



Project: WELD COUNTY, COLORADO  
Site: SW SE SEC. 32 T4N R65W 6th P.M. (PAONIA)  
Well: PAONIA 1N  
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 & 745ft FSL of Sec 32
1900.00	1900.00	0.00	0.00	0.00	0.00	0.00	0.00	START NUDGE (2°/100ft BUR)
3239.96	3294.37	27.89	242.59	-153.17	-295.33	-109.90	332.69	EOB TO 27.89° INC
4937.84	5215.33	27.89	242.59	-566.85	-1092.94	-406.72	1231.19	END OF TANGENT
6277.80	6609.70	0.00	0.00	-720.02	-1388.27	-516.62	1563.88	EOD TO VERTICAL
6377.80	6709.70	0.00	0.00	-720.02	-1388.27	-516.62	1563.88	KOP (8°/100ft BUR)
7094.00	7834.70	90.00	0.09	-3.82	-1387.15	192.23	2280.08	EP: 1470ft FWL & 737ft FSL of Sec 32
7094.00	17446.39	90.00	0.10	9607.85	-1371.41	9705.24	11891.77	BHL: 1470ft FWL & 200ft FNL of Sec 29

PROPOSED LOCAL COORDINATES:

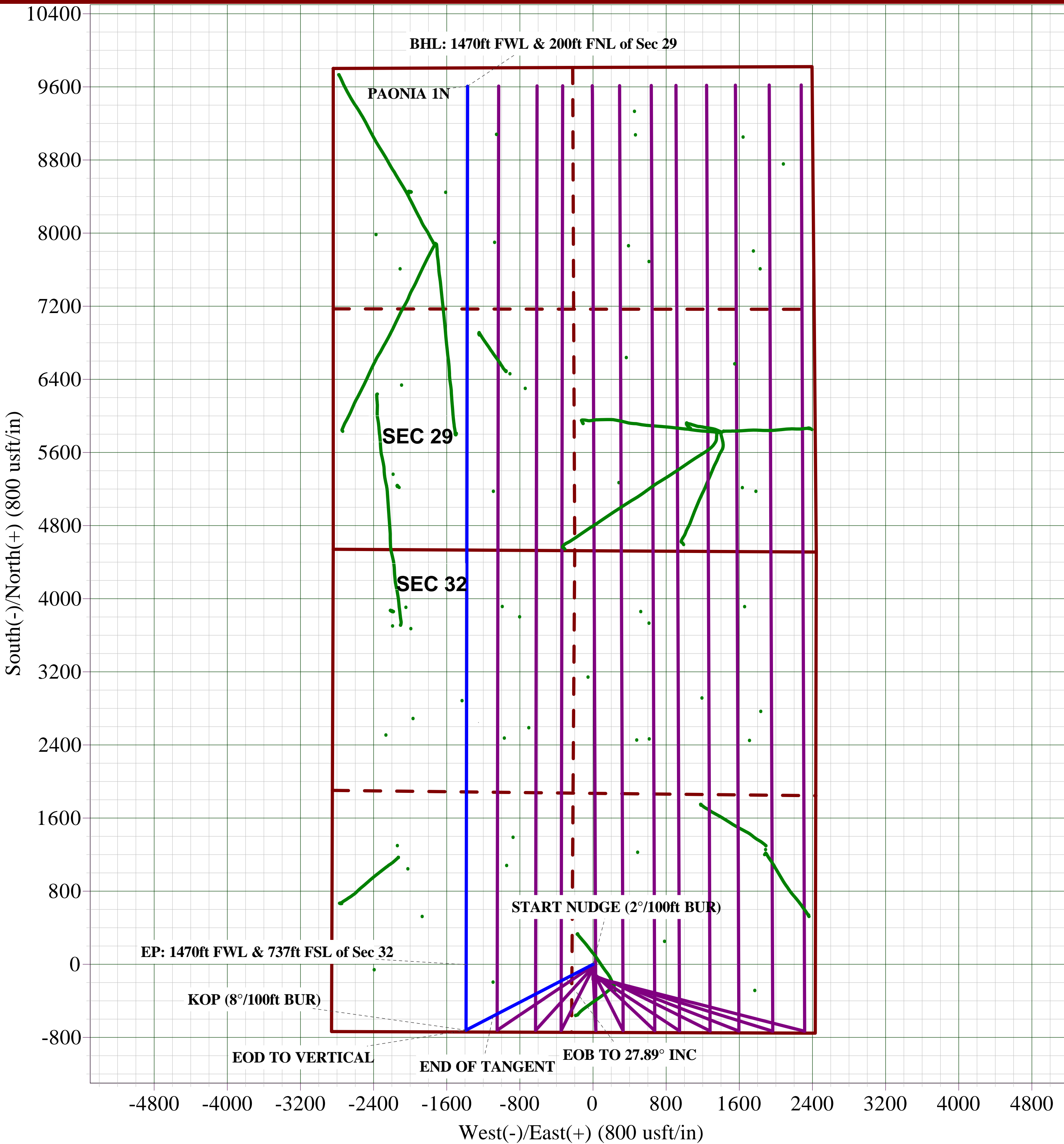
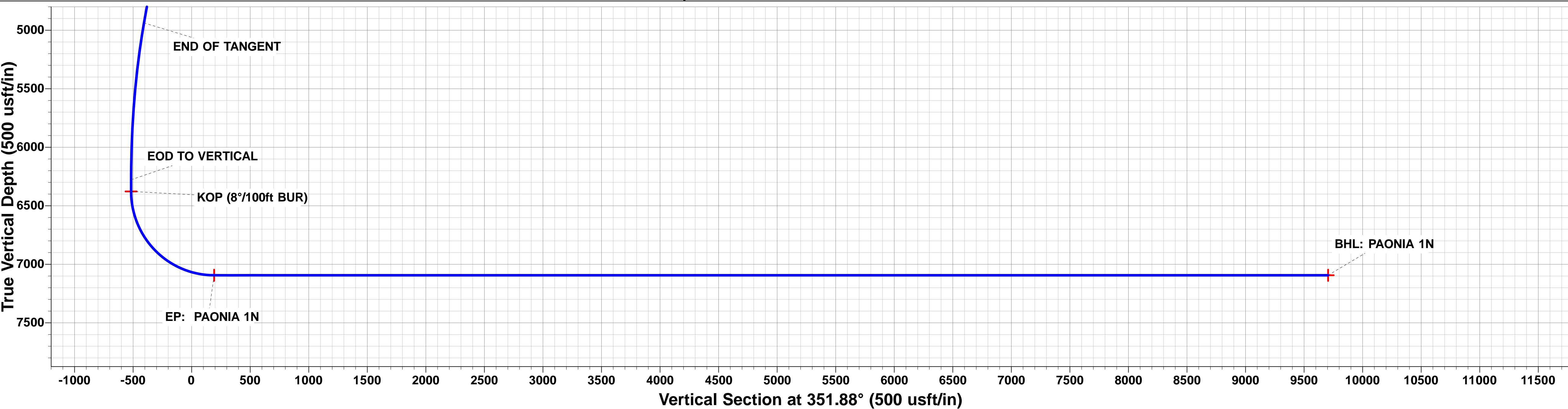
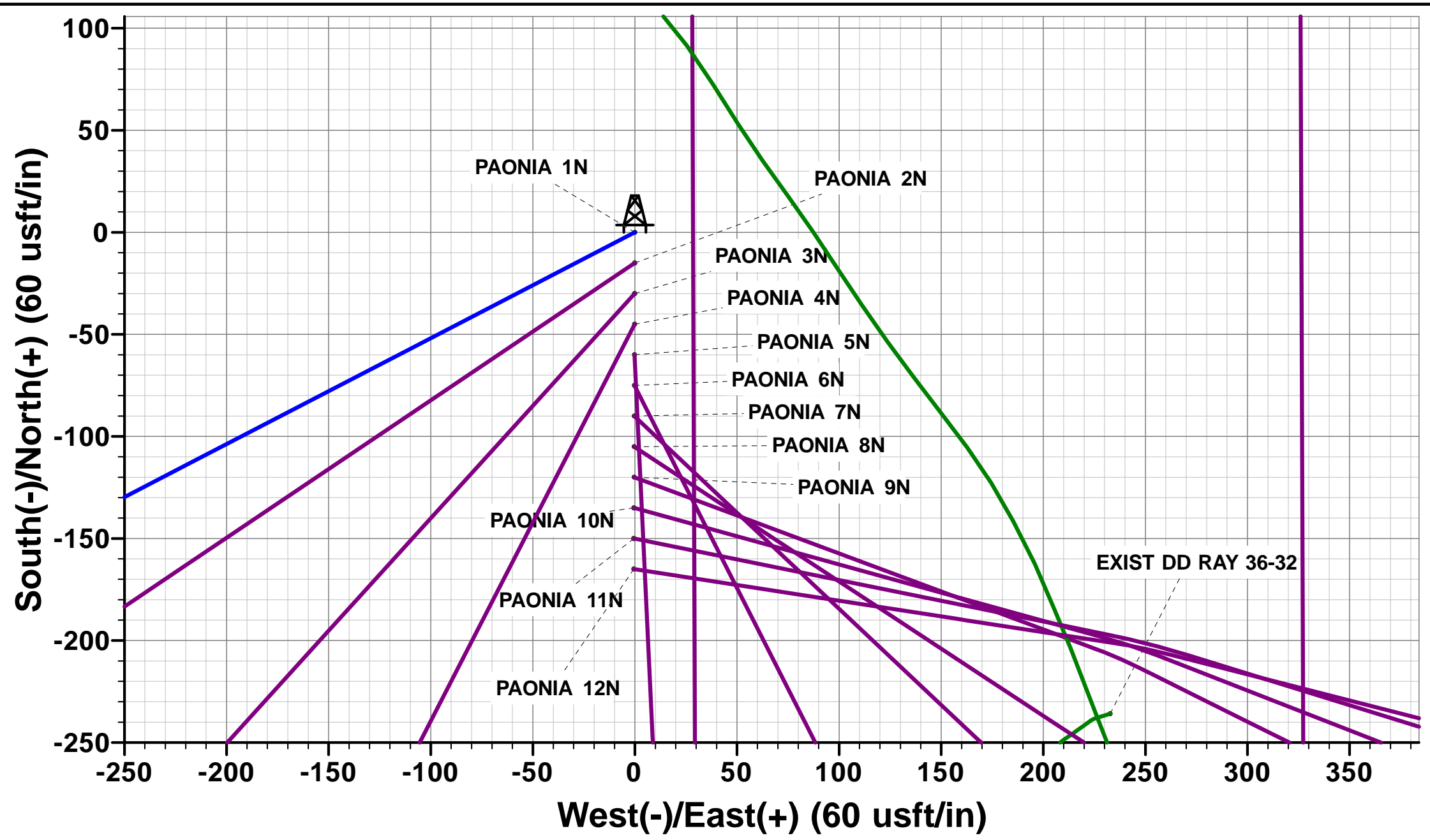
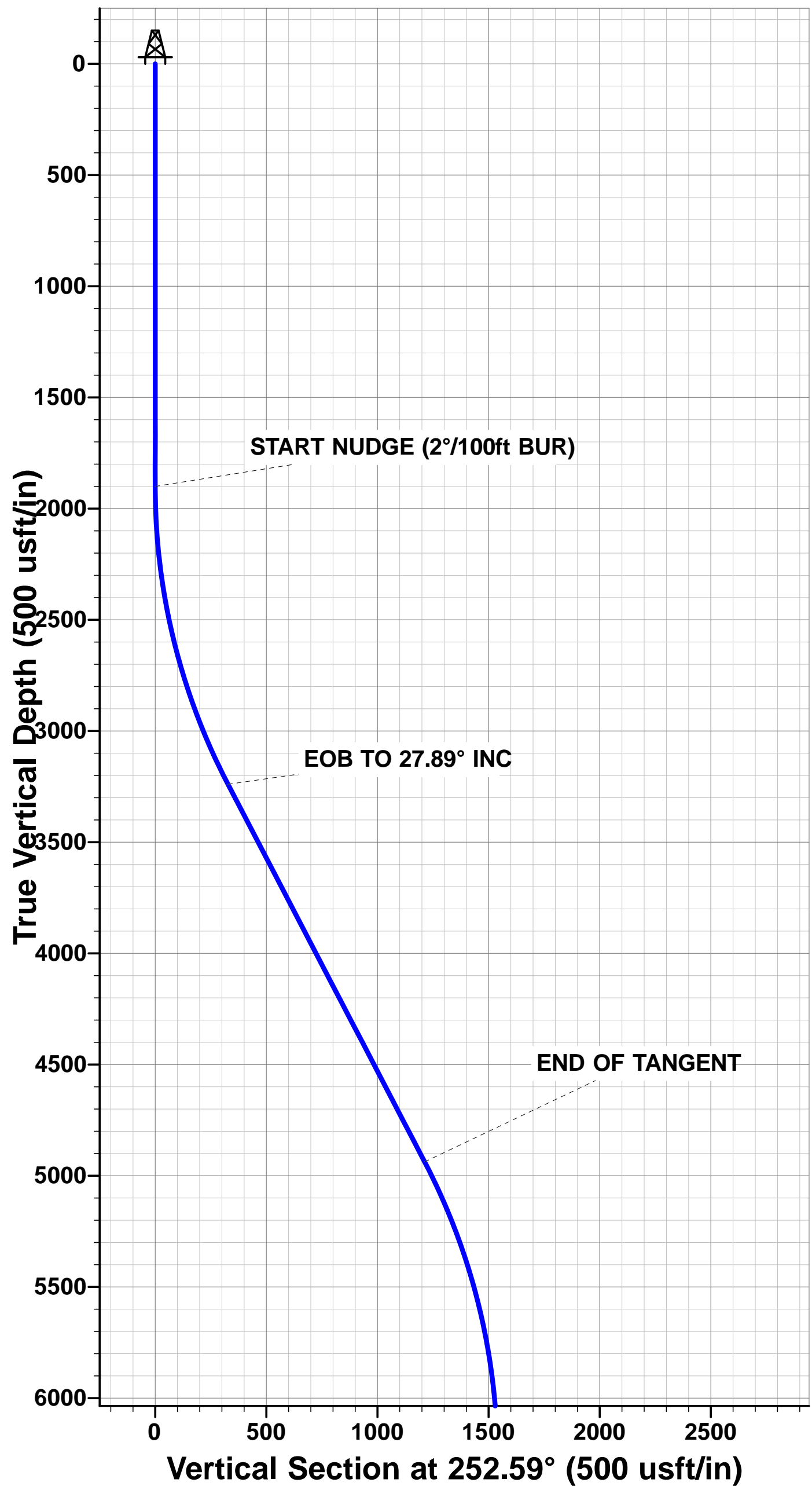
SHL: 2434ft FEL & 745ft FSL of Sec 32

EP: 1470ft FWL & 737ft FSL of Sec 32

BHL: 1470ft FWL & 200ft FNL of Sec 29

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude
KOP: PAONIA 1N	6377.80	-720.02	-1388.27	40.261741	-104.691398
EP: PAONIA 1N	7094.00	-3.82	-1387.15	40.263707	-104.691394
BHL: PAONIA 1N	7094.00	9607.85	-1371.41	40.290090	-104.691340



# **PDC ENERGY**

**WELD COUNTY, COLORADO**

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

**PAONIA 1N**

**ORIGINAL WELLBORE**

**PROPOSAL #1**

## **Anticollision Report**

**13 December, 2017**



## Anticollision Report



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

<b>Reference</b>	PROPOSAL #1		
<b>Filter type:</b>	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
<b>Interpolation Method:</b>	MD + Stations Interval 100.00usft	<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 9,999.98 usft	<b>Error Surface:</b>	Elliptical Conic
<b>Warning Levels Evaluated at:</b>	2.00 Sigma	<b>Casing Method:</b>	Not applied

<b>Survey Tool Program</b>	<b>Date</b>	13/12/2017		
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>
0.00	17,446.39	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	66.75	2,227.18	2,227.02	10,000.000	CC, ES
EXIST DD RAY 39-32 - Wellbore #1 - Wellbore #1	16,900.00	7,211.58	9,304.04	9,110.06	47.962	SF
EXIST DD SPAYD 39-29 - Wellbore #1 - Wellbore #1	13,711.74	7,107.44	3,745.04	3,614.68	28.729	CC
EXIST DD SPAYD 39-29 - Wellbore #1 - Wellbore #1	13,800.00	7,107.72	3,746.08	3,614.05	28.373	ES
EXIST DD SPAYD 39-29 - Wellbore #1 - Wellbore #1	15,800.00	7,097.00	4,287.92	4,117.93	25.225	SF
EXIST VERT HSR-KOCH 16-32 - Wellbore #1 - Design #	1,900.00	1,872.00	1,791.73	1,783.52	218.308	CC, ES
EXIST VERT HSR-KOCH 16-32 - Wellbore #1 - Design #	17,000.00	7,066.00	9,954.00	9,761.21	51.631	SF
SW SE SEC. 32 T4N R65W 6th P.M. (PAONIA)						
ABDN VERT BOHLENDER 2 - Wellbore #1 - Design #1	15,650.37	4,856.00	3,846.33	3,710.54	28.325	CC
ABDN VERT BOHLENDER 2 - Wellbore #1 - Design #1	15,700.00	4,856.00	3,846.65	3,710.06	28.161	ES
ABDN VERT BOHLENDER 2 - Wellbore #1 - Design #1	17,400.00	4,856.00	4,225.55	4,061.57	25.768	SF
ABDN VERT BOHLENDER 31-29 #3 - Wellbore #1 - Des	16,919.60	4,736.00	2,989.14	2,861.36	23.392	CC, ES
ABDN VERT BOHLENDER 31-29 #3 - Wellbore #1 - Des	17,446.39	4,736.00	3,035.20	2,900.55	22.541	SF
ABDN VERT HAMBERT R G 32-4 - Wellbore #1 - Design	11,745.98	7,094.01	665.58	572.21	7.128	CC, ES
ABDN VERT HAMBERT R G 32-4 - Wellbore #1 - Design	11,800.00	7,094.01	667.76	573.39	7.076	SF
ABDN VERT HSR-MAYA 4-29 - Wellbore #1 - Wellbore #	16,274.60	7,000.00	646.65	482.17	3.932	CC, ES
ABDN VERT HSR-MAYA 4-29 - Wellbore #1 - Wellbore #	16,300.00	7,000.00	647.14	482.19	3.923	SF
ABDN VERT MUSICK MCCLINTOCK 3 - Wellbore #1 - W	11,697.75	4,521.19	2,694.67	2,645.27	54.542	CC
ABDN VERT MUSICK MCCLINTOCK 3 - Wellbore #1 - W	11,700.00	4,521.19	2,694.67	2,645.25	54.521	ES
ABDN VERT MUSICK MCCLINTOCK 3 - Wellbore #1 - W	13,000.00	4,521.19	2,992.85	2,931.97	49.164	SF
ABDN VERT NGL C3 - Wellbore #1 - Design #1	11,541.75	7,094.01	811.20	721.62	9.056	CC, ES
ABDN VERT NGL C3 - Wellbore #1 - Design #1	11,700.00	7,094.01	826.49	733.98	8.934	SF
ABDN VERT UPRR 21 PAN AM A#1 - Wellbore #1 - Wel	13,054.68	7,100.00	740.56	636.87	7.142	CC, ES
ABDN VERT UPRR 21 PAN AM A#1 - Wellbore #1 - Wel	13,200.00	7,100.00	754.68	648.25	7.091	SF
EXIST DD NGL C3A - Wellbore #1 - Wellbore #1	13,613.36	7,408.88	954.71	802.52	6.273	CC, ES
EXIST DD NGL C3A - Wellbore #1 - Wellbore #1	13,700.00	7,438.00	958.29	804.28	6.222	SF
EXIST DD RAY 23-32 - Wellbore #1 - Wellbore #1	2,580.39	2,632.58	236.12	225.06	21.354	CC
EXIST DD RAY 23-32 - Wellbore #1 - Wellbore #1	2,600.00	2,651.73	236.23	225.05	21.143	ES
EXIST DD RAY 23-32 - Wellbore #1 - Wellbore #1	2,800.00	2,840.80	251.97	239.63	20.413	SF
EXIST DD RAY 24-32 - Wellbore #1 - Wellbore #1	2,144.90	2,341.00	2,277.11	2,267.81	244.925	CC, ES
EXIST DD RAY 24-32 - Wellbore #1 - Wellbore #1	11,800.00	7,173.00	3,387.64	3,292.18	35.488	SF
EXIST DD RAY 36-32 - Wellbore #1 - Wellbore #1	1,703.38	1,698.64	325.30	318.77	49.837	CC
EXIST DD RAY 36-32 - Wellbore #1 - Wellbore #1	1,800.00	1,793.56	325.56	318.62	46.897	ES
EXIST DD RAY 36-32 - Wellbore #1 - Wellbore #1	3,900.00	3,865.11	487.55	464.34	21.011	SF
EXIST DD RURAL LAND G32-33D - Wellbore #1 - Wellb	8,505.30	7,229.76	1,365.83	1,325.06	33.501	CC, ES

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

<b>Company:</b>	PDC ENERGY	<b>Local Co-ordinate Reference:</b>	Well PAONIA 1N - Slot PAONIA 1N
<b>Project:</b>	WELD COUNTY, COLORADO	<b>TVD Reference:</b>	WELL @ 4919.00usft (Original Well Elev)
<b>Reference Site:</b>	SW SE SEC. 32 T4N R65W 6th P.M. (PAONIA)	<b>MD Reference:</b>	WELL @ 4919.00usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	PAONIA 1N	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	ORIGINAL WELLBORE	<b>Database:</b>	EDM 5000.1 Single User Db
<b>Reference Design:</b>	PROPOSAL #1	<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
SW SE SEC. 32 T4N R65W 6th P.M. (PAONIA)						
EXIST DD RURAL LAND G32-33D - Wellbore #1 - Wellb	9,300.00	7,232.03	1,580.21	1,528.47	30.545	SF
EXIST DD SPAYD 19-29 - Wellbore #1 - Wellbore #1	13,649.48	7,508.66	119.21	-33.68	0.780	Level 1, CC, ES, SF
EXIST DD SPAYD 20-29 - Wellbore #1 - Wellbore #1	13,731.15	7,009.00	2,416.41	2,287.07	18.682	CC
EXIST DD SPAYD 20-29 - Wellbore #1 - Wellbore #1	13,800.00	7,009.00	2,417.39	2,286.74	18.504	ES
EXIST DD SPAYD 20-29 - Wellbore #1 - Wellbore #1	14,600.00	7,000.86	2,567.85	2,422.09	17.618	SF
EXIST DD SPAYD 22-29 - Wellbore #1 - Wellbore #1	14,739.87	7,105.29	126.68	-23.43	0.844	Level 1, CC, ES, SF
EXIST DD SPAYD 23-29 - Wellbore #1 - Wellbore #1	13,757.60	7,333.34	1,267.83	1,134.69	9.522	CC
EXIST DD SPAYD 23-29 - Wellbore #1 - Wellbore #1	13,800.00	7,332.65	1,268.54	1,134.60	9.471	ES
EXIST DD SPAYD 23-29 - Wellbore #1 - Wellbore #1	14,000.00	7,329.28	1,290.79	1,153.09	9.374	SF
EXIST DD SPAYD 30-29 - Wellbore #1 - Wellbore #1	17,446.39	7,501.62	1,415.39	1,192.25	6.343	CC, ES, SF
EXIST DD SPAYD 33-29 - Wellbore #1 - Wellbore #1	13,676.18	7,567.39	1,364.44	1,210.69	8.874	CC
EXIST DD SPAYD 33-29 - Wellbore #1 - Wellbore #1	13,700.00	7,567.15	1,364.65	1,210.45	8.850	ES
EXIST DD SPAYD 33-29 - Wellbore #1 - Wellbore #1	13,900.00	7,565.17	1,382.68	1,224.68	8.751	SF
EXIST DD SPAYD 36-29 - Wellbore #1 - Wellbore #1	12,401.41	7,456.72	1,051.47	932.23	8.818	CC, ES
EXIST DD SPAYD 36-29 - Wellbore #1 - Wellbore #1	12,600.00	7,454.81	1,070.06	947.12	8.704	SF
EXIST DD SPAYD 37-29 - Wellbore #1 - Wellbore #1	12,452.90	7,224.67	2,359.04	2,242.40	20.225	CC
EXIST DD SPAYD 37-29 - Wellbore #1 - Wellbore #1	12,500.00	7,223.46	2,359.51	2,241.99	20.078	ES
EXIST DD SPAYD 37-29 - Wellbore #1 - Wellbore #1	13,300.00	7,204.03	2,506.41	2,373.92	18.918	SF
EXIST VERT BOHLENDER 29-13 - Wellbore #1 - Design	15,533.27	7,094.00	1,986.75	1,821.85	12.049	CC
EXIST VERT BOHLENDER 29-13 - Wellbore #1 - Design	15,600.00	7,094.00	1,987.87	1,821.70	11.963	ES
EXIST VERT BOHLENDER 29-13 - Wellbore #1 - Design	16,000.00	7,094.00	2,040.83	1,867.05	11.744	SF
EXIST VERT BOHLENDER 29-3 - Wellbore #1 - Design	15,455.22	7,091.00	3,203.31	3,039.90	19.603	CC
EXIST VERT BOHLENDER 29-3 - Wellbore #1 - Design	15,500.00	7,091.00	3,203.62	3,039.36	19.504	ES
EXIST VERT BOHLENDER 29-3 - Wellbore #1 - Design	16,700.00	7,091.00	3,436.65	3,249.53	18.366	SF
EXIST VERT BOHLENDER 32-29 #1 - Wellbore #1 - Des	15,706.30	7,094.00	1,762.42	1,594.23	10.479	CC, ES
EXIST VERT BOHLENDER 32-29 #1 - Wellbore #1 - Des	16,100.00	7,094.00	1,805.86	1,630.17	10.279	SF
EXIST VERT CLYDE MARSHALL 1 - Wellbore #1 - Desi	3,308.77	3,252.69	1,396.79	1,379.87	82.592	CC
EXIST VERT CLYDE MARSHALL 1 - Wellbore #1 - Desi	3,400.00	3,333.33	1,397.44	1,379.58	78.249	ES
EXIST VERT CLYDE MARSHALL 1 - Wellbore #1 - Desi	5,215.33	4,765.00	1,666.17	1,630.32	46.472	SF
EXIST VERT CPC BOHLENDER 29-1 - Wellbore #1 - De	16,897.59	7,094.00	3,013.84	2,822.95	15.788	CC
EXIST VERT CPC BOHLENDER 29-1 - Wellbore #1 - De	17,000.00	7,094.00	3,015.58	2,822.73	15.637	ES
EXIST VERT CPC BOHLENDER 29-1 - Wellbore #1 - De	17,446.39	7,094.00	3,063.40	2,862.08	15.217	SF
EXIST VERT CPC BOHLENDER 29-2 - Wellbore #1 - De	17,176.05	7,094.00	1,824.90	1,628.69	9.301	CC
EXIST VERT CPC BOHLENDER 29-2 - Wellbore #1 - De	17,200.00	7,094.00	1,825.06	1,628.39	9.280	ES
EXIST VERT CPC BOHLENDER 29-2 - Wellbore #1 - De	17,446.39	7,094.00	1,844.82	1,643.50	9.164	SF
EXIST VERT HAMBERT G 32-4X - Wellbore #1 - Design	11,512.55	7,094.01	611.36	522.32	6.866	CC, ES
EXIST VERT HAMBERT G 32-4X - Wellbore #1 - Design	11,600.00	7,094.01	617.58	526.93	6.812	SF
EXIST VERT HAMBERT R G 32-1 - Wellbore #1 - Desig	11,759.26	7,094.01	3,039.20	2,945.58	32.464	CC
EXIST VERT HAMBERT R G 32-1 - Wellbore #1 - Desig	11,800.00	7,094.01	3,039.47	2,945.09	32.206	ES
EXIST VERT HAMBERT R G 32-1 - Wellbore #1 - Desig	13,600.00	7,094.01	3,553.15	3,424.96	27.716	SF
EXIST VERT HAMBERT R G 32-2 - Wellbore #1 - Desig	11,576.81	7,094.01	1,993.38	1,903.15	22.092	CC
EXIST VERT HAMBERT R G 32-2 - Wellbore #1 - Desig	11,600.00	7,094.01	1,993.52	1,902.86	21.989	ES
EXIST VERT HAMBERT R G 32-2 - Wellbore #1 - Desig	12,400.00	7,094.01	2,156.66	2,051.07	20.425	SF
EXIST VERT HAMBERT R G 32-3 - Wellbore #1 - Desig	11,643.74	7,094.01	578.54	487.07	6.325	CC, ES
EXIST VERT HAMBERT R G 32-3 - Wellbore #1 - Desig	11,700.00	7,094.01	581.27	488.75	6.283	SF
EXIST VERT HAMBERT R G 32-6 - Wellbore #1 - Desig	10,317.40	7,094.00	413.20	345.95	6.144	CC, ES
EXIST VERT HAMBERT R G 32-6 - Wellbore #1 - Desig	10,400.00	7,094.01	421.38	352.65	6.131	SF
EXIST VERT HAMBERT R G 32-7 - Wellbore #1 - Desig	10,297.85	7,094.00	1,861.53	1,794.63	27.825	CC
EXIST VERT HAMBERT R G 32-7 - Wellbore #1 - Desig	10,300.00	7,094.00	1,861.53	1,794.59	27.809	ES
EXIST VERT HAMBERT R G 32-7 - Wellbore #1 - Desig	11,300.00	7,094.01	2,114.13	2,029.03	24.840	SF
EXIST VERT HAMBERT R G 32-8 - Wellbore #1 - Desig	10,613.40	7,094.01	3,217.48	3,144.92	44.341	CC
EXIST VERT HAMBERT R G 32-8 - Wellbore #1 - Desig	10,700.00	7,094.01	3,218.65	3,144.52	43.420	ES

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



<b>Company:</b>	PDC ENERGY	<b>Local Co-ordinate Reference:</b>	Well PAONIA 1N - Slot PAONIA 1N
<b>Project:</b>	WELD COUNTY, COLORADO	<b>TVD Reference:</b>	WELL @ 4919.00usft (Original Well Elev)
<b>Reference Site:</b>	SW SE SEC. 32 T4N R65W 6th P.M. (PAONIA)	<b>MD Reference:</b>	WELL @ 4919.00usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	PAONIA 1N	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	ORIGINAL WELLBORE	<b>Database:</b>	EDM 5000.1 Single User Db
<b>Reference Design:</b>	PROPOSAL #1	<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
SW SE SEC. 32 T4N R65W 6th P.M. (PAONIA)						
EXIST VERT HAMBERT R G 32-8 - Wellbore #1 - Desig	13,300.00	7,094.01	4,191.62	4,069.09	34.210	SF
EXIST VERT HSR-CARTER 11-29 - Wellbore #1 - Desig	14,142.98	7,094.01	635.90	497.42	4.592	CC, ES
EXIST VERT HSR-CARTER 11-29 - Wellbore #1 - Desig	14,200.00	7,094.01	638.45	498.89	4.575	SF
EXIST VERT HSR-CROUSE 5-29 - Wellbore #1 - Design	15,448.99	7,094.00	735.00	571.71	4.501	CC, ES
EXIST VERT HSR-CROUSE 5-29 - Wellbore #1 - Design	15,500.00	7,094.00	736.77	572.51	4.485	SF
EXIST VERT HSR-DICERSON 14-29A - Wellbore #1 - D	13,016.71	7,094.01	288.95	171.76	2.466	CC, ES, SF
EXIST VERT HSR-FRISBIE 16-29A - Wellbore #1 - Desi	13,061.30	7,094.01	3,012.15	2,894.12	25.521	CC
EXIST VERT HSR-FRISBIE 16-29A - Wellbore #1 - Desi	13,100.00	7,094.01	3,012.40	2,893.64	25.367	ES
EXIST VERT HSR-FRISBIE 16-29A - Wellbore #1 - Desi	14,500.00	7,094.01	3,338.09	3,192.83	22.981	SF
EXIST VERT HSR-FROELICH 12-29A - Wellbore #1 - De	14,177.24	7,094.01	717.36	578.23	5.156	CC
EXIST VERT HSR-FROELICH 12-29A - Wellbore #1 - De	14,200.00	7,094.01	717.72	578.16	5.143	ES, SF
EXIST VERT HSR-HARRISON 9-32 - Wellbore #1 - Des	1,900.00	1,900.00	2,268.30	2,260.04	274.458	CC, ES
EXIST VERT HSR-HARRISON 9-32 - Wellbore #1 - Des	13,800.00	7,094.01	5,725.83	5,593.85	43.384	SF
EXIST VERT HSR-MUNDS 13.29 - Wellbore #1 - Design	13,201.51	7,094.01	808.18	687.52	6.698	CC, ES
EXIST VERT HSR-MUNDS 13.29 - Wellbore #1 - Design	13,300.00	7,094.01	814.16	691.64	6.645	SF
EXIST VERT HSR-NICHOLS 15-32 - Wellbore #1 - Desig	1,900.00	1,900.00	822.10	813.84	99.472	CC, ES
EXIST VERT HSR-NICHOLS 15-32 - Wellbore #1 - Desig	11,500.00	7,094.01	4,036.35	3,947.55	45.452	SF
EXIST VERT HSR-RAY 3-29 - Wellbore #1 - Design #1	16,922.12	7,094.00	316.62	125.25	1.655	CC, ES, SF
EXIST VERT HSR-SALISBURY 6-29 - Wellbore #1 - Des	15,741.01	7,094.00	297.64	128.79	1.763	CC, ES, SF
EXIST VERT HSR-TEAGLE 10-29A - Wellbore #1 - Desi	14,482.53	7,094.01	1,740.50	1,595.58	12.010	CC
EXIST VERT HSR-TEAGLE 10-29A - Wellbore #1 - Desi	14,500.00	7,094.01	1,740.58	1,595.33	11.983	ES
EXIST VERT HSR-TEAGLE 10-29A - Wellbore #1 - Desi	14,900.00	7,094.01	1,789.86	1,637.01	11.710	SF
EXIST VERT HSR-WILLIAM 10-32A - Wellbore #1 - Des	1,900.00	1,900.00	1,321.69	1,313.43	159.922	CC, ES
EXIST VERT HSR-WILLIAM 10-32A - Wellbore #1 - Des	10,500.00	7,094.01	2,356.83	2,286.32	33.422	SF
EXIST VERT HSR-WRIGHT 9-29A - Wellbore #1 - Desig	14,415.70	7,094.01	2,925.84	2,782.18	20.368	CC
EXIST VERT HSR-WRIGHT 9-29A - Wellbore #1 - Desig	14,500.00	7,094.01	2,927.05	2,781.80	20.152	ES
EXIST VERT HSR-WRIGHT 9-29A - Wellbore #1 - Desig	15,600.00	7,094.00	3,156.43	2,990.26	18.996	SF
EXIST VERT MARSHALL 32-11G - Wellbore #1 - Design	9,231.92	7,094.00	509.77	460.93	10.436	CC, ES
EXIST VERT MARSHALL 32-11G - Wellbore #1 - Design	9,300.00	7,094.00	514.30	464.38	10.304	SF
EXIST VERT MARSHALL 32-12G - Wellbore #1 - Design	8,884.08	7,094.00	639.46	595.78	14.640	CC
EXIST VERT MARSHALL 32-12G - Wellbore #1 - Design	8,900.00	7,094.00	639.66	595.76	14.572	ES
EXIST VERT MARSHALL 32-12G - Wellbore #1 - Design	9,000.00	7,094.00	649.88	604.55	14.337	SF
EXIST VERT MARSHALL 32-14G - Wellbore #1 - Design	7,644.64	7,068.93	294.52	259.65	8.447	CC, ES
EXIST VERT MARSHALL 32-14G - Wellbore #1 - Design	7,650.00	7,070.32	294.57	259.68	8.442	SF
EXIST VERT MARSHALL G 32-13JI - Wellbore #1 - Des	6,800.00	6,467.87	1,200.90	1,155.85	26.653	SF
EXIST VERT MARSHALL G 32-13JI - Wellbore #1 - Des	7,779.66	7,091.89	1,006.21	971.35	28.863	CC, ES
EXIST VERT MEL SMOOKLER GAS UNIT 1 - Wellbore	8,364.10	7,094.00	481.84	444.29	12.829	CC, ES
EXIST VERT MEL SMOOKLER GAS UNIT 1 - Wellbore	8,400.00	7,094.00	483.18	445.30	12.757	SF
EXIST VERT MUSICK 1-32 - Wellbore #1 - Design #1	10,725.43	7,094.01	50.10	-24.49	0.672	Level 1, CC, ES, SF
EXIST VERT MUSICK GAS UNIT 1 - Wellbore #1 - Desi	10,758.78	7,094.01	2,573.75	2,498.56	34.227	CC
EXIST VERT MUSICK GAS UNIT 1 - Wellbore #1 - Desi	10,800.00	7,094.01	2,574.08	2,498.14	33.894	ES
EXIST VERT MUSICK GAS UNIT 1 - Wellbore #1 - Desi	12,400.00	7,094.01	3,052.49	2,946.90	28.909	SF
EXIST VERT MUSICK MCCLINTOCK 2 - Wellbore #1 - D	10,430.39	4,755.00	2,436.02	2,401.88	71.343	CC, ES
EXIST VERT MUSICK MCCLINTOCK 2 - Wellbore #1 - D	11,900.00	4,755.00	2,844.98	2,798.25	60.880	SF
EXIST VERT MUSICK MCCLINTOCK 4 - Wellbore #1 - D	1,900.00	1,900.00	2,989.62	2,981.35	361.736	CC, ES
EXIST VERT MUSICK MCCLINTOCK 4 - Wellbore #1 - D	15,200.00	4,750.00	6,255.51	6,129.14	49.501	SF
EXIST VERT MUSICK MCCLINTOCK 6 - Wellbore #1 - D	10,529.34	4,750.00	2,416.11	2,377.27	62.207	CC, ES
EXIST VERT MUSICK MCCLINTOCK 6 - Wellbore #1 - D	11,800.00	4,750.00	2,729.87	2,680.69	55.514	SF
EXIST VERT MUSICK MCCLINTOCK 7 - Wellbore #1 - D	1,900.00	1,900.00	2,543.35	2,535.08	307.738	CC, ES
EXIST VERT MUSICK MCCLINTOCK 7 - Wellbore #1 - D	13,300.00	4,739.00	4,298.63	4,215.46	51.686	SF
EXIST VERT MUSICK-MCCLINTOCK 1 - Wellbore #1 - D	11,703.44	4,803.00	2,978.12	2,916.74	48.513	CC, ES
EXIST VERT MUSICK-MCCLINTOCK 1 - Wellbore #1 - D	13,600.00	4,803.00	3,530.73	3,444.10	40.758	SF

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

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

## Summary

Site Name Offset Well - Wellbore - Design	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 5 - Wellbore #1 - D	11,756.74	4,752.00	2,374.07	2,331.01	55.126	CC, ES
EXIST VERT MUSICK-MCCLINTOCK 5 - Wellbore #1 - D	12,800.00	4,752.00	2,593.19	2,542.05	50.708	SF
EXIST VERT NGL C3B - Wellbore #1 - Design #1	16,603.29	7,094.00	3,455.16	3,269.87	18.648	CC
EXIST VERT NGL C3B - Wellbore #1 - Design #1	16,700.00	7,094.00	3,456.51	3,269.38	18.472	ES
EXIST VERT NGL C3B - Wellbore #1 - Design #1	17,446.39	7,094.00	3,556.53	3,355.21	17.666	SF
EXIST VERT R G 32-5 - Wellbore #1 - Design #1	10,348.20	7,094.00	881.66	813.86	13.004	CC, ES
EXIST VERT R G 32-5 - Wellbore #1 - Design #1	10,600.00	7,094.01	916.91	844.59	12.679	SF
EXIST VERT SPAYD 5-29 - Wellbore #1 - Design #1	15,823.43	7,094.00	998.97	828.55	5.862	CC, ES
EXIST VERT SPAYD 5-29 - Wellbore #1 - Design #1	15,900.00	7,094.00	1,001.90	830.02	5.829	SF
EXIST VERT UPRR 21 PAN AM D #1 - Wellbore #1 - De	14,303.01	4,730.00	2,409.93	2,346.10	37.757	CC, ES
EXIST VERT UPRR 21 PAN AM D #1 - Wellbore #1 - De	15,000.00	4,730.00	2,508.70	2,439.27	36.135	SF
EXIST VERT UPRR 21 PAN AM D #2 - Wellbore #1 - De	13,021.47	7,094.01	3,160.10	3,042.83	26.946	CC
EXIST VERT UPRR 21 PAN AM D #2 - Wellbore #1 - De	13,100.00	7,094.01	3,161.07	3,042.32	26.619	ES
EXIST VERT UPRR 21 PAN AM D #2 - Wellbore #1 - De	14,600.00	7,094.01	3,532.40	3,385.25	24.005	SF
EXIST VERT UPRR 21 PAN AM G #1 - Wellbore #1 - De	16,287.69	4,660.00	2,445.62	2,367.66	31.369	CC
EXIST VERT UPRR 21 PAN AM G #1 - Wellbore #1 - De	16,300.00	4,660.00	2,445.65	2,367.59	31.333	ES
EXIST VERT UPRR 21 PAN AM G #1 - Wellbore #1 - De	16,900.00	4,660.00	2,521.11	2,438.56	30.543	SF
EXIST VERT UPRR PAN AM "J"1 - Wellbore #1 - Design	13,113.67	7,094.01	1,661.59	1,542.57	13.962	CC, ES
EXIST VERT UPRR PAN AM "J"1 - Wellbore #1 - Design	13,600.00	7,094.01	1,731.29	1,603.10	13.505	SF
EXIST VERT VERN MARSHALL 1 - Wellbore #1 - Desig	5,112.36	4,785.00	2,144.49	2,107.11	57.372	CC, ES
EXIST VERT VERN MARSHALL 1 - Wellbore #1 - Desig	5,700.00	4,785.00	2,225.74	2,184.02	53.344	SF
EXIST VERT WEINMASTER G 32-18 - Wellbore #1 - De	10,985.54	7,094.01	1,327.43	1,248.10	16.733	CC
EXIST VERT WEINMASTER G 32-18 - Wellbore #1 - De	11,000.00	7,094.01	1,327.51	1,247.91	16.678	ES
EXIST VERT WEINMASTER G 32-18 - Wellbore #1 - De	11,400.00	7,094.01	1,390.63	1,303.67	15.993	SF
PAONIA 10N - ORIGINAL WELLBORE - PROPOSAL #1	300.00	300.00	134.98	133.91	125.901	CC, ES
PAONIA 10N - ORIGINAL WELLBORE - PROPOSAL #1	17,446.39	17,485.63	2,930.13	2,556.21	7.836	SF
PAONIA 11N - ORIGINAL WELLBORE - PROPOSAL #1	200.00	200.00	149.99	149.37	240.913	CC
PAONIA 11N - ORIGINAL WELLBORE - PROPOSAL #1	300.00	298.95	150.34	149.28	142.005	ES
PAONIA 11N - ORIGINAL WELLBORE - PROPOSAL #1	17,446.39	17,517.52	3,298.67	2,921.32	8.742	SF
PAONIA 12N - ORIGINAL WELLBORE - PROPOSAL #1	100.00	100.00	164.97	164.79	953.172	CC
PAONIA 12N - ORIGINAL WELLBORE - PROPOSAL #1	200.00	198.64	165.37	164.75	266.820	ES
PAONIA 12N - ORIGINAL WELLBORE - PROPOSAL #1	17,446.39	17,704.89	3,649.69	3,271.89	9.660	SF
PAONIA 2N - ORIGINAL WELLBORE - PROPOSAL #1	1,800.00	1,800.00	14.98	7.17	1.917	CC
PAONIA 2N - ORIGINAL WELLBORE - PROPOSAL #1	17,446.39	17,406.11	351.64	-11.69	0.968	Level 1, ES, SF
PAONIA 3N - ORIGINAL WELLBORE - PROPOSAL #1	1,700.00	1,700.00	29.99	22.63	4.072	CC, ES
PAONIA 3N - ORIGINAL WELLBORE - PROPOSAL #1	17,446.39	17,220.02	759.84	387.95	2.043	SF
PAONIA 4N - ORIGINAL WELLBORE - PROPOSAL #1	1,600.00	1,600.00	45.00	38.08	6.507	CC, ES
PAONIA 4N - ORIGINAL WELLBORE - PROPOSAL #1	17,446.39	17,301.28	1,043.66	678.26	2.856	SF
PAONIA 5N - ORIGINAL WELLBORE - PROPOSAL #1	1,500.00	1,500.00	59.97	53.51	9.274	CC, ES
PAONIA 5N - ORIGINAL WELLBORE - PROPOSAL #1	17,446.39	17,189.96	1,364.05	991.37	3.660	SF
PAONIA 6N - ORIGINAL WELLBORE - PROPOSAL #1	1,200.00	1,200.00	74.98	69.86	14.651	CC, ES
PAONIA 6N - ORIGINAL WELLBORE - PROPOSAL #1	17,446.39	17,288.80	1,664.43	1,290.54	4.452	SF
PAONIA 7N - ORIGINAL WELLBORE - PROPOSAL #1	1,000.00	1,000.00	89.99	85.77	21.331	CC, ES
PAONIA 7N - ORIGINAL WELLBORE - PROPOSAL #1	17,446.39	17,222.21	2,008.93	1,633.92	5.357	SF
PAONIA 8N - ORIGINAL WELLBORE - PROPOSAL #1	900.00	900.00	105.00	101.23	27.857	CC, ES
PAONIA 8N - ORIGINAL WELLBORE - PROPOSAL #1	17,446.39	17,346.82	2,280.65	1,905.44	6.078	SF
PAONIA 9N - ORIGINAL WELLBORE - PROPOSAL #1	400.00	400.00	119.97	118.45	78.844	CC, ES
PAONIA 9N - ORIGINAL WELLBORE - PROPOSAL #1	17,446.39	17,317.59	2,613.81	2,237.70	6.950	SF