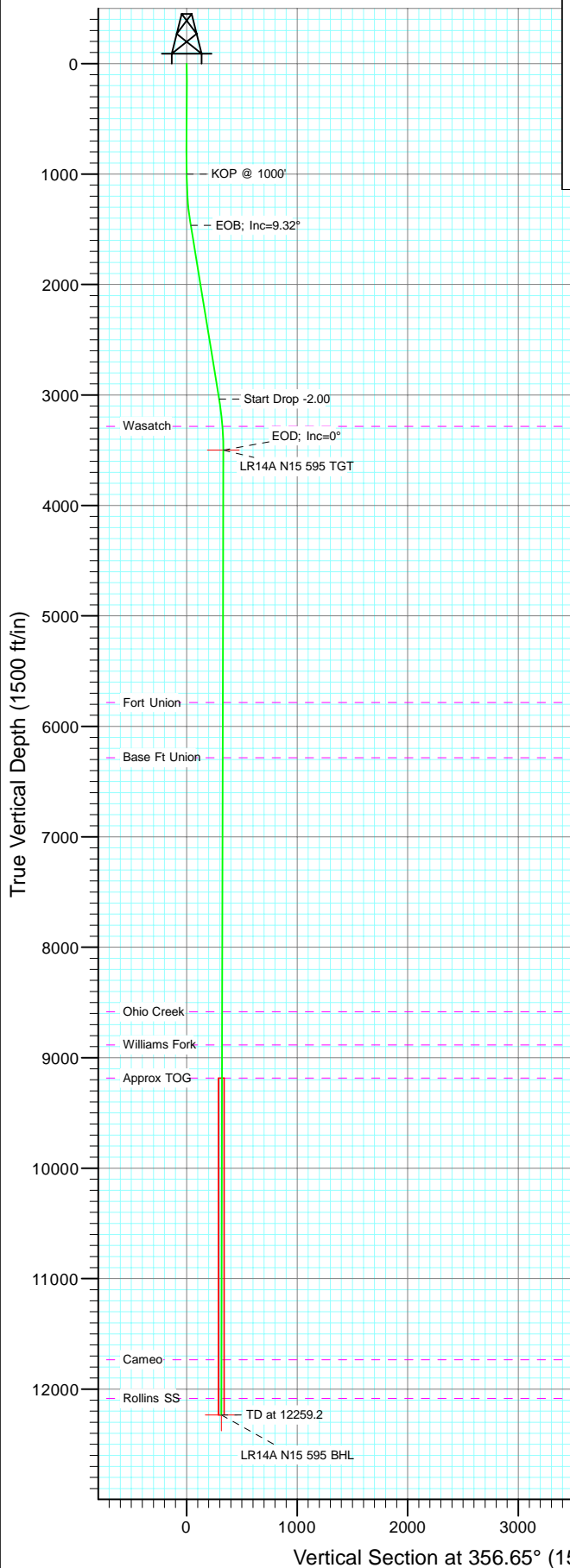
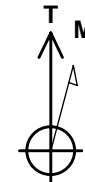
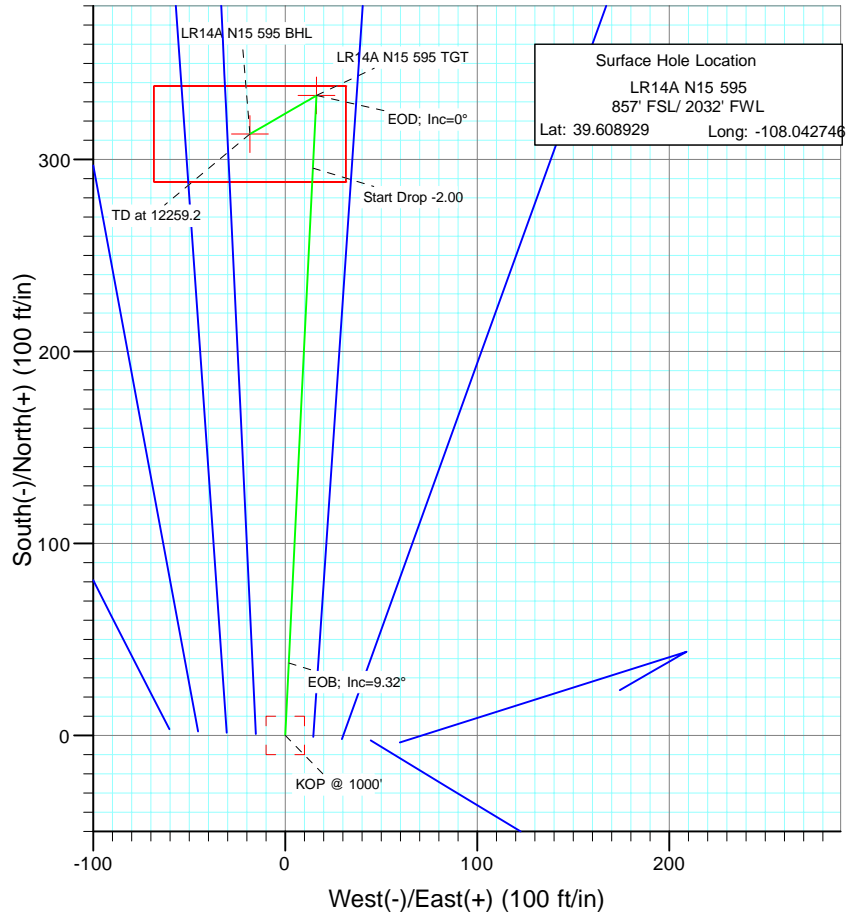




Project: Garfield County
Site: N15 595 Pad
Well: LR14A N15 595
Wellbore: DD
Design: Plan #1



SECTION DETAILS										
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	1000.0	0.00	0.00	1000.0	0.0	0.0	0.00	0.00	0.0	
3	1466.1	9.32	2.81	1464.1	37.8	1.9	2.00	2.81	37.6	
4	3059.0	9.32	2.81	3035.9	295.5	14.5	0.00	0.00	294.2	
5	3525.1	0.00	0.00	3500.0	333.3	16.3	2.00	180.00	331.8	LR14A N15 595 TGT
6	3630.8	0.26	239.97	3605.7	333.2	16.1	0.25	239.97	331.7	
7	12259.2	0.26	239.97	12234.0	313.3	-18.3	0.00	0.00	313.8	LR14A 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
3284.0	3308.9	Wasatch
5784.0	5809.2	Fort Union
6284.0	6309.2	Base Ft Union
8584.0	8609.2	Ohio Creek
8884.0	8909.2	Williams Fork
9184.0	9209.2	Approx TOG
11734.0	11759.2	Cameo
12084.0	12109.2	Rollins SS

DESIGN DETAILS: Plan #1

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

Target	Azimuth	Origin	N/S	E/WFrom TVD
LR14A N15 595 BHL	356.65	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 LR14A N15 595
Company:	Berry Petroleum Company (NAD 83)	TVD Reference:	KBE @ 8391.0ft (Patterson 302)
Project:	Garfield County	MD Reference:	KBE @ 8391.0ft (Patterson 302)
Site:	N15 595 Pad	North Reference:	True
Well:	LR14A N15 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	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	LR14A N15 595					
Well Position	+N/-S	0.0 ft	Northing:	1,656,709.46 ft	Latitude:	39.608929
	+E/-W	0.0 ft	Easting:	2,283,685.31 ft	Longitude:	-108.042746
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	8,376.0 ft

Wellbore	DD				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	8/9/2010	10.47	65.86	52,402

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	356.65

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	
1,466.1	9.32	2.81	1,464.1	37.8	1.9	2.00	2.00	0.00	2.81	
3,059.0	9.32	2.81	3,035.9	295.5	14.5	0.00	0.00	0.00	0.00	
3,525.1	0.00	0.00	3,500.0	333.3	16.3	2.00	-2.00	0.00	180.00	LR14A N15 595 TGT
3,630.8	0.26	239.97	3,605.7	333.2	16.1	0.25	0.25	-113.56	239.97	
12,259.2	0.26	239.97	12,234.0	313.3	-18.3	0.00	0.00	0.00	0.00	LR14A N15 595 BHL



Cathedral Energy Services

Planning Report

Database:	EDM 5000.1 US Multi Users Db	Local Co-ordinate Reference:	Well LR14A N15 595
Company:	Berry Petroleum Company (NAD 83)	TVD Reference:	KBE @ 8391.0ft (Patterson 302)
Project:	Garfield County	MD Reference:	KBE @ 8391.0ft (Patterson 302)
Site:	N15 595 Pad	North Reference:	True
Well:	LR14A N15 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	2.81	1,020.0	0.1	0.0	0.1	2.00	2.00	
1,050.0	1.00	2.81	1,050.0	0.4	0.0	0.4	2.00	2.00	
1,080.0	1.60	2.81	1,080.0	1.1	0.1	1.1	2.00	2.00	
1,110.0	2.20	2.81	1,110.0	2.1	0.1	2.1	2.00	2.00	
1,140.0	2.80	2.81	1,139.9	3.4	0.2	3.4	2.00	2.00	
1,170.0	3.40	2.81	1,169.9	5.0	0.2	5.0	2.00	2.00	
1,200.0	4.00	2.81	1,199.8	7.0	0.3	6.9	2.00	2.00	
1,230.0	4.60	2.81	1,229.8	9.2	0.5	9.2	2.00	2.00	
1,260.0	5.20	2.81	1,259.6	11.8	0.6	11.7	2.00	2.00	
1,290.0	5.80	2.81	1,289.5	14.6	0.7	14.6	2.00	2.00	
1,320.0	6.40	2.81	1,319.3	17.8	0.9	17.8	2.00	2.00	
1,350.0	7.00	2.81	1,349.1	21.3	1.0	21.2	2.00	2.00	
1,380.0	7.60	2.81	1,378.9	25.1	1.2	25.0	2.00	2.00	
1,410.0	8.20	2.81	1,408.6	29.3	1.4	29.1	2.00	2.00	
1,440.0	8.80	2.81	1,438.3	33.7	1.7	33.5	2.00	2.00	
1,466.1	9.32	2.81	1,464.1	37.8	1.9	37.6	2.00	2.00	EOB; Inc=9.32°
1,470.0	9.32	2.81	1,467.9	38.4	1.9	38.2	0.00	0.00	



Cathedral Energy Services

Planning Report

Database:	EDM 5000.1 US Multi Users Db	Local Co-ordinate Reference:	Well LR14A N15 595
Company:	Berry Petroleum Company (NAD 83)	TVD Reference:	KBE @ 8391.0ft (Patterson 302)
Project:	Garfield County	MD Reference:	KBE @ 8391.0ft (Patterson 302)
Site:	N15 595 Pad	North Reference:	True
Well:	LR14A N15 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	9.32	2.81	1,497.5	43.3	2.1	43.1	0.00	0.00	
1,530.0	9.32	2.81	1,527.1	48.1	2.4	47.9	0.00	0.00	
1,560.0	9.32	2.81	1,556.7	53.0	2.6	52.7	0.00	0.00	
1,590.0	9.32	2.81	1,586.3	57.8	2.8	57.6	0.00	0.00	
1,620.0	9.32	2.81	1,615.9	62.7	3.1	62.4	0.00	0.00	
1,650.0	9.32	2.81	1,645.5	67.5	3.3	67.2	0.00	0.00	
1,680.0	9.32	2.81	1,675.1	72.4	3.6	72.1	0.00	0.00	
1,710.0	9.32	2.81	1,704.7	77.2	3.8	76.9	0.00	0.00	
1,740.0	9.32	2.81	1,734.3	82.1	4.0	81.7	0.00	0.00	
1,770.0	9.32	2.81	1,763.9	87.0	4.3	86.6	0.00	0.00	
1,800.0	9.32	2.81	1,793.5	91.8	4.5	91.4	0.00	0.00	
1,830.0	9.32	2.81	1,823.1	96.7	4.7	96.2	0.00	0.00	
1,860.0	9.32	2.81	1,852.7	101.5	5.0	101.1	0.00	0.00	
1,890.0	9.32	2.81	1,882.3	106.4	5.2	105.9	0.00	0.00	
1,920.0	9.32	2.81	1,912.0	111.2	5.5	110.7	0.00	0.00	
1,950.0	9.32	2.81	1,941.6	116.1	5.7	115.5	0.00	0.00	
1,980.0	9.32	2.81	1,971.2	120.9	5.9	120.4	0.00	0.00	
2,010.0	9.32	2.81	2,000.8	125.8	6.2	125.2	0.00	0.00	
2,040.0	9.32	2.81	2,030.4	130.6	6.4	130.0	0.00	0.00	
2,070.0	9.32	2.81	2,060.0	135.5	6.6	134.9	0.00	0.00	
2,100.0	9.32	2.81	2,089.6	140.3	6.9	139.7	0.00	0.00	
2,130.0	9.32	2.81	2,119.2	145.2	7.1	144.5	0.00	0.00	
2,160.0	9.32	2.81	2,148.8	150.1	7.4	149.4	0.00	0.00	
2,190.0	9.32	2.81	2,178.4	154.9	7.6	154.2	0.00	0.00	
2,220.0	9.32	2.81	2,208.0	159.8	7.8	159.0	0.00	0.00	
2,250.0	9.32	2.81	2,237.6	164.6	8.1	163.9	0.00	0.00	
2,280.0	9.32	2.81	2,267.2	169.5	8.3	168.7	0.00	0.00	
2,310.0	9.32	2.81	2,296.8	174.3	8.6	173.5	0.00	0.00	
2,340.0	9.32	2.81	2,326.4	179.2	8.8	178.4	0.00	0.00	
2,370.0	9.32	2.81	2,356.0	184.0	9.0	183.2	0.00	0.00	
2,400.0	9.32	2.81	2,385.6	188.9	9.3	188.0	0.00	0.00	
2,430.0	9.32	2.81	2,415.2	193.7	9.5	192.9	0.00	0.00	
2,460.0	9.32	2.81	2,444.8	198.6	9.7	197.7	0.00	0.00	
2,490.0	9.32	2.81	2,474.4	203.4	10.0	202.5	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
LR14A N15 595 TGT	0.00	0.00	3,500.0	333.3	16.3	1,657,042.17	2,283,710.98	39.609844	-108.042688
- hit/miss target									
- Shape									
- plan misses target center by 1033.8ft at 2490.0ft MD (2474.4 TVD, 203.4 N, 10.0 E)									
- Point									
LR14A N15 595 BHL	0.00	0.00	12,234.0	313.3	-18.3	1,657,023.11	2,283,675.77	39.609789	-108.042811
- plan misses target center by 9760.2ft at 2490.0ft MD (2474.4 TVD, 203.4 N, 10.0 E)									
- Rectangle (sides W50.0 H100.0 D0.0)									



Cathedral Energy Services

Planning Report

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Project:	Garfield County	MD Reference:	KBE @ 8391.0ft (Patterson 302)
Site:	N15 595 Pad	North Reference:	True
Well:	LR14A N15 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	9.32	2.81	2,484.3	205.1	10.1	204.1	0.00	0.00	
2,600.0	9.32	2.81	2,583.0	221.2	10.9	220.2	0.00	0.00	
2,700.0	9.32	2.81	2,681.7	237.4	11.6	236.3	0.00	0.00	
2,800.0	9.32	2.81	2,780.3	253.6	12.4	252.4	0.00	0.00	
2,900.0	9.32	2.81	2,879.0	269.8	13.2	268.5	0.00	0.00	
3,000.0	9.32	2.81	2,977.7	286.0	14.0	284.7	0.00	0.00	
3,059.0	9.32	2.81	3,035.9	295.5	14.5	294.2	0.00	0.00	Start Drop -2.00
3,100.0	8.50	2.81	3,076.4	301.8	14.8	300.5	2.00	-2.00	
3,200.0	6.50	2.81	3,175.6	314.9	15.4	313.5	2.00	-2.00	
3,300.0	4.50	2.81	3,275.1	324.5	15.9	323.0	2.00	-2.00	
3,308.9	4.32	2.81	3,284.0	325.2	16.0	323.7	2.00	-2.00	Wasatch
3,400.0	2.50	2.81	3,374.9	330.6	16.2	329.1	2.00	-2.00	
3,500.0	0.50	2.81	3,474.9	333.2	16.3	331.7	2.00	-2.00	
3,525.1	0.00	0.00	3,500.0	333.3	16.3	331.8	2.00	-2.00	EOD; Inc=0° - LR14A N15 595 TGT
3,600.0	0.19	239.97	3,574.9	333.2	16.2	331.7	0.25	0.25	
3,630.8	0.26	239.97	3,605.7	333.2	16.1	331.7	0.25	0.25	
3,700.0	0.26	239.97	3,674.9	333.0	15.9	331.5	0.00	0.00	
3,800.0	0.26	239.97	3,774.9	332.8	15.5	331.3	0.00	0.00	
3,900.0	0.26	239.97	3,874.9	332.6	15.1	331.1	0.00	0.00	
4,000.0	0.26	239.97	3,974.9	332.3	14.7	330.9	0.00	0.00	
4,100.0	0.26	239.97	4,074.8	332.1	14.3	330.7	0.00	0.00	
4,200.0	0.26	239.97	4,174.8	331.9	13.9	330.5	0.00	0.00	
4,300.0	0.26	239.97	4,274.8	331.6	13.5	330.3	0.00	0.00	
4,400.0	0.26	239.97	4,374.8	331.4	13.1	330.1	0.00	0.00	
4,500.0	0.26	239.97	4,474.8	331.2	12.7	329.9	0.00	0.00	
4,600.0	0.26	239.97	4,574.8	330.9	12.3	329.7	0.00	0.00	
4,700.0	0.26	239.97	4,674.8	330.7	11.9	329.5	0.00	0.00	
4,800.0	0.26	239.97	4,774.8	330.5	11.5	329.2	0.00	0.00	
4,900.0	0.26	239.97	4,874.8	330.2	11.1	329.0	0.00	0.00	
5,000.0	0.26	239.97	4,974.8	330.0	10.7	328.8	0.00	0.00	
5,100.0	0.26	239.97	5,074.8	329.8	10.3	328.6	0.00	0.00	
5,200.0	0.26	239.97	5,174.8	329.6	9.9	328.4	0.00	0.00	
5,300.0	0.26	239.97	5,274.8	329.3	9.5	328.2	0.00	0.00	
5,400.0	0.26	239.97	5,374.8	329.1	9.1	328.0	0.00	0.00	
5,500.0	0.26	239.97	5,474.8	328.9	8.7	327.8	0.00	0.00	
5,600.0	0.26	239.97	5,574.8	328.6	8.3	327.6	0.00	0.00	
5,700.0	0.26	239.97	5,674.8	328.4	7.9	327.4	0.00	0.00	
5,800.0	0.26	239.97	5,774.8	328.2	7.5	327.2	0.00	0.00	
5,809.2	0.26	239.97	5,784.0	328.2	7.4	327.2	0.00	0.00	Fort Union
5,900.0	0.26	239.97	5,874.8	327.9	7.1	327.0	0.00	0.00	
6,000.0	0.26	239.97	5,974.8	327.7	6.7	326.8	0.00	0.00	
6,100.0	0.26	239.97	6,074.8	327.5	6.3	326.6	0.00	0.00	
6,200.0	0.26	239.97	6,174.8	327.2	5.9	326.3	0.00	0.00	
6,300.0	0.26	239.97	6,274.8	327.0	5.5	326.1	0.00	0.00	
6,309.2	0.26	239.97	6,284.0	327.0	5.4	326.1	0.00	0.00	Base Ft Union
6,400.0	0.26	239.97	6,374.8	326.8	5.1	325.9	0.00	0.00	
6,500.0	0.26	239.97	6,474.8	326.6	4.7	325.7	0.00	0.00	
6,600.0	0.26	239.97	6,574.8	326.3	4.3	325.5	0.00	0.00	
6,700.0	0.26	239.97	6,674.8	326.1	3.9	325.3	0.00	0.00	
6,800.0	0.26	239.97	6,774.8	325.9	3.5	325.1	0.00	0.00	
6,900.0	0.26	239.97	6,874.8	325.6	3.1	324.9	0.00	0.00	
7,000.0	0.26	239.97	6,974.8	325.4	2.7	324.7	0.00	0.00	



Cathedral Energy Services

Planning Report

Database:	EDM 5000.1 US Multi Users Db	Local Co-ordinate Reference:	Well LR14A N15 595
Company:	Berry Petroleum Company (NAD 83)	TVD Reference:	KBE @ 8391.0ft (Patterson 302)
Project:	Garfield County	MD Reference:	KBE @ 8391.0ft (Patterson 302)
Site:	N15 595 Pad	North Reference:	True
Well:	LR14A N15 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
7,100.0	0.26	239.97	7,074.8	325.2	2.3	324.5	0.00	0.00	
7,200.0	0.26	239.97	7,174.8	324.9	1.9	324.3	0.00	0.00	
7,300.0	0.26	239.97	7,274.8	324.7	1.5	324.1	0.00	0.00	
7,400.0	0.26	239.97	7,374.8	324.5	1.1	323.9	0.00	0.00	
7,500.0	0.26	239.97	7,474.8	324.2	0.7	323.7	0.00	0.00	
7,600.0	0.26	239.97	7,574.8	324.0	0.3	323.4	0.00	0.00	
7,700.0	0.26	239.97	7,674.8	323.8	-0.1	323.2	0.00	0.00	
7,800.0	0.26	239.97	7,774.8	323.6	-0.5	323.0	0.00	0.00	
7,900.0	0.26	239.97	7,874.8	323.3	-0.9	322.8	0.00	0.00	
8,000.0	0.26	239.97	7,974.8	323.1	-1.3	322.6	0.00	0.00	
8,100.0	0.26	239.97	8,074.8	322.9	-1.7	322.4	0.00	0.00	
8,200.0	0.26	239.97	8,174.8	322.6	-2.1	322.2	0.00	0.00	
8,300.0	0.26	239.97	8,274.8	322.4	-2.5	322.0	0.00	0.00	
8,400.0	0.26	239.97	8,374.8	322.2	-2.9	321.8	0.00	0.00	
8,500.0	0.26	239.97	8,474.8	321.9	-3.3	321.6	0.00	0.00	
8,600.0	0.26	239.97	8,574.8	321.7	-3.7	321.4	0.00	0.00	
8,609.2	0.26	239.97	8,584.0	321.7	-3.7	321.4	0.00	0.00	Ohio Creek
8,700.0	0.26	239.97	8,674.8	321.5	-4.1	321.2	0.00	0.00	
8,800.0	0.26	239.97	8,774.8	321.2	-4.5	321.0	0.00	0.00	
8,900.0	0.26	239.97	8,874.8	321.0	-4.9	320.8	0.00	0.00	
8,909.2	0.26	239.97	8,884.0	321.0	-4.9	320.7	0.00	0.00	Williams Fork
9,000.0	0.26	239.97	8,974.8	320.8	-5.3	320.6	0.00	0.00	
9,100.0	0.26	239.97	9,074.8	320.6	-5.7	320.3	0.00	0.00	
9,200.0	0.26	239.97	9,174.8	320.3	-6.1	320.1	0.00	0.00	
9,209.2	0.26	239.97	9,184.0	320.3	-6.1	320.1	0.00	0.00	Approx TOG
9,300.0	0.26	239.97	9,274.8	320.1	-6.5	319.9	0.00	0.00	
9,400.0	0.26	239.97	9,374.8	319.9	-6.9	319.7	0.00	0.00	
9,500.0	0.26	239.97	9,474.8	319.6	-7.3	319.5	0.00	0.00	
9,600.0	0.26	239.97	9,574.8	319.4	-7.7	319.3	0.00	0.00	
9,700.0	0.26	239.97	9,674.8	319.2	-8.1	319.1	0.00	0.00	
9,800.0	0.26	239.97	9,774.8	318.9	-8.5	318.9	0.00	0.00	
9,900.0	0.26	239.97	9,874.8	318.7	-8.9	318.7	0.00	0.00	
10,000.0	0.26	239.97	9,974.8	318.5	-9.3	318.5	0.00	0.00	
10,100.0	0.26	239.97	10,074.8	318.2	-9.7	318.3	0.00	0.00	
10,200.0	0.26	239.97	10,174.8	318.0	-10.1	318.1	0.00	0.00	
10,300.0	0.26	239.97	10,274.8	317.8	-10.5	317.9	0.00	0.00	
10,400.0	0.26	239.97	10,374.8	317.6	-10.9	317.7	0.00	0.00	
10,500.0	0.26	239.97	10,474.8	317.3	-11.3	317.4	0.00	0.00	
10,600.0	0.26	239.97	10,574.8	317.1	-11.7	317.2	0.00	0.00	
10,700.0	0.26	239.97	10,674.8	316.9	-12.1	317.0	0.00	0.00	
10,800.0	0.26	239.97	10,774.8	316.6	-12.5	316.8	0.00	0.00	
10,900.0	0.26	239.97	10,874.8	316.4	-12.9	316.6	0.00	0.00	
11,000.0	0.26	239.97	10,974.8	316.2	-13.3	316.4	0.00	0.00	
11,100.0	0.26	239.97	11,074.8	315.9	-13.7	316.2	0.00	0.00	
11,200.0	0.26	239.97	11,174.8	315.7	-14.1	316.0	0.00	0.00	
11,300.0	0.26	239.97	11,274.8	315.5	-14.5	315.8	0.00	0.00	
11,400.0	0.26	239.97	11,374.8	315.2	-14.9	315.6	0.00	0.00	
11,500.0	0.26	239.97	11,474.8	315.0	-15.3	315.4	0.00	0.00	
11,600.0	0.26	239.97	11,574.8	314.8	-15.7	315.2	0.00	0.00	
11,700.0	0.26	239.97	11,674.8	314.6	-16.1	315.0	0.00	0.00	
11,759.2	0.26	239.97	11,734.0	314.4	-16.3	314.8	0.00	0.00	Cameo
11,800.0	0.26	239.97	11,774.8	314.3	-16.5	314.8	0.00	0.00	



Cathedral Energy Services

Planning Report

Database:	EDM 5000.1 US Multi Users Db	Local Co-ordinate Reference:	Well LR14A N15 595
Company:	Berry Petroleum Company (NAD 83)	TVD Reference:	KBE @ 8391.0ft (Patterson 302)
Project:	Garfield County	MD Reference:	KBE @ 8391.0ft (Patterson 302)
Site:	N15 595 Pad	North Reference:	True
Well:	LR14A N15 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
11,900.0	0.26	239.97	11,874.8	314.1	-16.9	314.5	0.00	0.00	
12,000.0	0.26	239.97	11,974.8	313.9	-17.3	314.3	0.00	0.00	
12,100.0	0.26	239.97	12,074.8	313.6	-17.7	314.1	0.00	0.00	
12,109.2	0.26	239.97	12,084.0	313.6	-17.7	314.1	0.00	0.00	Rollins SS
12,200.0	0.26	239.97	12,174.8	313.4	-18.1	313.9	0.00	0.00	
12,259.2	0.26	239.97	12,234.0	313.3	-18.3	313.8	0.00	0.00	TD at 12259.2 - LR14A N15 595 BHL

Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
LR14A N15 595 TGT - hit/miss target - Shape - Point	0.00	0.00	3,500.0	333.3	16.3	1,657,042.17	2,283,710.98	39.609844	-108.042688
LR14A N15 595 BHL - plan hits target center - Rectangle (sides W50.0 H100.0 D0.0)	0.00	0.00	12,234.0	313.3	-18.3	1,657,023.11	2,283,675.77	39.609789	-108.042811

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,308.9	3,284.0	Wasatch		0.00	
5,809.2	5,784.0	Fort Union		0.00	
6,309.2	6,284.0	Base Ft Union		0.00	
8,609.2	8,584.0	Ohio Creek		0.00	
8,909.2	8,884.0	Williams Fork		0.00	
9,209.2	9,184.0	Approx TOG		0.00	
11,759.2	11,734.0	Cameo		0.00	
12,109.2	12,084.0	Rollins SS		0.00	

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
1,000.0	1,000.0	0.0	0.0	KOP @ 1000'
1,466.1	1,464.1	37.8	1.9	EOB; Inc=9.32°
3,059.0	3,035.9	295.5	14.5	Start Drop -2.00
3,525.1	3,500.0	333.3	16.3	EOD; Inc=0°
12,259.2	12,234.0	313.3	-18.3	TD at 12259.2

Berry Petroleum Company (NAD 83)

Garfield County

N15 595 Pad

LR14A N15 595

DD

Plan #1

Anticollision Report

10 August, 2010

Cathedral Energy Services

Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Well LR14A N15 595
Project:	Garfield County	TVD Reference:	KBE @ 8391.0ft (Patterson 302)
Reference Site:	N15 595 Pad	MD Reference:	KBE @ 8391.0ft (Patterson 302)
Site Error:	0.0ft	North Reference:	True
Reference Well:	LR14A N15 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	8/10/2010		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
0.0	12,259.2	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						
N15 595 Pad						
LR05D N15 595 - DD - Plan #1	200.0	200.0	60.4	59.7	93.505	CC, ES
LR05D N15 595 - DD - Plan #1	700.0	689.9	89.9	87.4	36.026	SF
LR06B N15 595 - DD - Plan #1	200.0	200.0	45.4	44.8	70.325	CC, ES
LR06B N15 595 - DD - Plan #1	600.0	596.0	58.4	56.2	27.264	SF
LR11A N15 595 - DD - Plan #1	200.0	200.0	14.7	14.0	22.715	CC
LR11A N15 595 - DD - Plan #1	300.0	300.0	14.8	13.8	14.828	ES
LR11A N15 595 - DD - Plan #1	400.0	399.7	16.4	15.0	12.007	SF
LR11B N15 595 - DD - Plan #1	200.0	200.0	30.5	29.8	47.174	CC
LR11B N15 595 - DD - Plan #1	300.0	299.8	30.7	29.7	30.772	ES
LR11B N15 595 - DD - Plan #1	600.0	596.9	43.6	41.4	20.467	SF
LR11C N15 595 - DD - Plan #1	500.0	500.0	15.2	13.5	8.997	CC
LR11C N15 595 - DD - Plan #1	600.0	599.9	15.5	13.5	7.582	ES
LR11C N15 595 - DD - Plan #1	700.0	699.6	17.3	14.9	7.222	SF
LR11D N15 595 - DD - Plan #1	500.0	500.0	29.6	27.9	17.507	CC, ES
LR11D N15 595 - DD - Plan #1	700.0	699.1	32.3	29.9	13.455	SF
LR14B N15 595 - DD - Plan #1	1,000.0	1,000.0	59.8	56.4	17.404	CC, ES
LR14B N15 595 - DD - Plan #1	1,200.0	1,195.9	66.5	62.3	16.058	SF
LR15C N15 595 - DD - Plan #1	200.0	200.0	44.6	43.9	69.048	CC, ES
LR15C N15 595 - DD - Plan #1	600.0	592.1	70.0	67.9	34.153	SF

Cathedral Energy Services

Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Well LR14A N15 595
Project:	Garfield County	TVD Reference:	KBE @ 8391.0ft (Patterson 302)
Reference Site:	N15 595 Pad	MD Reference:	KBE @ 8391.0ft (Patterson 302)
Site Error:	0.0ft	North Reference:	True
Reference Well:	LR14A N15 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 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							
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	-86.89	3.3	-60.3	60.4					
100.0	100.0	100.0	100.0	0.1	0.1	-86.89	3.3	-60.3	60.4	60.1	0.30	203.512		
200.0	200.0	200.0	200.0	0.3	0.3	-86.89	3.3	-60.3	60.4	59.7	0.65	93.505 CC, ES		
300.0	300.0	298.9	298.9	0.5	0.5	-85.51	4.8	-61.1	61.3	60.3	1.00	61.531		
400.0	400.0	397.6	397.4	0.7	0.7	-81.62	9.3	-63.4	64.1	62.8	1.36	47.271		
500.0	500.0	495.8	495.3	0.8	0.9	-75.93	16.9	-67.2	69.5	67.8	1.73	40.134		
600.0	600.0	593.3	592.1	1.0	1.2	-69.41	27.3	-72.6	77.9	75.8	2.11	36.860		
700.0	700.0	689.9	687.5	1.2	1.5	-62.97	40.5	-79.3	89.9	87.4	2.50	36.026 SF		

Cathedral Energy Services

Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Well LR14A N15 595
Project:	Garfield County	TVD Reference:	KBE @ 8391.0ft (Patterson 302)
Reference Site:	N15 595 Pad	MD Reference:	KBE @ 8391.0ft (Patterson 302)
Site Error:	0.0ft	North Reference:	True
Reference Well:	LR14A N15 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 N15 595 Pad - LR06B 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					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	-87.24	2.2	-45.4	45.4					
100.0	100.0	100.0	100.0	0.1	0.1	-87.24	2.2	-45.4	45.4	45.1	0.30	153.061		
200.0	200.0	200.0	200.0	0.3	0.3	-87.24	2.2	-45.4	45.4	44.8	0.65	70.325 CC, ES		
300.0	300.0	299.6	299.6	0.5	0.5	-85.13	3.9	-45.7	45.8	44.8	1.00	45.951		
400.0	400.0	399.0	398.8	0.7	0.7	-79.10	9.0	-46.6	47.5	46.1	1.36	34.821		
500.0	500.0	497.8	497.3	0.8	0.9	-70.15	17.4	-48.2	51.3	49.5	1.75	29.342		
600.0	600.0	596.0	594.8	1.0	1.2	-60.00	29.1	-50.3	58.4	56.2	2.14	27.264 SF		
700.0	700.0	693.3	690.8	1.2	1.5	-50.44	43.8	-53.1	69.4	66.9	2.53	27.502		
800.0	800.0	789.4	785.2	1.4	1.8	-42.46	61.6	-56.4	84.8	81.9	2.89	29.292		

Cathedral Energy Services

Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Well LR14A N15 595
Project:	Garfield County	TVD Reference:	KBE @ 8391.0ft (Patterson 302)
Reference Site:	N15 595 Pad	MD Reference:	KBE @ 8391.0ft (Patterson 302)
Site Error:	0.0ft	North Reference:	True
Reference Well:	LR14A N15 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 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	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	92.85	-0.7	14.7	14.7					
100.0	100.0	100.0	100.0	0.1	0.1	92.85	-0.7	14.7	14.7	14.4	0.30	49.439		
200.0	200.0	200.0	200.0	0.3	0.3	92.85	-0.7	14.7	14.7	14.0	0.65	22.715 CC		
217.3	217.3	217.3	217.3	0.4	0.4	92.64	-0.7	14.7	14.7	14.0	0.71	20.760		
300.0	300.0	300.0	299.9	0.5	0.5	86.08	1.0	14.8	14.8	13.8	1.00	14.828 ES		
400.0	400.0	399.7	399.5	0.7	0.7	67.67	6.2	15.1	16.4	15.0	1.36	12.007 SF		
500.0	500.0	498.9	498.3	0.8	0.9	46.67	14.8	15.7	21.7	19.9	1.72	12.568		
600.0	600.0	597.4	596.1	1.0	1.2	31.70	26.7	16.5	31.7	29.6	2.07	15.300		
700.0	700.0	695.0	692.5	1.2	1.5	22.74	41.8	17.5	46.0	43.6	2.41	19.093		
800.0	800.0	792.2	788.0	1.4	1.8	17.39	59.9	18.8	63.9	61.1	2.74	23.275		
900.0	900.0	890.3	884.3	1.5	2.2	14.28	78.7	20.0	82.7	79.6	3.08	26.817		

Cathedral Energy Services

Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Well LR14A N15 595
Project:	Garfield County	TVD Reference:	KBE @ 8391.0ft (Patterson 302)
Reference Site:	N15 595 Pad	MD Reference:	KBE @ 8391.0ft (Patterson 302)
Site Error:	0.0ft	North Reference:	True
Reference Well:	LR14A N15 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 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		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	-87.26	1.5	-30.4	30.5				
100.0	100.0	100.0	100.0	0.1	0.1	-87.26	1.5	-30.4	30.5	30.2	0.30	102.673	
200.0	200.0	200.0	200.0	0.3	0.3	-87.26	1.5	-30.4	30.5	29.8	0.65	47.174 CC	
300.0	300.0	299.8	299.8	0.5	0.5	-84.03	3.2	-30.5	30.7	29.7	1.00	30.772 ES	
400.0	400.0	399.4	399.3	0.7	0.7	-74.83	8.4	-30.9	32.0	30.7	1.37	23.465	
500.0	500.0	498.5	498.0	0.8	0.9	-61.71	17.0	-31.5	35.8	34.1	1.75	20.509	
600.0	600.0	596.9	595.7	1.0	1.2	-48.27	28.8	-32.3	43.6	41.4	2.13	20.467 SF	
700.0	700.0	694.4	692.0	1.2	1.5	-37.25	43.9	-33.4	55.7	53.3	2.49	22.363	
800.0	800.0	790.7	786.6	1.4	1.8	-29.20	62.0	-34.7	72.3	69.4	2.84	25.422	
900.0	900.0	886.3	879.8	1.5	2.2	-23.52	83.0	-36.1	92.8	89.6	3.18	29.132	

Cathedral Energy Services

Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Well LR14A N15 595
Project:	Garfield County	TVD Reference:	KBE @ 8391.0ft (Patterson 302)
Reference Site:	N15 595 Pad	MD Reference:	KBE @ 8391.0ft (Patterson 302)
Site Error:	0.0ft	North Reference:	True
Reference Well:	LR14A N15 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 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	-87.26	0.7	-15.2	15.2					
100.0	100.0	100.0	100.0	0.1	0.1	-87.26	0.7	-15.2	15.2	14.9	0.30	51.336		
200.0	200.0	200.0	200.0	0.3	0.3	-87.26	0.7	-15.2	15.2	14.6	0.65	23.587		
300.0	300.0	300.0	300.0	0.5	0.5	-87.26	0.7	-15.2	15.2	14.2	0.99	15.311		
400.0	400.0	400.0	400.0	0.7	0.7	-87.26	0.7	-15.2	15.2	13.9	1.34	11.334		
500.0	500.0	500.0	500.0	0.8	0.8	-87.26	0.7	-15.2	15.2	13.5	1.69	8.997 CC		
600.0	600.0	599.9	599.9	1.0	1.0	-80.83	2.5	-15.3	15.5	13.5	2.04	7.582 ES		
700.0	700.0	699.6	699.4	1.2	1.2	-63.74	7.7	-15.5	17.3	14.9	2.40	7.222 SF		
800.0	800.0	798.8	798.2	1.4	1.4	-44.43	16.3	-16.0	22.9	20.1	2.76	8.279		
900.0	900.0	897.2	896.0	1.5	1.7	-30.37	28.2	-16.5	32.9	29.8	3.11	10.573		
1,000.0	1,000.0	994.8	992.3	1.7	1.9	-21.72	43.3	-17.2	47.2	43.8	3.46	13.646		
1,100.0	1,100.0	1,093.2	1,089.2	1.9	2.2	-19.83	60.7	-18.1	62.6	58.8	3.80	16.473		
1,200.0	1,199.8	1,192.5	1,186.9	2.1	2.6	-17.76	78.2	-18.9	74.9	70.8	4.15	18.062		
1,300.0	1,299.5	1,292.0	1,284.9	2.3	2.9	-16.95	95.8	-19.7	84.0	79.5	4.50	18.670		
1,400.0	1,398.7	1,391.9	1,383.1	2.5	3.2	-16.94	113.4	-20.6	89.7	84.9	4.85	18.490		
1,466.1	1,464.1	1,457.9	1,448.2	2.7	3.4	-17.29	125.1	-21.1	91.7	86.6	5.09	18.012		
1,500.0	1,497.5	1,491.8	1,481.5	2.7	3.5	-17.55	131.1	-21.4	92.3	87.1	5.22	17.696		
1,600.0	1,596.2	1,591.8	1,579.9	3.0	3.9	-18.27	148.8	-22.3	94.2	88.6	5.60	16.838		
1,700.0	1,694.9	1,691.8	1,678.3	3.3	4.2	-18.97	166.4	-23.1	96.1	90.1	5.98	16.076		
1,800.0	1,793.5	1,791.7	1,776.7	3.6	4.6	-19.64	184.1	-24.0	98.0	91.7	6.37	15.395		
1,900.0	1,892.2	1,891.7	1,875.1	3.9	4.9	-20.29	201.8	-24.8	100.0	93.2	6.76	14.782		

Cathedral Energy Services

Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Well LR14A N15 595
Project:	Garfield County	TVD Reference:	KBE @ 8391.0ft (Patterson 302)
Reference Site:	N15 595 Pad	MD Reference:	KBE @ 8391.0ft (Patterson 302)
Site Error:	0.0ft	North Reference:	True
Reference Well:	LR14A N15 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 N15 595 Pad - LR11D 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	93.52	-1.8	29.6	29.6					
100.0	100.0	100.0	100.0	0.1	0.1	93.52	-1.8	29.6	29.6	29.3	0.30	99.895		
200.0	200.0	200.0	200.0	0.3	0.3	93.52	-1.8	29.6	29.6	29.0	0.65	45.898		
300.0	300.0	300.0	300.0	0.5	0.5	93.52	-1.8	29.6	29.6	28.6	0.99	29.793		
400.0	400.0	400.0	400.0	0.7	0.7	93.52	-1.8	29.6	29.6	28.3	1.34	22.055		
500.0	500.0	500.0	500.0	0.8	0.8	93.52	-1.8	29.6	29.6	27.9	1.69	17.507 CC, ES		
600.0	600.0	599.7	599.7	1.0	1.0	90.36	-0.2	30.2	30.2	28.1	2.04	14.769		
700.0	700.0	699.1	698.9	1.2	1.2	81.65	4.7	31.9	32.3	29.9	2.40	13.455 SF		
800.0	800.0	798.1	797.5	1.4	1.4	69.89	12.8	34.8	37.2	34.4	2.76	13.458		
900.0	900.0	896.3	895.0	1.5	1.7	58.38	23.9	38.9	45.9	42.8	3.12	14.702		
1,000.0	1,000.0	993.6	991.2	1.7	1.9	49.10	38.1	44.0	58.8	55.4	3.47	16.940		
1,100.0	1,100.0	1,092.0	1,088.0	1.9	2.2	40.35	54.5	49.9	73.5	69.7	3.83	19.171		
1,200.0	1,199.8	1,191.2	1,185.6	2.1	2.5	37.75	71.0	55.8	85.9	81.7	4.19	20.497		
1,300.0	1,299.5	1,290.7	1,283.5	2.3	2.9	37.05	87.6	61.8	95.7	91.1	4.56	20.969		

Cathedral Energy Services

Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Well LR14A N15 595
Project:	Garfield County	TVD Reference:	KBE @ 8391.0ft (Patterson 302)
Reference Site:	N15 595 Pad	MD Reference:	KBE @ 8391.0ft (Patterson 302)
Site Error:	0.0ft	North Reference:	True
Reference Well:	LR14A N15 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 N15 595 Pad - LR14B 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	93.49	-3.6	59.7	59.8					
100.0	100.0	100.0	100.0	0.1	0.1	93.49	-3.6	59.7	59.8	59.5	0.30	201.686		
200.0	200.0	200.0	200.0	0.3	0.3	93.49	-3.6	59.7	59.8	59.2	0.65	92.667		
300.0	300.0	300.0	300.0	0.5	0.5	93.49	-3.6	59.7	59.8	58.8	0.99	60.152		
400.0	400.0	400.0	400.0	0.7	0.7	93.49	-3.6	59.7	59.8	58.5	1.34	44.528		
500.0	500.0	500.0	500.0	0.8	0.8	93.49	-3.6	59.7	59.8	58.1	1.69	35.347		
600.0	600.0	600.0	600.0	1.0	1.0	93.49	-3.6	59.7	59.8	57.8	2.04	29.305		
700.0	700.0	700.0	700.0	1.2	1.2	93.49	-3.6	59.7	59.8	57.5	2.39	25.027		
800.0	800.0	800.0	800.0	1.4	1.4	93.49	-3.6	59.7	59.8	57.1	2.74	21.839		
900.0	900.0	900.0	900.0	1.5	1.5	93.49	-3.6	59.7	59.8	56.8	3.09	19.371		
1,000.0	1,000.0	1,000.0	1,000.0	1.7	1.7	93.49	-3.6	59.7	59.8	56.4	3.44	17.404 CC, ES		
1,100.0	1,100.0	1,098.1	1,098.0	1.9	1.9	91.68	-3.1	61.3	61.5	57.7	3.79	16.240		
1,200.0	1,199.8	1,195.9	1,195.7	2.1	2.1	94.38	-1.6	66.1	66.5	62.3	4.14	16.058 SF		
1,300.0	1,299.5	1,295.3	1,294.9	2.3	2.3	98.66	0.5	72.8	73.8	69.3	4.51	16.361		
1,400.0	1,398.7	1,394.6	1,393.9	2.5	2.4	104.46	2.6	79.6	82.3	77.4	4.91	16.779		
1,466.1	1,464.1	1,460.0	1,459.2	2.7	2.6	108.80	4.1	84.0	89.0	83.8	5.18	17.175		
1,500.0	1,497.5	1,493.5	1,492.6	2.7	2.6	111.05	4.8	86.3	92.7	87.4	5.32	17.418		

Cathedral Energy Services

Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Well LR14A N15 595
Project:	Garfield County	TVD Reference:	KBE @ 8391.0ft (Patterson 302)
Reference Site:	N15 595 Pad	MD Reference:	KBE @ 8391.0ft (Patterson 302)
Site Error:	0.0ft	North Reference:	True
Reference Well:	LR14A N15 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 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					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	93.28	-2.5	44.5	44.6					
100.0	100.0	100.0	100.0	0.1	0.1	93.28	-2.5	44.5	44.6	44.3	0.30	150.281		
200.0	200.0	200.0	200.0	0.3	0.3	93.28	-2.5	44.5	44.6	43.9	0.65	69.048 CC, ES		
300.0	300.0	298.6	298.6	0.5	0.5	94.27	-3.4	46.0	46.1	45.1	0.99	46.425		
400.0	400.0	397.0	396.8	0.7	0.7	96.88	-6.1	50.3	50.8	49.4	1.34	37.778		
500.0	500.0	494.9	494.4	0.8	0.9	100.29	-10.4	57.5	58.7	57.0	1.70	34.590		
600.0	600.0	592.1	590.9	1.0	1.2	103.73	-16.5	67.4	70.0	67.9	2.05	34.153 SF		
700.0	700.0	688.4	686.1	1.2	1.5	106.79	-24.1	80.0	84.7	82.3	2.40	35.301		

Cathedral Energy Services

Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Well LR14A N15 595
Project:	Garfield County	TVD Reference:	KBE @ 8391.0ft (Patterson 302)
Reference Site:	N15 595 Pad	MD Reference:	KBE @ 8391.0ft (Patterson 302)
Site Error:	0.0ft	North Reference:	True
Reference Well:	LR14A N15 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 @ 8391.0ft (Patterson 302)
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000 °

Coordinates are relative to: LR14A N15 595
Coordinate System is US State Plane 1983, Colorado Central Zone
Grid Convergence at Surface is: -1.60°

