

EXTRACTION OIL & GAS

WELD COUNTY, COLORADO (NAD 83)

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

VETTING 16

ORIGINAL WELLBORE

09 March, 2016

Plan: PROPOSAL #2

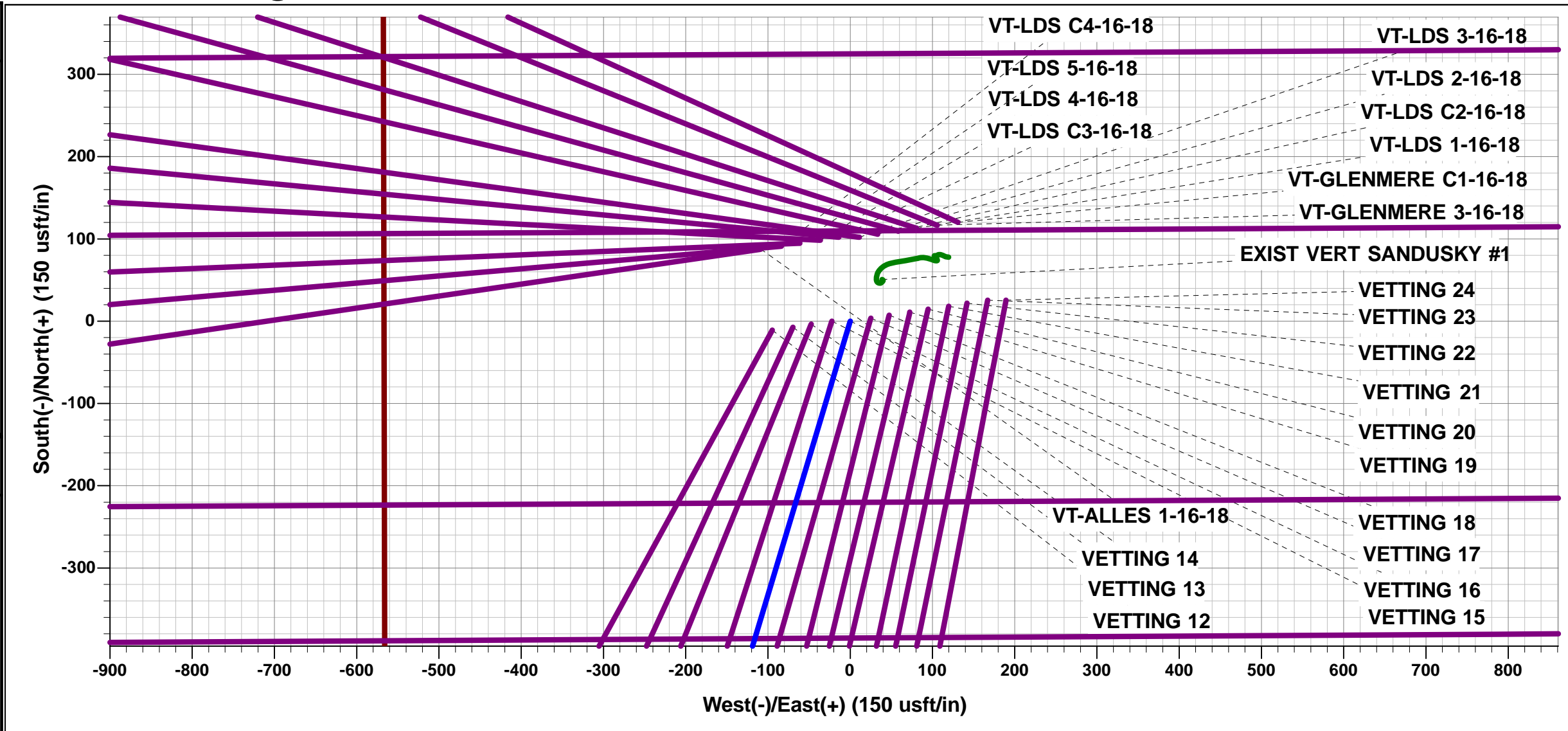




Project: WELD COUNTY, COLORADO (NAD 83)
Site: SW NW SEC. 15 T5N R65W 6th P.M.
Well: VETTING 16
Wellbore: ORIGINAL WELLBORE
Design: PROPOSAL #2

ANNOTATIONS									
TVD	MD	Inc	Azi	+N/-S	+E/-W	VSec	Dep	Annotation	
500.0	500.0	0.00	0.00	0.0	0.0	0.0	0.0	START NUDGE (2°/100ft BUR)	
1344.1	1356.8	17.14	196.73	-121.8	-36.6	56.6	127.2	EOB TO 17.14° INC	
5612.9	5823.9	17.14	196.73	-1382.3	-415.4	642.7	1443.4	END OF TANGENT	
6457.0	6680.8	0.00	0.00	-1504.2	-452.0	699.3	1570.6	EOD TO VERTICAL	
6487.0	6710.8	0.00	0.00	-1504.2	-452.0	699.3	1570.6	KOP (10°/100ft BUR)	
7060.0	7610.8	90.00	269.96	-1504.6	-1025.0	1264.1	2143.6	LANDING PNT - VETTING 16	
7060.0	15409.8	90.00	269.96	-1510.3	-8824.0	8952.3	9942.5	BHL - VETTING 16	

WELLBORE TARGET DETAILS (LAT/LONG)					
Name	TVD	+N/-S	+E/-W	Latitude	Longitude
KOP - VETTING 16	6487.0	-1504.2	-452.0	40.396881	-104.658463
LANDING PNT - VETTING 16	7060.0	-1504.6	-1025.0	40.396880	-104.660520
BHL - VETTING 16	7060.0	-1510.3	-8824.0	40.396860	-104.688520



FORMATION TOP DETAILS		
TVDPath	MDPath	Formation
3583.0	3699.7	PARKMAN
4132.0	4274.2	SUSSEX
4823.0	4997.3	SHANNON
6703.0	6932.2	SHARON SPRINGS
6723.0	6954.0	NIOBRARA
6865.0	7123.5	NIO B TARGET
7020.0	7395.5	FORT HAYS
7050.0	7503.6	CODELL

PROPOSED LOCAL COORDINATES	
SHL: 1994ft FNL & 568ft FWL of Sec 15	
LP: 1815ft FSL & 460ft FEL of Sec 16	
BHL: 1815ft FNL & 2341ft FWL of Sec 17	

North

Mag

True North

Magnetic North: 8.32°

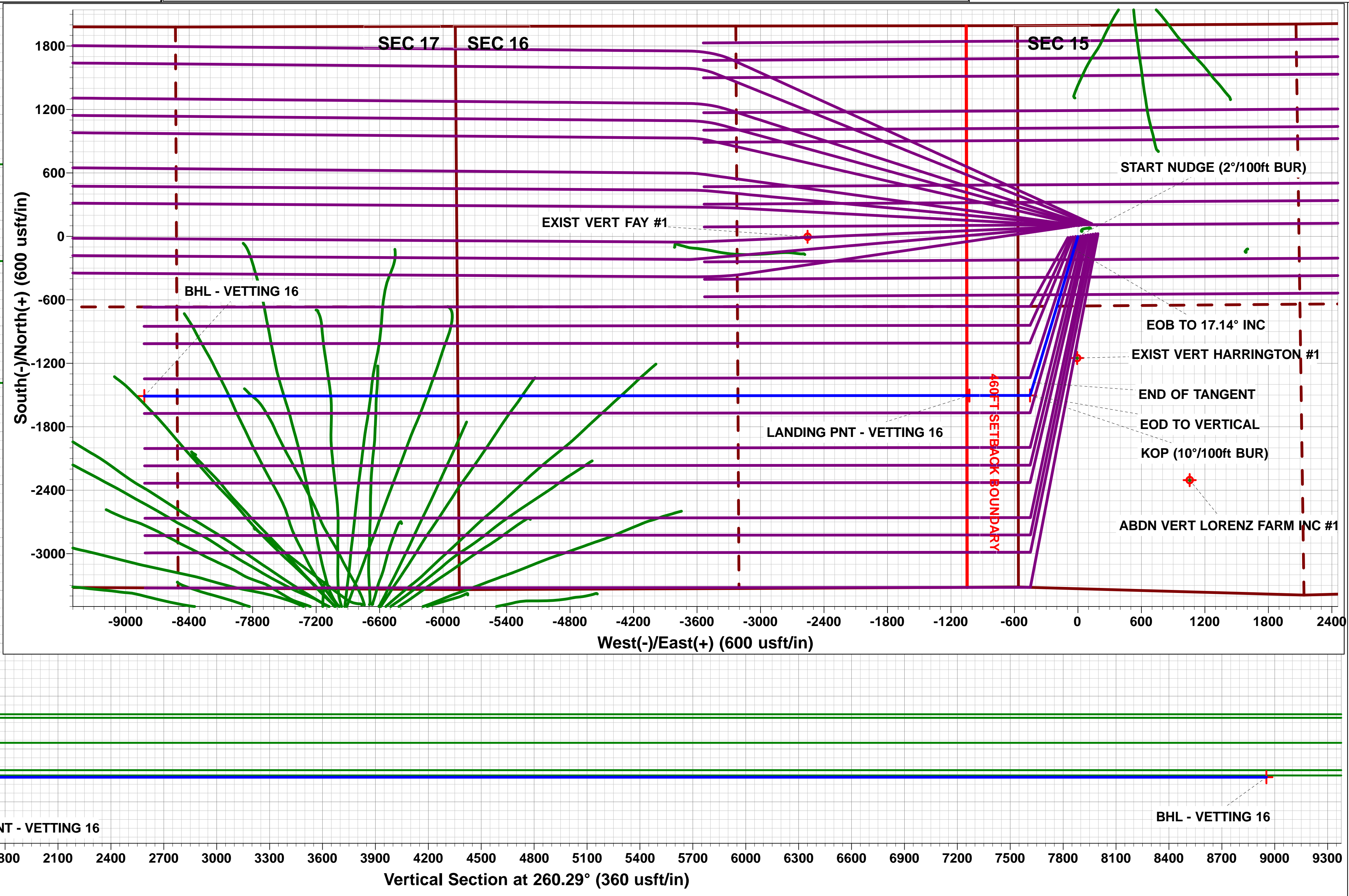
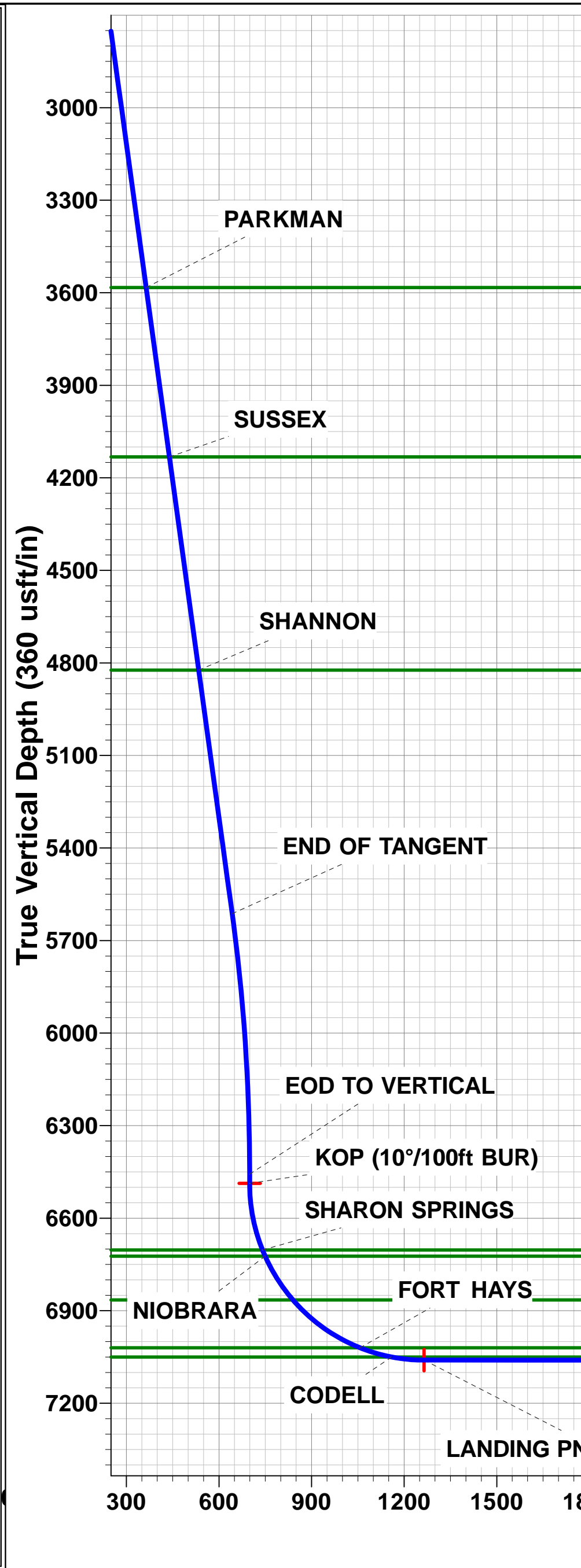
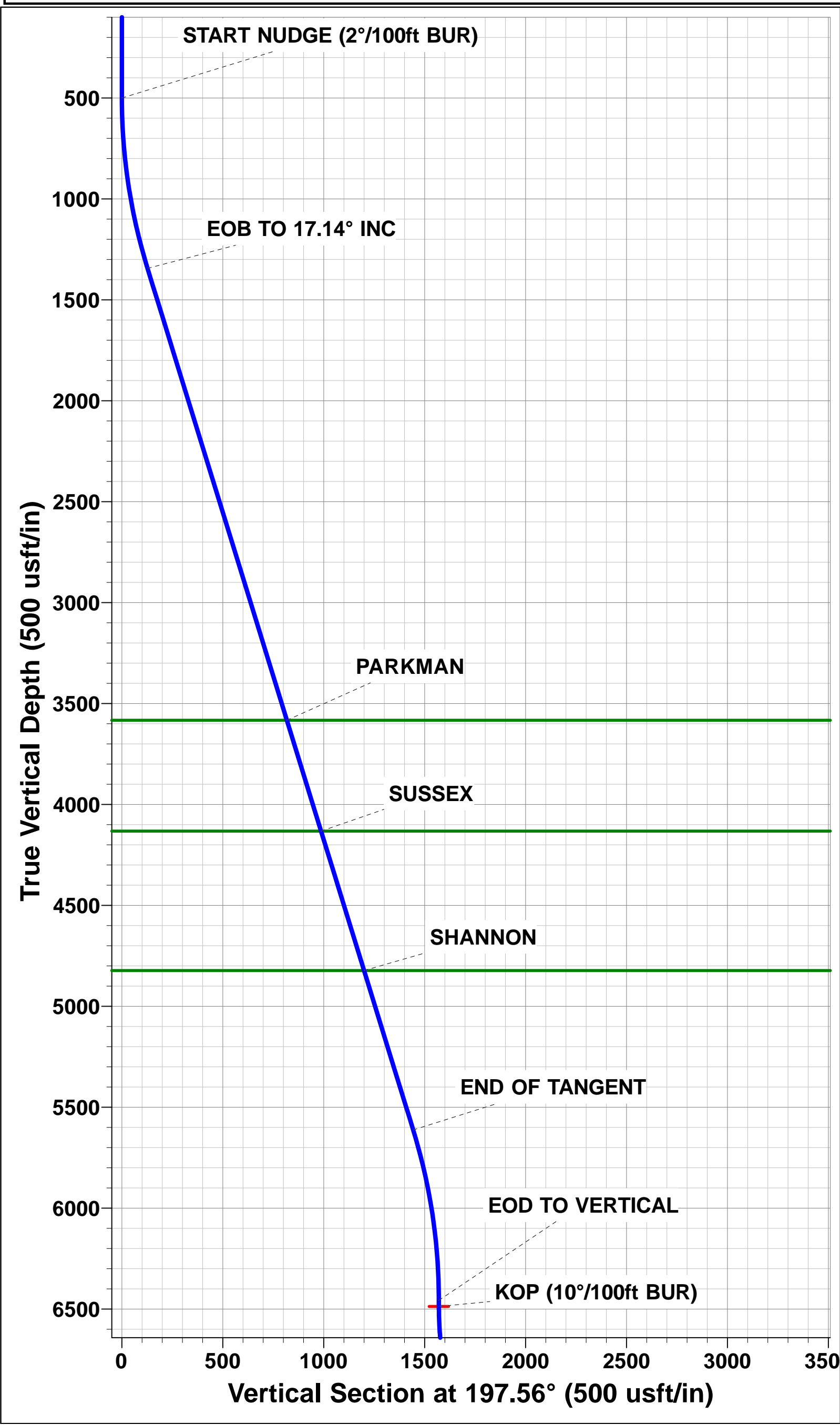
Magnetic Field

Strength: 52585.2snT

Dip Angle: 66.91°

Date: 20/11/2015

Model: IGRF2015



Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well VETTING 16
Company:	EXTRACTION OIL & GAS	TVD Reference:	KB-EST @ 4664.0usft (Original Well Elev)
Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB-EST @ 4664.0usft (Original Well Elev)
Site:	SW NW SEC. 15 T5N R65W 6th P.M.	North Reference:	True
Well:	VETTING 16	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	VETTING 16					
Well Position	+N-S	10.9 usft	Northing:	1,390,044.73 usfi	Latitude:	40.401010
	+E-W	94.7 usft	Easting:	3,234,821.76 usfi	Longitude:	-104.656840
Position Uncertainty		0.0 usft	Wellhead Elevation:	usfi	Ground Level:	4,648.0 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 (°)
	0.0	0.0	0.0	260.29

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	
1,356.8	17.14	196.73	1,344.1	-3,319.9	-121.8	-36.6	2.00	2.00	0.00	196.73	
5,823.9	17.14	196.73	5,612.9	948.9	-1,382.4	-415.4	0.00	0.00	0.00	0.00	
6,680.8	0.00	0.00	6,457.0	1,793.0	-1,504.2	-452.0	2.00	-2.00	0.00	180.00	
6,710.8	0.00	0.00	6,487.0	1,823.0	-1,504.2	-452.0	0.00	0.00	0.00	0.00	KOP - VETTING 16
7,610.8	90.00	269.96	7,060.0	2,396.0	-1,504.6	-1,025.0	10.00	10.00	-10.00	269.96	LANDING PNT - VE
15,409.8	90.00	269.96	7,060.0	2,396.0	-1,510.3	-8,824.0	0.00	0.00	0.00	-5.10	BHL - VETTING 16

Planning Report



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Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB-EST @ 4664.0usft (Original Well Elev)
Site:	SW NW SEC. 15 T5N R65W 6th P.M.	North Reference:	True
Well:	VETTING 16	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	196.73	600.0	4,064.02	-1.7	-0.5	0.8	2.00	2.00	0.00
700.0	4.00	196.73	699.8	3,964.16	-6.7	-2.0	3.1	2.00	2.00	0.00
800.0	6.00	196.73	799.5	3,864.55	-15.0	-4.5	7.0	2.00	2.00	0.00
900.0	8.00	196.73	898.7	3,765.30	-26.7	-8.0	12.4	2.00	2.00	0.00
1,000.0	10.00	196.73	997.5	3,666.53	-41.7	-12.5	19.4	2.00	2.00	0.00
1,100.0	12.00	196.73	1,095.6	3,568.38	-60.0	-18.0	27.9	2.00	2.00	0.00
1,200.0	14.00	196.73	1,193.1	3,470.94	-81.5	-24.5	37.9	2.00	2.00	0.00
1,300.0	16.00	196.73	1,289.6	3,374.36	-106.3	-31.9	49.4	2.00	2.00	0.00
EOB TO 17.14° INC										
1,356.8	17.14	196.73	1,344.1	3,319.92	-121.8	-36.6	56.6	2.00	2.00	0.00
1,400.0	17.14	196.73	1,385.4	3,278.63	-134.0	-40.3	62.3	0.00	0.00	0.00
1,500.0	17.14	196.73	1,480.9	3,183.07	-162.2	-48.7	75.4	0.00	0.00	0.00
1,600.0	17.14	196.73	1,576.5	3,087.51	-190.4	-57.2	88.5	0.00	0.00	0.00
1,700.0	17.14	196.73	1,672.0	2,991.95	-218.6	-65.7	101.6	0.00	0.00	0.00
1,800.0	17.14	196.73	1,767.6	2,896.39	-246.9	-74.2	114.8	0.00	0.00	0.00
1,900.0	17.14	196.73	1,863.2	2,800.83	-275.1	-82.7	127.9	0.00	0.00	0.00
2,000.0	17.14	196.73	1,958.7	2,705.27	-303.3	-91.1	141.0	0.00	0.00	0.00
2,100.0	17.14	196.73	2,054.3	2,609.71	-331.5	-99.6	154.1	0.00	0.00	0.00
2,200.0	17.14	196.73	2,149.8	2,514.15	-359.7	-108.1	167.2	0.00	0.00	0.00
2,300.0	17.14	196.73	2,245.4	2,418.59	-388.0	-116.6	180.4	0.00	0.00	0.00
2,400.0	17.14	196.73	2,341.0	2,323.03	-416.2	-125.1	193.5	0.00	0.00	0.00
2,500.0	17.14	196.73	2,436.5	2,227.47	-444.4	-133.5	206.6	0.00	0.00	0.00
2,600.0	17.14	196.73	2,532.1	2,131.91	-472.6	-142.0	219.7	0.00	0.00	0.00
2,700.0	17.14	196.73	2,627.7	2,036.35	-500.8	-150.5	232.8	0.00	0.00	0.00
2,800.0	17.14	196.73	2,723.2	1,940.79	-529.0	-159.0	246.0	0.00	0.00	0.00
2,900.0	17.14	196.73	2,818.8	1,845.23	-557.3	-167.5	259.1	0.00	0.00	0.00
3,000.0	17.14	196.73	2,914.3	1,749.67	-585.5	-175.9	272.2	0.00	0.00	0.00
3,100.0	17.14	196.73	3,009.9	1,654.11	-613.7	-184.4	285.3	0.00	0.00	0.00
3,200.0	17.14	196.73	3,105.5	1,558.55	-641.9	-192.9	298.4	0.00	0.00	0.00
3,300.0	17.14	196.73	3,201.0	1,462.99	-670.1	-201.4	311.6	0.00	0.00	0.00
3,400.0	17.14	196.73	3,296.6	1,367.43	-698.4	-209.9	324.7	0.00	0.00	0.00
3,500.0	17.14	196.73	3,392.1	1,271.87	-726.6	-218.4	337.8	0.00	0.00	0.00
3,600.0	17.14	196.73	3,487.7	1,176.31	-754.8	-226.8	350.9	0.00	0.00	0.00
PARKMAN										
3,699.7	17.14	196.73	3,583.0	1,081.00	-782.9	-235.3	364.0	0.00	0.00	0.00
3,700.0	17.14	196.73	3,583.3	1,080.74	-783.0	-235.3	364.0	0.00	0.00	0.00
3,800.0	17.14	196.73	3,678.8	985.18	-811.2	-243.8	377.2	0.00	0.00	0.00
3,900.0	17.14	196.73	3,774.4	889.62	-839.4	-252.3	390.3	0.00	0.00	0.00
4,000.0	17.14	196.73	3,869.9	794.06	-867.7	-260.8	403.4	0.00	0.00	0.00
4,100.0	17.14	196.73	3,965.5	698.50	-895.9	-269.2	416.5	0.00	0.00	0.00
4,200.0	17.14	196.73	4,061.1	602.94	-924.1	-277.7	429.6	0.00	0.00	0.00
SUSSEX										
4,274.2	17.14	196.73	4,132.0	532.00	-945.1	-284.0	439.4	0.00	0.00	0.00
4,300.0	17.14	196.73	4,156.6	507.38	-952.3	-286.2	442.8	0.00	0.00	0.00
4,400.0	17.14	196.73	4,252.2	411.82	-980.5	-294.7	455.9	0.00	0.00	0.00
4,500.0	17.14	196.73	4,347.7	316.26	-1,008.8	-303.2	469.0	0.00	0.00	0.00
4,600.0	17.14	196.73	4,443.3	220.70	-1,037.0	-311.6	482.1	0.00	0.00	0.00

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Site:	SW NW SEC. 15 T5N R65W 6th P.M.	North Reference:	True
Well:	VETTING 16	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	17.14	196.73	4,538.9	125.14	-1,065.2	-320.1	495.2	0.00	0.00	0.00
4,800.0	17.14	196.73	4,634.4	29.58	-1,093.4	-328.6	508.4	0.00	0.00	0.00
4,900.0	17.14	196.73	4,730.0	-65.98	-1,121.6	-337.1	521.5	0.00	0.00	0.00
SHANNON										
4,997.3	17.14	196.73	4,823.0	-159.00	-1,149.1	-345.3	534.2	0.00	0.00	0.00
5,000.0	17.14	196.73	4,825.5	-161.54	-1,149.9	-345.6	534.6	0.00	0.00	0.00
5,100.0	17.14	196.73	4,921.1	-257.10	-1,178.1	-354.0	547.7	0.00	0.00	0.00
5,200.0	17.14	196.73	5,016.7	-352.66	-1,206.3	-362.5	560.8	0.00	0.00	0.00
5,300.0	17.14	196.73	5,112.2	-448.22	-1,234.5	-371.0	573.9	0.00	0.00	0.00
5,400.0	17.14	196.73	5,207.8	-543.78	-1,262.7	-379.5	587.1	0.00	0.00	0.00
5,500.0	17.14	196.73	5,303.3	-639.34	-1,290.9	-388.0	600.2	0.00	0.00	0.00
5,600.0	17.14	196.73	5,398.9	-734.90	-1,319.2	-396.4	613.3	0.00	0.00	0.00
5,700.0	17.14	196.73	5,494.5	-830.46	-1,347.4	-404.9	626.4	0.00	0.00	0.00
5,800.0	17.14	196.73	5,590.0	-926.02	-1,375.6	-413.4	639.5	0.00	0.00	0.00
END OF TANGENT										
5,823.9	17.14	196.73	5,612.9	-948.86	-1,382.3	-415.4	642.7	0.00	0.00	0.00
5,900.0	15.62	196.73	5,685.9	-1,021.87	-1,402.9	-421.6	652.2	2.00	-2.00	0.00
6,000.0	13.62	196.73	5,782.6	-1,118.63	-1,427.1	-428.9	663.5	2.00	-2.00	0.00
6,100.0	11.62	196.73	5,880.2	-1,216.21	-1,448.0	-435.1	673.2	2.00	-2.00	0.00
6,200.0	9.62	196.73	5,978.5	-1,314.50	-1,465.6	-440.4	681.4	2.00	-2.00	0.00
6,300.0	7.62	196.73	6,077.4	-1,413.36	-1,480.0	-444.8	688.1	2.00	-2.00	0.00
6,400.0	5.62	196.73	6,176.7	-1,512.69	-1,491.0	-448.1	693.2	2.00	-2.00	0.00
6,500.0	3.62	196.73	6,276.4	-1,612.36	-1,498.7	-450.4	696.8	2.00	-2.00	0.00
6,600.0	1.62	196.73	6,376.3	-1,712.25	-1,503.1	-451.7	698.8	2.00	-2.00	0.00
EOD TO VERTICAL										
6,680.8	0.00	0.00	6,457.0	-1,793.04	-1,504.2	-452.0	699.3	2.00	-2.00	0.00
6,700.0	0.00	0.00	6,476.2	-1,812.24	-1,504.2	-452.0	699.3	0.00	0.00	0.00
KOP (10°/100ft BUR)										
6,710.8	0.00	0.00	6,487.0	-1,823.04	-1,504.2	-452.0	699.3	0.00	0.00	0.00
6,800.0	8.92	269.96	6,575.9	-1,911.88	-1,504.2	-459.0	706.2	10.00	10.00	0.00
6,900.0	18.92	269.96	6,672.8	-2,008.82	-1,504.2	-483.0	729.8	10.00	10.00	0.00
SHARON SPRINGS										
6,932.2	22.15	269.96	6,703.0	-2,039.00	-1,504.2	-494.3	741.0	10.00	10.00	0.00
NIOBRARA										
6,954.0	24.32	269.96	6,723.0	-2,059.00	-1,504.2	-502.9	749.4	10.00	10.00	0.00
7,000.0	28.92	269.96	6,764.1	-2,100.12	-1,504.2	-523.5	769.8	10.00	10.00	0.00
7,100.0	38.92	269.96	6,847.0	-2,182.99	-1,504.3	-579.2	824.7	10.00	10.00	0.00
NIO B TARGET										
7,123.5	41.28	269.96	6,865.0	-2,201.00	-1,504.3	-594.4	839.7	10.00	10.00	0.00
7,200.0	48.92	269.96	6,918.9	-2,254.93	-1,504.3	-648.5	893.0	10.00	10.00	0.00
7,300.0	58.92	269.96	6,977.7	-2,313.74	-1,504.4	-729.2	972.6	10.00	10.00	0.00
FORT HAYS										
7,395.5	68.46	269.96	7,020.0	-2,356.00	-1,504.4	-814.7	1,056.8	10.00	10.00	0.00
7,400.0	68.92	269.96	7,021.7	-2,357.65	-1,504.4	-818.9	1,061.0	10.00	10.00	0.00
7,500.0	78.92	269.96	7,049.3	-2,385.32	-1,504.5	-914.9	1,155.6	10.00	10.00	0.00
CODELL										
7,503.6	79.28	269.96	7,050.0	-2,386.00	-1,504.5	-918.4	1,159.1	10.00	10.00	0.00
7,600.0	88.92	269.96	7,059.9	-2,395.90	-1,504.6	-1,014.2	1,253.5	10.00	10.00	0.00
LANDING PNT - VETTING 16										
7,610.8	90.00	269.96	7,060.0	-2,396.00	-1,504.6	-1,025.0	1,264.1	10.00	10.00	0.00
7,700.0	90.00	269.96	7,060.0	-2,396.00	-1,504.6	-1,114.2	1,352.1	0.00	0.00	0.00
7,800.0	90.00	269.96	7,060.0	-2,396.01	-1,504.7	-1,214.2	1,450.7	0.00	0.00	0.00

Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well VETTING 16
Company:	EXTRACTION OIL & GAS	TVD Reference:	KB-EST @ 4664.0usft (Original Well Elev)
Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB-EST @ 4664.0usft (Original Well Elev)
Site:	SW NW SEC. 15 T5N R65W 6th P.M.	North Reference:	True
Well:	VETTING 16	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)
7,900.0	90.00	269.96	7,060.0	-2,396.01	-1,504.8	-1,314.2	1,549.2	0.00	0.00	0.00
8,000.0	90.00	269.96	7,060.0	-2,396.02	-1,504.9	-1,414.2	1,647.8	0.00	0.00	0.00
8,100.0	90.00	269.96	7,060.0	-2,396.02	-1,504.9	-1,514.2	1,746.4	0.00	0.00	0.00
8,200.0	90.00	269.96	7,060.0	-2,396.02	-1,505.0	-1,614.2	1,845.0	0.00	0.00	0.00
8,300.0	90.00	269.96	7,060.0	-2,396.03	-1,505.1	-1,714.2	1,943.6	0.00	0.00	0.00
8,400.0	90.00	269.96	7,060.0	-2,396.03	-1,505.2	-1,814.2	2,042.1	0.00	0.00	0.00
8,500.0	90.00	269.96	7,060.0	-2,396.04	-1,505.2	-1,914.2	2,140.7	0.00	0.00	0.00
8,600.0	90.00	269.96	7,060.0	-2,396.04	-1,505.3	-2,014.2	2,239.3	0.00	0.00	0.00
8,700.0	90.00	269.96	7,060.0	-2,396.04	-1,505.4	-2,114.2	2,337.9	0.00	0.00	0.00
8,800.0	90.00	269.96	7,060.0	-2,396.05	-1,505.4	-2,214.2	2,436.4	0.00	0.00	0.00
8,900.0	90.00	269.96	7,060.0	-2,396.05	-1,505.5	-2,314.2	2,535.0	0.00	0.00	0.00
9,000.0	90.00	269.96	7,060.1	-2,396.05	-1,505.6	-2,414.2	2,633.6	0.00	0.00	0.00
9,100.0	90.00	269.96	7,060.1	-2,396.05	-1,505.7	-2,514.2	2,732.2	0.00	0.00	0.00
9,200.0	90.00	269.96	7,060.1	-2,396.06	-1,505.7	-2,614.2	2,830.8	0.00	0.00	0.00
9,300.0	90.00	269.96	7,060.1	-2,396.06	-1,505.8	-2,714.2	2,929.3	0.00	0.00	0.00
9,400.0	90.00	269.96	7,060.1	-2,396.06	-1,505.9	-2,814.2	3,027.9	0.00	0.00	0.00
9,500.0	90.00	269.96	7,060.1	-2,396.06	-1,506.0	-2,914.2	3,126.5	0.00	0.00	0.00
9,600.0	90.00	269.96	7,060.1	-2,396.07	-1,506.0	-3,014.2	3,225.1	0.00	0.00	0.00
9,700.0	90.00	269.96	7,060.1	-2,396.07	-1,506.1	-3,114.2	3,323.7	0.00	0.00	0.00
9,800.0	90.00	269.96	7,060.1	-2,396.07	-1,506.2	-3,214.2	3,422.2	0.00	0.00	0.00
9,900.0	90.00	269.96	7,060.1	-2,396.07	-1,506.3	-3,314.2	3,520.8	0.00	0.00	0.00
10,000.0	90.00	269.96	7,060.1	-2,396.07	-1,506.3	-3,414.2	3,619.4	0.00	0.00	0.00
10,100.0	90.00	269.96	7,060.1	-2,396.08	-1,506.4	-3,514.2	3,718.0	0.00	0.00	0.00
10,200.0	90.00	269.96	7,060.1	-2,396.08	-1,506.5	-3,614.2	3,816.6	0.00	0.00	0.00
10,300.0	90.00	269.96	7,060.1	-2,396.08	-1,506.5	-3,714.2	3,915.1	0.00	0.00	0.00
10,400.0	90.00	269.96	7,060.1	-2,396.08	-1,506.6	-3,814.2	4,013.7	0.00	0.00	0.00
10,500.0	90.00	269.96	7,060.1	-2,396.08	-1,506.7	-3,914.2	4,112.3	0.00	0.00	0.00
10,600.0	90.00	269.96	7,060.1	-2,396.08	-1,506.8	-4,014.2	4,210.9	0.00	0.00	0.00
10,700.0	90.00	269.96	7,060.1	-2,396.08	-1,506.8	-4,114.2	4,309.5	0.00	0.00	0.00
10,800.0	90.00	269.96	7,060.1	-2,396.08	-1,506.9	-4,214.2	4,408.0	0.00	0.00	0.00
10,900.0	90.00	269.96	7,060.1	-2,396.09	-1,507.0	-4,314.2	4,506.6	0.00	0.00	0.00
11,000.0	90.00	269.96	7,060.1	-2,396.09	-1,507.1	-4,414.2	4,605.2	0.00	0.00	0.00
11,100.0	90.00	269.96	7,060.1	-2,396.09	-1,507.1	-4,514.2	4,703.8	0.00	0.00	0.00
11,200.0	90.00	269.96	7,060.1	-2,396.09	-1,507.2	-4,614.2	4,802.3	0.00	0.00	0.00
11,300.0	90.00	269.96	7,060.1	-2,396.09	-1,507.3	-4,714.2	4,900.9	0.00	0.00	0.00
11,400.0	90.00	269.96	7,060.1	-2,396.09	-1,507.4	-4,814.2	4,999.5	0.00	0.00	0.00
11,500.0	90.00	269.96	7,060.1	-2,396.09	-1,507.4	-4,914.2	5,098.1	0.00	0.00	0.00
11,600.0	90.00	269.96	7,060.1	-2,396.09	-1,507.5	-5,014.2	5,196.7	0.00	0.00	0.00
11,700.0	90.00	269.96	7,060.1	-2,396.09	-1,507.6	-5,114.2	5,295.2	0.00	0.00	0.00
11,800.0	90.00	269.96	7,060.1	-2,396.09	-1,507.6	-5,214.2	5,393.8	0.00	0.00	0.00
11,900.0	90.00	269.96	7,060.1	-2,396.09	-1,507.7	-5,314.2	5,492.4	0.00	0.00	0.00
12,000.0	90.00	269.96	7,060.1	-2,396.09	-1,507.8	-5,414.2	5,591.0	0.00	0.00	0.00
12,100.0	90.00	269.96	7,060.1	-2,396.09	-1,507.9	-5,514.2	5,689.6	0.00	0.00	0.00
12,200.0	90.00	269.96	7,060.1	-2,396.08	-1,507.9	-5,614.2	5,788.1	0.00	0.00	0.00
12,300.0	90.00	269.96	7,060.1	-2,396.08	-1,508.0	-5,714.2	5,886.7	0.00	0.00	0.00
12,400.0	90.00	269.96	7,060.1	-2,396.08	-1,508.1	-5,814.2	5,985.3	0.00	0.00	0.00
12,500.0	90.00	269.96	7,060.1	-2,396.08	-1,508.2	-5,914.2	6,083.9	0.00	0.00	0.00
12,600.0	90.00	269.96	7,060.1	-2,396.08	-1,508.2	-6,014.2	6,182.5	0.00	0.00	0.00
12,700.0	90.00	269.96	7,060.1	-2,396.08	-1,508.3	-6,114.2	6,281.0	0.00	0.00	0.00
12,800.0	90.00	269.96	7,060.1	-2,396.08	-1,508.4	-6,214.2	6,379.6	0.00	0.00	0.00
12,900.0	90.00	269.96	7,060.1	-2,396.08	-1,508.5	-6,314.2	6,478.2	0.00	0.00	0.00
13,000.0	90.00	269.96	7,060.1	-2,396.07	-1,508.5	-6,414.2	6,576.8	0.00	0.00	0.00
13,100.0	90.00	269.96	7,060.1	-2,396.07	-1,508.6	-6,514.2	6,675.3	0.00	0.00	0.00
13,200.0	90.00	269.96	7,060.1	-2,396.07	-1,508.7	-6,614.2	6,773.9	0.00	0.00	0.00

Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well VETTING 16
Company:	EXTRACTION OIL & GAS	TVD Reference:	KB-EST @ 4664.0usft (Original Well Elev)
Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB-EST @ 4664.0usft (Original Well Elev)
Site:	SW NW SEC. 15 T5N R65W 6th P.M.	North Reference:	True
Well:	VETTING 16	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)
13,300.0	90.00	269.96	7,060.1	-2,396.07	-1,508.8	-6,714.2	6,872.5	0.00	0.00	0.00
13,400.0	90.00	269.96	7,060.1	-2,396.07	-1,508.8	-6,814.2	6,971.1	0.00	0.00	0.00
13,500.0	90.00	269.96	7,060.1	-2,396.06	-1,508.9	-6,914.2	7,069.7	0.00	0.00	0.00
13,600.0	90.00	269.96	7,060.1	-2,396.06	-1,509.0	-7,014.2	7,168.2	0.00	0.00	0.00
13,700.0	90.00	269.96	7,060.1	-2,396.06	-1,509.0	-7,114.2	7,266.8	0.00	0.00	0.00
13,800.0	90.00	269.96	7,060.1	-2,396.06	-1,509.1	-7,214.2	7,365.4	0.00	0.00	0.00
13,900.0	90.00	269.96	7,060.1	-2,396.05	-1,509.2	-7,314.2	7,464.0	0.00	0.00	0.00
14,000.0	90.00	269.96	7,060.1	-2,396.05	-1,509.3	-7,414.2	7,562.6	0.00	0.00	0.00
14,100.0	90.00	269.96	7,060.0	-2,396.05	-1,509.3	-7,514.2	7,661.1	0.00	0.00	0.00
14,200.0	90.00	269.96	7,060.0	-2,396.05	-1,509.4	-7,614.2	7,759.7	0.00	0.00	0.00
14,300.0	90.00	269.96	7,060.0	-2,396.04	-1,509.5	-7,714.2	7,858.3	0.00	0.00	0.00
14,400.0	90.00	269.96	7,060.0	-2,396.04	-1,509.6	-7,814.2	7,956.9	0.00	0.00	0.00
14,500.0	90.00	269.96	7,060.0	-2,396.04	-1,509.6	-7,914.2	8,055.5	0.00	0.00	0.00
14,600.0	90.00	269.96	7,060.0	-2,396.03	-1,509.7	-8,014.2	8,154.0	0.00	0.00	0.00
14,700.0	90.00	269.96	7,060.0	-2,396.03	-1,509.8	-8,114.2	8,252.6	0.00	0.00	0.00
14,800.0	90.00	269.96	7,060.0	-2,396.03	-1,509.9	-8,214.2	8,351.2	0.00	0.00	0.00
14,900.0	90.00	269.96	7,060.0	-2,396.02	-1,509.9	-8,314.2	8,449.8	0.00	0.00	0.00
15,000.0	90.00	269.96	7,060.0	-2,396.02	-1,510.0	-8,414.2	8,548.3	0.00	0.00	0.00
15,100.0	90.00	269.96	7,060.0	-2,396.01	-1,510.1	-8,514.2	8,646.9	0.00	0.00	0.00
15,200.0	90.00	269.96	7,060.0	-2,396.01	-1,510.2	-8,614.2	8,745.5	0.00	0.00	0.00
15,300.0	90.00	269.96	7,060.0	-2,396.00	-1,510.2	-8,714.2	8,844.1	0.00	0.00	0.00
15,400.0	90.00	269.96	7,060.0	-2,396.00	-1,510.3	-8,814.2	8,942.7	0.00	0.00	0.00
BHL - VETTING 16										
15,409.8	90.00	269.96	7,060.0	-2,396.00	-1,510.3	-8,824.0	8,952.3	0.00	0.00	0.00

Formations						
MD (usft)	TVD (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
3,699.7	3,583.0	PARKMAN				
4,274.2	4,132.0	SUSSEX				
4,997.3	4,823.0	SHANNON				
6,932.2	6,703.0	SHARON SPRINGS				
6,954.0	6,723.0	NIOBRARA				
7,123.5	6,865.0	NIO B TARGET				
7,395.5	7,020.0	FORT HAYS				
7,503.6	7,050.0	CODELL				

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)
1,356.8	1,344.1	-121.8	-36.6	EOB TO 17.14° INC
5,823.9	5,612.9	-1,382.3	-415.4	END OF TANGENT
6,680.8	6,457.0	-1,504.2	-452.0	EOD TO VERTICAL
6,710.8	6,487.0	-1,504.2	-452.0	KOP (10°/100ft BUR)
7,610.8	7,060.0	-1,504.6	-1,025.0	LANDING PNT - VETTING 16
15,409.8	7,060.0	-1,510.3	-8,824.0	BHL - VETTING 16