

EXTRACTION OIL & GAS

WELD COUNTY, COLORADO (NAD 83)

SW NW SEC. 15 T5N R65W 6th P.M.

VT-LDS 4-16-18

ORIGINAL WELLBORE

09 March, 2016

Plan: PROPOSAL #2

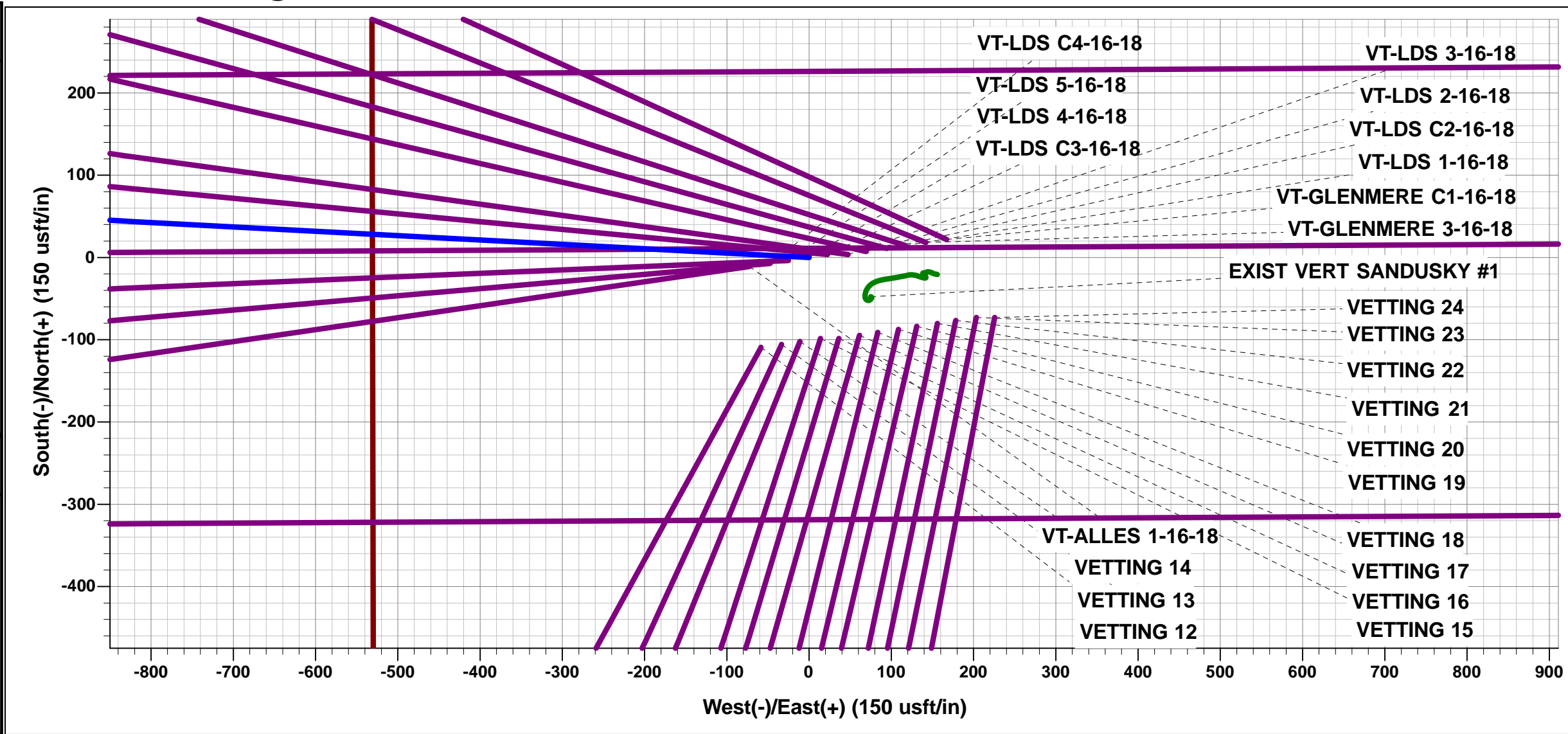




Project: WELD COUNTY, COLORADO (NAD 83)
Site: SW NW SEC. 15 T5N R65W 6th P.M.
Well: VT-LDS 4-16-18
Wellbore: ORIGINAL WELLBORE
Design: PROPOSAL #2

ANNOTATIONS									
TVD	MD	Inc	Azi	+N/-S	+E/-W	VSect	Dep	Annotation	
400.0	400.0	0.00	0.00	0.0	0.0	0.0	0.0	START NUDGE (2°/100ft BUR)	
1600.0	1638.2	24.76	273.04	14.0	-263.1	263.3	263.4	9 5/8" SURFACE CASING	
1659.0	1703.2	24.76	273.04	15.4	-290.3	290.5	290.7	END OF TANGENT	
1872.3	1943.0	29.56	273.04	21.2	-399.5	399.8	400.1	EOB TO 29.56° INC	
5264.7	5843.0	29.56	273.04	123.3	-2320.8	2322.5	2324.1	KOP (10°/100ft DGLG)	
6597.0	7418.9	32.31	273.04	167.8	-3161.3	3163.6	3165.8	START BUILD & TURN	
6864.0	7996.3	90.00	270.36	178.8	-3645.8	3648.2	3650.4	LANDING PNT - VT-LDS 4-16-18	
6864.0	20287.3	90.00	270.36	256.5	-15936.5	15938.6	15941.4	BHL - VT-LDS 4-16-18	

WELLBORE TARGET DETAILS (LAT/LONG)					
Name	TVD	+N/-S	+E/-W	Latitude	Longitude
LANDING PNT - VT-LDS 4-16-18	6864.0	178.8	-3645.8	40.401770	-104.670060
BHL - VT-LDS 4-16-18	6864.0	256.5	-15936.5	40.401970	-104.714190



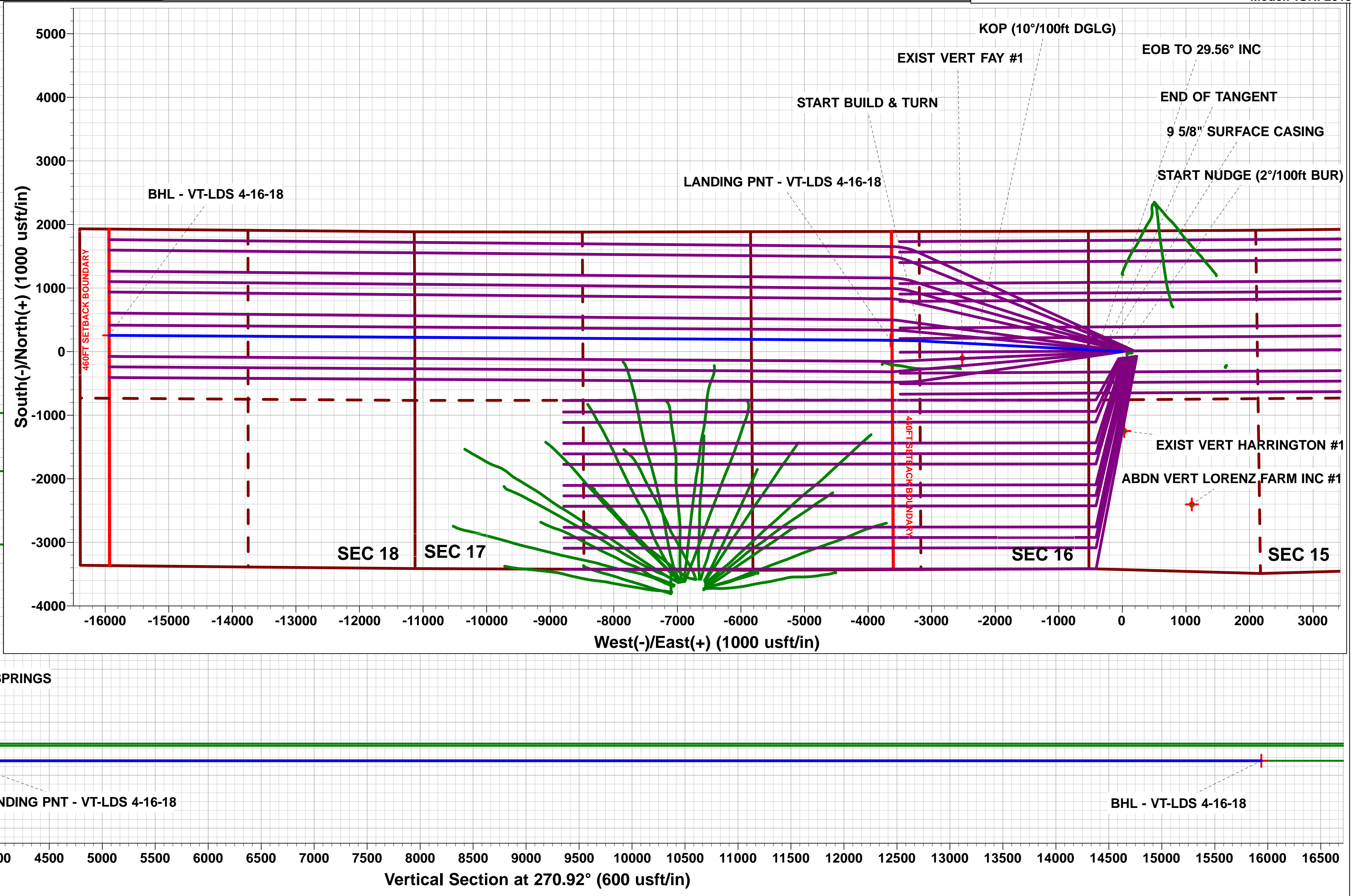
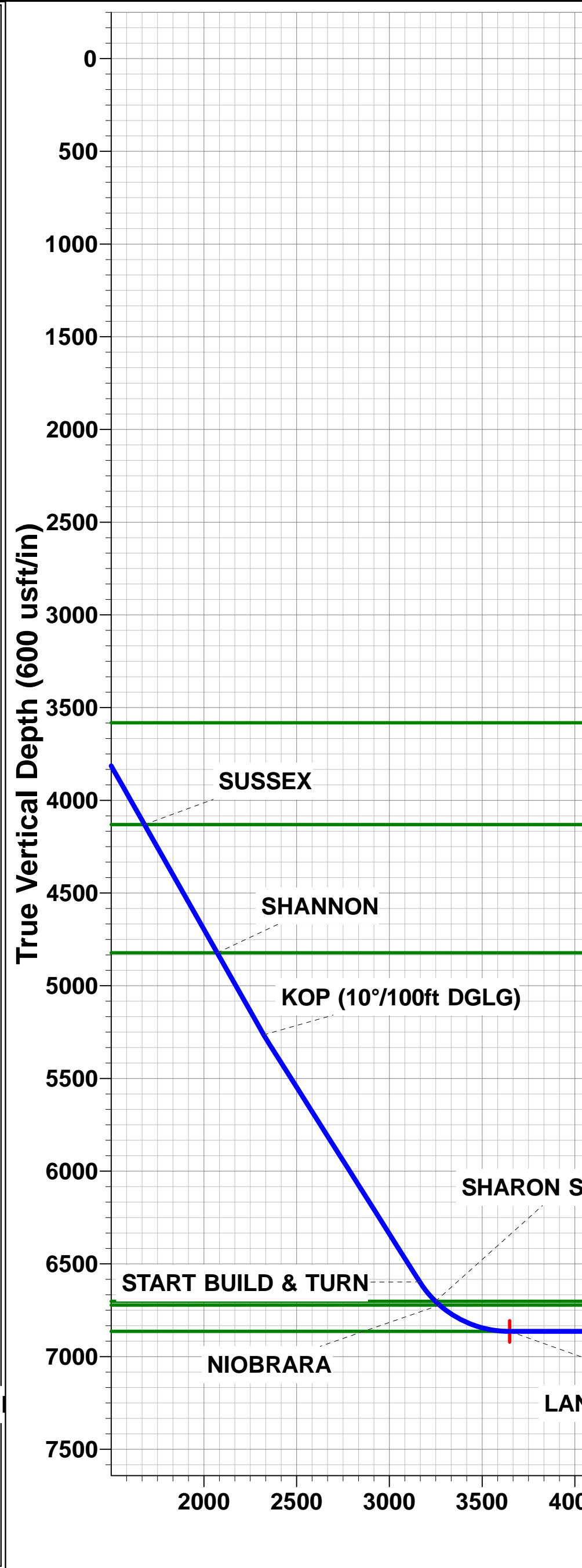
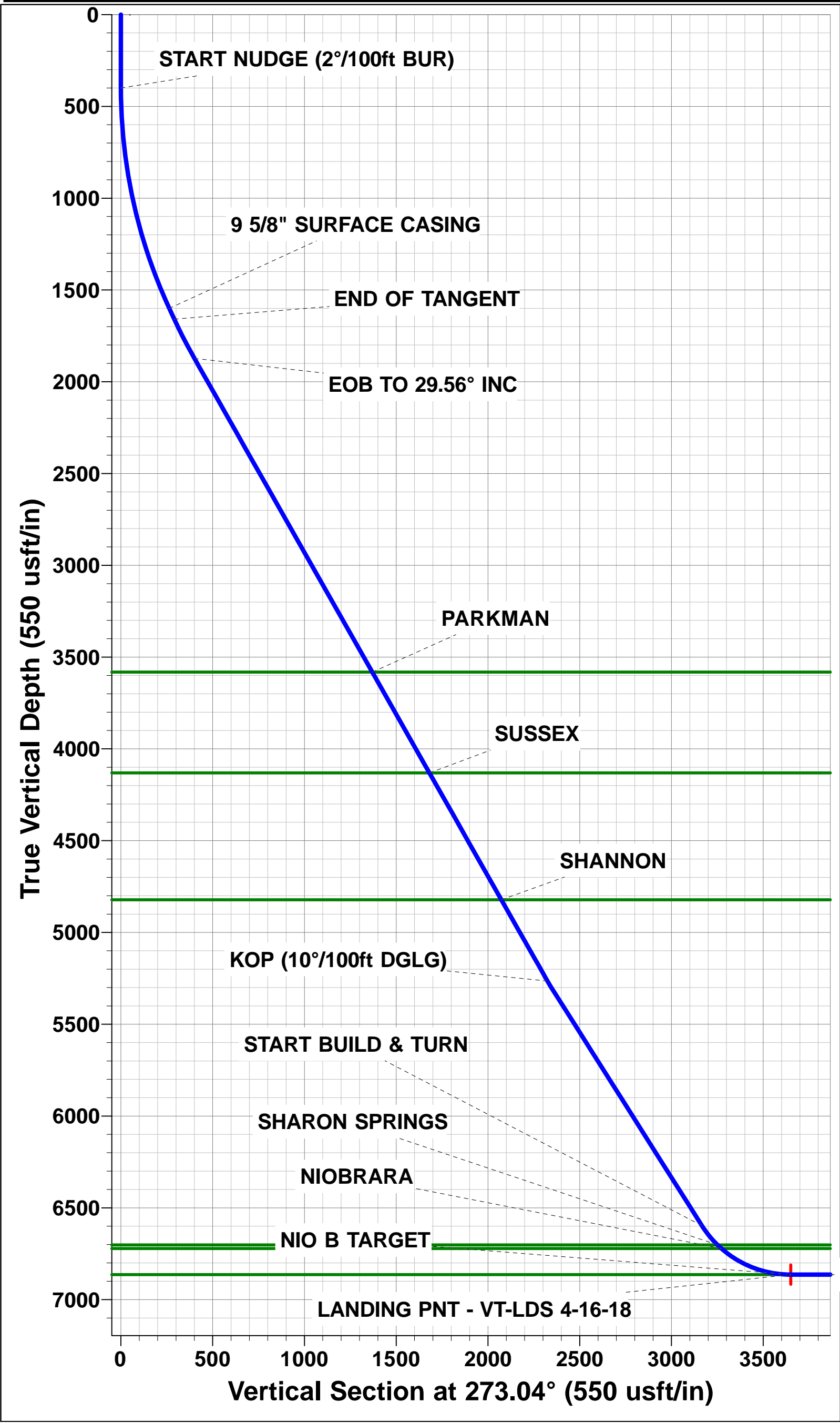
FORMATION TOP DETAILS		
TVDPath	MDPath	Formation
3582.0	3908.5	PARKMAN
4131.0	4539.7	SUSSEX
4822.0	5334.1	SHANNON
6702.0	7554.5	SHARON SPRINGS
6722.0	7584.0	NIOBRARA
6864.0	7996.3	NIO B TARGET

PROPOSED LOCAL COORDINATES		
SHL: 1898ft FNL & 531ft FWL of Sec 15		
LP: 1712ft FNL & 2190ft FWL of Sec 16		
BHL: 1672ft FNL & 460ft FWL of Sec 18		

T M

Azimuths to True North
Magnetic North: 8.32°

Magnetic Field
Strength: 52585.6snT
Dip Angle: 66.91°
Date: 19/11/2015
Model: IGRF2015



Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well VT-LDS 4-16-18
Company:	EXTRACTION OIL & GAS	TVD Reference:	KB-EST @ 4663.0usft
Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB-EST @ 4663.0usft
Site:	SW NW SEC. 15 T5N R65W 6th P.M.	North Reference:	True
Well:	VT-LDS 4-16-18	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL #2		

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	SW NW SEC. 15 T5N R65W 6th P.M.		
Site Position:		Northing:	1,390,032.91 usft
From:	Lat/Long	Easting:	3,234,727.17 usft
Position Uncertainty:	0.0 usft	Slot Radius:	1.10000ft
		Latitude:	40.400980
		Longitude:	-104.657180
		Grid Convergence:	0.54 °

Well	VT-LDS 4-16-18					
Well Position	+N/-S	109.3 usft	Northing:	1,390,142.74 usfi	Latitude:	40.401280
	+E/-W	58.5 usft	Easting:	3,234,784.62 usfi	Longitude:	-104.656970
Position Uncertainty		0.0 usft	Wellhead Elevation:	usfi	Ground Level:	4,647.0 usft

Wellbore	ORIGINAL WELLBORE				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	19/11/2015	8.32	66.91	52,586

Design	PROPOSAL #2			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	-1.0	0.0	0.0	270.92

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	-4,663.0	0.0	0.0	0.00	0.00	0.00	0.00	
400.0	0.00	0.00	400.0	-4,263.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,638.2	24.76	273.04	1,600.0	-3,063.0	14.0	-263.1	2.00	2.00	0.00	273.04	
1,703.2	24.76	273.04	1,659.0	-3,004.0	15.4	-290.3	0.00	0.00	0.00	0.00	
1,943.0	29.56	273.04	1,872.3	-2,790.7	21.2	-399.5	2.00	2.00	0.00	0.00	
5,843.0	29.56	273.04	5,264.7	601.7	123.3	-2,320.8	0.00	0.00	0.00	0.00	
5,870.5	32.31	273.04	5,288.2	625.2	124.0	-2,334.9	10.00	10.00	-0.01	-0.03	
7,418.9	32.31	273.04	6,597.0	1,934.0	167.8	-3,161.3	0.00	0.00	0.00	0.00	
7,996.3	90.00	270.36	6,864.0	2,201.0	178.8	-3,645.8	10.00	9.99	-0.46	-3.16	LANDING PNT - V1
20,287.3	90.00	270.36	6,864.0	2,201.0	256.5	-15,936.5	0.00	0.00	0.00	0.00	BHL - VT-LDS 4-16

Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well VT-LDS 4-16-18
Company:	EXTRACTION OIL & GAS	TVD Reference:	KB-EST @ 4663.0usft
Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB-EST @ 4663.0usft
Site:	SW NW SEC. 15 T5N R65W 6th P.M.	North Reference:	True
Well:	VT-LDS 4-16-18	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL #2		

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)
0.0	0.00	0.00	0.0	4,663.00	0.0	0.0	0.0	0.00	0.00	0.00
100.0	0.00	0.00	100.0	4,563.00	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	4,463.00	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	4,363.00	0.0	0.0	0.0	0.00	0.00	0.00
START NUDGE (2°/100ft BUR)										
400.0	0.00	0.00	400.0	4,263.00	0.0	0.0	0.0	0.00	0.00	0.00
500.0	2.00	273.04	500.0	4,163.02	0.1	-1.7	1.7	2.00	2.00	0.00
600.0	4.00	273.04	599.8	4,063.16	0.4	-7.0	7.0	2.00	2.00	0.00
700.0	6.00	273.04	699.5	3,963.55	0.8	-15.7	15.7	2.00	2.00	0.00
800.0	8.00	273.04	798.7	3,864.30	1.5	-27.8	27.9	2.00	2.00	0.00
900.0	10.00	273.04	897.5	3,765.53	2.3	-43.5	43.5	2.00	2.00	0.00
1,000.0	12.00	273.04	995.6	3,667.38	3.3	-62.5	62.6	2.00	2.00	0.00
1,100.0	14.00	273.04	1,093.1	3,569.94	4.5	-85.0	85.0	2.00	2.00	0.00
1,200.0	16.00	273.04	1,189.6	3,473.36	5.9	-110.8	110.9	2.00	2.00	0.00
1,300.0	18.00	273.04	1,285.3	3,377.73	7.4	-140.0	140.1	2.00	2.00	0.00
1,400.0	20.00	273.04	1,379.8	3,283.18	9.2	-172.5	172.6	2.00	2.00	0.00
1,500.0	22.00	273.04	1,473.2	3,189.83	11.1	-208.3	208.5	2.00	2.00	0.00
1,600.0	24.00	273.04	1,565.2	3,097.79	13.1	-247.3	247.5	2.00	2.00	0.00
9 5/8" SURFACE CASING										
1,638.2	24.76	273.04	1,600.0	3,062.99	14.0	-263.1	263.3	2.00	2.00	0.00
1,700.0	24.76	273.04	1,656.1	3,006.88	15.3	-288.9	289.1	0.00	0.00	0.00
END OF TANGENT										
1,703.2	24.76	273.04	1,659.0	3,003.97	15.4	-290.3	290.5	0.00	0.00	0.00
1,800.0	26.70	273.04	1,746.2	2,916.77	17.6	-332.2	332.5	2.00	2.00	0.00
1,900.0	28.70	273.04	1,834.8	2,828.24	20.1	-378.6	378.9	2.00	2.00	0.00
EOB TO 29.56° INC										
1,943.0	29.56	273.04	1,872.3	2,790.68	21.2	-399.5	399.8	2.00	2.00	0.00
2,000.0	29.56	273.04	1,921.9	2,741.10	22.7	-427.6	427.9	0.00	0.00	0.00
2,100.0	29.56	273.04	2,008.9	2,654.11	25.3	-476.9	477.2	0.00	0.00	0.00
2,200.0	29.56	273.04	2,095.9	2,567.13	27.9	-526.2	526.5	0.00	0.00	0.00
2,300.0	29.56	273.04	2,182.9	2,480.14	30.6	-575.4	575.8	0.00	0.00	0.00
2,400.0	29.56	273.04	2,269.8	2,393.16	33.2	-624.7	625.1	0.00	0.00	0.00
2,500.0	29.56	273.04	2,356.8	2,306.18	35.8	-673.9	674.4	0.00	0.00	0.00
2,600.0	29.56	273.04	2,443.8	2,219.19	38.4	-723.2	723.7	0.00	0.00	0.00
2,700.0	29.56	273.04	2,530.8	2,132.21	41.0	-772.5	773.0	0.00	0.00	0.00
2,800.0	29.56	273.04	2,617.8	2,045.22	43.6	-821.7	822.3	0.00	0.00	0.00
2,900.0	29.56	273.04	2,704.8	1,958.24	46.3	-871.0	871.6	0.00	0.00	0.00
3,000.0	29.56	273.04	2,791.7	1,871.26	48.9	-920.3	920.9	0.00	0.00	0.00
3,100.0	29.56	273.04	2,878.7	1,784.27	51.5	-969.5	970.2	0.00	0.00	0.00
3,200.0	29.56	273.04	2,965.7	1,697.29	54.1	-1,018.8	1,019.5	0.00	0.00	0.00
3,300.0	29.56	273.04	3,052.7	1,610.31	56.7	-1,068.1	1,068.8	0.00	0.00	0.00
3,400.0	29.56	273.04	3,139.7	1,523.32	59.3	-1,117.3	1,118.1	0.00	0.00	0.00
3,500.0	29.56	273.04	3,226.7	1,436.34	62.0	-1,166.6	1,167.4	0.00	0.00	0.00
3,600.0	29.56	273.04	3,313.6	1,349.35	64.6	-1,215.9	1,216.7	0.00	0.00	0.00
3,700.0	29.56	273.04	3,400.6	1,262.37	67.2	-1,265.1	1,266.0	0.00	0.00	0.00
3,800.0	29.56	273.04	3,487.6	1,175.39	69.8	-1,314.4	1,315.3	0.00	0.00	0.00
3,900.0	29.56	273.04	3,574.6	1,088.40	72.4	-1,363.6	1,364.6	0.00	0.00	0.00
PARKMAN										
3,908.5	29.56	273.04	3,582.0	1,081.00	72.6	-1,367.8	1,368.8	0.00	0.00	0.00
4,000.0	29.56	273.04	3,661.6	1,001.42	75.0	-1,412.9	1,413.9	0.00	0.00	0.00
4,100.0	29.56	273.04	3,748.6	914.43	77.7	-1,462.2	1,463.2	0.00	0.00	0.00
4,200.0	29.56	273.04	3,835.6	827.45	80.3	-1,511.4	1,512.5	0.00	0.00	0.00
4,300.0	29.56	273.04	3,922.5	740.47	82.9	-1,560.7	1,561.8	0.00	0.00	0.00
4,400.0	29.56	273.04	4,009.5	653.48	85.5	-1,610.0	1,611.1	0.00	0.00	0.00

Planning Report



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Site:	SW NW SEC. 15 T5N R65W 6th P.M.	North Reference:	True
Well:	VT-LDS 4-16-18	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL #2		

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)
4,500.0	29.56	273.04	4,096.5	566.50	88.1	-1,659.2	1,660.4	0.00	0.00	0.00
SUSSEX										
4,539.7	29.56	273.04	4,131.0	532.00	89.2	-1,678.8	1,680.0	0.00	0.00	0.00
4,600.0	29.56	273.04	4,183.5	479.51	90.7	-1,708.5	1,709.7	0.00	0.00	0.00
4,700.0	29.56	273.04	4,270.5	392.53	93.4	-1,757.8	1,759.0	0.00	0.00	0.00
4,800.0	29.56	273.04	4,357.5	305.55	96.0	-1,807.0	1,808.3	0.00	0.00	0.00
4,900.0	29.56	273.04	4,444.4	218.56	98.6	-1,856.3	1,857.6	0.00	0.00	0.00
5,000.0	29.56	273.04	4,531.4	131.58	101.2	-1,905.5	1,906.9	0.00	0.00	0.00
5,100.0	29.56	273.04	4,618.4	44.59	103.8	-1,954.8	1,956.2	0.00	0.00	0.00
5,200.0	29.56	273.04	4,705.4	-42.39	106.4	-2,004.1	2,005.5	0.00	0.00	0.00
5,300.0	29.56	273.04	4,792.4	-129.37	109.0	-2,053.3	2,054.8	0.00	0.00	0.00
SHANNON										
5,334.1	29.56	273.04	4,822.0	-159.00	109.9	-2,070.1	2,071.6	0.00	0.00	0.00
5,400.0	29.56	273.04	4,879.4	-216.36	111.7	-2,102.6	2,104.1	0.00	0.00	0.00
5,500.0	29.56	273.04	4,966.3	-303.34	114.3	-2,151.9	2,153.4	0.00	0.00	0.00
5,600.0	29.56	273.04	5,053.3	-390.33	116.9	-2,201.1	2,202.7	0.00	0.00	0.00
5,700.0	29.56	273.04	5,140.3	-477.31	119.5	-2,250.4	2,252.0	0.00	0.00	0.00
5,800.0	29.56	273.04	5,227.3	-564.29	122.1	-2,299.7	2,301.3	0.00	0.00	0.00
KOP (10°/100ft DGLG)										
5,843.0	29.56	273.04	5,264.7	-601.70	123.3	-2,320.8	2,322.5	0.00	0.00	0.00
5,870.5	32.31	273.04	5,288.2	-625.24	124.0	-2,334.9	2,336.6	10.00	10.00	-0.01
5,900.0	32.31	273.04	5,313.2	-650.22	124.8	-2,350.7	2,352.4	0.00	0.00	0.00
6,000.0	32.31	273.04	5,397.7	-734.74	127.7	-2,404.1	2,405.8	0.00	0.00	0.00
6,100.0	32.31	273.04	5,482.3	-819.26	130.5	-2,457.4	2,459.2	0.00	0.00	0.00
6,200.0	32.31	273.04	5,566.8	-903.78	133.3	-2,510.8	2,512.6	0.00	0.00	0.00
6,300.0	32.31	273.04	5,651.3	-988.30	136.2	-2,564.2	2,566.0	0.00	0.00	0.00
6,400.0	32.31	273.04	5,735.8	-1,072.82	139.0	-2,617.5	2,619.4	0.00	0.00	0.00
6,500.0	32.31	273.04	5,820.3	-1,157.34	141.8	-2,670.9	2,672.8	0.00	0.00	0.00
6,600.0	32.31	273.04	5,904.9	-1,241.86	144.7	-2,724.3	2,726.3	0.00	0.00	0.00
6,700.0	32.31	273.04	5,989.4	-1,326.39	147.5	-2,777.6	2,779.7	0.00	0.00	0.00
6,800.0	32.31	273.04	6,073.9	-1,410.91	150.3	-2,831.0	2,833.1	0.00	0.00	0.00
6,900.0	32.31	273.04	6,158.4	-1,495.43	153.2	-2,884.4	2,886.5	0.00	0.00	0.00
7,000.0	32.31	273.04	6,242.9	-1,579.95	156.0	-2,937.8	2,939.9	0.00	0.00	0.00
7,100.0	32.31	273.04	6,327.5	-1,664.47	158.8	-2,991.1	2,993.3	0.00	0.00	0.00
7,200.0	32.31	273.04	6,412.0	-1,748.99	161.6	-3,044.5	3,046.7	0.00	0.00	0.00
7,300.0	32.31	273.04	6,496.5	-1,833.51	164.5	-3,097.9	3,100.1	0.00	0.00	0.00
7,400.0	32.31	273.04	6,581.0	-1,918.03	167.3	-3,151.2	3,153.5	0.00	0.00	0.00
START BUILD & TURN										
7,418.9	32.31	273.04	6,597.0	-1,934.01	167.8	-3,161.3	3,163.6	0.00	0.00	0.00
7,500.0	40.40	272.35	6,662.3	-1,999.27	170.1	-3,209.3	3,211.6	10.00	9.98	-0.85
SHARON SPRINGS										
7,554.5	45.84	272.00	6,702.0	-2,039.00	171.5	-3,246.5	3,248.8	10.00	9.99	-0.63
NIOBRARA										
7,584.0	48.79	271.84	6,722.0	-2,059.00	172.2	-3,268.1	3,270.5	10.00	9.99	-0.55
7,600.0	50.39	271.76	6,732.4	-2,069.40	172.6	-3,280.4	3,282.7	10.00	9.99	-0.51
7,700.0	60.39	271.32	6,789.1	-2,126.13	174.8	-3,362.5	3,364.9	10.00	9.99	-0.44
7,800.0	70.38	270.96	6,830.7	-2,167.73	176.6	-3,453.3	3,455.7	10.00	9.99	-0.36
7,900.0	80.38	270.65	6,855.9	-2,192.93	177.9	-3,549.9	3,552.3	10.00	10.00	-0.32
LANDING PNT - VT-LDS 4-16-18 - NIO B TARGET										
7,996.3	90.00	270.36	6,864.0	-2,201.00	178.8	-3,645.8	3,648.2	10.00	10.00	-0.30
8,000.0	90.00	270.36	6,864.0	-2,201.00	178.8	-3,649.5	3,651.9	0.00	0.00	0.00
8,100.0	90.00	270.36	6,864.0	-2,201.00	179.4	-3,749.5	3,751.9	0.00	0.00	0.00
8,200.0	90.00	270.36	6,864.0	-2,201.00	180.1	-3,849.5	3,851.9	0.00	0.00	0.00

Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well VT-LDS 4-16-18
Company:	EXTRACTION OIL & GAS	TVD Reference:	KB-EST @ 4663.0usft
Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB-EST @ 4663.0usft
Site:	SW NW SEC. 15 T5N R65W 6th P.M.	North Reference:	True
Well:	VT-LDS 4-16-18	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL #2		

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	90.00	270.36	6,864.0	-2,201.00	180.7	-3,949.5	3,951.9	0.00	0.00	0.00
8,400.0	90.00	270.36	6,864.0	-2,201.00	181.3	-4,049.5	4,051.9	0.00	0.00	0.00
8,500.0	90.00	270.36	6,864.0	-2,201.00	182.0	-4,149.5	4,151.9	0.00	0.00	0.00
8,600.0	90.00	270.36	6,864.0	-2,201.00	182.6	-4,249.5	4,251.9	0.00	0.00	0.00
8,700.0	90.00	270.36	6,864.0	-2,201.00	183.2	-4,349.5	4,351.9	0.00	0.00	0.00
8,800.0	90.00	270.36	6,864.0	-2,201.00	183.9	-4,449.5	4,451.8	0.00	0.00	0.00
8,900.0	90.00	270.36	6,864.0	-2,201.00	184.5	-4,549.5	4,551.8	0.00	0.00	0.00
9,000.0	90.00	270.36	6,864.0	-2,201.00	185.1	-4,649.5	4,651.8	0.00	0.00	0.00
9,100.0	90.00	270.36	6,864.0	-2,201.00	185.8	-4,749.5	4,751.8	0.00	0.00	0.00
9,200.0	90.00	270.36	6,864.0	-2,201.00	186.4	-4,849.5	4,851.8	0.00	0.00	0.00
9,300.0	90.00	270.36	6,864.0	-2,201.00	187.0	-4,949.5	4,951.8	0.00	0.00	0.00
9,400.0	90.00	270.36	6,864.0	-2,201.00	187.7	-5,049.5	5,051.8	0.00	0.00	0.00
9,500.0	90.00	270.36	6,864.0	-2,201.00	188.3	-5,149.5	5,151.8	0.00	0.00	0.00
9,600.0	90.00	270.36	6,864.0	-2,201.00	188.9	-5,249.4	5,251.8	0.00	0.00	0.00
9,700.0	90.00	270.36	6,864.0	-2,201.00	189.6	-5,349.4	5,351.8	0.00	0.00	0.00
9,800.0	90.00	270.36	6,864.0	-2,201.00	190.2	-5,449.4	5,451.8	0.00	0.00	0.00
9,900.0	90.00	270.36	6,864.0	-2,201.00	190.8	-5,549.4	5,551.8	0.00	0.00	0.00
10,000.0	90.00	270.36	6,864.0	-2,201.00	191.5	-5,649.4	5,651.8	0.00	0.00	0.00
10,100.0	90.00	270.36	6,864.0	-2,201.00	192.1	-5,749.4	5,751.8	0.00	0.00	0.00
10,200.0	90.00	270.36	6,864.0	-2,201.00	192.7	-5,849.4	5,851.8	0.00	0.00	0.00
10,300.0	90.00	270.36	6,864.0	-2,201.00	193.4	-5,949.4	5,951.8	0.00	0.00	0.00
10,400.0	90.00	270.36	6,864.0	-2,201.00	194.0	-6,049.4	6,051.8	0.00	0.00	0.00
10,500.0	90.00	270.36	6,864.0	-2,201.00	194.6	-6,149.4	6,151.8	0.00	0.00	0.00
10,600.0	90.00	270.36	6,864.0	-2,201.00	195.3	-6,249.4	6,251.8	0.00	0.00	0.00
10,700.0	90.00	270.36	6,864.0	-2,201.00	195.9	-6,349.4	6,351.8	0.00	0.00	0.00
10,800.0	90.00	270.36	6,864.0	-2,201.00	196.5	-6,449.4	6,451.8	0.00	0.00	0.00
10,900.0	90.00	270.36	6,864.0	-2,201.00	197.2	-6,549.4	6,551.7	0.00	0.00	0.00
11,000.0	90.00	270.36	6,864.0	-2,201.00	197.8	-6,649.4	6,651.7	0.00	0.00	0.00
11,100.0	90.00	270.36	6,864.0	-2,201.00	198.4	-6,749.4	6,751.7	0.00	0.00	0.00
11,200.0	90.00	270.36	6,864.0	-2,201.00	199.1	-6,849.4	6,851.7	0.00	0.00	0.00
11,300.0	90.00	270.36	6,864.0	-2,201.00	199.7	-6,949.4	6,951.7	0.00	0.00	0.00
11,400.0	90.00	270.36	6,864.0	-2,201.00	200.3	-7,049.4	7,051.7	0.00	0.00	0.00
11,500.0	90.00	270.36	6,864.0	-2,201.00	200.9	-7,149.4	7,151.7	0.00	0.00	0.00
11,600.0	90.00	270.36	6,864.0	-2,201.00	201.6	-7,249.4	7,251.7	0.00	0.00	0.00
11,700.0	90.00	270.36	6,864.0	-2,201.00	202.2	-7,349.4	7,351.7	0.00	0.00	0.00
11,800.0	90.00	270.36	6,864.0	-2,201.00	202.8	-7,449.4	7,451.7	0.00	0.00	0.00
11,900.0	90.00	270.36	6,864.0	-2,201.00	203.5	-7,549.4	7,551.7	0.00	0.00	0.00
12,000.0	90.00	270.36	6,864.0	-2,201.00	204.1	-7,649.4	7,651.7	0.00	0.00	0.00
12,100.0	90.00	270.36	6,864.0	-2,201.00	204.7	-7,749.4	7,751.7	0.00	0.00	0.00
12,200.0	90.00	270.36	6,864.0	-2,201.00	205.4	-7,849.4	7,851.7	0.00	0.00	0.00
12,300.0	90.00	270.36	6,864.0	-2,201.00	206.0	-7,949.4	7,951.7	0.00	0.00	0.00
12,400.0	90.00	270.36	6,864.0	-2,201.00	206.6	-8,049.4	8,051.7	0.00	0.00	0.00
12,500.0	90.00	270.36	6,864.0	-2,201.00	207.3	-8,149.4	8,151.7	0.00	0.00	0.00
12,600.0	90.00	270.36	6,864.0	-2,201.00	207.9	-8,249.4	8,251.7	0.00	0.00	0.00
12,700.0	90.00	270.36	6,864.0	-2,201.00	208.5	-8,349.4	8,351.7	0.00	0.00	0.00
12,800.0	90.00	270.36	6,864.0	-2,201.00	209.2	-8,449.4	8,451.7	0.00	0.00	0.00
12,900.0	90.00	270.36	6,864.0	-2,201.00	209.8	-8,549.4	8,551.7	0.00	0.00	0.00
13,000.0	90.00	270.36	6,864.0	-2,201.00	210.4	-8,649.4	8,651.6	0.00	0.00	0.00
13,100.0	90.00	270.36	6,864.0	-2,201.00	211.1	-8,749.4	8,751.6	0.00	0.00	0.00
13,200.0	90.00	270.36	6,864.0	-2,201.00	211.7	-8,849.4	8,851.6	0.00	0.00	0.00
13,300.0	90.00	270.36	6,864.0	-2,201.00	212.3	-8,949.4	8,951.6	0.00	0.00	0.00
13,400.0	90.00	270.36	6,864.0	-2,201.00	213.0	-9,049.4	9,051.6	0.00	0.00	0.00
13,500.0	90.00	270.36	6,864.0	-2,201.00	213.6	-9,149.4	9,151.6	0.00	0.00	0.00
13,600.0	90.00	270.36	6,864.0	-2,201.00	214.2	-9,249.4	9,251.6	0.00	0.00	0.00

Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well VT-LDS 4-16-18
Company:	EXTRACTION OIL & GAS	TVD Reference:	KB-EST @ 4663.0usft
Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB-EST @ 4663.0usft
Site:	SW NW SEC. 15 T5N R65W 6th P.M.	North Reference:	True
Well:	VT-LDS 4-16-18	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL #2		

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	90.00	270.36	6,864.0	-2,201.00	214.9	-9,349.4	9,351.6	0.00	0.00	0.00
13,800.0	90.00	270.36	6,864.0	-2,201.00	215.5	-9,449.4	9,451.6	0.00	0.00	0.00
13,900.0	90.00	270.36	6,864.0	-2,201.00	216.1	-9,549.4	9,551.6	0.00	0.00	0.00
14,000.0	90.00	270.36	6,864.0	-2,201.00	216.8	-9,649.4	9,651.6	0.00	0.00	0.00
14,100.0	90.00	270.36	6,864.0	-2,201.00	217.4	-9,749.4	9,751.6	0.00	0.00	0.00
14,200.0	90.00	270.36	6,864.0	-2,201.00	218.0	-9,849.4	9,851.6	0.00	0.00	0.00
14,300.0	90.00	270.36	6,864.0	-2,201.00	218.7	-9,949.4	9,951.6	0.00	0.00	0.00
14,400.0	90.00	270.36	6,864.0	-2,201.00	219.3	-10,049.4	10,051.6	0.00	0.00	0.00
14,500.0	90.00	270.36	6,864.0	-2,201.00	219.9	-10,149.4	10,151.6	0.00	0.00	0.00
14,600.0	90.00	270.36	6,864.0	-2,201.00	220.6	-10,249.3	10,251.6	0.00	0.00	0.00
14,700.0	90.00	270.36	6,864.0	-2,201.00	221.2	-10,349.3	10,351.6	0.00	0.00	0.00
14,800.0	90.00	270.36	6,864.0	-2,201.00	221.8	-10,449.3	10,451.6	0.00	0.00	0.00
14,900.0	90.00	270.36	6,864.0	-2,201.00	222.5	-10,549.3	10,551.6	0.00	0.00	0.00
15,000.0	90.00	270.36	6,864.0	-2,201.00	223.1	-10,649.3	10,651.6	0.00	0.00	0.00
15,100.0	90.00	270.36	6,864.0	-2,201.00	223.7	-10,749.3	10,751.5	0.00	0.00	0.00
15,200.0	90.00	270.36	6,864.0	-2,201.00	224.4	-10,849.3	10,851.5	0.00	0.00	0.00
15,300.0	90.00	270.36	6,864.0	-2,201.00	225.0	-10,949.3	10,951.5	0.00	0.00	0.00
15,400.0	90.00	270.36	6,864.0	-2,201.00	225.6	-11,049.3	11,051.5	0.00	0.00	0.00
15,500.0	90.00	270.36	6,864.0	-2,201.00	226.2	-11,149.3	11,151.5	0.00	0.00	0.00
15,600.0	90.00	270.36	6,864.0	-2,201.00	226.9	-11,249.3	11,251.5	0.00	0.00	0.00
15,700.0	90.00	270.36	6,864.0	-2,201.00	227.5	-11,349.3	11,351.5	0.00	0.00	0.00
15,800.0	90.00	270.36	6,864.0	-2,201.00	228.1	-11,449.3	11,451.5	0.00	0.00	0.00
15,900.0	90.00	270.36	6,864.0	-2,201.00	228.8	-11,549.3	11,551.5	0.00	0.00	0.00
16,000.0	90.00	270.36	6,864.0	-2,201.00	229.4	-11,649.3	11,651.5	0.00	0.00	0.00
16,100.0	90.00	270.36	6,864.0	-2,201.00	230.0	-11,749.3	11,751.5	0.00	0.00	0.00
16,200.0	90.00	270.36	6,864.0	-2,201.00	230.7	-11,849.3	11,851.5	0.00	0.00	0.00
16,300.0	90.00	270.36	6,864.0	-2,201.00	231.3	-11,949.3	11,951.5	0.00	0.00	0.00
16,400.0	90.00	270.36	6,864.0	-2,201.00	231.9	-12,049.3	12,051.5	0.00	0.00	0.00
16,500.0	90.00	270.36	6,864.0	-2,201.00	232.6	-12,149.3	12,151.5	0.00	0.00	0.00
16,600.0	90.00	270.36	6,864.0	-2,201.00	233.2	-12,249.3	12,251.5	0.00	0.00	0.00
16,700.0	90.00	270.36	6,864.0	-2,201.00	233.8	-12,349.3	12,351.5	0.00	0.00	0.00
16,800.0	90.00	270.36	6,864.0	-2,201.00	234.5	-12,449.3	12,451.5	0.00	0.00	0.00
16,900.0	90.00	270.36	6,864.0	-2,201.00	235.1	-12,549.3	12,551.5	0.00	0.00	0.00
17,000.0	90.00	270.36	6,864.0	-2,201.00	235.7	-12,649.3	12,651.5	0.00	0.00	0.00
17,100.0	90.00	270.36	6,864.0	-2,201.00	236.4	-12,749.3	12,751.5	0.00	0.00	0.00
17,200.0	90.00	270.36	6,864.0	-2,201.00	237.0	-12,849.3	12,851.4	0.00	0.00	0.00
17,300.0	90.00	270.36	6,864.0	-2,201.00	237.6	-12,949.3	12,951.4	0.00	0.00	0.00
17,400.0	90.00	270.36	6,864.0	-2,201.00	238.3	-13,049.3	13,051.4	0.00	0.00	0.00
17,500.0	90.00	270.36	6,864.0	-2,201.00	238.9	-13,149.3	13,151.4	0.00	0.00	0.00
17,600.0	90.00	270.36	6,864.0	-2,201.00	239.5	-13,249.3	13,251.4	0.00	0.00	0.00
17,700.0	90.00	270.36	6,864.0	-2,201.00	240.2	-13,349.3	13,351.4	0.00	0.00	0.00
17,800.0	90.00	270.36	6,864.0	-2,201.00	240.8	-13,449.3	13,451.4	0.00	0.00	0.00
17,900.0	90.00	270.36	6,864.0	-2,201.00	241.4	-13,549.3	13,551.4	0.00	0.00	0.00
18,000.0	90.00	270.36	6,864.0	-2,201.00	242.1	-13,649.3	13,651.4	0.00	0.00	0.00
18,100.0	90.00	270.36	6,864.0	-2,201.00	242.7	-13,749.3	13,751.4	0.00	0.00	0.00
18,200.0	90.00	270.36	6,864.0	-2,201.00	243.3	-13,849.3	13,851.4	0.00	0.00	0.00
18,300.0	90.00	270.36	6,864.0	-2,201.00	244.0	-13,949.3	13,951.4	0.00	0.00	0.00
18,400.0	90.00	270.36	6,864.0	-2,201.00	244.6	-14,049.3	14,051.4	0.00	0.00	0.00
18,500.0	90.00	270.36	6,864.0	-2,201.00	245.2	-14,149.3	14,151.4	0.00	0.00	0.00
18,600.0	90.00	270.36	6,864.0	-2,201.00	245.9	-14,249.3	14,251.4	0.00	0.00	0.00
18,700.0	90.00	270.36	6,864.0	-2,201.00	246.5	-14,349.3	14,351.4	0.00	0.00	0.00
18,800.0	90.00	270.36	6,864.0	-2,201.00	247.1	-14,449.3	14,451.4	0.00	0.00	0.00
18,900.0	90.00	270.36	6,864.0	-2,201.00	247.8	-14,549.3	14,551.4	0.00	0.00	0.00
19,000.0	90.00	270.36	6,864.0	-2,201.00	248.4	-14,649.3	14,651.4	0.00	0.00	0.00

Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well VT-LDS 4-16-18
Company:	EXTRACTION OIL & GAS	TVD Reference:	KB-EST @ 4663.0usft
Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB-EST @ 4663.0usft
Site:	SW NW SEC. 15 T5N R65W 6th P.M.	North Reference:	True
Well:	VT-LDS 4-16-18	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL #2		

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)
19,100.0	90.00	270.36	6,864.0	-2,201.00	249.0	-14,749.3	14,751.4	0.00	0.00	0.00
19,200.0	90.00	270.36	6,864.0	-2,201.00	249.6	-14,849.3	14,851.4	0.00	0.00	0.00
19,300.0	90.00	270.36	6,864.0	-2,201.00	250.3	-14,949.3	14,951.3	0.00	0.00	0.00
19,400.0	90.00	270.36	6,864.0	-2,201.00	250.9	-15,049.3	15,051.3	0.00	0.00	0.00
19,500.0	90.00	270.36	6,864.0	-2,201.00	251.5	-15,149.3	15,151.3	0.00	0.00	0.00
19,600.0	90.00	270.36	6,864.0	-2,201.00	252.2	-15,249.2	15,251.3	0.00	0.00	0.00
19,700.0	90.00	270.36	6,864.0	-2,201.00	252.8	-15,349.2	15,351.3	0.00	0.00	0.00
19,800.0	90.00	270.36	6,864.0	-2,201.00	253.4	-15,449.2	15,451.3	0.00	0.00	0.00
19,900.0	90.00	270.36	6,864.0	-2,201.00	254.1	-15,549.2	15,551.3	0.00	0.00	0.00
20,000.0	90.00	270.36	6,864.0	-2,201.00	254.7	-15,649.2	15,651.3	0.00	0.00	0.00
20,100.0	90.00	270.36	6,864.0	-2,201.00	255.3	-15,749.2	15,751.3	0.00	0.00	0.00
20,200.0	90.00	270.36	6,864.0	-2,201.00	256.0	-15,849.2	15,851.3	0.00	0.00	0.00
BHL - VT-LDS 4-16-18										
20,287.3	90.00	270.36	6,864.0	-2,201.00	256.5	-15,936.5	15,938.6	0.00	0.00	0.00

Formations						
MD (usft)	TVD (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
3,908.5	3,582.0	PARKMAN				
4,539.7	4,131.0	SUSSEX				
5,334.1	4,822.0	SHANNON				
7,554.5	6,702.0	SHARON SPRINGS				
7,584.0	6,722.0	NIOBRARA				
7,996.3	6,864.0	NIO B TARGET				

Plan Annotations				
MD (usft)	TVD (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
400.0	400.0	0.0	0.0	START NUDGE (2°/100ft BUR)
1,638.2	1,600.0	14.0	-263.1	9 5/8" SURFACE CASING
1,703.2	1,659.0	15.4	-290.3	END OF TANGENT
1,943.0	1,872.3	21.2	-399.5	EOB TO 29.56° INC
5,843.0	5,264.7	123.3	-2,320.8	KOP (10°/100ft DGLG)
7,418.9	6,597.0	167.8	-3,161.3	START BUILD & TURN
7,996.3	6,864.0	178.8	-3,645.8	LANDING PNT - VT-LDS 4-16-18
20,287.3	6,864.0	256.5	-15,936.5	BHL - VT-LDS 4-16-18