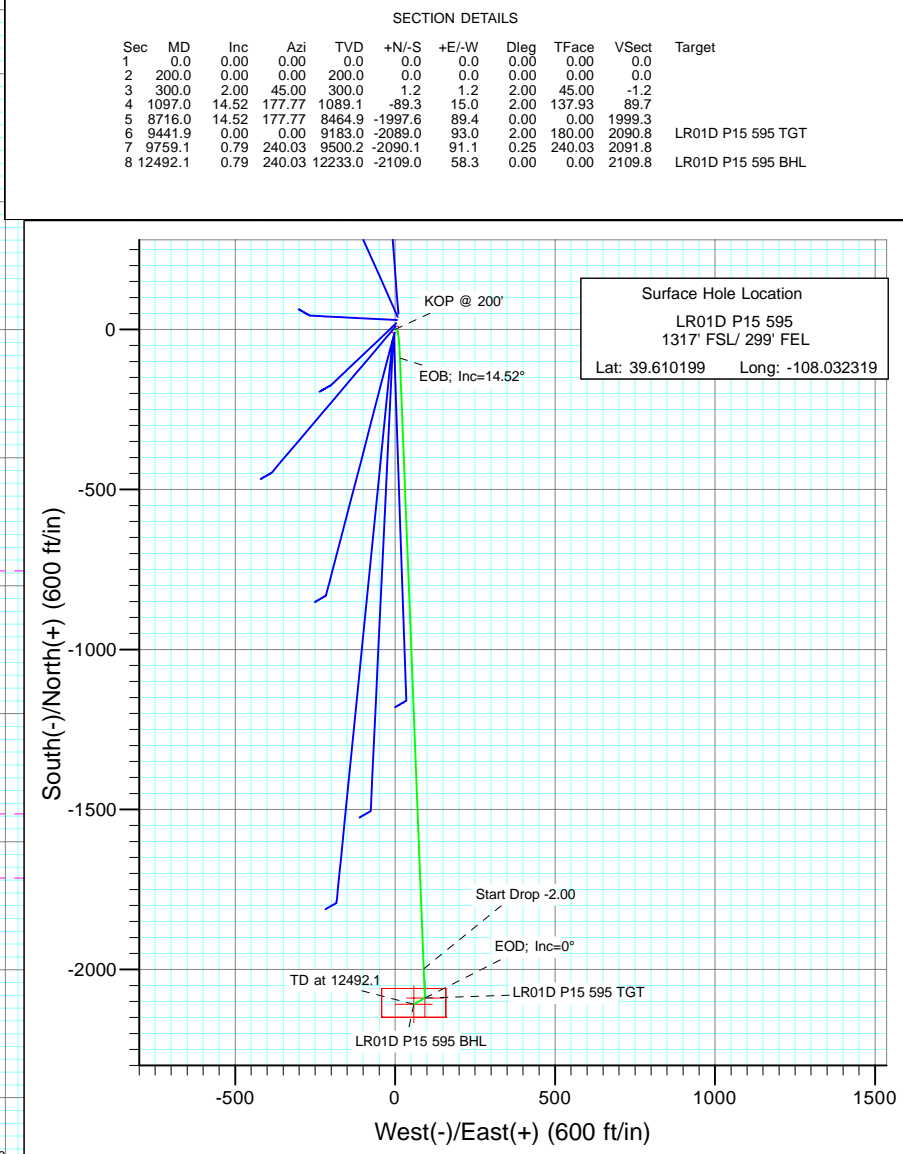
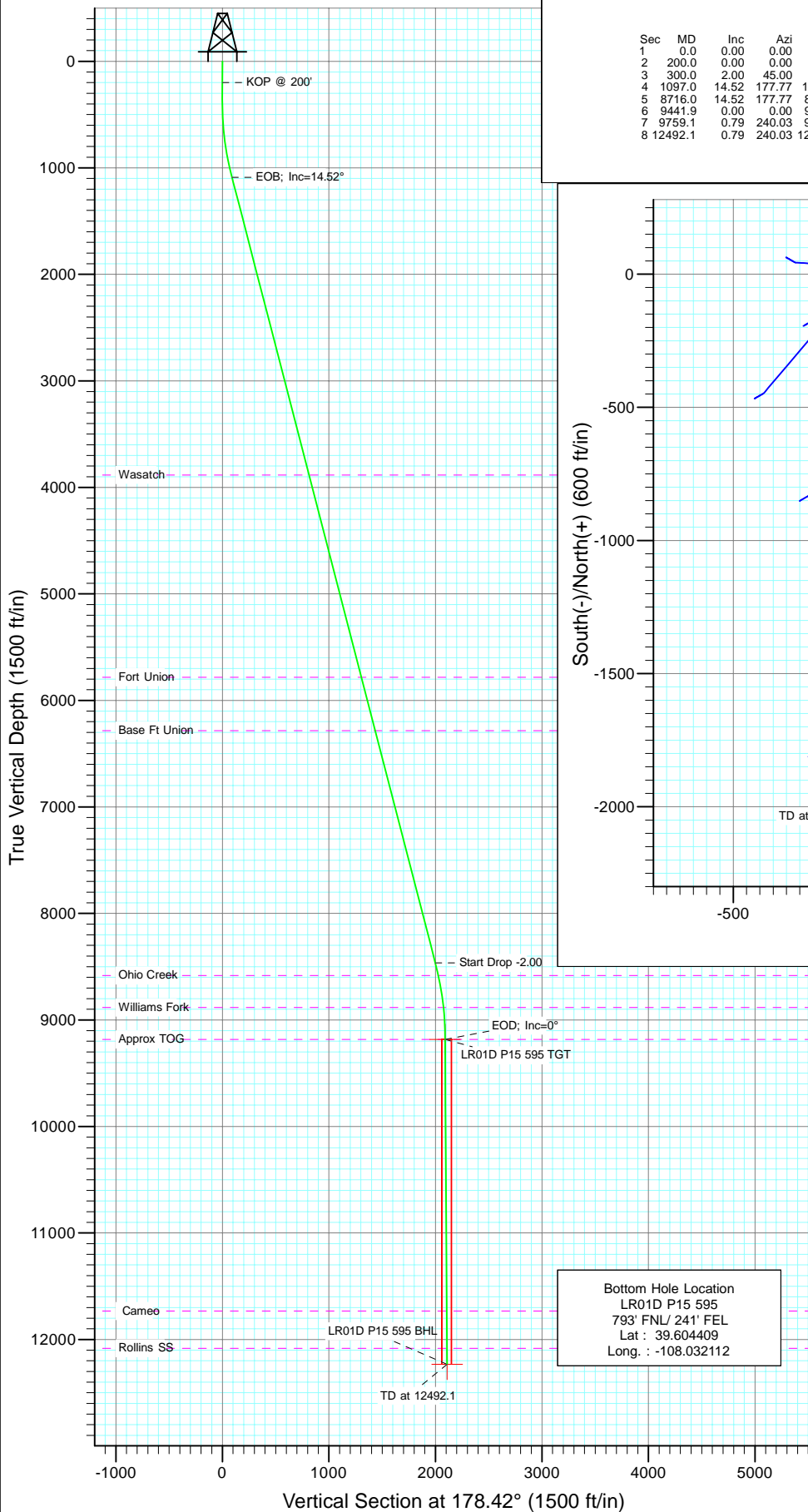




Project: Garfield County  
Site: SESE S15-T5S-R95W (P15 595)  
Well: LR01D P15 595  
Wellbore: DD  
Design: Plan #1



**SECTION DETAILS**

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSECT	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	200.0	0.00	0.00	200.0	0.0	0.0	0.00	0.00	0.0	
3	300.0	2.00	45.00	300.0	1.2	1.2	2.00	45.00	-1.2	
4	1097.0	14.52	177.77	1089.1	-89.3	15.0	2.00	137.93	89.7	
5	8716.0	14.52	177.77	8464.9	-1997.6	89.4	0.00	0.00	1999.3	
6	9441.9	0.00	0.00	9183.0	-2089.0	93.0	2.00	180.00	2090.8	LR01D P15 595 TGT
7	9759.1	0.79	240.03	9500.2	-2090.1	91.1	0.25	240.03	2091.8	
8	12492.1	0.79	240.03	12233.0	-2109.0	58.3	0.00	0.00	2109.8	LR01D P15 595 BHL

**Surface Hole Location**  
LR01D P15 595  
1317' FSL/ 299' FEL  
Lat: 39.610199 Long: -108.032319

**Bottom Hole Location**  
LR01D P15 595  
793' FNL/ 241' FEL  
Lat : 39.604409  
Long. : -108.032112

**FORMATION TOP DETAILS**

TVDPPath	MDPath	Formation
3883.0	3983.0	Wasatch
5783.0	5945.7	Fort Union
6283.0	6462.2	Base Ft Union
8583.0	8837.4	Ohio Creek
8883.0	9141.3	Williams Fork
9183.0	9441.9	Approx TOG
11733.0	11992.1	Cameo
12083.0	12342.1	Rollins SS

**DESIGN DETAILS: Plan #1**

105XXX; BH  
KBE @ 8400.0ft (Patterson 302)

Target	Azimuth	Origin	N/S	E/W	From TVD
LR01D P15 595 BHL	178.42	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>	Site SESE S15-T5S-R95W (P15 595)
<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>TVD Reference:</b>	KBE @ 8400.0ft (Patterson 302)
<b>Project:</b>	Garfield County	<b>MD Reference:</b>	KBE @ 8400.0ft (Patterson 302)
<b>Site:</b>	SESE S15-T5S-R95W (P15 595)	<b>North Reference:</b>	True
<b>Well:</b>	LR01D P15 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		SESE S15-T5S-R95W (P15 595)			
Site Position:		Northing:	1,657,070.66 ft	Latitude:	39.610146
From:	Lat/Long	Easting:	2,286,630.08 ft	Longitude:	-108.032334
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence:	-1.60 °

Well	LR01D P15 595					
Well Position	+N/-S	19.3 ft	Northing:	1,657,089.82 ft	Latitude:	39.610199
	+E/-W	4.2 ft	Easting:	2,286,634.84 ft	Longitude:	-108.032319
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	8,385.0 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	9/21/2010	10.45	65.86	52,393

<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	19.3	4.2	178.42

<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	19.3	4.2	0.00	0.00	0.00	0.00	
200.0	0.00	0.00	200.0	19.3	4.2	0.00	0.00	0.00	0.00	
300.0	2.00	45.00	300.0	20.5	5.5	2.00	2.00	0.00	45.00	
1,097.0	14.52	177.77	1,089.1	-70.0	19.3	2.00	1.57	16.66	137.93	
8,716.0	14.52	177.77	8,464.9	-1,978.3	93.7	0.00	0.00	0.00	0.00	
9,441.9	0.00	0.00	9,183.0	-2,069.7	97.2	2.00	-2.00	0.00	180.00	LR01D P15 595 TGT
9,759.1	0.79	240.03	9,500.2	-2,070.8	95.3	0.25	0.25	-37.82	240.03	
12,492.1	0.79	240.03	12,233.0	-2,089.7	62.6	0.00	0.00	0.00	0.00	LR01D P15 595 BHL

# Cathedral Energy Services

## Planning Report

<b>Database:</b>	EDM 5000.1 US Multi Users DB	<b>Local Co-ordinate Reference:</b>	Site SESE S15-T5S-R95W (P15 595)
<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>TVD Reference:</b>	KBE @ 8400.0ft (Patterson 302)
<b>Project:</b>	Garfield County	<b>MD Reference:</b>	KBE @ 8400.0ft (Patterson 302)
<b>Site:</b>	SESE S15-T5S-R95W (P15 595)	<b>North Reference:</b>	True
<b>Well:</b>	LR01D P15 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	19.3	4.2	0.0	0.00	0.00	
30.0	0.00	0.00	30.0	19.3	4.2	0.0	0.00	0.00	
60.0	0.00	0.00	60.0	19.3	4.2	0.0	0.00	0.00	
90.0	0.00	0.00	90.0	19.3	4.2	0.0	0.00	0.00	
120.0	0.00	0.00	120.0	19.3	4.2	0.0	0.00	0.00	
150.0	0.00	0.00	150.0	19.3	4.2	0.0	0.00	0.00	
180.0	0.00	0.00	180.0	19.3	4.2	0.0	0.00	0.00	
200.0	0.00	0.00	200.0	19.3	4.2	0.0	0.00	0.00	KOP @ 200'
210.0	0.20	45.00	210.0	19.3	4.2	0.0	2.00	2.00	
240.0	0.80	45.00	240.0	19.5	4.4	-0.2	2.00	2.00	
270.0	1.40	45.00	270.0	19.9	4.8	-0.6	2.00	2.00	
300.0	2.00	45.00	300.0	20.5	5.5	-1.2	2.00	2.00	
330.0	1.61	59.50	330.0	21.1	6.2	-1.8	2.00	-1.31	
360.0	1.37	80.94	360.0	21.4	6.9	-2.0	2.00	-0.79	
390.0	1.38	106.18	389.9	21.3	7.6	-1.9	2.00	0.02	
420.0	1.62	127.29	419.9	21.0	8.3	-1.6	2.00	0.82	
450.0	2.02	141.47	449.9	20.3	9.0	-0.9	2.00	1.33	
480.0	2.50	150.61	479.9	19.3	9.6	0.1	2.00	1.60	
510.0	3.03	156.70	509.9	18.0	10.2	1.4	2.00	1.75	
540.0	3.58	160.97	539.8	16.4	10.9	3.1	2.00	1.83	
570.0	4.14	164.09	569.7	14.5	11.5	5.0	2.00	1.87	
600.0	4.71	166.46	599.7	12.2	12.1	7.3	2.00	1.91	
630.0	5.29	168.31	629.5	9.7	12.6	9.8	2.00	1.93	
660.0	5.87	169.80	659.4	6.8	13.2	12.7	2.00	1.94	
690.0	6.46	171.02	689.2	3.7	13.7	15.9	2.00	1.95	
720.0	7.04	172.04	719.0	0.2	14.2	19.4	2.00	1.96	
750.0	7.63	172.90	748.8	-3.6	14.7	23.2	2.00	1.97	
780.0	8.22	173.64	778.5	-7.7	15.2	27.3	2.00	1.97	
810.0	8.82	174.28	808.2	-12.2	15.7	31.8	2.00	1.97	
840.0	9.41	174.84	837.8	-16.9	16.1	36.5	2.00	1.98	
870.0	10.00	175.33	867.3	-21.9	16.6	41.5	2.00	1.98	
900.0	10.60	175.77	896.9	-27.3	17.0	46.9	2.00	1.98	
930.0	11.19	176.16	926.3	-32.9	17.4	52.6	2.00	1.98	
960.0	11.79	176.52	955.7	-38.9	17.8	58.5	2.00	1.99	
990.0	12.39	176.84	985.1	-45.2	18.1	64.8	2.00	1.99	
1,020.0	12.98	177.13	1,014.3	-51.8	18.5	71.4	2.00	1.99	
1,050.0	13.58	177.39	1,043.5	-58.6	18.8	78.3	2.00	1.99	
1,080.0	14.18	177.64	1,072.6	-65.8	19.1	85.5	2.00	1.99	
1,097.0	14.52	177.77	1,089.1	-70.0	19.3	89.7	2.00	1.99	EOB; Inc=14.52°
1,110.0	14.52	177.77	1,101.7	-73.3	19.4	93.0	0.01	0.01	
1,140.0	14.52	177.77	1,130.7	-80.8	19.7	100.5	0.00	0.00	
1,170.0	14.52	177.77	1,159.8	-88.3	20.0	108.0	0.00	0.00	
1,200.0	14.52	177.77	1,188.8	-95.8	20.3	115.5	0.00	0.00	
1,230.0	14.52	177.77	1,217.9	-103.3	20.6	123.0	0.00	0.00	
1,260.0	14.52	177.77	1,246.9	-110.9	20.9	130.6	0.00	0.00	
1,290.0	14.52	177.77	1,276.0	-118.4	21.2	138.1	0.00	0.00	
1,320.0	14.52	177.77	1,305.0	-125.9	21.5	145.6	0.00	0.00	
1,350.0	14.52	177.77	1,334.0	-133.4	21.7	153.1	0.00	0.00	
1,380.0	14.52	177.77	1,363.1	-140.9	22.0	160.6	0.00	0.00	
1,410.0	14.52	177.77	1,392.1	-148.4	22.3	168.2	0.00	0.00	
1,440.0	14.52	177.77	1,421.2	-155.9	22.6	175.7	0.00	0.00	
1,470.0	14.52	177.77	1,450.2	-163.5	22.9	183.2	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>	Site SESE S15-T5S-R95W (P15 595)
<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>TVD Reference:</b>	KBE @ 8400.0ft (Patterson 302)
<b>Project:</b>	Garfield County	<b>MD Reference:</b>	KBE @ 8400.0ft (Patterson 302)
<b>Site:</b>	SESE S15-T5S-R95W (P15 595)	<b>North Reference:</b>	True
<b>Well:</b>	LR01D P15 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	14.52	177.77	1,479.2	-171.0	23.2	190.7	0.00	0.00	
1,530.0	14.52	177.77	1,508.3	-178.5	23.5	198.2	0.00	0.00	
1,560.0	14.52	177.77	1,537.3	-186.0	23.8	205.8	0.00	0.00	
1,590.0	14.52	177.77	1,566.4	-193.5	24.1	213.3	0.00	0.00	
1,620.0	14.52	177.77	1,595.4	-201.0	24.4	220.8	0.00	0.00	
1,650.0	14.52	177.77	1,624.5	-208.5	24.7	228.3	0.00	0.00	
1,680.0	14.52	177.77	1,653.5	-216.1	25.0	235.8	0.00	0.00	
1,710.0	14.52	177.77	1,682.5	-223.6	25.3	243.3	0.00	0.00	
1,740.0	14.52	177.77	1,711.6	-231.1	25.6	250.9	0.00	0.00	
1,770.0	14.52	177.77	1,740.6	-238.6	25.8	258.4	0.00	0.00	
1,800.0	14.52	177.77	1,769.7	-246.1	26.1	265.9	0.00	0.00	
1,830.0	14.52	177.77	1,798.7	-253.6	26.4	273.4	0.00	0.00	
1,860.0	14.52	177.77	1,827.8	-261.1	26.7	280.9	0.00	0.00	
1,890.0	14.52	177.77	1,856.8	-268.7	27.0	288.5	0.00	0.00	
1,920.0	14.52	177.77	1,885.8	-276.2	27.3	296.0	0.00	0.00	
1,950.0	14.52	177.77	1,914.9	-283.7	27.6	303.5	0.00	0.00	
1,980.0	14.52	177.77	1,943.9	-291.2	27.9	311.0	0.00	0.00	
2,010.0	14.52	177.77	1,973.0	-298.7	28.2	318.5	0.00	0.00	
2,040.0	14.52	177.77	2,002.0	-306.2	28.5	326.1	0.00	0.00	
2,070.0	14.52	177.77	2,031.1	-313.7	28.8	333.6	0.00	0.00	
2,100.0	14.52	177.77	2,060.1	-321.3	29.1	341.1	0.00	0.00	
2,130.0	14.52	177.77	2,089.1	-328.8	29.4	348.6	0.00	0.00	
2,160.0	14.52	177.77	2,118.2	-336.3	29.7	356.1	0.00	0.00	
2,190.0	14.52	177.77	2,147.2	-343.8	29.9	363.7	0.00	0.00	
2,220.0	14.52	177.77	2,176.3	-351.3	30.2	371.2	0.00	0.00	
2,250.0	14.52	177.77	2,205.3	-358.8	30.5	378.7	0.00	0.00	
2,280.0	14.52	177.77	2,234.3	-366.3	30.8	386.2	0.00	0.00	
2,310.0	14.52	177.77	2,263.4	-373.8	31.1	393.7	0.00	0.00	
2,340.0	14.52	177.77	2,292.4	-381.4	31.4	401.2	0.00	0.00	
2,370.0	14.52	177.77	2,321.5	-388.9	31.7	408.8	0.00	0.00	
2,400.0	14.52	177.77	2,350.5	-396.4	32.0	416.3	0.00	0.00	
2,430.0	14.52	177.77	2,379.6	-403.9	32.3	423.8	0.00	0.00	
2,460.0	14.52	177.77	2,408.6	-411.4	32.6	431.3	0.00	0.00	
2,490.0	14.52	177.77	2,437.6	-418.9	32.9	438.8	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									
LR01D P15 595 BHL	0.00	0.00	12,233.0	-2,089.7	62.6	1,654,980.01	2,286,634.37	39.604409	-108.032112
- plan misses target center by 9936.9ft at 2490.0ft MD (2437.6 TVD, -418.9 N, 32.9 E)									
- Polygon									
Point 1			12,233.0	50.0	100.0	1,655,027.20	2,286,735.72		
Point 2			12,233.0	50.0	-100.0	1,655,032.77	2,286,535.80		
Point 3			12,233.0	-40.0	-100.0	1,654,942.81	2,286,533.29		
Point 4			12,233.0	-40.0	100.0	1,654,937.24	2,286,733.21		
LR01D P15 595 TGT	0.00	0.00	9,183.0	-2,069.7	97.2	1,654,999.03	2,286,669.58	39.604464	-108.031989
- plan misses target center by 6944.7ft at 2490.0ft MD (2437.6 TVD, -418.9 N, 32.9 E)									
- Point									

# Cathedral Energy Services

## Planning Report

<b>Database:</b>	EDM 5000.1 US Multi Users DB	<b>Local Co-ordinate Reference:</b>	Site SESE S15-T5S-R95W (P15 595)
<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>TVD Reference:</b>	KBE @ 8400.0ft (Patterson 302)
<b>Project:</b>	Garfield County	<b>MD Reference:</b>	KBE @ 8400.0ft (Patterson 302)
<b>Site:</b>	SESE S15-T5S-R95W (P15 595)	<b>North Reference:</b>	True
<b>Well:</b>	LR01D P15 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	14.52	177.77	2,447.3	-421.4	33.0	441.4	0.00	0.00	
2,600.0	14.52	177.77	2,544.1	-446.5	33.9	466.4	0.00	0.00	
2,700.0	14.52	177.77	2,640.9	-471.5	34.9	491.5	0.00	0.00	
2,800.0	14.52	177.77	2,737.7	-496.6	35.9	516.5	0.00	0.00	
2,900.0	14.52	177.77	2,834.6	-521.6	36.9	541.6	0.00	0.00	
3,000.0	14.52	177.77	2,931.4	-546.7	37.9	566.7	0.00	0.00	
3,100.0	14.52	177.77	3,028.2	-571.7	38.8	591.7	0.00	0.00	
3,200.0	14.52	177.77	3,125.0	-596.8	39.8	616.8	0.00	0.00	
3,300.0	14.52	177.77	3,221.8	-621.8	40.8	641.9	0.00	0.00	
3,400.0	14.52	177.77	3,318.6	-646.9	41.8	666.9	0.00	0.00	
3,500.0	14.52	177.77	3,415.4	-671.9	42.7	692.0	0.00	0.00	
3,600.0	14.52	177.77	3,512.2	-696.9	43.7	717.1	0.00	0.00	
3,700.0	14.52	177.77	3,609.0	-722.0	44.7	742.1	0.00	0.00	
3,800.0	14.52	177.77	3,705.8	-747.0	45.7	767.2	0.00	0.00	
3,900.0	14.52	177.77	3,802.6	-772.1	46.6	792.2	0.00	0.00	
3,983.0	14.52	177.77	3,883.0	-792.9	47.5	813.1	0.00	0.00	Wasatch
4,000.0	14.52	177.77	3,899.4	-797.1	47.6	817.3	0.00	0.00	
4,100.0	14.52	177.77	3,996.2	-822.2	48.6	842.4	0.00	0.00	
4,200.0	14.52	177.77	4,093.1	-847.2	49.6	867.4	0.00	0.00	
4,300.0	14.52	177.77	4,189.9	-872.3	50.5	892.5	0.00	0.00	
4,400.0	14.52	177.77	4,286.7	-897.3	51.5	917.6	0.00	0.00	
4,500.0	14.52	177.77	4,383.5	-922.4	52.5	942.6	0.00	0.00	
4,600.0	14.52	177.77	4,480.3	-947.4	53.5	967.7	0.00	0.00	
4,700.0	14.52	177.77	4,577.1	-972.5	54.5	992.8	0.00	0.00	
4,800.0	14.52	177.77	4,673.9	-997.5	55.4	1,017.8	0.00	0.00	
4,900.0	14.52	177.77	4,770.7	-1,022.6	56.4	1,042.9	0.00	0.00	
5,000.0	14.52	177.77	4,867.5	-1,047.6	57.4	1,068.0	0.00	0.00	
5,100.0	14.52	177.77	4,964.3	-1,072.6	58.4	1,093.0	0.00	0.00	
5,200.0	14.52	177.77	5,061.1	-1,097.7	59.3	1,118.1	0.00	0.00	
5,300.0	14.52	177.77	5,157.9	-1,122.7	60.3	1,143.1	0.00	0.00	
5,400.0	14.52	177.77	5,254.7	-1,147.8	61.3	1,168.2	0.00	0.00	
5,500.0	14.52	177.77	5,351.6	-1,172.8	62.3	1,193.3	0.00	0.00	
5,600.0	14.52	177.77	5,448.4	-1,197.9	63.2	1,218.3	0.00	0.00	
5,700.0	14.52	177.77	5,545.2	-1,222.9	64.2	1,243.4	0.00	0.00	
5,800.0	14.52	177.77	5,642.0	-1,248.0	65.2	1,268.5	0.00	0.00	
5,900.0	14.52	177.77	5,738.8	-1,273.0	66.2	1,293.5	0.00	0.00	
5,945.7	14.52	177.77	5,783.0	-1,284.5	66.6	1,305.0	0.00	0.00	Fort Union
6,000.0	14.52	177.77	5,835.6	-1,298.1	67.1	1,318.6	0.00	0.00	
6,100.0	14.52	177.77	5,932.4	-1,323.1	68.1	1,343.7	0.00	0.00	
6,200.0	14.52	177.77	6,029.2	-1,348.2	69.1	1,368.7	0.00	0.00	
6,300.0	14.52	177.77	6,126.0	-1,373.2	70.1	1,393.8	0.00	0.00	
6,400.0	14.52	177.77	6,222.8	-1,398.3	71.0	1,418.8	0.00	0.00	
6,462.2	14.52	177.77	6,283.0	-1,413.8	71.7	1,434.4	0.00	0.00	Base Ft Union
6,500.0	14.52	177.77	6,319.6	-1,423.3	72.0	1,443.9	0.00	0.00	
6,600.0	14.52	177.77	6,416.4	-1,448.3	73.0	1,469.0	0.00	0.00	
6,700.0	14.52	177.77	6,513.2	-1,473.4	74.0	1,494.0	0.00	0.00	
6,800.0	14.52	177.77	6,610.1	-1,498.4	75.0	1,519.1	0.00	0.00	
6,900.0	14.52	177.77	6,706.9	-1,523.5	75.9	1,544.2	0.00	0.00	
7,000.0	14.52	177.77	6,803.7	-1,548.5	76.9	1,569.2	0.00	0.00	
7,100.0	14.52	177.77	6,900.5	-1,573.6	77.9	1,594.3	0.00	0.00	
7,200.0	14.52	177.77	6,997.3	-1,598.6	78.9	1,619.4	0.00	0.00	
7,300.0	14.52	177.77	7,094.1	-1,623.7	79.8	1,644.4	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>	Site SESE S15-T5S-R95W (P15 595)
<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>TVD Reference:</b>	KBE @ 8400.0ft (Patterson 302)
<b>Project:</b>	Garfield County	<b>MD Reference:</b>	KBE @ 8400.0ft (Patterson 302)
<b>Site:</b>	SESE S15-T5S-R95W (P15 595)	<b>North Reference:</b>	True
<b>Well:</b>	LR01D P15 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	14.52	177.77	7,190.9	-1,648.7	80.8	1,669.5	0.00	0.00	
7,500.0	14.52	177.77	7,287.7	-1,673.8	81.8	1,694.5	0.00	0.00	
7,600.0	14.52	177.77	7,384.5	-1,698.8	82.8	1,719.6	0.00	0.00	
7,700.0	14.52	177.77	7,481.3	-1,723.9	83.7	1,744.7	0.00	0.00	
7,800.0	14.52	177.77	7,578.1	-1,748.9	84.7	1,769.7	0.00	0.00	
7,900.0	14.52	177.77	7,674.9	-1,774.0	85.7	1,794.8	0.00	0.00	
8,000.0	14.52	177.77	7,771.7	-1,799.0	86.7	1,819.9	0.00	0.00	
8,100.0	14.52	177.77	7,868.6	-1,824.0	87.6	1,844.9	0.00	0.00	
8,200.0	14.52	177.77	7,965.4	-1,849.1	88.6	1,870.0	0.00	0.00	
8,300.0	14.52	177.77	8,062.2	-1,874.1	89.6	1,895.1	0.00	0.00	
8,400.0	14.52	177.77	8,159.0	-1,899.2	90.6	1,920.1	0.00	0.00	
8,500.0	14.52	177.77	8,255.8	-1,924.2	91.5	1,945.2	0.00	0.00	
8,600.0	14.52	177.77	8,352.6	-1,949.3	92.5	1,970.3	0.00	0.00	
8,700.0	14.52	177.77	8,449.4	-1,974.3	93.5	1,995.3	0.00	0.00	
8,716.0	14.52	177.77	8,464.9	-1,978.3	93.7	1,999.3	0.00	0.00	Start Drop -2.00
8,800.0	12.84	177.77	8,546.5	-1,998.2	94.4	2,019.2	2.00	-2.00	
8,837.4	12.09	177.77	8,583.0	-2,006.2	94.7	2,027.3	2.00	-2.00	Ohio Creek
8,900.0	10.84	177.77	8,644.4	-2,018.7	95.2	2,039.7	2.00	-2.00	
9,000.0	8.84	177.77	8,742.9	-2,035.7	95.9	2,056.8	2.00	-2.00	
9,100.0	6.84	177.77	8,842.0	-2,049.4	96.4	2,070.4	2.00	-2.00	
9,141.3	6.01	177.77	8,883.0	-2,054.0	96.6	2,075.0	2.00	-2.00	Williams Fork
9,200.0	4.84	177.77	8,941.4	-2,059.5	96.8	2,080.6	2.00	-2.00	
9,300.0	2.84	177.77	9,041.2	-2,066.2	97.1	2,087.3	2.00	-2.00	
9,400.0	0.84	177.77	9,141.1	-2,069.4	97.2	2,090.5	2.00	-2.00	
9,441.9	0.00	0.00	9,183.0	-2,069.7	97.2	2,090.8	2.00	-2.00	EOD; Inc=0° - Approx TOG - LR01D P15 595 T
9,500.0	0.15	240.03	9,241.1	-2,069.8	97.2	2,090.8	0.25	0.25	
9,600.0	0.40	240.03	9,341.1	-2,070.0	96.7	2,091.0	0.25	0.25	
9,700.0	0.65	240.03	9,441.1	-2,070.5	96.0	2,091.5	0.25	0.25	
9,759.1	0.79	240.03	9,500.2	-2,070.8	95.3	2,091.8	0.25	0.25	
9,800.0	0.79	240.03	9,541.1	-2,071.1	94.8	2,092.1	0.00	0.00	
9,900.0	0.79	240.03	9,641.1	-2,071.8	93.6	2,092.8	0.00	0.00	
10,000.0	0.79	240.03	9,741.1	-2,072.5	92.4	2,093.4	0.00	0.00	
10,100.0	0.79	240.03	9,841.1	-2,073.2	91.2	2,094.1	0.00	0.00	
10,200.0	0.79	240.03	9,941.1	-2,073.9	90.0	2,094.7	0.00	0.00	
10,300.0	0.79	240.03	10,041.1	-2,074.6	88.8	2,095.4	0.00	0.00	
10,400.0	0.79	240.03	10,141.1	-2,075.3	87.6	2,096.0	0.00	0.00	
10,500.0	0.79	240.03	10,241.1	-2,075.9	86.4	2,096.7	0.00	0.00	
10,600.0	0.79	240.03	10,341.1	-2,076.6	85.2	2,097.4	0.00	0.00	
10,700.0	0.79	240.03	10,441.0	-2,077.3	84.0	2,098.0	0.00	0.00	
10,800.0	0.79	240.03	10,541.0	-2,078.0	82.8	2,098.7	0.00	0.00	
10,900.0	0.79	240.03	10,641.0	-2,078.7	81.6	2,099.3	0.00	0.00	
11,000.0	0.79	240.03	10,741.0	-2,079.4	80.4	2,100.0	0.00	0.00	
11,100.0	0.79	240.03	10,841.0	-2,080.1	79.2	2,100.7	0.00	0.00	
11,200.0	0.79	240.03	10,941.0	-2,080.8	78.0	2,101.3	0.00	0.00	
11,300.0	0.79	240.03	11,041.0	-2,081.5	76.8	2,102.0	0.00	0.00	
11,400.0	0.79	240.03	11,141.0	-2,082.2	75.6	2,102.6	0.00	0.00	
11,500.0	0.79	240.03	11,241.0	-2,082.9	74.4	2,103.3	0.00	0.00	
11,600.0	0.79	240.03	11,341.0	-2,083.6	73.2	2,103.9	0.00	0.00	
11,700.0	0.79	240.03	11,440.9	-2,084.2	72.0	2,104.6	0.00	0.00	
11,800.0	0.79	240.03	11,540.9	-2,084.9	70.9	2,105.3	0.00	0.00	
11,900.0	0.79	240.03	11,640.9	-2,085.6	69.7	2,105.9	0.00	0.00	
11,992.1	0.79	240.03	11,733.0	-2,086.3	68.5	2,106.5	0.00	0.00	Cameo

# Cathedral Energy Services

## Planning Report

<b>Database:</b>	EDM 5000.1 US Multi Users DB	<b>Local Co-ordinate Reference:</b>	Site SESE S15-T5S-R95W (P15 595)
<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>TVD Reference:</b>	KBE @ 8400.0ft (Patterson 302)
<b>Project:</b>	Garfield County	<b>MD Reference:</b>	KBE @ 8400.0ft (Patterson 302)
<b>Site:</b>	SESE S15-T5S-R95W (P15 595)	<b>North Reference:</b>	True
<b>Well:</b>	LR01D P15 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	0.79	240.03	11,740.9	-2,086.3	68.5	2,106.6	0.00	0.00	
12,100.0	0.79	240.03	11,840.9	-2,087.0	67.3	2,107.2	0.00	0.00	
12,200.0	0.79	240.03	11,940.9	-2,087.7	66.1	2,107.9	0.00	0.00	
12,300.0	0.79	240.03	12,040.9	-2,088.4	64.9	2,108.5	0.00	0.00	
12,342.1	0.79	240.03	12,083.0	-2,088.7	64.4	2,108.8	0.00	0.00	Rollins SS
12,400.0	0.79	240.03	12,140.9	-2,089.1	63.7	2,109.2	0.00	0.00	
12,492.1	0.79	240.03	12,233.0	-2,089.7	62.6	2,109.8	0.00	0.00	TD at 12492.1 - LR01D P15 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
LR01D P15 595 BHL - plan hits target center - Polygon	0.00	0.00	12,233.0	-2,089.7	62.6	1,654,980.01	2,286,634.37	39.604409	-108.032112
Point 1			12,233.0	50.0	100.0	1,655,027.20	2,286,735.72		
Point 2			12,233.0	50.0	-100.0	1,655,032.77	2,286,535.80		
Point 3			12,233.0	-40.0	-100.0	1,654,942.81	2,286,533.29		
Point 4			12,233.0	-40.0	100.0	1,654,937.24	2,286,733.21		
LR01D P15 595 TGT - plan hits target center - Point	0.00	0.00	9,183.0	-2,069.7	97.2	1,654,999.03	2,286,669.58	39.604464	-108.031989

### Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,983.0	3,883.0	Wasatch		0.00	
5,945.7	5,783.0	Fort Union		0.00	
6,462.2	6,283.0	Base Ft Union		0.00	
8,837.4	8,583.0	Ohio Creek		0.00	
9,141.3	8,883.0	Williams Fork		0.00	
9,441.9	9,183.0	Approx TOG		0.00	
11,992.1	11,733.0	Cameo		0.00	
12,342.1	12,083.0	Rollins SS		0.00	

### Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	+E/-W (ft)	Comment
200.0	200.0	19.3	4.2	KOP @ 200'
1,097.0	1,089.1	-70.0	19.3	EOB; Inc=14.52°
8,716.0	8,464.9	-1,978.3	93.7	Start Drop -2.00
9,441.9	9,183.0	-2,069.7	97.2	EOD; Inc=0°
12,492.1	12,233.0	-2,089.7	62.6	TD at 12492.1

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

**Garfield County**

**SESE S15-T5S-R95W (P15 595)**

**LR01D P15 595**

**DD**

**Plan #1**

## **Anticollision Report**

**23 September, 2010**



# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>Local Co-ordinate Reference:</b>	Site SESE S15-T5S-R95W (P15 595)
<b>Project:</b>	Garfield County	<b>TVD Reference:</b>	KBE @ 8400.0ft (Patterson 302)
<b>Reference Site:</b>	SESE S15-T5S-R95W (P15 595)	<b>MD Reference:</b>	KBE @ 8400.0ft (Patterson 302)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	LR01D P15 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	9/23/2010		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
0.0	12,492.1	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						
NESE S15-T5S-R95 (P15 595)						
LR09B P15 595 - DD - Plan #1	379.8	379.7	37.6	36.3	29.432	CC, ES
LR09B P15 595 - DD - Plan #1	600.0	598.2	48.0	45.9	23.433	SF
LR09C P15 595 - DD - Plan #1	378.3	378.3	27.6	26.3	21.687	CC, ES
LR09C P15 595 - DD - Plan #1	500.0	499.9	30.3	28.6	17.832	SF
LR09D P15 595 - DD - Plan #1	380.7	380.6	47.6	46.3	37.185	CC
LR09D P15 595 - DD - Plan #1	400.0	399.9	47.7	46.3	35.357	ES
LR09D P15 595 - DD - Plan #1	600.0	597.7	58.0	55.9	28.320	SF
LR16B P15 595 - DD - Plan #1	374.3	374.3	17.6	16.3	13.989	CC, ES
LR16B P15 595 - DD - Plan #1	500.0	499.9	20.6	18.9	12.105	SF
SESE S15-T5S-R95W (P15 595)						
LR01A P15 595 - DD - Plan #1	200.0	200.0	29.8	29.1	46.128	CC
LR01A P15 595 - DD - Plan #1	1,700.0	1,689.4	37.3	27.1	3.674	ES
LR01A P15 595 - DD - Plan #1	1,800.0	1,789.1	39.6	28.8	3.667	SF
LR01B P15 595 - DD - Plan #1	200.0	200.0	39.8	39.2	61.653	CC, ES
LR01B P15 595 - DD - Plan #1	2,800.0	2,784.5	87.0	67.0	4.351	SF
LR16A P15 595 - DD - Plan #1	363.8	363.8	7.8	6.6	6.369	CC, ES
LR16A P15 595 - DD - Plan #1	400.0	399.9	8.0	6.7	5.966	SF
LR16C P15 595 - DD - Plan #1	200.0	200.0	10.0	9.4	15.520	CC
LR16C P15 595 - DD - Plan #1	604.6	604.3	10.2	8.1	4.884	ES, SF
LR16D P15 595 - DD - Plan #1	825.1	823.3	15.7	12.7	5.110	CC
LR16D P15 595 - DD - Plan #1	900.0	898.2	16.0	12.6	4.604	ES
LR16D P15 595 - DD - Plan #1	3,500.0	3,498.5	42.0	25.6	2.564	SF

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>Local Co-ordinate Reference:</b>	Site SESE S15-T5S-R95W (P15 595)
<b>Project:</b>	Garfield County	<b>TVD Reference:</b>	KBE @ 8400.0ft (Patterson 302)
<b>Reference Site:</b>	SESE S15-T5S-R95W (P15 595)	<b>MD Reference:</b>	KBE @ 8400.0ft (Patterson 302)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	LR01D P15 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> NESE S15-T5S-R95 (P15 595) - LR09B P15 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	11.73	58.6	12.4	40.2					
100.0	100.0	100.0	100.0	0.1	0.1	11.73	58.6	12.4	40.2	39.9	0.30	135.445		
200.0	200.0	200.0	200.0	0.3	0.3	11.73	58.6	12.4	40.2	39.5	0.65	62.232		
300.0	300.0	300.0	300.0	0.5	0.5	-34.70	58.6	12.4	38.7	37.7	1.00	38.905		
379.8	379.7	379.7	379.7	0.6	0.6	-90.00	58.6	12.4	37.6	36.3	1.28	29.432 CC, ES		
400.0	399.9	399.9	399.9	0.7	0.7	-107.02	58.6	12.4	37.7	36.3	1.35	27.933		
500.0	499.9	499.9	499.9	0.9	0.8	-151.53	58.6	12.4	40.2	38.5	1.70	23.651		
600.0	599.7	598.2	598.1	1.1	1.0	-166.78	60.2	11.7	48.0	45.9	2.05	23.433 SF		
700.0	699.2	695.3	695.2	1.3	1.2	-175.17	64.7	9.7	62.5	60.1	2.39	26.184		
800.0	798.3	790.7	790.2	1.5	1.4	179.63	72.1	6.4	83.6	80.9	2.72	30.786		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>Local Co-ordinate Reference:</b>	Site SESE S15-T5S-R95W (P15 595)
<b>Project:</b>	Garfield County	<b>TVD Reference:</b>	KBE @ 8400.0ft (Patterson 302)
<b>Reference Site:</b>	SESE S15-T5S-R95W (P15 595)	<b>MD Reference:</b>	KBE @ 8400.0ft (Patterson 302)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	LR01D P15 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> NESE S15-T5S-R95 (P15 595) - LR09C P15 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	11.86	48.8	10.4	30.2				
100.0	100.0	100.0	100.0	0.1	0.1	11.86	48.8	10.4	30.2	29.9	0.30	101.640	
200.0	200.0	200.0	200.0	0.3	0.3	11.86	48.8	10.4	30.2	29.5	0.65	46.699	
300.0	300.0	300.0	300.0	0.5	0.5	-35.06	48.8	10.4	28.7	27.7	1.00	28.833	
378.3	378.3	378.3	378.3	0.6	0.6	-90.00	48.8	10.4	27.6	26.3	1.27	21.687 CC, ES	
400.0	399.9	399.9	399.9	0.7	0.7	-108.61	48.8	10.4	27.7	26.3	1.35	20.523	
500.0	499.9	499.9	499.9	0.9	0.8	-154.16	48.8	10.4	30.3	28.6	1.70	17.832 SF	
600.0	599.7	599.7	599.7	1.1	1.0	-168.97	48.8	10.4	36.6	34.5	2.05	17.871	
700.0	699.2	699.2	699.2	1.3	1.2	-175.62	48.8	10.4	46.4	44.0	2.39	19.410	
800.0	798.3	798.3	798.3	1.5	1.4	-178.96	48.8	10.4	59.7	56.9	2.73	21.861	
900.0	896.9	896.9	896.9	1.8	1.5	179.30	48.8	10.4	76.4	73.3	3.06	24.919	
1,000.0	994.8	994.8	994.8	2.2	1.7	178.38	48.8	10.4	96.5	93.1	3.39	28.410	

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>Local Co-ordinate Reference:</b>	Site SESE S15-T5S-R95W (P15 595)
<b>Project:</b>	Garfield County	<b>TVD Reference:</b>	KBE @ 8400.0ft (Patterson 302)
<b>Reference Site:</b>	SESE S15-T5S-R95W (P15 595)	<b>MD Reference:</b>	KBE @ 8400.0ft (Patterson 302)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	LR01D P15 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> NESE S15-T5S-R95 (P15 595) - LR09D P15 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	11.65	68.5	14.4	50.2					
100.0	100.0	100.0	100.0	0.1	0.1	11.65	68.5	14.4	50.2	49.9	0.30	169.251		
200.0	200.0	200.0	200.0	0.3	0.3	11.65	68.5	14.4	50.2	49.6	0.65	77.764		
300.0	300.0	300.0	300.0	0.5	0.5	-34.49	68.5	14.4	48.8	47.8	1.00	48.977		
380.7	380.6	380.6	380.6	0.6	0.6	-90.00	68.5	14.4	47.6	46.3	1.28	37.185 CC		
400.0	399.9	399.9	399.9	0.7	0.7	-106.10	68.5	14.4	47.7	46.3	1.35	35.357 ES		
500.0	499.9	499.9	499.9	0.9	0.8	-149.94	68.5	14.4	50.2	48.5	1.70	29.501		
600.0	599.7	597.7	597.7	1.1	1.0	-164.20	70.1	14.2	58.0	55.9	2.05	28.320 SF		
700.0	699.2	694.4	694.2	1.3	1.2	-171.27	75.0	13.9	72.7	70.3	2.39	30.460		
800.0	798.3	791.7	791.3	1.5	1.4	-175.33	82.3	13.3	93.2	90.5	2.72	34.249		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>Local Co-ordinate Reference:</b>	Site SESE S15-T5S-R95W (P15 595)
<b>Project:</b>	Garfield County	<b>TVD Reference:</b>	KBE @ 8400.0ft (Patterson 302)
<b>Reference Site:</b>	SESE S15-T5S-R95W (P15 595)	<b>MD Reference:</b>	KBE @ 8400.0ft (Patterson 302)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	LR01D P15 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> NESE S15-T5S-R95 (P15 595) - LR16B P15 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						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	11.33	39.0	8.2	20.1					
100.0	100.0	100.0	100.0	0.1	0.1	11.33	39.0	8.2	20.1	19.8	0.30	67.656		
200.0	200.0	200.0	200.0	0.3	0.3	11.33	39.0	8.2	20.1	19.4	0.65	31.085		
300.0	300.0	300.0	300.0	0.5	0.5	-36.66	39.0	8.2	18.6	17.7	1.00	18.724		
374.3	374.3	374.3	374.3	0.6	0.6	-90.00	39.0	8.2	17.6	16.3	1.26	13.989 CC, ES		
400.0	399.9	399.9	399.9	0.7	0.7	-112.90	39.0	8.2	17.7	16.4	1.35	13.143		
500.0	499.9	499.9	499.9	0.9	0.8	-160.10	39.0	8.2	20.6	18.9	1.70	12.105 SF		
600.0	599.7	599.7	599.7	1.1	1.0	-174.70	39.0	8.2	27.0	25.0	2.04	13.207		
700.0	699.2	699.2	699.2	1.3	1.2	179.71	39.0	8.2	36.9	34.5	2.39	15.455		
800.0	798.3	798.3	798.3	1.5	1.4	177.47	39.0	8.2	50.2	47.4	2.73	18.405		
900.0	896.9	896.9	896.9	1.8	1.5	176.60	39.0	8.2	66.8	63.8	3.06	21.835		
1,000.0	994.8	994.8	994.8	2.2	1.7	176.32	39.0	8.2	86.9	83.5	3.39	25.617		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>Local Co-ordinate Reference:</b>	Site SESE S15-T5S-R95W (P15 595)
<b>Project:</b>	Garfield County	<b>TVD Reference:</b>	KBE @ 8400.0ft (Patterson 302)
<b>Reference Site:</b>	SESE S15-T5S-R95W (P15 595)	<b>MD Reference:</b>	KBE @ 8400.0ft (Patterson 302)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	LR01D P15 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 SESE S15-T5S-R95W (P15 595) - LR01A P15 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	-167.99	-9.8	-2.0	29.8					
100.0	100.0	100.0	100.0	0.1	0.1	-167.99	-9.8	-2.0	29.8	29.5	0.30	100.395		
200.0	200.0	200.0	200.0	0.3	0.3	-167.99	-9.8	-2.0	29.8	29.1	0.65	46.128 CC		
300.0	300.0	298.9	298.9	0.5	0.5	148.13	-11.6	-2.1	33.0	32.0	0.99	33.168		
400.0	399.9	397.5	397.3	0.7	0.7	80.90	-16.6	-2.3	39.3	38.0	1.34	29.236		
500.0	499.9	495.8	495.3	0.9	0.9	41.21	-25.1	-2.7	45.6	43.9	1.70	26.850		
600.0	599.7	594.0	592.8	1.1	1.2	30.62	-36.9	-3.3	51.9	49.8	2.06	25.184		
700.0	699.2	692.3	689.8	1.3	1.5	26.43	-52.0	-4.0	58.1	55.7	2.43	23.892		
800.0	798.3	791.9	788.0	1.5	1.8	24.76	-69.0	-4.8	62.6	59.8	2.82	22.215		
900.0	896.9	891.8	886.5	1.8	2.1	24.87	-86.1	-5.6	63.8	60.6	3.23	19.758		
1,000.0	994.8	991.8	984.9	2.2	2.5	26.53	-103.1	-6.4	61.8	58.1	3.69	16.762		
1,097.0	1,089.1	1,088.6	1,080.3	2.6	2.8	29.97	-119.7	-7.2	56.9	52.7	4.22	13.505		
1,100.0	1,092.0	1,091.5	1,083.2	2.6	2.8	30.13	-120.2	-7.2	56.8	52.5	4.23	13.402		
1,200.0	1,188.8	1,191.2	1,181.4	3.1	3.1	36.23	-137.2	-8.0	50.7	45.7	4.93	10.288		
1,300.0	1,285.6	1,290.8	1,279.6	3.5	3.5	43.87	-154.2	-8.8	45.3	39.5	5.78	7.837		
1,400.0	1,382.4	1,390.5	1,377.8	3.9	3.8	53.33	-171.2	-9.6	41.0	34.2	6.83	6.003		
1,500.0	1,479.2	1,490.1	1,476.0	4.4	4.2	64.62	-188.3	-10.5	38.0	30.0	8.01	4.745		
1,600.0	1,576.1	1,589.8	1,574.2	4.9	4.5	77.24	-205.3	-11.3	36.7	27.5	9.18	3.999		
1,619.7	1,595.1	1,609.4	1,593.5	4.9	4.6	79.80	-208.6	-11.4	36.7	27.3	9.39	3.905		
1,700.0	1,672.9	1,689.4	1,672.3	5.3	4.8	90.12	-222.3	-12.1	37.3	27.1	10.14	3.674 ES		
1,800.0	1,769.7	1,789.1	1,770.5	5.8	5.2	102.03	-239.3	-12.9	39.6	28.8	10.81	3.667 SF		
1,900.0	1,866.5	1,888.7	1,868.7	6.2	5.5	112.23	-256.3	-13.7	43.5	32.3	11.21	3.880		
2,000.0	1,963.3	1,988.4	1,966.9	6.7	5.9	120.56	-273.4	-14.5	48.5	37.0	11.44	4.236		
2,100.0	2,060.1	2,088.1	2,065.1	7.2	6.2	127.23	-290.4	-15.3	54.3	42.7	11.61	4.677		
2,200.0	2,156.9	2,187.7	2,163.3	7.6	6.6	132.55	-307.4	-16.1	60.7	48.9	11.76	5.163		
2,300.0	2,253.7	2,287.4	2,261.4	8.1	6.9	136.83	-324.4	-16.9	67.5	55.6	11.92	5.667		
2,400.0	2,350.5	2,387.0	2,359.6	8.6	7.2	140.31	-341.4	-17.7	74.7	62.6	12.10	6.174		
2,500.0	2,447.3	2,486.7	2,457.8	9.0	7.6	143.18	-358.5	-18.6	82.0	69.7	12.30	6.671		
2,600.0	2,544.1	2,586.3	2,556.0	9.5	7.9	145.56	-375.5	-19.4	89.6	77.1	12.52	7.154		
2,700.0	2,640.9	2,686.0	2,654.2	10.0	8.3	147.58	-392.5	-20.2	97.2	84.5	12.76	7.619		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>Local Co-ordinate Reference:</b>	Site SESE S15-T5S-R95W (P15 595)
<b>Project:</b>	Garfield County	<b>TVD Reference:</b>	KBE @ 8400.0ft (Patterson 302)
<b>Reference Site:</b>	SESE S15-T5S-R95W (P15 595)	<b>MD Reference:</b>	KBE @ 8400.0ft (Patterson 302)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	LR01D P15 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 SESE S15-T5S-R95W (P15 595) - LR01B P15 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	-168.16	-19.7	-3.9	39.8					
100.0	100.0	100.0	100.0	0.1	0.1	-168.16	-19.7	-3.9	39.8	39.5	0.30	134.186		
200.0	200.0	200.0	200.0	0.3	0.3	-168.16	-19.7	-3.9	39.8	39.2	0.65	61.653	CC, ES	
300.0	300.0	298.5	298.5	0.5	0.5	147.82	-21.4	-4.1	43.0	42.0	0.99	43.289		
400.0	399.9	396.8	396.6	0.7	0.7	80.58	-26.4	-4.6	49.4	48.0	1.34	36.756		
500.0	499.9	494.8	494.2	0.9	0.9	41.14	-34.8	-5.4	55.7	54.0	1.70	32.863		
600.0	599.7	592.6	591.4	1.1	1.2	30.96	-46.4	-6.6	62.1	60.0	2.06	30.218		
700.0	699.2	690.2	687.8	1.3	1.5	27.27	-61.3	-8.1	68.5	66.0	2.42	28.237		
800.0	798.3	787.6	783.5	1.5	1.8	25.72	-79.4	-9.9	74.8	72.0	2.81	26.635		
900.0	896.9	887.4	881.1	1.8	2.2	25.43	-99.8	-11.9	79.6	76.4	3.22	24.749		
1,000.0	994.8	987.3	978.9	2.2	2.6	26.35	-120.2	-14.0	81.3	77.6	3.67	22.165		
1,097.0	1,089.1	1,084.2	1,073.8	2.6	3.0	28.38	-140.0	-16.0	79.8	75.7	4.16	19.179		
1,100.0	1,092.0	1,087.2	1,076.7	2.6	3.0	28.48	-140.6	-16.0	79.7	75.6	4.18	19.082		
1,200.0	1,188.8	1,187.0	1,174.4	3.1	3.4	32.06	-161.0	-18.1	77.0	72.2	4.78	16.110		
1,300.0	1,285.6	1,286.9	1,272.1	3.5	3.7	35.88	-181.4	-20.1	74.5	69.1	5.46	13.658		
1,400.0	1,382.4	1,386.7	1,369.9	3.9	4.1	39.94	-201.8	-22.1	72.4	66.2	6.22	11.644		
1,500.0	1,479.2	1,486.6	1,467.6	4.4	4.5	44.22	-222.2	-24.2	70.7	63.7	7.07	10.002		
1,600.0	1,576.1	1,586.4	1,565.3	4.9	4.9	48.68	-242.6	-26.2	69.4	61.4	8.00	8.676		
1,700.0	1,672.9	1,686.2	1,663.0	5.3	5.3	53.28	-263.0	-28.2	68.6	59.6	9.01	7.615		
1,800.0	1,769.7	1,786.1	1,760.7	5.8	5.7	57.97	-283.4	-30.3	68.2	58.1	10.07	6.775		
1,837.0	1,805.4	1,823.0	1,796.8	5.9	5.9	59.71	-290.9	-31.0	68.2	57.7	10.47	6.512		
1,900.0	1,866.5	1,885.9	1,858.4	6.2	6.1	62.68	-303.8	-32.3	68.3	57.1	11.16	6.117		
2,000.0	1,963.3	1,985.8	1,956.2	6.7	6.5	67.35	-324.2	-34.3	68.8	56.5	12.26	5.608		
2,100.0	2,060.1	2,085.6	2,053.9	7.2	6.9	71.92	-344.6	-36.4	69.7	56.4	13.36	5.219		
2,200.0	2,156.9	2,185.5	2,151.6	7.6	7.3	76.34	-365.0	-38.4	71.1	56.7	14.44	4.926		
2,300.0	2,253.7	2,285.3	2,249.3	8.1	7.7	80.57	-385.3	-40.4	73.0	57.5	15.48	4.712		
2,400.0	2,350.5	2,385.1	2,347.0	8.6	8.1	84.57	-405.7	-42.5	75.1	58.7	16.48	4.559		
2,500.0	2,447.3	2,485.0	2,444.7	9.0	8.5	88.33	-426.1	-44.5	77.7	60.2	17.43	4.456		
2,600.0	2,544.1	2,584.8	2,542.4	9.5	8.9	91.83	-446.5	-46.5	80.5	62.2	18.33	4.392		
2,700.0	2,640.9	2,684.7	2,640.2	10.0	9.3	95.09	-466.9	-48.6	83.6	64.5	19.19	4.359		
2,800.0	2,737.7	2,784.5	2,737.9	10.4	9.7	98.10	-487.3	-50.6	87.0	67.0	20.00	4.351	SF	
2,900.0	2,834.6	2,884.4	2,835.6	10.9	10.1	100.89	-507.7	-52.7	90.6	69.8	20.77	4.362		
3,000.0	2,931.4	2,984.2	2,933.3	11.4	10.5	103.45	-528.1	-54.7	94.4	72.9	21.51	4.389		
3,100.0	3,028.2	3,084.0	3,031.0	11.8	10.9	105.81	-548.5	-56.7	98.4	76.2	22.22	4.427		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>Local Co-ordinate Reference:</b>	Site SESE S15-T5S-R95W (P15 595)
<b>Project:</b>	Garfield County	<b>TVD Reference:</b>	KBE @ 8400.0ft (Patterson 302)
<b>Reference Site:</b>	SESE S15-T5S-R95W (P15 595)	<b>MD Reference:</b>	KBE @ 8400.0ft (Patterson 302)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	LR01D P15 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 SESE S15-T5S-R95W (P15 595) - LR16A P15 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	11.33	29.1	6.2	10.0				
100.0	100.0	100.0	100.0	0.1	0.1	11.33	29.1	6.2	10.0	9.7	0.30	33.821	
200.0	200.0	200.0	200.0	0.3	0.3	11.33	29.1	6.2	10.0	9.4	0.65	15.539	
300.0	300.0	300.0	300.0	0.5	0.5	-40.11	29.1	6.2	8.6	7.6	1.00	8.670	
363.8	363.8	363.8	363.8	0.6	0.6	-90.00	29.1	6.2	7.8	6.6	1.22	6.369	CC, ES
400.0	399.9	399.9	399.9	0.7	0.7	-125.73	29.1	6.2	8.0	6.7	1.35	5.966	SF
500.0	499.9	499.9	499.9	0.9	0.8	-174.75	29.1	6.2	11.3	9.6	1.70	6.667	
600.0	599.7	599.7	599.7	1.1	1.0	174.40	29.1	6.2	17.9	15.8	2.04	8.756	
700.0	699.2	699.2	699.2	1.3	1.2	172.46	29.1	6.2	27.7	25.3	2.38	11.619	
800.0	798.3	798.3	798.3	1.5	1.4	172.65	29.1	6.2	40.9	38.1	2.72	15.007	
900.0	896.9	896.9	896.9	1.8	1.5	173.30	29.1	6.2	57.4	54.4	3.06	18.776	
1,000.0	994.8	994.8	994.8	2.2	1.7	173.97	29.1	6.2	77.4	74.0	3.39	22.831	
1,097.0	1,089.1	1,091.3	1,091.2	2.6	1.9	173.94	28.0	5.3	99.1	95.4	3.71	26.697	
1,100.0	1,092.0	1,094.2	1,094.2	2.6	1.9	173.94	27.9	5.2	99.8	96.0	3.72	26.805	



# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>Local Co-ordinate Reference:</b>	Site SESE S15-T5S-R95W (P15 595)
<b>Project:</b>	Garfield County	<b>TVD Reference:</b>	KBE @ 8400.0ft (Patterson 302)
<b>Reference Site:</b>	SESE S15-T5S-R95W (P15 595)	<b>MD Reference:</b>	KBE @ 8400.0ft (Patterson 302)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	LR01D P15 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 SESE S15-T5S-R95W (P15 595) - LR16C P15 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	-168.65	9.5	2.3	10.0					
100.0	100.0	100.0	100.0	0.1	0.1	-168.65	9.5	2.3	10.0	9.7	0.30	33.778		
200.0	200.0	200.0	200.0	0.3	0.3	-168.65	9.5	2.3	10.0	9.4	0.65	15.520 CC		
300.0	300.0	300.0	300.0	0.5	0.5	151.15	9.5	2.3	11.5	10.5	1.00	11.569		
400.0	399.9	399.9	399.9	0.7	0.7	91.38	9.5	2.3	13.0	11.7	1.35	9.683		
500.0	499.9	499.9	499.9	0.9	0.8	65.88	9.5	2.3	11.9	10.2	1.70	7.003		
600.0	599.7	599.7	599.7	1.1	1.0	87.70	9.5	2.3	10.2	8.1	2.07	4.929		
604.6	604.3	604.3	604.3	1.1	1.0	89.52	9.5	2.3	10.2	8.1	2.08	4.884 ES, SF		
700.0	699.2	699.3	699.2	1.3	1.2	122.09	7.8	1.8	13.2	10.7	2.42	5.432		
800.0	798.3	799.1	798.9	1.5	1.4	137.59	2.8	0.5	20.1	17.4	2.78	7.238		
900.0	896.9	899.1	898.6	1.8	1.6	143.38	-5.6	-1.7	28.6	25.5	3.17	9.033		
1,000.0	994.8	999.4	998.1	2.2	1.8	145.47	-17.4	-4.8	37.9	34.3	3.59	10.544		
1,097.0	1,089.1	1,096.8	1,094.3	2.6	2.1	145.97	-32.1	-8.6	47.3	43.3	4.05	11.696		
1,100.0	1,092.0	1,099.8	1,097.3	2.6	2.1	145.99	-32.6	-8.7	47.6	43.6	4.06	11.727		
1,200.0	1,188.8	1,199.5	1,195.4	3.1	2.4	146.35	-49.7	-13.2	57.3	52.8	4.57	12.544		
1,300.0	1,285.6	1,299.0	1,293.3	3.5	2.7	146.59	-66.8	-17.6	67.0	61.9	5.10	13.156		
1,400.0	1,382.4	1,398.5	1,391.2	3.9	3.0	146.77	-83.9	-22.1	76.7	71.1	5.63	13.628		
1,500.0	1,479.2	1,498.0	1,489.2	4.4	3.4	146.91	-101.0	-26.5	86.4	80.3	6.17	14.000		
1,600.0	1,576.1	1,597.6	1,587.1	4.9	3.7	147.02	-118.1	-31.0	96.1	89.4	6.72	14.299		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>Local Co-ordinate Reference:</b>	Site SESE S15-T5S-R95W (P15 595)
<b>Project:</b>	Garfield County	<b>TVD Reference:</b>	KBE @ 8400.0ft (Patterson 302)
<b>Reference Site:</b>	SESE S15-T5S-R95W (P15 595)	<b>MD Reference:</b>	KBE @ 8400.0ft (Patterson 302)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	LR01D P15 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 SESE S15-T5S-R95W (P15 595) - LR16D P15 595 - DD - Plan #1													Offset Site Error:	0.0 ft
Survey Program: O-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	-167.65	0.0	0.0	19.8					
100.0	100.0	100.0	100.0	0.1	0.1	-167.65	0.0	0.0	19.8	19.5	0.30	66.578		
200.0	200.0	200.0	200.0	0.3	0.3	-167.65	0.0	0.0	19.8	19.1	0.65	30.590		
300.0	300.0	300.0	300.0	0.5	0.5	149.88	0.0	0.0	21.2	20.2	1.00	21.341		
400.0	399.9	399.9	399.9	0.7	0.7	86.27	0.0	0.0	22.7	21.3	1.35	16.815		
500.0	499.9	499.9	499.9	0.9	0.8	53.60	0.0	0.0	21.0	19.3	1.70	12.362		
600.0	599.7	599.2	599.2	1.1	1.0	54.19	-1.7	0.1	18.4	16.3	2.07	8.905		
700.0	699.2	698.7	698.5	1.3	1.2	63.94	-6.9	0.2	16.6	14.1	2.47	6.716		
800.0	798.3	798.4	797.8	1.5	1.4	77.83	-15.5	0.5	15.8	12.8	2.94	5.361		
825.1	823.0	823.3	822.7	1.6	1.5	81.61	-18.2	0.6	15.7	12.7	3.08	5.110 CC		
900.0	896.9	898.2	896.9	1.8	1.7	92.99	-27.6	0.9	16.0	12.6	3.48	4.604 ES		
1,000.0	994.8	998.2	995.6	2.2	1.9	107.14	-43.2	1.5	17.3	13.2	4.05	4.271		
1,097.0	1,089.1	1,095.3	1,091.0	2.6	2.3	118.88	-61.6	2.1	19.2	14.7	4.57	4.207		
1,100.0	1,092.0	1,098.3	1,094.0	2.6	2.3	119.22	-62.2	2.1	19.3	14.7	4.59	4.209		
1,200.0	1,188.8	1,198.6	1,191.7	3.1	2.7	125.59	-84.7	2.9	20.8	15.7	5.15	4.044		
1,300.0	1,285.6	1,298.6	1,288.8	3.5	3.1	127.75	-108.7	3.7	21.6	15.8	5.79	3.730		
1,400.0	1,382.4	1,398.6	1,385.9	3.9	3.5	129.77	-132.7	4.5	22.4	16.0	6.41	3.489		
1,500.0	1,479.2	1,498.6	1,482.9	4.4	3.9	131.65	-156.7	5.3	23.2	16.1	7.01	3.302		
1,600.0	1,576.1	1,598.6	1,580.0	4.9	4.4	133.40	-180.7	6.2	24.0	16.4	7.60	3.155		
1,700.0	1,672.9	1,698.6	1,677.1	5.3	4.8	135.04	-204.7	7.0	24.8	16.7	8.17	3.039		
1,800.0	1,769.7	1,798.6	1,774.1	5.8	5.2	136.56	-228.7	7.8	25.7	17.0	8.72	2.945		
1,900.0	1,866.5	1,898.6	1,871.2	6.2	5.7	137.99	-252.7	8.6	26.6	17.3	9.25	2.870		
2,000.0	1,963.3	1,998.6	1,968.3	6.7	6.1	139.32	-276.7	9.4	27.5	17.7	9.77	2.809		
2,100.0	2,060.1	2,098.6	2,065.3	7.2	6.6	140.57	-300.7	10.2	28.4	18.1	10.28	2.759		
2,200.0	2,156.9	2,198.6	2,162.4	7.6	7.0	141.74	-324.7	11.1	29.3	18.5	10.77	2.719		
2,300.0	2,253.7	2,298.6	2,259.5	8.1	7.5	142.84	-348.7	11.9	30.2	19.0	11.25	2.686		
2,400.0	2,350.5	2,398.6	2,356.5	8.6	7.9	143.88	-372.7	12.7	31.2	19.4	11.72	2.659		
2,500.0	2,447.3	2,498.5	2,453.6	9.0	8.3	144.85	-396.7	13.5	32.1	19.9	12.18	2.637		
2,600.0	2,544.1	2,598.5	2,550.7	9.5	8.8	145.76	-420.7	14.3	33.1	20.4	12.63	2.619		
2,700.0	2,640.9	2,698.5	2,647.7	10.0	9.2	146.63	-444.7	15.1	34.0	21.0	13.07	2.605		
2,800.0	2,737.7	2,798.5	2,744.8	10.4	9.7	147.45	-468.7	16.0	35.0	21.5	13.50	2.593		
2,900.0	2,834.6	2,898.5	2,841.9	10.9	10.1	148.22	-492.7	16.8	36.0	22.1	13.93	2.584		
3,000.0	2,931.4	2,998.5	2,938.9	11.4	10.6	148.95	-516.7	17.6	37.0	22.6	14.35	2.577		
3,100.0	3,028.2	3,098.5	3,036.0	11.8	11.0	149.64	-540.7	18.4	38.0	23.2	14.77	2.572		
3,200.0	3,125.0	3,198.5	3,133.1	12.3	11.5	150.30	-564.7	19.2	39.0	23.8	15.18	2.568		
3,300.0	3,221.8	3,298.5	3,230.2	12.8	12.0	150.92	-588.7	20.0	40.0	24.4	15.58	2.566		
3,400.0	3,318.6	3,398.5	3,327.2	13.3	12.4	151.52	-612.7	20.9	41.0	25.0	15.98	2.565		
3,500.0	3,415.4	3,498.5	3,424.3	13.7	12.9	152.08	-636.7	21.7	42.0	25.6	16.38	2.564 SF		
3,600.0	3,512.2	3,598.5	3,521.4	14.2	13.3	152.62	-660.7	22.5	43.0	26.2	16.78	2.564		
3,700.0	3,609.0	3,698.5	3,618.4	14.7	13.8	153.13	-684.7	23.3	44.0	26.9	17.17	2.565		
3,800.0	3,705.8	3,798.5	3,715.5	15.1	14.2	153.62	-708.7	24.1	45.1	27.5	17.56	2.567		
3,900.0	3,802.6	3,898.5	3,812.6	15.6	14.7	154.09	-732.6	24.9	46.1	28.2	17.94	2.569		
4,000.0	3,899.4	3,998.5	3,909.6	16.1	15.1	154.54	-756.6	25.8	47.1	28.8	18.33	2.571		
4,100.0	3,996.2	4,098.4	4,006.7	16.5	15.6	154.97	-780.6	26.6	48.2	29.5	18.71	2.574		
4,200.0	4,093.1	4,198.4	4,103.8	17.0	16.0	155.38	-804.6	27.4	49.2	30.1	19.09	2.577		
4,300.0	4,189.9	4,298.4	4,200.8	17.5	16.5	155.77	-828.6	28.2	50.2	30.8	19.46	2.581		
4,400.0	4,286.7	4,398.4	4,297.9	18.0	16.9	156.15	-852.6	29.0	51.3	31.4	19.84	2.584		
4,500.0	4,383.5	4,498.4	4,395.0	18.4	17.4	156.51	-876.6	29.9	52.3	32.1	20.21	2.588		
4,600.0	4,480.3	4,598.4	4,492.0	18.9	17.8	156.86	-900.6	30.7	53.4	32.8	20.59	2.592		
4,700.0	4,577.1	4,698.4	4,589.1	19.4	18.3	157.20	-924.6	31.5	54.4	33.4	20.96	2.596		
4,800.0	4,673.9	4,798.4	4,686.2	19.8	18.7	157.52	-948.6	32.3	55.5	34.1	21.33	2.600		
4,900.0	4,770.7	4,898.4	4,783.2	20.3	19.2	157.83	-972.6	33.1	56.5	34.8	21.70	2.604		

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>	Site SESE S15-T5S-R95W (P15 595)
<b>Project:</b>	Garfield County	<b>TVD Reference:</b>	KBE @ 8400.0ft (Patterson 302)
<b>Reference Site:</b>	SESE S15-T5S-R95W (P15 595)	<b>MD Reference:</b>	KBE @ 8400.0ft (Patterson 302)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	LR01D P15 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													SESE S15-T5S-R95W (P15 595) - LR16D P15 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					
5,000.0	4,867.5	4,998.4	4,880.3	20.8	19.6	158.13	-996.6	33.9	57.6	35.5	22.07	2.608					
5,100.0	4,964.3	5,098.4	4,977.4	21.2	20.1	158.42	-1,020.6	34.8	58.6	36.2	22.44	2.612					
5,200.0	5,061.1	5,198.4	5,074.5	21.7	20.5	158.70	-1,044.6	35.6	59.7	36.9	22.80	2.616					
5,300.0	5,157.9	5,297.4	5,170.7	22.2	21.0	159.09	-1,068.0	36.4	61.1	38.0	23.12	2.642					
5,400.0	5,254.7	5,395.3	5,266.5	22.7	21.4	160.37	-1,088.3	37.1	65.3	42.2	23.07	2.829					
5,500.0	5,351.6	5,492.8	5,362.4	23.1	21.7	162.34	-1,105.3	37.6	72.7	50.0	22.76	3.196					
5,600.0	5,448.4	5,589.7	5,458.3	23.6	21.9	164.57	-1,118.9	38.1	83.5	61.1	22.37	3.732					
5,700.0	5,545.2	5,685.7	5,553.8	24.1	22.1	166.75	-1,129.2	38.5	97.6	75.6	22.05	4.428					

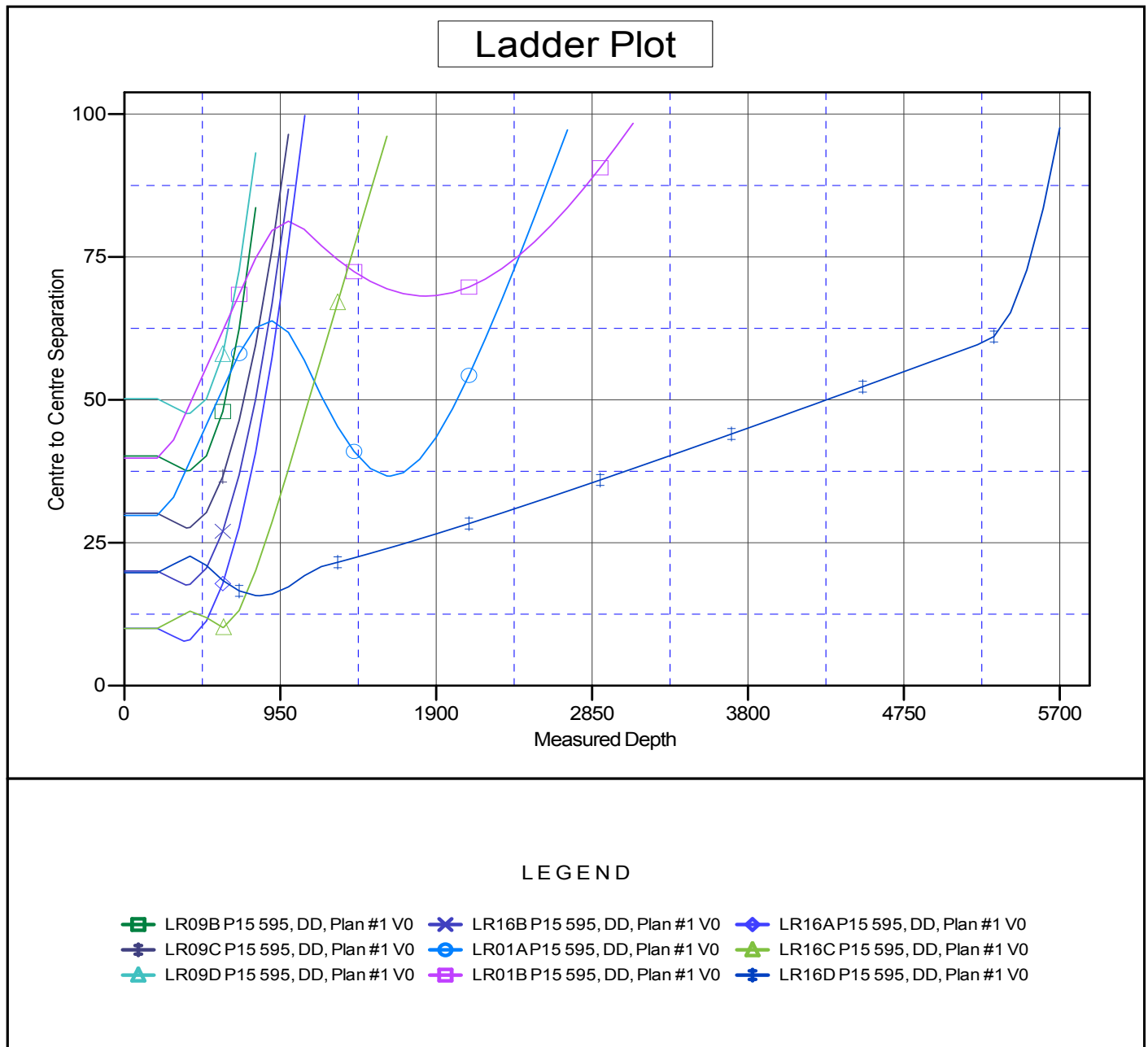
# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>Local Co-ordinate Reference:</b>	Site SESE S15-T5S-R95W (P15 595)
<b>Project:</b>	Garfield County	<b>TVD Reference:</b>	KBE @ 8400.0ft (Patterson 302)
<b>Reference Site:</b>	SESE S15-T5S-R95W (P15 595)	<b>MD Reference:</b>	KBE @ 8400.0ft (Patterson 302)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	LR01D P15 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 @ 8400.0ft (Patterson 302)  
Offset Depths are relative to Offset Datum  
Central Meridian is -105.500000 °

Coordinates are relative to: SESE S15-T5S-R95W (P15 595)  
Coordinate System is US State Plane 1983, Colorado Central Zone  
Grid Convergence at Surface is: -1.60°



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