

PDC ENERGY Derrick

**WELD COUNTY, COLORADO (TRUE)
SW NE SEC. 8 T4N R64W 6th P.M. (HEN)
HEN 06NHS**

ORIGINAL WELLBORE

Plan: PROPOSAL #3 U Lateral

Standard Planning Report

22 March, 2023

PDC Energy Inc.

Planning Report

Database:	EDM 5000.15 Single User Db	Local Co-ordinate Reference:	Well HEN 06NHS
Company:	PDC ENERGY Derrick	TVD Reference:	KB 23ft @ 4803.0usft
Project:	WELD COUNTY, COLORADO (TRUE)	MD Reference:	KB 23ft @ 4803.0usft
Site:	SW NE SEC. 8 T4N R64W 6th P.M. (HEN)	North Reference:	True
Well:	HEN 06NHS	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL #3 U Lateral		

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 06NHS					
Well Position	+N/-S	-90.0 usft	Northing:	1,363,760.57 usft	Latitude:	40° 19' 41.556 N
	+E/-W	0.4 usft	Easting:	3,258,630.51 usft	Longitude:	104° 34' 20.441 W
Position Uncertainty		0.0 usft	Wellhead Elevation:		Ground Level:	4,780.0 usft

Wellbore	ORIGINAL WELLBORE				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2000	4/19/2021	7.76	66.63	51,953.07943270

Design	PROPOSAL #3 U Lateral				
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	82.90	

Plan Survey Tool Program	Date	2/13/2023			
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks	
1	0.0	23,209.0	PROPOSAL #3 U Lateral (ORIGI	MWD+IFR1+SAG+MS	
			OWSG MWD + IFR1 + Sag + M		

PDC Energy Inc.

Planning Report

Database:	EDM 5000.15 Single User Db	Local Co-ordinate Reference:	Well HEN 06NHS
Company:	PDC ENERGY Derrick	TVD Reference:	KB 23ft @ 4803.0usft
Project:	WELD COUNTY, COLORADO (TRUE)	MD Reference:	KB 23ft @ 4803.0usft
Site:	SW NE SEC. 8 T4N R64W 6th P.M. (HEN)	North Reference:	True
Well:	HEN 06NHS	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL #3 U Lateral		

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	
800.0	0.00	0.00	800.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,575.4	15.51	312.27	1,566.0	70.2	-77.2	2.00	2.00	0.00	312.27	
5,461.8	15.51	312.27	5,310.8	769.1	-846.2	0.00	0.00	0.00	0.00	
6,237.2	0.00	0.00	6,076.8	839.2	-923.4	2.00	-2.00	0.00	180.00	
6,337.2	0.00	0.00	6,176.8	839.2	-923.4	0.00	0.00	0.00	0.00	KOP - HEN 06N (P2)
7,274.7	75.00	90.10	6,868.6	838.3	-392.5	8.00	8.00	9.61	90.10	EP - HEN 06N (P2)
7,468.1	90.47	90.10	6,893.0	838.0	-201.3	8.00	8.00	0.00	0.00	
14,300.0	90.37	90.11	6,843.0	825.5	6,630.4	0.00	0.00	0.00	175.59	HEN U SOB
16,182.7	89.64	270.00	6,792.0	-372.7	6,628.9	9.55	-0.04	9.55	87.56	HEN U EOB
16,192.7	89.46	270.10	6,792.1	-372.7	6,618.9	2.00	-1.72	1.02	149.28	
23,209.1	89.46	270.10	6,857.7	-360.1	-397.1	0.00	0.00	0.00	0.00	HEN U BHL

PDC Energy Inc.

Planning Report

Database:	EDM 5000.15 Single User Db	Local Co-ordinate Reference:	Well HEN 06NHS
Company:	PDC ENERGY Derrick	TVD Reference:	KB 23ft @ 4803.0usft
Project:	WELD COUNTY, COLORADO (TRUE)	MD Reference:	KB 23ft @ 4803.0usft
Site:	SW NE SEC. 8 T4N R64W 6th P.M. (HEN)	North Reference:	True
Well:	HEN 06NHS	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL #3 U Lateral		

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
START NUDGE (2°/100ft BUR)									
900.0	2.00	312.27	900.0	1.2	-1.3	-1.1	2.00	2.00	0.00
1,000.0	4.00	312.27	999.8	4.7	-5.2	-4.5	2.00	2.00	0.00
1,100.0	6.00	312.27	1,099.5	10.6	-11.6	-10.2	2.00	2.00	0.00
1,200.0	8.00	312.27	1,198.7	18.8	-20.6	-18.2	2.00	2.00	0.00
1,300.0	10.00	312.27	1,297.5	29.3	-32.2	-28.3	2.00	2.00	0.00
1,400.0	12.00	312.27	1,395.6	42.1	-46.3	-40.8	2.00	2.00	0.00
1,500.0	14.00	312.27	1,493.1	57.2	-63.0	-55.4	2.00	2.00	0.00
1,575.4	15.51	312.27	1,566.0	70.2	-77.2	-67.9	2.00	2.00	0.00
EOB TO 15.51° INC									
1,600.0	15.51	312.27	1,589.7	74.6	-82.1	-72.2	0.00	0.00	0.00
1,700.0	15.51	312.27	1,686.0	92.6	-101.8	-89.6	0.00	0.00	0.00
1,800.0	15.51	312.27	1,782.4	110.5	-121.6	-107.0	0.00	0.00	0.00
1,900.0	15.51	312.27	1,878.7	128.5	-141.4	-124.4	0.00	0.00	0.00
2,000.0	15.51	312.27	1,975.1	146.5	-161.2	-141.9	0.00	0.00	0.00
2,100.0	15.51	312.27	2,071.5	164.5	-181.0	-159.3	0.00	0.00	0.00
2,200.0	15.51	312.27	2,167.8	182.5	-200.8	-176.7	0.00	0.00	0.00
2,300.0	15.51	312.27	2,264.2	200.5	-220.6	-194.1	0.00	0.00	0.00
2,400.0	15.51	312.27	2,360.5	218.4	-240.3	-211.5	0.00	0.00	0.00
2,500.0	15.51	312.27	2,456.9	236.4	-260.1	-228.9	0.00	0.00	0.00
2,600.0	15.51	312.27	2,553.3	254.4	-279.9	-246.3	0.00	0.00	0.00
2,700.0	15.51	312.27	2,649.6	272.4	-299.7	-263.8	0.00	0.00	0.00
2,800.0	15.51	312.27	2,746.0	290.4	-319.5	-281.2	0.00	0.00	0.00
2,900.0	15.51	312.27	2,842.3	308.4	-339.3	-298.6	0.00	0.00	0.00
3,000.0	15.51	312.27	2,938.7	326.3	-359.1	-316.0	0.00	0.00	0.00
3,100.0	15.51	312.27	3,035.1	344.3	-378.9	-333.4	0.00	0.00	0.00
3,200.0	15.51	312.27	3,131.4	362.3	-398.6	-350.8	0.00	0.00	0.00
3,300.0	15.51	312.27	3,227.8	380.3	-418.4	-368.2	0.00	0.00	0.00
3,400.0	15.51	312.27	3,324.1	398.3	-438.2	-385.7	0.00	0.00	0.00
3,500.0	15.51	312.27	3,420.5	416.3	-458.0	-403.1	0.00	0.00	0.00
3,600.0	15.51	312.27	3,516.9	434.2	-477.8	-420.5	0.00	0.00	0.00
3,700.0	15.51	312.27	3,613.2	452.2	-497.6	-437.9	0.00	0.00	0.00
3,800.0	15.51	312.27	3,709.6	470.2	-517.4	-455.3	0.00	0.00	0.00
3,900.0	15.51	312.27	3,805.9	488.2	-537.2	-472.7	0.00	0.00	0.00
4,000.0	15.51	312.27	3,902.3	506.2	-556.9	-490.1	0.00	0.00	0.00
4,100.0	15.51	312.27	3,998.6	524.2	-576.7	-507.6	0.00	0.00	0.00
4,200.0	15.51	312.27	4,095.0	542.2	-596.5	-525.0	0.00	0.00	0.00
4,300.0	15.51	312.27	4,191.4	560.1	-616.3	-542.4	0.00	0.00	0.00
4,400.0	15.51	312.27	4,287.7	578.1	-636.1	-559.8	0.00	0.00	0.00
4,500.0	15.51	312.27	4,384.1	596.1	-655.9	-577.2	0.00	0.00	0.00
4,600.0	15.51	312.27	4,480.4	614.1	-675.7	-594.6	0.00	0.00	0.00
4,700.0	15.51	312.27	4,576.8	632.1	-695.5	-612.0	0.00	0.00	0.00
4,800.0	15.51	312.27	4,673.2	650.1	-715.2	-629.4	0.00	0.00	0.00
4,900.0	15.51	312.27	4,769.5	668.0	-735.0	-646.9	0.00	0.00	0.00
5,000.0	15.51	312.27	4,865.9	686.0	-754.8	-664.3	0.00	0.00	0.00

PDC Energy Inc.

Planning Report

Database:	EDM 5000.15 Single User Db	Local Co-ordinate Reference:	Well HEN 06NHS
Company:	PDC ENERGY Derrick	TVD Reference:	KB 23ft @ 4803.0usft
Project:	WELD COUNTY, COLORADO (TRUE)	MD Reference:	KB 23ft @ 4803.0usft
Site:	SW NE SEC. 8 T4N R64W 6th P.M. (HEN)	North Reference:	True
Well:	HEN 06NHS	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL #3 U Lateral		

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	15.51	312.27	4,962.2	704.0	-774.6	-681.7	0.00	0.00	0.00
5,200.0	15.51	312.27	5,058.6	722.0	-794.4	-699.1	0.00	0.00	0.00
5,300.0	15.51	312.27	5,155.0	740.0	-814.2	-716.5	0.00	0.00	0.00
5,400.0	15.51	312.27	5,251.3	758.0	-834.0	-733.9	0.00	0.00	0.00
5,461.8	15.51	312.27	5,310.8	769.1	-846.2	-744.7	0.00	0.00	0.00
END OF TANGENT									
5,500.0	14.74	312.27	5,347.7	775.8	-853.6	-751.2	2.00	-2.00	0.00
5,600.0	12.74	312.27	5,444.9	791.8	-871.2	-766.7	2.00	-2.00	0.00
5,700.0	10.74	312.27	5,542.8	805.4	-886.2	-779.9	2.00	-2.00	0.00
5,800.0	8.74	312.27	5,641.3	816.8	-898.7	-790.9	2.00	-2.00	0.00
5,900.0	6.74	312.27	5,740.4	825.9	-908.7	-799.7	2.00	-2.00	0.00
6,000.0	4.74	312.27	5,839.9	832.6	-916.1	-806.2	2.00	-2.00	0.00
6,100.0	2.74	312.27	5,939.7	837.0	-920.9	-810.5	2.00	-2.00	0.00
6,200.0	0.74	312.27	6,039.6	839.1	-923.2	-812.5	2.00	-2.00	0.00
6,237.2	0.00	0.00	6,076.8	839.2	-923.4	-812.6	2.00	-2.00	128.32
EOD TO VERTICAL									
6,300.0	0.00	0.00	6,139.6	839.2	-923.4	-812.6	0.00	0.00	0.00
6,337.2	0.00	0.00	6,176.8	839.2	-923.4	-812.6	0.00	0.00	0.00
KOP (8°/100ft BUR) - KOP - HEN 06N - KOP - HEN 06N (P2)									
6,350.0	1.02	90.10	6,189.6	839.2	-923.3	-812.5	8.00	8.00	0.00
6,400.0	5.02	90.10	6,239.5	839.2	-920.6	-809.9	8.00	8.00	0.00
6,450.0	9.02	90.10	6,289.2	839.2	-914.5	-803.8	8.00	8.00	0.00
6,500.0	13.02	90.10	6,338.2	839.2	-905.0	-794.3	8.00	8.00	0.00
6,550.0	17.02	90.10	6,386.5	839.2	-892.0	-781.5	8.00	8.00	0.00
6,600.0	21.02	90.10	6,433.8	839.1	-875.7	-765.3	8.00	8.00	0.00
6,650.0	25.02	90.10	6,479.8	839.1	-856.2	-745.9	8.00	8.00	0.00
6,700.0	29.02	90.10	6,524.3	839.1	-833.4	-723.4	8.00	8.00	0.00
6,750.0	33.02	90.10	6,567.1	839.0	-807.7	-697.8	8.00	8.00	0.00
6,800.0	37.02	90.10	6,608.1	839.0	-779.0	-669.4	8.00	8.00	0.00
6,850.0	41.02	90.10	6,646.9	838.9	-747.5	-638.1	8.00	8.00	0.00
EXIST VERT COX C 8-19D									
6,900.0	45.02	90.10	6,683.5	838.9	-713.4	-604.3	8.00	8.00	0.00
6,950.0	49.02	90.10	6,717.5	838.8	-676.8	-568.0	8.00	8.00	0.00
7,000.0	53.02	90.10	6,749.0	838.7	-638.0	-529.4	8.00	8.00	0.00
7,050.0	57.02	90.10	6,777.6	838.6	-597.0	-488.8	8.00	8.00	0.00
7,100.0	61.02	90.10	6,803.4	838.6	-554.1	-446.3	8.00	8.00	0.00
7,150.0	65.02	90.10	6,826.0	838.5	-509.6	-402.1	8.00	8.00	0.00
7,200.0	69.02	90.10	6,845.6	838.4	-463.6	-356.4	8.00	8.00	0.00
7,227.4	71.21	90.10	6,854.9	838.4	-437.8	-330.9	8.00	8.00	0.00
EP *NEW* - HEN 06N									
7,250.0	73.02	90.10	6,861.8	838.3	-416.3	-309.5	8.00	8.00	0.00
7,274.7	75.00	90.10	6,868.6	838.3	-392.5	-286.0	8.00	8.00	0.00
EP: 1319ft FNL & 2440ft FEL of Sec 8 - EP - HEN 06N (P2)									
7,300.0	77.02	90.10	6,874.7	838.2	-368.0	-261.6	8.00	8.00	0.00
7,350.0	81.02	90.10	6,884.3	838.2	-318.9	-212.9	8.00	8.00	0.00
7,400.0	85.02	90.10	6,890.3	838.1	-269.3	-163.7	8.00	8.00	0.00
7,450.0	89.02	90.10	6,892.9	838.0	-219.4	-114.2	8.00	8.00	0.00
7,468.1	90.47	90.10	6,893.0	838.0	-201.3	-96.2	8.00	8.00	0.00
HZ LANDING POINT									
7,500.0	90.47	90.10	6,892.7	837.9	-169.4	-64.6	0.00	0.00	0.00
7,600.0	90.47	90.10	6,891.9	837.7	-69.4	34.6	0.00	0.00	0.00
7,700.0	90.47	90.10	6,891.1	837.5	30.6	133.9	0.00	0.00	0.00
7,799.2	90.47	90.10	6,890.3	837.4	129.9	232.3	0.00	0.00	0.00

PDC Energy Inc.

Planning Report

Database:	EDM 5000.15 Single User Db	Local Co-ordinate Reference:	Well HEN 06NHS
Company:	PDC ENERGY Derrick	TVD Reference:	KB 23ft @ 4803.0usft
Project:	WELD COUNTY, COLORADO (TRUE)	MD Reference:	KB 23ft @ 4803.0usft
Site:	SW NE SEC. 8 T4N R64W 6th P.M. (HEN)	North Reference:	True
Well:	HEN 06NHS	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL #3 U Lateral		

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)
ABDN VERT RUFF 1									
7,800.0	90.47	90.10	6,890.3	837.4	130.6	233.1	0.20	-0.20	0.02
7,900.0	90.46	90.10	6,889.5	837.2	230.6	332.3	0.00	0.00	0.00
8,000.0	90.46	90.10	6,888.7	837.0	330.6	431.5	0.00	0.00	0.00
8,100.0	90.46	90.10	6,887.9	836.8	430.6	530.7	0.00	0.00	0.00
8,200.0	90.46	90.10	6,887.1	836.7	530.6	629.9	0.00	0.00	0.00
8,300.0	90.46	90.10	6,886.3	836.5	630.6	729.1	0.00	0.00	0.00
8,400.0	90.46	90.10	6,885.5	836.3	730.6	828.3	0.00	0.00	0.00
8,500.0	90.45	90.10	6,884.7	836.1	830.6	927.5	0.00	0.00	0.00
8,600.0	90.45	90.10	6,883.9	836.0	930.6	1,026.7	0.00	0.00	0.00
8,700.0	90.45	90.10	6,883.1	835.8	1,030.6	1,125.9	0.00	0.00	0.00
8,800.0	90.45	90.10	6,882.3	835.6	1,130.6	1,225.1	0.00	0.00	0.00
8,900.0	90.45	90.10	6,881.5	835.4	1,230.6	1,324.4	0.00	0.00	0.00
9,000.0	90.45	90.10	6,880.7	835.2	1,330.6	1,423.6	0.00	0.00	0.00
9,100.0	90.45	90.10	6,880.0	835.1	1,430.6	1,522.8	0.00	0.00	0.00
9,200.0	90.44	90.10	6,879.2	834.9	1,530.6	1,622.0	0.00	0.00	0.00
9,300.0	90.44	90.10	6,878.4	834.7	1,630.6	1,721.2	0.00	0.00	0.00
9,342.8	90.44	90.10	6,878.1	834.6	1,673.4	1,763.7	0.00	0.00	0.00
EXIST VERT RUFF C 8-1									
9,400.0	90.44	90.10	6,877.6	834.5	1,730.6	1,820.4	0.00	0.00	0.00
9,500.0	90.44	90.10	6,876.9	834.4	1,830.5	1,919.6	0.00	0.00	0.00
9,600.0	90.44	90.10	6,876.1	834.2	1,930.5	2,018.8	0.00	0.00	0.00
9,700.0	90.44	90.10	6,875.3	834.0	2,030.5	2,118.0	0.00	0.00	0.00
9,800.0	90.44	90.10	6,874.6	833.8	2,130.5	2,217.2	0.00	0.00	0.00
9,900.0	90.43	90.10	6,873.8	833.6	2,230.5	2,316.4	0.00	0.00	0.00
9,910.6	90.43	90.10	6,873.7	833.6	2,241.1	2,326.9	0.00	0.00	0.00
EXIST VERT SLEDGE C 9-31									
10,000.0	90.43	90.10	6,873.1	833.5	2,330.5	2,415.7	0.00	0.00	0.00
10,100.0	90.43	90.10	6,872.3	833.3	2,430.5	2,514.9	0.00	0.00	0.00
10,200.0	90.43	90.10	6,871.6	833.1	2,530.5	2,614.1	0.00	0.00	0.00
10,300.0	90.43	90.10	6,870.8	832.9	2,630.5	2,713.3	0.00	0.00	0.00
10,366.3	90.43	90.10	6,870.3	832.8	2,696.8	2,779.1	0.00	0.00	0.00
ABDN VERT SMITH 1									
10,400.0	90.43	90.10	6,870.1	832.7	2,730.5	2,812.5	0.00	0.00	0.00
10,500.0	90.43	90.10	6,869.3	832.6	2,830.5	2,911.7	0.00	0.00	0.00
10,600.0	90.42	90.10	6,868.6	832.4	2,930.5	3,010.9	0.00	0.00	0.00
10,700.0	90.42	90.10	6,867.8	832.2	3,030.5	3,110.1	0.00	0.00	0.00
10,800.0	90.42	90.10	6,867.1	832.0	3,130.5	3,209.3	0.00	0.00	0.00
10,900.0	90.42	90.10	6,866.4	831.8	3,230.5	3,308.5	0.00	0.00	0.00
11,000.0	90.42	90.10	6,865.6	831.6	3,330.5	3,407.7	0.00	0.00	0.00
11,006.6	90.42	90.10	6,865.6	831.6	3,337.1	3,414.3	0.00	0.00	0.00
ABDN VERT SLEDGE C 9-29									
11,100.0	90.42	90.10	6,864.9	831.5	3,430.5	3,506.9	0.00	0.00	0.00
11,144.4	90.42	90.10	6,864.6	831.4	3,474.9	3,551.0	0.00	0.00	0.00
EXIST VERT SMITH C 9-19									
11,200.0	90.41	90.10	6,864.2	831.3	3,530.5	3,606.2	0.00	0.00	0.00
11,300.0	90.41	90.10	6,863.5	831.1	3,630.5	3,705.4	0.00	0.00	0.00
11,400.0	90.41	90.10	6,862.7	830.9	3,730.5	3,804.6	0.00	0.00	0.00
11,500.0	90.41	90.10	6,862.0	830.7	3,830.5	3,903.8	0.00	0.00	0.00
11,600.0	90.41	90.11	6,861.3	830.5	3,930.5	4,003.0	0.00	0.00	0.00
11,687.9	90.41	90.11	6,860.7	830.4	4,018.4	4,090.2	0.00	0.00	0.00
ABDN VERT SMITH 3									
11,699.2	90.41	90.11	6,860.6	830.4	4,029.7	4,101.4	0.00	0.00	0.00

PDC Energy Inc.

Planning Report

Database:	EDM 5000.15 Single User Db	Local Co-ordinate Reference:	Well HEN 06NHS
Company:	PDC ENERGY Derrick	TVD Reference:	KB 23ft @ 4803.0usft
Project:	WELD COUNTY, COLORADO (TRUE)	MD Reference:	KB 23ft @ 4803.0usft
Site:	SW NE SEC. 8 T4N R64W 6th P.M. (HEN)	North Reference:	True
Well:	HEN 06NHS	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL #3 U Lateral		

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)
ABDN VERT SMITH 2									
11,700.0	90.41	90.11	6,860.6	830.4	4,030.5	4,102.2	0.18	-0.18	0.01
11,800.0	90.41	90.11	6,859.9	830.2	4,130.5	4,201.4	0.00	0.00	0.00
11,900.0	90.40	90.11	6,859.2	830.0	4,230.5	4,300.6	0.00	0.00	0.00
12,000.0	90.40	90.11	6,858.5	829.8	4,330.5	4,399.8	0.00	0.00	0.00
12,100.0	90.40	90.11	6,857.8	829.6	4,430.5	4,499.0	0.00	0.00	0.00
12,200.0	90.40	90.11	6,857.1	829.4	4,530.5	4,598.2	0.00	0.00	0.00
12,300.0	90.40	90.11	6,856.4	829.3	4,630.5	4,697.4	0.00	0.00	0.00
12,344.6	90.40	90.11	6,856.1	829.2	4,675.0	4,741.7	0.00	0.00	0.00
ABDN VERT SLEDGE C 9-28									
12,397.9	90.40	90.11	6,855.7	829.1	4,728.3	4,794.5	0.00	0.00	0.00
EXIST VERT REINICK C 9-18									
12,400.0	90.40	90.11	6,855.7	829.1	4,730.5	4,796.7	0.07	-0.07	0.01
12,500.0	90.40	90.11	6,855.0	828.9	4,830.5	4,895.9	0.00	0.00	0.00
12,600.0	90.39	90.11	6,854.3	828.7	4,930.5	4,995.1	0.00	0.00	0.00
12,700.0	90.39	90.11	6,853.6	828.5	5,030.5	5,094.3	0.00	0.00	0.00
12,800.0	90.39	90.11	6,852.9	828.3	5,130.5	5,193.5	0.00	0.00	0.00
12,900.0	90.39	90.11	6,852.3	828.1	5,230.5	5,292.7	0.00	0.00	0.00
13,000.0	90.39	90.11	6,851.6	828.0	5,330.5	5,391.9	0.00	0.00	0.00
13,100.0	90.39	90.11	6,850.9	827.8	5,430.4	5,491.1	0.00	0.00	0.00
13,200.0	90.38	90.11	6,850.2	827.6	5,530.4	5,590.3	0.00	0.00	0.00
13,300.0	90.38	90.11	6,849.6	827.4	5,630.4	5,689.5	0.00	0.00	0.00
13,400.0	90.38	90.11	6,848.9	827.2	5,730.4	5,788.7	0.00	0.00	0.00
13,500.0	90.38	90.11	6,848.2	827.0	5,830.4	5,887.9	0.00	0.00	0.00
13,600.0	90.38	90.11	6,847.6	826.8	5,930.4	5,987.2	0.00	0.00	0.00
13,700.0	90.38	90.11	6,846.9	826.6	6,030.4	6,086.4	0.00	0.00	0.00
13,800.0	90.38	90.11	6,846.2	826.5	6,130.4	6,185.6	0.00	0.00	0.00
13,900.0	90.37	90.11	6,845.6	826.3	6,230.4	6,284.8	0.00	0.00	0.00
14,000.0	90.37	90.11	6,844.9	826.1	6,330.4	6,384.0	0.00	0.00	0.00
14,100.0	90.37	90.11	6,844.3	825.9	6,430.4	6,483.2	0.00	0.00	0.00
14,200.0	90.37	90.11	6,843.6	825.7	6,530.4	6,582.4	0.00	0.00	0.00
14,300.0	90.37	90.11	6,843.0	825.5	6,630.4	6,681.6	0.00	0.00	0.00
START OF TURN 688ft FEL & 1319ft FNL Sec 9 - HEN U SOB									
14,350.0	90.57	94.89	6,842.6	823.3	6,680.4	6,730.9	9.55	0.40	9.55
14,400.0	90.77	99.66	6,842.0	817.0	6,729.9	6,779.3	9.55	0.40	9.55
14,450.0	90.96	104.43	6,841.3	806.6	6,778.8	6,826.5	9.55	0.38	9.55
14,500.0	91.15	109.21	6,840.3	792.1	6,826.7	6,872.2	9.55	0.37	9.55
14,550.0	91.32	113.98	6,839.3	773.7	6,873.1	6,916.1	9.55	0.36	9.55
14,600.0	91.49	118.76	6,838.0	751.5	6,917.9	6,957.7	9.55	0.34	9.55
14,650.0	91.65	123.54	6,836.7	725.7	6,960.7	6,997.0	9.55	0.32	9.55
14,698.1	91.79	128.13	6,835.2	697.6	6,999.6	7,032.1	9.55	0.29	9.55
BHL *NEW* - HEN 06N									
14,700.0	91.80	128.31	6,835.1	696.4	7,001.1	7,033.5	9.55	0.28	9.56
14,714.1	91.84	129.66	6,834.7	687.5	7,012.1	7,043.3	9.55	0.28	9.56
BHL - HEN 06N (P2)									
14,750.0	91.93	133.09	6,833.5	663.8	7,039.0	7,067.1	9.55	0.26	9.56
14,800.0	92.05	137.87	6,831.8	628.2	7,074.0	7,097.4	9.55	0.24	9.56
14,850.0	92.16	142.65	6,829.9	589.8	7,106.0	7,124.4	9.55	0.21	9.56
14,887.6	92.23	146.24	6,828.5	559.2	7,127.8	7,142.3	9.55	0.19	9.56
200FT FEL & 1583 FNL Sec 9									
14,900.0	92.25	147.43	6,828.0	548.8	7,134.6	7,147.7	9.55	0.17	9.56
14,950.0	92.33	152.21	6,826.0	505.7	7,159.7	7,167.3	9.55	0.15	9.56
15,000.0	92.39	156.99	6,824.0	460.5	7,181.1	7,183.0	9.55	0.12	9.56

PDC Energy Inc.

Planning Report

Database:	EDM 5000.15 Single User Db	Local Co-ordinate Reference:	Well HEN 06NHS
Company:	PDC ENERGY Derrick	TVD Reference:	KB 23ft @ 4803.0usft
Project:	WELD COUNTY, COLORADO (TRUE)	MD Reference:	KB 23ft @ 4803.0usft
Site:	SW NE SEC. 8 T4N R64W 6th P.M. (HEN)	North Reference:	True
Well:	HEN 06NHS	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL #3 U Lateral		

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)
15,050.0	92.43	161.77	6,821.9	413.8	7,198.7	7,194.7	9.55	0.09	9.56
15,100.0	92.46	166.55	6,819.7	365.8	7,212.3	7,202.3	9.55	0.05	9.56
15,150.0	92.46	171.33	6,817.6	316.7	7,221.9	7,205.7	9.55	0.02	9.56
15,200.0	92.46	176.12	6,815.4	267.1	7,227.4	7,205.0	9.55	-0.02	9.56
15,250.0	92.43	180.90	6,813.3	217.2	7,228.7	7,200.1	9.55	-0.05	9.56
15,300.0	92.39	185.68	6,811.2	167.3	7,225.8	7,191.1	9.55	-0.08	9.56
15,350.0	92.33	190.46	6,809.1	117.9	7,218.8	7,178.0	9.55	-0.12	9.56
15,400.0	92.26	195.24	6,807.1	69.2	7,207.7	7,161.0	9.55	-0.15	9.56
15,450.0	92.17	200.02	6,805.2	21.6	7,192.5	7,140.1	9.55	-0.18	9.56
15,500.0	92.06	204.80	6,803.4	-24.6	7,173.5	7,115.5	9.55	-0.21	9.56
15,550.0	91.94	209.58	6,801.6	-69.0	7,150.7	7,087.4	9.55	-0.24	9.56
15,597.0	91.82	214.07	6,800.1	-108.9	7,125.9	7,057.9	9.55	-0.27	9.56
200FT FEL & 2251 FNL Sec 9									
15,600.0	91.81	214.36	6,800.0	-111.4	7,124.2	7,055.9	9.55	-0.28	9.56
15,650.0	91.66	219.13	6,798.5	-151.5	7,094.3	7,021.3	9.55	-0.29	9.55
15,700.0	91.50	223.91	6,797.1	-188.9	7,061.2	6,983.8	9.55	-0.31	9.55
15,750.0	91.34	228.69	6,795.8	-223.4	7,025.1	6,943.7	9.55	-0.34	9.55
15,800.0	91.16	233.46	6,794.8	-254.8	6,986.2	6,901.2	9.55	-0.35	9.55
15,850.0	90.97	238.24	6,793.8	-282.8	6,944.8	6,856.7	9.55	-0.37	9.55
EXIST VERT BARTON C 15-29									
15,868.9	90.90	240.05	6,793.5	-292.6	6,928.6	6,839.4	9.55	-0.38	9.55
EXIST VERT RICHARDSON 10-13									
15,900.0	90.78	243.01	6,793.1	-307.4	6,901.3	6,810.4	9.55	-0.39	9.55
15,950.0	90.59	247.78	6,792.5	-328.2	6,855.8	6,762.8	9.55	-0.39	9.55
16,000.0	90.38	252.56	6,792.0	-345.1	6,808.8	6,714.0	9.55	-0.40	9.55
16,050.0	90.18	257.33	6,791.8	-358.1	6,760.6	6,664.5	9.55	-0.41	9.55
16,100.0	89.97	262.10	6,791.7	-367.0	6,711.4	6,614.6	9.55	-0.41	9.55
16,150.0	89.77	266.88	6,791.8	-371.8	6,661.6	6,564.6	9.55	-0.41	9.55
16,182.7	89.64	270.00	6,792.0	-372.7	6,628.9	6,532.1	9.55	-0.41	9.55
END OF TURN 697ft FEL & 2517ft FNL Sec 9 - HEN U EOB									
16,192.7	89.46	270.10	6,792.1	-372.7	6,618.9	6,522.2	2.00	-1.72	1.03
HOLD 7016'									
16,200.0	89.46	270.10	6,792.1	-372.7	6,611.6	6,514.9	0.00	0.00	0.00
16,300.0	89.46	270.10	6,793.1	-372.5	6,511.6	6,415.7	0.00	0.00	0.00
16,355.4	89.46	270.10	6,793.6	-372.4	6,456.2	6,360.7	0.00	0.00	0.00
ABDN VERT HAGEN 9-16									
16,400.0	89.46	270.10	6,794.0	-372.3	6,411.6	6,316.5	0.00	0.00	0.00
16,500.0	89.46	270.10	6,795.0	-372.2	6,311.7	6,217.3	0.00	0.00	0.00
16,600.0	89.46	270.10	6,795.9	-372.0	6,211.7	6,118.1	0.00	0.00	0.00
16,700.0	89.46	270.10	6,796.8	-371.8	6,111.7	6,018.9	0.00	0.00	0.00
16,800.0	89.46	270.10	6,797.8	-371.6	6,011.7	5,919.7	0.00	0.00	0.00
16,800.6	89.46	270.10	6,797.8	-371.6	6,011.1	5,919.1	0.00	0.00	0.00
EXIST VERT REINICK C 9-22									
16,812.8	89.46	270.10	6,797.9	-371.6	5,998.9	5,907.0	0.00	0.00	0.00
EXIST VERT ALTER C 9-23									
16,900.0	89.46	270.10	6,798.7	-371.4	5,911.7	5,820.5	0.00	0.00	0.00
17,000.0	89.46	270.10	6,799.6	-371.3	5,811.7	5,721.3	0.00	0.00	0.00
17,100.0	89.46	270.10	6,800.6	-371.1	5,711.7	5,622.1	0.00	0.00	0.00
17,200.0	89.46	270.10	6,801.5	-370.9	5,611.7	5,522.9	0.00	0.00	0.00
17,300.0	89.46	270.10	6,802.4	-370.7	5,511.7	5,423.7	0.00	0.00	0.00
17,387.5	89.46	270.10	6,803.3	-370.6	5,424.2	5,336.8	0.00	0.00	0.00
EXIST VERT HAGEN 9-10									
17,400.0	89.46	270.10	6,803.4	-370.5	5,411.7	5,324.4	0.00	0.00	0.00

PDC Energy Inc.

Planning Report

Database:	EDM 5000.15 Single User Db	Local Co-ordinate Reference:	Well HEN 06NHS
Company:	PDC ENERGY Derrick	TVD Reference:	KB 23ft @ 4803.0usft
Project:	WELD COUNTY, COLORADO (TRUE)	MD Reference:	KB 23ft @ 4803.0usft
Site:	SW NE SEC. 8 T4N R64W 6th P.M. (HEN)	North Reference:	True
Well:	HEN 06NHS	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL #3 U Lateral		

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)
17,500.0	89.46	270.10	6,804.3	-370.4	5,311.7	5,225.2	0.00	0.00	0.00
17,600.0	89.46	270.10	6,805.2	-370.2	5,211.7	5,126.0	0.00	0.00	0.00
17,632.3	89.46	270.10	6,805.5	-370.1	5,179.4	5,094.0	0.00	0.00	0.00
ABDN VERT REINICK 9-7									
17,661.9	89.46	270.10	6,805.8	-370.1	5,149.8	5,064.6	0.00	0.00	0.00
EXIST VERT HAGEN 9-15									
17,700.0	89.46	270.10	6,806.2	-370.0	5,111.7	5,026.8	0.00	0.00	0.00
17,800.0	89.46	270.10	6,807.1	-369.8	5,011.7	4,927.6	0.00	0.00	0.00
17,900.0	89.46	270.10	6,808.0	-369.6	4,911.7	4,828.4	0.00	0.00	0.00
18,000.0	89.46	270.10	6,809.0	-369.5	4,811.7	4,729.2	0.00	0.00	0.00
18,100.0	89.46	270.10	6,809.9	-369.3	4,711.7	4,630.0	0.00	0.00	0.00
18,200.0	89.46	270.10	6,810.9	-369.1	4,611.7	4,530.8	0.00	0.00	0.00
18,300.0	89.46	270.10	6,811.8	-368.9	4,511.7	4,431.6	0.00	0.00	0.00
18,400.0	89.46	270.10	6,812.7	-368.7	4,411.7	4,332.4	0.00	0.00	0.00
18,500.0	89.46	270.10	6,813.7	-368.6	4,311.7	4,233.2	0.00	0.00	0.00
18,600.0	89.46	270.10	6,814.6	-368.4	4,211.7	4,134.0	0.00	0.00	0.00
18,700.0	89.46	270.10	6,815.5	-368.2	4,111.8	4,034.8	0.00	0.00	0.00
18,744.7	89.46	270.10	6,815.9	-368.1	4,067.0	3,990.4	0.00	0.00	0.00
EXIST VERT VERN JOHNSON 1-A									
18,790.6	89.46	270.10	6,816.4	-368.0	4,021.2	3,944.9	0.00	0.00	0.00
EXIST VERT JOHNSON 9-11									
18,800.0	89.46	270.10	6,816.5	-368.0	4,011.8	3,935.5	0.00	0.00	0.00
18,900.0	89.46	270.10	6,817.4	-367.9	3,911.8	3,836.3	0.00	0.00	0.00
19,000.0	89.46	270.10	6,818.3	-367.7	3,811.8	3,737.1	0.00	0.00	0.00
19,100.0	89.46	270.10	6,819.3	-367.5	3,711.8	3,637.9	0.00	0.00	0.00
19,200.0	89.46	270.10	6,820.2	-367.3	3,611.8	3,538.7	0.00	0.00	0.00
19,300.0	89.46	270.10	6,821.1	-367.1	3,511.8	3,439.5	0.00	0.00	0.00
19,400.0	89.46	270.10	6,822.1	-367.0	3,411.8	3,340.3	0.00	0.00	0.00
19,452.7	89.46	270.10	6,822.6	-366.9	3,359.1	3,288.0	0.00	0.00	0.00
EXIST VERT AMANDA ALTER C 9-20									
19,470.3	89.46	270.10	6,822.7	-366.8	3,341.5	3,270.6	0.00	0.00	0.00
EXIST VERT ALTER C 9-25									
19,500.0	89.46	270.10	6,823.0	-366.8	3,311.8	3,241.1	0.00	0.00	0.00
19,531.4	89.46	270.10	6,823.3	-366.7	3,280.4	3,209.9	0.00	0.00	0.00
EXIST VERT STATE 16-414									
19,600.0	89.46	270.10	6,823.9	-366.6	3,211.8	3,141.9	0.00	0.00	0.00
19,700.0	89.46	270.10	6,824.9	-366.4	3,111.8	3,042.7	0.00	0.00	0.00
19,800.0	89.46	270.10	6,825.8	-366.2	3,011.8	2,943.5	0.00	0.00	0.00
19,900.0	89.46	270.10	6,826.8	-366.1	2,911.8	2,844.3	0.00	0.00	0.00
19,918.9	89.46	270.10	6,826.9	-366.0	2,892.9	2,825.5	0.00	0.00	0.00
EXIST VERT SMITH 9-5									
20,000.0	89.46	270.10	6,827.7	-365.9	2,811.8	2,745.1	0.00	0.00	0.00
20,100.0	89.46	270.10	6,828.6	-365.7	2,711.8	2,645.9	0.00	0.00	0.00
20,116.4	89.46	270.10	6,828.8	-365.7	2,695.4	2,629.6	0.00	0.00	0.00
EXIST VERT VERN JOHNSON 2									
20,200.0	89.46	270.10	6,829.6	-365.5	2,611.8	2,546.6	0.00	0.00	0.00
20,300.0	89.46	270.10	6,830.5	-365.3	2,511.8	2,447.4	0.00	0.00	0.00
20,400.0	89.46	270.10	6,831.4	-365.2	2,411.8	2,348.2	0.00	0.00	0.00
20,500.0	89.46	270.10	6,832.4	-365.0	2,311.8	2,249.0	0.00	0.00	0.00
20,600.0	89.46	270.10	6,833.3	-364.8	2,211.8	2,149.8	0.00	0.00	0.00
20,700.0	89.46	270.10	6,834.2	-364.6	2,111.8	2,050.6	0.00	0.00	0.00
20,800.0	89.46	270.10	6,835.2	-364.4	2,011.8	1,951.4	0.00	0.00	0.00
20,900.0	89.46	270.10	6,836.1	-364.3	1,911.9	1,852.2	0.00	0.00	0.00

PDC Energy Inc.

Planning Report

Database:	EDM 5000.15 Single User Db	Local Co-ordinate Reference:	Well HEN 06NHS
Company:	PDC ENERGY Derrick	TVD Reference:	KB 23ft @ 4803.0usft
Project:	WELD COUNTY, COLORADO (TRUE)	MD Reference:	KB 23ft @ 4803.0usft
Site:	SW NE SEC. 8 T4N R64W 6th P.M. (HEN)	North Reference:	True
Well:	HEN 06NHS	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL #3 U Lateral		

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)
21,000.0	89.46	270.10	6,837.0	-364.1	1,811.9	1,753.0	0.00	0.00	0.00
21,012.6	89.46	270.10	6,837.2	-364.1	1,799.3	1,740.5	0.00	0.00	0.00
ABDN VERT CONQUEST SWD 1-8									
21,100.0	89.46	270.10	6,838.0	-363.9	1,711.9	1,653.8	0.00	0.00	0.00
21,105.2	89.46	270.10	6,838.0	-363.9	1,706.7	1,648.7	0.00	0.00	0.00
EXIST VERT NGL C1A									
21,200.0	89.46	270.10	6,838.9	-363.7	1,611.9	1,554.6	0.00	0.00	0.00
21,219.7	89.46	270.10	6,839.1	-363.7	1,592.2	1,535.1	0.00	0.00	0.00
EXIST VERT NGL C1B									
21,300.0	89.46	270.10	6,839.8	-363.5	1,511.9	1,455.4	0.00	0.00	0.00
21,400.0	89.46	270.10	6,840.8	-363.4	1,411.9	1,356.2	0.00	0.00	0.00
21,500.0	89.46	270.10	6,841.7	-363.2	1,311.9	1,257.0	0.00	0.00	0.00
21,600.0	89.46	270.10	6,842.7	-363.0	1,211.9	1,157.7	0.00	0.00	0.00
21,700.0	89.46	270.10	6,843.6	-362.8	1,111.9	1,058.5	0.00	0.00	0.00
21,800.0	89.46	270.10	6,844.5	-362.7	1,011.9	959.3	0.00	0.00	0.00
21,900.0	89.46	270.10	6,845.5	-362.5	911.9	860.1	0.00	0.00	0.00
22,000.0	89.46	270.10	6,846.4	-362.3	811.9	760.9	0.00	0.00	0.00
22,100.0	89.46	270.10	6,847.3	-362.1	711.9	661.7	0.00	0.00	0.00
22,200.0	89.46	270.10	6,848.3	-361.9	611.9	562.5	0.00	0.00	0.00
22,300.0	89.46	270.10	6,849.2	-361.8	511.9	463.3	0.00	0.00	0.00
22,400.0	89.46	270.10	6,850.1	-361.6	411.9	364.1	0.00	0.00	0.00
22,500.0	89.46	270.10	6,851.1	-361.4	311.9	264.9	0.00	0.00	0.00
22,600.0	89.46	270.10	6,852.0	-361.2	211.9	165.7	0.00	0.00	0.00
22,700.0	89.46	270.10	6,852.9	-361.0	111.9	66.5	0.00	0.00	0.00
22,735.6	89.46	270.10	6,853.3	-361.0	76.4	31.2	0.00	0.00	0.00
ABDN VERT HEISER 1									
22,775.9	89.46	270.10	6,853.6	-360.9	36.0	-8.9	0.00	0.00	0.00
EXIST VERT HARLESS PM C 17-2									
22,800.0	89.46	270.10	6,853.9	-360.9	11.9	-32.7	0.00	0.00	0.00
22,900.0	89.46	270.10	6,854.8	-360.7	-88.1	-131.9	0.00	0.00	0.00
23,000.0	89.46	270.10	6,855.7	-360.5	-188.1	-231.2	0.00	0.00	0.00
23,100.0	89.46	270.10	6,856.7	-360.3	-288.0	-330.4	0.00	0.00	0.00
23,209.0	89.46	270.10	6,857.7	-360.1	-397.1	-438.5	0.00	0.00	0.00
BHL: 2517ft FNL & 2440ft FEL of Sec 8 - HEN U BHL									

PDC Energy Inc.

Planning Report

Database:	EDM 5000.15 Single User Db	Local Co-ordinate Reference:	Well HEN 06NHS
Company:	PDC ENERGY Derrick	TVD Reference:	KB 23ft @ 4803.0usft
Project:	WELD COUNTY, COLORADO (TRUE)	MD Reference:	KB 23ft @ 4803.0usft
Site:	SW NE SEC. 8 T4N R64W 6th P.M. (HEN)	North Reference:	True
Well:	HEN 06NHS	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL #3 U Lateral		

Design Targets									
Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
KOP - HEN 06N (P2) - plan hits target center - Point	0.00	0.00	6,176.8	839.2	-923.4	1,364,590.05	3,257,698.44	40° 19' 49.849 N	104° 34' 32.363 W
HEN U EOB - plan hits target center - Point	0.00	0.00	6,792.0	-372.7	6,628.9	1,363,457.23	3,265,262.68	40° 19' 37.864 N	104° 32' 54.851 W
BHL - HEN 06N (P2) - plan misses target center by 180.8usft at 14714.1usft MD (6834.7 TVD, 687.5 N, 7012.1 E) - Point	0.00	0.00	6,833.0	824.6	7,129.9	1,364,659.66	3,265,751.12	40° 19' 49.694 N	104° 32' 48.378 W
HEN U SOB - plan hits target center - Point	0.00	0.00	6,843.0	825.5	6,630.4	1,364,655.37	3,265,251.61	40° 19' 49.705 N	104° 32' 54.828 W
HEN U BHL - plan hits target center - Point	0.00	0.00	6,857.7	-360.1	-397.1	1,363,396.33	3,258,237.22	40° 19' 37.998 N	104° 34' 25.568 W
EP - HEN 06N (P2) - plan hits target center - Point	0.00	0.00	6,868.6	838.3	-392.5	1,364,594.67	3,258,229.23	40° 19' 49.840 N	104° 34' 25.509 W

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
0.0	0.0	PIERRE		0.00		
3,776.6	3,687.0	PARKMAN SANDSTONE		0.00		
4,217.6	4,112.0	SUSSEX SANDSTONE		0.00		
5,084.2	4,947.0	SHANNON SANDSTONE		0.00		
6,895.1	6,680.0	SHARON SPRINGS		0.00		
6,953.8	6,720.0	NIOBRARA A		0.00		
7,133.7	6,819.0	NIOBRARA B		0.00		
7,325.4	6,880.0	NIOBRARA C		0.00		

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
800.0	800.0	0.0	0.0	START NUDGE (2°/100ft BUR)	
1,575.4	1,566.0	70.2	-77.2	EOB TO 15.51° INC	
5,461.8	5,310.8	769.1	-846.2	END OF TANGENT	
6,237.2	6,076.8	839.2	-923.4	EOD TO VERTICAL	
6,337.2	6,176.8	839.2	-923.4	KOP (8°/100ft BUR)	
7,274.7	6,868.6	838.3	-392.6	EP: 1319ft FNL & 2440ft FEL of Sec 8	
7,468.1	6,893.0	838.0	-201.3	HZ LANDING POINT	
14,300.0	6,843.0	825.5	6,630.4	START OF TURN 688ft FEL & 1319ft FNL Sec 9	
14,887.6	6,828.5	559.2	7,127.8	200FT FEL & 1583 FNL Sec 9	
15,597.0	6,800.1	-108.9	7,125.9	200FT FEL & 2251 FNL Sec 9	
16,182.7	6,792.0	-372.7	6,628.9	END OF TURN 697ft FEL & 2517ft FNL Sec 9	
16,192.7	6,792.1	-372.7	6,618.9	HOLD 7016'	
23,209.0	6,857.7	-360.1	-397.1	BHL: 2517ft FNL & 2440ft FEL of Sec 8	