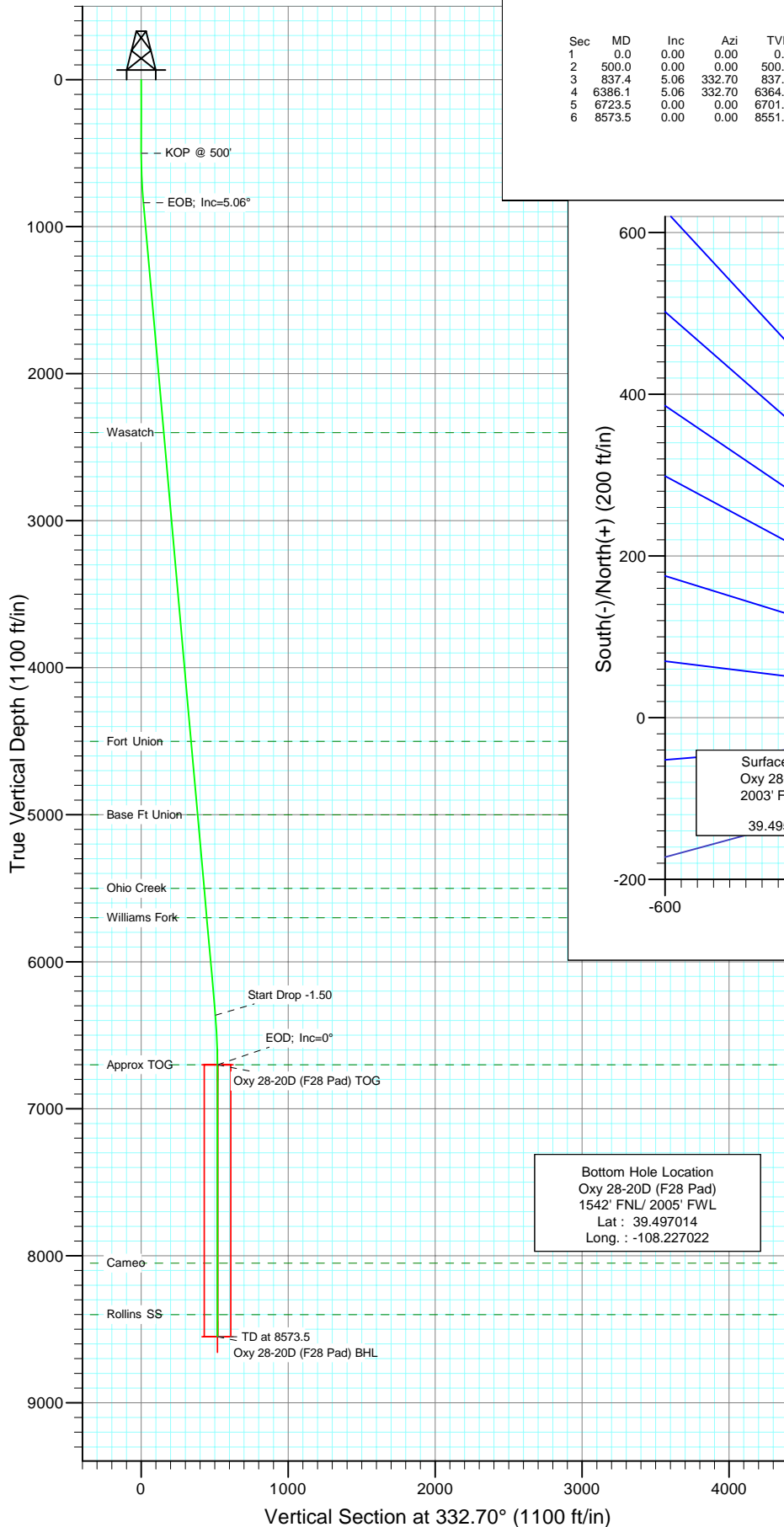




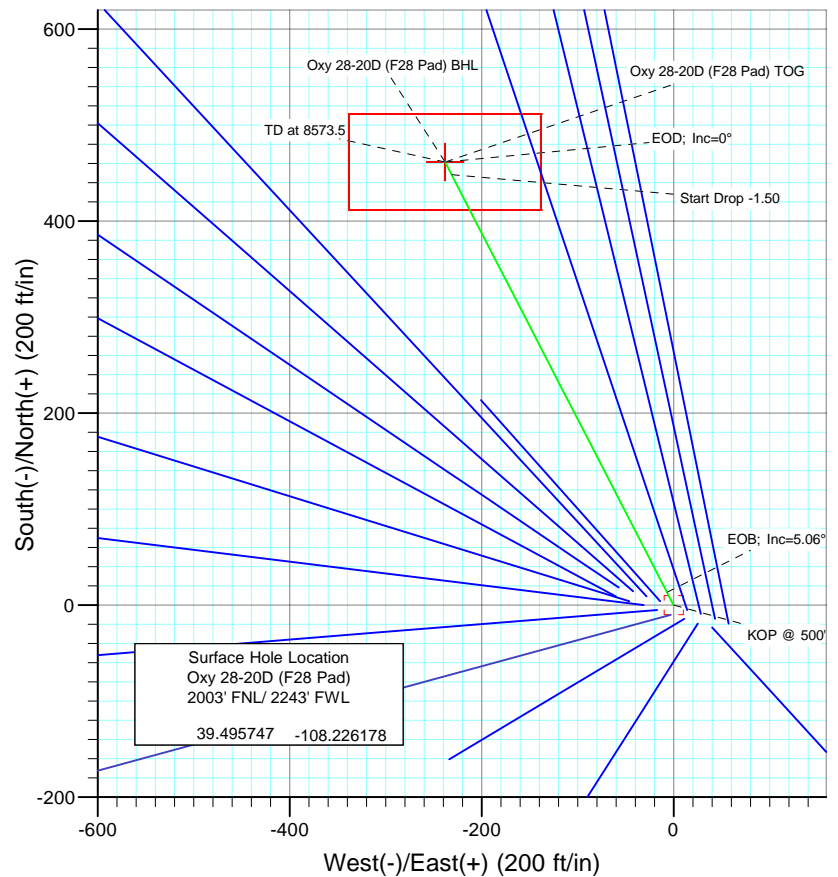
Berry Petroleum Company

Project: Garfield County
Site: SENW S28-T6S-R97W (F28 Pad)
Well: Oxy 28-20D (F28 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	500.0	0.00	0.00	500.0	0.0	0.0	0.00	0.00	0.0	
3	837.4	5.06	332.70	837.0	13.2	-6.8	1.50	332.70	14.9	
4	6386.1	5.06	332.70	6364.0	448.3	-231.3	0.00	0.00	504.4	
5	6723.5	0.00	0.00	6701.0	461.5	-238.2	1.50	180.00	519.3	Oxy 28-20D (F28 Pad) TOG
6	8573.5	0.00	0.00	8551.0	461.5	-238.2	0.00	0.00	519.3	Oxy 28-20D (F28 Pad) BHL



FORMATION TOP DETAILS

TVDPath	MDPath	Formation
2401.0	2407.6	Wasatch
4501.0	4515.8	Fort Union
5001.0	5017.7	Base Ft Union
5501.0	5519.7	Ohio Creek
5701.0	5720.5	Williams Fork
6701.0	6723.5	Approx TOG
8051.0	8073.5	Cameo
8401.0	8423.5	Rollins SS



Azimuths to True North
Magnetic North: 10.64°

Magnetic Field
Strength: 52394.8snT
Dip Angle: 65.75°
Date: 10/21/2009
Model: IGRF200510

DESIGN DETAILS: Plan #1

95XXX; BH
KBE @ 8308.0ft (Original Well Elev)

Target	Azimuth	Origin	N/S	E/W	From TVD
Oxy 28-20D (F28 Pad) BH	332.70	Slot	0.0	0.0	0.0

Directional Plus

Planning Report

Database:	EDM 2003.21 US Multi User Db	Local Co-ordinate Reference:	Well Oxy 28-20D (F28 Pad)
Company:	Berry Petroleum Company (NAD 83)	TVD Reference:	KBE @ 8308.0ft (Original Well Elev)
Project:	Garfield County	MD Reference:	KBE @ 8308.0ft (Original Well Elev)
Site:	SENW S28-T6S-R97W (F28 Pad)	North Reference:	True
Well:	Oxy 28-20D (F28 Pad)	Survey Calculation Method:	Minimum Curvature
Wellbore:	DD		
Design:	Plan #1		

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

Site		SENW S28-T6S-R97W (F28 Pad)			
Site Position:		Northing:	1,616,975.87 ft	Latitude:	39.495683
From:	Lat/Long	Easting:	2,230,827.80 ft	Longitude:	-108.226036
Position Uncertainty:	0.0 ft	Slot Radius:	in	Grid Convergence:	-1.72 °

Well	Oxy 28-20D (F28 Pad)					
Well Position	+N/-S	0.0 ft	Northing:	1,617,000.36 ft	Latitude:	39.495747
	+E/-W	0.0 ft	Easting:	2,230,788.44 ft	Longitude:	-108.226178
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	8,293.0 ft

Wellbore	DD				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	10/21/2009	10.64	65.75	52,395

Design	Plan #1			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	332.70

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
500.0	0.00	0.00	500.0	0.0	0.0	0.00	0.00	0.00	0.00	
837.4	5.06	332.70	837.0	13.2	-6.8	1.50	1.50	0.00	332.70	
6,386.1	5.06	332.70	6,364.0	448.3	-231.3	0.00	0.00	0.00	0.00	
6,723.5	0.00	0.00	6,701.0	461.5	-238.2	1.50	-1.50	0.00	180.00	Oxy 28-20D (F28 Pad
8,573.5	0.00	0.00	8,551.0	461.5	-238.2	0.00	0.00	0.00	0.00	Oxy 28-20D (F28 Pad

Directional Plus

Planning Report

Database:	EDM 2003.21 US Multi User Db	Local Co-ordinate Reference:	Well Oxy 28-20D (F28 Pad)
Company:	Berry Petroleum Company (NAD 83)	TVD Reference:	KBE @ 8308.0ft (Original Well Elev)
Project:	Garfield County	MD Reference:	KBE @ 8308.0ft (Original Well Elev)
Site:	SENW S28-T6S-R97W (F28 Pad)	North Reference:	True
Well:	Oxy 28-20D (F28 Pad)	Survey Calculation Method:	Minimum Curvature
Wellbore:	DD		
Design:	Plan #1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	
30.0	0.00	0.00	30.0	0.0	0.0	0.0	0.00	0.00	
60.0	0.00	0.00	60.0	0.0	0.0	0.0	0.00	0.00	
90.0	0.00	0.00	90.0	0.0	0.0	0.0	0.00	0.00	
120.0	0.00	0.00	120.0	0.0	0.0	0.0	0.00	0.00	
150.0	0.00	0.00	150.0	0.0	0.0	0.0	0.00	0.00	
180.0	0.00	0.00	180.0	0.0	0.0	0.0	0.00	0.00	
210.0	0.00	0.00	210.0	0.0	0.0	0.0	0.00	0.00	
240.0	0.00	0.00	240.0	0.0	0.0	0.0	0.00	0.00	
270.0	0.00	0.00	270.0	0.0	0.0	0.0	0.00	0.00	
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	
330.0	0.00	0.00	330.0	0.0	0.0	0.0	0.00	0.00	
360.0	0.00	0.00	360.0	0.0	0.0	0.0	0.00	0.00	
390.0	0.00	0.00	390.0	0.0	0.0	0.0	0.00	0.00	
420.0	0.00	0.00	420.0	0.0	0.0	0.0	0.00	0.00	
450.0	0.00	0.00	450.0	0.0	0.0	0.0	0.00	0.00	
480.0	0.00	0.00	480.0	0.0	0.0	0.0	0.00	0.00	
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	KOP @ 500'
510.0	0.15	332.70	510.0	0.0	0.0	0.0	1.50	1.50	
540.0	0.60	332.70	540.0	0.2	-0.1	0.2	1.50	1.50	
570.0	1.05	332.70	570.0	0.6	-0.3	0.6	1.50	1.50	
600.0	1.50	332.70	600.0	1.2	-0.6	1.3	1.50	1.50	
630.0	1.95	332.70	630.0	2.0	-1.0	2.2	1.50	1.50	
660.0	2.40	332.70	660.0	3.0	-1.5	3.4	1.50	1.50	
690.0	2.85	332.70	689.9	4.2	-2.2	4.7	1.50	1.50	
720.0	3.30	332.70	719.9	5.6	-2.9	6.3	1.50	1.50	
750.0	3.75	332.70	749.8	7.3	-3.8	8.2	1.50	1.50	
780.0	4.20	332.70	779.7	9.1	-4.7	10.3	1.50	1.50	
810.0	4.65	332.70	809.7	11.2	-5.8	12.6	1.50	1.50	
837.4	5.06	332.70	837.0	13.2	-6.8	14.9	1.50	1.50	EOB; Inc=5.06°
840.0	5.06	332.70	839.6	13.4	-6.9	15.1	0.00	0.00	
870.0	5.06	332.70	869.4	15.8	-8.1	17.8	0.00	0.00	
900.0	5.06	332.70	899.3	18.1	-9.4	20.4	0.00	0.00	
930.0	5.06	332.70	929.2	20.5	-10.6	23.1	0.00	0.00	
960.0	5.06	332.70	959.1	22.8	-11.8	25.7	0.00	0.00	
990.0	5.06	332.70	989.0	25.2	-13.0	28.4	0.00	0.00	
1,020.0	5.06	332.70	1,018.8	27.5	-14.2	31.0	0.00	0.00	
1,050.0	5.06	332.70	1,048.7	29.9	-15.4	33.6	0.00	0.00	
1,080.0	5.06	332.70	1,078.6	32.3	-16.6	36.3	0.00	0.00	
1,110.0	5.06	332.70	1,108.5	34.6	-17.9	38.9	0.00	0.00	
1,140.0	5.06	332.70	1,138.4	37.0	-19.1	41.6	0.00	0.00	
1,170.0	5.06	332.70	1,168.3	39.3	-20.3	44.2	0.00	0.00	
1,200.0	5.06	332.70	1,198.1	41.7	-21.5	46.9	0.00	0.00	
1,230.0	5.06	332.70	1,228.0	44.0	-22.7	49.5	0.00	0.00	
1,260.0	5.06	332.70	1,257.9	46.4	-23.9	52.2	0.00	0.00	
1,290.0	5.06	332.70	1,287.8	48.7	-25.1	54.8	0.00	0.00	
1,320.0	5.06	332.70	1,317.7	51.1	-26.4	57.5	0.00	0.00	
1,350.0	5.06	332.70	1,347.6	53.4	-27.6	60.1	0.00	0.00	
1,380.0	5.06	332.70	1,377.4	55.8	-28.8	62.8	0.00	0.00	
1,410.0	5.06	332.70	1,407.3	58.1	-30.0	65.4	0.00	0.00	
1,440.0	5.06	332.70	1,437.2	60.5	-31.2	68.1	0.00	0.00	
1,470.0	5.06	332.70	1,467.1	62.8	-32.4	70.7	0.00	0.00	

Directional Plus

Planning Report

Database:	EDM 2003.21 US Multi User Db	Local Co-ordinate Reference:	Well Oxy 28-20D (F28 Pad)
Company:	Berry Petroleum Company (NAD 83)	TVD Reference:	KBE @ 8308.0ft (Original Well Elev)
Project:	Garfield County	MD Reference:	KBE @ 8308.0ft (Original Well Elev)
Site:	SENW S28-T6S-R97W (F28 Pad)	North Reference:	True
Well:	Oxy 28-20D (F28 Pad)	Survey Calculation Method:	Minimum Curvature
Wellbore:	DD		
Design:	Plan #1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
1,500.0	5.06	332.70	1,497.0	65.2	-33.6	73.4	0.00	0.00	
1,530.0	5.06	332.70	1,526.9	67.5	-34.9	76.0	0.00	0.00	
1,560.0	5.06	332.70	1,556.7	69.9	-36.1	78.6	0.00	0.00	
1,590.0	5.06	332.70	1,586.6	72.2	-37.3	81.3	0.00	0.00	
1,620.0	5.06	332.70	1,616.5	74.6	-38.5	83.9	0.00	0.00	
1,650.0	5.06	332.70	1,646.4	76.9	-39.7	86.6	0.00	0.00	
1,680.0	5.06	332.70	1,676.3	79.3	-40.9	89.2	0.00	0.00	
1,710.0	5.06	332.70	1,706.2	81.6	-42.1	91.9	0.00	0.00	
1,740.0	5.06	332.70	1,736.0	84.0	-43.4	94.5	0.00	0.00	
1,770.0	5.06	332.70	1,765.9	86.4	-44.6	97.2	0.00	0.00	
1,800.0	5.06	332.70	1,795.8	88.7	-45.8	99.8	0.00	0.00	
1,830.0	5.06	332.70	1,825.7	91.1	-47.0	102.5	0.00	0.00	
1,860.0	5.06	332.70	1,855.6	93.4	-48.2	105.1	0.00	0.00	
1,890.0	5.06	332.70	1,885.5	95.8	-49.4	107.8	0.00	0.00	
1,920.0	5.06	332.70	1,915.3	98.1	-50.6	110.4	0.00	0.00	
1,950.0	5.06	332.70	1,945.2	100.5	-51.8	113.1	0.00	0.00	
1,980.0	5.06	332.70	1,975.1	102.8	-53.1	115.7	0.00	0.00	
2,010.0	5.06	332.70	2,005.0	105.2	-54.3	118.3	0.00	0.00	
2,040.0	5.06	332.70	2,034.9	107.5	-55.5	121.0	0.00	0.00	
2,070.0	5.06	332.70	2,064.8	109.9	-56.7	123.6	0.00	0.00	
2,100.0	5.06	332.70	2,094.6	112.2	-57.9	126.3	0.00	0.00	
2,130.0	5.06	332.70	2,124.5	114.6	-59.1	128.9	0.00	0.00	
2,160.0	5.06	332.70	2,154.4	116.9	-60.3	131.6	0.00	0.00	
2,190.0	5.06	332.70	2,184.3	119.3	-61.6	134.2	0.00	0.00	
2,220.0	5.06	332.70	2,214.2	121.6	-62.8	136.9	0.00	0.00	
2,250.0	5.06	332.70	2,244.1	124.0	-64.0	139.5	0.00	0.00	
2,280.0	5.06	332.70	2,273.9	126.3	-65.2	142.2	0.00	0.00	
2,310.0	5.06	332.70	2,303.8	128.7	-66.4	144.8	0.00	0.00	
2,340.0	5.06	332.70	2,333.7	131.0	-67.6	147.5	0.00	0.00	
2,370.0	5.06	332.70	2,363.6	133.4	-68.8	150.1	0.00	0.00	
2,400.0	5.06	332.70	2,393.5	135.7	-70.1	152.8	0.00	0.00	
2,407.6	5.06	332.70	2,401.0	136.3	-70.4	153.4	0.00	0.00	Wasatch
2,430.0	5.06	332.70	2,423.4	138.1	-71.3	155.4	0.00	0.00	
2,460.0	5.06	332.70	2,453.2	140.5	-72.5	158.1	0.00	0.00	
2,490.0	5.06	332.70	2,483.1	142.8	-73.7	160.7	0.00	0.00	

Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
- hit/miss target									
- Shape									
Oxy 28-20D (F28 Pad) T	0.00	0.00	6,701.0	461.5	-238.2	1,617,468.80	2,230,564.22	39.497014	-108.227022
- plan misses target center by 4233.1ft at 2490.0ft MD (2483.1 TVD, 142.8 N, -73.7 E)									
- Point									
Oxy 28-20D (F28 Pad) E	0.00	0.00	8,551.0	461.5	-238.2	1,617,468.80	2,230,564.22	39.497014	-108.227022
- plan misses target center by 6078.5ft at 2490.0ft MD (2483.1 TVD, 142.8 N, -73.7 E)									
- Rectangle (sides W100.0 H200.0 D0.0)									

Directional Plus

Planning Report

Database:	EDM 2003.21 US Multi User Db	Local Co-ordinate Reference:	Well Oxy 28-20D (F28 Pad)
Company:	Berry Petroleum Company (NAD 83)	TVD Reference:	KBE @ 8308.0ft (Original Well Elev)
Project:	Garfield County	MD Reference:	KBE @ 8308.0ft (Original Well Elev)
Site:	SENW S28-T6S-R97W (F28 Pad)	North Reference:	True
Well:	Oxy 28-20D (F28 Pad)	Survey Calculation Method:	Minimum Curvature
Wellbore:	DD		
Design:	Plan #1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
2,500.0	5.06	332.70	2,493.1	143.6	-74.1	161.6	0.00	0.00	
2,600.0	5.06	332.70	2,592.7	151.4	-78.1	170.4	0.00	0.00	
2,700.0	5.06	332.70	2,692.3	159.3	-82.2	179.2	0.00	0.00	
2,800.0	5.06	332.70	2,791.9	167.1	-86.2	188.0	0.00	0.00	
2,900.0	5.06	332.70	2,891.5	174.9	-90.3	196.9	0.00	0.00	
3,000.0	5.06	332.70	2,991.1	182.8	-94.3	205.7	0.00	0.00	
3,100.0	5.06	332.70	3,090.7	190.6	-98.4	214.5	0.00	0.00	
3,200.0	5.06	332.70	3,190.3	198.5	-102.4	223.3	0.00	0.00	
3,300.0	5.06	332.70	3,290.0	206.3	-106.5	232.2	0.00	0.00	
3,400.0	5.06	332.70	3,389.6	214.1	-110.5	241.0	0.00	0.00	
3,500.0	5.06	332.70	3,489.2	222.0	-114.6	249.8	0.00	0.00	
3,600.0	5.06	332.70	3,588.8	229.8	-118.6	258.6	0.00	0.00	
3,700.0	5.06	332.70	3,688.4	237.7	-122.7	267.5	0.00	0.00	
3,800.0	5.06	332.70	3,788.0	245.5	-126.7	276.3	0.00	0.00	
3,900.0	5.06	332.70	3,887.6	253.4	-130.8	285.1	0.00	0.00	
4,000.0	5.06	332.70	3,987.2	261.2	-134.8	293.9	0.00	0.00	
4,100.0	5.06	332.70	4,086.8	269.0	-138.8	302.7	0.00	0.00	
4,200.0	5.06	332.70	4,186.4	276.9	-142.9	311.6	0.00	0.00	
4,300.0	5.06	332.70	4,286.1	284.7	-146.9	320.4	0.00	0.00	
4,400.0	5.06	332.70	4,385.7	292.6	-151.0	329.2	0.00	0.00	
4,500.0	5.06	332.70	4,485.3	300.4	-155.0	338.0	0.00	0.00	
4,515.8	5.06	332.70	4,501.0	301.6	-155.7	339.4	0.00	0.00	Fort Union
4,600.0	5.06	332.70	4,584.9	308.2	-159.1	346.9	0.00	0.00	
4,700.0	5.06	332.70	4,684.5	316.1	-163.1	355.7	0.00	0.00	
4,800.0	5.06	332.70	4,784.1	323.9	-167.2	364.5	0.00	0.00	
4,900.0	5.06	332.70	4,883.7	331.8	-171.2	373.3	0.00	0.00	
5,000.0	5.06	332.70	4,983.3	339.6	-175.3	382.2	0.00	0.00	
5,017.7	5.06	332.70	5,001.0	341.0	-176.0	383.7	0.00	0.00	Base Ft Union
5,100.0	5.06	332.70	5,082.9	347.4	-179.3	391.0	0.00	0.00	
5,200.0	5.06	332.70	5,182.5	355.3	-183.4	399.8	0.00	0.00	
5,300.0	5.06	332.70	5,282.2	363.1	-187.4	408.6	0.00	0.00	
5,400.0	5.06	332.70	5,381.8	371.0	-191.4	417.4	0.00	0.00	
5,500.0	5.06	332.70	5,481.4	378.8	-195.5	426.3	0.00	0.00	
5,519.7	5.06	332.70	5,501.0	380.3	-196.3	428.0	0.00	0.00	Ohio Creek
5,600.0	5.06	332.70	5,581.0	386.6	-199.5	435.1	0.00	0.00	
5,700.0	5.06	332.70	5,680.6	394.5	-203.6	443.9	0.00	0.00	
5,720.5	5.06	332.70	5,701.0	396.1	-204.4	445.7	0.00	0.00	Williams Fork
5,800.0	5.06	332.70	5,780.2	402.3	-207.6	452.7	0.00	0.00	
5,900.0	5.06	332.70	5,879.8	410.2	-211.7	461.6	0.00	0.00	
6,000.0	5.06	332.70	5,979.4	418.0	-215.7	470.4	0.00	0.00	
6,100.0	5.06	332.70	6,079.0	425.8	-219.8	479.2	0.00	0.00	
6,200.0	5.06	332.70	6,178.6	433.7	-223.8	488.0	0.00	0.00	
6,300.0	5.06	332.70	6,278.3	441.5	-227.9	496.8	0.00	0.00	
6,386.1	5.06	332.70	6,364.0	448.3	-231.3	504.4	0.00	0.00	Start Drop -1.50
6,400.0	4.85	332.70	6,377.9	449.3	-231.9	505.6	1.50	-1.50	
6,500.0	3.35	332.70	6,477.6	455.7	-235.2	512.8	1.50	-1.50	
6,600.0	1.85	332.70	6,577.5	459.7	-237.3	517.3	1.50	-1.50	
6,700.0	0.35	332.70	6,677.5	461.4	-238.1	519.3	1.50	-1.50	
6,723.5	0.00	0.00	6,701.0	461.5	-238.2	519.3	1.50	-1.50	EOD; Inc=0° - Approx TOG - Oxy 28-20D (F28
6,800.0	0.00	0.00	6,777.5	461.5	-238.2	519.3	0.00	0.00	
6,900.0	0.00	0.00	6,877.5	461.5	-238.2	519.3	0.00	0.00	
7,000.0	0.00	0.00	6,977.5	461.5	-238.2	519.3	0.00	0.00	

Directional Plus

Planning Report

Database:	EDM 2003.21 US Multi User Db	Local Co-ordinate Reference:	Well Oxy 28-20D (F28 Pad)
Company:	Berry Petroleum Company (NAD 83)	TVD Reference:	KBE @ 8308.0ft (Original Well Elev)
Project:	Garfield County	MD Reference:	KBE @ 8308.0ft (Original Well Elev)
Site:	SENW S28-T6S-R97W (F28 Pad)	North Reference:	True
Well:	Oxy 28-20D (F28 Pad)	Survey Calculation Method:	Minimum Curvature
Wellbore:	DD		
Design:	Plan #1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
7,100.0	0.00	0.00	7,077.5	461.5	-238.2	519.3	0.00	0.00	
7,200.0	0.00	0.00	7,177.5	461.5	-238.2	519.3	0.00	0.00	
7,300.0	0.00	0.00	7,277.5	461.5	-238.2	519.3	0.00	0.00	
7,400.0	0.00	0.00	7,377.5	461.5	-238.2	519.3	0.00	0.00	
7,500.0	0.00	0.00	7,477.5	461.5	-238.2	519.3	0.00	0.00	
7,600.0	0.00	0.00	7,577.5	461.5	-238.2	519.3	0.00	0.00	
7,700.0	0.00	0.00	7,677.5	461.5	-238.2	519.3	0.00	0.00	
7,800.0	0.00	0.00	7,777.5	461.5	-238.2	519.3	0.00	0.00	
7,900.0	0.00	0.00	7,877.5	461.5	-238.2	519.3	0.00	0.00	
8,000.0	0.00	0.00	7,977.5	461.5	-238.2	519.3	0.00	0.00	
8,073.5	0.00	0.00	8,051.0	461.5	-238.2	519.3	0.00	0.00	Cameo
8,100.0	0.00	0.00	8,077.5	461.5	-238.2	519.3	0.00	0.00	
8,200.0	0.00	0.00	8,177.5	461.5	-238.2	519.3	0.00	0.00	
8,300.0	0.00	0.00	8,277.5	461.5	-238.2	519.3	0.00	0.00	
8,400.0	0.00	0.00	8,377.5	461.5	-238.2	519.3	0.00	0.00	
8,423.5	0.00	0.00	8,401.0	461.5	-238.2	519.3	0.00	0.00	Rollins SS
8,500.0	0.00	0.00	8,477.5	461.5	-238.2	519.3	0.00	0.00	
8,573.5	0.00	0.00	8,551.0	461.5	-238.2	519.3	0.00	0.00	TD at 8573.5 - Oxy 28-20D (F28 Pad) BHL

Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
Oxy 28-20D (F28 Pad) T - plan hits target center - Point	0.00	0.00	6,701.0	461.5	-238.2	1,617,468.80	2,230,564.22	39.497014	-108.227022
Oxy 28-20D (F28 Pad) E - plan hits target center - Rectangle (sides W100.0 H200.0 D0.0)	0.00	0.00	8,551.0	461.5	-238.2	1,617,468.80	2,230,564.22	39.497014	-108.227022

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
2,407.6	2,401.0	Wasatch		0.00	
4,515.8	4,501.0	Fort Union		0.00	
5,017.7	5,001.0	Base Ft Union		0.00	
5,519.7	5,501.0	Ohio Creek		0.00	
5,720.5	5,701.0	Williams Fork		0.00	
6,723.5	6,701.0	Approx TOG		0.00	
8,073.5	8,051.0	Cameo		0.00	
8,423.5	8,401.0	Rollins SS		0.00	

Directional Plus

Planning Report

Database:	EDM 2003.21 US Multi User Db	Local Co-ordinate Reference:	Well Oxy 28-20D (F28 Pad)
Company:	Berry Petroleum Company (NAD 83)	TVD Reference:	KBE @ 8308.0ft (Original Well Elev)
Project:	Garfield County	MD Reference:	KBE @ 8308.0ft (Original Well Elev)
Site:	SENW S28-T6S-R97W (F28 Pad)	North Reference:	True
Well:	Oxy 28-20D (F28 Pad)	Survey Calculation Method:	Minimum Curvature
Wellbore:	DD		
Design:	Plan #1		

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
500.0	500.0	0.0	0.0	KOP @ 500'
837.4	837.0	13.2	-6.8	EOB; Inc=5.06°
6,386.1	6,364.0	448.3	-231.3	Start Drop -1.50
6,723.5	6,701.0	461.5	-238.2	EOD; Inc=0°
8,573.5	8,551.0	461.5	-238.2	TD at 8573.5

Directional Plus

Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Well Oxy 28-20D (F28 Pad)
Project:	Garfield County	TVD Reference:	KBE @ 8308.0ft (Original Well Elev)
Reference Site:	SENW S28-T6S-R97W (F28 Pad)	MD Reference:	KBE @ 8308.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Oxy 28-20D (F28 Pad)	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	EDM 2003.21 US Multi User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Reference	Plan #1		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	MD Interval 100.0ft	Error Model:	Systematic Ellipse
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 200.0ft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma		

Survey Tool Program		Date	10/26/2009		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
0.0	8,573.5	Plan #1 (DD)	MWD	Geolink MWD	

Directional Plus

Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Well Oxy 28-20D (F28 Pad)
Project:	Garfield County	TVD Reference:	KBE @ 8308.0ft (Original Well Elev)
Reference Site:	SENW S28-T6S-R97W (F28 Pad)	MD Reference:	KBE @ 8308.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Oxy 28-20D (F28 Pad)	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	EDM 2003.21 US Multi User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Summary

Site Name Offset Well - Wellbore - Design	Reference Measured Depth	Offset Measured Depth	Distance		Separation Factor	Warning
	(ft)	(ft)	Between Centres (ft)	Between Ellipses (ft)		
SENW S28-T6S-R97W (F28 Pad)						
687-28A-18 (Marathon offset) - DD - Plan #1						Out of range
Oxy 28-15D (F28 Pad) - DD - Plan #1	500.0	500.0	46.4	44.7	27.382	CC, ES
Oxy 28-15D (F28 Pad) - DD - Plan #1	700.0	697.2	55.9	53.5	23.409	SF
Oxy 28-17D (F28 Pad) - DD - Plan #1	500.0	500.0	31.7	30.0	18.711	CC, ES
Oxy 28-17D (F28 Pad) - DD - Plan #1	700.0	699.7	36.7	34.3	15.352	SF
Oxy 28-18D (F28 pad) - DD - Plan #1	500.0	500.0	18.0	16.3	10.615	CC, ES
Oxy 28-18D (F28 pad) - DD - Plan #1	600.0	600.0	19.3	17.2	9.433	SF
Oxy 28-19D (F28 Pad) - DD - Plan #1	761.5	761.1	12.3	9.7	4.704	CC
Oxy 28-19D (F28 Pad) - DD - Plan #1	800.0	799.5	12.4	9.7	4.494	ES
Oxy 28-19D (F28 Pad) - DD - Plan #1	900.0	899.3	13.6	10.5	4.303	SF
Oxy 28-21D (F28 Pad) - DD - Plan #1	677.7	678.2	12.8	10.5	5.471	CC
Oxy 28-21D (F28 Pad) - DD - Plan #1	700.0	700.4	12.8	10.4	5.290	ES
Oxy 28-21D (F28 Pad) - DD - Plan #1	900.0	900.3	15.2	11.9	4.636	SF
Oxy 28-22D (F28 Pad) - DD - Plan #1	500.0	500.0	60.5	58.8	35.708	CC
Oxy 28-22D (F28 Pad) - DD - Plan #1	600.0	600.8	60.7	58.7	29.705	ES
Oxy 28-22D (F28 Pad) - DD - Plan #1	1,500.0	1,502.1	76.4	70.1	12.040	SF
Oxy 28-23D (F28 Pad) - DD - Plan #1	500.0	500.0	29.7	28.0	17.515	CC
Oxy 28-23D (F28 Pad) - DD - Plan #1	600.0	600.4	29.9	27.9	14.627	ES
Oxy 28-23D (F28 Pad) - DD - Plan #1	1,200.0	1,201.5	36.4	31.8	7.784	SF
Oxy 28-24D (F28 Pad) - DD - Plan #1	670.0	671.4	41.1	38.8	17.422	CC
Oxy 28-24D (F28 Pad) - DD - Plan #1	700.0	701.4	41.2	38.7	16.591	ES
Oxy 28-24D (F28 Pad) - DD - Plan #1	1,000.0	1,000.5	48.7	44.7	12.380	SF
Oxy 28-25D (F28 Pad) - DD - Plan #1	400.0	400.0	10.7	9.3	7.933	CC, ES
Oxy 28-25D (F28 Pad) - DD - Plan #1	500.0	499.8	11.4	9.7	6.740	SF
Oxy 28-26D (F28 Pad) - DD - Plan #1	400.0	400.0	18.0	16.6	13.359	CC, ES
Oxy 28-26D (F28 Pad) - DD - Plan #1	600.0	598.9	22.8	20.8	11.171	SF
Oxy 28-27D (F28 Pad) - DD - Plan #1	400.0	400.0	31.3	30.0	23.309	CC, ES
Oxy 28-27D (F28 Pad) - DD - Plan #1	700.0	697.1	40.6	38.2	16.975	SF
Oxy 28-28D (F28 Pad) - DD - Plan #1	400.0	400.0	46.5	45.1	34.567	CC, ES
Oxy 28-28D (F28 Pad) - DD - Plan #1	900.0	892.5	67.9	64.7	21.591	SF
Oxy 28-29D (F28 Pad) - DD - Plan #1	400.0	400.0	61.1	59.7	45.445	CC, ES
Oxy 28-29D (F28 Pad) - DD - Plan #1	1,000.0	989.0	87.9	84.4	24.863	SF
Oxy 28-30D (F28 Pad) - DD - Plan #1	200.0	200.0	60.1	59.5	93.086	CC, ES
Oxy 28-30D (F28 Pad) - DD - Plan #1	1,000.0	981.2	118.1	114.6	33.725	SF
Oxy 28-31D (F28 Pad) - DD - Plan #1	300.0	300.0	44.7	43.7	44.882	CC, ES
Oxy 28-31D (F28 Pad) - DD - Plan #1	900.0	891.1	73.0	69.8	23.311	SF
Oxy 28-32D (F28 Pad) - DD - Plan #1	200.0	200.0	29.7	29.0	45.919	CC, ES
Oxy 28-32D (F28 Pad) - DD - Plan #1	800.0	792.6	63.6	60.9	23.055	SF

Directional Plus

Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Well Oxy 28-20D (F28 Pad)
Project:	Garfield County	TVD Reference:	KBE @ 8308.0ft (Original Well Elev)
Reference Site:	SENW S28-T6S-R97W (F28 Pad)	MD Reference:	KBE @ 8308.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Oxy 28-20D (F28 Pad)	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	EDM 2003.21 US Multi User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													SENW S28-T6S-R97W (F28 Pad) - Oxy 28-15D (F28 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	120.18	-23.3	40.1	46.4								
100.0	100.0	100.0	100.0	0.1	0.1	120.18	-23.3	40.1	46.4	46.1	0.30	156.241					
200.0	200.0	200.0	200.0	0.3	0.3	120.18	-23.3	40.1	46.4	45.7	0.65	71.786					
300.0	300.0	300.0	300.0	0.5	0.5	120.18	-23.3	40.1	46.4	45.4	0.99	46.598					
400.0	400.0	400.0	400.0	0.7	0.7	120.18	-23.3	40.1	46.4	45.0	1.34	34.495					
500.0	500.0	500.0	500.0	0.8	0.8	120.18	-23.3	40.1	46.4	44.7	1.69	27.382 CC, ES					
600.0	600.0	598.8	598.8	1.0	1.0	148.73	-24.2	40.9	48.7	46.7	2.04	23.877					
700.0	699.9	697.2	697.1	1.2	1.2	151.82	-27.1	43.5	55.9	53.5	2.39	23.409 SF					
800.0	799.7	794.8	794.5	1.4	1.4	155.49	-31.7	47.8	68.0	65.3	2.73	24.906					
900.0	899.3	891.4	890.7	1.6	1.6	158.78	-38.1	53.6	84.9	81.8	3.08	27.588					
1,000.0	998.9	987.0	985.7	1.8	1.8	161.11	-46.1	61.0	104.5	101.1	3.42	30.570					
1,100.0	1,098.5	1,081.6	1,079.3	2.0	2.1	162.74	-55.9	70.0	126.7	122.9	3.76	33.709					
1,200.0	1,198.1	1,175.0	1,171.5	2.3	2.4	163.89	-67.1	80.3	151.4	147.3	4.10	36.949					
1,300.0	1,297.8	1,267.3	1,262.2	2.5	2.7	164.71	-79.9	92.0	178.4	174.0	4.43	40.255					

Directional Plus

Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Well Oxy 28-20D (F28 Pad)
Project:	Garfield County	TVD Reference:	KBE @ 8308.0ft (Original Well Elev)
Reference Site:	SENW S28-T6S-R97W (F28 Pad)	MD Reference:	KBE @ 8308.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Oxy 28-20D (F28 Pad)	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	EDM 2003.21 US Multi User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design SENW S28-T6S-R97W (F28 Pad) - Oxy 28-17D (F28 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	127.55	-19.3	25.1	31.7					
100.0	100.0	100.0	100.0	0.1	0.1	127.55	-19.3	25.1	31.7	31.4	0.30	106.765		
200.0	200.0	200.0	200.0	0.3	0.3	127.55	-19.3	25.1	31.7	31.0	0.65	49.054		
300.0	300.0	300.0	300.0	0.5	0.5	127.55	-19.3	25.1	31.7	30.7	0.99	31.842		
400.0	400.0	400.0	400.0	0.7	0.7	127.55	-19.3	25.1	31.7	30.3	1.34	23.572		
500.0	500.0	500.0	500.0	0.8	0.8	127.55	-19.3	25.1	31.7	30.0	1.69	18.711 CC, ES		
600.0	600.0	600.0	600.0	1.0	1.0	155.81	-19.3	25.1	32.9	30.8	2.04	16.097		
700.0	699.9	699.7	699.7	1.2	1.2	160.32	-20.4	24.4	36.7	34.3	2.39	15.352 SF		
800.0	799.7	799.1	799.0	1.4	1.4	168.16	-23.7	22.3	44.0	41.3	2.74	16.050		
900.0	899.3	897.7	897.4	1.6	1.6	176.38	-29.1	18.9	55.1	52.0	3.10	17.779		
1,000.0	998.9	996.2	995.5	1.8	1.8	-176.64	-36.3	14.3	68.3	64.8	3.46	19.730		
1,100.0	1,098.5	1,095.0	1,093.9	2.0	2.0	-171.79	-43.8	9.5	82.3	78.5	3.83	21.514		
1,200.0	1,198.1	1,193.8	1,192.3	2.3	2.2	-168.36	-51.3	4.8	96.8	92.6	4.20	23.074		
1,300.0	1,297.8	1,292.6	1,290.7	2.5	2.4	-165.83	-58.8	0.0	111.5	107.0	4.57	24.428		
1,400.0	1,397.4	1,391.4	1,389.1	2.7	2.6	-163.89	-66.3	-4.8	126.4	121.5	4.94	25.605		
1,500.0	1,497.0	1,490.2	1,487.5	2.9	2.8	-162.36	-73.9	-9.6	141.4	136.1	5.31	26.634		
1,600.0	1,596.6	1,589.0	1,585.9	3.2	3.1	-161.13	-81.4	-14.3	156.5	150.8	5.68	27.538		
1,700.0	1,696.2	1,687.8	1,684.4	3.4	3.3	-160.11	-88.9	-19.1	171.6	165.6	6.06	28.338		
1,800.0	1,795.8	1,786.6	1,782.8	3.6	3.5	-159.26	-96.4	-23.9	186.8	180.4	6.43	29.049		

Directional Plus

Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Well Oxy 28-20D (F28 Pad)
Project:	Garfield County	TVD Reference:	KBE @ 8308.0ft (Original Well Elev)
Reference Site:	SENW S28-T6S-R97W (F28 Pad)	MD Reference:	KBE @ 8308.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Oxy 28-20D (F28 Pad)	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	EDM 2003.21 US Multi User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design SENW S28-T6S-R97W (F28 Pad) - Oxy 28-18D (F28 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		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)		Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)						
0.0	0.0	0.0	0.0	0.0	0.0	142.23	-14.2	11.0	18.0					
100.0	100.0	100.0	100.0	0.1	0.1	142.23	-14.2	11.0	18.0	17.7	60.565			
200.0	200.0	200.0	200.0	0.3	0.3	142.23	-14.2	11.0	18.0	17.3	0.65	27.827		
300.0	300.0	300.0	300.0	0.5	0.5	142.23	-14.2	11.0	18.0	17.0	0.99	18.063		
400.0	400.0	400.0	400.0	0.7	0.7	142.23	-14.2	11.0	18.0	16.6	1.34	13.372		
500.0	500.0	500.0	500.0	0.8	0.8	142.23	-14.2	11.0	18.0	16.3	1.69	10.615 CC, ES		
600.0	600.0	600.0	600.0	1.0	1.0	170.23	-14.2	11.0	19.3	17.2	2.04	9.433 SF		
700.0	699.9	699.9	699.9	1.2	1.2	175.12	-14.9	9.9	23.1	20.7	2.39	9.653		
800.0	799.7	799.6	799.5	1.4	1.4	-176.26	-16.9	6.5	29.8	27.1	2.74	10.884		
900.0	899.3	898.9	898.6	1.6	1.6	-167.88	-20.1	1.1	39.7	36.6	3.10	12.790		
1,000.0	998.9	998.2	997.6	1.8	1.8	-162.26	-23.7	-4.9	50.5	47.0	3.47	14.525		
1,100.0	1,098.5	1,097.5	1,096.7	2.0	2.0	-158.64	-27.3	-11.0	61.5	57.7	3.85	15.987		
1,200.0	1,198.1	1,196.8	1,195.8	2.3	2.2	-156.12	-30.9	-17.0	72.8	68.6	4.23	17.214		
1,300.0	1,297.8	1,296.1	1,294.9	2.5	2.4	-154.28	-34.5	-23.0	84.1	79.5	4.61	18.252		
1,400.0	1,397.4	1,395.5	1,393.9	2.7	2.6	-152.88	-38.1	-29.0	95.6	90.6	4.99	19.137		
1,500.0	1,497.0	1,494.8	1,493.0	2.9	2.8	-151.78	-41.7	-35.0	107.0	101.6	5.38	19.898		
1,600.0	1,596.6	1,594.1	1,592.1	3.2	3.0	-150.90	-45.3	-41.0	118.5	112.7	5.76	20.558		
1,700.0	1,696.2	1,693.4	1,691.2	3.4	3.2	-150.16	-48.9	-47.0	130.0	123.9	6.15	21.136		
1,800.0	1,795.8	1,792.8	1,790.2	3.6	3.4	-149.55	-52.5	-53.1	141.5	135.0	6.54	21.646		
1,900.0	1,895.4	1,892.1	1,889.3	3.8	3.6	-149.03	-56.1	-59.1	153.1	146.2	6.93	22.098		
2,000.0	1,995.0	1,991.4	1,988.4	4.1	3.8	-148.59	-59.7	-65.1	164.6	157.3	7.32	22.502		
2,100.0	2,094.6	2,090.7	2,087.5	4.3	4.0	-148.20	-63.3	-71.1	176.2	168.5	7.71	22.865		
2,200.0	2,194.2	2,190.0	2,186.5	4.5	4.2	-147.86	-66.9	-77.1	187.8	179.7	8.10	23.192		
2,300.0	2,293.9	2,289.4	2,285.6	4.8	4.4	-147.56	-70.5	-83.1	199.4	190.9	8.49	23.490		

Directional Plus

Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Well Oxy 28-20D (F28 Pad)
Project:	Garfield County	TVD Reference:	KBE @ 8308.0ft (Original Well Elev)
Reference Site:	SENW S28-T6S-R97W (F28 Pad)	MD Reference:	KBE @ 8308.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Oxy 28-20D (F28 Pad)	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	EDM 2003.21 US Multi User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design SENW S28-T6S-R97W (F28 Pad) - Oxy 28-19D (F28 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	-74.15	4.0	-14.1	14.7					
100.0	100.0	100.0	100.0	0.1	0.1	-74.15	4.0	-14.1	14.7	14.4	0.30	49.436		
200.0	200.0	200.0	200.0	0.3	0.3	-74.15	4.0	-14.1	14.7	14.0	0.65	22.714		
300.0	300.0	300.0	300.0	0.5	0.5	-74.15	4.0	-14.1	14.7	13.7	0.99	14.744		
400.0	400.0	400.0	400.0	0.7	0.7	-74.15	4.0	-14.1	14.7	13.3	1.34	10.914		
500.0	500.0	500.0	500.0	0.8	0.8	-74.15	4.0	-14.1	14.7	13.0	1.69	8.664		
600.0	600.0	600.0	600.0	1.0	1.0	-50.83	4.0	-14.1	13.8	11.8	2.04	6.759		
700.0	699.9	699.7	699.7	1.2	1.2	-61.20	5.0	-15.0	12.6	10.2	2.40	5.249		
761.5	761.3	761.1	761.0	1.3	1.3	-69.22	6.5	-16.4	12.3	9.7	2.62	4.704 CC		
800.0	799.7	799.5	799.4	1.4	1.4	-74.55	7.9	-17.6	12.4	9.7	2.77	4.494 ES		
900.0	899.3	899.3	899.0	1.6	1.6	-86.21	12.7	-21.8	13.6	10.5	3.17	4.303 SF		
1,000.0	998.9	999.3	998.7	1.8	1.8	-93.82	18.0	-26.6	15.4	11.8	3.57	4.308		
1,100.0	1,098.5	1,099.2	1,098.4	2.0	2.0	-99.78	23.3	-31.3	17.4	13.4	3.99	4.361		
1,200.0	1,198.1	1,199.2	1,198.2	2.3	2.2	-104.48	28.6	-36.0	19.5	15.1	4.40	4.435		
1,300.0	1,297.8	1,299.2	1,297.9	2.5	2.4	-108.23	34.0	-40.8	21.8	16.9	4.82	4.519		
1,400.0	1,397.4	1,399.1	1,397.6	2.7	2.6	-111.27	39.3	-45.5	24.1	18.9	5.23	4.604		
1,500.0	1,497.0	1,499.1	1,497.3	2.9	2.8	-113.77	44.6	-50.3	26.5	20.8	5.65	4.687		
1,600.0	1,596.6	1,599.1	1,597.0	3.2	3.0	-115.86	49.9	-55.0	28.9	22.8	6.06	4.766		
1,700.0	1,696.2	1,699.0	1,696.7	3.4	3.2	-117.62	55.2	-59.7	31.3	24.9	6.47	4.841		
1,800.0	1,795.8	1,799.0	1,796.4	3.6	3.4	-119.12	60.5	-64.5	33.8	26.9	6.88	4.911		
1,900.0	1,895.4	1,899.0	1,896.1	3.8	3.6	-120.42	65.9	-69.2	36.3	29.0	7.29	4.976		
2,000.0	1,995.0	1,998.9	1,995.8	4.1	3.8	-121.55	71.2	-73.9	38.8	31.1	7.70	5.037		
2,100.0	2,094.6	2,098.9	2,095.6	4.3	4.0	-122.55	76.5	-78.7	41.3	33.2	8.11	5.094		
2,200.0	2,194.2	2,198.9	2,195.3	4.5	4.2	-123.42	81.8	-83.4	43.9	35.3	8.52	5.146		
2,300.0	2,293.9	2,298.8	2,295.0	4.8	4.5	-124.21	87.1	-88.1	46.4	37.5	8.93	5.195		
2,400.0	2,393.5	2,398.8	2,394.7	5.0	4.7	-124.91	92.4	-92.9	49.0	39.6	9.34	5.241		
2,500.0	2,493.1	2,498.8	2,494.4	5.2	4.9	-125.54	97.8	-97.6	51.5	41.8	9.75	5.283		
2,600.0	2,592.7	2,598.7	2,594.1	5.4	5.1	-126.11	103.1	-102.3	54.1	43.9	10.16	5.323		
2,700.0	2,692.3	2,698.7	2,693.8	5.7	5.3	-126.63	108.4	-107.1	56.6	46.1	10.57	5.361		
2,800.0	2,791.9	2,798.7	2,793.5	5.9	5.5	-127.11	113.7	-111.8	59.2	48.2	10.98	5.396		
2,900.0	2,891.5	2,898.6	2,893.3	6.1	5.7	-127.54	119.0	-116.6	61.8	50.4	11.38	5.429		
3,000.0	2,991.1	2,998.6	2,993.0	6.4	5.9	-127.94	124.4	-121.3	64.4	52.6	11.79	5.460		
3,100.0	3,090.7	3,098.6	3,092.7	6.6	6.2	-128.31	129.7	-126.0	67.0	54.8	12.20	5.489		
3,200.0	3,190.3	3,198.5	3,192.4	6.8	6.4	-128.65	135.0	-130.8	69.5	56.9	12.61	5.516		
3,300.0	3,290.0	3,298.5	3,292.1	7.1	6.6	-128.97	140.3	-135.5	72.1	59.1	13.02	5.542		
3,400.0	3,389.6	3,398.5	3,391.8	7.3	6.8	-129.27	145.6	-140.2	74.7	61.3	13.42	5.567		
3,500.0	3,489.2	3,498.4	3,491.5	7.5	7.0	-129.54	150.9	-145.0	77.3	63.5	13.83	5.590		
3,600.0	3,588.8	3,598.4	3,591.2	7.8	7.2	-129.80	156.3	-149.7	79.9	65.7	14.24	5.612		
3,700.0	3,688.4	3,698.4	3,690.9	8.0	7.4	-130.04	161.6	-154.4	82.5	67.9	14.65	5.633		
3,800.0	3,788.0	3,798.3	3,790.7	8.2	7.7	-130.27	166.9	-159.2	85.1	70.0	15.05	5.653		
3,900.0	3,887.6	3,898.3	3,890.4	8.5	7.9	-130.48	172.2	-163.9	87.7	72.2	15.46	5.673		
4,000.0	3,987.2	3,998.3	3,990.1	8.7	8.1	-130.68	177.5	-168.6	90.3	74.4	15.87	5.691		
4,100.0	4,086.8	4,098.2	4,089.8	8.9	8.3	-130.87	182.8	-173.4	92.9	76.6	16.27	5.708		
4,200.0	4,186.4	4,198.2	4,189.5	9.2	8.5	-131.05	188.2	-178.1	95.5	78.8	16.68	5.725		
4,300.0	4,286.1	4,298.1	4,289.2	9.4	8.7	-131.22	193.5	-182.9	98.1	81.0	17.09	5.740		
4,400.0	4,385.7	4,398.1	4,388.9	9.6	8.9	-131.39	198.8	-187.6	100.7	83.2	17.50	5.756		
4,500.0	4,485.3	4,498.1	4,488.6	9.8	9.1	-131.54	204.1	-192.3	103.3	85.4	17.90	5.770		
4,600.0	4,584.9	4,597.3	4,587.6	10.1	9.4	-131.91	209.0	-196.7	106.1	87.8	18.29	5.803		
4,700.0	4,684.5	4,696.8	4,686.1	10.3	9.5	-133.34	212.2	-199.5	110.1	91.5	18.59	5.921		
4,800.0	4,784.1	4,794.1	4,784.4	10.5	9.7	-135.75	213.4	-200.6	115.4	96.6	18.81	6.136		
4,900.0	4,883.7	4,893.5	4,883.7	10.8	9.8	-138.62	213.5	-200.6	121.9	102.9	19.00	6.415		
5,000.0	4,983.3	4,993.1	4,983.3	11.0	10.0	-141.21	213.5	-200.6	128.7	109.5	19.20	6.700		

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

Directional Plus

Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Well Oxy 28-20D (F28 Pad)
Project:	Garfield County	TVD Reference:	KBE @ 8308.0ft (Original Well Elev)
Reference Site:	SENW S28-T6S-R97W (F28 Pad)	MD Reference:	KBE @ 8308.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Oxy 28-20D (F28 Pad)	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	EDM 2003.21 US Multi User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													SENW S28-T6S-R97W (F28 Pad) - Oxy 28-19D (F28 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				
5,100.0	5,082.9	5,092.7	5,082.9	11.2	10.1	-143.55	213.5	-200.6	135.7	116.2	19.42	6.987					
5,200.0	5,182.5	5,192.3	5,182.5	11.5	10.3	-145.65	213.5	-200.6	142.9	123.2	19.64	7.273					
5,300.0	5,282.2	5,291.9	5,282.2	11.7	10.4	-147.54	213.5	-200.6	150.2	130.4	19.88	7.557					
5,400.0	5,381.8	5,391.5	5,381.8	11.9	10.6	-149.26	213.5	-200.6	157.8	137.6	20.13	7.838					
5,500.0	5,481.4	5,491.1	5,481.4	12.2	10.7	-150.82	213.5	-200.6	165.4	145.0	20.39	8.114					
5,600.0	5,581.0	5,590.8	5,581.0	12.4	10.9	-152.24	213.5	-200.6	173.2	152.5	20.65	8.385					
5,700.0	5,680.6	5,690.4	5,680.6	12.6	11.1	-153.54	213.5	-200.6	181.0	160.1	20.93	8.651					
5,800.0	5,780.2	5,790.0	5,780.2	12.9	11.2	-154.73	213.5	-200.6	189.0	167.8	21.21	8.911					
5,900.0	5,879.8	5,889.6	5,879.8	13.1	11.4	-155.83	213.5	-200.6	197.0	175.5	21.50	9.165					

Directional Plus

Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Well Oxy 28-20D (F28 Pad)
Project:	Garfield County	TVD Reference:	KBE @ 8308.0ft (Original Well Elev)
Reference Site:	SENW S28-T6S-R97W (F28 Pad)	MD Reference:	KBE @ 8308.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Oxy 28-20D (F28 Pad)	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	EDM 2003.21 US Multi User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design SENW S28-T6S-R97W (F28 Pad) - Oxy 28-21D (F28 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			
0.0	0.0	0.0	0.0	0.0	0.0	109.87	-5.1	14.1	15.0					
100.0	100.0	100.0	100.0	0.1	0.1	109.87	-5.1	14.1	15.0	14.7	0.30	50.566		
200.0	200.0	200.0	200.0	0.3	0.3	109.87	-5.1	14.1	15.0	14.4	0.65	23.233		
300.0	300.0	300.0	300.0	0.5	0.5	109.87	-5.1	14.1	15.0	14.0	0.99	15.081		
400.0	400.0	400.0	400.0	0.7	0.7	109.87	-5.1	14.1	15.0	13.7	1.34	11.164		
500.0	500.0	500.2	500.2	0.8	0.8	105.71	-3.9	13.7	14.2	12.5	1.69	8.400		
600.0	600.0	600.4	600.3	1.0	1.0	122.92	-0.1	12.4	13.1	11.1	2.05	6.391		
677.7	677.7	678.2	677.9	1.2	1.2	113.62	4.5	10.9	12.8	10.5	2.34	5.471 CC		
700.0	699.9	700.4	700.1	1.2	1.2	110.85	6.1	10.4	12.8	10.4	2.43	5.290 ES		
800.0	799.7	800.4	799.7	1.4	1.4	98.69	14.8	7.5	13.6	10.7	2.84	4.773		
900.0	899.3	900.3	898.9	1.6	1.7	86.42	25.9	3.7	15.2	11.9	3.29	4.636 SF		
1,000.0	998.9	1,000.2	997.8	1.8	2.0	71.83	38.9	-0.6	18.2	14.5	3.71	4.904		
1,100.0	1,098.5	1,100.0	1,096.7	2.0	2.2	61.57	51.9	-5.0	22.1	18.0	4.11	5.370		
1,200.0	1,198.1	1,199.9	1,195.6	2.3	2.5	54.52	65.0	-9.3	26.4	21.9	4.49	5.883		
1,300.0	1,297.8	1,299.7	1,294.5	2.5	2.8	49.52	78.0	-13.7	31.1	26.2	4.87	6.384		
1,400.0	1,397.4	1,399.6	1,393.4	2.7	3.1	45.83	91.1	-18.1	35.9	30.6	5.24	6.851		
1,500.0	1,497.0	1,499.5	1,492.3	2.9	3.4	43.03	104.2	-22.5	40.8	35.2	5.61	7.278		
1,600.0	1,596.6	1,599.3	1,591.2	3.2	3.6	40.83	117.2	-26.8	45.8	39.8	5.98	7.666		
1,700.0	1,696.2	1,699.2	1,690.1	3.4	3.9	39.07	130.3	-31.2	50.9	44.5	6.34	8.018		
1,800.0	1,795.8	1,799.0	1,789.1	3.6	4.2	37.63	143.3	-35.6	56.0	49.3	6.71	8.337		
1,900.0	1,895.4	1,898.9	1,888.0	3.8	4.5	36.43	156.4	-39.9	61.1	54.0	7.08	8.627		
2,000.0	1,995.0	1,998.8	1,986.9	4.1	4.8	35.41	169.4	-44.3	66.2	58.8	7.45	8.891		
2,100.0	2,094.6	2,098.6	2,085.8	4.3	5.1	34.55	182.5	-48.7	71.4	63.6	7.82	9.132		
2,200.0	2,194.2	2,198.5	2,184.7	4.5	5.4	33.79	195.5	-53.0	76.6	68.4	8.19	9.353		
2,300.0	2,293.9	2,298.4	2,283.6	4.8	5.7	33.14	208.6	-57.4	81.8	73.2	8.56	9.557		
2,400.0	2,393.5	2,398.2	2,382.5	5.0	6.0	32.56	221.6	-61.8	87.0	78.1	8.93	9.744		
2,500.0	2,493.1	2,498.1	2,481.4	5.2	6.3	32.05	234.7	-66.1	92.2	82.9	9.30	9.918		
2,600.0	2,592.7	2,597.9	2,580.3	5.4	6.6	31.59	247.7	-70.5	97.4	87.7	9.67	10.078		
2,700.0	2,692.3	2,697.8	2,679.2	5.7	6.9	31.18	260.8	-74.9	102.6	92.6	10.03	10.228		
2,800.0	2,791.9	2,797.7	2,778.1	5.9	7.2	30.81	273.9	-79.2	107.9	97.5	10.40	10.367		
2,900.0	2,891.5	2,897.5	2,877.0	6.1	7.5	30.47	286.9	-83.6	113.1	102.3	10.77	10.497		
3,000.0	2,991.1	2,997.4	2,975.9	6.4	7.7	30.17	300.0	-88.0	118.3	107.2	11.14	10.618		
3,100.0	3,090.7	3,097.2	3,074.9	6.6	8.0	29.89	313.0	-92.4	123.6	112.0	11.51	10.732		
3,200.0	3,190.3	3,197.1	3,173.8	6.8	8.3	29.63	326.1	-96.7	128.8	116.9	11.88	10.839		
3,300.0	3,290.0	3,297.0	3,272.7	7.1	8.6	29.39	339.1	-101.1	134.0	121.8	12.25	10.940		
3,400.0	3,389.6	3,396.8	3,371.6	7.3	8.9	29.17	352.2	-105.5	139.3	126.7	12.62	11.035		
3,500.0	3,489.2	3,496.7	3,470.5	7.5	9.2	28.97	365.2	-109.8	144.5	131.5	12.99	11.125		
3,600.0	3,588.8	3,596.5	3,569.4	7.8	9.5	28.78	378.3	-114.2	149.8	136.4	13.36	11.210		
3,700.0	3,688.4	3,696.4	3,668.3	8.0	9.8	28.60	391.3	-118.6	155.0	141.3	13.73	11.290		
3,800.0	3,788.0	3,796.3	3,767.2	8.2	10.1	28.44	404.4	-122.9	160.3	146.2	14.10	11.366		
3,900.0	3,887.6	3,896.1	3,866.1	8.5	10.4	28.28	417.4	-127.3	165.5	151.1	14.47	11.439		
4,000.0	3,987.2	3,996.0	3,965.0	8.7	10.7	28.14	430.5	-131.7	170.8	155.9	14.84	11.508		
4,100.0	4,086.8	4,095.9	4,063.9	8.9	11.0	28.00	443.5	-136.0	176.0	160.8	15.21	11.573		
4,200.0	4,186.4	4,195.7	4,162.8	9.2	11.3	27.87	456.6	-140.4	181.3	165.7	15.58	11.636		
4,300.0	4,286.1	4,295.6	4,261.7	9.4	11.6	27.75	469.7	-144.8	186.5	170.6	15.95	11.695		
4,400.0	4,385.7	4,395.4	4,360.7	9.6	11.9	27.63	482.7	-149.1	191.8	175.5	16.32	11.752		
4,500.0	4,485.3	4,495.3	4,459.6	9.8	12.2	27.53	495.8	-153.5	197.1	180.4	16.69	11.807		

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

Directional Plus

Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Well Oxy 28-20D (F28 Pad)
Project:	Garfield County	TVD Reference:	KBE @ 8308.0ft (Original Well Elev)
Reference Site:	SENW S28-T6S-R97W (F28 Pad)	MD Reference:	KBE @ 8308.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Oxy 28-20D (F28 Pad)	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	EDM 2003.21 US Multi User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design SENW S28-T6S-R97W (F28 Pad) - Oxy 28-22D (F28 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	108.62	-19.3	57.3	60.5					
100.0	100.0	100.0	100.0	0.1	0.1	108.62	-19.3	57.3	60.5	60.2	0.30	203.744		
200.0	200.0	200.0	200.0	0.3	0.3	108.62	-19.3	57.3	60.5	59.8	0.65	93.612		
300.0	300.0	300.0	300.0	0.5	0.5	108.62	-19.3	57.3	60.5	59.5	0.99	60.766		
400.0	400.0	400.0	400.0	0.7	0.7	108.62	-19.3	57.3	60.5	59.1	1.34	44.983		
500.0	500.0	500.0	500.0	0.8	0.8	108.62	-19.3	57.3	60.5	58.8	1.69	35.708 CC		
600.0	600.0	600.8	600.8	1.0	1.0	135.70	-18.0	57.0	60.7	58.7	2.04	29.705 ES		
700.0	699.9	701.6	701.5	1.2	1.2	135.04	-14.1	56.2	61.6	59.2	2.40	25.624		
800.0	799.7	802.4	802.0	1.4	1.4	133.99	-7.6	54.9	63.0	60.2	2.78	22.676		
900.0	899.3	903.1	902.4	1.6	1.6	132.27	1.5	53.1	64.7	61.5	3.18	20.344		
1,000.0	998.9	1,003.7	1,002.3	1.8	1.9	128.66	13.2	50.7	65.5	61.8	3.62	18.098		
1,100.0	1,098.5	1,104.1	1,101.6	2.0	2.1	122.99	27.4	47.8	65.7	61.6	4.11	15.995		
1,200.0	1,198.1	1,204.1	1,200.1	2.3	2.4	115.21	44.1	44.5	66.0	61.4	4.65	14.190		
1,300.0	1,297.8	1,303.6	1,297.7	2.5	2.8	105.53	63.2	40.6	67.6	62.3	5.24	12.880		
1,400.0	1,397.4	1,402.8	1,394.8	2.7	3.1	95.81	83.1	36.6	71.1	65.2	5.82	12.214		
1,500.0	1,497.0	1,502.1	1,492.0	2.9	3.5	87.21	103.0	32.5	76.4	70.1	6.35	12.040 SF		
1,600.0	1,596.6	1,601.3	1,589.1	3.2	3.9	79.87	122.9	28.5	83.2	76.4	6.83	12.193		
1,700.0	1,696.2	1,700.6	1,686.2	3.4	4.2	73.72	142.8	24.5	91.3	84.0	7.27	12.553		
1,800.0	1,795.8	1,799.8	1,783.4	3.6	4.6	68.60	162.8	20.5	100.1	92.4	7.68	13.034		
1,900.0	1,895.4	1,899.0	1,880.5	3.8	5.0	64.34	182.7	16.4	109.7	101.6	8.08	13.581		
2,000.0	1,995.0	1,998.3	1,977.7	4.1	5.4	60.77	202.6	12.4	119.7	111.3	8.46	14.158		
2,100.0	2,094.6	2,097.5	2,074.8	4.3	5.8	57.76	222.5	8.4	130.2	121.3	8.83	14.743		
2,200.0	2,194.2	2,196.7	2,171.9	4.5	6.2	55.20	242.4	4.4	140.9	131.7	9.20	15.321		
2,300.0	2,293.9	2,296.0	2,269.1	4.8	6.5	53.01	262.3	0.3	151.9	142.3	9.56	15.884		
2,400.0	2,393.5	2,395.2	2,366.2	5.0	6.9	51.11	282.2	-3.7	163.1	153.2	9.93	16.428		
2,500.0	2,493.1	2,494.5	2,463.3	5.2	7.3	49.46	302.1	-7.7	174.4	164.1	10.29	16.949		
2,600.0	2,592.7	2,593.7	2,560.5	5.4	7.7	48.01	322.0	-11.7	185.9	175.2	10.65	17.447		
2,700.0	2,692.3	2,692.9	2,657.6	5.7	8.1	46.73	341.9	-15.8	197.4	186.4	11.02	17.922		

Directional Plus

Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Well Oxy 28-20D (F28 Pad)
Project:	Garfield County	TVD Reference:	KBE @ 8308.0ft (Original Well Elev)
Reference Site:	SENW S28-T6S-R97W (F28 Pad)	MD Reference:	KBE @ 8308.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Oxy 28-20D (F28 Pad)	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	EDM 2003.21 US Multi User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design SENW S28-T6S-R97W (F28 Pad) - Oxy 28-23D (F28 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	107.88	-9.1	28.2	29.7					
100.0	100.0	100.0	100.0	0.1	0.1	107.88	-9.1	28.2	29.7	29.4	0.30	99.941		
200.0	200.0	200.0	200.0	0.3	0.3	107.88	-9.1	28.2	29.7	29.0	0.65	45.919		
300.0	300.0	300.0	300.0	0.5	0.5	107.88	-9.1	28.2	29.7	28.7	0.99	29.807		
400.0	400.0	400.0	400.0	0.7	0.7	107.88	-9.1	28.2	29.7	28.3	1.34	22.065		
500.0	500.0	500.0	500.0	0.8	0.8	107.88	-9.1	28.2	29.7	28.0	1.69	17.515 CC		
600.0	600.0	600.4	600.4	1.0	1.0	134.80	-7.8	27.9	29.9	27.9	2.04	14.627 ES		
700.0	699.9	700.8	700.7	1.2	1.2	133.69	-4.0	27.0	30.6	28.2	2.40	12.751		
800.0	799.7	801.2	800.9	1.4	1.4	131.96	2.4	25.4	31.9	29.1	2.78	11.475		
900.0	899.3	901.6	900.8	1.6	1.6	129.08	11.4	23.2	33.3	30.1	3.18	10.477		
1,000.0	998.9	1,001.8	1,000.4	1.8	1.9	122.62	22.9	20.4	34.0	30.4	3.63	9.375		
1,100.0	1,098.5	1,101.9	1,099.4	2.0	2.1	112.28	36.9	17.0	34.6	30.5	4.13	8.373		
1,200.0	1,198.1	1,201.5	1,197.6	2.3	2.4	98.55	53.3	13.0	36.4	31.8	4.68	7.784 SF		
1,300.0	1,297.8	1,300.6	1,294.8	2.5	2.8	83.31	72.1	8.4	40.9	35.7	5.19	7.882		
1,400.0	1,397.4	1,399.1	1,390.9	2.7	3.2	69.23	93.2	3.3	49.1	43.5	5.61	8.752		
1,500.0	1,497.0	1,496.9	1,485.6	2.9	3.6	57.89	116.6	-2.4	61.2	55.3	5.95	10.286		
1,600.0	1,596.6	1,594.5	1,579.6	3.2	4.0	49.42	142.0	-8.6	76.7	70.5	6.25	12.279		
1,700.0	1,696.2	1,692.7	1,674.1	3.4	4.5	43.70	167.9	-14.9	93.7	87.1	6.55	14.298		
1,800.0	1,795.8	1,790.9	1,768.6	3.6	5.0	39.75	193.8	-21.2	111.3	104.4	6.87	16.200		
1,900.0	1,895.4	1,889.1	1,863.1	3.8	5.4	36.89	219.7	-27.5	129.2	122.1	7.20	17.961		
2,000.0	1,995.0	1,987.3	1,957.6	4.1	5.9	34.72	245.6	-33.8	147.5	139.9	7.53	19.582		
2,100.0	2,094.6	2,085.5	2,052.2	4.3	6.4	33.04	271.5	-40.1	165.8	157.9	7.87	21.071		
2,200.0	2,194.2	2,183.6	2,146.7	4.5	6.9	31.68	297.4	-46.5	184.3	176.1	8.21	22.439		

Directional Plus

Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Well Oxy 28-20D (F28 Pad)
Project:	Garfield County	TVD Reference:	KBE @ 8308.0ft (Original Well Elev)
Reference Site:	SENW S28-T6S-R97W (F28 Pad)	MD Reference:	KBE @ 8308.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Oxy 28-20D (F28 Pad)	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	EDM 2003.21 US Multi User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design SENW S28-T6S-R97W (F28 Pad) - Oxy 28-24D (F28 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		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)		Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)						
0.0	0.0	0.0	0.0	0.0	0.0	108.21	-14.2	43.2	45.5					
100.0	100.0	100.0	100.0	0.1	0.1	108.21	-14.2	43.2	45.5	0.30	153.194			
200.0	200.0	200.0	200.0	0.3	0.3	108.21	-14.2	43.2	45.5	0.65	70.387			
300.0	300.0	300.0	300.0	0.5	0.5	108.21	-14.2	43.2	45.5	0.99	45.690			
400.0	400.0	400.6	400.6	0.7	0.7	106.75	-12.9	42.9	44.8	1.35	33.300			
500.0	500.0	501.0	500.9	0.8	0.9	102.12	-9.0	42.1	43.0	1.70	25.327			
600.0	600.0	601.3	601.0	1.0	1.1	122.52	-2.6	40.7	41.5	2.08	19.948			
670.0	669.9	671.4	670.8	1.1	1.2	117.23	3.4	39.4	41.1	2.36	17.422 CC			
700.0	699.9	701.4	700.6	1.2	1.3	114.89	6.4	38.7	41.2	2.48	16.591 ES			
800.0	799.7	801.3	799.9	1.4	1.5	107.13	17.9	36.3	42.3	2.93	14.448			
900.0	899.3	901.1	898.6	1.6	1.8	99.24	31.9	33.2	44.8	3.42	13.100			
1,000.0	998.9	1,000.5	996.5	1.8	2.1	89.57	48.4	29.7	48.7	3.93	12.380 SF			
1,100.0	1,098.5	1,099.3	1,093.5	2.0	2.5	79.07	67.3	25.6	54.8	4.42	12.383			
1,200.0	1,198.1	1,197.6	1,189.3	2.3	2.9	69.04	88.4	21.1	63.9	4.87	13.113			
1,300.0	1,297.8	1,295.1	1,283.9	2.5	3.3	60.32	111.8	16.1	76.2	5.26	14.476			
1,400.0	1,397.4	1,391.7	1,376.9	2.7	3.8	53.16	137.3	10.6	91.8	5.62	16.338			
1,500.0	1,497.0	1,487.3	1,468.3	2.9	4.3	47.45	164.7	4.7	110.5	5.95	18.572			
1,600.0	1,596.6	1,581.9	1,557.9	3.2	4.9	42.92	194.1	-1.7	132.1	6.27	21.075			
1,700.0	1,696.2	1,678.0	1,648.5	3.4	5.4	39.35	225.5	-8.4	155.9	6.58	23.670			
1,800.0	1,795.8	1,774.7	1,739.7	3.6	6.0	36.70	257.1	-15.2	180.1	6.91	26.065			

Directional Plus

Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Well Oxy 28-20D (F28 Pad)
Project:	Garfield County	TVD Reference:	KBE @ 8308.0ft (Original Well Elev)
Reference Site:	SENW S28-T6S-R97W (F28 Pad)	MD Reference:	KBE @ 8308.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Oxy 28-20D (F28 Pad)	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	EDM 2003.21 US Multi User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design SENW S28-T6S-R97W (F28 Pad) - Oxy 28-25D (F28 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	-163.07	-10.2	-3.1	10.7					
100.0	100.0	100.0	100.0	0.1	0.1	-163.07	-10.2	-3.1	10.7	10.4	0.30	35.930		
200.0	200.0	200.0	200.0	0.3	0.3	-163.07	-10.2	-3.1	10.7	10.0	0.65	16.508		
300.0	300.0	300.0	300.0	0.5	0.5	-163.07	-10.2	-3.1	10.7	9.7	0.99	10.716		
400.0	400.0	400.0	400.0	0.7	0.7	-163.07	-10.2	-3.1	10.7	9.3	1.34	7.933 CC, ES		
500.0	500.0	499.8	499.8	0.8	0.8	-157.51	-10.5	-4.4	11.4	9.7	1.69	6.740 SF		
600.0	600.0	599.5	599.4	1.0	1.0	-122.03	-11.6	-8.1	14.8	12.8	2.05	7.233		
700.0	699.9	698.9	698.6	1.2	1.2	-118.73	-13.3	-14.4	21.6	19.2	2.41	8.968		
800.0	799.7	797.9	797.2	1.4	1.4	-118.18	-15.6	-23.1	31.6	28.8	2.79	11.346		
900.0	899.3	896.3	894.9	1.6	1.7	-118.16	-18.6	-34.2	44.6	41.4	3.19	13.991		
1,000.0	998.9	994.2	991.8	1.8	2.0	-116.75	-22.3	-47.6	59.6	56.0	3.60	16.544		
1,100.0	1,098.5	1,091.3	1,087.5	2.0	2.3	-114.74	-26.6	-63.3	76.6	72.6	4.03	19.017		
1,200.0	1,198.1	1,187.7	1,182.1	2.3	2.6	-112.58	-31.4	-81.2	95.7	91.3	4.46	21.446		
1,300.0	1,297.8	1,283.1	1,275.2	2.5	3.0	-110.49	-36.9	-101.2	117.0	112.1	4.90	23.857		
1,400.0	1,397.4	1,377.5	1,366.9	2.7	3.4	-108.52	-42.8	-123.1	140.4	135.1	5.35	26.265		
1,500.0	1,497.0	1,470.8	1,456.8	2.9	3.9	-106.71	-49.3	-147.0	166.0	160.2	5.79	28.679		
1,600.0	1,596.6	1,562.9	1,545.0	3.2	4.3	-105.07	-56.3	-172.6	193.9	187.6	6.23	31.102		

Directional Plus

Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Well Oxy 28-20D (F28 Pad)
Project:	Garfield County	TVD Reference:	KBE @ 8308.0ft (Original Well Elev)
Reference Site:	SENW S28-T6S-R97W (F28 Pad)	MD Reference:	KBE @ 8308.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Oxy 28-20D (F28 Pad)	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	EDM 2003.21 US Multi User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design SENW S28-T6S-R97W (F28 Pad) - Oxy 28-26D (F28 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	-106.50	-5.1	-17.2	18.0				
100.0	100.0	100.0	100.0	0.1	0.1	-106.50	-5.1	-17.2	18.0	17.7	0.30	60.510	
200.0	200.0	200.0	200.0	0.3	0.3	-106.50	-5.1	-17.2	18.0	17.3	0.65	27.802	
300.0	300.0	300.0	300.0	0.5	0.5	-106.50	-5.1	-17.2	18.0	17.0	0.99	18.047	
400.0	400.0	400.0	400.0	0.7	0.7	-106.50	-5.1	-17.2	18.0	16.6	1.34	13.359 CC, ES	
500.0	500.0	499.5	499.5	0.8	0.8	-105.70	-5.2	-18.5	19.2	17.5	1.69	11.364	
600.0	600.0	598.9	598.8	1.0	1.0	-79.68	-5.5	-22.4	22.8	20.8	2.04	11.171 SF	
700.0	699.9	698.1	697.8	1.2	1.2	-84.52	-6.0	-28.8	28.6	26.2	2.40	11.909	
800.0	799.7	796.9	796.2	1.4	1.4	-90.29	-6.8	-37.7	36.8	34.0	2.77	13.274	
900.0	899.3	895.3	893.9	1.6	1.7	-95.06	-7.7	-49.2	47.8	44.6	3.17	15.064	
1,000.0	998.9	993.1	990.7	1.8	2.0	-97.02	-8.8	-63.0	61.1	57.6	3.58	17.063	
1,100.0	1,098.5	1,090.4	1,086.6	2.0	2.3	-97.29	-10.1	-79.2	76.7	72.7	4.01	19.147	
1,200.0	1,198.1	1,186.9	1,181.4	2.3	2.6	-96.70	-11.6	-97.7	94.5	90.0	4.44	21.280	
1,300.0	1,297.8	1,282.6	1,274.8	2.5	3.0	-95.70	-13.3	-118.4	114.4	109.5	4.88	23.454	
1,400.0	1,397.4	1,377.4	1,366.7	2.7	3.4	-94.51	-15.1	-141.2	136.5	131.2	5.32	25.666	
1,500.0	1,497.0	1,471.1	1,457.1	2.9	3.9	-93.27	-17.1	-165.9	160.8	155.0	5.76	27.915	
1,600.0	1,596.6	1,563.7	1,545.8	3.2	4.3	-92.05	-19.2	-192.6	187.3	181.1	6.20	30.211	

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

Directional Plus

Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Well Oxy 28-20D (F28 Pad)
Project:	Garfield County	TVD Reference:	KBE @ 8308.0ft (Original Well Elev)
Reference Site:	SENW S28-T6S-R97W (F28 Pad)	MD Reference:	KBE @ 8308.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Oxy 28-20D (F28 Pad)	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	EDM 2003.21 US Multi User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design SENW S28-T6S-R97W (F28 Pad) - Oxy 28-27D (F28 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	-90.00	0.0	-31.3	31.3					
100.0	100.0	100.0	100.0	0.1	0.1	-90.00	0.0	-31.3	31.3	31.0	0.30	105.574		
200.0	200.0	200.0	200.0	0.3	0.3	-90.00	0.0	-31.3	31.3	30.7	0.65	48.507		
300.0	300.0	300.0	300.0	0.5	0.5	-90.00	0.0	-31.3	31.3	30.3	0.99	31.487		
400.0	400.0	400.0	400.0	0.7	0.7	-90.00	0.0	-31.3	31.3	30.0	1.34	23.309 CC, ES		
500.0	500.0	499.2	499.2	0.8	0.8	-89.72	0.2	-32.6	32.6	30.9	1.69	19.279		
600.0	600.0	598.2	598.1	1.0	1.0	-63.50	0.6	-36.4	35.9	33.8	2.04	17.589		
700.0	699.9	697.1	696.8	1.2	1.2	-67.11	1.4	-42.8	40.6	38.2	2.39	16.975 SF		
800.0	799.7	795.7	795.0	1.4	1.4	-72.10	2.5	-51.7	47.2	44.4	2.76	17.069		
900.0	899.3	894.0	892.6	1.6	1.7	-77.04	3.9	-63.0	55.9	52.7	3.15	17.721		
1,000.0	998.9	991.9	989.5	1.8	1.9	-79.89	5.6	-76.7	67.2	63.6	3.56	18.876		
1,100.0	1,098.5	1,089.2	1,085.5	2.0	2.3	-81.12	7.6	-92.9	80.9	76.9	3.98	20.336		
1,200.0	1,198.1	1,185.9	1,180.4	2.3	2.6	-81.33	9.8	-111.3	96.9	92.5	4.41	21.995		
1,300.0	1,297.8	1,281.8	1,274.0	2.5	3.0	-80.93	12.4	-131.9	115.1	110.3	4.84	23.798		
1,400.0	1,397.4	1,376.9	1,366.3	2.7	3.4	-80.21	15.1	-154.6	135.6	130.3	5.27	25.717		
1,500.0	1,497.0	1,471.0	1,457.0	2.9	3.9	-79.32	18.2	-179.4	158.3	152.5	5.71	27.731		
1,600.0	1,596.6	1,565.2	1,547.2	3.2	4.3	-78.36	21.5	-206.2	183.0	176.9	6.14	29.813		

Directional Plus

Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Well Oxy 28-20D (F28 Pad)
Project:	Garfield County	TVD Reference:	KBE @ 8308.0ft (Original Well Elev)
Reference Site:	SENW S28-T6S-R97W (F28 Pad)	MD Reference:	KBE @ 8308.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Oxy 28-20D (F28 Pad)	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	EDM 2003.21 US Multi User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design SENW S28-T6S-R97W (F28 Pad) - Oxy 28-28D (F28 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	-85.05	4.0	-46.3	46.5					
100.0	100.0	100.0	100.0	0.1	0.1	-85.05	4.0	-46.3	46.5	46.2	0.30	156.566		
200.0	200.0	200.0	200.0	0.3	0.3	-85.05	4.0	-46.3	46.5	45.8	0.65	71.936		
300.0	300.0	300.0	300.0	0.5	0.5	-85.05	4.0	-46.3	46.5	45.5	0.99	46.695		
400.0	400.0	400.0	400.0	0.7	0.7	-85.05	4.0	-46.3	46.5	45.1	1.34	34.567 CC, ES		
500.0	500.0	498.8	498.8	0.8	0.8	-84.73	4.4	-47.5	47.7	46.0	1.69	28.220		
600.0	600.0	597.5	597.4	1.0	1.0	-57.73	5.5	-51.2	50.8	48.8	2.04	24.922		
700.0	699.9	696.1	695.8	1.2	1.2	-59.68	7.4	-57.2	55.1	52.7	2.39	23.021		
800.0	799.7	794.4	793.7	1.4	1.4	-62.80	10.0	-65.7	60.6	57.9	2.76	21.976		
900.0	899.3	892.5	891.2	1.6	1.7	-66.28	13.4	-76.6	67.9	64.7	3.14	21.591 SF		
1,000.0	998.9	990.3	988.0	1.8	1.9	-68.47	17.5	-89.8	77.6	74.1	3.54	21.901		
1,100.0	1,098.5	1,087.6	1,083.9	2.0	2.2	-69.50	22.2	-105.2	89.8	85.8	3.96	22.691		
1,200.0	1,198.1	1,184.3	1,178.8	2.3	2.6	-69.70	27.7	-122.9	104.2	99.8	4.37	23.818		
1,300.0	1,297.8	1,280.3	1,272.6	2.5	3.0	-69.37	33.9	-142.8	120.9	116.1	4.80	25.199		
1,400.0	1,397.4	1,375.5	1,365.0	2.7	3.4	-68.71	40.6	-164.6	139.9	134.7	5.22	26.780		
1,500.0	1,497.0	1,469.8	1,455.9	2.9	3.8	-67.88	48.0	-188.5	161.1	155.5	5.65	28.525		
1,600.0	1,596.6	1,563.1	1,545.2	3.2	4.3	-66.96	55.9	-214.1	184.6	178.5	6.07	30.406		

Directional Plus

Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Well Oxy 28-20D (F28 Pad)
Project:	Garfield County	TVD Reference:	KBE @ 8308.0ft (Original Well Elev)
Reference Site:	SENW S28-T6S-R97W (F28 Pad)	MD Reference:	KBE @ 8308.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Oxy 28-20D (F28 Pad)	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	EDM 2003.21 US Multi User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design SENW S28-T6S-R97W (F28 Pad) - Oxy 28-29D (F28 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	-81.43	9.1	-60.4	61.1					
100.0	100.0	100.0	100.0	0.1	0.1	-81.43	9.1	-60.4	61.1	60.8	0.30	205.840		
200.0	200.0	200.0	200.0	0.3	0.3	-81.43	9.1	-60.4	61.1	60.4	0.65	94.575		
300.0	300.0	300.0	300.0	0.5	0.5	-81.43	9.1	-60.4	61.1	60.1	0.99	61.391		
400.0	400.0	400.0	400.0	0.7	0.7	-81.43	9.1	-60.4	61.1	59.7	1.34	45.445 CC, ES		
500.0	500.0	498.5	498.5	0.8	0.8	-81.03	9.7	-61.5	62.3	60.6	1.69	36.850		
600.0	600.0	596.9	596.8	1.0	1.0	-53.51	11.5	-64.9	65.2	63.1	2.04	31.972		
700.0	699.9	695.2	694.9	1.2	1.2	-54.33	14.5	-70.4	68.9	66.5	2.39	28.826		
800.0	799.7	793.4	792.7	1.4	1.4	-55.99	18.7	-78.2	73.6	70.9	2.76	26.706		
900.0	899.3	891.3	890.0	1.6	1.7	-58.02	24.0	-88.2	79.6	76.5	3.14	25.357		
1,000.0	998.9	989.0	986.7	1.8	1.9	-59.18	30.6	-100.3	87.9	84.4	3.53	24.863 SF		
1,100.0	1,098.5	1,086.3	1,082.6	2.0	2.2	-59.50	38.2	-114.6	98.5	94.6	3.94	24.998		
1,200.0	1,198.1	1,183.1	1,177.6	2.3	2.6	-59.21	47.0	-130.9	111.4	107.0	4.35	25.600		
1,300.0	1,297.8	1,279.2	1,271.4	2.5	3.0	-58.52	56.8	-149.1	126.6	121.8	4.77	26.562		
1,400.0	1,397.4	1,374.5	1,364.0	2.7	3.4	-57.58	67.6	-169.3	144.0	138.8	5.18	27.812		
1,500.0	1,497.0	1,469.0	1,455.1	2.9	3.8	-56.53	79.4	-191.3	163.8	158.2	5.59	29.299		
1,600.0	1,596.6	1,562.5	1,544.7	3.2	4.3	-55.43	92.2	-215.0	185.8	179.8	6.00	30.983		

Directional Plus

Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Well Oxy 28-20D (F28 Pad)
Project:	Garfield County	TVD Reference:	KBE @ 8308.0ft (Original Well Elev)
Reference Site:	SENW S28-T6S-R97W (F28 Pad)	MD Reference:	KBE @ 8308.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Oxy 28-20D (F28 Pad)	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	EDM 2003.21 US Multi User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design												SENW S28-T6S-R97W (F28 Pad) - Oxy 28-30D (F28 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	-72.36	18.2	-57.3	60.1								
100.0	100.0	100.0	100.0	0.1	0.1	-72.36	18.2	-57.3	60.1	59.8	0.30	202.598					
200.0	200.0	200.0	200.0	0.3	0.3	-72.36	18.2	-57.3	60.1	59.5	0.65	93.086	CC, ES				
300.0	300.0	298.5	298.5	0.5	0.5	-72.03	18.9	-58.3	61.3	60.4	0.99	61.826					
400.0	400.0	396.9	396.8	0.7	0.7	-71.10	21.1	-61.5	65.1	63.7	1.34	48.595					
500.0	500.0	495.0	494.7	0.8	0.9	-69.76	24.6	-66.7	71.3	69.6	1.69	42.275					
600.0	600.0	592.8	592.1	1.0	1.1	-41.48	29.5	-74.0	79.1	77.0	2.03	38.860					
700.0	699.9	690.3	689.0	1.2	1.4	-41.41	35.8	-83.3	87.4	85.0	2.39	36.611					
800.0	799.7	787.7	785.4	1.4	1.6	-42.01	43.5	-94.6	96.2	93.5	2.75	35.020					
900.0	899.3	884.7	881.0	1.6	2.0	-42.98	52.5	-108.0	106.0	102.9	3.12	33.964					
1,000.0	998.9	981.2	975.8	1.8	2.3	-43.55	62.9	-123.2	118.1	114.6	3.50	33.725	SF				
1,100.0	1,098.5	1,077.1	1,069.4	2.0	2.7	-43.73	74.4	-140.3	132.6	128.7	3.89	34.116					
1,200.0	1,198.1	1,172.3	1,161.8	2.3	3.1	-43.62	87.2	-159.2	149.5	145.2	4.27	34.979					
1,300.0	1,297.8	1,266.6	1,252.8	2.5	3.6	-43.33	101.2	-179.8	168.8	164.1	4.66	36.204					
1,400.0	1,397.4	1,360.0	1,342.3	2.7	4.1	-42.91	116.2	-202.0	190.3	185.3	5.05	37.714					

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

Directional Plus

Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Well Oxy 28-20D (F28 Pad)
Project:	Garfield County	TVD Reference:	KBE @ 8308.0ft (Original Well Elev)
Reference Site:	SENW S28-T6S-R97W (F28 Pad)	MD Reference:	KBE @ 8308.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Oxy 28-20D (F28 Pad)	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	EDM 2003.21 US Multi User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design SENW S28-T6S-R97W (F28 Pad) - Oxy 28-31D (F28 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	-71.45	14.2	-42.3	44.7					
100.0	100.0	100.0	100.0	0.1	0.1	-71.45	14.2	-42.3	44.7	44.4	0.30	150.486		
200.0	200.0	200.0	200.0	0.3	0.3	-71.45	14.2	-42.3	44.7	44.0	0.65	69.142		
300.0	300.0	300.0	300.0	0.5	0.5	-71.45	14.2	-42.3	44.7	43.7	0.99	44.882 CC, ES		
400.0	400.0	398.9	398.9	0.7	0.7	-70.83	15.0	-43.3	45.8	44.5	1.34	34.163		
500.0	500.0	497.7	497.6	0.8	0.9	-69.17	17.6	-46.2	49.5	47.8	1.69	29.286		
600.0	600.0	596.3	596.0	1.0	1.0	-40.39	21.8	-51.0	54.6	52.5	2.04	26.754		
700.0	699.9	694.7	694.0	1.2	1.3	-39.98	27.6	-57.7	60.1	57.7	2.39	25.127		
800.0	799.7	793.0	791.6	1.4	1.5	-40.37	35.1	-66.2	66.1	63.4	2.76	24.001		
900.0	899.3	891.1	888.7	1.6	1.8	-41.12	44.3	-76.7	73.0	69.8	3.13	23.311 SF		
1,000.0	998.9	988.8	985.1	1.8	2.1	-41.24	55.0	-88.9	82.1	78.6	3.51	23.369		
1,100.0	1,098.5	1,086.0	1,080.5	2.0	2.5	-40.80	67.3	-103.0	93.6	89.7	3.90	24.012		
1,200.0	1,198.1	1,182.7	1,174.8	2.3	2.8	-40.03	81.1	-118.7	107.5	103.2	4.28	25.099		
1,300.0	1,297.8	1,278.6	1,267.9	2.5	3.3	-39.09	96.3	-136.2	123.8	119.1	4.66	26.532		
1,400.0	1,397.4	1,373.6	1,359.5	2.7	3.7	-38.08	112.9	-155.1	142.4	137.4	5.04	28.240		
1,500.0	1,497.0	1,467.7	1,449.6	2.9	4.2	-37.08	130.8	-175.6	163.4	158.0	5.42	30.171		
1,600.0	1,596.6	1,560.8	1,538.0	3.2	4.8	-36.12	150.0	-197.5	186.8	181.0	5.79	32.283		

Directional Plus

Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Well Oxy 28-20D (F28 Pad)
Project:	Garfield County	TVD Reference:	KBE @ 8308.0ft (Original Well Elev)
Reference Site:	SENW S28-T6S-R97W (F28 Pad)	MD Reference:	KBE @ 8308.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Oxy 28-20D (F28 Pad)	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	EDM 2003.21 US Multi User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design SENW S28-T6S-R97W (F28 Pad) - Oxy 28-32D (F28 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		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)		Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)					
0.0	0.0	0.0	0.0	0.0	0.0	-72.12	9.1	-28.2	29.7				
100.0	100.0	100.0	100.0	0.1	0.1	-72.12	9.1	-28.2	29.7	29.4	0.30	99.940	
200.0	200.0	200.0	200.0	0.3	0.3	-72.12	9.1	-28.2	29.7	29.0	0.65	45.919 CC, ES	
300.0	300.0	299.3	299.3	0.5	0.5	-70.94	10.1	-29.1	30.8	29.8	0.99	30.990	
400.0	400.0	398.5	398.4	0.7	0.7	-67.88	12.9	-31.7	34.3	32.9	1.34	25.555	
500.0	500.0	497.4	497.1	0.8	0.9	-63.99	17.6	-36.1	40.2	38.6	1.69	23.828	
600.0	600.0	596.0	595.3	1.0	1.1	-33.65	24.2	-42.1	47.7	45.7	2.05	23.330	
700.0	699.9	694.4	693.0	1.2	1.4	-32.09	32.6	-49.9	55.5	53.1	2.40	23.145	
800.0	799.7	792.6	790.2	1.4	1.7	-31.49	42.8	-59.4	63.6	60.9	2.76	23.055 SF	
900.0	899.3	890.6	886.8	1.6	2.0	-31.36	54.8	-70.5	72.4	69.2	3.13	23.142	
1,000.0	998.9	988.0	982.5	1.8	2.3	-30.86	68.6	-83.2	83.4	79.9	3.50	23.851	
1,100.0	1,098.5	1,084.9	1,077.0	2.0	2.7	-30.10	84.1	-97.5	96.9	93.0	3.87	25.064	
1,200.0	1,198.1	1,181.1	1,170.3	2.3	3.2	-29.22	101.1	-113.3	112.8	108.6	4.23	26.657	
1,300.0	1,297.8	1,276.4	1,262.2	2.5	3.6	-28.31	119.8	-130.5	131.2	126.6	4.60	28.545	
1,400.0	1,397.4	1,370.8	1,352.5	2.7	4.2	-27.43	139.9	-149.0	151.9	147.0	4.95	30.665	
1,500.0	1,497.0	1,464.1	1,441.2	2.9	4.7	-26.62	161.3	-168.9	175.1	169.8	5.31	32.970	

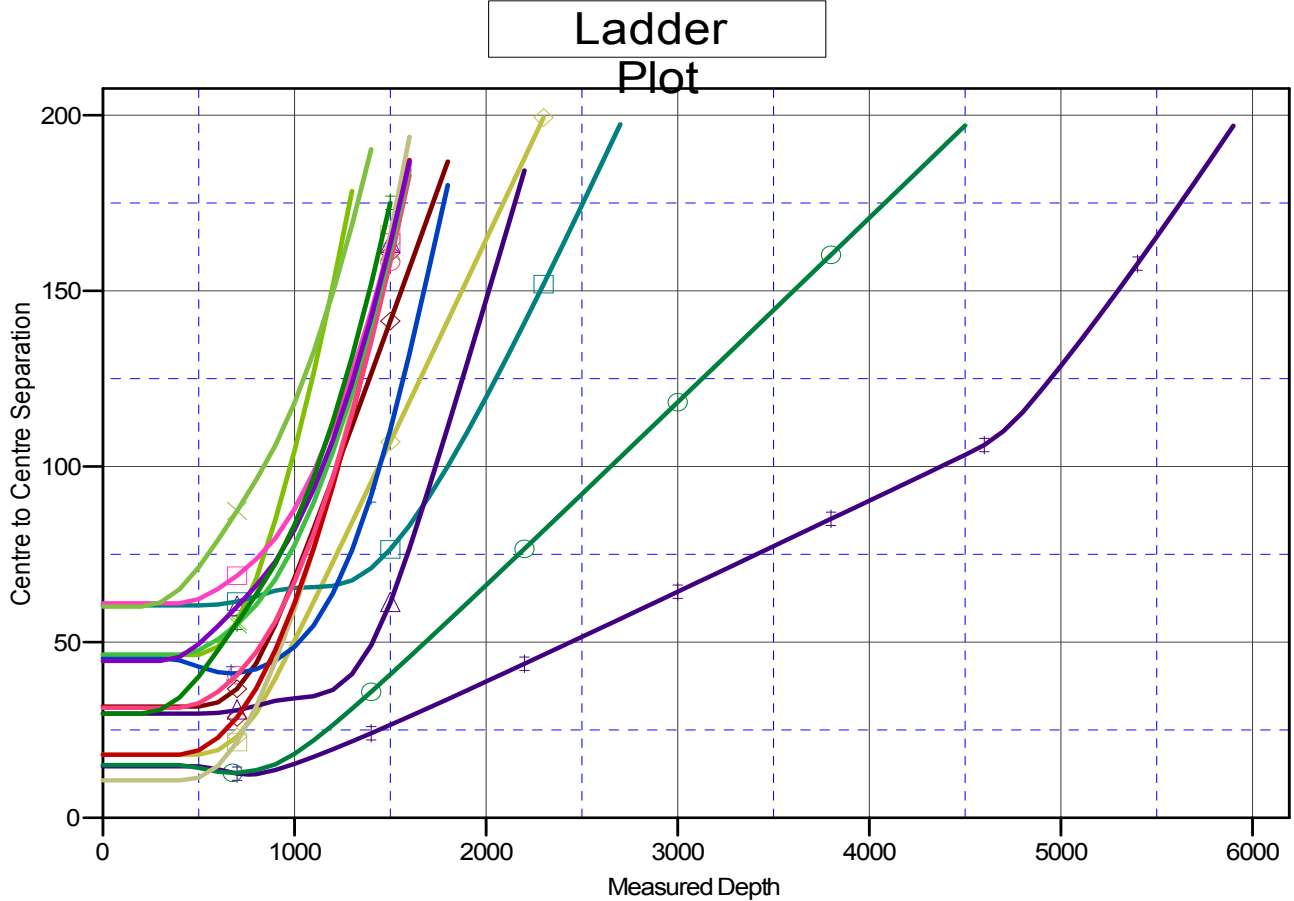
Directional Plus

Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Well Oxy 28-20D (F28 Pad)
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Reference Well:	Oxy 28-20D (F28 Pad)	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	EDM 2003.21 US Multi User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Reference Depths are relative to KBE @ 8308.0ft (Original Well Elev)
 Offset Depths are relative to Offset Datum
 Central Meridian is -105.500000 °

Coordinates are relative to: Oxy 28-20D (F28 Pad)
 Coordinate System is US State Plane 1983, Colorado Central Zone
 Grid Convergence at Surface is: -1.72°



LEGEND

✕ Oxy 28-15D (F28 Pad), DD, Plan #1 V0	△ Oxy 28-23D (F28 Pad), DD, Plan #1 V0	□ Oxy 28-29D (F28 Pad), DD, Plan #1 V0
◆ Oxy 28-17D (F28 Pad), DD, Plan #1 V0	+ Oxy 28-24D (F28 Pad), DD, Plan #1 V0	✕ Oxy 28-30D (F28 Pad), DD, Plan #1 V0
◇ Oxy 28-18D (F28 pad), DD, Plan #1 V0	■ Oxy 28-25D (F28 Pad), DD, Plan #1 V0	△ Oxy 28-31D (F28 Pad), DD, Plan #1 V0
+ Oxy 28-19D (F28 Pad), DD, Plan #1 V0	◆ Oxy 28-26D (F28 Pad), DD, Plan #1 V0	✕ Oxy 28-32D (F28 Pad), DD, Plan #1 V0
○ Oxy 28-21D (F28 Pad), DD, Plan #1 V0	□ Oxy 28-27D (F28 Pad), DD, Plan #1 V0	
+ Oxy 28-22D (F28 Pad), DD, Plan #1 V0	✕ Oxy 28-28D (F28 Pad), DD, Plan #1 V0	