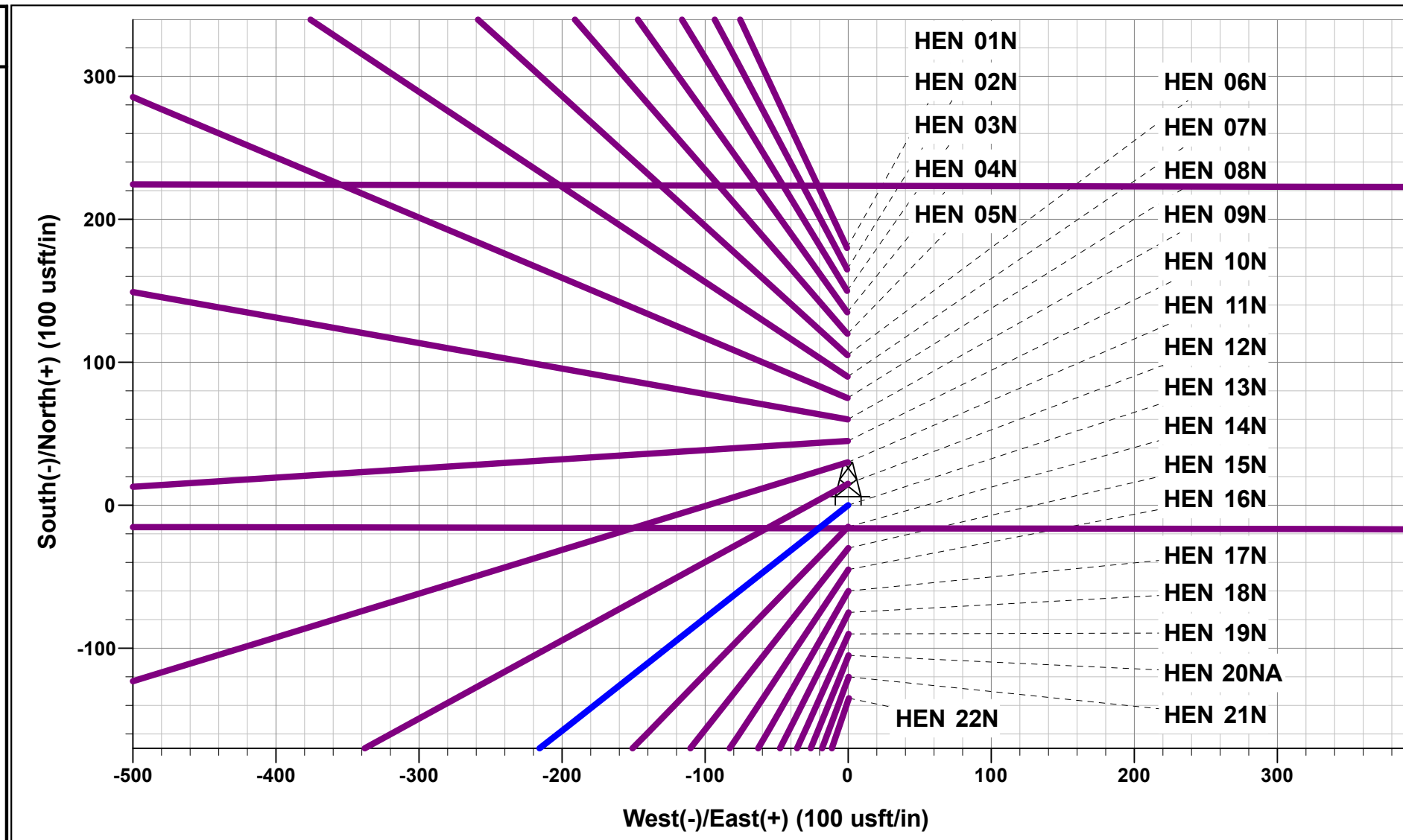




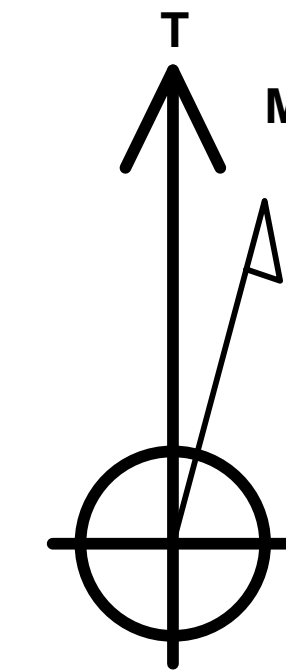
Project: WELD COUNTY, COLORADO (TRUE)
 Site: SW NE SEC. 8 T4N R64W 6th P.M. (HEN)
 Well: HEN 13N
 Wellbore: ORIGINAL WELLBORE
 Design: PROPOSAL #2

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: 2264ft FNL & 2043ft FEL of Sec 8
1200.00	0.00	0.00	1200.00	0.00	0.00	0.00	0.00	START NUDDGE (2°/100ft BUR)
2014.03	16.28	231.74	2003.12	-71.14	-90.20	-82.28	114.88	EOB TO 16.28° INC
5420.23	16.28	231.74	5272.73	-662.49	-839.96	-766.18	1069.78	END OF TANGENT
6234.26	0.00	0.00	6075.85	-733.63	-930.16	-848.46	1184.66	EOD TO VERTICAL
6334.26	0.00	0.00	6175.85	-733.63	-930.16	-848.46	1184.66	KOP (8°/100ft BUR)
7271.77	75.00	90.10	6867.66	-734.56	-399.33	-320.43	1715.49	EP: 2278ft FSL & 2440ft FEL of Sec 8
7469.54	90.82	90.10	6892.00	-734.90	-203.70	-125.83	1911.12	HZ LANDING POINT
14796.68	90.82	90.10	6787.13	-747.74	7122.68	7161.82	9237.51	BHL: 2277ft FSL & 200ft FEL of Sec 9



PROPOSED LOCAL COORDINATES:
 SHL: 2264ft FNL & 2043ft FEL of Sec 8
 EP: 2278ft FSL & 2440ft FEL of Sec 8
 BHL: 2277ft FSL & 200ft FEL of Sec 9

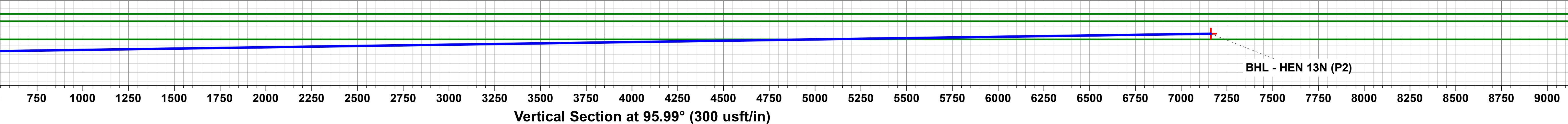
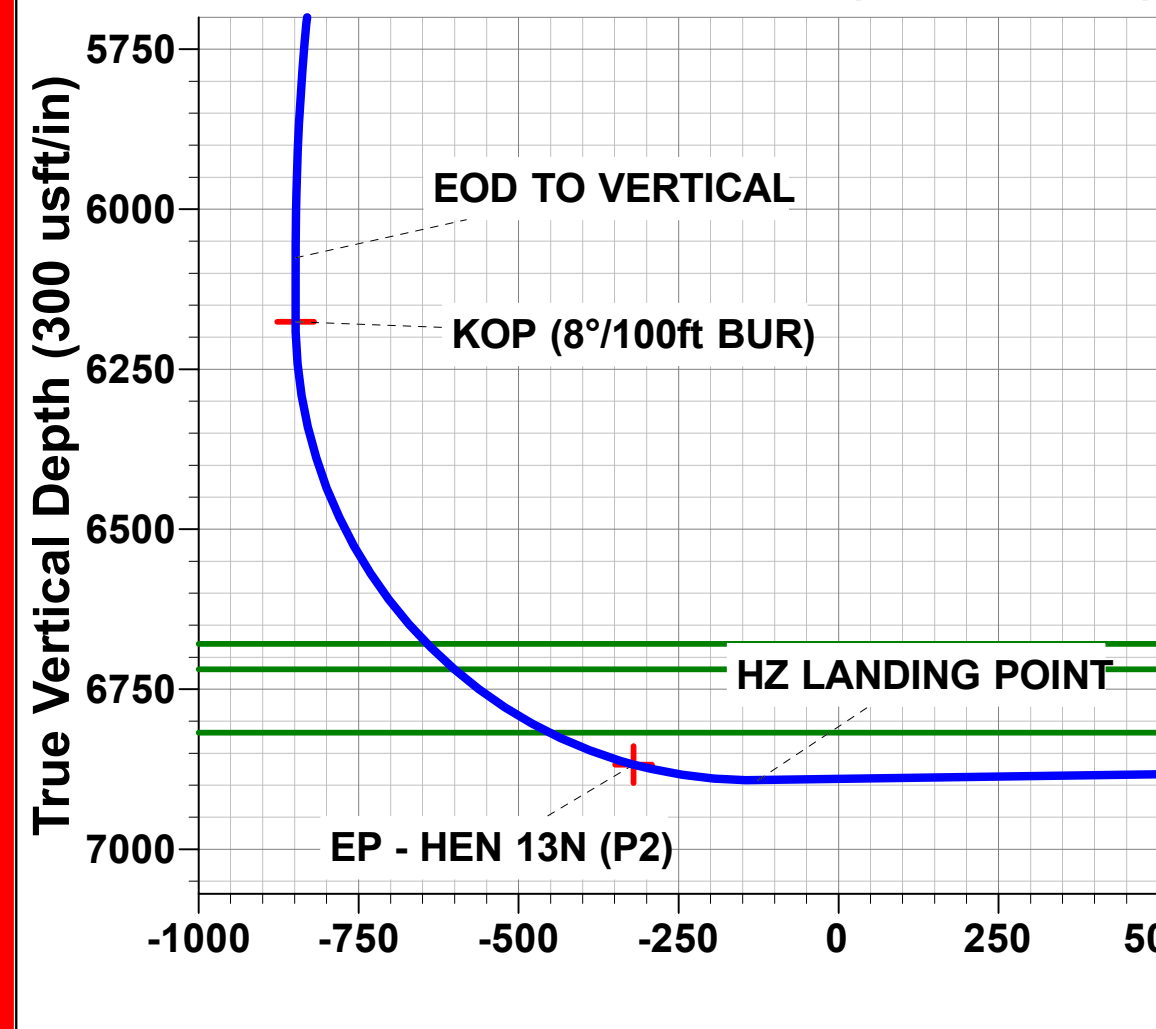
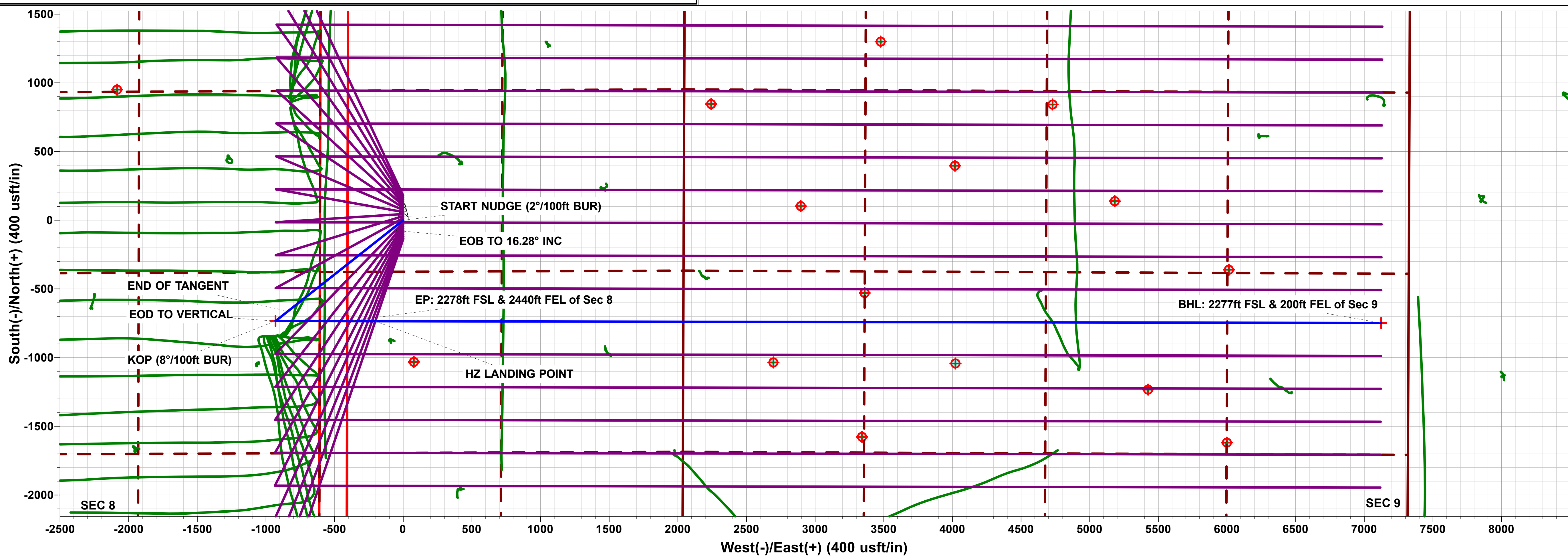
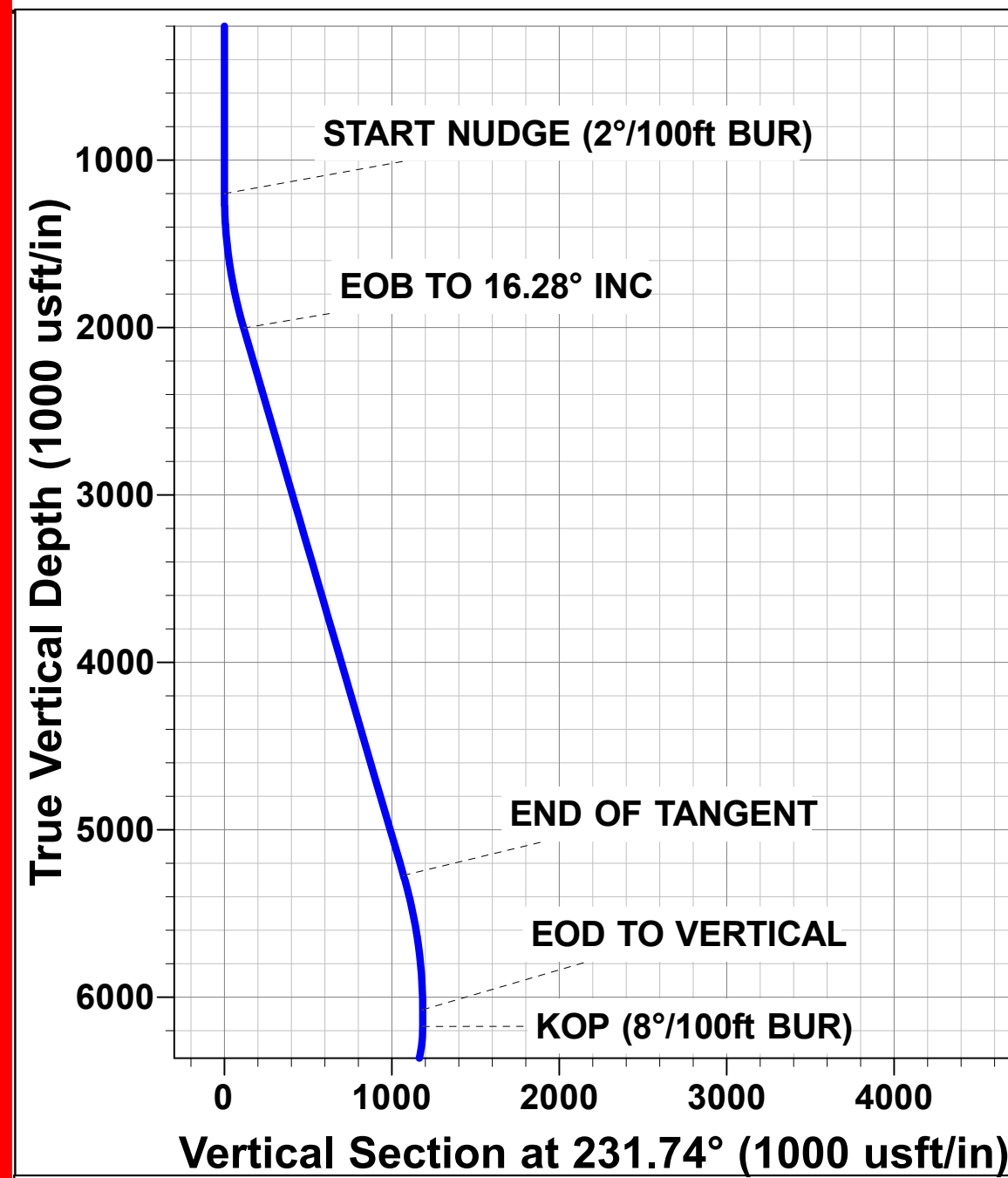


Azimuths to True North
 Magnetic North: 7.76°

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 13N (P2)	6787.00	-747.94	7122.68	1362982.26	3265761.87	40.325866	-104.546798
EP - HEN 13N (P2)	6867.66	-734.56	-399.33	1362916.96	3258240.45	40.325906	-104.573775
KOP - HEN 13N (P2)	6175.85	-733.63	-930.16	1362912.33	3257709.66	40.325908	-104.575679





PDC ENERGY

**WELD COUNTY, COLORADO (TRUE)
SW NE SEC. 8 T4N R64W 6th P.M. (HEN)
HEN 13N**

**ORIGINAL WELLBORE
PROPOSAL #2**

Anticollision Summary Report

19 June, 2022



Company:	PDC ENERGY	Local Co-ordinate Reference:	Well HEN 13N
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 13N	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	14,796.68	PROPOSAL #2 (ORIGINAL WELLBORE)	MWD	MWD - Standard

Summary						
Site Name Offset Well - Wellbore - Design	Reference	Offset	Distance		Separation Factor	Warning
	Measured Depth (usft)	Measured Depth (usft)	Between Centres (usft)	Between Ellipses (usft)		
SW NE SEC. 8 T4N R64W 6th P.M. (HEN)						
ABDN DD ALTER C 16-28D - Wellbore #1 - Wellbore #1	12,227.52	7,209.09	2,274.21	2,088.41	12.240	CC
ABDN DD ALTER C 16-28D - Wellbore #1 - Wellbore #1	12,300.00	7,209.23	2,275.37	2,087.16	12.090	ES
ABDN DD ALTER C 16-28D - Wellbore #1 - Wellbore #1	12,700.00	7,209.97	2,322.77	2,124.94	11.741	SF
ABDN DD ALTER C 16-29D - ORIGINAL WELLBORE - W	11,080.97	6,978.71	2,337.15	2,203.96	17.548	CC
ABDN DD ALTER C 16-29D - ORIGINAL WELLBORE - W	11,200.00	6,973.11	2,340.17	2,203.29	17.097	ES
ABDN DD ALTER C 16-29D - ORIGINAL WELLBORE - W	11,700.00	6,953.88	2,417.67	2,269.14	16.277	SF
ABDN DD ALTER C 16-29D - SIDETRACK - SIDETRAC	10,795.00	6,947.29	2,071.85	1,950.09	17.015	CC
ABDN DD ALTER C 16-29D - SIDETRACK - SIDETRAC	10,900.00	6,950.95	2,074.51	1,949.68	16.619	ES
ABDN DD ALTER C 16-29D - SIDETRACK - SIDETRAC	11,300.00	6,965.19	2,132.45	1,998.77	15.953	SF
ABDN HZ FRANKLIN C08-62HNX - ORIGINAL WELLBO	8,511.84	10,756.00	1,667.40	1,501.54	10.053	CC, ES
ABDN HZ FRANKLIN C08-62HNX - ORIGINAL WELLBO	8,700.00	10,756.00	1,677.99	1,508.74	9.915	SF
ABDN HZ FRANKLIN C08-62HNX - SIDETRACK - SIDE	8,521.45	10,803.00	1,558.66	1,392.89	9.403	CC, ES
ABDN HZ FRANKLIN C08-62HNX - SIDETRACK - SIDE	8,700.00	10,803.00	1,568.85	1,400.35	9.311	SF
ABDN VERT CONQUEST SWD 1-8 - Wellbore #1 - Des	9,494.87	6,776.01	1,749.70	1,542.76	8.455	CC
ABDN VERT CONQUEST SWD 1-8 - Wellbore #1 - Des	9,500.00	6,775.94	1,749.71	1,542.63	8.450	ES
ABDN VERT CONQUEST SWD 1-8 - Wellbore #1 - Des	9,800.00	6,771.64	1,776.10	1,561.65	8.282	SF
ABDN VERT COX 8-1 - Wellbore #1 - Wellbore #1	751.30	717.31	2,028.96	2,027.01	1,039.777	CC
ABDN VERT COX 8-1 - Wellbore #1 - Wellbore #1	800.00	762.70	2,029.00	2,026.94	984.507	ES
ABDN VERT COX 8-1 - Wellbore #1 - Wellbore #1	8,600.00	7,036.02	3,244.13	3,205.49	83.968	SF
ABDN VERT COX PM C 8-4 - Wellbore #1 - Wellbore #1	6,385.20	6,318.45	2,841.79	2,813.68	101.095	CC, ES
ABDN VERT COX PM C 8-4 - Wellbore #1 - Wellbore #1	6,400.00	6,334.33	2,841.86	2,813.75	101.063	SF
ABDN VERT COX PM C 8-5 - Wellbore #1 - Wellbore #1	6,341.33	6,193.06	2,145.83	2,118.61	78.833	CC, ES
ABDN VERT COX PM C 8-5 - Wellbore #1 - Wellbore #1	6,400.00	6,255.07	2,147.79	2,120.53	78.797	SF
ABDN VERT GEHRING 8-15I4 - Wellbore #1 - Wellbore	8,094.85	6,816.29	1,223.10	1,185.41	32.449	CC
ABDN VERT GEHRING 8-15I4 - Wellbore #1 - Wellbore	8,100.00	6,816.29	1,223.11	1,185.31	32.355	ES
ABDN VERT GEHRING 8-15I4 - Wellbore #1 - Wellbor	8,600.00	6,815.66	1,323.31	1,276.21	28.097	SF
ABDN VERT GEHRING C 8-10X - Wellbore #1 - Wellbor	7,600.00	6,854.07	143.31	115.24	5.105	SF
ABDN VERT GEHRING C 8-10X - Wellbore #1 - Wellbor	7,605.73	6,854.05	143.20	115.20	5.115	CC, ES
ABDN VERT HAGEN 9-16 - Wellbore #1 - Design #1	14,131.84	6,664.65	1,806.74	1,473.93	5.429	CC
ABDN VERT HAGEN 9-16 - Wellbore #1 - Design #1	14,200.00	6,663.67	1,808.02	1,473.29	5.401	ES
ABDN VERT HAGEN 9-16 - Wellbore #1 - Design #1	14,300.00	6,662.24	1,814.55	1,477.57	5.385	SF
ABDN VERT HEISER 1 - Wellbore #1 - Design #1	7,751.30	6,843.96	295.96	129.93	1.783	CC, ES, SF
ABDN VERT LEVI C 5-15 - Wellbore #1 - Wellbore #1	100.00	67.78	3,050.22	3,050.07	10,000.000	CC
ABDN VERT LEVI C 5-15 - Wellbore #1 - Wellbore #1	200.00	162.26	3,050.41	3,049.92	6,225.829	ES
ABDN VERT LEVI C 5-15 - Wellbore #1 - Wellbore #1	2,500.00	2,412.81	3,272.06	3,264.63	440.371	SF
ABDN VERT REINICK 1 - Wellbore #1 - Wellbore #1	13,902.68	6,672.90	1,351.63	1,157.25	6.954	CC, ES
ABDN VERT REINICK 1 - Wellbore #1 - Wellbore #1	14,000.00	6,670.85	1,355.12	1,159.02	6.910	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 13N
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 13N	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	ORIGINAL WELLBORE	Database:	Database 1
Reference Design:	PROPOSAL #2	Offset TVD Reference:	Offset Datum

Summary						
Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
SW NE SEC. 8 T4N R64W 6th P.M. (HEN)						
ABDN VERT REINICK 2 - Wellbore #1 - Wellbore #1	12,978.90	6,688.40	2,295.38	2,126.55	13.596	CC
ABDN VERT REINICK 2 - Wellbore #1 - Wellbore #1	13,000.00	6,688.39	2,295.47	2,126.12	13.554	ES
ABDN VERT REINICK 2 - Wellbore #1 - Wellbore #1	13,400.00	6,688.28	2,333.68	2,157.22	13.225	SF
ABDN VERT REINICK 9-7 - Wellbore #1 - Design #1	12,854.89	6,715.92	882.95	584.76	2.961	CC, ES
ABDN VERT REINICK 9-7 - Wellbore #1 - Design #1	12,900.00	6,715.28	884.10	585.21	2.958	SF
ABDN VERT RICHARDSON 10-12 - Wellbore #1 - Wellb	14,796.68	6,633.60	981.49	911.94	14.112	CC, ES, SF
ABDN VERT RUFF 1 - Wellbore #1 - Design #1	100.00	70.33	1,610.54	1,609.61	1,733.084	CC
ABDN VERT RUFF 1 - Wellbore #1 - Design #1	1,300.00	1,270.38	1,611.73	1,583.80	57.700	ES
ABDN VERT RUFF 1 - Wellbore #1 - Design #1	8,400.00	6,849.08	2,416.03	2,236.98	13.494	SF
ABDN VERT RYANN STATE C 16-27 - Wellbore #1 - We	13,573.87	6,725.00	2,485.17	2,299.89	13.413	CC
ABDN VERT RYANN STATE C 16-27 - Wellbore #1 - We	13,600.00	6,725.00	2,485.31	2,299.26	13.358	ES
ABDN VERT RYANN STATE C 16-27 - Wellbore #1 - We	14,000.00	6,725.00	2,521.44	2,326.47	12.932	SF
ABDN VERT RYDGREN 8-1 - Wellbore #1 - Wellbore #1	6,342.13	6,216.87	1,731.15	1,710.86	85.347	CC, ES
ABDN VERT RYDGREN 8-1 - Wellbore #1 - Wellbore #1	6,400.00	6,271.60	1,733.50	1,713.14	85.139	SF
ABDN VERT SLEDGE C 9-28 - Wellbore #1 - Design #1	12,347.93	6,754.18	2,761.43	2,476.57	9.694	CC
ABDN VERT SLEDGE C 9-28 - Wellbore #1 - Design #1	12,400.00	6,753.43	2,761.92	2,475.74	9.651	ES
ABDN VERT SLEDGE C 9-28 - Wellbore #1 - Design #1	12,800.00	6,747.71	2,798.18	2,503.85	9.507	SF
ABDN VERT SLEDGE C 9-29 - Wellbore #1 - Design #1	11,009.47	6,794.33	2,817.16	2,568.58	11.333	CC
ABDN VERT SLEDGE C 9-29 - Wellbore #1 - Design #1	11,100.00	6,793.04	2,818.61	2,567.75	11.236	ES
ABDN VERT SLEDGE C 9-29 - Wellbore #1 - Design #1	11,500.00	6,787.31	2,859.53	2,600.17	11.025	SF
ABDN VERT SMITH 1 - Wellbore #1 - Design #1	10,369.08	6,806.50	2,331.43	2,100.20	10.083	CC
ABDN VERT SMITH 1 - Wellbore #1 - Design #1	10,400.00	6,806.06	2,331.63	2,099.62	10.050	ES
ABDN VERT SMITH 1 - Wellbore #1 - Design #1	10,800.00	6,800.33	2,370.91	2,130.49	9.861	SF
ABDN VERT SMITH 2 - Wellbore #1 - Design #1	11,701.94	6,774.42	2,301.15	2,033.83	8.608	CC
ABDN VERT SMITH 2 - Wellbore #1 - Design #1	11,800.00	6,773.02	2,303.24	2,033.54	8.540	ES
ABDN VERT SMITH 2 - Wellbore #1 - Design #1	12,000.00	6,770.16	2,320.37	2,046.65	8.477	SF
ABDN VERT SMITH 3 - Wellbore #1 - Design #1	11,690.22	6,761.88	1,138.99	872.25	4.270	CC
ABDN VERT SMITH 3 - Wellbore #1 - Design #1	11,700.00	6,761.74	1,139.03	872.07	4.267	ES
ABDN VERT SMITH 3 - Wellbore #1 - Design #1	11,800.00	6,760.31	1,144.27	875.65	4.260	SF
ABDN VERT STATE 16-214 - Wellbore #1 - Wellbore #1	12,735.09	6,668.77	3,168.29	3,005.78	19.496	CC
ABDN VERT STATE 16-214 - Wellbore #1 - Wellbore #1	12,800.00	6,668.08	3,168.96	3,004.57	19.278	ES
ABDN VERT STATE 16-214 - Wellbore #1 - Wellbore #1	13,500.00	6,660.85	3,259.31	3,079.53	18.129	SF
ABDN VERT THEA C 09-32 - Wellbore #1 - Wellbore #1	9,829.26	6,791.92	369.68	287.90	4.521	CC, ES, SF
EXIST DD ALTER C 09-24D - Wellbore #1 - Wellbore #1	12,436.34	7,263.92	933.94	738.28	4.773	CC, ES
EXIST DD ALTER C 09-24D - Wellbore #1 - Wellbore #1	12,500.00	7,264.15	936.11	739.90	4.771	SF
EXIST DD ALTER C 09-33D - Wellbore #1 - Wellbore #1	9,651.03	6,923.59	939.01	844.50	9.935	CC
EXIST DD ALTER C 09-33D - Wellbore #1 - Wellbore #1	9,700.00	6,922.77	940.29	843.96	9.762	ES
EXIST DD ALTER C 09-33D - Wellbore #1 - Wellbore #1	9,800.00	6,921.09	950.75	851.43	9.572	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	21.89	3,216.93	3,216.82	10,000.000	CC
EXIST DD NGL C1C - Wellbore #1 - Wellbore #1	900.00	801.27	3,217.64	3,214.81	1,136.876	ES
EXIST DD NGL C1C - Wellbore #1 - Wellbore #1	1,700.00	1,191.00	3,269.31	3,263.81	594.458	SF
EXIST DD RUFF C 08-27D - Wellbore #1 - Wellbore #1	700.00	673.00	1,990.37	1,988.19	912.788	CC
EXIST DD RUFF C 08-27D - Wellbore #1 - Wellbore #1	1,000.00	965.00	1,991.45	1,988.02	580.857	ES
EXIST DD RUFF C 08-27D - Wellbore #1 - Wellbore #1	9,800.00	6,895.96	3,255.64	3,168.30	37.276	SF
EXIST DD SLEDGE C 9-30D - Wellbore #1 - Wellbore #1	700.00	655.00	3,171.57	3,169.41	1,468.124	CC
EXIST DD SLEDGE C 9-30D - Wellbore #1 - Wellbore #1	9,700.00	6,879.64	3,235.20	3,138.89	33.592	ES
EXIST DD SLEDGE C 9-30D - Wellbore #1 - Wellbore #1	10,100.00	6,870.99	3,267.15	3,162.44	31.200	SF
EXIST HZ CHALLENGER 1N - ORIGINAL WELLBORE -	0.00	0.00	1,241.35			
EXIST HZ CHALLENGER 1N - ORIGINAL WELLBORE -	200.00	188.00	1,241.52	1,241.02	2,496.091	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 13N
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 13N	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 - ORIGINAL WELLBORE -	8,400.00	6,491.00	3,272.36	3,214.19	56.252	SF
EXIST HZ CHALLENGER 1N - SIDETRACK - SIDETRA	0.00	0.00	1,241.35			
EXIST HZ CHALLENGER 1N - SIDETRACK - SIDETRA	200.00	188.00	1,241.52	1,241.02	2,496.091	ES
EXIST HZ CHALLENGER 1N - SIDETRACK - SIDETRA	8,400.00	6,491.00	3,272.36	3,214.19	56.252	SF
EXIST HZ CHALLENGER 2N - Wellbore #1 - Wellbore #	308.86	300.32	1,228.93	1,227.90	1,201.588	CC
EXIST HZ CHALLENGER 2N - Wellbore #1 - Wellbore #	400.00	377.66	1,229.24	1,227.86	887.754	ES
EXIST HZ CHALLENGER 2N - Wellbore #1 - Wellbore #	8,800.00	6,471.00	3,248.74	3,186.04	51.816	SF
EXIST HZ CHALLENGER 3N - Wellbore #1 - Wellbore #	210.57	201.77	1,218.34	1,217.76	2,086.760	CC
EXIST HZ CHALLENGER 3N - Wellbore #1 - Wellbore #	449.76	441.00	1,218.49	1,216.87	749.825	ES
EXIST HZ CHALLENGER 3N - Wellbore #1 - Wellbore #	8,900.00	6,332.37	3,100.96	3,041.43	52.086	SF
EXIST HZ CHALLENGER 4N - Wellbore #1 - Wellbore #	0.00	0.00	1,207.65			
EXIST HZ CHALLENGER 4N - Wellbore #1 - Wellbore #	100.00	87.24	1,207.78	1,207.61	7,061.133	ES
EXIST HZ CHALLENGER 4N - Wellbore #1 - Wellbore #	8,500.00	6,470.00	2,612.50	2,559.51	49.305	SF
EXIST HZ CHALLENGER 5N - Wellbore #1 - Wellbore #	2,011.18	2,006.10	1,190.94	1,182.17	135.838	CC
EXIST HZ CHALLENGER 5N - Wellbore #1 - Wellbore #	2,014.03	2,008.01	1,190.94	1,182.16	135.571	ES
EXIST HZ CHALLENGER 5N - Wellbore #1 - Wellbore #	8,300.00	6,424.28	2,333.20	2,284.52	47.930	SF
EXIST HZ CHALLENGER 6N - Wellbore #1 - Wellbore #	787.71	779.30	1,184.27	1,181.17	381.714	CC
EXIST HZ CHALLENGER 6N - Wellbore #1 - Wellbore #	2,000.00	1,971.97	1,186.28	1,177.64	137.393	ES
EXIST HZ CHALLENGER 6N - Wellbore #1 - Wellbore #	6,800.00	6,664.00	1,636.25	1,600.12	45.290	SF
EXIST HZ CHALLENGER 7N - Wellbore #1 - Wellbore #	3,597.35	3,665.20	1,002.79	982.38	49.124	CC
EXIST HZ CHALLENGER 7N - Wellbore #1 - Wellbore #	3,600.00	3,667.62	1,002.79	982.36	49.080	ES
EXIST HZ CHALLENGER 7N - Wellbore #1 - Wellbore #	6,900.00	6,676.33	1,380.88	1,344.62	38.083	SF
EXIST HZ CHALLENGER 8N - Wellbore #1 - Wellbore #	4,077.99	4,151.00	844.39	820.54	35.409	CC
EXIST HZ CHALLENGER 8N - Wellbore #1 - Wellbore #	4,100.00	4,168.48	844.41	820.42	35.201	ES
EXIST HZ CHALLENGER 8N - Wellbore #1 - Wellbore #	6,850.00	6,651.64	1,092.51	1,056.70	30.507	SF
EXIST HZ CHALLENGER 9N - Wellbore #1 - Wellbore #	4,146.81	4,196.46	645.57	620.75	26.009	CC, ES
EXIST HZ CHALLENGER 9N - Wellbore #1 - Wellbore #	6,750.00	6,633.00	857.08	820.43	23.381	SF
EXIST HZ FRANKLIN C17-69HN - Wellbore #1 - Wellbor	7,936.28	10,197.00	2,184.96	2,049.48	16.128	CC
EXIST HZ FRANKLIN C17-69HN - Wellbore #1 - Wellbor	8,600.00	10,846.00	2,194.10	2,025.15	12.987	ES
EXIST HZ FRANKLIN C17-69HN - Wellbore #1 - Wellbor	9,000.00	10,846.00	2,232.98	2,055.64	12.591	SF
EXIST HZ HAROLD 6X-232 - Wellbore #1 - Wellbore #1						Out of range
EXIST HZ HAROLD 6X-302 - Wellbore #1 - Wellbore #1						Out of range
EXIST HZ HAROLD 6Y-202 - Wellbore #1 - Wellbore #1	7,051.69	9,738.00	3,195.54	3,087.44	29.561	CC
EXIST HZ HAROLD 6Y-202 - Wellbore #1 - Wellbore #1	14,796.68	17,434.19	3,235.30	2,716.31	6.234	ES, SF
EXIST HZ HAROLD 6Y-312 - Wellbore #1 - Wellbore #1						Out of range
EXIST HZ JAGGED 10N - Wellbore #1 - Wellbore #1	3,905.24	3,631.36	1,226.35	1,204.12	55.161	CC, ES
EXIST HZ JAGGED 10N - Wellbore #1 - Wellbore #1	6,334.26	6,168.88	1,454.40	1,414.12	36.108	SF
EXIST HZ JAGGED 11N - Wellbore #1 - Wellbore #1	3,189.18	2,860.11	1,297.63	1,280.53	75.866	CC
EXIST HZ JAGGED 11N - Wellbore #1 - Wellbore #1	3,200.00	2,867.65	1,297.65	1,280.48	75.608	ES
EXIST HZ JAGGED 11N - Wellbore #1 - Wellbore #1	8,500.00	6,461.00	2,342.87	2,279.01	36.688	SF
EXIST HZ JAGGED 12N - Wellbore #1 - Wellbore #1	0.00	0.00	1,324.42			
EXIST HZ JAGGED 12N - Wellbore #1 - Wellbore #1	8,700.00	6,365.00	2,615.23	2,546.73	38.179	SF
EXIST HZ JAGGED 1N - Wellbore #1 - Wellbore #1	3,997.80	3,939.83	178.28	150.31	6.376	CC
EXIST HZ JAGGED 1N - Wellbore #1 - Wellbore #1	4,000.00	3,941.83	178.28	150.30	6.372	ES, SF
EXIST HZ JAGGED 2N - Wellbore #1 - Wellbore #1	4,236.15	4,163.93	87.65	58.65	3.023	CC, ES, SF
EXIST HZ JAGGED 3N - Wellbore #1 - Wellbore #1	4,576.94	4,489.39	82.35	51.69	2.685	CC, ES, SF
EXIST HZ JAGGED 4N - Wellbore #1 - Wellbore #1	6,700.00	6,584.38	153.50	116.07	4.101	SF
EXIST HZ JAGGED 4N - Wellbore #1 - Wellbore #1	6,717.95	6,591.03	152.61	115.94	4.161	CC, ES
EXIST HZ JAGGED 5N - Wellbore #1 - Wellbore #1	6,700.00	6,200.46	397.87	360.94	10.774	SF
EXIST HZ JAGGED 5N - Wellbore #1 - Wellbore #1	6,766.16	6,643.41	392.91	356.86	10.900	CC, ES
EXIST HZ JAGGED 6N - Wellbore #1 - Wellbore #1	5,471.25	5,286.17	597.85	563.19	17.253	CC
EXIST HZ JAGGED 6N - Wellbore #1 - Wellbore #1	5,500.00	5,312.85	597.97	563.07	17.131	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 13N
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 13N	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	5,900.00	5,708.21	617.98	580.40	16.442	SF
EXIST HZ JAGGED 7N - Wellbore #1 - Wellbore #1	5,283.17	5,070.55	799.67	766.94	24.434	CC
EXIST HZ JAGGED 7N - Wellbore #1 - Wellbore #1	5,300.00	5,083.96	799.71	766.84	24.330	ES
EXIST HZ JAGGED 7N - Wellbore #1 - Wellbore #1	6,200.00	6,024.48	848.12	809.21	21.799	SF
EXIST HZ JAGGED 8N - Wellbore #1 - Wellbore #1	5,089.07	4,859.78	926.56	895.67	29.993	CC
EXIST HZ JAGGED 8N - Wellbore #1 - Wellbore #1	5,100.00	4,867.58	926.58	895.60	29.915	ES
EXIST HZ JAGGED 8N - Wellbore #1 - Wellbore #1	6,234.26	6,057.35	997.37	958.41	25.602	SF
EXIST HZ JAGGED 9N - Wellbore #1 - Wellbore #1	4,035.02	3,760.61	1,097.57	1,075.12	48.880	CC
EXIST HZ JAGGED 9N - Wellbore #1 - Wellbore #1	5,000.00	4,745.00	1,103.16	1,072.58	36.075	ES
EXIST HZ JAGGED 9N - Wellbore #1 - Wellbore #1	6,000.00	5,745.14	1,187.78	1,149.68	31.173	SF
EXIST HZ MARK ALTER C16-79HN - Wellbore #1 - Well	9,840.90	6,253.00	1,880.35	1,788.33	20.434	CC
EXIST HZ MARK ALTER C16-79HN - Wellbore #1 - Well	9,900.00	6,253.00	1,881.27	1,787.66	20.095	ES
EXIST HZ MARK ALTER C16-79HN - Wellbore #1 - Well	10,400.00	6,273.85	1,961.27	1,857.21	18.848	SF
EXIST HZ NORTHRUP C 08-73HN - Wellbore #1 - Wellb	8,400.00	9,349.62	11.38	-25.25	0.311	Level 3, ES
EXIST HZ NORTHRUP C 08-73HN - Wellbore #1 - Wellb	8,402.51	9,349.60	11.10	-25.17	0.306	Level 3, CC, SF
EXIST HZ NORTHRUP C 08-75HN - Wellbore #1 - Wellb	7,129.76	9,670.06	90.60	56.30	2.642	CC
EXIST HZ NORTHRUP C 08-75HN - Wellbore #1 - Wellb	7,150.00	9,669.96	93.11	53.66	2.360	ES
EXIST HZ NORTHRUP C 08-75HN - Wellbore #1 - Wellb	7,200.00	9,669.73	117.31	61.37	2.097	SF
EXIST HZ OREDIGGER C10-69HN - Wellbore #1 - Well	14,796.68	6,457.73	2,914.52	2,684.11	12.649	CC, ES, SF
EXIST HZ SANDY HILLS PC C17-67HN - Wellbore #1 -						Out of range
EXIST HZ STOCKLEY C15-79HN - Wellbore #1 - Wellbo	14,796.68	13,595.91	279.29	127.11	1.835	CC, ES, SF
EXIST HZ ZANE ALTER C 09-21 - Wellbore #1 - Wellbor	12,597.55	6,798.98	342.89	171.37	1.999	CC
EXIST HZ ZANE ALTER C 09-21 - Wellbore #1 - Wellbor	12,600.00	6,798.91	342.90	171.23	1.997	ES, SF
EXIST VERT ALTER C 9-23 - Wellbore #1 - Design #1	13,674.58	6,686.29	872.84	552.39	2.724	CC
EXIST VERT ALTER C 9-23 - Wellbore #1 - Design #1	13,700.00	6,685.93	873.21	551.98	2.718	ES, SF
EXIST VERT ALTER C 9-25 - Wellbore #1 - Design #1	11,016.64	6,746.85	835.74	587.94	3.373	CC, ES
EXIST VERT ALTER C 9-25 - Wellbore #1 - Design #1	11,100.00	6,745.66	839.89	589.99	3.361	SF
EXIST VERT AMANDA ALTER C 9-20 - Wellbore #1 - De	11,034.18	6,761.84	211.67	-36.50	0.853	Level 3, CC, ES, SF
EXIST VERT BARTON C 15-29 - Wellbore #1 - Design #	14,796.68	6,641.42	2,463.14	2,162.45	8.192	CC, ES, SF
EXIST VERT BENNER 1 - Wellbore #1 - Wellbore #1	9,155.02	6,785.98	994.48	930.82	15.621	CC, ES
EXIST VERT BENNER 1 - Wellbore #1 - Wellbore #1	9,300.00	6,782.45	1,004.98	938.57	15.132	SF
EXIST VERT CONNELL 14-4 - Wellbore #1 - Wellbore #						Out of range
EXIST VERT CONNELL 3 - Wellbore #1 - Wellbore #1						Out of range
EXIST VERT CONNELL C 4-25 - Wellbore #1 - Wellbore						Out of range
EXIST VERT COX 8-19D - Wellbore #1 - Design #1	5,343.86	5,187.42	2,037.04	1,909.44	15.964	CC
EXIST VERT COX 8-19D - Wellbore #1 - Design #1	6,350.00	6,179.59	2,041.69	1,891.41	13.586	ES
EXIST VERT COX 8-19D - Wellbore #1 - Design #1	6,600.00	6,423.54	2,069.62	1,914.61	13.352	SF
EXIST VERT COX PM C 8-6 - Wellbore #1 - Wellbore #1	4,456.99	4,354.91	1,115.34	1,095.62	56.539	CC
EXIST VERT COX PM C 8-6 - Wellbore #1 - Wellbore #1	4,500.00	4,391.46	1,115.49	1,095.51	55.838	ES
EXIST VERT COX PM C 8-6 - Wellbore #1 - Wellbore #1	6,350.00	6,138.14	1,218.90	1,192.09	45.457	SF
EXIST VERT CPC HARLESS 17-1 - Wellbore #1 - Wellb	8,954.82	6,716.46	2,846.96	2,788.47	48.675	CC
EXIST VERT CPC HARLESS 17-1 - Wellbore #1 - Wellb	9,000.00	6,716.19	2,847.31	2,787.63	47.705	ES
EXIST VERT CPC HARLESS 17-1 - Wellbore #1 - Wellb	10,500.00	6,700.00	3,239.25	3,149.07	35.920	SF
EXIST VERT EMBRICK C 10-19 - Wellbore #1 - Wellbor	14,796.68	6,680.35	2,127.01	1,957.76	12.567	CC, ES, SF
EXIST VERT ENGLAND 8-3-17 - Wellbore #1 - Wellbore	6,338.74	6,189.97	1,347.15	1,324.40	59.232	CC, ES
EXIST VERT ENGLAND 8-3-17 - Wellbore #1 - Wellbore	6,400.00	6,253.34	1,349.72	1,326.92	59.180	SF
EXIST VERT ENGLAND 8-35 - Wellbore #1 - Wellbore #	6,335.39	6,173.28	1,382.69	1,365.61	80.934	CC, ES
EXIST VERT ENGLAND 8-35 - Wellbore #1 - Wellbore #	6,450.00	6,286.79	1,389.52	1,372.27	80.586	SF
EXIST VERT GEHRING 1 - Wellbore #1 - Wellbore #1	9,013.86	6,800.00	1,507.48	1,447.50	25.133	CC, ES
EXIST VERT GEHRING 1 - Wellbore #1 - Wellbore #1	9,500.00	6,800.00	1,583.93	1,513.59	22.519	SF
EXIST VERT GEHRING 8-9I4 - Wellbore #1 - Wellbore #	9,144.29	6,823.11	183.28	119.87	2.891	CC, ES, SF
EXIST VERT HAGEN 9-10 - Wellbore #1 - Design #1	13,099.63	6,702.98	488.18	183.45	1.602	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 13N
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 13N	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	ORIGINAL WELLBORE	Database:	Database 1
Reference Design:	PROPOSAL #2	Offset TVD Reference:	Offset Datum

Summary						
Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
SW NE SEC. 8 T4N R64W 6th P.M. (HEN)						
EXIST VERT HAGEN 9-10 - Wellbore #1 - Design #1	13,100.00	6,702.98	488.18	183.44	1.602	ES, SF
EXIST VERT HAGEN 9-15 - Wellbore #1 - Design #1	12,825.03	6,696.74	1,807.88	1,510.90	6.088	CC
EXIST VERT HAGEN 9-15 - Wellbore #1 - Design #1	12,900.00	6,695.67	1,809.43	1,510.33	6.050	ES
EXIST VERT HAGEN 9-15 - Wellbore #1 - Design #1	13,000.00	6,694.24	1,816.32	1,514.88	6.025	SF
EXIST VERT HAGEN 9-9 - Wellbore #1 - Wellbore #1	14,009.41	6,709.71	429.59	232.78	2.183	CC, ES, SF
EXIST VERT HARLESS PM C 17-2 - Wellbore #1 - Desi	7,710.80	6,824.64	3,121.23	2,956.30	18.924	CC
EXIST VERT HARLESS PM C 17-2 - Wellbore #1 - Desi	7,800.00	6,823.37	3,122.50	2,956.06	18.761	ES
EXIST VERT HARLESS PM C 17-2 - Wellbore #1 - Desi	8,700.00	6,810.49	3,274.20	3,088.90	17.670	SF
EXIST VERT JOHNSON 9-11 - Wellbore #1 - Design #1	11,696.33	6,735.03	300.01	33.70	1.127	Level 3, CC
EXIST VERT JOHNSON 9-11 - Wellbore #1 - Design #1	11,700.00	6,734.98	300.03	33.55	1.126	Level 3, ES, SF
EXIST VERT JOHNSON 9-13 - Wellbore #1 - Wellbore #	10,408.98	6,807.44	1,601.18	1,503.70	16.425	CC, ES
EXIST VERT JOHNSON 9-13 - Wellbore #1 - Wellbore #	10,800.00	6,804.79	1,648.24	1,542.16	15.538	SF
EXIST VERT MCCLINTOCK C 4-15 - Wellbore #1 - Well						Out of range
EXIST VERT NGL C1A - Wellbore #1 - Design #1	9,399.74	6,781.37	2,038.77	1,834.26	9.969	CC
EXIST VERT NGL C1A - Wellbore #1 - Design #1	9,500.00	6,779.94	2,041.23	1,834.02	9.851	ES
EXIST VERT NGL C1A - Wellbore #1 - Design #1	9,800.00	6,775.64	2,077.68	1,863.37	9.695	SF
EXIST VERT NGL C1B - Wellbore #1 - Design #1	9,294.53	6,788.88	1,846.61	1,644.77	9.149	CC
EXIST VERT NGL C1B - Wellbore #1 - Design #1	9,300.00	6,788.80	1,846.61	1,644.62	9.142	ES
EXIST VERT NGL C1B - Wellbore #1 - Design #1	9,600.00	6,784.51	1,871.70	1,662.26	8.937	SF
EXIST VERT REINICK 10-5 - Wellbore #1 - Wellbore #1	14,796.68	6,662.11	1,156.41	993.52	7.099	CC, ES, SF
EXIST VERT REINICK 1-10-4-64 - Wellbore #1 - Wellbo	14,796.68	6,681.64	2,583.74	2,376.59	12.473	CC, ES, SF
EXIST VERT REINICK 3 - Wellbore #1 - Wellbore #1	14,284.26	6,690.30	2,272.30	2,067.20	11.079	CC
EXIST VERT REINICK 3 - Wellbore #1 - Wellbore #1	14,300.00	6,690.25	2,272.35	2,066.86	11.058	ES
EXIST VERT REINICK 3 - Wellbore #1 - Wellbore #1	14,600.00	6,689.23	2,294.13	2,083.15	10.874	SF
EXIST VERT REINICK C 10-31 - Wellbore #1 - Wellbore	14,690.31	6,712.87	1,629.96	1,413.50	7.530	CC
EXIST VERT REINICK C 10-31 - Wellbore #1 - Wellbore	14,700.00	6,712.84	1,629.99	1,413.30	7.522	ES
EXIST VERT REINICK C 10-31 - Wellbore #1 - Wellbore	14,796.68	6,712.35	1,633.64	1,415.07	7.474	SF
EXIST VERT REINICK C 9-18 - Wellbore #1 - Design #1	12,400.68	6,744.69	1,585.91	1,299.81	5.543	CC, ES
EXIST VERT REINICK C 9-18 - Wellbore #1 - Design #1	12,500.00	6,743.27	1,589.02	1,300.81	5.513	SF
EXIST VERT REINICK C 9-22 - Wellbore #1 - Design #1	13,686.85	6,696.02	385.50	64.58	1.201	Level 3, CC, ES, SF
EXIST VERT REISTAD 1 - Wellbore #1 - Wellbore #1	100.00	53.35	3,235.09	3,234.95	10,000.000	CC, ES
EXIST VERT REISTAD 1 - Wellbore #1 - Wellbore #1	1,700.00	1,667.79	3,280.75	3,276.33	741.383	SF
EXIST VERT RICHARDSON 10-13 - Wellbore #1 - Desig	14,796.68	6,640.00	1,766.62	1,457.02	5.706	CC, ES, SF
EXIST VERT ROHR 15-414 - Wellbore #1 - Wellbore #1	14,796.68	6,649.57	2,946.25	2,738.73	14.197	CC, ES, SF
EXIST VERT ROHR C 15-19 - Wellbore #1 - Wellbore #1						Out of range
EXIST VERT RUFF 8-114 - Wellbore #1 - Wellbore #1	1,238.78	1,223.78	1,655.75	1,652.39	493.199	CC, ES
EXIST VERT RUFF 8-114 - Wellbore #1 - Wellbore #1	9,600.00	6,804.93	2,221.29	2,152.85	32.456	SF
EXIST VERT RUFF 8-714 - Wellbore #1 - Wellbore #1	347.62	325.54	540.09	539.15	571.728	CC
EXIST VERT RUFF 8-714 - Wellbore #1 - Wellbore #1	500.00	475.56	540.41	539.04	394.349	ES
EXIST VERT RUFF 8-714 - Wellbore #1 - Wellbore #1	8,500.00	6,821.99	1,216.83	1,172.12	27.217	SF
EXIST VERT RUFF C 8-1 - Wellbore #1 - Design #1	1,200.00	1,171.00	2,448.38	2,422.65	95.158	CC
EXIST VERT RUFF C 8-1 - Wellbore #1 - Design #1	9,400.00	6,835.37	2,523.22	2,317.69	12.277	ES
EXIST VERT RUFF C 8-1 - Wellbore #1 - Design #1	9,900.00	6,828.21	2,582.85	2,366.51	11.939	SF
EXIST VERT RYANN STATE C 16-1 - Wellbore #1 - Wel	14,125.52	6,476.44	2,999.26	2,798.70	14.954	CC
EXIST VERT RYANN STATE C 16-1 - Wellbore #1 - Wel	14,200.00	6,474.90	3,000.19	2,797.48	14.801	ES
EXIST VERT RYANN STATE C 16-1 - Wellbore #1 - Wel	14,796.68	6,462.61	3,073.19	2,858.25	14.298	SF
EXIST VERT RYDGREN 8-31 - Wellbore #1 - Wellbore #	6,200.51	6,004.92	348.42	328.83	17.788	CC, ES
EXIST VERT RYDGREN 8-31 - Wellbore #1 - Wellbore #	6,350.00	6,153.78	350.10	330.24	17.625	SF
EXIST VERT SLEDGE C 9-31 - Wellbore #1 - Design #1	9,913.45	6,803.65	1,584.84	1,366.08	7.245	CC, ES
EXIST VERT SLEDGE C 9-31 - Wellbore #1 - Design #1	10,100.00	6,800.98	1,595.78	1,373.02	7.164	SF
EXIST VERT SMITH 9-5 - Wellbore #1 - Design #1	10,567.88	6,783.90	843.24	607.03	3.570	CC
EXIST VERT SMITH 9-5 - Wellbore #1 - Design #1	10,600.00	6,783.44	843.85	607.00	3.563	ES, SF
EXIST VERT SMITH C 9-19 - Wellbore #1 - Design #1	11,147.56	6,790.36	2,041.44	1,789.14	8.091	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 13N
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 13N	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	ORIGINAL WELLBORE	Database:	Database 1
Reference Design:	PROPOSAL #2	Offset TVD Reference:	Offset Datum

Summary						
Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
SW NE SEC. 8 T4N R64W 6th P.M. (HEN)						
EXIST VERT SMITH C 9-19 - Wellbore #1 - Design #1	11,200.00	6,789.61	2,042.11	1,788.53	8.053	ES
EXIST VERT SMITH C 9-19 - Wellbore #1 - Design #1	11,400.00	6,786.75	2,056.99	1,799.27	7.981	SF
EXIST VERT STATE 16-314 - Wellbore #1 - Design #1	11,682.85	6,720.96	2,731.42	2,465.70	10.279	CC
EXIST VERT STATE 16-314 - Wellbore #1 - Design #1	11,800.00	6,719.28	2,733.93	2,464.94	10.163	ES
EXIST VERT STATE 16-314 - Wellbore #1 - Design #1	12,200.00	6,713.56	2,779.94	2,501.78	9.994	SF
EXIST VERT STATE 16-414 - Wellbore #1 - Design #1						Out of range
EXIST VERT VERN JOHNSON 1-A - Wellbore #1 - Desi	11,741.88	6,724.34	1,661.70	1,394.28	6.214	CC
EXIST VERT VERN JOHNSON 1-A - Wellbore #1 - Desi	11,800.00	6,723.51	1,662.72	1,393.63	6.179	ES
EXIST VERT VERN JOHNSON 1-A - Wellbore #1 - Desi	11,900.00	6,722.08	1,669.21	1,397.66	6.147	SF
EXIST VERT VERN JOHNSON 2 - Wellbore #1 - Design	10,370.06	6,771.52	295.23	64.72	1.281	Level 3, CC, ES, SF
EXIST VERT WILMOTH 1 - Wellbore #1 - Wellbore #1						Out of range
EXIST VERT WILMOTH C 3-33 - Wellbore #1 - Wellbore						Out of range
EXIST VERT WILMOTH C 4-23 - Wellbore #1 - Wellbore						Out of range
EXIST VERT WILMOTH C 4-24 - Wellbore #1 - Wellbore						Out of range
EXIST VERT WILMOTH C 9-27 - Wellbore #1 - Wellbore	13,631.22	6,726.23	3,195.40	3,008.75	17.120	CC
EXIST VERT WILMOTH C 9-27 - Wellbore #1 - Wellbore	13,700.00	6,725.00	3,196.14	3,007.72	16.963	ES
EXIST VERT WILMOTH C 9-27 - Wellbore #1 - Wellbore	14,300.00	6,714.46	3,264.61	3,064.85	16.343	SF
HEN 01N - ORIGINAL WELLBORE - PROPOSAL #2	300.00	300.00	179.97	178.90	167.861	CC, ES
HEN 01N - ORIGINAL WELLBORE - PROPOSAL #2	14,796.68	15,027.16	2,875.92	2,439.79	6.594	SF
HEN 02N - ORIGINAL WELLBORE - PROPOSAL #2	400.00	400.00	165.00	163.47	108.431	CC, ES
HEN 02N - ORIGINAL WELLBORE - PROPOSAL #2	14,796.68	15,015.95	2,636.37	2,200.48	6.048	SF
HEN 03N - ORIGINAL WELLBORE - PROPOSAL #2	500.00	500.00	149.99	148.02	76.089	CC, ES
HEN 03N - ORIGINAL WELLBORE - PROPOSAL #2	14,796.68	14,883.61	2,396.56	1,960.50	5.496	SF
HEN 04N - ORIGINAL WELLBORE - PROPOSAL #2	600.00	600.00	134.97	132.55	55.757	CC, ES
HEN 04N - ORIGINAL WELLBORE - PROPOSAL #2	14,796.68	14,886.20	2,157.25	1,721.17	4.947	SF
HEN 05N - ORIGINAL WELLBORE - PROPOSAL #2	700.00	700.00	119.97	117.10	41.797	CC, ES
HEN 05N - ORIGINAL WELLBORE - PROPOSAL #2	14,796.68	14,764.14	1,917.25	1,481.02	4.395	SF
HEN 06N - ORIGINAL WELLBORE - PROPOSAL #2	716.33	717.33	104.99	102.05	35.641	CC
HEN 06N - ORIGINAL WELLBORE - PROPOSAL #2	800.00	800.00	105.00	101.68	31.627	ES
HEN 06N - ORIGINAL WELLBORE - PROPOSAL #2	14,796.68	14,796.31	1,678.10	1,242.22	3.850	SF
HEN 07N - ORIGINAL WELLBORE - PROPOSAL #2	900.00	900.00	89.98	86.22	23.873	CC, ES
HEN 07N - ORIGINAL WELLBORE - PROPOSAL #2	14,796.68	14,690.80	1,437.93	1,001.82	3.297	SF
HEN 08N - ORIGINAL WELLBORE - PROPOSAL #2	1,000.00	1,000.00	75.01	70.79	17.780	CC, ES
HEN 08N - ORIGINAL WELLBORE - PROPOSAL #2	14,796.68	14,742.68	1,199.48	764.07	2.755	SF
HEN 09N - ORIGINAL WELLBORE - PROPOSAL #2	1,100.00	1,100.00	60.00	55.33	12.853	CC
HEN 09N - ORIGINAL WELLBORE - PROPOSAL #2	1,200.00	1,199.59	60.34	55.23	11.816	ES
HEN 09N - ORIGINAL WELLBORE - PROPOSAL #2	14,796.68	14,692.35	958.62	523.16	2.201	SF
HEN 10N - ORIGINAL WELLBORE - PROPOSAL #2	1,200.00	1,200.00	44.99	39.87	8.791	CC, ES
HEN 10N - ORIGINAL WELLBORE - PROPOSAL #2	14,796.68	14,784.12	721.86	289.27	1.669	SF
HEN 11N - ORIGINAL WELLBORE - PROPOSAL #2	1,200.00	1,200.00	30.02	24.90	5.866	CC, ES
HEN 11N - ORIGINAL WELLBORE - PROPOSAL #2	14,796.68	14,737.42	479.31	43.83	1.101	Level 3, SF
HEN 12N - ORIGINAL WELLBORE - PROPOSAL #2	1,200.00	1,200.00	15.01	9.89	2.933	CC
HEN 12N - ORIGINAL WELLBORE - PROPOSAL #2	14,791.96	14,837.15	249.45	-49.88	0.833	Level 3, ES, SF
HEN 14N - ORIGINAL WELLBORE - PROPOSAL #2	1,100.00	1,100.00	15.01	10.34	3.215	CC
HEN 14N - ORIGINAL WELLBORE - PROPOSAL #2	14,796.68	14,908.23	249.66	-49.14	0.836	Level 3, ES, SF
HEN 15N - ORIGINAL WELLBORE - PROPOSAL #2	1,000.00	1,000.00	29.98	25.76	7.107	CC, ES
HEN 15N - ORIGINAL WELLBORE - PROPOSAL #2	14,796.68	14,877.74	479.31	45.46	1.105	Level 3, SF
HEN 16N - ORIGINAL WELLBORE - PROPOSAL #2	900.00	900.00	44.96	41.19	11.927	CC, ES
HEN 16N - ORIGINAL WELLBORE - PROPOSAL #2	14,796.68	14,965.04	721.86	291.38	1.677	SF
HEN 17N - ORIGINAL WELLBORE - PROPOSAL #2	800.00	800.00	59.97	56.65	18.063	CC, ES
HEN 17N - ORIGINAL WELLBORE - PROPOSAL #2	14,796.68	14,966.03	958.63	523.84	2.205	SF
HEN 18N - ORIGINAL WELLBORE - PROPOSAL #2	700.00	700.00	74.97	72.10	26.121	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 13N
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 13N	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	14,796.68	15,093.23	1,199.72	766.13	2.767	SF
HEN 19N - ORIGINAL WELLBORE - PROPOSAL #2	600.00	600.00	89.98	87.56	37.172	CC, ES
HEN 19N - ORIGINAL WELLBORE - PROPOSAL #2	14,796.68	15,090.25	1,438.00	1,003.40	3.309	SF
HEN 20NA - ORIGINAL WELLBORE - PROPOSAL #2	500.00	499.00	104.96	102.99	53.306	CC, ES
HEN 20NA - ORIGINAL WELLBORE - PROPOSAL #2	14,796.68	15,111.10	1,678.77	1,244.42	3.865	SF
HEN 21N - ORIGINAL WELLBORE - PROPOSAL #2	400.00	399.00	119.97	118.45	78.956	CC, ES
HEN 21N - ORIGINAL WELLBORE - PROPOSAL #2	14,796.68	15,320.70	1,918.09	1,484.20	4.421	SF
HEN 22N - ORIGINAL WELLBORE - PROPOSAL #2	300.00	298.00	134.98	133.91	126.425	CC, ES
HEN 22N - ORIGINAL WELLBORE - PROPOSAL #2	14,796.68	15,355.99	2,156.94	1,722.74	4.968	SF