

Plan #1

WELL DETAILS: Rio 13NA

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.0	0.0	1243187.21	3156856.81	39° 59' 58.470 N	104° 56' 24.374 W



Project: ADAMS COUNTY
Site: Rio Ivy
Well: Rio 13NA
Wellbore: OWB
Design: Plan #1
Lat: 39° 59' 58.470 N
Long: 104° 56' 24.374 W
GL: 5067.0
KB: KB 28' @ 5095.0usft



Azimuths to True North
Magnetic North: 8.00°

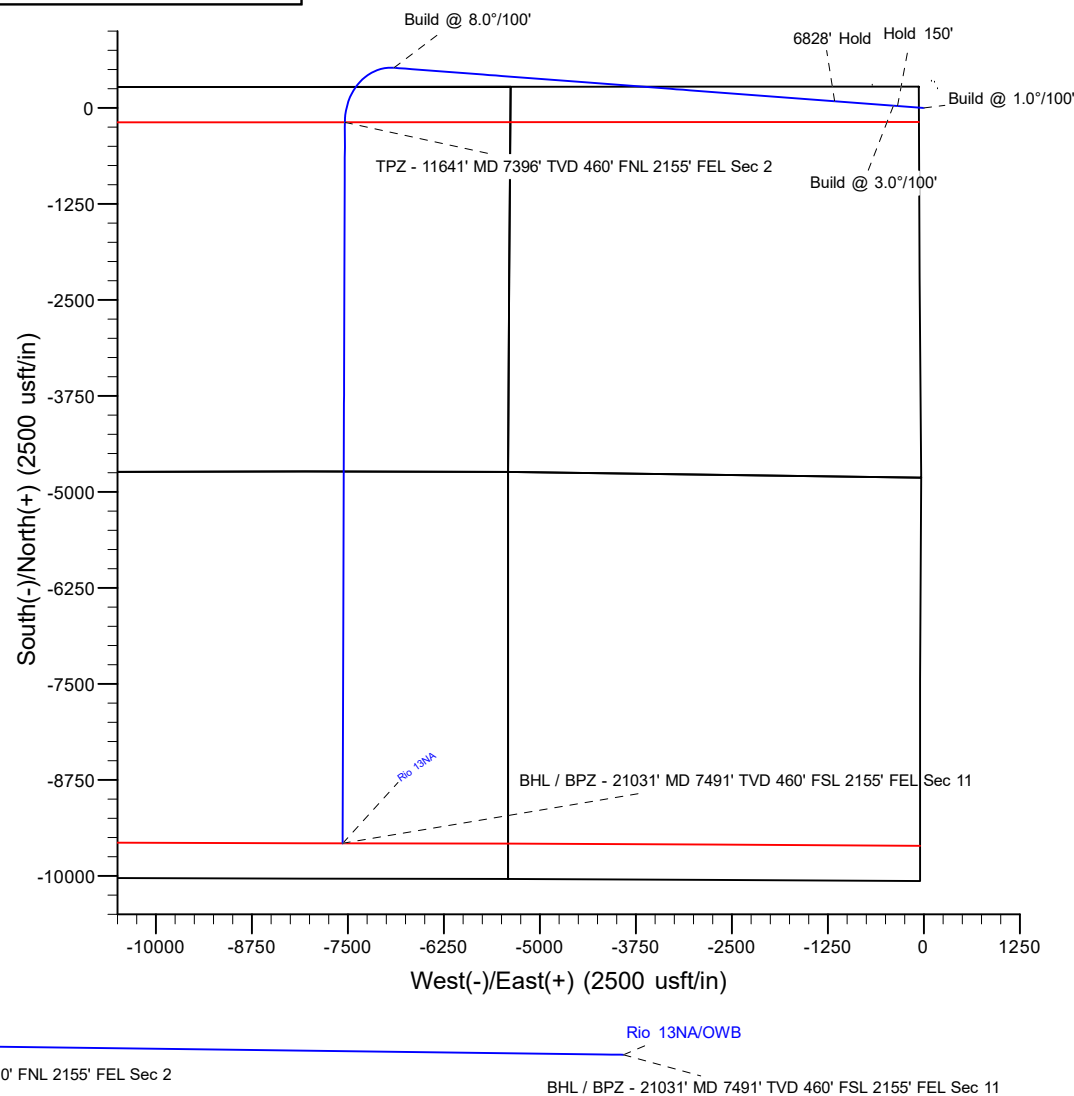
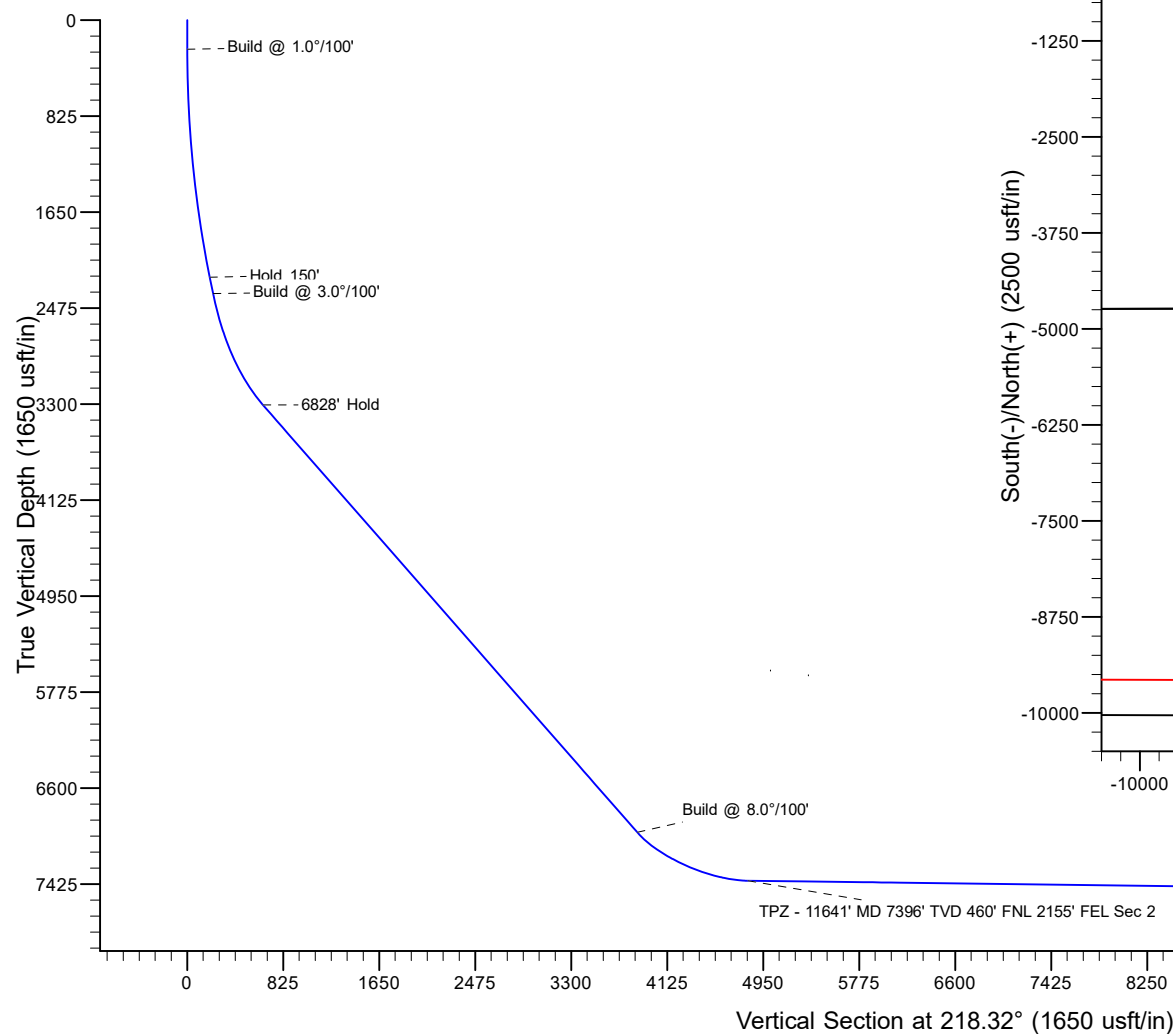
Magnetic Field
Strength: 51874.4nT
Dip Angle: 66.44°
Date: 12/31/2019
Model: IGRF2015

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Annotation
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
250.0	0.00	0.00	250.0	0.0	0.0	0.00	0.00	0.0	Build @ 1.0°/100'
2250.0	20.00	274.30	2209.6	25.9	-344.6	1.00	274.30	193.3	Hold 150'
2400.0	20.00	274.30	2350.6	29.8	-395.7	0.00	0.00	222.0	Build @ 3.0°/100'
3648.4	57.45	274.35	3307.3	87.7	-1160.7	3.00	0.06	650.9	6828' Hold
10476.6	57.45	274.35	6980.9	523.8	-6899.9	0.00	0.00	3867.6	Build @ 8.0°/100'
11641.6	89.42	180.18	7396.0	-185.1	-7538.8	8.00	-92.73	4820.0	TPZ - 11641' MD 7396' TVD 460' FNL 2155' FEL Sec 2
21031.6	89.42	180.18	7491.0	-9574.5	-7568.3	0.00	0.00	12204.5	BHL / BPZ - 21031' MD 7491' TVD 460' FSL 2155' FEL Sec 11

Plan: Plan #1 (Rio 13NA/OWB)

Created By: Mike Mataalii Date: 10:26, August 30 2022



PDC Energy Inc.
Anticollision Summary Report

Company:	GWP - PLANNING DB	Local Co-ordinate Reference:	Well Rio 13NA
Project:	ADAMS COUNTY	TVD Reference:	KB 28' @ 5095.0usft
Reference Site:	Rio Ivy	MD Reference:	KB 28' @ 5095.0usft
Site Error:	0.0 usft	North Reference:	True
Reference Well:	Rio 13NA	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OWB	Database:	EDM 5000.15 Single 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:	ISCWSA
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 10,000.0 usft	Error Surface:	Pedal Curve
Warning Levels Evaluated at:	2.00 Sigma	Casing Method:	Not applied

Survey Tool Program	Date	8/30/2022		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.0	21,031.6	Plan #1 (OWB)	MWD	OWSG MWD - Standard

Summary						
Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Rio Ivy						
Rio 14N - OWB - Plan #1	3,570.4	3,571.6	5.7	-40.7	0.123	No-Go Zone - Stop Drilling, (
Rio 15NA - OWB - Plan #1	3,587.5	3,589.8	18.2	-28.8	0.387	No-Go Zone - Stop Drilling, (
Rio 15NA - OWB - Plan #1	3,600.0	3,602.3	18.2	-29.0	0.386	No-Go Zone - Stop Drilling, (
Rio 16N - OWB - Plan #1	3,478.7	3,482.3	16.9	-26.0	0.394	No-Go Zone - Stop Drilling, (
Rio 16N - OWB - Plan #1	3,500.0	3,503.5	17.0	-26.2	0.393	No-Go Zone - Stop Drilling, (
Rio 17N - OWB - OWB	257.5	257.6	94.2	91.7	36.751	CC
Rio 17N - OWB - OWB	300.0	299.6	94.5	91.7	33.139	ES
Rio 17N - OWB - OWB	800.0	795.6	123.5	117.1	19.249	SF
Rio 17N - OWB - Plan #1	257.5	229.6	94.2	91.7	36.751	CC
Rio 17N - OWB - Plan #1	300.0	271.6	94.5	91.7	33.139	ES
Rio 17N - OWB - Plan #1	21,031.6	20,410.3	1,696.8	1,334.8	4.686	SF
Rio 18C - OWB - OWB	179.4	179.4	60.1	58.1	30.588	CC
Rio 18C - OWB - OWB	600.0	600.5	62.3	57.3	12.638	ES
Rio 18C - OWB - OWB	1,000.0	999.3	75.0	67.5	10.015	SF
Rio 18C - OWB - Plan #1	179.4	179.4	60.1	58.1	30.588	CC
Rio 18C - OWB - Plan #1	600.0	600.5	62.3	57.3	12.638	ES
Rio 18C - OWB - Plan #1	21,031.6	19,640.2	2,668.7	2,306.9	7.375	SF
Rio 19NA - OWB - OWB	0.0	0.0	45.2			
Rio 19NA - OWB - OWB	400.0	400.0	46.2	42.5	12.532	ES
Rio 19NA - OWB - OWB	800.0	798.3	57.3	51.0	9.085	SF
Rio 19NA - OWB - Plan #1	0.0	0.0	45.2			
Rio 19NA - OWB - Plan #1	400.0	400.0	46.2	42.5	12.532	ES
Rio 19NA - OWB - Plan #1	21,030.6	19,206.0	2,909.5	2,555.3	8.213	SF
Rio 20N - OWB - OWB	285.9	285.9	88.6	85.8	31.614	CC
Rio 20N - OWB - OWB	500.0	499.4	89.3	85.0	20.724	ES
Rio 20N - OWB - OWB	1,300.0	1,298.8	128.8	118.3	12.338	SF
Rio 20N - OWB - Plan #1	285.9	285.9	88.6	85.8	31.614	CC
Rio 20N - OWB - Plan #1	500.0	499.4	89.3	85.0	20.724	ES
Rio 20N - OWB - Plan #1	21,031.6	19,231.0	3,190.6	2,831.5	8.884	SF
Rio 21N - OWB - OWB	196.6	196.6	104.7	102.4	44.051	CC
Rio 21N - OWB - OWB	400.0	399.5	106.0	101.3	22.919	ES
Rio 21N - OWB - OWB	1,000.0	996.8	124.8	116.8	15.633	SF
Rio 21N - OWB - Plan #1	196.6	196.6	104.7	102.4	44.051	CC
Rio 21N - OWB - Plan #1	400.0	399.5	106.0	101.3	22.919	ES
Rio 21N - OWB - Plan #1	21,031.6	18,989.7	3,452.2	3,096.8	9.714	SF
Rio 22C - OWB - OWB	374.3	374.5	120.0	116.5	33.749	CC
Rio 22C - OWB - OWB	500.0	499.6	120.6	116.1	27.125	ES

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

PDC Energy Inc.
Anticollision Summary Report

Company:	GWP - PLANNING DB	Local Co-ordinate Reference:	Well Rio 13NA
Project:	ADAMS COUNTY	TVD Reference:	KB 28' @ 5095.0usft
Reference Site:	Rio Ivy	MD Reference:	KB 28' @ 5095.0usft
Site Error:	0.0 usft	North Reference:	True
Reference Well:	Rio 13NA	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OWB	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Summary						
Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Rio Ivy						
Rio 22C - OWB - OWB	1,500.0	1,494.8	175.1	164.7	16.835	SF
Rio 22C - OWB - Plan #1	374.3	374.5	120.0	116.5	33.749	CC
Rio 22C - OWB - Plan #1	500.0	499.6	120.6	116.1	27.125	ES
Rio 22C - OWB - Plan #1	21,032.3	18,963.7	3,739.4	3,380.3	10.411	SF
Rio 23NA - OWB - OWB	357.4	357.7	135.5	132.0	38.756	CC
Rio 23NA - OWB - OWB	600.0	600.7	136.1	131.0	26.409	ES
Rio 23NA - OWB - OWB	1,300.0	1,291.6	182.7	173.6	20.074	SF
Rio 23NA - OWB - Plan #1	357.4	357.7	135.5	132.0	38.756	CC
Rio 23NA - OWB - Plan #1	600.0	600.7	136.1	131.0	26.409	ES
Rio 23NA - OWB - Plan #1	21,032.3	18,516.1	3,989.1	3,635.9	11.296	SF
Rio 24N - OWB - OWB	276.1	276.1	149.0	146.3	54.663	CC
Rio 24N - OWB - OWB	500.0	498.9	149.6	145.3	35.257	ES
Rio 24N - OWB - OWB	1,700.0	1,691.3	224.8	213.1	19.148	SF
Rio 24N - OWB - Plan #1	276.1	276.1	149.0	146.3	54.663	CC
Rio 24N - OWB - Plan #1	500.0	498.9	149.6	145.3	35.257	ES
Rio 24N - OWB - Plan #1	21,032.3	18,574.2	4,266.8	3,909.9	11.955	SF
Rio 25N - OWB - OWB	310.9	311.1	164.6	161.6	55.601	CC
Rio 25N - OWB - OWB	500.0	500.0	165.0	160.7	37.895	ES
Rio 25N - OWB - OWB	1,500.0	1,486.6	238.6	228.0	22.495	SF
Rio 25N - OWB - Plan #1	310.9	311.1	164.6	161.6	55.601	CC
Rio 25N - OWB - Plan #1	500.0	500.0	165.0	160.7	37.895	ES
Rio 25N - OWB - Plan #1	21,032.3	18,331.7	4,530.9	4,177.0	12.802	SF
Rio 26C - OWB - OWB	339.2	339.4	180.3	177.0	55.573	CC
Rio 26C - OWB - OWB	600.0	600.6	181.0	176.1	36.726	ES
Rio 26C - OWB - OWB	1,700.0	1,688.1	248.4	236.9	21.631	SF
Rio 26C - OWB - Plan #1	339.2	339.4	180.3	177.0	55.573	CC
Rio 26C - OWB - Plan #1	600.0	600.6	181.0	176.1	36.726	ES
Rio 26C - OWB - Plan #1	21,032.3	18,383.7	4,814.2	4,457.6	13.498	SF

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Anticollision Summary Report

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Site Error:	0.0 usft	North Reference:	True
Reference Well:	Rio 13NA	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OWB	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Summary						
Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Rio Ivy Offsets						
ALBERT SACK #14-31 - OWB\ - OWB	186.3	140.5	1,564.9	1,563.1	866.779	CC
ALBERT SACK #14-31 - OWB\ - OWB	250.0	204.2	1,565.1	1,562.9	719.629	ES
ALBERT SACK #14-31 - OWB\ - OWB	3,400.0	3,133.2	2,412.9	2,390.3	106.681	SF
ALICIA #12-15H-5N - OWB - OWB	17,600.0	11,535.1	5,308.7	5,119.3	28.021	CC, ES
ALICIA #12-15H-5N - OWB - OWB	21,032.3	7,961.6	5,333.6	5,135.2	26.882	SF
ALICIA 12-15H-5N - OWB - OWB	21,032.3	4,798.0	6,087.8	5,917.2	35.692	CC, ES, SF
BEISEL (OWP) #42-1 - OWB - OWB	3,444.8	3,156.8	1,254.3	1,226.2	44.582	CC
BEISEL (OWP) #42-1 - OWB - OWB	3,500.0	3,191.5	1,255.0	1,225.9	43.075	ES
BEISEL (OWP) #42-1 - OWB - OWB	4,300.0	3,624.5	1,441.6	1,398.9	33.784	SF
Beisel Unit #1 - OWB - OWB	4,320.8	3,638.9	1,117.1	1,070.9	24.185	CC, ES
Beisel Unit #1 - OWB - OWB	4,800.0	3,897.0	1,187.9	1,133.2	21.740	SF
BELLINGER #12-7 - OWB - OWB	19,486.3	5,162.0	6,129.0	5,983.9	42.253	CC
BELLINGER #12-7 - OWB - OWB	19,500.0	5,162.0	6,129.0	5,983.9	42.239	ES
BELLINGER #12-7 - OWB - OWB	20,800.0	5,162.0	6,268.2	6,117.2	41.506	SF
Bullwash #11-11 - OWB - OWB	19,319.5	5,100.0	2,690.4	2,542.8	18.230	CC
Bullwash #11-11 - OWB - OWB	19,400.0	5,100.0	2,691.6	2,542.1	18.007	ES
Bullwash #11-11 - OWB - OWB	20,500.0	5,100.0	2,938.0	2,760.3	16.537	SF
BYDALAK #1-11 - OWB - OWB	16,935.8	7,490.6	1,163.8	1,041.0	9.476	CC
BYDALAK #1-11 - OWB - OWB	17,000.0	7,491.2	1,165.6	1,037.7	9.116	ES
BYDALAK #1-11 - OWB - OWB	17,600.0	7,497.3	1,340.0	1,164.8	7.649	SF
CROFF (OWP) #12-5 - OWB - OWB	18,204.0	5,139.0	6,103.6	5,979.2	49.068	CC, ES
CROFF (OWP) #12-5 - OWB - OWB	20,400.0	5,139.0	6,486.6	6,348.9	47.107	SF
Cundall #1 - OWB - OWB	15,900.0	7,424.1	4,236.7	4,110.0	33.438	SF
Cundall #1 - OWB - OWB	16,910.0	7,434.3	4,114.6	3,992.2	33.630	CC, ES
CUNDALL #5-12 - OWB - OWB	17,500.0	7,451.3	3,074.8	2,925.0	20.525	SF
CUNDALL #5-12 - OWB - OWB	18,189.0	7,458.2	2,996.6	2,853.6	20.943	CC, ES
CUNDALL #6-12 - OWB - OWB	18,100.0	7,446.3	4,270.6	4,127.7	29.886	SF
CUNDALL #6-12 - OWB - OWB	18,175.4	7,447.1	4,270.0	4,127.1	29.891	CC, ES
CUNDALL 11-12 #2 - OWB - OWB	15,800.0	7,433.1	3,040.9	2,903.0	22.042	SF
CUNDALL 11-12 #2 - OWB - OWB	16,898.5	7,444.2	2,835.6	2,713.5	23.209	CC, ES
EHLER #34-11-1 - OWB - OWB	20,800.0	7,491.7	381.5	179.6	1.889	Collision Risk Procedures Required
EHLER #34-11-1 - OWB - OWB	20,879.3	7,492.5	373.2	184.9	1.982	Collision Risk Procedures Required
GASPAR #11-1 - OWB - OWB	8,169.3	5,730.3	531.1	401.8	4.109	CC, ES
GASPAR #11-1 - OWB - OWB	8,200.0	5,747.4	531.7	401.9	4.097	SF
IVEY #16-11 - OWB - OWB	20,500.0	7,590.8	1,512.3	1,298.0	7.059	SF
IVEY #16-11 - OWB - OWB	20,800.0	7,590.9	1,480.7	1,275.2	7.204	ES
IVEY #16-11 - OWB - OWB	20,807.3	7,590.9	1,480.7	1,275.4	7.212	CC
Ivey LC 02-033HC - OWB - OWB	21,032.3	8,575.3	491.7	303.2	2.608	CC, ES, SF
Ivey LC 02-036HC - OWB - OWB	11,164.6	18,347.0	1,022.1	800.1	4.604	CC
Ivey LC 02-036HC - OWB - OWB	11,200.0	18,347.0	1,022.4	800.1	4.599	ES, SF
IVEY LC 26-362HC - OWB - OWB	20,900.0	7,168.0	1,302.6	1,121.3	7.186	SF
IVEY LC 26-362HC - OWB - OWB	21,032.3	7,213.9	1,294.8	1,115.9	7.237	CC, ES
IVEY LC 26-362HC - ST01 - ST01	20,900.0	7,168.0	1,302.6	1,121.3	7.186	SF
IVEY LC 26-362HC - ST01 - ST01	21,032.3	7,213.9	1,294.8	1,115.9	7.237	CC, ES
Ivey LC 26-362HN - OWB - OWB	20,900.0	7,192.0	1,404.1	1,213.2	7.356	SF
Ivey LC 26-362HN - OWB - OWB	21,032.3	7,192.0	1,389.9	1,204.0	7.476	CC, ES
Ivey LC 26-363HN - OWB - OWB	21,032.3	7,358.8	1,059.3	871.5	5.642	CC, ES, SF
Ivey LC 26-363HXX - OWB - OWB	21,032.3	7,287.8	1,218.4	1,024.0	6.266	CC, ES, SF
Ivey LC 26-365HC - OWB - OWB	21,032.3	7,523.8	739.2	540.5	3.721	CC, ES, SF
Ivey LC 26-366HN - OWB - OWB	21,032.3	7,631.6	486.4	267.9	2.227	CC, ES, SF
Ivey LC 26-366HN - ST01 - ST01	21,032.3	7,614.0	568.5	348.9	2.589	CC, ES, SF
Ivey LC 26-366HXX - OWB - OWB	21,032.3	7,550.0	621.5	404.0	2.857	CC, ES, SF
Ivey LC 26-368HC - OWB - OWB	21,032.3	7,697.3	227.6	8.4	1.039	Collision Avoidance Required, CC

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

PDC Energy Inc.
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Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Summary						
Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Rio Ivy Offsets						
Ivey LC 26-368HN - OWB - OWB	21,032.3	7,637.0	337.6	121.9	1.565	Collision Risk Procedures R
Ivey Unit #1 - OWB - OWB	19,100.0	7,468.5	1,537.7	1,360.0	8.655	SF
Ivey Unit #1 - OWB - OWB	19,400.0	7,471.5	1,489.7	1,321.9	8.875	ES
Ivey Unit #1 - OWB - OWB	19,492.1	7,472.4	1,486.9	1,322.1	9.024	CC
JOHNSON 1 - OWB - OWB	9,400.0	5,200.0	3,435.0	3,289.3	23.568	SF
JOHNSON 1 - OWB - OWB	14,191.2	5,200.0	2,683.6	2,623.0	44.321	CC, ES
LENART (OWP) #S-1 - OWB - OWB	4,185.4	4,648.6	6,373.5	6,328.2	140.641	CC
LENART (OWP) #S-1 - OWB - OWB	4,300.0	4,680.2	6,374.4	6,326.7	133.614	ES
LENART (OWP) #S-1 - OWB - OWB	20,700.0	5,137.0	7,386.2	7,244.8	52.219	SF
MALLO #1 - OWB - OWB	20,806.8	5,175.0	6,147.9	5,981.3	36.898	CC, ES
MALLO #1 - OWB - OWB	21,031.6	5,175.0	6,152.0	5,984.6	36.735	SF
Morrison #1 - OWB - OWB	7,424.3	5,100.0	3,169.5	3,056.8	28.118	CC
Morrison #1 - OWB - OWB	7,500.0	5,100.0	3,170.4	3,056.1	27.744	ES
Morrison #1 - OWB - OWB	8,300.0	5,100.0	3,288.2	3,161.6	25.961	SF
MORRISON 11-1 - OWB - OWB	5,541.4	4,499.1	3,220.3	3,141.6	40.936	CC
MORRISON 11-1 - OWB - OWB	5,700.0	4,617.5	3,222.4	3,140.0	39.087	ES
MORRISON 11-1 - OWB - OWB	8,100.0	6,281.9	3,660.7	3,533.0	28.658	SF
MORRISON 15-1 - OWB - OWB	4,357.0	3,664.5	4,101.0	4,053.8	86.883	CC
MORRISON 15-1 - OWB - OWB	4,500.0	3,741.4	4,102.8	4,052.6	81.661	ES
MORRISON 15-1 - OWB - OWB	7,800.0	5,516.9	5,024.1	4,920.7	48.576	SF
MORRISON 24-1 #3 - OWB - OWB	13,200.0	7,400.8	4,821.8	4,698.2	39.015	SF
MORRISON 24-1 #3 - OWB - OWB	15,568.7	7,424.7	4,200.0	4,098.3	41.326	CC, ES
MORRISON 33-1 #4 - OWB - OWB	4,445.3	3,708.0	3,098.0	3,049.0	63.126	CC
MORRISON 33-1 #4 - OWB - OWB	4,500.0	3,737.4	3,098.4	3,048.1	61.668	ES
MORRISON 33-1 #4 - OWB - OWB	6,700.0	4,921.1	3,634.6	3,548.1	42.034	SF
Morrison Investment #1 - OWB - OWB	13,900.0	7,419.8	3,243.6	3,111.1	24.477	SF
Morrison Investment #1 - OWB - OWB	15,500.0	7,436.0	2,799.1	2,697.6	27.569	ES
Morrison Investment #1 - OWB - OWB	15,539.4	7,436.4	2,798.9	2,697.6	27.655	CC
NORTH COLORADO #12-13 - OWB - OWN	21,032.3	7,694.1	3,725.7	3,483.0	15.350	CC, ES, SF
NORTH COLORADO #6 - OWB - OWB	21,032.3	7,525.0	4,176.4	3,963.8	19.639	CC, ES, SF
NORTH COLORADO BOULEVARD #3 - OWB - OWB	21,032.3	5,113.0	3,878.2	3,705.3	22.431	CC, ES, SF
NORTH COLORADO BOULEVARD UNIT #5 - OWB - OW	21,032.3	5,300.0	5,816.8	5,627.9	30.800	CC, ES, SF
North York #1 - OWB - OWB	19,200.0	5,200.0	4,670.3	4,531.8	33.716	SF
North York #1 - OWB - OWB	19,446.2	5,200.0	4,663.8	4,525.5	33.730	CC, ES
NORTH YORK #11-12 - OWB - OWB	19,400.0	7,475.5	4,206.7	4,041.7	25.506	SF
NORTH YORK #11-12 - OWB - OWB	19,496.2	7,476.5	4,205.6	4,040.7	25.513	CC, ES
NORTH YORK #13-12-3 - OWB - OWB	20,500.0	7,477.6	2,796.6	2,604.9	14.590	SF
NORTH YORK #13-12-3 - OWB - OWB	20,872.4	7,481.4	2,771.7	2,583.5	14.734	CC, ES
NORTH YORK #2 - OWB - OWB	20,300.0	5,200.0	3,610.1	3,456.7	23.524	SF
NORTH YORK #2 - OWB - OWB	20,952.9	5,200.0	3,550.6	3,401.7	23.848	CC, ES
NORTH YORK 13-12 - OWB - OWB	20,400.0	7,655.4	2,814.1	2,606.9	13.580	SF
NORTH YORK 13-12 - OWB - OWB	20,659.5	7,660.8	2,802.1	2,597.2	13.674	CC, ES
NORTH YORK 14-12 - OWB - OWB	20,600.0	7,490.8	4,144.9	3,934.6	19.714	SF
NORTH YORK 14-12 - OWB - OWB	20,733.8	7,492.4	4,142.7	3,932.6	19.718	CC, ES
REHFELD K UNIT #1 - OWB - OWB	14,200.0	7,457.9	1,528.4	1,389.6	11.009	SF
REHFELD K UNIT #1 - OWB - OWB	15,000.0	7,466.0	1,296.6	1,202.8	13.819	ES
REHFELD K UNIT #1 - OWB - OWB	15,009.3	7,466.1	1,296.6	1,203.0	13.863	CC
REINHOLT (OWP) #12-6 - OWB - OWB	4,133.7	3,545.4	5,833.4	5,790.9	137.351	CC
REINHOLT (OWP) #12-6 - OWB - OWB	4,300.0	3,634.8	5,835.0	5,789.1	126.876	ES
REINHOLT (OWP) #12-6 - OWB - OWB	20,300.0	5,110.0	6,802.9	6,671.2	51.660	SF
Rio LC 12-242HC - OWB - OWB	194.6	188.0	162.3	159.9	69.237	CC
Rio LC 12-242HC - OWB - OWB	300.0	292.7	162.6	159.5	52.608	ES
Rio LC 12-242HC - OWB - OWB	1,300.0	1,287.1	243.2	233.4	24.859	SF

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

PDC Energy Inc.
Anticollision Summary Report

Company:	GWP - PLANNING DB	Local Co-ordinate Reference:	Well Rio 13NA
Project:	ADAMS COUNTY	TVD Reference:	KB 28' @ 5095.0usft
Reference Site:	Rio Ivy	MD Reference:	KB 28' @ 5095.0usft
Site Error:	0.0 usft	North Reference:	True
Reference Well:	Rio 13NA	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OWB	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Summary						
Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Rio Ivy Offsets						
Rio LC 12-332HN - OWB - OWB	100.0	93.0	90.1	89.3	108.554	CC
Rio LC 12-332HN - OWB - OWB	250.0	243.0	90.3	87.6	33.369	ES
Rio LC 12-332HN - OWB - OWB	900.0	891.1	132.8	125.5	18.117	SF
Rio LC 12-362HN - OWB - OWB	342.1	337.2	173.5	170.0	49.828	CC
Rio LC 12-362HN - OWB - OWB	400.0	394.6	173.7	169.8	44.256	ES
Rio LC 12-362HN - OWB - OWB	21,032.3	17,660.0	6,928.1	6,569.9	19.342	SF
Rio LC 12-363HN - OWB - OWB	0.0	0.0	150.1			
Rio LC 12-363HN - OWB - OWB	300.0	293.1	150.4	147.3	49.844	ES
Rio LC 12-363HN - OWB - OWB	21,031.6	17,289.4	6,817.6	6,473.9	19.835	SF
Rio LC 12-363HNX - OWB - OWB	0.0	0.0	138.2			
Rio LC 12-363HNX - OWB - OWB	300.0	293.0	138.8	135.8	46.402	ES
Rio LC 12-363HNX - OWB - OWB	21,032.3	17,450.6	6,658.1	6,302.4	18.718	SF
Rio LC 12-365HC - OWB - OWB	228.1	221.6	126.4	123.8	48.225	CC
Rio LC 12-365HC - OWB - OWB	250.0	243.1	126.5	123.7	45.648	ES
Rio LC 12-365HC - OWB - OWB	21,032.3	17,859.3	6,394.2	6,039.6	18.034	SF
Rio LC 12-365HN - OWB - OWB	100.0	93.0	117.4	116.6	141.893	CC
Rio LC 12-365HN - OWB - OWB	200.0	192.3	118.1	115.7	48.900	ES
Rio LC 12-365HN - OWB - OWB	21,032.3	17,490.4	6,291.6	5,942.5	18.024	SF
Rio LC 12-366HN - OWB - OWB	166.6	159.6	107.6	105.7	57.351	CC
Rio LC 12-366HN - OWB - OWB	300.0	292.4	108.1	104.9	34.510	ES
Rio LC 12-366HN - OWB - OWB	21,032.3	17,655.7	6,004.1	5,655.0	17.197	SF
Rio LC 12-366HN - ST01 - ST01	166.6	159.6	107.6	105.7	57.351	CC
Rio LC 12-366HN - ST01 - ST01	300.0	292.4	108.1	104.9	34.510	ES
Rio LC 12-366HN - ST01 - ST01	21,032.3	17,748.3	5,930.7	5,578.6	16.841	SF
Rio LC 12-366HNX - OWB - OWB	288.8	282.8	99.4	96.4	32.801	CC
Rio LC 12-366HNX - OWB - OWB	400.0	394.4	100.1	96.2	25.687	ES
Rio LC 12-366HNX - OWB - OWB	21,032.3	17,492.0	5,897.9	5,546.9	16.803	SF
Rio LC 12-368HC - OWB - OWB	100.0	93.3	94.7	93.9	114.428	CC
Rio LC 12-368HC - OWB - OWB	250.0	242.8	95.2	92.5	34.249	ES
Rio LC 12-368HC - OWB - OWB	21,000.0	17,951.0	5,647.0	5,295.2	16.053	SF
Rio LC 12-368HN - OWB - OWB	299.8	294.0	89.6	86.4	28.250	CC
Rio LC 12-368HN - OWB - OWB	300.0	294.2	89.6	86.4	28.239	ES
Rio LC 12-368HN - OWB - OWB	21,032.3	17,719.5	5,519.2	5,167.6	15.698	SF
Rio LC 12-369HNX - OWB - OWB	335.4	330.1	90.1	86.5	24.995	CC
Rio LC 12-369HNX - OWB - OWB	400.0	394.7	90.5	86.4	22.174	ES
Rio LC 12-369HNX - OWB - OWB	21,032.3	17,896.8	5,134.5	4,778.9	14.441	SF
Rio LC 12-376HN - OWB - OWB	176.2	157.4	60.1	58.1	31.004	CC
Rio LC 12-376HN - OWB - OWB	600.0	581.6	62.2	57.3	12.612	ES
Rio LC 12-376HN - OWB - OWB	1,000.0	980.5	74.9	67.4	10.002	SF
RUBY 2 - OWB - OWB	19,517.2	7,703.1	5,489.9	5,309.7	30.461	CC, ES
RUBY 2 - OWB - OWB	20,000.0	7,702.0	5,511.1	5,329.5	30.356	SF
Sack #1 - OWB - OWB	16,200.0	7,456.1	1,706.2	1,554.4	11.241	SF
Sack #1 - OWB - OWB	16,900.0	7,463.2	1,532.0	1,407.3	12.287	ES
Sack #1 - OWB - OWB	16,952.9	7,463.7	1,531.1	1,408.0	12.442	CC
SACK #4N-30HZ - OWB - OWB	369.7	342.9	1,130.9	1,127.1	299.231	CC
SACK #4N-30HZ - OWB - OWB	400.0	370.4	1,130.9	1,126.9	283.788	ES
SACK #4N-30HZ - OWB - OWB	3,700.0	3,323.0	1,835.3	1,802.2	55.402	SF
SACK (OWP) #11-6 - OWB - OWB	261.1	239.0	545.3	542.4	185.697	CC
SACK (OWP) #11-6 - OWB - OWB	300.0	277.2	545.4	542.2	170.715	ES
SACK (OWP) #11-6 - OWB - OWB	2,900.0	2,801.2	1,082.3	1,059.1	46.671	SF
SACK 7-11 - OWB - OWB	18,200.0	7,491.4	150.2	-40.9	0.786	No-Go Zone - Stop Drilling, f
SACK 7-11 - OWB - OWB	18,290.6	7,492.3	119.8	-25.0	0.827	No-Go Zone - Stop Drilling, f
SACK 8-11 - OWB - OWB	17,700.0	7,468.3	1,403.3	1,239.7	8.576	SF

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

PDC Energy Inc.
Anticollision Summary Report

Company:	GWP - PLANNING DB	Local Co-ordinate Reference:	Well Rio 13NA
Project:	ADAMS COUNTY	TVD Reference:	KB 28' @ 5095.0usft
Reference Site:	Rio Ivy	MD Reference:	KB 28' @ 5095.0usft
Site Error:	0.0 usft	North Reference:	True
Reference Well:	Rio 13NA	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OWB	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Summary						
Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Rio Ivy Offsets						
SACK 8-11 - OWB - OWB	18,100.0	7,472.3	1,319.0	1,172.4	8.999	ES
SACK 8-11 - OWB - OWB	18,187.0	7,473.2	1,316.1	1,173.0	9.199	CC
SACK G UNIT #1 - OWB - OWB	16,700.0	7,493.2	148.8	-13.6	0.916	No-Go Zone - Stop Drilling, ES
SACK G UNIT #1 - OWB - OWB	16,771.8	7,493.9	130.3	10.1	1.084	Collision Avoidance Req., CC
SACK G UNIT #2-X - OWB - OWB	18,100.0	7,487.3	166.9	-25.5	0.867	No-Go Zone - Stop Drilling, ES
SACK G UNIT #2-X - OWB - OWB	18,206.4	7,488.4	128.5	-14.9	0.896	No-Go Zone - Stop Drilling, ES
SACK STATE #30C-30HZ - OWB - OWB	100.0	69.1	1,126.9	1,125.9	1,059.315	CC
SACK STATE #30C-30HZ - OWB - OWB	250.0	212.7	1,127.4	1,124.4	379.928	ES
SACK STATE #30C-30HZ - OWB - OWB	4,000.0	3,728.1	1,645.9	1,606.5	41.776	SF
Standley #1 - OWB - OWB	8,834.3	5,251.0	2,343.6	2,212.3	17.858	CC
Standley #1 - OWB - OWB	8,900.0	5,251.0	2,344.5	2,212.1	17.711	ES
Standley #1 - OWB - OWB	9,200.0	5,251.0	2,371.9	2,235.6	17.396	SF
STANDLEY #2 - OWB - OWB	12,844.5	5,192.0	2,537.6	2,447.5	28.146	CC
STANDLEY #2 - OWB - OWB	12,900.0	5,192.0	2,538.2	2,447.4	27.926	ES
STANDLEY #2 - OWB - OWB	14,700.0	5,192.0	3,143.7	2,995.0	21.147	SF
STANDLEY 1-2 - OWB - OWB	9,385.3	6,449.0	905.5	740.4	5.484	CC
STANDLEY 1-2 - OWB - OWB	9,400.0	6,457.2	905.6	740.2	5.474	ES
STANDLEY 1-2 - OWB - OWB	9,500.0	6,512.9	910.6	743.7	5.456	SF
STANDLEY 2-2 - OWB - OWB	11,600.0	7,636.4	338.2	189.7	2.277	SF
STANDLEY 2-2 - OWB - OWB	11,700.0	7,637.9	286.2	173.1	2.532	ES
STANDLEY 2-2 - OWB - OWB	11,815.1	7,638.8	262.0	186.4	3.467	CC
STERKEL #1 - OWB - OWB	5,919.1	4,520.9	212.0	131.2	2.624	CC, ES, SF
STERKEL (OWP) #21-1 - OWB - OWB	6,263.9	4,710.2	769.5	681.1	8.701	CC
STERKEL (OWP) #21-1 - OWB - OWB	6,300.0	4,730.0	770.1	680.9	8.635	ES
STERKEL (OWP) #21-1 - OWB - OWB	6,400.0	4,784.7	777.9	687.1	8.566	SF
TUDEX BRINK (OWP) #S-2 - OWB - OWB	18,577.2	5,178.0	6,702.5	6,570.4	50.742	CC
TUDEX BRINK (OWP) #S-2 - OWB - OWB	18,600.0	5,178.0	6,702.5	6,570.3	50.699	ES
TUDEX BRINK (OWP) #S-2 - OWB - OWB	20,900.0	5,178.0	7,093.6	6,946.7	48.287	SF
TUDEX REINHOLT NC4 - OWB - OWB	17,009.0	7,470.1	5,568.2	5,443.6	44.700	CC, ES
TUDEX REINHOLT NC4 - OWB - OWB	18,900.0	7,487.0	5,880.5	5,745.4	43.514	SF
Wright #1 - OWB - OWB	21,032.3	7,507.0	1,873.5	1,647.7	8.296	CC, ES, SF
WRIGHT 2-14 - OWB - OWB	21,032.3	7,502.0	904.7	703.1	4.486	CC, ES, SF
YORK G UNIT #1 - OWB - OWB	16,300.0	7,468.1	1,123.0	972.4	7.453	SF
YORK G UNIT #1 - OWB - OWB	16,700.0	7,472.2	1,022.6	898.6	8.245	ES
YORK G UNIT #1 - OWB - OWB	16,769.3	7,472.9	1,020.3	900.1	8.491	CC

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

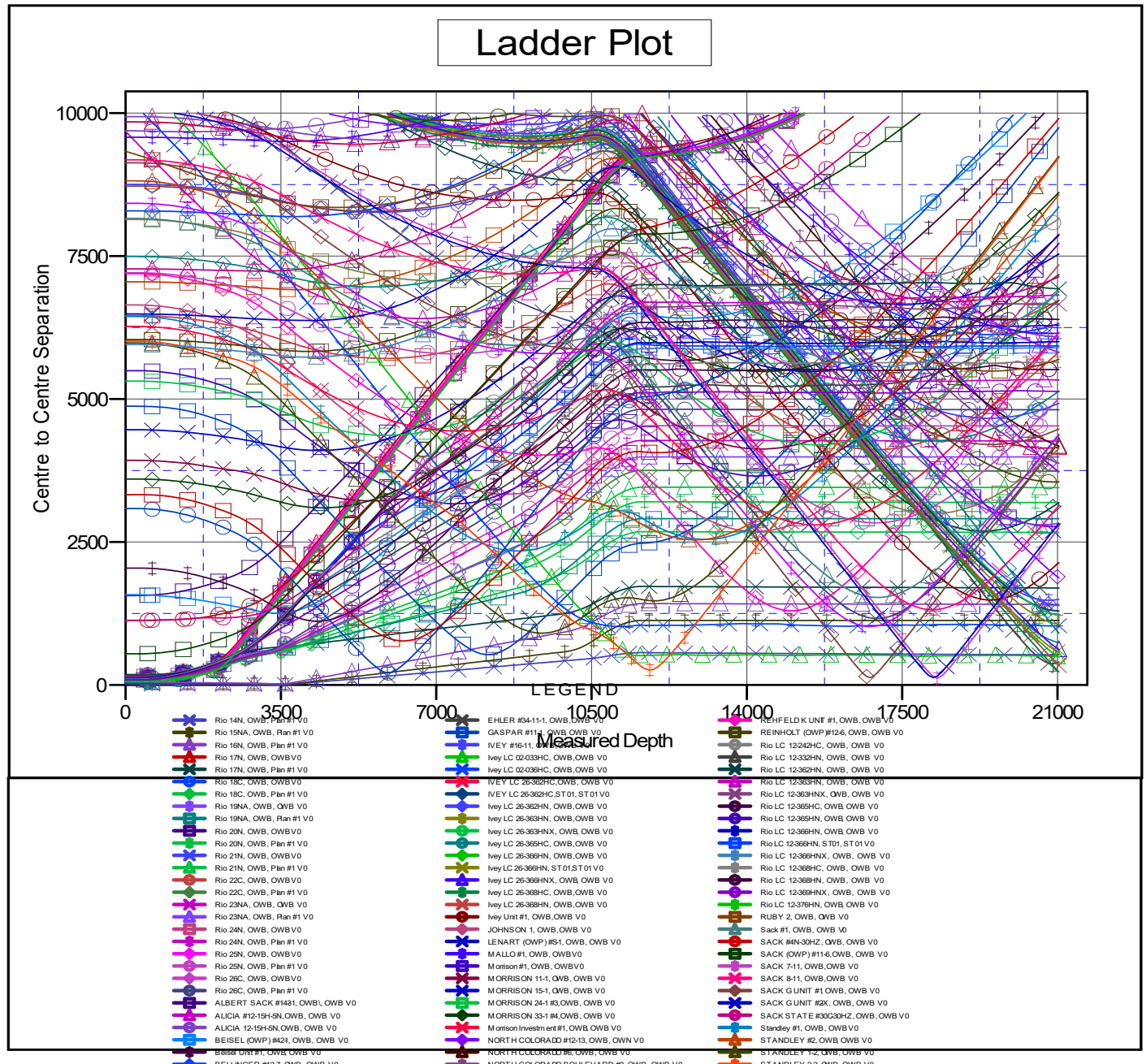
Anticollision Summary Report

Company:	GWP - PLANNING DB	Local Co-ordinate Reference:	Well Rio 13NA
Project:	ADAMS COUNTY	TVD Reference:	KB 28' @ 5095.0usft
Reference Site:	Rio Ivy	MD Reference:	KB 28' @ 5095.0usft
Site Error:	0.0 usft	North Reference:	True
Reference Well:	Rio 13NA	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OWB	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Coordinates are relative to: Rio 13NA

Coordinate System is US State Plane 1983, Colorado Northern Zone

Grid Convergence at Surface is: 0.36°



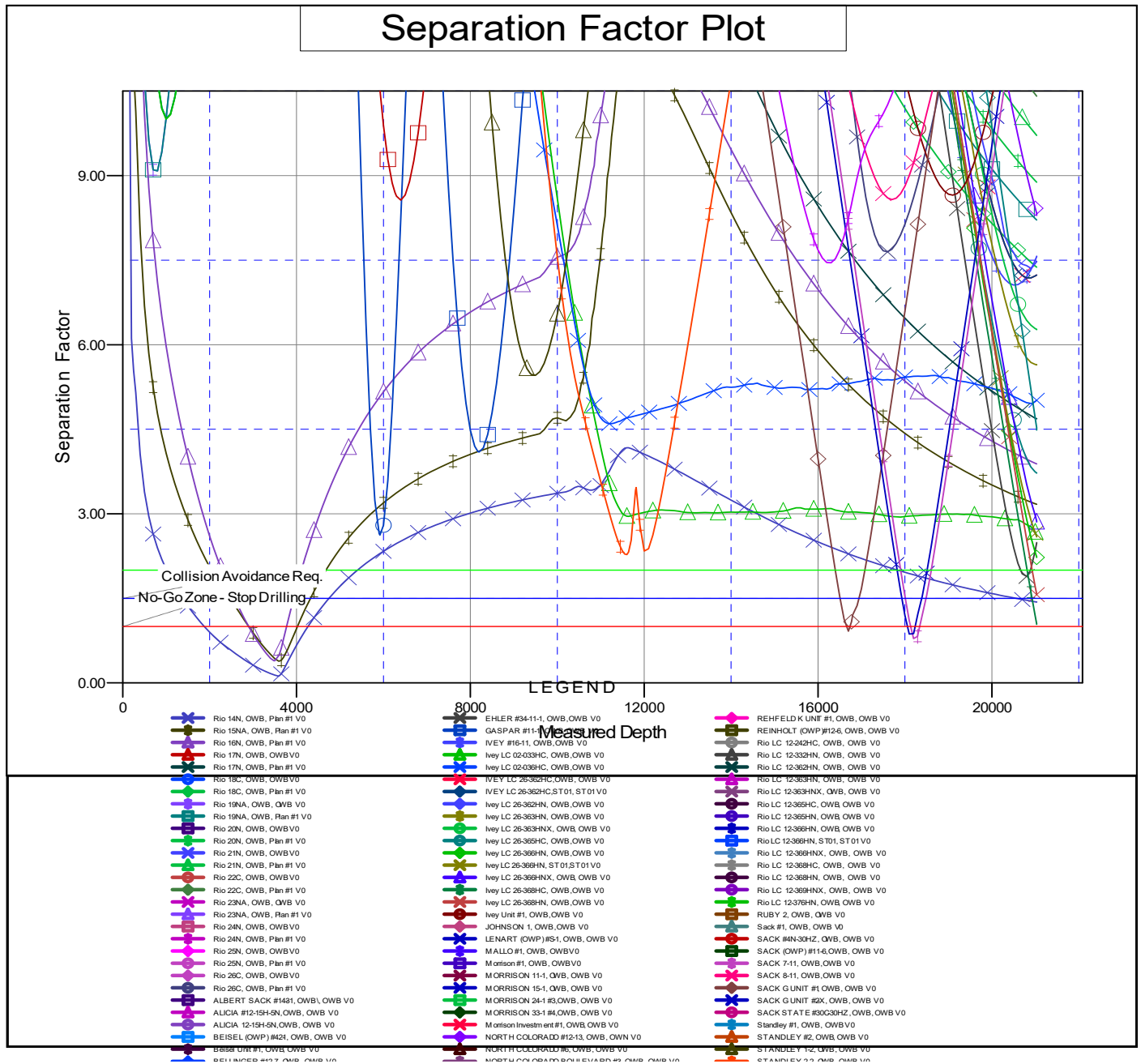
CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Anticollision Summary Report

Company:	GWP - PLANNING DB	Local Co-ordinate Reference:	Well Rio 13NA
Project:	ADAMS COUNTY	TVD Reference:	KB 28' @ 5095.0usft
Reference Site:	Rio Ivy	MD Reference:	KB 28' @ 5095.0usft
Site Error:	0.0 usft	North Reference:	True
Reference Well:	Rio 13NA	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OWB	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Reference Depths are relative to KB 28' @ 5095.0usft
Offset Depths are relative to Offset Datum
Central Meridian is 105° 30' 0.000 W

Coordinates are relative to: Rio 13NA
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.36°



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