

PDC ENERGY

**WELD COUNTY, COLORADO
SE SW SEC. 21 T4N R67W 6th P.M.
WALTERS 21P-304**

ORIGINAL WELLBORE

26 March, 2016

Plan: PROPOSAL #1





Project: WELD COUNTY, COLORADO
Site: SE SW SEC. 21 T4N R67W 6th P.M.
Well: WALTERS 21P-304
Wellbore: ORIGINAL WELLBORE
Design: PROPOSAL #1

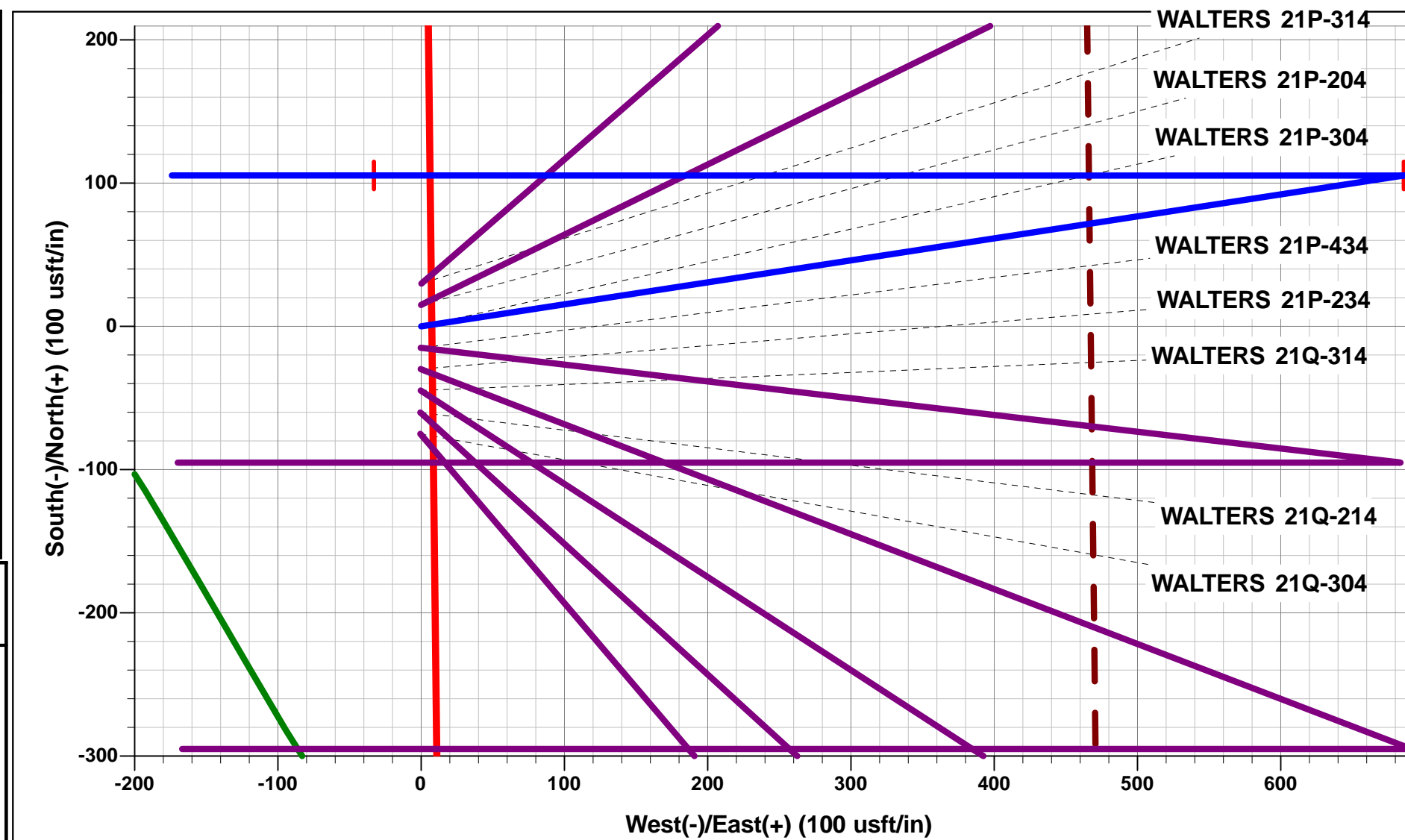


ANNOTATIONS

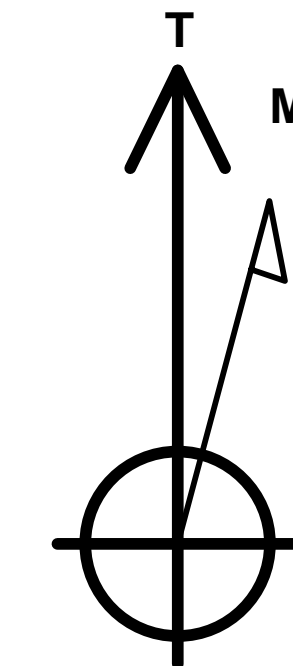
TVD	MD	Inc	Azi	+N/-S	+E/-W	Vsect	Dep	Annotation
0.0	0.0	0.00	0.00	0.0	0.0	0.0	0.0	SHL: 1076ft FSL & 2202ft FWL of Sec 21
500.0	500.0	0.00	0.00	0.0	0.0	0.0	0.0	START NUDGE (2°/100ft BUR)
1095.4	1099.8	12.00	81.27	9.5	61.8	-61.6	62.6	EOB TO 12° INC
3772.4	3836.5	12.00	81.27	95.8	624.1	-621.4	631.4	END OF TANGENT
4367.8	4436.3	0.00	0.00	105.3	685.9	-683.0	693.9	EOD TO VERTICAL
6462.8	6531.3	0.00	0.00	105.3	685.9	-683.0	693.9	KOP (8°/100ft BUR)
7179.0	7658.9	90.21	270.00	105.3	-32.9	35.6	1412.8	HZ LP *NEW*: 1180.3ft FSL & 2171ft FWL of Sec 21
7164.0	11783.3	90.21	270.00	105.3	-4157.3	4158.6	5537.1	BHL: 1110ft FSL & 1953ft FEL of Sec 20

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude
KOP - WALTERS 21P-304	6462.8	105.3	685.9	40.294350	-104.895092
HZ LANDING PNT *NEW*- WALTERS 21P-304	7179.0	105.3	-32.9	40.294350	-104.897669
BHL - WALTERS 21P-304	7164.0	105.3	-4157.3	40.294349	-104.912454

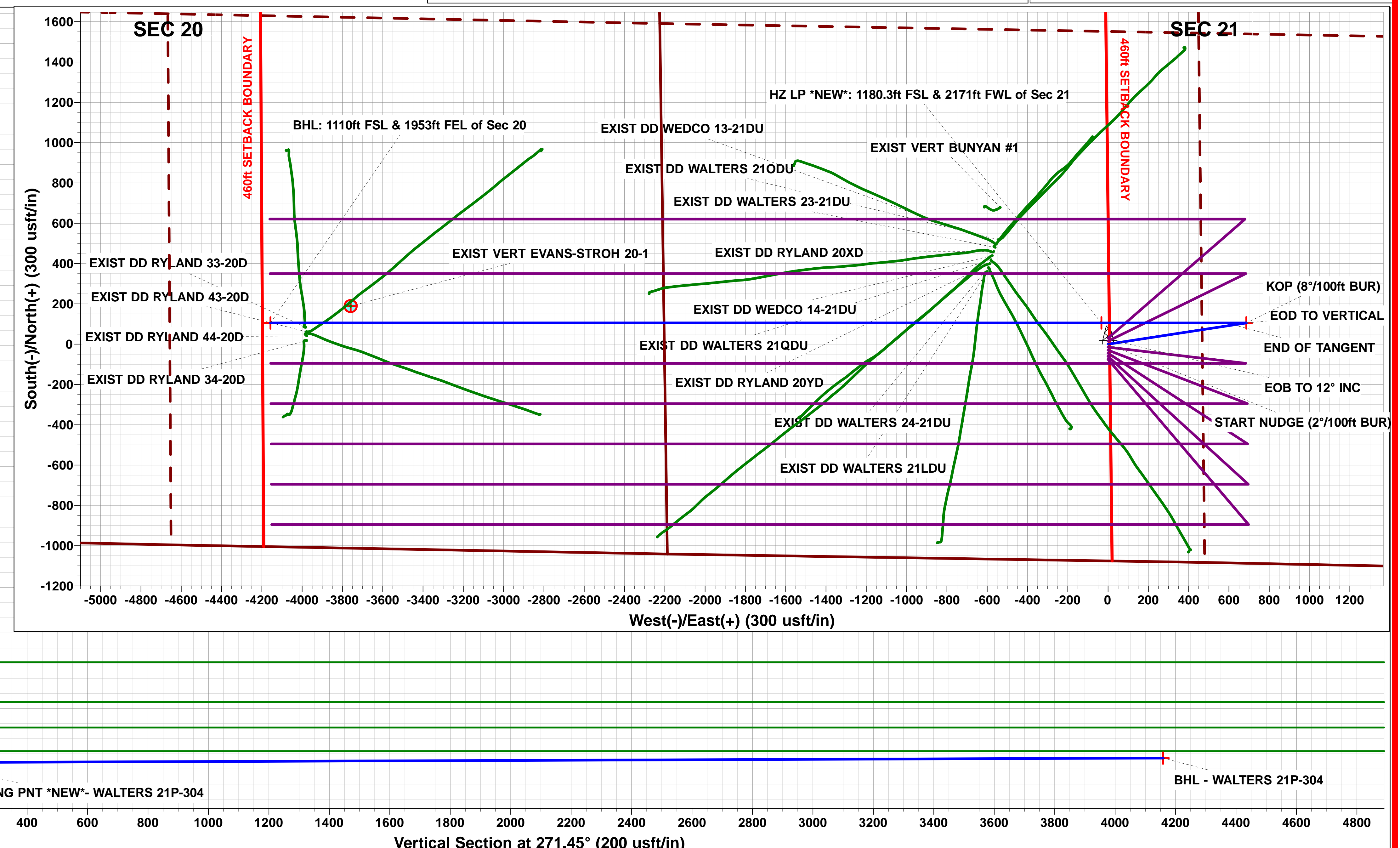
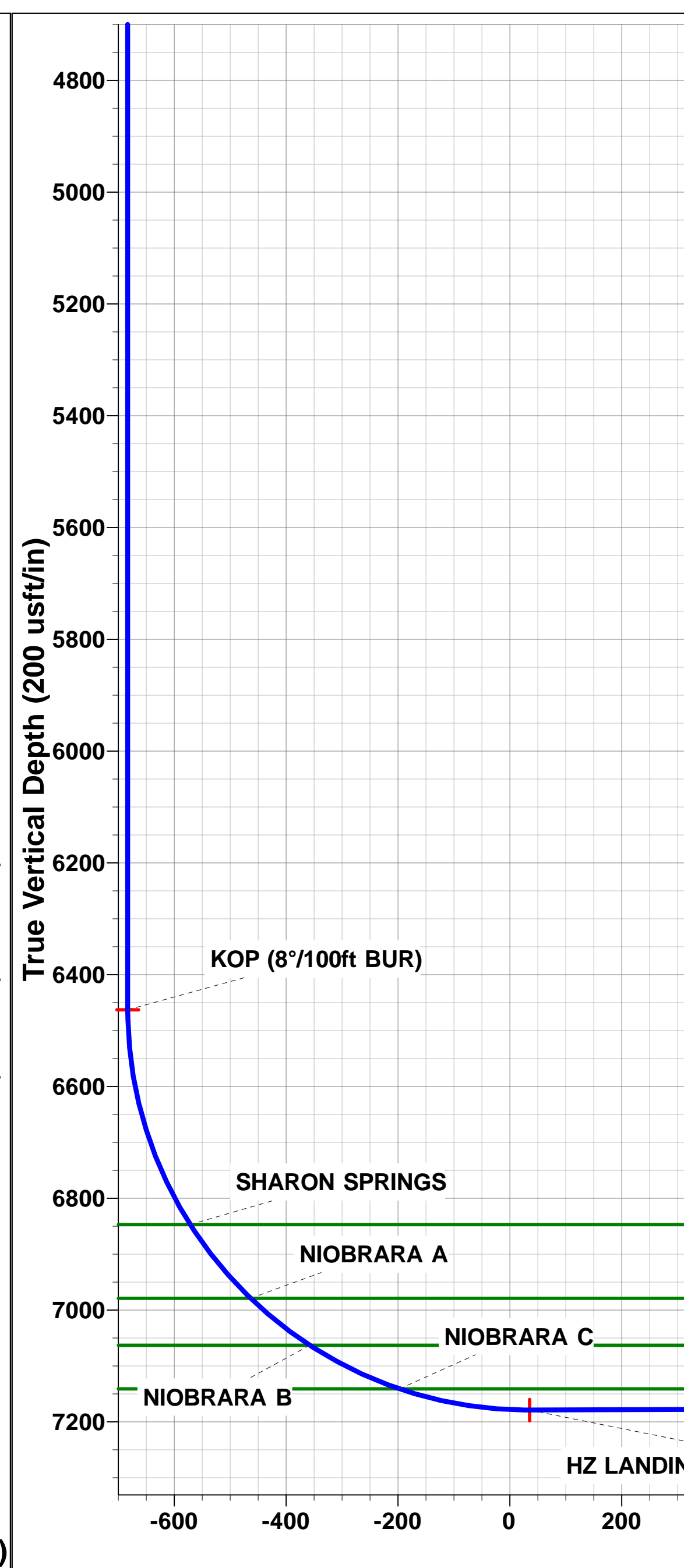
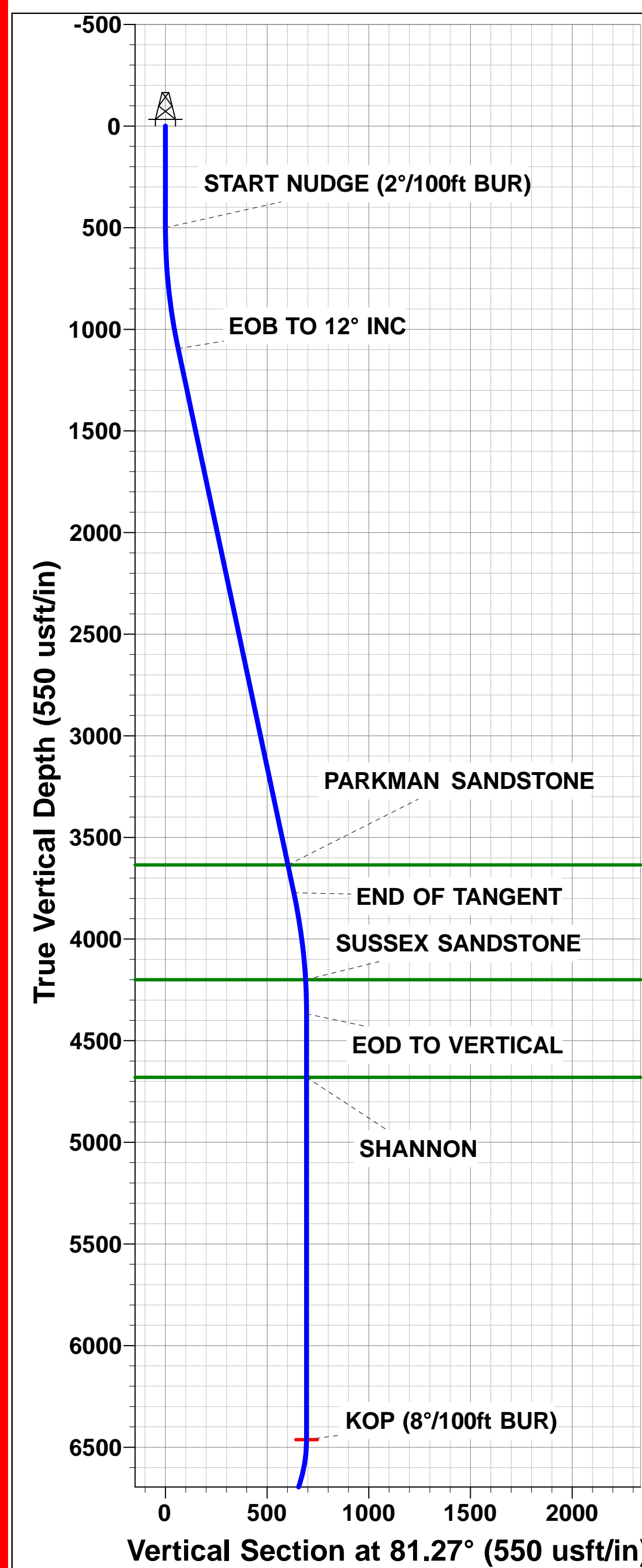


PROPOSED LOCAL COORDINATES:
SHL: 1076ft FSL & 2202ft FWL of Sec 21
HZ LP *NEW*: 1180.3ft FSL & 2171ft FWL of Sec 21
BHL: 1110ft FSL & 1953ft FEL of Sec 20



Azimuths to True North
Magnetic North: 8.40°

Magnetic Field
Strength: 52461.9snT
Dip Angle: 66.78°
Date: 26/03/2016
Model: IGRF2015



Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well WALTERS 21P-304
Company:	PDC ENERGY	TVD Reference:	KB-EST @ 4951.5usft (Original Well Elev)
Project:	WELD COUNTY, COLORADO	MD Reference:	KB-EST @ 4951.5usft (Original Well Elev)
Site:	SE SW SEC. 21 T4N R67W 6th P.M.	North Reference:	True
Well:	WALTERS 21P-304	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	SE SW SEC. 21 T4N R67W 6th P.M.		
Site Position:		Northing:	1,350,463.38 usft
From:	Lat/Long	Easting:	3,168,049.14 usft
Position Uncertainty:	0.0 usft	Slot Radius:	1.10000ft
		Latitude:	40.293855
		Longitude:	-104.897553
		Grid Convergence:	0.39 °

Well	WALTERS 21P-304		
Well Position	+N-S	75.0 usft	Northing:
	+E-W	0.6 usft	Easting:
Position Uncertainty		0.0 usft	Wellhead Elevation:
			Latitude:
			Longitude:
			Ground Level:

Wellbore	ORIGINAL WELLBORE				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	26/03/2016	8.40	66.78	52,462

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 (°)
	7,164.0	0.0	0.0	271.45

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	-4,951.5	0.0	0.0	0.00	0.00	0.00	0.00	
500.0	0.00	0.00	500.0	-4,451.5	0.0	0.0	0.00	0.00	0.00	0.00	
1,099.8	12.00	81.27	1,095.4	-3,856.1	9.5	61.8	2.00	2.00	0.00	81.27	
3,836.5	12.00	81.27	3,772.4	-1,179.1	95.8	624.1	0.00	0.00	0.00	0.00	
4,436.3	0.00	0.00	4,367.8	-583.7	105.3	685.9	2.00	-2.00	0.00	180.00	
6,531.3	0.00	0.00	6,462.8	1,511.3	105.3	685.9	0.00	0.00	0.00	0.00	KOP - WALTERS 2
7,658.9	90.21	270.00	7,179.0	2,227.5	105.3	-32.9	8.00	8.00	-7.98	270.00	HZ LANDING PNT
11,783.3	90.21	270.00	7,164.0	2,212.5	105.3	-4,157.3	0.00	0.00	0.00	0.00	BHL - WALTERS 2

Planning Report



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Project:	WELD COUNTY, COLORADO	MD Reference:	KB-EST @ 4951.5usft (Original Well Elev)
Site:	SE SW SEC. 21 T4N R67W 6th P.M.	North Reference:	True
Well:	WALTERS 21P-304	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: 1076ft FSL & 2202ft FWL of Sec 21										
0.0	0.00	0.00	0.0	4,951.50	0.0	0.0	0.0	0.00	0.00	0.00
100.0	0.00	0.00	100.0	4,851.50	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	4,751.50	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	4,651.50	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	4,551.50	0.0	0.0	0.0	0.00	0.00	0.00
START NUDGE (2°/100ft BUR)										
500.0	0.00	0.00	500.0	4,451.50	0.0	0.0	0.0	0.00	0.00	0.00
600.0	2.00	81.27	600.0	4,351.52	0.3	1.7	-1.7	2.00	2.00	0.00
700.0	4.00	81.27	699.8	4,251.66	1.1	6.9	-6.9	2.00	2.00	0.00
800.0	6.00	81.27	799.5	4,152.05	2.4	15.5	-15.4	2.00	2.00	0.00
900.0	8.00	81.27	898.7	4,052.80	4.2	27.6	-27.4	2.00	2.00	0.00
1,000.0	10.00	81.27	997.5	3,954.03	6.6	43.0	-42.8	2.00	2.00	0.00
EOB TO 12° INC										
1,099.8	12.00	81.27	1,095.4	3,856.07	9.5	61.8	-61.6	2.00	2.00	0.00
1,100.0	12.00	81.27	1,095.6	3,855.88	9.5	61.9	-61.6	0.00	0.00	0.00
1,200.0	12.00	81.27	1,193.4	3,758.06	12.7	82.4	-82.1	0.00	0.00	0.00
1,300.0	12.00	81.27	1,291.3	3,660.24	15.8	103.0	-102.5	0.00	0.00	0.00
1,400.0	12.00	81.27	1,389.1	3,562.43	19.0	123.5	-123.0	0.00	0.00	0.00
1,500.0	12.00	81.27	1,486.9	3,464.61	22.1	144.1	-143.4	0.00	0.00	0.00
1,600.0	12.00	81.27	1,584.7	3,366.80	25.3	164.6	-163.9	0.00	0.00	0.00
1,700.0	12.00	81.27	1,682.5	3,268.98	28.4	185.1	-184.4	0.00	0.00	0.00
1,800.0	12.00	81.27	1,780.3	3,171.16	31.6	205.7	-204.8	0.00	0.00	0.00
1,900.0	12.00	81.27	1,878.2	3,073.35	34.7	226.2	-225.3	0.00	0.00	0.00
2,000.0	12.00	81.27	1,976.0	2,975.53	37.9	246.8	-245.7	0.00	0.00	0.00
2,100.0	12.00	81.27	2,073.8	2,877.72	41.0	267.3	-266.2	0.00	0.00	0.00
2,200.0	12.00	81.27	2,171.6	2,779.90	44.2	287.9	-286.6	0.00	0.00	0.00
2,300.0	12.00	81.27	2,269.4	2,682.08	47.3	308.4	-307.1	0.00	0.00	0.00
2,400.0	12.00	81.27	2,367.2	2,584.27	50.5	328.9	-327.6	0.00	0.00	0.00
2,500.0	12.00	81.27	2,465.0	2,486.45	53.7	349.5	-348.0	0.00	0.00	0.00
2,600.0	12.00	81.27	2,562.9	2,388.63	56.8	370.0	-368.5	0.00	0.00	0.00
2,700.0	12.00	81.27	2,660.7	2,290.82	60.0	390.6	-388.9	0.00	0.00	0.00
2,800.0	12.00	81.27	2,758.5	2,193.00	63.1	411.1	-409.4	0.00	0.00	0.00
2,900.0	12.00	81.27	2,856.3	2,095.19	66.3	431.7	-429.9	0.00	0.00	0.00
3,000.0	12.00	81.27	2,954.1	1,997.37	69.4	452.2	-450.3	0.00	0.00	0.00
3,100.0	12.00	81.27	3,051.9	1,899.55	72.6	472.8	-470.8	0.00	0.00	0.00
3,200.0	12.00	81.27	3,149.8	1,801.74	75.7	493.3	-491.2	0.00	0.00	0.00
3,300.0	12.00	81.27	3,247.6	1,703.92	78.9	513.8	-511.7	0.00	0.00	0.00
3,400.0	12.00	81.27	3,345.4	1,606.11	82.0	534.4	-532.1	0.00	0.00	0.00
3,500.0	12.00	81.27	3,443.2	1,508.29	85.2	554.9	-552.6	0.00	0.00	0.00
3,600.0	12.00	81.27	3,541.0	1,410.47	88.3	575.5	-573.1	0.00	0.00	0.00
PARKMAN SANDSTONE										
3,696.1	12.00	81.27	3,635.0	1,316.50	91.4	595.2	-592.7	0.00	0.00	0.00
3,700.0	12.00	81.27	3,638.8	1,312.66	91.5	596.0	-593.5	0.00	0.00	0.00
3,800.0	12.00	81.27	3,736.7	1,214.84	94.7	616.6	-614.0	0.00	0.00	0.00
END OF TANGENT										
3,836.5	12.00	81.27	3,772.4	1,179.13	95.8	624.1	-621.4	0.00	0.00	0.00
3,900.0	10.73	81.27	3,834.6	1,116.88	97.7	636.4	-633.7	2.00	-2.00	0.00
4,000.0	8.73	81.27	3,933.2	1,018.33	100.3	653.1	-650.4	2.00	-2.00	0.00
4,100.0	6.73	81.27	4,032.3	919.24	102.3	666.4	-663.6	2.00	-2.00	0.00
4,200.0	4.73	81.27	4,131.8	819.74	103.8	676.3	-673.4	2.00	-2.00	0.00
SUSSEX SANDSTONE										
4,268.4	3.36	81.27	4,200.0	751.50	104.6	681.0	-678.2	2.00	-2.00	0.00

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Well:	WALTERS 21P-304	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)
4,300.0	2.73	81.27	4,231.5	719.96	104.8	682.7	-679.8	2.00	-2.00	0.00
4,400.0	0.73	81.27	4,331.5	620.01	105.3	685.7	-682.8	2.00	-2.00	0.00
EOD TO VERTICAL										
4,436.3	0.00	0.00	4,367.8	583.70	105.3	685.9	-683.0	2.00	-2.00	0.00
4,500.0	0.00	0.00	4,431.5	520.01	105.3	685.9	-683.0	0.00	0.00	0.00
4,600.0	0.00	0.00	4,531.5	420.01	105.3	685.9	-683.0	0.00	0.00	0.00
4,700.0	0.00	0.00	4,631.5	320.01	105.3	685.9	-683.0	0.00	0.00	0.00
SHANNON										
4,748.5	0.00	0.00	4,680.0	271.50	105.3	685.9	-683.0	0.00	0.00	0.00
4,800.0	0.00	0.00	4,731.5	220.01	105.3	685.9	-683.0	0.00	0.00	0.00
4,900.0	0.00	0.00	4,831.5	120.01	105.3	685.9	-683.0	0.00	0.00	0.00
5,000.0	0.00	0.00	4,931.5	20.01	105.3	685.9	-683.0	0.00	0.00	0.00
5,100.0	0.00	0.00	5,031.5	-79.99	105.3	685.9	-683.0	0.00	0.00	0.00
5,200.0	0.00	0.00	5,131.5	-179.99	105.3	685.9	-683.0	0.00	0.00	0.00
5,300.0	0.00	0.00	5,231.5	-279.99	105.3	685.9	-683.0	0.00	0.00	0.00
5,400.0	0.00	0.00	5,331.5	-379.99	105.3	685.9	-683.0	0.00	0.00	0.00
5,500.0	0.00	0.00	5,431.5	-479.99	105.3	685.9	-683.0	0.00	0.00	0.00
5,600.0	0.00	0.00	5,531.5	-579.99	105.3	685.9	-683.0	0.00	0.00	0.00
5,700.0	0.00	0.00	5,631.5	-679.99	105.3	685.9	-683.0	0.00	0.00	0.00
5,800.0	0.00	0.00	5,731.5	-779.99	105.3	685.9	-683.0	0.00	0.00	0.00
5,900.0	0.00	0.00	5,831.5	-879.99	105.3	685.9	-683.0	0.00	0.00	0.00
6,000.0	0.00	0.00	5,931.5	-979.99	105.3	685.9	-683.0	0.00	0.00	0.00
6,100.0	0.00	0.00	6,031.5	-1,079.99	105.3	685.9	-683.0	0.00	0.00	0.00
6,200.0	0.00	0.00	6,131.5	-1,179.99	105.3	685.9	-683.0	0.00	0.00	0.00
6,300.0	0.00	0.00	6,231.5	-1,279.99	105.3	685.9	-683.0	0.00	0.00	0.00
6,400.0	0.00	0.00	6,331.5	-1,379.99	105.3	685.9	-683.0	0.00	0.00	0.00
6,500.0	0.00	0.00	6,431.5	-1,479.99	105.3	685.9	-683.0	0.00	0.00	0.00
KOP (8°/100ft BUR)										
6,531.3	0.00	0.00	6,462.8	-1,511.30	105.3	685.9	-683.0	0.00	0.00	0.00
6,600.0	5.50	270.00	6,531.4	-1,579.88	105.3	682.6	-679.7	8.00	8.00	0.00
6,700.0	13.50	270.00	6,629.9	-1,678.43	105.3	666.1	-663.2	8.00	8.00	0.00
6,800.0	21.49	270.00	6,725.2	-1,773.73	105.3	636.1	-633.2	8.00	8.00	0.00
6,900.0	29.49	270.00	6,815.4	-1,863.92	105.3	593.1	-590.2	8.00	8.00	0.00
SHARON SPRINGS										
6,936.8	32.44	270.00	6,847.0	-1,895.50	105.3	574.1	-571.3	8.00	8.00	0.00
7,000.0	37.49	270.00	6,898.7	-1,947.25	105.3	537.9	-535.1	8.00	8.00	0.00
7,100.0	45.49	270.00	6,973.6	-2,022.09	105.3	471.7	-468.9	8.00	8.00	0.00
NIORARA A										
7,107.8	46.12	270.00	6,979.0	-2,027.50	105.3	466.2	-463.4	8.00	8.00	0.00
7,200.0	53.49	270.00	7,038.5	-2,086.99	105.3	395.8	-393.0	8.00	8.00	0.00
NIORARA B										
7,243.0	56.93	270.00	7,063.0	-2,111.50	105.3	360.5	-357.7	8.00	8.00	0.00
7,300.0	61.49	270.00	7,092.2	-2,140.68	105.3	311.5	-308.7	8.00	8.00	0.00
7,400.0	69.49	270.00	7,133.6	-2,182.12	105.3	220.6	-217.8	8.00	8.00	0.00
NIORARA C										
7,422.0	71.25	270.00	7,141.0	-2,189.50	105.3	199.9	-197.2	8.00	8.00	0.00
7,500.0	77.49	270.00	7,162.0	-2,210.51	105.3	124.8	-122.1	8.00	8.00	0.00
7,600.0	85.49	270.00	7,176.8	-2,225.29	105.3	26.0	-23.3	8.00	8.00	0.00
HZ LP *NEW*: 1180.3ft FSL & 2171ft FWL of Sec 21										
7,658.9	90.21	270.00	7,179.0	-2,227.50	105.3	-32.9	35.6	8.00	8.00	0.00
7,700.0	90.21	270.00	7,178.9	-2,227.35	105.3	-74.0	76.6	0.00	0.00	0.00
7,800.0	90.21	270.00	7,178.5	-2,226.99	105.3	-174.0	176.6	0.00	0.00	0.00
7,900.0	90.21	270.00	7,178.1	-2,226.62	105.3	-274.0	276.6	0.00	0.00	0.00

Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well WALTERS 21P-304
Company:	PDC ENERGY	TVD Reference:	KB-EST @ 4951.5usft (Original Well Elev)
Project:	WELD COUNTY, COLORADO	MD Reference:	KB-EST @ 4951.5usft (Original Well Elev)
Site:	SE SW SEC. 21 T4N R67W 6th P.M.	North Reference:	True
Well:	WALTERS 21P-304	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)
8,000.0	90.21	270.00	7,177.8	-2,226.26	105.3	-374.0	376.5	0.00	0.00	0.00
8,100.0	90.21	270.00	7,177.4	-2,225.89	105.3	-474.0	476.5	0.00	0.00	0.00
8,200.0	90.21	270.00	7,177.0	-2,225.53	105.3	-574.0	576.5	0.00	0.00	0.00
8,300.0	90.21	270.00	7,176.7	-2,225.16	105.3	-674.0	676.4	0.00	0.00	0.00
8,400.0	90.21	270.00	7,176.3	-2,224.80	105.3	-774.0	776.4	0.00	0.00	0.00
8,500.0	90.21	270.00	7,175.9	-2,224.43	105.3	-874.0	876.4	0.00	0.00	0.00
8,600.0	90.21	270.00	7,175.6	-2,224.07	105.3	-974.0	976.3	0.00	0.00	0.00
8,700.0	90.21	270.00	7,175.2	-2,223.70	105.3	-1,074.0	1,076.3	0.00	0.00	0.00
8,800.0	90.21	270.00	7,174.8	-2,223.34	105.3	-1,174.0	1,176.3	0.00	0.00	0.00
8,900.0	90.21	270.00	7,174.5	-2,222.97	105.3	-1,274.0	1,276.2	0.00	0.00	0.00
9,000.0	90.21	270.00	7,174.1	-2,222.61	105.3	-1,374.0	1,376.2	0.00	0.00	0.00
9,100.0	90.21	270.00	7,173.7	-2,222.24	105.3	-1,474.0	1,476.2	0.00	0.00	0.00
9,200.0	90.21	270.00	7,173.4	-2,221.88	105.3	-1,574.0	1,576.1	0.00	0.00	0.00
9,300.0	90.21	270.00	7,173.0	-2,221.51	105.3	-1,674.0	1,676.1	0.00	0.00	0.00
9,400.0	90.21	270.00	7,172.6	-2,221.15	105.3	-1,774.0	1,776.1	0.00	0.00	0.00
9,500.0	90.21	270.00	7,172.3	-2,220.79	105.3	-1,874.0	1,876.0	0.00	0.00	0.00
9,600.0	90.21	270.00	7,171.9	-2,220.42	105.3	-1,974.0	1,976.0	0.00	0.00	0.00
9,700.0	90.21	270.00	7,171.6	-2,220.06	105.3	-2,074.0	2,076.0	0.00	0.00	0.00
9,800.0	90.21	270.00	7,171.2	-2,219.69	105.3	-2,174.0	2,175.9	0.00	0.00	0.00
9,900.0	90.21	270.00	7,170.8	-2,219.33	105.3	-2,274.0	2,275.9	0.00	0.00	0.00
10,000.0	90.21	270.00	7,170.5	-2,218.96	105.3	-2,374.0	2,375.9	0.00	0.00	0.00
10,100.0	90.21	270.00	7,170.1	-2,218.60	105.3	-2,474.0	2,475.8	0.00	0.00	0.00
10,200.0	90.21	270.00	7,169.7	-2,218.23	105.3	-2,574.0	2,575.8	0.00	0.00	0.00
10,300.0	90.21	270.00	7,169.4	-2,217.87	105.3	-2,674.0	2,675.8	0.00	0.00	0.00
10,400.0	90.21	270.00	7,169.0	-2,217.50	105.3	-2,774.0	2,775.7	0.00	0.00	0.00
10,500.0	90.21	270.00	7,168.6	-2,217.14	105.3	-2,874.0	2,875.7	0.00	0.00	0.00
10,600.0	90.21	270.00	7,168.3	-2,216.77	105.3	-2,974.0	2,975.7	0.00	0.00	0.00
10,700.0	90.21	270.00	7,167.9	-2,216.41	105.3	-3,074.0	3,075.6	0.00	0.00	0.00
10,800.0	90.21	270.00	7,167.5	-2,216.04	105.3	-3,174.0	3,175.6	0.00	0.00	0.00
10,900.0	90.21	270.00	7,167.2	-2,215.68	105.3	-3,274.0	3,275.6	0.00	0.00	0.00
11,000.0	90.21	270.00	7,166.8	-2,215.31	105.3	-3,374.0	3,375.5	0.00	0.00	0.00
11,100.0	90.21	270.00	7,166.4	-2,214.95	105.3	-3,474.0	3,475.5	0.00	0.00	0.00
11,200.0	90.21	270.00	7,166.1	-2,214.58	105.3	-3,574.0	3,575.5	0.00	0.00	0.00
11,300.0	90.21	270.00	7,165.7	-2,214.22	105.3	-3,674.0	3,675.4	0.00	0.00	0.00
11,400.0	90.21	270.00	7,165.4	-2,213.86	105.3	-3,774.0	3,775.4	0.00	0.00	0.00
11,500.0	90.21	270.00	7,165.0	-2,213.49	105.3	-3,874.0	3,875.4	0.00	0.00	0.00
11,600.0	90.21	270.00	7,164.6	-2,213.13	105.3	-3,974.0	3,975.3	0.00	0.00	0.00
11,700.0	90.21	270.00	7,164.3	-2,212.76	105.3	-4,074.0	4,075.3	0.00	0.00	0.00
BHL: 1110ft FSL & 1953ft FEL of Sec 20										
11,783.3	90.21	270.00	7,164.0	-2,212.50	105.3	-4,157.3	4,158.6	0.00	0.00	0.00

Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well WALTERS 21P-304
Company:	PDC ENERGY	TVD Reference:	KB-EST @ 4951.5usft (Original Well Elev)
Project:	WELD COUNTY, COLORADO	MD Reference:	KB-EST @ 4951.5usft (Original Well Elev)
Site:	SE SW SEC. 21 T4N R67W 6th P.M.	North Reference:	True
Well:	WALTERS 21P-304	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL #1		

Formations					
MD (usft)	TVD (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,696.1	3,635.0	PARKMAN SANDSTONE			
4,268.4	4,200.0	SUSSEX SANDSTONE			
4,748.5	4,680.0	SHANNON			
6,936.8	6,847.0	SHARON SPRINGS			
7,107.8	6,979.0	NIOBRARA A			
7,243.0	7,063.0	NIOBRARA B			
7,422.0	7,141.0	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: 1076ft FSL & 2202ft FWL of Sec 21
500.0	500.0	0.0	0.0	START NUDGE (2°/100ft BUR)
1,099.8	1,095.4	9.5	61.8	EOB TO 12° INC
3,836.5	3,772.4	95.8	624.1	END OF TANGENT
4,436.3	4,367.8	105.3	685.9	EOD TO VERTICAL
6,531.3	6,462.8	105.3	685.9	KOP (8°/100ft BUR)
7,658.9	7,179.0	105.3	-32.9	HZ LP *NEW*: 1180.3ft FSL & 2171ft FWL of Sec 21
11,783.3	7,164.0	105.3	-4,157.3	BHL: 1110ft FSL & 1953ft FEL of Sec 20