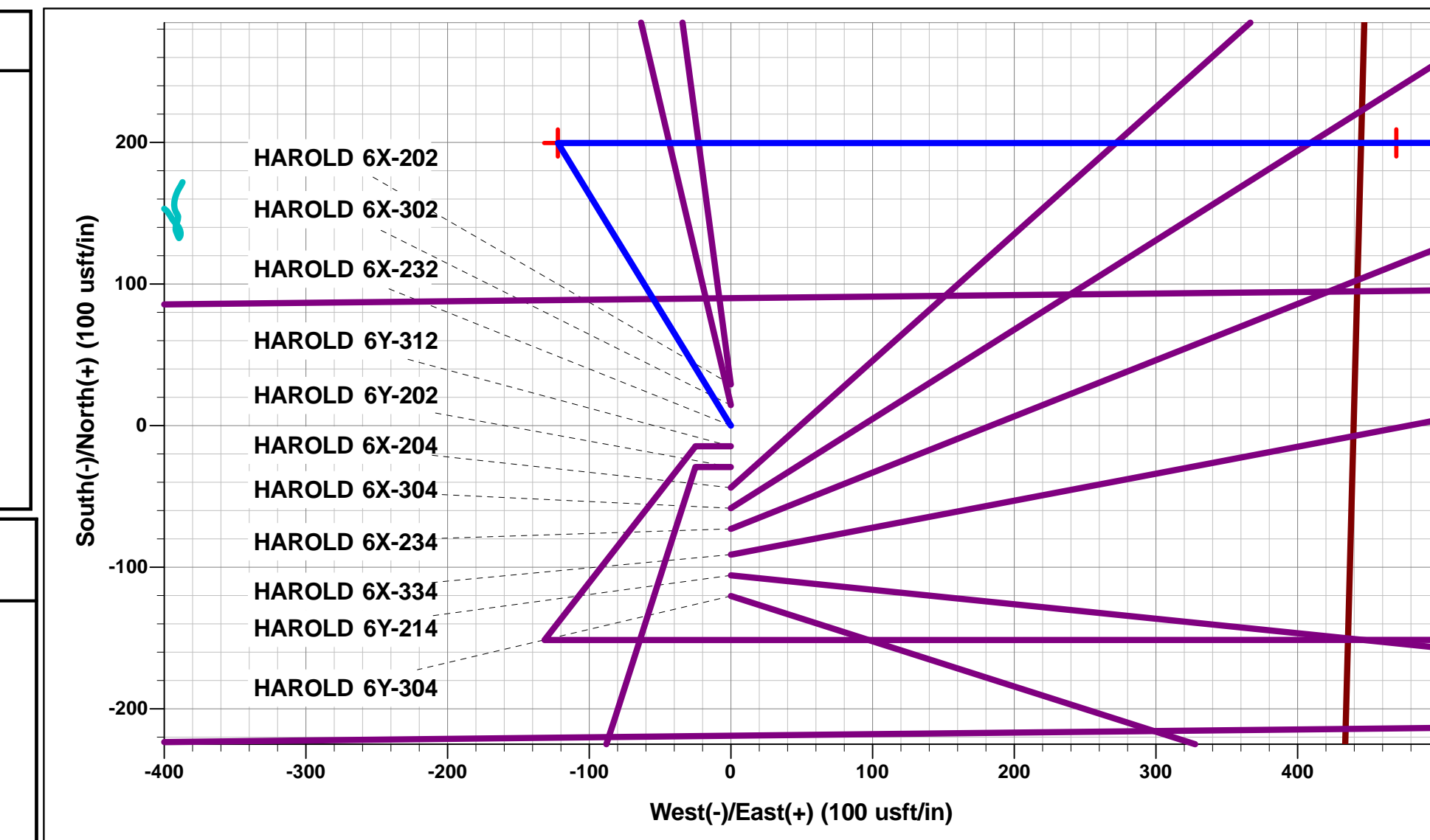




Project: WELD COUNTY, COLORADO
Site: SE SE SEC. 6 T4N R64W 6th P.M.
Well: HAROLD 6X-232
Wellbore: ORIGINAL WELLBORE
Design: PROPOSAL #1

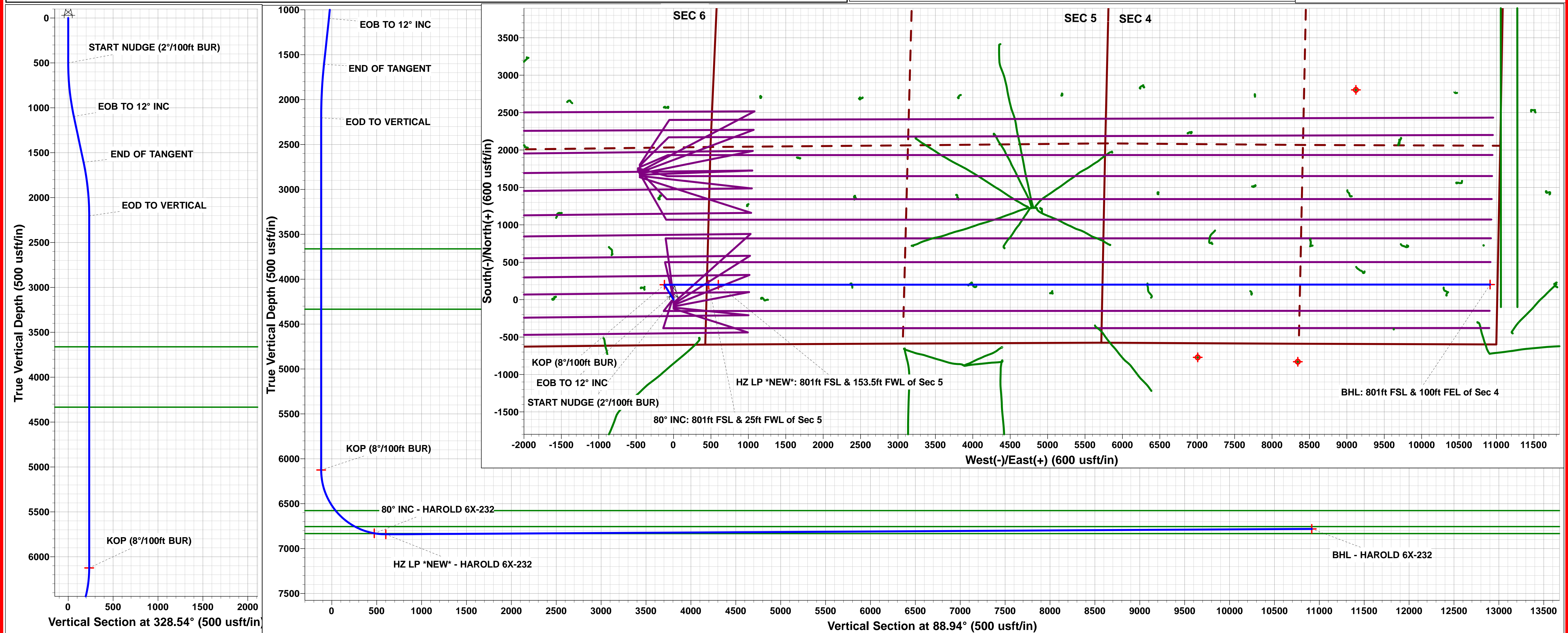
ANNOTATIONS									
TVD	MD	Inc	Azi	+N/-S	+E/-W	Vsect	Dep	Annotation	
0.0	0.0	0.00	0.00	0.0	0.0	0.0	0.0	SHL: 607ft FSL & 440ft FEL of Sec 6	
500.0	500.0	0.00	0.00	0.0	0.0	0.0	0.0	START NUDGE (2°/100ft BUR)	
1095.6	1100.0	12.00	328.54	53.4	-32.7	-31.7	62.6	EOB TO 12° INC	
1607.4	1623.2	12.00	328.54	146.2	-89.4	-86.7	171.4	END OF TANGENT	
2203.0	2223.2	0.00	0.00	199.6	-122.1	-118.4	234.0	EOD TO VERTICAL	
6124.8	6145.0	0.00	0.00	199.6	-122.1	-118.4	234.0	KOP (8°/100ft BUR)	
6830.1	7144.9	80.00	89.99	199.7	469.7	473.3	825.8	80° INC: 801ft FSL & 25ft FWL of Sec 5	
6841.0	7274.1	90.33	89.99	199.7	598.2	601.8	954.3	HZ LP *NEW*: 801ft FSL & 153.5ft FWL of Sec 5	
6781.0	17590.6	90.34	89.99	201.8	10914.5	10916.4	11270.6	BHL: 801ft FSL & 100ft FEL of Sec 4	

WELLBORE TARGET DETAILS (LAT/LONG)					
Name	TVD	+N/-S	+E/-W	Latitude	Longitude
KOP - HAROLD 6X-232	6124.8	199.6	-122.1	40.336288	-104.585928
80° INC - HAROLD 6X-232	6830.1	199.7	469.7	40.336288	-104.583805
BHL - HAROLD 6X-232	6781.0	201.8	10914.5	40.336287	-104.546340
HZ LP *NEW* - HAROLD 6X-232	6841.0	199.7	598.2	40.336288	-104.583344



PROPOSED LOCAL COORDINATES:
SHL: 607ft FSL & 440ft FEL of Sec 6
80° INC: 801ft FSL & 25ft FWL of Sec 5
HZ LP *NEW*: 801ft FSL & 153.5ft FWL of Sec 5
BHL: 801ft FSL & 100ft FEL of Sec 4

Azimuths to True North
Magnetic North: 8.13°
Magnetic Field
Strength: 52401.1snT
Dip Angle: 66.84°
Date: 04/04/2017
Model: IGRF2015



Anticollision Report



Company:	PDC ENERGY	Local Co-ordinate Reference:	Well HAROLD 6X-232
Project:	WELD COUNTY, COLORADO	TVD Reference:	KB-EST @ 4811.0usft
Reference Site:	SE SE SEC. 6 T4N R64W 6th P.M.	MD Reference:	KB-EST @ 4811.0usft
Site Error:	0.0 usft	North Reference:	True
Reference Well:	HAROLD 6X-232	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 #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 100.0usft	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	16/04/2017		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.0	17,590.1	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
NE SE SEC. 6 T4N R64W 6th P.M.						
ABDN VERT DINNER 6-3 - Wellbore #1 - Wellbore #1	2,459.5	2,484.4	4,011.7	4,004.5	559.661	CC
ABDN VERT DINNER 6-3 - Wellbore #1 - Wellbore #1	6,145.0	6,219.7	4,014.1	3,998.5	258.433	ES
ABDN VERT DINNER 6-3 - Wellbore #1 - Wellbore #1	12,600.0	7,000.0	9,957.0	9,788.6	59.140	SF
ABDN VERT KUIS C5-7 - Wellbore #1 - Wellbore #1	10,516.1	6,713.1	2,534.5	2,424.0	22.941	CC
ABDN VERT KUIS C5-7 - Wellbore #1 - Wellbore #1	10,600.0	6,713.2	2,535.9	2,423.1	22.479	ES
ABDN VERT KUIS C5-7 - Wellbore #1 - Wellbore #1	12,100.0	6,715.3	2,988.7	2,834.0	19.322	SF
ABDN VERT LEY 2 - Wellbore #1 - Wellbore #1	2,172.0	2,126.8	1,156.1	1,150.1	194.054	CC
ABDN VERT LEY 2 - Wellbore #1 - Wellbore #1	2,223.2	2,179.9	1,156.4	1,149.6	168.729	ES
ABDN VERT LEY 2 - Wellbore #1 - Wellbore #1	16,400.0	6,680.4	9,966.9	9,693.6	36.469	SF
ABDN VERT MCCLINTOCK 1 - Wellbore #1 - Wellbore #1	15,682.8	6,684.6	1,260.6	1,005.2	4.936	CC
ABDN VERT MCCLINTOCK 1 - Wellbore #1 - Wellbore #1	15,700.0	6,684.6	1,260.7	1,004.9	4.927	ES
ABDN VERT MCCLINTOCK 1 - Wellbore #1 - Wellbore #1	15,900.0	6,684.4	1,279.2	1,017.7	4.892	SF
ABDN VERT NIKOLORIC C5-5 - Wellbore #1 - Wellbore #1	7,834.6	6,800.0	2,497.4	2,459.9	66.730	CC
ABDN VERT NIKOLORIC C5-5 - Wellbore #1 - Wellbore #1	7,900.0	6,800.0	2,498.2	2,459.1	63.916	ES
ABDN VERT NIKOLORIC C5-5 - Wellbore #1 - Wellbore #1	12,700.0	6,702.0	5,468.6	5,297.3	31.920	SF
EXIST DD ARD PC C6-18D - Wellbore #1 - Wellbore #1	2,153.2	2,092.5	3,444.0	3,433.5	328.089	CC, ES
EXIST DD ARD PC C6-18D - Wellbore #1 - Wellbore #1	14,200.0	7,141.1	9,945.8	9,715.0	43.084	SF
EXIST DD ARD PC C6-20D - Wellbore #1 - Wellbore #1	2,070.8	1,908.4	3,491.9	3,482.3	365.525	CC, ES
EXIST DD ARD PC C6-20D - Wellbore #1 - Wellbore #1	13,200.0	7,261.0	9,988.9	9,788.7	49.896	SF
EXIST DD ARD PC C6-21D - Wellbore #1 - Wellbore #1	6,145.0	6,275.2	2,632.5	2,599.0	78.455	ES
EXIST DD ARD PC C6-21D - Wellbore #1 - Wellbore #1	6,157.5	6,285.4	2,632.5	2,605.3	96.866	CC
EXIST DD ARD PC C6-21D - Wellbore #1 - Wellbore #1	14,500.0	7,302.0	9,963.6	9,727.3	42.166	SF
EXIST DD BURMAN C4-32D - Wellbore #1 - Wellbore #1	12,541.8	6,936.4	1,765.7	1,576.4	9.328	CC
EXIST DD BURMAN C4-32D - Wellbore #1 - Wellbore #1	12,600.0	6,936.4	1,766.6	1,575.7	9.253	ES
EXIST DD BURMAN C4-32D - Wellbore #1 - Wellbore #1	13,000.0	6,936.0	1,824.2	1,622.1	9.025	SF
EXIST DD BURMAN C4-33D - Wellbore #1 - Wellbore #1	12,510.9	6,905.6	529.3	341.8	2.822	CC, ES, SF
EXIST DD BURMAN C5-17D - Wellbore #1 - Wellbore #1	11,032.0	7,210.9	3,207.2	3,062.7	22.188	CC
EXIST DD BURMAN C5-17D - Wellbore #1 - Wellbore #1	11,100.0	7,211.3	3,208.0	3,061.5	21.906	ES
EXIST DD BURMAN C5-17D - Wellbore #1 - Wellbore #1	13,000.0	7,223.3	3,762.9	3,563.3	18.856	SF
EXIST DD BURMAN C5-21D - Wellbore #1 - Wellbore #1	9,913.5	7,099.7	1,960.8	1,835.9	15.693	CC
EXIST DD BURMAN C5-21D - Wellbore #1 - Wellbore #1	10,000.0	7,100.0	1,962.7	1,835.4	15.413	ES
EXIST DD BURMAN C5-21D - Wellbore #1 - Wellbore #1	10,800.0	7,102.5	2,151.9	2,002.3	14.386	SF
EXIST DD BURMAN C5-22D - Wellbore #1 - Wellbore #1	10,972.9	6,947.8	1,996.2	1,857.0	14.342	CC
EXIST DD BURMAN C5-22D - Wellbore #1 - Wellbore #1	11,000.0	6,948.0	1,996.4	1,856.4	14.266	ES
EXIST DD BURMAN C5-22D - Wellbore #1 - Wellbore #1	11,800.0	6,955.3	2,160.7	1,998.5	13.316	SF
EXIST DD BURMAN C5-23D - Wellbore #1 - Wellbore #1	11,095.9	6,831.9	492.6	352.1	3.506	CC
EXIST DD BURMAN C5-23D - Wellbore #1 - Wellbore #1	11,100.0	6,831.9	492.6	352.0	3.503	ES, SF

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

Company:	PDC ENERGY	Local Co-ordinate Reference:	Well HAROLD 6X-232
Project:	WELD COUNTY, COLORADO	TVD Reference:	KB-EST @ 4811.0usft
Reference Site:	SE SE SEC. 6 T4N R64W 6th P.M.	MD Reference:	KB-EST @ 4811.0usft
Site Error:	0.0 usft	North Reference:	True
Reference Well:	HAROLD 6X-232	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 #1	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
NE SE SEC. 6 T4N R64W 6th P.M.						
EXIST DD BURMAN C5-24D - Wellbore #1 - Wellbore #1	9,866.0	7,062.0	521.0	397.9	4.230	CC, ES
EXIST DD BURMAN C5-24D - Wellbore #1 - Wellbore #1	9,900.0	7,062.2	522.1	398.0	4.207	SF
EXIST DD DIETRICH C7-27 - Wellbore #1 - Wellbore #1	6,163.2	6,179.6	1,085.4	1,069.7	68.989	CC, ES
EXIST DD DIETRICH C7-27 - Wellbore #1 - Wellbore #1	15,700.0	6,642.1	9,986.1	9,740.2	40.616	SF
EXIST DD DIETRICH C8-30D - Wellbore #1 - Wellbore #1	7,012.7	7,178.9	709.0	662.6	15.291	CC, ES
EXIST DD DIETRICH C8-30D - Wellbore #1 - Wellbore #1	7,250.0	7,223.3	745.7	695.1	14.729	SF
EXIST DD RUFF C8-27D - Wellbore #1 - Wellbore #1	11,069.3	6,824.7	837.7	697.5	5.976	CC
EXIST DD RUFF C8-27D - Wellbore #1 - Wellbore #1	11,100.0	6,824.9	838.3	697.2	5.944	ES
EXIST DD RUFF C8-27D - Wellbore #1 - Wellbore #1	11,200.0	6,825.5	847.8	704.0	5.895	SF
EXIST DD SLEDGE C9-30D - Wellbore #1 - Wellbore #1	12,311.8	6,918.3	552.5	373.6	3.088	CC, ES
EXIST DD SLEDGE C9-30D - Wellbore #1 - Wellbore #1	12,400.0	6,916.7	559.5	378.1	3.085	SF
EXIST DD WRIGHT-GOIN C7-28D - Wellbore #1 - Wellbore #1	6,145.0	6,824.8	2,279.2	2,227.0	43.664	ES
EXIST DD WRIGHT-GOIN C7-28D - Wellbore #1 - Wellbore #1	6,244.1	6,880.0	2,272.1	2,238.2	67.202	CC
EXIST DD WRIGHT-GOIN C7-28D - Wellbore #1 - Wellbore #1	14,500.0	7,560.0	9,995.2	9,748.6	40.537	SF
EXIST HZ COALVIEW G2-63-1HN - Wellbore #1 - Wellbore #1	4,970.6	4,996.3	4,630.9	4,609.0	212.232	CC
EXIST HZ COALVIEW G2-63-1HN - Wellbore #1 - Wellbore #1	5,300.0	5,320.0	4,631.9	4,608.8	200.205	ES
EXIST HZ COALVIEW G2-63-1HN - Wellbore #1 - Wellbore #1	7,200.0	6,409.0	5,315.1	5,281.4	157.920	SF
EXIST HZ COALVIEW G2-64-1HN - Wellbore #1 - Wellbore #1	6,158.5	6,281.0	4,651.4	4,623.4	166.093	CC, ES
EXIST HZ COALVIEW G2-64-1HN - Wellbore #1 - Wellbore #1	11,900.0	6,375.0	9,973.7	9,836.5	72.706	SF
EXIST HZ COALVIEW G2-65-1HN - Wellbore #1 - Wellbore #1	6,145.0	6,360.0	4,785.9	4,757.9	170.878	ES
EXIST HZ COALVIEW G2-65-1HN - Wellbore #1 - Wellbore #1	6,171.1	6,385.1	4,785.5	4,758.4	176.627	CC
EXIST HZ COALVIEW G2-65-1HN - Wellbore #1 - Wellbore #1	11,800.0	6,549.0	9,912.6	9,758.8	64.448	SF
EXIST HZ COALVIEW G2-66-1HN - Wellbore #1 - Wellbore #1	6,165.3	6,347.1	5,011.6	4,983.4	177.954	CC, ES
EXIST HZ COALVIEW G2-66-1HN - Wellbore #1 - Wellbore #1	11,700.0	6,460.0	9,928.2	9,775.7	65.119	SF
EXIST HZ LOWER LATHAM PC G12-69HN - Wellbore #1 - Wellbore #1	6,145.0	12,060.0	4,501.3	4,337.0	27.399	ES, SF
EXIST HZ LOWER LATHAM PC G12-69HN - Wellbore #1 - Wellbore #1	6,259.8	12,060.0	4,490.8	4,439.0	86.571	CC
EXIST HZ NORTHROP C8-73HN - Wellbore #1 - Wellbore #1	11,059.5	6,420.0	1,137.5	1,007.8	8.769	CC
EXIST HZ NORTHROP C8-73HN - Wellbore #1 - Wellbore #1	11,100.0	6,420.0	1,138.2	1,007.4	8.704	ES
EXIST HZ NORTHROP C8-73HN - Wellbore #1 - Wellbore #1	11,300.0	6,420.0	1,162.6	1,026.7	8.551	SF
EXIST HZ NORTHROP C8-75HN - Wellbore #1 - Wellbore #1	9,771.7	6,599.9	940.3	838.1	9.207	CC
EXIST HZ NORTHROP C8-75HN - Wellbore #1 - Wellbore #1	9,800.0	6,600.5	940.7	837.8	9.142	ES
EXIST HZ NORTHROP C8-75HN - Wellbore #1 - Wellbore #1	10,000.0	6,604.8	967.6	859.2	8.932	SF
EXIST HZ SCHMIDT PC C6-79HN - Wellbore #1 - Wellbore #1	6,200.0	12,505.0	4,487.9	4,377.8	40.785	SF
EXIST HZ SCHMIDT PC C6-79HN - Wellbore #1 - Wellbore #1	6,275.6	12,505.0	4,483.3	4,374.0	41.046	CC, ES
EXIST VERT COBB 6-1 - Wellbore #1 - Wellbore #1	5,638.4	5,622.3	3,462.0	3,447.7	241.146	CC
EXIST VERT COBB 6-1 - Wellbore #1 - Wellbore #1	5,700.0	5,670.3	3,462.1	3,447.6	238.795	ES
EXIST VERT COBB 6-1 - Wellbore #1 - Wellbore #1	13,800.0	7,100.0	9,991.1	9,789.6	49.579	SF
EXIST VERT COBB 6-23 - Wellbore #1 - Wellbore #1	2,218.5	2,212.1	4,601.7	4,595.7	760.784	CC
EXIST VERT COBB 6-23 - Wellbore #1 - Wellbore #1	2,223.2	2,215.7	4,601.7	4,594.8	664.960	ES
EXIST VERT COBB 6-23 - Wellbore #1 - Wellbore #1	12,400.0	6,958.4	9,990.0	9,826.8	61.228	SF
EXIST VERT CONNELL C4-20 - Wellbore #1 - Wellbore #1	13,549.7	6,718.8	2,020.9	1,825.6	10.346	CC
EXIST VERT CONNELL C4-20 - Wellbore #1 - Wellbore #1	13,600.0	6,718.4	2,021.6	1,824.8	10.275	ES
EXIST VERT CONNELL C4-20 - Wellbore #1 - Wellbore #1	14,100.0	6,714.3	2,094.5	1,883.8	9.938	SF
EXIST VERT CONNELL 14-4 - Wellbore #1 - Wellbore #1	13,011.7	6,756.3	14.9	-166.2	0.082	Level 1, CC, ES, SF
EXIST VERT CONNELL 2 - Wellbore #1 - Wellbore #1	13,154.8	6,739.3	1,207.0	1,022.9	6.557	CC
EXIST VERT CONNELL 2 - Wellbore #1 - Wellbore #1	13,200.0	6,739.0	1,207.9	1,022.5	6.517	ES
EXIST VERT CONNELL 2 - Wellbore #1 - Wellbore #1	13,400.0	6,737.6	1,231.7	1,040.7	6.450	SF
EXIST VERT CONNELL 3 - Wellbore #1 - Wellbore #1	14,385.9	6,732.7	88.2	-130.6	0.403	Level 1, CC, ES, SF
EXIST VERT CONNELL C 4-5 - Wellbore #1 - Wellbore #1	12,915.4	6,719.1	2,620.3	2,442.9	14.768	CC
EXIST VERT CONNELL C 4-5 - Wellbore #1 - Wellbore #1	13,000.0	6,718.0	2,621.7	2,441.9	14.581	ES
EXIST VERT CONNELL C 4-5 - Wellbore #1 - Wellbore #1	14,000.0	6,700.0	2,835.9	2,628.1	13.646	SF
EXIST VERT CONNELL C4-11 - Wellbore #1 - Wellbore #1	14,409.8	6,708.8	1,311.7	1,092.5	5.982	CC, ES
EXIST VERT CONNELL C4-11 - Wellbore #1 - Wellbore #1	14,600.0	6,706.0	1,325.5	1,100.8	5.901	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 HAROLD 6X-232
Project:	WELD COUNTY, COLORADO	TVD Reference:	KB-EST @ 4811.0usft
Reference Site:	SE SE SEC. 6 T4N R64W 6th P.M.	MD Reference:	KB-EST @ 4811.0usft
Site Error:	0.0 usft	North Reference:	True
Reference Well:	HAROLD 6X-232	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 #1	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
NE SE SEC. 6 T4N R64W 6th P.M.						
EXIST VERT CONNELL C4-25 - Wellbore #1 - Wellbore	13,910.8	6,694.1	719.1	513.6	3.500	CC, ES
EXIST VERT CONNELL C4-25 - Wellbore #1 - Wellbore	14,000.0	6,697.1	724.6	516.6	3.484	SF
EXIST VERT DIETRICH 6-10 - Wellbore #1 - Wellbore #	2,196.3	2,163.7	1,682.8	1,676.9	284.330	CC
EXIST VERT DIETRICH 6-10 - Wellbore #1 - Wellbore #	2,223.2	2,190.4	1,682.9	1,676.0	242.526	ES
EXIST VERT DIETRICH 6-10 - Wellbore #1 - Wellbore #	15,000.0	6,700.0	9,931.4	9,698.1	42.575	SF
EXIST VERT DIETRICH 6-16 - Wellbore #1 - Wellbore #	5,939.0	5,897.1	273.0	258.4	18.737	CC, ES
EXIST VERT DIETRICH 6-16 - Wellbore #1 - Wellbore #	6,150.0	6,107.3	274.3	258.9	17.824	SF
EXIST VERT DIETRICH C6-23 - Wellbore #1 - Wellbore	4,642.0	4,626.7	807.3	795.1	66.175	CC
EXIST VERT DIETRICH C6-23 - Wellbore #1 - Wellbore	5,700.0	5,684.0	808.2	793.6	55.468	ES
EXIST VERT DIETRICH C6-23 - Wellbore #1 - Wellbore	15,800.0	6,833.5	9,949.2	9,690.9	38.512	SF
EXIST VERT DINNER 6-1 - Wellbore #1 - Wellbore #1	2,204.5	2,195.8	3,887.2	3,880.3	566.682	CC
EXIST VERT DINNER 6-1 - Wellbore #1 - Wellbore #1	6,158.3	6,233.7	3,892.4	3,877.0	252.650	ES
EXIST VERT DINNER 6-1 - Wellbore #1 - Wellbore #1	12,600.0	7,019.1	9,914.4	9,755.2	62.261	SF
EXIST VERT DINNER 6-2 - Wellbore #1 - Wellbore #1	6,145.0	6,198.0	2,808.9	2,792.9	175.275	ES
EXIST VERT DINNER 6-2 - Wellbore #1 - Wellbore #1	6,164.8	6,219.6	2,808.7	2,793.5	185.001	CC
EXIST VERT DINNER 6-2 - Wellbore #1 - Wellbore #1	13,900.0	6,745.3	9,950.3	9,745.7	48.632	SF
EXIST VERT DINNER 6-34 - Wellbore #1 - Wellbore #1	2,200.0	2,200.0	2,521.2	2,514.4	372.917	ES
EXIST VERT DINNER 6-34 - Wellbore #1 - Wellbore #1	2,252.0	2,248.8	2,521.1	2,515.0	413.933	CC
EXIST VERT DINNER 6-34 - Wellbore #1 - Wellbore #1	14,000.0	6,950.0	9,976.6	9,775.1	49.519	SF
EXIST VERT DINNER 6-35 - Wellbore #1 - Wellbore #1	2,169.2	2,142.7	3,528.0	3,521.3	526.823	CC, ES
EXIST VERT DINNER 6-35 - Wellbore #1 - Wellbore #1	13,000.0	7,018.6	9,977.2	9,810.3	59.784	SF
EXIST VERT EHRlich 1 - Wellbore #1 - Wellbore #1	14,446.9	6,689.3	2,535.3	2,314.8	11.496	CC
EXIST VERT EHRlich 1 - Wellbore #1 - Wellbore #1	14,500.0	6,688.8	2,535.9	2,313.9	11.422	ES
EXIST VERT EHRlich 1 - Wellbore #1 - Wellbore #1	15,300.0	6,680.7	2,675.0	2,430.5	10.942	SF
EXIST VERT HINKLE 23-5 - Wellbore #1 - Wellbore #1	9,119.3	6,813.9	1,149.6	1,077.7	15.996	CC, ES
EXIST VERT HINKLE 23-5 - Wellbore #1 - Wellbore #1	9,600.0	6,828.8	1,246.0	1,160.9	14.649	SF
EXIST VERT HINKLE 24-5 - Wellbore #1 - Wellbore #1	9,066.5	6,600.0	192.1	162.0	6.391	CC, ES, SF
EXIST VERT LEVI C5-15 - Wellbore #1 - Wellbore #1	10,722.6	6,784.1	25.4	-90.7	0.219	Level 1, CC, ES, SF
EXIST VERT LEY 1 - Wellbore #1 - Wellbore #1	2,094.3	2,059.2	1,475.3	1,468.6	222.144	CC
EXIST VERT LEY 1 - Wellbore #1 - Wellbore #1	2,100.0	2,065.3	1,475.3	1,468.6	221.695	ES
EXIST VERT LEY 1 - Wellbore #1 - Wellbore #1	15,000.0	6,950.0	9,914.5	9,697.4	45.666	SF
EXIST VERT MCCLINTOCK C4-15 - Wellbore #1 - Wellbore	15,800.7	6,688.1	235.9	-22.5	0.913	Level 1, CC, ES, SF
EXIST VERT OPDYKE/HINKLE 1 - Wellbore #1 - Wellbo	10,487.4	6,600.0	1,149.0	1,039.8	10.518	CC
EXIST VERT OPDYKE/HINKLE 1 - Wellbore #1 - Wellbo	10,500.0	6,600.0	1,149.1	1,039.5	10.485	ES
EXIST VERT OPDYKE/HINKLE 1 - Wellbore #1 - Wellbo	10,800.0	6,600.0	1,190.8	1,072.9	10.103	SF
EXIST VERT REISTAD 5-1 - Wellbore #1 - Wellbore #1	11,738.9	6,764.4	86.7	-58.0	0.599	Level 1, CC, ES, SF
EXIST VERT REISTAD C5-9 - Wellbore #1 - Wellbore #1	11,599.5	6,760.6	955.1	813.9	6.766	CC
EXIST VERT REISTAD C5-9 - Wellbore #1 - Wellbore #1	11,600.0	6,760.6	955.1	813.9	6.765	ES
EXIST VERT REISTAD C5-9 - Wellbore #1 - Wellbore #1	11,800.0	6,761.6	975.9	829.2	6.650	SF
EXIST VERT ROUKEMA 5-1 - Wellbore #1 - Wellbore #1	7,937.6	6,791.0	201.3	161.2	5.018	CC, ES, SF
EXIST VERT ROUKEMA PM C5-12 - Wellbore #1 - Wellbore	7,657.2	6,798.5	1,051.4	1,018.3	31.747	CC
EXIST VERT ROUKEMA PM C5-12 - Wellbore #1 - Wellbore	7,700.0	6,797.8	1,052.3	1,018.1	30.801	ES
EXIST VERT ROUKEMA PM C5-12 - Wellbore #1 - Wellbore	8,600.0	6,782.4	1,412.1	1,354.4	24.464	SF
EXIST VERT SITZMAN 4-714 - Wellbore #1 - Design #1	15,797.5	6,686.5	2,601.8	2,213.1	6.693	CC
EXIST VERT SITZMAN 4-714 - Wellbore #1 - Design #1	15,900.0	6,685.9	2,603.8	2,212.3	6.650	ES
EXIST VERT SITZMAN 4-714 - Wellbore #1 - Design #1	16,300.0	6,683.6	2,649.9	2,247.1	6.579	SF
EXIST VERT SITZMAN C4-22 - Wellbore #1 - Wellbore #	16,375.5	6,687.7	1,932.2	1,657.8	7.040	CC
EXIST VERT SITZMAN C4-22 - Wellbore #1 - Wellbore #	16,400.0	6,687.5	1,932.4	1,657.2	7.023	ES
EXIST VERT SITZMAN C4-22 - Wellbore #1 - Wellbore #	16,800.0	6,684.0	1,978.3	1,691.9	6.908	SF
EXIST VERT SLEDGE C9-28 - Wellbore #1 - Design #1	15,020.1	6,723.0	1,030.4	663.1	2.805	CC, ES
EXIST VERT SLEDGE C9-28 - Wellbore #1 - Design #1	15,100.0	6,722.6	1,033.5	664.0	2.797	SF
EXIST VERT SLEDGE C9-29 - Wellbore #1 - Design #1	13,681.9	6,749.9	972.3	642.1	2.945	CC
EXIST VERT SLEDGE C9-29 - Wellbore #1 - Design #1	13,700.0	6,749.7	972.4	641.8	2.941	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 HAROLD 6X-232
Project:	WELD COUNTY, COLORADO	TVD Reference:	KB-EST @ 4811.0usft
Reference Site:	SE SE SEC. 6 T4N R64W 6th P.M.	MD Reference:	KB-EST @ 4811.0usft
Site Error:	0.0 usft	North Reference:	True
Reference Well:	HAROLD 6X-232	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 #1	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
NE SE SEC. 6 T4N R64W 6th P.M.						
EXIST VERT SLEDGE C9-29 - Wellbore #1 - Design #1	13,800.0	6,749.2	979.4	646.0	2.937	SF
EXIST VERT SMITH-REEVES 42-5 - Wellbore #1 - Wellbore #1	11,868.7	6,550.0	2,562.5	2,414.6	17.326	CC
EXIST VERT SMITH-REEVES 42-5 - Wellbore #1 - Wellbore #1	11,900.0	6,550.0	2,562.7	2,413.9	17.225	ES
EXIST VERT SMITH-REEVES 42-5 - Wellbore #1 - Wellbore #1	13,100.0	6,550.0	2,843.0	2,660.7	15.598	SF
EXIST VERT WILMOTH 6-1 - Wellbore #1 - Wellbore #1	6,145.0	6,178.5	2,755.1	2,739.0	172.181	ES
EXIST VERT WILMOTH 6-1 - Wellbore #1 - Wellbore #1	6,199.0	6,236.2	2,754.2	2,739.1	183.193	CC
EXIST VERT WILMOTH 6-1 - Wellbore #1 - Wellbore #1	15,000.0	6,900.0	9,977.8	9,742.0	42.315	SF
EXIST VERT WILMOTH 6-14 - Wellbore #1 - Wellbore #1	4,534.3	4,482.5	2,363.0	2,351.4	203.502	CC, ES
EXIST VERT WILMOTH 6-14 - Wellbore #1 - Wellbore #1	16,300.0	6,700.0	9,978.5	9,706.5	36.678	SF
EXIST VERT WILMOTH C4-23 - Wellbore #1 - Wellbore #1	16,400.0	6,656.4	534.7	259.7	1.944	CC, ES, SF
EXIST VERT WILMOTH C4-24 - Wellbore #1 - Wellbore #1	15,192.5	6,694.7	607.7	366.3	2.517	CC
EXIST VERT WILMOTH C4-24 - Wellbore #1 - Wellbore #1	15,200.0	6,694.7	607.7	366.1	2.515	ES, SF
EXIST VERT WILMOTH C5-20 - Wellbore #1 - Wellbore #1	8,370.6	6,783.7	1,690.6	1,639.2	32.889	CC
EXIST VERT WILMOTH C5-20 - Wellbore #1 - Wellbore #1	8,400.0	6,783.4	1,690.8	1,638.6	32.399	ES
EXIST VERT WILMOTH C5-20 - Wellbore #1 - Wellbore #1	9,900.0	6,770.3	2,279.7	2,186.4	24.447	SF
EXIST VERT WILMOTH C5-6 - Wellbore #1 - Wellbore #1	9,203.0	6,765.3	2,501.1	2,427.0	33.759	CC
EXIST VERT WILMOTH C5-6 - Wellbore #1 - Wellbore #1	9,300.0	6,765.0	2,502.9	2,426.2	32.611	ES
EXIST VERT WILMOTH C5-6 - Wellbore #1 - Wellbore #1	11,600.0	6,756.6	3,464.2	3,323.5	24.629	SF
EXIST VERT WILMOTH C9-27 - Wellbore #1 - Wellbore #1	16,301.6	6,674.0	595.0	322.8	2.186	CC, ES, SF
JUDY 6D-212 - ORIGINAL WELLBORE - PROPOSAL #1	17,590.6	17,600.8	1,142.8	524.8	1.849	CC, ES, SF
JUDY 6D-312 - ORIGINAL WELLBORE - PROPOSAL #1	6,416.5	6,475.5	869.0	839.1	29.060	CC
JUDY 6D-312 - ORIGINAL WELLBORE - PROPOSAL #1	17,590.6	17,700.2	871.6	255.4	1.414	Level 3, ES, SF
JUDY 6S-202 - ORIGINAL WELLBORE - PROPOSAL #1	2,001.9	1,895.5	1,676.5	1,665.9	158.028	CC
JUDY 6S-202 - ORIGINAL WELLBORE - PROPOSAL #1	17,590.6	17,568.8	1,731.6	1,113.6	2.802	ES, SF
JUDY 6S-204 - ORIGINAL WELLBORE - PROPOSAL #1	2,037.9	1,977.3	1,549.4	1,537.4	129.395	CC, ES
JUDY 6S-204 - ORIGINAL WELLBORE - PROPOSAL #1	9,000.0	6,650.0	2,256.1	2,159.3	23.305	SF
JUDY 6S-212 - ORIGINAL WELLBORE - PROPOSAL #1	1,731.5	1,449.9	1,827.9	1,819.9	227.116	CC
JUDY 6S-212 - ORIGINAL WELLBORE - PROPOSAL #1	17,590.6	17,576.7	2,230.9	1,613.7	3.614	ES, SF
JUDY 6S-214 - ORIGINAL WELLBORE - PROPOSAL #1	1,774.0	1,558.2	1,671.3	1,661.8	174.911	CC
JUDY 6S-214 - ORIGINAL WELLBORE - PROPOSAL #1	1,800.0	1,582.2	1,671.5	1,661.7	171.067	ES
JUDY 6S-214 - ORIGINAL WELLBORE - PROPOSAL #1	10,100.0	6,600.0	3,347.9	3,220.3	26.235	SF
JUDY 6S-234 - ORIGINAL WELLBORE - PROPOSAL #1	7,146.6	7,376.1	1,280.7	1,229.3	24.921	CC
JUDY 6S-234 - ORIGINAL WELLBORE - PROPOSAL #1	7,300.0	7,230.1	1,281.9	1,227.9	23.727	ES
JUDY 6S-234 - ORIGINAL WELLBORE - PROPOSAL #1	8,300.0	6,731.9	1,483.8	1,406.5	19.181	SF
JUDY 6S-302 - ORIGINAL WELLBORE - PROPOSAL #1	1,816.1	1,592.9	1,772.3	1,763.4	200.977	CC
JUDY 6S-302 - ORIGINAL WELLBORE - PROPOSAL #1	17,590.6	17,639.4	1,999.7	1,382.5	3.240	ES, SF
JUDY 6S-314 - ORIGINAL WELLBORE - PROPOSAL #1	1,900.3	1,761.0	1,614.8	1,604.2	151.026	CC, ES
JUDY 6S-314 - ORIGINAL WELLBORE - PROPOSAL #1	9,500.0	6,671.1	2,756.7	2,645.1	24.710	SF
JUDY 6S-332 - ORIGINAL WELLBORE - PROPOSAL #1	6,554.4	6,570.0	1,451.0	1,420.4	47.424	CC
JUDY 6S-332 - ORIGINAL WELLBORE - PROPOSAL #1	17,590.6	17,647.5	1,451.8	834.1	2.350	ES, SF
JUDY 6S-334 - ORIGINAL WELLBORE - PROPOSAL #1	2,184.7	2,198.8	1,481.6	1,468.4	112.484	CC
JUDY 6S-334 - ORIGINAL WELLBORE - PROPOSAL #1	7,500.0	7,121.5	1,523.5	1,464.8	25.918	ES
JUDY 6S-334 - ORIGINAL WELLBORE - PROPOSAL #1	8,700.0	6,718.5	1,863.4	1,774.5	20.948	SF
JUDY 6X-314 - ORIGINAL WELLBORE - PROPOSAL #1	7,301.4	7,256.8	956.2	902.1	17.668	CC
JUDY 6X-314 - ORIGINAL WELLBORE - PROPOSAL #1	7,400.0	7,169.8	957.2	901.0	17.018	ES
JUDY 6X-314 - ORIGINAL WELLBORE - PROPOSAL #1	8,000.0	6,850.0	1,065.5	995.8	15.276	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 HAROLD 6X-232
Project:	WELD COUNTY, COLORADO	TVD Reference:	KB-EST @ 4811.0usft
Reference Site:	SE SE SEC. 6 T4N R64W 6th P.M.	MD Reference:	KB-EST @ 4811.0usft
Site Error:	0.0 usft	North Reference:	True
Reference Well:	HAROLD 6X-232	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 #1	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
SE SE SEC. 6 T4N R64W 6th P.M.						
HAROLD 6X-202 - ORIGINAL WELLBORE - PROPOSAL	300.0	300.0	29.1	28.1	27.184	CC
HAROLD 6X-202 - ORIGINAL WELLBORE - PROPOSAL	17,590.6	17,632.9	618.8	6.3	1.010	Level 2, ES, SF
HAROLD 6X-204 - ORIGINAL WELLBORE - PROPOSAL	622.2	624.0	40.9	38.4	16.203	CC, ES
HAROLD 6X-204 - ORIGINAL WELLBORE - PROPOSAL	7,700.0	6,891.6	725.6	670.7	13.212	SF
HAROLD 6X-234 - ORIGINAL WELLBORE - PROPOSAL	500.0	499.0	72.9	70.9	37.003	CC, ES
HAROLD 6X-234 - ORIGINAL WELLBORE - PROPOSAL	7,200.0	7,160.1	125.6	81.6	2.852	SF
HAROLD 6X-302 - ORIGINAL WELLBORE - PROPOSAL	400.0	400.0	14.6	13.1	9.577	CC
HAROLD 6X-302 - ORIGINAL WELLBORE - PROPOSAL	17,590.6	17,680.7	309.0	-288.3	0.517	Level 1, ES, SF
HAROLD 6X-304 - ORIGINAL WELLBORE - PROPOSAL	500.0	500.0	58.3	56.3	29.568	CC, ES
HAROLD 6X-304 - ORIGINAL WELLBORE - PROPOSAL	7,500.0	6,984.0	395.3	345.1	7.880	SF
HAROLD 6X-334 - ORIGINAL WELLBORE - PROPOSAL	500.0	499.0	91.1	89.1	46.257	CC
HAROLD 6X-334 - ORIGINAL WELLBORE - PROPOSAL	7,319.9	7,074.7	102.6	56.6	2.229	ES, SF
HAROLD 6Y-202 - ORIGINAL WELLBORE - PROPOSAL	300.0	300.0	29.1	28.1	27.184	CC
HAROLD 6Y-202 - ORIGINAL WELLBORE - PROPOSAL	17,590.6	17,610.5	581.7	-30.3	0.950	Level 1, ES, SF
HAROLD 6Y-214 - ORIGINAL WELLBORE - PROPOSAL	400.0	399.0	105.6	104.1	69.530	CC
HAROLD 6Y-214 - ORIGINAL WELLBORE - PROPOSAL	500.0	498.6	105.8	103.9	54.127	ES
HAROLD 6Y-214 - ORIGINAL WELLBORE - PROPOSAL	7,400.0	6,967.9	422.9	376.2	9.065	SF
HAROLD 6Y-304 - ORIGINAL WELLBORE - PROPOSAL	300.0	299.0	120.2	119.1	112.365	CC, ES
HAROLD 6Y-304 - ORIGINAL WELLBORE - PROPOSAL	7,700.0	6,822.9	684.4	630.7	12.745	SF
HAROLD 6Y-312 - ORIGINAL WELLBORE - PROPOSAL	300.0	300.0	14.6	13.5	13.592	CC
HAROLD 6Y-312 - ORIGINAL WELLBORE - PROPOSAL	17,590.6	17,687.9	367.8	-219.3	0.626	Level 1, ES, SF
SW SW SEC. 34 T5N R64W 6th P.M.						
BAILEY 34I-223 - ORIGINAL WELLBORE - PROPOSAL	17,590.6	12,084.1	365.3	242.9	2.984	CC, ES, SF
BAILEY 34I-303 - ORIGINAL WELLBORE - PROPOSAL	17,590.6	12,175.8	152.7	30.1	1.246	Level 2, CC, ES, SF
EXIST DD LOEFFLER C 10-30 - Wellbore #1 - Wellbore	17,590.6	6,735.2	717.5	394.4	2.221	CC, ES, SF
EXIST HZ OREDIGGER C10-69HN - Wellbore #1 - Wellbore	17,590.6	6,633.0	941.1	623.8	2.966	CC, ES, SF
EXIST VERT ATKINSON-GALE 3-13 - Wellbore #1 - Wellbore	17,590.6	6,615.0	892.7	650.8	3.691	CC, ES, SF
EXIST VERT DONES 1 - Wellbore #1 - Wellbore #1	17,590.6	6,638.0	1,455.9	1,147.8	4.726	CC, ES, SF
EXIST VERT MILLAGE 12-3 - Wellbore #1 - Wellbore #1	17,590.6	6,677.4	2,376.9	2,069.1	7.724	CC, ES, SF
EXIST VERT SITZMAN 2 - Wellbore #1 - Wellbore #1	17,115.7	6,525.0	2,574.3	2,279.4	8.729	CC
EXIST VERT SITZMAN 2 - Wellbore #1 - Wellbore #1	17,200.0	6,525.0	2,575.7	2,278.4	8.664	ES
EXIST VERT SITZMAN 2 - Wellbore #1 - Wellbore #1	17,500.0	6,525.0	2,602.8	2,297.2	8.515	SF
EXIST VERT WILMOTH 1 - Wellbore #1 - Wellbore #1	16,970.0	6,668.2	42.2	-249.1	0.145	Level 1, CC, ES, SF
EXIST VERT WILMOTH 4-9I4 - Wellbore #1 - Wellbore #	17,159.0	6,682.8	1,360.3	1,063.8	4.587	CC
EXIST VERT WILMOTH 4-9I4 - Wellbore #1 - Wellbore #	17,200.0	6,683.5	1,360.9	1,063.2	4.572	ES
EXIST VERT WILMOTH 4-9I4 - Wellbore #1 - Wellbore #	17,300.0	6,685.0	1,367.6	1,067.1	4.551	SF
EXIST VERT WILMOTH C 3-33 - Wellbore #1 - Wellbore	17,505.8	6,653.8	522.9	217.1	1.710	CC, ES, SF

Offset Design NE SE SEC. 6 T4N R64W 6th P.M. - ABDN VERT DINNER 6-3 - Wellbore #1 - Wellbore #1												Offset Site Error:	0.0 usft
Survey Program: 100-GYD_CT												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 Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
0.0	0.0	50.5	50.5	0.0	0.0	-72.55	1,257.2	-4,000.3	4,193.2				
100.0	100.0	151.5	151.5	0.1	0.0	-72.55	1,257.3	-4,000.1	4,193.0	4,193.0	0.09	N/A	
200.0	200.0	248.7	248.7	0.3	0.0	-72.55	1,257.4	-4,000.0	4,193.0	4,192.6	0.33	N/A	
300.0	300.0	345.0	345.0	0.5	0.1	-72.55	1,257.6	-3,999.8	4,192.9	4,192.2	0.65	6,430.897	
300.1	300.1	345.1	345.1	0.5	0.1	-72.55	1,257.6	-3,999.8	4,192.9	4,192.2	0.65	6,427.409	
400.0	400.0	442.4	442.4	0.8	0.2	-72.54	1,258.0	-3,999.8	4,193.0	4,192.0	1.00	4,196.854	

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