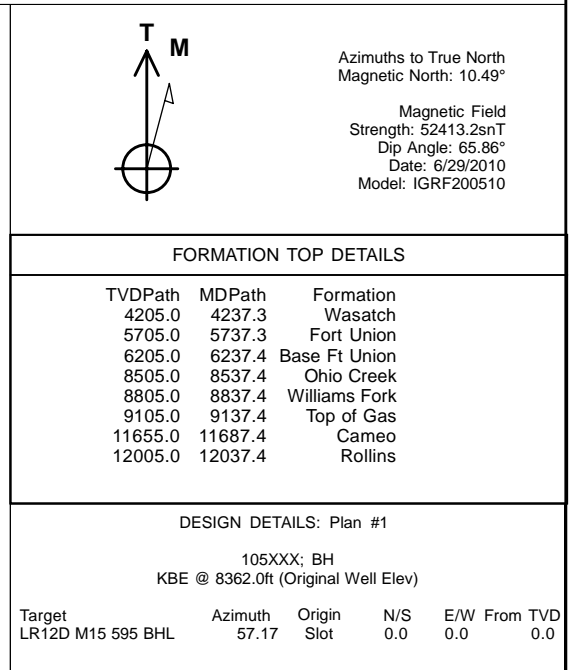
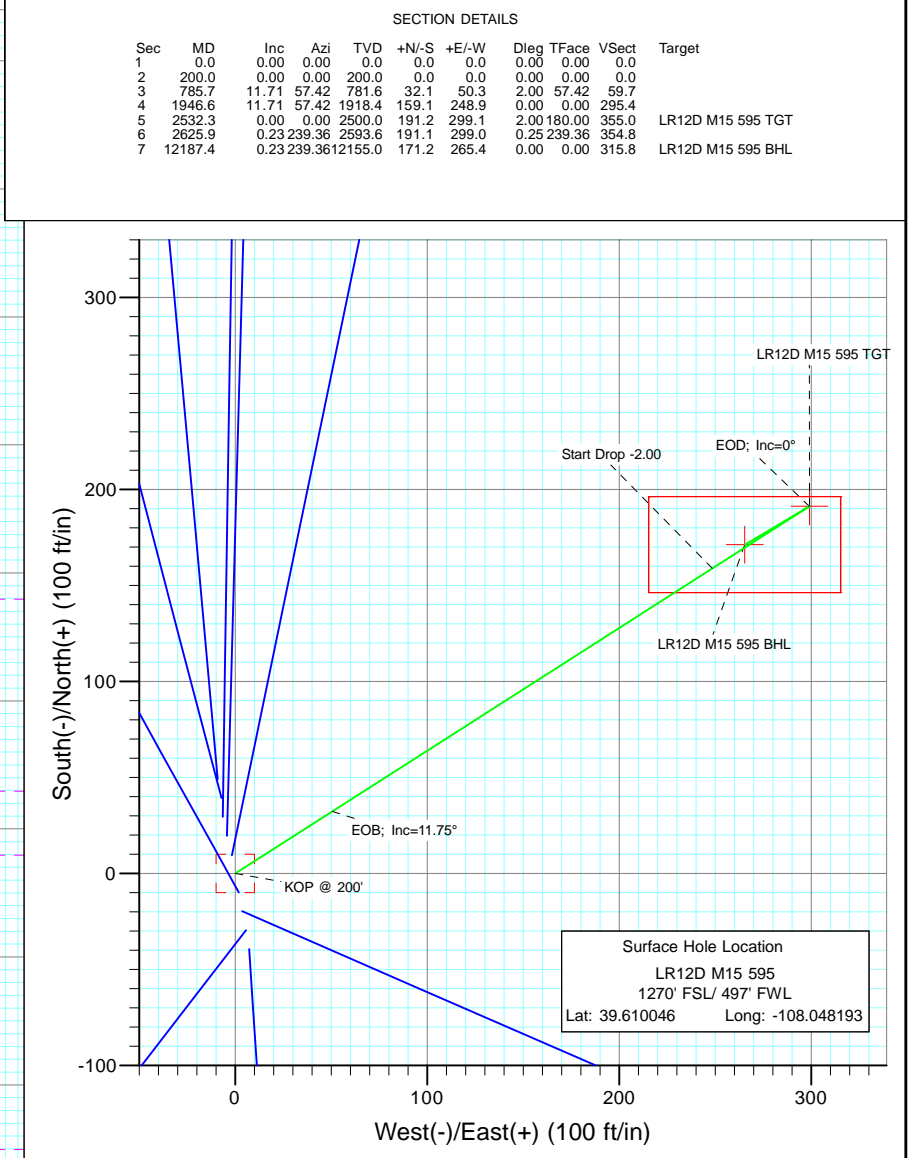
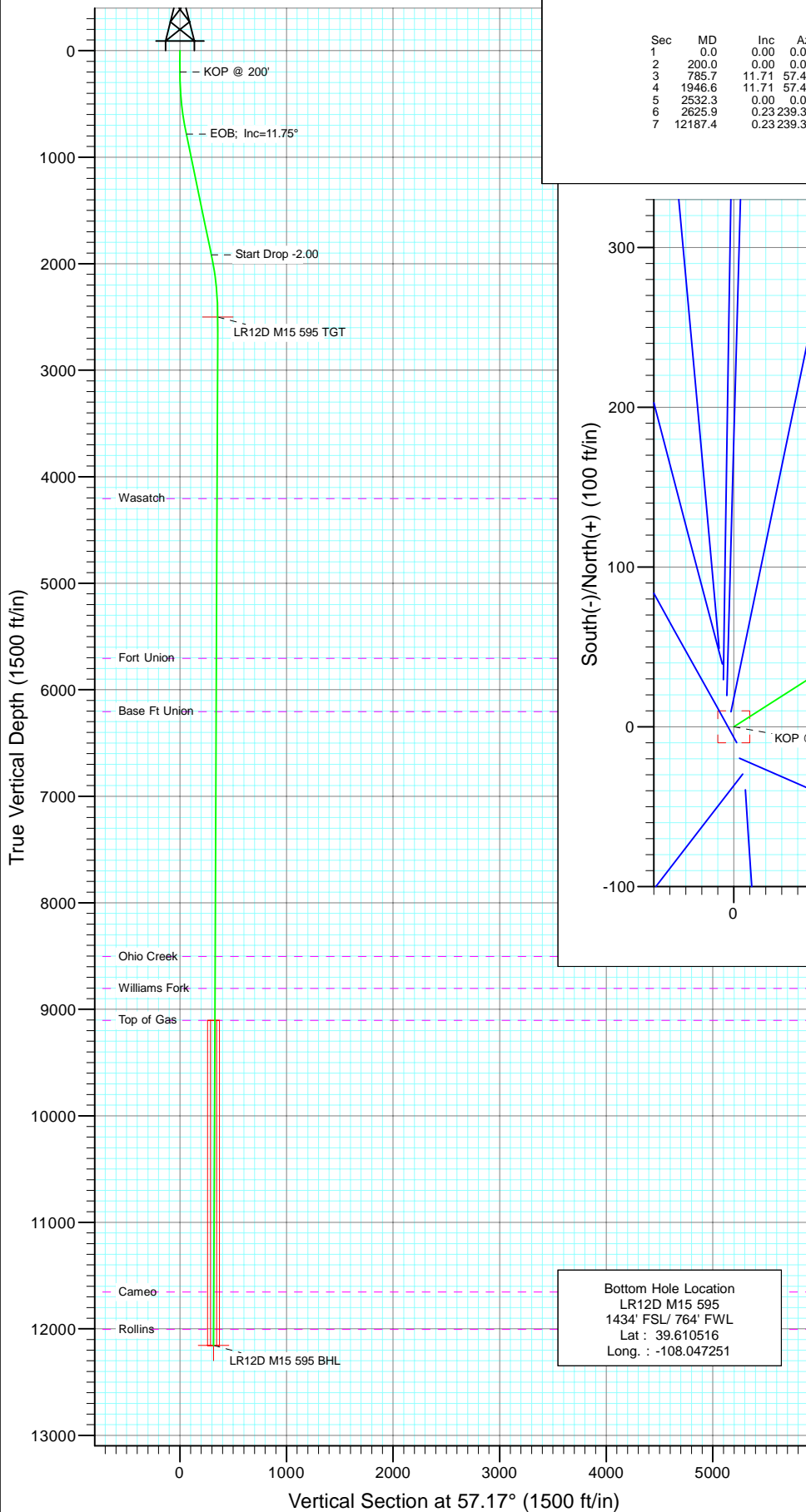




Project: Garfield County  
Site: M15 595  
Well: LR12D M15 595  
Wellbore: DD  
Design: Plan #1



# Cathedral Energy Services

## Planning Report

<b>Database:</b>	EDM 5000.1 US Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well LR12D 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>	LR12D 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	LR12D M15 595					
Well Position	+N/-S	0.0 ft	Northing:	1,657,159.16 ft	Latitude:	39.610046
	+E/-W	0.0 ft	Easting:	2,282,162.64 ft	Longitude:	-108.048193
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	57.17

<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	
787.6	11.75	57.49	783.4	32.3	50.6	2.00	2.00	0.00	57.49	
1,944.9	11.75	57.49	1,916.6	158.9	249.4	0.00	0.00	0.00	0.00	
2,532.5	0.00	0.00	2,500.0	191.2	300.0	2.00	-2.00	0.00	180.00	LR12D M15 595 TGT
2,627.9	0.24	240.02	2,595.4	191.1	299.9	0.25	0.25	-125.73	240.02	
12,187.6	0.24	240.02	12,155.0	171.2	265.4	0.00	0.00	0.00	0.00	LR12D 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 LR12D 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>	LR12D 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	57.49	210.0	0.0	0.0	0.0	2.00	2.00	
240.0	0.80	57.49	240.0	0.2	0.2	0.3	2.00	2.00	
270.0	1.40	57.49	270.0	0.5	0.7	0.9	2.00	2.00	
300.0	2.00	57.49	300.0	0.9	1.5	1.7	2.00	2.00	
330.0	2.60	57.49	330.0	1.6	2.5	2.9	2.00	2.00	
360.0	3.20	57.49	359.9	2.4	3.8	4.5	2.00	2.00	
390.0	3.80	57.49	389.9	3.4	5.3	6.3	2.00	2.00	
420.0	4.40	57.49	419.8	4.5	7.1	8.4	2.00	2.00	
450.0	5.00	57.49	449.7	5.9	9.2	10.9	2.00	2.00	
480.0	5.60	57.49	479.6	7.3	11.5	13.7	2.00	2.00	
510.0	6.20	57.49	509.4	9.0	14.1	16.8	2.00	2.00	
540.0	6.80	57.49	539.2	10.8	17.0	20.2	2.00	2.00	
570.0	7.40	57.49	569.0	12.8	20.1	23.9	2.00	2.00	
600.0	8.00	57.49	598.7	15.0	23.5	27.9	2.00	2.00	
630.0	8.60	57.49	628.4	17.3	27.2	32.2	2.00	2.00	
660.0	9.20	57.49	658.0	19.8	31.1	36.9	2.00	2.00	
690.0	9.80	57.49	687.6	22.5	35.3	41.8	2.00	2.00	
720.0	10.40	57.49	717.1	25.3	39.7	47.1	2.00	2.00	
750.0	11.00	57.49	746.6	28.3	44.4	52.6	2.00	2.00	
780.0	11.60	57.49	776.0	31.4	49.3	58.5	2.00	2.00	
787.6	11.75	57.49	783.4	32.3	50.6	60.0	2.00	2.00	EOB; Inc=11.75°
810.0	11.75	57.49	805.4	34.7	54.5	64.6	0.00	0.00	
840.0	11.75	57.49	834.8	38.0	59.6	70.7	0.00	0.00	
870.0	11.75	57.49	864.2	41.3	64.8	76.8	0.00	0.00	
900.0	11.75	57.49	893.5	44.6	69.9	82.9	0.00	0.00	
930.0	11.75	57.49	922.9	47.9	75.1	89.1	0.00	0.00	
960.0	11.75	57.49	952.3	51.1	80.3	95.2	0.00	0.00	
990.0	11.75	57.49	981.6	54.4	85.4	101.3	0.00	0.00	
1,020.0	11.75	57.49	1,011.0	57.7	90.6	107.4	0.00	0.00	
1,050.0	11.75	57.49	1,040.4	61.0	95.7	113.5	0.00	0.00	
1,080.0	11.75	57.49	1,069.8	64.3	100.9	119.6	0.00	0.00	
1,110.0	11.75	57.49	1,099.1	67.6	106.0	125.7	0.00	0.00	
1,140.0	11.75	57.49	1,128.5	70.8	111.2	131.8	0.00	0.00	
1,170.0	11.75	57.49	1,157.9	74.1	116.3	137.9	0.00	0.00	
1,200.0	11.75	57.49	1,187.2	77.4	121.5	144.0	0.00	0.00	
1,230.0	11.75	57.49	1,216.6	80.7	126.6	150.1	0.00	0.00	
1,260.0	11.75	57.49	1,246.0	84.0	131.8	156.3	0.00	0.00	
1,290.0	11.75	57.49	1,275.4	87.3	136.9	162.4	0.00	0.00	
1,320.0	11.75	57.49	1,304.7	90.5	142.1	168.5	0.00	0.00	
1,350.0	11.75	57.49	1,334.1	93.8	147.2	174.6	0.00	0.00	
1,380.0	11.75	57.49	1,363.5	97.1	152.4	180.7	0.00	0.00	
1,410.0	11.75	57.49	1,392.8	100.4	157.5	186.8	0.00	0.00	
1,440.0	11.75	57.49	1,422.2	103.7	162.7	192.9	0.00	0.00	
1,470.0	11.75	57.49	1,451.6	107.0	167.8	199.0	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 LR12D 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>	LR12D 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	11.75	57.49	1,481.0	110.2	173.0	205.1	0.00	0.00	
1,530.0	11.75	57.49	1,510.3	113.5	178.2	211.2	0.00	0.00	
1,560.0	11.75	57.49	1,539.7	116.8	183.3	217.4	0.00	0.00	
1,590.0	11.75	57.49	1,569.1	120.1	188.5	223.5	0.00	0.00	
1,620.0	11.75	57.49	1,598.4	123.4	193.6	229.6	0.00	0.00	
1,650.0	11.75	57.49	1,627.8	126.7	198.8	235.7	0.00	0.00	
1,680.0	11.75	57.49	1,657.2	129.9	203.9	241.8	0.00	0.00	
1,710.0	11.75	57.49	1,686.6	133.2	209.1	247.9	0.00	0.00	
1,740.0	11.75	57.49	1,715.9	136.5	214.2	254.0	0.00	0.00	
1,770.0	11.75	57.49	1,745.3	139.8	219.4	260.1	0.00	0.00	
1,800.0	11.75	57.49	1,774.7	143.1	224.5	266.2	0.00	0.00	
1,830.0	11.75	57.49	1,804.0	146.4	229.7	272.3	0.00	0.00	
1,860.0	11.75	57.49	1,833.4	149.6	234.8	278.5	0.00	0.00	
1,890.0	11.75	57.49	1,862.8	152.9	240.0	284.6	0.00	0.00	
1,920.0	11.75	57.49	1,892.2	156.2	245.1	290.7	0.00	0.00	
1,944.9	11.75	57.49	1,916.6	158.9	249.4	295.7	0.00	0.00	Start Drop -2.00
1,950.0	11.65	57.49	1,921.5	159.5	250.3	296.8	2.00	-2.00	
1,980.0	11.05	57.49	1,950.9	162.7	255.3	302.7	2.00	-2.00	
2,010.0	10.45	57.49	1,980.4	165.7	260.0	308.3	2.00	-2.00	
2,040.0	9.85	57.49	2,009.9	168.5	264.4	313.6	2.00	-2.00	
2,070.0	9.25	57.49	2,039.5	171.2	268.6	318.5	2.00	-2.00	
2,100.0	8.65	57.49	2,069.2	173.7	272.6	323.2	2.00	-2.00	
2,130.0	8.05	57.49	2,098.8	176.0	276.2	327.6	2.00	-2.00	
2,160.0	7.45	57.49	2,128.6	178.2	279.7	331.6	2.00	-2.00	
2,190.0	6.85	57.49	2,158.3	180.2	282.8	335.3	2.00	-2.00	
2,220.0	6.25	57.49	2,188.1	182.1	285.7	338.8	2.00	-2.00	
2,250.0	5.65	57.49	2,218.0	183.7	288.3	341.9	2.00	-2.00	
2,280.0	5.05	57.49	2,247.8	185.2	290.7	344.7	2.00	-2.00	
2,310.0	4.45	57.49	2,277.7	186.6	292.8	347.2	2.00	-2.00	
2,340.0	3.85	57.49	2,307.7	187.7	294.6	349.3	2.00	-2.00	
2,370.0	3.25	57.49	2,337.6	188.7	296.2	351.2	2.00	-2.00	
2,400.0	2.65	57.49	2,367.6	189.6	297.5	352.7	2.00	-2.00	
2,430.0	2.05	57.49	2,397.5	190.2	298.5	354.0	2.00	-2.00	
2,460.0	1.45	57.49	2,427.5	190.7	299.3	354.9	2.00	-2.00	
2,490.0	0.85	57.49	2,457.5	191.0	299.8	355.5	2.00	-2.00	

### Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
LR12D M15 595 TGT	0.00	0.00	2,500.0	191.2	300.0	1,657,341.87	2,282,467.93	39.610571	-108.047128
- hit/miss target									
- Shape									
- plan misses target center by 42.5ft at 2490.0ft MD (2457.5 TVD, 191.0 N, 299.8 E)									
- Point									
LR12D M15 595 BHL	0.00	0.00	12,155.0	171.2	265.4	1,657,322.86	2,282,432.74	39.610516	-108.047251
- plan misses target center by 9697.6ft at 2490.0ft MD (2457.5 TVD, 191.0 N, 299.8 E)									
- Rectangle (sides W50.0 H100.0 D0.0)									

# Cathedral Energy Services

## Planning Report

<b>Database:</b>	EDM 5000.1 US Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well LR12D 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>	LR12D 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	0.65	57.49	2,467.5	191.1	299.9	355.6	2.00	-2.00	
2,532.5	0.00	0.00	2,500.0	191.2	300.1	355.8	2.00	-2.00	EOD; Inc=0° - LR12D M15 595 TGT
2,600.0	0.17	240.02	2,567.5	191.2	300.0	355.7	0.25	0.25	
2,627.9	0.24	240.02	2,595.4	191.1	299.9	355.6	0.25	0.25	
2,700.0	0.24	240.02	2,667.5	191.0	299.6	355.3	0.00	0.00	
2,800.0	0.24	240.02	2,767.5	190.7	299.3	354.9	0.00	0.00	
2,900.0	0.24	240.02	2,867.5	190.5	298.9	354.5	0.00	0.00	
3,000.0	0.24	240.02	2,967.5	190.3	298.5	354.0	0.00	0.00	
3,100.0	0.24	240.02	3,067.5	190.1	298.2	353.6	0.00	0.00	
3,200.0	0.24	240.02	3,167.5	189.9	297.8	353.2	0.00	0.00	
3,300.0	0.24	240.02	3,267.5	189.7	297.5	352.8	0.00	0.00	
3,400.0	0.24	240.02	3,367.5	189.5	297.1	352.4	0.00	0.00	
3,500.0	0.24	240.02	3,467.5	189.3	296.7	352.0	0.00	0.00	
3,600.0	0.24	240.02	3,567.5	189.1	296.4	351.5	0.00	0.00	
3,700.0	0.24	240.02	3,667.5	188.9	296.0	351.1	0.00	0.00	
3,800.0	0.24	240.02	3,767.5	188.7	295.7	350.7	0.00	0.00	
3,900.0	0.24	240.02	3,867.5	188.5	295.3	350.3	0.00	0.00	
4,000.0	0.24	240.02	3,967.5	188.2	294.9	349.9	0.00	0.00	
4,100.0	0.24	240.02	4,067.5	188.0	294.6	349.5	0.00	0.00	
4,200.0	0.24	240.02	4,167.5	187.8	294.2	349.0	0.00	0.00	
4,237.5	0.24	240.02	4,205.0	187.8	294.1	348.9	0.00	0.00	Wasatch
4,300.0	0.24	240.02	4,267.5	187.6	293.8	348.6	0.00	0.00	
4,400.0	0.24	240.02	4,367.5	187.4	293.5	348.2	0.00	0.00	
4,500.0	0.24	240.02	4,467.5	187.2	293.1	347.8	0.00	0.00	
4,600.0	0.24	240.02	4,567.5	187.0	292.8	347.4	0.00	0.00	
4,700.0	0.24	240.02	4,667.5	186.8	292.4	347.0	0.00	0.00	
4,800.0	0.24	240.02	4,767.5	186.6	292.0	346.6	0.00	0.00	
4,900.0	0.24	240.02	4,867.5	186.4	291.7	346.1	0.00	0.00	
5,000.0	0.24	240.02	4,967.5	186.2	291.3	345.7	0.00	0.00	
5,100.0	0.24	240.02	5,067.5	186.0	291.0	345.3	0.00	0.00	
5,200.0	0.24	240.02	5,167.5	185.7	290.6	344.9	0.00	0.00	
5,300.0	0.24	240.02	5,267.5	185.5	290.2	344.5	0.00	0.00	
5,400.0	0.24	240.02	5,367.5	185.3	289.9	344.1	0.00	0.00	
5,500.0	0.24	240.02	5,467.5	185.1	289.5	343.6	0.00	0.00	
5,600.0	0.24	240.02	5,567.5	184.9	289.2	343.2	0.00	0.00	
5,700.0	0.24	240.02	5,667.5	184.7	288.8	342.8	0.00	0.00	
5,737.5	0.24	240.02	5,705.0	184.6	288.7	342.7	0.00	0.00	Fort Union
5,800.0	0.24	240.02	5,767.5	184.5	288.4	342.4	0.00	0.00	
5,900.0	0.24	240.02	5,867.5	184.3	288.1	342.0	0.00	0.00	
6,000.0	0.24	240.02	5,967.5	184.1	287.7	341.6	0.00	0.00	
6,100.0	0.24	240.02	6,067.5	183.9	287.4	341.1	0.00	0.00	
6,200.0	0.24	240.02	6,167.5	183.7	287.0	340.7	0.00	0.00	
6,237.5	0.24	240.02	6,205.0	183.6	286.9	340.6	0.00	0.00	Base Ft Union
6,300.0	0.24	240.02	6,267.5	183.5	286.6	340.3	0.00	0.00	
6,400.0	0.24	240.02	6,367.5	183.3	286.3	339.9	0.00	0.00	
6,500.0	0.24	240.02	6,467.5	183.0	285.9	339.5	0.00	0.00	
6,600.0	0.24	240.02	6,567.5	182.8	285.6	339.1	0.00	0.00	
6,700.0	0.24	240.02	6,667.5	182.6	285.2	338.7	0.00	0.00	
6,800.0	0.24	240.02	6,767.5	182.4	284.8	338.2	0.00	0.00	
6,900.0	0.24	240.02	6,867.5	182.2	284.5	337.8	0.00	0.00	
7,000.0	0.24	240.02	6,967.5	182.0	284.1	337.4	0.00	0.00	
7,100.0	0.24	240.02	7,067.5	181.8	283.7	337.0	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 LR12D 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>	LR12D 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
7,200.0	0.24	240.02	7,167.5	181.6	283.4	336.6	0.00	0.00	
7,300.0	0.24	240.02	7,267.5	181.4	283.0	336.2	0.00	0.00	
7,400.0	0.24	240.02	7,367.5	181.2	282.7	335.7	0.00	0.00	
7,500.0	0.24	240.02	7,467.5	181.0	282.3	335.3	0.00	0.00	
7,600.0	0.24	240.02	7,567.5	180.8	281.9	334.9	0.00	0.00	
7,700.0	0.24	240.02	7,667.5	180.5	281.6	334.5	0.00	0.00	
7,800.0	0.24	240.02	7,767.5	180.3	281.2	334.1	0.00	0.00	
7,900.0	0.24	240.02	7,867.5	180.1	280.9	333.7	0.00	0.00	
8,000.0	0.24	240.02	7,967.5	179.9	280.5	333.2	0.00	0.00	
8,100.0	0.24	240.02	8,067.5	179.7	280.1	332.8	0.00	0.00	
8,200.0	0.24	240.02	8,167.5	179.5	279.8	332.4	0.00	0.00	
8,300.0	0.24	240.02	8,267.5	179.3	279.4	332.0	0.00	0.00	
8,400.0	0.24	240.02	8,367.5	179.1	279.1	331.6	0.00	0.00	
8,500.0	0.24	240.02	8,467.5	178.9	278.7	331.2	0.00	0.00	
8,537.5	0.24	240.02	8,505.0	178.8	278.6	331.0	0.00	0.00	Ohio Creek
8,600.0	0.24	240.02	8,567.5	178.7	278.3	330.8	0.00	0.00	
8,700.0	0.24	240.02	8,667.5	178.5	278.0	330.3	0.00	0.00	
8,800.0	0.24	240.02	8,767.5	178.3	277.6	329.9	0.00	0.00	
8,837.5	0.24	240.02	8,805.0	178.2	277.5	329.8	0.00	0.00	Williams Fork
8,900.0	0.24	240.02	8,867.5	178.0	277.3	329.5	0.00	0.00	
9,000.0	0.24	240.02	8,967.5	177.8	276.9	329.1	0.00	0.00	
9,100.0	0.24	240.02	9,067.5	177.6	276.5	328.7	0.00	0.00	
9,137.5	0.24	240.02	9,105.0	177.6	276.4	328.5	0.00	0.00	Top of Gas
9,200.0	0.24	240.02	9,167.5	177.4	276.2	328.3	0.00	0.00	
9,300.0	0.24	240.02	9,267.5	177.2	275.8	327.8	0.00	0.00	
9,400.0	0.24	240.02	9,367.5	177.0	275.5	327.4	0.00	0.00	
9,500.0	0.24	240.02	9,467.5	176.8	275.1	327.0	0.00	0.00	
9,600.0	0.24	240.02	9,567.5	176.6	274.7	326.6	0.00	0.00	
9,700.0	0.24	240.02	9,667.5	176.4	274.4	326.2	0.00	0.00	
9,800.0	0.24	240.02	9,767.5	176.2	274.0	325.8	0.00	0.00	
9,900.0	0.24	240.02	9,867.5	176.0	273.7	325.3	0.00	0.00	
10,000.0	0.24	240.02	9,967.5	175.8	273.3	324.9	0.00	0.00	
10,100.0	0.24	240.02	10,067.5	175.6	272.9	324.5	0.00	0.00	
10,200.0	0.24	240.02	10,167.5	175.3	272.6	324.1	0.00	0.00	
10,300.0	0.24	240.02	10,267.5	175.1	272.2	323.7	0.00	0.00	
10,400.0	0.24	240.02	10,367.5	174.9	271.8	323.3	0.00	0.00	
10,500.0	0.24	240.02	10,467.5	174.7	271.5	322.9	0.00	0.00	
10,600.0	0.24	240.02	10,567.5	174.5	271.1	322.4	0.00	0.00	
10,700.0	0.24	240.02	10,667.5	174.3	270.8	322.0	0.00	0.00	
10,800.0	0.24	240.02	10,767.5	174.1	270.4	321.6	0.00	0.00	
10,900.0	0.24	240.02	10,867.5	173.9	270.0	321.2	0.00	0.00	
11,000.0	0.24	240.02	10,967.4	173.7	269.7	320.8	0.00	0.00	
11,100.0	0.24	240.02	11,067.4	173.5	269.3	320.4	0.00	0.00	
11,200.0	0.24	240.02	11,167.4	173.3	269.0	319.9	0.00	0.00	
11,300.0	0.24	240.02	11,267.4	173.1	268.6	319.5	0.00	0.00	
11,400.0	0.24	240.02	11,367.4	172.8	268.2	319.1	0.00	0.00	
11,500.0	0.24	240.02	11,467.4	172.6	267.9	318.7	0.00	0.00	
11,600.0	0.24	240.02	11,567.4	172.4	267.5	318.3	0.00	0.00	
11,687.6	0.24	240.02	11,655.0	172.2	267.2	317.9	0.00	0.00	Cameo
11,700.0	0.24	240.02	11,667.4	172.2	267.2	317.9	0.00	0.00	
11,800.0	0.24	240.02	11,767.4	172.0	266.8	317.4	0.00	0.00	
11,900.0	0.24	240.02	11,867.4	171.8	266.4	317.0	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 LR12D 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>	LR12D 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
12,000.0	0.24	240.02	11,967.4	171.6	266.1	316.6	0.00	0.00	
12,037.6	0.24	240.02	12,005.0	171.5	265.9	316.5	0.00	0.00	Rollins
12,100.0	0.24	240.02	12,067.4	171.4	265.7	316.2	0.00	0.00	
12,187.6	0.24	240.02	12,155.0	171.2	265.4	315.8	0.00	0.00	LR12D M15 595 BHL

Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
LR12D M15 595 TGT - hit/miss target - Shape - Point	0.00	0.00	2,500.0	191.2	300.0	1,657,341.87	2,282,467.93	39.610571	-108.047128
LR12D M15 595 BHL - plan hits target center - Rectangle (sides W50.0 H100.0 D0.0)	0.00	0.00	12,155.0	171.2	265.4	1,657,322.86	2,282,432.74	39.610516	-108.047251

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
4,237.5	4,205.0	Wasatch		0.00		
5,737.5	5,705.0	Fort Union		0.00		
6,237.5	6,205.0	Base Ft Union		0.00		
8,537.5	8,505.0	Ohio Creek		0.00		
8,837.5	8,805.0	Williams Fork		0.00		
9,137.5	9,105.0	Top of Gas		0.00		
11,687.6	11,655.0	Cameo		0.00		
12,037.6	12,005.0	Rollins		0.00		

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
200.0	200.0	0.0	0.0	KOP @ 200'	
787.6	783.4	32.3	50.6	EOB; Inc=11.75°	
1,944.9	1,916.6	158.9	249.4	Start Drop -2.00	
2,532.5	2,500.0	191.2	300.0	EOD; Inc=0°	
12,187.6	12,155.0	191.1	299.9	TD at 12187.6	

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

**Garfield County**

**M15 595**

**LR12D 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 LR12D 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>	LR12D 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	12,187.6	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	30.0	29.4	46.515	CC, ES
LR01B M15 595 - DD - Plan #1	400.0	398.9	34.6	33.3	25.492	SF
LR04A M15 595 - DD - Plan #1	200.0	200.0	40.0	39.4	61.965	CC, ES
LR04A M15 595 - DD - Plan #1	500.0	493.6	63.3	61.6	36.576	SF
LR05B M15 595 - DD - Plan #1	200.0	200.0	30.2	29.6	46.778	CC, ES
LR05B M15 595 - DD - Plan #1	600.0	594.2	51.4	49.1	22.755	SF
LR05C M15 595 - DD - Plan #1	200.0	200.0	50.0	49.4	77.424	CC, ES
LR05C M15 595 - DD - Plan #1	787.6	771.3	99.2	95.9	30.130	SF
LR08D M15 595 - DD - Plan #1	334.4	334.7	9.0	7.9	8.036	CC, ES
LR08D M15 595 - DD - Plan #1	400.0	400.2	10.5	9.1	7.654	SF
LR12A M15 595 - DD - Plan #1	200.0	200.0	9.6	9.0	14.897	CC, ES
LR12A M15 595 - DD - Plan #1	400.0	399.2	14.0	12.6	10.149	SF
LR12B M15 595 - DD - Plan #1	200.0	200.0	40.0	39.3	61.887	CC, ES
LR12B M15 595 - DD - Plan #1	600.0	591.9	63.1	60.9	28.467	SF
LR12C M15 595 - DD - Plan #1	200.0	200.0	20.1	19.5	31.154	CC, ES
LR12C M15 595 - DD - Plan #1	500.0	497.3	31.7	30.0	17.760	SF
LR13A M15 595 - DD - Plan #1	200.0	200.0	20.0	19.4	30.989	CC, ES
LR13A M15 595 - DD - Plan #1	500.0	499.5	29.7	28.0	17.265	SF

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>Local Co-ordinate Reference:</b>	Well LR12D 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>	LR12D 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							Warning			
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Total Uncertainty Axis	Separation Factor					
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)							
0.0	0.0	0.0	0.0	0.0	0.0	169.19	-29.5	5.6	30.0								
100.0	100.0	100.0	100.0	0.1	0.1	169.19	-29.5	5.6	30.0	29.7	0.30	101.237					
200.0	200.0	200.0	200.0	0.3	0.3	169.19	-29.5	5.6	30.0	29.4	0.65	46.515 CC, ES					
300.0	300.0	300.0	300.0	0.5	0.5	114.71	-29.5	5.6	30.7	29.7	1.00	30.793					
400.0	399.8	398.9	398.9	0.7	0.7	124.49	-30.9	4.6	34.6	33.3	1.36	25.492 SF					
500.0	499.5	496.8	496.6	0.9	0.9	137.24	-34.9	1.5	44.9	43.2	1.72	26.079					
600.0	598.7	592.9	592.4	1.2	1.1	147.43	-41.4	-3.5	62.8	60.7	2.08	30.243					
700.0	697.5	686.8	685.7	1.5	1.3	154.15	-50.2	-10.3	88.1	85.7	2.42	36.424					

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>Local Co-ordinate Reference:</b>	Well LR12D 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>	LR12D 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 - 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							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	169.45	-39.3	7.3	40.0								
100.0	100.0	100.0	100.0	0.1	0.1	169.45	-39.3	7.3	40.0	39.7	0.30	134.866					
200.0	200.0	200.0	200.0	0.3	0.3	169.45	-39.3	7.3	40.0	39.4	0.65	61.965 CC, ES					
300.0	300.0	298.5	298.5	0.5	0.5	114.34	-41.0	7.4	42.4	41.4	1.00	42.613					
400.0	399.8	396.6	396.4	0.7	0.7	120.05	-46.1	7.8	50.0	48.6	1.36	36.858					
500.0	499.5	493.6	493.0	0.9	0.9	126.36	-54.3	8.3	63.3	61.6	1.73	36.576 SF					
600.0	598.7	589.0	587.8	1.2	1.2	131.62	-65.7	9.0	82.6	80.5	2.12	38.956					

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>Local Co-ordinate Reference:</b>	Well LR12D 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>	LR12D 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 - 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							
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	-12.39	29.5	-6.5	30.2					
100.0	100.0	100.0	100.0	0.1	0.1	-12.39	29.5	-6.5	30.2	29.9	0.30	101.810		
200.0	200.0	200.0	200.0	0.3	0.3	-12.39	29.5	-6.5	30.2	29.6	0.65	46.778 CC, ES		
300.0	300.0	299.0	298.9	0.5	0.5	-72.11	31.2	-6.5	31.3	30.3	1.00	31.419		
400.0	399.8	397.8	397.6	0.7	0.7	-77.89	36.3	-6.4	34.9	33.5	1.37	25.522		
500.0	499.5	496.2	495.7	0.9	0.9	-85.15	44.8	-6.2	41.4	39.6	1.78	23.287		
600.0	598.7	594.2	593.0	1.2	1.2	-91.98	56.6	-6.1	51.4	49.1	2.26	22.755 SF		
700.0	697.5	691.6	689.2	1.5	1.5	-97.53	71.6	-5.8	64.8	62.0	2.82	23.015		
787.6	783.4	776.3	772.4	1.8	1.8	-101.25	87.3	-5.6	79.4	76.0	3.38	23.530		
800.0	795.6	788.3	784.1	1.9	1.8	-101.73	89.7	-5.6	81.7	78.2	3.46	23.636		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>Local Co-ordinate Reference:</b>	Well LR12D 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>	LR12D 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 - 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							
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	-10.39	49.2	-9.0	50.0					
100.0	100.0	100.0	100.0	0.1	0.1	-10.39	49.2	-9.0	50.0	49.7	0.30	168.511		
200.0	200.0	200.0	200.0	0.3	0.3	-10.39	49.2	-9.0	50.0	49.4	0.65	77.424 CC, ES		
300.0	300.0	298.3	298.2	0.5	0.5	-69.47	50.9	-9.2	51.1	50.1	1.00	51.321		
400.0	399.8	396.3	396.2	0.7	0.7	-73.84	55.9	-9.6	54.5	53.1	1.36	40.048		
500.0	499.5	494.0	493.5	0.9	0.9	-79.91	64.2	-10.4	60.8	59.1	1.76	34.512		
600.0	598.7	591.2	590.0	1.2	1.2	-86.41	75.7	-11.4	70.6	68.4	2.22	31.776		
700.0	697.5	687.6	685.2	1.5	1.5	-92.39	90.4	-12.7	84.2	81.4	2.76	30.531		
787.6	783.4	771.3	767.5	1.8	1.8	-96.81	105.7	-14.1	99.2	95.9	3.29	30.130 SF		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>Local Co-ordinate Reference:</b>	Well LR12D 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>	LR12D 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 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	168.66	-9.8	2.0	10.0					
100.0	100.0	100.0	100.0	0.1	0.1	168.66	-9.8	2.0	10.0	9.7	0.30	33.807		
200.0	200.0	200.0	200.0	0.3	0.3	168.66	-9.8	2.0	10.0	9.4	0.65	15.533		
300.0	300.0	300.3	300.3	0.5	0.5	124.73	-8.3	1.1	9.3	8.3	1.00	9.262		
334.4	334.4	334.7	334.7	0.6	0.6	136.81	-7.1	0.4	9.0	7.9	1.13	8.036 CC, ES		
400.0	399.8	400.2	400.0	0.7	0.7	166.87	-3.7	-1.4	10.5	9.1	1.37	7.654 SF		
500.0	499.5	499.5	498.9	0.9	0.9	-161.06	3.8	-5.6	19.4	17.7	1.77	11.005		
600.0	598.7	597.7	596.4	1.2	1.2	-148.17	14.2	-11.4	35.0	32.8	2.21	15.863		
700.0	697.5	694.6	692.2	1.5	1.5	-142.37	27.4	-18.7	55.8	53.1	2.70	20.671		
787.6	783.4	778.1	774.2	1.8	1.8	-139.53	41.0	-26.3	78.0	74.8	3.18	24.525		
800.0	795.6	789.9	785.8	1.9	1.8	-139.26	43.1	-27.5	81.4	78.1	3.25	25.052		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>Local Co-ordinate Reference:</b>	Well LR12D 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>	LR12D 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					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	-10.12	9.5	-1.7	9.6					
100.0	100.0	100.0	100.0	0.1	0.1	-10.12	9.5	-1.7	9.6	9.3	0.30	32.424		
200.0	200.0	200.0	200.0	0.3	0.3	-10.12	9.5	-1.7	9.6	9.0	0.65	14.897 CC, ES		
300.0	300.0	299.7	299.7	0.5	0.5	-72.81	11.2	-1.3	10.6	9.6	1.00	10.632		
400.0	399.8	399.2	399.1	0.7	0.7	-83.57	16.3	-0.3	14.0	12.6	1.38	10.149 SF		
500.0	499.5	498.6	498.0	0.9	0.9	-92.97	24.7	1.5	20.1	18.3	1.81	11.139		
600.0	598.7	597.6	596.3	1.2	1.2	-99.19	36.4	3.9	29.2	26.9	2.31	12.628		
700.0	697.5	696.2	693.7	1.5	1.5	-103.04	51.4	7.0	41.0	38.1	2.90	14.157		
787.6	783.4	782.1	778.1	1.8	1.8	-105.19	67.2	10.2	53.7	50.2	3.49	15.382		
800.0	795.6	794.3	790.0	1.9	1.9	-105.44	69.6	10.8	55.6	52.0	3.57	15.562		
900.0	893.5	891.8	885.1	2.3	2.3	-105.63	90.9	15.1	72.2	67.9	4.30	16.814		
1,000.0	991.4	990.2	980.7	2.6	2.7	-104.79	114.0	19.9	89.7	84.7	5.03	17.816		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>Local Co-ordinate Reference:</b>	Well LR12D 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>	LR12D 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 - LR12B 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	-10.15	39.3	-7.0	40.0					
100.0	100.0	100.0	100.0	0.1	0.1	-10.15	39.3	-7.0	40.0	39.7	0.30	134.695		
200.0	200.0	200.0	200.0	0.3	0.3	-10.15	39.3	-7.0	40.0	39.3	0.65	61.887 CC, ES		
300.0	300.0	298.6	298.6	0.5	0.5	-70.04	41.0	-7.5	41.1	40.1	1.00	41.233		
400.0	399.8	396.9	396.8	0.7	0.7	-76.43	45.9	-8.8	44.7	43.4	1.36	32.832		
500.0	499.5	494.8	494.3	0.9	0.9	-84.83	54.0	-10.9	51.8	50.1	1.76	29.395		
600.0	598.7	591.9	590.7	1.2	1.2	-93.07	65.2	-13.9	63.1	60.9	2.22	28.467 SF		
700.0	697.5	688.4	686.0	1.5	1.5	-99.96	79.5	-17.6	78.9	76.2	2.74	28.824		
787.6	783.4	774.0	770.5	1.8	1.7	-105.31	93.2	-21.2	95.1	91.8	3.25	29.280		
800.0	795.6	786.2	782.5	1.9	1.8	-106.07	95.1	-21.7	97.5	94.2	3.32	29.356		



# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>Local Co-ordinate Reference:</b>	Well LR12D 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>	LR12D 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 - LR12C 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	-12.13	19.7	-4.2	20.1					
100.0	100.0	100.0	100.0	0.1	0.1	-12.13	19.7	-4.2	20.1	19.8	0.30	67.806		
200.0	200.0	200.0	200.0	0.3	0.3	-12.13	19.7	-4.2	20.1	19.5	0.65	31.154 CC, ES		
300.0	300.0	299.3	299.3	0.5	0.5	-72.89	21.4	-4.2	21.2	20.2	1.00	21.287		
400.0	399.8	398.4	398.3	0.7	0.7	-80.80	26.5	-4.0	24.9	23.5	1.37	18.186		
500.0	499.5	497.3	496.7	0.9	0.9	-89.59	35.1	-3.8	31.7	30.0	1.79	17.760 SF		
600.0	598.7	595.6	594.4	1.2	1.2	-96.80	46.9	-3.5	42.1	39.8	2.27	18.503		
700.0	697.5	693.7	691.3	1.5	1.5	-102.08	62.0	-3.1	55.8	52.9	2.83	19.686		
787.6	783.4	780.0	776.5	1.8	1.7	-106.63	76.0	-2.7	69.3	66.0	3.38	20.535		
800.0	795.6	792.3	788.6	1.9	1.8	-107.31	78.0	-2.6	71.4	67.9	3.46	20.652		
900.0	893.5	890.7	885.7	2.3	2.1	-111.65	94.1	-2.2	87.8	83.8	4.09	21.475		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>Local Co-ordinate Reference:</b>	Well LR12D 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>	LR12D 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							
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	169.45	-19.7	3.7	20.0				
100.0	100.0	100.0	100.0	0.1	0.1	169.45	-19.7	3.7	20.0	19.7	0.30	67.447	
200.0	200.0	200.0	200.0	0.3	0.3	169.45	-19.7	3.7	20.0	19.4	0.65	30.989 CC, ES	
300.0	300.0	300.0	300.0	0.5	0.5	116.43	-19.7	3.7	20.7	19.7	1.00	20.775	
400.0	399.8	399.8	399.8	0.7	0.7	127.86	-19.7	3.7	23.5	22.2	1.36	17.323	
500.0	499.5	499.5	499.5	0.9	0.8	141.16	-19.7	3.7	29.7	28.0	1.72	17.265 SF	
600.0	598.7	598.8	598.8	1.2	1.0	149.63	-20.4	5.2	39.8	37.7	2.08	19.126	
700.0	697.5	698.1	697.9	1.5	1.2	152.49	-22.4	9.9	53.1	50.6	2.46	21.558	
787.6	783.4	784.7	784.3	1.8	1.4	152.65	-25.3	16.6	66.9	64.1	2.83	23.658	
800.0	795.6	797.0	796.5	1.9	1.4	152.57	-25.8	17.8	69.0	66.1	2.88	23.944	
900.0	893.5	895.9	894.6	2.3	1.7	150.82	-30.6	28.7	85.8	82.4	3.37	25.468	

# Cathedral Energy Services

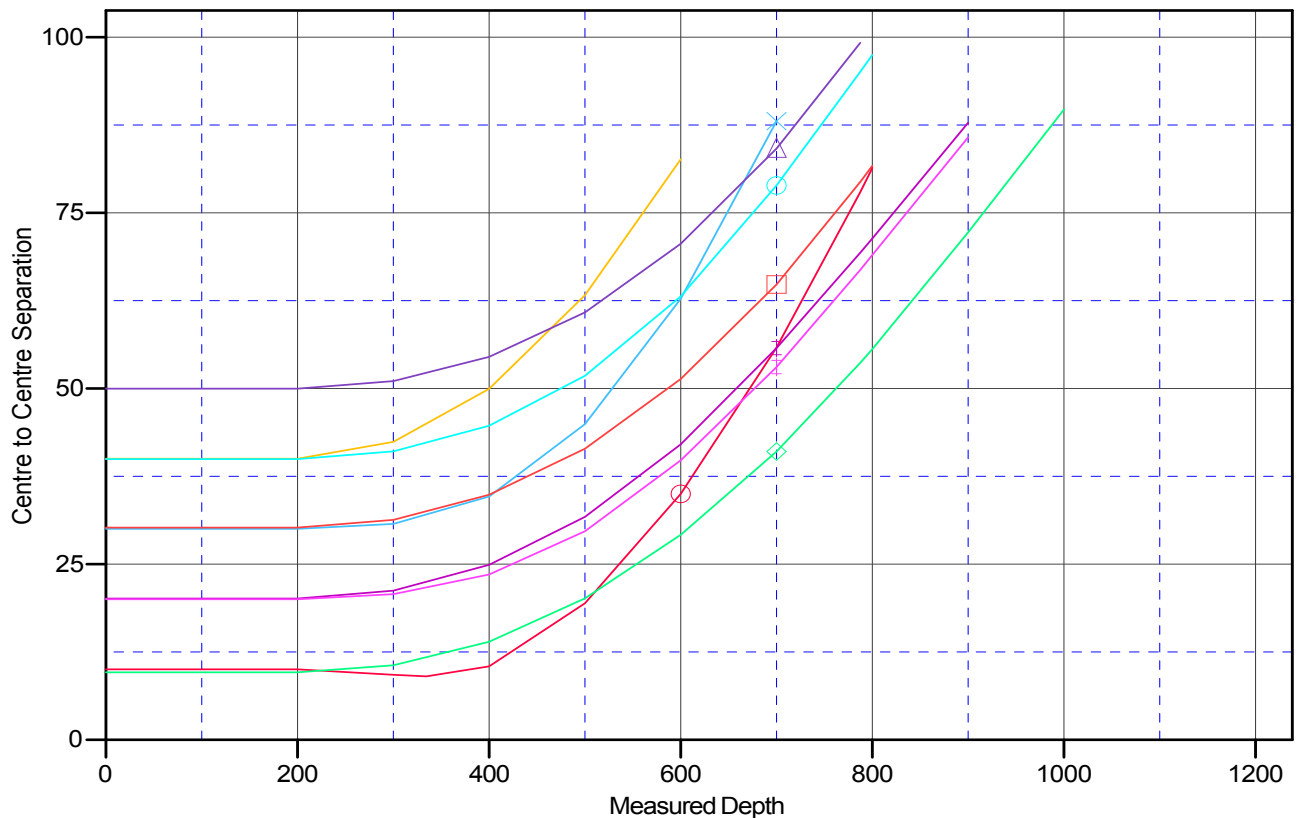
## Anticollision Report

<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>Local Co-ordinate Reference:</b>	Well LR12D 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>	LR12D 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 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: LR12D 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
- ✕ LR05C M15 595, DD, Plan #1 V0
- ✕ LR12B M15 595, DD, Plan #1 V0
- ✕ LR04A M15 595, DD, Plan #1 V0
- ✕ LR08D M15 595, DD, Plan #1 V0
- ✕ LR12C M15 595, DD, Plan #1 V0
- ✕ LR05B M15 595, DD, Plan #1 V0
- ✕ LR12A M15 595, DD, Plan #1 V0
- ✕ LR13A M15 595, DD, Plan #1 V0