



## WELL DETAILS: Broe 05N

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.0	0.0	1407558.47	3176972.37	40° 27' 1.468 N	104° 51' 50.749 W

Project: WELD COUNTY  
 Site: Broe Pad  
 Well: Broe 05N  
 Wellbore: OWB  
 Design: Plan #2  
 Lat: 40° 27' 1.468 N  
 Long: 104° 51' 50.749 W  
 GL: 4740.0  
 KB: KB @ 4760.0usft

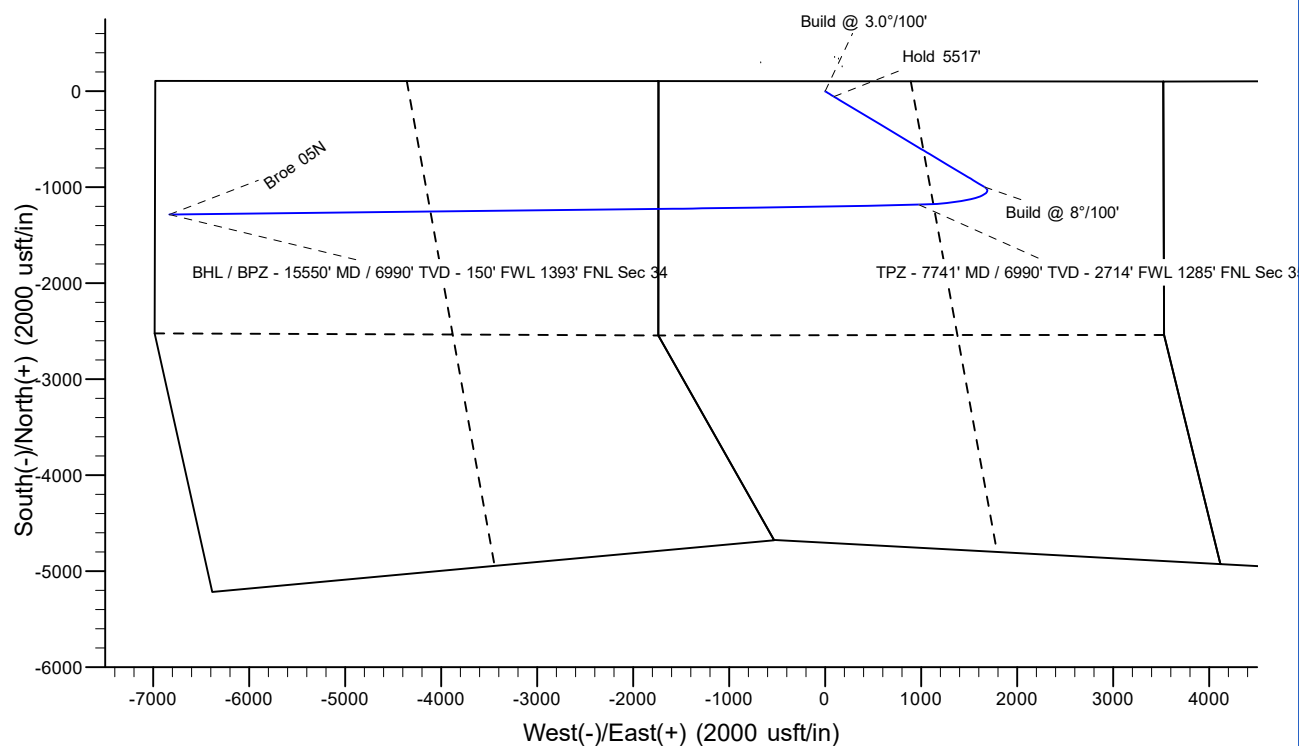
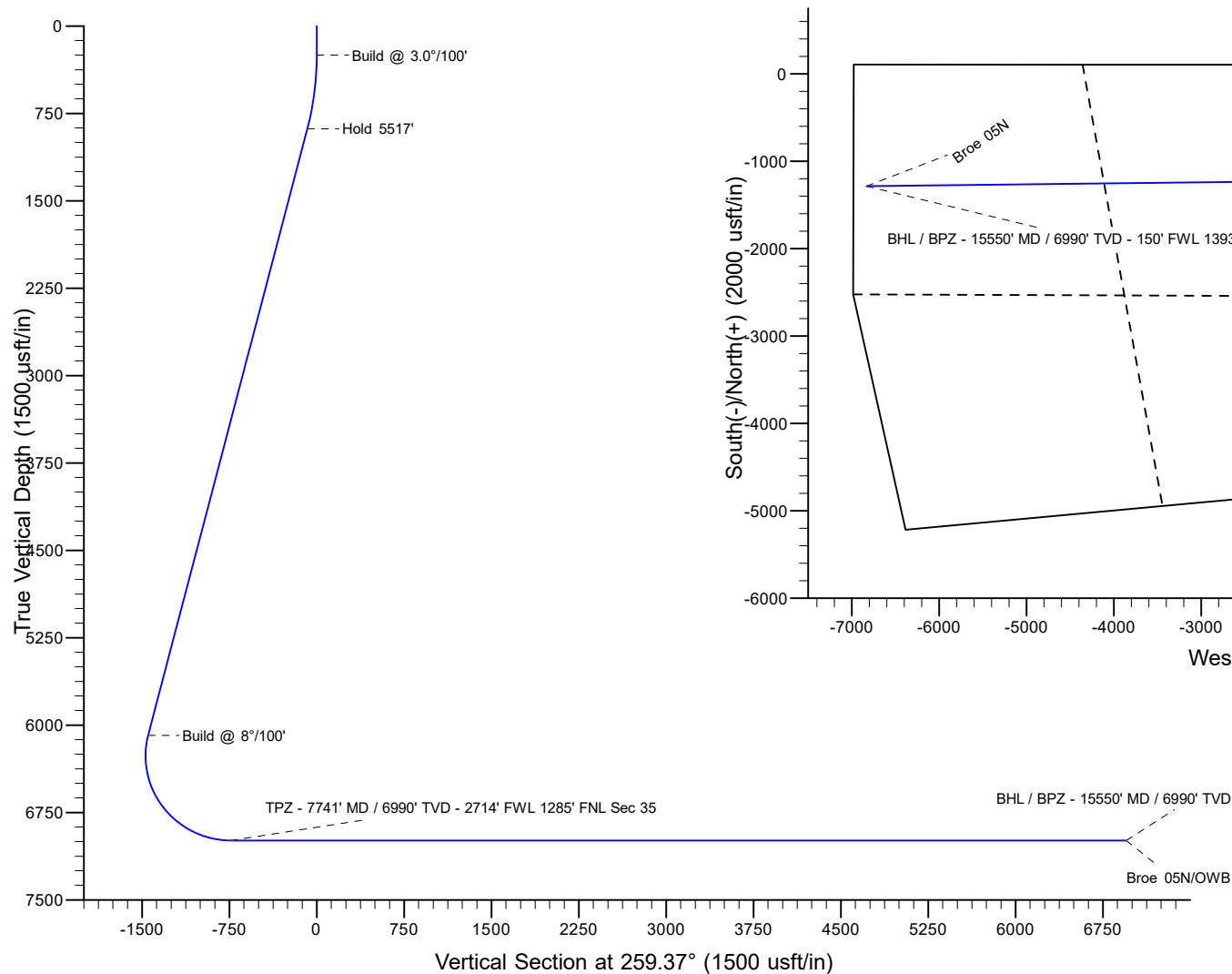


Azimuths to True North  
 Magnetic North: 7.80°

Magnetic Field  
 Strength: 51863.0nT  
 Dip Angle: 66.64°  
 Date: 6/24/2022  
 Model: IGRF2000

## SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	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 @ 3.0°/100'
895.2	19.36	120.99	883.0	-55.6	92.5	3.00	120.99	-80.7	Hold 5517'
6412.8	19.36	120.99	6088.7	-997.3	1660.3	0.00	0.00	-1447.7	Build @ 8°/100'
7741.3	90.00	268.77	6990.0	-1180.9	976.6	8.00	146.25	-741.9	TPZ - 7741' MD / 6990' TVD - 2714' FWL 1285' FNL Sec 35
10455.0	90.00	269.35	6990.0	-1225.4	-1736.7	0.02	90.00	1933.0	
15550.5	90.00	269.35	6990.0	-1282.8	-6831.9	0.00	0.00	6951.3	BHL / BPZ - 15550' MD / 6990' TVD - 150' FWL 1393' FNL Sec 34



**PDC Energy Inc.**  
Anticollision Summary Report

<b>Company:</b>	GWP - PLANNING DB	<b>Local Co-ordinate Reference:</b>	Well Broe 05N
<b>Project:</b>	WELD COUNTY	<b>TVD Reference:</b>	KB @ 4760.0usft
<b>Reference Site:</b>	Broe Pad	<b>MD Reference:</b>	KB @ 4760.0usft
<b>Site Error:</b>	0.0 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Broe 05N	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OWB	<b>Database:</b>	EDM 5000.15 Single User Db
<b>Reference Design:</b>	Plan #2	<b>Offset TVD Reference:</b>	Offset Datum

<b>Reference</b>	Plan #2		
<b>Filter type:</b>	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
<b>Interpolation Method:</b>	Stations	<b>Error Model:</b>	ISCWSA
<b>Depth Range:</b>	Unlimited	<b>Scan Method:</b>	Closest Approach 3D
<b>Results Limited by:</b>	Maximum center-center distance of 10,000.0 usft	<b>Error Surface:</b>	Pedal Curve
<b>Warning Levels Evaluated at:</b>	2.00 Sigma	<b>Casing Method:</b>	Not applied

<b>Survey Tool Program</b>	<b>Date</b>	9/19/2022		
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>
0.0	15,550.5	Plan #2 (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						
Broe Offsets						
Christiansen 35-13 - OJH - OH	7,287.0	6,865.0	937.5	890.6	19.979	CC, ES, SF
Christiansen 1-35 - OH - OH	6,810.5	6,431.6	1,172.7	1,126.3	25.247	CC, ES
Christiansen 1-35 - OH - OH	6,850.0	6,461.2	1,173.5	1,127.0	25.239	SF
CHRISTIANSEN 35-15 - OJH - OH	7,192.0	6,767.9	931.3	776.9	6.031	CC
CHRISTIANSEN 35-15 - OJH - OH	7,200.0	6,773.3	931.4	776.9	6.029	ES
CHRISTIANSEN 35-15 - OJH - OH	7,250.0	6,805.8	933.0	778.1	6.025	SF
Great Western 25-24-23 - OH - OH	6,454.8	6,000.0	4,569.0	4,484.0	53.767	CC, ES
Great Western 25-24-23 - OH - OH	6,550.0	6,000.0	4,576.1	4,490.7	53.587	SF
Great Western 25-24-24 - MWD Surveys - OH	6,571.9	6,850.6	3,356.2	3,274.7	41.162	CC, ES
Great Western 25-24-24 - MWD Surveys - OH	6,650.0	6,931.0	3,360.2	3,278.4	41.073	SF
Great Western 35-31 - OH - OH	5,692.7	5,655.8	370.5	314.0	6.559	CC
Great Western 35-31 - OH - OH	5,700.0	5,662.5	370.5	314.0	6.556	ES
Great Western 35-31 - OH - OH	5,800.0	5,755.2	372.6	315.6	6.541	SF
Great Western 35-41 - OH - OH	6,565.0	6,542.6	1,317.0	1,245.7	18.493	CC, ES
Great Western 35-41 - OH - OH	6,600.0	6,577.1	1,317.8	1,246.4	18.458	SF
GREAT WESTERN 35-52 - OH - OH	9,055.5	6,970.0	183.1	2.0	1.011	Collision Avoidance Req., CC
Great Western 35-52 - OH - OH	9,055.5	6,970.0	183.1	2.0	1.011	Collision Avoidance Req., CC
J E CHRISTIANSEN 35-1 - OH - OH	1,210.2	22.0	3,437.2	3,426.5	322.622	CC, ES
J E CHRISTIANSEN 35-1 - OH - OH	12,500.0	22.0	9,650.6	9,587.9	153.995	SF
KODAK 2 - OH - OH	11,775.7	4,600.0	3,538.5	3,375.6	21.718	CC
KODAK 2 - OH - OH	11,900.0	4,600.0	3,540.7	3,374.9	21.360	ES
KODAK 2 - OH - OH	13,000.0	4,600.0	3,744.3	3,557.1	20.004	SF
KODAK 34-11 - OH - OH	11,063.2	6,975.0	488.6	259.2	2.130	CC, ES, SF
KODAK 34-12 - OH - OH	12,117.4	6,974.0	498.7	242.1	1.944	Collision Risk Procedures Req., CC
KODAK 34-13 - OH - OH	12,150.0	6,974.0	852.9	595.5	3.313	CC, ES
KODAK 34-13 - OH - OH	12,200.0	6,974.0	854.4	595.5	3.301	SF
KODAK 34-14 - OH - OH	11,211.1	6,974.0	873.4	640.3	3.747	CC, ES
KODAK 34-14 - OH - OH	11,300.0	6,974.0	877.9	642.6	3.730	SF
KODAK 34-15 - OH - OH	11,885.6	6,974.0	163.7	-86.8	0.653	No-Go Zone - Stop Drilling, CC
KODAK 34-21 - OH - OH	13,846.6	6,974.0	550.6	248.3	1.821	Collision Risk Procedures Req., CC
KODAK 34-22 - OH - OH	14,989.0	6,974.0	947.7	614.9	2.847	CC
KODAK 34-22 - OH - OH	15,000.0	6,974.0	947.8	614.7	2.846	ES, SF
KODAK 34-23 - OH - OH	15,049.6	6,974.0	568.7	234.2	1.700	Collision Risk Procedures Req., CC
KODAK 34-24 - OH - OH	13,474.4	6,974.0	605.7	313.3	2.071	CC
KODAK 34-24 - OH - OH	13,500.0	6,974.0	606.2	313.1	2.068	ES, SF
KODAK 34-25 - OH - OH	14,680.8	6,974.0	102.9	-221.7	0.317	No-Go Zone - Stop Drilling, CC
KODAK 34-31 - OH - OH	13,432.7	6,974.0	2,070.8	1,779.5	7.109	CC

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

**PDC Energy Inc.**  
Anticollision Summary Report

<b>Company:</b>	GWP - PLANNING DB	<b>Local Co-ordinate Reference:</b>	Well Broe 05N
<b>Project:</b>	WELD COUNTY	<b>TVD Reference:</b>	KB @ 4760.0usft
<b>Reference Site:</b>	Broe Pad	<b>MD Reference:</b>	KB @ 4760.0usft
<b>Site Error:</b>	0.0 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Broe 05N	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OWB	<b>Database:</b>	EDM 5000.15 Single User Db
<b>Reference Design:</b>	Plan #2	<b>Offset TVD Reference:</b>	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						
Broe Offsets						
KODAK 34-31 - OH - OH	13,500.0	6,974.0	2,071.9	1,778.7	7.067	ES
KODAK 34-31 - OH - OH	13,700.0	6,974.0	2,087.9	1,790.2	7.013	SF
KODAK 34-32 - OH - OH	14,805.0	6,974.0	1,898.7	1,570.8	5.790	CC
KODAK 34-32 - OH - OH	14,900.0	6,974.0	1,901.1	1,570.6	5.752	ES
KODAK 34-32 - OH - OH	15,000.0	6,974.0	1,908.7	1,576.1	5.738	SF
KODAK 34-33 - OH - OH	14,723.7	6,974.0	3,254.9	2,929.2	9.993	CC
KODAK 34-33 - OH - OH	14,800.0	6,974.0	3,255.8	2,928.0	9.931	ES
KODAK 34-33 - OH - OH	15,300.0	6,974.0	3,305.6	2,966.7	9.754	SF
KODAK 34-34 - OH - OH	12,900.3	6,974.0	2,937.0	2,659.8	10.595	CC
KODAK 34-34 - OH - OH	13,000.0	6,974.0	2,938.7	2,658.8	10.498	ES
KODAK 34-34 - OH - OH	13,500.0	6,974.0	2,997.6	2,706.7	10.305	SF
KODAK 34-35 - OH - OH	13,764.6	6,974.0	2,612.3	2,312.2	8.704	CC
KODAK 34-35 - OH - OH	13,800.0	6,974.0	2,612.6	2,311.5	8.676	ES
KODAK 34-35 - OH - OH	14,200.0	6,974.0	2,648.4	2,338.2	8.539	SF
KODAK 34-41 - OH - OH	10,780.5	7,001.8	1,871.5	1,753.6	15.879	CC
KODAK 34-41 - OH - OH	10,800.0	7,002.3	1,871.6	1,753.2	15.809	ES
KODAK 34-41 - OH - OH	11,200.0	7,010.8	1,917.9	1,790.5	15.058	SF
KODAK 34-42 - OH - OH	11,923.4	6,975.0	1,777.2	1,525.7	7.065	CC
KODAK 34-42 - OH - OH	12,000.0	6,975.0	1,778.9	1,525.2	7.013	ES
KODAK 34-42 - OH - OH	12,200.0	6,975.0	1,798.6	1,540.6	6.970	SF
KODAK 34-43 - OH - OH	11,447.2	6,975.0	3,229.0	2,989.8	13.500	CC
KODAK 34-43 - OH - OH	11,500.0	6,975.0	3,229.4	2,988.8	13.421	ES
KODAK 34-43 - OH - OH	12,200.0	6,975.0	3,315.6	3,059.0	12.920	SF
KODAK 34-44 - OH - OH	10,071.8	7,072.3	2,781.4	2,672.5	25.545	CC
KODAK 34-44 - OH - OH	10,100.0	7,072.6	2,781.6	2,671.9	25.373	ES
KODAK 34-44 - OH - OH	11,100.0	7,082.6	2,966.5	2,836.0	22.727	SF
KODAK 34-45 - OH - OH	11,161.0	7,128.0	2,446.2	2,310.7	18.045	CC
KODAK 34-45 - OH - OH	11,200.0	7,127.9	2,446.6	2,310.0	17.913	ES
KODAK 34-45 - OH - OH	11,800.0	7,126.3	2,528.3	2,379.5	16.988	SF
KODAK 35-21 - OH - OH	2,187.4	2,087.2	467.4	419.5	9.759	CC
KODAK 35-21 - OH - OH	8,500.0	6,975.0	519.3	349.1	3.051	ES, SF
KODAK 35-22 - OH - OH	10,073.8	6,974.0	493.1	288.5	2.411	CC, ES
KODAK 35-22 - OH - OH	10,100.0	6,974.0	493.8	288.9	2.410	SF
State 05-36 - OH - OH	6,651.5	6,321.5	6,548.6	6,500.1	134.868	CC, ES
State 05-36 - OH - OH	6,750.0	6,423.0	6,555.2	6,506.4	134.272	SF
State 6-36 - OH - OH	6,615.2	6,302.6	4,911.4	4,853.0	84.071	CC
State 6-36 - OH - OH	6,650.0	6,336.8	4,912.2	4,852.6	82.414	ES
State 6-36 - OH - OH	7,400.0	6,933.8	5,299.7	5,222.2	68.373	SF
STATE 7-36 - OH - OH	6,661.6	6,288.5	3,643.9	3,499.0	25.153	CC, ES
STATE 7-36 - OH - OH	6,900.0	6,515.7	3,681.6	3,532.8	24.747	SF
STATE 8-36 - OH - OH	6,610.0	6,237.9	2,771.9	2,626.8	19.102	CC, ES
STATE 8-36 - OH - OH	6,800.0	6,422.6	2,797.1	2,648.6	18.836	SF
State M 36-1 - OH - OH	6,620.3	6,334.3	6,374.2	6,325.7	131.658	CC, ES
State M 36-1 - OH - OH	6,800.0	6,599.7	6,394.7	6,345.8	130.579	SF
State M 36-13 - OH - OH	6,797.9	6,781.7	4,333.0	4,269.9	68.770	CC, ES, SF
State M 36-14 - OH - OH	6,634.8	6,293.2	6,131.4	6,082.8	126.129	CC, ES
State M 36-14 - OH - OH	6,750.0	6,443.4	6,140.2	6,091.2	125.306	SF
State M 36-3 - OH - OH	6,608.5	6,249.9	3,809.7	3,763.4	82.201	CC, ES
State M 36-3 - OH - OH	7,400.0	6,885.5	4,205.0	4,147.3	72.855	SF
STATE M 36-5 - OH - OH	6,670.9	6,301.7	2,638.7	2,493.7	18.203	CC
STATE M 36-5 - OH - OH	6,700.0	6,330.1	2,639.2	2,493.7	18.136	ES
STATE M 36-5 - OH - OH	6,850.0	6,473.7	2,659.6	2,511.7	17.973	SF
State M 36-7 - OH - OH	6,654.5	6,351.6	5,125.0	5,074.9	102.294	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

<b>Company:</b>	GWP - PLANNING DB	<b>Local Co-ordinate Reference:</b>	Well Broe 05N
<b>Project:</b>	WELD COUNTY	<b>TVD Reference:</b>	KB @ 4760.0usft
<b>Reference Site:</b>	Broe Pad	<b>MD Reference:</b>	KB @ 4760.0usft
<b>Site Error:</b>	0.0 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Broe 05N	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OWB	<b>Database:</b>	EDM 5000.15 Single User Db
<b>Reference Design:</b>	Plan #2	<b>Offset TVD Reference:</b>	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						
Broe Offsets						
State M 36-7 - OH - OH	6,750.0	6,435.4	5,131.3	5,080.9	101.776	SF
Windsor 35-2 - OH - OH	9,734.3	6,952.8	1,652.7	1,565.4	18.934	CC
Windsor 35-2 - OH - OH	9,800.0	6,953.2	1,654.0	1,565.1	18.610	ES
Windsor 35-2 - OH - OH	10,200.0	6,956.0	1,717.4	1,621.0	17.816	SF
Windsor 35-5 - OH - OH	9,820.3	7,007.0	687.3	600.2	7.888	CC, ES
Windsor 35-5 - OH - OH	9,900.0	7,007.0	691.9	603.1	7.786	SF
Windsor Invsetment Group 35-1 - OH - OH	8,383.6	6,942.9	720.0	656.7	11.361	CC
Windsor Invsetment Group 35-1 - OH - OH	8,400.0	6,943.0	720.2	656.5	11.302	ES
Windsor Invsetment Group 35-1 - OH - OH	8,500.0	6,943.6	729.4	663.8	11.118	SF

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<b>Reference Site:</b>	Broe Pad	<b>MD Reference:</b>	KB @ 4760.0usft
<b>Site Error:</b>	0.0 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Broe 05N	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OWB	<b>Database:</b>	EDM 5000.15 Single User Db
<b>Reference Design:</b>	Plan #2	<b>Offset TVD Reference:</b>	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						
Broe Pad						
Broe 01N - OWB - Plan #2	250.0	250.0	60.1	57.3	21.519	CC
Broe 01N - OWB - Plan #2	500.0	505.2	63.5	55.3	7.681	ES
Broe 01N - OWB - Plan #2	15,550.5	15,293.3	917.7	470.4	2.052	SF
Broe 02NA - OWB - Plan #2	817.8	829.9	39.5	23.0	2.398	CC, ES
Broe 02NA - OWB - Plan #2	15,550.5	15,170.3	711.4	277.8	1.640	Collision Risk Procedures Re
Broe 03C - OWB - Plan #2	824.1	832.1	25.7	9.1	1.547	Collision Risk Procedures Re
Broe 03C - OWB - Plan #2	15,550.5	15,501.4	469.6	27.3	1.062	Collision Avoidance Req., SF
Broe 04N - OWB - Plan #2	870.5	874.7	12.5	-4.8	0.721	No-Go Zone - Stop Drilling, (
Broe 04N - OWB - Plan #2	15,550.5	15,399.4	243.0	-182.5	0.571	No-Go Zone - Stop Drilling, I
Broe 06NA - OWB - Plan #2	903.2	899.0	12.0	-6.0	0.668	No-Go Zone - Stop Drilling, (
Broe 06NA - OWB - Plan #2	15,550.5	15,454.5	294.7	-79.1	0.788	No-Go Zone - Stop Drilling, I
Broe 07C - OWB - Plan #2	912.6	904.5	23.3	5.4	1.299	Collision Avoidance Req., CC
Broe 07C - OWB - Plan #2	15,550.5	15,802.2	469.5	27.2	1.061	Collision Avoidance Req., SF
Broe 08N - OWB - Plan #2	926.3	914.1	34.8	16.8	1.937	Collision Risk Procedures Re
Broe 08N - OWB - Plan #2	15,550.5	15,712.0	694.0	240.0	1.529	Collision Risk Procedures Re
Broe 09N - OWB - Plan #2	940.8	924.8	46.0	28.0	2.563	CC, ES
Broe 09N - OWB - Plan #2	15,550.5	15,871.3	917.5	460.9	2.009	SF
Broe 10NA - OWB - Plan #2	956.2	936.3	57.3	39.4	3.196	CC, ES
Broe 10NA - OWB - Plan #2	15,550.5	15,834.7	1,157.8	702.0	2.540	SF
Broe 11C - OWB - Plan #2	250.0	250.0	116.5	113.7	41.697	CC
Broe 11C - OWB - Plan #2	300.0	299.3	116.6	113.7	39.046	ES
Broe 11C - OWB - Plan #2	15,550.5	16,180.9	1,376.1	919.6	3.014	SF
Broe 12N - OWB - Plan #2	250.0	250.0	109.6	106.8	39.238	CC
Broe 12N - OWB - Plan #2	300.0	298.9	109.8	106.8	36.735	ES
Broe 12N - OWB - Plan #2	15,550.5	16,081.4	1,602.4	1,142.8	3.487	SF
Broe 13N - OWB - Plan #2	250.0	250.0	104.3	101.5	37.339	CC
Broe 13N - OWB - Plan #2	300.0	298.6	104.5	101.5	34.899	ES
Broe 13N - OWB - Plan #2	15,550.5	16,216.0	1,827.5	1,368.0	3.977	SF
Broe 14NA - OWB - Plan #2	250.0	250.0	101.3	98.5	36.264	CC
Broe 14NA - OWB - Plan #2	400.0	394.8	102.9	98.3	22.211	ES
Broe 14NA - OWB - Plan #2	15,550.5	16,185.1	2,062.7	1,603.3	4.490	SF
Broe 15C - OWB - Plan #2	250.0	250.0	100.2	97.4	35.852	CC
Broe 15C - OWB - Plan #2	400.0	393.9	101.7	96.6	20.272	ES
Broe 15C - OWB - Plan #2	15,550.5	16,501.3	2,286.5	1,828.9	4.996	SF
Broe 16N - OWB - Plan #2	250.0	250.0	101.2	98.5	36.244	CC
Broe 16N - OWB - Plan #2	400.0	393.2	102.5	97.2	19.084	ES
Broe 16N - OWB - Plan #2	15,550.5	16,423.3	2,516.4	2,057.0	5.479	SF
Broe 17N - OWB - Plan #2	250.0	250.0	104.5	101.7	37.414	CC
Broe 17N - OWB - Plan #2	500.0	487.4	107.4	99.2	13.009	ES
Broe 17N - OWB - Plan #2	15,550.5	16,585.8	2,743.4	2,284.6	5.979	SF
Broe 18NA - OWB - Plan #2	250.0	250.0	109.8	107.0	39.293	CC
Broe 18NA - OWB - Plan #2	500.0	486.4	111.9	103.1	12.846	ES
Broe 18NA - OWB - Plan #2	15,550.5	16,601.6	2,977.1	2,518.1	6.486	SF
Broe 19C - OWB - Plan #2	250.0	250.0	116.7	113.9	41.784	CC
Broe 19C - OWB - Plan #2	600.0	579.4	119.5	108.4	10.713	ES
Broe 19C - OWB - Plan #2	15,550.5	16,929.0	3,203.7	2,746.5	7.008	SF
Broe 20N - OWB - Plan #2	250.0	250.0	125.1	122.3	44.785	CC
Broe 20N - OWB - Plan #2	700.0	671.4	127.9	114.7	9.691	ES
Broe 20N - OWB - Plan #2	15,550.5	16,873.7	3,434.3	2,975.7	7.489	SF
Broe 21C - OWB - Plan #1	250.0	250.0	125.0	122.2	44.747	CC
Broe 21C - OWB - Plan #1	500.0	513.4	126.2	117.3	14.171	ES
Broe 21C - OWB - Plan #1	800.0	812.0	151.8	138.8	11.692	SF
Broe 22N - OWB - Plan #1	530.2	543.3	109.1	100.3	12.432	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

<b>Company:</b>	GWP - PLANNING DB	<b>Local Co-ordinate Reference:</b>	Well Broe 05N
<b>Project:</b>	WELD COUNTY	<b>TVD Reference:</b>	KB @ 4760.0usft
<b>Reference Site:</b>	Broe Pad	<b>MD Reference:</b>	KB @ 4760.0usft
<b>Site Error:</b>	0.0 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Broe 05N	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OWB	<b>Database:</b>	EDM 5000.15 Single User Db
<b>Reference Design:</b>	Plan #2	<b>Offset TVD Reference:</b>	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						
Broe Pad						
Broe 22N - OWB - Plan #1	800.0	812.3	124.9	112.6	10.106	SF
Broe 23N - OWB - Plan #1	603.2	617.4	101.2	91.3	10.294	CC, ES
Broe 23N - OWB - Plan #1	7,250.0	7,411.3	576.5	504.0	7.947	SF
Broe 24C - OWB - Plan #1	685.1	700.0	93.4	82.4	8.482	CC
Broe 24C - OWB - Plan #1	700.0	714.8	93.5	82.2	8.316	ES
Broe 24C - OWB - Plan #1	7,450.0	7,318.8	394.7	322.8	5.492	SF
Broe 25NA - OWB - Plan #1	338.9	341.3	99.8	96.1	27.324	CC
Broe 25NA - OWB - Plan #1	7,164.9	7,298.4	136.4	59.8	1.780	Collision Risk Procedures Re
Broe 26N - OWB - Plan #1	7,316.1	7,269.1	46.8	-29.4	0.614	No-Go Zone - Stop Drilling, C
Broe 27N - OWB - Plan #1	1,025.6	1,039.3	64.0	48.0	3.998	CC
Broe 27N - OWB - Plan #1	1,100.0	1,112.8	65.0	47.7	3.764	ES
Broe 27N - OWB - Plan #1	7,417.7	7,236.4	233.2	156.7	3.051	SF
Broe 28NA - OWB - Plan #1	1,208.7	1,218.5	29.1	9.9	1.513	Collision Risk Procedures Re
Broe 29C - OWB - Plan #1	1,129.1	1,140.6	50.5	32.7	2.834	CC, ES
Broe 29C - OWB - Plan #1	1,200.0	1,210.7	51.7	33.0	2.759	SF
Broe 30N - OWB - Plan #1	1,228.7	1,236.2	13.8	-5.5	0.716	No-Go Zone - Stop Drilling, C



**PDC Energy Inc.**  
Anticollision Summary Report

<b>Company:</b>	GWP - PLANNING DB	<b>Local Co-ordinate Reference:</b>	Well Broe 05N
<b>Project:</b>	WELD COUNTY	<b>TVD Reference:</b>	KB @ 4760.0usft
<b>Reference Site:</b>	Broe Pad	<b>MD Reference:</b>	KB @ 4760.0usft
<b>Site Error:</b>	0.0 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Broe 05N	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OWB	<b>Database:</b>	EDM 5000.15 Single User Db
<b>Reference Design:</b>	Plan #2	<b>Offset TVD Reference:</b>	Offset Datum

Reference Depths are relative to KB @ 4760.0usft

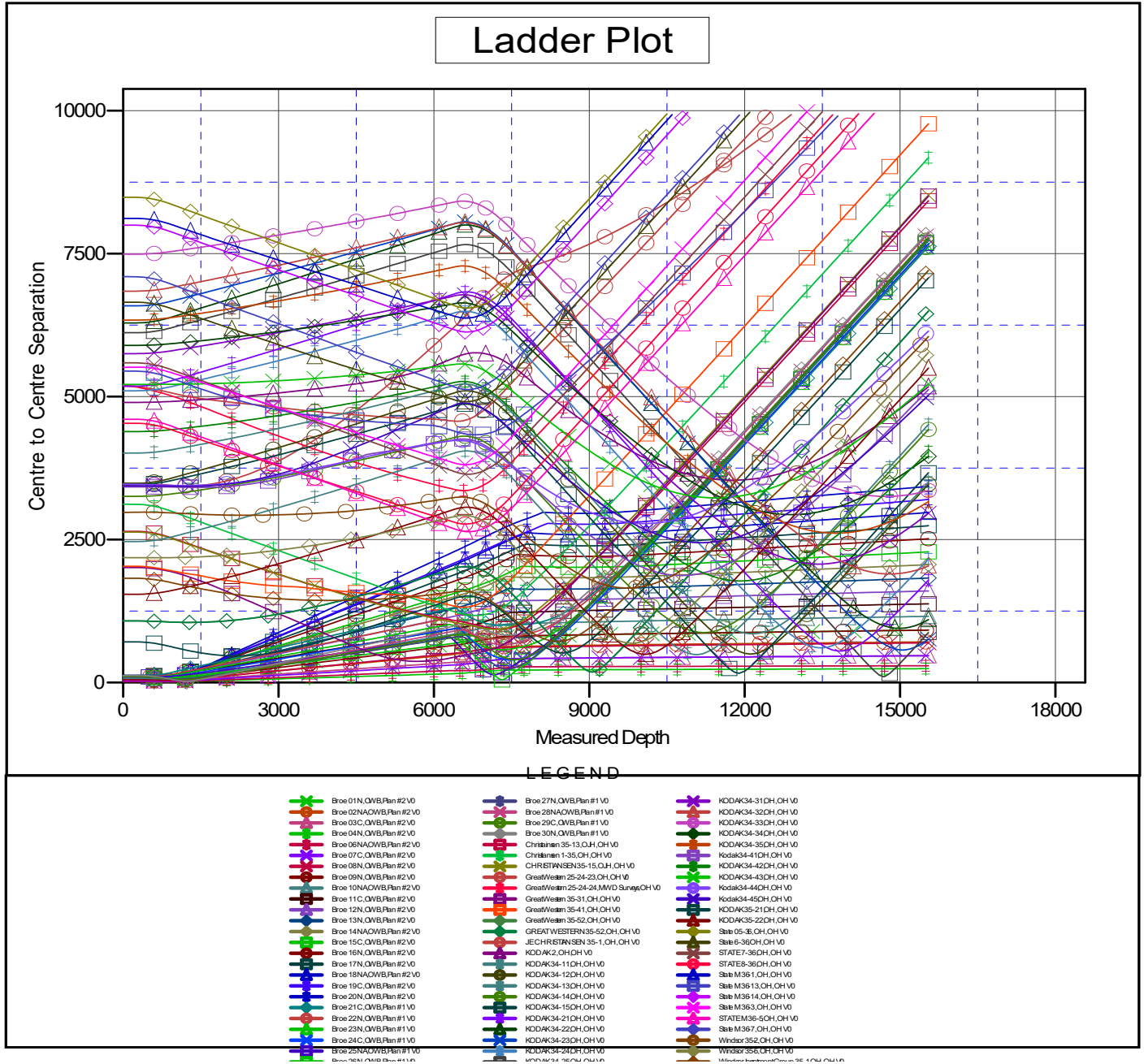
Offset Depths are relative to Offset Datum

Central Meridian is 105° 30' 0.000 W

Coordinates are relative to: Broe 05N

Coordinate System is US State Plane 1983, Colorado Northern Zone

Grid Convergence at Surface is: 0.41°



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

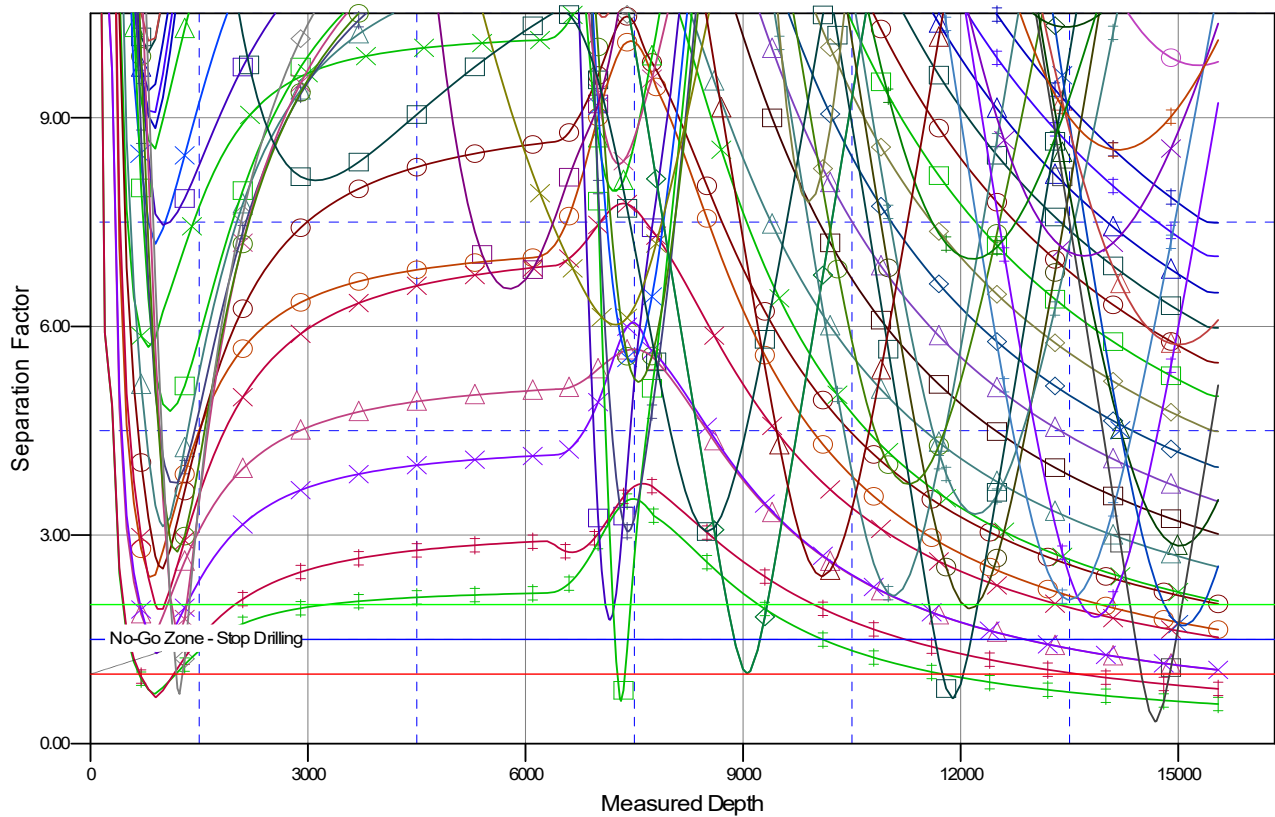
**PDC Energy Inc.**  
Anticollision Summary Report

<b>Company:</b>	GWP - PLANNING DB	<b>Local Co-ordinate Reference:</b>	Well Broe 05N
<b>Project:</b>	WELD COUNTY	<b>TVD Reference:</b>	KB @ 4760.0usft
<b>Reference Site:</b>	Broe Pad	<b>MD Reference:</b>	KB @ 4760.0usft
<b>Site Error:</b>	0.0 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Broe 05N	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OWB	<b>Database:</b>	EDM 5000.15 Single User Db
<b>Reference Design:</b>	Plan #2	<b>Offset TVD Reference:</b>	Offset Datum

Reference Depths are relative to KB @ 4760.0usft  
Offset Depths are relative to Offset Datum  
Central Meridian is 105° 30' 0.000 W

Coordinates are relative to: Broe 05N  
Coordinate System is US State Plane 1983, Colorado Northern Zone  
Grid Convergence at Surface is: 0.41°

## Separation Factor Plot



### LEGEND

Broe 01N, QWB, Plan#2 V0	Broe 27N, QWB, Plan#1 V0	KODAK34-31DH, OH V0
Broe 02NA, QWB, Plan#2 V0	Broe 28NA, QWB, Plan#1 V0	KODAK34-32DH, OH V0
Broe 03C, QWB, Plan#2 V0	Broe 29C, QWB, Plan#1 V0	KODAK34-33DH, OH V0
Broe 04N, QWB, Plan#2 V0	Broe 30N, QWB, Plan#1 V0	KODAK34-34DH, OH V0
Broe 06NA, QWB, Plan#2 V0	Christensen 35-13, OH, OH V0	KODAK34-35DH, OH V0
Broe 07C, QWB, Plan#2 V0	Christensen 35-13, OH, OH V0	KODAK34-41DH, OH V0
Broe 08N, QWB, Plan#2 V0	CHRISTENSEN 35-15, OH, OH V0	KODAK34-42DH, OH V0
Broe 08N, QWB, Plan#2 V0	Great Western 25-24-23, OH, OH V0	KODAK34-43DH, OH V0
Broe 10NA, QWB, Plan#2 V0	Great Western 25-24-24, MWD Surveys, OH V0	KODAK34-44DH, OH V0
Broe 11C, QWB, Plan#2 V0	Great Western 35-31, OH, OH V0	KODAK34-45DH, OH V0
Broe 12N, QWB, Plan#2 V0	Great Western 35-41, OH, OH V0	KODAK35-21DH, OH V0
Broe 13N, QWB, Plan#2 V0	Great Western 35-52, OH, OH V0	KODAK35-22DH, OH V0
Broe 14NA, QWB, Plan#2 V0	GREAT WESTERN 35-52, OH, OH V0	State 05-38, OH, OH V0
Broe 15C, QWB, Plan#2 V0	JEC CHRISTENSEN 35-1, OH, OH V0	State 6-36DH, OH V0
Broe 16N, QWB, Plan#2 V0	KODAK2, OH, OH V0	STATE7-36DH, OH V0
Broe 17N, QWB, Plan#2 V0	KODAK34-11DH, OH V0	STATE8-36DH, OH V0
Broe 18NA, QWB, Plan#2 V0	KODAK34-12DH, OH V0	State M361, OH, OH V0
Broe 19C, QWB, Plan#2 V0	KODAK34-13DH, OH V0	State M3613, OH, OH V0
Broe 20N, QWB, Plan#2 V0	KODAK34-14DH, OH V0	State M3614, OH, OH V0
Broe 21C, QWB, Plan#1 V0	KODAK34-15DH, OH V0	State M363, OH, OH V0
Broe 22N, QWB, Plan#1 V0	KODAK34-21DH, OH V0	STATE8-36-50DH, OH V0
Broe 23N, QWB, Plan#1 V0	KODAK34-22DH, OH V0	State M367, OH, OH V0
Broe 24C, QWB, Plan#1 V0	KODAK34-23DH, OH V0	Whitaker 352, OH, OH V0
Broe 25NA, QWB, Plan#1 V0	KODAK34-24DH, OH V0	

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