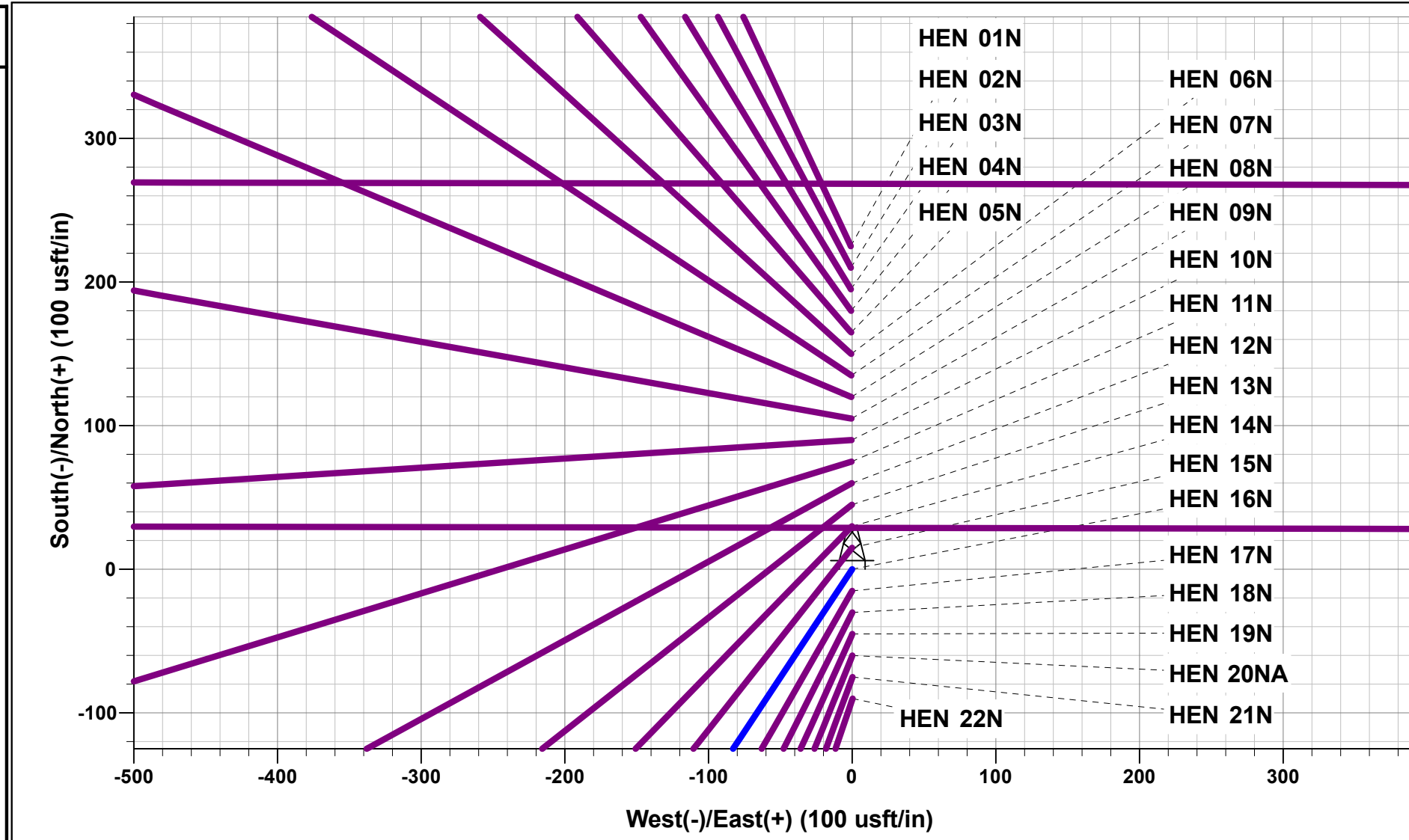




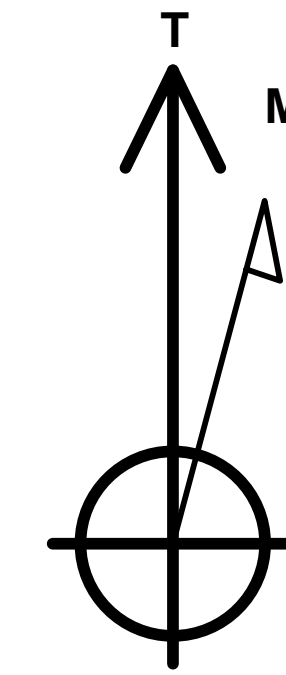
Project: WELD COUNTY, COLORADO (TRUE)
 Site: SW NE SEC. 8 T4N R64W 6th P.M. (HEN)
 Well: HEN 16N
 Wellbore: ORIGINAL WELLBORE
 Design: PROPOSAL #2

ANNOTATIONS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Vsect	Dep	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	SHL: 2309ft FNL & 2043ft FEL of Sec 8
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	START NUDDGE (2°/100ft BUR)
2032.10	22.64	213.54	2002.86	-184.03	-121.99	-83.58	220.79	EOB TO 22.64° INC
5271.86	22.64	213.54	4992.93	-1223.61	-811.08	-555.71	1468.01	END OF TANGENT
6403.96	0.00	0.00	6095.79	-1407.64	-933.07	-639.29	1688.81	EOD TO VERTICAL
6503.96	0.00	0.00	6195.79	-1407.64	-933.07	-639.29	1688.81	KOP (8°/100ft BUR)
7441.48	75.00	90.10	6887.61	-1408.57	-402.24	-118.55	2219.64	EP: 1558ft FSL & 2440ft FEL of Sec 8
7634.88	90.47	90.10	6912.00	-1408.91	-210.97	69.07	2410.91	HZ LANDING POINT
14965.04	90.47	90.10	6851.87	-1421.75	7118.93	7259.51	9740.82	BHL: 1558ft FSL & 200ft FEL of Sec 9



PROPOSED LOCAL COORDINATES:
 SHL: 2309ft FNL & 2043ft FEL of Sec 8
 EP: 1558ft FSL & 2440ft FEL of Sec 8
 BHL: 1558ft FSL & 200ft FEL of Sec 9

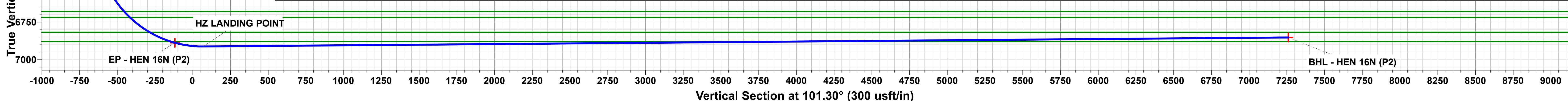
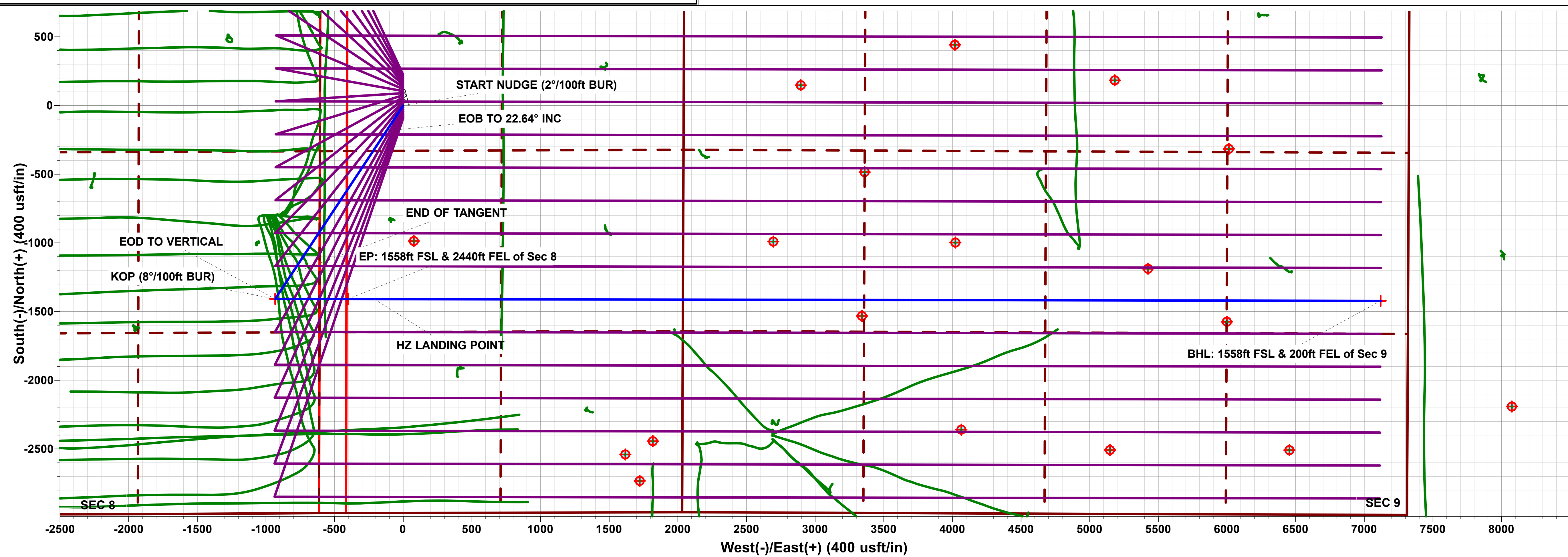
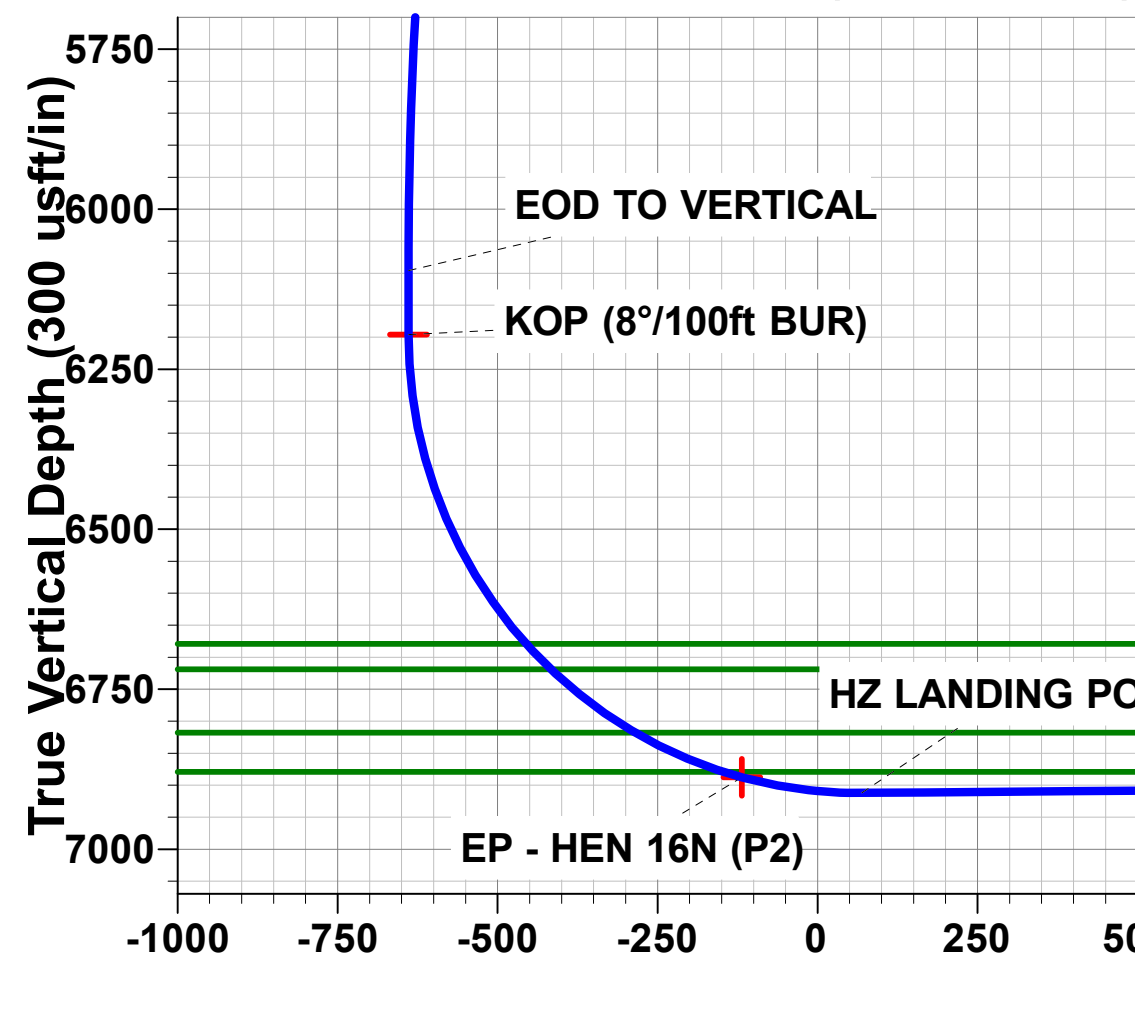
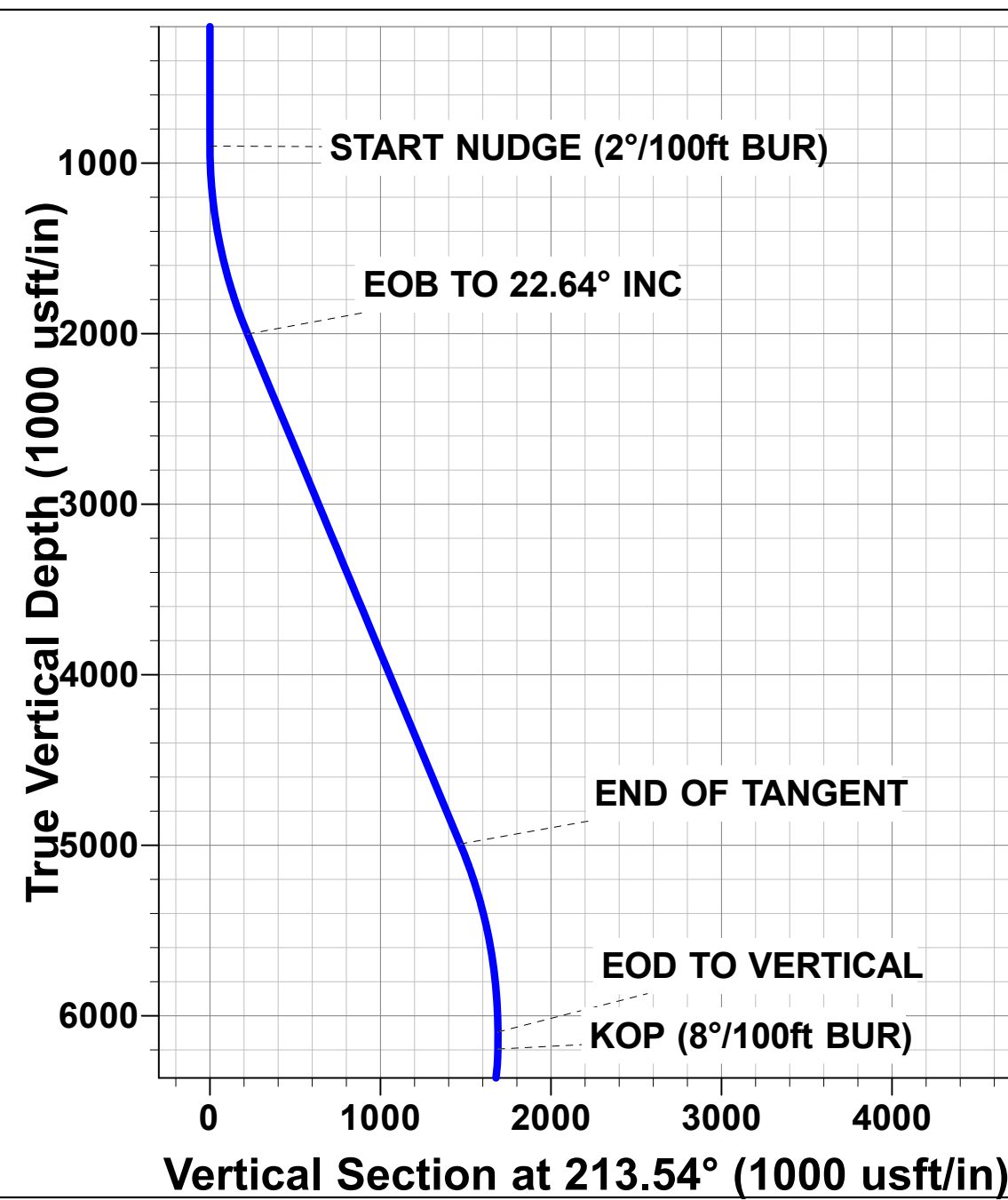


Azimuths to True North
 Magnetic North: 7.76°

Magnetic Field
 Strength: 51952.6nT
 Dip Angle: 66.63°
 Date: 2021-04-20
 Model: IGRF2020

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
BHL - HEN 16N (P2)	6852.00	-1421.91	7118.93	1362263.37	3265765.83	40.323893	-104.546811
EP - HEN 16N (P2)	6887.61	-1408.57	-402.24	1362198.03	3258245.25	40.323932	-104.573785
KOP - HEN 16N (P2)	6195.79	-1407.64	-933.07	1362193.41	3257714.46	40.323935	-104.575689





PDC ENERGY

**WELD COUNTY, COLORADO (TRUE)
SW NE SEC. 8 T4N R64W 6th P.M. (HEN)
HEN 16N**

**ORIGINAL WELLBORE
PROPOSAL #2**

Anticollision Summary Report

19 June, 2022



Company:	PDC ENERGY	Local Co-ordinate Reference:	Well HEN 16N
Project:	WELD COUNTY, COLORADO (TRUE)	TVD Reference:	KB 23ft @ 4802.00usft
Reference Site:	SW NE SEC. 8 T4N R64W 6th P.M. (HEN)	MD Reference:	KB 23ft @ 4802.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	HEN 16N	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 #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 100.00usft	Error Model:	ISCWSA
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum centre distance of 3,280.83usft	Error Surface:	Ellipsoid Separation
Warning Levels Evaluated at:	2.00 Sigma	Casing Method:	Not applied

Survey Tool Program	Date	2022-06-19		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.00	14,965.04	PROPOSAL #2 (ORIGINAL WELLBORE)	MWD	MWD - Standard

Summary						
Site Name	Reference	Offset	Distance		Separation Factor	Warning
	Measured Depth (usft)	Measured Depth (usft)	Between Centres (usft)	Between Ellipses (usft)		
Offset Well - Wellbore - Design						
SW NE SEC. 8 T4N R64W 6th P.M. (HEN)						
ABDN DD ALTER C 16-28D - Wellbore #1 - Wellbore #1	12,399.34	7,256.46	1,554.34	1,368.97	8.385	CC
ABDN DD ALTER C 16-28D - Wellbore #1 - Wellbore #1	12,500.00	7,257.31	1,557.59	1,368.46	8.235	ES
ABDN DD ALTER C 16-28D - Wellbore #1 - Wellbore #1	12,700.00	7,258.99	1,583.15	1,389.02	8.155	SF
ABDN DD ALTER C 16-29D - ORIGINAL WELLBORE - W	11,252.51	6,998.66	1,617.02	1,484.28	12.181	CC
ABDN DD ALTER C 16-29D - ORIGINAL WELLBORE - W	11,300.00	6,997.30	1,617.72	1,483.24	12.029	ES
ABDN DD ALTER C 16-29D - ORIGINAL WELLBORE - W	11,600.00	6,989.40	1,653.92	1,511.01	11.573	SF
ABDN DD ALTER C 16-29D - SIDETRACK - SIDETRAC	10,966.85	6,941.45	1,351.78	1,230.45	11.142	CC
ABDN DD ALTER C 16-29D - SIDETRACK - SIDETRAC	11,000.00	6,942.76	1,352.18	1,229.70	11.040	ES
ABDN DD ALTER C 16-29D - SIDETRACK - SIDETRAC	11,200.00	6,950.75	1,371.71	1,243.70	10.716	SF
ABDN HZ FRANKLIN C08-62HNX - ORIGINAL WELLBO	8,683.08	10,756.00	952.43	787.16	5.763	CC
ABDN HZ FRANKLIN C08-62HNX - ORIGINAL WELLBO	8,700.00	10,756.00	952.59	786.94	5.751	ES
ABDN HZ FRANKLIN C08-62HNX - ORIGINAL WELLBO	8,800.00	10,756.00	959.63	792.71	5.749	SF
ABDN HZ FRANKLIN C08-62HNX - SIDETRACK - SIDE	8,692.74	10,803.00	840.16	674.42	5.069	CC
ABDN HZ FRANKLIN C08-62HNX - SIDETRACK - SIDE	8,700.00	10,803.00	840.19	674.31	5.065	ES, SF
ABDN VERT CONQUEST SWD 1-8 - Wellbore #1 - Des	9,665.89	6,808.34	1,030.73	823.39	4.971	CC
ABDN VERT CONQUEST SWD 1-8 - Wellbore #1 - Des	9,700.00	6,808.06	1,031.29	822.86	4.948	ES
ABDN VERT CONQUEST SWD 1-8 - Wellbore #1 - Des	9,800.00	6,807.24	1,039.42	828.15	4.920	SF
ABDN VERT COX 8-1 - Wellbore #1 - Wellbore #1	751.27	717.28	2,064.41	2,062.46	1,058.080	CC
ABDN VERT COX 8-1 - Wellbore #1 - Wellbore #1	800.00	762.66	2,064.45	2,062.39	1,001.798	ES
ABDN VERT COX 8-1 - Wellbore #1 - Wellbore #1	7,634.88	7,076.34	3,269.87	3,240.04	109.583	SF
ABDN VERT COX PM C 8-4 - Wellbore #1 - Wellbore #1	1,219.74	1,218.09	3,030.61	3,027.42	951.243	CC
ABDN VERT COX PM C 8-4 - Wellbore #1 - Wellbore #1	1,300.00	1,293.64	3,030.73	3,027.34	892.768	ES
ABDN VERT COX PM C 8-4 - Wellbore #1 - Wellbore #1	4,600.00	4,431.42	3,277.95	3,252.69	129.751	SF
ABDN VERT COX PM C 8-5 - Wellbore #1 - Wellbore #1	4,340.17	4,143.42	2,526.09	2,501.34	102.053	CC
ABDN VERT COX PM C 8-5 - Wellbore #1 - Wellbore #1	4,400.00	4,194.46	2,526.24	2,501.01	100.152	ES
ABDN VERT COX PM C 8-5 - Wellbore #1 - Wellbore #1	6,550.00	6,258.65	2,617.92	2,582.55	74.019	SF
ABDN VERT GEHRING 8-15I4 - Wellbore #1 - Wellbore	8,266.32	6,836.99	504.05	466.31	13.357	CC, ES
ABDN VERT GEHRING 8-15I4 - Wellbore #1 - Wellbore	8,400.00	6,837.97	521.47	480.97	12.876	SF
ABDN VERT GEHRING C 8-10X - Wellbore #1 - Wellbor	3,422.35	3,252.80	388.75	371.32	22.308	CC, ES
ABDN VERT GEHRING C 8-10X - Wellbore #1 - Wellbor	8,000.00	6,879.16	617.28	584.17	18.643	SF
ABDN VERT HAGEN 9-16 - Wellbore #1 - Design #1	14,302.55	6,725.30	1,087.77	754.15	3.261	CC, ES
ABDN VERT HAGEN 9-16 - Wellbore #1 - Design #1	14,400.00	6,724.50	1,092.13	755.69	3.246	SF
ABDN VERT HEISER 1 - Wellbore #1 - Design #1	7,922.44	6,865.64	423.01	256.38	2.539	CC, ES, SF
ABDN VERT LEVI C 5-15 - Wellbore #1 - Wellbore #1	100.00	67.69	3,094.98	3,094.83	10,000.000	CC
ABDN VERT LEVI C 5-15 - Wellbore #1 - Wellbore #1	200.00	162.08	3,095.17	3,094.68	6,320.210	ES
ABDN VERT LEVI C 5-15 - Wellbore #1 - Wellbore #1	1,800.00	1,686.89	3,252.22	3,247.34	665.788	SF
ABDN VERT REINICK 1 - Wellbore #1 - Wellbore #1	14,073.08	6,713.37	2,071.64	1,877.68	10.681	CC

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 HEN 16N
Project:	WELD COUNTY, COLORADO (TRUE)	TVD Reference:	KB 23ft @ 4802.00usft
Reference Site:	SW NE SEC. 8 T4N R64W 6th P.M. (HEN)	MD Reference:	KB 23ft @ 4802.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	HEN 16N	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 #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
SW NE SEC. 8 T4N R64W 6th P.M. (HEN)						
ABDN VERT REINICK 1 - Wellbore #1 - Wellbore #1	14,100.00	6,713.02	2,071.81	1,877.27	10.649	ES
ABDN VERT REINICK 1 - Wellbore #1 - Wellbore #1	14,300.00	6,710.39	2,084.03	1,886.20	10.535	SF
ABDN VERT REINICK 2 - Wellbore #1 - Wellbore #1	13,150.01	6,723.74	3,015.23	2,846.80	17.901	CC
ABDN VERT REINICK 2 - Wellbore #1 - Wellbore #1	13,200.00	6,723.84	3,015.65	2,846.02	17.778	ES
ABDN VERT REINICK 2 - Wellbore #1 - Wellbore #1	13,800.00	6,724.99	3,084.50	2,904.49	17.135	SF
ABDN VERT REINICK 9-7 - Wellbore #1 - Design #1	13,025.68	6,768.78	1,601.92	1,303.03	5.360	CC, ES
ABDN VERT REINICK 9-7 - Wellbore #1 - Design #1	13,100.00	6,768.17	1,603.65	1,303.38	5.341	SF
ABDN VERT RICHARDSON 10-12 - Wellbore #1 - Wellb	14,965.04	6,720.61	950.48	880.86	13.652	CC, ES, SF
ABDN VERT RUFF 1 - Wellbore #1 - Design #1	100.00	70.33	1,655.34	1,654.41	1,781.328	CC
ABDN VERT RUFF 1 - Wellbore #1 - Design #1	1,000.00	970.38	1,656.86	1,635.65	78.099	ES
ABDN VERT RUFF 1 - Wellbore #1 - Design #1	9,000.00	6,871.20	3,227.61	3,039.70	17.177	SF
ABDN VERT RYANN STATE C 16-27 - Wellbore #1 - We	13,746.72	6,749.73	1,765.75	1,580.75	9.545	CC
ABDN VERT RYANN STATE C 16-27 - Wellbore #1 - We	13,800.00	6,752.72	1,766.55	1,579.85	9.462	ES
ABDN VERT RYANN STATE C 16-27 - Wellbore #1 - We	14,000.00	6,763.94	1,783.76	1,592.32	9.317	SF
ABDN VERT RYDGREN 8-1 - Wellbore #1 - Wellbore #1	6,509.65	6,229.43	1,750.98	1,716.11	50.214	CC, ES
ABDN VERT RYDGREN 8-1 - Wellbore #1 - Wellbore #1	6,550.00	6,270.32	1,752.08	1,717.18	50.213	SF
ABDN VERT SLEDGE C 9-28 - Wellbore #1 - Design #1						Out of range
ABDN VERT SLEDGE C 9-29 - Wellbore #1 - Design #1						Out of range
ABDN VERT SMITH 1 - Wellbore #1 - Design #1	10,540.04	6,844.17	3,050.40	2,818.69	13.165	CC
ABDN VERT SMITH 1 - Wellbore #1 - Design #1	10,600.00	6,843.67	3,050.98	2,817.84	13.086	ES
ABDN VERT SMITH 1 - Wellbore #1 - Design #1	11,200.00	6,838.75	3,120.97	2,875.57	12.718	SF
ABDN VERT SMITH 2 - Wellbore #1 - Design #1	11,872.81	6,820.23	3,020.12	2,752.21	11.273	CC
ABDN VERT SMITH 2 - Wellbore #1 - Design #1	11,900.00	6,820.01	3,020.25	2,751.68	11.246	ES
ABDN VERT SMITH 2 - Wellbore #1 - Design #1	12,400.00	6,815.91	3,065.79	2,787.18	11.004	SF
ABDN VERT SMITH 3 - Wellbore #1 - Design #1	11,861.09	6,807.62	1,857.96	1,590.64	6.950	CC
ABDN VERT SMITH 3 - Wellbore #1 - Design #1	11,900.00	6,807.30	1,858.37	1,590.20	6.930	ES
ABDN VERT SMITH 3 - Wellbore #1 - Design #1	12,100.00	6,805.66	1,873.26	1,601.74	6.899	SF
ABDN VERT STATE 16-214 - Wellbore #1 - Wellbore #1	12,905.76	6,736.79	2,449.90	2,287.73	15.106	CC
ABDN VERT STATE 16-214 - Wellbore #1 - Wellbore #1	13,000.00	6,736.08	2,451.72	2,286.63	14.851	ES
ABDN VERT STATE 16-214 - Wellbore #1 - Wellbore #1	13,500.00	6,732.43	2,520.94	2,344.85	14.316	SF
ABDN VERT THEA C 09-32 - Wellbore #1 - Wellbore #1	9,999.64	6,824.85	1,088.82	1,007.31	13.358	CC
ABDN VERT THEA C 09-32 - Wellbore #1 - Wellbore #1	10,000.00	6,824.84	1,088.82	1,007.30	13.357	ES
ABDN VERT THEA C 09-32 - Wellbore #1 - Wellbore #1	10,200.00	6,818.98	1,107.09	1,022.80	13.135	SF
EXIST DD ALTER C 09-24D - Wellbore #1 - Wellbore #1	12,608.06	7,309.64	214.67	19.48	1.100	Level 3, CC, ES, SF
EXIST DD ALTER C 09-33D - Wellbore #1 - Wellbore #1	9,822.21	6,943.25	219.55	125.91	2.345	CC, ES, SF
EXIST DD BURMAN C 04-33D - Wellbore #1 - Wellbore						Out of range
EXIST DD BURMAN C 05-23D - Wellbore #1 - Wellbore						Out of range
EXIST DD BURMAN C05-24D - Wellbore #1 - Wellbore #						Out of range
EXIST DD NGL C1C - Wellbore #1 - Wellbore #1	9,757.64	6,038.42	3,042.95	2,955.97	34.983	CC
EXIST DD NGL C1C - Wellbore #1 - Wellbore #1	9,800.00	6,039.38	3,043.25	2,955.07	34.513	ES
EXIST DD NGL C1C - Wellbore #1 - Wellbore #1	10,900.00	6,062.70	3,250.21	3,133.64	27.883	SF
EXIST DD RUFF C 08-27D - Wellbore #1 - Wellbore #1	700.00	673.00	2,034.98	2,032.80	933.245	CC
EXIST DD RUFF C 08-27D - Wellbore #1 - Wellbore #1	800.00	763.36	2,035.24	2,032.66	788.789	ES
EXIST DD RUFF C 08-27D - Wellbore #1 - Wellbore #1	4,000.00	3,402.41	3,266.90	3,247.56	168.951	SF
EXIST DD SLEDGE C 9-30D - Wellbore #1 - Wellbore #1	700.00	655.00	3,194.71	3,192.55	1,478.836	CC
EXIST DD SLEDGE C 9-30D - Wellbore #1 - Wellbore #1	900.00	843.10	3,195.00	3,192.00	1,065.177	ES
EXIST DD SLEDGE C 9-30D - Wellbore #1 - Wellbore #1	1,600.00	1,573.13	3,270.30	3,264.21	537.214	SF
EXIST HZ CHALLENGER 1N - ORIGINAL WELLBORE -	0.00	0.00	1,275.69			
EXIST HZ CHALLENGER 1N - ORIGINAL WELLBORE -	200.00	188.00	1,275.84	1,275.34	2,565.106	ES
EXIST HZ CHALLENGER 1N - ORIGINAL WELLBORE -	4,600.00	3,791.49	2,837.66	2,811.51	108.556	SF
EXIST HZ CHALLENGER 1N - SIDETRACK - SIDETRA	0.00	0.00	1,275.69			
EXIST HZ CHALLENGER 1N - SIDETRACK - SIDETRA	200.00	188.00	1,275.84	1,275.34	2,565.106	ES

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 HEN 16N
Project:	WELD COUNTY, COLORADO (TRUE)	TVD Reference:	KB 23ft @ 4802.00usft
Reference Site:	SW NE SEC. 8 T4N R64W 6th P.M. (HEN)	MD Reference:	KB 23ft @ 4802.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	HEN 16N	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 #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
SW NE SEC. 8 T4N R64W 6th P.M. (HEN)						
EXIST HZ CHALLENGER 1N - SIDETRACK - SIDETRA	4,600.00	3,791.49	2,837.66	2,811.51	108.556	SF
EXIST HZ CHALLENGER 2N - Wellbore #1 - Wellbore #	316.19	307.65	1,262.98	1,261.92	1,198.088	CC
EXIST HZ CHALLENGER 2N - Wellbore #1 - Wellbore #	400.00	377.43	1,263.28	1,261.89	912.638	ES
EXIST HZ CHALLENGER 2N - Wellbore #1 - Wellbore #	5,600.00	4,831.62	3,186.87	3,155.12	100.384	SF
EXIST HZ CHALLENGER 3N - Wellbore #1 - Wellbore #	217.91	209.12	1,252.16	1,251.54	2,032.850	CC
EXIST HZ CHALLENGER 3N - Wellbore #1 - Wellbore #	500.00	481.13	1,252.40	1,250.58	688.719	ES
EXIST HZ CHALLENGER 3N - Wellbore #1 - Wellbore #	8,000.00	6,416.50	3,257.31	3,212.27	72.325	SF
EXIST HZ CHALLENGER 4N - Wellbore #1 - Wellbore #	0.00	0.00	1,241.27			
EXIST HZ CHALLENGER 4N - Wellbore #1 - Wellbore #	100.00	87.27	1,241.39	1,241.22	7,257.597	ES
EXIST HZ CHALLENGER 4N - Wellbore #1 - Wellbore #	8,700.00	6,470.00	3,236.84	3,181.09	58.069	SF
EXIST HZ CHALLENGER 5N - Wellbore #1 - Wellbore #	393.34	384.58	1,228.45	1,227.06	884.721	CC
EXIST HZ CHALLENGER 5N - Wellbore #1 - Wellbore #	1,000.00	994.83	1,229.07	1,225.07	307.187	ES
EXIST HZ CHALLENGER 5N - Wellbore #1 - Wellbore #	9,100.00	6,372.00	3,269.39	3,210.19	55.230	SF
EXIST HZ CHALLENGER 6N - Wellbore #1 - Wellbore #	794.64	786.24	1,217.33	1,214.19	388.543	CC
EXIST HZ CHALLENGER 6N - Wellbore #1 - Wellbore #	900.00	887.78	1,217.48	1,213.89	339.104	ES
EXIST HZ CHALLENGER 6N - Wellbore #1 - Wellbore #	8,900.00	6,374.00	2,978.81	2,924.10	54.446	SF
EXIST HZ CHALLENGER 7N - Wellbore #1 - Wellbore #	0.00	0.00	1,206.12			
EXIST HZ CHALLENGER 7N - Wellbore #1 - Wellbore #	400.00	383.83	1,207.45	1,206.06	868.219	ES
EXIST HZ CHALLENGER 7N - Wellbore #1 - Wellbore #	8,700.00	6,348.00	2,639.03	2,587.94	51.654	SF
EXIST HZ CHALLENGER 8N - Wellbore #1 - Wellbore #	2,336.97	2,500.73	1,158.71	1,145.92	90.646	CC
EXIST HZ CHALLENGER 8N - Wellbore #1 - Wellbore #	2,400.00	2,548.41	1,159.13	1,145.86	87.349	ES
EXIST HZ CHALLENGER 8N - Wellbore #1 - Wellbore #	8,200.00	6,538.00	2,130.02	2,083.87	46.157	SF
EXIST HZ CHALLENGER 9N - Wellbore #1 - Wellbore #	2,516.12	2,649.04	1,020.78	1,005.88	68.520	CC
EXIST HZ CHALLENGER 9N - Wellbore #1 - Wellbore #	2,600.00	2,727.01	1,021.17	1,005.61	65.608	ES
EXIST HZ CHALLENGER 9N - Wellbore #1 - Wellbore #	6,900.00	6,633.00	1,575.77	1,538.24	41.993	SF
EXIST HZ FRANKLIN C17-69HN - Wellbore #1 - Wellbor	8,107.61	10,197.00	1,466.13	1,330.49	10.809	CC
EXIST HZ FRANKLIN C17-69HN - Wellbore #1 - Wellbor	8,800.00	10,846.00	1,476.24	1,306.45	8.695	ES
EXIST HZ FRANKLIN C17-69HN - Wellbore #1 - Wellbor	9,000.00	10,846.00	1,495.60	1,321.59	8.595	SF
EXIST HZ HAROLD 6X-232 - Wellbore #1 - Wellbore #1						Out of range
EXIST HZ HAROLD 6X-302 - Wellbore #1 - Wellbore #1						Out of range
EXIST HZ HAROLD 6Y-202 - Wellbore #1 - Wellbore #1						Out of range
EXIST HZ HAROLD 6Y-312 - Wellbore #1 - Wellbore #1						Out of range
EXIST HZ JAGGED 10N - Wellbore #1 - Wellbore #1	5,334.99	5,013.04	653.30	617.00	17.995	CC, ES
EXIST HZ JAGGED 10N - Wellbore #1 - Wellbore #1	6,100.00	5,829.91	722.86	678.62	16.339	SF
EXIST HZ JAGGED 11N - Wellbore #1 - Wellbore #1	5,322.50	4,965.35	761.14	725.37	21.278	CC
EXIST HZ JAGGED 11N - Wellbore #1 - Wellbore #1	5,400.00	5,050.00	761.76	725.00	20.722	ES
EXIST HZ JAGGED 11N - Wellbore #1 - Wellbore #1	5,800.00	5,422.60	796.92	756.23	19.586	SF
EXIST HZ JAGGED 12N - Wellbore #1 - Wellbore #1	5,281.61	4,929.51	959.12	923.64	27.038	CC, ES
EXIST HZ JAGGED 12N - Wellbore #1 - Wellbore #1	6,300.00	6,071.52	1,116.95	1,072.12	24.916	SF
EXIST HZ JAGGED 1N - Wellbore #1 - Wellbore #1	3,216.85	3,114.37	367.35	342.73	14.917	CC, ES
EXIST HZ JAGGED 1N - Wellbore #1 - Wellbore #1	3,300.00	3,181.72	370.43	345.02	14.575	SF
EXIST HZ JAGGED 2N - Wellbore #1 - Wellbore #1	3,384.55	3,270.89	318.24	292.62	12.421	CC
EXIST HZ JAGGED 2N - Wellbore #1 - Wellbore #1	3,400.00	3,284.39	318.33	292.55	12.348	ES
EXIST HZ JAGGED 2N - Wellbore #1 - Wellbore #1	3,500.00	3,371.59	323.17	296.59	12.160	SF
EXIST HZ JAGGED 3N - Wellbore #1 - Wellbore #1	3,588.76	3,461.63	187.89	160.96	6.977	CC
EXIST HZ JAGGED 3N - Wellbore #1 - Wellbore #1	3,600.00	3,471.33	187.97	160.91	6.945	ES, SF
EXIST HZ JAGGED 4N - Wellbore #1 - Wellbore #1	4,183.13	4,003.54	85.10	54.45	2.777	CC, ES, SF
EXIST HZ JAGGED 5N - Wellbore #1 - Wellbore #1	4,671.76	4,454.28	37.92	3.91	1.115	Level 3, CC, ES, SF
EXIST HZ JAGGED 6N - Wellbore #1 - Wellbore #1	4,924.82	4,689.26	43.86	6.81	1.184	Level 3, CC, ES, SF
EXIST HZ JAGGED 7N - Wellbore #1 - Wellbore #1	6,897.60	6,676.29	135.50	97.16	3.534	CC, ES, SF
EXIST HZ JAGGED 8N - Wellbore #1 - Wellbore #1	5,489.69	5,221.39	286.64	245.33	6.939	CC
EXIST HZ JAGGED 8N - Wellbore #1 - Wellbore #1	5,500.00	5,230.60	286.66	245.17	6.910	ES

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 HEN 16N
Project:	WELD COUNTY, COLORADO (TRUE)	TVD Reference:	KB 23ft @ 4802.00usft
Reference Site:	SW NE SEC. 8 T4N R64W 6th P.M. (HEN)	MD Reference:	KB 23ft @ 4802.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	HEN 16N	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 #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
SW NE SEC. 8 T4N R64W 6th P.M. (HEN)						
EXIST HZ JAGGED 8N - Wellbore #1 - Wellbore #1	5,800.00	5,525.88	303.87	257.86	6.605	SF
EXIST HZ JAGGED 9N - Wellbore #1 - Wellbore #1	5,395.18	5,099.09	467.40	429.68	12.389	CC
EXIST HZ JAGGED 9N - Wellbore #1 - Wellbore #1	5,400.00	5,102.77	467.41	429.63	12.370	ES
EXIST HZ JAGGED 9N - Wellbore #1 - Wellbore #1	6,000.00	5,722.87	509.30	464.17	11.287	SF
EXIST HZ MARK ALTER C16-79HN - Wellbore #1 - Well	10,016.92	6,347.00	1,222.43	1,133.83	13.798	CC, ES
EXIST HZ MARK ALTER C16-79HN - Wellbore #1 - Well	10,300.00	6,365.78	1,254.41	1,158.47	13.076	SF
EXIST HZ NORTHROP C 08-73HN - Wellbore #1 - Wellb	8,566.41	10,068.54	20.43	-22.42	0.477	Level 3, CC, ES, SF
EXIST HZ NORTHROP C 08-75HN - Wellbore #1 - Wellb	7,293.44	10,390.66	67.81	27.73	1.692	CC
EXIST HZ NORTHROP C 08-75HN - Wellbore #1 - Wellb	7,350.00	10,390.30	89.99	23.47	1.353	Level 3, ES, SF
EXIST HZ OREDIGGER C10-69HN - Wellbore #1 - Well						Out of range
EXIST HZ SANDY HILLS PC C17-67HN - Wellbore #1 -	9,312.41	11,004.00	2,816.81	2,636.22	15.599	CC
EXIST HZ SANDY HILLS PC C17-67HN - Wellbore #1 -	9,400.00	11,004.00	2,818.17	2,635.43	15.422	ES
EXIST HZ SANDY HILLS PC C17-67HN - Wellbore #1 -	9,900.00	11,004.00	2,877.44	2,685.47	14.989	SF
EXIST HZ STOCKLEY C15-79HN - Wellbore #1 - Wellbo	14,965.04	12,873.05	322.41	176.35	2.207	CC, ES, SF
EXIST HZ ZANE ALTER C 09-21 - Wellbore #1 - Wellbor	12,768.02	6,834.77	376.86	206.09	2.207	CC, ES, SF
EXIST VERT ALTER C 9-23 - Wellbore #1 - Design #1	13,845.31	6,744.15	153.87	-165.04	0.483	Level 3, CC, ES, SF
EXIST VERT ALTER C 9-25 - Wellbore #1 - Design #1	11,187.51	6,788.48	116.77	-127.62	0.478	Level 3, CC, ES, SF
EXIST VERT AMANDA ALTER C 9-20 - Wellbore #1 - De	11,205.10	6,803.57	930.64	681.60	3.737	CC, ES, SF
EXIST VERT BARTON C 15-29 - Wellbore #1 - Design #	14,965.04	6,706.42	1,940.06	1,679.26	7.439	CC, ES, SF
EXIST VERT BENNER 1 - Wellbore #1 - Wellbore #1	100.00	40.32	1,464.78	1,464.65	10,000.000	CC
EXIST VERT BENNER 1 - Wellbore #1 - Wellbore #1	800.00	738.50	1,466.03	1,463.96	707.212	ES
EXIST VERT BENNER 1 - Wellbore #1 - Wellbore #1	9,800.00	6,787.34	1,778.32	1,706.57	24.783	SF
EXIST VERT CONNELL 14-4 - Wellbore #1 - Wellbore #						Out of range
EXIST VERT CONNELL 3 - Wellbore #1 - Wellbore #1						Out of range
EXIST VERT CONNELL C 4-25 - Wellbore #1 - Wellbore						Out of range
EXIST VERT COX 8-19D - Wellbore #1 - Design #1	2,296.04	2,234.46	2,287.56	2,235.19	43.680	CC
EXIST VERT COX 8-19D - Wellbore #1 - Design #1	2,700.00	2,607.29	2,292.84	2,229.99	36.477	ES
EXIST VERT COX 8-19D - Wellbore #1 - Design #1	6,900.00	6,559.96	2,712.59	2,550.48	16.733	SF
EXIST VERT COX PM C 8-6 - Wellbore #1 - Wellbore #1	2,305.20	2,256.36	1,347.42	1,338.53	151.560	CC
EXIST VERT COX PM C 8-6 - Wellbore #1 - Wellbore #1	2,400.00	2,342.88	1,347.90	1,338.31	140.577	ES
EXIST VERT COX PM C 8-6 - Wellbore #1 - Wellbore #1	5,271.86	4,996.02	1,744.12	1,717.90	66.519	SF
EXIST VERT CPC HARLESS 17-1 - Wellbore #1 - Wellb	9,125.52	6,758.71	2,129.03	2,070.65	36.467	CC
EXIST VERT CPC HARLESS 17-1 - Wellbore #1 - Wellb	9,200.00	6,758.31	2,130.33	2,069.86	35.232	ES
EXIST VERT CPC HARLESS 17-1 - Wellbore #1 - Wellb	10,100.00	6,753.93	2,341.44	2,260.76	29.019	SF
EXIST VERT EMBRICK C 10-19 - Wellbore #1 - Wellbor	14,965.04	6,765.50	2,722.04	2,528.03	14.031	CC, ES, SF
EXIST VERT ENGLAND 8-3-17 - Wellbore #1 - Wellbore	6,508.67	6,210.56	1,570.27	1,534.15	43.483	CC, ES
EXIST VERT ENGLAND 8-3-17 - Wellbore #1 - Wellbore	6,550.00	6,254.25	1,571.25	1,535.12	43.480	SF
EXIST VERT ENGLAND 8-35 - Wellbore #1 - Wellbore #	6,511.95	6,209.91	1,046.96	1,017.92	36.056	CC, ES
EXIST VERT ENGLAND 8-35 - Wellbore #1 - Wellbore #	6,550.00	6,247.38	1,047.96	1,018.89	36.050	SF
EXIST VERT GEHRING 1 - Wellbore #1 - Wellbore #1	9,185.25	6,822.39	788.27	728.48	13.184	CC
EXIST VERT GEHRING 1 - Wellbore #1 - Wellbore #1	9,200.00	6,822.41	788.41	728.15	13.084	ES
EXIST VERT GEHRING 1 - Wellbore #1 - Wellbore #1	9,400.00	6,822.75	817.00	751.93	12.556	SF
EXIST VERT GEHRING 8-914 - Wellbore #1 - Wellbore #	9,315.45	6,841.80	536.08	472.89	8.484	CC, ES, SF
EXIST VERT HAGEN 9-10 - Wellbore #1 - Design #1	13,270.41	6,757.33	230.79	-73.21	0.759	Level 3, CC, ES, SF
EXIST VERT HAGEN 9-15 - Wellbore #1 - Design #1	12,995.83	6,749.41	1,088.91	791.26	3.658	CC
EXIST VERT HAGEN 9-15 - Wellbore #1 - Design #1	13,000.00	6,749.38	1,088.92	791.11	3.656	ES
EXIST VERT HAGEN 9-15 - Wellbore #1 - Design #1	13,100.00	6,748.56	1,093.88	793.14	3.637	SF
EXIST VERT HAGEN 9-9 - Wellbore #1 - Wellbore #1	14,179.77	6,726.00	291.68	96.06	1.491	Level 3, CC, ES, SF
EXIST VERT HARLESS PM C 17-2 - Wellbore #1 - Desi	7,881.94	6,846.07	2,402.26	2,236.66	14.507	CC
EXIST VERT HARLESS PM C 17-2 - Wellbore #1 - Desi	7,900.00	6,845.92	2,402.33	2,236.47	14.484	ES
EXIST VERT HARLESS PM C 17-2 - Wellbore #1 - Desi	8,700.00	6,839.36	2,537.72	2,355.03	13.891	SF
EXIST VERT JOHNSON 9-11 - Wellbore #1 - Design #1	11,867.20	6,780.81	418.96	152.14	1.570	CC, 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 HEN 16N
Project:	WELD COUNTY, COLORADO (TRUE)	TVD Reference:	KB 23ft @ 4802.00usft
Reference Site:	SW NE SEC. 8 T4N R64W 6th P.M. (HEN)	MD Reference:	KB 23ft @ 4802.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	HEN 16N	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 #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
SW NE SEC. 8 T4N R64W 6th P.M. (HEN)						
EXIST VERT JOHNSON 9-13 - Wellbore #1 - Wellbore #	10,580.52	6,824.57	881.42	784.29	9.074	CC
EXIST VERT JOHNSON 9-13 - Wellbore #1 - Wellbore #	10,600.00	6,824.56	881.64	783.80	9.011	ES
EXIST VERT JOHNSON 9-13 - Wellbore #1 - Wellbore #	10,700.00	6,824.49	889.48	788.78	8.833	SF
EXIST VERT MCCLINTOCK C 4-15 - Wellbore #1 - Well						Out of range
EXIST VERT NGL C1A - Wellbore #1 - Design #1	9,570.77	6,813.12	1,319.80	1,114.88	6.441	CC
EXIST VERT NGL C1A - Wellbore #1 - Design #1	9,600.00	6,812.88	1,320.12	1,114.31	6.414	ES
EXIST VERT NGL C1A - Wellbore #1 - Design #1	9,800.00	6,811.24	1,339.56	1,128.33	6.342	SF
EXIST VERT NGL C1B - Wellbore #1 - Design #1	9,465.57	6,819.98	1,127.64	925.39	5.576	CC
EXIST VERT NGL C1B - Wellbore #1 - Design #1	9,500.00	6,819.70	1,128.16	924.84	5.549	ES
EXIST VERT NGL C1B - Wellbore #1 - Design #1	9,600.00	6,818.88	1,135.62	929.47	5.509	SF
EXIST VERT REINICK 10-5 - Wellbore #1 - Wellbore #1	14,965.04	6,742.91	1,768.86	1,567.88	8.801	CC, ES, SF
EXIST VERT REINICK 1-10-4-64 - Wellbore #1 - Wellbo	14,965.04	6,746.26	3,268.92	3,055.42	15.311	CC, ES, SF
EXIST VERT REINICK 3 - Wellbore #1 - Wellbore #1	14,455.65	6,745.49	2,991.42	2,786.68	14.611	CC
EXIST VERT REINICK 3 - Wellbore #1 - Wellbore #1	14,500.00	6,745.69	2,991.74	2,785.95	14.537	ES
EXIST VERT REINICK 3 - Wellbore #1 - Wellbore #1	14,965.04	6,747.92	3,034.64	2,820.74	14.187	SF
EXIST VERT REINICK C 10-31 - Wellbore #1 - Wellbore	14,861.82	6,779.05	2,347.88	2,131.74	10.863	CC
EXIST VERT REINICK C 10-31 - Wellbore #1 - Wellbore	14,900.00	6,779.13	2,348.19	2,131.19	10.821	ES
EXIST VERT REINICK C 10-31 - Wellbore #1 - Wellbore	14,965.04	6,779.39	2,350.31	2,131.99	10.765	SF
EXIST VERT REINICK C 9-18 - Wellbore #1 - Design #1	12,571.50	6,794.77	2,304.88	2,018.12	8.038	CC
EXIST VERT REINICK C 9-18 - Wellbore #1 - Design #1	12,600.00	6,794.54	2,305.05	2,017.64	8.020	ES
EXIST VERT REINICK C 9-18 - Wellbore #1 - Design #1	12,800.00	6,792.90	2,316.18	2,024.88	7.951	SF
EXIST VERT REINICK C 9-22 - Wellbore #1 - Design #1	13,857.58	6,753.95	1,104.47	782.73	3.433	CC, ES
EXIST VERT REINICK C 9-22 - Wellbore #1 - Design #1	13,900.00	6,753.60	1,105.28	782.98	3.429	SF
EXIST VERT REISTAD 1 - Wellbore #1 - Wellbore #1	100.00	53.25	3,275.81	3,275.67	10,000.000	CC, ES
EXIST VERT REISTAD 1 - Wellbore #1 - Wellbore #1	800.00	748.62	3,280.49	3,278.30	1,494.828	SF
EXIST VERT RICHARDSON 10-13 - Wellbore #1 - Desig	14,965.04	6,705.00	1,226.84	974.94	4.870	CC, ES, SF
EXIST VERT ROHR 15-414 - Wellbore #1 - Wellbore #1	14,965.04	6,705.28	2,270.73	2,074.10	11.548	CC, ES, SF
EXIST VERT ROHR C 15-19 - Wellbore #1 - Wellbore #1	14,965.04	6,724.78	3,148.26	2,958.24	16.568	CC, ES, SF
EXIST VERT RUFF 8-114 - Wellbore #1 - Wellbore #1	555.70	518.71	1,693.48	1,691.92	1,082.395	CC
EXIST VERT RUFF 8-114 - Wellbore #1 - Wellbore #1	908.43	876.42	1,693.56	1,691.07	681.646	ES
EXIST VERT RUFF 8-114 - Wellbore #1 - Wellbore #1	10,300.00	6,828.53	3,098.34	3,021.09	40.108	SF
EXIST VERT RUFF 8-714 - Wellbore #1 - Wellbore #1	350.37	328.29	579.89	578.94	608.738	CC
EXIST VERT RUFF 8-714 - Wellbore #1 - Wellbore #1	500.00	475.49	580.19	578.82	423.335	ES
EXIST VERT RUFF 8-714 - Wellbore #1 - Wellbore #1	9,200.00	6,817.57	2,086.66	2,033.17	39.017	SF
EXIST VERT RUFF C 8-1 - Wellbore #1 - Design #1	900.00	871.00	2,481.20	2,462.19	130.504	CC
EXIST VERT RUFF C 8-1 - Wellbore #1 - Design #1	1,000.00	970.98	2,482.93	2,461.70	116.973	ES
EXIST VERT RUFF C 8-1 - Wellbore #1 - Design #1	10,000.00	6,863.60	3,277.46	3,061.86	15.201	SF
EXIST VERT RYANN STATE C 16-1 - Wellbore #1 - Wel	14,292.41	6,617.08	2,285.14	2,084.83	11.408	CC
EXIST VERT RYANN STATE C 16-1 - Wellbore #1 - Wel	14,400.00	6,613.39	2,287.67	2,084.06	11.236	ES
EXIST VERT RYANN STATE C 16-1 - Wellbore #1 - Wel	14,700.00	6,602.73	2,321.18	2,110.98	11.043	SF
EXIST VERT RYDGREN 8-31 - Wellbore #1 - Wellbore #	5,114.21	4,807.35	333.53	302.61	10.789	CC, ES
EXIST VERT RYDGREN 8-31 - Wellbore #1 - Wellbore #	5,271.86	4,953.61	338.71	306.76	10.600	SF
EXIST VERT SLEDGE C 9-31 - Wellbore #1 - Design #1	10,084.44	6,838.53	2,303.81	2,084.61	10.510	CC
EXIST VERT SLEDGE C 9-31 - Wellbore #1 - Design #1	10,100.00	6,838.41	2,303.87	2,084.30	10.493	ES
EXIST VERT SLEDGE C 9-31 - Wellbore #1 - Design #1	10,500.00	6,835.12	2,340.99	2,113.38	10.285	SF
EXIST VERT SMITH 9-5 - Wellbore #1 - Design #1	10,738.82	6,822.79	1,562.20	1,325.51	6.600	CC
EXIST VERT SMITH 9-5 - Wellbore #1 - Design #1	10,800.00	6,822.28	1,563.40	1,325.46	6.570	ES
EXIST VERT SMITH 9-5 - Wellbore #1 - Design #1	10,900.00	6,821.46	1,570.50	1,330.85	6.553	SF
EXIST VERT SMITH C 9-19 - Wellbore #1 - Design #1	11,318.47	6,832.78	2,760.41	2,507.57	10.918	CC
EXIST VERT SMITH C 9-19 - Wellbore #1 - Design #1	11,400.00	6,832.11	2,761.61	2,506.85	10.840	ES
EXIST VERT SMITH C 9-19 - Wellbore #1 - Design #1	11,800.00	6,828.83	2,802.09	2,539.52	10.672	SF
EXIST VERT STATE 16-314 - Wellbore #1 - Design #1	11,853.72	6,766.65	2,012.45	1,746.16	7.557	CC
EXIST VERT STATE 16-314 - Wellbore #1 - Design #1	11,900.00	6,766.27	2,012.99	1,745.23	7.518	ES

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 HEN 16N
Project:	WELD COUNTY, COLORADO (TRUE)	TVD Reference:	KB 23ft @ 4802.00usft
Reference Site:	SW NE SEC. 8 T4N R64W 6th P.M. (HEN)	MD Reference:	KB 23ft @ 4802.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	HEN 16N	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 #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						
SW NE SEC. 8 T4N R64W 6th P.M. (HEN)						
EXIST VERT STATE 16-314 - Wellbore #1 - Design #1	12,200.00	6,763.81	2,042.03	1,766.61	7.414	SF
EXIST VERT STATE 16-414 - Wellbore #1 - Design #1	11,131.60	6,780.05	2,681.96	2,435.33	10.874	CC
EXIST VERT STATE 16-414 - Wellbore #1 - Design #1	11,200.00	6,779.49	2,682.84	2,434.14	10.788	ES
EXIST VERT STATE 16-414 - Wellbore #1 - Design #1	11,700.00	6,775.39	2,741.53	2,480.10	10.487	SF
EXIST VERT VERN JOHNSON 1-A - Wellbore #1 - Desi	11,912.75	6,770.40	942.74	674.76	3.518	CC, ES
EXIST VERT VERN JOHNSON 1-A - Wellbore #1 - Desi	12,000.00	6,769.68	946.76	676.06	3.497	SF
EXIST VERT VERN JOHNSON 2 - Wellbore #1 - Design	10,541.02	6,809.19	423.74	192.82	1.835	CC, ES, SF
EXIST VERT WILMOTH 1 - Wellbore #1 - Wellbore #1						Out of range
EXIST VERT WILMOTH C 3-33 - Wellbore #1 - Wellbore						Out of range
EXIST VERT WILMOTH C 4-23 - Wellbore #1 - Wellbore						Out of range
EXIST VERT WILMOTH C 4-24 - Wellbore #1 - Wellbore						Out of range
EXIST VERT WILMOTH C 9-27 - Wellbore #1 - Wellbore						Out of range
HEN 01N - ORIGINAL WELLBORE - PROPOSAL #2	300.00	300.00	224.92	223.85	209.792	CC, ES
HEN 01N - ORIGINAL WELLBORE - PROPOSAL #2	1,100.00	1,029.57	326.01	321.41	70.899	SF
HEN 02N - ORIGINAL WELLBORE - PROPOSAL #2	400.00	400.00	209.95	208.43	137.975	CC, ES
HEN 02N - ORIGINAL WELLBORE - PROPOSAL #2	1,100.00	1,045.32	287.75	283.17	62.759	SF
HEN 03N - ORIGINAL WELLBORE - PROPOSAL #2	500.00	500.00	194.94	192.97	98.895	CC, ES
HEN 03N - ORIGINAL WELLBORE - PROPOSAL #2	14,965.04	14,880.73	3,116.65	2,681.26	7.158	SF
HEN 04N - ORIGINAL WELLBORE - PROPOSAL #2	600.00	600.00	179.93	177.51	74.328	CC, ES
HEN 04N - ORIGINAL WELLBORE - PROPOSAL #2	14,965.04	14,883.49	2,875.78	2,440.05	6.600	SF
HEN 05N - ORIGINAL WELLBORE - PROPOSAL #2	700.00	700.00	164.92	162.05	57.459	CC, ES
HEN 05N - ORIGINAL WELLBORE - PROPOSAL #2	14,965.04	14,761.51	2,637.44	2,201.95	6.056	SF
HEN 06N - ORIGINAL WELLBORE - PROPOSAL #2	716.33	717.33	149.95	147.00	50.901	CC
HEN 06N - ORIGINAL WELLBORE - PROPOSAL #2	800.00	800.00	149.95	146.63	45.169	ES
HEN 06N - ORIGINAL WELLBORE - PROPOSAL #2	14,965.04	14,793.59	2,396.51	1,960.92	5.502	SF
HEN 07N - ORIGINAL WELLBORE - PROPOSAL #2	900.00	900.00	134.94	131.17	35.800	CC, ES
HEN 07N - ORIGINAL WELLBORE - PROPOSAL #2	14,965.04	14,688.23	2,158.27	1,723.01	4.959	SF
HEN 08N - ORIGINAL WELLBORE - PROPOSAL #2	900.00	900.00	119.97	116.20	31.827	CC, ES
HEN 08N - ORIGINAL WELLBORE - PROPOSAL #2	14,965.04	14,740.02	1,917.17	1,481.64	4.402	SF
HEN 09N - ORIGINAL WELLBORE - PROPOSAL #2	900.00	900.00	104.96	101.19	27.845	CC, ES
HEN 09N - ORIGINAL WELLBORE - PROPOSAL #2	14,965.04	14,689.33	1,679.17	1,244.82	3.866	SF
HEN 10N - ORIGINAL WELLBORE - PROPOSAL #2	900.00	900.00	89.95	86.18	23.863	CC, ES
HEN 10N - ORIGINAL WELLBORE - PROPOSAL #2	14,965.04	14,781.15	1,437.86	1,002.25	3.301	SF
HEN 11N - ORIGINAL WELLBORE - PROPOSAL #2	900.00	900.00	74.98	71.21	19.891	CC, ES
HEN 11N - ORIGINAL WELLBORE - PROPOSAL #2	14,965.04	14,734.30	1,200.25	766.00	2.764	SF
HEN 12N - ORIGINAL WELLBORE - PROPOSAL #2	900.00	900.00	59.97	56.20	15.909	CC, ES
HEN 12N - ORIGINAL WELLBORE - PROPOSAL #2	14,965.04	14,839.84	958.59	523.52	2.203	SF
HEN 13N - ORIGINAL WELLBORE - PROPOSAL #2	900.00	900.00	44.96	41.19	11.927	CC, ES
HEN 13N - ORIGINAL WELLBORE - PROPOSAL #2	14,965.04	14,794.90	721.86	291.50	1.677	SF
HEN 14N - ORIGINAL WELLBORE - PROPOSAL #2	900.00	900.00	29.95	26.18	7.945	CC, ES
HEN 14N - ORIGINAL WELLBORE - PROPOSAL #2	14,965.04	14,907.57	479.31	46.81	1.108	Level 3, SF
HEN 15N - ORIGINAL WELLBORE - PROPOSAL #2	900.00	900.00	14.97	11.20	3.972	CC
HEN 15N - ORIGINAL WELLBORE - PROPOSAL #2	14,965.04	14,875.79	249.65	-48.83	0.836	Level 3, ES, SF
HEN 17N - ORIGINAL WELLBORE - PROPOSAL #2	800.00	800.00	15.01	11.69	4.521	CC
HEN 17N - ORIGINAL WELLBORE - PROPOSAL #2	14,961.54	14,962.58	251.22	-45.23	0.847	Level 3, ES, SF
HEN 18N - ORIGINAL WELLBORE - PROPOSAL #2	700.00	700.00	30.02	27.15	10.459	CC, ES
HEN 18N - ORIGINAL WELLBORE - PROPOSAL #2	14,965.04	15,093.23	479.31	49.25	1.115	Level 3, SF
HEN 19N - ORIGINAL WELLBORE - PROPOSAL #2	600.00	600.00	45.03	42.61	18.601	CC, ES
HEN 19N - ORIGINAL WELLBORE - PROPOSAL #2	14,965.04	15,090.25	723.94	295.09	1.688	SF
HEN 20NA - ORIGINAL WELLBORE - PROPOSAL #2	500.00	499.00	60.00	58.03	30.474	CC, ES
HEN 20NA - ORIGINAL WELLBORE - PROPOSAL #2	14,965.04	15,111.10	967.35	538.33	2.255	SF
HEN 21N - ORIGINAL WELLBORE - PROPOSAL #2	400.00	399.00	75.01	73.49	49.368	CC, ES

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 HEN 16N
Project:	WELD COUNTY, COLORADO (TRUE)	TVD Reference:	KB 23ft @ 4802.00usft
Reference Site:	SW NE SEC. 8 T4N R64W 6th P.M. (HEN)	MD Reference:	KB 23ft @ 4802.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	HEN 16N	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 #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						
SW NE SEC. 8 T4N R64W 6th P.M. (HEN)						
HEN 21N - ORIGINAL WELLBORE - PROPOSAL #2	14,965.04	15,320.70	1,198.23	764.61	2.763	SF
HEN 22N - ORIGINAL WELLBORE - PROPOSAL #2	300.00	298.00	90.02	88.95	84.318	CC, ES
HEN 22N - ORIGINAL WELLBORE - PROPOSAL #2	14,965.04	15,355.99	1,440.68	1,007.66	3.327	SF