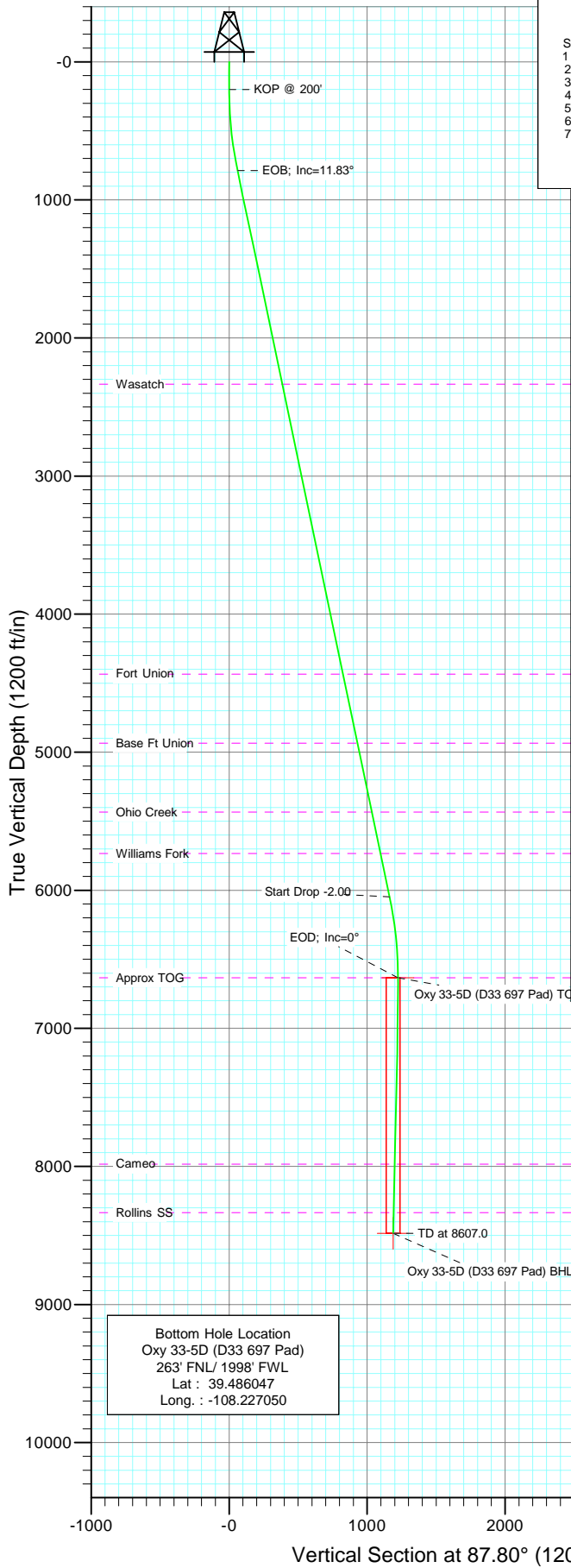
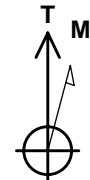
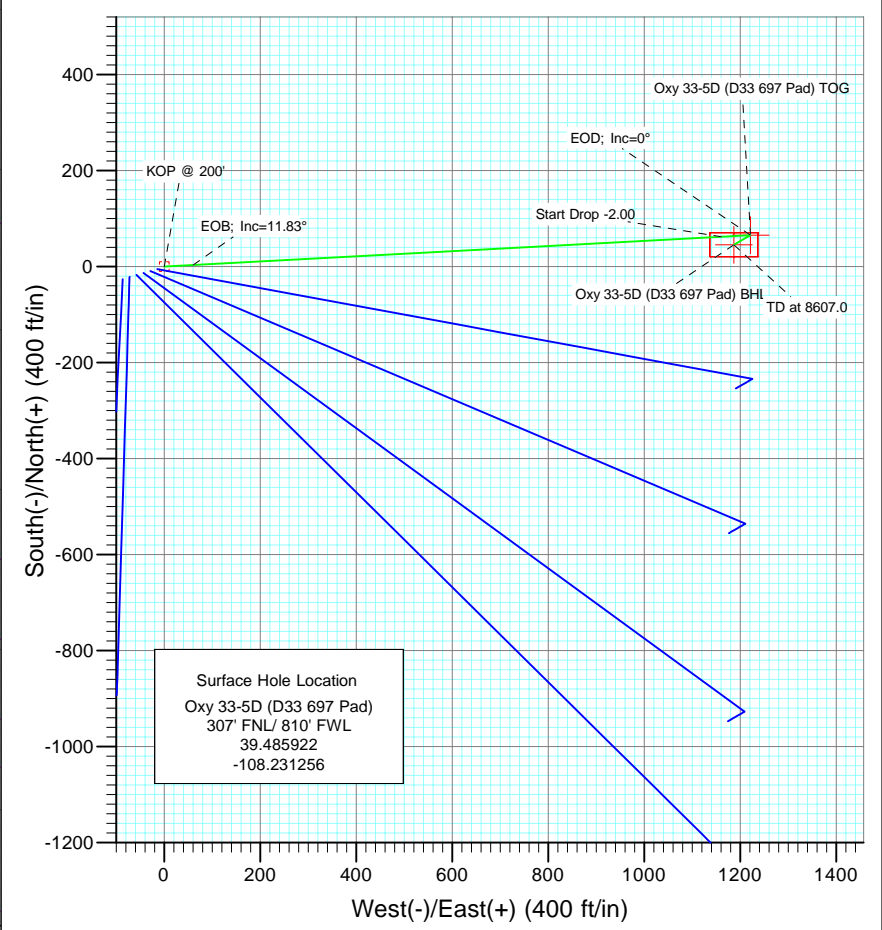




Project: Garfield County
Site: Oxy D33 697 Pad
Well: Oxy 33-5D (D33 697 Pad)
Wellbore: DD
Design: Plan #1



SECTION DETAILS										
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	200.0	0.00	0.00	200.0	0.0	0.0	0.00	0.00	0.0	
3	791.6	11.83	86.93	787.4	3.3	60.8	2.00	86.93	60.9	
4	6165.0	11.83	86.93	6046.6	62.3	1161.0	0.00	0.00	1162.5	
5	6756.6	0.00	0.00	6634.0	65.6	1221.7	2.00	180.00	1223.4	Oxy 33-5D (D33 697 Pad) TOG
6	7346.2	1.47	239.96	7223.6	61.8	1215.2	0.25	239.96	1216.7	
7	8607.0	1.47	239.96	8484.0	45.6	1187.1	0.00	0.00	1188.0	Oxy 33-5D (D33 697 Pad) BHL



Azimuths to True North
Magnetic North: 10.62°

Magnetic Field
Strength: 52371.6snT
Dip Angle: 65.74°
Date: 12/31/2009
Model: IGRF200510

FORMATION TOP DETAILS		
TVDPath	MDPath	Formation
2334.0	2371.8	Wasatch
4434.0	4517.4	Fort Union
4934.0	5028.2	Base Ft Union
5434.0	5539.1	Ohio Creek
5734.0	5845.6	Williams Fork
6634.0	6756.6	Approx TOG
7984.0	8106.9	Cameo
8334.0	8457.0	Rollins SS

DESIGN DETAILS: Plan #1					
105XXX; BH KBE @ 8091.0ft (Original Well Elev)					
Target	Azimuth	Origin	N/S	E/W	From TVD
Oxy 33-5D (D33 697 Pad)	BH#7.80	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 33-5D (D33 697 Pad)
Company:	Berry Petroleum Company (NAD 83)	TVD Reference:	KBE @ 8091.0ft (Original Well Elev)
Project:	Garfield County	MD Reference:	KBE @ 8091.0ft (Original Well Elev)
Site:	Oxy D33 697 Pad	North Reference:	True
Well:	Oxy 33-5D (D33 697 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		Oxy D33 697 Pad			
Site Position:		Northing:	1,613,451.00 ft	Latitude:	39.485875
From:	Lat/Long	Easting:	2,229,190.14 ft	Longitude:	-108.231461
Position Uncertainty:	0.0 ft	Slot Radius:	in	Grid Convergence:	-1.72 °

Well	Oxy 33-5D (D33 697 Pad)					
Well Position	+N/-S	0.0 ft	Northing:	1,613,466.36 ft	Latitude:	39.485922
	+E/-W	0.0 ft	Easting:	2,229,248.49 ft	Longitude:	-108.231256
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	8,076.0 ft

Wellbore	DD				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	12/31/2009	10.62	65.74	52,372

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	87.80	

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	
200.0	0.00	0.00	200.0	0.0	0.0	0.00	0.00	0.00	0.00	
791.6	11.83	86.93	787.4	3.3	60.8	2.00	2.00	0.00	86.93	
6,165.0	11.83	86.93	6,046.6	62.3	1,161.0	0.00	0.00	0.00	0.00	
6,756.6	0.00	0.00	6,634.0	65.6	1,221.7	2.00	-2.00	0.00	180.00	Oxy 33-5D (D33 697 I
7,346.2	1.47	239.96	7,223.6	61.8	1,215.2	0.25	0.25	-20.36	239.96	
8,607.0	1.47	239.96	8,484.0	45.6	1,187.1	0.00	0.00	0.00	0.00	Oxy 33-5D (D33 697 I

Directional Plus

Planning Report

Database:	EDM 2003.21 US Multi User Db	Local Co-ordinate Reference:	Well Oxy 33-5D (D33 697 Pad)
Company:	Berry Petroleum Company (NAD 83)	TVD Reference:	KBE @ 8091.0ft (Original Well Elev)
Project:	Garfield County	MD Reference:	KBE @ 8091.0ft (Original Well Elev)
Site:	Oxy D33 697 Pad	North Reference:	True
Well:	Oxy 33-5D (D33 697 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	
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	KOP @ 200'
210.0	0.20	86.93	210.0	0.0	0.0	0.0	2.00	2.00	
240.0	0.80	86.93	240.0	0.0	0.3	0.3	2.00	2.00	
270.0	1.40	86.93	270.0	0.0	0.9	0.9	2.00	2.00	
300.0	2.00	86.93	300.0	0.1	1.7	1.7	2.00	2.00	
330.0	2.60	86.93	330.0	0.2	2.9	2.9	2.00	2.00	
360.0	3.20	86.93	359.9	0.2	4.5	4.5	2.00	2.00	
390.0	3.80	86.93	389.9	0.3	6.3	6.3	2.00	2.00	
420.0	4.40	86.93	419.8	0.5	8.4	8.4	2.00	2.00	
450.0	5.00	86.93	449.7	0.6	10.9	10.9	2.00	2.00	
480.0	5.60	86.93	479.6	0.7	13.7	13.7	2.00	2.00	
510.0	6.20	86.93	509.4	0.9	16.7	16.8	2.00	2.00	
540.0	6.80	86.93	539.2	1.1	20.1	20.1	2.00	2.00	
570.0	7.40	86.93	569.0	1.3	23.8	23.9	2.00	2.00	
600.0	8.00	86.93	598.7	1.5	27.8	27.9	2.00	2.00	
630.0	8.60	86.93	628.4	1.7	32.2	32.2	2.00	2.00	
660.0	9.20	86.93	658.0	2.0	36.8	36.8	2.00	2.00	
690.0	9.80	86.93	687.6	2.2	41.7	41.8	2.00	2.00	
720.0	10.40	86.93	717.1	2.5	47.0	47.1	2.00	2.00	
750.0	11.00	86.93	746.6	2.8	52.6	52.6	2.00	2.00	
780.0	11.60	86.93	776.0	3.1	58.4	58.5	2.00	2.00	
791.6	11.83	86.93	787.4	3.3	60.8	60.9	2.00	2.00	EOB; Inc=11.83°
810.0	11.83	86.93	805.4	3.5	64.5	64.6	0.00	0.00	
840.0	11.83	86.93	834.8	3.8	70.7	70.8	0.00	0.00	
870.0	11.83	86.93	864.1	4.1	76.8	76.9	0.00	0.00	
900.0	11.83	86.93	893.5	4.5	83.0	83.1	0.00	0.00	
930.0	11.83	86.93	922.9	4.8	89.1	89.2	0.00	0.00	
960.0	11.83	86.93	952.2	5.1	95.3	95.4	0.00	0.00	
990.0	11.83	86.93	981.6	5.4	101.4	101.5	0.00	0.00	
1,020.0	11.83	86.93	1,011.0	5.8	107.5	107.7	0.00	0.00	
1,050.0	11.83	86.93	1,040.3	6.1	113.7	113.8	0.00	0.00	
1,080.0	11.83	86.93	1,069.7	6.4	119.8	120.0	0.00	0.00	
1,110.0	11.83	86.93	1,099.0	6.8	126.0	126.1	0.00	0.00	
1,140.0	11.83	86.93	1,128.4	7.1	132.1	132.3	0.00	0.00	
1,170.0	11.83	86.93	1,157.8	7.4	138.3	138.4	0.00	0.00	
1,200.0	11.83	86.93	1,187.1	7.8	144.4	144.6	0.00	0.00	
1,230.0	11.83	86.93	1,216.5	8.1	150.5	150.7	0.00	0.00	
1,260.0	11.83	86.93	1,245.9	8.4	156.7	156.9	0.00	0.00	
1,290.0	11.83	86.93	1,275.2	8.7	162.8	163.0	0.00	0.00	
1,320.0	11.83	86.93	1,304.6	9.1	169.0	169.2	0.00	0.00	
1,350.0	11.83	86.93	1,333.9	9.4	175.1	175.3	0.00	0.00	
1,380.0	11.83	86.93	1,363.3	9.7	181.3	181.5	0.00	0.00	
1,410.0	11.83	86.93	1,392.7	10.1	187.4	187.6	0.00	0.00	
1,440.0	11.83	86.93	1,422.0	10.4	193.5	193.8	0.00	0.00	
1,470.0	11.83	86.93	1,451.4	10.7	199.7	199.9	0.00	0.00	

Directional Plus

Planning Report

Database:	EDM 2003.21 US Multi User Db	Local Co-ordinate Reference:	Well Oxy 33-5D (D33 697 Pad)
Company:	Berry Petroleum Company (NAD 83)	TVD Reference:	KBE @ 8091.0ft (Original Well Elev)
Project:	Garfield County	MD Reference:	KBE @ 8091.0ft (Original Well Elev)
Site:	Oxy D33 697 Pad	North Reference:	True
Well:	Oxy 33-5D (D33 697 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	11.83	86.93	1,480.8	11.1	205.8	206.1	0.00	0.00	
1,530.0	11.83	86.93	1,510.1	11.4	212.0	212.2	0.00	0.00	
1,560.0	11.83	86.93	1,539.5	11.7	218.1	218.4	0.00	0.00	
1,590.0	11.83	86.93	1,568.8	12.0	224.3	224.5	0.00	0.00	
1,620.0	11.83	86.93	1,598.2	12.4	230.4	230.7	0.00	0.00	
1,650.0	11.83	86.93	1,627.6	12.7	236.5	236.8	0.00	0.00	
1,680.0	11.83	86.93	1,656.9	13.0	242.7	243.0	0.00	0.00	
1,710.0	11.83	86.93	1,686.3	13.4	248.8	249.2	0.00	0.00	
1,740.0	11.83	86.93	1,715.7	13.7	255.0	255.3	0.00	0.00	
1,770.0	11.83	86.93	1,745.0	14.0	261.1	261.5	0.00	0.00	
1,800.0	11.83	86.93	1,774.4	14.3	267.2	267.6	0.00	0.00	
1,830.0	11.83	86.93	1,803.7	14.7	273.4	273.8	0.00	0.00	
1,860.0	11.83	86.93	1,833.1	15.0	279.5	279.9	0.00	0.00	
1,890.0	11.83	86.93	1,862.5	15.3	285.7	286.1	0.00	0.00	
1,920.0	11.83	86.93	1,891.8	15.7	291.8	292.2	0.00	0.00	
1,950.0	11.83	86.93	1,921.2	16.0	298.0	298.4	0.00	0.00	
1,980.0	11.83	86.93	1,950.6	16.3	304.1	304.5	0.00	0.00	
2,010.0	11.83	86.93	1,979.9	16.7	310.2	310.7	0.00	0.00	
2,040.0	11.83	86.93	2,009.3	17.0	316.4	316.8	0.00	0.00	
2,070.0	11.83	86.93	2,038.6	17.3	322.5	323.0	0.00	0.00	
2,100.0	11.83	86.93	2,068.0	17.6	328.7	329.1	0.00	0.00	
2,130.0	11.83	86.93	2,097.4	18.0	334.8	335.3	0.00	0.00	
2,160.0	11.83	86.93	2,126.7	18.3	341.0	341.4	0.00	0.00	
2,190.0	11.83	86.93	2,156.1	18.6	347.1	347.6	0.00	0.00	
2,220.0	11.83	86.93	2,185.5	19.0	353.2	353.7	0.00	0.00	
2,250.0	11.83	86.93	2,214.8	19.3	359.4	359.9	0.00	0.00	
2,280.0	11.83	86.93	2,244.2	19.6	365.5	366.0	0.00	0.00	
2,310.0	11.83	86.93	2,273.5	20.0	371.7	372.2	0.00	0.00	
2,340.0	11.83	86.93	2,302.9	20.3	377.8	378.3	0.00	0.00	
2,370.0	11.83	86.93	2,332.3	20.6	384.0	384.5	0.00	0.00	
2,371.8	11.83	86.93	2,334.0	20.6	384.3	384.8	0.00	0.00	Wasatch
2,400.0	11.83	86.93	2,361.6	20.9	390.1	390.6	0.00	0.00	
2,430.0	11.83	86.93	2,391.0	21.3	396.2	396.8	0.00	0.00	
2,460.0	11.83	86.93	2,420.4	21.6	402.4	402.9	0.00	0.00	
2,490.0	11.83	86.93	2,449.7	21.9	408.5	409.1	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 33-5D (D33 697 Pad)	0.00	0.00	8,484.0	45.6	1,187.1	1,613,476.22	2,230,436.43	39.486047	-108.227050
- plan misses target center by 6084.3ft at 2490.0ft MD (2449.7 TVD, 21.9 N, 408.5 E)									
- Rectangle (sides W50.0 H100.0 D0.0)									
Oxy 33-5D (D33 697 Pad)	0.00	0.00	6,634.0	65.6	1,221.7	1,613,495.21	2,230,471.66	39.486102	-108.226927
- plan misses target center by 4262.8ft at 2490.0ft MD (2449.7 TVD, 21.9 N, 408.5 E)									
- Point									

Directional Plus

Planning Report

Database:	EDM 2003.21 US Multi User Db	Local Co-ordinate Reference:	Well Oxy 33-5D (D33 697 Pad)
Company:	Berry Petroleum Company (NAD 83)	TVD Reference:	KBE @ 8091.0ft (Original Well Elev)
Project:	Garfield County	MD Reference:	KBE @ 8091.0ft (Original Well Elev)
Site:	Oxy D33 697 Pad	North Reference:	True
Well:	Oxy 33-5D (D33 697 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	11.83	86.93	2,459.5	22.0	410.6	411.1	0.00	0.00	
2,600.0	11.83	86.93	2,557.4	23.1	431.0	431.6	0.00	0.00	
2,700.0	11.83	86.93	2,655.3	24.2	451.5	452.1	0.00	0.00	
2,800.0	11.83	86.93	2,753.1	25.3	472.0	472.6	0.00	0.00	
2,900.0	11.83	86.93	2,851.0	26.4	492.5	493.1	0.00	0.00	
3,000.0	11.83	86.93	2,948.9	27.5	512.9	513.6	0.00	0.00	
3,100.0	11.83	86.93	3,046.8	28.6	533.4	534.1	0.00	0.00	
3,200.0	11.83	86.93	3,144.6	29.7	553.9	554.6	0.00	0.00	
3,300.0	11.83	86.93	3,242.5	30.8	574.4	575.1	0.00	0.00	
3,400.0	11.83	86.93	3,340.4	31.9	594.8	595.6	0.00	0.00	
3,500.0	11.83	86.93	3,438.3	33.0	615.3	616.1	0.00	0.00	
3,600.0	11.83	86.93	3,536.1	34.1	635.8	636.6	0.00	0.00	
3,700.0	11.83	86.93	3,634.0	35.2	656.3	657.1	0.00	0.00	
3,800.0	11.83	86.93	3,731.9	36.3	676.7	677.6	0.00	0.00	
3,900.0	11.83	86.93	3,829.8	37.4	697.2	698.1	0.00	0.00	
4,000.0	11.83	86.93	3,927.6	38.5	717.7	718.6	0.00	0.00	
4,100.0	11.83	86.93	4,025.5	39.6	738.2	739.1	0.00	0.00	
4,200.0	11.83	86.93	4,123.4	40.7	758.6	759.7	0.00	0.00	
4,300.0	11.83	86.93	4,221.3	41.8	779.1	780.2	0.00	0.00	
4,400.0	11.83	86.93	4,319.1	42.9	799.6	800.7	0.00	0.00	
4,500.0	11.83	86.93	4,417.0	44.0	820.1	821.2	0.00	0.00	
4,517.4	11.83	86.93	4,434.0	44.2	823.6	824.7	0.00	0.00	Fort Union
4,600.0	11.83	86.93	4,514.9	45.1	840.5	841.7	0.00	0.00	
4,700.0	11.83	86.93	4,612.8	46.2	861.0	862.2	0.00	0.00	
4,800.0	11.83	86.93	4,710.6	47.3	881.5	882.7	0.00	0.00	
4,900.0	11.83	86.93	4,808.5	48.4	902.0	903.2	0.00	0.00	
5,000.0	11.83	86.93	4,906.4	49.5	922.4	923.7	0.00	0.00	
5,028.2	11.83	86.93	4,934.0	49.8	928.2	929.5	0.00	0.00	Base Ft Union
5,100.0	11.83	86.93	5,004.3	50.6	942.9	944.2	0.00	0.00	
5,200.0	11.83	86.93	5,102.1	51.7	963.4	964.7	0.00	0.00	
5,300.0	11.83	86.93	5,200.0	52.8	983.9	985.2	0.00	0.00	
5,400.0	11.83	86.93	5,297.9	53.9	1,004.3	1,005.7	0.00	0.00	
5,500.0	11.83	86.93	5,395.8	55.0	1,024.8	1,026.2	0.00	0.00	
5,539.1	11.83	86.93	5,434.0	55.5	1,032.8	1,034.2	0.00	0.00	Ohio Creek
5,600.0	11.83	86.93	5,493.6	56.1	1,045.3	1,046.7	0.00	0.00	
5,700.0	11.83	86.93	5,591.5	57.2	1,065.8	1,067.2	0.00	0.00	
5,800.0	11.83	86.93	5,689.4	58.3	1,086.2	1,087.7	0.00	0.00	
5,845.6	11.83	86.93	5,734.0	58.8	1,095.6	1,097.0	0.00	0.00	Williams Fork
5,900.0	11.83	86.93	5,787.3	59.4	1,106.7	1,108.2	0.00	0.00	
6,000.0	11.83	86.93	5,885.1	60.5	1,127.2	1,128.7	0.00	0.00	
6,100.0	11.83	86.93	5,983.0	61.6	1,147.7	1,149.2	0.00	0.00	
6,165.0	11.83	86.93	6,046.6	62.3	1,161.0	1,162.5	0.00	0.00	Start Drop -2.00
6,200.0	11.13	86.93	6,080.9	62.7	1,167.9	1,169.5	2.00	-2.00	
6,300.0	9.13	86.93	6,179.4	63.7	1,185.5	1,187.1	2.00	-2.00	
6,400.0	7.13	86.93	6,278.4	64.4	1,199.6	1,201.2	2.00	-2.00	
6,500.0	5.13	86.93	6,377.8	65.0	1,210.3	1,211.9	2.00	-2.00	
6,600.0	3.13	86.93	6,477.5	65.4	1,217.5	1,219.1	2.00	-2.00	
6,700.0	1.13	86.93	6,577.4	65.6	1,221.2	1,222.8	2.00	-2.00	
6,756.6	0.00	0.00	6,634.0	65.6	1,221.7	1,223.4	2.00	-2.00	EOD; Inc=0° - Approx TOG - Oxy 33-5D (D33 6
6,800.0	0.11	239.96	6,677.4	65.6	1,221.7	1,223.3	0.25	0.25	
6,900.0	0.36	239.96	6,777.4	65.4	1,221.4	1,223.0	0.25	0.25	
7,000.0	0.61	239.96	6,877.4	65.0	1,220.6	1,222.2	0.25	0.25	

Directional Plus

Planning Report

Database:	EDM 2003.21 US Multi User Db	Local Co-ordinate Reference:	Well Oxy 33-5D (D33 697 Pad)
Company:	Berry Petroleum Company (NAD 83)	TVD Reference:	KBE @ 8091.0ft (Original Well Elev)
Project:	Garfield County	MD Reference:	KBE @ 8091.0ft (Original Well Elev)
Site:	Oxy D33 697 Pad	North Reference:	True
Well:	Oxy 33-5D (D33 697 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	0.86	239.96	6,977.4	64.3	1,219.5	1,221.1	0.25	0.25	
7,200.0	1.11	239.96	7,077.4	63.5	1,218.0	1,219.6	0.25	0.25	
7,300.0	1.36	239.96	7,177.4	62.4	1,216.2	1,217.7	0.25	0.25	
7,346.2	1.47	239.96	7,223.6	61.8	1,215.2	1,216.7	0.25	0.25	
7,400.0	1.47	239.96	7,277.4	61.1	1,214.0	1,215.4	0.00	0.00	
7,500.0	1.47	239.96	7,377.3	59.8	1,211.8	1,213.2	0.00	0.00	
7,600.0	1.47	239.96	7,477.3	58.5	1,209.5	1,210.9	0.00	0.00	
7,700.0	1.47	239.96	7,577.3	57.2	1,207.3	1,208.6	0.00	0.00	
7,800.0	1.47	239.96	7,677.2	56.0	1,205.1	1,206.3	0.00	0.00	
7,900.0	1.47	239.96	7,777.2	54.7	1,202.9	1,204.1	0.00	0.00	
8,000.0	1.47	239.96	7,877.2	53.4	1,200.6	1,201.8	0.00	0.00	
8,100.0	1.47	239.96	7,977.1	52.1	1,198.4	1,199.5	0.00	0.00	
8,106.9	1.47	239.96	7,984.0	52.0	1,198.2	1,199.4	0.00	0.00	Cameo
8,200.0	1.47	239.96	8,077.1	50.8	1,196.2	1,197.2	0.00	0.00	
8,300.0	1.47	239.96	8,177.1	49.5	1,193.9	1,195.0	0.00	0.00	
8,400.0	1.47	239.96	8,277.0	48.2	1,191.7	1,192.7	0.00	0.00	
8,457.0	1.47	239.96	8,334.0	47.5	1,190.4	1,191.4	0.00	0.00	Rollins SS
8,500.0	1.47	239.96	8,377.0	46.9	1,189.5	1,190.4	0.00	0.00	
8,600.0	1.47	239.96	8,477.0	45.7	1,187.3	1,188.1	0.00	0.00	
8,607.0	1.47	239.96	8,484.0	45.6	1,187.1	1,188.0	0.00	0.00	TD at 8607.0 - Oxy 33-5D (D33 697 Pad) BHL

Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
- hit/miss target									
- Shape									
Oxy 33-5D (D33 697 Pad) - plan hits target center - Rectangle (sides W50.0 H100.0 D0.0)	0.00	0.00	8,484.0	45.6	1,187.1	1,613,476.22	2,230,436.43	39.486047	-108.227050
Oxy 33-5D (D33 697 Pad) - plan hits target center - Point	0.00	0.00	6,634.0	65.6	1,221.7	1,613,495.21	2,230,471.66	39.486102	-108.226927

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
2,371.8	2,334.0	Wasatch		0.00	
4,517.4	4,434.0	Fort Union		0.00	
5,028.2	4,934.0	Base Ft Union		0.00	
5,539.1	5,434.0	Ohio Creek		0.00	
5,845.6	5,734.0	Williams Fork		0.00	
6,756.6	6,634.0	Approx TOG		0.00	
8,106.9	7,984.0	Cameo		0.00	
8,457.0	8,334.0	Rollins SS		0.00	

Directional Plus

Planning Report

Database:	EDM 2003.21 US Multi User Db	Local Co-ordinate Reference:	Well Oxy 33-5D (D33 697 Pad)
Company:	Berry Petroleum Company (NAD 83)	TVD Reference:	KBE @ 8091.0ft (Original Well Elev)
Project:	Garfield County	MD Reference:	KBE @ 8091.0ft (Original Well Elev)
Site:	Oxy D33 697 Pad	North Reference:	True
Well:	Oxy 33-5D (D33 697 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)	
200.0	200.0	0.0	0.0	KOP @ 200'
791.6	787.4	3.3	60.8	EOB; Inc=11.83°
6,165.0	6,046.6	62.3	1,161.0	Start Drop -2.00
6,756.6	6,634.0	65.6	1,221.7	EOD; Inc=0°
8,607.0	8,484.0	45.6	1,187.1	TD at 8607.0

Berry Petroleum Company (NAD 83)

Garfield County

Oxy D33 697 Pad

Oxy 33-5D (D33 697 Pad)

DD

Plan #1

Anticollision Report

09 February, 2010

Directional Plus

Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Well Oxy 33-5D (D33 697 Pad)
Project:	Garfield County	TVD Reference:	KBE @ 8091.0ft (Original Well Elev)
Reference Site:	Oxy D33 697 Pad	MD Reference:	KBE @ 8091.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Oxy 33-5D (D33 697 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	2/9/2010		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
0.0	8,607.0	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						
Oxy D33 697 Pad						
Oxy 33-10D (D33 697 Pad) - DD - Plan #1	200.0	200.0	134.8	134.2	208.753	CC, ES
Oxy 33-10D (D33 697 Pad) - DD - Plan #1	800.0	795.6	196.2	193.5	72.058	SF
Oxy 33-1D (Oxy D33 Pad) - DD - Plan #1	200.0	200.0	60.3	59.7	93.439	CC, ES
Oxy 33-1D (Oxy D33 Pad) - DD - Plan #1	1,400.0	1,391.5	196.8	188.6	24.035	SF
Oxy 33-2D (D33 697 Pad) - DD - Plan #1	200.0	200.0	44.9	44.2	69.469	CC, ES
Oxy 33-2D (D33 697 Pad) - DD - Plan #1	1,700.0	1,694.0	199.9	189.1	18.535	SF
Oxy 33-3D (D33 697 Pad) - DD - Plan #1	200.0	200.0	30.2	29.5	46.759	CC, ES
Oxy 33-3D (D33 697 Pad) - DD - Plan #1	2,400.0	2,398.2	194.9	178.4	11.828	SF
Oxy 33-4D (D33 697 Pad) - DD - Plan #1	200.0	200.0	15.0	14.4	23.238	CC
Oxy 33-4D (D33 697 Pad) - DD - Plan #1	300.0	300.5	15.2	14.2	15.218	ES
Oxy 33-4D (D33 697 Pad) - DD - Plan #1	2,300.0	2,300.5	94.5	78.7	5.988	SF
Oxy 33-6D (D33 697 Pad) - DD - Plan #1	200.0	200.0	90.0	89.3	139.354	CC, ES
Oxy 33-6D (D33 697 Pad) - DD - Plan #1	700.0	694.8	134.6	132.2	56.232	SF
Oxy 33-7D (D33 697 Pad) - DD - Plan #1	200.0	200.0	75.0	74.4	116.154	CC, ES
Oxy 33-7D (D33 697 Pad) - DD - Plan #1	700.0	695.3	119.5	117.1	49.938	SF
Oxy 33-8D (D33 697 Pad) - DD - Plan #1	200.0	200.0	105.5	104.8	163.323	CC, ES
Oxy 33-8D (D33 697 Pad) - DD - Plan #1	700.0	691.8	151.8	149.4	63.694	SF
Oxy 33-9D (D33 697 Pad) - DD - Plan #1	200.0	200.0	120.1	119.5	186.040	CC, ES
Oxy 33-9D (D33 697 Pad) - DD - Plan #1	800.0	795.6	181.6	178.9	66.708	SF

Directional Plus

Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Well Oxy 33-5D (D33 697 Pad)
Project:	Garfield County	TVD Reference:	KBE @ 8091.0ft (Original Well Elev)
Reference Site:	Oxy D33 697 Pad	MD Reference:	KBE @ 8091.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Oxy 33-5D (D33 697 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 Oxy D33 697 Pad - Oxy 33-10D (D33 697 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	-106.48	-38.2	-129.3	134.8					
100.0	100.0	100.0	100.0	0.1	0.1	-106.48	-38.2	-129.3	134.8	134.5	0.30	454.345		
200.0	200.0	200.0	200.0	0.3	0.3	-106.48	-38.2	-129.3	134.8	134.2	0.65	208.753 CC, ES		
300.0	300.0	300.0	300.0	0.5	0.5	166.75	-38.2	-129.3	136.5	135.5	0.99	137.238		
400.0	399.8	399.8	399.8	0.7	0.7	167.22	-38.2	-129.3	141.6	140.3	1.34	105.424		
500.0	499.5	499.5	499.5	0.9	0.8	167.92	-38.2	-129.3	150.1	148.4	1.69	88.769		
600.0	598.7	598.7	598.7	1.2	1.0	168.77	-38.2	-129.3	162.1	160.0	2.04	79.531		
700.0	697.5	697.5	697.5	1.5	1.2	169.70	-38.2	-129.3	177.4	175.0	2.38	74.494		
800.0	795.6	795.6	795.6	1.9	1.4	170.64	-38.2	-129.3	196.2	193.5	2.72	72.058 SF		

Directional Plus

Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Well Oxy 33-5D (D33 697 Pad)
Project:	Garfield County	TVD Reference:	KBE @ 8091.0ft (Original Well Elev)
Reference Site:	Oxy D33 697 Pad	MD Reference:	KBE @ 8091.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Oxy 33-5D (D33 697 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 Oxy D33 697 Pad - Oxy 33-1D (Oxy D33 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	-106.49	-17.1	-57.9	60.3					
100.0	100.0	100.0	100.0	0.1	0.1	-106.49	-17.1	-57.9	60.3	60.0	0.30	203.367		
200.0	200.0	200.0	200.0	0.3	0.3	-106.49	-17.1	-57.9	60.3	59.7	0.65	93.439 CC, ES		
300.0	300.0	300.0	300.0	0.5	0.5	166.95	-17.1	-57.9	62.0	61.0	0.99	62.373		
400.0	399.8	401.0	401.0	0.7	0.7	166.62	-18.4	-56.6	66.3	64.9	1.35	49.184		
500.0	499.5	501.9	501.7	0.9	0.9	164.50	-22.1	-52.8	72.3	70.5	1.71	42.155		
600.0	598.7	602.6	602.1	1.2	1.1	161.14	-28.4	-46.5	80.2	78.1	2.11	37.947		
700.0	697.5	703.1	701.7	1.5	1.4	157.08	-37.0	-37.7	90.3	87.8	2.57	35.160		
800.0	795.6	803.0	800.4	1.9	1.7	152.81	-48.1	-26.5	102.9	99.8	3.11	33.123		
900.0	893.5	902.6	898.2	2.3	2.0	148.26	-61.5	-13.0	116.5	112.8	3.75	31.069		
1,000.0	991.4	1,001.7	994.7	2.6	2.4	143.18	-77.2	2.9	130.3	125.8	4.50	28.949		
1,100.0	1,089.3	1,100.1	1,089.7	3.0	2.9	137.78	-95.2	21.1	144.7	139.4	5.35	27.052		
1,200.0	1,187.1	1,197.5	1,182.9	3.4	3.4	132.22	-115.2	41.3	160.5	154.2	6.28	25.542		
1,300.0	1,285.0	1,294.4	1,274.8	3.8	4.0	126.82	-136.9	63.3	177.9	170.7	7.24	24.567		
1,400.0	1,382.9	1,391.5	1,366.7	4.2	4.5	122.32	-158.8	85.4	196.8	188.6	8.19	24.035 SF		

Directional Plus

Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Well Oxy 33-5D (D33 697 Pad)
Project:	Garfield County	TVD Reference:	KBE @ 8091.0ft (Original Well Elev)
Reference Site:	Oxy D33 697 Pad	MD Reference:	KBE @ 8091.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Oxy 33-5D (D33 697 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 Oxy D33 697 Pad - Oxy 33-2D (D33 697 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	-107.00	-13.1	-42.9	44.9					
100.0	100.0	100.0	100.0	0.1	0.1	-107.00	-13.1	-42.9	44.9	44.6	0.30	151.197		
200.0	200.0	200.0	200.0	0.3	0.3	-107.00	-13.1	-42.9	44.9	44.2	0.65	69.469 CC, ES		
300.0	300.0	300.0	300.0	0.5	0.5	166.58	-13.1	-42.9	46.6	45.6	0.99	46.807		
400.0	399.8	400.9	400.9	0.7	0.7	166.35	-14.2	-41.5	50.6	49.2	1.35	37.545		
500.0	499.5	501.9	501.7	0.9	0.9	164.10	-17.3	-37.2	55.9	54.2	1.71	32.656		
600.0	598.7	602.7	602.2	1.2	1.1	160.48	-22.5	-30.0	62.7	60.6	2.11	29.759		
700.0	697.5	703.4	702.0	1.5	1.4	156.13	-29.8	-20.0	71.3	68.7	2.56	27.832		
800.0	795.6	803.8	801.2	1.9	1.7	151.57	-39.2	-7.2	81.8	78.7	3.10	26.378		
900.0	893.5	903.9	899.5	2.3	2.0	146.57	-50.5	8.3	92.9	89.1	3.76	24.722		
1,000.0	991.4	1,003.7	996.7	2.6	2.4	140.79	-63.8	26.6	103.7	99.2	4.54	22.862		
1,100.0	1,089.3	1,102.9	1,092.4	3.0	2.9	134.50	-79.0	47.3	114.9	109.5	5.42	21.188		
1,200.0	1,187.1	1,201.4	1,187.3	3.4	3.4	128.87	-94.7	68.9	127.3	120.9	6.34	20.080		
1,300.0	1,285.0	1,300.0	1,282.1	3.8	3.9	124.27	-110.4	90.4	140.6	133.4	7.25	19.398		
1,400.0	1,382.9	1,398.5	1,377.0	4.2	4.4	120.47	-126.1	112.0	154.7	146.6	8.15	18.982		
1,500.0	1,480.8	1,497.0	1,471.8	4.6	4.9	117.32	-141.9	133.5	169.4	160.3	9.04	18.737		
1,600.0	1,578.6	1,595.5	1,566.7	5.0	5.4	114.67	-157.6	155.0	184.5	174.6	9.92	18.600		
1,700.0	1,676.5	1,694.0	1,661.5	5.4	5.9	112.42	-173.3	176.6	199.9	189.1	10.78	18.535 SF		

Directional Plus

Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Well Oxy 33-5D (D33 697 Pad)
Project:	Garfield County	TVD Reference:	KBE @ 8091.0ft (Original Well Elev)
Reference Site:	Oxy D33 697 Pad	MD Reference:	KBE @ 8091.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Oxy 33-5D (D33 697 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 Oxy D33 697 Pad - Oxy 33-3D (D33 697 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	-107.56	-9.1	-28.8	30.2					
100.0	100.0	100.0	100.0	0.1	0.1	-107.56	-9.1	-28.8	30.2	29.9	0.30	101.770		
200.0	200.0	200.0	200.0	0.3	0.3	-107.56	-9.1	-28.8	30.2	29.5	0.65	46.759	CC, ES	
300.0	300.0	300.0	300.0	0.5	0.5	166.29	-9.1	-28.8	31.9	30.9	0.99	32.059		
400.0	399.8	400.8	400.8	0.7	0.7	166.46	-9.8	-27.2	35.6	34.3	1.35	26.460		
500.0	499.5	501.7	501.6	0.9	0.9	164.53	-11.9	-22.3	40.1	38.4	1.71	23.471		
600.0	598.7	602.7	602.1	1.2	1.1	161.21	-15.4	-14.1	45.3	43.2	2.09	21.664		
700.0	697.5	703.6	702.2	1.5	1.4	157.09	-20.2	-2.7	51.6	49.0	2.53	20.409		
800.0	795.6	804.4	801.8	1.9	1.7	152.63	-26.4	12.0	59.0	55.9	3.04	19.378		
900.0	893.5	905.3	900.8	2.3	2.0	147.33	-34.0	29.8	66.0	62.3	3.68	17.931		
1,000.0	991.4	1,005.5	998.5	2.6	2.4	140.75	-42.8	50.6	72.0	67.5	4.46	16.158		
1,100.0	1,089.3	1,105.0	1,095.2	3.0	2.9	134.77	-51.8	71.9	78.5	73.2	5.30	14.825		
1,200.0	1,187.1	1,204.5	1,192.0	3.4	3.3	129.74	-60.9	93.1	85.8	79.6	6.17	13.909		
1,300.0	1,285.0	1,304.0	1,288.7	3.8	3.7	125.52	-69.9	114.4	93.6	86.6	7.05	13.279		
1,400.0	1,382.9	1,403.4	1,385.5	4.2	4.2	121.97	-78.9	135.7	101.8	93.9	7.93	12.841		
1,500.0	1,480.8	1,502.9	1,482.3	4.6	4.6	118.96	-88.0	157.0	110.4	101.6	8.81	12.534		
1,600.0	1,578.6	1,602.4	1,579.0	5.0	5.0	116.38	-97.0	178.2	119.3	109.6	9.68	12.316		
1,700.0	1,676.5	1,701.9	1,675.8	5.4	5.5	114.16	-106.0	199.5	128.3	117.7	10.55	12.161		
1,800.0	1,774.4	1,801.4	1,772.5	5.8	5.9	112.24	-115.1	220.8	137.5	126.1	11.41	12.051		
1,900.0	1,872.3	1,900.8	1,869.3	6.2	6.4	110.56	-124.1	242.1	146.8	134.6	12.27	11.972		
2,000.0	1,970.1	2,000.3	1,966.0	6.6	6.8	109.08	-133.1	263.3	156.3	143.2	13.12	11.916		
2,100.0	2,068.0	2,099.8	2,062.8	7.0	7.2	107.77	-142.1	284.6	165.8	151.9	13.96	11.878		
2,200.0	2,165.9	2,199.3	2,159.5	7.4	7.7	106.61	-151.2	305.9	175.5	160.7	14.80	11.853		
2,300.0	2,263.8	2,298.7	2,256.3	7.8	8.1	105.56	-160.2	327.1	185.1	169.5	15.64	11.837		
2,400.0	2,361.6	2,398.2	2,353.0	8.3	8.6	104.62	-169.2	348.4	194.9	178.4	16.48	11.828	SF	

Directional Plus

Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Well Oxy 33-5D (D33 697 Pad)
Project:	Garfield County	TVD Reference:	KBE @ 8091.0ft (Original Well Elev)
Reference Site:	Oxy D33 697 Pad	MD Reference:	KBE @ 8091.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Oxy 33-5D (D33 697 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 Oxy D33 697 Pad - Oxy 33-4D (D33 697 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	-109.88	-5.1	-14.1	15.0					
100.0	100.0	100.0	100.0	0.1	0.1	-109.88	-5.1	-14.1	15.0	14.7	0.30	50.577		
200.0	200.0	200.0	200.0	0.3	0.3	-109.88	-5.1	-14.1	15.0	14.4	0.65	23.238 CC		
300.0	300.0	300.5	300.4	0.5	0.5	161.74	-5.4	-12.4	15.2	14.2	1.00	15.218 ES		
400.0	399.8	400.9	400.7	0.7	0.7	157.60	-6.4	-7.2	15.7	14.4	1.36	11.581		
500.0	499.5	501.3	500.8	0.9	0.9	151.36	-8.0	1.5	16.8	15.0	1.75	9.608		
600.0	598.7	601.7	600.4	1.2	1.2	143.95	-10.2	13.5	18.6	16.3	2.20	8.415		
700.0	697.5	702.0	699.5	1.5	1.5	136.42	-13.1	29.0	21.2	18.4	2.78	7.635		
800.0	795.6	802.3	797.9	1.9	1.9	129.52	-16.5	47.9	24.8	21.3	3.48	7.110		
900.0	893.5	902.3	895.6	2.3	2.3	123.02	-20.4	68.8	28.7	24.4	4.28	6.711		
1,000.0	991.4	1,002.1	993.2	2.6	2.7	118.09	-24.2	89.6	32.9	27.8	5.09	6.459		
1,100.0	1,089.3	1,102.0	1,090.8	3.0	3.1	114.31	-28.1	110.4	37.3	31.4	5.92	6.299		
1,200.0	1,187.1	1,201.9	1,188.4	3.4	3.5	111.33	-31.9	131.2	41.8	35.1	6.75	6.195		
1,300.0	1,285.0	1,301.8	1,286.0	3.8	3.9	108.94	-35.8	152.1	46.4	38.8	7.58	6.127		
1,400.0	1,382.9	1,401.6	1,383.6	4.2	4.3	106.98	-39.6	172.9	51.1	42.7	8.40	6.080		
1,500.0	1,480.8	1,501.5	1,481.2	4.6	4.7	105.35	-43.4	193.7	55.8	46.6	9.23	6.049		
1,600.0	1,578.6	1,601.4	1,578.8	5.0	5.1	103.98	-47.3	214.6	60.6	50.5	10.05	6.027		
1,700.0	1,676.5	1,701.3	1,676.4	5.4	5.5	102.81	-51.1	235.4	65.4	54.5	10.87	6.012		
1,800.0	1,774.4	1,801.1	1,774.0	5.8	6.0	101.79	-55.0	256.2	70.2	58.5	11.69	6.003		
1,900.0	1,872.3	1,901.0	1,871.6	6.2	6.4	100.91	-58.8	277.1	75.0	62.5	12.51	5.996		
2,000.0	1,970.1	2,000.9	1,969.2	6.6	6.8	100.14	-62.7	297.9	79.9	66.5	13.33	5.992		
2,100.0	2,068.0	2,100.8	2,066.8	7.0	7.2	99.45	-66.5	318.7	84.7	70.6	14.15	5.990		
2,200.0	2,165.9	2,200.7	2,164.4	7.4	7.6	98.84	-70.3	339.6	89.6	74.7	14.96	5.989		
2,300.0	2,263.8	2,300.5	2,262.0	7.8	8.0	98.29	-74.2	360.4	94.5	78.7	15.78	5.988 SF		
2,400.0	2,361.6	2,400.4	2,359.6	8.3	8.4	97.80	-78.0	381.2	99.4	82.8	16.59	5.989		
2,500.0	2,459.5	2,500.3	2,457.2	8.7	8.9	97.35	-81.9	402.0	104.3	86.9	17.41	5.990		
2,600.0	2,557.4	2,600.2	2,554.8	9.1	9.3	96.94	-85.7	422.9	109.2	91.0	18.22	5.992		
2,700.0	2,655.3	2,700.0	2,652.4	9.5	9.7	96.57	-89.6	443.7	114.1	95.1	19.04	5.993		
2,800.0	2,753.1	2,799.9	2,750.0	9.9	10.1	96.22	-93.4	464.5	119.0	99.2	19.85	5.995		
2,900.0	2,851.0	2,899.8	2,847.7	10.3	10.5	95.91	-97.2	485.4	123.9	103.3	20.66	5.998		
3,000.0	2,948.9	2,999.7	2,945.3	10.7	10.9	95.62	-101.1	506.2	128.8	107.4	21.48	6.000		
3,100.0	3,046.8	3,099.5	3,042.9	11.1	11.3	95.35	-104.9	527.0	133.8	111.5	22.29	6.002		
3,200.0	3,144.6	3,199.4	3,140.5	11.5	11.8	95.10	-108.8	547.9	138.7	115.6	23.10	6.004		
3,300.0	3,242.5	3,299.3	3,238.1	11.9	12.2	94.87	-112.6	568.7	143.6	119.7	23.91	6.006		
3,400.0	3,340.4	3,399.2	3,335.7	12.3	12.6	94.65	-116.4	589.5	148.6	123.8	24.72	6.009		
3,500.0	3,438.3	3,499.1	3,433.3	12.7	13.0	94.44	-120.3	610.4	153.5	128.0	25.54	6.011		
3,600.0	3,536.1	3,598.9	3,530.9	13.1	13.4	94.25	-124.1	631.2	158.4	132.1	26.35	6.013		
3,700.0	3,634.0	3,698.8	3,628.5	13.5	13.8	94.07	-128.0	652.0	163.4	136.2	27.16	6.015		
3,800.0	3,731.9	3,798.7	3,726.1	13.9	14.2	93.91	-131.8	672.8	168.3	140.3	27.97	6.017		
3,900.0	3,829.8	3,898.6	3,823.7	14.3	14.7	93.75	-135.7	693.7	173.2	144.5	28.78	6.019		
4,000.0	3,927.6	3,998.4	3,921.3	14.7	15.1	93.60	-139.5	714.5	178.2	148.6	29.59	6.022		
4,100.0	4,025.5	4,098.3	4,018.9	15.1	15.5	93.45	-143.3	735.3	183.1	152.7	30.40	6.024		
4,200.0	4,123.4	4,198.2	4,116.5	15.5	15.9	93.32	-147.2	756.2	188.1	156.9	31.21	6.025		
4,300.0	4,221.3	4,298.1	4,214.1	15.9	16.3	93.19	-151.0	777.0	193.0	161.0	32.02	6.027		
4,400.0	4,319.1	4,397.9	4,311.7	16.3	16.7	93.07	-154.9	797.8	198.0	165.1	32.83	6.029		

Directional Plus

Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Well Oxy 33-5D (D33 697 Pad)
Project:	Garfield County	TVD Reference:	KBE @ 8091.0ft (Original Well Elev)
Reference Site:	Oxy D33 697 Pad	MD Reference:	KBE @ 8091.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Oxy 33-5D (D33 697 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 Oxy D33 697 Pad - Oxy 33-6D (D33 697 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	-106.95	-26.2	-86.1	90.0				
100.0	100.0	100.0	100.0	0.1	0.1	-106.95	-26.2	-86.1	90.0	89.7	0.30	303.300	
200.0	200.0	200.0	200.0	0.3	0.3	-106.95	-26.2	-86.1	90.0	89.3	0.65	139.354 CC, ES	
300.0	300.0	300.0	300.0	0.5	0.5	166.38	-26.2	-86.1	91.7	90.7	0.99	92.177	
400.0	399.8	399.8	399.8	0.7	0.7	167.09	-26.2	-86.1	96.8	95.4	1.34	72.051	
500.0	499.5	499.5	499.5	0.9	0.8	168.11	-26.2	-86.1	105.3	103.6	1.69	62.268	
600.0	598.7	597.5	597.5	1.2	1.0	168.50	-27.9	-86.2	117.7	115.7	2.04	57.786	
700.0	697.5	694.8	694.6	1.5	1.2	167.69	-32.8	-86.4	134.6	132.2	2.39	56.232 SF	
800.0	795.6	790.8	790.3	1.9	1.4	166.17	-41.0	-86.8	155.9	153.1	2.77	56.239	
900.0	893.5	885.8	884.7	2.3	1.6	164.22	-52.1	-87.4	179.8	176.6	3.19	56.334	

Directional Plus

Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Well Oxy 33-5D (D33 697 Pad)
Project:	Garfield County	TVD Reference:	KBE @ 8091.0ft (Original Well Elev)
Reference Site:	Oxy D33 697 Pad	MD Reference:	KBE @ 8091.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Oxy 33-5D (D33 697 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 Oxy D33 697 Pad - Oxy 33-7D (D33 697 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	-106.36	-21.1	-72.0	75.0				
100.0	100.0	100.0	100.0	0.1	0.1	-106.36	-21.1	-72.0	75.0	74.7	0.30	252.807	
200.0	200.0	200.0	200.0	0.3	0.3	-106.36	-21.1	-72.0	75.0	74.4	0.65	116.154 CC, ES	
300.0	300.0	300.0	300.0	0.5	0.5	167.00	-21.1	-72.0	76.7	75.7	0.99	77.121	
400.0	399.8	399.8	399.8	0.7	0.7	167.81	-21.1	-72.0	81.8	80.5	1.34	60.917	
500.0	499.5	499.5	499.5	0.9	0.8	168.94	-21.1	-72.0	90.4	88.7	1.69	53.448	
600.0	598.7	597.8	597.8	1.2	1.0	169.29	-22.8	-72.0	102.8	100.7	2.04	50.456	
700.0	697.5	695.3	695.2	1.5	1.2	168.26	-27.8	-72.2	119.5	117.1	2.39	49.938 SF	
800.0	795.6	791.7	791.2	1.9	1.4	166.46	-36.0	-72.4	140.6	137.8	2.77	50.715	
900.0	893.5	887.0	885.8	2.3	1.6	164.25	-47.2	-72.8	164.3	161.1	3.19	51.417	
1,000.0	991.4	982.4	980.1	2.6	1.9	161.75	-61.4	-73.2	189.2	185.6	3.65	51.819	

Directional Plus

Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Well Oxy 33-5D (D33 697 Pad)
Project:	Garfield County	TVD Reference:	KBE @ 8091.0ft (Original Well Elev)
Reference Site:	Oxy D33 697 Pad	MD Reference:	KBE @ 8091.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Oxy 33-5D (D33 697 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 Oxy D33 697 Pad - Oxy 33-8D (D33 697 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	-106.66	-30.2	-101.0	105.5					
100.0	100.0	100.0	100.0	0.1	0.1	-106.66	-30.2	-101.0	105.5	105.2	0.30	355.468		
200.0	200.0	200.0	200.0	0.3	0.3	-106.66	-30.2	-101.0	105.5	104.8	0.65	163.323 CC, ES		
300.0	300.0	300.0	300.0	0.5	0.5	166.63	-30.2	-101.0	107.2	106.2	0.99	107.742		
400.0	399.8	399.8	399.8	0.7	0.7	167.22	-30.2	-101.0	112.3	110.9	1.34	83.581		
500.0	499.5	499.5	499.5	0.9	0.8	168.10	-30.2	-101.0	120.8	119.1	1.69	71.426		
600.0	598.7	596.2	596.1	1.2	1.0	168.53	-31.7	-101.6	133.7	131.6	2.03	65.696		
700.0	697.5	691.8	691.6	1.5	1.2	168.08	-36.3	-103.3	151.8	149.4	2.38	63.694 SF		
800.0	795.6	785.8	785.4	1.9	1.4	167.08	-43.6	-106.0	175.2	172.5	2.75	63.823		

Directional Plus

Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Well Oxy 33-5D (D33 697 Pad)
Project:	Garfield County	TVD Reference:	KBE @ 8091.0ft (Original Well Elev)
Reference Site:	Oxy D33 697 Pad	MD Reference:	KBE @ 8091.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Oxy 33-5D (D33 697 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 Oxy D33 697 Pad - Oxy 33-9D (D33 697 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	-106.56	-34.2	-115.2	120.1					
100.0	100.0	100.0	100.0	0.1	0.1	-106.56	-34.2	-115.2	120.1	119.8	0.30	404.910		
200.0	200.0	200.0	200.0	0.3	0.3	-106.56	-34.2	-115.2	120.1	119.5	0.65	186.040 CC, ES		
300.0	300.0	300.0	300.0	0.5	0.5	166.69	-34.2	-115.2	121.8	120.8	0.99	122.491		
400.0	399.8	399.8	399.8	0.7	0.7	167.22	-34.2	-115.2	126.9	125.6	1.34	94.503		
500.0	499.5	499.5	499.5	0.9	0.8	168.00	-34.2	-115.2	135.4	133.8	1.69	80.098		
600.0	598.7	598.7	598.7	1.2	1.0	168.93	-34.2	-115.2	147.4	145.4	2.04	72.343		
700.0	697.5	697.5	697.5	1.5	1.2	169.94	-34.2	-115.2	162.8	160.4	2.38	68.358		
800.0	795.6	795.6	795.6	1.9	1.4	170.93	-34.2	-115.2	181.6	178.9	2.72	66.708 SF		

Directional Plus

Anticollision Report

Company: Berry Petroleum Company (NAD 83)
Project: Garfield County
Reference Site: Oxy D33 697 Pad
Site Error: 0.0ft
Reference Well: Oxy 33-5D (D33 697 Pad)
Well Error: 0.0ft
Reference Wellbore: DD
Reference Design: Plan #1

Local Co-ordinate Reference: Well Oxy 33-5D (D33 697 Pad)
TVD Reference: KBE @ 8091.0ft (Original Well Elev)
MD Reference: KBE @ 8091.0ft (Original Well Elev)
North Reference: True
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM 2003.21 US Multi User Db
Offset TVD Reference: Offset Datum

Reference Depths are relative to KBE @ 8091.0ft (Original Well Elev)
 Offset Depths are relative to Offset Datum
 Central Meridian is -105.500000 °

Coordinates are relative to: Oxy 33-5D (D33 697 Pad)
 Coordinate System is US State Plane 1983, Colorado Central Zone
 Grid Convergence at Surface is: -1.72°

