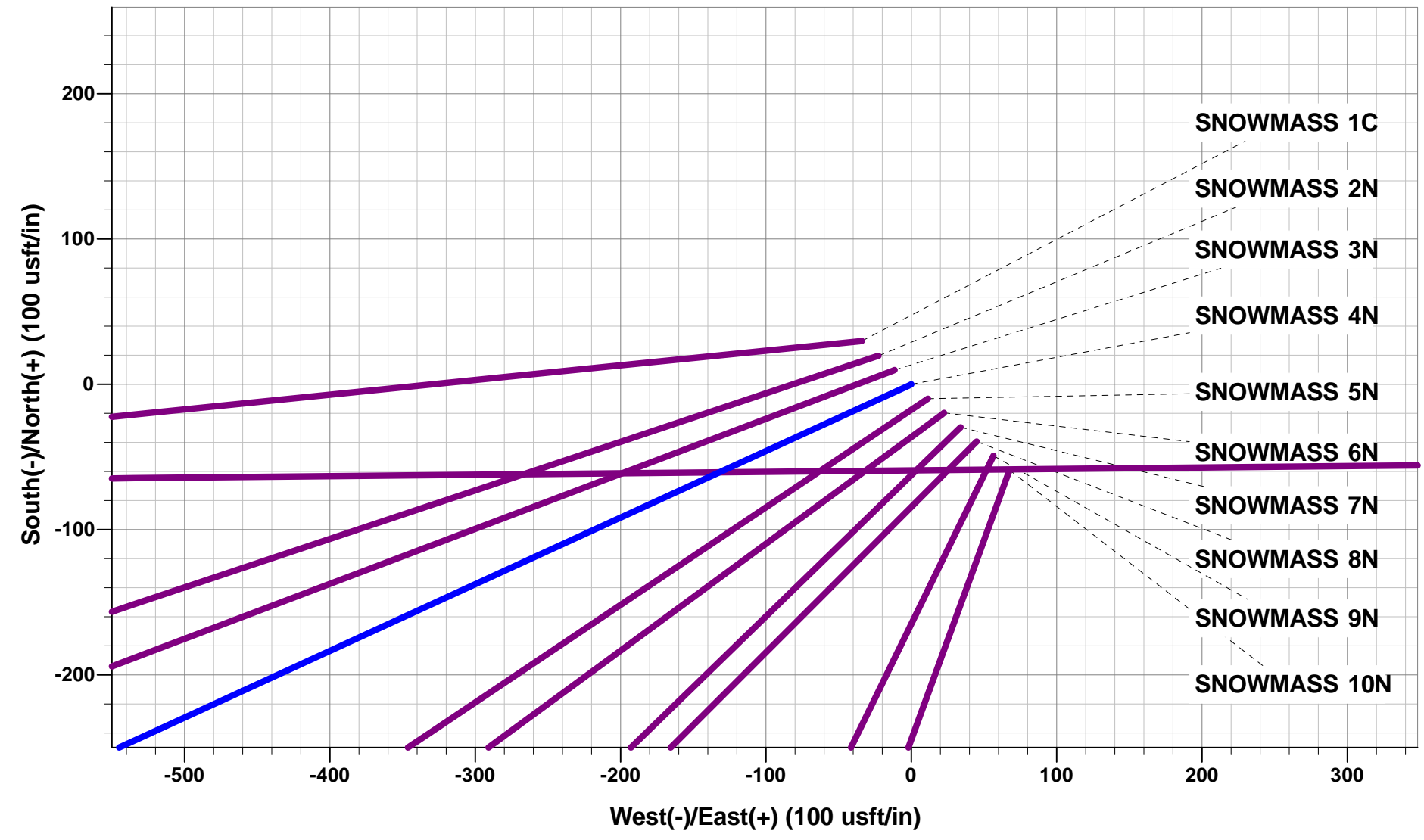




Project: WELD COUNTY, COLORADO
Site: NW NE SEC. 5 T5N R64W 6th P.M.
Well: SNOWMASS 4N
Wellbore: ORIGINAL WELLBORE
Design: PROPOSAL #2

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: 118ft FNL & 1798ft FEL of Sec 5	
600.0	600.0	0.00	0.00	0.0	0.0	0.0	0.0	START NUDGE (2°/100ft BUR)	
1789.8	1827.0	24.54	245.36	-107.9	-235.2	-223.1	258.8	EOB TO 24.54° INC	
4878.0	5221.8	24.54	245.36	-695.7	-1516.8	-1438.4	1668.7	END OF TANGENT	
6067.8	6448.8	0.00	0.00	-803.6	-1752.0	-1661.5	1927.5	EOD TO VERTICAL	
6097.8	6478.8	0.00	0.00	-803.6	-1752.0	-1661.5	1927.5	KOP (8°/100ft BUR)	
6814.0	7610.2	90.51	89.48	-797.0	-1029.4	-943.3	2650.1	HZ LP *NEW*: 915ft FNL & 2368ft FWL of Sec 5	
6742.0	15736.3	90.50	89.48	-723.2	7096.0	7132.8	10775.9	BHL: 915ft FNL & 0ft FEL of Sec 4	

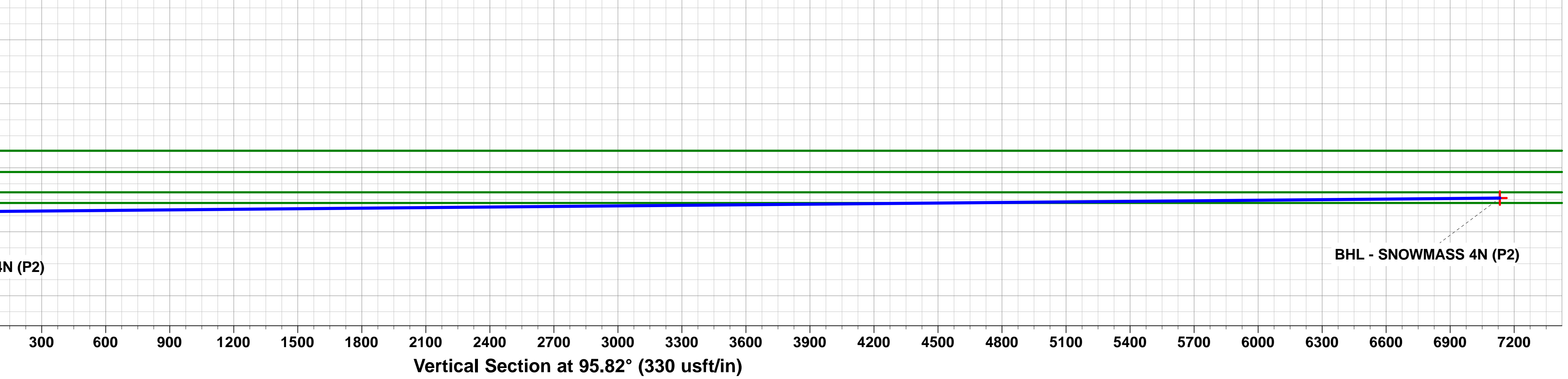
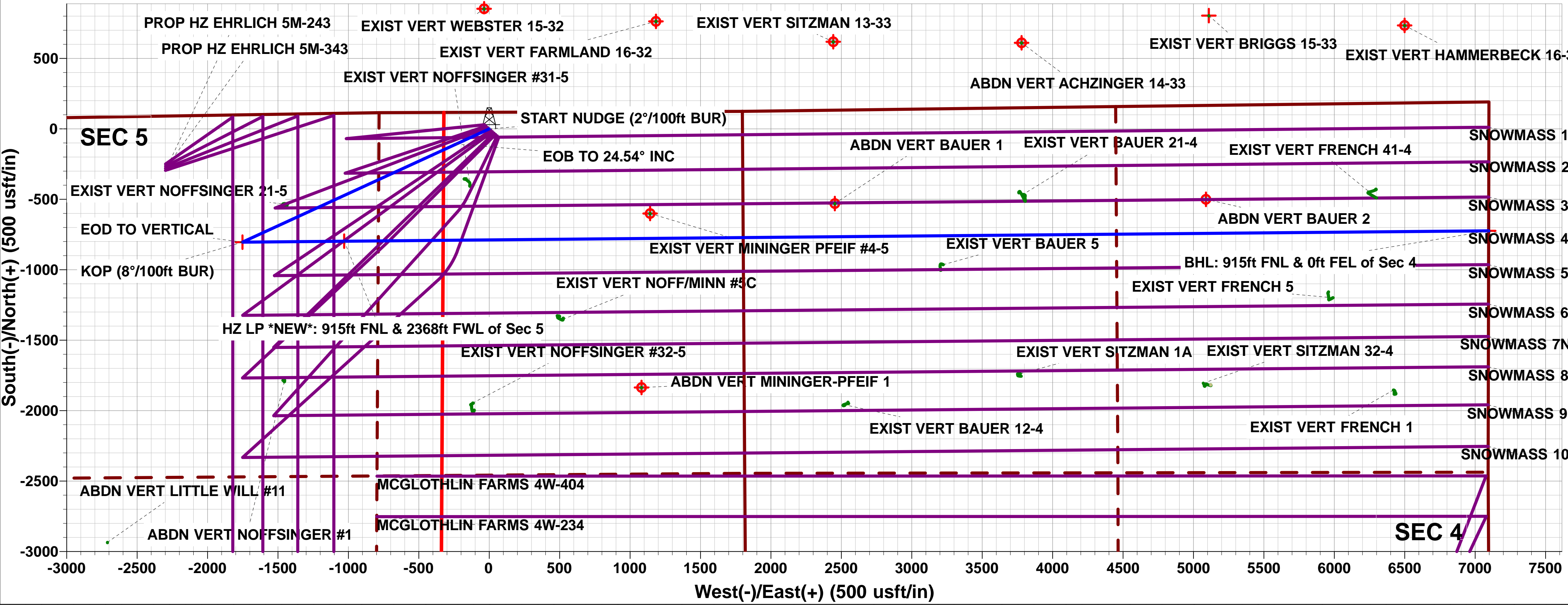
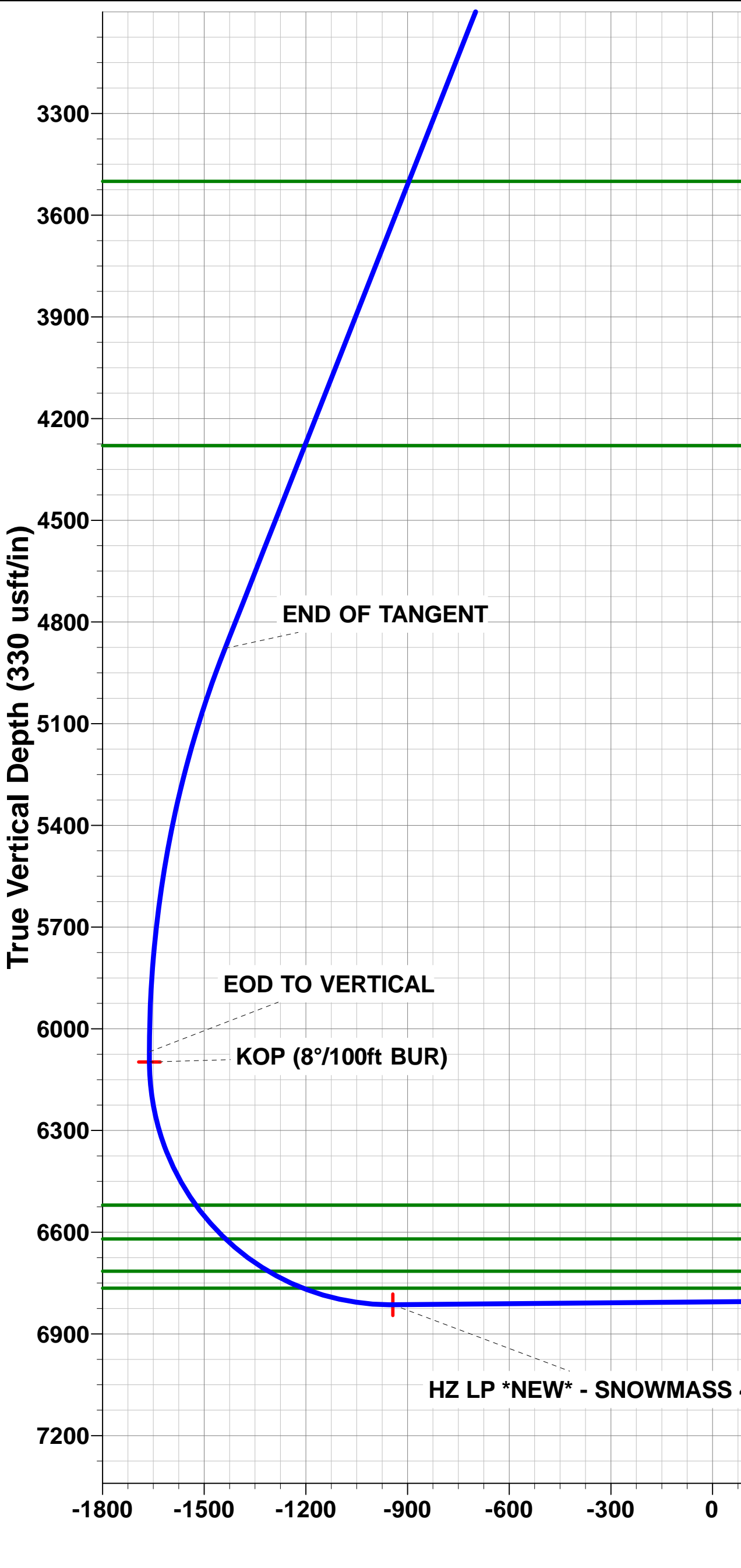
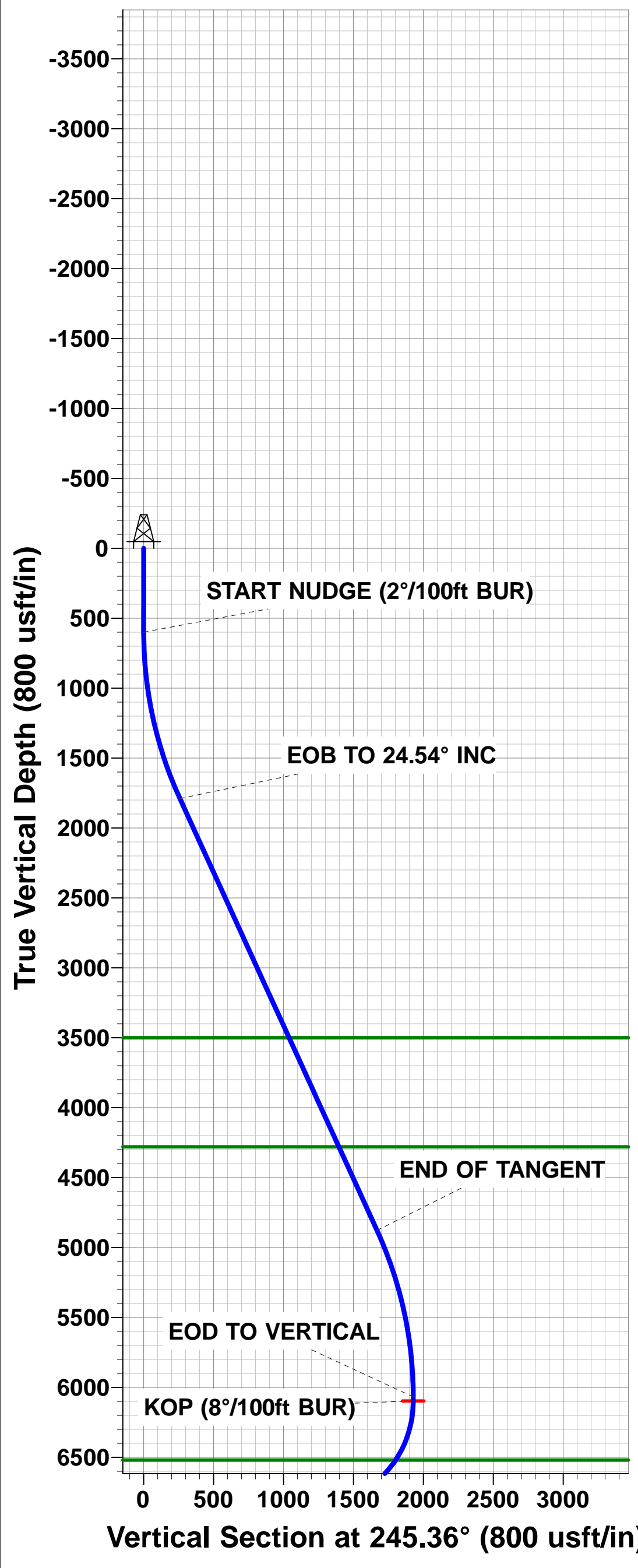
WELLBORE TARGET DETAILS (LAT/LONG)					
Name	TVD	+N/-S	+E/-W	Latitude	Longitude
KOP - SNOWMASS 4N (P2)	6097.8	-803.6	-1752.0	40.432752	-104.577537
BHL - SNOWMASS 4N (P2)	6742.0	-723.2	7096.0	40.432970	-104.545754
HZ LP *NEW* - SNOWMASS 4N (P2)	6814.0	-797.0	-1029.5	40.432770	-104.574942



PROPOSED LOCAL COORDINATES:
SHL: 118ft FNL & 1798ft FEL of Sec 5
HZ LP *NEW*: 915ft FNL & 2368ft FWL of Sec 5
BHL: 915ft FNL & 0ft FEL of Sec 4

Azimuths to True North
Magnetic North: 8.16°

Magnetic Field
Strength: 52480.7snT
Dip Angle: 66.92°
Date: 13/01/2017
Model: IGRF2015



PDC ENERGY

**WELD COUNTY, COLORADO
NW NE SEC. 5 T5N R64W 6th P.M.
SNOWMASS 4N**

**ORIGINAL WELLBORE
PROPOSAL #2**

Anticollision Report

08 March, 2017



Anticollision Report



Company:	PDC ENERGY	Local Co-ordinate Reference:	Well SNOWMASS 4N
Project:	WELD COUNTY, COLORADO	TVD Reference:	KB-EST @ 4657.0usft (Original Well Elev)
Reference Site:	NW NE SEC. 5 T5N R64W 6th P.M.	MD Reference:	KB-EST @ 4657.0usft (Original Well Elev)
Site Error:	0.0 usft	North Reference:	True
Reference Well:	SNOWMASS 4N	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	08/03/2017		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.0	15,736.3	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						
NW NE SEC. 5 T5N R64W 6th P.M.						
ABDN VERT ACHZINGER 14-33 - Wellbore #1 - Design	12,432.4	6,751.2	1,364.6	1,081.7	4.824	CC
ABDN VERT ACHZINGER 14-33 - Wellbore #1 - Design	12,500.0	6,750.6	1,366.2	1,081.5	4.799	ES
ABDN VERT ACHZINGER 14-33 - Wellbore #1 - Design	12,600.0	6,749.7	1,374.8	1,087.4	4.784	SF
ABDN VERT BAUER 1 - Wellbore #1 - Design #1	11,096.0	6,804.0	235.8	-11.7	0.953	Level 1, CC
ABDN VERT BAUER 1 - Wellbore #1 - Design #1	11,100.0	6,804.0	235.8	-11.8	0.952	Level 1, ES, SF
ABDN VERT BAUER 2 - Wellbore #1 - Design #1	13,730.9	6,739.7	241.8	-76.4	0.760	Level 1, CC, ES, SF
EXIST HZ LUCCI STATE B3-69HNL - Wellbore #1 - Wel	15,736.3	17,000.0	1,000.0	466.3	1.874	CC, ES, SF
EXIST VERT BAUER 21-4 - Wellbore #1 - Wellbore #1	12,405.5	6,500.0	386.6	265.4	3.191	CC, ES, SF
EXIST VERT BAUER 5 - Wellbore #1 - Wellbore #1	11,862.9	6,700.0	209.3	77.0	1.582	CC, ES, SF
EXIST VERT BRIGGS 15-33 - Wellbore #1 - Design #1	13,763.6	6,744.4	1,545.4	1,226.3	4.842	CC
EXIST VERT BRIGGS 15-33 - Wellbore #1 - Design #1	13,800.0	6,744.1	1,545.9	1,225.7	4.829	ES
EXIST VERT BRIGGS 15-33 - Wellbore #1 - Design #1	14,000.0	6,742.3	1,563.4	1,237.8	4.801	SF
EXIST VERT FARMLAND 16-32 - Wellbore #1 - Design #	600.0	589.0	1,408.4	1,396.1	114.585	CC
EXIST VERT FARMLAND 16-32 - Wellbore #1 - Design #	9,900.0	6,782.6	1,541.4	1,325.0	7.121	ES
EXIST VERT FARMLAND 16-32 - Wellbore #1 - Design #	10,100.0	6,780.8	1,562.4	1,340.9	7.055	SF
EXIST VERT FRENCH 41-4 - Wellbore #1 - Wellbore #1	14,936.2	6,400.0	434.2	274.7	2.723	CC, ES, SF
EXIST VERT FRENCH 5 - Wellbore #1 - Wellbore #1	14,595.7	6,700.0	423.5	214.7	2.028	CC
EXIST VERT FRENCH 5 - Wellbore #1 - Wellbore #1	14,600.0	6,700.0	423.6	214.6	2.027	ES, SF
EXIST VERT GRANADOS #4-3 - Wellbore #1 - Design #	15,736.3	6,717.0	673.5	300.7	1.806	CC, ES, SF
EXIST VERT HAMMERBECK 16-33 - Wellbore #1 - Des	15,152.6	6,732.1	1,463.2	1,105.9	4.095	CC
EXIST VERT HAMMERBECK 16-33 - Wellbore #1 - Des	15,200.0	6,731.7	1,463.9	1,105.4	4.083	ES
EXIST VERT HAMMERBECK 16-33 - Wellbore #1 - Des	15,300.0	6,730.8	1,470.6	1,109.2	4.070	SF
EXIST VERT MININGER PFEIF #4-5 - Wellbore #1 - Des	9,783.9	6,777.6	177.0	-36.6	0.829	Level 1, CC, ES, SF
EXIST VERT NOFFSINGER/MINN #5C - Wellbore #1 - V	9,135.0	6,767.8	547.3	483.1	8.526	CC, ES
EXIST VERT NOFFSINGER/MINN #5C - Wellbore #1 - V	9,200.0	6,767.5	551.1	485.5	8.392	SF
EXIST VERT SITZMAN 13-33 - Wellbore #1 - Design #1	11,095.5	6,763.0	1,384.2	1,137.1	5.601	CC
EXIST VERT SITZMAN 13-33 - Wellbore #1 - Design #1	11,100.0	6,763.0	1,384.2	1,137.0	5.599	ES
EXIST VERT SITZMAN 13-33 - Wellbore #1 - Design #1	11,300.0	6,761.2	1,399.2	1,146.7	5.541	SF
EXIST VERT WEBSTER 15-32 - Wellbore #1 - Design #	600.0	586.0	853.6	841.4	69.629	CC
EXIST VERT WEBSTER 15-32 - Wellbore #1 - Design #	800.0	785.8	856.3	839.6	51.294	ES
EXIST VERT WEBSTER 15-32 - Wellbore #1 - Design #	8,900.0	6,788.5	1,664.9	1,471.8	8.626	SF
SNOWMASS 10N - ORIGINAL WELLBORE - PROPOSAL	300.0	300.0	89.8	88.7	83.733	CC, ES
SNOWMASS 10N - ORIGINAL WELLBORE - PROPOSAL	15,736.3	16,156.5	1,530.2	1,053.5	3.210	SF
SNOWMASS 1C - ORIGINAL WELLBORE - PROPOSAL	300.0	300.0	45.2	44.2	42.185	CC, ES
SNOWMASS 1C - ORIGINAL WELLBORE - PROPOSAL	15,736.3	14,779.0	741.4	287.6	1.634	SF
SNOWMASS 2N - ORIGINAL WELLBORE - PROPOSAL	400.0	400.0	29.9	28.4	19.665	CC, ES
SNOWMASS 2N - ORIGINAL WELLBORE - PROPOSAL	15,736.3	14,724.3	490.0	32.7	1.072	Level 2, SF

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

Anticollision Report



Company:	PDC ENERGY	Local Co-ordinate Reference:	Well SNOWMASS 4N
Project:	WELD COUNTY, COLORADO	TVD Reference:	KB-EST @ 4657.0usft (Original Well Elev)
Reference Site:	NW NE SEC. 5 T5N R64W 6th P.M.	MD Reference:	KB-EST @ 4657.0usft (Original Well Elev)
Site Error:	0.0 usft	North Reference:	True
Reference Well:	SNOWMASS 4N	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 Offset Well - Wellbore - Design	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Between Ellipses (usft)	Separation Factor	Warning
NW NE SEC. 5 T5N R64W 6th P.M.						
SNOWMASS 3N - ORIGINAL WELLBORE - PROPOSAL	500.0	500.0	15.1	13.1	7.644	CC
SNOWMASS 3N - ORIGINAL WELLBORE - PROPOSAL	15,736.3	15,296.6	248.4	-207.6	0.545	Level 1, ES, SF
SNOWMASS 5N - ORIGINAL WELLBORE - PROPOSAL	600.0	600.0	15.1	12.6	6.224	CC
SNOWMASS 5N - ORIGINAL WELLBORE - PROPOSAL	15,736.3	15,407.0	248.5	-208.9	0.543	Level 1, ES, SF
SNOWMASS 6N - ORIGINAL WELLBORE - PROPOSAL	600.0	600.0	29.9	27.5	12.362	CC, ES
SNOWMASS 6N - ORIGINAL WELLBORE - PROPOSAL	15,736.3	15,878.1	519.9	42.4	1.089	Level 2, SF
SNOWMASS 7N - ORIGINAL WELLBORE - PROPOSAL	600.0	600.0	45.0	42.6	18.586	CC, ES
SNOWMASS 7N - ORIGINAL WELLBORE - PROPOSAL	15,736.3	15,556.6	754.8	285.6	1.609	SF
SNOWMASS 8N - ORIGINAL WELLBORE - PROPOSAL	600.0	600.0	59.8	57.4	24.723	CC, ES
SNOWMASS 8N - ORIGINAL WELLBORE - PROPOSAL	15,736.3	16,001.5	965.1	487.3	2.020	SF
SNOWMASS 9N - ORIGINAL WELLBORE - PROPOSAL	400.0	400.0	74.9	73.4	49.233	CC, ES
SNOWMASS 9N - ORIGINAL WELLBORE - PROPOSAL	15,736.3	15,692.3	1,237.9	768.4	2.637	SF
NW NW SEC. 5 T5N R64W 6th P.M.						
ABDN VERT LITTLE WILL #11 - Wellbore #1 - Design #1	6,478.8	6,056.8	2,336.9	2,182.2	15.104	CC, ES, SF
ABDN VERT NOFFSINGER #1 - Wellbore #1 - Wellbore	6,550.0	6,147.6	1,017.8	975.7	24.194	SF
ABDN VERT NOFFSINGER #1 - Wellbore #1 - Wellbore	6,946.5	6,400.0	991.8	951.7	24.719	CC, ES
EHRlich 5J-223 - ORIGINAL WELLBORE - PROPOSAL	7,050.0	7,405.2	140.7	109.4	4.500	SF
EHRlich 5J-223 - ORIGINAL WELLBORE - PROPOSAL	7,078.6	7,404.8	137.2	106.8	4.520	CC, ES
EHRlich 5J-323 - ORIGINAL WELLBORE - PROPOSAL	6,950.0	7,458.0	351.9	317.9	10.347	SF
EHRlich 5J-323 - ORIGINAL WELLBORE - PROPOSAL	7,000.0	7,457.5	345.0	312.6	10.641	ES
EHRlich 5J-323 - ORIGINAL WELLBORE - PROPOSAL	7,007.4	7,457.4	344.9	312.7	10.716	CC
EHRlich 5M-243 - ORIGINAL WELLBORE - PROPOSAL	7,528.3	7,588.7	78.7	55.2	3.352	CC, ES, SF
EHRlich 5M-343 - ORIGINAL WELLBORE - PROPOSAL	7,299.4	7,552.1	67.3	42.7	2.732	CC, ES, SF
EXIST VERT NOFFSINGER #21-5 - Wellbore #1 - Wellb	4,955.6	4,618.9	108.9	73.6	3.083	CC, ES, SF
EXIST VERT NOFFSINGER #31-5 - Wellbore #1 - Wellb	1,919.0	1,850.4	253.4	245.4	31.679	CC, ES
EXIST VERT NOFFSINGER #31-5 - Wellbore #1 - Wellb	8,600.0	6,500.0	484.3	438.6	10.597	SF
EXIST VERT NOFFSINGER #32-5 - Wellbore #1 - Wellb	8,512.8	6,792.4	1,156.8	1,105.5	22.544	CC, ES
EXIST VERT NOFFSINGER #32-5 - Wellbore #1 - Wellb	9,100.0	6,778.0	1,297.2	1,233.6	20.400	SF
EXIST VERT PLUMB #B5-11 - Wellbore #1 - Wellbore #	7,000.0	6,620.9	2,336.2	2,298.2	61.429	ES
EXIST VERT PLUMB #B5-11 - Wellbore #1 - Wellbore #	7,026.7	6,640.5	2,336.1	2,298.2	61.637	CC
EXIST VERT PLUMB #B5-11 - Wellbore #1 - Wellbore #	15,736.3	6,750.0	9,040.5	8,799.9	37.577	SF
EXIST VERT PLUMB B5-14 - Wellbore #1 - Wellbore #1	6,359.4	5,890.6	3,538.0	3,497.5	87.374	ES
EXIST VERT PLUMB B5-14 - Wellbore #1 - Wellbore #1	7,060.7	6,479.8	3,536.6	3,498.0	91.699	CC
EXIST VERT PLUMB B5-14 - Wellbore #1 - Wellbore #1	15,736.3	6,637.4	9,246.6	9,006.2	38.475	SF

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

Anticollision Report



Company:	PDC ENERGY	Local Co-ordinate Reference:	Well SNOWMASS 4N
Project:	WELD COUNTY, COLORADO	TVD Reference:	KB-EST @ 4657.0usft (Original Well Elev)
Reference Site:	NW NE SEC. 5 T5N R64W 6th P.M.	MD Reference:	KB-EST @ 4657.0usft (Original Well Elev)
Site Error:	0.0 usft	North Reference:	True
Reference Well:	SNOWMASS 4N	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						
SE SE SEC. 4 T5N R64W 6th P.M.						
ABDN VERT ACHZIGER B5-9 - Wellbore #1 - Wellbore #	9,799.9	6,781.4	2,298.7	2,218.8	28.772	CC
ABDN VERT ACHZIGER B5-9 - Wellbore #1 - Wellbore #	9,900.0	6,779.5	2,300.9	2,218.5	27.926	ES
ABDN VERT ACHZIGER B5-9 - Wellbore #1 - Wellbore #	11,600.0	6,745.5	2,919.4	2,792.6	23.015	SF
ABDN VERT MININGER-PFEIF 1 - Wellbore #1 - Design	9,711.5	6,780.3	1,057.5	847.7	5.041	CC, ES
ABDN VERT MININGER-PFEIF 1 - Wellbore #1 - Design	9,800.0	6,779.5	1,061.2	849.2	5.007	SF
EXIST DD MILLAGE 13-3D - Wellbore #1 - Wellbore #1	15,736.3	6,735.7	2,365.3	2,112.8	9.366	CC, ES, SF
EXIST VERT ACHZINGER 1 - Wellbore #1 - Wellbore #1	10,842.3	6,755.3	2,320.7	2,214.0	21.755	CC
EXIST VERT ACHZINGER 1 - Wellbore #1 - Wellbore #1	10,900.0	6,754.2	2,321.4	2,213.2	21.456	ES
EXIST VERT ACHZINGER 1 - Wellbore #1 - Wellbore #1	12,200.0	6,732.9	2,688.6	2,545.5	18.795	SF
EXIST VERT BAUER 12-4 - Wellbore #1 - Design #1	11,177.6	6,764.3	1,184.7	935.2	4.749	CC
EXIST VERT BAUER 12-4 - Wellbore #1 - Design #1	11,200.0	6,764.1	1,184.9	934.9	4.739	ES
EXIST VERT BAUER 12-4 - Wellbore #1 - Design #1	11,300.0	6,763.2	1,191.0	938.3	4.713	SF
EXIST VERT BAUER 12-4 - Wellbore #1 - Wellbore #1	11,148.2	6,528.0	1,215.0	1,101.5	10.698	CC
EXIST VERT BAUER 12-4 - Wellbore #1 - Wellbore #1	11,200.0	6,528.0	1,216.1	1,101.2	10.582	ES
EXIST VERT BAUER 12-4 - Wellbore #1 - Wellbore #1	11,500.0	6,528.0	1,264.9	1,142.1	10.301	SF
EXIST VERT FLACK 5-3 - Wellbore #1 - Design #1	15,736.3	6,711.0	1,256.5	883.2	3.366	CC, ES, SF
EXIST VERT FRENCH 1 - Wellbore #1 - Wellbore #1	15,054.8	6,713.1	1,150.9	929.3	5.194	CC
EXIST VERT FRENCH 1 - Wellbore #1 - Wellbore #1	15,100.0	6,712.9	1,151.8	929.0	5.169	ES
EXIST VERT FRENCH 1 - Wellbore #1 - Wellbore #1	15,200.0	6,712.4	1,160.1	934.4	5.142	SF
EXIST VERT OGRADY 1 - Wellbore #1 - Wellbore #1	13,682.8	6,740.1	2,412.9	2,229.3	13.139	CC
EXIST VERT OGRADY 1 - Wellbore #1 - Wellbore #1	13,700.0	6,740.0	2,413.0	2,228.9	13.106	ES
EXIST VERT OGRADY 1 - Wellbore #1 - Wellbore #1	14,600.0	6,737.4	2,581.4	2,372.5	12.354	SF
EXIST VERT OGRADY 43-4 - Wellbore #1 - Wellbore #1	15,047.2	6,690.7	2,552.2	2,330.9	11.534	CC
EXIST VERT OGRADY 43-4 - Wellbore #1 - Wellbore #1	15,100.0	6,690.7	2,552.8	2,330.0	11.461	ES
EXIST VERT OGRADY 43-4 - Wellbore #1 - Wellbore #1	15,736.3	6,691.9	2,643.6	2,403.2	10.997	SF
EXIST VERT SITZMAN 1A - Wellbore #1 - Wellbore #1	12,409.0	6,700.0	1,002.8	853.9	6.737	CC, ES
EXIST VERT SITZMAN 1A - Wellbore #1 - Wellbore #1	12,600.0	6,700.0	1,020.8	866.8	6.627	SF
EXIST VERT SITZMAN 23-4 - Wellbore #1 - Wellbore #1	12,583.0	6,600.0	2,409.0	2,255.6	15.699	CC
EXIST VERT SITZMAN 23-4 - Wellbore #1 - Wellbore #1	12,600.0	6,600.0	2,409.1	2,255.2	15.652	ES
EXIST VERT SITZMAN 23-4 - Wellbore #1 - Wellbore #1	13,600.0	6,600.0	2,614.9	2,433.7	14.427	SF
EXIST VERT SITZMAN 32-4 - Wellbore #1 - Design #1	13,753.2	6,736.5	1,074.7	755.8	3.370	CC
EXIST VERT SITZMAN 32-4 - Wellbore #1 - Design #1	13,800.0	6,736.1	1,075.7	755.5	3.359	ES
EXIST VERT SITZMAN 32-4 - Wellbore #1 - Design #1	13,900.0	6,735.2	1,084.7	761.8	3.359	SF
EXIST VERT SITZMAN 32-4 - Wellbore #1 - Wellbore #1	13,702.3	6,475.0	1,095.2	914.9	6.076	CC, ES
EXIST VERT SITZMAN 32-4 - Wellbore #1 - Wellbore #1	13,900.0	6,475.0	1,112.9	927.3	5.998	SF
MCGLOTHLIN FARMS 4W-234 - ORIGINAL WELLBORI	7,824.7	14,507.5	1,960.3	1,706.5	7.723	CC, ES, SF
MCGLOTHLIN FARMS 4W-404 - ORIGINAL WELLBORI	7,827.7	14,720.3	1,670.1	1,416.0	6.572	CC, ES, SF

Offset Design												Offset Site Error:	0.0 usft
Survey Program: 0-INC												Offset Well Error:	0.0 usft
Reference													
Offset													
Semi Major Axis													
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+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	80.81	611.2	3,780.0	3,829.1				
100.0	100.0	80.0	80.0	0.1	0.7	80.81	611.2	3,780.0	3,829.1	3,828.3	0.76	5,054.644	
200.0	200.0	180.0	180.0	0.3	2.7	80.81	611.2	3,780.0	3,829.1	3,826.0	3.05	1,254.754	
300.0	300.0	280.0	280.0	0.5	4.9	80.81	611.2	3,780.0	3,829.1	3,823.7	5.42	706.807	
400.0	400.0	380.0	380.0	0.8	6.9	80.81	611.2	3,780.0	3,829.1	3,821.4	7.69	497.762	
500.0	500.0	480.0	480.0	1.0	9.0	80.81	611.2	3,780.0	3,829.1	3,819.1	9.95	384.874	
600.0	600.0	580.0	580.0	1.2	11.0	80.81	611.2	3,780.0	3,829.1	3,816.9	12.20	313.925	

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