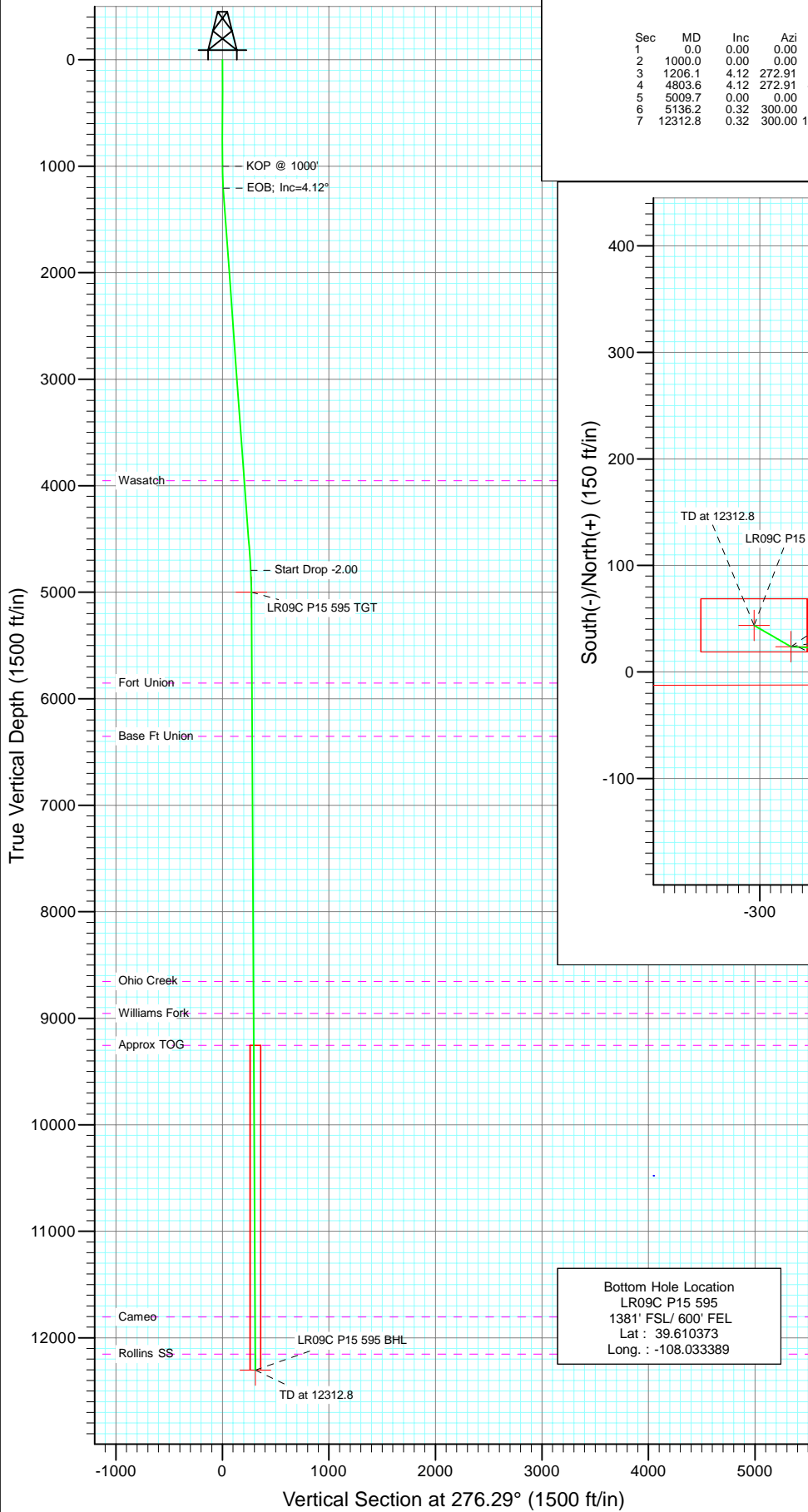
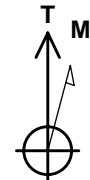
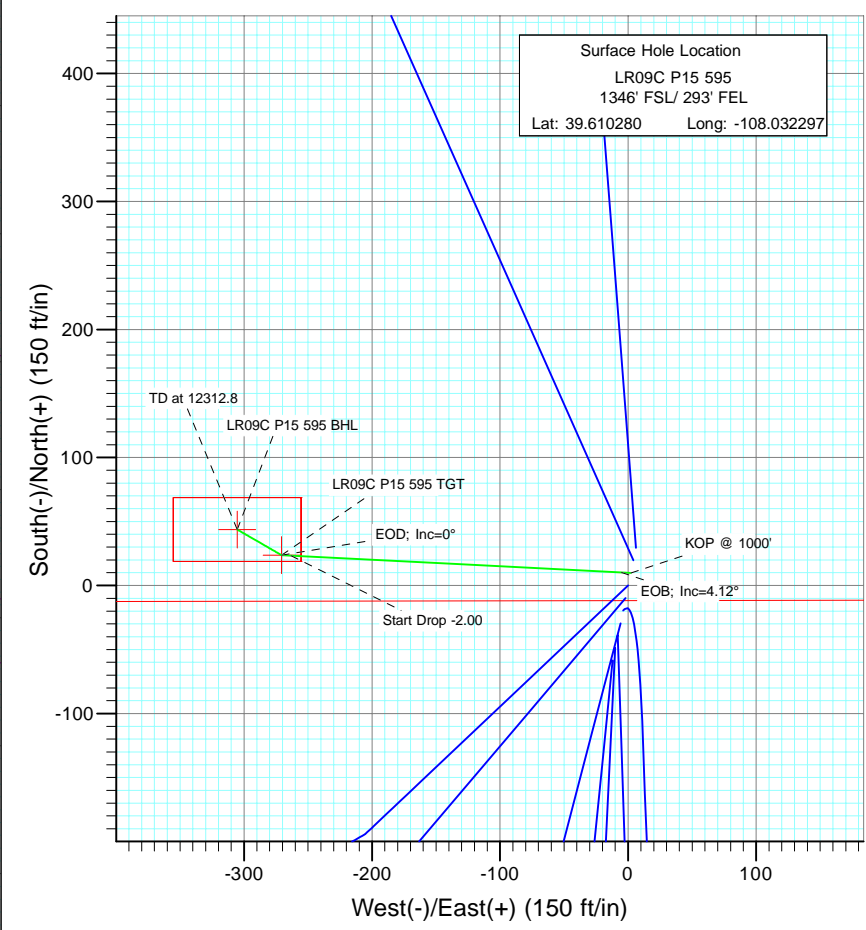




Project: Garfield County  
Site: NESE S15-T5S-R95 (P15 595)  
Well: LR09C P15 595  
Wellbore: DD  
Design: Plan #1



SECTION DETAILS										
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
1	0.0	0.00	0.00	0.0	9.8	2.3	0.00	0.00	0.0	
2	1000.0	0.00	0.00	1000.0	9.8	2.3	0.00	0.00	0.0	
3	1206.1	4.12	272.91	1205.9	10.2	-5.1	2.00	272.91	7.4	
4	4803.6	4.12	272.91	4794.1	23.3	-263.4	0.00	0.00	265.5	
5	5009.7	0.00	0.00	5000.0	23.7	-270.8	2.00	180.00	272.9	LR09C P15 595 TGT
6	5136.2	0.32	300.00	5126.5	23.9	-271.1	0.25	300.00	273.3	
7	12312.8	0.32	300.00	12303.0	43.7	-305.4	0.00	0.00	309.5	LR09C P15 595 BHL



Azimuths to True North  
Magnetic North: 10.45°  
  
Magnetic Field  
Strength: 52392.7snT  
Dip Angle: 65.86°  
Date: 9/21/2010  
Model: IGRF200510

FORMATION TOP DETAILS		
TVDPPath	MDPath	Formation
3953.0	3960.3	Wasatch
5853.0	5862.7	Fort Union
6353.0	6362.7	Base Ft Union
8653.0	8662.7	Ohio Creek
8953.0	8962.7	Williams Fork
9253.0	9262.7	Approx TOG
11803.0	11812.8	Cameo
12153.0	12162.8	Rollins SS

DESIGN DETAILS: Plan #1				
105XXX; BH				
KBE @ 8400.0ft (Patterson 302)				
Target	Azimuth	Origin	N/S	E/W From TVD
LR09C P15 595 BHL	276.29	Slot	9.8	2.3 0.0

# Cathedral Energy Services

## Planning Report

<b>Database:</b>	EDM 5000.1 US Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well LR09C P15 595
<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>TVD Reference:</b>	KBE @ 8400.0ft (Patterson 302)
<b>Project:</b>	Garfield County	<b>MD Reference:</b>	KBE @ 8400.0ft (Patterson 302)
<b>Site:</b>	NESE S15-T5S-R95 (P15 595)	<b>North Reference:</b>	True
<b>Well:</b>	LR09C P15 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>	NESE S15-T5S-R95 (P15 595)			
<b>Site Position:</b>		<b>Northing:</b>	1,657,109.39 ft	<b>Latitude:</b> 39.610253
<b>From:</b>	Lat/Long	<b>Easting:</b>	2,286,639.33 ft	<b>Longitude:</b> -108.032305
<b>Position Uncertainty:</b>	0.0 ft	<b>Slot Radius:</b>	13.200 in	<b>Grid Convergence:</b> -1.60 °

<b>Well</b>	LR09C P15 595			
<b>Well Position</b>	<b>+N/-S</b>	0.0 ft	<b>Northing:</b>	1,657,119.15 ft
	<b>+E/-W</b>	0.0 ft	<b>Easting:</b>	2,286,641.86 ft
<b>Position Uncertainty</b>		0.0 ft	<b>Wellhead Elevation:</b>	ft
			<b>Ground Level:</b>	8,385.0 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	9/21/2010	10.45	65.86	52,393

<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	276.29

<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	
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,206.1	4.12	272.91	1,205.9	0.4	-7.4	2.00	2.00	0.00	272.91	
4,803.6	4.12	272.91	4,794.1	13.5	-265.6	0.00	0.00	0.00	0.00	
5,009.7	0.00	0.00	5,000.0	13.9	-273.1	2.00	-2.00	0.00	180.00	LR09C P15 595 TGT
5,136.2	0.32	300.00	5,126.5	14.1	-273.4	0.25	0.25	-47.42	300.00	
12,312.8	0.32	300.00	12,303.0	33.9	-307.7	0.00	0.00	0.00	0.00	LR09C P15 595 BHL

# Cathedral Energy Services

## Planning Report

<b>Database:</b>	EDM 5000.1 US Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well LR09C P15 595
<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>TVD Reference:</b>	KBE @ 8400.0ft (Patterson 302)
<b>Project:</b>	Garfield County	<b>MD Reference:</b>	KBE @ 8400.0ft (Patterson 302)
<b>Site:</b>	NESE S15-T5S-R95 (P15 595)	<b>North Reference:</b>	True
<b>Well:</b>	LR09C P15 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	
210.0	0.00	0.00	210.0	0.0	0.0	0.0	0.00	0.00	
240.0	0.00	0.00	240.0	0.0	0.0	0.0	0.00	0.00	
270.0	0.00	0.00	270.0	0.0	0.0	0.0	0.00	0.00	
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	
330.0	0.00	0.00	330.0	0.0	0.0	0.0	0.00	0.00	
360.0	0.00	0.00	360.0	0.0	0.0	0.0	0.00	0.00	
390.0	0.00	0.00	390.0	0.0	0.0	0.0	0.00	0.00	
420.0	0.00	0.00	420.0	0.0	0.0	0.0	0.00	0.00	
450.0	0.00	0.00	450.0	0.0	0.0	0.0	0.00	0.00	
480.0	0.00	0.00	480.0	0.0	0.0	0.0	0.00	0.00	
510.0	0.00	0.00	510.0	0.0	0.0	0.0	0.00	0.00	
540.0	0.00	0.00	540.0	0.0	0.0	0.0	0.00	0.00	
570.0	0.00	0.00	570.0	0.0	0.0	0.0	0.00	0.00	
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	
630.0	0.00	0.00	630.0	0.0	0.0	0.0	0.00	0.00	
660.0	0.00	0.00	660.0	0.0	0.0	0.0	0.00	0.00	
690.0	0.00	0.00	690.0	0.0	0.0	0.0	0.00	0.00	
720.0	0.00	0.00	720.0	0.0	0.0	0.0	0.00	0.00	
750.0	0.00	0.00	750.0	0.0	0.0	0.0	0.00	0.00	
780.0	0.00	0.00	780.0	0.0	0.0	0.0	0.00	0.00	
810.0	0.00	0.00	810.0	0.0	0.0	0.0	0.00	0.00	
840.0	0.00	0.00	840.0	0.0	0.0	0.0	0.00	0.00	
870.0	0.00	0.00	870.0	0.0	0.0	0.0	0.00	0.00	
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	
930.0	0.00	0.00	930.0	0.0	0.0	0.0	0.00	0.00	
960.0	0.00	0.00	960.0	0.0	0.0	0.0	0.00	0.00	
990.0	0.00	0.00	990.0	0.0	0.0	0.0	0.00	0.00	
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	KOP @ 1000'
1,020.0	0.40	272.91	1,020.0	0.0	-0.1	0.1	2.00	2.00	
1,050.0	1.00	272.91	1,050.0	0.0	-0.4	0.4	2.00	2.00	
1,080.0	1.60	272.91	1,080.0	0.1	-1.1	1.1	2.00	2.00	
1,110.0	2.20	272.91	1,110.0	0.1	-2.1	2.1	2.00	2.00	
1,140.0	2.80	272.91	1,139.9	0.2	-3.4	3.4	2.00	2.00	
1,170.0	3.40	272.91	1,169.9	0.3	-5.0	5.0	2.00	2.00	
1,200.0	4.00	272.91	1,199.8	0.4	-7.0	7.0	2.00	2.00	
1,206.1	4.12	272.91	1,205.9	0.4	-7.4	7.4	2.00	2.00	EOB; Inc=4.12°
1,230.0	4.12	272.91	1,229.8	0.5	-9.1	9.1	0.00	0.00	
1,260.0	4.12	272.91	1,259.7	0.6	-11.3	11.3	0.00	0.00	
1,290.0	4.12	272.91	1,289.6	0.7	-13.4	13.4	0.00	0.00	
1,320.0	4.12	272.91	1,319.5	0.8	-15.6	15.6	0.00	0.00	
1,350.0	4.12	272.91	1,349.5	0.9	-17.7	17.7	0.00	0.00	
1,380.0	4.12	272.91	1,379.4	1.0	-19.9	19.9	0.00	0.00	
1,410.0	4.12	272.91	1,409.3	1.1	-22.0	22.0	0.00	0.00	
1,440.0	4.12	272.91	1,439.2	1.2	-24.2	24.2	0.00	0.00	
1,470.0	4.12	272.91	1,469.1	1.3	-26.3	26.3	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 LR09C P15 595
<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>TVD Reference:</b>	KBE @ 8400.0ft (Patterson 302)
<b>Project:</b>	Garfield County	<b>MD Reference:</b>	KBE @ 8400.0ft (Patterson 302)
<b>Site:</b>	NESE S15-T5S-R95 (P15 595)	<b>North Reference:</b>	True
<b>Well:</b>	LR09C P15 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	4.12	272.91	1,499.1	1.5	-28.5	28.5	0.00	0.00	
1,530.0	4.12	272.91	1,529.0	1.6	-30.7	30.6	0.00	0.00	
1,560.0	4.12	272.91	1,558.9	1.7	-32.8	32.8	0.00	0.00	
1,590.0	4.12	272.91	1,588.8	1.8	-35.0	34.9	0.00	0.00	
1,620.0	4.12	272.91	1,618.8	1.9	-37.1	37.1	0.00	0.00	
1,650.0	4.12	272.91	1,648.7	2.0	-39.3	39.2	0.00	0.00	
1,680.0	4.12	272.91	1,678.6	2.1	-41.4	41.4	0.00	0.00	
1,710.0	4.12	272.91	1,708.5	2.2	-43.6	43.6	0.00	0.00	
1,740.0	4.12	272.91	1,738.4	2.3	-45.7	45.7	0.00	0.00	
1,770.0	4.12	272.91	1,768.4	2.4	-47.9	47.9	0.00	0.00	
1,800.0	4.12	272.91	1,798.3	2.5	-50.0	50.0	0.00	0.00	
1,830.0	4.12	272.91	1,828.2	2.7	-52.2	52.2	0.00	0.00	
1,860.0	4.12	272.91	1,858.1	2.8	-54.3	54.3	0.00	0.00	
1,890.0	4.12	272.91	1,888.1	2.9	-56.5	56.5	0.00	0.00	
1,920.0	4.12	272.91	1,918.0	3.0	-58.6	58.6	0.00	0.00	
1,950.0	4.12	272.91	1,947.9	3.1	-60.8	60.8	0.00	0.00	
1,980.0	4.12	272.91	1,977.8	3.2	-63.0	62.9	0.00	0.00	
2,010.0	4.12	272.91	2,007.7	3.3	-65.1	65.1	0.00	0.00	
2,040.0	4.12	272.91	2,037.7	3.4	-67.3	67.2	0.00	0.00	
2,070.0	4.12	272.91	2,067.6	3.5	-69.4	69.4	0.00	0.00	
2,100.0	4.12	272.91	2,097.5	3.6	-71.6	71.5	0.00	0.00	
2,130.0	4.12	272.91	2,127.4	3.8	-73.7	73.7	0.00	0.00	
2,160.0	4.12	272.91	2,157.4	3.9	-75.9	75.8	0.00	0.00	
2,190.0	4.12	272.91	2,187.3	4.0	-78.0	78.0	0.00	0.00	
2,220.0	4.12	272.91	2,217.2	4.1	-80.2	80.1	0.00	0.00	
2,250.0	4.12	272.91	2,247.1	4.2	-82.3	82.3	0.00	0.00	
2,280.0	4.12	272.91	2,277.0	4.3	-84.5	84.5	0.00	0.00	
2,310.0	4.12	272.91	2,307.0	4.4	-86.6	86.6	0.00	0.00	
2,340.0	4.12	272.91	2,336.9	4.5	-88.8	88.8	0.00	0.00	
2,370.0	4.12	272.91	2,366.8	4.6	-91.0	90.9	0.00	0.00	
2,400.0	4.12	272.91	2,396.7	4.7	-93.1	93.1	0.00	0.00	
2,430.0	4.12	272.91	2,426.7	4.8	-95.3	95.2	0.00	0.00	
2,460.0	4.12	272.91	2,456.6	5.0	-97.4	97.4	0.00	0.00	
2,490.0	4.12	272.91	2,486.5	5.1	-99.6	99.5	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									
LR09C P15 595 BHL	0.00	0.00	12,303.0	33.9	-307.7	1,657,161.60	2,286,335.26	39.610373	-108.033389
- plan misses target center by 9818.7ft at 2490.0ft MD (2486.5 TVD, 5.1 N, -99.6 E)									
- Rectangle (sides W50.0 H100.0 D0.0)									
LR09C P15 595 TGT	0.00	0.00	5,000.0	13.9	-273.1	1,657,140.65	2,286,369.30	39.610318	-108.033266
- plan misses target center by 2519.5ft at 2490.0ft MD (2486.5 TVD, 5.1 N, -99.6 E)									
- Point									

# Cathedral Energy Services

## Planning Report

<b>Database:</b>	EDM 5000.1 US Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well LR09C P15 595
<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>TVD Reference:</b>	KBE @ 8400.0ft (Patterson 302)
<b>Project:</b>	Garfield County	<b>MD Reference:</b>	KBE @ 8400.0ft (Patterson 302)
<b>Site:</b>	NESE S15-T5S-R95 (P15 595)	<b>North Reference:</b>	True
<b>Well:</b>	LR09C P15 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	4.12	272.91	2,496.5	5.1	-100.3	100.2	0.00	0.00	
2,600.0	4.12	272.91	2,596.2	5.5	-107.5	107.4	0.00	0.00	
2,700.0	4.12	272.91	2,696.0	5.8	-114.6	114.6	0.00	0.00	
2,800.0	4.12	272.91	2,795.7	6.2	-121.8	121.8	0.00	0.00	
2,900.0	4.12	272.91	2,895.4	6.6	-129.0	128.9	0.00	0.00	
3,000.0	4.12	272.91	2,995.2	6.9	-136.2	136.1	0.00	0.00	
3,100.0	4.12	272.91	3,094.9	7.3	-143.4	143.3	0.00	0.00	
3,200.0	4.12	272.91	3,194.7	7.7	-150.5	150.5	0.00	0.00	
3,300.0	4.12	272.91	3,294.4	8.0	-157.7	157.6	0.00	0.00	
3,400.0	4.12	272.91	3,394.1	8.4	-164.9	164.8	0.00	0.00	
3,500.0	4.12	272.91	3,493.9	8.8	-172.1	172.0	0.00	0.00	
3,600.0	4.12	272.91	3,593.6	9.1	-179.2	179.2	0.00	0.00	
3,700.0	4.12	272.91	3,693.4	9.5	-186.4	186.3	0.00	0.00	
3,800.0	4.12	272.91	3,793.1	9.9	-193.6	193.5	0.00	0.00	
3,900.0	4.12	272.91	3,892.9	10.2	-200.8	200.7	0.00	0.00	
3,960.3	4.12	272.91	3,953.0	10.4	-205.1	205.0	0.00	0.00	Wasatch
4,000.0	4.12	272.91	3,992.6	10.6	-208.0	207.9	0.00	0.00	
4,100.0	4.12	272.91	4,092.3	11.0	-215.1	215.0	0.00	0.00	
4,200.0	4.12	272.91	4,192.1	11.3	-222.3	222.2	0.00	0.00	
4,300.0	4.12	272.91	4,291.8	11.7	-229.5	229.4	0.00	0.00	
4,400.0	4.12	272.91	4,391.6	12.0	-236.7	236.6	0.00	0.00	
4,500.0	4.12	272.91	4,491.3	12.4	-243.9	243.8	0.00	0.00	
4,600.0	4.12	272.91	4,591.0	12.8	-251.0	250.9	0.00	0.00	
4,700.0	4.12	272.91	4,690.8	13.1	-258.2	258.1	0.00	0.00	
4,800.0	4.12	272.91	4,790.5	13.5	-265.4	265.3	0.00	0.00	
4,803.6	4.12	272.91	4,794.1	13.5	-265.6	265.5	0.00	0.00	Start Drop -2.00
4,900.0	2.19	272.91	4,890.4	13.8	-271.0	270.8	2.00	-2.00	
5,000.0	0.19	272.91	4,990.3	13.9	-273.0	272.9	2.00	-2.00	
5,009.7	0.00	0.00	5,000.0	13.9	-273.1	272.9	2.00	-2.00	EOD; Inc=0° - LR09C P15 595 TGT
5,100.0	0.23	300.00	5,090.3	14.0	-273.2	273.1	0.25	0.25	
5,136.2	0.32	300.00	5,126.5	14.1	-273.4	273.3	0.25	0.25	
5,200.0	0.32	300.00	5,190.3	14.3	-273.7	273.6	0.00	0.00	
5,300.0	0.32	300.00	5,290.3	14.5	-274.1	274.1	0.00	0.00	
5,400.0	0.32	300.00	5,390.3	14.8	-274.6	274.6	0.00	0.00	
5,500.0	0.32	300.00	5,490.3	15.1	-275.1	275.1	0.00	0.00	
5,600.0	0.32	300.00	5,590.3	15.4	-275.6	275.6	0.00	0.00	
5,700.0	0.32	300.00	5,690.3	15.6	-276.0	276.1	0.00	0.00	
5,800.0	0.32	300.00	5,790.3	15.9	-276.5	276.6	0.00	0.00	
5,862.7	0.32	300.00	5,853.0	16.1	-276.8	276.9	0.00	0.00	Fort Union
5,900.0	0.32	300.00	5,890.3	16.2	-277.0	277.1	0.00	0.00	
6,000.0	0.32	300.00	5,990.3	16.5	-277.5	277.6	0.00	0.00	
6,100.0	0.32	300.00	6,090.3	16.7	-278.0	278.1	0.00	0.00	
6,200.0	0.32	300.00	6,190.3	17.0	-278.4	278.6	0.00	0.00	
6,300.0	0.32	300.00	6,290.3	17.3	-278.9	279.1	0.00	0.00	
6,362.7	0.32	300.00	6,353.0	17.5	-279.2	279.4	0.00	0.00	Base Ft Union
6,400.0	0.32	300.00	6,390.3	17.6	-279.4	279.6	0.00	0.00	
6,500.0	0.32	300.00	6,490.3	17.8	-279.9	280.1	0.00	0.00	
6,600.0	0.32	300.00	6,590.3	18.1	-280.4	280.6	0.00	0.00	
6,700.0	0.32	300.00	6,690.3	18.4	-280.8	281.2	0.00	0.00	
6,800.0	0.32	300.00	6,790.3	18.7	-281.3	281.7	0.00	0.00	
6,900.0	0.32	300.00	6,890.3	18.9	-281.8	282.2	0.00	0.00	
7,000.0	0.32	300.00	6,990.3	19.2	-282.3	282.7	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 LR09C P15 595
<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>TVD Reference:</b>	KBE @ 8400.0ft (Patterson 302)
<b>Project:</b>	Garfield County	<b>MD Reference:</b>	KBE @ 8400.0ft (Patterson 302)
<b>Site:</b>	NESE S15-T5S-R95 (P15 595)	<b>North Reference:</b>	True
<b>Well:</b>	LR09C P15 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	0.32	300.00	7,090.3	19.5	-282.7	283.2	0.00	0.00	
7,200.0	0.32	300.00	7,190.3	19.8	-283.2	283.7	0.00	0.00	
7,300.0	0.32	300.00	7,290.3	20.0	-283.7	284.2	0.00	0.00	
7,400.0	0.32	300.00	7,390.3	20.3	-284.2	284.7	0.00	0.00	
7,500.0	0.32	300.00	7,490.3	20.6	-284.7	285.2	0.00	0.00	
7,600.0	0.32	300.00	7,590.3	20.9	-285.1	285.7	0.00	0.00	
7,700.0	0.32	300.00	7,690.3	21.2	-285.6	286.2	0.00	0.00	
7,800.0	0.32	300.00	7,790.3	21.4	-286.1	286.7	0.00	0.00	
7,900.0	0.32	300.00	7,890.3	21.7	-286.6	287.2	0.00	0.00	
8,000.0	0.32	300.00	7,990.3	22.0	-287.0	287.7	0.00	0.00	
8,100.0	0.32	300.00	8,090.3	22.3	-287.5	288.2	0.00	0.00	
8,200.0	0.32	300.00	8,190.3	22.5	-288.0	288.7	0.00	0.00	
8,300.0	0.32	300.00	8,290.3	22.8	-288.5	289.2	0.00	0.00	
8,400.0	0.32	300.00	8,390.3	23.1	-289.0	289.7	0.00	0.00	
8,500.0	0.32	300.00	8,490.3	23.4	-289.4	290.3	0.00	0.00	
8,600.0	0.32	300.00	8,590.3	23.6	-289.9	290.8	0.00	0.00	
8,662.7	0.32	300.00	8,653.0	23.8	-290.2	291.1	0.00	0.00	Ohio Creek
8,700.0	0.32	300.00	8,690.3	23.9	-290.4	291.3	0.00	0.00	
8,800.0	0.32	300.00	8,790.3	24.2	-290.9	291.8	0.00	0.00	
8,900.0	0.32	300.00	8,890.3	24.5	-291.3	292.3	0.00	0.00	
8,962.7	0.32	300.00	8,953.0	24.6	-291.6	292.6	0.00	0.00	Williams Fork
9,000.0	0.32	300.00	8,990.3	24.7	-291.8	292.8	0.00	0.00	
9,100.0	0.32	300.00	9,090.3	25.0	-292.3	293.3	0.00	0.00	
9,200.0	0.32	300.00	9,190.3	25.3	-292.8	293.8	0.00	0.00	
9,262.7	0.32	300.00	9,253.0	25.5	-293.1	294.1	0.00	0.00	Approx TOG
9,300.0	0.32	300.00	9,290.3	25.6	-293.3	294.3	0.00	0.00	
9,400.0	0.32	300.00	9,390.3	25.8	-293.7	294.8	0.00	0.00	
9,500.0	0.32	300.00	9,490.3	26.1	-294.2	295.3	0.00	0.00	
9,600.0	0.32	300.00	9,590.3	26.4	-294.7	295.8	0.00	0.00	
9,700.0	0.32	300.00	9,690.3	26.7	-295.2	296.3	0.00	0.00	
9,800.0	0.32	300.00	9,790.3	26.9	-295.6	296.8	0.00	0.00	
9,900.0	0.32	300.00	9,890.3	27.2	-296.1	297.3	0.00	0.00	
10,000.0	0.32	300.00	9,990.3	27.5	-296.6	297.8	0.00	0.00	
10,100.0	0.32	300.00	10,090.3	27.8	-297.1	298.3	0.00	0.00	
10,200.0	0.32	300.00	10,190.3	28.1	-297.6	298.8	0.00	0.00	
10,300.0	0.32	300.00	10,290.3	28.3	-298.0	299.3	0.00	0.00	
10,400.0	0.32	300.00	10,390.3	28.6	-298.5	299.9	0.00	0.00	
10,500.0	0.32	300.00	10,490.3	28.9	-299.0	300.4	0.00	0.00	
10,600.0	0.32	300.00	10,590.3	29.2	-299.5	300.9	0.00	0.00	
10,700.0	0.32	300.00	10,690.3	29.4	-300.0	301.4	0.00	0.00	
10,800.0	0.32	300.00	10,790.3	29.7	-300.4	301.9	0.00	0.00	
10,900.0	0.32	300.00	10,890.3	30.0	-300.9	302.4	0.00	0.00	
11,000.0	0.32	300.00	10,990.2	30.3	-301.4	302.9	0.00	0.00	
11,100.0	0.32	300.00	11,090.2	30.5	-301.9	303.4	0.00	0.00	
11,200.0	0.32	300.00	11,190.2	30.8	-302.3	303.9	0.00	0.00	
11,300.0	0.32	300.00	11,290.2	31.1	-302.8	304.4	0.00	0.00	
11,400.0	0.32	300.00	11,390.2	31.4	-303.3	304.9	0.00	0.00	
11,500.0	0.32	300.00	11,490.2	31.6	-303.8	305.4	0.00	0.00	
11,600.0	0.32	300.00	11,590.2	31.9	-304.3	305.9	0.00	0.00	
11,700.0	0.32	300.00	11,690.2	32.2	-304.7	306.4	0.00	0.00	
11,800.0	0.32	300.00	11,790.2	32.5	-305.2	306.9	0.00	0.00	
11,812.8	0.32	300.00	11,803.0	32.5	-305.3	307.0	0.00	0.00	Cameo

# Cathedral Energy Services

## Planning Report

<b>Database:</b>	EDM 5000.1 US Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well LR09C P15 595
<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>TVD Reference:</b>	KBE @ 8400.0ft (Patterson 302)
<b>Project:</b>	Garfield County	<b>MD Reference:</b>	KBE @ 8400.0ft (Patterson 302)
<b>Site:</b>	NESE S15-T5S-R95 (P15 595)	<b>North Reference:</b>	True
<b>Well:</b>	LR09C P15 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	0.32	300.00	11,890.2	32.7	-305.7	307.4	0.00	0.00	
12,000.0	0.32	300.00	11,990.2	33.0	-306.2	307.9	0.00	0.00	
12,100.0	0.32	300.00	12,090.2	33.3	-306.6	308.4	0.00	0.00	
12,162.8	0.32	300.00	12,153.0	33.5	-306.9	308.8	0.00	0.00	Rollins SS
12,200.0	0.32	300.00	12,190.2	33.6	-307.1	309.0	0.00	0.00	
12,300.0	0.32	300.00	12,290.2	33.9	-307.6	309.5	0.00	0.00	
12,312.8	0.32	300.00	12,303.0	33.9	-307.7	309.5	0.00	0.00	LR09C P15 595 BHL

### Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
LR09C P15 595 BHL - plan hits target center - Rectangle (sides W50.0 H100.0 D0.0)	0.00	0.00	12,303.0	33.9	-307.7	1,657,161.60	2,286,335.26	39.610373	-108.033389
LR09C P15 595 TGT - plan hits target center - Point	0.00	0.00	5,000.0	13.9	-273.1	1,657,140.65	2,286,369.30	39.610318	-108.033266

### Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,960.3	3,953.0	Wasatch		0.00	
5,862.7	5,853.0	Fort Union		0.00	
6,362.7	6,353.0	Base Ft Union		0.00	
8,662.7	8,653.0	Ohio Creek		0.00	
8,962.7	8,953.0	Williams Fork		0.00	
9,262.7	9,253.0	Approx TOG		0.00	
11,812.8	11,803.0	Cameo		0.00	
12,162.8	12,153.0	Rollins SS		0.00	

### Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	+E/-W (ft)	Comment
1,000.0	1,000.0	0.0	0.0	KOP @ 1000'
1,206.1	1,205.9	0.4	-7.4	EOB; Inc=4.12°
4,803.6	4,794.1	13.5	-265.6	Start Drop -2.00
5,009.7	5,000.0	13.9	-273.1	EOD; Inc=0°
12,312.8	12,303.0	33.9	-307.7	TD at 12312.8

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

**Garfield County**

**NESE S15-T5S-R95 (P15 595)**

**LR09C P15 595**

**DD**

**Plan #1**

## **Anticollision Report**

**23 September, 2010**



# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>Local Co-ordinate Reference:</b>	Well LR09C P15 595
<b>Project:</b>	Garfield County	<b>TVD Reference:</b>	KBE @ 8400.0ft (Patterson 302)
<b>Reference Site:</b>	NESE S15-T5S-R95 (P15 595)	<b>MD Reference:</b>	KBE @ 8400.0ft (Patterson 302)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	LR09C P15 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	9/23/2010		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
0.0	12,312.8	Plan #1 (DD)	MWD	Geolink MWD	

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
NESE S15-T5S-R95 (P15 595)						
LR01A P15 595 - DD - Plan #1	200.0	200.0	59.9	59.3	92.820	CC, ES
LR01A P15 595 - DD - Plan #1	600.0	589.5	86.9	84.8	39.863	SF
LR01D P15 595 - DD - Plan #1	381.2	381.2	27.6	26.3	21.566	CC, ES
LR01D P15 595 - DD - Plan #1	600.0	597.4	36.5	34.4	17.738	SF
LR09B P15 595 - DD - Plan #1	500.0	500.0	10.0	8.3	5.925	CC, ES
LR09B P15 595 - DD - Plan #1	600.0	599.7	11.5	9.5	5.626	SF
LR09D P15 595 - DD - Plan #1	500.0	500.0	20.1	18.4	11.850	CC, ES
LR09D P15 595 - DD - Plan #1	600.0	599.3	21.7	19.7	10.641	SF
LR16A P15 595 - DD - Plan #1	1,000.0	1,000.0	20.1	16.7	5.851	CC, ES
LR16A P15 595 - DD - Plan #1	1,100.0	1,099.4	21.4	17.6	5.647	SF
LR16B P15 595 - DD - Plan #1	1,000.0	1,000.0	10.1	6.6	2.933	CC, ES, SF
SESE S15-T5S-R95W (P15 595)						
LR01B P15 595 - DD - Plan #1	200.0	200.0	70.0	69.3	108.352	CC, ES
LR01B P15 595 - DD - Plan #1	600.0	588.1	97.0	94.8	44.543	SF
LR16C P15 595 - DD - Plan #1	600.0	600.0	40.2	38.1	19.676	CC, ES
LR16C P15 595 - DD - Plan #1	800.0	796.9	47.0	44.3	17.130	SF
LR16D P15 595 - DD - Plan #1	500.0	500.0	49.9	48.2	29.481	CC, ES
LR16D P15 595 - DD - Plan #1	800.0	794.0	65.0	62.2	23.415	SF

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>Local Co-ordinate Reference:</b>	Well LR09C P15 595
<b>Project:</b>	Garfield County	<b>TVD Reference:</b>	KBE @ 8400.0ft (Patterson 302)
<b>Reference Site:</b>	NESE S15-T5S-R95 (P15 595)	<b>MD Reference:</b>	KBE @ 8400.0ft (Patterson 302)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	LR09C P15 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> NESE S15-T5S-R95 (P15 595) - LR01A P15 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	-168.06	-58.6	-12.4	59.9					
100.0	100.0	100.0	100.0	0.1	0.1	-168.06	-58.6	-12.4	59.9	59.6	0.30	202.020		
200.0	200.0	200.0	200.0	0.3	0.3	-168.06	-58.6	-12.4	59.9	59.3	0.65	92.820 CC, ES		
300.0	300.0	297.9	297.9	0.5	0.5	-168.31	-60.3	-12.5	61.6	60.6	0.99	61.949		
400.0	400.0	395.6	395.5	0.7	0.7	-168.98	-65.3	-12.7	66.7	65.3	1.36	49.054		
500.0	500.0	492.9	492.4	0.8	0.9	-169.90	-73.6	-13.1	75.1	73.4	1.75	42.886		
600.0	600.0	589.5	588.3	1.0	1.2	-170.88	-85.1	-13.7	86.9	84.8	2.18	39.863 SF		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>Local Co-ordinate Reference:</b>	Well LR09C P15 595
<b>Project:</b>	Garfield County	<b>TVD Reference:</b>	KBE @ 8400.0ft (Patterson 302)
<b>Reference Site:</b>	NESE S15-T5S-R95 (P15 595)	<b>MD Reference:</b>	KBE @ 8400.0ft (Patterson 302)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	LR09C P15 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> NESE S15-T5S-R95 (P15 595) - LR01D P15 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	-168.14	-29.5	-6.2	30.2				
100.0	100.0	100.0	100.0	0.1	0.1	-168.14	-29.5	-6.2	30.2	29.9	0.30	101.625	
200.0	200.0	200.0	200.0	0.3	0.3	-168.14	-29.5	-6.2	30.2	29.5	0.65	46.693	
300.0	300.0	300.8	300.8	0.5	0.5	-170.08	-28.3	-4.9	28.7	27.7	1.00	28.736	
381.2	381.2	381.2	381.1	0.6	0.6	-173.72	-27.4	-3.0	27.6	26.3	1.28	21.566 CC, ES	
400.0	400.0	400.0	399.9	0.7	0.7	-174.64	-27.5	-2.6	27.7	26.3	1.34	20.581	
500.0	500.0	498.8	498.7	0.8	0.9	-179.22	-30.3	-0.4	30.3	28.6	1.69	17.893	
600.0	600.0	597.4	597.1	1.0	1.0	177.51	-36.3	1.6	36.5	34.4	2.06	17.738 SF	
700.0	700.0	695.5	694.7	1.2	1.3	175.78	-45.8	3.4	46.2	43.7	2.45	18.851	
800.0	800.0	792.9	791.3	1.4	1.5	175.12	-58.4	5.0	59.3	56.4	2.88	20.585	
900.0	900.0	889.3	886.4	1.5	1.8	175.06	-74.1	6.4	75.7	72.3	3.35	22.588	
1,000.0	1,000.0	984.6	979.7	1.7	2.1	175.30	-92.8	7.6	95.3	91.4	3.86	24.664	

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>Local Co-ordinate Reference:</b>	Well LR09C P15 595
<b>Project:</b>	Garfield County	<b>TVD Reference:</b>	KBE @ 8400.0ft (Patterson 302)
<b>Reference Site:</b>	NESE S15-T5S-R95 (P15 595)	<b>MD Reference:</b>	KBE @ 8400.0ft (Patterson 302)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	LR09C P15 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> NESE S15-T5S-R95 (P15 595) - LR09B P15 595 - DD - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	11.34	9.8	2.0	10.0					
100.0	100.0	100.0	100.0	0.1	0.1	11.34	9.8	2.0	10.0	9.7	0.30	33.807		
200.0	200.0	200.0	200.0	0.3	0.3	11.34	9.8	2.0	10.0	9.4	0.65	15.533		
300.0	300.0	300.0	300.0	0.5	0.5	11.34	9.8	2.0	10.0	9.0	0.99	10.083		
400.0	400.0	400.0	400.0	0.7	0.7	11.34	9.8	2.0	10.0	8.7	1.34	7.464		
500.0	500.0	500.0	500.0	0.8	0.8	11.34	9.8	2.0	10.0	8.3	1.69	5.925 CC, ES		
600.0	600.0	599.7	599.7	1.0	1.0	6.33	11.4	1.3	11.5	9.5	2.04	5.626 SF		
700.0	700.0	699.1	698.9	1.2	1.2	-2.98	16.2	-0.8	16.2	13.8	2.40	6.748		
800.0	800.0	798.1	797.5	1.4	1.4	-10.22	24.0	-4.3	24.5	21.7	2.78	8.806		
900.0	900.0	896.3	895.1	1.5	1.7	-14.72	34.8	-9.2	36.4	33.2	3.19	11.383		
1,000.0	1,000.0	994.2	991.7	1.7	1.9	-17.44	48.5	-15.2	51.5	47.9	3.64	14.168		
1,100.0	1,100.0	1,093.0	1,089.2	1.9	2.2	69.19	63.1	-21.7	67.0	63.2	3.78	17.719		
1,206.1	1,205.9	1,197.9	1,192.8	2.1	2.5	71.32	78.6	-28.6	82.1	77.9	4.16	19.722		
1,300.0	1,299.6	1,290.8	1,284.5	2.3	2.8	73.83	92.3	-34.7	95.0	90.5	4.51	21.065		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>Local Co-ordinate Reference:</b>	Well LR09C P15 595
<b>Project:</b>	Garfield County	<b>TVD Reference:</b>	KBE @ 8400.0ft (Patterson 302)
<b>Reference Site:</b>	NESE S15-T5S-R95 (P15 595)	<b>MD Reference:</b>	KBE @ 8400.0ft (Patterson 302)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	LR09C P15 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 NESE S15-T5S-R95 (P15 595) - LR09D P15 595 - DD - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance				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	11.34	19.7	3.9	20.1					
100.0	100.0	100.0	100.0	0.1	0.1	11.34	19.7	3.9	20.1	19.8	0.30	67.613		
200.0	200.0	200.0	200.0	0.3	0.3	11.34	19.7	3.9	20.1	19.4	0.65	31.066		
300.0	300.0	300.0	300.0	0.5	0.5	11.34	19.7	3.9	20.1	19.1	0.99	20.165		
400.0	400.0	400.0	400.0	0.7	0.7	11.34	19.7	3.9	20.1	18.7	1.34	14.928		
500.0	500.0	500.0	500.0	0.8	0.8	11.34	19.7	3.9	20.1	18.4	1.69	11.850 CC, ES		
600.0	600.0	599.3	599.3	1.0	1.0	10.11	21.4	3.8	21.7	19.7	2.04	10.641 SF		
700.0	700.0	698.3	698.2	1.2	1.2	7.35	26.5	3.4	26.8	24.4	2.40	11.157		
800.0	800.0	797.9	797.5	1.4	1.4	4.80	33.9	2.8	34.1	31.4	2.77	12.322		
900.0	900.0	897.6	896.9	1.5	1.6	3.14	41.4	2.3	41.6	38.4	3.15	13.218		
1,000.0	1,000.0	997.3	996.3	1.7	1.8	1.99	48.9	1.7	49.1	45.5	3.53	13.914		
1,100.0	1,100.0	1,097.0	1,095.8	1.9	2.0	89.85	56.4	1.1	56.5	52.7	3.78	14.935		
1,206.1	1,205.9	1,202.7	1,201.2	2.1	2.2	93.83	64.3	0.5	64.6	60.4	4.17	15.506		
1,300.0	1,299.6	1,296.2	1,294.3	2.3	2.4	98.08	71.3	0.0	72.2	67.7	4.51	15.997		
1,400.0	1,399.3	1,395.7	1,393.6	2.5	2.6	101.70	78.8	-0.6	80.6	75.7	4.89	16.493		
1,500.0	1,499.1	1,495.3	1,492.8	2.7	2.9	104.63	86.3	-1.2	89.3	84.1	5.27	16.952		
1,600.0	1,598.8	1,594.8	1,592.1	2.9	3.1	107.03	93.7	-1.7	98.2	92.6	5.65	17.372		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>Local Co-ordinate Reference:</b>	Well LR09C P15 595
<b>Project:</b>	Garfield County	<b>TVD Reference:</b>	KBE @ 8400.0ft (Patterson 302)
<b>Reference Site:</b>	NESE S15-T5S-R95 (P15 595)	<b>MD Reference:</b>	KBE @ 8400.0ft (Patterson 302)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	LR09C P15 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 NESE S15-T5S-R95 (P15 595) - LR16A P15 595 - DD - Plan #1												Offset Site Error:	0.0 ft
Survey Program: 0-MWD												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Distance							
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	
300.0	300.0	300.0	300.0	0.5	0.5	-167.87	-19.7	-4.2	20.1	19.1	0.99	20.223	
400.0	400.0	400.0	400.0	0.7	0.7	-167.87	-19.7	-4.2	20.1	18.8	1.34	14.970	
500.0	500.0	500.0	500.0	0.8	0.8	-167.87	-19.7	-4.2	20.1	18.4	1.69	11.884	
600.0	600.0	600.0	600.0	1.0	1.0	-167.87	-19.7	-4.2	20.1	18.1	2.04	9.852	
700.0	700.0	700.0	700.0	1.2	1.2	-167.87	-19.7	-4.2	20.1	17.7	2.39	8.414	
800.0	800.0	800.0	800.0	1.4	1.4	-167.87	-19.7	-4.2	20.1	17.4	2.74	7.342	
900.0	900.0	900.0	900.0	1.5	1.5	-167.87	-19.7	-4.2	20.1	17.0	3.09	6.512	
1,000.0	1,000.0	1,000.0	1,000.0	1.7	1.7	-167.87	-19.7	-4.2	20.1	16.7	3.44	5.851 CC, ES	
1,100.0	1,100.0	1,099.4	1,099.3	1.9	1.9	-83.17	-21.0	-5.3	21.4	17.6	3.79	5.647 SF	
1,206.1	1,205.9	1,204.6	1,204.4	2.1	2.1	-89.22	-25.2	-8.9	25.7	21.5	4.17	6.169	
1,300.0	1,299.6	1,297.6	1,297.0	2.3	2.3	-92.46	-31.4	-14.2	32.3	27.8	4.51	7.148	
1,400.0	1,399.3	1,396.1	1,394.9	2.5	2.5	-91.66	-40.5	-21.9	41.9	37.0	4.90	8.548	
1,500.0	1,499.1	1,494.2	1,491.7	2.7	2.7	-88.93	-52.1	-31.7	54.1	48.8	5.29	10.240	
1,600.0	1,598.8	1,593.2	1,589.4	2.9	3.0	-86.52	-64.8	-42.5	67.6	61.9	5.68	11.898	
1,700.0	1,698.5	1,692.3	1,687.0	3.1	3.3	-84.92	-77.5	-53.2	81.2	75.1	6.08	13.345	
1,800.0	1,798.3	1,791.4	1,784.7	3.3	3.6	-83.78	-90.2	-64.0	94.8	88.3	6.48	14.614	

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>Local Co-ordinate Reference:</b>	Well LR09C P15 595
<b>Project:</b>	Garfield County	<b>TVD Reference:</b>	KBE @ 8400.0ft (Patterson 302)
<b>Reference Site:</b>	NESE S15-T5S-R95 (P15 595)	<b>MD Reference:</b>	KBE @ 8400.0ft (Patterson 302)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	LR09C P15 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 NESE S15-T5S-R95 (P15 595) - LR16B P15 595 - DD - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Distance		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			
0.0	0.0	0.0	0.0	0.0	0.0	-167.09	-9.8	-2.3	10.1					
100.0	100.0	100.0	100.0	0.1	0.1	-167.09	-9.8	-2.3	10.1	9.8	0.30	33.992		
200.0	200.0	200.0	200.0	0.3	0.3	-167.09	-9.8	-2.3	10.1	9.4	0.65	15.618		
300.0	300.0	300.0	300.0	0.5	0.5	-167.09	-9.8	-2.3	10.1	9.1	0.99	10.138		
400.0	400.0	400.0	400.0	0.7	0.7	-167.09	-9.8	-2.3	10.1	8.7	1.34	7.505		
500.0	500.0	500.0	500.0	0.8	0.8	-167.09	-9.8	-2.3	10.1	8.4	1.69	5.957		
600.0	600.0	600.0	600.0	1.0	1.0	-167.09	-9.8	-2.3	10.1	8.0	2.04	4.939		
700.0	700.0	700.0	700.0	1.2	1.2	-167.09	-9.8	-2.3	10.1	7.7	2.39	4.218		
800.0	800.0	800.0	800.0	1.4	1.4	-167.09	-9.8	-2.3	10.1	7.3	2.74	3.681		
900.0	900.0	900.0	900.0	1.5	1.5	-167.09	-9.8	-2.3	10.1	7.0	3.09	3.265		
1,000.0	1,000.0	1,000.0	1,000.0	1.7	1.7	-167.09	-9.8	-2.3	10.1	6.6	3.44	2.933 CC, ES, SF		
1,100.0	1,100.0	1,099.7	1,099.7	1.9	1.9	-83.81	-11.0	-3.5	11.3	7.5	3.79	2.971		
1,206.1	1,205.9	1,205.3	1,205.2	2.1	2.1	-91.96	-14.9	-7.6	15.3	11.1	4.17	3.665		
1,300.0	1,299.6	1,299.0	1,298.6	2.3	2.3	-96.86	-19.7	-12.7	20.5	15.9	4.52	4.530		
1,400.0	1,399.3	1,398.9	1,398.2	2.5	2.5	-99.90	-24.8	-18.1	26.1	21.2	4.90	5.329		
1,500.0	1,499.1	1,498.7	1,497.7	2.7	2.7	-101.86	-29.9	-23.5	31.8	26.5	5.28	6.014		
1,600.0	1,598.8	1,598.6	1,597.3	2.9	2.9	-103.22	-35.0	-28.9	37.5	31.8	5.67	6.605		
1,700.0	1,698.5	1,698.4	1,696.8	3.1	3.1	-104.22	-40.1	-34.3	43.2	37.1	6.07	7.118		
1,800.0	1,798.3	1,798.2	1,796.4	3.3	3.3	-104.99	-45.2	-39.7	48.9	42.4	6.46	7.566		
1,900.0	1,898.0	1,898.1	1,896.0	3.5	3.5	-105.60	-50.3	-45.1	54.6	47.8	6.86	7.960		
2,000.0	1,997.8	1,997.9	1,995.5	3.7	3.7	-106.09	-55.4	-50.5	60.4	53.1	7.27	8.308		
2,100.0	2,097.5	2,097.7	2,095.1	3.9	3.9	-106.49	-60.5	-55.9	66.1	58.4	7.67	8.619		
2,200.0	2,197.3	2,197.6	2,194.6	4.1	4.1	-106.83	-65.6	-61.3	71.8	63.8	8.08	8.896		
2,300.0	2,297.0	2,297.4	2,294.2	4.3	4.3	-107.12	-70.7	-66.7	77.6	69.1	8.48	9.146		
2,400.0	2,396.7	2,397.2	2,393.7	4.5	4.5	-107.38	-75.8	-72.0	83.3	74.4	8.89	9.372		
2,500.0	2,496.5	2,497.1	2,493.3	4.7	4.7	-107.59	-80.9	-77.4	89.1	79.8	9.30	9.577		
2,600.0	2,596.2	2,596.9	2,592.9	4.9	4.9	-107.79	-86.0	-82.8	94.8	85.1	9.71	9.764		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>Local Co-ordinate Reference:</b>	Well LR09C P15 595
<b>Project:</b>	Garfield County	<b>TVD Reference:</b>	KBE @ 8400.0ft (Patterson 302)
<b>Reference Site:</b>	NESE S15-T5S-R95 (P15 595)	<b>MD Reference:</b>	KBE @ 8400.0ft (Patterson 302)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	LR09C P15 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> SESE S15-T5S-R95W (P15 595) - LR01B P15 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	-168.15	-68.5	-14.4	70.0				
100.0	100.0	100.0	100.0	0.1	0.1	-168.15	-68.5	-14.4	70.0	69.7	0.30	235.825	
200.0	200.0	200.0	200.0	0.3	0.3	-168.15	-68.5	-14.4	70.0	69.3	0.65	108.352 CC, ES	
300.0	300.0	297.6	297.6	0.5	0.5	-168.29	-70.1	-14.5	71.7	70.7	0.99	72.079	
400.0	400.0	395.0	394.8	0.7	0.7	-168.68	-75.1	-15.0	76.7	75.4	1.36	56.496	
500.0	500.0	491.9	491.4	0.8	0.9	-169.23	-83.3	-15.8	85.2	83.4	1.75	48.685	
600.0	600.0	588.1	586.9	1.0	1.2	-169.83	-94.6	-17.0	97.0	94.8	2.18	44.543 SF	



# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>Local Co-ordinate Reference:</b>	Well LR09C P15 595
<b>Project:</b>	Garfield County	<b>TVD Reference:</b>	KBE @ 8400.0ft (Patterson 302)
<b>Reference Site:</b>	NESE S15-T5S-R95 (P15 595)	<b>MD Reference:</b>	KBE @ 8400.0ft (Patterson 302)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	LR09C P15 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> SESE S15-T5S-R95W (P15 595) - LR16C P15 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						
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	-168.27	-39.3	-8.2	40.2				
100.0	100.0	100.0	100.0	0.1	0.1	-168.27	-39.3	-8.2	40.2	39.9	0.30	135.416	
200.0	200.0	200.0	200.0	0.3	0.3	-168.27	-39.3	-8.2	40.2	39.5	0.65	62.218	
300.0	300.0	300.0	300.0	0.5	0.5	-168.27	-39.3	-8.2	40.2	39.2	0.99	40.387	
400.0	400.0	400.0	400.0	0.7	0.7	-168.27	-39.3	-8.2	40.2	38.8	1.34	29.897	
500.0	500.0	500.0	500.0	0.8	0.8	-168.27	-39.3	-8.2	40.2	38.5	1.69	23.733	
600.0	600.0	600.0	600.0	1.0	1.0	-168.27	-39.3	-8.2	40.2	38.1	2.04	19.676	CC, ES
700.0	700.0	698.6	698.6	1.2	1.2	-168.15	-41.0	-8.6	41.9	39.5	2.39	17.529	
800.0	800.0	796.9	796.8	1.4	1.4	-167.85	-45.9	-9.9	47.0	44.3	2.75	17.130	SF
900.0	900.0	894.8	894.3	1.5	1.6	-167.48	-54.0	-12.0	55.6	52.5	3.12	17.820	
1,000.0	1,000.0	992.0	990.8	1.7	1.8	-167.12	-65.3	-14.9	67.6	64.0	3.52	19.179	
1,100.0	1,100.0	1,088.3	1,086.0	1.9	2.1	-80.60	-79.5	-18.6	82.6	78.8	3.77	21.913	

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>Local Co-ordinate Reference:</b>	Well LR09C P15 595
<b>Project:</b>	Garfield County	<b>TVD Reference:</b>	KBE @ 8400.0ft (Patterson 302)
<b>Reference Site:</b>	NESE S15-T5S-R95 (P15 595)	<b>MD Reference:</b>	KBE @ 8400.0ft (Patterson 302)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	LR09C P15 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> SESE S15-T5S-R95W (P15 595) - LR16D P15 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							
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	-167.94	-48.8	-10.4	49.9				
100.0	100.0	100.0	100.0	0.1	0.1	-167.94	-48.8	-10.4	49.9	49.6	0.30	168.216	
200.0	200.0	200.0	200.0	0.3	0.3	-167.94	-48.8	-10.4	49.9	49.3	0.65	77.288	
300.0	300.0	300.0	300.0	0.5	0.5	-167.94	-48.8	-10.4	49.9	48.9	0.99	50.170	
400.0	400.0	400.0	400.0	0.7	0.7	-167.94	-48.8	-10.4	49.9	48.6	1.34	37.139	
500.0	500.0	500.0	500.0	0.8	0.8	-167.94	-48.8	-10.4	49.9	48.2	1.69	29.481	CC, ES
600.0	600.0	598.3	598.3	1.0	1.0	-168.40	-50.5	-10.4	51.6	49.5	2.04	25.273	
700.0	700.0	696.4	696.2	1.2	1.2	-169.60	-55.5	-10.2	56.6	54.2	2.40	23.600	
800.0	800.0	794.0	793.5	1.4	1.4	-171.18	-63.9	-9.9	65.0	62.2	2.77	23.415	SF
900.0	900.0	890.9	889.7	1.5	1.6	-172.81	-75.4	-9.5	76.7	73.5	3.18	24.115	
1,000.0	1,000.0	986.9	984.6	1.7	1.9	-174.28	-90.1	-9.0	91.8	88.2	3.63	25.322	

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>Local Co-ordinate Reference:</b>	Well LR09C P15 595
<b>Project:</b>	Garfield County	<b>TVD Reference:</b>	KBE @ 8400.0ft (Patterson 302)
<b>Reference Site:</b>	NESE S15-T5S-R95 (P15 595)	<b>MD Reference:</b>	KBE @ 8400.0ft (Patterson 302)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	LR09C P15 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 @ 8400.0ft (Patterson 302)  
Offset Depths are relative to Offset Datum  
Central Meridian is -105.500000 °

Coordinates are relative to: LR09C P15 595  
Coordinate System is US State Plane 1983, Colorado Central Zone  
Grid Convergence at Surface is: -1.60°

