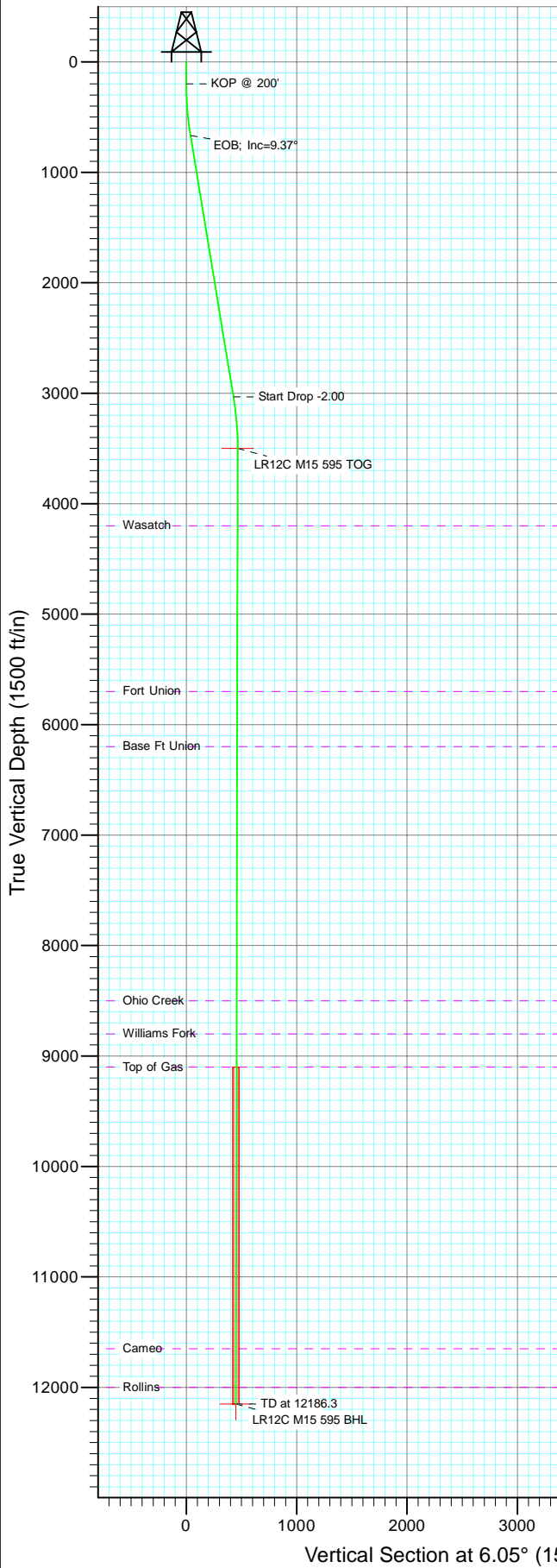


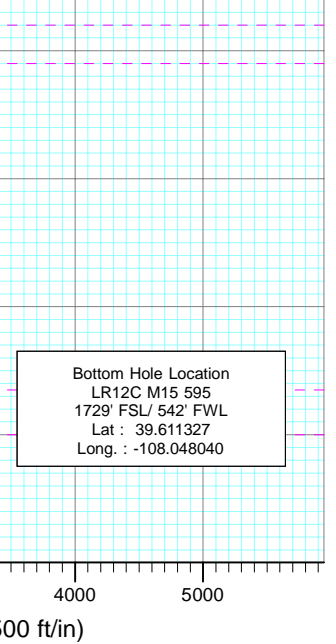
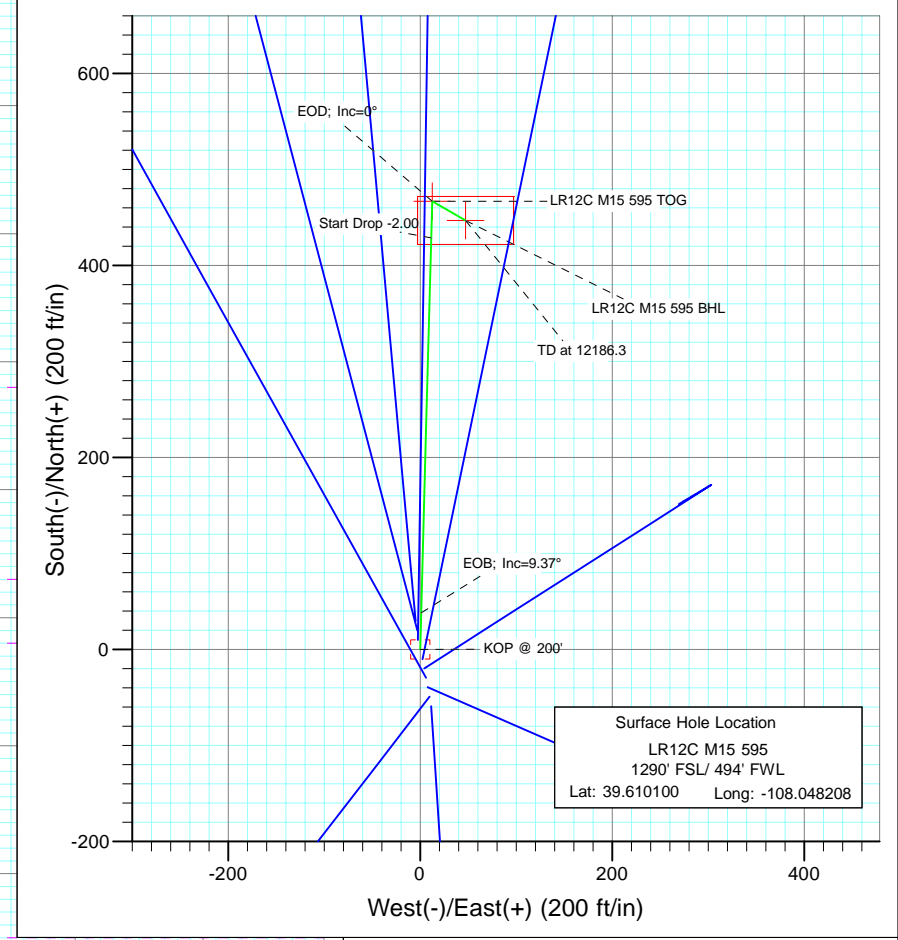


Project: Garfield County  
 Site: M15 595  
 Well: LR12C M15 595  
 Wellbore: DD  
 Design: Plan #1



SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSection	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	668.5	9.37	1.55	666.4	38.2	1.0	2.00	1.55	38.1	
4	3067.7	9.37	1.55	3033.6	428.7	11.6	0.00	0.00	427.5	
5	3536.2	0.00	0.00	3500.0	466.9	12.7	2.00	180.00	465.6	LR12C M15 595 TOG
6	3642.9	0.27	119.91	3606.7	466.8	12.9	0.25	119.91	465.5	
7	12186.3	0.27	119.91	12150.0	446.9	47.3	0.00	0.00	449.4	LR12C 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
4200.0	4236.2	Wasatch
5700.0	5736.2	Fort Union
6200.0	6236.2	Base Ft Union
8500.0	8536.2	Ohio Creek
8800.0	8836.2	Williams Fork
9100.0	9136.2	Top of Gas
11650.0	11686.3	Cameo
12000.0	12036.3	Rollins

DESIGN DETAILS: Plan #1

105XXX; BH  
 KBE @ 8362.0ft (Original Well Elev)

Target	Azimuth	Origin	N/S	E/W	From TVD
LR12C M15 595 BHL	6.05	Slot	0.0	0.0	0.0

# Cathedral Energy Services

## Planning Report

<b>Database:</b> EDM 5000.1 US Multi Users DB	<b>Local Co-ordinate Reference:</b> Well LR12C M15 595
<b>Company:</b> Berry Petroleum Company (NAD 83)	<b>TVD Reference:</b> KBE @ 8362.0ft (Original Well Elev)
<b>Project:</b> Garfield County	<b>MD Reference:</b> KBE @ 8362.0ft (Original Well Elev)
<b>Site:</b> M15 595	<b>North Reference:</b> True
<b>Well:</b> LR12C M15 595	<b>Survey Calculation Method:</b> Minimum Curvature
<b>Wellbore:</b> DD	
<b>Design:</b> Plan #1	

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

<b>Site</b> M15 595				
<b>Site Position:</b>	<b>Northing:</b> 1,657,208.58 ft	<b>Latitude:</b> 39.610181		
<b>From:</b> Lat/Long	<b>Easting:</b> 2,282,155.00 ft	<b>Longitude:</b> -108.048225		
<b>Position Uncertainty:</b> 0.0 ft	<b>Slot Radius:</b> 13.200 in	<b>Grid Convergence:</b> -1.61 °		

<b>Well</b> LR12C M15 595				
<b>Well Position</b>	<b>+N/-S</b> 0.0 ft	<b>Northing:</b> 1,657,178.94 ft	<b>Latitude:</b> 39.610100	
	<b>+E/-W</b> 0.0 ft	<b>Easting:</b> 2,282,158.96 ft	<b>Longitude:</b> -108.048208	
<b>Position Uncertainty</b>	0.0 ft	<b>Wellhead Elevation:</b> ft	<b>Ground Level:</b> 8,347.0 ft	

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

<b>Design</b> Plan #1				
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b> PLAN	<b>Tie On Depth:</b> 0.0		
<b>Vertical Section:</b>	<b>Depth From (TVD)</b>	<b>+N/-S</b>	<b>+E/-W</b>	<b>Direction</b>
	(ft)	(ft)	(ft)	(°)
	0.0	0.0	0.0	6.05

<b>Plan Sections</b>										
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	
668.5	9.37	1.55	666.4	38.2	1.0	2.00	2.00	0.00	1.55	
3,067.7	9.37	1.55	3,033.6	428.7	11.6	0.00	0.00	0.00	0.00	
3,536.2	0.00	0.00	3,500.0	466.9	12.7	2.00	-2.00	0.00	180.00	LR12C M15 595 TOG
3,642.9	0.27	119.91	3,606.7	466.8	12.9	0.25	0.25	112.41	119.91	
12,186.3	0.27	119.91	12,150.0	446.9	47.3	0.00	0.00	0.00	0.00	LR12C M15 595 BHL

# Cathedral Energy Services

## Planning Report

<b>Database:</b>	EDM 5000.1 US Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well LR12C M15 595
<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>TVD Reference:</b>	KBE @ 8362.0ft (Original Well Elev)
<b>Project:</b>	Garfield County	<b>MD Reference:</b>	KBE @ 8362.0ft (Original Well Elev)
<b>Site:</b>	M15 595	<b>North Reference:</b>	True
<b>Well:</b>	LR12C M15 595	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	DD		
<b>Design:</b>	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	1.55	210.0	0.0	0.0	0.0	2.00	2.00	
240.0	0.80	1.55	240.0	0.3	0.0	0.3	2.00	2.00	
270.0	1.40	1.55	270.0	0.9	0.0	0.9	2.00	2.00	
300.0	2.00	1.55	300.0	1.7	0.0	1.7	2.00	2.00	
330.0	2.60	1.55	330.0	2.9	0.1	2.9	2.00	2.00	
360.0	3.20	1.55	359.9	4.5	0.1	4.5	2.00	2.00	
390.0	3.80	1.55	389.9	6.3	0.2	6.3	2.00	2.00	
420.0	4.40	1.55	419.8	8.4	0.2	8.4	2.00	2.00	
450.0	5.00	1.55	449.7	10.9	0.3	10.9	2.00	2.00	
480.0	5.60	1.55	479.6	13.7	0.4	13.6	2.00	2.00	
510.0	6.20	1.55	509.4	16.8	0.5	16.7	2.00	2.00	
540.0	6.80	1.55	539.2	20.1	0.5	20.1	2.00	2.00	
570.0	7.40	1.55	569.0	23.9	0.6	23.8	2.00	2.00	
600.0	8.00	1.55	598.7	27.9	0.8	27.8	2.00	2.00	
630.0	8.60	1.55	628.4	32.2	0.9	32.1	2.00	2.00	
660.0	9.20	1.55	658.0	36.8	1.0	36.7	2.00	2.00	
668.5	9.37	1.55	666.4	38.2	1.0	38.1	2.00	2.00	EOB; Inc=9.37°
690.0	9.37	1.55	687.6	41.7	1.1	41.6	0.00	0.00	
720.0	9.37	1.55	717.2	46.6	1.3	46.5	0.00	0.00	
750.0	9.37	1.55	746.8	51.5	1.4	51.3	0.00	0.00	
780.0	9.37	1.55	776.4	56.4	1.5	56.2	0.00	0.00	
810.0	9.37	1.55	806.0	61.2	1.7	61.1	0.00	0.00	
840.0	9.37	1.55	835.6	66.1	1.8	65.9	0.00	0.00	
870.0	9.37	1.55	865.2	71.0	1.9	70.8	0.00	0.00	
900.0	9.37	1.55	894.8	75.9	2.1	75.7	0.00	0.00	
930.0	9.37	1.55	924.4	80.8	2.2	80.6	0.00	0.00	
960.0	9.37	1.55	954.0	85.7	2.3	85.4	0.00	0.00	
990.0	9.37	1.55	983.6	90.5	2.5	90.3	0.00	0.00	
1,020.0	9.37	1.55	1,013.2	95.4	2.6	95.2	0.00	0.00	
1,050.0	9.37	1.55	1,042.8	100.3	2.7	100.0	0.00	0.00	
1,080.0	9.37	1.55	1,072.4	105.2	2.8	104.9	0.00	0.00	
1,110.0	9.37	1.55	1,102.0	110.1	3.0	109.8	0.00	0.00	
1,140.0	9.37	1.55	1,131.6	114.9	3.1	114.6	0.00	0.00	
1,170.0	9.37	1.55	1,161.2	119.8	3.2	119.5	0.00	0.00	
1,200.0	9.37	1.55	1,190.8	124.7	3.4	124.4	0.00	0.00	
1,230.0	9.37	1.55	1,220.4	129.6	3.5	129.2	0.00	0.00	
1,260.0	9.37	1.55	1,250.0	134.5	3.6	134.1	0.00	0.00	
1,290.0	9.37	1.55	1,279.6	139.4	3.8	139.0	0.00	0.00	
1,320.0	9.37	1.55	1,309.2	144.2	3.9	143.9	0.00	0.00	
1,350.0	9.37	1.55	1,338.8	149.1	4.0	148.7	0.00	0.00	
1,380.0	9.37	1.55	1,368.4	154.0	4.2	153.6	0.00	0.00	
1,410.0	9.37	1.55	1,398.0	158.9	4.3	158.5	0.00	0.00	
1,440.0	9.37	1.55	1,427.6	163.8	4.4	163.3	0.00	0.00	
1,470.0	9.37	1.55	1,457.2	168.7	4.6	168.2	0.00	0.00	

# Cathedral Energy Services

## Planning Report

<b>Database:</b>	EDM 5000.1 US Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well LR12C M15 595
<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>TVD Reference:</b>	KBE @ 8362.0ft (Original Well Elev)
<b>Project:</b>	Garfield County	<b>MD Reference:</b>	KBE @ 8362.0ft (Original Well Elev)
<b>Site:</b>	M15 595	<b>North Reference:</b>	True
<b>Well:</b>	LR12C M15 595	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	DD		
<b>Design:</b>	Plan #1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
1,500.0	9.37	1.55	1,486.8	173.5	4.7	173.1	0.00	0.00	
1,530.0	9.37	1.55	1,516.4	178.4	4.8	177.9	0.00	0.00	
1,560.0	9.37	1.55	1,546.0	183.3	5.0	182.8	0.00	0.00	
1,590.0	9.37	1.55	1,575.6	188.2	5.1	187.7	0.00	0.00	
1,620.0	9.37	1.55	1,605.2	193.1	5.2	192.5	0.00	0.00	
1,650.0	9.37	1.55	1,634.8	198.0	5.4	197.4	0.00	0.00	
1,680.0	9.37	1.55	1,664.4	202.8	5.5	202.3	0.00	0.00	
1,710.0	9.37	1.55	1,694.0	207.7	5.6	207.2	0.00	0.00	
1,740.0	9.37	1.55	1,723.6	212.6	5.8	212.0	0.00	0.00	
1,770.0	9.37	1.55	1,753.2	217.5	5.9	216.9	0.00	0.00	
1,800.0	9.37	1.55	1,782.8	222.4	6.0	221.8	0.00	0.00	
1,830.0	9.37	1.55	1,812.4	227.3	6.2	226.6	0.00	0.00	
1,860.0	9.37	1.55	1,842.0	232.1	6.3	231.5	0.00	0.00	
1,890.0	9.37	1.55	1,871.6	237.0	6.4	236.4	0.00	0.00	
1,920.0	9.37	1.55	1,901.2	241.9	6.6	241.2	0.00	0.00	
1,950.0	9.37	1.55	1,930.8	246.8	6.7	246.1	0.00	0.00	
1,980.0	9.37	1.55	1,960.4	251.7	6.8	251.0	0.00	0.00	
2,010.0	9.37	1.55	1,990.0	256.5	7.0	255.9	0.00	0.00	
2,040.0	9.37	1.55	2,019.6	261.4	7.1	260.7	0.00	0.00	
2,070.0	9.37	1.55	2,049.2	266.3	7.2	265.6	0.00	0.00	
2,100.0	9.37	1.55	2,078.8	271.2	7.3	270.5	0.00	0.00	
2,130.0	9.37	1.55	2,108.4	276.1	7.5	275.3	0.00	0.00	
2,160.0	9.37	1.55	2,138.0	281.0	7.6	280.2	0.00	0.00	
2,190.0	9.37	1.55	2,167.6	285.8	7.7	285.1	0.00	0.00	
2,220.0	9.37	1.55	2,197.2	290.7	7.9	289.9	0.00	0.00	
2,250.0	9.37	1.55	2,226.8	295.6	8.0	294.8	0.00	0.00	
2,280.0	9.37	1.55	2,256.4	300.5	8.1	299.7	0.00	0.00	
2,310.0	9.37	1.55	2,286.0	305.4	8.3	304.5	0.00	0.00	
2,340.0	9.37	1.55	2,315.6	310.3	8.4	309.4	0.00	0.00	
2,370.0	9.37	1.55	2,345.2	315.1	8.5	314.3	0.00	0.00	
2,400.0	9.37	1.55	2,374.8	320.0	8.7	319.2	0.00	0.00	
2,430.0	9.37	1.55	2,404.4	324.9	8.8	324.0	0.00	0.00	
2,460.0	9.37	1.55	2,434.0	329.8	8.9	328.9	0.00	0.00	
2,490.0	9.37	1.55	2,463.6	334.7	9.1	333.8	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
LR12C M15 595 BHL - hit/miss target - Shape	0.00	0.00	12,150.0	446.9	47.3	1,657,624.39	2,282,218.81	39.611327	-108.048040
- plan misses target center by 9687.1ft at 2490.0ft MD (2463.6 TVD, 334.7 N, 9.1 E)									
- Rectangle (sides W50.0 H100.0 D0.0)									
LR12C M15 595 TOG - hit/miss target - Shape	0.00	0.00	3,500.0	466.9	12.7	1,657,645.30	2,282,184.70	39.611382	-108.048163
- plan misses target center by 1044.8ft at 2490.0ft MD (2463.6 TVD, 334.7 N, 9.1 E)									
- Point									

# Cathedral Energy Services

## Planning Report

<b>Database:</b>	EDM 5000.1 US Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well LR12C M15 595
<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>TVD Reference:</b>	KBE @ 8362.0ft (Original Well Elev)
<b>Project:</b>	Garfield County	<b>MD Reference:</b>	KBE @ 8362.0ft (Original Well Elev)
<b>Site:</b>	M15 595	<b>North Reference:</b>	True
<b>Well:</b>	LR12C M15 595	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	DD		
<b>Design:</b>	Plan #1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
2,500.0	9.37	1.55	2,473.5	336.3	9.1	335.4	0.00	0.00	
2,600.0	9.37	1.55	2,572.1	352.6	9.6	351.6	0.00	0.00	
2,700.0	9.37	1.55	2,670.8	368.8	10.0	367.8	0.00	0.00	
2,800.0	9.37	1.55	2,769.5	385.1	10.4	384.1	0.00	0.00	
2,900.0	9.37	1.55	2,868.1	401.4	10.9	400.3	0.00	0.00	
3,000.0	9.37	1.55	2,966.8	417.7	11.3	416.5	0.00	0.00	
3,067.7	9.37	1.55	3,033.6	428.7	11.6	427.5	0.00	0.00	Start Drop -2.00
3,100.0	8.72	1.55	3,065.5	433.8	11.8	432.6	2.00	-2.00	
3,200.0	6.72	1.55	3,164.6	447.2	12.1	446.0	2.00	-2.00	
3,300.0	4.72	1.55	3,264.1	457.2	12.4	455.9	2.00	-2.00	
3,400.0	2.72	1.55	3,363.9	463.7	12.6	462.4	2.00	-2.00	
3,500.0	0.72	1.55	3,463.8	466.7	12.6	465.4	2.00	-2.00	
3,536.2	0.00	0.00	3,500.0	466.9	12.7	465.6	2.00	-2.00	EOD; Inc=0° - LR12C M15 595 TOG
3,600.0	0.16	119.91	3,563.8	466.9	12.7	465.6	0.25	0.25	
3,642.9	0.27	119.91	3,606.7	466.8	12.9	465.5	0.25	0.25	
3,700.0	0.27	119.91	3,663.8	466.6	13.1	465.4	0.00	0.00	
3,800.0	0.27	119.91	3,763.8	466.4	13.5	465.2	0.00	0.00	
3,900.0	0.27	119.91	3,863.8	466.2	13.9	465.1	0.00	0.00	
4,000.0	0.27	119.91	3,963.8	465.9	14.3	464.9	0.00	0.00	
4,100.0	0.27	119.91	4,063.8	465.7	14.7	464.7	0.00	0.00	
4,200.0	0.27	119.91	4,163.8	465.5	15.1	464.5	0.00	0.00	
4,236.2	0.27	119.91	4,200.0	465.4	15.3	464.4	0.00	0.00	Wasatch
4,300.0	0.27	119.91	4,263.8	465.3	15.5	464.3	0.00	0.00	
4,400.0	0.27	119.91	4,363.8	465.0	15.9	464.1	0.00	0.00	
4,500.0	0.27	119.91	4,463.8	464.8	16.3	463.9	0.00	0.00	
4,600.0	0.27	119.91	4,563.8	464.6	16.7	463.7	0.00	0.00	
4,700.0	0.27	119.91	4,663.8	464.3	17.1	463.5	0.00	0.00	
4,800.0	0.27	119.91	4,763.8	464.1	17.5	463.4	0.00	0.00	
4,900.0	0.27	119.91	4,863.8	463.9	17.9	463.2	0.00	0.00	
5,000.0	0.27	119.91	4,963.8	463.6	18.3	463.0	0.00	0.00	
5,100.0	0.27	119.91	5,063.8	463.4	18.7	462.8	0.00	0.00	
5,200.0	0.27	119.91	5,163.8	463.2	19.1	462.6	0.00	0.00	
5,300.0	0.27	119.91	5,263.8	462.9	19.6	462.4	0.00	0.00	
5,400.0	0.27	119.91	5,363.8	462.7	20.0	462.2	0.00	0.00	
5,500.0	0.27	119.91	5,463.8	462.5	20.4	462.0	0.00	0.00	
5,600.0	0.27	119.91	5,563.8	462.2	20.8	461.8	0.00	0.00	
5,700.0	0.27	119.91	5,663.8	462.0	21.2	461.7	0.00	0.00	
5,736.2	0.27	119.91	5,700.0	461.9	21.3	461.6	0.00	0.00	Fort Union
5,800.0	0.27	119.91	5,763.8	461.8	21.6	461.5	0.00	0.00	
5,900.0	0.27	119.91	5,863.8	461.5	22.0	461.3	0.00	0.00	
6,000.0	0.27	119.91	5,963.8	461.3	22.4	461.1	0.00	0.00	
6,100.0	0.27	119.91	6,063.8	461.1	22.8	460.9	0.00	0.00	
6,200.0	0.27	119.91	6,163.8	460.8	23.2	460.7	0.00	0.00	
6,236.2	0.27	119.91	6,200.0	460.8	23.3	460.7	0.00	0.00	Base Ft Union
6,300.0	0.27	119.91	6,263.8	460.6	23.6	460.5	0.00	0.00	
6,400.0	0.27	119.91	6,363.8	460.4	24.0	460.3	0.00	0.00	
6,500.0	0.27	119.91	6,463.8	460.1	24.4	460.2	0.00	0.00	
6,600.0	0.27	119.91	6,563.8	459.9	24.8	460.0	0.00	0.00	
6,700.0	0.27	119.91	6,663.8	459.7	25.2	459.8	0.00	0.00	
6,800.0	0.27	119.91	6,763.8	459.4	25.6	459.6	0.00	0.00	
6,900.0	0.27	119.91	6,863.8	459.2	26.0	459.4	0.00	0.00	
7,000.0	0.27	119.91	6,963.8	459.0	26.4	459.2	0.00	0.00	

# Cathedral Energy Services

## Planning Report

<b>Database:</b>	EDM 5000.1 US Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well LR12C M15 595
<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>TVD Reference:</b>	KBE @ 8362.0ft (Original Well Elev)
<b>Project:</b>	Garfield County	<b>MD Reference:</b>	KBE @ 8362.0ft (Original Well Elev)
<b>Site:</b>	M15 595	<b>North Reference:</b>	True
<b>Well:</b>	LR12C M15 595	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	DD		
<b>Design:</b>	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	0.27	119.91	7,063.8	458.8	26.8	459.0	0.00	0.00	
7,200.0	0.27	119.91	7,163.8	458.5	27.2	458.8	0.00	0.00	
7,300.0	0.27	119.91	7,263.8	458.3	27.6	458.6	0.00	0.00	
7,400.0	0.27	119.91	7,363.8	458.1	28.0	458.5	0.00	0.00	
7,500.0	0.27	119.91	7,463.8	457.8	28.4	458.3	0.00	0.00	
7,600.0	0.27	119.91	7,563.8	457.6	28.8	458.1	0.00	0.00	
7,700.0	0.27	119.91	7,663.8	457.4	29.2	457.9	0.00	0.00	
7,800.0	0.27	119.91	7,763.8	457.1	29.6	457.7	0.00	0.00	
7,900.0	0.27	119.91	7,863.8	456.9	30.0	457.5	0.00	0.00	
8,000.0	0.27	119.91	7,963.8	456.7	30.4	457.3	0.00	0.00	
8,100.0	0.27	119.91	8,063.8	456.4	30.8	457.1	0.00	0.00	
8,200.0	0.27	119.91	8,163.8	456.2	31.3	457.0	0.00	0.00	
8,300.0	0.27	119.91	8,263.8	456.0	31.7	456.8	0.00	0.00	
8,400.0	0.27	119.91	8,363.8	455.7	32.1	456.6	0.00	0.00	
8,500.0	0.27	119.91	8,463.8	455.5	32.5	456.4	0.00	0.00	
8,536.2	0.27	119.91	8,500.0	455.4	32.6	456.3	0.00	0.00	Ohio Creek
8,600.0	0.27	119.91	8,563.8	455.3	32.9	456.2	0.00	0.00	
8,700.0	0.27	119.91	8,663.8	455.0	33.3	456.0	0.00	0.00	
8,800.0	0.27	119.91	8,763.8	454.8	33.7	455.8	0.00	0.00	
8,836.2	0.27	119.91	8,800.0	454.7	33.8	455.8	0.00	0.00	Williams Fork
8,900.0	0.27	119.91	8,863.8	454.6	34.1	455.6	0.00	0.00	
9,000.0	0.27	119.91	8,963.8	454.3	34.5	455.4	0.00	0.00	
9,100.0	0.27	119.91	9,063.8	454.1	34.9	455.3	0.00	0.00	
9,136.2	0.27	119.91	9,100.0	454.0	35.0	455.2	0.00	0.00	Top of Gas
9,200.0	0.27	119.91	9,163.8	453.9	35.3	455.1	0.00	0.00	
9,300.0	0.27	119.91	9,263.8	453.6	35.7	454.9	0.00	0.00	
9,400.0	0.27	119.91	9,363.8	453.4	36.1	454.7	0.00	0.00	
9,500.0	0.27	119.91	9,463.8	453.2	36.5	454.5	0.00	0.00	
9,600.0	0.27	119.91	9,563.8	453.0	36.9	454.3	0.00	0.00	
9,700.0	0.27	119.91	9,663.7	452.7	37.3	454.1	0.00	0.00	
9,800.0	0.27	119.91	9,763.7	452.5	37.7	453.9	0.00	0.00	
9,900.0	0.27	119.91	9,863.7	452.3	38.1	453.8	0.00	0.00	
10,000.0	0.27	119.91	9,963.7	452.0	38.5	453.6	0.00	0.00	
10,100.0	0.27	119.91	10,063.7	451.8	38.9	453.4	0.00	0.00	
10,200.0	0.27	119.91	10,163.7	451.6	39.3	453.2	0.00	0.00	
10,300.0	0.27	119.91	10,263.7	451.3	39.7	453.0	0.00	0.00	
10,400.0	0.27	119.91	10,363.7	451.1	40.1	452.8	0.00	0.00	
10,500.0	0.27	119.91	10,463.7	450.9	40.5	452.6	0.00	0.00	
10,600.0	0.27	119.91	10,563.7	450.6	40.9	452.4	0.00	0.00	
10,700.0	0.27	119.91	10,663.7	450.4	41.3	452.2	0.00	0.00	
10,800.0	0.27	119.91	10,763.7	450.2	41.7	452.1	0.00	0.00	
10,900.0	0.27	119.91	10,863.7	449.9	42.1	451.9	0.00	0.00	
11,000.0	0.27	119.91	10,963.7	449.7	42.5	451.7	0.00	0.00	
11,100.0	0.27	119.91	11,063.7	449.5	42.9	451.5	0.00	0.00	
11,200.0	0.27	119.91	11,163.7	449.2	43.4	451.3	0.00	0.00	
11,300.0	0.27	119.91	11,263.7	449.0	43.8	451.1	0.00	0.00	
11,400.0	0.27	119.91	11,363.7	448.8	44.2	450.9	0.00	0.00	
11,500.0	0.27	119.91	11,463.7	448.5	44.6	450.7	0.00	0.00	
11,600.0	0.27	119.91	11,563.7	448.3	45.0	450.6	0.00	0.00	
11,686.3	0.27	119.91	11,650.0	448.1	45.3	450.4	0.00	0.00	Cameo
11,700.0	0.27	119.91	11,663.7	448.1	45.4	450.4	0.00	0.00	
11,800.0	0.27	119.91	11,763.7	447.8	45.8	450.2	0.00	0.00	

# Cathedral Energy Services

## Planning Report

<b>Database:</b> EDM 5000.1 US Multi Users DB	<b>Local Co-ordinate Reference:</b> Well LR12C M15 595
<b>Company:</b> Berry Petroleum Company (NAD 83)	<b>TVD Reference:</b> KBE @ 8362.0ft (Original Well Elev)
<b>Project:</b> Garfield County	<b>MD Reference:</b> KBE @ 8362.0ft (Original Well Elev)
<b>Site:</b> M15 595	<b>North Reference:</b> True
<b>Well:</b> LR12C M15 595	<b>Survey Calculation Method:</b> Minimum Curvature
<b>Wellbore:</b> DD	
<b>Design:</b> Plan #1	

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
11,900.0	0.27	119.91	11,863.7	447.6	46.2	450.0	0.00	0.00	
12,000.0	0.27	119.91	11,963.7	447.4	46.6	449.8	0.00	0.00	
12,036.3	0.27	119.91	12,000.0	447.3	46.7	449.7	0.00	0.00	Rollins
12,100.0	0.27	119.91	12,063.7	447.1	47.0	449.6	0.00	0.00	
12,186.3	0.27	119.91	12,150.0	446.9	47.3	449.4	0.00	0.00	LR12C M15 595 BHL

Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
LR12C M15 595 BHL - hit/miss target - Shape - plan hits target center - Rectangle (sides W50.0 H100.0 D0.0)	0.00	0.00	12,150.0	446.9	47.3	1,657,624.39	2,282,218.81	39.611327	-108.048040
LR12C M15 595 TOG - plan hits target center - Point	0.00	0.00	3,500.0	466.9	12.7	1,657,645.30	2,282,184.70	39.611382	-108.048163

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
4,236.2	4,200.0	Wasatch		0.00	
5,736.2	5,700.0	Fort Union		0.00	
6,236.2	6,200.0	Base Ft Union		0.00	
8,536.2	8,500.0	Ohio Creek		0.00	
8,836.2	8,800.0	Williams Fork		0.00	
9,136.2	9,100.0	Top of Gas		0.00	
11,686.3	11,650.0	Cameo		0.00	
12,036.3	12,000.0	Rollins		0.00	

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Comment
200.0	200.0	0.0	0.0	KOP @ 200'
668.5	666.4	38.2	1.0	EOB; Inc=9.37°
3,067.7	3,033.6	428.7	11.6	Start Drop -2.00
3,536.2	3,500.0	466.9	12.7	EOD; Inc=0°
12,186.3	12,150.0	466.8	12.9	TD at 12186.3

# **Berry Petroleum Company**

**(NAD 83)**

**Garfield County**

**M15 595**

**LR12C M15 595**

**DD**

**Plan #1**

## **Anticollision Report**

**30 June, 2010**



# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>Local Co-ordinate Reference:</b>	Well LR12C M15 595
<b>Project:</b>	Garfield County	<b>TVD Reference:</b>	KBE @ 8362.0ft (Original Well Elev)
<b>Reference Site:</b>	M15 595	<b>MD Reference:</b>	KBE @ 8362.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	LR12C M15 595	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	DD	<b>Database:</b>	EDM 5000.1 US Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

<b>Reference</b>	Plan #1		
<b>Filter type:</b>	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
<b>Interpolation Method:</b>	Stations	<b>Error Model:</b>	Systematic Ellipse
<b>Depth Range:</b>	Unlimited	<b>Scan Method:</b>	Closest Approach 3D
<b>Results Limited by:</b>	Maximum center-center distance of 100.0ft	<b>Error Surface:</b>	Elliptical Conic
<b>Warning Levels Evaluated at:</b>	2.00 Sigma		

<b>Survey Tool Program</b>	<b>Date</b>	6/30/2010		
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>
0.0	12,186.3	Plan #1 (DD)	MWD	Geolink MWD

Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
<b>Summary</b>						
<b>Offset Well - Wellbore - Design</b>						
M15 595						
LR01B M15 595 - DD - Plan #1	200.0	200.0	50.2	49.5	77.664	CC, ES
LR01B M15 595 - DD - Plan #1	500.0	496.0	70.5	68.8	41.688	SF
LR04A M15 595 - DD - Plan #1	200.0	200.0	60.1	59.5	93.112	CC, ES
LR04A M15 595 - DD - Plan #1	500.0	490.8	90.7	89.0	54.191	SF
LR05B M15 595 - DD - Plan #1	627.9	626.4	10.1	7.9	4.655	CC
LR05B M15 595 - DD - Plan #1	668.5	666.9	10.1	7.8	4.349	ES
LR05B M15 595 - DD - Plan #1	700.0	698.3	10.2	7.8	4.204	SF
LR05C M15 595 - DD - Plan #1	200.0	200.0	29.9	29.2	46.294	CC
LR05C M15 595 - DD - Plan #1	668.5	663.7	30.4	28.1	13.166	ES
LR05C M15 595 - DD - Plan #1	800.0	793.7	33.8	31.0	11.928	SF
LR08D M15 595 - DD - Plan #1	200.0	200.0	30.1	29.5	46.686	CC
LR08D M15 595 - DD - Plan #1	400.0	402.0	30.4	29.1	22.531	ES
LR08D M15 595 - DD - Plan #1	1,100.0	1,102.4	64.3	58.7	11.402	SF
LR12A M15 595 - DD - Plan #1	200.0	200.0	10.5	9.9	16.274	CC
LR12A M15 595 - DD - Plan #1	300.0	300.3	10.6	9.6	10.657	ES
LR12A M15 595 - DD - Plan #1	900.0	901.5	18.0	13.5	4.067	SF
LR12B M15 595 - DD - Plan #1	200.0	200.0	19.9	19.2	30.770	CC
LR12B M15 595 - DD - Plan #1	400.0	398.6	20.0	18.6	14.883	ES
LR12B M15 595 - DD - Plan #1	2,500.0	2,494.5	99.6	85.1	6.879	SF
LR12D M15 595 - DD - Plan #1	200.0	200.0	20.1	19.5	31.154	CC, ES
LR12D M15 595 - DD - Plan #1	500.0	500.0	31.9	30.1	17.804	SF
LR13A M15 595 - DD - Plan #1	200.0	200.0	40.1	39.5	62.138	CC, ES
LR13A M15 595 - DD - Plan #1	500.0	499.5	55.5	53.8	32.869	SF

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

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>Local Co-ordinate Reference:</b>	Well LR12C M15 595
<b>Project:</b>	Garfield County	<b>TVD Reference:</b>	KBE @ 8362.0ft (Original Well Elev)
<b>Reference Site:</b>	M15 595	<b>MD Reference:</b>	KBE @ 8362.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	LR12C M15 595	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	DD	<b>Database:</b>	EDM 5000.1 US Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	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															
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning		
0.0	0.0	0.0	0.0	0.0	0.0	168.66	-49.2	9.9	50.2						
100.0	100.0	100.0	100.0	0.1	0.1	168.66	-49.2	9.9	50.2	49.9	0.30	169.033			
200.0	200.0	200.0	200.0	0.3	0.3	168.66	-49.2	9.9	50.2	49.5	0.65	77.664 CC, ES			
300.0	300.0	300.0	300.0	0.5	0.5	167.53	-49.2	9.9	51.9	50.9	0.99	52.136			
400.0	399.8	398.5	398.5	0.7	0.7	169.86	-50.5	8.8	58.2	56.8	1.34	43.343			
500.0	499.5	496.0	495.9	0.9	0.9	174.03	-54.5	5.8	70.5	68.8	1.69	41.688 SF			
600.0	598.7	592.0	591.5	1.2	1.1	178.39	-61.0	0.8	89.1	87.1	2.04	43.686			

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>Local Co-ordinate Reference:</b>	Well LR12C M15 595
<b>Project:</b>	Garfield County	<b>TVD Reference:</b>	KBE @ 8362.0ft (Original Well Elev)
<b>Reference Site:</b>	M15 595	<b>MD Reference:</b>	KBE @ 8362.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	LR12C M15 595	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	DD	<b>Database:</b>	EDM 5000.1 US Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	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								
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning		
0.0	0.0	0.0	0.0	0.0	0.0	168.92	-59.0	11.6	60.1						
100.0	100.0	100.0	100.0	0.1	0.1	168.92	-59.0	11.6	60.1	59.8	0.30	202.655			
200.0	200.0	200.0	200.0	0.3	0.3	168.92	-59.0	11.6	60.1	59.5	0.65	93.112 CC, ES			
300.0	300.0	297.8	297.8	0.5	0.5	167.89	-60.7	11.7	63.5	62.5	0.99	64.110			
400.0	399.8	395.0	394.8	0.7	0.7	169.15	-65.6	12.0	73.7	72.4	1.33	55.256			
500.0	499.5	490.8	490.3	0.9	0.9	170.60	-73.7	12.5	90.7	89.0	1.67	54.191 SF			

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>Local Co-ordinate Reference:</b>	Well LR12C M15 595
<b>Project:</b>	Garfield County	<b>TVD Reference:</b>	KBE @ 8362.0ft (Original Well Elev)
<b>Reference Site:</b>	M15 595	<b>MD Reference:</b>	KBE @ 8362.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	LR12C M15 595	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	DD	<b>Database:</b>	EDM 5000.1 US Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	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							
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	-12.91	9.8	-2.3	10.1					
100.0	100.0	100.0	100.0	0.1	0.1	-12.91	9.8	-2.3	10.1	9.8	0.30	34.006		
200.0	200.0	200.0	200.0	0.3	0.3	-12.91	9.8	-2.3	10.1	9.4	0.65	15.624		
300.0	300.0	299.7	299.6	0.5	0.5	-14.58	11.6	-2.2	10.1	9.1	0.99	10.146		
400.0	399.8	399.3	399.2	0.7	0.7	-14.94	16.8	-2.1	10.1	8.7	1.34	7.501		
500.0	499.5	499.0	498.4	0.9	0.9	-15.54	25.4	-2.0	10.1	8.4	1.70	5.935		
600.0	598.7	598.6	597.4	1.2	1.2	-16.37	37.5	-1.8	10.1	8.0	2.06	4.890		
627.9	626.3	626.4	624.8	1.3	1.3	-16.65	41.5	-1.8	10.1	7.9	2.17	4.655 CC		
668.5	666.4	666.9	664.9	1.4	1.4	-17.09	47.8	-1.7	10.1	7.8	2.32	4.349 ES		
700.0	697.5	698.3	695.8	1.5	1.5	-17.16	53.1	-1.6	10.2	7.8	2.44	4.204 SF		
800.0	796.2	797.9	793.5	1.8	1.9	-14.49	72.0	-1.3	13.0	10.2	2.80	4.642		
900.0	894.8	897.1	890.3	2.1	2.3	-10.58	94.2	-1.0	19.1	16.0	3.13	6.109		
1,000.0	993.5	995.9	985.7	2.4	2.8	-7.65	119.7	-0.6	28.8	25.3	3.47	8.293		
1,100.0	1,092.2	1,095.0	1,080.9	2.8	3.2	-5.87	147.3	-0.1	40.6	36.8	3.81	10.661		
1,200.0	1,190.8	1,194.3	1,176.2	3.1	3.7	-4.89	175.1	0.3	52.5	48.4	4.15	12.640		
1,300.0	1,289.5	1,293.6	1,271.5	3.4	4.2	-4.28	202.8	0.7	64.4	59.9	4.50	14.311		
1,400.0	1,388.2	1,392.8	1,366.9	3.8	4.7	-3.85	230.5	1.1	76.4	71.5	4.85	15.741		
1,500.0	1,486.8	1,492.1	1,462.2	4.1	5.3	-3.54	258.3	1.6	88.3	83.1	5.20	16.978		

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

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>Local Co-ordinate Reference:</b>	Well LR12C M15 595
<b>Project:</b>	Garfield County	<b>TVD Reference:</b>	KBE @ 8362.0ft (Original Well Elev)
<b>Reference Site:</b>	M15 595	<b>MD Reference:</b>	KBE @ 8362.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	LR12C M15 595	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	DD	<b>Database:</b>	EDM 5000.1 US Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	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								
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	-9.22	29.5	-4.8	29.9						
100.0	100.0	100.0	100.0	0.1	0.1	-9.22	29.5	-4.8	29.9	29.6	0.30	100.756			
200.0	200.0	200.0	200.0	0.3	0.3	-9.22	29.5	-4.8	29.9	29.2	0.65	46.294 CC			
300.0	300.0	299.0	298.9	0.5	0.5	-11.16	31.2	-4.9	29.9	28.9	0.99	30.118			
400.0	399.8	397.9	397.8	0.7	0.7	-12.31	36.3	-5.4	29.9	28.6	1.34	22.335			
500.0	499.5	496.9	496.4	0.9	0.9	-14.23	44.8	-6.2	30.0	28.3	1.69	17.757			
600.0	598.7	595.9	594.6	1.2	1.2	-16.88	56.7	-7.2	30.2	28.2	2.05	14.729			
668.5	666.4	663.7	661.6	1.4	1.4	-19.11	66.8	-8.1	30.4	28.1	2.31	13.166 ES			
700.0	697.5	694.8	692.4	1.5	1.5	-20.12	72.0	-8.6	30.7	28.3	2.43	12.612			
800.0	796.2	793.7	789.5	1.8	1.8	-22.14	90.6	-10.3	33.8	31.0	2.84	11.928 SF			
900.0	894.8	892.3	885.5	2.1	2.3	-22.37	112.4	-12.3	40.3	37.1	3.24	12.453			
1,000.0	993.5	991.8	982.2	2.4	2.7	-21.92	136.3	-14.4	48.6	45.0	3.63	13.396			
1,100.0	1,092.2	1,091.5	1,078.9	2.8	3.1	-21.60	160.3	-16.6	57.0	52.9	4.03	14.152			
1,200.0	1,190.8	1,191.1	1,175.6	3.1	3.6	-21.36	184.3	-18.7	65.3	60.9	4.42	14.772			
1,300.0	1,289.5	1,290.8	1,272.3	3.4	4.0	-21.17	208.2	-20.9	73.6	68.8	4.82	15.288			
1,400.0	1,388.2	1,390.4	1,369.0	3.8	4.5	-21.02	232.2	-23.0	82.0	76.8	5.21	15.725			
1,500.0	1,486.8	1,490.1	1,465.7	4.1	4.9	-20.90	256.1	-25.2	90.3	84.7	5.61	16.099			
1,600.0	1,585.5	1,589.7	1,562.4	4.4	5.4	-20.80	280.1	-27.3	98.7	92.7	6.01	16.423			

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>Local Co-ordinate Reference:</b>	Well LR12C M15 595
<b>Project:</b>	Garfield County	<b>TVD Reference:</b>	KBE @ 8362.0ft (Original Well Elev)
<b>Reference Site:</b>	M15 595	<b>MD Reference:</b>	KBE @ 8362.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	LR12C M15 595	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	DD	<b>Database:</b>	EDM 5000.1 US Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	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								
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning		
0.0	0.0	0.0	0.0	0.0	0.0	168.14	-29.5	6.2	30.1						
100.0	100.0	100.0	100.0	0.1	0.1	168.14	-29.5	6.2	30.1	29.9	0.30	101.611			
200.0	200.0	200.0	200.0	0.3	0.3	168.14	-29.5	6.2	30.1	29.5	0.65	46.686 CC			
200.0	200.0	200.0	200.0	0.3	0.3	168.14	-29.5	6.2	30.1	29.5	0.65	46.684			
300.0	300.0	301.0	301.0	0.5	0.5	168.36	-27.9	5.3	30.2	29.2	1.00	30.271			
400.0	399.8	402.0	401.8	0.7	0.7	173.65	-23.3	2.7	30.4	29.1	1.35	22.531 ES			
500.0	499.5	502.8	502.2	0.9	0.9	-177.89	-15.5	-1.6	31.4	29.7	1.72	18.281			
600.0	598.7	603.5	602.2	1.2	1.2	-167.24	-4.7	-7.6	33.8	31.7	2.13	15.841			
668.5	666.4	672.4	670.2	1.4	1.4	-159.51	4.4	-12.7	36.6	34.2	2.48	14.769			
700.0	697.5	704.0	701.4	1.5	1.5	-155.94	9.1	-15.3	38.2	35.5	2.66	14.345			
800.0	796.2	804.1	799.7	1.8	1.9	-143.67	25.9	-24.7	42.8	39.5	3.35	12.804			
900.0	894.8	903.6	897.0	2.1	2.3	-132.51	43.9	-34.7	48.7	44.6	4.11	11.845			
1,000.0	993.5	1,003.0	994.2	2.4	2.7	-123.98	61.9	-44.7	56.0	51.2	4.89	11.471			
1,100.0	1,092.2	1,102.4	1,091.5	2.8	3.0	-117.52	79.9	-54.7	64.3	58.7	5.64	11.402 SF			
1,200.0	1,190.8	1,201.9	1,188.8	3.1	3.4	-112.57	97.9	-64.7	73.2	66.8	6.37	11.484			
1,300.0	1,289.5	1,301.3	1,286.1	3.4	3.8	-108.71	115.8	-74.7	82.5	75.4	7.09	11.636			
1,400.0	1,388.2	1,400.7	1,383.3	3.8	4.2	-105.64	133.8	-84.7	92.1	84.3	7.79	11.818			

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

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>Local Co-ordinate Reference:</b>	Well LR12C M15 595
<b>Project:</b>	Garfield County	<b>TVD Reference:</b>	KBE @ 8362.0ft (Original Well Elev)
<b>Reference Site:</b>	M15 595	<b>MD Reference:</b>	KBE @ 8362.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	LR12C M15 595	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	DD	<b>Database:</b>	EDM 5000.1 US Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	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								
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	166.04	-10.2	2.5	10.5						
100.0	100.0	100.0	100.0	0.1	0.1	166.04	-10.2	2.5	10.5	10.2	0.30	35.421			
200.0	200.0	200.0	200.0	0.3	0.3	166.04	-10.2	2.5	10.5	9.9	0.65	16.274	CC		
300.0	300.0	300.3	300.3	0.5	0.5	162.91	-8.5	2.9	10.6	9.6	1.00	10.657	ES		
400.0	399.8	400.7	400.5	0.7	0.7	158.38	-3.3	4.0	11.0	9.6	1.35	8.111			
500.0	499.5	501.0	500.4	0.9	0.9	151.54	5.3	5.7	11.7	10.0	1.74	6.743			
600.0	598.7	601.3	600.0	1.2	1.2	143.47	17.3	8.2	13.0	10.8	2.20	5.931			
668.5	666.4	670.0	667.9	1.4	1.4	137.85	27.5	10.3	14.3	11.7	2.57	5.552			
700.0	697.5	701.5	699.0	1.5	1.5	134.89	32.7	11.4	14.8	12.1	2.76	5.372			
800.0	796.2	801.7	797.3	1.8	1.9	119.52	51.4	15.3	16.0	12.4	3.54	4.513			
900.0	894.8	901.5	894.5	2.1	2.3	95.92	73.5	19.8	18.0	13.5	4.41	4.067	SF		
1,000.0	993.5	1,001.1	991.3	2.4	2.7	75.81	96.8	24.7	22.8	17.8	5.00	4.558			
1,100.0	1,092.2	1,100.8	1,088.0	2.8	3.2	63.66	120.2	29.5	29.4	24.0	5.41	5.428			
1,200.0	1,190.8	1,200.4	1,184.7	3.1	3.6	56.15	143.6	34.3	36.8	31.0	5.79	6.349			
1,300.0	1,289.5	1,300.0	1,281.5	3.4	4.0	51.21	166.9	39.2	44.6	38.4	6.18	7.218			
1,400.0	1,388.2	1,399.7	1,378.2	3.8	4.5	47.76	190.3	44.0	52.6	46.1	6.58	8.007			
1,500.0	1,486.8	1,499.3	1,474.9	4.1	4.9	45.23	213.7	48.8	60.8	53.9	6.98	8.713			
1,600.0	1,585.5	1,598.9	1,571.7	4.4	5.4	43.31	237.0	53.7	69.1	61.7	7.40	9.344			
1,700.0	1,684.2	1,698.6	1,668.4	4.8	5.8	41.80	260.4	58.5	77.5	69.6	7.82	9.909			
1,800.0	1,782.8	1,798.2	1,765.1	5.1	6.3	40.58	283.8	63.4	85.8	77.6	8.24	10.415			
1,900.0	1,881.5	1,897.8	1,861.9	5.4	6.7	39.58	307.1	68.2	94.3	85.6	8.67	10.871			

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>Local Co-ordinate Reference:</b>	Well LR12C M15 595
<b>Project:</b>	Garfield County	<b>TVD Reference:</b>	KBE @ 8362.0ft (Original Well Elev)
<b>Reference Site:</b>	M15 595	<b>MD Reference:</b>	KBE @ 8362.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	LR12C M15 595	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	DD	<b>Database:</b>	EDM 5000.1 US Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	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				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	-8.15	19.7	-2.8	19.9						
100.0	100.0	100.0	100.0	0.1	0.1	-8.15	19.7	-2.8	19.9	19.6	0.30	66.970			
200.0	200.0	200.0	200.0	0.3	0.3	-8.15	19.7	-2.8	19.9	19.2	0.65	30.770 CC			
219.1	219.1	219.0	219.0	0.4	0.4	-9.75	19.7	-2.8	19.9	19.2	0.71	27.897			
300.0	300.0	299.3	299.3	0.5	0.5	-11.11	21.3	-3.3	19.9	18.9	0.99	20.008			
400.0	399.8	398.6	398.5	0.7	0.7	-15.33	26.3	-4.6	20.0	18.6	1.34	14.883 ES			
500.0	499.5	497.9	497.3	0.9	0.9	-22.18	34.6	-6.8	20.4	18.7	1.70	11.990			
600.0	598.7	597.1	595.8	1.2	1.2	-31.14	46.2	-9.8	21.4	19.3	2.09	10.221			
668.5	666.4	665.1	663.0	1.4	1.4	-37.97	56.1	-12.4	22.6	20.2	2.41	9.381			
700.0	697.5	696.4	694.0	1.5	1.5	-40.97	61.1	-13.7	23.4	20.9	2.57	9.107			
800.0	796.2	796.3	792.5	1.8	1.8	-49.12	77.1	-17.9	26.5	23.3	3.14	8.433			
900.0	894.8	896.2	891.0	2.1	2.1	-55.50	93.1	-22.1	29.9	26.2	3.76	7.969			
1,000.0	993.5	996.1	989.5	2.4	2.5	-60.51	109.1	-26.3	33.7	29.3	4.40	7.651			
1,100.0	1,092.2	1,096.0	1,088.0	2.8	2.8	-64.50	125.1	-30.5	37.6	32.6	5.06	7.431			
1,200.0	1,190.8	1,195.9	1,186.5	3.1	3.1	-67.71	141.1	-34.8	41.7	36.0	5.73	7.279			
1,300.0	1,289.5	1,295.8	1,285.1	3.4	3.4	-70.35	157.1	-39.0	45.9	39.5	6.40	7.170			
1,400.0	1,388.2	1,395.7	1,383.6	3.8	3.8	-72.54	173.1	-43.2	50.2	43.1	7.08	7.093			
1,500.0	1,486.8	1,495.6	1,482.1	4.1	4.1	-74.38	189.0	-47.4	54.5	46.8	7.75	7.036			
1,600.0	1,585.5	1,595.5	1,580.6	4.4	4.4	-75.95	205.0	-51.6	58.9	50.5	8.43	6.994			
1,700.0	1,684.2	1,695.4	1,679.1	4.8	4.8	-77.30	221.0	-55.8	63.4	54.3	9.10	6.963			
1,800.0	1,782.8	1,795.2	1,777.6	5.1	5.1	-78.48	237.0	-60.0	67.8	58.1	9.78	6.939			
1,900.0	1,881.5	1,895.1	1,876.1	5.4	5.5	-79.50	253.0	-64.2	72.3	61.9	10.45	6.922			
2,000.0	1,980.1	1,995.0	1,974.6	5.7	5.8	-80.41	269.0	-68.4	76.8	65.7	11.12	6.909			
2,100.0	2,078.8	2,094.9	2,073.2	6.1	6.1	-81.22	285.0	-72.6	81.4	69.6	11.79	6.899			
2,200.0	2,177.5	2,194.8	2,171.7	6.4	6.5	-81.94	301.0	-76.8	85.9	73.4	12.46	6.891			
2,300.0	2,276.1	2,294.7	2,270.2	6.7	6.8	-82.59	317.0	-81.0	90.4	77.3	13.13	6.886			
2,400.0	2,374.8	2,394.6	2,368.7	7.1	7.1	-83.18	333.0	-85.2	95.0	81.2	13.81	6.882			
2,500.0	2,473.5	2,494.5	2,467.2	7.4	7.5	-83.71	349.0	-89.5	99.6	85.1	14.48	6.879 SF			

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



# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>Local Co-ordinate Reference:</b>	Well LR12C M15 595
<b>Project:</b>	Garfield County	<b>TVD Reference:</b>	KBE @ 8362.0ft (Original Well Elev)
<b>Reference Site:</b>	M15 595	<b>MD Reference:</b>	KBE @ 8362.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	LR12C M15 595	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	DD	<b>Database:</b>	EDM 5000.1 US Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	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								
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	167.87	-19.7	4.2	20.1						
100.0	100.0	100.0	100.0	0.1	0.1	167.87	-19.7	4.2	20.1	19.8	0.30	67.806			
200.0	200.0	200.0	200.0	0.3	0.3	167.87	-19.7	4.2	20.1	19.5	0.65	31.154 CC, ES			
300.0	300.0	300.2	300.2	0.5	0.5	163.00	-18.7	5.7	21.2	20.2	1.00	21.269			
400.0	399.8	400.3	400.1	0.7	0.7	154.94	-15.9	10.1	25.0	23.6	1.37	18.194			
500.0	499.5	500.0	499.5	0.9	0.9	145.98	-11.2	17.5	31.9	30.1	1.79	17.804 SF			
600.0	598.7	599.3	598.0	1.2	1.2	138.56	-4.7	27.7	42.3	40.0	2.28	18.580			
668.5	666.4	666.9	664.9	1.4	1.4	134.65	0.7	36.2	51.4	48.8	2.66	19.363			
700.0	697.5	697.9	695.4	1.5	1.5	133.07	3.5	40.6	56.1	53.2	2.84	19.769			
800.0	796.2	796.0	791.7	1.8	1.9	127.73	13.5	56.3	71.7	68.2	3.46	20.713			
900.0	894.8	894.5	888.1	2.1	2.2	123.43	24.3	73.2	88.2	84.1	4.10	21.518			

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>Local Co-ordinate Reference:</b>	Well LR12C M15 595
<b>Project:</b>	Garfield County	<b>TVD Reference:</b>	KBE @ 8362.0ft (Original Well Elev)
<b>Reference Site:</b>	M15 595	<b>MD Reference:</b>	KBE @ 8362.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	LR12C M15 595	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	DD	<b>Database:</b>	EDM 5000.1 US Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	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								
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning		
0.0	0.0	0.0	0.0	0.0	0.0	168.66	-39.3	7.9	40.1						
100.0	100.0	100.0	100.0	0.1	0.1	168.66	-39.3	7.9	40.1	39.8	0.30	135.241			
200.0	200.0	200.0	200.0	0.3	0.3	168.66	-39.3	7.9	40.1	39.5	0.65	62.138	CC, ES		
300.0	300.0	300.0	300.0	0.5	0.5	167.64	-39.3	7.9	41.8	40.8	0.99	42.056			
400.0	399.8	399.8	399.8	0.7	0.7	168.98	-39.3	7.9	47.0	45.6	1.34	34.967			
500.0	499.5	499.5	499.5	0.9	0.8	170.67	-39.3	7.9	55.5	53.8	1.69	32.869	SF		
600.0	598.7	597.5	597.5	1.2	1.0	171.07	-40.0	9.4	68.4	66.4	2.03	33.645			
668.5	666.4	664.1	664.0	1.4	1.1	170.28	-41.2	12.2	80.3	78.0	2.27	35.284			
700.0	697.5	694.5	694.4	1.5	1.2	169.74	-42.0	13.9	86.3	83.9	2.39	36.163			

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>Local Co-ordinate Reference:</b>	Well LR12C M15 595
<b>Project:</b>	Garfield County	<b>TVD Reference:</b>	KBE @ 8362.0ft (Original Well Elev)
<b>Reference Site:</b>	M15 595	<b>MD Reference:</b>	KBE @ 8362.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	LR12C M15 595	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	DD	<b>Database:</b>	EDM 5000.1 US Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Reference Depths are relative to KBE @ 8362.0ft (Original Well Elev)  
 Offset Depths are relative to Offset Datum  
 Central Meridian is -105.500000 °

Coordinates are relative to: LR12C M15 595  
 Coordinate System is US State Plane 1983, Colorado Central Zone  
 Grid Convergence at Surface is: -1.61°

