

EXTRACTION OIL & GAS

WELD COUNTY, COLORADO (NAD 83)

NE SE SEC. 8 T5N R66W 6th P.M.

TC-HILAND KNOLLS 3-9-11

ORIGINAL WELLBORE

23 July, 2015

Plan: PROPOSAL #1





Project: WELD COUNTY, COLORADO (NAD 83)
Site: NE SE SEC. 8 T5N R66W 6th P.M.
Well: TC-HILAND KNOLLS 3-9-11
Wellbore: ORIGINAL WELLBORE
Design: PROPOSAL #1

ANNOTATIONS									
TVD	MD	Inc	Azi	+N/-S	+E/-W	VSect	Dep	Annotation	
600.0	600.0	0.00	0.00	0.0	0.0	0.0	0.0	START NUDGE (2°/100ft BUR)	
1503.8	1519.5	18.39	143.71	-117.9	86.6	99.7	146.3	EOB TO 18.39° INC	
6642.4	6934.6	18.39	143.71	-1494.8	1097.5	1263.9	1854.5	START BUILD & TURN	
7092.0	7726.3	90.00	90.26	-1617.5	1659.7	1836.5	2441.0	LANDING PNT - TC-HILAND KNOLLS 3-9-11	
7092.0	20377.9	90.00	90.26	-1675.3	14311.2	14408.9	15092.6	BHL - TC-HILAND KNOLLS 3-9-11	

WELLBORE TARGET DETAILS (LAT/LONG)						
Name	TVD	+N/-S	+E/-W	Latitude	Longitude	
LANDING PNT - TC-HILAND KNOLLS 3-9-11	7092.0	-1617.5	1659.8	40.409590	-104.792700	
BHL - TC-HILAND KNOLLS 3-9-11	7092.0	-1675.3	14311.2	40.409420	-104.747270	

TC-MOISER HILL 2-9-7

TC-MOISER HILL 3-9-11

TC-COUNTRY CLUB WEST C1-9-11

TC-COUNTRY CLUB WEST 1-9-11

TC-COUNTRY CLUB WEST 2-9-11

TC-COUNTRY CLUB WEST C2-9-11

TC-COUNTRY CLUB WEST 3-9-11

TC-COUNTRY CLUB WEST 4-9-11

TC-COUNTRY CLUB WEST C3-9-11

TC-COUNTRY CLUB WEST 5-9-11

TC-AIMS 1-9-11

TC-AIMS C4-9-11

TC-AIMS 2-9-11

TC-AIMS 3-9-11

TC-AIMS C5-9-11

TC-AIMS 4-9-11

TC-HILAND KNOLLS 1-9-11

TC-HILAND KNOLLS C6-9-11

TC-HILAND KNOLLS 2-9-11

TC-HILAND KNOLLS 3-9-11

TC-HILAND KNOLLS C7-9-11

TC-HILAND KNOLLS 4-9-11

TC-PINNACLE PARK 1-9-11

TC-PINNACLE PARK C8-9-11

TC-PINNACLE PARK 2-9-11

FORMATION TOP DETAILS		
TVDPath	MDPath	Formation
3680.0	3812.8	PARKMAN
4410.0	4582.1	SUSSEX
4820.0	5014.1	SHANNON
6940.0	7291.4	SHARON SPRINGS
6972.0	7341.9	NIOBRARA
7092.0	7726.3	NIO B TARGET

T

M

Azimuths to True North

Magnetic North: 8.43°

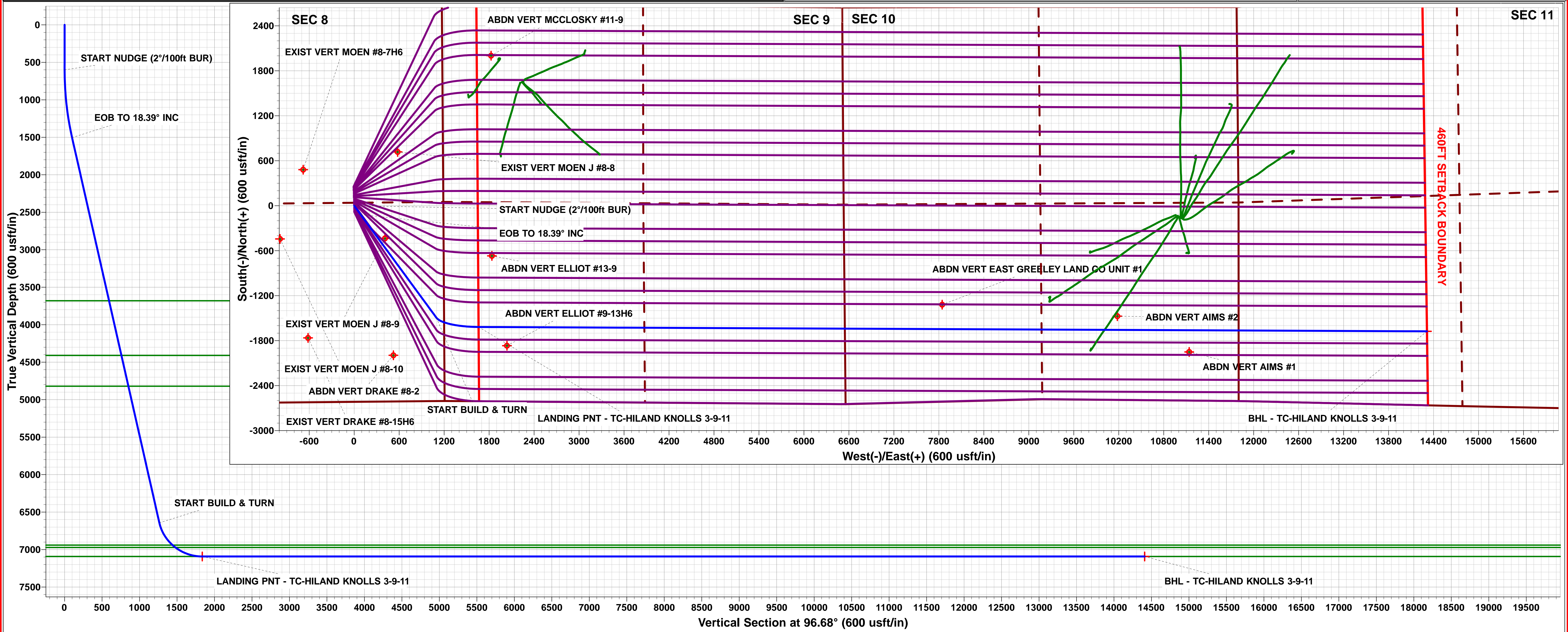
Magnetic Field

Strength: 52613.4snT

Dip Angle: 66.91°

Date: 23/07/2015

Model: IGRF2015



Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well TC-HILAND KNOLLS 3-9-11
Company:	EXTRACTION OIL & GAS	TVD Reference:	KB-EST @ 4807.0usft (Original Well Elev)
Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB-EST @ 4807.0usft (Original Well Elev)
Site:	NE SE SEC. 8 T5N R66W 6th P.M.	North Reference:	True
Well:	TC-HILAND KNOLLS 3-9-11	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL #1		

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	NE SE SEC. 8 T5N R66W 6th P.M.		
Site Position:		Northing:	1,394,363.62 usft
From:	Lat/Long	Easting:	3,195,288.63 usft
Position Uncertainty:	0.0 usft	Slot Radius:	1.10000ft
		Latitude:	40.413810
		Longitude:	-104.798660
		Grid Convergence:	0.45 °

Well	TC-HILAND KNOLLS 3-9-11		
Well Position	+N/-S	80.1 usft	Northing:
	+E/-W	0.0 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	23/07/2015	8.43	66.91	52,613

Design	PROPOSAL #1			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	7,092.0	0.0	0.0	96.68

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	-4,807.0	0.0	0.0	0.00	0.00	0.00	0.00	
600.0	0.00	0.00	600.0	-4,207.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,519.5	18.39	143.71	1,503.8	-3,303.2	-117.9	86.6	2.00	2.00	0.00	143.71	
1,519.5	18.39	143.71	1,503.8	-3,303.2	-117.9	86.6	10.00	-8.78	15.21	151.35	
6,934.6	18.39	143.71	6,642.4	1,835.4	-1,494.9	1,097.5	0.00	0.00	0.00	0.00	
7,726.3	90.00	90.26	7,092.0	2,285.0	-1,617.5	1,659.8	10.00	9.05	-6.75	-54.88	LANDING PNT - TC
20,377.9	90.00	90.26	7,092.0	2,285.0	-1,675.3	14,311.2	0.00	0.00	0.00	0.00	BHL - TC-HILAND I

Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well TC-HILAND KNOLLS 3-9-11
Company:	EXTRACTION OIL & GAS	TVD Reference:	KB-EST @ 4807.0usft (Original Well Elev)
Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB-EST @ 4807.0usft (Original Well Elev)
Site:	NE SE SEC. 8 T5N R66W 6th P.M.	North Reference:	True
Well:	TC-HILAND KNOLLS 3-9-11	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL #1		

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	4,807.00	0.0	0.0	0.0	0.00	0.00	0.00
100.0	0.00	0.00	100.0	4,707.00	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	4,607.00	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	4,507.00	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	4,407.00	0.0	0.0	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	4,307.00	0.0	0.0	0.0	0.00	0.00	0.00
START NUDGE (2°/100ft BUR)										
600.0	0.00	0.00	600.0	4,207.00	0.0	0.0	0.0	0.00	0.00	0.00
700.0	2.00	143.71	700.0	4,107.02	-1.4	1.0	1.2	2.00	2.00	0.00
800.0	4.00	143.71	799.8	4,007.16	-5.6	4.1	4.8	2.00	2.00	0.00
900.0	6.00	143.71	899.5	3,907.55	-12.6	9.3	10.7	2.00	2.00	0.00
1,000.0	8.00	143.71	998.7	3,808.30	-22.5	16.5	19.0	2.00	2.00	0.00
1,100.0	10.00	143.71	1,097.5	3,709.53	-35.1	25.8	29.7	2.00	2.00	0.00
1,200.0	12.00	143.71	1,195.6	3,611.38	-50.5	37.1	42.7	2.00	2.00	0.00
1,300.0	14.00	143.71	1,293.1	3,513.94	-68.6	50.4	58.0	2.00	2.00	0.00
1,400.0	16.00	143.71	1,389.6	3,417.36	-89.5	65.7	75.6	2.00	2.00	0.00
1,500.0	18.00	143.71	1,485.3	3,321.73	-113.0	83.0	95.6	2.00	2.00	0.00
EOB TO 18.39° INC										
1,519.5	18.39	143.71	1,503.8	3,303.21	-117.9	86.6	99.7	2.00	2.00	0.00
1,600.0	18.39	143.71	1,580.2	3,226.82	-138.4	101.6	117.0	0.00	0.00	0.00
1,700.0	18.39	143.71	1,675.1	3,131.92	-163.8	120.3	138.5	0.00	0.00	0.00
1,800.0	18.39	143.71	1,770.0	3,037.03	-189.2	139.0	160.0	0.00	0.00	0.00
1,900.0	18.39	143.71	1,864.9	2,942.13	-214.7	157.6	181.5	0.00	0.00	0.00
2,000.0	18.39	143.71	1,959.8	2,847.24	-240.1	176.3	203.0	0.00	0.00	0.00
2,100.0	18.39	143.71	2,054.7	2,752.35	-265.5	195.0	224.5	0.00	0.00	0.00
2,200.0	18.39	143.71	2,149.5	2,657.45	-291.0	213.6	246.0	0.00	0.00	0.00
2,300.0	18.39	143.71	2,244.4	2,562.56	-316.4	232.3	267.5	0.00	0.00	0.00
2,400.0	18.39	143.71	2,339.3	2,467.66	-341.8	251.0	289.0	0.00	0.00	0.00
2,500.0	18.39	143.71	2,434.2	2,372.77	-367.2	269.6	310.5	0.00	0.00	0.00
2,600.0	18.39	143.71	2,529.1	2,277.87	-392.7	288.3	332.0	0.00	0.00	0.00
2,700.0	18.39	143.71	2,624.0	2,182.98	-418.1	307.0	353.5	0.00	0.00	0.00
2,800.0	18.39	143.71	2,718.9	2,088.09	-443.5	325.7	375.0	0.00	0.00	0.00
2,900.0	18.39	143.71	2,813.8	1,993.19	-468.9	344.3	396.5	0.00	0.00	0.00
3,000.0	18.39	143.71	2,908.7	1,898.30	-494.4	363.0	418.0	0.00	0.00	0.00
3,100.0	18.39	143.71	3,003.6	1,803.40	-519.8	381.7	439.5	0.00	0.00	0.00
3,200.0	18.39	143.71	3,098.5	1,708.51	-545.2	400.3	461.0	0.00	0.00	0.00
3,300.0	18.39	143.71	3,193.4	1,613.62	-570.7	419.0	482.5	0.00	0.00	0.00
3,400.0	18.39	143.71	3,288.3	1,518.72	-596.1	437.7	504.0	0.00	0.00	0.00
3,500.0	18.39	143.71	3,383.2	1,423.83	-621.5	456.3	525.5	0.00	0.00	0.00
3,600.0	18.39	143.71	3,478.1	1,328.93	-646.9	475.0	547.0	0.00	0.00	0.00
3,700.0	18.39	143.71	3,573.0	1,234.04	-672.4	493.7	568.5	0.00	0.00	0.00
3,800.0	18.39	143.71	3,667.9	1,139.14	-697.8	512.3	590.0	0.00	0.00	0.00
PARKMAN										
3,812.8	18.39	143.71	3,680.0	1,127.00	-701.1	514.7	592.8	0.00	0.00	0.00
3,900.0	18.39	143.71	3,762.7	1,044.25	-723.2	531.0	611.5	0.00	0.00	0.00
4,000.0	18.39	143.71	3,857.6	949.36	-748.7	549.7	633.0	0.00	0.00	0.00
4,100.0	18.39	143.71	3,952.5	854.46	-774.1	568.3	654.5	0.00	0.00	0.00
4,200.0	18.39	143.71	4,047.4	759.57	-799.5	587.0	676.0	0.00	0.00	0.00
4,300.0	18.39	143.71	4,142.3	664.67	-824.9	605.7	697.5	0.00	0.00	0.00
4,400.0	18.39	143.71	4,237.2	569.78	-850.4	624.4	719.0	0.00	0.00	0.00
4,500.0	18.39	143.71	4,332.1	474.89	-875.8	643.0	740.5	0.00	0.00	0.00
SUSSEX										
4,582.1	18.39	143.71	4,410.0	397.00	-896.7	658.3	758.1	0.00	0.00	0.00
4,600.0	18.39	143.71	4,427.0	379.99	-901.2	661.7	762.0	0.00	0.00	0.00

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Well:	TC-HILAND KNOLLS 3-9-11	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL #1		

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	18.39	143.71	4,521.9	285.10	-926.6	680.4	783.5	0.00	0.00	0.00
4,800.0	18.39	143.71	4,616.8	190.20	-952.1	699.0	805.0	0.00	0.00	0.00
4,900.0	18.39	143.71	4,711.7	95.31	-977.5	717.7	826.5	0.00	0.00	0.00
5,000.0	18.39	143.71	4,806.6	0.41	-1,002.9	736.4	848.0	0.00	0.00	0.00
SHANNON										
5,014.1	18.39	143.71	4,820.0	-13.00	-1,006.5	739.0	851.0	0.00	0.00	0.00
5,100.0	18.39	143.71	4,901.5	-94.48	-1,028.4	755.0	869.5	0.00	0.00	0.00
5,200.0	18.39	143.71	4,996.4	-189.37	-1,053.8	773.7	891.0	0.00	0.00	0.00
5,300.0	18.39	143.71	5,091.3	-284.27	-1,079.2	792.4	912.5	0.00	0.00	0.00
5,400.0	18.39	143.71	5,186.2	-379.16	-1,104.6	811.0	934.0	0.00	0.00	0.00
5,500.0	18.39	143.71	5,281.1	-474.06	-1,130.1	829.7	955.5	0.00	0.00	0.00
5,600.0	18.39	143.71	5,376.0	-568.95	-1,155.5	848.4	977.0	0.00	0.00	0.00
5,700.0	18.39	143.71	5,470.8	-663.85	-1,180.9	867.1	998.5	0.00	0.00	0.00
5,800.0	18.39	143.71	5,565.7	-758.74	-1,206.3	885.7	1,020.0	0.00	0.00	0.00
5,900.0	18.39	143.71	5,660.6	-853.63	-1,231.8	904.4	1,041.5	0.00	0.00	0.00
6,000.0	18.39	143.71	5,755.5	-948.53	-1,257.2	923.1	1,063.0	0.00	0.00	0.00
6,100.0	18.39	143.71	5,850.4	-1,043.42	-1,282.6	941.7	1,084.5	0.00	0.00	0.00
6,200.0	18.39	143.71	5,945.3	-1,138.32	-1,308.1	960.4	1,106.0	0.00	0.00	0.00
6,300.0	18.39	143.71	6,040.2	-1,233.21	-1,333.5	979.1	1,127.5	0.00	0.00	0.00
6,400.0	18.39	143.71	6,135.1	-1,328.10	-1,358.9	997.7	1,149.0	0.00	0.00	0.00
6,500.0	18.39	143.71	6,230.0	-1,423.00	-1,384.3	1,016.4	1,170.5	0.00	0.00	0.00
6,600.0	18.39	143.71	6,324.9	-1,517.89	-1,409.8	1,035.1	1,192.0	0.00	0.00	0.00
6,700.0	18.39	143.71	6,419.8	-1,612.79	-1,435.2	1,053.7	1,213.5	0.00	0.00	0.00
6,800.0	18.39	143.71	6,514.7	-1,707.68	-1,460.6	1,072.4	1,235.0	0.00	0.00	0.00
6,900.0	18.39	143.71	6,609.6	-1,802.58	-1,486.0	1,091.1	1,256.5	0.00	0.00	0.00
START BUILD & TURN										
6,934.6	18.39	143.71	6,642.4	-1,835.41	-1,494.8	1,097.5	1,263.9	0.00	0.00	0.00
7,000.0	22.76	129.79	6,703.7	-1,896.66	-1,511.3	1,113.4	1,281.6	10.00	6.69	-21.29
7,100.0	30.90	116.76	6,792.9	-1,985.89	-1,535.3	1,151.3	1,322.0	10.00	8.14	-13.03
7,200.0	39.84	108.93	6,874.4	-2,067.39	-1,557.3	1,204.6	1,377.5	10.00	8.93	-7.83
SHARON SPRINGS										
7,291.4	48.32	104.02	6,940.0	-2,133.00	-1,575.1	1,265.6	1,440.1	10.00	9.28	-5.38
7,300.0	49.13	103.62	6,945.7	-2,138.69	-1,576.6	1,271.9	1,446.5	10.00	9.39	-4.57
NIOBRARA										
7,341.9	53.08	101.84	6,972.0	-2,165.00	-1,583.8	1,303.7	1,479.0	10.00	9.43	-4.26
7,400.0	58.60	99.64	7,004.6	-2,197.61	-1,592.7	1,350.9	1,526.9	10.00	9.50	-3.78
7,500.0	68.17	96.40	7,049.4	-2,242.36	-1,605.1	1,439.3	1,616.2	10.00	9.57	-3.24
7,600.0	77.80	93.57	7,078.6	-2,271.60	-1,613.3	1,534.4	1,711.6	10.00	9.63	-2.83
7,700.0	87.45	90.94	7,091.4	-2,284.41	-1,617.2	1,633.4	1,810.4	10.00	9.65	-2.63
LANDING PNT - TC-HILAND KNOLLS 3-9-11 - NIO B TARGET										
7,726.3	90.00	90.26	7,092.0	-2,285.00	-1,617.5	1,659.8	1,836.6	10.00	9.66	-2.58
7,800.0	90.00	90.26	7,092.0	-2,285.00	-1,617.8	1,733.4	1,909.8	0.00	0.00	0.00
7,900.0	90.00	90.26	7,092.0	-2,285.00	-1,618.3	1,833.4	2,009.1	0.00	0.00	0.00
8,000.0	90.00	90.26	7,092.0	-2,285.00	-1,618.7	1,933.4	2,108.5	0.00	0.00	0.00
8,100.0	90.00	90.26	7,092.0	-2,285.00	-1,619.2	2,033.4	2,207.9	0.00	0.00	0.00
8,200.0	90.00	90.26	7,092.0	-2,285.00	-1,619.6	2,133.4	2,307.2	0.00	0.00	0.00
8,300.0	90.00	90.26	7,092.0	-2,285.00	-1,620.1	2,233.4	2,406.6	0.00	0.00	0.00
8,400.0	90.00	90.26	7,092.0	-2,285.00	-1,620.6	2,333.4	2,506.0	0.00	0.00	0.00
8,500.0	90.00	90.26	7,092.0	-2,285.00	-1,621.0	2,433.4	2,605.4	0.00	0.00	0.00
8,600.0	90.00	90.26	7,092.0	-2,285.00	-1,621.5	2,533.4	2,704.7	0.00	0.00	0.00
8,700.0	90.00	90.26	7,092.0	-2,285.00	-1,621.9	2,633.4	2,804.1	0.00	0.00	0.00
8,800.0	90.00	90.26	7,092.0	-2,285.00	-1,622.4	2,733.4	2,903.5	0.00	0.00	0.00
8,900.0	90.00	90.26	7,092.0	-2,285.00	-1,622.8	2,833.4	3,002.9	0.00	0.00	0.00

Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well TC-HILAND KNOLLS 3-9-11
Company:	EXTRACTION OIL & GAS	TVD Reference:	KB-EST @ 4807.0usft (Original Well Elev)
Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB-EST @ 4807.0usft (Original Well Elev)
Site:	NE SE SEC. 8 T5N R66W 6th P.M.	North Reference:	True
Well:	TC-HILAND KNOLLS 3-9-11	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL #1		

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)
9,000.0	90.00	90.26	7,092.0	-2,285.00	-1,623.3	2,933.4	3,102.2	0.00	0.00	0.00
9,100.0	90.00	90.26	7,092.0	-2,285.00	-1,623.8	3,033.4	3,201.6	0.00	0.00	0.00
9,200.0	90.00	90.26	7,092.0	-2,285.00	-1,624.2	3,133.4	3,301.0	0.00	0.00	0.00
9,300.0	90.00	90.26	7,092.0	-2,285.00	-1,624.7	3,233.4	3,400.4	0.00	0.00	0.00
9,400.0	90.00	90.26	7,092.0	-2,285.00	-1,625.1	3,333.4	3,499.7	0.00	0.00	0.00
9,500.0	90.00	90.26	7,092.0	-2,285.00	-1,625.6	3,433.4	3,599.1	0.00	0.00	0.00
9,600.0	90.00	90.26	7,092.0	-2,285.00	-1,626.0	3,533.4	3,698.5	0.00	0.00	0.00
9,700.0	90.00	90.26	7,092.0	-2,285.00	-1,626.5	3,633.4	3,797.9	0.00	0.00	0.00
9,800.0	90.00	90.26	7,092.0	-2,285.00	-1,627.0	3,733.4	3,897.2	0.00	0.00	0.00
9,900.0	90.00	90.26	7,092.0	-2,285.00	-1,627.4	3,833.4	3,996.6	0.00	0.00	0.00
10,000.0	90.00	90.26	7,092.0	-2,285.00	-1,627.9	3,933.4	4,096.0	0.00	0.00	0.00
10,100.0	90.00	90.26	7,092.0	-2,285.00	-1,628.3	4,033.4	4,195.4	0.00	0.00	0.00
10,200.0	90.00	90.26	7,092.0	-2,285.00	-1,628.8	4,133.4	4,294.7	0.00	0.00	0.00
10,300.0	90.00	90.26	7,092.0	-2,285.00	-1,629.2	4,233.4	4,394.1	0.00	0.00	0.00
10,400.0	90.00	90.26	7,092.0	-2,285.00	-1,629.7	4,333.4	4,493.5	0.00	0.00	0.00
10,500.0	90.00	90.26	7,092.0	-2,285.00	-1,630.2	4,433.4	4,592.8	0.00	0.00	0.00
10,600.0	90.00	90.26	7,092.0	-2,285.00	-1,630.6	4,533.4	4,692.2	0.00	0.00	0.00
10,700.0	90.00	90.26	7,092.0	-2,285.00	-1,631.1	4,633.4	4,791.6	0.00	0.00	0.00
10,800.0	90.00	90.26	7,092.0	-2,285.00	-1,631.5	4,733.4	4,891.0	0.00	0.00	0.00
10,900.0	90.00	90.26	7,092.0	-2,285.00	-1,632.0	4,833.4	4,990.3	0.00	0.00	0.00
11,000.0	90.00	90.26	7,092.0	-2,285.00	-1,632.4	4,933.4	5,089.7	0.00	0.00	0.00
11,100.0	90.00	90.26	7,092.0	-2,285.00	-1,632.9	5,033.4	5,189.1	0.00	0.00	0.00
11,200.0	90.00	90.26	7,092.0	-2,285.00	-1,633.4	5,133.4	5,288.5	0.00	0.00	0.00
11,300.0	90.00	90.26	7,092.0	-2,285.00	-1,633.8	5,233.4	5,387.8	0.00	0.00	0.00
11,400.0	90.00	90.26	7,092.0	-2,285.00	-1,634.3	5,333.4	5,487.2	0.00	0.00	0.00
11,500.0	90.00	90.26	7,092.0	-2,285.00	-1,634.7	5,433.4	5,586.6	0.00	0.00	0.00
11,600.0	90.00	90.26	7,092.0	-2,285.00	-1,635.2	5,533.4	5,686.0	0.00	0.00	0.00
11,700.0	90.00	90.26	7,092.0	-2,285.00	-1,635.6	5,633.4	5,785.3	0.00	0.00	0.00
11,800.0	90.00	90.26	7,092.0	-2,285.00	-1,636.1	5,733.4	5,884.7	0.00	0.00	0.00
11,900.0	90.00	90.26	7,092.0	-2,285.00	-1,636.6	5,833.4	5,984.1	0.00	0.00	0.00
12,000.0	90.00	90.26	7,092.0	-2,285.00	-1,637.0	5,933.4	6,083.5	0.00	0.00	0.00
12,100.0	90.00	90.26	7,092.0	-2,285.00	-1,637.5	6,033.4	6,182.8	0.00	0.00	0.00
12,200.0	90.00	90.26	7,092.0	-2,285.00	-1,637.9	6,133.4	6,282.2	0.00	0.00	0.00
12,300.0	90.00	90.26	7,092.0	-2,285.00	-1,638.4	6,233.4	6,381.6	0.00	0.00	0.00
12,400.0	90.00	90.26	7,092.0	-2,285.00	-1,638.8	6,333.4	6,481.0	0.00	0.00	0.00
12,500.0	90.00	90.26	7,092.0	-2,285.00	-1,639.3	6,433.4	6,580.3	0.00	0.00	0.00
12,600.0	90.00	90.26	7,092.0	-2,285.00	-1,639.8	6,533.4	6,679.7	0.00	0.00	0.00
12,700.0	90.00	90.26	7,092.0	-2,285.00	-1,640.2	6,633.4	6,779.1	0.00	0.00	0.00
12,800.0	90.00	90.26	7,092.0	-2,285.00	-1,640.7	6,733.4	6,878.4	0.00	0.00	0.00
12,900.0	90.00	90.26	7,092.0	-2,285.00	-1,641.1	6,833.4	6,977.8	0.00	0.00	0.00
13,000.0	90.00	90.26	7,092.0	-2,285.00	-1,641.6	6,933.4	7,077.2	0.00	0.00	0.00
13,100.0	90.00	90.26	7,092.0	-2,285.00	-1,642.0	7,033.3	7,176.6	0.00	0.00	0.00
13,200.0	90.00	90.26	7,092.0	-2,285.00	-1,642.5	7,133.3	7,275.9	0.00	0.00	0.00
13,300.0	90.00	90.26	7,092.0	-2,285.00	-1,643.0	7,233.3	7,375.3	0.00	0.00	0.00
13,400.0	90.00	90.26	7,092.0	-2,285.00	-1,643.4	7,333.3	7,474.7	0.00	0.00	0.00
13,500.0	90.00	90.26	7,092.0	-2,285.00	-1,643.9	7,433.3	7,574.1	0.00	0.00	0.00
13,600.0	90.00	90.26	7,092.0	-2,285.00	-1,644.3	7,533.3	7,673.4	0.00	0.00	0.00
13,700.0	90.00	90.26	7,092.0	-2,285.00	-1,644.8	7,633.3	7,772.8	0.00	0.00	0.00
13,800.0	90.00	90.26	7,092.0	-2,285.00	-1,645.2	7,733.3	7,872.2	0.00	0.00	0.00
13,900.0	90.00	90.26	7,092.0	-2,285.00	-1,645.7	7,833.3	7,971.6	0.00	0.00	0.00
14,000.0	90.00	90.26	7,092.0	-2,285.00	-1,646.2	7,933.3	8,070.9	0.00	0.00	0.00
14,100.0	90.00	90.26	7,092.0	-2,285.00	-1,646.6	8,033.3	8,170.3	0.00	0.00	0.00
14,200.0	90.00	90.26	7,092.0	-2,285.00	-1,647.1	8,133.3	8,269.7	0.00	0.00	0.00
14,300.0	90.00	90.26	7,092.0	-2,285.00	-1,647.5	8,233.3	8,369.1	0.00	0.00	0.00

Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well TC-HILAND KNOLLS 3-9-11
Company:	EXTRACTION OIL & GAS	TVD Reference:	KB-EST @ 4807.0usft (Original Well Elev)
Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB-EST @ 4807.0usft (Original Well Elev)
Site:	NE SE SEC. 8 T5N R66W 6th P.M.	North Reference:	True
Well:	TC-HILAND KNOLLS 3-9-11	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL #1		

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)
14,400.0	90.00	90.26	7,092.0	-2,285.00	-1,648.0	8,333.3	8,468.4	0.00	0.00	0.00
14,500.0	90.00	90.26	7,092.0	-2,285.00	-1,648.5	8,433.3	8,567.8	0.00	0.00	0.00
14,600.0	90.00	90.26	7,092.0	-2,285.00	-1,648.9	8,533.3	8,667.2	0.00	0.00	0.00
14,700.0	90.00	90.26	7,092.0	-2,285.00	-1,649.4	8,633.3	8,766.5	0.00	0.00	0.00
14,800.0	90.00	90.26	7,092.0	-2,285.00	-1,649.8	8,733.3	8,865.9	0.00	0.00	0.00
14,900.0	90.00	90.26	7,092.0	-2,285.00	-1,650.3	8,833.3	8,965.3	0.00	0.00	0.00
15,000.0	90.00	90.26	7,092.0	-2,285.00	-1,650.7	8,933.3	9,064.7	0.00	0.00	0.00
15,100.0	90.00	90.26	7,092.0	-2,285.00	-1,651.2	9,033.3	9,164.0	0.00	0.00	0.00
15,200.0	90.00	90.26	7,092.0	-2,285.00	-1,651.7	9,133.3	9,263.4	0.00	0.00	0.00
15,300.0	90.00	90.26	7,092.0	-2,285.00	-1,652.1	9,233.3	9,362.8	0.00	0.00	0.00
15,400.0	90.00	90.26	7,092.0	-2,285.00	-1,652.6	9,333.3	9,462.2	0.00	0.00	0.00
15,500.0	90.00	90.26	7,092.0	-2,285.00	-1,653.0	9,433.3	9,561.5	0.00	0.00	0.00
15,600.0	90.00	90.26	7,092.0	-2,285.00	-1,653.5	9,533.3	9,660.9	0.00	0.00	0.00
15,700.0	90.00	90.26	7,092.0	-2,285.00	-1,653.9	9,633.3	9,760.3	0.00	0.00	0.00
15,800.0	90.00	90.26	7,092.0	-2,285.00	-1,654.4	9,733.3	9,859.7	0.00	0.00	0.00
15,900.0	90.00	90.26	7,092.0	-2,285.00	-1,654.9	9,833.3	9,959.0	0.00	0.00	0.00
16,000.0	90.00	90.26	7,092.0	-2,285.00	-1,655.3	9,933.3	10,058.4	0.00	0.00	0.00
16,100.0	90.00	90.26	7,092.0	-2,285.00	-1,655.8	10,033.3	10,157.8	0.00	0.00	0.00
16,200.0	90.00	90.26	7,092.0	-2,285.00	-1,656.2	10,133.3	10,257.2	0.00	0.00	0.00
16,300.0	90.00	90.26	7,092.0	-2,285.00	-1,656.7	10,233.3	10,356.5	0.00	0.00	0.00
16,400.0	90.00	90.26	7,092.0	-2,285.00	-1,657.1	10,333.3	10,455.9	0.00	0.00	0.00
16,500.0	90.00	90.26	7,092.0	-2,285.00	-1,657.6	10,433.3	10,555.3	0.00	0.00	0.00
16,600.0	90.00	90.26	7,092.0	-2,285.00	-1,658.1	10,533.3	10,654.7	0.00	0.00	0.00
16,700.0	90.00	90.26	7,092.0	-2,285.00	-1,658.5	10,633.3	10,754.0	0.00	0.00	0.00
16,800.0	90.00	90.26	7,092.0	-2,285.00	-1,659.0	10,733.3	10,853.4	0.00	0.00	0.00
16,900.0	90.00	90.26	7,092.0	-2,285.00	-1,659.4	10,833.3	10,952.8	0.00	0.00	0.00
17,000.0	90.00	90.26	7,092.0	-2,285.00	-1,659.9	10,933.3	11,052.1	0.00	0.00	0.00
17,100.0	90.00	90.26	7,092.0	-2,285.00	-1,660.3	11,033.3	11,151.5	0.00	0.00	0.00
17,200.0	90.00	90.26	7,092.0	-2,285.00	-1,660.8	11,133.3	11,250.9	0.00	0.00	0.00
17,300.0	90.00	90.26	7,092.0	-2,285.00	-1,661.3	11,233.3	11,350.3	0.00	0.00	0.00
17,400.0	90.00	90.26	7,092.0	-2,285.00	-1,661.7	11,333.3	11,449.6	0.00	0.00	0.00
17,500.0	90.00	90.26	7,092.0	-2,285.00	-1,662.2	11,433.3	11,549.0	0.00	0.00	0.00
17,600.0	90.00	90.26	7,092.0	-2,285.00	-1,662.6	11,533.3	11,648.4	0.00	0.00	0.00
17,700.0	90.00	90.26	7,092.0	-2,285.00	-1,663.1	11,633.3	11,747.8	0.00	0.00	0.00
17,800.0	90.00	90.26	7,092.0	-2,285.00	-1,663.5	11,733.3	11,847.1	0.00	0.00	0.00
17,900.0	90.00	90.26	7,092.0	-2,285.00	-1,664.0	11,833.3	11,946.5	0.00	0.00	0.00
18,000.0	90.00	90.26	7,092.0	-2,285.00	-1,664.5	11,933.3	12,045.9	0.00	0.00	0.00
18,100.0	90.00	90.26	7,092.0	-2,285.00	-1,664.9	12,033.3	12,145.3	0.00	0.00	0.00
18,200.0	90.00	90.26	7,092.0	-2,285.00	-1,665.4	12,133.3	12,244.6	0.00	0.00	0.00
18,300.0	90.00	90.26	7,092.0	-2,285.00	-1,665.8	12,233.3	12,344.0	0.00	0.00	0.00
18,400.0	90.00	90.26	7,092.0	-2,285.00	-1,666.3	12,333.3	12,443.4	0.00	0.00	0.00
18,500.0	90.00	90.26	7,092.0	-2,285.00	-1,666.7	12,433.3	12,542.8	0.00	0.00	0.00
18,600.0	90.00	90.26	7,092.0	-2,285.00	-1,667.2	12,533.3	12,642.1	0.00	0.00	0.00
18,700.0	90.00	90.26	7,092.0	-2,285.00	-1,667.7	12,633.3	12,741.5	0.00	0.00	0.00
18,800.0	90.00	90.26	7,092.0	-2,285.00	-1,668.1	12,733.3	12,840.9	0.00	0.00	0.00
18,900.0	90.00	90.26	7,092.0	-2,285.00	-1,668.6	12,833.3	12,940.3	0.00	0.00	0.00
19,000.0	90.00	90.26	7,092.0	-2,285.00	-1,669.0	12,933.3	13,039.6	0.00	0.00	0.00
19,100.0	90.00	90.26	7,092.0	-2,285.00	-1,669.5	13,033.3	13,139.0	0.00	0.00	0.00
19,200.0	90.00	90.26	7,092.0	-2,285.00	-1,669.9	13,133.3	13,238.4	0.00	0.00	0.00
19,300.0	90.00	90.26	7,092.0	-2,285.00	-1,670.4	13,233.3	13,337.7	0.00	0.00	0.00
19,400.0	90.00	90.26	7,092.0	-2,285.00	-1,670.9	13,333.3	13,437.1	0.00	0.00	0.00
19,500.0	90.00	90.26	7,092.0	-2,285.00	-1,671.3	13,433.3	13,536.5	0.00	0.00	0.00
19,600.0	90.00	90.26	7,092.0	-2,285.00	-1,671.8	13,533.3	13,635.9	0.00	0.00	0.00
19,700.0	90.00	90.26	7,092.0	-2,285.00	-1,672.2	13,633.3	13,735.2	0.00	0.00	0.00

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well TC-HILAND KNOLLS 3-9-11
Company:	EXTRACTION OIL & GAS	TVD Reference:	KB-EST @ 4807.0usft (Original Well Elev)
Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB-EST @ 4807.0usft (Original Well Elev)
Site:	NE SE SEC. 8 T5N R66W 6th P.M.	North Reference:	True
Well:	TC-HILAND KNOLLS 3-9-11	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL #1		

Planned Survey										
MD (usft)	Inc (°)	Azi (°)	TVD (usft)	SS (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
19,800.0	90.00	90.26	7,092.0	-2,285.00	-1,672.7	13,733.3	13,834.6	0.00	0.00	0.00
19,900.0	90.00	90.26	7,092.0	-2,285.00	-1,673.1	13,833.3	13,934.0	0.00	0.00	0.00
20,000.0	90.00	90.26	7,092.0	-2,285.00	-1,673.6	13,933.3	14,033.4	0.00	0.00	0.00
20,100.0	90.00	90.26	7,092.0	-2,285.00	-1,674.1	14,033.3	14,132.7	0.00	0.00	0.00
20,200.0	90.00	90.26	7,092.0	-2,285.00	-1,674.5	14,133.3	14,232.1	0.00	0.00	0.00
20,300.0	90.00	90.26	7,092.0	-2,285.00	-1,675.0	14,233.3	14,331.5	0.00	0.00	0.00
BHL - TC-HILAND KNOLLS 3-9-11										
20,377.9	90.00	90.26	7,092.0	-2,285.00	-1,675.3	14,311.2	14,408.9	0.00	0.00	0.00

Formations						
MD (usft)	TVD (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
3,812.8	3,680.0	PARKMAN				
4,582.1	4,410.0	SUSSEX				
5,014.1	4,820.0	SHANNON				
7,291.4	6,940.0	SHARON SPRINGS				
7,341.9	6,972.0	NIOBRARA				
7,726.3	7,092.0	NIO B TARGET				

Plan Annotations				
MD (usft)	TVD (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
600.0	600.0	0.0	0.0	START NUDGE (2°/100ft BUR)
1,519.5	1,503.8	-117.9	86.6	EOB TO 18.39° INC
6,934.6	6,642.4	-1,494.8	1,097.5	START BUILD & TURN
7,726.3	7,092.0	-1,617.5	1,659.7	LANDING PNT - TC-HILAND KNOLLS 3-9-11
20,377.9	7,092.0	-1,675.3	14,311.2	BHL - TC-HILAND KNOLLS 3-9-11