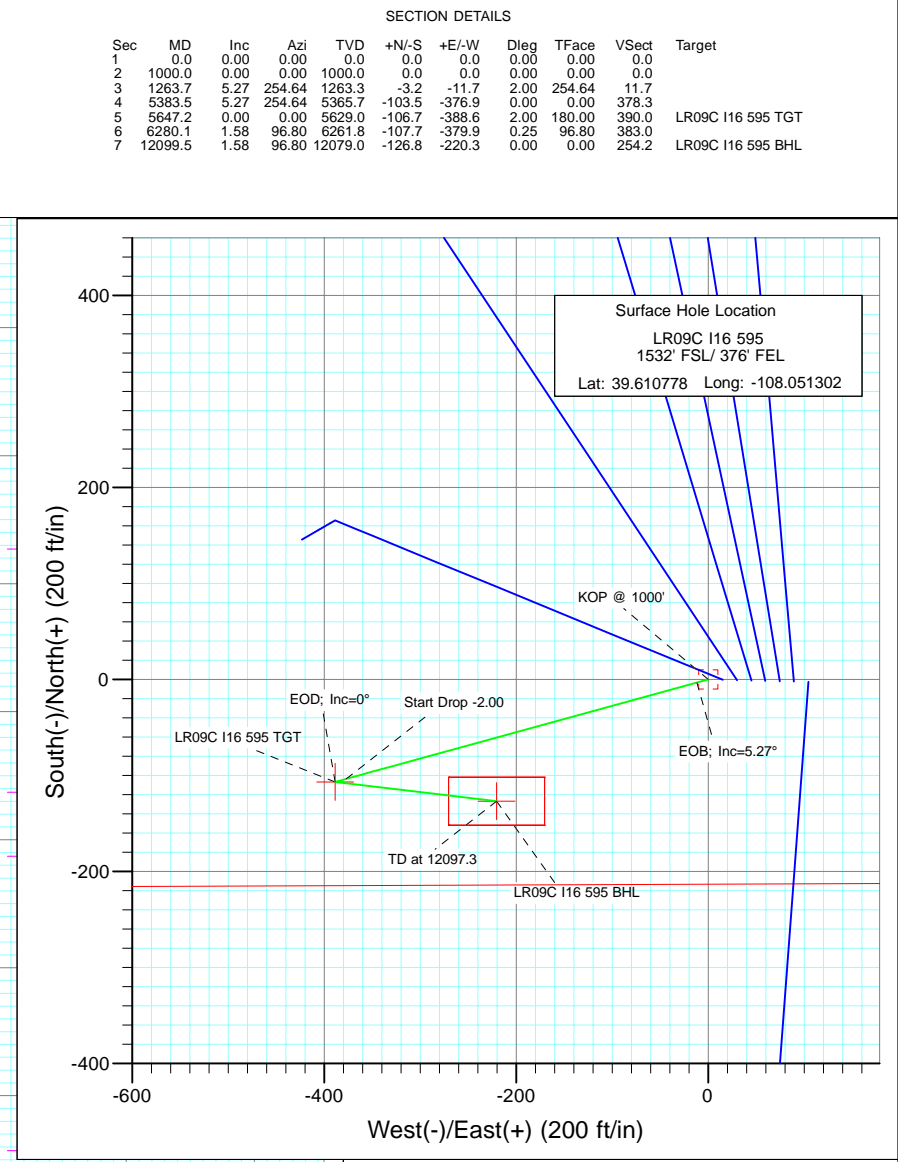
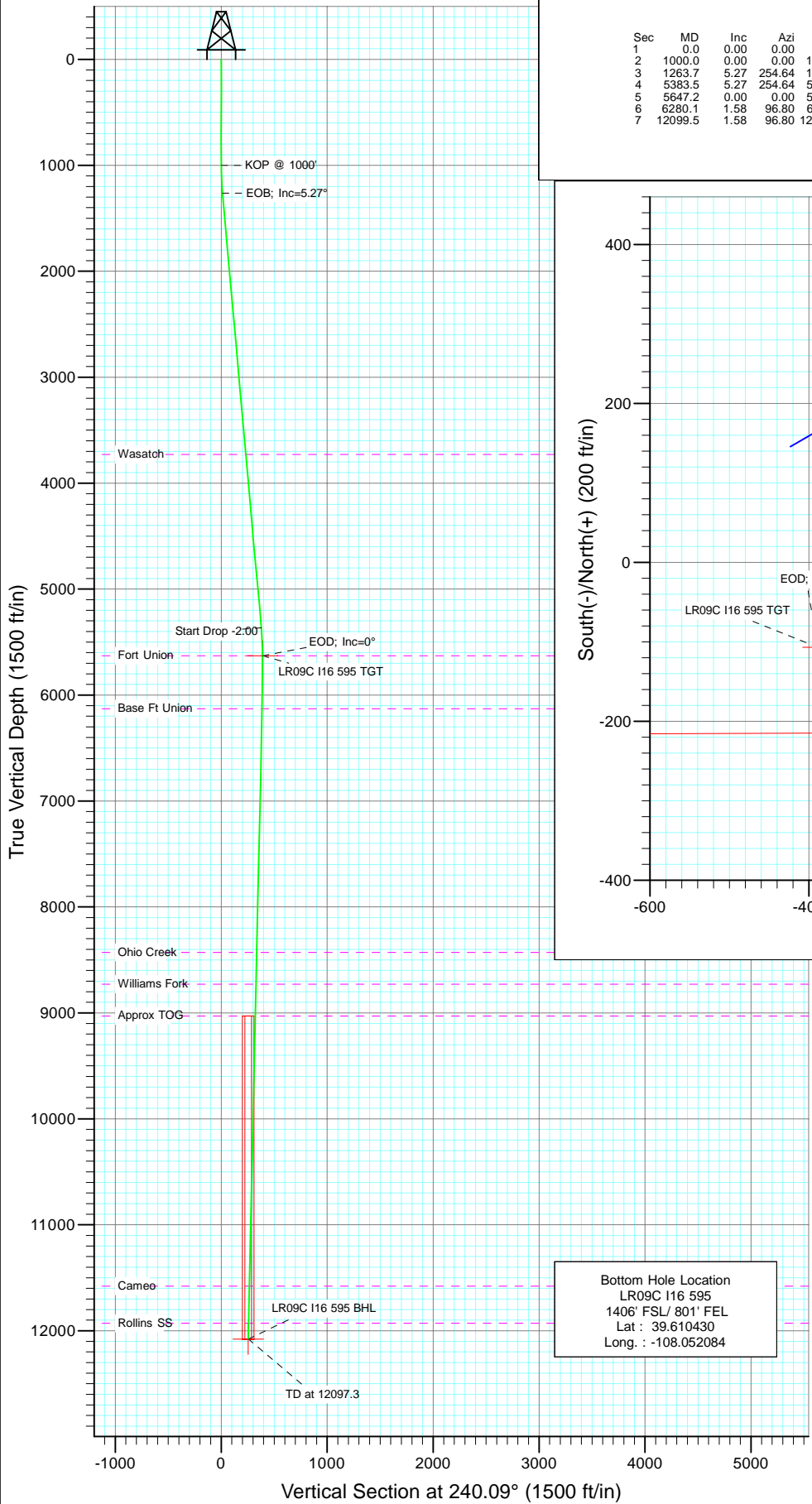




Project: Garfield County
Site: I16 595 pad
Well: LR09C I16 595
Wellbore: DD
Design: Plan #1



Azimuths to True North
Magnetic North: 10.46°

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

FORMATION TOP DETAILS			
TVDPPath	MDPath	Formation	
3729.0	3739.9	Wasatch	
5629.0	5647.2	Fort Union	
6129.0	6147.2	Base Ft Union	
8429.0	8448.1	Ohio Creek	
8729.0	8748.2	Williams Fork	
9029.0	9048.3	Approx TOG	
11579.0	11599.3	Cameo	
11929.0	11949.4	Rollins SS	

DESIGN DETAILS: Plan #1

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

Target	Azimuth	Origin	N/S	E/W	From TVD
LR09C I16 595 BHL	240.09	Slot	0.0	0.0	0.0

Cathedral Energy Services

Planning Report

Database:	EDM 5000.1 US Multi Users DB	Local Co-ordinate Reference:	Well LR09C I16 595
Company:	Berry Petroleum Company (NAD 83)	TVD Reference:	KBE @ 8306.0ft (Patterson 302)
Project:	Garfield County	MD Reference:	KBE @ 8306.0ft (Patterson 302)
Site:	I16 595 pad	North Reference:	True
Well:	LR09C I16 595	Survey Calculation Method:	Minimum Curvature
Wellbore:	DD		
Design:	Plan #1		

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

Site		I16 595 pad			
Site Position:		Northing:	1,657,445.59 ft	Latitude:	39.610772
From:	Lat/Long	Easting:	2,281,383.74 ft	Longitude:	-108.050985
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence:	-1.61 °

Well	LR09C I16 595					
Well Position	+N/-S	0.0 ft	Northing:	1,657,450.27 ft	Latitude:	39.610778
	+E/-W	0.0 ft	Easting:	2,281,294.53 ft	Longitude:	-108.051302
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	8,291.0 ft

Wellbore	DD				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	9/29/2010	10.46	65.85	52,389

Design	Plan #1			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	240.09

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,263.7	5.27	254.64	1,263.3	-3.2	-11.7	2.00	2.00	0.00	254.64	
5,383.5	5.27	254.64	5,365.7	-103.5	-376.9	0.00	0.00	0.00	0.00	
5,647.2	0.00	0.00	5,629.0	-106.7	-388.6	2.00	-2.00	0.00	180.00	LR09C I16 595 TGT
6,280.1	1.58	96.80	6,261.8	-107.7	-379.9	0.25	0.25	15.29	96.80	
12,099.5	1.58	96.80	12,079.0	-126.8	-220.3	0.00	0.00	0.00	0.00	LR09C I16 595 BHL

Cathedral Energy Services

Planning Report

Database:	EDM 5000.1 US Multi Users DB	Local Co-ordinate Reference:	Well LR09C I16 595
Company:	Berry Petroleum Company (NAD 83)	TVD Reference:	KBE @ 8306.0ft (Patterson 302)
Project:	Garfield County	MD Reference:	KBE @ 8306.0ft (Patterson 302)
Site:	I16 595 pad	North Reference:	True
Well:	LR09C I16 595	Survey Calculation Method:	Minimum Curvature
Wellbore:	DD		
Design:	Plan #1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	
30.0	0.00	0.00	30.0	0.0	0.0	0.0	0.00	0.00	
60.0	0.00	0.00	60.0	0.0	0.0	0.0	0.00	0.00	
90.0	0.00	0.00	90.0	0.0	0.0	0.0	0.00	0.00	
120.0	0.00	0.00	120.0	0.0	0.0	0.0	0.00	0.00	
150.0	0.00	0.00	150.0	0.0	0.0	0.0	0.00	0.00	
180.0	0.00	0.00	180.0	0.0	0.0	0.0	0.00	0.00	
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	254.64	1,020.0	0.0	-0.1	0.1	2.00	2.00	
1,050.0	1.00	254.64	1,050.0	-0.1	-0.4	0.4	2.00	2.00	
1,080.0	1.60	254.64	1,080.0	-0.3	-1.1	1.1	2.00	2.00	
1,110.0	2.20	254.64	1,110.0	-0.6	-2.0	2.0	2.00	2.00	
1,140.0	2.80	254.64	1,139.9	-0.9	-3.3	3.3	2.00	2.00	
1,170.0	3.40	254.64	1,169.9	-1.3	-4.9	4.9	2.00	2.00	
1,200.0	4.00	254.64	1,199.8	-1.8	-6.7	6.8	2.00	2.00	
1,230.0	4.60	254.64	1,229.8	-2.4	-8.9	8.9	2.00	2.00	
1,260.0	5.20	254.64	1,259.6	-3.1	-11.4	11.4	2.00	2.00	
1,263.7	5.27	254.64	1,263.3	-3.2	-11.7	11.7	2.00	2.00	EOB; Inc=5.27°
1,290.0	5.27	254.64	1,289.5	-3.9	-14.0	14.1	0.00	0.00	
1,320.0	5.27	254.64	1,319.4	-4.6	-16.7	16.7	0.00	0.00	
1,350.0	5.27	254.64	1,349.3	-5.3	-19.3	19.4	0.00	0.00	
1,380.0	5.27	254.64	1,379.1	-6.0	-22.0	22.1	0.00	0.00	
1,410.0	5.27	254.64	1,409.0	-6.8	-24.7	24.8	0.00	0.00	
1,440.0	5.27	254.64	1,438.9	-7.5	-27.3	27.4	0.00	0.00	
1,470.0	5.27	254.64	1,468.8	-8.2	-30.0	30.1	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	EDM 5000.1 US Multi Users DB	Local Co-ordinate Reference:	Well LR09C I16 595
Company:	Berry Petroleum Company (NAD 83)	TVD Reference:	KBE @ 8306.0ft (Patterson 302)
Project:	Garfield County	MD Reference:	KBE @ 8306.0ft (Patterson 302)
Site:	I16 595 pad	North Reference:	True
Well:	LR09C I16 595	Survey Calculation Method:	Minimum Curvature
Wellbore:	DD		
Design:	Plan #1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
1,500.0	5.27	254.64	1,498.6	-9.0	-32.6	32.8	0.00	0.00	
1,530.0	5.27	254.64	1,528.5	-9.7	-35.3	35.4	0.00	0.00	
1,560.0	5.27	254.64	1,558.4	-10.4	-38.0	38.1	0.00	0.00	
1,590.0	5.27	254.64	1,588.2	-11.2	-40.6	40.8	0.00	0.00	
1,620.0	5.27	254.64	1,618.1	-11.9	-43.3	43.4	0.00	0.00	
1,650.0	5.27	254.64	1,648.0	-12.6	-45.9	46.1	0.00	0.00	
1,680.0	5.27	254.64	1,677.9	-13.3	-48.6	48.8	0.00	0.00	
1,710.0	5.27	254.64	1,707.7	-14.1	-51.3	51.4	0.00	0.00	
1,740.0	5.27	254.64	1,737.6	-14.8	-53.9	54.1	0.00	0.00	
1,770.0	5.27	254.64	1,767.5	-15.5	-56.6	56.8	0.00	0.00	
1,800.0	5.27	254.64	1,797.4	-16.3	-59.2	59.5	0.00	0.00	
1,830.0	5.27	254.64	1,827.2	-17.0	-61.9	62.1	0.00	0.00	
1,860.0	5.27	254.64	1,857.1	-17.7	-64.5	64.8	0.00	0.00	
1,890.0	5.27	254.64	1,887.0	-18.5	-67.2	67.5	0.00	0.00	
1,920.0	5.27	254.64	1,916.8	-19.2	-69.9	70.1	0.00	0.00	
1,950.0	5.27	254.64	1,946.7	-19.9	-72.5	72.8	0.00	0.00	
1,980.0	5.27	254.64	1,976.6	-20.6	-75.2	75.5	0.00	0.00	
2,010.0	5.27	254.64	2,006.5	-21.4	-77.8	78.1	0.00	0.00	
2,040.0	5.27	254.64	2,036.3	-22.1	-80.5	80.8	0.00	0.00	
2,070.0	5.27	254.64	2,066.2	-22.8	-83.2	83.5	0.00	0.00	
2,100.0	5.27	254.64	2,096.1	-23.6	-85.8	86.1	0.00	0.00	
2,130.0	5.27	254.64	2,126.0	-24.3	-88.5	88.8	0.00	0.00	
2,160.0	5.27	254.64	2,155.8	-25.0	-91.1	91.5	0.00	0.00	
2,190.0	5.27	254.64	2,185.7	-25.8	-93.8	94.1	0.00	0.00	
2,220.0	5.27	254.64	2,215.6	-26.5	-96.5	96.8	0.00	0.00	
2,250.0	5.27	254.64	2,245.5	-27.2	-99.1	99.5	0.00	0.00	
2,280.0	5.27	254.64	2,275.3	-27.9	-101.8	102.2	0.00	0.00	
2,310.0	5.27	254.64	2,305.2	-28.7	-104.4	104.8	0.00	0.00	
2,340.0	5.27	254.64	2,335.1	-29.4	-107.1	107.5	0.00	0.00	
2,370.0	5.27	254.64	2,364.9	-30.1	-109.8	110.2	0.00	0.00	
2,400.0	5.27	254.64	2,394.8	-30.9	-112.4	112.8	0.00	0.00	
2,430.0	5.27	254.64	2,424.7	-31.6	-115.1	115.5	0.00	0.00	
2,460.0	5.27	254.64	2,454.6	-32.3	-117.7	118.2	0.00	0.00	
2,490.0	5.27	254.64	2,484.4	-33.1	-120.4	120.8	0.00	0.00	

Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
- hit/miss target									
- Shape									
LR09C I16 595 BHL	0.00	0.00	12,079.0	-126.8	-220.3	1,657,329.75	2,281,070.73	39.610430	-108.052084
- plan misses target center by 9595.5ft at 2490.0ft MD (2484.4 TVD, -33.1 N, -120.4 E)									
- Rectangle (sides W50.0 H100.0 D0.0)									
LR09C I16 595 TGT	0.00	0.00	5,629.0	-106.7	-388.6	1,657,354.52	2,280,903.13	39.610485	-108.052681
- plan misses target center by 3156.8ft at 2490.0ft MD (2484.4 TVD, -33.1 N, -120.4 E)									
- Point									

Cathedral Energy Services

Planning Report

Database:	EDM 5000.1 US Multi Users DB	Local Co-ordinate Reference:	Well LR09C I16 595
Company:	Berry Petroleum Company (NAD 83)	TVD Reference:	KBE @ 8306.0ft (Patterson 302)
Project:	Garfield County	MD Reference:	KBE @ 8306.0ft (Patterson 302)
Site:	I16 595 pad	North Reference:	True
Well:	LR09C I16 595	Survey Calculation Method:	Minimum Curvature
Wellbore:	DD		
Design:	Plan #1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
2,500.0	5.27	254.64	2,494.4	-33.3	-121.3	121.7	0.00	0.00	
2,600.0	5.27	254.64	2,594.0	-35.7	-130.1	130.6	0.00	0.00	
2,700.0	5.27	254.64	2,693.5	-38.2	-139.0	139.5	0.00	0.00	
2,800.0	5.27	254.64	2,793.1	-40.6	-147.9	148.4	0.00	0.00	
2,900.0	5.27	254.64	2,892.7	-43.0	-156.7	157.3	0.00	0.00	
3,000.0	5.27	254.64	2,992.3	-45.5	-165.6	166.2	0.00	0.00	
3,100.0	5.27	254.64	3,091.9	-47.9	-174.5	175.1	0.00	0.00	
3,200.0	5.27	254.64	3,191.4	-50.3	-183.3	184.0	0.00	0.00	
3,300.0	5.27	254.64	3,291.0	-52.8	-192.2	192.9	0.00	0.00	
3,400.0	5.27	254.64	3,390.6	-55.2	-201.0	201.8	0.00	0.00	
3,500.0	5.27	254.64	3,490.2	-57.6	-209.9	210.7	0.00	0.00	
3,600.0	5.27	254.64	3,589.7	-60.1	-218.8	219.6	0.00	0.00	
3,700.0	5.27	254.64	3,689.3	-62.5	-227.6	228.5	0.00	0.00	
3,739.9	5.27	254.64	3,729.0	-63.5	-231.2	232.0	0.00	0.00	Wasatch
3,800.0	5.27	254.64	3,788.9	-64.9	-236.5	237.4	0.00	0.00	
3,900.0	5.27	254.64	3,888.5	-67.4	-245.4	246.3	0.00	0.00	
4,000.0	5.27	254.64	3,988.0	-69.8	-254.2	255.2	0.00	0.00	
4,100.0	5.27	254.64	4,087.6	-72.2	-263.1	264.1	0.00	0.00	
4,200.0	5.27	254.64	4,187.2	-74.7	-272.0	273.0	0.00	0.00	
4,300.0	5.27	254.64	4,286.8	-77.1	-280.8	281.9	0.00	0.00	
4,400.0	5.27	254.64	4,386.4	-79.6	-289.7	290.8	0.00	0.00	
4,500.0	5.27	254.64	4,485.9	-82.0	-298.5	299.7	0.00	0.00	
4,600.0	5.27	254.64	4,585.5	-84.4	-307.4	308.6	0.00	0.00	
4,700.0	5.27	254.64	4,685.1	-86.9	-316.3	317.5	0.00	0.00	
4,800.0	5.27	254.64	4,784.7	-89.3	-325.1	326.4	0.00	0.00	
4,900.0	5.27	254.64	4,884.2	-91.7	-334.0	335.2	0.00	0.00	
5,000.0	5.27	254.64	4,983.8	-94.2	-342.9	344.1	0.00	0.00	
5,100.0	5.27	254.64	5,083.4	-96.6	-351.7	353.0	0.00	0.00	
5,200.0	5.27	254.64	5,183.0	-99.0	-360.6	361.9	0.00	0.00	
5,300.0	5.27	254.64	5,282.5	-101.5	-369.5	370.8	0.00	0.00	
5,383.5	5.27	254.64	5,365.7	-103.5	-376.9	378.3	0.00	0.00	Start Drop -2.00
5,400.0	4.94	254.64	5,382.1	-103.9	-378.3	379.7	2.00	-2.00	
5,500.0	2.94	254.64	5,481.9	-105.7	-384.9	386.3	2.00	-2.00	
5,600.0	0.94	254.64	5,581.8	-106.6	-388.2	389.6	2.00	-2.00	
5,647.2	0.00	0.00	5,629.0	-106.7	-388.6	390.0	2.00	-2.00	EOD; Inc=0° - Fort Union - LR09C I16 595 TGT
5,700.0	0.13	96.80	5,681.8	-106.7	-388.5	390.0	0.25	0.25	
5,800.0	0.38	96.80	5,781.8	-106.8	-388.0	389.6	0.25	0.25	
5,900.0	0.63	96.80	5,881.8	-106.9	-387.2	388.9	0.25	0.25	
6,000.0	0.88	96.80	5,981.8	-107.0	-385.9	387.8	0.25	0.25	
6,100.0	1.13	96.80	6,081.8	-107.2	-384.1	386.4	0.25	0.25	
6,147.2	1.25	96.80	6,129.0	-107.3	-383.1	385.6	0.25	0.25	Base Ft Union
6,200.0	1.38	96.80	6,181.8	-107.5	-381.9	384.7	0.25	0.25	
6,280.1	1.58	96.80	6,261.8	-107.7	-379.9	383.0	0.25	0.25	
6,300.0	1.58	96.80	6,281.7	-107.8	-379.3	382.6	0.00	0.00	
6,400.0	1.58	96.80	6,381.7	-108.1	-376.6	380.3	0.00	0.00	
6,500.0	1.58	96.80	6,481.7	-108.5	-373.8	378.1	0.00	0.00	
6,600.0	1.58	96.80	6,581.6	-108.8	-371.1	375.9	0.00	0.00	
6,700.0	1.58	96.80	6,681.6	-109.1	-368.4	373.7	0.00	0.00	
6,800.0	1.58	96.80	6,781.5	-109.4	-365.6	371.5	0.00	0.00	
6,900.0	1.58	96.80	6,881.5	-109.8	-362.9	369.3	0.00	0.00	
7,000.0	1.58	96.80	6,981.5	-110.1	-360.1	367.1	0.00	0.00	
7,100.0	1.58	96.80	7,081.4	-110.4	-357.4	364.8	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	EDM 5000.1 US Multi Users DB	Local Co-ordinate Reference:	Well LR09C I16 595
Company:	Berry Petroleum Company (NAD 83)	TVD Reference:	KBE @ 8306.0ft (Patterson 302)
Project:	Garfield County	MD Reference:	KBE @ 8306.0ft (Patterson 302)
Site:	I16 595 pad	North Reference:	True
Well:	LR09C I16 595	Survey Calculation Method:	Minimum Curvature
Wellbore:	DD		
Design:	Plan #1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
7,200.0	1.58	96.80	7,181.4	-110.7	-354.7	362.6	0.00	0.00	
7,300.0	1.58	96.80	7,281.3	-111.1	-351.9	360.4	0.00	0.00	
7,400.0	1.58	96.80	7,381.3	-111.4	-349.2	358.2	0.00	0.00	
7,500.0	1.58	96.80	7,481.3	-111.7	-346.4	356.0	0.00	0.00	
7,600.0	1.58	96.80	7,581.2	-112.0	-343.7	353.8	0.00	0.00	
7,700.0	1.58	96.80	7,681.2	-112.4	-340.9	351.6	0.00	0.00	
7,800.0	1.58	96.80	7,781.2	-112.7	-338.2	349.4	0.00	0.00	
7,900.0	1.58	96.80	7,881.1	-113.0	-335.5	347.1	0.00	0.00	
8,000.0	1.58	96.80	7,981.1	-113.4	-332.7	344.9	0.00	0.00	
8,100.0	1.58	96.80	8,081.0	-113.7	-330.0	342.7	0.00	0.00	
8,200.0	1.58	96.80	8,181.0	-114.0	-327.2	340.5	0.00	0.00	
8,300.0	1.58	96.80	8,281.0	-114.3	-324.5	338.3	0.00	0.00	
8,400.0	1.58	96.80	8,380.9	-114.7	-321.8	336.1	0.00	0.00	
8,448.1	1.58	96.80	8,429.0	-114.8	-320.4	335.0	0.00	0.00	Ohio Creek
8,500.0	1.58	96.80	8,480.9	-115.0	-319.0	333.9	0.00	0.00	
8,600.0	1.58	96.80	8,580.9	-115.3	-316.3	331.6	0.00	0.00	
8,700.0	1.58	96.80	8,680.8	-115.6	-313.5	329.4	0.00	0.00	
8,748.2	1.58	96.80	8,729.0	-115.8	-312.2	328.4	0.00	0.00	Williams Fork
8,800.0	1.58	96.80	8,780.8	-116.0	-310.8	327.2	0.00	0.00	
8,900.0	1.58	96.80	8,880.7	-116.3	-308.0	325.0	0.00	0.00	
9,000.0	1.58	96.80	8,980.7	-116.6	-305.3	322.8	0.00	0.00	
9,048.3	1.58	96.80	9,029.0	-116.8	-304.0	321.7	0.00	0.00	Approx TOG
9,100.0	1.58	96.80	9,080.7	-116.9	-302.6	320.6	0.00	0.00	
9,200.0	1.58	96.80	9,180.6	-117.3	-299.8	318.4	0.00	0.00	
9,300.0	1.58	96.80	9,280.6	-117.6	-297.1	316.1	0.00	0.00	
9,400.0	1.58	96.80	9,380.5	-117.9	-294.3	313.9	0.00	0.00	
9,500.0	1.58	96.80	9,480.5	-118.3	-291.6	311.7	0.00	0.00	
9,600.0	1.58	96.80	9,580.5	-118.6	-288.9	309.5	0.00	0.00	
9,700.0	1.58	96.80	9,680.4	-118.9	-286.1	307.3	0.00	0.00	
9,800.0	1.58	96.80	9,780.4	-119.2	-283.4	305.1	0.00	0.00	
9,900.0	1.58	96.80	9,880.4	-119.6	-280.6	302.9	0.00	0.00	
10,000.0	1.58	96.80	9,980.3	-119.9	-277.9	300.7	0.00	0.00	
10,100.0	1.58	96.80	10,080.3	-120.2	-275.1	298.4	0.00	0.00	
10,200.0	1.58	96.80	10,180.2	-120.5	-272.4	296.2	0.00	0.00	
10,300.0	1.58	96.80	10,280.2	-120.9	-269.7	294.0	0.00	0.00	
10,400.0	1.58	96.80	10,380.2	-121.2	-266.9	291.8	0.00	0.00	
10,500.0	1.58	96.80	10,480.1	-121.5	-264.2	289.6	0.00	0.00	
10,600.0	1.58	96.80	10,580.1	-121.9	-261.4	287.4	0.00	0.00	
10,700.0	1.58	96.80	10,680.0	-122.2	-258.7	285.2	0.00	0.00	
10,800.0	1.58	96.80	10,780.0	-122.5	-256.0	282.9	0.00	0.00	
10,900.0	1.58	96.80	10,880.0	-122.8	-253.2	280.7	0.00	0.00	
11,000.0	1.58	96.80	10,979.9	-123.2	-250.5	278.5	0.00	0.00	
11,100.0	1.58	96.80	11,079.9	-123.5	-247.7	276.3	0.00	0.00	
11,200.0	1.58	96.80	11,179.9	-123.8	-245.0	274.1	0.00	0.00	
11,300.0	1.58	96.80	11,279.8	-124.1	-242.2	271.9	0.00	0.00	
11,400.0	1.58	96.80	11,379.8	-124.5	-239.5	269.7	0.00	0.00	
11,500.0	1.58	96.80	11,479.7	-124.8	-236.8	267.5	0.00	0.00	
11,599.3	1.58	96.80	11,579.0	-125.1	-234.0	265.3	0.00	0.00	Cameo
11,600.0	1.58	96.80	11,579.7	-125.1	-234.0	265.2	0.00	0.00	
11,700.0	1.58	96.80	11,679.7	-125.4	-231.3	263.0	0.00	0.00	
11,800.0	1.58	96.80	11,779.6	-125.8	-228.5	260.8	0.00	0.00	
11,900.0	1.58	96.80	11,879.6	-126.1	-225.8	258.6	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	EDM 5000.1 US Multi Users DB	Local Co-ordinate Reference:	Well LR09C I16 595
Company:	Berry Petroleum Company (NAD 83)	TVD Reference:	KBE @ 8306.0ft (Patterson 302)
Project:	Garfield County	MD Reference:	KBE @ 8306.0ft (Patterson 302)
Site:	I16 595 pad	North Reference:	True
Well:	LR09C I16 595	Survey Calculation Method:	Minimum Curvature
Wellbore:	DD		
Design:	Plan #1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
11,949.4	1.58	96.80	11,929.0	-126.3	-224.4	257.5	0.00	0.00	Rollins SS
12,000.0	1.58	96.80	11,979.6	-126.4	-223.0	256.4	0.00	0.00	
12,097.3	1.58	96.80	12,076.8	-126.7	-220.4	254.2	0.00	0.00	TD at 12097.3
12,099.5	1.58	96.80	12,079.0	-126.8	-220.3	254.2	0.00	0.00	LR09C 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									
LR09C I16 595 BHL	0.00	0.00	12,079.0	-126.8	-220.3	1,657,329.75	2,281,070.73	39.610430	-108.052084
- plan hits target center									
- Rectangle (sides W50.0 H100.0 D0.0)									
LR09C I16 595 TGT	0.00	0.00	5,629.0	-106.7	-388.6	1,657,354.52	2,280,903.13	39.610485	-108.052681
- plan hits target center									
- Point									

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
3,739.9	3,729.0	Wasatch		0.00		
5,647.2	5,629.0	Fort Union		0.00		
6,147.2	6,129.0	Base Ft Union		0.00		
8,448.1	8,429.0	Ohio Creek		0.00		
8,748.2	8,729.0	Williams Fork		0.00		
9,048.3	9,029.0	Approx TOG		0.00		
11,599.3	11,579.0	Cameo		0.00		
11,949.4	11,929.0	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'	
1,263.7	1,263.3	-3.2	-11.7	EOB; Inc=5.27°	
5,383.5	5,365.7	-103.5	-376.9	Start Drop -2.00	
5,647.2	5,629.0	-106.7	-388.6	EOD; Inc=0°	
12,097.3	12,076.8	-126.7	-220.4	TD at 12097.3	

Berry Petroleum Company (NAD 83)

Garfield County

I16 595 pad

LR09C I16 595

DD

Plan #1

Anticollision Report

13 October, 2010

Cathedral Energy Services

Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Well LR09C I16 595
Project:	Garfield County	TVD Reference:	KBE @ 8306.0ft (Patterson 302)
Reference Site:	I16 595 pad	MD Reference:	KBE @ 8306.0ft (Patterson 302)
Site Error:	0.0ft	North Reference:	True
Reference Well:	LR09C I16 595	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

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

Survey Tool Program		Date	10/13/2010		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
0.0	12,099.5	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	437.5	437.8	88.8	87.3	60.054	CC
LR08A I16 595 - DD - Plan #1	500.0	500.0	89.0	87.3	52.462	ES
LR08A I16 595 - DD - Plan #1	700.0	696.7	94.9	92.5	39.760	SF
LR08B I16 595 - DD - Plan #1	481.9	482.4	57.8	56.2	35.354	CC
LR08B I16 595 - DD - Plan #1	500.0	500.4	57.8	56.1	34.069	ES
LR08B I16 595 - DD - Plan #1	800.0	794.3	75.5	72.7	26.749	SF
LR08C I16 595 Pad - DD - Plan #1	480.2	480.7	73.4	71.8	45.050	CC
LR08C I16 595 Pad - DD - Plan #1	500.0	500.3	73.4	71.7	43.247	ES
LR08C I16 595 Pad - DD - Plan #1	900.0	893.4	99.4	96.1	30.817	SF
LR09A I16 595 - DD - Plan #1	1,000.0	1,000.0	30.2	26.7	8.770	CC, ES
LR09A I16 595 - DD - Plan #1	1,200.0	1,200.9	33.7	29.6	8.150	SF
LR09B I16 595 - DD - Plan #1	483.5	484.0	42.8	41.2	26.106	CC
LR09B I16 595 - DD - Plan #1	500.0	500.4	42.9	41.2	25.255	ES
LR09B I16 595 - DD - Plan #1	700.0	697.4	52.0	49.6	21.473	SF
LR09D I16 595 - DD - Plan #1	1,000.0	1,000.0	15.2	11.8	4.426	CC
LR09D I16 595 - DD - Plan #1	1,100.0	1,100.5	15.3	11.5	4.039	ES
LR09D I16 595 - DD - Plan #1	1,200.0	1,200.9	16.0	11.9	3.872	SF
LR16D I16 595 - DD - Plan #1						Out of range

Cathedral Energy Services

Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Well LR09C I16 595
Project:	Garfield County	TVD Reference:	KBE @ 8306.0ft (Patterson 302)
Reference Site:	I16 595 pad	MD Reference:	KBE @ 8306.0ft (Patterson 302)
Site Error:	0.0ft	North Reference:	True
Reference Well:	LR09C I16 595	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design I16 595 pad - LR08A I16 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 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	91.40	-2.2	89.3	89.3					
100.0	100.0	100.0	100.0	0.1	0.1	91.40	-2.2	89.3	89.3	89.0	0.30	301.101		
200.0	200.0	200.0	200.0	0.3	0.3	91.40	-2.2	89.3	89.3	88.7	0.65	138.344		
300.0	300.0	300.3	300.3	0.5	0.5	90.28	-0.4	89.2	89.2	88.2	1.00	89.534		
400.0	400.0	400.4	400.2	0.7	0.7	86.91	4.8	88.7	88.8	87.5	1.35	65.965		
437.5	437.5	437.8	437.5	0.7	0.8	85.06	7.6	88.5	88.8	87.3	1.48	60.054 CC		
500.0	500.0	500.0	499.5	0.8	0.9	81.31	13.4	88.0	89.0	87.3	1.70	52.462 ES		
600.0	600.0	598.8	597.5	1.0	1.2	73.70	25.4	86.9	90.6	88.6	2.04	44.398		
700.0	700.0	696.7	694.2	1.2	1.5	64.63	40.6	85.6	94.9	92.5	2.39	39.760 SF		

Cathedral Energy Services

Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Well LR09C I16 595
Project:	Garfield County	TVD Reference:	KBE @ 8306.0ft (Patterson 302)
Reference Site:	I16 595 pad	MD Reference:	KBE @ 8306.0ft (Patterson 302)
Site Error:	0.0ft	North Reference:	True
Reference Well:	LR09C I16 595	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design I16 595 pad - LR08B I16 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		
Depth (ft)	Depth (ft)	Depth (ft)	Depth (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	91.40	-1.5	59.4	59.5					
100.0	100.0	100.0	100.0	0.1	0.1	91.40	-1.5	59.4	59.5	59.2	0.30	200.418		
200.0	200.0	200.0	200.0	0.3	0.3	91.40	-1.5	59.4	59.5	58.8	0.65	92.084		
300.0	300.0	300.4	300.4	0.5	0.5	89.74	0.3	59.1	59.1	58.1	1.00	59.292		
400.0	400.0	400.6	400.5	0.7	0.7	84.67	5.4	58.0	58.2	56.9	1.35	43.175		
481.9	481.9	482.4	481.9	0.8	0.9	77.88	12.1	56.5	57.8	56.2	1.64	35.354 CC		
500.0	500.0	500.4	499.8	0.8	0.9	76.07	13.9	56.1	57.8	56.1	1.70	34.069 ES		
600.0	600.0	599.3	598.1	1.0	1.2	64.38	25.7	53.6	59.5	57.5	2.04	29.149		
700.0	700.0	697.4	694.9	1.2	1.5	51.11	40.7	50.4	65.0	62.6	2.40	27.071		
800.0	800.0	794.3	790.0	1.4	1.9	38.47	58.6	46.6	75.5	72.7	2.82	26.749 SF		
900.0	900.0	889.8	883.1	1.5	2.3	27.95	79.3	42.1	91.4	88.1	3.34	27.393		

Cathedral Energy Services

Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Well LR09C I16 595
Project:	Garfield County	TVD Reference:	KBE @ 8306.0ft (Patterson 302)
Reference Site:	I16 595 pad	MD Reference:	KBE @ 8306.0ft (Patterson 302)
Site Error:	0.0ft	North Reference:	True
Reference Well:	LR09C I16 595	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design 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						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	91.40	-1.8	74.7	74.7					
100.0	100.0	100.0	100.0	0.1	0.1	91.40	-1.8	74.7	74.7	74.4	0.30	251.709		
200.0	200.0	200.0	200.0	0.3	0.3	91.40	-1.8	74.7	74.7	74.0	0.65	115.650		
300.0	300.0	300.4	300.4	0.5	0.5	90.06	-0.1	74.4	74.4	73.4	1.00	74.659		
400.0	400.0	400.6	400.5	0.7	0.7	86.02	5.1	73.5	73.7	72.4	1.35	54.681		
480.2	480.2	480.7	480.2	0.8	0.9	80.80	11.7	72.5	73.4	71.8	1.63	45.050 CC		
500.0	500.0	500.3	499.8	0.8	0.9	79.24	13.7	72.1	73.4	71.7	1.70	43.247 ES		
600.0	600.0	599.3	598.0	1.0	1.2	69.96	25.6	70.2	74.8	72.7	2.04	36.617		
700.0	700.0	697.4	694.9	1.2	1.5	59.02	40.7	67.8	79.2	76.8	2.39	33.140		
800.0	800.0	795.1	791.0	1.4	1.8	47.98	58.5	64.9	87.8	85.0	2.78	31.597		
900.0	900.0	893.4	887.4	1.5	2.2	38.94	76.7	61.9	99.4	96.1	3.22	30.817 SF		

Cathedral Energy Services

Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Well LR09C I16 595
Project:	Garfield County	TVD Reference:	KBE @ 8306.0ft (Patterson 302)
Reference Site:	I16 595 pad	MD Reference:	KBE @ 8306.0ft (Patterson 302)
Site Error:	0.0ft	North Reference:	True
Reference Well:	LR09C I16 595	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design I16 595 pad - LR09A I16 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	91.38	-0.7	30.1	30.2					
100.0	100.0	100.0	100.0	0.1	0.1	91.38	-0.7	30.1	30.2	29.9	0.30	101.633		
200.0	200.0	200.0	200.0	0.3	0.3	91.38	-0.7	30.1	30.2	29.5	0.65	46.696		
300.0	300.0	300.0	300.0	0.5	0.5	91.38	-0.7	30.1	30.2	29.2	0.99	30.312		
400.0	400.0	400.0	400.0	0.7	0.7	91.38	-0.7	30.1	30.2	28.8	1.34	22.438		
500.0	500.0	500.0	500.0	0.8	0.8	91.38	-0.7	30.1	30.2	28.5	1.69	17.812		
600.0	600.0	600.0	600.0	1.0	1.0	91.38	-0.7	30.1	30.2	28.1	2.04	14.767		
700.0	700.0	700.0	700.0	1.2	1.2	91.38	-0.7	30.1	30.2	27.8	2.39	12.611		
800.0	800.0	800.0	800.0	1.4	1.4	91.38	-0.7	30.1	30.2	27.4	2.74	11.005		
900.0	900.0	900.0	900.0	1.5	1.5	91.38	-0.7	30.1	30.2	27.1	3.09	9.761		
1,000.0	1,000.0	1,000.0	1,000.0	1.7	1.7	91.38	-0.7	30.1	30.2	26.7	3.44	8.770 CC, ES		
1,100.0	1,100.0	1,100.6	1,100.5	1.9	1.9	-166.88	0.7	29.2	30.9	27.1	3.79	8.154		
1,200.0	1,199.8	1,200.9	1,200.7	2.1	2.1	-176.60	5.1	26.3	33.7	29.6	4.14	8.150 SF		
1,263.7	1,263.3	1,264.5	1,264.1	2.2	2.2	175.52	9.4	23.4	37.3	33.0	4.37	8.542		
1,300.0	1,299.5	1,300.7	1,300.1	2.3	2.3	170.90	12.4	21.4	39.9	35.4	4.51	8.863		
1,400.0	1,399.1	1,399.9	1,398.6	2.5	2.5	158.25	22.5	14.8	48.3	43.3	4.91	9.834		
1,500.0	1,498.6	1,498.9	1,496.6	2.7	2.7	147.55	34.3	6.9	58.7	53.4	5.33	11.018		
1,600.0	1,598.2	1,597.8	1,594.5	2.9	3.0	140.20	46.2	-0.9	70.6	64.8	5.76	12.259		
1,700.0	1,697.8	1,696.8	1,692.4	3.1	3.2	135.01	58.1	-8.8	83.2	77.0	6.19	13.450		
1,800.0	1,797.4	1,795.7	1,790.3	3.3	3.5	131.22	70.0	-16.7	96.4	89.8	6.63	14.553		

Cathedral Energy Services

Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Well LR09C I16 595
Project:	Garfield County	TVD Reference:	KBE @ 8306.0ft (Patterson 302)
Reference Site:	I16 595 pad	MD Reference:	KBE @ 8306.0ft (Patterson 302)
Site Error:	0.0ft	North Reference:	True
Reference Well:	LR09C I16 595	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design I16 595 pad - LR09B I16 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	91.39	-1.1	45.1	45.1					
100.0	100.0	100.0	100.0	0.1	0.1	91.39	-1.1	45.1	45.1	44.8	0.30	151.975		
200.0	200.0	200.0	200.0	0.3	0.3	91.39	-1.1	45.1	45.1	44.4	0.65	69.826		
300.0	300.0	300.5	300.4	0.5	0.5	89.24	0.6	44.6	44.6	43.6	1.00	44.725		
400.0	400.0	400.7	400.5	0.7	0.7	82.55	5.6	43.1	43.4	42.1	1.35	32.176		
483.5	483.5	484.0	483.5	0.8	0.9	73.22	12.4	41.0	42.8	41.2	1.64	26.106 CC		
500.0	500.0	500.4	499.8	0.8	0.9	70.99	14.0	40.5	42.9	41.2	1.70	25.255 ES		
600.0	600.0	599.4	598.1	1.0	1.2	55.45	25.5	37.1	45.0	43.0	2.04	22.061		
700.0	700.0	697.4	694.9	1.2	1.5	39.12	40.1	32.6	52.0	49.6	2.42	21.473 SF		
800.0	800.0	795.0	790.8	1.4	1.8	25.46	57.5	27.4	64.4	61.5	2.88	22.344		
900.0	900.0	893.2	887.1	1.5	2.2	16.22	75.5	22.0	79.7	76.3	3.39	23.488		
1,000.0	1,000.0	991.3	983.5	1.7	2.5	10.04	93.5	16.6	96.4	92.5	3.92	24.576		

Cathedral Energy Services

Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Well LR09C I16 595
Project:	Garfield County	TVD Reference:	KBE @ 8306.0ft (Patterson 302)
Reference Site:	I16 595 pad	MD Reference:	KBE @ 8306.0ft (Patterson 302)
Site Error:	0.0ft	North Reference:	True
Reference Well:	LR09C I16 595	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design I16 595 pad - LR09D I16 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	91.36	-0.4	15.2	15.2					
100.0	100.0	100.0	100.0	0.1	0.1	91.36	-0.4	15.2	15.2	14.9	0.30	51.291		
200.0	200.0	200.0	200.0	0.3	0.3	91.36	-0.4	15.2	15.2	14.6	0.65	23.566		
300.0	300.0	300.0	300.0	0.5	0.5	91.36	-0.4	15.2	15.2	14.2	0.99	15.297		
400.0	400.0	400.0	400.0	0.7	0.7	91.36	-0.4	15.2	15.2	13.9	1.34	11.324		
500.0	500.0	500.0	500.0	0.8	0.8	91.36	-0.4	15.2	15.2	13.5	1.69	8.989		
600.0	600.0	600.0	600.0	1.0	1.0	91.36	-0.4	15.2	15.2	13.2	2.04	7.452		
700.0	700.0	700.0	700.0	1.2	1.2	91.36	-0.4	15.2	15.2	12.8	2.39	6.365		
800.0	800.0	800.0	800.0	1.4	1.4	91.36	-0.4	15.2	15.2	12.5	2.74	5.554		
900.0	900.0	900.0	900.0	1.5	1.5	91.36	-0.4	15.2	15.2	12.1	3.09	4.926		
1,000.0	1,000.0	1,000.0	1,000.0	1.7	1.7	91.36	-0.4	15.2	15.2	11.8	3.44	4.426 CC		
1,000.4	1,000.4	1,000.4	1,000.4	1.7	1.7	-163.29	-0.4	15.2	15.2	11.8	3.44	4.424		
1,100.0	1,100.0	1,100.5	1,100.5	1.9	1.9	-167.55	0.3	13.6	15.3	11.5	3.79	4.039 ES		
1,200.0	1,199.8	1,200.9	1,200.7	2.1	2.1	-179.76	2.3	8.7	16.0	11.9	4.14	3.872 SF		
1,263.7	1,263.3	1,264.8	1,264.4	2.2	2.2	169.69	4.3	3.9	17.3	13.0	4.36	3.976		
1,300.0	1,299.5	1,301.1	1,300.5	2.3	2.3	163.32	5.6	0.6	18.4	13.9	4.50	4.084		
1,400.0	1,399.1	1,400.9	1,399.9	2.5	2.5	148.97	9.4	-8.6	22.1	17.2	4.89	4.507		
1,500.0	1,498.6	1,500.7	1,499.2	2.7	2.7	139.15	13.2	-17.8	26.7	21.4	5.31	5.032		
1,600.0	1,598.2	1,600.5	1,598.5	2.9	2.9	132.37	17.0	-27.0	31.9	26.2	5.73	5.565		
1,700.0	1,697.8	1,700.3	1,697.8	3.1	3.1	127.53	20.8	-36.2	37.4	31.2	6.16	6.069		
1,800.0	1,797.4	1,800.1	1,797.1	3.3	3.4	123.96	24.6	-45.4	43.1	36.5	6.60	6.530		
1,900.0	1,896.9	1,899.9	1,896.4	3.5	3.6	121.23	28.4	-54.6	49.0	41.9	7.05	6.949		
2,000.0	1,996.5	1,999.7	1,995.7	3.8	3.8	119.08	32.1	-63.8	54.9	47.4	7.49	7.326		
2,100.0	2,096.1	2,099.5	2,095.0	4.0	4.0	117.36	35.9	-73.0	60.9	52.9	7.94	7.666		
2,200.0	2,195.7	2,199.3	2,194.3	4.2	4.3	115.94	39.7	-82.2	66.9	58.5	8.39	7.973		
2,300.0	2,295.2	2,299.1	2,293.6	4.4	4.5	114.76	43.5	-91.4	73.0	64.1	8.84	8.251		
2,400.0	2,394.8	2,399.0	2,392.9	4.7	4.7	113.76	47.3	-100.6	79.1	69.8	9.30	8.503		
2,500.0	2,494.4	2,498.8	2,492.2	4.9	5.0	112.90	51.1	-109.8	85.2	75.4	9.75	8.732		
2,600.0	2,594.0	2,598.6	2,591.6	5.1	5.2	112.16	54.8	-119.0	91.3	81.1	10.21	8.941		
2,700.0	2,693.5	2,698.4	2,690.9	5.4	5.5	111.51	58.6	-128.2	97.4	86.8	10.67	9.133		

Cathedral Energy Services

Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Well LR09C I16 595
Project:	Garfield County	TVD Reference:	KBE @ 8306.0ft (Patterson 302)
Reference Site:	I16 595 pad	MD Reference:	KBE @ 8306.0ft (Patterson 302)
Site Error:	0.0ft	North Reference:	True
Reference Well:	LR09C I16 595	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Reference Depths are relative to KBE @ 8306.0ft (Patterson 302)

Offset Depths are relative to Offset Datum

Central Meridian is -105.500000 °

Coordinates are relative to: LR09C I16 595

Coordinate System is US State Plane 1983, Colorado Central Zone

Grid Convergence at Surface is: -1.61°

