

# **EXTRACTION OIL & GAS**

**WELD COUNTY, COLORADO (NAD 83)**

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

**LEONARD 8N**

**ORIGINAL WELLBORE**

**28 March, 2017**

**Plan: PROPOSAL #1**

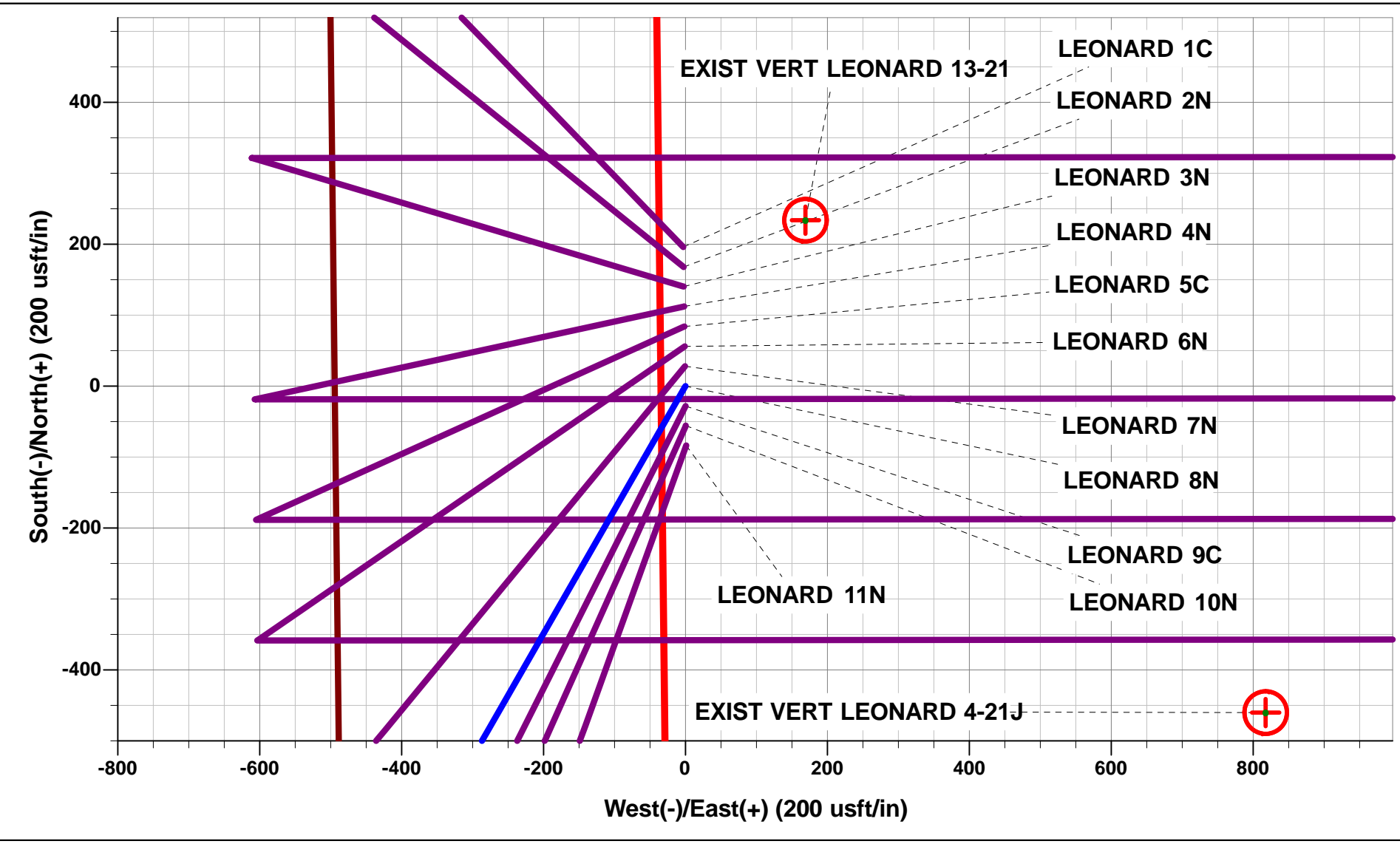




Project: WELD COUNTY, COLORADO (NAD 83)  
Site: NW SW SEC. 21 T2N R67W 6th P.M.  
Well: LEONARD 8N  
Wellbore: ORIGINAL WELLBORE  
Design: PROPOSAL #1

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: 1768ft FSL & 494ft FWL of Sec 21	
400.0	400.0	0.00	0.00	0.0	0.0	0.0	0.0	START NUDGE (2°/100ft BUR)	
995.6	1000.0	12.00	209.82	-54.3	-31.1	-17.6	62.6	EOB TO 12° INC	
6039.4	6156.4	12.00	209.82	-984.4	-564.3	-319.4	1134.6	END OF TANGENT	
6635.0	6756.4	0.00	0.00	-1038.7	-595.4	-337.0	1197.2	EOD TO VERTICAL	
6887.0	7008.4	0.00	0.00	-1038.7	-595.4	-337.0	1197.2	KOP (10°/100ft BUR)	
7460.0	7908.5	90.00	89.95	-1038.2	-22.4	220.1	1770.3	HZ LP: 730ft FSL & 460ft FWL of Sec 21	
7460.0	12247.7	90.00	89.94	-1034.2	4316.8	4439.0	6109.5	BHL: 730ft FSL & 460ft FEL of Sec 21	

WELLBORE TARGET DETAILS (LAT/LONG)					
Name	TVD	+N/-S	+E/-W	Latitude	Longitude
KOP - LEONARD 8N	6887.0	-1038.7	-595.4	40.118487	-104.905404
HZ LP - LEONARD 8N	7460.0	-1038.2	-22.4	40.118488	-104.903355
BHL - LEONARD 8N	7460.0	-1034.2	4316.8	40.118498	-104.887840



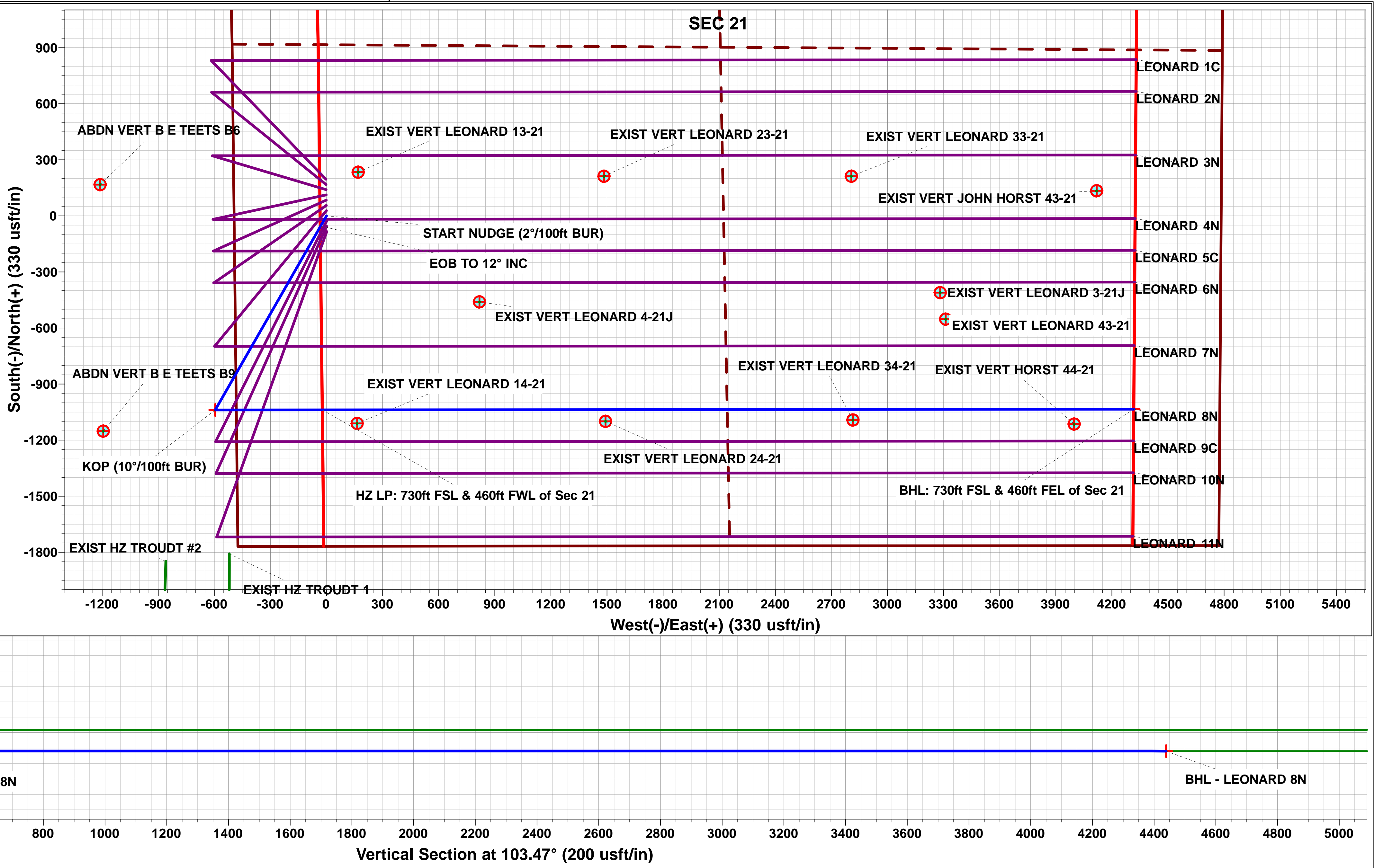
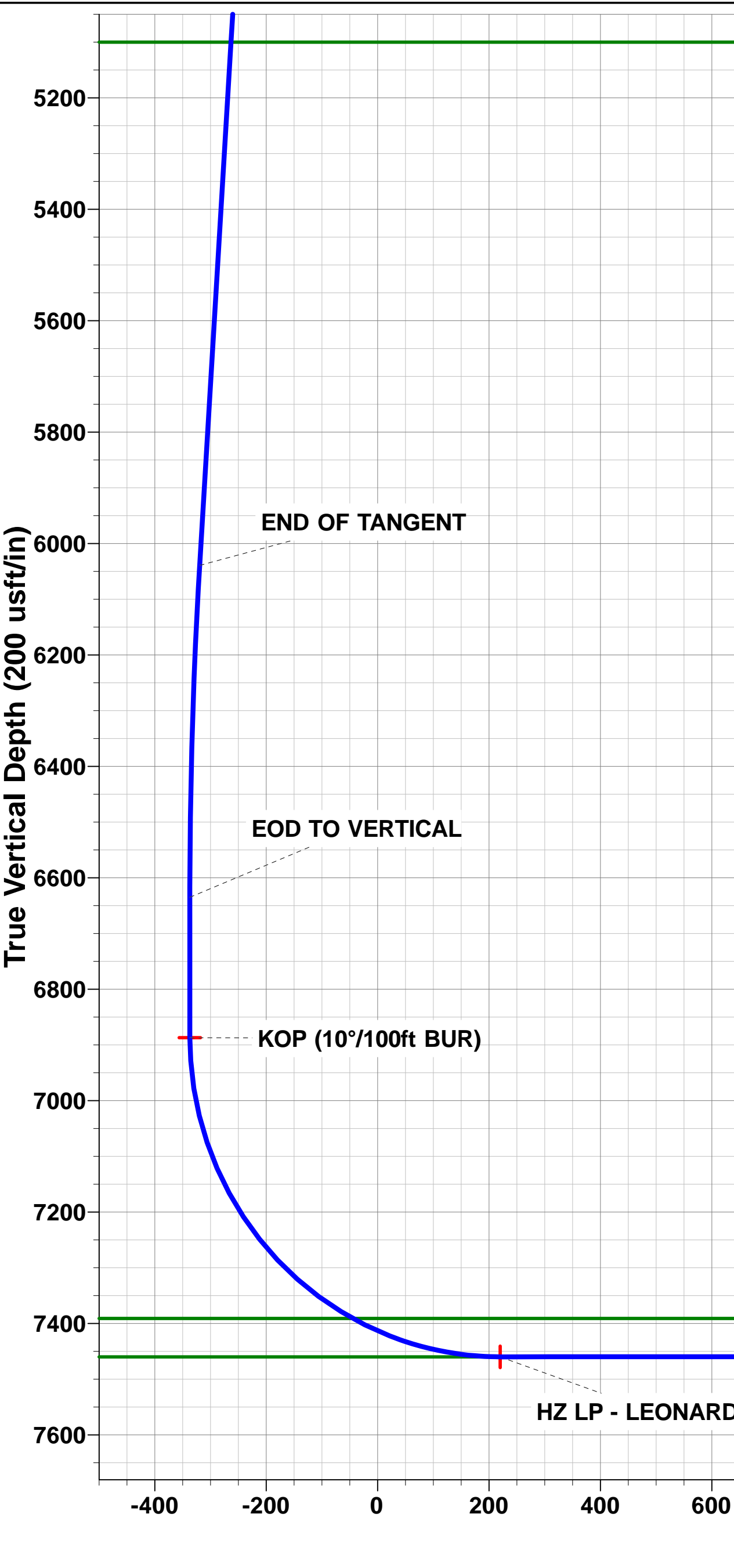
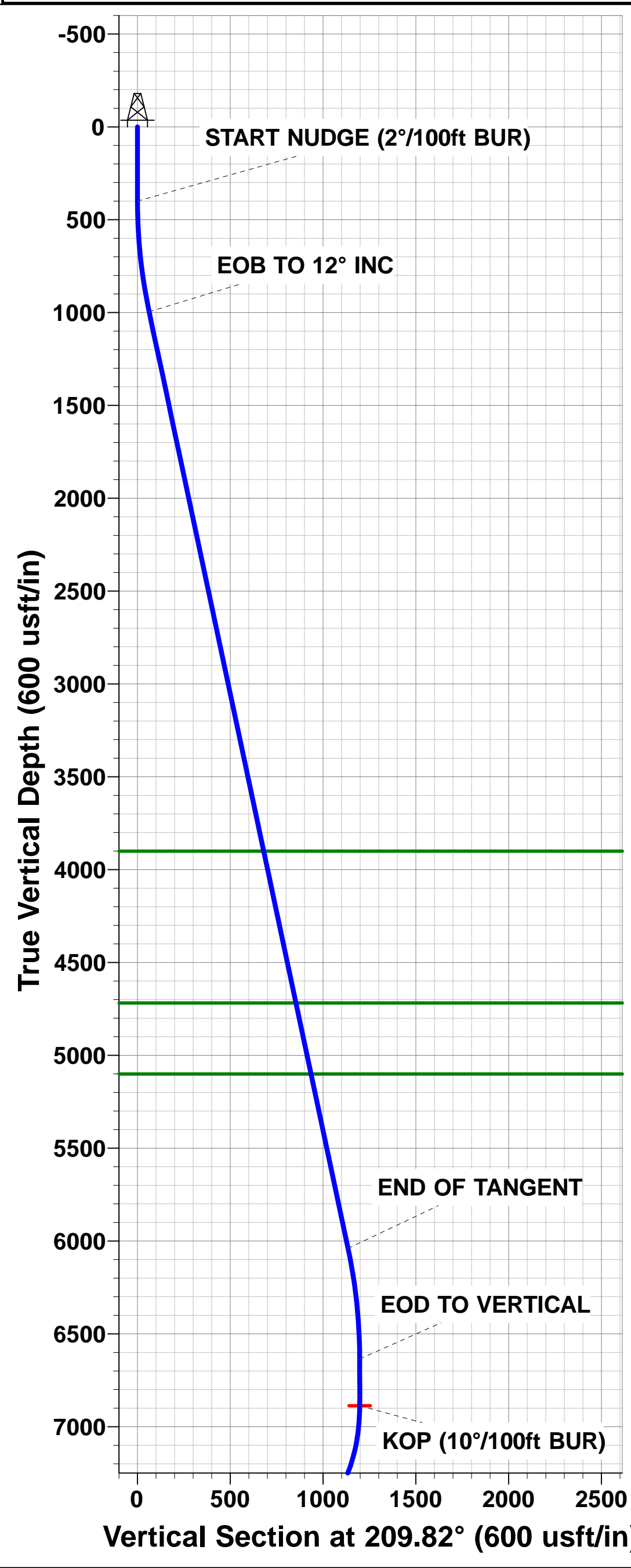
FORMATION TOP DETAILS		
TVDPath	MDPath	Formation
3900.0	3969.3	PARKMAN
4718.0	4805.5	SUSSEX
5100.0	5196.1	SHANNON
7391.0	7624.4	NIOBRARA
7460.0	7908.5	NIO B

PROPOSED LOCAL COORDINATES:		
SHL: 1768ft FSL & 494ft FWL of Sec 21		
HZ LP: 730ft FSL & 460ft FWL of Sec 21		
BHL: 730ft FSL & 460ft FEL of Sec 21		

T

M

Azimuths to True North  
Magnetic North: 8.32°  
  
Magnetic Field  
Strength: 52295.5nT  
Dip Angle: 66.62°  
Date: 22/11/2016  
Model: IGRF2015



# Planning Report



<b>Database:</b>	EDM 5000.1 Single User Db	<b>Local Co-ordinate Reference:</b>	Well LEONARD 8N
<b>Company:</b>	EXTRACTION OIL & GAS	<b>TVD Reference:</b>	KB-EST @ 5020.0usft (Original Well Elev)
<b>Project:</b>	WELD COUNTY, COLORADO (NAD 83)	<b>MD Reference:</b>	KB-EST @ 5020.0usft (Original Well Elev)
<b>Site:</b>	NW SW SEC. 21 T2N R67W 6th P.M.	<b>North Reference:</b>	True
<b>Well:</b>	LEONARD 8N	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ORIGINAL WELLBORE		
<b>Design:</b>	PROPOSAL #1		

<b>Project</b>	WELD COUNTY, COLORADO (NAD 83)		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	Colorado Northern Zone		Using geodetic scale factor

<b>Site</b>	NW SW SEC. 21 T2N R67W 6th P.M.		
<b>Site Position:</b>		<b>Northing:</b>	1,287,804.83 usft
<b>From:</b>	Lat/Long	<b>Easting:</b>	3,166,871.56 usft
<b>Position Uncertainty:</b>	0.0 usft	<b>Slot Radius:</b>	1.10000ft
		<b>Latitude:</b>	40.121876
		<b>Longitude:</b>	-104.903286
		<b>Grid Convergence:</b>	0.39 °

<b>Well</b>	LEONARD 8N		
<b>Well Position</b>	<b>+N-S</b>	-196.0 usft	<b>Northing:</b>
	<b>+E-W</b>	3.1 usft	<b>Easting:</b>
<b>Position Uncertainty</b>	0.0 usft	<b>Wellhead Elevation:</b>	usft
		<b>Latitude:</b>	40.121338
		<b>Longitude:</b>	-104.903275
		<b>Ground Level:</b>	5,004.0 usft

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

<b>Design</b>	PROPOSAL #1			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PROTOTYPE	<b>Tie On Depth:</b>	0.0
<b>Vertical Section:</b>	<b>Depth From (TVD) (usft)</b>	<b>+N-S (usft)</b>	<b>+E-W (usft)</b>	<b>Direction (°)</b>
	0.0	0.0	0.0	103.47

<b>Plan Sections</b>											
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	
400.0	0.00	0.00	400.0	-4,620.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,000.0	12.00	209.82	995.6	-4,024.4	-54.3	-31.1	2.00	2.00	0.00	209.82	
6,156.4	12.00	209.82	6,039.4	1,019.4	-984.4	-564.3	0.00	0.00	0.00	0.00	
6,756.4	0.00	0.00	6,635.0	1,615.0	-1,038.7	-595.4	2.00	-2.00	0.00	180.00	
7,008.4	0.00	0.00	6,887.0	1,867.0	-1,038.7	-595.4	0.00	0.00	0.00	0.00	KOP - LEONARD 8
7,908.5	90.00	89.95	7,460.0	2,440.0	-1,038.2	-22.4	10.00	10.00	9.99	89.95	HZ LP - LEONARD
12,247.7	90.00	89.94	7,460.0	2,440.0	-1,034.2	4,316.8	0.00	0.00	0.00	-113.59	BHL - LEONARD 8I

# Planning Report



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<b>Company:</b>	EXTRACTION OIL & GAS	<b>TVD Reference:</b>	KB-EST @ 5020.0usft (Original Well Elev)
<b>Project:</b>	WELD COUNTY, COLORADO (NAD 83)	<b>MD Reference:</b>	KB-EST @ 5020.0usft (Original Well Elev)
<b>Site:</b>	NW SW SEC. 21 T2N R67W 6th P.M.	<b>North Reference:</b>	True
<b>Well:</b>	LEONARD 8N	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ORIGINAL WELLBORE		
<b>Design:</b>	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)
<b>SHL: 1768ft FSL &amp; 494ft FWL of Sec 21</b>										
0.0	0.00	0.00	0.0	5,020.00	0.0	0.0	0.0	0.00	0.00	0.00
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	0.00	0.00	200.0	4,820.00	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	4,720.00	0.0	0.0	0.0	0.00	0.00	0.00
<b>START NUDGE (2°/100ft BUR)</b>										
400.0	0.00	0.00	400.0	4,620.00	0.0	0.0	0.0	0.00	0.00	0.00
500.0	2.00	209.82	500.0	4,520.02	-1.5	-0.9	-0.5	2.00	2.00	0.00
600.0	4.00	209.82	599.8	4,420.16	-6.1	-3.5	-2.0	2.00	2.00	0.00
700.0	6.00	209.82	699.5	4,320.55	-13.6	-7.8	-4.4	2.00	2.00	0.00
800.0	8.00	209.82	798.7	4,221.30	-24.2	-13.9	-7.8	2.00	2.00	0.00
900.0	10.00	209.82	897.5	4,122.53	-37.8	-21.6	-12.3	2.00	2.00	0.00
<b>EOB TO 12° INC</b>										
1,000.0	12.00	209.82	995.6	4,024.40	-54.3	-31.1	-17.6	2.00	2.00	0.00
1,100.0	12.00	209.82	1,093.4	3,926.56	-72.3	-41.5	-23.5	0.00	0.00	0.00
1,200.0	12.00	209.82	1,191.3	3,828.75	-90.4	-51.8	-29.3	0.00	0.00	0.00
1,300.0	12.00	209.82	1,289.1	3,730.93	-108.4	-62.2	-35.2	0.00	0.00	0.00
1,400.0	12.00	209.82	1,386.9	3,633.12	-126.5	-72.5	-41.0	0.00	0.00	0.00
1,500.0	12.00	209.82	1,484.7	3,535.30	-144.5	-82.8	-46.9	0.00	0.00	0.00
1,600.0	12.00	209.82	1,582.5	3,437.49	-162.5	-93.2	-52.7	0.00	0.00	0.00
1,700.0	12.00	209.82	1,680.3	3,339.67	-180.6	-103.5	-58.6	0.00	0.00	0.00
1,800.0	12.00	209.82	1,778.1	3,241.86	-198.6	-113.8	-64.4	0.00	0.00	0.00
1,900.0	12.00	209.82	1,876.0	3,144.04	-216.6	-124.2	-70.3	0.00	0.00	0.00
2,000.0	12.00	209.82	1,973.8	3,046.23	-234.7	-134.5	-76.1	0.00	0.00	0.00
2,100.0	12.00	209.82	2,071.6	2,948.41	-252.7	-144.9	-82.0	0.00	0.00	0.00
2,200.0	12.00	209.82	2,169.4	2,850.60	-270.8	-155.2	-87.9	0.00	0.00	0.00
2,300.0	12.00	209.82	2,267.2	2,752.78	-288.8	-165.5	-93.7	0.00	0.00	0.00
2,400.0	12.00	209.82	2,365.0	2,654.97	-306.8	-175.9	-99.6	0.00	0.00	0.00
2,500.0	12.00	209.82	2,462.8	2,557.15	-324.9	-186.2	-105.4	0.00	0.00	0.00
2,600.0	12.00	209.82	2,560.7	2,459.34	-342.9	-196.6	-111.3	0.00	0.00	0.00
2,700.0	12.00	209.82	2,658.5	2,361.52	-360.9	-206.9	-117.1	0.00	0.00	0.00
2,800.0	12.00	209.82	2,756.3	2,263.71	-379.0	-217.2	-123.0	0.00	0.00	0.00
2,900.0	12.00	209.82	2,854.1	2,165.89	-397.0	-227.6	-128.8	0.00	0.00	0.00
3,000.0	12.00	209.82	2,951.9	2,068.08	-415.1	-237.9	-134.7	0.00	0.00	0.00
3,100.0	12.00	209.82	3,049.7	1,970.26	-433.1	-248.3	-140.5	0.00	0.00	0.00
3,200.0	12.00	209.82	3,147.6	1,872.45	-451.1	-258.6	-146.4	0.00	0.00	0.00
3,300.0	12.00	209.82	3,245.4	1,774.63	-469.2	-268.9	-152.2	0.00	0.00	0.00
3,400.0	12.00	209.82	3,343.2	1,676.82	-487.2	-279.3	-158.1	0.00	0.00	0.00
3,500.0	12.00	209.82	3,441.0	1,579.00	-505.2	-289.6	-163.9	0.00	0.00	0.00
3,600.0	12.00	209.82	3,538.8	1,481.19	-523.3	-300.0	-169.8	0.00	0.00	0.00
3,700.0	12.00	209.82	3,636.6	1,383.37	-541.3	-310.3	-175.6	0.00	0.00	0.00
3,800.0	12.00	209.82	3,734.4	1,285.56	-559.4	-320.6	-181.5	0.00	0.00	0.00
3,900.0	12.00	209.82	3,832.3	1,187.74	-577.4	-331.0	-187.3	0.00	0.00	0.00
<b>PARKMAN</b>										
3,969.3	12.00	209.82	3,900.0	1,120.00	-589.9	-338.1	-191.4	0.00	0.00	0.00
4,000.0	12.00	209.82	3,930.1	1,089.93	-595.4	-341.3	-193.2	0.00	0.00	0.00
4,100.0	12.00	209.82	4,027.9	992.11	-613.5	-351.6	-199.0	0.00	0.00	0.00
4,200.0	12.00	209.82	4,125.7	894.30	-631.5	-362.0	-204.9	0.00	0.00	0.00
4,300.0	12.00	209.82	4,223.5	796.48	-649.5	-372.3	-210.8	0.00	0.00	0.00
4,400.0	12.00	209.82	4,321.3	698.67	-667.6	-382.7	-216.6	0.00	0.00	0.00
4,500.0	12.00	209.82	4,419.1	600.85	-685.6	-393.0	-222.5	0.00	0.00	0.00
4,600.0	12.00	209.82	4,517.0	503.04	-703.6	-403.3	-228.3	0.00	0.00	0.00
4,700.0	12.00	209.82	4,614.8	405.22	-721.7	-413.7	-234.2	0.00	0.00	0.00
4,800.0	12.00	209.82	4,712.6	307.41	-739.7	-424.0	-240.0	0.00	0.00	0.00



## Planning Report



<b>Database:</b>	EDM 5000.1 Single User Db	<b>Local Co-ordinate Reference:</b>	Well LEONARD 8N
<b>Company:</b>	EXTRACTION OIL & GAS	<b>TVD Reference:</b>	KB-EST @ 5020.0usft (Original Well Elev)
<b>Project:</b>	WELD COUNTY, COLORADO (NAD 83)	<b>MD Reference:</b>	KB-EST @ 5020.0usft (Original Well Elev)
<b>Site:</b>	NW SW SEC. 21 T2N R67W 6th P.M.	<b>North Reference:</b>	True
<b>Well:</b>	LEONARD 8N	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ORIGINAL WELLBORE		
<b>Design:</b>	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)
<b>SUSSEX</b>										
4,805.5	12.00	209.82	4,718.0	302.00	-740.7	-424.6	-240.3	0.00	0.00	0.00
4,900.0	12.00	209.82	4,810.4	209.59	-757.8	-434.4	-245.9	0.00	0.00	0.00
5,000.0	12.00	209.82	4,908.2	111.78	-775.8	-444.7	-251.7	0.00	0.00	0.00
5,100.0	12.00	209.82	5,006.0	13.96	-793.8	-455.0	-257.6	0.00	0.00	0.00
<b>SHANNON</b>										
5,196.1	12.00	209.82	5,100.0	-80.00	-811.2	-465.0	-263.2	0.00	0.00	0.00
5,200.0	12.00	209.82	5,103.9	-83.85	-811.9	-465.4	-263.4	0.00	0.00	0.00
5,300.0	12.00	209.82	5,201.7	-181.67	-829.9	-475.7	-269.3	0.00	0.00	0.00
5,400.0	12.00	209.82	5,299.5	-279.48	-847.9	-486.1	-275.1	0.00	0.00	0.00
5,500.0	12.00	209.82	5,397.3	-377.30	-866.0	-496.4	-281.0	0.00	0.00	0.00
5,600.0	12.00	209.82	5,495.1	-475.11	-884.0	-506.7	-286.8	0.00	0.00	0.00
5,700.0	12.00	209.82	5,592.9	-572.93	-902.1	-517.1	-292.7	0.00	0.00	0.00
5,800.0	12.00	209.82	5,690.7	-670.74	-920.1	-527.4	-298.5	0.00	0.00	0.00
5,900.0	12.00	209.82	5,788.6	-768.56	-938.1	-537.8	-304.4	0.00	0.00	0.00
6,000.0	12.00	209.82	5,886.4	-866.37	-956.2	-548.1	-310.2	0.00	0.00	0.00
6,100.0	12.00	209.82	5,984.2	-964.18	-974.2	-558.4	-316.1	0.00	0.00	0.00
<b>END OF TANGENT</b>										
6,156.4	12.00	209.82	6,039.4	-1,019.40	-984.4	-564.3	-319.4	0.00	0.00	0.00
6,200.0	11.13	209.82	6,082.1	-1,062.07	-992.0	-568.6	-321.9	2.00	-2.00	0.00
6,300.0	9.13	209.82	6,180.5	-1,160.50	-1,007.2	-577.4	-326.8	2.00	-2.00	0.00
6,400.0	7.13	209.82	6,279.5	-1,259.49	-1,019.5	-584.4	-330.8	2.00	-2.00	0.00
6,500.0	5.13	209.82	6,378.9	-1,358.92	-1,028.7	-589.7	-333.8	2.00	-2.00	0.00
6,600.0	3.13	209.82	6,478.7	-1,458.65	-1,035.0	-593.3	-335.8	2.00	-2.00	0.00
6,700.0	1.13	209.82	6,578.6	-1,558.58	-1,038.2	-595.1	-336.9	2.00	-2.00	0.00
<b>EOD TO VERTICAL</b>										
6,756.4	0.00	0.00	6,635.0	-1,615.00	-1,038.7	-595.4	-337.0	2.00	-2.00	0.00
6,800.0	0.00	0.00	6,678.6	-1,658.58	-1,038.7	-595.4	-337.0	0.00	0.00	0.00
6,900.0	0.00	0.00	6,778.6	-1,758.58	-1,038.7	-595.4	-337.0	0.00	0.00	0.00
7,000.0	0.00	0.00	6,878.6	-1,858.58	-1,038.7	-595.4	-337.0	0.00	0.00	0.00
<b>KOP (10°/100ft BUR)</b>										
7,008.4	0.00	0.00	6,887.0	-1,867.00	-1,038.7	-595.4	-337.0	0.00	0.00	0.00
7,100.0	9.16	89.95	6,978.2	-1,958.19	-1,038.7	-588.1	-329.9	10.00	10.00	0.00
7,200.0	19.16	89.95	7,075.0	-2,055.03	-1,038.7	-563.7	-306.2	10.00	10.00	0.00
7,300.0	29.16	89.95	7,166.2	-2,146.15	-1,038.6	-522.8	-266.4	10.00	10.00	0.00
7,400.0	39.15	89.95	7,248.8	-2,228.80	-1,038.6	-466.7	-211.9	10.00	10.00	0.00
7,500.0	49.15	89.95	7,320.5	-2,300.46	-1,038.5	-397.2	-144.3	10.00	10.00	0.00
7,600.0	59.15	89.95	7,378.9	-2,358.94	-1,038.5	-316.2	-65.6	10.00	10.00	0.00
<b>NIOBRARA</b>										
7,624.4	61.59	89.95	7,391.0	-2,371.00	-1,038.4	-295.0	-44.9	10.00	10.00	0.00
7,700.0	69.15	89.95	7,422.5	-2,402.49	-1,038.4	-226.3	21.8	10.00	10.00	0.00
7,800.0	79.15	89.95	7,449.8	-2,429.76	-1,038.3	-130.2	115.2	10.00	10.00	0.00
7,900.0	89.15	89.95	7,459.9	-2,439.94	-1,038.2	-30.9	211.8	10.00	10.00	0.00
<b>HZ LP: 730ft FSL &amp; 460ft FWL of Sec 21 - NIO B</b>										
7,908.5	90.00	89.95	7,460.0	-2,440.00	-1,038.2	-22.4	220.1	10.00	10.00	0.00
8,000.0	90.00	89.95	7,460.0	-2,440.00	-1,038.1	69.1	309.1	0.00	0.00	0.00
8,100.0	90.00	89.95	7,460.0	-2,439.99	-1,038.1	169.1	406.3	0.00	0.00	0.00
8,200.0	90.00	89.95	7,460.0	-2,439.99	-1,038.0	269.1	503.5	0.00	0.00	0.00
8,300.0	90.00	89.95	7,460.0	-2,439.98	-1,037.9	369.1	600.8	0.00	0.00	0.00
8,400.0	90.00	89.95	7,460.0	-2,439.98	-1,037.8	469.1	698.0	0.00	0.00	0.00
8,500.0	90.00	89.95	7,460.0	-2,439.98	-1,037.7	569.1	795.2	0.00	0.00	0.00
8,600.0	90.00	89.95	7,460.0	-2,439.97	-1,037.6	669.1	892.4	0.00	0.00	0.00
8,700.0	90.00	89.95	7,460.0	-2,439.97	-1,037.6	769.1	989.7	0.00	0.00	0.00

<b>Database:</b>	EDM 5000.1 Single User Db	<b>Local Co-ordinate Reference:</b>	Well LEONARD 8N
<b>Company:</b>	EXTRACTION OIL & GAS	<b>TVD Reference:</b>	KB-EST @ 5020.0usft (Original Well Elev)
<b>Project:</b>	WELD COUNTY, COLORADO (NAD 83)	<b>MD Reference:</b>	KB-EST @ 5020.0usft (Original Well Elev)
<b>Site:</b>	NW SW SEC. 21 T2N R67W 6th P.M.	<b>North Reference:</b>	True
<b>Well:</b>	LEONARD 8N	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ORIGINAL WELLBORE		
<b>Design:</b>	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)
8,800.0	90.00	89.95	7,460.0	-2,439.97	-1,037.5	869.1	1,086.9	0.00	0.00	0.00
8,900.0	90.00	89.95	7,460.0	-2,439.97	-1,037.4	969.1	1,184.1	0.00	0.00	0.00
9,000.0	90.00	89.95	7,460.0	-2,439.96	-1,037.3	1,069.1	1,281.4	0.00	0.00	0.00
9,100.0	90.00	89.95	7,460.0	-2,439.96	-1,037.2	1,169.1	1,378.6	0.00	0.00	0.00
9,200.0	90.00	89.95	7,460.0	-2,439.96	-1,037.1	1,269.1	1,475.8	0.00	0.00	0.00
9,300.0	90.00	89.95	7,460.0	-2,439.96	-1,037.0	1,369.1	1,573.0	0.00	0.00	0.00
9,400.0	90.00	89.95	7,460.0	-2,439.96	-1,036.9	1,469.1	1,670.3	0.00	0.00	0.00
9,500.0	90.00	89.95	7,460.0	-2,439.95	-1,036.9	1,569.1	1,767.5	0.00	0.00	0.00
9,600.0	90.00	89.95	7,460.0	-2,439.95	-1,036.8	1,669.1	1,864.7	0.00	0.00	0.00
9,700.0	90.00	89.95	7,460.0	-2,439.95	-1,036.7	1,769.1	1,962.0	0.00	0.00	0.00
9,800.0	90.00	89.95	7,460.0	-2,439.95	-1,036.6	1,869.1	2,059.2	0.00	0.00	0.00
9,900.0	90.00	89.95	7,460.0	-2,439.95	-1,036.5	1,969.1	2,156.4	0.00	0.00	0.00
10,000.0	90.00	89.95	7,460.0	-2,439.95	-1,036.4	2,069.1	2,253.6	0.00	0.00	0.00
10,100.0	90.00	89.95	7,460.0	-2,439.95	-1,036.3	2,169.1	2,350.9	0.00	0.00	0.00
10,200.0	90.00	89.95	7,460.0	-2,439.95	-1,036.2	2,269.1	2,448.1	0.00	0.00	0.00
10,300.0	90.00	89.95	7,460.0	-2,439.95	-1,036.1	2,369.1	2,545.3	0.00	0.00	0.00
10,400.0	90.00	89.95	7,460.0	-2,439.95	-1,036.0	2,469.1	2,642.5	0.00	0.00	0.00
10,500.0	90.00	89.95	7,460.0	-2,439.95	-1,035.9	2,569.1	2,739.8	0.00	0.00	0.00
10,600.0	90.00	89.95	7,460.0	-2,439.95	-1,035.8	2,669.1	2,837.0	0.00	0.00	0.00
10,700.0	90.00	89.95	7,460.0	-2,439.95	-1,035.7	2,769.1	2,934.2	0.00	0.00	0.00
10,800.0	90.00	89.94	7,460.0	-2,439.96	-1,035.6	2,869.1	3,031.4	0.00	0.00	0.00
10,900.0	90.00	89.94	7,460.0	-2,439.96	-1,035.6	2,969.1	3,128.7	0.00	0.00	0.00
11,000.0	90.00	89.94	7,460.0	-2,439.96	-1,035.5	3,069.1	3,225.9	0.00	0.00	0.00
11,100.0	90.00	89.94	7,460.0	-2,439.96	-1,035.4	3,169.1	3,323.1	0.00	0.00	0.00
11,200.0	90.00	89.94	7,460.0	-2,439.96	-1,035.3	3,269.1	3,420.3	0.00	0.00	0.00
11,300.0	90.00	89.94	7,460.0	-2,439.97	-1,035.2	3,369.1	3,517.6	0.00	0.00	0.00
11,400.0	90.00	89.94	7,460.0	-2,439.97	-1,035.1	3,469.1	3,614.8	0.00	0.00	0.00
11,500.0	90.00	89.94	7,460.0	-2,439.97	-1,035.0	3,569.1	3,712.0	0.00	0.00	0.00
11,600.0	90.00	89.94	7,460.0	-2,439.98	-1,034.9	3,669.1	3,809.2	0.00	0.00	0.00
11,700.0	90.00	89.94	7,460.0	-2,439.98	-1,034.8	3,769.1	3,906.5	0.00	0.00	0.00
11,800.0	90.00	89.94	7,460.0	-2,439.98	-1,034.7	3,869.1	4,003.7	0.00	0.00	0.00
11,900.0	90.00	89.94	7,460.0	-2,439.99	-1,034.6	3,969.1	4,100.9	0.00	0.00	0.00
12,000.0	90.00	89.94	7,460.0	-2,439.99	-1,034.5	4,069.1	4,198.1	0.00	0.00	0.00
12,100.0	90.00	89.94	7,460.0	-2,439.99	-1,034.4	4,169.1	4,295.4	0.00	0.00	0.00
12,200.0	90.00	89.94	7,460.0	-2,440.00	-1,034.3	4,269.1	4,392.6	0.00	0.00	0.00
<b>BHL: 730ft FSL &amp; 460ft FEL of Sec 21</b>										
<b>12,247.7</b>	<b>90.00</b>	<b>89.94</b>	<b>7,460.0</b>	<b>-2,440.00</b>	<b>-1,034.2</b>	<b>4,316.8</b>	<b>4,439.0</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

## Formations

MD (usft)	TVD (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,969.3	3,900.0	PARKMAN			
4,805.5	4,718.0	SUSSEX			
5,196.1	5,100.0	SHANNON			
7,624.4	7,391.0	NIOBRARA			
7,908.5	7,460.0	NIO B			

<b>Database:</b>	EDM 5000.1 Single User Db	<b>Local Co-ordinate Reference:</b>	Well LEONARD 8N
<b>Company:</b>	EXTRACTION OIL & GAS	<b>TVD Reference:</b>	KB-EST @ 5020.0usft (Original Well Elev)
<b>Project:</b>	WELD COUNTY, COLORADO (NAD 83)	<b>MD Reference:</b>	KB-EST @ 5020.0usft (Original Well Elev)
<b>Site:</b>	NW SW SEC. 21 T2N R67W 6th P.M.	<b>North Reference:</b>	True
<b>Well:</b>	LEONARD 8N	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ORIGINAL WELLBORE		
<b>Design:</b>	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: 1768ft FSL & 494ft FWL of Sec 21
400.0	400.0	0.0	0.0	START NUDGE (2°/100ft BUR)
1,000.0	995.6	-54.3	-31.1	EOB TO 12° INC
6,156.4	6,039.4	-984.4	-564.3	END OF TANGENT
6,756.4	6,635.0	-1,038.7	-595.4	EOD TO VERTICAL
7,008.4	6,887.0	-1,038.7	-595.4	KOP (10°/100ft BUR)
7,908.5	7,460.0	-1,038.2	-22.4	HZ LP: 730ft FSL & 460ft FWL of Sec 21
12,247.7	7,460.0	-1,034.2	4,316.8	BHL: 730ft FSL & 460ft FEL of Sec 21