

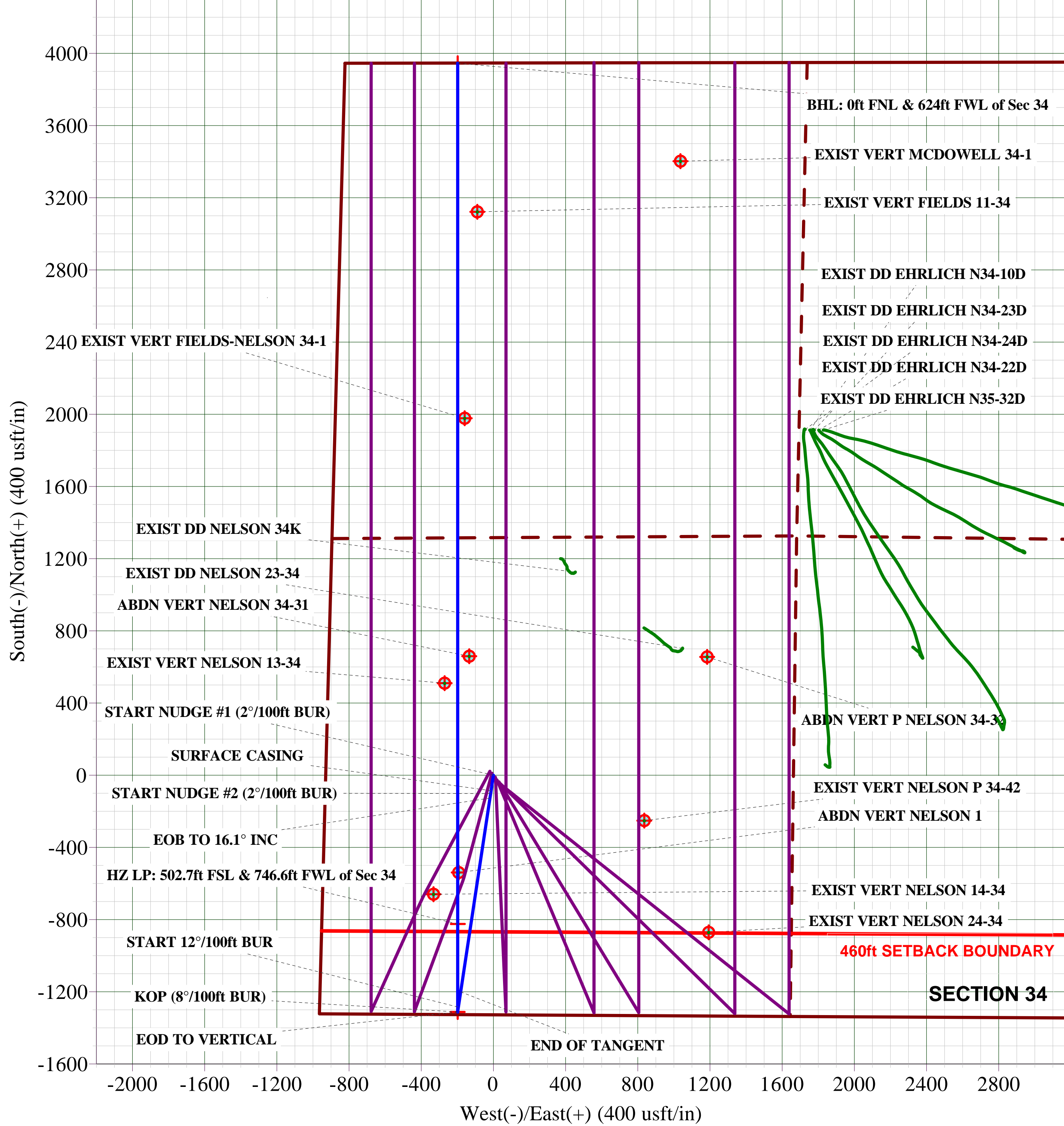
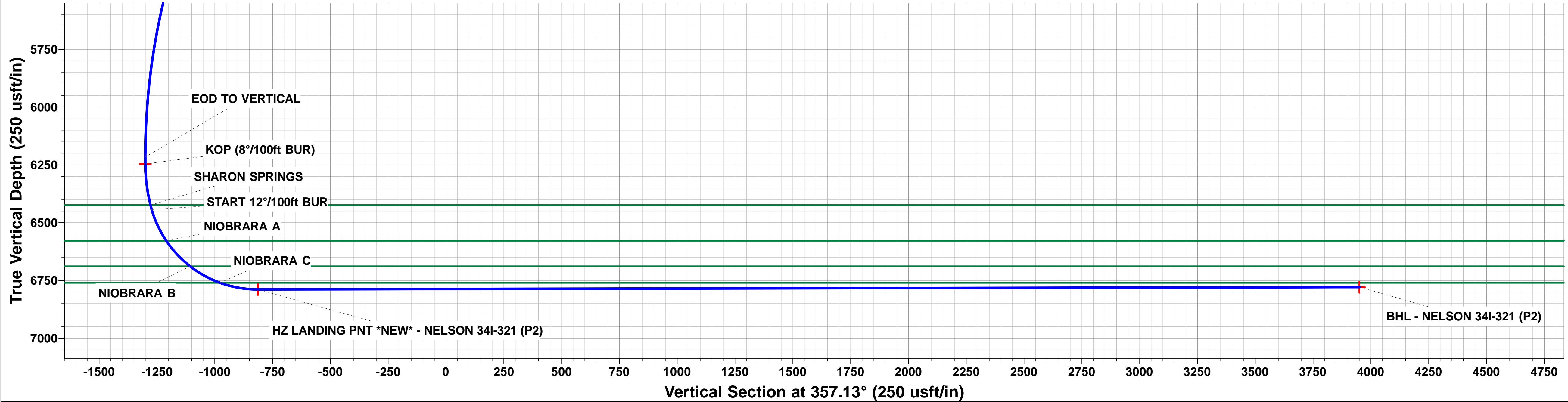
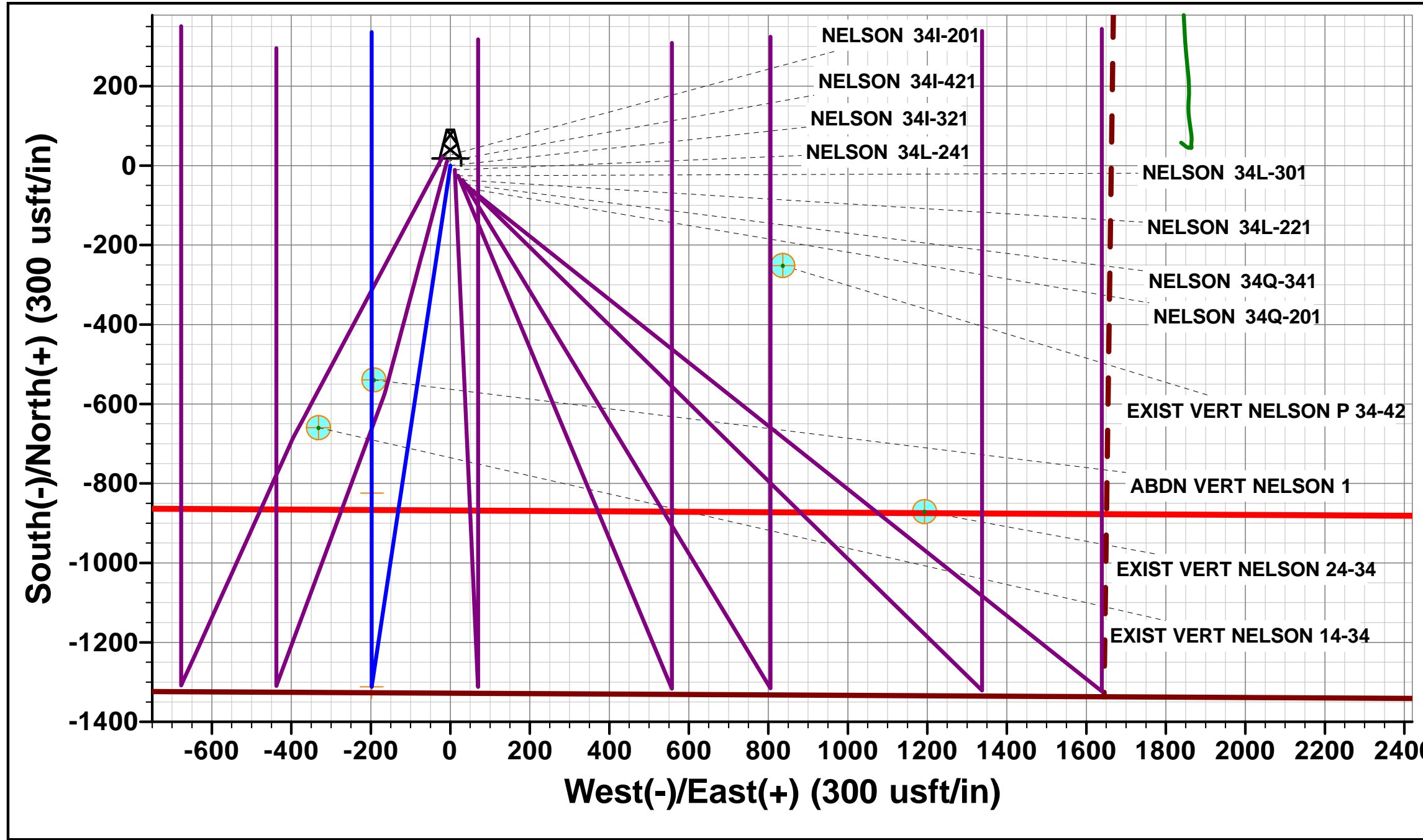
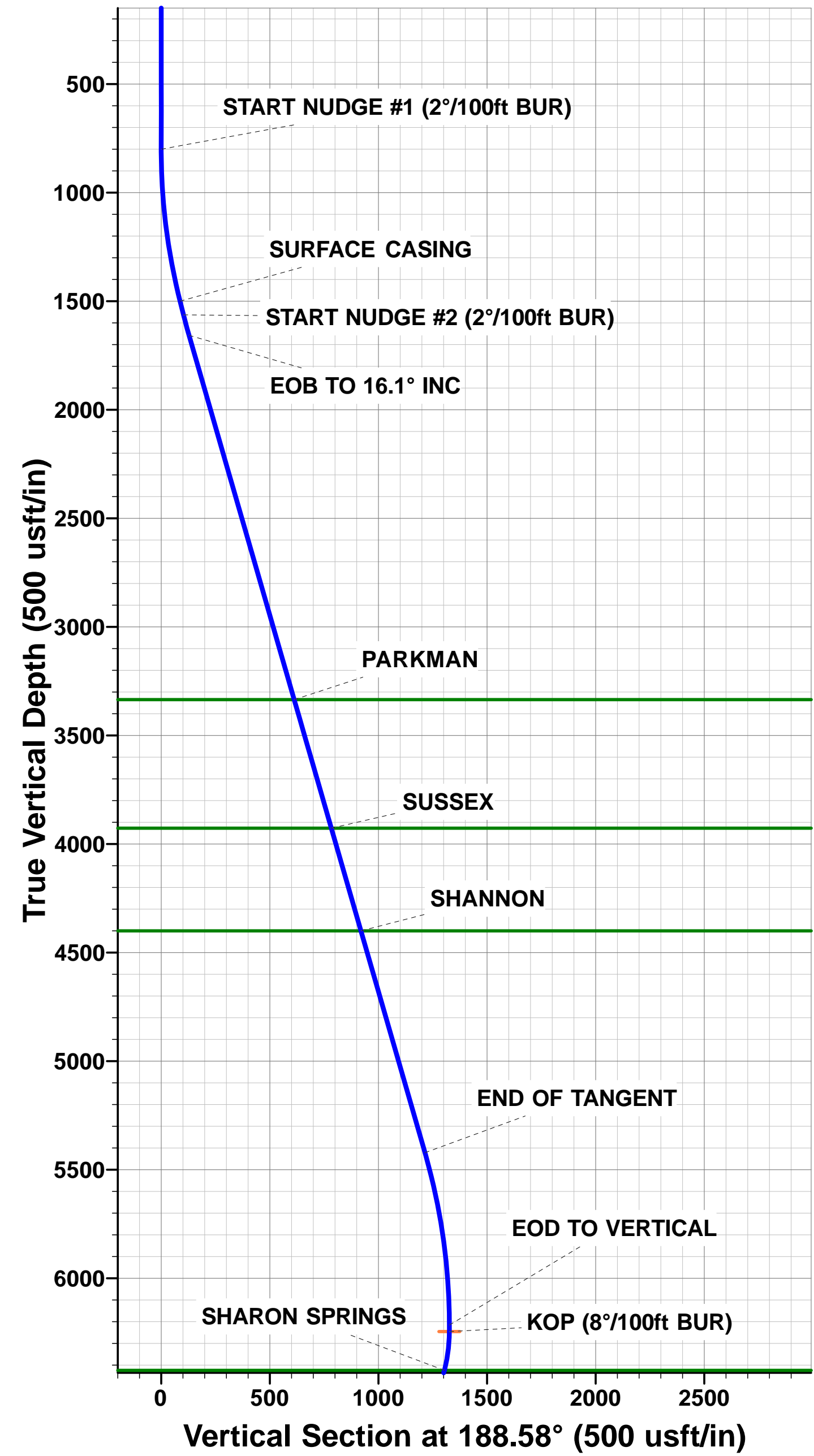


Project: WELD COUNTY, COLORADO  
Site: SW SW SEC. 34 T5N R67W 6th P.M.  
Well: NELSON 34I-32I  
Wellbore: ORIGINAL WELLBORE  
Design: PROPOSAL #2

ANNOTATIONS									
TVD	MD	Inc	Azi	+N/-S	+E/-W	VSec	Dep	Annotation	
0.0	0.0	0.00	0.00	0.0	0.0	0.0	0.0	SHL: 1325ft FSL & 930ft FWL of Sec 34	
800.0	800.0	0.00	0.00	0.0	0.0	0.0	0.0	START NUDGE #1 (2°/100ft BUR)	
1500.0	1507.2	14.14	188.58	-85.9	-13.0	-85.1	86.8	SURFACE CASING	
1563.0	1572.2	14.14	188.58	-101.6	-15.3	-100.7	102.7	START NUDGE #2 (2°/100ft BUR)	
1657.3	1669.8	16.10	188.58	-126.8	-19.1	-125.6	128.2	EOB TO 16.1° INC	
5421.5	5587.6	16.10	188.58	-1200.8	-181.1	-1190.2	1214.4	END OF TANGENT	
6215.7	6392.3	0.00	188.58	-1311.8	-197.9	-1300.2	1326.6	EOD TO VERTICAL	
6245.7	6422.3	0.00	0.00	-1311.8	-197.9	-1300.2	1326.6	KOP (8°/100ft BUR)	
6443.1	6622.3	16.00	0.00	-1284.1	-197.9	-1272.5	1354.4	START 12°/100ft BUR	
6789.0	7240.0	90.12	0.00	-824.1	-197.9	-813.1	1814.4	HZ LP *NEW*: 502.7ft FSL & 746.6ft FWL of Sec 34	
6779.0	12009.6	90.12	0.00	3945.5	-197.9	3950.4	6583.9	BHL: 0ft FNL & 624ft FWL of Sec 34	

PROPOSED LOCAL COORDINATES:  
  
SHL: 1325ft FSL & 930t FWL Sec 34  
  
HZ LP \*NEW\* : 502.7ft FSL & 746.6ft FWL Sec 34  
  
BHL: 0ft FNL & 624ft FWL Sec 34

WELLBORE TARGET DETAILS (LAT/LONG)					
Name	TVD	+N/-S	+E/-W	Latitude	Longitude
KOP - NELSON 34I-32I (P2)	6245.7	-1311.8	-197.9	40.348979	-104.885930
BHL - NELSON 34I-32I (P2)	6779.0	3945.5	-197.9	40.363410	-104.885930
HZ LANDING PNT *NEW* - NELSON 34I-32I (P2)	6789.0	-824.1	-197.1	40.350318	-104.885927



# **PDC ENERGY**

**WELD COUNTY, COLORADO  
SW SW SEC. 34 T5N R67W 6th P.M.  
NELSON 34I-321**

**ORIGINAL WELLBORE  
PROPOSAL #2**

## **Anticollision Report**

**22 July, 2016**



# Anticollision Report



<b>Company:</b>	PDC ENERGY	<b>Local Co-ordinate Reference:</b>	Well NELSON 34I-321
<b>Project:</b>	WELD COUNTY, COLORADO	<b>TVD Reference:</b>	KB-EST @ 4778.5usft (Original Well Elev)
<b>Reference Site:</b>	SW SW SEC. 34 T5N R67W 6th P.M.	<b>MD Reference:</b>	KB-EST @ 4778.5usft (Original Well Elev)
<b>Site Error:</b>	0.0 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	NELSON 34I-321	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 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 100.0usft	<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 10,000.0 us	<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> 22/07/2016			
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>
0.0	12,009.6	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	3,233.9	3,136.6	109.7	34.9	1.466	Level 3, CC, ES
ABDN VERT NELSON 1 - Wellbore #1 - Design #1	3,300.0	3,200.1	111.3	34.9	1.457	Level 3, SF
ABDN VERT NELSON 34-31 - Wellbore #1 - Design #1	800.0	795.5	672.8	656.2	40.423	CC
ABDN VERT NELSON 34-31 - Wellbore #1 - Design #1	900.0	895.5	674.5	655.6	35.787	ES
ABDN VERT NELSON 34-31 - Wellbore #1 - Design #1	4,700.0	4,564.2	1,616.9	1,517.2	16.226	SF
ABDN VERT P NELSON 34-32 - Wellbore #1 - Design #1	800.0	854.5	1,353.9	1,337.7	83.473	CC
ABDN VERT P NELSON 34-32 - Wellbore #1 - Design #1	900.0	954.5	1,355.0	1,336.6	73.528	ES
ABDN VERT P NELSON 34-32 - Wellbore #1 - Design #1	4,700.0	4,623.2	2,090.1	1,987.2	20.307	SF
EXIST DD EHRlich N 35-32D - Wellbore #1 - Wellbore #1	0.0	92.5	2,646.0			
EXIST DD EHRlich N 35-32D - Wellbore #1 - Wellbore #1	12,009.6	5,900.0	4,925.8	4,823.2	48.011	SF
EXIST DD EHRlich N34-10D - Wellbore #1 - Wellbore #1	8,765.7	7,331.2	2,540.5	2,484.5	45.307	CC
EXIST DD EHRlich N34-10D - Wellbore #1 - Wellbore #1	8,800.0	7,333.0	2,540.8	2,484.2	44.955	ES
EXIST DD EHRlich N34-10D - Wellbore #1 - Wellbore #1	11,000.0	7,443.0	3,380.4	3,287.7	36.445	SF
EXIST DD EHRlich N34-22D - Wellbore #1 - Wellbore #1	809.4	915.2	2,626.9	2,624.0	919.096	CC, ES
EXIST DD EHRlich N34-22D - Wellbore #1 - Wellbore #1	12,009.6	7,370.0	4,099.4	3,994.2	38.967	SF
EXIST DD EHRlich N34-23D - Wellbore #1 - Wellbore #1	959.7	1,180.2	2,599.3	2,595.5	696.974	CC, ES
EXIST DD EHRlich N34-23D - Wellbore #1 - Wellbore #1	11,600.0	7,657.0	4,408.5	4,297.4	39.709	SF
EXIST DD EHRlich N34-24D - Wellbore #1 - Wellbore #1	8,111.6	7,358.3	2,051.2	1,992.3	34.803	CC, ES
EXIST DD EHRlich N34-24D - Wellbore #1 - Wellbore #1	9,300.0	7,423.5	2,370.0	2,296.7	32.318	SF
EXIST DD NELSON 23-34 - Wellbore #1 - Wellbore #1	8,867.5	6,897.3	1,058.2	1,013.0	23.388	CC, ES
EXIST DD NELSON 23-34 - Wellbore #1 - Wellbore #1	9,300.0	6,923.4	1,142.9	1,091.3	22.141	SF
EXIST DD NELSON 34K - Wellbore #1 - Wellbore #1	9,263.8	6,826.8	573.3	522.6	11.308	CC, ES
EXIST DD NELSON 34K - Wellbore #1 - Wellbore #1	9,400.0	6,826.7	589.2	536.4	11.150	SF
EXIST VERT FIELDS - NELSON 34-1 - Wellbore #1 - Design #1	10,042.3	6,816.6	39.0	-145.6	0.211	Level 1, CC, ES, SF
EXIST VERT FIELDS 11-34 - Wellbore #1 - Design #1	11,186.2	6,819.2	108.7	-96.4	0.530	Level 1, CC, ES, SF
EXIST VERT MCDOWELL 34-1 - Wellbore #1 - Design #1	11,466.8	6,846.6	1,234.6	1,024.1	5.865	CC
EXIST VERT MCDOWELL 34-1 - Wellbore #1 - Design #1	11,500.0	6,846.5	1,235.0	1,023.9	5.851	ES
EXIST VERT MCDOWELL 34-1 - Wellbore #1 - Design #1	11,600.0	6,846.3	1,241.7	1,028.8	5.832	SF
EXIST VERT NELSON 13-34 - Wellbore #1 - Design #1	8,574.1	6,788.7	72.5	-90.4	0.445	Level 1, CC, ES, SF
EXIST VERT NELSON 14-34 - Wellbore #1 - Design #1	7,404.6	6,780.1	133.8	-24.7	0.844	Level 1, CC, ES, SF
EXIST VERT NELSON 24-34 - Wellbore #1 - Design #1	3,671.0	3,562.6	1,309.5	1,223.6	15.250	CC
EXIST VERT NELSON 24-34 - Wellbore #1 - Design #1	4,100.0	3,974.7	1,314.9	1,218.3	13.621	ES
EXIST VERT NELSON 24-34 - Wellbore #1 - Design #1	7,150.0	6,763.2	1,391.5	1,232.2	8.736	SF
EXIST VERT NELSON P 34-42 - Wellbore #1 - Design #1	1,654.0	1,630.6	864.3	827.8	23.652	CC
EXIST VERT NELSON P 34-42 - Wellbore #1 - Design #1	1,900.0	1,867.0	867.0	824.5	20.400	ES
EXIST VERT NELSON P 34-42 - Wellbore #1 - Design #1	7,812.7	6,776.3	1,034.0	876.2	6.553	SF
NELSON 34I-201 - ORIGINAL WELLBORE - PROPOSAL #2	800.0	800.0	29.3	26.0	8.769	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 NELSON 34I-321
<b>Project:</b>	WELD COUNTY, COLORADO	<b>TVD Reference:</b>	KB-EST @ 4778.5usft (Original Well Elev)
<b>Reference Site:</b>	SW SW SEC. 34 T5N R67W 6th P.M.	<b>MD Reference:</b>	KB-EST @ 4778.5usft (Original Well Elev)
<b>Site Error:</b>	0.0 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	NELSON 34I-321	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 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						
SW SW SEC. 34 T5N R67W 6th P.M.						
NELSON 34I-201 - ORIGINAL WELLBORE - PROPOSAL	12,009.6	11,994.8	485.0	316.2	2.874	SF
NELSON 34I-421 - ORIGINAL WELLBORE - PROPOSAL	800.0	800.0	13.8	10.4	4.119	CC, ES
NELSON 34I-421 - ORIGINAL WELLBORE - PROPOSAL	12,009.6	12,049.1	282.2	132.1	1.881	SF
NELSON 34L-221 - ORIGINAL WELLBORE - PROPOSAL	500.0	499.0	47.6	45.6	23.923	CC, ES
NELSON 34L-221 - ORIGINAL WELLBORE - PROPOSAL	12,009.6	12,022.1	1,003.6	831.3	5.823	SF
NELSON 34L-241 - ORIGINAL WELLBORE - PROPOSAL	700.0	700.0	15.6	12.7	5.399	CC, ES
NELSON 34L-241 - ORIGINAL WELLBORE - PROPOSAL	12,009.6	11,927.9	277.6	110.8	1.665	SF
NELSON 34L-301 - ORIGINAL WELLBORE - PROPOSAL	600.0	599.0	32.1	29.7	13.160	CC, ES
NELSON 34L-301 - ORIGINAL WELLBORE - PROPOSAL	12,009.6	12,036.8	755.2	583.0	4.387	SF
NELSON 34Q-201 - ORIGINAL WELLBORE - PROPOSAL	300.0	299.0	76.9	75.8	70.476	CC, ES
NELSON 34Q-201 - ORIGINAL WELLBORE - PROPOSAL	12,009.6	12,201.5	1,836.7	1,663.4	10.603	SF
NELSON 34Q-341 - ORIGINAL WELLBORE - PROPOSAL	400.0	400.0	61.4	59.8	39.769	CC, ES
NELSON 34Q-341 - ORIGINAL WELLBORE - PROPOSAL	12,009.6	12,207.1	1,536.1	1,363.4	8.899	SF

<b>Offset Design</b> 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		Minimum Separation		Warning					
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Tooface (")	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-160.37	-539.2	-192.3	572.9				
100.0	100.0	76.5	76.5	0.1	0.5	-160.37	-539.2	-192.3	572.4	571.9	0.56	1,030.450	
200.0	200.0	176.5	176.5	0.3	2.5	-160.37	-539.2	-192.3	572.4	569.7	2.79	205.048	
300.0	300.0	276.5	276.5	0.5	4.6	-160.37	-539.2	-192.3	572.4	567.3	5.18	110.450	
400.0	400.0	376.5	376.5	0.8	6.7	-160.37	-539.2	-192.3	572.4	565.0	7.46	76.757	
500.0	500.0	476.5	476.5	1.0	8.7	-160.37	-539.2	-192.3	572.4	562.7	9.71	58.933	
600.0	600.0	576.5	576.5	1.2	10.7	-160.37	-539.2	-192.3	572.4	560.5	11.96	47.858	
700.0	700.0	676.5	676.5	1.4	12.8	-160.37	-539.2	-192.3	572.4	558.2	14.21	40.298	
800.0	800.0	776.5	776.5	1.7	14.8	-160.37	-539.2	-192.3	572.4	556.0	16.45	34.806	
900.0	900.0	876.5	876.5	1.9	16.8	11.09	-539.2	-192.3	570.7	552.1	18.65	30.604	
1,000.0	999.8	976.3	976.3	2.0	18.8	11.21	-539.2	-192.3	565.6	544.8	20.80	27.189	
1,100.0	1,099.5	1,076.0	1,076.0	2.2	20.8	11.42	-539.2	-192.3	557.1	534.1	22.93	24.296	
1,200.0	1,198.7	1,175.2	1,175.2	2.5	22.8	11.72	-539.2	-192.3	545.1	520.1	25.01	21.792	
1,300.0	1,297.5	1,274.0	1,274.0	2.7	24.8	12.13	-539.2	-192.3	529.8	502.7	27.06	19.582	
1,400.0	1,395.6	1,372.1	1,372.1	3.0	26.8	12.66	-539.2	-192.3	511.1	482.1	29.05	17.598	
1,500.0	1,493.1	1,469.6	1,469.6	3.4	28.7	13.34	-539.2	-192.3	489.2	458.2	30.98	15.792	
1,507.2	1,500.0	1,476.5	1,476.5	3.4	28.9	13.40	-539.2	-192.3	487.5	456.4	31.11	15.668	
1,572.2	1,563.0	1,539.5	1,539.5	3.7	30.1	13.85	-539.2	-192.3	472.0	439.5	32.51	14.520	
1,600.0	1,590.0	1,566.5	1,566.5	3.8	30.7	14.09	-539.2	-192.3	465.3	432.3	33.04	14.085	
1,669.8	1,657.3	1,633.8	1,633.8	4.1	32.0	14.76	-539.2	-192.3	447.3	413.0	34.33	13.028	
1,700.0	1,686.3	1,662.8	1,662.8	4.3	32.6	15.03	-539.2	-192.3	439.2	404.2	34.98	12.555	
1,800.0	1,782.4	1,758.9	1,758.9	4.8	34.6	16.03	-539.2	-192.3	412.4	375.3	37.14	11.104	
1,900.0	1,878.5	1,855.0	1,855.0	5.3	36.5	17.16	-539.2	-192.3	385.8	346.4	39.32	9.811	
2,000.0	1,974.5	1,951.0	1,951.0	5.8	38.4	18.46	-539.2	-192.3	359.3	317.7	41.52	8.653	
2,100.0	2,070.6	2,047.1	2,047.1	6.3	40.4	19.97	-539.2	-192.3	333.0	289.2	43.75	7.611	
2,200.0	2,166.7	2,143.2	2,143.2	6.9	42.3	21.73	-539.2	-192.3	306.9	260.9	46.01	6.671	
2,300.0	2,262.8	2,239.3	2,239.3	7.4	44.2	23.80	-539.2	-192.3	281.2	232.9	48.31	5.821	
2,400.0	2,358.9	2,335.4	2,335.4	7.9	46.1	26.29	-539.2	-192.3	255.9	205.3	50.67	5.051	
2,500.0	2,454.9	2,431.4	2,431.4	8.5	48.1	29.31	-539.2	-192.3	231.2	178.1	53.11	4.353	
2,600.0	2,551.0	2,527.5	2,527.5	9.1	50.0	33.02	-539.2	-192.3	207.2	151.5	55.66	3.723	

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