

EXTRACTION OIL & GAS

WELD COUNTY, COLORADO (NAD 83)

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

VT-LDS C4-16-18

ORIGINAL WELLBORE

09 March, 2016

Plan: PROPOSAL #2

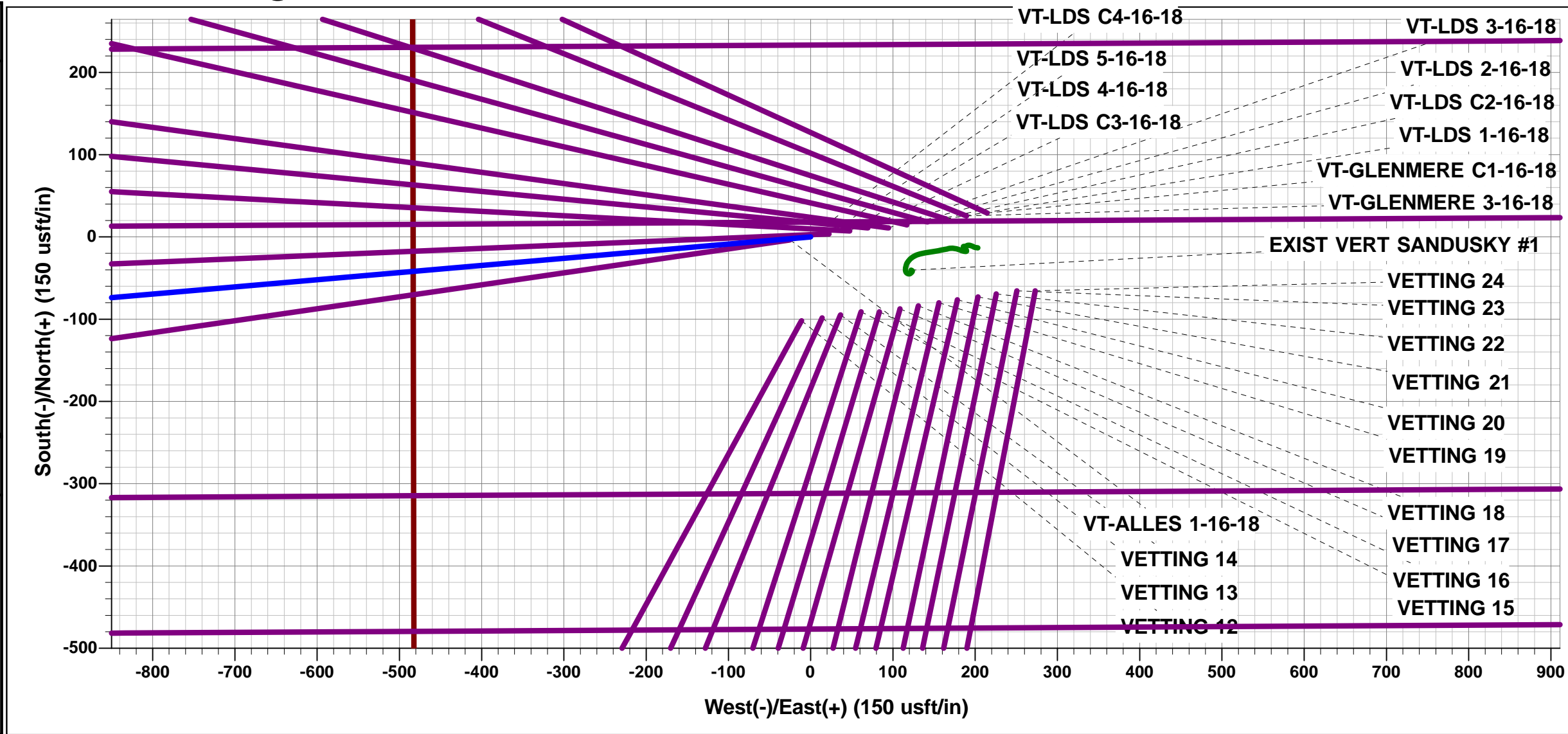




Project: WELD COUNTY, COLORADO (NAD 83)
Site: SW NW SEC. 15 T5N R65W 6th P.M.
Well: VT-LDS C4-16-18
Wellbore: ORIGINAL WELLBORE
Design: PROPOSAL #2

ANNOTATIONS									
TVD	MD	Inc	Azi	+N/-S	+E/-W	VSect	Dep	Annotation	
200.0	200.0	0.00	0.00	0.0	0.0	0.0	0.0	START NUDGE (2°/100ft BUR)	
1500.6	1550.0	27.00	265.04	-27.0	-311.1	311.4	312.2	EOB TO 27° INC	
6744.2	7435.0	27.00	265.04	-258.0	-2972.8	2976.2	2984.0	KOP (10°/100ft DGLG)	
7059.1	8123.5	88.20	265.05	-307.1	-3539.7	3543.8	3553.0	START BUILD & TURN	
7060.0	8179.6	90.00	270.36	-309.4	-3595.7	3599.8	3609.0	LANDING POINT - VT-LDS C4-16-18	
7060.0	20473.7	90.00	270.36	-231.7	-15889.5	15891.2	15903.1	BHL - VT-LDS C4-16-18	

WELLBORE TARGET DETAILS (LAT/LONG)					
Name	TVD	+N/-S	+E/-W	Latitude	Longitude
LANDING PNT - VT-LDS C4-16-18	7060.0	-309.4	-3595.7	40.400410	-104.670050
BHL - VT-LDS C4-16-18	7060.0	-231.7	-15889.5	40.400610	-104.714190



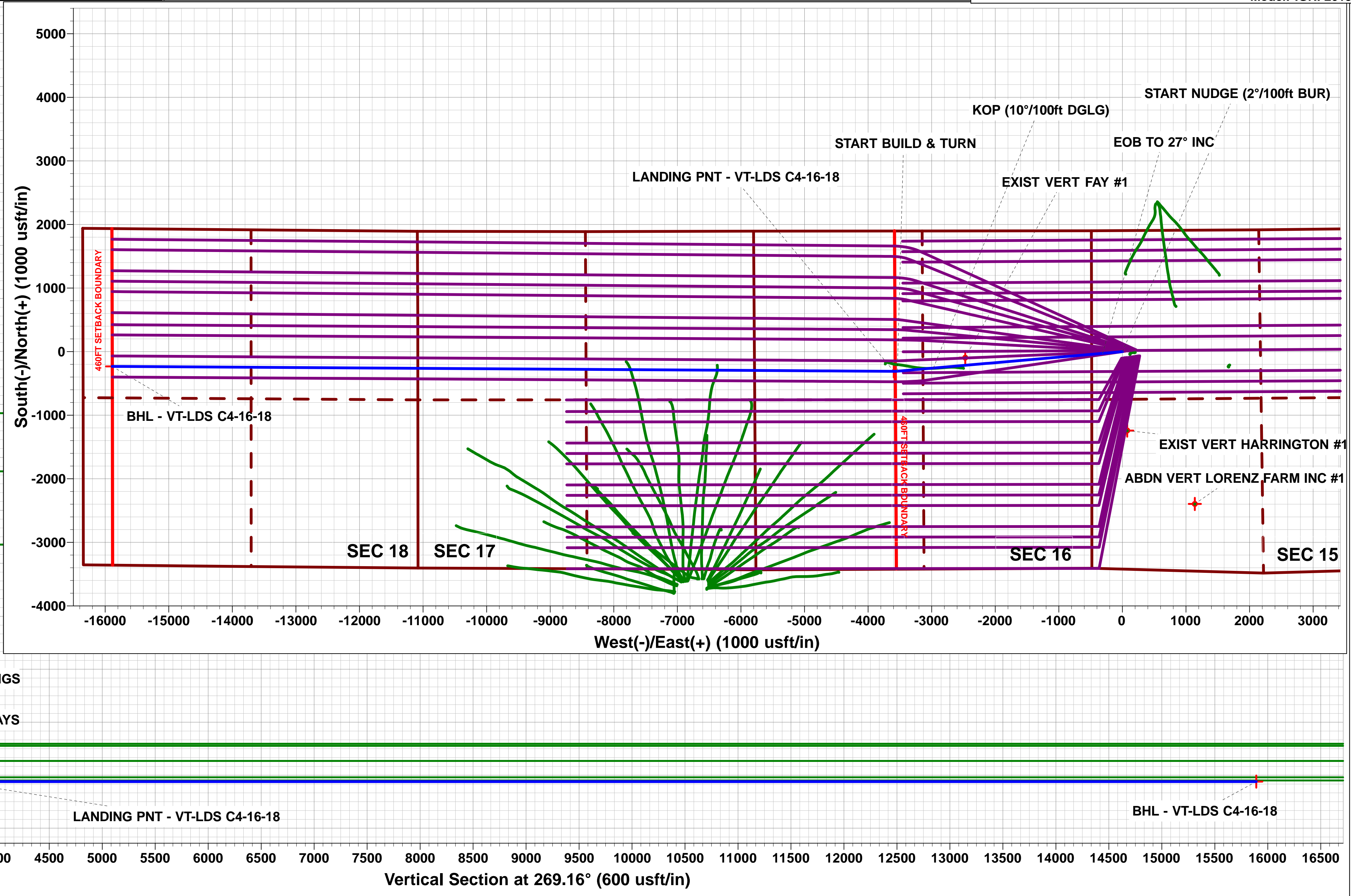
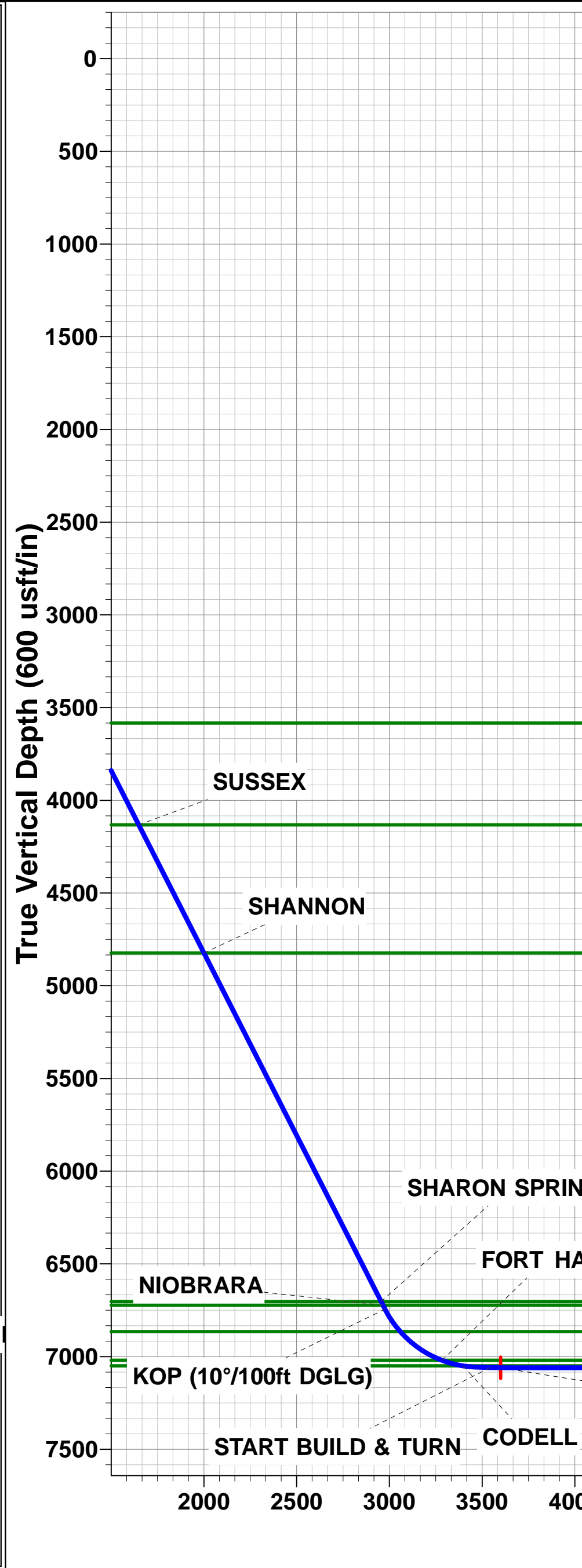
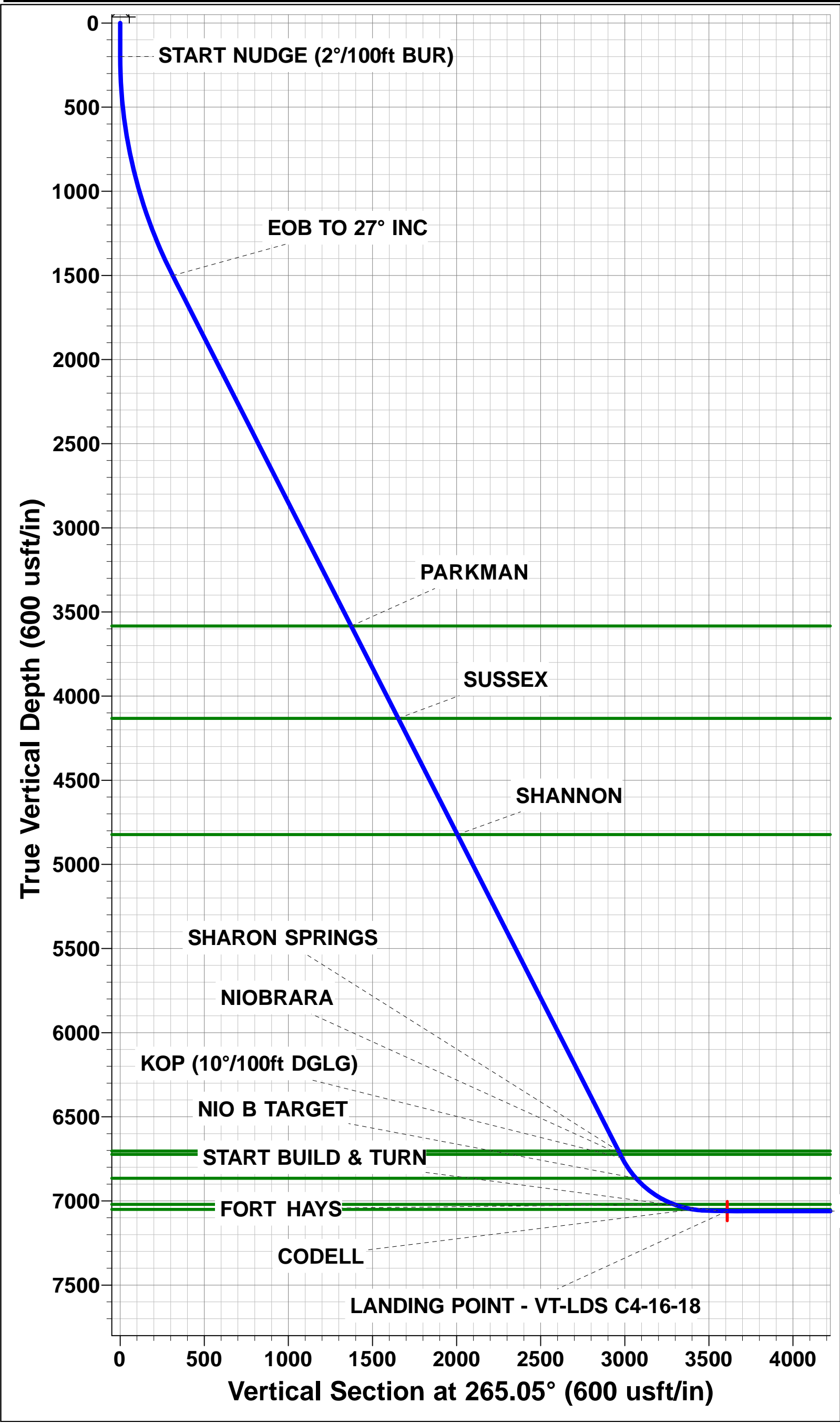
FORMATION TOP DETAILS		
TVDPth	MDPath	Formation
3583.0	3887.1	PARKMAN
4132.0	4503.3	SUSSEX
4823.0	5278.8	SHANNON
6703.0	7388.8	SHARON SPRINGS
6723.0	7411.3	NIOBRARA
6865.0	7581.7	NIO B TARGET
7020.0	7858.0	FORT HAYS
7050.0	7975.3	CODELL

PROPOSED LOCAL COORDINATES		
SHL: 1904ft FNL & 483ft FWL of Sec 15		
LP: 2207ft FNL & 2189ft FWL of Sec 16		
BHL: 2167ft 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 C4-16-18
Company:	EXTRACTION OIL & GAS	TVD Reference:	KB-EST @ 4663.0usft (Original Well Elev)
Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB-EST @ 4663.0usft (Original Well Elev)
Site:	SW NW SEC. 15 T5N R65W 6th P.M.	North Reference:	True
Well:	VT-LDS C4-16-18	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 C4-16-18		
Well Position	+N/-S	102.0 usft	Northing:
	+E/-W	11.1 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 (°)
	0.0	0.0	0.0	269.16

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	
200.0	0.00	0.00	200.0	-4,463.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,550.0	27.00	265.04	1,500.6	-3,162.4	-27.0	-311.1	2.00	2.00	0.00	265.04	
7,435.0	27.00	265.04	6,744.2	2,081.2	-258.0	-2,972.8	0.00	0.00	0.00	0.00	
8,047.0	88.20	265.05	7,056.7	2,393.7	-300.5	-3,463.5	10.00	10.00	0.00	0.01	
8,123.5	88.20	265.05	7,059.1	2,396.1	-307.1	-3,539.6	0.00	0.00	0.00	0.00	
8,179.6	90.00	270.36	7,060.0	2,397.0	-309.4	-3,595.7	10.00	3.20	9.47	71.36	LANDING PNT - V1
20,473.7	90.00	270.36	7,060.0	2,397.0	-231.7	-15,889.5	0.00	0.00	0.00	0.00	BHL - VT-LDS C4-1

Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well VT-LDS C4-16-18
Company:	EXTRACTION OIL & GAS	TVD Reference:	KB-EST @ 4663.0usft (Original Well Elev)
Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB-EST @ 4663.0usft (Original Well Elev)
Site:	SW NW SEC. 15 T5N R65W 6th P.M.	North Reference:	True
Well:	VT-LDS C4-16-18	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
START NUDGE (2°/100ft BUR)										
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	2.00	265.04	300.0	4,363.02	-0.2	-1.7	1.7	2.00	2.00	0.00
400.0	4.00	265.04	399.8	4,263.16	-0.6	-7.0	7.0	2.00	2.00	0.00
500.0	6.00	265.04	499.5	4,163.55	-1.4	-15.6	15.7	2.00	2.00	0.00
600.0	8.00	265.04	598.7	4,064.30	-2.4	-27.8	27.8	2.00	2.00	0.00
700.0	10.00	265.04	697.5	3,965.53	-3.8	-43.4	43.4	2.00	2.00	0.00
800.0	12.00	265.04	795.6	3,867.38	-5.4	-62.4	62.4	2.00	2.00	0.00
900.0	14.00	265.04	893.1	3,769.94	-7.4	-84.8	84.9	2.00	2.00	0.00
1,000.0	16.00	265.04	989.6	3,673.36	-9.6	-110.6	110.7	2.00	2.00	0.00
1,100.0	18.00	265.04	1,085.3	3,577.73	-12.1	-139.7	139.8	2.00	2.00	0.00
1,200.0	20.00	265.04	1,179.8	3,483.18	-14.9	-172.1	172.3	2.00	2.00	0.00
1,300.0	22.00	265.04	1,273.2	3,389.83	-18.0	-207.8	208.1	2.00	2.00	0.00
1,400.0	24.00	265.04	1,365.2	3,297.79	-21.4	-246.7	247.0	2.00	2.00	0.00
1,500.0	26.00	265.04	1,455.8	3,207.16	-25.1	-288.8	289.2	2.00	2.00	0.00
EOB TO 27° INC										
1,550.0	27.00	265.04	1,500.6	3,162.41	-27.0	-311.1	311.4	2.00	2.00	0.00
1,600.0	27.00	265.04	1,545.1	3,117.86	-29.0	-333.7	334.1	0.00	0.00	0.00
1,700.0	27.00	265.04	1,634.2	3,028.76	-32.9	-378.9	379.4	0.00	0.00	0.00
1,800.0	27.00	265.04	1,723.3	2,939.66	-36.8	-424.1	424.6	0.00	0.00	0.00
1,900.0	27.00	265.04	1,812.4	2,850.56	-40.7	-469.4	469.9	0.00	0.00	0.00
2,000.0	27.00	265.04	1,901.5	2,761.46	-44.7	-514.6	515.2	0.00	0.00	0.00
2,100.0	27.00	265.04	1,990.6	2,672.36	-48.6	-559.8	560.5	0.00	0.00	0.00
2,200.0	27.00	265.04	2,079.7	2,583.26	-52.5	-605.1	605.8	0.00	0.00	0.00
2,300.0	27.00	265.04	2,168.8	2,494.16	-56.4	-650.3	651.0	0.00	0.00	0.00
2,400.0	27.00	265.04	2,257.9	2,405.06	-60.4	-695.5	696.3	0.00	0.00	0.00
2,500.0	27.00	265.04	2,347.0	2,315.96	-64.3	-740.7	741.6	0.00	0.00	0.00
2,600.0	27.00	265.04	2,436.1	2,226.86	-68.2	-786.0	786.9	0.00	0.00	0.00
2,700.0	27.00	265.04	2,525.2	2,137.76	-72.1	-831.2	832.2	0.00	0.00	0.00
2,800.0	27.00	265.04	2,614.3	2,048.65	-76.1	-876.4	877.5	0.00	0.00	0.00
2,900.0	27.00	265.04	2,703.4	1,959.55	-80.0	-921.7	922.7	0.00	0.00	0.00
3,000.0	27.00	265.04	2,792.5	1,870.45	-83.9	-966.9	968.0	0.00	0.00	0.00
3,100.0	27.00	265.04	2,881.6	1,781.35	-87.8	-1,012.1	1,013.3	0.00	0.00	0.00
3,200.0	27.00	265.04	2,970.7	1,692.25	-91.8	-1,057.4	1,058.6	0.00	0.00	0.00
3,300.0	27.00	265.04	3,059.8	1,603.15	-95.7	-1,102.6	1,103.9	0.00	0.00	0.00
3,400.0	27.00	265.04	3,148.9	1,514.05	-99.6	-1,147.8	1,149.1	0.00	0.00	0.00
3,500.0	27.00	265.04	3,238.0	1,424.95	-103.5	-1,193.0	1,194.4	0.00	0.00	0.00
3,600.0	27.00	265.04	3,327.2	1,335.85	-107.5	-1,238.3	1,239.7	0.00	0.00	0.00
3,700.0	27.00	265.04	3,416.3	1,246.75	-111.4	-1,283.5	1,285.0	0.00	0.00	0.00
3,800.0	27.00	265.04	3,505.4	1,157.65	-115.3	-1,328.7	1,330.3	0.00	0.00	0.00
PARKMAN										
3,887.1	27.00	265.04	3,583.0	1,080.00	-118.7	-1,368.1	1,369.7	0.00	0.00	0.00
3,900.0	27.00	265.04	3,594.5	1,068.55	-119.2	-1,374.0	1,375.5	0.00	0.00	0.00
4,000.0	27.00	265.04	3,683.6	979.45	-123.2	-1,419.2	1,420.8	0.00	0.00	0.00
4,100.0	27.00	265.04	3,772.7	890.35	-127.1	-1,464.4	1,466.1	0.00	0.00	0.00
4,200.0	27.00	265.04	3,861.8	801.25	-131.0	-1,509.6	1,511.4	0.00	0.00	0.00
4,300.0	27.00	265.04	3,950.9	712.15	-134.9	-1,554.9	1,556.7	0.00	0.00	0.00
4,400.0	27.00	265.04	4,040.0	623.04	-138.9	-1,600.1	1,602.0	0.00	0.00	0.00
4,500.0	27.00	265.04	4,129.1	533.94	-142.8	-1,645.3	1,647.2	0.00	0.00	0.00
SUSSEX										
4,503.3	27.00	265.04	4,132.0	531.00	-142.9	-1,646.8	1,648.7	0.00	0.00	0.00
4,600.0	27.00	265.04	4,218.2	444.84	-146.7	-1,690.6	1,692.5	0.00	0.00	0.00

Planning Report



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Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB-EST @ 4663.0usft (Original Well Elev)
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Well:	VT-LDS C4-16-18	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)
4,700.0	27.00	265.04	4,307.3	355.74	-150.6	-1,735.8	1,737.8	0.00	0.00	0.00
4,800.0	27.00	265.04	4,396.4	266.64	-154.6	-1,781.0	1,783.1	0.00	0.00	0.00
4,900.0	27.00	265.04	4,485.5	177.54	-158.5	-1,826.2	1,828.4	0.00	0.00	0.00
5,000.0	27.00	265.04	4,574.6	88.44	-162.4	-1,871.5	1,873.6	0.00	0.00	0.00
5,100.0	27.00	265.04	4,663.7	-0.66	-166.3	-1,916.7	1,918.9	0.00	0.00	0.00
5,200.0	27.00	265.04	4,752.8	-89.76	-170.3	-1,961.9	1,964.2	0.00	0.00	0.00
SHANNON										
5,278.8	27.00	265.04	4,823.0	-160.00	-173.4	-1,997.6	1,999.9	0.00	0.00	0.00
5,300.0	27.00	265.04	4,841.9	-178.86	-174.2	-2,007.2	2,009.5	0.00	0.00	0.00
5,400.0	27.00	265.04	4,931.0	-267.96	-178.1	-2,052.4	2,054.8	0.00	0.00	0.00
5,500.0	27.00	265.04	5,020.1	-357.06	-182.0	-2,097.6	2,100.1	0.00	0.00	0.00
5,600.0	27.00	265.04	5,109.2	-446.16	-186.0	-2,142.9	2,145.3	0.00	0.00	0.00
5,700.0	27.00	265.04	5,198.3	-535.26	-189.9	-2,188.1	2,190.6	0.00	0.00	0.00
5,800.0	27.00	265.04	5,287.4	-624.36	-193.8	-2,233.3	2,235.9	0.00	0.00	0.00
5,900.0	27.00	265.04	5,376.5	-713.47	-197.7	-2,278.5	2,281.2	0.00	0.00	0.00
6,000.0	27.00	265.04	5,465.6	-802.57	-201.7	-2,323.8	2,326.5	0.00	0.00	0.00
6,100.0	27.00	265.04	5,554.7	-891.67	-205.6	-2,369.0	2,371.7	0.00	0.00	0.00
6,200.0	27.00	265.04	5,643.8	-980.77	-209.5	-2,414.2	2,417.0	0.00	0.00	0.00
6,300.0	27.00	265.04	5,732.9	-1,069.87	-213.4	-2,459.5	2,462.3	0.00	0.00	0.00
6,400.0	27.00	265.04	5,822.0	-1,158.97	-217.4	-2,504.7	2,507.6	0.00	0.00	0.00
6,500.0	27.00	265.04	5,911.1	-1,248.07	-221.3	-2,549.9	2,552.9	0.00	0.00	0.00
6,600.0	27.00	265.04	6,000.2	-1,337.17	-225.2	-2,595.1	2,598.1	0.00	0.00	0.00
6,700.0	27.00	265.04	6,089.3	-1,426.27	-229.1	-2,640.4	2,643.4	0.00	0.00	0.00
6,800.0	27.00	265.04	6,178.4	-1,515.37	-233.1	-2,685.6	2,688.7	0.00	0.00	0.00
6,900.0	27.00	265.04	6,267.5	-1,604.47	-237.0	-2,730.8	2,734.0	0.00	0.00	0.00
7,000.0	27.00	265.04	6,356.6	-1,693.57	-240.9	-2,776.1	2,779.3	0.00	0.00	0.00
7,100.0	27.00	265.04	6,445.7	-1,782.67	-244.8	-2,821.3	2,824.6	0.00	0.00	0.00
7,200.0	27.00	265.04	6,534.8	-1,871.77	-248.8	-2,866.5	2,869.8	0.00	0.00	0.00
7,300.0	27.00	265.04	6,623.9	-1,960.87	-252.7	-2,911.7	2,915.1	0.00	0.00	0.00
SHARON SPRINGS										
7,388.8	27.00	265.04	6,703.0	-2,040.00	-256.2	-2,951.9	2,955.3	0.00	0.00	0.00
7,400.0	27.00	265.04	6,713.0	-2,049.98	-256.6	-2,957.0	2,960.4	0.00	0.00	0.00
NIORARA										
7,411.3	27.00	265.04	6,723.0	-2,060.00	-257.1	-2,962.1	2,965.5	0.00	0.00	0.00
KOP (10°/100ft DGLG)										
7,435.0	27.00	265.04	6,744.2	-2,081.16	-258.0	-2,972.8	2,976.2	0.00	0.00	0.00
7,500.0	33.50	265.04	6,800.3	-2,137.28	-260.8	-3,005.4	3,008.9	10.00	10.00	0.00
NIO B TARGET										
7,581.7	41.67	265.04	6,865.0	-2,202.00	-265.1	-3,055.0	3,058.6	10.00	10.00	0.00
7,600.0	43.50	265.04	6,878.4	-2,215.44	-266.2	-3,067.3	3,070.9	10.00	10.00	0.00
7,700.0	53.50	265.04	6,944.6	-2,281.62	-272.7	-3,141.9	3,145.5	10.00	10.00	0.00
7,800.0	63.50	265.04	6,996.8	-2,333.80	-280.0	-3,226.7	3,230.4	10.00	10.00	0.00
FORT HAYS										
7,858.0	69.30	265.04	7,020.0	-2,357.00	-284.6	-3,279.6	3,283.4	10.00	10.00	0.00
7,900.0	73.50	265.04	7,033.4	-2,370.41	-288.0	-3,319.3	3,323.1	10.00	10.00	0.00
CODELL										
7,975.3	81.03	265.05	7,050.0	-2,387.00	-294.4	-3,392.4	3,396.4	10.00	10.00	0.00
8,000.0	83.50	265.05	7,053.3	-2,390.32	-296.5	-3,416.8	3,420.7	10.00	10.00	0.00
8,047.0	88.20	265.05	7,056.7	-2,393.72	-300.5	-3,463.5	3,467.5	10.00	10.00	0.00
8,100.0	88.20	265.05	7,058.4	-2,395.38	-305.1	-3,516.2	3,520.3	0.00	0.00	0.00
START BUILD & TURN										
8,123.5	88.20	265.05	7,059.1	-2,396.12	-307.1	-3,539.7	3,543.8	0.00	0.00	0.00
LANDING POINT - VT-LDS C4-16-18										

Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well VT-LDS C4-16-18
Company:	EXTRACTION OIL & GAS	TVD Reference:	KB-EST @ 4663.0usft (Original Well Elev)
Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB-EST @ 4663.0usft (Original Well Elev)
Site:	SW NW SEC. 15 T5N R65W 6th P.M.	North Reference:	True
Well:	VT-LDS C4-16-18	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)
8,179.6	90.00	270.36	7,060.0	-2,397.00	-309.4	-3,595.7	3,599.8	10.00	3.21	9.47
8,200.0	90.00	270.36	7,060.0	-2,397.00	-309.3	-3,616.1	3,620.2	0.01	0.00	0.01
8,300.0	90.00	270.36	7,060.0	-2,397.00	-308.6	-3,716.1	3,720.2	0.00	0.00	0.00
8,400.0	90.00	270.36	7,060.0	-2,397.00	-308.0	-3,816.1	3,820.2	0.00	0.00	0.00
8,500.0	90.00	270.36	7,060.0	-2,397.00	-307.4	-3,916.1	3,920.1	0.00	0.00	0.00
8,600.0	90.00	270.36	7,060.0	-2,397.00	-306.7	-4,016.1	4,020.1	0.00	0.00	0.00
8,700.0	90.00	270.36	7,060.0	-2,397.00	-306.1	-4,116.1	4,120.1	0.00	0.00	0.00
8,800.0	90.00	270.36	7,060.0	-2,397.00	-305.5	-4,216.1	4,220.1	0.00	0.00	0.00
8,900.0	90.00	270.36	7,060.0	-2,397.00	-304.8	-4,316.1	4,320.0	0.00	0.00	0.00
9,000.0	90.00	270.36	7,060.0	-2,397.00	-304.2	-4,416.1	4,420.0	0.00	0.00	0.00
9,100.0	90.00	270.36	7,060.0	-2,397.00	-303.6	-4,516.1	4,520.0	0.00	0.00	0.00
9,200.0	90.00	270.36	7,060.0	-2,397.00	-302.9	-4,616.1	4,620.0	0.00	0.00	0.00
9,300.0	90.00	270.36	7,060.0	-2,397.00	-302.3	-4,716.1	4,720.0	0.00	0.00	0.00
9,400.0	90.00	270.36	7,060.0	-2,397.00	-301.7	-4,816.1	4,819.9	0.00	0.00	0.00
9,500.0	90.00	270.36	7,060.0	-2,397.00	-301.0	-4,916.0	4,919.9	0.00	0.00	0.00
9,600.0	90.00	270.36	7,060.0	-2,397.00	-300.4	-5,016.0	5,019.9	0.00	0.00	0.00
9,700.0	90.00	270.36	7,060.0	-2,397.00	-299.8	-5,116.0	5,119.9	0.00	0.00	0.00
9,800.0	90.00	270.36	7,060.0	-2,397.00	-299.2	-5,216.0	5,219.9	0.00	0.00	0.00
9,900.0	90.00	270.36	7,060.0	-2,397.00	-298.5	-5,316.0	5,319.8	0.00	0.00	0.00
10,000.0	90.00	270.36	7,060.0	-2,397.00	-297.9	-5,416.0	5,419.8	0.00	0.00	0.00
10,100.0	90.00	270.36	7,060.0	-2,397.00	-297.3	-5,516.0	5,519.8	0.00	0.00	0.00
10,200.0	90.00	270.36	7,060.0	-2,397.00	-296.6	-5,616.0	5,619.8	0.00	0.00	0.00
10,300.0	90.00	270.36	7,060.0	-2,397.00	-296.0	-5,716.0	5,719.7	0.00	0.00	0.00
10,400.0	90.00	270.36	7,060.0	-2,397.00	-295.4	-5,816.0	5,819.7	0.00	0.00	0.00
10,500.0	90.00	270.36	7,060.0	-2,397.00	-294.7	-5,916.0	5,919.7	0.00	0.00	0.00
10,600.0	90.00	270.36	7,060.0	-2,397.00	-294.1	-6,016.0	6,019.7	0.00	0.00	0.00
10,700.0	90.00	270.36	7,060.0	-2,397.00	-293.5	-6,116.0	6,119.7	0.00	0.00	0.00
10,800.0	90.00	270.36	7,060.0	-2,397.00	-292.8	-6,216.0	6,219.6	0.00	0.00	0.00
10,900.0	90.00	270.36	7,060.0	-2,397.00	-292.2	-6,316.0	6,319.6	0.00	0.00	0.00
11,000.0	90.00	270.36	7,060.0	-2,397.00	-291.6	-6,416.0	6,419.6	0.00	0.00	0.00
11,100.0	90.00	270.36	7,060.0	-2,397.00	-290.9	-6,516.0	6,519.6	0.00	0.00	0.00
11,200.0	90.00	270.36	7,060.0	-2,397.00	-290.3	-6,616.0	6,619.5	0.00	0.00	0.00
11,300.0	90.00	270.36	7,060.0	-2,397.00	-289.7	-6,716.0	6,719.5	0.00	0.00	0.00
11,400.0	90.00	270.36	7,060.0	-2,397.00	-289.0	-6,816.0	6,819.5	0.00	0.00	0.00
11,500.0	90.00	270.36	7,060.0	-2,397.00	-288.4	-6,916.0	6,919.5	0.00	0.00	0.00
11,600.0	90.00	270.36	7,060.0	-2,397.00	-287.8	-7,016.0	7,019.5	0.00	0.00	0.00
11,700.0	90.00	270.36	7,060.0	-2,397.00	-287.1	-7,116.0	7,119.4	0.00	0.00	0.00
11,800.0	90.00	270.36	7,060.0	-2,397.00	-286.5	-7,216.0	7,219.4	0.00	0.00	0.00
11,900.0	90.00	270.36	7,060.0	-2,397.00	-285.9	-7,316.0	7,319.4	0.00	0.00	0.00
12,000.0	90.00	270.36	7,060.0	-2,397.00	-285.2	-7,416.0	7,419.4	0.00	0.00	0.00
12,100.0	90.00	270.36	7,060.0	-2,397.00	-284.6	-7,516.0	7,519.3	0.00	0.00	0.00
12,200.0	90.00	270.36	7,060.0	-2,397.00	-284.0	-7,616.0	7,619.3	0.00	0.00	0.00
12,300.0	90.00	270.36	7,060.0	-2,397.00	-283.3	-7,716.0	7,719.3	0.00	0.00	0.00
12,400.0	90.00	270.36	7,060.0	-2,397.00	-282.7	-7,816.0	7,819.3	0.00	0.00	0.00
12,500.0	90.00	270.36	7,060.0	-2,397.00	-282.1	-7,916.0	7,919.3	0.00	0.00	0.00
12,600.0	90.00	270.36	7,060.0	-2,397.00	-281.5	-8,016.0	8,019.2	0.00	0.00	0.00
12,700.0	90.00	270.36	7,060.0	-2,397.00	-280.8	-8,116.0	8,119.2	0.00	0.00	0.00
12,800.0	90.00	270.36	7,060.0	-2,397.00	-280.2	-8,216.0	8,219.2	0.00	0.00	0.00
12,900.0	90.00	270.36	7,060.0	-2,397.00	-279.6	-8,316.0	8,319.2	0.00	0.00	0.00
13,000.0	90.00	270.36	7,060.0	-2,397.00	-278.9	-8,416.0	8,419.2	0.00	0.00	0.00
13,100.0	90.00	270.36	7,060.0	-2,397.00	-278.3	-8,516.0	8,519.1	0.00	0.00	0.00
13,200.0	90.00	270.36	7,060.0	-2,397.00	-277.7	-8,616.0	8,619.1	0.00	0.00	0.00
13,300.0	90.00	270.36	7,060.0	-2,397.00	-277.0	-8,716.0	8,719.1	0.00	0.00	0.00
13,400.0	90.00	270.36	7,060.0	-2,397.00	-276.4	-8,816.0	8,819.1	0.00	0.00	0.00

Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well VT-LDS C4-16-18
Company:	EXTRACTION OIL & GAS	TVD Reference:	KB-EST @ 4663.0usft (Original Well Elev)
Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB-EST @ 4663.0usft (Original Well Elev)
Site:	SW NW SEC. 15 T5N R65W 6th P.M.	North Reference:	True
Well:	VT-LDS C4-16-18	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)
13,500.0	90.00	270.36	7,060.0	-2,397.00	-275.8	-8,916.0	8,919.0	0.00	0.00	0.00
13,600.0	90.00	270.36	7,060.0	-2,397.00	-275.1	-9,016.0	9,019.0	0.00	0.00	0.00
13,700.0	90.00	270.36	7,060.0	-2,397.00	-274.5	-9,116.0	9,119.0	0.00	0.00	0.00
13,800.0	90.00	270.36	7,060.0	-2,397.00	-273.9	-9,216.0	9,219.0	0.00	0.00	0.00
13,900.0	90.00	270.36	7,060.0	-2,397.00	-273.2	-9,316.0	9,319.0	0.00	0.00	0.00
14,000.0	90.00	270.36	7,060.0	-2,397.00	-272.6	-9,416.0	9,418.9	0.00	0.00	0.00
14,100.0	90.00	270.36	7,060.0	-2,397.00	-272.0	-9,516.0	9,518.9	0.00	0.00	0.00
14,200.0	90.00	270.36	7,060.0	-2,397.00	-271.3	-9,616.0	9,618.9	0.00	0.00	0.00
14,300.0	90.00	270.36	7,060.0	-2,397.00	-270.7	-9,716.0	9,718.9	0.00	0.00	0.00
14,400.0	90.00	270.36	7,060.0	-2,397.00	-270.1	-9,816.0	9,818.8	0.00	0.00	0.00
14,500.0	90.00	270.36	7,060.0	-2,397.00	-269.4	-9,915.9	9,918.8	0.00	0.00	0.00
14,600.0	90.00	270.36	7,060.0	-2,397.00	-268.8	-10,015.9	10,018.8	0.00	0.00	0.00
14,700.0	90.00	270.36	7,060.0	-2,397.00	-268.2	-10,115.9	10,118.8	0.00	0.00	0.00
14,800.0	90.00	270.36	7,060.0	-2,397.00	-267.5	-10,215.9	10,218.8	0.00	0.00	0.00
14,900.0	90.00	270.36	7,060.0	-2,397.00	-266.9	-10,315.9	10,318.7	0.00	0.00	0.00
15,000.0	90.00	270.36	7,060.0	-2,397.00	-266.3	-10,415.9	10,418.7	0.00	0.00	0.00
15,100.0	90.00	270.36	7,060.0	-2,397.00	-265.7	-10,515.9	10,518.7	0.00	0.00	0.00
15,200.0	90.00	270.36	7,060.0	-2,397.00	-265.0	-10,615.9	10,618.7	0.00	0.00	0.00
15,300.0	90.00	270.36	7,060.0	-2,397.00	-264.4	-10,715.9	10,718.6	0.00	0.00	0.00
15,400.0	90.00	270.36	7,060.0	-2,397.00	-263.8	-10,815.9	10,818.6	0.00	0.00	0.00
15,500.0	90.00	270.36	7,060.0	-2,397.00	-263.1	-10,915.9	10,918.6	0.00	0.00	0.00
15,600.0	90.00	270.36	7,060.0	-2,397.00	-262.5	-11,015.9	11,018.6	0.00	0.00	0.00
15,700.0	90.00	270.36	7,060.0	-2,397.00	-261.9	-11,115.9	11,118.6	0.00	0.00	0.00
15,800.0	90.00	270.36	7,060.0	-2,397.00	-261.2	-11,215.9	11,218.5	0.00	0.00	0.00
15,900.0	90.00	270.36	7,060.0	-2,397.00	-260.6	-11,315.9	11,318.5	0.00	0.00	0.00
16,000.0	90.00	270.36	7,060.0	-2,397.00	-260.0	-11,415.9	11,418.5	0.00	0.00	0.00
16,100.0	90.00	270.36	7,060.0	-2,397.00	-259.3	-11,515.9	11,518.5	0.00	0.00	0.00
16,200.0	90.00	270.36	7,060.0	-2,397.00	-258.7	-11,615.9	11,618.5	0.00	0.00	0.00
16,300.0	90.00	270.36	7,060.0	-2,397.00	-258.1	-11,715.9	11,718.4	0.00	0.00	0.00
16,400.0	90.00	270.36	7,060.0	-2,397.00	-257.4	-11,815.9	11,818.4	0.00	0.00	0.00
16,500.0	90.00	270.36	7,060.0	-2,397.00	-256.8	-11,915.9	11,918.4	0.00	0.00	0.00
16,600.0	90.00	270.36	7,060.0	-2,397.00	-256.2	-12,015.9	12,018.4	0.00	0.00	0.00
16,700.0	90.00	270.36	7,060.0	-2,397.00	-255.5	-12,115.9	12,118.3	0.00	0.00	0.00
16,800.0	90.00	270.36	7,060.0	-2,397.00	-254.9	-12,215.9	12,218.3	0.00	0.00	0.00
16,900.0	90.00	270.36	7,060.0	-2,397.00	-254.3	-12,315.9	12,318.3	0.00	0.00	0.00
17,000.0	90.00	270.36	7,060.0	-2,397.00	-253.6	-12,415.9	12,418.3	0.00	0.00	0.00
17,100.0	90.00	270.36	7,060.0	-2,397.00	-253.0	-12,515.9	12,518.3	0.00	0.00	0.00
17,200.0	90.00	270.36	7,060.0	-2,397.00	-252.4	-12,615.9	12,618.2	0.00	0.00	0.00
17,300.0	90.00	270.36	7,060.0	-2,397.00	-251.7	-12,715.9	12,718.2	0.00	0.00	0.00
17,400.0	90.00	270.36	7,060.0	-2,397.00	-251.1	-12,815.9	12,818.2	0.00	0.00	0.00
17,500.0	90.00	270.36	7,060.0	-2,397.00	-250.5	-12,915.9	12,918.2	0.00	0.00	0.00
17,600.0	90.00	270.36	7,060.0	-2,397.00	-249.8	-13,015.9	13,018.1	0.00	0.00	0.00
17,700.0	90.00	270.36	7,060.0	-2,397.00	-249.2	-13,115.9	13,118.1	0.00	0.00	0.00
17,800.0	90.00	270.36	7,060.0	-2,397.00	-248.6	-13,215.9	13,218.1	0.00	0.00	0.00
17,900.0	90.00	270.36	7,060.0	-2,397.00	-248.0	-13,315.9	13,318.1	0.00	0.00	0.00
18,000.0	90.00	270.36	7,060.0	-2,397.00	-247.3	-13,415.9	13,418.1	0.00	0.00	0.00
18,100.0	90.00	270.36	7,060.0	-2,397.00	-246.7	-13,515.9	13,518.0	0.00	0.00	0.00
18,200.0	90.00	270.36	7,060.0	-2,397.00	-246.1	-13,615.9	13,618.0	0.00	0.00	0.00
18,300.0	90.00	270.36	7,060.0	-2,397.00	-245.4	-13,715.9	13,718.0	0.00	0.00	0.00
18,400.0	90.00	270.36	7,060.0	-2,397.00	-244.8	-13,815.9	13,818.0	0.00	0.00	0.00
18,500.0	90.00	270.36	7,060.0	-2,397.00	-244.2	-13,915.9	13,918.0	0.00	0.00	0.00
18,600.0	90.00	270.36	7,060.0	-2,397.00	-243.5	-14,015.9	14,017.9	0.00	0.00	0.00
18,700.0	90.00	270.36	7,060.0	-2,397.00	-242.9	-14,115.9	14,117.9	0.00	0.00	0.00
18,800.0	90.00	270.36	7,060.0	-2,397.00	-242.3	-14,215.9	14,217.9	0.00	0.00	0.00

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well VT-LDS C4-16-18
Company:	EXTRACTION OIL & GAS	TVD Reference:	KB-EST @ 4663.0usft (Original Well Elev)
Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB-EST @ 4663.0usft (Original Well Elev)
Site:	SW NW SEC. 15 T5N R65W 6th P.M.	North Reference:	True
Well:	VT-LDS C4-16-18	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)
18,900.0	90.00	270.36	7,060.0	-2,397.00	-241.6	-14,315.9	14,317.9	0.00	0.00	0.00
19,000.0	90.00	270.36	7,060.0	-2,397.00	-241.0	-14,415.9	14,417.8	0.00	0.00	0.00
19,100.0	90.00	270.36	7,060.0	-2,397.00	-240.4	-14,515.9	14,517.8	0.00	0.00	0.00
19,200.0	90.00	270.36	7,060.0	-2,397.00	-239.7	-14,615.9	14,617.8	0.00	0.00	0.00
19,300.0	90.00	270.36	7,060.0	-2,397.00	-239.1	-14,715.9	14,717.8	0.00	0.00	0.00
19,400.0	90.00	270.36	7,060.0	-2,397.00	-238.5	-14,815.9	14,817.8	0.00	0.00	0.00
19,500.0	90.00	270.36	7,060.0	-2,397.00	-237.8	-14,915.8	14,917.7	0.00	0.00	0.00
19,600.0	90.00	270.36	7,060.0	-2,397.00	-237.2	-15,015.8	15,017.7	0.00	0.00	0.00
19,700.0	90.00	270.36	7,060.0	-2,397.00	-236.6	-15,115.8	15,117.7	0.00	0.00	0.00
19,800.0	90.00	270.36	7,060.0	-2,397.00	-235.9	-15,215.8	15,217.7	0.00	0.00	0.00
19,900.0	90.00	270.36	7,060.0	-2,397.00	-235.3	-15,315.8	15,317.6	0.00	0.00	0.00
20,000.0	90.00	270.36	7,060.0	-2,397.00	-234.7	-15,415.8	15,417.6	0.00	0.00	0.00
20,100.0	90.00	270.36	7,060.0	-2,397.00	-234.0	-15,515.8	15,517.6	0.00	0.00	0.00
20,200.0	90.00	270.36	7,060.0	-2,397.00	-233.4	-15,615.8	15,617.6	0.00	0.00	0.00
20,300.0	90.00	270.36	7,060.0	-2,397.00	-232.8	-15,715.8	15,717.6	0.00	0.00	0.00
20,400.0	90.00	270.36	7,060.0	-2,397.00	-232.1	-15,815.8	15,817.5	0.00	0.00	0.00
BHL - VT-LDS C4-16-18										
20,473.7	90.00	270.36	7,060.0	-2,397.00	-231.7	-15,889.5	15,891.2	0.00	0.00	0.00

Formations

MD (usft)	TVD (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,887.1	3,583.0	PARKMAN			
4,503.3	4,132.0	SUSSEX			
5,278.8	4,823.0	SHANNON			
7,388.8	6,703.0	SHARON SPRINGS			
7,411.3	6,723.0	NIOBRARA			
7,581.7	6,865.0	NIO B TARGET			
7,858.0	7,020.0	FORT HAYS			
7,975.3	7,050.0	CODELL			

Plan Annotations

MD (usft)	TVD (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
200.0	200.0	0.0	0.0	START NUDGE (2°/100ft BUR)
1,550.0	1,500.6	-27.0	-311.1	EOB TO 27° INC
7,435.0	6,744.2	-258.0	-2,972.8	KOP (10°/100ft DGLG)
8,123.5	7,059.1	-307.1	-3,539.7	START BUILD & TURN
8,179.6	7,060.0	-309.4	-3,595.7	LANDING POINT - VT-LDS C4-16-18
20,473.7	7,060.0	-231.7	-15,889.5	BHL - VT-LDS C4-16-18