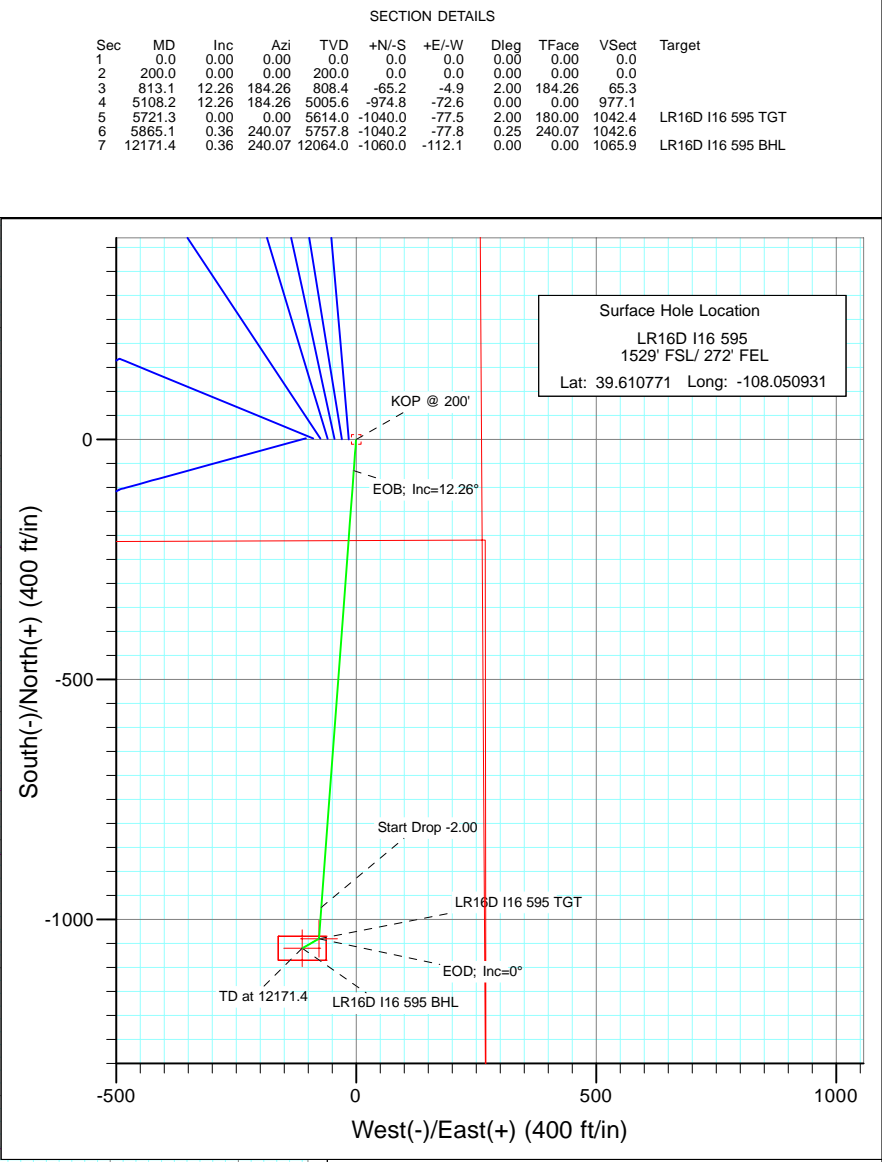
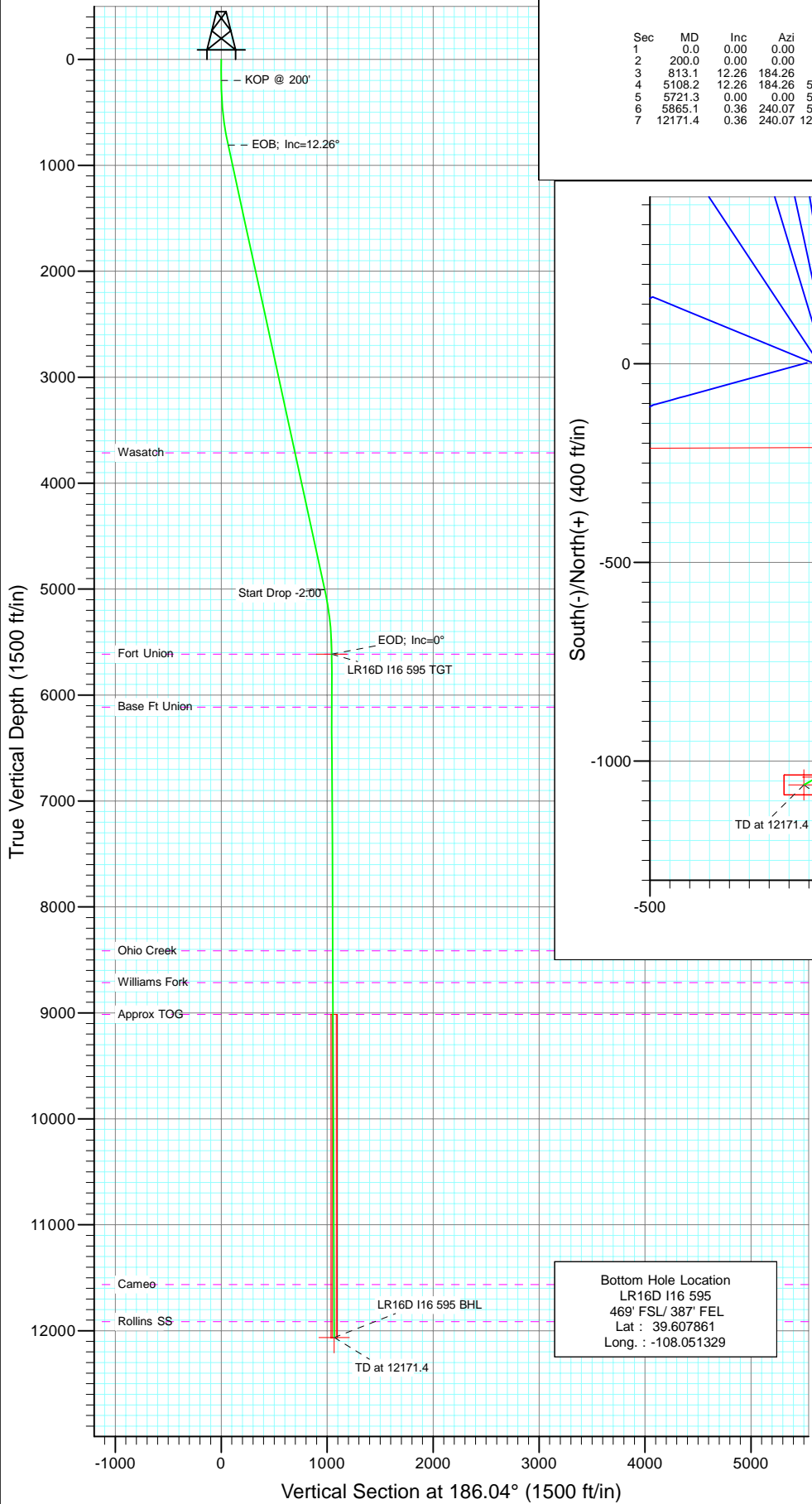




Project: Garfield County  
Site: I16 595 pad  
Well: LR16D I16 595  
Wellbore: DD  
Design: Plan #1



Surface Hole Location  
LR16D I16 595  
1529' FSL/ 272' FEL  
Lat: 39.610771 Long: -108.050931

Bottom Hole Location  
LR16D I16 595  
469' FSL/ 387' FEL  
Lat : 39.607861  
Long. : -108.051329

Vertical Section at 186.04° (1500 ft/in)

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	200.0	0.00	0.00	200.0	0.0	0.0	0.00	0.00	0.0	
3	813.1	12.26	184.26	808.4	-65.2	-4.9	2.00	184.26	65.3	
4	5108.2	12.26	184.26	5005.6	-974.8	-72.6	0.00	0.00	977.1	
5	5721.3	0.00	0.00	5614.0	-1040.0	-77.5	2.00	180.00	1042.4	LR16D I16 595 TGT
6	5865.1	0.36	240.07	5757.8	-1040.2	-77.8	0.25	240.07	1042.6	
7	12171.4	0.36	240.07	12064.0	-1060.0	-112.1	0.00	0.00	1065.9	LR16D I16 595 BHL

FORMATION TOP DETAILS

TVDPPath	MDPath	Formation
3714.0	3786.5	Wasatch
5614.0	5721.3	Fort Union
6114.0	6221.3	Base Ft Union
8414.0	8521.4	Ohio Creek
8714.0	8821.4	Williams Fork
9014.0	9121.4	Approx TOG
11564.0	11671.4	Cameo
11914.0	12021.4	Rollins SS

DESIGN DETAILS: Plan #1

105XXX; BH  
KBE @ 8306.0ft (Patterson 302)

Target	Azimuth	Origin	N/S	E/W	From TVD
LR16D I16 595 BHL	186.04	Slot	0.0	0.0	0.0

Asimuths to True North  
Magnetic North: 10.46°

Magnetic Field  
Strength: 52389.1snT  
Dip Angle: 65.85°  
Date: 9/29/2010  
Model: IGRF200510

# Cathedral Energy Services

## Planning Report

<b>Database:</b>	EDM 5000.1 US Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well LR16D I16 595
<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>TVD Reference:</b>	KBE @ 8306.0ft (Patterson 302)
<b>Project:</b>	Garfield County	<b>MD Reference:</b>	KBE @ 8306.0ft (Patterson 302)
<b>Site:</b>	I16 595 pad	<b>North Reference:</b>	True
<b>Well:</b>	LR16D I16 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>	I16 595 pad			
<b>Site Position:</b>		<b>Northing:</b>	1,657,445.59 ft	<b>Latitude:</b> 39.610772
<b>From:</b>	Lat/Long	<b>Easting:</b>	2,281,383.74 ft	<b>Longitude:</b> -108.050985
<b>Position Uncertainty:</b>	0.0 ft	<b>Slot Radius:</b>	13.200 in	<b>Grid Convergence:</b> -1.61 °

<b>Well</b>	LR16D I16 595			
<b>Well Position</b>	<b>+N/-S</b>	0.0 ft	<b>Northing:</b>	1,657,444.79 ft
	<b>+E/-W</b>	0.0 ft	<b>Easting:</b>	2,281,398.94 ft
<b>Position Uncertainty</b>	0.0 ft		<b>Wellhead Elevation:</b>	ft
			<b>Ground Level:</b>	8,291.0 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 (nT)</b>
	IGRF200510	9/29/2010	10.46	65.85	52,389

<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) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>
	0.0	0.0	0.0	186.04

<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	
813.1	12.26	184.26	808.4	-65.2	-4.9	2.00	2.00	0.00	184.26	
5,108.2	12.26	184.26	5,005.6	-974.8	-72.6	0.00	0.00	0.00	0.00	
5,721.3	0.00	0.00	5,614.0	-1,040.0	-77.5	2.00	-2.00	0.00	180.00	LR16D I16 595 TGT
5,865.1	0.36	240.07	5,757.8	-1,040.2	-77.8	0.25	0.25	-83.39	240.07	
12,171.4	0.36	240.07	12,064.0	-1,060.0	-112.1	0.00	0.00	0.00	0.00	LR16D I16 595 BHL

# Cathedral Energy Services

## Planning Report

<b>Database:</b>	EDM 5000.1 US Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well LR16D I16 595
<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>TVD Reference:</b>	KBE @ 8306.0ft (Patterson 302)
<b>Project:</b>	Garfield County	<b>MD Reference:</b>	KBE @ 8306.0ft (Patterson 302)
<b>Site:</b>	I16 595 pad	<b>North Reference:</b>	True
<b>Well:</b>	LR16D I16 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	184.26	210.0	0.0	0.0	0.0	2.00	2.00	
240.0	0.80	184.26	240.0	-0.3	0.0	0.3	2.00	2.00	
270.0	1.40	184.26	270.0	-0.9	-0.1	0.9	2.00	2.00	
300.0	2.00	184.26	300.0	-1.7	-0.1	1.7	2.00	2.00	
330.0	2.60	184.26	330.0	-2.9	-0.2	2.9	2.00	2.00	
360.0	3.20	184.26	359.9	-4.5	-0.3	4.5	2.00	2.00	
390.0	3.80	184.26	389.9	-6.3	-0.5	6.3	2.00	2.00	
420.0	4.40	184.26	419.8	-8.4	-0.6	8.4	2.00	2.00	
450.0	5.00	184.26	449.7	-10.9	-0.8	10.9	2.00	2.00	
480.0	5.60	184.26	479.6	-13.6	-1.0	13.7	2.00	2.00	
510.0	6.20	184.26	509.4	-16.7	-1.2	16.7	2.00	2.00	
540.0	6.80	184.26	539.2	-20.1	-1.5	20.1	2.00	2.00	
570.0	7.40	184.26	569.0	-23.8	-1.8	23.8	2.00	2.00	
600.0	8.00	184.26	598.7	-27.8	-2.1	27.9	2.00	2.00	
630.0	8.60	184.26	628.4	-32.1	-2.4	32.2	2.00	2.00	
660.0	9.20	184.26	658.0	-36.8	-2.7	36.8	2.00	2.00	
690.0	9.80	184.26	687.6	-41.7	-3.1	41.8	2.00	2.00	
720.0	10.40	184.26	717.1	-46.9	-3.5	47.0	2.00	2.00	
750.0	11.00	184.26	746.6	-52.5	-3.9	52.6	2.00	2.00	
780.0	11.60	184.26	776.0	-58.4	-4.3	58.5	2.00	2.00	
810.0	12.20	184.26	805.4	-64.5	-4.8	64.7	2.00	2.00	
813.1	12.26	184.26	808.4	-65.2	-4.9	65.3	2.00	2.00	EOB; Inc=12.26°
840.0	12.26	184.26	834.7	-70.9	-5.3	71.0	0.00	0.00	
870.0	12.26	184.26	864.0	-77.2	-5.8	77.4	0.00	0.00	
900.0	12.26	184.26	893.3	-83.6	-6.2	83.8	0.00	0.00	
930.0	12.26	184.26	922.7	-89.9	-6.7	90.1	0.00	0.00	
960.0	12.26	184.26	952.0	-96.3	-7.2	96.5	0.00	0.00	
990.0	12.26	184.26	981.3	-102.6	-7.6	102.9	0.00	0.00	
1,020.0	12.26	184.26	1,010.6	-109.0	-8.1	109.2	0.00	0.00	
1,050.0	12.26	184.26	1,039.9	-115.3	-8.6	115.6	0.00	0.00	
1,080.0	12.26	184.26	1,069.2	-121.7	-9.1	122.0	0.00	0.00	
1,110.0	12.26	184.26	1,098.6	-128.1	-9.5	128.3	0.00	0.00	
1,140.0	12.26	184.26	1,127.9	-134.4	-10.0	134.7	0.00	0.00	
1,170.0	12.26	184.26	1,157.2	-140.8	-10.5	141.1	0.00	0.00	
1,200.0	12.26	184.26	1,186.5	-147.1	-11.0	147.5	0.00	0.00	
1,230.0	12.26	184.26	1,215.8	-153.5	-11.4	153.8	0.00	0.00	
1,260.0	12.26	184.26	1,245.1	-159.8	-11.9	160.2	0.00	0.00	
1,290.0	12.26	184.26	1,274.5	-166.2	-12.4	166.6	0.00	0.00	
1,320.0	12.26	184.26	1,303.8	-172.5	-12.8	172.9	0.00	0.00	
1,350.0	12.26	184.26	1,333.1	-178.9	-13.3	179.3	0.00	0.00	
1,380.0	12.26	184.26	1,362.4	-185.2	-13.8	185.7	0.00	0.00	
1,410.0	12.26	184.26	1,391.7	-191.6	-14.3	192.0	0.00	0.00	
1,440.0	12.26	184.26	1,421.0	-197.9	-14.7	198.4	0.00	0.00	
1,470.0	12.26	184.26	1,450.3	-204.3	-15.2	204.8	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 LR16D I16 595
<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>TVD Reference:</b>	KBE @ 8306.0ft (Patterson 302)
<b>Project:</b>	Garfield County	<b>MD Reference:</b>	KBE @ 8306.0ft (Patterson 302)
<b>Site:</b>	I16 595 pad	<b>North Reference:</b>	True
<b>Well:</b>	LR16D I16 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	12.26	184.26	1,479.7	-210.7	-15.7	211.1	0.00	0.00	
1,530.0	12.26	184.26	1,509.0	-217.0	-16.2	217.5	0.00	0.00	
1,560.0	12.26	184.26	1,538.3	-223.4	-16.6	223.9	0.00	0.00	
1,590.0	12.26	184.26	1,567.6	-229.7	-17.1	230.2	0.00	0.00	
1,620.0	12.26	184.26	1,596.9	-236.1	-17.6	236.6	0.00	0.00	
1,650.0	12.26	184.26	1,626.2	-242.4	-18.1	243.0	0.00	0.00	
1,680.0	12.26	184.26	1,655.6	-248.8	-18.5	249.3	0.00	0.00	
1,710.0	12.26	184.26	1,684.9	-255.1	-19.0	255.7	0.00	0.00	
1,740.0	12.26	184.26	1,714.2	-261.5	-19.5	262.1	0.00	0.00	
1,770.0	12.26	184.26	1,743.5	-267.8	-19.9	268.4	0.00	0.00	
1,800.0	12.26	184.26	1,772.8	-274.2	-20.4	274.8	0.00	0.00	
1,830.0	12.26	184.26	1,802.1	-280.5	-20.9	281.2	0.00	0.00	
1,860.0	12.26	184.26	1,831.4	-286.9	-21.4	287.6	0.00	0.00	
1,890.0	12.26	184.26	1,860.8	-293.2	-21.8	293.9	0.00	0.00	
1,920.0	12.26	184.26	1,890.1	-299.6	-22.3	300.3	0.00	0.00	
1,950.0	12.26	184.26	1,919.4	-306.0	-22.8	306.7	0.00	0.00	
1,980.0	12.26	184.26	1,948.7	-312.3	-23.3	313.0	0.00	0.00	
2,010.0	12.26	184.26	1,978.0	-318.7	-23.7	319.4	0.00	0.00	
2,040.0	12.26	184.26	2,007.3	-325.0	-24.2	325.8	0.00	0.00	
2,070.0	12.26	184.26	2,036.7	-331.4	-24.7	332.1	0.00	0.00	
2,100.0	12.26	184.26	2,066.0	-337.7	-25.2	338.5	0.00	0.00	
2,130.0	12.26	184.26	2,095.3	-344.1	-25.6	344.9	0.00	0.00	
2,160.0	12.26	184.26	2,124.6	-350.4	-26.1	351.2	0.00	0.00	
2,190.0	12.26	184.26	2,153.9	-356.8	-26.6	357.6	0.00	0.00	
2,220.0	12.26	184.26	2,183.2	-363.1	-27.0	364.0	0.00	0.00	
2,250.0	12.26	184.26	2,212.6	-369.5	-27.5	370.3	0.00	0.00	
2,280.0	12.26	184.26	2,241.9	-375.8	-28.0	376.7	0.00	0.00	
2,310.0	12.26	184.26	2,271.2	-382.2	-28.5	383.1	0.00	0.00	
2,340.0	12.26	184.26	2,300.5	-388.6	-28.9	389.4	0.00	0.00	
2,370.0	12.26	184.26	2,329.8	-394.9	-29.4	395.8	0.00	0.00	
2,400.0	12.26	184.26	2,359.1	-401.3	-29.9	402.2	0.00	0.00	
2,430.0	12.26	184.26	2,388.4	-407.6	-30.4	408.5	0.00	0.00	
2,460.0	12.26	184.26	2,417.8	-414.0	-30.8	414.9	0.00	0.00	
2,490.0	12.26	184.26	2,447.1	-420.3	-31.3	421.3	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 I16 595 BHL	0.00	0.00	12,064.0	-1,060.0	-112.1	1,656,388.39	2,281,257.09	39.607861	-108.051329
- hit/miss target									
- Shape									
- plan misses target center by 9638.5ft at 2490.0ft MD (2447.1 TVD, -420.3 N, -31.3 E)									
- Rectangle (sides W50.0 H100.0 D0.0)									
LR16D I16 595 TGT	0.00	0.00	5,614.0	-1,040.0	-77.5	1,656,407.37	2,281,292.32	39.607916	-108.051206
- plan misses target center by 3227.3ft at 2490.0ft MD (2447.1 TVD, -420.3 N, -31.3 E)									
- Point									

# Cathedral Energy Services

## Planning Report

<b>Database:</b>	EDM 5000.1 US Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well LR16D I16 595
<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>TVD Reference:</b>	KBE @ 8306.0ft (Patterson 302)
<b>Project:</b>	Garfield County	<b>MD Reference:</b>	KBE @ 8306.0ft (Patterson 302)
<b>Site:</b>	I16 595 pad	<b>North Reference:</b>	True
<b>Well:</b>	LR16D I16 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	12.26	184.26	2,456.8	-422.4	-31.5	423.4	0.00	0.00	
2,600.0	12.26	184.26	2,554.6	-443.6	-33.0	444.6	0.00	0.00	
2,700.0	12.26	184.26	2,652.3	-464.8	-34.6	465.9	0.00	0.00	
2,800.0	12.26	184.26	2,750.0	-486.0	-36.2	487.1	0.00	0.00	
2,900.0	12.26	184.26	2,847.7	-507.2	-37.8	508.3	0.00	0.00	
3,000.0	12.26	184.26	2,945.4	-528.3	-39.3	529.5	0.00	0.00	
3,100.0	12.26	184.26	3,043.2	-549.5	-40.9	550.8	0.00	0.00	
3,200.0	12.26	184.26	3,140.9	-570.7	-42.5	572.0	0.00	0.00	
3,300.0	12.26	184.26	3,238.6	-591.9	-44.1	593.2	0.00	0.00	
3,400.0	12.26	184.26	3,336.3	-613.0	-45.7	614.4	0.00	0.00	
3,500.0	12.26	184.26	3,434.0	-634.2	-47.2	635.7	0.00	0.00	
3,600.0	12.26	184.26	3,531.8	-655.4	-48.8	656.9	0.00	0.00	
3,700.0	12.26	184.26	3,629.5	-676.6	-50.4	678.1	0.00	0.00	
3,786.5	12.26	184.26	3,714.0	-694.9	-51.8	696.5	0.00	0.00	Wasatch
3,800.0	12.26	184.26	3,727.2	-697.8	-52.0	699.4	0.00	0.00	
3,900.0	12.26	184.26	3,824.9	-718.9	-53.5	720.6	0.00	0.00	
4,000.0	12.26	184.26	3,922.6	-740.1	-55.1	741.8	0.00	0.00	
4,100.0	12.26	184.26	4,020.4	-761.3	-56.7	763.0	0.00	0.00	
4,200.0	12.26	184.26	4,118.1	-782.5	-58.3	784.3	0.00	0.00	
4,300.0	12.26	184.26	4,215.8	-803.7	-59.8	805.5	0.00	0.00	
4,400.0	12.26	184.26	4,313.5	-824.8	-61.4	826.7	0.00	0.00	
4,500.0	12.26	184.26	4,411.2	-846.0	-63.0	847.9	0.00	0.00	
4,600.0	12.26	184.26	4,508.9	-867.2	-64.6	869.2	0.00	0.00	
4,700.0	12.26	184.26	4,606.7	-888.4	-66.2	890.4	0.00	0.00	
4,800.0	12.26	184.26	4,704.4	-909.5	-67.7	911.6	0.00	0.00	
4,900.0	12.26	184.26	4,802.1	-930.7	-69.3	932.9	0.00	0.00	
5,000.0	12.26	184.26	4,899.8	-951.9	-70.9	954.1	0.00	0.00	
5,100.0	12.26	184.26	4,997.5	-973.1	-72.5	975.3	0.00	0.00	
5,108.2	12.26	184.26	5,005.6	-974.8	-72.6	977.1	0.00	0.00	Start Drop -2.00
5,200.0	10.43	184.26	5,095.6	-992.8	-73.9	995.1	2.00	-2.00	
5,300.0	8.43	184.26	5,194.2	-1,009.2	-75.2	1,011.5	2.00	-2.00	
5,400.0	6.43	184.26	5,293.4	-1,022.0	-76.1	1,024.4	2.00	-2.00	
5,500.0	4.43	184.26	5,392.9	-1,031.5	-76.8	1,033.8	2.00	-2.00	
5,600.0	2.43	184.26	5,492.7	-1,037.4	-77.3	1,039.8	2.00	-2.00	
5,700.0	0.43	184.26	5,592.7	-1,039.9	-77.4	1,042.3	2.00	-2.00	
5,721.3	0.00	0.00	5,614.0	-1,040.0	-77.5	1,042.4	2.00	-2.00	EOD; Inc=0° - Fort Union - LR16D I16 595 TGT
5,800.0	0.20	240.07	5,692.7	-1,040.1	-77.6	1,042.5	0.25	0.25	
5,865.1	0.36	240.07	5,757.8	-1,040.2	-77.8	1,042.6	0.25	0.25	
5,900.0	0.36	240.07	5,792.7	-1,040.3	-78.0	1,042.8	0.00	0.00	
6,000.0	0.36	240.07	5,892.7	-1,040.6	-78.6	1,043.1	0.00	0.00	
6,100.0	0.36	240.07	5,992.7	-1,041.0	-79.1	1,043.5	0.00	0.00	
6,200.0	0.36	240.07	6,092.7	-1,041.3	-79.7	1,043.9	0.00	0.00	
6,221.3	0.36	240.07	6,114.0	-1,041.3	-79.8	1,044.0	0.00	0.00	Base Ft Union
6,300.0	0.36	240.07	6,192.7	-1,041.6	-80.2	1,044.2	0.00	0.00	
6,400.0	0.36	240.07	6,292.7	-1,041.9	-80.7	1,044.6	0.00	0.00	
6,500.0	0.36	240.07	6,392.7	-1,042.2	-81.3	1,045.0	0.00	0.00	
6,600.0	0.36	240.07	6,492.7	-1,042.5	-81.8	1,045.3	0.00	0.00	
6,700.0	0.36	240.07	6,592.7	-1,042.8	-82.4	1,045.7	0.00	0.00	
6,800.0	0.36	240.07	6,692.7	-1,043.2	-82.9	1,046.1	0.00	0.00	
6,900.0	0.36	240.07	6,792.7	-1,043.5	-83.5	1,046.5	0.00	0.00	
7,000.0	0.36	240.07	6,892.7	-1,043.8	-84.0	1,046.8	0.00	0.00	
7,100.0	0.36	240.07	6,992.7	-1,044.1	-84.6	1,047.2	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 LR16D I16 595
<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>TVD Reference:</b>	KBE @ 8306.0ft (Patterson 302)
<b>Project:</b>	Garfield County	<b>MD Reference:</b>	KBE @ 8306.0ft (Patterson 302)
<b>Site:</b>	I16 595 pad	<b>North Reference:</b>	True
<b>Well:</b>	LR16D I16 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
7,200.0	0.36	240.07	7,092.7	-1,044.4	-85.1	1,047.6	0.00	0.00	
7,300.0	0.36	240.07	7,192.7	-1,044.7	-85.6	1,047.9	0.00	0.00	
7,400.0	0.36	240.07	7,292.7	-1,045.0	-86.2	1,048.3	0.00	0.00	
7,500.0	0.36	240.07	7,392.7	-1,045.3	-86.7	1,048.7	0.00	0.00	
7,600.0	0.36	240.07	7,492.6	-1,045.7	-87.3	1,049.0	0.00	0.00	
7,700.0	0.36	240.07	7,592.6	-1,046.0	-87.8	1,049.4	0.00	0.00	
7,800.0	0.36	240.07	7,692.6	-1,046.3	-88.4	1,049.8	0.00	0.00	
7,900.0	0.36	240.07	7,792.6	-1,046.6	-88.9	1,050.1	0.00	0.00	
8,000.0	0.36	240.07	7,892.6	-1,046.9	-89.5	1,050.5	0.00	0.00	
8,100.0	0.36	240.07	7,992.6	-1,047.2	-90.0	1,050.9	0.00	0.00	
8,200.0	0.36	240.07	8,092.6	-1,047.5	-90.5	1,051.2	0.00	0.00	
8,300.0	0.36	240.07	8,192.6	-1,047.8	-91.1	1,051.6	0.00	0.00	
8,400.0	0.36	240.07	8,292.6	-1,048.2	-91.6	1,052.0	0.00	0.00	
8,500.0	0.36	240.07	8,392.6	-1,048.5	-92.2	1,052.4	0.00	0.00	
8,521.4	0.36	240.07	8,414.0	-1,048.5	-92.3	1,052.4	0.00	0.00	Ohio Creek
8,600.0	0.36	240.07	8,492.6	-1,048.8	-92.7	1,052.7	0.00	0.00	
8,700.0	0.36	240.07	8,592.6	-1,049.1	-93.3	1,053.1	0.00	0.00	
8,800.0	0.36	240.07	8,692.6	-1,049.4	-93.8	1,053.5	0.00	0.00	
8,821.4	0.36	240.07	8,714.0	-1,049.5	-93.9	1,053.5	0.00	0.00	Williams Fork
8,900.0	0.36	240.07	8,792.6	-1,049.7	-94.3	1,053.8	0.00	0.00	
9,000.0	0.36	240.07	8,892.6	-1,050.0	-94.9	1,054.2	0.00	0.00	
9,100.0	0.36	240.07	8,992.6	-1,050.4	-95.4	1,054.6	0.00	0.00	
9,121.4	0.36	240.07	9,014.0	-1,050.4	-95.5	1,054.6	0.00	0.00	Approx TOG
9,200.0	0.36	240.07	9,092.6	-1,050.7	-96.0	1,054.9	0.00	0.00	
9,300.0	0.36	240.07	9,192.6	-1,051.0	-96.5	1,055.3	0.00	0.00	
9,400.0	0.36	240.07	9,292.6	-1,051.3	-97.1	1,055.7	0.00	0.00	
9,500.0	0.36	240.07	9,392.6	-1,051.6	-97.6	1,056.0	0.00	0.00	
9,600.0	0.36	240.07	9,492.6	-1,051.9	-98.2	1,056.4	0.00	0.00	
9,700.0	0.36	240.07	9,592.6	-1,052.2	-98.7	1,056.8	0.00	0.00	
9,800.0	0.36	240.07	9,692.6	-1,052.5	-99.2	1,057.1	0.00	0.00	
9,900.0	0.36	240.07	9,792.6	-1,052.9	-99.8	1,057.5	0.00	0.00	
10,000.0	0.36	240.07	9,892.6	-1,053.2	-100.3	1,057.9	0.00	0.00	
10,100.0	0.36	240.07	9,992.6	-1,053.5	-100.9	1,058.2	0.00	0.00	
10,200.0	0.36	240.07	10,092.6	-1,053.8	-101.4	1,058.6	0.00	0.00	
10,300.0	0.36	240.07	10,192.6	-1,054.1	-102.0	1,059.0	0.00	0.00	
10,400.0	0.36	240.07	10,292.6	-1,054.4	-102.5	1,059.4	0.00	0.00	
10,500.0	0.36	240.07	10,392.6	-1,054.7	-103.0	1,059.7	0.00	0.00	
10,600.0	0.36	240.07	10,492.6	-1,055.0	-103.6	1,060.1	0.00	0.00	
10,700.0	0.36	240.07	10,592.6	-1,055.4	-104.1	1,060.5	0.00	0.00	
10,800.0	0.36	240.07	10,692.6	-1,055.7	-104.7	1,060.8	0.00	0.00	
10,900.0	0.36	240.07	10,792.6	-1,056.0	-105.2	1,061.2	0.00	0.00	
11,000.0	0.36	240.07	10,892.6	-1,056.3	-105.8	1,061.6	0.00	0.00	
11,100.0	0.36	240.07	10,992.6	-1,056.6	-106.3	1,061.9	0.00	0.00	
11,200.0	0.36	240.07	11,092.6	-1,056.9	-106.9	1,062.3	0.00	0.00	
11,300.0	0.36	240.07	11,192.6	-1,057.2	-107.4	1,062.7	0.00	0.00	
11,400.0	0.36	240.07	11,292.6	-1,057.6	-107.9	1,063.0	0.00	0.00	
11,500.0	0.36	240.07	11,392.6	-1,057.9	-108.5	1,063.4	0.00	0.00	
11,600.0	0.36	240.07	11,492.6	-1,058.2	-109.0	1,063.8	0.00	0.00	
11,671.4	0.36	240.07	11,564.0	-1,058.4	-109.4	1,064.0	0.00	0.00	Cameo
11,700.0	0.36	240.07	11,592.6	-1,058.5	-109.6	1,064.1	0.00	0.00	
11,800.0	0.36	240.07	11,692.6	-1,058.8	-110.1	1,064.5	0.00	0.00	
11,900.0	0.36	240.07	11,792.6	-1,059.1	-110.7	1,064.9	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 LR16D I16 595
<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>TVD Reference:</b>	KBE @ 8306.0ft (Patterson 302)
<b>Project:</b>	Garfield County	<b>MD Reference:</b>	KBE @ 8306.0ft (Patterson 302)
<b>Site:</b>	I16 595 pad	<b>North Reference:</b>	True
<b>Well:</b>	LR16D I16 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
12,000.0	0.36	240.07	11,892.6	-1,059.4	-111.2	1,065.3	0.00	0.00	
12,021.4	0.36	240.07	11,914.0	-1,059.5	-111.3	1,065.3	0.00	0.00	Rollins SS
12,100.0	0.36	240.07	11,992.6	-1,059.7	-111.7	1,065.6	0.00	0.00	
12,171.4	0.36	240.07	12,064.0	-1,060.0	-112.1	1,065.9	0.00	0.00	TD at 12171.4 - LR16D I16 595 BHL

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									
LR16D I16 595 BHL	0.00	0.00	12,064.0	-1,060.0	-112.1	1,656,388.39	2,281,257.09	39.607861	-108.051329
- plan hits target center									
- Rectangle (sides W50.0 H100.0 D0.0)									
LR16D I16 595 TGT	0.00	0.00	5,614.0	-1,040.0	-77.5	1,656,407.37	2,281,292.32	39.607916	-108.051206
- plan hits target center									
- Point									

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
3,786.5	3,714.0	Wasatch		0.00		
5,721.3	5,614.0	Fort Union		0.00		
6,221.3	6,114.0	Base Ft Union		0.00		
8,521.4	8,414.0	Ohio Creek		0.00		
8,821.4	8,714.0	Williams Fork		0.00		
9,121.4	9,014.0	Approx TOG		0.00		
11,671.4	11,564.0	Cameo		0.00		
12,021.4	11,914.0	Rollins SS		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'	
813.1	808.4	-65.2	-4.9	EOB; Inc=12.26°	
5,108.2	5,005.6	-974.8	-72.6	Start Drop -2.00	
5,721.3	5,614.0	-1,040.0	-77.5	EOD; Inc=0°	
12,171.4	12,064.0	-1,060.0	-112.1	TD at 12171.4	

# **Berry Petroleum Company (NAD 83)**

**Garfield County**

**I16 595 pad**

**LR16D I16 595**

**DD**

**Plan #1**

## **Anticollision Report**

**30 September, 2010**



# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>Local Co-ordinate Reference:</b>	Well LR16D I16 595
<b>Project:</b>	Garfield County	<b>TVD Reference:</b>	KBE @ 8306.0ft (Patterson 302)
<b>Reference Site:</b>	I16 595 pad	<b>MD Reference:</b>	KBE @ 8306.0ft (Patterson 302)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	LR16D I16 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	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	9/30/2010		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
0.0	12,171.4	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						
I16 595 pad						
LR08A I16 595 - DD - Plan #1	200.0	200.0	15.2	14.6	23.566	CC
LR08A I16 595 - DD - Plan #1	217.5	217.5	15.2	14.5	21.491	ES
LR08A I16 595 - DD - Plan #1	400.0	398.9	20.9	19.5	15.279	SF
LR08B I16 595 - DD - Plan #1	200.0	200.0	45.1	44.4	69.826	CC, ES
LR08B I16 595 - DD - Plan #1	500.0	495.7	56.9	55.1	31.993	SF
LR08C I16 595 Pad - DD - Plan #1	200.0	200.0	29.9	29.2	46.260	CC, ES
LR08C I16 595 Pad - DD - Plan #1	400.0	398.7	33.7	32.4	24.467	SF
LR09A I16 595 - DD - Plan #1	345.8	345.8	74.3	73.1	63.624	CC
LR09A I16 595 - DD - Plan #1	400.0	399.8	74.4	73.0	54.374	ES
LR09A I16 595 - DD - Plan #1	800.0	795.6	94.8	91.8	31.054	SF
LR09B I16 595 - DD - Plan #1	200.0	200.0	59.5	58.8	92.083	CC, ES
LR09B I16 595 - DD - Plan #1	600.0	590.2	85.5	83.3	39.059	SF
LR09C I16 595 - DD - Plan #1						Out of range
LR09D I16 595 - DD - Plan #1	359.7	359.6	89.2	88.0	73.187	CC
LR09D I16 595 - DD - Plan #1	400.0	399.8	89.3	87.9	65.252	ES
LR09D I16 595 - DD - Plan #1	700.0	697.5	97.4	94.8	36.787	SF

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>Local Co-ordinate Reference:</b>	Well LR16D I16 595
<b>Project:</b>	Garfield County	<b>TVD Reference:</b>	KBE @ 8306.0ft (Patterson 302)
<b>Reference Site:</b>	I16 595 pad	<b>MD Reference:</b>	KBE @ 8306.0ft (Patterson 302)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	LR16D I16 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>Offset Design</b> I16 595 pad - LR08A I16 595 - DD - Plan #1													<b>Offset Site Error:</b>	0.0 ft
Survey Program: 0-MWD													<b>Offset Well Error:</b>	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	-88.64	0.4	-15.2	15.2					
100.0	100.0	100.0	100.0	0.1	0.1	-88.64	0.4	-15.2	15.2	14.9	0.30	51.291		
200.0	200.0	200.0	200.0	0.3	0.3	-88.64	0.4	-15.2	15.2	14.6	0.65	23.566 CC		
217.5	217.5	217.5	217.5	0.4	0.4	87.50	0.4	-15.2	15.2	14.5	0.71	21.491 ES		
300.0	300.0	299.8	299.8	0.5	0.5	99.83	2.1	-15.4	15.7	14.7	1.00	15.687		
400.0	399.8	398.9	398.8	0.7	0.7	128.39	7.2	-15.8	20.9	19.5	1.37	15.279 SF		
500.0	499.5	496.6	496.1	0.9	0.9	149.15	15.6	-16.5	35.0	33.3	1.71	20.443		
600.0	598.7	592.2	591.0	1.2	1.2	159.45	27.1	-17.5	57.5	55.5	2.05	28.120		
700.0	697.5	685.1	682.8	1.5	1.5	164.68	41.2	-18.7	87.2	84.9	2.37	36.804		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>Local Co-ordinate Reference:</b>	Well LR16D I16 595
<b>Project:</b>	Garfield County	<b>TVD Reference:</b>	KBE @ 8306.0ft (Patterson 302)
<b>Reference Site:</b>	I16 595 pad	<b>MD Reference:</b>	KBE @ 8306.0ft (Patterson 302)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	LR16D I16 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>Offset Design</b> I16 595 pad - LR08B I16 595 - DD - Plan #1													<b>Offset Site Error:</b>	0.0 ft
Survey Program: 0-MWD													<b>Offset Well Error:</b>	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	-88.62	1.1	-45.1	45.1					
100.0	100.0	100.0	100.0	0.1	0.1	-88.62	1.1	-45.1	45.1	44.8	0.30	151.974		
200.0	200.0	200.0	200.0	0.3	0.3	-88.62	1.1	-45.1	45.1	44.4	0.65	69.826 CC, ES		
300.0	300.0	299.5	299.5	0.5	0.5	91.41	2.8	-45.4	45.5	44.5	1.00	45.491		
400.0	399.8	398.3	398.2	0.7	0.7	103.36	7.8	-46.5	48.3	47.0	1.38	34.973		
500.0	499.5	495.7	495.2	0.9	0.9	119.11	16.0	-48.3	56.9	55.1	1.78	31.993 SF		
600.0	598.7	591.1	589.9	1.2	1.2	133.27	27.2	-50.7	73.9	71.7	2.16	34.281		
700.0	697.5	683.9	681.6	1.5	1.5	143.50	41.0	-53.6	99.5	97.0	2.50	39.775		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>Local Co-ordinate Reference:</b>	Well LR16D I16 595
<b>Project:</b>	Garfield County	<b>TVD Reference:</b>	KBE @ 8306.0ft (Patterson 302)
<b>Reference Site:</b>	I16 595 pad	<b>MD Reference:</b>	KBE @ 8306.0ft (Patterson 302)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	LR16D I16 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>Offset Design</b> I16 595 pad - LR08C I16 595 Pad - 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	-88.61	0.7	-29.9	29.9					
100.0	100.0	100.0	100.0	0.1	0.1	-88.61	0.7	-29.9	29.9	29.6	0.30	100.683		
200.0	200.0	200.0	200.0	0.3	0.3	-88.61	0.7	-29.9	29.9	29.2	0.65	46.260 CC, ES		
300.0	300.0	299.7	299.7	0.5	0.5	93.64	2.4	-30.1	30.3	29.3	1.00	30.261		
400.0	399.8	398.7	398.5	0.7	0.7	110.98	7.5	-31.0	33.7	32.4	1.38	24.467 SF		
500.0	499.5	496.2	495.7	0.9	0.9	130.50	15.8	-32.3	44.4	42.7	1.75	25.332		
600.0	598.7	591.8	590.5	1.2	1.2	144.60	27.1	-34.1	64.1	62.0	2.10	30.509		
700.0	697.5	684.6	682.3	1.5	1.5	153.20	41.1	-36.4	92.0	89.6	2.43	37.856		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>Local Co-ordinate Reference:</b>	Well LR16D I16 595
<b>Project:</b>	Garfield County	<b>TVD Reference:</b>	KBE @ 8306.0ft (Patterson 302)
<b>Reference Site:</b>	I16 595 pad	<b>MD Reference:</b>	KBE @ 8306.0ft (Patterson 302)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	LR16D I16 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>Offset Design</b> I16 595 pad - LR09A I16 595 - DD - Plan #1												<b>Offset Site Error:</b>	0.0 ft
Survey Program: 0-MWD												<b>Offset Well Error:</b>	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	-88.60	1.8	-74.4	74.4				
100.0	100.0	100.0	100.0	0.1	0.1	-88.60	1.8	-74.4	74.4	74.1	0.30	250.759	
200.0	200.0	200.0	200.0	0.3	0.3	-88.60	1.8	-74.4	74.4	73.8	0.65	115.214	
300.0	300.0	300.0	300.0	0.5	0.5	88.48	1.8	-74.4	74.3	73.3	1.00	74.446	
345.8	345.8	345.8	345.8	0.6	0.6	90.00	1.8	-74.4	74.3	73.1	1.17	63.624 CC	
400.0	399.8	399.8	399.8	0.7	0.7	92.51	1.8	-74.4	74.4	73.0	1.37	54.374 ES	
500.0	499.5	499.5	499.5	0.9	0.8	99.11	1.8	-74.4	75.3	73.5	1.77	42.634	
600.0	598.7	598.7	598.7	1.2	1.0	107.85	1.8	-74.4	78.1	75.9	2.19	35.656	
700.0	697.5	697.5	697.5	1.5	1.2	117.82	1.8	-74.4	84.3	81.7	2.63	32.061	
800.0	795.6	795.6	795.6	1.9	1.4	127.78	1.8	-74.4	94.8	91.8	3.05	31.054 SF	
813.1	808.4	808.4	808.4	1.9	1.4	129.03	1.8	-74.4	96.5	93.4	3.10	31.095	

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>Local Co-ordinate Reference:</b>	Well LR16D I16 595
<b>Project:</b>	Garfield County	<b>TVD Reference:</b>	KBE @ 8306.0ft (Patterson 302)
<b>Reference Site:</b>	I16 595 pad	<b>MD Reference:</b>	KBE @ 8306.0ft (Patterson 302)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	LR16D I16 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>Offset Design</b> I16 595 pad - LR09B I16 595 - DD - Plan #1													<b>Offset Site Error:</b>	0.0 ft
Survey Program: 0-MWD													<b>Offset Well Error:</b>	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	-88.60	1.4	-59.4	59.5					
100.0	100.0	100.0	100.0	0.1	0.1	-88.60	1.4	-59.4	59.5	59.2	0.30	200.417		
200.0	200.0	200.0	200.0	0.3	0.3	-88.60	1.4	-59.4	59.5	58.8	0.65	92.083 CC, ES		
300.0	300.0	299.2	299.2	0.5	0.5	90.34	3.1	-59.9	60.0	59.0	1.00	59.988		
400.0	399.8	397.8	397.6	0.7	0.7	99.37	8.0	-61.4	62.7	61.4	1.38	45.413		
500.0	499.5	495.0	494.5	0.9	0.9	112.01	16.0	-63.8	70.4	68.6	1.79	39.351		
600.0	598.7	590.2	589.0	1.2	1.2	124.76	26.8	-67.1	85.5	83.3	2.19	39.059 SF		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>Local Co-ordinate Reference:</b>	Well LR16D I16 595
<b>Project:</b>	Garfield County	<b>TVD Reference:</b>	KBE @ 8306.0ft (Patterson 302)
<b>Reference Site:</b>	I16 595 pad	<b>MD Reference:</b>	KBE @ 8306.0ft (Patterson 302)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	LR16D I16 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>Offset Design</b> I16 595 pad - LR09D I16 595 - DD - Plan #1													<b>Offset Site Error:</b>	0.0 ft
Survey Program: 0-MWD													<b>Offset Well Error:</b>	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	-88.60	2.2	-89.3	89.3					
100.0	100.0	100.0	100.0	0.1	0.1	-88.60	2.2	-89.3	89.3	89.0	0.30	301.101		
200.0	200.0	200.0	200.0	0.3	0.3	-88.60	2.2	-89.3	89.3	88.7	0.65	138.344		
300.0	300.0	300.0	300.0	0.5	0.5	88.26	2.2	-89.3	89.3	88.3	1.00	89.401		
359.7	359.6	359.6	359.6	0.6	0.6	90.00	2.2	-89.3	89.2	88.0	1.22	73.187 CC		
400.0	399.8	399.8	399.8	0.7	0.7	91.62	2.2	-89.3	89.3	87.9	1.37	65.252 ES		
500.0	499.5	499.5	499.5	0.9	0.8	97.14	2.2	-89.3	89.9	88.2	1.77	50.919		
600.0	598.7	598.7	598.7	1.2	1.0	104.57	2.2	-89.3	92.3	90.1	2.20	41.997		
700.0	697.5	697.5	697.5	1.5	1.2	113.33	2.2	-89.3	97.4	94.8	2.65	36.787 SF		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>Local Co-ordinate Reference:</b>	Well LR16D I16 595
<b>Project:</b>	Garfield County	<b>TVD Reference:</b>	KBE @ 8306.0ft (Patterson 302)
<b>Reference Site:</b>	I16 595 pad	<b>MD Reference:</b>	KBE @ 8306.0ft (Patterson 302)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	LR16D I16 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 @ 8306.0ft (Patterson 302)  
Offset Depths are relative to Offset Datum  
Central Meridian is -105.500000 °

Coordinates are relative to: LR16D I16 595  
Coordinate System is US State Plane 1983, Colorado Central Zone  
Grid Convergence at Surface is: -1.61°

