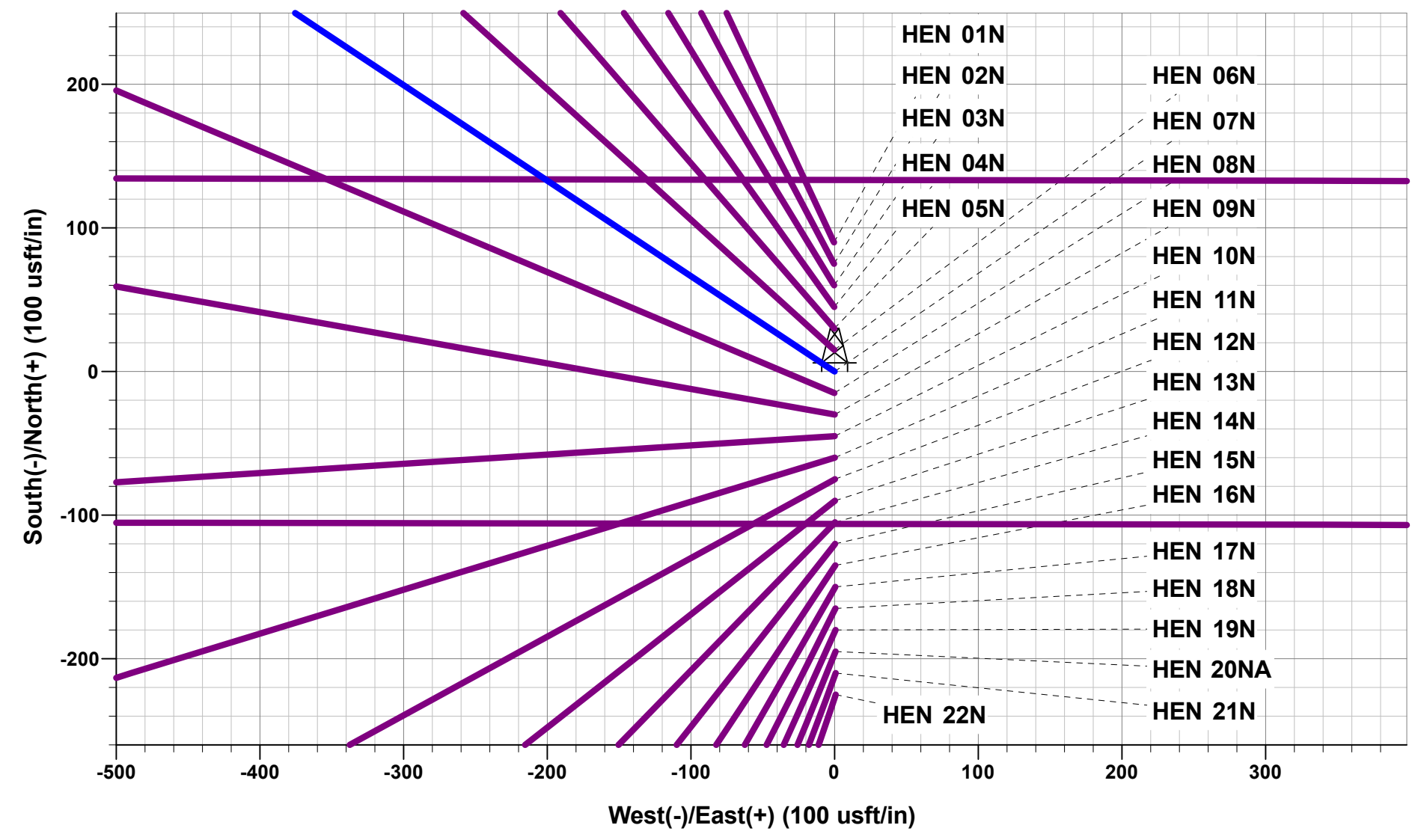




Project: WELD COUNTY, COLORADO (TRUE)  
Site: SW NE SEC. 8 T4N R64W 6th P.M. (HEN)  
Well: HEN 07N  
Wellbore: ORIGINAL WELLBORE  
Design: PROPOSAL #2

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: 2174ft FNL & 2044ft FEL of Sec 8
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	START NUDGE (2°/100ft BUR)
1609.96	14.20	303.62	1602.72	48.46	-72.88	-68.56	87.52	EOB TO 14.2° INC
5421.80	14.20	303.62	5298.10	566.21	-851.48	-801.00	1022.55	END OF TANGENT
6131.77	0.00	0.00	6000.82	614.67	-924.36	-869.56	1110.07	EOD TO VERTICAL
6231.77	0.00	0.00	6100.82	614.67	-924.36	-869.56	1110.07	KOP (8°/100ft BUR)
7169.26	75.00	90.10	6792.61	613.74	-393.53	-340.68	1640.90	EP: 1558ft FNL & 2440ft FEL of Sec 8
7361.14	90.35	90.10	6817.00	613.41	-203.79	-151.63	1830.64	HZ LANDING POINT
14694.01	90.35	90.11	6772.00	599.92	7128.93	7154.13	9163.38	BHL: 1558ft FNL & 200ft FEL of Sec 9

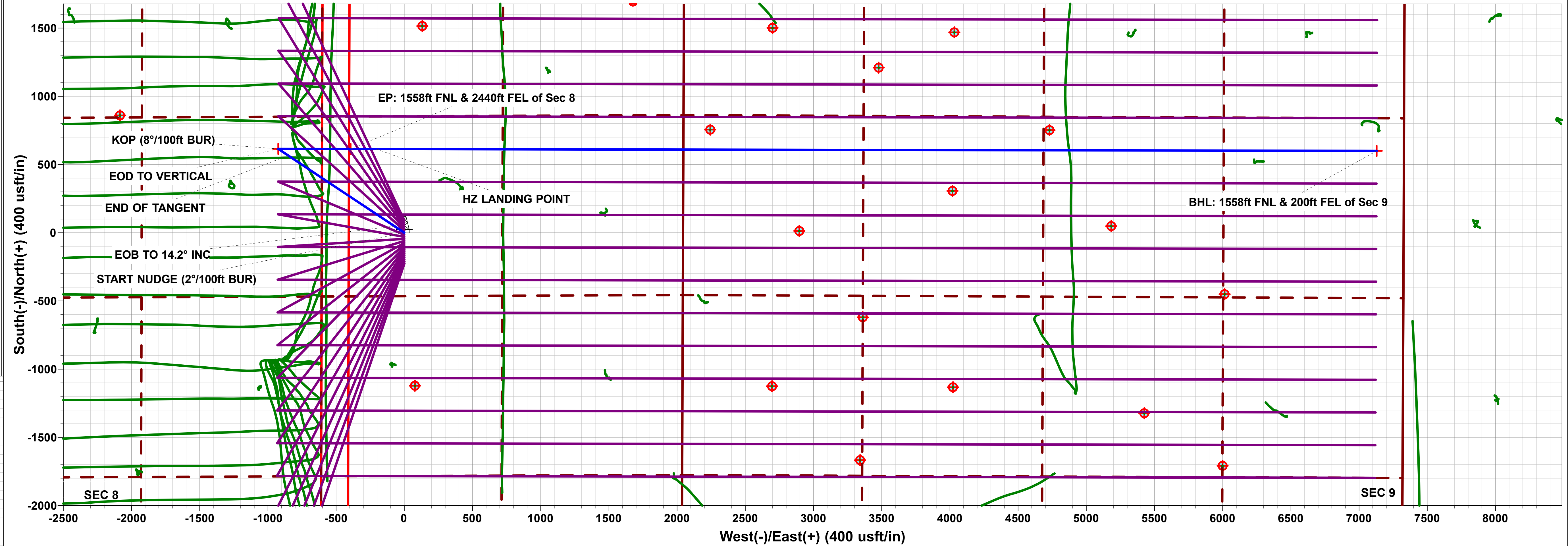
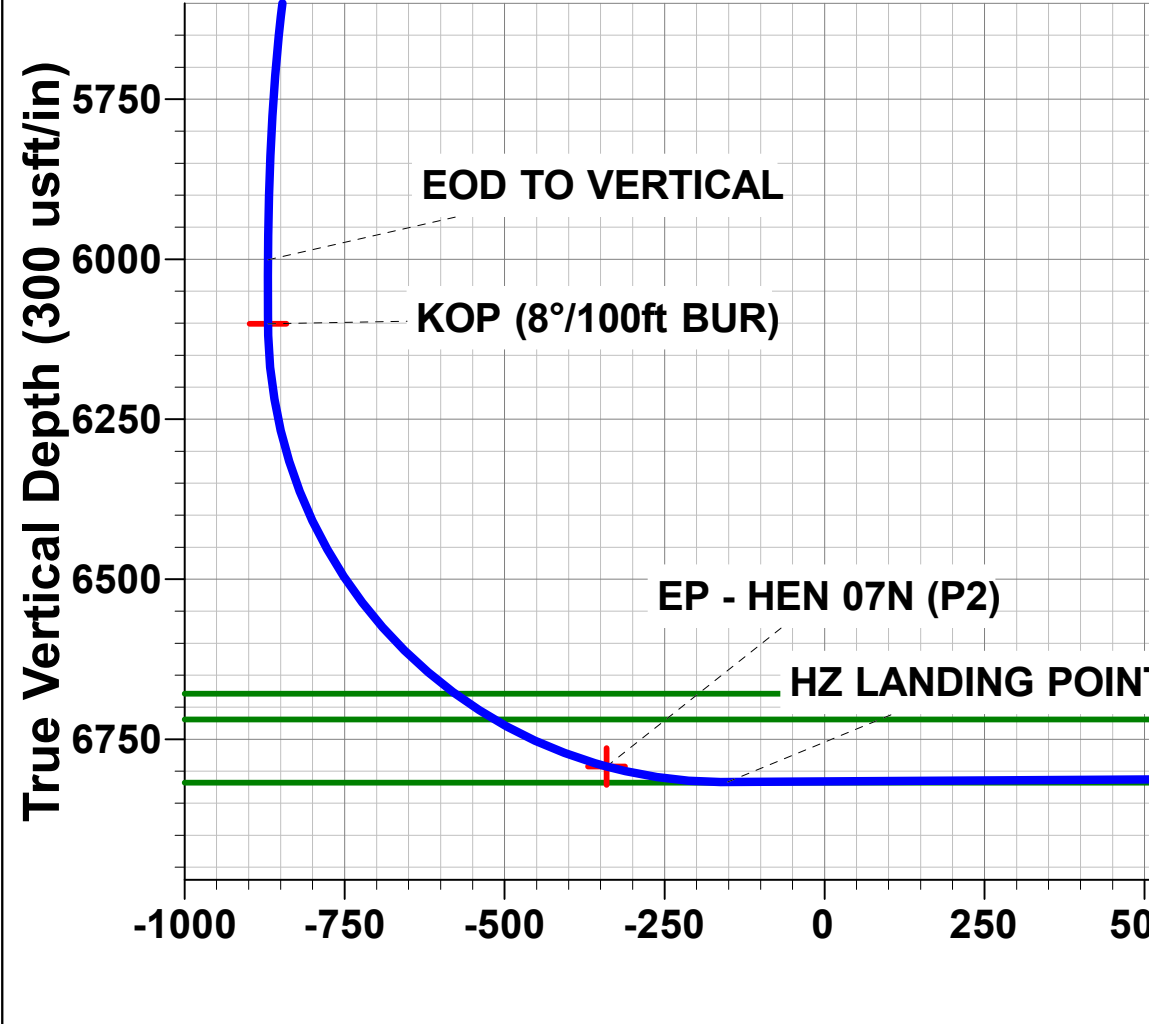
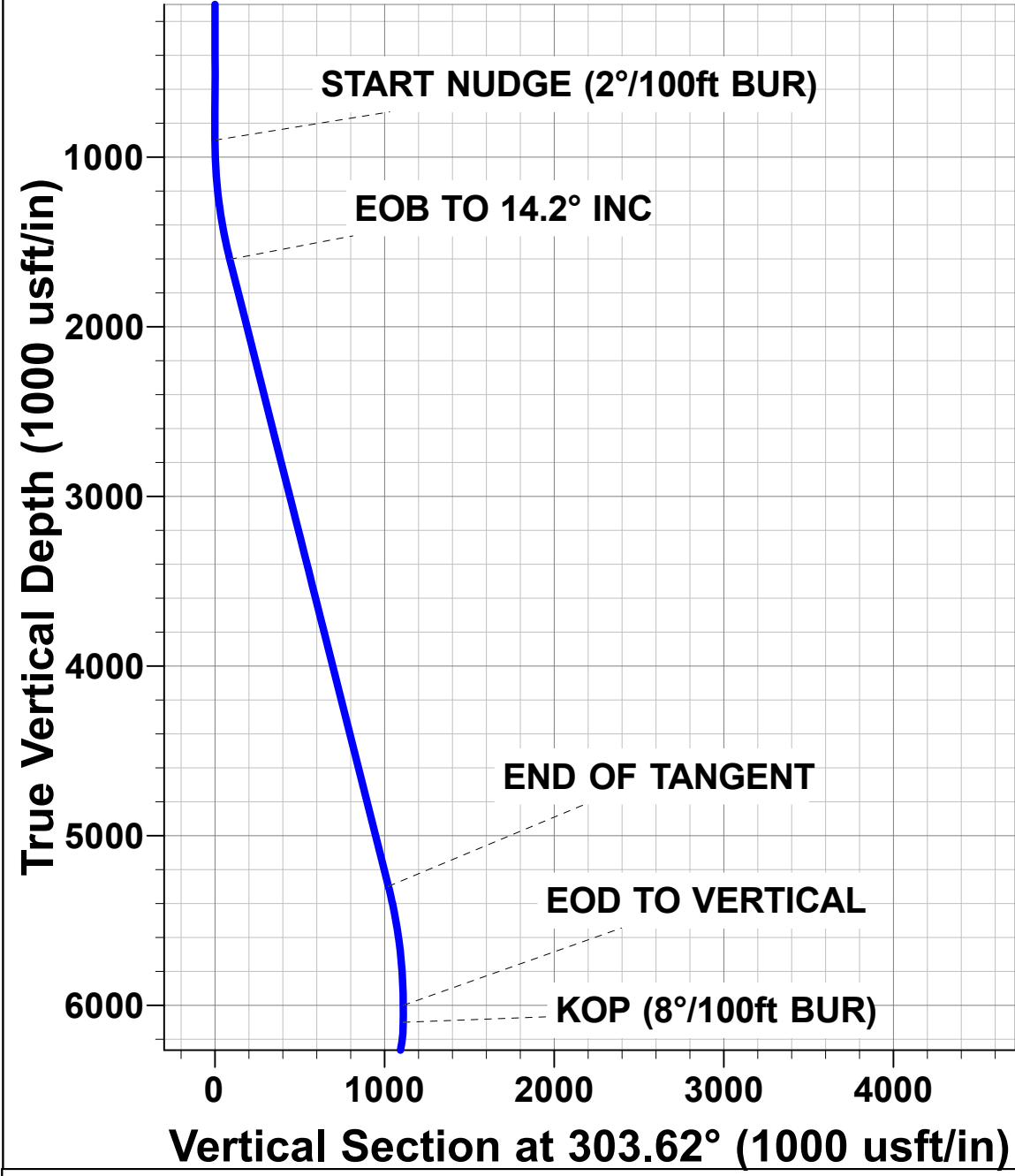


PROPOSED LOCAL COORDINATES:  
SHL: 2174ft FNL & 2044ft FEL of Sec 8  
EP: 1558ft FNL & 2440ft FEL of Sec 8  
BHL : 1558ft FNL & 200ft FEL of Sec 9

Azimuths to True North  
Magnetic North: 7.76°

Magnetic Field  
Strength: 51953.1nT  
Dip Angle: 66.63°  
Date: 2021-04-19  
Model: IGRF2020

DESIGN TARGET DETAILS								
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	
BHL - HEN 07N (P2)	6772.00	599.92	7128.93	1364420.03	3265752.72	40.329813	-104.546775	
EP - HEN 07N (P2)	6792.61	613.74	-393.53	1364355.16	3258230.84	40.329854	-104.573756	
KOP - HEN 07N (P2)	6100.82	614.67	-924.36	1364350.54	3257700.05	40.329856	-104.575660	





## **PDC ENERGY**

**WELD COUNTY, COLORADO (TRUE)  
SW NE SEC. 8 T4N R64W 6th P.M. (HEN)  
HEN 07N**

**ORIGINAL WELLBORE  
PROPOSAL #2**

# **Anticollision Summary Report**

**19 June, 2022**



<b>Company:</b>	PDC ENERGY	<b>Local Co-ordinate Reference:</b>	Well HEN 07N
<b>Project:</b>	WELD COUNTY, COLORADO (TRUE)	<b>TVD Reference:</b>	KB 23ft @ 4802.00usft
<b>Reference Site:</b>	SW NE SEC. 8 T4N R64W 6th P.M. (HEN)	<b>MD Reference:</b>	KB 23ft @ 4802.00usft
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	HEN 07N	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	ORIGINAL WELLBORE	<b>Database:</b>	Database 1
<b>Reference Design:</b>	PROPOSAL #2	<b>Offset TVD Reference:</b>	Offset Datum

<b>Reference</b>	PROPOSAL #2		
<b>Filter type:</b>	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
<b>Interpolation Method:</b>	MD + Stations Interval 100.00usft	<b>Error Model:</b>	ISCWSA
<b>Depth Range:</b>	Unlimited	<b>Scan Method:</b>	Closest Approach 3D
<b>Results Limited by:</b>	Maximum centre distance of 3,280.83usft	<b>Error Surface:</b>	Ellipsoid Separation
<b>Warning Levels Evaluated at:</b>	2.00 Sigma	<b>Casing Method:</b>	Not applied

<b>Survey Tool Program</b>	<b>Date</b>	2022-06-19		
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>
0.00	14,694.01	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						Out of range
ABDN DD ALTER C 16-29D - ORIGINAL WELLBORE - W						Out of range
ABDN DD ALTER C 16-29D - SIDETRACK - SIDETRAC						Out of range
ABDN HZ FRANKLIN C08-62HNX - ORIGINAL WELLBO	8,405.35	10,756.00	3,103.81	2,937.36	18.646	CC
ABDN HZ FRANKLIN C08-62HNX - ORIGINAL WELLBO	8,500.00	10,756.00	3,105.25	2,936.64	18.417	ES
ABDN HZ FRANKLIN C08-62HNX - ORIGINAL WELLBO	9,100.00	10,756.00	3,180.59	3,001.90	17.799	SF
ABDN HZ FRANKLIN C08-62HNX - SIDETRACK - SIDE	8,415.59	10,803.00	2,997.63	2,831.34	18.027	CC
ABDN HZ FRANKLIN C08-62HNX - SIDETRACK - SIDE	8,500.00	10,803.00	2,998.82	2,830.70	17.837	ES
ABDN HZ FRANKLIN C08-62HNX - SIDETRACK - SIDE	9,000.00	10,803.00	3,054.06	2,877.75	17.322	SF
ABDN VERT CONQUEST SWD 1-8 - Wellbore #1 - Des	900.00	813.00	3,155.08	3,137.23	176.821	CC
ABDN VERT CONQUEST SWD 1-8 - Wellbore #1 - Des	9,500.00	6,716.92	3,189.86	2,980.68	15.250	ES
ABDN VERT CONQUEST SWD 1-8 - Wellbore #1 - Des	10,100.00	6,713.24	3,266.16	3,043.42	14.663	SF
ABDN VERT COX 8-1 - Wellbore #1 - Wellbore #1	6,082.85	5,905.02	1,026.00	1,005.28	49.526	CC, ES
ABDN VERT COX 8-1 - Wellbore #1 - Wellbore #1	6,250.00	6,092.82	1,026.74	1,005.77	48.962	SF
ABDN VERT COX PM C 8-4 - Wellbore #1 - Wellbore #1	6,257.04	6,163.60	1,799.53	1,782.66	106.677	CC, ES
ABDN VERT COX PM C 8-4 - Wellbore #1 - Wellbore #1	6,350.00	6,258.74	1,804.50	1,787.50	106.089	SF
ABDN VERT COX PM C 8-5 - Wellbore #1 - Wellbore #1	6,239.01	6,118.64	1,793.34	1,771.88	83.556	CC, ES
ABDN VERT COX PM C 8-5 - Wellbore #1 - Wellbore #1	6,300.00	6,176.11	1,795.97	1,774.43	83.359	SF
ABDN VERT GEHRING 8-1514 - Wellbore #1 - Wellbore	941.26	889.82	2,143.15	2,140.60	839.398	CC, ES
ABDN VERT GEHRING 8-1514 - Wellbore #1 - Wellbore	9,600.00	6,754.23	3,111.32	3,044.05	46.251	SF
ABDN VERT GEHRING C 8-10X - Wellbore #1 - Wellbor	100.00	61.78	958.30	958.16	6,591.214	CC
ABDN VERT GEHRING C 8-10X - Wellbore #1 - Wellbor	600.00	561.13	958.92	957.44	648.035	ES
ABDN VERT GEHRING C 8-10X - Wellbore #1 - Wellbor	8,300.00	6,771.63	1,772.13	1,731.06	43.143	SF
ABDN VERT HAGEN 9-16 - Wellbore #1 - Design #1	14,026.38	6,644.11	3,244.50	2,911.44	9.741	CC
ABDN VERT HAGEN 9-16 - Wellbore #1 - Design #1	14,100.00	6,643.66	3,245.34	2,910.37	9.688	ES
ABDN VERT HAGEN 9-16 - Wellbore #1 - Design #1	14,500.00	6,641.20	3,278.88	2,935.58	9.551	SF
ABDN VERT HEISER 1 - Wellbore #1 - Design #1	900.00	856.00	1,124.04	1,105.33	60.076	CC
ABDN VERT HEISER 1 - Wellbore #1 - Design #1	1,000.00	955.98	1,125.10	1,104.16	53.718	ES
ABDN VERT HEISER 1 - Wellbore #1 - Design #1	8,000.00	6,769.10	1,770.03	1,598.27	10.305	SF
ABDN VERT LEVI C 5-15 - Wellbore #1 - Wellbore #1	7,942.65	6,766.73	2,320.28	2,283.40	62.907	CC
ABDN VERT LEVI C 5-15 - Wellbore #1 - Wellbore #1	8,000.00	6,767.12	2,320.99	2,282.87	60.877	ES
ABDN VERT LEVI C 5-15 - Wellbore #1 - Wellbore #1	9,400.00	6,776.37	2,740.00	2,675.54	42.503	SF
ABDN VERT REINICK 1 - Wellbore #1 - Wellbore #1	13,796.31	6,677.74	86.34	-89.44	0.491	Level 3, CC, ES, SF
ABDN VERT REINICK 2 - Wellbore #1 - Wellbore #1	12,872.35	6,684.72	857.14	687.64	5.057	CC
ABDN VERT REINICK 2 - Wellbore #1 - Wellbore #1	12,900.00	6,684.94	857.59	687.30	5.036	ES, SF
ABDN VERT REINICK 9-7 - Wellbore #1 - Design #1	12,749.09	6,684.98	554.99	256.79	1.861	CC, ES, SF

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



<b>Company:</b>	PDC ENERGY	<b>Local Co-ordinate Reference:</b>	Well HEN 07N
<b>Project:</b>	WELD COUNTY, COLORADO (TRUE)	<b>TVD Reference:</b>	KB 23ft @ 4802.00usft
<b>Reference Site:</b>	SW NE SEC. 8 T4N R64W 6th P.M. (HEN)	<b>MD Reference:</b>	KB 23ft @ 4802.00usft
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	HEN 07N	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	ORIGINAL WELLBORE	<b>Database:</b>	Database 1
<b>Reference Design:</b>	PROPOSAL #2	<b>Offset TVD Reference:</b>	Offset Datum

## Summary

Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
<b>Offset Well - Wellbore - Design</b>						
SW NE SEC. 8 T4N R64W 6th P.M. (HEN)						
ABDN VERT RICHARDSON 10-12 - Wellbore #1 - Wellb	14,694.01	6,578.87	2,044.55	1,846.48	10.322	CC, ES, SF
ABDN VERT RUFF 1 - Wellbore #1 - Design #1	7,695.59	6,785.36	902.33	736.18	5.431	CC
ABDN VERT RUFF 1 - Wellbore #1 - Design #1	7,700.00	6,785.33	902.35	736.12	5.428	ES
ABDN VERT RUFF 1 - Wellbore #1 - Design #1	7,800.00	6,784.72	908.36	740.44	5.410	SF
ABDN VERT RYANN STATE C 16-27 - Wellbore #1 - We						Out of range
ABDN VERT RYDGREN 8-1 - Wellbore #1 - Wellbore #1	6,239.26	6,140.59	2,442.21	2,415.74	92.268	CC, ES
ABDN VERT RYDGREN 8-1 - Wellbore #1 - Wellbore #1	6,300.00	6,213.53	2,443.79	2,417.29	92.215	SF
ABDN VERT SLEDGE C 9-28 - Wellbore #1 - Design #1	12,241.94	6,719.09	1,323.42	1,038.65	4.647	CC
ABDN VERT SLEDGE C 9-28 - Wellbore #1 - Design #1	12,300.00	6,718.74	1,324.69	1,038.30	4.625	ES
ABDN VERT SLEDGE C 9-28 - Wellbore #1 - Design #1	12,400.00	6,718.12	1,332.83	1,044.42	4.621	SF
ABDN VERT SLEDGE C 9-29 - Wellbore #1 - Design #1	10,903.63	6,748.31	1,379.01	1,130.76	5.555	CC, ES
ABDN VERT SLEDGE C 9-29 - Wellbore #1 - Design #1	11,100.00	6,747.11	1,392.93	1,140.04	5.508	SF
ABDN VERT SMITH 1 - Wellbore #1 - Design #1	10,263.35	6,755.24	893.24	662.45	3.870	CC
ABDN VERT SMITH 1 - Wellbore #1 - Design #1	10,300.00	6,755.01	893.99	662.16	3.856	ES, SF
ABDN VERT SMITH 2 - Wellbore #1 - Design #1	11,596.08	6,734.06	863.08	595.95	3.231	CC
ABDN VERT SMITH 2 - Wellbore #1 - Design #1	11,600.00	6,734.04	863.09	595.84	3.230	ES
ABDN VERT SMITH 2 - Wellbore #1 - Design #1	11,700.00	6,733.42	869.31	599.96	3.227	SF
ABDN VERT SMITH 3 - Wellbore #1 - Design #1	11,584.47	6,721.42	299.09	32.59	1.122	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	9,724.34	6,751.01	1,069.00	986.59	12.971	CC, ES
ABDN VERT THEA C 09-32 - Wellbore #1 - Wellbore #1	9,900.00	6,747.32	1,083.33	997.85	12.673	SF
EXIST DD ALTER C 09-24D - Wellbore #1 - Wellbore #1	12,330.33	7,238.64	2,372.13	2,175.86	12.086	CC
EXIST DD ALTER C 09-24D - Wellbore #1 - Wellbore #1	12,400.00	7,239.43	2,373.15	2,175.54	12.009	ES
EXIST DD ALTER C 09-24D - Wellbore #1 - Wellbore #1	12,600.00	7,241.73	2,387.41	2,186.93	11.908	SF
EXIST DD ALTER C 09-33D - Wellbore #1 - Wellbore #1	9,545.61	6,893.66	2,378.07	2,282.88	24.984	CC
EXIST DD ALTER C 09-33D - Wellbore #1 - Wellbore #1	9,600.00	6,893.17	2,378.69	2,281.94	24.585	ES
EXIST DD ALTER C 09-33D - Wellbore #1 - Wellbore #1	10,400.00	6,886.00	2,526.88	2,412.89	22.168	SF
EXIST DD BURMAN C 04-33D - Wellbore #1 - Wellbore	9,727.06	6,910.01	2,882.04	2,778.13	27.734	CC
EXIST DD BURMAN C 04-33D - Wellbore #1 - Wellbore	9,800.00	6,909.92	2,882.97	2,777.20	27.257	ES
EXIST DD BURMAN C 04-33D - Wellbore #1 - Wellbore	10,700.00	6,908.79	3,041.85	2,918.57	24.675	SF
EXIST DD BURMAN C 05-23D - Wellbore #1 - Wellbore	8,312.41	6,855.54	2,842.54	2,782.92	47.682	CC
EXIST DD BURMAN C 05-23D - Wellbore #1 - Wellbore	8,400.00	6,856.24	2,843.89	2,782.03	45.974	ES
EXIST DD BURMAN C 05-23D - Wellbore #1 - Wellbore	9,900.00	6,867.58	3,255.83	3,162.25	34.791	SF
EXIST DD BURMAN C05-24D - Wellbore #1 - Wellbore #	7,074.46	7,008.80	2,865.49	2,810.82	52.408	CC
EXIST DD BURMAN C05-24D - Wellbore #1 - Wellbore #	7,100.00	7,020.86	2,865.59	2,810.77	52.273	ES
EXIST DD BURMAN C05-24D - Wellbore #1 - Wellbore #	8,600.00	7,079.03	3,243.67	3,163.93	40.678	SF
EXIST DD NGL C1C - Wellbore #1 - Wellbore #1						Out of range
EXIST DD RUFF C 08-27D - Wellbore #1 - Wellbore #1	8,294.48	6,848.38	1,501.67	1,442.11	25.216	CC
EXIST DD RUFF C 08-27D - Wellbore #1 - Wellbore #1	8,300.00	6,848.41	1,501.68	1,441.98	25.157	ES
EXIST DD RUFF C 08-27D - Wellbore #1 - Wellbore #1	8,800.00	6,851.40	1,584.47	1,513.99	22.480	SF
EXIST DD SLEDGE C 9-30D - Wellbore #1 - Wellbore #1	9,533.78	6,860.20	1,795.45	1,699.89	18.788	CC
EXIST DD SLEDGE C 9-30D - Wellbore #1 - Wellbore #1	9,600.00	6,859.23	1,796.67	1,699.63	18.516	ES
EXIST DD SLEDGE C 9-30D - Wellbore #1 - Wellbore #1	10,000.00	6,853.45	1,854.98	1,751.29	17.890	SF
EXIST HZ CHALLENGER 1N - ORIGINAL WELLBORE -	0.00	0.00	1,174.80			
EXIST HZ CHALLENGER 1N - ORIGINAL WELLBORE -	200.00	188.00	1,174.99	1,174.50	2,362.333	ES
EXIST HZ CHALLENGER 1N - ORIGINAL WELLBORE -	8,000.00	6,491.00	1,895.48	1,843.53	36.492	SF
EXIST HZ CHALLENGER 1N - SIDETRACK - SIDETRA	0.00	0.00	1,174.80			
EXIST HZ CHALLENGER 1N - SIDETRACK - SIDETRA	200.00	188.00	1,174.99	1,174.50	2,362.333	ES
EXIST HZ CHALLENGER 1N - SIDETRACK - SIDETRA	8,000.00	6,491.00	1,895.48	1,843.53	36.492	SF
EXIST HZ CHALLENGER 2N - Wellbore #1 - Wellbore #	3,778.35	3,567.34	1,106.24	1,084.91	51.872	CC
EXIST HZ CHALLENGER 2N - Wellbore #1 - Wellbore #	3,800.00	3,586.15	1,106.27	1,084.80	51.520	ES
EXIST HZ CHALLENGER 2N - Wellbore #1 - Wellbore #	6,400.00	6,419.91	1,259.68	1,220.90	32.486	SF

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

<b>Company:</b>	PDC ENERGY	<b>Local Co-ordinate Reference:</b>	Well HEN 07N
<b>Project:</b>	WELD COUNTY, COLORADO (TRUE)	<b>TVD Reference:</b>	KB 23ft @ 4802.00usft
<b>Reference Site:</b>	SW NE SEC. 8 T4N R64W 6th P.M. (HEN)	<b>MD Reference:</b>	KB 23ft @ 4802.00usft
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	HEN 07N	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	ORIGINAL WELLBORE	<b>Database:</b>	Database 1
<b>Reference Design:</b>	PROPOSAL #2	<b>Offset TVD Reference:</b>	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 3N - Wellbore #1 - Wellbore #	6,450.00	6,398.37	950.03	912.14	25.071	SF
EXIST HZ CHALLENGER 3N - Wellbore #1 - Wellbore #	6,628.82	6,525.30	941.76	904.76	25.456	CC, ES
EXIST HZ CHALLENGER 4N - Wellbore #1 - Wellbore #	6,650.00	6,596.36	673.26	636.38	18.256	SF
EXIST HZ CHALLENGER 4N - Wellbore #1 - Wellbore #	6,777.91	6,659.49	663.10	627.20	18.473	CC, ES
EXIST HZ CHALLENGER 5N - Wellbore #1 - Wellbore #	6,700.00	6,589.17	463.57	426.95	12.660	SF
EXIST HZ CHALLENGER 5N - Wellbore #1 - Wellbore #	6,749.00	6,602.56	461.29	425.19	12.778	CC, ES
EXIST HZ CHALLENGER 6N - Wellbore #1 - Wellbore #	6,700.00	6,580.92	199.63	163.87	5.582	SF
EXIST HZ CHALLENGER 6N - Wellbore #1 - Wellbore #	6,719.37	6,586.57	198.76	163.43	5.626	CC, ES
EXIST HZ CHALLENGER 7N - Wellbore #1 - Wellbore #	6,721.19	6,603.15	63.33	27.98	1.791	CC, ES, SF
EXIST HZ CHALLENGER 8N - Wellbore #1 - Wellbore #	4,074.99	4,018.86	72.10	45.18	2.678	CC, ES, SF
EXIST HZ CHALLENGER 9N - Wellbore #1 - Wellbore #	3,742.60	3,695.90	221.95	196.32	8.660	CC, ES
EXIST HZ CHALLENGER 9N - Wellbore #1 - Wellbore #	3,800.00	3,748.46	223.20	197.21	8.589	SF
EXIST HZ FRANKLIN C17-69HN - Wellbore #1 - Wellbor						Out of range
EXIST HZ HAROLD 6X-232 - Wellbore #1 - Wellbore #1	10,888.21	13,677.42	2,323.77	2,014.61	7.517	CC
EXIST HZ HAROLD 6X-232 - Wellbore #1 - Wellbore #1	14,694.01	17,485.88	2,357.40	1,835.56	4.517	ES, SF
EXIST HZ HAROLD 6X-302 - Wellbore #1 - Wellbore #1	7,756.98	10,596.00	2,636.50	2,496.41	18.821	CC
EXIST HZ HAROLD 6X-302 - Wellbore #1 - Wellbore #1	14,694.01	17,399.01	2,673.84	2,156.54	5.169	ES, SF
EXIST HZ HAROLD 6Y-202 - Wellbore #1 - Wellbore #1	9,700.00	12,508.00	1,757.72	1,514.19	7.218	CC
EXIST HZ HAROLD 6Y-202 - Wellbore #1 - Wellbore #1	14,694.01	17,455.88	1,798.38	1,278.21	3.457	ES, SF
EXIST HZ HAROLD 6Y-312 - Wellbore #1 - Wellbore #1	8,866.44	11,737.63	1,983.51	1,786.10	10.048	CC
EXIST HZ HAROLD 6Y-312 - Wellbore #1 - Wellbore #1	14,694.01	17,585.22	2,000.34	1,479.32	3.839	ES, SF
EXIST HZ JAGGED 10N - Wellbore #1 - Wellbore #1	0.00	0.00	1,361.19			
EXIST HZ JAGGED 10N - Wellbore #1 - Wellbore #1	100.00	93.32	1,361.33	1,361.16	7,725.977	ES
EXIST HZ JAGGED 10N - Wellbore #1 - Wellbore #1	8,300.00	6,270.00	3,259.29	3,199.13	54.185	SF
EXIST HZ JAGGED 11N - Wellbore #1 - Wellbore #1	393.13	370.47	1,372.17	1,370.80	1,003.405	CC
EXIST HZ JAGGED 11N - Wellbore #1 - Wellbore #1	400.00	374.97	1,372.17	1,370.78	985.537	ES
EXIST HZ JAGGED 11N - Wellbore #1 - Wellbore #1	7,700.00	6,130.00	3,269.58	3,220.95	67.225	SF
EXIST HZ JAGGED 12N - Wellbore #1 - Wellbore #1	0.00	0.00	1,383.22			
EXIST HZ JAGGED 12N - Wellbore #1 - Wellbore #1	6,500.00	6,160.42	3,277.99	3,238.66	83.351	SF
EXIST HZ JAGGED 1N - Wellbore #1 - Wellbore #1	4,712.84	4,789.92	730.08	701.12	25.213	CC, ES
EXIST HZ JAGGED 1N - Wellbore #1 - Wellbore #1	6,850.00	6,670.61	783.87	747.24	21.401	SF
EXIST HZ JAGGED 2N - Wellbore #1 - Wellbore #1	4,405.01	4,472.87	881.32	854.60	32.991	CC, ES
EXIST HZ JAGGED 2N - Wellbore #1 - Wellbore #1	6,650.00	6,510.34	1,068.68	1,033.05	30.000	SF
EXIST HZ JAGGED 3N - Wellbore #1 - Wellbore #1	3,545.21	3,615.81	1,023.30	1,001.79	47.573	CC
EXIST HZ JAGGED 3N - Wellbore #1 - Wellbore #1	3,600.00	3,665.47	1,023.49	1,001.61	46.768	ES
EXIST HZ JAGGED 3N - Wellbore #1 - Wellbore #1	6,700.00	6,555.00	1,283.34	1,247.57	35.876	SF
EXIST HZ JAGGED 4N - Wellbore #1 - Wellbore #1	2,620.14	2,640.60	1,235.26	1,221.01	86.666	CC
EXIST HZ JAGGED 4N - Wellbore #1 - Wellbore #1	2,700.00	2,713.27	1,235.64	1,220.81	83.278	ES
EXIST HZ JAGGED 4N - Wellbore #1 - Wellbore #1	6,600.00	6,460.00	1,579.76	1,544.44	44.733	SF
EXIST HZ JAGGED 5N - Wellbore #1 - Wellbore #1	1,855.48	1,822.71	1,285.62	1,277.05	150.028	CC
EXIST HZ JAGGED 5N - Wellbore #1 - Wellbore #1	1,900.00	1,857.45	1,285.82	1,276.97	145.241	ES
EXIST HZ JAGGED 5N - Wellbore #1 - Wellbore #1	8,100.00	6,364.00	2,243.32	2,195.74	47.142	SF
EXIST HZ JAGGED 6N - Wellbore #1 - Wellbore #1	279.13	276.04	1,316.93	1,316.04	1,484.222	CC
EXIST HZ JAGGED 6N - Wellbore #1 - Wellbore #1	700.00	690.69	1,317.38	1,314.68	487.998	ES
EXIST HZ JAGGED 6N - Wellbore #1 - Wellbore #1	8,300.00	6,289.95	2,527.97	2,476.05	48.696	SF
EXIST HZ JAGGED 7N - Wellbore #1 - Wellbore #1	456.02	453.05	1,327.95	1,326.29	801.155	CC, ES
EXIST HZ JAGGED 7N - Wellbore #1 - Wellbore #1	8,600.00	6,269.00	2,863.65	2,805.28	49.064	SF
EXIST HZ JAGGED 8N - Wellbore #1 - Wellbore #1	0.00	0.00	1,339.42			
EXIST HZ JAGGED 8N - Wellbore #1 - Wellbore #1	8,800.00	6,269.00	3,125.83	3,062.92	49.688	SF
EXIST HZ JAGGED 9N - Wellbore #1 - Wellbore #1	0.00	0.00	1,350.54			
EXIST HZ JAGGED 9N - Wellbore #1 - Wellbore #1	443.05	442.33	1,351.27	1,349.67	843.864	ES
EXIST HZ JAGGED 9N - Wellbore #1 - Wellbore #1	8,600.00	6,270.00	3,228.93	3,165.49	50.891	SF
EXIST HZ MARK ALTER C16-79HN - Wellbore #1 - Well	9,720.57	6,159.00	3,263.95	3,169.86	34.689	CC

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

<b>Company:</b>	PDC ENERGY	<b>Local Co-ordinate Reference:</b>	Well HEN 07N
<b>Project:</b>	WELD COUNTY, COLORADO (TRUE)	<b>TVD Reference:</b>	KB 23ft @ 4802.00usft
<b>Reference Site:</b>	SW NE SEC. 8 T4N R64W 6th P.M. (HEN)	<b>MD Reference:</b>	KB 23ft @ 4802.00usft
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	HEN 07N	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	ORIGINAL WELLBORE	<b>Database:</b>	Database 1
<b>Reference Design:</b>	PROPOSAL #2	<b>Offset TVD Reference:</b>	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 MARK ALTER C16-79HN - Wellbore #1 - Well	9,800.00	6,159.00	3,264.92	3,168.79	33.964	ES
EXIST HZ MARK ALTER C16-79HN - Wellbore #1 - Well	10,000.00	6,179.44	3,275.52	3,174.36	32.382	SF
EXIST HZ NORTHRUP C 08-73HN - Wellbore #1 - Wellb	8,298.11	7,910.89	73.98	47.34	2.777	CC, ES, SF
EXIST HZ NORTHRUP C 08-75HN - Wellbore #1 - Wellb	7,071.89	8,226.56	152.07	128.97	6.585	CC
EXIST HZ NORTHRUP C 08-75HN - Wellbore #1 - Wellb	7,100.00	8,226.16	155.18	128.83	5.888	ES
EXIST HZ NORTHRUP C 08-75HN - Wellbore #1 - Wellb	7,169.26	8,225.07	186.01	150.43	5.228	SF
EXIST HZ OREDIGGER C10-69HN - Wellbore #1 - Well	14,694.01	6,475.00	1,499.03	1,274.35	6.672	CC, ES, SF
EXIST HZ SANDY HILLS PC C17-67HN - Wellbore #1 -						Out of range
EXIST HZ STOCKLEY C15-79HN - Wellbore #1 - Wellbo	14,694.01	13,772.00	1,274.70	1,033.19	5.278	CC, ES, SF
EXIST HZ ZANE ALTER C 09-21 - Wellbore #1 - Wellbor	12,431.88	9,004.83	718.58	659.26	12.114	CC, ES, SF
EXIST VERT ALTER C 9-23 - Wellbore #1 - Design #1	13,568.98	6,662.03	2,310.68	1,990.03	7.206	CC
EXIST VERT ALTER C 9-23 - Wellbore #1 - Design #1	13,600.00	6,661.84	2,310.88	1,989.45	7.189	ES
EXIST VERT ALTER C 9-23 - Wellbore #1 - Design #1	13,800.00	6,660.61	2,322.20	1,996.56	7.131	SF
EXIST VERT ALTER C 9-25 - Wellbore #1 - Design #1	10,911.11	6,700.89	2,273.88	2,026.37	9.187	CC
EXIST VERT ALTER C 9-25 - Wellbore #1 - Design #1	11,000.00	6,700.34	2,275.62	2,025.88	9.112	ES
EXIST VERT ALTER C 9-25 - Wellbore #1 - Design #1	11,300.00	6,698.50	2,306.90	2,051.08	9.018	SF
EXIST VERT AMANDA ALTER C 9-20 - Wellbore #1 - De	10,928.56	6,716.02	1,226.47	978.22	4.941	CC, ES
EXIST VERT AMANDA ALTER C 9-20 - Wellbore #1 - De	11,000.00	6,715.58	1,228.54	978.75	4.918	SF
EXIST VERT BARTON C 15-29 - Wellbore #1 - Design #						Out of range
EXIST VERT BENNER 1 - Wellbore #1 - Wellbore #1	9,049.32	6,761.87	444.87	380.56	6.918	CC, ES
EXIST VERT BENNER 1 - Wellbore #1 - Wellbore #1	9,100.00	6,760.94	447.75	382.76	6.890	SF
EXIST VERT CONNELL 14-4 - Wellbore #1 - Wellbore #	10,231.22	6,739.88	2,364.93	2,267.87	24.365	CC
EXIST VERT CONNELL 14-4 - Wellbore #1 - Wellbore #	10,300.00	6,739.03	2,365.93	2,266.95	23.902	ES
EXIST VERT CONNELL 14-4 - Wellbore #1 - Wellbore #	11,000.00	6,730.75	2,486.74	2,373.38	21.936	SF
EXIST VERT CONNELL 3 - Wellbore #1 - Wellbore #1	11,606.86	6,700.00	2,264.29	2,130.07	16.870	CC
EXIST VERT CONNELL 3 - Wellbore #1 - Wellbore #1	11,700.00	6,700.00	2,266.20	2,129.37	16.562	ES
EXIST VERT CONNELL 3 - Wellbore #1 - Wellbore #1	12,100.00	6,688.63	2,317.34	2,172.13	15.958	SF
EXIST VERT CONNELL C 4-25 - Wellbore #1 - Wellbore	11,124.86	6,576.48	3,068.41	2,947.51	25.380	CC
EXIST VERT CONNELL C 4-25 - Wellbore #1 - Wellbore	11,200.00	6,580.35	3,069.33	2,946.30	24.949	ES
EXIST VERT CONNELL C 4-25 - Wellbore #1 - Wellbore	12,100.00	6,621.67	3,219.34	3,077.31	22.665	SF
EXIST VERT COX 8-19D - Wellbore #1 - Design #1	6,231.77	6,088.82	1,185.63	1,046.83	8.542	CC
EXIST VERT COX 8-19D - Wellbore #1 - Design #1	6,250.00	6,107.05	1,185.85	1,046.66	8.519	ES
EXIST VERT COX 8-19D - Wellbore #1 - Design #1	6,350.00	6,206.52	1,195.16	1,053.82	8.456	SF
EXIST VERT COX PM C 8-6 - Wellbore #1 - Wellbore #1	5,889.15	5,728.06	452.62	427.37	17.921	CC
EXIST VERT COX PM C 8-6 - Wellbore #1 - Wellbore #1	6,000.00	5,844.18	452.65	427.17	17.768	ES
EXIST VERT COX PM C 8-6 - Wellbore #1 - Wellbore #1	6,250.00	6,103.09	453.42	427.72	17.642	SF
EXIST VERT CPC HARLESS 17-1 - Wellbore #1 - Wellb						Out of range
EXIST VERT EMBRICK C 10-19 - Wellbore #1 - Wellbor	14,694.01	6,617.43	1,359.02	1,329.69	46.336	CC, ES, SF
EXIST VERT ENGLAND 8-3-17 - Wellbore #1 - Wellbore	6,237.67	6,119.05	1,901.64	1,875.26	72.101	CC, ES
EXIST VERT ENGLAND 8-3-17 - Wellbore #1 - Wellbore	6,250.00	6,130.95	1,901.72	1,875.33	72.070	SF
EXIST VERT ENGLAND 8-35 - Wellbore #1 - Wellbore #	4,443.83	4,375.10	2,538.01	2,518.64	131.028	CC
EXIST VERT ENGLAND 8-35 - Wellbore #1 - Wellbore #	4,600.00	4,525.59	2,538.18	2,517.98	125.652	ES
EXIST VERT ENGLAND 8-35 - Wellbore #1 - Wellbore #	6,300.00	6,147.09	2,579.02	2,552.51	97.277	SF
EXIST VERT GEHRING 1 - Wellbore #1 - Wellbore #1	748.27	664.27	2,739.07	2,737.29	1,540.869	CC
EXIST VERT GEHRING 1 - Wellbore #1 - Wellbore #1	901.74	819.25	2,739.22	2,737.01	1,240.559	ES
EXIST VERT GEHRING 1 - Wellbore #1 - Wellbore #1	10,300.00	6,761.38	3,258.57	3,170.99	37.210	SF
EXIST VERT GEHRING 8-914 - Wellbore #1 - Wellbore #	9,038.67	6,784.01	1,622.35	1,558.30	25.330	CC
EXIST VERT GEHRING 8-914 - Wellbore #1 - Wellbore #	9,100.00	6,783.61	1,623.51	1,557.97	24.771	ES
EXIST VERT GEHRING 8-914 - Wellbore #1 - Wellbore #	9,500.00	6,781.01	1,686.66	1,613.82	23.155	SF
EXIST VERT HAGEN 9-10 - Wellbore #1 - Design #1	12,994.00	6,674.03	1,926.10	1,621.27	6.319	CC
EXIST VERT HAGEN 9-10 - Wellbore #1 - Design #1	13,000.00	6,673.99	1,926.10	1,621.12	6.315	ES
EXIST VERT HAGEN 9-10 - Wellbore #1 - Design #1	13,200.00	6,672.76	1,937.08	1,628.04	6.268	SF

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

<b>Company:</b>	PDC ENERGY	<b>Local Co-ordinate Reference:</b>	Well HEN 07N
<b>Project:</b>	WELD COUNTY, COLORADO (TRUE)	<b>TVD Reference:</b>	KB 23ft @ 4802.00usft
<b>Reference Site:</b>	SW NE SEC. 8 T4N R64W 6th P.M. (HEN)	<b>MD Reference:</b>	KB 23ft @ 4802.00usft
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	HEN 07N	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	ORIGINAL WELLBORE	<b>Database:</b>	Database 1
<b>Reference Design:</b>	PROPOSAL #2	<b>Offset TVD Reference:</b>	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 HAGEN 9-15 - Wellbore #1 - Design #1	12,719.58	6,665.55	3,245.83	2,948.82	10.928	CC
EXIST VERT HAGEN 9-15 - Wellbore #1 - Design #1	12,800.00	6,665.05	3,246.82	2,947.73	10.855	ES
EXIST VERT HAGEN 9-15 - Wellbore #1 - Design #1	13,100.00	6,663.21	3,268.04	2,962.15	10.684	SF
EXIST VERT HAGEN 9-9 - Wellbore #1 - Wellbore #1	13,899.32	6,781.89	1,865.94	1,668.20	9.436	CC
EXIST VERT HAGEN 9-9 - Wellbore #1 - Wellbore #1	13,900.00	6,781.85	1,865.94	1,668.19	9.436	ES
EXIST VERT HAGEN 9-9 - Wellbore #1 - Wellbore #1	14,100.00	6,767.64	1,876.65	1,674.99	9.306	SF
EXIST VERT HARLESS PM C 17-2 - Wellbore #1 - Desi						Out of range
EXIST VERT JOHNSON 9-11 - Wellbore #1 - Design #1	11,590.72	6,694.62	1,738.09	1,471.90	6.529	CC
EXIST VERT JOHNSON 9-11 - Wellbore #1 - Design #1	11,600.00	6,694.57	1,738.11	1,471.69	6.524	ES
EXIST VERT JOHNSON 9-11 - Wellbore #1 - Design #1	11,800.00	6,693.34	1,750.64	1,480.15	6.472	SF
EXIST VERT JOHNSON 9-13 - Wellbore #1 - Wellbore #	10,303.58	6,800.00	3,040.24	2,942.05	30.963	CC
EXIST VERT JOHNSON 9-13 - Wellbore #1 - Wellbore #	10,400.00	6,800.00	3,041.77	2,941.08	30.208	ES
EXIST VERT JOHNSON 9-13 - Wellbore #1 - Wellbore #	11,400.00	6,800.00	3,231.89	3,112.22	27.005	SF
EXIST VERT MCCLINTOCK C 4-15 - Wellbore #1 - Well	13,020.54	6,647.57	2,591.00	2,417.53	14.937	CC
EXIST VERT MCCLINTOCK C 4-15 - Wellbore #1 - Well	13,100.00	6,646.31	2,592.22	2,416.49	14.752	ES
EXIST VERT MCCLINTOCK C 4-15 - Wellbore #1 - Well	13,600.00	6,638.05	2,654.99	2,469.22	14.291	SF
EXIST VERT NGL C1A - Wellbore #1 - Design #1						Out of range
EXIST VERT NGL C1B - Wellbore #1 - Design #1	900.00	823.00	3,126.12	3,108.10	173.434	CC
EXIST VERT NGL C1B - Wellbore #1 - Design #1	1,000.00	922.98	3,127.70	3,107.44	154.381	ES
EXIST VERT NGL C1B - Wellbore #1 - Design #1	1,900.00	1,806.89	3,270.38	3,230.04	81.055	SF
EXIST VERT REINICK 10-5 - Wellbore #1 - Wellbore #1	14,694.01	6,596.34	921.10	803.31	7.819	CC, ES, SF
EXIST VERT REINICK 1-10-4-64 - Wellbore #1 - Wellbo	14,694.01	6,667.40	1,324.93	1,170.95	8.605	CC, ES, SF
EXIST VERT REINICK 3 - Wellbore #1 - Wellbore #1	14,177.90	6,673.28	834.52	628.78	4.056	CC
EXIST VERT REINICK 3 - Wellbore #1 - Wellbore #1	14,200.00	6,673.39	834.81	628.43	4.045	ES, SF
EXIST VERT REINICK C 10-31 - Wellbore #1 - Wellbore	14,584.26	6,672.78	192.86	-17.51	0.917	Level 3, CC, ES, SF
EXIST VERT REINICK C 9-18 - Wellbore #1 - Design #1	12,294.83	6,710.04	147.91	-136.93	0.519	Level 3, CC, ES, SF
EXIST VERT REINICK C 9-22 - Wellbore #1 - Design #1	13,581.06	6,671.86	1,052.33	731.20	3.277	CC
EXIST VERT REINICK C 9-22 - Wellbore #1 - Design #1	13,600.00	6,671.74	1,052.50	730.95	3.273	ES, SF
EXIST VERT REISTAD 1 - Wellbore #1 - Wellbore #1	8,959.25	6,758.77	2,260.99	2,198.93	36.437	CC
EXIST VERT REISTAD 1 - Wellbore #1 - Wellbore #1	9,000.00	6,758.48	2,261.35	2,198.22	35.818	ES
EXIST VERT REISTAD 1 - Wellbore #1 - Wellbore #1	9,900.00	6,752.12	2,448.89	2,367.20	29.977	SF
EXIST VERT RICHARDSON 10-13 - Wellbore #1 - Desig	14,694.01	6,625.00	3,075.07	2,733.88	9.013	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	8,606.35	6,772.44	597.37	544.67	11.335	CC, ES
EXIST VERT RUFF 8-114 - Wellbore #1 - Wellbore #1	8,700.00	6,770.24	604.66	549.95	11.052	SF
EXIST VERT RUFF 8-714 - Wellbore #1 - Wellbore #1	7,994.48	6,808.72	290.42	252.34	7.625	CC
EXIST VERT RUFF 8-714 - Wellbore #1 - Wellbore #1	8,000.00	6,808.65	290.48	252.27	7.602	ES, SF
EXIST VERT RUFF C 8-1 - Wellbore #1 - Design #1	9,239.79	6,776.51	1,084.38	880.84	5.328	CC, ES
EXIST VERT RUFF C 8-1 - Wellbore #1 - Design #1	9,400.00	6,775.53	1,096.15	888.78	5.286	SF
EXIST VERT RYANN STATE C 16-1 - Wellbore #1 - Wel						Out of range
EXIST VERT RYDGREN 8-31 - Wellbore #1 - Wellbore #	2,414.29	2,357.31	1,527.86	1,519.34	179.303	CC
EXIST VERT RYDGREN 8-31 - Wellbore #1 - Wellbore #	2,500.00	2,437.59	1,528.08	1,519.12	170.419	ES
EXIST VERT RYDGREN 8-31 - Wellbore #1 - Wellbore #	6,350.00	6,159.48	1,766.40	1,741.45	70.787	SF
EXIST VERT SLEDGE C 9-31 - Wellbore #1 - Design #1	9,807.81	6,748.66	146.62	-70.18	0.676	Level 3, CC, ES, SF
EXIST VERT SMITH 9-5 - Wellbore #1 - Design #1	10,462.23	6,734.27	594.94	359.13	2.523	CC, ES
EXIST VERT SMITH 9-5 - Wellbore #1 - Design #1	10,500.00	6,734.04	596.14	359.75	2.522	SF
EXIST VERT SMITH C 9-19 - Wellbore #1 - Design #1	11,041.77	6,745.46	603.31	351.31	2.394	CC, ES
EXIST VERT SMITH C 9-19 - Wellbore #1 - Design #1	11,100.00	6,745.11	606.11	352.79	2.393	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	11,636.41	6,684.30	3,099.78	2,832.52	11.599	CC

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



<b>Company:</b>	PDC ENERGY	<b>Local Co-ordinate Reference:</b>	Well HEN 07N
<b>Project:</b>	WELD COUNTY, COLORADO (TRUE)	<b>TVD Reference:</b>	KB 23ft @ 4802.00usft
<b>Reference Site:</b>	SW NE SEC. 8 T4N R64W 6th P.M. (HEN)	<b>MD Reference:</b>	KB 23ft @ 4802.00usft
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	HEN 07N	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	ORIGINAL WELLBORE	<b>Database:</b>	Database 1
<b>Reference Design:</b>	PROPOSAL #2	<b>Offset TVD Reference:</b>	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 VERN JOHNSON 1-A - Wellbore #1 - Design	11,700.00	6,683.91	3,100.43	2,831.52	11.530	ES
EXIST VERT VERN JOHNSON 1-A - Wellbore #1 - Design	12,200.00	6,680.84	3,150.59	2,870.87	11.263	SF
EXIST VERT VERN JOHNSON 2 - Wellbore #1 - Design	10,264.51	6,720.26	1,733.42	1,503.29	7.532	CC
EXIST VERT VERN JOHNSON 2 - Wellbore #1 - Design	10,300.00	6,720.04	1,733.78	1,502.77	7.505	ES
EXIST VERT VERN JOHNSON 2 - Wellbore #1 - Design	10,500.00	6,718.82	1,749.34	1,514.15	7.438	SF
EXIST VERT WILMOTH 1 - Wellbore #1 - Wellbore #1	14,189.89	6,630.04	2,315.16	2,108.91	11.225	CC
EXIST VERT WILMOTH 1 - Wellbore #1 - Wellbore #1	14,300.00	6,629.81	2,317.78	2,108.49	11.075	ES
EXIST VERT WILMOTH 1 - Wellbore #1 - Wellbore #1	14,600.00	6,629.16	2,351.21	2,136.31	10.941	SF
EXIST VERT WILMOTH C 3-33 - Wellbore #1 - Wellbore	14,694.01	6,660.19	2,881.79	2,662.04	13.114	CC, ES, SF
EXIST VERT WILMOTH C 4-23 - Wellbore #1 - Wellbore	13,622.51	6,613.45	2,890.76	2,700.58	15.200	CC
EXIST VERT WILMOTH C 4-23 - Wellbore #1 - Wellbore	13,700.00	6,600.00	2,891.84	2,699.47	15.033	ES
EXIST VERT WILMOTH C 4-23 - Wellbore #1 - Wellbore	14,200.00	6,600.00	2,947.87	2,744.98	14.530	SF
EXIST VERT WILMOTH C 4-24 - Wellbore #1 - Wellbore	12,405.36	6,673.17	2,965.42	2,809.06	18.965	CC
EXIST VERT WILMOTH C 4-24 - Wellbore #1 - Wellbore	12,500.00	6,674.01	2,966.93	2,807.89	18.655	ES
EXIST VERT WILMOTH C 4-24 - Wellbore #1 - Wellbore	13,200.00	6,680.02	3,070.05	2,896.75	17.715	SF
EXIST VERT WILMOTH C 9-27 - Wellbore #1 - Wellbore	13,525.24	6,695.33	1,757.66	1,570.39	9.386	CC
EXIST VERT WILMOTH C 9-27 - Wellbore #1 - Wellbore	13,600.00	6,694.66	1,759.25	1,569.90	9.291	ES
EXIST VERT WILMOTH C 9-27 - Wellbore #1 - Wellbore	13,800.00	6,692.90	1,779.01	1,585.98	9.216	SF
HEN 01N - ORIGINAL WELLBORE - PROPOSAL #2	300.00	300.00	89.98	88.91	83.930	CC, ES
HEN 01N - ORIGINAL WELLBORE - PROPOSAL #2	14,694.01	15,030.64	1,437.99	1,001.09	3.291	SF
HEN 02N - ORIGINAL WELLBORE - PROPOSAL #2	400.00	400.00	75.01	73.49	49.296	CC, ES
HEN 02N - ORIGINAL WELLBORE - PROPOSAL #2	14,694.01	15,019.52	1,199.48	763.81	2.753	SF
HEN 03N - ORIGINAL WELLBORE - PROPOSAL #2	500.00	500.00	60.00	58.03	30.439	CC, ES
HEN 03N - ORIGINAL WELLBORE - PROPOSAL #2	14,694.01	14,887.11	958.62	521.84	2.195	SF
HEN 04N - ORIGINAL WELLBORE - PROPOSAL #2	600.00	600.00	44.99	42.57	18.585	CC, ES
HEN 04N - ORIGINAL WELLBORE - PROPOSAL #2	14,694.01	14,889.46	721.43	288.66	1.667	SF
HEN 05N - ORIGINAL WELLBORE - PROPOSAL #2	700.00	700.00	29.98	27.11	10.446	CC, ES
HEN 05N - ORIGINAL WELLBORE - PROPOSAL #2	14,694.01	14,767.39	479.31	43.33	1.099	Level 3, SF
HEN 06N - ORIGINAL WELLBORE - PROPOSAL #2	716.33	717.33	15.01	12.06	5.095	CC
HEN 06N - ORIGINAL WELLBORE - PROPOSAL #2	14,694.01	14,799.56	247.04	-62.30	0.799	Level 3, ES, SF
HEN 08N - ORIGINAL WELLBORE - PROPOSAL #2	900.00	900.00	14.97	11.20	3.972	CC
HEN 08N - ORIGINAL WELLBORE - PROPOSAL #2	14,693.13	14,745.04	249.66	-49.98	0.833	Level 3, ES, SF
HEN 09N - ORIGINAL WELLBORE - PROPOSAL #2	900.00	900.00	29.98	26.21	7.954	CC, ES
HEN 09N - ORIGINAL WELLBORE - PROPOSAL #2	14,694.01	14,695.25	479.31	43.31	1.099	Level 3, SF
HEN 10N - ORIGINAL WELLBORE - PROPOSAL #2	900.00	900.00	44.99	41.22	11.936	CC, ES
HEN 10N - ORIGINAL WELLBORE - PROPOSAL #2	14,694.01	14,785.18	723.37	291.50	1.675	SF
HEN 11N - ORIGINAL WELLBORE - PROPOSAL #2	900.00	900.00	59.97	56.20	15.909	CC, ES
HEN 11N - ORIGINAL WELLBORE - PROPOSAL #2	14,694.01	14,738.87	958.62	521.75	2.194	SF
HEN 12N - ORIGINAL WELLBORE - PROPOSAL #2	900.00	900.00	74.97	71.21	19.891	CC, ES
HEN 12N - ORIGINAL WELLBORE - PROPOSAL #2	14,694.01	14,835.25	1,201.22	766.43	2.763	SF
HEN 13N - ORIGINAL WELLBORE - PROPOSAL #2	900.00	900.00	89.98	86.22	23.873	CC, ES
HEN 13N - ORIGINAL WELLBORE - PROPOSAL #2	14,694.01	14,796.68	1,437.94	1,001.73	3.296	SF
HEN 14N - ORIGINAL WELLBORE - PROPOSAL #2	900.00	900.00	104.99	101.22	27.855	CC, ES
HEN 14N - ORIGINAL WELLBORE - PROPOSAL #2	14,694.01	14,908.23	1,679.66	1,244.28	3.858	SF
HEN 15N - ORIGINAL WELLBORE - PROPOSAL #2	900.00	900.00	119.97	116.20	31.827	CC, ES
HEN 15N - ORIGINAL WELLBORE - PROPOSAL #2	14,694.01	14,877.74	1,917.17	1,481.25	4.398	SF
HEN 16N - ORIGINAL WELLBORE - PROPOSAL #2	900.00	900.00	134.94	131.17	35.800	CC, ES
HEN 16N - ORIGINAL WELLBORE - PROPOSAL #2	14,694.01	14,965.04	2,158.28	1,722.84	4.957	SF
HEN 17N - ORIGINAL WELLBORE - PROPOSAL #2	800.00	800.00	149.95	146.63	45.168	CC, ES
HEN 17N - ORIGINAL WELLBORE - PROPOSAL #2	14,694.01	14,966.03	2,396.44	1,960.74	5.500	SF
HEN 18N - ORIGINAL WELLBORE - PROPOSAL #2	700.00	700.00	164.96	162.09	57.472	CC, ES
HEN 18N - ORIGINAL WELLBORE - PROPOSAL #2	14,694.01	15,093.23	2,637.15	2,201.83	6.058	SF
HEN 19N - ORIGINAL WELLBORE - PROPOSAL #2	600.00	600.00	179.97	177.55	74.345	CC, ES

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



<b>Company:</b>	PDC ENERGY	<b>Local Co-ordinate Reference:</b>	Well HEN 07N
<b>Project:</b>	WELD COUNTY, COLORADO (TRUE)	<b>TVD Reference:</b>	KB 23ft @ 4802.00usft
<b>Reference Site:</b>	SW NE SEC. 8 T4N R64W 6th P.M. (HEN)	<b>MD Reference:</b>	KB 23ft @ 4802.00usft
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	HEN 07N	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	ORIGINAL WELLBORE	<b>Database:</b>	Database 1
<b>Reference Design:</b>	PROPOSAL #2	<b>Offset TVD Reference:</b>	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 19N - ORIGINAL WELLBORE - PROPOSAL #2	14,694.01	15,090.25	2,875.73	2,440.27	6.604	SF
HEN 20NA - ORIGINAL WELLBORE - PROPOSAL #2	500.00	499.00	194.94	192.97	99.008	CC, ES
HEN 20NA - ORIGINAL WELLBORE - PROPOSAL #2	14,694.01	15,111.10	3,115.77	2,680.43	7.157	SF
HEN 21N - ORIGINAL WELLBORE - PROPOSAL #2	400.00	399.00	209.95	208.43	138.179	CC, ES
HEN 21N - ORIGINAL WELLBORE - PROPOSAL #2	1,100.00	1,027.08	305.21	300.74	68.275	SF
HEN 22N - ORIGINAL WELLBORE - PROPOSAL #2	300.00	298.00	224.96	223.89	210.709	CC, ES
HEN 22N - ORIGINAL WELLBORE - PROPOSAL #2	1,200.00	1,087.40	382.77	377.82	77.274	SF