

APPENDIX D
DOWNHOLE GEOPHYSICAL LOG

PACIFIC SURVEYS

CALIPER BOREHOLE VOLUMES

Job No. 11976
 Company WDC EXPLORATION & WELLS
 Well MW-26
 File No. Field JPL: PASADENA
 County LOS ANGELES State

Location:
 EMBREE BUS TERMINAL: CANADA AVE.

Other Services:
 ELOG
 GR/LL3
 SONICVDL

Sec.	Twp.	Rge.	Elevation	Elevation
		0	above perm. datum	K.B. D.F. G.L.
Permanent Datum	G.L.			
Log Measured From	G.L.			
Drilling Measured From	G.L.			

Date	04-12-05		
Run Number	ONE		
Depth Driller	300'		
Depth Logger	300'		
Bottom Logged Interval	300'		
Top Log Interval	25'		
Casing Driller	13" @ 20'		
Casing Logger	20'		
Bit Size	12.25"		
Type Fluid in Hole	BENTONITE		
Density / Viscosity	N/A		
pH / Fluid Loss	N/A		
Source of Sample	PIT		
Rm @ Meas. Temp	7.6 @ 77F		
Rmf @ Meas. Temp	8.25 @ 77F		
Rmc @ Meas. Temp	N/A		
Source of Rmf / Rmc	MEAS		
Rm @ BHT	N/A		
Time Circulation Stopped	2 HRS		
Time Logger on Bottom	11:00		
Max. Recorded Temperature	N/A		
Equipment Number	PS-3		
Location	L.A.		
Recorded By	RIDDER		
Witnessed By	D. CONNORS		

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Comments

XY Caliper Calibration Report

Serial Number:
 Tool Model:
 Performed:

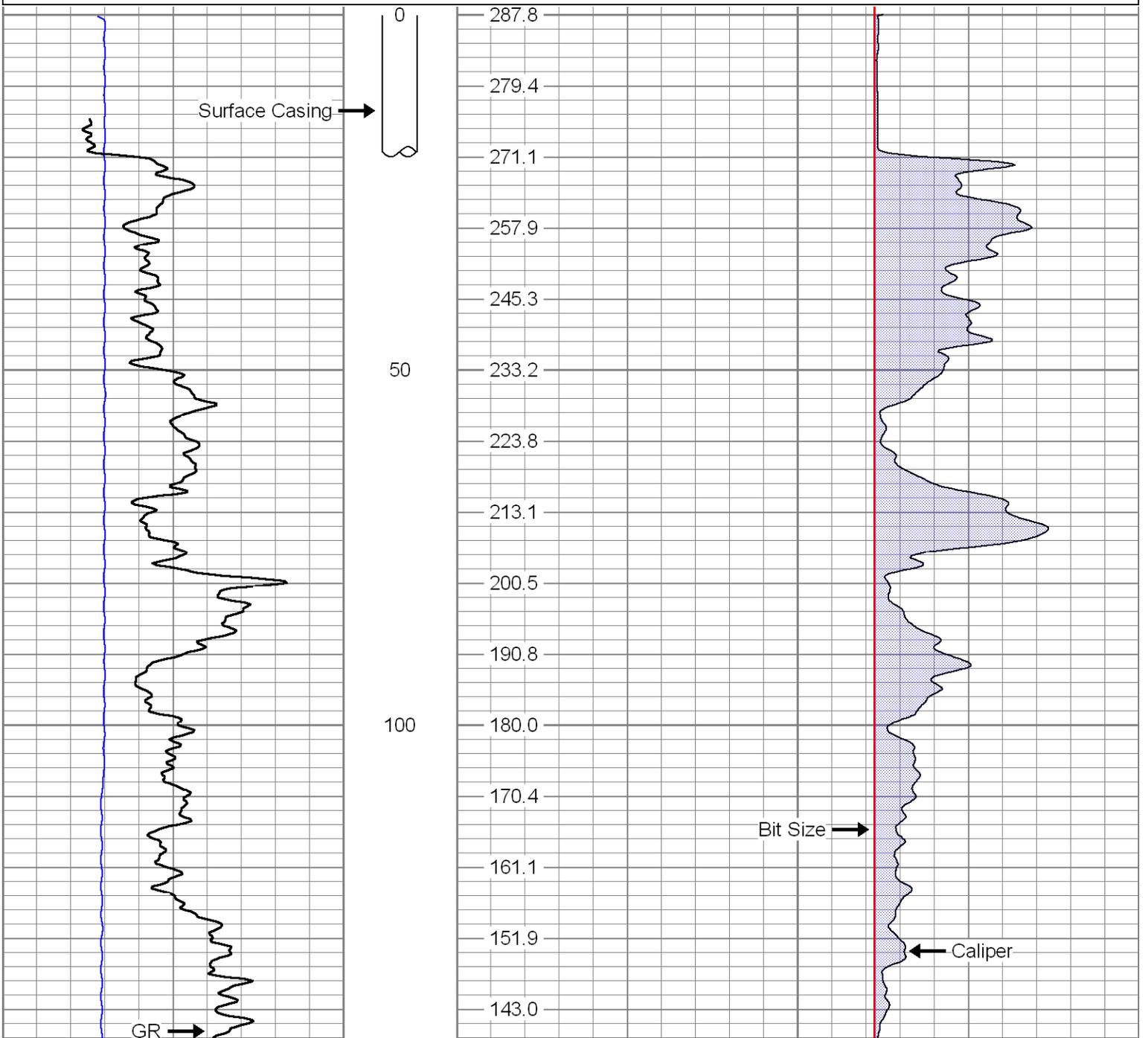
Short
 Comprobe
 Mon Nov 29 10:26:19 2004

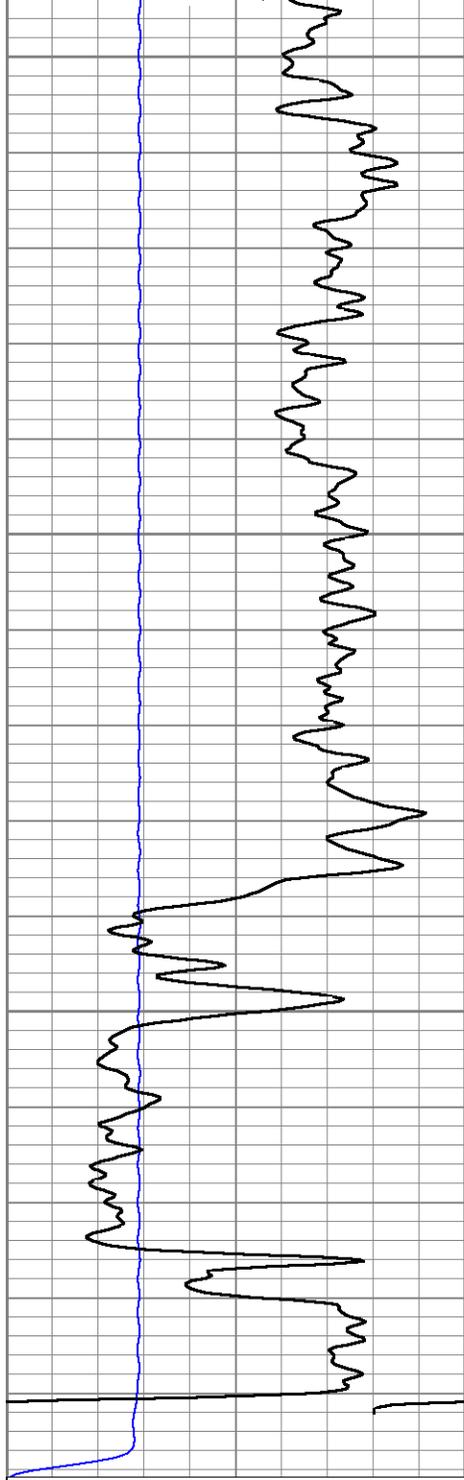
Small Ring:	6	in	
Large Ring:	18	in	
	X Caliper	Y Caliper	
Reading with Small Ring:	348.657	348.657	cps
Reading with Large Ring:	749.7	749.7	cps
Gain:	0.029922	0.029922	
Offset:	-3.80749	-3.80749	

Database File: 11976.db
 Dataset Pathname: WDC/well/run1/cal
 Presentation Format: xyc
 Dataset Creation: Tue Apr 12 12:54:03 2005 by Log Warrior 7.0 STD Ope
 Charted by: Depth in Feet scaled 1:240

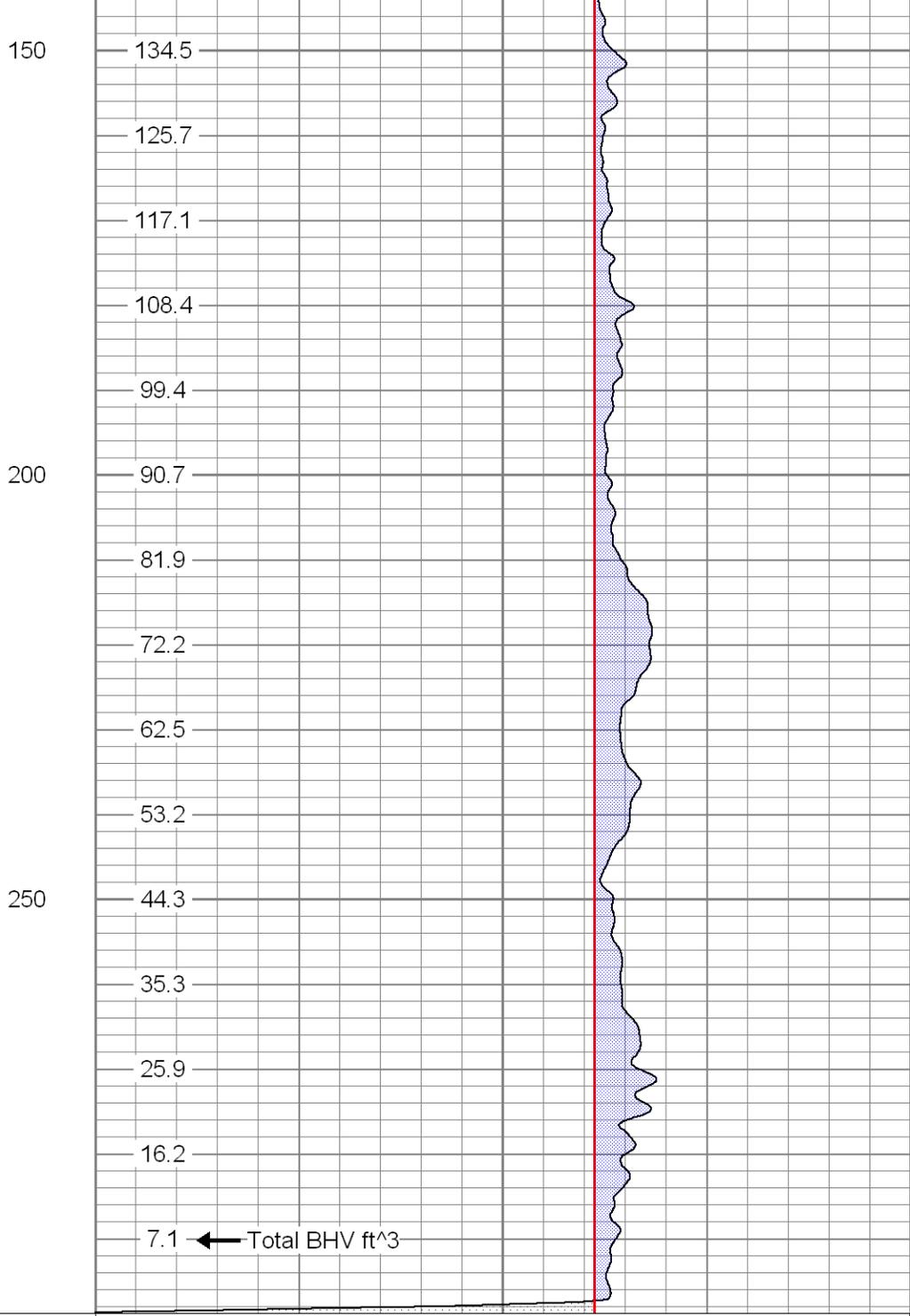
0	LSPD (ft/min)	-100
20	Gamma-Ray (GAPI)	120

0	CALIPER (in)	20
0	BIT SIZE (in)	20
40	CALIPER back-up (in)	60





0	LSPD (ft/min)	-100
20	Gamma-Ray (GAPI)	120



0	CALIPER (in)	20
0	BIT SIZE (in)	20
40	CALIPER back-up (in)	60

PACIFIC SURVEYS

ELECTRIC LOG LATEROLOG 3 GAMMA-RAY

Job No. 11976
 Company WDC EXPLORATION & WELLS
 Well MW-26
 File No. Field JPL: PASADENA
 County LOS ANGELES State

Location:
 EMBREE BUS TERMINAL: CANADA AVE.

Other Services:
 GR/LL3
 SONIC/VDL
 CALIPER

Sec.	Twp.	Rge.	Elevation	Elevation
		0	above perm. datum	K.B. D.F. G.L.
Permanent Datum	G.L.			
Log Measured From	G.L.			
Drilling Measured From	G.L.			

Date	04-12-05		
Run Number	ONE		
Depth Driller	300'		
Depth Logger	300'		
Bottom Logged Interval	300'		
Top Log Interval	25'		
Casing Driller	13" @ 20'		
Casing Logger	20'		
Bit Size	12.25"		
Type Fluid in Hole	BENTONITE		
Density / Viscosity	N/A		
pH / Fluid Loss	N/A		
Source of Sample	PIT		
Rm @ Meas. Temp	7.6 @ 77F		
Rmf @ Meas. Temp	8.25 @ 77F		
Rmc @ Meas. Temp	N/A		
Source of Rmf / Rmc	MEAS		
Rm @ BHT	N/A		
Time Circulation Stopped	2 HRS		
Time Logger on Bottom	11:00		
Max. Recorded Temperature	N/A		
Equipment Number	PS-3		
Location	L.A.		
Recorded By	RIDDER		
Witnessed By	D. CONNORS		

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Comments

ELOG Calibration Report

Serial:
Model:

D4
DTQ

Shop Calibration Performed:

Sat Sep 18 10:09:13 2004

Shop Calibration

	Readings			References			Results	
	Zero	Cal		Zero	Cal		Gain	Offset
Short	8.687	100.508		10.200	102.200	Ohm-m	1.002	1.496
Long	5.716	95.028		10.200	102.200	Ohm-m	1.030	-17.311
IEE	7363.860	7363.880	counts	8.059	8.059	A		
VSN	8381.240	8382.500	counts	159.862	159.886	V		
VLN	2117.760	2118.020	counts	40.394	40.399	V		

Before Survey Verification

	Readings			References			Results	
	Zero	Cal		Zero	Cal		Gain	Offset
Short	40.249	101.201		40.505	101.206	Ohm-m	0.996	0.422
Long	142.638	102.842		102.858	102.858	Ohm-m	1.024	-2.408
IEE	212.960	7070.960	counts	0.233	7.738	A		
VSN	96.300	8039.720	counts	1.837	153.348	V		
VLN	85.320	2042.520	counts	1.627	38.959	V		

After Survey Verification

	Readings			References			Results	
	Zero	Cal		Zero	Cal		Gain	Offset
Short	40.270	101.200		40.249	101.201	Ohm-m	1.000	-0.035
Long	142.491	102.843		102.842	102.842	Ohm-m	1.004	-0.383
IEE	213.380	7077.580	counts	0.234	7.746	A		
VSN	96.540	8047.160	counts	1.841	153.490	V		
VLN	85.400	2044.440	counts	1.629	38.995	V		

After Survey Verification compared to Before Survey Calibration

	Zero			Cal		
	Before	After		Before	After	
Short	40.505	40.249	Ohm-m	101.206	101.201	Ohm-m
Long	143.592	142.638	Ohm-m	102.858	102.842	Ohm-m

Gamma Ray Calibration Report

Serial Number: D4
 Tool Model: ELOG
 Performed: Wed Sep 15 09:54:00 2004

Calibrator Value: 162.0 GAPI

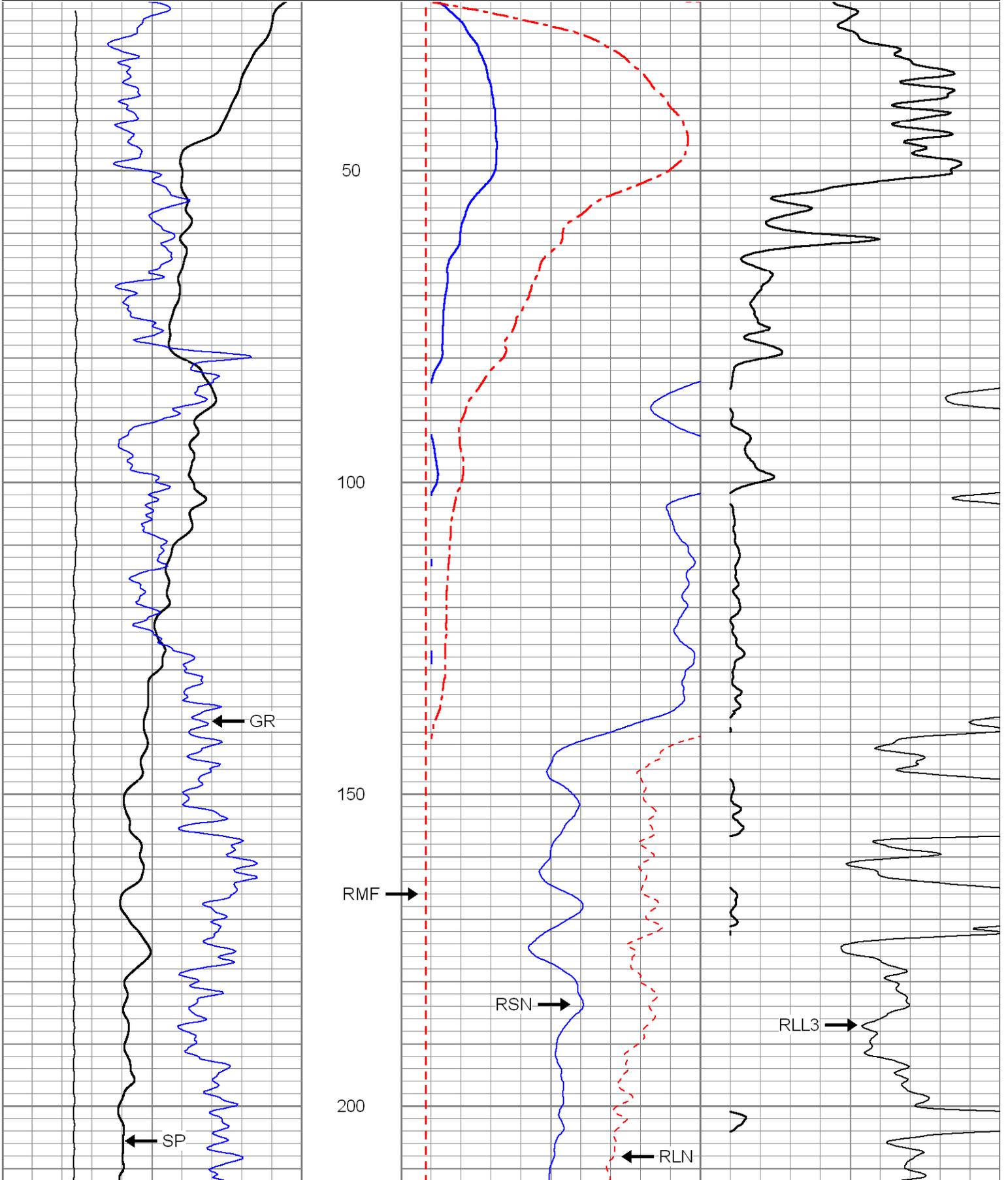
Background Reading: 172.5 cps
 Calibrator Reading: 717.9 cps

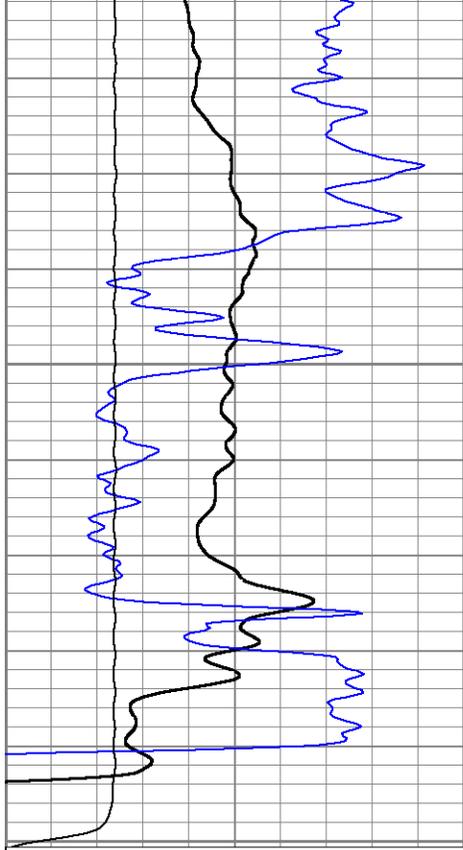
Sensitivity: 0.2970 GAPI/cps

100	S.P. (mV)	200
20	Gamma-Ray (GAPI)	120
0	Line Speed (ft/min)	-100

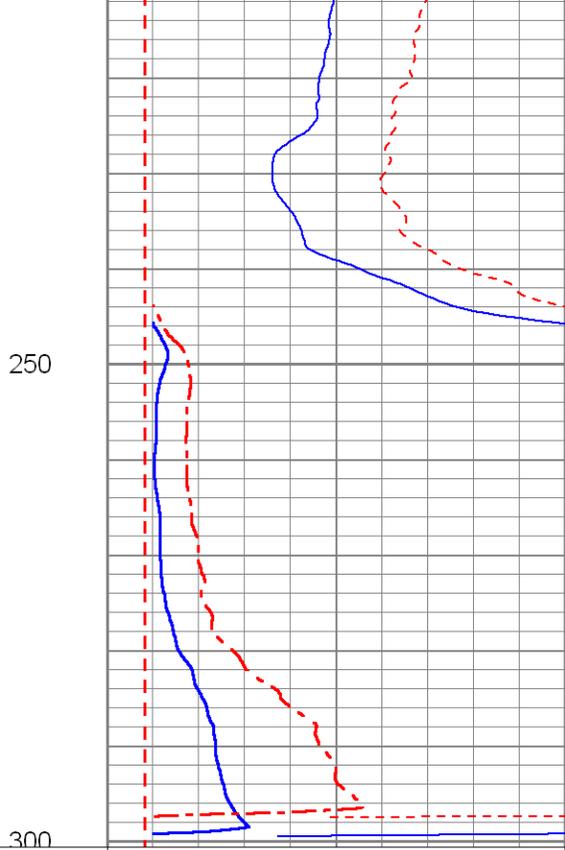
0	RSN (Ohm-m)	100
0	RLN (Ohm-m)	100
0	RMF (Ohm-m)	100
100	RSN back-up (Ohm-m)	1000
100	RLN back-up (Ohm-m)	1000

0	RLL3 (Ohm-m)	100
100	RLL3 back-up (Ohm-m)	1000

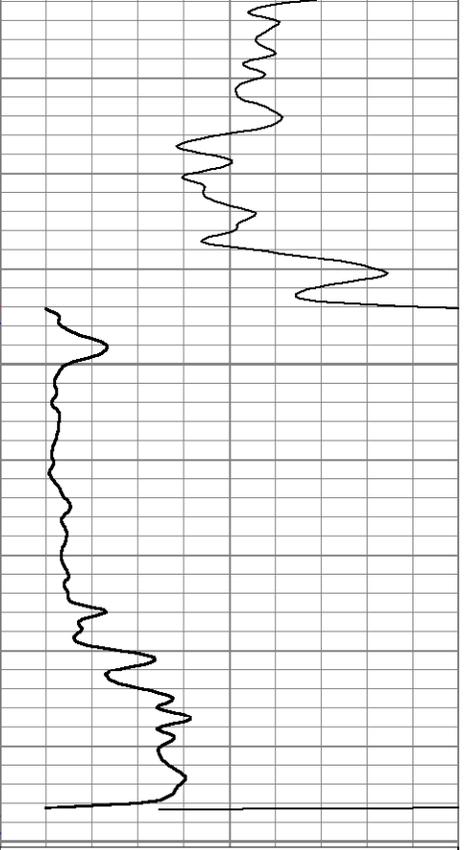




100	S.P. (mV)	200
20	Gamma-Ray (GAPI)	120
0	Line Speed (ft/min)	-100



0	RSN (Ohm-m)	100
0	RLN (Ohm-m)	100
0	RMF (Ohm-m)	100
100	RSN back-up (Ohm-m)	1000
100	RLN back-up (Ohm-m)	1000



0	RLL3 (Ohm-m)	100
100	RLL3 back-up (Ohm-m)	1000

PACIFIC SURVEYS

LATEROLOG 3 GAMMA-RAY

Job No. 11976
 Company WDC EXPLORATION & WELLS
 Well MW-26
 File No. Field JPL: PASADENA
 County LOS ANGELES State

Location:
 EMBREE BUS TERMINAL: CANADA AVE.

Other Services:
 ELOG
 SONIC/VDL
 CALIPER

Sec.	Twp.	Rge.	Elevation above perm. datum	Elevation K.B. D.F. G.L.
		0		
Permanent Datum	G.L.			
Log Measured From	G.L.			
Drilling Measured From	G.L.			

Date	04-12-05		
Run Number	ONE		
Depth Driller	300'		
Depth Logger	300'		
Bottom Logged Interval	300'		
Top Log Interval	25'		
Casing Driller	13" @ 20'		
Casing Logger	20'		
Bit Size	12.25"		
Type Fluid in Hole	BENTONITE		
Density / Viscosity	N/A		
pH / Fluid Loss	N/A		
Source of Sample	PIT		
Rm @ Meas. Temp	7.6 @ 77F		
Rmf @ Meas. Temp	8.25 @ 77F		
Rmc @ Meas. Temp	N/A		
Source of Rmf / Rmc	MEAS		
Rm @ BHT	N/A		
Time Circulation Stopped	2 HRS		
Time Logger on Bottom	11:00		
Max. Recorded Temperature	N/A		
Equipment Number	PS-3		
Location	L.A.		
Recorded By	RIDDER		
Witnessed By	D. CONNORS		

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Comments

Gamma Ray Calibration Report

Serial Number: 12
 Tool Model: GROH
 Performed: Thu Feb 12 09:06:37 2004

Calibrator Value:	162.0	GAPI
Background Reading:	46.0	
Calibrator Reading:	174.5	
Sensitivity:	1.2612	GAPI/

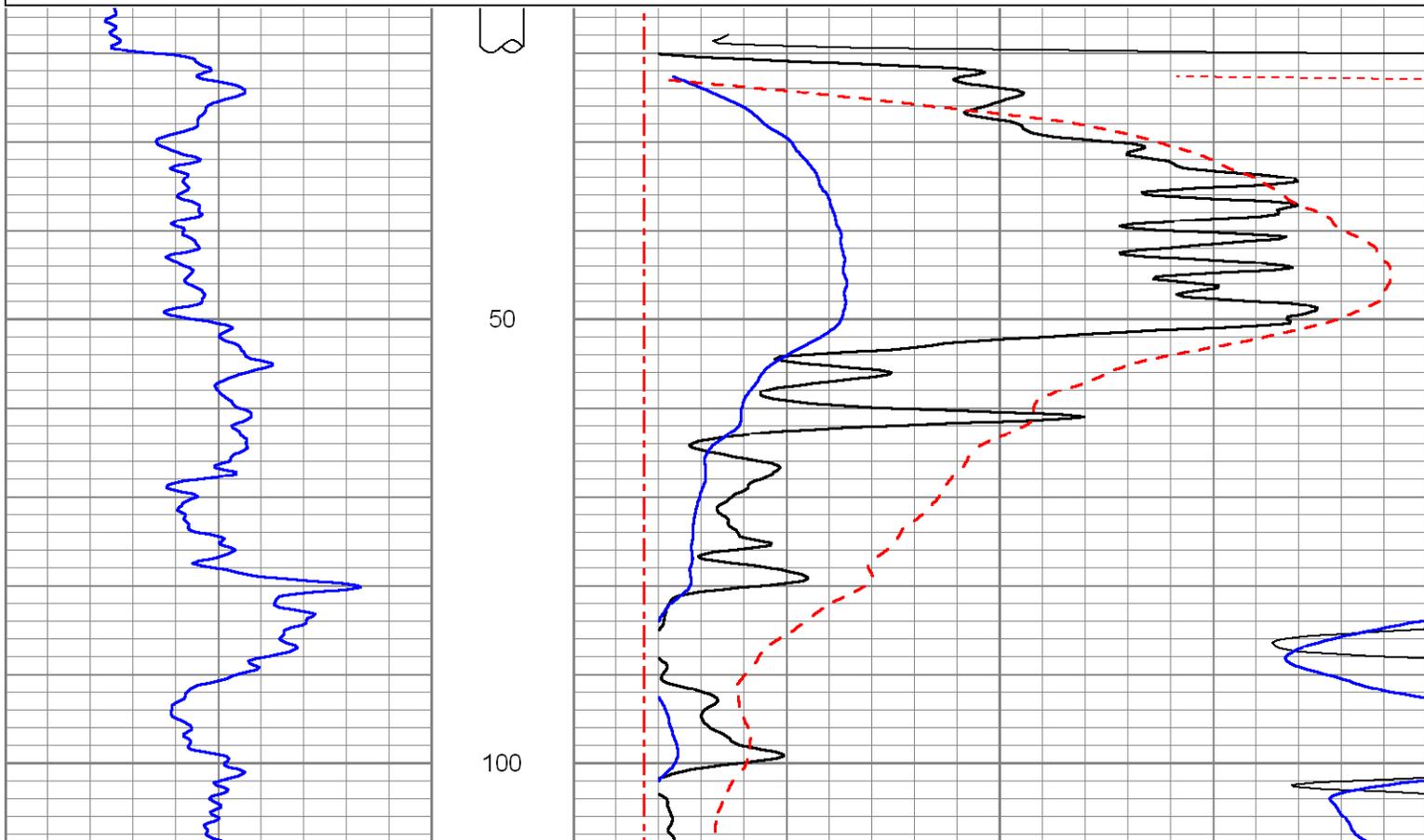
RLL3 (Resistivity Laterolog 3) Calibration Report:

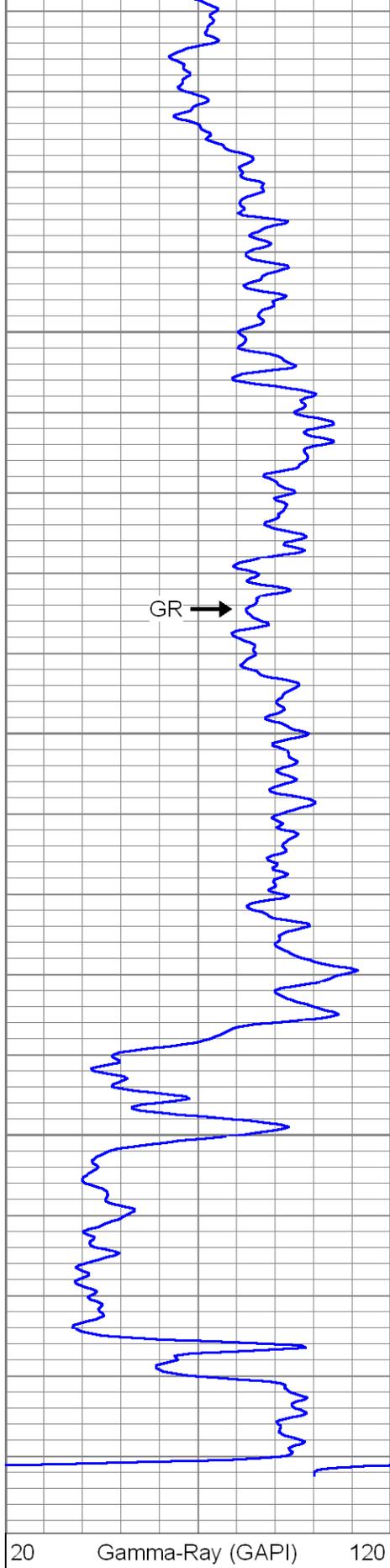
Serial Number:	294
Tool Model:	M&W
Performed:	Tue Dec 14 13:35:47 2004

System Reading	Calibration Reference
0.030	2.500 Ohm-m
0.046	5.000
0.420	50.000
2.024	250.000
4.007	500.000

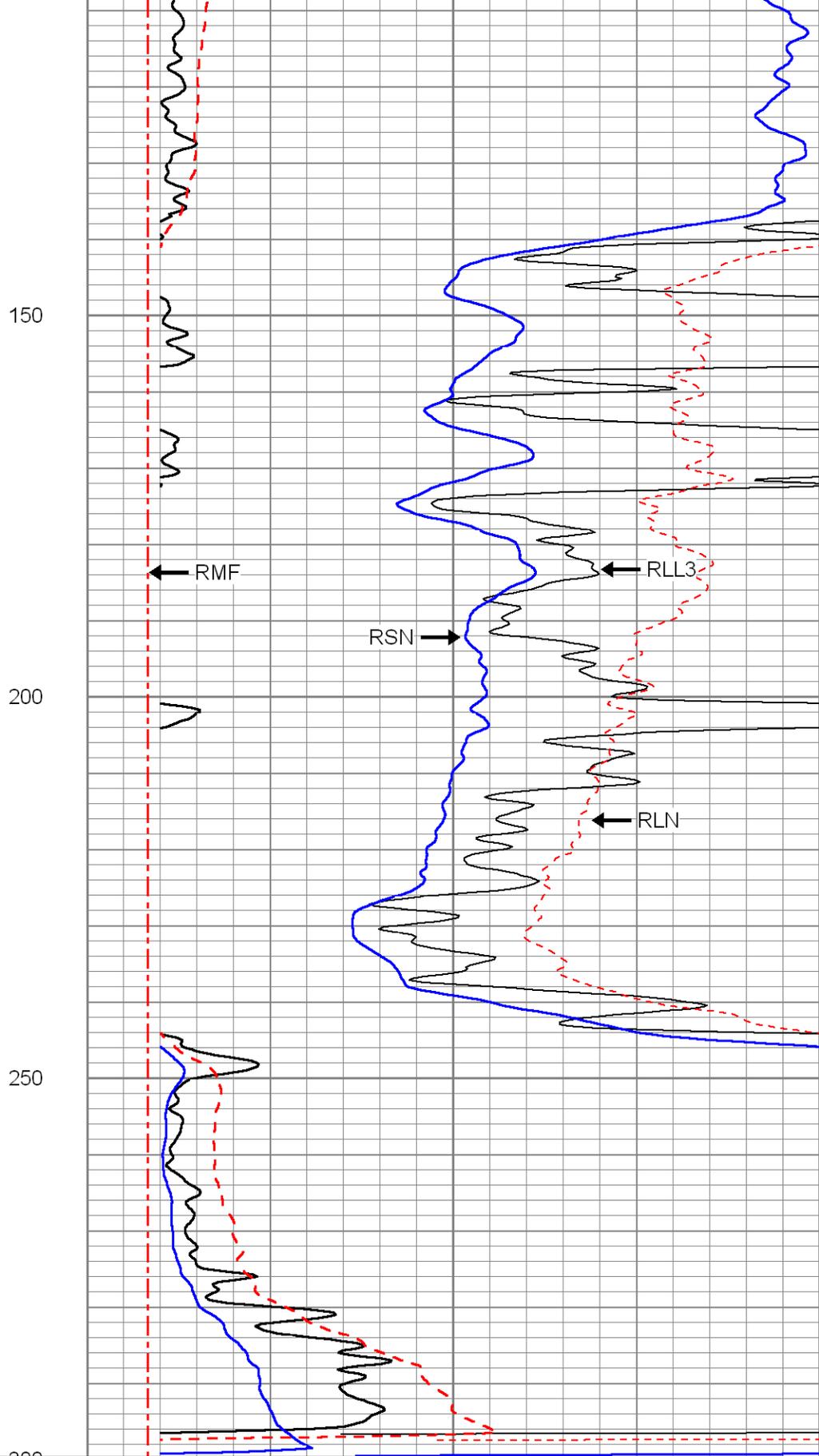
Database File:	11976.db
Dataset Pathname:	WDC/well/run1/LL3merge
Presentation Format:	guard
Dataset Creation:	Tue Apr 12 12:56:19 2005
Charted by:	Depth in Feet scaled 1:240

20	Gamma-Ray (GAPI)	120	0	RLL3 (Ohm-m)	100
			0	RSN (Ohm-m)	100
			0	RLN (Ohm-m)	100
			0	RMF (Ohm-m)	100
			100	RLL3 back-up (Ohm-m)	1000
			100	RSN back-up (Ohm-m)	1000
			100	RLN back-up (Ohm-m)	1000





20 120



150

200

250

300

0	RLL3 (Ohm-m)	100
0	RSN (Ohm-m)	100
0	RLN (Ohm-m)	100
0	RMF (Ohm-m)	100
100	RLL3 back-up (Ohm-m)	1000
100	RSN back-up (Ohm-m)	1000

100

RLN back-up (Ohm-m)

1000

PACIFIC SURVEYS

SONIC VELOCITY VARIABLE DENSITY

Job No. 11976
 Company WDC EXPLORATION & WELLS
 Well MW-26
 File No. Field JPL: PASADENA
 County LOS ANGELES State

Location:
 EMBREE BUS TERMINAL: CANADA AVE.

Other Services:

ELOG
 GR/LL3
 CALIPER

Sec.	Twp.	Rge.	Elevation above perm. datum	Elevation K.B. D.F. G.L.
		0		
Permanent Datum	G.L.			
Log Measured From	G.L.			
Drilling Measured From	G.L.			

Date	04-12-05		
Run Number	ONE		
Depth Driller	300'		
Depth Logger	300'		
Bottom Logged Interval	300'		
Top Log Interval	25'		
Casing Driller	13" @ 20'		
Casing Logger	20'		
Bit Size	12.25"		
Type Fluid in Hole	BENTONITE		
Density / Viscosity	N/A		
pH / Fluid Loss	N/A		
Source of Sample	PIT		
Rm @ Meas. Temp	7.6 @ 77F		
Rmf @ Meas. Temp	8.25 @ 77F		
Rmc @ Meas. Temp	N/A		
Source of Rmf / Rmc	MEAS		
Rm @ BHT	N/A		
Time Circulation Stopped	2 HRS		
Time Logger on Bottom	11:00		
Max. Recorded Temperature	N/A		
Equipment Number	PS-3		
Location	L.A.		
Recorded By	RIDDER		
Witnessed By	D. CONNORS		

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Comments

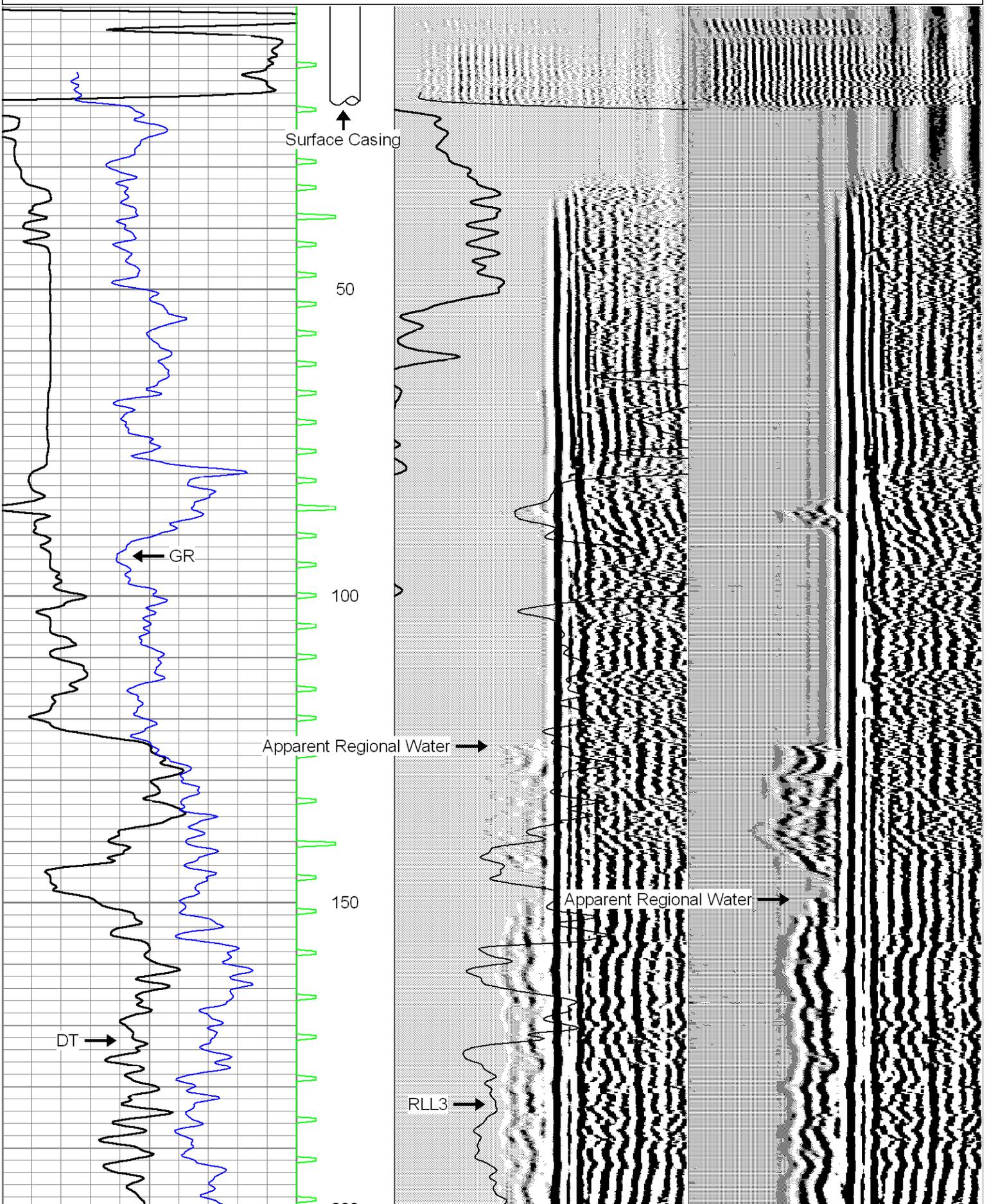
Database File: 11976.db
 Dataset Pathname: WDC/well/run1/sonic
 Presentation Format: sit
 Dataset Creation: Tue Apr 12 12:26:54 2005 by Log Warrior 7.0 STD Ope
 Charted by: Depth in Feet scaled 1:240

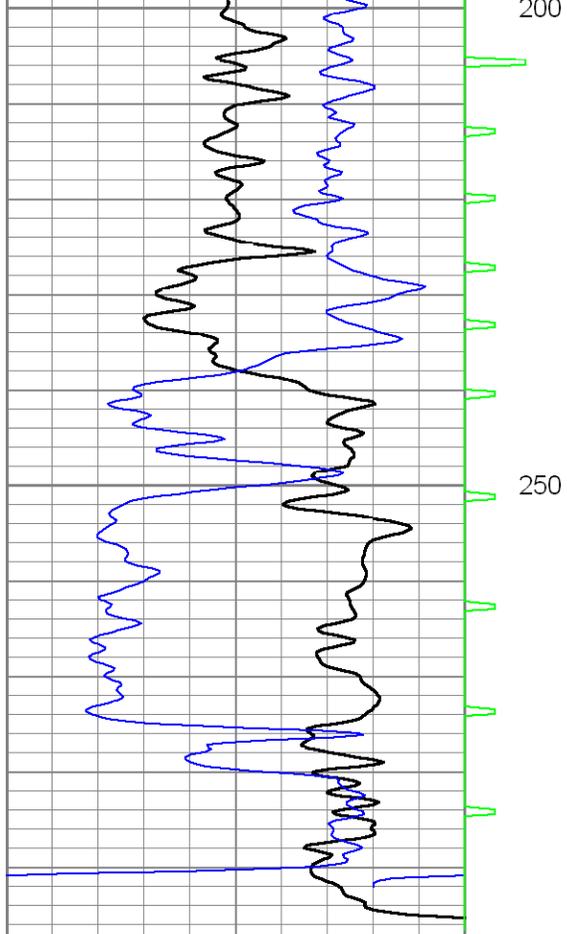
240	DT (usec/ft)	40
20	Gamma-Ray (GAPI)	120

400	Variable Density 5 ft	1600
Sectors		

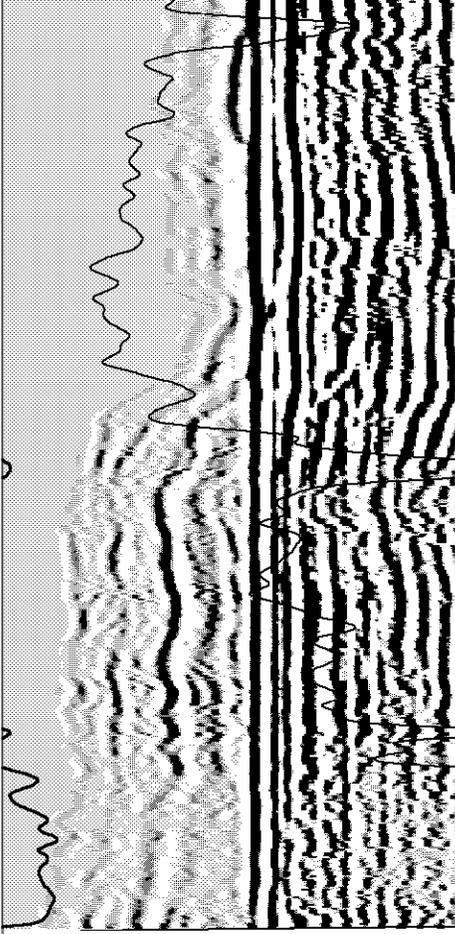
400	Variable Density 5ft	1600
Sectors		

0	RLL3 (Ohm-m)	200
200	RLL3 back-up (Ohm-m)	2000

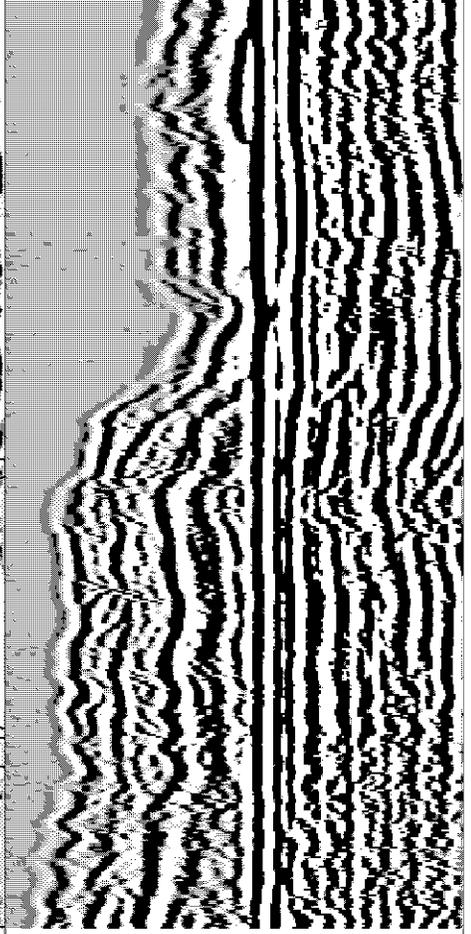




240	DT (u sec/ft)	40	(ITT (msec))
20	Gamma-Ray (GAPI)	120	



400	Variable Density 5 ft	1600
Sectors		



400	Variable Density 5 ft	1600
Sectors		

0	RLL3 (Ohm-m)	200
200	RLL3 back-up (Ohm-m)	2000