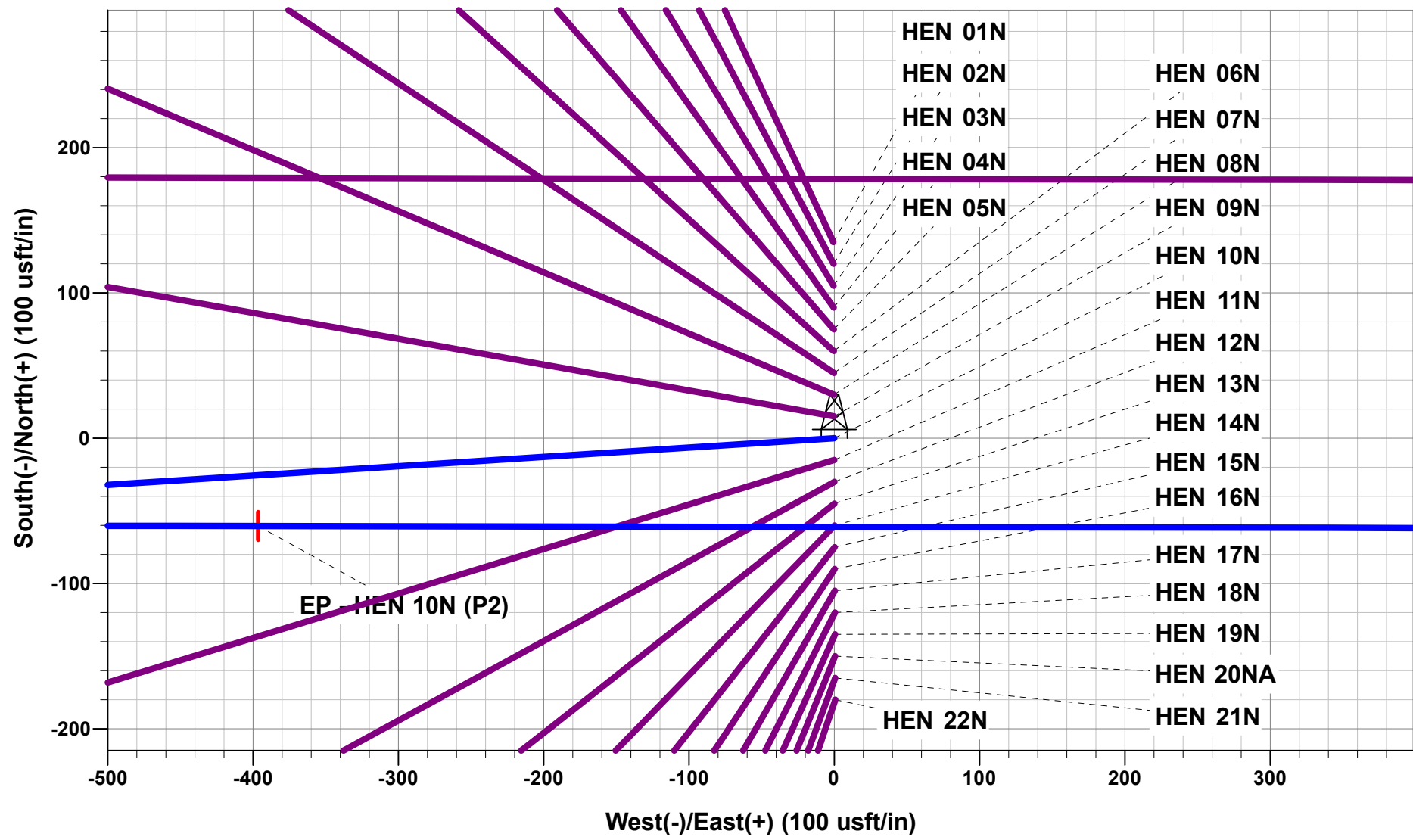




Project: WELD COUNTY, COLORADO (TRUE)
Site: SW NE SEC. 8 T4N R64W 6th P.M. (HEN)
Well: HEN 10N
Wellbore: ORIGINAL WELLBORE
Design: PROPOSAL #2

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: 2219ft FNL & 2044ft FEL of Sec 8
1500.00	0.00	0.00	1500.00	0.00	0.00	0.00	0.00	START NUDGE (2°/100ft BUR)
2160.69	13.21	266.33	2154.85	-4.85	-75.69	-75.64	75.85	EOB TO 13.21° INC
5561.87	13.21	266.33	5465.98	-54.61	-851.56	-850.94	853.31	END OF TANGENT
6222.56	0.00	0.00	6120.83	-59.46	-927.25	-926.58	929.15	EOD TO VERTICAL
6322.56	0.00	0.00	6220.83	-59.46	-927.25	-926.58	929.15	KOP (8°/100ft BUR)
7260.07	75.00	90.10	6912.64	-60.39	-396.42	-395.77	1459.98	EP: 2278ft FNL & 2440ft FEL of Sec 8
7455.84	90.66	90.10	6937.00	-60.73	-202.79	-202.15	1653.62	HZ LANDING POINT
14785.18	90.67	90.11	6852.00	-74.01	7126.05	7126.43	8982.46	BHL: 2277ft FNL & 200ft FEL of Sec 9

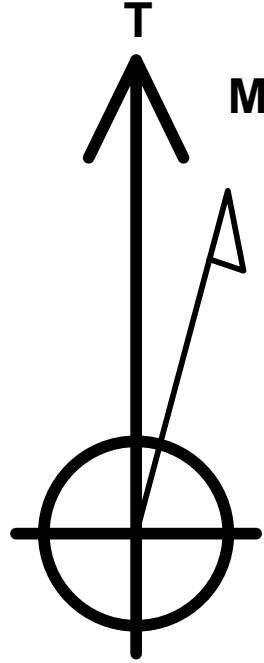


PROPOSED LOCAL COORDINATES:

SHL: 2219ft FNL & 2044ft FEL of Sec 8

EP *NEW*: 2278ft FNL & 2440ft FEL of Sec 8

BHL : 2277ft FNL & 200ft FEL of Sec 9

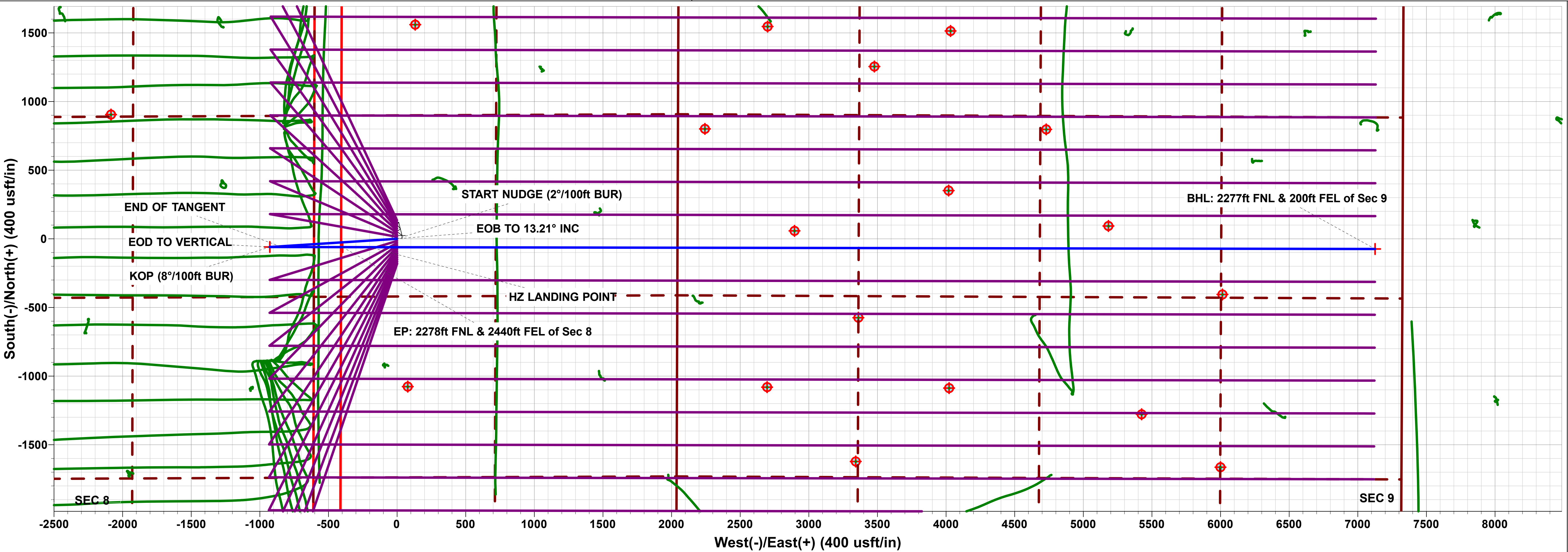
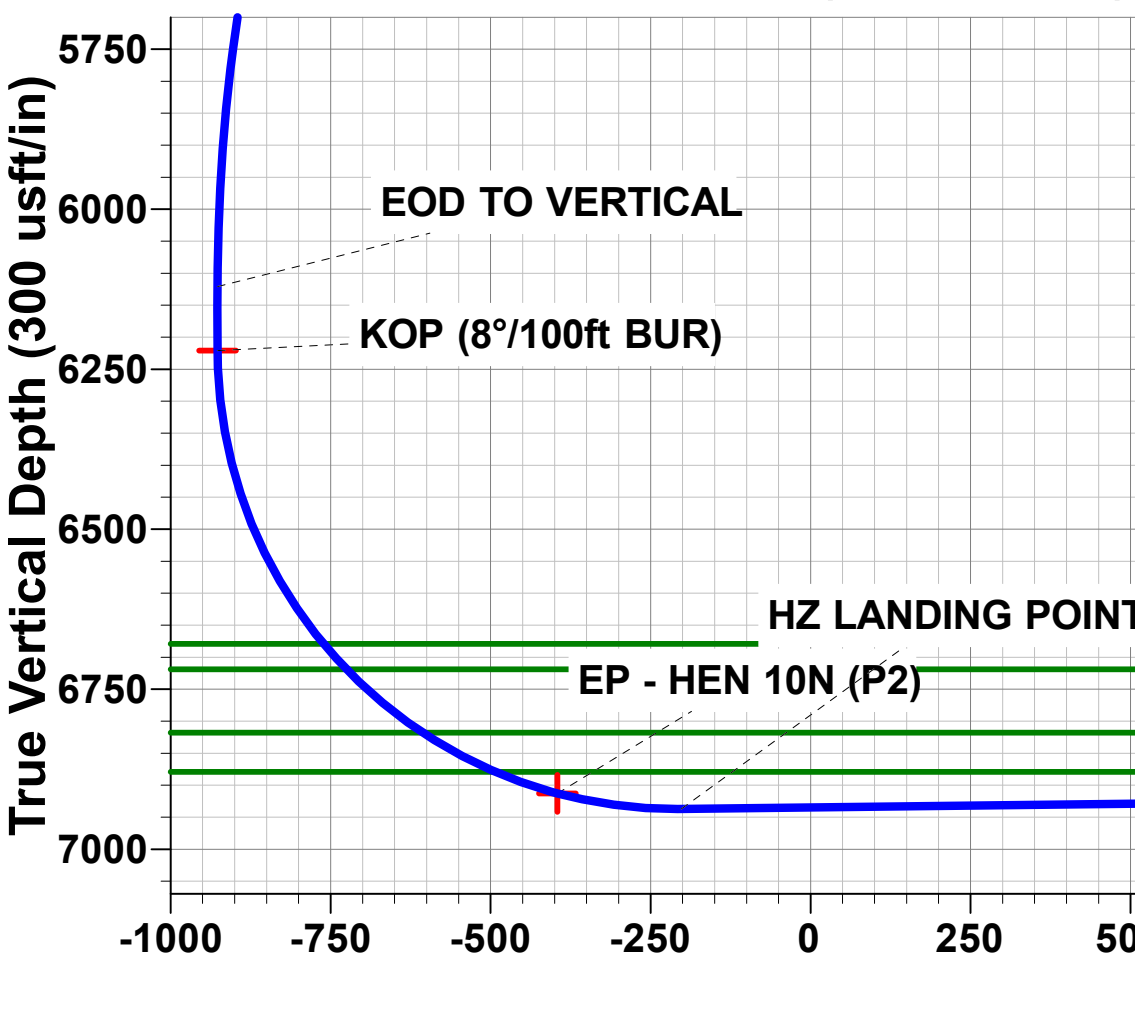
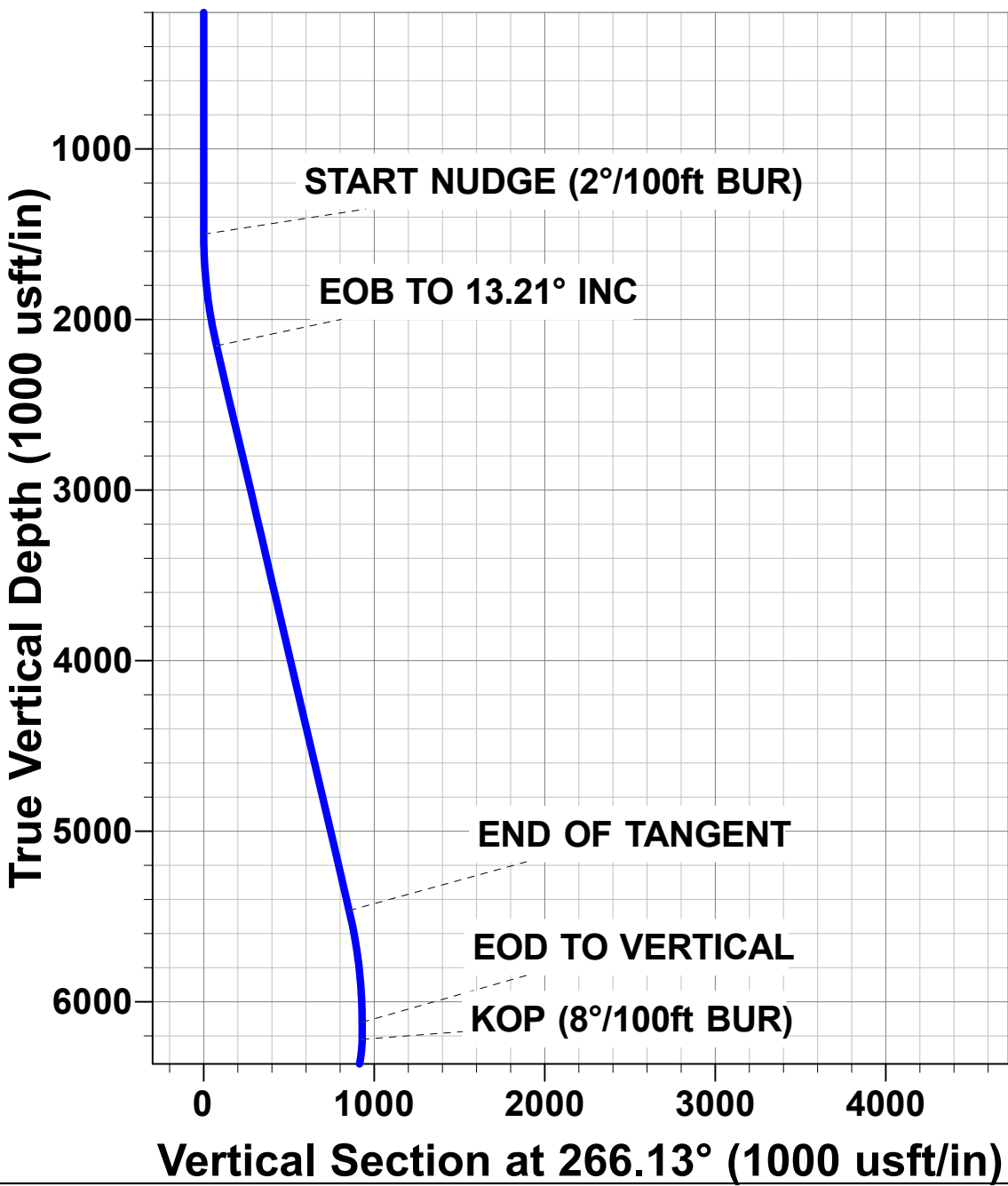


Azimuths to True North
Magnetic North: 7.76°

Magnetic Field
Strength: 51952.4nT
Dip Angle: 66.63°
Date: 2021-04-21
Model: IGRF2020

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
BHL - HEN 10N (P2)	6852.00	-74.01	7126.05	1363701.15	3265757.52	40.327839	-104.546786
EP - HEN 10N (P2)	6912.64	-60.39	-396.42	1363636.08	3258235.64	40.327880	-104.573765
KOP - HEN 10N (P2)	6220.83	-59.46	-927.25	1363631.45	3257704.85	40.327882	-104.575669





PDC ENERGY

**WELD COUNTY, COLORADO (TRUE)
SW NE SEC. 8 T4N R64W 6th P.M. (HEN)
HEN 10N**

**ORIGINAL WELLBORE
PROPOSAL #2**

Anticollision Summary Report

19 June, 2022



Company:	PDC ENERGY	Local Co-ordinate Reference:	Well HEN 10N
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 10N	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	14,785.18	PROPOSAL #2 (ORIGINAL WELLBORE)	MWD	MWD - Standard

Summary						
Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
SW NE SEC. 8 T4N R64W 6th P.M. (HEN)						
ABDN DD ALTER C 16-28D - Wellbore #1 - Wellbore #1	12,215.53	7,325.01	2,991.36	2,804.77	16.032	CC
ABDN DD ALTER C 16-28D - Wellbore #1 - Wellbore #1	12,300.00	7,325.12	2,992.55	2,803.39	15.820	ES
ABDN DD ALTER C 16-28D - Wellbore #1 - Wellbore #1	12,900.00	7,325.83	3,068.66	2,865.89	15.133	SF
ABDN DD ALTER C 16-29D - ORIGINAL WELLBORE - W	11,067.32	7,038.99	3,053.30	2,919.28	22.782	CC
ABDN DD ALTER C 16-29D - ORIGINAL WELLBORE - W	11,200.00	7,037.14	3,056.18	2,918.31	22.167	ES
ABDN DD ALTER C 16-29D - ORIGINAL WELLBORE - W	12,000.00	7,006.00	3,192.71	3,037.37	20.553	SF
ABDN DD ALTER C 16-29D - SIDETRACK - SIDETRAC	10,786.83	7,059.76	2,785.75	2,662.88	22.673	CC
ABDN DD ALTER C 16-29D - SIDETRACK - SIDETRAC	10,900.00	7,063.88	2,788.04	2,662.05	22.129	ES
ABDN DD ALTER C 16-29D - SIDETRACK - SIDETRAC	11,600.00	7,086.00	2,901.85	2,761.25	20.639	SF
ABDN HZ FRANKLIN C08-62HNX - ORIGINAL WELLBO	8,499.02	10,756.00	2,388.06	2,221.82	14.365	CC
ABDN HZ FRANKLIN C08-62HNX - ORIGINAL WELLBO	8,600.00	10,756.00	2,390.20	2,221.73	14.188	ES
ABDN HZ FRANKLIN C08-62HNX - ORIGINAL WELLBO	8,900.00	10,756.00	2,421.49	2,248.12	13.967	SF
ABDN HZ FRANKLIN C08-62HNX - SIDETRACK - SIDE	8,508.85	10,803.00	2,278.35	2,112.10	13.704	CC
ABDN HZ FRANKLIN C08-62HNX - SIDETRACK - SIDE	8,600.00	10,803.00	2,280.18	2,112.04	13.562	ES
ABDN HZ FRANKLIN C08-62HNX - SIDETRACK - SIDE	8,900.00	10,803.00	2,311.68	2,139.21	13.403	SF
ABDN VERT CONQUEST SWD 1-8 - Wellbore #1 - Des	9,481.73	6,826.62	2,468.83	2,260.28	11.838	CC
ABDN VERT CONQUEST SWD 1-8 - Wellbore #1 - Des	9,500.00	6,826.41	2,468.90	2,259.87	11.811	ES
ABDN VERT CONQUEST SWD 1-8 - Wellbore #1 - Des	10,000.00	6,820.63	2,522.64	2,302.01	11.434	SF
ABDN VERT COX 8-1 - Wellbore #1 - Wellbore #1	5,577.39	5,368.74	1,710.94	1,688.75	77.101	CC
ABDN VERT COX 8-1 - Wellbore #1 - Wellbore #1	5,600.00	5,387.32	1,710.99	1,688.69	76.738	ES
ABDN VERT COX 8-1 - Wellbore #1 - Wellbore #1	6,400.00	6,291.29	1,714.58	1,690.43	71.009	SF
ABDN VERT COX PM C 8-4 - Wellbore #1 - Wellbore #1	6,361.72	6,326.77	2,264.78	2,243.06	104.288	CC, ES
ABDN VERT COX PM C 8-4 - Wellbore #1 - Wellbore #1	6,400.00	6,367.21	2,265.45	2,243.70	104.199	SF
ABDN VERT COX PM C 8-5 - Wellbore #1 - Wellbore #1	6,329.41	6,237.25	1,841.33	1,823.95	105.896	CC, ES
ABDN VERT COX PM C 8-5 - Wellbore #1 - Wellbore #1	6,400.00	6,311.59	1,844.60	1,827.11	105.472	SF
ABDN VERT GEHRING 8-1514 - Wellbore #1 - Wellbore	8,082.46	6,864.64	1,942.09	1,903.92	50.880	CC
ABDN VERT GEHRING 8-1514 - Wellbore #1 - Wellbore	8,100.00	6,864.76	1,942.16	1,903.61	50.373	ES
ABDN VERT GEHRING 8-1514 - Wellbore #1 - Wellbore	9,100.00	6,872.56	2,192.49	2,135.77	38.659	SF
ABDN VERT GEHRING C 8-10X - Wellbore #1 - Wellbor	7,593.13	6,896.03	862.58	834.25	30.446	CC
ABDN VERT GEHRING C 8-10X - Wellbore #1 - Wellbor	7,600.00	6,896.03	862.61	834.18	30.344	ES
ABDN VERT GEHRING C 8-10X - Wellbore #1 - Wellbor	7,900.00	6,896.05	915.54	883.20	28.316	SF
ABDN VERT HAGEN 9-16 - Wellbore #1 - Design #1	14,118.74	6,727.78	2,525.54	2,190.77	7.544	CC
ABDN VERT HAGEN 9-16 - Wellbore #1 - Design #1	14,200.00	6,726.83	2,526.85	2,189.93	7.500	ES
ABDN VERT HAGEN 9-16 - Wellbore #1 - Design #1	14,400.00	6,724.50	2,541.15	2,199.93	7.447	SF
ABDN VERT HEISER 1 - Wellbore #1 - Design #1	7,738.14	6,889.75	1,015.12	847.83	6.068	CC, ES
ABDN VERT HEISER 1 - Wellbore #1 - Design #1	7,800.00	6,889.04	1,017.00	848.64	6.040	SF
ABDN VERT LEVI C 5-15 - Wellbore #1 - Wellbore #1	100.00	67.86	3,005.43	3,005.28	10,000.00	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 10N
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 10N	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 LEVI C 5-15 - Wellbore #1 - Wellbore #1	8,100.00	6,883.50	3,040.98	3,002.68	79.398	ES
ABDN VERT LEVI C 5-15 - Wellbore #1 - Wellbore #1	9,200.00	6,879.89	3,255.42	3,193.62	52.678	SF
ABDN VERT REINICK 1 - Wellbore #1 - Wellbore #1	13,888.54	6,745.74	634.29	439.24	3.252	CC
ABDN VERT REINICK 1 - Wellbore #1 - Wellbore #1	13,900.00	6,745.56	634.39	439.08	3.248	ES, SF
ABDN VERT REINICK 2 - Wellbore #1 - Wellbore #1	12,965.93	6,755.90	1,577.80	1,408.27	9.307	CC
ABDN VERT REINICK 2 - Wellbore #1 - Wellbore #1	13,000.00	6,755.76	1,578.16	1,407.75	9.261	ES
ABDN VERT REINICK 2 - Wellbore #1 - Wellbore #1	13,200.00	6,754.96	1,595.06	1,421.23	9.176	SF
ABDN VERT REINICK 9-7 - Wellbore #1 - Design #1	12,841.54	6,775.65	164.03	-136.04	0.547	Level 3, CC, ES, SF
ABDN VERT RICHARDSON 10-12 - Wellbore #1 - Wellb	14,785.18	6,669.72	1,435.59	1,269.77	8.658	CC, ES, SF
ABDN VERT RUFF 1 - Wellbore #1 - Design #1	100.00	70.34	1,565.72	1,564.79	1,684.814	CC
ABDN VERT RUFF 1 - Wellbore #1 - Design #1	7,800.00	6,903.44	1,621.50	1,452.78	9.610	ES
ABDN VERT RUFF 1 - Wellbore #1 - Design #1	8,100.00	6,899.98	1,651.23	1,476.73	9.463	SF
ABDN VERT RYANN STATE C 16-27 - Wellbore #1 - We	13,563.59	6,761.71	3,203.53	3,017.44	17.215	CC
ABDN VERT RYANN STATE C 16-27 - Wellbore #1 - We	13,600.00	6,763.63	3,203.74	3,016.64	17.123	ES
ABDN VERT RYANN STATE C 16-27 - Wellbore #1 - We	14,200.00	6,795.24	3,265.96	3,066.15	16.346	SF
ABDN VERT RYDGREN 8-1 - Wellbore #1 - Wellbore #1	6,330.32	6,261.50	1,989.87	1,971.53	108.498	CC, ES
ABDN VERT RYDGREN 8-1 - Wellbore #1 - Wellbore #1	6,400.00	6,323.40	1,992.90	1,974.48	108.177	SF
ABDN VERT SLEDGE C 9-28 - Wellbore #1 - Design #1	12,334.44	6,812.55	2,042.46	1,755.77	7.124	CC
ABDN VERT SLEDGE C 9-28 - Wellbore #1 - Design #1	12,400.00	6,811.79	2,043.51	1,755.10	7.086	ES
ABDN VERT SLEDGE C 9-28 - Wellbore #1 - Design #1	12,600.00	6,809.46	2,059.65	1,767.07	7.040	SF
ABDN VERT SLEDGE C 9-29 - Wellbore #1 - Design #1	10,996.07	6,849.09	2,098.09	1,847.78	8.382	CC
ABDN VERT SLEDGE C 9-29 - Wellbore #1 - Design #1	11,100.00	6,847.88	2,100.66	1,847.66	8.303	ES
ABDN VERT SLEDGE C 9-29 - Wellbore #1 - Design #1	11,300.00	6,845.56	2,119.99	1,862.69	8.239	SF
ABDN VERT SMITH 1 - Wellbore #1 - Design #1	10,355.74	6,859.51	1,612.33	1,379.41	6.922	CC
ABDN VERT SMITH 1 - Wellbore #1 - Design #1	10,400.00	6,858.99	1,612.94	1,378.86	6.891	ES
ABDN VERT SMITH 1 - Wellbore #1 - Design #1	10,600.00	6,856.68	1,630.72	1,392.39	6.842	SF
ABDN VERT SMITH 2 - Wellbore #1 - Design #1	11,688.52	6,831.05	1,582.14	1,313.02	5.879	CC
ABDN VERT SMITH 2 - Wellbore #1 - Design #1	11,700.00	6,830.92	1,582.18	1,312.76	5.872	ES
ABDN VERT SMITH 2 - Wellbore #1 - Design #1	11,900.00	6,828.60	1,596.21	1,322.62	5.834	SF
ABDN VERT SMITH 3 - Wellbore #1 - Design #1	11,676.89	6,818.48	419.97	151.44	1.564	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	9,815.01	6,846.63	349.22	266.83	4.238	CC, ES, SF
EXIST DD ALTER C 09-24D - Wellbore #1 - Wellbore #1	12,424.26	7,327.36	1,652.51	1,456.10	8.413	CC, ES
EXIST DD ALTER C 09-24D - Wellbore #1 - Wellbore #1	12,600.00	7,328.58	1,661.83	1,463.19	8.366	SF
EXIST DD ALTER C 09-33D - Wellbore #1 - Wellbore #1	9,637.61	6,985.16	1,657.11	1,561.83	17.391	CC
EXIST DD ALTER C 09-33D - Wellbore #1 - Wellbore #1	9,700.00	6,984.30	1,658.28	1,561.07	17.058	ES
EXIST DD ALTER C 09-33D - Wellbore #1 - Wellbore #1	10,100.00	6,978.80	1,720.40	1,613.86	16.149	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	100.00	21.88	3,254.21	3,254.10	10,000.000	CC
EXIST DD NGL C1C - Wellbore #1 - Wellbore #1	900.00	800.85	3,254.94	3,252.11	1,150.440	ES
EXIST DD NGL C1C - Wellbore #1 - Wellbore #1	1,400.00	1,065.00	3,277.18	3,272.61	717.532	SF
EXIST DD RUFF C 08-27D - Wellbore #1 - Wellbore #1	700.00	673.00	1,945.74	1,943.56	892.322	CC
EXIST DD RUFF C 08-27D - Wellbore #1 - Wellbore #1	1,000.00	965.00	1,946.83	1,943.40	567.841	ES
EXIST DD RUFF C 08-27D - Wellbore #1 - Wellbore #1	9,400.00	6,928.67	2,440.38	2,360.25	30.456	SF
EXIST DD SLEDGE C 9-30D - Wellbore #1 - Wellbore #1	9,625.72	6,943.24	2,517.05	2,421.39	26.312	CC
EXIST DD SLEDGE C 9-30D - Wellbore #1 - Wellbore #1	9,700.00	6,941.56	2,518.15	2,420.80	25.869	ES
EXIST DD SLEDGE C 9-30D - Wellbore #1 - Wellbore #1	10,400.00	6,926.22	2,633.39	2,523.78	24.024	SF
EXIST HZ CHALLENGER 1N - ORIGINAL WELLBORE -	0.00	0.00	1,207.69			
EXIST HZ CHALLENGER 1N - ORIGINAL WELLBORE -	200.00	188.00	1,207.87	1,207.37	2,428.428	ES
EXIST HZ CHALLENGER 1N - ORIGINAL WELLBORE -	8,800.00	6,491.00	2,897.13	2,833.49	45.528	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 10N
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 10N	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 1N - SIDETRACK - SIDETRA	0.00	0.00	1,207.69			
EXIST HZ CHALLENGER 1N - SIDETRACK - SIDETRA	200.00	188.00	1,207.87	1,207.37	2,428.428	ES
EXIST HZ CHALLENGER 1N - SIDETRACK - SIDETRA	8,800.00	6,491.00	2,897.13	2,833.49	45.528	SF
EXIST HZ CHALLENGER 2N - Wellbore #1 - Wellbore #	300.00	291.49	1,195.57	1,194.58	1,213.990	CC
EXIST HZ CHALLENGER 2N - Wellbore #1 - Wellbore #	400.00	377.90	1,195.91	1,194.52	863.382	ES
EXIST HZ CHALLENGER 2N - Wellbore #1 - Wellbore #	8,500.00	6,566.00	2,517.17	2,460.90	44.734	SF
EXIST HZ CHALLENGER 3N - Wellbore #1 - Wellbore #	202.90	194.10	1,185.24	1,184.69	2,153.746	CC
EXIST HZ CHALLENGER 3N - Wellbore #1 - Wellbore #	500.00	481.30	1,185.71	1,183.89	651.936	ES
EXIST HZ CHALLENGER 3N - Wellbore #1 - Wellbore #	8,100.00	6,416.22	2,095.31	2,048.68	44.930	SF
EXIST HZ CHALLENGER 4N - Wellbore #1 - Wellbore #	3,053.79	2,944.10	1,168.12	1,152.97	77.110	CC
EXIST HZ CHALLENGER 4N - Wellbore #1 - Wellbore #	3,100.00	2,981.07	1,168.39	1,152.93	75.558	ES
EXIST HZ CHALLENGER 4N - Wellbore #1 - Wellbore #	6,798.47	6,731.03	1,381.43	1,345.33	38.264	SF
EXIST HZ CHALLENGER 5N - Wellbore #1 - Wellbore #	3,012.35	2,906.51	1,051.77	1,036.99	71.151	CC
EXIST HZ CHALLENGER 5N - Wellbore #1 - Wellbore #	3,100.00	2,990.02	1,052.20	1,036.75	68.096	ES
EXIST HZ CHALLENGER 5N - Wellbore #1 - Wellbore #	6,700.00	6,609.00	1,184.41	1,148.70	33.164	SF
EXIST HZ CHALLENGER 6N - Wellbore #1 - Wellbore #	4,378.69	4,319.85	887.02	862.71	36.477	CC
EXIST HZ CHALLENGER 6N - Wellbore #1 - Wellbore #	4,400.00	4,339.70	887.05	862.58	36.254	ES
EXIST HZ CHALLENGER 6N - Wellbore #1 - Wellbore #	6,736.43	6,664.00	916.72	880.87	25.575	SF
EXIST HZ CHALLENGER 7N - Wellbore #1 - Wellbore #	4,510.08	4,465.71	598.79	573.35	23.534	CC
EXIST HZ CHALLENGER 7N - Wellbore #1 - Wellbore #	4,600.00	4,552.37	599.23	573.16	22.986	ES
EXIST HZ CHALLENGER 7N - Wellbore #1 - Wellbore #	6,736.14	6,683.79	656.38	620.39	18.235	SF
EXIST HZ CHALLENGER 8N - Wellbore #1 - Wellbore #	4,493.09	4,468.72	370.19	344.33	14.315	CC
EXIST HZ CHALLENGER 8N - Wellbore #1 - Wellbore #	6,750.00	6,693.81	374.84	338.77	10.392	SF
EXIST HZ CHALLENGER 8N - Wellbore #1 - Wellbore #	6,760.57	6,696.00	374.70	338.67	10.399	ES
EXIST HZ CHALLENGER 9N - Wellbore #1 - Wellbore #	6,674.45	6,657.95	138.16	101.54	3.773	CC, ES, SF
EXIST HZ FRANKLIN C17-69HN - Wellbore #1 - Wellbor	7,923.67	10,197.00	2,904.46	2,768.57	21.375	CC
EXIST HZ FRANKLIN C17-69HN - Wellbore #1 - Wellbor	8,600.00	10,846.00	2,913.94	2,744.16	17.163	ES
EXIST HZ FRANKLIN C17-69HN - Wellbore #1 - Wellbor	9,200.00	10,846.00	2,980.66	2,798.53	16.366	SF
EXIST HZ HAROLD 6X-232 - Wellbore #1 - Wellbore #1	10,988.46	13,680.45	3,044.18	2,734.79	9.839	CC
EXIST HZ HAROLD 6X-302 - Wellbore #1 - Wellbore #1	14,785.18	17,483.50	3,077.15	2,555.48	5.899	ES, SF
Out of range						
EXIST HZ HAROLD 6Y-202 - Wellbore #1 - Wellbore #1	6,994.89	9,711.30	2,475.76	2,368.61	23.106	CC
EXIST HZ HAROLD 6Y-202 - Wellbore #1 - Wellbore #1	14,785.18	17,443.56	2,516.62	1,996.61	4.840	ES, SF
EXIST HZ HAROLD 6Y-312 - Wellbore #1 - Wellbore #1	8,983.91	11,762.00	2,700.06	2,500.95	13.561	CC
EXIST HZ HAROLD 6Y-312 - Wellbore #1 - Wellbore #1	14,785.18	17,590.04	2,716.23	2,193.90	5.200	ES, SF
EXIST HZ JAGGED 10N - Wellbore #1 - Wellbore #1	0.00	0.00	1,330.86			
EXIST HZ JAGGED 10N - Wellbore #1 - Wellbore #1	100.00	93.29	1,331.00	1,330.83	7,554.645	ES
EXIST HZ JAGGED 10N - Wellbore #1 - Wellbore #1	8,800.00	6,365.00	2,904.15	2,838.50	44.236	SF
EXIST HZ JAGGED 11N - Wellbore #1 - Wellbore #1	394.10	371.45	1,342.07	1,340.70	978.366	CC
EXIST HZ JAGGED 11N - Wellbore #1 - Wellbore #1	400.00	375.33	1,342.08	1,340.68	963.405	ES
EXIST HZ JAGGED 11N - Wellbore #1 - Wellbore #1	9,100.00	6,365.00	3,268.41	3,195.06	44.557	SF
EXIST HZ JAGGED 12N - Wellbore #1 - Wellbore #1	0.00	0.00	1,353.38			
EXIST HZ JAGGED 12N - Wellbore #1 - Wellbore #1	8,800.00	6,319.48	3,233.33	3,162.69	45.774	SF
EXIST HZ JAGGED 1N - Wellbore #1 - Wellbore #1	6,811.60	6,766.27	62.65	26.00	1.709	CC, ES, SF
EXIST HZ JAGGED 2N - Wellbore #1 - Wellbore #1	4,714.58	4,684.55	341.93	313.80	12.156	CC, ES
EXIST HZ JAGGED 2N - Wellbore #1 - Wellbore #1	6,638.99	6,609.12	354.90	318.66	9.793	SF
EXIST HZ JAGGED 3N - Wellbore #1 - Wellbore #1	6,650.00	6,629.24	567.82	531.54	15.650	SF
EXIST HZ JAGGED 3N - Wellbore #1 - Wellbore #1	6,692.22	6,646.24	566.52	530.38	15.673	CC, ES
EXIST HZ JAGGED 4N - Wellbore #1 - Wellbore #1	6,600.00	6,506.72	869.32	833.46	24.244	SF
EXIST HZ JAGGED 4N - Wellbore #1 - Wellbore #1	6,630.20	6,519.48	868.98	833.18	24.276	CC, ES
EXIST HZ JAGGED 5N - Wellbore #1 - Wellbore #1	4,324.82	4,219.40	1,053.34	1,029.46	44.107	CC, ES
EXIST HZ JAGGED 5N - Wellbore #1 - Wellbore #1	6,700.00	6,672.07	1,111.98	1,075.77	30.711	SF
EXIST HZ JAGGED 6N - Wellbore #1 - Wellbore #1	3,878.92	3,757.11	1,155.67	1,134.79	55.352	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 10N
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 10N	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 6N - Wellbore #1 - Wellbore #1	3,900.00	3,772.68	1,155.73	1,134.72	54.999	ES
EXIST HZ JAGGED 6N - Wellbore #1 - Wellbore #1	6,650.00	6,590.20	1,344.62	1,308.14	36.863	SF
EXIST HZ JAGGED 7N - Wellbore #1 - Wellbore #1	3,140.48	3,001.25	1,289.16	1,272.72	78.415	CC, ES
EXIST HZ JAGGED 7N - Wellbore #1 - Wellbore #1	8,000.00	6,411.21	1,939.77	1,893.75	42.149	SF
EXIST HZ JAGGED 8N - Wellbore #1 - Wellbore #1	0.00	0.00	1,308.58			
EXIST HZ JAGGED 8N - Wellbore #1 - Wellbore #1	8,300.00	6,365.00	2,251.02	2,199.06	43.318	SF
EXIST HZ JAGGED 9N - Wellbore #1 - Wellbore #1	0.00	0.00	1,319.95			
EXIST HZ JAGGED 9N - Wellbore #1 - Wellbore #1	443.17	442.29	1,320.72	1,319.12	824.694	ES
EXIST HZ JAGGED 9N - Wellbore #1 - Wellbore #1	8,600.00	6,365.00	2,634.85	2,575.02	44.036	SF
EXIST HZ MARK ALTER C16-79HN - Wellbore #1 - Well	9,821.47	6,206.00	2,585.49	2,492.34	27.755	CC
EXIST HZ MARK ALTER C16-79HN - Wellbore #1 - Well	9,900.00	6,206.00	2,586.68	2,491.49	27.174	ES
EXIST HZ MARK ALTER C16-79HN - Wellbore #1 - Well	10,700.00	6,253.00	2,729.55	2,618.18	24.510	SF
EXIST HZ NORTHRUP C 08-73HN - Wellbore #1 - Wellb	8,385.05	8,629.81	44.07	13.24	1.429	Level 3, CC, ES
EXIST HZ NORTHRUP C 08-73HN - Wellbore #1 - Wellb	8,400.00	8,630.13	46.54	13.85	1.424	Level 3, SF
EXIST HZ NORTHRUP C 08-75HN - Wellbore #1 - Wellb	7,098.18	8,950.24	52.28	24.50	1.882	CC
EXIST HZ NORTHRUP C 08-75HN - Wellbore #1 - Wellb	7,100.00	8,950.26	52.32	24.11	1.855	ES
EXIST HZ NORTHRUP C 08-75HN - Wellbore #1 - Wellb	7,150.00	8,950.70	74.92	28.95	1.630	SF
EXIST HZ OREDIGGER C10-69HN - Wellbore #1 - Well	14,785.18	6,475.00	2,213.27	1,984.82	9.688	CC, ES, SF
EXIST HZ SANDY HILLS PC C17-67HN - Wellbore #1 -						Out of range
EXIST HZ STOCKLEY C15-79HN - Wellbore #1 - Wellbo	14,785.18	13,772.00	596.92	346.09	2.380	CC, ES, SF
EXIST HZ ZANE ALTER C 09-21 - Wellbore #1 - Wellbo	12,544.29	8,264.28	626.39	571.56	11.423	CC, ES, SF
EXIST VERT ALTER C 9-23 - Wellbore #1 - Design #1	13,661.37	6,748.21	1,591.69	1,269.30	4.937	CC
EXIST VERT ALTER C 9-23 - Wellbore #1 - Design #1	13,700.00	6,747.76	1,592.16	1,268.75	4.923	ES
EXIST VERT ALTER C 9-23 - Wellbore #1 - Design #1	13,800.00	6,746.59	1,597.72	1,272.26	4.909	SF
EXIST VERT ALTER C 9-25 - Wellbore #1 - Design #1	11,003.45	6,801.62	1,554.81	1,305.24	6.230	CC, ES
EXIST VERT ALTER C 9-25 - Wellbore #1 - Design #1	11,200.00	6,799.34	1,567.18	1,313.20	6.170	SF
EXIST VERT AMANDA ALTER C 9-20 - Wellbore #1 - De	11,020.93	6,816.66	507.39	257.09	2.027	CC, ES, SF
EXIST VERT BARTON C 15-29 - Wellbore #1 - Design #	14,785.18	6,706.42	3,066.78	2,742.95	9.470	CC, ES, SF
EXIST VERT BENNER 1 - Wellbore #1 - Wellbore #1	9,140.57	6,854.24	276.98	212.71	4.310	CC, ES, SF
EXIST VERT CONNELL 14-4 - Wellbore #1 - Wellbore #	10,323.09	6,843.11	3,085.12	2,988.04	31.777	CC
EXIST VERT CONNELL 14-4 - Wellbore #1 - Wellbore #	10,400.00	6,841.62	3,086.08	2,986.92	31.123	ES
EXIST VERT CONNELL 14-4 - Wellbore #1 - Wellbore #	11,400.00	6,822.11	3,267.62	3,148.12	27.344	SF
EXIST VERT CONNELL 3 - Wellbore #1 - Wellbore #1	11,697.57	6,784.18	2,984.67	2,850.48	22.242	CC
EXIST VERT CONNELL 3 - Wellbore #1 - Wellbore #1	11,800.00	6,780.29	2,986.43	2,849.48	21.807	ES
EXIST VERT CONNELL 3 - Wellbore #1 - Wellbore #1	12,500.00	6,755.40	3,090.51	2,939.58	20.476	SF
EXIST VERT CONNELL C 4-25 - Wellbore #1 - Wellbore						Out of range
EXIST VERT COX 8-19D - Wellbore #1 - Design #1	6,322.56	6,208.83	1,506.55	1,363.20	10.510	CC
EXIST VERT COX 8-19D - Wellbore #1 - Design #1	6,350.00	6,236.26	1,506.95	1,363.02	10.470	ES
EXIST VERT COX 8-19D - Wellbore #1 - Design #1	6,500.00	6,384.46	1,523.44	1,376.54	10.371	SF
EXIST VERT COX PM C 8-6 - Wellbore #1 - Wellbore #1	5,944.60	5,792.58	565.74	544.53	26.681	CC, ES
EXIST VERT COX PM C 8-6 - Wellbore #1 - Wellbore #1	6,350.00	6,219.57	574.60	552.67	26.196	SF
EXIST VERT CPC HARLESS 17-1 - Wellbore #1 - Wellb						Out of range
EXIST VERT EMBRICK C 10-19 - Wellbore #1 - Wellbor	14,785.18	6,725.12	1,634.33	1,518.26	14.080	CC, ES, SF
EXIST VERT ENGLAND 8-3-17 - Wellbore #1 - Wellbore	6,327.59	6,236.52	1,482.18	1,464.68	84.724	CC, ES
EXIST VERT ENGLAND 8-3-17 - Wellbore #1 - Wellbore	6,400.00	6,310.68	1,485.43	1,467.85	84.466	SF
EXIST VERT ENGLAND 8-35 - Wellbore #1 - Wellbore #	6,204.25	6,089.92	1,939.16	1,917.68	90.255	CC, ES
EXIST VERT ENGLAND 8-35 - Wellbore #1 - Wellbore #	6,400.00	6,284.39	1,942.14	1,920.40	89.349	SF
EXIST VERT GEHRING 1 - Wellbore #1 - Wellbore #1	9,001.25	6,850.00	2,226.22	2,165.64	36.746	CC
EXIST VERT GEHRING 1 - Wellbore #1 - Wellbore #1	9,100.00	6,850.00	2,228.41	2,165.31	35.315	ES
EXIST VERT GEHRING 1 - Wellbore #1 - Wellbore #1	9,900.00	6,850.00	2,400.79	2,322.25	30.567	SF
EXIST VERT GEHRING 8-914 - Wellbore #1 - Wellbore #	9,130.96	6,883.14	901.56	837.50	14.074	CC, ES
EXIST VERT GEHRING 8-914 - Wellbore #1 - Wellbore #	9,300.00	6,881.03	917.27	849.94	13.623	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 10N
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 10N	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)	Between Ellipses (usft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
SW NE SEC. 8 T4N R64W 6th P.M. (HEN)						
EXIST VERT HAGEN 9-10 - Wellbore #1 - Design #1	13,086.39	6,763.36	1,207.09	900.44	3.936	CC
EXIST VERT HAGEN 9-10 - Wellbore #1 - Design #1	13,100.00	6,763.21	1,207.16	900.15	3.932	ES
EXIST VERT HAGEN 9-10 - Wellbore #1 - Design #1	13,200.00	6,762.04	1,212.42	903.48	3.924	SF
EXIST VERT HAGEN 9-15 - Wellbore #1 - Design #1	12,811.92	6,756.39	2,526.81	2,227.95	8.455	CC
EXIST VERT HAGEN 9-15 - Wellbore #1 - Design #1	12,900.00	6,755.36	2,528.34	2,227.15	8.394	ES
EXIST VERT HAGEN 9-15 - Wellbore #1 - Design #1	13,200.00	6,751.87	2,556.43	2,248.94	8.314	SF
EXIST VERT HAGEN 9-9 - Wellbore #1 - Wellbore #1	13,989.22	6,821.32	1,143.02	945.45	5.785	CC
EXIST VERT HAGEN 9-9 - Wellbore #1 - Wellbore #1	14,000.00	6,820.54	1,143.07	945.21	5.777	ES
EXIST VERT HAGEN 9-9 - Wellbore #1 - Wellbore #1	14,100.00	6,813.29	1,148.35	948.71	5.752	SF
EXIST VERT HARLESS PM C 17-2 - Wellbore #1 - Desi						Out of range
EXIST VERT JOHNSON 9-11 - Wellbore #1 - Design #1	11,683.09	6,791.65	1,019.03	750.86	3.800	CC
EXIST VERT JOHNSON 9-11 - Wellbore #1 - Design #1	11,700.00	6,791.45	1,019.17	750.55	3.794	ES
EXIST VERT JOHNSON 9-11 - Wellbore #1 - Design #1	11,800.00	6,790.29	1,025.71	755.30	3.793	SF
EXIST VERT JOHNSON 9-13 - Wellbore #1 - Wellbore #	10,396.28	6,881.29	2,318.45	2,220.24	23.608	CC
EXIST VERT JOHNSON 9-13 - Wellbore #1 - Wellbore #	10,500.00	6,880.87	2,320.76	2,219.80	22.985	ES
EXIST VERT JOHNSON 9-13 - Wellbore #1 - Wellbore #	11,100.00	6,878.44	2,422.89	2,310.37	21.533	SF
EXIST VERT MCCLINTOCK C 4-15 - Wellbore #1 - Well						Out of range
EXIST VERT NGL C1A - Wellbore #1 - Design #1	9,386.61	6,831.72	2,757.90	2,551.79	13.381	CC
EXIST VERT NGL C1A - Wellbore #1 - Design #1	9,500.00	6,830.41	2,760.23	2,551.17	13.203	ES
EXIST VERT NGL C1A - Wellbore #1 - Design #1	10,100.00	6,823.47	2,848.66	2,626.23	12.807	SF
EXIST VERT NGL C1B - Wellbore #1 - Design #1	9,281.39	6,838.94	2,565.74	2,362.31	12.612	CC
EXIST VERT NGL C1B - Wellbore #1 - Design #1	9,300.00	6,838.72	2,565.81	2,361.89	12.582	ES
EXIST VERT NGL C1B - Wellbore #1 - Design #1	9,900.00	6,831.78	2,639.25	2,421.61	12.126	SF
EXIST VERT REINICK 10-5 - Wellbore #1 - Wellbore #1	14,785.18	6,700.00	762.84	730.80	23.810	CC, ES, SF
EXIST VERT REINICK 1-10-4-64 - Wellbore #1 - Wellbo	14,785.18	6,747.01	1,922.51	1,729.02	9.936	CC, ES, SF
EXIST VERT REINICK 3 - Wellbore #1 - Wellbore #1	14,271.46	6,752.16	1,553.68	1,347.88	7.549	CC
EXIST VERT REINICK 3 - Wellbore #1 - Wellbore #1	14,300.00	6,752.21	1,553.94	1,347.39	7.523	ES
EXIST VERT REINICK 3 - Wellbore #1 - Wellbore #1	14,400.00	6,752.38	1,558.99	1,350.45	7.476	SF
EXIST VERT REINICK C 10-31 - Wellbore #1 - Wellbore	14,677.56	6,762.01	910.30	693.15	4.192	CC
EXIST VERT REINICK C 10-31 - Wellbore #1 - Wellbore	14,700.00	6,761.99	910.57	692.89	4.183	ES, SF
EXIST VERT REINICK C 9-18 - Wellbore #1 - Design #1	12,387.28	6,803.21	866.94	579.01	3.011	CC
EXIST VERT REINICK C 9-18 - Wellbore #1 - Design #1	12,400.00	6,803.06	867.04	578.77	3.008	ES, SF
EXIST VERT REINICK C 9-22 - Wellbore #1 - Design #1	13,673.51	6,757.97	333.35	10.45	1.032	Level 3, CC, ES, SF
EXIST VERT REISTAD 1 - Wellbore #1 - Wellbore #1	9,051.69	6,850.00	2,981.23	2,919.16	48.029	CC
EXIST VERT REISTAD 1 - Wellbore #1 - Wellbore #1	9,100.00	6,846.58	2,981.62	2,918.30	47.088	ES
EXIST VERT REISTAD 1 - Wellbore #1 - Wellbore #1	10,400.00	6,831.78	3,271.91	3,182.33	36.525	SF
EXIST VERT RICHARDSON 10-13 - Wellbore #1 - Desig	14,785.18	6,705.00	2,402.33	2,069.01	7.207	CC, ES, SF
EXIST VERT ROHR 15-14 - 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	8,697.07	6,885.57	1,316.64	1,263.96	24.993	CC
EXIST VERT RUFF 8-114 - Wellbore #1 - Wellbore #1	8,700.00	6,885.51	1,316.64	1,263.89	24.958	ES
EXIST VERT RUFF 8-114 - Wellbore #1 - Wellbore #1	9,100.00	6,877.89	1,376.90	1,316.41	22.765	SF
EXIST VERT RUFF 8-714 - Wellbore #1 - Wellbore #1	8,086.20	6,897.32	432.60	394.59	11.380	CC
EXIST VERT RUFF 8-714 - Wellbore #1 - Wellbore #1	8,100.00	6,896.99	432.82	394.50	11.296	ES, SF
EXIST VERT RUFF C 8-1 - Wellbore #1 - Design #1	9,332.15	6,886.35	1,803.49	1,597.73	8.765	CC
EXIST VERT RUFF C 8-1 - Wellbore #1 - Design #1	9,400.00	6,885.57	1,804.76	1,597.26	8.698	ES
EXIST VERT RUFF C 8-1 - Wellbore #1 - Design #1	9,600.00	6,883.25	1,823.27	1,611.23	8.599	SF
EXIST VERT RYANN STATE C 16-1 - Wellbore #1 - Wel						Out of range
EXIST VERT RYDGREN 8-31 - Wellbore #1 - Wellbore #	6,105.27	5,961.38	1,048.02	1,024.55	44.671	CC, ES
EXIST VERT RYDGREN 8-31 - Wellbore #1 - Wellbore #	6,350.00	6,199.93	1,050.74	1,026.90	44.090	SF
EXIST VERT SLEDGE C 9-31 - Wellbore #1 - Design #1	9,900.18	6,855.41	865.73	645.31	3.928	CC, ES
EXIST VERT SLEDGE C 9-31 - Wellbore #1 - Design #1	10,000.00	6,854.26	871.46	648.98	3.917	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 10N
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 10N	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 SMITH 9-5 - Wellbore #1 - Design #1	10,554.60	6,837.45	124.15	-113.78	0.522	Level 3, CC, ES, SF
EXIST VERT SMITH C 9-19 - Wellbore #1 - Design #1	11,134.19	6,845.49	1,322.39	1,068.33	5.205	CC, ES
EXIST VERT SMITH C 9-19 - Wellbore #1 - Design #1	11,300.00	6,843.56	1,332.74	1,075.19	5.175	SF
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 #1	11,728.74	6,781.08	2,380.72	2,111.50	8.843	CC
EXIST VERT VERN JOHNSON 1-A - Wellbore #1 - Design #1	11,800.00	6,780.25	2,381.79	2,110.66	8.785	ES
EXIST VERT VERN JOHNSON 1-A - Wellbore #1 - Design #1	12,100.00	6,776.76	2,409.49	2,131.80	8.677	SF
EXIST VERT VERN JOHNSON 2 - Wellbore #1 - Design #1	10,356.86	6,824.52	1,014.33	782.08	4.368	CC
EXIST VERT VERN JOHNSON 2 - Wellbore #1 - Design #1	10,400.00	6,824.02	1,015.24	781.91	4.351	ES, SF
EXIST VERT WILMOTH 1 - Wellbore #1 - Wellbore #1	14,283.29	6,693.05	3,035.75	2,829.47	14.717	CC
EXIST VERT WILMOTH 1 - Wellbore #1 - Wellbore #1	14,400.00	6,692.29	3,037.99	2,828.61	14.509	ES
EXIST VERT WILMOTH 1 - Wellbore #1 - Wellbore #1	14,785.18	6,689.78	3,076.96	2,859.76	14.167	SF
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	13,617.40	6,786.51	2,476.30	2,288.99	13.221	CC
EXIST VERT WILMOTH C 9-27 - Wellbore #1 - Wellbore	13,700.00	6,785.12	2,477.67	2,288.18	13.075	ES
EXIST VERT WILMOTH C 9-27 - Wellbore #1 - Wellbore	14,000.00	6,780.10	2,505.67	2,310.19	12.818	SF
HEN 01N - ORIGINAL WELLBORE - PROPOSAL #2	300.00	300.00	134.98	133.90	125.895	CC, ES
HEN 01N - ORIGINAL WELLBORE - PROPOSAL #2	14,785.18	15,028.38	2,159.10	1,722.50	4.945	SF
HEN 02N - ORIGINAL WELLBORE - PROPOSAL #2	400.00	400.00	120.00	118.48	78.863	CC, ES
HEN 02N - ORIGINAL WELLBORE - PROPOSAL #2	14,785.18	15,017.27	1,917.30	1,480.53	4.390	SF
HEN 03N - ORIGINAL WELLBORE - PROPOSAL #2	500.00	500.00	104.99	103.02	53.264	CC, ES
HEN 03N - ORIGINAL WELLBORE - PROPOSAL #2	14,785.18	14,884.94	1,679.91	1,243.59	3.850	SF
HEN 04N - ORIGINAL WELLBORE - PROPOSAL #2	600.00	600.00	89.98	87.56	37.171	CC, ES
HEN 04N - ORIGINAL WELLBORE - PROPOSAL #2	14,785.18	14,887.46	1,437.99	1,001.00	3.291	SF
HEN 05N - ORIGINAL WELLBORE - PROPOSAL #2	700.00	700.00	74.97	72.10	26.121	CC, ES
HEN 05N - ORIGINAL WELLBORE - PROPOSAL #2	14,785.18	14,765.50	1,201.22	765.45	2.757	SF
HEN 06N - ORIGINAL WELLBORE - PROPOSAL #2	716.33	717.33	60.00	57.06	20.368	CC
HEN 06N - ORIGINAL WELLBORE - PROPOSAL #2	800.00	800.99	60.00	56.68	18.062	ES
HEN 06N - ORIGINAL WELLBORE - PROPOSAL #2	14,785.18	14,797.59	958.78	521.98	2.195	SF
HEN 07N - ORIGINAL WELLBORE - PROPOSAL #2	900.00	900.00	44.99	41.22	11.936	CC, ES
HEN 07N - ORIGINAL WELLBORE - PROPOSAL #2	14,785.18	14,692.18	723.36	291.52	1.675	SF
HEN 08N - ORIGINAL WELLBORE - PROPOSAL #2	1,000.00	1,000.00	30.02	25.80	7.116	CC, ES
HEN 08N - ORIGINAL WELLBORE - PROPOSAL #2	14,785.18	14,744.06	479.39	42.98	1.098	Level 3, SF
HEN 09N - ORIGINAL WELLBORE - PROPOSAL #2	1,100.00	1,100.00	15.01	10.34	3.215	CC
HEN 09N - ORIGINAL WELLBORE - PROPOSAL #2	14,785.18	14,693.63	251.10	-42.50	0.855	Level 3, ES, SF
HEN 11N - ORIGINAL WELLBORE - PROPOSAL #2	1,400.00	1,400.00	14.97	8.96	2.488	CC
HEN 11N - ORIGINAL WELLBORE - PROPOSAL #2	14,785.18	14,738.38	249.66	-48.32	0.838	Level 3, ES, SF
HEN 12N - ORIGINAL WELLBORE - PROPOSAL #2	1,300.00	1,300.00	29.98	24.42	5.385	CC, ES
HEN 12N - ORIGINAL WELLBORE - PROPOSAL #2	14,785.18	14,837.65	479.31	43.20	1.099	Level 3, SF
HEN 13N - ORIGINAL WELLBORE - PROPOSAL #2	1,200.00	1,200.00	44.99	39.87	8.791	CC, ES
HEN 13N - ORIGINAL WELLBORE - PROPOSAL #2	14,785.18	14,796.04	721.86	289.23	1.669	SF
HEN 14N - ORIGINAL WELLBORE - PROPOSAL #2	1,100.00	1,100.00	60.00	55.33	12.853	CC, ES
HEN 14N - ORIGINAL WELLBORE - PROPOSAL #2	14,785.18	14,908.23	958.59	522.61	2.199	SF
HEN 15N - ORIGINAL WELLBORE - PROPOSAL #2	1,000.00	1,000.00	74.97	70.76	17.771	CC, ES
HEN 15N - ORIGINAL WELLBORE - PROPOSAL #2	14,785.18	14,877.74	1,200.26	765.26	2.759	SF
HEN 16N - ORIGINAL WELLBORE - PROPOSAL #2	900.00	900.00	89.95	86.18	23.863	CC, ES
HEN 16N - ORIGINAL WELLBORE - PROPOSAL #2	14,785.18	14,965.04	1,437.86	1,002.10	3.300	SF
HEN 17N - ORIGINAL WELLBORE - PROPOSAL #2	800.00	800.00	104.96	101.64	31.616	CC, ES
HEN 17N - ORIGINAL WELLBORE - PROPOSAL #2	14,785.18	14,966.03	1,679.18	1,243.90	3.858	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 10N
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 10N	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	119.97	117.10	41.797	CC, ES
HEN 18N - ORIGINAL WELLBORE - PROPOSAL #2	14,785.18	15,093.23	1,917.16	1,481.63	4.402	SF
HEN 19N - ORIGINAL WELLBORE - PROPOSAL #2	600.00	600.00	134.98	132.56	55.759	CC, ES
HEN 19N - ORIGINAL WELLBORE - PROPOSAL #2	14,785.18	15,090.25	2,158.47	1,723.28	4.960	SF
HEN 20NA - ORIGINAL WELLBORE - PROPOSAL #2	500.00	499.00	149.95	147.98	76.157	CC, ES
HEN 20NA - ORIGINAL WELLBORE - PROPOSAL #2	14,785.18	15,111.10	2,399.96	1,965.10	5.519	SF
HEN 21N - ORIGINAL WELLBORE - PROPOSAL #2	400.00	399.00	164.96	163.44	108.568	CC, ES
HEN 21N - ORIGINAL WELLBORE - PROPOSAL #2	14,785.18	15,320.70	2,636.09	2,200.89	6.057	SF
HEN 22N - ORIGINAL WELLBORE - PROPOSAL #2	300.00	298.00	179.97	178.90	168.567	CC, ES
HEN 22N - ORIGINAL WELLBORE - PROPOSAL #2	14,785.18	15,355.99	2,877.14	2,442.22	6.615	SF