

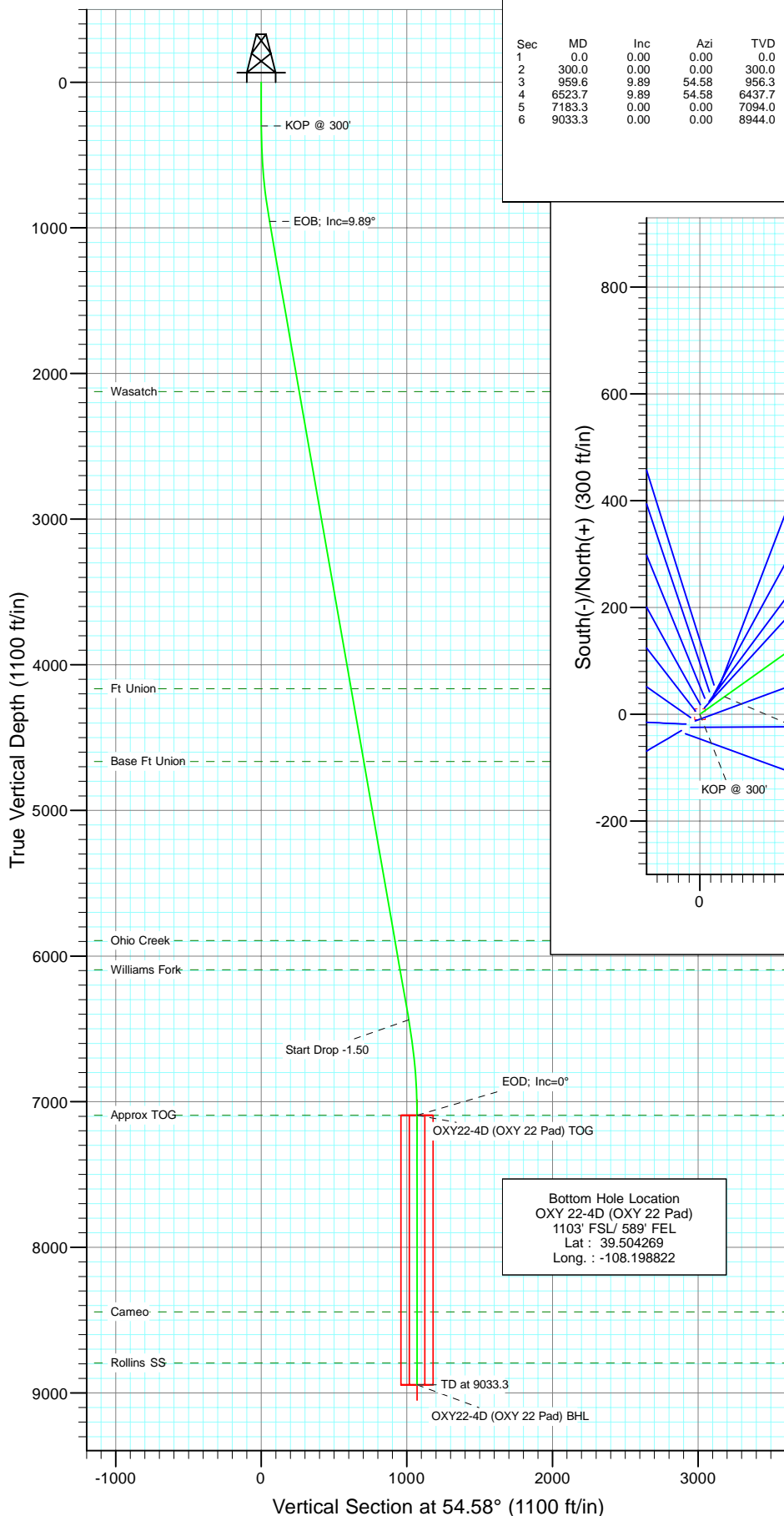


Berry Petroleum Company

Project: Garfield County  
Site: SWSE S22-T6S-R97W  
Well: OXY 22-4D (OXY 22 Pad)  
Wellbore: DD  
Design: Plan #1

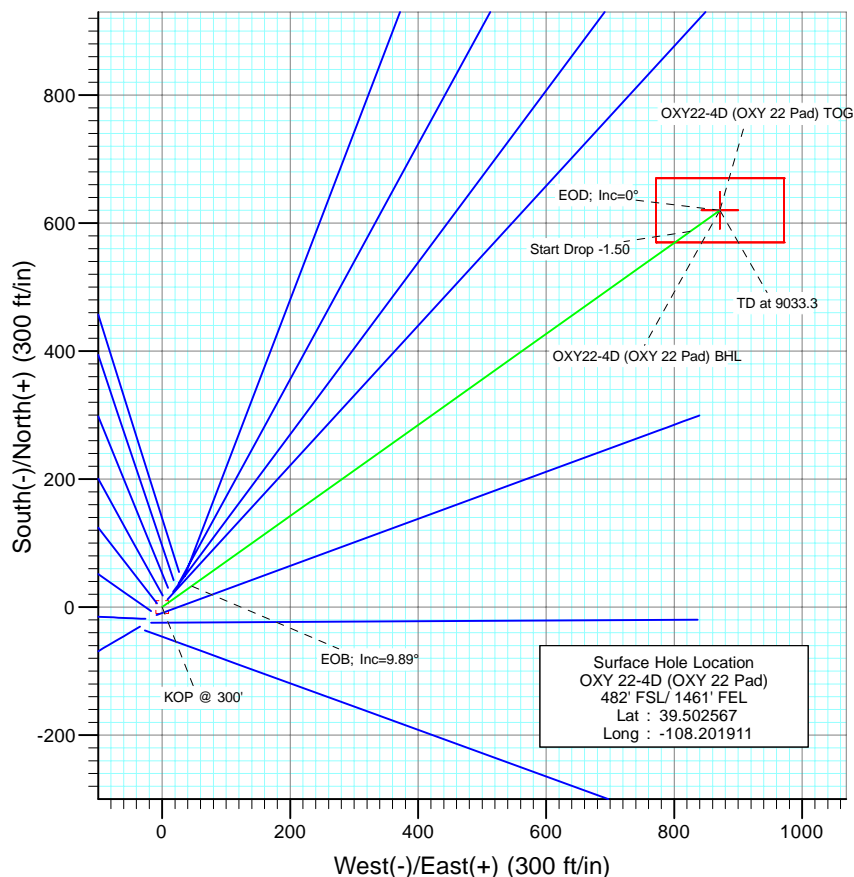


CATHEDRAL



#### 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	959.6	9.89	54.58	956.3	32.9	46.3	1.50	54.58	56.8	
4	6523.7	9.89	54.58	6437.7	587.0	825.3	0.00	0.00	1012.8	
5	7183.3	0.00	0.00	7094.0	620.0	871.6	1.50	180.00	1069.6	OXY22-4D (OXY 22 Pad) TOG
6	9033.3	0.00	0.00	8944.0	620.0	871.6	0.00	0.00	1069.6	OXY22-4D (OXY 22 Pad) BHL



#### FORMATION TOP DETAILS

TVDPath	MDPath	Formation
2124.0	2144.9	Wasatch
4164.0	4215.7	Ft Union
4664.0	4723.2	Base Ft Union
5894.0	5971.8	Ohio Creek
6094.0	6174.8	Williams Fork
7094.0	7183.3	Approx TOG
8444.0	8533.3	Cameo
8794.0	8883.3	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
OXY22-4D (OXY 22 Pad) BHL	54.58	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 22-4D (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 22-4D (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 22-4D (OXY 22 Pad)					
Well Position	+N/-S	0.0 ft	Northing:	1,619,278.83 ft	Latitude:	39.502567
	+E/-W	0.0 ft	Easting:	2,237,707.45 ft	Longitude:	-108.201911
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	54.58	

<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	
959.6	9.89	54.58	956.3	32.9	46.3	1.50	1.50	0.00	54.58	
6,523.7	9.89	54.58	6,437.7	587.0	825.3	0.00	0.00	0.00	0.00	
7,183.3	0.00	0.00	7,094.0	620.0	871.6	1.50	-1.50	0.00	180.00	OXY22-4D (OXY 22 F
9,033.3	0.00	0.00	8,944.0	620.0	871.6	0.00	0.00	0.00	0.00	OXY22-4D (OXY 22 F

# Cathedral Energy Services

## Planning Report

<b>Database:</b>	US EDM 2003.21 Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well OXY 22-4D (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 22-4D (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	54.58	330.0	0.1	0.1	0.1	1.50	1.50	
360.0	0.90	54.58	360.0	0.3	0.4	0.5	1.50	1.50	
390.0	1.35	54.58	390.0	0.6	0.9	1.1	1.50	1.50	
420.0	1.80	54.58	420.0	1.1	1.5	1.9	1.50	1.50	
450.0	2.25	54.58	450.0	1.7	2.4	2.9	1.50	1.50	
480.0	2.70	54.58	479.9	2.5	3.5	4.2	1.50	1.50	
510.0	3.15	54.58	509.9	3.3	4.7	5.8	1.50	1.50	
540.0	3.60	54.58	539.8	4.4	6.1	7.5	1.50	1.50	
570.0	4.05	54.58	569.8	5.5	7.8	9.5	1.50	1.50	
600.0	4.50	54.58	599.7	6.8	9.6	11.8	1.50	1.50	
630.0	4.95	54.58	629.6	8.3	11.6	14.2	1.50	1.50	
660.0	5.40	54.58	659.5	9.8	13.8	17.0	1.50	1.50	
690.0	5.85	54.58	689.3	11.5	16.2	19.9	1.50	1.50	
720.0	6.30	54.58	719.2	13.4	18.8	23.1	1.50	1.50	
750.0	6.75	54.58	749.0	15.3	21.6	26.5	1.50	1.50	
780.0	7.20	54.58	778.7	17.5	24.5	30.1	1.50	1.50	
810.0	7.65	54.58	808.5	19.7	27.7	34.0	1.50	1.50	
840.0	8.10	54.58	838.2	22.1	31.1	38.1	1.50	1.50	
870.0	8.55	54.58	867.9	24.6	34.6	42.5	1.50	1.50	
900.0	9.00	54.58	897.5	27.3	38.3	47.0	1.50	1.50	
930.0	9.45	54.58	927.1	30.0	42.2	51.8	1.50	1.50	
959.6	9.89	54.58	956.3	32.9	46.3	56.8	1.50	1.50	EOB; Inc=9.89°
960.0	9.89	54.58	956.7	33.0	46.3	56.9	0.00	0.00	
990.0	9.89	54.58	986.3	36.0	50.5	62.0	0.00	0.00	
1,020.0	9.89	54.58	1,015.8	38.9	54.8	67.2	0.00	0.00	
1,050.0	9.89	54.58	1,045.4	41.9	59.0	72.3	0.00	0.00	
1,080.0	9.89	54.58	1,074.9	44.9	63.2	77.5	0.00	0.00	
1,110.0	9.89	54.58	1,104.5	47.9	67.4	82.7	0.00	0.00	
1,140.0	9.89	54.58	1,134.0	50.9	71.6	87.8	0.00	0.00	
1,170.0	9.89	54.58	1,163.6	53.9	75.8	93.0	0.00	0.00	
1,200.0	9.89	54.58	1,193.2	56.9	80.0	98.1	0.00	0.00	
1,230.0	9.89	54.58	1,222.7	59.9	84.2	103.3	0.00	0.00	
1,260.0	9.89	54.58	1,252.3	62.8	88.4	108.4	0.00	0.00	
1,290.0	9.89	54.58	1,281.8	65.8	92.6	113.6	0.00	0.00	
1,320.0	9.89	54.58	1,311.4	68.8	96.8	118.7	0.00	0.00	
1,350.0	9.89	54.58	1,340.9	71.8	101.0	123.9	0.00	0.00	
1,380.0	9.89	54.58	1,370.5	74.8	105.2	129.0	0.00	0.00	
1,410.0	9.89	54.58	1,400.0	77.8	109.4	134.2	0.00	0.00	
1,440.0	9.89	54.58	1,429.6	80.8	113.6	139.3	0.00	0.00	
1,470.0	9.89	54.58	1,459.1	83.8	117.8	144.5	0.00	0.00	
1,500.0	9.89	54.58	1,488.7	86.7	122.0	149.7	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 22-4D (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 22-4D (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	9.89	54.58	1,518.2	89.7	126.2	154.8	0.00	0.00	
1,560.0	9.89	54.58	1,547.8	92.7	130.4	160.0	0.00	0.00	
1,590.0	9.89	54.58	1,577.4	95.7	134.6	165.1	0.00	0.00	
1,620.0	9.89	54.58	1,606.9	98.7	138.8	170.3	0.00	0.00	
1,650.0	9.89	54.58	1,636.5	101.7	143.0	175.4	0.00	0.00	
1,680.0	9.89	54.58	1,666.0	104.7	147.2	180.6	0.00	0.00	
1,710.0	9.89	54.58	1,695.6	107.7	151.4	185.7	0.00	0.00	
1,740.0	9.89	54.58	1,725.1	110.6	155.6	190.9	0.00	0.00	
1,770.0	9.89	54.58	1,754.7	113.6	159.8	196.0	0.00	0.00	
1,800.0	9.89	54.58	1,784.2	116.6	164.0	201.2	0.00	0.00	
1,830.0	9.89	54.58	1,813.8	119.6	168.2	206.4	0.00	0.00	
1,860.0	9.89	54.58	1,843.3	122.6	172.4	211.5	0.00	0.00	
1,890.0	9.89	54.58	1,872.9	125.6	176.6	216.7	0.00	0.00	
1,920.0	9.89	54.58	1,902.4	128.6	180.8	221.8	0.00	0.00	
1,950.0	9.89	54.58	1,932.0	131.6	185.0	227.0	0.00	0.00	
1,980.0	9.89	54.58	1,961.6	134.5	189.2	232.1	0.00	0.00	
2,010.0	9.89	54.58	1,991.1	137.5	193.4	237.3	0.00	0.00	
2,040.0	9.89	54.58	2,020.7	140.5	197.6	242.4	0.00	0.00	
2,070.0	9.89	54.58	2,050.2	143.5	201.8	247.6	0.00	0.00	
2,100.0	9.89	54.58	2,079.8	146.5	206.0	252.7	0.00	0.00	
2,130.0	9.89	54.58	2,109.3	149.5	210.2	257.9	0.00	0.00	
2,144.9	9.89	54.58	2,124.0	151.0	212.2	260.5	0.00	0.00	Wasatch
2,160.0	9.89	54.58	2,138.9	152.5	214.4	263.1	0.00	0.00	
2,190.0	9.89	54.58	2,168.4	155.5	218.6	268.2	0.00	0.00	
2,220.0	9.89	54.58	2,198.0	158.4	222.8	273.4	0.00	0.00	
2,250.0	9.89	54.58	2,227.5	161.4	227.0	278.5	0.00	0.00	
2,280.0	9.89	54.58	2,257.1	164.4	231.2	283.7	0.00	0.00	
2,310.0	9.89	54.58	2,286.6	167.4	235.4	288.8	0.00	0.00	
2,340.0	9.89	54.58	2,316.2	170.4	239.6	294.0	0.00	0.00	
2,370.0	9.89	54.58	2,345.8	173.4	243.8	299.1	0.00	0.00	
2,400.0	9.89	54.58	2,375.3	176.4	248.0	304.3	0.00	0.00	
2,430.0	9.89	54.58	2,404.9	179.4	252.2	309.4	0.00	0.00	
2,460.0	9.89	54.58	2,434.4	182.3	256.4	314.6	0.00	0.00	
2,490.0	9.89	54.58	2,464.0	185.3	260.6	319.8	0.00	0.00	

### Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
- hit/miss target									
- Shape									
OXY22-4D (OXY 22 Pac	0.00	0.00	7,094.0	620.0	871.6	1,619,872.59	2,238,597.12	39.504269	-108.198822
- plan misses target center by 4690.4ft at 2490.0ft MD (2464.0 TVD, 185.3 N, 260.6 E)									
- Point									
OXY22-4D (OXY 22 Pac	0.00	0.00	8,944.0	620.0	871.6	1,619,872.59	2,238,597.12	39.504269	-108.198822
- plan misses target center by 6523.3ft at 2490.0ft MD (2464.0 TVD, 185.3 N, 260.6 E)									
- Rectangle (sides W100.0 H200.0 D0.0)									

# Cathedral Energy Services

## Planning Report

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<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 22-4D (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	9.89	54.58	2,473.8	186.3	262.0	321.5	0.00	0.00	
2,600.0	9.89	54.58	2,572.3	196.3	276.0	338.7	0.00	0.00	
2,700.0	9.89	54.58	2,670.8	206.2	290.0	355.8	0.00	0.00	
2,800.0	9.89	54.58	2,769.4	216.2	304.0	373.0	0.00	0.00	
2,900.0	9.89	54.58	2,867.9	226.2	318.0	390.2	0.00	0.00	
3,000.0	9.89	54.58	2,966.4	236.1	332.0	407.4	0.00	0.00	
3,100.0	9.89	54.58	3,064.9	246.1	346.0	424.6	0.00	0.00	
3,200.0	9.89	54.58	3,163.4	256.0	360.0	441.7	0.00	0.00	
3,300.0	9.89	54.58	3,261.9	266.0	374.0	458.9	0.00	0.00	
3,400.0	9.89	54.58	3,360.4	276.0	388.0	476.1	0.00	0.00	
3,500.0	9.89	54.58	3,458.9	285.9	402.0	493.3	0.00	0.00	
3,600.0	9.89	54.58	3,557.5	295.9	416.0	510.5	0.00	0.00	
3,700.0	9.89	54.58	3,656.0	305.8	430.0	527.7	0.00	0.00	
3,800.0	9.89	54.58	3,754.5	315.8	444.0	544.8	0.00	0.00	
3,900.0	9.89	54.58	3,853.0	325.8	458.0	562.0	0.00	0.00	
4,000.0	9.89	54.58	3,951.5	335.7	472.0	579.2	0.00	0.00	
4,100.0	9.89	54.58	4,050.0	345.7	486.0	596.4	0.00	0.00	
4,200.0	9.89	54.58	4,148.5	355.6	500.0	613.6	0.00	0.00	
4,215.7	9.89	54.58	4,164.0	357.2	502.2	616.3	0.00	0.00	Ft Union
4,300.0	9.89	54.58	4,247.1	365.6	514.0	630.7	0.00	0.00	
4,400.0	9.89	54.58	4,345.6	375.5	528.0	647.9	0.00	0.00	
4,500.0	9.89	54.58	4,444.1	385.5	542.0	665.1	0.00	0.00	
4,600.0	9.89	54.58	4,542.6	395.5	556.0	682.3	0.00	0.00	
4,700.0	9.89	54.58	4,641.1	405.4	570.0	699.5	0.00	0.00	
4,723.2	9.89	54.58	4,664.0	407.7	573.2	703.5	0.00	0.00	Base Ft Union
4,800.0	9.89	54.58	4,739.6	415.4	584.0	716.6	0.00	0.00	
4,900.0	9.89	54.58	4,838.1	425.3	598.0	733.8	0.00	0.00	
5,000.0	9.89	54.58	4,936.6	435.3	612.0	751.0	0.00	0.00	
5,100.0	9.89	54.58	5,035.2	445.3	626.0	768.2	0.00	0.00	
5,200.0	9.89	54.58	5,133.7	455.2	640.0	785.4	0.00	0.00	
5,300.0	9.89	54.58	5,232.2	465.2	654.0	802.6	0.00	0.00	
5,400.0	9.89	54.58	5,330.7	475.1	668.0	819.7	0.00	0.00	
5,500.0	9.89	54.58	5,429.2	485.1	682.0	836.9	0.00	0.00	
5,600.0	9.89	54.58	5,527.7	495.0	696.0	854.1	0.00	0.00	
5,700.0	9.89	54.58	5,626.2	505.0	710.0	871.3	0.00	0.00	
5,800.0	9.89	54.58	5,724.7	515.0	724.0	888.5	0.00	0.00	
5,900.0	9.89	54.58	5,823.3	524.9	738.0	905.6	0.00	0.00	
5,971.8	9.89	54.58	5,894.0	532.1	748.1	918.0	0.00	0.00	Ohio Creek
6,000.0	9.89	54.58	5,921.8	534.9	752.0	922.8	0.00	0.00	
6,100.0	9.89	54.58	6,020.3	544.8	766.0	940.0	0.00	0.00	
6,174.8	9.89	54.58	6,094.0	552.3	776.5	952.9	0.00	0.00	Williams Fork
6,200.0	9.89	54.58	6,118.8	554.8	780.0	957.2	0.00	0.00	
6,300.0	9.89	54.58	6,217.3	564.8	794.0	974.4	0.00	0.00	
6,400.0	9.89	54.58	6,315.8	574.7	808.0	991.6	0.00	0.00	
6,500.0	9.89	54.58	6,414.3	584.7	822.0	1,008.7	0.00	0.00	
6,523.7	9.89	54.58	6,437.7	587.0	825.3	1,012.8	0.00	0.00	Start Drop -1.50
6,600.0	8.75	54.58	6,513.0	594.2	835.4	1,025.2	1.50	-1.50	
6,700.0	7.25	54.58	6,612.0	602.3	846.7	1,039.1	1.50	-1.50	
6,800.0	5.75	54.58	6,711.4	608.8	856.0	1,050.4	1.50	-1.50	
6,900.0	4.25	54.58	6,811.0	613.9	863.1	1,059.1	1.50	-1.50	
7,000.0	2.75	54.58	6,910.8	617.4	868.0	1,065.2	1.50	-1.50	
7,100.0	1.25	54.58	7,010.7	619.4	870.9	1,068.7	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 22-4D (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 22-4D (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
7,183.3	0.00	0.00	7,094.0	620.0	871.6	1,069.6	1.50	-1.50	EOD; Inc=0° - Approx TOG - OXY22-4D (OXY :
7,200.0	0.00	0.00	7,110.7	620.0	871.6	1,069.6	0.00	0.00	
7,300.0	0.00	0.00	7,210.7	620.0	871.6	1,069.6	0.00	0.00	
7,400.0	0.00	0.00	7,310.7	620.0	871.6	1,069.6	0.00	0.00	
7,500.0	0.00	0.00	7,410.7	620.0	871.6	1,069.6	0.00	0.00	
7,600.0	0.00	0.00	7,510.7	620.0	871.6	1,069.6	0.00	0.00	
7,700.0	0.00	0.00	7,610.7	620.0	871.6	1,069.6	0.00	0.00	
7,800.0	0.00	0.00	7,710.7	620.0	871.6	1,069.6	0.00	0.00	
7,900.0	0.00	0.00	7,810.7	620.0	871.6	1,069.6	0.00	0.00	
8,000.0	0.00	0.00	7,910.7	620.0	871.6	1,069.6	0.00	0.00	
8,100.0	0.00	0.00	8,010.7	620.0	871.6	1,069.6	0.00	0.00	
8,200.0	0.00	0.00	8,110.7	620.0	871.6	1,069.6	0.00	0.00	
8,300.0	0.00	0.00	8,210.7	620.0	871.6	1,069.6	0.00	0.00	
8,400.0	0.00	0.00	8,310.7	620.0	871.6	1,069.6	0.00	0.00	
8,500.0	0.00	0.00	8,410.7	620.0	871.6	1,069.6	0.00	0.00	
8,533.3	0.00	0.00	8,444.0	620.0	871.6	1,069.6	0.00	0.00	Cameo
8,600.0	0.00	0.00	8,510.7	620.0	871.6	1,069.6	0.00	0.00	
8,700.0	0.00	0.00	8,610.7	620.0	871.6	1,069.6	0.00	0.00	
8,800.0	0.00	0.00	8,710.7	620.0	871.6	1,069.6	0.00	0.00	
8,883.3	0.00	0.00	8,794.0	620.0	871.6	1,069.6	0.00	0.00	Rollins SS
8,900.0	0.00	0.00	8,810.7	620.0	871.6	1,069.6	0.00	0.00	
9,000.0	0.00	0.00	8,910.7	620.0	871.6	1,069.6	0.00	0.00	
9,033.3	0.00	0.00	8,944.0	620.0	871.6	1,069.6	0.00	0.00	TD at 9033.3 - OXY22-4D (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									
OXY22-4D (OXY 22 Pac	0.00	0.00	7,094.0	620.0	871.6	1,619,872.59	2,238,597.12	39.504269	-108.198822
- plan hits target center									
- Point									
OXY22-4D (OXY 22 Pac	0.00	0.00	8,944.0	620.0	871.6	1,619,872.59	2,238,597.12	39.504269	-108.198822
- plan hits target center									
- Rectangle (sides W100.0 H200.0 D0.0)									

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
2,144.9	2,124.0	Wasatch		0.00	
4,215.7	4,164.0	Ft Union		0.00	
4,723.2	4,664.0	Base Ft Union		0.00	
5,971.8	5,894.0	Ohio Creek		0.00	
6,174.8	6,094.0	Williams Fork		0.00	
7,183.3	7,094.0	Approx TOG		0.00	
8,533.3	8,444.0	Cameo		0.00	
8,883.3	8,794.0	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 22-4D (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 22-4D (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'
959.6	956.3	32.9	46.3	EOB; Inc=9.89°
6,523.7	6,437.7	587.0	825.3	Start Drop -1.50
7,183.3	7,094.0	620.0	871.6	EOD; Inc=0°
9,033.3	8,944.0	620.0	871.6	TD at 9033.3

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>Local Co-ordinate Reference:</b>	Well OXY 22-4D (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 22-4D (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	9,033.3	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	300.0	300.0	31.7	30.7	31.876	CC, ES
OXY 22-10D (OXY 22 Pad) - DD - Plan #1	500.0	499.1	38.0	36.3	22.468	SF
OXY 22-11D (OXY 22 Pad) - DD - Plan #1	300.0	300.0	18.3	17.3	18.387	CC, ES
OXY 22-11D (OXY 22 Pad) - DD - Plan #1	400.0	399.7	20.3	19.0	15.116	SF
OXY 22-12D (OXY 22 Pad) - DD - Plan #1	300.0	300.0	9.8	8.8	9.869	CC, ES
OXY 22-12D (OXY 22 Pad) - DD - Plan #1	400.0	399.7	11.5	10.2	8.563	SF
OXY 22-13D (OXY 22 Pad) - DD - Plan #1	300.0	300.0	18.2	17.2	18.326	CC, ES
OXY 22-13D (OXY 22 Pad) - DD - Plan #1	500.0	499.0	20.6	18.9	12.112	SF
OXY 22-14D (OXY 22 Pad) - DD - Plan #1	363.2	362.8	31.6	30.4	26.024	CC
OXY 22-14D (OXY 22 Pad) - DD - Plan #1	400.0	399.3	31.6	30.3	23.547	ES
OXY 22-14D (OXY 22 Pad) - DD - Plan #1	700.0	695.8	40.4	37.9	16.392	SF
OXY 22-15D (OXY 22 Pad) - DD - Plan #1	200.0	200.0	45.9	45.3	71.154	CC, ES
OXY 22-15D (OXY 22 Pad) - DD - Plan #1	800.0	790.0	71.1	68.3	24.774	SF
OXY 22-16D (OXY 22 Pad) - DD - Plan #1	200.0	200.0	60.7	60.1	94.049	CC, ES
OXY 22-16D (OXY 22 Pad) - DD - Plan #1	900.0	884.7	92.4	89.1	27.869	SF
OXY 22-1D (OXY 22 Pad) - DD - Plan #1	300.0	300.0	45.2	44.2	45.463	CC, ES
OXY 22-1D (OXY 22 Pad) - DD - Plan #1	900.0	899.8	82.4	79.1	25.025	SF
OXY 22-2D (OXY 22 Pad) - DD - Plan #1	300.0	300.0	30.0	29.0	30.187	CC, ES
OXY 22-2D (OXY 22 Pad) - DD - Plan #1	2,500.0	2,494.4	211.2	198.9	17.165	SF
OXY 22-3D (OXY 22 Pad) - DD - Plan #1	300.0	300.0	15.2	14.2	15.241	CC
OXY 22-3D (OXY 22 Pad) - DD - Plan #1	400.0	400.3	15.3	14.0	11.390	ES
OXY 22-3D (OXY 22 Pad) - DD - Plan #1	900.0	901.6	23.7	20.3	6.870	SF
OXY 22-5D (OXY 22 Pad) - DD - Plan #1	200.0	200.0	14.7	14.1	22.766	CC, ES
OXY 22-5D (OXY 22 Pad) - DD - Plan #1	4,800.0	4,790.1	223.9	197.4	8.431	SF
OXY 22-6D (OXY 22 Pad) - DD - Plan #1	200.0	200.0	29.6	28.9	45.766	CC, ES
OXY 22-6D (OXY 22 Pad) - DD - Plan #1	1,100.0	1,089.5	62.6	58.4	14.894	SF
OXY 22-7D (OXY 22 Pad) - DD - Plan #1	200.0	200.0	44.7	44.1	69.264	CC, ES
OXY 22-7D (OXY 22 Pad) - DD - Plan #1	1,100.0	1,085.1	81.5	77.3	19.339	SF
OXY 22-8D (OXY 22 Pad) - DD - Plan #1	200.0	200.0	59.9	59.3	92.795	CC, ES
OXY 22-8D (OXY 22 Pad) - DD - Plan #1	1,200.0	1,177.5	111.0	106.2	23.401	SF
OXY 22-9D (OXY 22 Pad) - DD - Plan #1	300.0	300.0	46.1	45.1	46.296	CC, ES
OXY 22-9D (OXY 22 Pad) - DD - Plan #1	600.0	596.6	62.8	60.8	30.913	SF



# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>Local Co-ordinate Reference:</b>	Well OXY 22-4D (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 22-4D (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 22-10D (OXY 22 Pad) - DD - Plan #1													<b>Offset Site Error:</b>	0.0 ft
<b>Survey Program:</b> 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	-125.05	-18.2	-26.0	31.7					
100.0	100.0	100.0	100.0	0.1	0.1	-125.05	-18.2	-26.0	31.7	31.4	0.30	106.878		
200.0	200.0	200.0	200.0	0.3	0.3	-125.05	-18.2	-26.0	31.7	31.1	0.65	49.106		
300.0	300.0	300.0	300.0	0.5	0.5	-125.05	-18.2	-26.0	31.7	30.7	0.99	31.876 CC, ES		
400.0	400.0	400.0	400.0	0.7	0.7	-179.64	-18.2	-26.0	33.0	31.7	1.34	24.576		
500.0	499.9	499.1	499.1	0.9	0.8	-178.50	-18.2	-27.2	38.0	36.3	1.69	22.468 SF		
600.0	599.7	597.7	597.6	1.1	1.0	-175.96	-18.0	-31.1	47.7	45.7	2.04	23.408		
700.0	699.3	695.5	695.2	1.3	1.2	-173.26	-17.8	-37.4	62.2	59.8	2.38	26.091		
800.0	798.6	793.8	793.2	1.5	1.4	-171.40	-17.4	-44.9	80.4	77.7	2.73	29.417		
900.0	897.5	891.6	890.7	1.8	1.6	-170.46	-17.1	-52.3	101.2	98.1	3.08	32.835		
959.6	956.3	949.6	948.6	2.0	1.7	-170.15	-17.0	-56.7	114.7	111.5	3.29	34.899		
1,000.0	996.1	988.9	987.7	2.1	1.8	-170.03	-16.8	-59.7	124.3	120.8	3.43	36.212		
1,100.0	1,094.6	1,086.1	1,084.7	2.5	2.0	-169.80	-16.5	-67.2	147.8	144.0	3.79	39.022		
1,200.0	1,193.2	1,183.3	1,181.6	2.8	2.2	-169.63	-16.2	-74.6	171.3	167.2	4.14	41.341		
1,300.0	1,291.7	1,280.5	1,278.5	3.1	2.4	-169.50	-15.9	-82.0	194.9	190.4	4.50	43.287		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>Local Co-ordinate Reference:</b>	Well OXY 22-4D (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 22-4D (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	-109.79	-6.2	-17.2	18.3				
100.0	100.0	100.0	100.0	0.1	0.1	-109.79	-6.2	-17.2	18.3	18.0	0.30	61.652	
200.0	200.0	200.0	200.0	0.3	0.3	-109.79	-6.2	-17.2	18.3	17.6	0.65	28.327	
300.0	300.0	300.0	300.0	0.5	0.5	-109.79	-6.2	-17.2	18.3	17.3	0.99	18.387 CC, ES	
400.0	400.0	399.7	399.7	0.7	0.7	-162.35	-5.4	-18.3	20.3	19.0	1.34	15.116 SF	
500.0	499.9	499.1	499.0	0.9	0.9	-158.18	-3.2	-21.5	26.5	24.8	1.70	15.607	
600.0	599.7	598.0	597.6	1.1	1.1	-154.34	0.5	-26.7	36.9	34.9	2.06	17.935	
700.0	699.3	696.6	695.9	1.3	1.3	-151.86	5.4	-33.8	51.4	48.9	2.43	21.126	
800.0	798.6	795.1	794.0	1.5	1.5	-151.34	10.4	-41.0	68.3	65.5	2.81	24.285	
900.0	897.5	893.2	891.8	1.8	1.7	-151.81	15.4	-48.1	87.5	84.3	3.20	27.335	
959.6	956.3	951.5	949.8	2.0	1.8	-152.31	18.4	-52.4	100.0	96.5	3.43	29.119	
1,000.0	996.1	990.9	989.1	2.1	1.9	-152.71	20.4	-55.3	108.7	105.2	3.59	30.250	
1,100.0	1,094.6	1,088.5	1,086.3	2.5	2.1	-153.47	25.4	-62.4	130.5	126.5	4.00	32.643	
1,200.0	1,193.2	1,186.2	1,183.5	2.8	2.4	-154.02	30.4	-69.6	152.2	147.8	4.40	34.588	
1,300.0	1,291.7	1,283.8	1,280.7	3.1	2.6	-154.42	35.4	-76.7	173.9	169.1	4.80	36.198	
1,400.0	1,390.2	1,381.4	1,378.0	3.5	2.8	-154.74	40.3	-83.9	195.6	190.4	5.21	37.551	

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>Local Co-ordinate Reference:</b>	Well OXY 22-4D (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 22-4D (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 +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	-53.59	5.8	-7.9	9.8					
100.0	100.0	100.0	100.0	0.1	0.1	-53.59	5.8	-7.9	9.8	9.5	0.30	33.089		
200.0	200.0	200.0	200.0	0.3	0.3	-53.59	5.8	-7.9	9.8	9.2	0.65	15.203		
300.0	300.0	300.0	300.0	0.5	0.5	-53.59	5.8	-7.9	9.8	8.8	0.99	9.869 CC, ES		
400.0	400.0	399.7	399.7	0.7	0.7	-112.56	6.9	-8.7	11.5	10.2	1.34	8.563 SF		
500.0	499.9	499.2	499.1	0.9	0.9	-120.25	9.9	-11.1	16.9	15.1	1.70	9.902		
600.0	599.7	598.3	598.0	1.1	1.1	-125.87	15.0	-15.1	26.0	24.0	2.07	12.559		
700.0	699.3	696.8	696.0	1.3	1.3	-129.22	22.1	-20.5	39.0	36.6	2.46	15.843		
800.0	798.6	794.5	793.2	1.5	1.5	-131.19	31.0	-27.5	55.7	52.9	2.88	19.364		
900.0	897.5	892.7	890.5	1.8	1.8	-133.20	40.7	-35.1	74.9	71.6	3.32	22.589		
959.6	956.3	950.9	948.3	2.0	1.9	-134.52	46.5	-39.5	87.3	83.7	3.59	24.329		
1,000.0	996.1	990.4	987.5	2.1	2.0	-135.43	50.4	-42.6	95.9	92.1	3.77	25.416		
1,100.0	1,094.6	1,088.0	1,084.3	2.5	2.3	-137.10	60.0	-50.1	117.2	113.0	4.24	27.682		
1,200.0	1,193.2	1,185.7	1,181.2	2.8	2.5	-138.26	69.7	-57.6	138.7	134.0	4.70	29.489		
1,300.0	1,291.7	1,283.3	1,278.1	3.1	2.8	-139.10	79.3	-65.1	160.1	155.0	5.17	30.958		
1,400.0	1,390.2	1,381.0	1,375.0	3.5	3.1	-139.75	89.0	-72.6	181.6	176.0	5.65	32.173		
1,500.0	1,488.7	1,478.6	1,471.8	3.8	3.3	-140.26	98.6	-80.1	203.1	197.0	6.12	33.194		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>Local Co-ordinate Reference:</b>	Well OXY 22-4D (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 22-4D (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				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	2.66	18.2	0.8	18.2					
100.0	100.0	100.0	100.0	0.1	0.1	2.66	18.2	0.8	18.2	17.9	0.30	61.447		
200.0	200.0	200.0	200.0	0.3	0.3	2.66	18.2	0.8	18.2	17.6	0.65	28.232		
300.0	300.0	300.0	300.0	0.5	0.5	2.66	18.2	0.8	18.2	17.2	0.99	18.326 CC, ES		
400.0	400.0	399.6	399.6	0.7	0.7	-57.17	19.3	0.2	18.6	17.3	1.34	13.844		
500.0	499.9	499.0	498.9	0.9	0.9	-71.20	22.7	-1.7	20.6	18.9	1.70	12.112 SF		
600.0	599.7	598.0	597.7	1.1	1.1	-87.95	28.4	-4.8	26.0	23.9	2.07	12.523		
700.0	699.3	696.5	695.8	1.3	1.3	-101.33	36.2	-9.1	35.7	33.3	2.47	14.443		
800.0	798.6	794.3	792.9	1.5	1.5	-110.21	46.1	-14.6	49.7	46.8	2.90	17.131		
900.0	897.5	891.2	888.8	1.8	1.8	-115.85	58.1	-21.3	67.7	64.3	3.37	20.079		
959.6	956.3	948.4	945.3	2.0	2.0	-118.19	66.2	-25.8	80.1	76.5	3.67	21.857		
1,000.0	996.1	987.4	983.7	2.1	2.1	-119.51	72.1	-29.0	89.2	85.3	3.87	23.035		
1,100.0	1,094.6	1,084.7	1,079.5	2.5	2.4	-121.82	87.0	-37.3	111.8	107.4	4.39	25.462		
1,200.0	1,193.2	1,182.1	1,175.4	2.8	2.7	-123.35	101.9	-45.5	134.5	129.6	4.92	27.349		
1,300.0	1,291.7	1,279.4	1,271.2	3.1	3.1	-124.43	116.7	-53.8	157.2	151.8	5.45	28.846		
1,400.0	1,390.2	1,376.7	1,367.1	3.5	3.4	-125.25	131.6	-62.0	180.1	174.1	5.99	30.057		
1,500.0	1,488.7	1,474.1	1,462.9	3.8	3.7	-125.88	146.5	-70.2	202.9	196.4	6.53	31.055		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>Local Co-ordinate Reference:</b>	Well OXY 22-4D (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 22-4D (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 (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	17.12	30.2	9.3	31.6					
100.0	100.0	100.0	100.0	0.1	0.1	17.12	30.2	9.3	31.6	31.3	0.30	106.616		
200.0	200.0	200.0	200.0	0.3	0.3	17.12	30.2	9.3	31.6	31.0	0.65	48.986		
300.0	300.0	300.0	300.0	0.5	0.5	17.12	30.2	9.3	31.6	30.6	0.99	31.798		
363.2	363.2	362.8	362.7	0.6	0.6	-38.62	30.7	9.1	31.6	30.4	1.22	26.024 CC		
400.0	400.0	399.3	399.3	0.7	0.7	-40.37	31.4	8.8	31.6	30.3	1.34	23.547 ES		
500.0	499.9	498.5	498.4	0.9	0.9	-48.98	35.0	7.4	32.2	30.5	1.70	18.931		
600.0	599.7	597.4	597.1	1.1	1.1	-62.12	40.9	4.9	34.5	32.5	2.07	16.701		
700.0	699.3	695.8	695.1	1.3	1.3	-76.70	49.2	1.6	40.4	37.9	2.46	16.392 SF		
800.0	798.6	793.6	792.2	1.5	1.5	-89.38	59.7	-2.7	50.6	47.7	2.90	17.468		
900.0	897.5	890.6	888.3	1.8	1.8	-98.85	72.4	-7.9	65.3	61.9	3.38	19.321		
959.6	956.3	948.0	944.9	2.0	2.0	-103.11	81.0	-11.4	76.0	72.3	3.69	20.606		
1,000.0	996.1	986.8	983.1	2.1	2.1	-105.50	87.2	-14.0	83.9	80.0	3.90	21.529		
1,100.0	1,094.6	1,082.3	1,076.8	2.5	2.4	-109.30	104.1	-20.9	105.5	101.0	4.44	23.761		
1,200.0	1,193.2	1,177.2	1,169.6	2.8	2.8	-111.18	123.1	-28.6	129.3	124.3	5.00	25.872		
1,300.0	1,291.7	1,274.1	1,264.0	3.1	3.2	-112.29	143.2	-36.8	154.0	148.4	5.57	27.621		
1,400.0	1,390.2	1,371.0	1,358.4	3.5	3.6	-113.09	163.4	-45.0	178.7	172.5	6.16	29.012		
1,500.0	1,488.7	1,467.9	1,452.8	3.8	4.0	-113.70	183.5	-53.3	203.4	196.6	6.75	30.138		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>Local Co-ordinate Reference:</b>	Well OXY 22-4D (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 22-4D (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 (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	23.14	42.3	18.1	45.9					
100.0	100.0	100.0	100.0	0.1	0.1	23.14	42.3	18.1	45.9	45.7	0.30	154.865		
200.0	200.0	200.0	200.0	0.3	0.3	23.14	42.3	18.1	45.9	45.3	0.65	71.154 CC, ES		
300.0	300.0	299.1	299.1	0.5	0.5	22.10	43.5	17.7	46.9	45.9	0.99	47.239		
400.0	400.0	398.1	398.0	0.7	0.7	-36.22	47.1	16.4	48.9	47.5	1.35	36.318		
500.0	499.9	496.8	496.5	0.9	0.9	-43.06	53.2	14.4	51.3	49.6	1.70	30.106		
600.0	599.7	595.1	594.4	1.1	1.1	-52.26	61.6	11.6	55.1	53.0	2.07	26.626		
700.0	699.3	692.9	691.5	1.3	1.4	-62.62	72.4	8.0	61.4	59.0	2.45	25.043		
800.0	798.6	790.0	787.6	1.5	1.6	-72.73	85.4	3.6	71.1	68.3	2.87	24.774 SF		
900.0	897.5	886.3	882.6	1.8	2.0	-81.60	100.5	-1.5	84.7	81.4	3.35	25.324		
959.6	956.3	943.2	938.6	2.0	2.2	-86.12	110.6	-4.9	94.7	91.0	3.66	25.897		
1,000.0	996.1	981.7	976.3	2.1	2.3	-88.86	117.8	-7.3	102.2	98.3	3.87	26.388		
1,100.0	1,094.6	1,076.4	1,068.7	2.5	2.7	-93.85	137.1	-13.8	123.2	118.8	4.43	27.814		
1,200.0	1,193.2	1,170.2	1,159.8	2.8	3.1	-96.98	158.4	-21.0	147.0	142.0	5.00	29.379		
1,300.0	1,291.7	1,263.1	1,249.4	3.1	3.6	-98.87	181.6	-28.7	173.2	167.6	5.59	30.987		
1,400.0	1,390.2	1,358.6	1,341.1	3.5	4.0	-100.11	206.7	-37.2	200.9	194.7	6.19	32.434		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>Local Co-ordinate Reference:</b>	Well OXY 22-4D (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 22-4D (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		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	25.90	54.6	26.5	60.7					
100.0	100.0	100.0	100.0	0.1	0.1	25.90	54.6	26.5	60.7	60.4	0.30	204.695		
200.0	200.0	200.0	200.0	0.3	0.3	25.90	54.6	26.5	60.7	60.1	0.65	94.049	CC, ES	
300.0	300.0	298.8	298.8	0.5	0.5	25.08	55.9	26.1	61.7	60.7	0.99	62.122		
400.0	400.0	397.5	397.5	0.7	0.7	-32.39	59.5	25.0	63.5	62.1	1.35	47.184		
500.0	499.9	496.0	495.7	0.9	0.9	-37.75	65.6	23.1	65.4	63.7	1.70	38.423		
600.0	599.7	594.1	593.4	1.1	1.1	-45.21	74.0	20.4	68.3	66.3	2.07	33.032		
700.0	699.3	691.7	690.3	1.3	1.4	-54.13	84.8	17.0	73.2	70.8	2.45	29.885		
800.0	798.6	788.6	786.3	1.5	1.6	-63.57	97.8	13.0	81.0	78.1	2.86	28.333		
900.0	897.5	884.7	881.1	1.8	2.0	-72.58	113.0	8.2	92.4	89.1	3.32	27.869	SF	
959.6	956.3	941.6	936.9	2.0	2.2	-77.46	123.1	5.0	101.0	97.4	3.61	27.958		
1,000.0	996.1	980.0	974.6	2.1	2.3	-80.50	130.4	2.7	107.7	103.9	3.82	28.171		
1,100.0	1,094.6	1,074.6	1,066.9	2.5	2.7	-86.39	149.7	-3.4	127.1	122.7	4.37	29.099		
1,200.0	1,193.2	1,168.3	1,157.9	2.8	3.1	-90.40	171.1	-10.1	149.6	144.7	4.93	30.349		
1,300.0	1,291.7	1,261.1	1,247.5	3.1	3.5	-93.05	194.3	-17.4	174.9	169.4	5.51	31.745		
1,400.0	1,390.2	1,352.8	1,335.4	3.5	4.0	-94.77	219.3	-25.2	202.6	196.5	6.10	33.206		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>Local Co-ordinate Reference:</b>	Well OXY 22-4D (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 22-4D (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 22-1D (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	-143.65	-36.4	-26.8	45.2					
100.0	100.0	100.0	100.0	0.1	0.1	-143.65	-36.4	-26.8	45.2	44.9	0.30	152.436		
200.0	200.0	200.0	200.0	0.3	0.3	-143.65	-36.4	-26.8	45.2	44.6	0.65	70.038		
300.0	300.0	300.0	300.0	0.5	0.5	-143.65	-36.4	-26.8	45.2	44.2	0.99	45.463	CC, ES	
400.0	400.0	400.0	400.0	0.7	0.7	162.27	-36.4	-26.8	46.5	45.1	1.34	34.585		
500.0	499.9	500.3	500.3	0.9	0.8	162.19	-36.9	-25.6	49.8	48.1	1.69	29.409		
600.0	599.7	600.5	600.4	1.1	1.0	160.31	-38.2	-21.9	55.0	52.9	2.05	26.769		
700.0	699.3	700.6	700.3	1.3	1.2	157.26	-40.5	-15.7	62.0	59.5	2.43	25.506		
800.0	798.6	800.4	799.7	1.5	1.4	153.62	-43.6	-7.1	71.1	68.2	2.84	25.040		
900.0	897.5	899.8	898.4	1.8	1.7	149.87	-47.6	3.9	82.4	79.1	3.29	25.025	SF	
959.6	956.3	958.9	956.9	2.0	1.9	147.71	-50.4	11.5	90.3	86.7	3.59	25.150		
1,000.0	996.1	998.9	996.4	2.1	2.0	146.33	-52.4	17.1	95.9	92.1	3.80	25.251		
1,100.0	1,094.6	1,097.7	1,094.2	2.5	2.2	143.50	-57.5	31.0	110.1	105.7	4.33	25.407		
1,200.0	1,193.2	1,196.6	1,192.0	2.8	2.5	141.32	-62.5	44.9	124.4	119.6	4.88	25.485		
1,300.0	1,291.7	1,295.5	1,289.7	3.1	2.8	139.59	-67.6	58.7	139.0	133.5	5.44	25.521		
1,400.0	1,390.2	1,394.3	1,387.5	3.5	3.1	138.19	-72.6	72.6	153.6	147.5	6.01	25.533		
1,500.0	1,488.7	1,493.2	1,485.2	3.8	3.4	137.03	-77.7	86.5	168.2	161.6	6.59	25.532		
1,600.0	1,587.2	1,592.1	1,583.0	4.1	3.7	136.06	-82.7	100.4	183.0	175.8	7.17	25.523		
1,700.0	1,685.7	1,690.9	1,680.7	4.5	4.0	135.23	-87.8	114.2	197.8	190.0	7.75	25.510		



# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>Local Co-ordinate Reference:</b>	Well OXY 22-4D (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 22-4D (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						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	-144.37	-24.4	-17.5	30.0					
100.0	100.0	100.0	100.0	0.1	0.1	-144.37	-24.4	-17.5	30.0	29.7	0.30	101.214		
200.0	200.0	200.0	200.0	0.3	0.3	-144.37	-24.4	-17.5	30.0	29.4	0.65	46.504		
300.0	300.0	300.0	300.0	0.5	0.5	-144.37	-24.4	-17.5	30.0	29.0	0.99	30.187 CC, ES		
400.0	400.0	400.0	400.0	0.7	0.7	161.83	-24.4	-17.5	31.3	29.9	1.34	23.271		
500.0	499.9	500.5	500.5	0.9	0.8	162.10	-24.4	-16.2	34.2	32.5	1.69	20.193		
600.0	599.7	600.9	600.8	1.1	1.0	160.36	-24.4	-12.2	38.1	36.0	2.05	18.566		
700.0	699.3	701.4	701.1	1.3	1.2	157.27	-24.3	-5.6	43.0	40.6	2.42	17.728		
800.0	798.6	801.8	801.0	1.5	1.4	153.42	-24.3	3.6	49.0	46.2	2.83	17.340		
900.0	897.5	902.0	900.6	1.8	1.7	149.32	-24.2	15.4	56.4	53.1	3.28	17.199		
959.6	956.3	961.5	959.5	2.0	1.9	147.03	-24.2	23.5	61.6	58.0	3.57	17.231		
1,000.0	996.1	1,001.7	999.3	2.1	2.0	145.83	-24.1	29.1	65.3	61.5	3.78	17.300		
1,100.0	1,094.6	1,101.2	1,097.9	2.5	2.2	143.38	-24.1	42.7	74.8	70.5	4.30	17.399		
1,200.0	1,193.2	1,200.7	1,196.5	2.8	2.5	141.47	-24.0	56.4	84.3	79.5	4.83	17.438		
1,300.0	1,291.7	1,300.3	1,295.0	3.1	2.8	139.96	-23.9	70.1	93.9	88.5	5.38	17.444		
1,400.0	1,390.2	1,399.8	1,393.6	3.5	3.1	138.73	-23.8	83.8	103.6	97.6	5.94	17.433		
1,500.0	1,488.7	1,499.3	1,492.2	3.8	3.4	137.71	-23.8	97.4	113.3	106.7	6.50	17.411		
1,600.0	1,587.2	1,598.8	1,590.7	4.1	3.6	136.85	-23.7	111.1	123.0	115.9	7.07	17.386		
1,700.0	1,685.7	1,698.3	1,689.3	4.5	3.9	136.11	-23.6	124.8	132.7	125.1	7.65	17.358		
1,800.0	1,784.2	1,797.8	1,787.9	4.8	4.2	135.48	-23.5	138.5	142.5	134.3	8.22	17.330		
1,900.0	1,882.7	1,897.3	1,886.4	5.2	4.5	134.93	-23.5	152.1	152.3	143.5	8.80	17.303		
2,000.0	1,981.3	1,996.8	1,985.0	5.5	4.8	134.44	-23.4	165.8	162.1	152.7	9.38	17.277		
2,100.0	2,079.8	2,096.3	2,083.6	5.9	5.1	134.01	-23.3	179.5	171.9	161.9	9.96	17.251		
2,200.0	2,178.3	2,195.8	2,182.1	6.2	5.4	133.63	-23.2	193.2	181.7	171.2	10.55	17.228		
2,300.0	2,276.8	2,295.4	2,280.7	6.6	5.7	133.28	-23.2	206.8	191.5	180.4	11.13	17.205		
2,400.0	2,375.3	2,394.9	2,379.3	6.9	6.0	132.97	-23.1	220.5	201.4	189.7	11.72	17.184		
2,500.0	2,473.8	2,494.4	2,477.8	7.2	6.3	132.69	-23.0	234.2	211.2	198.9	12.30	17.165 SF		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>Local Co-ordinate Reference:</b>	Well OXY 22-4D (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 22-4D (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 22-3D (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							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	-144.77	-12.4	-8.7	15.2					
100.0	100.0	100.0	100.0	0.1	0.1	-144.77	-12.4	-8.7	15.2	14.9	0.30	51.101		
200.0	200.0	200.0	200.0	0.3	0.3	-144.77	-12.4	-8.7	15.2	14.5	0.65	23.479		
300.0	300.0	300.0	300.0	0.5	0.5	-144.77	-12.4	-8.7	15.2	14.2	0.99	15.241 CC		
400.0	400.0	400.3	400.3	0.7	0.7	159.49	-11.9	-7.5	15.3	14.0	1.34	11.390 ES		
500.0	499.9	500.6	500.6	0.9	0.9	156.12	-10.6	-3.8	15.8	14.1	1.70	9.313		
600.0	599.7	600.9	600.6	1.1	1.1	151.00	-8.3	2.4	16.8	14.7	2.07	8.114		
700.0	699.3	701.2	700.5	1.3	1.3	144.80	-5.1	11.0	18.3	15.8	2.47	7.414		
800.0	798.6	801.5	800.0	1.5	1.5	138.29	-1.0	22.1	20.5	17.6	2.93	7.012		
900.0	897.5	901.6	899.1	1.8	1.8	132.88	3.8	35.3	23.7	20.3	3.45	6.870 SF		
959.6	956.3	961.0	958.0	2.0	2.0	132.00	6.7	43.3	26.4	22.6	3.77	7.012		
1,000.0	996.1	1,001.4	998.0	2.1	2.1	131.99	8.7	48.7	28.4	24.5	3.98	7.153		
1,100.0	1,094.6	1,101.3	1,096.8	2.5	2.4	131.97	13.7	62.2	33.5	29.0	4.51	7.429		
1,200.0	1,193.2	1,201.2	1,195.7	2.8	2.7	131.96	18.6	75.6	38.6	33.5	5.05	7.635		
1,300.0	1,291.7	1,301.1	1,294.5	3.1	3.0	131.95	23.6	89.0	43.6	38.0	5.60	7.793		
1,400.0	1,390.2	1,400.9	1,393.3	3.5	3.3	131.94	28.5	102.5	48.7	42.5	6.15	7.918		
1,500.0	1,488.7	1,500.8	1,492.2	3.8	3.6	131.93	33.4	115.9	53.8	47.0	6.70	8.018		
1,600.0	1,587.2	1,600.7	1,591.0	4.1	3.9	131.93	38.4	129.4	58.8	51.6	7.26	8.101		
1,700.0	1,685.7	1,700.5	1,689.9	4.5	4.2	131.92	43.3	142.8	63.9	56.1	7.82	8.169		
1,800.0	1,784.2	1,800.4	1,788.7	4.8	4.5	131.92	48.3	156.2	68.9	60.6	8.38	8.227		
1,900.0	1,882.7	1,900.3	1,887.5	5.2	4.8	131.92	53.2	169.7	74.0	65.1	8.94	8.277		
2,000.0	1,981.3	2,000.2	1,986.4	5.5	5.1	131.91	58.1	183.1	79.1	69.6	9.50	8.320		
2,100.0	2,079.8	2,100.0	2,085.2	5.9	5.4	131.91	63.1	196.6	84.1	74.0	10.06	8.357		
2,200.0	2,178.3	2,199.9	2,184.1	6.2	5.7	131.91	68.0	210.0	89.2	78.5	10.63	8.390		
2,300.0	2,276.8	2,299.8	2,282.9	6.6	6.0	131.91	73.0	223.4	94.2	83.0	11.19	8.419		
2,400.0	2,375.3	2,399.6	2,381.7	6.9	6.3	131.90	77.9	236.9	99.3	87.5	11.76	8.445		
2,500.0	2,473.8	2,499.5	2,480.6	7.2	6.6	131.90	82.8	250.3	104.4	92.0	12.32	8.468		
2,600.0	2,572.3	2,599.4	2,579.4	7.6	6.9	131.90	87.8	263.7	109.4	96.5	12.89	8.489		
2,700.0	2,670.8	2,699.3	2,678.3	7.9	7.2	131.90	92.7	277.2	114.5	101.0	13.46	8.508		
2,800.0	2,769.4	2,799.1	2,777.1	8.3	7.5	131.90	97.7	290.6	119.5	105.5	14.02	8.525		
2,900.0	2,867.9	2,899.0	2,875.9	8.6	7.8	131.90	102.6	304.1	124.6	110.0	14.59	8.541		
3,000.0	2,966.4	2,998.9	2,974.8	9.0	8.1	131.90	107.5	317.5	129.7	114.5	15.15	8.556		
3,100.0	3,064.9	3,098.7	3,073.6	9.3	8.4	131.90	112.5	330.9	134.7	119.0	15.72	8.569		
3,200.0	3,163.4	3,198.6	3,172.5	9.7	8.7	131.89	117.4	344.4	139.8	123.5	16.29	8.581		
3,300.0	3,261.9	3,298.5	3,271.3	10.0	9.0	131.89	122.4	357.8	144.8	128.0	16.86	8.593		
3,400.0	3,360.4	3,398.4	3,370.1	10.4	9.3	131.89	127.3	371.3	149.9	132.5	17.42	8.603		
3,500.0	3,458.9	3,498.2	3,469.0	10.7	9.7	131.89	132.3	384.7	155.0	137.0	17.99	8.613		
3,600.0	3,557.5	3,598.1	3,567.8	11.1	10.0	131.89	137.2	398.1	160.0	141.5	18.56	8.622		
3,700.0	3,656.0	3,698.0	3,666.7	11.4	10.3	131.89	142.1	411.6	165.1	146.0	19.13	8.631		
3,800.0	3,754.5	3,797.8	3,765.5	11.8	10.6	131.89	147.1	425.0	170.1	150.4	19.70	8.639		
3,900.0	3,853.0	3,897.7	3,864.3	12.1	10.9	131.89	152.0	438.4	175.2	154.9	20.26	8.646		
4,000.0	3,951.5	3,997.6	3,963.2	12.5	11.2	131.89	157.0	451.9	180.3	159.4	20.83	8.653		
4,100.0	4,050.0	4,097.5	4,062.0	12.8	11.5	131.89	161.9	465.3	185.3	163.9	21.40	8.660		
4,200.0	4,148.5	4,197.3	4,160.9	13.2	11.8	131.89	166.8	478.8	190.4	168.4	21.97	8.666		
4,300.0	4,247.1	4,297.2	4,259.7	13.5	12.1	131.89	171.8	492.2	195.4	172.9	22.54	8.672		
4,400.0	4,345.6	4,397.1	4,358.5	13.9	12.4	131.89	176.7	505.6	200.5	177.4	23.11	8.678		
4,500.0	4,444.1	4,497.0	4,457.4	14.2	12.7	131.89	181.7	519.1	205.6	181.9	23.67	8.683		
4,600.0	4,542.6	4,596.8	4,556.2	14.6	13.0	131.89	186.6	532.5	210.6	186.4	24.24	8.688		
4,700.0	4,641.1	4,696.7	4,655.1	14.9	13.3	131.89	191.5	546.0	215.7	190.9	24.81	8.693		
4,800.0	4,739.6	4,796.6	4,753.9	15.3	13.6	131.89	196.5	559.4	220.7	195.4	25.38	8.698		
4,900.0	4,838.1	4,896.4	4,852.7	15.6	13.9	131.89	201.4	572.8	225.8	199.9	25.95	8.702		

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 22-4D (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 22-4D (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: 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	35.16	12.0	8.5	14.7						
100.0	100.0	100.0	100.0	0.1	0.1	35.16	12.0	8.5	14.7	14.4	0.30	49.550			
200.0	200.0	200.0	200.0	0.3	0.3	35.16	12.0	8.5	14.7	14.1	0.65	22.766 CC, ES			
300.0	300.0	299.6	299.6	0.5	0.5	35.75	13.0	9.3	16.0	15.0	1.00	16.064			
400.0	400.0	399.1	399.0	0.7	0.7	-18.71	15.8	12.0	18.6	17.3	1.34	13.883			
500.0	499.9	498.6	498.3	0.9	0.9	-20.05	20.6	16.3	21.4	19.7	1.69	12.646			
600.0	599.7	597.9	597.2	1.1	1.1	-22.33	27.3	22.4	24.3	22.3	2.05	11.878			
700.0	699.3	697.2	695.8	1.3	1.4	-25.22	35.9	30.3	27.4	25.0	2.41	11.365			
800.0	798.6	796.4	794.0	1.5	1.7	-28.46	46.3	39.8	30.7	27.9	2.80	10.990			
900.0	897.5	895.5	891.7	1.8	2.0	-31.88	58.6	51.1	34.3	31.1	3.22	10.676			
959.6	956.3	954.5	949.6	2.0	2.2	-33.94	66.8	58.6	36.7	33.2	3.49	10.499			
1,000.0	996.1	994.7	989.0	2.1	2.4	-35.21	72.7	64.1	38.4	34.8	3.69	10.425			
1,100.0	1,094.6	1,094.6	1,086.8	2.5	2.7	-37.82	87.6	77.7	43.0	38.8	4.19	10.266			
1,200.0	1,193.2	1,194.5	1,184.7	2.8	3.1	-39.93	102.4	91.2	47.7	43.0	4.72	10.106			
1,300.0	1,291.7	1,294.4	1,282.5	3.1	3.5	-41.66	117.3	104.8	52.4	47.1	5.27	9.954			
1,400.0	1,390.2	1,394.2	1,380.3	3.5	3.9	-43.10	132.1	118.4	57.2	51.3	5.83	9.814			
1,500.0	1,488.7	1,494.1	1,478.2	3.8	4.3	-44.32	147.0	132.0	62.0	55.6	6.40	9.687			
1,600.0	1,587.2	1,594.0	1,576.0	4.1	4.6	-45.37	161.8	145.6	66.8	59.8	6.97	9.573			
1,700.0	1,685.7	1,693.9	1,673.8	4.5	5.0	-46.27	176.7	159.2	71.6	64.0	7.56	9.471			
1,800.0	1,784.2	1,793.7	1,771.6	4.8	5.4	-47.06	191.5	172.8	76.4	68.3	8.15	9.379			
1,900.0	1,882.7	1,893.6	1,869.5	5.2	5.8	-47.76	206.3	186.4	81.3	72.6	8.75	9.296			
2,000.0	1,981.3	1,993.5	1,967.3	5.5	6.2	-48.38	221.2	200.0	86.2	76.8	9.34	9.222			
2,100.0	2,079.8	2,093.4	2,065.1	5.9	6.6	-48.93	236.0	213.6	91.0	81.1	9.95	9.154			
2,200.0	2,178.3	2,193.3	2,163.0	6.2	7.0	-49.42	250.9	227.2	95.9	85.4	10.55	9.093			
2,300.0	2,276.8	2,293.1	2,260.8	6.6	7.4	-49.87	265.7	240.7	100.8	89.7	11.15	9.038			
2,400.0	2,375.3	2,393.0	2,358.6	6.9	7.8	-50.27	280.6	254.3	105.7	93.9	11.76	8.987			
2,500.0	2,473.8	2,492.9	2,456.4	7.2	8.2	-50.64	295.4	267.9	110.6	98.2	12.37	8.941			
2,600.0	2,572.3	2,592.8	2,554.3	7.6	8.6	-50.98	310.2	281.5	115.5	102.5	12.98	8.898			
2,700.0	2,670.8	2,692.6	2,652.1	7.9	9.0	-51.29	325.1	295.1	120.4	106.8	13.59	8.859			
2,800.0	2,769.4	2,792.5	2,749.9	8.3	9.4	-51.58	339.9	308.7	125.3	111.1	14.21	8.822			
2,900.0	2,867.9	2,892.4	2,847.8	8.6	9.7	-51.85	354.8	322.3	130.3	115.4	14.82	8.789			
3,000.0	2,966.4	2,992.3	2,945.6	9.0	10.1	-52.09	369.6	335.9	135.2	119.7	15.43	8.758			
3,100.0	3,064.9	3,092.1	3,043.4	9.3	10.5	-52.32	384.5	349.5	140.1	124.0	16.05	8.729			
3,200.0	3,163.4	3,192.0	3,141.2	9.7	10.9	-52.53	399.3	363.1	145.0	128.3	16.67	8.702			
3,300.0	3,261.9	3,291.9	3,239.1	10.0	11.3	-52.73	414.2	376.7	149.9	132.7	17.28	8.676			
3,400.0	3,360.4	3,391.8	3,336.9	10.4	11.7	-52.92	429.0	390.3	154.9	137.0	17.90	8.653			
3,500.0	3,458.9	3,491.7	3,434.7	10.7	12.1	-53.09	443.8	403.8	159.8	141.3	18.51	8.630			
3,600.0	3,557.5	3,591.5	3,532.6	11.1	12.5	-53.26	458.7	417.4	164.7	145.6	19.13	8.609			
3,700.0	3,656.0	3,691.4	3,630.4	11.4	12.9	-53.41	473.5	431.0	169.6	149.9	19.75	8.590			
3,800.0	3,754.5	3,791.3	3,728.2	11.8	13.3	-53.56	488.4	444.6	174.6	154.2	20.37	8.571			
3,900.0	3,853.0	3,891.2	3,826.0	12.1	13.7	-53.69	503.2	458.2	179.5	158.5	20.99	8.554			
4,000.0	3,951.5	3,991.0	3,923.9	12.5	14.1	-53.83	518.1	471.8	184.4	162.8	21.61	8.537			
4,100.0	4,050.0	4,090.9	4,021.7	12.8	14.5	-53.95	532.9	485.4	189.4	167.2	22.22	8.521			
4,200.0	4,148.5	4,190.8	4,119.5	13.2	14.9	-54.07	547.8	499.0	194.3	171.5	22.84	8.506			
4,300.0	4,247.1	4,290.7	4,217.4	13.5	15.3	-54.18	562.6	512.6	199.2	175.8	23.46	8.492			
4,400.0	4,345.6	4,390.6	4,315.2	13.9	15.7	-54.28	577.4	526.2	204.2	180.1	24.08	8.479			
4,500.0	4,444.1	4,490.4	4,413.0	14.2	16.1	-54.39	592.3	539.8	209.1	184.4	24.70	8.466			
4,600.0	4,542.6	4,590.3	4,510.8	14.6	16.4	-54.48	607.1	553.4	214.1	188.7	25.32	8.454			
4,700.0	4,641.1	4,690.2	4,608.7	14.9	16.8	-54.57	622.0	566.9	219.0	193.1	25.94	8.442			
4,800.0	4,739.6	4,790.1	4,706.5	15.3	17.2	-54.66	636.8	580.5	223.9	197.4	26.56	8.431 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 22-4D (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 22-4D (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				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	35.62	24.0	17.2	29.6					
100.0	100.0	100.0	100.0	0.1	0.1	35.62	24.0	17.2	29.6	29.3	0.30	99.608		
200.0	200.0	200.0	200.0	0.3	0.3	35.62	24.0	17.2	29.6	28.9	0.65	45.766 CC, ES		
300.0	300.0	299.2	299.2	0.5	0.5	35.66	25.1	18.0	30.9	29.9	0.99	31.012		
400.0	400.0	398.3	398.3	0.7	0.7	-19.51	28.2	20.3	33.5	32.2	1.34	24.987		
500.0	499.9	497.4	497.1	0.9	0.9	-21.26	33.3	24.1	36.3	34.6	1.69	21.493		
600.0	599.7	596.4	595.6	1.1	1.1	-23.90	40.5	29.5	39.3	37.3	2.04	19.260		
700.0	699.3	695.2	693.8	1.3	1.4	-27.19	49.7	36.4	42.6	40.2	2.40	17.732		
800.0	798.6	794.0	791.6	1.5	1.7	-30.92	61.0	44.7	46.3	43.5	2.79	16.613		
900.0	897.5	892.6	888.8	1.8	2.0	-34.91	74.3	54.6	50.5	47.3	3.21	15.724		
959.6	956.3	951.3	946.5	2.0	2.2	-37.33	83.1	61.2	53.3	49.8	3.49	15.256		
1,000.0	996.1	991.2	985.5	2.1	2.3	-38.87	89.5	66.0	55.4	51.7	3.69	15.020		
1,100.0	1,094.6	1,089.5	1,081.4	2.5	2.8	-41.50	106.7	78.8	62.6	58.4	4.20	14.894 SF		
1,200.0	1,193.2	1,188.0	1,177.1	2.8	3.2	-42.77	125.8	93.0	72.0	67.3	4.72	15.254		
1,300.0	1,291.7	1,287.5	1,273.5	3.1	3.6	-43.59	145.5	107.6	81.9	76.7	5.25	15.604		
1,400.0	1,390.2	1,387.0	1,370.0	3.5	4.1	-44.24	165.2	122.3	91.8	86.0	5.79	15.869		
1,500.0	1,488.7	1,486.5	1,466.4	3.8	4.5	-44.76	184.9	136.9	101.8	95.4	6.33	16.074		
1,600.0	1,587.2	1,586.0	1,562.8	4.1	5.0	-45.19	204.6	151.6	111.7	104.8	6.88	16.235		
1,700.0	1,685.7	1,685.5	1,659.2	4.5	5.4	-45.55	224.3	166.2	121.6	114.2	7.43	16.364		
1,800.0	1,784.2	1,785.0	1,755.7	4.8	5.9	-45.86	243.9	180.9	131.6	123.6	7.99	16.469		
1,900.0	1,882.7	1,884.5	1,852.1	5.2	6.4	-46.12	263.6	195.5	141.5	133.0	8.55	16.555		
2,000.0	1,981.3	1,984.0	1,948.5	5.5	6.8	-46.34	283.3	210.2	151.5	142.4	9.11	16.628		
2,100.0	2,079.8	2,083.6	2,045.0	5.9	7.3	-46.54	303.0	224.8	161.4	151.8	9.67	16.689		
2,200.0	2,178.3	2,183.1	2,141.4	6.2	7.8	-46.72	322.7	239.5	171.4	161.1	10.24	16.741		
2,300.0	2,276.8	2,282.6	2,237.8	6.6	8.2	-46.88	342.4	254.1	181.3	170.5	10.80	16.786		
2,400.0	2,375.3	2,382.1	2,334.2	6.9	8.7	-47.02	362.1	268.8	191.3	179.9	11.37	16.825		
2,500.0	2,473.8	2,481.6	2,430.7	7.2	9.1	-47.14	381.7	283.4	201.3	189.3	11.94	16.859		
2,600.0	2,572.3	2,581.1	2,527.1	7.6	9.6	-47.26	401.4	298.1	211.2	198.7	12.51	16.889		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>Local Co-ordinate Reference:</b>	Well OXY 22-4D (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 22-4D (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 22-7D (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	35.48	36.4	26.0	44.7					
100.0	100.0	100.0	100.0	0.1	0.1	35.48	36.4	26.0	44.7	44.4	0.30	150.750		
200.0	200.0	200.0	200.0	0.3	0.3	35.48	36.4	26.0	44.7	44.1	0.65	69.264	CC, ES	
300.0	300.0	298.8	298.8	0.5	0.5	35.29	37.5	26.6	46.0	45.0	0.99	46.294		
400.0	400.0	397.6	397.5	0.7	0.7	-20.31	40.9	28.4	48.6	47.3	1.34	36.300		
500.0	499.9	496.2	495.9	0.9	0.9	-22.50	46.5	31.5	51.4	49.7	1.69	30.472		
600.0	599.7	594.8	594.1	1.1	1.1	-25.64	54.3	35.7	54.5	52.5	2.04	26.731		
700.0	699.3	693.2	691.8	1.3	1.4	-29.54	64.3	41.2	58.0	55.6	2.40	24.175		
800.0	798.6	791.5	789.1	1.5	1.6	-33.97	76.6	47.8	62.1	59.3	2.78	22.331		
900.0	897.5	889.6	885.8	1.8	2.0	-38.70	90.9	55.6	67.0	63.8	3.21	20.908		
959.6	956.3	947.9	943.1	2.0	2.2	-41.58	100.5	60.9	70.4	66.9	3.49	20.186		
1,000.0	996.1	987.5	981.9	2.1	2.3	-43.45	107.5	64.6	73.0	69.4	3.69	19.796		
1,100.0	1,094.6	1,085.1	1,077.2	2.5	2.7	-47.05	126.1	74.8	81.5	77.3	4.22	19.339	SF	
1,200.0	1,193.2	1,182.4	1,171.6	2.8	3.2	-49.32	146.8	86.0	92.6	87.9	4.77	19.438		
1,300.0	1,291.7	1,279.2	1,264.9	3.1	3.6	-50.52	169.4	98.4	106.1	100.8	5.32	19.939		
1,400.0	1,390.2	1,375.9	1,357.4	3.5	4.2	-50.96	194.1	111.8	121.9	116.0	5.87	20.741		
1,500.0	1,488.7	1,474.5	1,451.6	3.8	4.7	-51.15	219.9	125.9	138.3	131.9	6.43	21.497		
1,600.0	1,587.2	1,573.2	1,545.7	4.1	5.2	-51.30	245.7	140.0	154.8	147.8	7.00	22.119		
1,700.0	1,685.7	1,671.8	1,639.9	4.5	5.7	-51.43	271.6	154.0	171.2	163.7	7.56	22.636		
1,800.0	1,784.2	1,770.4	1,734.0	4.8	6.3	-51.53	297.4	168.1	187.7	179.5	8.13	23.073		
1,900.0	1,882.7	1,869.1	1,828.2	5.2	6.8	-51.61	323.2	182.2	204.1	195.4	8.71	23.447		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>Local Co-ordinate Reference:</b>	Well OXY 22-4D (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 22-4D (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	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	298.5	298.5	0.5	0.5	35.75	49.6	35.7	61.2	60.2	0.99	61.598					
400.0	400.0	396.9	396.8	0.7	0.7	-20.07	53.2	37.1	63.7	62.3	1.34	47.549					
500.0	499.9	495.2	494.9	0.9	0.9	-22.49	59.1	39.3	66.3	64.6	1.69	39.304					
600.0	599.7	593.3	592.6	1.1	1.1	-25.92	67.3	42.5	69.2	67.2	2.04	33.976					
700.0	699.3	691.3	690.0	1.3	1.4	-30.20	77.9	46.5	72.7	70.3	2.40	30.332					
800.0	798.6	789.1	786.8	1.5	1.6	-35.09	90.8	51.4	76.9	74.2	2.77	27.729					
900.0	897.5	886.6	883.0	1.8	2.0	-40.37	105.9	57.2	82.2	79.0	3.19	25.768					
959.6	956.3	944.6	939.9	2.0	2.2	-43.60	116.0	61.1	86.0	82.5	3.47	24.804					
1,000.0	996.1	983.9	978.4	2.1	2.3	-45.72	123.3	63.9	89.0	85.3	3.67	24.273					
1,100.0	1,094.6	1,080.9	1,073.1	2.5	2.7	-50.09	142.9	71.3	98.5	94.4	4.19	23.530					
1,200.0	1,193.2	1,177.5	1,166.8	2.8	3.1	-53.22	164.7	79.6	111.0	106.2	4.74	23.401	SF				
1,300.0	1,291.7	1,273.5	1,259.4	3.1	3.6	-55.28	188.4	88.7	125.9	120.6	5.31	23.705					
1,400.0	1,390.2	1,368.8	1,350.7	3.5	4.1	-56.51	214.2	98.5	143.3	137.4	5.89	24.327					
1,500.0	1,488.7	1,463.4	1,440.5	3.8	4.7	-57.12	241.9	109.1	163.0	156.5	6.47	25.189					
1,600.0	1,587.2	1,558.2	1,529.8	4.1	5.2	-57.30	271.6	120.4	184.7	177.7	7.04	26.231					
1,700.0	1,685.7	1,655.6	1,621.3	4.5	5.8	-57.37	302.7	132.3	207.1	199.5	7.63	27.163					

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>Local Co-ordinate Reference:</b>	Well OXY 22-4D (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 22-4D (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	-131.63	-30.6	-34.4	46.1				
100.0	100.0	100.0	100.0	0.1	0.1	-131.63	-30.6	-34.4	46.1	45.8	0.30	155.227	
200.0	200.0	200.0	200.0	0.3	0.3	-131.63	-30.6	-34.4	46.1	45.4	0.65	71.321	
300.0	300.0	300.0	300.0	0.5	0.5	-131.63	-30.6	-34.4	46.1	45.1	0.99	46.296	CC, ES
400.0	400.0	400.0	400.0	0.7	0.7	173.96	-30.6	-34.4	47.4	46.0	1.34	35.247	
500.0	499.9	498.6	498.6	0.9	0.8	174.67	-31.2	-35.5	52.5	50.8	1.69	31.096	
600.0	599.7	596.6	596.5	1.1	1.0	175.83	-33.2	-38.8	62.8	60.8	2.03	30.913	SF
700.0	699.3	693.6	693.3	1.3	1.2	177.03	-36.3	-44.2	78.3	75.9	2.37	32.983	
800.0	798.6	790.3	789.6	1.5	1.4	178.07	-40.6	-51.4	98.6	95.8	2.71	36.363	
900.0	897.5	887.5	886.5	1.8	1.6	178.81	-45.1	-59.1	121.8	118.8	3.05	39.998	
959.6	956.3	945.1	943.8	2.0	1.8	179.14	-47.7	-63.7	136.9	133.7	3.24	42.201	
1,000.0	996.1	984.2	982.7	2.1	1.8	179.33	-49.5	-66.7	147.5	144.1	3.38	43.601	
1,100.0	1,094.6	1,080.7	1,078.8	2.5	2.1	179.69	-54.0	-74.4	173.5	169.8	3.72	46.617	
1,200.0	1,193.2	1,177.2	1,175.0	2.8	2.3	179.96	-58.5	-82.0	199.6	195.6	4.06	49.129	

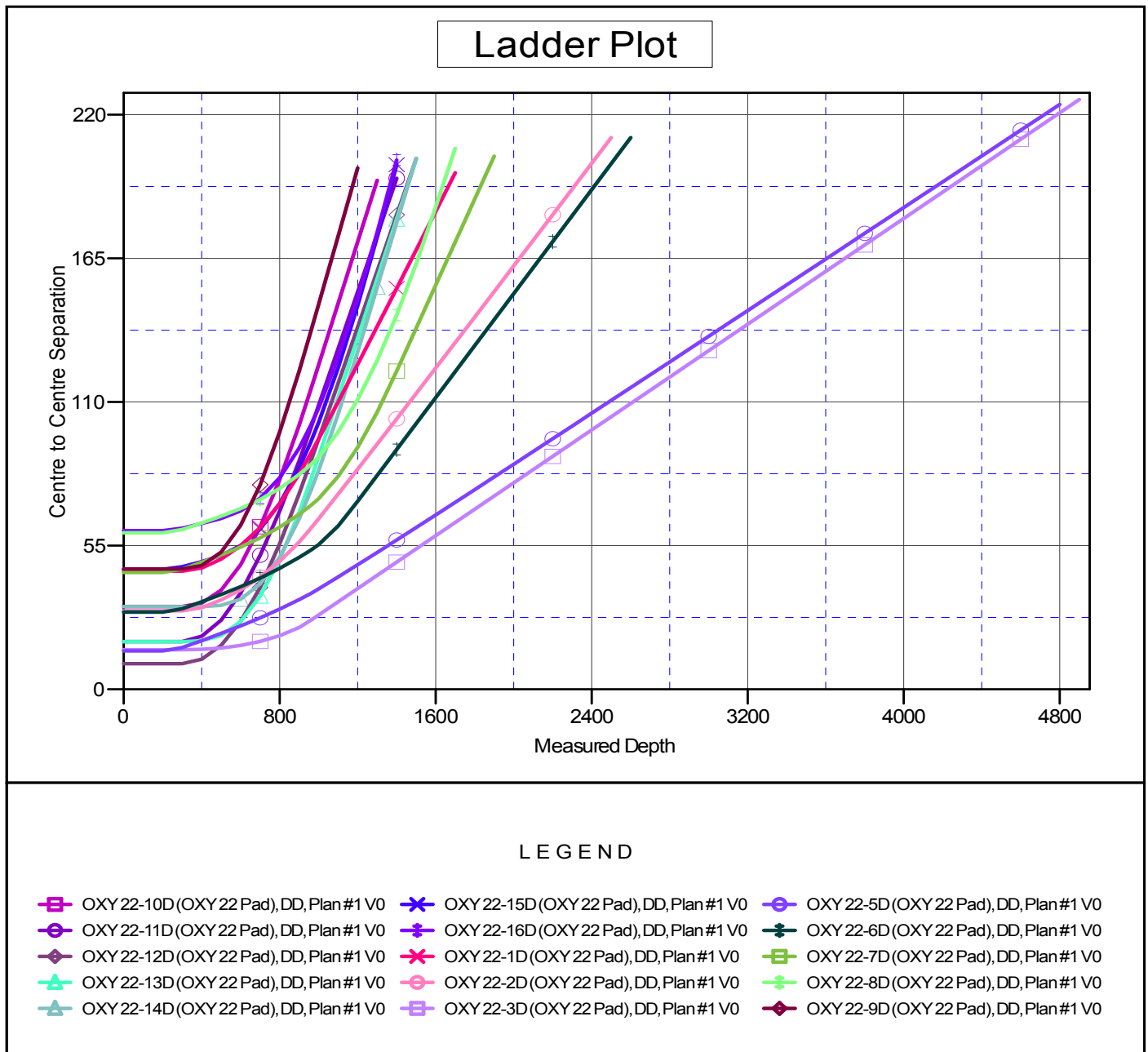
# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Berry Petroleum Company (NAD 83)	<b>Local Co-ordinate Reference:</b>	Well OXY 22-4D (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 22-4D (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 22-4D (OXY 22 Pad)  
Coordinate System is US State Plane 1983, Colorado Central Zone  
Grid Convergence at Surface is: -1.70°



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