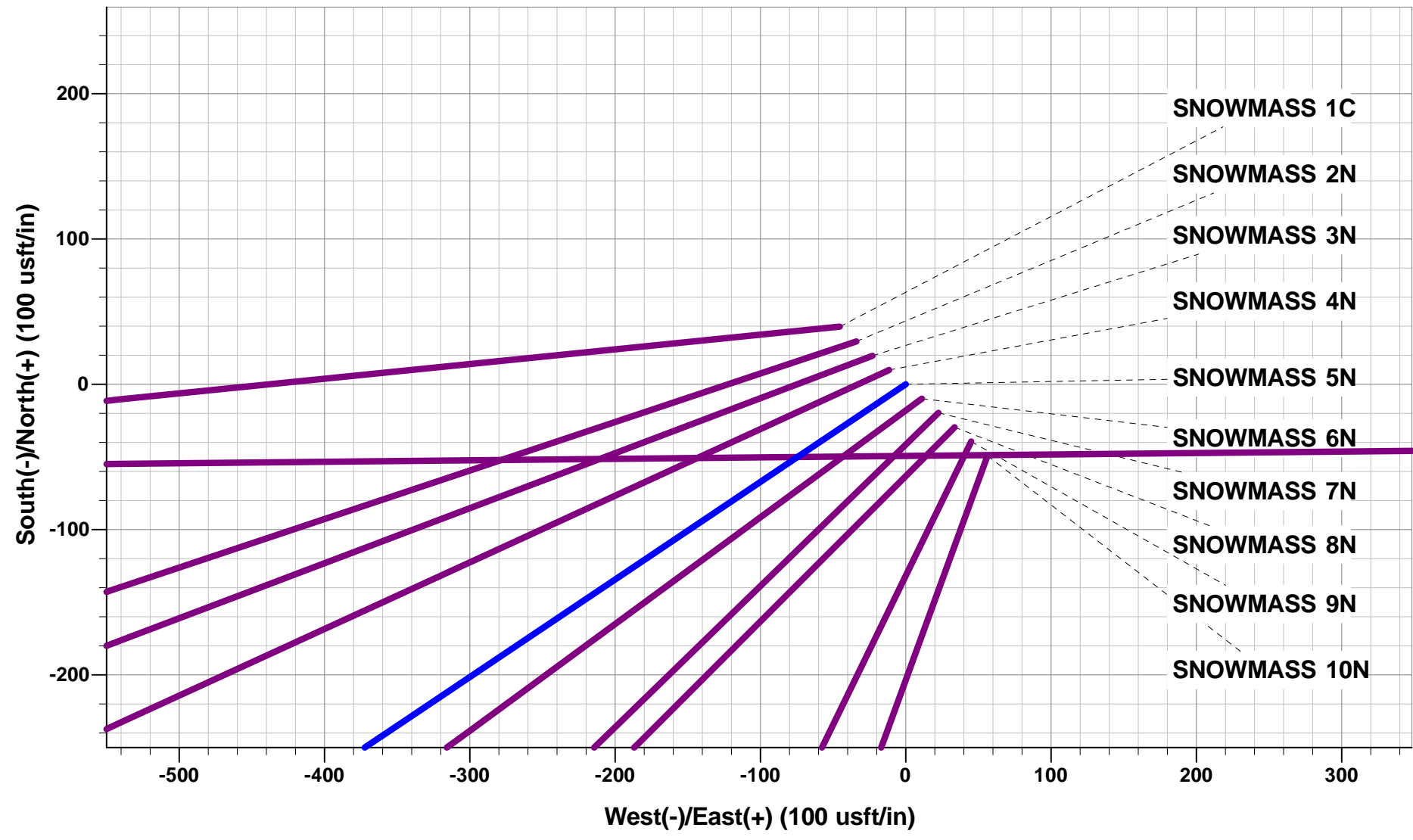




Project: WELD COUNTY, COLORADO
Site: NW NE SEC. 5 T5N R64W 6th P.M.
Well: SNOWMASS 5N
Wellbore: ORIGINAL WELLBORE
Design: PROPOSAL #2

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: 128ft FNL & 1787ft FEL of Sec 5		
700.0	700.0	0.00	0.00	0.0	0.0	0.0	0.0	START NUDGE (2°/100ft BUR)		
1895.5	1933.2	24.66	236.12	-145.7	-217.0	-195.6	261.4	EOB TO 24.66° INC		
4786.3	5114.3	24.66	236.12	-885.8	-1319.0	-1189.1	1588.9	END OF TANGENT		
5981.8	6347.5	0.00	0.00	-1031.5	-1536.0	-1384.7	1850.2	EOD TO VERTICAL		
6011.8	6377.5	0.00	0.00	-1031.5	-1536.0	-1384.7	1850.2	KOP (8°/100ft BUR)		
6728.0	7507.0	90.36	89.48	-1025.0	-815.3	-671.3	2570.9	HZ LP *NEW*: 1155ft FNL & 2593ft FWL of Sec 5		
6678.0	15407.0	90.37	89.48	-953.5	7084.1	7148.0	10470.7	BHL: 1155ft FNL & 0ft FEL of Sec 4		

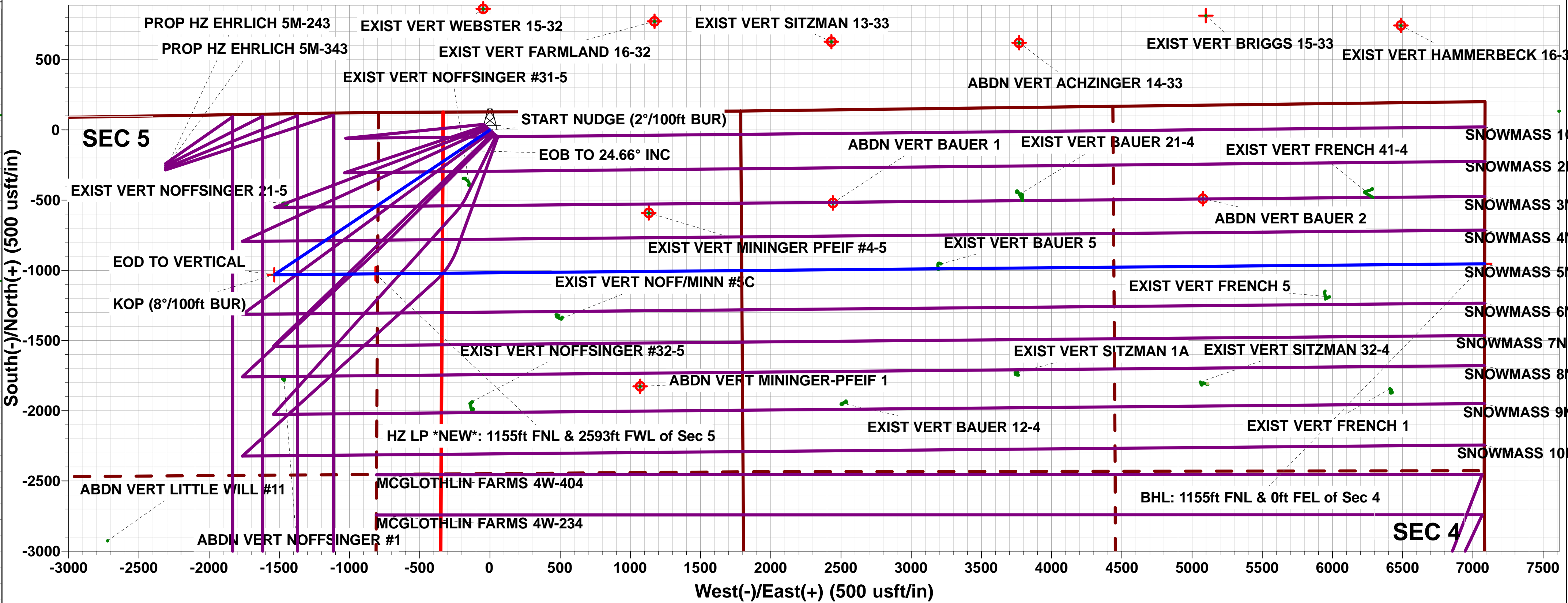
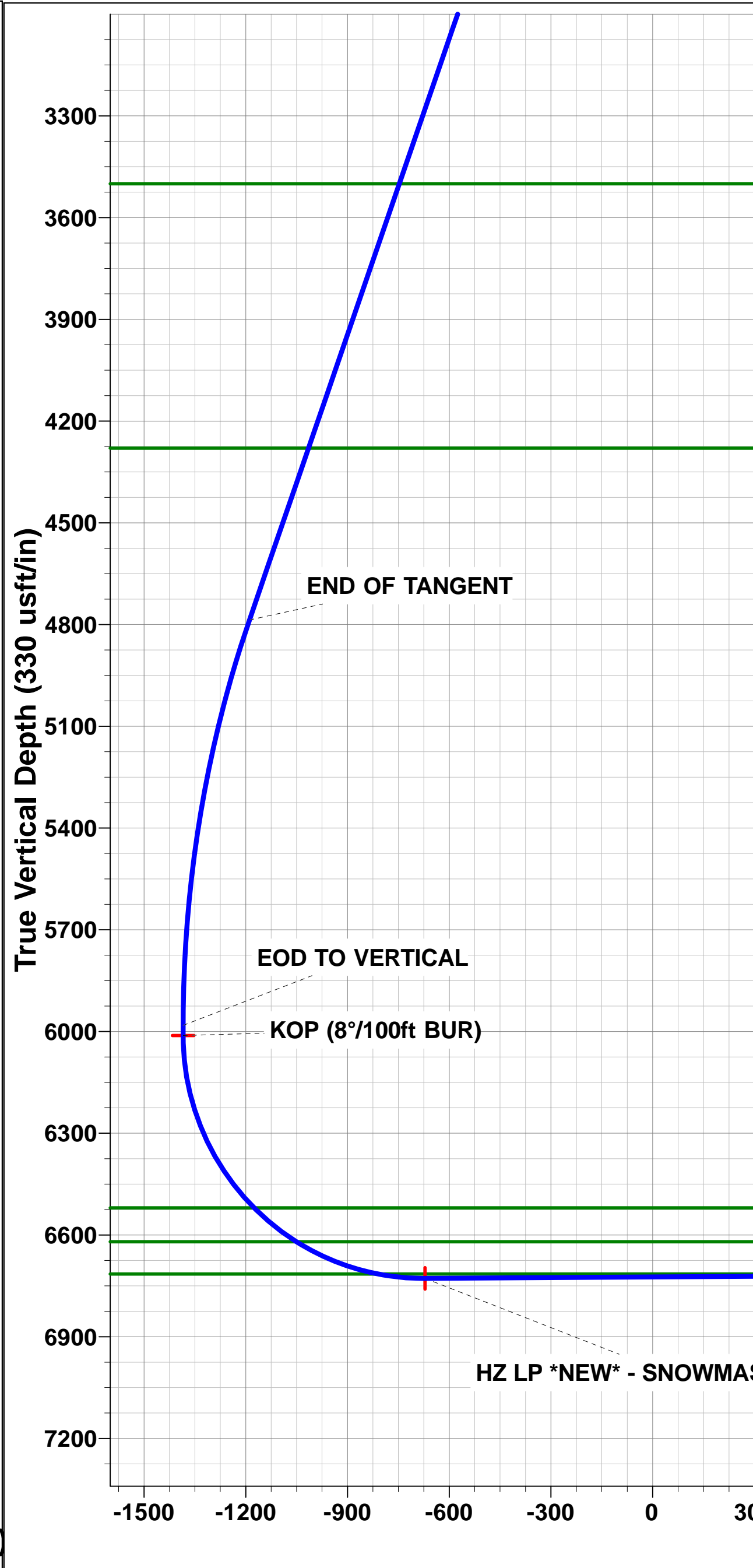
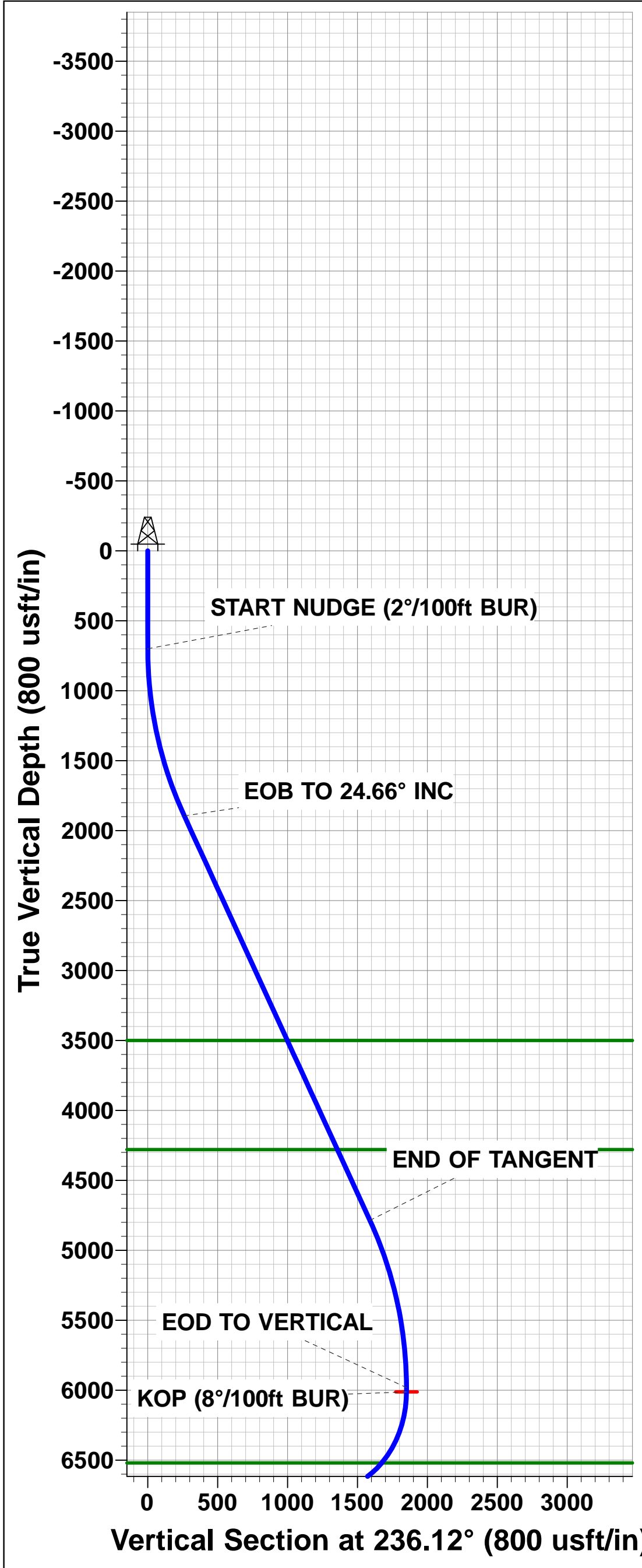
WELLBORE TARGET DETAILS (LAT/LONG)					
Name	TVD	+N/-S	+E/-W	Latitude	Longitude
KOP - SNOWMASS 5N (P2)	6011.8	-1031.5	-1536.0	40.432099	-104.576720
BHL - SNOWMASS 5N (P2)	6678.0	-953.5	7084.1	40.432311	-104.545756
HZ LP *NEW* - SNOWMASS 5N (P2)	6728.0	-1025.0	-815.3	40.432117	-104.574132



PROPOSED LOCAL COORDINATES:
SHL: 128ft FNL & 1787ft FEL of Sec 5
HZ LP *NEW*: 1155ft FNL & 2593ft FWL of Sec 5
BHL: 1155ft FNL & 0ft FEL of Sec 4

Azimuths to True North
Magnetic North: 8.16°

Magnetic Field
Strength: 52480.6snT
Dip Angle: 66.92°
Date: 13/01/2017
Model: IGRF2015



BHL - SNOWMASS 5N (P2)

PDC ENERGY

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

**ORIGINAL WELLBORE
PROPOSAL #2**

Anticollision Report

08 March, 2017



Anticollision Report



Company:	PDC ENERGY	Local Co-ordinate Reference:	Well SNOWMASS 5N
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 5N	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	15,407.0	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	12,105.7	6,679.0	1,604.4	1,329.6	5.838	CC, ES
ABDN VERT ACHZINGER 14-33 - Wellbore #1 - Design	12,400.0	6,677.1	1,631.2	1,348.3	5.767	SF
ABDN VERT BAUER 1 - Wellbore #1 - Design #1	10,769.4	6,728.4	475.7	236.4	1.988	CC, ES
ABDN VERT BAUER 1 - Wellbore #1 - Design #1	10,800.0	6,728.2	476.6	236.6	1.986	SF
ABDN VERT BAUER 2 - Wellbore #1 - Design #1	13,404.2	6,670.7	481.7	171.3	1.552	CC, ES, SF
EXIST HZ LUCCI STATE B3-69HNL - Wellbore #1 - Wel	15,407.0	17,000.0	1,209.6	681.5	2.291	CC, ES, SF
EXIST VERT BAUER 21-4 - Wellbore #1 - Wellbore #1	12,077.8	6,500.0	566.1	429.7	4.149	CC
EXIST VERT BAUER 21-4 - Wellbore #1 - Wellbore #1	12,100.0	6,500.0	566.6	429.5	4.134	ES, SF
EXIST VERT BAUER 5 - Wellbore #1 - Wellbore #1	11,535.8	6,668.8	35.0	-92.3	0.275	Level 1, CC, ES, SF
EXIST VERT BRIGGS 15-33 - Wellbore #1 - Design #1	13,436.9	6,675.5	1,785.4	1,474.0	5.734	CC
EXIST VERT BRIGGS 15-33 - Wellbore #1 - Design #1	13,500.0	6,675.1	1,786.5	1,473.4	5.706	ES
EXIST VERT BRIGGS 15-33 - Wellbore #1 - Design #1	13,700.0	6,673.9	1,804.7	1,486.1	5.665	SF
EXIST VERT FARMLAND 16-32 - Wellbore #1 - Design #	700.0	689.0	1,404.2	1,389.7	96.608	CC
EXIST VERT FARMLAND 16-32 - Wellbore #1 - Design #	800.0	789.0	1,405.9	1,389.2	83.958	ES
EXIST VERT FARMLAND 16-32 - Wellbore #1 - Design #	9,900.0	6,701.9	1,822.0	1,605.9	8.431	SF
EXIST VERT FRENCH 41-4 - Wellbore #1 - Wellbore #1	14,608.3	6,400.0	592.7	397.8	3.042	CC, ES
EXIST VERT FRENCH 41-4 - Wellbore #1 - Wellbore #1	14,700.0	6,400.0	599.7	402.6	3.042	SF
EXIST VERT FRENCH 5 - Wellbore #1 - Wellbore #1	14,268.7	6,650.6	183.6	-18.9	0.907	Level 1, CC, ES, SF
EXIST VERT GRANADOS #4-3 - Wellbore #1 - Design #	15,407.0	6,653.0	754.1	388.5	2.062	CC, ES, SF
EXIST VERT HAMMERBECK 16-33 - Wellbore #1 - Des	14,825.8	6,666.7	1,703.2	1,353.5	4.871	CC
EXIST VERT HAMMERBECK 16-33 - Wellbore #1 - Des	14,900.0	6,666.2	1,704.8	1,353.1	4.847	ES
EXIST VERT HAMMERBECK 16-33 - Wellbore #1 - Des	15,100.0	6,665.0	1,725.1	1,367.9	4.829	SF
EXIST VERT MININGER PFEIF #4-5 - Wellbore #1 - Des	9,457.3	6,698.7	416.8	211.9	2.035	CC, ES, SF
EXIST VERT NOFFSINGER/MINN #5C - Wellbore #1 - V	8,807.9	6,690.3	306.5	249.5	5.379	CC, ES, SF
EXIST VERT SITZMAN 13-33 - Wellbore #1 - Design #1	10,768.8	6,687.4	1,624.0	1,385.2	6.801	CC
EXIST VERT SITZMAN 13-33 - Wellbore #1 - Design #1	10,800.0	6,687.2	1,624.3	1,384.7	6.779	ES
EXIST VERT SITZMAN 13-33 - Wellbore #1 - Design #1	11,100.0	6,685.3	1,657.4	1,409.8	6.693	SF
EXIST VERT WEBSTER 15-32 - Wellbore #1 - Design #	700.0	686.0	864.0	849.5	59.571	CC
EXIST VERT WEBSTER 15-32 - Wellbore #1 - Design #	800.0	786.0	864.9	848.2	51.722	ES
EXIST VERT WEBSTER 15-32 - Wellbore #1 - Design #	8,700.0	6,706.5	1,924.5	1,737.5	10.296	SF
SNOWMASS 10N - ORIGINAL WELLBORE - PROPOSAL	300.0	300.0	74.7	73.6	69.680	CC, ES
SNOWMASS 10N - ORIGINAL WELLBORE - PROPOSAL	15,407.0	16,156.5	1,291.1	821.4	2.749	SF
SNOWMASS 1C - ORIGINAL WELLBORE - PROPOSAL	300.0	300.0	60.3	59.2	56.238	CC, ES
SNOWMASS 1C - ORIGINAL WELLBORE - PROPOSAL	15,407.0	14,776.4	988.2	542.7	2.218	SF
SNOWMASS 2N - ORIGINAL WELLBORE - PROPOSAL	400.0	400.0	45.0	43.5	29.567	CC, ES
SNOWMASS 2N - ORIGINAL WELLBORE - PROPOSAL	15,407.0	14,721.9	732.8	283.5	1.631	SF
SNOWMASS 3N - ORIGINAL WELLBORE - PROPOSAL	500.0	500.0	30.1	28.2	15.287	CC

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 5N
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 5N	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)	Distance Between Ellipses (usft)	Separation Factor	Warning
NW NE SEC. 5 T5N R64W 6th P.M.						
SNOWMASS 3N - ORIGINAL WELLBORE - PROPOSAL	15,407.0	15,294.4	480.1	15.6	1.034	Level 2, ES, SF
SNOWMASS 4N - ORIGINAL WELLBORE - PROPOSAL	600.0	600.0	15.1	12.6	6.224	CC
SNOWMASS 4N - ORIGINAL WELLBORE - PROPOSAL	15,407.0	15,734.2	248.5	-208.8	0.543	Level 1, ES, SF
SNOWMASS 6N - ORIGINAL WELLBORE - PROPOSAL	700.0	700.0	14.9	12.0	5.176	CC
SNOWMASS 6N - ORIGINAL WELLBORE - PROPOSAL	15,407.0	15,878.1	287.0	-172.5	0.625	Level 1, ES, SF
SNOWMASS 7N - ORIGINAL WELLBORE - PROPOSAL	700.0	700.0	29.9	27.1	10.426	CC, ES
SNOWMASS 7N - ORIGINAL WELLBORE - PROPOSAL	15,407.0	15,556.6	510.4	45.5	1.098	Level 2, SF
SNOWMASS 8N - ORIGINAL WELLBORE - PROPOSAL	700.0	700.0	44.8	41.9	15.602	CC, ES
SNOWMASS 8N - ORIGINAL WELLBORE - PROPOSAL	15,407.0	16,001.5	726.8	256.7	1.546	SF
SNOWMASS 9N - ORIGINAL WELLBORE - PROPOSAL	400.0	400.0	59.8	58.3	39.331	CC, ES
SNOWMASS 9N - ORIGINAL WELLBORE - PROPOSAL	15,407.0	15,692.3	995.1	531.3	2.145	SF
NW NW SEC. 5 T5N R64W 6th P.M.						
ABDN VERT LITTLE WILL #11 - Wellbore #1 - Design #1	6,377.5	5,970.8	2,234.4	2,078.4	14.324	CC, ES, SF
ABDN VERT NOFFSINGER #1 - Wellbore #1 - Wellbore	6,400.0	6,009.2	742.7	706.3	20.408	SF
ABDN VERT NOFFSINGER #1 - Wellbore #1 - Wellbore	6,650.0	6,252.3	738.4	703.5	21.124	ES
ABDN VERT NOFFSINGER #1 - Wellbore #1 - Wellbore	6,685.5	6,283.9	738.3	703.7	21.348	CC
EHRlich 5J-223 - ORIGINAL WELLBORE - PROPOSAL	6,850.0	7,644.6	363.6	324.1	9.202	SF
EHRlich 5J-223 - ORIGINAL WELLBORE - PROPOSAL	6,900.0	7,644.0	358.0	320.2	9.476	ES
EHRlich 5J-223 - ORIGINAL WELLBORE - PROPOSAL	6,902.2	7,644.0	358.0	320.3	9.495	CC
EHRlich 5J-323 - ORIGINAL WELLBORE - PROPOSAL	6,750.0	7,697.5	590.2	547.9	13.966	SF
EHRlich 5J-323 - ORIGINAL WELLBORE - PROPOSAL	6,850.0	7,696.4	573.0	534.0	14.674	ES
EHRlich 5J-323 - ORIGINAL WELLBORE - PROPOSAL	6,855.6	7,696.3	573.0	534.1	14.747	CC
EHRlich 5M-243 - ORIGINAL WELLBORE - PROPOSAL	7,223.8	7,829.1	60.2	31.9	2.126	CC, ES, SF
EHRlich 5M-343 - ORIGINAL WELLBORE - PROPOSAL	7,000.0	7,792.9	265.8	230.9	7.608	SF
EHRlich 5M-343 - ORIGINAL WELLBORE - PROPOSAL	7,069.9	7,792.1	253.1	220.7	7.826	CC, ES
EXIST VERT NOFFSINGER #21-5 - Wellbore #1 - Wellb	4,970.8	4,641.3	371.9	337.5	10.826	CC
EXIST VERT NOFFSINGER #21-5 - Wellbore #1 - Wellb	5,000.0	4,667.4	372.1	337.5	10.762	ES
EXIST VERT NOFFSINGER #21-5 - Wellbore #1 - Wellb	5,100.0	4,756.9	376.2	341.0	10.696	SF
EXIST VERT NOFFSINGER #31-5 - Wellbore #1 - Wellb	2,121.5	2,044.5	188.1	179.2	21.012	CC, ES
EXIST VERT NOFFSINGER #31-5 - Wellbore #1 - Wellb	8,400.0	6,500.0	688.3	641.9	14.837	SF
EXIST VERT NOFFSINGER #32-5 - Wellbore #1 - Wellb	8,187.6	6,704.2	917.5	873.2	20.741	CC
EXIST VERT NOFFSINGER #32-5 - Wellbore #1 - Wellb	8,200.0	6,703.9	917.6	873.1	20.640	ES
EXIST VERT NOFFSINGER #32-5 - Wellbore #1 - Wellb	8,600.0	6,695.2	1,005.9	953.3	19.150	SF
EXIST VERT PLUMB #B5-11 - Wellbore #1 - Wellbore #	6,647.1	6,300.4	2,110.7	2,077.0	62.599	CC, ES
EXIST VERT PLUMB #B5-11 - Wellbore #1 - Wellbore #	15,407.0	6,720.0	8,979.6	8,745.4	38.340	SF
EXIST VERT PLUMB B5-14 - Wellbore #1 - Wellbore #1	6,300.2	5,854.3	3,285.3	3,249.7	92.220	CC, ES
EXIST VERT PLUMB B5-14 - Wellbore #1 - Wellbore #1	15,407.0	6,554.2	9,154.5	8,920.5	39.123	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 5N
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 5N	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 #	9,474.3	6,707.2	2,059.3	1,986.5	28.285	CC
ABDN VERT ACHZIGER B5-9 - Wellbore #1 - Wellbore #	9,500.0	6,706.7	2,059.5	1,986.0	28.039	ES
ABDN VERT ACHZIGER B5-9 - Wellbore #1 - Wellbore #	11,100.0	6,666.4	2,623.4	2,508.0	22.721	SF
ABDN VERT MININGER-PFEIF 1 - Wellbore #1 - Design	9,384.9	6,701.2	817.7	616.6	4.067	CC
ABDN VERT MININGER-PFEIF 1 - Wellbore #1 - Design	9,400.0	6,701.1	817.8	616.4	4.060	ES
ABDN VERT MININGER-PFEIF 1 - Wellbore #1 - Design	9,500.0	6,700.4	825.7	621.8	4.049	SF
EXIST DD MILLAGE 13-3D - Wellbore #1 - Wellbore #1	15,407.0	6,673.0	2,134.6	1,888.5	8.674	CC, ES, SF
EXIST VERT ACHZINGER 1 - Wellbore #1 - Wellbore #1	10,516.1	6,669.5	2,080.3	1,980.5	20.836	CC
EXIST VERT ACHZINGER 1 - Wellbore #1 - Wellbore #1	10,600.0	6,668.6	2,082.0	1,980.0	20.398	ES
EXIST VERT ACHZINGER 1 - Wellbore #1 - Wellbore #1	11,700.0	6,654.1	2,393.6	2,261.9	18.171	SF
EXIST VERT BAUER 12-4 - Wellbore #1 - Design #1	10,851.0	6,688.9	944.9	703.7	3.918	CC
EXIST VERT BAUER 12-4 - Wellbore #1 - Design #1	10,900.0	6,688.6	946.1	703.7	3.902	ES
EXIST VERT BAUER 12-4 - Wellbore #1 - Design #1	11,000.0	6,688.0	956.5	711.4	3.902	SF
EXIST VERT BAUER 12-4 - Wellbore #1 - Wellbore #1	10,820.6	6,528.0	965.5	858.1	8.996	CC, ES
EXIST VERT BAUER 12-4 - Wellbore #1 - Wellbore #1	11,100.0	6,528.0	1,005.1	890.4	8.761	SF
EXIST VERT FLACK 5-3 - Wellbore #1 - Design #1	15,407.0	6,647.0	1,060.4	694.6	2.899	CC, ES, SF
EXIST VERT FRENCH 1 - Wellbore #1 - Wellbore #1	14,727.9	6,649.8	911.2	695.9	4.233	CC, ES
EXIST VERT FRENCH 1 - Wellbore #1 - Wellbore #1	14,800.0	6,649.5	914.0	696.7	4.207	SF
EXIST VERT OGRADY 1 - Wellbore #1 - Wellbore #1	13,355.8	6,667.1	2,173.0	1,995.8	12.262	CC
EXIST VERT OGRADY 1 - Wellbore #1 - Wellbore #1	13,400.0	6,667.1	2,173.4	1,995.0	12.181	ES
EXIST VERT OGRADY 1 - Wellbore #1 - Wellbore #1	14,100.0	6,667.5	2,296.9	2,099.1	11.612	SF
EXIST VERT OGRADY 43-4 - Wellbore #1 - Wellbore #1	14,719.9	6,626.4	2,311.6	2,096.6	10.754	CC
EXIST VERT OGRADY 43-4 - Wellbore #1 - Wellbore #1	14,800.0	6,626.7	2,313.0	2,095.8	10.650	ES
EXIST VERT OGRADY 43-4 - Wellbore #1 - Wellbore #1	15,407.0	6,628.9	2,411.5	2,177.5	10.303	SF
EXIST VERT SITZMAN 1A - Wellbore #1 - Wellbore #1	12,080.6	6,675.0	761.7	619.4	5.354	CC
EXIST VERT SITZMAN 1A - Wellbore #1 - Wellbore #1	12,100.0	6,675.9	762.0	619.2	5.335	ES
EXIST VERT SITZMAN 1A - Wellbore #1 - Wellbore #1	12,200.0	6,680.9	771.0	625.5	5.298	SF
EXIST VERT SITZMAN 23-4 - Wellbore #1 - Wellbore #1	12,255.6	6,600.0	2,166.1	2,019.1	14.734	CC
EXIST VERT SITZMAN 23-4 - Wellbore #1 - Wellbore #1	12,300.0	6,600.0	2,166.5	2,018.3	14.617	ES
EXIST VERT SITZMAN 23-4 - Wellbore #1 - Wellbore #1	13,100.0	6,600.0	2,324.8	2,154.6	13.659	SF
EXIST VERT SITZMAN 32-4 - Wellbore #1 - Design #1	13,426.5	6,667.6	834.8	523.6	2.683	CC, ES
EXIST VERT SITZMAN 32-4 - Wellbore #1 - Design #1	13,500.0	6,667.1	838.0	524.8	2.676	SF
EXIST VERT SITZMAN 32-4 - Wellbore #1 - Wellbore #1	13,374.6	6,475.0	845.7	671.3	4.848	CC
EXIST VERT SITZMAN 32-4 - Wellbore #1 - Wellbore #1	13,400.0	6,475.0	846.1	671.0	4.831	ES
EXIST VERT SITZMAN 32-4 - Wellbore #1 - Wellbore #1	13,500.0	6,475.0	855.0	677.1	4.808	SF
MCGLOTHLIN FARMS 4W-234 - ORIGINAL WELLBORI	7,496.9	14,507.5	1,717.4	1,469.2	6.918	CC
MCGLOTHLIN FARMS 4W-234 - ORIGINAL WELLBORI	7,507.0	14,507.5	1,717.5	1,469.1	6.916	ES, SF
MCGLOTHLIN FARMS 4W-404 - ORIGINAL WELLBORI	7,501.6	14,720.3	1,434.3	1,186.7	5.793	CC
MCGLOTHLIN FARMS 4W-404 - ORIGINAL WELLBORI	7,507.0	14,720.3	1,434.3	1,186.7	5.792	ES, SF

Offset Design NW NE SEC. 5 T5N R64W 6th P.M. - ABDN VERT ACHZINGER 14-33 - 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	Offset	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Separation Factor
0.0	0.0	0.0	0.0	0.0	0.0	80.64	621.1	3,768.6	3,819.5		
100.0	100.0	80.0	80.0	0.1	0.7	80.64	621.1	3,768.6	3,819.4	3,818.7	0.76 5,041.866
200.0	200.0	180.0	180.0	0.3	2.7	80.64	621.1	3,768.6	3,819.4	3,816.4	3.05 1,251.582
300.0	300.0	280.0	280.0	0.5	4.9	80.64	621.1	3,768.6	3,819.4	3,814.0	5.42 705.020
400.0	400.0	380.0	380.0	0.8	6.9	80.64	621.1	3,768.6	3,819.4	3,811.7	7.69 496.504
500.0	500.0	480.0	480.0	1.0	9.0	80.64	621.1	3,768.6	3,819.4	3,809.5	9.95 383.901

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