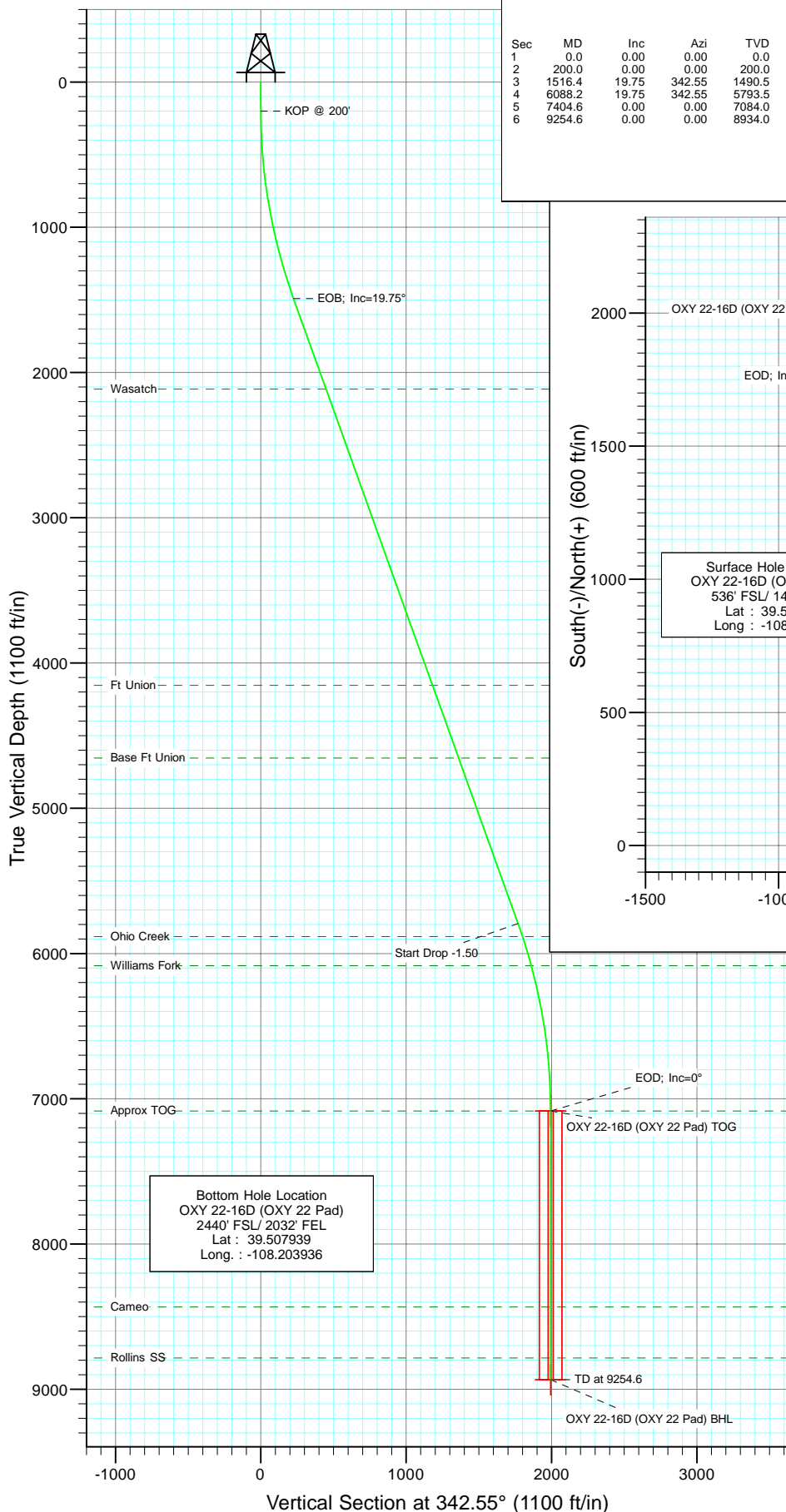




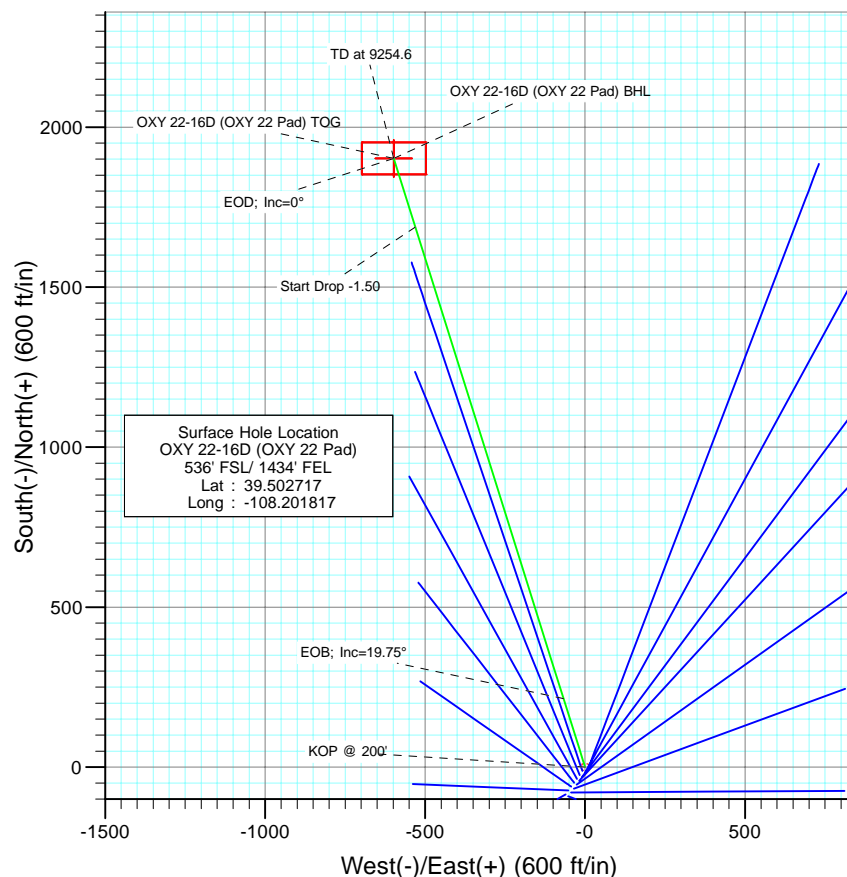
Berry Petroleum Company

Project: Garfield County  
Site: SWSE S22-T6S-R97W  
Well: OXY 22-16D (OXY 22 Pad)  
Wellbore: DD  
Design: Plan #1



#### SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	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	1516.4	19.75	342.55	1490.5	214.3	-67.4	1.50	342.55	224.6	
4	6088.2	19.75	342.55	5793.5	1687.8	-530.5	0.00	0.00	1769.2	
5	7404.6	0.00	0.00	7084.0	1902.1	-597.9	1.50	180.00	1993.8	OXY 22-16D (OXY 22 Pad) TOG
6	9254.6	0.00	0.00	8934.0	1902.1	-597.9	0.00	0.00	1993.8	OXY 22-16D (OXY 22 Pad) BHL



#### FORMATION TOP DETAILS

TVDPath	MDPath	Formation
2114.0	2178.9	Wasatch
4154.0	4346.3	Ft Union
4654.0	4877.5	Base Ft Union
5884.0	6184.0	Ohio Creek
6084.0	6392.9	Williams Fork
7084.0	7404.6	Approx TOG
8434.0	8754.6	Cameo
8784.0	9104.6	Rollins SS



Azimuths to True North  
Magnetic North: 10.64°

Magnetic Field  
Strength: 52406.1snT  
Dip Angle: 65.76°  
Date: 9/29/2009  
Model: IGRF200510

#### DESIGN DETAILS: Plan #1

95XXX; BH  
KBE @ 8506.0ft (Original Well Elev)

Target	Azimuth	Origin	N/S	E/W	From TVD
OXY 22-16D (OXY 22 Pad) BHL	342.55	Slot	0.0	0.0	0.0

# Cathedral Energy Services

## Planning Report

<b>Database:</b>	US EDM 2003.21 Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well OXY 22-16D (OXY 22 Pad)
<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>TVD Reference:</b>	KBE @ 8506.0ft (Original Well Elev)
<b>Project:</b>	Garfield County	<b>MD Reference:</b>	KBE @ 8506.0ft (Original Well Elev)
<b>Site:</b>	SWSE S22-T6S-R97W	<b>North Reference:</b>	True
<b>Well:</b>	OXY 22-16D (OXY 22 Pad)	<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		SWSE S22-T6S-R97W			
Site Position:		Northing:	1,619,243.22 ft	Latitude:	39.502467
From:	Lat/Long	Easting:	2,237,679.58 ft	Longitude:	-108.202006
Position Uncertainty:	0.0 ft	Slot Radius:	in	Grid Convergence:	-1.70 °

Well	OXY 22-16D (OXY 22 Pad)					
Well Position	+N/-S	0.0 ft	Northing:	1,619,332.65 ft	Latitude:	39.502717
	+E/-W	0.0 ft	Easting:	2,237,735.59 ft	Longitude:	-108.201817
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	8,491.0 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	9/29/2009	10.64	65.76	52,406

<b>Design</b>	Plan #1			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PLAN	<b>Tie On Depth:</b>	0.0
<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>
	0.0	0.0	0.0	342.55

<b>Plan Sections</b>										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
200.0	0.00	0.00	200.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,516.4	19.75	342.55	1,490.5	214.3	-67.4	1.50	1.50	0.00	342.55	
6,088.2	19.75	342.55	5,793.5	1,687.8	-530.5	0.00	0.00	0.00	0.00	
7,404.6	0.00	0.00	7,084.0	1,902.1	-597.9	1.50	-1.50	0.00	180.00	OXY 22-16D (OXY 22
9,254.6	0.00	0.00	8,934.0	1,902.1	-597.9	0.00	0.00	0.00	0.00	OXY 22-16D (OXY 22

# Cathedral Energy Services

## Planning Report

<b>Database:</b>	US EDM 2003.21 Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well OXY 22-16D (OXY 22 Pad)
<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>TVD Reference:</b>	KBE @ 8506.0ft (Original Well Elev)
<b>Project:</b>	Garfield County	<b>MD Reference:</b>	KBE @ 8506.0ft (Original Well Elev)
<b>Site:</b>	SWSE S22-T6S-R97W	<b>North Reference:</b>	True
<b>Well:</b>	OXY 22-16D (OXY 22 Pad)	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	DD		
<b>Design:</b>	Plan #1		

### Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	
30.0	0.00	0.00	30.0	0.0	0.0	0.0	0.00	0.00	
60.0	0.00	0.00	60.0	0.0	0.0	0.0	0.00	0.00	
90.0	0.00	0.00	90.0	0.0	0.0	0.0	0.00	0.00	
120.0	0.00	0.00	120.0	0.0	0.0	0.0	0.00	0.00	
150.0	0.00	0.00	150.0	0.0	0.0	0.0	0.00	0.00	
180.0	0.00	0.00	180.0	0.0	0.0	0.0	0.00	0.00	
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	KOP @ 200'
210.0	0.15	342.55	210.0	0.0	0.0	0.0	1.50	1.50	
240.0	0.60	342.55	240.0	0.2	-0.1	0.2	1.50	1.50	
270.0	1.05	342.55	270.0	0.6	-0.2	0.6	1.50	1.50	
300.0	1.50	342.55	300.0	1.2	-0.4	1.3	1.50	1.50	
330.0	1.95	342.55	330.0	2.1	-0.7	2.2	1.50	1.50	
360.0	2.40	342.55	360.0	3.2	-1.0	3.4	1.50	1.50	
390.0	2.85	342.55	389.9	4.5	-1.4	4.7	1.50	1.50	
420.0	3.30	342.55	419.9	6.0	-1.9	6.3	1.50	1.50	
450.0	3.75	342.55	449.8	7.8	-2.5	8.2	1.50	1.50	
480.0	4.20	342.55	479.7	9.8	-3.1	10.3	1.50	1.50	
510.0	4.65	342.55	509.7	12.0	-3.8	12.6	1.50	1.50	
540.0	5.10	342.55	539.6	14.4	-4.5	15.1	1.50	1.50	
570.0	5.55	342.55	569.4	17.1	-5.4	17.9	1.50	1.50	
600.0	6.00	342.55	599.3	20.0	-6.3	20.9	1.50	1.50	
630.0	6.45	342.55	629.1	23.1	-7.3	24.2	1.50	1.50	
660.0	6.90	342.55	658.9	26.4	-8.3	27.7	1.50	1.50	
690.0	7.35	342.55	688.7	29.9	-9.4	31.4	1.50	1.50	
720.0	7.80	342.55	718.4	33.7	-10.6	35.3	1.50	1.50	
750.0	8.25	342.55	748.1	37.7	-11.9	39.5	1.50	1.50	
780.0	8.70	342.55	777.8	41.9	-13.2	44.0	1.50	1.50	
810.0	9.15	342.55	807.4	46.4	-14.6	48.6	1.50	1.50	
840.0	9.60	342.55	837.0	51.0	-16.0	53.5	1.50	1.50	
870.0	10.05	342.55	866.6	55.9	-17.6	58.6	1.50	1.50	
900.0	10.50	342.55	896.1	61.0	-19.2	64.0	1.50	1.50	
930.0	10.95	342.55	925.6	66.3	-20.9	69.5	1.50	1.50	
960.0	11.40	342.55	955.0	71.9	-22.6	75.4	1.50	1.50	
990.0	11.85	342.55	984.4	77.7	-24.4	81.4	1.50	1.50	
1,020.0	12.30	342.55	1,013.7	83.6	-26.3	87.7	1.50	1.50	
1,050.0	12.75	342.55	1,043.0	89.9	-28.2	94.2	1.50	1.50	
1,080.0	13.20	342.55	1,072.2	96.3	-30.3	100.9	1.50	1.50	
1,110.0	13.65	342.55	1,101.4	102.9	-32.4	107.9	1.50	1.50	
1,140.0	14.10	342.55	1,130.5	109.8	-34.5	115.1	1.50	1.50	
1,170.0	14.55	342.55	1,159.6	116.9	-36.7	122.5	1.50	1.50	
1,200.0	15.00	342.55	1,188.6	124.2	-39.0	130.2	1.50	1.50	
1,230.0	15.45	342.55	1,217.6	131.7	-41.4	138.0	1.50	1.50	
1,260.0	15.90	342.55	1,246.4	139.4	-43.8	146.1	1.50	1.50	
1,290.0	16.35	342.55	1,275.3	147.4	-46.3	154.5	1.50	1.50	
1,320.0	16.80	342.55	1,304.0	155.5	-48.9	163.0	1.50	1.50	
1,350.0	17.25	342.55	1,332.7	163.9	-51.5	171.8	1.50	1.50	
1,380.0	17.70	342.55	1,361.3	172.5	-54.2	180.8	1.50	1.50	
1,410.0	18.15	342.55	1,389.9	181.3	-57.0	190.1	1.50	1.50	
1,440.0	18.60	342.55	1,418.3	190.3	-59.8	199.5	1.50	1.50	
1,470.0	19.05	342.55	1,446.7	199.6	-62.7	209.2	1.50	1.50	
1,500.0	19.50	342.55	1,475.0	209.0	-65.7	219.1	1.50	1.50	

# Cathedral Energy Services

## Planning Report

<b>Database:</b>	US EDM 2003.21 Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well OXY 22-16D (OXY 22 Pad)
<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>TVD Reference:</b>	KBE @ 8506.0ft (Original Well Elev)
<b>Project:</b>	Garfield County	<b>MD Reference:</b>	KBE @ 8506.0ft (Original Well Elev)
<b>Site:</b>	SWSE S22-T6S-R97W	<b>North Reference:</b>	True
<b>Well:</b>	OXY 22-16D (OXY 22 Pad)	<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
1,516.4	19.75	342.55	1,490.5	214.3	-67.4	224.6	1.50	1.50	EOB; Inc=19.75°
1,530.0	19.75	342.55	1,503.3	218.6	-68.7	229.2	0.00	0.00	
1,560.0	19.75	342.55	1,531.5	228.3	-71.8	239.3	0.00	0.00	
1,590.0	19.75	342.55	1,559.8	238.0	-74.8	249.5	0.00	0.00	
1,620.0	19.75	342.55	1,588.0	247.7	-77.8	259.6	0.00	0.00	
1,650.0	19.75	342.55	1,616.2	257.3	-80.9	269.7	0.00	0.00	
1,680.0	19.75	342.55	1,644.5	267.0	-83.9	279.9	0.00	0.00	
1,710.0	19.75	342.55	1,672.7	276.7	-87.0	290.0	0.00	0.00	
1,740.0	19.75	342.55	1,700.9	286.3	-90.0	300.1	0.00	0.00	
1,770.0	19.75	342.55	1,729.2	296.0	-93.0	310.3	0.00	0.00	
1,800.0	19.75	342.55	1,757.4	305.7	-96.1	320.4	0.00	0.00	
1,830.0	19.75	342.55	1,785.7	315.3	-99.1	330.6	0.00	0.00	
1,860.0	19.75	342.55	1,813.9	325.0	-102.2	340.7	0.00	0.00	
1,890.0	19.75	342.55	1,842.1	334.7	-105.2	350.8	0.00	0.00	
1,920.0	19.75	342.55	1,870.4	344.3	-108.2	361.0	0.00	0.00	
1,950.0	19.75	342.55	1,898.6	354.0	-111.3	371.1	0.00	0.00	
1,980.0	19.75	342.55	1,926.8	363.7	-114.3	381.2	0.00	0.00	
2,010.0	19.75	342.55	1,955.1	373.4	-117.4	391.4	0.00	0.00	
2,040.0	19.75	342.55	1,983.3	383.0	-120.4	401.5	0.00	0.00	
2,070.0	19.75	342.55	2,011.5	392.7	-123.4	411.6	0.00	0.00	
2,100.0	19.75	342.55	2,039.8	402.4	-126.5	421.8	0.00	0.00	
2,130.0	19.75	342.55	2,068.0	412.0	-129.5	431.9	0.00	0.00	
2,160.0	19.75	342.55	2,096.3	421.7	-132.6	442.0	0.00	0.00	
2,178.9	19.75	342.55	2,114.0	427.8	-134.5	448.4	0.00	0.00	Wasatch
2,190.0	19.75	342.55	2,124.5	431.4	-135.6	452.2	0.00	0.00	
2,220.0	19.75	342.55	2,152.7	441.0	-138.6	462.3	0.00	0.00	
2,250.0	19.75	342.55	2,181.0	450.7	-141.7	472.5	0.00	0.00	
2,280.0	19.75	342.55	2,209.2	460.4	-144.7	482.6	0.00	0.00	
2,310.0	19.75	342.55	2,237.4	470.1	-147.8	492.7	0.00	0.00	
2,340.0	19.75	342.55	2,265.7	479.7	-150.8	502.9	0.00	0.00	
2,370.0	19.75	342.55	2,293.9	489.4	-153.8	513.0	0.00	0.00	
2,400.0	19.75	342.55	2,322.1	499.1	-156.9	523.1	0.00	0.00	
2,430.0	19.75	342.55	2,350.4	508.7	-159.9	533.3	0.00	0.00	
2,460.0	19.75	342.55	2,378.6	518.4	-162.9	543.4	0.00	0.00	
2,490.0	19.75	342.55	2,406.8	528.1	-166.0	553.5	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									
OXY 22-16D (OXY 22 P	0.00	0.00	7,084.0	1,902.1	-597.9	1,621,251.67	2,237,194.53	39.507939	-108.203936
- plan misses target center by 4893.9ft at 2490.0ft MD (2406.8 TVD, 528.1 N, -166.0 E)									
- Point									
OXY 22-16D (OXY 22 P	0.00	0.00	8,934.0	1,902.1	-597.9	1,621,251.67	2,237,194.53	39.507939	-108.203936
- plan misses target center by 6684.2ft at 2490.0ft MD (2406.8 TVD, 528.1 N, -166.0 E)									
- Rectangle (sides W100.0 H200.0 D0.0)									

# Cathedral Energy Services

## Planning Report

<b>Database:</b>	US EDM 2003.21 Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well OXY 22-16D (OXY 22 Pad)
<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>TVD Reference:</b>	KBE @ 8506.0ft (Original Well Elev)
<b>Project:</b>	Garfield County	<b>MD Reference:</b>	KBE @ 8506.0ft (Original Well Elev)
<b>Site:</b>	SWSE S22-T6S-R97W	<b>North Reference:</b>	True
<b>Well:</b>	OXY 22-16D (OXY 22 Pad)	<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	19.75	342.55	2,416.3	531.3	-167.0	556.9	0.00	0.00	
2,600.0	19.75	342.55	2,510.4	563.5	-177.1	590.7	0.00	0.00	
2,700.0	19.75	342.55	2,604.5	595.8	-187.3	624.5	0.00	0.00	
2,800.0	19.75	342.55	2,698.6	628.0	-197.4	658.3	0.00	0.00	
2,900.0	19.75	342.55	2,792.7	660.2	-207.5	692.1	0.00	0.00	
3,000.0	19.75	342.55	2,886.9	692.4	-217.7	725.8	0.00	0.00	
3,100.0	19.75	342.55	2,981.0	724.7	-227.8	759.6	0.00	0.00	
3,200.0	19.75	342.55	3,075.1	756.9	-237.9	793.4	0.00	0.00	
3,300.0	19.75	342.55	3,169.2	789.1	-248.0	827.2	0.00	0.00	
3,400.0	19.75	342.55	3,263.3	821.4	-258.2	861.0	0.00	0.00	
3,500.0	19.75	342.55	3,357.5	853.6	-268.3	894.8	0.00	0.00	
3,600.0	19.75	342.55	3,451.6	885.8	-278.4	928.6	0.00	0.00	
3,700.0	19.75	342.55	3,545.7	918.1	-288.6	962.3	0.00	0.00	
3,800.0	19.75	342.55	3,639.8	950.3	-298.7	996.1	0.00	0.00	
3,900.0	19.75	342.55	3,733.9	982.5	-308.8	1,029.9	0.00	0.00	
4,000.0	19.75	342.55	3,828.1	1,014.8	-319.0	1,063.7	0.00	0.00	
4,100.0	19.75	342.55	3,922.2	1,047.0	-329.1	1,097.5	0.00	0.00	
4,200.0	19.75	342.55	4,016.3	1,079.2	-339.2	1,131.3	0.00	0.00	
4,300.0	19.75	342.55	4,110.4	1,111.4	-349.4	1,165.1	0.00	0.00	
4,346.3	19.75	342.55	4,154.0	1,126.4	-354.1	1,180.7	0.00	0.00	Ft Union
4,400.0	19.75	342.55	4,204.5	1,143.7	-359.5	1,198.8	0.00	0.00	
4,500.0	19.75	342.55	4,298.7	1,175.9	-369.6	1,232.6	0.00	0.00	
4,600.0	19.75	342.55	4,392.8	1,208.1	-379.8	1,266.4	0.00	0.00	
4,700.0	19.75	342.55	4,486.9	1,240.4	-389.9	1,300.2	0.00	0.00	
4,800.0	19.75	342.55	4,581.0	1,272.6	-400.0	1,334.0	0.00	0.00	
4,877.5	19.75	342.55	4,654.0	1,297.6	-407.9	1,360.2	0.00	0.00	Base Ft Union
4,900.0	19.75	342.55	4,675.1	1,304.8	-410.1	1,367.8	0.00	0.00	
5,000.0	19.75	342.55	4,769.2	1,337.1	-420.3	1,401.6	0.00	0.00	
5,100.0	19.75	342.55	4,863.4	1,369.3	-430.4	1,435.3	0.00	0.00	
5,200.0	19.75	342.55	4,957.5	1,401.5	-440.5	1,469.1	0.00	0.00	
5,300.0	19.75	342.55	5,051.6	1,433.8	-450.7	1,502.9	0.00	0.00	
5,400.0	19.75	342.55	5,145.7	1,466.0	-460.8	1,536.7	0.00	0.00	
5,500.0	19.75	342.55	5,239.8	1,498.2	-470.9	1,570.5	0.00	0.00	
5,600.0	19.75	342.55	5,334.0	1,530.5	-481.1	1,604.3	0.00	0.00	
5,700.0	19.75	342.55	5,428.1	1,562.7	-491.2	1,638.1	0.00	0.00	
5,800.0	19.75	342.55	5,522.2	1,594.9	-501.3	1,671.9	0.00	0.00	
5,900.0	19.75	342.55	5,616.3	1,627.1	-511.5	1,705.6	0.00	0.00	
6,000.0	19.75	342.55	5,710.4	1,659.4	-521.6	1,739.4	0.00	0.00	
6,088.2	19.75	342.55	5,793.5	1,687.8	-530.5	1,769.2	0.00	0.00	Start Drop -1.50
6,100.0	19.57	342.55	5,804.6	1,691.6	-531.7	1,773.2	1.50	-1.50	
6,184.0	18.31	342.55	5,884.0	1,717.6	-539.9	1,800.4	1.50	-1.50	Ohio Creek
6,200.0	18.07	342.55	5,899.2	1,722.4	-541.4	1,805.4	1.50	-1.50	
6,300.0	16.57	342.55	5,994.7	1,750.8	-550.3	1,835.2	1.50	-1.50	
6,392.9	15.18	342.55	6,084.0	1,775.0	-557.9	1,860.6	1.50	-1.50	Williams Fork
6,400.0	15.07	342.55	6,090.9	1,776.8	-558.5	1,862.5	1.50	-1.50	
6,500.0	13.57	342.55	6,187.8	1,800.4	-565.9	1,887.2	1.50	-1.50	
6,600.0	12.07	342.55	6,285.3	1,821.5	-572.6	1,909.4	1.50	-1.50	
6,700.0	10.57	342.55	6,383.3	1,840.3	-578.4	1,929.0	1.50	-1.50	
6,800.0	9.07	342.55	6,481.9	1,856.5	-583.6	1,946.1	1.50	-1.50	
6,900.0	7.57	342.55	6,580.8	1,870.3	-587.9	1,960.6	1.50	-1.50	
7,000.0	6.07	342.55	6,680.1	1,881.7	-591.5	1,972.4	1.50	-1.50	
7,100.0	4.57	342.55	6,779.7	1,890.5	-594.2	1,981.7	1.50	-1.50	

# Cathedral Energy Services

## Planning Report

<b>Database:</b>	US EDM 2003.21 Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well OXY 22-16D (OXY 22 Pad)
<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>TVD Reference:</b>	KBE @ 8506.0ft (Original Well Elev)
<b>Project:</b>	Garfield County	<b>MD Reference:</b>	KBE @ 8506.0ft (Original Well Elev)
<b>Site:</b>	SWSE S22-T6S-R97W	<b>North Reference:</b>	True
<b>Well:</b>	OXY 22-16D (OXY 22 Pad)	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	DD		
<b>Design:</b>	Plan #1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
7,200.0	3.07	342.55	6,879.5	1,896.9	-596.2	1,988.4	1.50	-1.50	
7,300.0	1.57	342.55	6,979.4	1,900.7	-597.5	1,992.4	1.50	-1.50	
7,400.0	0.07	342.55	7,079.4	1,902.1	-597.9	1,993.8	1.50	-1.50	
7,404.6	0.00	0.00	7,084.0	1,902.1	-597.9	1,993.8	1.50	-1.50	EOD; Inc=0° - Approx TOG - OXY 22-16D (OXY 22 Pad)
7,500.0	0.00	0.00	7,179.4	1,902.1	-597.9	1,993.8	0.00	0.00	
7,600.0	0.00	0.00	7,279.4	1,902.1	-597.9	1,993.8	0.00	0.00	
7,700.0	0.00	0.00	7,379.4	1,902.1	-597.9	1,993.8	0.00	0.00	
7,800.0	0.00	0.00	7,479.4	1,902.1	-597.9	1,993.8	0.00	0.00	
7,900.0	0.00	0.00	7,579.4	1,902.1	-597.9	1,993.8	0.00	0.00	
8,000.0	0.00	0.00	7,679.4	1,902.1	-597.9	1,993.8	0.00	0.00	
8,100.0	0.00	0.00	7,779.4	1,902.1	-597.9	1,993.8	0.00	0.00	
8,200.0	0.00	0.00	7,879.4	1,902.1	-597.9	1,993.8	0.00	0.00	
8,300.0	0.00	0.00	7,979.4	1,902.1	-597.9	1,993.8	0.00	0.00	
8,400.0	0.00	0.00	8,079.4	1,902.1	-597.9	1,993.8	0.00	0.00	
8,500.0	0.00	0.00	8,179.4	1,902.1	-597.9	1,993.8	0.00	0.00	
8,600.0	0.00	0.00	8,279.4	1,902.1	-597.9	1,993.8	0.00	0.00	
8,700.0	0.00	0.00	8,379.4	1,902.1	-597.9	1,993.8	0.00	0.00	
8,754.6	0.00	0.00	8,434.0	1,902.1	-597.9	1,993.8	0.00	0.00	Cameo
8,800.0	0.00	0.00	8,479.4	1,902.1	-597.9	1,993.8	0.00	0.00	
8,900.0	0.00	0.00	8,579.4	1,902.1	-597.9	1,993.8	0.00	0.00	
9,000.0	0.00	0.00	8,679.4	1,902.1	-597.9	1,993.8	0.00	0.00	
9,100.0	0.00	0.00	8,779.4	1,902.1	-597.9	1,993.8	0.00	0.00	
9,104.6	0.00	0.00	8,784.0	1,902.1	-597.9	1,993.8	0.00	0.00	Rollins SS
9,200.0	0.00	0.00	8,879.4	1,902.1	-597.9	1,993.8	0.00	0.00	
9,254.6	0.00	0.00	8,934.0	1,902.1	-597.9	1,993.8	0.00	0.00	TD at 9254.6 - OXY 22-16D (OXY 22 Pad) BHL

Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
- hit/miss target									
- Shape									
OXY 22-16D (OXY 22 P	0.00	0.00	7,084.0	1,902.1	-597.9	1,621,251.67	2,237,194.53	39.507939	-108.203936
- plan hits target center									
- Point									
OXY 22-16D (OXY 22 P	0.00	0.00	8,934.0	1,902.1	-597.9	1,621,251.67	2,237,194.53	39.507939	-108.203936
- plan hits target center									
- Rectangle (sides W100.0 H200.0 D0.0)									

# Cathedral Energy Services

## Planning Report

<b>Database:</b>	US EDM 2003.21 Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well OXY 22-16D (OXY 22 Pad)
<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>TVD Reference:</b>	KBE @ 8506.0ft (Original Well Elev)
<b>Project:</b>	Garfield County	<b>MD Reference:</b>	KBE @ 8506.0ft (Original Well Elev)
<b>Site:</b>	SWSE S22-T6S-R97W	<b>North Reference:</b>	True
<b>Well:</b>	OXY 22-16D (OXY 22 Pad)	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	DD		
<b>Design:</b>	Plan #1		

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
2,178.9	2,114.0	Wasatch		0.00		
4,346.3	4,154.0	Ft Union		0.00		
4,877.5	4,654.0	Base Ft Union		0.00		
6,184.0	5,884.0	Ohio Creek		0.00		
6,392.9	6,084.0	Williams Fork		0.00		
7,404.6	7,084.0	Approx TOG		0.00		
8,754.6	8,434.0	Cameo		0.00		
9,104.6	8,784.0	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	0.0	0.0	KOP @ 200'	
1,516.4	1,490.5	214.3	-67.4	EOB; Inc=19.75°	
6,088.2	5,793.5	1,687.8	-530.5	Start Drop -1.50	
7,404.6	7,084.0	1,902.1	-597.9	EOD; Inc=0°	
9,254.6	8,934.0	1,902.1	-597.9	TD at 9254.6	

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>Local Co-ordinate Reference:</b>	Well OXY 22-16D (OXY 22 Pad)
<b>Project:</b>	Garfield County	<b>TVD Reference:</b>	KBE @ 8506.0ft (Original Well Elev)
<b>Reference Site:</b>	SWSE S22-T6S-R97W	<b>MD Reference:</b>	KBE @ 8506.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	OXY 22-16D (OXY 22 Pad)	<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>	US EDM 2003.21 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 ellipse separation of 200.0ft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma		

Survey Tool Program		Date	10/1/2009		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
0.0	9,254.6	Plan #1 (DD)	MWD	Geolink MWD	

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
SWSE S22-T6S-R97W						
OXY 22-10D (OXY 22 Pad) - DD - Plan #1	200.0	200.0	89.8	89.1	139.036	CC, ES
OXY 22-10D (OXY 22 Pad) - DD - Plan #1	1,000.0	991.1	163.2	159.3	42.821	SF
OXY 22-11D (OXY 22 Pad) - DD - Plan #1	200.0	200.0	74.9	74.3	116.016	CC, ES
OXY 22-11D (OXY 22 Pad) - DD - Plan #1	1,100.0	1,096.4	141.9	137.4	31.776	SF
OXY 22-12D (OXY 22 Pad) - DD - Plan #1	200.0	200.0	59.7	59.1	92.490	CC, ES
OXY 22-12D (OXY 22 Pad) - DD - Plan #1	1,100.0	1,101.3	104.8	100.2	22.821	SF
OXY 22-13D (OXY 22 Pad) - DD - Plan #1	200.0	200.0	44.6	43.9	69.011	CC, ES
OXY 22-13D (OXY 22 Pad) - DD - Plan #1	1,200.0	1,204.1	81.9	76.6	15.641	SF
OXY 22-14D (OXY 22 Pad) - DD - Plan #1	200.0	200.0	29.9	29.2	46.245	CC, ES
OXY 22-14D (OXY 22 Pad) - DD - Plan #1	1,300.0	1,305.9	58.9	53.3	10.544	SF
OXY 22-15D (OXY 22 Pad) - DD - Plan #1	200.0	200.0	15.0	14.4	23.229	CC
OXY 22-15D (OXY 22 Pad) - DD - Plan #1	1,300.0	1,302.5	17.4	10.5	2.543	ES
OXY 22-15D (OXY 22 Pad) - DD - Plan #1	1,400.0	1,402.5	18.9	11.4	2.511	SF
OXY 22-1D (OXY 22 Pad) - DD - Plan #1	200.0	200.0	105.5	104.9	163.420	CC, ES
OXY 22-1D (OXY 22 Pad) - DD - Plan #1	900.0	890.8	163.1	159.8	50.422	SF
OXY 22-2D (OXY 22 Pad) - DD - Plan #1	200.0	200.0	90.5	89.8	140.104	CC, ES
OXY 22-2D (OXY 22 Pad) - DD - Plan #1	900.0	896.6	140.1	136.8	43.290	SF
OXY 22-3D (OXY 22 Pad) - DD - Plan #1	200.0	200.0	75.7	75.1	117.279	CC, ES
OXY 22-3D (OXY 22 Pad) - DD - Plan #1	900.0	900.3	115.3	112.0	34.684	SF
OXY 22-4D (OXY 22 Pad) - DD - Plan #1	200.0	200.0	60.7	60.1	94.049	CC, ES
OXY 22-4D (OXY 22 Pad) - DD - Plan #1	900.0	902.7	93.6	90.3	28.142	SF
OXY 22-5D (OXY 22 Pad) - DD - Plan #1	458.2	460.9	45.4	43.9	29.002	CC
OXY 22-5D (OXY 22 Pad) - DD - Plan #1	500.0	503.0	45.5	43.8	26.487	ES
OXY 22-5D (OXY 22 Pad) - DD - Plan #1	800.0	803.2	59.6	56.6	19.741	SF
OXY 22-6D (OXY 22 Pad) - DD - Plan #1	389.4	390.9	31.7	30.4	24.124	CC
OXY 22-6D (OXY 22 Pad) - DD - Plan #1	400.0	401.5	31.7	30.4	23.458	ES
OXY 22-6D (OXY 22 Pad) - DD - Plan #1	700.0	702.2	40.7	38.2	15.968	SF
OXY 22-7D (OXY 22 Pad) - DD - Plan #1	200.0	200.0	18.2	17.6	28.216	CC
OXY 22-7D (OXY 22 Pad) - DD - Plan #1	300.0	300.4	18.3	17.3	18.384	ES
OXY 22-7D (OXY 22 Pad) - DD - Plan #1	600.0	601.0	25.3	23.1	11.818	SF
OXY 22-8D (OXY 22 Pad) - DD - Plan #1	200.0	200.0	10.7	10.1	16.596	CC, ES
OXY 22-8D (OXY 22 Pad) - DD - Plan #1	500.0	500.0	17.7	15.9	10.038	SF
OXY 22-9D (OXY 22 Pad) - DD - Plan #1	200.0	200.0	104.8	104.1	162.260	CC, ES
OXY 22-9D (OXY 22 Pad) - DD - Plan #1	1,000.0	981.7	196.4	192.6	52.737	SF

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



# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>Local Co-ordinate Reference:</b>	Well OXY 22-16D (OXY 22 Pad)
<b>Project:</b>	Garfield County	<b>TVD Reference:</b>	KBE @ 8506.0ft (Original Well Elev)
<b>Reference Site:</b>	SWSE S22-T6S-R97W	<b>MD Reference:</b>	KBE @ 8506.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	OXY 22-16D (OXY 22 Pad)	<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>	US EDM 2003.21 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

<b>Offset Design</b>												<b>Offset Site Error:</b>	0.0 ft
Survey Program: 0-MWD												<b>Offset Well Error:</b>	0.0 ft
SWSE S22-T6S-R97W - OXY 22-10D (OXY 22 Pad) - DD - Plan #1													
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	-144.23	-72.8	-52.5	89.8				
100.0	100.0	100.0	100.0	0.1	0.1	-144.23	-72.8	-52.5	89.8	89.5	0.30	302.608	
200.0	200.0	200.0	200.0	0.3	0.3	-144.23	-72.8	-52.5	89.8	89.1	0.65	139.036	CC, ES
300.0	300.0	300.0	300.0	0.5	0.5	-127.43	-72.8	-52.5	90.6	89.6	1.00	90.933	
400.0	399.9	399.9	399.9	0.7	0.7	-129.32	-72.8	-52.5	93.0	91.7	1.35	68.815	
500.0	499.7	498.5	498.5	0.9	0.8	-131.56	-72.8	-53.8	97.9	96.2	1.71	57.099	
600.0	599.3	596.9	596.8	1.1	1.0	-133.32	-72.6	-57.6	105.9	103.8	2.09	50.571	
700.0	698.6	695.1	694.8	1.4	1.2	-134.56	-72.4	-63.9	116.9	114.4	2.50	46.819	
800.0	797.5	794.1	793.5	1.7	1.4	-135.89	-72.1	-71.4	130.3	127.4	2.92	44.598	
900.0	896.1	892.8	891.9	2.0	1.6	-137.64	-71.8	-78.9	145.7	142.3	3.36	43.347	
1,000.0	994.2	991.1	989.9	2.4	1.8	-139.61	-71.5	-86.4	163.2	159.3	3.81	42.821	SF
1,100.0	1,091.7	1,088.9	1,087.5	2.8	2.0	-141.67	-71.2	-93.9	182.8	178.6	4.27	42.864	

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>Local Co-ordinate Reference:</b>	Well OXY 22-16D (OXY 22 Pad)
<b>Project:</b>	Garfield County	<b>TVD Reference:</b>	KBE @ 8506.0ft (Original Well Elev)
<b>Reference Site:</b>	SWSE S22-T6S-R97W	<b>MD Reference:</b>	KBE @ 8506.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	OXY 22-16D (OXY 22 Pad)	<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>	US EDM 2003.21 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

<b>Offset Design</b> SWSE S22-T6S-R97W - OXY 22-11D (OXY 22 Pad) - 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	-144.28	-60.8	-43.7	74.9				
100.0	100.0	100.0	100.0	0.1	0.1	-144.28	-60.8	-43.7	74.9	74.6	0.30	252.506	
200.0	200.0	200.0	200.0	0.3	0.3	-144.28	-60.8	-43.7	74.9	74.3	0.65	116.016 CC, ES	
300.0	300.0	300.0	300.0	0.5	0.5	-127.62	-60.8	-43.7	75.7	74.7	1.00	76.012	
400.0	399.9	400.0	400.0	0.7	0.7	-128.91	-60.1	-44.8	78.1	76.8	1.35	57.728	
500.0	499.7	499.9	499.9	0.9	0.9	-129.68	-57.8	-48.0	82.2	80.4	1.73	47.527	
600.0	599.3	599.9	599.6	1.1	1.1	-129.95	-54.1	-53.4	87.8	85.6	2.13	41.129	
700.0	698.6	699.7	699.0	1.4	1.3	-130.06	-49.1	-60.5	95.0	92.4	2.57	36.938	
800.0	797.5	799.2	798.2	1.7	1.5	-131.11	-44.0	-67.8	103.9	100.8	3.03	34.278	
900.0	896.1	898.6	897.1	2.0	1.7	-132.93	-39.0	-75.1	114.5	111.0	3.50	32.694	
1,000.0	994.2	997.7	995.8	2.4	1.9	-135.25	-33.9	-82.3	127.2	123.2	3.98	31.917	
1,100.0	1,091.7	1,096.4	1,094.1	2.8	2.2	-137.83	-28.9	-89.5	141.9	137.4	4.47	31.776 SF	
1,200.0	1,188.6	1,194.6	1,192.0	3.2	2.4	-140.48	-23.8	-96.7	158.9	153.9	4.94	32.150	
1,300.0	1,284.9	1,292.4	1,289.4	3.7	2.6	-143.09	-18.8	-103.9	178.2	172.8	5.41	32.950	
1,400.0	1,380.4	1,389.6	1,386.2	4.3	2.8	-145.57	-13.9	-111.0	200.0	194.1	5.86	34.105	

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>Local Co-ordinate Reference:</b>	Well OXY 22-16D (OXY 22 Pad)
<b>Project:</b>	Garfield County	<b>TVD Reference:</b>	KBE @ 8506.0ft (Original Well Elev)
<b>Reference Site:</b>	SWSE S22-T6S-R97W	<b>MD Reference:</b>	KBE @ 8506.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	OXY 22-16D (OXY 22 Pad)	<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>	US EDM 2003.21 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design SWSE S22-T6S-R97W - OXY 22-12D (OXY 22 Pad) - 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		Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor		
							+N/-S (ft)	+E/-W (ft)						
0.0	0.0	0.0	0.0	0.0	0.0	-144.80	-48.8	-34.4	59.7					
100.0	100.0	100.0	100.0	0.1	0.1	-144.80	-48.8	-34.4	59.7	59.4	0.30	201.301		
200.0	200.0	200.0	200.0	0.3	0.3	-144.80	-48.8	-34.4	59.7	59.1	0.65	92.490	CC, ES	
300.0	300.0	300.0	300.0	0.5	0.5	-128.33	-48.8	-34.4	60.5	59.5	1.00	60.772		
400.0	399.9	400.5	400.5	0.7	0.7	-129.99	-47.8	-35.2	62.6	61.2	1.35	46.228		
500.0	499.7	501.0	500.9	0.9	0.9	-131.10	-44.6	-37.7	65.5	63.8	1.73	37.889		
600.0	599.3	601.6	601.3	1.1	1.1	-131.68	-39.4	-41.7	69.2	67.1	2.13	32.480		
700.0	698.6	702.2	701.4	1.4	1.3	-131.80	-32.1	-47.4	73.7	71.1	2.57	28.665		
800.0	797.5	802.6	801.1	1.7	1.5	-131.57	-22.8	-54.7	79.0	75.9	3.06	25.851		
900.0	896.1	902.3	900.1	2.0	1.8	-132.18	-12.9	-62.3	85.7	82.2	3.56	24.064		
1,000.0	994.2	1,001.9	998.9	2.4	2.1	-133.83	-3.1	-70.0	94.3	90.2	4.08	23.116		
1,100.0	1,091.7	1,101.3	1,097.5	2.8	2.3	-136.19	6.7	-77.6	104.8	100.2	4.59	22.821	SF	
1,200.0	1,188.6	1,200.3	1,195.8	3.2	2.6	-138.94	16.5	-85.3	117.4	112.3	5.09	23.056		
1,300.0	1,284.9	1,299.0	1,293.7	3.7	2.9	-141.82	26.3	-92.8	132.3	126.7	5.57	23.737		
1,400.0	1,380.4	1,397.2	1,391.1	4.3	3.1	-144.66	36.0	-100.4	149.5	143.5	6.03	24.795		
1,500.0	1,475.0	1,494.9	1,488.1	4.9	3.4	-147.36	45.6	-107.9	169.3	162.8	6.47	26.174		
1,516.4	1,490.5	1,510.9	1,503.9	5.0	3.4	-147.78	47.2	-109.1	172.7	166.2	6.54	26.432		
1,600.0	1,569.2	1,592.3	1,584.6	5.5	3.7	-149.85	55.2	-115.4	190.8	183.9	6.89	27.706		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>Local Co-ordinate Reference:</b>	Well OXY 22-16D (OXY 22 Pad)
<b>Project:</b>	Garfield County	<b>TVD Reference:</b>	KBE @ 8506.0ft (Original Well Elev)
<b>Reference Site:</b>	SWSE S22-T6S-R97W	<b>MD Reference:</b>	KBE @ 8506.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	OXY 22-16D (OXY 22 Pad)	<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>	US EDM 2003.21 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design SWSE S22-T6S-R97W - OXY 22-13D (OXY 22 Pad) - 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	-144.82	-36.4	-25.7	44.6				
100.0	100.0	100.0	100.0	0.1	0.1	-144.82	-36.4	-25.7	44.6	44.3	0.30	150.200	
200.0	200.0	200.0	200.0	0.3	0.3	-144.82	-36.4	-25.7	44.6	43.9	0.65	69.011	CC, ES
300.0	300.0	300.0	300.0	0.5	0.5	-128.67	-36.4	-25.7	45.4	44.4	1.00	45.553	
400.0	399.9	400.5	400.5	0.7	0.7	-130.96	-35.3	-26.3	47.3	45.9	1.35	34.918	
500.0	499.7	501.1	501.0	0.9	0.9	-132.68	-31.8	-28.2	49.6	47.9	1.73	28.762	
600.0	599.3	601.8	601.5	1.1	1.1	-133.86	-26.0	-31.5	52.5	50.3	2.12	24.727	
700.0	698.6	702.5	701.8	1.4	1.3	-134.56	-17.9	-35.9	55.7	53.1	2.55	21.850	
800.0	797.5	803.3	801.8	1.7	1.5	-134.83	-7.5	-41.7	59.3	56.3	3.02	19.665	
900.0	896.1	904.1	901.6	2.0	1.8	-134.75	5.3	-48.8	63.4	59.8	3.53	17.925	
1,000.0	994.2	1,004.6	1,000.6	2.4	2.1	-134.48	20.1	-57.0	67.9	63.8	4.10	16.546	
1,100.0	1,091.7	1,104.4	1,098.9	2.8	2.5	-135.31	35.4	-65.5	73.9	69.2	4.68	15.804	
1,200.0	1,188.6	1,204.1	1,197.0	3.2	2.8	-137.26	50.6	-73.9	81.9	76.6	5.23	15.641	SF
1,300.0	1,284.9	1,303.5	1,294.9	3.7	3.1	-139.91	65.8	-82.3	91.9	86.1	5.76	15.954	
1,400.0	1,380.4	1,402.6	1,392.5	4.3	3.5	-142.88	80.9	-90.7	104.1	97.9	6.24	16.675	
1,500.0	1,475.0	1,501.3	1,489.7	4.9	3.8	-145.91	96.0	-99.1	118.8	112.1	6.69	17.751	
1,516.4	1,490.5	1,517.5	1,505.6	5.0	3.9	-146.40	98.4	-100.4	121.4	114.6	6.76	17.961	
1,600.0	1,569.2	1,599.8	1,586.7	5.5	4.2	-148.73	111.0	-107.4	135.1	128.0	7.11	19.010	
1,700.0	1,663.3	1,698.2	1,683.6	6.1	4.5	-150.96	126.1	-115.7	151.7	144.2	7.52	20.175	
1,800.0	1,757.4	1,796.7	1,780.5	6.7	4.8	-152.76	141.1	-124.1	168.5	160.6	7.93	21.243	
1,900.0	1,851.5	1,895.1	1,877.5	7.3	5.2	-154.22	156.1	-132.4	185.5	177.1	8.35	22.223	
2,000.0	1,945.7	1,993.6	1,974.4	7.9	5.5	-155.44	171.2	-140.7	202.5	193.8	8.76	23.121	

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>Local Co-ordinate Reference:</b>	Well OXY 22-16D (OXY 22 Pad)
<b>Project:</b>	Garfield County	<b>TVD Reference:</b>	KBE @ 8506.0ft (Original Well Elev)
<b>Reference Site:</b>	SWSE S22-T6S-R97W	<b>MD Reference:</b>	KBE @ 8506.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	OXY 22-16D (OXY 22 Pad)	<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>	US EDM 2003.21 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design SWSE S22-T6S-R97W - OXY 22-14D (OXY 22 Pad) - DD - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance					Separation Factor	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis			
0.0	0.0	0.0	0.0	0.0	0.0	-144.80	-24.4	-17.2	29.9					
100.0	100.0	100.0	100.0	0.1	0.1	-144.80	-24.4	-17.2	29.9	29.6	0.30	100.651		
200.0	200.0	200.0	200.0	0.3	0.3	-144.80	-24.4	-17.2	29.9	29.2	0.65	46.245 CC, ES		
300.0	300.0	300.0	300.0	0.5	0.5	-129.29	-24.4	-17.2	30.7	29.7	1.00	30.799		
400.0	399.9	400.4	400.4	0.7	0.7	-132.74	-23.2	-17.7	32.5	31.1	1.35	24.008		
500.0	499.7	501.0	500.9	0.9	0.9	-135.55	-19.5	-19.2	34.5	32.8	1.72	20.059		
600.0	599.3	601.6	601.3	1.1	1.1	-137.78	-13.4	-21.7	36.8	34.7	2.11	17.463		
700.0	698.6	702.2	701.5	1.4	1.3	-139.49	-4.8	-25.2	39.3	36.7	2.52	15.608		
800.0	797.5	802.9	801.5	1.7	1.5	-140.76	6.2	-29.7	41.9	38.9	2.95	14.199		
900.0	896.1	903.7	901.2	2.0	1.8	-141.65	19.7	-35.2	44.6	41.2	3.41	13.073		
1,000.0	994.2	1,004.6	1,000.6	2.4	2.2	-142.21	35.6	-41.7	47.5	43.6	3.92	12.138		
1,100.0	1,091.7	1,105.5	1,099.5	2.8	2.5	-142.50	53.9	-49.2	50.5	46.1	4.46	11.334		
1,200.0	1,188.6	1,206.0	1,197.6	3.2	2.9	-142.71	74.4	-57.6	53.8	48.8	5.04	10.686		
1,300.0	1,284.9	1,305.9	1,294.9	3.7	3.3	-144.12	95.2	-66.0	58.9	53.3	5.58	10.544 SF		
1,400.0	1,380.4	1,405.6	1,392.1	4.3	3.7	-146.57	115.9	-74.5	66.1	60.0	6.07	10.897		
1,500.0	1,475.0	1,505.1	1,489.0	4.9	4.2	-149.54	136.6	-82.9	75.7	69.2	6.48	11.675		
1,516.4	1,490.5	1,521.4	1,504.9	5.0	4.2	-150.04	140.0	-84.3	77.5	71.0	6.54	11.842		
1,600.0	1,569.2	1,604.4	1,585.7	5.5	4.6	-152.41	157.3	-91.4	86.9	80.1	6.86	12.675		
1,700.0	1,663.3	1,703.6	1,682.5	6.1	5.0	-154.65	177.9	-99.8	98.4	91.1	7.24	13.594		
1,800.0	1,757.4	1,802.9	1,779.2	6.7	5.4	-156.41	198.6	-108.2	109.9	102.3	7.62	14.435		
1,900.0	1,851.5	1,902.2	1,876.0	7.3	5.8	-157.84	219.3	-116.7	121.6	113.6	8.00	15.202		
2,000.0	1,945.7	2,001.5	1,972.7	7.9	6.2	-159.02	239.9	-125.1	133.3	124.9	8.38	15.904		
2,100.0	2,039.8	2,100.7	2,069.4	8.5	6.7	-160.01	260.6	-133.5	145.0	136.3	8.77	16.547		
2,200.0	2,133.9	2,200.0	2,166.2	9.1	7.1	-160.85	281.2	-142.0	156.8	147.7	9.15	17.137		
2,300.0	2,228.0	2,299.3	2,262.9	9.7	7.5	-161.57	301.9	-150.4	168.6	159.1	9.54	17.681		
2,400.0	2,322.1	2,398.6	2,359.7	10.3	7.9	-162.20	322.5	-158.8	180.5	170.6	9.93	18.183		
2,500.0	2,416.3	2,497.9	2,456.4	10.9	8.4	-162.75	343.2	-167.2	192.3	182.0	10.31	18.648		
2,600.0	2,510.4	2,597.1	2,553.1	11.6	8.8	-163.24	363.8	-175.7	204.2	193.5	10.70	19.079		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>Local Co-ordinate Reference:</b>	Well OXY 22-16D (OXY 22 Pad)
<b>Project:</b>	Garfield County	<b>TVD Reference:</b>	KBE @ 8506.0ft (Original Well Elev)
<b>Reference Site:</b>	SWSE S22-T6S-R97W	<b>MD Reference:</b>	KBE @ 8506.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	OXY 22-16D (OXY 22 Pad)	<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>	US EDM 2003.21 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													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	-145.65	-12.4	-8.5	15.0					
100.0	100.0	100.0	100.0	0.1	0.1	-145.65	-12.4	-8.5	15.0	14.7	0.30	50.558		
200.0	200.0	200.0	200.0	0.3	0.3	-145.65	-12.4	-8.5	15.0	14.4	0.65	23.229 CC		
300.0	300.0	300.2	300.2	0.5	0.5	-128.13	-11.1	-8.9	15.0	14.0	1.00	15.052		
400.0	399.9	400.5	400.4	0.7	0.7	-127.92	-7.4	-10.1	15.1	13.7	1.36	11.067		
500.0	499.7	500.7	500.4	0.9	0.9	-127.58	-1.2	-12.2	15.2	13.4	1.75	8.669		
600.0	599.3	600.9	600.2	1.1	1.1	-127.11	7.5	-15.2	15.3	13.1	2.17	7.046		
700.0	698.6	701.2	699.7	1.4	1.4	-126.52	18.7	-18.9	15.5	12.8	2.64	5.865		
800.0	797.5	801.4	798.9	1.7	1.7	-125.81	32.4	-23.5	15.7	12.5	3.16	4.964		
900.0	896.1	901.6	897.7	2.0	2.0	-125.01	48.5	-28.9	15.9	12.2	3.74	4.256		
1,000.0	994.2	1,001.9	996.0	2.4	2.4	-124.11	67.1	-35.2	16.2	11.8	4.39	3.688		
1,100.0	1,091.7	1,102.1	1,093.7	2.8	2.8	-123.12	88.1	-42.2	16.5	11.4	5.13	3.225		
1,200.0	1,188.6	1,202.3	1,190.9	3.2	3.3	-122.08	111.6	-50.1	16.9	11.0	5.94	2.845		
1,300.0	1,284.9	1,302.5	1,287.3	3.7	3.7	-121.22	137.3	-58.7	17.4	10.5	6.83	2.543 ES		
1,400.0	1,380.4	1,402.5	1,383.3	4.3	4.2	-125.35	163.7	-67.6	18.9	11.4	7.52	2.511 SF		
1,500.0	1,475.0	1,502.4	1,479.3	4.9	4.7	-134.08	190.0	-76.4	22.2	14.4	7.82	2.842		
1,516.4	1,490.5	1,518.8	1,495.0	5.0	4.8	-135.70	194.4	-77.9	23.0	15.2	7.83	2.937		
1,600.0	1,569.2	1,602.2	1,575.1	5.5	5.3	-142.73	216.3	-85.3	27.3	19.4	7.87	3.464		
1,700.0	1,663.3	1,702.0	1,671.0	6.1	5.8	-148.64	242.7	-94.1	32.8	24.8	7.98	4.108		
1,800.0	1,757.4	1,801.8	1,766.9	6.7	6.3	-152.81	269.0	-103.0	38.5	30.4	8.14	4.730		
1,900.0	1,851.5	1,901.6	1,862.7	7.3	6.8	-155.89	295.3	-111.8	44.4	36.0	8.35	5.317		
2,000.0	1,945.7	2,001.4	1,958.6	7.9	7.3	-158.24	321.6	-120.6	50.4	41.8	8.59	5.864		
2,100.0	2,039.8	2,101.2	2,054.4	8.5	7.8	-160.10	347.9	-129.5	56.5	47.6	8.86	6.370		
2,200.0	2,133.9	2,201.0	2,150.3	9.1	8.3	-161.59	374.3	-138.3	62.6	53.4	9.15	6.837		
2,300.0	2,228.0	2,300.8	2,246.2	9.7	8.8	-162.81	400.6	-147.2	68.7	59.3	9.45	7.269		
2,400.0	2,322.1	2,400.6	2,342.0	10.3	9.3	-163.84	426.9	-156.0	74.9	65.1	9.76	7.669		
2,500.0	2,416.3	2,500.4	2,437.9	10.9	9.8	-164.70	453.2	-164.8	81.1	71.0	10.08	8.039		
2,600.0	2,510.4	2,600.2	2,533.8	11.6	10.4	-165.45	479.5	-173.7	87.3	76.9	10.41	8.383		
2,700.0	2,604.5	2,700.0	2,629.6	12.2	10.9	-166.09	505.8	-182.5	93.5	82.7	10.74	8.702		
2,800.0	2,698.6	2,799.8	2,725.5	12.8	11.4	-166.66	532.2	-191.3	99.7	88.6	11.08	9.000		
2,900.0	2,792.7	2,899.6	2,821.3	13.4	11.9	-167.16	558.5	-200.2	105.9	94.5	11.42	9.278		
3,000.0	2,886.9	2,999.4	2,917.2	14.0	12.4	-167.60	584.8	-209.0	112.2	100.4	11.76	9.538		
3,100.0	2,981.0	3,099.2	3,013.1	14.6	12.9	-168.00	611.1	-217.9	118.4	106.3	12.11	9.782		
3,200.0	3,075.1	3,199.0	3,108.9	15.2	13.4	-168.35	637.4	-226.7	124.7	112.2	12.46	10.011		
3,300.0	3,169.2	3,298.8	3,204.8	15.9	14.0	-168.67	663.7	-235.5	130.9	118.1	12.80	10.226		
3,400.0	3,263.3	3,398.6	3,300.7	16.5	14.5	-168.97	690.1	-244.4	137.2	124.1	13.16	10.429		
3,500.0	3,357.5	3,498.4	3,396.5	17.1	15.0	-169.24	716.4	-253.2	143.5	130.0	13.51	10.621		
3,600.0	3,451.6	3,598.2	3,492.4	17.7	15.5	-169.48	742.7	-262.1	149.7	135.9	13.86	10.802		
3,700.0	3,545.7	3,698.0	3,588.2	18.3	16.0	-169.71	769.0	-270.9	156.0	141.8	14.22	10.973		
3,800.0	3,639.8	3,797.8	3,684.1	18.9	16.5	-169.91	795.3	-279.7	162.3	147.7	14.57	11.135		
3,900.0	3,733.9	3,897.6	3,780.0	19.6	17.1	-170.11	821.6	-288.6	168.6	153.6	14.93	11.290		
4,000.0	3,828.1	3,997.4	3,875.8	20.2	17.6	-170.29	848.0	-297.4	174.8	159.5	15.29	11.436		
4,100.0	3,922.2	4,097.2	3,971.7	20.8	18.1	-170.45	874.3	-306.2	181.1	165.5	15.65	11.576		
4,200.0	4,016.3	4,197.0	4,067.6	21.4	18.6	-170.61	900.6	-315.1	187.4	171.4	16.00	11.708		
4,300.0	4,110.4	4,296.8	4,163.4	22.0	19.1	-170.75	926.9	-323.9	193.7	177.3	16.36	11.835		
4,400.0	4,204.5	4,396.6	4,259.3	22.6	19.6	-170.89	953.2	-332.8	200.0	183.2	16.72	11.956		
4,500.0	4,298.7	4,496.4	4,355.1	23.3	20.1	-171.02	979.6	-341.6	206.2	189.2	17.08	12.072		
4,600.0	4,392.8	4,596.2	4,451.0	23.9	20.7	-171.14	1,005.9	-350.4	212.5	195.1	17.44	12.183		

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

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>Local Co-ordinate Reference:</b>	Well OXY 22-16D (OXY 22 Pad)
<b>Project:</b>	Garfield County	<b>TVD Reference:</b>	KBE @ 8506.0ft (Original Well Elev)
<b>Reference Site:</b>	SWSE S22-T6S-R97W	<b>MD Reference:</b>	KBE @ 8506.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	OXY 22-16D (OXY 22 Pad)	<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>	US EDM 2003.21 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

<b>Offset Design</b> SWSE S22-T6S-R97W - OXY 22-1D (OXY 22 Pad) - 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	-149.65	-91.1	-53.3	105.5				
100.0	100.0	100.0	100.0	0.1	0.1	-149.65	-91.1	-53.3	105.5	105.2	0.30	355.678	
200.0	200.0	200.0	200.0	0.3	0.3	-149.65	-91.1	-53.3	105.5	104.9	0.65	163.420 CC, ES	
300.0	300.0	300.0	300.0	0.5	0.5	-132.71	-91.1	-53.3	106.4	105.4	1.00	106.858	
400.0	399.9	399.9	399.9	0.7	0.7	-134.19	-91.1	-53.3	109.1	107.8	1.35	80.802	
500.0	499.7	500.0	500.0	0.9	0.8	-137.17	-91.5	-52.1	113.6	111.9	1.71	66.343	
600.0	599.3	599.4	599.3	1.1	1.0	-141.90	-92.8	-48.4	120.4	118.3	2.08	57.761	
700.0	698.6	697.9	697.6	1.4	1.2	-147.81	-95.0	-42.4	130.4	127.9	2.47	52.881	
800.0	797.5	795.1	794.4	1.7	1.4	-154.21	-98.0	-34.1	144.3	141.5	2.85	50.655	
900.0	896.1	890.8	889.4	2.0	1.7	-160.50	-101.8	-23.7	163.1	159.8	3.23	50.422 SF	
1,000.0	994.2	984.9	982.6	2.4	1.9	-166.29	-106.3	-11.4	186.8	183.2	3.61	51.739	

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>Local Co-ordinate Reference:</b>	Well OXY 22-16D (OXY 22 Pad)
<b>Project:</b>	Garfield County	<b>TVD Reference:</b>	KBE @ 8506.0ft (Original Well Elev)
<b>Reference Site:</b>	SWSE S22-T6S-R97W	<b>MD Reference:</b>	KBE @ 8506.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	OXY 22-16D (OXY 22 Pad)	<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>	US EDM 2003.21 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

<b>Offset Design</b> SWSE S22-T6S-R97W - OXY 22-2D (OXY 22 Pad) - 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)	Offset Wellbore Centre +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	-150.89	-79.0	-44.0	90.5				
100.0	100.0	100.0	100.0	0.1	0.1	-150.89	-79.0	-44.0	90.5	90.2	0.30	304.932	
200.0	200.0	200.0	200.0	0.3	0.3	-150.89	-79.0	-44.0	90.5	89.8	0.65	140.104	CC, ES
300.0	300.0	300.0	300.0	0.5	0.5	-134.02	-79.0	-44.0	91.4	90.4	1.00	91.765	
400.0	399.9	399.9	399.9	0.7	0.7	-135.71	-79.0	-44.0	94.2	92.8	1.35	69.740	
500.0	499.7	500.7	500.7	0.9	0.8	-139.04	-79.0	-42.7	98.4	96.7	1.71	57.454	
600.0	599.3	601.1	601.0	1.1	1.0	-144.31	-79.0	-38.7	104.2	102.1	2.08	50.008	
700.0	698.6	700.7	700.4	1.4	1.2	-150.91	-79.0	-32.2	112.4	110.0	2.46	45.687	
800.0	797.5	799.3	798.6	1.7	1.4	-158.14	-78.9	-23.2	124.1	121.3	2.84	43.639	
900.0	896.1	896.6	895.2	2.0	1.7	-165.33	-78.9	-11.8	140.1	136.8	3.24	43.290	SF
1,000.0	994.2	992.9	990.6	2.4	1.9	-171.79	-78.8	1.3	160.6	157.0	3.63	44.299	
1,100.0	1,091.7	1,088.6	1,085.4	2.8	2.2	-176.86	-78.7	14.5	185.3	181.3	4.02	46.139	



# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>Local Co-ordinate Reference:</b>	Well OXY 22-16D (OXY 22 Pad)
<b>Project:</b>	Garfield County	<b>TVD Reference:</b>	KBE @ 8506.0ft (Original Well Elev)
<b>Reference Site:</b>	SWSE S22-T6S-R97W	<b>MD Reference:</b>	KBE @ 8506.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	OXY 22-16D (OXY 22 Pad)	<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>	US EDM 2003.21 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

<b>Offset Design</b> SWSE S22-T6S-R97W - OXY 22-3D (OXY 22 Pad) - 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	-152.24	-67.0	-35.3	75.7				
100.0	100.0	100.0	100.0	0.1	0.1	-152.24	-67.0	-35.3	75.7	75.4	0.30	255.253	
200.0	200.0	200.0	200.0	0.3	0.3	-152.24	-67.0	-35.3	75.7	75.1	0.65	117.279 CC, ES	
300.0	300.0	300.0	300.0	0.5	0.5	-135.48	-67.0	-35.3	76.7	75.7	1.00	76.991	
400.0	399.9	401.4	401.4	0.7	0.7	-138.16	-66.6	-34.0	78.6	77.2	1.35	58.080	
500.0	499.7	502.5	502.4	0.9	0.9	-143.29	-65.2	-30.2	81.0	79.3	1.72	47.120	
600.0	599.3	603.2	602.9	1.1	1.1	-150.47	-62.9	-24.0	84.8	82.7	2.10	40.457	
700.0	698.6	703.2	702.4	1.4	1.3	-159.02	-59.7	-15.3	91.1	88.6	2.49	36.636	
800.0	797.5	802.4	800.9	1.7	1.5	-168.03	-55.6	-4.3	101.0	98.1	2.90	34.869	
900.0	896.1	900.3	897.9	2.0	1.8	-176.44	-50.9	8.6	115.3	112.0	3.32	34.684 SF	
1,000.0	994.2	997.5	994.1	2.4	2.1	177.00	-46.1	21.7	134.1	130.3	3.76	35.637	
1,100.0	1,091.7	1,094.2	1,089.8	2.8	2.4	172.17	-41.3	34.7	156.7	152.5	4.21	37.197	
1,200.0	1,188.6	1,190.3	1,184.9	3.2	2.6	168.68	-36.5	47.6	182.6	177.9	4.68	39.060	

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>Local Co-ordinate Reference:</b>	Well OXY 22-16D (OXY 22 Pad)
<b>Project:</b>	Garfield County	<b>TVD Reference:</b>	KBE @ 8506.0ft (Original Well Elev)
<b>Reference Site:</b>	SWSE S22-T6S-R97W	<b>MD Reference:</b>	KBE @ 8506.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	OXY 22-16D (OXY 22 Pad)	<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>	US EDM 2003.21 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design SWSE S22-T6S-R97W - OXY 22-4D (OXY 22 Pad) - 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	-154.10	-54.6	-26.5	60.7					
100.0	100.0	100.0	100.0	0.1	0.1	-154.10	-54.6	-26.5	60.7	60.4	0.30	204.695		
200.0	200.0	200.0	200.0	0.3	0.3	-154.10	-54.6	-26.5	60.7	60.1	0.65	94.049	CC, ES	
300.0	300.0	300.0	300.0	0.5	0.5	-137.48	-54.6	-26.5	61.7	60.7	1.00	61.961		
400.0	399.9	401.3	401.3	0.7	0.7	-140.49	-53.9	-25.4	63.5	62.2	1.35	46.988		
500.0	499.7	502.5	502.4	0.9	0.9	-146.05	-51.5	-22.2	65.5	63.8	1.71	38.225		
600.0	599.3	603.4	603.1	1.1	1.1	-153.80	-47.7	-16.7	68.5	66.4	2.08	32.887		
700.0	698.6	703.8	703.0	1.4	1.3	-163.05	-42.3	-9.1	73.6	71.1	2.47	29.845		
800.0	797.5	803.6	802.1	1.7	1.5	-172.83	-35.4	0.5	81.7	78.9	2.87	28.438		
900.0	896.1	902.7	900.2	2.0	1.8	177.87	-27.1	12.1	93.6	90.3	3.33	28.142	SF	
1,000.0	994.2	1,000.7	996.8	2.4	2.1	169.81	-17.6	25.5	109.6	105.8	3.83	28.610		
1,100.0	1,091.7	1,097.9	1,092.6	2.8	2.5	163.96	-7.9	39.1	129.6	125.3	4.37	29.677		
1,200.0	1,188.6	1,194.7	1,188.0	3.2	2.8	159.96	1.7	52.7	153.0	148.1	4.93	31.043		
1,300.0	1,284.9	1,291.0	1,282.8	3.7	3.1	157.29	11.3	66.2	179.2	173.7	5.51	32.547		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>Local Co-ordinate Reference:</b>	Well OXY 22-16D (OXY 22 Pad)
<b>Project:</b>	Garfield County	<b>TVD Reference:</b>	KBE @ 8506.0ft (Original Well Elev)
<b>Reference Site:</b>	SWSE S22-T6S-R97W	<b>MD Reference:</b>	KBE @ 8506.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	OXY 22-16D (OXY 22 Pad)	<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>	US EDM 2003.21 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design		SWSE S22-T6S-R97W - OXY 22-5D (OXY 22 Pad) - 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		Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor					
							+N/-S (ft)	+E/-W (ft)									
0.0	0.0	0.0	0.0	0.0	0.0	-157.03	-42.6	-18.1	46.3								
100.0	100.0	100.0	100.0	0.1	0.1	-157.03	-42.6	-18.1	46.3	46.0	0.30	155.995					
200.0	200.0	200.0	200.0	0.3	0.3	-157.03	-42.6	-18.1	46.3	45.6	0.65	71.673					
300.0	300.0	301.1	301.1	0.5	0.5	-141.21	-41.6	-17.2	46.1	45.1	1.00	46.151					
400.0	399.9	402.2	402.1	0.7	0.7	-146.16	-38.7	-14.4	45.6	44.2	1.35	33.651					
458.2	458.0	460.9	460.7	0.8	0.8	-150.61	-36.0	-12.0	45.4	43.9	1.57	29.002 CC					
500.0	499.7	503.0	502.7	0.9	0.9	-154.49	-33.8	-9.9	45.5	43.8	1.72	26.487 ES					
600.0	599.3	603.5	602.7	1.1	1.1	-165.75	-26.9	-3.7	47.1	45.0	2.10	22.385					
700.0	698.6	703.6	702.1	1.4	1.4	-178.53	-18.2	4.3	51.4	48.9	2.53	20.360					
800.0	797.5	803.2	800.7	1.7	1.7	169.19	-7.6	14.0	59.6	56.6	3.02	19.741 SF					
900.0	896.1	902.1	898.2	2.0	2.0	158.80	4.8	25.4	71.7	68.2	3.59	19.982					
1,000.0	994.2	1,000.4	994.6	2.4	2.4	150.71	18.9	38.3	87.7	83.5	4.23	20.720					
1,100.0	1,091.7	1,098.2	1,090.3	2.8	2.7	145.52	33.5	51.6	107.0	102.1	4.90	21.818					
1,200.0	1,188.6	1,195.6	1,185.7	3.2	3.1	142.55	48.0	64.9	128.9	123.3	5.59	23.044					
1,300.0	1,284.9	1,292.6	1,280.8	3.7	3.5	141.00	62.4	78.1	152.9	146.6	6.30	24.292					
1,400.0	1,380.4	1,389.1	1,375.3	4.3	3.9	140.33	76.7	91.2	179.0	172.0	7.01	25.534					
1,500.0	1,475.0	1,485.1	1,469.3	4.9	4.2	140.23	91.0	104.3	207.0	199.3	7.73	26.768					

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>Local Co-ordinate Reference:</b>	Well OXY 22-16D (OXY 22 Pad)
<b>Project:</b>	Garfield County	<b>TVD Reference:</b>	KBE @ 8506.0ft (Original Well Elev)
<b>Reference Site:</b>	SWSE S22-T6S-R97W	<b>MD Reference:</b>	KBE @ 8506.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	OXY 22-16D (OXY 22 Pad)	<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>	US EDM 2003.21 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

<b>Offset Design</b> SWSE S22-T6S-R97W - OXY 22-6D (OXY 22 Pad) - 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	-163.08	-30.6	-9.3	32.0				
100.0	100.0	100.0	100.0	0.1	0.1	-163.08	-30.6	-9.3	32.0	31.7	0.30	107.839	
200.0	200.0	200.0	200.0	0.3	0.3	-163.08	-30.6	-9.3	32.0	31.4	0.65	49.548	
300.0	300.0	300.8	300.8	0.5	0.5	-147.78	-29.5	-8.5	31.9	30.9	1.00	31.954	
389.4	389.4	390.9	390.8	0.7	0.7	-153.39	-26.8	-6.5	31.7	30.4	1.31	24.124 CC	
400.0	399.9	401.5	401.4	0.7	0.7	-154.28	-26.4	-6.1	31.7	30.4	1.35	23.458 ES	
500.0	499.7	502.0	501.7	0.9	0.9	-164.96	-21.0	-2.2	32.4	30.6	1.72	18.864	
600.0	599.3	602.3	601.5	1.1	1.1	-178.49	-13.6	3.3	35.0	32.9	2.11	16.630	
700.0	698.6	702.2	700.7	1.4	1.4	167.72	-4.2	10.4	40.7	38.2	2.55	15.968 SF	
800.0	797.5	801.7	799.2	1.7	1.7	155.97	7.3	18.9	50.0	46.9	3.08	16.261	
900.0	896.1	900.7	896.7	2.0	2.0	146.95	20.8	28.9	62.7	59.0	3.68	17.047	
1,000.0	994.2	999.1	993.3	2.4	2.4	140.31	36.2	40.4	78.5	74.2	4.36	18.034	
1,100.0	1,091.7	1,096.8	1,088.6	2.8	2.8	135.43	53.5	53.3	97.2	92.1	5.10	19.058	
1,200.0	1,188.6	1,194.1	1,183.0	3.2	3.2	131.87	72.4	67.4	118.4	112.5	5.90	20.089	
1,300.0	1,284.9	1,291.3	1,277.2	3.7	3.6	129.96	91.6	81.7	141.7	134.9	6.72	21.096	
1,400.0	1,380.4	1,388.2	1,371.1	4.3	4.1	129.21	110.8	95.9	166.6	159.0	7.56	22.048	
1,500.0	1,475.0	1,484.6	1,464.5	4.9	4.5	129.18	129.9	110.1	193.1	184.7	8.41	22.953	
1,516.4	1,490.5	1,500.4	1,479.8	5.0	4.6	129.22	133.0	112.4	197.6	189.1	8.55	23.104	

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>Local Co-ordinate Reference:</b>	Well OXY 22-16D (OXY 22 Pad)
<b>Project:</b>	Garfield County	<b>TVD Reference:</b>	KBE @ 8506.0ft (Original Well Elev)
<b>Reference Site:</b>	SWSE S22-T6S-R97W	<b>MD Reference:</b>	KBE @ 8506.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	OXY 22-16D (OXY 22 Pad)	<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>	US EDM 2003.21 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

<b>Offset Design</b> SWSE S22-T6S-R97W - OXY 22-7D (OXY 22 Pad) - 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	-178.23	-18.2	-0.6	18.2				
100.0	100.0	100.0	100.0	0.1	0.1	-178.23	-18.2	-0.6	18.2	17.9	0.30	61.410	
200.0	200.0	200.0	200.0	0.3	0.3	-178.23	-18.2	-0.6	18.2	17.6	0.65	28.216 CC	
300.0	300.0	300.4	300.4	0.5	0.5	-163.99	-17.1	0.1	18.3	17.3	1.00	18.384 ES	
400.0	399.9	400.8	400.7	0.7	0.7	-173.31	-13.6	2.0	18.9	17.6	1.35	14.012	
500.0	499.7	501.0	500.7	0.9	0.9	173.05	-7.8	5.1	20.9	19.2	1.72	12.156	
600.0	599.3	601.0	600.3	1.1	1.1	158.76	0.3	9.5	25.3	23.1	2.14	11.818 SF	
700.0	698.6	700.8	699.4	1.4	1.4	146.90	10.6	15.1	32.3	29.7	2.62	12.343	
800.0	797.5	800.3	797.8	1.7	1.7	138.22	23.1	21.9	42.1	38.9	3.17	13.265	
900.0	896.1	899.4	895.5	2.0	2.0	132.11	37.9	30.0	54.3	50.5	3.80	14.309	
1,000.0	994.2	998.1	992.3	2.4	2.4	127.76	54.7	39.2	68.9	64.4	4.49	15.338	
1,100.0	1,091.7	1,096.3	1,088.1	2.8	2.8	124.61	73.7	49.5	85.6	80.3	5.25	16.290	
1,200.0	1,188.6	1,194.0	1,182.8	3.2	3.2	122.24	94.7	60.9	104.4	98.3	6.09	17.147	
1,300.0	1,284.9	1,291.0	1,276.3	3.7	3.7	120.41	117.7	73.5	125.2	118.2	6.99	17.907	
1,400.0	1,380.4	1,387.8	1,368.8	4.3	4.2	118.99	142.6	87.0	147.9	140.0	7.95	18.601	
1,500.0	1,475.0	1,484.9	1,461.4	4.9	4.7	118.45	168.0	100.8	172.1	163.1	8.95	19.226	
1,516.4	1,490.5	1,500.8	1,476.6	5.0	4.8	118.44	172.2	103.1	176.1	167.0	9.11	19.328	
1,600.0	1,569.2	1,581.7	1,553.9	5.5	5.3	118.68	193.3	114.6	197.0	187.0	9.96	19.780	

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>Local Co-ordinate Reference:</b>	Well OXY 22-16D (OXY 22 Pad)
<b>Project:</b>	Garfield County	<b>TVD Reference:</b>	KBE @ 8506.0ft (Original Well Elev)
<b>Reference Site:</b>	SWSE S22-T6S-R97W	<b>MD Reference:</b>	KBE @ 8506.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	OXY 22-16D (OXY 22 Pad)	<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>	US EDM 2003.21 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design SWSE S22-T6S-R97W - OXY 22-8D (OXY 22 Pad) - 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	125.29	-6.2	8.7	10.7				
100.0	100.0	100.0	100.0	0.1	0.1	125.29	-6.2	8.7	10.7	10.4	0.30	36.121	
200.0	200.0	200.0	200.0	0.3	0.3	125.29	-6.2	8.7	10.7	10.1	0.65	16.596	CC, ES
300.0	300.0	300.1	300.1	0.5	0.5	140.35	-5.0	9.2	11.4	10.4	1.00	11.470	
400.0	399.9	400.1	400.0	0.7	0.7	134.73	-1.3	10.6	13.7	12.3	1.36	10.052	
500.0	499.7	500.0	499.7	0.9	0.9	128.66	4.8	12.9	17.7	15.9	1.76	10.038	SF
600.0	599.3	599.8	599.1	1.1	1.1	123.68	13.3	16.2	23.4	21.2	2.20	10.628	
700.0	698.6	699.4	698.0	1.4	1.4	120.01	24.3	20.4	31.0	28.3	2.70	11.449	
800.0	797.5	798.8	796.4	1.7	1.7	117.37	37.6	25.5	40.2	37.0	3.27	12.319	
900.0	896.1	898.0	894.1	2.0	2.0	115.46	53.2	31.4	51.2	47.3	3.90	13.150	
1,000.0	994.2	996.8	991.1	2.4	2.4	114.04	71.2	38.3	63.9	59.3	4.60	13.906	
1,100.0	1,091.7	1,095.3	1,087.2	2.8	2.8	112.96	91.4	46.0	78.3	72.9	5.37	14.575	
1,200.0	1,188.6	1,193.5	1,182.3	3.2	3.2	112.10	113.8	54.6	94.4	88.1	6.22	15.160	
1,300.0	1,284.9	1,291.2	1,276.4	3.7	3.7	111.40	138.4	63.9	112.0	104.9	7.15	15.670	
1,400.0	1,380.4	1,388.5	1,369.4	4.3	4.2	110.81	165.2	74.1	131.3	123.2	8.15	16.114	
1,500.0	1,475.0	1,485.3	1,461.2	4.9	4.8	110.30	193.9	85.1	152.2	143.0	9.22	16.502	
1,516.4	1,490.5	1,501.1	1,476.1	5.0	4.9	110.22	198.9	87.0	155.8	146.4	9.40	16.569	
1,600.0	1,569.2	1,582.3	1,552.4	5.5	5.4	109.93	224.7	96.8	174.3	163.9	10.33	16.864	
1,700.0	1,663.3	1,679.8	1,644.0	6.1	6.0	109.60	255.8	108.7	196.4	185.0	11.46	17.142	

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>Local Co-ordinate Reference:</b>	Well OXY 22-16D (OXY 22 Pad)
<b>Project:</b>	Garfield County	<b>TVD Reference:</b>	KBE @ 8506.0ft (Original Well Elev)
<b>Reference Site:</b>	SWSE S22-T6S-R97W	<b>MD Reference:</b>	KBE @ 8506.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	OXY 22-16D (OXY 22 Pad)	<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>	US EDM 2003.21 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

<b>Offset Design</b> SWSE S22-T6S-R97W - OXY 22-9D (OXY 22 Pad) - 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	-144.43	-85.2	-60.9	104.8				
100.0	100.0	100.0	100.0	0.1	0.1	-144.43	-85.2	-60.9	104.8	104.5	0.30	353.153	
200.0	200.0	200.0	200.0	0.3	0.3	-144.43	-85.2	-60.9	104.8	104.1	0.65	162.260 CC, ES	
300.0	300.0	300.0	300.0	0.5	0.5	-127.54	-85.2	-60.9	105.6	104.6	1.00	105.993	
400.0	399.9	399.9	399.9	0.7	0.7	-129.16	-85.2	-60.9	108.0	106.7	1.35	79.908	
500.0	499.7	497.2	497.2	0.9	0.8	-131.32	-85.9	-62.0	113.4	111.7	1.71	66.230	
600.0	599.3	594.0	593.9	1.1	1.0	-133.52	-87.7	-65.2	122.9	120.8	2.08	58.973	
700.0	698.6	690.2	689.9	1.4	1.2	-135.53	-90.8	-70.5	136.5	134.0	2.47	55.275	
800.0	797.5	786.6	786.0	1.7	1.4	-137.30	-95.0	-77.7	154.1	151.2	2.87	53.636	
900.0	896.1	884.4	883.4	2.0	1.6	-139.16	-99.6	-85.4	174.1	170.9	3.29	52.883	
1,000.0	994.2	981.7	980.2	2.4	1.8	-141.07	-104.0	-93.1	196.4	192.6	3.72	52.737 SF	

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>Local Co-ordinate Reference:</b>	Well OXY 22-16D (OXY 22 Pad)
<b>Project:</b>	Garfield County	<b>TVD Reference:</b>	KBE @ 8506.0ft (Original Well Elev)
<b>Reference Site:</b>	SWSE S22-T6S-R97W	<b>MD Reference:</b>	KBE @ 8506.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	OXY 22-16D (OXY 22 Pad)	<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>	US EDM 2003.21 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Reference Depths are relative to KBE @ 8506.0ft (Original Well Elev)  
Offset Depths are relative to Offset Datum  
Central Meridian is -105.500000 °

Coordinates are relative to: OXY 22-16D (OXY 22 Pad)  
Coordinate System is US State Plane 1983, Colorado Central Zone  
Grid Convergence at Surface is: -1.70°

