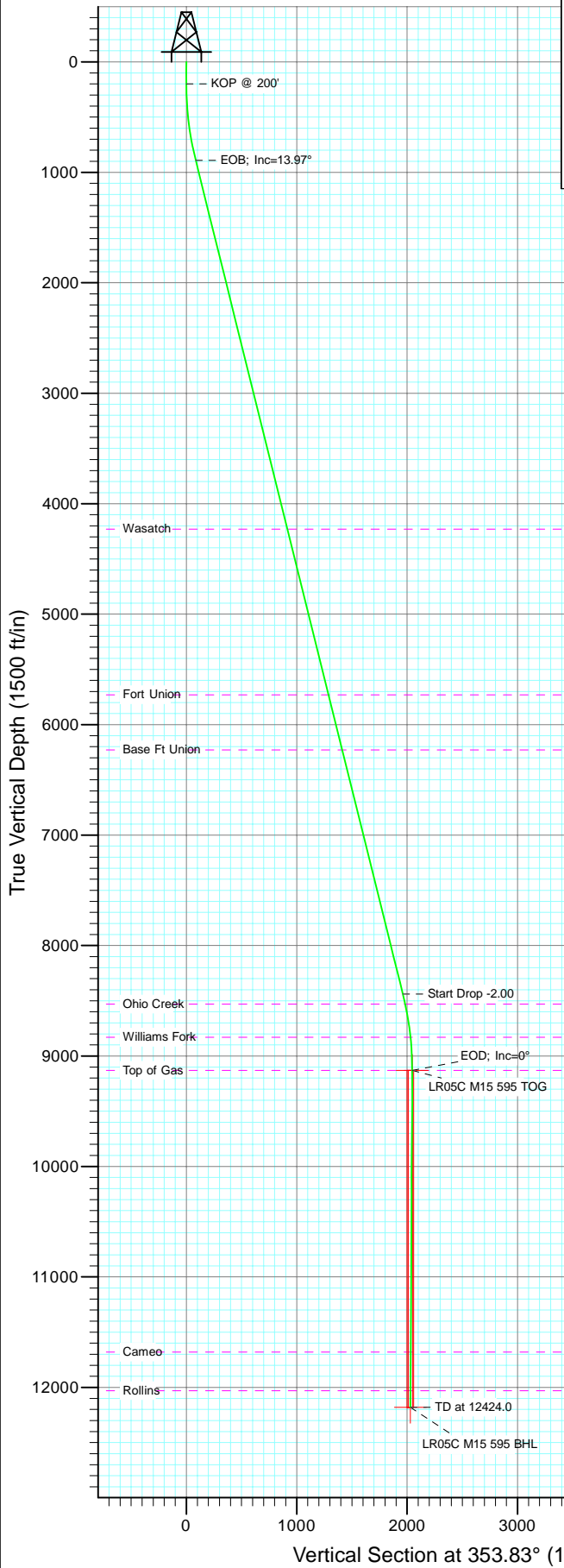
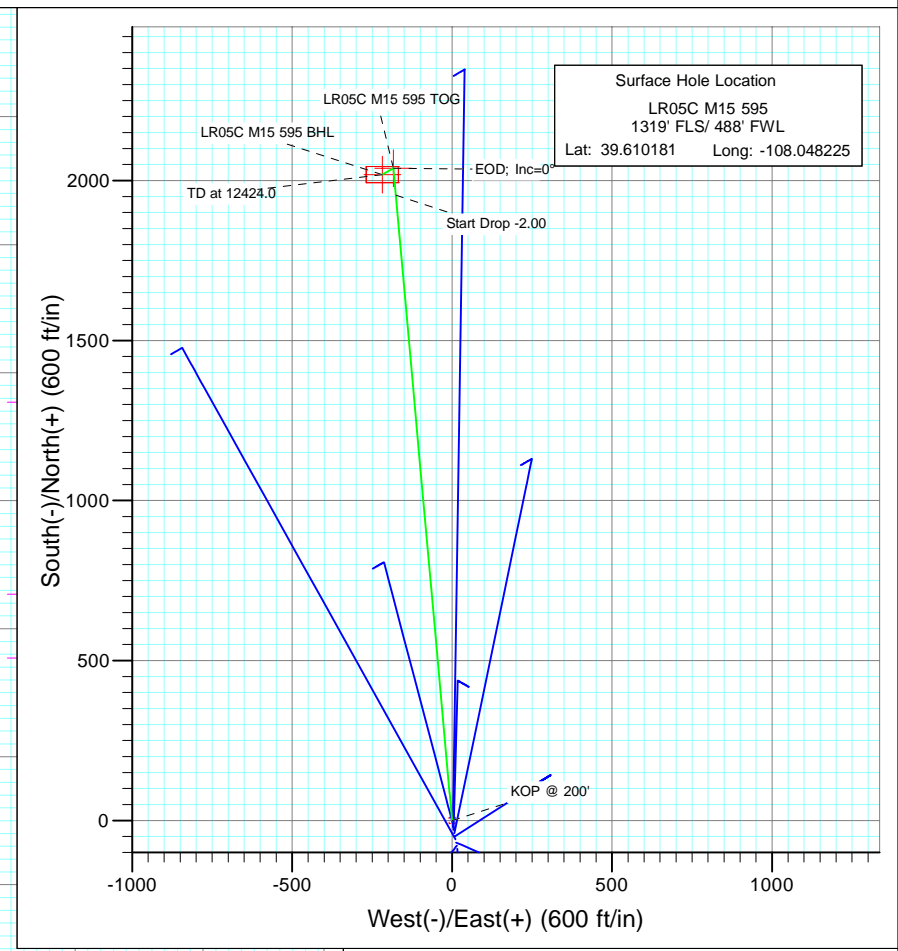




Project: Garfield County
Site: M15 595
Well: LR05C M15 595
Wellbore: DD
Design: Plan #1



SECTION DETAILS										
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	200.0	0.00	0.00	200.0	0.0	0.0	0.00	0.00	0.0	
3	898.4	13.97	354.86	891.5	84.4	-7.6	2.00	354.86	84.7	
4	8675.4	13.97	354.86	8438.5	1953.9	-175.9	0.00	0.00	1961.5	LR05C M15 595 TOG
5	9373.7	0.00	0.00	9130.0	2038.3	-183.5	2.00	180.00	2046.2	
6	9690.3	0.79	240.02	9446.6	2037.2	-185.3	0.25	240.02	2045.3	
7	12424.0	0.79	240.02	12180.0	2018.3	-218.1	0.00	0.00	2030.1	LR05C M15 595 BHL



Azimuths to True North
Magnetic North: 10.49°

Magnetic Field
Strength: 52413.2snT
Dip Angle: 65.86°
Date: 6/29/2010
Model: IGRF200510

FORMATION TOP DETAILS		
TVDPPath	MDPath	Formation
4230.0	4338.6	Wasatch
5730.0	5884.3	Fort Union
6230.0	6399.5	Base Ft Union
8530.0	8769.3	Ohio Creek
8830.0	9073.2	Williams Fork
9130.0	9373.7	Top of Gas
11680.0	11924.0	Cameo
12030.0	12274.0	Rollins

DESIGN DETAILS: Plan #1

105XXX; BH
KBE @ 8362.0ft (Patterson 302)

Target	Azimuth	Origin	N/S	E/W	From TVD
LR05C M15 595 BHL	353.83	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 LR05C M15 595
Company:	Berry Petroleum Company (NAD 83)	TVD Reference:	KBE @ 8362.0ft (Patterson 302)
Project:	Garfield County	MD Reference:	KBE @ 8362.0ft (Patterson 302)
Site:	M15 595	North Reference:	True
Well:	LR05C M15 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		M15 595			
Site Position:		Northing:	1,657,208.58 ft	Latitude:	39.610181
From:	Lat/Long	Easting:	2,282,155.00 ft	Longitude:	-108.048225
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence:	-1.61 °

Well	LR05C M15 595					
Well Position	+N/-S	0.0 ft	Northing:	1,657,208.57 ft	Latitude:	39.610181
	+E/-W	0.0 ft	Easting:	2,282,155.00 ft	Longitude:	-108.048225
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	8,347.0 ft

Wellbore	DD				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	6/29/2010	10.49	65.86	52,413

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	353.83

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	
200.0	0.00	0.00	200.0	0.0	0.0	0.00	0.00	0.00	0.00	
898.4	13.97	354.86	891.5	84.4	-7.6	2.00	2.00	0.00	354.86	
8,675.4	13.97	354.86	8,438.5	1,953.9	-175.9	0.00	0.00	0.00	0.00	
9,373.7	0.00	0.00	9,130.0	2,038.3	-183.5	2.00	-2.00	0.00	180.00	LR05C M15 595 TOG
9,690.3	0.79	240.02	9,446.6	2,037.2	-185.3	0.25	0.25	-37.90	240.02	
12,424.0	0.79	240.02	12,180.0	2,018.3	-218.1	0.00	0.00	0.00	0.00	LR05C M15 595 BHL

Cathedral Energy Services

Planning Report

Database:	EDM 5000.1 US Multi Users DB	Local Co-ordinate Reference:	Well LR05C M15 595
Company:	Berry Petroleum Company (NAD 83)	TVD Reference:	KBE @ 8362.0ft (Patterson 302)
Project:	Garfield County	MD Reference:	KBE @ 8362.0ft (Patterson 302)
Site:	M15 595	North Reference:	True
Well:	LR05C M15 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	
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	KOP @ 200'
210.0	0.20	354.86	210.0	0.0	0.0	0.0	2.00	2.00	
240.0	0.80	354.86	240.0	0.3	0.0	0.3	2.00	2.00	
270.0	1.40	354.86	270.0	0.9	-0.1	0.9	2.00	2.00	
300.0	2.00	354.86	300.0	1.7	-0.2	1.7	2.00	2.00	
330.0	2.60	354.86	330.0	2.9	-0.3	2.9	2.00	2.00	
360.0	3.20	354.86	359.9	4.4	-0.4	4.5	2.00	2.00	
390.0	3.80	354.86	389.9	6.3	-0.6	6.3	2.00	2.00	
420.0	4.40	354.86	419.8	8.4	-0.8	8.4	2.00	2.00	
450.0	5.00	354.86	449.7	10.9	-1.0	10.9	2.00	2.00	
480.0	5.60	354.86	479.6	13.6	-1.2	13.7	2.00	2.00	
510.0	6.20	354.86	509.4	16.7	-1.5	16.8	2.00	2.00	
540.0	6.80	354.86	539.2	20.1	-1.8	20.1	2.00	2.00	
570.0	7.40	354.86	569.0	23.8	-2.1	23.9	2.00	2.00	
600.0	8.00	354.86	598.7	27.8	-2.5	27.9	2.00	2.00	
630.0	8.60	354.86	628.4	32.1	-2.9	32.2	2.00	2.00	
660.0	9.20	354.86	658.0	36.7	-3.3	36.8	2.00	2.00	
690.0	9.80	354.86	687.6	41.6	-3.7	41.8	2.00	2.00	
720.0	10.40	354.86	717.1	46.9	-4.2	47.1	2.00	2.00	
750.0	11.00	354.86	746.6	52.4	-4.7	52.6	2.00	2.00	
780.0	11.60	354.86	776.0	58.3	-5.2	58.5	2.00	2.00	
810.0	12.20	354.86	805.4	64.4	-5.8	64.7	2.00	2.00	
840.0	12.80	354.86	834.7	70.9	-6.4	71.2	2.00	2.00	
870.0	13.40	354.86	863.9	77.7	-7.0	78.0	2.00	2.00	
898.4	13.97	354.86	891.5	84.4	-7.6	84.7	2.00	2.00	EOB; Inc=13.97°
900.0	13.97	354.86	893.1	84.8	-7.6	85.1	0.00	0.00	
930.0	13.97	354.86	922.2	92.0	-8.3	92.3	0.00	0.00	
960.0	13.97	354.86	951.3	99.2	-8.9	99.6	0.00	0.00	
990.0	13.97	354.86	980.4	106.4	-9.6	106.8	0.00	0.00	
1,020.0	13.97	354.86	1,009.5	113.6	-10.2	114.0	0.00	0.00	
1,050.0	13.97	354.86	1,038.6	120.8	-10.9	121.3	0.00	0.00	
1,080.0	13.97	354.86	1,067.7	128.0	-11.5	128.5	0.00	0.00	
1,110.0	13.97	354.86	1,096.8	135.2	-12.2	135.8	0.00	0.00	
1,140.0	13.97	354.86	1,126.0	142.4	-12.8	143.0	0.00	0.00	
1,170.0	13.97	354.86	1,155.1	149.7	-13.5	150.2	0.00	0.00	
1,200.0	13.97	354.86	1,184.2	156.9	-14.1	157.5	0.00	0.00	
1,230.0	13.97	354.86	1,213.3	164.1	-14.8	164.7	0.00	0.00	
1,260.0	13.97	354.86	1,242.4	171.3	-15.4	172.0	0.00	0.00	
1,290.0	13.97	354.86	1,271.5	178.5	-16.1	179.2	0.00	0.00	
1,320.0	13.97	354.86	1,300.6	185.7	-16.7	186.4	0.00	0.00	
1,350.0	13.97	354.86	1,329.8	192.9	-17.4	193.7	0.00	0.00	
1,380.0	13.97	354.86	1,358.9	200.1	-18.0	200.9	0.00	0.00	
1,410.0	13.97	354.86	1,388.0	207.4	-18.7	208.2	0.00	0.00	
1,440.0	13.97	354.86	1,417.1	214.6	-19.3	215.4	0.00	0.00	
1,470.0	13.97	354.86	1,446.2	221.8	-20.0	222.6	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	EDM 5000.1 US Multi Users DB	Local Co-ordinate Reference:	Well LR05C M15 595
Company:	Berry Petroleum Company (NAD 83)	TVD Reference:	KBE @ 8362.0ft (Patterson 302)
Project:	Garfield County	MD Reference:	KBE @ 8362.0ft (Patterson 302)
Site:	M15 595	North Reference:	True
Well:	LR05C M15 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	13.97	354.86	1,475.3	229.0	-20.6	229.9	0.00	0.00	
1,530.0	13.97	354.86	1,504.4	236.2	-21.3	237.1	0.00	0.00	
1,560.0	13.97	354.86	1,533.5	243.4	-21.9	244.4	0.00	0.00	
1,590.0	13.97	354.86	1,562.7	250.6	-22.6	251.6	0.00	0.00	
1,620.0	13.97	354.86	1,591.8	257.8	-23.2	258.8	0.00	0.00	
1,650.0	13.97	354.86	1,620.9	265.1	-23.9	266.1	0.00	0.00	
1,680.0	13.97	354.86	1,650.0	272.3	-24.5	273.3	0.00	0.00	
1,710.0	13.97	354.86	1,679.1	279.5	-25.2	280.6	0.00	0.00	
1,740.0	13.97	354.86	1,708.2	286.7	-25.8	287.8	0.00	0.00	
1,770.0	13.97	354.86	1,737.3	293.9	-26.5	295.0	0.00	0.00	
1,800.0	13.97	354.86	1,766.4	301.1	-27.1	302.3	0.00	0.00	
1,830.0	13.97	354.86	1,795.6	308.3	-27.7	309.5	0.00	0.00	
1,860.0	13.97	354.86	1,824.7	315.5	-28.4	316.8	0.00	0.00	
1,890.0	13.97	354.86	1,853.8	322.7	-29.0	324.0	0.00	0.00	
1,920.0	13.97	354.86	1,882.9	330.0	-29.7	331.2	0.00	0.00	
1,950.0	13.97	354.86	1,912.0	337.2	-30.3	338.5	0.00	0.00	
1,980.0	13.97	354.86	1,941.1	344.4	-31.0	345.7	0.00	0.00	
2,010.0	13.97	354.86	1,970.2	351.6	-31.6	353.0	0.00	0.00	
2,040.0	13.97	354.86	1,999.3	358.8	-32.3	360.2	0.00	0.00	
2,070.0	13.97	354.86	2,028.5	366.0	-32.9	367.4	0.00	0.00	
2,100.0	13.97	354.86	2,057.6	373.2	-33.6	374.7	0.00	0.00	
2,130.0	13.97	354.86	2,086.7	380.4	-34.2	381.9	0.00	0.00	
2,160.0	13.97	354.86	2,115.8	387.7	-34.9	389.2	0.00	0.00	
2,190.0	13.97	354.86	2,144.9	394.9	-35.5	396.4	0.00	0.00	
2,220.0	13.97	354.86	2,174.0	402.1	-36.2	403.6	0.00	0.00	
2,250.0	13.97	354.86	2,203.1	409.3	-36.8	410.9	0.00	0.00	
2,280.0	13.97	354.86	2,232.3	416.5	-37.5	418.1	0.00	0.00	
2,310.0	13.97	354.86	2,261.4	423.7	-38.1	425.4	0.00	0.00	
2,340.0	13.97	354.86	2,290.5	430.9	-38.8	432.6	0.00	0.00	
2,370.0	13.97	354.86	2,319.6	438.1	-39.4	439.8	0.00	0.00	
2,400.0	13.97	354.86	2,348.7	445.4	-40.1	447.1	0.00	0.00	
2,430.0	13.97	354.86	2,377.8	452.6	-40.7	454.3	0.00	0.00	
2,460.0	13.97	354.86	2,406.9	459.8	-41.4	461.6	0.00	0.00	
2,490.0	13.97	354.86	2,436.0	467.0	-42.0	468.8	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
- hit/miss target									
- Shape									
LR05C M15 595 BHL	0.00	0.00	12,180.0	2,018.3	-218.1	1,659,232.23	2,281,993.64	39.615722	-108.048999
- plan misses target center by 9868.2ft at 2490.0ft MD (2436.0 TVD, 467.0 N, -42.0 E)									
- Rectangle (sides W50.0 H100.0 D0.0)									
LR05C M15 595 TOG	0.00	0.00	9,130.0	2,038.3	-183.5	1,659,251.22	2,282,028.79	39.615777	-108.048876
- plan misses target center by 6877.4ft at 2490.0ft MD (2436.0 TVD, 467.0 N, -42.0 E)									
- Point									

Cathedral Energy Services

Planning Report

Database:	EDM 5000.1 US Multi Users DB	Local Co-ordinate Reference:	Well LR05C M15 595
Company:	Berry Petroleum Company (NAD 83)	TVD Reference:	KBE @ 8362.0ft (Patterson 302)
Project:	Garfield County	MD Reference:	KBE @ 8362.0ft (Patterson 302)
Site:	M15 595	North Reference:	True
Well:	LR05C M15 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	13.97	354.86	2,445.7	469.4	-42.2	471.2	0.00	0.00	
2,600.0	13.97	354.86	2,542.8	493.4	-44.4	495.3	0.00	0.00	
2,700.0	13.97	354.86	2,639.8	517.5	-46.6	519.5	0.00	0.00	
2,800.0	13.97	354.86	2,736.9	541.5	-48.7	543.6	0.00	0.00	
2,900.0	13.97	354.86	2,833.9	565.6	-50.9	567.7	0.00	0.00	
3,000.0	13.97	354.86	2,931.0	589.6	-53.1	591.9	0.00	0.00	
3,100.0	13.97	354.86	3,028.0	613.6	-55.2	616.0	0.00	0.00	
3,200.0	13.97	354.86	3,125.1	637.7	-57.4	640.1	0.00	0.00	
3,300.0	13.97	354.86	3,222.1	661.7	-59.6	664.3	0.00	0.00	
3,400.0	13.97	354.86	3,319.1	685.7	-61.7	688.4	0.00	0.00	
3,500.0	13.97	354.86	3,416.2	709.8	-63.9	712.5	0.00	0.00	
3,600.0	13.97	354.86	3,513.2	733.8	-66.0	736.7	0.00	0.00	
3,700.0	13.97	354.86	3,610.3	757.9	-68.2	760.8	0.00	0.00	
3,800.0	13.97	354.86	3,707.3	781.9	-70.4	784.9	0.00	0.00	
3,900.0	13.97	354.86	3,804.4	805.9	-72.5	809.1	0.00	0.00	
4,000.0	13.97	354.86	3,901.4	830.0	-74.7	833.2	0.00	0.00	
4,100.0	13.97	354.86	3,998.4	854.0	-76.9	857.3	0.00	0.00	
4,200.0	13.97	354.86	4,095.5	878.1	-79.0	881.5	0.00	0.00	
4,300.0	13.97	354.86	4,192.5	902.1	-81.2	905.6	0.00	0.00	
4,338.6	13.97	354.86	4,230.0	911.4	-82.0	914.9	0.00	0.00	Wasatch
4,400.0	13.97	354.86	4,289.6	926.1	-83.4	929.7	0.00	0.00	
4,500.0	13.97	354.86	4,386.6	950.2	-85.5	953.9	0.00	0.00	
4,600.0	13.97	354.86	4,483.7	974.2	-87.7	978.0	0.00	0.00	
4,700.0	13.97	354.86	4,580.7	998.3	-89.8	1,002.1	0.00	0.00	
4,800.0	13.97	354.86	4,677.7	1,022.3	-92.0	1,026.3	0.00	0.00	
4,900.0	13.97	354.86	4,774.8	1,046.3	-94.2	1,050.4	0.00	0.00	
5,000.0	13.97	354.86	4,871.8	1,070.4	-96.3	1,074.5	0.00	0.00	
5,100.0	13.97	354.86	4,968.9	1,094.4	-98.5	1,098.7	0.00	0.00	
5,200.0	13.97	354.86	5,065.9	1,118.5	-100.7	1,122.8	0.00	0.00	
5,300.0	13.97	354.86	5,163.0	1,142.5	-102.8	1,146.9	0.00	0.00	
5,400.0	13.97	354.86	5,260.0	1,166.5	-105.0	1,171.1	0.00	0.00	
5,500.0	13.97	354.86	5,357.0	1,190.6	-107.2	1,195.2	0.00	0.00	
5,600.0	13.97	354.86	5,454.1	1,214.6	-109.3	1,219.3	0.00	0.00	
5,700.0	13.97	354.86	5,551.1	1,238.7	-111.5	1,243.5	0.00	0.00	
5,800.0	13.97	354.86	5,648.2	1,262.7	-113.6	1,267.6	0.00	0.00	
5,884.3	13.97	354.86	5,730.0	1,283.0	-115.5	1,288.0	0.00	0.00	Fort Union
5,900.0	13.97	354.86	5,745.2	1,286.7	-115.8	1,291.7	0.00	0.00	
6,000.0	13.97	354.86	5,842.3	1,310.8	-118.0	1,315.9	0.00	0.00	
6,100.0	13.97	354.86	5,939.3	1,334.8	-120.1	1,340.0	0.00	0.00	
6,200.0	13.97	354.86	6,036.4	1,358.9	-122.3	1,364.1	0.00	0.00	
6,300.0	13.97	354.86	6,133.4	1,382.9	-124.5	1,388.3	0.00	0.00	
6,399.5	13.97	354.86	6,230.0	1,406.8	-126.6	1,412.3	0.00	0.00	Base Ft Union
6,400.0	13.97	354.86	6,230.4	1,406.9	-126.6	1,412.4	0.00	0.00	
6,500.0	13.97	354.86	6,327.5	1,431.0	-128.8	1,436.5	0.00	0.00	
6,600.0	13.97	354.86	6,424.5	1,455.0	-131.0	1,460.7	0.00	0.00	
6,700.0	13.97	354.86	6,521.6	1,479.1	-133.1	1,484.8	0.00	0.00	
6,800.0	13.97	354.86	6,618.6	1,503.1	-135.3	1,508.9	0.00	0.00	
6,900.0	13.97	354.86	6,715.7	1,527.1	-137.4	1,533.1	0.00	0.00	
7,000.0	13.97	354.86	6,812.7	1,551.2	-139.6	1,557.2	0.00	0.00	
7,100.0	13.97	354.86	6,909.7	1,575.2	-141.8	1,581.3	0.00	0.00	
7,200.0	13.97	354.86	7,006.8	1,599.3	-143.9	1,605.5	0.00	0.00	
7,300.0	13.97	354.86	7,103.8	1,623.3	-146.1	1,629.6	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	EDM 5000.1 US Multi Users DB	Local Co-ordinate Reference:	Well LR05C M15 595
Company:	Berry Petroleum Company (NAD 83)	TVD Reference:	KBE @ 8362.0ft (Patterson 302)
Project:	Garfield County	MD Reference:	KBE @ 8362.0ft (Patterson 302)
Site:	M15 595	North Reference:	True
Well:	LR05C M15 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
7,400.0	13.97	354.86	7,200.9	1,647.3	-148.3	1,653.7	0.00	0.00	
7,500.0	13.97	354.86	7,297.9	1,671.4	-150.4	1,677.9	0.00	0.00	
7,600.0	13.97	354.86	7,395.0	1,695.4	-152.6	1,702.0	0.00	0.00	
7,700.0	13.97	354.86	7,492.0	1,719.5	-154.8	1,726.1	0.00	0.00	
7,800.0	13.97	354.86	7,589.0	1,743.5	-156.9	1,750.3	0.00	0.00	
7,900.0	13.97	354.86	7,686.1	1,767.5	-159.1	1,774.4	0.00	0.00	
8,000.0	13.97	354.86	7,783.1	1,791.6	-161.2	1,798.5	0.00	0.00	
8,100.0	13.97	354.86	7,880.2	1,815.6	-163.4	1,822.7	0.00	0.00	
8,200.0	13.97	354.86	7,977.2	1,839.7	-165.6	1,846.8	0.00	0.00	
8,300.0	13.97	354.86	8,074.3	1,863.7	-167.7	1,870.9	0.00	0.00	
8,400.0	13.97	354.86	8,171.3	1,887.7	-169.9	1,895.1	0.00	0.00	
8,500.0	13.97	354.86	8,268.3	1,911.8	-172.1	1,919.2	0.00	0.00	
8,600.0	13.97	354.86	8,365.4	1,935.8	-174.2	1,943.3	0.00	0.00	
8,675.4	13.97	354.86	8,438.5	1,953.9	-175.9	1,961.5	0.00	0.00	Start Drop -2.00
8,700.0	13.47	354.86	8,462.5	1,959.8	-176.4	1,967.4	2.00	-2.00	
8,769.3	12.09	354.86	8,530.0	1,975.0	-177.8	1,982.7	2.00	-2.00	Ohio Creek
8,800.0	11.47	354.86	8,560.1	1,981.3	-178.3	1,989.0	2.00	-2.00	
8,900.0	9.47	354.86	8,658.4	1,999.4	-179.9	2,007.1	2.00	-2.00	
9,000.0	7.47	354.86	8,757.3	2,014.1	-181.3	2,021.9	2.00	-2.00	
9,073.2	6.01	354.86	8,830.0	2,022.6	-182.0	2,030.5	2.00	-2.00	Williams Fork
9,100.0	5.47	354.86	8,856.7	2,025.3	-182.3	2,033.1	2.00	-2.00	
9,200.0	3.47	354.86	8,956.4	2,033.1	-183.0	2,040.9	2.00	-2.00	
9,300.0	1.47	354.86	9,056.3	2,037.4	-183.4	2,045.3	2.00	-2.00	
9,373.7	0.00	0.00	9,130.0	2,038.3	-183.5	2,046.2	2.00	-2.00	EOD; Inc=0° - Top of Gas - LR05C M15 595 TC
9,400.0	0.07	240.02	9,156.3	2,038.3	-183.5	2,046.2	0.25	0.25	
9,500.0	0.32	240.02	9,256.3	2,038.1	-183.8	2,046.1	0.25	0.25	
9,600.0	0.57	240.02	9,356.3	2,037.7	-184.4	2,045.8	0.25	0.25	
9,690.3	0.79	240.02	9,446.6	2,037.2	-185.3	2,045.3	0.25	0.25	
9,700.0	0.79	240.02	9,456.3	2,037.1	-185.5	2,045.3	0.00	0.00	
9,800.0	0.79	240.02	9,556.2	2,036.5	-186.7	2,044.7	0.00	0.00	
9,900.0	0.79	240.02	9,656.2	2,035.8	-187.9	2,044.2	0.00	0.00	
10,000.0	0.79	240.02	9,756.2	2,035.1	-189.0	2,043.6	0.00	0.00	
10,100.0	0.79	240.02	9,856.2	2,034.4	-190.2	2,043.0	0.00	0.00	
10,200.0	0.79	240.02	9,956.2	2,033.7	-191.4	2,042.5	0.00	0.00	
10,300.0	0.79	240.02	10,056.2	2,033.0	-192.6	2,041.9	0.00	0.00	
10,400.0	0.79	240.02	10,156.2	2,032.3	-193.8	2,041.4	0.00	0.00	
10,500.0	0.79	240.02	10,256.2	2,031.6	-195.0	2,040.8	0.00	0.00	
10,600.0	0.79	240.02	10,356.2	2,030.9	-196.2	2,040.3	0.00	0.00	
10,700.0	0.79	240.02	10,456.2	2,030.2	-197.4	2,039.7	0.00	0.00	
10,800.0	0.79	240.02	10,556.1	2,029.5	-198.6	2,039.1	0.00	0.00	
10,900.0	0.79	240.02	10,656.1	2,028.9	-199.8	2,038.6	0.00	0.00	
11,000.0	0.79	240.02	10,756.1	2,028.2	-201.0	2,038.0	0.00	0.00	
11,100.0	0.79	240.02	10,856.1	2,027.5	-202.2	2,037.5	0.00	0.00	
11,200.0	0.79	240.02	10,956.1	2,026.8	-203.4	2,036.9	0.00	0.00	
11,300.0	0.79	240.02	11,056.1	2,026.1	-204.6	2,036.3	0.00	0.00	
11,400.0	0.79	240.02	11,156.1	2,025.4	-205.8	2,035.8	0.00	0.00	
11,500.0	0.79	240.02	11,256.1	2,024.7	-207.0	2,035.2	0.00	0.00	
11,600.0	0.79	240.02	11,356.1	2,024.0	-208.2	2,034.7	0.00	0.00	
11,700.0	0.79	240.02	11,456.1	2,023.3	-209.4	2,034.1	0.00	0.00	
11,800.0	0.79	240.02	11,556.1	2,022.6	-210.6	2,033.6	0.00	0.00	
11,900.0	0.79	240.02	11,656.0	2,022.0	-211.8	2,033.0	0.00	0.00	
11,924.0	0.79	240.02	11,680.0	2,021.8	-212.1	2,032.9	0.00	0.00	Cameo

Cathedral Energy Services

Planning Report

Database:	EDM 5000.1 US Multi Users DB	Local Co-ordinate Reference:	Well LR05C M15 595
Company:	Berry Petroleum Company (NAD 83)	TVD Reference:	KBE @ 8362.0ft (Patterson 302)
Project:	Garfield County	MD Reference:	KBE @ 8362.0ft (Patterson 302)
Site:	M15 595	North Reference:	True
Well:	LR05C M15 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
12,000.0	0.79	240.02	11,756.0	2,021.3	-213.0	2,032.4	0.00	0.00	
12,100.0	0.79	240.02	11,856.0	2,020.6	-214.2	2,031.9	0.00	0.00	
12,200.0	0.79	240.02	11,956.0	2,019.9	-215.4	2,031.3	0.00	0.00	
12,274.0	0.79	240.02	12,030.0	2,019.4	-216.3	2,030.9	0.00	0.00	Rollins
12,300.0	0.79	240.02	12,056.0	2,019.2	-216.6	2,030.8	0.00	0.00	
12,400.0	0.79	240.02	12,156.0	2,018.5	-217.8	2,030.2	0.00	0.00	
12,424.0	0.79	240.02	12,180.0	2,018.3	-218.1	2,030.1	0.00	0.00	TD at 12424.0 - LR05C M15 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
LR05C M15 595 BHL - plan hits target center - Rectangle (sides W50.0 H100.0 D0.0)	0.00	0.00	12,180.0	2,018.3	-218.1	1,659,232.23	2,281,993.64	39.615722	-108.048999
LR05C M15 595 TOG - plan hits target center - Point	0.00	0.00	9,130.0	2,038.3	-183.5	1,659,251.22	2,282,028.79	39.615777	-108.048876

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
4,338.6	4,230.0	Wasatch		0.00	
5,884.3	5,730.0	Fort Union		0.00	
6,399.5	6,230.0	Base Ft Union		0.00	
8,769.3	8,530.0	Ohio Creek		0.00	
9,073.2	8,830.0	Williams Fork		0.00	
9,373.7	9,130.0	Top of Gas		0.00	
11,924.0	11,680.0	Cameo		0.00	
12,274.0	12,030.0	Rollins		0.00	

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	+E/-W (ft)	Comment
200.0	200.0	0.0	0.0	KOP @ 200'
898.4	891.5	84.4	-7.6	EOB; Inc=13.97°
8,675.4	8,438.5	1,953.9	-175.9	Start Drop -2.00
9,373.7	9,130.0	2,038.3	-183.5	EOD; Inc=0°
12,424.0	12,180.0	2,037.2	-185.3	TD at 12424.0

Berry Petroleum Company (NAD 83)

Garfield County

M15 595

LR05C M15 595

DD

Plan #1

Anticollision Report

30 June, 2010

Cathedral Energy Services

Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Well LR05C M15 595
Project:	Garfield County	TVD Reference:	KBE @ 8362.0ft (Patterson 302)
Reference Site:	M15 595	MD Reference:	KBE @ 8362.0ft (Patterson 302)
Site Error:	0.0ft	North Reference:	True
Reference Well:	LR05C M15 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	6/30/2010		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
0.0	12,424.0	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						
M15 595						
LR01B M15 595 - DD - Plan #1	200.0	200.0	80.0	79.4	123.938	CC, ES
LR01B M15 595 - DD - Plan #1	400.0	397.8	88.1	86.8	65.783	SF
LR04A M15 595 - DD - Plan #1	200.0	200.0	90.0	89.4	139.389	CC, ES
LR04A M15 595 - DD - Plan #1	300.0	296.9	93.4	92.4	94.464	SF
LR05B M15 595 - DD - Plan #1	200.0	200.0	19.8	19.2	30.718	CC
LR05B M15 595 - DD - Plan #1	1,300.0	1,304.9	22.3	14.1	2.730	ES
LR05B M15 595 - DD - Plan #1	1,400.0	1,404.8	24.4	15.2	2.631	SF
LR08D M15 595 - DD - Plan #1	200.0	200.0	60.0	59.4	92.955	CC, ES
LR08D M15 595 - DD - Plan #1	1,000.0	1,012.1	96.2	92.3	24.782	SF
LR12A M15 595 - DD - Plan #1	200.0	200.0	40.4	39.7	62.527	CC
LR12A M15 595 - DD - Plan #1	400.0	402.6	40.8	39.5	30.190	ES
LR12A M15 595 - DD - Plan #1	1,700.0	1,706.1	99.3	88.4	9.103	SF
LR12B M15 595 - DD - Plan #1	324.2	324.7	10.0	8.9	9.282	CC
LR12B M15 595 - DD - Plan #1	500.0	501.0	10.3	8.6	6.030	ES
LR12B M15 595 - DD - Plan #1	700.0	701.6	12.2	9.6	4.693	SF
LR12C M15 595 - DD - Plan #1	200.0	200.0	29.9	29.2	46.294	CC
LR12C M15 595 - DD - Plan #1	600.0	604.1	30.2	28.1	14.627	ES
LR12C M15 595 - DD - Plan #1	800.0	804.7	34.1	31.3	11.971	SF
LR12D M15 595 - DD - Plan #1	200.0	200.0	50.0	49.4	77.424	CC, ES
LR12D M15 595 - DD - Plan #1	600.0	599.8	77.1	75.1	37.897	SF
LR13A M15 595 - DD - Plan #1	200.0	200.0	70.0	69.4	108.413	CC, ES
LR13A M15 595 - DD - Plan #1	600.0	596.9	98.7	96.7	48.636	SF

Cathedral Energy Services

Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Well LR05C M15 595
Project:	Garfield County	TVD Reference:	KBE @ 8362.0ft (Patterson 302)
Reference Site:	M15 595	MD Reference:	KBE @ 8362.0ft (Patterson 302)
Site Error:	0.0ft	North Reference:	True
Reference Well:	LR05C M15 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													M15 595 - LR01B M15 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	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Total Uncertainty Axis	Separation Factor	Warning				
(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	169.45	-78.7	14.7	80.0								
100.0	100.0	100.0	100.0	0.1	0.1	169.45	-78.7	14.7	80.0	79.7	0.30	269.746					
200.0	200.0	200.0	200.0	0.3	0.3	169.45	-78.7	14.7	80.0	79.4	0.65	123.938	CC, ES				
300.0	300.0	300.0	300.0	0.5	0.5	174.71	-78.7	14.7	81.8	80.8	0.99	82.227					
400.0	399.8	397.8	397.8	0.7	0.7	175.81	-80.0	13.6	88.1	86.8	1.34	65.783	SF				

Cathedral Energy Services

Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Well LR05C M15 595
Project:	Garfield County	TVD Reference:	KBE @ 8362.0ft (Patterson 302)
Reference Site:	M15 595	MD Reference:	KBE @ 8362.0ft (Patterson 302)
Site Error:	0.0ft	North Reference:	True
Reference Well:	LR05C M15 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 M15 595 - LR04A M15 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	169.54	-88.5	16.3	90.0					
100.0	100.0	100.0	100.0	0.1	0.1	169.54	-88.5	16.3	90.0	89.7	0.30	303.376		
200.0	200.0	200.0	200.0	0.3	0.3	169.54	-88.5	16.3	90.0	89.4	0.65	139.389 CC, ES		
300.0	300.0	296.9	296.8	0.5	0.5	174.89	-90.2	16.4	93.4	92.4	0.99	94.464 SF		

Cathedral Energy Services

Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Well LR05C M15 595
Project:	Garfield County	TVD Reference:	KBE @ 8362.0ft (Patterson 302)
Reference Site:	M15 595	MD Reference:	KBE @ 8362.0ft (Patterson 302)
Site Error:	0.0ft	North Reference:	True
Reference Well:	LR05C M15 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 M15 595 - LR05B M15 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)				Between Centres (ft)	Between Ellipses (ft)	
0.0	0.0	0.0	0.0	0.0	0.0	172.66	-19.7	2.5	19.8					
100.0	100.0	100.0	100.0	0.1	0.1	172.66	-19.7	2.5	19.8	19.5	0.30	66.857		
200.0	200.0	200.0	200.0	0.3	0.3	172.66	-19.7	2.5	19.8	19.2	0.65	30.718 CC		
300.0	300.0	300.7	300.7	0.5	0.5	177.26	-17.9	2.6	19.8	18.8	1.00	19.925		
400.0	399.8	401.4	401.2	0.7	0.7	175.66	-12.6	2.6	19.9	18.5	1.35	14.762		
500.0	499.5	502.1	501.5	0.9	0.9	173.00	-3.8	2.8	19.9	18.3	1.70	11.743		
600.0	598.7	602.7	601.4	1.2	1.2	169.33	8.6	3.0	20.1	18.1	2.06	9.760		
700.0	697.5	703.4	700.8	1.5	1.5	164.73	24.4	3.2	20.5	18.0	2.46	8.333		
800.0	795.6	804.0	799.6	1.9	1.9	159.38	43.8	3.5	21.1	18.2	2.92	7.212		
898.4	891.5	903.0	896.0	2.3	2.3	153.61	66.1	3.9	22.0	18.5	3.50	6.284		
900.0	893.1	904.7	897.6	2.3	2.3	153.51	66.5	3.9	22.0	18.5	3.51	6.269		
1,000.0	990.1	1,005.2	994.7	2.7	2.8	144.85	92.7	4.3	21.8	17.5	4.35	5.017		
1,100.0	1,087.1	1,105.2	1,090.6	3.2	3.3	132.23	120.6	4.7	20.9	15.4	5.55	3.773		
1,134.2	1,120.3	1,139.3	1,123.4	3.3	3.5	127.75	130.2	4.8	20.9	14.9	6.00	3.477		
1,200.0	1,184.2	1,205.0	1,186.5	3.6	3.8	119.16	148.6	5.1	21.1	14.2	6.89	3.063		
1,300.0	1,281.2	1,304.9	1,282.4	4.1	4.3	106.92	176.5	5.6	22.3	14.1	8.18	2.730 ES		
1,400.0	1,378.3	1,404.8	1,378.3	4.5	4.8	96.37	204.4	6.0	24.4	15.2	9.29	2.631 SF		
1,500.0	1,475.3	1,504.7	1,474.2	5.0	5.3	87.74	232.3	6.4	27.3	17.0	10.23	2.664		
1,600.0	1,572.4	1,604.6	1,570.1	5.4	5.8	80.84	260.2	6.9	30.6	19.5	11.03	2.770		
1,700.0	1,669.4	1,704.5	1,666.1	5.9	6.3	75.35	288.1	7.3	34.2	22.5	11.74	2.913		
1,800.0	1,766.4	1,804.3	1,762.0	6.3	6.9	70.96	316.0	7.7	38.1	25.7	12.40	3.073		
1,900.0	1,863.5	1,904.2	1,857.9	6.8	7.4	67.39	343.9	8.1	42.2	29.2	13.04	3.238		
2,000.0	1,960.5	2,004.1	1,953.8	7.2	7.9	64.47	371.8	8.6	46.4	32.8	13.65	3.403		
2,100.0	2,057.6	2,104.0	2,049.7	7.7	8.4	62.04	399.7	9.0	50.8	36.5	14.25	3.562		
2,200.0	2,154.6	2,203.9	2,145.6	8.1	8.9	59.99	427.6	9.4	55.2	40.3	14.85	3.715		
2,300.0	2,251.7	2,303.8	2,241.5	8.6	9.4	58.25	455.5	9.9	59.6	44.2	15.45	3.860		
2,400.0	2,348.7	2,403.7	2,337.4	9.0	9.9	56.75	483.4	10.3	64.1	48.1	16.04	3.998		
2,500.0	2,445.7	2,503.5	2,433.3	9.5	10.5	55.45	511.3	10.7	68.7	52.1	16.64	4.128		
2,600.0	2,542.8	2,603.4	2,529.2	9.9	11.0	54.31	539.2	11.2	73.3	56.0	17.24	4.250		
2,700.0	2,639.8	2,703.3	2,625.1	10.4	11.5	53.30	567.1	11.6	77.9	60.0	17.84	4.366		
2,800.0	2,736.9	2,803.2	2,721.0	10.9	12.0	52.41	595.0	12.0	82.5	64.1	18.44	4.475		
2,900.0	2,833.9	2,903.1	2,816.9	11.3	12.5	51.61	622.9	12.4	87.2	68.1	19.04	4.577		
3,000.0	2,931.0	3,003.0	2,912.8	11.8	13.0	50.89	650.9	12.9	91.8	72.2	19.64	4.674		
3,100.0	3,028.0	3,102.9	3,008.8	12.2	13.6	50.25	678.8	13.3	96.5	76.2	20.25	4.765		

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 LR05C M15 595
Project:	Garfield County	TVD Reference:	KBE @ 8362.0ft (Patterson 302)
Reference Site:	M15 595	MD Reference:	KBE @ 8362.0ft (Patterson 302)
Site Error:	0.0ft	North Reference:	True
Reference Well:	LR05C M15 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 M15 595 - LR08D M15 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	Separation	
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	Axis	Factor	
0.0	0.0	0.0	0.0	0.0	0.0	169.45	-59.0	11.0	60.0				
100.0	100.0	100.0	100.0	0.1	0.1	169.45	-59.0	11.0	60.0	59.7	0.30	202.313	
200.0	200.0	200.0	200.0	0.3	0.3	169.45	-59.0	11.0	60.0	59.4	0.65	92.955 CC, ES	
300.0	300.0	300.0	300.0	0.5	0.5	174.74	-59.0	11.0	61.8	60.8	0.99	62.108	
400.0	399.8	402.0	402.0	0.7	0.7	175.68	-57.4	10.1	65.3	64.0	1.35	48.502	
500.0	499.5	504.2	504.0	0.9	0.9	177.76	-52.7	7.5	69.0	67.3	1.70	40.609	
600.0	598.7	606.4	605.8	1.2	1.1	-179.22	-44.7	3.0	73.0	71.0	2.06	35.489	
700.0	697.5	708.6	707.2	1.5	1.4	-175.44	-33.6	-3.2	77.6	75.1	2.43	31.881	
800.0	795.6	810.7	808.0	1.9	1.7	-171.11	-19.3	-11.1	82.8	80.0	2.85	29.099	
898.4	891.5	911.0	906.4	2.3	2.0	-166.51	-2.3	-20.6	88.9	85.6	3.32	26.786	
900.0	893.1	912.6	907.9	2.3	2.1	-166.43	-2.0	-20.7	89.0	85.7	3.33	26.751	
1,000.0	990.1	1,012.1	1,005.2	2.7	2.4	-162.21	16.2	-30.9	96.2	92.3	3.88	24.782 SF	

Cathedral Energy Services

Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Well LR05C M15 595
Project:	Garfield County	TVD Reference:	KBE @ 8362.0ft (Patterson 302)
Reference Site:	M15 595	MD Reference:	KBE @ 8362.0ft (Patterson 302)
Site Error:	0.0ft	North Reference:	True
Reference Well:	LR05C M15 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		M15 595 - LR12A M15 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	169.55	-39.7	7.3	40.4					
100.0	100.0	100.0	100.0	0.1	0.1	169.55	-39.7	7.3	40.4	40.1	0.30	136.087		
200.0	200.0	200.0	200.0	0.3	0.3	169.55	-39.7	7.3	40.4	39.7	0.65	62.527	CC	
300.0	300.0	301.3	301.3	0.5	0.5	173.97	-38.0	7.7	40.5	39.5	1.00	40.584		
400.0	399.8	402.6	402.5	0.7	0.7	171.82	-32.7	8.8	40.8	39.5	1.35	30.190	ES	
500.0	499.5	503.9	503.3	0.9	0.9	168.33	-23.9	10.6	41.5	39.8	1.72	24.166		
600.0	598.7	605.1	603.8	1.2	1.2	163.67	-11.7	13.1	42.8	40.6	2.11	20.219		
700.0	697.5	706.2	703.6	1.5	1.5	158.12	4.0	16.4	44.7	42.1	2.57	17.369		
800.0	795.6	807.3	802.8	1.9	1.9	152.03	23.1	20.3	47.6	44.4	3.14	15.152		
898.4	891.5	906.5	899.3	2.3	2.3	145.94	45.1	24.9	51.5	47.7	3.84	13.427		
900.0	893.1	908.1	900.9	2.3	2.3	145.85	45.5	25.0	51.6	47.8	3.85	13.405		
1,000.0	990.1	1,007.8	997.8	2.7	2.8	140.73	68.9	29.8	56.7	52.1	4.64	12.213		
1,100.0	1,087.1	1,107.6	1,094.6	3.2	3.2	136.48	92.3	34.6	62.2	56.7	5.49	11.332		
1,200.0	1,184.2	1,207.3	1,191.5	3.6	3.6	132.93	115.7	39.5	68.0	61.6	6.37	10.679		
1,300.0	1,281.2	1,307.1	1,288.3	4.1	4.1	129.95	139.1	44.3	74.0	66.7	7.26	10.188		
1,400.0	1,378.3	1,406.8	1,385.2	4.5	4.5	127.42	162.5	49.2	80.1	72.0	8.17	9.812		
1,500.0	1,475.3	1,506.6	1,482.0	5.0	5.0	125.25	185.9	54.0	86.4	77.3	9.08	9.520		
1,600.0	1,572.4	1,606.3	1,578.9	5.4	5.4	123.38	209.3	58.8	92.8	82.8	9.99	9.289		
1,700.0	1,669.4	1,706.1	1,675.7	5.9	5.9	121.75	232.7	63.7	99.3	88.4	10.91	9.103	SF	

Cathedral Energy Services

Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Well LR05C M15 595
Project:	Garfield County	TVD Reference:	KBE @ 8362.0ft (Patterson 302)
Reference Site:	M15 595	MD Reference:	KBE @ 8362.0ft (Patterson 302)
Site Error:	0.0ft	North Reference:	True
Reference Well:	LR05C M15 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 M15 595 - LR12B M15 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	168.67	-9.8	2.0	10.0					
100.0	100.0	100.0	100.0	0.1	0.1	168.67	-9.8	2.0	10.0	9.7	0.30	33.821		
200.0	200.0	200.0	200.0	0.3	0.3	168.67	-9.8	2.0	10.0	9.4	0.65	15.539		
300.0	300.0	300.3	300.3	0.5	0.5	175.48	-8.1	1.5	10.0	9.0	1.00	10.074		
324.2	324.2	324.7	324.6	0.5	0.5	176.40	-7.2	1.3	10.0	8.9	1.08	9.282 CC		
400.0	399.8	400.7	400.5	0.7	0.7	-179.49	-3.0	0.2	10.1	8.7	1.34	7.475		
500.0	499.5	501.0	500.5	0.9	0.9	-171.30	5.4	-2.0	10.3	8.6	1.70	6.030 ES		
600.0	598.7	601.3	600.0	1.2	1.2	-160.69	17.3	-5.2	10.9	8.8	2.10	5.180		
700.0	697.5	701.6	699.0	1.5	1.5	-149.52	32.4	-9.1	12.2	9.6	2.61	4.693 SF		
800.0	795.6	801.5	797.6	1.9	1.8	-146.05	48.4	-13.4	16.1	12.9	3.13	5.130		
898.4	891.5	899.6	894.3	2.3	2.1	-148.97	64.1	-17.5	22.7	19.1	3.57	6.361		
900.0	893.1	901.2	895.9	2.3	2.1	-149.04	64.4	-17.6	22.8	19.3	3.58	6.387		
1,000.0	990.1	1,000.9	994.2	2.7	2.5	-152.22	80.3	-21.8	31.1	27.2	3.99	7.802		
1,100.0	1,087.1	1,100.5	1,092.5	3.2	2.8	-154.07	96.3	-25.9	39.5	35.1	4.42	8.942		
1,200.0	1,184.2	1,200.2	1,190.7	3.6	3.1	-155.26	112.2	-30.1	47.9	43.0	4.85	9.874		
1,300.0	1,281.2	1,299.8	1,289.0	4.1	3.5	-156.10	128.2	-34.3	56.3	51.0	5.28	10.651		
1,400.0	1,378.3	1,399.5	1,387.3	4.5	3.8	-156.72	144.1	-38.5	64.7	59.0	5.72	11.306		
1,500.0	1,475.3	1,499.1	1,485.6	5.0	4.1	-157.20	160.1	-42.7	73.1	66.9	6.16	11.867		
1,600.0	1,572.4	1,598.7	1,583.8	5.4	4.5	-157.58	176.1	-46.9	81.5	74.9	6.60	12.351		
1,700.0	1,669.4	1,698.4	1,682.1	5.9	4.8	-157.89	192.0	-51.1	89.9	82.9	7.04	12.774		
1,800.0	1,766.4	1,798.0	1,780.4	6.3	5.1	-158.15	208.0	-55.3	98.3	90.8	7.48	13.146		

Cathedral Energy Services

Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Well LR05C M15 595
Project:	Garfield County	TVD Reference:	KBE @ 8362.0ft (Patterson 302)
Reference Site:	M15 595	MD Reference:	KBE @ 8362.0ft (Patterson 302)
Site Error:	0.0ft	North Reference:	True
Reference Well:	LR05C M15 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 M15 595 - LR12C M15 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	170.78	-29.5	4.8	29.9					
100.0	100.0	100.0	100.0	0.1	0.1	170.78	-29.5	4.8	29.9	29.6	0.30	100.756		
200.0	200.0	200.0	200.0	0.3	0.3	170.78	-29.5	4.8	29.9	29.2	0.65	46.294	CC	
300.0	300.0	301.0	301.0	0.5	0.5	175.53	-27.7	4.8	29.9	28.9	1.00	30.009		
400.0	399.8	402.1	401.9	0.7	0.7	174.33	-22.4	5.0	29.9	28.6	1.35	22.217		
500.0	499.5	503.1	502.5	0.9	0.9	172.36	-13.5	5.2	30.0	28.3	1.70	17.646		
600.0	598.7	604.1	602.8	1.2	1.2	169.62	-1.1	5.6	30.2	28.1	2.07	14.627	ES	
700.0	697.5	704.7	702.2	1.5	1.5	166.33	14.6	6.0	30.8	28.3	2.45	12.555		
800.0	795.6	804.7	800.8	1.9	1.8	164.39	30.9	6.4	34.1	31.3	2.85	11.971	SF	
898.4	891.5	902.8	897.6	2.3	2.1	164.21	46.8	6.9	40.7	37.4	3.24	12.571		
900.0	893.1	904.4	899.2	2.3	2.1	164.22	47.1	6.9	40.8	37.6	3.24	12.588		
1,000.0	990.1	1,004.1	997.5	2.7	2.5	164.67	63.3	7.3	49.1	45.5	3.64	13.515		
1,100.0	1,087.1	1,103.7	1,095.8	3.2	2.8	164.98	79.5	7.7	57.5	53.5	4.03	14.258		
1,200.0	1,184.2	1,203.4	1,194.2	3.6	3.1	165.22	95.8	8.2	65.8	61.4	4.43	14.867		
1,300.0	1,281.2	1,303.0	1,292.5	4.1	3.4	165.40	112.0	8.6	74.2	69.3	4.82	15.374		
1,400.0	1,378.3	1,402.7	1,390.8	4.5	3.8	165.55	128.2	9.1	82.5	77.3	5.22	15.804		
1,500.0	1,475.3	1,502.3	1,489.1	5.0	4.1	165.67	144.4	9.5	90.8	85.2	5.62	16.172		
1,600.0	1,572.4	1,602.0	1,587.5	5.4	4.4	165.77	160.6	9.9	99.2	93.2	6.01	16.491		

Cathedral Energy Services

Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Well LR05C M15 595
Project:	Garfield County	TVD Reference:	KBE @ 8362.0ft (Patterson 302)
Reference Site:	M15 595	MD Reference:	KBE @ 8362.0ft (Patterson 302)
Site Error:	0.0ft	North Reference:	True
Reference Well:	LR05C M15 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 M15 595 - LR12D M15 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	169.61	-49.2	9.0	50.0					
100.0	100.0	100.0	100.0	0.1	0.1	169.61	-49.2	9.0	50.0	49.7	0.30	168.511		
200.0	200.0	200.0	200.0	0.3	0.3	169.61	-49.2	9.0	50.0	49.4	0.65	77.424 CC, ES		
300.0	300.0	300.0	300.0	0.5	0.5	174.93	-49.2	9.0	51.7	50.7	0.99	52.024		
400.0	399.8	399.8	399.8	0.7	0.7	175.38	-49.2	9.0	57.0	55.6	1.34	42.436		
500.0	499.5	499.5	499.5	0.9	0.8	175.98	-49.2	9.0	65.6	64.0	1.69	38.891		
600.0	598.7	599.8	599.7	1.2	1.0	175.42	-48.2	10.5	77.1	75.1	2.03	37.897 SF		
700.0	697.5	699.9	699.7	1.5	1.2	173.12	-45.4	14.9	90.8	88.4	2.39	37.955		

Cathedral Energy Services

Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Well LR05C M15 595
Project:	Garfield County	TVD Reference:	KBE @ 8362.0ft (Patterson 302)
Reference Site:	M15 595	MD Reference:	KBE @ 8362.0ft (Patterson 302)
Site Error:	0.0ft	North Reference:	True
Reference Well:	LR05C M15 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 M15 595 - LR13A M15 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	169.57	-68.9	12.7	70.0				
100.0	100.0	100.0	100.0	0.1	0.1	169.57	-68.9	12.7	70.0	69.7	0.30	235.958	
200.0	200.0	200.0	200.0	0.3	0.3	169.57	-68.9	12.7	70.0	69.4	0.65	108.413 CC, ES	
300.0	300.0	300.0	300.0	0.5	0.5	174.83	-68.9	12.7	71.7	70.8	0.99	72.146	
400.0	399.8	399.8	399.8	0.7	0.7	175.18	-68.9	12.7	77.0	75.6	1.34	57.345	
500.0	499.5	499.5	499.5	0.9	0.8	175.65	-68.9	12.7	85.6	84.0	1.69	50.743	
600.0	598.7	596.9	596.9	1.2	1.0	175.36	-69.5	14.2	98.7	96.7	2.03	48.636 SF	

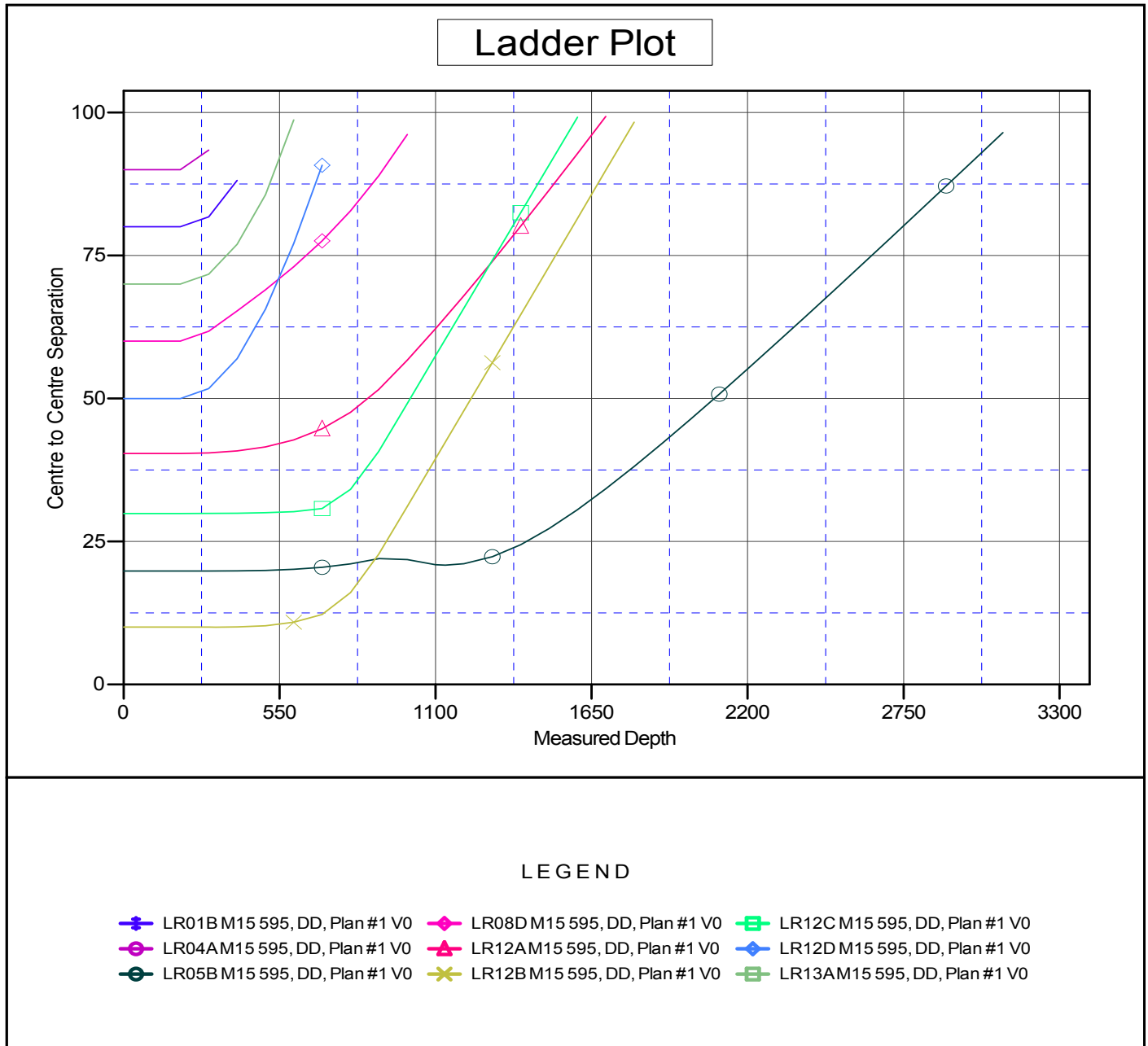
Cathedral Energy Services

Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Well LR05C M15 595
Project:	Garfield County	TVD Reference:	KBE @ 8362.0ft (Patterson 302)
Reference Site:	M15 595	MD Reference:	KBE @ 8362.0ft (Patterson 302)
Site Error:	0.0ft	North Reference:	True
Reference Well:	LR05C M15 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 @ 8362.0ft (Patterson 302)
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000 °

Coordinates are relative to: LR05C M15 595
Coordinate System is US State Plane 1983, Colorado Central Zone
Grid Convergence at Surface is: -1.61°



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