

EXTRACTION OIL & GAS

WELD COUNTY, COLORADO (NAD 83)

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

TC-HILAND KNOLLS C7-9-11

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 C7-9-11
Wellbore: ORIGINAL WELLBORE
Design: PROPOSAL #1

ANNOTATIONS									
TVD	MD	Inc	Azi	+N/-S	+E/-W	VSect	Dep	Annotation	
500.0	500.0	0.00	0.00	0.0	0.0	0.0	0.0	START NUDGE (2"/100ft BUR)	
1411.4	1427.5	18.55	146.21	-123.7	82.8	97.7	148.8	EOB TO 18.55° INC	
6841.3	7155.1	18.55	146.20	-1638.2	1096.5	1294.5	1971.3	START BUILD & TURN	
7295.0	7952.5	90.00	90.25	-1766.8	1659.7	1869.4	2561.4	LANDING PNT - TC-HILAND KNOLLS C7-9-11	
7295.0	20607.0	90.00	90.25	-1821.0	14314.1	14429.5	15215.9	BHL - TC-HILAND KNOLLS C7-9-11	

WELLBORE TARGET DETAILS (LAT/LONG)						
Name	TVD	+N/-S	+E/-W	Latitude	Longitude	
LANDING PNT - TC-HILAND KNOLLS C7-9-11	7295.0	-1766.8	1659.8	40.409130	-104.792700	
BHL - TC-HILAND KNOLLS C7-9-11	7295.0	-1821.0	14314.1	40.408970	-104.747260	

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

TVDPath

MDPath

Formation

3680.0

3820.5

PARKMAN

4410.0

4590.5

SUSSEX

4820.0

5023.0

SHANNON

6940.0

7261.6

SHARON SPRINGS

6972.0

7297.6

NIOBRARA

7092.0

7444.7

NIO B TARGET

7260.0

7747.4

FORT HAYS

7285.0

7843.3

CODELL

T

M

Azimuths to True North

Magnetic North: 8.43°

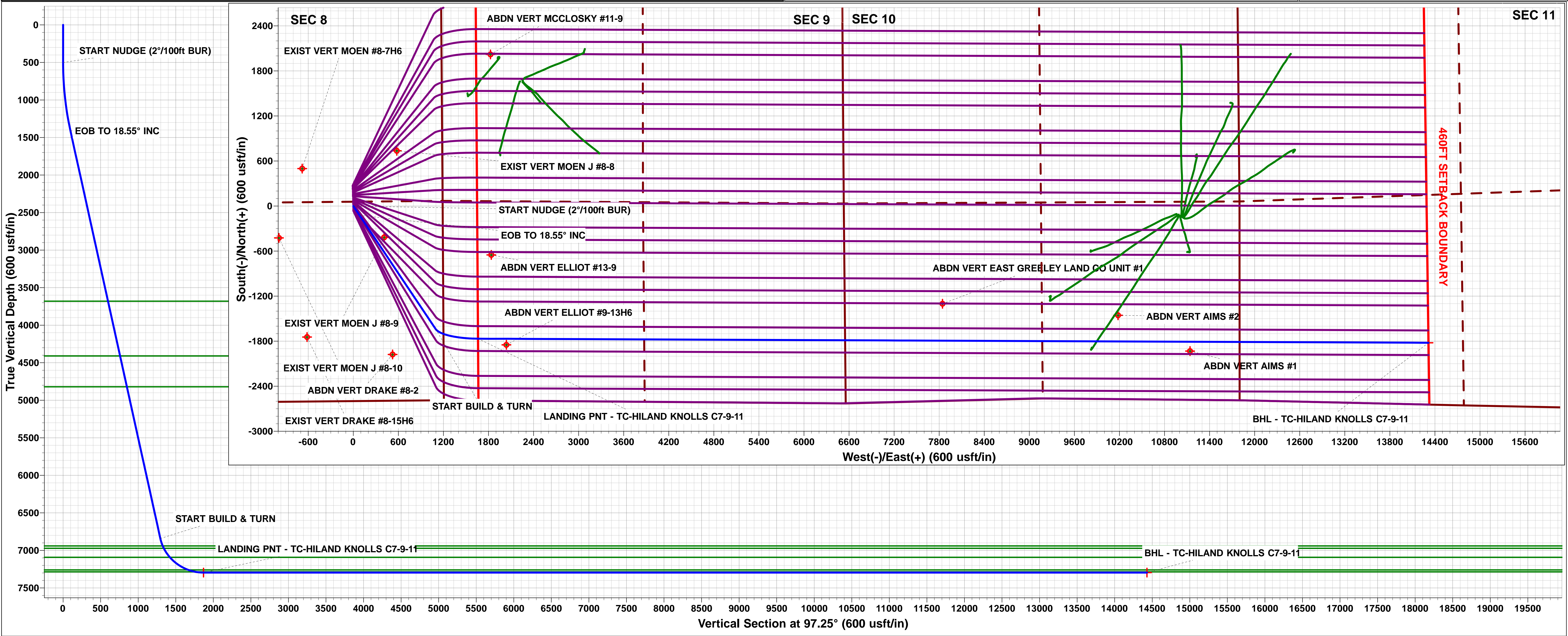
Magnetic Field

Strength: 52613.3snT

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 C7-9-11
Company:	EXTRACTION OIL & GAS	TVD Reference:	KB-EST @ 4808.0usft (Original Well Elev)
Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB-EST @ 4808.0usft (Original Well Elev)
Site:	NE SE SEC. 8 T5N R66W 6th P.M.	North Reference:	True
Well:	TC-HILAND KNOLLS C7-9-11	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 C7-9-11		
Well Position	+N/-S	61.9 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 (°)
	7,295.0	0.0	0.0	97.25

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	
500.0	0.00	0.00	500.0	-4,308.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,427.5	18.55	146.21	1,411.4	-3,396.6	-123.7	82.8	2.00	2.00	0.00	146.21	
1,427.5	18.55	146.20	1,411.4	-3,396.6	-123.7	82.8	10.00	9.12	-12.85	-24.15	
7,155.1	18.55	146.20	6,841.3	2,033.3	-1,638.3	1,096.5	0.00	0.00	0.00	0.00	
7,952.5	90.00	90.25	7,295.0	2,487.0	-1,766.8	1,659.8	10.00	8.96	-7.02	-57.36	LANDING PNT - TC
20,607.0	90.00	90.25	7,295.0	2,487.0	-1,821.0	14,314.1	0.00	0.00	0.00	0.00	BHL - TC-HILAND I

Planning Report



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Company:	EXTRACTION OIL & GAS	TVD Reference:	KB-EST @ 4808.0usft (Original Well Elev)
Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB-EST @ 4808.0usft (Original Well Elev)
Site:	NE SE SEC. 8 T5N R66W 6th P.M.	North Reference:	True
Well:	TC-HILAND KNOLLS C7-9-11	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	4,808.00	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
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	0.00	0.00	300.0	4,508.00	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	4,408.00	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	4,308.00	0.0	0.0	0.0	0.00	0.00	0.00
600.0	2.00	146.21	600.0	4,208.02	-1.5	1.0	1.1	2.00	2.00	0.00
700.0	4.00	146.21	699.8	4,108.16	-5.8	3.9	4.6	2.00	2.00	0.00
800.0	6.00	146.21	799.5	4,008.55	-13.0	8.7	10.3	2.00	2.00	0.00
900.0	8.00	146.21	898.7	3,909.30	-23.2	15.5	18.3	2.00	2.00	0.00
1,000.0	10.00	146.21	997.5	3,810.53	-36.2	24.2	28.6	2.00	2.00	0.00
1,100.0	12.00	146.21	1,095.6	3,712.38	-52.0	34.8	41.1	2.00	2.00	0.00
1,200.0	14.00	146.21	1,193.1	3,614.94	-70.7	47.3	55.9	2.00	2.00	0.00
1,300.0	16.00	146.21	1,289.6	3,518.36	-92.2	61.7	72.9	2.00	2.00	0.00
1,400.0	18.00	146.21	1,385.3	3,422.73	-116.5	78.0	92.1	2.00	2.00	0.00
EOB TO 18.55° INC										
1,427.5	18.55	146.21	1,411.4	3,396.62	-123.7	82.8	97.7	2.00	2.00	0.00
1,500.0	18.55	146.20	1,480.1	3,327.89	-142.9	95.6	112.9	0.01	0.01	-0.01
1,600.0	18.55	146.20	1,574.9	3,233.08	-169.3	113.3	133.8	0.00	0.00	0.00
1,700.0	18.55	146.20	1,669.7	3,138.28	-195.8	131.0	154.7	0.00	0.00	0.00
1,800.0	18.55	146.20	1,764.5	3,043.48	-222.2	148.7	175.6	0.00	0.00	0.00
1,900.0	18.55	146.20	1,859.3	2,948.68	-248.6	166.4	196.5	0.00	0.00	0.00
2,000.0	18.55	146.20	1,954.1	2,853.87	-275.1	184.1	217.3	0.00	0.00	0.00
2,100.0	18.55	146.20	2,048.9	2,759.07	-301.5	201.8	238.2	0.00	0.00	0.00
2,200.0	18.55	146.20	2,143.7	2,664.27	-328.0	219.5	259.1	0.00	0.00	0.00
2,300.0	18.55	146.20	2,238.5	2,569.47	-354.4	237.2	280.0	0.00	0.00	0.00
2,400.0	18.55	146.20	2,333.3	2,474.66	-380.9	254.9	300.9	0.00	0.00	0.00
2,500.0	18.55	146.20	2,428.1	2,379.86	-407.3	272.6	321.8	0.00	0.00	0.00
2,600.0	18.55	146.20	2,522.9	2,285.06	-433.7	290.3	342.7	0.00	0.00	0.00
2,700.0	18.55	146.20	2,617.7	2,190.26	-460.2	308.0	363.6	0.00	0.00	0.00
2,800.0	18.55	146.20	2,712.5	2,095.45	-486.6	325.7	384.5	0.00	0.00	0.00
2,900.0	18.55	146.20	2,807.3	2,000.65	-513.1	343.4	405.4	0.00	0.00	0.00
3,000.0	18.55	146.20	2,902.2	1,905.85	-539.5	361.1	426.3	0.00	0.00	0.00
3,100.0	18.55	146.20	2,997.0	1,811.05	-566.0	378.8	447.2	0.00	0.00	0.00
3,200.0	18.55	146.20	3,091.8	1,716.24	-592.4	396.5	468.1	0.00	0.00	0.00
3,300.0	18.55	146.20	3,186.6	1,621.44	-618.8	414.2	489.0	0.00	0.00	0.00
3,400.0	18.55	146.20	3,281.4	1,526.64	-645.3	431.9	509.9	0.00	0.00	0.00
3,500.0	18.55	146.20	3,376.2	1,431.84	-671.7	449.6	530.8	0.00	0.00	0.00
3,600.0	18.55	146.20	3,471.0	1,337.04	-698.2	467.3	551.7	0.00	0.00	0.00
3,700.0	18.55	146.20	3,565.8	1,242.23	-724.6	485.0	572.6	0.00	0.00	0.00
3,800.0	18.55	146.20	3,660.6	1,147.43	-751.1	502.7	593.5	0.00	0.00	0.00
PARKMAN										
3,820.5	18.55	146.20	3,680.0	1,128.00	-756.5	506.3	597.7	0.00	0.00	0.00
3,900.0	18.55	146.20	3,755.4	1,052.63	-777.5	520.4	614.3	0.00	0.00	0.00
4,000.0	18.55	146.20	3,850.2	957.83	-803.9	538.1	635.2	0.00	0.00	0.00
4,100.0	18.55	146.20	3,945.0	863.02	-830.4	555.8	656.1	0.00	0.00	0.00
4,200.0	18.55	146.20	4,039.8	768.22	-856.8	573.5	677.0	0.00	0.00	0.00
4,300.0	18.55	146.20	4,134.6	673.42	-883.3	591.2	697.9	0.00	0.00	0.00
4,400.0	18.55	146.20	4,229.4	578.62	-909.7	608.9	718.8	0.00	0.00	0.00
4,500.0	18.55	146.20	4,324.2	483.81	-936.2	626.6	739.7	0.00	0.00	0.00
SUSSEX										
4,590.5	18.55	146.20	4,410.0	398.00	-960.1	642.6	758.6	0.00	0.00	0.00
4,600.0	18.55	146.20	4,419.0	389.01	-962.6	644.3	760.6	0.00	0.00	0.00

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Well:	TC-HILAND KNOLLS C7-9-11	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	18.55	146.20	4,513.8	294.21	-989.0	662.0	781.5	0.00	0.00	0.00
4,800.0	18.55	146.20	4,608.6	199.41	-1,015.5	679.7	802.4	0.00	0.00	0.00
4,900.0	18.55	146.20	4,703.4	104.60	-1,041.9	697.4	823.3	0.00	0.00	0.00
5,000.0	18.55	146.20	4,798.2	9.80	-1,068.4	715.1	844.2	0.00	0.00	0.00
SHANNON										
5,023.0	18.55	146.20	4,820.0	-12.00	-1,074.5	719.1	849.0	0.00	0.00	0.00
5,100.0	18.55	146.20	4,893.0	-85.00	-1,094.8	732.8	865.1	0.00	0.00	0.00
5,200.0	18.55	146.20	4,987.8	-179.80	-1,121.3	750.5	886.0	0.00	0.00	0.00
5,300.0	18.55	146.20	5,082.6	-274.61	-1,147.7	768.2	906.9	0.00	0.00	0.00
5,400.0	18.55	146.20	5,177.4	-369.41	-1,174.1	785.9	927.8	0.00	0.00	0.00
5,500.0	18.55	146.20	5,272.2	-464.21	-1,200.6	803.6	948.7	0.00	0.00	0.00
5,600.0	18.55	146.20	5,367.0	-559.01	-1,227.0	821.3	969.6	0.00	0.00	0.00
5,700.0	18.55	146.20	5,461.8	-653.82	-1,253.5	839.0	990.5	0.00	0.00	0.00
5,800.0	18.55	146.20	5,556.6	-748.62	-1,279.9	856.7	1,011.3	0.00	0.00	0.00
5,900.0	18.55	146.20	5,651.4	-843.42	-1,306.4	874.4	1,032.2	0.00	0.00	0.00
6,000.0	18.55	146.20	5,746.2	-938.22	-1,332.8	892.1	1,053.1	0.00	0.00	0.00
6,100.0	18.55	146.20	5,841.0	-1,033.03	-1,359.2	909.8	1,074.0	0.00	0.00	0.00
6,200.0	18.55	146.20	5,935.8	-1,127.83	-1,385.7	927.5	1,094.9	0.00	0.00	0.00
6,300.0	18.55	146.20	6,030.6	-1,222.63	-1,412.1	945.2	1,115.8	0.00	0.00	0.00
6,400.0	18.55	146.20	6,125.4	-1,317.43	-1,438.6	962.9	1,136.7	0.00	0.00	0.00
6,500.0	18.55	146.20	6,220.2	-1,412.24	-1,465.0	980.6	1,157.6	0.00	0.00	0.00
6,600.0	18.55	146.20	6,315.0	-1,507.04	-1,491.5	998.3	1,178.5	0.00	0.00	0.00
6,700.0	18.55	146.20	6,409.8	-1,601.84	-1,517.9	1,016.0	1,199.4	0.00	0.00	0.00
6,800.0	18.55	146.20	6,504.6	-1,696.64	-1,544.3	1,033.7	1,220.3	0.00	0.00	0.00
6,900.0	18.55	146.20	6,599.4	-1,791.45	-1,570.8	1,051.4	1,241.2	0.00	0.00	0.00
7,000.0	18.55	146.20	6,694.2	-1,886.25	-1,597.2	1,069.1	1,262.1	0.00	0.00	0.00
7,100.0	18.55	146.20	6,789.1	-1,981.05	-1,623.7	1,086.8	1,283.0	0.00	0.00	0.00
START BUILD & TURN										
7,155.1	18.55	146.20	6,841.3	-2,033.29	-1,638.2	1,096.5	1,294.5	0.00	0.00	0.00
7,200.0	21.30	135.76	6,883.5	-2,075.51	-1,650.0	1,106.2	1,305.6	9.99	6.11	-23.27
SHARON SPRINGS										
7,261.6	25.84	125.29	6,940.0	-2,132.00	-1,665.8	1,125.0	1,326.2	10.00	7.37	-16.98
NIOBRARA										
7,297.6	28.76	120.69	6,972.0	-2,164.00	-1,674.8	1,138.8	1,341.1	10.00	8.11	-12.78
7,300.0	28.96	120.42	6,974.1	-2,166.07	-1,675.4	1,139.8	1,342.1	10.00	8.32	-11.50
7,400.0	37.66	111.37	7,057.6	-2,249.61	-1,698.8	1,189.3	1,394.2	10.00	8.70	-9.05
NIO B TARGET										
7,444.7	41.72	108.42	7,092.0	-2,284.00	-1,708.5	1,216.1	1,422.0	10.00	9.07	-6.59
7,500.0	46.82	105.37	7,131.6	-2,323.59	-1,719.7	1,253.0	1,460.0	10.00	9.23	-5.52
7,600.0	56.21	100.97	7,193.8	-2,385.77	-1,737.3	1,329.2	1,537.8	10.00	9.39	-4.40
7,700.0	65.73	97.45	7,242.2	-2,434.25	-1,751.1	1,415.4	1,625.1	10.00	9.52	-3.52
FORT HAYS										
7,747.4	70.27	95.97	7,260.0	-2,452.00	-1,756.3	1,459.0	1,669.0	10.00	9.57	-3.12
7,800.0	75.32	94.42	7,275.6	-2,467.56	-1,760.8	1,509.1	1,719.2	10.00	9.60	-2.94
CODELL										
7,843.3	79.48	93.21	7,285.0	-2,477.00	-1,763.6	1,551.2	1,761.4	10.00	9.62	-2.81
7,900.0	84.94	91.66	7,292.7	-2,484.68	-1,766.0	1,607.3	1,817.3	10.00	9.63	-2.73
LANDING PNT - TC-HILAND KNOLLS C7-9-11										
7,952.5	90.00	90.25	7,295.0	-2,487.00	-1,766.8	1,659.7	1,869.4	10.00	9.63	-2.69
8,000.0	90.00	90.25	7,295.0	-2,487.00	-1,767.1	1,707.2	1,916.6	0.01	0.01	0.00
8,100.0	90.00	90.25	7,295.0	-2,487.00	-1,767.5	1,807.2	2,015.8	0.00	0.00	0.00
8,200.0	90.00	90.25	7,295.0	-2,487.00	-1,767.9	1,907.2	2,115.1	0.00	0.00	0.00
8,300.0	90.00	90.25	7,295.0	-2,487.00	-1,768.3	2,007.2	2,214.4	0.00	0.00	0.00

Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well TC-HILAND KNOLLS C7-9-11
Company:	EXTRACTION OIL & GAS	TVD Reference:	KB-EST @ 4808.0usft (Original Well Elev)
Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB-EST @ 4808.0usft (Original Well Elev)
Site:	NE SE SEC. 8 T5N R66W 6th P.M.	North Reference:	True
Well:	TC-HILAND KNOLLS C7-9-11	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)
8,400.0	90.00	90.25	7,295.0	-2,487.00	-1,768.8	2,107.2	2,313.6	0.00	0.00	0.00
8,500.0	90.00	90.25	7,295.0	-2,487.00	-1,769.2	2,207.2	2,412.9	0.00	0.00	0.00
8,600.0	90.00	90.25	7,295.0	-2,487.00	-1,769.6	2,307.2	2,512.1	0.00	0.00	0.00
8,700.0	90.00	90.25	7,295.0	-2,487.00	-1,770.1	2,407.2	2,611.4	0.00	0.00	0.00
8,800.0	90.00	90.25	7,295.0	-2,487.00	-1,770.5	2,507.2	2,710.6	0.00	0.00	0.00
8,900.0	90.00	90.25	7,295.0	-2,487.00	-1,770.9	2,607.2	2,809.9	0.00	0.00	0.00
9,000.0	90.00	90.25	7,295.0	-2,487.00	-1,771.3	2,707.2	2,909.1	0.00	0.00	0.00
9,100.0	90.00	90.25	7,295.0	-2,487.00	-1,771.8	2,807.2	3,008.4	0.00	0.00	0.00
9,200.0	90.00	90.25	7,295.0	-2,487.00	-1,772.2	2,907.2	3,107.6	0.00	0.00	0.00
9,300.0	90.00	90.25	7,295.0	-2,487.00	-1,772.6	3,007.2	3,206.9	0.00	0.00	0.00
9,400.0	90.00	90.25	7,295.0	-2,487.00	-1,773.0	3,107.2	3,306.1	0.00	0.00	0.00
9,500.0	90.00	90.25	7,295.0	-2,487.00	-1,773.5	3,207.2	3,405.4	0.00	0.00	0.00
9,600.0	90.00	90.25	7,295.0	-2,487.00	-1,773.9	3,307.2	3,504.6	0.00	0.00	0.00
9,700.0	90.00	90.25	7,295.0	-2,487.00	-1,774.3	3,407.2	3,603.9	0.00	0.00	0.00
9,800.0	90.00	90.25	7,295.0	-2,487.00	-1,774.8	3,507.2	3,703.2	0.00	0.00	0.00
9,900.0	90.00	90.25	7,295.0	-2,487.00	-1,775.2	3,607.2	3,802.4	0.00	0.00	0.00
10,000.0	90.00	90.25	7,295.0	-2,487.00	-1,775.6	3,707.2	3,901.7	0.00	0.00	0.00
10,100.0	90.00	90.25	7,295.0	-2,487.00	-1,776.0	3,807.2	4,000.9	0.00	0.00	0.00
10,200.0	90.00	90.25	7,295.0	-2,487.00	-1,776.5	3,907.2	4,100.2	0.00	0.00	0.00
10,300.0	90.00	90.25	7,295.0	-2,487.00	-1,776.9	4,007.2	4,199.4	0.00	0.00	0.00
10,400.0	90.00	90.25	7,295.0	-2,487.00	-1,777.3	4,107.2	4,298.7	0.00	0.00	0.00
10,500.0	90.00	90.25	7,295.0	-2,487.00	-1,777.8	4,207.2	4,397.9	0.00	0.00	0.00
10,600.0	90.00	90.25	7,295.0	-2,487.00	-1,778.2	4,307.2	4,497.2	0.00	0.00	0.00
10,700.0	90.00	90.25	7,295.0	-2,487.00	-1,778.6	4,407.2	4,596.4	0.00	0.00	0.00
10,800.0	90.00	90.25	7,295.0	-2,487.00	-1,779.0	4,507.2	4,695.7	0.00	0.00	0.00
10,900.0	90.00	90.25	7,295.0	-2,487.00	-1,779.5	4,607.2	4,794.9	0.00	0.00	0.00
11,000.0	90.00	90.25	7,295.0	-2,487.00	-1,779.9	4,707.2	4,894.2	0.00	0.00	0.00
11,100.0	90.00	90.25	7,295.0	-2,487.00	-1,780.3	4,807.2	4,993.5	0.00	0.00	0.00
11,200.0	90.00	90.25	7,295.0	-2,487.00	-1,780.8	4,907.2	5,092.7	0.00	0.00	0.00
11,300.0	90.00	90.25	7,295.0	-2,487.00	-1,781.2	5,007.2	5,192.0	0.00	0.00	0.00
11,400.0	90.00	90.25	7,295.0	-2,487.00	-1,781.6	5,107.2	5,291.2	0.00	0.00	0.00
11,500.0	90.00	90.25	7,295.0	-2,487.00	-1,782.0	5,207.2	5,390.5	0.00	0.00	0.00
11,600.0	90.00	90.25	7,295.0	-2,487.00	-1,782.5	5,307.2	5,489.7	0.00	0.00	0.00
11,700.0	90.00	90.25	7,295.0	-2,487.00	-1,782.9	5,407.2	5,589.0	0.00	0.00	0.00
11,800.0	90.00	90.25	7,295.0	-2,487.00	-1,783.3	5,507.2	5,688.2	0.00	0.00	0.00
11,900.0	90.00	90.25	7,295.0	-2,487.00	-1,783.8	5,607.2	5,787.5	0.00	0.00	0.00
12,000.0	90.00	90.25	7,295.0	-2,487.00	-1,784.2	5,707.2	5,886.7	0.00	0.00	0.00
12,100.0	90.00	90.25	7,295.0	-2,487.00	-1,784.6	5,807.2	5,986.0	0.00	0.00	0.00
12,200.0	90.00	90.25	7,295.0	-2,487.00	-1,785.0	5,907.2	6,085.2	0.00	0.00	0.00
12,300.0	90.00	90.25	7,295.0	-2,487.00	-1,785.5	6,007.2	6,184.5	0.00	0.00	0.00
12,400.0	90.00	90.25	7,295.0	-2,487.00	-1,785.9	6,107.2	6,283.7	0.00	0.00	0.00
12,500.0	90.00	90.25	7,295.0	-2,487.00	-1,786.3	6,207.2	6,383.0	0.00	0.00	0.00
12,600.0	90.00	90.25	7,295.0	-2,487.00	-1,786.8	6,307.2	6,482.3	0.00	0.00	0.00
12,700.0	90.00	90.25	7,295.0	-2,487.00	-1,787.2	6,407.2	6,581.5	0.00	0.00	0.00
12,800.0	90.00	90.25	7,295.0	-2,487.00	-1,787.6	6,507.2	6,680.8	0.00	0.00	0.00
12,900.0	90.00	90.25	7,295.0	-2,487.00	-1,788.0	6,607.2	6,780.0	0.00	0.00	0.00
13,000.0	90.00	90.25	7,295.0	-2,487.00	-1,788.5	6,707.2	6,879.3	0.00	0.00	0.00
13,100.0	90.00	90.25	7,295.0	-2,487.00	-1,788.9	6,807.2	6,978.5	0.00	0.00	0.00
13,200.0	90.00	90.25	7,295.0	-2,487.00	-1,789.3	6,907.2	7,077.8	0.00	0.00	0.00
13,300.0	90.00	90.25	7,295.0	-2,487.00	-1,789.8	7,007.2	7,177.0	0.00	0.00	0.00
13,400.0	90.00	90.25	7,295.0	-2,487.00	-1,790.2	7,107.2	7,276.3	0.00	0.00	0.00
13,500.0	90.00	90.25	7,295.0	-2,487.00	-1,790.6	7,207.2	7,375.5	0.00	0.00	0.00
13,600.0	90.00	90.25	7,295.0	-2,487.00	-1,791.0	7,307.2	7,474.8	0.00	0.00	0.00
13,700.0	90.00	90.25	7,295.0	-2,487.00	-1,791.5	7,407.2	7,574.0	0.00	0.00	0.00

Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well TC-HILAND KNOLLS C7-9-11
Company:	EXTRACTION OIL & GAS	TVD Reference:	KB-EST @ 4808.0usft (Original Well Elev)
Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB-EST @ 4808.0usft (Original Well Elev)
Site:	NE SE SEC. 8 T5N R66W 6th P.M.	North Reference:	True
Well:	TC-HILAND KNOLLS C7-9-11	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)
13,800.0	90.00	90.25	7,295.0	-2,487.00	-1,791.9	7,507.2	7,673.3	0.00	0.00	0.00
13,900.0	90.00	90.25	7,295.0	-2,487.00	-1,792.3	7,607.2	7,772.6	0.00	0.00	0.00
14,000.0	90.00	90.25	7,295.0	-2,487.00	-1,792.7	7,707.2	7,871.8	0.00	0.00	0.00
14,100.0	90.00	90.25	7,295.0	-2,487.00	-1,793.2	7,807.2	7,971.1	0.00	0.00	0.00
14,200.0	90.00	90.25	7,295.0	-2,487.00	-1,793.6	7,907.2	8,070.3	0.00	0.00	0.00
14,300.0	90.00	90.25	7,295.0	-2,487.00	-1,794.0	8,007.2	8,169.6	0.00	0.00	0.00
14,400.0	90.00	90.25	7,295.0	-2,487.00	-1,794.5	8,107.2	8,268.8	0.00	0.00	0.00
14,500.0	90.00	90.25	7,295.0	-2,487.00	-1,794.9	8,207.2	8,368.1	0.00	0.00	0.00
14,600.0	90.00	90.25	7,295.0	-2,487.00	-1,795.3	8,307.2	8,467.3	0.00	0.00	0.00
14,700.0	90.00	90.25	7,295.0	-2,487.00	-1,795.7	8,407.2	8,566.6	0.00	0.00	0.00
14,800.0	90.00	90.25	7,295.0	-2,487.00	-1,796.2	8,507.2	8,665.8	0.00	0.00	0.00
14,900.0	90.00	90.25	7,295.0	-2,487.00	-1,796.6	8,607.2	8,765.1	0.00	0.00	0.00
15,000.0	90.00	90.25	7,295.0	-2,487.00	-1,797.0	8,707.2	8,864.3	0.00	0.00	0.00
15,100.0	90.00	90.25	7,295.0	-2,487.00	-1,797.5	8,807.2	8,963.6	0.00	0.00	0.00
15,200.0	90.00	90.25	7,295.0	-2,487.00	-1,797.9	8,907.2	9,062.8	0.00	0.00	0.00
15,300.0	90.00	90.25	7,295.0	-2,487.00	-1,798.3	9,007.2	9,162.1	0.00	0.00	0.00
15,400.0	90.00	90.25	7,295.0	-2,487.00	-1,798.7	9,107.2	9,261.4	0.00	0.00	0.00
15,500.0	90.00	90.25	7,295.0	-2,487.00	-1,799.2	9,207.2	9,360.6	0.00	0.00	0.00
15,600.0	90.00	90.25	7,295.0	-2,487.00	-1,799.6	9,307.2	9,459.9	0.00	0.00	0.00
15,700.0	90.00	90.25	7,295.0	-2,487.00	-1,800.0	9,407.2	9,559.1	0.00	0.00	0.00
15,800.0	90.00	90.25	7,295.0	-2,487.00	-1,800.5	9,507.2	9,658.4	0.00	0.00	0.00
15,900.0	90.00	90.25	7,295.0	-2,487.00	-1,800.9	9,607.2	9,757.6	0.00	0.00	0.00
16,000.0	90.00	90.25	7,295.0	-2,487.00	-1,801.3	9,707.2	9,856.9	0.00	0.00	0.00
16,100.0	90.00	90.25	7,295.0	-2,487.00	-1,801.7	9,807.2	9,956.1	0.00	0.00	0.00
16,200.0	90.00	90.25	7,295.0	-2,487.00	-1,802.2	9,907.2	10,055.4	0.00	0.00	0.00
16,300.0	90.00	90.25	7,295.0	-2,487.00	-1,802.6	10,007.2	10,154.6	0.00	0.00	0.00
16,400.0	90.00	90.25	7,295.0	-2,487.00	-1,803.0	10,107.2	10,253.9	0.00	0.00	0.00
16,500.0	90.00	90.25	7,295.0	-2,487.00	-1,803.5	10,207.2	10,353.1	0.00	0.00	0.00
16,600.0	90.00	90.25	7,295.0	-2,487.00	-1,803.9	10,307.2	10,452.4	0.00	0.00	0.00
16,700.0	90.00	90.25	7,295.0	-2,487.00	-1,804.3	10,407.2	10,551.7	0.00	0.00	0.00
16,800.0	90.00	90.25	7,295.0	-2,487.00	-1,804.7	10,507.2	10,650.9	0.00	0.00	0.00
16,900.0	90.00	90.25	7,295.0	-2,487.00	-1,805.2	10,607.2	10,750.2	0.00	0.00	0.00
17,000.0	90.00	90.25	7,295.0	-2,487.00	-1,805.6	10,707.2	10,849.4	0.00	0.00	0.00
17,100.0	90.00	90.25	7,295.0	-2,487.00	-1,806.0	10,807.2	10,948.7	0.00	0.00	0.00
17,200.0	90.00	90.25	7,295.0	-2,487.00	-1,806.5	10,907.1	11,047.9	0.00	0.00	0.00
17,300.0	90.00	90.25	7,295.0	-2,487.00	-1,806.9	11,007.1	11,147.2	0.00	0.00	0.00
17,400.0	90.00	90.25	7,295.0	-2,487.00	-1,807.3	11,107.1	11,246.4	0.00	0.00	0.00
17,500.0	90.00	90.25	7,295.0	-2,487.00	-1,807.7	11,207.1	11,345.7	0.00	0.00	0.00
17,600.0	90.00	90.25	7,295.0	-2,487.00	-1,808.2	11,307.1	11,444.9	0.00	0.00	0.00
17,700.0	90.00	90.25	7,295.0	-2,487.00	-1,808.6	11,407.1	11,544.2	0.00	0.00	0.00
17,800.0	90.00	90.25	7,295.0	-2,487.00	-1,809.0	11,507.1	11,643.4	0.00	0.00	0.00
17,900.0	90.00	90.25	7,295.0	-2,487.00	-1,809.5	11,607.1	11,742.7	0.00	0.00	0.00
18,000.0	90.00	90.25	7,295.0	-2,487.00	-1,809.9	11,707.1	11,841.9	0.00	0.00	0.00
18,100.0	90.00	90.25	7,295.0	-2,487.00	-1,810.3	11,807.1	11,941.2	0.00	0.00	0.00
18,200.0	90.00	90.25	7,295.0	-2,487.00	-1,810.7	11,907.1	12,040.5	0.00	0.00	0.00
18,300.0	90.00	90.25	7,295.0	-2,487.00	-1,811.2	12,007.1	12,139.7	0.00	0.00	0.00
18,400.0	90.00	90.25	7,295.0	-2,487.00	-1,811.6	12,107.1	12,239.0	0.00	0.00	0.00
18,500.0	90.00	90.25	7,295.0	-2,487.00	-1,812.0	12,207.1	12,338.2	0.00	0.00	0.00
18,600.0	90.00	90.25	7,295.0	-2,487.00	-1,812.5	12,307.1	12,437.5	0.00	0.00	0.00
18,700.0	90.00	90.25	7,295.0	-2,487.00	-1,812.9	12,407.1	12,536.7	0.00	0.00	0.00
18,800.0	90.00	90.25	7,295.0	-2,487.00	-1,813.3	12,507.1	12,636.0	0.00	0.00	0.00
18,900.0	90.00	90.25	7,295.0	-2,487.00	-1,813.7	12,607.1	12,735.2	0.00	0.00	0.00
19,000.0	90.00	90.25	7,295.0	-2,487.00	-1,814.2	12,707.1	12,834.5	0.00	0.00	0.00
19,100.0	90.00	90.25	7,295.0	-2,487.00	-1,814.6	12,807.1	12,933.7	0.00	0.00	0.00

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well TC-HILAND KNOLLS C7-9-11
Company:	EXTRACTION OIL & GAS	TVD Reference:	KB-EST @ 4808.0usft (Original Well Elev)
Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB-EST @ 4808.0usft (Original Well Elev)
Site:	NE SE SEC. 8 T5N R66W 6th P.M.	North Reference:	True
Well:	TC-HILAND KNOLLS C7-9-11	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)
19,200.0	90.00	90.25	7,295.0	-2,487.00	-1,815.0	12,907.1	13,033.0	0.00	0.00	0.00
19,300.0	90.00	90.25	7,295.0	-2,487.00	-1,815.4	13,007.1	13,132.2	0.00	0.00	0.00
19,400.0	90.00	90.25	7,295.0	-2,487.00	-1,815.9	13,107.1	13,231.5	0.00	0.00	0.00
19,500.0	90.00	90.25	7,295.0	-2,487.00	-1,816.3	13,207.1	13,330.8	0.00	0.00	0.00
19,600.0	90.00	90.25	7,295.0	-2,487.00	-1,816.7	13,307.1	13,430.0	0.00	0.00	0.00
19,700.0	90.00	90.25	7,295.0	-2,487.00	-1,817.2	13,407.1	13,529.3	0.00	0.00	0.00
19,800.0	90.00	90.25	7,295.0	-2,487.00	-1,817.6	13,507.1	13,628.5	0.00	0.00	0.00
19,900.0	90.00	90.25	7,295.0	-2,487.00	-1,818.0	13,607.1	13,727.8	0.00	0.00	0.00
20,000.0	90.00	90.25	7,295.0	-2,487.00	-1,818.4	13,707.1	13,827.0	0.00	0.00	0.00
20,100.0	90.00	90.25	7,295.0	-2,487.00	-1,818.9	13,807.1	13,926.3	0.00	0.00	0.00
20,200.0	90.00	90.25	7,295.0	-2,487.00	-1,819.3	13,907.1	14,025.5	0.00	0.00	0.00
20,300.0	90.00	90.25	7,295.0	-2,487.00	-1,819.7	14,007.1	14,124.8	0.00	0.00	0.00
20,400.0	90.00	90.25	7,295.0	-2,487.00	-1,820.2	14,107.1	14,224.0	0.00	0.00	0.00
20,500.0	90.00	90.25	7,295.0	-2,487.00	-1,820.6	14,207.1	14,323.3	0.00	0.00	0.00
20,600.0	90.00	90.25	7,295.0	-2,487.00	-1,821.0	14,307.1	14,422.5	0.00	0.00	0.00
BHL - TC-HILAND KNOLLS C7-9-11										
20,607.0	90.00	90.25	7,295.0	-2,487.00	-1,821.0	14,314.1	14,429.5	0.00	0.00	0.00

Formations

MD (usft)	TVD (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,820.5	3,680.0	PARKMAN			
4,590.5	4,410.0	SUSSEX			
5,023.0	4,820.0	SHANNON			
7,261.6	6,940.0	SHARON SPRINGS			
7,297.6	6,972.0	NIOBRARA			
7,444.7	7,092.0	NIO B TARGET			
7,747.4	7,260.0	FORT HAYS			
7,843.3	7,285.0	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)
1,427.5	1,411.4	-123.7	82.8	EOB TO 18.55° INC
7,155.1	6,841.3	-1,638.2	1,096.5	START BUILD & TURN
7,952.5	7,295.0	-1,766.8	1,659.7	LANDING PNT - TC-HILAND KNOLLS C7-9-11
20,607.0	7,295.0	-1,821.0	14,314.1	BHL - TC-HILAND KNOLLS C7-9-11