Company NOBLE ENERG INC.
Well LORENZ F 23-31D
Field WATTENBERG
County WELD
State COLORADO

JW WIRELINE COMPANY

CEMENT BOND
GAMMA RAY
COLLAR CORRELATION LOG

Company NOBLE ENERG INC.
Well LORENZ F 23-31D
Field WATTENBERG
County WELD State COLORADO

Location: API # : 05-123-35766-00
SHL: 1062' FNL & 310' FEL NE NE
SEC. 22 TWP. 5N RGE. 65W
BHL: 1321' FNL & 74' FWL
SEC 23 TWP 5N RGE 65W

Other Services
NONE

Permanent Datum GROUND LEVEL Elevation 4625
Log Measured From KELLY BUSHING
Drilling Measured From KELLY BUSHING

Elevation
K.B. 4638
D.F. 4638
G.L. 4625

Date	27-AUGUST-2012
Run Number	ONE
Depth Driller	7190
Depth Logger	7115
Bottom Logged Interval	7108
Top Log Interval	1870
Open Hole Size	7 7/8
Type Fluid	WATER
Density / Viscosity	--
Max. Recorded Temp.	240
Estimated Cement Top	2004
Time Well Ready	--
Time Logger on Bottom	--
Equipment Number	2405/WHITE
Location	BRIGHTON
Recorded By	HAYES
Witnessed By	MR. TROY SETTLE

Borehole Record			Tubing Record			
Run Number	Bit	From	To	Size	Weight	From	To

Casing Record	Size	Wgt/Ft	Top	Bottom
Surface String	8 5/8	24#	SURFACE	624
Prot. String				
Production String	4.5	11.6#	SURFACE	TOTAL DEPTH
Liner				

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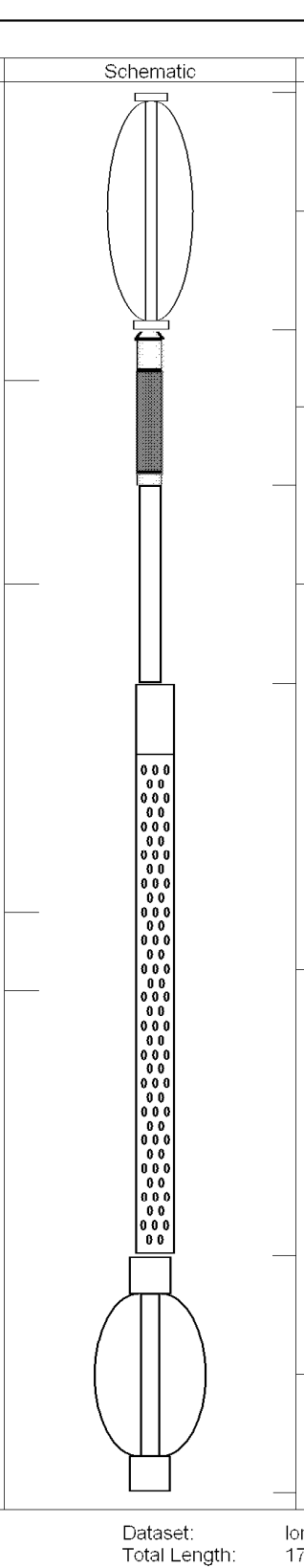
All interpretations are opinions based on inferences from electrical or other measurements and we cannot and do not guarantee the accuracy or correctness of any interpretation, and we shall not, except in the case of gross or willful negligence on our part, be liable or responsible for any loss, costs, damages, or expenses incurred or sustained by anyone resulting from any interpretation made by any of our officers, agents or employees. These interpretations are also subject to our general terms and conditions set out in our current Price Schedule.

Comments

LOG CORRELATED TO CD, CN, ML LOG
DATED 31-JULY-2012

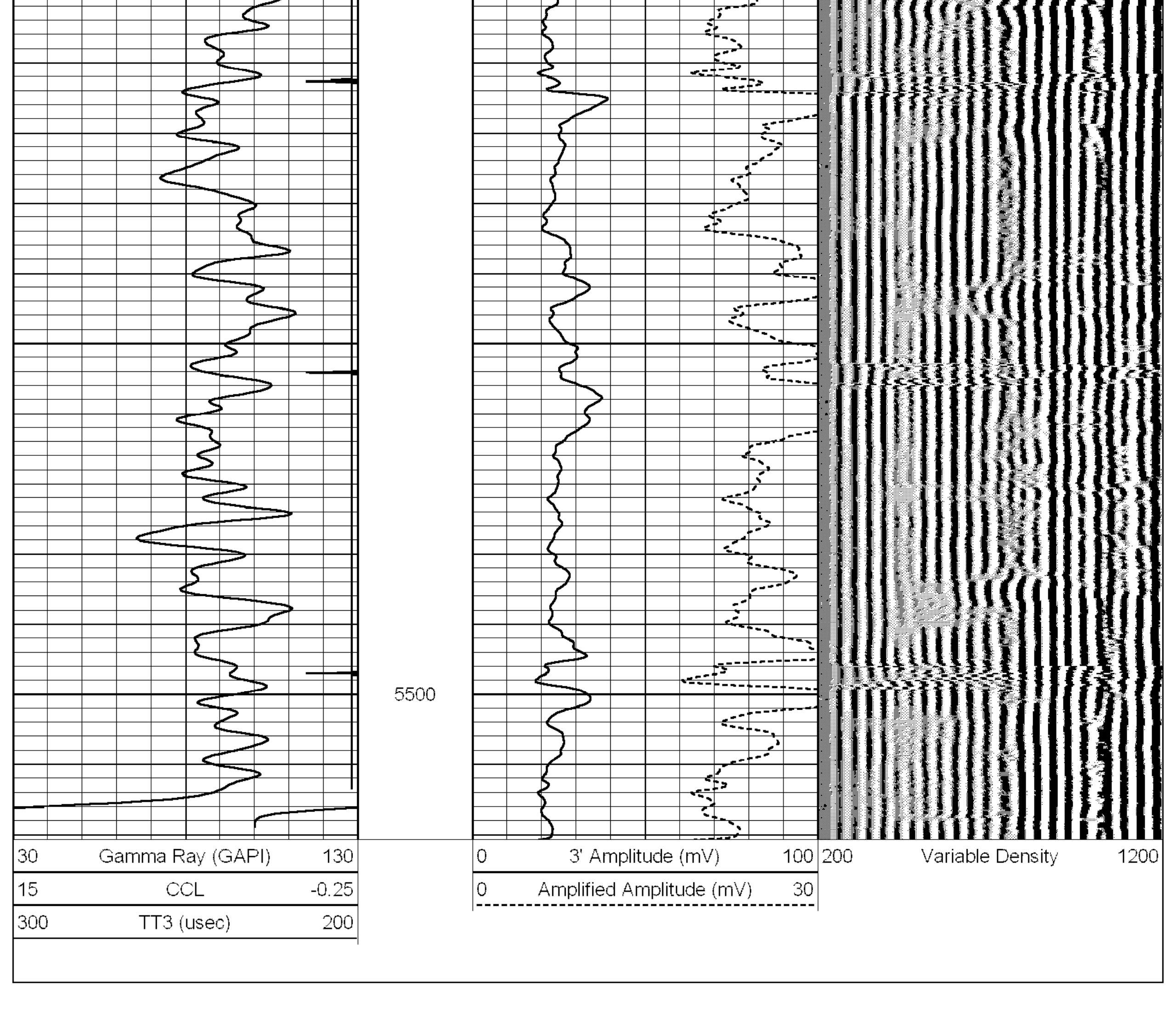
LOG SPLIT FOR CORRELATION PURPOSES

Sensor	Offset (ft)	Schematic	Description	Len (ft)	OD (in)	Wt (lb)
			CENT-A (1)	3.00	1.69	10.00
CCL	14.06		CCL-275tekco (2.75TEKCO) 2 3/4 TEK CCL Earth Mag	1.96	2.75	20.00
GR	11.49		GR-s_t001 (t001)	2.52	1.69	30.00
WVF5 WVF3	7.34 6.34		CBL-3_5 (001)	7.23	2.44	127.00
			CENT-B (2)	3.00	1.69	10.00

Dataset: lorenz f 23-31d.db: field/well/run1/pass2
Total Length: 17.71 ft
Total Weight: 197.00 lb
O.D. 2.75 in

Database File: lorenz f 23-31d.db
Dataset Pathname: pass2
Presentation Format: cblx
Dataset Creation: Mon Aug 27 23:41:29 2012 by Log SCH 111116
Charted by: Depth in Feet scaled 1:240

30 Gamma Ray (GAPI) 130	0 3' Amplitude (mV) 100	200 Variable Density 1200
15 CCL -0.25	0 Amplified Amplitude (mV) 30	
300 TT3 (usec) 200		



30	Gamma Ray (GAPI)	130	0	3' Amplitude (mV)	100	200 Variable Density 1200
15	CCL	-0.25	0	Amplified Amplitude (mV)	30	
300	TT3 (usec)	200				

Database File: lorenz f 23-31d.db
Dataset Pathname: pass1
Presentation Format: cblx
Dataset Creation: Mon Aug 27 23:16:18 2012 by Log SCH 111116
Charted by: Depth in Feet scaled 1:240

0	Gamma Ray (GAPI)	180	0	3' Amplitude (mV)	100	200 Variable Density 1200
15	CCL	-0.25	0	Amplified Amplitude (mV)	30	
300	TT3 (usec)	200				

0	Gamma Ray (GAPI)	180	0	3' Amplitude (mV)	100	200 Variable Density 1200
15	CCL	-0.25	0	Amplified Amplitude (mV)	30	
300	TT3 (usec)	200				

Calibration Report

Database File: lorenz f 23-31d.db
Dataset Pathname: pass2
Dataset Creation: Mon Aug 27 23:41:29 2012 by Log SCH 111116

Cement Bond Log Calibration Report

Serial Number:	001		
Tool Model:	3_5		
Performed:	Mon Aug 27 21:14:09 2012		
Depth:	1180.53		ft
Casing Diameter:	4.5		in
	3' Spacing	5' Spacing	
Signal Zero:	3	3	mV
Calibrated Amplitude:	81.1961	81.1961	mV
Reading at Signal Zero:	0	0	V
Reading in Free Pipe:	2.5	2.5	V
Gain:	31.2784	31.2784	
Offset:	3	3	

Gamma Ray Calibration Report

Serial Number:	t001	
Tool Model:	s_t001	
Performed:	Sun Jun 13 14:33:21 1993	
Calibrator Value:	1.0	GAPI
Background Reading:	0.0	cps
Calibrator Reading:	1.0	cps
Sensitivity:	1.0000	GAPI/cps