

PDC ENERGY

**WELD COUNTY, COLORADO
NW NW SEC. 5 T5N R64W 6th P.M.
EHRlich 5M-343**

ORIGINAL WELLBORE

16 March, 2016

Plan: PROPOSAL #1





Project: WELD COUNTY, COLORADO
Site: NW NW SEC. 5 T5N R64W 6th P.M.
Well: EHRLICH 5M-343
Wellbore: ORIGINAL WELLBORE
Design: PROPOSAL #1

ANNOTATIONS									
TVD	MD	Inc	Azi	+N/-S	+E/-W	VSect	Dep	Annotation	
0.0	0.0	0.00	0.00	0.0	0.0	0.0	0.0	SHL: 371ft FNL & 1098ft FWL of Sec 5	
2100.0	2100.0	0.00	0.00	0.0	0.0	0.0	0.0	START NUDGE (2°/100ft BUR)	
3001.4	3016.9	18.34	68.42	53.5	135.3	-34.9	145.5	EOB TO 18.34° INC	
5172.4	5304.2	18.34	68.42	318.2	804.5	-207.7	865.1	END OF TANGENT	
6073.8	6221.1	0.00	0.00	371.7	939.8	-242.7	1010.6	EOD TO VERTICAL	
6103.8	6251.1	0.00	0.00	371.7	939.8	-242.7	1010.6	KOP (8°/100ft BUR)	
6820.0	7382.0	90.47	180.00	-350.4	939.8	472.9	1732.7	HZ LANDING PNT *NEW*: 737.1ft FNL & 2037.4ft FWL of Sec 5	
6765.0	13995.7	90.48	180.00	-6963.8	939.8	7026.9	8346.1	BHL: 2130ft FNL & 2080ft FWL of Sec 8	

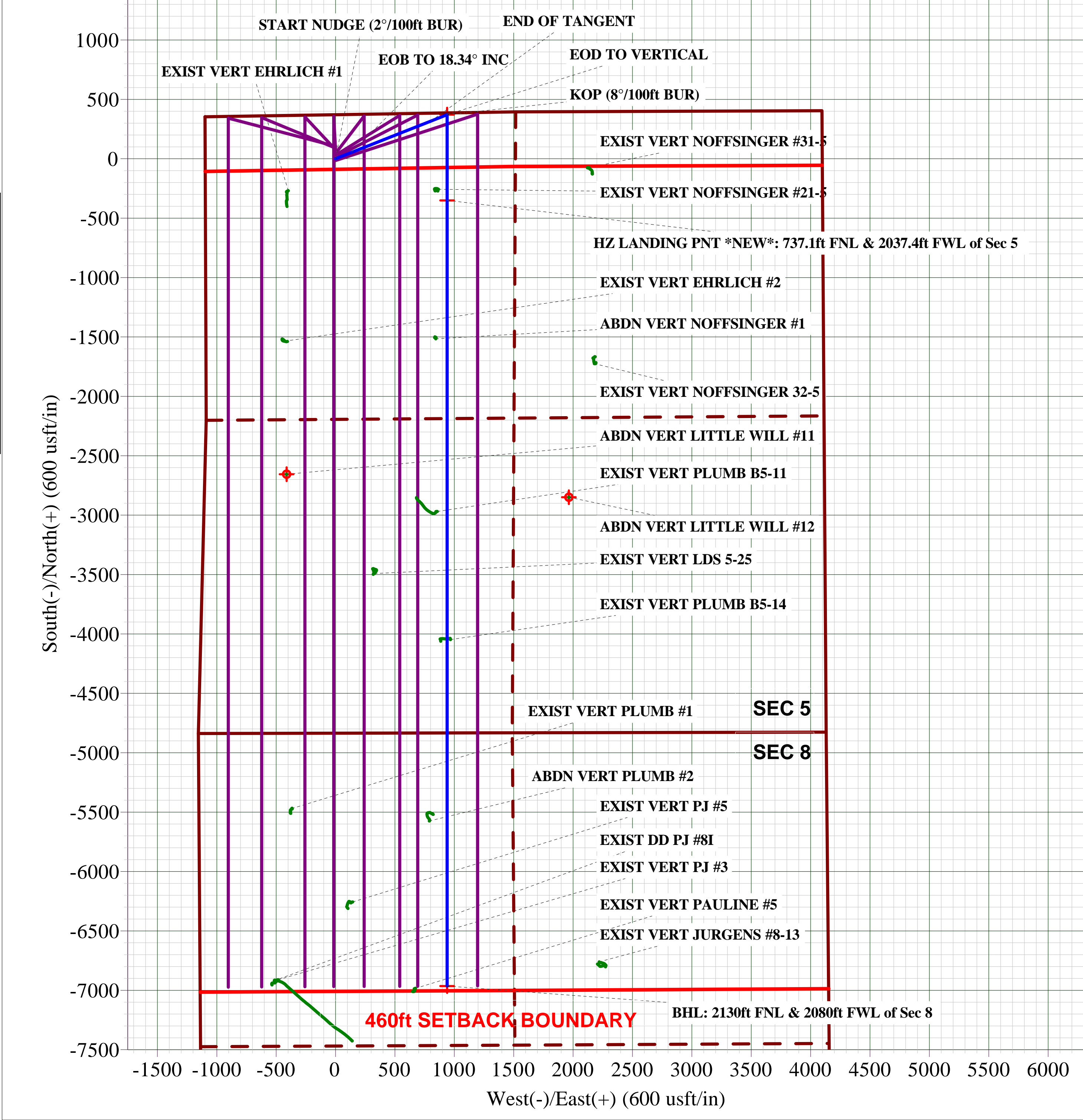
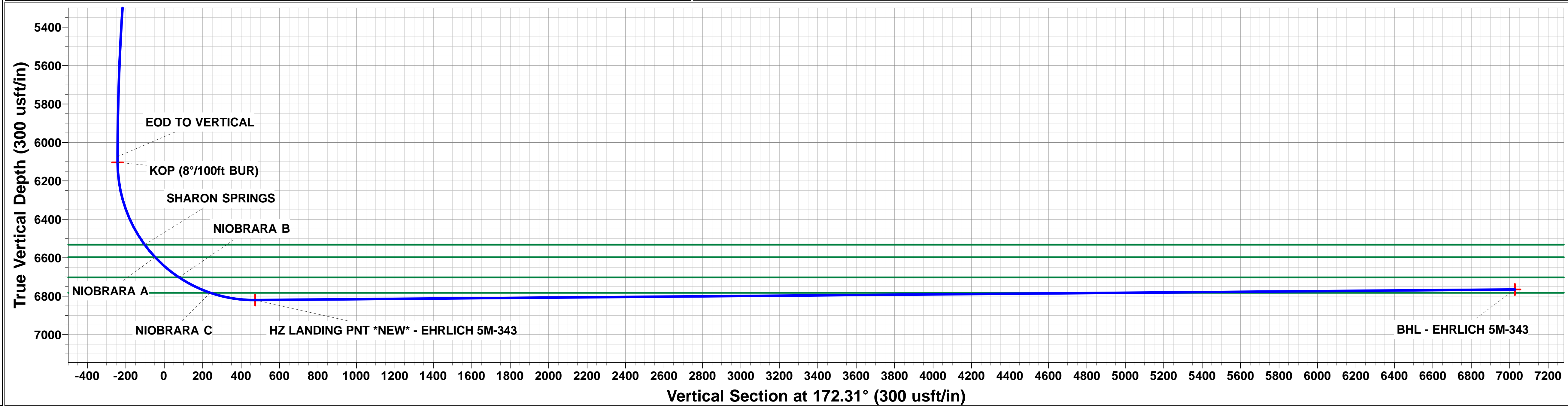
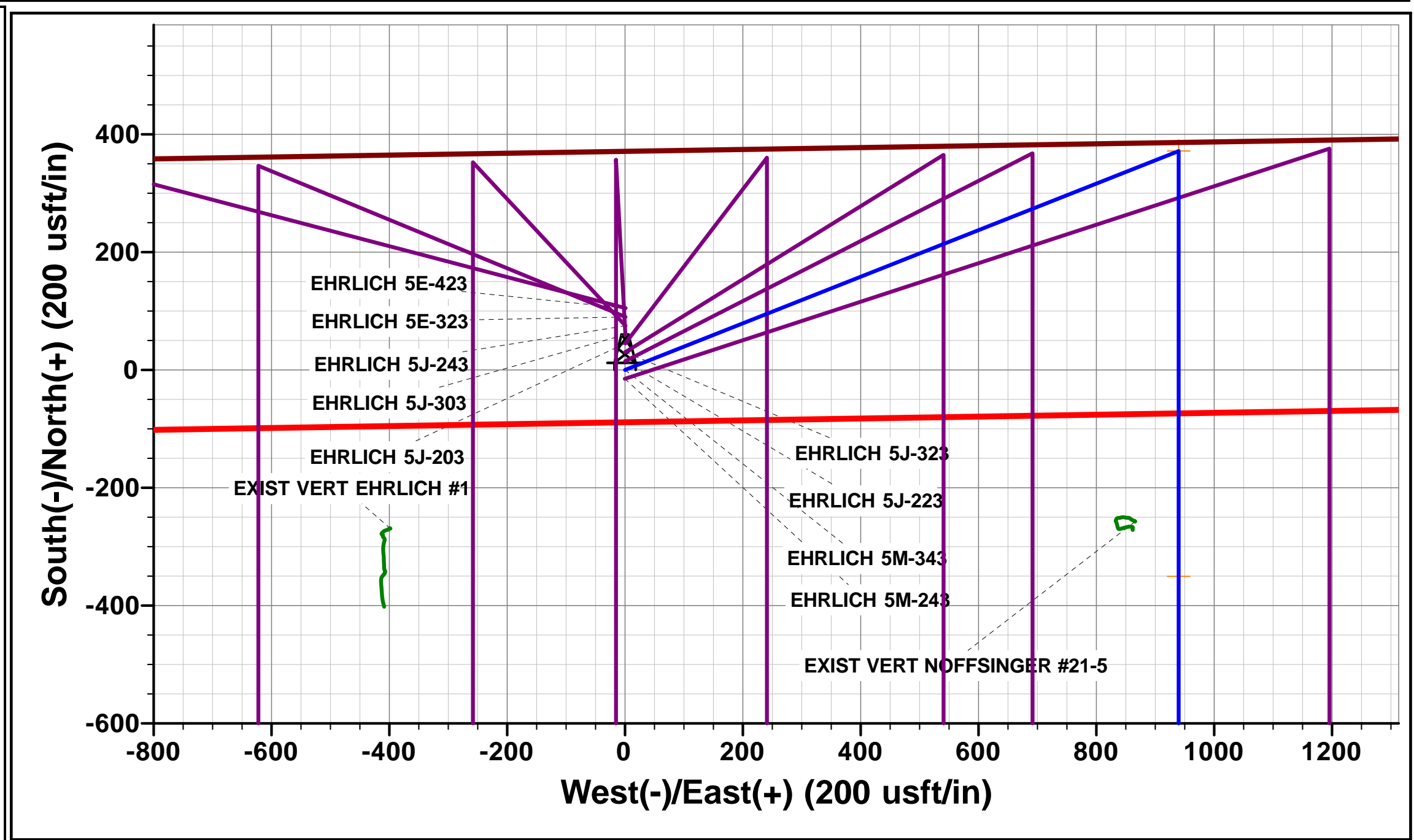
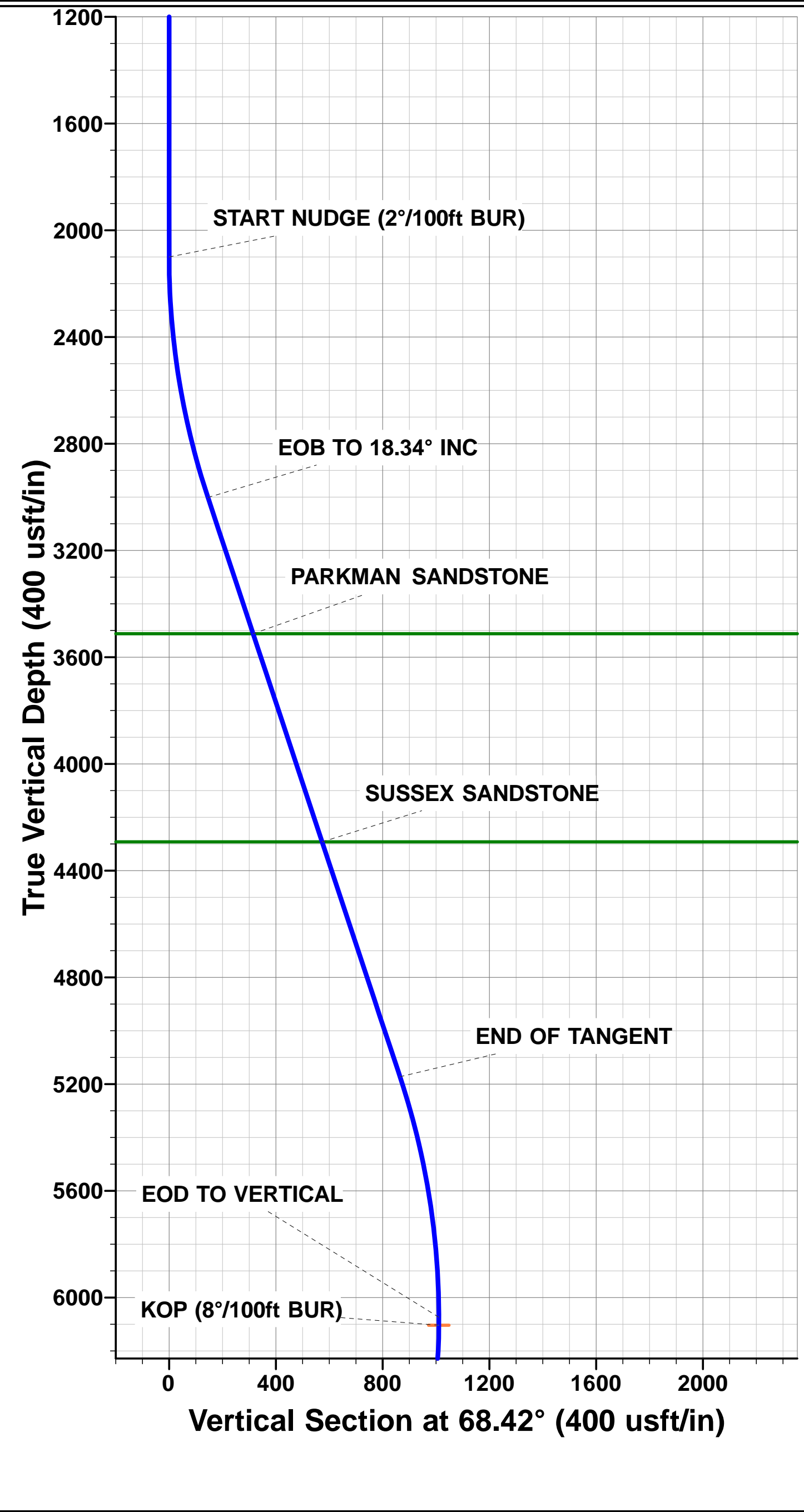
PROPOSED LOCAL COORDINATES:

SHL: 371ft FNL & 1098ft FWL Sec 5

HZ LNDNG PNT *NEW*: 737.1ft FNL & 2037.4ft FWL Sec 5

BHL: 2130ft FNL & 2080ft FWL Sec 8

WELLBORE TARGET DETAILS (LAT/LONG)					
Name	TVD	+N/-S	+E/-W	Latitude	Longitude
KOP - EHRLICH 5M-343	6103.8	371.7	939.8	40.435210	-104.576125
BHL - EHRLICH 5M-343	6765.0	-6963.8	939.8	40.415075	-104.576126
HZ LANDING PNT *NEW* - EHRLICH 5M-343	6820.0	-350.4	939.8	40.433228	-104.576125



Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well EHRlich 5M-343
Company:	PDC ENERGY	TVD Reference:	KB-EST @ 4664.0usft (Original Well Elev)
Project:	WELD COUNTY, COLORADO	MD Reference:	KB-EST @ 4664.0usft (Original Well Elev)
Site:	NW NW SEC. 5 T5N R64W 6th P.M.	North Reference:	True
Well:	EHRlich 5M-343	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL #1		

Project	WELD COUNTY, COLORADO		
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	NW NW SEC. 5 T5N R64W 6th P.M.		
Site Position:		Northing:	1,402,450.62 usft
From:	Lat/Long	Easting:	3,256,234.63 usft
Position Uncertainty:	0.0 usft	Slot Radius:	1.10000ft
		Latitude:	40.434478
		Longitude:	-104.579497
		Grid Convergence:	0.59 °

Well	EHRlich 5M-343		
Well Position	+N/-S	-104.9 usft	Northing:
	+E/-W	-1.1 usft	Easting:
Position Uncertainty	0.0 usft	Wellhead Elevation:	usft
		Latitude:	40.434190
		Longitude:	-104.579501
		Ground Level:	4,641.0 usft

Wellbore	ORIGINAL WELLBORE				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	16/03/2016	8.25	66.94	52,574

Design	PROPOSAL #1			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	6,765.0	0.0	0.0	172.31

Plan Sections											
MD (usft)	Inc (°)	Azi (°)	Vertical Depth	SS (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usf)	Build Rate (°/100usf)	Turn Rate (°/100usf)	TFO (°)	Target
0.0	0.00	0.00	0.0	-4,664.0	0.0	0.0	0.00	0.00	0.00	0.00	
2,100.0	0.00	0.00	2,100.0	-2,564.0	0.0	0.0	0.00	0.00	0.00	0.00	
3,016.9	18.34	68.42	3,001.4	-1,662.6	53.5	135.3	2.00	2.00	0.00	68.42	
5,304.2	18.34	68.42	5,172.4	508.4	318.2	804.5	0.00	0.00	0.00	0.00	
6,221.1	0.00	0.00	6,073.8	1,409.8	371.7	939.8	2.00	-2.00	0.00	180.00	
6,251.1	0.00	0.00	6,103.8	1,439.8	371.7	939.8	0.00	0.00	0.00	0.00	KOP - EHRlich 5M
7,382.0	90.47	180.00	6,820.0	2,156.0	-350.4	939.8	8.00	8.00	0.00	180.00	
13,995.7	90.48	180.00	6,765.0	2,101.0	-6,963.8	939.8	0.00	0.00	0.00	0.06	BHL - EHRlich 5M

Planning Report



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Project:	WELD COUNTY, COLORADO	MD Reference:	KB-EST @ 4664.0usft (Original Well Elev)
Site:	NW NW SEC. 5 T5N R64W 6th P.M.	North Reference:	True
Well:	EHRlich 5M-343	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL #1		

Planned Survey										
MD (usft)	Inc (°)	Azi (°)	TVD (usft)	SS (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
SHL: 371ft FNL & 1098ft FWL of Sec 5										
0.0	0.00	0.00	0.0	4,664.00	0.0	0.0	0.0	0.00	0.00	0.00
100.0	0.00	0.00	100.0	4,564.00	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	4,464.00	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	4,364.00	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	4,264.00	0.0	0.0	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	4,164.00	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	4,064.00	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	3,964.00	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	3,864.00	0.0	0.0	0.0	0.00	0.00	0.00
900.0	0.00	0.00	900.0	3,764.00	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	3,664.00	0.0	0.0	0.0	0.00	0.00	0.00
1,100.0	0.00	0.00	1,100.0	3,564.00	0.0	0.0	0.0	0.00	0.00	0.00
1,200.0	0.00	0.00	1,200.0	3,464.00	0.0	0.0	0.0	0.00	0.00	0.00
1,300.0	0.00	0.00	1,300.0	3,364.00	0.0	0.0	0.0	0.00	0.00	0.00
1,400.0	0.00	0.00	1,400.0	3,264.00	0.0	0.0	0.0	0.00	0.00	0.00
1,500.0	0.00	0.00	1,500.0	3,164.00	0.0	0.0	0.0	0.00	0.00	0.00
1,600.0	0.00	0.00	1,600.0	3,064.00	0.0	0.0	0.0	0.00	0.00	0.00
1,700.0	0.00	0.00	1,700.0	2,964.00	0.0	0.0	0.0	0.00	0.00	0.00
1,800.0	0.00	0.00	1,800.0	2,864.00	0.0	0.0	0.0	0.00	0.00	0.00
1,900.0	0.00	0.00	1,900.0	2,764.00	0.0	0.0	0.0	0.00	0.00	0.00
2,000.0	0.00	0.00	2,000.0	2,664.00	0.0	0.0	0.0	0.00	0.00	0.00
START NUDGE (2°/100ft BUR)										
2,100.0	0.00	0.00	2,100.0	2,564.00	0.0	0.0	0.0	0.00	0.00	0.00
2,200.0	2.00	68.42	2,200.0	2,464.02	0.6	1.6	-0.4	2.00	2.00	0.00
2,300.0	4.00	68.42	2,299.8	2,364.16	2.6	6.5	-1.7	2.00	2.00	0.00
2,400.0	6.00	68.42	2,399.5	2,264.55	5.8	14.6	-3.8	2.00	2.00	0.00
2,500.0	8.00	68.42	2,498.7	2,165.30	10.3	25.9	-6.7	2.00	2.00	0.00
2,600.0	10.00	68.42	2,597.5	2,066.53	16.0	40.5	-10.5	2.00	2.00	0.00
2,700.0	12.00	68.42	2,695.6	1,968.38	23.0	58.2	-15.0	2.00	2.00	0.00
2,800.0	14.00	68.42	2,793.1	1,870.94	31.3	79.1	-20.4	2.00	2.00	0.00
2,900.0	16.00	68.42	2,889.6	1,774.36	40.8	103.2	-26.6	2.00	2.00	0.00
3,000.0	18.00	68.42	2,985.3	1,678.73	51.6	130.4	-33.7	2.00	2.00	0.00
EOB TO 18.34° INC										
3,016.9	18.34	68.42	3,001.4	1,662.64	53.5	135.3	-34.9	2.00	2.00	0.00
3,100.0	18.34	68.42	3,080.2	1,583.79	63.1	159.6	-41.2	0.00	0.00	0.00
3,200.0	18.34	68.42	3,175.1	1,488.87	74.7	188.9	-48.8	0.00	0.00	0.00
3,300.0	18.34	68.42	3,270.0	1,393.95	86.3	218.1	-56.3	0.00	0.00	0.00
3,400.0	18.34	68.42	3,365.0	1,299.03	97.8	247.4	-63.9	0.00	0.00	0.00
3,500.0	18.34	68.42	3,459.9	1,204.11	109.4	276.6	-71.4	0.00	0.00	0.00
PARKMAN SANDSTONE										
3,554.9	18.34	68.42	3,512.0	1,152.00	115.8	292.7	-75.6	0.00	0.00	0.00
3,600.0	18.34	68.42	3,554.8	1,109.19	121.0	305.9	-79.0	0.00	0.00	0.00
3,700.0	18.34	68.42	3,649.7	1,014.27	132.6	335.1	-86.5	0.00	0.00	0.00
3,800.0	18.34	68.42	3,744.7	919.35	144.1	364.4	-94.1	0.00	0.00	0.00
3,900.0	18.34	68.42	3,839.6	824.42	155.7	393.7	-101.6	0.00	0.00	0.00
4,000.0	18.34	68.42	3,934.5	729.50	167.3	422.9	-109.2	0.00	0.00	0.00
4,100.0	18.34	68.42	4,029.4	634.58	178.8	452.2	-116.8	0.00	0.00	0.00
4,200.0	18.34	68.42	4,124.3	539.66	190.4	481.4	-124.3	0.00	0.00	0.00
4,300.0	18.34	68.42	4,219.3	444.74	202.0	510.7	-131.9	0.00	0.00	0.00
SUSSEX SANDSTONE										
4,376.6	18.34	68.42	4,292.0	372.00	210.9	533.1	-137.7	0.00	0.00	0.00
4,400.0	18.34	68.42	4,314.2	349.82	213.6	540.0	-139.4	0.00	0.00	0.00
4,500.0	18.34	68.42	4,409.1	254.90	225.1	569.2	-147.0	0.00	0.00	0.00

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Well:	EHRlich 5M-343	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL #1		

Planned Survey

MD (usft)	Inc (°)	Azi (°)	TVD (usft)	SS (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,600.0	18.34	68.42	4,504.0	159.98	236.7	598.5	-154.5	0.00	0.00	0.00
4,700.0	18.34	68.42	4,598.9	65.05	248.3	627.7	-162.1	0.00	0.00	0.00
4,800.0	18.34	68.42	4,693.9	-29.87	259.8	657.0	-169.6	0.00	0.00	0.00
4,900.0	18.34	68.42	4,788.8	-124.79	271.4	686.2	-177.2	0.00	0.00	0.00
5,000.0	18.34	68.42	4,883.7	-219.71	283.0	715.5	-184.8	0.00	0.00	0.00
5,100.0	18.34	68.42	4,978.6	-314.63	294.6	744.8	-192.3	0.00	0.00	0.00
5,200.0	18.34	68.42	5,073.6	-409.55	306.1	774.0	-199.9	0.00	0.00	0.00
5,300.0	18.34	68.42	5,168.5	-504.47	317.7	803.3	-207.4	0.00	0.00	0.00
END OF TANGENT										
5,304.2	18.34	68.42	5,172.4	-508.44	318.2	804.5	-207.7	0.00	0.00	0.00
5,400.0	16.42	68.42	5,263.9	-599.88	328.7	831.1	-214.6	2.00	-2.00	0.00
5,500.0	14.42	68.42	5,360.3	-696.28	338.5	855.8	-221.0	2.00	-2.00	0.00
5,600.0	12.42	68.42	5,457.5	-793.54	347.0	877.4	-226.6	2.00	-2.00	0.00
5,700.0	10.42	68.42	5,555.6	-891.55	354.3	895.8	-231.3	2.00	-2.00	0.00
5,800.0	8.42	68.42	5,654.2	-990.20	360.3	911.1	-235.3	2.00	-2.00	0.00
5,900.0	6.42	68.42	5,753.4	-1,089.36	365.1	923.1	-238.4	2.00	-2.00	0.00
6,000.0	4.42	68.42	5,852.9	-1,188.90	368.6	931.9	-240.6	2.00	-2.00	0.00
6,100.0	2.42	68.42	5,952.7	-1,288.72	370.8	937.4	-242.1	2.00	-2.00	0.00
6,200.0	0.42	68.42	6,052.7	-1,388.68	371.7	939.7	-242.7	2.00	-2.00	0.00
EOD TO VERTICAL										
6,221.1	0.00	0.00	6,073.8	-1,409.80	371.7	939.8	-242.7	2.00	-2.00	0.00
KOP (8°/100ft BUR)										
6,251.1	0.00	0.00	6,103.8	-1,439.80	371.7	939.8	-242.7	0.00	0.00	0.00
6,300.0	3.91	180.00	6,152.6	-1,488.65	370.0	939.8	-241.0	8.00	8.00	0.00
6,400.0	11.91	180.00	6,251.6	-1,587.61	356.3	939.8	-227.4	8.00	8.00	0.00
6,500.0	19.91	180.00	6,347.7	-1,683.71	328.9	939.8	-200.2	8.00	8.00	0.00
6,600.0	27.91	180.00	6,439.0	-1,775.05	288.4	939.8	-160.1	8.00	8.00	0.00
6,700.0	35.91	180.00	6,523.9	-1,859.87	235.6	939.8	-107.8	8.00	8.00	0.00
SHARON SPRINGS										
6,710.1	36.72	180.00	6,532.0	-1,868.00	229.6	939.8	-101.8	8.00	8.00	0.00
NIOBRARA A										
6,795.1	43.52	180.00	6,597.0	-1,933.00	174.8	939.8	-47.6	8.00	8.00	0.00
6,800.0	43.91	180.00	6,600.5	-1,936.51	171.5	939.8	-44.2	8.00	8.00	0.00
6,900.0	51.91	180.00	6,667.5	-2,003.48	97.3	939.8	29.2	8.00	8.00	0.00
NIOBRARA B										
6,959.1	56.64	180.00	6,702.0	-2,038.00	49.3	939.8	76.8	8.00	8.00	0.00
7,000.0	59.91	180.00	6,723.5	-2,059.49	14.6	939.8	111.3	8.00	8.00	0.00
7,100.0	67.91	180.00	6,767.4	-2,103.43	-75.2	939.8	200.2	8.00	8.00	0.00
NIOBRARA C										
7,141.8	71.25	180.00	6,782.0	-2,118.00	-114.3	939.8	239.0	8.00	8.00	0.00
7,200.0	75.91	180.00	6,798.5	-2,134.45	-170.2	939.8	294.3	8.00	8.00	0.00
7,300.0	83.91	180.00	6,816.0	-2,151.96	-268.5	939.8	391.8	8.00	8.00	0.00
HZ LANDING PNT *NEW*: 737.1ft FNL & 2037.4ft FWL of Sec 5										
7,382.0	90.47	180.00	6,820.0	-2,155.97	-350.4	939.8	472.9	8.00	8.00	0.00
7,400.0	90.47	180.00	6,819.8	-2,155.83	-368.4	939.8	490.8	0.00	0.00	0.00
7,500.0	90.47	180.00	6,819.0	-2,155.00	-468.4	939.8	589.9	0.00	0.00	0.00
7,600.0	90.47	180.00	6,818.2	-2,154.18	-568.4	939.8	689.0	0.00	0.00	0.00
7,700.0	90.47	180.00	6,817.4	-2,153.36	-668.4	939.8	788.1	0.00	0.00	0.00
7,800.0	90.47	180.00	6,816.5	-2,152.54	-768.4	939.8	887.2	0.00	0.00	0.00
7,900.0	90.47	180.00	6,815.7	-2,151.72	-868.4	939.8	986.3	0.00	0.00	0.00
8,000.0	90.47	180.00	6,814.9	-2,150.90	-968.4	939.8	1,085.4	0.00	0.00	0.00
8,100.0	90.47	180.00	6,814.1	-2,150.07	-1,068.4	939.8	1,184.5	0.00	0.00	0.00
8,200.0	90.47	180.00	6,813.3	-2,149.25	-1,168.4	939.8	1,283.5	0.00	0.00	0.00

Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well EHRlich 5M-343
Company:	PDC ENERGY	TVD Reference:	KB-EST @ 4664.0usft (Original Well Elev)
Project:	WELD COUNTY, COLORADO	MD Reference:	KB-EST @ 4664.0usft (Original Well Elev)
Site:	NW NW SEC. 5 T5N R64W 6th P.M.	North Reference:	True
Well:	EHRlich 5M-343	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL #1		

Planned Survey										
MD (usft)	Inc (°)	Azi (°)	TVD (usft)	SS (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
8,300.0	90.47	180.00	6,812.4	-2,148.43	-1,268.4	939.8	1,382.6	0.00	0.00	0.00
8,400.0	90.47	180.00	6,811.6	-2,147.61	-1,368.3	939.8	1,481.7	0.00	0.00	0.00
8,500.0	90.47	180.00	6,810.8	-2,146.78	-1,468.3	939.8	1,580.8	0.00	0.00	0.00
8,600.0	90.47	180.00	6,810.0	-2,145.96	-1,568.3	939.8	1,679.9	0.00	0.00	0.00
8,700.0	90.47	180.00	6,809.1	-2,145.13	-1,668.3	939.8	1,779.0	0.00	0.00	0.00
8,800.0	90.47	180.00	6,808.3	-2,144.31	-1,768.3	939.8	1,878.1	0.00	0.00	0.00
8,900.0	90.47	180.00	6,807.5	-2,143.48	-1,868.3	939.8	1,977.2	0.00	0.00	0.00
9,000.0	90.47	180.00	6,806.7	-2,142.66	-1,968.3	939.8	2,076.3	0.00	0.00	0.00
9,100.0	90.47	180.00	6,805.8	-2,141.83	-2,068.3	939.8	2,175.4	0.00	0.00	0.00
9,200.0	90.47	180.00	6,805.0	-2,141.01	-2,168.3	939.8	2,274.5	0.00	0.00	0.00
9,300.0	90.47	180.00	6,804.2	-2,140.18	-2,268.3	939.8	2,373.6	0.00	0.00	0.00
9,400.0	90.47	180.00	6,803.4	-2,139.35	-2,368.3	939.8	2,472.7	0.00	0.00	0.00
9,500.0	90.47	180.00	6,802.5	-2,138.53	-2,468.3	939.8	2,571.8	0.00	0.00	0.00
9,600.0	90.47	180.00	6,801.7	-2,137.70	-2,568.3	939.8	2,670.9	0.00	0.00	0.00
9,700.0	90.47	180.00	6,800.9	-2,136.87	-2,668.3	939.8	2,770.0	0.00	0.00	0.00
9,800.0	90.47	180.00	6,800.0	-2,136.04	-2,768.3	939.8	2,869.1	0.00	0.00	0.00
9,900.0	90.47	180.00	6,799.2	-2,135.21	-2,868.3	939.8	2,968.2	0.00	0.00	0.00
10,000.0	90.47	180.00	6,798.4	-2,134.38	-2,968.3	939.8	3,067.3	0.00	0.00	0.00
10,100.0	90.48	180.00	6,797.6	-2,133.56	-3,068.3	939.8	3,166.4	0.00	0.00	0.00
10,200.0	90.48	180.00	6,796.7	-2,132.73	-3,168.3	939.8	3,265.5	0.00	0.00	0.00
10,300.0	90.48	180.00	6,795.9	-2,131.90	-3,268.3	939.8	3,364.6	0.00	0.00	0.00
10,400.0	90.48	180.00	6,795.1	-2,131.07	-3,368.3	939.8	3,463.7	0.00	0.00	0.00
10,500.0	90.48	180.00	6,794.2	-2,130.24	-3,468.3	939.8	3,562.8	0.00	0.00	0.00
10,600.0	90.48	180.00	6,793.4	-2,129.41	-3,568.3	939.8	3,661.9	0.00	0.00	0.00
10,700.0	90.48	180.00	6,792.6	-2,128.57	-3,668.3	939.8	3,761.0	0.00	0.00	0.00
10,800.0	90.48	180.00	6,791.7	-2,127.74	-3,768.3	939.8	3,860.1	0.00	0.00	0.00
10,900.0	90.48	180.00	6,790.9	-2,126.91	-3,868.3	939.8	3,959.2	0.00	0.00	0.00
11,000.0	90.48	180.00	6,790.1	-2,126.08	-3,968.3	939.8	4,058.3	0.00	0.00	0.00
11,100.0	90.48	180.00	6,789.2	-2,125.25	-4,068.3	939.8	4,157.4	0.00	0.00	0.00
11,200.0	90.48	180.00	6,788.4	-2,124.41	-4,168.3	939.8	4,256.5	0.00	0.00	0.00
11,300.0	90.48	180.00	6,787.6	-2,123.58	-4,268.2	939.8	4,355.6	0.00	0.00	0.00
11,400.0	90.48	180.00	6,786.7	-2,122.75	-4,368.2	939.8	4,454.7	0.00	0.00	0.00
11,500.0	90.48	180.00	6,785.9	-2,121.91	-4,468.2	939.8	4,553.8	0.00	0.00	0.00
11,600.0	90.48	180.00	6,785.1	-2,121.08	-4,568.2	939.8	4,652.9	0.00	0.00	0.00
11,700.0	90.48	180.00	6,784.2	-2,120.25	-4,668.2	939.8	4,752.0	0.00	0.00	0.00
11,800.0	90.48	180.00	6,783.4	-2,119.41	-4,768.2	939.8	4,851.1	0.00	0.00	0.00
11,900.0	90.48	180.00	6,782.6	-2,118.58	-4,868.2	939.8	4,950.2	0.00	0.00	0.00
12,000.0	90.48	180.00	6,781.7	-2,117.74	-4,968.2	939.8	5,049.3	0.00	0.00	0.00
12,100.0	90.48	180.00	6,780.9	-2,116.90	-5,068.2	939.8	5,148.4	0.00	0.00	0.00
12,200.0	90.48	180.00	6,780.1	-2,116.07	-5,168.2	939.8	5,247.5	0.00	0.00	0.00
12,300.0	90.48	180.00	6,779.2	-2,115.23	-5,268.2	939.8	5,346.6	0.00	0.00	0.00
12,400.0	90.48	180.00	6,778.4	-2,114.40	-5,368.2	939.8	5,445.7	0.00	0.00	0.00
12,500.0	90.48	180.00	6,777.6	-2,113.56	-5,468.2	939.8	5,544.8	0.00	0.00	0.00
12,600.0	90.48	180.00	6,776.7	-2,112.72	-5,568.2	939.8	5,643.9	0.00	0.00	0.00
12,700.0	90.48	180.00	6,775.9	-2,111.88	-5,668.2	939.8	5,743.0	0.00	0.00	0.00
12,800.0	90.48	180.00	6,775.0	-2,111.05	-5,768.2	939.8	5,842.1	0.00	0.00	0.00
12,900.0	90.48	180.00	6,774.2	-2,110.21	-5,868.2	939.8	5,941.2	0.00	0.00	0.00
13,000.0	90.48	180.00	6,773.4	-2,109.37	-5,968.2	939.8	6,040.3	0.00	0.00	0.00
13,100.0	90.48	180.00	6,772.5	-2,108.53	-6,068.2	939.8	6,139.4	0.00	0.00	0.00
13,200.0	90.48	180.00	6,771.7	-2,107.69	-6,168.2	939.8	6,238.5	0.00	0.00	0.00
13,300.0	90.48	180.00	6,770.9	-2,106.85	-6,268.2	939.8	6,337.6	0.00	0.00	0.00
13,400.0	90.48	180.00	6,770.0	-2,106.01	-6,368.2	939.8	6,436.7	0.00	0.00	0.00
13,500.0	90.48	180.00	6,769.2	-2,105.17	-6,468.2	939.8	6,535.8	0.00	0.00	0.00
13,600.0	90.48	180.00	6,768.3	-2,104.33	-6,568.2	939.8	6,634.9	0.00	0.00	0.00

Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well EHRlich 5M-343
Company:	PDC ENERGY	TVD Reference:	KB-EST @ 4664.0usft (Original Well Elev)
Project:	WELD COUNTY, COLORADO	MD Reference:	KB-EST @ 4664.0usft (Original Well Elev)
Site:	NW NW SEC. 5 T5N R64W 6th P.M.	North Reference:	True
Well:	EHRlich 5M-343	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL #1		

Planned Survey										
MD (usft)	Inc (°)	Azi (°)	TVD (usft)	SS (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
13,700.0	90.48	180.00	6,767.5	-2,103.49	-6,668.2	939.8	6,733.9	0.00	0.00	0.00
13,800.0	90.48	180.00	6,766.6	-2,102.65	-6,768.2	939.8	6,833.0	0.00	0.00	0.00
13,900.0	90.48	180.00	6,765.8	-2,101.81	-6,868.2	939.8	6,932.1	0.00	0.00	0.00
BHL: 2130ft FNL & 2080ft FWL of Sec 8										
13,995.7	90.48	180.00	6,765.0	-2,101.00	-6,963.8	939.8	7,026.9	0.00	0.00	0.00

Formations						
MD (usft)	TVD (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
3,554.9	3,512.0	PARKMAN SANDSTONE				
4,376.6	4,292.0	SUSSEX SANDSTONE				
6,710.1	6,532.0	SHARON SPRINGS				
6,795.1	6,597.0	NIOBRARA A				
6,959.1	6,702.0	NIOBRARA B				
7,141.8	6,782.0	NIOBRARA C				

Plan Annotations				
MD (usft)	TVD (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
0.0	0.0	0.0	0.0	SHL: 371ft FNL & 1098ft FWL of Sec 5
2,100.0	2,100.0	0.0	0.0	START NUDGE (2°/100ft BUR)
3,016.9	3,001.4	53.5	135.3	EOB TO 18.34° INC
5,304.2	5,172.4	318.2	804.5	END OF TANGENT
6,221.1	6,073.8	371.7	939.8	EOD TO VERTICAL
6,251.1	6,103.8	371.7	939.8	KOP (8°/100ft BUR)
7,382.0	6,820.0	-350.4	939.8	HZ LANDING PNT *NEW*: 737.1ft FNL & 2037.4ft FWL of Sec 5
13,995.7	6,765.0	-6,963.8	939.8	BHL: 2130ft FNL & 2080ft FWL of Sec 8