,387.2	1,401.8	1,394.5	3.5	3.0	153.26	-84.4	-22.2	55.9	50.6	5.37	10.423	
1,500.0	1,484.3	1,501.4	1,492.5	3.9	3.4	152.10	-101.5	-26.7	64.6	58.7	5.90	10.943	
1,600.0	1,581.4	1,601.0	1,590.5	4.4	3.7	151.21	-118.6	-31.1	73.3	66.8	6.45	11.360	
1,700.0	1,678.4	1,700.6	1,688.6	4.8	4.0	150.51	-135.7	-35.6	82.0	74.9	7.00	11.701	
1,800.0	1,775.5	1,800.3	1,786.6	5.2	4.4	149.95	-152.9	-40.0	90.6	83.1	7.56	11.983	
1,900.0	1,872.6	1,899.9	1,884.7	5.7	4.7	149.48	-170.0	-44.5	99.3	91.2	8.13	12.219	

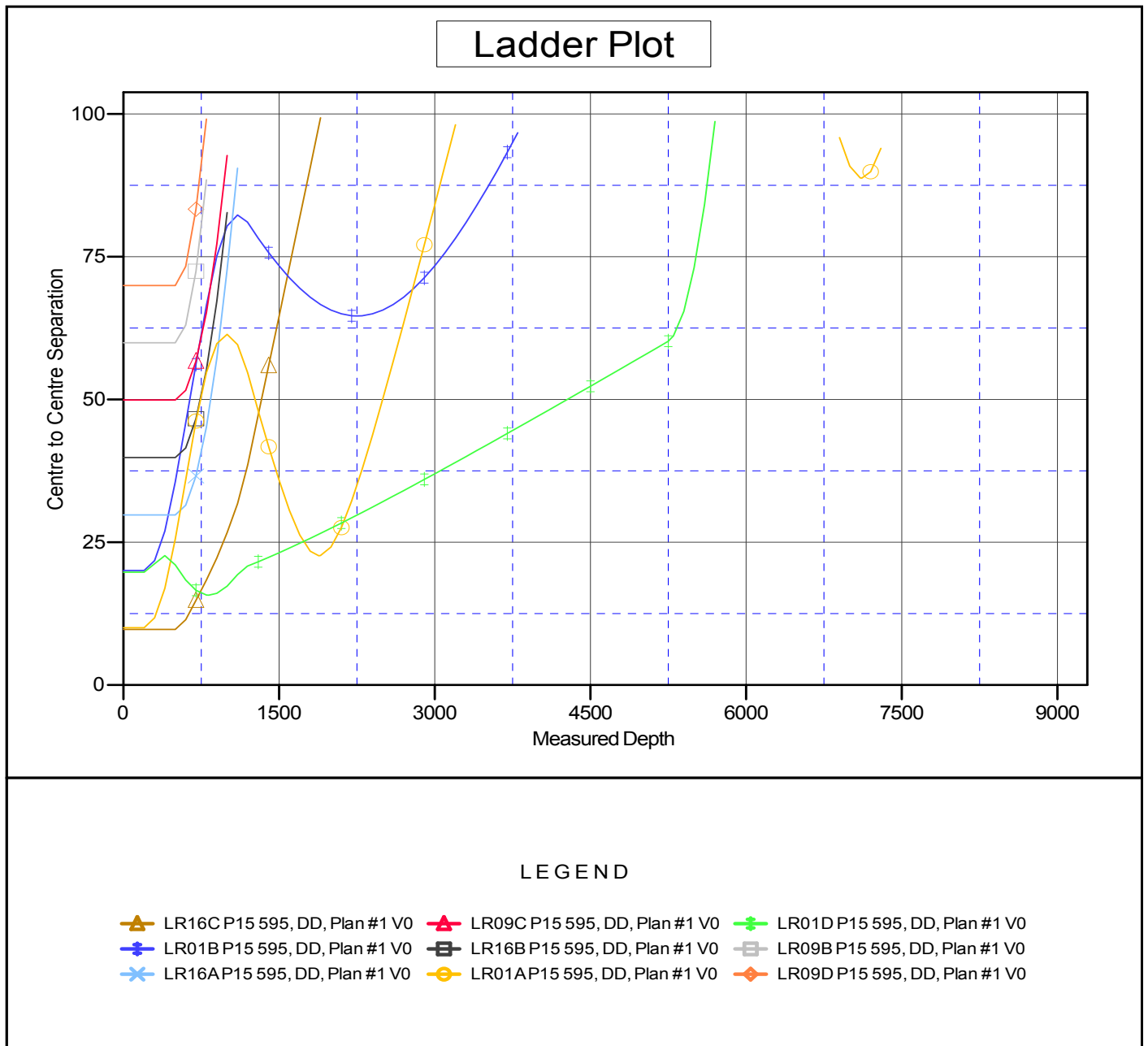
Cathedral Energy Services

Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Well LR16D P15 595
Project:	Garfield County	TVD Reference:	KBE @ 8400.0ft (Patterson 302)
Reference Site:	SESE S15-T5S-R95W	MD Reference:	KBE @ 8400.0ft (Patterson 302)
Site Error:	0.0ft	North Reference:	True
Reference Well:	LR16D 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: LR16D 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