



Project: WELD COUNTY, COLORADO (TRUE)  
Site: SE NW SEC. 6 T3N R65W 6th P.M.  
Well: VEGA 5N  
Wellbore: ORIGINAL WELLBORE  
Design: PROPOSAL #2

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: 2374ft FNL & 2596ft FWL of Sec 6	
600.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00	START NUDGE (2°/100ft BUR)	
1364.92	1374.31	15.49	230.66	-65.94	-80.43	-54.45	104.01	EOB TO 15.49° INC	
5606.88	5776.08	15.49	230.66	-811.03	-989.37	-669.71	1279.31	END OF TANGENT	
6371.80	6550.39	0.00	0.00	-876.97	-1069.80	-724.16	1383.31	EOD TO VERTICAL	
6471.80	6650.39	0.00	0.00	-876.97	-1069.80	-724.16	1383.31	KOP (8°/100ft BUR)	
7188.00	7775.40	90.00	0.29	-160.78	-1066.18	-15.04	2099.51	EP: 2530ft FNL & 1530ft FWL of Sec 6	
7188.00	15454.20	90.00	0.30	7517.92	-1026.64	7587.70	9778.32	BHL: 150ft FNL & 1530ft FWL of Sec 31	

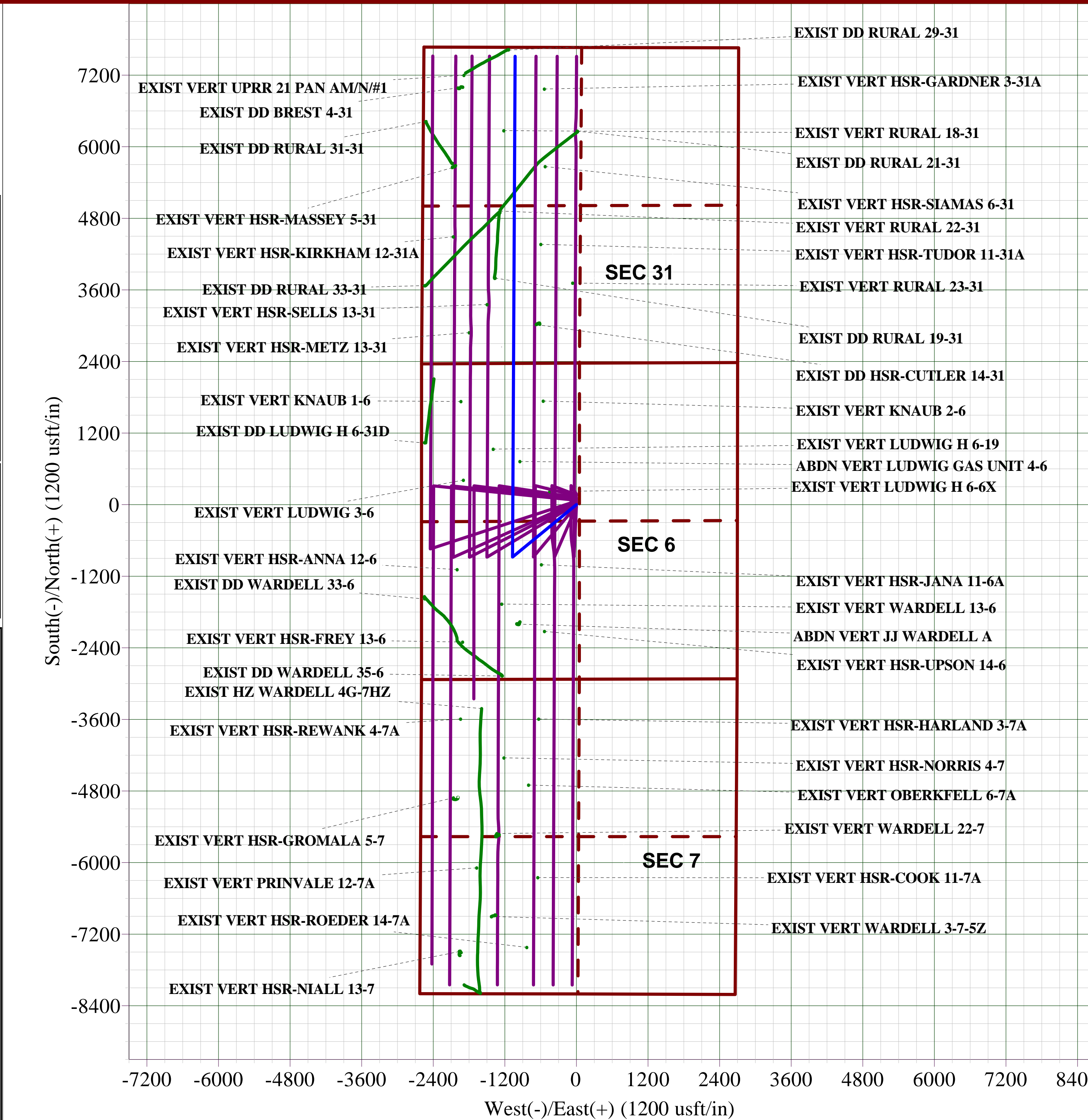
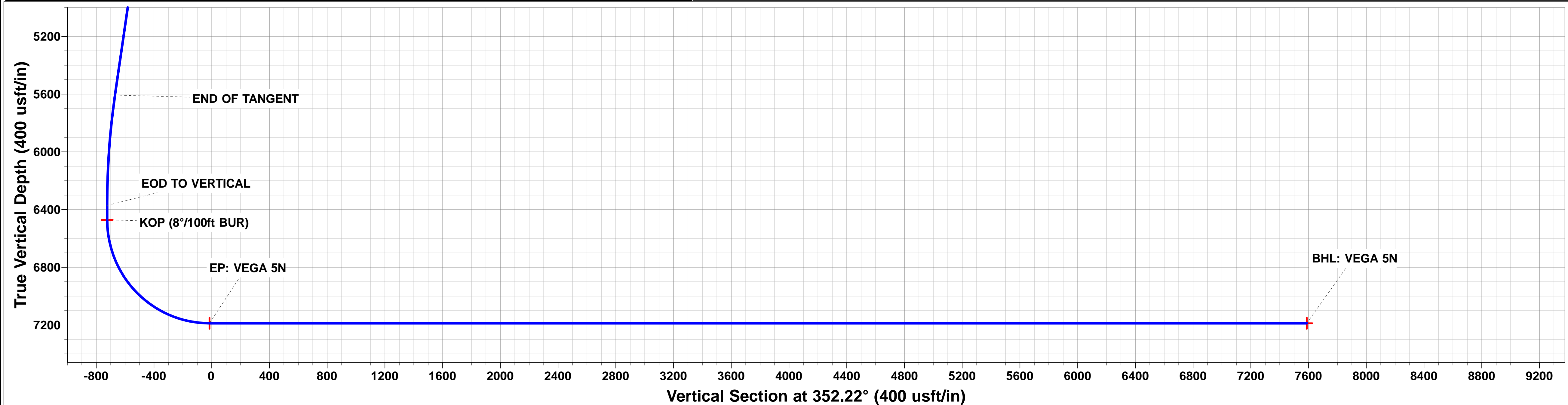
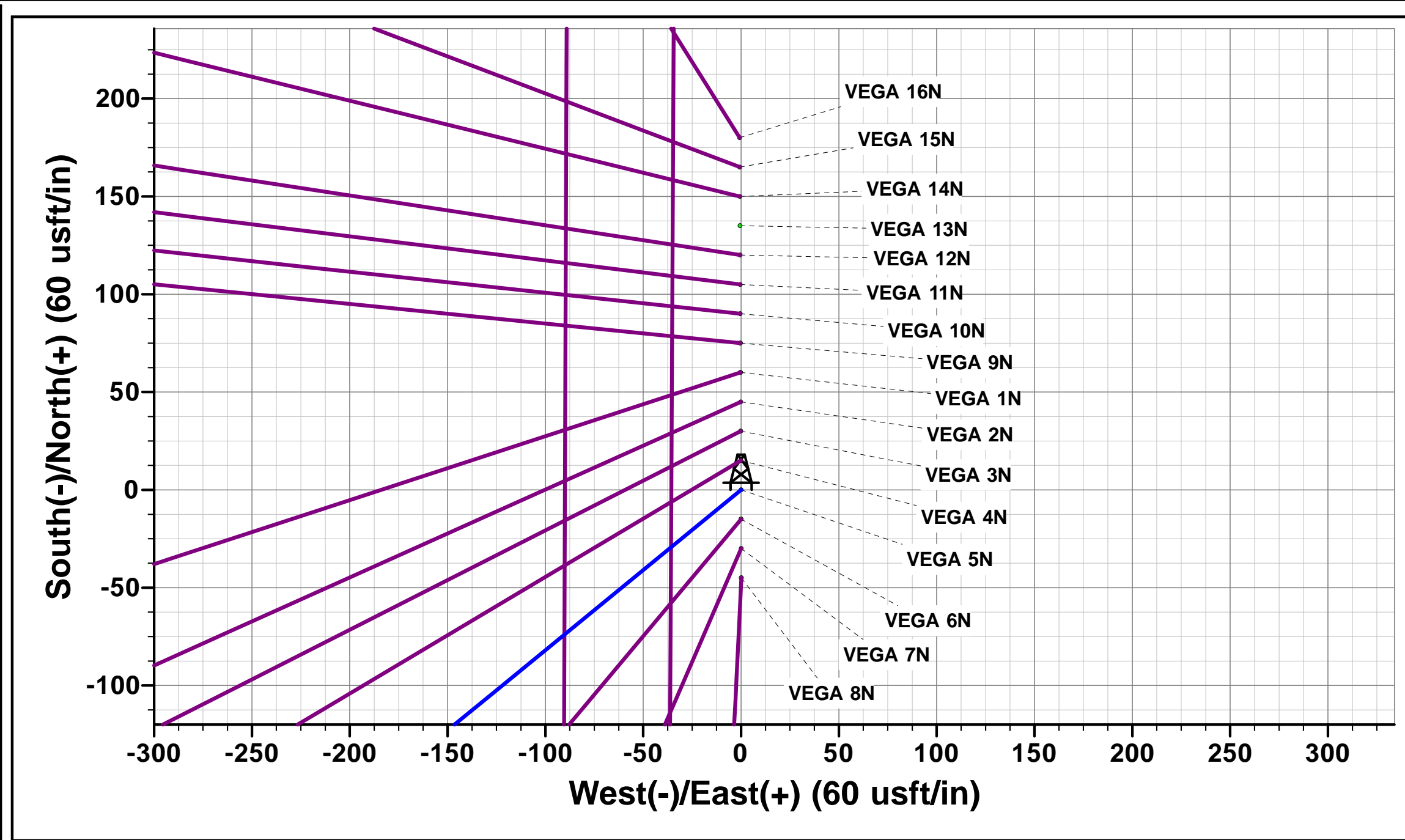
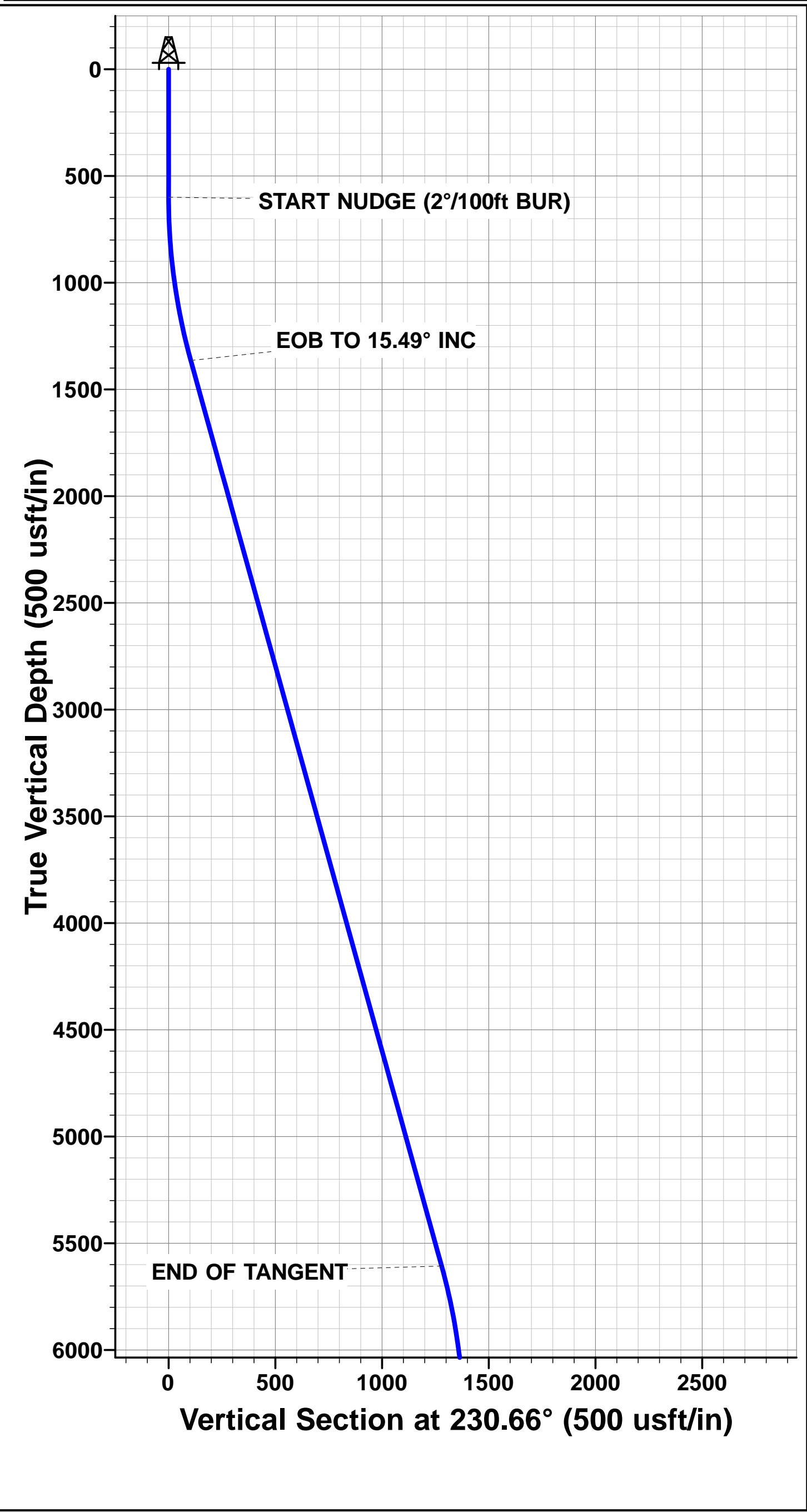
PROPOSED LOCAL COORDINATES:

SHL: 2374ft FNL & 2596ft FWL of Sec 6

EP: 2530ft FNL & 1530ft FWL of Sec 6

BHL: 150ft FNL & 1530ft FWL of Sec 31

WELLBORE TARGET DETAILS (LAT/LONG)					
Name	TVD	+N/-S	+E/-W	Latitude	Longitude
KOP: VEGA 5N	6471.80	-876.97	-1069.80	40.252752	-104.710188
EP: VEGA 5N	7188.00	-160.78	-1066.18	40.254718	-104.710175
BHL: VEGA 5N	7188.00	7517.92	-1026.64	40.275795	-104.710035



# **PDC ENERGY**

**WELD COUNTY, COLORADO (TRUE)  
SE NW SEC. 6 T3N R65W 6th P.M.  
VEGA 5N**

**ORIGINAL WELLBORE  
PROPOSAL #2**

## **Anticollision Report**

**08 March, 2018**



## Anticollision Report



<b>Company:</b>	PDC ENERGY	<b>Local Co-ordinate Reference:</b>	Well VEGA 5N
<b>Project:</b>	WELD COUNTY, COLORADO (TRUE)	<b>TVD Reference:</b>	WELL @ 4998.00usft (Original Well Elev)
<b>Reference Site:</b>	SE NW SEC. 6 T3N R65W 6th P.M.	<b>MD Reference:</b>	WELL @ 4998.00usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	VEGA 5N	<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 #2	<b>Offset TVD Reference:</b>	Offset Datum

<b>Reference</b>	PROPOSAL #2		
<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 10,000.00 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>	08/03/2018		
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>
0.00	15,454.20	PROPOSAL #2 (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 NW SEC. 6 T3N R65W 6th P.M.						
ABDN VERT JJ WARDELL A - Wellbore #1 - Wellbore #1	6,650.39	6,455.48	1,121.40	1,093.24	39.825	ES, SF
ABDN VERT JJ WARDELL A - Wellbore #1 - Wellbore #1	6,651.27	6,456.30	1,121.40	1,093.29	39.905	CC
ABDN VERT LUDWIG GAS UNIT 4-6 - Wellbore #1 - De	8,662.06	7,166.00	114.19	72.92	2.767	CC, ES, SF
EXIST DD BREST 4-31 - Wellbore #1 - Wellbore #1	14,918.74	7,018.31	953.45	814.46	6.860	CC, ES
EXIST DD BREST 4-31 - Wellbore #1 - Wellbore #1	15,000.00	7,018.24	956.91	816.38	6.809	SF
EXIST DD HSR-CUTLER 14-31 - Wellbore #1 - Wellbore	10,957.14	7,162.96	378.90	314.54	5.887	CC, ES
EXIST DD HSR-CUTLER 14-31 - Wellbore #1 - Wellbore	11,000.00	7,162.95	381.32	316.18	5.854	SF
EXIST DD LUDWIG H 6-31D - Wellbore #1 - Wellbore #1	8,964.03	7,296.66	1,480.87	1,427.79	27.899	CC
EXIST DD LUDWIG H 6-31D - Wellbore #1 - Wellbore #1	9,000.00	7,296.39	1,481.31	1,427.74	27.649	ES
EXIST DD LUDWIG H 6-31D - Wellbore #1 - Wellbore #1	9,700.00	7,291.11	1,653.67	1,589.20	25.652	SF
EXIST DD RURAL 19-31 - Wellbore #1 - Wellbore #1	11,732.57	7,229.16	315.14	214.04	3.117	CC, ES, SF
EXIST DD RURAL 21-31 - Wellbore #1 - Wellbore #1	14,203.19	7,437.43	1,049.17	896.35	6.865	CC, ES
EXIST DD RURAL 21-31 - Wellbore #1 - Wellbore #1	14,300.00	7,438.07	1,053.63	898.97	6.813	SF
EXIST DD RURAL 29-31 - Wellbore #1 - Wellbore #1	15,454.20	7,236.63	151.49	-11.70	0.928	Level 1, CC, ES, SF
EXIST DD RURAL 31-31 - Wellbore #1 - Wellbore #1	14,348.85	7,255.36	1,490.46	1,345.94	10.313	CC
EXIST DD RURAL 31-31 - Wellbore #1 - Wellbore #1	14,400.00	7,255.72	1,491.34	1,345.85	10.251	ES
EXIST DD RURAL 31-31 - Wellbore #1 - Wellbore #1	14,600.00	7,257.12	1,511.47	1,362.20	10.126	SF
EXIST DD RURAL 33-31 - Wellbore #1 - Wellbore #1	11,602.16	7,375.36	1,492.14	1,389.33	14.514	CC, ES
EXIST DD RURAL 33-31 - Wellbore #1 - Wellbore #1	12,000.00	7,371.06	1,544.26	1,434.08	14.016	SF
EXIST DD WARDELL 33-6 - Wellbore #1 - Wellbore #1	6,511.77	6,407.42	1,622.09	1,583.82	42.387	CC, ES
EXIST DD WARDELL 33-6 - Wellbore #1 - Wellbore #1	6,700.00	6,599.31	1,624.82	1,586.24	42.120	SF
EXIST DD WARDELL 35-6 - Wellbore #1 - Wellbore #1	6,341.07	6,130.00	1,985.42	1,943.49	47.352	CC, ES
EXIST DD WARDELL 35-6 - Wellbore #1 - Wellbore #1	6,650.39	6,475.83	1,994.42	1,951.29	46.235	SF
EXIST HZ WARDELL 4G-7HZ - Wellbore #1 - Wellbore #	6,884.80	12,143.00	2,771.66	2,727.14	62.256	CC, ES
EXIST HZ WARDELL 4G-7HZ - Wellbore #1 - Wellbore #	7,775.40	12,143.00	3,320.66	3,235.05	38.786	SF
EXIST VERT HSR-ANNA 12-6 - Wellbore #1 - Design #1	6,650.39	6,449.80	952.26	917.62	27.494	CC, ES
EXIST VERT HSR-ANNA 12-6 - Wellbore #1 - Design #1	6,750.00	6,549.09	953.83	918.98	27.366	SF
EXIST VERT HSR-COOK 11-7A - Wellbore #1 - Design #	6,650.39	6,449.80	5,389.95	5,349.04	131.761	CC, ES
EXIST VERT HSR-COOK 11-7A - Wellbore #1 - Design #	11,600.00	7,166.00	9,922.16	9,831.82	109.829	SF
EXIST VERT HSR-FREY 13-6 - Wellbore #1 - Design #1	6,650.39	6,449.80	1,653.19	1,619.96	49.755	CC, ES, SF
EXIST VERT HSR-GARDNER 3-31A - Wellbore #1 - Des	14,908.29	7,166.00	492.44	339.93	3.229	CC, ES, SF
EXIST VERT HSR-GROMALA 5-7 - Wellbore #1 - Wellbo	6,650.39	6,495.65	4,169.29	4,145.12	172.497	ES
EXIST VERT HSR-GROMALA 5-7 - Wellbore #1 - Wellbo	6,657.58	6,503.20	4,169.25	4,145.16	173.037	CC
EXIST VERT HSR-GROMALA 5-7 - Wellbore #1 - Wellbo	12,900.00	7,303.95	9,932.71	9,833.19	99.810	SF
EXIST VERT HSR-HARLAND 3-7A - Wellbore #1 - Desig	6,650.39	6,449.80	2,749.76	2,707.99	65.828	CC, ES, SF
EXIST VERT HSR-JANA 11-6A - Wellbore #1 - Design #1	5,072.94	4,907.26	404.90	369.84	11.547	CC
EXIST VERT HSR-JANA 11-6A - Wellbore #1 - Design #1	5,100.00	4,933.34	404.97	369.69	11.479	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 VEGA 5N
<b>Project:</b>	WELD COUNTY, COLORADO (TRUE)	<b>TVD Reference:</b>	WELL @ 4998.00usft (Original Well Elev)
<b>Reference Site:</b>	SE NW SEC. 6 T3N R65W 6th P.M.	<b>MD Reference:</b>	WELL @ 4998.00usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	VEGA 5N	<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 #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						
SE NW SEC. 6 T3N R65W 6th P.M.						
EXIST VERT HSR-JANA 11-6A - Wellbore #1 - Design #1	5,400.00	5,222.45	414.21	376.92	11.106	SF
EXIST VERT HSR-KIRKHAM 12-31A - Wellbore #1 - Des	12,423.22	7,166.00	1,021.22	915.58	9.667	CC, ES
EXIST VERT HSR-KIRKHAM 12-31A - Wellbore #1 - Des	12,600.00	7,166.00	1,036.41	927.46	9.513	SF
EXIST VERT HSR-MASSEY 5-31 - Wellbore #1 - Wellbo	13,582.32	7,051.74	1,043.79	930.24	9.192	CC
EXIST VERT HSR-MASSEY 5-31 - Wellbore #1 - Wellbo	13,600.00	7,051.38	1,043.94	930.05	9.167	ES
EXIST VERT HSR-MASSEY 5-31 - Wellbore #1 - Wellbo	13,800.00	7,047.33	1,066.24	948.56	9.061	SF
EXIST VERT HSR-METZ 13-31 - Wellbore #1 - Design #	10,818.06	7,166.00	745.16	669.12	9.799	CC, ES
EXIST VERT HSR-METZ 13-31 - Wellbore #1 - Design #	11,000.00	7,166.00	767.05	687.71	9.668	SF
EXIST VERT HSR-NIAL 13-7 - Wellbore #1 - Wellbore #	6,528.94	6,296.63	6,666.14	6,640.58	260.726	CC
EXIST VERT HSR-NIAL 13-7 - Wellbore #1 - Wellbore #	6,550.39	6,315.48	6,666.21	6,640.55	259.871	ES
EXIST VERT HSR-NIAL 13-7 - Wellbore #1 - Wellbore #	10,400.00	7,126.22	9,995.24	9,940.56	182.802	SF
EXIST VERT HSR-NORRIS 4-7 - Wellbore #1 - Design #	6,650.39	6,449.80	3,368.49	3,329.02	85.358	CC, ES
EXIST VERT HSR-NORRIS 4-7 - Wellbore #1 - Design #	13,600.00	7,166.00	9,907.67	9,779.92	77.553	SF
EXIST VERT HSR-REWANK 4-7A - Wellbore #1 - Desig	6,650.39	6,449.80	2,851.16	2,815.22	79.328	CC, ES
EXIST VERT HSR-REWANK 4-7A - Wellbore #1 - Desig	14,300.00	7,166.00	9,996.75	9,855.77	70.907	SF
EXIST VERT HSR-ROEDER 14-7A - Wellbore #1 - Desig	6,650.39	6,449.80	6,547.89	6,507.46	161.961	CC, ES
EXIST VERT HSR-ROEDER 14-7A - Wellbore #1 - Desig	10,500.00	7,166.00	9,986.74	9,916.40	141.985	SF
EXIST VERT HSR-SELLS 13-31 - Wellbore #1 - Design	11,289.50	7,166.00	448.93	364.30	5.305	CC
EXIST VERT HSR-SELLS 13-31 - Wellbore #1 - Design	11,300.00	7,166.00	449.05	364.23	5.294	ES, SF
EXIST VERT HSR-SIAMAS 6-31 - Wellbore #1 - Design	13,607.80	7,166.00	513.14	385.24	4.012	CC, ES, SF
EXIST VERT HSR-TUDOR 11-31A - Wellbore #1 - Desig	12,303.22	7,166.00	447.31	343.91	4.326	CC, ES, SF
EXIST VERT HSR-UPSON 14-6 - Wellbore #1 - Design #	6,650.39	6,449.80	1,356.67	1,312.93	31.018	CC, ES, SF
EXIST VERT KNAUB 1-6 - Wellbore #1 - Design #1	9,662.55	7,166.00	878.88	823.01	15.730	CC, ES
EXIST VERT KNAUB 1-6 - Wellbore #1 - Design #1	9,900.00	7,166.00	910.40	850.54	15.209	SF
EXIST VERT KNAUB 2-6 - Wellbore #1 - Design #1	9,676.80	7,166.00	499.81	443.70	8.908	CC, ES
EXIST VERT KNAUB 2-6 - Wellbore #1 - Design #1	9,800.00	7,166.00	514.76	456.60	8.850	SF
EXIST VERT LUDWIG 3-6 - Wellbore #1 - Design #1	8,344.02	7,166.00	830.41	792.26	21.766	CC, ES
EXIST VERT LUDWIG 3-6 - Wellbore #1 - Design #1	8,500.00	7,166.00	844.93	805.41	21.378	SF
EXIST VERT LUDWIG H 6-19 - Wellbore #1 - Design #1	8,866.38	7,166.00	332.58	288.77	7.593	CC, ES
EXIST VERT LUDWIG H 6-19 - Wellbore #1 - Design #1	8,900.00	7,166.00	334.27	290.03	7.555	SF
EXIST VERT LUDWIG H 6-6X - Wellbore #1 - Design #1	1,751.36	1,706.28	454.61	445.50	49.872	CC
EXIST VERT LUDWIG H 6-6X - Wellbore #1 - Design #1	1,800.00	1,753.15	454.80	445.32	47.971	ES
EXIST VERT LUDWIG H 6-6X - Wellbore #1 - Design #1	8,200.00	7,166.00	618.95	581.80	16.661	SF
EXIST VERT OBERKFELL 6-7A - Wellbore #1 - Design #	6,650.39	6,449.80	3,831.52	3,790.71	93.885	CC, ES
EXIST VERT OBERKFELL 6-7A - Wellbore #1 - Design #	13,200.00	7,166.00	9,965.70	9,845.49	82.899	SF
EXIST VERT PRINVALE 12-7A - Wellbore #1 - Design #	6,650.39	6,449.80	5,244.69	5,206.14	136.055	CC, ES
EXIST VERT PRINVALE 12-7A - Wellbore #1 - Design #	11,800.00	7,166.00	9,970.50	9,876.46	106.022	SF
EXIST VERT RURAL 18-31 - Wellbore #1 - Design #1	14,205.30	7,166.00	184.79	45.60	1.328	Level 3, CC, ES, SF
EXIST VERT RURAL 22-31 - Wellbore #1 - Design #1	12,858.18	7,166.00	240.09	126.30	2.110	CC, ES, SF
EXIST VERT RURAL 23-31 - Wellbore #1 - Design #1	11,657.50	7,166.00	983.66	892.26	10.762	CC, ES
EXIST VERT RURAL 23-31 - Wellbore #1 - Design #1	11,900.00	7,166.00	1,013.11	917.22	10.565	SF
EXIST VERT UPRR 21 PAN AM/N/#1 - Wellbore #1 - De	15,130.81	4,686.00	2,623.73	2,542.50	32.299	CC, ES
EXIST VERT UPRR 21 PAN AM/N/#1 - Wellbore #1 - De	15,454.20	4,686.00	2,643.59	2,559.37	31.391	SF
EXIST VERT WARDELL 13-6 - Wellbore #1 - Design #1	6,650.39	6,449.80	808.30	771.25	21.812	CC, ES, SF
EXIST VERT WARDELL 22-7 - Wellbore #1 - Wellbore #	6,673.60	6,629.47	4,673.42	4,646.92	176.365	CC, ES
EXIST VERT WARDELL 22-7 - Wellbore #1 - Wellbore #	12,400.00	7,300.00	9,980.45	9,896.98	119.574	SF
EXIST VERT WARDELL 3-7-5Z - Wellbore #1 - Wellbore	6,470.00	6,158.48	6,040.54	6,014.25	229.762	CC, ES
EXIST VERT WARDELL 3-7-5Z - Wellbore #1 - Wellbore	11,000.00	7,300.00	9,973.05	9,910.81	160.212	SF
VEGA 10N - ORIGINAL WELLBORE - PROPOSAL #2	600.00	600.00	90.02	87.60	37.187	CC, ES
VEGA 10N - ORIGINAL WELLBORE - PROPOSAL #2	2,700.00	2,644.25	461.47	440.52	22.036	SF
VEGA 11N - ORIGINAL WELLBORE - PROPOSAL #1	600.00	600.00	104.99	102.57	43.372	CC, ES
VEGA 11N - ORIGINAL WELLBORE - PROPOSAL #1	7,500.00	7,893.90	648.97	606.91	15.430	SF
VEGA 12N - ORIGINAL WELLBORE - PROPOSAL #1	600.00	600.00	120.04	117.62	49.588	CC, ES

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

## Anticollision Report



<b>Company:</b>	PDC ENERGY	<b>Local Co-ordinate Reference:</b>	Well VEGA 5N
<b>Project:</b>	WELD COUNTY, COLORADO (TRUE)	<b>TVD Reference:</b>	WELL @ 4998.00usft (Original Well Elev)
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<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	VEGA 5N	<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 #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						
SE NW SEC. 6 T3N R65W 6th P.M.						
VEGA 12N - ORIGINAL WELLBORE - PROPOSAL #1	7,900.00	7,462.44	230.28	191.36	5.917	SF
VEGA 14N - ORIGINAL WELLBORE - PROPOSAL #1	500.00	500.00	149.98	148.01	76.088	CC
VEGA 14N - ORIGINAL WELLBORE - PROPOSAL #1	600.00	598.71	150.41	148.00	62.433	ES
VEGA 14N - ORIGINAL WELLBORE - PROPOSAL #1	7,400.00	7,865.09	413.32	368.86	9.297	SF
VEGA 15N - ORIGINAL WELLBORE - PROPOSAL #1	400.00	400.00	164.99	163.47	108.430	CC, ES
VEGA 15N - ORIGINAL WELLBORE - PROPOSAL #1	7,250.00	7,800.00	685.72	641.49	15.503	SF
VEGA 16N - ORIGINAL WELLBORE - PROPOSAL #1	300.00	300.00	180.00	178.93	167.892	CC, ES
VEGA 16N - ORIGINAL WELLBORE - PROPOSAL #1	7,150.00	7,900.00	1,047.47	1,002.38	23.236	SF
VEGA 1N - ORIGINAL WELLBORE - PROPOSAL #1	600.00	600.00	60.04	57.62	24.801	CC, ES
VEGA 1N - ORIGINAL WELLBORE - PROPOSAL #1	15,454.20	15,842.93	1,379.71	1,087.04	4.714	SF
VEGA 2N - ORIGINAL WELLBORE - PROPOSAL #1	600.00	600.00	44.99	42.57	18.586	CC, ES
VEGA 2N - ORIGINAL WELLBORE - PROPOSAL #1	15,454.20	15,879.05	998.41	706.76	3.423	SF
VEGA 3N - ORIGINAL WELLBORE - PROPOSAL #2	600.00	600.00	30.06	27.63	12.416	CC, ES
VEGA 3N - ORIGINAL WELLBORE - PROPOSAL #2	15,454.20	15,687.04	721.86	428.61	2.462	SF
VEGA 4N - ORIGINAL WELLBORE - PROPOSAL #1	600.00	600.00	15.05	12.63	6.215	CC
VEGA 4N - ORIGINAL WELLBORE - PROPOSAL #1	700.00	700.27	15.26	12.43	5.392	ES
VEGA 4N - ORIGINAL WELLBORE - PROPOSAL #1	15,454.20	15,648.91	438.23	150.75	1.524	SF
VEGA 6N - ORIGINAL PROPOSAL - PROPOSAL #1	500.00	500.00	14.97	13.00	7.596	CC, ES
VEGA 6N - ORIGINAL PROPOSAL - PROPOSAL #1	15,454.20	15,470.62	360.11	71.67	1.248	Level 2, SF
VEGA 7N - ORIGINAL WELLBORE - PROPOSAL #1	400.00	400.00	29.98	28.46	19.704	CC, ES
VEGA 7N - ORIGINAL WELLBORE - PROPOSAL #1	15,454.20	15,360.84	704.86	411.38	2.402	SF
VEGA 8N - ORIGINAL WELLBORE - PROPOSAL #1	300.00	300.00	44.96	43.88	41.931	CC, ES
VEGA 8N - ORIGINAL WELLBORE - PROPOSAL #1	15,454.20	15,433.82	1,033.30	738.07	3.500	SF
VEGA 9N - ORIGINAL WELLBORE - PROPOSAL #1	600.00	600.00	75.01	72.59	30.987	CC, ES
VEGA 9N - ORIGINAL WELLBORE - PROPOSAL #1	2,200.00	2,163.42	330.63	315.26	21.514	SF

<b>Offset Design</b> SE NW SEC. 6 T3N R65W 6th P.M. - ABDN VERT JJ WARDELL A - Wellbore #1 - Wellbore #1													Offset Site Error:	0.00 usft
Survey Program: 100-GYD_CT													Offset Well Error:	0.00 usft
Reference Measured Depth (usft)	Vertical Depth (usft)	Offset Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning	
0.00	0.00	0.00	0.00	0.00	0.00	-154.32	-1,963.61	-944.25	2,178.93					
100.00	100.00	81.83	81.83	0.09	0.09	-154.32	-1,963.55	-944.35	2,178.83	2,178.66	0.17	N/A		
200.00	200.00	188.79	188.79	0.31	0.21	-154.31	-1,963.22	-944.59	2,178.66	2,178.14	0.52	4,170.150		
256.25	256.25	237.26	237.26	0.44	0.23	-154.30	-1,963.05	-944.68	2,178.53	2,177.86	0.67	3,243.447		
300.00	300.00	272.78	272.78	0.54	0.24	-154.30	-1,963.07	-944.80	2,178.61	2,177.83	0.78	2,796.854		
400.00	400.00	362.29	362.28	0.76	0.30	-154.29	-1,963.51	-945.30	2,179.29	2,178.24	1.06	2,061.672		
500.00	500.00	479.55	479.54	0.99	0.36	-154.28	-1,963.97	-946.09	2,179.97	2,178.63	1.34	1,627.198		
558.00	558.00	538.10	538.09	1.12	0.39	-154.27	-1,963.78	-946.42	2,179.94	2,178.44	1.50	1,454.719		
600.00	600.00	575.62	575.61	1.21	0.41	-154.26	-1,963.69	-946.72	2,180.00	2,178.39	1.61	1,351.054		
700.00	699.98	667.08	667.07	1.41	0.46	-24.93	-1,963.77	-947.52	2,178.87	2,177.02	1.86	1,172.775		
800.00	799.84	762.12	762.10	1.61	0.51	-25.01	-1,964.34	-948.03	2,174.90	2,172.80	2.10	1,033.498		
900.00	899.45	864.90	864.88	1.83	0.55	-25.18	-1,965.20	-948.26	2,167.85	2,165.48	2.37	914.469		
1,000.00	998.70	968.41	968.39	2.07	0.59	-25.42	-1,965.97	-948.08	2,157.41	2,154.76	2.65	813.013		
1,100.00	1,097.47	1,065.11	1,065.09	2.37	0.63	-25.72	-1,966.56	-948.06	2,143.80	2,140.86	2.95	727.125		
1,200.00	1,195.62	1,159.56	1,159.53	2.71	0.66	-26.08	-1,967.16	-948.38	2,127.29	2,124.03	3.26	652.662		
1,300.00	1,293.06	1,255.30	1,255.27	3.11	0.70	-26.51	-1,967.80	-948.95	2,107.87	2,104.28	3.59	586.675		
1,374.31	1,364.92	1,327.20	1,327.16	3.45	0.74	-26.89	-1,968.33	-949.36	2,091.52	2,087.67	3.86	542.104		
1,400.00	1,389.67	1,352.16	1,352.12	3.57	0.75	-26.97	-1,968.51	-949.49	2,085.59	2,081.64	3.95	528.556		
1,500.00	1,486.04	1,452.34	1,452.30	4.07	0.79	-27.32	-1,969.21	-949.99	2,062.47	2,058.17	4.30	479.844		

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