

PDC ENERGY Derrick

**WELD COUNTY, COLORADO (TRUE)
SW NE SEC. 8 T4N R64W 6th P.M. (HEN)
HEN 12NHS**

ORIGINAL WELLBORE

Plan: PROPOSAL #3 U

Standard Planning Report

22 March, 2023

PDC Energy Inc.

Planning Report

Database:	EDM 5000.15 Single User Db	Local Co-ordinate Reference:	Well HEN 12NHS
Company:	PDC ENERGY Derrick	TVD Reference:	KB 23ft @ 4802.0usft
Project:	WELD COUNTY, COLORADO (TRUE)	MD Reference:	KB 23ft @ 4802.0usft
Site:	SW NE SEC. 8 T4N R64W 6th P.M. (HEN)	North Reference:	True
Well:	HEN 12NHS	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL #3 U		

Project	WELD COUNTY, COLORADO (TRUE)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Northern Zone		Using geodetic scale factor

Site	SW NE SEC. 8 T4N R64W 6th P.M. (HEN)				
Site Position:		Northing:	1,363,850.58 usft	Latitude:	40° 19' 42.446 N
From:	Lat/Long	Easting:	3,258,629.21 usft	Longitude:	104° 34' 20.445 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.60 °

Well	HEN 12NHS					
Well Position	+N/-S	-180.0 usft	Northing:	1,363,670.62 usft	Latitude:	40° 19' 40.667 N
	+E/-W	0.8 usft	Easting:	3,258,631.84 usft	Longitude:	104° 34' 20.436 W
Position Uncertainty		0.0 usft	Wellhead Elevation:		Ground Level:	4,779.0 usft

Wellbore	ORIGINAL WELLBORE				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2000	4/21/2021	7.76	66.63	51,952.37968438

Design	PROPOSAL #3 U			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0.0	0.0	94.51

Plan Survey Tool Program		Date	2/15/2023		
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks	
1	0.0	23,254.7	PROPOSAL #3 U (ORIGINAL WE	MWD+IFR1+SAG+MS	
				OWSG MWD + IFR1 + Sag + M	

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Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL #3 U		

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.00	0.00	0.00	0.00	
2,019.8	14.40	241.29	2,012.3	-43.2	-78.9	2.00	2.00	0.00	241.29	
5,557.2	14.40	241.29	5,438.6	-465.7	-850.3	0.00	0.00	0.00	0.00	
6,277.0	0.00	0.00	6,150.9	-508.9	-929.2	2.00	-2.00	0.00	180.00	
6,377.0	0.00	0.00	6,250.9	-508.9	-929.2	0.00	0.00	0.00	0.00	KOP - HEN 12N (P2)
7,314.6	75.00	90.10	6,942.7	-509.8	-398.4	8.00	8.00	9.61	90.10	EP - HEN 12N (P2)
7,512.8	90.86	90.10	6,967.0	-510.2	-202.2	8.00	8.00	0.00	0.00	
14,341.9	90.86	90.10	6,864.6	-522.2	6,626.0	0.00	0.00	0.00	0.00	HEN 12NU SOB
16,238.2	89.08	270.97	6,781.0	-1,720.6	6,613.5	9.54	-0.09	-9.45	86.00	HEN 12NU EOB
16,293.3	89.74	270.10	6,781.6	-1,720.0	6,558.4	2.00	1.21	-1.59	-52.82	
23,254.7	89.74	270.10	6,812.6	-1,708.3	-402.9	0.00	0.00	0.00	0.00	HEN 12NU BHL

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Site:	SW NE SEC. 8 T4N R64W 6th P.M. (HEN)	North Reference:	True
Well:	HEN 12NHS	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL #3 U		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	0.00
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	0.00
START NUDGE (2°/100ft BUR)									
1,400.0	2.00	241.29	1,400.0	-0.8	-1.5	-1.5	2.00	2.00	0.00
1,500.0	4.00	241.29	1,499.8	-3.4	-6.1	-5.8	2.00	2.00	0.00
1,600.0	6.00	241.29	1,599.5	-7.5	-13.8	-13.1	2.00	2.00	0.00
1,700.0	8.00	241.29	1,698.7	-13.4	-24.5	-23.3	2.00	2.00	0.00
1,800.0	10.00	241.29	1,797.5	-20.9	-38.2	-36.4	2.00	2.00	0.00
1,900.0	12.00	241.29	1,895.6	-30.1	-54.9	-52.4	2.00	2.00	0.00
2,000.0	14.00	241.29	1,993.1	-40.9	-74.6	-71.2	2.00	2.00	0.00
2,019.8	14.40	241.29	2,012.3	-43.2	-78.9	-75.3	2.00	2.00	0.00
EOB TO 14.4° INC									
2,100.0	14.40	241.29	2,089.9	-52.8	-96.4	-91.9	0.00	0.00	0.00
2,200.0	14.40	241.29	2,186.8	-64.7	-118.2	-112.7	0.00	0.00	0.00
2,300.0	14.40	241.29	2,283.7	-76.7	-140.0	-133.5	0.00	0.00	0.00
2,400.0	14.40	241.29	2,380.5	-88.6	-161.8	-154.3	0.00	0.00	0.00
2,500.0	14.40	241.29	2,477.4	-100.6	-183.6	-175.1	0.00	0.00	0.00
2,600.0	14.40	241.29	2,574.2	-112.5	-205.4	-195.9	0.00	0.00	0.00
2,700.0	14.40	241.29	2,671.1	-124.4	-227.2	-216.7	0.00	0.00	0.00
2,800.0	14.40	241.29	2,767.9	-136.4	-249.0	-237.6	0.00	0.00	0.00
2,900.0	14.40	241.29	2,864.8	-148.3	-270.8	-258.4	0.00	0.00	0.00
3,000.0	14.40	241.29	2,961.7	-160.3	-292.6	-279.2	0.00	0.00	0.00
3,100.0	14.40	241.29	3,058.5	-172.2	-314.5	-300.0	0.00	0.00	0.00
3,200.0	14.40	241.29	3,155.4	-184.2	-336.3	-320.8	0.00	0.00	0.00
3,300.0	14.40	241.29	3,252.2	-196.1	-358.1	-341.6	0.00	0.00	0.00
3,400.0	14.40	241.29	3,349.1	-208.1	-379.9	-362.4	0.00	0.00	0.00
3,500.0	14.40	241.29	3,446.0	-220.0	-401.7	-383.2	0.00	0.00	0.00
3,600.0	14.40	241.29	3,542.8	-231.9	-423.5	-404.0	0.00	0.00	0.00
3,700.0	14.40	241.29	3,639.7	-243.9	-445.3	-424.8	0.00	0.00	0.00
3,800.0	14.40	241.29	3,736.5	-255.8	-467.1	-445.6	0.00	0.00	0.00
3,900.0	14.40	241.29	3,833.4	-267.8	-488.9	-466.4	0.00	0.00	0.00
4,000.0	14.40	241.29	3,930.3	-279.7	-510.7	-487.2	0.00	0.00	0.00
4,100.0	14.40	241.29	4,027.1	-291.7	-532.5	-508.0	0.00	0.00	0.00
4,200.0	14.40	241.29	4,124.0	-303.6	-554.3	-528.8	0.00	0.00	0.00
4,300.0	14.40	241.29	4,220.8	-315.5	-576.1	-549.6	0.00	0.00	0.00
4,400.0	14.40	241.29	4,317.7	-327.5	-598.0	-570.4	0.00	0.00	0.00
4,500.0	14.40	241.29	4,414.6	-339.4	-619.8	-591.2	0.00	0.00	0.00
4,600.0	14.40	241.29	4,511.4	-351.4	-641.6	-612.0	0.00	0.00	0.00
4,700.0	14.40	241.29	4,608.3	-363.3	-663.4	-632.8	0.00	0.00	0.00
4,800.0	14.40	241.29	4,705.1	-375.3	-685.2	-653.6	0.00	0.00	0.00
4,900.0	14.40	241.29	4,802.0	-387.2	-707.0	-674.4	0.00	0.00	0.00
5,000.0	14.40	241.29	4,898.9	-399.1	-728.8	-695.2	0.00	0.00	0.00

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Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL #3 U		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
5,100.0	14.40	241.29	4,995.7	-411.1	-750.6	-716.0	0.00	0.00	0.00	
5,200.0	14.40	241.29	5,092.6	-423.0	-772.4	-736.8	0.00	0.00	0.00	
5,300.0	14.40	241.29	5,189.4	-435.0	-794.2	-757.6	0.00	0.00	0.00	
5,400.0	14.40	241.29	5,286.3	-446.9	-816.0	-778.4	0.00	0.00	0.00	
5,500.0	14.40	241.29	5,383.2	-458.9	-837.8	-799.2	0.00	0.00	0.00	
5,557.2	14.40	241.29	5,438.6	-465.7	-850.3	-811.1	0.00	0.00	0.00	
END OF TANGENT										
5,600.0	13.54	241.29	5,480.1	-470.7	-859.4	-819.7	2.00	-2.00	0.00	
5,700.0	11.54	241.29	5,577.7	-481.1	-878.4	-837.9	2.00	-2.00	0.00	
5,800.0	9.54	241.29	5,676.0	-489.9	-894.5	-853.2	2.00	-2.00	0.00	
5,900.0	7.54	241.29	5,774.9	-497.0	-907.5	-865.6	2.00	-2.00	0.00	
6,000.0	5.54	241.29	5,874.2	-502.5	-917.5	-875.2	2.00	-2.00	0.00	
6,100.0	3.54	241.29	5,973.9	-506.3	-924.4	-881.8	2.00	-2.00	0.00	
6,200.0	1.54	241.29	6,073.8	-508.4	-928.3	-885.5	2.00	-2.00	0.00	
6,277.0	0.00	0.00	6,150.9	-508.9	-929.2	-886.4	2.00	-2.00	0.00	
EOD TO VERTICAL										
6,300.0	0.00	0.00	6,173.8	-508.9	-929.2	-886.4	0.00	0.00	0.00	
6,377.0	0.00	0.00	6,250.9	-508.9	-929.2	-886.4	0.00	0.00	0.00	
KOP (8"/100ft BUR) - KOP - HEN 12N (P2)										
6,377.9	0.07	90.10	6,251.7	-508.9	-929.2	-886.4	8.00	8.00	0.00	
KOP - HEN 12N										
6,400.0	1.84	90.10	6,273.8	-508.9	-928.8	-886.0	8.00	8.00	0.00	
6,450.0	5.84	90.10	6,323.7	-508.9	-925.5	-882.7	8.00	8.00	0.00	
6,500.0	9.84	90.10	6,373.2	-508.9	-918.7	-875.9	8.00	8.00	0.00	
6,550.0	13.84	90.10	6,422.1	-508.9	-908.4	-865.6	8.00	8.00	0.00	
6,600.0	17.84	90.10	6,470.2	-509.0	-894.8	-852.0	8.00	8.00	0.00	
6,650.0	21.84	90.10	6,517.3	-509.0	-877.8	-835.1	8.00	8.00	0.00	
6,700.0	25.84	90.10	6,563.0	-509.0	-857.6	-815.0	8.00	8.00	0.00	
6,750.0	29.84	90.10	6,607.2	-509.1	-834.3	-791.7	8.00	8.00	0.00	
6,800.0	33.84	90.10	6,649.7	-509.1	-807.9	-765.4	8.00	8.00	0.00	
6,850.0	37.84	90.10	6,690.2	-509.2	-778.6	-736.2	8.00	8.00	0.00	
6,900.0	41.84	90.10	6,728.6	-509.2	-746.6	-704.3	8.00	8.00	0.00	
EXIST VERT COX C 8-19D										
6,950.0	45.83	90.10	6,764.6	-509.3	-712.0	-669.8	8.00	8.00	0.00	
7,000.0	49.83	90.10	6,798.2	-509.4	-674.9	-632.8	8.00	8.00	0.00	
7,050.0	53.83	90.10	6,829.1	-509.4	-635.6	-593.7	8.00	8.00	0.00	
7,100.0	57.83	90.10	6,857.1	-509.5	-594.3	-552.4	8.00	8.00	0.00	
7,150.0	61.83	90.10	6,882.3	-509.6	-551.1	-509.3	8.00	8.00	0.00	
7,200.0	65.83	90.10	6,904.3	-509.7	-506.2	-464.6	8.00	8.00	0.00	
7,250.0	69.83	90.10	6,923.2	-509.7	-459.9	-418.4	8.00	8.00	0.00	
7,300.0	73.83	90.10	6,938.8	-509.8	-412.4	-371.1	8.00	8.00	0.00	
7,314.6	75.00	90.10	6,942.7	-509.8	-398.4	-357.1	8.00	8.00	0.00	
EP: 2517ft FSL & 2440ft FEL of Sec 8 - EP - HEN 12N (P2)										
7,350.0	77.83	90.10	6,951.0	-509.9	-363.9	-322.7	8.00	8.00	0.00	
7,368.8	79.34	90.10	6,954.7	-509.9	-345.5	-304.4	8.00	8.00	0.00	
EP *NEW* - HEN 12N										
7,400.0	81.83	90.10	6,959.8	-510.0	-314.7	-273.7	8.00	8.00	0.00	
7,450.0	85.83	90.10	6,965.2	-510.1	-265.0	-224.1	8.00	8.00	0.00	
7,500.0	89.83	90.10	6,967.1	-510.2	-215.1	-174.3	8.00	8.00	0.00	
7,512.8	90.86	90.10	6,967.0	-510.2	-202.2	-161.5	8.00	8.00	0.00	
HZ LANDING POINT										
7,600.0	90.86	90.10	6,965.7	-510.3	-115.1	-74.6	0.00	0.00	0.00	
7,700.0	90.86	90.10	6,964.2	-510.5	-15.1	25.1	0.00	0.00	0.00	

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Site:	SW NE SEC. 8 T4N R64W 6th P.M. (HEN)	North Reference:	True
Well:	HEN 12NHS	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL #3 U		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
7,790.5	90.86	90.10	6,962.8	-510.7	75.4	115.3	0.00	0.00	0.00
ABDN VERT HEISER 1									
7,800.0	90.86	90.10	6,962.7	-510.7	84.9	124.8	0.00	0.00	0.00
7,842.0	90.86	90.10	6,962.1	-510.8	126.9	166.7	0.00	0.00	0.00
ABDN VERT RUFF 1									
7,900.0	90.86	90.10	6,961.2	-510.9	184.9	224.4	0.00	0.00	0.00
8,000.0	90.86	90.10	6,959.7	-511.0	284.9	324.1	0.00	0.00	0.00
8,100.0	90.86	90.10	6,958.2	-511.2	384.9	423.8	0.00	0.00	0.00
8,200.0	90.86	90.10	6,956.7	-511.4	484.8	523.5	0.00	0.00	0.00
8,300.0	90.86	90.10	6,955.2	-511.6	584.8	623.2	0.00	0.00	0.00
8,400.0	90.86	90.10	6,953.7	-511.7	684.8	722.9	0.00	0.00	0.00
8,500.0	90.86	90.10	6,952.2	-511.9	784.8	822.6	0.00	0.00	0.00
8,600.0	90.86	90.10	6,950.7	-512.1	884.8	922.3	0.00	0.00	0.00
8,700.0	90.86	90.10	6,949.2	-512.3	984.8	1,022.0	0.00	0.00	0.00
8,800.0	90.86	90.10	6,947.7	-512.4	1,084.8	1,121.7	0.00	0.00	0.00
8,900.0	90.86	90.10	6,946.2	-512.6	1,184.8	1,221.4	0.00	0.00	0.00
9,000.0	90.86	90.10	6,944.7	-512.8	1,284.8	1,321.1	0.00	0.00	0.00
9,100.0	90.86	90.10	6,943.2	-513.0	1,384.7	1,420.8	0.00	0.00	0.00
9,200.0	90.86	90.10	6,941.7	-513.1	1,484.7	1,520.5	0.00	0.00	0.00
9,300.0	90.86	90.10	6,940.2	-513.3	1,584.7	1,620.2	0.00	0.00	0.00
9,384.9	90.86	90.10	6,938.9	-513.5	1,669.6	1,704.8	0.00	0.00	0.00
EXIST VERT RUFF C 8-1									
9,400.0	90.86	90.10	6,938.7	-513.5	1,684.7	1,719.8	0.00	0.00	0.00
9,500.0	90.86	90.10	6,937.2	-513.7	1,784.7	1,819.5	0.00	0.00	0.00
9,600.0	90.86	90.10	6,935.7	-513.8	1,884.7	1,919.2	0.00	0.00	0.00
9,700.0	90.86	90.10	6,934.2	-514.0	1,984.7	2,018.9	0.00	0.00	0.00
9,800.0	90.86	90.10	6,932.7	-514.2	2,084.7	2,118.6	0.00	0.00	0.00
9,900.0	90.86	90.10	6,931.2	-514.4	2,184.7	2,218.3	0.00	0.00	0.00
9,952.2	90.86	90.10	6,930.4	-514.5	2,236.9	2,270.4	0.00	0.00	0.00
EXIST VERT SLEDGE C 9-31									
10,000.0	90.86	90.10	6,929.7	-514.5	2,284.6	2,318.0	0.00	0.00	0.00
10,100.0	90.86	90.10	6,928.2	-514.7	2,384.6	2,417.7	0.00	0.00	0.00
10,200.0	90.86	90.10	6,926.7	-514.9	2,484.6	2,517.4	0.00	0.00	0.00
10,300.0	90.86	90.10	6,925.2	-515.1	2,584.6	2,617.1	0.00	0.00	0.00
10,400.0	90.86	90.10	6,923.7	-515.2	2,684.6	2,716.8	0.00	0.00	0.00
10,408.1	90.86	90.10	6,923.5	-515.3	2,692.7	2,724.9	0.00	0.00	0.00
ABDN VERT SMITH 1									
10,410.0	90.86	90.10	6,923.5	-515.3	2,694.6	2,726.7	0.00	0.00	0.00
EXIST VERT VERN JOHNSON 2									
10,500.0	90.86	90.10	6,922.2	-515.4	2,784.6	2,816.5	0.00	0.00	0.00
10,600.0	90.86	90.10	6,920.7	-515.6	2,884.6	2,916.2	0.00	0.00	0.00
10,607.3	90.86	90.10	6,920.6	-515.6	2,891.8	2,923.4	0.00	0.00	0.00
EXIST VERT SMITH 9-5									
10,700.0	90.86	90.10	6,919.2	-515.8	2,984.6	3,015.9	0.00	0.00	0.00
10,800.0	90.86	90.10	6,917.7	-515.9	3,084.6	3,115.6	0.00	0.00	0.00
10,900.0	90.86	90.10	6,916.2	-516.1	3,184.5	3,215.2	0.00	0.00	0.00
11,000.0	90.86	90.10	6,914.7	-516.3	3,284.5	3,314.9	0.00	0.00	0.00
11,048.3	90.86	90.10	6,913.9	-516.4	3,332.9	3,363.1	0.00	0.00	0.00
ABDN VERT SLEDGE C 9-29									
11,073.4	90.86	90.10	6,913.6	-516.4	3,358.0	3,388.1	0.00	0.00	0.00
EXIST VERT AMANDA ALTER C 9-20									
11,100.0	90.86	90.10	6,913.2	-516.5	3,384.5	3,414.6	0.00	0.00	0.00
11,185.6	90.86	90.10	6,911.9	-516.6	3,470.1	3,500.0	0.00	0.00	0.00

PDC Energy Inc.

Planning Report

Database:	EDM 5000.15 Single User Db	Local Co-ordinate Reference:	Well HEN 12NHS
Company:	PDC ENERGY Derrick	TVD Reference:	KB 23ft @ 4802.0usft
Project:	WELD COUNTY, COLORADO (TRUE)	MD Reference:	KB 23ft @ 4802.0usft
Site:	SW NE SEC. 8 T4N R64W 6th P.M. (HEN)	North Reference:	True
Well:	HEN 12NHS	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL #3 U		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
EXIST VERT SMITH C 9-19									
11,200.0	90.86	90.10	6,911.7	-516.6	3,484.5	3,514.3	0.00	0.00	0.00
11,300.0	90.86	90.10	6,910.2	-516.8	3,584.5	3,614.0	0.00	0.00	0.00
11,400.0	90.86	90.10	6,908.7	-517.0	3,684.5	3,713.7	0.00	0.00	0.00
11,500.0	90.86	90.10	6,907.2	-517.2	3,784.5	3,813.4	0.00	0.00	0.00
11,600.0	90.86	90.10	6,905.7	-517.3	3,884.5	3,913.1	0.00	0.00	0.00
11,700.0	90.86	90.10	6,904.2	-517.5	3,984.4	4,012.8	0.00	0.00	0.00
11,729.8	90.86	90.10	6,903.7	-517.6	4,014.3	4,042.5	0.00	0.00	0.00
ABDN VERT SMITH 3									
11,735.6	90.86	90.10	6,903.6	-517.6	4,020.0	4,048.2	0.00	0.00	0.00
EXIST VERT JOHNSON 9-11									
11,740.9	90.86	90.10	6,903.5	-517.6	4,025.3	4,053.5	0.00	0.00	0.00
ABDN VERT SMITH 2									
11,800.0	90.86	90.10	6,902.7	-517.7	4,084.4	4,112.5	0.00	0.00	0.00
11,900.0	90.86	90.10	6,901.1	-517.9	4,184.4	4,212.2	0.00	0.00	0.00
12,000.0	90.86	90.10	6,899.6	-518.0	4,284.4	4,311.9	0.00	0.00	0.00
12,100.0	90.86	90.10	6,898.1	-518.2	4,384.4	4,411.6	0.00	0.00	0.00
12,200.0	90.86	90.10	6,896.6	-518.4	4,484.4	4,511.3	0.00	0.00	0.00
12,300.0	90.86	90.10	6,895.1	-518.6	4,584.4	4,611.0	0.00	0.00	0.00
12,385.6	90.86	90.10	6,893.9	-518.7	4,670.0	4,696.3	0.00	0.00	0.00
ABDN VERT SLEDGE C 9-28									
12,400.0	90.86	90.10	6,893.6	-518.7	4,684.4	4,710.6	0.00	0.00	0.00
12,439.3	90.86	90.10	6,893.1	-518.8	4,723.7	4,749.8	0.00	0.00	0.00
EXIST VERT REINICK C 9-18									
12,500.0	90.86	90.10	6,892.1	-518.9	4,784.4	4,810.3	0.00	0.00	0.00
12,600.0	90.86	90.10	6,890.6	-519.1	4,884.3	4,910.0	0.00	0.00	0.00
12,700.0	90.86	90.10	6,889.1	-519.3	4,984.3	5,009.7	0.00	0.00	0.00
12,800.0	90.86	90.10	6,887.6	-519.4	5,084.3	5,109.4	0.00	0.00	0.00
12,893.7	90.86	90.10	6,886.2	-519.6	5,178.0	5,202.8	0.00	0.00	0.00
ABDN VERT REINICK 9-7									
12,900.0	90.86	90.10	6,886.1	-519.6	5,184.3	5,209.1	0.00	0.00	0.00
13,000.0	90.86	90.10	6,884.6	-519.8	5,284.3	5,308.8	0.00	0.00	0.00
13,100.0	90.86	90.10	6,883.1	-520.0	5,384.3	5,408.5	0.00	0.00	0.00
13,200.0	90.86	90.10	6,881.6	-520.1	5,484.3	5,508.2	0.00	0.00	0.00
13,300.0	90.86	90.10	6,880.1	-520.3	5,584.3	5,607.9	0.00	0.00	0.00
13,400.0	90.86	90.10	6,878.6	-520.5	5,684.3	5,707.6	0.00	0.00	0.00
13,500.0	90.86	90.10	6,877.1	-520.7	5,784.2	5,807.3	0.00	0.00	0.00
13,600.0	90.86	90.10	6,875.6	-520.8	5,884.2	5,907.0	0.00	0.00	0.00
13,700.0	90.86	90.10	6,874.1	-521.0	5,984.2	6,006.7	0.00	0.00	0.00
13,725.3	90.86	90.10	6,873.8	-521.1	6,009.5	6,031.9	0.00	0.00	0.00
EXIST VERT REINICK C 9-22									
13,800.0	90.86	90.10	6,872.6	-521.2	6,084.2	6,106.4	0.00	0.00	0.00
13,900.0	90.86	90.10	6,871.1	-521.4	6,184.2	6,206.0	0.00	0.00	0.00
14,000.0	90.86	90.10	6,869.6	-521.5	6,284.2	6,305.7	0.00	0.00	0.00
14,100.0	90.86	90.10	6,868.1	-521.7	6,384.2	6,405.4	0.00	0.00	0.00
14,200.0	90.86	90.10	6,866.6	-521.9	6,484.2	6,505.1	0.00	0.00	0.00
14,300.0	90.86	90.10	6,865.1	-522.1	6,584.2	6,604.8	0.00	0.00	0.00
14,341.9	90.86	90.10	6,864.6	-522.2	6,626.0	6,646.6	0.00	0.00	0.00
START TURN 2515ft FSL & 697ft FEL of Sec 9 - HEN 12NU SOB									
14,350.0	90.91	90.87	6,864.5	-522.2	6,634.1	6,654.7	9.54	0.66	9.52
14,400.0	91.24	95.63	6,863.5	-525.1	6,684.0	6,704.6	9.54	0.66	9.52
14,450.0	91.56	100.39	6,862.3	-532.0	6,733.5	6,754.5	9.54	0.64	9.52
14,500.0	91.87	105.15	6,860.8	-543.1	6,782.3	6,804.0	9.54	0.62	9.52

PDC Energy Inc.

Planning Report

Database:	EDM 5000.15 Single User Db	Local Co-ordinate Reference:	Well HEN 12NHS
Company:	PDC ENERGY Derrick	TVD Reference:	KB 23ft @ 4802.0usft
Project:	WELD COUNTY, COLORADO (TRUE)	MD Reference:	KB 23ft @ 4802.0usft
Site:	SW NE SEC. 8 T4N R64W 6th P.M. (HEN)	North Reference:	True
Well:	HEN 12NHS	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL #3 U		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
14,550.0	92.17	109.92	6,859.0	-558.1	6,829.9	6,852.6	9.54	0.59	9.53
14,600.0	92.45	114.68	6,857.0	-577.1	6,876.1	6,900.2	9.54	0.56	9.53
14,650.0	92.71	119.45	6,854.8	-599.8	6,920.6	6,946.3	9.54	0.53	9.53
14,700.0	92.96	124.22	6,852.3	-626.1	6,963.0	6,990.6	9.54	0.49	9.54
14,750.0	93.18	128.99	6,849.6	-655.9	7,003.1	7,032.9	9.54	0.45	9.54
14,752.7	93.19	129.24	6,849.5	-657.6	7,005.1	7,035.1	9.54	0.43	9.54
BHL - HEN 12N - BHL - HEN 12N (P2)									
14,800.0	93.38	133.76	6,846.8	-688.9	7,040.5	7,072.9	9.54	0.40	9.55
14,850.0	93.56	138.53	6,843.7	-724.8	7,075.1	7,110.1	9.54	0.36	9.55
14,900.0	93.72	143.31	6,840.6	-763.6	7,106.5	7,144.5	9.54	0.31	9.55
14,926.8	93.79	145.87	6,838.8	-785.4	7,122.0	7,161.7	9.54	0.27	9.55
200ft FEL & 2254ft FSL of Sec 9									
14,950.0	93.85	148.09	6,837.3	-804.8	7,134.6	7,175.8	9.54	0.24	9.56
15,000.0	93.95	152.87	6,833.9	-848.2	7,159.2	7,203.7	9.54	0.20	9.56
15,050.0	94.02	157.65	6,830.4	-893.4	7,180.1	7,228.1	9.54	0.15	9.56
15,100.0	94.07	162.43	6,826.9	-940.3	7,197.1	7,248.7	9.54	0.09	9.56
15,150.0	94.09	167.21	6,823.3	-988.4	7,210.1	7,265.5	9.54	0.04	9.56
15,200.0	94.08	171.99	6,819.7	-1,037.5	7,219.2	7,278.3	9.54	-0.02	9.56
15,250.0	94.04	176.77	6,816.2	-1,087.1	7,224.0	7,287.1	9.54	-0.08	9.56
15,300.0	93.97	181.55	6,812.7	-1,137.0	7,224.8	7,291.8	9.54	-0.13	9.56
15,350.0	93.88	186.33	6,809.3	-1,186.7	7,221.3	7,292.2	9.54	-0.19	9.56
15,400.0	93.76	191.11	6,805.9	-1,236.0	7,213.8	7,288.6	9.54	-0.24	9.56
15,450.0	93.61	195.88	6,802.7	-1,284.5	7,202.1	7,280.8	9.54	-0.29	9.55
15,500.0	93.44	200.66	6,799.6	-1,331.9	7,186.5	7,268.9	9.54	-0.34	9.55
15,550.0	93.25	205.43	6,796.7	-1,377.8	7,167.0	7,253.0	9.54	-0.39	9.55
15,600.0	93.03	210.20	6,794.0	-1,421.9	7,143.7	7,233.3	9.54	-0.44	9.54
15,646.1	92.81	214.60	6,791.6	-1,460.8	7,119.0	7,211.8	9.54	-0.48	9.54
200ft FEL & 1578ft FSL of Sec 9									
15,650.0	92.79	214.97	6,791.4	-1,464.0	7,116.8	7,209.8	9.54	-0.50	9.54
15,677.7	92.65	217.62	6,790.1	-1,486.3	7,100.4	7,195.2	9.54	-0.51	9.54
EXIST VERT RICHARDSON 10-13									
15,696.7	92.55	219.42	6,789.3	-1,501.1	7,088.6	7,184.6	9.54	-0.53	9.53
EXIST VERT BARTON C 15-29									
15,700.0	92.53	219.74	6,789.1	-1,503.7	7,086.5	7,182.7	9.54	-0.53	9.53
15,750.0	92.26	224.51	6,787.0	-1,540.7	7,053.0	7,152.2	9.54	-0.55	9.53
15,800.0	91.97	229.27	6,785.2	-1,574.9	7,016.5	7,118.6	9.54	-0.58	9.53
15,850.0	91.66	234.03	6,783.6	-1,605.9	6,977.3	7,081.9	9.54	-0.61	9.52
15,900.0	91.35	238.79	6,782.3	-1,633.5	6,935.7	7,042.6	9.54	-0.63	9.52
15,950.0	91.02	243.55	6,781.3	-1,657.6	6,891.9	7,000.9	9.54	-0.65	9.52
16,000.0	90.69	248.31	6,780.5	-1,678.0	6,846.3	6,957.0	9.54	-0.66	9.52
16,050.0	90.35	253.06	6,780.1	-1,694.5	6,799.1	6,911.2	9.54	-0.67	9.51
16,100.0	90.01	257.82	6,779.9	-1,707.1	6,750.7	6,864.0	9.54	-0.68	9.51
16,150.0	89.67	262.58	6,780.0	-1,715.6	6,701.5	6,815.6	9.54	-0.68	9.51
16,200.0	89.33	267.34	6,780.5	-1,720.0	6,651.7	6,766.3	9.54	-0.67	9.51
16,238.2	89.08	270.97	6,781.0	-1,720.6	6,613.5	6,728.2	9.54	-0.67	9.52
END TURN 1317ft FSL & 704ft FEL of Sec 9 - HEN 12NU EOB									
16,293.3	89.74	270.10	6,781.6	-1,720.0	6,558.4	6,673.3	2.00	1.21	-1.59
6961' HOLD									
16,300.0	89.74	270.10	6,781.6	-1,720.0	6,551.7	6,666.6	0.00	0.00	0.00
16,397.0	89.74	270.10	6,782.0	-1,719.9	6,454.7	6,569.9	0.00	0.00	0.00
ABDN VERT HAGEN 9-16									
16,400.0	89.74	270.10	6,782.0	-1,719.9	6,451.7	6,566.9	0.00	0.00	0.00
16,500.0	89.74	270.10	6,782.5	-1,719.7	6,351.7	6,467.2	0.00	0.00	0.00

PDC Energy Inc.

Planning Report

Database:	EDM 5000.15 Single User Db	Local Co-ordinate Reference:	Well HEN 12NHS
Company:	PDC ENERGY Derrick	TVD Reference:	KB 23ft @ 4802.0usft
Project:	WELD COUNTY, COLORADO (TRUE)	MD Reference:	KB 23ft @ 4802.0usft
Site:	SW NE SEC. 8 T4N R64W 6th P.M. (HEN)	North Reference:	True
Well:	HEN 12NHS	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL #3 U		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
16,600.0	89.74	270.10	6,782.9	-1,719.5	6,251.7	6,367.5	0.00	0.00	0.00	
16,700.0	89.74	270.10	6,783.4	-1,719.4	6,151.7	6,267.8	0.00	0.00	0.00	
16,800.0	89.74	270.10	6,783.8	-1,719.2	6,051.7	6,168.1	0.00	0.00	0.00	
16,854.2	89.74	270.10	6,784.1	-1,719.1	5,997.5	6,114.0	0.00	0.00	0.00	
EXIST VERT ALTER C 9-23										
16,900.0	89.74	270.10	6,784.3	-1,719.0	5,951.7	6,068.4	0.00	0.00	0.00	
17,000.0	89.74	270.10	6,784.7	-1,718.8	5,851.7	5,968.7	0.00	0.00	0.00	
17,100.0	89.74	270.10	6,785.2	-1,718.7	5,751.7	5,869.0	0.00	0.00	0.00	
17,200.0	89.74	270.10	6,785.6	-1,718.5	5,651.7	5,769.3	0.00	0.00	0.00	
17,300.0	89.74	270.10	6,786.1	-1,718.3	5,551.7	5,669.6	0.00	0.00	0.00	
17,400.0	89.74	270.10	6,786.5	-1,718.2	5,451.7	5,569.9	0.00	0.00	0.00	
17,429.0	89.74	270.10	6,786.6	-1,718.1	5,422.7	5,541.0	0.00	0.00	0.00	
EXIST VERT HAGEN 9-10										
17,500.0	89.74	270.10	6,786.9	-1,718.0	5,351.7	5,470.2	0.00	0.00	0.00	
17,600.0	89.74	270.10	6,787.4	-1,717.8	5,251.7	5,370.5	0.00	0.00	0.00	
17,700.0	89.74	270.10	6,787.8	-1,717.7	5,151.7	5,270.8	0.00	0.00	0.00	
17,703.6	89.74	270.10	6,787.9	-1,717.7	5,148.1	5,267.2	0.00	0.00	0.00	
EXIST VERT HAGEN 9-15										
17,800.0	89.74	270.10	6,788.3	-1,717.5	5,051.7	5,171.1	0.00	0.00	0.00	
17,900.0	89.74	270.10	6,788.7	-1,717.3	4,951.7	5,071.3	0.00	0.00	0.00	
18,000.0	89.74	270.10	6,789.2	-1,717.2	4,851.7	4,971.6	0.00	0.00	0.00	
18,100.0	89.74	270.10	6,789.6	-1,717.0	4,751.7	4,871.9	0.00	0.00	0.00	
18,200.0	89.74	270.10	6,790.1	-1,716.8	4,651.7	4,772.2	0.00	0.00	0.00	
18,300.0	89.74	270.10	6,790.5	-1,716.6	4,551.7	4,672.5	0.00	0.00	0.00	
18,400.0	89.74	270.10	6,791.0	-1,716.5	4,451.7	4,572.8	0.00	0.00	0.00	
18,500.0	89.74	270.10	6,791.4	-1,716.3	4,351.7	4,473.1	0.00	0.00	0.00	
18,600.0	89.74	270.10	6,791.8	-1,716.1	4,251.7	4,373.4	0.00	0.00	0.00	
18,700.0	89.74	270.10	6,792.3	-1,716.0	4,151.7	4,273.7	0.00	0.00	0.00	
18,786.5	89.74	270.10	6,792.7	-1,715.8	4,065.2	4,187.5	0.00	0.00	0.00	
EXIST VERT VERN JOHNSON 1-A										
18,800.0	89.74	270.10	6,792.7	-1,715.8	4,051.8	4,174.0	0.00	0.00	0.00	
18,900.0	89.74	270.10	6,793.2	-1,715.6	3,951.8	4,074.3	0.00	0.00	0.00	
19,000.0	89.74	270.10	6,793.6	-1,715.5	3,851.8	3,974.6	0.00	0.00	0.00	
19,100.0	89.74	270.10	6,794.1	-1,715.3	3,751.8	3,874.9	0.00	0.00	0.00	
19,200.0	89.74	270.10	6,794.5	-1,715.1	3,651.8	3,775.2	0.00	0.00	0.00	
19,300.0	89.74	270.10	6,795.0	-1,715.0	3,551.8	3,675.5	0.00	0.00	0.00	
19,400.0	89.74	270.10	6,795.4	-1,714.8	3,451.8	3,575.8	0.00	0.00	0.00	
19,500.0	89.74	270.10	6,795.9	-1,714.6	3,351.8	3,476.1	0.00	0.00	0.00	
19,511.8	89.74	270.10	6,795.9	-1,714.6	3,339.9	3,464.3	0.00	0.00	0.00	
EXIST VERT ALTER C 9-25										
19,570.5	89.74	270.10	6,796.2	-1,714.5	3,281.3	3,405.8	0.00	0.00	0.00	
EXIST VERT STATE 16-414										
19,600.0	89.74	270.10	6,796.3	-1,714.4	3,251.8	3,376.4	0.00	0.00	0.00	
19,700.0	89.74	270.10	6,796.8	-1,714.3	3,151.8	3,276.7	0.00	0.00	0.00	
19,800.0	89.74	270.10	6,797.2	-1,714.1	3,051.8	3,177.0	0.00	0.00	0.00	
19,900.0	89.74	270.10	6,797.6	-1,713.9	2,951.8	3,077.3	0.00	0.00	0.00	
20,000.0	89.74	270.10	6,798.1	-1,713.8	2,851.8	2,977.6	0.00	0.00	0.00	
20,100.0	89.74	270.10	6,798.5	-1,713.6	2,751.8	2,877.9	0.00	0.00	0.00	
20,200.0	89.74	270.10	6,799.0	-1,713.4	2,651.8	2,778.2	0.00	0.00	0.00	
20,300.0	89.74	270.10	6,799.4	-1,713.3	2,551.8	2,678.5	0.00	0.00	0.00	
20,400.0	89.74	270.10	6,799.9	-1,713.1	2,451.8	2,578.8	0.00	0.00	0.00	
20,500.0	89.74	270.10	6,800.3	-1,712.9	2,351.8	2,479.1	0.00	0.00	0.00	
20,600.0	89.74	270.10	6,800.8	-1,712.8	2,251.8	2,379.4	0.00	0.00	0.00	

PDC Energy Inc.

Planning Report

Database:	EDM 5000.15 Single User Db	Local Co-ordinate Reference:	Well HEN 12NHS
Company:	PDC ENERGY Derrick	TVD Reference:	KB 23ft @ 4802.0usft
Project:	WELD COUNTY, COLORADO (TRUE)	MD Reference:	KB 23ft @ 4802.0usft
Site:	SW NE SEC. 8 T4N R64W 6th P.M. (HEN)	North Reference:	True
Well:	HEN 12NHS	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL #3 U		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
20,700.0	89.74	270.10	6,801.2	-1,712.6	2,151.8	2,279.7	0.00	0.00	0.00
20,800.0	89.74	270.10	6,801.7	-1,712.4	2,051.8	2,180.0	0.00	0.00	0.00
20,900.0	89.74	270.10	6,802.1	-1,712.2	1,951.8	2,080.3	0.00	0.00	0.00
21,000.0	89.74	270.10	6,802.5	-1,712.1	1,851.8	1,980.6	0.00	0.00	0.00
21,043.4	89.74	270.10	6,802.7	-1,712.0	1,808.4	1,937.3	0.00	0.00	0.00
ABDN VERT CONQUEST SWD 1-8									
21,100.0	89.74	270.10	6,803.0	-1,711.9	1,751.8	1,880.9	0.00	0.00	0.00
21,137.3	89.74	270.10	6,803.2	-1,711.8	1,714.5	1,843.6	0.00	0.00	0.00
EXIST VERT NGL C1A									
21,200.0	89.74	270.10	6,803.4	-1,711.7	1,651.8	1,781.1	0.00	0.00	0.00
21,246.9	89.74	270.10	6,803.6	-1,711.7	1,604.8	1,734.3	0.00	0.00	0.00
EXIST VERT NGL C1B									
21,300.0	89.74	270.10	6,803.9	-1,711.6	1,551.8	1,681.4	0.00	0.00	0.00
21,400.0	89.74	270.10	6,804.3	-1,711.4	1,451.8	1,581.7	0.00	0.00	0.00
21,500.0	89.74	270.10	6,804.8	-1,711.2	1,351.8	1,482.0	0.00	0.00	0.00
21,600.0	89.74	270.10	6,805.2	-1,711.1	1,251.8	1,382.3	0.00	0.00	0.00
21,700.0	89.74	270.10	6,805.7	-1,710.9	1,151.8	1,282.6	0.00	0.00	0.00
21,800.0	89.74	270.10	6,806.1	-1,710.7	1,051.8	1,182.9	0.00	0.00	0.00
21,900.0	89.74	270.10	6,806.6	-1,710.6	951.8	1,083.2	0.00	0.00	0.00
22,000.0	89.74	270.10	6,807.0	-1,710.4	851.8	983.5	0.00	0.00	0.00
22,100.0	89.74	270.10	6,807.5	-1,710.2	751.8	883.8	0.00	0.00	0.00
22,200.0	89.74	270.10	6,807.9	-1,710.0	651.8	784.1	0.00	0.00	0.00
22,300.0	89.74	270.10	6,808.3	-1,709.9	551.8	684.4	0.00	0.00	0.00
22,400.0	89.74	270.10	6,808.8	-1,709.7	451.8	584.7	0.00	0.00	0.00
22,500.0	89.74	270.10	6,809.2	-1,709.5	351.8	485.0	0.00	0.00	0.00
22,600.0	89.74	270.10	6,809.7	-1,709.4	251.8	385.3	0.00	0.00	0.00
22,700.0	89.74	270.10	6,810.1	-1,709.2	151.8	285.6	0.00	0.00	0.00
22,800.0	89.74	270.10	6,810.6	-1,709.0	51.8	185.9	0.00	0.00	0.00
22,817.6	89.74	270.10	6,810.7	-1,709.0	34.2	168.3	0.00	0.00	0.00
EXIST VERT HARLESS PM C 17-2									
22,900.0	89.74	270.10	6,811.0	-1,708.9	-48.2	86.2	0.00	0.00	0.00
23,000.0	89.74	270.10	6,811.5	-1,708.7	-148.2	-13.5	0.00	0.00	0.00
23,100.0	89.74	270.10	6,811.9	-1,708.5	-248.2	-113.2	0.00	0.00	0.00
23,200.0	89.74	270.10	6,812.4	-1,708.4	-348.2	-212.9	0.00	0.00	0.00
23,254.7	89.74	270.10	6,812.6	-1,708.3	-402.9	-267.4	0.00	0.00	0.00
BHL: 1319ft FSL & 2440ft FEL of Sec 8 - HEN 12NU BHL									

PDC Energy Inc.

Planning Report

Database:	EDM 5000.15 Single User Db	Local Co-ordinate Reference:	Well HEN 12NHS
Company:	PDC ENERGY Derrick	TVD Reference:	KB 23ft @ 4802.0usft
Project:	WELD COUNTY, COLORADO (TRUE)	MD Reference:	KB 23ft @ 4802.0usft
Site:	SW NE SEC. 8 T4N R64W 6th P.M. (HEN)	North Reference:	True
Well:	HEN 12NHS	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL #3 U		

Design Targets									
Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)		
- Shape									
KOP - HEN 12N (P2) - plan hits target center - Point	0.00	0.00	6,250.9	-508.9	-929.2	1,363,152.04	3,257,708.05	40° 19' 35.638 N	104° 34' 32.433 W
HEN 12NU EOB - plan hits target center - Point	0.00	0.00	6,781.0	-1,720.6	6,613.5	1,362,019.42	3,265,262.68	40° 19' 23.656 N	104° 32' 55.051 W
HEN 12NU BHL - plan hits target center - Point	0.00	0.00	6,812.6	-1,708.3	-402.9	1,361,958.31	3,258,246.86	40° 19' 23.787 N	104° 34' 25.637 W
BHL - HEN 12N (P2) - plan misses target center by 179.4usft at 14752.7usft MD (6849.5 TVD, -657.6 N, 7005.1 E) - Point	0.00	0.00	6,857.0	-523.3	7,123.9	1,363,221.89	3,265,760.55	40° 19' 35.486 N	104° 32' 48.456 W
HEN 12NU SOB - plan hits target center - Point	0.00	0.00	6,864.6	-522.2	6,626.0	1,363,217.83	3,265,262.68	40° 19' 35.499 N	104° 32' 54.885 W
EP - HEN 12N (P2) - plan hits target center - Point	0.00	0.00	6,942.7	-509.8	-398.4	1,363,156.66	3,258,238.84	40° 19' 35.629 N	104° 34' 25.579 W

Formations					
Measured Depth	Vertical Depth	Name	Lithology	Dip	Dip Direction
(usft)	(usft)			(°)	(°)
0.0	0.0	PIERRE		0.00	
3,747.8	3,686.0	PARKMAN SANDSTONE		0.00	
4,186.6	4,111.0	SUSSEX SANDSTONE		0.00	
5,048.7	4,946.0	SHANNON SANDSTONE		0.00	
6,835.9	6,679.0	SHARON SPRINGS		0.00	
6,887.3	6,719.0	NIOBRARA A		0.00	
7,031.6	6,818.0	NIOBRARA B		0.00	
7,143.1	6,879.0	NIOBRARA C		0.00	

Plan Annotations					
Measured Depth	Vertical Depth	Local Coordinates		Comment	
(usft)	(usft)	+N/-S	+E/-W		
		(usft)	(usft)		
1,300.0	1,300.0	0.0	0.0	START NUDGE (2°/100ft BUR)	
2,019.8	2,012.3	-43.2	-78.9	EOB TO 14.4° INC	
5,557.2	5,438.6	-465.7	-850.3	END OF TANGENT	
6,277.0	6,150.9	-508.9	-929.2	EOD TO VERTICAL	
6,377.0	6,250.9	-508.9	-929.2	KOP (8°/100ft BUR)	
7,314.6	6,942.7	-509.8	-398.4	EP: 2517ft FSL & 2440ft FEL of Sec 8	
7,512.8	6,967.0	-510.2	-202.2	HZ LANDING POINT	
14,341.9	6,864.6	-522.2	6,626.0	START TURN 2515ft FSL & 697ft FEL of Sec 9	
14,926.8	6,838.8	-785.4	7,122.0	200ft FEL & 2254ft FSL of Sec 9	
15,646.1	6,791.6	-1,460.8	7,119.0	200ft FEL & 1578ft FSL of Sec 9	
16,238.2	6,781.0	-1,720.6	6,613.5	END TURN 1317ft FSL & 704ft FEL of Sec 9	
16,293.3	6,781.6	-1,720.0	6,558.4	6961' HOLD	
23,254.7	6,812.6	-1,708.3	-402.9	BHL: 1319ft FSL & 2440ft FEL of Sec 8	