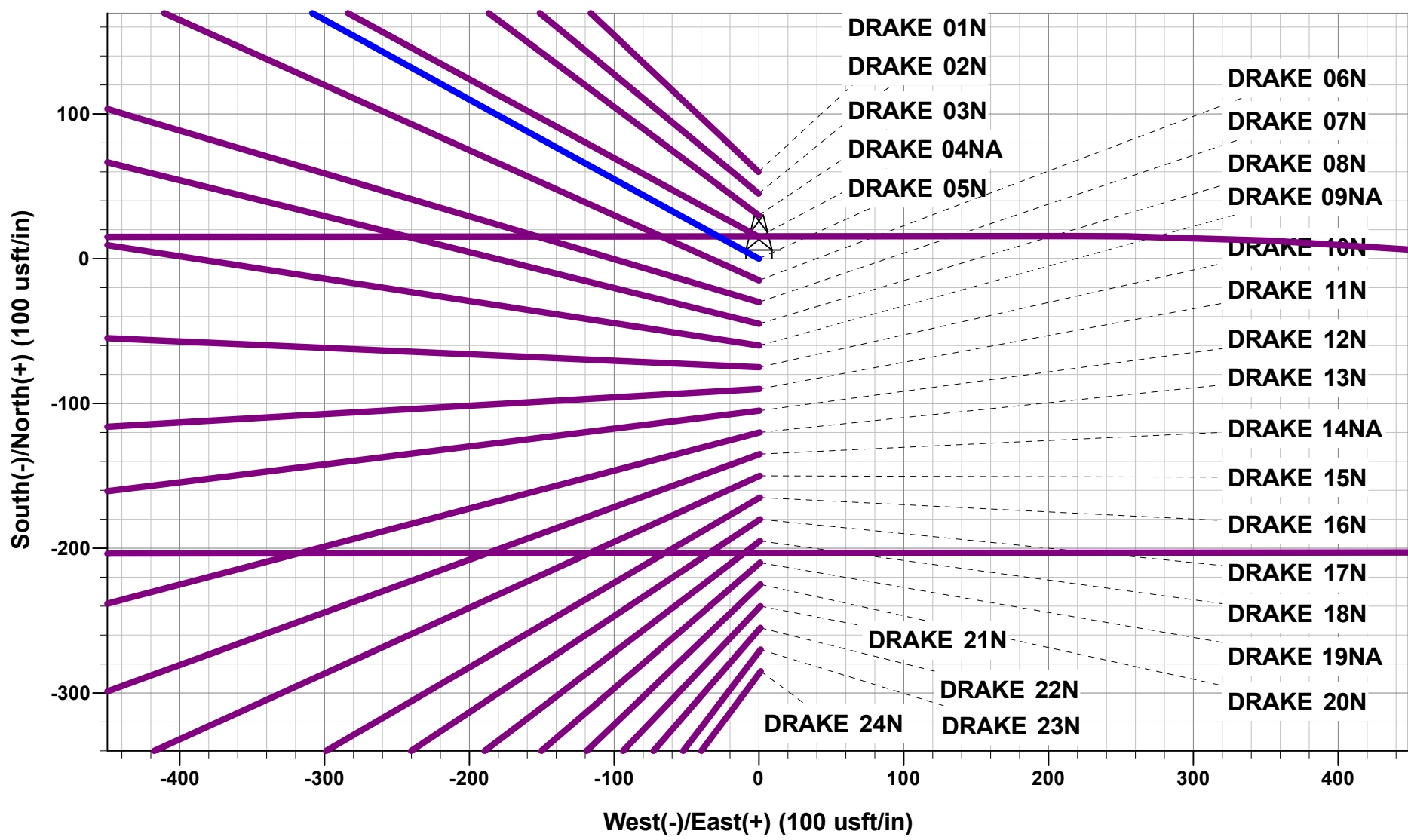




Project: WELD COUNTY, COLORADO (TRUE)
Site: SW NW SEC. 17 T4N R64W 6th P.M. (DRAKE)
Well: DRAKE 05N
Wellbore: ORIGINAL WELLBORE
Design: PROPOSAL #1

ANNOTATIONS

MD	Inc	Azi	TVD	+N/-S	+E/-W	VSec	Dep	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	SHL: 2116ft FNL & 1016ft FWL of Sec 17
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	START NUDGE (2.5°/100ft BUR)
1878.27	29.46	298.81	1827.04	142.76	-259.60	-240.76	296.27	EOB TO 29.46° INC
5352.07	29.46	298.81	4851.78	965.94	-1756.49	-1628.96	2004.56	END OF TANGENT
6530.33	0.00	0.00	5978.82	1108.70	-2016.09	-1869.71	2300.83	EOD TO VERTICAL
6630.33	0.00	0.00	6078.82	1108.70	-2016.09	-1869.71	2300.83	KOP (8°/100ft BUR)
7567.83	75.00	89.96	6770.61	1109.07	-1485.26	-1342.61	2831.67	EP: 996ft FNL & 450ft FEL of Sec 18
7760.08	90.38	89.96	6795.00	1109.21	-1295.15	-1153.84	3021.78	HZ LANDING POINT
18361.97	90.38	89.96	6725.00	1116.21	9306.52	9373.22	13623.44	BHL: 995ft FNL & 200ft FEL of Sec 16

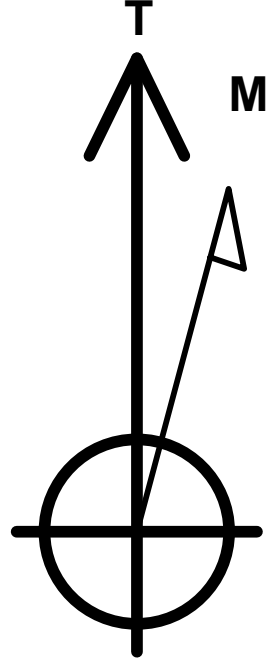


PROPOSED LOCAL COORDINATES:

SHL: 2116ft FNL & 1016ft FWL of Sec 17

EP: 996ft FNL & 450ft FEL of Sec 18

BHL: 995ft FNL & 200ft FEL of Sec 16

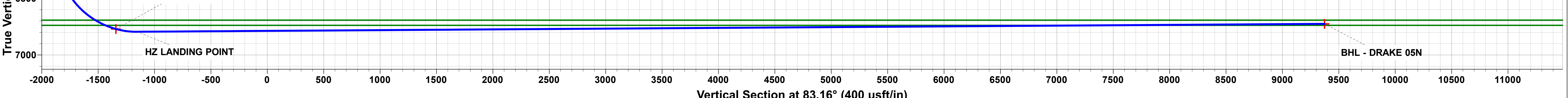
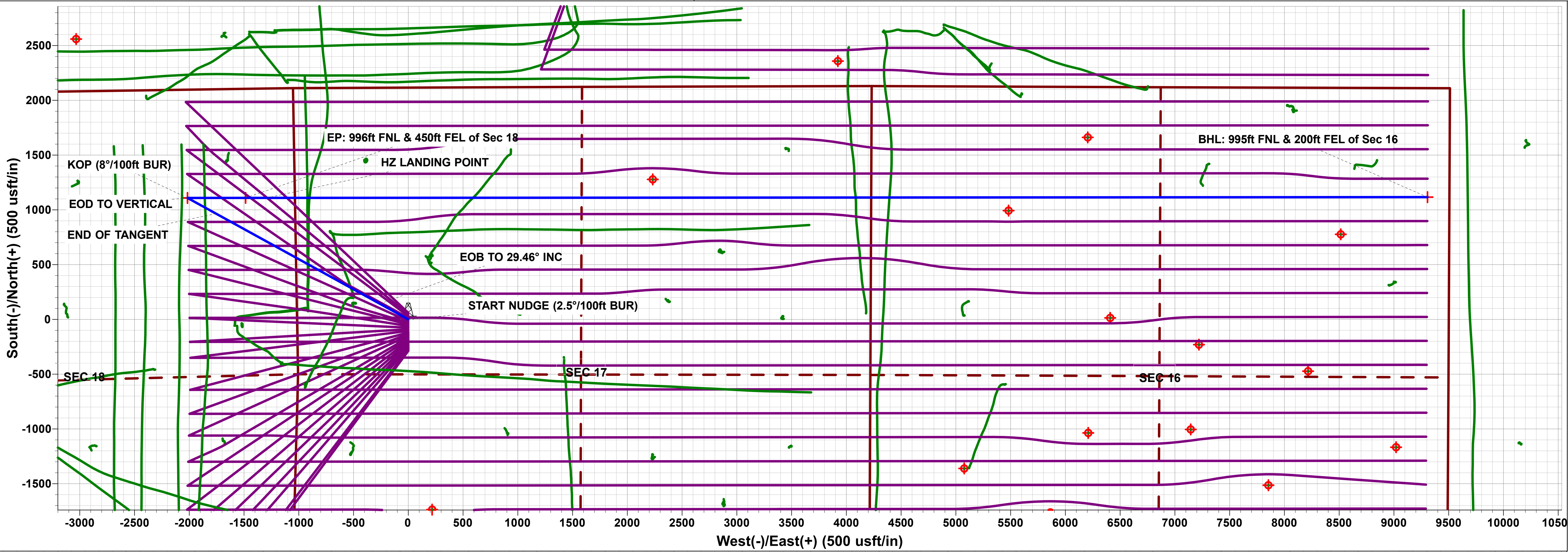
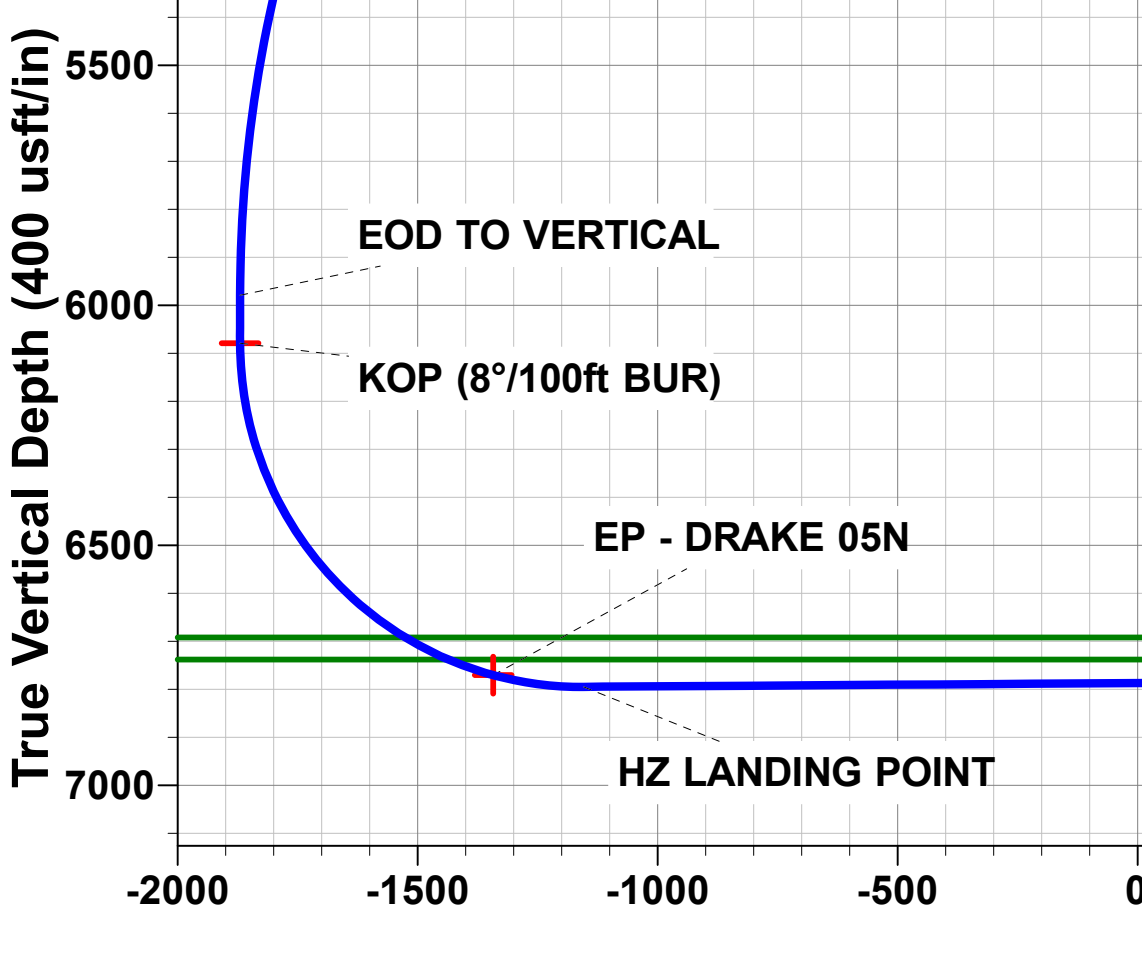
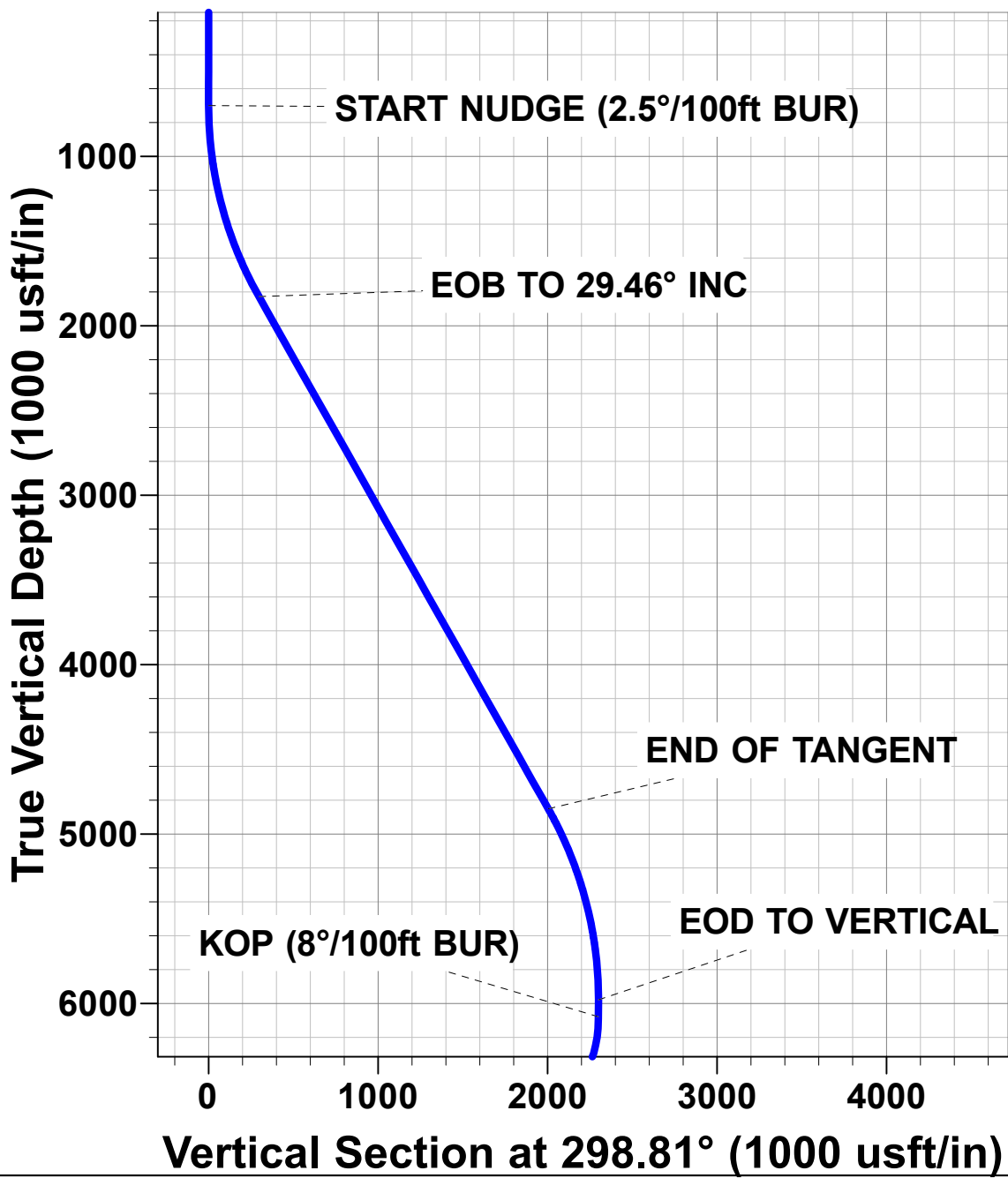


Azimuths to True North
Magnetic North: 7.75°

Magnetic Field
Strength: 51935.0nT
Dip Angle: 66.61°
Date: 2021-05-24
Model: IGRF2020

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
BHL - DRAKE 05N	6725.00	1116.21	9306.52	1359710.93	3265779.94	40.316886	-104.546859
EP - DRAKE 05N	6770.61	1109.07	-1485.26	1359591.87	3254989.28	40.316871	-104.585558
KOP - DRAKE 05N	6078.82	1108.70	-2016.09	1359585.99	3254458.50	40.316870	-104.587462



PDC ENERGY

**WELD COUNTY, COLORADO (TRUE)
SW NW SEC. 17 T4N R64W 6th P.M. (DRAKE)
DRAKE 05N**

**ORIGINAL WELLBORE
PROPOSAL #1**

Anticollision Report

26 May, 2021

Anticollision Report

Company:	PDC ENERGY	Local Co-ordinate Reference:	Well DRAKE 05N
Project:	WELD COUNTY, COLORADO (TRUE)	TVD Reference:	KB 23ft @ 4760.00usft
Reference Site:	SW NW SEC. 17 T4N R64W 6th P.M. (DRAKE)	MD Reference:	KB 23ft @ 4760.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	DRAKE 05N	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	ORIGINAL WELLBORE	Database:	Database 1
Reference Design:	PROPOSAL #1	Offset TVD Reference:	Offset Datum

Reference	PROPOSAL #1		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	MD + Stations Interval 100.00usft	Error Model:	ISCWSA
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum centre distance of 9,999.98usft	Error Surface:	Ellipsoid Separation
Warning Levels Evaluated at:	2.00 Sigma	Casing Method:	Not applied

Survey Tool Program	Date	2021-05-26		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.00	18,361.97	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. 21 T4N R64W 6th P.M. (GEORGE)						
GEORGE 01N - ORIGINAL WELLBORE - PROPOSAL #	8,173.61	18,121.45	4,393.22	4,050.54	12.820	CC
GEORGE 01N - ORIGINAL WELLBORE - PROPOSAL #	17,900.00	8,500.00	4,397.40	4,039.05	12.271	ES
GEORGE 01N - ORIGINAL WELLBORE - PROPOSAL #	18,361.97	7,915.94	4,410.18	4,040.76	11.938	SF
GEORGE 02N - ORIGINAL WELLBORE - PROPOSAL #	8,173.20	18,011.63	4,611.45	4,268.03	13.428	CC
GEORGE 02N - ORIGINAL WELLBORE - PROPOSAL #	18,361.97	7,828.76	4,613.97	4,244.45	12.486	ES, SF
SW NE SEC. 8 T4N R64W 6th P.M. (HEN)						
ABDN DD ALTER C 16-28D - Wellbore #1 - Wellbore #1	15,805.41	7,096.21	1,001.58	721.67	3.578	CC, ES, SF
ABDN DD ALTER C 16-29D - ORIGINAL WELLBORE - W	14,659.60	6,816.37	941.01	713.44	4.135	CC, ES
ABDN DD ALTER C 16-29D - ORIGINAL WELLBORE - W	14,700.00	6,818.00	941.88	713.80	4.130	SF
ABDN DD ALTER C 16-29D - SIDETRACK - SIDETRAC	14,367.59	6,696.65	1,200.68	984.99	5.567	CC
ABDN DD ALTER C 16-29D - SIDETRACK - SIDETRAC	14,400.00	6,697.20	1,201.12	984.70	5.550	ES, SF
ABDN HZ FRANKLIN C08-62HNX - ORIGINAL WELLBO	8,658.18	7,320.92	1,539.32	1,455.43	18.349	CC
ABDN HZ FRANKLIN C08-62HNX - ORIGINAL WELLBO	12,100.00	10,735.37	1,620.55	1,361.60	6.258	ES
ABDN HZ FRANKLIN C08-62HNX - ORIGINAL WELLBO	12,200.00	10,756.00	1,624.38	1,362.76	6.209	SF
ABDN HZ FRANKLIN C08-62HNX - SIDETRACK - SIDE	8,840.66	7,532.00	1,487.08	1,395.91	16.311	CC
ABDN HZ FRANKLIN C08-62HNX - SIDETRACK - SIDE	9,000.00	7,627.00	1,490.62	1,394.58	15.522	ES
ABDN HZ FRANKLIN C08-62HNX - SIDETRACK - SIDE	12,300.00	10,769.34	1,739.85	1,478.79	6.664	SF
ABDN VERT RYANN STATE C 16-27 - Wellbore #1 - We	17,149.47	6,631.67	786.59	507.29	2.816	CC, ES
ABDN VERT RYANN STATE C 16-27 - Wellbore #1 - We	17,200.00	6,632.88	788.21	508.22	2.815	SF
ABDN VERT STATE 16-214 - Wellbore #1 - Wellbore #1	16,310.69	6,670.77	108.31	-146.45	0.425	Level 3, CC, ES, SF
EXIST DD NGL C1C - Wellbore #1 - Wellbore #1	13,181.61	6,861.91	602.96	427.85	3.443	CC
EXIST DD NGL C1C - Wellbore #1 - Wellbore #1	13,200.00	6,861.98	603.24	427.54	3.433	ES, SF
EXIST HZ FRANKLIN C17-69HN - Wellbore #1 - Wellbor	8,900.54	7,580.66	1,058.22	965.44	11.405	CC
EXIST HZ FRANKLIN C17-69HN - Wellbore #1 - Wellbor	12,200.00	10,846.00	1,094.00	832.13	4.178	ES, SF
EXIST HZ JAGGED 11N - Wellbore #1 - Wellbore #1	7,250.00	10,209.25	1,374.75	1,242.24	10.375	SF
EXIST HZ JAGGED 11N - Wellbore #1 - Wellbore #1	7,350.00	10,136.78	1,371.24	1,240.10	10.456	ES
EXIST HZ JAGGED 11N - Wellbore #1 - Wellbore #1	7,395.10	10,095.48	1,370.95	1,240.68	10.524	CC
EXIST HZ JAGGED 12N - Wellbore #1 - Wellbore #1	7,200.00	10,180.51	1,143.85	1,011.47	8.641	SF
EXIST HZ JAGGED 12N - Wellbore #1 - Wellbore #1	7,567.83	9,813.25	1,125.24	1,001.43	9.088	ES
EXIST HZ JAGGED 12N - Wellbore #1 - Wellbore #1	8,615.20	8,794.30	1,117.29	1,009.15	10.331	CC
EXIST HZ MARK ALTER C16-79HN - Wellbore #1 - Well	13,448.67	8,035.84	25.02	-39.90	0.385	Level 3, CC, ES, SF
EXIST HZ SANDY HILLS PC C17-67HN - Wellbore #1 -	2,582.37	2,452.07	73.58	55.90	4.162	CC
EXIST HZ SANDY HILLS PC C17-67HN - Wellbore #1 -	12,700.00	11,003.66	258.98	22.00	1.093	Level 3, ES, SF
EXIST HZ STOCKLEY C15-79HN - Wellbore #1 - Wellbo	18,361.97	10,311.45	367.39	265.72	3.614	CC, ES, SF
EXIST VERT CPC HARLESS 17-1 - Wellbore #1 - Wellb	12,531.00	6,736.12	438.77	286.58	2.883	CC, ES, 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 DRAKE 05N
Project:	WELD COUNTY, COLORADO (TRUE)	TVD Reference:	KB 23ft @ 4760.00usft
Reference Site:	SW NW SEC. 17 T4N R64W 6th P.M. (DRAKE)	MD Reference:	KB 23ft @ 4760.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	DRAKE 05N	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	ORIGINAL WELLBORE	Database:	Database 1
Reference Design:	PROPOSAL #1	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 NE SEC. 8 T4N R64W 6th P.M. (HEN)						
EXIST VERT HARLESS PM C 17-2 - Wellbore #1 - Desi	11,287.45	6,749.74	166.81	-83.88	0.665	Level 3, CC, ES, SF
EXIST VERT NGL C1A - Wellbore #1 - Design #1	12,978.77	6,719.46	1,245.33	947.79	4.185	CC
EXIST VERT NGL C1A - Wellbore #1 - Design #1	13,000.00	6,719.32	1,245.52	947.45	4.179	ES
EXIST VERT NGL C1A - Wellbore #1 - Design #1	13,100.00	6,718.66	1,251.22	951.38	4.173	SF
EXIST VERT ROHR 15-414 - Wellbore #1 - Wellbore #1	18,361.97	6,620.90	997.75	891.33	9.375	CC, ES, SF
EXIST VERT ROHR C 15-19 - Wellbore #1 - Wellbore #1	18,361.97	6,618.94	1,444.55	1,395.67	29.557	CC, ES, SF
EXIST VERT RYANN STATE C 16-1 - Wellbore #1 - Wel	17,696.70	6,651.82	270.41	-20.85	0.928	Level 3, CC, ES, SF
EXIST VERT STATE 16-314 - Wellbore #1 - Design #1	15,260.07	6,676.67	547.40	188.27	1.524	CC, ES, SF
EXIST VERT STATE 16-414 - Wellbore #1 - Design #1	14,536.42	6,688.92	120.45	-216.55	0.357	Level 3, CC, ES, SF
HEN 21N - ORIGINAL WELLBORE - PROPOSAL #1	12,983.61	9,969.62	1,347.05	1,115.20	5.810	CC
HEN 21N - ORIGINAL WELLBORE - PROPOSAL #1	18,361.97	15,351.52	1,356.72	829.76	2.575	ES, SF
HEN 22N - ORIGINAL WELLBORE - PROPOSAL #1	18,361.97	15,391.91	1,114.73	586.13	2.109	CC, ES, SF

Anticollision Report

Company:	PDC ENERGY	Local Co-ordinate Reference:	Well DRAKE 05N
Project:	WELD COUNTY, COLORADO (TRUE)	TVD Reference:	KB 23ft @ 4760.00usft
Reference Site:	SW NW SEC. 17 T4N R64W 6th P.M. (DRAKE)	MD Reference:	KB 23ft @ 4760.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	DRAKE 05N	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	ORIGINAL WELLBORE	Database:	Database 1
Reference Design:	PROPOSAL #1	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
SW NW SEC. 17 T4N R64W 6th P.M. (DRAKE)						
ABDN DD SH C17-24D - Wellbore #1 - Wellbore #1	100.00	79.06	1,461.41	1,461.23	8,344.995	CC
ABDN DD SH C17-24D - Wellbore #1 - Wellbore #1	400.00	375.53	1,461.96	1,460.78	1,237.307	ES
ABDN DD SH C17-24D - Wellbore #1 - Wellbore #1	11,600.00	7,005.60	3,091.76	2,953.56	22.371	SF
ABDN DD STATE C 16-20D - Wellbore #1 - Wellbore #1	14,504.15	6,755.29	1,705.65	1,485.37	7.743	CC, ES
ABDN DD STATE C 16-20D - Wellbore #1 - Wellbore #1	14,700.00	6,755.25	1,716.86	1,493.22	7.677	SF
ABDN HZ FRICK C #17-79HN - ORIGINAL WELLBORE	8,134.07	7,554.51	11.88	-14.15	0.456	Level 3, CC, ES, SF
ABDN HZ FRICK C #17-79HN - SIDETRACK - SIDETRA	8,152.58	7,561.05	23.44	-3.29	0.877	Level 3, CC, ES, SF
ABDN VERT ANGELA C17-25 - Wellbore #1 - Design #1	700.00	685.00	1,749.89	1,735.03	117.743	CC
ABDN VERT ANGELA C17-25 - Wellbore #1 - Design #1	800.00	784.97	1,751.17	1,734.08	102.418	ES
ABDN VERT ANGELA C17-25 - Wellbore #1 - Design #1	10,000.00	6,765.16	2,938.37	2,718.38	13.357	SF
ABDN VERT CHENOWETH 21-4 - Wellbore #1 - Wellbo	14,179.68	6,829.70	4,987.13	4,789.94	25.291	CC
ABDN VERT CHENOWETH 21-4 - Wellbore #1 - Wellbo	14,300.00	6,828.15	4,988.59	4,788.16	24.890	ES
ABDN VERT CHENOWETH 21-4 - Wellbore #1 - Wellbo	15,700.00	6,742.87	5,213.57	4,985.34	22.843	SF
ABDN VERT CHENOWETH #1 - Wellbore #1 - Design #1	15,202.85	6,714.79	5,239.94	4,881.55	14.621	CC
ABDN VERT CHENOWETH #1 - Wellbore #1 - Design #1	15,300.00	6,714.15	5,240.84	4,879.83	14.517	ES
ABDN VERT CHENOWETH #1 - Wellbore #1 - Design #1	16,400.00	6,706.91	5,374.95	4,990.50	13.981	SF
ABDN VERT CLEMONS 13-15 - Wellbore #1 - Wellbore	18,361.97	6,632.33	2,412.70	2,121.50	8.285	CC, ES, SF
ABDN VERT FRICK #32-18 - Wellbore #1 - Wellbore #1	6,439.13	5,903.74	1,535.96	1,486.79	31.236	CC, ES
ABDN VERT FRICK #32-18 - Wellbore #1 - Wellbore #1	6,630.33	6,092.80	1,537.74	1,488.36	31.139	SF
ABDN VERT FRICK C18-2 - Wellbore #1 - Wellbore #1	6,475.07	5,937.47	1,014.12	987.66	38.319	CC, ES
ABDN VERT FRICK C18-2 - Wellbore #1 - Wellbore #1	6,700.00	6,157.04	1,021.70	994.81	37.988	SF
ABDN VERT FRICK C18-8 - Wellbore #1 - Wellbore #1	3,959.28	3,636.14	764.13	733.78	25.185	CC
ABDN VERT FRICK C18-8 - Wellbore #1 - Wellbore #1	4,000.00	3,670.36	764.42	733.63	24.833	ES
ABDN VERT FRICK C18-8 - Wellbore #1 - Wellbore #1	4,400.00	4,015.00	796.19	762.14	23.379	SF
ABDN VERT HARLESS PM C17-8 - Wellbore #1 - Wellb	12,480.67	6,708.04	1,107.78	956.77	7.336	CC
ABDN VERT HARLESS PM C17-8 - Wellbore #1 - Wellb	12,500.00	6,708.08	1,107.94	956.42	7.312	ES
ABDN VERT HARLESS PM C17-8 - Wellbore #1 - Wellb	12,600.00	6,708.31	1,114.18	960.76	7.262	SF
ABDN VERT MARY MILLS #41-18 - Wellbore #1 - Wellb	7,250.00	6,627.34	390.17	340.91	7.919	SF
ABDN VERT MARY MILLS #41-18 - Wellbore #1 - Wellb	7,350.00	6,682.53	377.47	330.96	8.117	ES
ABDN VERT MARY MILLS #41-18 - Wellbore #1 - Wellb	7,376.13	6,695.18	376.83	331.38	8.292	CC
ABDN VERT OCOMA C17-10 - Wellbore #1 - Wellbore #	11,299.56	6,736.51	2,369.91	2,250.28	19.811	CC
ABDN VERT OCOMA C17-10 - Wellbore #1 - Wellbore #	11,400.00	6,737.16	2,372.04	2,249.76	19.398	ES
ABDN VERT OCOMA C17-10 - Wellbore #1 - Wellbore #	11,900.00	6,740.49	2,444.78	2,312.87	18.533	SF
ABDN VERT OCOMA C17-11 - Wellbore #1 - Wellbore #	710.76	670.90	1,388.35	1,386.38	702.751	CC, ES
ABDN VERT OCOMA C17-11 - Wellbore #1 - Wellbore #	10,600.00	6,753.00	2,211.13	2,112.22	22.354	SF
ABDN VERT OCOMA C17-13 - Wellbore #1 - Design #1	700.00	691.00	2,576.35	2,561.43	172.645	CC
ABDN VERT OCOMA C17-13 - Wellbore #1 - Design #1	900.00	890.75	2,578.62	2,559.23	132.972	ES
ABDN VERT OCOMA C17-13 - Wellbore #1 - Design #1	9,600.00	6,773.80	3,794.02	3,583.34	18.009	SF
ABDN VERT OCOMA C17-16 - Wellbore #1 - Wellbore #	12,598.27	6,881.46	3,534.12	3,379.81	22.903	CC
ABDN VERT OCOMA C17-16 - Wellbore #1 - Wellbore #	12,700.00	6,884.10	3,535.59	3,378.57	22.517	ES
ABDN VERT OCOMA C17-16 - Wellbore #1 - Wellbore #	13,600.00	6,907.48	3,673.25	3,498.67	21.040	SF
ABDN VERT OCOMA C17-23 - Wellbore #1 - Wellbore #	11,934.45	6,775.26	2,759.93	2,623.09	20.169	CC
ABDN VERT OCOMA C17-23 - Wellbore #1 - Wellbore #	12,000.00	6,774.60	2,760.70	2,622.11	19.919	ES
ABDN VERT OCOMA C17-23 - Wellbore #1 - Wellbore #	12,600.00	6,768.53	2,839.03	2,688.36	18.843	SF
ABDN VERT OCOMA C17-9 - Wellbore #1 - Wellbore #1	12,531.78	6,710.78	2,277.64	2,125.35	14.956	CC
ABDN VERT OCOMA C17-9 - Wellbore #1 - Wellbore #1	12,600.00	6,709.94	2,278.66	2,124.56	14.787	ES
ABDN VERT OCOMA C17-9 - Wellbore #1 - Wellbore #1	13,000.00	6,704.95	2,325.26	2,163.56	14.381	SF
ABDN VERT OCOMA-UPRR C7-15 - Wellbore #1 - Desi	6,630.33	6,148.82	1,771.65	1,620.41	11.714	CC
ABDN VERT OCOMA-UPRR C7-15 - Wellbore #1 - Desi	6,650.00	6,168.48	1,771.80	1,620.15	11.684	ES
ABDN VERT OCOMA-UPRR C7-15 - Wellbore #1 - Desi	6,850.00	6,365.06	1,791.02	1,635.97	11.551	SF
ABDN VERT OCOMA-UPRR C7-16 - Wellbore #1 - Well	6,530.33	5,977.05	1,533.60	1,484.04	30.946	SF
ABDN VERT OCOMA-UPRR C7-16 - Wellbore #1 - Well	7,350.00	6,716.84	1,506.17	1,461.07	33.395	ES

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 DRAKE 05N
Project:	WELD COUNTY, COLORADO (TRUE)	TVD Reference:	KB 23ft @ 4760.00usft
Reference Site:	SW NW SEC. 17 T4N R64W 6th P.M. (DRAKE)	MD Reference:	KB 23ft @ 4760.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	DRAKE 05N	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	ORIGINAL WELLBORE	Database:	Database 1
Reference Design:	PROPOSAL #1	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
SW NW SEC. 17 T4N R64W 6th P.M. (DRAKE)						
ABDN VERT OCOMA-UPRR C7-16 - Wellbore #1 - Well	7,353.74	6,719.19	1,506.16	1,461.10	33.424	CC
ABDN VERT RITER C18-10 - Wellbore #1 - Wellbore #1	5,121.83	4,644.65	2,417.33	2,374.24	56.097	CC
ABDN VERT RITER C18-10 - Wellbore #1 - Wellbore #1	5,200.00	4,716.57	2,417.53	2,373.56	54.982	ES
ABDN VERT RITER C18-10 - Wellbore #1 - Wellbore #1	6,650.00	6,101.47	2,452.00	2,401.11	48.174	SF
ABDN VERT RITER C18-16 - Wellbore #1 - Wellbore #1	402.03	408.71	2,981.41	2,980.28	2,633.774	CC
ABDN VERT RITER C18-16 - Wellbore #1 - Wellbore #1	1,600.00	1,595.16	2,985.55	2,979.94	532.104	ES
ABDN VERT RITER C18-16 - Wellbore #1 - Wellbore #1	10,100.00	6,869.14	4,470.83	4,393.06	57.488	SF
ABDN VERT RYANN STATE C16-22 - Wellbore #1 - Des	17,270.88	6,653.17	1,588.13	1,173.74	3.832	CC
ABDN VERT RYANN STATE C16-22 - Wellbore #1 - Des	17,300.00	6,652.98	1,588.39	1,173.28	3.826	ES
ABDN VERT RYANN STATE C16-22 - Wellbore #1 - Des	17,400.00	6,652.33	1,593.37	1,176.66	3.824	SF
ABDN VERT RYANN STATE C16-24 - Wellbore #1 - We	16,049.89	6,681.43	2,902.85	2,653.98	11.664	CC
ABDN VERT RYANN STATE C16-24 - Wellbore #1 - We	16,100.00	6,680.93	2,903.28	2,653.08	11.604	ES
ABDN VERT RYANN STATE C16-24 - Wellbore #1 - We	16,500.00	6,676.96	2,937.53	2,679.72	11.394	SF
ABDN VERT SANDY HILLS FARM C17-4 - Wellbore #1	8,659.53	6,792.93	348.35	290.80	6.053	CC, ES, SF
ABDN VERT SCHNEIDER #43-18 - Wellbore #1 - Wellbo	3,212.33	3,015.75	1,799.08	1,777.02	81.550	CC
ABDN VERT SCHNEIDER #43-18 - Wellbore #1 - Wellbo	3,300.00	3,080.42	1,799.85	1,776.84	78.210	ES
ABDN VERT SCHNEIDER #43-18 - Wellbore #1 - Wellbo	8,300.00	6,806.68	2,392.62	2,337.86	43.691	SF
ABDN VERT SCHNEIDER/DIC/COLTON #34-18 - Wellb	4,227.16	3,924.29	3,707.83	3,597.22	33.523	CC
ABDN VERT SCHNEIDER/DIC/COLTON #34-18 - Wellb	4,700.00	4,336.00	3,715.11	3,591.17	29.974	ES
ABDN VERT SCHNEIDER/DIC/COLTON #34-18 - Wellb	7,300.00	6,707.08	3,893.87	3,711.42	21.343	SF
ABDN VERT STATE 16-1214 - Wellbore #1 - Design #1	14,130.16	6,690.86	2,474.41	2,145.99	7.534	CC
ABDN VERT STATE 16-1214 - Wellbore #1 - Design #1	14,200.00	6,690.40	2,475.40	2,145.14	7.495	ES
ABDN VERT STATE 16-1214 - Wellbore #1 - Design #1	14,400.00	6,689.08	2,489.08	2,154.55	7.441	SF
ABDN VERT STATE 16-614 - Wellbore #1 - Design #1	15,464.13	6,672.07	1,100.44	735.74	3.017	CC
ABDN VERT STATE 16-614 - Wellbore #1 - Design #1	15,500.00	6,671.83	1,101.02	735.52	3.012	ES, SF
ABDN VERT STATE 16-714 - Wellbore #1 - Design #1	16,274.48	6,652.73	1,345.18	958.42	3.478	CC
ABDN VERT STATE 16-714 - Wellbore #1 - Design #1	16,300.00	6,652.56	1,345.42	958.04	3.473	ES, SF
ABDN VERT STATE 16-814 - Wellbore #1 - Wellbore #1	18,007.91	6,629.17	803.34	500.20	2.650	CC, ES, SF
ABDN VERT STATE 16-914 - Wellbore #1 - Design #1	18,073.91	6,658.89	2,282.71	1,845.84	5.225	CC
ABDN VERT STATE 16-914 - Wellbore #1 - Design #1	18,100.00	6,658.72	2,282.86	1,845.31	5.217	ES
ABDN VERT STATE 16-914 - Wellbore #1 - Design #1	18,300.00	6,657.41	2,293.88	1,852.64	5.199	SF
ABDN VERT STATE A 14-16 - Wellbore #1 - Design #1	14,277.46	4,414.00	4,011.09	3,775.30	17.012	CC
ABDN VERT STATE A 14-16 - Wellbore #1 - Design #1	14,400.00	4,414.00	4,012.96	3,774.38	16.820	ES
ABDN VERT STATE A 14-16 - Wellbore #1 - Design #1	15,200.00	4,414.00	4,115.81	3,862.45	16.245	SF
ABDN VERT STATE A 14-16X - Wellbore #1 - Wellbore #	14,277.53	6,686.32	3,348.68	3,148.64	16.740	CC
ABDN VERT STATE A 14-16X - Wellbore #1 - Wellbore #	14,400.00	6,685.73	3,350.92	3,147.66	16.486	ES
ABDN VERT STATE A 14-16X - Wellbore #1 - Wellbore #	15,000.00	6,682.86	3,425.73	3,211.09	15.960	SF
ABDN VERT UPRR 36 PAN AM B #1 - Wellbore #1 - De	700.00	694.00	2,526.17	2,511.12	167.810	CC
ABDN VERT UPRR 36 PAN AM B #1 - Wellbore #1 - De	800.00	793.97	2,526.93	2,509.64	146.152	ES
ABDN VERT UPRR 36 PAN AM B #1 - Wellbore #1 - De	9,800.00	6,775.48	3,778.67	3,563.56	17.566	SF
ABDN VERT UPRR OCOMA C17-12 - Wellbore #1 - We	211.87	190.88	1,336.81	1,336.30	2,596.709	CC
ABDN VERT UPRR OCOMA C17-12 - Wellbore #1 - We	300.00	278.18	1,336.85	1,336.06	1,684.067	ES
ABDN VERT UPRR OCOMA C17-12 - Wellbore #1 - We	9,500.00	6,800.00	2,439.46	2,366.11	33.259	SF
DRAKE 01N - ORIGINAL WELLBORE - PROPOSAL #1	215.99	217.99	59.97	59.27	85.804	CC
DRAKE 01N - ORIGINAL WELLBORE - PROPOSAL #1	300.00	301.96	59.97	58.90	55.710	ES
DRAKE 01N - ORIGINAL WELLBORE - PROPOSAL #1	18,361.97	18,629.28	877.95	263.40	1.429	Level 3, SF
DRAKE 02N - ORIGINAL WELLBORE - PROPOSAL #1	316.33	317.33	44.96	43.81	39.167	CC
DRAKE 02N - ORIGINAL WELLBORE - PROPOSAL #1	18,361.97	18,515.13	656.06	33.54	1.054	Level 3, ES, SF
DRAKE 03N - ORIGINAL WELLBORE - PROPOSAL #1	416.33	417.33	29.98	28.38	18.768	CC
DRAKE 03N - ORIGINAL WELLBORE - PROPOSAL #1	18,361.97	18,536.73	443.78	-69.75	0.864	Level 3, ES, SF
DRAKE 04NA - ORIGINAL WELLBORE - PROPOSAL #1	516.33	517.33	15.01	12.96	7.331	CC
DRAKE 04NA - ORIGINAL WELLBORE - PROPOSAL #1	18,361.97	18,376.15	175.49	-199.73	0.468	Level 3, ES, 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 DRAKE 05N
Project:	WELD COUNTY, COLORADO (TRUE)	TVD Reference:	KB 23ft @ 4760.00usft
Reference Site:	SW NW SEC. 17 T4N R64W 6th P.M. (DRAKE)	MD Reference:	KB 23ft @ 4760.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	DRAKE 05N	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	ORIGINAL WELLBORE	Database:	Database 1
Reference Design:	PROPOSAL #1	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
SW NW SEC. 17 T4N R64W 6th P.M. (DRAKE)						
DRAKE 06N - ORIGINAL WELLBORE - PROPOSAL #1	700.00	700.00	14.94	12.07	5.205 CC	
DRAKE 06N - ORIGINAL WELLBORE - PROPOSAL #1	18,300.06	18,331.69	229.54	-149.49	0.606 Level 3, ES, SF	
DRAKE 07N - ORIGINAL WELLBORE - PROPOSAL #1	700.00	699.00	29.98	27.11	10.454 CC	
DRAKE 07N - ORIGINAL WELLBORE - PROPOSAL #1	18,300.00	18,235.68	437.53	-180.42	0.708 Level 3, ES, SF	
DRAKE 08N - ORIGINAL WELLBORE - PROPOSAL #1	700.00	699.00	44.99	42.12	15.688 CC, ES	
DRAKE 08N - ORIGINAL WELLBORE - PROPOSAL #1	18,358.04	18,352.08	658.81	50.39	1.083 Level 3, SF	
DRAKE 09NA - ORIGINAL WELLBORE - PROPOSAL #1	700.00	698.00	59.97	57.10	20.925 CC, ES	
DRAKE 09NA - ORIGINAL WELLBORE - PROPOSAL #1	18,361.97	18,207.35	876.47	257.78	1.417 Level 3, SF	
DRAKE 10N - ORIGINAL WELLBORE - PROPOSAL #1	700.00	698.00	74.94	72.07	26.150 CC, ES	
DRAKE 10N - ORIGINAL WELLBORE - PROPOSAL #1	18,361.97	18,252.80	1,093.49	471.36	1.758 SF	
DRAKE 11N - ORIGINAL WELLBORE - PROPOSAL #1	700.00	698.00	89.98	87.12	31.400 CC, ES	
DRAKE 11N - ORIGINAL WELLBORE - PROPOSAL #1	18,361.97	18,346.24	1,313.51	690.80	2.109 SF	
DRAKE 12N - ORIGINAL WELLBORE - PROPOSAL #1	700.00	697.00	104.96	102.09	36.653 CC, ES	
DRAKE 12N - ORIGINAL WELLBORE - PROPOSAL #1	18,361.97	18,278.62	1,530.87	908.36	2.459 SF	
DRAKE 13N - ORIGINAL WELLBORE - PROPOSAL #1	700.00	697.00	119.97	117.10	41.895 CC, ES	
DRAKE 13N - ORIGINAL WELLBORE - PROPOSAL #1	18,361.97	18,359.72	1,750.56	1,129.36	2.818 SF	
DRAKE 14NA - ORIGINAL WELLBORE - PROPOSAL #1	700.00	697.00	134.98	132.11	47.137 CC, ES	
DRAKE 14NA - ORIGINAL WELLBORE - PROPOSAL #1	18,361.97	18,279.88	1,968.71	1,347.44	3.169 SF	
DRAKE 15N - ORIGINAL WELLBORE - PROPOSAL #1	700.00	697.00	149.91	147.05	52.353 CC, ES	
DRAKE 15N - ORIGINAL WELLBORE - PROPOSAL #1	18,361.97	18,367.16	2,186.89	1,566.81	3.527 SF	
DRAKE 16N - ORIGINAL WELLBORE - PROPOSAL #1	700.00	697.00	164.96	162.10	57.607 CC, ES	
DRAKE 16N - ORIGINAL WELLBORE - PROPOSAL #1	18,361.97	18,470.78	2,406.46	1,786.45	3.881 SF	
DRAKE 17N - ORIGINAL WELLBORE - PROPOSAL #1	700.00	697.00	179.97	177.11	62.849 CC, ES	
DRAKE 17N - ORIGINAL WELLBORE - PROPOSAL #1	18,361.97	18,295.67	2,618.71	2,005.52	4.271 SF	
DRAKE 18N - ORIGINAL WELLBORE - PROPOSAL #1	700.00	696.00	194.94	192.08	68.131 CC, ES	
DRAKE 18N - ORIGINAL WELLBORE - PROPOSAL #1	18,361.97	18,584.07	2,843.81	2,224.73	4.594 SF	
DRAKE 19NA - ORIGINAL WELLBORE - PROPOSAL #1	700.00	696.00	209.92	207.05	73.364 CC, ES	
DRAKE 19NA - ORIGINAL WELLBORE - PROPOSAL #1	18,361.97	18,523.56	3,062.33	2,443.22	4.946 SF	
DRAKE 20N - ORIGINAL WELLBORE - PROPOSAL #1	700.00	696.00	224.92	222.06	78.610 CC, ES	
DRAKE 20N - ORIGINAL WELLBORE - PROPOSAL #1	18,361.97	18,629.88	3,280.34	2,660.90	5.296 SF	
DRAKE 21N - ORIGINAL WELLBORE - PROPOSAL #1	600.00	597.00	239.97	237.56	99.410 CC, ES	
DRAKE 21N - ORIGINAL WELLBORE - PROPOSAL #1	18,361.97	18,755.39	3,499.84	2,881.44	5.659 SF	
DRAKE 22N - ORIGINAL WELLBORE - PROPOSAL #1	500.00	497.00	254.91	252.94	129.760 CC, ES	
DRAKE 22N - ORIGINAL WELLBORE - PROPOSAL #1	18,361.97	18,786.52	3,717.75	3,099.83	6.017 SF	
DRAKE 23N - ORIGINAL WELLBORE - PROPOSAL #1	400.00	396.00	269.95	268.44	178.461 CC, ES	
DRAKE 23N - ORIGINAL WELLBORE - PROPOSAL #1	18,361.97	18,757.30	3,937.21	3,322.30	6.403 SF	
DRAKE 24N - ORIGINAL WELLBORE - PROPOSAL #1	300.00	296.00	284.96	283.90	268.038 CC, ES	
DRAKE 24N - ORIGINAL WELLBORE - PROPOSAL #1	18,361.97	18,931.07	4,079.82	3,462.28	6.607 SF	
EXIST DD CRICKET C22-30D - Wellbore #1 - Wellbore #	18,361.97	6,751.31	4,360.74	4,032.43	13.283 CC, ES, SF	
EXIST DD FRANKLIN #C18-27D - Wellbore #1 - Wellbor	6,511.51	6,149.59	972.74	915.25	16.919 CC, ES	
EXIST DD FRANKLIN #C18-27D - Wellbore #1 - Wellbor	6,650.00	6,279.73	974.32	916.60	16.880 SF	
EXIST DD NEI C17-33D - Wellbore #1 - Wellbore #1	4,581.68	4,807.73	2,517.24	2,445.67	35.174 CC	
EXIST DD NEI C17-33D - Wellbore #1 - Wellbore #1	4,600.00	4,837.00	2,517.48	2,445.47	34.959 ES	
EXIST DD NEI C17-33D - Wellbore #1 - Wellbore #1	8,900.00	7,509.99	3,170.56	3,051.00	26.519 SF	
EXIST DD NEI C18-21D - Wellbore #1 - Wellbore #1	6,650.12	6,293.65	2,072.33	2,010.14	33.322 CC, ES	
EXIST DD NEI C18-21D - Wellbore #1 - Wellbore #1	6,700.00	6,342.95	2,073.51	2,011.24	33.298 SF	
EXIST DD NEI C18-22D - Wellbore #1 - Wellbore #1	5,467.41	5,423.31	1,555.30	1,481.88	21.183 CC	
EXIST DD NEI C18-22D - Wellbore #1 - Wellbore #1	5,500.00	5,441.05	1,555.45	1,481.62	21.068 ES	
EXIST DD NEI C18-22D - Wellbore #1 - Wellbore #1	6,700.00	6,512.63	1,596.81	1,517.36	20.099 SF	
EXIST DD NEI C18-23D - Wellbore #1 - Wellbore #1	4,488.43	4,394.82	2,713.21	2,649.91	42.864 CC	
EXIST DD NEI C18-23D - Wellbore #1 - Wellbore #1	4,600.00	4,470.13	2,714.63	2,649.41	41.622 ES	
EXIST DD NEI C18-23D - Wellbore #1 - Wellbore #1	8,000.00	7,445.40	3,284.25	3,191.62	35.457 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 DRAKE 05N
Project:	WELD COUNTY, COLORADO (TRUE)	TVD Reference:	KB 23ft @ 4760.00usft
Reference Site:	SW NW SEC. 17 T4N R64W 6th P.M. (DRAKE)	MD Reference:	KB 23ft @ 4760.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	DRAKE 05N	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	ORIGINAL WELLBORE	Database:	Database 1
Reference Design:	PROPOSAL #1	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
SW NW SEC. 17 T4N R64W 6th P.M. (DRAKE)						
EXIST DD NEI C18-24D - Wellbore #1 - Wellbore #1	4,889.06	4,274.17	3,121.38	3,066.57	56.952	CC
EXIST DD NEI C18-24D - Wellbore #1 - Wellbore #1	5,000.00	4,329.28	3,122.68	3,066.42	55.510	ES
EXIST DD NEI C18-24D - Wellbore #1 - Wellbore #1	6,700.00	6,430.84	3,186.34	3,114.71	44.482	SF
EXIST DD OSTER C19-27D - Wellbore #1 - Wellbore #1	4,080.85	3,760.38	3,146.39	3,110.79	88.377	CC
EXIST DD OSTER C19-27D - Wellbore #1 - Wellbore #1	4,200.00	3,852.05	3,147.51	3,110.33	84.655	ES
EXIST DD OSTER C19-27D - Wellbore #1 - Wellbore #1	10,600.00	7,282.67	5,665.30	5,571.10	60.141	SF
EXIST DD PLUSS C17-32D - Wellbore #1 - Wellbore #1	2,211.43	2,071.29	266.59	253.36	20.151	CC, ES
EXIST DD PLUSS C17-32D - Wellbore #1 - Wellbore #1	2,400.00	2,220.25	289.97	273.97	18.128	SF
EXIST DD SH FARMS C17-3 - Wellbore #1 - Wellbore #1	9,992.55	6,935.38	429.51	323.94	4.069	CC
EXIST DD SH FARMS C17-3 - Wellbore #1 - Wellbore #1	10,000.00	6,935.31	429.57	323.77	4.060	ES, SF
EXIST DD SH FARMS C17-6 - Wellbore #1 - Wellbore #1	1,602.41	1,616.99	548.87	540.94	69.158	CC, ES
EXIST DD SH FARMS C17-6 - Wellbore #1 - Wellbore #1	10,200.00	6,911.41	1,055.21	943.57	9.452	SF
EXIST HZ COLLINS 18Q-221 - Wellbore #1 - Wellbore #	6,884.61	11,000.27	1,381.46	1,287.11	14.642	CC
EXIST HZ COLLINS 18Q-221 - Wellbore #1 - Wellbore #	6,900.00	11,000.49	1,381.71	1,286.93	14.579	ES
EXIST HZ COLLINS 18Q-221 - Wellbore #1 - Wellbore #	7,050.00	11,002.37	1,410.03	1,311.73	14.345	SF
EXIST HZ COLLINS 18Q-301 - Wellbore #1 - Wellbore #	6,876.55	11,036.77	1,637.47	1,541.08	16.988	CC, ES
EXIST HZ COLLINS 18Q-301 - Wellbore #1 - Wellbore #	7,050.00	11,033.02	1,667.22	1,567.30	16.686	SF
EXIST HZ COLLINS 18T-201 - Wellbore #1 - Wellbore #	7,045.00	10,811.81	605.71	521.91	7.228	CC
EXIST HZ COLLINS 18T-201 - Wellbore #1 - Wellbore #	7,050.00	10,811.79	605.75	521.49	7.189	ES
EXIST HZ COLLINS 18T-201 - Wellbore #1 - Wellbore #	7,200.00	10,810.58	641.12	545.90	6.733	SF
EXIST HZ COLLINS 18T-221 - ORIGINAL WELLBORE -	1,030.29	1,026.62	3,511.32	3,507.23	858.133	CC
EXIST HZ COLLINS 18T-221 - ORIGINAL WELLBORE -	1,030.30	1,026.62	3,511.32	3,507.23	858.128	ES
EXIST HZ COLLINS 18T-221 - ORIGINAL WELLBORE -	9,700.00	7,227.00	4,350.85	4,266.14	51.360	SF
EXIST HZ COLLINS 18T-221 - SIDETRACK - SIDETRAC	7,288.79	10,737.71	204.53	147.32	3.575	CC
EXIST HZ COLLINS 18T-221 - SIDETRACK - SIDETRAC	7,350.00	10,736.49	215.96	142.03	2.921	ES
EXIST HZ COLLINS 18T-221 - SIDETRACK - SIDETRAC	7,400.00	10,735.44	240.18	153.96	2.786	SF
EXIST HZ COLLINS 18T-321 - Wellbore #1 - Wellbore #	7,203.64	10,991.13	384.52	317.03	5.697	CC
EXIST HZ COLLINS 18T-321 - Wellbore #1 - Wellbore #	7,250.00	10,991.64	388.79	314.07	5.203	ES
EXIST HZ COLLINS 18T-321 - Wellbore #1 - Wellbore #	7,350.00	10,992.95	425.05	337.26	4.842	SF
EXIST HZ COLLINS 18T-341 - Wellbore #1 - Wellbore #	6,999.50	10,939.84	862.45	775.66	9.937	CC
EXIST HZ COLLINS 18T-341 - Wellbore #1 - Wellbore #	7,000.00	10,939.85	862.45	775.63	9.933	ES
EXIST HZ COLLINS 18T-341 - Wellbore #1 - Wellbore #	7,150.00	10,941.37	890.82	796.50	9.445	SF
EXIST HZ FRICK PC C17-65HN - Wellbore #1 - Wellbor	3,307.72	3,133.60	875.51	844.16	27.922	CC, ES
EXIST HZ FRICK PC C17-65HN - Wellbore #1 - Wellbor	12,900.00	11,373.00	1,787.23	1,486.60	5.945	SF
EXIST HZ STOCKLEY C22-79HN - Wellbore #1 - Wellbo	18,361.97	6,050.00	4,233.18	3,914.13	13.268	CC, ES, SF
EXIST VERT CHENOWETH #21-2 - Wellbore #1 - Desig	16,558.59	6,687.86	4,981.78	4,586.51	12.603	CC
EXIST VERT CHENOWETH #21-2 - Wellbore #1 - Desig	16,700.00	6,686.93	4,983.79	4,584.75	12.489	ES
EXIST VERT CHENOWETH #21-2 - Wellbore #1 - Desig	17,500.00	6,681.67	5,069.95	4,654.15	12.193	SF
EXIST VERT CLEMONS #15-1 - Wellbore #1 - Wellbore	18,361.97	6,624.26	3,782.53	3,477.88	12.416	CC, ES, SF
EXIST VERT CPC-HARLESS #17-2 - Wellbore #1 - Well	11,416.08	6,760.27	938.32	815.65	7.649	CC, ES
EXIST VERT CPC-HARLESS #17-2 - Wellbore #1 - Well	11,500.00	6,757.47	942.07	817.43	7.559	SF
EXIST VERT MORIAH #17-15 - Wellbore #1 - Wellbore #	11,891.67	6,721.01	494.95	359.70	3.660	CC
EXIST VERT MORIAH #17-15 - Wellbore #1 - Wellbore #	11,900.00	6,721.11	495.02	359.52	3.653	ES, SF
EXIST VERT OCOMA C17-15 - Wellbore #1 - Wellbore #	493.00	442.00	3,433.29	3,432.00	2,663.761	CC
EXIST VERT OCOMA C17-15 - Wellbore #1 - Wellbore #	700.00	642.31	3,433.56	3,431.69	1,838.051	ES
EXIST VERT OCOMA C17-15 - Wellbore #1 - Wellbore #	12,600.00	6,882.44	4,006.47	3,861.26	27.591	SF
EXIST VERT RYANN STATE C16-21 - Wellbore #1 - Des	16,198.63	6,677.23	2,119.31	1,734.14	5.502	CC
EXIST VERT RYANN STATE C16-21 - Wellbore #1 - Des	16,200.00	6,677.22	2,119.31	1,734.10	5.502	ES
EXIST VERT RYANN STATE C16-21 - Wellbore #1 - Des	16,400.00	6,675.91	2,128.85	1,739.52	5.468	SF
EXIST VERT RYANN STATE C16-23 - Wellbore #1 - Des	17,588.70	6,660.08	2,996.62	2,573.25	7.078	CC
EXIST VERT RYANN STATE C16-23 - Wellbore #1 - Des	17,700.00	6,659.35	2,998.69	2,572.51	7.036	ES
EXIST VERT RYANN STATE C16-23 - Wellbore #1 - Des	17,900.00	6,658.04	3,012.75	2,582.68	7.005	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 DRAKE 05N
Project:	WELD COUNTY, COLORADO (TRUE)	TVD Reference:	KB 23ft @ 4760.00usft
Reference Site:	SW NW SEC. 17 T4N R64W 6th P.M. (DRAKE)	MD Reference:	KB 23ft @ 4760.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	DRAKE 05N	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	ORIGINAL WELLBORE	Database:	Database 1
Reference Design:	PROPOSAL #1	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
SW NW SEC. 17 T4N R64W 6th P.M. (DRAKE)						
EXIST VERT RYANN STATE C16-25 - Wellbore #1 - Des	14,916.51	6,681.68	2,875.85	2,526.02	8.221	CC
EXIST VERT RYANN STATE C16-25 - Wellbore #1 - Des	15,000.00	6,681.13	2,877.06	2,525.04	8.173	ES
EXIST VERT RYANN STATE C16-25 - Wellbore #1 - Des	15,300.00	6,679.15	2,901.30	2,543.13	8.100	SF
EXIST VERT RYANN STATE C21-27 - Wellbore #1 - We	17,335.37	6,651.22	4,184.00	3,899.35	14.699	CC
EXIST VERT RYANN STATE C21-27 - Wellbore #1 - We	17,400.00	6,651.24	4,184.50	3,898.10	14.611	ES
EXIST VERT RYANN STATE C21-27 - Wellbore #1 - We	18,100.00	6,651.47	4,253.29	3,952.87	14.158	SF
EXIST VERT SANDY HILLS FARM C17-5 - Wellbore #1	2,266.88	2,146.15	102.99	90.91	8.524	CC, ES
EXIST VERT SANDY HILLS FARM C17-5 - Wellbore #1	2,300.00	2,174.85	104.29	91.93	8.436	SF
EXIST VERT SH FARMS C17-19 - Wellbore #1 - Wellbo	9,264.22	6,771.17	594.93	525.10	8.519	CC
EXIST VERT SH FARMS C17-19 - Wellbore #1 - Wellbo	9,300.00	6,771.27	596.01	524.93	8.385	ES
EXIST VERT SH FARMS C17-19 - Wellbore #1 - Wellbo	9,400.00	6,771.54	610.23	537.04	8.337	SF
EXIST VERT STATE 16-1014 - Wellbore #1 - Design #1	16,907.43	6,676.57	2,629.20	2,224.39	6.495	CC
EXIST VERT STATE 16-1014 - Wellbore #1 - Design #1	17,000.00	6,675.96	2,630.83	2,223.69	6.462	ES
EXIST VERT STATE 16-1014 - Wellbore #1 - Design #1	17,200.00	6,674.64	2,645.43	2,234.57	6.439	SF
EXIST VERT STATE 16-1114 - Wellbore #1 - Design #1	15,262.64	6,678.40	2,150.66	1,791.34	5.985	CC
EXIST VERT STATE 16-1114 - Wellbore #1 - Design #1	15,300.00	6,678.15	2,150.98	1,790.68	5.970	ES
EXIST VERT STATE 16-1114 - Wellbore #1 - Design #1	15,500.00	6,676.83	2,163.71	1,799.48	5.940	SF
EXIST VERT STATE 16-1414 - Wellbore #1 - Design #1	15,108.57	6,687.41	3,833.69	3,478.44	10.791	CC
EXIST VERT STATE 16-1414 - Wellbore #1 - Design #1	15,200.00	6,686.81	3,834.78	3,477.09	10.721	ES
EXIST VERT STATE 16-1414 - Wellbore #1 - Design #1	15,800.00	6,682.86	3,895.53	3,525.41	10.525	SF
EXIST VERT STATE 16-1514 - Wellbore #1 - Design #1	16,748.70	6,663.61	3,608.41	3,208.32	9.019	CC
EXIST VERT STATE 16-1514 - Wellbore #1 - Design #1	16,800.00	6,663.27	3,608.77	3,207.31	8.989	ES
EXIST VERT STATE 16-1514 - Wellbore #1 - Design #1	17,300.00	6,659.98	3,650.27	3,238.61	8.867	SF
EXIST VERT STATE 16-1614 - Wellbore #1 - Design #1	18,062.41	6,653.97	3,619.71	3,183.31	8.294	CC
EXIST VERT STATE 16-1614 - Wellbore #1 - Design #1	18,200.00	6,653.06	3,622.33	3,182.41	8.234	ES
EXIST VERT STATE 16-1614 - Wellbore #1 - Design #1	18,361.97	6,652.00	3,632.09	3,188.67	8.191	SF
EXIST VERT STATE 16-514 - Wellbore #1 - Wellbore #1	14,173.08	6,682.26	949.06	751.90	4.814	CC
EXIST VERT STATE 16-514 - Wellbore #1 - Wellbore #1	14,200.00	6,682.12	949.44	751.63	4.800	ES, SF
EXIST VERT STATE A 41-16 - Wellbore #1 - Design #1	17,569.92	6,631.21	339.01	-82.50	0.804	Level 3, CC, ES, SF
EXIST VERT THOUTT #1 - Wellbore #1 - Wellbore #1	17,858.26	6,631.47	5,028.58	4,729.65	16.822	CC
EXIST VERT THOUTT #1 - Wellbore #1 - Wellbore #1	18,000.00	6,634.03	5,030.58	4,727.86	16.618	ES
EXIST VERT THOUTT #1 - Wellbore #1 - Wellbore #1	18,361.97	6,640.01	5,053.74	4,742.58	16.241	SF
EXIST VERT UPRR OCOMA C17-4 - Wellbore #1 - Desi	700.00	671.00	2,748.00	2,733.38	187.967	CC
EXIST VERT UPRR OCOMA C17-4 - Wellbore #1 - Desi	800.00	770.97	2,749.68	2,732.82	163.126	ES
EXIST VERT UPRR OCOMA C17-4 - Wellbore #1 - Desi	11,100.00	6,743.88	3,817.46	3,572.51	15.585	SF

Offset Design: SW NE SEC. 21 T4N R64W 6th P.M. (GEORGE) - GEORGE 01N - ORIGINAL WELLBORE - PROPOSAL #1												Offset Site Error:	0.00 usft
Survey Program:		0-MWD						Rule Assigned:				Offset Well Error:	0.00 usft
Measured Depth	Reference Vertical Depth	Offset Measured Depth	Vertical Depth	Semi Reference	Major Axis Offset	Highside Toolface	Offset Wellbore Centre		Distance Between Centres		Minimum Separation	Separation Factor	Warning
(usft)	(usft)	(usft)	(usft)	(usft)	(usft)	(°)	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	(usft)		
0.00	0.00	17,190.25	6,852.97	0.00	268.23	179.07	-3,282.46	53.21	7,616.76				
100.00	100.00	17,191.00	6,852.98	0.09	268.25	179.08	-3,282.46	52.46	7,526.65	7,384.76	141.90	53.044	
200.00	200.00	17,191.76	6,852.98	0.31	268.27	179.10	-3,282.46	51.71	7,436.79	7,293.84	142.95	52.023	
300.00	300.00	17,192.51	6,852.99	0.54	268.29	179.11	-3,282.46	50.95	7,347.20	7,203.15	144.04	51.007	
400.00	400.00	17,193.27	6,852.99	0.76	268.31	179.12	-3,282.46	50.20	7,257.87	7,112.70	145.17	49.996	
500.00	500.00	17,194.02	6,853.00	0.99	268.33	179.14	-3,282.46	49.44	7,168.83	7,022.50	146.33	48.991	
600.00	600.00	17,194.77	6,853.00	1.21	268.35	179.15	-3,282.46	48.69	7,080.08	6,932.56	147.52	47.993	
700.00	700.00	17,195.53	6,853.01	1.44	268.37	179.16	-3,282.46	47.93	6,991.63	6,842.88	148.75	47.003	

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