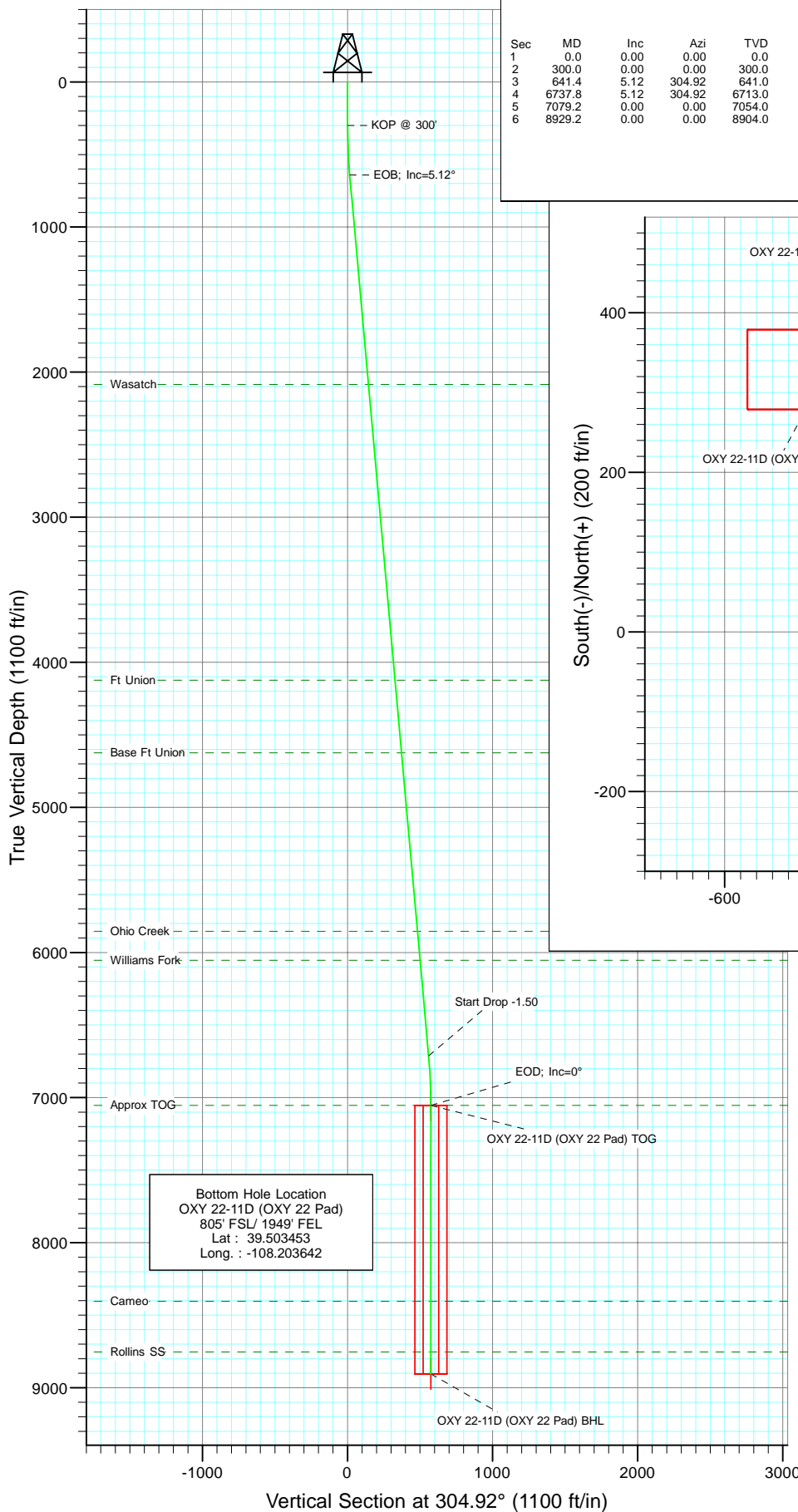


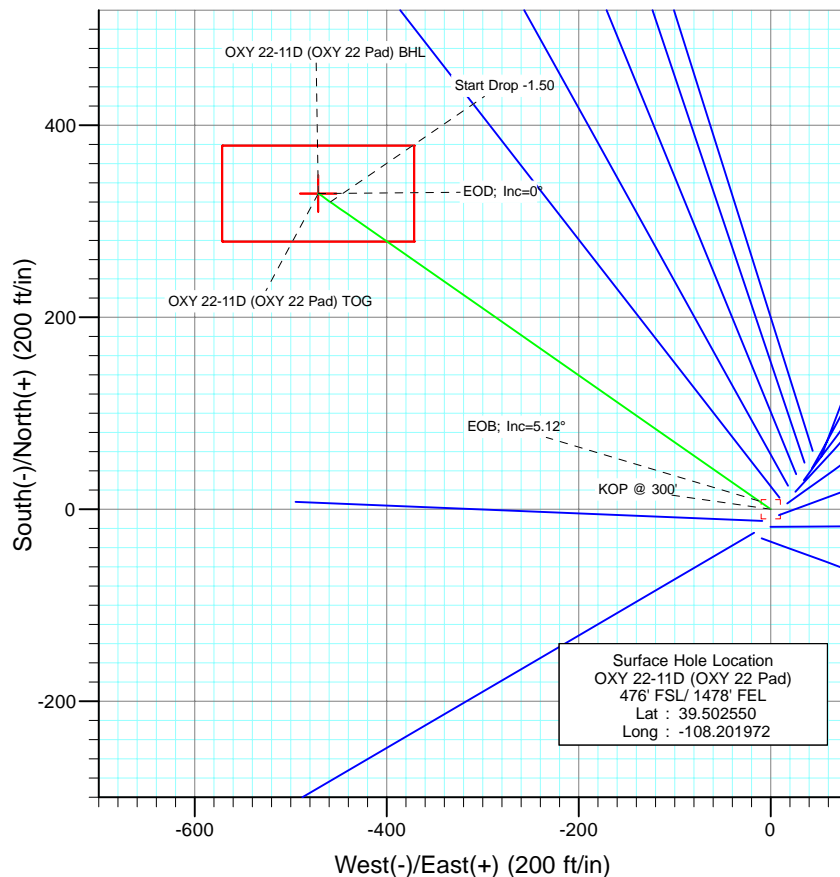


Berry Petroleum Company

Project: Garfield County  
Site: SWSE S22-T6S-R97W  
Well: OXY 22-11D (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	300.0	0.00	0.00	300.0	0.0	0.0	0.00	0.00	0.0	
3	641.4	5.12	304.92	641.0	8.7	-12.5	1.50	304.92	15.2	
4	6737.8	0.00	0.00	7054.0	328.9	-471.2	1.50	180.00	574.7	OXY 22-11D (OXY 22 Pad) TOG
5	7079.2	0.00	0.00	7054.0	328.9	-471.2	0.00	0.00	574.7	OXY 22-11D (OXY 22 Pad) BHL



FORMATION TOP DETAILS		
TVDPath	MDPath	Formation
2084.0	2090.2	Wasatch
4124.0	4138.4	Ft Union
4624.0	4640.4	Base Ft Union
5854.0	5875.3	Ohio Creek
6054.0	6076.1	Williams Fork
7054.0	7079.2	Approx TOG
8404.0	8429.2	Cameo
8754.0	8779.2	Rollins SS



Azimuths to True North  
Magnetic North: 10.64°

Magnetic Field  
Strength: 52406.0snT  
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 22-11D (OXY 22 Pad) BHL	304.92	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 22-11D (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 22-11D (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 22-11D (OXY 22 Pad)					
Well Position	+N/-S	0.0 ft	Northing:	1,619,273.15 ft	Latitude:	39.502550
	+E/-W	0.0 ft	Easting:	2,237,690.06 ft	Longitude:	-108.201972
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	304.92

<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	
300.0	0.00	0.00	300.0	0.0	0.0	0.00	0.00	0.00	0.00	
641.4	5.12	304.92	641.0	8.7	-12.5	1.50	1.50	0.00	304.92	
6,737.8	5.12	304.92	6,713.0	320.2	-458.7	0.00	0.00	0.00	0.00	
7,079.2	0.00	0.00	7,054.0	328.9	-471.2	1.50	-1.50	0.00	180.00	OXY 22-11D (OXY 22
8,929.2	0.00	0.00	8,904.0	328.9	-471.2	0.00	0.00	0.00	0.00	OXY 22-11D (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 22-11D (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 22-11D (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	
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	KOP @ 300'
330.0	0.45	304.92	330.0	0.1	-0.1	0.1	1.50	1.50	
360.0	0.90	304.92	360.0	0.3	-0.4	0.5	1.50	1.50	
390.0	1.35	304.92	390.0	0.6	-0.9	1.1	1.50	1.50	
420.0	1.80	304.92	420.0	1.1	-1.5	1.9	1.50	1.50	
450.0	2.25	304.92	450.0	1.7	-2.4	2.9	1.50	1.50	
480.0	2.70	304.92	479.9	2.4	-3.5	4.2	1.50	1.50	
510.0	3.15	304.92	509.9	3.3	-4.7	5.8	1.50	1.50	
540.0	3.60	304.92	539.8	4.3	-6.2	7.5	1.50	1.50	
570.0	4.05	304.92	569.8	5.5	-7.8	9.5	1.50	1.50	
600.0	4.50	304.92	599.7	6.7	-9.7	11.8	1.50	1.50	
630.0	4.95	304.92	629.6	8.2	-11.7	14.2	1.50	1.50	
641.4	5.12	304.92	641.0	8.7	-12.5	15.2	1.50	1.50	EOB; Inc=5.12°
660.0	5.12	304.92	659.5	9.7	-13.9	16.9	0.00	0.00	
690.0	5.12	304.92	689.4	11.2	-16.1	19.6	0.00	0.00	
720.0	5.12	304.92	719.2	12.7	-18.3	22.3	0.00	0.00	
750.0	5.12	304.92	749.1	14.3	-20.5	24.9	0.00	0.00	
780.0	5.12	304.92	779.0	15.8	-22.6	27.6	0.00	0.00	
810.0	5.12	304.92	808.9	17.3	-24.8	30.3	0.00	0.00	
840.0	5.12	304.92	838.8	18.9	-27.0	33.0	0.00	0.00	
870.0	5.12	304.92	868.6	20.4	-29.2	35.7	0.00	0.00	
900.0	5.12	304.92	898.5	21.9	-31.4	38.3	0.00	0.00	
930.0	5.12	304.92	928.4	23.5	-33.6	41.0	0.00	0.00	
960.0	5.12	304.92	958.3	25.0	-35.8	43.7	0.00	0.00	
990.0	5.12	304.92	988.2	26.5	-38.0	46.4	0.00	0.00	
1,020.0	5.12	304.92	1,018.0	28.1	-40.2	49.0	0.00	0.00	
1,050.0	5.12	304.92	1,047.9	29.6	-42.4	51.7	0.00	0.00	
1,080.0	5.12	304.92	1,077.8	31.1	-44.6	54.4	0.00	0.00	
1,110.0	5.12	304.92	1,107.7	32.7	-46.8	57.1	0.00	0.00	
1,140.0	5.12	304.92	1,137.6	34.2	-49.0	59.8	0.00	0.00	
1,170.0	5.12	304.92	1,167.4	35.7	-51.2	62.4	0.00	0.00	
1,200.0	5.12	304.92	1,197.3	37.3	-53.4	65.1	0.00	0.00	
1,230.0	5.12	304.92	1,227.2	38.8	-55.6	67.8	0.00	0.00	
1,260.0	5.12	304.92	1,257.1	40.3	-57.8	70.5	0.00	0.00	
1,290.0	5.12	304.92	1,287.0	41.9	-60.0	73.1	0.00	0.00	
1,320.0	5.12	304.92	1,316.8	43.4	-62.2	75.8	0.00	0.00	
1,350.0	5.12	304.92	1,346.7	44.9	-64.4	78.5	0.00	0.00	
1,380.0	5.12	304.92	1,376.6	46.5	-66.6	81.2	0.00	0.00	
1,410.0	5.12	304.92	1,406.5	48.0	-68.8	83.9	0.00	0.00	
1,440.0	5.12	304.92	1,436.4	49.5	-71.0	86.5	0.00	0.00	
1,470.0	5.12	304.92	1,466.2	51.1	-73.2	89.2	0.00	0.00	
1,500.0	5.12	304.92	1,496.1	52.6	-75.3	91.9	0.00	0.00	

# Cathedral Energy Services

## Planning Report

<b>Database:</b>	US EDM 2003.21 Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well OXY 22-11D (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 22-11D (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
1,530.0	5.12	304.92	1,526.0	54.1	-77.5	94.6	0.00	0.00	
1,560.0	5.12	304.92	1,555.9	55.7	-79.7	97.2	0.00	0.00	
1,590.0	5.12	304.92	1,585.8	57.2	-81.9	99.9	0.00	0.00	
1,620.0	5.12	304.92	1,615.6	58.7	-84.1	102.6	0.00	0.00	
1,650.0	5.12	304.92	1,645.5	60.3	-86.3	105.3	0.00	0.00	
1,680.0	5.12	304.92	1,675.4	61.8	-88.5	108.0	0.00	0.00	
1,710.0	5.12	304.92	1,705.3	63.3	-90.7	110.6	0.00	0.00	
1,740.0	5.12	304.92	1,735.2	64.9	-92.9	113.3	0.00	0.00	
1,770.0	5.12	304.92	1,765.0	66.4	-95.1	116.0	0.00	0.00	
1,800.0	5.12	304.92	1,794.9	67.9	-97.3	118.7	0.00	0.00	
1,830.0	5.12	304.92	1,824.8	69.5	-99.5	121.3	0.00	0.00	
1,860.0	5.12	304.92	1,854.7	71.0	-101.7	124.0	0.00	0.00	
1,890.0	5.12	304.92	1,884.6	72.5	-103.9	126.7	0.00	0.00	
1,920.0	5.12	304.92	1,914.4	74.1	-106.1	129.4	0.00	0.00	
1,950.0	5.12	304.92	1,944.3	75.6	-108.3	132.1	0.00	0.00	
1,980.0	5.12	304.92	1,974.2	77.1	-110.5	134.7	0.00	0.00	
2,010.0	5.12	304.92	2,004.1	78.6	-112.7	137.4	0.00	0.00	
2,040.0	5.12	304.92	2,034.0	80.2	-114.9	140.1	0.00	0.00	
2,070.0	5.12	304.92	2,063.8	81.7	-117.1	142.8	0.00	0.00	
2,090.2	5.12	304.92	2,084.0	82.7	-118.5	144.6	0.00	0.00	Wasatch
2,100.0	5.12	304.92	2,093.7	83.2	-119.3	145.4	0.00	0.00	
2,130.0	5.12	304.92	2,123.6	84.8	-121.5	148.1	0.00	0.00	
2,160.0	5.12	304.92	2,153.5	86.3	-123.7	150.8	0.00	0.00	
2,190.0	5.12	304.92	2,183.4	87.8	-125.9	153.5	0.00	0.00	
2,220.0	5.12	304.92	2,213.2	89.4	-128.0	156.2	0.00	0.00	
2,250.0	5.12	304.92	2,243.1	90.9	-130.2	158.8	0.00	0.00	
2,280.0	5.12	304.92	2,273.0	92.4	-132.4	161.5	0.00	0.00	
2,310.0	5.12	304.92	2,302.9	94.0	-134.6	164.2	0.00	0.00	
2,340.0	5.12	304.92	2,332.8	95.5	-136.8	166.9	0.00	0.00	
2,370.0	5.12	304.92	2,362.6	97.0	-139.0	169.5	0.00	0.00	
2,400.0	5.12	304.92	2,392.5	98.6	-141.2	172.2	0.00	0.00	
2,430.0	5.12	304.92	2,422.4	100.1	-143.4	174.9	0.00	0.00	
2,460.0	5.12	304.92	2,452.3	101.6	-145.6	177.6	0.00	0.00	
2,490.0	5.12	304.92	2,482.2	103.2	-147.8	180.3	0.00	0.00	

### Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
OXY 22-11D (OXY 22 P	0.00	0.00	7,054.0	328.9	-471.2	1,619,615.94	2,237,228.83	39.503453	-108.203642
- hit/miss target									
- Shape									
- plan misses target center by 4588.8ft at 2490.0ft MD (2482.2 TVD, 103.2 N, -147.8 E)									
- Point									
OXY 22-11D (OXY 22 P	0.00	0.00	8,904.0	328.9	-471.2	1,619,615.94	2,237,228.83	39.503453	-108.203642
- hit/miss target									
- Shape									
- plan misses target center by 6433.9ft at 2490.0ft MD (2482.2 TVD, 103.2 N, -147.8 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 22-11D (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 22-11D (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	5.12	304.92	2,492.1	103.7	-148.5	181.1	0.00	0.00	
2,600.0	5.12	304.92	2,591.7	108.8	-155.9	190.1	0.00	0.00	
2,700.0	5.12	304.92	2,691.3	113.9	-163.2	199.0	0.00	0.00	
2,800.0	5.12	304.92	2,790.9	119.0	-170.5	207.9	0.00	0.00	
2,900.0	5.12	304.92	2,890.5	124.1	-177.8	216.9	0.00	0.00	
3,000.0	5.12	304.92	2,990.1	129.2	-185.1	225.8	0.00	0.00	
3,100.0	5.12	304.92	3,089.7	134.3	-192.5	234.7	0.00	0.00	
3,200.0	5.12	304.92	3,189.3	139.4	-199.8	243.6	0.00	0.00	
3,300.0	5.12	304.92	3,288.9	144.6	-207.1	252.6	0.00	0.00	
3,400.0	5.12	304.92	3,388.5	149.7	-214.4	261.5	0.00	0.00	
3,500.0	5.12	304.92	3,488.1	154.8	-221.7	270.4	0.00	0.00	
3,600.0	5.12	304.92	3,587.7	159.9	-229.1	279.3	0.00	0.00	
3,700.0	5.12	304.92	3,687.3	165.0	-236.4	288.3	0.00	0.00	
3,800.0	5.12	304.92	3,786.9	170.1	-243.7	297.2	0.00	0.00	
3,900.0	5.12	304.92	3,886.5	175.2	-251.0	306.1	0.00	0.00	
4,000.0	5.12	304.92	3,986.1	180.3	-258.3	315.0	0.00	0.00	
4,100.0	5.12	304.92	4,085.7	185.4	-265.6	324.0	0.00	0.00	
4,138.4	5.12	304.92	4,124.0	187.4	-268.5	327.4	0.00	0.00	Ft Union
4,200.0	5.12	304.92	4,185.3	190.5	-273.0	332.9	0.00	0.00	
4,300.0	5.12	304.92	4,284.9	195.6	-280.3	341.8	0.00	0.00	
4,400.0	5.12	304.92	4,384.5	200.8	-287.6	350.7	0.00	0.00	
4,500.0	5.12	304.92	4,484.1	205.9	-294.9	359.7	0.00	0.00	
4,600.0	5.12	304.92	4,583.7	211.0	-302.2	368.6	0.00	0.00	
4,640.4	5.12	304.92	4,624.0	213.0	-305.2	372.2	0.00	0.00	Base Ft Union
4,700.0	5.12	304.92	4,683.3	216.1	-309.6	377.5	0.00	0.00	
4,800.0	5.12	304.92	4,782.9	221.2	-316.9	386.4	0.00	0.00	
4,900.0	5.12	304.92	4,882.5	226.3	-324.2	395.4	0.00	0.00	
5,000.0	5.12	304.92	4,982.1	231.4	-331.5	404.3	0.00	0.00	
5,100.0	5.12	304.92	5,081.7	236.5	-338.8	413.2	0.00	0.00	
5,200.0	5.12	304.92	5,181.3	241.6	-346.2	422.2	0.00	0.00	
5,300.0	5.12	304.92	5,280.9	246.7	-353.5	431.1	0.00	0.00	
5,400.0	5.12	304.92	5,380.6	251.8	-360.8	440.0	0.00	0.00	
5,500.0	5.12	304.92	5,480.2	257.0	-368.1	448.9	0.00	0.00	
5,600.0	5.12	304.92	5,579.8	262.1	-375.4	457.9	0.00	0.00	
5,700.0	5.12	304.92	5,679.4	267.2	-382.8	466.8	0.00	0.00	
5,800.0	5.12	304.92	5,779.0	272.3	-390.1	475.7	0.00	0.00	
5,875.3	5.12	304.92	5,854.0	276.1	-395.6	482.4	0.00	0.00	Ohio Creek
5,900.0	5.12	304.92	5,878.6	277.4	-397.4	484.6	0.00	0.00	
6,000.0	5.12	304.92	5,978.2	282.5	-404.7	493.6	0.00	0.00	
6,076.1	5.12	304.92	6,054.0	286.4	-410.3	500.4	0.00	0.00	Williams Fork
6,100.0	5.12	304.92	6,077.8	287.6	-412.0	502.5	0.00	0.00	
6,200.0	5.12	304.92	6,177.4	292.7	-419.4	511.4	0.00	0.00	
6,300.0	5.12	304.92	6,277.0	297.8	-426.7	520.3	0.00	0.00	
6,400.0	5.12	304.92	6,376.6	302.9	-434.0	529.3	0.00	0.00	
6,500.0	5.12	304.92	6,476.2	308.0	-441.3	538.2	0.00	0.00	
6,600.0	5.12	304.92	6,575.8	313.2	-448.6	547.1	0.00	0.00	
6,700.0	5.12	304.92	6,675.4	318.3	-456.0	556.0	0.00	0.00	
6,737.8	5.12	304.92	6,713.0	320.2	-458.7	559.4	0.00	0.00	Start Drop -1.50
6,800.0	4.19	304.92	6,775.0	323.1	-462.9	564.5	1.50	-1.50	
6,900.0	2.69	304.92	6,874.8	326.5	-467.8	570.5	1.50	-1.50	
7,000.0	1.19	304.92	6,974.8	328.5	-470.6	573.8	1.50	-1.50	
7,079.2	0.00	0.00	7,054.0	328.9	-471.2	574.7	1.50	-1.50	EOD; Inc=0° - Approx TOG - OXY 22-11D (OX)

# Cathedral Energy Services

## Planning Report

<b>Database:</b>	US EDM 2003.21 Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well OXY 22-11D (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 22-11D (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
7,100.0	0.00	0.00	7,074.8	328.9	-471.2	574.7	0.00	0.00	
7,200.0	0.00	0.00	7,174.8	328.9	-471.2	574.7	0.00	0.00	
7,300.0	0.00	0.00	7,274.8	328.9	-471.2	574.7	0.00	0.00	
7,400.0	0.00	0.00	7,374.8	328.9	-471.2	574.7	0.00	0.00	
7,500.0	0.00	0.00	7,474.8	328.9	-471.2	574.7	0.00	0.00	
7,600.0	0.00	0.00	7,574.8	328.9	-471.2	574.7	0.00	0.00	
7,700.0	0.00	0.00	7,674.8	328.9	-471.2	574.7	0.00	0.00	
7,800.0	0.00	0.00	7,774.8	328.9	-471.2	574.7	0.00	0.00	
7,900.0	0.00	0.00	7,874.8	328.9	-471.2	574.7	0.00	0.00	
8,000.0	0.00	0.00	7,974.8	328.9	-471.2	574.7	0.00	0.00	
8,100.0	0.00	0.00	8,074.8	328.9	-471.2	574.7	0.00	0.00	
8,200.0	0.00	0.00	8,174.8	328.9	-471.2	574.7	0.00	0.00	
8,300.0	0.00	0.00	8,274.8	328.9	-471.2	574.7	0.00	0.00	
8,400.0	0.00	0.00	8,374.8	328.9	-471.2	574.7	0.00	0.00	
8,429.2	0.00	0.00	8,404.0	328.9	-471.2	574.7	0.00	0.00	Cameo
8,500.0	0.00	0.00	8,474.8	328.9	-471.2	574.7	0.00	0.00	
8,600.0	0.00	0.00	8,574.8	328.9	-471.2	574.7	0.00	0.00	
8,700.0	0.00	0.00	8,674.8	328.9	-471.2	574.7	0.00	0.00	
8,779.2	0.00	0.00	8,754.0	328.9	-471.2	574.7	0.00	0.00	Rollins SS
8,800.0	0.00	0.00	8,774.8	328.9	-471.2	574.7	0.00	0.00	
8,900.0	0.00	0.00	8,874.8	328.9	-471.2	574.7	0.00	0.00	
8,929.2	0.00	0.00	8,904.0	328.9	-471.2	574.7	0.00	0.00	TD @ 8929.2' - OXY 22-11D (OXY 22 Pad) BHI

### 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
OXY 22-11D (OXY 22 P - plan hits target center - Point	0.00	0.00	7,054.0	328.9	-471.2	1,619,615.94	2,237,228.83	39.503453	-108.203642
OXY 22-11D (OXY 22 P - plan hits target center - Rectangle (sides W100.0 H200.0 D0.0)	0.00	0.00	8,904.0	328.9	-471.2	1,619,615.94	2,237,228.83	39.503453	-108.203642

### Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
2,090.2	2,084.0	Wasatch		0.00	
4,138.4	4,124.0	Ft Union		0.00	
4,640.4	4,624.0	Base Ft Union		0.00	
5,875.3	5,854.0	Ohio Creek		0.00	
6,076.1	6,054.0	Williams Fork		0.00	
7,079.2	7,054.0	Approx TOG		0.00	
8,429.2	8,404.0	Cameo		0.00	
8,779.2	8,754.0	Rollins SS		0.00	

# Cathedral Energy Services

## Planning Report

<b>Database:</b>	US EDM 2003.21 Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well OXY 22-11D (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 22-11D (OXY 22 Pad)	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	DD		
<b>Design:</b>	Plan #1		

### Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
300.0	300.0	0.0	0.0	KOP @ 300'
641.4	641.0	8.7	-12.5	EOB; Inc=5.12°
6,737.8	6,713.0	320.2	-458.7	Start Drop -1.50
7,079.2	7,054.0	328.9	-471.2	EOD; Inc=0°
8,929.2	8,904.0	328.9	-471.2	TD @ 8929.2'

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>Local Co-ordinate Reference:</b>	Well OXY 22-11D (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 22-11D (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	8,928.6	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	347.3	347.3	14.9	13.7	12.807	CC
OXY 22-10D (OXY 22 Pad) - DD - Plan #1	400.0	400.0	14.9	13.6	11.073	ES
OXY 22-10D (OXY 22 Pad) - DD - Plan #1	600.0	599.6	19.0	17.0	9.150	SF
OXY 22-12D (OXY 22 Pad) - DD - Plan #1	300.0	300.0	15.2	14.2	15.284	CC, ES
OXY 22-12D (OXY 22 Pad) - DD - Plan #1	800.0	799.3	24.8	21.8	8.282	SF
OXY 22-13D (OXY 22 Pad) - DD - Plan #1	300.0	300.0	30.4	29.4	30.517	CC, ES
OXY 22-13D (OXY 22 Pad) - DD - Plan #1	900.0	897.0	51.0	47.6	14.746	SF
OXY 22-14D (OXY 22 Pad) - DD - Plan #1	300.0	300.0	45.1	44.1	45.292	CC, ES
OXY 22-14D (OXY 22 Pad) - DD - Plan #1	1,000.0	993.3	79.7	75.8	20.327	SF
OXY 22-15D (OXY 22 Pad) - DD - Plan #1	200.0	200.0	59.9	59.3	92.795	CC, ES
OXY 22-15D (OXY 22 Pad) - DD - Plan #1	1,000.0	987.5	110.5	106.5	27.889	SF
OXY 22-16D (OXY 22 Pad) - DD - Plan #1	200.0	200.0	74.9	74.3	116.016	CC, ES
OXY 22-16D (OXY 22 Pad) - DD - Plan #1	1,100.0	1,081.6	140.7	136.3	31.679	SF
OXY 22-1D (OXY 22 Pad) - DD - Plan #1	300.0	300.0	31.7	30.7	31.887	CC, ES
OXY 22-1D (OXY 22 Pad) - DD - Plan #1	600.0	598.8	39.1	37.0	18.912	SF
OXY 22-2D (OXY 22 Pad) - DD - Plan #1	300.0	300.0	18.2	17.2	18.313	CC, ES
OXY 22-2D (OXY 22 Pad) - DD - Plan #1	500.0	499.8	21.9	20.2	12.876	SF
OXY 22-3D (OXY 22 Pad) - DD - Plan #1	300.0	300.0	10.5	9.5	10.543	CC, ES
OXY 22-3D (OXY 22 Pad) - DD - Plan #1	400.0	399.8	12.6	11.2	9.351	SF
OXY 22-4D (OXY 22 Pad) - DD - Plan #1	300.0	300.0	18.3	17.3	18.387	CC, ES
OXY 22-4D (OXY 22 Pad) - DD - Plan #1	400.0	399.5	20.3	19.0	15.115	SF
OXY 22-5D (OXY 22 Pad) - DD - Plan #1	200.0	200.0	31.5	30.8	48.749	CC, ES
OXY 22-5D (OXY 22 Pad) - DD - Plan #1	500.0	496.9	44.7	43.0	26.310	SF
OXY 22-6D (OXY 22 Pad) - DD - Plan #1	200.0	200.0	45.8	45.2	70.931	CC, ES
OXY 22-6D (OXY 22 Pad) - DD - Plan #1	600.0	593.6	69.1	67.1	33.380	SF
OXY 22-7D (OXY 22 Pad) - DD - Plan #1	200.0	200.0	60.7	60.0	93.939	CC, ES
OXY 22-7D (OXY 22 Pad) - DD - Plan #1	800.0	785.8	111.2	108.3	38.657	SF
OXY 22-8D (OXY 22 Pad) - DD - Plan #1	200.0	200.0	75.8	75.1	117.318	CC, ES
OXY 22-8D (OXY 22 Pad) - DD - Plan #1	900.0	880.3	139.8	136.5	42.143	SF
OXY 22-9D (OXY 22 Pad) - DD - Plan #1	335.2	335.2	29.9	28.7	26.708	CC
OXY 22-9D (OXY 22 Pad) - DD - Plan #1	400.0	400.0	29.9	28.5	22.213	ES
OXY 22-9D (OXY 22 Pad) - DD - Plan #1	641.4	639.3	38.6	36.4	17.259	SF



# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>Local Co-ordinate Reference:</b>	Well OXY 22-11D (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 22-11D (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		Highside Toolface (°)	Distance		Total Uncertainty Axis	Separation Factor	Warning			
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		Between Centres (ft)	Between Ellipses (ft)						
0.0	0.0	0.0	0.0	0.0	0.0	-143.96	-12.0	-8.7	14.9					
100.0	100.0	100.0	100.0	0.1	0.1	-143.96	-12.0	-8.7	14.9	14.6	0.30	50.103		
200.0	200.0	200.0	200.0	0.3	0.3	-143.96	-12.0	-8.7	14.9	14.2	0.65	23.020		
300.0	300.0	300.0	300.0	0.5	0.5	-143.96	-12.0	-8.7	14.9	13.9	0.99	14.943		
347.3	347.3	347.3	347.3	0.6	0.6	-90.00	-12.0	-8.7	14.9	13.7	1.16	12.807 CC		
400.0	400.0	400.0	400.0	0.7	0.7	-93.91	-12.0	-8.7	14.9	13.6	1.35	11.073 ES		
500.0	499.9	499.8	499.8	0.9	0.8	-103.83	-12.0	-10.0	16.0	14.3	1.70	9.409		
600.0	599.7	599.6	599.5	1.1	1.0	-111.76	-11.8	-14.0	19.0	17.0	2.08	9.150 SF		
641.4	641.0	640.9	640.8	1.1	1.1	-114.16	-11.7	-16.3	20.8	18.6	2.25	9.263		
700.0	699.3	699.4	699.1	1.3	1.2	-115.83	-11.5	-20.5	23.6	21.1	2.48	9.498		
800.0	798.9	799.3	798.7	1.5	1.4	-116.75	-11.2	-28.1	28.3	25.5	2.89	9.801		
900.0	898.5	899.2	898.3	1.7	1.6	-117.40	-10.9	-35.7	33.1	29.8	3.31	10.009		
1,000.0	998.1	999.1	997.9	1.9	1.8	-117.89	-10.6	-43.3	37.9	34.2	3.74	10.158		
1,100.0	1,097.7	1,098.9	1,097.5	2.2	2.1	-118.27	-10.3	-50.9	42.7	38.6	4.16	10.270		
1,200.0	1,197.3	1,198.8	1,197.1	2.4	2.3	-118.57	-10.0	-58.5	47.6	43.0	4.59	10.355		
1,300.0	1,296.9	1,298.7	1,296.7	2.6	2.5	-118.82	-9.7	-66.2	52.4	47.3	5.02	10.423		
1,400.0	1,396.5	1,398.6	1,396.3	2.9	2.7	-119.02	-9.4	-73.8	57.2	51.7	5.46	10.478		
1,500.0	1,496.1	1,498.5	1,495.8	3.1	2.9	-119.20	-9.1	-81.4	62.0	56.1	5.89	10.523		
1,600.0	1,595.7	1,598.4	1,595.4	3.3	3.1	-119.35	-8.8	-89.0	66.8	60.5	6.32	10.560		
1,700.0	1,695.3	1,698.3	1,695.0	3.6	3.3	-119.48	-8.5	-96.6	71.6	64.8	6.76	10.592		
1,800.0	1,794.9	1,798.1	1,794.6	3.8	3.6	-119.59	-8.2	-104.2	76.4	69.2	7.19	10.619		
1,900.0	1,894.5	1,898.0	1,894.2	4.0	3.8	-119.69	-7.8	-111.9	81.2	73.6	7.63	10.643		
2,000.0	1,994.1	1,997.9	1,993.8	4.2	4.0	-119.77	-7.5	-119.5	86.0	77.9	8.07	10.664		
2,100.0	2,093.7	2,097.8	2,093.4	4.5	4.2	-119.85	-7.2	-127.1	90.8	82.3	8.50	10.682		
2,200.0	2,193.3	2,197.7	2,193.0	4.7	4.4	-119.92	-6.9	-134.7	95.6	86.7	8.94	10.698		
2,300.0	2,292.9	2,297.6	2,292.6	4.9	4.7	-119.99	-6.6	-142.3	100.4	91.1	9.38	10.712		
2,400.0	2,392.5	2,397.4	2,392.2	5.2	4.9	-120.05	-6.3	-149.9	105.2	95.4	9.81	10.725		
2,500.0	2,492.1	2,497.3	2,491.8	5.4	5.1	-120.10	-6.0	-157.6	110.0	99.8	10.25	10.736		
2,600.0	2,591.7	2,597.2	2,591.4	5.6	5.3	-120.15	-5.7	-165.2	114.9	104.2	10.69	10.747		
2,700.0	2,691.3	2,697.1	2,691.0	5.9	5.5	-120.19	-5.4	-172.8	119.7	108.5	11.13	10.756		
2,800.0	2,790.9	2,797.0	2,790.6	6.1	5.7	-120.23	-5.1	-180.4	124.5	112.9	11.56	10.765		
2,900.0	2,890.5	2,896.9	2,890.1	6.3	6.0	-120.27	-4.8	-188.0	129.3	117.3	12.00	10.773		
3,000.0	2,990.1	2,996.7	2,989.7	6.6	6.2	-120.31	-4.5	-195.6	134.1	121.7	12.44	10.781		
3,100.0	3,089.7	3,096.6	3,089.3	6.8	6.4	-120.34	-4.1	-203.3	138.9	126.0	12.88	10.787		
3,200.0	3,189.3	3,196.5	3,188.9	7.0	6.6	-120.37	-3.8	-210.9	143.7	130.4	13.31	10.794		
3,300.0	3,288.9	3,296.4	3,288.5	7.3	6.8	-120.40	-3.5	-218.5	148.5	134.8	13.75	10.799		
3,400.0	3,388.5	3,396.3	3,388.1	7.5	7.1	-120.43	-3.2	-226.1	153.3	139.1	14.19	10.805		
3,500.0	3,488.1	3,496.2	3,487.7	7.8	7.3	-120.45	-2.9	-233.7	158.1	143.5	14.63	10.810		
3,600.0	3,587.7	3,596.1	3,587.3	8.0	7.5	-120.48	-2.6	-241.3	163.0	147.9	15.07	10.815		
3,700.0	3,687.3	3,695.9	3,686.9	8.2	7.7	-120.50	-2.3	-249.0	167.8	152.3	15.51	10.819		
3,800.0	3,786.9	3,795.8	3,786.5	8.5	7.9	-120.52	-2.0	-256.6	172.6	156.6	15.94	10.823		
3,900.0	3,886.5	3,895.7	3,886.1	8.7	8.2	-120.54	-1.7	-264.2	177.4	161.0	16.38	10.827		
4,000.0	3,986.1	3,995.6	3,985.7	8.9	8.4	-120.56	-1.4	-271.8	182.2	165.4	16.82	10.831		
4,100.0	4,085.7	4,095.5	4,085.3	9.2	8.6	-120.58	-1.1	-279.4	187.0	169.7	17.26	10.834		
4,200.0	4,185.3	4,195.4	4,184.9	9.4	8.8	-120.59	-0.8	-287.0	191.8	174.1	17.70	10.838		
4,300.0	4,284.9	4,295.2	4,284.4	9.6	9.0	-120.61	-0.4	-294.7	196.6	178.5	18.14	10.841		
4,400.0	4,384.5	4,395.1	4,384.0	9.9	9.2	-120.63	-0.1	-302.3	201.4	182.9	18.58	10.844		
4,500.0	4,484.1	4,495.0	4,483.6	10.1	9.5	-120.64	0.2	-309.9	206.2	187.2	19.01	10.847		
4,600.0	4,583.7	4,594.9	4,583.2	10.3	9.7	-120.66	0.5	-317.5	211.0	191.6	19.45	10.849		
4,700.0	4,683.3	4,694.8	4,682.8	10.6	9.9	-120.67	0.8	-325.1	215.9	196.0	19.89	10.852		

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 22-11D (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 22-11D (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: O-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	37.76	12.0	9.3	15.2						
100.0	100.0	100.0	100.0	0.1	0.1	37.76	12.0	9.3	15.2	14.9	0.30	51.246			
200.0	200.0	200.0	200.0	0.3	0.3	37.76	12.0	9.3	15.2	14.6	0.65	23.545			
300.0	300.0	300.0	300.0	0.5	0.5	37.76	12.0	9.3	15.2	14.2	0.99	15.284 CC, ES			
400.0	400.0	399.9	399.9	0.7	0.7	92.99	13.1	8.5	15.6	14.2	1.35	11.579			
500.0	499.9	499.8	499.7	0.9	0.9	93.38	16.1	6.1	16.8	15.0	1.71	9.779			
600.0	599.7	599.7	599.4	1.1	1.1	93.91	21.3	2.1	18.7	16.6	2.11	8.859			
641.4	641.0	641.0	640.6	1.1	1.1	94.15	24.0	0.0	19.7	17.5	2.29	8.623			
700.0	699.3	699.5	698.8	1.3	1.3	93.32	28.5	-3.5	21.4	18.9	2.54	8.411			
800.0	798.9	799.3	797.9	1.5	1.5	87.67	37.7	-10.7	24.8	21.8	3.00	8.282 SF			
900.0	898.5	899.2	897.0	1.7	1.8	81.88	47.6	-18.4	28.8	25.4	3.45	8.345			
1,000.0	998.1	999.1	996.1	1.9	2.0	77.53	57.4	-26.0	33.0	29.1	3.90	8.460			
1,100.0	1,097.7	1,098.9	1,095.2	2.2	2.3	74.17	67.3	-33.7	37.3	33.0	4.35	8.594			
1,200.0	1,197.3	1,198.8	1,194.3	2.4	2.6	71.52	77.2	-41.4	41.8	37.0	4.79	8.730			
1,300.0	1,296.9	1,298.7	1,293.4	2.6	2.9	69.38	87.1	-49.1	46.3	41.1	5.22	8.863			
1,400.0	1,396.5	1,398.6	1,392.5	2.9	3.1	67.62	96.9	-56.8	50.9	45.2	5.66	8.988			
1,500.0	1,496.1	1,498.5	1,491.6	3.1	3.4	66.15	106.8	-64.4	55.5	49.4	6.09	9.105			
1,600.0	1,595.7	1,598.4	1,590.7	3.3	3.7	64.91	116.7	-72.1	60.1	53.6	6.52	9.213			
1,700.0	1,695.3	1,698.3	1,689.8	3.6	4.0	63.85	126.5	-79.8	64.8	57.8	6.96	9.312			
1,800.0	1,794.9	1,798.1	1,788.9	3.8	4.2	62.93	136.4	-87.5	69.4	62.1	7.39	9.404			
1,900.0	1,894.5	1,898.0	1,888.0	4.0	4.5	62.13	146.3	-95.2	74.1	66.3	7.81	9.488			
2,000.0	1,994.1	1,997.9	1,987.1	4.2	4.8	61.42	156.1	-102.9	78.9	70.6	8.24	9.566			
2,100.0	2,093.7	2,097.8	2,086.2	4.5	5.1	60.79	166.0	-110.5	83.6	74.9	8.67	9.638			
2,200.0	2,193.3	2,197.7	2,185.3	4.7	5.3	60.23	175.9	-118.2	88.3	79.2	9.10	9.705			
2,300.0	2,292.9	2,297.6	2,284.4	4.9	5.6	59.73	185.8	-125.9	93.0	83.5	9.53	9.767			
2,400.0	2,392.5	2,397.4	2,383.4	5.2	5.9	59.27	195.6	-133.6	97.8	87.8	9.95	9.825			
2,500.0	2,492.1	2,497.3	2,482.5	5.4	6.2	58.86	205.5	-141.3	102.5	92.1	10.38	9.878			
2,600.0	2,591.7	2,597.2	2,581.6	5.6	6.5	58.48	215.4	-149.0	107.3	96.5	10.81	9.928			
2,700.0	2,691.3	2,697.1	2,680.7	5.9	6.7	58.14	225.2	-156.6	112.0	100.8	11.23	9.975			
2,800.0	2,790.9	2,797.0	2,779.8	6.1	7.0	57.82	235.1	-164.3	116.8	105.1	11.66	10.019			
2,900.0	2,890.5	2,896.9	2,878.9	6.3	7.3	57.53	245.0	-172.0	121.6	109.5	12.08	10.060			
3,000.0	2,990.1	2,996.8	2,978.0	6.6	7.6	57.26	254.9	-179.7	126.3	113.8	12.51	10.099			
3,100.0	3,089.7	3,096.6	3,077.1	6.8	7.8	57.01	264.7	-187.4	131.1	118.2	12.93	10.136			
3,200.0	3,189.3	3,196.5	3,176.2	7.0	8.1	56.78	274.6	-195.0	135.9	122.5	13.36	10.170			
3,300.0	3,288.9	3,296.4	3,275.3	7.3	8.4	56.56	284.5	-202.7	140.6	126.9	13.78	10.203			
3,400.0	3,388.5	3,396.3	3,374.4	7.5	8.7	56.36	294.3	-210.4	145.4	131.2	14.21	10.234			
3,500.0	3,488.1	3,496.2	3,473.5	7.8	9.0	56.17	304.2	-218.1	150.2	135.6	14.63	10.263			
3,600.0	3,587.7	3,596.1	3,572.6	8.0	9.2	55.99	314.1	-225.8	155.0	139.9	15.06	10.290			
3,700.0	3,687.3	3,695.9	3,671.7	8.2	9.5	55.83	324.0	-233.5	159.8	144.3	15.48	10.317			
3,800.0	3,786.9	3,795.8	3,770.8	8.5	9.8	55.67	333.8	-241.1	164.5	148.6	15.91	10.342			
3,900.0	3,886.5	3,895.7	3,869.9	8.7	10.1	55.52	343.7	-248.8	169.3	153.0	16.33	10.366			
4,000.0	3,986.1	3,995.6	3,969.0	8.9	10.4	55.38	353.6	-256.5	174.1	157.3	16.76	10.388			
4,100.0	4,085.7	4,095.5	4,068.1	9.2	10.6	55.25	363.4	-264.2	178.9	161.7	17.18	10.410			
4,200.0	4,185.3	4,195.4	4,167.2	9.4	10.9	55.12	373.3	-271.9	183.7	166.1	17.61	10.431			
4,300.0	4,284.9	4,295.3	4,266.3	9.6	11.2	55.00	383.2	-279.5	188.5	170.4	18.03	10.450			
4,400.0	4,384.5	4,395.1	4,365.4	9.9	11.5	54.89	393.1	-287.2	193.2	174.8	18.46	10.469			
4,500.0	4,484.1	4,495.0	4,464.5	10.1	11.8	54.78	402.9	-294.9	198.0	179.1	18.88	10.488			
4,600.0	4,583.7	4,594.9	4,563.6	10.3	12.0	54.68	412.8	-302.6	202.8	183.5	19.31	10.505			
4,700.0	4,683.3	4,694.8	4,662.7	10.6	12.3	54.58	422.7	-310.3	207.6	187.9	19.73	10.522			
4,800.0	4,782.9	4,794.7	4,761.8	10.8	12.6	54.48	432.5	-318.0	212.4	192.2	20.16	10.538			
4,900.0	4,882.5	4,894.6	4,860.9	11.0	12.9	54.39	442.4	-325.6	217.2	196.6	20.58	10.553			

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 22-11D (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 22-11D (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	36.50	24.4	18.1	30.4				
100.0	100.0	100.0	100.0	0.1	0.1	36.50	24.4	18.1	30.4	30.1	0.30	102.322	
200.0	200.0	200.0	200.0	0.3	0.3	36.50	24.4	18.1	30.4	29.7	0.65	47.013	
300.0	300.0	300.0	300.0	0.5	0.5	36.50	24.4	18.1	30.4	29.4	0.99	30.517	CC, ES
400.0	400.0	399.7	399.7	0.7	0.7	91.80	25.5	17.4	30.9	29.6	1.35	22.982	
500.0	499.9	499.3	499.2	0.9	0.9	92.40	29.0	15.5	32.7	31.0	1.71	19.084	
600.0	599.7	598.9	598.6	1.1	1.1	93.27	34.6	12.4	35.6	33.5	2.11	16.883	
641.4	641.0	640.1	639.7	1.1	1.1	93.67	37.6	10.7	37.1	34.8	2.28	16.258	
700.0	699.3	698.5	697.7	1.3	1.3	93.65	42.6	8.0	39.6	37.1	2.53	15.622	
800.0	798.9	797.9	796.5	1.5	1.5	91.18	52.7	2.4	44.7	41.7	2.99	14.945	
900.0	898.5	897.0	894.6	1.7	1.8	86.63	65.1	-4.5	51.0	47.6	3.46	14.746	SF
1,000.0	998.1	996.0	992.2	1.9	2.1	81.08	79.6	-12.6	59.1	55.1	3.93	15.021	
1,100.0	1,097.7	1,095.5	1,090.2	2.2	2.4	76.40	94.8	-21.0	67.9	63.5	4.39	15.481	
1,200.0	1,197.3	1,195.0	1,188.1	2.4	2.8	72.81	110.0	-29.4	77.2	72.3	4.84	15.957	
1,300.0	1,296.9	1,294.5	1,286.0	2.6	3.1	69.99	125.2	-37.8	86.6	81.4	5.28	16.417	
1,400.0	1,396.5	1,393.9	1,384.0	2.9	3.4	67.74	140.4	-46.2	96.3	90.6	5.71	16.850	
1,500.0	1,496.1	1,493.4	1,481.9	3.1	3.8	65.89	155.6	-54.7	106.0	99.9	6.15	17.251	
1,600.0	1,595.7	1,592.9	1,579.9	3.3	4.1	64.36	170.8	-63.1	115.9	109.3	6.58	17.620	
1,700.0	1,695.3	1,692.3	1,677.8	3.6	4.5	63.07	186.0	-71.5	125.8	118.8	7.00	17.959	
1,800.0	1,794.9	1,791.8	1,775.7	3.8	4.8	61.97	201.2	-79.9	135.7	128.3	7.43	18.270	
1,900.0	1,894.5	1,891.3	1,873.7	4.0	5.2	61.02	216.4	-88.3	145.8	137.9	7.85	18.556	
2,000.0	1,994.1	1,990.7	1,971.6	4.2	5.5	60.19	231.6	-96.8	155.8	147.5	8.28	18.819	
2,100.0	2,093.7	2,090.2	2,069.6	4.5	5.9	59.46	246.7	-105.2	165.9	157.2	8.70	19.061	
2,200.0	2,193.3	2,189.7	2,167.5	4.7	6.2	58.81	261.9	-113.6	176.0	166.8	9.12	19.284	
2,300.0	2,292.9	2,289.2	2,265.5	4.9	6.5	58.24	277.1	-122.0	186.1	176.5	9.55	19.491	
2,400.0	2,392.5	2,388.6	2,363.4	5.2	6.9	57.72	292.3	-130.4	196.2	186.2	9.97	19.683	
2,500.0	2,492.1	2,488.1	2,461.3	5.4	7.2	57.26	307.5	-138.9	206.4	196.0	10.39	19.861	

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>Local Co-ordinate Reference:</b>	Well OXY 22-11D (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 22-11D (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						Warning
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Total Uncertainty Axis	Separation Factor	
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)			
0.0	0.0	0.0	0.0	0.0	0.0	36.06	36.4	26.5	45.1				
100.0	100.0	100.0	100.0	0.1	0.1	36.06	36.4	26.5	45.1	44.8	0.30	151.862	
200.0	200.0	200.0	200.0	0.3	0.3	36.06	36.4	26.5	45.1	44.4	0.65	69.774	
300.0	300.0	300.0	300.0	0.5	0.5	36.06	36.4	26.5	45.1	44.1	0.99	45.292 CC, ES	
400.0	400.0	399.4	399.4	0.7	0.7	91.39	37.6	26.0	45.8	44.4	1.35	34.017	
500.0	499.9	498.7	498.6	0.9	0.9	92.07	41.2	24.6	47.9	46.2	1.71	28.018	
600.0	599.7	598.0	597.7	1.1	1.1	93.07	47.2	22.1	51.5	49.4	2.10	24.496	
641.4	641.0	639.1	638.6	1.1	1.1	93.55	50.3	20.8	53.4	51.1	2.28	23.463	
700.0	699.3	697.2	696.5	1.3	1.3	93.85	55.5	18.7	56.5	53.9	2.52	22.366	
800.0	798.9	796.2	794.8	1.5	1.5	92.65	66.2	14.4	62.7	59.8	2.97	21.101	
900.0	898.5	895.0	892.6	1.7	1.8	89.89	79.2	9.0	70.4	67.0	3.44	20.455	
1,000.0	998.1	993.3	989.5	1.9	2.1	86.18	94.5	2.8	79.7	75.8	3.92	20.327 SF	
1,100.0	1,097.7	1,091.1	1,085.5	2.2	2.5	82.02	112.0	-4.3	90.9	86.5	4.40	20.660	
1,200.0	1,197.3	1,188.7	1,180.7	2.4	2.9	77.83	131.7	-12.3	104.3	99.4	4.87	21.414	
1,300.0	1,296.9	1,287.5	1,277.0	2.6	3.3	74.30	152.2	-20.7	118.6	113.2	5.32	22.271	
1,400.0	1,396.5	1,386.2	1,373.2	2.9	3.7	71.55	172.7	-29.1	133.2	127.4	5.77	23.088	
1,500.0	1,496.1	1,484.9	1,469.4	3.1	4.1	69.34	193.3	-37.5	148.1	141.9	6.21	23.849	
1,600.0	1,595.7	1,583.7	1,565.6	3.3	4.5	67.53	213.8	-45.9	163.2	156.5	6.65	24.553	
1,700.0	1,695.3	1,682.4	1,661.8	3.6	4.9	66.04	234.4	-54.3	178.4	171.3	7.08	25.199	
1,800.0	1,794.9	1,781.2	1,758.0	3.8	5.3	64.77	254.9	-62.6	193.7	186.2	7.51	25.793	

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>Local Co-ordinate Reference:</b>	Well OXY 22-11D (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 22-11D (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 22-15D (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	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Total Uncertainty Axis	Separation Factor			
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)					
0.0	0.0	0.0	0.0	0.0	0.0	36.06	48.4	35.3	59.9						
100.0	100.0	100.0	100.0	0.1	0.1	36.06	48.4	35.3	59.9	59.6	0.30	201.965			
200.0	200.0	200.0	200.0	0.3	0.3	36.06	48.4	35.3	59.9	59.3	0.65	92.795	CC, ES		
300.0	300.0	299.1	299.1	0.5	0.5	35.07	49.7	34.9	60.7	59.7	1.00	60.984			
400.0	400.0	398.1	398.0	0.7	0.7	88.48	53.3	33.6	63.0	61.7	1.35	46.663			
500.0	499.9	496.9	496.6	0.9	0.9	87.42	59.4	31.6	66.9	65.2	1.72	38.807			
600.0	599.7	595.6	594.9	1.1	1.1	86.95	67.9	28.8	72.3	70.2	2.13	33.992			
641.4	641.0	636.5	635.5	1.1	1.2	86.90	72.1	27.3	75.0	72.7	2.31	32.523			
700.0	699.3	694.2	692.8	1.3	1.4	86.70	78.7	25.1	79.3	76.7	2.56	30.929			
800.0	798.9	792.4	790.0	1.5	1.6	85.40	91.9	20.7	87.9	84.8	3.02	29.102			
900.0	898.5	890.2	886.4	1.7	2.0	83.24	107.4	15.5	98.2	94.7	3.49	28.159			
1,000.0	998.1	987.5	981.9	1.9	2.3	80.58	125.1	9.5	110.5	106.5	3.96	27.889	SF		
1,100.0	1,097.7	1,084.0	1,076.2	2.2	2.7	77.69	145.0	2.8	124.9	120.4	4.43	28.157			
1,200.0	1,197.3	1,179.9	1,169.2	2.4	3.2	74.78	166.9	-4.5	141.4	136.5	4.90	28.863			
1,300.0	1,296.9	1,274.8	1,260.7	2.6	3.6	71.99	190.8	-12.6	160.2	154.9	5.35	29.948			
1,400.0	1,396.5	1,372.4	1,354.4	2.9	4.1	69.49	216.6	-21.2	180.4	174.6	5.80	31.137			
1,500.0	1,496.1	1,470.1	1,448.2	3.1	4.6	67.49	242.3	-29.8	200.9	194.7	6.23	32.233			

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>Local Co-ordinate Reference:</b>	Well OXY 22-11D (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 22-11D (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 22-16D (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	35.72	60.8	43.7	74.9					
100.0	100.0	100.0	100.0	0.1	0.1	35.72	60.8	43.7	74.9	74.6	0.30	252.506		
200.0	200.0	200.0	200.0	0.3	0.3	35.72	60.8	43.7	74.9	74.3	0.65	116.016	CC, ES	
300.0	300.0	298.8	298.8	0.5	0.5	34.94	62.0	43.4	75.7	74.7	0.99	76.109		
400.0	400.0	397.5	397.5	0.7	0.7	88.71	65.7	42.2	78.1	76.7	1.35	57.871		
500.0	499.9	496.1	495.9	0.9	0.9	87.89	71.8	40.3	82.1	80.3	1.72	47.648		
600.0	599.7	594.6	593.9	1.1	1.1	87.54	80.3	37.6	87.6	85.5	2.13	41.224		
641.4	641.0	635.3	634.4	1.1	1.2	87.52	84.5	36.3	90.3	88.0	2.30	39.229		
700.0	699.3	692.8	691.5	1.3	1.4	87.39	91.1	34.2	94.7	92.1	2.56	37.005		
800.0	798.9	790.8	788.4	1.5	1.6	86.34	104.3	30.1	103.4	100.4	3.01	34.313		
900.0	898.5	888.3	884.6	1.7	2.0	84.52	119.8	25.2	113.9	110.5	3.49	32.693		
1,000.0	998.1	985.3	979.8	1.9	2.3	82.21	137.6	19.6	126.3	122.4	3.96	31.873		
1,100.0	1,097.7	1,081.6	1,073.8	2.2	2.7	79.63	157.5	13.4	140.7	136.3	4.44	31.679	SF	
1,200.0	1,197.3	1,177.2	1,166.5	2.4	3.1	76.97	179.4	6.5	157.3	152.4	4.92	31.988		
1,300.0	1,296.9	1,271.8	1,257.8	2.6	3.6	74.35	203.3	-1.1	176.1	170.7	5.38	32.710		
1,400.0	1,396.5	1,365.5	1,347.5	2.9	4.1	71.85	229.1	-9.2	197.2	191.3	5.84	33.772		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>Local Co-ordinate Reference:</b>	Well OXY 22-11D (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 22-11D (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	-162.40	-30.2	-9.6	31.7				
100.0	100.0	100.0	100.0	0.1	0.1	-162.40	-30.2	-9.6	31.7	31.4	0.30	106.914	
200.0	200.0	200.0	200.0	0.3	0.3	-162.40	-30.2	-9.6	31.7	31.1	0.65	49.123	
300.0	300.0	300.0	300.0	0.5	0.5	-162.40	-30.2	-9.6	31.7	30.7	0.99	31.887 CC, ES	
400.0	400.0	400.0	400.0	0.7	0.7	-109.53	-30.2	-9.6	32.1	30.8	1.35	23.889	
500.0	499.9	499.7	499.7	0.9	0.8	-117.96	-30.7	-8.4	33.9	32.2	1.70	19.932	
600.0	599.7	598.8	598.8	1.1	1.0	-131.99	-32.0	-4.7	39.1	37.0	2.07	18.912 SF	
641.4	641.0	639.6	639.5	1.1	1.1	-138.18	-32.8	-2.5	42.7	40.5	2.22	19.282	
700.0	699.3	697.1	696.8	1.3	1.2	-146.12	-34.2	1.3	49.4	47.0	2.42	20.381	
800.0	798.9	794.4	793.7	1.5	1.4	-156.57	-37.2	9.5	63.9	61.1	2.77	23.026	
900.0	898.5	890.8	889.5	1.7	1.7	-163.95	-41.0	20.0	81.8	78.7	3.12	26.230	
1,000.0	998.1	986.5	984.2	1.9	1.9	-169.23	-45.6	32.6	102.8	99.3	3.46	29.707	
1,100.0	1,097.7	1,083.7	1,080.3	2.2	2.2	-172.94	-50.6	46.3	125.2	121.4	3.80	32.912	
1,200.0	1,197.3	1,180.9	1,176.4	2.4	2.5	-175.52	-55.5	59.9	147.9	143.8	4.15	35.672	
1,300.0	1,296.9	1,278.1	1,272.6	2.6	2.8	-177.41	-60.5	73.5	170.9	166.4	4.49	38.055	
1,400.0	1,396.5	1,375.3	1,368.7	2.9	3.1	-178.85	-65.5	87.2	193.9	189.1	4.83	40.125	

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>Local Co-ordinate Reference:</b>	Well OXY 22-11D (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 22-11D (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 22-2D (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	-179.11	-18.2	-0.3	18.2					
100.0	100.0	100.0	100.0	0.1	0.1	-179.11	-18.2	-0.3	18.2	17.9	0.30	61.403		
200.0	200.0	200.0	200.0	0.3	0.3	-179.11	-18.2	-0.3	18.2	17.6	0.65	28.212		
300.0	300.0	300.0	300.0	0.5	0.5	-179.11	-18.2	-0.3	18.2	17.2	0.99	18.313 CC, ES		
400.0	400.0	400.0	400.0	0.7	0.7	-127.29	-18.2	-0.3	19.0	17.6	1.34	14.116		
500.0	499.9	499.8	499.8	0.9	0.8	-138.93	-18.2	1.0	21.9	20.2	1.70	12.876 SF		
600.0	599.7	599.0	598.9	1.1	1.0	-155.08	-18.2	4.9	28.9	26.8	2.05	14.080		
641.4	641.0	639.9	639.7	1.1	1.1	-161.07	-18.2	7.2	33.4	31.2	2.20	15.202		
700.0	699.3	697.4	697.1	1.3	1.2	-168.04	-18.2	11.3	41.1	38.7	2.40	17.098		
800.0	798.9	795.0	794.3	1.5	1.4	-176.58	-18.1	20.1	56.6	53.8	2.75	20.532		
900.0	898.5	891.8	890.4	1.7	1.7	177.55	-18.0	31.3	74.9	71.7	3.11	24.069		
1,000.0	998.1	988.9	986.6	1.9	1.9	173.38	-18.0	44.5	95.4	91.9	3.47	27.504		
1,100.0	1,097.7	1,086.5	1,083.3	2.2	2.2	170.64	-17.9	57.9	116.3	112.5	3.83	30.405		
1,200.0	1,197.3	1,184.2	1,180.1	2.4	2.5	168.74	-17.8	71.4	137.5	133.3	4.18	32.848		
1,300.0	1,296.9	1,281.8	1,276.8	2.6	2.7	167.34	-17.7	84.8	158.7	154.2	4.54	34.926		
1,400.0	1,396.5	1,379.5	1,373.5	2.9	3.0	166.28	-17.7	98.2	180.0	175.1	4.90	36.712		
1,500.0	1,496.1	1,477.1	1,470.2	3.1	3.3	165.44	-17.6	111.6	201.4	196.1	5.26	38.262		



# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>Local Co-ordinate Reference:</b>	Well OXY 22-11D (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 22-11D (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	126.18	-6.2	8.5	10.5				
100.0	100.0	100.0	100.0	0.1	0.1	126.18	-6.2	8.5	10.5	10.2	0.30	35.349	
200.0	200.0	200.0	200.0	0.3	0.3	126.18	-6.2	8.5	10.5	9.8	0.65	16.241	
300.0	300.0	300.0	300.0	0.5	0.5	126.18	-6.2	8.5	10.5	9.5	0.99	10.543 CC, ES	
400.0	400.0	399.8	399.8	0.7	0.7	176.18	-5.7	9.7	12.6	11.2	1.34	9.351 SF	
500.0	499.9	499.3	499.2	0.9	0.9	167.79	-4.4	13.3	19.1	17.4	1.70	11.284	
600.0	599.7	598.1	597.8	1.1	1.1	162.03	-2.2	19.4	30.4	28.4	2.05	14.833	
641.4	641.0	638.8	638.3	1.1	1.1	160.41	-1.0	22.6	36.5	34.3	2.20	16.572	
700.0	699.3	696.1	695.4	1.3	1.3	158.52	0.9	27.7	46.0	43.6	2.41	19.041	
800.0	798.9	793.2	791.8	1.5	1.5	155.69	4.8	38.3	64.0	61.2	2.79	22.963	
900.0	898.5	890.2	887.9	1.7	1.8	153.33	9.4	51.0	84.0	80.9	3.16	26.585	
1,000.0	998.1	988.1	984.8	1.9	2.1	151.75	14.3	64.1	104.5	101.0	3.54	29.541	
1,100.0	1,097.7	1,085.9	1,081.6	2.2	2.3	150.69	19.1	77.3	125.1	121.2	3.92	31.929	
1,200.0	1,197.3	1,183.8	1,178.4	2.4	2.6	149.94	24.0	90.5	145.7	141.4	4.30	33.895	
1,300.0	1,296.9	1,281.6	1,275.2	2.6	2.9	149.36	28.8	103.6	166.3	161.6	4.68	35.539	
1,400.0	1,396.5	1,379.4	1,372.1	2.9	3.2	148.92	33.6	116.8	187.0	181.9	5.06	36.933	

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>Local Co-ordinate Reference:</b>	Well OXY 22-11D (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 22-11D (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				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	70.21	6.2	17.2	18.3					
100.0	100.0	100.0	100.0	0.1	0.1	70.21	6.2	17.2	18.3	18.0	0.30	61.652		
200.0	200.0	200.0	200.0	0.3	0.3	70.21	6.2	17.2	18.3	17.6	0.65	28.327		
300.0	300.0	300.0	300.0	0.5	0.5	70.21	6.2	17.2	18.3	17.3	0.99	18.387 CC, ES		
400.0	400.0	399.5	399.5	0.7	0.7	127.29	6.9	18.3	20.3	19.0	1.34	15.115 SF		
500.0	499.9	498.7	498.6	0.9	0.9	131.40	9.2	21.4	26.5	24.8	1.70	15.598		
600.0	599.7	597.4	597.1	1.1	1.1	135.14	12.9	26.6	36.9	34.8	2.06	17.916		
641.4	641.0	638.0	637.6	1.1	1.1	136.37	14.9	29.4	42.5	40.3	2.21	19.188		
700.0	699.3	695.3	694.6	1.3	1.3	137.54	18.0	33.9	51.3	48.8	2.43	21.077		
800.0	798.9	792.6	791.2	1.5	1.5	138.00	24.6	43.1	68.1	65.2	2.81	24.181		
900.0	898.5	889.1	886.7	1.7	1.8	137.48	32.5	54.2	87.0	83.8	3.20	27.160		
1,000.0	998.1	985.2	981.6	1.9	2.1	136.56	41.7	67.1	108.1	104.5	3.60	30.033		
1,100.0	1,097.7	1,082.9	1,077.7	2.2	2.4	135.79	51.4	80.8	129.8	125.8	4.00	32.443		
1,200.0	1,197.3	1,180.5	1,173.9	2.4	2.7	135.24	61.1	94.4	151.5	147.1	4.40	34.404		
1,300.0	1,296.9	1,278.1	1,270.0	2.6	3.0	134.83	70.8	108.1	173.3	168.5	4.81	36.028		
1,400.0	1,396.5	1,375.7	1,366.2	2.9	3.4	134.51	80.6	121.8	195.0	189.8	5.22	37.394		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>Local Co-ordinate Reference:</b>	Well OXY 22-11D (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 22-11D (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 +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	54.65	18.2	25.7	31.5						
100.0	100.0	100.0	100.0	0.1	0.1	54.65	18.2	25.7	31.5	31.2	0.30	106.100			
200.0	200.0	200.0	200.0	0.3	0.3	54.65	18.2	25.7	31.5	30.8	0.65	48.749 CC, ES			
300.0	300.0	299.2	299.2	0.5	0.5	54.18	19.2	26.5	32.8	31.8	1.00	32.910			
400.0	400.0	398.2	398.1	0.7	0.7	109.89	22.0	29.1	37.0	35.7	1.34	27.553			
500.0	499.9	496.9	496.6	0.9	0.9	112.71	26.7	33.5	44.7	43.0	1.70	26.310 SF			
600.0	599.7	594.9	594.2	1.1	1.1	116.25	33.3	39.5	56.1	54.0	2.07	27.074			
641.4	641.0	635.3	634.4	1.1	1.2	117.69	36.5	42.4	61.9	59.7	2.23	27.740			
700.0	699.3	692.2	690.9	1.3	1.4	119.40	41.6	47.1	71.0	68.5	2.46	28.880			
800.0	798.9	788.8	786.5	1.5	1.6	120.95	51.6	56.3	88.5	85.6	2.86	30.973			
900.0	898.5	884.6	880.9	1.7	2.0	121.45	63.3	67.0	108.2	105.0	3.26	33.173			
1,000.0	998.1	979.6	974.2	1.9	2.3	121.34	76.7	79.2	130.2	126.5	3.67	35.444			
1,100.0	1,097.7	1,076.9	1,069.5	2.2	2.7	121.09	91.1	92.5	153.2	149.1	4.09	37.420			
1,200.0	1,197.3	1,174.2	1,164.8	2.4	3.0	120.91	105.6	105.7	176.2	171.7	4.52	39.013			
1,300.0	1,296.9	1,271.6	1,260.2	2.6	3.4	120.77	120.1	118.9	199.2	194.2	4.94	40.318			

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>Local Co-ordinate Reference:</b>	Well OXY 22-11D (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 22-11D (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 22-6D (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										
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	48.73	30.2	34.4	45.8								
100.0	100.0	100.0	100.0	0.1	0.1	48.73	30.2	34.4	45.8	45.5	0.30	154.380					
200.0	200.0	200.0	200.0	0.3	0.3	48.73	30.2	34.4	45.8	45.2	0.65	70.931	CC, ES				
300.0	300.0	298.8	298.8	0.5	0.5	48.40	31.2	35.2	47.1	46.1	0.99	47.330					
400.0	400.0	397.5	397.4	0.7	0.7	103.96	34.3	37.5	51.2	49.8	1.34	38.145					
500.0	499.9	495.8	495.5	0.9	0.9	106.22	39.4	41.3	58.5	56.8	1.70	34.431					
600.0	599.7	593.6	592.9	1.1	1.1	109.34	46.5	46.5	69.1	67.1	2.07	33.380	SF				
641.4	641.0	633.9	633.0	1.1	1.2	110.70	50.0	49.1	74.6	72.3	2.23	33.416					
700.0	699.3	690.7	689.4	1.3	1.4	112.43	55.5	53.2	83.2	80.7	2.46	33.790					
800.0	798.9	787.2	784.9	1.5	1.6	114.23	66.3	61.3	99.7	96.9	2.86	34.855					
900.0	898.5	882.8	879.2	1.7	1.9	115.03	79.1	70.8	118.7	115.4	3.27	36.271					
1,000.0	998.1	977.6	972.3	1.9	2.3	115.20	93.5	81.5	139.8	136.1	3.69	37.905					
1,100.0	1,097.7	1,071.5	1,063.9	2.2	2.7	114.98	109.6	93.5	163.2	159.1	4.11	39.690					
1,200.0	1,197.3	1,164.8	1,154.6	2.4	3.1	114.53	127.4	106.8	188.7	184.2	4.54	41.600					

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>Local Co-ordinate Reference:</b>	Well OXY 22-11D (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 22-11D (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						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	45.37	42.6	43.2	60.7					
100.0	100.0	100.0	100.0	0.1	0.1	45.37	42.6	43.2	60.7	60.4	0.30	204.455		
200.0	200.0	200.0	200.0	0.3	0.3	45.37	42.6	43.2	60.7	60.0	0.65	93.939 CC, ES		
300.0	300.0	298.5	298.5	0.5	0.5	45.03	43.7	43.8	61.9	60.9	0.99	62.270		
400.0	400.0	396.8	396.7	0.7	0.7	100.22	47.1	45.6	65.8	64.5	1.34	49.094		
500.0	499.9	494.9	494.6	0.9	0.9	101.69	52.6	48.6	72.7	71.0	1.70	42.813		
600.0	599.7	592.5	591.8	1.1	1.1	104.00	60.3	52.8	82.7	80.6	2.07	39.854		
641.4	641.0	632.7	631.8	1.1	1.2	105.08	64.1	54.9	87.7	85.5	2.24	39.217		
700.0	699.3	689.4	688.1	1.3	1.4	106.51	70.1	58.1	95.7	93.2	2.47	38.755		
800.0	798.9	785.8	783.5	1.5	1.6	108.04	82.0	64.6	111.2	108.3	2.88	38.657 SF		
900.0	898.5	881.5	877.9	1.7	1.9	108.72	95.9	72.2	128.9	125.6	3.29	39.158		
1,000.0	998.1	976.4	971.0	1.9	2.3	108.82	111.7	80.8	148.9	145.2	3.72	40.055		
1,100.0	1,097.7	1,070.3	1,062.8	2.2	2.7	108.55	129.3	90.4	171.1	167.0	4.15	41.232		
1,200.0	1,197.3	1,163.3	1,153.1	2.4	3.1	108.05	148.7	101.0	195.4	190.9	4.59	42.619		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>Local Co-ordinate Reference:</b>	Well OXY 22-11D (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 22-11D (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 22-8D (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	43.85	54.6	52.5	75.8				
100.0	100.0	100.0	100.0	0.1	0.1	43.85	54.6	52.5	75.8	75.5	0.30	255.340	
200.0	200.0	200.0	200.0	0.3	0.3	43.85	54.6	52.5	75.8	75.1	0.65	117.318	CC, ES
300.0	300.0	298.2	298.2	0.5	0.5	43.48	55.8	52.9	76.9	76.0	0.99	77.439	
400.0	400.0	396.2	396.2	0.7	0.7	98.38	59.3	54.3	80.7	79.4	1.34	60.184	
500.0	499.9	494.0	493.8	0.9	0.9	99.21	65.2	56.5	87.2	85.5	1.70	51.304	
600.0	599.7	591.4	590.8	1.1	1.1	100.76	73.4	59.6	96.5	94.5	2.08	46.440	
641.4	641.0	631.6	630.7	1.1	1.2	101.54	77.4	61.2	101.2	99.0	2.24	45.137	
700.0	699.3	688.3	687.0	1.3	1.3	102.60	83.8	63.6	108.6	106.2	2.48	43.843	
800.0	798.9	784.6	782.4	1.5	1.6	103.67	96.4	68.4	123.1	120.2	2.89	42.573	
900.0	898.5	880.3	876.7	1.7	1.9	104.03	111.1	74.0	139.8	136.5	3.32	42.143	SF
1,000.0	998.1	975.3	970.0	1.9	2.3	103.90	127.9	80.4	158.6	154.9	3.75	42.284	
1,100.0	1,097.7	1,069.4	1,061.9	2.2	2.7	103.43	146.7	87.6	179.6	175.4	4.19	42.838	
1,200.0	1,197.3	1,162.5	1,152.4	2.4	3.1	102.75	167.3	95.5	202.7	198.1	4.64	43.705	

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>Local Co-ordinate Reference:</b>	Well OXY 22-11D (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 22-11D (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 22-9D (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	-144.80	-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		
300.0	300.0	300.0	300.0	0.5	0.5	-144.80	-24.4	-17.2	29.9	28.9	0.99	30.019		
335.2	335.2	335.2	335.2	0.6	0.6	-90.03	-24.4	-17.2	29.9	28.7	1.12	26.708 CC		
400.0	400.0	400.0	400.0	0.7	0.7	-92.23	-24.4	-17.2	29.9	28.5	1.35	22.213 ES		
500.0	499.9	499.2	499.2	0.9	0.8	-98.26	-25.1	-18.3	31.4	29.7	1.70	18.425		
600.0	599.7	598.4	598.3	1.1	1.0	-105.12	-27.0	-21.7	35.8	33.8	2.08	17.263		
641.4	641.0	639.3	639.2	1.1	1.1	-107.78	-28.2	-23.7	38.6	36.4	2.24	17.259 SF		
700.0	699.3	697.3	697.0	1.3	1.2	-110.67	-30.2	-27.2	43.3	40.8	2.47	17.552		
800.0	798.9	796.4	795.7	1.5	1.4	-112.92	-34.6	-34.7	52.7	49.8	2.87	18.337		
900.0	898.5	895.9	894.8	1.7	1.6	-114.24	-39.3	-42.6	62.3	59.0	3.29	18.967		
1,000.0	998.1	995.4	993.9	1.9	1.9	-115.21	-43.9	-50.4	72.0	68.3	3.70	19.434		
1,100.0	1,097.7	1,094.9	1,093.0	2.2	2.1	-115.95	-48.5	-58.3	81.7	77.5	4.13	19.792		
1,200.0	1,197.3	1,194.5	1,192.1	2.4	2.3	-116.53	-53.1	-66.1	91.4	86.8	4.55	20.073		
1,300.0	1,296.9	1,294.0	1,291.2	2.6	2.5	-117.00	-57.7	-74.0	101.1	96.1	4.98	20.300		
1,400.0	1,396.5	1,393.5	1,390.3	2.9	2.8	-117.39	-62.3	-81.8	110.8	105.4	5.41	20.485		
1,500.0	1,496.1	1,493.0	1,489.4	3.1	3.0	-117.72	-66.9	-89.7	120.5	114.7	5.84	20.640		
1,600.0	1,595.7	1,592.6	1,588.5	3.3	3.2	-117.99	-71.5	-97.6	130.2	124.0	6.27	20.771		
1,700.0	1,695.3	1,692.1	1,687.6	3.6	3.5	-118.23	-76.1	-105.4	140.0	133.3	6.70	20.882		
1,800.0	1,794.9	1,791.6	1,786.8	3.8	3.7	-118.44	-80.7	-113.3	149.7	142.5	7.13	20.979		
1,900.0	1,894.5	1,891.1	1,885.9	4.0	3.9	-118.62	-85.3	-121.1	159.4	151.8	7.57	21.063		
2,000.0	1,994.1	1,990.7	1,985.0	4.2	4.2	-118.78	-89.9	-129.0	169.1	161.1	8.00	21.137		
2,100.0	2,093.7	2,090.2	2,084.1	4.5	4.4	-118.92	-94.5	-136.9	178.9	170.4	8.44	21.203		
2,200.0	2,193.3	2,189.7	2,183.2	4.7	4.6	-119.05	-99.1	-144.7	188.6	179.7	8.87	21.261		
2,300.0	2,292.9	2,289.2	2,282.3	4.9	4.9	-119.17	-103.7	-152.6	198.3	189.0	9.31	21.314		
2,400.0	2,392.5	2,388.8	2,381.4	5.2	5.1	-119.27	-108.3	-160.4	208.1	198.3	9.74	21.361		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>Local Co-ordinate Reference:</b>	Well OXY 22-11D (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 22-11D (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 22-11D (OXY 22 Pad)  
Coordinate System is US State Plane 1983, Colorado Central Zone  
Grid Convergence at Surface is: -1.70°

