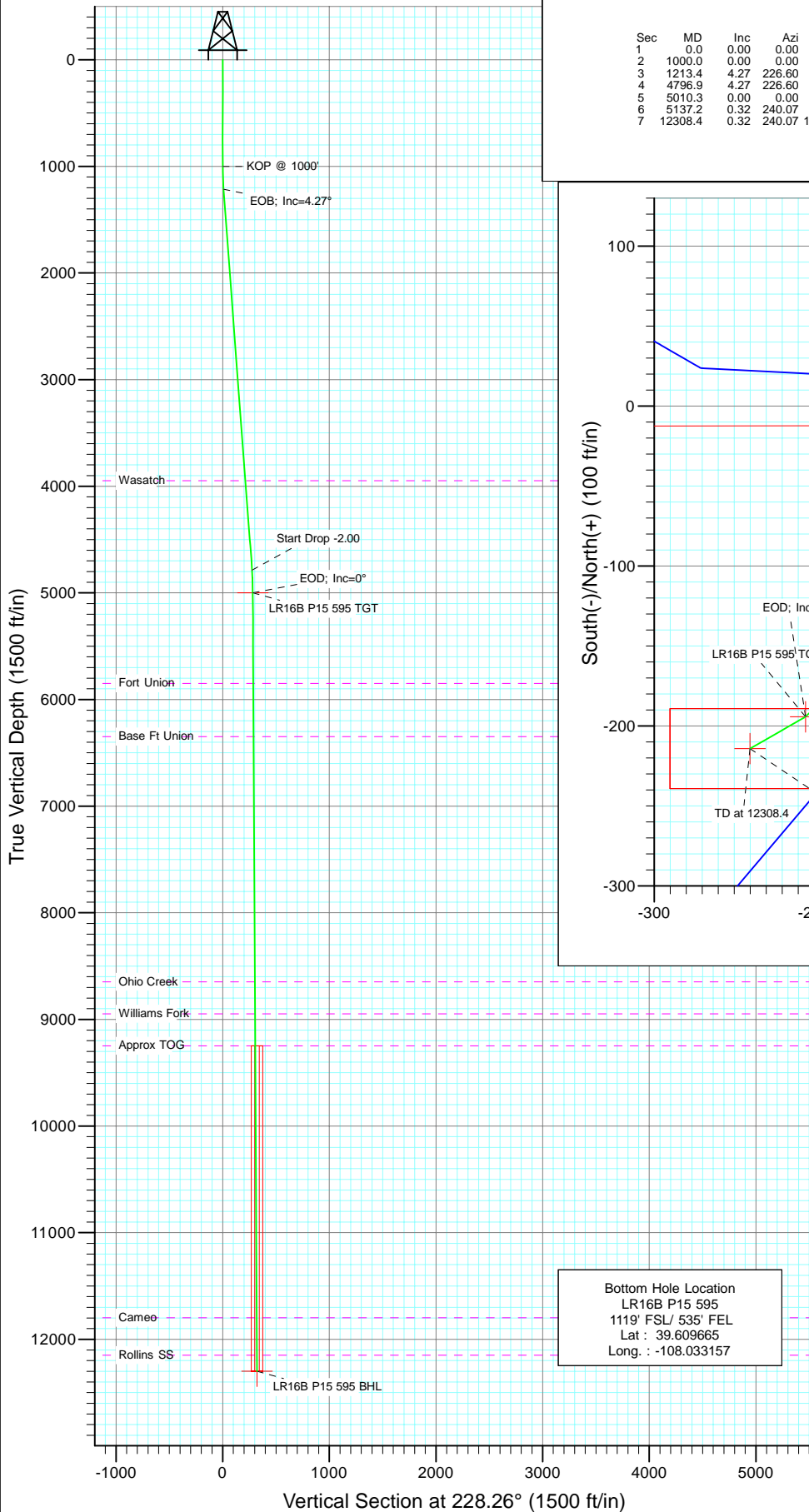
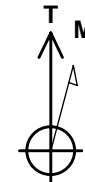
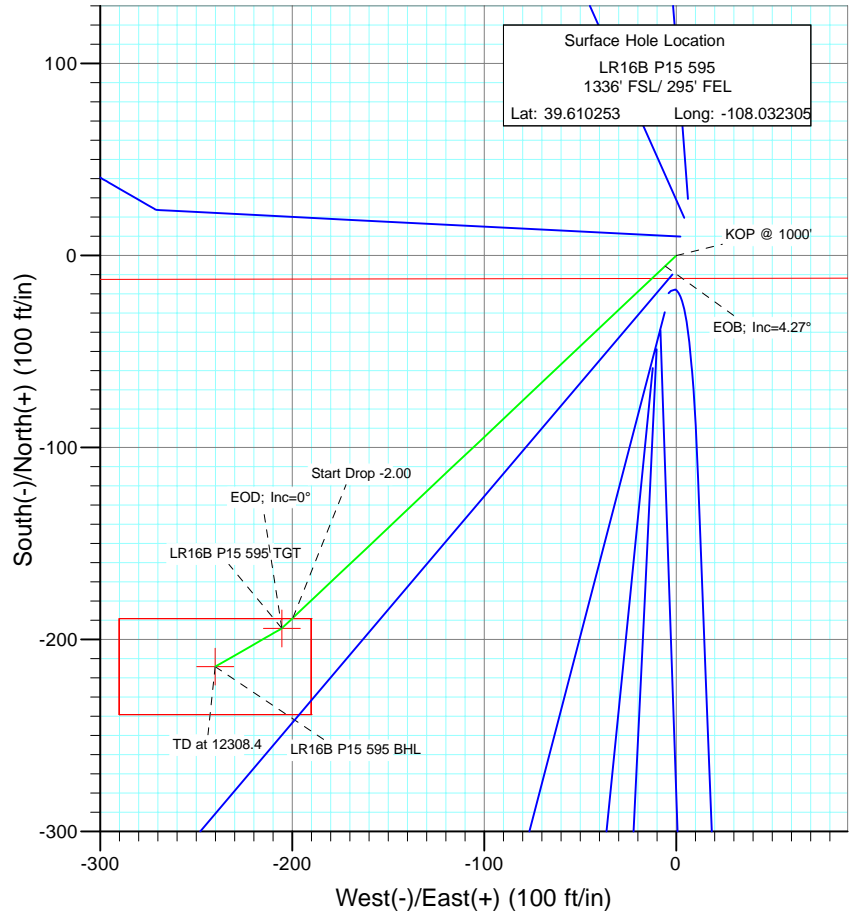




Project: Garfield County
Site: NESE S15-T5S-R95 (P15 595)
Well: LR16B P15 595
Wellbore: DD
Design: Plan #1



SECTION DETAILS										
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VFace	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	1000.0	0.00	0.00	1000.0	0.0	0.0	0.00	0.00	0.0	
3	1213.4	4.27	226.60	1213.2	-5.5	-5.8	2.00	226.60	7.9	
4	4796.9	4.27	226.60	4786.8	-188.7	-199.6	0.00	0.00	274.6	
5	5010.3	0.00	0.00	5000.0	-194.2	-205.3	2.00	180.00	282.5	LR16B P15 595 TGT
6	5137.2	0.32	240.07	5126.8	-194.4	-205.7	0.25	240.07	282.9	
7	12308.4	0.32	240.07	12298.0	-214.2	-240.0	0.00	0.00	321.7	LR16B P15 595 BHL



Azimuths to True North
Magnetic North: 10.45°

Magnetic Field
Strength: 52392.6snT
Dip Angle: 65.86°
Date: 9/21/2010
Model: IGRF200510

FORMATION TOP DETAILS

TVDPPath	MDPath	Formation
3948.0	3955.8	Wasatch
5848.0	5858.3	Fort Union
6348.0	6358.4	Base Ft Union
8648.0	8658.4	Ohio Creek
8948.0	8958.4	Williams Fork
9248.0	9258.4	Approx TOG
11798.0	11808.4	Cameo
12148.0	12158.4	Rollins SS

DESIGN DETAILS: Plan #1

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

Target	Azimuth	Origin	N/S	E/W	From TVD
LR16B P15 595 BHL	228.26	Slot	0.0	0.0	0.0

Cathedral Energy Services

Planning Report

Database:	EDM 5000.1 US Multi Users DB	Local Co-ordinate Reference:	Well LR16B P15 595
Company:	Berry Petroleum Company (NAD 83)	TVD Reference:	KBE @ 8400.0ft (Patterson 302)
Project:	Garfield County	MD Reference:	KBE @ 8400.0ft (Patterson 302)
Site:	NESE S15-T5S-R95 (P15 595)	North Reference:	True
Well:	LR16B P15 595	Survey Calculation Method:	Minimum Curvature
Wellbore:	DD		
Design:	Plan #1		

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

Site	NESE S15-T5S-R95 (P15 595)			
Site Position:		Northing:	1,657,109.39 ft	Latitude: 39.610253
From:	Lat/Long	Easting:	2,286,639.33 ft	Longitude: -108.032305
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence: -1.60 °

Well	LR16B P15 595			
Well Position	+N/-S	0.0 ft	Northing:	1,657,109.39 ft
	+E/-W	0.0 ft	Easting:	2,286,639.33 ft
Position Uncertainty	0.0 ft	Wellhead Elevation:	ft	Ground Level: 8,385.0 ft

Wellbore	DD				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	9/21/2010	10.45	65.86	52,393

Design	Plan #1			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	228.26

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,213.4	4.27	226.60	1,213.2	-5.5	-5.8	2.00	2.00	0.00	226.60	
4,796.9	4.27	226.60	4,786.8	-188.7	-199.6	0.00	0.00	0.00	0.00	
5,010.3	0.00	0.00	5,000.0	-194.2	-205.3	2.00	-2.00	0.00	180.00	LR16B P15 595 TGT
5,137.2	0.32	240.07	5,126.8	-194.4	-205.7	0.25	0.25	-94.56	240.07	
12,308.4	0.32	240.07	12,298.0	-214.2	-240.0	0.00	0.00	0.00	0.00	LR16B P15 595 BHL

Cathedral Energy Services

Planning Report

Database:	EDM 5000.1 US Multi Users DB	Local Co-ordinate Reference:	Well LR16B P15 595
Company:	Berry Petroleum Company (NAD 83)	TVD Reference:	KBE @ 8400.0ft (Patterson 302)
Project:	Garfield County	MD Reference:	KBE @ 8400.0ft (Patterson 302)
Site:	NESE S15-T5S-R95 (P15 595)	North Reference:	True
Well:	LR16B P15 595	Survey Calculation Method:	Minimum Curvature
Wellbore:	DD		
Design:	Plan #1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	
30.0	0.00	0.00	30.0	0.0	0.0	0.0	0.00	0.00	
60.0	0.00	0.00	60.0	0.0	0.0	0.0	0.00	0.00	
90.0	0.00	0.00	90.0	0.0	0.0	0.0	0.00	0.00	
120.0	0.00	0.00	120.0	0.0	0.0	0.0	0.00	0.00	
150.0	0.00	0.00	150.0	0.0	0.0	0.0	0.00	0.00	
180.0	0.00	0.00	180.0	0.0	0.0	0.0	0.00	0.00	
210.0	0.00	0.00	210.0	0.0	0.0	0.0	0.00	0.00	
240.0	0.00	0.00	240.0	0.0	0.0	0.0	0.00	0.00	
270.0	0.00	0.00	270.0	0.0	0.0	0.0	0.00	0.00	
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	
330.0	0.00	0.00	330.0	0.0	0.0	0.0	0.00	0.00	
360.0	0.00	0.00	360.0	0.0	0.0	0.0	0.00	0.00	
390.0	0.00	0.00	390.0	0.0	0.0	0.0	0.00	0.00	
420.0	0.00	0.00	420.0	0.0	0.0	0.0	0.00	0.00	
450.0	0.00	0.00	450.0	0.0	0.0	0.0	0.00	0.00	
480.0	0.00	0.00	480.0	0.0	0.0	0.0	0.00	0.00	
510.0	0.00	0.00	510.0	0.0	0.0	0.0	0.00	0.00	
540.0	0.00	0.00	540.0	0.0	0.0	0.0	0.00	0.00	
570.0	0.00	0.00	570.0	0.0	0.0	0.0	0.00	0.00	
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	
630.0	0.00	0.00	630.0	0.0	0.0	0.0	0.00	0.00	
660.0	0.00	0.00	660.0	0.0	0.0	0.0	0.00	0.00	
690.0	0.00	0.00	690.0	0.0	0.0	0.0	0.00	0.00	
720.0	0.00	0.00	720.0	0.0	0.0	0.0	0.00	0.00	
750.0	0.00	0.00	750.0	0.0	0.0	0.0	0.00	0.00	
780.0	0.00	0.00	780.0	0.0	0.0	0.0	0.00	0.00	
810.0	0.00	0.00	810.0	0.0	0.0	0.0	0.00	0.00	
840.0	0.00	0.00	840.0	0.0	0.0	0.0	0.00	0.00	
870.0	0.00	0.00	870.0	0.0	0.0	0.0	0.00	0.00	
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	
930.0	0.00	0.00	930.0	0.0	0.0	0.0	0.00	0.00	
960.0	0.00	0.00	960.0	0.0	0.0	0.0	0.00	0.00	
990.0	0.00	0.00	990.0	0.0	0.0	0.0	0.00	0.00	
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	KOP @ 1000'
1,020.0	0.40	226.60	1,020.0	0.0	-0.1	0.1	2.00	2.00	
1,050.0	1.00	226.60	1,050.0	-0.3	-0.3	0.4	2.00	2.00	
1,080.0	1.60	226.60	1,080.0	-0.8	-0.8	1.1	2.00	2.00	
1,110.0	2.20	226.60	1,110.0	-1.5	-1.5	2.1	2.00	2.00	
1,140.0	2.80	226.60	1,139.9	-2.4	-2.5	3.4	2.00	2.00	
1,170.0	3.40	226.60	1,169.9	-3.5	-3.7	5.0	2.00	2.00	
1,200.0	4.00	226.60	1,199.8	-4.8	-5.1	7.0	2.00	2.00	
1,213.4	4.27	226.60	1,213.2	-5.5	-5.8	7.9	2.00	2.00	EOB; Inc=4.27°
1,230.0	4.27	226.60	1,229.8	-6.3	-6.7	9.2	0.00	0.00	
1,260.0	4.27	226.60	1,259.7	-7.8	-8.3	11.4	0.00	0.00	
1,290.0	4.27	226.60	1,289.6	-9.4	-9.9	13.6	0.00	0.00	
1,320.0	4.27	226.60	1,319.5	-10.9	-11.5	15.9	0.00	0.00	
1,350.0	4.27	226.60	1,349.4	-12.4	-13.2	18.1	0.00	0.00	
1,380.0	4.27	226.60	1,379.3	-14.0	-14.8	20.3	0.00	0.00	
1,410.0	4.27	226.60	1,409.3	-15.5	-16.4	22.6	0.00	0.00	
1,440.0	4.27	226.60	1,439.2	-17.0	-18.0	24.8	0.00	0.00	
1,470.0	4.27	226.60	1,469.1	-18.6	-19.6	27.0	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	EDM 5000.1 US Multi Users DB	Local Co-ordinate Reference:	Well LR16B P15 595
Company:	Berry Petroleum Company (NAD 83)	TVD Reference:	KBE @ 8400.0ft (Patterson 302)
Project:	Garfield County	MD Reference:	KBE @ 8400.0ft (Patterson 302)
Site:	NESE S15-T5S-R95 (P15 595)	North Reference:	True
Well:	LR16B P15 595	Survey Calculation Method:	Minimum Curvature
Wellbore:	DD		
Design:	Plan #1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
1,500.0	4.27	226.60	1,499.0	-20.1	-21.3	29.3	0.00	0.00	
1,530.0	4.27	226.60	1,528.9	-21.7	-22.9	31.5	0.00	0.00	
1,560.0	4.27	226.60	1,558.8	-23.2	-24.5	33.7	0.00	0.00	
1,590.0	4.27	226.60	1,588.8	-24.7	-26.1	36.0	0.00	0.00	
1,620.0	4.27	226.60	1,618.7	-26.3	-27.8	38.2	0.00	0.00	
1,650.0	4.27	226.60	1,648.6	-27.8	-29.4	40.4	0.00	0.00	
1,680.0	4.27	226.60	1,678.5	-29.3	-31.0	42.7	0.00	0.00	
1,710.0	4.27	226.60	1,708.4	-30.9	-32.6	44.9	0.00	0.00	
1,740.0	4.27	226.60	1,738.3	-32.4	-34.3	47.1	0.00	0.00	
1,770.0	4.27	226.60	1,768.3	-33.9	-35.9	49.4	0.00	0.00	
1,800.0	4.27	226.60	1,798.2	-35.5	-37.5	51.6	0.00	0.00	
1,830.0	4.27	226.60	1,828.1	-37.0	-39.1	53.8	0.00	0.00	
1,860.0	4.27	226.60	1,858.0	-38.5	-40.7	56.1	0.00	0.00	
1,890.0	4.27	226.60	1,887.9	-40.1	-42.4	58.3	0.00	0.00	
1,920.0	4.27	226.60	1,917.8	-41.6	-44.0	60.5	0.00	0.00	
1,950.0	4.27	226.60	1,947.8	-43.1	-45.6	62.7	0.00	0.00	
1,980.0	4.27	226.60	1,977.7	-44.7	-47.2	65.0	0.00	0.00	
2,010.0	4.27	226.60	2,007.6	-46.2	-48.9	67.2	0.00	0.00	
2,040.0	4.27	226.60	2,037.5	-47.7	-50.5	69.4	0.00	0.00	
2,070.0	4.27	226.60	2,067.4	-49.3	-52.1	71.7	0.00	0.00	
2,100.0	4.27	226.60	2,097.3	-50.8	-53.7	73.9	0.00	0.00	
2,130.0	4.27	226.60	2,127.3	-52.3	-55.3	76.1	0.00	0.00	
2,160.0	4.27	226.60	2,157.2	-53.9	-57.0	78.4	0.00	0.00	
2,190.0	4.27	226.60	2,187.1	-55.4	-58.6	80.6	0.00	0.00	
2,220.0	4.27	226.60	2,217.0	-56.9	-60.2	82.8	0.00	0.00	
2,250.0	4.27	226.60	2,246.9	-58.5	-61.8	85.1	0.00	0.00	
2,280.0	4.27	226.60	2,276.8	-60.0	-63.5	87.3	0.00	0.00	
2,310.0	4.27	226.60	2,306.8	-61.5	-65.1	89.5	0.00	0.00	
2,340.0	4.27	226.60	2,336.7	-63.1	-66.7	91.8	0.00	0.00	
2,370.0	4.27	226.60	2,366.6	-64.6	-68.3	94.0	0.00	0.00	
2,400.0	4.27	226.60	2,396.5	-66.1	-69.9	96.2	0.00	0.00	
2,430.0	4.27	226.60	2,426.4	-67.7	-71.6	98.5	0.00	0.00	
2,460.0	4.27	226.60	2,456.3	-69.2	-73.2	100.7	0.00	0.00	
2,490.0	4.27	226.60	2,486.3	-70.8	-74.8	102.9	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
LR16B P15 595 BHL	0.00	0.00	12,298.0	-214.2	-240.0	1,656,901.98	2,286,393.41	39.609665	-108.033157
- hit/miss target									
- Shape									
- plan misses target center by 9814.2ft at 2490.0ft MD (2486.3 TVD, -70.8 N, -74.8 E)									
- Rectangle (sides W50.0 H100.0 D0.0)									
LR16B P15 595 TGT	0.00	0.00	5,000.0	-194.2	-205.3	1,656,920.98	2,286,428.65	39.609720	-108.033034
- plan misses target center by 2520.2ft at 2490.0ft MD (2486.3 TVD, -70.8 N, -74.8 E)									
- Point									

Cathedral Energy Services

Planning Report

Database:	EDM 5000.1 US Multi Users DB	Local Co-ordinate Reference:	Well LR16B P15 595
Company:	Berry Petroleum Company (NAD 83)	TVD Reference:	KBE @ 8400.0ft (Patterson 302)
Project:	Garfield County	MD Reference:	KBE @ 8400.0ft (Patterson 302)
Site:	NESE S15-T5S-R95 (P15 595)	North Reference:	True
Well:	LR16B P15 595	Survey Calculation Method:	Minimum Curvature
Wellbore:	DD		
Design:	Plan #1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
2,500.0	4.27	226.60	2,496.2	-71.3	-75.4	103.7	0.00	0.00	
2,600.0	4.27	226.60	2,596.0	-76.4	-80.8	111.1	0.00	0.00	
2,700.0	4.27	226.60	2,695.7	-81.5	-86.2	118.6	0.00	0.00	
2,800.0	4.27	226.60	2,795.4	-86.6	-91.6	126.0	0.00	0.00	
2,900.0	4.27	226.60	2,895.1	-91.7	-97.0	133.4	0.00	0.00	
3,000.0	4.27	226.60	2,994.8	-96.8	-102.4	140.9	0.00	0.00	
3,100.0	4.27	226.60	3,094.6	-102.0	-107.8	148.3	0.00	0.00	
3,200.0	4.27	226.60	3,194.3	-107.1	-113.2	155.8	0.00	0.00	
3,300.0	4.27	226.60	3,294.0	-112.2	-118.6	163.2	0.00	0.00	
3,400.0	4.27	226.60	3,393.7	-117.3	-124.0	170.6	0.00	0.00	
3,500.0	4.27	226.60	3,493.5	-122.4	-129.4	178.1	0.00	0.00	
3,600.0	4.27	226.60	3,593.2	-127.5	-134.8	185.5	0.00	0.00	
3,700.0	4.27	226.60	3,692.9	-132.6	-140.3	193.0	0.00	0.00	
3,800.0	4.27	226.60	3,792.6	-137.8	-145.7	200.4	0.00	0.00	
3,900.0	4.27	226.60	3,892.3	-142.9	-151.1	207.8	0.00	0.00	
3,955.8	4.27	226.60	3,948.0	-145.7	-154.1	212.0	0.00	0.00	Wasatch
4,000.0	4.27	226.60	3,992.1	-148.0	-156.5	215.3	0.00	0.00	
4,100.0	4.27	226.60	4,091.8	-153.1	-161.9	222.7	0.00	0.00	
4,200.0	4.27	226.60	4,191.5	-158.2	-167.3	230.2	0.00	0.00	
4,300.0	4.27	226.60	4,291.2	-163.3	-172.7	237.6	0.00	0.00	
4,400.0	4.27	226.60	4,391.0	-168.4	-178.1	245.0	0.00	0.00	
4,500.0	4.27	226.60	4,490.7	-173.6	-183.5	252.5	0.00	0.00	
4,600.0	4.27	226.60	4,590.4	-178.7	-188.9	259.9	0.00	0.00	
4,700.0	4.27	226.60	4,690.1	-183.8	-194.3	267.4	0.00	0.00	
4,796.9	4.27	226.60	4,786.8	-188.7	-199.6	274.6	0.00	0.00	Start Drop -2.00
4,800.0	4.21	226.60	4,789.9	-188.9	-199.7	274.8	2.00	-2.00	
4,900.0	2.21	226.60	4,889.7	-192.7	-203.8	280.4	2.00	-2.00	
5,000.0	0.21	226.60	4,989.7	-194.2	-205.3	282.5	2.00	-2.00	
5,010.3	0.00	0.00	5,000.0	-194.2	-205.3	282.5	2.00	-2.00	EOD; Inc=0° - LR16B P15 595 TGT
5,100.0	0.22	240.07	5,089.7	-194.3	-205.5	282.7	0.25	0.25	
5,137.2	0.32	240.07	5,126.8	-194.4	-205.7	282.9	0.25	0.25	
5,200.0	0.32	240.07	5,189.7	-194.5	-206.0	283.2	0.00	0.00	
5,300.0	0.32	240.07	5,289.7	-194.8	-206.4	283.7	0.00	0.00	
5,400.0	0.32	240.07	5,389.7	-195.1	-206.9	284.3	0.00	0.00	
5,500.0	0.32	240.07	5,489.7	-195.4	-207.4	284.8	0.00	0.00	
5,600.0	0.32	240.07	5,589.7	-195.7	-207.9	285.4	0.00	0.00	
5,700.0	0.32	240.07	5,689.7	-195.9	-208.4	285.9	0.00	0.00	
5,800.0	0.32	240.07	5,789.7	-196.2	-208.8	286.4	0.00	0.00	
5,858.3	0.32	240.07	5,848.0	-196.4	-209.1	286.8	0.00	0.00	Fort Union
5,900.0	0.32	240.07	5,889.7	-196.5	-209.3	287.0	0.00	0.00	
6,000.0	0.32	240.07	5,989.6	-196.8	-209.8	287.5	0.00	0.00	
6,100.0	0.32	240.07	6,089.6	-197.0	-210.3	288.1	0.00	0.00	
6,200.0	0.32	240.07	6,189.6	-197.3	-210.8	288.6	0.00	0.00	
6,300.0	0.32	240.07	6,289.6	-197.6	-211.2	289.2	0.00	0.00	
6,358.4	0.32	240.07	6,348.0	-197.7	-211.5	289.5	0.00	0.00	Base Ft Union
6,400.0	0.32	240.07	6,389.6	-197.9	-211.7	289.7	0.00	0.00	
6,500.0	0.32	240.07	6,489.6	-198.1	-212.2	290.2	0.00	0.00	
6,600.0	0.32	240.07	6,589.6	-198.4	-212.7	290.8	0.00	0.00	
6,700.0	0.32	240.07	6,689.6	-198.7	-213.1	291.3	0.00	0.00	
6,800.0	0.32	240.07	6,789.6	-199.0	-213.6	291.9	0.00	0.00	
6,900.0	0.32	240.07	6,889.6	-199.2	-214.1	292.4	0.00	0.00	
7,000.0	0.32	240.07	6,989.6	-199.5	-214.6	292.9	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	EDM 5000.1 US Multi Users DB	Local Co-ordinate Reference:	Well LR16B P15 595
Company:	Berry Petroleum Company (NAD 83)	TVD Reference:	KBE @ 8400.0ft (Patterson 302)
Project:	Garfield County	MD Reference:	KBE @ 8400.0ft (Patterson 302)
Site:	NESE S15-T5S-R95 (P15 595)	North Reference:	True
Well:	LR16B P15 595	Survey Calculation Method:	Minimum Curvature
Wellbore:	DD		
Design:	Plan #1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
7,100.0	0.32	240.07	7,089.6	-199.8	-215.1	293.5	0.00	0.00	
7,200.0	0.32	240.07	7,189.6	-200.1	-215.5	294.0	0.00	0.00	
7,300.0	0.32	240.07	7,289.6	-200.3	-216.0	294.6	0.00	0.00	
7,400.0	0.32	240.07	7,389.6	-200.6	-216.5	295.1	0.00	0.00	
7,500.0	0.32	240.07	7,489.6	-200.9	-217.0	295.7	0.00	0.00	
7,600.0	0.32	240.07	7,589.6	-201.2	-217.5	296.2	0.00	0.00	
7,700.0	0.32	240.07	7,689.6	-201.5	-217.9	296.7	0.00	0.00	
7,800.0	0.32	240.07	7,789.6	-201.7	-218.4	297.3	0.00	0.00	
7,900.0	0.32	240.07	7,889.6	-202.0	-218.9	297.8	0.00	0.00	
8,000.0	0.32	240.07	7,989.6	-202.3	-219.4	298.4	0.00	0.00	
8,100.0	0.32	240.07	8,089.6	-202.6	-219.9	298.9	0.00	0.00	
8,200.0	0.32	240.07	8,189.6	-202.8	-220.3	299.4	0.00	0.00	
8,300.0	0.32	240.07	8,289.6	-203.1	-220.8	300.0	0.00	0.00	
8,400.0	0.32	240.07	8,389.6	-203.4	-221.3	300.5	0.00	0.00	
8,500.0	0.32	240.07	8,489.6	-203.7	-221.8	301.1	0.00	0.00	
8,600.0	0.32	240.07	8,589.6	-203.9	-222.3	301.6	0.00	0.00	
8,658.4	0.32	240.07	8,648.0	-204.1	-222.5	301.9	0.00	0.00	Ohio Creek
8,700.0	0.32	240.07	8,689.6	-204.2	-222.7	302.2	0.00	0.00	
8,800.0	0.32	240.07	8,789.6	-204.5	-223.2	302.7	0.00	0.00	
8,900.0	0.32	240.07	8,889.6	-204.8	-223.7	303.2	0.00	0.00	
8,958.4	0.32	240.07	8,948.0	-204.9	-224.0	303.6	0.00	0.00	Williams Fork
9,000.0	0.32	240.07	8,989.6	-205.0	-224.2	303.8	0.00	0.00	
9,100.0	0.32	240.07	9,089.6	-205.3	-224.7	304.3	0.00	0.00	
9,200.0	0.32	240.07	9,189.6	-205.6	-225.1	304.9	0.00	0.00	
9,258.4	0.32	240.07	9,248.0	-205.8	-225.4	305.2	0.00	0.00	Approx TOG
9,300.0	0.32	240.07	9,289.6	-205.9	-225.6	305.4	0.00	0.00	
9,400.0	0.32	240.07	9,389.6	-206.1	-226.1	305.9	0.00	0.00	
9,500.0	0.32	240.07	9,489.6	-206.4	-226.6	306.5	0.00	0.00	
9,600.0	0.32	240.07	9,589.6	-206.7	-227.1	307.0	0.00	0.00	
9,700.0	0.32	240.07	9,689.6	-207.0	-227.5	307.6	0.00	0.00	
9,800.0	0.32	240.07	9,789.6	-207.2	-228.0	308.1	0.00	0.00	
9,900.0	0.32	240.07	9,889.6	-207.5	-228.5	308.7	0.00	0.00	
10,000.0	0.32	240.07	9,989.6	-207.8	-229.0	309.2	0.00	0.00	
10,100.0	0.32	240.07	10,089.6	-208.1	-229.5	309.7	0.00	0.00	
10,200.0	0.32	240.07	10,189.6	-208.4	-229.9	310.3	0.00	0.00	
10,300.0	0.32	240.07	10,289.6	-208.6	-230.4	310.8	0.00	0.00	
10,400.0	0.32	240.07	10,389.6	-208.9	-230.9	311.4	0.00	0.00	
10,500.0	0.32	240.07	10,489.6	-209.2	-231.4	311.9	0.00	0.00	
10,600.0	0.32	240.07	10,589.6	-209.5	-231.9	312.5	0.00	0.00	
10,700.0	0.32	240.07	10,689.6	-209.7	-232.3	313.0	0.00	0.00	
10,800.0	0.32	240.07	10,789.6	-210.0	-232.8	313.5	0.00	0.00	
10,900.0	0.32	240.07	10,889.6	-210.3	-233.3	314.1	0.00	0.00	
11,000.0	0.32	240.07	10,989.6	-210.6	-233.8	314.6	0.00	0.00	
11,100.0	0.32	240.07	11,089.6	-210.8	-234.3	315.2	0.00	0.00	
11,200.0	0.32	240.07	11,189.6	-211.1	-234.7	315.7	0.00	0.00	
11,300.0	0.32	240.07	11,289.6	-211.4	-235.2	316.2	0.00	0.00	
11,400.0	0.32	240.07	11,389.6	-211.7	-235.7	316.8	0.00	0.00	
11,500.0	0.32	240.07	11,489.6	-211.9	-236.2	317.3	0.00	0.00	
11,600.0	0.32	240.07	11,589.6	-212.2	-236.6	317.9	0.00	0.00	
11,700.0	0.32	240.07	11,689.6	-212.5	-237.1	318.4	0.00	0.00	
11,800.0	0.32	240.07	11,789.6	-212.8	-237.6	319.0	0.00	0.00	
11,808.4	0.32	240.07	11,798.0	-212.8	-237.6	319.0	0.00	0.00	Cameo

Cathedral Energy Services

Planning Report

Database:	EDM 5000.1 US Multi Users DB	Local Co-ordinate Reference:	Well LR16B P15 595
Company:	Berry Petroleum Company (NAD 83)	TVD Reference:	KBE @ 8400.0ft (Patterson 302)
Project:	Garfield County	MD Reference:	KBE @ 8400.0ft (Patterson 302)
Site:	NESE S15-T5S-R95 (P15 595)	North Reference:	True
Well:	LR16B P15 595	Survey Calculation Method:	Minimum Curvature
Wellbore:	DD		
Design:	Plan #1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
11,900.0	0.32	240.07	11,889.6	-213.0	-238.1	319.5	0.00	0.00	
12,000.0	0.32	240.07	11,989.6	-213.3	-238.6	320.0	0.00	0.00	
12,100.0	0.32	240.07	12,089.6	-213.6	-239.0	320.6	0.00	0.00	
12,158.4	0.32	240.07	12,148.0	-213.8	-239.3	320.9	0.00	0.00	Rollins SS
12,200.0	0.32	240.07	12,189.6	-213.9	-239.5	321.1	0.00	0.00	
12,300.0	0.32	240.07	12,289.6	-214.2	-240.0	321.7	0.00	0.00	
12,308.4	0.32	240.07	12,298.0	-214.2	-240.0	321.7	0.00	0.00	TD at 12308.4 - LR16B 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
LR16B P15 595 BHL - plan hits target center - Rectangle (sides W50.0 H100.0 D0.0)	0.00	0.00	12,298.0	-214.2	-240.0	1,656,901.98	2,286,393.41	39.609665	-108.033157
LR16B P15 595 TGT - plan hits target center - Point	0.00	0.00	5,000.0	-194.2	-205.3	1,656,920.98	2,286,428.65	39.609720	-108.033034

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,955.8	3,948.0	Wasatch		0.00	
5,858.3	5,848.0	Fort Union		0.00	
6,358.4	6,348.0	Base Ft Union		0.00	
8,658.4	8,648.0	Ohio Creek		0.00	
8,958.4	8,948.0	Williams Fork		0.00	
9,258.4	9,248.0	Approx TOG		0.00	
11,808.4	11,798.0	Cameo		0.00	
12,158.4	12,148.0	Rollins SS		0.00	

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	+E/-W (ft)	Comment
1,000.0	1,000.0	0.0	0.0	KOP @ 1000'
1,213.4	1,213.2	-5.5	-5.8	EOB; Inc=4.27°
4,796.9	4,786.8	-188.7	-199.6	Start Drop -2.00
5,010.3	5,000.0	-194.2	-205.3	EOD; Inc=0°
12,308.4	12,298.0	-214.2	-240.0	TD at 12308.4

Berry Petroleum Company (NAD 83)

Garfield County

NESE S15-T5S-R95 (P15 595)

LR16B P15 595

DD

Plan #1

Anticollision Report

22 September, 2010

Cathedral Energy Services

Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Well LR16B P15 595
Project:	Garfield County	TVD Reference:	KBE @ 8400.0ft (Patterson 302)
Reference Site:	NESE S15-T5S-R95 (P15 595)	MD Reference:	KBE @ 8400.0ft (Patterson 302)
Site Error:	0.0ft	North Reference:	True
Reference Well:	LR16B P15 595	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

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

Survey Tool Program		Date	9/22/2010		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
0.0	12,308.4	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)						
LR01A P15 595 - DD - Plan #1	200.0	200.0	49.9	49.2	77.205	CC, ES
LR01A P15 595 - DD - Plan #1	600.0	590.8	77.0	74.9	36.713	SF
LR01D P15 595 - DD - Plan #1	374.3	374.3	17.6	16.3	13.983	CC, ES
LR01D P15 595 - DD - Plan #1	500.0	499.2	20.5	18.9	12.143	SF
LR09B P15 595 - DD - Plan #1	500.0	500.0	20.1	18.4	11.881	CC, ES
LR09B P15 595 - DD - Plan #1	600.0	599.4	21.5	19.5	10.553	SF
LR09C P15 595 - DD - Plan #1	1,000.0	1,000.0	10.1	6.6	2.933	CC, ES, SF
LR09D P15 595 - DD - Plan #1	500.0	500.0	30.1	28.5	17.806	CC, ES
LR09D P15 595 - DD - Plan #1	700.0	697.7	36.8	34.4	15.399	SF
LR16A P15 595 - DD - Plan #1	1,000.0	1,000.0	10.0	6.6	2.919	CC
LR16A P15 595 - DD - Plan #1	1,200.0	1,199.4	10.4	6.3	2.525	ES
LR16A P15 595 - DD - Plan #1	1,213.4	1,212.8	10.5	6.3	2.510	SF
SESE S15-T5S-R95W						
LR01B P15 595 - DD - Plan #1	200.0	200.0	59.9	59.2	92.738	CC, ES
LR01B P15 595 - DD - Plan #1	600.0	589.4	87.0	84.9	41.472	SF
LR16C P15 595 - DD - Plan #1	600.0	600.0	30.1	28.1	14.738	CC, ES
LR16C P15 595 - DD - Plan #1	700.0	698.9	31.8	29.4	13.313	SF
LR16D P15 595 - DD - Plan #1	500.0	500.0	39.8	38.1	23.525	CC, ES
LR16D P15 595 - DD - Plan #1	700.0	697.0	46.5	44.1	19.469	SF

Cathedral Energy Services

Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Well LR16B P15 595
Project:	Garfield County	TVD Reference:	KBE @ 8400.0ft (Patterson 302)
Reference Site:	NESE S15-T5S-R95 (P15 595)	MD Reference:	KBE @ 8400.0ft (Patterson 302)
Site Error:	0.0ft	North Reference:	True
Reference Well:	LR16B P15 595	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design NESE S15-T5S-R95 (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						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	-168.26	-48.8	-10.1	49.9					
100.0	100.0	100.0	100.0	0.1	0.1	-168.26	-48.8	-10.1	49.9	49.6	0.30	168.035		
200.0	200.0	200.0	200.0	0.3	0.3	-168.26	-48.8	-10.1	49.9	49.2	0.65	77.205 CC, ES		
300.0	300.0	298.3	298.3	0.5	0.5	-168.56	-50.5	-10.2	51.6	50.6	0.99	51.904		
400.0	400.0	396.3	396.2	0.7	0.7	-169.33	-55.5	-10.5	56.6	55.3	1.35	42.054		
500.0	500.0	493.9	493.4	0.8	0.9	-170.35	-63.9	-10.9	65.1	63.4	1.71	38.023		
600.0	600.0	590.8	589.6	1.0	1.2	-171.40	-75.4	-11.4	77.0	74.9	2.10	36.713 SF		
700.0	700.0	686.8	684.5	1.2	1.5	-172.34	-90.0	-12.1	92.2	89.7	2.50	36.832		

Cathedral Energy Services

Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Well LR16B P15 595
Project:	Garfield County	TVD Reference:	KBE @ 8400.0ft (Patterson 302)
Reference Site:	NESE S15-T5S-R95 (P15 595)	MD Reference:	KBE @ 8400.0ft (Patterson 302)
Site Error:	0.0ft	North Reference:	True
Reference Well:	LR16B P15 595	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design NESE S15-T5S-R95 (P15 595) - LR01D 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	-168.67	-19.7	-3.9	20.1				
100.0	100.0	100.0	100.0	0.1	0.1	-168.67	-19.7	-3.9	20.1	19.8	0.30	67.642	
200.0	200.0	200.0	200.0	0.3	0.3	-168.67	-19.7	-3.9	20.1	19.4	0.65	31.079	
300.0	300.0	300.5	300.5	0.5	0.5	-171.67	-18.4	-2.7	18.6	17.6	1.00	18.645	
374.3	374.3	374.3	374.3	0.6	0.6	-176.99	-17.6	-0.9	17.6	16.3	1.26	13.983 CC, ES	
400.0	400.0	400.0	399.9	0.7	0.7	-178.93	-17.7	-0.3	17.7	16.4	1.35	13.145	
500.0	500.0	499.2	499.0	0.8	0.9	174.83	-20.4	1.8	20.5	18.9	1.69	12.143 SF	
600.0	600.0	598.2	597.8	1.0	1.0	171.77	-26.6	3.8	26.9	24.9	2.04	13.199	
700.0	700.0	696.6	695.8	1.2	1.3	171.09	-36.1	5.7	36.7	34.3	2.40	15.278	
800.0	800.0	794.3	792.6	1.4	1.5	171.53	-48.8	7.3	49.9	47.1	2.79	17.877	
900.0	900.0	891.0	888.0	1.5	1.8	172.35	-64.6	8.7	66.3	63.1	3.20	20.720	
1,000.0	1,000.0	986.6	981.7	1.7	2.2	173.23	-83.4	9.9	86.0	82.3	3.64	23.638	

Cathedral Energy Services

Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Well LR16B P15 595
Project:	Garfield County	TVD Reference:	KBE @ 8400.0ft (Patterson 302)
Reference Site:	NESE S15-T5S-R95 (P15 595)	MD Reference:	KBE @ 8400.0ft (Patterson 302)
Site Error:	0.0ft	North Reference:	True
Reference Well:	LR16B P15 595	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design 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	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	67.792	
200.0	200.0	200.0	200.0	0.3	0.3	12.13	19.7	4.2	20.1	19.5	0.65	31.148	
300.0	300.0	300.0	300.0	0.5	0.5	12.13	19.7	4.2	20.1	19.1	0.99	20.219	
400.0	400.0	400.0	400.0	0.7	0.7	12.13	19.7	4.2	20.1	18.8	1.34	14.967	
500.0	500.0	500.0	500.0	0.8	0.8	12.13	19.7	4.2	20.1	18.4	1.69	11.881	CC, ES
600.0	600.0	599.4	599.4	1.0	1.0	9.42	21.2	3.5	21.5	19.5	2.04	10.553	SF
700.0	700.0	698.6	698.4	1.2	1.2	3.15	25.9	1.4	26.0	23.6	2.39	10.894	
800.0	800.0	797.2	796.7	1.4	1.4	-3.46	33.7	-2.0	34.0	31.2	2.74	12.374	
900.0	900.0	895.2	894.0	1.5	1.6	-8.73	44.5	-6.8	45.5	42.3	3.11	14.606	
1,000.0	1,000.0	992.9	990.4	1.7	1.9	-12.51	58.2	-12.9	60.4	56.9	3.50	17.254	
1,100.0	1,100.0	1,091.4	1,087.7	1.9	2.2	119.34	72.7	-19.4	77.1	73.3	3.78	20.382	
1,200.0	1,199.8	1,189.7	1,184.7	2.1	2.5	120.07	87.2	-25.8	95.5	91.4	4.14	23.094	
1,213.4	1,213.2	1,202.9	1,197.7	2.1	2.5	120.27	89.1	-26.7	98.1	93.9	4.18	23.453	

Cathedral Energy Services

Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Well LR16B P15 595
Project:	Garfield County	TVD Reference:	KBE @ 8400.0ft (Patterson 302)
Reference Site:	NESE S15-T5S-R95 (P15 595)	MD Reference:	KBE @ 8400.0ft (Patterson 302)
Site Error:	0.0ft	North Reference:	True
Reference Well:	LR16B P15 595	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design NESE S15-T5S-R95 (P15 595) - LR09C 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	Factor		
0.0	0.0	0.0	0.0	0.0	0.0	12.91	9.8	2.3	10.1					
100.0	100.0	100.0	100.0	0.1	0.1	12.91	9.8	2.3	10.1	9.8	0.30	33.992		
200.0	200.0	200.0	200.0	0.3	0.3	12.91	9.8	2.3	10.1	9.4	0.65	15.618		
300.0	300.0	300.0	300.0	0.5	0.5	12.91	9.8	2.3	10.1	9.1	0.99	10.138		
400.0	400.0	400.0	400.0	0.7	0.7	12.91	9.8	2.3	10.1	8.7	1.34	7.505		
500.0	500.0	500.0	500.0	0.8	0.8	12.91	9.8	2.3	10.1	8.4	1.69	5.957		
600.0	600.0	600.0	600.0	1.0	1.0	12.91	9.8	2.3	10.1	8.0	2.04	4.939		
700.0	700.0	700.0	700.0	1.2	1.2	12.91	9.8	2.3	10.1	7.7	2.39	4.218		
800.0	800.0	800.0	800.0	1.4	1.4	12.91	9.8	2.3	10.1	7.3	2.74	3.681		
900.0	900.0	900.0	900.0	1.5	1.5	12.91	9.8	2.3	10.1	7.0	3.09	3.265		
1,000.0	1,000.0	1,000.0	1,000.0	1.7	1.7	12.91	9.8	2.3	10.1	6.6	3.44	2.933 CC, ES, SF		
1,100.0	1,100.0	1,100.0	1,100.0	1.9	1.9	142.47	9.9	0.5	11.3	7.5	3.79	2.973		
1,200.0	1,199.8	1,200.0	1,199.8	2.1	2.1	134.69	10.2	-4.7	15.0	10.8	4.15	3.614		
1,213.4	1,213.2	1,213.4	1,213.2	2.1	2.1	133.69	10.2	-5.7	15.7	11.5	4.19	3.742		
1,300.0	1,299.6	1,299.8	1,299.4	2.3	2.3	129.33	10.5	-11.9	20.5	16.0	4.52	4.536		
1,400.0	1,399.3	1,399.6	1,399.0	2.5	2.5	126.30	10.9	-19.0	26.1	21.2	4.90	5.334		
1,500.0	1,499.0	1,499.5	1,498.5	2.7	2.7	124.34	11.3	-26.2	31.8	26.5	5.28	6.019		
1,600.0	1,598.7	1,599.3	1,598.1	2.9	2.8	122.98	11.6	-33.4	37.5	31.8	5.67	6.610		
1,700.0	1,698.5	1,699.1	1,697.7	3.1	3.1	121.98	12.0	-40.5	43.2	37.1	6.07	7.122		
1,800.0	1,798.2	1,799.0	1,797.3	3.3	3.3	121.21	12.4	-47.7	48.9	42.5	6.46	7.569		
1,900.0	1,897.9	1,898.8	1,896.8	3.5	3.5	120.61	12.7	-54.9	54.7	47.8	6.86	7.963		
2,000.0	1,997.6	1,998.6	1,996.4	3.7	3.7	120.12	13.1	-62.0	60.4	53.1	7.27	8.311		
2,100.0	2,097.3	2,098.5	2,096.0	3.9	3.9	119.71	13.5	-69.2	66.1	58.5	7.67	8.621		
2,200.0	2,197.1	2,198.3	2,195.6	4.1	4.1	119.37	13.8	-76.4	71.9	63.8	8.08	8.899		
2,300.0	2,296.8	2,298.1	2,295.1	4.3	4.3	119.08	14.2	-83.5	77.6	69.1	8.48	9.148		
2,400.0	2,396.5	2,398.0	2,394.7	4.5	4.5	118.83	14.6	-90.7	83.4	74.5	8.89	9.374		
2,500.0	2,496.2	2,497.8	2,494.3	4.7	4.7	118.61	14.9	-97.9	89.1	79.8	9.30	9.579		
2,600.0	2,596.0	2,597.6	2,593.9	4.9	4.9	118.42	15.3	-105.0	94.9	85.1	9.71	9.766		

Cathedral Energy Services

Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Well LR16B P15 595
Project:	Garfield County	TVD Reference:	KBE @ 8400.0ft (Patterson 302)
Reference Site:	NESE S15-T5S-R95 (P15 595)	MD Reference:	KBE @ 8400.0ft (Patterson 302)
Site Error:	0.0ft	North Reference:	True
Reference Well:	LR16B P15 595	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design 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	11.87	29.5	6.2	30.1					
100.0	100.0	100.0	100.0	0.1	0.1	11.87	29.5	6.2	30.1	29.8	0.30	101.596		
200.0	200.0	200.0	200.0	0.3	0.3	11.87	29.5	6.2	30.1	29.5	0.65	46.679		
300.0	300.0	300.0	300.0	0.5	0.5	11.87	29.5	6.2	30.1	29.1	0.99	30.301		
400.0	400.0	400.0	400.0	0.7	0.7	11.87	29.5	6.2	30.1	28.8	1.34	22.430		
500.0	500.0	500.0	500.0	0.8	0.8	11.87	29.5	6.2	30.1	28.5	1.69	17.806 CC, ES		
600.0	600.0	599.0	598.9	1.0	1.0	11.00	31.2	6.1	31.8	29.8	2.04	15.586		
700.0	700.0	697.7	697.5	1.2	1.2	8.89	36.3	5.7	36.8	34.4	2.39	15.399 SF		
800.0	800.0	797.2	796.7	1.4	1.4	6.66	43.7	5.1	44.1	41.4	2.75	16.063		
900.0	900.0	896.9	896.2	1.5	1.6	5.06	51.2	4.5	51.5	48.4	3.11	16.589		
1,000.0	1,000.0	996.6	995.6	1.7	1.8	3.86	58.7	4.0	59.0	55.5	3.47	17.002		
1,100.0	1,100.0	1,096.2	1,094.9	1.9	2.0	137.23	66.2	3.4	67.7	63.9	3.78	17.902		
1,200.0	1,199.8	1,195.5	1,194.0	2.1	2.2	138.88	73.6	2.8	79.0	74.9	4.13	19.131		
1,213.4	1,213.2	1,208.9	1,207.3	2.1	2.3	139.18	74.6	2.7	80.7	76.6	4.18	19.329		
1,300.0	1,299.6	1,294.6	1,292.8	2.3	2.4	141.07	81.0	2.2	92.1	87.6	4.49	20.526		

Cathedral Energy Services

Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Well LR16B P15 595
Project:	Garfield County	TVD Reference:	KBE @ 8400.0ft (Patterson 302)
Reference Site:	NESE S15-T5S-R95 (P15 595)	MD Reference:	KBE @ 8400.0ft (Patterson 302)
Site Error:	0.0ft	North Reference:	True
Reference Well:	LR16B P15 595	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design NESE S15-T5S-R95 (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				Total		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	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	-168.67	-9.8	-2.0	10.0					
100.0	100.0	100.0	100.0	0.1	0.1	-168.67	-9.8	-2.0	10.0	9.7	0.30	33.821		
200.0	200.0	200.0	200.0	0.3	0.3	-168.67	-9.8	-2.0	10.0	9.4	0.65	15.539		
300.0	300.0	300.0	300.0	0.5	0.5	-168.67	-9.8	-2.0	10.0	9.0	0.99	10.087		
400.0	400.0	400.0	400.0	0.7	0.7	-168.67	-9.8	-2.0	10.0	8.7	1.34	7.467		
500.0	500.0	500.0	500.0	0.8	0.8	-168.67	-9.8	-2.0	10.0	8.3	1.69	5.927		
600.0	600.0	600.0	600.0	1.0	1.0	-168.67	-9.8	-2.0	10.0	8.0	2.04	4.914		
700.0	700.0	700.0	700.0	1.2	1.2	-168.67	-9.8	-2.0	10.0	7.6	2.39	4.197		
800.0	800.0	800.0	800.0	1.4	1.4	-168.67	-9.8	-2.0	10.0	7.3	2.74	3.662		
900.0	900.0	900.0	900.0	1.5	1.5	-168.67	-9.8	-2.0	10.0	6.9	3.09	3.248		
1,000.0	1,000.0	1,000.0	1,000.0	1.7	1.7	-168.67	-9.8	-2.0	10.0	6.6	3.44	2.919 CC		
1,100.0	1,100.0	1,099.7	1,099.7	1.9	1.9	-36.20	-11.2	-3.1	10.1	6.3	3.79	2.676		
1,200.0	1,199.8	1,199.4	1,199.2	2.1	2.1	-38.88	-15.1	-6.5	10.4	6.3	4.14	2.525 ES		
1,213.4	1,213.2	1,212.8	1,212.6	2.1	2.1	-39.36	-15.9	-7.1	10.5	6.3	4.19	2.510 SF		
1,300.0	1,299.6	1,299.0	1,298.5	2.3	2.3	-38.76	-21.7	-12.1	12.0	7.5	4.50	2.669		
1,400.0	1,399.3	1,398.5	1,397.2	2.5	2.5	-32.31	-31.0	-19.9	16.6	11.7	4.85	3.413		
1,500.0	1,499.0	1,497.6	1,495.1	2.7	2.7	-25.63	-42.7	-29.8	24.5	19.3	5.21	4.699		
1,600.0	1,598.7	1,597.2	1,593.3	2.9	3.0	-21.61	-55.5	-40.6	33.7	28.2	5.56	6.075		
1,700.0	1,698.5	1,696.7	1,691.4	3.1	3.3	-19.34	-68.2	-51.5	43.1	37.2	5.91	7.302		
1,800.0	1,798.2	1,796.3	1,789.5	3.3	3.6	-17.88	-81.0	-62.3	52.6	46.3	6.26	8.398		
1,900.0	1,897.9	1,895.8	1,887.7	3.5	3.9	-16.86	-93.8	-73.1	62.0	55.4	6.61	9.381		
2,000.0	1,997.6	1,995.4	1,985.8	3.7	4.2	-16.11	-106.5	-83.9	71.5	64.5	6.96	10.266		
2,100.0	2,097.3	2,094.9	2,083.9	3.9	4.5	-15.54	-119.3	-94.7	80.9	73.6	7.31	11.067		
2,200.0	2,197.1	2,194.5	2,182.0	4.1	4.8	-15.09	-132.0	-105.5	90.4	82.8	7.67	11.796		
2,300.0	2,296.8	2,294.0	2,280.2	4.3	5.1	-14.72	-144.8	-116.4	99.9	91.9	8.02	12.460		

Cathedral Energy Services

Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Well LR16B P15 595
Project:	Garfield County	TVD Reference:	KBE @ 8400.0ft (Patterson 302)
Reference Site:	NESE S15-T5S-R95 (P15 595)	MD Reference:	KBE @ 8400.0ft (Patterson 302)
Site Error:	0.0ft	North Reference:	True
Reference Well:	LR16B P15 595	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													SESE S15-T5S-R95W - 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										
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)		+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning			
0.0	0.0	0.0	0.0	0.0	0.0	-168.33	-58.6		-12.1	59.9							
100.0	100.0	100.0	100.0	0.1	0.1	-168.33	-58.6		-12.1	59.9	59.6	0.30	201.840				
200.0	200.0	200.0	200.0	0.3	0.3	-168.33	-58.6		-12.1	59.9	59.2	0.65	92.738 CC, ES				
300.0	300.0	297.9	297.9	0.5	0.5	-168.49	-60.3		-12.3	61.6	60.6	0.99	62.036				
400.0	400.0	395.6	395.5	0.7	0.7	-168.93	-65.3		-12.8	66.7	65.3	1.35	49.523				
500.0	500.0	492.9	492.4	0.8	0.9	-169.52	-73.5		-13.6	75.2	73.5	1.71	43.879				
600.0	600.0	589.4	588.2	1.0	1.2	-170.16	-84.9		-14.7	87.0	84.9	2.10	41.472 SF				

Cathedral Energy Services

Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Well LR16B P15 595
Project:	Garfield County	TVD Reference:	KBE @ 8400.0ft (Patterson 302)
Reference Site:	NESE S15-T5S-R95 (P15 595)	MD Reference:	KBE @ 8400.0ft (Patterson 302)
Site Error:	0.0ft	North Reference:	True
Reference Well:	LR16B P15 595	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design SESE S15-T5S-R95W - 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							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-168.66	-29.5	-5.9	30.1				
100.0	100.0	100.0	100.0	0.1	0.1	-168.66	-29.5	-5.9	30.1	29.8	0.30	101.434	
200.0	200.0	200.0	200.0	0.3	0.3	-168.66	-29.5	-5.9	30.1	29.5	0.65	46.605	
300.0	300.0	300.0	300.0	0.5	0.5	-168.66	-29.5	-5.9	30.1	29.1	0.99	30.252	
400.0	400.0	400.0	400.0	0.7	0.7	-168.66	-29.5	-5.9	30.1	28.8	1.34	22.395	
500.0	500.0	500.0	500.0	0.8	0.8	-168.66	-29.5	-5.9	30.1	28.4	1.69	17.777	
600.0	600.0	600.0	600.0	1.0	1.0	-168.66	-29.5	-5.9	30.1	28.1	2.04	14.738	CC, ES
700.0	700.0	698.9	698.9	1.2	1.2	-168.49	-31.2	-6.3	31.8	29.4	2.39	13.313	SF
800.0	800.0	797.6	797.5	1.4	1.4	-168.06	-36.1	-7.6	37.0	34.2	2.74	13.485	
900.0	900.0	895.8	895.3	1.5	1.6	-167.56	-44.3	-9.8	45.6	42.5	3.11	14.679	
1,000.0	1,000.0	993.4	992.1	1.7	1.8	-167.12	-55.6	-12.7	57.6	54.1	3.48	16.530	
1,100.0	1,100.0	1,090.2	1,087.8	1.9	2.1	-33.96	-70.0	-16.5	71.5	67.7	3.77	18.960	
1,200.0	1,199.8	1,188.7	1,184.8	2.1	2.4	-35.36	-86.8	-20.9	84.9	80.8	4.12	20.607	
1,213.4	1,213.2	1,202.1	1,197.9	2.1	2.4	-35.61	-89.1	-21.5	86.5	82.3	4.17	20.757	
1,300.0	1,299.6	1,288.0	1,282.5	2.3	2.7	-37.24	-103.9	-25.3	96.7	92.2	4.48	21.598	

Cathedral Energy Services

Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Well LR16B P15 595
Project:	Garfield County	TVD Reference:	KBE @ 8400.0ft (Patterson 302)
Reference Site:	NESE S15-T5S-R95 (P15 595)	MD Reference:	KBE @ 8400.0ft (Patterson 302)
Site Error:	0.0ft	North Reference:	True
Reference Well:	LR16B P15 595	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design SESE S15-T5S-R95W - 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		
0.0	0.0	0.0	0.0	0.0	0.0	-168.16	-39.0	-8.2	39.8					
100.0	100.0	100.0	100.0	0.1	0.1	-168.16	-39.0	-8.2	39.8	39.5	0.30	134.229		
200.0	200.0	200.0	200.0	0.3	0.3	-168.16	-39.0	-8.2	39.8	39.2	0.65	61.673		
300.0	300.0	300.0	300.0	0.5	0.5	-168.16	-39.0	-8.2	39.8	38.8	0.99	40.033		
400.0	400.0	400.0	400.0	0.7	0.7	-168.16	-39.0	-8.2	39.8	38.5	1.34	29.635		
500.0	500.0	500.0	500.0	0.8	0.8	-168.16	-39.0	-8.2	39.8	38.1	1.69	23.525 CC, ES		
600.0	600.0	598.6	598.6	1.0	1.0	-168.72	-40.7	-8.1	41.5	39.5	2.04	20.342		
700.0	700.0	697.0	696.9	1.2	1.2	-170.15	-45.7	-7.9	46.5	44.1	2.39	19.469 SF		
800.0	800.0	795.0	794.4	1.4	1.4	-171.95	-54.1	-7.7	55.0	52.2	2.75	20.001		
900.0	900.0	892.2	891.0	1.5	1.6	-173.70	-65.8	-7.3	66.8	63.7	3.12	21.412		
1,000.0	1,000.0	988.5	986.2	1.7	1.9	-175.20	-80.5	-6.8	82.0	78.5	3.51	23.359		
1,100.0	1,100.0	1,084.0	1,080.0	1.9	2.2	-43.45	-98.3	-6.2	99.2	95.5	3.76	26.368		

Cathedral Energy Services

Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Well LR16B P15 595
Project:	Garfield County	TVD Reference:	KBE @ 8400.0ft (Patterson 302)
Reference Site:	NESE S15-T5S-R95 (P15 595)	MD Reference:	KBE @ 8400.0ft (Patterson 302)
Site Error:	0.0ft	North Reference:	True
Reference Well:	LR16B P15 595	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Reference Depths are relative to KBE @ 8400.0ft (Patterson 302)
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000 °

Coordinates are relative to: LR16B P15 595
Coordinate System is US State Plane 1983, Colorado Central Zone
Grid Convergence at Surface is: -1.60°

