

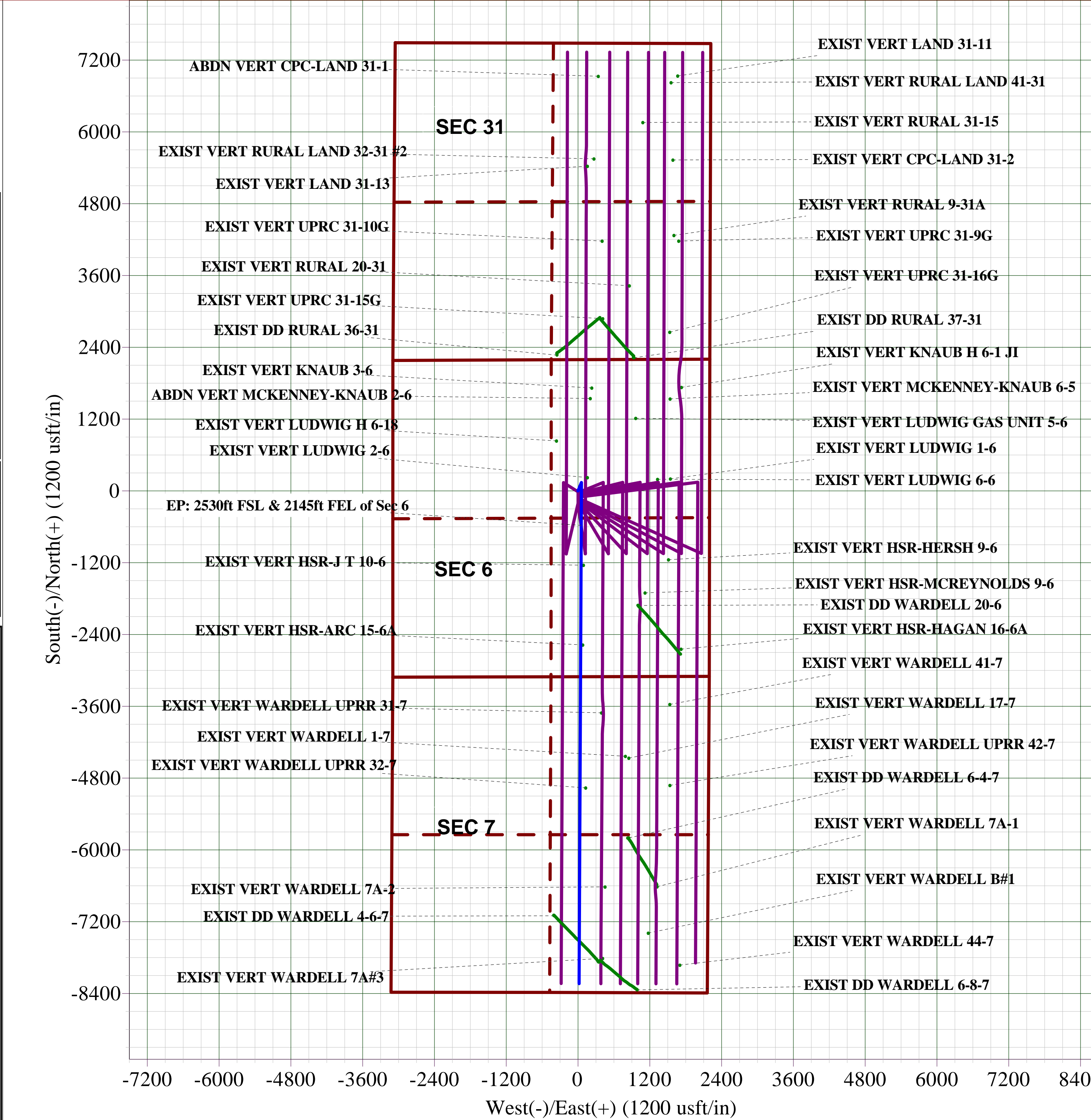
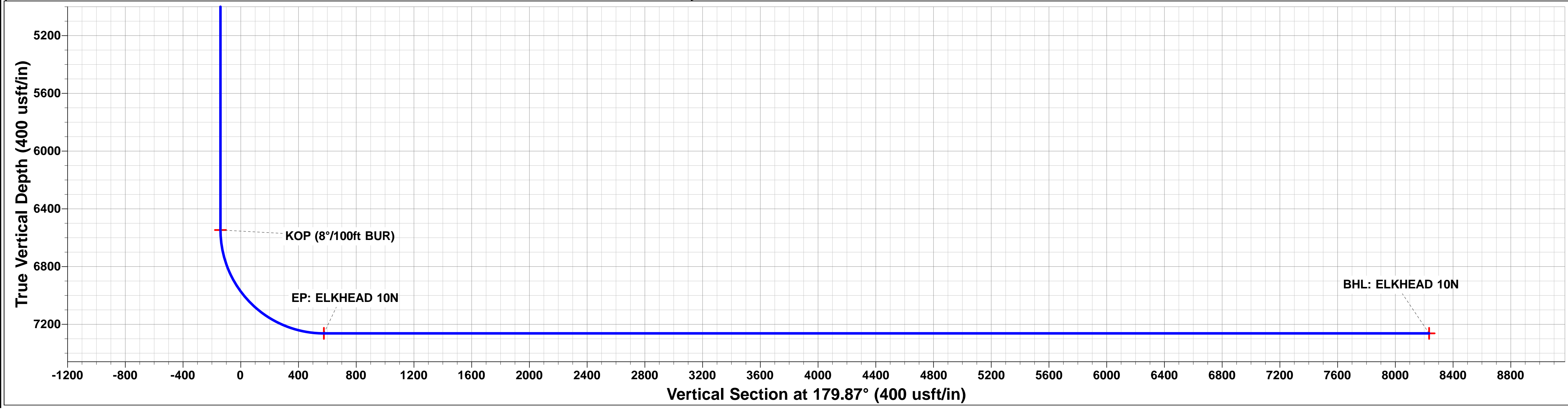
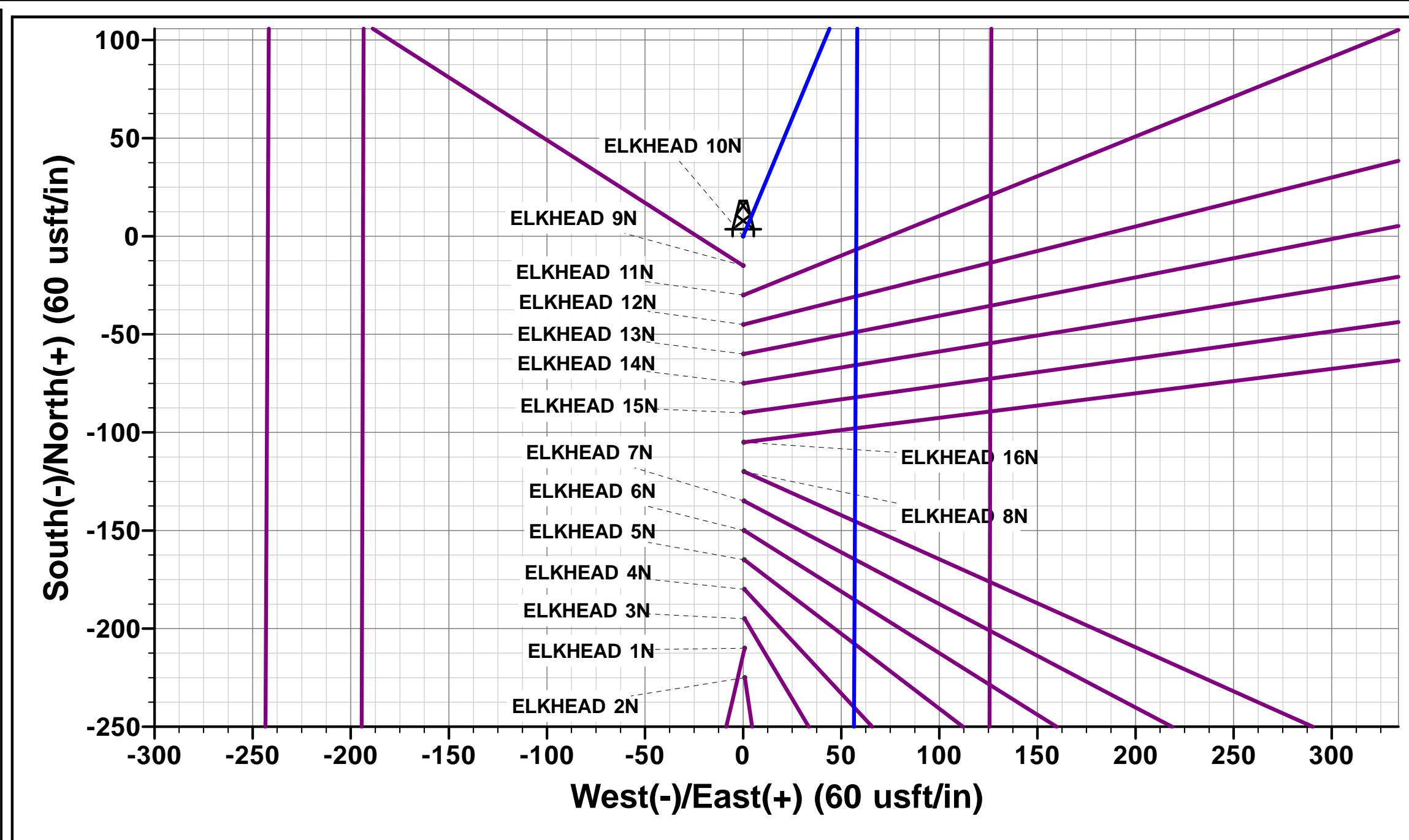
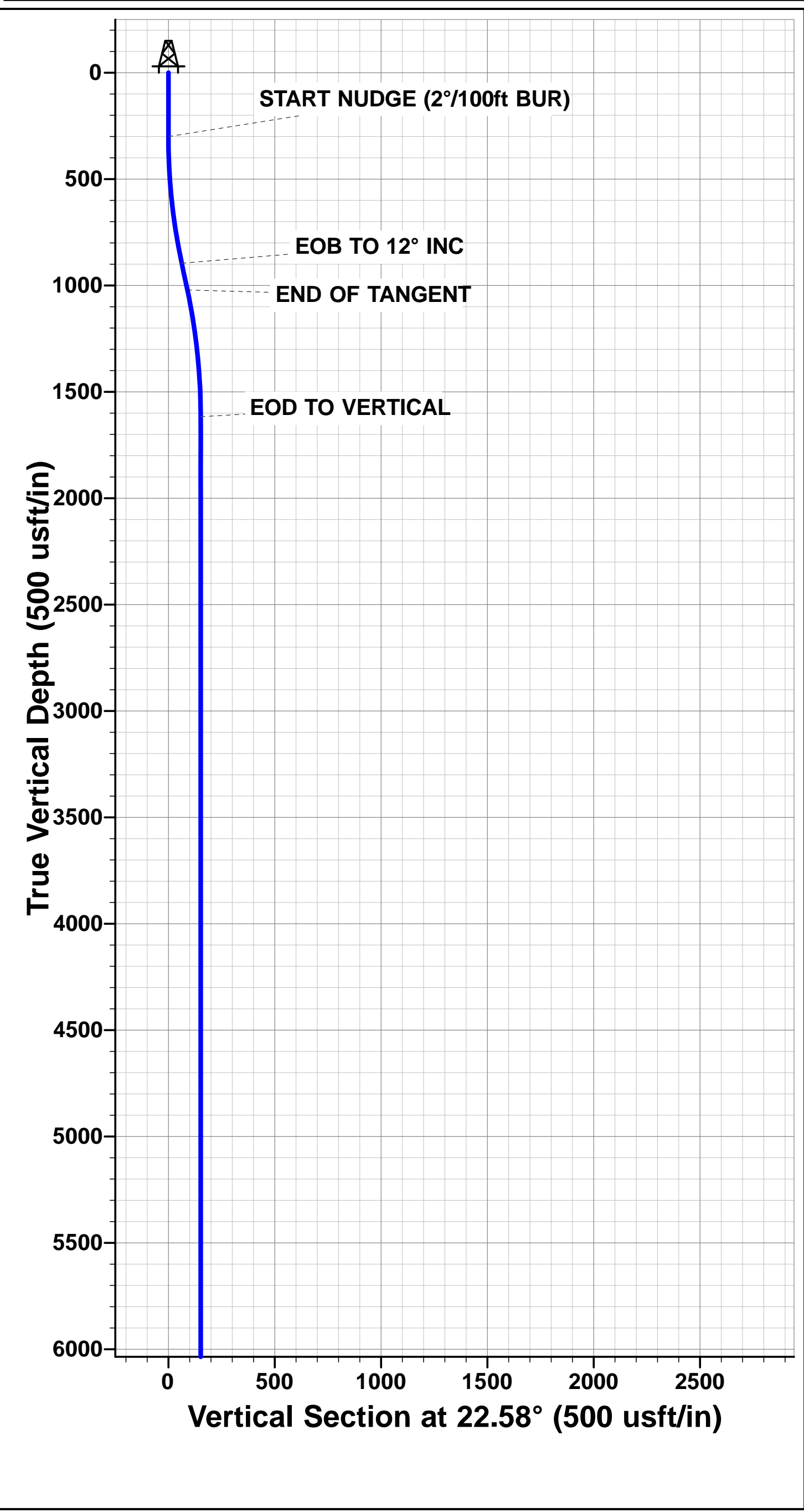


Project: WELD COUNTY, COLORADO (TRUE)  
Site: SW NE SEC. 6 T3N R65W 6th P.M.  
Well: ELKHEAD 10N  
Wellbore: ORIGINAL WELLBORE  
Design: PROPOSAL #1

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: 2194ft FNL & 2201ft FEL of Sec 6
300.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00	START NUDGE (2°/100ft BUR)
895.59	899.97	12.00	22.58	57.80	24.03	-57.74	62.60	EOB TO 12° INC
1021.31	1028.49	12.00	22.58	82.47	34.29	-82.39	89.32	END OF TANGENT
1616.90	1628.46	0.00	0.00	140.27	58.33	-140.14	151.91	EOD TO VERTICAL
6546.80	6558.36	0.00	0.00	140.27	58.33	-140.14	151.91	KOP (8°/100ft BUR)
7263.00	7683.36	90.00	180.27	-575.92	54.96	576.04	868.11	EP: 2530ft FSL & 2145ft FEL of Sec 6
7263.00	15341.79	90.00	180.27	-8234.26	18.76	8234.28	8526.54	BHL: 150ft FSL & 2145ft FEL of Sec 7

PROPOSED LOCAL COORDINATES:  
  
SHL: 2194ft FNL & 2201ft FEL of Sec 6  
  
EP: 2530ft FSL & 2145ft FEL of Sec 6  
  
BHL: 150ft FSL & 2145ft FEL of Sec 7

WELLBORE TARGET DETAILS (LAT/LONG)					
Name	TVD	+N/-S	+E/-W	Latitude	Longitude
KOP: ELKHEAD 10N	6546.80	140.27	58.33	40.256042	-104.704358
EP: ELKHEAD 10N	7263.00	-575.92	54.96	40.254076	-104.704370
BHL: ELKHEAD 10N	7263.00	-8234.26	18.76	40.233054	-104.704500



# **PDC ENERGY**

**WELD COUNTY, COLORADO (TRUE)  
SW NE SEC. 6 T3N R65W 6th P.M. (Elkhead)  
ELKHEAD 10N**

**ORIGINAL WELLBORE  
PROPOSAL #1**

## **Anticollision Report**

**29 January, 2018**



## Anticollision Report



<b>Company:</b>	PDC ENERGY	<b>Local Co-ordinate Reference:</b>	Well ELKHEAD 10N
<b>Project:</b>	WELD COUNTY, COLORADO (TRUE)	<b>TVD Reference:</b>	WELL @ 4998.00usft (Original Well Elev)
<b>Reference Site:</b>	SW NE SEC. 6 T3N R65W 6th P.M. (Elkhead)	<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>	ELKHEAD 10N	<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>	29/01/2018		
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>
0.00	15,341.23	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
Offset Well - Wellbore - Design						
SW NE SEC. 6 T3N R65W 6th P.M. (Elkhead)						
ABDN VERT CPC-LAND 31-1 - Wellbore #1 - Design #1	6,558.36	6,546.80	6,794.87	6,765.99	235.285	CC, ES
ABDN VERT CPC-LAND 31-1 - Wellbore #1 - Design #1	10,100.00	7,263.01	9,926.25	9,850.72	131.409	SF
ABDN VERT MCKENNEY-KNAUB 2-6 - Wellbore #1 - D	5,000.00	4,966.44	1,413.06	1,391.19	64.610	CC, ES
ABDN VERT MCKENNEY-KNAUB 2-6 - Wellbore #1 - D	5,200.00	4,975.00	1,425.97	1,403.64	63.846	SF
ELKHEAD 11N - ORIGINAL WELLBORE - PROPOSAL #	300.00	300.00	30.00	28.93	27.984	CC, ES
ELKHEAD 11N - ORIGINAL WELLBORE - PROPOSAL #	15,341.79	15,248.36	379.73	75.44	1.248	Level 2, SF
ELKHEAD 12N - ORIGINAL WELLBORE - PROPOSAL	300.00	300.00	44.99	43.92	41.965	CC, ES
ELKHEAD 12N - ORIGINAL WELLBORE - PROPOSAL	15,341.79	15,410.78	689.84	373.44	2.180	SF
ELKHEAD 13N - ORIGINAL WELLBORE - PROPOSAL	300.00	300.00	60.00	58.93	55.964	CC, ES
ELKHEAD 13N - ORIGINAL WELLBORE - PROPOSAL	15,341.79	15,338.26	985.41	671.63	3.140	SF
ELKHEAD 14N - ORIGINAL WELLBORE - PROPOSAL	300.00	300.00	74.97	73.90	69.930	CC, ES
ELKHEAD 14N - ORIGINAL WELLBORE - PROPOSAL	15,341.79	15,515.81	1,284.64	969.99	4.083	SF
ELKHEAD 15N - ORIGINAL WELLBORE - PROPOSAL	300.00	300.00	89.98	88.91	83.929	CC, ES
ELKHEAD 15N - ORIGINAL WELLBORE - PROPOSAL	15,341.79	15,531.36	1,635.93	1,320.01	5.178	SF
ELKHEAD 16N - ORIGINAL WELLBORE - PROPOSAL	300.00	300.00	104.99	103.92	97.929	CC, ES
ELKHEAD 16N - ORIGINAL WELLBORE - PROPOSAL	15,200.00	15,412.93	1,956.42	1,651.49	6.416	SF
ELKHEAD 1N - ORIGINAL WELLBORE - PROPOSAL #	7,355.08	7,793.39	250.85	214.05	6.816	CC, ES
ELKHEAD 1N - ORIGINAL WELLBORE - PROPOSAL #	7,400.00	7,752.51	251.53	214.42	6.778	SF
ELKHEAD 2N - ORIGINAL PROPOSAL - PROPOSAL #1	7,590.66	7,615.67	69.55	32.99	1.902	CC
ELKHEAD 2N - ORIGINAL PROPOSAL - PROPOSAL #1	7,600.00	7,606.86	69.62	32.96	1.899	ES, SF
ELKHEAD 3N - ORIGINAL WELLBORE - PROPOSAL #	300.00	300.00	194.98	193.91	181.862	CC, ES
ELKHEAD 3N - ORIGINAL WELLBORE - PROPOSAL #	7,800.00	7,391.37	479.93	440.82	12.273	SF
ELKHEAD 4N - ORIGINAL WELLBORE - PROPOSAL #	300.00	300.00	179.97	178.89	167.858	CC, ES
ELKHEAD 4N - ORIGINAL WELLBORE - PROPOSAL #	8,100.00	7,270.76	796.19	750.86	17.565	SF
ELKHEAD 5N - ORIGINAL WELLBORE - PROPOSAL #	300.00	300.00	164.96	163.89	153.863	CC, ES
ELKHEAD 5N - ORIGINAL WELLBORE - PROPOSAL #	8,400.00	7,167.03	1,226.61	1,175.85	24.166	SF
ELKHEAD 6N - ORIGINAL WELLBORE - PROPOSAL #	300.00	300.00	149.98	148.91	139.893	CC, ES
ELKHEAD 6N - ORIGINAL WELLBORE - PROPOSAL #	8,700.00	7,200.00	1,559.33	1,501.67	27.047	SF
ELKHEAD 7N - ORIGINAL WELLBORE - PROPOSAL #	300.00	300.00	134.98	133.90	125.894	CC, ES
ELKHEAD 7N - ORIGINAL WELLBORE - PROPOSAL #	9,100.00	7,180.69	2,021.71	1,956.18	30.853	SF
ELKHEAD 8N - ORIGINAL WELLBORE - PROPOSAL #	300.00	300.00	119.97	118.89	111.894	CC, ES
ELKHEAD 8N - ORIGINAL WELLBORE - PROPOSAL #	9,500.00	7,326.95	2,492.39	2,417.52	33.289	SF
ELKHEAD 9N - ORIGINAL WELLBORE - PROPOSAL #	300.00	300.00	15.01	13.94	14.000	CC, ES
ELKHEAD 9N - ORIGINAL WELLBORE - PROPOSAL #	15,341.79	15,248.84	317.77	15.91	1.053	Level 2, SF
EXIST DD RURAL 36-31 - Wellbore #1 - Wellbore #1	6,568.62	6,685.56	2,197.23	2,162.49	63.237	CC, ES
EXIST DD RURAL 36-31 - Wellbore #1 - Wellbore #1	6,600.00	6,719.21	2,197.89	2,163.05	63.086	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 ELKHEAD 10N
<b>Project:</b>	WELD COUNTY, COLORADO (TRUE)	<b>TVD Reference:</b>	WELL @ 4998.00usft (Original Well Elev)
<b>Reference Site:</b>	SW NE SEC. 6 T3N R65W 6th P.M. (Elkhead)	<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>	ELKHEAD 10N	<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 NE SEC. 6 T3N R65W 6th P.M. (Elkhead)						
EXIST DD RURAL 37-31 - Wellbore #1 - Wellbore #1	6,566.81	6,644.84	2,265.29	2,231.36	66.762	CC, ES
EXIST DD RURAL 37-31 - Wellbore #1 - Wellbore #1	14,800.00	7,325.00	9,961.30	9,793.53	59.375	SF
EXIST DD WARDELL 20-6 - Wellbore #1 - Wellbore #1	9,015.92	7,371.61	959.04	898.23	15.771	CC, ES
EXIST DD WARDELL 20-6 - Wellbore #1 - Wellbore #1	9,300.00	7,373.63	1,000.23	934.35	15.182	SF
EXIST DD WARDELL 4-6-7 - Wellbore #1 - Wellbore #1	14,202.06	7,367.47	430.90	273.44	2.737	CC, ES, SF
EXIST DD WARDELL 6-4-7 - Wellbore #1 - Wellbore #1	12,905.14	7,346.08	801.64	669.17	6.051	CC, ES
EXIST DD WARDELL 6-4-7 - Wellbore #1 - Wellbore #1	13,000.00	7,345.76	807.24	672.96	6.012	SF
EXIST DD WARDELL 6-8-7 - Wellbore #1 - Wellbore #1	15,341.79	7,297.92	977.89	801.97	5.559	CC, ES, SF
EXIST VERT CPC-LAND 31-2 - Wellbore #1 - Design #1	6,558.36	6,541.80	5,603.42	5,574.57	194.240	CC, ES
EXIST VERT CPC-LAND 31-2 - Wellbore #1 - Design #1	11,400.00	7,258.02	9,945.12	9,845.26	99.592	SF
EXIST VERT HSR-ARC 15-6A - Wellbore #1 - Design #1	9,681.94	7,241.01	34.54	-33.28	0.509	Level 1, CC, ES, SF
EXIST VERT HSR-HAGAN 16-6A - Wellbore #1 - Design	9,743.34	7,241.01	1,679.01	1,610.07	24.355	CC
EXIST VERT HSR-HAGAN 16-6A - Wellbore #1 - Design	9,800.00	7,241.01	1,679.97	1,609.99	24.007	ES
EXIST VERT HSR-HAGAN 16-6A - Wellbore #1 - Design	10,500.00	7,241.02	1,841.63	1,758.69	22.202	SF
EXIST VERT HSR-HERSH 9-6 - Wellbore #1 - Design #1	8,250.75	7,241.00	1,459.74	1,416.80	33.999	CC, ES
EXIST VERT HSR-HERSH 9-6 - Wellbore #1 - Design #1	9,200.00	7,241.01	1,741.24	1,682.16	29.470	SF
EXIST VERT HSR-JT 10-6 - Wellbore #1 - Design #1	8,348.55	7,241.01	39.42	-5.07	0.886	Level 1, CC, ES, SF
EXIST VERT HSR-MCREYNOLDS 9-6 - Wellbore #1 - D	8,806.34	7,241.01	1,071.59	1,019.44	20.549	CC, ES
EXIST VERT HSR-MCREYNOLDS 9-6 - Wellbore #1 - D	9,200.00	7,241.01	1,141.61	1,082.53	19.322	SF
EXIST VERT KNAUB 3-6 - Wellbore #1 - Design #1	6,558.36	6,524.80	1,589.61	1,560.76	55.108	CC, ES
EXIST VERT KNAUB 3-6 - Wellbore #1 - Design #1	6,600.00	6,566.42	1,590.81	1,561.84	54.919	SF
EXIST VERT KNAUB H 6-1 JI - Wellbore #1 - Design #1	6,558.36	6,524.80	2,307.57	2,278.72	79.977	CC, ES
EXIST VERT KNAUB H 6-1 JI - Wellbore #1 - Design #1	15,200.00	7,241.00	9,971.69	9,799.62	57.953	SF
EXIST VERT LAND 31-11 - Wellbore #1 - Design #1	6,558.36	6,541.80	6,983.98	6,955.13	242.069	CC, ES
EXIST VERT LAND 31-11 - Wellbore #1 - Design #1	10,000.00	7,258.01	9,962.02	9,888.34	135.203	SF
EXIST VERT LAND 31-13 - Wellbore #1 - Design #1	6,558.36	6,541.80	5,287.93	5,259.05	183.118	CC, ES
EXIST VERT LAND 31-13 - Wellbore #1 - Design #1	11,600.00	7,258.02	9,920.52	9,816.89	95.729	SF
EXIST VERT LUDWIG 1-6 - Wellbore #1 - Design #1	4,800.64	4,767.08	1,488.35	1,467.17	70.258	CC, ES
EXIST VERT LUDWIG 1-6 - Wellbore #1 - Design #1	5,100.00	4,800.00	1,512.01	1,490.10	69.009	SF
EXIST VERT LUDWIG 2-6 - Wellbore #1 - Design #1	6,558.36	6,524.80	129.84	100.98	4.499	CC, ES, SF
EXIST VERT LUDWIG 6-6 - Wellbore #1 - Design #1	6,558.36	6,524.80	1,273.32	1,244.33	43.920	CC
EXIST VERT LUDWIG 6-6 - Wellbore #1 - Design #1	6,600.00	6,566.42	1,273.37	1,244.21	43.663	ES
EXIST VERT LUDWIG 6-6 - Wellbore #1 - Design #1	7,600.00	7,236.15	1,448.37	1,414.08	42.243	SF
EXIST VERT LUDWIG GAS UNIT 5-6 - Wellbore #1 - De	6,558.36	6,524.80	1,405.32	1,376.48	48.730	CC, ES
EXIST VERT LUDWIG GAS UNIT 5-6 - Wellbore #1 - De	6,650.00	6,616.19	1,409.81	1,380.74	48.492	SF
EXIST VERT LUDWIG H 6-18 - Wellbore #1 - Design #1	6,558.36	6,524.80	811.87	782.90	28.026	CC, ES
EXIST VERT LUDWIG H 6-18 - Wellbore #1 - Design #1	6,600.00	6,566.42	812.91	783.80	27.930	SF
EXIST VERT MCKENNEY-KNAUB 6-5 - Wellbore #1 - D	4,800.00	4,766.44	2,037.00	2,016.01	97.039	CC, ES
EXIST VERT MCKENNEY-KNAUB 6-5 - Wellbore #1 - D	5,300.00	4,795.00	2,090.84	2,068.68	94.333	SF
EXIST VERT RURAL 20-31 - Wellbore #1 - Design #1	6,558.36	6,541.80	3,384.80	3,355.95	117.321	CC, ES
EXIST VERT RURAL 20-31 - Wellbore #1 - Design #1	13,600.00	7,258.01	9,956.37	9,814.80	70.324	SF
EXIST VERT RURAL 31-15 - Wellbore #1 - Design #1	6,558.36	6,541.80	6,104.35	6,075.49	211.536	CC, ES
EXIST VERT RURAL 31-15 - Wellbore #1 - Design #1	10,800.00	7,258.02	9,905.46	9,816.88	111.827	SF
EXIST VERT RURAL 9-31A - Wellbore #1 - Design #1	6,558.36	6,541.80	4,410.05	4,381.21	152.893	CC, ES
EXIST VERT RURAL 9-31A - Wellbore #1 - Design #1	12,700.00	7,258.02	9,987.73	9,863.26	80.245	SF
EXIST VERT RURAL LAND 32-31 #2 - Wellbore #1 - De	6,558.36	6,541.80	5,413.07	5,384.20	187.471	CC, ES
EXIST VERT RURAL LAND 32-31 #2 - Wellbore #1 - De	11,500.00	7,258.02	9,944.49	9,842.75	97.740	SF
EXIST VERT RURAL LAND 41-31 - Wellbore #1 - Design	6,558.36	6,541.80	6,849.93	6,821.07	237.414	CC, ES
EXIST VERT RURAL LAND 41-31 - Wellbore #1 - Design	10,100.00	7,258.01	9,932.80	9,857.27	131.506	SF
EXIST VERT UPRC 31-10G - Wellbore #1 - Design #1	6,558.36	6,541.80	4,050.38	4,021.51	140.310	CC, ES
EXIST VERT UPRC 31-10G - Wellbore #1 - Design #1	12,900.00	7,258.01	9,975.38	9,847.12	77.772	SF
EXIST VERT UPRC 31-15G - Wellbore #1 - Design #1	6,558.36	6,541.80	2,761.76	2,732.90	95.689	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 ELKHEAD 10N
<b>Project:</b>	WELD COUNTY, COLORADO (TRUE)	<b>TVD Reference:</b>	WELL @ 4998.00usft (Original Well Elev)
<b>Reference Site:</b>	SW NE SEC. 6 T3N R65W 6th P.M. (Elkhead)	<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>	ELKHEAD 10N	<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 NE SEC. 6 T3N R65W 6th P.M. (Elkhead)						
EXIST VERT UPRC 31-15G - Wellbore #1 - Design #1	14,200.00	7,258.01	9,979.10	9,826.09	65.220	SF
EXIST VERT UPRC 31-16G - Wellbore #1 - Design #1	6,558.36	6,541.80	2,914.19	2,885.35	101.029	CC, ES
EXIST VERT UPRC 31-16G - Wellbore #1 - Design #1	14,300.00	7,258.01	9,960.82	9,805.90	64.299	SF
EXIST VERT UPRC 31-9G - Wellbore #1 - Design #1	6,558.36	6,541.80	4,351.07	4,322.23	150.852	CC, ES
EXIST VERT UPRC 31-9G - Wellbore #1 - Design #1	12,700.00	7,258.02	9,907.39	9,782.92	79.600	SF
EXIST VERT WARDELL 1-7 - Wellbore #1 - Design #1	11,539.02	7,241.02	755.75	653.29	7.376	CC, ES
EXIST VERT WARDELL 1-7 - Wellbore #1 - Design #1	11,600.00	7,241.02	758.20	654.59	7.318	SF
EXIST VERT WARDELL 17-7 - Wellbore #1 - Design #1	11,568.98	7,241.02	813.96	710.93	7.900	CC, ES
EXIST VERT WARDELL 17-7 - Wellbore #1 - Design #1	11,700.00	7,241.02	824.43	718.93	7.814	SF
EXIST VERT WARDELL 41-7 - Wellbore #1 - Design #1	10,668.09	7,241.02	1,494.45	1,408.36	17.359	CC
EXIST VERT WARDELL 41-7 - Wellbore #1 - Design #1	10,700.00	7,241.02	1,494.79	1,408.10	17.244	ES
EXIST VERT WARDELL 41-7 - Wellbore #1 - Design #1	11,200.00	7,241.02	1,586.29	1,490.21	16.511	SF
EXIST VERT WARDELL 44-7 - Wellbore #1 - Design #1	15,024.60	7,241.00	1,683.15	1,514.43	9.976	CC, ES
EXIST VERT WARDELL 44-7 - Wellbore #1 - Design #1	15,300.00	7,241.00	1,705.53	1,531.56	9.803	SF
EXIST VERT WARDELL 7A#3 - Wellbore #1 - Design #1	14,918.93	7,241.00	392.71	226.00	2.356	CC, ES, SF
EXIST VERT WARDELL 7A-1 - Wellbore #1 - Design #1	13,716.07	7,241.01	1,296.03	1,152.26	9.015	CC, ES
EXIST VERT WARDELL 7A-1 - Wellbore #1 - Design #1	13,900.00	7,241.01	1,309.02	1,161.75	8.888	SF
EXIST VERT WARDELL 7A-2 - Wellbore #1 - Design #1	13,723.86	7,241.01	426.94	283.02	2.967	CC, ES, SF
EXIST VERT WARDELL B#1 - Wellbore #1 - Design #1	14,492.35	7,241.01	1,152.34	993.77	7.267	CC
EXIST VERT WARDELL B#1 - Wellbore #1 - Design #1	14,500.00	7,241.01	1,152.36	993.65	7.261	ES
EXIST VERT WARDELL B#1 - Wellbore #1 - Design #1	14,700.00	7,241.01	1,170.90	1,008.37	7.204	SF
EXIST VERT WARDELL UPRR 31-7 - Wellbore #1 - Des	10,815.24	7,241.02	354.50	265.66	3.990	CC, ES, SF
EXIST VERT WARDELL UPRR 32-7 - Wellbore #1 - Des	12,070.36	7,241.02	94.40	-18.11	0.839	Level 1, CC, ES, SF
EXIST VERT WARDELL UPRR 42-7 - Wellbore #1 - Des	12,022.16	7,241.02	1,502.60	1,391.01	13.465	CC, ES
EXIST VERT WARDELL UPRR 42-7 - Wellbore #1 - Des	12,400.00	7,241.02	1,549.38	1,430.63	13.047	SF

<b>Offset Design</b> SW NE SEC. 6 T3N R65W 6th P.M. (Elkhead) - ABDN VERT CPC-LAND 31-1 - Wellbore #1 - Design #												<b>Offset Site Error:</b>	0.00 usft
Survey Program: 0-MWD												<b>Offset Well Error:</b>	0.00 usft
Reference Measured Depth (usft)	Vertical Depth (usft)	Offset Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Semi Major Axis Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+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	2.81	6,929.29	340.12	6,937.63				
100.00	100.00	100.00	100.00	0.09	0.09	2.81	6,929.29	340.12	6,937.63	6,937.46	0.17	N/A	
200.00	200.00	200.00	200.00	0.31	0.31	2.81	6,929.29	340.12	6,937.63	6,937.01	0.62	N/A	
300.00	300.00	300.00	300.00	0.54	0.54	2.81	6,929.29	340.12	6,937.63	6,936.56	1.07	6,470.862	
400.00	399.98	399.98	399.98	0.76	0.76	-19.78	6,929.29	340.12	6,935.99	6,934.46	1.53	4,545.948	
500.00	499.84	499.84	499.84	1.00	0.99	-19.83	6,929.29	340.12	6,931.07	6,929.08	1.98	3,495.109	
600.00	599.45	599.45	599.45	1.24	1.21	-19.91	6,929.29	340.12	6,922.87	6,920.42	2.44	2,834.184	
700.00	698.70	698.70	698.70	1.51	1.43	-20.03	6,929.29	340.12	6,911.40	6,908.50	2.91	2,378.496	
800.00	797.47	797.47	797.47	1.82	1.65	-20.17	6,929.29	340.12	6,896.69	6,893.32	3.37	2,043.827	
899.97	895.59	895.59	895.59	2.18	1.87	-20.35	6,929.29	340.12	6,878.76	6,874.91	3.85	1,786.530	
1,000.00	993.44	993.44	993.44	2.58	2.09	-20.41	6,929.29	340.12	6,859.21	6,854.88	4.33	1,582.586	
1,028.49	1,021.31	1,021.31	1,021.31	2.70	2.16	-20.43	6,929.29	340.12	6,853.65	6,849.17	4.47	1,532.110	
1,100.00	1,091.43	1,091.43	1,091.43	2.95	2.31	-20.38	6,929.29	340.12	6,840.50	6,835.70	4.80	1,423.741	
1,200.00	1,190.03	1,190.03	1,190.03	3.26	2.54	-20.32	6,929.29	340.12	6,824.89	6,819.65	5.24	1,302.038	
1,300.00	1,289.16	1,289.16	1,289.16	3.54	2.76	-20.27	6,929.29	340.12	6,812.52	6,806.84	5.68	1,199.819	
1,400.00	1,388.68	1,388.68	1,388.68	3.79	2.98	-20.23	6,929.29	340.12	6,803.41	6,797.30	6.11	1,113.870	
1,500.00	1,488.48	1,488.48	1,488.48	4.01	3.21	-20.21	6,929.29	340.12	6,797.57	6,791.04	6.53	1,041.268	
1,600.00	1,588.44	1,588.44	1,588.44	4.19	3.43	-20.20	6,929.29	340.12	6,795.00	6,788.06	6.94	979.570	

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