HALLIBURTON

RADIAL CEMENT BOND LOG

Company	MINERAL RESOURCES
Well	POUDRE TRAIL 5 2-2-1
Field	GREELEY
County	WELD State CO

Company MINERAL RESOURCES
Well POUDRE TRAIL 5 2-2-1
Field GREELEY
County WELD State CO

API No.: 05-123-35501 Serv #: 9885702
Location: SHL: 2418' FSL, 1189' FWL
BHL: 1361' FNL, 1075' FWL
LAT/LON: 40.43076/-104.73927

Other Services

Sec: 2 Twp: 5N Rge: 66W

Permanent Datum G.L. Elevation 4700
Log Measured From K.B. , 19 Ft. above perm. datum
Drilling Measured From K.B.

Elevation
K.B. 4719
D.F. 4719
G.L. 4700

Date @ Time Logged	10/13/12@1535	Type Fluid in Hole	FRESH WATER
Run No.	ONE	Density of Fluid	8.33
Depth - Driller	7810	Fluid Level	70
Depth - Logger	7713	Cement Top Est. Logged	2972
Bottom - Logged Interval	7713	Equipment / Location	11875120 / GJ
Top - Log Interval	2700	Recorded by	NATHANIEL MILES
Max. Recorded Temp.	208	Witnessed by	RICK OHLEMEIER

CEMENTING DATA	Surface String	Protection String	Production String	Liner
Date / Time Cemented				
Primary / Squeeze	PRIMARY	PRIMARY		
Expected Compressive Strength	psi@ hrs	psi@ hrs	psi@ hrs	psi@ hrs
Cement Volume	175 SACKS	480 SACKS		
Cement Type / Weight	/	/	/	/
Formulation				
Mud Type / Mud Wgt.	/	/	/	/

Borehole Record				Casing & Tubing Record			
Run Number	Bit	From	To	Size	Weight	From	To
SURFACE	12.25	0	481	8.625	24	0	481
PROTECTION	7.875	481	7800	7	26	0	7800

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HALLIBURTON DOES NOT GUARANTEE THE ACCURACY OF ANY INTERPRETATION OF THE LOG DATA, CONVERSION OF LOG DATA TO PHYSICAL ROCK PARAMETERS OR RECOMMENDATIONS WHICH MAY BE GIVEN BY HALLIBURTON PERSONNEL OR WHCIH APPEAR ON THE LOG OR IN ANY OTHER FORM. ANY USER OF SUCH DATA, INTERPRETATIONS, CONVERSIONS, OR RECOMMENDATIONS AGREES THAT HALLIBURTON IS NOT RESPONSIBLE EXCEPT WHERE DUE TO GROSS NEGLIGENCE OR WILLFUL MISCONDUCT, FOR ANY LOSS, DAMAGES, OR EXPENSES RESULTING FROM THE USE THEREOF.

Comments

THORIUM BLANKET: 230 GAPI
ESTIMATED TOC: 2972'

THANK YOU FOR USING HALLIBURTON ENERGY SERVICES
YOUR CREW TODAY: NATHANIEL MILES, RICHARD MACKIE, ZACH MACINTOSH, KEITH BIRLSON, AND JOSEPH FORSTER

Service Ticket No. 9885702 API No. 05-123-35501 PGM Ver WARRIOR 7.0

The Well Name, Location, Borehole Description, and / or Cementing Data Furnished by Client

EQUIPMENT DATA

TTTCU		RBT					
Run No.	ALL	Run No.	ALL	Run No.		Run No.	
Serial No.	214878	Serial No.	11002211	Serial No.		Serial No.	
Model No.	001	Model No.	011	Model No.		Model No.	
Diameter	1.69	Diameter	3.125	Diameter		Diameter	

LOGGING DATA

General Data

Pass No.	Depths From	Depths To	Well Head Pressure	Speed Ft/Min	Logging Run Comments
MAIN1	7713	2700	NONE	65	

	GR		AMPLITUDE		TRAVEL TIME			
Pass	Scale		Scale		Scale		Scale	
No.	L	R	L	R	L	R	L	L
ALL	0	200	0	100	650	150		

DIRECTIONAL INFORMATION

Maximum Deviation		deg. @		KOP	

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MAIN LOG SECTION

SCALE 1:240

Database File: poudre trail 5.db
Dataset Pathname: WELD/2-2-1/RBT/MAIN2
Presentation Format: rbt
Dataset Creation: Sat Oct 13 15:35:53 2012 by Log Halliburton Casedho
Charted by: Depth in Feet scaled 1:240

LTEN	-5400 CCL 600	0 AMP (mV) 100	0 AMPAVG 100	200 VDL 1200	1 RADIAL MAP 8
0 (lb) 2000	0 GR (GAPI) 200	650 TT (usec) 150	0 AMPMAX 100		50 4
	-40 CBLROT (°) 360	0 AMPX5 (mV) 20	0 AMPMIN 100		

LTEN	-5400 CCL 600	0 AMP (mV) 100	0 AMPAVG 100	200 VDL 1200	1 RADIAL MAP 8
0 (lb 2000	0 GR (GAPI) 200	650 TT (usec) 150	0 AMPMAX 100		50 4
	-40 CBLROT (°) 360	0 AMPX5 (mV) 20	0 AMPMIN 100		

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MAIN LOG SECTION

SCALE 1:240

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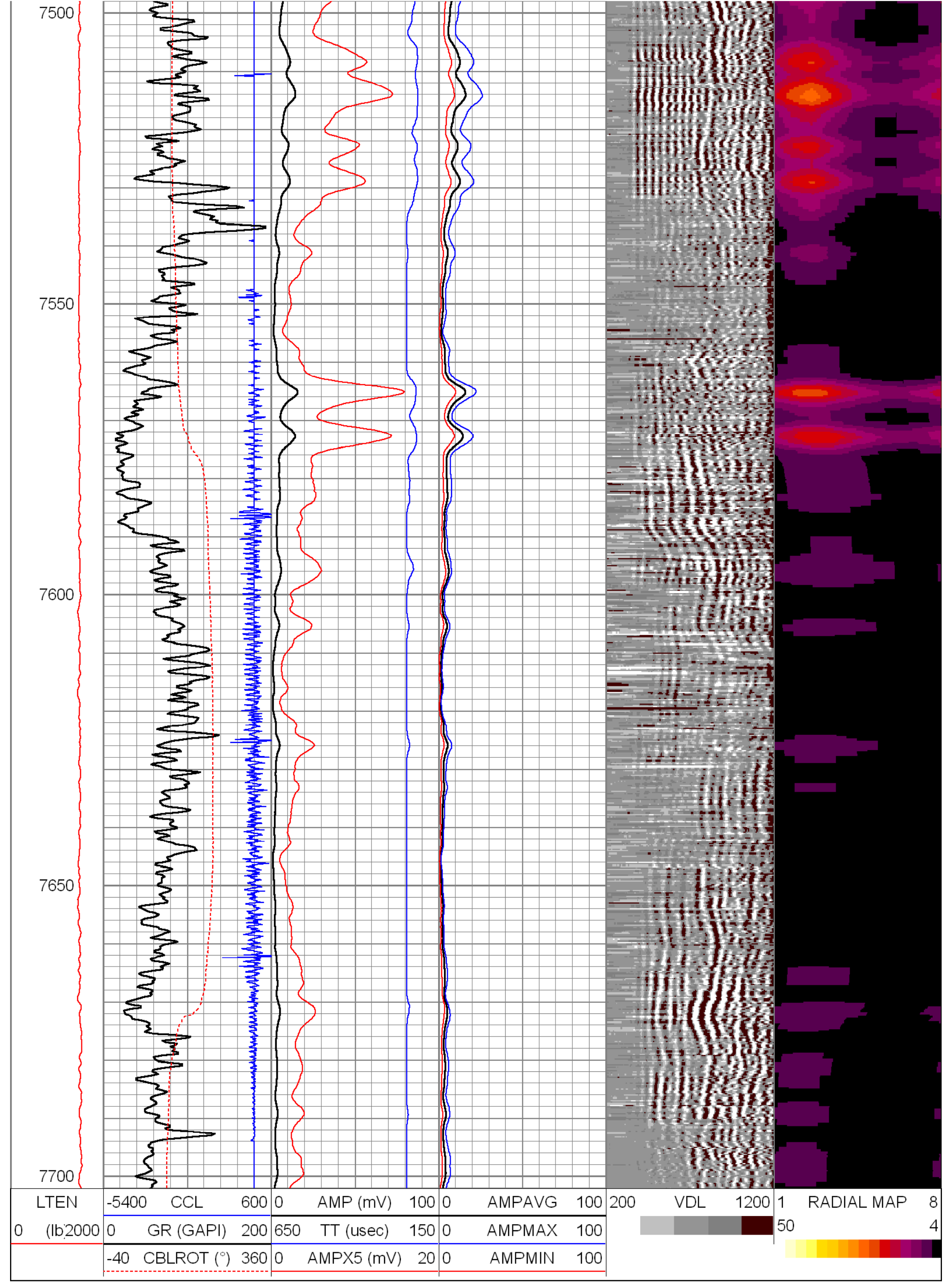
REPEAT LOG SECTION

SCALE 1:240

Database File: poudre trail 5.db
Dataset Pathname: WELD/2-2-1/RBT/REPEAT1
Presentation Format: rbt
Dataset Creation: Sat Oct 13 15:19:24 2012 by Log Halliburton Casedho
Charted by: Depth in Feet scaled 1:240

LTEN	-5400 CCL 600	0 AMP (mV) 100	0 AMPAVG 100	200 VDL 1200	1 RADIAL MAP 8
0 (lb 2000	0 GR (GAPI) 200	650 TT (usec) 150	0 AMPMAX 100		50 4
	-40 CBLROT (°) 360	0 AMPX5 (mV) 20	0 AMPMIN 100		



LTEN	-5400 CCL 600	0 AMP (mV) 100	0 AMPAVG 100	200 VDL 1200	1 RADIAL MAP 8
0 (lb 2000	0 GR (GAPI) 200	650 TT (usec) 150	0 AMPMAX 100		50 4
	-40 CBLROT (°) 360	0 AMPX5 (mV) 20	0 AMPMIN 100		

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REPEAT LOG SECTION

SCALE 1:240

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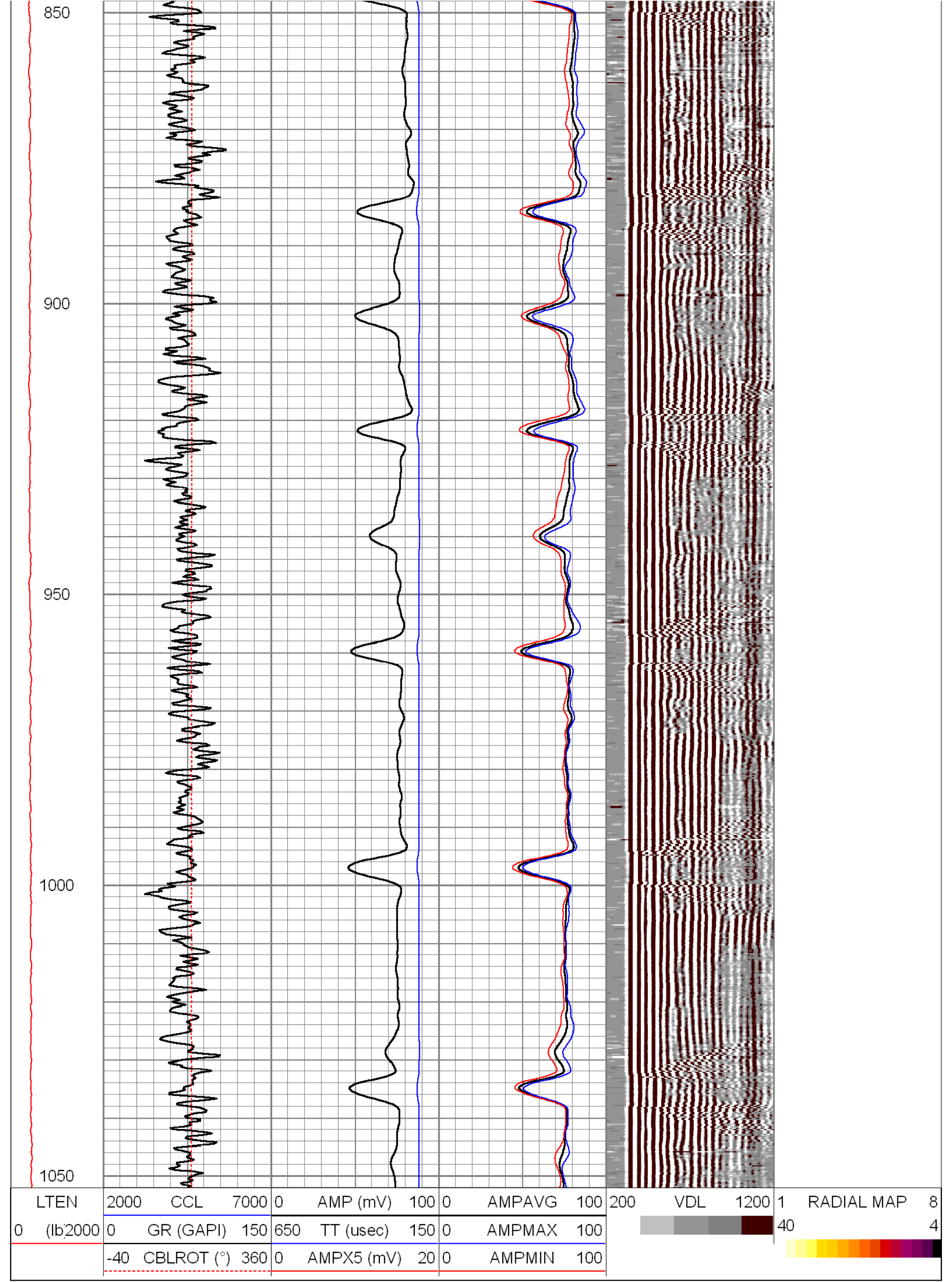
FREE PIPE LOG SECTION

SCALE 1:240

Database File: poudre trail 5.db
Dataset Pathname: WELD/2-2-1/RBT/FREEPIPE1
Presentation Format: rbt
Dataset Creation: Sat Oct 13 14:35:35 2012 by Log Halliburton Casedho
Charted by: Depth in Feet scaled 1:240

LTEN	2000 CCL 7000	0 AMP (mV) 100	0 AMPAVG 100	200 VDL 1200	1 RADIAL MAP 8
0 (lb 2000	0 GR (GAPI) 150	650 TT (usec) 150	0 AMPMAX 100		40 4
	-40 CBLROT (°) 360	0 AMPX5 (mV) 20	0 AMPMIN 100		



LTEN	2000 CCL 7000	0 AMP (mV) 100	0 AMPAVG 100	200 VDL 1200	1 RADIAL MAP 8
0 (lb 2000	0 GR (GAPI) 150	650 TT (usec) 150	0 AMPMAX 100		40 4
	-40 CBLROT (°) 360	0 AMPX5 (mV) 20	0 AMPMIN 100		

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FREE PIPE LOG SECTION

SCALE 1:240

Log Variables

Database:C:\Warrior\Data\poudre trail 5.db
Dataset: WELD/2-2-1/RBT/MAIN2

Top - Bottom

PPT usec	CASEWGHT lb/ft	MAXAMPL mV	MINAMPL mV	MINATTN db/ft	CASEOD in	PERFS	TDEPTH ft
202	11.6	81	0	0.8	4.5	0	7810

BOTTEMP degF	BITSIZE in
218	7.875

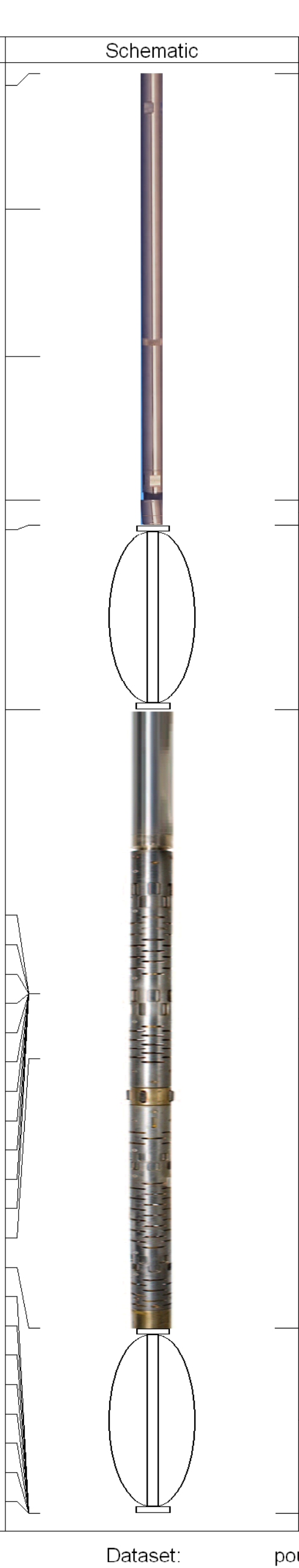
Calibration Report

Database File: poudre trail 5.db
Dataset Pathname: WELD/2-2-1/RBT/MAIN2
Dataset Creation: Sat Oct 13 15:35:53 2012 by Log Halliburton Casedho

Gamma Ray Calibration Report

Type / Serial: 001 / 000001

	Counts/Sec.	Gain	Offset	Jig	Units
SHOP CALIBRATION	Sat Oct 13 13:58:58 2012				
Background	49.0				cps
Calibrator	190.3				cps
		1.6277			GAPI/cps
PRIMARY VERIFICATION	Sat Oct 13 14:01:31 2012				
Background	77.9				cps
Calibrator	308.6				cps
Difference				230.7	GAPI
BEFORE SURVEY VERIFICATION					
Background	0.0				cps
Calibrator	0.0				cps
Difference				0.0	GAPI
AFTER SURVEY VERIFICATION					
Background	0.0				cps
Calibrator	0.0				cps
Difference				0.0	GAPI

Sensor	Offset (ft)	Schematic	Description	Len (ft)	OD (in)	Wt (lb)
TTTCU	22.08					
CCL	19.99					
			TTTCU-001 (000001) Through Tubing Telemetry Cartridge - Ultrawire	6.55	1.69	33.00
GR	17.73					
AUH	15.53		AUH-001 (000001) Adaptor Ultrawire/Halliburton	0.38	1.69	3.00
CENT	15.15					
			CBLINLINE	2.83	3.25	
RBT	12.31					
WVF3FT	7.97					
WVFS1	7.97					
WVFS2	7.97					
WVFS3	7.97					
WVFS4	7.97		RBT-004 (000001) Radial Bond Tool (UW 3 1/8) 20K Rated	9.48	3.13	140.00
WVFS5	7.97					
WVFS6	7.97					
WVFS7	7.97					
WVFS8	7.97					
CBLTEMP	7.97					
CBLROT	7.97					
WVF5FT	6.97					
CENT	2.83					
LLMTEN	0.00					
XHUTEMP	0.00					
XHUCURR	0.00					
XHUVOLT	0.00					
XHUSTAT	0.00		CBLINLINE	2.83	3.25	
TSTAMP	0.00					
ITEMPX	0.00					
HVOLTX	0.00					

Dataset: poudre trail 5.db: WELD/2-2-1/RBT/MAIN2
Total Length: 22.08 ft
Total Weight: 176.00 lb
O.D. 3.25 in

Company	MINERAL RESOURCES		
Well	POUDRE TRAIL 5 2-2-1		
Field	GREELEY		
County	WELD	State	CO

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RADIAL
CEMENT BOND LOG