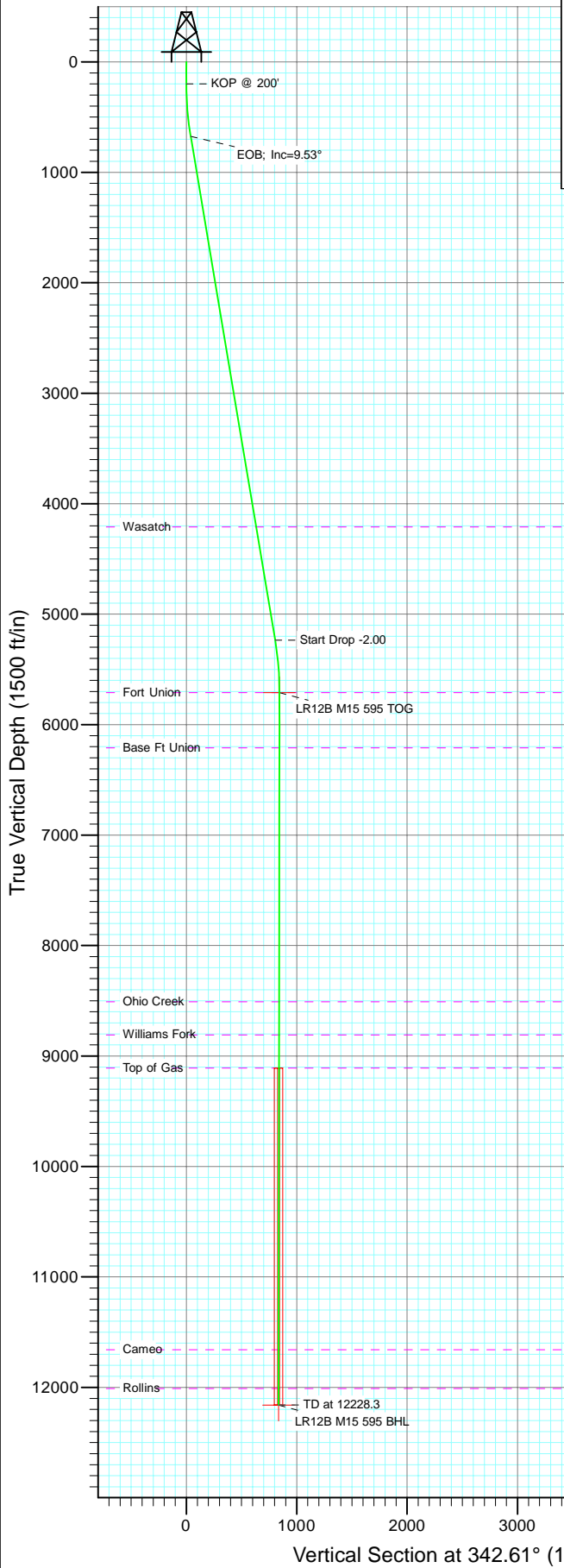
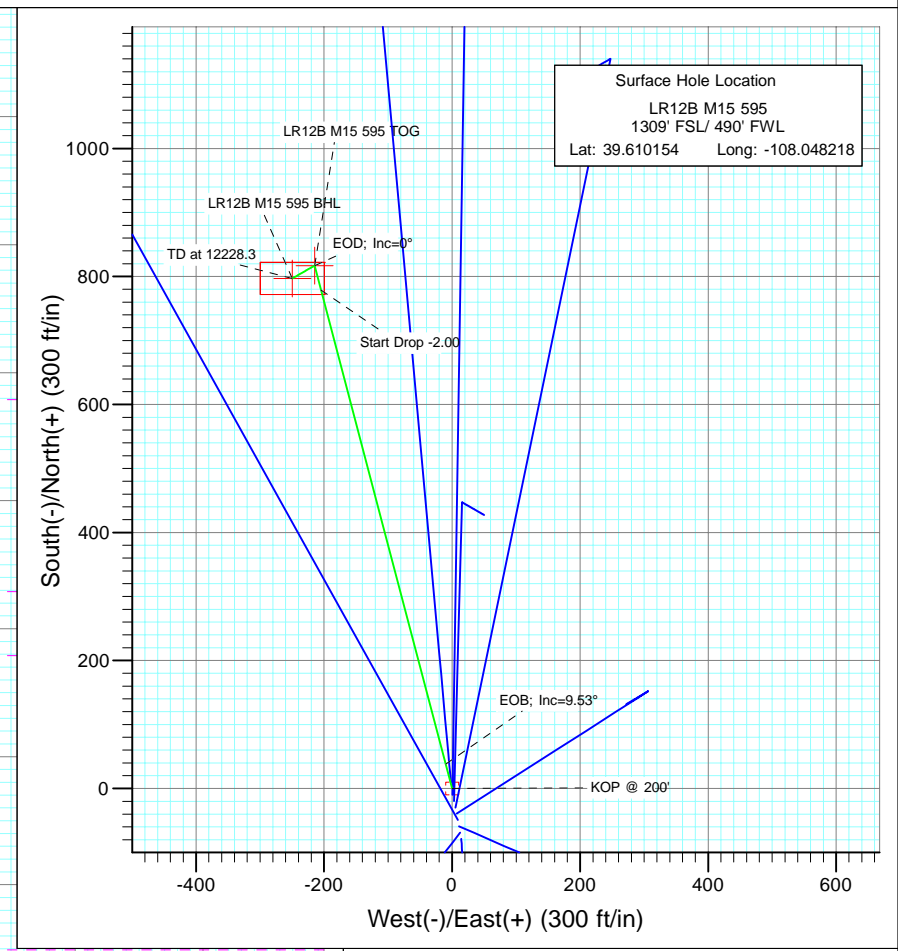




Project: Garfield County
Site: M15 595
Well: LR12B M15 595
Wellbore: DD
Design: Plan #1



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	676.5	9.53	345.26	674.3	38.2	-10.1	2.00	345.26	39.5	
4	5301.7	9.53	345.26	5235.7	778.8	-204.9	0.00	0.00	804.4	
5	5778.2	0.00	0.00	5710.0	817.0	-214.9	2.00	180.00	843.9	LR12B M15 595 TOG
6	5922.0	0.36	240.01	5853.8	816.8	-215.3	0.25	240.01	843.8	
7	12228.3	0.36	240.01	12160.0	797.0	-249.6	0.00	0.00	835.2	LR12B M15 595 BHL



Azimuths to True North
Magnetic North: 10.49°

Magnetic Field
Strength: 52413.2snT
Dip Angle: 65.86°
Date: 6/29/2010
Model: IGRF200510

FORMATION TOP DETAILS		
TVDPPath	MDPath	Formation
4210.0	4261.7	Wasatch
5710.0	5778.2	Fort Union
6210.0	6278.2	Base Ft Union
8510.0	8578.3	Ohio Creek
8810.0	8878.3	Williams Fork
9110.0	9178.3	Top of Gas
11660.0	11728.3	Cameo
12010.0	12078.3	Rollins

DESIGN DETAILS: Plan #1

105XXX; BH
KBE @ 8362.0ft (Original Well Elev)

Target	Azimuth	Origin	N/S	E/W	From TVD
LR12B M15 595 BHL	342.61	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 LR12B M15 595
Company:	Berry Petroleum Company (NAD 83)	TVD Reference:	KBE @ 8362.0ft (Original Well Elev)
Project:	Garfield County	MD Reference:	KBE @ 8362.0ft (Original Well Elev)
Site:	M15 595	North Reference:	True
Well:	LR12B M15 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		M15 595			
Site Position:		Northing:	1,657,208.58 ft	Latitude:	39.610181
From:	Lat/Long	Easting:	2,282,155.00 ft	Longitude:	-108.048225
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence:	-1.61 °

Well	LR12B M15 595					
Well Position	+N/-S	0.0 ft	Northing:	1,657,198.68 ft	Latitude:	39.610154
	+E/-W	0.0 ft	Easting:	2,282,156.70 ft	Longitude:	-108.048218
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	8,347.0 ft

Wellbore	DD				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	6/29/2010	10.49	65.86	52,413

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	342.61

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	
676.5	9.53	345.26	674.3	38.2	-10.1	2.00	2.00	0.00	345.26	
5,301.7	9.53	345.26	5,235.7	778.8	-204.9	0.00	0.00	0.00	0.00	
5,778.2	0.00	0.00	5,710.0	817.0	-214.9	2.00	-2.00	0.00	180.00	LR12B M15 595 TOG
5,922.0	0.36	240.01	5,853.8	816.8	-215.3	0.25	0.25	-83.43	240.01	
12,228.3	0.36	240.01	12,160.0	797.0	-249.6	0.00	0.00	0.00	0.00	LR12B M15 595 BHL

Cathedral Energy Services

Planning Report

Database:	EDM 5000.1 US Multi Users DB	Local Co-ordinate Reference:	Well LR12B M15 595
Company:	Berry Petroleum Company (NAD 83)	TVD Reference:	KBE @ 8362.0ft (Original Well Elev)
Project:	Garfield County	MD Reference:	KBE @ 8362.0ft (Original Well Elev)
Site:	M15 595	North Reference:	True
Well:	LR12B M15 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	345.26	210.0	0.0	0.0	0.0	2.00	2.00	
240.0	0.80	345.26	240.0	0.3	-0.1	0.3	2.00	2.00	
270.0	1.40	345.26	270.0	0.8	-0.2	0.9	2.00	2.00	
300.0	2.00	345.26	300.0	1.7	-0.4	1.7	2.00	2.00	
330.0	2.60	345.26	330.0	2.9	-0.8	2.9	2.00	2.00	
360.0	3.20	345.26	359.9	4.3	-1.1	4.5	2.00	2.00	
390.0	3.80	345.26	389.9	6.1	-1.6	6.3	2.00	2.00	
420.0	4.40	345.26	419.8	8.2	-2.1	8.4	2.00	2.00	
450.0	5.00	345.26	449.7	10.5	-2.8	10.9	2.00	2.00	
480.0	5.60	345.26	479.6	13.2	-3.5	13.7	2.00	2.00	
510.0	6.20	345.26	509.4	16.2	-4.3	16.7	2.00	2.00	
540.0	6.80	345.26	539.2	19.5	-5.1	20.1	2.00	2.00	
570.0	7.40	345.26	569.0	23.1	-6.1	23.8	2.00	2.00	
600.0	8.00	345.26	598.7	27.0	-7.1	27.9	2.00	2.00	
630.0	8.60	345.26	628.4	31.2	-8.2	32.2	2.00	2.00	
660.0	9.20	345.26	658.0	35.6	-9.4	36.8	2.00	2.00	
676.5	9.53	345.26	674.3	38.2	-10.1	39.5	2.00	2.00	EOB; Inc=9.53°
690.0	9.53	345.26	687.6	40.4	-10.6	41.7	0.00	0.00	
720.0	9.53	345.26	717.2	45.2	-11.9	46.7	0.00	0.00	
750.0	9.53	345.26	746.8	50.0	-13.2	51.6	0.00	0.00	
780.0	9.53	345.26	776.4	54.8	-14.4	56.6	0.00	0.00	
810.0	9.53	345.26	806.0	59.6	-15.7	61.6	0.00	0.00	
840.0	9.53	345.26	835.5	64.4	-16.9	66.5	0.00	0.00	
870.0	9.53	345.26	865.1	69.2	-18.2	71.5	0.00	0.00	
900.0	9.53	345.26	894.7	74.0	-19.5	76.5	0.00	0.00	
930.0	9.53	345.26	924.3	78.8	-20.7	81.4	0.00	0.00	
960.0	9.53	345.26	953.9	83.6	-22.0	86.4	0.00	0.00	
990.0	9.53	345.26	983.5	88.4	-23.3	91.3	0.00	0.00	
1,020.0	9.53	345.26	1,013.1	93.2	-24.5	96.3	0.00	0.00	
1,050.0	9.53	345.26	1,042.7	98.0	-25.8	101.3	0.00	0.00	
1,080.0	9.53	345.26	1,072.2	102.8	-27.1	106.2	0.00	0.00	
1,110.0	9.53	345.26	1,101.8	107.6	-28.3	111.2	0.00	0.00	
1,140.0	9.53	345.26	1,131.4	112.4	-29.6	116.1	0.00	0.00	
1,170.0	9.53	345.26	1,161.0	117.2	-30.8	121.1	0.00	0.00	
1,200.0	9.53	345.26	1,190.6	122.1	-32.1	126.1	0.00	0.00	
1,230.0	9.53	345.26	1,220.2	126.9	-33.4	131.0	0.00	0.00	
1,260.0	9.53	345.26	1,249.8	131.7	-34.6	136.0	0.00	0.00	
1,290.0	9.53	345.26	1,279.3	136.5	-35.9	141.0	0.00	0.00	
1,320.0	9.53	345.26	1,308.9	141.3	-37.2	145.9	0.00	0.00	
1,350.0	9.53	345.26	1,338.5	146.1	-38.4	150.9	0.00	0.00	
1,380.0	9.53	345.26	1,368.1	150.9	-39.7	155.8	0.00	0.00	
1,410.0	9.53	345.26	1,397.7	155.7	-41.0	160.8	0.00	0.00	
1,440.0	9.53	345.26	1,427.3	160.5	-42.2	165.8	0.00	0.00	
1,470.0	9.53	345.26	1,456.9	165.3	-43.5	170.7	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	EDM 5000.1 US Multi Users DB	Local Co-ordinate Reference:	Well LR12B M15 595
Company:	Berry Petroleum Company (NAD 83)	TVD Reference:	KBE @ 8362.0ft (Original Well Elev)
Project:	Garfield County	MD Reference:	KBE @ 8362.0ft (Original Well Elev)
Site:	M15 595	North Reference:	True
Well:	LR12B M15 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	9.53	345.26	1,486.4	170.1	-44.7	175.7	0.00	0.00	
1,530.0	9.53	345.26	1,516.0	174.9	-46.0	180.6	0.00	0.00	
1,560.0	9.53	345.26	1,545.6	179.7	-47.3	185.6	0.00	0.00	
1,590.0	9.53	345.26	1,575.2	184.5	-48.5	190.6	0.00	0.00	
1,620.0	9.53	345.26	1,604.8	189.3	-49.8	195.5	0.00	0.00	
1,650.0	9.53	345.26	1,634.4	194.1	-51.1	200.5	0.00	0.00	
1,680.0	9.53	345.26	1,664.0	198.9	-52.3	205.5	0.00	0.00	
1,710.0	9.53	345.26	1,693.5	203.7	-53.6	210.4	0.00	0.00	
1,740.0	9.53	345.26	1,723.1	208.5	-54.9	215.4	0.00	0.00	
1,770.0	9.53	345.26	1,752.7	213.3	-56.1	220.3	0.00	0.00	
1,800.0	9.53	345.26	1,782.3	218.1	-57.4	225.3	0.00	0.00	
1,830.0	9.53	345.26	1,811.9	222.9	-58.6	230.3	0.00	0.00	
1,860.0	9.53	345.26	1,841.5	227.7	-59.9	235.2	0.00	0.00	
1,890.0	9.53	345.26	1,871.1	232.5	-61.2	240.2	0.00	0.00	
1,920.0	9.53	345.26	1,900.6	237.3	-62.4	245.1	0.00	0.00	
1,950.0	9.53	345.26	1,930.2	242.1	-63.7	250.1	0.00	0.00	
1,980.0	9.53	345.26	1,959.8	246.9	-65.0	255.1	0.00	0.00	
2,010.0	9.53	345.26	1,989.4	251.7	-66.2	260.0	0.00	0.00	
2,040.0	9.53	345.26	2,019.0	256.5	-67.5	265.0	0.00	0.00	
2,070.0	9.53	345.26	2,048.6	261.3	-68.8	269.9	0.00	0.00	
2,100.0	9.53	345.26	2,078.2	266.1	-70.0	274.9	0.00	0.00	
2,130.0	9.53	345.26	2,107.7	271.0	-71.3	279.9	0.00	0.00	
2,160.0	9.53	345.26	2,137.3	275.8	-72.6	284.8	0.00	0.00	
2,190.0	9.53	345.26	2,166.9	280.6	-73.8	289.8	0.00	0.00	
2,220.0	9.53	345.26	2,196.5	285.4	-75.1	294.8	0.00	0.00	
2,250.0	9.53	345.26	2,226.1	290.2	-76.3	299.7	0.00	0.00	
2,280.0	9.53	345.26	2,255.7	295.0	-77.6	304.7	0.00	0.00	
2,310.0	9.53	345.26	2,285.3	299.8	-78.9	309.6	0.00	0.00	
2,340.0	9.53	345.26	2,314.9	304.6	-80.1	314.6	0.00	0.00	
2,370.0	9.53	345.26	2,344.4	309.4	-81.4	319.6	0.00	0.00	
2,400.0	9.53	345.26	2,374.0	314.2	-82.7	324.5	0.00	0.00	
2,430.0	9.53	345.26	2,403.6	319.0	-83.9	329.5	0.00	0.00	
2,460.0	9.53	345.26	2,433.2	323.8	-85.2	334.4	0.00	0.00	
2,490.0	9.53	345.26	2,462.8	328.6	-86.5	339.4	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									
LR12B M15 595 TOG	0.00	0.00	5,710.0	817.0	-214.9	1,658,021.39	2,281,964.75	39.612397	-108.048981
- plan misses target center by 3286.3ft at 2490.0ft MD (2462.8 TVD, 328.6 N, -86.5 E)									
- Point									
LR12B M15 595 BHL	0.00	0.00	12,160.0	797.0	-249.6	1,658,002.37	2,281,929.53	39.612342	-108.049104
- plan misses target center by 9709.9ft at 2490.0ft MD (2462.8 TVD, 328.6 N, -86.5 E)									
- Rectangle (sides W50.0 H100.0 D0.0)									

Cathedral Energy Services

Planning Report

Database:	EDM 5000.1 US Multi Users DB	Local Co-ordinate Reference:	Well LR12B M15 595
Company:	Berry Petroleum Company (NAD 83)	TVD Reference:	KBE @ 8362.0ft (Original Well Elev)
Project:	Garfield County	MD Reference:	KBE @ 8362.0ft (Original Well Elev)
Site:	M15 595	North Reference:	True
Well:	LR12B M15 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	9.53	345.26	2,472.6	330.2	-86.9	341.1	0.00	0.00	
2,600.0	9.53	345.26	2,571.3	346.2	-91.1	357.6	0.00	0.00	
2,700.0	9.53	345.26	2,669.9	362.2	-95.3	374.1	0.00	0.00	
2,800.0	9.53	345.26	2,768.5	378.2	-99.5	390.7	0.00	0.00	
2,900.0	9.53	345.26	2,867.1	394.2	-103.7	407.2	0.00	0.00	
3,000.0	9.53	345.26	2,965.7	410.2	-107.9	423.8	0.00	0.00	
3,100.0	9.53	345.26	3,064.4	426.3	-112.1	440.3	0.00	0.00	
3,200.0	9.53	345.26	3,163.0	442.3	-116.4	456.8	0.00	0.00	
3,300.0	9.53	345.26	3,261.6	458.3	-120.6	473.4	0.00	0.00	
3,400.0	9.53	345.26	3,360.2	474.3	-124.8	489.9	0.00	0.00	
3,500.0	9.53	345.26	3,458.8	490.3	-129.0	506.4	0.00	0.00	
3,600.0	9.53	345.26	3,557.5	506.3	-133.2	523.0	0.00	0.00	
3,700.0	9.53	345.26	3,656.1	522.3	-137.4	539.5	0.00	0.00	
3,800.0	9.53	345.26	3,754.7	538.3	-141.6	556.1	0.00	0.00	
3,900.0	9.53	345.26	3,853.3	554.3	-145.8	572.6	0.00	0.00	
4,000.0	9.53	345.26	3,951.9	570.4	-150.1	589.1	0.00	0.00	
4,100.0	9.53	345.26	4,050.6	586.4	-154.3	605.7	0.00	0.00	
4,200.0	9.53	345.26	4,149.2	602.4	-158.5	622.2	0.00	0.00	
4,261.7	9.53	345.26	4,210.0	612.2	-161.1	632.4	0.00	0.00	Wasatch
4,300.0	9.53	345.26	4,247.8	618.4	-162.7	638.7	0.00	0.00	
4,400.0	9.53	345.26	4,346.4	634.4	-166.9	655.3	0.00	0.00	
4,500.0	9.53	345.26	4,445.0	650.4	-171.1	671.8	0.00	0.00	
4,600.0	9.53	345.26	4,543.7	666.4	-175.3	688.4	0.00	0.00	
4,700.0	9.53	345.26	4,642.3	682.4	-179.5	704.9	0.00	0.00	
4,800.0	9.53	345.26	4,740.9	698.4	-183.8	721.4	0.00	0.00	
4,900.0	9.53	345.26	4,839.5	714.4	-188.0	738.0	0.00	0.00	
5,000.0	9.53	345.26	4,938.1	730.5	-192.2	754.5	0.00	0.00	
5,100.0	9.53	345.26	5,036.8	746.5	-196.4	771.0	0.00	0.00	
5,200.0	9.53	345.26	5,135.4	762.5	-200.6	787.6	0.00	0.00	
5,300.0	9.53	345.26	5,234.0	778.5	-204.8	804.1	0.00	0.00	
5,301.7	9.53	345.26	5,235.7	778.8	-204.9	804.4	0.00	0.00	Start Drop -2.00
5,400.0	7.56	345.26	5,332.9	792.9	-208.6	819.0	2.00	-2.00	
5,500.0	5.56	345.26	5,432.2	803.9	-211.5	830.4	2.00	-2.00	
5,600.0	3.56	345.26	5,531.9	811.6	-213.5	838.4	2.00	-2.00	
5,700.0	1.56	345.26	5,631.8	816.0	-214.7	842.8	2.00	-2.00	
5,778.2	0.00	0.00	5,710.0	817.0	-214.9	843.9	2.00	-2.00	EOD; Inc=0° - Fort Union - LR12B M15 595 TO
5,800.0	0.05	240.01	5,731.8	817.0	-215.0	843.9	0.25	0.25	
5,900.0	0.30	240.01	5,831.8	816.8	-215.2	843.8	0.25	0.25	
5,922.0	0.36	240.01	5,853.8	816.8	-215.3	843.8	0.25	0.25	
6,000.0	0.36	240.01	5,931.8	816.5	-215.8	843.7	0.00	0.00	
6,100.0	0.36	240.01	6,031.8	816.2	-216.3	843.6	0.00	0.00	
6,200.0	0.36	240.01	6,131.8	815.9	-216.9	843.4	0.00	0.00	
6,278.2	0.36	240.01	6,210.0	815.7	-217.3	843.3	0.00	0.00	Base Ft Union
6,300.0	0.36	240.01	6,231.8	815.6	-217.4	843.3	0.00	0.00	
6,400.0	0.36	240.01	6,331.8	815.3	-217.9	843.1	0.00	0.00	
6,500.0	0.36	240.01	6,431.8	815.0	-218.5	843.0	0.00	0.00	
6,600.0	0.36	240.01	6,531.8	814.6	-219.0	842.9	0.00	0.00	
6,700.0	0.36	240.01	6,631.8	814.3	-219.6	842.7	0.00	0.00	
6,800.0	0.36	240.01	6,731.8	814.0	-220.1	842.6	0.00	0.00	
6,900.0	0.36	240.01	6,831.8	813.7	-220.7	842.5	0.00	0.00	
7,000.0	0.36	240.01	6,931.8	813.4	-221.2	842.3	0.00	0.00	
7,100.0	0.36	240.01	7,031.8	813.1	-221.7	842.2	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	EDM 5000.1 US Multi Users DB	Local Co-ordinate Reference:	Well LR12B M15 595
Company:	Berry Petroleum Company (NAD 83)	TVD Reference:	KBE @ 8362.0ft (Original Well Elev)
Project:	Garfield County	MD Reference:	KBE @ 8362.0ft (Original Well Elev)
Site:	M15 595	North Reference:	True
Well:	LR12B M15 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	0.36	240.01	7,131.8	812.8	-222.3	842.1	0.00	0.00	
7,300.0	0.36	240.01	7,231.8	812.5	-222.8	841.9	0.00	0.00	
7,400.0	0.36	240.01	7,331.8	812.1	-223.4	841.8	0.00	0.00	
7,500.0	0.36	240.01	7,431.8	811.8	-223.9	841.6	0.00	0.00	
7,600.0	0.36	240.01	7,531.8	811.5	-224.5	841.5	0.00	0.00	
7,700.0	0.36	240.01	7,631.8	811.2	-225.0	841.4	0.00	0.00	
7,800.0	0.36	240.01	7,731.7	810.9	-225.5	841.2	0.00	0.00	
7,900.0	0.36	240.01	7,831.7	810.6	-226.1	841.1	0.00	0.00	
8,000.0	0.36	240.01	7,931.7	810.3	-226.6	841.0	0.00	0.00	
8,100.0	0.36	240.01	8,031.7	809.9	-227.2	840.8	0.00	0.00	
8,200.0	0.36	240.01	8,131.7	809.6	-227.7	840.7	0.00	0.00	
8,300.0	0.36	240.01	8,231.7	809.3	-228.3	840.5	0.00	0.00	
8,400.0	0.36	240.01	8,331.7	809.0	-228.8	840.4	0.00	0.00	
8,500.0	0.36	240.01	8,431.7	808.7	-229.4	840.3	0.00	0.00	
8,578.3	0.36	240.01	8,510.0	808.4	-229.8	840.2	0.00	0.00	Ohio Creek
8,600.0	0.36	240.01	8,531.7	808.4	-229.9	840.1	0.00	0.00	
8,700.0	0.36	240.01	8,631.7	808.1	-230.4	840.0	0.00	0.00	
8,800.0	0.36	240.01	8,731.7	807.7	-231.0	839.9	0.00	0.00	
8,878.3	0.36	240.01	8,810.0	807.5	-231.4	839.8	0.00	0.00	Williams Fork
8,900.0	0.36	240.01	8,831.7	807.4	-231.5	839.7	0.00	0.00	
9,000.0	0.36	240.01	8,931.7	807.1	-232.1	839.6	0.00	0.00	
9,100.0	0.36	240.01	9,031.7	806.8	-232.6	839.5	0.00	0.00	
9,178.3	0.36	240.01	9,110.0	806.6	-233.0	839.3	0.00	0.00	Top of Gas
9,200.0	0.36	240.01	9,131.7	806.5	-233.2	839.3	0.00	0.00	
9,300.0	0.36	240.01	9,231.7	806.2	-233.7	839.2	0.00	0.00	
9,400.0	0.36	240.01	9,331.7	805.9	-234.2	839.0	0.00	0.00	
9,500.0	0.36	240.01	9,431.7	805.6	-234.8	838.9	0.00	0.00	
9,600.0	0.36	240.01	9,531.7	805.2	-235.3	838.8	0.00	0.00	
9,700.0	0.36	240.01	9,631.7	804.9	-235.9	838.6	0.00	0.00	
9,800.0	0.36	240.01	9,731.7	804.6	-236.4	838.5	0.00	0.00	
9,900.0	0.36	240.01	9,831.7	804.3	-237.0	838.4	0.00	0.00	
10,000.0	0.36	240.01	9,931.7	804.0	-237.5	838.2	0.00	0.00	
10,100.0	0.36	240.01	10,031.7	803.7	-238.0	838.1	0.00	0.00	
10,200.0	0.36	240.01	10,131.7	803.4	-238.6	837.9	0.00	0.00	
10,300.0	0.36	240.01	10,231.7	803.0	-239.1	837.8	0.00	0.00	
10,400.0	0.36	240.01	10,331.7	802.7	-239.7	837.7	0.00	0.00	
10,500.0	0.36	240.01	10,431.7	802.4	-240.2	837.5	0.00	0.00	
10,600.0	0.36	240.01	10,531.7	802.1	-240.8	837.4	0.00	0.00	
10,700.0	0.36	240.01	10,631.7	801.8	-241.3	837.3	0.00	0.00	
10,800.0	0.36	240.01	10,731.7	801.5	-241.9	837.1	0.00	0.00	
10,900.0	0.36	240.01	10,831.7	801.2	-242.4	837.0	0.00	0.00	
11,000.0	0.36	240.01	10,931.7	800.8	-242.9	836.9	0.00	0.00	
11,100.0	0.36	240.01	11,031.7	800.5	-243.5	836.7	0.00	0.00	
11,200.0	0.36	240.01	11,131.7	800.2	-244.0	836.6	0.00	0.00	
11,300.0	0.36	240.01	11,231.7	799.9	-244.6	836.4	0.00	0.00	
11,400.0	0.36	240.01	11,331.7	799.6	-245.1	836.3	0.00	0.00	
11,500.0	0.36	240.01	11,431.7	799.3	-245.7	836.2	0.00	0.00	
11,600.0	0.36	240.01	11,531.7	799.0	-246.2	836.0	0.00	0.00	
11,700.0	0.36	240.01	11,631.7	798.7	-246.7	835.9	0.00	0.00	
11,728.3	0.36	240.01	11,660.0	798.6	-246.9	835.9	0.00	0.00	Cameo
11,800.0	0.36	240.01	11,731.7	798.3	-247.3	835.8	0.00	0.00	
11,900.0	0.36	240.01	11,831.7	798.0	-247.8	835.6	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	EDM 5000.1 US Multi Users DB	Local Co-ordinate Reference:	Well LR12B M15 595
Company:	Berry Petroleum Company (NAD 83)	TVD Reference:	KBE @ 8362.0ft (Original Well Elev)
Project:	Garfield County	MD Reference:	KBE @ 8362.0ft (Original Well Elev)
Site:	M15 595	North Reference:	True
Well:	LR12B M15 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	0.36	240.01	11,931.7	797.7	-248.4	835.5	0.00	0.00	
12,078.3	0.36	240.01	12,010.0	797.5	-248.8	835.4	0.00	0.00	Rollins
12,100.0	0.36	240.01	12,031.7	797.4	-248.9	835.3	0.00	0.00	
12,200.0	0.36	240.01	12,131.7	797.1	-249.5	835.2	0.00	0.00	
12,228.3	0.36	240.01	12,160.0	797.0	-249.6	835.2	0.00	0.00	TD at 12228.3 - LR12B M15 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
LR12B M15 595 TOG - plan hits target center - Point	0.00	0.00	5,710.0	817.0	-214.9	1,658,021.39	2,281,964.75	39.612397	-108.048981
LR12B M15 595 BHL - plan hits target center - Rectangle (sides W50.0 H100.0 D0.0)	0.00	0.00	12,160.0	797.0	-249.6	1,658,002.37	2,281,929.53	39.612342	-108.049104

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
4,261.7	4,210.0	Wasatch		0.00	
5,778.2	5,710.0	Fort Union		0.00	
6,278.2	6,210.0	Base Ft Union		0.00	
8,578.3	8,510.0	Ohio Creek		0.00	
8,878.3	8,810.0	Williams Fork		0.00	
9,178.3	9,110.0	Top of Gas		0.00	
11,728.3	11,660.0	Cameo		0.00	
12,078.3	12,010.0	Rollins		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'
676.5	674.3	38.2	-10.1	EOB; Inc=9.53°
5,301.7	5,235.7	778.8	-204.9	Start Drop -2.00
5,778.2	5,710.0	817.0	-214.9	EOD; Inc=0°
12,228.3	12,160.0	816.8	-215.3	TD at 12228.3

Berry Petroleum Company (NAD 83)

Garfield County

M15 595

LR12B M15 595

DD

Plan #1

Anticollision Report

30 June, 2010

Cathedral Energy Services

Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Well LR12B M15 595
Project:	Garfield County	TVD Reference:	KBE @ 8362.0ft (Original Well Elev)
Reference Site:	M15 595	MD Reference:	KBE @ 8362.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	LR12B M15 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	6/30/2010		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
0.0	12,228.3	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						
M15 595						
LR01B M15 595 - DD - Plan #1	200.0	200.0	70.0	69.4	108.400	CC, ES
LR01B M15 595 - DD - Plan #1	500.0	495.3	90.3	88.6	53.407	SF
LR04A M15 595 - DD - Plan #1	200.0	200.0	80.0	79.3	123.852	CC, ES
LR04A M15 595 - DD - Plan #1	400.0	393.7	93.7	92.3	70.346	SF
LR05B M15 595 - DD - Plan #1	325.4	325.8	9.8	8.7	9.059	CC
LR05B M15 595 - DD - Plan #1	400.0	400.7	9.9	8.5	7.350	ES
LR05B M15 595 - DD - Plan #1	900.0	901.2	21.4	17.0	4.852	SF
LR05C M15 595 - DD - Plan #1	324.7	324.2	10.0	8.9	9.282	CC
LR05C M15 595 - DD - Plan #1	500.0	498.9	10.3	8.6	6.040	ES
LR05C M15 595 - DD - Plan #1	700.0	698.2	12.2	9.6	4.689	SF
LR08D M15 595 - DD - Plan #1	200.0	200.0	50.0	49.3	77.417	CC
LR08D M15 595 - DD - Plan #1	1,100.0	1,108.8	51.3	46.2	9.995	ES
LR08D M15 595 - DD - Plan #1	1,900.0	1,907.2	76.7	65.1	6.590	SF
LR12A M15 595 - DD - Plan #1	200.0	200.0	30.3	29.7	46.990	CC
LR12A M15 595 - DD - Plan #1	300.0	301.0	30.5	29.5	30.555	ES
LR12A M15 595 - DD - Plan #1	1,100.0	1,103.0	60.6	54.7	10.331	SF
LR12C M15 595 - DD - Plan #1	200.0	200.0	19.9	19.2	30.770	CC
LR12C M15 595 - DD - Plan #1	400.0	401.4	20.0	18.6	14.833	ES
LR12C M15 595 - DD - Plan #1	2,500.0	2,500.9	99.7	85.2	6.880	SF
LR12D M15 595 - DD - Plan #1	200.0	200.0	40.0	39.3	61.887	CC, ES
LR12D M15 595 - DD - Plan #1	600.0	599.4	63.6	61.4	28.637	SF
LR13A M15 595 - DD - Plan #1	200.0	200.0	60.0	59.3	92.876	CC, ES
LR13A M15 595 - DD - Plan #1	600.0	596.9	88.8	86.7	43.760	SF

Cathedral Energy Services

Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Well LR12B M15 595
Project:	Garfield County	TVD Reference:	KBE @ 8362.0ft (Original Well Elev)
Reference Site:	M15 595	MD Reference:	KBE @ 8362.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	LR12B M15 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 M15 595 - LR01B M15 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	169.57	-68.8	12.7	70.0					
100.0	100.0	100.0	100.0	0.1	0.1	169.57	-68.8	12.7	70.0	69.7	0.30	235.929		
200.0	200.0	200.0	200.0	0.3	0.3	169.57	-68.8	12.7	70.0	69.4	0.65	108.400 CC, ES		
300.0	300.0	300.0	300.0	0.5	0.5	-175.80	-68.8	12.7	71.7	70.7	0.99	72.141		
400.0	399.8	398.1	398.0	0.7	0.7	-175.14	-70.2	11.7	78.1	76.8	1.34	58.272		
500.0	499.5	495.3	495.1	0.9	0.9	-173.23	-74.1	8.6	90.3	88.6	1.69	53.407 SF		

Cathedral Energy Services

Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Well LR12B M15 595
Project:	Garfield County	TVD Reference:	KBE @ 8362.0ft (Original Well Elev)
Reference Site:	M15 595	MD Reference:	KBE @ 8362.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	LR12B M15 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 M15 595 - LR04A M15 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	169.65	-78.7	14.4	80.0					
100.0	100.0	100.0	100.0	0.1	0.1	169.65	-78.7	14.4	80.0	79.7	0.30	269.560		
200.0	200.0	200.0	200.0	0.3	0.3	169.65	-78.7	14.4	80.0	79.3	0.65	123.852 CC, ES		
300.0	300.0	297.2	297.2	0.5	0.5	-175.56	-80.3	14.5	83.4	82.4	0.99	84.279		
400.0	399.8	393.7	393.6	0.7	0.7	-175.44	-85.2	14.8	93.7	92.3	1.33	70.346 SF		

Cathedral Energy Services

Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Well LR12B M15 595
Project:	Garfield County	TVD Reference:	KBE @ 8362.0ft (Original Well Elev)
Reference Site:	M15 595	MD Reference:	KBE @ 8362.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	LR12B M15 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 M15 595 - LR05B M15 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	176.72	-9.8	0.6	9.9					
100.0	100.0	100.0	100.0	0.1	0.1	176.72	-9.8	0.6	9.9	9.6	0.30	33.201		
200.0	200.0	200.0	200.0	0.3	0.3	176.72	-9.8	0.6	9.9	9.2	0.65	15.255		
300.0	300.0	300.3	300.3	0.5	0.5	-171.31	-8.1	0.6	9.8	8.8	1.00	9.873		
325.4	325.4	325.8	325.8	0.6	0.6	-172.91	-7.1	0.6	9.8	8.7	1.08	9.059 CC		
400.0	399.8	400.7	400.5	0.7	0.7	-179.62	-2.8	0.7	9.9	8.5	1.35	7.350 ES		
500.0	499.5	501.0	500.4	0.9	0.9	167.29	6.0	0.8	10.4	8.7	1.71	6.093		
600.0	598.7	601.2	599.9	1.2	1.2	152.13	18.2	1.0	12.0	9.8	2.16	5.542		
676.5	674.3	677.9	675.7	1.4	1.4	141.42	29.9	1.2	14.0	11.4	2.60	5.392		
700.0	697.5	701.4	698.9	1.5	1.5	138.23	33.9	1.2	14.8	12.0	2.76	5.358		
800.0	796.1	801.5	797.1	1.8	1.9	121.23	53.1	1.5	17.5	14.0	3.55	4.944		
900.0	894.7	901.2	894.3	2.1	2.3	100.29	75.6	1.9	21.4	17.0	4.41	4.852 SF		
1,000.0	993.3	1,000.4	990.0	2.5	2.8	80.41	101.2	2.3	28.5	23.4	5.06	5.623		
1,100.0	1,092.0	1,099.5	1,085.2	2.8	3.3	66.70	128.9	2.7	38.8	33.3	5.48	7.076		
1,200.0	1,190.6	1,198.6	1,180.4	3.1	3.8	58.96	156.6	3.1	50.4	44.5	5.88	8.575		
1,300.0	1,289.2	1,297.8	1,275.6	3.5	4.3	54.16	184.3	3.6	62.6	56.3	6.29	9.951		
1,400.0	1,387.8	1,396.9	1,370.8	3.8	4.8	50.94	212.0	4.0	75.0	68.3	6.71	11.175		
1,500.0	1,486.4	1,496.1	1,466.0	4.1	5.3	48.64	239.7	4.4	87.6	80.5	7.15	12.256		

Cathedral Energy Services

Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Well LR12B M15 595
Project:	Garfield County	TVD Reference:	KBE @ 8362.0ft (Original Well Elev)
Reference Site:	M15 595	MD Reference:	KBE @ 8362.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	LR12B M15 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 M15 595 - LR05C M15 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	-11.33	9.8	-2.0	10.0					
100.0	100.0	100.0	100.0	0.1	0.1	-11.33	9.8	-2.0	10.0	9.7	0.30	33.821		
200.0	200.0	200.0	200.0	0.3	0.3	-11.33	9.8	-2.0	10.0	9.4	0.65	15.539		
300.0	300.0	299.7	299.6	0.5	0.5	5.06	11.6	-2.1	10.0	9.0	0.99	10.087		
324.7	324.6	324.2	324.2	0.5	0.5	5.98	12.5	-2.2	10.0	8.9	1.08	9.282 CC		
400.0	399.8	399.3	399.1	0.7	0.7	10.04	16.7	-2.6	10.0	8.7	1.34	7.488		
500.0	499.5	498.9	498.4	0.9	0.9	18.15	25.4	-3.4	10.3	8.6	1.70	6.040 ES		
600.0	598.7	598.6	597.3	1.2	1.2	28.65	37.4	-4.5	10.9	8.8	2.10	5.186		
676.5	674.3	674.7	672.6	1.4	1.4	37.40	48.9	-5.5	11.8	9.3	2.47	4.756		
700.0	697.5	698.2	695.7	1.5	1.5	39.79	52.9	-5.8	12.2	9.6	2.60	4.689 SF		
800.0	796.1	797.7	793.4	1.8	1.9	43.39	71.7	-7.5	16.0	12.8	3.13	5.100		
900.0	894.7	896.9	890.0	2.1	2.3	40.46	93.8	-9.5	22.7	19.1	3.58	6.327		
1,000.0	993.3	996.5	986.7	2.5	2.7	37.23	117.8	-11.7	31.0	27.0	4.00	7.745		
1,100.0	1,092.0	1,096.2	1,083.4	2.8	3.1	35.37	141.8	-13.8	39.3	34.9	4.42	8.888		
1,200.0	1,190.6	1,195.8	1,180.1	3.1	3.6	34.16	165.7	-16.0	47.7	42.8	4.85	9.824		
1,300.0	1,289.2	1,295.5	1,276.8	3.5	4.0	33.32	189.7	-18.2	56.1	50.8	5.29	10.604		
1,400.0	1,387.8	1,395.1	1,373.5	3.8	4.5	32.69	213.6	-20.3	64.5	58.8	5.73	11.262		
1,500.0	1,486.4	1,494.8	1,470.2	4.1	4.9	32.21	237.6	-22.5	72.9	66.7	6.16	11.825		
1,600.0	1,585.1	1,594.4	1,566.9	4.5	5.4	31.83	261.5	-24.6	81.3	74.7	6.60	12.312		
1,700.0	1,683.7	1,694.0	1,663.6	4.8	5.8	31.52	285.5	-26.8	89.7	82.7	7.04	12.737		
1,800.0	1,782.3	1,793.7	1,760.3	5.1	6.3	31.26	309.4	-28.9	98.1	90.7	7.49	13.111		

Cathedral Energy Services

Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Well LR12B M15 595
Project:	Garfield County	TVD Reference:	KBE @ 8362.0ft (Original Well Elev)
Reference Site:	M15 595	MD Reference:	KBE @ 8362.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	LR12B M15 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 M15 595 - LR08D M15 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	169.61	-49.2	9.0	50.0					
100.0	100.0	100.0	100.0	0.1	0.1	169.61	-49.2	9.0	50.0	49.7	0.30	168.496		
200.0	200.0	200.0	200.0	0.3	0.3	169.61	-49.2	9.0	50.0	49.3	0.65	77.417 CC		
300.0	300.0	301.7	301.7	0.5	0.5	-175.14	-47.6	8.1	50.1	49.1	1.00	50.158		
400.0	399.8	403.3	403.2	0.7	0.7	-173.62	-42.9	5.5	50.3	48.9	1.35	37.172		
500.0	499.5	505.0	504.4	0.9	0.9	-171.13	-35.0	1.1	50.7	49.0	1.71	29.579		
600.0	598.7	606.6	605.2	1.2	1.2	-167.72	-24.0	-5.0	51.4	49.3	2.09	24.561		
676.5	674.3	684.2	681.9	1.4	1.5	-164.57	-13.5	-10.8	52.3	49.9	2.41	21.686		
700.0	697.5	708.1	705.5	1.5	1.5	-163.48	-9.9	-12.8	52.5	50.0	2.52	20.873		
800.0	796.1	809.3	804.8	1.8	1.9	-157.63	7.2	-22.4	52.0	49.0	3.03	17.177		
900.0	894.7	909.1	902.4	2.1	2.3	-150.77	25.3	-32.4	51.0	47.4	3.64	14.023		
980.2	973.9	989.2	980.8	2.4	2.6	-145.14	39.7	-40.5	50.8	46.6	4.20	12.091		
1,000.0	993.3	1,008.9	1,000.0	2.5	2.7	-143.75	43.3	-42.4	50.8	46.4	4.35	11.685		
1,100.0	1,092.0	1,108.8	1,097.7	2.8	3.1	-136.77	61.4	-52.5	51.3	46.2	5.14	9.995 ES		
1,200.0	1,190.6	1,208.6	1,195.3	3.1	3.5	-130.03	79.4	-62.5	52.6	46.6	5.98	8.802		
1,300.0	1,289.2	1,308.4	1,293.0	3.5	3.9	-123.69	97.4	-72.6	54.6	47.7	6.84	7.978		
1,400.0	1,387.8	1,408.2	1,390.6	3.8	4.2	-117.86	115.5	-82.6	57.2	49.5	7.70	7.421		
1,500.0	1,486.4	1,508.0	1,488.3	4.1	4.6	-112.57	133.5	-92.7	60.3	51.7	8.55	7.055		
1,600.0	1,585.1	1,607.8	1,585.9	4.5	5.0	-107.85	151.6	-102.7	63.9	54.5	9.36	6.822		
1,700.0	1,683.7	1,707.6	1,683.6	4.8	5.4	-103.65	169.6	-112.7	67.8	57.7	10.15	6.685		
1,800.0	1,782.3	1,807.4	1,781.2	5.1	5.8	-99.93	187.7	-122.8	72.1	61.2	10.91	6.614		
1,900.0	1,880.9	1,907.2	1,878.8	5.5	6.2	-96.64	205.7	-132.8	76.7	65.1	11.64	6.590 SF		
2,000.0	1,979.5	2,007.0	1,976.5	5.8	6.6	-93.73	223.8	-142.9	81.5	69.2	12.35	6.599		
2,100.0	2,078.2	2,106.8	2,074.1	6.1	7.0	-91.15	241.8	-152.9	86.5	73.4	13.04	6.631		
2,200.0	2,176.8	2,206.6	2,171.8	6.5	7.4	-88.85	259.9	-163.0	91.6	77.9	13.72	6.679		
2,300.0	2,275.4	2,306.4	2,269.4	6.8	7.8	-86.80	277.9	-173.0	96.9	82.5	14.38	6.738		

Cathedral Energy Services

Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Well LR12B M15 595
Project:	Garfield County	TVD Reference:	KBE @ 8362.0ft (Original Well Elev)
Reference Site:	M15 595	MD Reference:	KBE @ 8362.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	LR12B M15 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 M15 595 - LR12A M15 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	169.84	-29.9	5.4	30.3					
100.0	100.0	100.0	100.0	0.1	0.1	169.84	-29.9	5.4	30.3	30.0	0.30	102.272		
200.0	200.0	200.0	200.0	0.3	0.3	169.84	-29.9	5.4	30.3	29.7	0.65	46.990 CC		
300.0	300.0	301.0	301.0	0.5	0.5	-176.93	-28.1	5.7	30.5	29.5	1.00	30.555 ES		
400.0	399.8	401.9	401.8	0.7	0.7	178.62	-22.9	6.8	30.9	29.6	1.35	22.881		
500.0	499.5	502.8	502.2	0.9	0.9	171.59	-14.2	8.6	32.1	30.4	1.72	18.632		
600.0	598.7	603.5	602.2	1.2	1.2	162.76	-2.1	11.1	34.5	32.3	2.14	16.077		
676.5	674.3	680.5	678.2	1.4	1.4	155.52	9.5	13.5	37.4	34.8	2.53	14.758		
700.0	697.5	704.1	701.5	1.5	1.5	153.25	13.5	14.3	38.4	35.7	2.67	14.406		
800.0	796.1	804.5	800.0	1.8	1.9	142.35	32.4	18.2	42.4	39.0	3.34	12.667		
900.0	894.7	904.4	897.3	2.1	2.3	129.56	54.5	22.8	46.6	42.5	4.19	11.138		
1,000.0	993.3	1,003.7	993.7	2.5	2.7	117.91	77.8	27.6	52.8	47.7	5.05	10.441		
1,100.0	1,092.0	1,103.0	1,090.1	2.8	3.2	108.94	101.1	32.4	60.6	54.7	5.86	10.331 SF		
1,200.0	1,190.6	1,202.3	1,186.6	3.1	3.6	102.13	124.3	37.3	69.5	62.9	6.62	10.504		
1,300.0	1,289.2	1,301.6	1,283.0	3.5	4.1	96.93	147.6	42.1	79.2	71.9	7.33	10.804		
1,400.0	1,387.8	1,400.9	1,379.4	3.8	4.5	92.88	170.9	46.9	89.4	81.4	8.02	11.152		
1,500.0	1,486.4	1,500.2	1,475.8	4.1	4.9	89.67	194.2	51.7	100.0	91.3	8.69	11.511		

Cathedral Energy Services

Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Well LR12B M15 595
Project:	Garfield County	TVD Reference:	KBE @ 8362.0ft (Original Well Elev)
Reference Site:	M15 595	MD Reference:	KBE @ 8362.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	LR12B M15 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 M15 595 - LR12C M15 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	171.85	-19.7	2.8	19.9				
100.0	100.0	100.0	100.0	0.1	0.1	171.85	-19.7	2.8	19.9	19.6	0.30	66.970	
200.0	200.0	200.0	200.0	0.3	0.3	171.85	-19.7	2.8	19.9	19.2	0.65	30.770 CC	
219.2	219.2	219.3	219.3	0.4	0.4	-173.46	-19.6	2.8	19.9	19.2	0.71	27.864	
300.0	300.0	300.7	300.7	0.5	0.5	-174.85	-17.9	2.9	19.9	18.9	1.00	19.960	
400.0	399.8	401.4	401.2	0.7	0.7	-179.15	-12.6	3.0	20.0	18.6	1.35	14.833 ES	
500.0	499.5	502.0	501.4	0.9	0.9	173.86	-3.8	3.2	20.4	18.7	1.71	11.948	
600.0	598.7	602.6	601.3	1.2	1.2	164.73	8.6	3.6	21.4	19.3	2.10	10.191	
676.5	674.3	679.4	677.2	1.4	1.4	157.01	20.3	3.9	22.9	20.4	2.46	9.290	
700.0	697.5	702.9	700.4	1.5	1.5	154.81	24.1	4.0	23.5	20.9	2.59	9.094	
800.0	796.1	802.8	798.9	1.8	1.8	146.72	40.4	4.4	26.6	23.4	3.15	8.426	
900.0	894.7	902.7	897.5	2.1	2.1	140.39	56.7	4.9	30.0	26.3	3.77	7.964	
1,000.0	993.3	1,002.6	996.0	2.5	2.5	135.42	72.9	5.3	33.8	29.4	4.42	7.648	
1,100.0	1,092.0	1,102.5	1,094.6	2.8	2.8	131.46	89.2	5.8	37.7	32.7	5.08	7.430	
1,200.0	1,190.6	1,202.4	1,193.2	3.1	3.1	128.27	105.4	6.2	41.8	36.1	5.75	7.278	
1,300.0	1,289.2	1,302.3	1,291.7	3.5	3.4	125.65	121.7	6.6	46.1	39.6	6.42	7.170	
1,400.0	1,387.8	1,402.1	1,390.3	3.8	3.8	123.47	137.9	7.1	50.3	43.2	7.10	7.093	
1,500.0	1,486.4	1,502.0	1,488.8	4.1	4.1	121.64	154.2	7.5	54.7	46.9	7.77	7.036	
1,600.0	1,585.1	1,601.9	1,587.4	4.5	4.4	120.08	170.5	8.0	59.1	50.6	8.45	6.995	
1,700.0	1,683.7	1,701.8	1,685.9	4.8	4.8	118.73	186.7	8.4	63.5	54.4	9.12	6.963	
1,800.0	1,782.3	1,801.7	1,784.5	5.1	5.1	117.56	203.0	8.8	68.0	58.2	9.80	6.940	
1,900.0	1,880.9	1,901.6	1,883.1	5.5	5.4	116.54	219.2	9.3	72.5	62.0	10.47	6.923	
2,000.0	1,979.5	2,001.5	1,981.6	5.8	5.8	115.63	235.5	9.7	77.0	65.8	11.14	6.909	
2,100.0	2,078.2	2,101.4	2,080.2	6.1	6.1	114.83	251.7	10.2	81.5	69.7	11.81	6.899	
2,200.0	2,176.8	2,201.3	2,178.7	6.5	6.4	114.11	268.0	10.6	86.0	73.6	12.48	6.892	
2,300.0	2,275.4	2,301.2	2,277.3	6.8	6.7	113.46	284.3	11.1	90.6	77.4	13.16	6.887	
2,400.0	2,374.0	2,401.1	2,375.9	7.2	7.1	112.88	300.5	11.5	95.2	81.3	13.83	6.883	
2,500.0	2,472.6	2,500.9	2,474.4	7.5	7.4	112.35	316.8	11.9	99.7	85.2	14.50	6.880 SF	

Cathedral Energy Services

Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Well LR12B M15 595
Project:	Garfield County	TVD Reference:	KBE @ 8362.0ft (Original Well Elev)
Reference Site:	M15 595	MD Reference:	KBE @ 8362.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	LR12B M15 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 M15 595 - LR12D M15 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	169.85	-39.3	7.0	40.0				
100.0	100.0	100.0	100.0	0.1	0.1	169.85	-39.3	7.0	40.0	39.7	0.30	134.695	
200.0	200.0	200.0	200.0	0.3	0.3	169.85	-39.3	7.0	40.0	39.3	0.65	61.887 CC, ES	
300.0	300.0	300.5	300.5	0.5	0.5	-177.88	-38.4	8.5	41.1	40.1	1.00	41.128	
400.0	399.8	400.7	400.6	0.7	0.7	175.52	-35.6	13.0	44.8	43.4	1.37	32.779	
500.0	499.5	500.4	499.9	0.9	0.9	166.86	-30.9	20.3	52.1	50.3	1.77	29.446	
600.0	598.7	599.4	598.1	1.2	1.2	158.33	-24.4	30.5	63.6	61.4	2.22	28.637 SF	
676.5	674.3	674.5	672.3	1.4	1.4	152.71	-18.3	40.1	75.6	73.0	2.62	28.881	
700.0	697.5	697.4	694.9	1.5	1.5	151.18	-16.2	43.4	79.7	77.0	2.74	29.066	
800.0	796.1	794.5	790.3	1.8	1.9	144.98	-6.3	58.9	98.3	95.0	3.33	29.568	

Cathedral Energy Services

Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Well LR12B M15 595
Project:	Garfield County	TVD Reference:	KBE @ 8362.0ft (Original Well Elev)
Reference Site:	M15 595	MD Reference:	KBE @ 8362.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	LR12B M15 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													M15 595 - LR13A M15 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	169.72	-59.0	10.7	60.0								
100.0	100.0	100.0	100.0	0.1	0.1	169.72	-59.0	10.7	60.0	59.7	0.30	202.142					
200.0	200.0	200.0	200.0	0.3	0.3	169.72	-59.0	10.7	60.0	59.3	0.65	92.876 CC, ES					
300.0	300.0	300.0	300.0	0.5	0.5	-175.67	-59.0	10.7	61.7	60.7	0.99	62.060					
400.0	399.8	399.8	399.8	0.7	0.7	-176.00	-59.0	10.7	66.9	65.6	1.34	49.877					
500.0	499.5	499.5	499.5	0.9	0.8	-176.45	-59.0	10.7	75.6	73.9	1.69	44.813					
600.0	598.7	596.9	596.9	1.2	1.0	-177.79	-59.7	12.2	88.8	86.7	2.03	43.760 SF					

Cathedral Energy Services

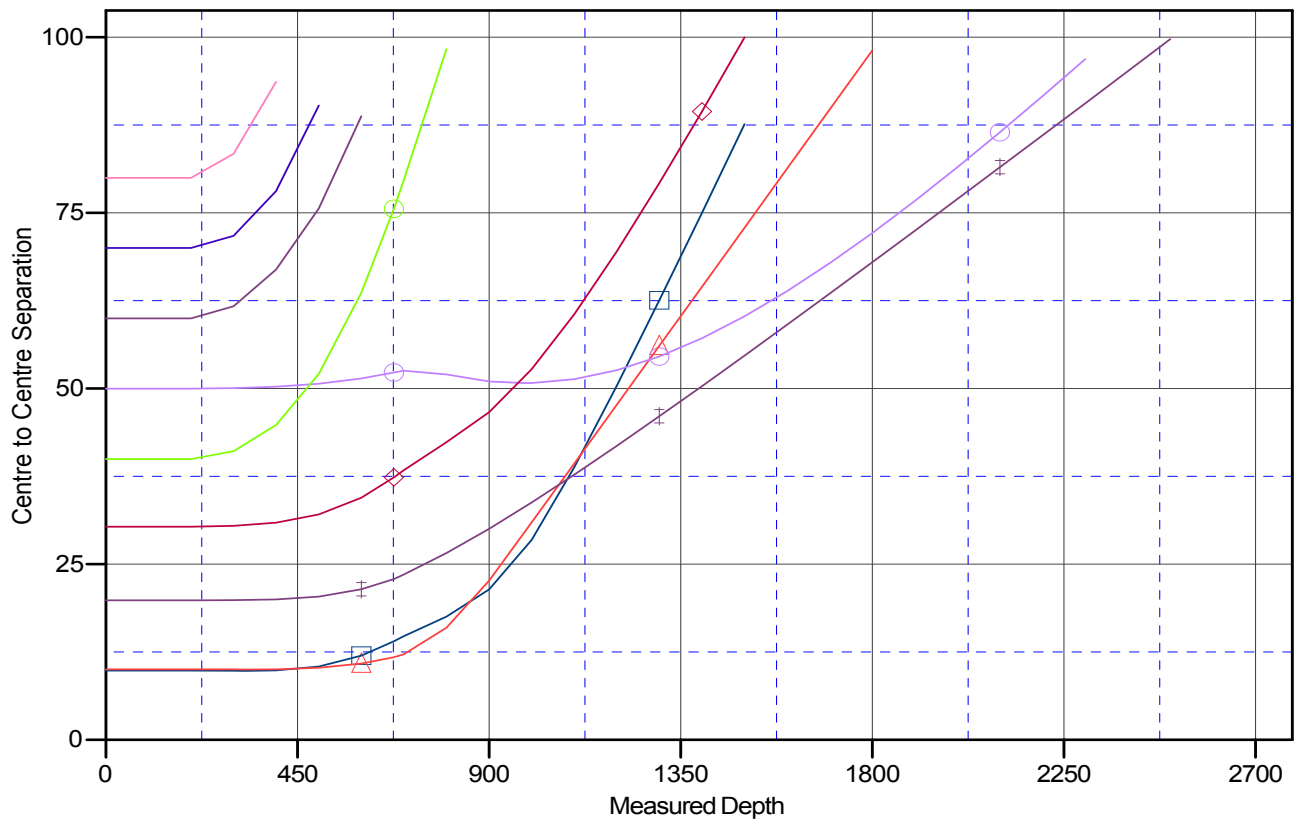
Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Well LR12B M15 595
Project:	Garfield County	TVD Reference:	KBE @ 8362.0ft (Original Well Elev)
Reference Site:	M15 595	MD Reference:	KBE @ 8362.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	LR12B M15 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 @ 8362.0ft (Original Well Elev)
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000 °

Coordinates are relative to: LR12B M15 595
Coordinate System is US State Plane 1983, Colorado Central Zone
Grid Convergence at Surface is: -1.61°

Ladder Plot



LEGEND

- ✕ LR01B M15 595, DD, Plan #1 V0
- ◻ LR04AM15 595, DD, Plan #1 V0
- ◻ LR05B M15 595, DD, Plan #1 V0
- ◻ LR05C M15 595, DD, Plan #1 V0
- ◯ LR08D M15 595, DD, Plan #1 V0
- ◊ LR12AM15 595, DD, Plan #1 V0
- ✕ LR12C M15 595, DD, Plan #1 V0
- ◯ LR12D M15 595, DD, Plan #1 V0
- ✕ LR13AM15 595, DD, Plan #1 V0