



Project: WELD COUNTY, COLORADO
Site: SW SE SEC. 32 T4N R65W 6th P.M. (PAONIA)
Well: PAONIA 3N
Wellbore: ORIGINAL WELLBORE
Design: PROPOSAL #1

ANNOTATIONS

TVD	MD	Inc	Azi	+N/-S	+E/-W	VSec	Departure	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	SHL: 2434ft FEL & 715ft FSL of Sec 32
1700.00	1700.00	0.00	0.00	0.00	0.00	0.00	0.00	START NUDGE (2°/100ft BUR)
2367.88	2374.08	13.48	222.22	-58.47	-53.04	-54.99	78.94	EOB TO 13.48° INC
5609.92	5707.99	13.48	222.22	-634.11	-575.29	-596.43	856.19	END OF TANGENT
6277.80	6382.07	0.00	0.00	-692.58	-628.33	-651.42	935.13	EOD TO VERTICAL
6377.80	6482.07	0.00	0.00	-692.58	-628.33	-651.42	935.13	KOP (8°/100ft BUR)
7094.00	7607.08	90.00	0.09	23.62	-627.21	63.28	1651.33	EP: 2230ft FWL & 737ft FSL of Sec 32
7094.00	17224.16	90.00	0.10	9640.69	-611.45	9660.06	11268.41	BHL: 2230ft FWL & 200ft FNL of Sec 29

PROPOSED LOCAL COORDINATES:

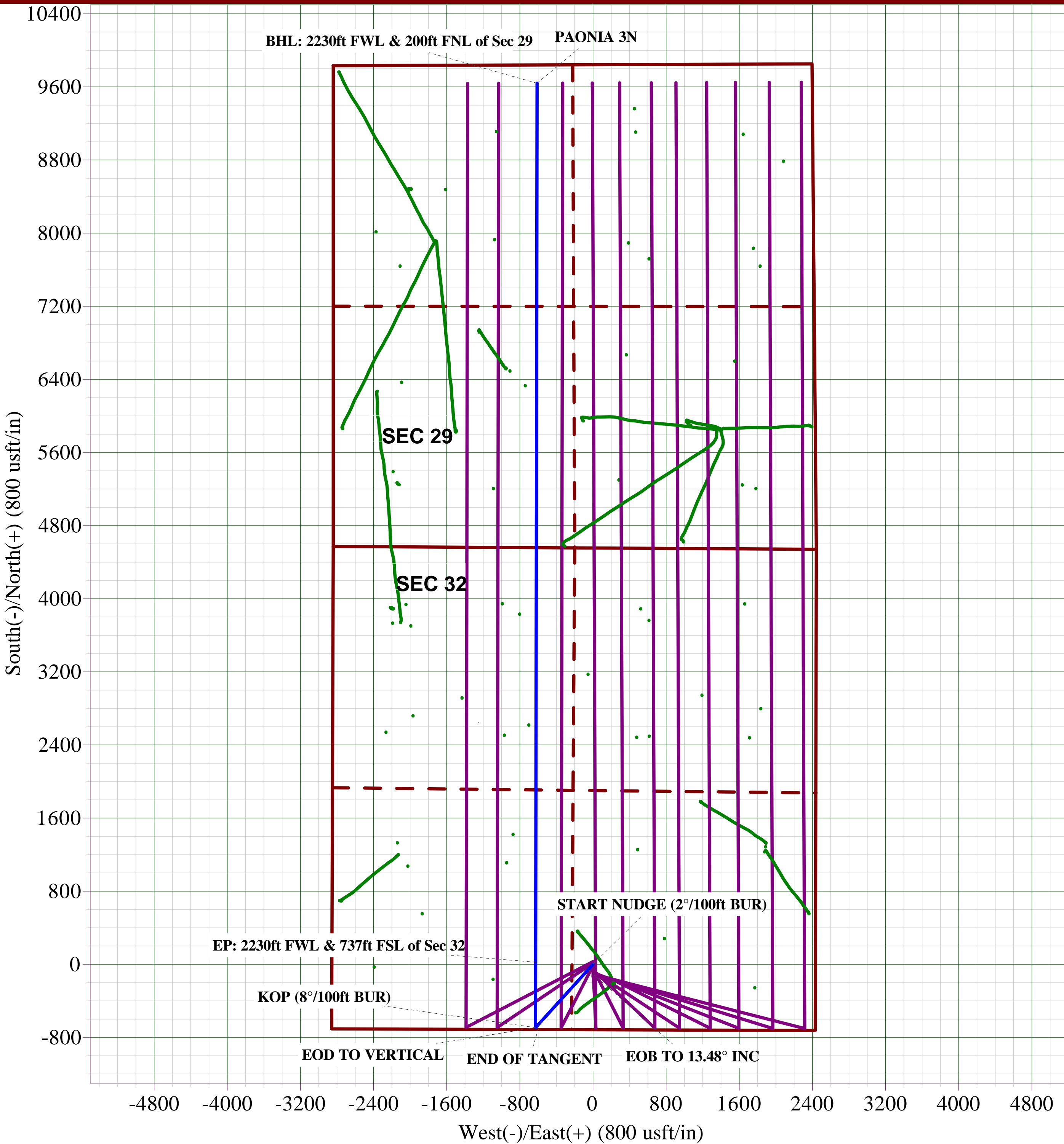
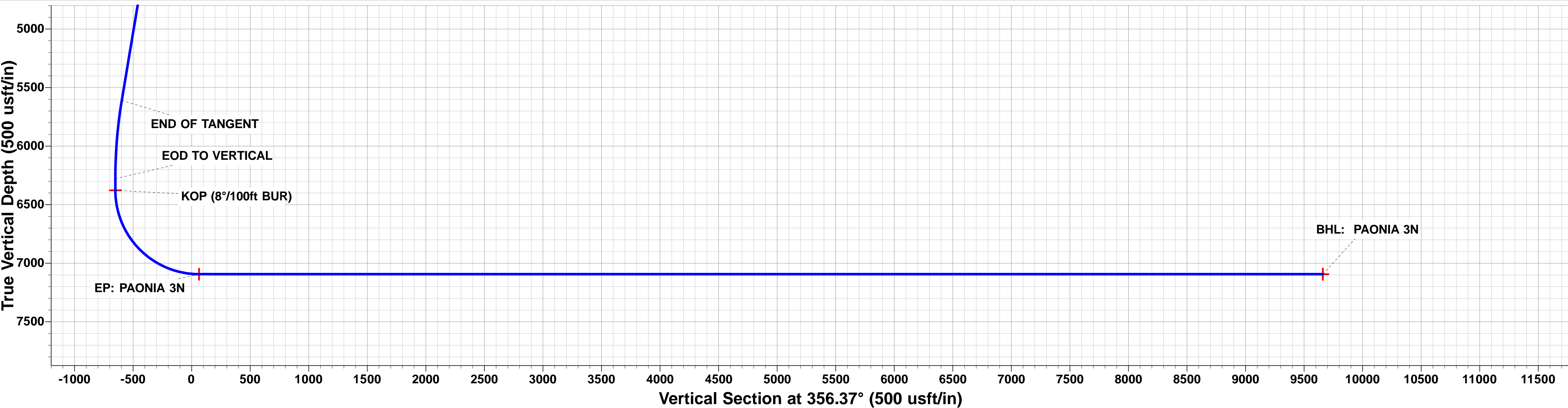
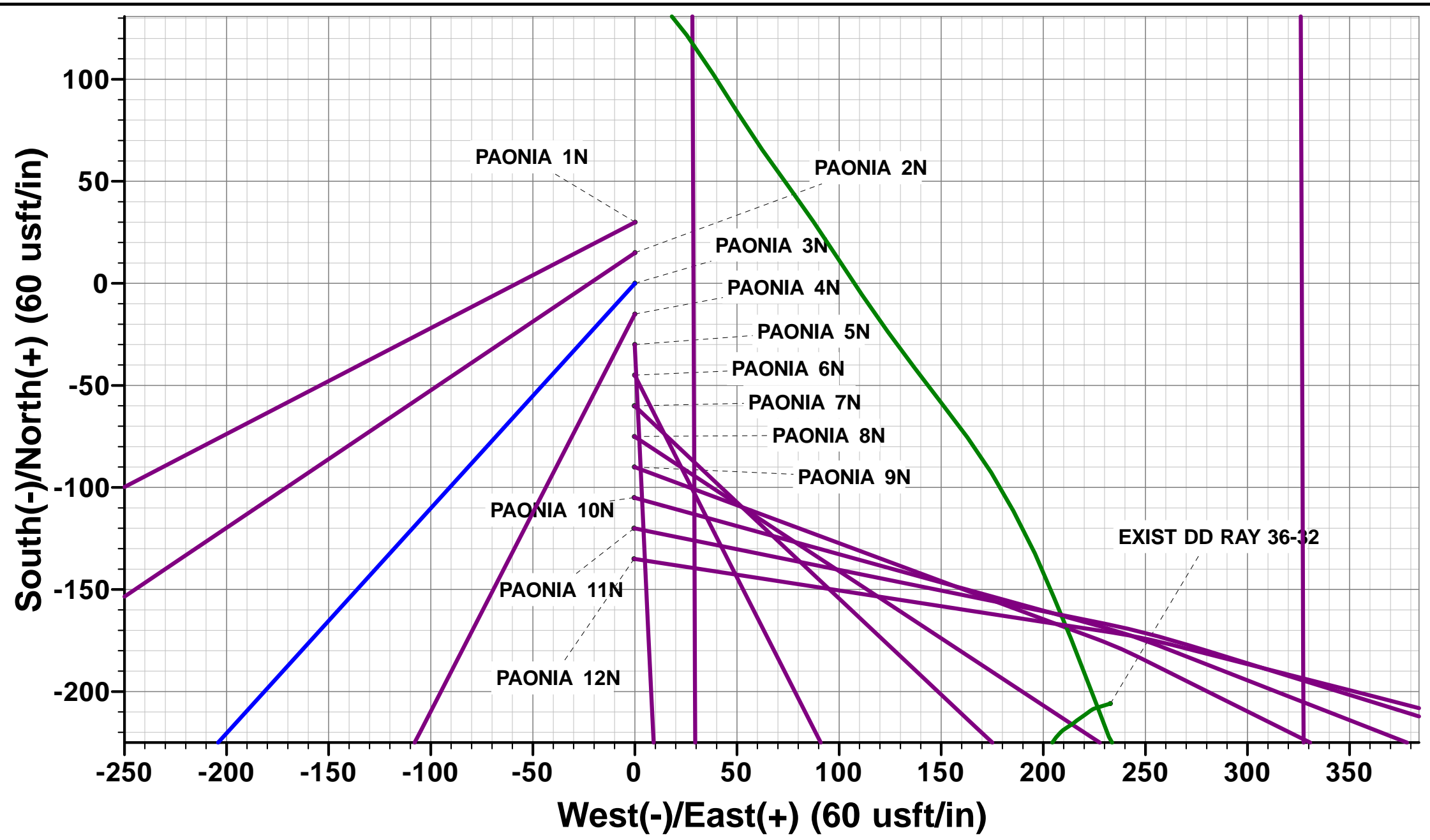
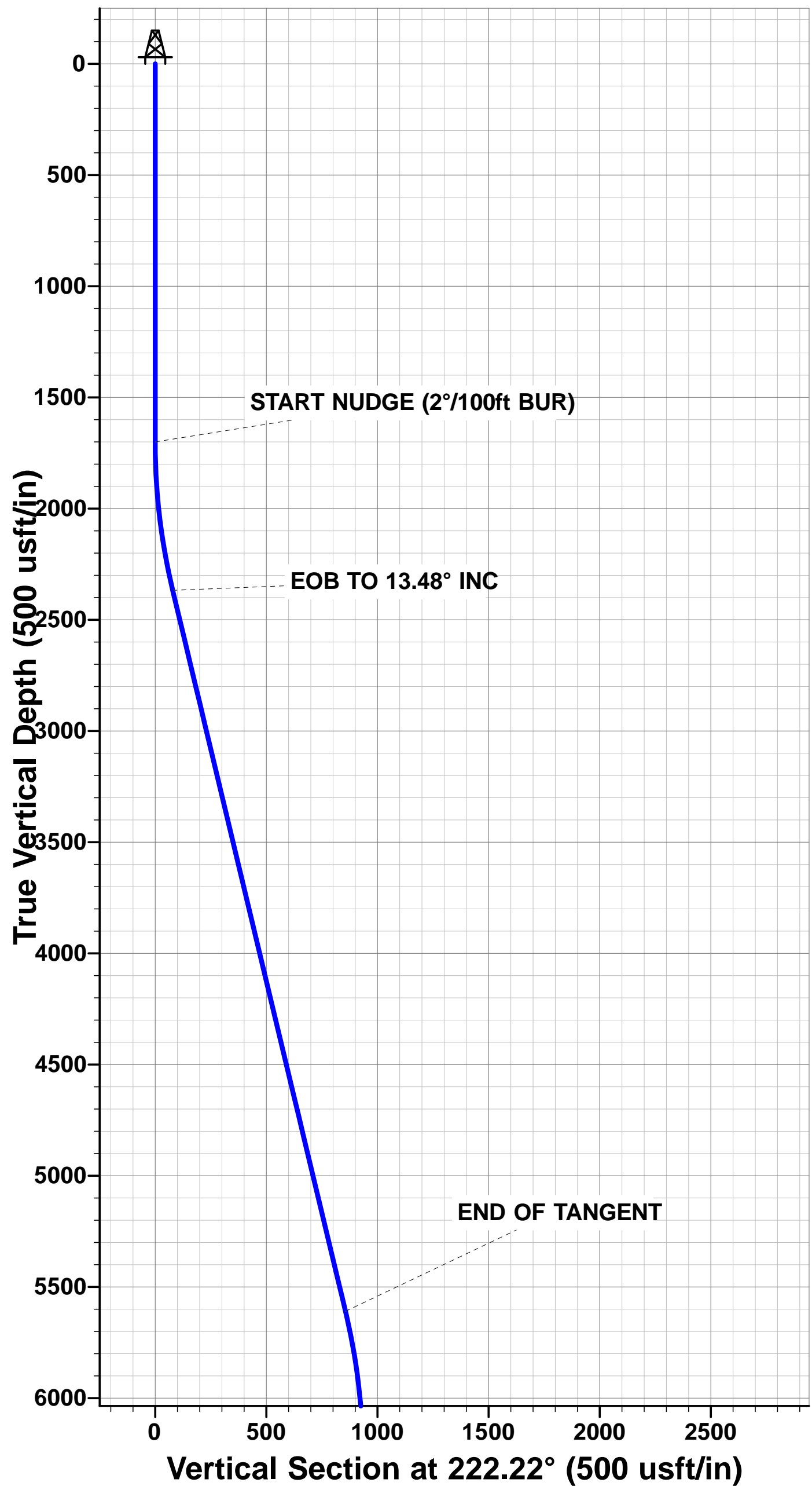
SHL: 2434ft FEL & 715ft FSL of Sec 32

EP: 2230ft FWL & 737ft FSL of Sec 32

BHL: 2230ft FWL & 200ft FNL of Sec 29

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude
KOP: PAONIA 3N	6377.80	-692.58	-628.33	40.261734	-104.688676
EP: PAONIA 3N	7094.00	23.62	-627.21	40.263700	-104.688672
BHL: PAONIA 3N	7094.00	9640.69	-611.45	40.290098	-104.688616



PDC ENERGY

WELD COUNTY, COLORADO

SW SE SEC. 32 T4N R65W 6th P.M. (PAONIA)

PAONIA 3N

ORIGINAL WELLBORE

PROPOSAL #1

Anticollision Report

13 December, 2017



Anticollision Report



Company:	PDC ENERGY	Local Co-ordinate Reference:	Well PAONIA 3N
Project:	WELD COUNTY, COLORADO	TVD Reference:	WELL @ 4919.00usft (Original Well Elev)
Reference Site:	SW SE SEC. 32 T4N R65W 6th P.M. (PAONIA)	MD Reference:	WELL @ 4919.00usft (Original Well Elev)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	PAONIA 3N	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	ORIGINAL WELLBORE	Database:	EDM 5000.1 Single User Db
Reference Design:	PROPOSAL #1	Offset TVD Reference:	Offset Datum

Reference	PROPOSAL #1		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	MD + Stations Interval 100.00usft	Error Model:	ISCWSA
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 9,999.98 usft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma	Casing Method:	Not applied

Survey Tool Program	Date	13/12/2017		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.00	17,224.16	PROPOSAL #1 (ORIGINAL WELLBORE)	MWD	MWD - Standard

Summary						
Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
SE SE SEC. 32 T4N R65W 6th P.M. (CRAWFORD)						
EXIST DD RAY 39-32 - Wellbore #1 - Wellbore #1	100.00	66.69	2,243.57	2,243.41	10,000.000	CC, ES
EXIST DD RAY 39-32 - Wellbore #1 - Wellbore #1	13,300.00	7,195.47	5,946.86	5,816.42	45.591	SF
EXIST DD SPAYD 39-29 - Wellbore #1 - Wellbore #1	13,485.44	7,118.24	2,985.32	2,854.25	22.777	CC
EXIST DD SPAYD 39-29 - Wellbore #1 - Wellbore #1	13,500.00	7,118.28	2,985.36	2,854.01	22.730	ES
EXIST DD SPAYD 39-29 - Wellbore #1 - Wellbore #1	14,800.00	7,120.74	3,261.92	3,105.83	20.898	SF
EXIST VERT HSR-KOCH 16-32 - Wellbore #1 - Design #	1,700.00	1,672.00	1,787.33	1,780.02	244.563	CC, ES
EXIST VERT HSR-KOCH 16-32 - Wellbore #1 - Design #	15,600.00	7,065.99	8,607.01	8,435.83	50.280	SF
SW SE SEC. 32 T4N R65W 6th P.M. (PAONIA)						
ABDN VERT BOHLENDER 2 - Wellbore #1 - Design #1	15,424.01	4,856.00	3,258.48	3,132.50	25.864	CC
ABDN VERT BOHLENDER 2 - Wellbore #1 - Design #1	15,500.00	4,856.00	3,259.37	3,132.26	25.642	ES
ABDN VERT BOHLENDER 2 - Wellbore #1 - Design #1	16,700.00	4,856.00	3,499.40	3,354.56	24.159	SF
ABDN VERT BOHLENDER 31-29 #3 - Wellbore #1 - Des	16,693.22	4,736.00	2,592.41	2,489.08	25.091	CC
ABDN VERT BOHLENDER 31-29 #3 - Wellbore #1 - Des	16,700.00	4,736.00	2,592.42	2,489.02	25.074	ES
ABDN VERT BOHLENDER 31-29 #3 - Wellbore #1 - Des	17,224.16	4,736.00	2,646.22	2,537.40	24.318	SF
ABDN VERT HAMBERT R G 32-4 - Wellbore #1 - Design	11,519.68	7,093.99	1,425.41	1,331.56	15.188	CC, ES
ABDN VERT HAMBERT R G 32-4 - Wellbore #1 - Design	11,900.00	7,093.99	1,475.28	1,374.29	14.609	SF
ABDN VERT HSR-MAYA 4-29 - Wellbore #1 - Wellbore #	16,048.24	7,000.00	1,403.08	1,237.50	8.474	CC
ABDN VERT HSR-MAYA 4-29 - Wellbore #1 - Wellbore #	16,100.00	7,000.00	1,404.03	1,237.46	8.429	ES
ABDN VERT HSR-MAYA 4-29 - Wellbore #1 - Wellbore #	16,300.00	7,000.00	1,425.48	1,255.10	8.366	SF
ABDN VERT MUSICK MCCLINTOCK 3 - Wellbore #1 - W	11,471.45	4,521.19	3,012.57	2,957.40	54.606	CC
ABDN VERT MUSICK MCCLINTOCK 3 - Wellbore #1 - W	11,500.00	4,521.19	3,012.71	2,957.21	54.287	ES
ABDN VERT MUSICK MCCLINTOCK 3 - Wellbore #1 - W	13,400.00	4,521.19	3,577.01	3,499.57	46.189	SF
ABDN VERT NGL C3 - Wellbore #1 - Design #1	11,315.45	7,093.99	1,571.04	1,481.00	17.448	CC, ES
ABDN VERT NGL C3 - Wellbore #1 - Design #1	11,800.00	7,093.99	1,644.07	1,544.96	16.589	SF
ABDN VERT UPRR 21 PAN AM A#1 - Wellbore #1 - Wel	12,828.36	7,100.00	1,500.36	1,396.01	14.378	CC, ES
ABDN VERT UPRR 21 PAN AM A#1 - Wellbore #1 - Wel	13,200.00	7,100.00	1,545.70	1,434.31	13.876	SF
EXIST DD NGL C3A - Wellbore #1 - Wellbore #1	13,377.95	7,381.35	1,713.66	1,561.27	11.245	CC
EXIST DD NGL C3A - Wellbore #1 - Wellbore #1	13,400.00	7,386.21	1,713.79	1,560.94	11.212	ES
EXIST DD NGL C3A - Wellbore #1 - Wellbore #1	13,800.00	7,537.38	1,759.81	1,598.61	10.917	SF
EXIST DD RAY 23-32 - Wellbore #1 - Wellbore #1	2,433.61	2,472.04	240.73	230.32	23.125	CC, ES
EXIST DD RAY 23-32 - Wellbore #1 - Wellbore #1	8,000.00	7,169.83	457.54	419.67	12.081	SF
EXIST DD RAY 24-32 - Wellbore #1 - Wellbore #1	9,359.45	7,187.97	1,804.07	1,748.27	32.334	CC
EXIST DD RAY 24-32 - Wellbore #1 - Wellbore #1	9,400.00	7,187.75	1,804.52	1,748.04	31.947	ES
EXIST DD RAY 24-32 - Wellbore #1 - Wellbore #1	10,400.00	7,182.32	2,082.63	2,008.37	28.048	SF
EXIST DD RAY 36-32 - Wellbore #1 - Wellbore #1	4,085.98	4,078.97	225.82	201.88	9.432	CC

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

Company:	PDC ENERGY	Local Co-ordinate Reference:	Well PAONIA 3N
Project:	WELD COUNTY, COLORADO	TVD Reference:	WELL @ 4919.00usft (Original Well Elev)
Reference Site:	SW SE SEC. 32 T4N R65W 6th P.M. (PAONIA)	MD Reference:	WELL @ 4919.00usft (Original Well Elev)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	PAONIA 3N	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	ORIGINAL WELLBORE	Database:	EDM 5000.1 Single User Db
Reference Design:	PROPOSAL #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
SW SE SEC. 32 T4N R65W 6th P.M. (PAONIA)						
EXIST DD RAY 36-32 - Wellbore #1 - Wellbore #1	4,100.00	4,092.45	225.84	201.78	9.389	ES
EXIST DD RAY 36-32 - Wellbore #1 - Wellbore #1	4,400.00	4,386.40	232.14	206.19	8.946	SF
EXIST DD RURAL LAND G32-33D - Wellbore #1 - Wellb	8,279.05	7,238.00	2,125.61	2,085.32	52.755	CC
EXIST DD RURAL LAND G32-33D - Wellbore #1 - Wellb	8,300.00	7,238.00	2,125.71	2,085.18	52.450	ES
EXIST DD RURAL LAND G32-33D - Wellbore #1 - Wellb	10,600.00	7,238.00	3,147.25	3,068.58	40.003	SF
EXIST DD SPAYD 19-29 - Wellbore #1 - Wellbore #1	13,423.15	7,507.20	879.04	725.52	5.726	CC, ES
EXIST DD SPAYD 19-29 - Wellbore #1 - Wellbore #1	13,500.00	7,507.02	882.40	727.42	5.694	SF
EXIST DD SPAYD 20-29 - Wellbore #1 - Wellbore #1	13,503.82	7,040.63	1,657.22	1,527.09	12.735	CC, ES
EXIST DD SPAYD 20-29 - Wellbore #1 - Wellbore #1	13,900.00	7,031.38	1,703.88	1,566.29	12.384	SF
EXIST DD SPAYD 22-29 - Wellbore #1 - Wellbore #1	14,513.60	7,100.63	633.15	482.35	4.199	CC, ES
EXIST DD SPAYD 22-29 - Wellbore #1 - Wellbore #1	14,600.00	7,099.18	639.01	486.57	4.192	SF
EXIST DD SPAYD 23-29 - Wellbore #1 - Wellbore #1	13,531.13	7,342.77	508.05	374.21	3.796	CC, ES
EXIST DD SPAYD 23-29 - Wellbore #1 - Wellbore #1	13,600.00	7,341.73	512.70	377.57	3.794	SF
EXIST DD SPAYD 30-29 - Wellbore #1 - Wellbore #1	17,224.16	7,497.48	2,173.13	1,949.06	9.698	CC, ES, SF
EXIST DD SPAYD 33-29 - Wellbore #1 - Wellbore #1	13,449.76	7,575.95	2,124.23	1,969.80	13.755	CC
EXIST DD SPAYD 33-29 - Wellbore #1 - Wellbore #1	13,500.00	7,575.45	2,124.82	1,969.44	13.675	ES
EXIST DD SPAYD 33-29 - Wellbore #1 - Wellbore #1	14,000.00	7,570.52	2,194.33	2,029.43	13.307	SF
EXIST DD SPAYD 36-29 - Wellbore #1 - Wellbore #1	12,174.91	7,473.90	291.84	171.99	2.435	CC, ES
EXIST DD SPAYD 36-29 - Wellbore #1 - Wellbore #1	12,200.00	7,473.64	292.92	172.60	2.435	SF
EXIST DD SPAYD 37-29 - Wellbore #1 - Wellbore #1	12,226.21	7,237.80	1,599.34	1,482.08	13.640	CC, ES
EXIST DD SPAYD 37-29 - Wellbore #1 - Wellbore #1	12,600.00	7,227.74	1,642.40	1,518.14	13.218	SF
EXIST VERT BOHLENDER 29-13 - Wellbore #1 - Design	15,306.92	7,093.99	1,226.91	1,061.27	7.407	CC, ES
EXIST VERT BOHLENDER 29-13 - Wellbore #1 - Design	15,500.00	7,093.99	1,242.01	1,072.68	7.335	SF
EXIST VERT BOHLENDER 29-3 - Wellbore #1 - Design	15,228.87	7,090.99	2,443.47	2,279.32	14.885	CC
EXIST VERT BOHLENDER 29-3 - Wellbore #1 - Design	15,300.00	7,090.99	2,444.51	2,279.00	14.770	ES
EXIST VERT BOHLENDER 29-3 - Wellbore #1 - Design	15,900.00	7,090.99	2,533.96	2,356.99	14.319	SF
EXIST VERT BOHLENDER 32-29 #1 - Wellbore #1 - Des	15,479.95	7,093.99	1,002.58	833.64	5.934	CC
EXIST VERT BOHLENDER 32-29 #1 - Wellbore #1 - Des	15,500.00	7,093.99	1,002.78	833.45	5.922	ES
EXIST VERT BOHLENDER 32-29 #1 - Wellbore #1 - Des	15,600.00	7,093.99	1,009.75	838.51	5.897	SF
EXIST VERT CLYDE MARSHALL 1 - Wellbore #1 - Desi	1,700.00	1,700.00	1,460.11	1,452.74	198.234	CC
EXIST VERT CLYDE MARSHALL 1 - Wellbore #1 - Desi	1,800.00	1,799.98	1,460.33	1,452.55	187.465	ES
EXIST VERT CLYDE MARSHALL 1 - Wellbore #1 - Desi	5,100.00	4,765.00	1,725.87	1,699.05	64.351	SF
EXIST VERT CPC BOHLENDER 29-1 - Wellbore #1 - De	16,671.23	7,094.00	2,254.01	2,062.29	11.757	CC
EXIST VERT CPC BOHLENDER 29-1 - Wellbore #1 - De	16,700.00	7,094.00	2,254.19	2,061.93	11.725	ES
EXIST VERT CPC BOHLENDER 29-1 - Wellbore #1 - De	17,200.00	7,094.00	2,315.20	2,113.37	11.471	SF
EXIST VERT CPC BOHLENDER 29-2 - Wellbore #1 - De	16,949.68	7,094.00	1,065.07	868.03	5.405	CC, ES
EXIST VERT CPC BOHLENDER 29-2 - Wellbore #1 - De	17,100.00	7,094.00	1,075.62	875.71	5.380	SF
EXIST VERT HAMBERT G 32-4X - Wellbore #1 - Design	11,286.25	7,093.99	1,371.20	1,281.70	15.322	CC
EXIST VERT HAMBERT G 32-4X - Wellbore #1 - Design	11,300.00	7,093.99	1,371.27	1,281.52	15.279	ES
EXIST VERT HAMBERT G 32-4X - Wellbore #1 - Design	11,700.00	7,093.99	1,432.26	1,335.03	14.730	SF
EXIST VERT HAMBERT R G 32-1 - Wellbore #1 - Desig	11,532.95	7,093.99	2,279.36	2,185.26	24.222	CC
EXIST VERT HAMBERT R G 32-1 - Wellbore #1 - Desig	11,600.00	7,093.99	2,280.35	2,184.99	23.914	ES
EXIST VERT HAMBERT R G 32-1 - Wellbore #1 - Desig	12,600.00	7,093.99	2,516.75	2,402.57	22.042	SF
EXIST VERT HAMBERT R G 32-2 - Wellbore #1 - Desig	11,350.51	7,093.99	1,233.55	1,142.85	13.601	CC, ES
EXIST VERT HAMBERT R G 32-2 - Wellbore #1 - Desig	11,700.00	7,093.99	1,282.10	1,184.87	13.186	SF
EXIST VERT HAMBERT R G 32-3 - Wellbore #1 - Desig	11,417.39	7,093.99	181.30	89.35	1.972	CC, ES, SF
EXIST VERT HAMBERT R G 32-6 - Wellbore #1 - Desig	10,091.12	7,093.99	346.63	279.11	5.134	CC
EXIST VERT HAMBERT R G 32-6 - Wellbore #1 - Desig	10,100.00	7,093.99	346.75	279.07	5.123	ES, SF
EXIST VERT HAMBERT R G 32-7 - Wellbore #1 - Desig	10,071.56	7,093.99	1,101.69	1,034.52	16.402	CC
EXIST VERT HAMBERT R G 32-7 - Wellbore #1 - Desig	10,100.00	7,093.99	1,102.06	1,034.38	16.283	ES
EXIST VERT HAMBERT R G 32-7 - Wellbore #1 - Desig	10,400.00	7,093.99	1,149.61	1,076.48	15.721	SF
EXIST VERT HAMBERT R G 32-8 - Wellbore #1 - Desig	10,387.11	7,093.99	2,457.65	2,384.76	33.717	CC

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

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Reference Design:	PROPOSAL #1	Offset TVD Reference:	Offset Datum

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Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
SW SE SEC. 32 T4N R65W 6th P.M. (PAONIA)						
EXIST VERT HAMBERT R G 32-8 - Wellbore #1 - Desig	10,400.00	7,093.99	2,457.68	2,384.56	33.609	ES
EXIST VERT HAMBERT R G 32-8 - Wellbore #1 - Desig	12,000.00	7,093.99	2,939.62	2,836.75	28.577	SF
EXIST VERT HSR-CARTER 11-29 - Wellbore #1 - Desig	13,916.61	7,093.99	123.94	-15.21	0.891	Level 1, CC, ES, SF
EXIST VERT HSR-CROUSE 5-29 - Wellbore #1 - Design	15,222.64	7,093.99	1,494.84	1,330.80	9.113	CC, ES
EXIST VERT HSR-CROUSE 5-29 - Wellbore #1 - Design	15,500.00	7,093.99	1,520.35	1,351.02	8.979	SF
EXIST VERT HSR-DICERSON 14-29A - Wellbore #1 - D	12,790.39	7,093.99	470.89	353.11	3.998	CC
EXIST VERT HSR-DICERSON 14-29A - Wellbore #1 - D	12,800.00	7,093.99	470.99	353.03	3.993	ES, SF
EXIST VERT HSR-FRISBIE 16-29A - Wellbore #1 - Desi	12,834.97	7,093.99	2,252.31	2,133.69	18.987	CC
EXIST VERT HSR-FRISBIE 16-29A - Wellbore #1 - Desi	12,900.00	7,093.99	2,253.25	2,133.39	18.800	ES
EXIST VERT HSR-FRISBIE 16-29A - Wellbore #1 - Desi	13,600.00	7,093.99	2,378.69	2,245.55	17.867	SF
EXIST VERT HSR-FROELICH 12-29A - Wellbore #1 - De	13,950.91	7,093.99	1,477.20	1,337.39	10.566	CC
EXIST VERT HSR-FROELICH 12-29A - Wellbore #1 - De	14,000.00	7,093.99	1,478.01	1,337.27	10.502	ES
EXIST VERT HSR-FROELICH 12-29A - Wellbore #1 - De	14,200.00	7,093.99	1,498.05	1,353.51	10.364	SF
EXIST VERT HSR-HARRISON 9-32 - Wellbore #1 - Des	1,700.00	1,700.00	2,285.16	2,277.80	310.248	CC, ES
EXIST VERT HSR-HARRISON 9-32 - Wellbore #1 - Des	11,500.00	7,093.99	3,633.68	3,540.19	38.869	SF
EXIST VERT HSR-MUNDS 13-29 - Wellbore #1 - Design	12,975.18	7,093.99	1,568.02	1,446.74	12.929	CC
EXIST VERT HSR-MUNDS 13-29 - Wellbore #1 - Design	13,000.00	7,093.99	1,568.22	1,446.47	12.881	ES
EXIST VERT HSR-MUNDS 13-29 - Wellbore #1 - Design	13,400.00	7,093.99	1,624.55	1,495.22	12.561	SF
EXIST VERT HSR-NICHOLS 15-32 - Wellbore #1 - Desig	1,700.00	1,700.00	831.95	824.59	112.952	CC, ES
EXIST VERT HSR-NICHOLS 15-32 - Wellbore #1 - Desig	8,900.00	7,093.99	1,745.55	1,698.46	37.069	SF
EXIST VERT HSR-RAY 3-29 - Wellbore #1 - Design #1	16,695.75	7,094.00	443.22	251.04	2.306	CC
EXIST VERT HSR-RAY 3-29 - Wellbore #1 - Design #1	16,700.00	7,094.00	443.24	250.98	2.305	ES, SF
EXIST VERT HSR-SALISBURY 6-29 - Wellbore #1 - Des	15,514.66	7,093.99	462.19	292.58	2.725	CC, ES, SF
EXIST VERT HSR-TEAGLE 10-29A - Wellbore #1 - Desi	14,256.19	7,093.99	980.66	835.05	6.735	CC, ES
EXIST VERT HSR-TEAGLE 10-29A - Wellbore #1 - Desi	14,400.00	7,093.99	991.15	842.80	6.681	SF
EXIST VERT HSR-WILLIAM 10-32A - Wellbore #1 - Des	8,843.49	7,093.99	1,113.44	1,067.23	24.094	CC, ES
EXIST VERT HSR-WILLIAM 10-32A - Wellbore #1 - Des	9,300.00	7,093.99	1,203.39	1,149.75	22.436	SF
EXIST VERT HSR-WRIGHT 9-29A - Wellbore #1 - Desig	14,189.36	7,093.99	2,166.00	2,021.66	15.006	CC
EXIST VERT HSR-WRIGHT 9-29A - Wellbore #1 - Desig	14,200.00	7,093.99	2,166.03	2,021.48	14.985	ES
EXIST VERT HSR-WRIGHT 9-29A - Wellbore #1 - Desig	14,800.00	7,093.99	2,250.43	2,094.45	14.428	SF
EXIST VERT MARSHALL 32-11G - Wellbore #1 - Design	9,005.64	7,093.99	250.06	201.29	5.127	CC, ES, SF
EXIST VERT MARSHALL 32-12G - Wellbore #1 - Design	8,657.81	7,094.00	1,399.30	1,355.88	32.228	CC, ES
EXIST VERT MARSHALL 32-12G - Wellbore #1 - Design	9,500.00	7,093.99	1,633.20	1,576.14	28.623	SF
EXIST VERT MARSHALL 32-14G - Wellbore #1 - Design	7,418.43	7,069.30	465.31	432.03	13.981	CC, ES, SF
EXIST VERT MARSHALL G 32-13JI - Wellbore #1 - Des	7,553.40	7,091.99	1,766.04	1,732.52	52.682	CC, ES
EXIST VERT MARSHALL G 32-13JI - Wellbore #1 - Des	10,200.00	7,093.99	3,181.71	3,112.22	45.788	SF
EXIST VERT MEL SMOOKLER GAS UNIT 1 - Wellbore	8,137.83	7,094.00	1,241.68	1,204.79	33.663	CC, ES
EXIST VERT MEL SMOOKLER GAS UNIT 1 - Wellbore	8,800.00	7,093.99	1,407.21	1,361.67	30.902	SF
EXIST VERT MUSICK 1-32 - Wellbore #1 - Design #1	10,499.14	7,093.99	809.94	735.00	10.808	CC
EXIST VERT MUSICK 1-32 - Wellbore #1 - Design #1	10,500.00	7,093.99	809.94	734.98	10.806	ES
EXIST VERT MUSICK 1-32 - Wellbore #1 - Design #1	10,700.00	7,093.99	834.47	755.85	10.613	SF
EXIST VERT MUSICK GAS UNIT 1 - Wellbore #1 - Desi	10,532.49	7,093.99	1,813.92	1,738.37	24.010	CC, ES
EXIST VERT MUSICK GAS UNIT 1 - Wellbore #1 - Desi	11,300.00	7,093.99	1,969.60	1,879.85	21.945	SF
EXIST VERT MUSICK MCCLINTOCK 2 - Wellbore #1 - D	10,204.11	4,755.00	2,340.33	2,309.82	76.706	CC, ES
EXIST VERT MUSICK MCCLINTOCK 2 - Wellbore #1 - D	11,500.00	4,755.00	2,675.16	2,635.43	67.338	SF
EXIST VERT MUSICK MCCLINTOCK 4 - Wellbore #1 - D	1,700.00	1,700.00	3,014.32	3,006.95	409.244	CC, ES
EXIST VERT MUSICK MCCLINTOCK 4 - Wellbore #1 - D	13,500.00	4,750.00	4,766.61	4,671.21	49.962	SF
EXIST VERT MUSICK MCCLINTOCK 6 - Wellbore #1 - D	10,303.06	4,750.00	2,702.81	2,658.77	61.371	CC, ES
EXIST VERT MUSICK MCCLINTOCK 6 - Wellbore #1 - D	12,200.00	4,750.00	3,302.07	3,237.09	50.814	SF
EXIST VERT MUSICK MCCLINTOCK 7 - Wellbore #1 - D	1,700.00	1,700.00	2,572.48	2,565.12	349.257	CC, ES
EXIST VERT MUSICK MCCLINTOCK 7 - Wellbore #1 - D	12,200.00	4,739.00	3,399.70	3,339.75	56.703	SF
EXIST VERT MUSICK-MCCLINTOCK 1 - Wellbore #1 - D	11,477.14	4,803.00	2,560.26	2,509.01	49.963	CC

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

Company:	PDC ENERGY	Local Co-ordinate Reference:	Well PAONIA 3N
Project:	WELD COUNTY, COLORADO	TVD Reference:	WELL @ 4919.00usft (Original Well Elev)
Reference Site:	SW SE SEC. 32 T4N R65W 6th P.M. (PAONIA)	MD Reference:	WELL @ 4919.00usft (Original Well Elev)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	PAONIA 3N	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	ORIGINAL WELLBORE	Database:	EDM 5000.1 Single User Db
Reference Design:	PROPOSAL #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
SW SE SEC. 32 T4N R65W 6th P.M. (PAONIA)						
EXIST VERT MUSICK-MCCLINTOCK 1 - Wellbore #1 - D	11,500.00	4,803.00	2,560.36	2,508.87	49.732	ES
EXIST VERT MUSICK-MCCLINTOCK 1 - Wellbore #1 - D	12,800.00	4,803.00	2,881.81	2,816.54	44.150	SF
EXIST VERT MUSICK-MCCLINTOCK 5 - Wellbore #1 - D	11,530.44	4,752.00	2,371.18	2,328.88	56.051	CC, ES
EXIST VERT MUSICK-MCCLINTOCK 5 - Wellbore #1 - D	12,600.00	4,752.00	2,601.25	2,550.74	51.505	SF
EXIST VERT NGL C3B - Wellbore #1 - Design #1	16,376.92	7,094.00	2,695.32	2,509.24	14.484	CC
EXIST VERT NGL C3B - Wellbore #1 - Design #1	16,400.00	7,094.00	2,695.42	2,508.89	14.451	ES
EXIST VERT NGL C3B - Wellbore #1 - Design #1	17,100.00	7,094.00	2,790.62	2,590.71	13.959	SF
EXIST VERT R G 32-5 - Wellbore #1 - Design #1	10,121.91	7,093.99	1,641.49	1,573.42	24.112	CC, ES
EXIST VERT R G 32-5 - Wellbore #1 - Design #1	10,900.00	7,093.99	1,816.57	1,734.25	22.067	SF
EXIST VERT SPAYD 5-29 - Wellbore #1 - Design #1	15,597.08	7,093.99	1,758.81	1,587.62	10.274	CC
EXIST VERT SPAYD 5-29 - Wellbore #1 - Design #1	15,600.00	7,093.99	1,758.81	1,587.57	10.271	ES
EXIST VERT SPAYD 5-29 - Wellbore #1 - Design #1	15,900.00	7,093.99	1,784.70	1,607.73	10.085	SF
EXIST VERT UPRR 21 PAN AM D #1 - Wellbore #1 - De	14,076.66	4,730.00	2,381.91	2,321.35	39.337	CC
EXIST VERT UPRR 21 PAN AM D #1 - Wellbore #1 - De	14,100.00	4,730.00	2,382.02	2,321.29	39.225	ES
EXIST VERT UPRR 21 PAN AM D #1 - Wellbore #1 - De	14,800.00	4,730.00	2,489.32	2,423.29	37.702	SF
EXIST VERT UPRR 21 PAN AM D #2 - Wellbore #1 - De	12,795.15	7,093.99	2,400.26	2,282.39	20.364	CC
EXIST VERT UPRR 21 PAN AM D #2 - Wellbore #1 - De	12,800.00	7,093.99	2,400.27	2,282.31	20.348	ES
EXIST VERT UPRR 21 PAN AM D #2 - Wellbore #1 - De	13,700.00	7,093.99	2,565.15	2,430.11	18.996	SF
EXIST VERT UPRR 21 PAN AM G #1 - Wellbore #1 - De	16,061.31	4,660.00	2,630.62	2,535.17	27.561	CC
EXIST VERT UPRR 21 PAN AM G #1 - Wellbore #1 - De	16,100.00	4,660.00	2,630.90	2,535.07	27.454	ES
EXIST VERT UPRR 21 PAN AM G #1 - Wellbore #1 - De	16,800.00	4,660.00	2,732.37	2,629.62	26.593	SF
EXIST VERT UPRR PAN AM "J"1 - Wellbore #1 - Design	12,887.35	7,093.99	901.75	782.13	7.539	CC
EXIST VERT UPRR PAN AM "J"1 - Wellbore #1 - Design	12,900.00	7,093.99	901.84	781.98	7.524	ES
EXIST VERT UPRR PAN AM "J"1 - Wellbore #1 - Design	13,000.00	7,093.99	908.76	787.01	7.464	SF
EXIST VERT VERN MARSHALL 1 - Wellbore #1 - Desig	3,970.83	3,920.62	2,479.10	2,458.38	119.688	CC
EXIST VERT VERN MARSHALL 1 - Wellbore #1 - Desig	4,300.00	4,240.73	2,480.28	2,457.27	107.770	ES
EXIST VERT VERN MARSHALL 1 - Wellbore #1 - Desig	12,000.00	4,785.00	4,141.97	4,075.93	62.725	SF
EXIST VERT WEINMASTER G 32-18 - Wellbore #1 - De	10,759.24	7,093.99	567.59	487.87	7.120	CC, ES
EXIST VERT WEINMASTER G 32-18 - Wellbore #1 - De	10,800.00	7,093.99	569.06	488.58	7.072	SF
PAONIA 10N - ORIGINAL WELLBORE - PROPOSAL #1	300.00	300.00	104.99	103.92	97.929	CC, ES
PAONIA 10N - ORIGINAL WELLBORE - PROPOSAL #1	17,224.16	17,485.52	2,170.76	1,796.13	5.794	SF
PAONIA 11N - ORIGINAL WELLBORE - PROPOSAL #1	200.00	200.00	120.00	119.38	192.743	CC
PAONIA 11N - ORIGINAL WELLBORE - PROPOSAL #1	300.00	299.15	120.35	119.29	113.667	ES
PAONIA 11N - ORIGINAL WELLBORE - PROPOSAL #1	17,224.16	17,517.63	2,538.82	2,160.53	6.711	SF
PAONIA 12N - ORIGINAL WELLBORE - PROPOSAL #1	100.00	100.00	134.97	134.80	779.886	CC
PAONIA 12N - ORIGINAL WELLBORE - PROPOSAL #1	200.00	198.87	135.39	134.77	218.988	ES
PAONIA 12N - ORIGINAL WELLBORE - PROPOSAL #1	17,224.16	17,705.01	2,890.14	2,511.54	7.634	SF
PAONIA 1N - ORIGINAL WELLBORE - PROPOSAL #1	1,700.00	1,700.00	29.99	22.63	4.072	CC, ES
PAONIA 1N - ORIGINAL WELLBORE - PROPOSAL #1	17,224.16	17,446.39	759.85	387.88	2.043	SF
PAONIA 2N - ORIGINAL WELLBORE - PROPOSAL #1	1,700.00	1,700.00	15.01	7.64	2.038	CC, ES
PAONIA 2N - ORIGINAL WELLBORE - PROPOSAL #1	17,000.00	17,161.74	409.74	54.05	1.152	Level 2, SF
PAONIA 4N - ORIGINAL WELLBORE - PROPOSAL #1	1,600.00	1,600.00	15.01	8.09	2.170	CC
PAONIA 4N - ORIGINAL WELLBORE - PROPOSAL #1	17,224.16	17,301.28	294.04	-59.35	0.832	Level 1, ES, SF
PAONIA 5N - ORIGINAL WELLBORE - PROPOSAL #1	1,500.00	1,500.00	29.98	23.52	4.637	CC, ES
PAONIA 5N - ORIGINAL WELLBORE - PROPOSAL #1	17,224.16	17,189.96	604.21	230.59	1.617	SF
PAONIA 6N - ORIGINAL WELLBORE - PROPOSAL #1	1,200.00	1,200.00	44.99	39.87	8.791	CC, ES
PAONIA 6N - ORIGINAL WELLBORE - PROPOSAL #1	17,224.16	17,288.80	906.63	532.98	2.426	SF
PAONIA 7N - ORIGINAL WELLBORE - PROPOSAL #1	1,000.00	1,000.00	60.00	55.78	14.222	CC, ES
PAONIA 7N - ORIGINAL WELLBORE - PROPOSAL #1	17,224.16	17,222.21	1,249.09	873.14	3.322	SF
PAONIA 8N - ORIGINAL WELLBORE - PROPOSAL #1	900.00	900.00	75.01	71.24	19.900	CC, ES
PAONIA 8N - ORIGINAL WELLBORE - PROPOSAL #1	17,224.16	17,346.82	1,521.69	1,145.96	4.050	SF
PAONIA 9N - ORIGINAL WELLBORE - PROPOSAL #1	400.00	400.00	89.98	88.46	59.135	CC, ES

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

Anticollision Report



Company:	PDC ENERGY	Local Co-ordinate Reference:	Well PAONIA 3N
Project:	WELD COUNTY, COLORADO	TVD Reference:	WELL @ 4919.00usft (Original Well Elev)
Reference Site:	SW SE SEC. 32 T4N R65W 6th P.M. (PAONIA)	MD Reference:	WELL @ 4919.00usft (Original Well Elev)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	PAONIA 3N	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	ORIGINAL WELLBORE	Database:	EDM 5000.1 Single User Db
Reference Design:	PROPOSAL #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						
SW SE SEC. 32 T4N R65W 6th P.M. (PAONIA)						
PAONIA 9N - ORIGINAL WELLBORE - PROPOSAL #1	17,224.16	17,317.59	1,853.96	1,476.91	4.917	SF

Offset Design SE SE SEC. 32 T4N R65W 6th P.M. (CRAWFORD) - EXIST DD RAY 39-32 - Wellbore #1 - Wellbore #1												Offset Site Error:	0.00 usft
Survey Program: 686-MWD												Offset Well Error:	0.00 usft
Reference Measured Depth (usft)	Vertical Depth (usft)	Offset Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning
				Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
0.00	0.00	0.00	0.00	0.00	0.00	56.77	1,229.56	1,876.54	2,243.66				
100.00	100.00	66.69	66.69	0.09	0.07	56.77	1,229.63	1,876.59	2,243.57	2,243.41	0.16	N/A CC, ES	
200.00	200.00	159.32	159.32	0.31	0.18	56.76	1,229.95	1,876.82	2,243.97	2,243.48	0.49	4,605.879	
300.00	300.00	251.95	251.94	0.54	0.28	56.75	1,230.55	1,877.24	2,244.70	2,243.88	0.81	2,756.860	
400.00	400.00	344.56	344.55	0.76	0.38	56.74	1,231.41	1,877.84	2,245.76	2,244.62	1.14	1,967.817	
500.00	500.00	437.17	437.15	0.99	0.49	56.73	1,232.54	1,878.64	2,247.14	2,245.68	1.47	1,530.487	
600.00	600.00	529.77	529.73	1.21	0.59	56.72	1,233.94	1,879.62	2,248.86	2,247.06	1.80	1,252.670	
700.00	700.00	622.35	622.30	1.44	0.69	56.70	1,235.60	1,880.79	2,250.90	2,248.78	2.12	1,060.626	
800.00	800.00	719.28	719.19	1.66	0.83	56.67	1,237.61	1,882.19	2,253.24	2,250.76	2.48	906.874	
900.00	900.00	825.80	825.68	1.88	1.05	56.65	1,239.77	1,883.57	2,255.44	2,252.52	2.92	771.107	
1,000.00	1,000.00	930.61	930.46	2.11	1.27	56.62	1,241.75	1,884.68	2,257.36	2,254.00	3.36	671.688	
1,100.00	1,100.00	1,029.92	1,029.76	2.33	1.47	56.60	1,243.39	1,885.81	2,259.22	2,255.43	3.78	597.367	
1,200.00	1,200.00	1,133.12	1,132.94	2.56	1.68	56.59	1,244.81	1,887.16	2,261.07	2,256.86	4.21	536.637	
1,300.00	1,300.00	1,238.89	1,238.70	2.78	1.90	56.58	1,246.16	1,888.23	2,262.61	2,257.96	4.66	485.926	
1,400.00	1,400.00	1,360.32	1,360.11	3.01	2.15	56.57	1,247.24	1,889.16	2,263.77	2,258.64	5.13	440.994	
1,500.00	1,500.00	1,457.31	1,457.06	3.23	2.35	56.63	1,245.28	1,891.08	2,264.32	2,258.76	5.56	407.235	
1,600.00	1,600.00	1,545.60	1,545.20	3.46	2.53	56.76	1,241.64	1,894.52	2,265.31	2,259.33	5.98	379.112	
1,700.00	1,700.00	1,682.43	1,681.41	3.68	2.83	57.08	1,231.22	1,901.94	2,265.70	2,259.18	6.51	347.867	
1,723.66	1,723.66	1,715.01	1,713.75	3.73	2.91	-165.03	1,227.71	1,903.98	2,265.65	2,259.03	6.62	342.496	
1,800.00	1,799.98	1,806.74	1,804.45	3.88	3.14	-164.70	1,215.70	1,910.44	2,266.36	2,259.36	7.00	323.902	
1,900.00	1,899.84	1,878.63	1,875.25	4.06	3.33	-164.38	1,204.87	1,916.52	2,270.52	2,263.16	7.36	308.346	
2,000.00	1,999.45	1,955.73	1,951.08	4.26	3.56	-164.03	1,193.25	1,924.27	2,279.40	2,271.64	7.76	293.742	
2,100.00	2,098.70	2,039.77	2,033.25	4.46	3.84	-163.58	1,178.81	1,934.36	2,292.31	2,284.11	8.20	279.422	
2,200.00	2,197.47	2,128.25	2,119.34	4.69	4.17	-163.07	1,162.42	1,946.47	2,309.36	2,300.66	8.70	265.591	
2,300.00	2,295.62	2,269.97	2,256.57	4.95	4.74	-162.26	1,133.11	1,966.28	2,329.11	2,319.70	9.41	247.499	
2,374.08	2,367.88	2,360.46	2,344.20	5.18	5.10	-161.74	1,113.64	1,977.68	2,344.71	2,334.84	9.87	237.553	
2,400.00	2,393.08	2,384.00	2,367.02	5.26	5.19	-161.64	1,108.56	1,980.54	2,350.41	2,340.39	10.02	234.677	
2,500.00	2,490.33	2,479.00	2,458.93	5.60	5.60	-161.22	1,087.71	1,992.47	2,372.60	2,361.96	10.64	222.998	
2,600.00	2,587.57	2,553.94	2,531.33	5.96	5.93	-160.87	1,071.13	2,002.44	2,395.45	2,384.25	11.20	213.861	
2,700.00	2,684.82	2,668.00	2,641.53	6.34	6.43	-160.37	1,045.96	2,017.65	2,418.53	2,406.59	11.94	202.613	
2,800.00	2,782.06	2,762.00	2,732.07	6.74	6.89	-159.93	1,024.10	2,030.33	2,441.30	2,428.67	12.64	193.202	
2,900.00	2,879.31	2,849.96	2,816.56	7.15	7.32	-159.51	1,003.01	2,042.75	2,464.43	2,451.11	13.32	185.086	
3,000.00	2,976.55	2,941.96	2,904.96	7.58	7.75	-159.08	981.16	2,055.79	2,487.86	2,473.86	14.00	177.707	
3,100.00	3,073.79	3,030.76	2,990.38	8.01	8.17	-158.68	960.38	2,068.41	2,511.61	2,496.93	14.68	171.082	
3,200.00	3,171.04	3,140.00	3,095.82	8.46	8.68	-158.23	935.97	2,083.15	2,535.33	2,519.87	15.45	164.068	
3,300.00	3,268.28	3,205.72	3,159.31	8.90	9.00	-157.97	921.55	2,092.06	2,559.42	2,543.37	16.05	159.481	
3,400.00	3,365.53	3,290.49	3,240.87	9.36	9.42	-157.61	902.33	2,104.93	2,584.66	2,567.92	16.75	154.314	
3,500.00	3,462.77	3,376.86	3,324.09	9.82	9.85	-157.26	883.14	2,117.83	2,610.04	2,592.58	17.46	149.520	
3,600.00	3,560.02	3,469.91	3,413.99	10.28	10.30	-156.91	863.63	2,131.79	2,636.07	2,617.88	18.19	144.921	
3,700.00	3,657.26	3,569.06	3,509.73	10.75	10.79	-156.54	842.38	2,146.40	2,661.77	2,642.81	18.96	140.360	
3,800.00	3,754.51	3,647.44	3,585.39	11.23	11.18	-156.25	825.67	2,158.23	2,687.94	2,668.29	19.64	136.827	

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