



Project: WELD COUNTY, COLORADO
Site: SW SW SEC. 34 T5N R67W 6th P.M.
Well: NELSON 34I-201
Wellbore: ORIGINAL WELLBORE
Design: PROPOSAL #2

ANNOTATIONS

TVD	MD	Inc	Azi	+N/-S	+E/-W	VSect	Dep	Annotation
0.0	0.0	0.00	0.00	0.0	0.0	0.0	0.0	SHL: 1348ft FSL & 909ft FWL of Sec 34
1002.1	1002.1	0.00	0.00	0.0	0.0	0.0	0.0	START NUDGE #1 (2°/100ft BUR)
1500.0	1502.5	10.01	208.00	-38.5	-20.5	-34.6	43.6	SURFACE CASING
1564.0	1567.5	10.01	208.00	-48.5	-25.8	-43.5	54.9	START NUDGE #2 (2°/100ft BUR)
2041.2	2062.1	19.90	208.00	-161.0	-85.6	-144.6	182.4	EOB TO 19.9° INC
3723.5	3851.2	19.90	208.00	-698.7	-371.5	-627.7	791.3	END OF TANGENT
3782.4	3913.8	19.90	204.32	-717.8	-380.9	-645.0	812.6	EOT TO 204.32° AZ
5166.7	5386.0	19.90	204.32	-1174.4	-587.3	-1061.2	1313.7	END OF TANGENT
6141.7	6380.9	0.00	204.32	-1330.3	-657.7	-1203.3	1484.8	EOD TO VERTICAL
6171.7	6410.9	0.00	0.00	-1330.3	-657.7	-1203.3	1484.8	KOP (8°/100ft BUR)
6369.1	6610.9	16.00	0.00	-1302.6	-657.7	-1175.9	1512.5	START 12°/100ft BUR
6715.0	7228.6	90.12	0.00	-842.6	-657.7	-722.3	1972.5	HZ LP *NEW*: 502.5ft FSL & 269.5ft FWL of Sec 34
6705.0	11994.8	90.12	0.00	3923.6	-657.7	3978.3	6738.6	BHL: 0ft FNL & 144ft FWL of Sec 34

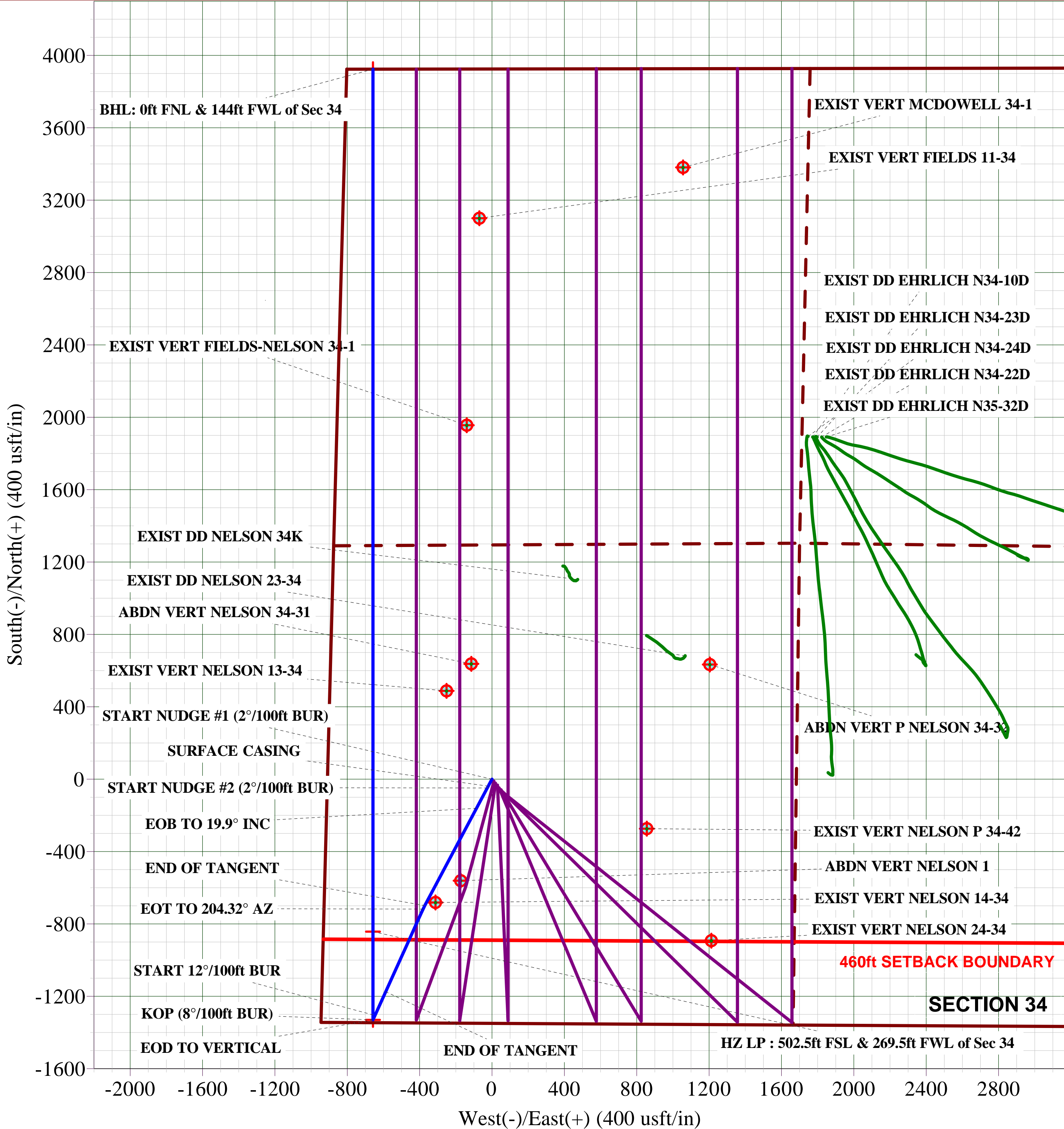
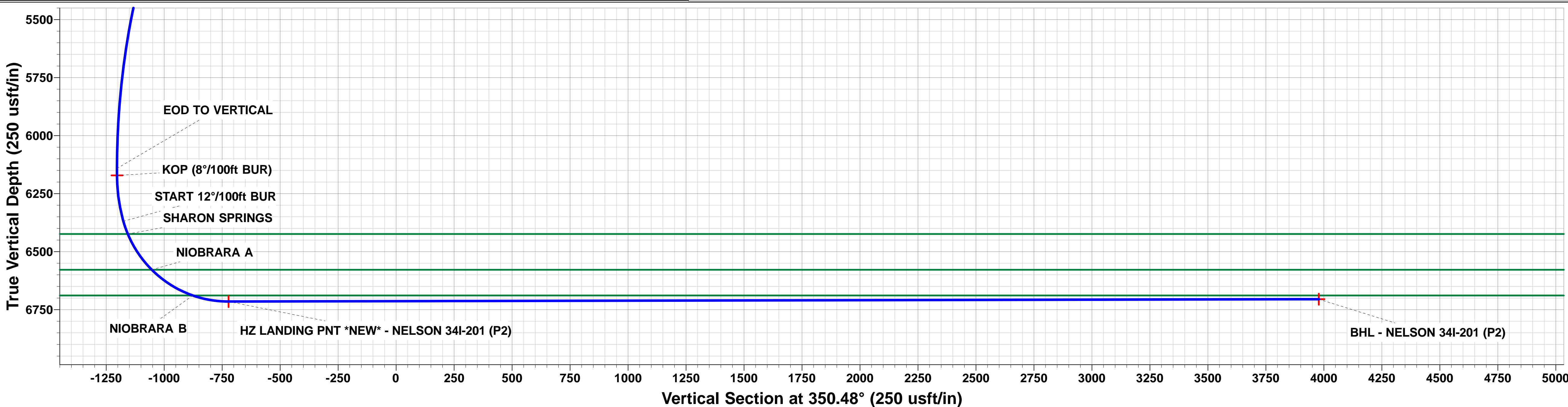
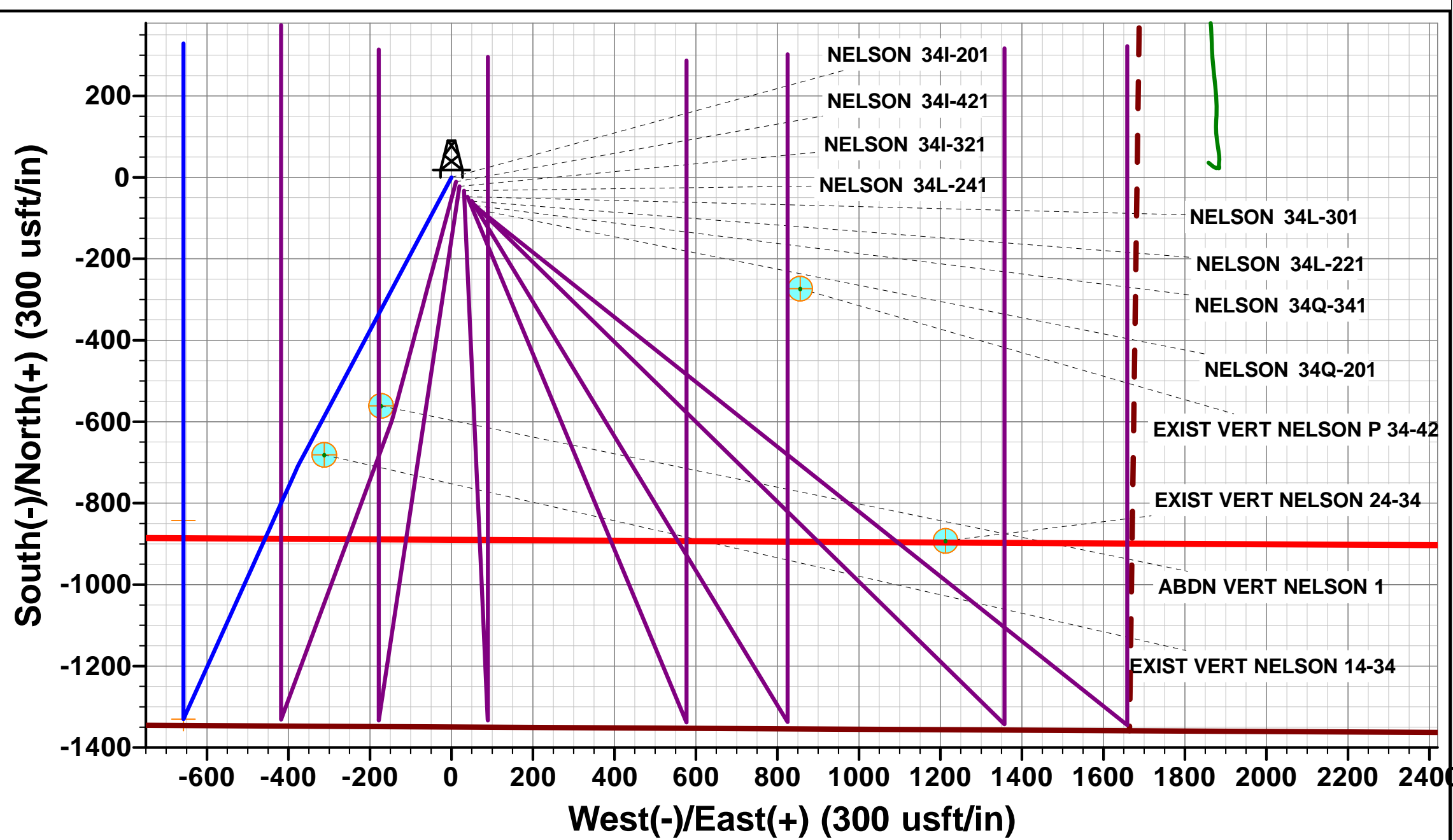
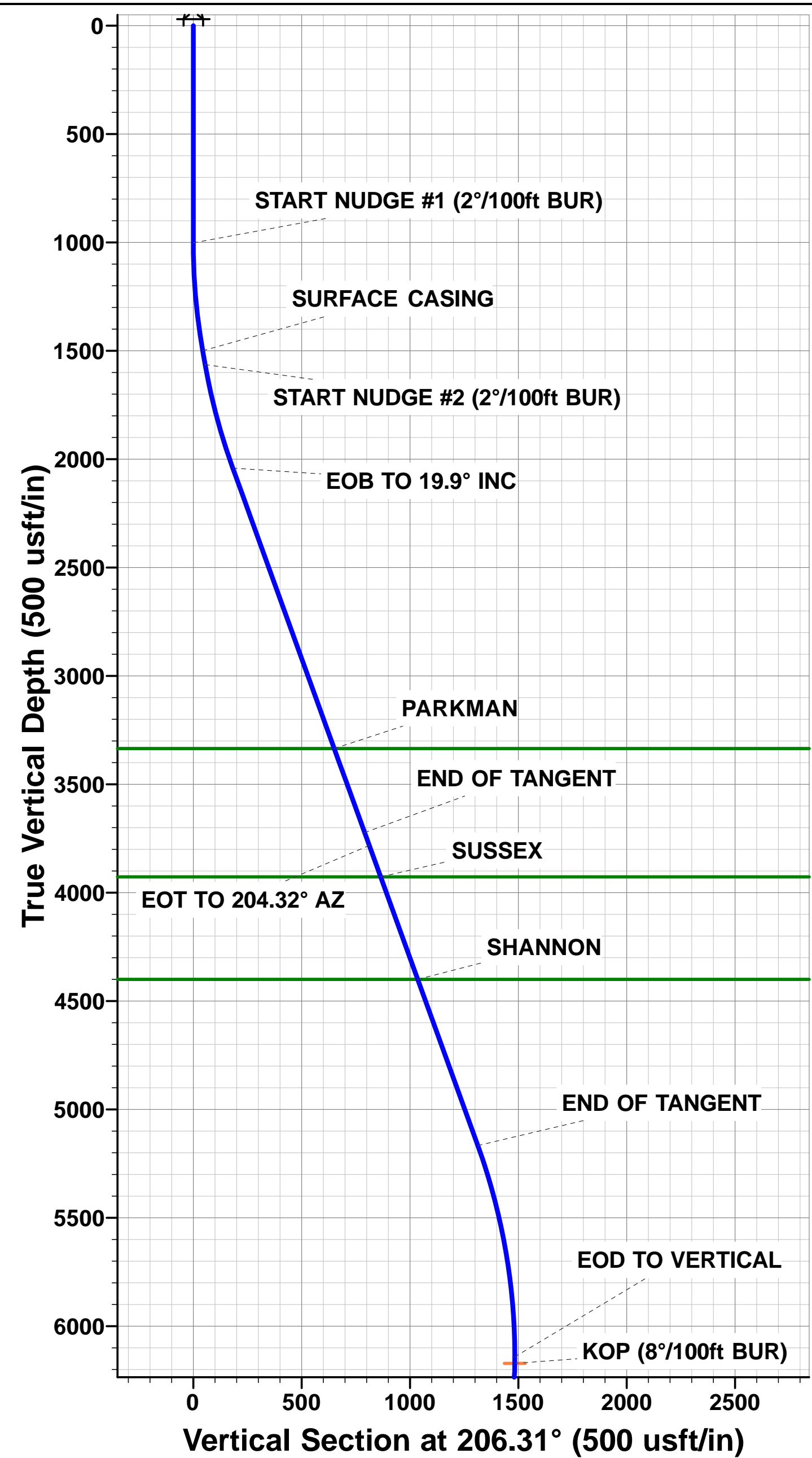
PROPOSED LOCAL COORDINATES:

SHL: 1348ft FSL & 909t FWL Sec 34
HZ LP *NEW* : 502.5ft FSL & 269.5ft FWL Sec 34

BHL: 0ft FNL & 144ft FWL Sec 34

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude
BHL - NELSON 34I-201 (P2)	6705.0	3923.6	-657.7	40.363410	-104.887650
HZ LANDING PNT *NEW* - NELSON 34I-201 (P2)	6715.0	-842.6	-657.7	40.350327	-104.887650
KOP - NELSON 34I-201 (P2)	6171.7	-1330.2	-657.7	40.348989	-104.887650



PDC ENERGY

**WELD COUNTY, COLORADO
SW SW SEC. 34 T5N R67W 6th P.M.
NELSON 34I-201**

**ORIGINAL WELLBORE
PROPOSAL #2**

Anticollision Report

22 July, 2016



Anticollision Report



Company:	PDC ENERGY	Local Co-ordinate Reference:	Well NELSON 34I-201
Project:	WELD COUNTY, COLORADO	TVD Reference:	KB-EST @ 4778.5usft (Original Well Elev)
Reference Site:	SW SW SEC. 34 T5N R67W 6th P.M.	MD Reference:	KB-EST @ 4778.5usft (Original Well Elev)
Site Error:	0.0 usft	North Reference:	True
Reference Well:	NELSON 34I-201	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	ORIGINAL WELLBORE	Database:	EDM 5000.1 Single User Db
Reference Design:	PROPOSAL #2	Offset TVD Reference:	Offset Datum

Reference	PROPOSAL #2		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	MD + Stations Interval 100.0usft	Error Model:	ISCWSA
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 10,000.0 us	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma	Casing Method:	Not applied

Survey Tool Program	Date 22/07/2016			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.0	11,994.8	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
Offset Well - Wellbore - Design						
SW SW SEC. 34 T5N R67W 6th P.M.						
ABDN VERT NELSON 1 - Wellbore #1 - Design #1	3,220.0	3,106.5	110.8	36.2	1.486	Level 3, CC, ES, SF
ABDN VERT NELSON 34-31 - Wellbore #1 - Design #1	1,002.1	997.6	647.7	626.5	30.596	CC
ABDN VERT NELSON 34-31 - Wellbore #1 - Design #1	1,100.0	1,095.5	649.0	625.7	27.823	ES
ABDN VERT NELSON 34-31 - Wellbore #1 - Design #1	4,700.0	4,517.1	1,643.0	1,545.0	16.771	SF
ABDN VERT P NELSON 34-32 - Wellbore #1 - Design #1	1,002.1	1,056.6	1,360.7	1,340.0	65.583	CC
ABDN VERT P NELSON 34-32 - Wellbore #1 - Design #1	1,100.0	1,154.5	1,362.1	1,339.2	59.469	ES
ABDN VERT P NELSON 34-32 - Wellbore #1 - Design #1	4,800.0	4,638.0	2,359.7	2,258.9	23.421	SF
EXIST DD EHRlich N 35-32D - Wellbore #1 - Wellbore #1	0.0	92.5	2,643.8			
EXIST DD EHRlich N 35-32D - Wellbore #1 - Wellbore #1	11,400.0	5,815.0	5,032.9	4,942.2	55.478	SF
EXIST DD EHRlich N34-10D - Wellbore #1 - Wellbore #1	1,205.2	1,485.4	2,581.4	2,576.3	506.630	CC, ES
EXIST DD EHRlich N34-10D - Wellbore #1 - Wellbore #1	11,994.8	7,443.0	4,432.3	4,322.2	40.256	SF
EXIST DD EHRlich N34-22D - Wellbore #1 - Wellbore #1	837.0	936.4	2,624.6	2,621.6	884.248	CC
EXIST DD EHRlich N34-22D - Wellbore #1 - Wellbore #1	900.0	990.8	2,624.7	2,621.5	808.294	ES
EXIST DD EHRlich N34-22D - Wellbore #1 - Wellbore #1	11,994.8	7,370.0	4,476.6	4,372.6	43.038	SF
EXIST DD EHRlich N34-23D - Wellbore #1 - Wellbore #1	1,088.7	1,260.1	2,590.0	2,585.7	599.960	CC, ES
EXIST DD EHRlich N34-23D - Wellbore #1 - Wellbore #1	11,994.8	7,657.0	5,039.4	4,921.9	42.912	SF
EXIST DD EHRlich N34-24D - Wellbore #1 - Wellbore #1	1,880.0	2,694.0	2,448.1	2,435.1	187.203	CC, ES
EXIST DD EHRlich N34-24D - Wellbore #1 - Wellbore #1	10,300.0	7,419.8	3,357.8	3,268.6	37.641	SF
EXIST DD NELSON 23-34 - Wellbore #1 - Wellbore #1	1,083.1	1,115.7	1,261.0	1,257.1	321.192	CC
EXIST DD NELSON 23-34 - Wellbore #1 - Wellbore #1	1,100.0	1,131.0	1,261.1	1,257.1	315.884	ES
EXIST DD NELSON 23-34 - Wellbore #1 - Wellbore #1	9,800.0	6,926.9	1,810.2	1,751.2	30.693	SF
EXIST DD NELSON 34K - Wellbore #1 - Wellbore #1	9,248.9	6,761.6	1,053.7	1,004.3	21.340	CC, ES
EXIST DD NELSON 34K - Wellbore #1 - Wellbore #1	9,600.0	6,761.7	1,110.6	1,055.6	20.200	SF
EXIST VERT FIELDS - NELSON 34-1 - Wellbore #1 - Design #1	10,027.5	6,742.6	518.3	336.5	2.850	CC, ES, SF
EXIST VERT FIELDS 11-34 - Wellbore #1 - Design #1	11,171.5	6,745.2	588.0	385.7	2.907	CC, ES
EXIST VERT FIELDS 11-34 - Wellbore #1 - Design #1	11,200.0	6,745.2	588.7	385.9	2.903	SF
EXIST VERT MCDOWELL 34-1 - Wellbore #1 - Design #1	11,452.0	6,772.6	1,713.9	1,506.2	8.252	CC
EXIST VERT MCDOWELL 34-1 - Wellbore #1 - Design #1	11,500.0	6,772.5	1,714.6	1,506.0	8.220	ES
EXIST VERT MCDOWELL 34-1 - Wellbore #1 - Design #1	11,700.0	6,772.1	1,731.7	1,519.5	8.159	SF
EXIST VERT NELSON 13-34 - Wellbore #1 - Design #1	8,559.4	6,714.7	406.9	246.5	2.537	CC, ES, SF
EXIST VERT NELSON 14-34 - Wellbore #1 - Design #1	3,724.1	3,595.5	44.2	-44.1	0.500	Level 1, CC, ES, SF
EXIST VERT NELSON 24-34 - Wellbore #1 - Design #1	2,169.3	2,124.5	1,489.6	1,441.6	31.075	CC
EXIST VERT NELSON 24-34 - Wellbore #1 - Design #1	2,500.0	2,435.5	1,493.8	1,437.6	26.564	ES
EXIST VERT NELSON 24-34 - Wellbore #1 - Design #1	7,100.0	6,680.5	1,871.7	1,713.6	11.835	SF
EXIST VERT NELSON P 34-42 - Wellbore #1 - Design #1	1,002.1	990.6	898.2	876.5	41.330	CC
EXIST VERT NELSON P 34-42 - Wellbore #1 - Design #1	1,300.0	1,288.0	901.1	872.8	31.863	ES
EXIST VERT NELSON P 34-42 - Wellbore #1 - Design #1	7,798.0	6,702.3	1,513.4	1,357.5	9.710	SF

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

Anticollision Report



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Project:	WELD COUNTY, COLORADO	TVD Reference:	KB-EST @ 4778.5usft (Original Well Elev)
Reference Site:	SW SW SEC. 34 T5N R67W 6th P.M.	MD Reference:	KB-EST @ 4778.5usft (Original Well Elev)
Site Error:	0.0 usft	North Reference:	True
Reference Well:	NELSON 34I-201	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	ORIGINAL WELLBORE	Database:	EDM 5000.1 Single User Db
Reference Design:	PROPOSAL #2	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 SW SEC. 34 T5N R67W 6th P.M.						
NELSON 34I-321 - ORIGINAL WELLBORE - PROPOSAL	800.0	800.0	29.3	26.0	8.769	CC, ES
NELSON 34I-321 - ORIGINAL WELLBORE - PROPOSAL	11,994.8	12,009.6	485.0	316.2	2.874	SF
NELSON 34I-421 - ORIGINAL WELLBORE - PROPOSAL	900.0	900.0	15.6	11.8	4.119	CC, ES
NELSON 34I-421 - ORIGINAL WELLBORE - PROPOSAL	11,994.8	12,048.6	327.4	188.9	2.364	SF
NELSON 34L-221 - ORIGINAL WELLBORE - PROPOSAL	500.0	499.0	76.9	74.9	38.640	CC, ES
NELSON 34L-221 - ORIGINAL WELLBORE - PROPOSAL	11,994.8	12,022.6	1,483.3	1,312.3	8.676	SF
NELSON 34L-241 - ORIGINAL WELLBORE - PROPOSAL	700.0	700.0	44.9	42.0	15.524	CC, ES
NELSON 34L-241 - ORIGINAL WELLBORE - PROPOSAL	11,994.8	11,927.9	746.8	576.5	4.385	SF
NELSON 34L-301 - ORIGINAL WELLBORE - PROPOSAL	600.0	599.0	61.4	58.9	25.151	CC, ES
NELSON 34L-301 - ORIGINAL WELLBORE - PROPOSAL	11,994.8	12,037.2	1,236.8	1,066.2	7.248	SF
NELSON 34Q-201 - ORIGINAL WELLBORE - PROPOSAL	300.0	299.0	106.2	105.1	97.322	CC, ES
NELSON 34Q-201 - ORIGINAL WELLBORE - PROPOSAL	11,994.8	12,201.6	2,316.2	2,144.5	13.486	SF
NELSON 34Q-341 - ORIGINAL WELLBORE - PROPOSAL	400.0	400.0	90.6	89.1	58.747	CC, ES
NELSON 34Q-341 - ORIGINAL WELLBORE - PROPOSAL	11,994.8	12,207.5	2,018.1	1,847.0	11.793	SF

Offset Design SW SW SEC. 34 T5N R67W 6th P.M. - ABDN VERT NELSON 1 - Wellbore #1 - Design #1												Offset Site Error:	0.0 usft
Survey Program: 0-INC												Offset Well Error:	0.0 usft
Reference	Offset	Semi Major Axis			Distance								Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
0.0	0.0	0.0	0.0	0.0	0.0	-162.88	-561.0	-172.8	587.5				
100.0	100.0	76.5	76.5	0.1	0.5	-162.88	-561.0	-172.8	587.0	586.5	0.56	1,056.726	
200.0	200.0	176.5	176.5	0.3	2.5	-162.88	-561.0	-172.8	587.0	584.3	2.79	210.276	
300.0	300.0	276.5	276.5	0.5	4.6	-162.88	-561.0	-172.8	587.0	581.9	5.18	113.267	
400.0	400.0	376.5	376.5	0.8	6.7	-162.88	-561.0	-172.8	587.0	579.6	7.46	78.715	
500.0	500.0	476.5	476.5	1.0	8.7	-162.88	-561.0	-172.8	587.0	577.3	9.71	60.436	
600.0	600.0	576.5	576.5	1.2	10.7	-162.88	-561.0	-172.8	587.0	575.1	11.96	49.079	
700.0	700.0	676.5	676.5	1.4	12.8	-162.88	-561.0	-172.8	587.0	572.8	14.21	41.326	
800.0	800.0	776.5	776.5	1.7	14.8	-162.88	-561.0	-172.8	587.0	570.6	16.45	35.693	
900.0	900.0	876.5	876.5	1.9	16.8	-162.88	-561.0	-172.8	587.0	568.4	18.69	31.414	
1,000.0	1,000.0	976.5	976.5	2.1	18.8	-162.88	-561.0	-172.8	587.0	566.1	20.93	28.053	
1,002.1	1,002.1	978.6	978.6	2.1	18.8	-162.88	-561.0	-172.8	587.0	566.1	20.97	27.990	
1,100.0	1,100.0	1,076.5	1,076.5	2.3	20.8	-10.92	-561.0	-172.8	585.4	562.3	23.13	25.313	
1,200.0	1,199.8	1,176.3	1,176.3	2.5	22.8	-11.03	-561.0	-172.8	580.3	555.1	25.27	22.963	
1,300.0	1,299.5	1,276.0	1,276.0	2.7	24.8	-11.23	-561.0	-172.8	571.9	544.5	27.38	20.884	
1,400.0	1,398.7	1,375.2	1,375.2	2.9	26.8	-11.52	-561.0	-172.8	560.0	530.5	29.45	19.015	
1,500.0	1,497.5	1,474.0	1,474.0	3.2	28.8	-11.91	-561.0	-172.8	544.7	513.3	31.46	17.312	
1,502.5	1,500.0	1,476.5	1,476.5	3.2	28.9	-11.92	-561.0	-172.8	544.3	512.8	31.52	17.271	
1,567.5	1,564.0	1,540.5	1,540.5	3.4	30.2	-12.17	-561.0	-172.8	533.2	500.3	32.92	16.196	
1,600.0	1,595.9	1,572.4	1,572.4	3.5	30.8	-12.33	-561.0	-172.8	527.5	494.0	33.56	15.717	
1,700.0	1,693.9	1,670.4	1,670.4	3.8	32.8	-12.91	-561.0	-172.8	507.8	472.3	35.50	14.306	
1,800.0	1,791.0	1,767.5	1,767.5	4.2	34.7	-13.64	-561.0	-172.8	484.8	447.4	37.36	12.975	
1,900.0	1,887.3	1,863.8	1,863.8	4.6	36.7	-14.57	-561.0	-172.8	458.6	419.4	39.17	11.708	
2,000.0	1,982.6	1,959.1	1,959.1	5.1	38.6	-15.75	-561.0	-172.8	429.2	388.3	40.91	10.492	
2,062.1	2,041.2	2,017.7	2,017.7	5.5	39.8	-16.65	-561.0	-172.8	409.4	367.5	41.96	9.757	
2,100.0	2,076.9	2,053.4	2,053.4	5.7	40.5	-17.18	-561.0	-172.8	397.0	354.2	42.77	9.282	
2,200.0	2,170.9	2,147.4	2,147.4	6.3	42.4	-18.75	-561.0	-172.8	364.4	319.5	44.94	8.109	
2,300.0	2,264.9	2,241.4	2,241.4	6.9	44.3	-20.62	-561.0	-172.8	332.2	285.0	47.16	7.044	
2,400.0	2,358.9	2,335.4	2,335.4	7.5	46.2	-22.89	-561.0	-172.8	300.3	250.9	49.44	6.074	

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