HALLIBURTON

RADIAL CEMENT BOND LOG

Company	CHEVRON USA
Well	SKR 598-25-BV-10
Field	SKINNER RIDGE
County	GARFIELD State CO

Company CHEVRON USA
Well SKR 598-25-BV-10
Field SKINNER RIDGE
County GARFIELD State CO
API No.: 0504515400 Serv #: 6218829
Location: SURFACE HOLE: 1831' FNL & 2072' FWL
BOTTOM HOLE: 2092' FSL & 0658' FWL
Sec: 25 Twp: 05S Rge: 98W
Other Services: RMT

Permanent Datum	GROUND LEVEL	Elevation 6393'	Elevation
Log Measured From	K.B. 25 Ft. above perm. datum		K.B. 6418'
Drilling Measured From	K.B.		D.F. ----
			G.L. 6393'

Date @ Time Logged	10/12/2008 @ 1200	Type Fluid in Hole	WATER
Run No.	ONE	Density of Fluid	8.34 PPG
Depth - Driller	6780'	Fluid Level	FULL
Depth - Logger	6664'	Cement Top Est. Logged	LOGGED
Bottom - Logged Interval	6658'	Equipment / Location	10029613 / GJ
Top - Log Interval	200'	Recorded by	A. LINTEL
Max. Recorded Temp.	226 F	Witnessed by	N/A

CEMENTING DATA	Surface String	Protection String	Production String	Liner
Date / Time Cemented		05/24/2008	05/24/2008	
Primary / Squeeze		LEAD	TAIL	
Expected Compressive Strength	psi@ hrs	psi@ hrs	psi@ hrs	psi@ hrs
Cement Volume		120 BBL	172 BBL	
Cement Type / Weight	/	RCKLT / 12.8#	RCKLT / 13.2#	/
Formulation				
Mud Type / Mud Wgt.	/	WTRBSD/ 10.7#	WTRBSD/ 10.7#	/

Borehole Record				Casing & Tubing Record			
Run Number	Bit	From	To	Size	Weight	From	To
ONE	12.25"	SURFACE	1400'	8.625"	24#	SURFACE	1384'
TWO	7.875"	1400'	6780'	4.5"	11.6#	SURFACE	6759'

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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

GR-CCL-RBT RAN IN COMBINATION
HES RBT LOG DATED 10/12/2008 IS THE PRIMARY LOG FOR THIS WELL

GAMMA SPIKE AT 5236' DUE TO RMT GENERATOR BEING TURNED ON PRIOR TO MAIN LOG SECTION TO LOG REPEAT SECTION

BOTTOM 300' OF WELL HAVE ACTIVATION DUE TO RMT GENERATOR BEING ON WHILE ATTEMPING TO LOG RMT/RBT COMBO

PULLED TIGHT @ 998' & 1590' & 1950' & 2850'
SHORT JOINT: 4080' - 4103' & 5110' - 5132'
THANK YOU FOR USING HALLIBURTON ENERGY SERVICES GRAND JUNCTION, CO

Service Ticket No. 6218829 API No. 0504515400 PGM Ver WARRIOR 7.0

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

EQUIPMENT DATA

TELEMETRY		RBT					
Run No.	ONE	Run No.	ONE	Run No.		Run No.	
Serial No.	214647	Serial No.	11002214	Serial No.		Serial No.	
Model No.	TTTC-U	Model No.	RBT-004	Model No.		Model No.	
Diameter	1.69"	Diameter	3.13"	Diameter		Diameter	

LOGGING DATA

General Data

Pass No.	Depths From	Depths To	Well Head Pressure	Speed Ft/Min	Logging Run Comments
ONE	6664'	200'	0 PSI	45	MAIN LOG SECTION

Pass No.	GAMMA RAY Scale L	GAMMA RAY Scale R	CCL Scale L	CCL Scale R	AMPLITUDE Scale L	AMPLITUDE Scale R	Scale L	Scale R
ONE	0	200	28400	17400	0	100		

DIRECTIONAL INFORMATION

Maximum Deviation		deg. @		KOP		

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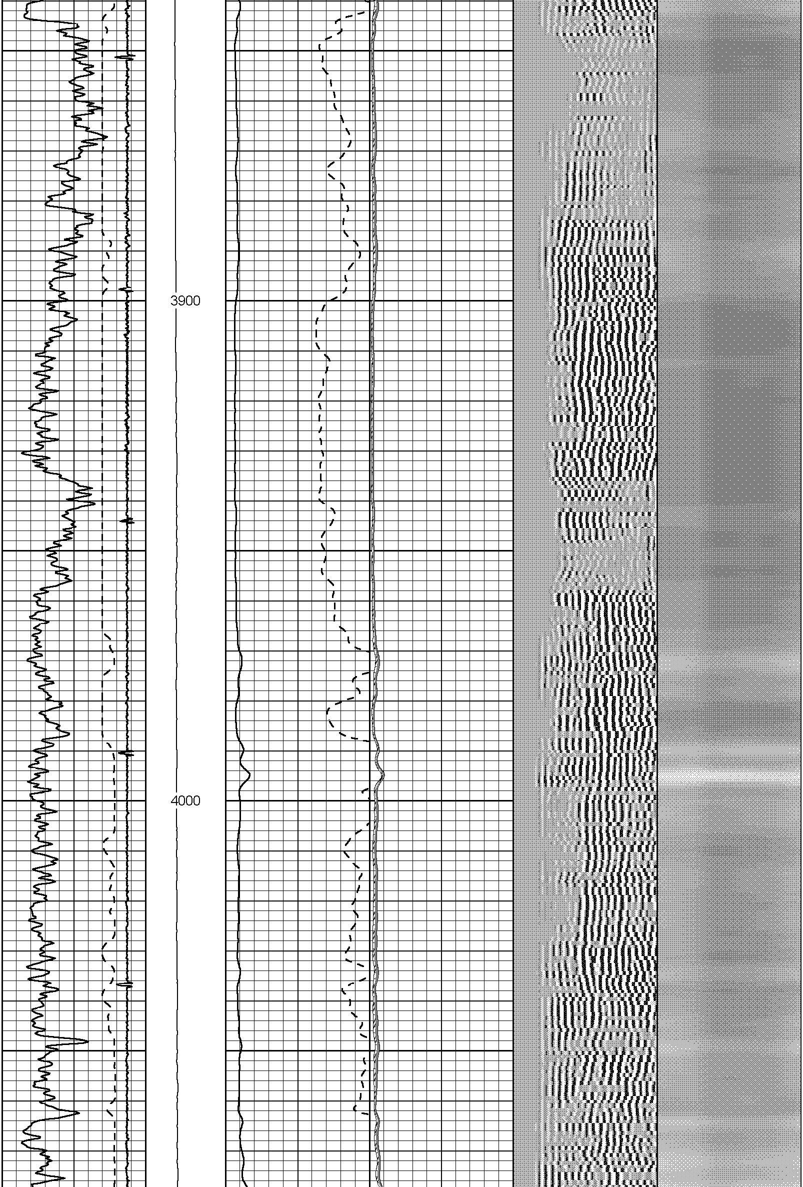
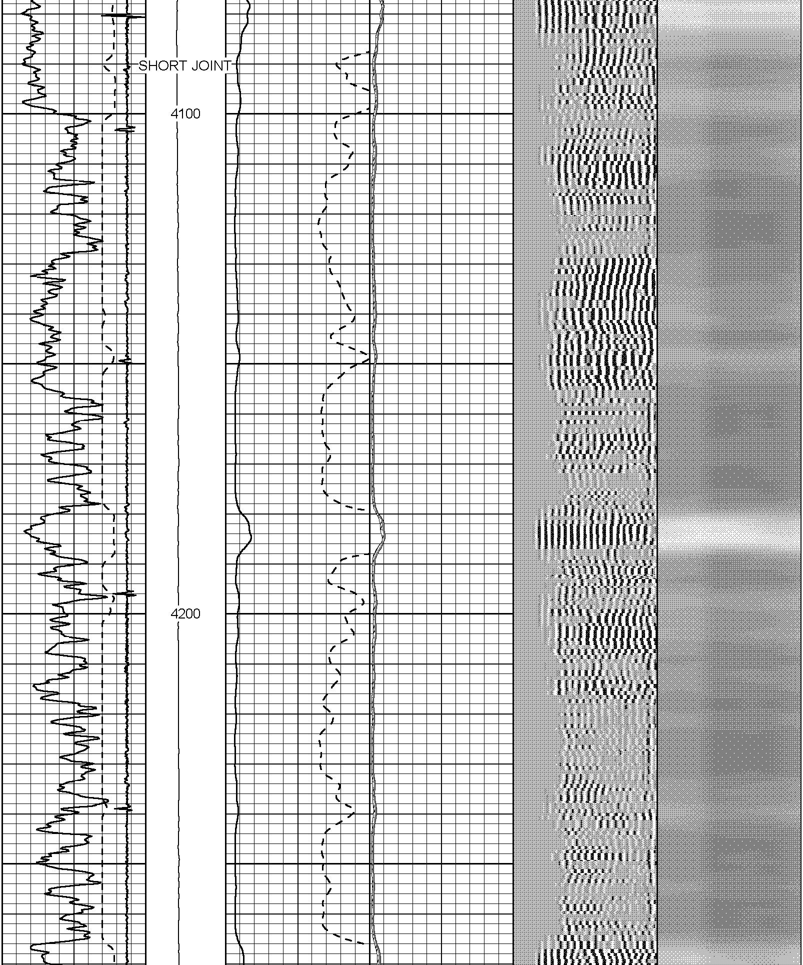
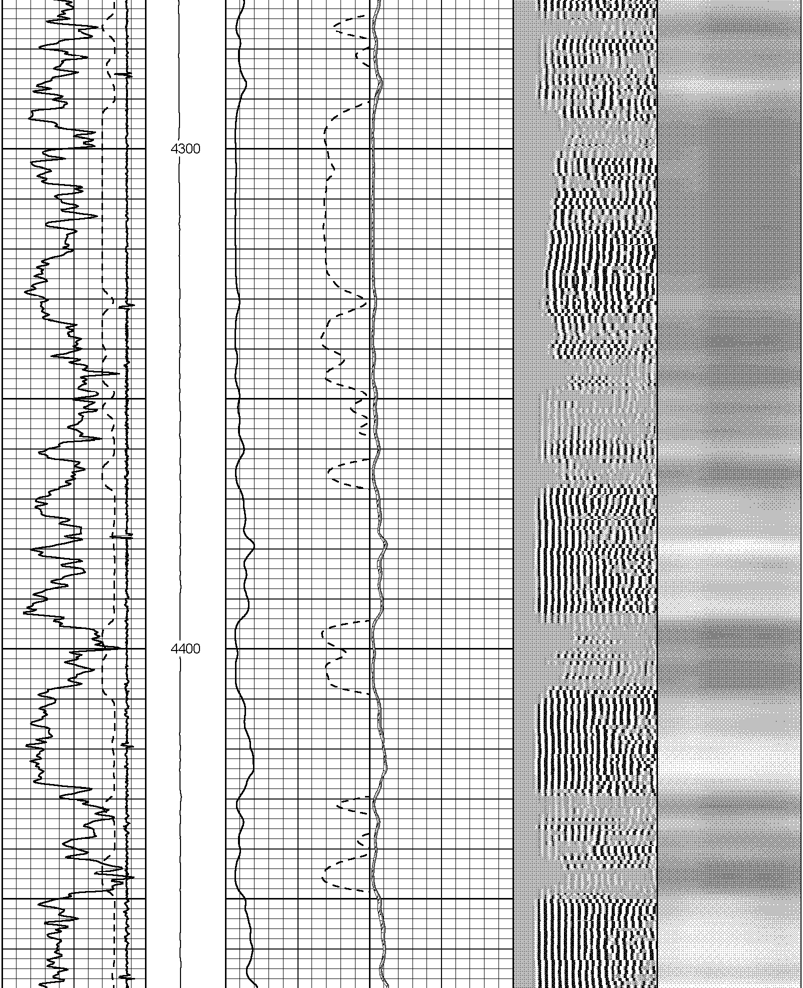
MAIN LOG SECTION

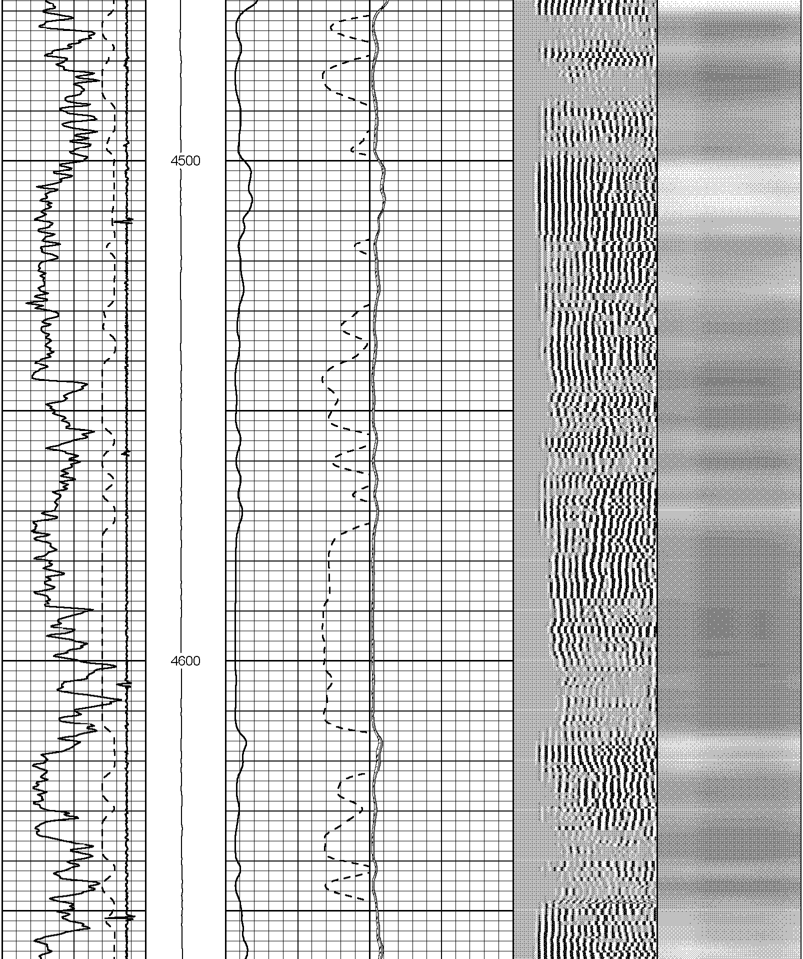
5" = 100'

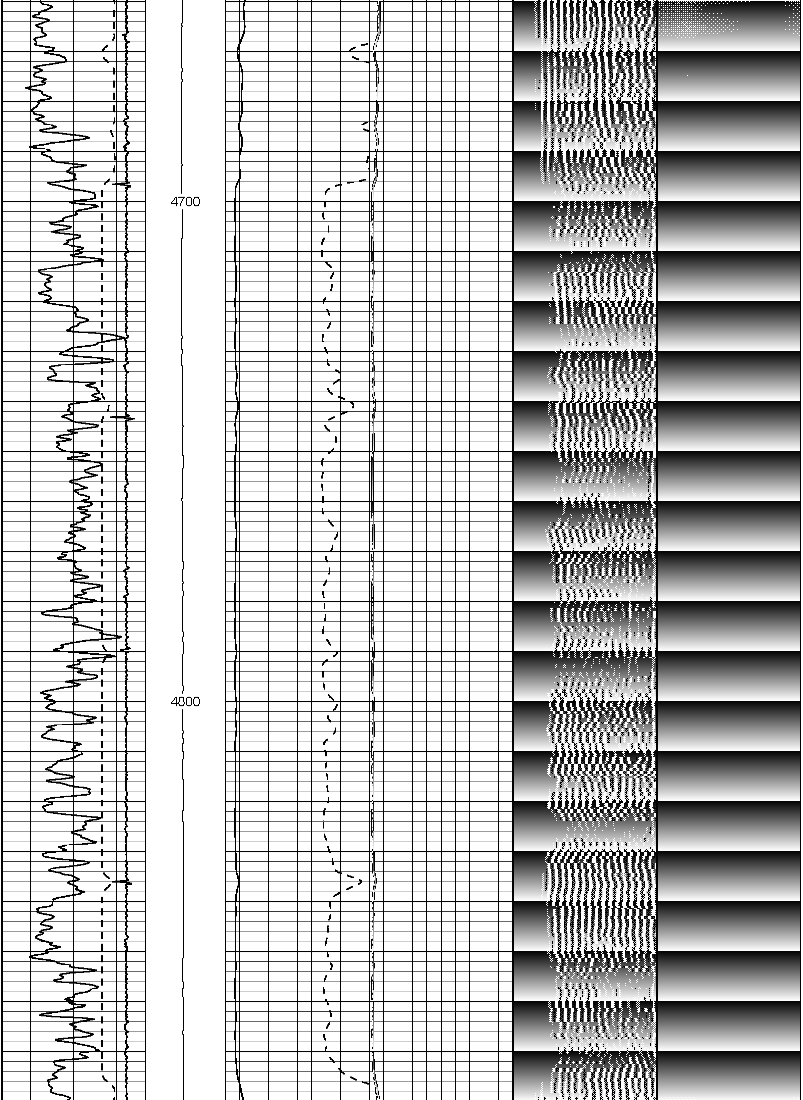
Database File: skr_598_25_bv_10_rbtrmt.db
Dataset Pathname: MAIN3.1
Presentation Format: rbt_chev
Dataset Creation: Fri Oct 12 15:21:07 2007 by Calc Halliburton Casedho
Charted by: Depth in Feet scaled 1:240

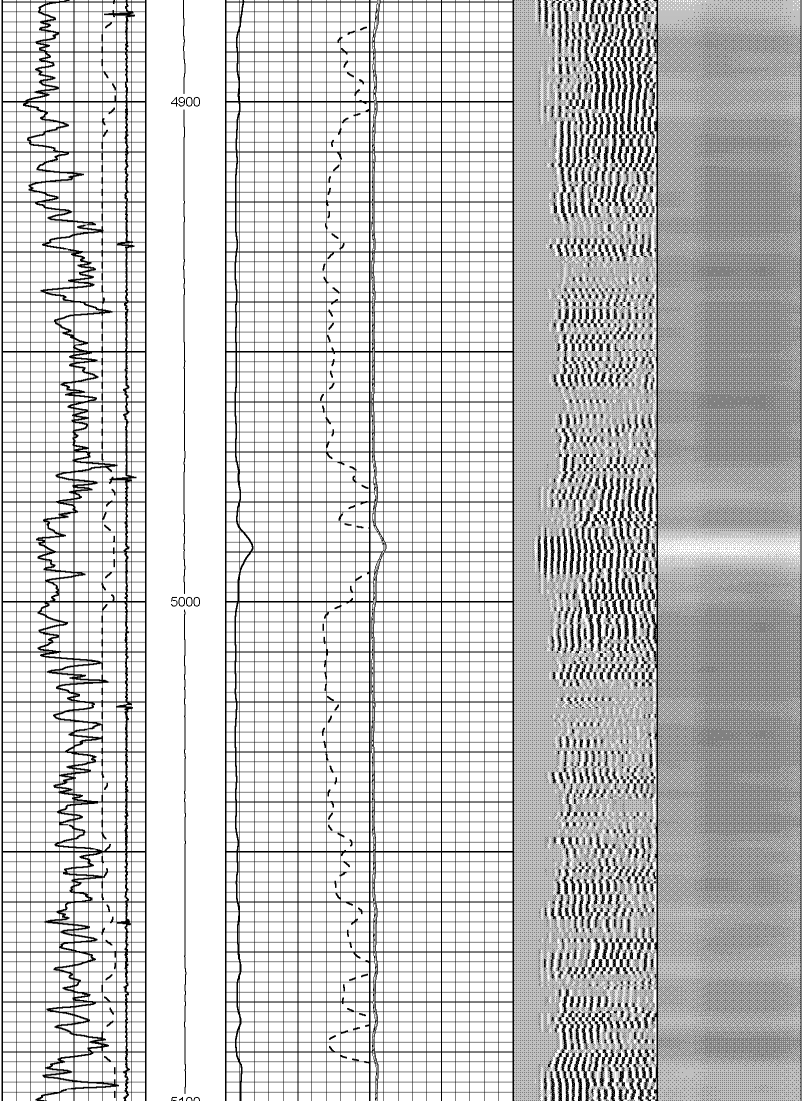


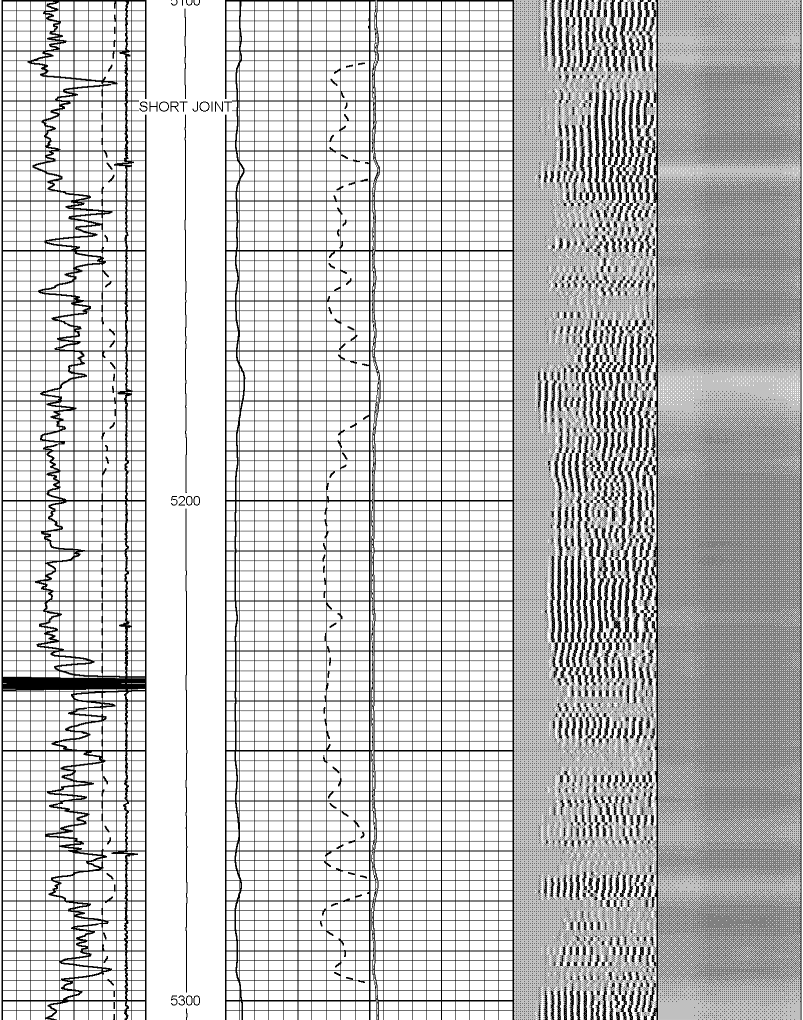


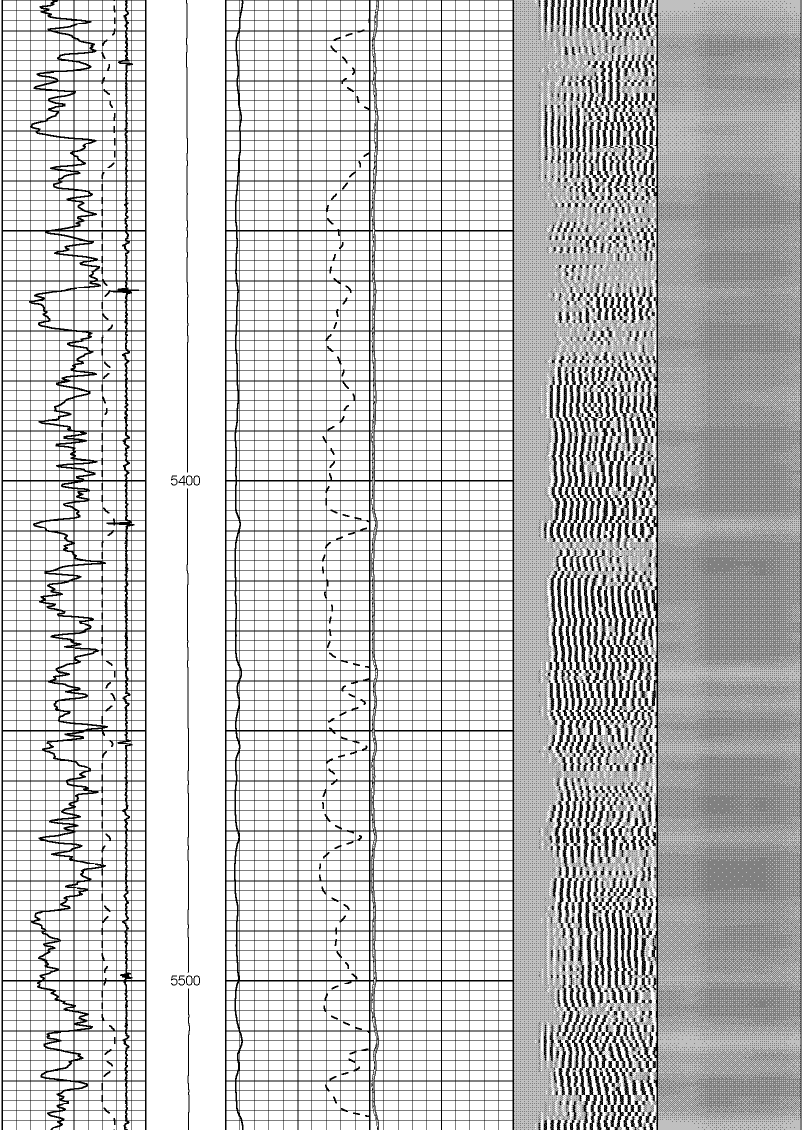


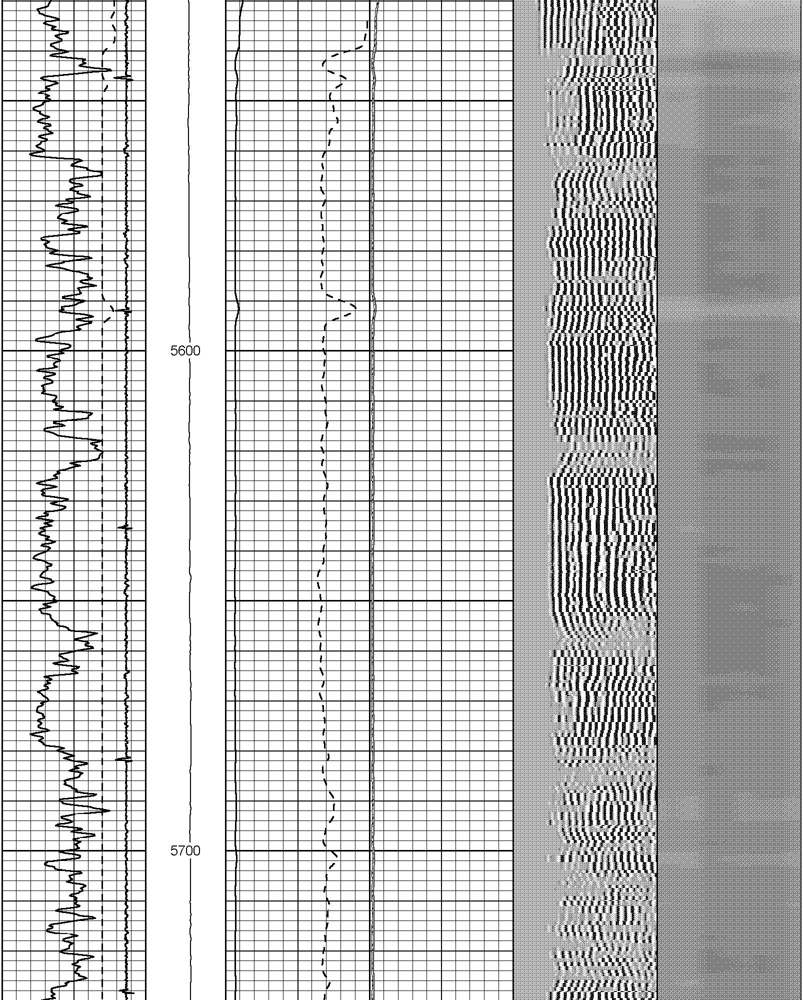


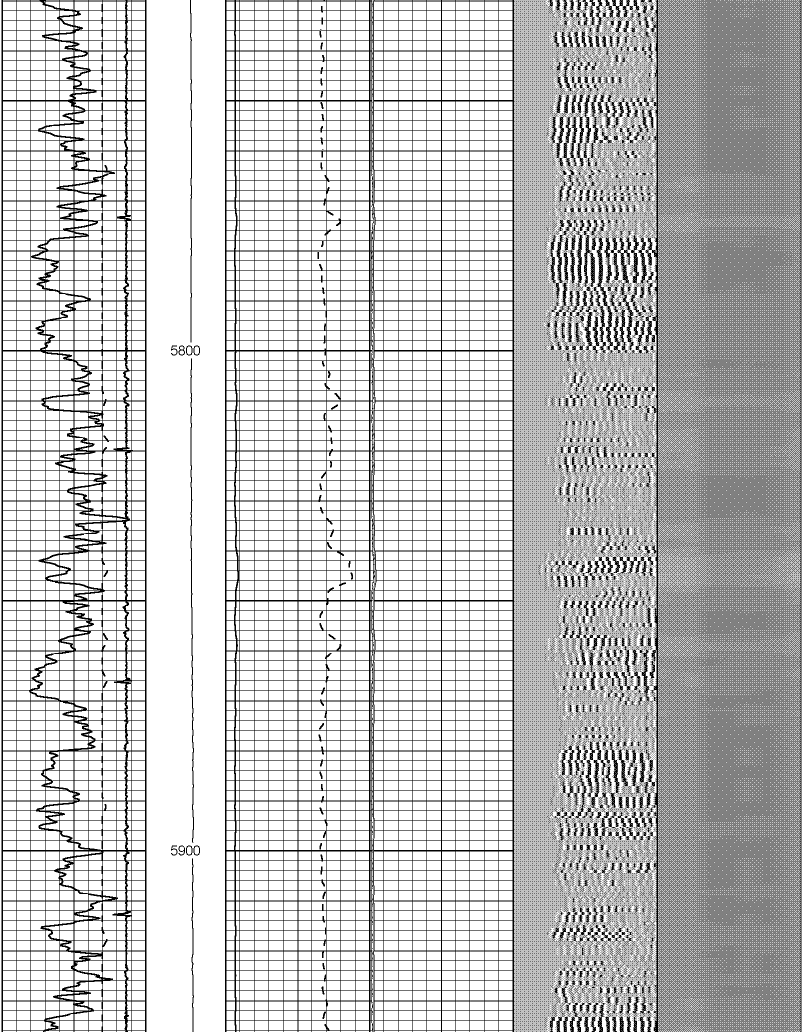


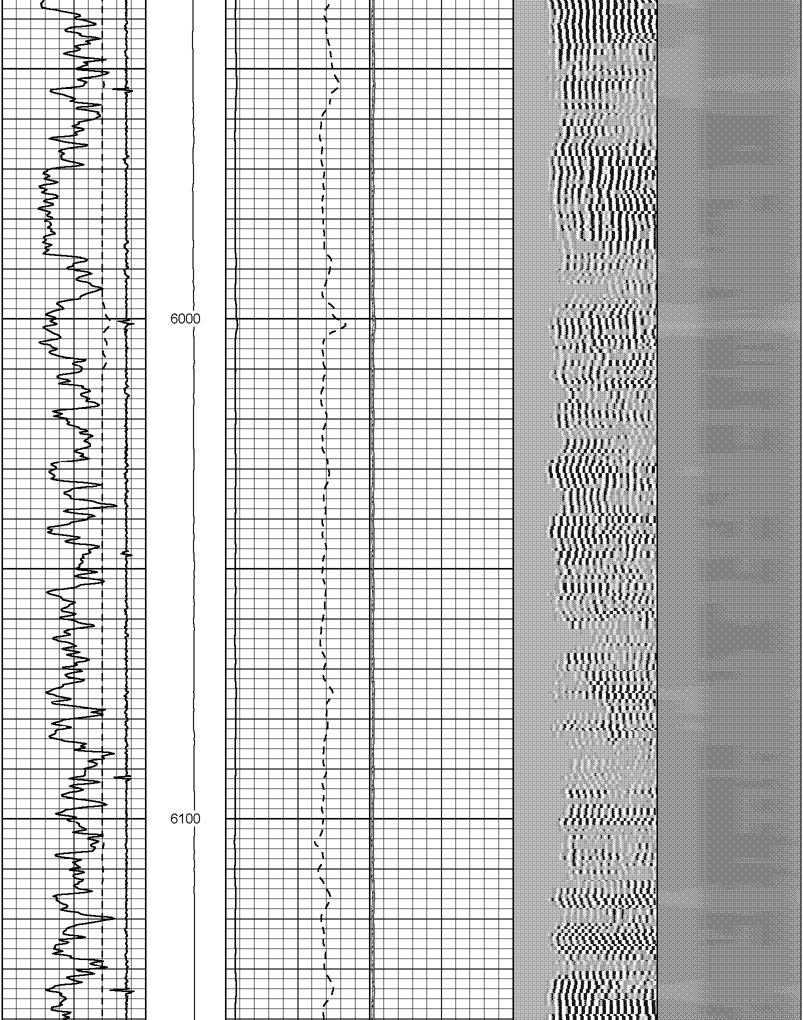


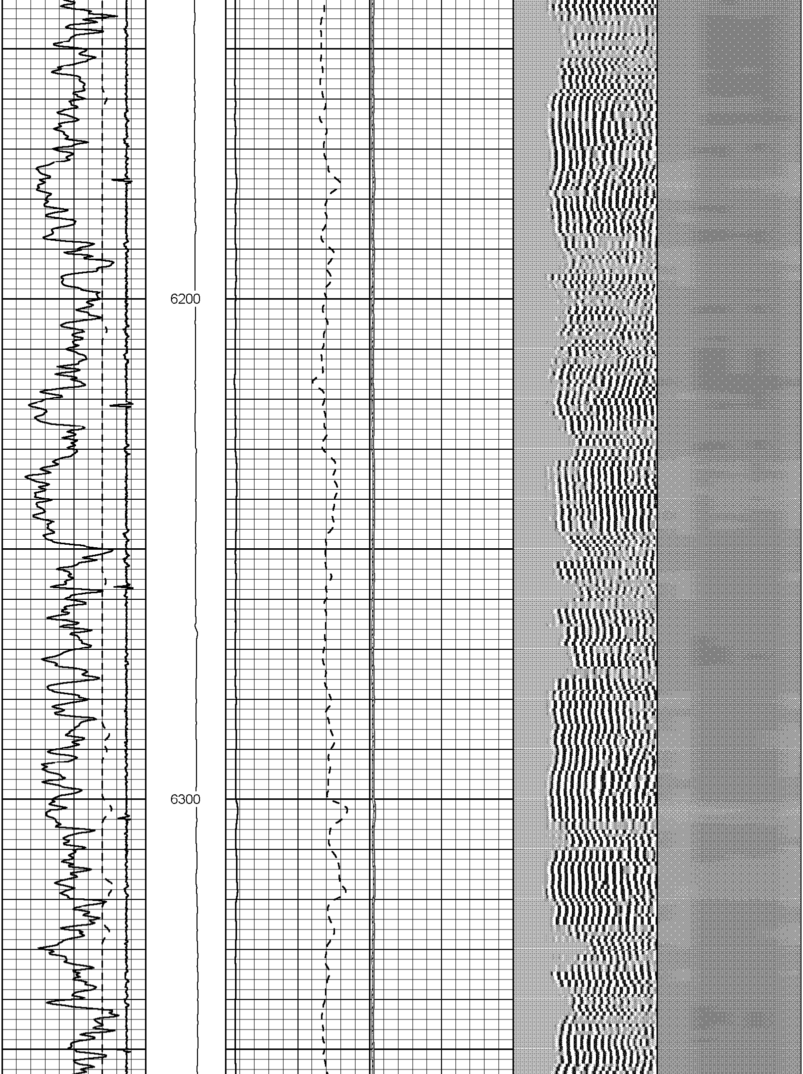


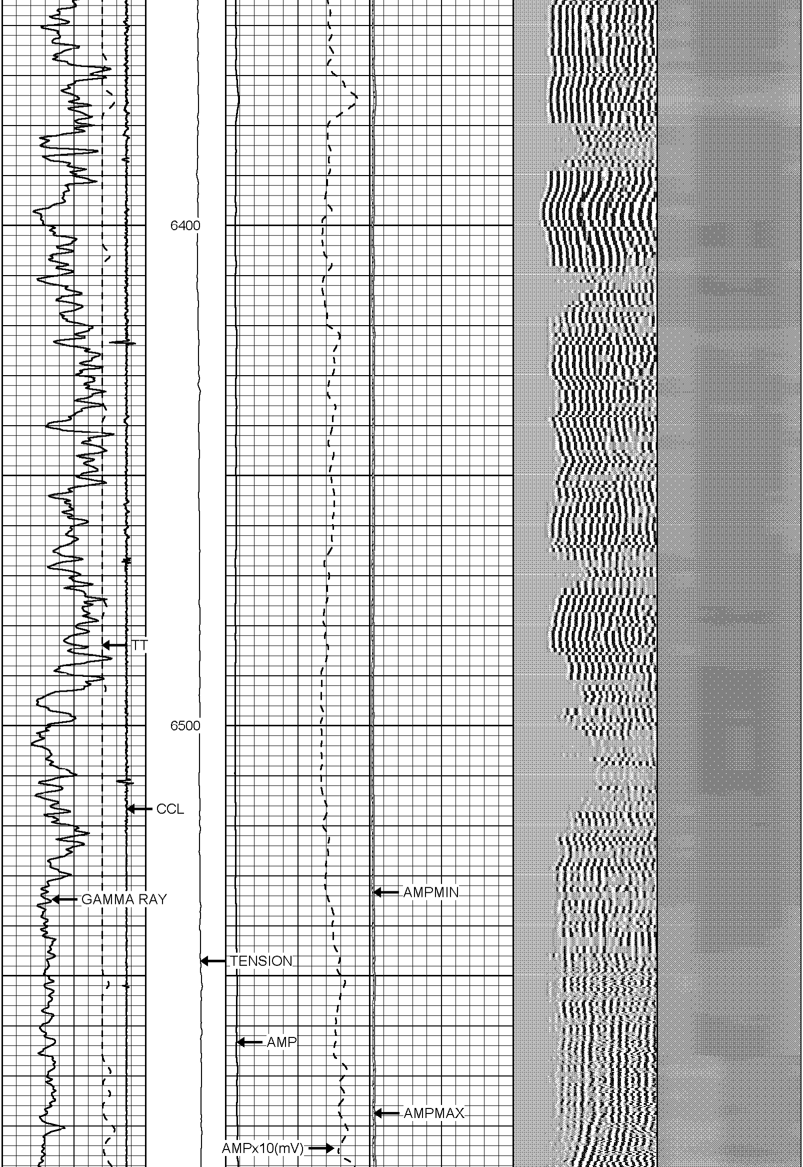


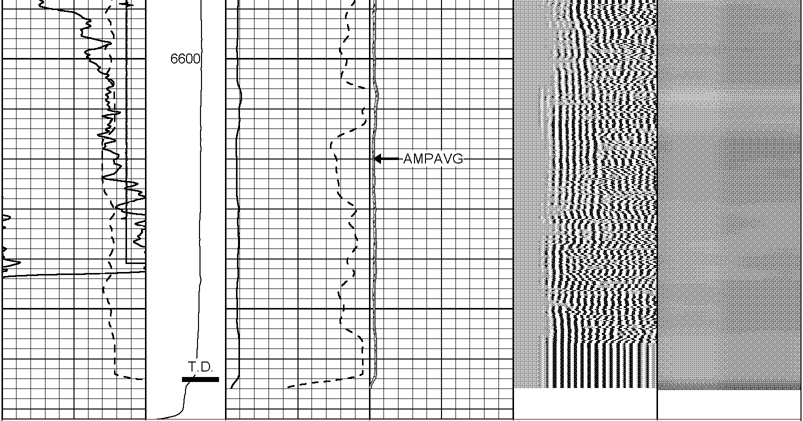












440 TT (usec) 140	TENSION	0 AMP (mV) 100	0 AMPAVG 150	200 MSG 1200	1 SECTORS 8
0 GR (GAPI) 200	0 (lb)3000	AMPx10(mV)	0 AMPMAX 150		
28400 CCL 17400		0 (mV) 10	0 AMPMIN 150		

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MAIN LOG SECTION

5" = 100'

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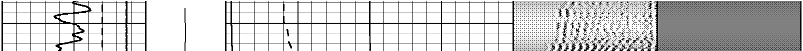
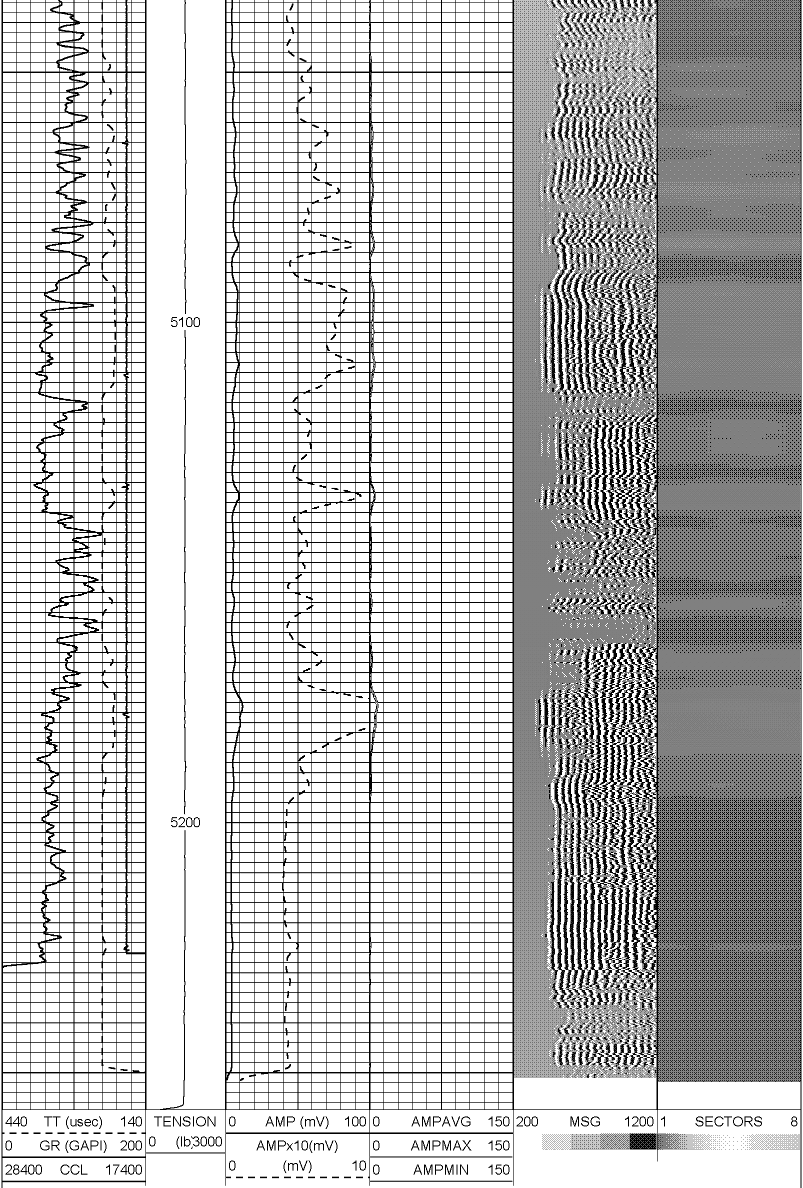
REPEAT LOG SECTION

5" = 100'

Database File:	skr_598_25_bv_10_rbtrmt.db
Dataset Pathname:	rept1
Presentation Format:	rbt_chev
Dataset Creation:	Fri Oct 12 10:30:11 2007 by Log Halliburton Casedho
Charted by:	Depth in Feet scaled 1:240

440 TT (usec) 140	TENSION	0 AMP (mV) 100	0 AMPAVG 150	200 MSG 1200	1 SECTORS 8
0 GR (GAPI) 200	0 (lb)3000	AMPx10(mV)	0 AMPMAX 150		
28400 CCL 17400		0 (mV) 10	0 AMPMIN 150		





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REPEAT LOG SECTION

5" = 100'

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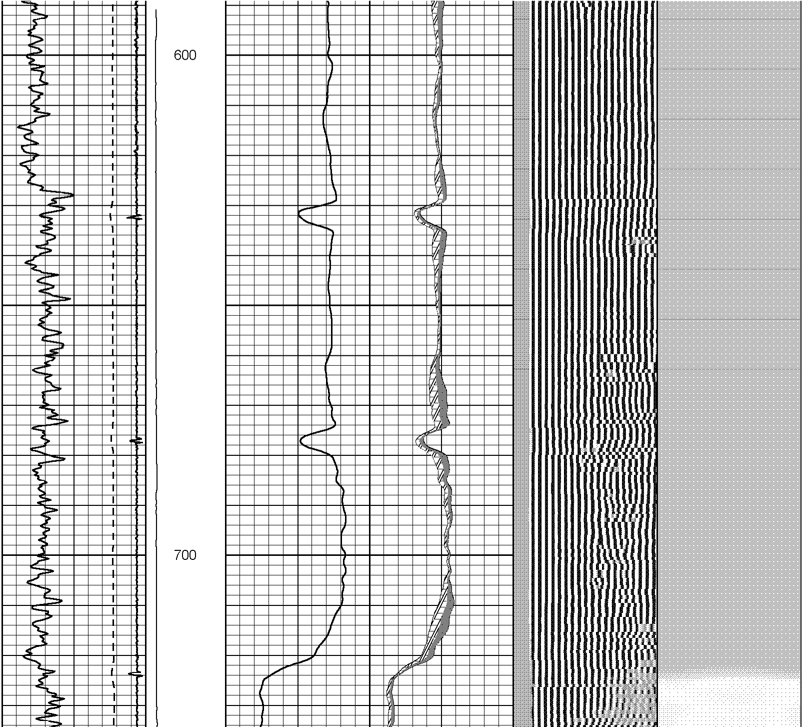
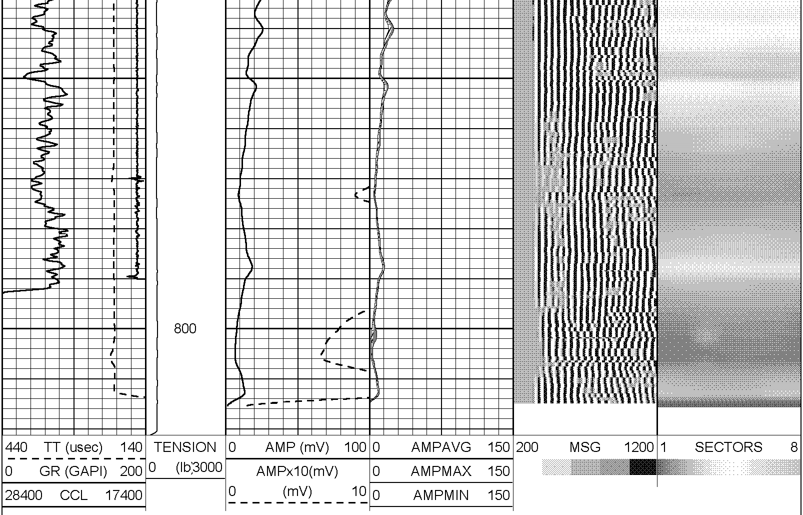
FREE PIPE LOG SECTION

5" = 100'

Database File:	skr_598_25_bv_10_rbtrmt.db
Dataset Pathname:	free1
Presentation Format:	rbt_chev
Dataset Creation:	Fri Oct 12 09:27:40 2007 by Log Halliburton Casedho
Charted by:	Depth in Feet scaled 1:240

440 TT (usec) 140	TENSION	0 AMP (mV) 100	0 AMPAVG 150	200 MSG 1200	1 SECTORS 8
0 GR (GAPI) 200	0 (lb) 3000	AMPx10(mV)	0 AMPMAX 150		
28400 CCL 17400		0 (mV) 10	0 AMPMIN 150		





HALLIBURTON

FREE PIPE LOG SECTION

5" = 100'

Calibration Report

Database File: skr_598_25_bv_10_rbtrmt.db
Dataset Pathname: MAIN3.1
Dataset Creation: Fri Oct 12 15:21:07 2007 by Calc Halliburton Casedho

Segmented Cement Bond Log Calibration Report

Serial Number: 11002214
Tool Model: 004

Calibration Casing Diameter: 4.500 in
Calibration Depth: 719.617 ft

Master Calibration, performed Fri Oct 12 09:26:41 2007:

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3FT	0.029	0.772	4.000	81.196	95.984	3.964
5FT	0.007	0.732	4.000	81.196	98.505	6.220
S1	0.030	0.772	0.000	81.196	101.340	0.263
S2	0.028	0.823	0.000	81.196	94.177	1.857
S3	0.028	0.823	0.000	81.196	94.172	1.857
S4	0.028	0.804	0.000	81.196	96.652	1.932
S5	0.028	0.777	0.000	81.196	100.413	0.043
S6	0.027	0.749	0.000	81.196	104.415	0.030
S7	0.027	0.736	0.000	81.196	106.448	0.090
S8	0.027	0.744	0.000	81.196	105.290	0.054

Calibration Report

Serial Number:	11002214
Tool Model:	004
Performed:	

	Reference ()	Reading ()
Low:		
High:		

Gain =

Offset=

Reservoir Monitor Tool Elite Calibration Report

Serial-Model:	U392-A
Shop Calibration Performed:	Mon Oct 06 21:46:52 2008

Linearity Results (Generator Off)

Near Detector 6 Peaks Found

Channel	Amplitude	FWHM
52.42	0.00813	6.03
97.60	0.00307	5.99
110.32	0.00568	8.22
140.09	0.00020	7.11
188.59	0.00038	8.88
203.02	0.00040	10.90
0.00	0.00000	0.00
0.00	0.00000	0.00
0.00	0.00000	0.00
0.00	0.00000	0.00

Near Detector

H Position 52.42 C Position 110.32 FE Position 188.59

Linearity Correction 3.54

Far Detector 7 Peaks Found

Channel	Amplitude	FWHM
52.41	0.01546	5.04
95.62	0.00179	4.15
108.14	0.00652	7.60
137.78	0.00020	4.82
150.71	0.00046	9.16
184.06	0.00064	7.54
197.54	0.00106	10.08
0.00	0.00000	0.00
0.00	0.00000	0.00
0.00	0.00000	0.00

Far Detector

H Position 52.41 C Position 108.14 FE Position 184.06

Linearity Correction 3.68

Carbon/Oxygen Mode

Stabilization

	Reading	Range
GENV	77.70	70 - 100 Volts
RAW ITCR2	3381.29	3000 - 3500 CPS

Near Detector

	Channel	Expected	Amplitude	FWHM
H	46.17	52	0.0354	4.62
FE	199.09	198	0.0945	----
NGAIN =	0.955	NZOFF =	7.921	

Far Detector

	Channel	Expected	Amplitude	FWHM
H	46.79	52	0.0460	5.16
FE	199.15	198	0.0952	----
FGAIN =	0.971	FZOFF =	6.555	

	Result	Expected
COIR2	0.438	0.42 - 0.48
LIRI2	1.160	1.20 - 1.60
RICF	0.8384	0.70 - 0.85
TCCR2	3567.44	3000 - 5000 CPS
ITCR2	2990.93	2000 - 4000 CPS

Capture Mode

Stabilization

	Reading	Range
GENV	81.77	70 - 100 Volts
FCAP	10174.20	9500 - 10500 CPS

Result	Logged	Expected Value	Diff.	Tol.	Units
Ratio Normalizer	5.02	4.60	0.42	+/- 0.70	
Ratio Inel Norm	1.08	1.00			+/- 0.15
Near Spaced Count	10071.57	10000 - 13000			CPS
Far Spaced Count	9856.32	9000 - 11000			CPS
Sigma Form Near	23.84	23.50	0.34	+/- 1.00	C.U.

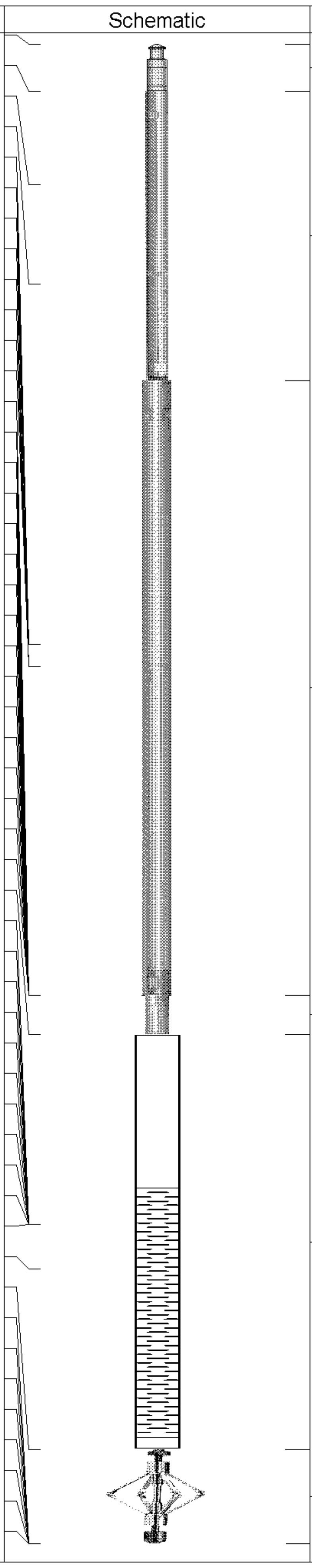
Sigma Bore Near	79.71	77.00	2.71	+/- 8.00	C.U.
Sigma Form Far	22.72	22.50	0.22	+/- 0.50	C.U.
Ratio Near/Far	1.03	1.10	-0.07	+/- 0.15	
Ratio Bore/Form	0.31	0.34	-0.03	+/- 0.04	
Near Error	0.64	<5.00			
Far Error	0.53	<5.00			
Near Background	122.64	<1000			
Far Background	101.60	< 500			
Near Resolving Time	0.930	0.0 - 2.0			
Far Resolving Time	0.903	0.0 - 2.0			

Gamma Ray Calibration Report

Serial Number:	214647	
Tool Model:	ULTRA_LINK	
Performed:	Fri Oct 12 08:49:57 2007	
Calibrator Value:	236.0	GAPI
Background Reading:	41.8	cps
Calibrator Reading:	182.3	cps
Sensitivity:	1.6795	GAPI/cps

Sensor	Offset (ft)
CHD	34.17
TTTCU	33.08
CCL	30.95
GR	28.69
FINEL	20.48
FCAP	20.48
FBACK	20.48
TFGT	20.48
NINEL	19.98
NCAP	19.98
NBACK	19.98
TNGT	19.98
HSC	12.48
REPV	12.48
REPI	12.48
GENV	12.48
GENI	12.48
ISV	12.48
ISI	12.48
IONI	12.48
LSHV	12.48
SSHV	12.48
ROMTEMP	12.48
FLASKTEMP	12.48
CNTL	12.48
GNCTL	12.48
SPECSTAT	12.48
FSTAT	12.48
RBT	11.60
WVF3FT	7.26
WVFS1	7.26
WVFS2	7.26
WVFS3	7.26
WVFS4	7.26
WVFS5	7.26
WVFS6	7.26
WVFS7	7.26
WVFS8	7.26
CBLTEMP	7.26
CBLROT	7.26
WVF5FT	6.26
CENT	2.13
LLMTEN	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)
STNDRD Standard Cable Head - F.N. 1 3/8"	1.08	1.44	1.10
TTTCU-ULTRA_LINK (214647) Through Tubing Telemetry Cartridge - Ultrawire	6.60	1.69	33.00
RMTE-A (U392) RMTE	14.00	2.13	77.00
2.5" AHU + RMT X-OVER	0.88	1.69	1.00
RBT-004 (11002214) Radial Bond Tool (UW 3 1/8)	9.47	3.13	140.00
CSS169Roller CSS 1 11/16" ROLLER CENTRALIZER	2.13	1.69	4.41

Dataset:	skr_598_25_bv_10_rbtrmt.db: field/well/run1/MAIN3.1
Total Length:	34.17 ft
Total Weight:	256.51 lb
O.D.	3.13 in

Company	CHEVRON USA		
Well	SKR 598-25-BV-10		
Field	SKINNER RIDGE		
County	GARFIELD	State	CO

HALLIBURTON

RADIAL CEMENT
BOND LOG