



Project: WELD COUNTY, COLORADO
Site: SW SE SEC. 32 T4N R65W 6th P.M. (PAONIA)
Well: PAONIA 8N
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 & 640ft FSL of Sec 32
900.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00	START NUDGE (2°/100ft BUR)
1557.93	1563.86	13.28	123.35	-42.10	63.96	-35.97	76.57	EOB TO 13.28° INC
5709.87	5829.82	13.28	123.35	-580.77	882.32	-496.21	1056.30	END OF TANGENT
6367.80	6493.68	0.00	0.00	-622.87	946.28	-532.19	1132.88	EOD TO VERTICAL
6467.80	6593.68	0.00	0.00	-622.87	946.28	-532.19	1132.88	KOP (8°/100ft BUR)
7184.00	7718.68	90.00	359.79	93.32	943.66	180.66	1849.08	EP: 1490ft FEL & 737ft FSL of Sec 32
7184.00	17346.82	90.00	359.78	9721.39	907.84	9763.69	11477.21	BHL: 1490ft FEL & 200ft FNL of Sec 29

PROPOSED LOCAL COORDINATES:

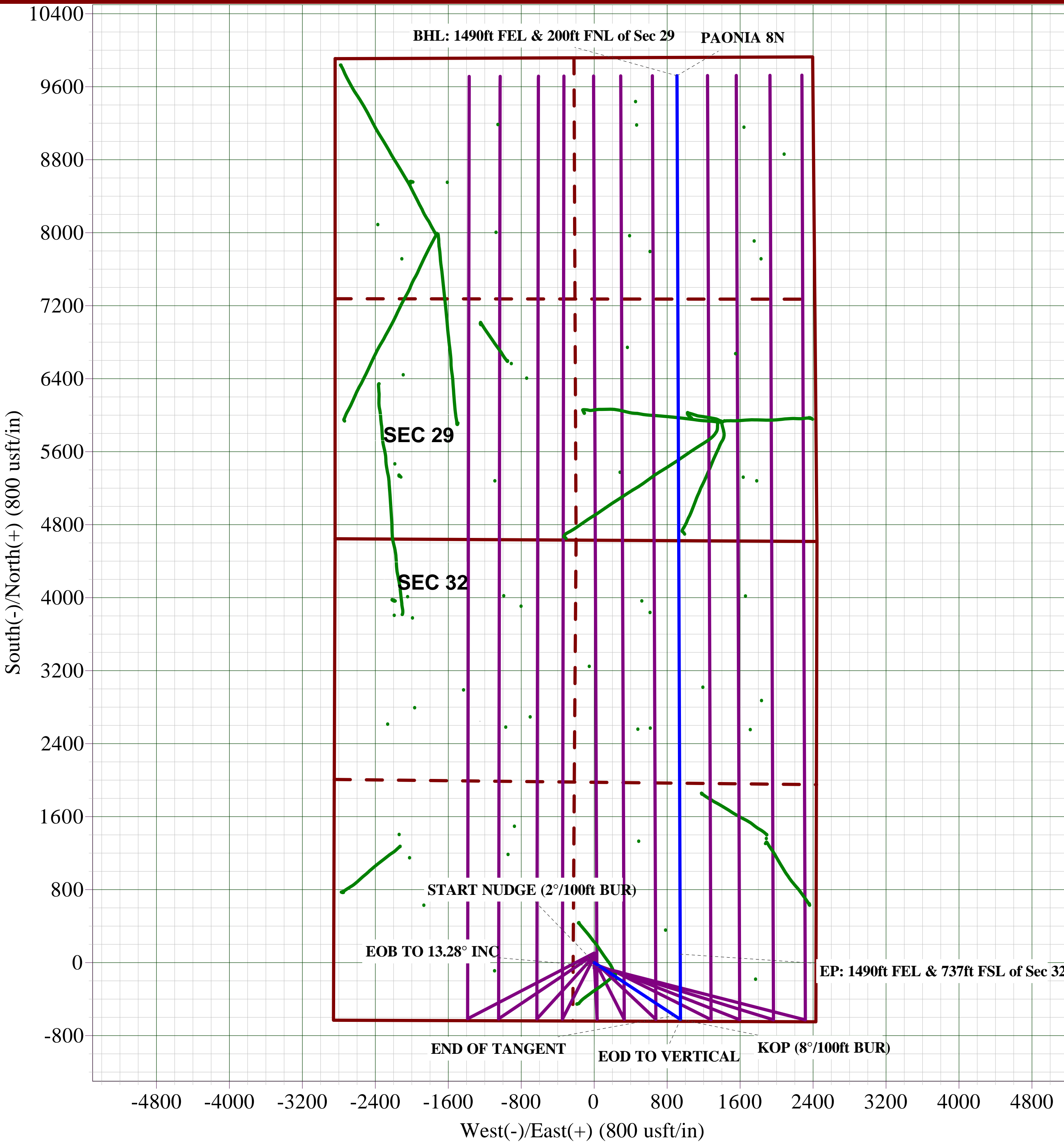
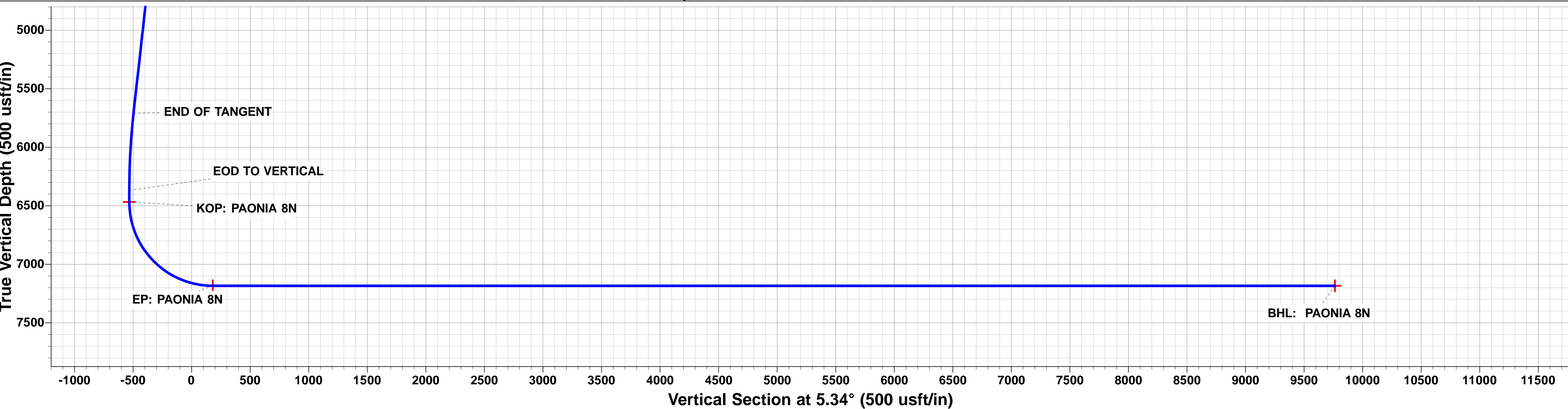
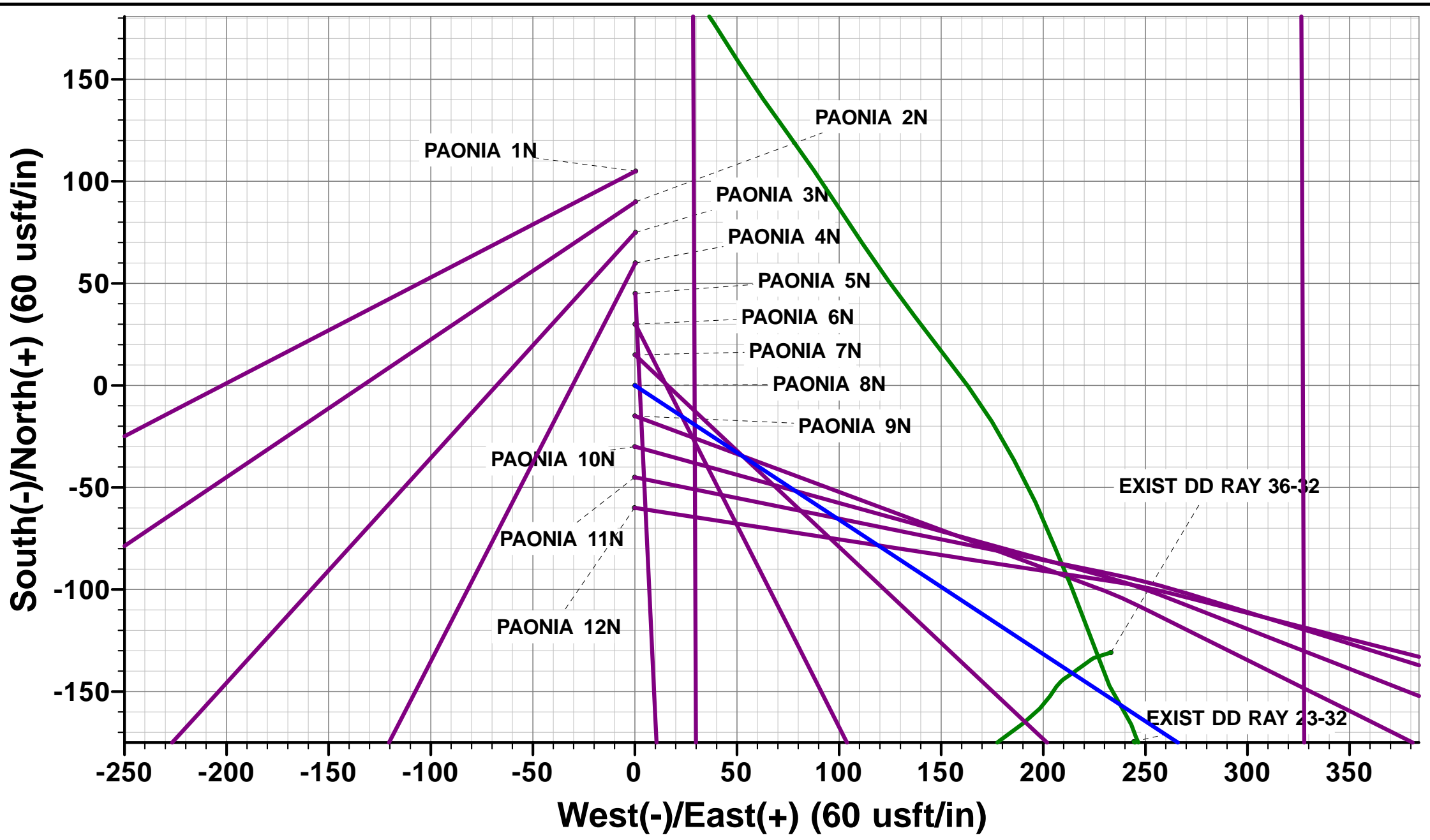
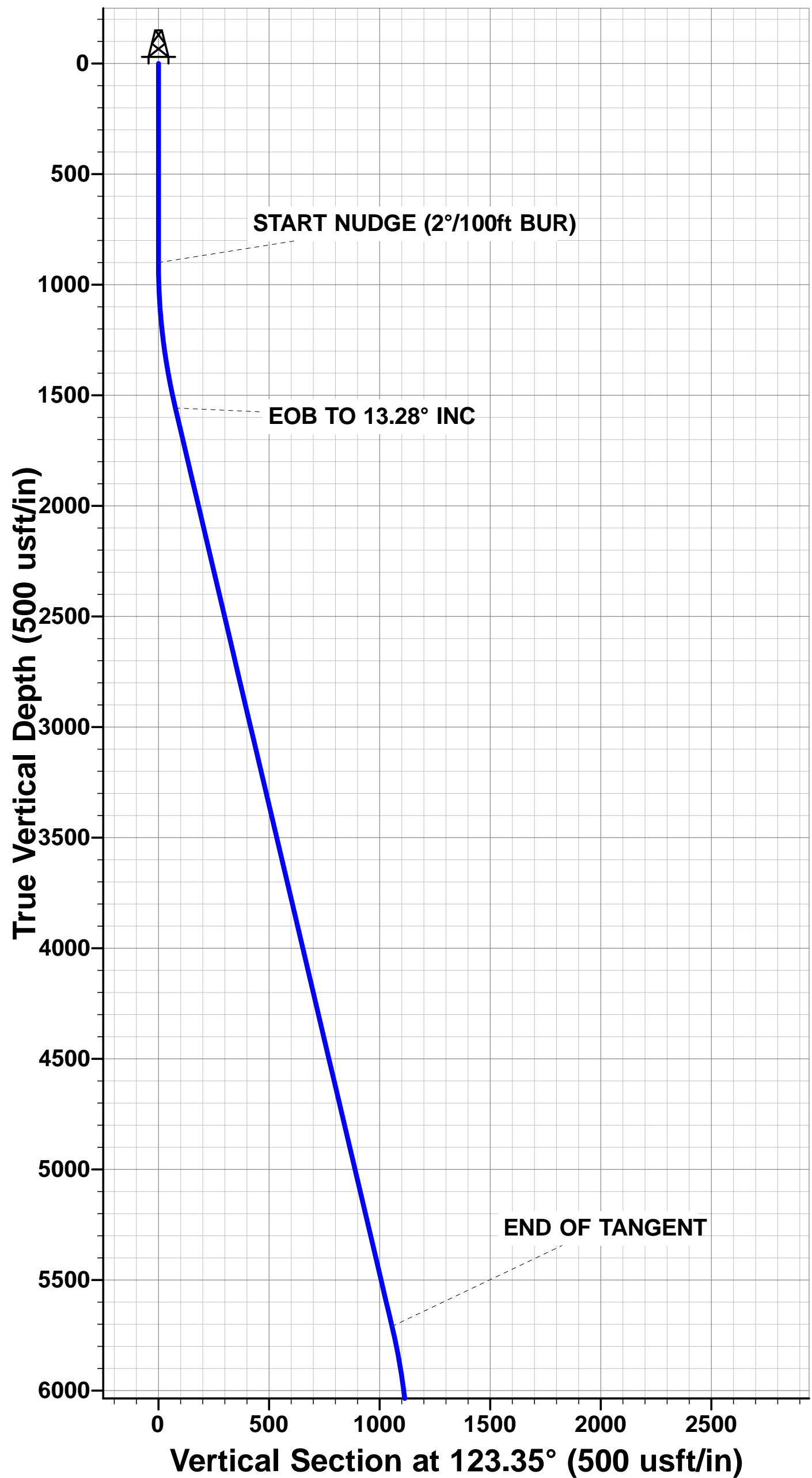
SHL: 2434ft FEL & 640ft FSL of Sec 32

EP: 1490ft FEL & 737ft FSL of Sec 32

BHL: 1490ft FEL & 200ft FNL of Sec 29

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude
KOP: PAONIA 8N	6467.80	-622.87	946.28	40.261719	-104.683035
EP: PAONIA 8N	7184.00	93.32	943.66	40.263685	-104.683044
BHL: PAONIA 8N	7184.00	9721.39	907.84	40.290114	-104.683171



PDC ENERGY

WELD COUNTY, COLORADO

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

PAONIA 8N

ORIGINAL WELLBORE

PROPOSAL #1

Anticollision Report

13 December, 2017



Anticollision Report



Company:	PDC ENERGY	Local Co-ordinate Reference:	Well PAONIA 8N
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 8N	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	17,346.82	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	8,263.33	7,258.31	1,416.40	1,373.74	33.202	CC, ES
EXIST DD RAY 39-32 - Wellbore #1 - Wellbore #1	9,100.00	7,262.45	1,645.06	1,590.31	30.049	SF
EXIST DD SPAYD 39-29 - Wellbore #1 - Wellbore #1	13,591.59	7,230.58	1,448.16	1,313.63	10.765	CC
EXIST DD SPAYD 39-29 - Wellbore #1 - Wellbore #1	13,600.00	7,230.52	1,448.19	1,313.50	10.752	ES
EXIST DD SPAYD 39-29 - Wellbore #1 - Wellbore #1	13,900.00	7,228.32	1,480.64	1,340.25	10.547	SF
EXIST VERT HSR-KOCH 16-32 - Wellbore #1 - Design #	7,350.00	7,063.18	828.45	793.87	23.961	SF
EXIST VERT HSR-KOCH 16-32 - Wellbore #1 - Design #	7,436.19	7,101.01	824.82	790.43	23.982	CC, ES
SW SE SEC. 32 T4N R65W 6th P.M. (PAONIA)						
ABDN VERT BOHLENDER 2 - Wellbore #1 - Design #1	15,533.82	4,856.00	2,474.73	2,387.35	28.322	CC, ES
ABDN VERT BOHLENDER 2 - Wellbore #1 - Design #1	16,200.00	4,856.00	2,562.82	2,469.17	27.366	SF
ABDN VERT BOHLENDER 31-29 #3 - Wellbore #1 - Des	16,810.04	4,736.00	2,488.07	2,405.86	30.265	CC, ES
ABDN VERT BOHLENDER 31-29 #3 - Wellbore #1 - Des	17,346.82	4,736.00	2,545.31	2,458.84	29.436	SF
ABDN VERT HAMBERT R G 32-4 - Wellbore #1 - Design	11,649.96	7,184.00	2,975.31	2,877.63	30.460	CC
ABDN VERT HAMBERT R G 32-4 - Wellbore #1 - Design	11,700.00	7,184.00	2,975.73	2,877.11	30.175	ES
ABDN VERT HAMBERT R G 32-4 - Wellbore #1 - Design	13,400.00	7,184.00	3,451.81	3,321.14	26.416	SF
ABDN VERT HSR-MAYA 4-29 - Wellbore #1 - Wellbore #	16,178.60	7,000.00	2,931.17	2,762.32	17.360	CC
ABDN VERT HSR-MAYA 4-29 - Wellbore #1 - Wellbore #	16,200.00	7,000.00	2,931.24	2,761.99	17.319	ES
ABDN VERT HSR-MAYA 4-29 - Wellbore #1 - Wellbore #	17,200.00	7,000.00	3,104.02	2,915.69	16.481	SF
ABDN VERT MUSICK MCCLINTOCK 3 - Wellbore #1 - W	11,602.52	4,521.19	4,102.27	4,035.88	61.790	CC
ABDN VERT MUSICK MCCLINTOCK 3 - Wellbore #1 - W	11,700.00	4,521.19	4,103.43	4,035.57	60.473	ES
ABDN VERT MUSICK MCCLINTOCK 3 - Wellbore #1 - W	15,500.00	4,521.19	5,658.48	5,532.85	45.044	SF
ABDN VERT NGL C3 - Wellbore #1 - Design #1	11,446.50	7,184.00	3,122.02	3,028.14	33.255	CC
ABDN VERT NGL C3 - Wellbore #1 - Design #1	11,500.00	7,184.00	3,122.48	3,027.60	32.910	ES
ABDN VERT NGL C3 - Wellbore #1 - Design #1	13,400.00	7,184.00	3,682.80	3,552.13	28.184	SF
ABDN VERT UPRR 21 PAN AM A#1 - Wellbore #1 - Wel	12,959.11	7,100.00	3,044.25	2,936.36	28.217	CC
ABDN VERT UPRR 21 PAN AM A#1 - Wellbore #1 - Wel	13,000.00	7,100.00	3,044.53	2,935.86	28.018	ES
ABDN VERT UPRR 21 PAN AM A#1 - Wellbore #1 - Wel	14,600.00	7,100.00	3,458.31	3,319.28	24.874	SF
EXIST DD NGL C3A - Wellbore #1 - Wellbore #1	13,514.62	7,395.88	3,256.08	3,100.12	20.877	CC
EXIST DD NGL C3A - Wellbore #1 - Wellbore #1	13,600.00	7,411.07	3,257.14	3,099.42	20.652	ES
EXIST DD NGL C3A - Wellbore #1 - Wellbore #1	15,100.00	8,158.85	3,573.90	3,384.13	18.833	SF
EXIST DD RAY 23-32 - Wellbore #1 - Wellbore #1	2,158.59	2,136.43	41.83	31.71	4.134	CC, ES, SF
EXIST DD RAY 24-32 - Wellbore #1 - Wellbore #1	9,472.01	7,284.25	243.09	183.85	4.103	CC, ES
EXIST DD RAY 24-32 - Wellbore #1 - Wellbore #1	9,500.00	7,284.05	244.70	184.97	4.097	SF
EXIST DD RAY 36-32 - Wellbore #1 - Wellbore #1	2,219.03	2,187.86	46.25	36.19	4.596	CC, ES, SF
EXIST DD RURAL LAND G32-33D - Wellbore #1 - Wellb	0.00	15.10	2,478.93			

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 8N
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 8N	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 RURAL LAND G32-33D - Wellbore #1 - Wellb	904.68	924.76	2,481.49	2,477.92	694.518	ES
EXIST DD RURAL LAND G32-33D - Wellbore #1 - Wellb	15,400.00	7,328.92	7,902.21	7,731.63	46.324	SF
EXIST DD SPAYD 19-29 - Wellbore #1 - Wellbore #1	13,550.35	7,605.27	2,418.62	2,261.46	15.389	CC
EXIST DD SPAYD 19-29 - Wellbore #1 - Wellbore #1	13,600.00	7,605.16	2,419.13	2,261.02	15.301	ES
EXIST DD SPAYD 19-29 - Wellbore #1 - Wellbore #1	14,300.00	7,603.56	2,532.13	2,360.73	14.773	SF
EXIST DD SPAYD 20-29 - Wellbore #1 - Wellbore #1	13,609.72	7,193.78	127.01	-6.54	0.951	Level 1, CC, ES, SF
EXIST DD SPAYD 22-29 - Wellbore #1 - Wellbore #1	14,638.56	7,185.10	2,167.41	2,013.00	14.036	CC
EXIST DD SPAYD 22-29 - Wellbore #1 - Wellbore #1	14,700.00	7,184.37	2,168.28	2,012.70	13.937	ES
EXIST DD SPAYD 22-29 - Wellbore #1 - Wellbore #1	15,200.00	7,178.22	2,238.94	2,073.85	13.562	SF
EXIST DD SPAYD 23-29 - Wellbore #1 - Wellbore #1	13,650.02	7,447.39	1,030.11	892.63	7.493	CC, ES
EXIST DD SPAYD 23-29 - Wellbore #1 - Wellbore #1	13,800.00	7,446.45	1,040.97	900.65	7.418	SF
EXIST DD SPAYD 30-29 - Wellbore #1 - Wellbore #1	17,346.82	7,594.35	3,690.84	3,463.23	16.216	CC, ES, SF
EXIST DD SPAYD 33-29 - Wellbore #1 - Wellbore #1	13,582.83	7,669.74	3,662.80	3,504.65	23.160	CC
EXIST DD SPAYD 33-29 - Wellbore #1 - Wellbore #1	13,700.00	7,668.54	3,664.68	3,504.30	22.850	ES
EXIST DD SPAYD 33-29 - Wellbore #1 - Wellbore #1	15,200.00	7,653.44	4,003.86	3,814.96	21.196	SF
EXIST DD SPAYD 36-29 - Wellbore #1 - Wellbore #1	12,294.23	7,609.88	1,251.32	1,127.92	10.140	CC
EXIST DD SPAYD 36-29 - Wellbore #1 - Wellbore #1	12,300.00	7,609.78	1,251.34	1,127.82	10.131	ES
EXIST DD SPAYD 36-29 - Wellbore #1 - Wellbore #1	12,500.00	7,606.35	1,268.12	1,140.84	9.963	SF
EXIST DD SPAYD 37-29 - Wellbore #1 - Wellbore #1	12,336.30	7,356.92	55.67	-65.09	0.461	Level 1, CC, ES, SF
EXIST VERT BOHLENDER 29-13 - Wellbore #1 - Design	15,422.94	7,184.00	302.62	133.47	1.789	CC, ES, SF
EXIST VERT BOHLENDER 29-3 - Wellbore #1 - Design	15,338.28	7,181.00	913.50	745.96	5.453	CC, ES
EXIST VERT BOHLENDER 29-3 - Wellbore #1 - Design	15,400.00	7,181.00	915.58	746.87	5.427	SF
EXIST VERT BOHLENDER 32-29 #1 - Wellbore #1 - Des	15,597.19	7,184.00	526.00	353.52	3.050	CC
EXIST VERT BOHLENDER 32-29 #1 - Wellbore #1 - Des	15,600.00	7,184.00	526.01	353.48	3.049	ES, SF
EXIST VERT CLYDE MARSHALL 1 - Wellbore #1 - Desi	900.00	900.00	1,517.92	1,514.15	402.703	CC, ES
EXIST VERT CLYDE MARSHALL 1 - Wellbore #1 - Desi	13,600.00	4,765.00	5,677.89	5,590.09	64.665	SF
EXIST VERT CPC BOHLENDER 29-1 - Wellbore #1 - De	16,781.58	7,184.00	731.91	536.82	3.752	CC
EXIST VERT CPC BOHLENDER 29-1 - Wellbore #1 - De	16,800.00	7,184.00	732.14	536.70	3.746	ES, SF
EXIST VERT CPC BOHLENDER 29-2 - Wellbore #1 - De	17,066.55	7,184.00	455.48	254.94	2.271	CC, ES
EXIST VERT CPC BOHLENDER 29-2 - Wellbore #1 - De	17,100.00	7,184.00	456.71	255.52	2.270	SF
EXIST VERT HAMBERT G 32-4X - Wellbore #1 - Design	11,416.23	7,184.00	2,922.34	2,829.02	31.316	CC
EXIST VERT HAMBERT G 32-4X - Wellbore #1 - Design	11,500.00	7,184.00	2,923.54	2,828.66	30.813	ES
EXIST VERT HAMBERT G 32-4X - Wellbore #1 - Design	13,200.00	7,184.00	3,423.71	3,296.83	26.984	SF
EXIST VERT HAMBERT R G 32-1 - Wellbore #1 - Desig	11,643.47	7,184.00	729.48	631.92	7.477	CC, ES
EXIST VERT HAMBERT R G 32-1 - Wellbore #1 - Desig	11,700.00	7,184.00	731.67	633.05	7.419	SF
EXIST VERT HAMBERT R G 32-2 - Wellbore #1 - Desig	11,466.61	7,184.00	317.29	223.03	3.366	CC, ES
EXIST VERT HAMBERT R G 32-2 - Wellbore #1 - Desig	11,500.00	7,184.00	319.04	224.16	3.363	SF
EXIST VERT HAMBERT R G 32-3 - Wellbore #1 - Desig	11,541.08	7,184.00	1,731.75	1,636.11	18.106	CC
EXIST VERT HAMBERT R G 32-3 - Wellbore #1 - Desig	11,600.00	7,184.00	1,732.76	1,636.01	17.910	ES
EXIST VERT HAMBERT R G 32-3 - Wellbore #1 - Desig	12,100.00	7,184.00	1,819.71	1,713.59	17.148	SF
EXIST VERT HAMBERT R G 32-6 - Wellbore #1 - Desig	10,215.62	7,184.00	1,904.13	1,832.90	26.733	CC, ES
EXIST VERT HAMBERT R G 32-6 - Wellbore #1 - Desig	11,200.00	7,184.00	2,143.53	2,054.23	24.005	SF
EXIST VERT HAMBERT R G 32-7 - Wellbore #1 - Desig	10,188.40	7,184.00	455.93	385.19	6.445	CC
EXIST VERT HAMBERT R G 32-7 - Wellbore #1 - Desig	10,200.00	7,184.00	456.08	385.13	6.429	ES, SF
EXIST VERT HAMBERT R G 32-8 - Wellbore #1 - Desig	10,496.75	7,184.00	901.68	825.34	11.812	CC
EXIST VERT HAMBERT R G 32-8 - Wellbore #1 - Desig	10,500.00	7,184.00	901.68	825.29	11.803	ES
EXIST VERT HAMBERT R G 32-8 - Wellbore #1 - Desig	10,700.00	7,184.00	924.30	844.24	11.546	SF
EXIST VERT HSR-CARTER 11-29 - Wellbore #1 - Desig	14,040.01	7,184.00	1,660.98	1,518.17	11.630	CC
EXIST VERT HSR-CARTER 11-29 - Wellbore #1 - Desig	14,100.00	7,184.00	1,662.07	1,518.11	11.545	ES
EXIST VERT HSR-CARTER 11-29 - Wellbore #1 - Desig	14,400.00	7,184.00	1,699.55	1,549.88	11.356	SF
EXIST VERT HSR-CROUSE 5-29 - Wellbore #1 - Design	15,353.47	7,184.00	3,024.79	2,856.96	18.023	CC
EXIST VERT HSR-CROUSE 5-29 - Wellbore #1 - Design	15,400.00	7,184.00	3,025.14	2,856.43	17.931	ES

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

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Reference Site:	SW SE SEC. 32 T4N R65W 6th P.M. (PAONIA)	MD Reference:	WELL @ 4919.00usft (Original Well Elev)
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Reference Well:	PAONIA 8N	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 HSR-CROUSE 5-29 - Wellbore #1 - Design	16,400.00	7,184.00	3,200.70	3,012.90	17.043	SF
EXIST VERT HSR-DICERSON 14-29A - Wellbore #1 - D	12,915.61	7,184.00	2,014.00	1,892.50	16.576	CC, ES
EXIST VERT HSR-DICERSON 14-29A - Wellbore #1 - D	13,500.00	7,184.00	2,097.07	1,964.50	15.819	SF
EXIST VERT HSR-FRISBIE 16-29A - Wellbore #1 - Desi	12,945.56	7,184.00	709.40	587.34	5.812	CC, ES
EXIST VERT HSR-FRISBIE 16-29A - Wellbore #1 - Desi	13,000.00	7,184.00	711.49	588.40	5.780	SF
EXIST VERT HSR-FROELICH 12-29A - Wellbore #1 - De	14,081.58	7,184.00	3,014.04	2,870.43	20.988	CC
EXIST VERT HSR-FROELICH 12-29A - Wellbore #1 - De	14,100.00	7,184.00	3,014.09	2,870.14	20.937	ES
EXIST VERT HSR-FROELICH 12-29A - Wellbore #1 - De	15,300.00	7,184.00	3,250.99	3,084.18	19.489	SF
EXIST VERT HSR-HARRISON 9-32 - Wellbore #1 - Des	8,984.73	7,184.00	948.96	898.99	18.989	CC
EXIST VERT HSR-HARRISON 9-32 - Wellbore #1 - Des	9,000.00	7,184.00	949.09	898.87	18.900	ES
EXIST VERT HSR-HARRISON 9-32 - Wellbore #1 - Des	9,300.00	7,184.00	999.96	944.81	18.130	SF
EXIST VERT HSR-MUNDS 13.29 - Wellbore #1 - Design	13,106.30	7,184.00	3,110.12	2,985.02	24.860	CC
EXIST VERT HSR-MUNDS 13.29 - Wellbore #1 - Design	13,200.00	7,184.00	3,111.53	2,984.65	24.524	ES
EXIST VERT HSR-MUNDS 13.29 - Wellbore #1 - Design	14,600.00	7,184.00	3,450.20	3,296.73	22.481	SF
EXIST VERT HSR-NICHOLS 15-32 - Wellbore #1 - Desig	7,984.73	7,184.00	160.35	123.41	4.341	CC, ES, SF
EXIST VERT HSR-RAY 3-29 - Wellbore #1 - Design #1	16,820.90	7,184.00	1,965.14	1,769.29	10.034	CC, ES
EXIST VERT HSR-RAY 3-29 - Wellbore #1 - Design #1	17,200.00	7,184.00	2,001.37	1,798.28	9.854	SF
EXIST VERT HSR-SALISBURY 6-29 - Wellbore #1 - Des	15,639.88	7,184.00	1,990.56	1,817.27	11.487	CC
EXIST VERT HSR-SALISBURY 6-29 - Wellbore #1 - Des	15,700.00	7,184.00	1,991.47	1,817.03	11.417	ES
EXIST VERT HSR-SALISBURY 6-29 - Wellbore #1 - Des	16,100.00	7,184.00	2,043.05	1,860.98	11.221	SF
EXIST VERT HSR-TEAGLE 10-29A - Wellbore #1 - Desi	14,373.58	7,184.00	554.57	405.41	3.718	CC, ES
EXIST VERT HSR-TEAGLE 10-29A - Wellbore #1 - Desi	14,400.00	7,184.00	555.20	405.53	3.710	SF
EXIST VERT HSR-WILLIAM 10-32A - Wellbore #1 - Des	8,960.30	7,184.00	450.66	401.07	9.088	CC, ES
EXIST VERT HSR-WILLIAM 10-32A - Wellbore #1 - Des	9,000.00	7,184.00	452.41	402.19	9.009	SF
EXIST VERT HSR-WRIGHT 9-29A - Wellbore #1 - Desig	14,300.34	7,184.00	630.39	482.63	4.266	CC, ES
EXIST VERT HSR-WRIGHT 9-29A - Wellbore #1 - Desig	14,400.00	7,184.00	638.22	488.56	4.264	SF
EXIST VERT MARSHALL 32-11G - Wellbore #1 - Design	900.00	900.00	1,734.37	1,730.60	460.127	CC, ES
EXIST VERT MARSHALL 32-11G - Wellbore #1 - Design	10,300.00	7,184.00	2,158.19	2,085.43	29.664	SF
EXIST VERT MARSHALL 32-12G - Wellbore #1 - Design	900.00	900.00	2,329.17	2,325.40	617.926	CC, ES
EXIST VERT MARSHALL 32-12G - Wellbore #1 - Design	12,600.00	7,184.00	4,829.02	4,713.49	41.797	SF
EXIST VERT MARSHALL 32-14G - Wellbore #1 - Design	900.00	900.00	1,096.00	1,092.23	290.768	CC, ES
EXIST VERT MARSHALL 32-14G - Wellbore #1 - Design	11,100.00	7,184.00	4,096.53	4,009.09	46.850	SF
EXIST VERT MARSHALL G 32-13JI - Wellbore #1 - Des	900.00	900.00	2,393.53	2,389.76	635.002	CC, ES
EXIST VERT MARSHALL G 32-13JI - Wellbore #1 - Des	17,100.00	7,184.00	9,988.33	9,787.15	49.648	SF
EXIST VERT MEL SMOOKLER GAS UNIT 1 - Wellbore	900.00	900.00	1,971.59	1,967.82	523.061	CC, ES
EXIST VERT MEL SMOOKLER GAS UNIT 1 - Wellbore	12,700.00	7,184.00	5,248.22	5,130.80	44.695	SF
EXIST VERT MUSICK 1-32 - Wellbore #1 - Design #1	10,626.11	7,184.00	2,365.27	2,286.57	30.054	CC
EXIST VERT MUSICK 1-32 - Wellbore #1 - Design #1	10,700.00	7,184.00	2,366.42	2,286.37	29.560	ES
EXIST VERT MUSICK 1-32 - Wellbore #1 - Design #1	12,000.00	7,184.00	2,735.33	2,631.09	26.241	SF
EXIST VERT MUSICK GAS UNIT 1 - Wellbore #1 - Desi	10,645.54	7,184.00	258.72	179.67	3.273	CC, ES, SF
EXIST VERT MUSICK MCCLINTOCK 2 - Wellbore #1 - D	900.00	900.00	2,785.69	2,781.92	739.091	CC, ES
EXIST VERT MUSICK MCCLINTOCK 2 - Wellbore #1 - D	12,800.00	4,755.00	3,832.95	3,760.07	52.591	SF
EXIST VERT MUSICK MCCLINTOCK 4 - Wellbore #1 - D	10,178.81	4,750.00	2,555.07	2,518.64	70.139	CC
EXIST VERT MUSICK MCCLINTOCK 4 - Wellbore #1 - D	10,200.00	4,750.00	2,555.16	2,518.55	69.795	ES
EXIST VERT MUSICK MCCLINTOCK 4 - Wellbore #1 - D	11,800.00	4,750.00	3,026.00	2,975.42	59.826	SF
EXIST VERT MUSICK MCCLINTOCK 6 - Wellbore #1 - D	900.00	900.00	3,419.98	3,416.21	907.318	CC, ES
EXIST VERT MUSICK MCCLINTOCK 6 - Wellbore #1 - D	14,500.00	4,750.00	5,557.64	5,441.04	47.666	SF
EXIST VERT MUSICK MCCLINTOCK 7 - Wellbore #1 - D	10,199.56	4,739.00	2,465.82	2,436.01	82.729	CC
EXIST VERT MUSICK MCCLINTOCK 7 - Wellbore #1 - D	10,200.00	4,739.00	2,465.82	2,436.01	82.720	ES
EXIST VERT MUSICK MCCLINTOCK 7 - Wellbore #1 - D	11,700.00	4,739.00	2,886.45	2,845.51	70.519	SF
EXIST VERT MUSICK MCCLINTOCK 1 - Wellbore #1 - D	11,593.72	4,803.00	2,415.58	2,374.69	59.075	CC
EXIST VERT MUSICK-MCCLINTOCK 1 - Wellbore #1 - D	11,600.00	4,803.00	2,415.59	2,374.65	59.005	ES

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 8N
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 8N	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	12,700.00	4,803.00	2,656.85	2,607.38	53.703	SF
EXIST VERT MUSICK-MCCLINTOCK 5 - Wellbore #1 - D	11,655.09	4,752.00	3,099.05	3,036.08	49.219	CC
EXIST VERT MUSICK-MCCLINTOCK 5 - Wellbore #1 - D	11,700.00	4,752.00	3,099.37	3,035.83	48.774	ES
EXIST VERT MUSICK-MCCLINTOCK 5 - Wellbore #1 - D	13,700.00	4,752.00	3,712.90	3,623.30	41.438	SF
EXIST VERT NGL C3B - Wellbore #1 - Design #1	16,484.88	7,184.00	1,171.61	982.18	6.185	CC
EXIST VERT NGL C3B - Wellbore #1 - Design #1	16,500.00	7,184.00	1,171.71	981.99	6.176	ES
EXIST VERT NGL C3B - Wellbore #1 - Design #1	16,600.00	7,184.00	1,177.25	985.63	6.144	SF
EXIST VERT R G 32-5 - Wellbore #1 - Design #1	10,253.27	7,184.00	3,198.81	3,126.90	44.484	CC
EXIST VERT R G 32-5 - Wellbore #1 - Design #1	10,300.00	7,184.00	3,199.15	3,126.40	43.972	ES
EXIST VERT R G 32-5 - Wellbore #1 - Design #1	13,000.00	7,184.00	4,216.23	4,093.14	34.252	SF
EXIST VERT SPAYD 5-29 - Wellbore #1 - Design #1	15,729.37	7,184.00	3,286.71	3,111.71	18.781	CC
EXIST VERT SPAYD 5-29 - Wellbore #1 - Design #1	15,800.00	7,184.00	3,287.47	3,111.12	18.642	ES
EXIST VERT SPAYD 5-29 - Wellbore #1 - Design #1	16,900.00	7,184.00	3,488.95	3,291.59	17.678	SF
EXIST VERT UPRR 21 PAN AM D #1 - Wellbore #1 - De	14,200.94	4,730.00	3,059.89	2,966.07	32.615	CC, ES
EXIST VERT UPRR 21 PAN AM D #1 - Wellbore #1 - De	15,500.00	4,730.00	3,324.22	3,213.77	30.098	SF
EXIST VERT UPRR 21 PAN AM D #2 - Wellbore #1 - De	12,904.96	7,184.00	857.14	735.84	7.067	CC, ES
EXIST VERT UPRR 21 PAN AM D #2 - Wellbore #1 - De	13,000.00	7,184.00	862.39	739.30	7.006	SF
EXIST VERT UPRR 21 PAN AM G #1 - Wellbore #1 - De	16,189.49	4,660.00	3,568.98	3,434.97	26.633	CC
EXIST VERT UPRR 21 PAN AM G #1 - Wellbore #1 - De	16,200.00	4,660.00	3,568.99	3,434.83	26.603	ES
EXIST VERT UPRR 21 PAN AM G #1 - Wellbore #1 - De	17,346.82	4,660.00	3,751.93	3,601.21	24.894	SF
EXIST VERT UPRR PAN AM "J"1 - Wellbore #1 - Design	13,005.19	7,184.00	640.86	517.67	5.202	CC, ES
EXIST VERT UPRR PAN AM "J"1 - Wellbore #1 - Design	13,100.00	7,184.00	647.83	522.85	5.183	SF
EXIST VERT VERN MARSHALL 1 - Wellbore #1 - Desig	900.00	900.00	2,560.02	2,556.25	679.171	CC, ES
EXIST VERT VERN MARSHALL 1 - Wellbore #1 - Desig	16,200.00	4,785.00	8,151.37	8,005.35	55.825	SF
EXIST VERT WEINMASTER G 32-18 - Wellbore #1 - De	10,878.90	7,184.00	986.38	903.03	11.834	CC
EXIST VERT WEINMASTER G 32-18 - Wellbore #1 - De	10,900.00	7,184.00	986.60	902.86	11.782	ES
EXIST VERT WEINMASTER G 32-18 - Wellbore #1 - De	11,100.00	7,184.00	1,010.85	923.41	11.561	SF
PAONIA 10N - ORIGINAL WELLBORE - PROPOSAL #1	300.00	300.00	29.98	28.91	27.965	CC, ES
PAONIA 10N - ORIGINAL WELLBORE - PROPOSAL #1	17,346.82	17,485.31	649.87	271.58	1.718	SF
PAONIA 11N - ORIGINAL WELLBORE - PROPOSAL #1	200.00	200.00	44.99	44.37	72.264	CC
PAONIA 11N - ORIGINAL WELLBORE - PROPOSAL #1	300.00	299.65	45.36	44.30	42.810	ES
PAONIA 11N - ORIGINAL WELLBORE - PROPOSAL #1	17,346.82	17,517.83	1,023.76	642.69	2.687	SF
PAONIA 12N - ORIGINAL WELLBORE - PROPOSAL #1	100.00	100.00	59.96	59.79	346.475	CC
PAONIA 12N - ORIGINAL WELLBORE - PROPOSAL #1	200.00	199.44	60.41	59.79	97.558	ES
PAONIA 12N - ORIGINAL WELLBORE - PROPOSAL #1	17,346.82	17,705.25	1,369.71	987.61	3.585	SF
PAONIA 1N - ORIGINAL WELLBORE - PROPOSAL #1	900.00	900.00	105.00	101.23	27.857	CC, ES
PAONIA 1N - ORIGINAL WELLBORE - PROPOSAL #1	17,346.82	17,446.39	2,280.65	1,905.38	6.077	SF
PAONIA 2N - ORIGINAL WELLBORE - PROPOSAL #1	900.00	900.00	90.02	86.25	23.882	CC, ES
PAONIA 2N - ORIGINAL WELLBORE - PROPOSAL #1	17,346.82	17,252.93	1,931.82	1,558.40	5.173	SF
PAONIA 3N - ORIGINAL WELLBORE - PROPOSAL #1	900.00	900.00	75.01	71.24	19.900	CC, ES
PAONIA 3N - ORIGINAL WELLBORE - PROPOSAL #1	17,346.82	17,224.16	1,521.69	1,145.97	4.050	SF
PAONIA 4N - ORIGINAL WELLBORE - PROPOSAL #1	900.00	900.00	60.00	56.23	15.918	CC, ES
PAONIA 4N - ORIGINAL WELLBORE - PROPOSAL #1	17,346.82	17,189.68	1,234.06	865.75	3.351	SF
PAONIA 5N - ORIGINAL WELLBORE - PROPOSAL #1	900.00	900.00	45.03	41.26	11.946	CC, ES
PAONIA 5N - ORIGINAL WELLBORE - PROPOSAL #1	17,346.82	17,189.93	919.23	544.07	2.450	SF
PAONIA 6N - ORIGINAL WELLBORE - PROPOSAL #1	900.00	900.00	30.02	26.25	7.964	CC, ES
PAONIA 6N - ORIGINAL WELLBORE - PROPOSAL #1	17,346.82	17,288.78	616.87	238.38	1.630	SF
PAONIA 7N - ORIGINAL WELLBORE - PROPOSAL #1	900.00	900.00	15.01	11.24	3.982	CC
PAONIA 7N - ORIGINAL WELLBORE - PROPOSAL #1	17,346.82	17,222.21	284.55	-76.85	0.787	Level 1, ES, SF
PAONIA 9N - ORIGINAL WELLBORE - PROPOSAL #1	400.00	400.00	14.97	13.45	9.840	CC
PAONIA 9N - ORIGINAL WELLBORE - PROPOSAL #1	17,346.82	17,317.59	346.82	-24.51	0.934	Level 1, ES, SF

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