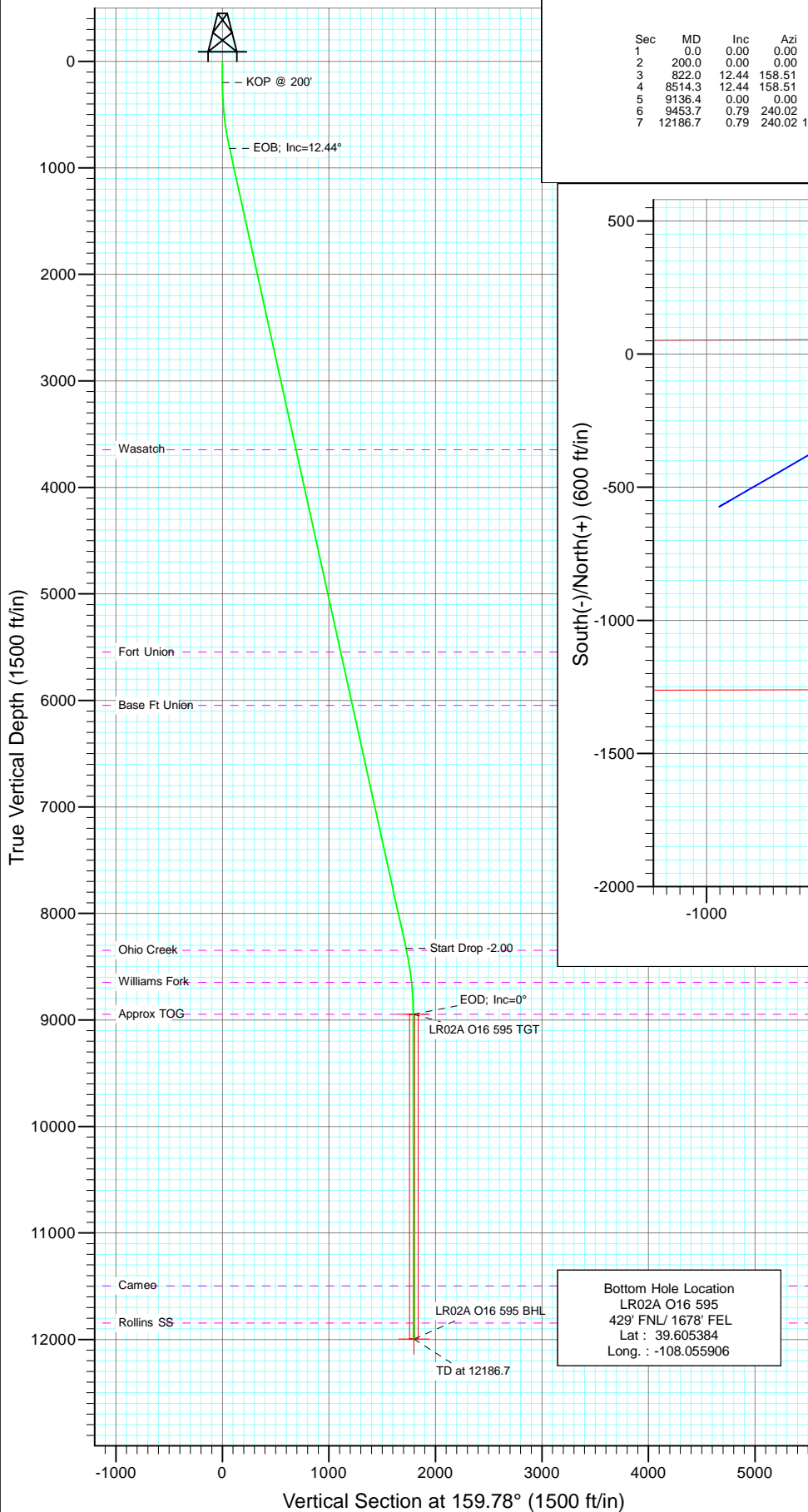
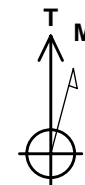
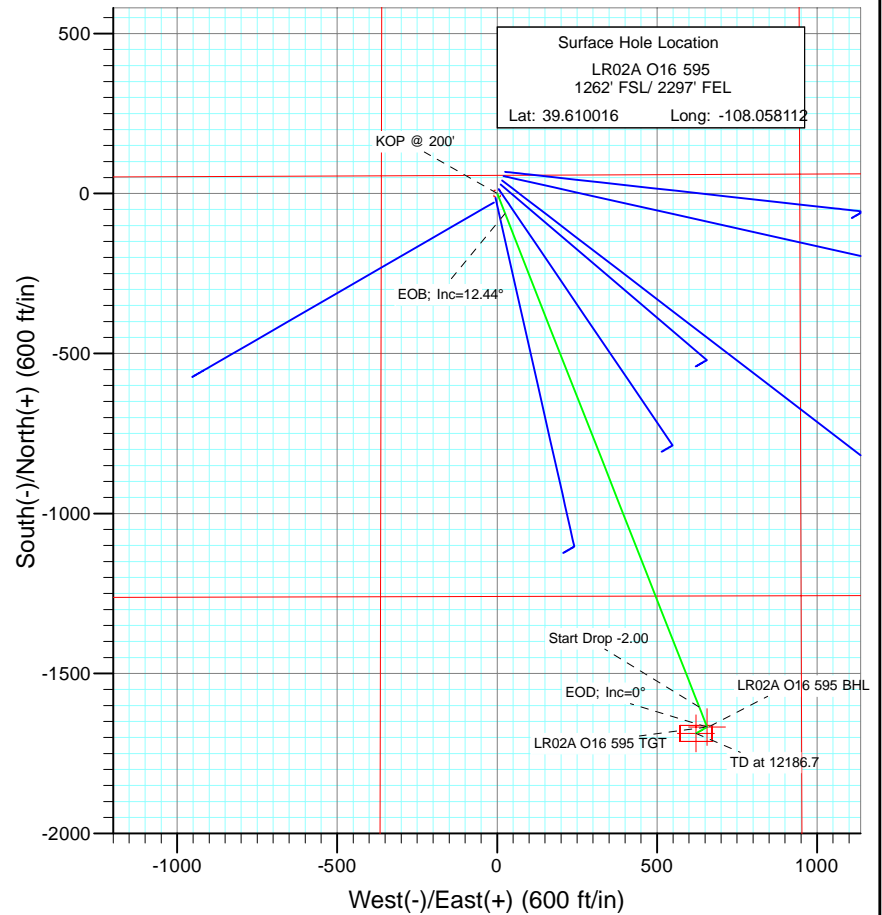




Project: Garfield County
Site: O16 595 Pad
Well: LR02A O16 595
Wellbore: DD
Design: Plan #1



SECTION DETAILS											
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	V Sect	Target	
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0		
2	200.0	0.00	0.00	200.0	0.0	0.0	0.00	0.00	0.0		
3	822.0	12.44	158.51	817.2	-62.6	24.6	2.00	158.51	67.3		
4	8514.3	12.44	158.51	8328.8	-1604.6	631.6	0.00	0.00	1724.0		
5	9136.4	0.00	0.00	8946.0	-1667.2	656.3	2.00	180.00	1791.3	LR02A O16 595 TGT	
6	9453.7	0.79	240.02	9263.3	-1668.3	654.3	0.25	240.02	1791.6		
7	12186.7	0.79	240.02	11996.0	-1687.2	621.6	0.00	0.00	1798.1	LR02A O16 595 BHL	



Azimuths to True North
Magnetic North: 10.46°

Magnetic Field
Strength: 52388.2snT
Dip Angle: 65.85°
Date: 9/27/2010
Model: IGRF200510

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
3646.0	3718.9	Wasatch
5546.0	5664.6	Fort Union
6046.0	6176.6	Base Ft Union
8346.0	8531.9	Ohio Creek
8646.0	8835.8	Williams Fork
8946.0	9136.4	Approx TOG
11496.0	11686.6	Cameo
11846.0	12036.6	Rollins SS

DESIGN DETAILS: Plan #1

105XXX; BH
KBE @ 8318.0ft (patterson 302)

Target	Azimuth	Origin	N/S	E/W	From TVD
LR02A O16 595 BHL	159.78	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 LR02A O16 595
Company:	Berry Petroleum Company (NAD 83)	TVD Reference:	KBE @ 8318.0ft (patterson 302)
Project:	Garfield County	MD Reference:	KBE @ 8318.0ft (patterson 302)
Site:	Long Ridge O16 595 Pad	North Reference:	True
Well:	LR02A O16 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		Long Ridge O16 595 Pad			
Site Position:		Northing:	1,657,293.80 ft	Latitude:	39.610202
From:	Lat/Long	Easting:	2,279,395.79 ft	Longitude:	-108.058023
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence:	-1.61 °

Well	LR02A O16 595					
Well Position	+N/-S	0.0 ft	Northing:	1,657,226.77 ft	Latitude:	39.610016
	+E/-W	0.0 ft	Easting:	2,279,368.82 ft	Longitude:	-108.058112
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	8,303.0 ft

Wellbore	DD				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	9/27/2010	10.46	65.85	52,388

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	159.78

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	
200.0	0.00	0.00	200.0	0.0	0.0	0.00	0.00	0.00	0.00	
822.0	12.44	158.51	817.2	-62.6	24.6	2.00	2.00	0.00	158.51	
8,514.3	12.44	158.51	8,328.8	-1,604.6	631.6	0.00	0.00	0.00	0.00	
9,136.4	0.00	0.00	8,946.0	-1,667.2	656.3	2.00	-2.00	0.00	180.00	LR02A O16 595 TGT
9,453.7	0.79	240.02	9,263.3	-1,668.3	654.3	0.25	0.25	-37.81	240.02	
12,186.7	0.79	240.02	11,996.0	-1,687.2	621.6	0.00	0.00	0.00	0.00	LR02A O16 595 BHL

Cathedral Energy Services

Planning Report

Database:	EDM 5000.1 US Multi Users DB	Local Co-ordinate Reference:	Well LR02A O16 595
Company:	Berry Petroleum Company (NAD 83)	TVD Reference:	KBE @ 8318.0ft (patterson 302)
Project:	Garfield County	MD Reference:	KBE @ 8318.0ft (patterson 302)
Site:	Long Ridge O16 595 Pad	North Reference:	True
Well:	LR02A O16 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	
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	KOP @ 200'
210.0	0.20	158.51	210.0	0.0	0.0	0.0	2.00	2.00	
240.0	0.80	158.51	240.0	-0.3	0.1	0.3	2.00	2.00	
270.0	1.40	158.51	270.0	-0.8	0.3	0.9	2.00	2.00	
300.0	2.00	158.51	300.0	-1.6	0.6	1.7	2.00	2.00	
330.0	2.60	158.51	330.0	-2.7	1.1	2.9	2.00	2.00	
360.0	3.20	158.51	359.9	-4.2	1.6	4.5	2.00	2.00	
390.0	3.80	158.51	389.9	-5.9	2.3	6.3	2.00	2.00	
420.0	4.40	158.51	419.8	-7.9	3.1	8.4	2.00	2.00	
450.0	5.00	158.51	449.7	-10.1	4.0	10.9	2.00	2.00	
480.0	5.60	158.51	479.6	-12.7	5.0	13.7	2.00	2.00	
510.0	6.20	158.51	509.4	-15.6	6.1	16.8	2.00	2.00	
540.0	6.80	158.51	539.2	-18.8	7.4	20.1	2.00	2.00	
570.0	7.40	158.51	569.0	-22.2	8.7	23.9	2.00	2.00	
600.0	8.00	158.51	598.7	-25.9	10.2	27.9	2.00	2.00	
630.0	8.60	158.51	628.4	-30.0	11.8	32.2	2.00	2.00	
660.0	9.20	158.51	658.0	-34.3	13.5	36.8	2.00	2.00	
690.0	9.80	158.51	687.6	-38.9	15.3	41.8	2.00	2.00	
720.0	10.40	158.51	717.1	-43.8	17.2	47.1	2.00	2.00	
750.0	11.00	158.51	746.6	-49.0	19.3	52.6	2.00	2.00	
780.0	11.60	158.51	776.0	-54.4	21.4	58.5	2.00	2.00	
810.0	12.20	158.51	805.4	-60.2	23.7	64.7	2.00	2.00	
822.0	12.44	158.51	817.2	-62.6	24.6	67.3	2.00	2.00	EOB; Inc=12.44°
840.0	12.44	158.51	834.7	-66.2	26.1	71.1	0.00	0.00	
870.0	12.44	158.51	864.0	-72.2	28.4	77.6	0.00	0.00	
900.0	12.44	158.51	893.3	-78.2	30.8	84.0	0.00	0.00	
930.0	12.44	158.51	922.6	-84.2	33.2	90.5	0.00	0.00	
960.0	12.44	158.51	951.9	-90.2	35.5	97.0	0.00	0.00	
990.0	12.44	158.51	981.2	-96.3	37.9	103.4	0.00	0.00	
1,020.0	12.44	158.51	1,010.5	-102.3	40.3	109.9	0.00	0.00	
1,050.0	12.44	158.51	1,039.8	-108.3	42.6	116.3	0.00	0.00	
1,080.0	12.44	158.51	1,069.1	-114.3	45.0	122.8	0.00	0.00	
1,110.0	12.44	158.51	1,098.4	-120.3	47.4	129.3	0.00	0.00	
1,140.0	12.44	158.51	1,127.7	-126.3	49.7	135.7	0.00	0.00	
1,170.0	12.44	158.51	1,157.0	-132.3	52.1	142.2	0.00	0.00	
1,200.0	12.44	158.51	1,186.2	-138.4	54.5	148.7	0.00	0.00	
1,230.0	12.44	158.51	1,215.5	-144.4	56.8	155.1	0.00	0.00	
1,260.0	12.44	158.51	1,244.8	-150.4	59.2	161.6	0.00	0.00	
1,290.0	12.44	158.51	1,274.1	-156.4	61.6	168.0	0.00	0.00	
1,320.0	12.44	158.51	1,303.4	-162.4	63.9	174.5	0.00	0.00	
1,350.0	12.44	158.51	1,332.7	-168.4	66.3	181.0	0.00	0.00	
1,380.0	12.44	158.51	1,362.0	-174.4	68.7	187.4	0.00	0.00	
1,410.0	12.44	158.51	1,391.3	-180.5	71.0	193.9	0.00	0.00	
1,440.0	12.44	158.51	1,420.6	-186.5	73.4	200.3	0.00	0.00	
1,470.0	12.44	158.51	1,449.9	-192.5	75.8	206.8	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	EDM 5000.1 US Multi Users DB	Local Co-ordinate Reference:	Well LR02A O16 595
Company:	Berry Petroleum Company (NAD 83)	TVD Reference:	KBE @ 8318.0ft (patterson 302)
Project:	Garfield County	MD Reference:	KBE @ 8318.0ft (patterson 302)
Site:	Long Ridge O16 595 Pad	North Reference:	True
Well:	LR02A O16 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	12.44	158.51	1,479.2	-198.5	78.1	213.3	0.00	0.00	
1,530.0	12.44	158.51	1,508.5	-204.5	80.5	219.7	0.00	0.00	
1,560.0	12.44	158.51	1,537.8	-210.5	82.9	226.2	0.00	0.00	
1,590.0	12.44	158.51	1,567.1	-216.5	85.2	232.7	0.00	0.00	
1,620.0	12.44	158.51	1,596.4	-222.6	87.6	239.1	0.00	0.00	
1,650.0	12.44	158.51	1,625.7	-228.6	90.0	245.6	0.00	0.00	
1,680.0	12.44	158.51	1,655.0	-234.6	92.3	252.0	0.00	0.00	
1,710.0	12.44	158.51	1,684.3	-240.6	94.7	258.5	0.00	0.00	
1,740.0	12.44	158.51	1,713.6	-246.6	97.1	265.0	0.00	0.00	
1,770.0	12.44	158.51	1,742.9	-252.6	99.4	271.4	0.00	0.00	
1,800.0	12.44	158.51	1,772.2	-258.6	101.8	277.9	0.00	0.00	
1,830.0	12.44	158.51	1,801.5	-264.7	104.2	284.3	0.00	0.00	
1,860.0	12.44	158.51	1,830.8	-270.7	106.5	290.8	0.00	0.00	
1,890.0	12.44	158.51	1,860.0	-276.7	108.9	297.3	0.00	0.00	
1,920.0	12.44	158.51	1,889.3	-282.7	111.3	303.7	0.00	0.00	
1,950.0	12.44	158.51	1,918.6	-288.7	113.6	310.2	0.00	0.00	
1,980.0	12.44	158.51	1,947.9	-294.7	116.0	316.7	0.00	0.00	
2,010.0	12.44	158.51	1,977.2	-300.7	118.4	323.1	0.00	0.00	
2,040.0	12.44	158.51	2,006.5	-306.7	120.7	329.6	0.00	0.00	
2,070.0	12.44	158.51	2,035.8	-312.8	123.1	336.0	0.00	0.00	
2,100.0	12.44	158.51	2,065.1	-318.8	125.5	342.5	0.00	0.00	
2,130.0	12.44	158.51	2,094.4	-324.8	127.8	349.0	0.00	0.00	
2,160.0	12.44	158.51	2,123.7	-330.8	130.2	355.4	0.00	0.00	
2,190.0	12.44	158.51	2,153.0	-336.8	132.6	361.9	0.00	0.00	
2,220.0	12.44	158.51	2,182.3	-342.8	134.9	368.3	0.00	0.00	
2,250.0	12.44	158.51	2,211.6	-348.8	137.3	374.8	0.00	0.00	
2,280.0	12.44	158.51	2,240.9	-354.9	139.7	381.3	0.00	0.00	
2,310.0	12.44	158.51	2,270.2	-360.9	142.0	387.7	0.00	0.00	
2,340.0	12.44	158.51	2,299.5	-366.9	144.4	394.2	0.00	0.00	
2,370.0	12.44	158.51	2,328.8	-372.9	146.8	400.7	0.00	0.00	
2,400.0	12.44	158.51	2,358.1	-378.9	149.1	407.1	0.00	0.00	
2,430.0	12.44	158.51	2,387.4	-384.9	151.5	413.6	0.00	0.00	
2,460.0	12.44	158.51	2,416.7	-390.9	153.9	420.0	0.00	0.00	
2,490.0	12.44	158.51	2,446.0	-397.0	156.3	426.5	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									
LR02A O16 595 BHL	0.00	0.00	11,996.0	-1,687.2	621.6	1,655,522.73	2,279,942.64	39.605384	-108.055906
- plan misses target center by 9648.0ft at 2490.0ft MD (2446.0 TVD, -397.0 N, 156.3 E)									
- Rectangle (sides W50.0 H100.0 D0.0)									
LR02A O16 595 TGT	0.00	0.00	8,946.0	-1,667.2	656.3	1,655,541.75	2,279,977.87	39.605439	-108.055783
- plan misses target center by 6641.8ft at 2490.0ft MD (2446.0 TVD, -397.0 N, 156.3 E)									
- Point									

Cathedral Energy Services

Planning Report

Database:	EDM 5000.1 US Multi Users DB	Local Co-ordinate Reference:	Well LR02A O16 595
Company:	Berry Petroleum Company (NAD 83)	TVD Reference:	KBE @ 8318.0ft (patterson 302)
Project:	Garfield County	MD Reference:	KBE @ 8318.0ft (patterson 302)
Site:	Long Ridge O16 595 Pad	North Reference:	True
Well:	LR02A O16 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	12.44	158.51	2,455.7	-399.0	157.0	428.7	0.00	0.00	
2,600.0	12.44	158.51	2,553.4	-419.0	164.9	450.2	0.00	0.00	
2,700.0	12.44	158.51	2,651.0	-439.1	172.8	471.7	0.00	0.00	
2,800.0	12.44	158.51	2,748.7	-459.1	180.7	493.3	0.00	0.00	
2,900.0	12.44	158.51	2,846.3	-479.1	188.6	514.8	0.00	0.00	
3,000.0	12.44	158.51	2,944.0	-499.2	196.5	536.3	0.00	0.00	
3,100.0	12.44	158.51	3,041.6	-519.2	204.4	557.9	0.00	0.00	
3,200.0	12.44	158.51	3,139.3	-539.3	212.3	579.4	0.00	0.00	
3,300.0	12.44	158.51	3,236.9	-559.3	220.2	601.0	0.00	0.00	
3,400.0	12.44	158.51	3,334.6	-579.4	228.1	622.5	0.00	0.00	
3,500.0	12.44	158.51	3,432.2	-599.4	235.9	644.0	0.00	0.00	
3,600.0	12.44	158.51	3,529.9	-619.5	243.8	665.6	0.00	0.00	
3,700.0	12.44	158.51	3,627.5	-639.5	251.7	687.1	0.00	0.00	
3,718.9	12.44	158.51	3,646.0	-643.3	253.2	691.2	0.00	0.00	Wasatch
3,800.0	12.44	158.51	3,725.2	-659.6	259.6	708.6	0.00	0.00	
3,900.0	12.44	158.51	3,822.8	-679.6	267.5	730.2	0.00	0.00	
4,000.0	12.44	158.51	3,920.5	-699.7	275.4	751.7	0.00	0.00	
4,100.0	12.44	158.51	4,018.2	-719.7	283.3	773.3	0.00	0.00	
4,200.0	12.44	158.51	4,115.8	-739.7	291.2	794.8	0.00	0.00	
4,300.0	12.44	158.51	4,213.5	-759.8	299.1	816.3	0.00	0.00	
4,400.0	12.44	158.51	4,311.1	-779.8	307.0	837.9	0.00	0.00	
4,500.0	12.44	158.51	4,408.8	-799.9	314.9	859.4	0.00	0.00	
4,600.0	12.44	158.51	4,506.4	-819.9	322.7	881.0	0.00	0.00	
4,700.0	12.44	158.51	4,604.1	-840.0	330.6	902.5	0.00	0.00	
4,800.0	12.44	158.51	4,701.7	-860.0	338.5	924.0	0.00	0.00	
4,900.0	12.44	158.51	4,799.4	-880.1	346.4	945.6	0.00	0.00	
5,000.0	12.44	158.51	4,897.0	-900.1	354.3	967.1	0.00	0.00	
5,100.0	12.44	158.51	4,994.7	-920.2	362.2	988.6	0.00	0.00	
5,200.0	12.44	158.51	5,092.3	-940.2	370.1	1,010.2	0.00	0.00	
5,300.0	12.44	158.51	5,190.0	-960.3	378.0	1,031.7	0.00	0.00	
5,400.0	12.44	158.51	5,287.6	-980.3	385.9	1,053.3	0.00	0.00	
5,500.0	12.44	158.51	5,385.3	-1,000.3	393.8	1,074.8	0.00	0.00	
5,600.0	12.44	158.51	5,482.9	-1,020.4	401.7	1,096.3	0.00	0.00	
5,664.6	12.44	158.51	5,546.0	-1,033.3	406.7	1,110.2	0.00	0.00	Fort Union
5,700.0	12.44	158.51	5,580.6	-1,040.4	409.5	1,117.9	0.00	0.00	
5,800.0	12.44	158.51	5,678.2	-1,060.5	417.4	1,139.4	0.00	0.00	
5,900.0	12.44	158.51	5,775.9	-1,080.5	425.3	1,160.9	0.00	0.00	
6,000.0	12.44	158.51	5,873.5	-1,100.6	433.2	1,182.5	0.00	0.00	
6,100.0	12.44	158.51	5,971.2	-1,120.6	441.1	1,204.0	0.00	0.00	
6,176.6	12.44	158.51	6,046.0	-1,136.0	447.1	1,220.5	0.00	0.00	Base Ft Union
6,200.0	12.44	158.51	6,068.8	-1,140.7	449.0	1,225.6	0.00	0.00	
6,300.0	12.44	158.51	6,166.5	-1,160.7	456.9	1,247.1	0.00	0.00	
6,400.0	12.44	158.51	6,264.1	-1,180.8	464.8	1,268.6	0.00	0.00	
6,500.0	12.44	158.51	6,361.8	-1,200.8	472.7	1,290.2	0.00	0.00	
6,600.0	12.44	158.51	6,459.4	-1,220.9	480.6	1,311.7	0.00	0.00	
6,700.0	12.44	158.51	6,557.1	-1,240.9	488.4	1,333.2	0.00	0.00	
6,800.0	12.44	158.51	6,654.8	-1,260.9	496.3	1,354.8	0.00	0.00	
6,900.0	12.44	158.51	6,752.4	-1,281.0	504.2	1,376.3	0.00	0.00	
7,000.0	12.44	158.51	6,850.1	-1,301.0	512.1	1,397.9	0.00	0.00	
7,100.0	12.44	158.51	6,947.7	-1,321.1	520.0	1,419.4	0.00	0.00	
7,200.0	12.44	158.51	7,045.4	-1,341.1	527.9	1,440.9	0.00	0.00	
7,300.0	12.44	158.51	7,143.0	-1,361.2	535.8	1,462.5	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	EDM 5000.1 US Multi Users DB	Local Co-ordinate Reference:	Well LR02A O16 595
Company:	Berry Petroleum Company (NAD 83)	TVD Reference:	KBE @ 8318.0ft (patterson 302)
Project:	Garfield County	MD Reference:	KBE @ 8318.0ft (patterson 302)
Site:	Long Ridge O16 595 Pad	North Reference:	True
Well:	LR02A O16 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
7,400.0	12.44	158.51	7,240.7	-1,381.2	543.7	1,484.0	0.00	0.00	
7,500.0	12.44	158.51	7,338.3	-1,401.3	551.6	1,505.6	0.00	0.00	
7,600.0	12.44	158.51	7,436.0	-1,421.3	559.5	1,527.1	0.00	0.00	
7,700.0	12.44	158.51	7,533.6	-1,441.4	567.4	1,548.6	0.00	0.00	
7,800.0	12.44	158.51	7,631.3	-1,461.4	575.2	1,570.2	0.00	0.00	
7,900.0	12.44	158.51	7,728.9	-1,481.5	583.1	1,591.7	0.00	0.00	
8,000.0	12.44	158.51	7,826.6	-1,501.5	591.0	1,613.2	0.00	0.00	
8,100.0	12.44	158.51	7,924.2	-1,521.5	598.9	1,634.8	0.00	0.00	
8,200.0	12.44	158.51	8,021.9	-1,541.6	606.8	1,656.3	0.00	0.00	
8,300.0	12.44	158.51	8,119.5	-1,561.6	614.7	1,677.9	0.00	0.00	
8,400.0	12.44	158.51	8,217.2	-1,581.7	622.6	1,699.4	0.00	0.00	
8,500.0	12.44	158.51	8,314.8	-1,601.7	630.5	1,720.9	0.00	0.00	
8,514.3	12.44	158.51	8,328.8	-1,604.6	631.6	1,724.0	0.00	0.00	Start Drop -2.00
8,531.9	12.09	158.51	8,346.0	-1,608.1	633.0	1,727.8	2.00	-2.00	Ohio Creek
8,600.0	10.73	158.51	8,412.8	-1,620.6	637.9	1,741.2	2.00	-2.00	
8,700.0	8.73	158.51	8,511.3	-1,636.3	644.1	1,758.1	2.00	-2.00	
8,800.0	6.73	158.51	8,610.4	-1,648.8	649.0	1,771.6	2.00	-2.00	
8,835.8	6.01	158.51	8,646.0	-1,652.5	650.5	1,775.5	2.00	-2.00	Williams Fork
8,900.0	4.73	158.51	8,709.9	-1,658.1	652.7	1,781.5	2.00	-2.00	
9,000.0	2.73	158.51	8,809.7	-1,664.2	655.1	1,788.0	2.00	-2.00	
9,100.0	0.73	158.51	8,909.6	-1,667.0	656.2	1,791.0	2.00	-2.00	
9,136.4	0.00	0.00	8,946.0	-1,667.2	656.3	1,791.3	2.00	-2.00	EOD; Inc=0° - Approx TOG - LR02A O16 595 T
9,200.0	0.16	240.02	9,009.6	-1,667.2	656.2	1,791.3	0.25	0.25	
9,300.0	0.41	240.02	9,109.6	-1,667.5	655.7	1,791.4	0.25	0.25	
9,400.0	0.66	240.02	9,209.6	-1,668.0	654.9	1,791.5	0.25	0.25	
9,453.7	0.79	240.02	9,263.3	-1,668.3	654.3	1,791.6	0.25	0.25	
9,500.0	0.79	240.02	9,309.6	-1,668.6	653.8	1,791.8	0.00	0.00	
9,600.0	0.79	240.02	9,409.6	-1,669.3	652.6	1,792.0	0.00	0.00	
9,700.0	0.79	240.02	9,509.6	-1,670.0	651.4	1,792.2	0.00	0.00	
9,800.0	0.79	240.02	9,609.6	-1,670.7	650.2	1,792.5	0.00	0.00	
9,900.0	0.79	240.02	9,709.6	-1,671.4	649.0	1,792.7	0.00	0.00	
10,000.0	0.79	240.02	9,809.6	-1,672.1	647.8	1,792.9	0.00	0.00	
10,100.0	0.79	240.02	9,909.5	-1,672.8	646.6	1,793.2	0.00	0.00	
10,200.0	0.79	240.02	10,009.5	-1,673.5	645.4	1,793.4	0.00	0.00	
10,300.0	0.79	240.02	10,109.5	-1,674.2	644.2	1,793.6	0.00	0.00	
10,400.0	0.79	240.02	10,209.5	-1,674.8	643.0	1,793.9	0.00	0.00	
10,500.0	0.79	240.02	10,309.5	-1,675.5	641.8	1,794.1	0.00	0.00	
10,600.0	0.79	240.02	10,409.5	-1,676.2	640.6	1,794.3	0.00	0.00	
10,700.0	0.79	240.02	10,509.5	-1,676.9	639.4	1,794.6	0.00	0.00	
10,800.0	0.79	240.02	10,609.5	-1,677.6	638.2	1,794.8	0.00	0.00	
10,900.0	0.79	240.02	10,709.5	-1,678.3	637.0	1,795.0	0.00	0.00	
11,000.0	0.79	240.02	10,809.5	-1,679.0	635.8	1,795.3	0.00	0.00	
11,100.0	0.79	240.02	10,909.5	-1,679.7	634.6	1,795.5	0.00	0.00	
11,200.0	0.79	240.02	11,009.4	-1,680.4	633.4	1,795.7	0.00	0.00	
11,300.0	0.79	240.02	11,109.4	-1,681.1	632.2	1,796.0	0.00	0.00	
11,400.0	0.79	240.02	11,209.4	-1,681.8	631.0	1,796.2	0.00	0.00	
11,500.0	0.79	240.02	11,309.4	-1,682.5	629.8	1,796.4	0.00	0.00	
11,600.0	0.79	240.02	11,409.4	-1,683.1	628.6	1,796.7	0.00	0.00	
11,686.6	0.79	240.02	11,496.0	-1,683.7	627.6	1,796.9	0.00	0.00	Cameo
11,700.0	0.79	240.02	11,509.4	-1,683.8	627.4	1,796.9	0.00	0.00	
11,800.0	0.79	240.02	11,609.4	-1,684.5	626.2	1,797.1	0.00	0.00	
11,900.0	0.79	240.02	11,709.4	-1,685.2	625.0	1,797.4	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	EDM 5000.1 US Multi Users DB	Local Co-ordinate Reference:	Well LR02A O16 595
Company:	Berry Petroleum Company (NAD 83)	TVD Reference:	KBE @ 8318.0ft (patterson 302)
Project:	Garfield County	MD Reference:	KBE @ 8318.0ft (patterson 302)
Site:	Long Ridge O16 595 Pad	North Reference:	True
Well:	LR02A O16 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
12,000.0	0.79	240.02	11,809.4	-1,685.9	623.8	1,797.6	0.00	0.00	
12,036.6	0.79	240.02	11,846.0	-1,686.2	623.4	1,797.7	0.00	0.00	Rollins SS
12,100.0	0.79	240.02	11,909.4	-1,686.6	622.6	1,797.9	0.00	0.00	
12,186.7	0.79	240.02	11,996.0	-1,687.2	621.6	1,798.1	0.00	0.00	LR02A O16 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
LR02A O16 595 BHL - plan hits target center - Rectangle (sides W50.0 H100.0 D0.0)	0.00	0.00	11,996.0	-1,687.2	621.6	1,655,522.73	2,279,942.64	39.605384	-108.055906
LR02A O16 595 TGT - plan hits target center - Point	0.00	0.00	8,946.0	-1,667.2	656.3	1,655,541.75	2,279,977.87	39.605439	-108.055783

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,718.9	3,646.0	Wasatch		0.00	
5,664.6	5,546.0	Fort Union		0.00	
6,176.6	6,046.0	Base Ft Union		0.00	
8,531.9	8,346.0	Ohio Creek		0.00	
8,835.8	8,646.0	Williams Fork		0.00	
9,136.4	8,946.0	Approx TOG		0.00	
11,686.6	11,496.0	Cameo		0.00	
12,036.6	11,846.0	Rollins SS		0.00	

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
200.0	200.0	0.0	0.0	KOP @ 200'
822.0	817.2	-62.6	24.6	EOB; Inc=12.44°
8,514.3	8,328.8	-1,604.6	631.6	Start Drop -2.00
9,136.4	8,946.0	-1,667.2	656.3	EOD; Inc=0°
12,186.7	11,996.0	-1,668.3	654.3	TD at 12186.7

Berry Petroleum Company (NAD 83)

**Garfield County
Long Ridge O16 595 Pad
LR02A O16 595
DD
Plan #1**

Anticollision Report

28 September, 2010

Cathedral Energy Services

Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Well LR02A O16 595
Project:	Garfield County	TVD Reference:	KBE @ 8318.0ft (patterson 302)
Reference Site:	Long Ridge O16 595 Pad	MD Reference:	KBE @ 8318.0ft (patterson 302)
Site Error:	0.0ft	North Reference:	True
Reference Well:	LR02A O16 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	9/28/2010		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
0.0	12,186.7	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						
Long Ridge O16 595 Pad						
LR14A O16 595 - DD - Plan #1	200.0	200.0	29.8	29.2	46.185	CC
LR14A O16 595 - DD - Plan #1	300.0	299.2	29.9	28.9	30.034	ES
LR14A O16 595 - DD - Plan #1	500.0	496.3	36.2	34.4	20.574	SF
LR15A O16 595 - DD - Plan #1	200.0	200.0	30.5	29.8	47.172	CC, ES
LR15A O16 595 - DD - Plan #1	500.0	499.5	43.3	41.6	25.395	SF
LR15C O16 595 - DD - Plan #1	200.0	200.0	14.7	14.1	22.828	CC
LR15C O16 595 - DD - Plan #1	300.0	299.6	14.9	13.9	14.946	ES
LR15C O16 595 - DD - Plan #1	2,800.0	2,795.4	98.9	80.2	5.297	SF
LR15D O16 595 - DD - Plan #1	200.0	200.0	14.7	14.1	22.828	CC
LR15D O16 595 - DD - Plan #1	300.0	300.3	15.0	14.0	15.035	ES
LR15D O16 595 - DD - Plan #1	2,200.0	2,199.7	95.1	81.1	6.804	SF
LR16A O16 595 - DD - Plan #1	200.0	200.0	57.9	57.3	89.723	CC, ES
LR16A O16 595 - DD - Plan #1	700.0	695.3	97.2	94.3	34.128	SF
LR16B O16 595 - DD - Plan #1	200.0	200.0	72.2	71.6	111.857	CC, ES
LR16B O16 595 - DD - Plan #1	500.0	497.3	87.8	86.0	48.999	SF
LR16C O16 595 - DD - Plan #1	200.0	200.0	43.9	43.2	67.953	CC, ES
LR16C O16 595 - DD - Plan #1	1,000.0	999.5	96.4	91.3	18.751	SF

Cathedral Energy Services

Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Well LR02A O16 595
Project:	Garfield County	TVD Reference:	KBE @ 8318.0ft (patterson 302)
Reference Site:	Long Ridge O16 595 Pad	MD Reference:	KBE @ 8318.0ft (patterson 302)
Site Error:	0.0ft	North Reference:	True
Reference Well:	LR02A O16 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 Long Ridge O16 595 Pad - LR14A O16 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	-160.12	-28.0	-10.1	29.8					
100.0	100.0	100.0	100.0	0.1	0.1	-160.12	-28.0	-10.1	29.8	29.5	0.30	100.521		
200.0	200.0	200.0	200.0	0.3	0.3	-160.12	-28.0	-10.1	29.8	29.2	0.65	46.185 CC		
221.6	221.6	221.5	221.5	0.4	0.4	41.57	-28.1	-10.2	29.8	29.1	0.72	41.328		
300.0	300.0	299.2	299.1	0.5	0.5	45.67	-28.9	-11.6	29.9	28.9	1.00	30.034 ES		
400.0	399.8	398.0	397.9	0.7	0.7	58.03	-31.5	-16.1	31.2	29.9	1.36	22.926		
500.0	499.5	496.3	495.7	0.9	0.9	75.04	-35.7	-23.4	36.2	34.4	1.76	20.574 SF		
600.0	598.7	593.6	592.4	1.2	1.2	90.72	-41.6	-33.5	46.9	44.7	2.20	21.271		
700.0	697.5	689.8	687.4	1.5	1.5	101.98	-49.0	-46.3	63.6	60.9	2.71	23.498		
800.0	795.6	784.6	780.5	1.9	1.8	109.34	-57.8	-61.6	85.9	82.6	3.28	26.215		
822.0	817.2	805.3	800.8	2.0	1.9	110.57	-59.9	-65.3	91.4	88.0	3.40	26.860		

Cathedral Energy Services

Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Well LR02A O16 595
Project:	Garfield County	TVD Reference:	KBE @ 8318.0ft (patterson 302)
Reference Site:	Long Ridge O16 595 Pad	MD Reference:	KBE @ 8318.0ft (patterson 302)
Site Error:	0.0ft	North Reference:	True
Reference Well:	LR02A O16 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													Long Ridge O16 595 Pad - LR15A O16 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	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Total Uncertainty	Separation			Warning		
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	21.14	28.4	11.0	30.5								
100.0	100.0	100.0	100.0	0.1	0.1	21.14	28.4	11.0	30.5	30.2	0.30	102.669					
200.0	200.0	200.0	200.0	0.3	0.3	21.14	28.4	11.0	30.5	29.8	0.65	47.172 CC, ES					
300.0	300.0	300.0	300.0	0.5	0.5	-139.49	28.4	11.0	31.8	30.8	1.00	31.891					
400.0	399.8	399.8	399.8	0.7	0.7	-144.87	28.4	11.0	35.9	34.6	1.35	26.587					
500.0	499.5	499.5	499.5	0.9	0.8	-151.44	28.4	11.0	43.3	41.6	1.71	25.395 SF					
600.0	598.7	599.9	599.8	1.2	1.0	-156.12	27.3	12.3	53.3	51.2	2.06	25.808					
700.0	697.5	700.5	700.4	1.5	1.2	-158.03	23.9	16.3	64.4	62.0	2.43	26.465					
800.0	795.6	801.4	800.8	1.9	1.4	-158.30	18.1	23.0	76.6	73.7	2.83	27.067					
822.0	817.2	823.7	823.0	2.0	1.5	-158.20	16.6	24.9	79.4	76.5	2.92	27.164					
900.0	893.3	902.5	901.2	2.3	1.7	-157.37	10.1	32.5	88.7	85.4	3.27	27.133					
1,000.0	990.9	1,004.0	1,001.4	2.7	2.0	-155.07	-0.3	44.7	98.7	95.0	3.78	26.145					

Cathedral Energy Services

Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Well LR02A O16 595
Project:	Garfield County	TVD Reference:	KBE @ 8318.0ft (patterson 302)
Reference Site:	Long Ridge O16 595 Pad	MD Reference:	KBE @ 8318.0ft (patterson 302)
Site Error:	0.0ft	North Reference:	True
Reference Well:	LR02A O16 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 Long Ridge O16 595 Pad - LR15C O16 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	-159.88	-13.8	-5.1	14.7				
100.0	100.0	100.0	100.0	0.1	0.1	-159.88	-13.8	-5.1	14.7	14.4	0.30	49.684	
200.0	200.0	200.0	200.0	0.3	0.3	-159.88	-13.8	-5.1	14.7	14.1	0.65	22.828 CC	
300.0	300.0	299.6	299.5	0.5	0.5	42.43	-15.5	-4.7	14.9	13.9	1.00	14.946 ES	
400.0	399.8	399.1	399.0	0.7	0.7	44.80	-20.6	-3.5	15.4	14.0	1.36	11.291	
500.0	499.5	498.7	498.2	0.9	0.9	48.43	-29.0	-1.6	16.2	14.5	1.76	9.212	
600.0	598.7	598.2	597.0	1.2	1.2	52.86	-40.8	1.0	17.6	15.3	2.23	7.871	
700.0	697.5	697.8	695.3	1.5	1.5	57.64	-55.9	4.4	19.4	16.6	2.79	6.930	
800.0	795.6	797.3	793.0	1.9	1.9	62.34	-74.4	8.6	21.7	18.2	3.48	6.242	
822.0	817.2	819.2	814.4	2.0	2.0	63.34	-78.9	9.6	22.3	18.7	3.64	6.121	
900.0	893.3	896.9	890.0	2.3	2.3	64.67	-96.0	13.5	25.0	20.8	4.22	5.932	
1,000.0	990.9	996.8	987.2	2.7	2.7	64.85	-118.8	18.6	28.9	24.0	4.95	5.842	
1,100.0	1,088.6	1,096.7	1,084.4	3.1	3.1	64.99	-141.5	23.8	32.8	27.1	5.69	5.764	
1,200.0	1,186.2	1,196.6	1,181.5	3.5	3.6	65.09	-164.3	28.9	36.7	30.2	6.44	5.698	
1,300.0	1,283.9	1,296.6	1,278.7	3.9	4.0	65.18	-187.0	34.1	40.6	33.4	7.19	5.642	
1,400.0	1,381.6	1,396.5	1,375.9	4.3	4.4	65.25	-209.8	39.2	44.5	36.5	7.95	5.594	
1,500.0	1,479.2	1,496.4	1,473.0	4.7	4.9	65.31	-232.5	44.4	48.3	39.6	8.71	5.553	
1,600.0	1,576.9	1,596.3	1,570.2	5.1	5.3	65.36	-255.3	49.5	52.2	42.8	9.47	5.517	
1,700.0	1,674.5	1,696.3	1,667.3	5.5	5.7	65.40	-278.0	54.6	56.1	45.9	10.23	5.486	
1,800.0	1,772.2	1,796.2	1,764.5	5.9	6.2	65.44	-300.8	59.8	60.0	49.0	10.99	5.458	
1,900.0	1,869.8	1,896.1	1,861.7	6.3	6.6	65.48	-323.5	64.9	63.9	52.1	11.76	5.433	
2,000.0	1,967.5	1,996.0	1,958.8	6.8	7.1	65.51	-346.3	70.1	67.8	55.3	12.53	5.412	
2,100.0	2,065.1	2,096.0	2,056.0	7.2	7.5	65.53	-369.0	75.2	71.7	58.4	13.29	5.392	
2,200.0	2,162.8	2,195.9	2,153.2	7.6	7.9	65.56	-391.8	80.4	75.6	61.5	14.06	5.374	
2,300.0	2,260.4	2,295.8	2,250.3	8.0	8.4	65.58	-414.5	85.5	79.4	64.6	14.83	5.358	
2,400.0	2,358.1	2,395.7	2,347.5	8.4	8.8	65.60	-437.3	90.6	83.3	67.7	15.59	5.344	
2,500.0	2,455.7	2,495.7	2,444.7	8.8	9.3	65.61	-460.1	95.8	87.2	70.9	16.36	5.330	
2,600.0	2,553.4	2,595.6	2,541.8	9.2	9.7	65.63	-482.8	100.9	91.1	74.0	17.13	5.318	
2,700.0	2,651.0	2,695.5	2,639.0	9.7	10.1	65.65	-505.6	106.1	95.0	77.1	17.90	5.307	
2,800.0	2,748.7	2,795.4	2,736.2	10.1	10.6	65.66	-528.3	111.2	98.9	80.2	18.67	5.297 SF	

Cathedral Energy Services

Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Well LR02A O16 595
Project:	Garfield County	TVD Reference:	KBE @ 8318.0ft (patterson 302)
Reference Site:	Long Ridge O16 595 Pad	MD Reference:	KBE @ 8318.0ft (patterson 302)
Site Error:	0.0ft	North Reference:	True
Reference Well:	LR02A O16 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 Long Ridge O16 595 Pad - LR15D O16 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	20.12	13.8	5.1	14.7					
100.0	100.0	100.0	100.0	0.1	0.1	20.12	13.8	5.1	14.7	14.4	0.30	49.684		
200.0	200.0	200.0	200.0	0.3	0.3	20.12	13.8	5.1	14.7	14.1	0.65	22.828 CC		
300.0	300.0	300.3	300.3	0.5	0.5	-137.39	12.4	6.1	15.0	14.0	1.00	15.035 ES		
400.0	399.8	400.6	400.4	0.7	0.7	-134.59	8.0	9.0	15.9	14.5	1.37	11.572		
500.0	499.5	500.9	500.3	0.9	0.9	-130.57	0.8	13.9	17.4	15.6	1.80	9.706		
600.0	598.7	601.1	599.8	1.2	1.2	-126.03	-9.4	20.8	19.7	17.4	2.30	8.577		
700.0	697.5	701.3	698.8	1.5	1.5	-121.55	-22.4	29.6	22.8	19.9	2.90	7.843		
800.0	795.6	801.4	797.0	1.9	1.9	-117.84	-38.1	40.3	26.7	23.1	3.61	7.391		
822.0	817.2	823.4	818.6	2.0	1.9	-117.66	-41.7	42.7	27.7	23.9	3.76	7.359		
900.0	893.3	901.3	894.9	2.3	2.2	-117.63	-54.4	51.4	31.5	27.2	4.32	7.298		
1,000.0	990.9	1,001.2	992.8	2.7	2.6	-117.61	-70.8	62.5	36.4	31.4	5.04	7.222		
1,100.0	1,088.6	1,101.0	1,090.7	3.1	3.0	-117.60	-87.2	73.6	41.3	35.5	5.77	7.155		
1,200.0	1,186.2	1,200.9	1,188.6	3.5	3.4	-117.58	-103.5	84.7	46.2	39.7	6.51	7.097		
1,300.0	1,283.9	1,300.8	1,286.5	3.9	3.7	-117.57	-119.9	95.8	51.1	43.8	7.25	7.048		
1,400.0	1,381.6	1,400.7	1,384.5	4.3	4.1	-117.57	-136.2	106.9	56.0	48.0	7.99	7.005		
1,500.0	1,479.2	1,500.6	1,482.4	4.7	4.5	-117.56	-152.6	118.0	60.9	52.1	8.74	6.967		
1,600.0	1,576.9	1,600.4	1,580.3	5.1	4.9	-117.55	-169.0	129.1	65.8	56.3	9.48	6.935		
1,700.0	1,674.5	1,700.3	1,678.2	5.5	5.3	-117.55	-185.3	140.2	70.7	60.4	10.23	6.906		
1,800.0	1,772.2	1,800.2	1,776.1	5.9	5.7	-117.54	-201.7	151.3	75.6	64.6	10.98	6.881		
1,900.0	1,869.8	1,900.1	1,874.0	6.3	6.1	-117.54	-218.0	162.4	80.4	68.7	11.73	6.858		
2,000.0	1,967.5	2,000.0	1,971.9	6.8	6.4	-117.54	-234.4	173.5	85.3	72.9	12.48	6.838		
2,100.0	2,065.1	2,099.8	2,069.8	7.2	6.8	-117.53	-250.8	184.6	90.2	77.0	13.23	6.820		
2,200.0	2,162.8	2,199.7	2,167.7	7.6	7.2	-117.53	-267.1	195.7	95.1	81.1	13.98	6.804 SF		

Cathedral Energy Services

Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Well LR02A O16 595
Project:	Garfield County	TVD Reference:	KBE @ 8318.0ft (patterson 302)
Reference Site:	Long Ridge O16 595 Pad	MD Reference:	KBE @ 8318.0ft (patterson 302)
Site Error:	0.0ft	North Reference:	True
Reference Well:	LR02A O16 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 Long Ridge O16 595 Pad - LR16A O16 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	20.49	54.3	20.3	57.9					
100.0	100.0	100.0	100.0	0.1	0.1	20.49	54.3	20.3	57.9	57.6	0.30	195.280		
200.0	200.0	200.0	200.0	0.3	0.3	20.49	54.3	20.3	57.9	57.3	0.65	89.723 CC, ES		
300.0	300.0	299.7	299.7	0.5	0.5	-137.47	53.9	22.0	59.5	58.5	1.00	59.513		
400.0	399.8	399.2	399.1	0.7	0.7	-135.96	52.8	27.0	64.1	62.7	1.38	46.564		
500.0	499.5	498.5	497.9	0.9	0.9	-133.87	50.9	35.4	71.9	70.1	1.80	39.969		
600.0	598.7	597.2	595.9	1.2	1.2	-131.60	48.3	47.1	82.9	80.6	2.28	36.295		
700.0	697.5	695.3	692.9	1.5	1.5	-129.40	45.0	62.0	97.2	94.3	2.85	34.128 SF		

Cathedral Energy Services

Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Well LR02A O16 595
Project:	Garfield County	TVD Reference:	KBE @ 8318.0ft (patterson 302)
Reference Site:	Long Ridge O16 595 Pad	MD Reference:	KBE @ 8318.0ft (patterson 302)
Site Error:	0.0ft	North Reference:	True
Reference Well:	LR02A O16 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 Long Ridge O16 595 Pad - LR16B O16 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	20.31	67.7	25.1	72.2					
100.0	100.0	100.0	100.0	0.1	0.1	20.31	67.7	25.1	72.2	71.9	0.30	243.454		
200.0	200.0	200.0	200.0	0.3	0.3	20.31	67.7	25.1	72.2	71.6	0.65	111.857 CC, ES		
300.0	300.0	299.4	299.3	0.5	0.5	-137.78	67.6	26.8	74.0	73.0	1.00	74.054		
400.0	399.8	398.5	398.4	0.7	0.7	-136.62	67.0	31.9	79.1	77.8	1.37	57.580		
500.0	499.5	497.3	496.8	0.9	0.9	-134.98	66.0	40.4	87.8	86.0	1.79	48.999 SF		

Cathedral Energy Services

Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Well LR02A O16 595
Project:	Garfield County	TVD Reference:	KBE @ 8318.0ft (patterson 302)
Reference Site:	Long Ridge O16 595 Pad	MD Reference:	KBE @ 8318.0ft (patterson 302)
Site Error:	0.0ft	North Reference:	True
Reference Well:	LR02A O16 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 Long Ridge O16 595 Pad - LR16C O16 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	20.29	41.2	15.2	43.9					
100.0	100.0	100.0	100.0	0.1	0.1	20.29	41.2	15.2	43.9	43.6	0.30	147.899		
196.3	196.3	196.3	196.3	0.3	0.3	20.29	41.2	15.2	43.9	43.2	0.63	69.325		
200.0	200.0	200.0	200.0	0.3	0.3	20.29	41.2	15.2	43.9	43.2	0.65	67.953 CC, ES		
300.0	300.0	300.4	300.4	0.5	0.5	-137.56	40.1	16.6	44.7	43.7	1.00	44.641		
400.0	399.8	400.8	400.7	0.7	0.7	-135.68	36.9	20.8	47.1	45.7	1.38	34.106		
500.0	499.5	501.1	500.6	0.9	0.9	-132.95	31.5	27.8	51.1	49.3	1.81	28.290		
600.0	598.7	601.3	599.9	1.2	1.2	-129.78	24.1	37.5	57.0	54.7	2.31	24.689		
700.0	697.5	701.2	698.6	1.5	1.5	-126.56	14.6	49.9	64.7	61.8	2.90	22.291		
800.0	795.6	800.8	796.4	1.9	1.9	-123.52	3.0	65.0	74.3	70.7	3.60	20.626		
822.0	817.2	822.8	817.9	2.0	2.0	-122.89	0.1	68.7	76.7	72.9	3.77	20.356		
900.0	893.3	900.2	893.4	2.3	2.3	-120.83	-10.2	82.2	85.3	80.9	4.36	19.549		
1,000.0	990.9	999.5	990.3	2.7	2.7	-118.71	-23.5	99.6	96.4	91.3	5.14	18.751 SF		

Cathedral Energy Services

Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Well LR02A O16 595
Project:	Garfield County	TVD Reference:	KBE @ 8318.0ft (patterson 302)
Reference Site:	Long Ridge O16 595 Pad	MD Reference:	KBE @ 8318.0ft (patterson 302)
Site Error:	0.0ft	North Reference:	True
Reference Well:	LR02A O16 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 @ 8318.0ft (patterson 302)
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000 °

Coordinates are relative to: LR02A O16 595
Coordinate System is US State Plane 1983, Colorado Central Zone
Grid Convergence at Surface is: -1.61°

