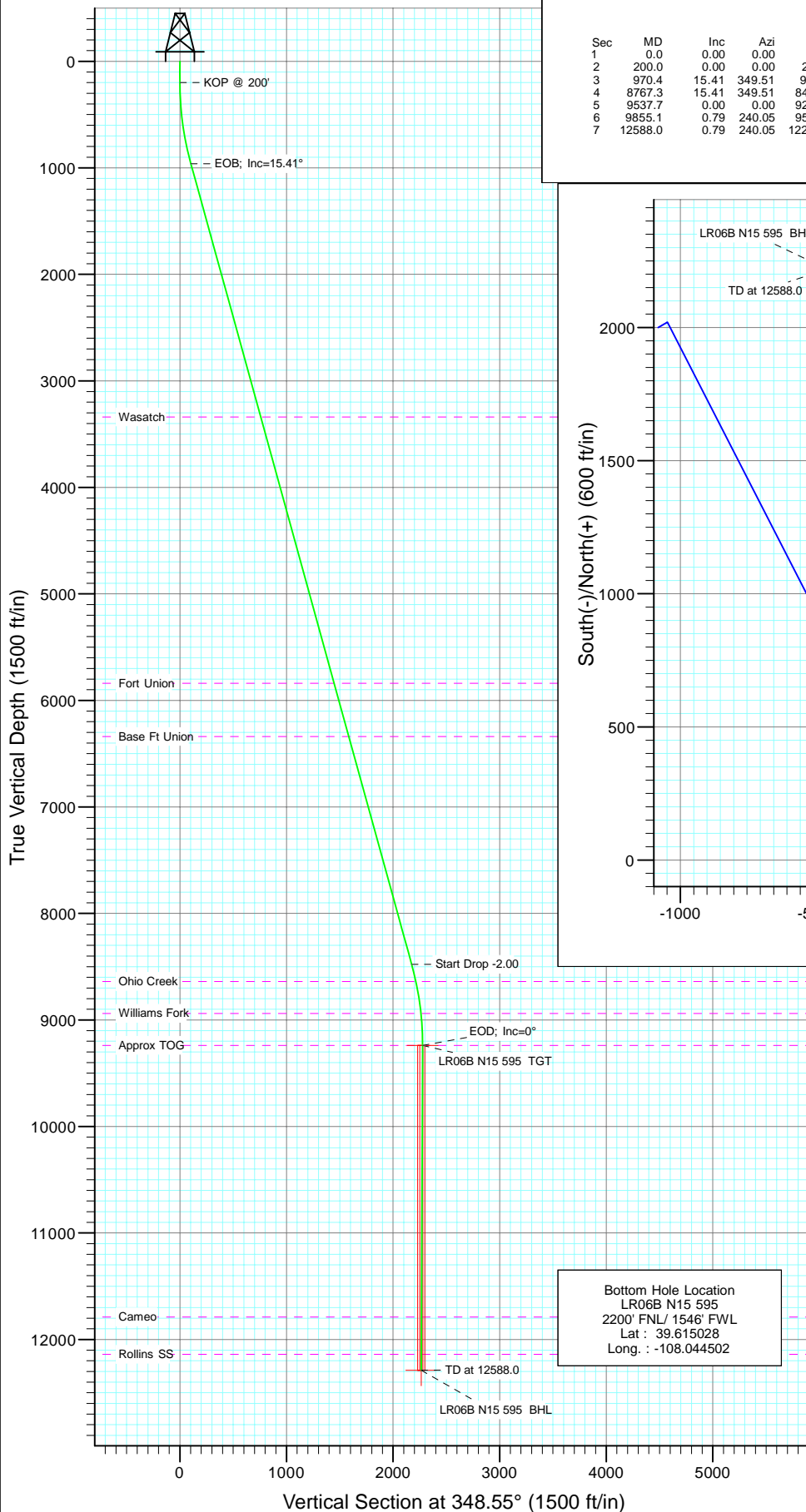
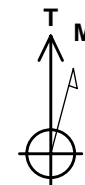
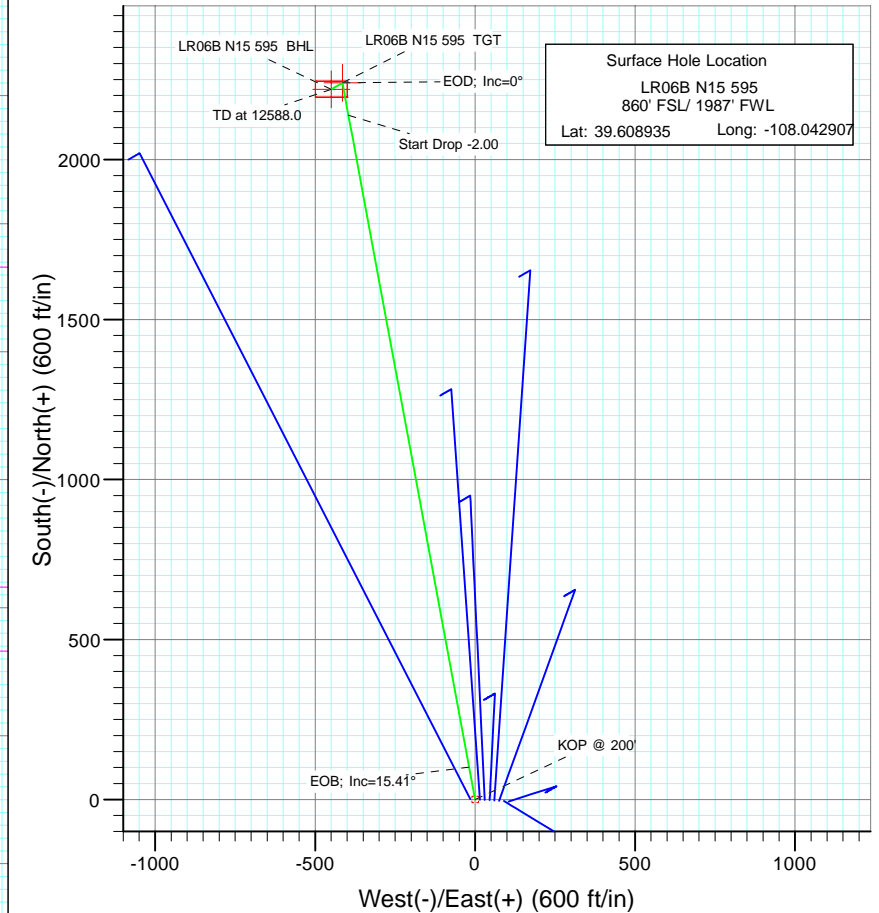




Project: Garfield County  
Site: N15 595 Pad  
Well: LR06B N15 595  
Wellbore: DD  
Design: Plan #1



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	970.4	15.41	349.51	961.1	101.2	-18.7	2.00	349.51	102.9	
4	8767.3	15.41	349.51	8477.9	2138.2	-395.9	0.00	0.00	2174.2	
5	9537.7	0.00	0.00	9239.0	2239.4	-414.6	2.00	180.00	2277.1	LR06B N15 595 TGT
6	9855.1	0.79	240.05	9556.4	2238.3	-416.6	0.25	240.05	2276.5	
7	12588.0	0.79	240.05	12289.0	2219.4	-449.3	0.00	0.00	2264.4	LR06B N15 595 BHL



Azimuths to True North  
Magnetic North: 10.47°

Magnetic Field  
Strength: 52402.1snT  
Dip Angle: 65.86°  
Date: 8/9/2010  
Model: IGRF200510

#### FORMATION TOP DETAILS

TVDPath	MDPath	Formation
3339.0	3436.9	Wasatch
5839.0	6030.1	Fort Union
6339.0	6548.7	Base Ft Union
8639.0	8933.3	Ohio Creek
8939.0	9237.2	Williams Fork
9239.0	9537.7	Approx TOG
11789.0	12088.0	Cameo
12139.0	12438.0	Rollins SS

#### DESIGN DETAILS: Plan #1

105XXX; BH  
KBE @ 8391.0ft (Patterson 302)

Target	Azimuth	Origin	N/S	E/WFrom TVD
LR06B N15 595 BHL	348.55	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 LR06B N15 595
<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>TVD Reference:</b>	KBE @ 8391.0ft (Patterson 302)
<b>Project:</b>	Garfield County	<b>MD Reference:</b>	KBE @ 8391.0ft (Patterson 302)
<b>Site:</b>	N15 595 Pad	<b>North Reference:</b>	True
<b>Well:</b>	LR06B N15 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		

Site		N15 595 Pad			
Site Position:		Northing:	1,656,704.15 ft	Latitude:	39.608919
From:	Lat/Long	Easting:	2,283,744.91 ft	Longitude:	-108.042534
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence:	-1.60 °

Well	LR06B N15 595					
Well Position	+N/-S	0.0 ft	Northing:	1,656,712.91 ft	Latitude:	39.608935
	+E/-W	0.0 ft	Easting:	2,283,640.02 ft	Longitude:	-108.042907
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	8,376.0 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	8/9/2010	10.47	65.86	52,402

<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	348.55

<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	
970.4	15.41	349.51	961.1	101.2	-18.7	2.00	2.00	0.00	349.51	
8,767.3	15.41	349.51	8,477.9	2,138.2	-395.9	0.00	0.00	0.00	0.00	
9,537.7	0.00	0.00	9,239.0	2,239.4	-414.6	2.00	-2.00	0.00	180.00	LR06B N15 595 TGT
9,855.1	0.79	240.05	9,556.4	2,238.3	-416.6	0.25	0.25	-37.79	240.05	
12,588.0	0.79	240.05	12,289.0	2,219.4	-449.3	0.00	0.00	0.00	0.00	LR06B N15 595 BHL



# Cathedral Energy Services

## Planning Report

<b>Database:</b>	EDM 5000.1 US Multi Users Db	<b>Local Co-ordinate Reference:</b>	Well LR06B N15 595
<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>TVD Reference:</b>	KBE @ 8391.0ft (Patterson 302)
<b>Project:</b>	Garfield County	<b>MD Reference:</b>	KBE @ 8391.0ft (Patterson 302)
<b>Site:</b>	N15 595 Pad	<b>North Reference:</b>	True
<b>Well:</b>	LR06B N15 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	349.51	210.0	0.0	0.0	0.0	2.00	2.00	
240.0	0.80	349.51	240.0	0.3	-0.1	0.3	2.00	2.00	
270.0	1.40	349.51	270.0	0.8	-0.2	0.9	2.00	2.00	
300.0	2.00	349.51	300.0	1.7	-0.3	1.7	2.00	2.00	
330.0	2.60	349.51	330.0	2.9	-0.5	2.9	2.00	2.00	
360.0	3.20	349.51	359.9	4.4	-0.8	4.5	2.00	2.00	
390.0	3.80	349.51	389.9	6.2	-1.1	6.3	2.00	2.00	
420.0	4.40	349.51	419.8	8.3	-1.5	8.4	2.00	2.00	
450.0	5.00	349.51	449.7	10.7	-2.0	10.9	2.00	2.00	
480.0	5.60	349.51	479.6	13.4	-2.5	13.7	2.00	2.00	
510.0	6.20	349.51	509.4	16.5	-3.1	16.8	2.00	2.00	
540.0	6.80	349.51	539.2	19.8	-3.7	20.1	2.00	2.00	
570.0	7.40	349.51	569.0	23.5	-4.3	23.9	2.00	2.00	
600.0	8.00	349.51	598.7	27.4	-5.1	27.9	2.00	2.00	
630.0	8.60	349.51	628.4	31.7	-5.9	32.2	2.00	2.00	
660.0	9.20	349.51	658.0	36.2	-6.7	36.8	2.00	2.00	
690.0	9.80	349.51	687.6	41.1	-7.6	41.8	2.00	2.00	
720.0	10.40	349.51	717.1	46.3	-8.6	47.1	2.00	2.00	
750.0	11.00	349.51	746.6	51.8	-9.6	52.6	2.00	2.00	
780.0	11.60	349.51	776.0	57.5	-10.7	58.5	2.00	2.00	
810.0	12.20	349.51	805.4	63.6	-11.8	64.7	2.00	2.00	
840.0	12.80	349.51	834.7	70.0	-13.0	71.2	2.00	2.00	
870.0	13.40	349.51	863.9	76.7	-14.2	78.0	2.00	2.00	
900.0	14.00	349.51	893.1	83.7	-15.5	85.1	2.00	2.00	
930.0	14.60	349.51	922.1	91.0	-16.8	92.5	2.00	2.00	
960.0	15.20	349.51	951.1	98.5	-18.2	100.2	2.00	2.00	
970.4	15.41	349.51	961.1	101.2	-18.7	102.9	2.00	2.00	EOB; Inc=15.41°
990.0	15.41	349.51	980.0	106.4	-19.7	108.2	0.00	0.00	
1,020.0	15.41	349.51	1,009.0	114.2	-21.1	116.1	0.00	0.00	
1,050.0	15.41	349.51	1,037.9	122.0	-22.6	124.1	0.00	0.00	
1,080.0	15.41	349.51	1,066.8	129.9	-24.0	132.1	0.00	0.00	
1,110.0	15.41	349.51	1,095.7	137.7	-25.5	140.0	0.00	0.00	
1,140.0	15.41	349.51	1,124.7	145.6	-27.0	148.0	0.00	0.00	
1,170.0	15.41	349.51	1,153.6	153.4	-28.4	156.0	0.00	0.00	
1,200.0	15.41	349.51	1,182.5	161.2	-29.9	163.9	0.00	0.00	
1,230.0	15.41	349.51	1,211.4	169.1	-31.3	171.9	0.00	0.00	
1,260.0	15.41	349.51	1,240.3	176.9	-32.8	179.9	0.00	0.00	
1,290.0	15.41	349.51	1,269.3	184.7	-34.2	187.9	0.00	0.00	
1,320.0	15.41	349.51	1,298.2	192.6	-35.7	195.8	0.00	0.00	
1,350.0	15.41	349.51	1,327.1	200.4	-37.1	203.8	0.00	0.00	
1,380.0	15.41	349.51	1,356.0	208.3	-38.6	211.8	0.00	0.00	
1,410.0	15.41	349.51	1,384.9	216.1	-40.0	219.7	0.00	0.00	
1,440.0	15.41	349.51	1,413.9	223.9	-41.5	227.7	0.00	0.00	
1,470.0	15.41	349.51	1,442.8	231.8	-42.9	235.7	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 LR06B N15 595
<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>TVD Reference:</b>	KBE @ 8391.0ft (Patterson 302)
<b>Project:</b>	Garfield County	<b>MD Reference:</b>	KBE @ 8391.0ft (Patterson 302)
<b>Site:</b>	N15 595 Pad	<b>North Reference:</b>	True
<b>Well:</b>	LR06B N15 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	15.41	349.51	1,471.7	239.6	-44.4	243.6	0.00	0.00	
1,530.0	15.41	349.51	1,500.6	247.4	-45.8	251.6	0.00	0.00	
1,560.0	15.41	349.51	1,529.6	255.3	-47.3	259.6	0.00	0.00	
1,590.0	15.41	349.51	1,558.5	263.1	-48.7	267.5	0.00	0.00	
1,620.0	15.41	349.51	1,587.4	270.9	-50.2	275.5	0.00	0.00	
1,650.0	15.41	349.51	1,616.3	278.8	-51.6	283.5	0.00	0.00	
1,680.0	15.41	349.51	1,645.2	286.6	-53.1	291.5	0.00	0.00	
1,710.0	15.41	349.51	1,674.2	294.5	-54.5	299.4	0.00	0.00	
1,740.0	15.41	349.51	1,703.1	302.3	-56.0	307.4	0.00	0.00	
1,770.0	15.41	349.51	1,732.0	310.1	-57.4	315.4	0.00	0.00	
1,800.0	15.41	349.51	1,760.9	318.0	-58.9	323.3	0.00	0.00	
1,830.0	15.41	349.51	1,789.9	325.8	-60.3	331.3	0.00	0.00	
1,860.0	15.41	349.51	1,818.8	333.6	-61.8	339.3	0.00	0.00	
1,890.0	15.41	349.51	1,847.7	341.5	-63.2	347.2	0.00	0.00	
1,920.0	15.41	349.51	1,876.6	349.3	-64.7	355.2	0.00	0.00	
1,950.0	15.41	349.51	1,905.5	357.2	-66.1	363.2	0.00	0.00	
1,980.0	15.41	349.51	1,934.5	365.0	-67.6	371.2	0.00	0.00	
2,010.0	15.41	349.51	1,963.4	372.8	-69.0	379.1	0.00	0.00	
2,040.0	15.41	349.51	1,992.3	380.7	-70.5	387.1	0.00	0.00	
2,070.0	15.41	349.51	2,021.2	388.5	-71.9	395.1	0.00	0.00	
2,100.0	15.41	349.51	2,050.1	396.3	-73.4	403.0	0.00	0.00	
2,130.0	15.41	349.51	2,079.1	404.2	-74.8	411.0	0.00	0.00	
2,160.0	15.41	349.51	2,108.0	412.0	-76.3	419.0	0.00	0.00	
2,190.0	15.41	349.51	2,136.9	419.9	-77.7	426.9	0.00	0.00	
2,220.0	15.41	349.51	2,165.8	427.7	-79.2	434.9	0.00	0.00	
2,250.0	15.41	349.51	2,194.8	435.5	-80.6	442.9	0.00	0.00	
2,280.0	15.41	349.51	2,223.7	443.4	-82.1	450.8	0.00	0.00	
2,310.0	15.41	349.51	2,252.6	451.2	-83.5	458.8	0.00	0.00	
2,340.0	15.41	349.51	2,281.5	459.0	-85.0	466.8	0.00	0.00	
2,370.0	15.41	349.51	2,310.4	466.9	-86.4	474.8	0.00	0.00	
2,400.0	15.41	349.51	2,339.4	474.7	-87.9	482.7	0.00	0.00	
2,430.0	15.41	349.51	2,368.3	482.6	-89.4	490.7	0.00	0.00	
2,460.0	15.41	349.51	2,397.2	490.4	-90.8	498.7	0.00	0.00	
2,490.0	15.41	349.51	2,426.1	498.2	-92.3	506.6	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									
LR06B N15 595 BHL	0.00	0.00	12,289.0	2,219.4	-449.3	1,658,944.03	2,283,252.97	39.615028	-108.044502
- plan misses target center by 10018.3ft at 2490.0ft MD (2426.1 TVD, 498.2 N, -92.3 E)									
- Rectangle (sides W50.0 H100.0 D0.0)									
LR06B N15 595 TGT	0.00	0.00	9,239.0	2,239.4	-414.6	1,658,963.04	2,283,288.21	39.615083	-108.044379
- plan misses target center by 7039.2ft at 2490.0ft MD (2426.1 TVD, 498.2 N, -92.3 E)									
- Point									



# Cathedral Energy Services

## Planning Report

<b>Database:</b>	EDM 5000.1 US Multi Users Db	<b>Local Co-ordinate Reference:</b>	Well LR06B N15 595
<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>TVD Reference:</b>	KBE @ 8391.0ft (Patterson 302)
<b>Project:</b>	Garfield County	<b>MD Reference:</b>	KBE @ 8391.0ft (Patterson 302)
<b>Site:</b>	N15 595 Pad	<b>North Reference:</b>	True
<b>Well:</b>	LR06B N15 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	15.41	349.51	2,435.8	500.8	-92.7	509.3	0.00	0.00	
2,600.0	15.41	349.51	2,532.2	527.0	-97.6	535.9	0.00	0.00	
2,700.0	15.41	349.51	2,628.6	553.1	-102.4	562.4	0.00	0.00	
2,800.0	15.41	349.51	2,725.0	579.2	-107.2	589.0	0.00	0.00	
2,900.0	15.41	349.51	2,821.4	605.3	-112.1	615.5	0.00	0.00	
3,000.0	15.41	349.51	2,917.8	631.5	-116.9	642.1	0.00	0.00	
3,100.0	15.41	349.51	3,014.2	657.6	-121.8	668.7	0.00	0.00	
3,200.0	15.41	349.51	3,110.6	683.7	-126.6	695.2	0.00	0.00	
3,300.0	15.41	349.51	3,207.0	709.8	-131.4	721.8	0.00	0.00	
3,400.0	15.41	349.51	3,303.4	736.0	-136.3	748.4	0.00	0.00	
3,436.9	15.41	349.51	3,339.0	745.6	-138.1	758.2	0.00	0.00	Wasatch
3,500.0	15.41	349.51	3,399.8	762.1	-141.1	774.9	0.00	0.00	
3,600.0	15.41	349.51	3,496.2	788.2	-145.9	801.5	0.00	0.00	
3,700.0	15.41	349.51	3,592.6	814.3	-150.8	828.1	0.00	0.00	
3,800.0	15.41	349.51	3,689.1	840.5	-155.6	854.6	0.00	0.00	
3,900.0	15.41	349.51	3,785.5	866.6	-160.5	881.2	0.00	0.00	
4,000.0	15.41	349.51	3,881.9	892.7	-165.3	907.8	0.00	0.00	
4,100.0	15.41	349.51	3,978.3	918.8	-170.1	934.3	0.00	0.00	
4,200.0	15.41	349.51	4,074.7	945.0	-175.0	960.9	0.00	0.00	
4,300.0	15.41	349.51	4,171.1	971.1	-179.8	987.5	0.00	0.00	
4,400.0	15.41	349.51	4,267.5	997.2	-184.6	1,014.0	0.00	0.00	
4,500.0	15.41	349.51	4,363.9	1,023.3	-189.5	1,040.6	0.00	0.00	
4,600.0	15.41	349.51	4,460.3	1,049.5	-194.3	1,067.2	0.00	0.00	
4,700.0	15.41	349.51	4,556.7	1,075.6	-199.2	1,093.7	0.00	0.00	
4,800.0	15.41	349.51	4,653.1	1,101.7	-204.0	1,120.3	0.00	0.00	
4,900.0	15.41	349.51	4,749.5	1,127.8	-208.8	1,146.8	0.00	0.00	
5,000.0	15.41	349.51	4,845.9	1,154.0	-213.7	1,173.4	0.00	0.00	
5,100.0	15.41	349.51	4,942.3	1,180.1	-218.5	1,200.0	0.00	0.00	
5,200.0	15.41	349.51	5,038.7	1,206.2	-223.3	1,226.5	0.00	0.00	
5,300.0	15.41	349.51	5,135.1	1,232.3	-228.2	1,253.1	0.00	0.00	
5,400.0	15.41	349.51	5,231.5	1,258.5	-233.0	1,279.7	0.00	0.00	
5,500.0	15.41	349.51	5,328.0	1,284.6	-237.9	1,306.2	0.00	0.00	
5,600.0	15.41	349.51	5,424.4	1,310.7	-242.7	1,332.8	0.00	0.00	
5,700.0	15.41	349.51	5,520.8	1,336.8	-247.5	1,359.4	0.00	0.00	
5,800.0	15.41	349.51	5,617.2	1,363.0	-252.4	1,385.9	0.00	0.00	
5,900.0	15.41	349.51	5,713.6	1,389.1	-257.2	1,412.5	0.00	0.00	
6,000.0	15.41	349.51	5,810.0	1,415.2	-262.0	1,439.1	0.00	0.00	
6,030.1	15.41	349.51	5,839.0	1,423.1	-263.5	1,447.1	0.00	0.00	Fort Union
6,100.0	15.41	349.51	5,906.4	1,441.3	-266.9	1,465.6	0.00	0.00	
6,200.0	15.41	349.51	6,002.8	1,467.5	-271.7	1,492.2	0.00	0.00	
6,300.0	15.41	349.51	6,099.2	1,493.6	-276.6	1,518.8	0.00	0.00	
6,400.0	15.41	349.51	6,195.6	1,519.7	-281.4	1,545.3	0.00	0.00	
6,500.0	15.41	349.51	6,292.0	1,545.8	-286.2	1,571.9	0.00	0.00	
6,548.7	15.41	349.51	6,339.0	1,558.6	-288.6	1,584.8	0.00	0.00	Base Ft Union
6,600.0	15.41	349.51	6,388.4	1,572.0	-291.1	1,598.4	0.00	0.00	
6,700.0	15.41	349.51	6,484.8	1,598.1	-295.9	1,625.0	0.00	0.00	
6,800.0	15.41	349.51	6,581.2	1,624.2	-300.7	1,651.6	0.00	0.00	
6,900.0	15.41	349.51	6,677.6	1,650.3	-305.6	1,678.1	0.00	0.00	
7,000.0	15.41	349.51	6,774.0	1,676.4	-310.4	1,704.7	0.00	0.00	
7,100.0	15.41	349.51	6,870.4	1,702.6	-315.3	1,731.3	0.00	0.00	
7,200.0	15.41	349.51	6,966.9	1,728.7	-320.1	1,757.8	0.00	0.00	
7,300.0	15.41	349.51	7,063.3	1,754.8	-324.9	1,784.4	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 LR06B N15 595
<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>TVD Reference:</b>	KBE @ 8391.0ft (Patterson 302)
<b>Project:</b>	Garfield County	<b>MD Reference:</b>	KBE @ 8391.0ft (Patterson 302)
<b>Site:</b>	N15 595 Pad	<b>North Reference:</b>	True
<b>Well:</b>	LR06B N15 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
7,400.0	15.41	349.51	7,159.7	1,780.9	-329.8	1,811.0	0.00	0.00	
7,500.0	15.41	349.51	7,256.1	1,807.1	-334.6	1,837.5	0.00	0.00	
7,600.0	15.41	349.51	7,352.5	1,833.2	-339.4	1,864.1	0.00	0.00	
7,700.0	15.41	349.51	7,448.9	1,859.3	-344.3	1,890.7	0.00	0.00	
7,800.0	15.41	349.51	7,545.3	1,885.4	-349.1	1,917.2	0.00	0.00	
7,900.0	15.41	349.51	7,641.7	1,911.6	-353.9	1,943.8	0.00	0.00	
8,000.0	15.41	349.51	7,738.1	1,937.7	-358.8	1,970.4	0.00	0.00	
8,100.0	15.41	349.51	7,834.5	1,963.8	-363.6	1,996.9	0.00	0.00	
8,200.0	15.41	349.51	7,930.9	1,989.9	-368.5	2,023.5	0.00	0.00	
8,300.0	15.41	349.51	8,027.3	2,016.1	-373.3	2,050.1	0.00	0.00	
8,400.0	15.41	349.51	8,123.7	2,042.2	-378.1	2,076.6	0.00	0.00	
8,500.0	15.41	349.51	8,220.1	2,068.3	-383.0	2,103.2	0.00	0.00	
8,600.0	15.41	349.51	8,316.5	2,094.4	-387.8	2,129.7	0.00	0.00	
8,700.0	15.41	349.51	8,412.9	2,120.6	-392.6	2,156.3	0.00	0.00	
8,767.3	15.41	349.51	8,477.9	2,138.2	-395.9	2,174.2	0.00	0.00	Start Drop -2.00
8,800.0	14.75	349.51	8,509.4	2,146.5	-397.5	2,182.7	2.00	-2.00	
8,900.0	12.75	349.51	8,606.5	2,169.9	-401.8	2,206.5	2.00	-2.00	
8,933.3	12.09	349.51	8,639.0	2,176.9	-403.1	2,213.6	2.00	-2.00	Ohio Creek
9,000.0	10.75	349.51	8,704.4	2,189.9	-405.5	2,226.8	2.00	-2.00	
9,100.0	8.75	349.51	8,803.0	2,206.6	-408.6	2,243.8	2.00	-2.00	
9,200.0	6.75	349.51	8,902.1	2,219.8	-411.0	2,257.3	2.00	-2.00	
9,237.2	6.01	349.51	8,939.0	2,223.9	-411.8	2,261.4	2.00	-2.00	Williams Fork
9,300.0	4.75	349.51	9,001.5	2,229.7	-412.9	2,267.3	2.00	-2.00	
9,400.0	2.75	349.51	9,101.3	2,236.1	-414.0	2,273.8	2.00	-2.00	
9,500.0	0.75	349.51	9,201.3	2,239.2	-414.6	2,276.9	2.00	-2.00	
9,537.7	0.00	0.00	9,239.0	2,239.4	-414.6	2,277.1	2.00	-2.00	EOD; Inc=0° - Approx TOG - LR06B N15 595 1
9,600.0	0.16	240.05	9,301.3	2,239.4	-414.7	2,277.1	0.25	0.25	
9,700.0	0.41	240.05	9,401.3	2,239.1	-415.1	2,277.0	0.25	0.25	
9,800.0	0.66	240.05	9,501.3	2,238.7	-416.0	2,276.7	0.25	0.25	
9,855.1	0.79	240.05	9,556.4	2,238.3	-416.6	2,276.5	0.25	0.25	
9,900.0	0.79	240.05	9,601.3	2,238.0	-417.1	2,276.3	0.00	0.00	
10,000.0	0.79	240.05	9,701.2	2,237.3	-418.3	2,275.8	0.00	0.00	
10,100.0	0.79	240.05	9,801.2	2,236.6	-419.5	2,275.4	0.00	0.00	
10,200.0	0.79	240.05	9,901.2	2,235.9	-420.7	2,274.9	0.00	0.00	
10,300.0	0.79	240.05	10,001.2	2,235.2	-421.9	2,274.5	0.00	0.00	
10,400.0	0.79	240.05	10,101.2	2,234.5	-423.1	2,274.1	0.00	0.00	
10,500.0	0.79	240.05	10,201.2	2,233.8	-424.3	2,273.6	0.00	0.00	
10,600.0	0.79	240.05	10,301.2	2,233.2	-425.5	2,273.2	0.00	0.00	
10,700.0	0.79	240.05	10,401.2	2,232.5	-426.7	2,272.7	0.00	0.00	
10,800.0	0.79	240.05	10,501.2	2,231.8	-427.9	2,272.3	0.00	0.00	
10,900.0	0.79	240.05	10,601.2	2,231.1	-429.1	2,271.9	0.00	0.00	
11,000.0	0.79	240.05	10,701.2	2,230.4	-430.3	2,271.4	0.00	0.00	
11,100.0	0.79	240.05	10,801.1	2,229.7	-431.5	2,271.0	0.00	0.00	
11,200.0	0.79	240.05	10,901.1	2,229.0	-432.7	2,270.5	0.00	0.00	
11,300.0	0.79	240.05	11,001.1	2,228.3	-433.9	2,270.1	0.00	0.00	
11,400.0	0.79	240.05	11,101.1	2,227.6	-435.1	2,269.7	0.00	0.00	
11,500.0	0.79	240.05	11,201.1	2,226.9	-436.3	2,269.2	0.00	0.00	
11,600.0	0.79	240.05	11,301.1	2,226.2	-437.5	2,268.8	0.00	0.00	
11,700.0	0.79	240.05	11,401.1	2,225.5	-438.7	2,268.3	0.00	0.00	
11,800.0	0.79	240.05	11,501.1	2,224.9	-439.9	2,267.9	0.00	0.00	
11,900.0	0.79	240.05	11,601.1	2,224.2	-441.1	2,267.5	0.00	0.00	
12,000.0	0.79	240.05	11,701.1	2,223.5	-442.3	2,267.0	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 LR06B N15 595
<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>TVD Reference:</b>	KBE @ 8391.0ft (Patterson 302)
<b>Project:</b>	Garfield County	<b>MD Reference:</b>	KBE @ 8391.0ft (Patterson 302)
<b>Site:</b>	N15 595 Pad	<b>North Reference:</b>	True
<b>Well:</b>	LR06B N15 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
12,088.0	0.79	240.05	11,789.0	2,222.9	-443.3	2,266.6	0.00	0.00	Cameo
12,100.0	0.79	240.05	11,801.0	2,222.8	-443.5	2,266.6	0.00	0.00	
12,200.0	0.79	240.05	11,901.0	2,222.1	-444.7	2,266.1	0.00	0.00	
12,300.0	0.79	240.05	12,001.0	2,221.4	-445.9	2,265.7	0.00	0.00	
12,400.0	0.79	240.05	12,101.0	2,220.7	-447.1	2,265.3	0.00	0.00	
12,438.0	0.79	240.05	12,139.0	2,220.4	-447.5	2,265.1	0.00	0.00	Rollins SS
12,500.0	0.79	240.05	12,201.0	2,220.0	-448.3	2,264.8	0.00	0.00	
12,588.0	0.79	240.05	12,289.0	2,219.4	-449.3	2,264.4	0.00	0.00	TD at 12588.0 - LR06B N15 595 BHL

Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
LR06B N15 595 BHL - hit/miss target - Shape - plan hits target center - Rectangle (sides W50.0 H100.0 D0.0)	0.00	0.00	12,289.0	2,219.4	-449.3	1,658,944.03	2,283,252.97	39.615028	-108.044502
LR06B N15 595 TGT - plan hits target center - Point	0.00	0.00	9,239.0	2,239.4	-414.6	1,658,963.04	2,283,288.21	39.615083	-108.044379

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,436.9	3,339.0	Wasatch		0.00	
6,030.1	5,839.0	Fort Union		0.00	
6,548.7	6,339.0	Base Ft Union		0.00	
8,933.3	8,639.0	Ohio Creek		0.00	
9,237.2	8,939.0	Williams Fork		0.00	
9,537.7	9,239.0	Approx TOG		0.00	
12,088.0	11,789.0	Cameo		0.00	
12,438.0	12,139.0	Rollins SS		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'
970.4	961.1	101.2	-18.7	EOB; Inc=15.41°
8,767.3	8,477.9	2,138.2	-395.9	Start Drop -2.00
9,537.7	9,239.0	2,239.4	-414.6	EOD; Inc=0°
12,588.0	12,289.0	2,219.4	-449.3	TD at 12588.0

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

**Garfield County**

**N15 595 Pad**

**LR06B N15 595**

**DD**

**Plan #1**

## **Anticollision Report**

**10 August, 2010**



# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>Local Co-ordinate Reference:</b>	Well LR06B N15 595
<b>Project:</b>	Garfield County	<b>TVD Reference:</b>	KBE @ 8391.0ft (Patterson 302)
<b>Reference Site:</b>	N15 595 Pad	<b>MD Reference:</b>	KBE @ 8391.0ft (Patterson 302)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	LR06B N15 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	8/10/2010		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
0.0	12,588.0	Plan #1 (DD)	MWD	Geolink MWD	

Summary						
Site Name Offset Well - Wellbore - Design	Reference	Offset	Distance		Separation	Warning
	Measured Depth (ft)	Measured Depth (ft)	Between Centres (ft)	Between Ellipses (ft)		
N15 595 Pad						
LR05D N15 595 - DD - Plan #1	200.0	200.0	15.0	14.3	23.186	CC, ES
LR05D N15 595 - DD - Plan #1	1,700.0	1,694.6	99.6	87.4	8.169	SF
LR11A N15 595 - DD - Plan #1	200.0	200.0	60.1	59.4	93.041	CC, ES
LR11A N15 595 - DD - Plan #1	1,100.0	1,098.4	95.0	89.0	15.815	SF
LR11B N15 595 - DD - Plan #1	200.0	200.0	15.0	14.3	23.151	CC
LR11B N15 595 - DD - Plan #1	300.0	300.1	15.1	14.1	15.113	ES
LR11B N15 595 - DD - Plan #1	1,100.0	1,100.1	31.3	25.1	5.071	SF
LR11C N15 595 - DD - Plan #1	200.0	200.0	30.2	29.5	46.738	CC, ES
LR11C N15 595 - DD - Plan #1	600.0	599.7	44.4	42.3	20.991	SF
LR11D N15 595 - DD - Plan #1	200.0	200.0	75.1	74.4	116.221	CC, ES
LR11D N15 595 - DD - Plan #1	700.0	698.3	94.3	91.7	36.148	SF
LR14A N15 595 - DD - Plan #1	200.0	200.0	45.4	44.8	70.325	CC, ES
LR14A N15 595 - DD - Plan #1	600.0	598.7	58.5	56.3	27.387	SF
LR14B N15 595 - DD - Plan #1						Out of range
LR15C N15 595 - DD - Plan #1	200.0	200.0	90.0	89.4	139.372	CC, ES
LR15C N15 595 - DD - Plan #1	400.0	393.9	98.1	96.7	72.220	SF

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>Local Co-ordinate Reference:</b>	Well LR06B N15 595
<b>Project:</b>	Garfield County	<b>TVD Reference:</b>	KBE @ 8391.0ft (Patterson 302)
<b>Reference Site:</b>	N15 595 Pad	<b>MD Reference:</b>	KBE @ 8391.0ft (Patterson 302)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	LR06B N15 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 N15 595 Pad - LR05D N15 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	-85.81	1.1	-14.9	15.0					
100.0	100.0	100.0	100.0	0.1	0.1	-85.81	1.1	-14.9	15.0	14.7	0.30	50.463		
200.0	200.0	200.0	200.0	0.3	0.3	-85.81	1.1	-14.9	15.0	14.3	0.65	23.186 CC, ES		
300.0	300.0	299.7	299.7	0.5	0.5	-76.06	2.6	-15.7	15.4	14.4	1.00	15.427		
400.0	399.8	399.4	399.3	0.7	0.7	-78.02	7.3	-18.1	16.8	15.5	1.39	12.158		
500.0	499.5	499.1	498.6	0.9	0.9	-80.64	15.0	-22.0	19.2	17.4	1.83	10.521		
600.0	598.7	598.8	597.5	1.2	1.2	-83.36	25.8	-27.6	22.6	20.2	2.35	9.619		
700.0	697.5	698.3	695.8	1.5	1.5	-85.83	39.6	-34.6	27.0	24.0	2.97	9.089		
800.0	795.6	797.8	793.5	1.9	1.9	-87.92	56.4	-43.3	32.3	28.7	3.69	8.763		
900.0	893.1	897.3	890.4	2.3	2.3	-89.62	76.3	-53.4	38.7	34.2	4.53	8.556		
970.4	961.1	967.2	958.1	2.6	2.6	-90.60	92.0	-61.5	43.8	38.7	5.17	8.471		
1,000.0	989.7	996.7	986.5	2.8	2.8	-90.98	99.0	-65.0	46.1	40.6	5.45	8.455		
1,100.0	1,086.1	1,096.4	1,082.6	3.2	3.2	-92.04	122.5	-77.1	53.7	47.3	6.39	8.399		
1,200.0	1,182.5	1,196.1	1,178.8	3.7	3.7	-92.83	146.0	-89.1	61.3	54.0	7.35	8.346		
1,300.0	1,278.9	1,295.8	1,274.9	4.2	4.2	-93.45	169.6	-101.2	69.0	60.7	8.31	8.301		
1,400.0	1,375.3	1,395.5	1,371.1	4.7	4.7	-93.94	193.1	-113.2	76.6	67.3	9.27	8.261		
1,500.0	1,471.7	1,495.2	1,467.2	5.2	5.2	-94.34	216.6	-125.3	84.3	74.0	10.24	8.226		
1,600.0	1,568.1	1,594.9	1,563.3	5.7	5.7	-94.68	240.2	-137.4	91.9	80.7	11.21	8.196		
1,700.0	1,664.5	1,694.6	1,659.5	6.2	6.1	-94.97	263.7	-149.4	99.6	87.4	12.19	8.169 SF		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>Local Co-ordinate Reference:</b>	Well LR06B N15 595
<b>Project:</b>	Garfield County	<b>TVD Reference:</b>	KBE @ 8391.0ft (Patterson 302)
<b>Reference Site:</b>	N15 595 Pad	<b>MD Reference:</b>	KBE @ 8391.0ft (Patterson 302)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	LR06B N15 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> N15 595 Pad - LR11A N15 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	92.78	-2.9	60.0	60.1					
100.0	100.0	100.0	100.0	0.1	0.1	92.78	-2.9	60.0	60.1	59.8	0.30	202.500		
200.0	200.0	200.0	200.0	0.3	0.3	92.78	-2.9	60.0	60.1	59.4	0.65	93.041 CC, ES		
300.0	300.0	300.0	299.9	0.5	0.5	103.22	-1.2	60.1	60.5	59.5	1.00	60.397		
400.0	399.8	399.9	399.7	0.7	0.7	103.07	4.0	60.5	61.8	60.4	1.39	44.437		
500.0	499.5	499.8	499.3	0.9	0.9	102.83	12.7	61.1	64.0	62.1	1.84	34.785		
600.0	598.7	599.7	598.4	1.2	1.2	102.52	24.9	61.9	67.0	64.7	2.37	28.302		
700.0	697.5	699.6	697.0	1.5	1.5	102.16	40.4	62.9	70.9	67.9	2.99	23.706		
800.0	795.6	799.4	795.1	1.9	1.9	102.03	59.1	64.2	75.6	71.9	3.70	20.446		
900.0	893.1	899.2	893.0	2.3	2.2	103.93	78.2	65.5	81.2	76.7	4.46	18.191		
970.4	961.1	969.3	961.9	2.6	2.5	106.45	91.7	66.4	85.7	80.7	5.02	17.085		
1,000.0	989.7	998.8	990.8	2.8	2.6	107.69	97.3	66.8	87.8	82.5	5.24	16.733		
1,100.0	1,086.1	1,098.4	1,088.5	3.2	2.9	111.47	116.4	68.1	95.0	89.0	6.01	15.815 SF		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>Local Co-ordinate Reference:</b>	Well LR06B N15 595
<b>Project:</b>	Garfield County	<b>TVD Reference:</b>	KBE @ 8391.0ft (Patterson 302)
<b>Reference Site:</b>	N15 595 Pad	<b>MD Reference:</b>	KBE @ 8391.0ft (Patterson 302)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	LR06B N15 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 N15 595 Pad - LR11B N15 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	92.79	-0.7	14.9	15.0					
100.0	100.0	100.0	100.0	0.1	0.1	92.79	-0.7	14.9	15.0	14.7	0.30	50.388		
200.0	200.0	200.0	200.0	0.3	0.3	92.79	-0.7	14.9	15.0	14.3	0.65	23.151 CC		
300.0	300.0	300.1	300.0	0.5	0.5	103.14	1.0	14.8	15.1	14.1	1.00	15.113 ES		
400.0	399.8	400.1	400.0	0.7	0.7	102.75	6.2	14.4	15.7	14.3	1.39	11.305		
500.0	499.5	500.2	499.6	0.9	0.9	102.15	14.9	13.8	16.7	14.9	1.84	9.078		
600.0	598.7	600.2	598.9	1.2	1.2	101.43	27.1	13.0	18.1	15.7	2.37	7.625		
700.0	697.5	700.3	697.7	1.5	1.5	100.64	42.7	11.9	19.8	16.8	3.00	6.617		
800.0	795.6	800.3	795.9	1.9	1.9	99.84	61.8	10.6	22.0	18.2	3.73	5.893		
900.0	893.1	900.3	893.4	2.3	2.3	99.55	84.0	9.0	24.5	20.0	4.55	5.382		
970.4	961.1	970.6	961.8	2.6	2.6	102.66	100.2	7.9	26.7	21.5	5.15	5.179		
1,000.0	989.7	1,000.2	990.6	2.8	2.7	104.57	107.0	7.4	27.7	22.3	5.39	5.138		
1,100.0	1,086.1	1,100.1	1,087.8	3.2	3.1	110.06	130.0	5.8	31.3	25.1	6.17	5.071 SF		
1,200.0	1,182.5	1,200.0	1,185.0	3.7	3.5	114.39	152.9	4.2	35.1	28.2	6.92	5.077		
1,300.0	1,278.9	1,299.9	1,282.2	4.2	4.0	117.85	175.9	2.6	39.2	31.5	7.65	5.120		
1,400.0	1,375.3	1,399.8	1,379.4	4.7	4.4	120.66	198.9	1.0	43.3	34.9	8.35	5.182		
1,500.0	1,471.7	1,499.7	1,476.6	5.2	4.8	122.98	221.8	-0.6	47.5	38.4	9.04	5.252		
1,600.0	1,568.1	1,599.6	1,573.8	5.7	5.3	124.91	244.8	-2.2	51.8	42.0	9.72	5.324		
1,700.0	1,664.5	1,699.5	1,671.0	6.2	5.7	126.55	267.8	-3.8	56.1	45.7	10.39	5.397		
1,800.0	1,760.9	1,799.4	1,768.2	6.7	6.1	127.96	290.7	-5.4	60.4	49.4	11.06	5.467		
1,900.0	1,857.3	1,899.3	1,865.5	7.1	6.6	129.17	313.7	-7.0	64.8	53.1	11.72	5.534		
2,000.0	1,953.7	1,999.1	1,962.7	7.6	7.0	130.23	336.7	-8.6	69.3	56.9	12.37	5.598		
2,100.0	2,050.1	2,099.0	2,059.9	8.1	7.4	131.16	359.6	-10.2	73.7	60.7	13.02	5.659		
2,200.0	2,146.6	2,198.9	2,157.1	8.6	7.9	131.99	382.6	-11.8	78.2	64.5	13.67	5.716		
2,300.0	2,243.0	2,298.8	2,254.3	9.1	8.3	132.73	405.6	-13.4	82.6	68.3	14.32	5.770		
2,400.0	2,339.4	2,398.7	2,351.5	9.6	8.8	133.39	428.5	-15.0	87.1	72.1	14.97	5.820		
2,500.0	2,435.8	2,498.6	2,448.7	10.1	9.2	133.98	451.5	-16.6	91.6	76.0	15.61	5.868		
2,600.0	2,532.2	2,598.5	2,545.9	10.6	9.6	134.53	474.5	-18.2	96.1	79.9	16.25	5.913		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>Local Co-ordinate Reference:</b>	Well LR06B N15 595
<b>Project:</b>	Garfield County	<b>TVD Reference:</b>	KBE @ 8391.0ft (Patterson 302)
<b>Reference Site:</b>	N15 595 Pad	<b>MD Reference:</b>	KBE @ 8391.0ft (Patterson 302)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	LR06B N15 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 N15 595 Pad - LR11C N15 595 - DD - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance				Total	Separation	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Uncertainty Axis	Factor		
0.0	0.0	0.0	0.0	0.0	0.0	92.77	-1.5	30.1	30.2					
100.0	100.0	100.0	100.0	0.1	0.1	92.77	-1.5	30.1	30.2	29.9	0.30	101.724		
200.0	200.0	200.0	200.0	0.3	0.3	92.77	-1.5	30.1	30.2	29.5	0.65	46.738 CC, ES		
300.0	300.0	300.0	300.0	0.5	0.5	106.43	-1.5	30.1	30.6	29.6	1.00	30.685		
400.0	399.8	399.8	399.8	0.7	0.7	115.27	-1.5	30.1	32.5	31.1	1.36	23.839		
500.0	499.5	499.5	499.5	0.9	0.8	127.44	-1.5	30.1	37.1	35.3	1.74	21.324		
600.0	598.7	599.7	599.7	1.2	1.0	138.01	0.3	30.1	44.4	42.3	2.12	20.991 SF		
700.0	697.5	700.4	700.2	1.5	1.2	145.01	5.5	29.8	53.1	50.6	2.50	21.264		
800.0	795.6	801.4	800.8	1.9	1.4	149.61	14.4	29.4	62.6	59.7	2.89	21.673		
900.0	893.1	902.7	901.4	2.3	1.7	152.64	26.8	28.8	72.6	69.3	3.29	22.038		
970.4	961.1	974.3	972.1	2.6	1.9	154.11	37.7	28.3	79.8	76.2	3.59	22.224		
1,000.0	989.7	1,004.5	1,001.9	2.8	2.0	154.59	42.8	28.0	82.8	79.1	3.72	22.248		
1,100.0	1,086.1	1,104.1	1,100.0	3.2	2.3	155.72	60.4	27.2	92.2	88.0	4.16	22.162		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>Local Co-ordinate Reference:</b>	Well LR06B N15 595
<b>Project:</b>	Garfield County	<b>TVD Reference:</b>	KBE @ 8391.0ft (Patterson 302)
<b>Reference Site:</b>	N15 595 Pad	<b>MD Reference:</b>	KBE @ 8391.0ft (Patterson 302)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	LR06B N15 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> N15 595 Pad - LR11D N15 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	93.06	-4.0	74.9	75.1					
100.0	100.0	100.0	100.0	0.1	0.1	93.06	-4.0	74.9	75.1	74.8	0.30	252.951		
200.0	200.0	200.0	200.0	0.3	0.3	93.06	-4.0	74.9	75.1	74.4	0.65	116.221 CC, ES		
300.0	300.0	300.0	300.0	0.5	0.5	104.83	-4.0	74.9	75.5	74.5	1.00	75.612		
400.0	399.8	399.8	399.8	0.7	0.7	108.56	-4.0	74.9	77.0	75.6	1.37	56.384		
500.0	499.5	499.5	499.5	0.9	0.8	114.40	-4.0	74.9	80.2	78.4	1.75	45.715		
600.0	598.7	598.7	598.7	1.2	1.0	120.55	-2.4	75.5	85.9	83.8	2.17	39.680		
700.0	697.5	698.3	698.1	1.5	1.2	125.47	2.4	77.3	94.3	91.7	2.61	36.148 SF		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>Local Co-ordinate Reference:</b>	Well LR06B N15 595
<b>Project:</b>	Garfield County	<b>TVD Reference:</b>	KBE @ 8391.0ft (Patterson 302)
<b>Reference Site:</b>	N15 595 Pad	<b>MD Reference:</b>	KBE @ 8391.0ft (Patterson 302)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	LR06B N15 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 N15 595 Pad - LR14A N15 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	92.76	-2.2	45.4	45.4					
100.0	100.0	100.0	100.0	0.1	0.1	92.76	-2.2	45.4	45.4	45.1	0.30	153.061		
200.0	200.0	200.0	200.0	0.3	0.3	92.76	-2.2	45.4	45.4	44.8	0.65	70.325	CC, ES	
300.0	300.0	300.0	300.0	0.5	0.5	105.36	-2.2	45.4	45.8	44.8	1.00	45.927		
400.0	399.8	399.8	399.8	0.7	0.7	111.42	-2.2	45.4	47.5	46.1	1.36	34.811		
500.0	499.5	499.5	499.5	0.9	0.8	120.42	-2.2	45.4	51.3	49.6	1.75	29.377		
600.0	598.7	598.7	598.7	1.2	1.0	130.62	-2.2	45.4	58.5	56.3	2.14	27.387	SF	
700.0	697.5	697.5	697.5	1.5	1.2	140.23	-2.2	45.4	69.7	67.2	2.51	27.763		
800.0	795.6	795.6	795.6	1.9	1.4	148.24	-2.2	45.4	85.3	82.5	2.87	29.748		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>Local Co-ordinate Reference:</b>	Well LR06B N15 595
<b>Project:</b>	Garfield County	<b>TVD Reference:</b>	KBE @ 8391.0ft (Patterson 302)
<b>Reference Site:</b>	N15 595 Pad	<b>MD Reference:</b>	KBE @ 8391.0ft (Patterson 302)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	LR06B N15 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													N15 595 Pad - LR15C N15 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	93.02	-4.7	89.9	90.0								
100.0	100.0	100.0	100.0	0.1	0.1	93.02	-4.7	89.9	90.0	89.7	0.30	303.338					
200.0	200.0	200.0	200.0	0.3	0.3	93.02	-4.7	89.9	90.0	89.4	0.65	139.372 CC, ES					
300.0	300.0	297.2	297.2	0.5	0.5	104.98	-5.6	91.3	91.9	90.9	0.99	92.478					
400.0	399.8	393.9	393.7	0.7	0.7	109.03	-8.1	95.5	98.1	96.7	1.36	72.220 SF					



# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>Local Co-ordinate Reference:</b>	Well LR06B N15 595
<b>Project:</b>	Garfield County	<b>TVD Reference:</b>	KBE @ 8391.0ft (Patterson 302)
<b>Reference Site:</b>	N15 595 Pad	<b>MD Reference:</b>	KBE @ 8391.0ft (Patterson 302)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	LR06B N15 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 @ 8391.0ft (Patterson 302)  
Offset Depths are relative to Offset Datum  
Central Meridian is -105.500000 °

Coordinates are relative to: LR06B N15 595  
Coordinate System is US State Plane 1983, Colorado Central Zone  
Grid Convergence at Surface is: -1.60°

