

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

09 January, 2017

Plan: PROPOSAL #2





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 #2

ANNOTATIONS										FORMATION TOP DETAILS		
TVD	MD	Inc	Azi	+N/-S	+E/-W	VSec	Dep	Annotation		TVDPath	MDPath	Formation
0.0	0.0	0.00	0.00	0.0	0.0	0.0	0.0	SHL: 2552ft FSL & 1188ft FEL of Sec 8		3680.0	3809.6	PARKMAN
200.0	200.0	0.00	0.00	0.0	0.0	0.0	0.0	START NUDDGE (2°/100ft BUR)		4410.0	4571.9	SUSSEX
1025.8	1037.7	16.75	142.71	-96.8	73.7	84.0	121.6	EOB TO 16.75° INC		4820.0	5000.1	SHANNON
6632.6	6893.1	16.75	142.71	-1439.7	1096.2	1250.3	1809.5	START BUILD & TURN		6940.0	7258.4	SHARON SPRINGS
7092.0	7691.9	90.00	90.26	-1551.9	1659.8	1822.8	2393.9	HZ LP: 990ft FSL & 460ft FWL of Sec 9		6972.0	7308.8	NIOBRARA
7092.0	20343.5	90.00	90.26	-1609.7	14311.2	14401.5	15045.5	BHL: 989ft FSL & 2514ft FWL of Sec 11		7092.0	7691.9	NIO B TARGET

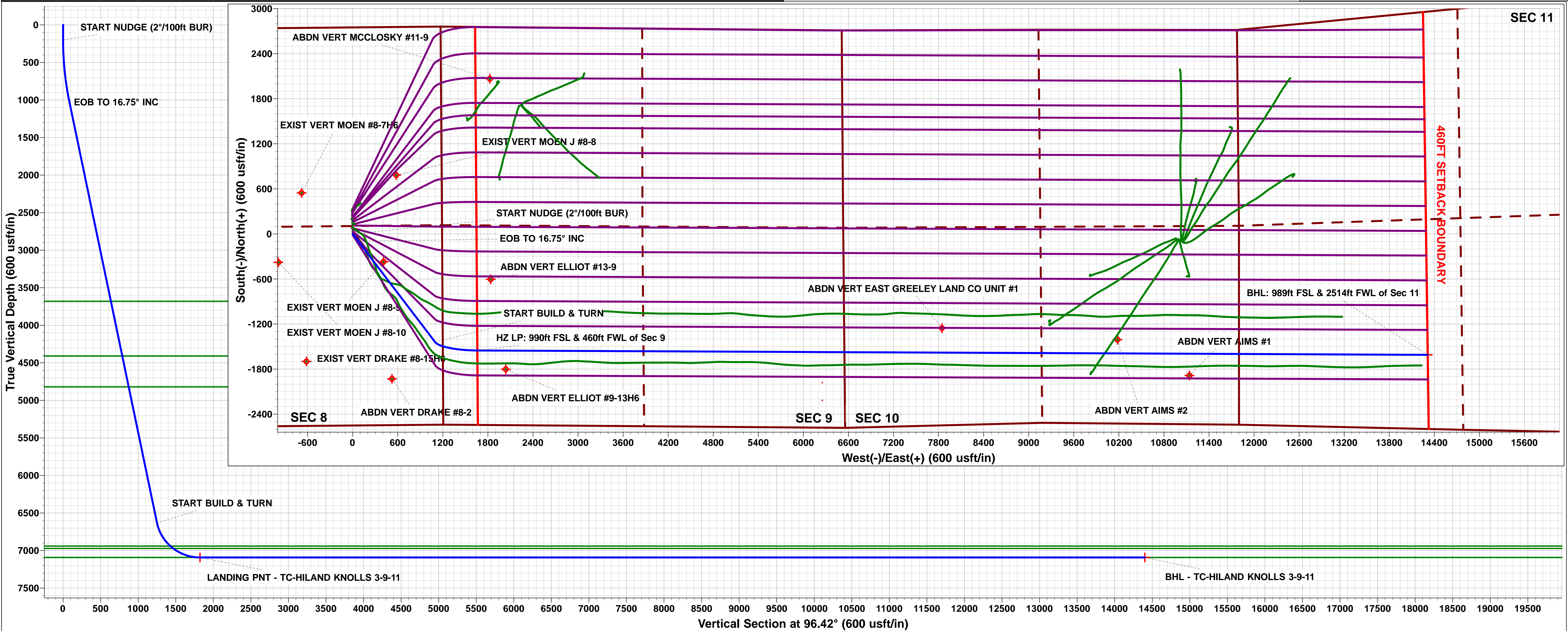
WELLBORE TARGET DETAILS (LAT/LONG)					
Name	TVD	+N/-S	+E/-W	Latitude	Longitude
LANDING PNT - TC-HILAND KNOLLS 3-9-11	7092.0	-1551.9	1659.8	40.409590	-104.792700
BHL - TC-HILAND KNOLLS 3-9-11	7092.0	-1609.7	14311.2	40.409420	-104.747270

TC-MOISER HILL 2-9-7
TC-COUNTRY CLUB WEST C1-9-11
TC-MOISER HILL 3-9-11
TC-COUNTRY CLUB WEST 1-9-11
TC-COUNTRY CLUB WEST 2-9-11
TC-COUNTRY CLUB WEST C3-9-11
TC-COUNTRY CLUB WEST A2-9-11
TC-COUNTRY CLUB WEST 3-9-11
TC-AIMS C4-9-11
TC-COUNTRY CLUB WEST 4-9-11
TC-COUNTRY CLUB WEST 5-9-11
TC-AIMS C5-9-11
TC-AIMS 1-9-11
TC-AIMS 2-9-11
TC-HILAND KNOLLS C6-9-11
TC-AIMS 3-9-11
TC-AIMS 4-9-11

TC-HILAND KNOLLS C7-9-11
TC-HILAND KNOLLS 1-9-11
TC-HILAND KNOLLS 2-9-11
TC-HILAND KNOLLS 3-9-11
TC-HILAND KNOLLS 4-9-11

South(-)/North(+) (150 usft/in)
West(-)/East(+) (150 usft/in)

T M
Azimuths to True North
Magnetic North: 8.28°
Magnetic Field
Strength: 52449.7nT
Dip Angle: 66.87°
Date: 28/12/2016
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 @ 4808.0usft
Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB-EST @ 4808.0usft
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 #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	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	14.6 usft	Northing:	1,394,378.19 usfi	Latitude:	40.413850
	+E/-W	0.0 usft	Easting:	3,195,288.51 usfi	Longitude:	-104.798660
Position Uncertainty		0.0 usft	Wellhead Elevation:	usfi	Ground Level:	4,792.0 usft

Wellbore	ORIGINAL WELLBORE				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	28/12/2016	8.28	66.87	52,450

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	96.42

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	-4,808.0	0.0	0.0	0.00	0.00	0.00	0.00	
200.0	0.00	0.00	200.0	-4,608.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,037.7	16.75	142.71	1,025.8	-3,782.2	-96.8	73.7	2.00	2.00	0.00	142.71	
6,893.1	16.75	142.71	6,632.6	1,824.6	-1,439.7	1,096.2	0.00	0.00	0.00	0.00	
7,691.9	90.00	90.26	7,092.0	2,284.0	-1,551.9	1,659.8	10.00	9.17	-6.57	-53.65	LANDING PNT - TC
20,343.5	90.00	90.26	7,092.0	2,284.0	-1,609.7	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 @ 4808.0usft
Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB-EST @ 4808.0usft
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 #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)
SHL: 2552ft FSL & 1188ft FEL of Sec 8										
0.0	0.00	0.00	0.0	4,808.00	0.0	0.0	0.0	0.00	0.00	0.00
100.0	0.00	0.00	100.0	4,708.00	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	4,608.00	0.0	0.0	0.0	0.00	0.00	0.00
300.0	2.00	142.71	300.0	4,508.02	-1.4	1.1	1.2	2.00	2.00	0.00
400.0	4.00	142.71	399.8	4,408.16	-5.6	4.2	4.8	2.00	2.00	0.00
500.0	6.00	142.71	499.5	4,308.55	-12.5	9.5	10.8	2.00	2.00	0.00
600.0	8.00	142.71	598.7	4,209.30	-22.2	16.9	19.3	2.00	2.00	0.00
700.0	10.00	142.71	697.5	4,110.53	-34.6	26.4	30.1	2.00	2.00	0.00
800.0	12.00	142.71	795.6	4,012.38	-49.8	37.9	43.3	2.00	2.00	0.00
900.0	14.00	142.71	893.1	3,914.94	-67.7	51.6	58.8	2.00	2.00	0.00
1,000.0	16.00	142.71	989.6	3,818.36	-88.3	67.2	76.7	2.00	2.00	0.00
EOB TO 16.75° INC										
1,037.7	16.75	142.71	1,025.8	3,782.19	-96.8	73.7	84.0	2.00	2.00	0.00
1,100.0	16.75	142.71	1,085.5	3,722.53	-111.0	84.5	96.4	0.00	0.00	0.00
1,200.0	16.75	142.71	1,181.2	3,626.78	-134.0	102.0	116.3	0.00	0.00	0.00
1,300.0	16.75	142.71	1,277.0	3,531.02	-156.9	119.5	136.3	0.00	0.00	0.00
1,400.0	16.75	142.71	1,372.7	3,435.27	-179.8	136.9	156.2	0.00	0.00	0.00
1,500.0	16.75	142.71	1,468.5	3,339.51	-202.8	154.4	176.1	0.00	0.00	0.00
1,600.0	16.75	142.71	1,564.2	3,243.76	-225.7	171.9	196.0	0.00	0.00	0.00
1,700.0	16.75	142.71	1,660.0	3,148.00	-248.7	189.3	215.9	0.00	0.00	0.00
1,800.0	16.75	142.71	1,755.8	3,052.25	-271.6	206.8	235.9	0.00	0.00	0.00
1,900.0	16.75	142.71	1,851.5	2,956.49	-294.5	224.3	255.8	0.00	0.00	0.00
2,000.0	16.75	142.71	1,947.3	2,860.74	-317.5	241.7	275.7	0.00	0.00	0.00
2,100.0	16.75	142.71	2,043.0	2,764.98	-340.4	259.2	295.6	0.00	0.00	0.00
2,200.0	16.75	142.71	2,138.8	2,669.23	-363.3	276.6	315.5	0.00	0.00	0.00
2,300.0	16.75	142.71	2,234.5	2,573.47	-386.3	294.1	335.4	0.00	0.00	0.00
2,400.0	16.75	142.71	2,330.3	2,477.72	-409.2	311.6	355.4	0.00	0.00	0.00
2,500.0	16.75	142.71	2,426.0	2,381.96	-432.1	329.0	375.3	0.00	0.00	0.00
2,600.0	16.75	142.71	2,521.8	2,286.21	-455.1	346.5	395.2	0.00	0.00	0.00
2,700.0	16.75	142.71	2,617.5	2,190.45	-478.0	364.0	415.1	0.00	0.00	0.00
2,800.0	16.75	142.71	2,713.3	2,094.70	-500.9	381.4	435.0	0.00	0.00	0.00
2,900.0	16.75	142.71	2,809.1	1,998.94	-523.9	398.9	454.9	0.00	0.00	0.00
3,000.0	16.75	142.71	2,904.8	1,903.19	-546.8	416.4	474.9	0.00	0.00	0.00
3,100.0	16.75	142.71	3,000.6	1,807.43	-569.7	433.8	494.8	0.00	0.00	0.00
3,200.0	16.75	142.71	3,096.3	1,711.68	-592.7	451.3	514.7	0.00	0.00	0.00
3,300.0	16.75	142.71	3,192.1	1,615.92	-615.6	468.7	534.6	0.00	0.00	0.00
3,400.0	16.75	142.71	3,287.8	1,520.17	-638.5	486.2	554.5	0.00	0.00	0.00
3,500.0	16.75	142.71	3,383.6	1,424.41	-661.5	503.7	574.5	0.00	0.00	0.00
3,600.0	16.75	142.71	3,479.3	1,328.66	-684.4	521.1	594.4	0.00	0.00	0.00
3,700.0	16.75	142.71	3,575.1	1,232.90	-707.4	538.6	614.3	0.00	0.00	0.00
3,800.0	16.75	142.71	3,670.9	1,137.15	-730.3	556.1	634.2	0.00	0.00	0.00
PARKMAN										
3,809.6	16.75	142.71	3,680.0	1,128.00	-732.5	557.7	636.1	0.00	0.00	0.00
3,900.0	16.75	142.71	3,766.6	1,041.39	-753.2	573.5	654.1	0.00	0.00	0.00
4,000.0	16.75	142.71	3,862.4	945.64	-776.2	591.0	674.0	0.00	0.00	0.00
4,100.0	16.75	142.71	3,958.1	849.88	-799.1	608.5	694.0	0.00	0.00	0.00
4,200.0	16.75	142.71	4,053.9	754.13	-822.0	625.9	713.9	0.00	0.00	0.00
4,300.0	16.75	142.71	4,149.6	658.37	-845.0	643.4	733.8	0.00	0.00	0.00
4,400.0	16.75	142.71	4,245.4	562.62	-867.9	660.8	753.7	0.00	0.00	0.00
4,500.0	16.75	142.71	4,341.1	466.86	-890.8	678.3	773.6	0.00	0.00	0.00
SUSSEX										
4,571.9	16.75	142.71	4,410.0	398.00	-907.3	690.9	788.0	0.00	0.00	0.00

Planning Report



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Company:	EXTRACTION OIL & GAS	TVD Reference:	KB-EST @ 4808.0usft
Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB-EST @ 4808.0usft
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 #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)
4,600.0	16.75	142.71	4,436.9	371.11	-913.8	695.8	793.5	0.00	0.00	0.00
4,700.0	16.75	142.71	4,532.6	275.35	-936.7	713.2	813.5	0.00	0.00	0.00
4,800.0	16.75	142.71	4,628.4	179.60	-959.6	730.7	833.4	0.00	0.00	0.00
4,900.0	16.75	142.71	4,724.2	83.84	-982.6	748.2	853.3	0.00	0.00	0.00
5,000.0	16.75	142.71	4,819.9	-11.91	-1,005.5	765.6	873.2	0.00	0.00	0.00
SHANNON										
5,000.1	16.75	142.71	4,820.0	-12.00	-1,005.5	765.6	873.2	0.00	0.00	0.00
5,100.0	16.75	142.71	4,915.7	-107.67	-1,028.4	783.1	893.1	0.00	0.00	0.00
5,200.0	16.75	142.71	5,011.4	-203.42	-1,051.4	800.5	913.1	0.00	0.00	0.00
5,300.0	16.75	142.71	5,107.2	-299.18	-1,074.3	818.0	933.0	0.00	0.00	0.00
5,400.0	16.75	142.71	5,202.9	-394.93	-1,097.2	835.5	952.9	0.00	0.00	0.00
5,500.0	16.75	142.71	5,298.7	-490.69	-1,120.2	852.9	972.8	0.00	0.00	0.00
5,600.0	16.75	142.71	5,394.4	-586.44	-1,143.1	870.4	992.7	0.00	0.00	0.00
5,700.0	16.75	142.71	5,490.2	-682.20	-1,166.1	887.9	1,012.6	0.00	0.00	0.00
5,800.0	16.75	142.71	5,586.0	-777.95	-1,189.0	905.3	1,032.6	0.00	0.00	0.00
5,900.0	16.75	142.71	5,681.7	-873.71	-1,211.9	922.8	1,052.5	0.00	0.00	0.00
6,000.0	16.75	142.71	5,777.5	-969.46	-1,234.9	940.3	1,072.4	0.00	0.00	0.00
6,100.0	16.75	142.71	5,873.2	-1,065.22	-1,257.8	957.7	1,092.3	0.00	0.00	0.00
6,200.0	16.75	142.71	5,969.0	-1,160.97	-1,280.7	975.2	1,112.2	0.00	0.00	0.00
6,300.0	16.75	142.71	6,064.7	-1,256.73	-1,303.7	992.6	1,132.1	0.00	0.00	0.00
6,400.0	16.75	142.71	6,160.5	-1,352.48	-1,326.6	1,010.1	1,152.1	0.00	0.00	0.00
6,500.0	16.75	142.71	6,256.2	-1,448.24	-1,349.5	1,027.6	1,172.0	0.00	0.00	0.00
6,600.0	16.75	142.71	6,352.0	-1,543.99	-1,372.5	1,045.0	1,191.9	0.00	0.00	0.00
6,700.0	16.75	142.71	6,447.7	-1,639.75	-1,395.4	1,062.5	1,211.8	0.00	0.00	0.00
6,800.0	16.75	142.71	6,543.5	-1,735.50	-1,418.3	1,080.0	1,231.7	0.00	0.00	0.00
START BUILD & TURN										
6,893.1	16.75	142.71	6,632.6	-1,824.65	-1,439.7	1,096.2	1,250.3	0.00	0.00	0.00
6,900.0	17.18	140.82	6,639.2	-1,831.25	-1,441.3	1,097.5	1,251.7	10.07	6.10	-27.47
7,000.0	24.60	121.68	6,732.7	-1,924.72	-1,463.7	1,124.6	1,281.1	10.00	7.43	-19.14
7,100.0	33.34	111.53	6,820.2	-2,012.17	-1,484.8	1,168.0	1,326.6	10.00	8.74	-10.15
7,200.0	42.59	105.31	6,898.9	-2,090.95	-1,503.8	1,226.3	1,386.7	10.00	9.25	-6.22
SHARON SPRINGS										
7,258.4	48.12	102.62	6,940.0	-2,132.00	-1,513.8	1,266.7	1,427.9	10.00	9.45	-4.60
7,300.0	52.08	100.98	6,966.7	-2,158.66	-1,520.3	1,297.9	1,459.7	10.00	9.53	-3.95
NIOBRARA										
7,308.8	52.92	100.66	6,972.0	-2,164.00	-1,521.6	1,304.7	1,466.6	10.00	9.56	-3.69
7,400.0	61.68	97.65	7,021.2	-2,213.24	-1,533.7	1,380.4	1,543.2	10.00	9.61	-3.29
7,500.0	71.36	94.88	7,061.0	-2,253.04	-1,543.7	1,471.5	1,634.8	10.00	9.67	-2.77
7,600.0	81.07	92.41	7,084.9	-2,276.85	-1,549.8	1,568.3	1,731.7	10.00	9.71	-2.47
HZ LP: 990ft FSL & 460ft FWL of Sec 9 - NIO B TARGET										
7,691.9	90.00	90.26	7,092.0	-2,284.00	-1,551.9	1,659.8	1,822.8	10.00	9.72	-2.34
7,700.0	90.00	90.26	7,092.0	-2,284.00	-1,551.9	1,667.9	1,830.9	0.00	0.00	0.00
7,800.0	90.00	90.26	7,092.0	-2,284.00	-1,552.4	1,767.9	1,930.3	0.00	0.00	0.00
7,900.0	90.00	90.26	7,092.0	-2,284.00	-1,552.9	1,867.9	2,029.7	0.00	0.00	0.00
8,000.0	90.00	90.26	7,092.0	-2,284.00	-1,553.3	1,967.9	2,129.2	0.00	0.00	0.00
8,100.0	90.00	90.26	7,092.0	-2,284.00	-1,553.8	2,067.9	2,228.6	0.00	0.00	0.00
8,200.0	90.00	90.26	7,092.0	-2,284.00	-1,554.2	2,167.9	2,328.0	0.00	0.00	0.00
8,300.0	90.00	90.26	7,092.0	-2,284.00	-1,554.7	2,267.9	2,427.4	0.00	0.00	0.00
8,400.0	90.00	90.26	7,092.0	-2,284.00	-1,555.1	2,367.9	2,526.9	0.00	0.00	0.00
8,500.0	90.00	90.26	7,092.0	-2,284.00	-1,555.6	2,467.9	2,626.3	0.00	0.00	0.00
8,600.0	90.00	90.26	7,092.0	-2,284.00	-1,556.1	2,567.9	2,725.7	0.00	0.00	0.00
8,700.0	90.00	90.26	7,092.0	-2,284.00	-1,556.5	2,667.9	2,825.1	0.00	0.00	0.00
8,800.0	90.00	90.26	7,092.0	-2,284.00	-1,557.0	2,767.9	2,924.6	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 @ 4808.0usft
Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB-EST @ 4808.0usft
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 #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)
8,900.0	90.00	90.26	7,092.0	-2,284.00	-1,557.4	2,867.9	3,024.0	0.00	0.00	0.00
9,000.0	90.00	90.26	7,092.0	-2,284.00	-1,557.9	2,967.9	3,123.4	0.00	0.00	0.00
9,100.0	90.00	90.26	7,092.0	-2,284.00	-1,558.3	3,067.9	3,222.8	0.00	0.00	0.00
9,200.0	90.00	90.26	7,092.0	-2,284.00	-1,558.8	3,167.9	3,322.3	0.00	0.00	0.00
9,300.0	90.00	90.26	7,092.0	-2,284.00	-1,559.3	3,267.9	3,421.7	0.00	0.00	0.00
9,400.0	90.00	90.26	7,092.0	-2,284.00	-1,559.7	3,367.9	3,521.1	0.00	0.00	0.00
9,500.0	90.00	90.26	7,092.0	-2,284.00	-1,560.2	3,467.9	3,620.5	0.00	0.00	0.00
9,600.0	90.00	90.26	7,092.0	-2,284.00	-1,560.6	3,567.9	3,719.9	0.00	0.00	0.00
9,700.0	90.00	90.26	7,092.0	-2,284.00	-1,561.1	3,667.9	3,819.4	0.00	0.00	0.00
9,800.0	90.00	90.26	7,092.0	-2,284.00	-1,561.5	3,767.9	3,918.8	0.00	0.00	0.00
9,900.0	90.00	90.26	7,092.0	-2,284.00	-1,562.0	3,867.9	4,018.2	0.00	0.00	0.00
10,000.0	90.00	90.26	7,092.0	-2,284.00	-1,562.5	3,967.9	4,117.6	0.00	0.00	0.00
10,100.0	90.00	90.26	7,092.0	-2,284.00	-1,562.9	4,067.9	4,217.1	0.00	0.00	0.00
10,200.0	90.00	90.26	7,092.0	-2,284.00	-1,563.4	4,167.9	4,316.5	0.00	0.00	0.00
10,300.0	90.00	90.26	7,092.0	-2,284.00	-1,563.8	4,267.9	4,415.9	0.00	0.00	0.00
10,400.0	90.00	90.26	7,092.0	-2,284.00	-1,564.3	4,367.9	4,515.3	0.00	0.00	0.00
10,500.0	90.00	90.26	7,092.0	-2,284.00	-1,564.7	4,467.9	4,614.8	0.00	0.00	0.00
10,600.0	90.00	90.26	7,092.0	-2,284.00	-1,565.2	4,567.9	4,714.2	0.00	0.00	0.00
10,700.0	90.00	90.26	7,092.0	-2,284.00	-1,565.7	4,667.9	4,813.6	0.00	0.00	0.00
10,800.0	90.00	90.26	7,092.0	-2,284.00	-1,566.1	4,767.8	4,913.0	0.00	0.00	0.00
10,900.0	90.00	90.26	7,092.0	-2,284.00	-1,566.6	4,867.8	5,012.4	0.00	0.00	0.00
11,000.0	90.00	90.26	7,092.0	-2,284.00	-1,567.0	4,967.8	5,111.9	0.00	0.00	0.00
11,100.0	90.00	90.26	7,092.0	-2,284.00	-1,567.5	5,067.8	5,211.3	0.00	0.00	0.00
11,200.0	90.00	90.26	7,092.0	-2,284.00	-1,567.9	5,167.8	5,310.7	0.00	0.00	0.00
11,300.0	90.00	90.26	7,092.0	-2,284.00	-1,568.4	5,267.8	5,410.1	0.00	0.00	0.00
11,400.0	90.00	90.26	7,092.0	-2,284.00	-1,568.9	5,367.8	5,509.6	0.00	0.00	0.00
11,500.0	90.00	90.26	7,092.0	-2,284.00	-1,569.3	5,467.8	5,609.0	0.00	0.00	0.00
11,600.0	90.00	90.26	7,092.0	-2,284.00	-1,569.8	5,567.8	5,708.4	0.00	0.00	0.00
11,700.0	90.00	90.26	7,092.0	-2,284.00	-1,570.2	5,667.8	5,807.8	0.00	0.00	0.00
11,800.0	90.00	90.26	7,092.0	-2,284.00	-1,570.7	5,767.8	5,907.3	0.00	0.00	0.00
11,900.0	90.00	90.26	7,092.0	-2,284.00	-1,571.1	5,867.8	6,006.7	0.00	0.00	0.00
12,000.0	90.00	90.26	7,092.0	-2,284.00	-1,571.6	5,967.8	6,106.1	0.00	0.00	0.00
12,100.0	90.00	90.26	7,092.0	-2,284.00	-1,572.1	6,067.8	6,205.5	0.00	0.00	0.00
12,200.0	90.00	90.26	7,092.0	-2,284.00	-1,572.5	6,167.8	6,305.0	0.00	0.00	0.00
12,300.0	90.00	90.26	7,092.0	-2,284.00	-1,573.0	6,267.8	6,404.4	0.00	0.00	0.00
12,400.0	90.00	90.26	7,092.0	-2,284.00	-1,573.4	6,367.8	6,503.8	0.00	0.00	0.00
12,500.0	90.00	90.26	7,092.0	-2,284.00	-1,573.9	6,467.8	6,603.2	0.00	0.00	0.00
12,600.0	90.00	90.26	7,092.0	-2,284.00	-1,574.3	6,567.8	6,702.6	0.00	0.00	0.00
12,700.0	90.00	90.26	7,092.0	-2,284.00	-1,574.8	6,667.8	6,802.1	0.00	0.00	0.00
12,800.0	90.00	90.26	7,092.0	-2,284.00	-1,575.3	6,767.8	6,901.5	0.00	0.00	0.00
12,900.0	90.00	90.26	7,092.0	-2,284.00	-1,575.7	6,867.8	7,000.9	0.00	0.00	0.00
13,000.0	90.00	90.26	7,092.0	-2,284.00	-1,576.2	6,967.8	7,100.3	0.00	0.00	0.00
13,100.0	90.00	90.26	7,092.0	-2,284.00	-1,576.6	7,067.8	7,199.8	0.00	0.00	0.00
13,200.0	90.00	90.26	7,092.0	-2,284.00	-1,577.1	7,167.8	7,299.2	0.00	0.00	0.00
13,300.0	90.00	90.26	7,092.0	-2,284.00	-1,577.5	7,267.8	7,398.6	0.00	0.00	0.00
13,400.0	90.00	90.26	7,092.0	-2,284.00	-1,578.0	7,367.8	7,498.0	0.00	0.00	0.00
13,500.0	90.00	90.26	7,092.0	-2,284.00	-1,578.5	7,467.8	7,597.5	0.00	0.00	0.00
13,600.0	90.00	90.26	7,092.0	-2,284.00	-1,578.9	7,567.8	7,696.9	0.00	0.00	0.00
13,700.0	90.00	90.26	7,092.0	-2,284.00	-1,579.4	7,667.8	7,796.3	0.00	0.00	0.00
13,800.0	90.00	90.26	7,092.0	-2,284.00	-1,579.8	7,767.8	7,895.7	0.00	0.00	0.00
13,900.0	90.00	90.26	7,092.0	-2,284.00	-1,580.3	7,867.8	7,995.2	0.00	0.00	0.00
14,000.0	90.00	90.26	7,092.0	-2,284.00	-1,580.7	7,967.8	8,094.6	0.00	0.00	0.00
14,100.0	90.00	90.26	7,092.0	-2,284.00	-1,581.2	8,067.8	8,194.0	0.00	0.00	0.00
14,200.0	90.00	90.26	7,092.0	-2,284.00	-1,581.7	8,167.8	8,293.4	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 @ 4808.0usft
Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB-EST @ 4808.0usft
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 #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)
14,300.0	90.00	90.26	7,092.0	-2,284.00	-1,582.1	8,267.8	8,392.8	0.00	0.00	0.00
14,400.0	90.00	90.26	7,092.0	-2,284.00	-1,582.6	8,367.8	8,492.3	0.00	0.00	0.00
14,500.0	90.00	90.26	7,092.0	-2,284.00	-1,583.0	8,467.8	8,591.7	0.00	0.00	0.00
14,600.0	90.00	90.26	7,092.0	-2,284.00	-1,583.5	8,567.8	8,691.1	0.00	0.00	0.00
14,700.0	90.00	90.26	7,092.0	-2,284.00	-1,583.9	8,667.8	8,790.5	0.00	0.00	0.00
14,800.0	90.00	90.26	7,092.0	-2,284.00	-1,584.4	8,767.8	8,890.0	0.00	0.00	0.00
14,900.0	90.00	90.26	7,092.0	-2,284.00	-1,584.9	8,867.8	8,989.4	0.00	0.00	0.00
15,000.0	90.00	90.26	7,092.0	-2,284.00	-1,585.3	8,967.8	9,088.8	0.00	0.00	0.00
15,100.0	90.00	90.26	7,092.0	-2,284.00	-1,585.8	9,067.8	9,188.2	0.00	0.00	0.00
15,200.0	90.00	90.26	7,092.0	-2,284.00	-1,586.2	9,167.8	9,287.7	0.00	0.00	0.00
15,300.0	90.00	90.26	7,092.0	-2,284.00	-1,586.7	9,267.8	9,387.1	0.00	0.00	0.00
15,400.0	90.00	90.26	7,092.0	-2,284.00	-1,587.1	9,367.8	9,486.5	0.00	0.00	0.00
15,500.0	90.00	90.26	7,092.0	-2,284.00	-1,587.6	9,467.8	9,585.9	0.00	0.00	0.00
15,600.0	90.00	90.26	7,092.0	-2,284.00	-1,588.1	9,567.8	9,685.3	0.00	0.00	0.00
15,700.0	90.00	90.26	7,092.0	-2,284.00	-1,588.5	9,667.8	9,784.8	0.00	0.00	0.00
15,800.0	90.00	90.26	7,092.0	-2,284.00	-1,589.0	9,767.8	9,884.2	0.00	0.00	0.00
15,900.0	90.00	90.26	7,092.0	-2,284.00	-1,589.4	9,867.8	9,983.6	0.00	0.00	0.00
16,000.0	90.00	90.26	7,092.0	-2,284.00	-1,589.9	9,967.8	10,083.0	0.00	0.00	0.00
16,100.0	90.00	90.26	7,092.0	-2,284.00	-1,590.3	10,067.8	10,182.5	0.00	0.00	0.00
16,200.0	90.00	90.26	7,092.0	-2,284.00	-1,590.8	10,167.8	10,281.9	0.00	0.00	0.00
16,300.0	90.00	90.26	7,092.0	-2,284.00	-1,591.3	10,267.8	10,381.3	0.00	0.00	0.00
16,400.0	90.00	90.26	7,092.0	-2,284.00	-1,591.7	10,367.8	10,480.7	0.00	0.00	0.00
16,500.0	90.00	90.26	7,092.0	-2,284.00	-1,592.2	10,467.8	10,580.2	0.00	0.00	0.00
16,600.0	90.00	90.26	7,092.0	-2,284.00	-1,592.6	10,567.8	10,679.6	0.00	0.00	0.00
16,700.0	90.00	90.26	7,092.0	-2,284.00	-1,593.1	10,667.8	10,779.0	0.00	0.00	0.00
16,800.0	90.00	90.26	7,092.0	-2,284.00	-1,593.5	10,767.8	10,878.4	0.00	0.00	0.00
16,900.0	90.00	90.26	7,092.0	-2,284.00	-1,594.0	10,867.8	10,977.9	0.00	0.00	0.00
17,000.0	90.00	90.26	7,092.0	-2,284.00	-1,594.5	10,967.8	11,077.3	0.00	0.00	0.00
17,100.0	90.00	90.26	7,092.0	-2,284.00	-1,594.9	11,067.8	11,176.7	0.00	0.00	0.00
17,200.0	90.00	90.26	7,092.0	-2,284.00	-1,595.4	11,167.8	11,276.1	0.00	0.00	0.00
17,300.0	90.00	90.26	7,092.0	-2,284.00	-1,595.8	11,267.8	11,375.5	0.00	0.00	0.00
17,400.0	90.00	90.26	7,092.0	-2,284.00	-1,596.3	11,367.8	11,475.0	0.00	0.00	0.00
17,500.0	90.00	90.26	7,092.0	-2,284.00	-1,596.7	11,467.8	11,574.4	0.00	0.00	0.00
17,600.0	90.00	90.26	7,092.0	-2,284.00	-1,597.2	11,567.8	11,673.8	0.00	0.00	0.00
17,700.0	90.00	90.26	7,092.0	-2,284.00	-1,597.7	11,667.8	11,773.2	0.00	0.00	0.00
17,800.0	90.00	90.26	7,092.0	-2,284.00	-1,598.1	11,767.8	11,872.7	0.00	0.00	0.00
17,900.0	90.00	90.26	7,092.0	-2,284.00	-1,598.6	11,867.8	11,972.1	0.00	0.00	0.00
18,000.0	90.00	90.26	7,092.0	-2,284.00	-1,599.0	11,967.8	12,071.5	0.00	0.00	0.00
18,100.0	90.00	90.26	7,092.0	-2,284.00	-1,599.5	12,067.8	12,170.9	0.00	0.00	0.00
18,200.0	90.00	90.26	7,092.0	-2,284.00	-1,599.9	12,167.8	12,270.4	0.00	0.00	0.00
18,300.0	90.00	90.26	7,092.0	-2,284.00	-1,600.4	12,267.8	12,369.8	0.00	0.00	0.00
18,400.0	90.00	90.26	7,092.0	-2,284.00	-1,600.9	12,367.8	12,469.2	0.00	0.00	0.00
18,500.0	90.00	90.26	7,092.0	-2,284.00	-1,601.3	12,467.8	12,568.6	0.00	0.00	0.00
18,600.0	90.00	90.26	7,092.0	-2,284.00	-1,601.8	12,567.8	12,668.1	0.00	0.00	0.00
18,700.0	90.00	90.26	7,092.0	-2,284.00	-1,602.2	12,667.8	12,767.5	0.00	0.00	0.00
18,800.0	90.00	90.26	7,092.0	-2,284.00	-1,602.7	12,767.8	12,866.9	0.00	0.00	0.00
18,900.0	90.00	90.26	7,092.0	-2,284.00	-1,603.1	12,867.8	12,966.3	0.00	0.00	0.00
19,000.0	90.00	90.26	7,092.0	-2,284.00	-1,603.6	12,967.8	13,065.7	0.00	0.00	0.00
19,100.0	90.00	90.26	7,092.0	-2,284.00	-1,604.1	13,067.8	13,165.2	0.00	0.00	0.00
19,200.0	90.00	90.26	7,092.0	-2,284.00	-1,604.5	13,167.8	13,264.6	0.00	0.00	0.00
19,300.0	90.00	90.26	7,092.0	-2,284.00	-1,605.0	13,267.8	13,364.0	0.00	0.00	0.00
19,400.0	90.00	90.26	7,092.0	-2,284.00	-1,605.4	13,367.8	13,463.4	0.00	0.00	0.00
19,500.0	90.00	90.26	7,092.0	-2,284.00	-1,605.9	13,467.8	13,562.9	0.00	0.00	0.00
19,600.0	90.00	90.26	7,092.0	-2,284.00	-1,606.3	13,567.8	13,662.3	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 @ 4808.0usft
Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB-EST @ 4808.0usft
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 #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)
19,700.0	90.00	90.26	7,092.0	-2,284.00	-1,606.8	13,667.8	13,761.7	0.00	0.00	0.00
19,800.0	90.00	90.26	7,092.0	-2,284.00	-1,607.3	13,767.8	13,861.1	0.00	0.00	0.00
19,900.0	90.00	90.26	7,092.0	-2,284.00	-1,607.7	13,867.8	13,960.6	0.00	0.00	0.00
20,000.0	90.00	90.26	7,092.0	-2,284.00	-1,608.2	13,967.8	14,060.0	0.00	0.00	0.00
20,100.0	90.00	90.26	7,092.0	-2,284.00	-1,608.6	14,067.8	14,159.4	0.00	0.00	0.00
20,200.0	90.00	90.26	7,092.0	-2,284.00	-1,609.1	14,167.8	14,258.8	0.00	0.00	0.00
20,300.0	90.00	90.26	7,092.0	-2,284.00	-1,609.5	14,267.8	14,358.2	0.00	0.00	0.00
BHL: 989ft FSL & 2514ft FWL of Sec 11										
20,343.5	90.00	90.26	7,092.0	-2,284.00	-1,609.7	14,311.2	14,401.5	0.00	0.00	0.00

Formations						
MD (usft)	TVD (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
3,809.6	3,680.0	PARKMAN				
4,571.9	4,410.0	SUSSEX				
5,000.1	4,820.0	SHANNON				
7,258.4	6,940.0	SHARON SPRINGS				
7,308.8	6,972.0	NIOBRARA				
7,691.9	7,092.0	NIO B TARGET				

Plan Annotations				
MD (usft)	TVD (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
0.0	0.0	0.0	0.0	SHL: 2552ft FSL & 1188ft FEL of Sec 8
200.0	200.0	0.0	0.0	START NUDGE (2°/100ft BUR)
1,037.7	1,025.8	-96.8	73.7	EOB TO 16.75° INC
6,893.1	6,632.6	-1,439.7	1,096.2	START BUILD & TURN
7,691.9	7,092.0	-1,551.9	1,659.8	HZ LP: 990ft FSL & 460ft FWL of Sec 9
20,343.5	7,092.0	-1,609.7	14,311.2	BHL: 989ft FSL & 2514ft FWL of Sec 11