HALLIBURTON

CEMENT BOND LOG

FIELD PRINT

Company	BILL BARRETT CORPORATION
Well	KAUFMAN 21B-24-692
Field	MAMM CREEK
County	GARFIELD State CO

Company	BILL BARRETT CORPORATION		
Well	KAUFMAN 21B-24-692		
Field	MAMM CREEK		
County	GARFIELD	State	CO

API No.: 05045199200000 Serv #: 9084902

Location: SHL: 1419' FNL & 2279' FEL

BHL: 0856' FNL & 1958' FWL

Other Services: RMT JB-GR

Sec: 24 Twp: 6S Rge: 92W

Permanent Datum	GROUND LEVEL	Elevation 5765'	Elevation
Log Measured From	K.B. 22 Ft. above perm. datum		K.B. 5787'
Drilling Measured From	K.B.		D.F. 5786' G.L. 5765'

Date @ Time Logged	23/NOV/11 @ 08:30	Type Fluid in Hole	WATER
Run No.	ONE	Density of Fluid	8.3 PPG
Depth - Driller	7646'	Fluid Level	SURFACE
Depth - Logger	7574'	Cement Top Est. Logged	LOGGED
Bottom - Logged Interval	7566'	Equipment / Location	11726117 / GJ
Top - Log Interval	SURFACE	Recorded by	J.ARRASCUE
Max. Recorded Temp.	223 DGF	Witnessed by	G. ETTER

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

Borehole Record				Casing & Tubing Record			
Run Number	Bit	From	To	Size	Weight	From	To
ONE	14.75"	SURFACE	796'	9 5/8"	36 #	SURFACE	796'
ONE	7.875"	796'	7646'	4.5"	11.6 #	SURFACE	7645'

<<< Fold Here >>>

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

HES CEMENT BOND LOG PRIMARY LOG
FOR THIS WELL.

LOGGED INTERVALS PER CUSTOMER REQUEST
RBT & RMTE RAN IN COMBO
RUN JUNK BASKET & GAUGE RING 3.625"

SHORT JOINTS : 4752' -4784' & 6302' - 6333'

CREW: J.GAY & B. BIGELOW & M. MACIAS

THANK YOU FOR USING HALLIBURTON ENERGY SERVICES GRAND JUNCTION, CO

Service Ticket No. 9084902 API No. 05045199200000 PGM Ver 101102_R1

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

EQUIPMENT DATA

GAMMA RAY		RBT					
Run No.	ONE	Run No.	ONE	Run No.		Run No.	
Serial No.	10002718	Serial No.	1119	Serial No.		Serial No.	
Model No.	GR-PROBE	Model No.	RBT-004	Model No.		Model No.	
Diameter	1 11/16"	Diameter	3 1/8"	Diameter		Diameter	

LOGGING DATA

General Data

Pass No.	Depths From	Depths To	Well Head Pressure	Speed Ft/Min	Logging Run Comments
ONE	7574'	SURFACE	0	REC	MAIN PASS

Pass	GAMMA RAY Scale		CCL Scale		Scale		Scale	
No.	L	R	L	R	L	R	L	L
ONE	0	150	-5400	600				

DIRECTIONAL INFORMATION

Maximum Deviation		deg. @		KOP	

HALLIBURTON

MAIN LOG SECTION

5"=100'

Database File:	c:\warrior\data\bill_barrett\k_21b_24_692\k_21b_24_692_rbt_rmt.db
Dataset Pathname:	M_CREEK/K21B24692/run1/MAIN1
Presentation Format:	CBL_RB~1
Dataset Creation:	Wed Nov 23 13:24:41 2011 by Log Halliburton Casedho
Charted by:	Depth in Feet scaled 1:240

370 TRAVEL TIME (usec) 160	LTEN	0 AMP AMPLITUDE (mV) 10	200	MSG	1200
-5400 Collar Locator 600	0 (lb) 3000	0 AMPLITUDE (mV) 100			
0 Gamma Ray (GAPI) 150					

HALLIBURTON

MAIN LOG SECTION

5"=100'

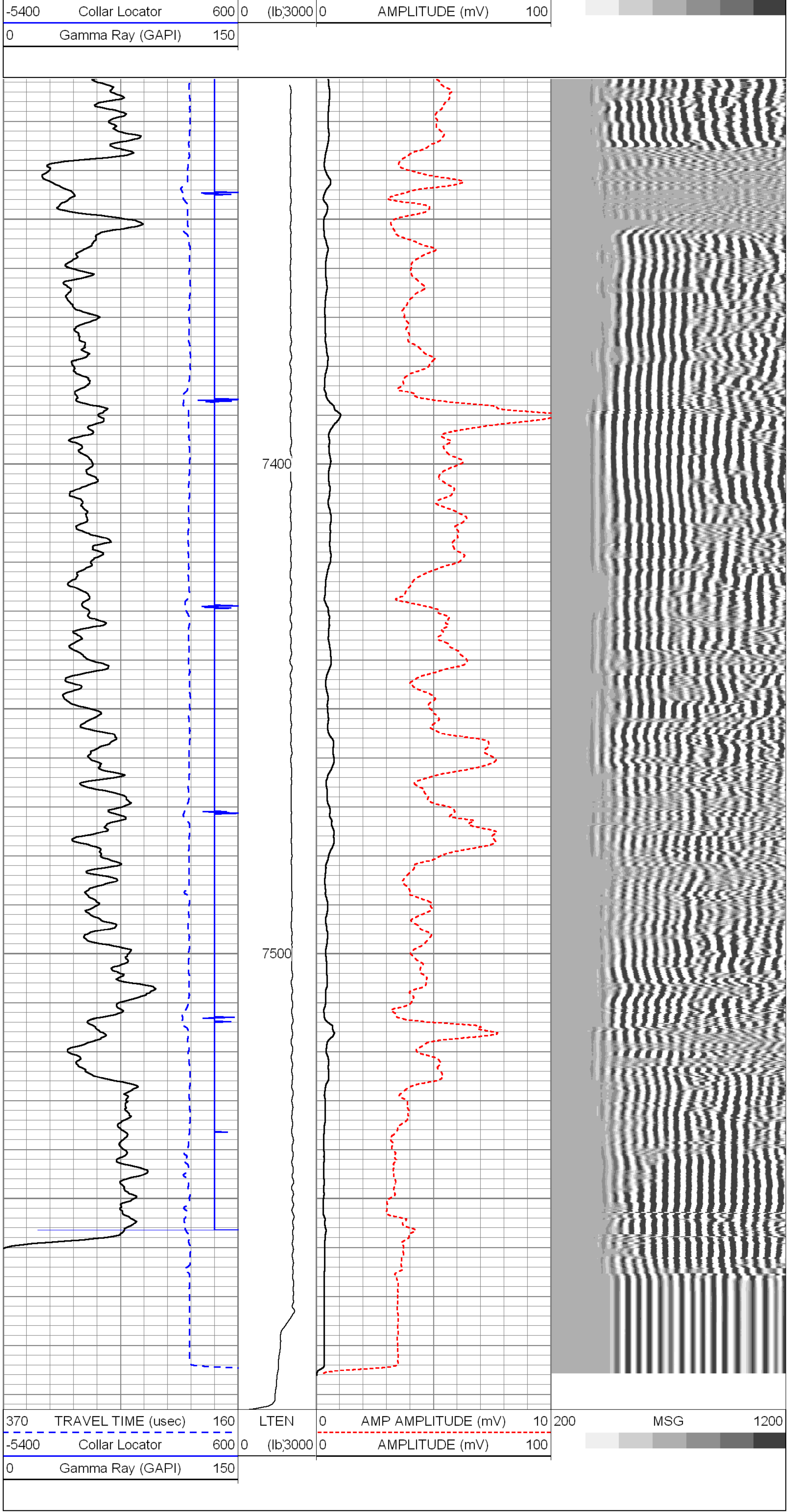
HALLIBURTON

REPEAT LOG SECTION

5"=100'

Database File:	c:\warrior\data\bill_barrett\k_21b_24_692\k_21b_24_692_rbt_rmt.db
Dataset Pathname:	M_CREEK/K21B24692/run1/REPEAT2
Presentation Format:	CBL_RB~1
Dataset Creation:	Wed Nov 23 13:08:10 2011 by Log Halliburton Casedho
Charted by:	Depth in Feet scaled 1:240

370 TRAVEL TIME (usec) 160	LTEN	0 AMP AMPLITUDE (mV) 10	200 MSG 1200



HALLIBURTON

REPEAT LOG SECTION

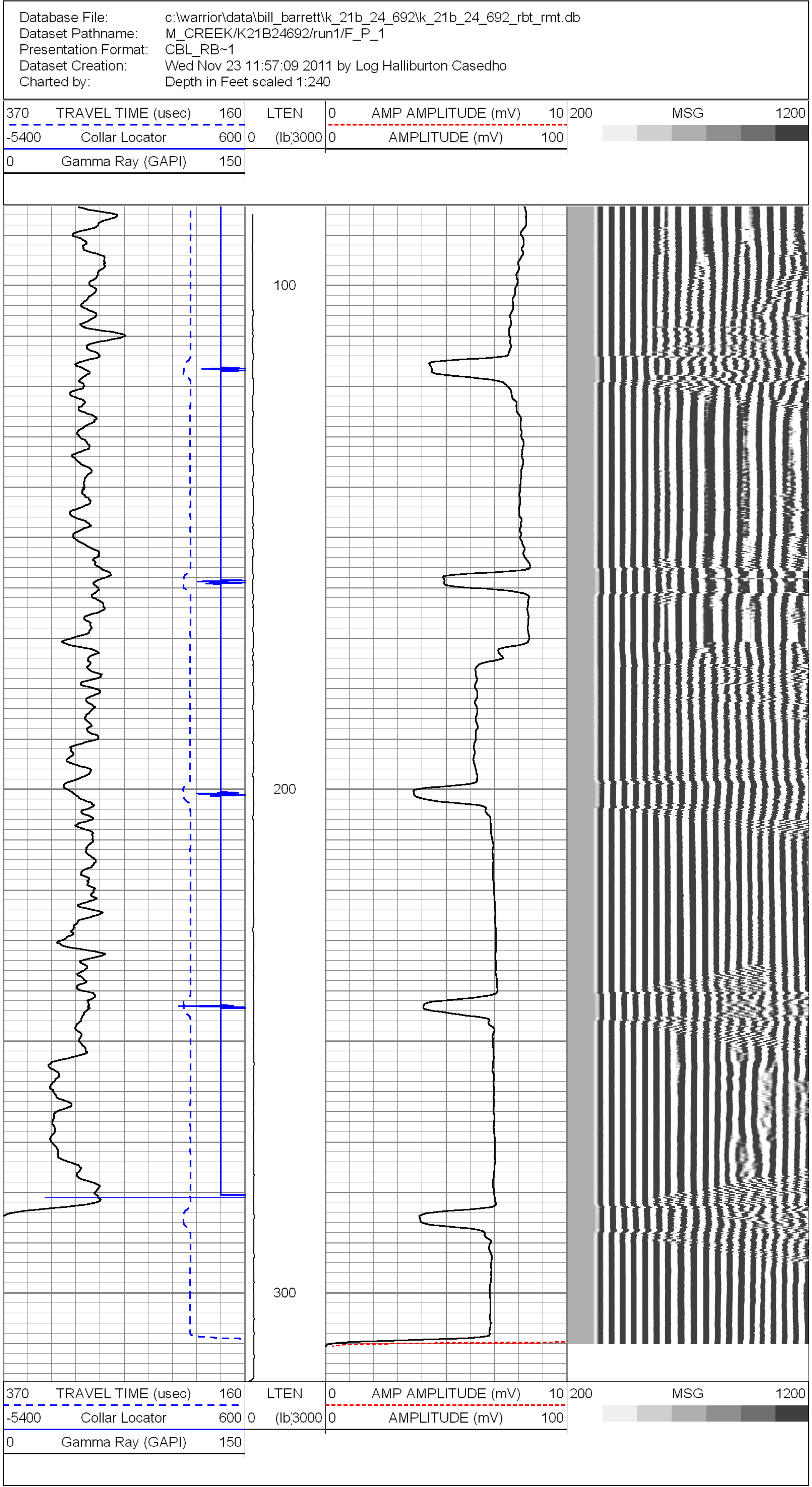
5"=100'

HALLIBURTON

FREE PIPE LOG SECTION

5"=100'

Database File: c:\warrior\data\bill_barrett\k_21b_24_692\k_21b_24_692_rbt_rmt.db
Dataset Pathname: M_CREEK/K21B24692/run1/F_P_1
Presentation Format: CBL_RB~1
Dataset Creation: Wed Nov 23 11:57:09 2011 by Log Halliburton Casedho
Charted by: Depth in Feet scaled 1:240



HALLIBURTON

FREE PIPE LOG SECTION

5"=100'

Calibration Report

Database File: C:\Warrior\Data\BILL_BARRETT\K_21B_24_692\k_21b_24_692_rbt_rmt.db
Dataset Pathname: M_CREEK/K21B24692/run1/MAIN1
Dataset Creation: Wed Nov 23 13:24:41 2011 by Log Halliburton Casedho

Segmented Cement Bond Log Calibration Report

Serial Number: 1119
Tool Model: 004

Calibration Casing Diameter: 4.500 in
Calibration Depth: 100.155 ft

Master Calibration, performed Wed Nov 23 11:49:03 2011:

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3FT	0.023	1.105	2.000	81.196	73.201	0.288
5FT	0.010	0.865	2.000	81.196	92.660	1.079
S1	0.028	0.999	0.000	100.000	103.024	-2.921
S2	0.027	1.126	0.000	100.000	90.989	-2.452
S3	0.025	0.956	0.000	100.000	107.431	-2.724
S4	0.025	0.980	0.000	100.000	104.769	-2.623
S5	0.028	1.019	0.000	100.000	100.868	-2.788
S6	0.028	1.060	0.000	100.000	96.898	-2.677
S7	0.027	1.046	0.000	100.000	98.053	-2.607
S8	0.025	1.039	0.000	100.000	98.671	-2.500

Calibration Report

Serial Number: 1119
Tool Model: 004
Performed:

	Reference (degF)	Reading ()
Low:	0.000	0.000
High:	1.000	1.000
	Gain = 1.000	Offset = 0.000

Reservoir Monitor Tool I Calibration Report

Serial-Model: 11680605-A

Shop Calibration Performed: Tue Nov 22 15:52:26 2011

Carbon/Oxygen Mode

Stabilization

Result	Logged	Expected Value	Diff.	Tol.	Units
GENV	93.00	80.00	13.00	+/-15.00	V
ITCR2	3230	3250	-20	+/-250	cps

Near Detector

	Channel	Expected Value	Amplitude	FWHM	Tol.
H	60.18	60.00	0.0258	5.31	<6.00
Fe	206.51	206.00	0.0932	-----	-----
NGAIN = 0.998	NZOFF = -0.0				

Far Detector

	Channel	Expected Value	Amplitude	FWHM	Tol.
H	60.17	60.00	0.0360	5.55	<6.50
Fe	209.46	208.00	0.0911	-----	-----
FGAIN = 0.991	FZOFF = 0.4				

Result	Logged	Expected Value	Diff.	Tol.	Units
COIR2	0.45	0.44	0.01	+/-0.03	
LIRI2	1.64	1.64	-0.00	+/-0.20	
TCCR2	5597	4700	897	+/-1000	cps
ITCR2	3220	3250	-30	+/-250	cps

Capture Mode

Stabilization

Result	Logged	Expected Value	Diff.	Tol.	Units
GENV	94.00	80.00	14.00	+/-15.00	V
FCAP	9975	10000	-25	+/-500	cps

Horizontal Water Tank

Result	Logged	Expected Value	Diff.	Tol.	Units
N/F Normalizer	0.99	0.95	0.04	+/-0.10	
N/F Inel Norm	0.63	0.61	0.02	+/-0.06	
RNF	1.01	1.05	-0.04	+/-0.10	
RINCF					
SGFN	24.03	24.00	0.03	+/-1.00	cu
SGFF	22.94	22.85	0.09	+/-0.50	cu
FSIN	23524	24000	-476	+/-2000	
FCAP	9955	10000	-45	+/-1000	cps
NFTR	0.88			<5.00	
FFTR	0.96			<5.00	
NBKG	118			<500	cps
FBKG	97			<500	cps
RTN	0.53	0.40	0.13	+/-0.25	usec
RTF	0.48	0.40	0.08	+/-0.25	usec

Calibration Software Modules

HRMTI Module	2011.3.25.0
RMTI Module	2011.3.25.1

Log Data Acquisition Software Modules

HRMTI Module	2011.3.25.0
RMTI Module	2011.3.25.1

Gamma Ray Calibration Report

Type / Serial: 001 / 10002718

SHOP CALIBRATION Wed Nov 23 11:26:11 2011

	Counts/Sec.	Gain	Offset	Jig	Units
Background	42.1				cps
Calibrator	197.9				cps
		1.5603			GAPI/cps

PRIMARY VERIFICATION Wed Nov 23 11:29:42 2011

Background	64.3		cps
Calibrator	306.5		cps
Difference		242.2	GAPI

BEFORE SURVEY VERIFICATION

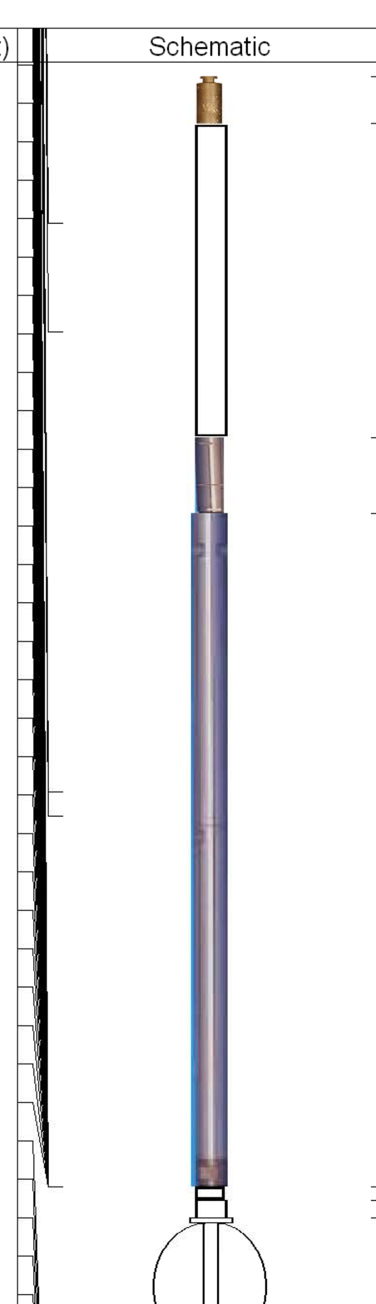
Background	0.0		cps
Calibrator	0.0		cps
Difference		0.0	GAPI

AFTER SURVEY VERIFICATION

Background	0.0		cps
Calibrator	0.0		cps
Difference		0.0	GAPI

Sensor	Offset (ft)
RmtGenRepPv	16.19
RmtGenIspCmd	16.19
RmtGenIspPv	16.19
RmtGenIspI	16.19
RmtGenCmd	16.19
RmtGenPv	16.19
RmtGenI	16.19
RmtGenP5VI	16.19
RmtGenTemp	16.19
RmtGenP15VI	16.19
RmtGen200V	16.19
RmtGenP33V	16.19
RmtGenP5V	16.19
RmtGenClampV	16.19
RmtGenSyncV	16.19
RmtGenLvdsV	16.19
RmtGen15BusV	16.19
RmtGenIonI	16.19
RmtNDetStat	16.19
RmtNPrgSt1	16.19
RmtNPMI	16.19
RmtNPMHV	16.19
RmtNTemp	16.19
RmtFDetStat	16.19
RmtFPrgSt1	16.19
RmtFPMI	16.19
RmtFPMHV	16.19
RmtFTemp	16.19
WVF3FT	8.32
WVFS1	8.32
WVFS2	8.32
WVFS3	8.32
WVFS4	8.32
WVFS5	8.32
WVFS6	8.32
WVFS7	8.32
WVFS8	8.32
CBLTEMP	8.32
CBLROT	8.32
WVF5FT	7.32
LLMTEN	0.00
XHUERR1	0.00
XHUERR2	0.00
XHUTEMP	0.00
XHUCURR	0.00
XHUVOLT	0.00
XHUSTAT	0.00
TSTAMP	0.00
ITEMPX	0.00
HVOLTX	0.00

Schematic



Description	Len (ft)	OD (in)	Wt (lb)
STND_CH 1.4375 IN CABLE HEAD	1.00	1.44	1.00
TTTCU-001 (10002718) Through Tubing Telemetry Cartridge - Ultrawire	6.55	1.69	33.00
XHU-003 (10006220) Crossover Halliburton 1553 to Ultrawire	1.58	1.69	7.00
RMTI-A (11680605) Halliburton RMTI Tool	14.06	2.13	77.00
GoxSondex Go Box x Sondex Pin CrossOver	0.27	1.69	1.00
AUH-001 (000001) Adaptor Ultrawire/Halliburton	0.38	1.69	3.00
CENT-Probe (PTS_MONO) Probe 2 3/4 Centralizer	2.88	2.75	35.00
RBT-004 (1119) Radial Bond Tool (UW 3 1/8)	9.47	3.13	140.00
CENT-Probe (PT_MONO2) Probe 2 3/4 Centralizer	2.88	2.75	35.00
BUL-001 (000001) Bullnose	0.30	1.69	1.50

Dataset: k_21b_24_692_rbt_rmt.db: M_CREEK/K21B24692/run1/MAIN1
Total Length: 39.38 ft
Total Weight: 333.50 lb
O.D. 3.13 in

Company	BILL BARRETT CORPORATION
Well	KAUFMAN 21B-24-692
Field	MAMM CREEK
County	GARFIELD
State	CO

HALLIBURTON

CEMENT
BOND LOG