

EXTRACTION OIL & GAS

WELD COUNTY, COLORADO (NAD 83)

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

VT-LDS C3-16-18

ORIGINAL WELLBORE

09 March, 2016

Plan: PROPOSAL #2

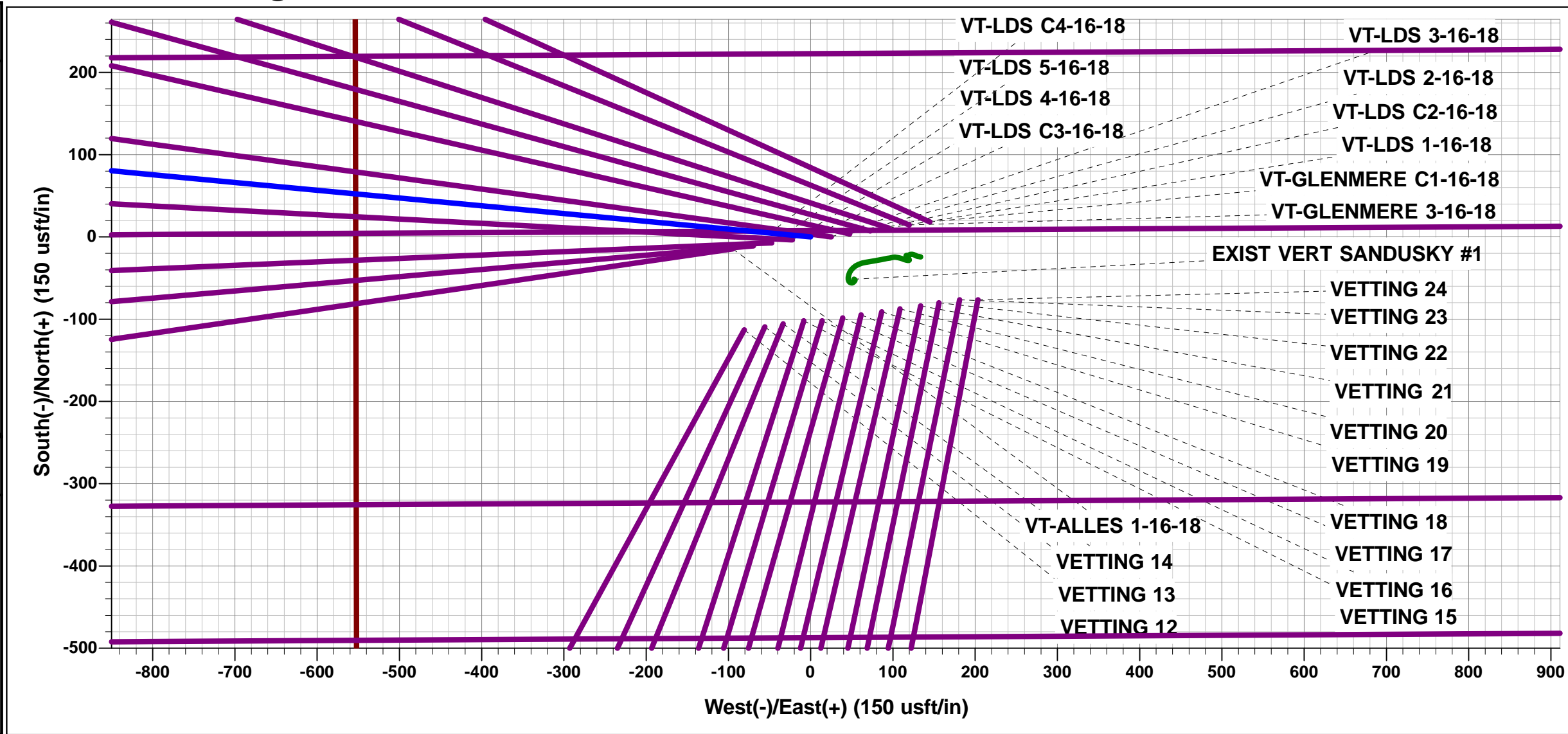




Project: WELD COUNTY, COLORADO (NAD 83)
Site: SW NW SEC. 15 T5N R65W 6th P.M.
Well: VT-LDS C3-16-18
Wellbore: ORIGINAL WELLBORE
Design: PROPOSAL #2

ANNOTATIONS									
TVD	MD	Inc	Azi	+N/-S	+E/-W	VSect	Dep	Annotation	
500.0	500.0	0.00	0.00	0.0	0.0	0.0	0.0	START NUDGE (2°/100ft BUR)	
1600.0	1629.0	22.58	275.40	20.7	-218.6	219.1	219.6	9 5/8" SURFACE CASING	
1660.0	1694.0	22.58	275.40	23.0	-243.5	244.0	244.6	END OF TANGENT	
1965.0	2033.5	29.37	275.40	37.0	-391.4	392.2	393.2	EOB TO 29.37° INC	
6712.4	7481.0	29.37	275.40	288.4	-3051.3	3057.7	3064.9	KOP (10°/100ft BUR)	
7005.0	7964.6	64.71	275.40	323.5	-3421.9	3429.1	3437.2	START BUILD & TURN	
7061.0	8222.2	90.00	270.36	335.4	-3670.8	3678.3	3686.5	LANDING POINT - VT-LDS C3-16-18	
7061.0	20510.3	90.00	270.36	413.2	-15958.7	15964.0	15974.6	BHL - VT-LDS C3-16-18	

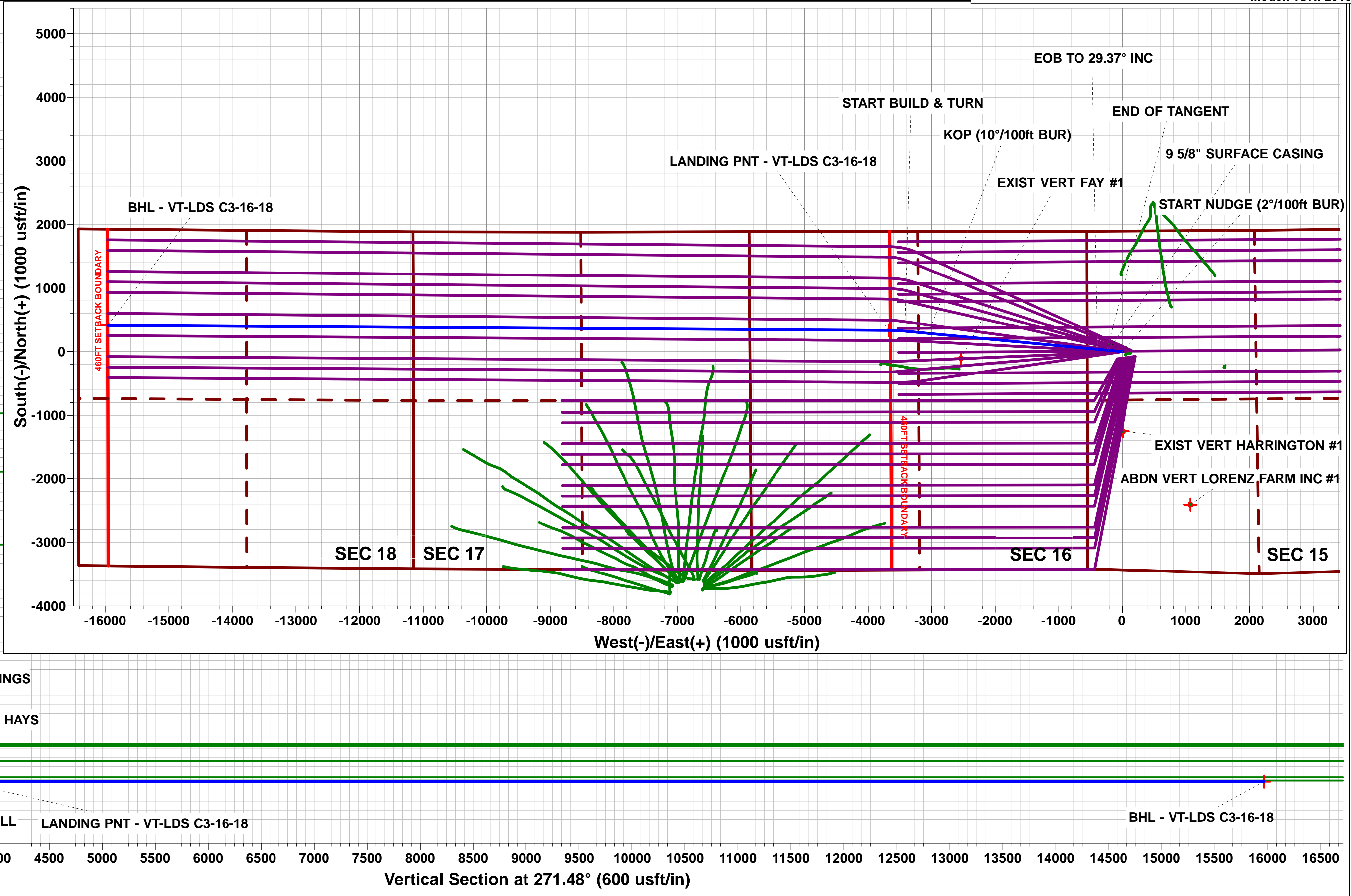
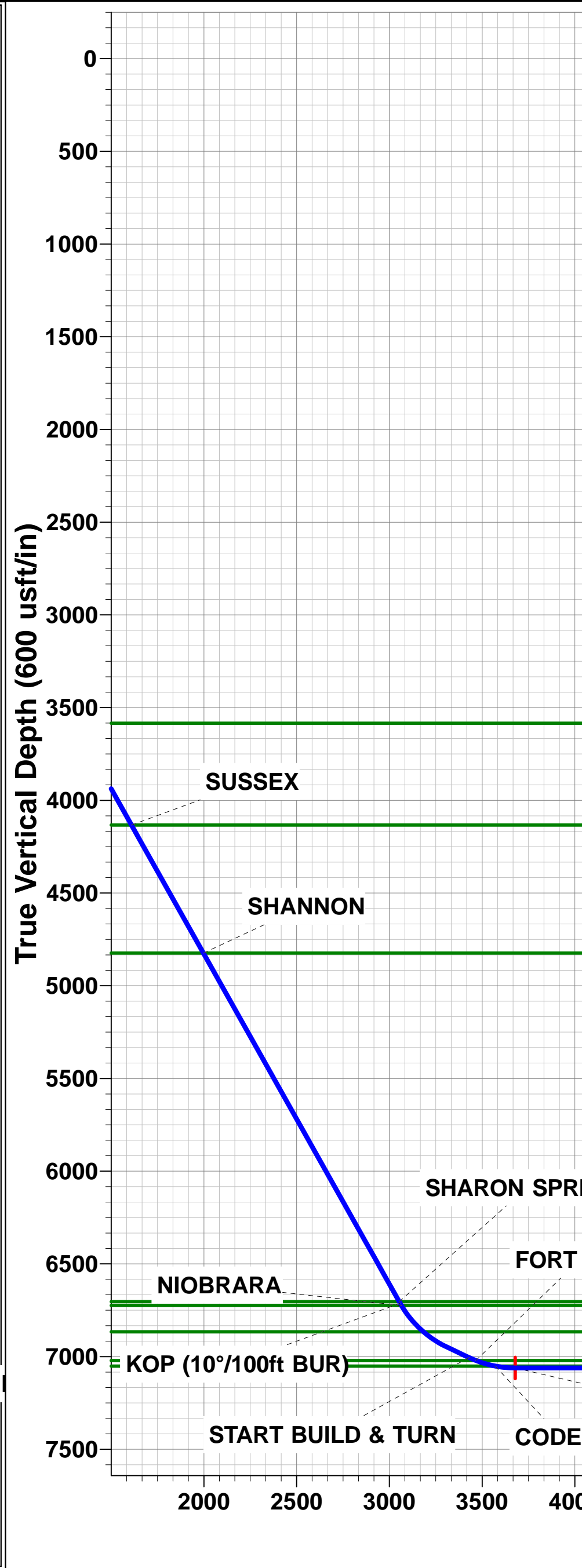
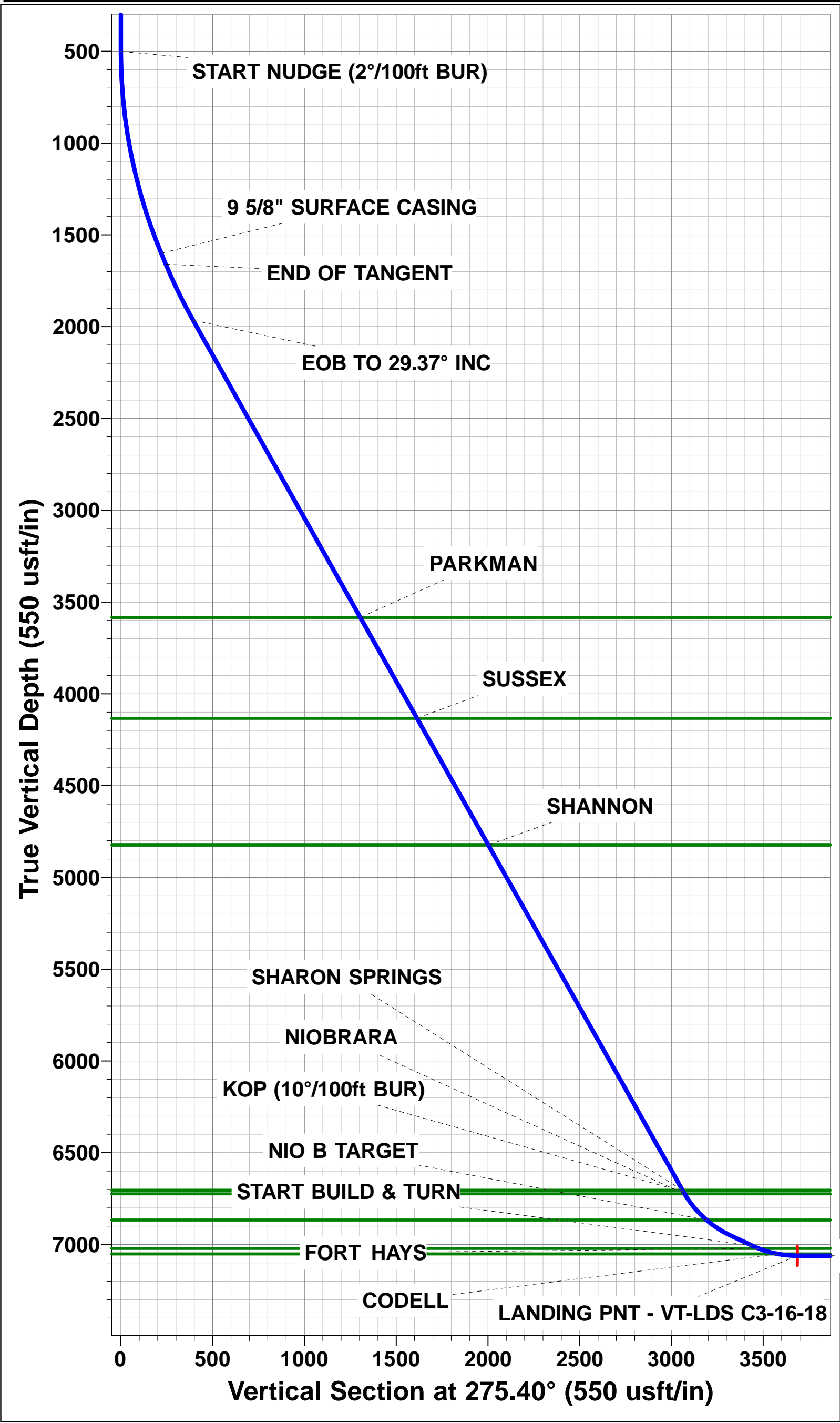
WELLBORE TARGET DETAILS (LAT/LONG)					
Name	TVD	+N/-S	+E/-W	Latitude	Longitude
LANDING PNT - VT-LDS C3-16-18	7061.0	335.4	-3670.8	40.402210	-104.670070
BHL - VT-LDS C3-16-18	7061.0	413.2	-15958.7	40.402410	-104.714190



FORMATION TOP DETAILS		
TVDPath	MDPath	Formation
3584.0	3891.2	PARKMAN
4133.0	4521.2	SUSSEX
4824.0	5314.1	SHANNON
6704.0	7471.4	SHARON SPRINGS
6724.0	7494.4	NIOBRARA
6866.0	7680.7	NIO B TARGET
7021.0	8004.9	FORT HAYS
7051.0	8114.0	CODELL

PROPOSED LOCAL COORDINATES		
SHL: 1895ft FNL & 554ft FWL of Sec 15		
LP: 1552ft FNL & 2190ft FWL of Sec 16		
BHL: 1512ft FNL & 460ft FWL of Sec 18		

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 C3-16-18
Company:	EXTRACTION OIL & GAS	TVD Reference:	KB-EST @ 4664.0usft
Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB-EST @ 4664.0usft
Site:	SW NW SEC. 15 T5N R65W 6th P.M.	North Reference:	True
Well:	VT-LDS C3-16-18	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 C3-16-18		
Well Position	+N/-S	112.9 usft	Northing:
	+E/-W	80.8 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	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	271.48

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	-4,664.0	0.0	0.0	0.00	0.00	0.00	0.00	
500.0	0.00	0.00	500.0	-4,164.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,629.0	22.58	275.40	1,600.0	-3,064.0	20.7	-218.6	2.00	2.00	0.00	275.40	
1,694.0	22.58	275.40	1,660.0	-3,004.0	23.0	-243.5	0.00	0.00	0.00	0.00	
2,033.5	29.37	275.40	1,965.0	-2,699.0	37.0	-391.4	2.00	2.00	0.00	0.00	
7,481.0	29.37	275.40	6,712.4	2,048.4	288.4	-3,051.3	0.00	0.00	0.00	0.00	
7,834.4	64.71	275.40	6,949.4	2,285.4	312.4	-3,304.7	10.00	10.00	0.00	0.00	
7,964.6	64.71	275.40	7,005.0	2,341.0	323.5	-3,421.9	0.00	0.00	0.00	0.00	
8,222.2	90.00	270.36	7,061.0	2,397.0	335.4	-3,670.8	10.00	9.82	-1.96	-11.66	LANDING PNT - V1
20,510.3	90.00	270.36	7,061.0	2,397.0	413.2	-15,958.7	0.00	0.00	0.00	0.00	BHL - VT-LDS C3-1

Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well VT-LDS C3-16-18
Company:	EXTRACTION OIL & GAS	TVD Reference:	KB-EST @ 4664.0usft
Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB-EST @ 4664.0usft
Site:	SW NW SEC. 15 T5N R65W 6th P.M.	North Reference:	True
Well:	VT-LDS C3-16-18	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	4,664.00	0.0	0.0	0.0	0.00	0.00	0.00
100.0	0.00	0.00	100.0	4,564.00	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	4,464.00	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	4,364.00	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	4,264.00	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	4,164.00	0.0	0.0	0.0	0.00	0.00	0.00
600.0	2.00	275.40	600.0	4,064.02	0.2	-1.7	1.7	2.00	2.00	0.00
700.0	4.00	275.40	699.8	3,964.16	0.7	-6.9	7.0	2.00	2.00	0.00
800.0	6.00	275.40	799.5	3,864.55	1.5	-15.6	15.7	2.00	2.00	0.00
900.0	8.00	275.40	898.7	3,765.30	2.6	-27.8	27.8	2.00	2.00	0.00
1,000.0	10.00	275.40	997.5	3,666.53	4.1	-43.3	43.4	2.00	2.00	0.00
1,100.0	12.00	275.40	1,095.6	3,568.38	5.9	-62.3	62.5	2.00	2.00	0.00
1,200.0	14.00	275.40	1,193.1	3,470.94	8.0	-84.7	84.9	2.00	2.00	0.00
1,300.0	16.00	275.40	1,289.6	3,374.36	10.4	-110.5	110.7	2.00	2.00	0.00
1,400.0	18.00	275.40	1,385.3	3,278.73	13.2	-139.6	139.9	2.00	2.00	0.00
1,500.0	20.00	275.40	1,479.8	3,184.18	16.3	-172.0	172.4	2.00	2.00	0.00
1,600.0	22.00	275.40	1,573.2	3,090.83	19.6	-207.7	208.1	2.00	2.00	0.00
9 5/8" SURFACE CASING										
1,629.0	22.58	275.40	1,600.0	3,064.00	20.7	-218.6	219.1	2.00	2.00	0.00
END OF TANGENT										
1,694.0	22.58	275.40	1,660.0	3,003.98	23.0	-243.5	244.0	0.00	0.00	0.00
1,700.0	22.70	275.40	1,665.6	2,998.44	23.2	-245.8	246.3	2.00	2.00	0.00
1,800.0	24.70	275.40	1,757.1	2,906.88	27.0	-285.8	286.4	2.00	2.00	0.00
1,900.0	26.70	275.40	1,847.2	2,816.78	31.1	-329.0	329.7	2.00	2.00	0.00
2,000.0	28.70	275.40	1,935.8	2,728.24	35.5	-375.2	376.0	2.00	2.00	0.00
EOB TO 29.37° INC										
2,033.5	29.37	275.40	1,965.0	2,698.95	37.0	-391.4	392.2	2.00	2.00	0.00
2,100.0	29.37	275.40	2,023.0	2,641.00	40.1	-423.9	424.8	0.00	0.00	0.00
2,200.0	29.37	275.40	2,110.1	2,553.85	44.7	-472.7	473.7	0.00	0.00	0.00
2,300.0	29.37	275.40	2,197.3	2,466.71	49.3	-521.5	522.6	0.00	0.00	0.00
2,400.0	29.37	275.40	2,284.4	2,379.56	53.9	-570.4	571.6	0.00	0.00	0.00
2,500.0	29.37	275.40	2,371.6	2,292.41	58.5	-619.2	620.5	0.00	0.00	0.00
2,600.0	29.37	275.40	2,458.7	2,205.27	63.1	-668.0	669.4	0.00	0.00	0.00
2,700.0	29.37	275.40	2,545.9	2,118.12	67.8	-716.9	718.4	0.00	0.00	0.00
2,800.0	29.37	275.40	2,633.0	2,030.97	72.4	-765.7	767.3	0.00	0.00	0.00
2,900.0	29.37	275.40	2,720.2	1,943.82	77.0	-814.5	816.2	0.00	0.00	0.00
3,000.0	29.37	275.40	2,807.3	1,856.68	81.6	-863.3	865.2	0.00	0.00	0.00
3,100.0	29.37	275.40	2,894.5	1,769.53	86.2	-912.2	914.1	0.00	0.00	0.00
3,200.0	29.37	275.40	2,981.6	1,682.38	90.8	-961.0	963.0	0.00	0.00	0.00
3,300.0	29.37	275.40	3,068.8	1,595.24	95.5	-1,009.8	1,012.0	0.00	0.00	0.00
3,400.0	29.37	275.40	3,155.9	1,508.09	100.1	-1,058.6	1,060.9	0.00	0.00	0.00
3,500.0	29.37	275.40	3,243.1	1,420.94	104.7	-1,107.5	1,109.8	0.00	0.00	0.00
3,600.0	29.37	275.40	3,330.2	1,333.80	109.3	-1,156.3	1,158.7	0.00	0.00	0.00
3,700.0	29.37	275.40	3,417.4	1,246.65	113.9	-1,205.1	1,207.7	0.00	0.00	0.00
3,800.0	29.37	275.40	3,504.5	1,159.50	118.5	-1,254.0	1,256.6	0.00	0.00	0.00
PARKMAN										
3,891.2	29.37	275.40	3,584.0	1,080.00	122.7	-1,298.5	1,301.2	0.00	0.00	0.00
3,900.0	29.37	275.40	3,591.6	1,072.35	123.1	-1,302.8	1,305.5	0.00	0.00	0.00
4,000.0	29.37	275.40	3,678.8	985.21	127.8	-1,351.6	1,354.5	0.00	0.00	0.00
4,100.0	29.37	275.40	3,765.9	898.06	132.4	-1,400.4	1,403.4	0.00	0.00	0.00
4,200.0	29.37	275.40	3,853.1	810.91	137.0	-1,449.3	1,452.3	0.00	0.00	0.00
4,300.0	29.37	275.40	3,940.2	723.77	141.6	-1,498.1	1,501.3	0.00	0.00	0.00
4,400.0	29.37	275.40	4,027.4	636.62	146.2	-1,546.9	1,550.2	0.00	0.00	0.00

Planning Report



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Company:	EXTRACTION OIL & GAS	TVD Reference:	KB-EST @ 4664.0usft
Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB-EST @ 4664.0usft
Site:	SW NW SEC. 15 T5N R65W 6th P.M.	North Reference:	True
Well:	VT-LDS C3-16-18	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	29.37	275.40	4,114.5	549.47	150.8	-1,595.7	1,599.1	0.00	0.00	0.00
SUSSEX										
4,521.2	29.37	275.40	4,133.0	531.00	151.8	-1,606.1	1,609.5	0.00	0.00	0.00
4,600.0	29.37	275.40	4,201.7	462.32	155.5	-1,644.6	1,648.0	0.00	0.00	0.00
4,700.0	29.37	275.40	4,288.8	375.18	160.1	-1,693.4	1,697.0	0.00	0.00	0.00
4,800.0	29.37	275.40	4,376.0	288.03	164.7	-1,742.2	1,745.9	0.00	0.00	0.00
4,900.0	29.37	275.40	4,463.1	200.88	169.3	-1,791.1	1,794.8	0.00	0.00	0.00
5,000.0	29.37	275.40	4,550.3	113.74	173.9	-1,839.9	1,843.8	0.00	0.00	0.00
5,100.0	29.37	275.40	4,637.4	26.59	178.5	-1,888.7	1,892.7	0.00	0.00	0.00
5,200.0	29.37	275.40	4,724.6	-60.56	183.2	-1,937.5	1,941.6	0.00	0.00	0.00
5,300.0	29.37	275.40	4,811.7	-147.71	187.8	-1,986.4	1,990.6	0.00	0.00	0.00
SHANNON										
5,314.1	29.37	275.40	4,824.0	-160.00	188.4	-1,993.2	1,997.5	0.00	0.00	0.00
5,400.0	29.37	275.40	4,898.9	-234.85	192.4	-2,035.2	2,039.5	0.00	0.00	0.00
5,500.0	29.37	275.40	4,986.0	-322.00	197.0	-2,084.0	2,088.4	0.00	0.00	0.00
5,600.0	29.37	275.40	5,073.1	-409.15	201.6	-2,132.8	2,137.3	0.00	0.00	0.00
5,700.0	29.37	275.40	5,160.3	-496.29	206.2	-2,181.7	2,186.3	0.00	0.00	0.00
5,800.0	29.37	275.40	5,247.4	-583.44	210.8	-2,230.5	2,235.2	0.00	0.00	0.00
5,900.0	29.37	275.40	5,334.6	-670.59	215.5	-2,279.3	2,284.1	0.00	0.00	0.00
6,000.0	29.37	275.40	5,421.7	-757.73	220.1	-2,328.1	2,333.1	0.00	0.00	0.00
6,100.0	29.37	275.40	5,508.9	-844.88	224.7	-2,377.0	2,382.0	0.00	0.00	0.00
6,200.0	29.37	275.40	5,596.0	-932.03	229.3	-2,425.8	2,430.9	0.00	0.00	0.00
6,300.0	29.37	275.40	5,683.2	-1,019.18	233.9	-2,474.6	2,479.9	0.00	0.00	0.00
6,400.0	29.37	275.40	5,770.3	-1,106.32	238.5	-2,523.5	2,528.8	0.00	0.00	0.00
6,500.0	29.37	275.40	5,857.5	-1,193.47	243.2	-2,572.3	2,577.7	0.00	0.00	0.00
6,600.0	29.37	275.40	5,944.6	-1,280.62	247.8	-2,621.1	2,626.6	0.00	0.00	0.00
6,700.0	29.37	275.40	6,031.8	-1,367.76	252.4	-2,669.9	2,675.6	0.00	0.00	0.00
6,800.0	29.37	275.40	6,118.9	-1,454.91	257.0	-2,718.8	2,724.5	0.00	0.00	0.00
6,900.0	29.37	275.40	6,206.1	-1,542.06	261.6	-2,767.6	2,773.4	0.00	0.00	0.00
7,000.0	29.37	275.40	6,293.2	-1,629.21	266.2	-2,816.4	2,822.4	0.00	0.00	0.00
7,100.0	29.37	275.40	6,380.4	-1,716.35	270.8	-2,865.2	2,871.3	0.00	0.00	0.00
7,200.0	29.37	275.40	6,467.5	-1,803.50	275.5	-2,914.1	2,920.2	0.00	0.00	0.00
7,300.0	29.37	275.40	6,554.6	-1,890.65	280.1	-2,962.9	2,969.2	0.00	0.00	0.00
7,400.0	29.37	275.40	6,641.8	-1,977.79	284.7	-3,011.7	3,018.1	0.00	0.00	0.00
SHARON SPRINGS										
7,471.4	29.37	275.40	6,704.0	-2,040.00	288.0	-3,046.6	3,053.0	0.00	0.00	0.00
KOP (10°/100ft BUR)										
7,481.0	29.37	275.40	6,712.4	-2,048.38	288.4	-3,051.3	3,057.7	0.00	0.00	0.00
NIOBRARA										
7,494.4	30.71	275.40	6,724.0	-2,060.00	289.1	-3,058.0	3,064.4	10.00	10.00	0.00
7,500.0	31.27	275.40	6,728.8	-2,064.78	289.3	-3,060.8	3,067.3	10.00	10.00	0.00
7,600.0	41.27	275.40	6,809.3	-2,145.30	294.9	-3,119.6	3,126.2	10.00	10.00	0.00
NIO B TARGET										
7,680.7	49.34	275.40	6,866.0	-2,202.00	300.3	-3,176.7	3,183.4	10.00	10.00	0.00
7,700.0	51.27	275.40	6,878.3	-2,214.34	301.7	-3,191.5	3,198.2	10.00	10.00	0.00
7,800.0	61.27	275.40	6,933.8	-2,269.80	309.5	-3,274.2	3,281.1	10.00	10.00	0.00
7,834.4	64.71	275.40	6,949.4	-2,285.42	312.4	-3,304.7	3,311.7	10.00	10.00	0.00
7,900.0	64.71	275.40	6,977.4	-2,313.44	318.0	-3,363.7	3,370.8	0.00	0.00	0.00
START BUILD & TURN										
7,964.6	64.71	275.40	7,005.0	-2,341.04	323.5	-3,421.9	3,429.1	0.00	0.00	0.00
8,000.0	68.18	274.63	7,019.2	-2,355.19	326.3	-3,454.2	3,461.5	10.00	9.80	-2.18
FORT HAYS										
8,004.9	68.66	274.53	7,021.0	-2,357.00	326.7	-3,458.8	3,466.1	10.00	9.80	-2.11

Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well VT-LDS C3-16-18
Company:	EXTRACTION OIL & GAS	TVD Reference:	KB-EST @ 4664.0usft
Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB-EST @ 4664.0usft
Site:	SW NW SEC. 15 T5N R65W 6th P.M.	North Reference:	True
Well:	VT-LDS C3-16-18	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)
8,100.0	77.99	272.63	7,048.2	-2,384.25	332.3	-3,549.6	3,557.0	10.00	9.82	-2.00
CODELL										
8,114.0	79.37	272.36	7,051.0	-2,387.00	332.9	-3,563.3	3,570.7	10.00	9.82	-1.90
8,200.0	87.82	270.77	7,060.6	-2,396.58	335.2	-3,648.6	3,656.1	10.00	9.83	-1.85
LANDING POINT - VT-LDS C3-16-18										
8,222.2	90.00	270.36	7,061.0	-2,397.00	335.4	-3,670.8	3,678.3	9.98	9.81	-1.82
8,300.0	90.00	270.36	7,061.0	-2,397.00	335.9	-3,748.6	3,756.1	0.00	0.00	0.00
8,400.0	90.00	270.36	7,061.0	-2,397.00	336.6	-3,848.6	3,856.1	0.00	0.00	0.00
8,500.0	90.00	270.36	7,061.0	-2,397.00	337.2	-3,948.6	3,956.0	0.00	0.00	0.00
8,600.0	90.00	270.36	7,061.0	-2,397.00	337.8	-4,048.6	4,056.0	0.00	0.00	0.00
8,700.0	90.00	270.36	7,061.0	-2,397.00	338.5	-4,148.6	4,156.0	0.00	0.00	0.00
8,800.0	90.00	270.36	7,061.0	-2,397.00	339.1	-4,248.6	4,256.0	0.00	0.00	0.00
8,900.0	90.00	270.36	7,061.0	-2,397.00	339.7	-4,348.6	4,356.0	0.00	0.00	0.00
9,000.0	90.00	270.36	7,061.0	-2,397.00	340.4	-4,448.6	4,455.9	0.00	0.00	0.00
9,100.0	90.00	270.36	7,061.0	-2,397.00	341.0	-4,548.6	4,555.9	0.00	0.00	0.00
9,200.0	90.00	270.36	7,061.0	-2,397.00	341.6	-4,648.6	4,655.9	0.00	0.00	0.00
9,300.0	90.00	270.36	7,061.0	-2,397.00	342.3	-4,748.6	4,755.9	0.00	0.00	0.00
9,400.0	90.00	270.36	7,061.0	-2,397.00	342.9	-4,848.6	4,855.9	0.00	0.00	0.00
9,500.0	90.00	270.36	7,061.0	-2,397.00	343.5	-4,948.6	4,955.8	0.00	0.00	0.00
9,600.0	90.00	270.36	7,061.0	-2,397.00	344.2	-5,048.6	5,055.8	0.00	0.00	0.00
9,700.0	90.00	270.36	7,061.0	-2,397.00	344.8	-5,148.6	5,155.8	0.00	0.00	0.00
9,800.0	90.00	270.36	7,061.0	-2,397.00	345.4	-5,248.6	5,255.8	0.00	0.00	0.00
9,900.0	90.00	270.36	7,061.0	-2,397.00	346.1	-5,348.6	5,355.8	0.00	0.00	0.00
10,000.0	90.00	270.36	7,061.0	-2,397.00	346.7	-5,448.6	5,455.8	0.00	0.00	0.00
10,100.0	90.00	270.36	7,061.0	-2,397.00	347.3	-5,548.6	5,555.7	0.00	0.00	0.00
10,200.0	90.00	270.36	7,061.0	-2,397.00	348.0	-5,648.6	5,655.7	0.00	0.00	0.00
10,300.0	90.00	270.36	7,061.0	-2,397.00	348.6	-5,748.6	5,755.7	0.00	0.00	0.00
10,400.0	90.00	270.36	7,061.0	-2,397.00	349.2	-5,848.6	5,855.7	0.00	0.00	0.00
10,500.0	90.00	270.36	7,061.0	-2,397.00	349.9	-5,948.6	5,955.7	0.00	0.00	0.00
10,600.0	90.00	270.36	7,061.0	-2,397.00	350.5	-6,048.6	6,055.6	0.00	0.00	0.00
10,700.0	90.00	270.36	7,061.0	-2,397.00	351.1	-6,148.6	6,155.6	0.00	0.00	0.00
10,800.0	90.00	270.36	7,061.0	-2,397.00	351.8	-6,248.6	6,255.6	0.00	0.00	0.00
10,900.0	90.00	270.36	7,061.0	-2,397.00	352.4	-6,348.6	6,355.6	0.00	0.00	0.00
11,000.0	90.00	270.36	7,061.0	-2,397.00	353.0	-6,448.6	6,455.6	0.00	0.00	0.00
11,100.0	90.00	270.36	7,061.0	-2,397.00	353.7	-6,548.6	6,555.5	0.00	0.00	0.00
11,200.0	90.00	270.36	7,061.0	-2,397.00	354.3	-6,648.6	6,655.5	0.00	0.00	0.00
11,300.0	90.00	270.36	7,061.0	-2,397.00	354.9	-6,748.6	6,755.5	0.00	0.00	0.00
11,400.0	90.00	270.36	7,061.0	-2,397.00	355.6	-6,848.6	6,855.5	0.00	0.00	0.00
11,500.0	90.00	270.36	7,061.0	-2,397.00	356.2	-6,948.6	6,955.5	0.00	0.00	0.00
11,600.0	90.00	270.36	7,061.0	-2,397.00	356.8	-7,048.6	7,055.4	0.00	0.00	0.00
11,700.0	90.00	270.36	7,061.0	-2,397.00	357.5	-7,148.6	7,155.4	0.00	0.00	0.00
11,800.0	90.00	270.36	7,061.0	-2,397.00	358.1	-7,248.6	7,255.4	0.00	0.00	0.00
11,900.0	90.00	270.36	7,061.0	-2,397.00	358.7	-7,348.6	7,355.4	0.00	0.00	0.00
12,000.0	90.00	270.36	7,061.0	-2,397.00	359.3	-7,448.6	7,455.4	0.00	0.00	0.00
12,100.0	90.00	270.36	7,061.0	-2,397.00	360.0	-7,548.6	7,555.4	0.00	0.00	0.00
12,200.0	90.00	270.36	7,061.0	-2,397.00	360.6	-7,648.6	7,655.3	0.00	0.00	0.00
12,300.0	90.00	270.36	7,061.0	-2,397.00	361.2	-7,748.6	7,755.3	0.00	0.00	0.00
12,400.0	90.00	270.36	7,061.0	-2,397.00	361.9	-7,848.6	7,855.3	0.00	0.00	0.00
12,500.0	90.00	270.36	7,061.0	-2,397.00	362.5	-7,948.6	7,955.3	0.00	0.00	0.00
12,600.0	90.00	270.36	7,061.0	-2,397.00	363.1	-8,048.6	8,055.3	0.00	0.00	0.00
12,700.0	90.00	270.36	7,061.0	-2,397.00	363.8	-8,148.5	8,155.2	0.00	0.00	0.00
12,800.0	90.00	270.36	7,061.0	-2,397.00	364.4	-8,248.5	8,255.2	0.00	0.00	0.00
12,900.0	90.00	270.36	7,061.0	-2,397.00	365.0	-8,348.5	8,355.2	0.00	0.00	0.00

Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well VT-LDS C3-16-18
Company:	EXTRACTION OIL & GAS	TVD Reference:	KB-EST @ 4664.0usft
Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB-EST @ 4664.0usft
Site:	SW NW SEC. 15 T5N R65W 6th P.M.	North Reference:	True
Well:	VT-LDS C3-16-18	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	270.36	7,061.0	-2,397.00	365.7	-8,448.5	8,455.2	0.00	0.00	0.00
13,100.0	90.00	270.36	7,061.0	-2,397.00	366.3	-8,548.5	8,555.2	0.00	0.00	0.00
13,200.0	90.00	270.36	7,061.0	-2,397.00	366.9	-8,648.5	8,655.1	0.00	0.00	0.00
13,300.0	90.00	270.36	7,061.0	-2,397.00	367.6	-8,748.5	8,755.1	0.00	0.00	0.00
13,400.0	90.00	270.36	7,061.0	-2,397.00	368.2	-8,848.5	8,855.1	0.00	0.00	0.00
13,500.0	90.00	270.36	7,061.0	-2,397.00	368.8	-8,948.5	8,955.1	0.00	0.00	0.00
13,600.0	90.00	270.36	7,061.0	-2,397.00	369.5	-9,048.5	9,055.1	0.00	0.00	0.00
13,700.0	90.00	270.36	7,061.0	-2,397.00	370.1	-9,148.5	9,155.0	0.00	0.00	0.00
13,800.0	90.00	270.36	7,061.0	-2,397.00	370.7	-9,248.5	9,255.0	0.00	0.00	0.00
13,900.0	90.00	270.36	7,061.0	-2,397.00	371.4	-9,348.5	9,355.0	0.00	0.00	0.00
14,000.0	90.00	270.36	7,061.0	-2,397.00	372.0	-9,448.5	9,455.0	0.00	0.00	0.00
14,100.0	90.00	270.36	7,061.0	-2,397.00	372.6	-9,548.5	9,555.0	0.00	0.00	0.00
14,200.0	90.00	270.36	7,061.0	-2,397.00	373.3	-9,648.5	9,654.9	0.00	0.00	0.00
14,300.0	90.00	270.36	7,061.0	-2,397.00	373.9	-9,748.5	9,754.9	0.00	0.00	0.00
14,400.0	90.00	270.36	7,061.0	-2,397.00	374.5	-9,848.5	9,854.9	0.00	0.00	0.00
14,500.0	90.00	270.36	7,061.0	-2,397.00	375.2	-9,948.5	9,954.9	0.00	0.00	0.00
14,600.0	90.00	270.36	7,061.0	-2,397.00	375.8	-10,048.5	10,054.9	0.00	0.00	0.00
14,700.0	90.00	270.36	7,061.0	-2,397.00	376.4	-10,148.5	10,154.9	0.00	0.00	0.00
14,800.0	90.00	270.36	7,061.0	-2,397.00	377.1	-10,248.5	10,254.8	0.00	0.00	0.00
14,900.0	90.00	270.36	7,061.0	-2,397.00	377.7	-10,348.5	10,354.8	0.00	0.00	0.00
15,000.0	90.00	270.36	7,061.0	-2,397.00	378.3	-10,448.5	10,454.8	0.00	0.00	0.00
15,100.0	90.00	270.36	7,061.0	-2,397.00	379.0	-10,548.5	10,554.8	0.00	0.00	0.00
15,200.0	90.00	270.36	7,061.0	-2,397.00	379.6	-10,648.5	10,654.8	0.00	0.00	0.00
15,300.0	90.00	270.36	7,061.0	-2,397.00	380.2	-10,748.5	10,754.7	0.00	0.00	0.00
15,400.0	90.00	270.36	7,061.0	-2,397.00	380.9	-10,848.5	10,854.7	0.00	0.00	0.00
15,500.0	90.00	270.36	7,061.0	-2,397.00	381.5	-10,948.5	10,954.7	0.00	0.00	0.00
15,600.0	90.00	270.36	7,061.0	-2,397.00	382.1	-11,048.5	11,054.7	0.00	0.00	0.00
15,700.0	90.00	270.36	7,061.0	-2,397.00	382.8	-11,148.5	11,154.7	0.00	0.00	0.00
15,800.0	90.00	270.36	7,061.0	-2,397.00	383.4	-11,248.5	11,254.6	0.00	0.00	0.00
15,900.0	90.00	270.36	7,061.0	-2,397.00	384.0	-11,348.5	11,354.6	0.00	0.00	0.00
16,000.0	90.00	270.36	7,061.0	-2,397.00	384.7	-11,448.5	11,454.6	0.00	0.00	0.00
16,100.0	90.00	270.36	7,061.0	-2,397.00	385.3	-11,548.5	11,554.6	0.00	0.00	0.00
16,200.0	90.00	270.36	7,061.0	-2,397.00	385.9	-11,648.5	11,654.6	0.00	0.00	0.00
16,300.0	90.00	270.36	7,061.0	-2,397.00	386.6	-11,748.5	11,754.5	0.00	0.00	0.00
16,400.0	90.00	270.36	7,061.0	-2,397.00	387.2	-11,848.5	11,854.5	0.00	0.00	0.00
16,500.0	90.00	270.36	7,061.0	-2,397.00	387.8	-11,948.5	11,954.5	0.00	0.00	0.00
16,600.0	90.00	270.36	7,061.0	-2,397.00	388.5	-12,048.5	12,054.5	0.00	0.00	0.00
16,700.0	90.00	270.36	7,061.0	-2,397.00	389.1	-12,148.5	12,154.5	0.00	0.00	0.00
16,800.0	90.00	270.36	7,061.0	-2,397.00	389.7	-12,248.5	12,254.5	0.00	0.00	0.00
16,900.0	90.00	270.36	7,061.0	-2,397.00	390.4	-12,348.5	12,354.4	0.00	0.00	0.00
17,000.0	90.00	270.36	7,061.0	-2,397.00	391.0	-12,448.5	12,454.4	0.00	0.00	0.00
17,100.0	90.00	270.36	7,061.0	-2,397.00	391.6	-12,548.5	12,554.4	0.00	0.00	0.00
17,200.0	90.00	270.36	7,061.0	-2,397.00	392.2	-12,648.5	12,654.4	0.00	0.00	0.00
17,300.0	90.00	270.36	7,061.0	-2,397.00	392.9	-12,748.5	12,754.4	0.00	0.00	0.00
17,400.0	90.00	270.36	7,061.0	-2,397.00	393.5	-12,848.5	12,854.3	0.00	0.00	0.00
17,500.0	90.00	270.36	7,061.0	-2,397.00	394.1	-12,948.5	12,954.3	0.00	0.00	0.00
17,600.0	90.00	270.36	7,061.0	-2,397.00	394.8	-13,048.5	13,054.3	0.00	0.00	0.00
17,700.0	90.00	270.36	7,061.0	-2,397.00	395.4	-13,148.4	13,154.3	0.00	0.00	0.00
17,800.0	90.00	270.36	7,061.0	-2,397.00	396.0	-13,248.4	13,254.3	0.00	0.00	0.00
17,900.0	90.00	270.36	7,061.0	-2,397.00	396.7	-13,348.4	13,354.2	0.00	0.00	0.00
18,000.0	90.00	270.36	7,061.0	-2,397.00	397.3	-13,448.4	13,454.2	0.00	0.00	0.00
18,100.0	90.00	270.36	7,061.0	-2,397.00	397.9	-13,548.4	13,554.2	0.00	0.00	0.00
18,200.0	90.00	270.36	7,061.0	-2,397.00	398.6	-13,648.4	13,654.2	0.00	0.00	0.00
18,300.0	90.00	270.36	7,061.0	-2,397.00	399.2	-13,748.4	13,754.2	0.00	0.00	0.00

Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well VT-LDS C3-16-18
Company:	EXTRACTION OIL & GAS	TVD Reference:	KB-EST @ 4664.0usft
Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB-EST @ 4664.0usft
Site:	SW NW SEC. 15 T5N R65W 6th P.M.	North Reference:	True
Well:	VT-LDS C3-16-18	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	270.36	7,061.0	-2,397.00	399.8	-13,848.4	13,854.1	0.00	0.00	0.00
18,500.0	90.00	270.36	7,061.0	-2,397.00	400.5	-13,948.4	13,954.1	0.00	0.00	0.00
18,600.0	90.00	270.36	7,061.0	-2,397.00	401.1	-14,048.4	14,054.1	0.00	0.00	0.00
18,700.0	90.00	270.36	7,061.0	-2,397.00	401.7	-14,148.4	14,154.1	0.00	0.00	0.00
18,800.0	90.00	270.36	7,061.0	-2,397.00	402.4	-14,248.4	14,254.1	0.00	0.00	0.00
18,900.0	90.00	270.36	7,061.0	-2,397.00	403.0	-14,348.4	14,354.0	0.00	0.00	0.00
19,000.0	90.00	270.36	7,061.0	-2,397.00	403.6	-14,448.4	14,454.0	0.00	0.00	0.00
19,100.0	90.00	270.36	7,061.0	-2,397.00	404.3	-14,548.4	14,554.0	0.00	0.00	0.00
19,200.0	90.00	270.36	7,061.0	-2,397.00	404.9	-14,648.4	14,654.0	0.00	0.00	0.00
19,300.0	90.00	270.36	7,061.0	-2,397.00	405.5	-14,748.4	14,754.0	0.00	0.00	0.00
19,400.0	90.00	270.36	7,061.0	-2,397.00	406.2	-14,848.4	14,854.0	0.00	0.00	0.00
19,500.0	90.00	270.36	7,061.0	-2,397.00	406.8	-14,948.4	14,953.9	0.00	0.00	0.00
19,600.0	90.00	270.36	7,061.0	-2,397.00	407.4	-15,048.4	15,053.9	0.00	0.00	0.00
19,700.0	90.00	270.36	7,061.0	-2,397.00	408.1	-15,148.4	15,153.9	0.00	0.00	0.00
19,800.0	90.00	270.36	7,061.0	-2,397.00	408.7	-15,248.4	15,253.9	0.00	0.00	0.00
19,900.0	90.00	270.36	7,061.0	-2,397.00	409.3	-15,348.4	15,353.9	0.00	0.00	0.00
20,000.0	90.00	270.36	7,061.0	-2,397.00	410.0	-15,448.4	15,453.8	0.00	0.00	0.00
20,100.0	90.00	270.36	7,061.0	-2,397.00	410.6	-15,548.4	15,553.8	0.00	0.00	0.00
20,200.0	90.00	270.36	7,061.0	-2,397.00	411.2	-15,648.4	15,653.8	0.00	0.00	0.00
20,300.0	90.00	270.36	7,061.0	-2,397.00	411.9	-15,748.4	15,753.8	0.00	0.00	0.00
20,400.0	90.00	270.36	7,061.0	-2,397.00	412.5	-15,848.4	15,853.8	0.00	0.00	0.00
20,500.0	90.00	270.36	7,061.0	-2,397.00	413.1	-15,948.4	15,953.7	0.00	0.00	0.00
BHL - VT-LDS C3-16-18										
20,510.3	90.00	270.36	7,061.0	-2,397.00	413.2	-15,958.7	15,964.0	0.00	0.00	0.00

Formations						
MD (usft)	TVD (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
3,891.2	3,584.0	PARKMAN				
4,521.2	4,133.0	SUSSEX				
5,314.1	4,824.0	SHANNON				
7,471.4	6,704.0	SHARON SPRINGS				
7,494.4	6,724.0	NIOBRARA				
7,680.7	6,866.0	NIO B TARGET				
8,004.9	7,021.0	FORT HAYS				
8,114.0	7,051.0	CODELL				

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well VT-LDS C3-16-18
Company:	EXTRACTION OIL & GAS	TVD Reference:	KB-EST @ 4664.0usft
Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB-EST @ 4664.0usft
Site:	SW NW SEC. 15 T5N R65W 6th P.M.	North Reference:	True
Well:	VT-LDS C3-16-18	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)	
500.0	500.0	0.0	0.0	START NUDGE (2°/100ft BUR)
1,629.0	1,600.0	20.7	-218.6	9 5/8" SURFACE CASING
1,694.0	1,660.0	23.0	-243.5	END OF TANGENT
2,033.5	1,965.0	37.0	-391.4	EOB TO 29.37° INC
7,481.0	6,712.4	288.4	-3,051.3	KOP (10°/100ft BUR)
7,964.6	7,005.0	323.5	-3,421.9	START BUILD & TURN
8,222.2	7,061.0	335.4	-3,670.8	LANDING POINT - VT-LDS C3-16-18
20,510.3	7,061.0	413.2	-15,958.7	BHL - VT-LDS C3-16-18