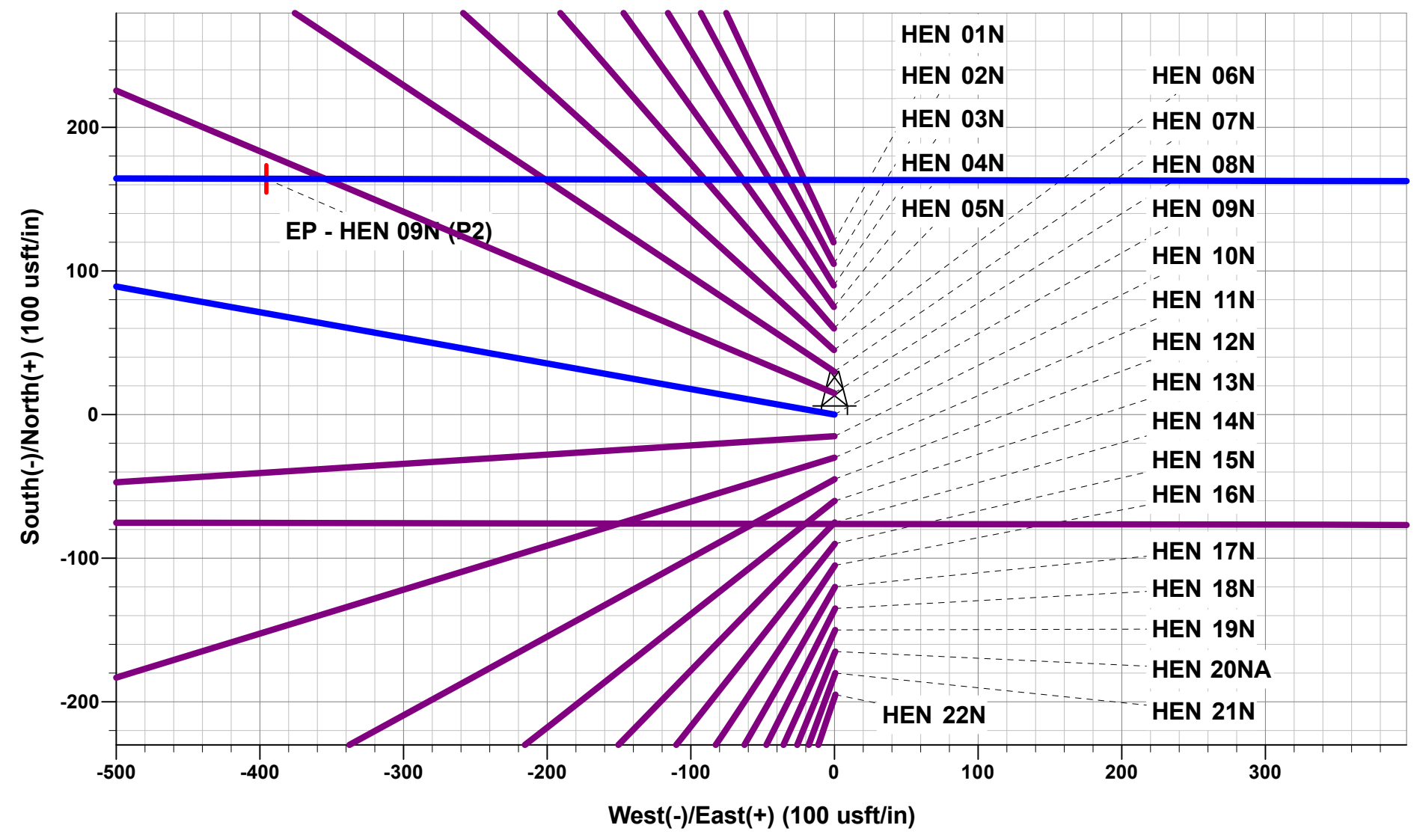




Project: WELD COUNTY, COLORADO (TRUE)
Site: SW NE SEC. 8 T4N R64W 6th P.M. (HEN)
Well: HEN 09N
Wellbore: ORIGINAL WELLBORE
Design: PROPOSAL #2

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: 2204ft FNL & 2044ft FEL of Sec 8
1100.00	0.00	0.00	1100.00	0.00	0.00	0.00	0.00	START NUDGE (2°/100ft BUR)
1714.53	12.29	280.11	1709.83	11.53	-64.64	-64.38	65.66	EOB TO 12.29° INC
5517.89	12.29	280.11	5426.02	153.68	-861.68	-858.24	875.28	END OF TANGENT
6132.41	0.00	280.11	6035.84	165.21	-926.32	-922.62	940.94	EOD TO VERTICAL
6232.41	0.00	0.00	6135.84	165.21	-926.32	-922.62	940.94	KOP (8°/100ft BUR)
7169.91	75.00	90.11	6827.63	164.19	-395.49	-391.93	1471.77	EP: 2038ft FNL & 2440ft FEL of Sec 8
7364.66	90.58	90.11	6852.00	163.82	-202.88	-199.37	1664.38	HZ LANDING POINT
14694.91	90.59	90.10	6777.00	150.62	7126.98	7128.57	8994.25	BHL: 2038ft FNL & 200ft FEL of Sec 9

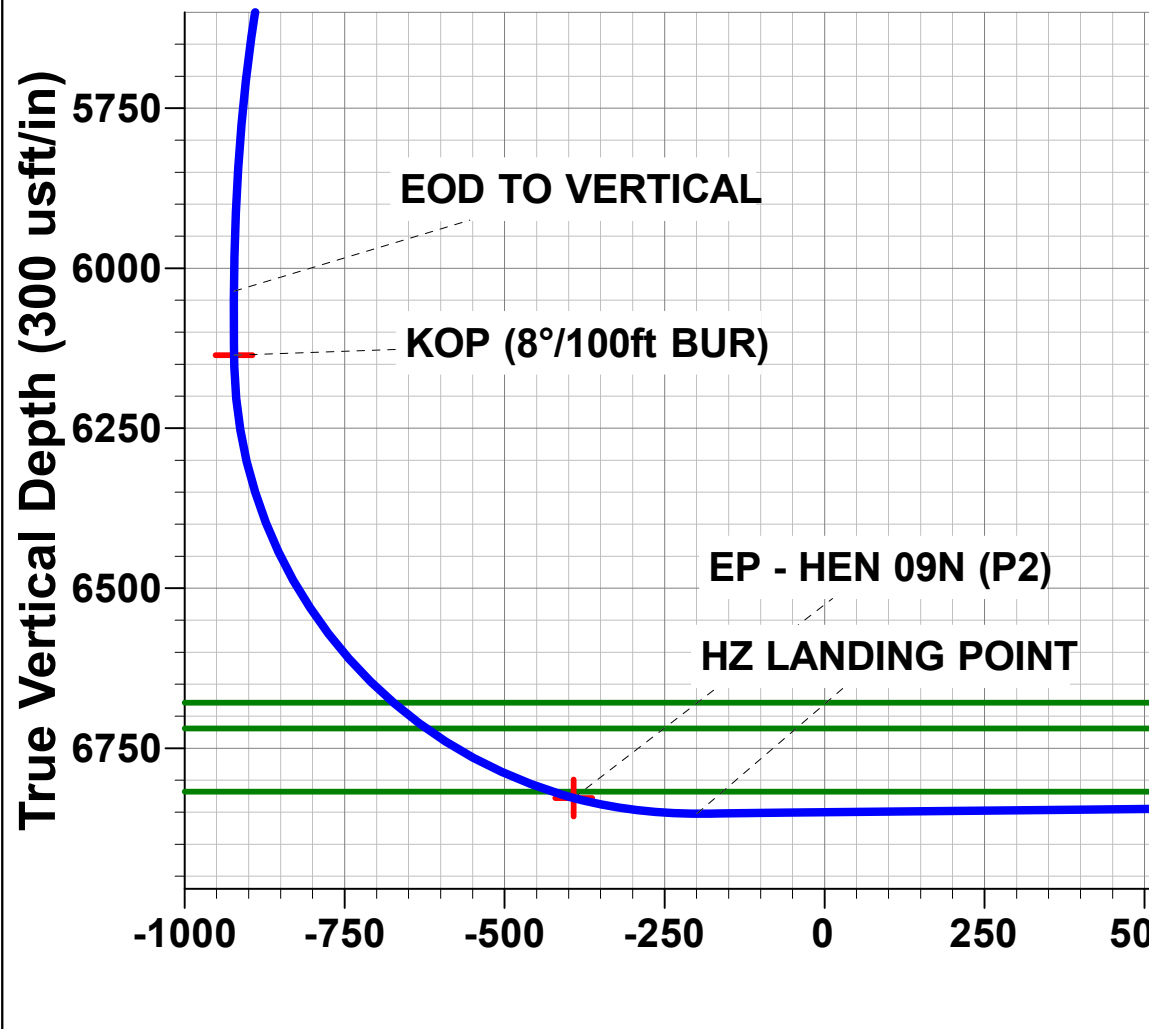
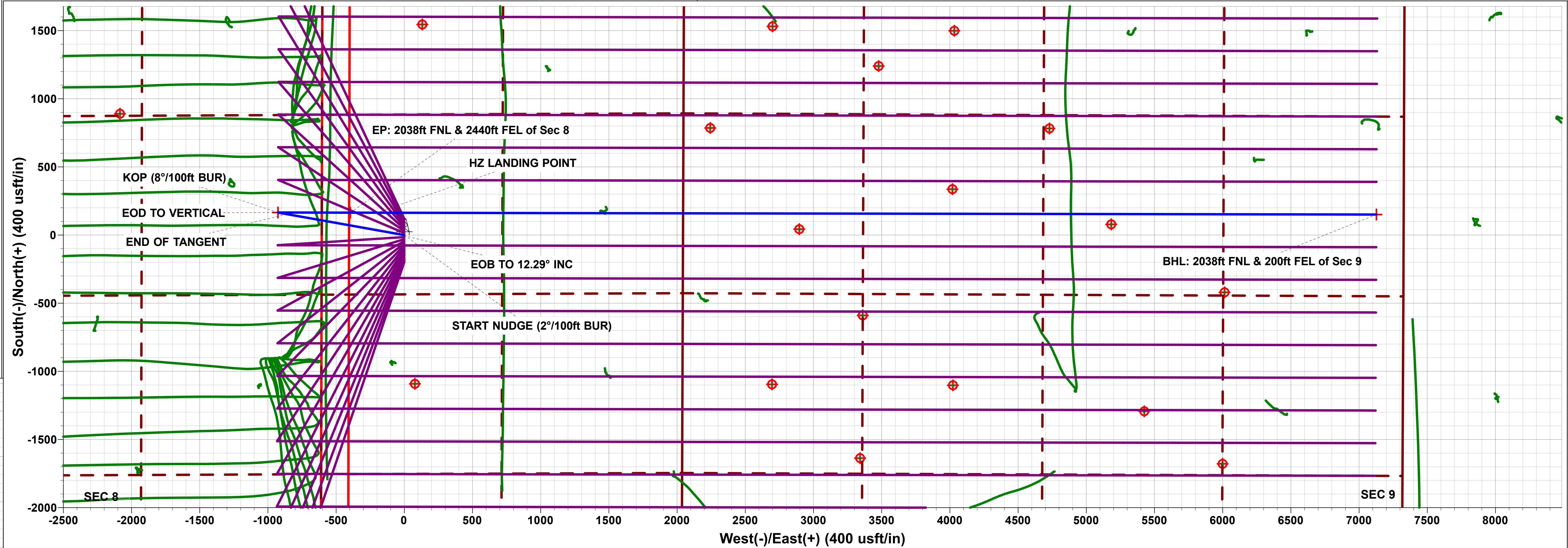
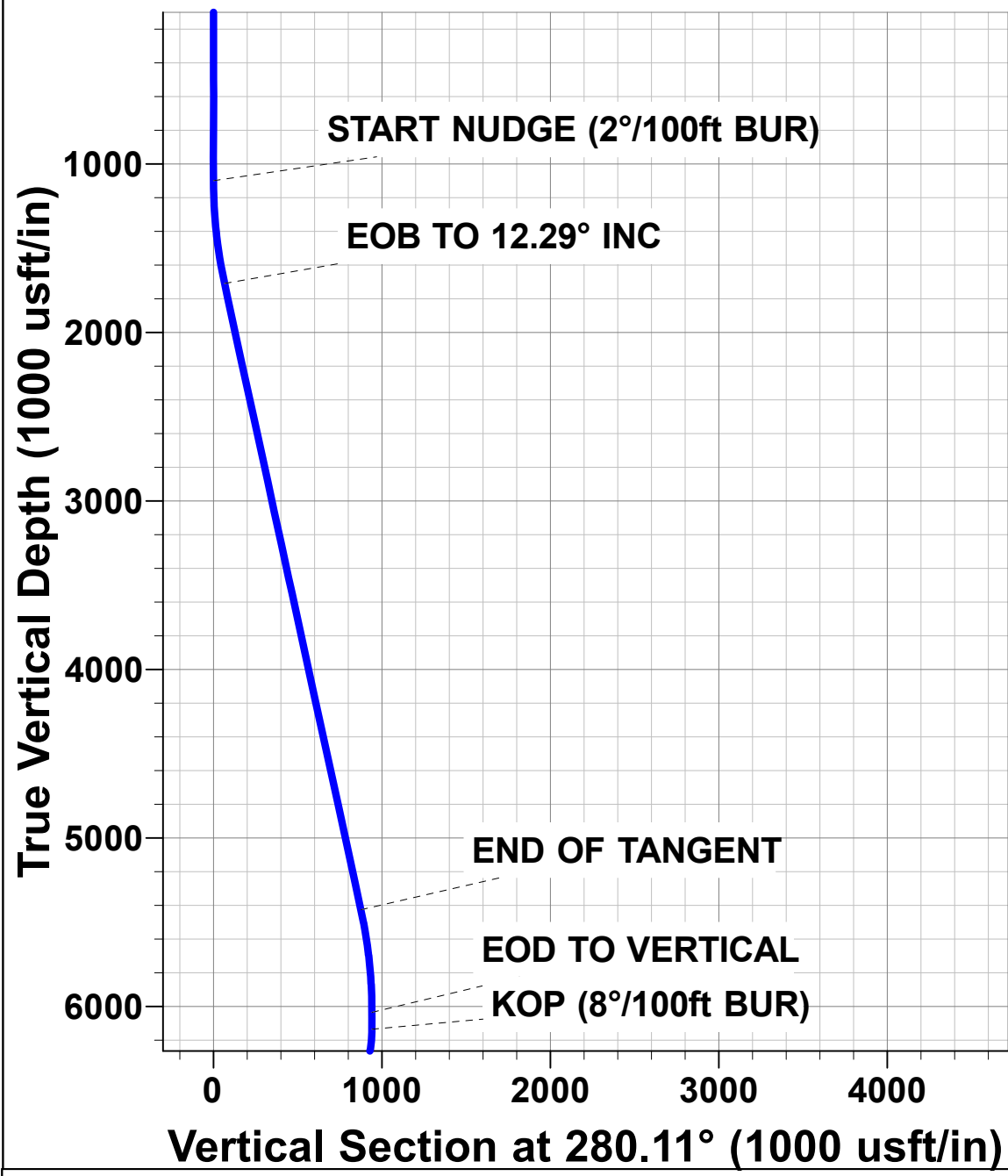


PROPOSED LOCAL COORDINATES:
SHL: 2204ft FNL & 2044ft FEL of Sec 8
EP : 2038ft FNL & 2440ft FEL of Sec 8
BHL : 2038ft FNL & 200ft FEL of Sec 9

Azimuths to True North
Magnetic North: 7.76°

Magnetic Field
Strength: 51952.7nT
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 09N (P2)	6777.00	150.62	7126.98	1363940.77	3265755.92	40.328497	-104.546782
EP - HEN 09N (P2)	6827.63	164.19	-395.49	1363875.65	3258234.03	40.328537	-104.573762
KOP - HEN 09N (P2)	6135.84	165.21	-926.32	1363871.12	3257703.24	40.328540	-104.575666





PDC ENERGY

**WELD COUNTY, COLORADO (TRUE)
SW NE SEC. 8 T4N R64W 6th P.M. (HEN)
HEN 09N**

**ORIGINAL WELLBORE
PROPOSAL #2**

Anticollision Summary Report

19 June, 2022



Company:	PDC ENERGY	Local Co-ordinate Reference:	Well HEN 09N
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 09N	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	14,694.90	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	12,123.45	7,203.18	3,232.71	3,046.80	17.388	CC
ABDN DD ALTER C 16-28D - Wellbore #1 - Wellbore #1	12,200.00	7,204.01	3,233.62	3,045.41	17.181	ES
ABDN DD ALTER C 16-28D - Wellbore #1 - Wellbore #1	12,600.00	7,208.25	3,267.65	3,069.25	16.470	SF
ABDN DD ALTER C 16-29D - ORIGINAL WELLBORE - W						Out of range
ABDN DD ALTER C 16-29D - SIDETRACK - SIDETRAC	10,692.98	6,989.10	3,029.89	2,907.82	24.820	CC
ABDN DD ALTER C 16-29D - SIDETRACK - SIDETRAC	10,800.00	6,993.81	3,031.78	2,906.78	24.254	ES
ABDN DD ALTER C 16-29D - SIDETRACK - SIDETRAC	11,700.00	7,035.32	3,192.61	3,049.46	22.302	SF
ABDN HZ FRANKLIN C08-62HNX - ORIGINAL WELLBO	8,407.65	10,756.00	2,624.44	2,458.50	15.816	CC
ABDN HZ FRANKLIN C08-62HNX - ORIGINAL WELLBO	8,500.00	10,756.00	2,626.06	2,458.07	15.632	ES
ABDN HZ FRANKLIN C08-62HNX - ORIGINAL WELLBO	8,900.00	10,756.00	2,670.22	2,495.62	15.293	SF
ABDN HZ FRANKLIN C08-62HNX - SIDETRACK - SIDE	8,417.57	10,803.00	2,517.45	2,351.67	15.186	CC
ABDN HZ FRANKLIN C08-62HNX - SIDETRACK - SIDE	8,500.00	10,803.00	2,518.80	2,351.29	15.037	ES
ABDN HZ FRANKLIN C08-62HNX - SIDETRACK - SIDE	8,800.00	10,803.00	2,546.33	2,373.97	14.773	SF
ABDN VERT CONQUEST SWD 1-8 - Wellbore #1 - Des	9,391.26	6,744.42	2,708.15	2,501.82	13.126	CC
ABDN VERT CONQUEST SWD 1-8 - Wellbore #1 - Des	9,500.00	6,743.31	2,710.33	2,501.20	12.960	ES
ABDN VERT CONQUEST SWD 1-8 - Wellbore #1 - Des	10,000.00	6,738.22	2,775.72	2,555.39	12.598	SF
ABDN VERT COX 8-1 - Wellbore #1 - Wellbore #1	6,020.52	5,867.07	1,481.74	1,458.84	64.714	CC, ES
ABDN VERT COX 8-1 - Wellbore #1 - Wellbore #1	6,300.00	6,184.80	1,482.83	1,459.57	63.750	SF
ABDN VERT COX PM C 8-4 - Wellbore #1 - Wellbore #1	6,265.38	6,222.52	2,095.71	2,076.36	108.335	CC, ES
ABDN VERT COX PM C 8-4 - Wellbore #1 - Wellbore #1	6,300.00	6,258.60	2,096.30	2,076.92	108.181	SF
ABDN VERT COX PM C 8-5 - Wellbore #1 - Wellbore #1	6,239.83	6,154.25	1,794.14	1,777.84	110.082	CC, ES
ABDN VERT COX PM C 8-5 - Wellbore #1 - Wellbore #1	6,350.00	6,263.04	1,802.66	1,786.18	109.434	SF
ABDN VERT GEHRING 8-15I4 - Wellbore #1 - Wellbore	1,279.78	1,254.32	2,109.65	2,106.21	611.963	CC
ABDN VERT GEHRING 8-15I4 - Wellbore #1 - Wellbore	1,300.00	1,274.64	2,109.68	2,106.18	603.122	ES
ABDN VERT GEHRING 8-15I4 - Wellbore #1 - Wellbore	9,200.00	6,782.61	2,494.49	2,434.90	41.860	SF
ABDN VERT GEHRING C 8-10X - Wellbore #1 - Wellbor	100.00	61.85	928.48	928.33	6,383.193	CC
ABDN VERT GEHRING C 8-10X - Wellbore #1 - Wellbor	600.00	561.21	929.10	927.62	627.878	ES
ABDN VERT GEHRING C 8-10X - Wellbore #1 - Wellbor	8,000.00	6,809.71	1,209.13	1,174.19	34.607	SF
ABDN VERT HAGER 9-16 - Wellbore #1 - Design #1	14,027.58	6,651.89	2,765.06	2,432.46	8.313	CC
ABDN VERT HAGER 9-16 - Wellbore #1 - Design #1	14,100.00	6,651.15	2,766.01	2,431.50	8.269	ES
ABDN VERT HAGER 9-16 - Wellbore #1 - Design #1	14,400.00	6,648.05	2,790.03	2,449.26	8.187	SF
ABDN VERT HEISER 1 - Wellbore #1 - Design #1	1,100.00	1,056.00	1,094.12	1,070.93	47.182	CC
ABDN VERT HEISER 1 - Wellbore #1 - Design #1	1,400.00	1,355.45	1,098.07	1,068.21	36.768	ES
ABDN VERT HEISER 1 - Wellbore #1 - Design #1	7,800.00	6,803.59	1,263.84	1,095.84	7.523	SF
ABDN VERT LEVI C 5-15 - Wellbore #1 - Wellbore #1	7,944.39	6,794.24	2,800.21	2,763.77	76.844	CC
ABDN VERT LEVI C 5-15 - Wellbore #1 - Wellbore #1	8,000.00	6,794.37	2,800.77	2,763.12	74.398	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 09N
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 09N	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	9,600.00	6,800.00	3,252.99	3,184.57	47.541	SF
ABDN VERT REINICK 1 - Wellbore #1 - Wellbore #1	13,798.25	6,677.28	393.23	198.77	2.022	CC
ABDN VERT REINICK 1 - Wellbore #1 - Wellbore #1	13,800.00	6,677.25	393.23	198.72	2.022	ES, SF
ABDN VERT REINICK 2 - Wellbore #1 - Wellbore #1	12,874.49	6,688.46	1,336.93	1,168.03	7.916	CC
ABDN VERT REINICK 2 - Wellbore #1 - Wellbore #1	12,900.00	6,688.55	1,337.17	1,167.59	7.885	ES
ABDN VERT REINICK 2 - Wellbore #1 - Wellbore #1	13,000.00	6,688.90	1,342.81	1,171.20	7.825	SF
ABDN VERT REINICK 9-7 - Wellbore #1 - Design #1	12,750.82	6,698.05	75.33	-222.31	0.253	Level 3, CC, ES, SF
ABDN VERT RICHARDSON 10-12 - Wellbore #1 - Wellb	14,695.25	6,599.57	1,627.34	1,446.93	9.020	CC, ES, SF
ABDN VERT RUFF 1 - Wellbore #1 - Design #1	7,697.01	6,819.03	1,381.96	1,215.50	8.302	CC
ABDN VERT RUFF 1 - Wellbore #1 - Design #1	7,700.00	6,819.00	1,381.96	1,215.45	8.299	ES
ABDN VERT RUFF 1 - Wellbore #1 - Design #1	7,900.00	6,816.97	1,396.78	1,226.57	8.206	SF
ABDN VERT RYANN STATE C 16-27 - Wellbore #1 - We						Out of range
ABDN VERT RYDGREN 8-1 - Wellbore #1 - Wellbore #1	6,243.12	6,186.48	2,124.82	2,103.97	101.943	CC, ES
ABDN VERT RYDGREN 8-1 - Wellbore #1 - Wellbore #1	6,300.00	6,240.19	2,126.62	2,105.73	101.801	SF
ABDN VERT SLEDGE C 9-28 - Wellbore #1 - Design #1	12,243.87	6,734.25	1,803.14	1,518.65	6.338	CC
ABDN VERT SLEDGE C 9-28 - Wellbore #1 - Design #1	12,300.00	6,733.68	1,804.01	1,518.01	6.308	ES
ABDN VERT SLEDGE C 9-28 - Wellbore #1 - Design #1	12,400.00	6,732.65	1,809.89	1,521.60	6.278	SF
ABDN VERT SLEDGE C 9-29 - Wellbore #1 - Design #1	10,905.39	6,768.97	1,858.83	1,610.74	7.493	CC
ABDN VERT SLEDGE C 9-29 - Wellbore #1 - Design #1	11,000.00	6,768.00	1,861.23	1,610.65	7.428	ES
ABDN VERT SLEDGE C 9-29 - Wellbore #1 - Design #1	11,200.00	6,765.96	1,882.02	1,627.26	7.387	SF
ABDN VERT SMITH 1 - Wellbore #1 - Design #1	10,265.03	6,778.51	1,373.06	1,142.37	5.952	CC
ABDN VERT SMITH 1 - Wellbore #1 - Design #1	10,300.00	6,778.16	1,373.50	1,141.88	5.930	ES
ABDN VERT SMITH 1 - Wellbore #1 - Design #1	10,400.00	6,777.13	1,379.67	1,145.72	5.897	SF
ABDN VERT SMITH 2 - Wellbore #1 - Design #1	11,597.89	6,751.88	1,342.85	1,075.95	5.031	CC
ABDN VERT SMITH 2 - Wellbore #1 - Design #1	11,600.00	6,751.86	1,342.86	1,075.89	5.030	ES
ABDN VERT SMITH 2 - Wellbore #1 - Design #1	11,700.00	6,750.83	1,346.73	1,077.36	5.000	SF
ABDN VERT SMITH 3 - Wellbore #1 - Design #1	11,586.20	6,739.29	180.69	-85.50	0.679	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	9,725.72	6,769.84	588.96	507.12	7.197	CC, ES
ABDN VERT THEA C 09-32 - Wellbore #1 - Wellbore #1	9,800.00	6,767.85	593.62	510.67	7.157	SF
EXIST DD ALTER C 09-24D - Wellbore #1 - Wellbore #1	12,332.03	7,250.44	1,892.34	1,696.65	9.670	CC
EXIST DD ALTER C 09-24D - Wellbore #1 - Wellbore #1	12,400.00	7,250.94	1,893.56	1,696.65	9.617	ES
EXIST DD ALTER C 09-24D - Wellbore #1 - Wellbore #1	12,500.00	7,251.68	1,899.78	1,701.57	9.585	SF
EXIST DD ALTER C 09-33D - Wellbore #1 - Wellbore #1	9,547.22	6,911.42	1,897.86	1,803.24	20.059	CC
EXIST DD ALTER C 09-33D - Wellbore #1 - Wellbore #1	9,600.00	6,910.71	1,898.59	1,802.39	19.735	ES
EXIST DD ALTER C 09-33D - Wellbore #1 - Wellbore #1	10,100.00	6,903.99	1,976.71	1,868.95	18.344	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	3,266.66	3,266.55	10,000.000	CC
EXIST DD NGL C1C - Wellbore #1 - Wellbore #1	900.00	800.71	3,267.40	3,264.57	1,154.974	ES
EXIST DD NGL C1C - Wellbore #1 - Wellbore #1	1,200.00	939.00	3,277.32	3,273.51	861.198	SF
EXIST DD RUFF C 08-27D - Wellbore #1 - Wellbore #1	700.00	673.00	1,930.85	1,928.67	885.494	CC
EXIST DD RUFF C 08-27D - Wellbore #1 - Wellbore #1	8,300.00	6,875.27	1,981.11	1,921.89	33.452	ES
EXIST DD RUFF C 08-27D - Wellbore #1 - Wellbore #1	9,100.00	6,875.78	2,137.94	2,062.17	28.215	SF
EXIST DD SLEDGE C 9-30D - Wellbore #1 - Wellbore #1	9,535.51	6,873.93	2,275.74	2,180.74	23.956	CC
EXIST DD SLEDGE C 9-30D - Wellbore #1 - Wellbore #1	9,600.00	6,872.72	2,276.65	2,180.20	23.605	ES
EXIST DD SLEDGE C 9-30D - Wellbore #1 - Wellbore #1	10,200.00	6,861.77	2,370.73	2,263.85	22.181	SF
EXIST HZ CHALLENGER 1N - ORIGINAL WELLBORE -	0.00	0.00	1,196.65			
EXIST HZ CHALLENGER 1N - ORIGINAL WELLBORE -	200.00	188.00	1,196.83	1,196.33	2,406.240	ES
EXIST HZ CHALLENGER 1N - ORIGINAL WELLBORE -	8,500.00	6,491.00	2,569.60	2,509.80	42.974	SF
EXIST HZ CHALLENGER 1N - SIDETRACK - SIDETRA	0.00	0.00	1,196.65			

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 09N
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 09N	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	200.00	188.00	1,196.83	1,196.33	2,406.240	ES
EXIST HZ CHALLENGER 1N - SIDETRACK - SIDETRA	8,500.00	6,491.00	2,569.60	2,509.80	42.974	SF
EXIST HZ CHALLENGER 2N - Wellbore #1 - Wellbore #	297.82	289.27	1,184.64	1,183.66	1,214.515	CC
EXIST HZ CHALLENGER 2N - Wellbore #1 - Wellbore #	400.00	377.98	1,184.98	1,183.60	855.397	ES
EXIST HZ CHALLENGER 2N - Wellbore #1 - Wellbore #	8,200.00	6,539.59	2,189.83	2,137.34	41.717	SF
EXIST HZ CHALLENGER 3N - Wellbore #1 - Wellbore #	200.21	191.42	1,174.40	1,173.86	2,180.577	CC
EXIST HZ CHALLENGER 3N - Wellbore #1 - Wellbore #	500.00	481.32	1,174.91	1,173.09	645.980	ES
EXIST HZ CHALLENGER 3N - Wellbore #1 - Wellbore #	6,500.00	6,438.75	1,421.95	1,385.52	39.027	SF
EXIST HZ CHALLENGER 4N - Wellbore #1 - Wellbore #	3,193.60	3,055.36	1,053.49	1,036.87	63.362	CC
EXIST HZ CHALLENGER 4N - Wellbore #1 - Wellbore #	3,200.00	3,060.06	1,053.50	1,036.83	63.204	ES
EXIST HZ CHALLENGER 4N - Wellbore #1 - Wellbore #	6,750.00	6,684.38	1,142.20	1,106.39	31.899	SF
EXIST HZ CHALLENGER 5N - Wellbore #1 - Wellbore #	3,291.14	3,169.79	935.74	918.29	53.627	CC
EXIST HZ CHALLENGER 5N - Wellbore #1 - Wellbore #	6,650.00	6,575.52	943.39	907.68	26.417	SF
EXIST HZ CHALLENGER 5N - Wellbore #1 - Wellbore #	6,719.93	6,596.59	941.28	905.71	26.456	ES
EXIST HZ CHALLENGER 6N - Wellbore #1 - Wellbore #	6,650.00	6,603.36	679.40	643.83	19.101	SF
EXIST HZ CHALLENGER 6N - Wellbore #1 - Wellbore #	6,700.00	6,616.28	677.55	642.09	19.105	ES
EXIST HZ CHALLENGER 6N - Wellbore #1 - Wellbore #	6,701.77	6,616.66	677.55	642.09	19.108	CC
EXIST HZ CHALLENGER 7N - Wellbore #1 - Wellbore #	6,698.85	6,619.10	416.42	380.85	11.709	CC, ES, SF
EXIST HZ CHALLENGER 8N - Wellbore #1 - Wellbore #	6,731.39	6,660.40	132.42	96.57	3.694	CC, ES, SF
EXIST HZ CHALLENGER 9N - Wellbore #1 - Wellbore #	4,424.78	4,408.71	2.05	-25.33	0.075	Level 3, CC, ES, SF
EXIST HZ FRANKLIN C17-69HN - Wellbore #1 - Wellbor	7,832.57	10,197.00	3,143.87	3,008.38	23.205	CC
EXIST HZ FRANKLIN C17-69HN - Wellbore #1 - Wellbor	8,600.00	10,846.00	3,154.89	2,983.31	18.387	ES
EXIST HZ FRANKLIN C17-69HN - Wellbore #1 - Wellbor	9,200.00	10,846.00	3,233.59	3,050.25	17.636	SF
EXIST HZ HAROLD 6X-232 - Wellbore #1 - Wellbore #1	10,894.84	13,679.87	2,803.58	2,494.79	9.079	CC
EXIST HZ HAROLD 6X-232 - Wellbore #1 - Wellbore #1	14,695.25	17,485.38	2,836.68	2,315.45	5.442	ES, SF
EXIST HZ HAROLD 6X-302 - Wellbore #1 - Wellbore #1	7,758.17	10,596.00	3,115.30	2,975.50	22.285	CC
EXIST HZ HAROLD 6X-302 - Wellbore #1 - Wellbore #1	14,694.91	17,382.00	3,152.25	2,636.04	6.106	ES
EXIST HZ HAROLD 6X-302 - Wellbore #1 - Wellbore #1	14,695.25	17,382.00	3,152.27	2,636.05	6.106	SF
EXIST HZ HAROLD 6Y-202 - Wellbore #1 - Wellbore #1	9,710.94	12,516.62	2,237.30	1,993.80	9.188	CC
EXIST HZ HAROLD 6Y-202 - Wellbore #1 - Wellbore #1	14,695.25	17,447.75	2,277.26	1,757.81	4.384	ES, SF
EXIST HZ HAROLD 6Y-312 - Wellbore #1 - Wellbore #1	8,872.06	11,741.93	2,461.75	2,264.40	12.474	CC
EXIST HZ HAROLD 6Y-312 - Wellbore #1 - Wellbore #1	14,695.25	17,590.08	2,478.76	1,957.65	4.757	ES, SF
EXIST HZ JAGGED 10N - Wellbore #1 - Wellbore #1	0.00	0.00	1,340.90			
EXIST HZ JAGGED 10N - Wellbore #1 - Wellbore #1	100.00	93.30	1,341.05	1,340.87	7,611.414	ES
EXIST HZ JAGGED 10N - Wellbore #1 - Wellbore #1	8,900.00	6,365.00	3,182.87	3,113.82	46.092	SF
EXIST HZ JAGGED 11N - Wellbore #1 - Wellbore #1	393.80	371.14	1,352.04	1,350.67	986.590	CC
EXIST HZ JAGGED 11N - Wellbore #1 - Wellbore #1	400.00	375.21	1,352.05	1,350.65	970.735	ES
EXIST HZ JAGGED 11N - Wellbore #1 - Wellbore #1	8,700.00	6,353.74	3,252.31	3,183.33	47.155	SF
EXIST HZ JAGGED 12N - Wellbore #1 - Wellbore #1	0.00	0.00	1,363.27			
EXIST HZ JAGGED 12N - Wellbore #1 - Wellbore #1	8,400.00	6,270.00	3,255.20	3,190.63	50.413	SF
EXIST HZ JAGGED 1N - Wellbore #1 - Wellbore #1	6,750.00	6,694.17	302.60	266.11	8.292	SF
EXIST HZ JAGGED 1N - Wellbore #1 - Wellbore #1	6,766.11	6,700.49	302.23	265.80	8.296	CC, ES
EXIST HZ JAGGED 2N - Wellbore #1 - Wellbore #1	4,611.85	4,609.70	522.92	495.20	18.862	CC, ES
EXIST HZ JAGGED 2N - Wellbore #1 - Wellbore #1	6,600.00	6,545.52	591.07	555.37	16.559	SF
EXIST HZ JAGGED 3N - Wellbore #1 - Wellbore #1	3,950.12	3,934.98	742.15	718.88	31.883	CC
EXIST HZ JAGGED 3N - Wellbore #1 - Wellbore #1	4,000.00	3,981.00	742.38	718.77	31.451	ES
EXIST HZ JAGGED 3N - Wellbore #1 - Wellbore #1	6,650.00	6,584.73	804.68	768.94	22.516	SF
EXIST HZ JAGGED 4N - Wellbore #1 - Wellbore #1	3,755.62	3,714.42	1,020.44	999.16	47.942	CC
EXIST HZ JAGGED 4N - Wellbore #1 - Wellbore #1	3,800.00	3,756.42	1,020.53	998.94	47.251	ES
EXIST HZ JAGGED 4N - Wellbore #1 - Wellbore #1	6,550.00	6,460.00	1,103.91	1,068.58	31.242	SF
EXIST HZ JAGGED 5N - Wellbore #1 - Wellbore #1	3,219.64	3,134.35	1,165.14	1,148.15	68.591	CC, ES
EXIST HZ JAGGED 5N - Wellbore #1 - Wellbore #1	6,692.37	6,632.20	1,351.98	1,316.10	37.679	SF
EXIST HZ JAGGED 6N - Wellbore #1 - Wellbore #1	3,037.86	2,956.59	1,248.10	1,231.94	77.234	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 09N
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 09N	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 6N - Wellbore #1 - Wellbore #1	7,800.00	6,424.87	1,880.29	1,837.04	43.473	SF
EXIST HZ JAGGED 7N - Wellbore #1 - Wellbore #1	455.81	452.84	1,307.21	1,305.55	789.079	CC, ES
EXIST HZ JAGGED 7N - Wellbore #1 - Wellbore #1	8,100.00	6,365.00	2,209.22	2,159.76	44.666	SF
EXIST HZ JAGGED 8N - Wellbore #1 - Wellbore #1	0.00	0.00	1,318.80			
EXIST HZ JAGGED 8N - Wellbore #1 - Wellbore #1	8,400.00	6,309.10	2,523.01	2,467.88	45.765	SF
EXIST HZ JAGGED 9N - Wellbore #1 - Wellbore #1	0.00	0.00	1,330.09			
EXIST HZ JAGGED 9N - Wellbore #1 - Wellbore #1	442.70	441.86	1,330.84	1,329.24	832.026	ES
EXIST HZ JAGGED 9N - Wellbore #1 - Wellbore #1	8,700.00	6,270.00	2,909.49	2,846.91	46.491	SF
EXIST HZ MARK ALTER C16-79HN - Wellbore #1 - Well	9,729.18	6,206.00	2,798.66	2,705.16	29.933	CC
EXIST HZ MARK ALTER C16-79HN - Wellbore #1 - Well	9,800.00	6,206.00	2,799.55	2,704.22	29.367	ES
EXIST HZ MARK ALTER C16-79HN - Wellbore #1 - Well	10,700.00	6,206.00	2,962.27	2,849.14	26.183	SF
EXIST HZ NORTHRUP C 08-73HN - Wellbore #1 - Wellb	8,292.98	8,390.42	38.73	9.60	1.329	Level 3, CC, ES, SF
EXIST HZ NORTHRUP C 08-75HN - Wellbore #1 - Wellb	7,045.70	8,708.30	127.98	101.66	4.863	CC
EXIST HZ NORTHRUP C 08-75HN - Wellbore #1 - Wellb	7,050.00	8,708.11	128.06	101.22	4.771	ES
EXIST HZ NORTHRUP C 08-75HN - Wellbore #1 - Wellb	7,100.00	8,705.95	140.88	105.87	4.024	SF
EXIST HZ OREDIGGER C10-69HN - Wellbore #1 - Well	14,695.25	6,475.00	1,967.26	1,739.36	8.632	CC, ES, SF
EXIST HZ SANDY HILLS PC C17-67HN - Wellbore #1 -						Out of range
EXIST HZ STOCKLEY C15-79HN - Wellbore #1 - Wellbo	14,695.25	13,772.00	812.30	564.58	3.279	CC, ES, SF
EXIST HZ ZANE ALTER C 09-21 - Wellbore #1 - Wellbor	12,447.50	8,506.91	708.83	652.85	12.662	CC, ES, SF
EXIST VERT ALTER C 9-23 - Wellbore #1 - Design #1	13,570.41	6,671.71	1,831.15	1,510.93	5.718	CC
EXIST VERT ALTER C 9-23 - Wellbore #1 - Design #1	13,600.00	6,671.40	1,831.39	1,510.39	5.705	ES
EXIST VERT ALTER C 9-23 - Wellbore #1 - Design #1	13,700.00	6,670.37	1,835.73	1,512.52	5.680	SF
EXIST VERT ALTER C 9-25 - Wellbore #1 - Design #1	10,912.76	6,721.51	1,794.07	1,546.73	7.254	CC
EXIST VERT ALTER C 9-25 - Wellbore #1 - Design #1	11,000.00	6,720.62	1,796.19	1,546.65	7.198	ES
EXIST VERT ALTER C 9-25 - Wellbore #1 - Design #1	11,100.00	6,719.60	1,803.82	1,552.12	7.167	SF
EXIST VERT AMANDA ALTER C 9-20 - Wellbore #1 - De	10,930.24	6,736.58	746.65	498.58	3.010	CC, ES
EXIST VERT AMANDA ALTER C 9-20 - Wellbore #1 - De	11,000.00	6,735.86	749.91	500.60	3.008	SF
EXIST VERT BARTON C 15-29 - Wellbore #1 - Design #	14,695.25	6,631.42	3,278.27	2,951.69	10.038	CC, ES, SF
EXIST VERT BENNER 1 - Wellbore #1 - Wellbore #1	9,050.86	6,778.34	35.46	-28.13	0.558	Level 3, CC, ES, SF
EXIST VERT CONNELL 14-4 - Wellbore #1 - Wellbore #	10,232.94	6,759.55	2,845.00	2,748.53	29.490	CC
EXIST VERT CONNELL 14-4 - Wellbore #1 - Wellbore #	10,300.00	6,758.32	2,845.79	2,747.49	28.950	ES
EXIST VERT CONNELL 14-4 - Wellbore #1 - Wellbore #	11,200.00	6,742.65	3,004.81	2,888.06	25.736	SF
EXIST VERT CONNELL 3 - Wellbore #1 - Wellbore #1	11,608.69	6,712.35	2,744.26	2,610.65	20.538	CC
EXIST VERT CONNELL 3 - Wellbore #1 - Wellbore #1	11,700.00	6,709.53	2,745.78	2,609.67	20.173	ES
EXIST VERT CONNELL 3 - Wellbore #1 - Wellbore #1	12,300.00	6,691.56	2,829.91	2,681.58	19.078	SF
EXIST VERT CONNELL C 4-25 - Wellbore #1 - Wellbore						Out of range
EXIST VERT COX 8-19D - Wellbore #1 - Design #1	6,232.41	6,123.84	1,366.31	1,227.40	9.836	CC
EXIST VERT COX 8-19D - Wellbore #1 - Design #1	6,250.00	6,141.42	1,366.49	1,227.21	9.811	ES
EXIST VERT COX 8-19D - Wellbore #1 - Design #1	6,400.00	6,289.90	1,382.91	1,240.56	9.715	SF
EXIST VERT COX PM C 8-6 - Wellbore #1 - Wellbore #1	5,957.76	5,819.53	406.86	389.86	23.926	CC, ES
EXIST VERT COX PM C 8-6 - Wellbore #1 - Wellbore #1	6,232.41	6,106.08	413.94	396.44	23.651	SF
EXIST VERT CPC HARLESS 17-1 - Wellbore #1 - Wellb						Out of range
EXIST VERT EMBRICK C 10-19 - Wellbore #1 - Wellbor	14,695.25	6,640.59	1,509.79	1,419.91	16.799	CC, ES, SF
EXIST VERT ENGLAND 8-3-17 - Wellbore #1 - Wellbore	6,237.55	6,151.85	1,598.67	1,578.47	79.163	CC, ES
EXIST VERT ENGLAND 8-3-17 - Wellbore #1 - Wellbore	6,300.00	6,213.16	1,600.99	1,580.74	79.043	SF
EXIST VERT ENGLAND 8-35 - Wellbore #1 - Wellbore #	6,092.92	5,981.49	2,145.75	2,122.60	92.683	CC
EXIST VERT ENGLAND 8-35 - Wellbore #1 - Wellbore #	6,100.00	5,988.43	2,145.75	2,122.59	92.637	ES
EXIST VERT ENGLAND 8-35 - Wellbore #1 - Wellbore #	6,300.00	6,187.00	2,148.17	2,124.77	91.776	SF
EXIST VERT GEHRING 1 - Wellbore #1 - Wellbore #1	8,910.02	6,778.44	2,466.27	2,406.26	41.097	CC
EXIST VERT GEHRING 1 - Wellbore #1 - Wellbore #1	9,000.00	6,778.39	2,467.91	2,405.62	39.620	ES
EXIST VERT GEHRING 1 - Wellbore #1 - Wellbore #1	10,000.00	6,777.80	2,696.41	2,615.12	33.168	SF
EXIST VERT GEHRING 8-914 - Wellbore #1 - Wellbore #	9,040.39	6,806.23	1,142.18	1,078.69	17.990	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 09N
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 09N	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 GEHRING 8-914 - Wellbore #1 - Wellbore #	9,300.00	6,804.33	1,171.31	1,102.88	17.117	SF
EXIST VERT HAGEN 9-10 - Wellbore #1 - Design #1	12,995.54	6,686.09	1,446.47	1,142.01	4.751	CC
EXIST VERT HAGEN 9-10 - Wellbore #1 - Design #1	13,000.00	6,686.04	1,446.48	1,141.90	4.749	ES
EXIST VERT HAGEN 9-10 - Wellbore #1 - Design #1	13,100.00	6,685.01	1,450.24	1,143.47	4.727	SF
EXIST VERT HAGEN 9-15 - Wellbore #1 - Design #1	12,720.95	6,678.74	2,766.17	2,469.50	9.324	CC
EXIST VERT HAGEN 9-15 - Wellbore #1 - Design #1	12,800.00	6,677.93	2,767.30	2,468.55	9.263	ES
EXIST VERT HAGEN 9-15 - Wellbore #1 - Design #1	13,200.00	6,673.81	2,807.34	2,500.33	9.144	SF
EXIST VERT HAGEN 9-9 - Wellbore #1 - Wellbore #1	13,902.06	6,757.76	1,386.92	1,189.82	7.037	CC, ES
EXIST VERT HAGEN 9-9 - Wellbore #1 - Wellbore #1	14,000.00	6,750.72	1,390.35	1,191.14	6.979	SF
EXIST VERT HARLESS PM C 17-2 - Wellbore #1 - Desi						Out of range
EXIST VERT JOHNSON 9-11 - Wellbore #1 - Design #1	11,592.36	6,712.47	1,258.31	992.36	4.731	CC
EXIST VERT JOHNSON 9-11 - Wellbore #1 - Design #1	11,600.00	6,712.39	1,258.34	992.18	4.728	ES
EXIST VERT JOHNSON 9-11 - Wellbore #1 - Design #1	11,700.00	6,711.36	1,262.91	994.62	4.707	SF
EXIST VERT JOHNSON 9-13 - Wellbore #1 - Wellbore #	10,305.13	6,807.30	2,559.96	2,462.38	26.235	CC
EXIST VERT JOHNSON 9-13 - Wellbore #1 - Wellbore #	10,400.00	6,807.05	2,561.71	2,461.63	25.596	ES
EXIST VERT JOHNSON 9-13 - Wellbore #1 - Wellbore #	11,100.00	6,805.16	2,680.53	2,566.77	23.563	SF
EXIST VERT MCCLINTOCK C 4-15 - Wellbore #1 - Well	13,023.00	6,651.25	3,070.75	2,897.88	17.764	CC
EXIST VERT MCCLINTOCK C 4-15 - Wellbore #1 - Well	13,100.00	6,649.72	3,071.72	2,896.72	17.553	ES
EXIST VERT MCCLINTOCK C 4-15 - Wellbore #1 - Well	13,700.00	6,637.10	3,144.46	2,957.07	16.781	SF
EXIST VERT NGL C1A - Wellbore #1 - Design #1	9,296.17	6,749.39	2,997.23	2,793.34	14.700	CC
EXIST VERT NGL C1A - Wellbore #1 - Design #1	9,400.00	6,748.33	2,999.02	2,792.45	14.518	ES
EXIST VERT NGL C1A - Wellbore #1 - Design #1	10,100.00	6,741.20	3,103.15	2,881.01	13.970	SF
EXIST VERT NGL C1B - Wellbore #1 - Design #1	9,190.96	6,756.46	2,805.07	2,603.86	13.941	CC
EXIST VERT NGL C1B - Wellbore #1 - Design #1	9,300.00	6,755.35	2,807.19	2,603.18	13.760	ES
EXIST VERT NGL C1B - Wellbore #1 - Design #1	9,900.00	6,749.24	2,893.30	2,675.95	13.312	SF
EXIST VERT REINICK 10-5 - Wellbore #1 - Wellbore #1	14,695.25	6,619.00	743.12	716.30	27.704	CC, ES, SF
EXIST VERT REINICK 1-10-4-64 - Wellbore #1 - Wellbo	14,695.25	6,672.14	1,713.26	1,528.88	9.292	CC, ES, SF
EXIST VERT REINICK 3 - Wellbore #1 - Wellbore #1	14,180.05	6,679.50	1,313.94	1,108.79	6.405	CC
EXIST VERT REINICK 3 - Wellbore #1 - Wellbore #1	14,200.00	6,679.51	1,314.09	1,108.40	6.389	ES
EXIST VERT REINICK 3 - Wellbore #1 - Wellbore #1	14,300.00	6,679.58	1,319.40	1,111.82	6.356	SF
EXIST VERT REINICK C 10-31 - Wellbore #1 - Wellbore	14,586.22	6,687.36	671.96	455.50	3.104	CC
EXIST VERT REINICK C 10-31 - Wellbore #1 - Wellbore	14,600.00	6,687.34	672.10	455.29	3.100	ES, SF
EXIST VERT REINICK C 9-18 - Wellbore #1 - Design #1	12,296.63	6,724.98	627.62	341.88	2.196	CC
EXIST VERT REINICK C 9-18 - Wellbore #1 - Design #1	12,300.00	6,724.95	627.63	341.79	2.196	ES, SF
EXIST VERT REINICK C 9-22 - Wellbore #1 - Design #1	13,582.72	6,681.48	572.81	252.08	1.786	CC
EXIST VERT REINICK C 9-22 - Wellbore #1 - Design #1	13,600.00	6,681.30	573.07	252.03	1.785	ES, SF
EXIST VERT REISTAD 1 - Wellbore #1 - Wellbore #1	8,960.77	6,779.13	2,740.97	2,679.47	44.569	CC
EXIST VERT REISTAD 1 - Wellbore #1 - Wellbore #1	9,000.00	6,778.71	2,741.25	2,678.73	43.845	ES
EXIST VERT REISTAD 1 - Wellbore #1 - Wellbore #1	10,300.00	6,765.10	3,050.57	2,962.54	34.654	SF
EXIST VERT RICHARDSON 10-13 - Wellbore #1 - Desig	14,695.25	6,630.00	2,623.74	2,288.42	7.825	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	8,607.38	6,801.23	1,077.15	1,024.98	20.648	CC, ES
EXIST VERT RUFF 8-114 - Wellbore #1 - Wellbore #1	8,900.00	6,792.80	1,116.16	1,058.28	19.287	SF
EXIST VERT RUFF 8-714 - Wellbore #1 - Wellbore #1	7,996.13	6,825.32	190.05	152.45	5.054	CC
EXIST VERT RUFF 8-714 - Wellbore #1 - Wellbore #1	8,000.00	6,825.26	190.09	152.41	5.044	ES, SF
EXIST VERT RUFF C 8-1 - Wellbore #1 - Design #1	9,241.36	6,803.95	1,564.16	1,360.64	7.685	CC
EXIST VERT RUFF C 8-1 - Wellbore #1 - Design #1	9,300.00	6,803.35	1,565.26	1,360.21	7.633	ES
EXIST VERT RUFF C 8-1 - Wellbore #1 - Design #1	9,500.00	6,801.31	1,585.40	1,375.88	7.567	SF
EXIST VERT RYANN STATE C 16-1 - Wellbore #1 - Wel						Out of range
EXIST VERT RYDGREN 8-31 - Wellbore #1 - Wellbore #	5,330.49	5,203.84	1,277.93	1,256.45	59.477	CC
EXIST VERT RYDGREN 8-31 - Wellbore #1 - Wellbore #	5,400.00	5,269.83	1,278.06	1,256.24	58.555	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 09N
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 09N	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 RYDGREN 8-31 - Wellbore #1 - Wellbore #	6,300.00	6,151.34	1,288.34	1,264.19	53.330	SF
EXIST VERT SLEDGE C 9-31 - Wellbore #1 - Design #1	9,809.47	6,773.79	626.44	408.26	2.871	CC, ES, SF
EXIST VERT SMITH 9-5 - Wellbore #1 - Design #1	10,463.92	6,756.73	115.12	-120.42	0.489	Level 3, CC, ES, SF
EXIST VERT SMITH C 9-19 - Wellbore #1 - Design #1	11,043.52	6,765.56	1,083.12	831.29	4.301	CC, ES
EXIST VERT SMITH C 9-19 - Wellbore #1 - Design #1	11,100.00	6,764.98	1,084.59	831.33	4.282	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 - Desi	11,637.94	6,701.96	2,620.00	2,353.00	9.812	CC
EXIST VERT VERN JOHNSON 1-A - Wellbore #1 - Desi	11,700.00	6,701.32	2,620.74	2,352.08	9.755	ES
EXIST VERT VERN JOHNSON 1-A - Wellbore #1 - Desi	12,100.00	6,697.22	2,660.44	2,383.18	9.595	SF
EXIST VERT VERN JOHNSON 2 - Wellbore #1 - Design	10,266.21	6,743.53	1,253.60	1,023.59	5.450	CC
EXIST VERT VERN JOHNSON 2 - Wellbore #1 - Design	10,300.00	6,743.19	1,254.05	1,023.18	5.432	ES
EXIST VERT VERN JOHNSON 2 - Wellbore #1 - Design	10,400.00	6,742.16	1,260.72	1,027.75	5.412	SF
EXIST VERT WILMOTH 1 - Wellbore #1 - Wellbore #1	14,192.55	6,627.24	2,794.61	2,588.96	13.589	CC
EXIST VERT WILMOTH 1 - Wellbore #1 - Wellbore #1	14,300.00	6,626.59	2,796.67	2,588.12	13.410	ES
EXIST VERT WILMOTH 1 - Wellbore #1 - Wellbore #1	14,695.25	6,624.19	2,839.45	2,623.16	13.128	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	13,527.33	6,707.39	2,237.16	2,050.47	11.984	CC
EXIST VERT WILMOTH C 9-27 - Wellbore #1 - Wellbore	13,600.00	6,706.44	2,238.34	2,049.69	11.865	ES
EXIST VERT WILMOTH C 9-27 - Wellbore #1 - Wellbore	13,900.00	6,702.71	2,267.98	2,073.56	11.666	SF
HEN 01N - ORIGINAL WELLBORE - PROPOSAL #2	300.00	300.00	119.97	118.90	111.896	CC, ES
HEN 01N - ORIGINAL WELLBORE - PROPOSAL #2	14,695.25	15,029.96	1,917.30	1,481.00	4.394	SF
HEN 02N - ORIGINAL WELLBORE - PROPOSAL #2	400.00	400.00	104.99	103.47	68.999	CC, ES
HEN 02N - ORIGINAL WELLBORE - PROPOSAL #2	14,695.25	15,018.81	1,678.24	1,242.52	3.852	SF
HEN 03N - ORIGINAL WELLBORE - PROPOSAL #2	500.00	500.00	89.98	88.01	45.650	CC, ES
HEN 03N - ORIGINAL WELLBORE - PROPOSAL #2	14,695.25	14,886.43	1,437.93	1,001.70	3.296	SF
HEN 04N - ORIGINAL WELLBORE - PROPOSAL #2	600.00	600.00	74.97	72.55	30.970	CC, ES
HEN 04N - ORIGINAL WELLBORE - PROPOSAL #2	14,695.25	14,888.86	1,199.48	764.01	2.754	SF
HEN 05N - ORIGINAL WELLBORE - PROPOSAL #2	700.00	700.00	59.97	57.10	20.892	CC, ES
HEN 05N - ORIGINAL WELLBORE - PROPOSAL #2	14,695.25	14,766.79	958.62	522.24	2.197	SF
HEN 06N - ORIGINAL WELLBORE - PROPOSAL #2	716.33	717.33	44.99	42.05	15.273	CC
HEN 06N - ORIGINAL WELLBORE - PROPOSAL #2	800.00	800.99	44.99	41.67	13.544	ES
HEN 06N - ORIGINAL WELLBORE - PROPOSAL #2	14,695.25	14,798.99	721.03	287.96	1.665	SF
HEN 07N - ORIGINAL WELLBORE - PROPOSAL #2	900.00	900.00	29.98	26.21	7.954	CC, ES
HEN 07N - ORIGINAL WELLBORE - PROPOSAL #2	14,695.25	14,693.43	479.31	43.26	1.099	Level 3, SF
HEN 08N - ORIGINAL WELLBORE - PROPOSAL #2	1,000.00	1,000.00	15.01	10.79	3.558	CC
HEN 08N - ORIGINAL WELLBORE - PROPOSAL #2	14,695.25	14,745.04	248.30	-54.88	0.819	Level 3, ES, SF
HEN 10N - ORIGINAL WELLBORE - PROPOSAL #2	1,100.00	1,100.00	15.01	10.34	3.215	CC
HEN 10N - ORIGINAL WELLBORE - PROPOSAL #2	14,693.22	14,784.82	251.10	-42.50	0.855	Level 3, ES, SF
HEN 11N - ORIGINAL WELLBORE - PROPOSAL #2	1,100.00	1,100.00	29.98	25.31	6.422	CC
HEN 11N - ORIGINAL WELLBORE - PROPOSAL #2	1,200.00	1,199.98	30.34	25.23	5.941	ES
HEN 11N - ORIGINAL WELLBORE - PROPOSAL #2	14,695.25	14,738.87	479.31	43.14	1.099	Level 3, SF
HEN 12N - ORIGINAL WELLBORE - PROPOSAL #2	1,100.00	1,100.00	44.99	40.32	9.638	CC
HEN 12N - ORIGINAL WELLBORE - PROPOSAL #2	1,200.00	1,199.98	45.34	40.23	8.877	ES
HEN 12N - ORIGINAL WELLBORE - PROPOSAL #2	14,695.25	14,837.94	723.37	293.17	1.681	SF
HEN 13N - ORIGINAL WELLBORE - PROPOSAL #2	1,100.00	1,100.00	60.00	55.33	12.853	CC
HEN 13N - ORIGINAL WELLBORE - PROPOSAL #2	1,200.00	1,199.98	60.34	55.23	11.814	ES
HEN 13N - ORIGINAL WELLBORE - PROPOSAL #2	14,695.25	14,796.68	958.63	523.07	2.201	SF
HEN 14N - ORIGINAL WELLBORE - PROPOSAL #2	1,100.00	1,100.00	75.01	70.34	16.068	CC, ES
HEN 14N - ORIGINAL WELLBORE - PROPOSAL #2	14,695.25	14,908.23	1,200.89	766.89	2.767	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 09N
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 09N	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 15N - ORIGINAL WELLBORE - PROPOSAL #2	1,000.00	1,000.00	89.98	85.77	21.329	CC, ES
HEN 15N - ORIGINAL WELLBORE - PROPOSAL #2	14,695.25	14,877.74	1,437.87	1,002.58	3.303	SF
HEN 16N - ORIGINAL WELLBORE - PROPOSAL #2	900.00	900.00	104.96	101.19	27.845	CC, ES
HEN 16N - ORIGINAL WELLBORE - PROPOSAL #2	14,695.25	14,965.04	1,679.18	1,244.63	3.864	SF
HEN 17N - ORIGINAL WELLBORE - PROPOSAL #2	800.00	800.00	119.97	116.65	36.137	CC, ES
HEN 17N - ORIGINAL WELLBORE - PROPOSAL #2	14,695.25	14,966.03	1,917.15	1,482.08	4.407	SF
HEN 18N - ORIGINAL WELLBORE - PROPOSAL #2	700.00	700.00	134.98	132.11	47.026	CC, ES
HEN 18N - ORIGINAL WELLBORE - PROPOSAL #2	14,695.25	15,093.23	2,157.93	1,723.36	4.966	SF
HEN 19N - ORIGINAL WELLBORE - PROPOSAL #2	600.00	600.00	149.99	147.57	61.959	CC, ES
HEN 19N - ORIGINAL WELLBORE - PROPOSAL #2	14,695.25	15,090.25	2,396.46	1,961.64	5.511	SF
HEN 20NA - ORIGINAL WELLBORE - PROPOSAL #2	500.00	499.00	164.96	162.99	83.780	CC, ES
HEN 20NA - ORIGINAL WELLBORE - PROPOSAL #2	14,695.25	15,111.10	2,636.66	2,201.96	6.065	SF
HEN 21N - ORIGINAL WELLBORE - PROPOSAL #2	400.00	399.00	179.97	178.45	118.446	CC, ES
HEN 21N - ORIGINAL WELLBORE - PROPOSAL #2	14,695.25	15,320.70	2,876.58	2,442.23	6.623	SF
HEN 22N - ORIGINAL WELLBORE - PROPOSAL #2	300.00	298.00	194.98	193.91	182.626	CC, ES
HEN 22N - ORIGINAL WELLBORE - PROPOSAL #2	14,695.25	15,355.99	3,115.41	2,681.01	7.172	SF