

Plan #1

WELL DETAILS: Rio 19NA

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.0	0.0	1243142.03	3156857.66	39° 59' 58.023 N	104° 56' 24.367 W



Project: ADAMS COUNTY
Site: Rio Ivy
Well: Rio 19NA
Wellbore: OWB
Design: Plan #1
Lat: 39° 59' 58.023 N
Long: 104° 56' 24.367 W
GL: 5067.0
KB: KB 28' @ 5095.0usft



Azimuths to True North
Magnetic North: 7.81°

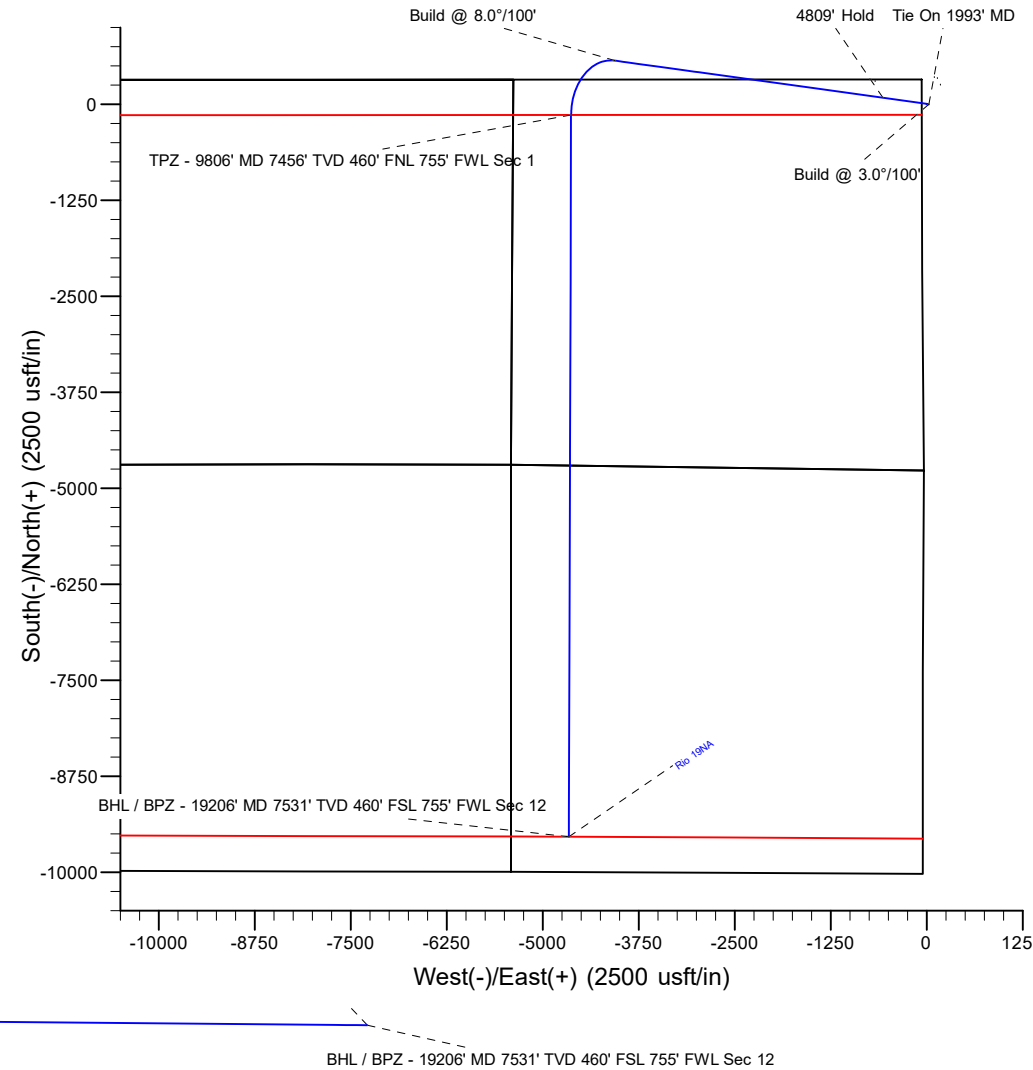
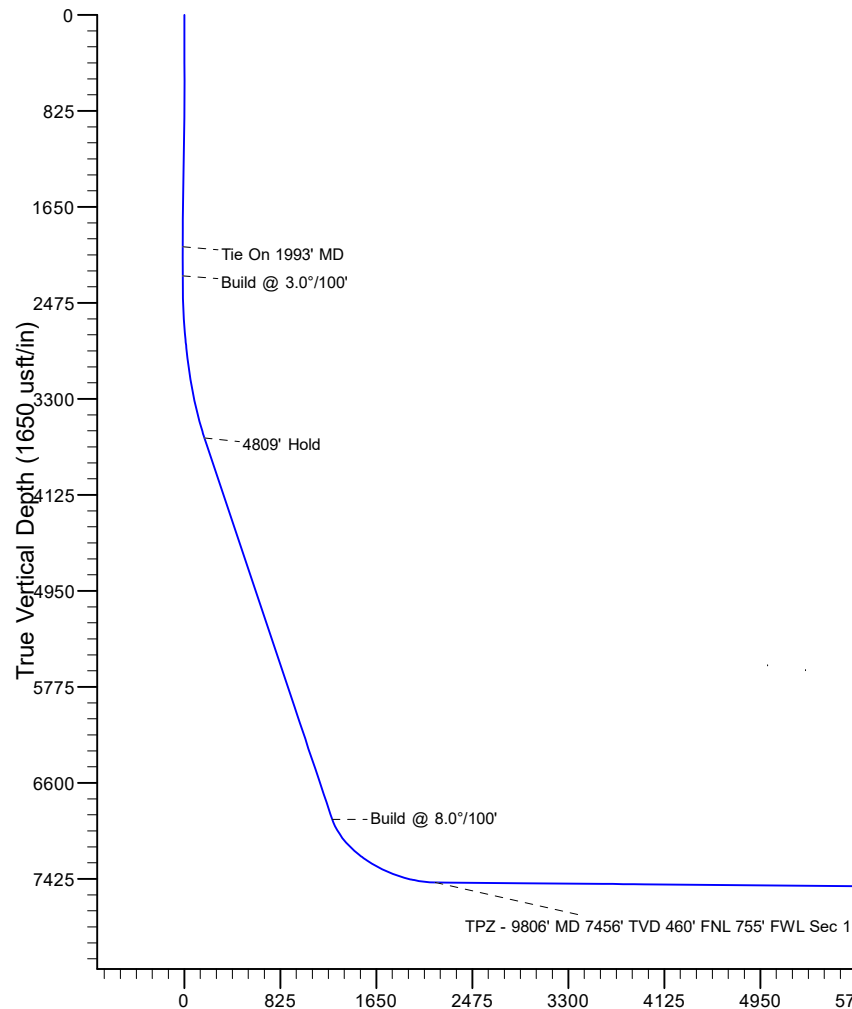
Magnetic Field
Strength: 51625.1nT
Dip Angle: 66.27°
Date: 5/24/2022
Model: IGRF2000

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Annotation
1993.0	0.26	336.62	1992.6	0.5	29.9	0.00	0.00	-13.6	Tie On 1993' MD
2243.0	0.26	336.62	2242.6	1.6	29.4	0.00	0.00	-14.3	Build @ 3.0°/100'
3806.0	47.02	277.85	3635.4	87.8	-572.3	3.00	-58.97	172.3	4809' Hold
8615.7	47.02	277.85	6914.2	568.6	-4058.3	0.00	0.00	1270.5	Build @ 8.0°/100'
9806.8	89.54	180.18	7456.0	-138.4	-4630.1	8.00	-95.58	2156.8	TPZ - 9806' MD 7456' TVD 460' FNL 755' FWL Sec 1
19206.2	89.54	180.18	7531.0	-9537.4	-4659.6	0.00	0.00	10614.8	BHL / BPZ - 19206' MD 7531' TVD 460' FSL 755' FWL Sec 12

Plan: Plan #1 (Rio 19NA/OWB)

Created By: Mike Mataalii Date: 11:21, August 30 2022



PDC Energy Inc.
Anticollision Summary Report

Company:	GWP - PLANNING DB	Local Co-ordinate Reference:	Well Rio 19NA
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 19NA	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
106.0	1,993.0	Surface Survey (OWB)	MWD	OWSG MWD - Standard
1,993.0	19,206.2	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 13NA - OWB - Plan #1	0.0	0.0	45.2			
Rio 13NA - OWB - Plan #1	412.0	411.8	46.2	42.5	12.250	ES
Rio 13NA - OWB - Plan #1	19,206.2	21,030.9	2,909.5	2,554.6	8.196	SF
Rio 14N - OWB - Plan #1	0.0	0.0	30.0			
Rio 14N - OWB - Plan #1	412.0	411.8	31.1	27.4	8.241	ES
Rio 14N - OWB - Plan #1	682.0	680.9	37.1	31.5	6.625	SF
Rio 15NA - OWB - Plan #1	0.0	0.0	15.3			
Rio 15NA - OWB - Plan #1	412.0	411.9	16.6	12.9	4.394	ES
Rio 15NA - OWB - Plan #1	592.0	591.4	20.9	15.8	4.101	SF
Rio 16N - OWB - Plan #1	0.0	0.0	0.0			
Rio 16N - OWB - Plan #1	170.0	170.0	0.6	-1.2	0.338	No-Go Zone - Stop Drilling, E
Rio 16N - OWB - Plan #1	232.0	232.0	0.9	-1.6	0.362	No-Go Zone - Stop Drilling, E
Rio 17N - OWB - OWB	281.7	281.6	116.3	113.7	44.236	CC
Rio 17N - OWB - OWB	1,980.2	1,980.0	117.3	106.1	10.439	ES, SF
Rio 17N - OWB - Plan #1	4,409.7	4,436.5	31.9	-16.5	0.659	No-Go Zone - Stop Drilling, C
Rio 18C - OWB - OWB	800.5	800.5	12.0	6.2	2.059	CC, ES
Rio 18C - OWB - OWB	861.0	860.9	12.6	6.5	2.047	SF
Rio 18C - OWB - Plan #1	800.5	800.5	12.0	6.2	2.059	CC
Rio 18C - OWB - Plan #1	5,800.0	5,755.8	35.3	-55.7	0.388	No-Go Zone - Stop Drilling, S
Rio 18C - OWB - Plan #1	6,000.0	5,955.7	37.3	-56.9	0.396	No-Go Zone - Stop Drilling, E
Rio 19NA - OWB - OWB	2,300.0	1,993.0	307.0	303.4	86.533	CC, ES, SF
Rio 20N - OWB - OWB	297.7	297.7	42.7	39.9	15.195	CC
Rio 20N - OWB - OWB	772.0	771.6	43.4	37.7	7.632	ES
Rio 20N - OWB - OWB	1,310.0	1,309.2	56.1	47.2	6.328	SF
Rio 20N - OWB - Plan #1	297.7	297.7	42.7	39.9	15.195	CC
Rio 20N - OWB - Plan #1	4,500.0	4,457.8	43.8	-4.6	0.906	No-Go Zone - Stop Drilling, E
Rio 21N - OWB - OWB	1,024.9	1,025.0	57.9	50.4	7.706	CC
Rio 21N - OWB - OWB	1,220.0	1,220.0	58.3	50.1	7.134	ES
Rio 21N - OWB - OWB	1,943.6	1,943.6	60.5	50.2	5.880	SF
Rio 21N - OWB - Plan #1	3,799.6	3,804.5	41.0	12.3	1.431	Collision Avoidance Req., CC
Rio 21N - OWB - Plan #1	3,900.0	3,904.4	42.2	10.7	1.338	Collision Avoidance Req., ES
Rio 22C - OWB - OWB	851.3	851.3	71.3	65.3	11.740	CC
Rio 22C - OWB - OWB	951.0	951.1	71.6	65.2	11.096	ES
Rio 22C - OWB - OWB	1,993.0	1,992.5	96.6	86.0	9.105	SF
Rio 22C - OWB - Plan #1	3,949.6	3,918.8	55.1	22.9	1.714	Collision Risk Procedures Re
Rio 22C - OWB - Plan #1	4,000.0	3,968.6	55.7	22.1	1.658	Collision Risk Procedures Re

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 19NA
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 19NA	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 23NA - OWB - OWB	682.3	682.0	88.0	82.5	16.005	CC
Rio 23NA - OWB - OWB	1,940.3	1,940.1	90.2	80.2	9.029	ES
Rio 23NA - OWB - OWB	1,993.0	1,993.0	90.3	80.3	8.978	SF
Rio 23NA - OWB - Plan #1	3,719.2	3,731.9	58.3	31.6	2.188	CC
Rio 23NA - OWB - Plan #1	3,806.0	3,818.0	60.2	31.0	2.066	ES, SF
Rio 24N - OWB - OWB	902.3	902.6	100.9	94.4	15.498	CC
Rio 24N - OWB - OWB	951.0	951.0	101.0	94.3	15.085	ES
Rio 24N - OWB - OWB	1,940.1	1,939.0	121.0	110.6	11.621	SF
Rio 24N - OWB - Plan #1	3,852.8	3,823.6	63.5	34.1	2.161	CC
Rio 24N - OWB - Plan #1	3,900.0	3,869.4	64.5	33.6	2.085	ES, SF
Rio 25N - OWB - OWB	873.7	873.6	115.8	109.6	18.695	CC
Rio 25N - OWB - OWB	1,760.0	1,760.0	118.2	108.8	12.545	ES
Rio 25N - OWB - OWB	1,940.3	1,939.8	119.0	109.0	11.840	SF
Rio 25N - OWB - Plan #1	3,696.4	3,699.6	68.1	42.5	2.660	CC
Rio 25N - OWB - Plan #1	3,700.0	3,703.2	68.1	42.4	2.649	ES
Rio 25N - OWB - Plan #1	3,806.0	3,806.2	73.6	44.7	2.544	SF
Rio 26C - OWB - OWB	942.5	942.8	131.4	125.0	20.455	CC
Rio 26C - OWB - OWB	1,041.0	1,041.0	131.7	124.9	19.380	ES
Rio 26C - OWB - OWB	2,000.0	1,999.4	149.1	139.1	14.845	SF
Rio 26C - OWB - Plan #1	3,637.7	3,625.3	87.9	63.8	3.659	CC
Rio 26C - OWB - Plan #1	3,700.0	3,685.5	89.6	63.3	3.409	ES
Rio 26C - OWB - Plan #1	3,806.0	3,786.6	101.9	71.8	3.383	SF

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Site Error:	0.0 usft	North Reference:	True
Reference Well:	Rio 19NA	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	2,257.4	2,220.2	1,557.5	1,548.4	171.834	CC, ES
ALBERT SACK #14-31 - OWB\ - OWB	4,700.0	4,246.4	2,639.4	2,613.5	101.586	SF
ALICIA #12-15H-5N - OWB - OWB	15,752.9	11,544.9	2,407.6	2,222.4	13.002	CC, ES
ALICIA #12-15H-5N - OWB - OWB	19,206.2	7,972.6	2,429.4	2,233.8	12.425	SF
ALICIA 12-15H-5N - OWB - OWB	19,206.2	4,798.0	3,775.4	3,633.3	26.567	CC, ES, SF
BEISEL (OWP) #42-1 - OWB - OWB	4,269.0	3,899.2	1,292.0	1,262.2	43.449	CC
BEISEL (OWP) #42-1 - OWB - OWB	4,300.0	3,920.6	1,292.2	1,261.9	42.717	ES
BEISEL (OWP) #42-1 - OWB - OWB	5,300.0	4,629.9	1,485.3	1,441.0	33.532	SF
Beisel Unit #1 - OWB - OWB	5,296.7	4,614.4	1,194.1	1,146.7	25.173	CC
Beisel Unit #1 - OWB - OWB	5,300.0	4,616.8	1,194.1	1,146.7	25.142	ES
Beisel Unit #1 - OWB - OWB	5,900.0	5,043.9	1,268.0	1,211.7	22.519	SF
BELLINGER #12-7 - OWB - OWB	17,666.7	5,162.0	3,640.9	3,514.6	28.819	CC, ES
BELLINGER #12-7 - OWB - OWB	17,800.0	5,162.0	3,643.4	3,516.8	28.777	SF
Bullwash #11-11 - OWB - OWB	17,500.0	5,100.0	4,757.9	4,604.2	30.956	CC
Bullwash #11-11 - OWB - OWB	17,600.0	5,100.0	4,758.9	4,602.9	30.495	ES
Bullwash #11-11 - OWB - OWB	19,206.2	5,100.0	5,054.5	4,867.3	26.997	SF
BYDALAK #1-11 - OWB - OWB	15,111.5	7,539.3	4,073.1	3,954.8	34.427	CC
BYDALAK #1-11 - OWB - OWB	15,200.0	7,540.0	4,074.0	3,953.3	33.741	ES
BYDALAK #1-11 - OWB - OWB	17,100.0	7,555.2	4,532.5	4,368.4	27.607	SF
CROFF (OWP) #12-5 - OWB - OWB	16,384.3	5,139.0	3,611.7	3,503.4	33.345	CC
CROFF (OWP) #12-5 - OWB - OWB	16,400.0	5,139.0	3,611.7	3,503.4	33.335	ES
CROFF (OWP) #12-5 - OWB - OWB	16,600.0	5,139.0	3,618.1	3,509.4	33.262	SF
Cundall #1 - OWB - OWB	14,900.0	7,481.6	1,219.5	1,098.2	10.048	SF
Cundall #1 - OWB - OWB	15,085.7	7,483.1	1,205.3	1,087.5	10.229	CC, ES
CUNDALL #5-12 - OWB - OWB	16,364.7	7,504.3	87.4	-51.8	0.628	No-Go Zone - Stop Drilling, (
CUNDALL #6-12 - OWB - OWB	16,200.0	7,492.0	1,369.1	1,227.9	9.697	SF
CUNDALL #6-12 - OWB - OWB	16,351.1	7,493.2	1,360.7	1,221.8	9.794	CC, ES
CUNDALL 11-12 #2 - OWB - OWB	15,074.2	7,493.0	73.6	-44.0	0.626	No-Go Zone - Stop Drilling, (
CUNDALL 11-12 #2 - OWB - OWB	15,100.0	7,493.2	78.0	-53.3	0.594	No-Go Zone - Stop Drilling, (
EHLER #34-11-1 - OWB - OWB	19,054.9	7,532.8	2,536.1	2,351.0	13.699	CC
EHLER #34-11-1 - OWB - OWB	19,100.0	7,533.2	2,536.5	2,349.7	13.583	ES
EHLER #34-11-1 - OWB - OWB	19,206.2	7,534.0	2,540.6	2,350.2	13.344	SF
GASPAR #11-1 - OWB - OWB	9,785.5	7,429.4	430.3	370.1	7.152	CC, ES
GASPAR #11-1 - OWB - OWB	10,100.0	7,429.4	537.9	447.7	5.961	SF
IVEY #16-11 - OWB - OWB	18,982.6	7,630.5	1,428.6	1,226.4	7.066	CC
IVEY #16-11 - OWB - OWB	19,000.0	7,630.5	1,428.7	1,225.7	7.037	ES
IVEY #16-11 - OWB - OWB	19,206.2	7,630.1	1,446.0	1,234.5	6.838	SF
Ivey LC 02-033HC - OWB - OWB	9,770.7	18,248.3	2,773.1	2,570.3	13.674	SF
Ivey LC 02-033HC - OWB - OWB	12,349.2	15,553.9	2,750.6	2,569.5	15.188	CC
Ivey LC 02-033HC - OWB - OWB	19,206.2	8,709.0	2,760.9	2,563.7	13.996	ES
Ivey LC 02-036HC - OWB - OWB	9,700.0	18,347.0	2,043.6	1,842.3	10.151	SF
Ivey LC 02-036HC - OWB - OWB	15,474.2	12,520.6	2,016.0	1,837.1	11.271	CC
Ivey LC 02-036HC - OWB - OWB	19,206.2	8,682.4	2,019.0	1,822.4	10.270	ES
IVEY LC 26-362HC - OWB - OWB	19,206.2	8,155.0	1,447.7	1,262.8	7.829	CC, ES, SF
IVEY LC 26-362HC - ST01 - ST01	19,206.2	8,155.0	1,447.7	1,262.8	7.829	CC, ES, SF
Ivey LC 26-362HN - OWB - OWB	19,206.2	8,057.6	1,427.8	1,243.3	7.736	CC, ES, SF
Ivey LC 26-363HN - OWB - OWB	19,206.2	8,058.7	1,798.8	1,615.0	9.787	CC, ES, SF
Ivey LC 26-363HNX - OWB - OWB	19,206.2	7,953.5	1,699.9	1,514.9	9.192	CC, ES, SF
Ivey LC 26-365HC - OWB - OWB	19,206.2	7,950.0	2,171.1	1,983.7	11.587	CC, ES, SF
Ivey LC 26-366HN - OWB - OWB	19,206.2	7,570.2	2,516.0	2,324.5	13.136	CC, ES, SF
Ivey LC 26-366HN - ST01 - ST01	19,206.2	7,552.3	2,422.0	2,230.1	12.619	CC, ES, SF
Ivey LC 26-366HNX - OWB - OWB	19,206.2	7,602.4	2,454.1	2,264.6	12.947	CC, ES, SF
Ivey LC 26-368HC - OWB - OWB	19,151.3	7,189.0	2,764.2	2,571.6	14.348	CC

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PDC Energy Inc.
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Offset Well - Wellbore - Design						
Rio Ivy Offsets						
Ivey LC 26-368HC - OWB - OWB	19,206.2	7,203.6	2,764.7	2,570.2	14.213	ES, SF
Ivey LC 26-368HN - OWB - OWB	19,206.2	7,356.2	2,741.3	2,547.2	14.119	CC, ES, SF
Ivey Unit #1 - OWB - OWB	17,667.8	7,515.7	1,422.4	1,261.1	8.818	CC
Ivey Unit #1 - OWB - OWB	17,700.0	7,516.0	1,422.8	1,259.8	8.733	ES
Ivey Unit #1 - OWB - OWB	18,000.0	7,518.4	1,460.7	1,285.4	8.334	SF
JOHNSON 1 - OWB - OWB	12,371.3	5,200.0	2,678.1	2,598.0	33.412	CC
JOHNSON 1 - OWB - OWB	12,400.0	5,200.0	2,678.3	2,597.7	33.216	ES
JOHNSON 1 - OWB - OWB	13,800.0	5,200.0	3,035.4	2,926.9	27.973	SF
LENART (OWP) #S-1 - OWB - OWB	15,681.9	5,137.0	4,094.9	3,990.7	39.317	CC
LENART (OWP) #S-1 - OWB - OWB	15,700.0	5,137.0	4,094.9	3,990.7	39.288	ES
LENART (OWP) #S-1 - OWB - OWB	16,300.0	5,137.0	4,141.3	4,034.5	38.782	SF
MALLO #1 - OWB - OWB	18,987.1	5,175.0	3,657.8	3,512.6	25.189	CC
MALLO #1 - OWB - OWB	19,000.0	5,175.0	3,657.8	3,512.6	25.184	ES
MALLO #1 - OWB - OWB	19,100.0	5,175.0	3,659.5	3,514.1	25.164	SF
Morrison #1 - OWB - OWB	12,411.6	5,100.0	2,380.5	2,313.7	35.613	CC, ES
Morrison #1 - OWB - OWB	13,800.0	5,100.0	2,755.8	2,664.9	30.328	SF
MORRISON 11-1 - OWB - OWB	12,100.0	7,610.5	1,278.1	1,172.6	12.119	SF
MORRISON 11-1 - OWB - OWB	12,492.2	7,614.4	1,216.4	1,120.1	12.622	CC, ES
MORRISON 15-1 - OWB - OWB	13,500.0	7,461.5	2,575.3	2,481.8	27.546	SF
MORRISON 15-1 - OWB - OWB	13,571.6	7,462.0	2,574.3	2,480.9	27.548	CC, ES
MORRISON 24-1 #3 - OWB - OWB	13,400.0	7,473.7	1,335.9	1,233.6	13.059	SF
MORRISON 24-1 #3 - OWB - OWB	13,744.5	7,476.4	1,290.7	1,194.5	13.421	CC, ES
MORRISON 33-1 #4 - OWB - OWB	12,565.8	7,450.0	2,572.9	2,494.7	32.866	CC, ES, SF
Morrison Investment #1 - OWB - OWB	13,715.1	7,488.2	110.4	14.7	1.154	Collision Avoidance Req., CC
Morrison Investment #1 - OWB - OWB	13,800.0	7,488.9	139.3	16.7	1.136	Collision Avoidance Req., SF
NORTH COLORADO #12-13 - OWB - OWB	19,206.2	7,295.0	2,296.2	2,159.0	16.738	CC, ES, SF
NORTH COLORADO #6 - OWB - OWB	19,206.2	7,565.0	1,673.5	1,495.0	9.378	CC, ES, SF
NORTH COLORADO BOULEVARD #3 - OWB - OWB	19,206.2	5,113.0	2,684.4	2,568.1	23.087	CC, ES, SF
NORTH COLORADO BOULEVARD UNIT #5 - OWB - OWB	19,206.2	5,300.0	3,538.7	3,385.1	23.035	CC, ES, SF
North York #1 - OWB - OWB	17,600.0	5,200.0	2,598.6	2,492.4	24.461	SF
North York #1 - OWB - OWB	17,626.4	5,200.0	2,598.5	2,492.3	24.464	CC, ES
NORTH YORK #11-12 - OWB - OWB	17,500.0	7,518.4	1,307.6	1,143.7	7.976	SF
NORTH YORK #11-12 - OWB - OWB	17,671.9	7,519.8	1,296.3	1,134.9	8.033	CC, ES
NORTH YORK #13-12-3 - OWB - OWB	19,048.0	7,521.7	137.6	-47.4	0.744	No-Go Zone - Stop Drilling, CC
NORTH YORK #13-12-3 - OWB - OWB	19,100.0	7,522.2	147.1	-47.8	0.755	No-Go Zone - Stop Drilling, ES
NORTH YORK #2 - OWB - OWB	19,133.3	5,200.0	2,424.0	2,302.0	19.869	CC, ES
NORTH YORK #2 - OWB - OWB	19,206.2	5,200.0	2,425.1	2,302.2	19.725	SF
NORTH YORK 13-12 - OWB - OWB	18,833.9	7,625.0	107.2	-94.2	0.532	No-Go Zone - Stop Drilling, CC
NORTH YORK 14-12 - OWB - OWB	18,800.0	7,538.8	1,238.4	1,028.4	5.897	SF
NORTH YORK 14-12 - OWB - OWB	18,900.0	7,539.9	1,233.6	1,025.4	5.923	ES
NORTH YORK 14-12 - OWB - OWB	18,909.7	7,540.0	1,233.6	1,025.5	5.929	CC
REHFELD K UNIT #1 - OWB - OWB	13,185.1	7,519.0	1,612.7	1,525.2	18.421	CC
REHFELD K UNIT #1 - OWB - OWB	13,300.0	7,519.9	1,616.8	1,524.5	17.518	ES
REHFELD K UNIT #1 - OWB - OWB	14,000.0	7,525.5	1,806.9	1,687.4	15.126	SF
REINHOLT (OWP) #12-6 - OWB - OWB	15,294.2	5,110.0	3,542.9	3,450.8	38.498	CC
REINHOLT (OWP) #12-6 - OWB - OWB	15,300.0	5,110.0	3,542.9	3,450.8	38.493	ES
REINHOLT (OWP) #12-6 - OWB - OWB	15,700.0	5,110.0	3,566.0	3,473.0	38.329	SF
Rio LC 12-242HC - OWB - OWB	1,527.6	1,518.6	119.0	109.4	12.412	CC
Rio LC 12-242HC - OWB - OWB	1,940.0	1,932.7	119.7	108.5	10.738	ES
Rio LC 12-242HC - OWB - OWB	2,500.0	2,492.1	135.2	121.7	10.044	SF
Rio LC 12-332HN - OWB - OWB	2,125.9	2,118.9	84.9	73.4	7.392	CC, ES
Rio LC 12-332HN - OWB - OWB	2,400.0	2,391.5	91.3	78.6	7.186	SF
Rio LC 12-362HN - OWB - OWB	1,970.8	1,964.1	111.7	101.1	10.565	CC, 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 19NA
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 19NA	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 12-362HN - OWB - OWB	2,500.0	2,492.1	123.7	111.0	9.732	SF
Rio LC 12-363HN - OWB - OWB	2,031.4	2,025.0	95.4	85.1	9.253	CC, ES
Rio LC 12-363HN - OWB - OWB	2,400.0	2,393.1	101.4	89.8	8.697	SF
Rio LC 12-363HNN - OWB - OWB	2,075.2	2,068.7	66.5	55.2	5.912	CC, ES
Rio LC 12-363HNN - OWB - OWB	2,243.0	2,236.2	67.3	55.8	5.824	SF
Rio LC 12-365HC - OWB - OWB	1,957.6	1,950.9	87.7	76.6	7.866	CC, ES
Rio LC 12-365HC - OWB - OWB	2,243.0	2,236.4	88.5	76.9	7.595	SF
Rio LC 12-365HN - OWB - OWB	2,332.4	2,328.1	46.7	34.6	3.853	CC, ES
Rio LC 12-365HN - OWB - OWB	2,400.0	2,395.0	48.0	35.3	3.780	SF
Rio LC 12-366HN - OWB - OWB	2,080.5	2,073.4	74.6	63.0	6.441	CC
Rio LC 12-366HN - OWB - OWB	2,100.0	2,092.8	74.6	63.0	6.421	ES
Rio LC 12-366HN - OWB - OWB	2,243.0	2,235.3	75.2	63.2	6.300	SF
Rio LC 12-366HN - ST01 - ST01	2,080.5	2,073.4	74.6	63.0	6.441	CC
Rio LC 12-366HN - ST01 - ST01	2,100.0	2,092.8	74.6	63.0	6.421	ES
Rio LC 12-366HN - ST01 - ST01	2,243.0	2,235.3	75.2	63.2	6.300	SF
Rio LC 12-366HNN - OWB - OWB	2,062.4	2,055.6	42.7	30.2	3.413	CC
Rio LC 12-366HNN - OWB - OWB	2,100.0	2,093.0	42.7	30.2	3.399	ES
Rio LC 12-366HNN - OWB - OWB	2,246.8	2,240.1	43.2	30.4	3.374	SF
Rio LC 12-368HC - OWB - OWB	2,278.6	2,273.1	74.7	62.5	6.147	CC, ES
Rio LC 12-368HC - OWB - OWB	2,300.0	2,294.5	74.8	62.6	6.136	SF
Rio LC 12-368HN - OWB - OWB	2,258.4	2,251.9	56.7	45.1	4.900	CC, ES
Rio LC 12-368HN - OWB - OWB	2,300.0	2,293.6	57.0	45.3	4.867	SF
Rio LC 12-369HNN - OWB - OWB	2,284.2	2,277.8	70.0	58.4	6.040	CC
Rio LC 12-369HNN - OWB - OWB	2,300.0	2,293.6	70.0	58.4	6.012	ES
Rio LC 12-369HNN - OWB - OWB	2,400.0	2,393.2	72.1	59.8	5.855	SF
Rio LC 12-376HN - OWB - OWB	799.3	780.6	11.9	6.1	2.056	CC, ES
Rio LC 12-376HN - OWB - OWB	861.0	842.1	12.7	6.5	2.048	SF
RUBY 2 - OWB - OWB	17,600.0	7,750.5	2,582.5	2,405.5	14.594	SF
RUBY 2 - OWB - OWB	17,692.3	7,750.0	2,580.8	2,404.1	14.601	CC, ES
Sack #1 - OWB - OWB	15,128.6	7,512.5	1,378.2	1,259.6	11.624	CC
Sack #1 - OWB - OWB	15,200.0	7,513.0	1,380.0	1,258.0	11.307	ES
Sack #1 - OWB - OWB	15,600.0	7,516.2	1,456.5	1,317.6	10.486	SF
SACK #4N-30HZ - OWB - OWB	1,458.5	1,419.8	1,173.0	1,164.6	140.049	CC
SACK #4N-30HZ - OWB - OWB	1,670.0	1,627.0	1,173.3	1,163.9	125.070	ES
SACK #4N-30HZ - OWB - OWB	4,400.0	4,071.4	1,650.9	1,615.6	46.797	SF
SACK (OWP) #11-6 - OWB - OWB	2,272.1	2,257.0	481.5	469.1	38.989	CC, ES
SACK (OWP) #11-6 - OWB - OWB	3,000.0	2,968.7	596.0	576.8	30.970	SF
SACK 7-11 - OWB - OWB	16,466.3	7,538.1	2,789.5	2,648.6	19.794	CC
SACK 7-11 - OWB - OWB	16,600.0	7,539.2	2,792.7	2,647.3	19.213	ES
SACK 7-11 - OWB - OWB	17,500.0	7,546.4	2,974.8	2,805.4	17.558	SF
SACK 8-11 - OWB - OWB	16,362.7	7,519.3	1,593.2	1,454.0	11.449	CC
SACK 8-11 - OWB - OWB	16,400.0	7,519.6	1,593.6	1,452.8	11.313	ES
SACK 8-11 - OWB - OWB	16,900.0	7,523.6	1,681.3	1,522.0	10.550	SF
SACK G UNIT #1 - OWB - OWB	14,947.6	7,543.0	2,778.9	2,663.3	24.035	CC
SACK G UNIT #1 - OWB - OWB	15,000.0	7,543.4	2,779.4	2,662.1	23.691	ES
SACK G UNIT #1 - OWB - OWB	16,200.0	7,553.0	3,048.1	2,897.8	20.279	SF
SACK G UNIT #2-X - OWB - OWB	16,382.1	7,534.5	2,780.8	2,641.3	19.933	CC
SACK G UNIT #2-X - OWB - OWB	16,500.0	7,535.4	2,783.2	2,639.8	19.407	ES
SACK G UNIT #2-X - OWB - OWB	17,400.0	7,542.6	2,961.2	2,793.4	17.649	SF
SACK STATE #30C-30HZ - OWB - OWB	3,422.5	3,376.2	1,137.8	1,118.1	57.630	CC
SACK STATE #30C-30HZ - OWB - OWB	3,500.0	3,445.8	1,138.5	1,117.8	55.178	ES
SACK STATE #30C-30HZ - OWB - OWB	5,000.0	4,599.0	1,485.1	1,441.1	33.761	SF
Standley #1 - OWB - OWB	11,248.5	5,251.0	2,750.1	2,679.3	38.801	CC

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PDC Energy Inc.
Anticollision Summary Report

Company:	GWP - PLANNING DB	Local Co-ordinate Reference:	Well Rio 19NA
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 19NA	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

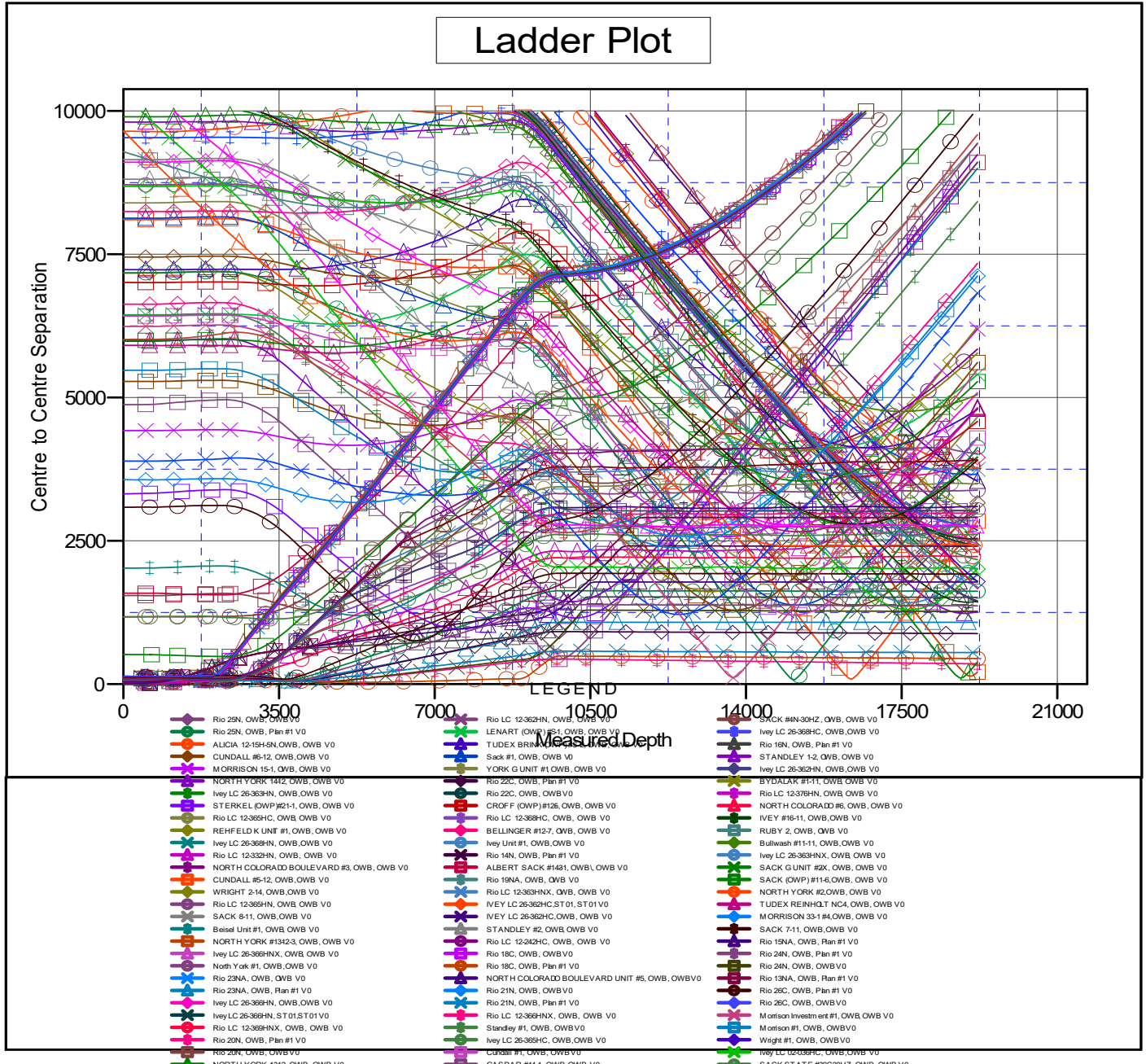
Summary						
Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Rio Ivy Offsets						
Standley #1 - OWB - OWB	11,300.0	5,251.0	2,750.6	2,679.0	38.412	ES
Standley #1 - OWB - OWB	13,000.0	5,251.0	3,260.5	3,154.9	30.858	SF
STANDLEY #2 - OWB - OWB	11,024.7	5,192.0	4,681.1	4,612.8	68.537	CC
STANDLEY #2 - OWB - OWB	11,100.0	5,192.0	4,681.7	4,612.4	67.551	ES
STANDLEY #2 - OWB - OWB	14,400.0	5,192.0	5,771.1	5,643.2	45.124	SF
STANDLEY 1-2 - OWB - OWB	10,080.0	7,487.3	1,438.4	1,377.5	23.623	CC, ES
STANDLEY 1-2 - OWB - OWB	11,200.0	7,502.5	1,822.9	1,719.7	17.652	SF
STANDLEY 2-2 - OWB - OWB	9,991.0	7,755.7	2,645.3	2,579.3	40.024	CC
STANDLEY 2-2 - OWB - OWB	10,000.0	7,755.7	2,645.4	2,579.2	39.996	ES
STANDLEY 2-2 - OWB - OWB	12,000.0	7,761.4	3,321.7	3,203.5	28.097	SF
STERKEL #1 - OWB - OWB	6,589.2	5,041.0	755.0	706.7	15.629	CC, ES
STERKEL #1 - OWB - OWB	6,600.0	5,041.0	755.1	706.8	15.621	SF
STERKEL (OWP) #21-1 - OWB - OWB	7,569.1	6,180.9	961.0	871.8	10.782	CC
STERKEL (OWP) #21-1 - OWB - OWB	7,600.0	6,201.8	961.2	871.6	10.729	ES
STERKEL (OWP) #21-1 - OWB - OWB	7,800.0	6,342.6	975.1	883.2	10.604	SF
TUDEX BRINK (OWP) #S-2 - OWB - OWB	16,757.4	5,178.0	4,123.5	4,004.8	34.735	CC, ES
TUDEX BRINK (OWP) #S-2 - OWB - OWB	17,200.0	5,178.0	4,147.2	4,026.8	34.468	SF
TUDEX REINHOLT NC4 - OWB - OWB	15,100.0	7,498.6	2,660.0	2,539.8	22.134	SF
TUDEX REINHOLT NC4 - OWB - OWB	15,184.4	7,499.1	2,658.6	2,538.6	22.154	CC, ES
Wright #1 - OWB - OWB	19,206.2	7,547.0	1,788.5	1,653.6	13.257	CC, ES, SF
WRIGHT 2-14 - OWB - OWB	19,206.2	7,542.0	2,971.0	2,803.6	17.743	CC, ES, SF
YORK G UNIT #1 - OWB - OWB	14,945.1	7,522.0	1,889.0	1,773.4	16.347	CC
YORK G UNIT #1 - OWB - OWB	15,000.0	7,522.4	1,889.8	1,772.0	16.049	ES
YORK G UNIT #1 - OWB - OWB	15,700.0	7,528.0	2,034.2	1,892.4	14.345	SF

PDC Energy Inc.
Anticollision Summary Report

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Site Error:	0.0 usft	North Reference:	True
Reference Well:	Rio 19NA	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 19NA
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.36°



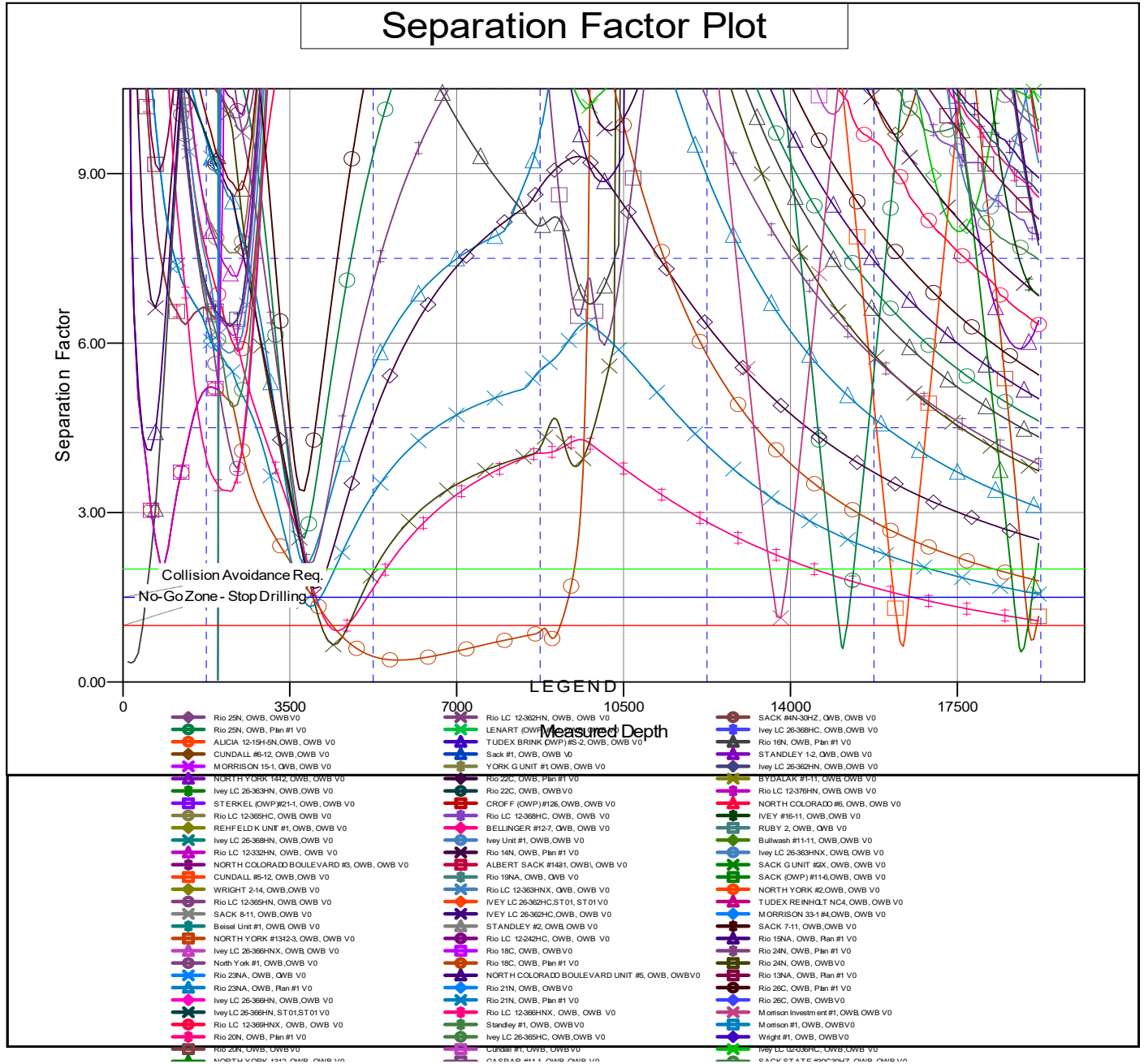
CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

PDC Energy Inc.
Anticollision Summary Report

Company:	GWP - PLANNING DB	Local Co-ordinate Reference:	Well Rio 19NA
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
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Well Error:	0.0 usft	Output errors are at	2.00 sigma
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