

EXTRACTION OIL & GAS

WELD COUNTY, COLORADO (NAD 83)

NW SW SEC. 21 T2N R67W 6th P.M.

LEONARD 11N

ORIGINAL WELLBORE

28 March, 2017

Plan: PROPOSAL #1





Project: WELD COUNTY, COLORADO (NAD 83)
 Site: NW SW SEC. 21 T2N R67W 6th P.M.
 Well: LEONARD 11N
 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: 1684ft FSL & 494ft FWL of Sec 21
100.0	100.0	0.00	0.00	0.0	0.0	0.0	0.0	START NUDDGE (2°/100ft BUR)
904.8	915.8	16.32	199.81	-108.5	-39.1	1.8	115.4	EOB TO 16.32° INC
6052.2	6279.2	16.32	199.81	-1526.2	-549.6	25.9	1622.1	END OF TANGENT
6857.0	7095.0	0.00	0.00	-1634.7	-588.7	27.7	1737.5	EOD TO VERTICAL
6887.0	7125.0	0.00	0.00	-1634.7	-588.7	27.7	1737.5	KOP (10°/100ft BUR)
7460.0	8025.1	90.00	89.95	-1634.2	-15.7	563.5	2310.5	HZ LP: 50ft FSL & 460ft FWL of Sec 21
7460.0	12351.5	90.00	89.95	-1630.6	4310.8	4608.9	6637.0	BHL: 50ft FSL & 460ft FEL of Sec 21

WELLBORE TARGET DETAILS (LAT/LONG)

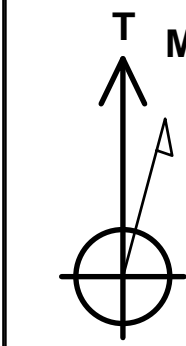
Name	TVD	+N/-S	+E/-W	Latitude	Longitude
KOP - LEONARD 11N	6887.0	-1634.7	-588.7	40.116621	-104.905376
HZ LP - LEONARD 11N	7460.0	-1634.2	-15.7	40.116622	-104.903327
BHL - LEONARD 11N	7460.0	-1630.6	4310.8	40.116631	-104.887858

FORMATION TOP DETAILS

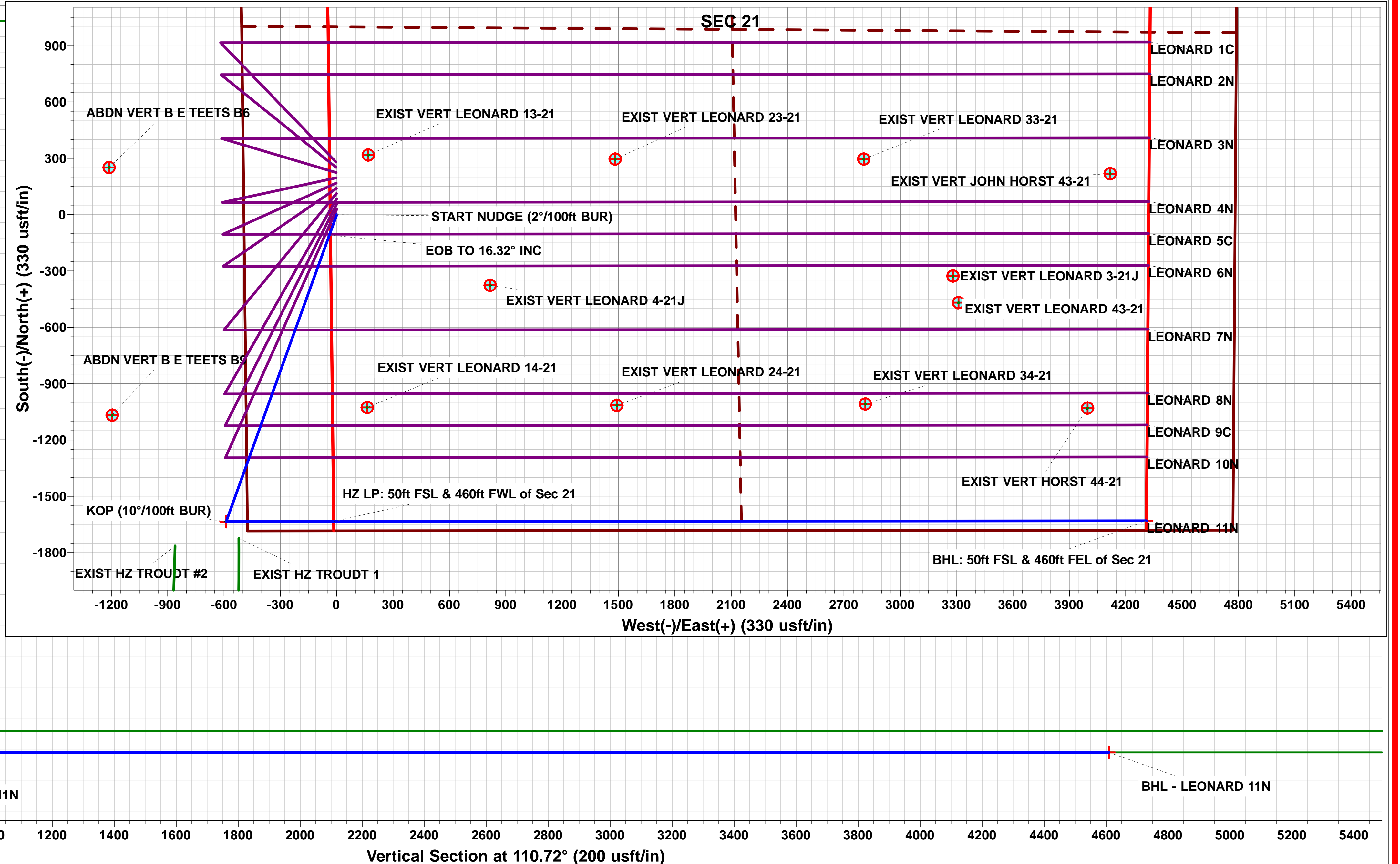
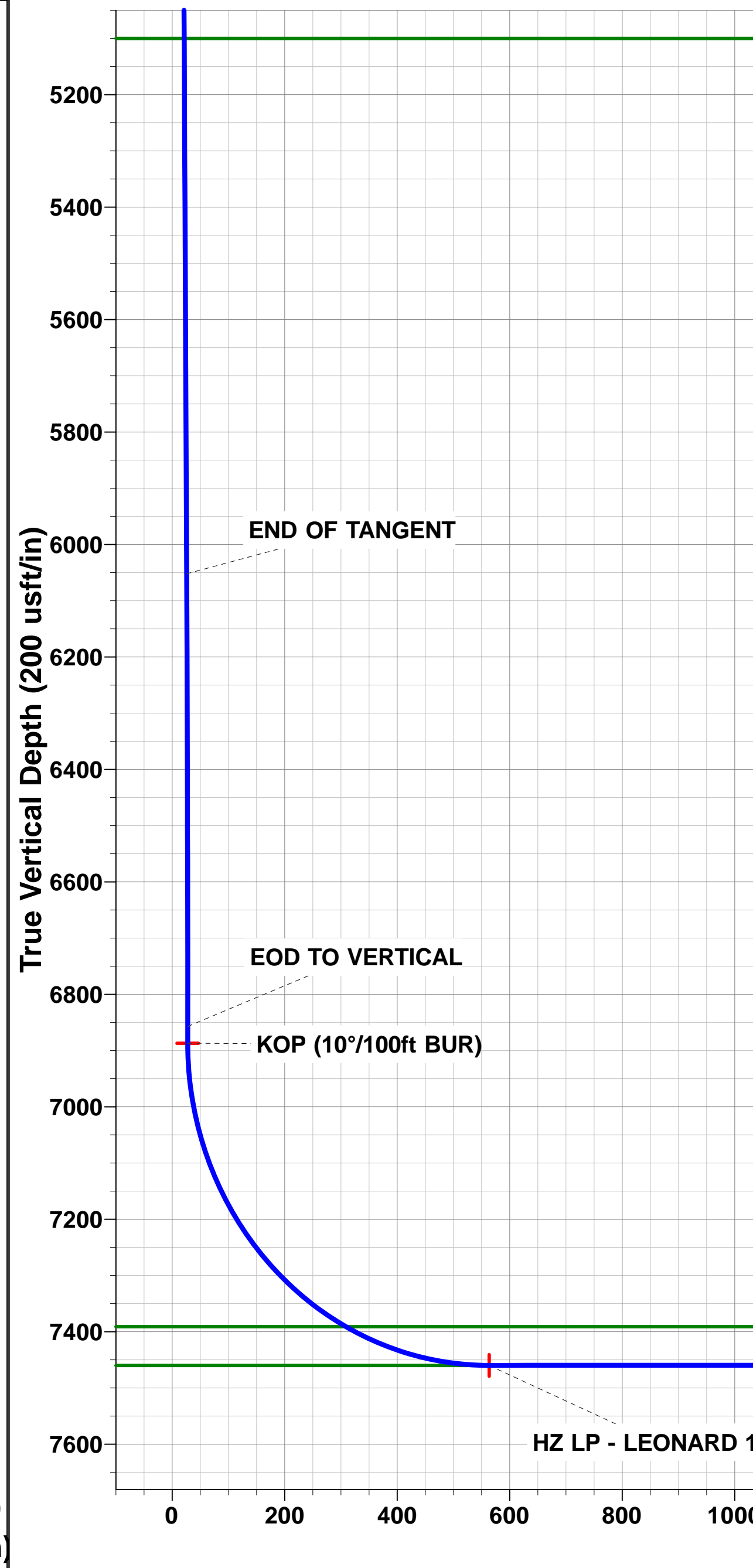
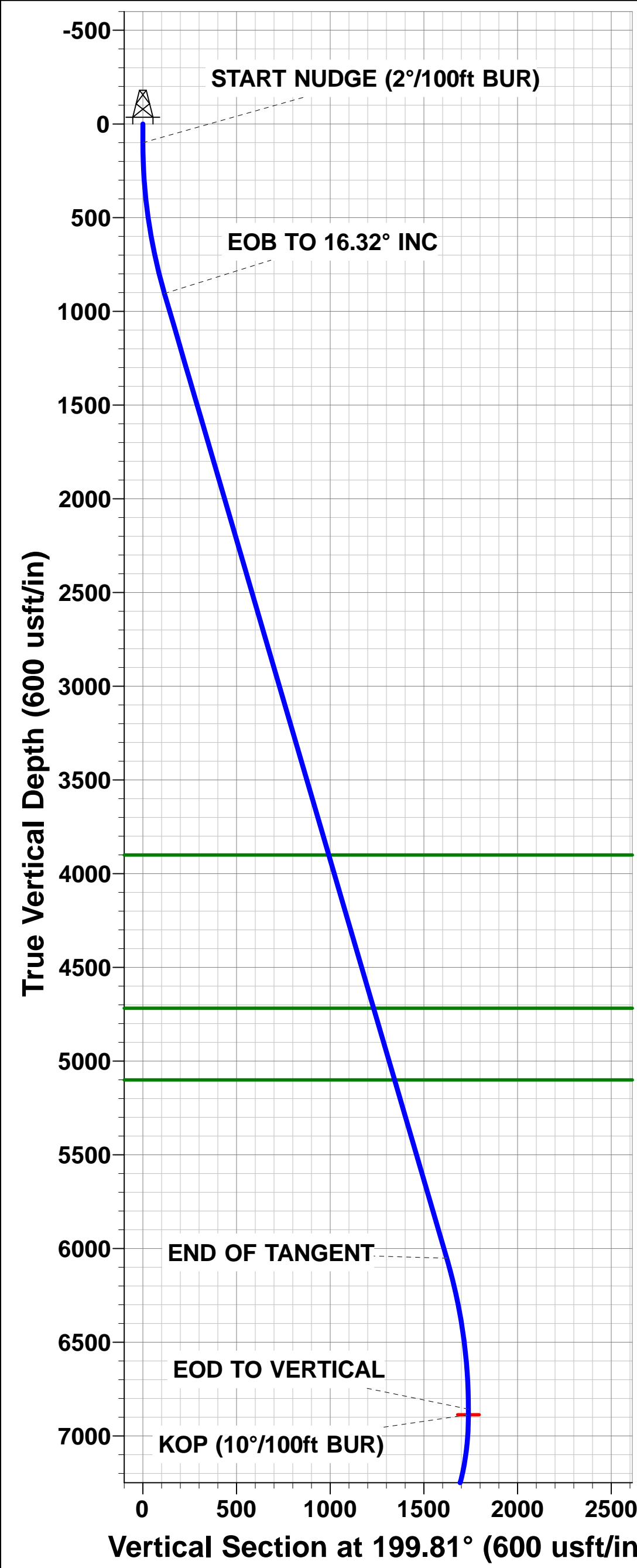
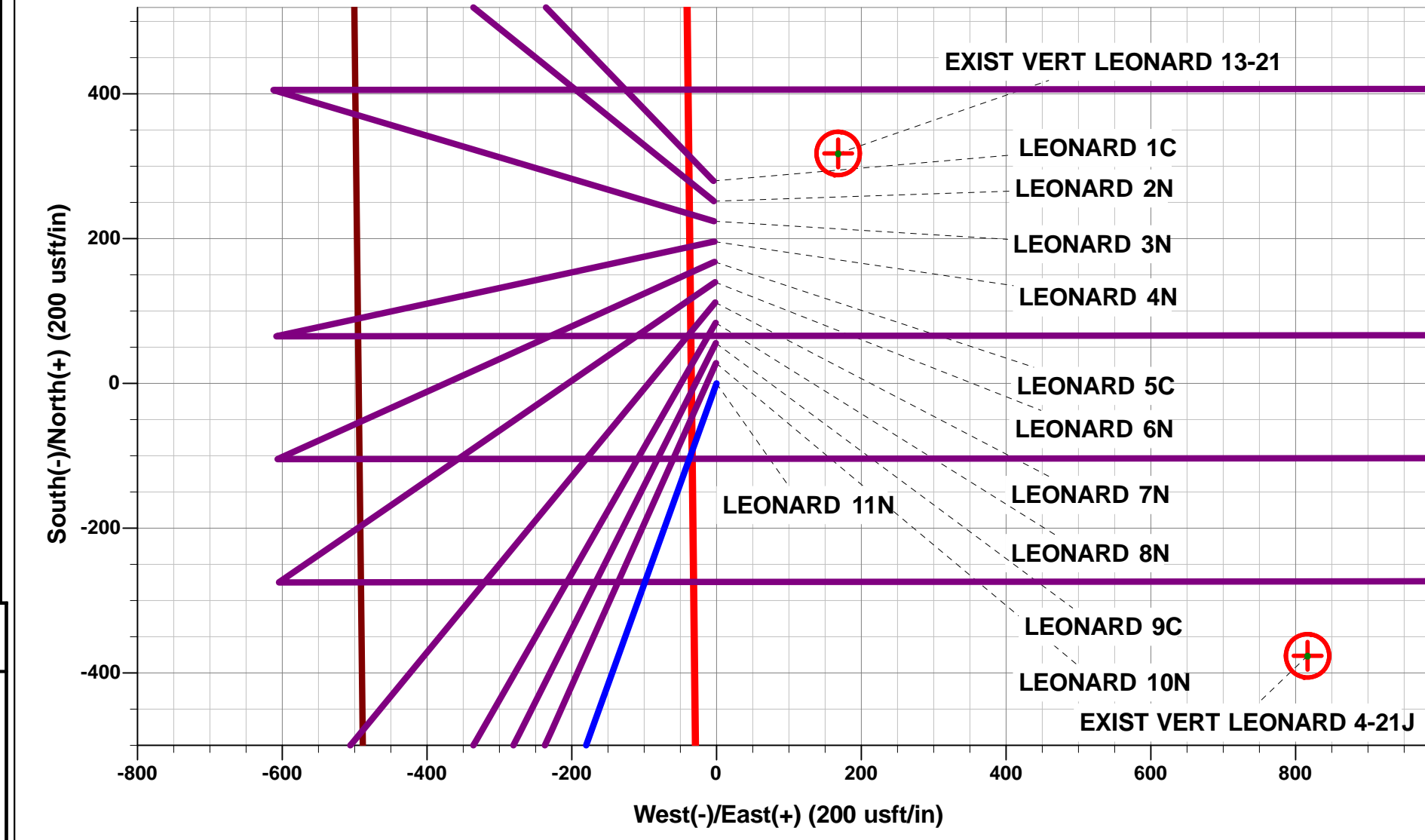
TVDPath	MDPath	Formation
3900.0	4036.7	PARKMAN
4718.0	4889.0	SUSSEX
5100.0	5287.0	SHANNON
7391.0	7740.9	NIORARA
7460.0	8025.1	NIO B

PROPOSED LOCAL COORDINATES:

SHL: 1684ft FSL & 494ft FWL of Sec 21
 HZ LP: 50ft FSL & 460ft FWL of Sec 21
 BHL: 50ft FSL & 460ft FEL of Sec 21



Azimuths to True North
 Magnetic North: 8.32°
 Magnetic Field
 Strength: 52295.4snT
 Dip Angle: 66.62°
 Date: 22/11/2016
 Model: IGRF2015





Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well LEONARD 11N
Company:	EXTRACTION OIL & GAS	TVD Reference:	KB-EST @ 5020.0usft (Original Well Elev)
Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB-EST @ 5020.0usft (Original Well Elev)
Site:	NW SW SEC. 21 T2N R67W 6th P.M.	North Reference:	True
Well:	LEONARD 11N	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL #1		

Project	WELD COUNTY, COLORADO (NAD 83)		
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 SW SEC. 21 T2N R67W 6th P.M.				
Site Position:		Northing:	1,287,804.83 usft	Latitude:	40.121876
From:	Lat/Long	Easting:	3,166,871.56 usft	Longitude:	-104.903286
Position Uncertainty:	0.0 usft	Slot Radius:	1.10000ft	Grid Convergence:	0.39 °

Well	LEONARD 11N					
Well Position	+N-S	-279.8 usft	Northing:	1,287,525.09 usft	Latitude:	40.121108
	+E-W	4.2 usft	Easting:	3,166,877.63 usft	Longitude:	-104.903271
Position Uncertainty		0.0 usft	Wellhead Elevation:	usft	Ground Level:	5,004.0 usft

Wellbore	ORIGINAL WELLBORE				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	22/11/2016	8.32	66.62	52,295

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 (°)
	0.0	0.0	0.0	110.72

Plan Sections											
MD (usft)	Inc (°)	Azi (°)	Vertical Depth	SS (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	-5,020.0	0.0	0.0	0.00	0.00	0.00	0.00	
100.0	0.00	0.00	100.0	-4,920.0	0.0	0.0	0.00	0.00	0.00	0.00	
915.8	16.32	199.81	904.8	-4,115.2	-108.5	-39.1	2.00	2.00	0.00	199.81	
6,279.2	16.32	199.81	6,052.2	1,032.2	-1,526.2	-549.6	0.00	0.00	0.00	0.00	
7,095.0	0.00	0.00	6,857.0	1,837.0	-1,634.7	-588.7	2.00	-2.00	0.00	180.00	
7,125.0	0.00	0.00	6,887.0	1,867.0	-1,634.7	-588.7	0.00	0.00	0.00	0.00	KOP - LEONARD 1
8,025.1	90.00	89.95	7,460.0	2,440.0	-1,634.2	-15.7	10.00	10.00	9.99	89.95	HZ LP - LEONARD
12,351.5	90.00	89.95	7,460.0	2,440.0	-1,630.6	4,310.8	0.00	0.00	0.00	175.22	BHL - LEONARD 1

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Company:	EXTRACTION OIL & GAS	TVD Reference:	KB-EST @ 5020.0usft (Original Well Elev)
Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB-EST @ 5020.0usft (Original Well Elev)
Site:	NW SW SEC. 21 T2N R67W 6th P.M.	North Reference:	True
Well:	LEONARD 11N	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: 1684ft FSL & 494ft FWL of Sec 21										
0.0	0.00	0.00	0.0	5,020.00	0.0	0.0	0.0	0.00	0.00	0.00
START NUDGE (2°/100ft BUR)										
100.0	0.00	0.00	100.0	4,920.00	0.0	0.0	0.0	0.00	0.00	0.00
200.0	2.00	199.81	200.0	4,820.02	-1.6	-0.6	0.0	2.00	2.00	0.00
300.0	4.00	199.81	299.8	4,720.16	-6.6	-2.4	0.1	2.00	2.00	0.00
400.0	6.00	199.81	399.5	4,620.55	-14.8	-5.3	0.3	2.00	2.00	0.00
500.0	8.00	199.81	498.7	4,521.30	-26.2	-9.4	0.4	2.00	2.00	0.00
600.0	10.00	199.81	597.5	4,422.53	-40.9	-14.7	0.7	2.00	2.00	0.00
700.0	12.00	199.81	695.6	4,324.38	-58.9	-21.2	1.0	2.00	2.00	0.00
800.0	14.00	199.81	793.1	4,226.94	-80.1	-28.8	1.4	2.00	2.00	0.00
900.0	16.00	199.81	889.6	4,130.36	-104.4	-37.6	1.8	2.00	2.00	0.00
EOB TO 16.32° INC										
915.8	16.32	199.81	904.8	4,115.20	-108.5	-39.1	1.8	2.00	2.00	0.00
1,000.0	16.32	199.81	985.6	4,034.37	-130.8	-47.1	2.2	0.00	0.00	0.00
1,100.0	16.32	199.81	1,081.6	3,938.40	-157.2	-56.6	2.7	0.00	0.00	0.00
1,200.0	16.32	199.81	1,177.6	3,842.43	-183.7	-66.1	3.1	0.00	0.00	0.00
1,300.0	16.32	199.81	1,273.5	3,746.45	-210.1	-75.7	3.6	0.00	0.00	0.00
1,400.0	16.32	199.81	1,369.5	3,650.48	-236.5	-85.2	4.0	0.00	0.00	0.00
1,500.0	16.32	199.81	1,465.5	3,554.51	-263.0	-94.7	4.5	0.00	0.00	0.00
1,600.0	16.32	199.81	1,561.5	3,458.54	-289.4	-104.2	4.9	0.00	0.00	0.00
1,700.0	16.32	199.81	1,657.4	3,362.56	-315.8	-113.7	5.4	0.00	0.00	0.00
1,800.0	16.32	199.81	1,753.4	3,266.59	-342.3	-123.3	5.8	0.00	0.00	0.00
1,900.0	16.32	199.81	1,849.4	3,170.62	-368.7	-132.8	6.2	0.00	0.00	0.00
2,000.0	16.32	199.81	1,945.4	3,074.64	-395.1	-142.3	6.7	0.00	0.00	0.00
2,100.0	16.32	199.81	2,041.3	2,978.67	-421.5	-151.8	7.1	0.00	0.00	0.00
2,200.0	16.32	199.81	2,137.3	2,882.70	-448.0	-161.3	7.6	0.00	0.00	0.00
2,300.0	16.32	199.81	2,233.3	2,786.73	-474.4	-170.8	8.0	0.00	0.00	0.00
2,400.0	16.32	199.81	2,329.2	2,690.75	-500.8	-180.4	8.5	0.00	0.00	0.00
2,500.0	16.32	199.81	2,425.2	2,594.78	-527.3	-189.9	8.9	0.00	0.00	0.00
2,600.0	16.32	199.81	2,521.2	2,498.81	-553.7	-199.4	9.4	0.00	0.00	0.00
2,700.0	16.32	199.81	2,617.2	2,402.83	-580.1	-208.9	9.8	0.00	0.00	0.00
2,800.0	16.32	199.81	2,713.1	2,306.86	-606.6	-218.4	10.3	0.00	0.00	0.00
2,900.0	16.32	199.81	2,809.1	2,210.89	-633.0	-228.0	10.7	0.00	0.00	0.00
3,000.0	16.32	199.81	2,905.1	2,114.92	-659.4	-237.5	11.2	0.00	0.00	0.00
3,100.0	16.32	199.81	3,001.1	2,018.94	-685.9	-247.0	11.6	0.00	0.00	0.00
3,200.0	16.32	199.81	3,097.0	1,922.97	-712.3	-256.5	12.1	0.00	0.00	0.00
3,300.0	16.32	199.81	3,193.0	1,827.00	-738.7	-266.0	12.5	0.00	0.00	0.00
3,400.0	16.32	199.81	3,289.0	1,731.02	-765.2	-275.6	13.0	0.00	0.00	0.00
3,500.0	16.32	199.81	3,384.9	1,635.05	-791.6	-285.1	13.4	0.00	0.00	0.00
3,600.0	16.32	199.81	3,480.9	1,539.08	-818.0	-294.6	13.9	0.00	0.00	0.00
3,700.0	16.32	199.81	3,576.9	1,443.11	-844.4	-304.1	14.3	0.00	0.00	0.00
3,800.0	16.32	199.81	3,672.9	1,347.13	-870.9	-313.6	14.8	0.00	0.00	0.00
3,900.0	16.32	199.81	3,768.8	1,251.16	-897.3	-323.1	15.2	0.00	0.00	0.00
4,000.0	16.32	199.81	3,864.8	1,155.19	-923.7	-332.7	15.7	0.00	0.00	0.00
PARKMAN										
4,036.7	16.32	199.81	3,900.0	1,120.00	-933.4	-336.2	15.8	0.00	0.00	0.00
4,100.0	16.32	199.81	3,960.8	1,059.21	-950.2	-342.2	16.1	0.00	0.00	0.00
4,200.0	16.32	199.81	4,056.8	963.24	-976.6	-351.7	16.6	0.00	0.00	0.00
4,300.0	16.32	199.81	4,152.7	867.27	-1,003.0	-361.2	17.0	0.00	0.00	0.00
4,400.0	16.32	199.81	4,248.7	771.30	-1,029.5	-370.7	17.4	0.00	0.00	0.00
4,500.0	16.32	199.81	4,344.7	675.32	-1,055.9	-380.3	17.9	0.00	0.00	0.00
4,600.0	16.32	199.81	4,440.7	579.35	-1,082.3	-389.8	18.3	0.00	0.00	0.00
4,700.0	16.32	199.81	4,536.6	483.38	-1,108.8	-399.3	18.8	0.00	0.00	0.00

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Well:	LEONARD 11N	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)
4,800.0	16.32	199.81	4,632.6	387.40	-1,135.2	-408.8	19.2	0.00	0.00	0.00
SUSSEX										
4,889.0	16.32	199.81	4,718.0	302.00	-1,158.7	-417.3	19.6	0.00	0.00	0.00
4,900.0	16.32	199.81	4,728.6	291.43	-1,161.6	-418.3	19.7	0.00	0.00	0.00
5,000.0	16.32	199.81	4,824.5	195.46	-1,188.1	-427.9	20.1	0.00	0.00	0.00
5,100.0	16.32	199.81	4,920.5	99.48	-1,214.5	-437.4	20.6	0.00	0.00	0.00
5,200.0	16.32	199.81	5,016.5	3.51	-1,240.9	-446.9	21.0	0.00	0.00	0.00
SHANNON										
5,287.0	16.32	199.81	5,100.0	-80.00	-1,263.9	-455.2	21.4	0.00	0.00	0.00
5,300.0	16.32	199.81	5,112.5	-92.46	-1,267.3	-456.4	21.5	0.00	0.00	0.00
5,400.0	16.32	199.81	5,208.4	-188.43	-1,293.8	-465.9	21.9	0.00	0.00	0.00
5,500.0	16.32	199.81	5,304.4	-284.41	-1,320.2	-475.4	22.4	0.00	0.00	0.00
5,600.0	16.32	199.81	5,400.4	-380.38	-1,346.6	-485.0	22.8	0.00	0.00	0.00
5,700.0	16.32	199.81	5,496.4	-476.35	-1,373.1	-494.5	23.3	0.00	0.00	0.00
5,800.0	16.32	199.81	5,592.3	-572.33	-1,399.5	-504.0	23.7	0.00	0.00	0.00
5,900.0	16.32	199.81	5,688.3	-668.30	-1,425.9	-513.5	24.2	0.00	0.00	0.00
6,000.0	16.32	199.81	5,784.3	-764.27	-1,452.4	-523.0	24.6	0.00	0.00	0.00
6,100.0	16.32	199.81	5,880.2	-860.24	-1,478.8	-532.6	25.1	0.00	0.00	0.00
6,200.0	16.32	199.81	5,976.2	-956.22	-1,505.2	-542.1	25.5	0.00	0.00	0.00
END OF TANGENT										
6,279.2	16.32	199.81	6,052.2	-1,032.20	-1,526.2	-549.6	25.9	0.00	0.00	0.00
6,300.0	15.90	199.81	6,072.2	-1,052.21	-1,531.6	-551.6	26.0	2.00	-2.00	0.00
6,400.0	13.90	199.81	6,168.8	-1,148.84	-1,555.8	-560.3	26.4	2.00	-2.00	0.00
6,500.0	11.90	199.81	6,266.3	-1,246.32	-1,576.8	-567.8	26.7	2.00	-2.00	0.00
6,600.0	9.90	199.81	6,364.5	-1,344.51	-1,594.6	-574.2	27.0	2.00	-2.00	0.00
6,700.0	7.90	199.81	6,463.3	-1,443.30	-1,609.1	-579.5	27.3	2.00	-2.00	0.00
6,800.0	5.90	199.81	6,562.6	-1,542.57	-1,620.4	-583.6	27.5	2.00	-2.00	0.00
6,900.0	3.90	199.81	6,662.2	-1,642.20	-1,628.5	-586.5	27.6	2.00	-2.00	0.00
7,000.0	1.90	199.81	6,762.1	-1,742.06	-1,633.2	-588.2	27.7	2.00	-2.00	0.00
EOD TO VERTICAL										
7,095.0	0.00	0.00	6,857.0	-1,837.00	-1,634.7	-588.7	27.7	2.00	-2.00	0.00
7,100.0	0.00	0.00	6,862.0	-1,842.05	-1,634.7	-588.7	27.7	0.00	0.00	0.00
KOP (10°/100ft BUR)										
7,125.0	0.00	0.00	6,887.0	-1,867.00	-1,634.7	-588.7	27.7	0.00	0.00	0.00
7,200.0	7.50	89.95	6,961.8	-1,941.83	-1,634.7	-583.8	32.3	10.00	10.00	0.00
7,300.0	17.50	89.95	7,059.3	-2,039.34	-1,634.7	-562.2	52.5	10.00	10.00	0.00
7,400.0	27.50	89.95	7,151.6	-2,131.61	-1,634.6	-523.9	88.3	10.00	10.00	0.00
7,500.0	37.50	89.95	7,235.8	-2,215.84	-1,634.6	-470.3	138.4	10.00	10.00	0.00
7,600.0	47.50	89.95	7,309.5	-2,289.47	-1,634.5	-402.8	201.5	10.00	10.00	0.00
7,700.0	57.50	89.95	7,370.3	-2,350.27	-1,634.5	-323.6	275.6	10.00	10.00	0.00
NIOBRARA										
7,740.9	61.59	89.95	7,391.0	-2,371.00	-1,634.4	-288.3	308.6	10.00	10.00	0.00
7,800.0	67.50	89.95	7,416.4	-2,396.38	-1,634.4	-235.0	358.4	10.00	10.00	0.00
7,900.0	77.50	89.95	7,446.4	-2,426.42	-1,634.3	-139.7	447.5	10.00	10.00	0.00
8,000.0	87.50	89.95	7,459.5	-2,439.45	-1,634.2	-40.7	540.1	10.00	10.00	0.00
HZ LP: 50ft FSL & 460ft FWL of Sec 21 - NIO B										
8,025.1	90.00	89.95	7,460.0	-2,440.00	-1,634.2	-15.7	563.5	10.00	10.00	0.00
8,100.0	90.00	89.95	7,460.0	-2,440.00	-1,634.1	59.3	633.6	0.00	0.00	0.00
8,200.0	90.00	89.95	7,460.0	-2,439.99	-1,634.1	159.3	727.1	0.00	0.00	0.00
8,300.0	90.00	89.95	7,460.0	-2,439.98	-1,634.0	259.3	820.6	0.00	0.00	0.00
8,400.0	90.00	89.95	7,460.0	-2,439.98	-1,633.9	359.3	914.1	0.00	0.00	0.00
8,500.0	90.00	89.95	7,460.0	-2,439.97	-1,633.8	459.3	1,007.6	0.00	0.00	0.00
8,600.0	90.00	89.95	7,460.0	-2,439.97	-1,633.7	559.3	1,101.1	0.00	0.00	0.00

Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well LEONARD 11N
Company:	EXTRACTION OIL & GAS	TVD Reference:	KB-EST @ 5020.0usft (Original Well Elev)
Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB-EST @ 5020.0usft (Original Well Elev)
Site:	NW SW SEC. 21 T2N R67W 6th P.M.	North Reference:	True
Well:	LEONARD 11N	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)
8,700.0	90.00	89.95	7,460.0	-2,439.96	-1,633.6	659.3	1,194.6	0.00	0.00	0.00
8,800.0	90.00	89.95	7,460.0	-2,439.96	-1,633.6	759.3	1,288.1	0.00	0.00	0.00
8,900.0	90.00	89.95	7,460.0	-2,439.95	-1,633.5	859.3	1,381.6	0.00	0.00	0.00
9,000.0	90.00	89.95	7,460.0	-2,439.95	-1,633.4	959.3	1,475.1	0.00	0.00	0.00
9,100.0	90.00	89.95	7,459.9	-2,439.95	-1,633.3	1,059.3	1,568.6	0.00	0.00	0.00
9,200.0	90.00	89.95	7,459.9	-2,439.94	-1,633.2	1,159.3	1,662.1	0.00	0.00	0.00
9,300.0	90.00	89.95	7,459.9	-2,439.94	-1,633.1	1,259.3	1,755.6	0.00	0.00	0.00
9,400.0	90.00	89.95	7,459.9	-2,439.94	-1,633.0	1,359.3	1,849.1	0.00	0.00	0.00
9,500.0	90.00	89.95	7,459.9	-2,439.94	-1,633.0	1,459.3	1,942.6	0.00	0.00	0.00
9,600.0	90.00	89.95	7,459.9	-2,439.93	-1,632.9	1,559.3	2,036.1	0.00	0.00	0.00
9,700.0	90.00	89.95	7,459.9	-2,439.93	-1,632.8	1,659.3	2,129.6	0.00	0.00	0.00
9,800.0	90.00	89.95	7,459.9	-2,439.93	-1,632.7	1,759.3	2,223.1	0.00	0.00	0.00
9,900.0	90.00	89.95	7,459.9	-2,439.93	-1,632.6	1,859.3	2,316.6	0.00	0.00	0.00
10,000.0	90.00	89.95	7,459.9	-2,439.93	-1,632.5	1,959.3	2,410.1	0.00	0.00	0.00
10,100.0	90.00	89.95	7,459.9	-2,439.93	-1,632.5	2,059.3	2,503.6	0.00	0.00	0.00
10,200.0	90.00	89.95	7,459.9	-2,439.93	-1,632.4	2,159.3	2,597.1	0.00	0.00	0.00
10,300.0	90.00	89.95	7,459.9	-2,439.93	-1,632.3	2,259.3	2,690.6	0.00	0.00	0.00
10,400.0	90.00	89.95	7,459.9	-2,439.93	-1,632.2	2,359.3	2,784.1	0.00	0.00	0.00
10,500.0	90.00	89.95	7,459.9	-2,439.93	-1,632.1	2,459.3	2,877.6	0.00	0.00	0.00
10,600.0	90.00	89.95	7,459.9	-2,439.93	-1,632.0	2,559.3	2,971.2	0.00	0.00	0.00
10,700.0	90.00	89.95	7,459.9	-2,439.93	-1,631.9	2,659.3	3,064.7	0.00	0.00	0.00
10,800.0	90.00	89.95	7,459.9	-2,439.93	-1,631.9	2,759.3	3,158.2	0.00	0.00	0.00
10,900.0	90.00	89.95	7,459.9	-2,439.94	-1,631.8	2,859.3	3,251.7	0.00	0.00	0.00
11,000.0	90.00	89.95	7,459.9	-2,439.94	-1,631.7	2,959.3	3,345.2	0.00	0.00	0.00
11,100.0	90.00	89.95	7,459.9	-2,439.94	-1,631.6	3,059.3	3,438.7	0.00	0.00	0.00
11,200.0	90.00	89.95	7,459.9	-2,439.94	-1,631.5	3,159.3	3,532.2	0.00	0.00	0.00
11,300.0	90.00	89.95	7,459.9	-2,439.95	-1,631.4	3,259.3	3,625.7	0.00	0.00	0.00
11,400.0	90.00	89.95	7,460.0	-2,439.95	-1,631.4	3,359.3	3,719.2	0.00	0.00	0.00
11,500.0	90.00	89.95	7,460.0	-2,439.95	-1,631.3	3,459.3	3,812.7	0.00	0.00	0.00
11,600.0	90.00	89.95	7,460.0	-2,439.96	-1,631.2	3,559.3	3,906.2	0.00	0.00	0.00
11,700.0	90.00	89.95	7,460.0	-2,439.96	-1,631.1	3,659.3	3,999.7	0.00	0.00	0.00
11,800.0	90.00	89.95	7,460.0	-2,439.97	-1,631.0	3,759.3	4,093.2	0.00	0.00	0.00
11,900.0	90.00	89.95	7,460.0	-2,439.97	-1,630.9	3,859.3	4,186.7	0.00	0.00	0.00
12,000.0	90.00	89.95	7,460.0	-2,439.98	-1,630.9	3,959.3	4,280.2	0.00	0.00	0.00
12,100.0	90.00	89.95	7,460.0	-2,439.98	-1,630.8	4,059.3	4,373.7	0.00	0.00	0.00
12,200.0	90.00	89.95	7,460.0	-2,439.99	-1,630.7	4,159.3	4,467.2	0.00	0.00	0.00
12,300.0	90.00	89.95	7,460.0	-2,440.00	-1,630.6	4,259.3	4,560.7	0.00	0.00	0.00
BHL: 50ft FSL & 460ft FEL of Sec 21										
12,351.5	90.00	89.95	7,460.0	-2,440.00	-1,630.6	4,310.8	4,608.9	0.00	0.00	0.00

Formations						
MD (usft)	TVD (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
4,036.7	3,900.0	PARKMAN				
4,889.0	4,718.0	SUSSEX				
5,287.0	5,100.0	SHANNON				
7,740.9	7,391.0	NIOBRARA				
8,025.1	7,460.0	NIO B				



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well LEONARD 11N
Company:	EXTRACTION OIL & GAS	TVD Reference:	KB-EST @ 5020.0usft (Original Well Elev)
Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB-EST @ 5020.0usft (Original Well Elev)
Site:	NW SW SEC. 21 T2N R67W 6th P.M.	North Reference:	True
Well:	LEONARD 11N	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL #1		

Plan Annotations				
MD (usft)	TVD (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
0.0	0.0	0.0	0.0	SHL: 1684ft FSL & 494ft FWL of Sec 21
100.0	100.0	0.0	0.0	START NUDGE (2°/100ft BUR)
915.8	904.8	-108.5	-39.1	EOB TO 16.32° INC
6,279.2	6,052.2	-1,526.2	-549.6	END OF TANGENT
7,095.0	6,857.0	-1,634.7	-588.7	EOD TO VERTICAL
7,125.0	6,887.0	-1,634.7	-588.7	KOP (10°/100ft BUR)
8,025.1	7,460.0	-1,634.2	-15.7	HZ LP: 50ft FSL & 460ft FWL of Sec 21
12,351.5	7,460.0	-1,630.6	4,310.8	BHL: 50ft FSL & 460ft FEL of Sec 21