

EXTRACTION OIL & GAS

WELD COUNTY, COLORADO (NAD 83)

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

VT-LDS C2-16-18

ORIGINAL WELLBORE

09 March, 2016

Plan: PROPOSAL #2

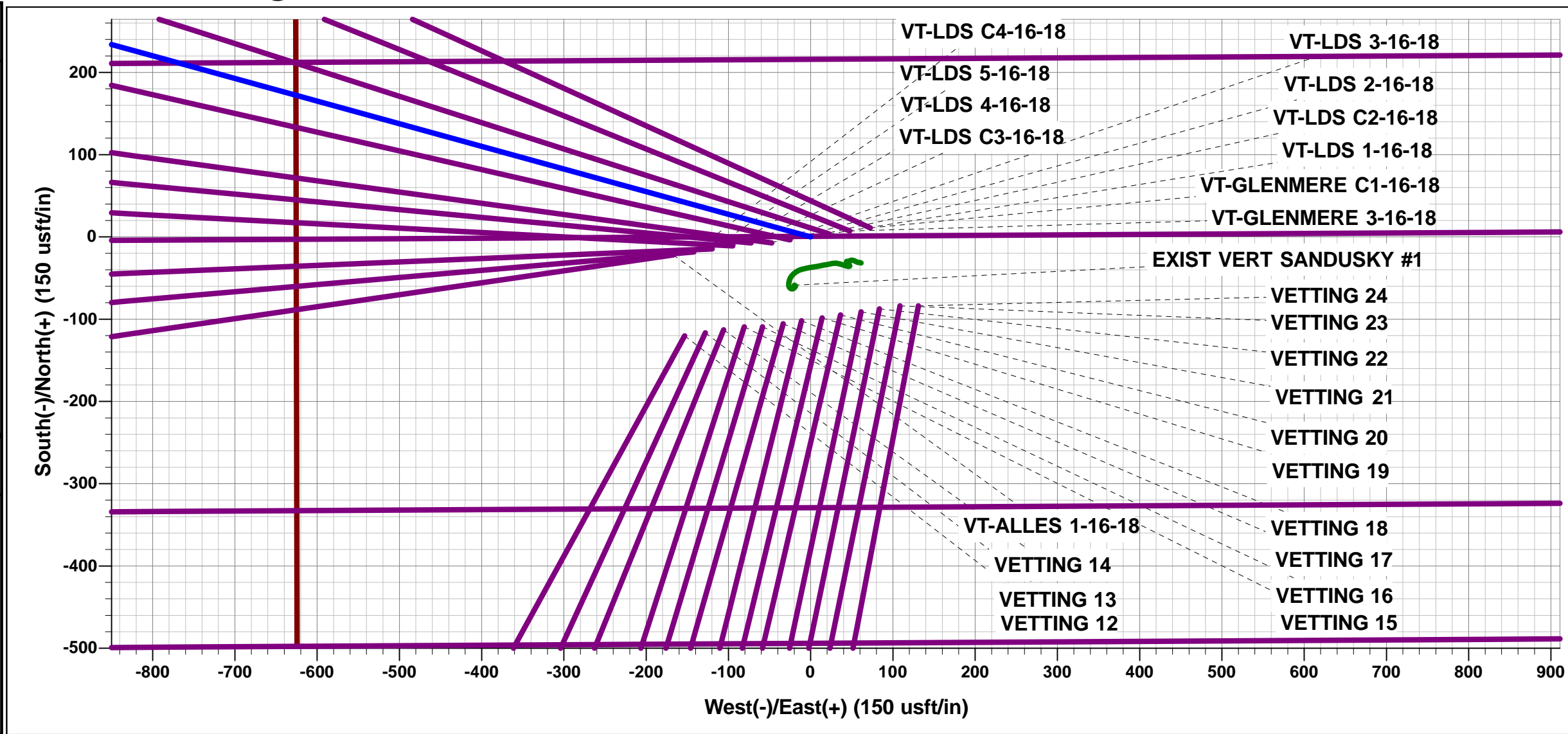




Project: WELD COUNTY, COLORADO (NAD 83)
Site: SW NW SEC. 15 T5N R65W 6th P.M.
Well: VT-LDS C2-16-18
Wellbore: ORIGINAL WELLBORE
Design: PROPOSAL #2

ANNOTATIONS										
TVD	MD	Inc	Azi	+N/-S	+E/-W	VSect	Dep	Annotation		
800.0	800.0	0.00	0.00	0.0	0.0	0.0	0.0	START NUDGE (2°/100ft BUR)		
1600.0	1610.8	16.22	285.38	30.2	-109.9	111.7	114.0	9 5/8" SURFACE CASING		
1662.4	1675.8	16.22	285.38	35.0	-127.4	129.5	132.1	END OF TANGENT		
2401.7	2490.0	32.50	285.38	123.8	-450.1	457.5	466.8	EOB TO 32.5° INC		
6684.8	7568.5	32.50	285.38	847.5	-3081.0	3131.5	3195.5	KOP (10°/100ft DGLG)		
6969.7	8032.1	59.22	285.38	942.7	-3426.9	3483.0	3554.2	START BUILD & TURN		
7059.0	8370.8	90.00	270.50	983.9	-3745.9	3804.1	3876.7	LANDING PNT - VT-LDS C2-16-18		
7059.0	20658.8	90.00	270.50	1090.9	-16033.5	16070.5	16164.7	BHL - VT-LDS C2-16-18		

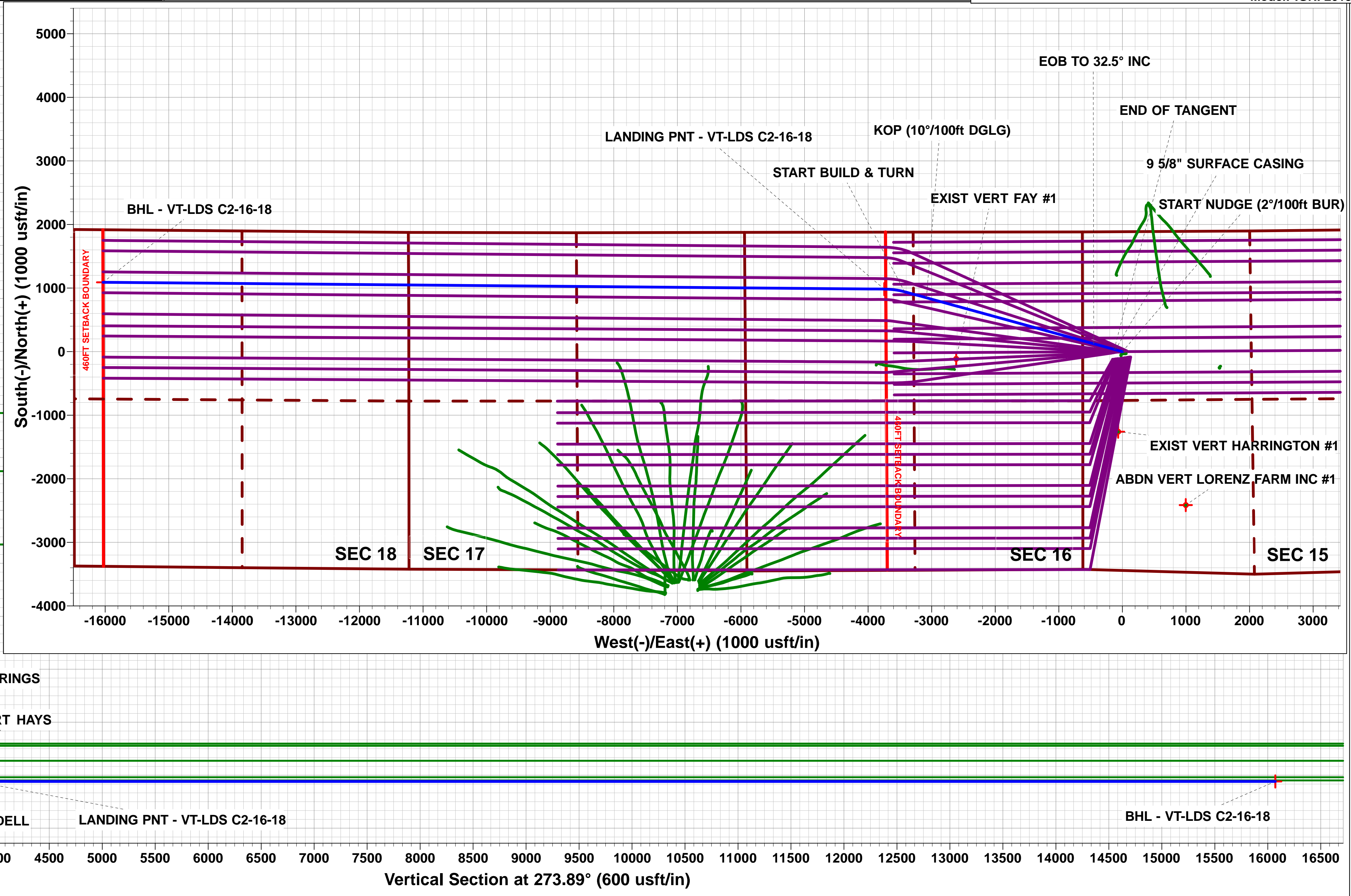
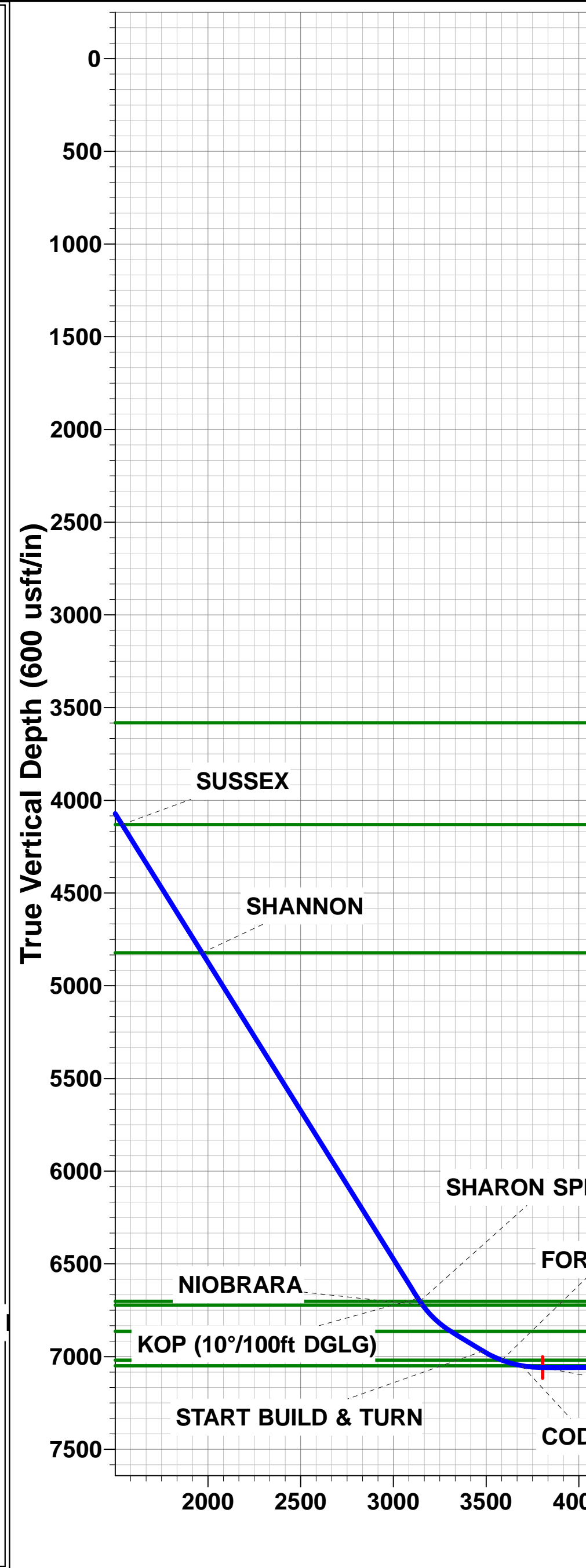
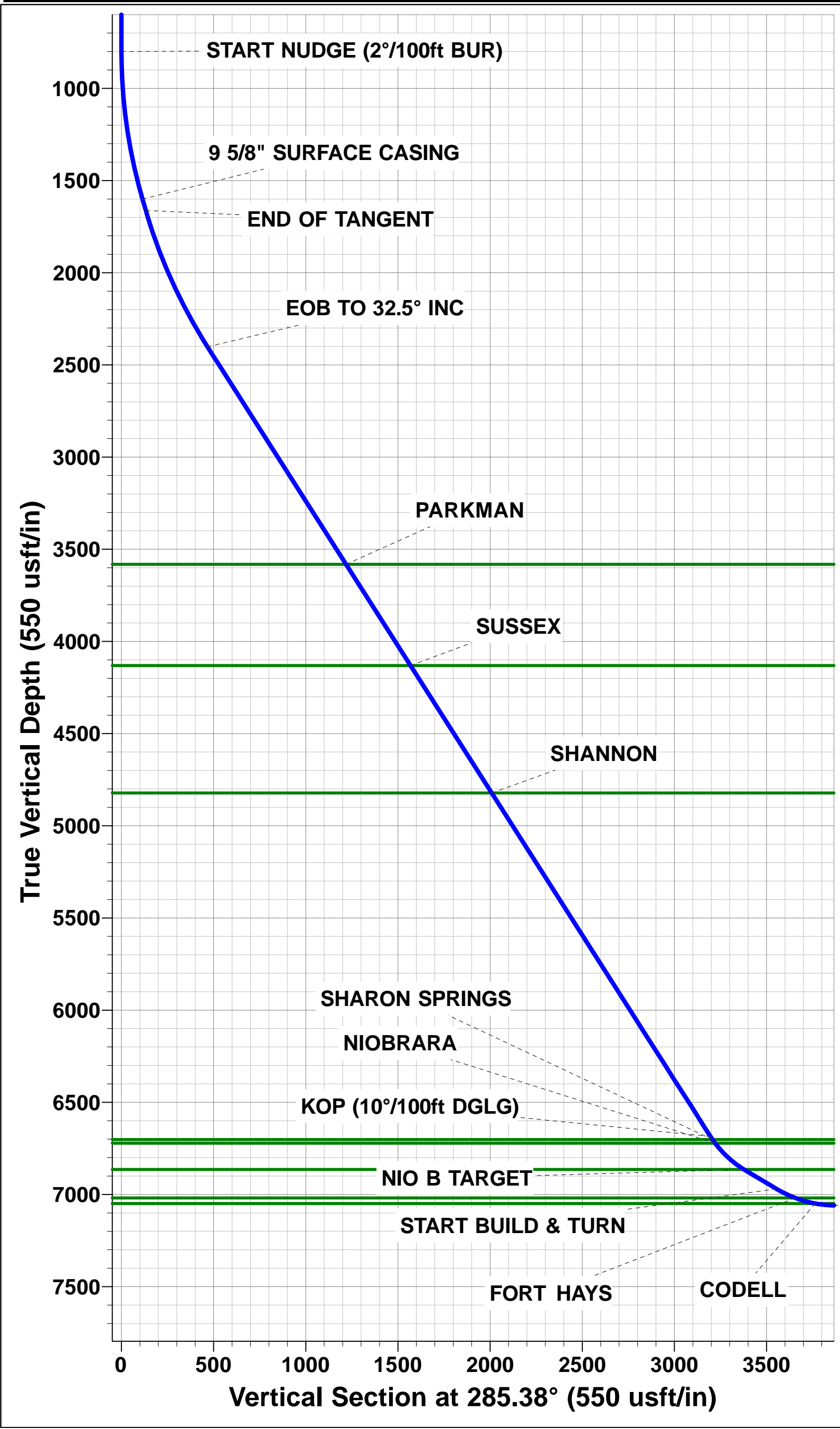
WELLBORE TARGET DETAILS (LAT/LONG)					
Name	TVD	+N/-S	+E/-W	Latitude	Longitude
LANDING PNT - VT-LDS C2-16-18	7059.0	983.9	-3745.9	40.404010	-104.670080
BHL - VT-LDS C2-16-18	7059.0	1090.9	-16033.5	40.404290	-104.714200



FORMATION TOP DETAILS		
TVDPath	MDPath	Formation
3582.0	3889.5	PARKMAN
4131.0	4540.5	SUSSEX
4822.0	5359.8	SHANNON
6702.0	7589.1	SHARON SPRINGS
6722.0	7613.8	NIOBRARA
6864.0	7825.6	NIO B TARGET
7019.0	8145.9	FORT HAYS
7049.0	8258.9	CODELL

PROPOSED LOCAL COORDINATES		
SHL: 1886ft FNL & 626ft FWL of Sec 15		
LP: 896ft FNL & 2192ft FWL of Sec 16		
BHL: 825ft FNL & 460ft FWL of Sec 18		

Compass rose showing True North (T) and Magnetic North (M).
Azimuths to True North: Magnetic North: 8.32°
Magnetic Field Strength: 52585.4snT
Dip Angle: 66.91°
Date: 20/11/2015
Model: IGRF2015



Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well VT-LDS C2-16-18
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 C2-16-18	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	Latitude:	40.400980
From:	Lat/Long	Easting:	3,234,727.17 usft	Longitude:	-104.657180
Position Uncertainty:	0.0 usft	Slot Radius:	1.10000ft	Grid Convergence:	0.54 °

Well	VT-LDS C2-16-18					
Well Position	+N/-S	120.2 usft	Northing:	1,390,154.56 usfi	Latitude:	40.401310
	+E/-W	153.2 usft	Easting:	3,234,879.20 usfi	Longitude:	-104.656630
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	20/11/2015	8.32	66.91	52,585

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	273.89

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	
800.0	0.00	0.00	800.0	-3,863.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,610.8	16.22	285.38	1,600.0	-3,063.0	30.2	-109.9	2.00	2.00	0.00	285.38	
1,675.8	16.22	285.38	1,662.4	-3,000.6	35.0	-127.4	0.00	0.00	0.00	0.00	
2,490.0	32.50	285.38	2,401.7	-2,261.3	123.8	-450.1	2.00	2.00	0.00	0.00	
7,568.5	32.50	285.38	6,684.8	2,021.8	847.5	-3,081.0	0.00	0.00	0.00	0.00	
7,835.7	59.22	285.38	6,869.2	2,206.2	897.9	-3,264.3	10.00	10.00	0.00	0.00	
8,032.1	59.22	285.38	6,969.7	2,306.7	942.7	-3,426.9	0.00	0.00	0.00	0.00	
8,370.8	90.00	270.50	7,059.0	2,396.0	983.9	-3,745.9	10.00	9.09	-4.39	-27.45	LANDING PNT - V1
20,658.8	90.00	270.50	7,059.0	2,396.0	1,090.9	-16,033.5	0.00	0.00	0.00	0.00	BHL - VT-LDS C2-1

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well VT-LDS C2-16-18
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 C2-16-18	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
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	0.00	0.00	500.0	4,163.00	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	4,063.00	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	3,963.00	0.0	0.0	0.0	0.00	0.00	0.00
START NUDGE (2°/100ft BUR)										
800.0	0.00	0.00	800.0	3,863.00	0.0	0.0	0.0	0.00	0.00	0.00
900.0	2.00	285.38	900.0	3,763.02	0.5	-1.7	1.7	2.00	2.00	0.00
1,000.0	4.00	285.38	999.8	3,663.16	1.9	-6.7	6.8	2.00	2.00	0.00
1,100.0	6.00	285.38	1,099.5	3,563.55	4.2	-15.1	15.4	2.00	2.00	0.00
1,200.0	8.00	285.38	1,198.7	3,464.30	7.4	-26.9	27.3	2.00	2.00	0.00
1,300.0	10.00	285.38	1,297.5	3,365.53	11.5	-42.0	42.7	2.00	2.00	0.00
1,400.0	12.00	285.38	1,395.6	3,267.38	16.6	-60.4	61.3	2.00	2.00	0.00
1,500.0	14.00	285.38	1,493.1	3,169.94	22.6	-82.0	83.4	2.00	2.00	0.00
1,600.0	16.00	285.38	1,589.6	3,073.36	29.4	-107.0	108.8	2.00	2.00	0.00
9 5/8" SURFACE CASING										
1,610.8	16.22	285.38	1,600.0	3,062.98	30.2	-109.9	111.7	2.00	2.00	0.00
END OF TANGENT										
1,675.8	16.22	285.38	1,662.4	3,000.57	35.0	-127.4	129.5	0.00	0.00	0.00
1,700.0	16.70	285.38	1,685.6	2,977.36	36.9	-134.0	136.2	2.00	2.00	0.00
1,800.0	18.70	285.38	1,780.9	2,882.10	44.9	-163.3	166.0	2.00	2.00	0.00
1,900.0	20.70	285.38	1,875.0	2,787.96	53.9	-195.8	199.0	2.00	2.00	0.00
2,000.0	22.70	285.38	1,968.0	2,695.05	63.7	-231.5	235.3	2.00	2.00	0.00
2,100.0	24.70	285.38	2,059.5	2,603.48	74.3	-270.2	274.6	2.00	2.00	0.00
2,200.0	26.70	285.38	2,149.6	2,513.38	85.8	-312.0	317.1	2.00	2.00	0.00
2,300.0	28.70	285.38	2,238.2	2,424.85	98.2	-356.8	362.7	2.00	2.00	0.00
2,400.0	30.70	285.38	2,325.0	2,337.99	111.3	-404.6	411.2	2.00	2.00	0.00
EOB TO 32.5° INC										
2,490.0	32.50	285.38	2,401.7	2,261.34	123.8	-450.1	457.5	2.00	2.00	0.00
2,500.0	32.50	285.38	2,410.1	2,252.90	125.2	-455.3	462.7	0.00	0.00	0.00
2,600.0	32.50	285.38	2,494.4	2,168.56	139.5	-507.1	515.4	0.00	0.00	0.00
2,700.0	32.50	285.38	2,578.8	2,084.22	153.7	-558.9	568.0	0.00	0.00	0.00
2,800.0	32.50	285.38	2,663.1	1,999.88	168.0	-610.7	620.7	0.00	0.00	0.00
2,900.0	32.50	285.38	2,747.5	1,915.55	182.2	-662.5	673.3	0.00	0.00	0.00
3,000.0	32.50	285.38	2,831.8	1,831.21	196.5	-714.3	726.0	0.00	0.00	0.00
3,100.0	32.50	285.38	2,916.1	1,746.87	210.7	-766.1	778.6	0.00	0.00	0.00
3,200.0	32.50	285.38	3,000.5	1,662.53	225.0	-817.9	831.3	0.00	0.00	0.00
3,300.0	32.50	285.38	3,084.8	1,578.19	239.2	-869.7	883.9	0.00	0.00	0.00
3,400.0	32.50	285.38	3,169.2	1,493.85	253.5	-921.5	936.6	0.00	0.00	0.00
3,500.0	32.50	285.38	3,253.5	1,409.51	267.7	-973.3	989.3	0.00	0.00	0.00
3,600.0	32.50	285.38	3,337.8	1,325.17	282.0	-1,025.1	1,041.9	0.00	0.00	0.00
3,700.0	32.50	285.38	3,422.2	1,240.83	296.2	-1,076.9	1,094.6	0.00	0.00	0.00
3,800.0	32.50	285.38	3,506.5	1,156.49	310.5	-1,128.7	1,147.2	0.00	0.00	0.00
PARKMAN										
3,889.5	32.50	285.38	3,582.0	1,081.00	323.2	-1,175.1	1,194.3	0.00	0.00	0.00
3,900.0	32.50	285.38	3,590.8	1,072.15	324.7	-1,180.5	1,199.9	0.00	0.00	0.00
4,000.0	32.50	285.38	3,675.2	987.81	339.0	-1,232.4	1,252.5	0.00	0.00	0.00
4,100.0	32.50	285.38	3,759.5	903.48	353.2	-1,284.2	1,305.2	0.00	0.00	0.00
4,200.0	32.50	285.38	3,843.9	819.14	367.5	-1,336.0	1,357.8	0.00	0.00	0.00
4,300.0	32.50	285.38	3,928.2	734.80	381.7	-1,387.8	1,410.5	0.00	0.00	0.00
4,400.0	32.50	285.38	4,012.5	650.46	396.0	-1,439.6	1,463.1	0.00	0.00	0.00

Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well VT-LDS C2-16-18
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 C2-16-18	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	32.50	285.38	4,096.9	566.12	410.2	-1,491.4	1,515.8	0.00	0.00	0.00
SUSSEX										
4,540.5	32.50	285.38	4,131.0	532.00	416.0	-1,512.3	1,537.1	0.00	0.00	0.00
4,600.0	32.50	285.38	4,181.2	481.78	424.5	-1,543.2	1,568.4	0.00	0.00	0.00
4,700.0	32.50	285.38	4,265.6	397.44	438.7	-1,595.0	1,621.1	0.00	0.00	0.00
4,800.0	32.50	285.38	4,349.9	313.10	453.0	-1,646.8	1,673.7	0.00	0.00	0.00
4,900.0	32.50	285.38	4,434.2	228.76	467.2	-1,698.6	1,726.4	0.00	0.00	0.00
5,000.0	32.50	285.38	4,518.6	144.42	481.5	-1,750.4	1,779.1	0.00	0.00	0.00
5,100.0	32.50	285.38	4,602.9	60.08	495.7	-1,802.2	1,831.7	0.00	0.00	0.00
5,200.0	32.50	285.38	4,687.3	-24.25	510.0	-1,854.0	1,884.4	0.00	0.00	0.00
5,300.0	32.50	285.38	4,771.6	-108.59	524.2	-1,905.8	1,937.0	0.00	0.00	0.00
SHANNON										
5,359.8	32.50	285.38	4,822.0	-159.00	532.8	-1,936.8	1,968.5	0.00	0.00	0.00
5,400.0	32.50	285.38	4,855.9	-192.93	538.5	-1,957.6	1,989.7	0.00	0.00	0.00
5,500.0	32.50	285.38	4,940.3	-277.27	552.7	-2,009.4	2,042.3	0.00	0.00	0.00
5,600.0	32.50	285.38	5,024.6	-361.61	567.0	-2,061.2	2,095.0	0.00	0.00	0.00
5,700.0	32.50	285.38	5,109.0	-445.95	581.2	-2,113.1	2,147.6	0.00	0.00	0.00
5,800.0	32.50	285.38	5,193.3	-530.29	595.5	-2,164.9	2,200.3	0.00	0.00	0.00
5,900.0	32.50	285.38	5,277.6	-614.63	609.7	-2,216.7	2,252.9	0.00	0.00	0.00
6,000.0	32.50	285.38	5,362.0	-698.97	624.0	-2,268.5	2,305.6	0.00	0.00	0.00
6,100.0	32.50	285.38	5,446.3	-783.31	638.2	-2,320.3	2,358.2	0.00	0.00	0.00
6,200.0	32.50	285.38	5,530.6	-867.65	652.5	-2,372.1	2,410.9	0.00	0.00	0.00
6,300.0	32.50	285.38	5,615.0	-951.99	666.7	-2,423.9	2,463.6	0.00	0.00	0.00
6,400.0	32.50	285.38	5,699.3	-1,036.32	681.0	-2,475.7	2,516.2	0.00	0.00	0.00
6,500.0	32.50	285.38	5,783.7	-1,120.66	695.2	-2,527.5	2,568.9	0.00	0.00	0.00
6,600.0	32.50	285.38	5,868.0	-1,205.00	709.5	-2,579.3	2,621.5	0.00	0.00	0.00
6,700.0	32.50	285.38	5,952.3	-1,289.34	723.7	-2,631.1	2,674.2	0.00	0.00	0.00
6,800.0	32.50	285.38	6,036.7	-1,373.68	738.0	-2,682.9	2,726.8	0.00	0.00	0.00
6,900.0	32.50	285.38	6,121.0	-1,458.02	752.2	-2,734.7	2,779.5	0.00	0.00	0.00
7,000.0	32.50	285.38	6,205.4	-1,542.36	766.5	-2,786.5	2,832.1	0.00	0.00	0.00
7,100.0	32.50	285.38	6,289.7	-1,626.70	780.7	-2,838.3	2,884.8	0.00	0.00	0.00
7,200.0	32.50	285.38	6,374.0	-1,711.04	795.0	-2,890.1	2,937.4	0.00	0.00	0.00
7,300.0	32.50	285.38	6,458.4	-1,795.38	809.2	-2,941.9	2,990.1	0.00	0.00	0.00
7,400.0	32.50	285.38	6,542.7	-1,879.72	823.5	-2,993.7	3,042.7	0.00	0.00	0.00
7,500.0	32.50	285.38	6,627.1	-1,964.06	837.7	-3,045.6	3,095.4	0.00	0.00	0.00
KOP (10°/100ft DGLG)										
7,568.5	32.50	285.38	6,684.8	-2,021.83	847.5	-3,081.0	3,131.5	0.00	0.00	0.00
SHARON SPRINGS										
7,589.1	34.56	285.38	6,702.0	-2,039.00	850.5	-3,092.0	3,142.6	10.00	10.00	0.00
7,600.0	35.65	285.38	6,710.9	-2,047.92	852.2	-3,098.1	3,148.8	10.00	10.00	0.00
NIOBRARA										
7,613.8	37.03	285.38	6,722.0	-2,059.00	854.3	-3,105.9	3,156.7	10.00	10.00	0.00
7,700.0	45.65	285.38	6,786.7	-2,123.69	869.4	-3,160.8	3,212.5	10.00	10.00	0.00
7,800.0	55.65	285.38	6,850.0	-2,187.02	889.9	-3,235.3	3,288.2	10.00	10.00	0.00
NIO B TARGET										
7,825.6	58.21	285.38	6,864.0	-2,201.00	895.6	-3,256.0	3,309.2	10.00	10.00	0.00
7,835.7	59.22	285.38	6,869.2	-2,206.24	897.9	-3,264.3	3,317.7	10.00	10.00	0.00
7,900.0	59.22	285.38	6,902.1	-2,239.13	912.6	-3,317.5	3,371.8	0.00	0.00	0.00
8,000.0	59.22	285.38	6,953.3	-2,290.31	935.3	-3,400.4	3,456.0	0.00	0.00	0.00
START BUILD & TURN										
8,032.1	59.22	285.38	6,969.7	-2,306.73	942.7	-3,426.9	3,483.0	0.00	0.00	0.00
8,100.0	65.29	281.94	7,001.3	-2,338.33	956.8	-3,485.3	3,542.2	10.00	8.94	-5.07
FORT HAYS										

Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well VT-LDS C2-16-18
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 C2-16-18	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)
8,145.9	69.44	279.81	7,019.0	-2,356.00	964.8	-3,526.9	3,584.3	10.00	9.03	-4.65
8,200.0	74.36	277.43	7,035.8	-2,372.80	972.5	-3,577.7	3,635.5	10.00	9.09	-4.39
CODELL										
8,258.9	79.74	274.98	7,049.0	-2,386.00	978.7	-3,634.8	3,692.8	10.00	9.14	-4.17
8,300.0	83.50	273.31	7,055.0	-2,391.99	981.6	-3,675.3	3,733.5	10.00	9.16	-4.05
LANDING PNT - VT-LDS C2-16-18										
8,370.8	90.00	270.50	7,059.0	-2,396.00	983.9	-3,745.9	3,804.1	10.00	9.18	-3.98
8,400.0	90.00	270.50	7,059.0	-2,396.00	984.2	-3,775.1	3,833.2	0.00	0.00	0.00
8,500.0	90.00	270.50	7,059.0	-2,396.00	985.1	-3,875.1	3,933.0	0.00	0.00	0.00
8,600.0	90.00	270.50	7,059.0	-2,396.00	985.9	-3,975.1	4,032.9	0.00	0.00	0.00
8,700.0	90.00	270.50	7,059.0	-2,396.00	986.8	-4,075.1	4,132.7	0.00	0.00	0.00
8,800.0	90.00	270.50	7,059.0	-2,396.00	987.7	-4,175.1	4,232.5	0.00	0.00	0.00
8,900.0	90.00	270.50	7,059.0	-2,396.00	988.5	-4,275.1	4,332.3	0.00	0.00	0.00
9,000.0	90.00	270.50	7,059.0	-2,396.00	989.4	-4,375.1	4,432.2	0.00	0.00	0.00
9,100.0	90.00	270.50	7,059.0	-2,396.00	990.3	-4,475.1	4,532.0	0.00	0.00	0.00
9,200.0	90.00	270.50	7,059.0	-2,396.00	991.2	-4,575.1	4,631.8	0.00	0.00	0.00
9,300.0	90.00	270.50	7,059.0	-2,396.00	992.0	-4,675.1	4,731.6	0.00	0.00	0.00
9,400.0	90.00	270.50	7,059.0	-2,396.00	992.9	-4,775.1	4,831.5	0.00	0.00	0.00
9,500.0	90.00	270.50	7,059.0	-2,396.00	993.8	-4,875.1	4,931.3	0.00	0.00	0.00
9,600.0	90.00	270.50	7,059.0	-2,396.00	994.6	-4,975.1	5,031.1	0.00	0.00	0.00
9,700.0	90.00	270.50	7,059.0	-2,396.00	995.5	-5,075.1	5,130.9	0.00	0.00	0.00
9,800.0	90.00	270.50	7,059.0	-2,396.00	996.4	-5,175.1	5,230.8	0.00	0.00	0.00
9,900.0	90.00	270.50	7,059.0	-2,396.00	997.2	-5,275.1	5,330.6	0.00	0.00	0.00
10,000.0	90.00	270.50	7,059.0	-2,396.00	998.1	-5,375.1	5,430.4	0.00	0.00	0.00
10,100.0	90.00	270.50	7,059.0	-2,396.00	999.0	-5,475.1	5,530.2	0.00	0.00	0.00
10,200.0	90.00	270.50	7,059.0	-2,396.00	999.9	-5,575.0	5,630.1	0.00	0.00	0.00
10,300.0	90.00	270.50	7,059.0	-2,396.00	1,000.7	-5,675.0	5,729.9	0.00	0.00	0.00
10,400.0	90.00	270.50	7,059.0	-2,396.00	1,001.6	-5,775.0	5,829.7	0.00	0.00	0.00
10,500.0	90.00	270.50	7,059.0	-2,396.00	1,002.5	-5,875.0	5,929.5	0.00	0.00	0.00
10,600.0	90.00	270.50	7,059.0	-2,396.00	1,003.3	-5,975.0	6,029.4	0.00	0.00	0.00
10,700.0	90.00	270.50	7,059.0	-2,396.00	1,004.2	-6,075.0	6,129.2	0.00	0.00	0.00
10,800.0	90.00	270.50	7,059.0	-2,396.00	1,005.1	-6,175.0	6,229.0	0.00	0.00	0.00
10,900.0	90.00	270.50	7,059.0	-2,396.00	1,005.9	-6,275.0	6,328.8	0.00	0.00	0.00
11,000.0	90.00	270.50	7,059.0	-2,396.00	1,006.8	-6,375.0	6,428.7	0.00	0.00	0.00
11,100.0	90.00	270.50	7,059.0	-2,396.00	1,007.7	-6,475.0	6,528.5	0.00	0.00	0.00
11,200.0	90.00	270.50	7,059.0	-2,396.00	1,008.6	-6,575.0	6,628.3	0.00	0.00	0.00
11,300.0	90.00	270.50	7,059.0	-2,396.00	1,009.4	-6,675.0	6,728.1	0.00	0.00	0.00
11,400.0	90.00	270.50	7,059.0	-2,396.00	1,010.3	-6,775.0	6,828.0	0.00	0.00	0.00
11,500.0	90.00	270.50	7,059.0	-2,396.00	1,011.2	-6,875.0	6,927.8	0.00	0.00	0.00
11,600.0	90.00	270.50	7,059.0	-2,396.00	1,012.0	-6,975.0	7,027.6	0.00	0.00	0.00
11,700.0	90.00	270.50	7,059.0	-2,396.00	1,012.9	-7,075.0	7,127.4	0.00	0.00	0.00
11,800.0	90.00	270.50	7,059.0	-2,396.00	1,013.8	-7,175.0	7,227.3	0.00	0.00	0.00
11,900.0	90.00	270.50	7,059.0	-2,396.00	1,014.6	-7,275.0	7,327.1	0.00	0.00	0.00
12,000.0	90.00	270.50	7,059.0	-2,396.00	1,015.5	-7,375.0	7,426.9	0.00	0.00	0.00
12,100.0	90.00	270.50	7,059.0	-2,396.00	1,016.4	-7,475.0	7,526.7	0.00	0.00	0.00
12,200.0	90.00	270.50	7,059.0	-2,396.00	1,017.3	-7,575.0	7,626.6	0.00	0.00	0.00
12,300.0	90.00	270.50	7,059.0	-2,396.00	1,018.1	-7,675.0	7,726.4	0.00	0.00	0.00
12,400.0	90.00	270.50	7,059.0	-2,396.00	1,019.0	-7,775.0	7,826.2	0.00	0.00	0.00
12,500.0	90.00	270.50	7,059.0	-2,396.00	1,019.9	-7,875.0	7,926.0	0.00	0.00	0.00
12,600.0	90.00	270.50	7,059.0	-2,396.00	1,020.7	-7,975.0	8,025.9	0.00	0.00	0.00
12,700.0	90.00	270.50	7,059.0	-2,396.00	1,021.6	-8,075.0	8,125.7	0.00	0.00	0.00
12,800.0	90.00	270.50	7,059.0	-2,396.00	1,022.5	-8,175.0	8,225.5	0.00	0.00	0.00
12,900.0	90.00	270.50	7,059.0	-2,396.00	1,023.3	-8,274.9	8,325.3	0.00	0.00	0.00

Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well VT-LDS C2-16-18
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 C2-16-18	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)
13,000.0	90.00	270.50	7,059.0	-2,396.00	1,024.2	-8,374.9	8,425.2	0.00	0.00	0.00
13,100.0	90.00	270.50	7,059.0	-2,396.00	1,025.1	-8,474.9	8,525.0	0.00	0.00	0.00
13,200.0	90.00	270.50	7,059.0	-2,396.00	1,026.0	-8,574.9	8,624.8	0.00	0.00	0.00
13,300.0	90.00	270.50	7,059.0	-2,396.00	1,026.8	-8,674.9	8,724.6	0.00	0.00	0.00
13,400.0	90.00	270.50	7,059.0	-2,396.00	1,027.7	-8,774.9	8,824.4	0.00	0.00	0.00
13,500.0	90.00	270.50	7,059.0	-2,396.00	1,028.6	-8,874.9	8,924.3	0.00	0.00	0.00
13,600.0	90.00	270.50	7,059.0	-2,396.00	1,029.4	-8,974.9	9,024.1	0.00	0.00	0.00
13,700.0	90.00	270.50	7,059.0	-2,396.00	1,030.3	-9,074.9	9,123.9	0.00	0.00	0.00
13,800.0	90.00	270.50	7,059.0	-2,396.00	1,031.2	-9,174.9	9,223.7	0.00	0.00	0.00
13,900.0	90.00	270.50	7,059.0	-2,396.00	1,032.1	-9,274.9	9,323.6	0.00	0.00	0.00
14,000.0	90.00	270.50	7,059.0	-2,396.00	1,032.9	-9,374.9	9,423.4	0.00	0.00	0.00
14,100.0	90.00	270.50	7,059.0	-2,396.00	1,033.8	-9,474.9	9,523.2	0.00	0.00	0.00
14,200.0	90.00	270.50	7,059.0	-2,396.00	1,034.7	-9,574.9	9,623.0	0.00	0.00	0.00
14,300.0	90.00	270.50	7,059.0	-2,396.00	1,035.5	-9,674.9	9,722.9	0.00	0.00	0.00
14,400.0	90.00	270.50	7,059.0	-2,396.00	1,036.4	-9,774.9	9,822.7	0.00	0.00	0.00
14,500.0	90.00	270.50	7,059.0	-2,396.00	1,037.3	-9,874.9	9,922.5	0.00	0.00	0.00
14,600.0	90.00	270.50	7,059.0	-2,396.00	1,038.1	-9,974.9	10,022.3	0.00	0.00	0.00
14,700.0	90.00	270.50	7,059.0	-2,396.00	1,039.0	-10,074.9	10,122.2	0.00	0.00	0.00
14,800.0	90.00	270.50	7,059.0	-2,396.00	1,039.9	-10,174.9	10,222.0	0.00	0.00	0.00
14,900.0	90.00	270.50	7,059.0	-2,396.00	1,040.8	-10,274.9	10,321.8	0.00	0.00	0.00
15,000.0	90.00	270.50	7,059.0	-2,396.00	1,041.6	-10,374.9	10,421.6	0.00	0.00	0.00
15,100.0	90.00	270.50	7,059.0	-2,396.00	1,042.5	-10,474.9	10,521.5	0.00	0.00	0.00
15,200.0	90.00	270.50	7,059.0	-2,396.00	1,043.4	-10,574.9	10,621.3	0.00	0.00	0.00
15,300.0	90.00	270.50	7,059.0	-2,396.00	1,044.2	-10,674.9	10,721.1	0.00	0.00	0.00
15,400.0	90.00	270.50	7,059.0	-2,396.00	1,045.1	-10,774.9	10,820.9	0.00	0.00	0.00
15,500.0	90.00	270.50	7,059.0	-2,396.00	1,046.0	-10,874.8	10,920.8	0.00	0.00	0.00
15,600.0	90.00	270.50	7,059.0	-2,396.00	1,046.8	-10,974.8	11,020.6	0.00	0.00	0.00
15,700.0	90.00	270.50	7,059.0	-2,396.00	1,047.7	-11,074.8	11,120.4	0.00	0.00	0.00
15,800.0	90.00	270.50	7,059.0	-2,396.00	1,048.6	-11,174.8	11,220.2	0.00	0.00	0.00
15,900.0	90.00	270.50	7,059.0	-2,396.00	1,049.5	-11,274.8	11,320.1	0.00	0.00	0.00
16,000.0	90.00	270.50	7,059.0	-2,396.00	1,050.3	-11,374.8	11,419.9	0.00	0.00	0.00
16,100.0	90.00	270.50	7,059.0	-2,396.00	1,051.2	-11,474.8	11,519.7	0.00	0.00	0.00
16,200.0	90.00	270.50	7,059.0	-2,396.00	1,052.1	-11,574.8	11,619.5	0.00	0.00	0.00
16,300.0	90.00	270.50	7,059.0	-2,396.00	1,052.9	-11,674.8	11,719.4	0.00	0.00	0.00
16,400.0	90.00	270.50	7,059.0	-2,396.00	1,053.8	-11,774.8	11,819.2	0.00	0.00	0.00
16,500.0	90.00	270.50	7,059.0	-2,396.00	1,054.7	-11,874.8	11,919.0	0.00	0.00	0.00
16,600.0	90.00	270.50	7,059.0	-2,396.00	1,055.5	-11,974.8	12,018.8	0.00	0.00	0.00
16,700.0	90.00	270.50	7,059.0	-2,396.00	1,056.4	-12,074.8	12,118.7	0.00	0.00	0.00
16,800.0	90.00	270.50	7,059.0	-2,396.00	1,057.3	-12,174.8	12,218.5	0.00	0.00	0.00
16,900.0	90.00	270.50	7,059.0	-2,396.00	1,058.2	-12,274.8	12,318.3	0.00	0.00	0.00
17,000.0	90.00	270.50	7,059.0	-2,396.00	1,059.0	-12,374.8	12,418.1	0.00	0.00	0.00
17,100.0	90.00	270.50	7,059.0	-2,396.00	1,059.9	-12,474.8	12,518.0	0.00	0.00	0.00
17,200.0	90.00	270.50	7,059.0	-2,396.00	1,060.8	-12,574.8	12,617.8	0.00	0.00	0.00
17,300.0	90.00	270.50	7,059.0	-2,396.00	1,061.6	-12,674.8	12,717.6	0.00	0.00	0.00
17,400.0	90.00	270.50	7,059.0	-2,396.00	1,062.5	-12,774.8	12,817.4	0.00	0.00	0.00
17,500.0	90.00	270.50	7,059.0	-2,396.00	1,063.4	-12,874.8	12,917.3	0.00	0.00	0.00
17,600.0	90.00	270.50	7,059.0	-2,396.00	1,064.2	-12,974.8	13,017.1	0.00	0.00	0.00
17,700.0	90.00	270.50	7,059.0	-2,396.00	1,065.1	-13,074.8	13,116.9	0.00	0.00	0.00
17,800.0	90.00	270.50	7,059.0	-2,396.00	1,066.0	-13,174.8	13,216.7	0.00	0.00	0.00
17,900.0	90.00	270.50	7,059.0	-2,396.00	1,066.9	-13,274.8	13,316.6	0.00	0.00	0.00
18,000.0	90.00	270.50	7,059.0	-2,396.00	1,067.7	-13,374.8	13,416.4	0.00	0.00	0.00
18,100.0	90.00	270.50	7,059.0	-2,396.00	1,068.6	-13,474.8	13,516.2	0.00	0.00	0.00
18,200.0	90.00	270.50	7,059.0	-2,396.00	1,069.5	-13,574.7	13,616.0	0.00	0.00	0.00
18,300.0	90.00	270.50	7,059.0	-2,396.00	1,070.3	-13,674.7	13,715.9	0.00	0.00	0.00

Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well VT-LDS C2-16-18
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 C2-16-18	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)
18,400.0	90.00	270.50	7,059.0	-2,396.00	1,071.2	-13,774.7	13,815.7	0.00	0.00	0.00
18,500.0	90.00	270.50	7,059.0	-2,396.00	1,072.1	-13,874.7	13,915.5	0.00	0.00	0.00
18,600.0	90.00	270.50	7,059.0	-2,396.00	1,073.0	-13,974.7	14,015.3	0.00	0.00	0.00
18,700.0	90.00	270.50	7,059.0	-2,396.00	1,073.8	-14,074.7	14,115.2	0.00	0.00	0.00
18,800.0	90.00	270.50	7,059.0	-2,396.00	1,074.7	-14,174.7	14,215.0	0.00	0.00	0.00
18,900.0	90.00	270.50	7,059.0	-2,396.00	1,075.6	-14,274.7	14,314.8	0.00	0.00	0.00
19,000.0	90.00	270.50	7,059.0	-2,396.00	1,076.4	-14,374.7	14,414.6	0.00	0.00	0.00
19,100.0	90.00	270.50	7,059.0	-2,396.00	1,077.3	-14,474.7	14,514.5	0.00	0.00	0.00
19,200.0	90.00	270.50	7,059.0	-2,396.00	1,078.2	-14,574.7	14,614.3	0.00	0.00	0.00
19,300.0	90.00	270.50	7,059.0	-2,396.00	1,079.0	-14,674.7	14,714.1	0.00	0.00	0.00
19,400.0	90.00	270.50	7,059.0	-2,396.00	1,079.9	-14,774.7	14,813.9	0.00	0.00	0.00
19,500.0	90.00	270.50	7,059.0	-2,396.00	1,080.8	-14,874.7	14,913.8	0.00	0.00	0.00
19,600.0	90.00	270.50	7,059.0	-2,396.00	1,081.7	-14,974.7	15,013.6	0.00	0.00	0.00
19,700.0	90.00	270.50	7,059.0	-2,396.00	1,082.5	-15,074.7	15,113.4	0.00	0.00	0.00
19,800.0	90.00	270.50	7,059.0	-2,396.00	1,083.4	-15,174.7	15,213.2	0.00	0.00	0.00
19,900.0	90.00	270.50	7,059.0	-2,396.00	1,084.3	-15,274.7	15,313.1	0.00	0.00	0.00
20,000.0	90.00	270.50	7,059.0	-2,396.00	1,085.1	-15,374.7	15,412.9	0.00	0.00	0.00
20,100.0	90.00	270.50	7,059.0	-2,396.00	1,086.0	-15,474.7	15,512.7	0.00	0.00	0.00
20,200.0	90.00	270.50	7,059.0	-2,396.00	1,086.9	-15,574.7	15,612.5	0.00	0.00	0.00
20,300.0	90.00	270.50	7,059.0	-2,396.00	1,087.7	-15,674.7	15,712.3	0.00	0.00	0.00
20,400.0	90.00	270.50	7,059.0	-2,396.00	1,088.6	-15,774.7	15,812.2	0.00	0.00	0.00
20,500.0	90.00	270.50	7,059.0	-2,396.00	1,089.5	-15,874.7	15,912.0	0.00	0.00	0.00
20,600.0	90.00	270.50	7,059.0	-2,396.00	1,090.4	-15,974.7	16,011.8	0.00	0.00	0.00
BHL - VT-LDS C2-16-18										
20,658.8	90.00	270.50	7,059.0	-2,396.00	1,090.9	-16,033.5	16,070.5	0.00	0.00	0.00

Formations						
MD (usft)	TVD (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
3,889.5	3,582.0	PARKMAN				
4,540.5	4,131.0	SUSSEX				
5,359.8	4,822.0	SHANNON				
7,589.1	6,702.0	SHARON SPRINGS				
7,613.8	6,722.0	NIOBRARA				
7,825.6	6,864.0	NIO B TARGET				
8,145.9	7,019.0	FORT HAYS				
8,258.9	7,049.0	CODELL				

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well VT-LDS C2-16-18
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 C2-16-18	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL #2		

Plan Annotations

MD (usft)	TVD (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
800.0	800.0	0.0	0.0	START NUDGE (2°/100ft BUR)
1,610.8	1,600.0	30.2	-109.9	9 5/8" SURFACE CASING
1,675.8	1,662.4	35.0	-127.4	END OF TANGENT
2,490.0	2,401.7	123.8	-450.1	EOB TO 32.5° INC
7,568.5	6,684.8	847.5	-3,081.0	KOP (10°/100ft DGLG)
8,032.1	6,969.7	942.7	-3,426.9	START BUILD & TURN
8,370.8	7,059.0	983.9	-3,745.9	LANDING PNT - VT-LDS C2-16-18
20,658.8	7,059.0	1,090.9	-16,033.5	BHL - VT-LDS C2-16-18