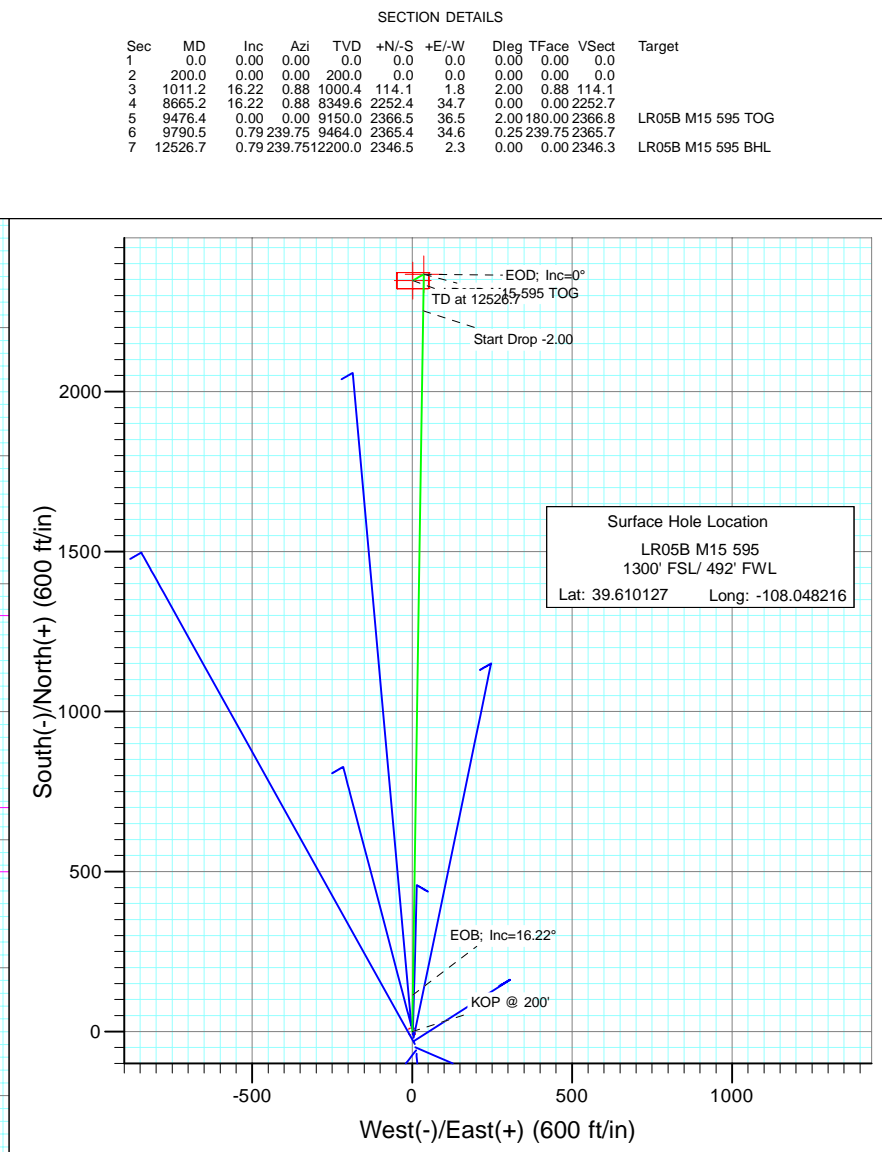
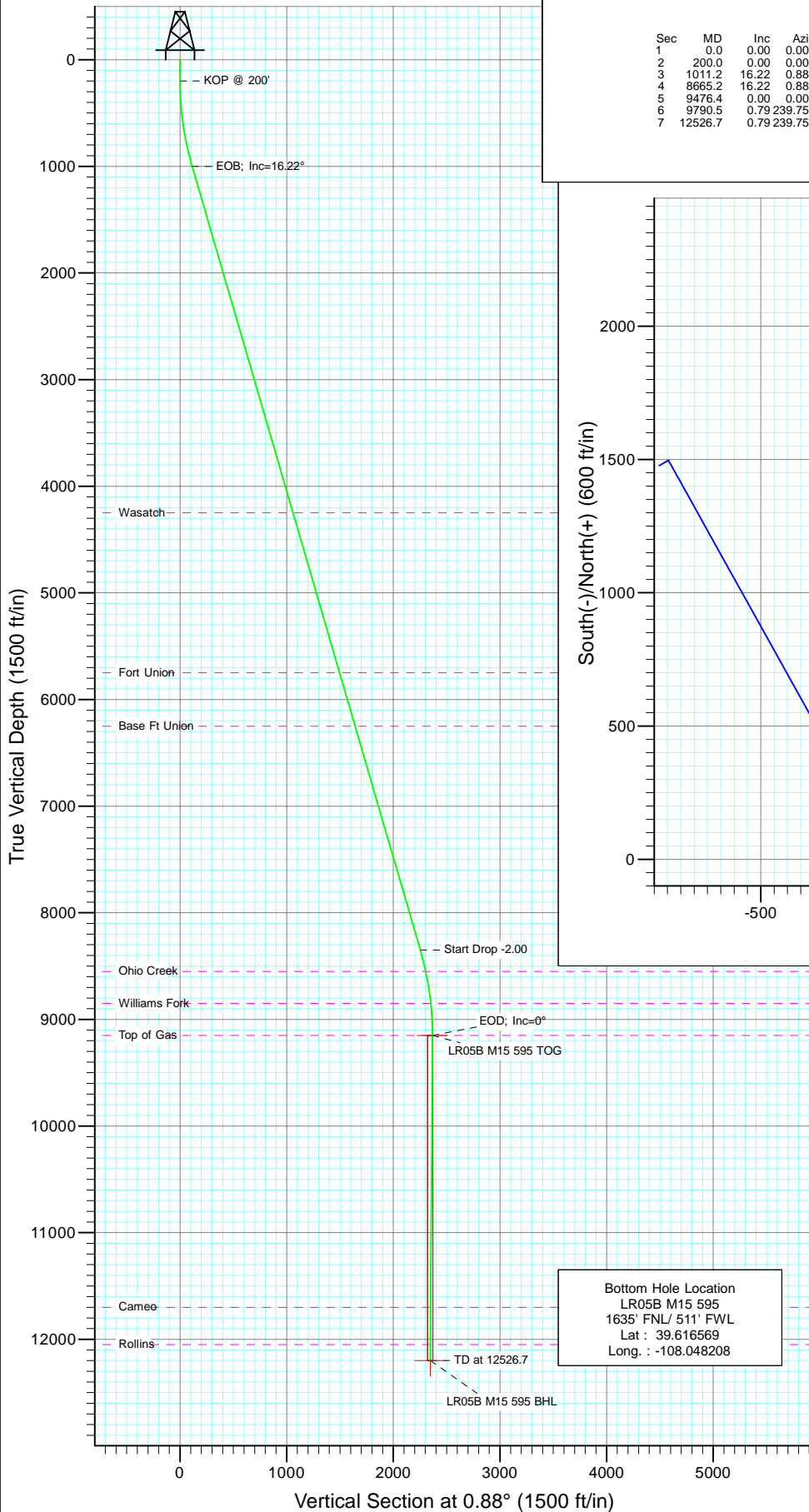




Project: Garfield County  
Site: M15 595  
Well: LR05B M15 595  
Wellbore: DD  
Design: Plan #1



Asimuths 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
4250.0	4395.6	Wasatch
5750.0	5957.8	Fort Union
6250.0	6478.6	Base Ft Union
8550.0	8872.0	Ohio Creek
8850.0	9175.9	Williams Fork
9150.0	9476.4	Top of Gas
11700.0	12026.7	Cameo
12050.0	12376.7	Rollins

DESIGN DETAILS: Plan #1

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

Target	Azimuth	Origin	N/S	E/W	From TVD
No Target (Freehand)	0.88	Slot	0.0	0.0	0.0

# Cathedral Energy Services

## Planning Report

<b>Database:</b>	EDM 5000.1 US Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well LR05B M15 595
<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>TVD Reference:</b>	KBE @ 8362.0ft (Original Well Elev)
<b>Project:</b>	Garfield County	<b>MD Reference:</b>	KBE @ 8362.0ft (Original Well Elev)
<b>Site:</b>	M15 595	<b>North Reference:</b>	True
<b>Well:</b>	LR05B M15 595	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	DD		
<b>Design:</b>	Plan #1		

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

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	LR05B M15 595					
Well Position	+N/-S	0.0 ft	Northing:	1,657,188.84 ft	Latitude:	39.610127
	+E/-W	0.0 ft	Easting:	2,282,156.99 ft	Longitude:	-108.048216
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	8,347.0 ft

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

<b>Design</b>	Plan #1			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PLAN	<b>Tie On Depth:</b>	0.0
<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>
	0.0	0.0	0.0	0.88

<b>Plan Sections</b>										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
200.0	0.00	0.00	200.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,011.2	16.22	0.88	1,000.4	114.1	1.8	2.00	2.00	0.00	0.88	
8,665.2	16.22	0.88	8,349.6	2,252.4	34.7	0.00	0.00	0.00	0.00	
9,476.4	0.00	0.00	9,150.0	2,366.5	36.5	2.00	-2.00	0.00	180.00	LR05B M15 595 TOG
9,790.5	0.79	239.75	9,464.0	2,365.4	34.6	0.25	0.25	-38.29	239.75	
12,526.7	0.79	239.75	12,200.0	2,346.5	2.3	0.00	0.00	0.00	0.00	LR05B M15 595 BHL

# Cathedral Energy Services

## Planning Report

<b>Database:</b>	EDM 5000.1 US Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well LR05B M15 595
<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>TVD Reference:</b>	KBE @ 8362.0ft (Original Well Elev)
<b>Project:</b>	Garfield County	<b>MD Reference:</b>	KBE @ 8362.0ft (Original Well Elev)
<b>Site:</b>	M15 595	<b>North Reference:</b>	True
<b>Well:</b>	LR05B M15 595	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	DD		
<b>Design:</b>	Plan #1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	
30.0	0.00	0.00	30.0	0.0	0.0	0.0	0.00	0.00	
60.0	0.00	0.00	60.0	0.0	0.0	0.0	0.00	0.00	
90.0	0.00	0.00	90.0	0.0	0.0	0.0	0.00	0.00	
120.0	0.00	0.00	120.0	0.0	0.0	0.0	0.00	0.00	
150.0	0.00	0.00	150.0	0.0	0.0	0.0	0.00	0.00	
180.0	0.00	0.00	180.0	0.0	0.0	0.0	0.00	0.00	
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	KOP @ 200'
210.0	0.20	0.88	210.0	0.0	0.0	0.0	2.00	2.00	
240.0	0.80	0.88	240.0	0.3	0.0	0.3	2.00	2.00	
270.0	1.40	0.88	270.0	0.9	0.0	0.9	2.00	2.00	
300.0	2.00	0.88	300.0	1.7	0.0	1.7	2.00	2.00	
330.0	2.60	0.88	330.0	2.9	0.0	2.9	2.00	2.00	
360.0	3.20	0.88	359.9	4.5	0.1	4.5	2.00	2.00	
390.0	3.80	0.88	389.9	6.3	0.1	6.3	2.00	2.00	
420.0	4.40	0.88	419.8	8.4	0.1	8.4	2.00	2.00	
450.0	5.00	0.88	449.7	10.9	0.2	10.9	2.00	2.00	
480.0	5.60	0.88	479.6	13.7	0.2	13.7	2.00	2.00	
510.0	6.20	0.88	509.4	16.8	0.3	16.8	2.00	2.00	
540.0	6.80	0.88	539.2	20.1	0.3	20.2	2.00	2.00	
570.0	7.40	0.88	569.0	23.9	0.4	23.9	2.00	2.00	
600.0	8.00	0.88	598.7	27.9	0.4	27.9	2.00	2.00	
630.0	8.60	0.88	628.4	32.2	0.5	32.2	2.00	2.00	
660.0	9.20	0.88	658.0	36.8	0.6	36.9	2.00	2.00	
690.0	9.80	0.88	687.6	41.8	0.6	41.8	2.00	2.00	
720.0	10.40	0.88	717.1	47.1	0.7	47.1	2.00	2.00	
750.0	11.00	0.88	746.6	52.6	0.8	52.6	2.00	2.00	
780.0	11.60	0.88	776.0	58.5	0.9	58.5	2.00	2.00	
810.0	12.20	0.88	805.4	64.7	1.0	64.7	2.00	2.00	
840.0	12.80	0.88	834.7	71.2	1.1	71.2	2.00	2.00	
870.0	13.40	0.88	863.9	78.0	1.2	78.0	2.00	2.00	
900.0	14.00	0.88	893.1	85.1	1.3	85.1	2.00	2.00	
930.0	14.60	0.88	922.1	92.5	1.4	92.5	2.00	2.00	
960.0	15.20	0.88	951.1	100.2	1.5	100.2	2.00	2.00	
990.0	15.80	0.88	980.0	108.2	1.7	108.2	2.00	2.00	
1,011.2	16.22	0.88	1,000.4	114.1	1.8	114.1	2.00	2.00	EOB; Inc=16.22°
1,020.0	16.22	0.88	1,008.9	116.5	1.8	116.5	0.00	0.00	
1,050.0	16.22	0.88	1,037.7	124.9	1.9	124.9	0.00	0.00	
1,080.0	16.22	0.88	1,066.5	133.3	2.1	133.3	0.00	0.00	
1,110.0	16.22	0.88	1,095.3	141.7	2.2	141.7	0.00	0.00	
1,140.0	16.22	0.88	1,124.1	150.1	2.3	150.1	0.00	0.00	
1,170.0	16.22	0.88	1,152.9	158.4	2.4	158.5	0.00	0.00	
1,200.0	16.22	0.88	1,181.7	166.8	2.6	166.8	0.00	0.00	
1,230.0	16.22	0.88	1,210.5	175.2	2.7	175.2	0.00	0.00	
1,260.0	16.22	0.88	1,239.3	183.6	2.8	183.6	0.00	0.00	
1,290.0	16.22	0.88	1,268.1	192.0	3.0	192.0	0.00	0.00	
1,320.0	16.22	0.88	1,296.9	200.3	3.1	200.4	0.00	0.00	
1,350.0	16.22	0.88	1,325.7	208.7	3.2	208.7	0.00	0.00	
1,380.0	16.22	0.88	1,354.5	217.1	3.3	217.1	0.00	0.00	
1,410.0	16.22	0.88	1,383.3	225.5	3.5	225.5	0.00	0.00	
1,440.0	16.22	0.88	1,412.1	233.9	3.6	233.9	0.00	0.00	
1,470.0	16.22	0.88	1,440.9	242.2	3.7	242.3	0.00	0.00	

# Cathedral Energy Services

## Planning Report

<b>Database:</b>	EDM 5000.1 US Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well LR05B M15 595
<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>TVD Reference:</b>	KBE @ 8362.0ft (Original Well Elev)
<b>Project:</b>	Garfield County	<b>MD Reference:</b>	KBE @ 8362.0ft (Original Well Elev)
<b>Site:</b>	M15 595	<b>North Reference:</b>	True
<b>Well:</b>	LR05B M15 595	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	DD		
<b>Design:</b>	Plan #1		

### Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
1,500.0	16.22	0.88	1,469.7	250.6	3.9	250.7	0.00	0.00	
1,530.0	16.22	0.88	1,498.5	259.0	4.0	259.0	0.00	0.00	
1,560.0	16.22	0.88	1,527.3	267.4	4.1	267.4	0.00	0.00	
1,590.0	16.22	0.88	1,556.2	275.8	4.3	275.8	0.00	0.00	
1,620.0	16.22	0.88	1,585.0	284.2	4.4	284.2	0.00	0.00	
1,650.0	16.22	0.88	1,613.8	292.5	4.5	292.6	0.00	0.00	
1,680.0	16.22	0.88	1,642.6	300.9	4.6	301.0	0.00	0.00	
1,710.0	16.22	0.88	1,671.4	309.3	4.8	309.3	0.00	0.00	
1,740.0	16.22	0.88	1,700.2	317.7	4.9	317.7	0.00	0.00	
1,770.0	16.22	0.88	1,729.0	326.1	5.0	326.1	0.00	0.00	
1,800.0	16.22	0.88	1,757.8	334.4	5.2	334.5	0.00	0.00	
1,830.0	16.22	0.88	1,786.6	342.8	5.3	342.9	0.00	0.00	
1,860.0	16.22	0.88	1,815.4	351.2	5.4	351.2	0.00	0.00	
1,890.0	16.22	0.88	1,844.2	359.6	5.5	359.6	0.00	0.00	
1,920.0	16.22	0.88	1,873.0	368.0	5.7	368.0	0.00	0.00	
1,950.0	16.22	0.88	1,901.8	376.4	5.8	376.4	0.00	0.00	
1,980.0	16.22	0.88	1,930.6	384.7	5.9	384.8	0.00	0.00	
2,010.0	16.22	0.88	1,959.4	393.1	6.1	393.2	0.00	0.00	
2,040.0	16.22	0.88	1,988.2	401.5	6.2	401.5	0.00	0.00	
2,070.0	16.22	0.88	2,017.0	409.9	6.3	409.9	0.00	0.00	
2,100.0	16.22	0.88	2,045.8	418.3	6.5	418.3	0.00	0.00	
2,130.0	16.22	0.88	2,074.6	426.6	6.6	426.7	0.00	0.00	
2,160.0	16.22	0.88	2,103.4	435.0	6.7	435.1	0.00	0.00	
2,190.0	16.22	0.88	2,132.3	443.4	6.8	443.5	0.00	0.00	
2,220.0	16.22	0.88	2,161.1	451.8	7.0	451.8	0.00	0.00	
2,250.0	16.22	0.88	2,189.9	460.2	7.1	460.2	0.00	0.00	
2,280.0	16.22	0.88	2,218.7	468.5	7.2	468.6	0.00	0.00	
2,310.0	16.22	0.88	2,247.5	476.9	7.4	477.0	0.00	0.00	
2,340.0	16.22	0.88	2,276.3	485.3	7.5	485.4	0.00	0.00	
2,370.0	16.22	0.88	2,305.1	493.7	7.6	493.7	0.00	0.00	
2,400.0	16.22	0.88	2,333.9	502.1	7.7	502.1	0.00	0.00	
2,430.0	16.22	0.88	2,362.7	510.5	7.9	510.5	0.00	0.00	
2,460.0	16.22	0.88	2,391.5	518.8	8.0	518.9	0.00	0.00	
2,490.0	16.22	0.88	2,420.3	527.2	8.1	527.3	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									
LR05B M15 595 BHL	0.00	0.00	12,200.0	2,346.5	2.3	1,659,534.38	2,282,225.05	39.616569	-108.048208
- plan misses target center by 9947.5ft at 2490.0ft MD (2420.3 TVD, 527.2 N, 8.1 E)									
- Rectangle (sides W50.0 H100.0 D0.0)									
LR05B M15 595 TOG	0.00	0.00	9,150.0	2,366.5	36.5	1,659,553.38	2,282,259.84	39.616624	-108.048086
- plan misses target center by 6976.6ft at 2490.0ft MD (2420.3 TVD, 527.2 N, 8.1 E)									
- Point									

# Cathedral Energy Services

## Planning Report

<b>Database:</b>	EDM 5000.1 US Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well LR05B M15 595
<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>TVD Reference:</b>	KBE @ 8362.0ft (Original Well Elev)
<b>Project:</b>	Garfield County	<b>MD Reference:</b>	KBE @ 8362.0ft (Original Well Elev)
<b>Site:</b>	M15 595	<b>North Reference:</b>	True
<b>Well:</b>	LR05B M15 595	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	DD		
<b>Design:</b>	Plan #1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
2,500.0	16.22	0.88	2,429.9	530.0	8.2	530.1	0.00	0.00	
2,600.0	16.22	0.88	2,525.9	557.9	8.6	558.0	0.00	0.00	
2,700.0	16.22	0.88	2,621.9	585.9	9.0	586.0	0.00	0.00	
2,800.0	16.22	0.88	2,718.0	613.8	9.5	613.9	0.00	0.00	
2,900.0	16.22	0.88	2,814.0	641.8	9.9	641.8	0.00	0.00	
3,000.0	16.22	0.88	2,910.0	669.7	10.3	669.8	0.00	0.00	
3,100.0	16.22	0.88	3,006.0	697.6	10.8	697.7	0.00	0.00	
3,200.0	16.22	0.88	3,102.0	725.6	11.2	725.7	0.00	0.00	
3,300.0	16.22	0.88	3,198.0	753.5	11.6	753.6	0.00	0.00	
3,400.0	16.22	0.88	3,294.1	781.4	12.1	781.5	0.00	0.00	
3,500.0	16.22	0.88	3,390.1	809.4	12.5	809.5	0.00	0.00	
3,600.0	16.22	0.88	3,486.1	837.3	12.9	837.4	0.00	0.00	
3,700.0	16.22	0.88	3,582.1	865.3	13.3	865.4	0.00	0.00	
3,800.0	16.22	0.88	3,678.1	893.2	13.8	893.3	0.00	0.00	
3,900.0	16.22	0.88	3,774.1	921.1	14.2	921.2	0.00	0.00	
4,000.0	16.22	0.88	3,870.2	949.1	14.6	949.2	0.00	0.00	
4,100.0	16.22	0.88	3,966.2	977.0	15.1	977.1	0.00	0.00	
4,200.0	16.22	0.88	4,062.2	1,004.9	15.5	1,005.1	0.00	0.00	
4,300.0	16.22	0.88	4,158.2	1,032.9	15.9	1,033.0	0.00	0.00	
4,395.6	16.22	0.88	4,250.0	1,059.6	16.3	1,059.7	0.00	0.00	Wasatch
4,400.0	16.22	0.88	4,254.2	1,060.8	16.4	1,060.9	0.00	0.00	
4,500.0	16.22	0.88	4,350.3	1,088.8	16.8	1,088.9	0.00	0.00	
4,600.0	16.22	0.88	4,446.3	1,116.7	17.2	1,116.8	0.00	0.00	
4,700.0	16.22	0.88	4,542.3	1,144.6	17.7	1,144.8	0.00	0.00	
4,800.0	16.22	0.88	4,638.3	1,172.6	18.1	1,172.7	0.00	0.00	
4,900.0	16.22	0.88	4,734.3	1,200.5	18.5	1,200.7	0.00	0.00	
5,000.0	16.22	0.88	4,830.3	1,228.4	18.9	1,228.6	0.00	0.00	
5,100.0	16.22	0.88	4,926.4	1,256.4	19.4	1,256.5	0.00	0.00	
5,200.0	16.22	0.88	5,022.4	1,284.3	19.8	1,284.5	0.00	0.00	
5,300.0	16.22	0.88	5,118.4	1,312.3	20.2	1,312.4	0.00	0.00	
5,400.0	16.22	0.88	5,214.4	1,340.2	20.7	1,340.4	0.00	0.00	
5,500.0	16.22	0.88	5,310.4	1,368.1	21.1	1,368.3	0.00	0.00	
5,600.0	16.22	0.88	5,406.4	1,396.1	21.5	1,396.2	0.00	0.00	
5,700.0	16.22	0.88	5,502.5	1,424.0	22.0	1,424.2	0.00	0.00	
5,800.0	16.22	0.88	5,598.5	1,451.9	22.4	1,452.1	0.00	0.00	
5,900.0	16.22	0.88	5,694.5	1,479.9	22.8	1,480.1	0.00	0.00	
5,957.8	16.22	0.88	5,750.0	1,496.0	23.1	1,496.2	0.00	0.00	Fort Union
6,000.0	16.22	0.88	5,790.5	1,507.8	23.3	1,508.0	0.00	0.00	
6,100.0	16.22	0.88	5,886.5	1,535.8	23.7	1,535.9	0.00	0.00	
6,200.0	16.22	0.88	5,982.5	1,563.7	24.1	1,563.9	0.00	0.00	
6,300.0	16.22	0.88	6,078.6	1,591.6	24.5	1,591.8	0.00	0.00	
6,400.0	16.22	0.88	6,174.6	1,619.6	25.0	1,619.8	0.00	0.00	
6,478.6	16.22	0.88	6,250.0	1,641.5	25.3	1,641.7	0.00	0.00	Base Ft Union
6,500.0	16.22	0.88	6,270.6	1,647.5	25.4	1,647.7	0.00	0.00	
6,600.0	16.22	0.88	6,366.6	1,675.4	25.8	1,675.6	0.00	0.00	
6,700.0	16.22	0.88	6,462.6	1,703.4	26.3	1,703.6	0.00	0.00	
6,800.0	16.22	0.88	6,558.6	1,731.3	26.7	1,731.5	0.00	0.00	
6,900.0	16.22	0.88	6,654.7	1,759.3	27.1	1,759.5	0.00	0.00	
7,000.0	16.22	0.88	6,750.7	1,787.2	27.6	1,787.4	0.00	0.00	
7,100.0	16.22	0.88	6,846.7	1,815.1	28.0	1,815.4	0.00	0.00	
7,200.0	16.22	0.88	6,942.7	1,843.1	28.4	1,843.3	0.00	0.00	
7,300.0	16.22	0.88	7,038.7	1,871.0	28.9	1,871.2	0.00	0.00	

# Cathedral Energy Services

## Planning Report

<b>Database:</b>	EDM 5000.1 US Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well LR05B M15 595
<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>TVD Reference:</b>	KBE @ 8362.0ft (Original Well Elev)
<b>Project:</b>	Garfield County	<b>MD Reference:</b>	KBE @ 8362.0ft (Original Well Elev)
<b>Site:</b>	M15 595	<b>North Reference:</b>	True
<b>Well:</b>	LR05B M15 595	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	DD		
<b>Design:</b>	Plan #1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
7,400.0	16.22	0.88	7,134.8	1,899.0	29.3	1,899.2	0.00	0.00	
7,500.0	16.22	0.88	7,230.8	1,926.9	29.7	1,927.1	0.00	0.00	
7,600.0	16.22	0.88	7,326.8	1,954.8	30.2	1,955.1	0.00	0.00	
7,700.0	16.22	0.88	7,422.8	1,982.8	30.6	1,983.0	0.00	0.00	
7,800.0	16.22	0.88	7,518.8	2,010.7	31.0	2,010.9	0.00	0.00	
7,900.0	16.22	0.88	7,614.8	2,038.6	31.4	2,038.9	0.00	0.00	
8,000.0	16.22	0.88	7,710.9	2,066.6	31.9	2,066.8	0.00	0.00	
8,100.0	16.22	0.88	7,806.9	2,094.5	32.3	2,094.8	0.00	0.00	
8,200.0	16.22	0.88	7,902.9	2,122.5	32.7	2,122.7	0.00	0.00	
8,300.0	16.22	0.88	7,998.9	2,150.4	33.2	2,150.6	0.00	0.00	
8,400.0	16.22	0.88	8,094.9	2,178.3	33.6	2,178.6	0.00	0.00	
8,500.0	16.22	0.88	8,190.9	2,206.3	34.0	2,206.5	0.00	0.00	
8,600.0	16.22	0.88	8,287.0	2,234.2	34.5	2,234.5	0.00	0.00	
8,665.2	16.22	0.88	8,349.6	2,252.4	34.7	2,252.7	0.00	0.00	Start Drop -2.00
8,700.0	15.53	0.88	8,383.0	2,261.9	34.9	2,262.2	2.00	-2.00	
8,800.0	13.53	0.88	8,479.8	2,287.0	35.3	2,287.3	2.00	-2.00	
8,872.0	12.09	0.88	8,550.0	2,303.0	35.5	2,303.2	2.00	-2.00	Ohio Creek
8,900.0	11.53	0.88	8,577.4	2,308.7	35.6	2,309.0	2.00	-2.00	
9,000.0	9.53	0.88	8,675.8	2,327.0	35.9	2,327.3	2.00	-2.00	
9,100.0	7.53	0.88	8,774.6	2,341.8	36.1	2,342.1	2.00	-2.00	
9,175.9	6.01	0.88	8,850.0	2,350.8	36.3	2,351.0	2.00	-2.00	Williams Fork
9,200.0	5.53	0.88	8,874.0	2,353.2	36.3	2,353.5	2.00	-2.00	
9,300.0	3.53	0.88	8,973.7	2,361.1	36.4	2,361.3	2.00	-2.00	
9,400.0	1.53	0.88	9,073.6	2,365.5	36.5	2,365.8	2.00	-2.00	
9,476.4	0.00	0.00	9,150.0	2,366.5	36.5	2,366.8	2.00	-2.00	EOD; Inc=0° - Top of Gas - LR05B M15 595 TC
9,500.0	0.06	239.75	9,173.6	2,366.5	36.5	2,366.8	0.25	0.25	
9,600.0	0.31	239.75	9,273.6	2,366.3	36.2	2,366.6	0.25	0.25	
9,700.0	0.56	239.75	9,373.6	2,366.0	35.6	2,366.2	0.25	0.25	
9,790.5	0.79	239.75	9,464.0	2,365.4	34.6	2,365.7	0.25	0.25	
9,800.0	0.79	239.75	9,473.6	2,365.4	34.5	2,365.6	0.00	0.00	
9,900.0	0.79	239.75	9,573.5	2,364.7	33.3	2,364.9	0.00	0.00	
10,000.0	0.79	239.75	9,673.5	2,364.0	32.2	2,364.2	0.00	0.00	
10,100.0	0.79	239.75	9,773.5	2,363.3	31.0	2,363.5	0.00	0.00	
10,200.0	0.79	239.75	9,873.5	2,362.6	29.8	2,362.8	0.00	0.00	
10,300.0	0.79	239.75	9,973.5	2,361.9	28.6	2,362.1	0.00	0.00	
10,400.0	0.79	239.75	10,073.5	2,361.2	27.4	2,361.4	0.00	0.00	
10,500.0	0.79	239.75	10,173.5	2,360.5	26.2	2,360.6	0.00	0.00	
10,600.0	0.79	239.75	10,273.5	2,359.8	25.1	2,359.9	0.00	0.00	
10,700.0	0.79	239.75	10,373.5	2,359.1	23.9	2,359.2	0.00	0.00	
10,800.0	0.79	239.75	10,473.5	2,358.4	22.7	2,358.5	0.00	0.00	
10,900.0	0.79	239.75	10,573.4	2,357.8	21.5	2,357.8	0.00	0.00	
11,000.0	0.79	239.75	10,673.4	2,357.1	20.3	2,357.1	0.00	0.00	
11,100.0	0.79	239.75	10,773.4	2,356.4	19.1	2,356.4	0.00	0.00	
11,200.0	0.79	239.75	10,873.4	2,355.7	18.0	2,355.7	0.00	0.00	
11,300.0	0.79	239.75	10,973.4	2,355.0	16.8	2,355.0	0.00	0.00	
11,400.0	0.79	239.75	11,073.4	2,354.3	15.6	2,354.3	0.00	0.00	
11,500.0	0.79	239.75	11,173.4	2,353.6	14.4	2,353.6	0.00	0.00	
11,600.0	0.79	239.75	11,273.4	2,352.9	13.2	2,352.9	0.00	0.00	
11,700.0	0.79	239.75	11,373.4	2,352.2	12.0	2,352.1	0.00	0.00	
11,800.0	0.79	239.75	11,473.4	2,351.5	10.9	2,351.4	0.00	0.00	
11,900.0	0.79	239.75	11,573.4	2,350.9	9.7	2,350.7	0.00	0.00	
12,000.0	0.79	239.75	11,673.3	2,350.2	8.5	2,350.0	0.00	0.00	

# Cathedral Energy Services

## Planning Report

<b>Database:</b>	EDM 5000.1 US Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well LR05B M15 595
<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>TVD Reference:</b>	KBE @ 8362.0ft (Original Well Elev)
<b>Project:</b>	Garfield County	<b>MD Reference:</b>	KBE @ 8362.0ft (Original Well Elev)
<b>Site:</b>	M15 595	<b>North Reference:</b>	True
<b>Well:</b>	LR05B M15 595	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	DD		
<b>Design:</b>	Plan #1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
12,026.7	0.79	239.75	11,700.0	2,350.0	8.2	2,349.8	0.00	0.00	Cameo
12,100.0	0.79	239.75	11,773.3	2,349.5	7.3	2,349.3	0.00	0.00	
12,200.0	0.79	239.75	11,873.3	2,348.8	6.1	2,348.6	0.00	0.00	
12,300.0	0.79	239.75	11,973.3	2,348.1	4.9	2,347.9	0.00	0.00	
12,376.7	0.79	239.75	12,050.0	2,347.6	4.0	2,347.4	0.00	0.00	Rollins
12,400.0	0.79	239.75	12,073.3	2,347.4	3.8	2,347.2	0.00	0.00	
12,500.0	0.79	239.75	12,173.3	2,346.7	2.6	2,346.5	0.00	0.00	
12,526.7	0.79	239.75	12,200.0	2,346.5	2.3	2,346.3	0.00	0.00	TD at 12526.7 - LR05B M15 595 BHL

Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
- hit/miss target									
- Shape									
LR05B M15 595 BHL	0.00	0.00	12,200.0	2,346.5	2.3	1,659,534.38	2,282,225.05	39.616569	-108.048208
- plan hits target center									
- Rectangle (sides W50.0 H100.0 D0.0)									
LR05B M15 595 TOG	0.00	0.00	9,150.0	2,366.5	36.5	1,659,553.38	2,282,259.84	39.616624	-108.048086
- plan hits target center									
- Point									

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
4,395.6	4,250.0	Wasatch		0.00	
5,957.8	5,750.0	Fort Union		0.00	
6,478.6	6,250.0	Base Ft Union		0.00	
8,872.0	8,550.0	Ohio Creek		0.00	
9,175.9	8,850.0	Williams Fork		0.00	
9,476.4	9,150.0	Top of Gas		0.00	
12,026.7	11,700.0	Cameo		0.00	
12,376.7	12,050.0	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'
1,011.2	1,000.4	114.1	1.8	EOB; Inc=16.22°
8,665.2	8,349.6	2,252.4	34.7	Start Drop -2.00
9,476.4	9,150.0	2,366.5	36.5	EOD; Inc=0°
12,526.7	12,200.0	2,365.4	34.6	TD at 12526.7

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

**Garfield County**

**M15 595**

**LR05B M15 595**

**DD**

**Plan #1**

## **Anticollision Report**

**30 June, 2010**



# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>Local Co-ordinate Reference:</b>	Well LR05B M15 595
<b>Project:</b>	Garfield County	<b>TVD Reference:</b>	KBE @ 8362.0ft (Original Well Elev)
<b>Reference Site:</b>	M15 595	<b>MD Reference:</b>	KBE @ 8362.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	LR05B M15 595	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	DD	<b>Database:</b>	EDM 5000.1 US Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

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

Survey Tool Program		Date	6/30/2010		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
0.0	12,526.7	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						
M15 595						
LR01B M15 595 - DD - Plan #1	200.0	200.0	60.2	59.6	93.283	CC, ES
LR01B M15 595 - DD - Plan #1	500.0	495.6	80.5	78.8	47.610	SF
LR04A M15 595 - DD - Plan #1	200.0	200.0	70.2	69.6	108.729	CC, ES
LR04A M15 595 - DD - Plan #1	400.0	394.3	83.8	82.5	62.852	SF
LR05C M15 595 - DD - Plan #1	200.0	200.0	19.8	19.2	30.718	CC
LR05C M15 595 - DD - Plan #1	1,300.0	1,294.7	22.2	14.1	2.740	ES
LR05C M15 595 - DD - Plan #1	1,400.0	1,394.6	24.3	15.1	2.632	SF
LR08D M15 595 - DD - Plan #1	200.0	200.0	40.2	39.6	62.309	CC, ES
LR08D M15 595 - DD - Plan #1	1,100.0	1,106.0	97.6	92.9	20.539	SF
LR12A M15 595 - DD - Plan #1	200.0	200.0	20.6	20.0	31.898	CC
LR12A M15 595 - DD - Plan #1	400.0	401.3	21.0	19.7	15.548	ES
LR12A M15 595 - DD - Plan #1	1,000.0	1,004.0	34.7	29.9	7.158	SF
LR12B M15 595 - DD - Plan #1	325.8	325.4	9.8	8.7	9.061	CC
LR12B M15 595 - DD - Plan #1	400.0	399.3	9.9	8.5	7.362	ES
LR12B M15 595 - DD - Plan #1	900.0	897.7	21.3	16.9	4.847	SF
LR12C M15 595 - DD - Plan #1	644.6	646.1	10.1	7.8	4.513	CC
LR12C M15 595 - DD - Plan #1	700.0	701.6	10.3	7.8	4.204	ES, SF
LR12D M15 595 - DD - Plan #1	200.0	200.0	30.2	29.6	46.778	CC, ES
LR12D M15 595 - DD - Plan #1	500.0	499.5	45.6	43.9	27.007	SF
LR13A M15 595 - DD - Plan #1	200.0	200.0	50.2	49.6	77.757	CC, ES
LR13A M15 595 - DD - Plan #1	600.0	597.3	78.5	76.5	38.611	SF

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>Local Co-ordinate Reference:</b>	Well LR05B M15 595
<b>Project:</b>	Garfield County	<b>TVD Reference:</b>	KBE @ 8362.0ft (Original Well Elev)
<b>Reference Site:</b>	M15 595	<b>MD Reference:</b>	KBE @ 8362.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	LR05B M15 595	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	DD	<b>Database:</b>	EDM 5000.1 US Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													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										
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Total Uncertainty	Separation	Warning				
(ft)	(ft)	(ft)	(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	168.40	-59.0	12.1	60.2								
100.0	100.0	100.0	100.0	0.1	0.1	168.40	-59.0	12.1	60.2	59.9	0.30	203.029					
200.0	200.0	200.0	200.0	0.3	0.3	168.40	-59.0	12.1	60.2	59.6	0.65	93.283 CC, ES					
300.0	300.0	300.0	300.0	0.5	0.5	167.86	-59.0	12.1	61.9	61.0	0.99	62.280					
400.0	399.8	398.3	398.2	0.7	0.7	169.81	-60.3	11.1	68.2	66.9	1.34	50.866					
500.0	499.5	495.6	495.4	0.9	0.9	173.48	-64.3	8.0	80.5	78.8	1.69	47.610 SF					
600.0	598.7	591.4	590.9	1.2	1.1	177.53	-70.7	3.1	99.0	96.9	2.04	48.498					

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>Local Co-ordinate Reference:</b>	Well LR05B M15 595
<b>Project:</b>	Garfield County	<b>TVD Reference:</b>	KBE @ 8362.0ft (Original Well Elev)
<b>Reference Site:</b>	M15 595	<b>MD Reference:</b>	KBE @ 8362.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	LR05B M15 595	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	DD	<b>Database:</b>	EDM 5000.1 US Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

<b>Offset Design</b> M15 595 - LR04A M15 595 - DD - Plan #1													<b>Offset Site Error:</b>	0.0 ft
Survey Program: 0-MWD													<b>Offset Well Error:</b>	0.0 ft
Reference		Offset		Semi Major Axis			Distance							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning	
0.0	0.0	0.0	0.0	0.0	0.0	168.66	-68.8	13.8	70.2					
100.0	100.0	100.0	100.0	0.1	0.1	168.66	-68.8	13.8	70.2	69.9	0.30	236.646		
200.0	200.0	200.0	200.0	0.3	0.3	168.66	-68.8	13.8	70.2	69.6	0.65	108.729 CC, ES		
300.0	300.0	297.5	297.5	0.5	0.5	168.22	-70.5	13.9	73.6	72.6	0.99	74.327		
400.0	399.8	394.3	394.2	0.7	0.7	169.31	-75.4	14.2	83.8	82.5	1.33	62.852 SF		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>Local Co-ordinate Reference:</b>	Well LR05B M15 595
<b>Project:</b>	Garfield County	<b>TVD Reference:</b>	KBE @ 8362.0ft (Original Well Elev)
<b>Reference Site:</b>	M15 595	<b>MD Reference:</b>	KBE @ 8362.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	LR05B M15 595	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	DD	<b>Database:</b>	EDM 5000.1 US Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design 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				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	-7.34	19.7	-2.5	19.8					
100.0	100.0	100.0	100.0	0.1	0.1	-7.34	19.7	-2.5	19.8	19.5	0.30	66.857		
200.0	200.0	200.0	200.0	0.3	0.3	-7.34	19.7	-2.5	19.8	19.2	0.65	30.718 CC		
300.0	300.0	299.3	299.3	0.5	0.5	-8.75	21.4	-2.7	19.8	18.8	0.99	19.973		
400.0	399.8	398.6	398.5	0.7	0.7	-10.33	26.5	-3.2	19.9	18.5	1.34	14.814		
500.0	499.5	497.9	497.4	0.9	0.9	-12.93	35.1	-3.9	19.9	18.3	1.69	11.791		
600.0	598.7	597.2	596.0	1.2	1.2	-16.53	47.1	-5.0	20.1	18.1	2.05	9.803		
700.0	697.5	696.5	694.1	1.5	1.5	-21.03	62.4	-6.4	20.5	18.0	2.44	8.373		
800.0	795.6	795.8	791.5	1.9	1.9	-26.28	81.2	-8.1	21.0	18.1	2.90	7.250		
900.0	893.1	895.1	888.3	2.3	2.3	-32.05	103.3	-10.1	22.0	18.5	3.48	6.306		
1,000.0	989.6	995.0	985.3	2.8	2.7	-40.39	127.3	-12.2	21.9	17.6	4.30	5.096		
1,011.2	1,000.4	1,006.3	996.2	2.8	2.8	-41.70	130.0	-12.5	21.7	17.3	4.41	4.927		
1,100.0	1,085.7	1,094.9	1,082.2	3.3	3.1	-52.92	151.3	-14.4	20.9	15.5	5.48	3.823		
1,139.3	1,123.4	1,134.2	1,120.3	3.5	3.3	-58.08	160.7	-15.2	20.9	14.9	6.00	3.477		
1,200.0	1,181.7	1,194.8	1,179.2	3.8	3.6	-66.00	175.3	-16.5	21.1	14.2	6.82	3.088		
1,300.0	1,277.7	1,294.7	1,276.1	4.3	4.0	-78.31	199.3	-18.7	22.2	14.1	8.12	2.740 ES		
1,400.0	1,373.7	1,394.6	1,373.0	4.8	4.5	-88.96	223.3	-20.9	24.3	15.1	9.24	2.632 SF		
1,500.0	1,469.7	1,494.5	1,470.0	5.3	4.9	-97.68	247.3	-23.0	27.1	16.9	10.18	2.660		
1,600.0	1,565.8	1,594.4	1,566.9	5.8	5.4	-104.66	271.3	-25.2	30.4	19.4	10.99	2.764		
1,700.0	1,661.8	1,694.2	1,663.8	6.3	5.8	-110.21	295.4	-27.3	34.0	22.3	11.71	2.906		
1,800.0	1,757.8	1,794.1	1,760.7	6.8	6.3	-114.66	319.4	-29.5	37.9	25.5	12.37	3.065		
1,900.0	1,853.8	1,894.0	1,857.7	7.3	6.7	-118.26	343.4	-31.7	42.0	29.0	13.00	3.231		
2,000.0	1,949.8	1,993.9	1,954.6	7.9	7.2	-121.22	367.4	-33.8	46.2	32.6	13.61	3.395		
2,100.0	2,045.8	2,093.8	2,051.5	8.4	7.6	-123.67	391.4	-36.0	50.5	36.3	14.22	3.555		
2,200.0	2,141.9	2,193.7	2,148.5	8.9	8.1	-125.74	415.4	-38.2	54.9	40.1	14.82	3.708		
2,300.0	2,237.9	2,293.6	2,245.4	9.4	8.5	-127.49	439.4	-40.3	59.4	44.0	15.41	3.854		
2,400.0	2,333.9	2,393.4	2,342.3	9.9	9.0	-129.00	463.4	-42.5	63.9	47.9	16.01	3.992		
2,500.0	2,429.9	2,493.3	2,439.3	10.4	9.5	-130.31	487.5	-44.6	68.5	51.9	16.61	4.123		
2,600.0	2,525.9	2,593.2	2,536.2	11.0	9.9	-131.46	511.5	-46.8	73.0	55.8	17.20	4.246		
2,700.0	2,621.9	2,693.1	2,633.1	11.5	10.4	-132.47	535.5	-49.0	77.6	59.8	17.80	4.361		
2,800.0	2,718.0	2,793.0	2,730.1	12.0	10.8	-133.37	559.5	-51.1	82.3	63.9	18.40	4.471		
2,900.0	2,814.0	2,892.9	2,827.0	12.5	11.3	-134.17	583.5	-53.3	86.9	67.9	19.00	4.573		
3,000.0	2,910.0	2,992.7	2,923.9	13.0	11.7	-134.89	607.5	-55.4	91.6	72.0	19.61	4.670		
3,100.0	3,006.0	3,092.6	3,020.9	13.5	12.2	-135.54	631.5	-57.6	96.2	76.0	20.21	4.762		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>Local Co-ordinate Reference:</b>	Well LR05B M15 595
<b>Project:</b>	Garfield County	<b>TVD Reference:</b>	KBE @ 8362.0ft (Original Well Elev)
<b>Reference Site:</b>	M15 595	<b>MD Reference:</b>	KBE @ 8362.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	LR05B M15 595	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	DD	<b>Database:</b>	EDM 5000.1 US Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design 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						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	167.87	-39.3	8.5	40.2				
100.0	100.0	100.0	100.0	0.1	0.1	167.87	-39.3	8.5	40.2	39.9	0.30	135.613	
200.0	200.0	200.0	200.0	0.3	0.3	167.87	-39.3	8.5	40.2	39.6	0.65	62.309	CC, ES
300.0	300.0	300.0	300.0	0.5	0.5	167.52	-39.3	8.5	41.9	40.9	0.99	42.166	
400.0	399.8	401.4	401.4	0.7	0.7	169.64	-37.8	7.6	45.4	44.0	1.35	33.730	
500.0	499.5	502.8	502.6	0.9	0.9	173.59	-33.1	5.0	49.1	47.4	1.70	28.908	
600.0	598.7	604.2	603.7	1.2	1.1	178.93	-25.2	0.6	53.3	51.3	2.06	25.924	
700.0	697.5	705.6	704.2	1.5	1.4	-174.83	-14.3	-5.5	58.5	56.1	2.44	23.959	
800.0	795.6	806.8	804.2	1.9	1.7	-168.18	-0.3	-13.3	65.0	62.1	2.89	22.500	
900.0	893.1	907.9	903.3	2.3	2.0	-161.55	16.8	-22.8	73.1	69.7	3.44	21.244	
1,000.0	989.6	1,007.0	1,000.3	2.8	2.4	-156.40	35.0	-32.9	84.2	80.1	4.07	20.665	
1,011.2	1,000.4	1,018.2	1,011.2	2.8	2.5	-155.96	37.0	-34.0	85.7	81.5	4.15	20.655	
1,100.0	1,085.7	1,106.0	1,097.0	3.3	2.8	-153.08	53.1	-43.0	97.6	92.9	4.75	20.539	SF

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>Local Co-ordinate Reference:</b>	Well LR05B M15 595
<b>Project:</b>	Garfield County	<b>TVD Reference:</b>	KBE @ 8362.0ft (Original Well Elev)
<b>Reference Site:</b>	M15 595	<b>MD Reference:</b>	KBE @ 8362.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	LR05B M15 595	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	DD	<b>Database:</b>	EDM 5000.1 US Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design 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	166.55	-20.0	4.8	20.6				
100.0	100.0	100.0	100.0	0.1	0.1	166.55	-20.0	4.8	20.6	20.3	0.30	69.424	
200.0	200.0	200.0	200.0	0.3	0.3	166.55	-20.0	4.8	20.6	20.0	0.65	31.898 CC	
300.0	300.0	300.7	300.6	0.5	0.5	164.79	-18.3	5.1	20.7	19.7	1.00	20.770	
400.0	399.8	401.3	401.1	0.7	0.7	162.22	-13.1	6.2	21.0	19.7	1.35	15.548 ES	
500.0	499.5	501.9	501.4	0.9	0.9	158.13	-4.5	8.0	21.7	20.0	1.73	12.554	
600.0	598.7	602.5	601.2	1.2	1.2	152.85	7.6	10.5	22.8	20.6	2.15	10.608	
700.0	697.5	703.1	700.5	1.5	1.5	146.81	23.1	13.7	24.4	21.8	2.65	9.213	
800.0	795.6	803.7	799.2	1.9	1.9	140.53	42.0	17.6	26.7	23.4	3.28	8.150	
900.0	893.1	904.1	897.0	2.3	2.3	134.50	64.3	22.2	29.8	25.7	4.05	7.348	
1,000.0	989.6	1,004.0	994.0	2.8	2.7	132.07	87.7	27.1	34.7	29.9	4.85	7.158 SF	
1,011.2	1,000.4	1,015.2	1,004.9	2.8	2.8	132.10	90.3	27.6	35.4	30.5	4.93	7.179	
1,100.0	1,085.7	1,103.8	1,090.9	3.3	3.2	132.54	111.1	31.9	41.1	35.5	5.59	7.348	
1,200.0	1,181.7	1,203.6	1,187.8	3.8	3.6	132.92	134.5	36.8	47.4	41.1	6.34	7.489	
1,300.0	1,277.7	1,303.4	1,284.7	4.3	4.1	133.20	157.9	41.6	53.8	46.7	7.09	7.595	
1,400.0	1,373.7	1,403.2	1,381.6	4.8	4.5	133.43	181.3	46.4	60.2	52.4	7.84	7.678	
1,500.0	1,469.7	1,503.0	1,478.5	5.3	5.0	133.61	204.7	51.3	66.6	58.0	8.60	7.744	
1,600.0	1,565.8	1,602.7	1,575.4	5.8	5.4	133.76	228.1	56.1	73.0	63.6	9.36	7.798	
1,700.0	1,661.8	1,702.5	1,672.2	6.3	5.8	133.89	251.5	61.0	79.4	69.2	10.12	7.842	
1,800.0	1,757.8	1,802.3	1,769.1	6.8	6.3	133.99	274.9	65.8	85.7	74.9	10.88	7.880	
1,900.0	1,853.8	1,902.1	1,866.0	7.3	6.7	134.09	298.3	70.6	92.1	80.5	11.64	7.912	
2,000.0	1,949.8	2,001.9	1,962.9	7.9	7.2	134.17	321.7	75.5	98.5	86.1	12.41	7.940	

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>Local Co-ordinate Reference:</b>	Well LR05B M15 595
<b>Project:</b>	Garfield County	<b>TVD Reference:</b>	KBE @ 8362.0ft (Original Well Elev)
<b>Reference Site:</b>	M15 595	<b>MD Reference:</b>	KBE @ 8362.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	LR05B M15 595	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	DD	<b>Database:</b>	EDM 5000.1 US Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design M15 595 - LR12B 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	-3.28	9.8	-0.6	9.9					
100.0	100.0	100.0	100.0	0.1	0.1	-3.28	9.8	-0.6	9.9	9.6	0.30	33.201		
200.0	200.0	200.0	200.0	0.3	0.3	-3.28	9.8	-0.6	9.9	9.2	0.65	15.255		
300.0	300.0	299.7	299.6	0.5	0.5	-6.91	11.5	-1.0	9.8	8.8	0.99	9.885		
325.8	325.8	325.4	325.3	0.6	0.6	-8.51	12.5	-1.3	9.8	8.7	1.08	9.061 CC		
400.0	399.8	399.3	399.2	0.7	0.7	-15.13	16.5	-2.3	9.9	8.5	1.34	7.362 ES		
500.0	499.5	498.9	498.4	0.9	0.9	-28.10	24.9	-4.5	10.4	8.7	1.71	6.099		
600.0	598.7	598.5	597.2	1.2	1.2	-43.14	36.6	-7.6	11.9	9.8	2.16	5.541		
700.0	697.5	698.1	695.6	1.5	1.5	-56.94	51.5	-11.5	14.7	12.0	2.75	5.356		
800.0	795.6	798.0	794.1	1.9	1.8	-73.79	67.5	-15.7	17.5	13.9	3.53	4.948		
900.0	893.1	897.7	892.4	2.3	2.1	-94.64	83.5	-19.9	21.3	16.9	4.40	4.847 SF		
1,000.0	989.6	997.0	990.4	2.8	2.5	-114.55	99.4	-24.1	28.3	23.3	5.05	5.608		
1,011.2	1,000.4	1,008.2	1,001.4	2.8	2.5	-116.53	101.2	-24.6	29.4	24.3	5.10	5.754		
1,100.0	1,085.7	1,096.2	1,088.2	3.3	2.8	-128.39	115.3	-28.3	38.6	33.1	5.47	7.065		
1,200.0	1,181.7	1,195.3	1,186.0	3.8	3.1	-136.20	131.1	-32.5	50.2	44.3	5.86	8.573		
1,300.0	1,277.7	1,294.5	1,283.8	4.3	3.4	-141.03	147.0	-36.7	62.4	56.1	6.26	9.957		
1,400.0	1,373.7	1,393.6	1,381.5	4.8	3.8	-144.28	162.9	-40.8	74.8	68.1	6.69	11.188		
1,500.0	1,469.7	1,492.8	1,479.3	5.3	4.1	-146.59	178.8	-45.0	87.4	80.3	7.12	12.273		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>Local Co-ordinate Reference:</b>	Well LR05B M15 595
<b>Project:</b>	Garfield County	<b>TVD Reference:</b>	KBE @ 8362.0ft (Original Well Elev)
<b>Reference Site:</b>	M15 595	<b>MD Reference:</b>	KBE @ 8362.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	LR05B M15 595	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	DD	<b>Database:</b>	EDM 5000.1 US Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design 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		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	167.09	-9.8	2.3	10.1					
100.0	100.0	100.0	100.0	0.1	0.1	167.09	-9.8	2.3	10.1	9.8	0.30	34.006		
200.0	200.0	200.0	200.0	0.3	0.3	167.09	-9.8	2.3	10.1	9.4	0.65	15.624		
300.0	300.0	300.3	300.3	0.5	0.5	166.09	-8.1	2.3	10.1	9.1	1.00	10.134		
400.0	399.8	400.7	400.5	0.7	0.7	165.72	-2.8	2.4	10.1	8.7	1.35	7.488		
500.0	499.5	501.0	500.5	0.9	0.9	165.12	6.0	2.7	10.1	8.4	1.70	5.922		
600.0	598.7	601.4	600.1	1.2	1.2	164.27	18.2	3.0	10.1	8.0	2.07	4.878		
644.6	642.8	646.1	644.3	1.3	1.3	163.82	24.8	3.2	10.1	7.8	2.23	4.513 CC		
700.0	697.5	701.6	699.1	1.5	1.5	163.51	33.8	3.4	10.3	7.8	2.44	4.204 ES, SF		
800.0	795.6	801.5	797.7	1.9	1.8	166.24	50.0	3.9	13.1	10.3	2.79	4.676		
900.0	893.1	901.3	896.1	2.3	2.1	170.14	66.3	4.3	19.3	16.2	3.12	6.186		
1,000.0	989.6	1,000.9	994.3	2.8	2.5	173.07	82.5	4.8	29.0	25.6	3.44	8.432		
1,011.2	1,000.4	1,012.0	1,005.4	2.8	2.5	173.32	84.3	4.8	30.4	26.9	3.48	8.721		
1,100.0	1,085.7	1,100.1	1,092.3	3.3	2.8	174.81	98.6	5.2	40.9	37.1	3.78	10.812		
1,200.0	1,181.7	1,199.4	1,190.3	3.8	3.1	175.78	114.8	5.6	52.8	48.7	4.13	12.790		
1,300.0	1,277.7	1,298.7	1,288.2	4.3	3.4	176.39	130.9	6.1	64.7	60.3	4.48	14.459		
1,400.0	1,373.7	1,398.0	1,386.2	4.8	3.8	176.81	147.1	6.5	76.7	71.8	4.83	15.885		
1,500.0	1,469.7	1,497.3	1,484.1	5.3	4.1	177.12	163.3	6.9	88.6	83.4	5.18	17.119		



# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>Local Co-ordinate Reference:</b>	Well LR05B M15 595
<b>Project:</b>	Garfield County	<b>TVD Reference:</b>	KBE @ 8362.0ft (Original Well Elev)
<b>Reference Site:</b>	M15 595	<b>MD Reference:</b>	KBE @ 8362.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	LR05B M15 595	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	DD	<b>Database:</b>	EDM 5000.1 US Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													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							Warning			
Measured Depth Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor					
0.0	0.0	0.0	0.0	0.0	0.0	167.61	-29.5	6.5	30.2								
100.0	100.0	100.0	100.0	0.1	0.1	167.61	-29.5	6.5	30.2	29.9	0.30	101.810					
200.0	200.0	200.0	200.0	0.3	0.3	167.61	-29.5	6.5	30.2	29.6	0.65	46.778	CC, ES				
300.0	300.0	300.0	300.0	0.5	0.5	167.44	-29.5	6.5	31.9	30.9	0.99	32.081					
400.0	399.8	399.8	399.8	0.7	0.7	169.18	-29.5	6.5	37.0	35.7	1.34	27.580					
500.0	499.5	499.5	499.5	0.9	0.8	171.21	-29.5	6.5	45.6	43.9	1.69	27.007	SF				
600.0	598.7	599.6	599.5	1.2	1.0	171.48	-28.6	7.9	57.0	54.9	2.04	27.953					
700.0	697.5	699.5	699.4	1.5	1.2	169.45	-25.8	12.3	70.3	67.9	2.40	29.315					
800.0	795.6	799.2	798.7	1.9	1.4	166.35	-21.1	19.6	85.8	83.0	2.79	30.777					

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<b>Reference Well:</b>	LR05B M15 595	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	DD	<b>Database:</b>	EDM 5000.1 US Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

<b>Offset Design</b> M15 595 - LR13A M15 595 - DD - Plan #1													<b>Offset Site Error:</b>	0.0 ft
Survey Program: 0-MWD													<b>Offset Well Error:</b>	0.0 ft
Reference		Offset		Semi Major Axis			Distance					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	168.35	-49.2	10.1	50.2					
100.0	100.0	100.0	100.0	0.1	0.1	168.35	-49.2	10.1	50.2	49.9	0.30	169.237		
200.0	200.0	200.0	200.0	0.3	0.3	168.35	-49.2	10.1	50.2	49.6	0.65	77.757 CC, ES		
300.0	300.0	300.0	300.0	0.5	0.5	167.87	-49.2	10.1	51.9	50.9	0.99	52.199		
400.0	399.8	399.8	399.8	0.7	0.7	168.96	-49.2	10.1	57.0	55.7	1.34	42.481		
500.0	499.5	499.5	499.5	0.9	0.8	170.39	-49.2	10.1	65.6	63.9	1.69	38.835		
600.0	598.7	597.3	597.3	1.2	1.0	170.78	-49.8	11.7	78.5	76.5	2.03	38.611 SF		
700.0	697.5	694.1	693.9	1.5	1.2	169.67	-51.8	16.2	96.6	94.3	2.38	40.530		

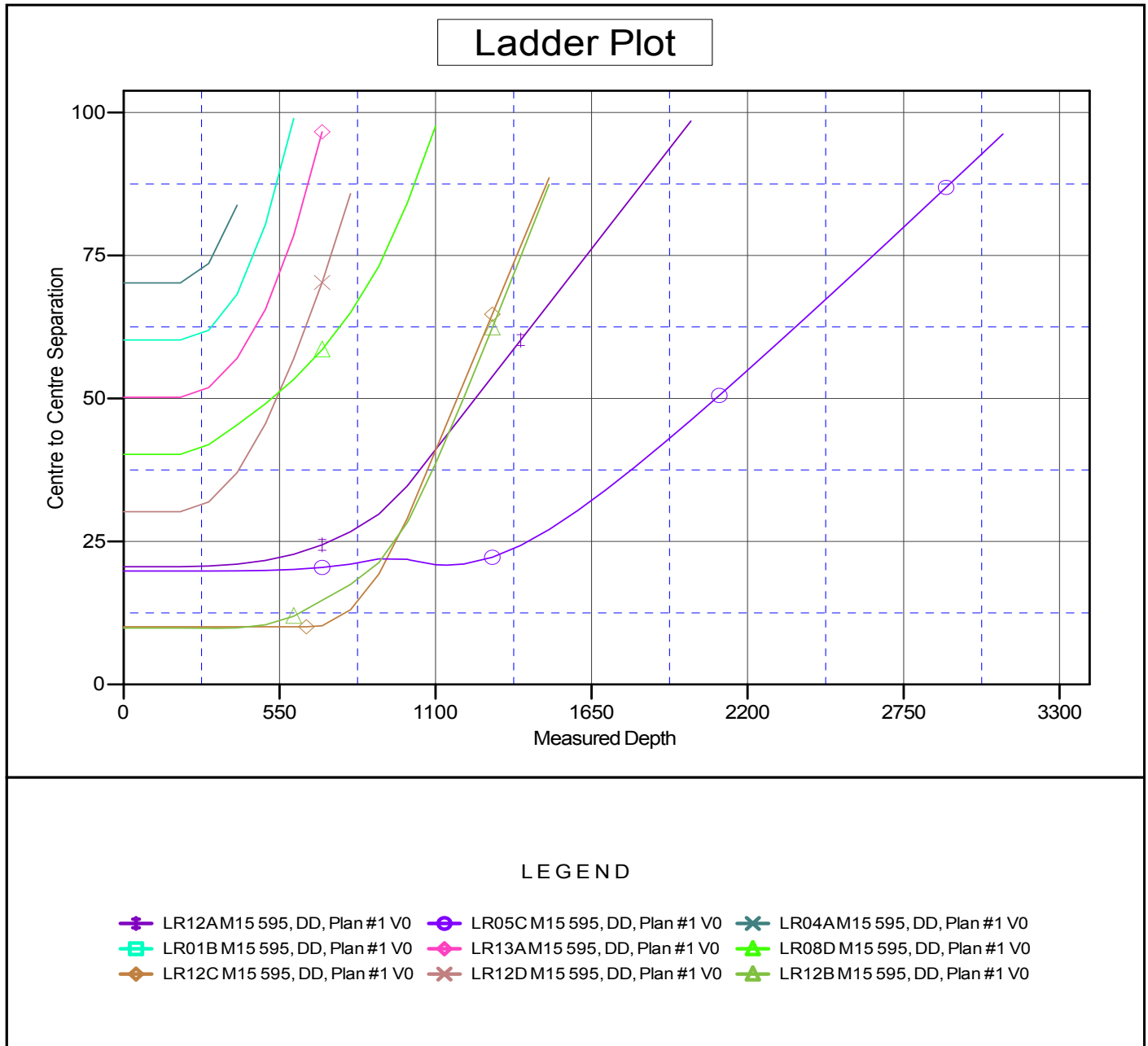
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<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

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: LR05B M15 595  
Coordinate System is US State Plane 1983, Colorado Central Zone  
Grid Convergence at Surface is: -1.61°



CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation