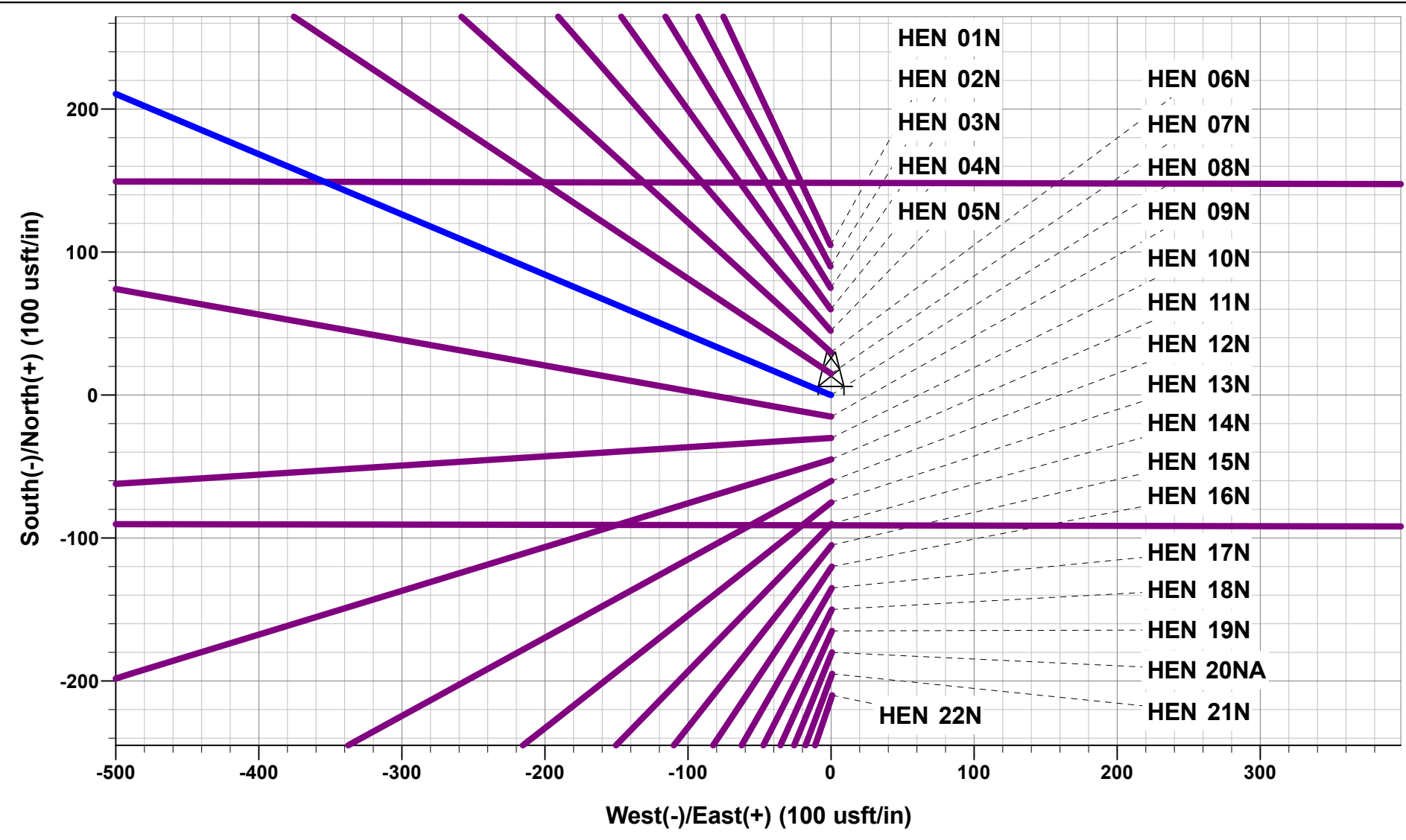




Project: WELD COUNTY, COLORADO (TRUE)
Site: SW NE SEC. 8 T4N R64W 6th P.M. (HEN)
Well: HEN 08N
Wellbore: ORIGINAL WELLBORE
Design: PROPOSAL #2

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: 2189ft FNL & 2044ft FEL of Sec 8
1000.00	0.00	0.00	1000.00	0.00	0.00	0.00	0.00	START NUDGE (2°/100ft BUR)
1637.75	12.75	292.84	1632.50	27.45	-65.15	-63.62	70.69	EOB TO 12.76° INC
5544.98	12.76	292.84	5443.31	362.35	-860.14	-839.90	933.35	END OF TANGENT
6182.73	0.00	0.00	6075.80	389.79	-925.29	-903.52	1004.04	EOD TO VERTICAL
6282.73	0.00	0.00	6175.80	389.79	-925.29	-903.52	1004.04	KOP (8°/100ft BUR)
7220.24	75.00	90.10	6867.61	388.86	-394.46	-373.47	1534.87	EP: 1798ft FNL & 2440ft FEL of Sec 8
7412.63	90.39	90.10	6892.00	388.53	-204.20	-183.50	1725.13	HZ LANDING POINT
14745.04	90.39	90.11	6842.00	375.25	7128.02	7137.89	9057.37	BHL: 1798ft FNL & 200ft FEL of Sec 9

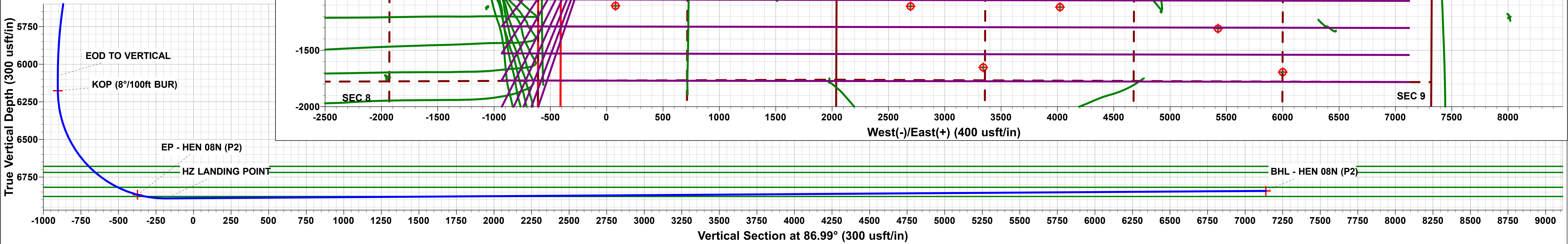
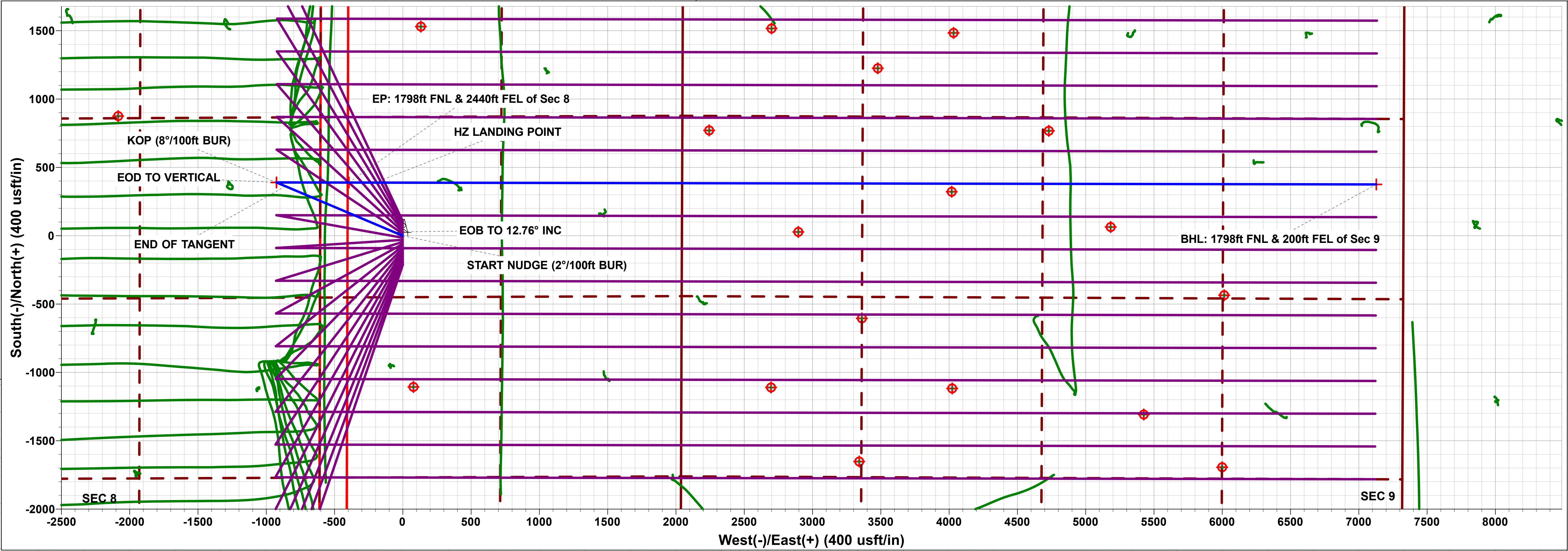
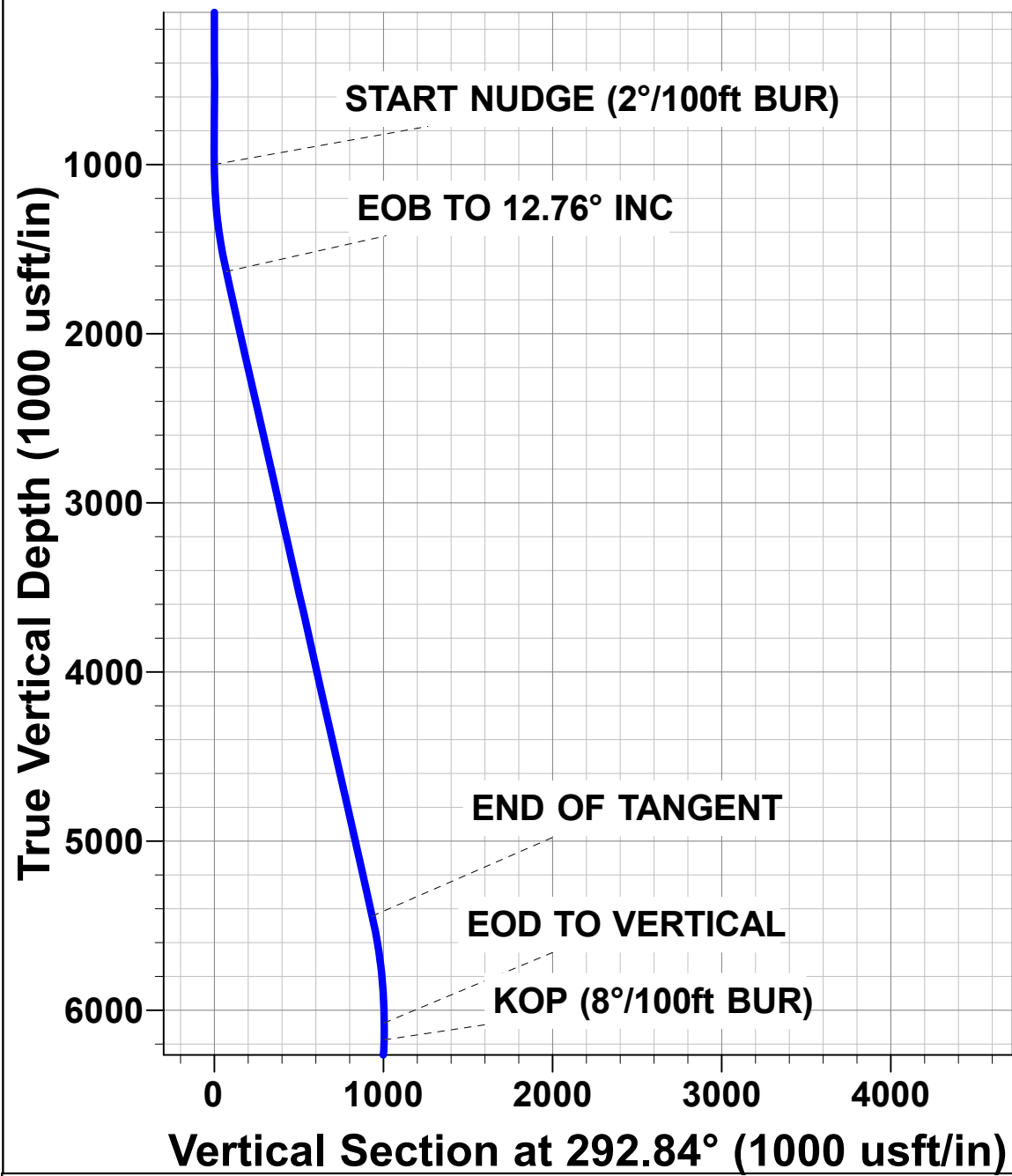


PROPOSED LOCAL COORDINATES:
SHL: 2189ft FNL & 2044ft FEL of Sec 8
EP: 1798ft FNL & 2440ft FEL of Sec 8
BHL : 1798ft FNL & 200ft FEL of Sec 9

Azimuths to True North
Magnetic North: 7.76°

Magnetic Field
Strength: 51953.0nT
Dip Angle: 66.63°
Date: 2021-04-19
Model: IGRF2020

DESIGN TARGET DETAILS							
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
BHL - HEN 08N (P2)	6842.00	375.25	7128.03	1364180.40	3265754.32	40.329155	-104.546779
EP - HEN 08N (P2)	6867.61	388.86	-394.46	1364115.32	3258232.42	40.329195	-104.573759
KOP - HEN 08N (P2)	6175.80	389.79	-925.29	1364110.70	3257701.63	40.329198	-104.575663





PDC ENERGY

**WELD COUNTY, COLORADO (TRUE)
SW NE SEC. 8 T4N R64W 6th P.M. (HEN)
HEN 08N**

**ORIGINAL WELLBORE
PROPOSAL #2**

Anticollision Summary Report

19 June, 2022



Company:	PDC ENERGY	Local Co-ordinate Reference:	Well HEN 08N
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 08N	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	14,745.04	PROPOSAL #2 (ORIGINAL WELLBORE)	MWD	MWD - Standard

Summary						
Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
SW NE SEC. 8 T4N R64W 6th P.M. (HEN)						
ABDN DD ALTER C 16-28D - Wellbore #1 - Wellbore #1						Out of range
ABDN DD ALTER C 16-29D - ORIGINAL WELLBORE - W						Out of range
ABDN DD ALTER C 16-29D - SIDETRACK - SIDETRAC	10,746.77	7,063.23	3,265.90	3,143.02	26.580	CC
ABDN DD ALTER C 16-29D - SIDETRACK - SIDETRAC	10,800.00	7,065.42	3,266.33	3,142.00	26.272	ES
ABDN DD ALTER C 16-29D - SIDETRACK - SIDETRAC	11,000.00	7,073.66	3,275.68	3,146.17	25.292	SF
ABDN HZ FRANKLIN C08-62HNX - ORIGINAL WELLBO	8,457.32	10,756.00	2,865.26	2,699.01	17.234	CC
ABDN HZ FRANKLIN C08-62HNX - ORIGINAL WELLBO	8,500.00	10,756.00	2,865.58	2,698.34	17.135	ES
ABDN HZ FRANKLIN C08-62HNX - ORIGINAL WELLBO	9,000.00	10,756.00	2,916.20	2,740.10	16.560	SF
ABDN HZ FRANKLIN C08-62HNX - SIDETRACK - SIDE	8,467.52	10,803.00	2,757.10	2,590.91	16.590	CC
ABDN HZ FRANKLIN C08-62HNX - SIDETRACK - SIDE	8,500.00	10,803.00	2,757.29	2,590.40	16.521	ES
ABDN HZ FRANKLIN C08-62HNX - SIDETRACK - SIDE	9,000.00	10,803.00	2,808.05	2,633.00	16.042	SF
ABDN VERT CONQUEST SWD 1-8 - Wellbore #1 - Des	9,440.86	6,791.19	2,948.10	2,740.37	14.192	CC
ABDN VERT CONQUEST SWD 1-8 - Wellbore #1 - Des	9,500.00	6,790.79	2,948.70	2,739.43	14.091	ES
ABDN VERT CONQUEST SWD 1-8 - Wellbore #1 - Des	10,200.00	6,786.02	3,044.26	2,819.43	13.540	SF
ABDN VERT COX 8-1 - Wellbore #1 - Wellbore #1	6,305.02	6,177.39	1,252.07	1,229.74	56.051	CC, ES
ABDN VERT COX 8-1 - Wellbore #1 - Wellbore #1	6,350.00	6,225.38	1,252.45	1,230.10	56.042	SF
ABDN VERT COX PM C 8-4 - Wellbore #1 - Wellbore #1	6,312.76	6,253.36	1,936.77	1,919.14	109.890	CC, ES
ABDN VERT COX PM C 8-4 - Wellbore #1 - Wellbore #1	6,400.00	6,343.26	1,940.87	1,923.15	109.579	SF
ABDN VERT COX PM C 8-5 - Wellbore #1 - Wellbore #1	6,288.57	6,188.76	1,777.10	1,759.11	98.764	CC, ES
ABDN VERT COX PM C 8-5 - Wellbore #1 - Wellbore #1	6,400.00	6,303.33	1,785.68	1,767.52	98.337	SF
ABDN VERT GEHRING 8-15I4 - Wellbore #1 - Wellbore	1,080.33	1,040.33	2,127.25	2,124.32	726.802	CC
ABDN VERT GEHRING 8-15I4 - Wellbore #1 - Wellbore	1,100.00	1,065.10	2,127.27	2,124.29	713.835	ES
ABDN VERT GEHRING 8-15I4 - Wellbore #1 - Wellbore	9,400.00	6,836.91	2,776.75	2,713.75	44.073	SF
ABDN VERT GEHRING C 8-10X - Wellbore #1 - Wellbor	100.00	61.81	943.40	943.26	6,487.252	CC
ABDN VERT GEHRING C 8-10X - Wellbore #1 - Wellbor	600.00	561.17	944.02	942.54	637.963	ES
ABDN VERT GEHRING C 8-10X - Wellbore #1 - Wellbor	8,200.00	6,851.78	1,490.00	1,451.93	39.144	SF
ABDN VERT HAGEN 9-16 - Wellbore #1 - Design #1	14,077.70	6,714.56	3,004.82	2,670.43	8.986	CC
ABDN VERT HAGEN 9-16 - Wellbore #1 - Design #1	14,200.00	6,713.72	3,007.31	2,669.79	8.910	ES
ABDN VERT HAGEN 9-16 - Wellbore #1 - Design #1	14,500.00	6,711.67	3,034.35	2,690.76	8.831	SF
ABDN VERT HEISER 1 - Wellbore #1 - Design #1	1,000.00	956.00	1,109.10	1,088.15	52.940	CC
ABDN VERT HEISER 1 - Wellbore #1 - Design #1	1,100.00	1,055.98	1,109.89	1,086.71	47.878	ES
ABDN VERT HEISER 1 - Wellbore #1 - Design #1	7,900.00	6,844.68	1,508.07	1,337.89	8.862	SF
ABDN VERT LEVI C 5-15 - Wellbore #1 - Wellbore #1	7,995.03	6,843.85	2,560.77	2,523.98	69.611	CC
ABDN VERT LEVI C 5-15 - Wellbore #1 - Wellbore #1	8,100.00	6,844.08	2,562.92	2,523.81	65.535	ES
ABDN VERT LEVI C 5-15 - Wellbore #1 - Wellbore #1	9,600.00	6,847.00	3,022.17	2,954.92	44.937	SF
ABDN VERT REINICK 1 - Wellbore #1 - Wellbore #1	13,847.38	6,743.00	154.80	-35.81	0.812	Level 3, 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 08N
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 08N	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)						
ABDN VERT REINICK 2 - Wellbore #1 - Wellbore #1	12,924.65	6,748.05	1,098.22	928.79	6.482	CC, ES
ABDN VERT REINICK 2 - Wellbore #1 - Wellbore #1	13,000.00	6,748.14	1,100.81	929.59	6.429	SF
ABDN VERT REINICK 9-7 - Wellbore #1 - Design #1	12,800.56	6,756.28	315.25	15.72	1.052	Level 3, CC, ES, SF
ABDN VERT RICHARDSON 10-12 - Wellbore #1 - Wellb	14,745.04	6,647.33	1,834.14	1,643.33	9.613	CC, ES, SF
ABDN VERT RUFF 1 - Wellbore #1 - Design #1	7,747.07	6,860.13	1,142.19	974.62	6.816	CC, ES
ABDN VERT RUFF 1 - Wellbore #1 - Design #1	7,900.00	6,859.08	1,152.38	982.07	6.766	SF
ABDN VERT RYANN STATE C 16-27 - Wellbore #1 - We						Out of range
ABDN VERT RYDGREN 8-1 - Wellbore #1 - Wellbore #1	6,293.61	6,227.04	2,275.65	2,251.88	95.771	CC, ES
ABDN VERT RYDGREN 8-1 - Wellbore #1 - Wellbore #1	6,350.00	6,275.08	2,277.41	2,253.61	95.689	SF
ABDN VERT SLEDGE C 9-28 - Wellbore #1 - Design #1	12,293.48	6,790.74	1,563.18	1,277.04	5.463	CC
ABDN VERT SLEDGE C 9-28 - Wellbore #1 - Design #1	12,300.00	6,790.69	1,563.19	1,276.86	5.459	ES
ABDN VERT SLEDGE C 9-28 - Wellbore #1 - Design #1	12,500.00	6,789.33	1,576.76	1,286.04	5.424	SF
ABDN VERT SLEDGE C 9-29 - Wellbore #1 - Design #1	10,955.16	6,820.87	1,618.82	1,369.18	6.485	CC
ABDN VERT SLEDGE C 9-29 - Wellbore #1 - Design #1	11,000.00	6,820.56	1,619.44	1,368.56	6.455	ES
ABDN VERT SLEDGE C 9-29 - Wellbore #1 - Design #1	11,200.00	6,819.20	1,637.23	1,381.94	6.413	SF
ABDN VERT SMITH 1 - Wellbore #1 - Design #1	10,314.86	6,828.23	1,133.06	900.87	4.880	CC, ES
ABDN VERT SMITH 1 - Wellbore #1 - Design #1	10,400.00	6,827.65	1,136.25	901.89	4.848	SF
ABDN VERT SMITH 2 - Wellbore #1 - Design #1	11,647.59	6,806.15	1,102.86	834.36	4.107	CC
ABDN VERT SMITH 2 - Wellbore #1 - Design #1	11,700.00	6,805.79	1,104.11	834.21	4.091	ES, SF
ABDN VERT SMITH 3 - Wellbore #1 - Design #1	11,635.95	6,793.51	59.30	-207.61	0.222	Level 3, CC, ES, SF
ABDN VERT STATE 16-214 - Wellbore #1 - Wellbore #1						Out of range
ABDN VERT THEA C 09-32 - Wellbore #1 - Wellbore #1	9,774.64	6,816.03	828.60	746.29	10.068	CC
ABDN VERT THEA C 09-32 - Wellbore #1 - Wellbore #1	9,800.00	6,815.44	828.98	746.11	10.003	ES
ABDN VERT THEA C 09-32 - Wellbore #1 - Wellbore #1	9,900.00	6,813.09	838.02	753.68	9.936	SF
EXIST DD ALTER C 09-24D - Wellbore #1 - Wellbore #1	12,382.98	7,309.03	2,131.92	1,935.63	10.861	CC
EXIST DD ALTER C 09-24D - Wellbore #1 - Wellbore #1	12,400.00	7,309.23	2,131.99	1,935.36	10.843	ES
EXIST DD ALTER C 09-24D - Wellbore #1 - Wellbore #1	12,600.00	7,311.54	2,142.93	1,943.32	10.735	SF
EXIST DD ALTER C 09-33D - Wellbore #1 - Wellbore #1	9,596.88	6,960.16	2,136.91	2,041.73	22.452	CC
EXIST DD ALTER C 09-33D - Wellbore #1 - Wellbore #1	9,700.00	6,959.22	2,139.40	2,041.23	21.794	ES
EXIST DD ALTER C 09-33D - Wellbore #1 - Wellbore #1	10,300.00	6,953.75	2,249.60	2,138.46	20.240	SF
EXIST DD BURMAN C 04-33D - Wellbore #1 - Wellbore	9,779.04	6,970.70	3,121.78	3,017.85	30.037	CC
EXIST DD BURMAN C 04-33D - Wellbore #1 - Wellbore	9,900.00	6,970.63	3,124.12	3,017.16	29.208	ES
EXIST DD BURMAN C 04-33D - Wellbore #1 - Wellbore	10,700.00	6,970.19	3,254.80	3,131.70	26.440	SF
EXIST DD BURMAN C 05-23D - Wellbore #1 - Wellbore	8,364.90	6,925.93	3,081.62	3,021.95	51.640	CC
EXIST DD BURMAN C 05-23D - Wellbore #1 - Wellbore	8,400.00	6,926.12	3,081.82	3,021.26	50.884	ES
EXIST DD BURMAN C 05-23D - Wellbore #1 - Wellbore	9,400.00	6,931.29	3,250.82	3,166.43	38.519	SF
EXIST DD BURMAN C05-24D - Wellbore #1 - Wellbore #	7,128.04	7,086.94	3,105.06	3,050.45	56.855	CC
EXIST DD BURMAN C05-24D - Wellbore #1 - Wellbore #	7,150.00	7,094.21	3,105.13	3,050.38	56.716	ES
EXIST DD BURMAN C05-24D - Wellbore #1 - Wellbore #	8,100.00	7,148.70	3,252.32	3,182.42	46.525	SF
EXIST DD NGL C1C - Wellbore #1 - Wellbore #1	100.00	21.88	3,279.21	3,279.09	10,000.000	CC
EXIST DD NGL C1C - Wellbore #1 - Wellbore #1	900.00	800.58	3,279.95	3,277.12	1,159.537	ES, SF
EXIST DD RUFF C 08-27D - Wellbore #1 - Wellbore #1	8,346.70	6,906.06	1,741.16	1,681.55	29.210	CC
EXIST DD RUFF C 08-27D - Wellbore #1 - Wellbore #1	8,400.00	6,906.07	1,741.97	1,681.02	28.578	ES
EXIST DD RUFF C 08-27D - Wellbore #1 - Wellbore #1	9,000.00	6,906.25	1,859.69	1,786.28	25.335	SF
EXIST DD SLEDGE C 9-30D - Wellbore #1 - Wellbore #1	9,584.71	6,922.98	2,037.03	1,941.48	21.318	CC
EXIST DD SLEDGE C 9-30D - Wellbore #1 - Wellbore #1	9,600.00	6,922.71	2,037.09	1,941.19	21.241	ES
EXIST DD SLEDGE C 9-30D - Wellbore #1 - Wellbore #1	10,100.00	6,913.98	2,101.18	1,996.26	20.027	SF
EXIST HZ CHALLENGER 1N - ORIGINAL WELLBORE -	0.00	0.00	1,185.62			
EXIST HZ CHALLENGER 1N - ORIGINAL WELLBORE -	200.00	188.00	1,185.81	1,185.31	2,384.074	ES
EXIST HZ CHALLENGER 1N - ORIGINAL WELLBORE -	8,300.00	6,491.00	2,244.25	2,188.44	40.214	SF
EXIST HZ CHALLENGER 1N - SIDETRACK - SIDETRA	0.00	0.00	1,185.62			
EXIST HZ CHALLENGER 1N - SIDETRACK - SIDETRA	200.00	188.00	1,185.81	1,185.31	2,384.074	ES
EXIST HZ CHALLENGER 1N - SIDETRACK - SIDETRA	8,300.00	6,491.00	2,244.25	2,188.44	40.214	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 08N
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 08N	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 HZ CHALLENGER 2N - Wellbore #1 - Wellbore #	294.82	286.28	1,173.72	1,172.75	1,219.355	CC
EXIST HZ CHALLENGER 2N - Wellbore #1 - Wellbore #	400.00	378.06	1,174.07	1,172.69	847.422	ES
EXIST HZ CHALLENGER 2N - Wellbore #1 - Wellbore #	8,000.00	6,566.00	1,864.41	1,815.87	38.408	SF
EXIST HZ CHALLENGER 3N - Wellbore #1 - Wellbore #	3,011.63	2,821.40	1,122.46	1,106.91	72.194	CC
EXIST HZ CHALLENGER 3N - Wellbore #1 - Wellbore #	3,100.00	2,906.85	1,122.70	1,106.55	69.525	ES
EXIST HZ CHALLENGER 3N - Wellbore #1 - Wellbore #	6,500.00	6,454.75	1,186.23	1,149.08	31.928	SF
EXIST HZ CHALLENGER 4N - Wellbore #1 - Wellbore #	6,700.00	6,680.55	906.09	869.76	24.939	SF
EXIST HZ CHALLENGER 4N - Wellbore #1 - Wellbore #	6,786.72	6,706.20	902.28	866.23	25.031	CC, ES
EXIST HZ CHALLENGER 5N - Wellbore #1 - Wellbore #	6,700.00	6,616.51	705.12	668.83	19.430	SF
EXIST HZ CHALLENGER 5N - Wellbore #1 - Wellbore #	6,746.49	6,629.48	703.83	667.77	19.520	CC, ES
EXIST HZ CHALLENGER 6N - Wellbore #1 - Wellbore #	6,700.00	6,626.90	438.25	402.36	12.212	SF
EXIST HZ CHALLENGER 6N - Wellbore #1 - Wellbore #	6,724.67	6,633.36	437.60	401.89	12.253	CC, ES
EXIST HZ CHALLENGER 7N - Wellbore #1 - Wellbore #	6,700.00	6,640.67	178.62	142.40	4.931	SF
EXIST HZ CHALLENGER 7N - Wellbore #1 - Wellbore #	6,724.08	6,648.12	177.13	141.29	4.942	CC, ES
EXIST HZ CHALLENGER 8N - Wellbore #1 - Wellbore #	4,381.72	4,344.23	49.12	21.42	1.773	CC, ES
EXIST HZ CHALLENGER 8N - Wellbore #1 - Wellbore #	4,400.00	4,361.62	49.42	21.47	1.768	SF
EXIST HZ CHALLENGER 9N - Wellbore #1 - Wellbore #	4,064.17	4,035.63	127.92	101.15	4.778	CC, ES, SF
EXIST HZ FRANKLIN C17-69HN - Wellbore #1 - Wellbore #						Out of range
EXIST HZ HAROLD 6X-232 - Wellbore #1 - Wellbore #1	10,943.78	13,678.89	2,564.32	2,255.11	8.293	CC
EXIST HZ HAROLD 6X-232 - Wellbore #1 - Wellbore #1	14,745.04	17,484.36	2,597.76	2,076.13	4.980	ES, SF
EXIST HZ HAROLD 6X-302 - Wellbore #1 - Wellbore #1	7,808.97	10,596.00	2,875.21	2,735.09	20.519	CC
EXIST HZ HAROLD 6X-302 - Wellbore #1 - Wellbore #1	14,700.00	17,353.36	2,910.15	2,395.20	5.651	ES
EXIST HZ HAROLD 6X-302 - Wellbore #1 - Wellbore #1	14,745.04	17,382.00	2,912.36	2,395.46	5.634	SF
EXIST HZ HAROLD 6Y-202 - Wellbore #1 - Wellbore #1	7,015.72	9,760.28	1,997.53	1,889.05	18.414	CC
EXIST HZ HAROLD 6Y-202 - Wellbore #1 - Wellbore #1	14,745.04	17,451.22	2,037.41	1,517.21	3.917	ES, SF
EXIST HZ HAROLD 6Y-312 - Wellbore #1 - Wellbore #1	8,929.34	11,748.60	2,220.94	2,022.69	11.203	CC
EXIST HZ HAROLD 6Y-312 - Wellbore #1 - Wellbore #1	14,745.04	17,585.61	2,237.17	1,715.18	4.286	ES, SF
EXIST HZ JAGGED 10N - Wellbore #1 - Wellbore #1	0.00	0.00	1,350.96			
EXIST HZ JAGGED 10N - Wellbore #1 - Wellbore #1	100.00	93.31	1,351.11	1,350.93	7,668.211	ES
EXIST HZ JAGGED 10N - Wellbore #1 - Wellbore #1	8,700.00	6,322.44	3,235.93	3,170.00	49.082	SF
EXIST HZ JAGGED 11N - Wellbore #1 - Wellbore #1	393.41	370.77	1,362.02	1,360.65	995.060	CC
EXIST HZ JAGGED 11N - Wellbore #1 - Wellbore #1	400.00	375.09	1,362.03	1,360.63	978.075	ES
EXIST HZ JAGGED 11N - Wellbore #1 - Wellbore #1	8,300.00	6,300.37	3,250.84	3,190.26	53.660	SF
EXIST HZ JAGGED 12N - Wellbore #1 - Wellbore #1	0.00	0.00	1,373.16			
EXIST HZ JAGGED 12N - Wellbore #1 - Wellbore #1	7,900.00	6,270.00	3,278.50	3,225.30	61.631	SF
EXIST HZ JAGGED 1N - Wellbore #1 - Wellbore #1	4,942.93	4,989.97	529.75	499.49	17.506	CC
EXIST HZ JAGGED 1N - Wellbore #1 - Wellbore #1	5,000.00	5,043.63	530.04	499.41	17.308	ES
EXIST HZ JAGGED 1N - Wellbore #1 - Wellbore #1	6,800.00	6,735.79	542.14	505.43	14.767	SF
EXIST HZ JAGGED 2N - Wellbore #1 - Wellbore #1	4,526.81	4,555.00	698.14	671.03	25.749	CC, ES
EXIST HZ JAGGED 2N - Wellbore #1 - Wellbore #1	6,613.06	6,545.40	831.37	795.61	23.248	SF
EXIST HZ JAGGED 3N - Wellbore #1 - Wellbore #1	3,782.44	3,807.49	882.42	859.89	39.169	CC
EXIST HZ JAGGED 3N - Wellbore #1 - Wellbore #1	3,800.00	3,819.51	882.47	859.84	38.985	ES
EXIST HZ JAGGED 3N - Wellbore #1 - Wellbore #1	6,676.41	6,601.85	1,044.84	1,008.91	29.081	SF
EXIST HZ JAGGED 4N - Wellbore #1 - Wellbore #1	3,280.81	3,275.95	1,137.33	1,118.89	61.670	CC
EXIST HZ JAGGED 4N - Wellbore #1 - Wellbore #1	3,300.00	3,290.93	1,137.37	1,118.80	61.247	ES
EXIST HZ JAGGED 4N - Wellbore #1 - Wellbore #1	6,550.00	6,460.00	1,344.15	1,308.81	38.033	SF
EXIST HZ JAGGED 5N - Wellbore #1 - Wellbore #1	2,422.63	2,361.50	1,238.39	1,226.42	103.384	CC
EXIST HZ JAGGED 5N - Wellbore #1 - Wellbore #1	2,500.00	2,426.17	1,238.89	1,226.40	99.154	ES
EXIST HZ JAGGED 5N - Wellbore #1 - Wellbore #1	6,750.00	6,666.30	1,591.61	1,555.38	43.935	SF
EXIST HZ JAGGED 6N - Wellbore #1 - Wellbore #1	277.75	274.66	1,306.38	1,305.50	1,482.257	CC
EXIST HZ JAGGED 6N - Wellbore #1 - Wellbore #1	700.00	690.74	1,306.84	1,304.14	484.073	ES
EXIST HZ JAGGED 6N - Wellbore #1 - Wellbore #1	8,100.00	6,394.23	2,215.23	2,167.76	46.665	SF
EXIST HZ JAGGED 7N - Wellbore #1 - Wellbore #1	455.92	452.95	1,317.50	1,315.84	795.050	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 08N
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 08N	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 HZ JAGGED 7N - Wellbore #1 - Wellbore #1	8,500.00	6,316.64	2,604.31	2,549.29	47.327	SF
EXIST HZ JAGGED 8N - Wellbore #1 - Wellbore #1	0.00	0.00	1,329.03			
EXIST HZ JAGGED 8N - Wellbore #1 - Wellbore #1	8,700.00	6,269.00	2,866.83	2,807.46	48.288	SF
EXIST HZ JAGGED 9N - Wellbore #1 - Wellbore #1	0.00	0.00	1,340.23			
EXIST HZ JAGGED 9N - Wellbore #1 - Wellbore #1	442.93	442.16	1,340.97	1,339.37	837.764	ES
EXIST HZ JAGGED 9N - Wellbore #1 - Wellbore #1	9,000.00	6,270.00	3,254.14	3,187.01	48.482	SF
EXIST HZ MARK ALTER C16-79HN - Wellbore #1 - Well	9,777.15	6,206.00	3,043.34	2,949.50	32.432	CC
EXIST HZ MARK ALTER C16-79HN - Wellbore #1 - Well	9,900.00	6,206.00	3,045.81	2,948.85	31.410	ES
EXIST HZ MARK ALTER C16-79HN - Wellbore #1 - Well	10,900.00	6,206.00	3,243.86	3,127.64	27.912	SF
EXIST HZ NORTHRUP C 08-73HN - Wellbore #1 - Wellb	8,345.89	8,150.53	4.98	-22.82	0.179	Level 3, CC, ES, SF
EXIST HZ NORTHRUP C 08-75HN - Wellbore #1 - Wellb	7,093.19	8,468.60	86.67	62.11	3.529	CC
EXIST HZ NORTHRUP C 08-75HN - Wellbore #1 - Wellb	7,100.00	8,468.30	86.97	61.29	3.387	ES
EXIST HZ NORTHRUP C 08-75HN - Wellbore #1 - Wellb	7,150.00	8,466.11	105.46	68.39	2.845	SF
EXIST HZ OREDIGGER C10-69HN - Wellbore #1 - Well	14,745.04	6,493.17	1,743.74	1,518.11	7.728	CC, ES, SF
EXIST HZ SANDY HILLS PC C17-67HN - Wellbore #1 -						Out of range
EXIST HZ STOCKLEY C15-79HN - Wellbore #1 - Wellbo	14,745.04	13,772.00	1,044.01	800.62	4.289	CC, ES, SF
EXIST HZ ZANE ALTER C 09-21 - Wellbore #1 - Wellbor	12,502.82	8,747.31	647.16	589.60	11.243	CC, ES, SF
EXIST VERT ALTER C 9-23 - Wellbore #1 - Design #1	13,620.35	6,732.78	2,070.97	1,748.99	6.432	CC
EXIST VERT ALTER C 9-23 - Wellbore #1 - Design #1	13,700.00	6,732.24	2,072.50	1,748.56	6.398	ES
EXIST VERT ALTER C 9-23 - Wellbore #1 - Design #1	13,800.00	6,731.56	2,078.75	1,752.78	6.377	SF
EXIST VERT ALTER C 9-25 - Wellbore #1 - Design #1	10,962.54	6,773.44	2,034.08	1,785.19	8.173	CC
EXIST VERT ALTER C 9-25 - Wellbore #1 - Design #1	11,000.00	6,773.18	2,034.42	1,784.56	8.142	ES
EXIST VERT ALTER C 9-25 - Wellbore #1 - Design #1	11,300.00	6,771.14	2,061.88	1,805.79	8.051	SF
EXIST VERT AMANDA ALTER C 9-20 - Wellbore #1 - De	10,980.02	6,788.56	986.66	737.04	3.953	CC
EXIST VERT AMANDA ALTER C 9-20 - Wellbore #1 - De	11,000.00	6,788.42	986.86	736.76	3.946	ES, SF
EXIST VERT BARTON C 15-29 - Wellbore #1 - Design #						Out of range
EXIST VERT BENNER 1 - Wellbore #1 - Wellbore #1	9,100.00	6,830.55	203.14	138.94	3.164	CC, ES, SF
EXIST VERT CONNELL 14-4 - Wellbore #1 - Wellbore #	10,282.23	6,816.58	2,605.56	2,508.57	26.866	CC
EXIST VERT CONNELL 14-4 - Wellbore #1 - Wellbore #	10,400.00	6,814.85	2,608.22	2,508.02	26.032	ES
EXIST VERT CONNELL 14-4 - Wellbore #1 - Wellbore #	11,200.00	6,803.28	2,762.44	2,646.51	23.830	SF
EXIST VERT CONNELL 3 - Wellbore #1 - Wellbore #1	11,656.84	6,767.41	2,505.08	2,370.98	18.680	CC
EXIST VERT CONNELL 3 - Wellbore #1 - Wellbore #1	11,700.00	6,766.01	2,505.45	2,370.13	18.515	ES
EXIST VERT CONNELL 3 - Wellbore #1 - Wellbore #1	12,300.00	6,747.52	2,586.24	2,438.58	17.515	SF
EXIST VERT CONNELL C 4-25 - Wellbore #1 - Wellbore						Out of range
EXIST VERT COX 8-19D - Wellbore #1 - Design #1	6,282.73	6,163.80	1,256.53	1,117.93	9.065	CC
EXIST VERT COX 8-19D - Wellbore #1 - Design #1	6,300.00	6,181.07	1,256.72	1,117.74	9.042	ES
EXIST VERT COX 8-19D - Wellbore #1 - Design #1	6,450.00	6,329.56	1,274.50	1,132.35	8.966	SF
EXIST VERT COX PM C 8-6 - Wellbore #1 - Wellbore #1	6,080.07	5,943.74	359.53	341.09	19.498	CC, ES
EXIST VERT COX PM C 8-6 - Wellbore #1 - Wellbore #1	6,282.73	6,155.72	362.17	343.54	19.442	SF
EXIST VERT CPC HARLESS 17-1 - Wellbore #1 - Wellb						Out of range
EXIST VERT EMBRICK C 10-19 - Wellbore #1 - Wellbor	14,745.04	6,699.96	1,417.85	1,361.41	25.120	CC, ES, SF
EXIST VERT ENGLAND 8-3-17 - Wellbore #1 - Wellbore	6,287.25	6,190.05	1,739.85	1,716.40	74.193	CC, ES
EXIST VERT ENGLAND 8-3-17 - Wellbore #1 - Wellbore	6,350.00	6,253.88	1,741.97	1,718.47	74.133	SF
EXIST VERT ENGLAND 8-35 - Wellbore #1 - Wellbore #	5,988.99	5,867.29	2,358.57	2,333.97	95.892	CC
EXIST VERT ENGLAND 8-35 - Wellbore #1 - Wellbore #	6,000.00	5,878.00	2,358.57	2,333.95	95.800	ES
EXIST VERT ENGLAND 8-35 - Wellbore #1 - Wellbore #	6,350.00	6,223.17	2,361.47	2,336.37	94.092	SF
EXIST VERT GEHRING 1 - Wellbore #1 - Wellbore #1	8,960.09	6,820.52	2,705.74	2,645.26	44.736	CC
EXIST VERT GEHRING 1 - Wellbore #1 - Wellbore #1	9,000.00	6,820.62	2,706.04	2,644.54	44.004	ES
EXIST VERT GEHRING 1 - Wellbore #1 - Wellbore #1	10,200.00	6,823.77	2,976.30	2,891.70	35.182	SF
EXIST VERT GEHRING 8-914 - Wellbore #1 - Wellbore #	9,009.15	6,854.16	1,381.34	1,317.37	21.595	CC
EXIST VERT GEHRING 8-914 - Wellbore #1 - Wellbore #	9,100.00	6,854.09	1,381.38	1,317.16	21.512	ES
EXIST VERT GEHRING 8-914 - Wellbore #1 - Wellbore #	9,400.00	6,851.94	1,415.66	1,345.55	20.190	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 08N
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 08N	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 Offset Well - Wellbore - Design	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 HAGEN 9-10 - Wellbore #1 - Design #1	13,045.40	6,745.17	1,686.37	1,380.19	5.508	CC
EXIST VERT HAGEN 9-10 - Wellbore #1 - Design #1	13,100.00	6,744.79	1,687.25	1,379.74	5.487	ES
EXIST VERT HAGEN 9-10 - Wellbore #1 - Design #1	13,200.00	6,744.11	1,693.44	1,384.01	5.473	SF
EXIST VERT HAGEN 9-15 - Wellbore #1 - Design #1	12,770.93	6,736.87	3,006.09	2,707.73	10.075	CC
EXIST VERT HAGEN 9-15 - Wellbore #1 - Design #1	12,800.00	6,736.67	3,006.23	2,707.09	10.050	ES
EXIST VERT HAGEN 9-15 - Wellbore #1 - Design #1	13,300.00	6,733.26	3,052.29	2,742.50	9.853	SF
EXIST VERT HAGEN 9-9 - Wellbore #1 - Wellbore #1	13,947.29	6,838.63	1,622.19	1,424.66	8.212	CC
EXIST VERT HAGEN 9-9 - Wellbore #1 - Wellbore #1	14,000.00	6,835.06	1,623.04	1,424.24	8.164	ES
EXIST VERT HAGEN 9-9 - Wellbore #1 - Wellbore #1	14,100.00	6,828.28	1,629.33	1,428.75	8.123	SF
EXIST VERT HARLESS PM C 17-2 - Wellbore #1 - Desi						Out of range
EXIST VERT JOHNSON 9-11 - Wellbore #1 - Design #1	11,642.15	6,766.71	1,498.31	1,230.74	5.600	CC
EXIST VERT JOHNSON 9-11 - Wellbore #1 - Design #1	11,700.00	6,766.32	1,499.42	1,230.46	5.575	ES
EXIST VERT JOHNSON 9-11 - Wellbore #1 - Design #1	11,800.00	6,765.64	1,506.60	1,235.74	5.562	SF
EXIST VERT JOHNSON 9-13 - Wellbore #1 - Wellbore #	10,355.48	6,864.07	2,798.42	2,700.29	28.518	CC
EXIST VERT JOHNSON 9-13 - Wellbore #1 - Wellbore #	10,400.00	6,864.10	2,798.77	2,699.46	28.183	ES
EXIST VERT JOHNSON 9-13 - Wellbore #1 - Wellbore #	11,300.00	6,864.74	2,953.51	2,836.59	25.260	SF
EXIST VERT MCCLINTOCK C 4-15 - Wellbore #1 - Well	13,071.73	6,716.38	2,831.91	2,658.52	16.333	CC
EXIST VERT MCCLINTOCK C 4-15 - Wellbore #1 - Well	13,100.00	6,716.03	2,832.05	2,657.85	16.258	ES
EXIST VERT MCCLINTOCK C 4-15 - Wellbore #1 - Well	13,700.00	6,708.80	2,900.75	2,713.94	15.527	SF
EXIST VERT NGL C1A - Wellbore #1 - Design #1	9,345.75	6,795.84	3,237.17	3,031.89	15.769	CC
EXIST VERT NGL C1A - Wellbore #1 - Design #1	9,400.00	6,795.47	3,237.63	3,030.94	15.664	ES
EXIST VERT NGL C1A - Wellbore #1 - Design #1	9,800.00	6,792.74	3,268.89	3,052.45	15.103	SF
EXIST VERT NGL C1B - Wellbore #1 - Design #1	9,240.54	6,802.55	3,045.02	2,842.41	15.030	CC
EXIST VERT NGL C1B - Wellbore #1 - Design #1	9,300.00	6,802.15	3,045.60	2,841.46	14.920	ES
EXIST VERT NGL C1B - Wellbore #1 - Design #1	10,100.00	6,796.70	3,163.97	2,942.14	14.263	SF
EXIST VERT REINICK 10-5 - Wellbore #1 - Wellbore #1	14,745.04	6,671.89	806.42	741.04	12.335	CC, ES, SF
EXIST VERT REINICK 1-10-4-64 - Wellbore #1 - Wellbo	14,745.04	6,737.26	1,511.97	1,339.73	8.778	CC, ES, SF
EXIST VERT REINICK 3 - Wellbore #1 - Wellbore #1	14,230.25	6,742.03	1,074.36	868.66	5.223	CC, ES
EXIST VERT REINICK 3 - Wellbore #1 - Wellbore #1	14,300.00	6,742.45	1,076.62	869.33	5.194	SF
EXIST VERT REINICK C 10-31 - Wellbore #1 - Wellbore	14,636.45	6,745.24	431.22	214.23	1.987	CC, ES, SF
EXIST VERT REINICK C 9-18 - Wellbore #1 - Design #1	12,346.33	6,781.65	387.67	100.28	1.349	Level 3, CC, ES, SF
EXIST VERT REINICK C 9-22 - Wellbore #1 - Design #1	13,632.49	6,742.60	812.63	490.15	2.520	CC, ES, SF
EXIST VERT REISTAD 1 - Wellbore #1 - Wellbore #1	9,010.67	6,819.51	2,501.53	2,439.56	40.366	CC
EXIST VERT REISTAD 1 - Wellbore #1 - Wellbore #1	9,100.00	6,818.77	2,503.12	2,438.81	38.923	ES
EXIST VERT REISTAD 1 - Wellbore #1 - Wellbore #1	10,200.00	6,808.91	2,769.85	2,684.15	32.318	SF
EXIST VERT RICHARDSON 10-13 - Wellbore #1 - Desig	14,745.04	6,695.00	2,848.32	2,508.23	8.375	CC, ES, SF
EXIST VERT ROHR 15-414 - Wellbore #1 - Wellbore #1						Out of range
EXIST VERT ROHR C 15-19 - Wellbore #1 - Wellbore #1						Out of range
EXIST VERT RUFF 8-114 - Wellbore #1 - Wellbore #1	8,656.60	6,846.31	837.33	784.74	15.922	CC, ES
EXIST VERT RUFF 8-114 - Wellbore #1 - Wellbore #1	8,800.00	6,843.48	849.52	793.83	15.256	SF
EXIST VERT RUFF 8-714 - Wellbore #1 - Wellbore #1	8,045.44	6,875.92	48.01	10.05	1.265	Level 3, CC, ES, SF
EXIST VERT RUFF C 8-1 - Wellbore #1 - Design #1	9,291.30	6,850.21	1,324.22	1,119.29	6.462	CC
EXIST VERT RUFF C 8-1 - Wellbore #1 - Design #1	9,300.00	6,850.15	1,324.25	1,119.08	6.455	ES
EXIST VERT RUFF C 8-1 - Wellbore #1 - Design #1	9,500.00	6,848.79	1,340.56	1,130.73	6.389	SF
EXIST VERT RYANN STATE C 16-1 - Wellbore #1 - Wel						Out of range
EXIST VERT RYDGREN 8-31 - Wellbore #1 - Wellbore #	3,635.67	3,541.27	1,431.08	1,417.22	103.203	CC
EXIST VERT RYDGREN 8-31 - Wellbore #1 - Wellbore #	3,700.00	3,600.00	1,431.29	1,417.10	100.926	ES
EXIST VERT RYDGREN 8-31 - Wellbore #1 - Wellbore #	6,350.00	6,187.49	1,527.26	1,502.64	62.047	SF
EXIST VERT SLEDGE C 9-31 - Wellbore #1 - Design #1	9,859.30	6,821.97	386.46	166.83	1.760	CC, ES, SF
EXIST VERT SMITH 9-5 - Wellbore #1 - Design #1	10,513.71	6,807.13	355.12	117.93	1.497	Level 3, CC, ES, SF
EXIST VERT SMITH C 9-19 - Wellbore #1 - Design #1	11,093.29	6,817.93	843.11	589.72	3.327	CC
EXIST VERT SMITH C 9-19 - Wellbore #1 - Design #1	11,100.00	6,817.88	843.14	589.55	3.325	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 08N
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 08N	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						Out of range
EXIST VERT STATE 16-414 - Wellbore #1 - Design #1						Out of range
EXIST VERT VERN JOHNSON 1-A - Wellbore #1 - Design	11,687.80	6,756.36	2,860.00	2,591.38	10.647	CC
EXIST VERT VERN JOHNSON 1-A - Wellbore #1 - Design	11,800.00	6,755.60	2,862.20	2,590.67	10.541	ES
EXIST VERT VERN JOHNSON 1-A - Wellbore #1 - Design	12,200.00	6,752.87	2,905.50	2,625.52	10.378	SF
EXIST VERT VERN JOHNSON 2 - Wellbore #1 - Design	10,315.96	6,793.26	1,493.60	1,262.09	6.452	CC, ES
EXIST VERT VERN JOHNSON 2 - Wellbore #1 - Design	10,500.00	6,792.00	1,504.89	1,269.39	6.390	SF
EXIST VERT WILMOTH 1 - Wellbore #1 - Wellbore #1	14,241.85	6,691.52	2,556.31	2,350.12	12.398	CC
EXIST VERT WILMOTH 1 - Wellbore #1 - Wellbore #1	14,300.00	6,691.41	2,556.97	2,349.14	12.304	ES
EXIST VERT WILMOTH 1 - Wellbore #1 - Wellbore #1	14,700.00	6,690.60	2,597.04	2,381.18	12.031	SF
EXIST VERT WILMOTH C 3-33 - Wellbore #1 - Wellbore	14,745.04	6,738.53	3,121.58	2,901.90	14.210	CC, ES, SF
EXIST VERT WILMOTH C 4-23 - Wellbore #1 - Wellbore	13,673.56	6,659.96	3,132.33	2,942.27	16.480	CC
EXIST VERT WILMOTH C 4-23 - Wellbore #1 - Wellbore	13,800.00	6,657.67	3,134.88	2,941.35	16.198	ES
EXIST VERT WILMOTH C 4-23 - Wellbore #1 - Wellbore	14,400.00	6,647.09	3,215.43	3,010.20	15.667	SF
EXIST VERT WILMOTH C 4-24 - Wellbore #1 - Wellbore	12,457.90	6,735.85	3,205.92	3,049.60	20.508	CC
EXIST VERT WILMOTH C 4-24 - Wellbore #1 - Wellbore	12,500.00	6,736.09	3,206.20	3,048.68	20.355	ES
EXIST VERT WILMOTH C 4-24 - Wellbore #1 - Wellbore	13,100.00	6,739.50	3,269.59	3,098.32	19.090	SF
EXIST VERT WILMOTH C 9-27 - Wellbore #1 - Wellbore	13,576.55	6,768.46	1,997.09	1,809.89	10.668	CC
EXIST VERT WILMOTH C 9-27 - Wellbore #1 - Wellbore	13,600.00	6,768.20	1,997.22	1,809.36	10.631	ES
EXIST VERT WILMOTH C 9-27 - Wellbore #1 - Wellbore	13,900.00	6,764.80	2,023.11	1,829.18	10.432	SF
HEN 01N - ORIGINAL WELLBORE - PROPOSAL #2	300.00	300.00	104.96	103.89	97.896	CC, ES
HEN 01N - ORIGINAL WELLBORE - PROPOSAL #2	14,745.04	15,029.44	1,679.91	1,243.50	3.849	SF
HEN 02N - ORIGINAL WELLBORE - PROPOSAL #2	400.00	400.00	89.98	88.46	59.135	CC, ES
HEN 02N - ORIGINAL WELLBORE - PROPOSAL #2	14,745.04	15,018.36	1,437.93	1,001.25	3.293	SF
HEN 03N - ORIGINAL WELLBORE - PROPOSAL #2	500.00	500.00	74.97	73.00	38.035	CC, ES
HEN 03N - ORIGINAL WELLBORE - PROPOSAL #2	14,745.04	14,886.01	1,200.88	765.05	2.755	SF
HEN 04N - ORIGINAL WELLBORE - PROPOSAL #2	600.00	600.00	59.96	57.54	24.770	CC, ES
HEN 04N - ORIGINAL WELLBORE - PROPOSAL #2	14,745.04	14,888.44	958.62	521.74	2.194	SF
HEN 05N - ORIGINAL WELLBORE - PROPOSAL #2	700.00	700.00	44.96	42.09	15.663	CC, ES
HEN 05N - ORIGINAL WELLBORE - PROPOSAL #2	14,745.04	14,766.46	722.83	290.00	1.670	SF
HEN 06N - ORIGINAL WELLBORE - PROPOSAL #2	716.33	717.33	29.98	27.04	10.178	CC
HEN 06N - ORIGINAL WELLBORE - PROPOSAL #2	800.00	800.99	29.98	26.66	9.026	ES
HEN 06N - ORIGINAL WELLBORE - PROPOSAL #2	14,745.04	14,798.57	479.39	43.38	1.099	Level 3, SF
HEN 07N - ORIGINAL WELLBORE - PROPOSAL #2	900.00	900.00	14.97	11.20	3.972	CC
HEN 07N - ORIGINAL WELLBORE - PROPOSAL #2	14,745.04	14,693.14	249.66	-50.18	0.833	Level 3, ES, SF
HEN 09N - ORIGINAL WELLBORE - PROPOSAL #2	1,000.00	1,000.00	15.01	10.79	3.558	CC
HEN 09N - ORIGINAL WELLBORE - PROPOSAL #2	14,745.04	14,694.74	248.30	-54.75	0.819	Level 3, ES, SF
HEN 10N - ORIGINAL WELLBORE - PROPOSAL #2	1,000.00	1,000.00	30.02	25.80	7.116	CC, ES
HEN 10N - ORIGINAL WELLBORE - PROPOSAL #2	14,744.08	14,785.18	479.39	42.98	1.098	Level 3, SF
HEN 11N - ORIGINAL WELLBORE - PROPOSAL #2	1,000.00	1,000.00	44.99	40.77	10.665	CC, ES
HEN 11N - ORIGINAL WELLBORE - PROPOSAL #2	14,745.04	14,738.87	721.43	288.01	1.664	SF
HEN 12N - ORIGINAL WELLBORE - PROPOSAL #2	1,000.00	1,000.00	60.00	55.78	14.222	CC, ES
HEN 12N - ORIGINAL WELLBORE - PROPOSAL #2	14,745.04	14,835.37	958.68	522.64	2.199	SF
HEN 13N - ORIGINAL WELLBORE - PROPOSAL #2	1,000.00	1,000.00	75.01	70.79	17.780	CC, ES
HEN 13N - ORIGINAL WELLBORE - PROPOSAL #2	14,745.04	14,796.15	1,199.48	764.01	2.754	SF
HEN 14N - ORIGINAL WELLBORE - PROPOSAL #2	1,000.00	1,000.00	90.02	85.80	21.338	CC, ES
HEN 14N - ORIGINAL WELLBORE - PROPOSAL #2	14,745.04	14,908.23	1,437.94	1,002.03	3.299	SF
HEN 15N - ORIGINAL WELLBORE - PROPOSAL #2	1,000.00	1,000.00	104.99	100.78	24.887	CC, ES
HEN 15N - ORIGINAL WELLBORE - PROPOSAL #2	14,745.04	14,877.74	1,678.58	1,243.05	3.854	SF
HEN 16N - ORIGINAL WELLBORE - PROPOSAL #2	900.00	900.00	119.97	116.20	31.827	CC, ES
HEN 16N - ORIGINAL WELLBORE - PROPOSAL #2	14,745.04	14,965.04	1,917.18	1,481.48	4.400	SF
HEN 17N - ORIGINAL WELLBORE - PROPOSAL #2	800.00	800.00	134.98	131.66	40.658	CC, ES
HEN 17N - ORIGINAL WELLBORE - PROPOSAL #2	14,745.04	14,966.03	2,157.77	1,722.33	4.955	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 08N
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 08N	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 18N - ORIGINAL WELLBORE - PROPOSAL #2	700.00	700.00	149.99	147.12	52.255	CC, ES
HEN 18N - ORIGINAL WELLBORE - PROPOSAL #2	14,745.04	15,093.23	2,396.44	1,960.98	5.503	SF
HEN 19N - ORIGINAL WELLBORE - PROPOSAL #2	600.00	600.00	165.00	162.58	68.160	CC, ES
HEN 19N - ORIGINAL WELLBORE - PROPOSAL #2	14,745.04	15,090.25	2,637.15	2,201.90	6.059	SF
HEN 20NA - ORIGINAL WELLBORE - PROPOSAL #2	500.00	499.00	179.97	178.00	91.404	CC, ES
HEN 20NA - ORIGINAL WELLBORE - PROPOSAL #2	14,745.04	15,111.10	2,878.23	2,443.23	6.617	SF
HEN 21N - ORIGINAL WELLBORE - PROPOSAL #2	400.00	399.00	194.98	193.46	128.325	CC, ES
HEN 21N - ORIGINAL WELLBORE - PROPOSAL #2	14,745.04	15,320.70	3,115.37	2,680.24	7.160	SF
HEN 22N - ORIGINAL WELLBORE - PROPOSAL #2	300.00	298.00	209.99	208.92	196.685	CC, ES
HEN 22N - ORIGINAL WELLBORE - PROPOSAL #2	1,100.00	1,010.65	330.89	326.39	73.580	SF