

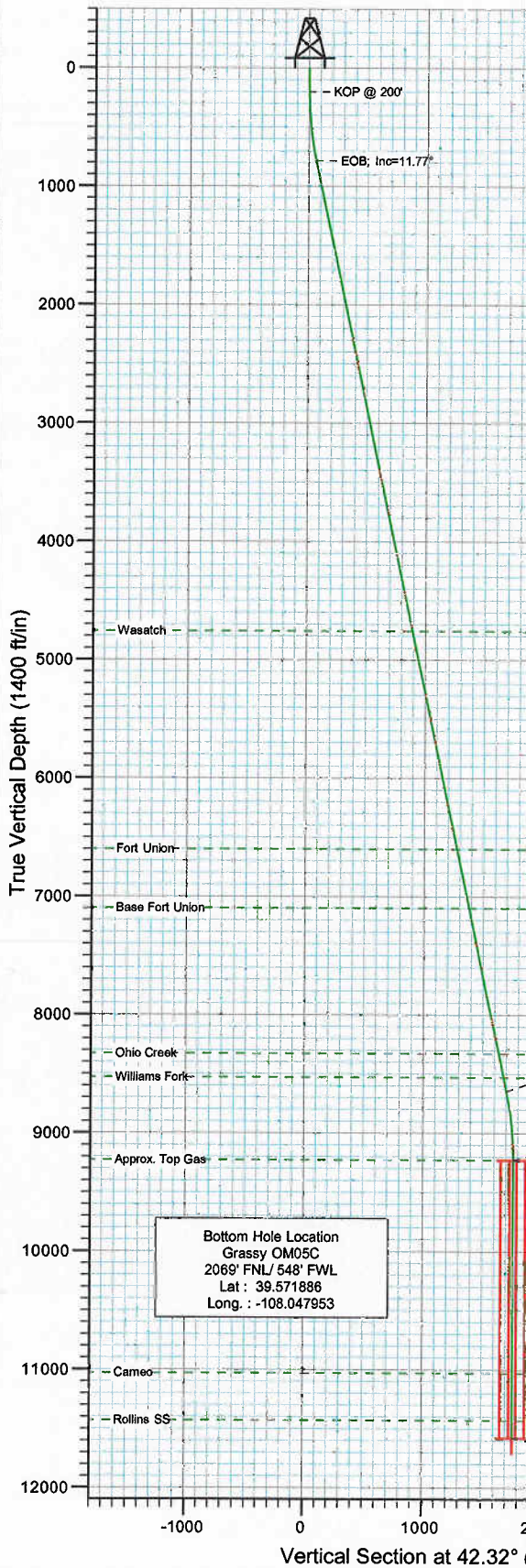


Berry Petroleum Company

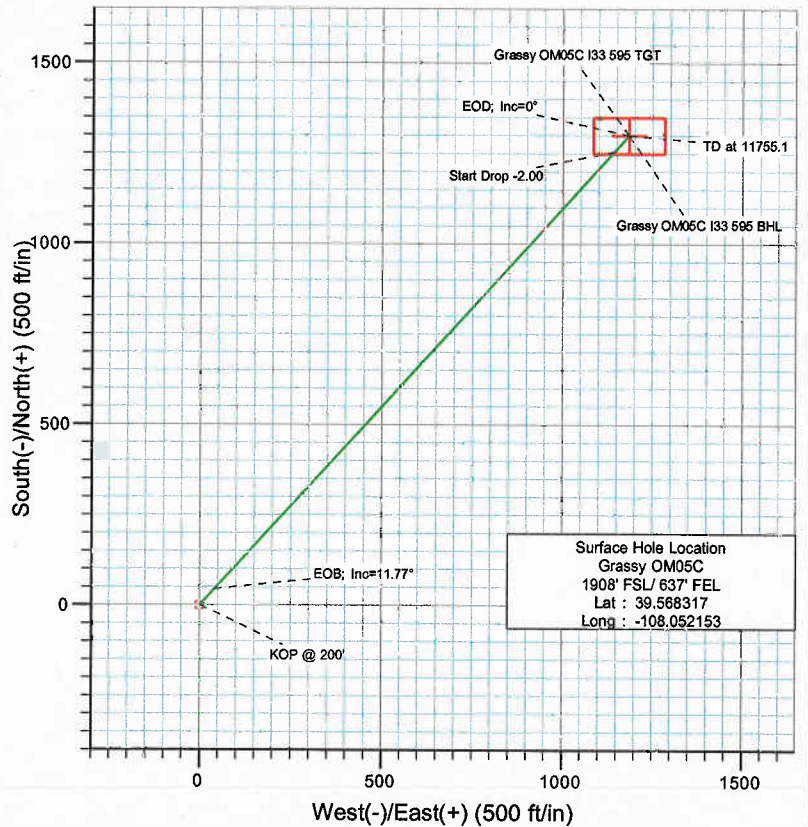
Project: Garfield County
Site: NESE S33-T5S-R95W
Well: Grassy OM05C
Wellbore: DD
Design: Plan #1



Directional Plus
A Division of Cathedral Energy Services Ltd.



SECTION DETAILS											Target
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec		
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	788.6	11.77	42.32	784.5	44.6	40.8	2.00	42.32	60.3		
4	8816.5	11.77	42.32	8643.5	1255.5	1143.4	0.00	0.00	1698.1		
5	9405.1	0.00	0.00	9228.0	1300.0	1184.0	2.00	180.00	1758.4		Grassy OM05C I33 595 TGT
6	11755.1	0.00	0.00	11576.0	1300.0	1184.0	0.00	0.00	1758.4		Grassy OM05C I33 595 BHL



Surface Hole Location
Grassy OM05C
1908' FSL/ 637' FEL
Lat : 39.568317
Long : -108.052153

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
4758.0	4847.5	Wasatch
6598.0	6727.0	Fort Union
7098.0	7237.8	Base Fort Union
8328.0	8494.2	Ohio Creek
8528.0	8698.5	Williams Fork
9228.0	9405.1	Approx. Top Gas
11028.0	11205.1	Cameo
11428.0	11605.1	Rollins SS



Azimuths to True North
Magnetic North: 10.61°

Magnetic Field
Strength: 52483.9snT
Dip Angle: 65.85°
Date: 7/14/2009
Model: IGRF200510

DESIGN DETAILS: Plan #1

95XXX; BH
KBE @ 8292.0ft (Original Well Elev)

Target	Azimuth	Origin	N/S	E/W	From TVD
Grassy OM05C I33 595 BH	42.32	Slot	0.0	0.0	0.0

Directional Plus Planning Report

Database:	EDM 2003.21 US Multi User Db	Local Co-ordinate Reference:	Well Grassy OM05C
Company:	Berry Petroleum Company (NAD 83)	TVD Reference:	KBE @ 8292.0ft (Original Well Elev)
Project:	Garfield County	MD Reference:	KBE @ 8292.0ft (Original Well Elev)
Site:	NESE S33-T5S-R95W	North Reference:	True
Well:	Grassy OM05C	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	NESE S33-T5S-R95W				
Site Position:		Northing:	1,645,962.08 ft	Latitude:	39.568072
From:	Lat/Long	Easting:	2,148,475.61 ft	Longitude:	-108.521110
Position Uncertainty:	0.0 ft	Slot Radius:	in	Grid Convergence:	-1.91 °

Well	Grassy OM05C					
Well Position	+N/-S	0.0 ft	Northing:	1,641,996.65 ft	Latitude:	39.568317
	+E/-W	0.0 ft	Easting:	2,280,620.42 ft	Longitude:	-108.052153
Position Uncertainty	0.0 ft	Wellhead Elevation:	ft	Ground Level:	8,267.0 ft	

Wellbore	DD				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	7/14/2009	10.61	65.85	52,484

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	42.32

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	
788.6	11.77	42.32	784.5	44.6	40.6	2.00	2.00	0.00	42.32	
8,816.5	11.77	42.32	8,643.5	1,255.5	1,143.4	0.00	0.00	0.00	0.00	
9,405.1	0.00	0.00	9,228.0	1,300.0	1,184.0	2.00	-2.00	0.00	180.00	Grassy OM05C I33 5'
11,755.1	0.00	0.00	11,578.0	1,300.0	1,184.0	0.00	0.00	0.00	0.00	Grassy OM05C I33 5'

Directional Plus Planning Report

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Project:	Garfield County	MD Reference:	KBE @ 8292.0ft (Original Well Elev)
Site:	NESE S33-T5S-R95W	North Reference:	True
Well:	Grassy OM05C	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	42.32	210.0	0.0	0.0	0.0	2.00	2.00	
240.0	0.80	42.32	240.0	0.2	0.2	0.3	2.00	2.00	
270.0	1.40	42.32	270.0	0.6	0.6	0.9	2.00	2.00	
300.0	2.00	42.32	300.0	1.3	1.2	1.7	2.00	2.00	
330.0	2.60	42.32	330.0	2.2	2.0	2.9	2.00	2.00	
360.0	3.20	42.32	359.9	3.3	3.0	4.5	2.00	2.00	
390.0	3.80	42.32	389.9	4.7	4.2	6.3	2.00	2.00	
420.0	4.40	42.32	419.8	6.2	5.7	8.4	2.00	2.00	
450.0	5.00	42.32	449.7	8.1	7.3	10.9	2.00	2.00	
480.0	5.60	42.32	479.6	10.1	9.2	13.7	2.00	2.00	
510.0	6.20	42.32	509.4	12.4	11.3	16.8	2.00	2.00	
540.0	6.80	42.32	539.2	14.9	13.6	20.2	2.00	2.00	
570.0	7.40	42.32	569.0	17.6	16.1	23.9	2.00	2.00	
600.0	8.00	42.32	598.7	20.6	18.8	27.9	2.00	2.00	
630.0	8.60	42.32	628.4	23.8	21.7	32.2	2.00	2.00	
660.0	9.20	42.32	658.0	27.2	24.8	36.9	2.00	2.00	
690.0	9.80	42.32	687.6	30.9	28.1	41.8	2.00	2.00	
720.0	10.40	42.32	717.1	34.8	31.7	47.1	2.00	2.00	
750.0	11.00	42.32	746.6	38.9	35.4	52.6	2.00	2.00	
780.0	11.60	42.32	776.0	43.3	39.4	58.5	2.00	2.00	
788.6	11.77	42.32	784.5	44.6	40.6	60.3	2.00	2.00	EOB; Inc=11.77°
810.0	11.77	42.32	805.4	47.8	43.5	64.6	0.00	0.00	
840.0	11.77	42.32	834.8	52.3	47.6	70.7	0.00	0.00	
870.0	11.77	42.32	864.2	56.8	51.8	76.9	0.00	0.00	
900.0	11.77	42.32	893.5	61.4	55.9	83.0	0.00	0.00	
930.0	11.77	42.32	922.9	65.9	60.0	89.1	0.00	0.00	
960.0	11.77	42.32	952.3	70.4	64.1	95.2	0.00	0.00	
990.0	11.77	42.32	981.6	74.9	68.2	101.3	0.00	0.00	
1,020.0	11.77	42.32	1,011.0	79.5	72.4	107.5	0.00	0.00	
1,050.0	11.77	42.32	1,040.4	84.0	76.5	113.6	0.00	0.00	
1,080.0	11.77	42.32	1,069.7	88.5	80.6	119.7	0.00	0.00	
1,110.0	11.77	42.32	1,099.1	93.0	84.7	125.8	0.00	0.00	
1,140.0	11.77	42.32	1,128.5	97.6	88.8	131.9	0.00	0.00	
1,170.0	11.77	42.32	1,157.8	102.1	93.0	138.1	0.00	0.00	
1,200.0	11.77	42.32	1,187.2	106.6	97.1	144.2	0.00	0.00	
1,230.0	11.77	42.32	1,216.6	111.1	101.2	150.3	0.00	0.00	
1,260.0	11.77	42.32	1,246.0	115.7	105.3	156.4	0.00	0.00	
1,290.0	11.77	42.32	1,275.3	120.2	109.5	162.6	0.00	0.00	
1,320.0	11.77	42.32	1,304.7	124.7	113.6	168.7	0.00	0.00	
1,350.0	11.77	42.32	1,334.1	129.2	117.7	174.8	0.00	0.00	
1,380.0	11.77	42.32	1,363.4	133.8	121.8	180.9	0.00	0.00	
1,410.0	11.77	42.32	1,392.8	138.3	125.9	187.0	0.00	0.00	
1,440.0	11.77	42.32	1,422.2	142.8	130.1	193.2	0.00	0.00	
1,470.0	11.77	42.32	1,451.5	147.3	134.2	199.3	0.00	0.00	

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Project:	Garfield County	MD Reference:	KBE @ 8292.0ft (Original Well Elev)
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Well:	Grassy OM05C	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	11.77	42.32	1,480.9	151.9	138.3	205.4	0.00	0.00	
1,530.0	11.77	42.32	1,510.3	156.4	142.4	211.5	0.00	0.00	
1,560.0	11.77	42.32	1,539.6	160.9	146.5	217.6	0.00	0.00	
1,590.0	11.77	42.32	1,569.0	165.4	150.7	223.8	0.00	0.00	
1,620.0	11.77	42.32	1,598.4	170.0	154.8	229.9	0.00	0.00	
1,650.0	11.77	42.32	1,627.7	174.5	158.9	236.0	0.00	0.00	
1,680.0	11.77	42.32	1,657.1	179.0	163.0	242.1	0.00	0.00	
1,710.0	11.77	42.32	1,686.5	183.5	167.1	248.2	0.00	0.00	
1,740.0	11.77	42.32	1,715.9	188.1	171.3	254.4	0.00	0.00	
1,770.0	11.77	42.32	1,745.2	192.6	175.4	260.5	0.00	0.00	
1,800.0	11.77	42.32	1,774.6	197.1	179.5	266.6	0.00	0.00	
1,830.0	11.77	42.32	1,804.0	201.6	183.6	272.7	0.00	0.00	
1,860.0	11.77	42.32	1,833.3	206.2	187.8	278.8	0.00	0.00	
1,890.0	11.77	42.32	1,862.7	210.7	191.9	285.0	0.00	0.00	
1,920.0	11.77	42.32	1,892.1	215.2	196.0	291.1	0.00	0.00	
1,950.0	11.77	42.32	1,921.4	219.7	200.1	297.2	0.00	0.00	
1,980.0	11.77	42.32	1,950.8	224.3	204.2	303.3	0.00	0.00	
2,010.0	11.77	42.32	1,980.2	228.8	208.4	309.4	0.00	0.00	
2,040.0	11.77	42.32	2,009.5	233.3	212.5	315.6	0.00	0.00	
2,070.0	11.77	42.32	2,038.9	237.8	216.6	321.7	0.00	0.00	
2,100.0	11.77	42.32	2,068.3	242.4	220.7	327.8	0.00	0.00	
2,130.0	11.77	42.32	2,097.7	246.9	224.8	333.9	0.00	0.00	
2,160.0	11.77	42.32	2,127.0	251.4	229.0	340.0	0.00	0.00	
2,190.0	11.77	42.32	2,156.4	255.9	233.1	346.2	0.00	0.00	
2,220.0	11.77	42.32	2,185.8	260.5	237.2	352.3	0.00	0.00	
2,250.0	11.77	42.32	2,215.1	265.0	241.3	358.4	0.00	0.00	
2,280.0	11.77	42.32	2,244.5	269.5	245.5	364.5	0.00	0.00	
2,310.0	11.77	42.32	2,273.9	274.0	249.6	370.7	0.00	0.00	
2,340.0	11.77	42.32	2,303.2	278.6	253.7	376.8	0.00	0.00	
2,370.0	11.77	42.32	2,332.6	283.1	257.8	382.9	0.00	0.00	
2,400.0	11.77	42.32	2,362.0	287.6	261.9	389.0	0.00	0.00	
2,430.0	11.77	42.32	2,391.3	292.1	266.1	395.1	0.00	0.00	
2,460.0	11.77	42.32	2,420.7	296.7	270.2	401.3	0.00	0.00	
2,490.0	11.77	42.32	2,450.1	301.2	274.3	407.4	0.00	0.00	

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
Grassy OM05C I33 595 - plan misses target center by 9227.4ft at 2490.0ft MD (2450.1 TVD, 301.2 N, 274.3 E) - Rectangle (sides W100.0 H200.0 D0.0)	0.00	0.00	11,578.0	1,300.0	1,184.0	1,643,262.92	2,281,840.43	39.571886	-108.047953
Grassy OM05C I33 595 - plan misses target center by 6911.3ft at 2490.0ft MD (2450.1 TVD, 301.2 N, 274.3 E) - Point	0.00	0.00	9,228.0	1,300.0	1,184.0	1,643,262.92	2,281,840.43	39.571886	-108.047953

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Wellbore:	DD		
Design:	Plan #1		

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2,500.0	11.77	42.32	2,459.9	302.7	275.7	409.4	0.00	0.00	
2,600.0	11.77	42.32	2,557.8	317.8	289.4	429.8	0.00	0.00	
2,700.0	11.77	42.32	2,655.7	332.9	303.1	450.2	0.00	0.00	
2,800.0	11.77	42.32	2,753.6	348.0	316.9	470.6	0.00	0.00	
2,900.0	11.77	42.32	2,851.5	363.0	330.6	491.0	0.00	0.00	
3,000.0	11.77	42.32	2,949.4	378.1	344.4	511.4	0.00	0.00	
3,100.0	11.77	42.32	3,047.3	393.2	358.1	531.8	0.00	0.00	
3,200.0	11.77	42.32	3,145.1	408.3	371.8	552.2	0.00	0.00	
3,300.0	11.77	42.32	3,243.0	423.4	385.6	572.6	0.00	0.00	
3,400.0	11.77	42.32	3,340.9	438.5	399.3	593.0	0.00	0.00	
3,500.0	11.77	42.32	3,438.8	453.5	413.0	613.4	0.00	0.00	
3,600.0	11.77	42.32	3,536.7	468.6	426.8	633.8	0.00	0.00	
3,700.0	11.77	42.32	3,634.6	483.7	440.5	654.2	0.00	0.00	
3,800.0	11.77	42.32	3,732.5	498.8	454.3	674.6	0.00	0.00	
3,900.0	11.77	42.32	3,830.4	513.9	468.0	695.0	0.00	0.00	
4,000.0	11.77	42.32	3,928.3	529.0	481.7	715.4	0.00	0.00	
4,100.0	11.77	42.32	4,026.2	544.0	495.5	735.9	0.00	0.00	
4,200.0	11.77	42.32	4,124.1	559.1	509.2	756.3	0.00	0.00	
4,300.0	11.77	42.32	4,222.0	574.2	522.9	776.7	0.00	0.00	
4,400.0	11.77	42.32	4,319.9	589.3	536.7	797.1	0.00	0.00	
4,500.0	11.77	42.32	4,417.8	604.4	550.4	817.5	0.00	0.00	
4,600.0	11.77	42.32	4,515.7	619.5	564.2	837.9	0.00	0.00	
4,700.0	11.77	42.32	4,613.6	634.6	577.9	858.3	0.00	0.00	
4,800.0	11.77	42.32	4,711.5	649.6	591.6	878.7	0.00	0.00	
4,847.5	11.77	42.32	4,758.0	656.8	598.2	888.4	0.00	0.00	Wasatch
4,900.0	11.77	42.32	4,809.4	664.7	605.4	899.1	0.00	0.00	
5,000.0	11.77	42.32	4,907.3	679.8	619.1	919.5	0.00	0.00	
5,100.0	11.77	42.32	5,005.2	694.9	632.8	939.9	0.00	0.00	
5,200.0	11.77	42.32	5,103.1	710.0	646.6	960.3	0.00	0.00	
5,300.0	11.77	42.32	5,201.0	725.1	660.3	980.7	0.00	0.00	
5,400.0	11.77	42.32	5,298.9	740.1	674.1	1,001.1	0.00	0.00	
5,500.0	11.77	42.32	5,396.8	755.2	687.8	1,021.5	0.00	0.00	
5,600.0	11.77	42.32	5,494.7	770.3	701.5	1,041.9	0.00	0.00	
5,700.0	11.77	42.32	5,592.6	785.4	715.3	1,062.3	0.00	0.00	
5,800.0	11.77	42.32	5,690.5	800.5	729.0	1,082.7	0.00	0.00	
5,900.0	11.77	42.32	5,788.4	815.6	742.7	1,103.1	0.00	0.00	
6,000.0	11.77	42.32	5,886.3	830.6	756.5	1,123.5	0.00	0.00	
6,100.0	11.77	42.32	5,984.1	845.7	770.2	1,143.9	0.00	0.00	
6,200.0	11.77	42.32	6,082.0	860.8	784.0	1,164.3	0.00	0.00	
6,300.0	11.77	42.32	6,179.9	875.9	797.7	1,184.7	0.00	0.00	
6,400.0	11.77	42.32	6,277.8	891.0	811.4	1,205.1	0.00	0.00	
6,500.0	11.77	42.32	6,375.7	906.1	825.2	1,225.5	0.00	0.00	
6,600.0	11.77	42.32	6,473.6	921.2	838.9	1,245.9	0.00	0.00	
6,700.0	11.77	42.32	6,571.5	936.2	852.6	1,266.3	0.00	0.00	
6,727.0	11.77	42.32	6,598.0	940.3	856.4	1,271.8	0.00	0.00	Fort Union
6,800.0	11.77	42.32	6,669.4	951.3	866.4	1,286.7	0.00	0.00	
6,900.0	11.77	42.32	6,767.3	966.4	880.1	1,307.1	0.00	0.00	
7,000.0	11.77	42.32	6,865.2	981.5	893.9	1,327.5	0.00	0.00	
7,100.0	11.77	42.32	6,963.1	996.6	907.6	1,347.9	0.00	0.00	
7,200.0	11.77	42.32	7,061.0	1,011.7	921.3	1,368.3	0.00	0.00	
7,237.8	11.77	42.32	7,098.0	1,017.4	926.5	1,376.0	0.00	0.00	Base Fort Union
7,300.0	11.77	42.32	7,158.9	1,026.7	935.1	1,388.7	0.00	0.00	

Directional Plus Planning Report

Database:	EDM 2003.21 US Multi User Db	Local Co-ordinate Reference:	Well Grassy OM05C
Company:	Berry Petroleum Company (NAD 83)	TVD Reference:	KBE @ 8292.0ft (Original Well Elev)
Project:	Garfield County	MD Reference:	KBE @ 8292.0ft (Original Well Elev)
Site:	NESE S33-T5S-R95W	North Reference:	True
Well:	Grassy OM05C	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
7,400.0	11.77	42.32	7,256.8	1,041.8	948.8	1,409.1	0.00	0.00	
7,500.0	11.77	42.32	7,354.7	1,056.9	962.5	1,429.5	0.00	0.00	
7,600.0	11.77	42.32	7,452.6	1,072.0	976.3	1,449.9	0.00	0.00	
7,700.0	11.77	42.32	7,550.5	1,087.1	990.0	1,470.3	0.00	0.00	
7,800.0	11.77	42.32	7,648.4	1,102.2	1,003.8	1,490.7	0.00	0.00	
7,900.0	11.77	42.32	7,746.3	1,117.2	1,017.5	1,511.1	0.00	0.00	
8,000.0	11.77	42.32	7,844.2	1,132.3	1,031.2	1,531.5	0.00	0.00	
8,100.0	11.77	42.32	7,942.1	1,147.4	1,045.0	1,551.9	0.00	0.00	
8,200.0	11.77	42.32	8,040.0	1,162.5	1,058.7	1,572.3	0.00	0.00	
8,300.0	11.77	42.32	8,137.9	1,177.6	1,072.4	1,592.7	0.00	0.00	
8,400.0	11.77	42.32	8,235.8	1,192.7	1,086.2	1,613.1	0.00	0.00	
8,494.2	11.77	42.32	8,328.0	1,206.9	1,099.1	1,632.4	0.00	0.00	Ohio Creek
8,500.0	11.77	42.32	8,333.7	1,207.8	1,099.9	1,633.5	0.00	0.00	
8,600.0	11.77	42.32	8,431.6	1,222.8	1,113.7	1,653.9	0.00	0.00	
8,698.5	11.77	42.32	8,528.0	1,237.7	1,127.2	1,674.0	0.00	0.00	Williams Fork
8,700.0	11.77	42.32	8,529.5	1,237.9	1,127.4	1,674.3	0.00	0.00	
8,800.0	11.77	42.32	8,627.4	1,253.0	1,141.1	1,694.8	0.00	0.00	
8,816.5	11.77	42.32	8,643.5	1,255.5	1,143.4	1,698.1	0.00	0.00	Start Drop -2.00
8,900.0	10.10	42.32	8,725.5	1,267.2	1,154.1	1,714.0	2.00	-2.00	
9,000.0	8.10	42.32	8,824.2	1,278.9	1,164.7	1,729.8	2.00	-2.00	
9,100.0	6.10	42.32	8,923.5	1,288.0	1,173.0	1,742.1	2.00	-2.00	
9,200.0	4.10	42.32	9,023.1	1,294.6	1,179.0	1,751.0	2.00	-2.00	
9,300.0	2.10	42.32	9,122.9	1,298.6	1,182.7	1,756.4	2.00	-2.00	
9,400.0	0.10	42.32	9,222.9	1,300.0	1,184.0	1,758.4	2.00	-2.00	
9,405.1	0.00	0.00	9,228.0	1,300.0	1,184.0	1,758.4	2.00	-2.00	EOD; Inc=0° - Approx. Top Gas - Grassy OM05
9,500.0	0.00	0.00	9,322.9	1,300.0	1,184.0	1,758.4	0.00	0.00	
9,600.0	0.00	0.00	9,422.9	1,300.0	1,184.0	1,758.4	0.00	0.00	
9,700.0	0.00	0.00	9,522.9	1,300.0	1,184.0	1,758.4	0.00	0.00	
9,800.0	0.00	0.00	9,622.9	1,300.0	1,184.0	1,758.4	0.00	0.00	
9,900.0	0.00	0.00	9,722.9	1,300.0	1,184.0	1,758.4	0.00	0.00	
10,000.0	0.00	0.00	9,822.9	1,300.0	1,184.0	1,758.4	0.00	0.00	
10,100.0	0.00	0.00	9,922.9	1,300.0	1,184.0	1,758.4	0.00	0.00	
10,200.0	0.00	0.00	10,022.9	1,300.0	1,184.0	1,758.4	0.00	0.00	
10,300.0	0.00	0.00	10,122.9	1,300.0	1,184.0	1,758.4	0.00	0.00	
10,400.0	0.00	0.00	10,222.9	1,300.0	1,184.0	1,758.4	0.00	0.00	
10,500.0	0.00	0.00	10,322.9	1,300.0	1,184.0	1,758.4	0.00	0.00	
10,600.0	0.00	0.00	10,422.9	1,300.0	1,184.0	1,758.4	0.00	0.00	
10,700.0	0.00	0.00	10,522.9	1,300.0	1,184.0	1,758.4	0.00	0.00	
10,800.0	0.00	0.00	10,622.9	1,300.0	1,184.0	1,758.4	0.00	0.00	
10,900.0	0.00	0.00	10,722.9	1,300.0	1,184.0	1,758.4	0.00	0.00	
11,000.0	0.00	0.00	10,822.9	1,300.0	1,184.0	1,758.4	0.00	0.00	
11,100.0	0.00	0.00	10,922.9	1,300.0	1,184.0	1,758.4	0.00	0.00	
11,200.0	0.00	0.00	11,022.9	1,300.0	1,184.0	1,758.4	0.00	0.00	
11,205.1	0.00	0.00	11,028.0	1,300.0	1,184.0	1,758.4	0.00	0.00	Cameo
11,300.0	0.00	0.00	11,122.9	1,300.0	1,184.0	1,758.4	0.00	0.00	
11,400.0	0.00	0.00	11,222.9	1,300.0	1,184.0	1,758.4	0.00	0.00	
11,500.0	0.00	0.00	11,322.9	1,300.0	1,184.0	1,758.4	0.00	0.00	
11,600.0	0.00	0.00	11,422.9	1,300.0	1,184.0	1,758.4	0.00	0.00	
11,605.1	0.00	0.00	11,428.0	1,300.0	1,184.0	1,758.4	0.00	0.00	Rollins SS
11,700.0	0.00	0.00	11,522.9	1,300.0	1,184.0	1,758.4	0.00	0.00	
11,755.1	0.00	0.00	11,578.0	1,300.0	1,184.0	1,758.4	0.00	0.00	TD at 11755.1 - Grassy OM05C I33 595 BHL

Directional Plus Planning Report

Database:	EDM 2003.21 US Multi User Db	Local Co-ordinate Reference:	Well Grassy OM05C
Company:	Berry Petroleum Company (NAD 83)	TVD Reference:	KBE @ 8292.0ft (Original Well Elev)
Project:	Garfield County	MD Reference:	KBE @ 8292.0ft (Original Well Elev)
Site:	NESE S33-T5S-R95W	North Reference:	True
Well:	Grassy OM05C	Survey Calculation Method:	Minimum Curvature
Wellbore:	DD		
Design:	Plan #1		

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									
Grassy OM05C I33 595	0.00	0.00	11,578.0	1,300.0	1,184.0	1,643,262.92	2,281,840.43	39.571886	-108.047953
- plan hits target center									
- Rectangle (sides W100.0 H200.0 D0.0)									
Grassy OM05C I33 595	0.00	0.00	9,228.0	1,300.0	1,184.0	1,643,262.92	2,281,840.43	39.571886	-108.047953
- plan hits target center									
- Point									

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
4,847.5	4,758.0	Wasatch			
6,727.0	6,598.0	Fort Union			
7,237.8	7,098.0	Base Fort Union			
8,494.2	8,328.0	Ohio Creek			
8,698.5	8,528.0	Williams Fork			
9,405.1	9,228.0	Approx. Top Gas			
11,205.1	11,028.0	Cameo			
11,605.1	11,428.0	Rollins SS			

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'
788.6	784.5	44.6	40.6	EOB; Inc=11.77°
8,816.5	8,643.5	1,255.5	1,143.4	Start Drop -2.00
9,405.1	9,228.0	1,300.0	1,184.0	EOD; Inc=0°
11,755.1	11,578.0	1,300.0	1,184.0	TD at 11755.1

Directional Plus

Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Well Grassy OM05C
Project:	Garfield County	TVD Reference:	KBE @ 8292.0ft (Original Well Elev)
Reference Site:	NESE S33-T5S-R95W	MD Reference:	KBE @ 8292.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Grassy OM05C	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:	Stations	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	7/15/2009		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
0.0	11,755.1	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						
NESE S33-T5S-R95W						
Grassy OM01A - DD - Plan #1	200.0	200.0	90.0	89.4	147.363	CC, ES
Grassy OM01A - DD - Plan #1	700.0	674.5	161.1	158.6	65.216	SF
Grassy OM09A - DD - Plan #1	200.0	200.0	14.4	13.8	23.616	CC, ES
Grassy OM09A - DD - Plan #1	400.0	399.8	19.5	18.2	14.799	SF
Grassy OM09B - DD - Plan #1	200.0	200.0	15.0	14.4	24.563	CC, ES
Grassy OM09B - DD - Plan #1	700.0	698.2	23.7	21.0	8.609	SF
Grassy OM09C - DD - Plan #1	200.0	200.0	29.8	29.2	48.722	CC, ES
Grassy OM09C - DD - Plan #1	600.0	598.4	53.3	51.1	24.442	SF
Grassy OM09D - DD - Plan #1	200.0	200.0	45.2	44.6	74.035	CC, ES
Grassy OM09D - DD - Plan #1	600.0	597.3	67.6	65.6	32.971	SF
Grassy OM10A - DD - Plan #1	200.0	200.0	18.3	17.7	29.986	CC, ES
Grassy OM10A - DD - Plan #1	400.0	398.2	25.5	24.2	19.190	SF
Grassy OM10B - DD - Plan #1	200.0	200.0	9.4	8.8	15.333	CC, ES
Grassy OM10B - DD - Plan #1	300.0	299.6	12.4	11.4	12.866	SF
Grassy OM10C - DD - Plan #1	200.0	200.0	18.2	17.6	29.776	CC, ES
Grassy OM10C - DD - Plan #1	300.0	299.6	20.7	19.7	21.498	SF
Grassy OM10D - DD - Plan #1	200.0	200.0	31.1	30.4	50.842	CC, ES
Grassy OM10D - DD - Plan #1	400.0	398.1	41.4	40.1	31.343	SF
Grassy OM13C - DD - Plan #1	200.0	200.0	60.3	59.6	98.633	CC, ES
Grassy OM13C - DD - Plan #1	600.0	589.2	100.6	98.5	47.055	SF
Grassy OM15A - DD - Plan #1	200.0	200.0	45.7	45.1	74.808	CC, ES
Grassy OM15A - DD - Plan #1	500.0	494.1	70.6	68.9	42.061	SF
Grassy OM15D - DD - Plan #1	200.0	200.0	60.8	60.2	99.599	CC, ES
Grassy OM15D - DD - Plan #1	500.0	491.3	88.1	86.4	52.921	SF
Grassy OM16A - DD - Plan #1	200.0	200.0	74.6	74.0	122.173	CC, ES
Grassy OM16A - DD - Plan #1	700.0	691.8	112.9	110.4	46.133	SF
Grassy OM16B - DD - Plan #1	200.0	200.0	76.1	75.5	124.616	CC, ES
Grassy OM16B - DD - Plan #1	600.0	595.7	100.0	98.0	48.979	SF
Grassy OM16C - DD - Plan #1	200.0	200.0	90.4	89.8	147.929	CC, ES
Grassy OM16C - DD - Plan #1	600.0	581.8	138.2	136.2	67.860	SF

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 Grassy OM05C
Project:	Garfield County	TVD Reference:	KBE @ 8292.0ft (Original Well Elev)
Reference Site:	NESE S33-T5S-R95W	MD Reference:	KBE @ 8292.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Grassy OM05C	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 NESE S33-T5S-R95W - Grassy OM01A - 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	172.46	-89.2	11.8	90.0						
100.0	100.0	100.0	100.0	0.1	0.1	172.46	-89.2	11.8	90.0	89.8	0.26	343.846			
200.0	200.0	200.0	200.0	0.3	0.3	172.46	-89.2	11.8	90.0	89.4	0.61	147.363 CC, ES			
300.0	300.0	296.9	296.9	0.5	0.5	130.73	-90.8	12.3	92.8	91.9	0.96	97.021			
400.0	399.6	393.3	393.1	0.7	0.7	132.32	-95.5	13.7	101.3	100.0	1.31	77.243			
500.0	499.5	488.7	488.2	0.9	0.9	134.41	-103.2	16.0	115.4	113.8	1.68	68.754			
600.0	598.7	582.5	581.4	1.2	1.1	136.55	-113.7	19.1	135.4	133.3	2.06	65.583			
700.0	697.5	674.5	672.3	1.5	1.4	138.47	-126.8	23.0	161.1	158.6	2.47	65.216 SF			
788.6	784.5	754.0	750.5	1.8	1.7	139.87	-140.4	27.0	188.5	185.7	2.85	66.225			
800.0	795.6	764.0	760.4	1.9	1.7	140.08	-142.3	27.6	192.4	189.5	2.90	66.419			

Directional Plus Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Well Grassy OM05C
Project:	Garfield County	TVD Reference:	KBE @ 8292.0ft (Original Well Elev)
Reference Site:	NESE S33-T5S-R95W	MD Reference:	KBE @ 8292.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Grassy OM05C	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 NESE S33-T5S-R95W - Grassy OM09A - 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	169.87	-14.2	2.5	14.4					
100.0	100.0	100.0	100.0	0.1	0.1	169.87	-14.2	2.5	14.4	14.2	0.26	55.104		
200.0	200.0	200.0	200.0	0.3	0.3	169.87	-14.2	2.5	14.4	13.8	0.61	23.616 CC, ES		
300.0	300.0	300.0	300.0	0.5	0.5	132.63	-14.2	2.5	15.6	14.6	0.96	16.169		
400.0	399.8	399.8	399.8	0.7	0.7	143.98	-14.2	2.5	19.5	18.2	1.32	14.799 SF		
500.0	499.5	499.5	499.5	0.9	0.8	154.84	-14.2	2.5	27.0	25.4	1.67	16.203		
600.0	598.7	599.9	599.9	1.2	1.0	161.62	-13.0	3.8	36.8	34.8	2.02	18.247		
700.0	697.5	700.8	700.8	1.5	1.2	165.26	-9.3	7.6	46.9	44.6	2.37	19.824		
788.6	784.5	790.0	789.6	1.8	1.4	167.20	-4.0	13.0	56.1	53.4	2.68	20.943		
800.0	795.6	801.4	800.8	1.9	1.4	167.41	-3.3	13.8	57.3	54.6	2.72	21.091		
900.0	893.5	900.7	899.8	2.2	1.6	168.95	3.2	20.5	68.3	65.3	3.07	22.234		
1,000.0	991.4	1,000.1	998.7	2.6	1.8	170.07	9.7	27.3	79.3	75.9	3.43	23.159		
1,100.0	1,089.3	1,099.5	1,097.6	3.0	2.1	170.91	16.3	34.0	90.4	86.6	3.78	23.922		
1,200.0	1,187.2	1,198.9	1,196.6	3.4	2.3	171.57	22.8	40.7	101.5	97.3	4.13	24.561		
1,300.0	1,285.1	1,298.3	1,295.5	3.8	2.5	172.10	29.3	47.5	112.5	108.0	4.48	25.104		
1,400.0	1,383.0	1,397.6	1,394.4	4.2	2.7	172.54	35.8	54.2	123.6	118.8	4.83	25.571		
1,500.0	1,480.9	1,497.0	1,493.4	4.6	3.0	172.90	42.3	60.9	134.7	129.5	5.18	25.977		
1,600.0	1,578.8	1,596.4	1,592.3	5.0	3.2	173.21	48.8	67.7	145.8	140.2	5.54	26.333		
1,700.0	1,676.7	1,695.8	1,691.3	5.4	3.4	173.47	55.4	74.4	156.9	151.0	5.89	26.648		
1,800.0	1,774.6	1,795.2	1,790.2	5.8	3.7	173.70	61.9	81.1	168.0	161.7	6.24	26.928		
1,900.0	1,872.5	1,894.5	1,889.1	6.2	3.9	173.90	68.4	87.8	179.1	172.5	6.59	27.179		
2,000.0	1,970.4	1,993.9	1,988.1	6.6	4.1	174.08	74.9	94.6	190.2	183.2	6.94	27.405		

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

Directional Plus Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Well Grassy OM05C
Project:	Garfield County	TVD Reference:	KBE @ 8292.0ft (Original Well Elev)
Reference Site:	NESE S33-T5S-R95W	MD Reference:	KBE @ 8292.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Grassy OM05C	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 NESE S33-T5S-R95W - Grassy OM09B - DD - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Semi Major Axis Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Distance Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning	
0.0	0.0	0.0	0.0	0.0	0.0	-5.39	14.9	-1.4	15.0					
100.0	100.0	100.0	100.0	0.1	0.1	-5.39	14.9	-1.4	15.0	14.7	0.26	57.314		
200.0	200.0	200.0	200.0	0.3	0.3	-5.39	14.9	-1.4	15.0	14.4	0.61	24.583 CC, ES		
300.0	300.0	299.5	299.5	0.5	0.5	-49.88	16.6	-0.9	15.4	14.5	0.96	18.040		
400.0	399.8	399.0	398.8	0.7	0.7	-55.67	21.5	0.8	16.8	15.5	1.33	12.637		
500.0	499.5	498.9	498.5	0.9	0.9	-66.67	28.2	3.0	18.2	16.5	1.75	10.429		
600.0	598.7	598.7	598.1	1.2	1.1	-85.69	34.8	5.2	19.6	17.4	2.24	8.748		
700.0	697.5	698.2	697.3	1.5	1.3	-108.96	41.5	7.5	23.7	21.0	2.76	8.609 SF		
788.8	784.5	786.1	785.0	1.8	1.5	-126.79	47.3	9.4	31.3	28.1	3.13	10.004		
800.0	795.6	797.4	796.2	1.9	1.5	-128.70	48.1	9.7	32.5	29.3	3.17	10.267		
900.0	893.5	896.3	895.0	2.2	1.7	-140.59	54.7	11.9	44.5	41.0	3.51	12.676		
1,000.0	991.4	995.3	993.7	2.6	1.9	-147.28	61.3	14.1	57.6	53.7	3.86	14.931		
1,100.0	1,089.3	1,094.3	1,092.4	3.0	2.1	-151.47	67.9	16.3	71.1	66.9	4.21	16.902		
1,200.0	1,187.2	1,193.3	1,191.1	3.4	2.3	-154.31	74.5	18.5	84.9	80.4	4.57	18.601		
1,300.0	1,285.1	1,292.2	1,289.8	3.8	2.6	-156.36	81.1	20.7	98.9	94.0	4.93	20.066		
1,400.0	1,383.0	1,391.2	1,388.6	4.2	2.8	-157.89	87.7	23.0	113.0	107.7	5.29	21.338		
1,500.0	1,480.9	1,490.2	1,487.3	4.6	3.0	-159.09	94.3	25.2	127.1	121.4	5.66	22.449		
1,600.0	1,578.8	1,589.1	1,586.0	5.0	3.2	-160.05	100.9	27.4	141.2	135.2	6.03	23.426		
1,700.0	1,676.7	1,688.1	1,684.7	5.4	3.4	-160.83	107.5	29.6	155.4	149.0	6.40	24.292		
1,800.0	1,774.6	1,787.1	1,783.5	5.8	3.6	-161.48	114.1	31.8	169.6	162.9	6.77	25.064		
1,900.0	1,872.5	1,886.0	1,882.2	6.2	3.8	-162.03	120.8	34.0	183.9	176.7	7.14	25.756		
2,000.0	1,970.4	1,985.0	1,980.9	6.6	4.0	-162.50	127.4	36.2	198.1	190.8	7.51	26.380		

Directional Plus Anticollision Report

Company: Berry Petroleum Company (NAD 83)
Project: Garfield County
Reference Site: NESE S33-T5S-R95W
Site Error: 0.0ft
Reference Well: Grassy OM05C
Well Error: 0.0ft
Reference Wellbore: DD
Reference Design: Plan #1

Local Co-ordinate Reference: Well Grassy OM05C
TVD Reference: KBE @ 8292.0ft (Original Well Elev)
MD Reference: KBE @ 8292.0ft (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

Offset Design NESE S33-T5S-R95W - Grassy OM09C - 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	172.38	-29.5	3.9	29.8					
100.0	100.0	100.0	100.0	0.1	0.1	172.38	-29.5	3.9	29.8	29.5	0.28	113.685		
200.0	200.0	200.0	200.0	0.3	0.3	172.38	-29.5	3.9	29.8	29.2	0.61	48.722 CC, ES		
300.0	300.0	299.7	299.7	0.5	0.5	129.41	-29.7	5.7	31.4	30.4	0.97	32.488		
400.0	399.8	399.2	399.1	0.7	0.7	127.81	-30.5	10.8	36.1	34.8	1.35	28.888		
500.0	499.5	498.9	498.5	0.9	0.9	128.02	-31.4	17.7	43.6	41.9	1.75	24.894		
600.0	598.7	598.4	597.8	1.2	1.1	131.06	-32.4	24.6	53.3	51.1	2.18	24.442 SF		
700.0	697.5	697.6	696.7	1.5	1.3	135.32	-33.3	31.4	65.5	62.9	2.62	24.987		
788.6	784.5	785.0	783.9	1.8	1.5	139.30	-34.2	37.4	78.8	75.8	3.02	28.122		
800.0	795.6	796.2	795.1	1.9	1.5	139.82	-34.3	38.2	80.6	77.6	3.07	28.304		
900.0	893.5	894.7	893.3	2.2	1.7	143.50	-35.2	45.0	97.2	93.7	3.50	27.774		
1,000.0	991.4	993.2	991.6	2.6	1.9	146.11	-36.2	51.8	114.0	110.1	3.93	28.029		
1,100.0	1,089.3	1,091.6	1,089.8	3.0	2.1	148.04	-37.1	58.6	131.0	126.8	4.35	30.098		
1,200.0	1,187.2	1,190.1	1,188.0	3.4	2.3	149.53	-38.1	65.4	148.1	143.3	4.78	31.014		
1,300.0	1,285.1	1,288.6	1,286.2	3.8	2.5	150.72	-39.0	72.2	165.3	160.1	5.20	31.804		
1,400.0	1,383.0	1,387.0	1,384.5	4.2	2.8	151.67	-39.9	79.0	182.5	176.9	5.62	32.493		
1,500.0	1,480.9	1,485.5	1,482.7	4.6	3.0	152.47	-40.9	85.8	199.8	193.7	6.04	33.096		

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

Directional Plus Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Well Grassy OM05C
Project:	Garfield County	TVD Reference:	KBE @ 8292.0ft (Original Well Elev)
Reference Site:	NESE S33-T5S-R95W	MD Reference:	KBE @ 8292.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Grassy OM05C	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 NESE S33-T5S-R95W - Grassy OM09D - 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	172.12	-44.8	6.2	45.2				
100.0	100.0	100.0	100.0	0.1	0.1	172.12	-44.8	6.2	45.2	45.0	0.26	172.748	
200.0	200.0	200.0	200.0	0.3	0.3	172.12	-44.8	6.2	45.2	44.6	0.61	74.035 CC, ES	
300.0	300.0	300.0	300.0	0.5	0.5	131.43	-44.8	6.2	46.4	45.4	0.96	48.197	
400.0	399.8	399.8	399.8	0.7	0.7	135.88	-44.8	6.2	50.0	48.7	1.32	37.861	
500.0	499.5	499.5	499.5	0.9	0.8	141.95	-44.8	6.2	56.6	54.9	1.68	33.583	
600.0	598.7	597.3	597.3	1.2	1.0	147.07	-46.0	7.3	67.8	65.6	2.05	32.971 SF	
700.0	697.5	694.4	694.3	1.5	1.2	149.91	-49.6	10.7	83.9	81.5	2.43	34.554	
788.6	784.5	780.0	779.6	1.8	1.4	151.08	-54.7	15.5	102.5	99.7	2.78	36.835	
800.0	795.6	791.1	790.6	1.9	1.4	151.23	-55.4	16.2	105.0	102.2	2.83	37.141	
900.0	893.5	888.5	887.6	2.2	1.6	152.31	-61.7	22.0	127.7	124.5	3.24	39.403	
1,000.0	991.4	985.9	984.6	2.6	1.8	153.05	-67.9	27.9	150.4	146.7	3.66	41.104	
1,100.0	1,089.3	1,083.2	1,081.6	3.0	2.0	153.60	-74.2	33.8	173.1	169.0	4.08	42.422	
1,200.0	1,187.2	1,180.6	1,178.6	3.4	2.2	154.03	-80.5	39.7	195.9	191.3	4.51	43.470	

Directional Plus Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Well Grassy OM05C
Project:	Garfield County	TVD Reference:	KBE @ 8292.0ft (Original Well Elev)
Reference Site:	NESE S33-T5S-R95W	MD Reference:	KBE @ 8292.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Grassy OM05C	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 NESE S33-T5S-R95W - Grassy OM10A - DD - Plan #1													Offset Site Error:	0.0 ft
Survey Program: D-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	-39.12	14.2	-11.6	18.3					
100.0	100.0	100.0	100.0	0.1	0.1	-39.12	14.2	-11.6	18.3	18.1	0.26	69.967		
200.0	200.0	200.0	200.0	0.3	0.3	-39.12	14.2	-11.6	18.3	17.7	0.61	29.986 CC, ES		
300.0	300.0	299.3	299.3	0.5	0.5	-88.03	15.1	-13.0	19.8	18.9	0.96	20.594		
400.0	399.8	398.2	398.1	0.7	0.7	-102.24	17.8	-17.4	25.5	24.2	1.33	19.190 SF		
500.0	499.5	496.3	495.6	0.9	0.9	-114.83	22.2	-24.6	36.9	35.2	1.72	21.479		
600.0	598.7	593.9	592.7	1.2	1.1	-123.16	28.2	-34.3	54.0	51.8	2.14	25.250		
700.0	697.5	691.5	689.6	1.5	1.4	-129.30	34.5	-44.5	74.2	71.6	2.58	28.729		
788.6	784.5	777.5	774.9	1.8	1.6	-133.85	40.0	-53.4	94.6	91.6	2.99	31.572		
800.0	795.8	788.5	785.9	1.9	1.7	-134.18	40.7	-54.5	97.3	94.3	3.05	31.929		
900.0	893.5	885.2	881.8	2.2	1.9	-137.82	46.8	-64.6	121.9	118.4	3.52	34.868		
1,000.0	991.4	981.9	977.8	2.6	2.2	-140.24	53.0	-74.8	146.8	142.8	3.98	38.835		
1,100.0	1,089.3	1,078.8	1,073.8	3.0	2.4	-141.96	59.2	-84.7	171.8	167.4	4.45	38.580		
1,200.0	1,187.2	1,175.3	1,169.8	3.4	2.7	-143.24	65.4	-94.7	197.0	192.0	4.92	40.011		

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 Grassy OM05C
Project:	Garfield County	TVD Reference:	KBE @ 8292.0ft (Original Well Elev)
Reference Site:	NESE S33-T5S-R95W	MD Reference:	KBE @ 8292.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Grassy OM05C	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 NESE S33-T5S-R95W - Grassy OM10B - 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	-96.67	-1.1	-9.3	9.4					
100.0	100.0	100.0	100.0	0.1	0.1	-96.67	-1.1	-9.3	9.4	9.1	0.26	35.777		
200.0	200.0	200.0	200.0	0.3	0.3	-96.67	-1.1	-9.3	9.4	8.8	0.61	15.333 CC, ES		
300.0	300.0	299.6	299.6	0.5	0.5	-141.91	-0.8	-11.0	12.4	11.4	0.96	12.866 SF		
400.0	399.8	398.6	398.5	0.7	0.7	-145.71	0.1	-16.1	21.4	20.1	1.32	16.259		
500.0	499.5	496.6	496.1	0.9	0.9	-147.79	1.6	-24.4	36.5	34.8	1.68	21.671		
600.0	598.7	592.9	591.7	1.2	1.2	-148.79	3.7	-35.8	57.5	55.5	2.07	27.819		
700.0	697.5	687.2	684.9	1.5	1.5	-149.27	6.3	-50.0	84.4	81.9	2.47	34.136		
788.6	784.5	769.0	765.3	1.8	1.7	-149.45	8.9	-64.7	112.8	109.9	2.84	39.671		
800.0	795.6	779.7	775.8	1.9	1.8	-149.52	9.3	-66.7	116.7	113.8	2.89	40.336		
900.0	893.5	873.7	868.0	2.2	2.1	-149.95	12.5	-84.6	150.9	147.6	3.33	45.264		
1,000.0	991.4	967.7	960.2	2.6	2.5	-150.22	15.8	-102.5	185.1	181.4	3.78	48.966		

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

Directional Plus Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Well Grassy OM05C
Project:	Garfield County	TVD Reference:	KBE @ 8292.0ft (Original Well Elev)
Reference Site:	NESE S33-T5S-R95W	MD Reference:	KBE @ 8292.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Grassy OM05C	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 NESE S33-T5S-R95W - Grassy OM10C - DD - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference Measured Depth (ft)	Vertical Depth (ft)	Offset Measured Depth (ft)	Vertical Depth (ft)	Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Total Uncertainty Axis	Separation Factor	Warning	
				Reference (ft)	Offset (ft)		+N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)				
0.0	0.0	0.0	0.0	0.0	0.0	-154.28	-16.4	-7.9	18.2					
100.0	100.0	100.0	100.0	0.1	0.1	-154.28	-16.4	-7.9	18.2	17.9	0.26	69.476		
200.0	200.0	200.0	200.0	0.3	0.3	-154.28	-16.4	-7.9	18.2	17.6	0.61	29.776 CC, ES		
300.0	300.0	299.6	299.6	0.5	0.5	169.15	-16.3	-9.6	20.7	19.7	0.96	21.498 SF		
400.0	399.8	398.7	398.5	0.7	0.7	-179.97	-16.2	-14.8	28.9	27.6	1.32	21.942		
500.0	499.5	496.5	496.0	0.9	0.9	-171.44	-16.0	-23.2	43.8	42.1	1.66	26.034		
600.0	598.7	593.9	592.8	1.2	1.1	-166.49	-15.7	-34.1	64.4	62.4	2.05	31.512		
700.0	697.5	690.9	689.1	1.5	1.4	-164.43	-15.4	-45.2	88.8	86.4	2.41	36.770		
788.6	784.5	776.1	773.7	1.8	1.6	-163.73	-15.2	-54.9	113.1	110.3	2.74	41.205		
800.0	795.6	787.0	784.6	1.9	1.6	-163.70	-15.1	-56.1	116.4	113.6	2.79	41.739		
900.0	893.5	882.7	879.7	2.2	1.9	-163.49	-14.9	-67.0	145.2	142.1	3.17	45.763		
1,000.0	991.4	978.5	974.8	2.6	2.1	-163.35	-14.6	-77.9	174.1	170.5	3.56	48.887		

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

Directional Plus Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Well Grassy OM05C
Project:	Garfield County	TVD Reference:	KBE @ 8292.0ft (Original Well Elev)
Reference Site:	NESE S33-T5S-R95W	MD Reference:	KBE @ 8292.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Grassy OM05C	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													NESE S33-T5S-R95W - Grassy OM10D - 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	-170.07	-30.8	-5.4	31.1								
100.0	100.0	100.0	100.0	0.1	0.1	-170.07	-30.6	-5.4	31.1	30.8	0.26	118.632					
200.0	200.0	200.0	200.0	0.3	0.3	-170.07	-30.6	-5.4	31.1	30.4	0.61	50.842 CC, ES					
300.0	300.0	299.4	299.4	0.5	0.5	151.79	-31.1	-7.0	33.4	32.5	0.96	34.753					
400.0	399.8	398.1	397.9	0.7	0.7	161.19	-32.7	-11.9	41.4	40.1	1.32	31.343 SF					
500.0	499.5	496.0	495.5	0.9	0.9	170.38	-35.3	-19.7	55.9	54.3	1.67	33.398					
600.0	598.7	593.9	593.0	1.2	1.1	176.25	-38.1	-28.1	75.3	73.3	2.02	37.277					
700.0	697.5	691.0	689.7	1.5	1.3	179.73	-40.8	-36.5	98.6	96.2	2.36	41.751					
788.6	784.5	776.3	774.6	1.8	1.5	-178.35	-43.2	-43.9	122.2	119.6	2.66	45.943					
800.0	795.6	787.2	785.5	1.9	1.6	-178.16	-43.5	-44.9	125.4	122.7	2.70	46.460					
900.0	893.5	883.1	881.0	2.2	1.8	-176.82	-46.2	-53.2	153.7	150.6	3.05	50.419					
1,000.0	991.4	979.0	976.5	2.6	2.0	-175.90	-49.0	-61.5	182.0	178.6	3.40	53.562					

Directional Plus Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Well Grassy OM05C
Project:	Garfield County	TVD Reference:	KBE @ 8292.0ft (Original Well Elev)
Reference Site:	NESE S33-T5S-R95W	MD Reference:	KBE @ 8292.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Grassy OM05C	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 NESE S33-T5S-R95W - Grassy OM13C - 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	172.47	-59.7	7.9	60.3				
100.0	100.0	100.0	100.0	0.1	0.1	172.47	-59.7	7.9	60.3	60.0	0.26	230.144	
200.0	200.0	200.0	200.0	0.3	0.3	172.47	-59.7	7.9	60.3	59.6	0.61	98.633 CC, ES	
300.0	300.0	298.2	298.2	0.5	0.5	130.43	-61.0	9.0	62.8	61.8	0.96	65.386	
400.0	399.8	396.1	395.9	0.7	0.7	131.13	-64.7	12.4	70.4	69.1	1.32	53.155	
500.0	499.5	493.2	492.7	0.9	0.9	131.99	-70.8	18.0	83.0	81.3	1.71	48.441	
600.0	598.7	589.2	588.0	1.2	1.1	132.80	-79.2	25.7	100.6	98.5	2.14	47.055 SF	
700.0	697.5	683.7	681.4	1.5	1.4	133.43	-89.8	35.4	123.2	120.6	2.61	47.262	
788.6	784.5	768.0	762.3	1.8	1.7	133.83	-100.9	45.5	147.2	144.1	3.06	48.170	
800.0	795.6	776.6	772.7	1.9	1.8	133.92	-102.4	46.9	150.5	147.4	3.11	48.323	
900.0	893.5	872.1	866.3	2.2	2.1	134.54	-116.5	59.7	179.9	176.3	3.65	49.255	

Directional Plus Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Well Grassy OM05C
Project:	Garfield County	TVD Reference:	KBE @ 8292.0ft (Original Well Elev)
Reference Site:	NESE S33-T5S-R95W	MD Reference:	KBE @ 8292.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Grassy OM05C	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 NESE S33-T5S-R95W - Grassy OM15A - 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 (°)	Offset Wellbore Centre		Distance		Total Uncertainty Axis	Separation Factor	Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		+N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)			
0.0	0.0	0.0	0.0	0.0	0.0	-175.05	-45.5	-3.9	45.7				
100.0	100.0	100.0	100.0	0.1	0.1	-175.05	-45.5	-3.9	45.7	45.4	0.26	174.551	
200.0	200.0	200.0	200.0	0.3	0.3	-175.05	-45.5	-3.9	45.7	45.1	0.61	74.808 CC, ES	
300.0	300.0	299.0	298.9	0.5	0.5	145.51	-46.4	-5.4	48.1	47.2	0.96	50.079	
400.0	399.8	397.2	397.1	0.7	0.7	152.52	-49.0	-9.8	56.1	54.8	1.32	42.495	
500.0	499.5	494.1	493.6	0.9	0.9	160.42	-53.2	-16.9	70.6	68.9	1.68	42.061 SF	
600.0	598.7	589.0	587.8	1.2	1.1	167.09	-58.9	-26.7	92.2	90.2	2.03	45.473	
700.0	697.5	683.7	681.5	1.5	1.4	172.02	-65.9	-38.4	120.2	117.9	2.36	50.854	
788.6	784.5	767.4	764.3	1.8	1.7	174.98	-72.1	-49.0	148.4	145.8	2.66	55.892	
800.0	795.6	778.1	774.9	1.9	1.7	175.27	-72.9	-50.3	152.2	149.5	2.69	56.513	
900.0	893.5	872.1	867.9	2.2	2.0	177.45	-79.8	-62.2	185.8	182.8	3.03	61.315	

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 Grassy OM05C
Project:	Garfield County	TVD Reference:	KBE @ 8292.0ft (Original Well Elev)
Reference Site:	NESE S33-T5S-R95W	MD Reference:	KBE @ 8292.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Grassy OM05C	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 NESE S33-T5S-R95W - Grassy OM15D - 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	-178.87	-60.8	-1.4	60.8				
100.0	100.0	100.0	100.0	0.1	0.1	-178.87	-60.8	-1.4	60.8	60.6	0.26	232.397	
200.0	200.0	200.0	200.0	0.3	0.3	-178.87	-60.8	-1.4	60.8	60.2	0.61	99.599 CC, ES	
300.0	300.0	298.0	298.0	0.5	0.5	140.63	-62.3	-2.2	63.7	62.8	0.96	66.495	
400.0	399.8	395.3	395.2	0.7	0.7	144.66	-66.6	-4.4	72.6	71.3	1.31	55.423	
500.0	499.5	491.3	490.8	0.9	0.9	149.53	-74.0	-8.1	88.1	86.4	1.66	52.921 SF	
600.0	598.7	585.3	584.1	1.2	1.1	153.95	-83.9	-13.1	110.2	108.2	2.01	54.785	
700.0	697.5	676.7	674.6	1.5	1.4	157.47	-96.1	-19.3	139.1	136.8	2.35	59.147	
788.6	784.5	755.2	751.8	1.8	1.7	159.87	-108.7	-25.6	170.1	167.5	2.65	64.306	
800.0	795.6	765.2	761.5	1.9	1.7	160.16	-110.4	-26.5	174.4	171.7	2.68	65.013	

Directional Plus

Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Well Grassy OM05C
Project:	Garfield County	TVD Reference:	KBE @ 8292.0ft (Original Well Elev)
Reference Site:	NESE S33-T5S-R95W	MD Reference:	KBE @ 8292.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Grassy OM05C	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 NESE S33-T5S-R95W - Grassy OM16A - 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	172.18	-73.9	10.1	74.6					
100.0	100.0	100.0	100.0	0.1	0.1	172.18	-73.9	10.1	74.6	74.4	0.26	285.070		
200.0	200.0	200.0	200.0	0.3	0.3	172.18	-73.9	10.1	74.6	74.0	0.61	122.173 CC, ES		
300.0	300.0	300.0	300.0	0.5	0.5	130.86	-73.9	10.1	75.8	74.8	0.96	78.758		
400.0	399.8	399.8	399.8	0.7	0.7	133.66	-73.9	10.1	79.3	78.0	1.32	60.012		
500.0	499.5	499.5	499.5	0.9	0.8	137.80	-73.9	10.1	85.5	83.9	1.69	50.607		
600.0	598.7	598.1	598.1	1.2	1.0	141.91	-75.3	11.0	96.3	94.2	2.08	46.662		
700.0	697.5	691.8	691.8	1.5	1.2	145.04	-79.4	13.5	112.9	110.4	2.45	46.133 SF		
788.6	784.5	778.1	775.6	1.8	1.3	146.99	-85.2	17.0	132.2	129.4	2.80	47.245		
800.0	795.6	787.1	786.6	1.9	1.4	147.24	-86.1	17.5	134.9	132.1	2.84	47.431		
900.0	893.5	884.1	883.2	2.2	1.6	149.10	-93.5	22.0	158.8	155.6	3.25	48.841		
1,000.0	991.4	981.1	979.8	2.6	1.8	150.47	-100.9	26.5	182.9	179.2	3.66	49.937		

Directional Plus

Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Well Grassy OM05C
Project:	Garfield County	TVD Reference:	KBE @ 8292.0ft (Original Well Elev)
Reference Site:	NESE S33-T5S-R95W	MD Reference:	KBE @ 8292.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Grassy OM05C	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 NESE S33-T5S-R95W - Grassy OM16B - 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	180.00	-76.1	0.0	76.1				
100.0	100.0	100.0	100.0	0.1	0.1	180.00	-76.1	0.0	76.1	75.9	0.26	290.770	
200.0	200.0	200.0	200.0	0.3	0.3	180.00	-76.1	0.0	76.1	75.5	0.61	124.616 CC, ES	
300.0	300.0	300.0	300.0	0.5	0.5	138.53	-76.1	0.0	77.4	76.5	0.96	80.532	
400.0	399.8	399.8	399.8	0.7	0.7	140.82	-76.1	0.0	81.4	80.1	1.32	61.785	
500.0	499.5	499.5	499.5	0.9	0.8	144.40	-76.1	0.0	88.4	86.7	1.68	52.562	
600.0	598.7	595.7	595.7	1.2	1.0	148.89	-77.4	-1.0	100.0	98.0	2.04	48.979 SF	
700.0	697.5	690.3	690.1	1.5	1.2	153.35	-81.1	-3.8	118.3	115.9	2.40	49.352	
788.6	784.5	772.2	771.8	1.8	1.3	157.12	-86.4	-7.8	140.2	137.5	2.70	51.884	
800.0	795.6	782.6	782.1	1.9	1.4	157.59	-87.2	-8.5	143.4	140.6	2.74	52.314	
900.0	893.5	872.7	871.6	2.2	1.6	161.07	-95.4	-14.7	173.3	170.2	3.08	56.332	

Directional Plus

Anticollision Report

Company:	Berry Petroleum Company (NAD 83)	Local Co-ordinate Reference:	Well Grassy OM05C
Project:	Garfield County	TVD Reference:	KBE @ 8292.0ft (Original Well Elev)
Reference Site:	NESE S33-T5S-R95W	MD Reference:	KBE @ 8292.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Grassy OM05C	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													NESE S33-T5S-R95W - Grassy OM16C - 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	178.39	-90.3	2.5	90.4								
100.0	100.0	100.0	100.0	0.1	0.1	178.39	-90.3	2.5	90.4	90.1	0.26	345.168					
200.0	200.0	200.0	200.0	0.3	0.3	178.39	-90.3	2.5	90.4	89.8	0.61	147.929	CC, ES				
300.0	300.0	298.8	296.8	0.5	0.5	136.70	-92.0	2.7	93.3	92.4	0.96	97.605					
400.0	399.8	393.1	393.0	0.7	0.7	138.36	-96.8	3.0	102.2	100.9	1.31	78.200					
500.0	499.5	488.3	487.8	0.9	0.9	140.54	-104.8	3.6	117.2	115.5	1.67	70.290					
600.0	598.7	581.8	580.6	1.2	1.1	142.76	-115.7	4.5	138.2	136.2	2.04	67.860	SF				
700.0	697.5	673.1	671.0	1.5	1.4	144.71	-129.2	5.5	165.3	162.8	2.42	68.383					
788.6	784.5	756.7	753.4	1.8	1.7	146.33	-143.0	6.6	193.2	190.4	2.77	69.767					
800.0	795.6	767.5	764.0	1.9	1.7	146.57	-144.8	6.7	196.9	194.1	2.81	69.958					

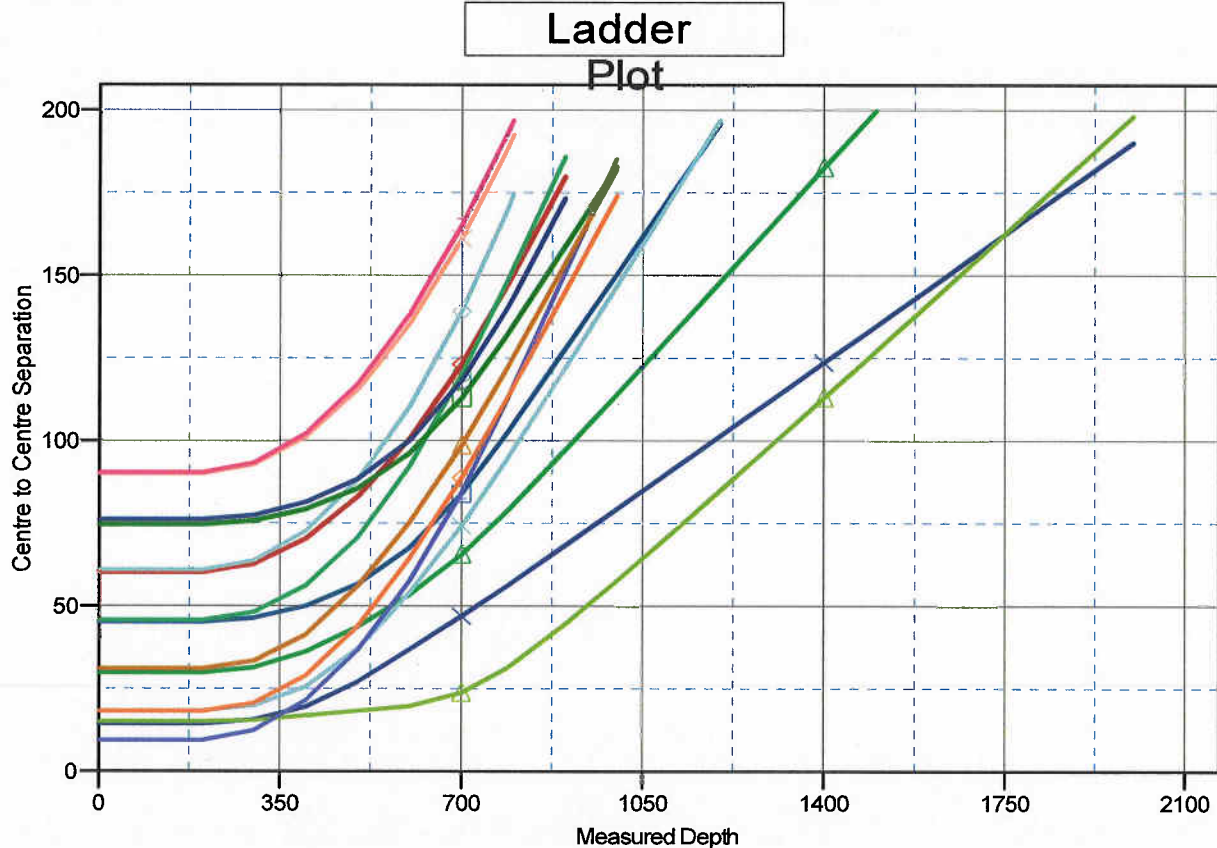
Directional Plus Anticollision Report

Company: Berry Petroleum Company (NAD 83)
Project: Garfield County
Reference Site: NESE S33-T5S-R95W
Site Error: 0.0ft
Reference Well: Grassy OM05C
Well Error: 0.0ft
Reference Wellbore: DD
Reference Design: Plan #1

Local Co-ordinate Reference: Well Grassy OM05C
TVD Reference: KBE @ 8292.0ft (Original Well Elev)
MD Reference: KBE @ 8292.0ft (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 @ 8292.0ft (Original Well Elev)
 Offset Depths are relative to Offset Datum
 Central Meridian is -105.500000°

Coordinates are relative to: Grassy OM05C
 Coordinate System is US State Plane 1983, Colorado Central Zone
 Grid Convergence at Surface is: -1.61°



LEGEND

- | | | |
|------------------------------|------------------------------|------------------------------|
| Grassy OM01A, DD, Plan #1 V0 | Grassy OM10A, DD, Plan #1 V0 | Grassy OM15A, DD, Plan #1 V0 |
| Grassy OM09A, DD, Plan #1 V0 | Grassy OM10B, DD, Plan #1 V0 | Grassy OM15D, DD, Plan #1 V0 |
| Grassy OM09B, DD, Plan #1 V0 | Grassy OM10C, DD, Plan #1 V0 | Grassy OM16A, DD, Plan #1 V0 |
| Grassy OM09C, DD, Plan #1 V0 | Grassy OM10D, DD, Plan #1 V0 | Grassy OM16B, DD, Plan #1 V0 |
| Grassy OM09D, DD, Plan #1 V0 | Grassy OM13C, DD, Plan #1 V0 | Grassy OM16C, DD, Plan #1 V0 |