RENEGADE SERVICES

RADIAL CEMENT BOND
GAMMA-RAY
CCL LOG

Company	**LLANO DISPOSAL, LLC**
Well	**STATE 4 #1**
Field	**TATUM**
County	**LEA**
State	**NM**

Location: API # : 30-025-26370

Other Services
CIL/CNL

SEC TWP RGE

Permanent Datum		Elevation	
Log Measured From	G.L.		
Drilling Measured From	K.B.		

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

Company	LLANO DISPOSAL, LLC
Well	STATE 4 #1
Field	TATUM
County	LEA
State	NM

Date	2-2-2018	
Run Number	ONE	
Depth Driller	13,476'	
Depth Logger	3298	
Bottom Logged Interval	3292	
Top Log Interval	SURFACE	
Open Hole Size	NA	
Type Fluid	H2O	
Density / Viscosity	NA	
Max. Recorded Temp.	NA	
Estimated Cement Top	SEE LOG	
Time Well Ready	ROA	
Time Logger on Bottom	9:00 AM	
Equipment Number	71	
Location	LEVELLAND TX	
Recorded By	R.D. MOTHERAL	
Witnessed By	MR. BURROWS	

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

Casing Record	Size	Wgt/Ft	Top	Bottom
Surface String				
Prot. String	8.625"	28#	SURFACE	
Production String				
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

ALL DEPTHS ARE LOGGER DEPTHS
NO CORRELATION LOG AVAILABLE ON LOCATION
NO KB USED

RENEGADE SERVICES

MAIN PASS

Database File	llanostate4#1.db
Dataset Pathname	pass6
Presentation Format	rrcbl_8_
Dataset Creation	Fri Feb 02 12:02:37 2018
Charted by	Depth in Feet scaled 1:240

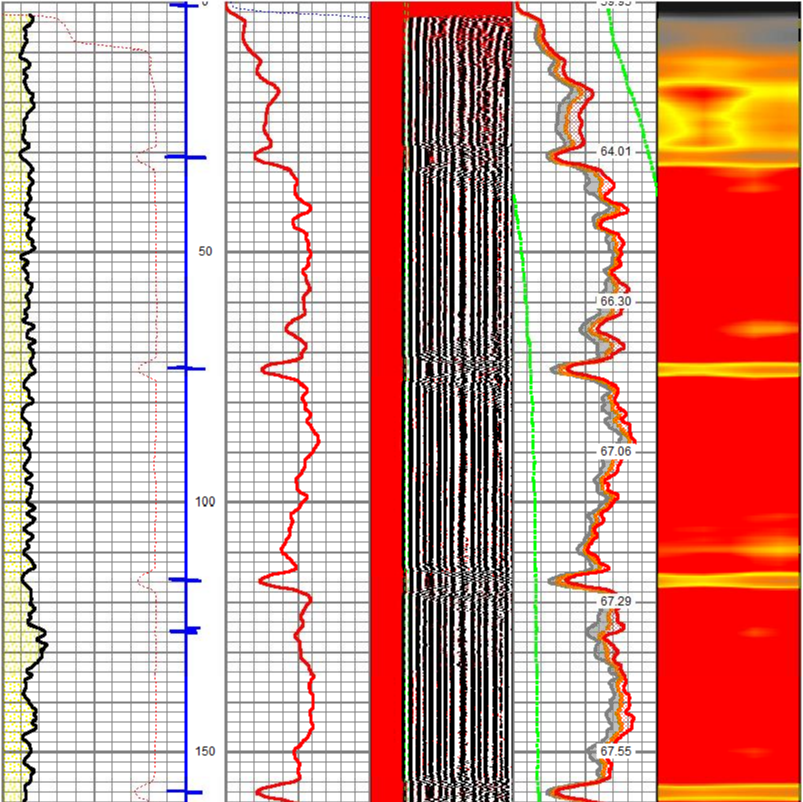
400 TT (usec) 300
0 GR (GAPI) 150
CCL

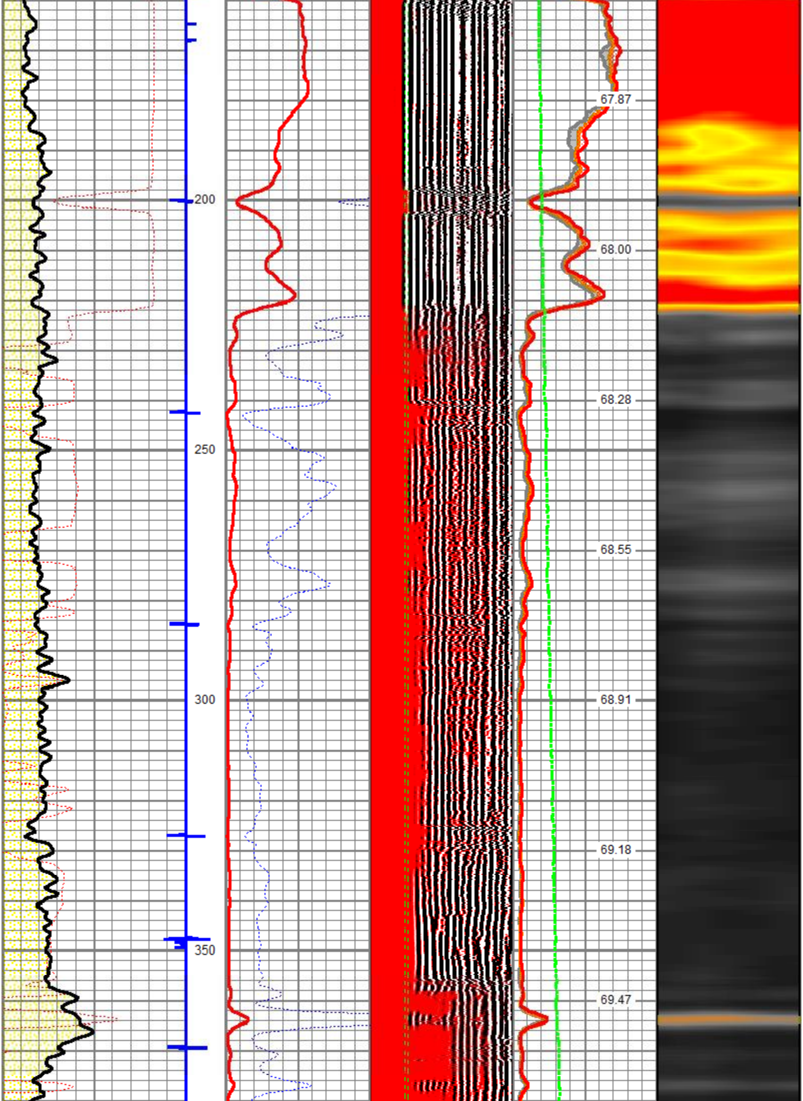
0 Amplitude (mV) 100
Amplified Amplitude
0 (mV) 10

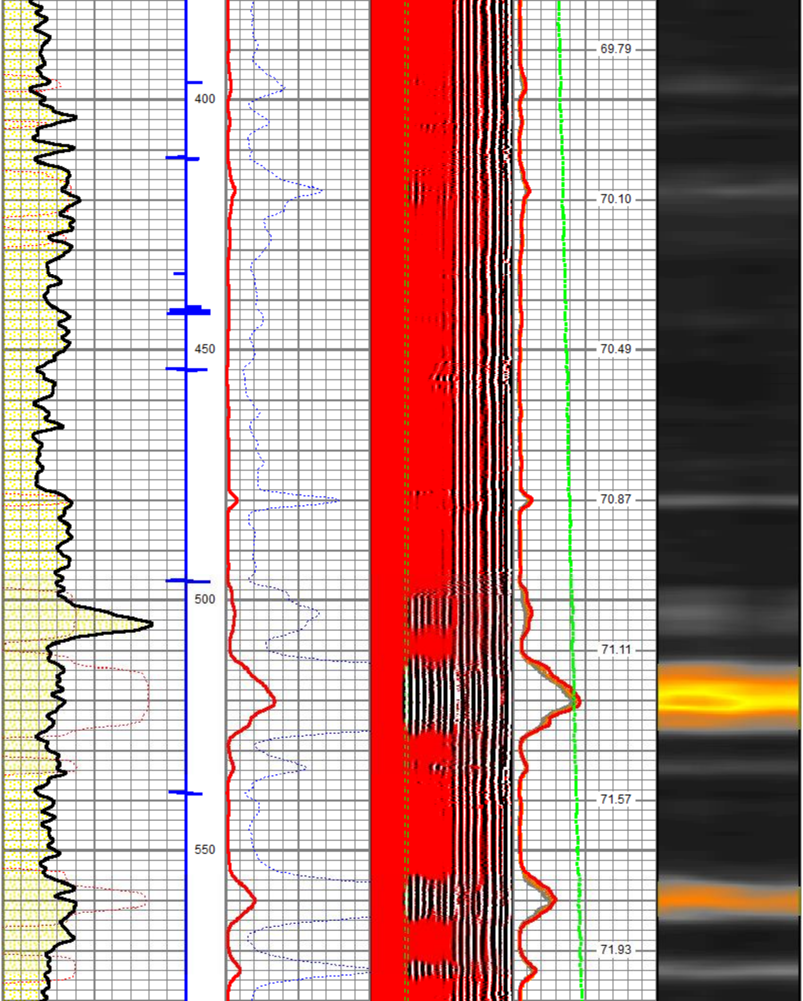
200 VDL (usec) 1200
Free Pipe Gate

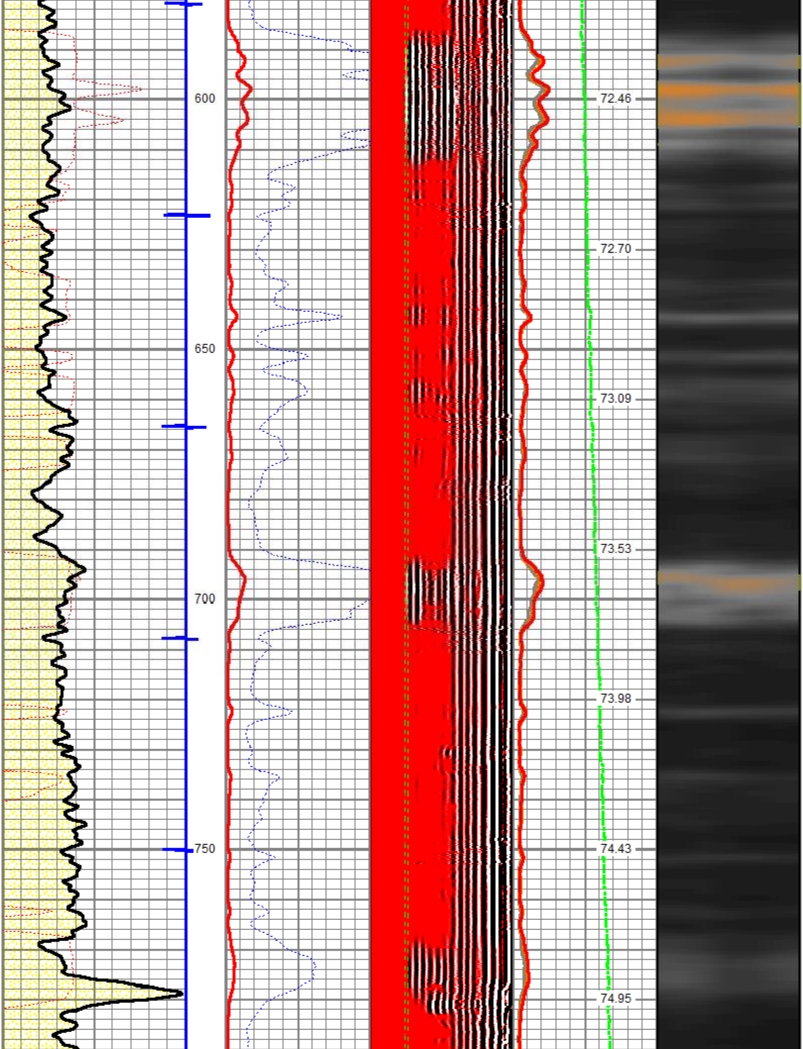
-5 AMPMIN 150
-5 AMPAVG 150
-5 AMPMAX 150
95 TEMP (degF) 110
TEMP (degF)

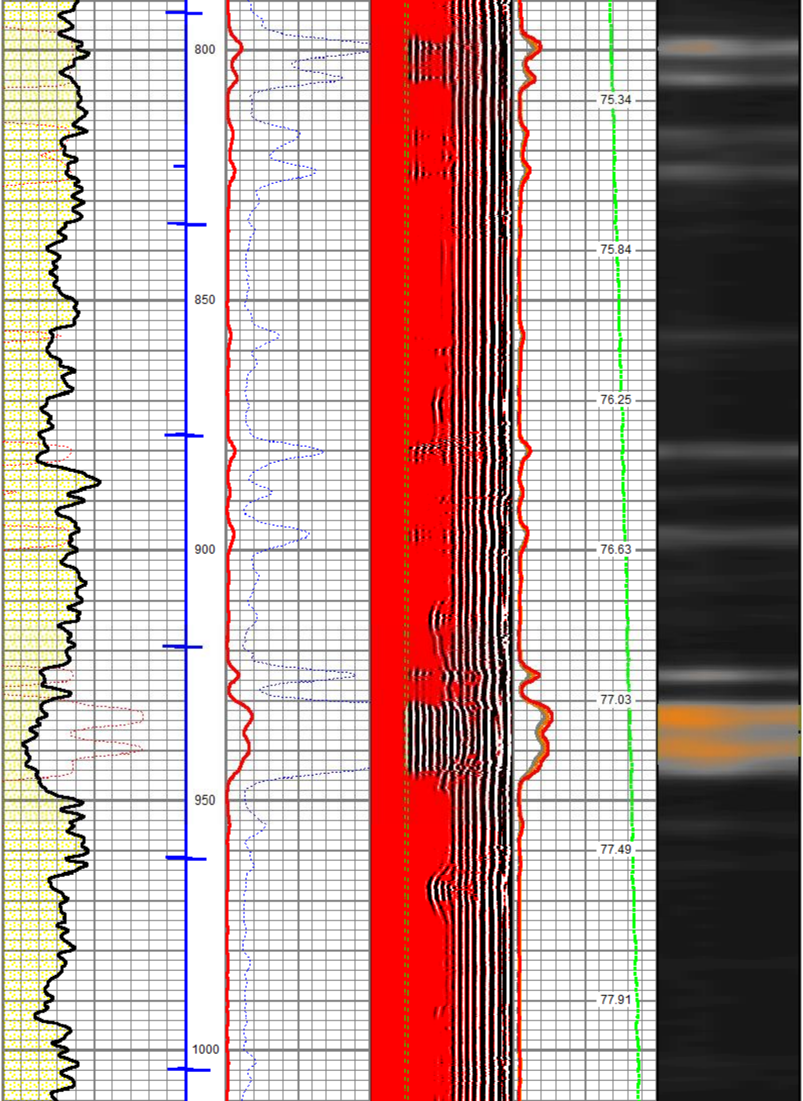
Cement Map

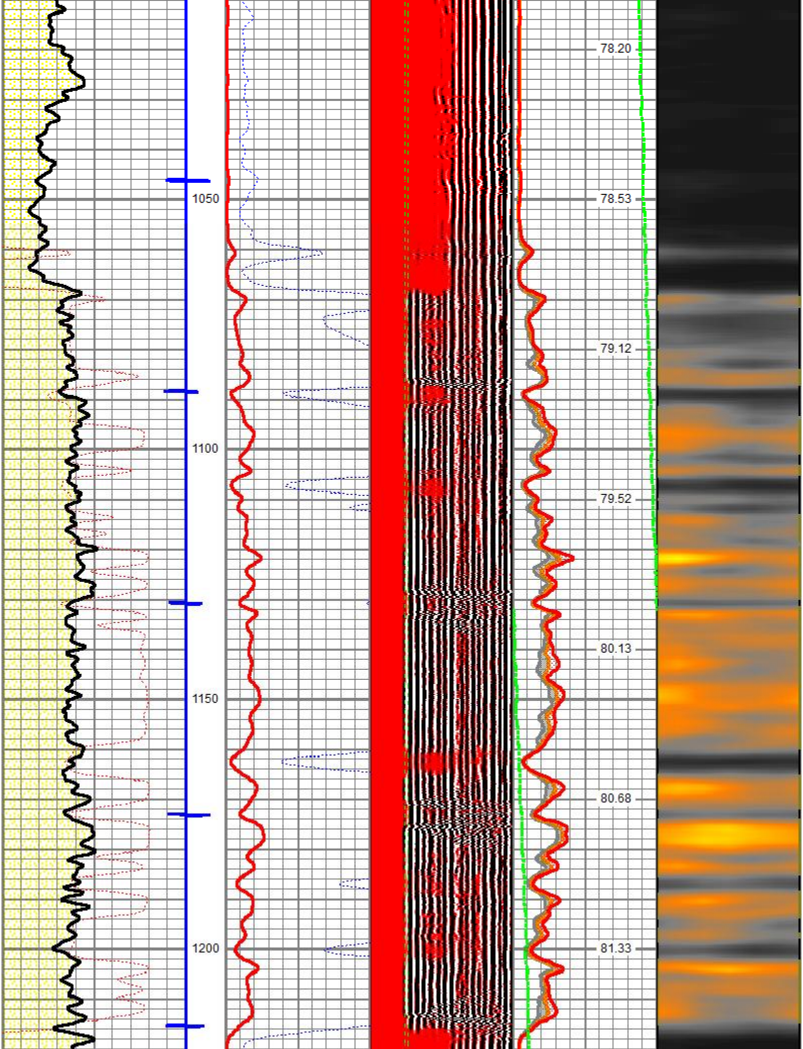


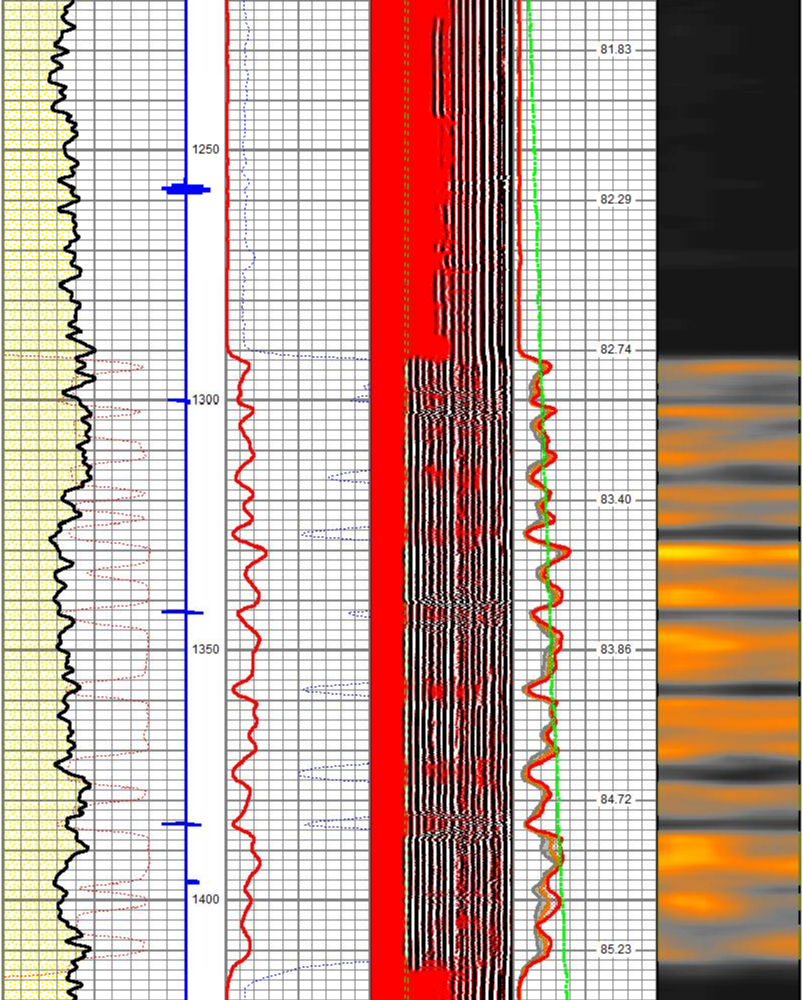


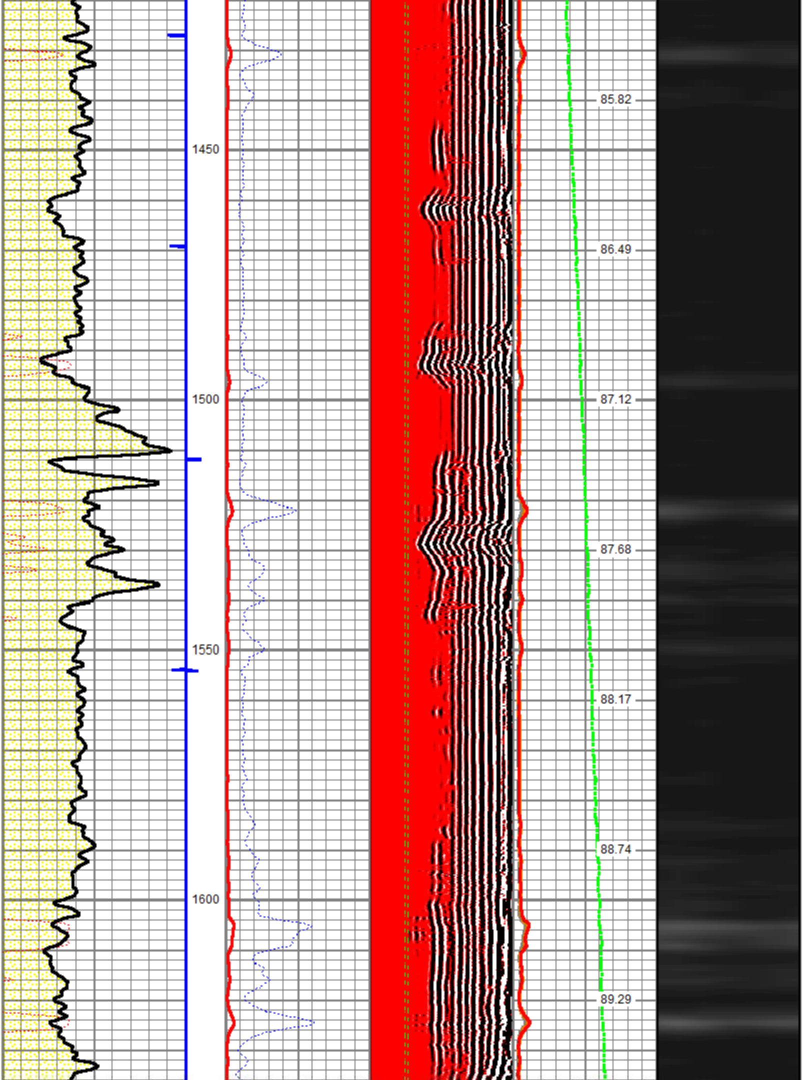


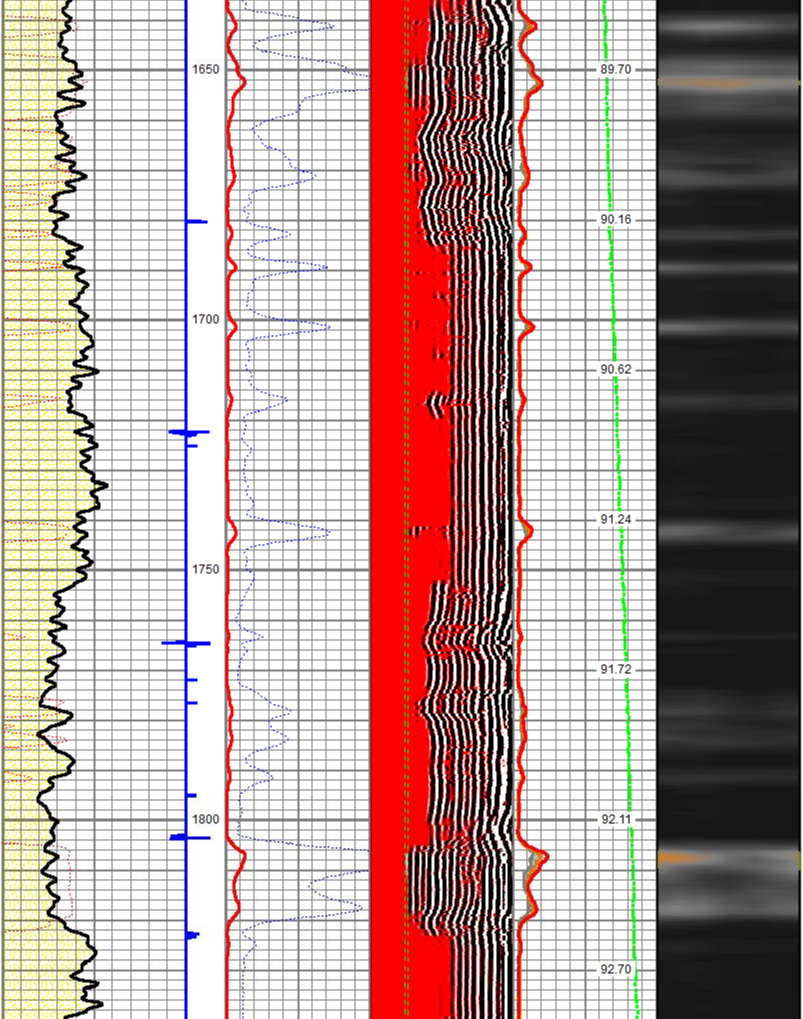


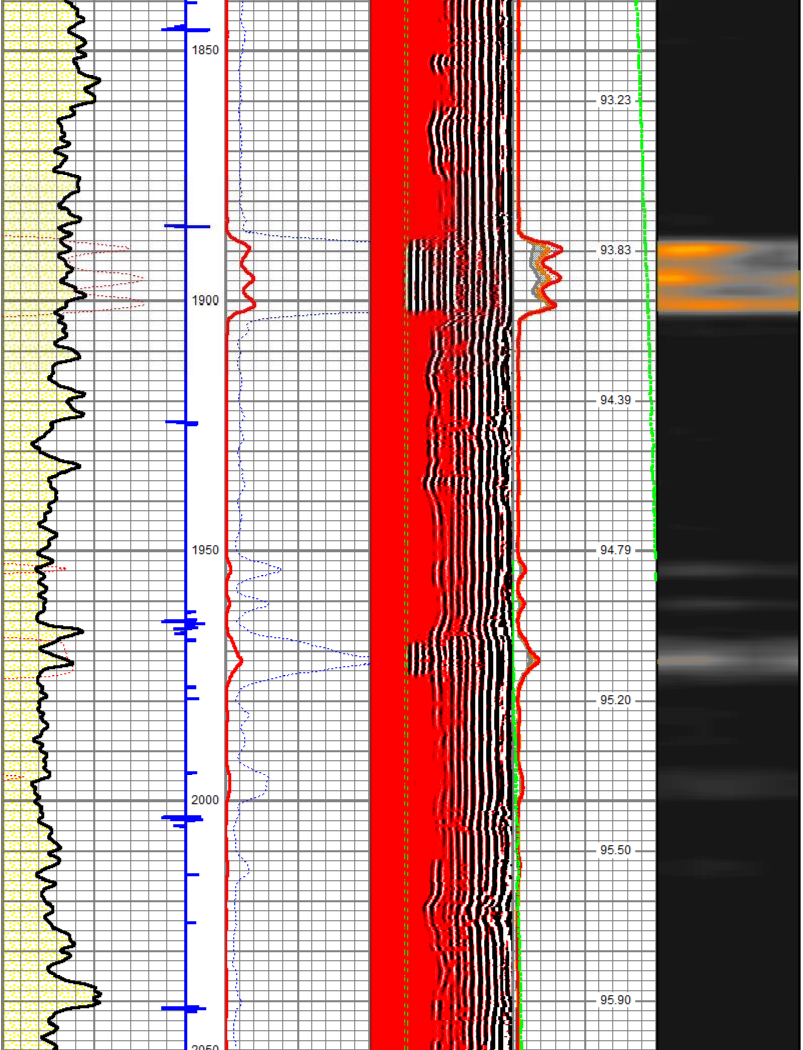


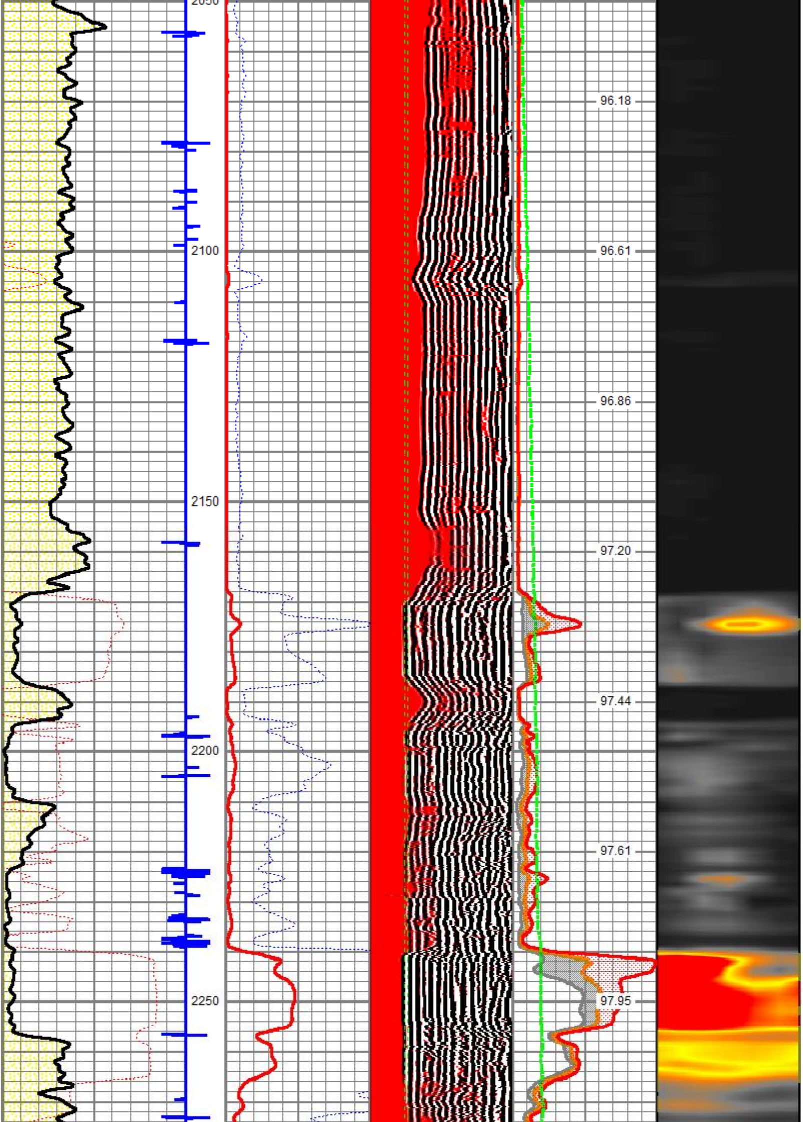


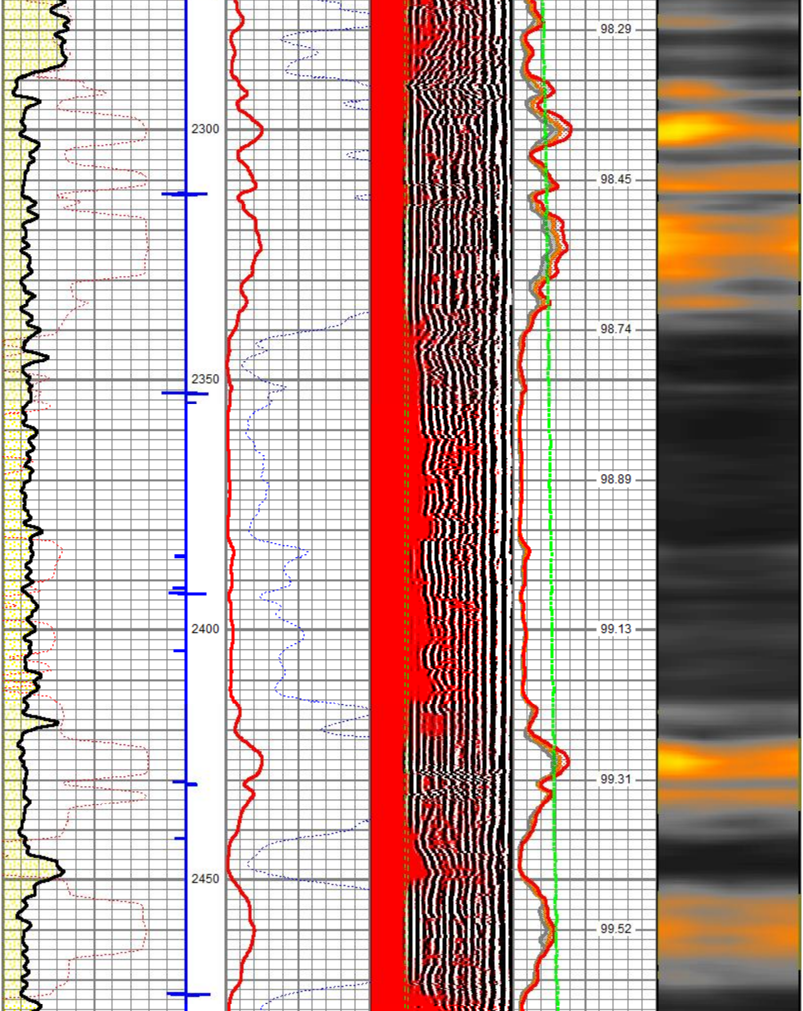


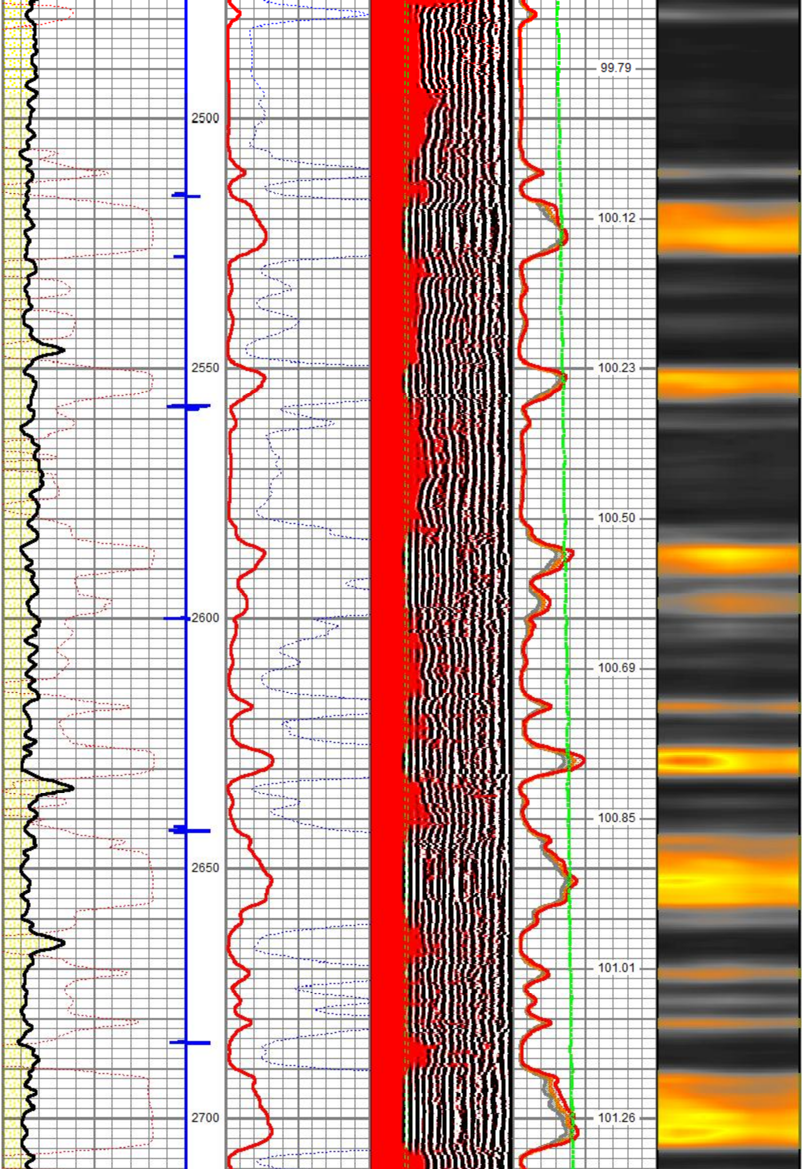


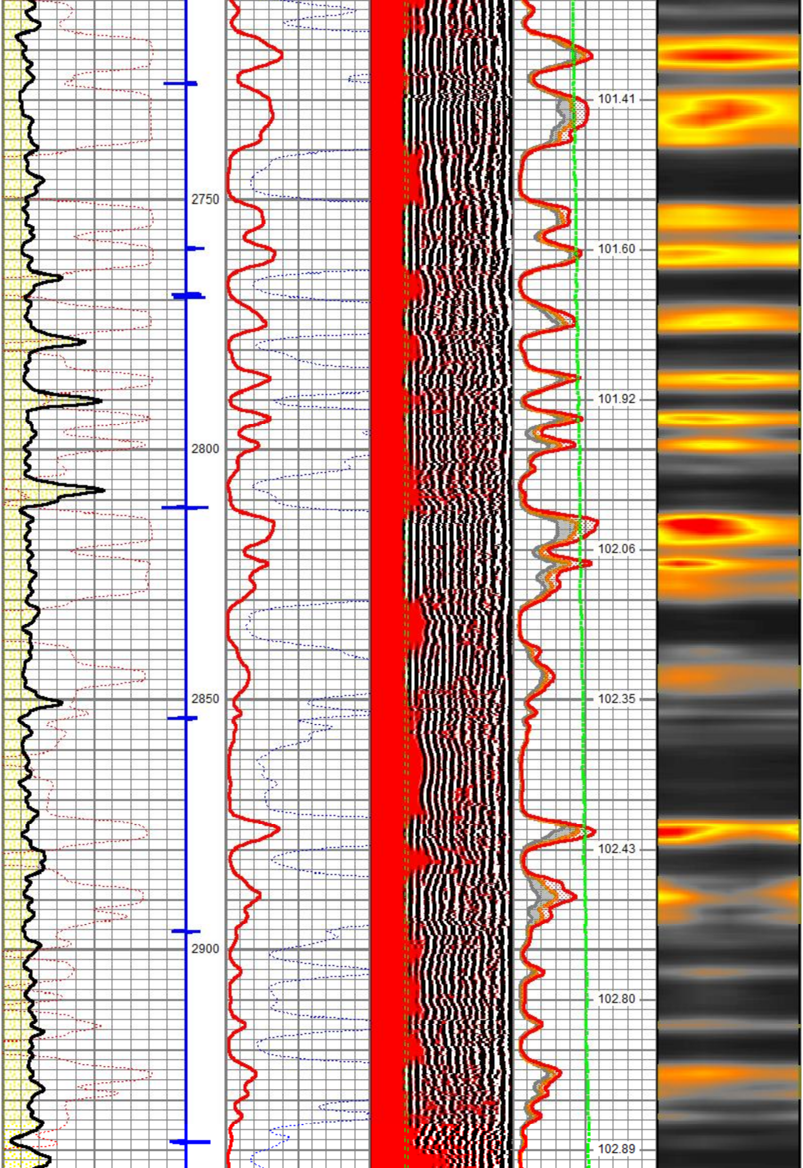


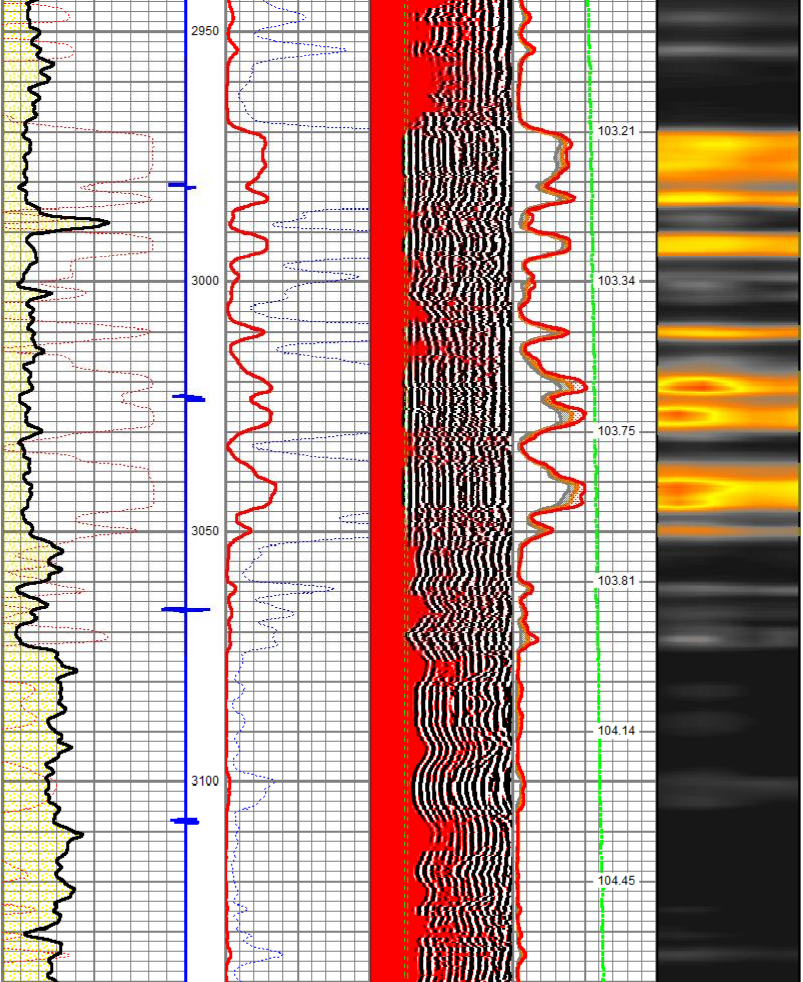


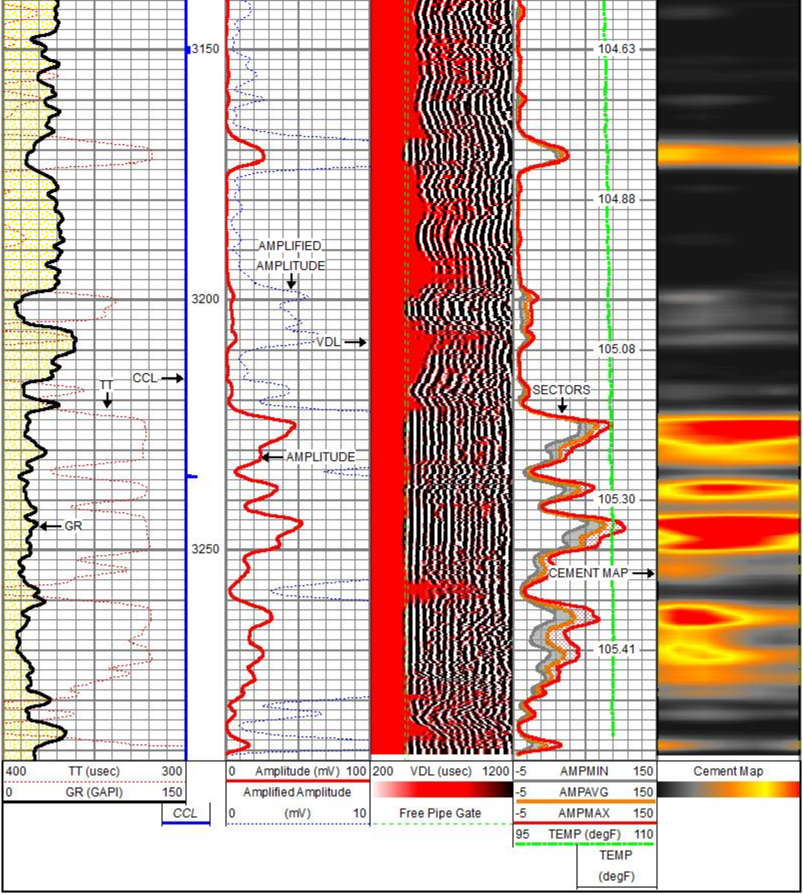








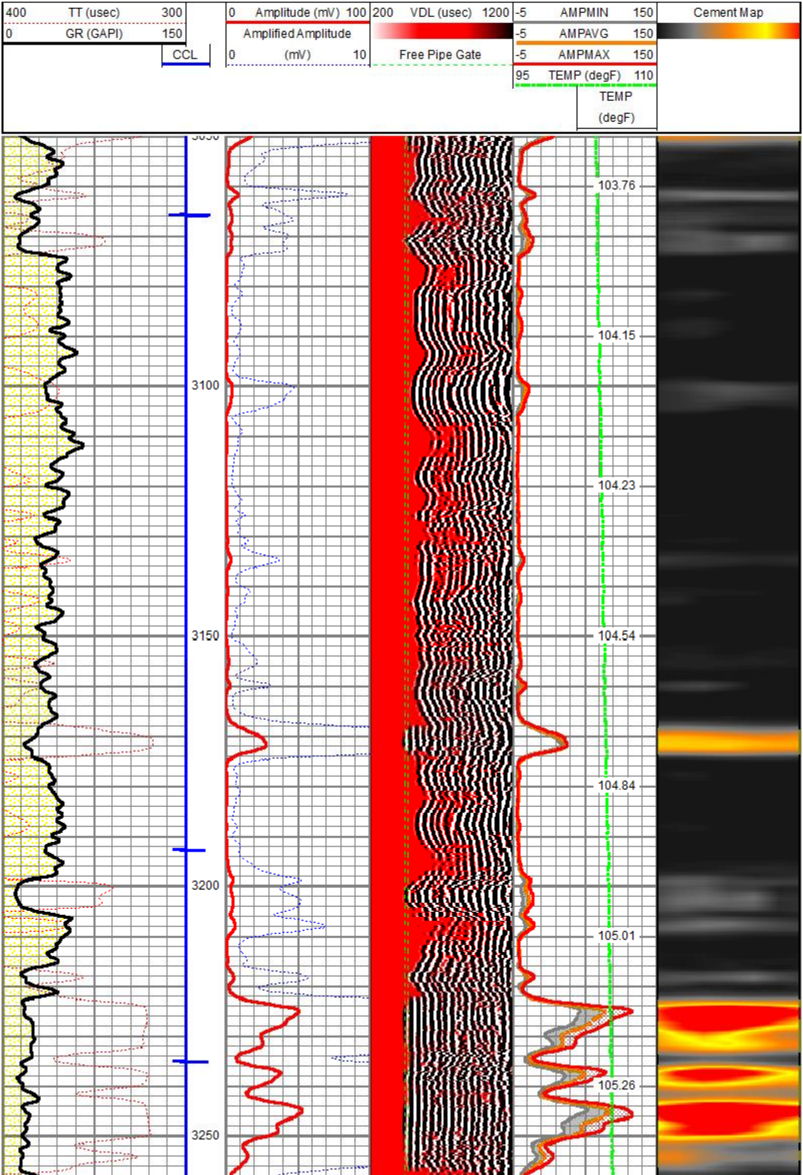


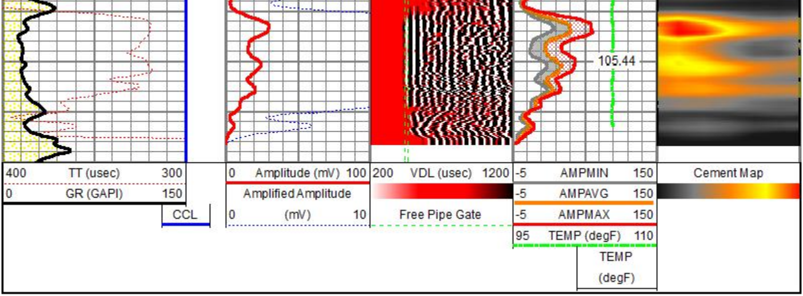


RENEGADE
SERVICES

REPEAT SECTION

Database File	llanostate4#1.db
Dataset Pathname	pass5
Presentation Format	rrcbl_8_
Dataset Creation	Fri Feb 02 11:48:55 2018
Charted by	Depth in Feet scaled 1:240





Log Variables

DatabaseC:\ProgramData\Warrior\Data\llanostate4#1.db
Dataset field/well/run1/pass6/_vars_

Top - Bottom

BHTEMP_Src TEMP	BOREID in 7.875	BOTTEMP degF 100	CASED? Yes	CASEID in 8.016	CASEOD in 8.625	CASETHCK in 0	CASEWGHT lb/ft 11.5	CMNTTHCK in 0
CMTTKCOR Off	CSTKCOR Off	MAXAMPL mV 0	MINAMPL mV 1	MinAPIWall in 0.264	MINATTN db/ft 0.8	NPORSEL Limestone	PERFS 0	PPT usec 0
SRFTEMP degF 0	SZCOR Off	TDEPTH ft 0						

Variable Description

BHTEMP_Src : BHTEMP Input Source Selector
BOREID : Borehole I.D.
BOTTEMP : Bottom Hole Temperature

MAXAMPL : Maximum Amplitude
MINAMPL : Minimum Amplitude
MinAPIWall : Minimum API Wall Thickness

CASED? : Cased hole ?
CASEID : Casing I.D.
CASEOD : Casing O.D.
CASETHCK : Casing Thickness
CASEWGHT : Casing Weight
CMNTTHCK : Cement Thickness
CMTTKCOR : CN CemThk. Cor. ?
CSTKCOR : CN CasThk. Cor. ?

MINATTN : Minimum Attenuation
NPORSEL : Neutron Porosity Curve Select
PERFS : Perforation Flag
PPT : Predicted Pipe Time
SRFTEMP : Surface Temperature
SZCOR : CN Size Cor. ?
TDEPTH : Total Depth

Calibration Report

Database File	llanostate4#1.db
Dataset Pathname	pass6
Dataset Creation	Fri Feb 02 12:02:37 2018

Compensated Neutron Calibration Report

Model:	CNT - Probe_B
Serial Number:	100526

SHOP CALIBRATION Tue Nov 07 11:32:58 2017

	Cal Tube	Units
Tank Ratio	11.6940	SS/LS
LS Detector	65.48	cps
SS Detector	766.91	cps
Tool Ratio	11.7125	SS/LS
Tool Gain	0.9984	----

PRE-SURVEY VERIFICATION

SS Detector	LS Detector	Measured (p.u.)	Target (p.u.)

POST-SURVEY VERIFICATION

SS Detector	LS Detector	Measured (p.u.)	Target (p.u.)

Gamma Ray Calibration Report

Serial Number:	120366	
Tool Model:	Probe275dig	
Performed:	Tue Nov 07 11:24:04 2017	
Calibrator Value:	1092.0	GAPI
Background Reading:	43.6	cps
Calibrator Reading:	1820.3	cps
Sensitivity:	0.6146	GAPI/cps

Segmented Cement Bond Log Calibration Report

Serial Number:	100919c	
Tool Model:	RBTC3	
Calibration Casing Diameter:	8.625	in
Calibration Depth:	199.817	ft

Master Calibration, performed Fri Feb 02 11:26:17 2018:

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	0.014	0.612	1.000	54.795	89.943	-0.232
CAL	0.006	1.007				
5'	0.012	0.605	1.000	54.795	90.692	-0.071
SUM						
S1	0.007	0.795	0.000	100.000	126.951	-0.902
S2	0.008	0.653	0.000	100.000	155.152	-1.309
S3	0.008	0.510	0.000	100.000	199.057	-1.611
S4	0.008	0.454	0.000	100.000	223.788	-1.705
S5	0.008	0.478	0.000	100.000	212.569	-1.658
S6	0.008	0.589	0.000	100.000	172.032	-1.384
S7	0.008	0.728	0.000	100.000	138.970	-1.157
S8	0.009	0.818	0.000	100.000	123.673	-1.126

Internal Reference Calibration, performed Fri Feb 02 11:18:49 2018:

	Raw (v)		Calibrated (v)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
CAL	0.000	0.000	0.006	1.007	1.000	0.000

Air Zero Calibration, performed Fri Feb 02 11:17:56 2018:

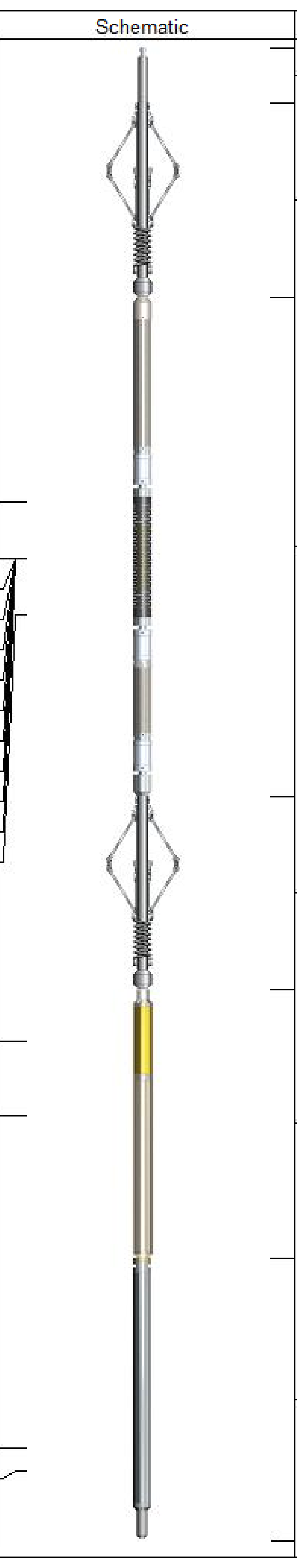
	Raw (v)	Calibrated (v)	Results
	Zero	Zero	Offset
3'	0.000	0.000	0.000
5'	0.000	0.000	0.000
SUM			
S1	0.000	0.000	0.000
S2	0.000	0.000	0.000
S3	0.000	0.000	0.000
S4	0.000	0.000	0.000
S5	0.000	0.000	0.000
S6	0.000	0.000	0.000
S7	0.000	0.000	0.000
S8	0.000	0.000	0.000

Temperature Calibration Report

Serial Number:	100919c	
Tool Model:	RBTC3	
Performed:	(Not Performed)	

	Reference		Reading	
Low Reference:	0.00	degF	0.00	degF
High Reference:	1.00	degF	1.00	degF

Gain:	1.00
Offset:	0.00
Delta Spacing	1

Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)
			CHD-1.6875CHD	1.00	1.69	10.00
			CENT-Probe Probe 2 3/4 Centralizer	3.45	2.75	20.00
TEMP	18.50					
WVFS8	17.50		RBT-RBTC3 (100919c)	8.92	0.00	
WVFS7	17.50					
WVFS6	17.50					
WVFS5	17.50					
WVFS4	17.50					
WVFS3	17.50					
WVFS2	17.50					
WVFS1	17.50					
WVFCAL	17.50					
WVF3FT	17.50					
WVF5FT	16.50					
			CENT-Probe Probe 2 3/4 Centralizer	3.45	2.75	20.00
CCL	8.91					
GR	7.57		GR-Probe275dig (120366) Probe Digital Gamma CCL	4.77	2.75	57.00
			CNT-Probe_B (100526) Probe Digital CNL Tool	5.03	2.75	60.00
CNLSC	1.65					
CNSSC	1.24					

Dataset:	llanostate4#1.db: field/well/run1/pass6
Total length:	26.62 ft
Total weight:	167.00 lb
O.D.:	2.75 in

RENEGADE SERVICES

Company	LLANO DISPOSAL, LLC
Well	STATE 4 #1
Field	TATUM
County	LEA
State	NM