

Company: APACHE CANADA LTD.
Well: APACHE PARAMOUNT NOGHA B-23
Field: UNDEFINED
Province: NORTHWEST TERRITORIES

Schlumberger

CEMENT VOLUME LOG

N.E.B. COPY

Province: NORTHWEST TERRITORIES
Field: UNDEFINED
Location: UWID: 300B236640125450
Well: APACHE PARAMOUNT NOGHA B-23
Company: APACHE CANADA LTD.

LOCATION	
UWID: 300B236640125450	Elev.: K.B. 315.75 m G.L. 311.27 m D.F. 315.45 m
LSD: B-23	
Permanent Datum:	GROUND LEVEL
Log Measured From:	KELLY BUSHING
Drilling Measured From:	KELLY BUSHING
API Serial No.	Latitude: 66 DEG 32'
WID: 1998	Longitude: 125 DEG 49'

Logging Date	13-Mar-2004
Run Number	ONE
Depth Driller	1476 m
Schlumberger Depth	1475 m
Bottom Log Interval	1462.5 m
Top Log Interval	604 m
Casing Driller Size @ Depth	244.500 mm @ 604 m
Casing Schlumberger	604 m
Bit Size	216.000 mm
Type Fluid In Hole	INVERT
Density	1200 kg/m3
Viscosity	240 s
Fluid Loss	
PH	
Source Of Sample	NO SAMPLE
RM @ Measured Temperature	@
RMF @ Measured Temperature	@
RMC @ Measured Temperature	@
Source RMF	
RM @ MRT	NO SAMPLE @ 21 @ 21
Maximum Recorded Temperatures	
Circulation Stopped	21 degC 20 18:45
Logger On Bottom	15-Mar-2004 1:00
Unit Number	3052 NORMAN WELLS
Recorded By	KELLY RONCIN
Witnessed By	ROBERT REID

Logging Date	13-Mar-2004	Run 1	Run 2	Run 3	Run 4
Run Number	ONE				
Depth Driller	1476 m				
Schlumberger Depth	1475 m				
Bottom Log Interval	1462.5 m				
Top Log Interval	604 m				
Casing Driller Size @ Depth	244.500 mm @ 604 m				
Casing Schlumberger	604 m				
Bit Size	216.000 mm				
Type Fluid In Hole	INVERT				
Density	1200 kg/m3				
Viscosity	240 s				
Fluid Loss					
PH					
Source Of Sample	NO SAMPLE				
RM @ Measured Temperature	@				
RMF @ Measured Temperature	@				
RMC @ Measured Temperature	@				
Source RMF					
RM @ MRT	NO SAMPLE @ 21 @ 21				
Maximum Recorded Temperatures					
Circulation Stopped	21 degC 20 18:45				
Logger On Bottom	15-Mar-2004 1:00				
Unit Number	3052 NORMAN WELLS				
Recorded By	KELLY RONCIN				
Witnessed By	ROBERT REID				

DEPTH SUMMARY LISTING

Date Created: 15-MAR-2004 7:06:10

Depth System Equipment

Depth Measuring Device	Tension Device	Logging Cable
Type: IDW-B Serial Number: 1976 Calibration Date: 16-SEP-2003 Calibrator Serial Number: 4 Calibration Cable Type: 7-39P Wheel Correction 1: -3 Wheel Correction 2: -3	Type: CMTD-B/A Serial Number: 3052 Calibration Date: 22-JAN-2004 Calibrator Serial Number: 2000 Calibration Gain: 1.16 Calibration Offset: -38.00	Type: 7-39P Serial Number: 2073 Length: 4999.94 M Conveyance Method: Wireline Rig Type: Land

Depth Control Parameters

Log Sequence:	Subsequent Log In the Well
Reference Log Name:	PLATFORM EXPRESS
Reference Log Run Number:	ONE
Reference Log Date:	13-MAR-2004

Depth Control Remarks

1. CALIBRATED IDW WHEELS USED AS PRIMARY DEPTH CONTROL
- 2.
- 3.
- 4.
- 5.
- 6.

DISCLAIMER

THE USE OF AND RELIANCE UPON THIS RECORDED-DATA BY THE HEREIN NAMED COMPANY (AND ANY OF ITS AFFILIATES, PARTNERS, REPRESENTATIVES, AGENTS, CONSULTANTS AND EMPLOYEES) IS SUBJECT TO THE TERMS AND CONDITIONS AGREED UPON BETWEEN SCHLUMBERGER AND THE COMPANY, INCLUDING: (a) RESTRICTIONS ON USE OF THE RECORDED-DATA; (b) DISCLAIMERS AND WAIVERS OF WARRANTIES AND REPRESENTATIONS REGARDING COMPANY'S USE OF AND RELIANCE UPON THE RECORDED-DATA; AND (c) CUSTOMER'S FULL AND SOLE RESPONSIBILITY FOR ANY INFERENCE DRAWN OR DECISION MADE IN CONNECTION WITH THE USE OF THIS RECORDED-DATA.

OTHER SERVICES1			OTHER SERVICES2		
OS1: DSI-EMS-GR			OS1:		
OS2: PEX-AIT-LDT			OS2:		
OS3: VSP			OS3:		
OS4: HIRES			OS4:		
OS5: LOGNET			OS5:		
REMARKS: RUN NUMBER 1			REMARKS: RUN NUMBER 2		
DSI RAN CENTRALIZED WITH 2 CMEZ BELOW AND ONE ABOVE NAD EMS ABOVE					
DSI RAN USING P&S AND UPPER DIPOLE MODES AS PER CLIENT REQUEST					
LOWER DIPOLE RECORDED FOR LOG QUALITY PURPOSES					
DSI TO BE RELABELED BY CLAGARY DCS					
BOREHOLE STATUS CHANGED TO CASED AT 595 M					
DSI RECORDED TO 20 M AS PR CLIENT REQUEST					
CVL COMPUTED USING EMS CALIPERS WITH FCD=177.8 MM					
CLIENT REQUESTED 500:100 US/M ON 1:600 SCALE AND 300:100US/M ON 1:240					
PRINTS: 1 FIELD 7 FINAL					
OPERATORS: FRANK MACEACHERN / BRAD JORDAN					
RIG: NABORS 62					
MAX DEV: °0 DEGREES					
RUN 1			RUN 2		
SERVICE ORDER #:		10764788	SERVICE ORDER #:		
PROGRAM VERSION:		11C0-305	PROGRAM VERSION:		
FLUID LEVEL:			FLUID LEVEL:		
LOGGED INTERVAL	START	STOP	LOGGED INTERVAL	START	STOP

EQUIPMENT DESCRIPTION

RUN 1	RUN 2
SURFACE EQUIPMENT GSR-U/Y WITM (DTS)-A	
DOWNHOLE EQUIPMENT LEH-QT 22.74 LEH-QT DTC-H 21.85 ECH-KC 9302 CTEM DTCH-A 8226 TelStatus SGT-N 20.94 SGH-K 9396 Gamma Ray SGC-TB 9586 SGD-TAA EMS-B 19.26 EMC-B 8067 ECH-KH 8550 EMM-B 8062 Calipers 16.71 DSST-B 15.68 SPAC-B 8186 ECH-SD 8174 SMDR-BD 8286 SSIJ-BA 8043 SMDX-AA 8180	

BNS-CCS

MAXIMUM STRING DIAMETER 114 MM
MEASUREMENTS RELATIVE TO TOOL ZERO
ALL LENGTHS IN METERS

Input DLIS Files						
DEFAULT	DSI_EMS_026LUP	FN:59	PRODUCER	15-Mar-2004 05:55	1479.5 M	-4.6 M
Output DLIS Files						
DEFAULT	DSI_EMS_028PUP	FN:63	PRODUCER	15-Mar-2004 08:02	1479.3 M	568.9 M
BACKUP	DSI_EMS_028PUP	FN:64	PRODUCER	15-Mar-2004 08:18	1479.3 M	568.9 M
CUST	DSI_EMS_028PUP	FN:65	PRODUCER	15-Mar-2004 08:02	1479.3 M	568.9 M

Integrated Hole/Cement Volume Summary

Hole Volume = 32.68 M3

Cement Volume = 11.06 M3 (assuming 177.80 MM casing O.D.)

Computed from 1474.9 M to 604.1 M using data channel(s) RD1 RD2 RD3 RD4 RD5 RD6

OP System Version: 11C0-305

ersi
MCM

DSST-B	OP11-KP1	EMS-B	11C0-305
SGT-N	11C0-305	DTC-H	11C0-305

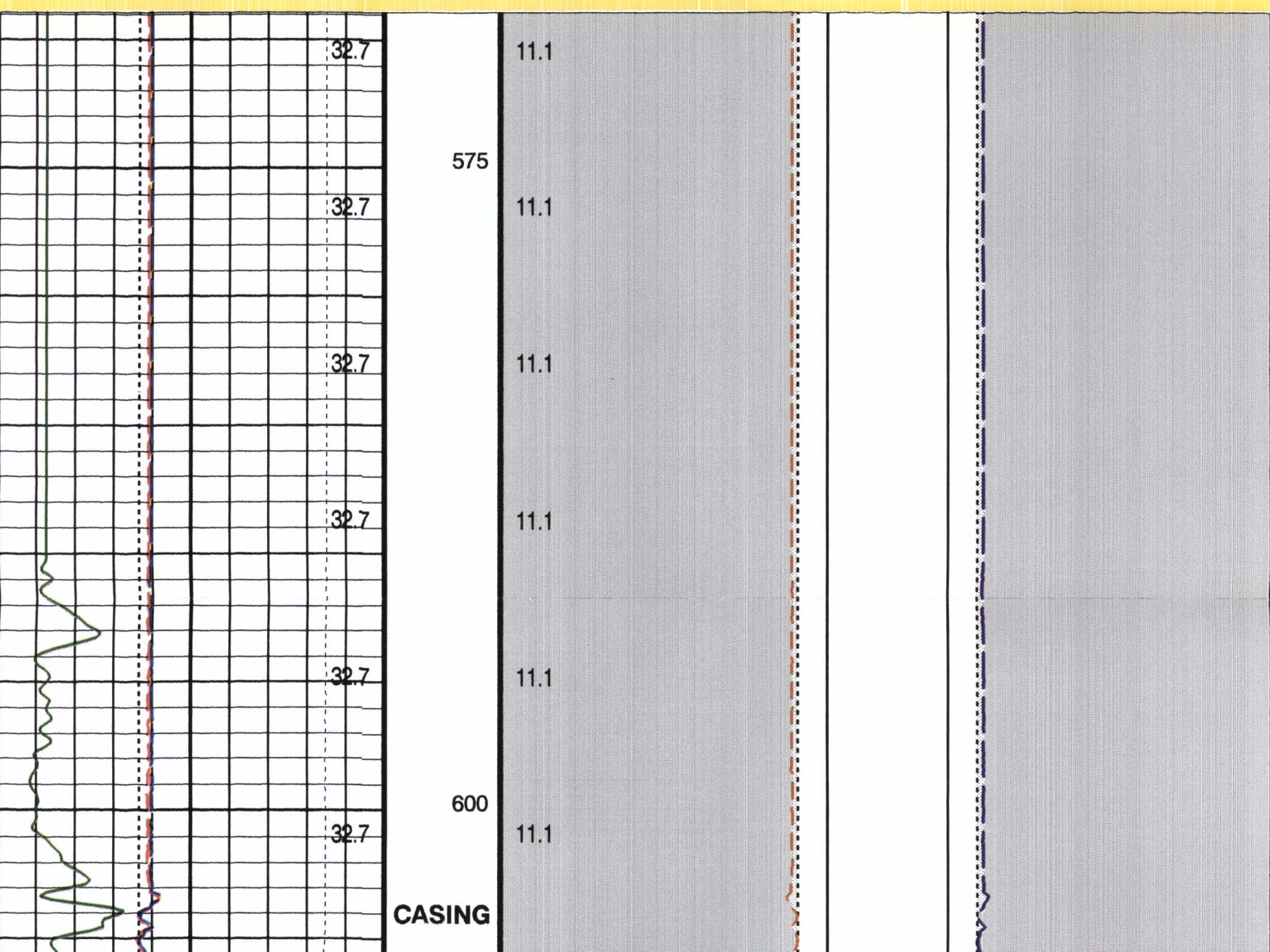
PIP SUMMARY

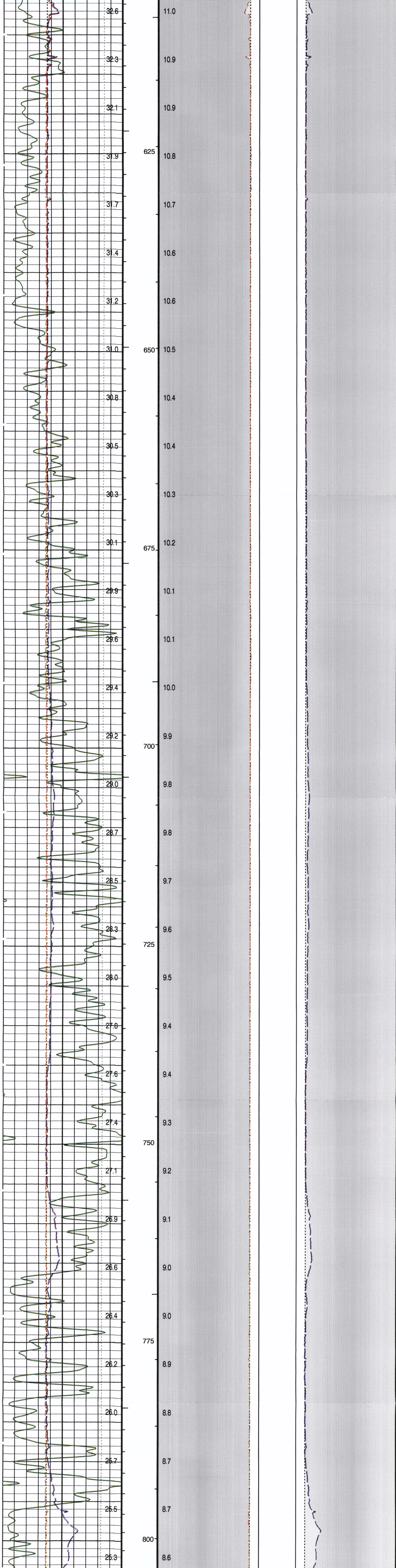
- └ Integrated Hole Volume Minor Pip Every 0.1 M3
- └ Integrated Hole Volume Major Pip Every 1 M3
 - └ Integrated Cement Volume Minor Pip Every 0.1 M3
 - └ Integrated Cement Volume Major Pip Every 1 M3

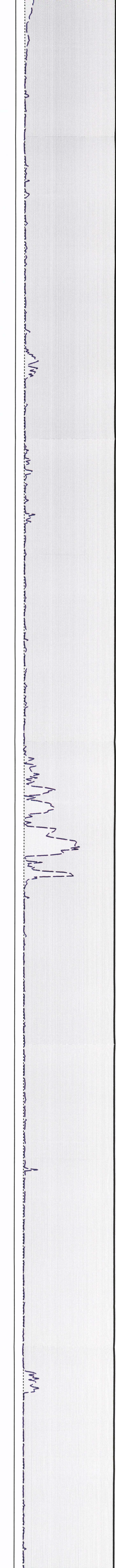
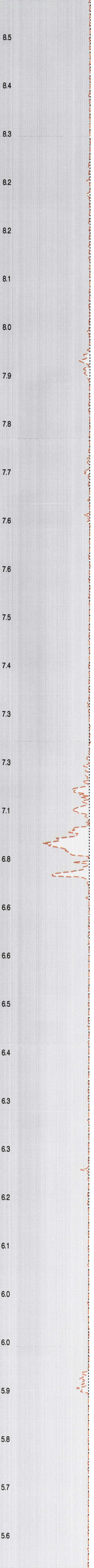
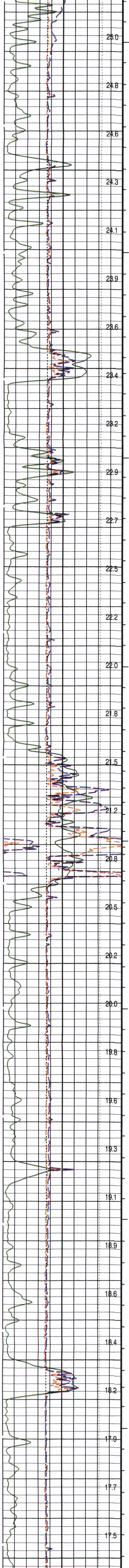
Time Mark Every 60 S

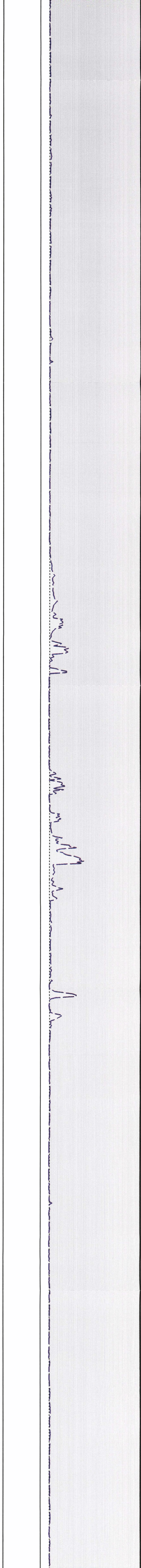
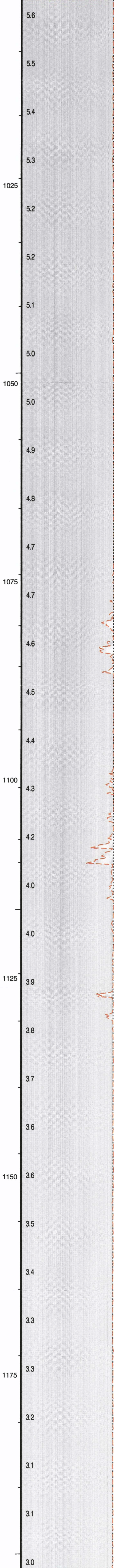
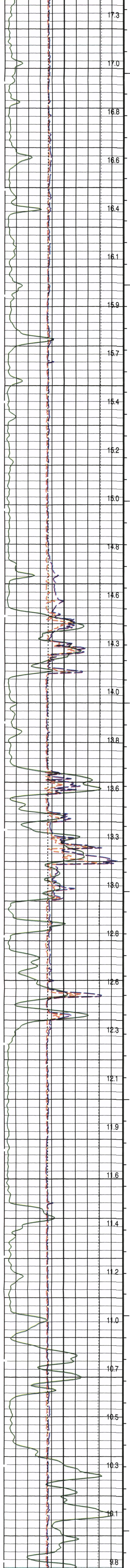
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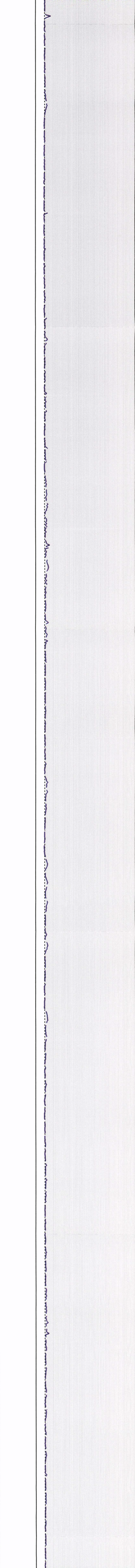
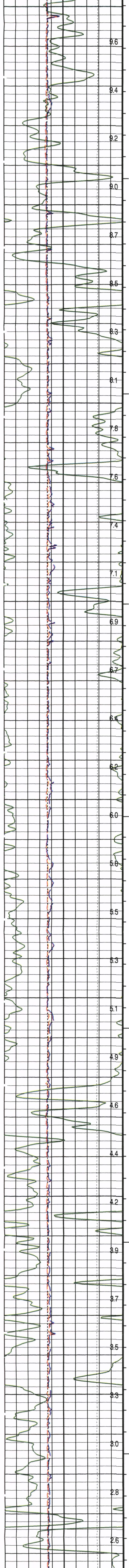
*** CEMENT VOLUME LOG ***

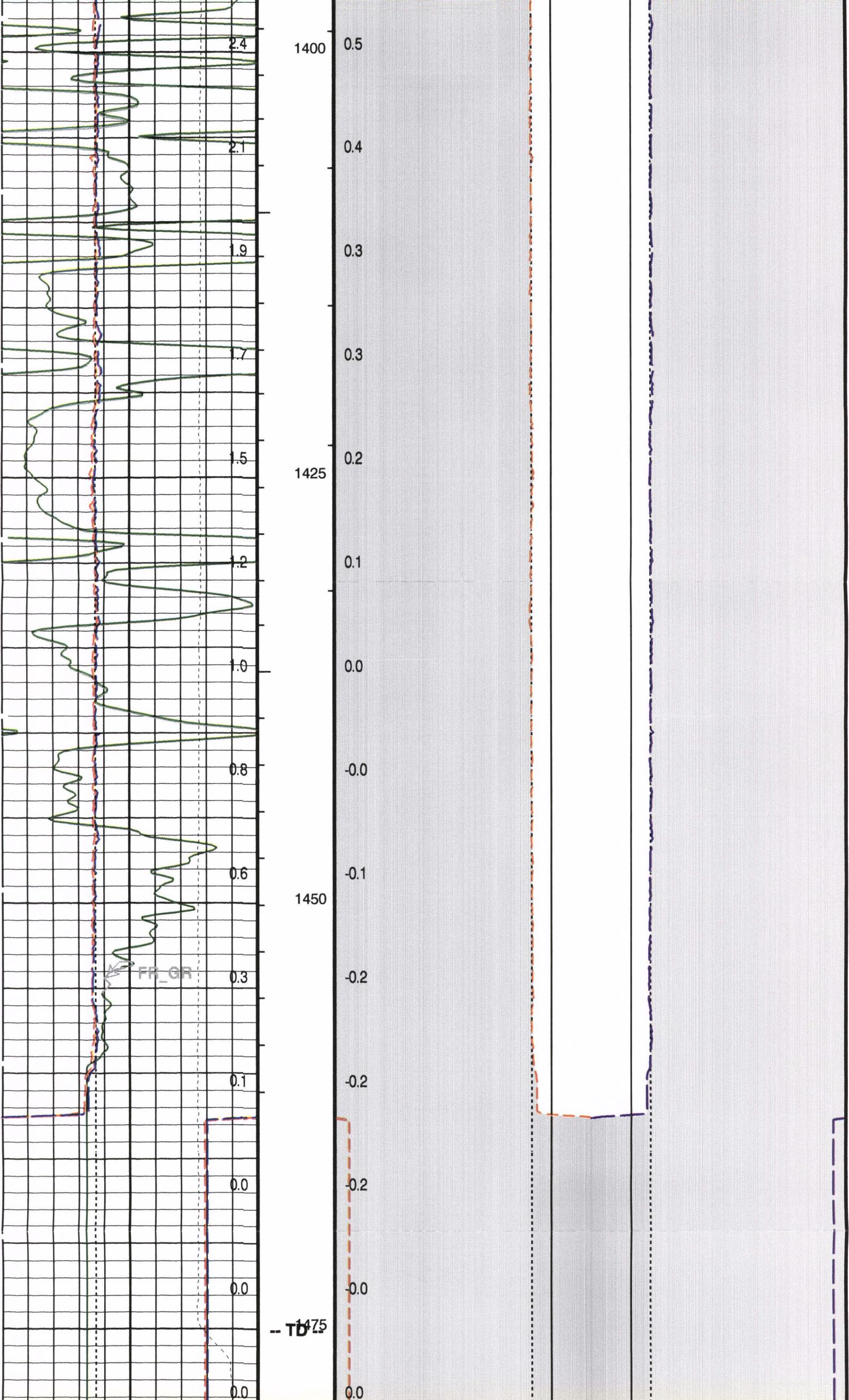












*** CEMENT VOLUME LOG ***

Bit Size (BS) 125 (MM) 375			Bit Size (BS) 600 (MM) 100		Bit Size (BS) 100 (MM) 600	
Gamma Ray (GR) 0 (GAPI) 150			FCD2 (FCD) 600 (MM) 100		FCD3 (FCD) 100 (MM) 600	
Hole Diameter Minimum (HDMI) 125 (MM) 375			Hole Diameter Minimum (HDMI) 600 (MM) 100		Hole Diameter Maximum (HDMX) 100 (MM) 600	
Hole Diameter Maximum (HDMX) 125 (MM) 375			Future Casing			
Tension (TENS) 25000 (N) 0			Annulus From BS2 to FCD2		Annulus From FCD3 to BS3	
			Tight Spot From BS2 to HDMI_1		Tight Spot From HDMX_1 to BS3	
			Washout From HDMI_1 to BS2		Washout From BS3 to HDMX_1	
			Formation Between LHT2 and HDMI_1		Formation Between HDMX_1 and RHT3	

PIP SUMMARY

- Integrated Hole Volume Minor Pip Every 0.1 M3
- Integrated Hole Volume Major Pip Every 1 M3
- Integrated Cement Volume Minor Pip Every 0.1 M3
- Integrated Cement Volume Major Pip Every 1 M3

Time Mark Every 60 S

Parameters			
DLIS Name	Description	Value	
EMSB: Environment	Measurement Offset	50.8	MM
ECOF	EMS Caliper Offset	OFF	
EFC	EMS Fixed Caliper Operation	177.8	MM
FCD	Future Casing (Outer) Diameter	EMS_Calipers	
HVCS	Integrated Hole Volume Caliper Selection	177.8	MM
FCD	Future Casing (Outer) Diameter	EMS_Calipers	
HVCS	Integrated Hole Volume Caliper Selection		
STI: Stuck Tool Indicator			
LBFR	Trigger for MAXIS First Reading Label	TDL	
TDD	Total Depth - Driller	1476.00	M
TDL	Total Depth - Logger	1475.00	M
System and Miscellaneous			
BS	Bit Size	216.000	MM
DO	Depth Offset for Playback	-0.1	M
PP	Playback Processing	NORMAL	
TD	Total Depth	1475	M

Format: CVL Vertical Scale: 1:240 Graphics File Created: 15-Mar-2004 08:02

OP System Version: 11C0-305			
MCM			
DSST-B	OP11-KP1	EMS-B	11C0-305
SGT-N	11C0-305	DTC-H	11C0-305

Input DLIS Files			
DEFAULT	DSI_EMS_026LUP	FN:59 PRODUCER	15-Mar-2004 05:55 1479.5 M -4.6 M

Output DLIS Files			
DEFAULT	DSI_EMS_028PUP	FN:63 PRODUCER	15-Mar-2004 08:02
BACKUP	DSI_EMS_028PUP	FN:64 PRODUCER	15-Mar-2004 08:18
CUST	DSI_EMS_028PUP	FN:65 PRODUCER	15-Mar-2004 08:02

Input DLIS Files			
DEFAULT	DSI_EMS_026LUP	FN:59 PRODUCER	15-Mar-2004 05:55 1479.5 M -4.6 M

Output DLIS Files			
DEFAULT	DSI_EMS_028PUP	FN:63 PRODUCER	15-Mar-2004 08:02 1479.3 M 568.9 M
BACKUP	DSI_EMS_028PUP	FN:64 PRODUCER	15-Mar-2004 08:18 1479.3 M 568.9 M
CUST	DSI_EMS_028PUP	FN:65 PRODUCER	15-Mar-2004 08:02 1479.3 M 568.9 M

Integrated Hole/Cement Volume Summary

Hole Volume = 32.68 M3

Cement Volume = 11.06 M3 (assuming 177.80 MM casing O.D.)

Computed from 1474.9 M to 604.1 M using data channel(s) RD1 RD2 RD3 RD4 RD5 RD6

OP System Version: 11C0-305			
MCM			
DSST-B	OP11-KP1	EMS-B	11C0-305
SGT-N	11C0-305	DTC-H	11C0-305

PIP SUMMARY

- Integrated Hole Volume Minor Pip Every 0.1 M3
- Integrated Hole Volume Major Pip Every 1 M3
- Integrated Cement Volume Minor Pip Every 0.1 M3
- Integrated Cement Volume Major Pip Every 1 M3

Integrated Transit Time Minor Pip Every 1 MS

Integrated Transit Time Major Pip Every 10 MS

Time Mark Every 60 S

Standard deviation for HDAR From OSDV to D4T

Probability angle for HDMI (CHAM) (DEG)

90 240

Probability angle for

HDMI
From D4T
to CHAM

Fixed
caliper
flag
From D4T
to EFCF

Oval
Standard
Deviation
(OSDV)

23 () 3

Tool/Tot.
Drag
From D4T
to STIA

Cable
Drag
From D4T
to STIT

Stuck
Stretch
(STIT)

0 (M) 20

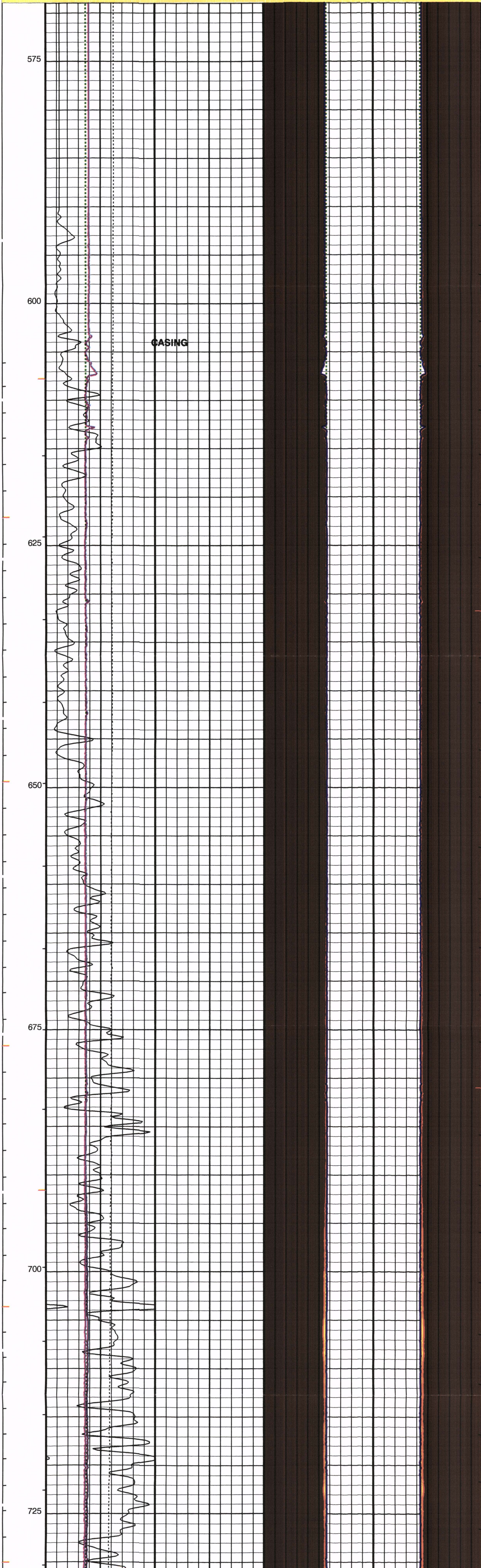
EMS Fixed
Caliper
Flag (EFCF)

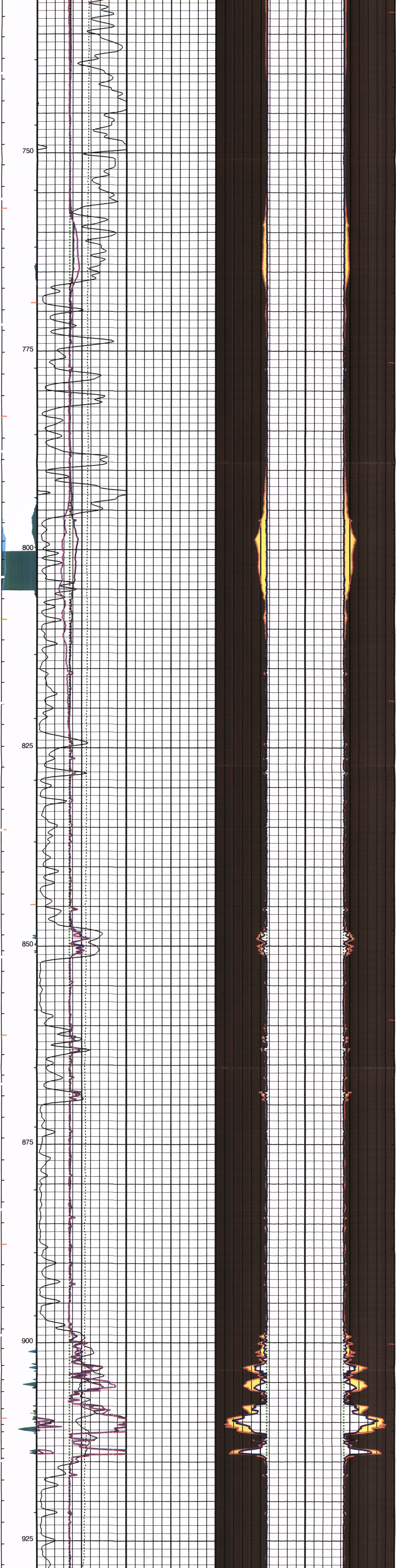
0 () 20

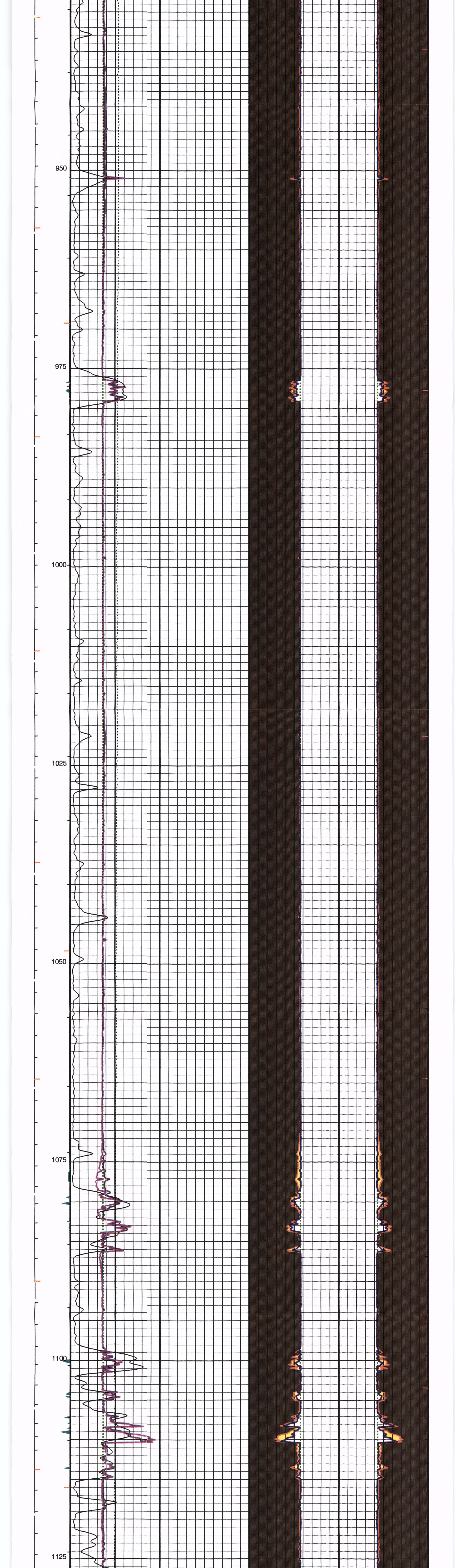
Tension (TENS)		
20000	(N)	0
Hole Diameter 1 (HD1)		
125	(MM)	375
Hole Diameter from Area (HDAR)		
125	(MM)	375
Gamma Ray (GR)		
0	(GAPI)	150
Bit Size (BS)		
125	(MM)	375

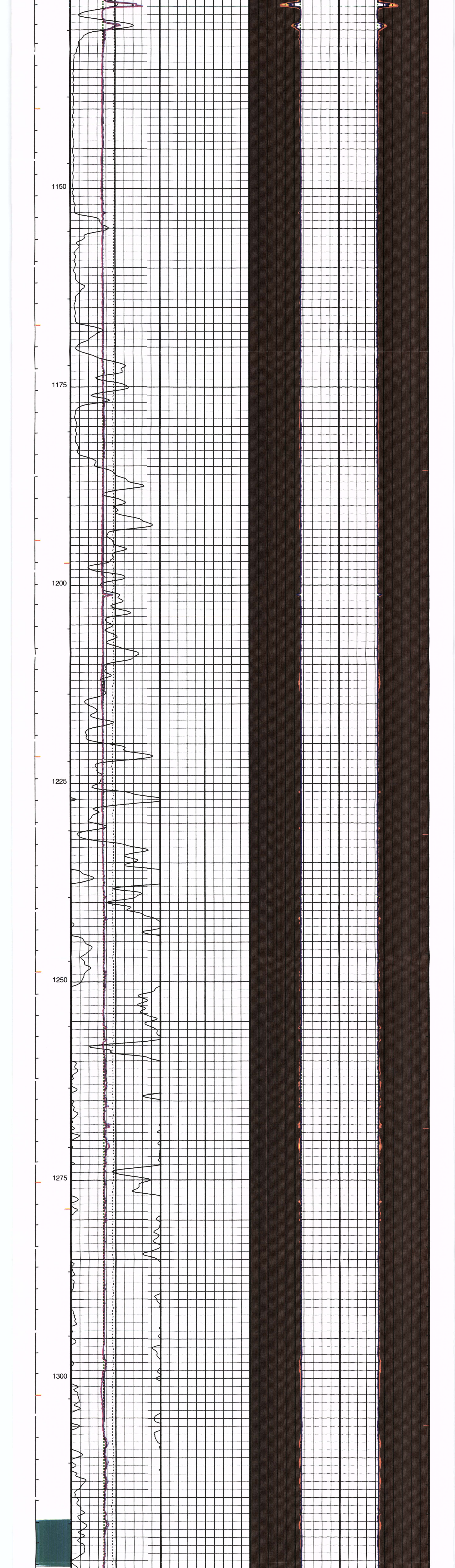
Formation From F3 to HDMX_1			Formation From HDMX_2 to F4		
HD difference From HDMX_1 to HDMI_1			HD difference From HDMI_2 to HDMX_2		
Hole Diameter Minimum (HDMI)			Hole Diameter Minimum (HDMI)		
500	(MM)	0	0	(MM)	500
Hole Diameter Maximum (HDMX)			Hole Diameter Maximum (HDMX)		
500	(MM)	0	0	(MM)	500
Bit Size (BS)			Bit Size (BS)		
500	(MM)	0	0	(MM)	500

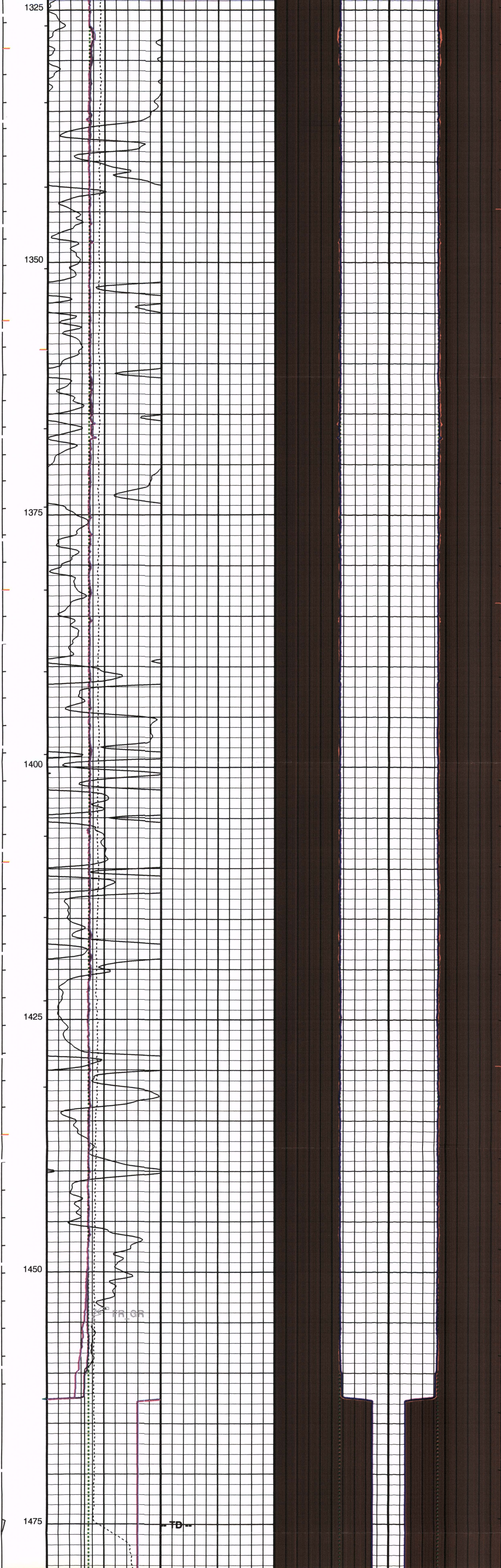
MAIN PASS: *** ENVIRONMENTAL MEASUREMENT ***











MAIN PASS: *** ENVIRONMENTAL MEASUREMENT ***

EMS Fixed Caliper Flag (EFCF)	Bit Size (BS) (MM)
0 () 20	125 375
Stuck Drag (STIT)	Gamma Ray (GR) (GAPI)
0 (M) 20	0 150
Cable Drag From D4T to STIT	Hole Diameter from Area (HDAR) (MM)
	125 375
Tool/Tot. Drag From D4T to STIA	Hole Diameter 1 (HD1) (MM)
	125 375
Oval Standard Deviation (OSDV)	Tension (TENS) (N)
23 () 3	20000 0

Fixed caliper flag From D4T to EFCF

Probability angle for HDMI From D4T to CHAM

Probability Angle for HDMI (CHAM)

Bit Size (BS) (MM)	Bit Size (BS) (MM)
500 0 0	0 0 500
Hole Diameter Maximum (HDMX) (MM)	Hole Diameter Maximum (HDMX) (MM)
500 0 0	0 0 500
Hole Diameter Minimum (HDMI) (MM)	Hole Diameter Minimum (HDMI) (MM)
500 0 0	0 0 500
HD difference From HDMX_1 to HDMI_1	HD difference From HDMI_2 to HDMX_2
Formation From F3 to HDMX_1	Formation From HDMX_2 to F4

PIP SUMMARY

└ Integrated Hole Volume Minor Pip Every 0.1 M3

└ Integrated Hole Volume Major Pip Every 1 M3

└ Integrated Cement Volume Minor Pip Every 0.1 M3

└ Integrated Cement Volume Major Pip Every 1 M3

Integrated Transit Time Minor Pip Every 1 MS

Integrated Transit Time Major Pip Every 10 MS

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value
ITTS	DSST-B: Dipole Shear Imager - B	
	Integrated Transit Time Source	DTCO
EMCOF	EMS-B: Environment Measurement Sonde	
EFC	EMS Caliper Offset	50.8 MM
ESCL	EMS Fixed Caliper Operation	OFF
FCD	EMS Synthetic Caliper Log	OFF
HVCS	Future Casing (Outer) Diameter	177.8 MM
	Integrated Hole Volume Caliper Selection	EMS_Calipers
FCD	HOLEV: Integrated Hole/Cement Volume	
HVCS	Future Casing (Outer) Diameter	177.8 MM
	Integrated Hole Volume Caliper Selection	EMS_Calipers
LBFR	STI: Stuck Tool Indicator	
STKT	Trigger for MAXIS First Reading Label	TDL
TDD	STI Stuck Threshold	1.524 M
TDL	Total Depth - Driller	1476.00 M
	Total Depth - Logger	1475.00 M
	System and Miscellaneous	
BS	Bit Size	216.000 MM
DO	Depth Offset for Playback	-0.1 M
PP	Playback Processing	NORMAL
TD	Total Depth	1475 M

Format: EMS_HoleDiameter

Vertical Scale: 1:240

Graphics File Created: 15-Mar-2004 08:02

OP System Version: 11C0-305

MCM

DSST-B	OP11-KP1	EMS-B	11C0-305
SGT-N	11C0-305	DTC-H	11C0-305

Input DLIS Files

DEFAULT	DSI_EMS_026LUP	FN:59	PRODUCER	15-Mar-2004 05:55	1479.5 M	-4.6 M
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Output DLIS Files

DEFAULT	DSI_EMS_028PUP	FN:63	PRODUCER	15-Mar-2004 08:02
BACKUP	DSI_EMS_028PUP	FN:64	PRODUCER	15-Mar-2004 08:18
CUST	DSI_EMS_028PUP	FN:65	PRODUCER	15-Mar-2004 08:02

Input DLIS Files

DEFAULT	DSI_EMS_026LUP	FN:59	PRODUCER	15-Mar-2004 05:55	1479.5 M	-4.6 M
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Output DLIS Files

DEFAULT	DSI_EMS_028PUP	FN:63	PRODUCER	15-Mar-2004 08:02	1479.3 M	568.9 M
BACKUP	DSI_EMS_028PUP	FN:64	PRODUCER	15-Mar-2004 08:18	1479.3 M	568.9 M
CUST	DSI_EMS_028PUP	FN:65	PRODUCER	15-Mar-2004 08:02	1479.3 M	568.9 M

Integrated Hole/Cement Volume Summary

Hole Volume = 32.68 M3
Cement Volume = 11.06 M3 (assuming 177.80 MM casing O.D.)
Computed from 1474.9 M to 604.1 M using data channel(s) RD1 RD2 RD3 RD4 RD5 RD6

OP System Version: 11C0-305

MCM

DSST-B	OP11-KP1	EMS-B	11C0-305
SGT-N	11C0-305	DTC-H	11C0-305

PIP SUMMARY

└ Integrated Hole Volume Minor Pip Every 0.1 M3

└ Integrated Hole Volume Major Pip Every 1 M3

└ Integrated Cement Volume Minor Pip Every 0.1 M3

└ Integrated Cement Volume Major Pip Every 1 M3

Integrated Transit Time Minor Pip Every 1 MS

Integrated Transit Time Major Pip Every 10 MS

Time Mark Every 60 S

Formation From HDMX to F2

HD difference From HDMI to HDMX

Formation From RD4 to RHT2

Formation From RD5 to LHT3

Formation From RHT3 to RD6

Formation From RHT2 to RD1

Formation From LHT3 to RD2

Formation From RD3 to RHT3

Radius 4 (RD4)

Radius 5 (RD5)

Radius 6 (RD6)

Radius 1 (RD1)

Radius 2 (RD2)

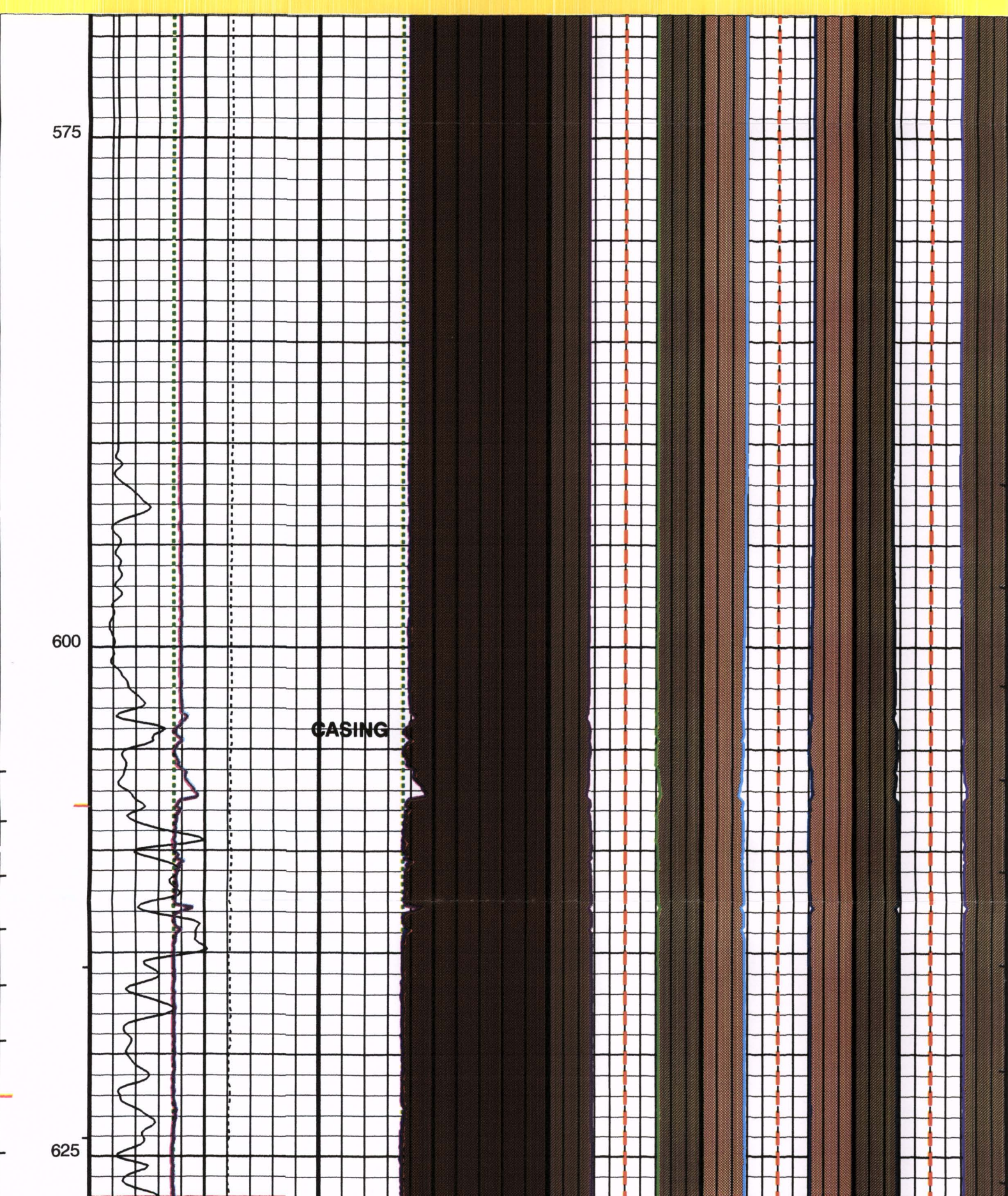
Radius 3 (RD3)

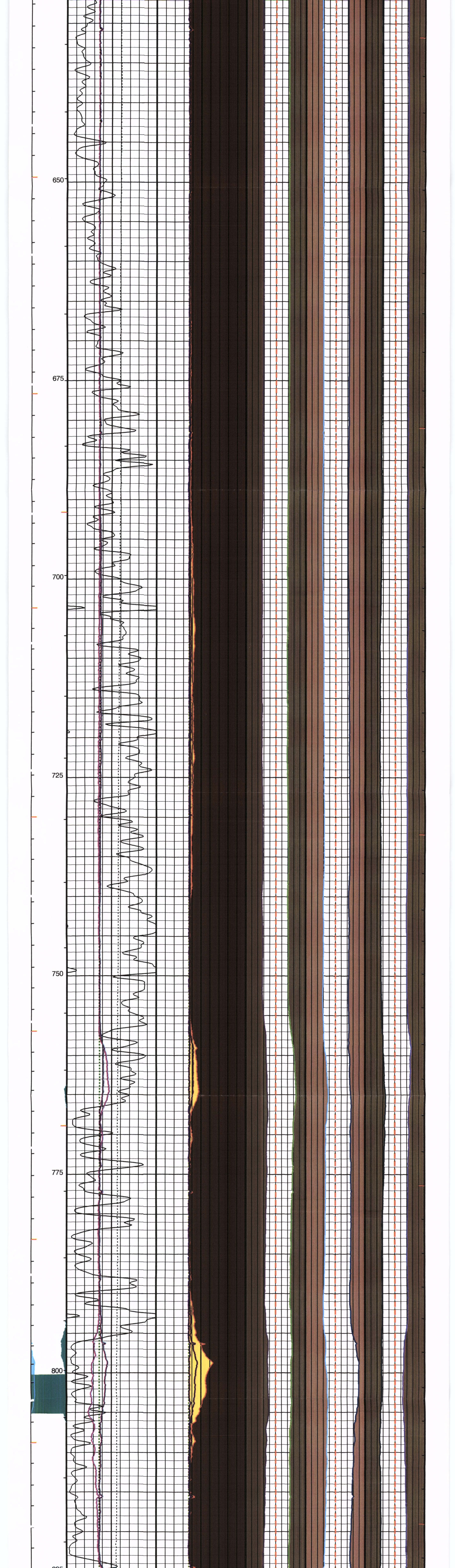
EMS Tool Center (ETC1)

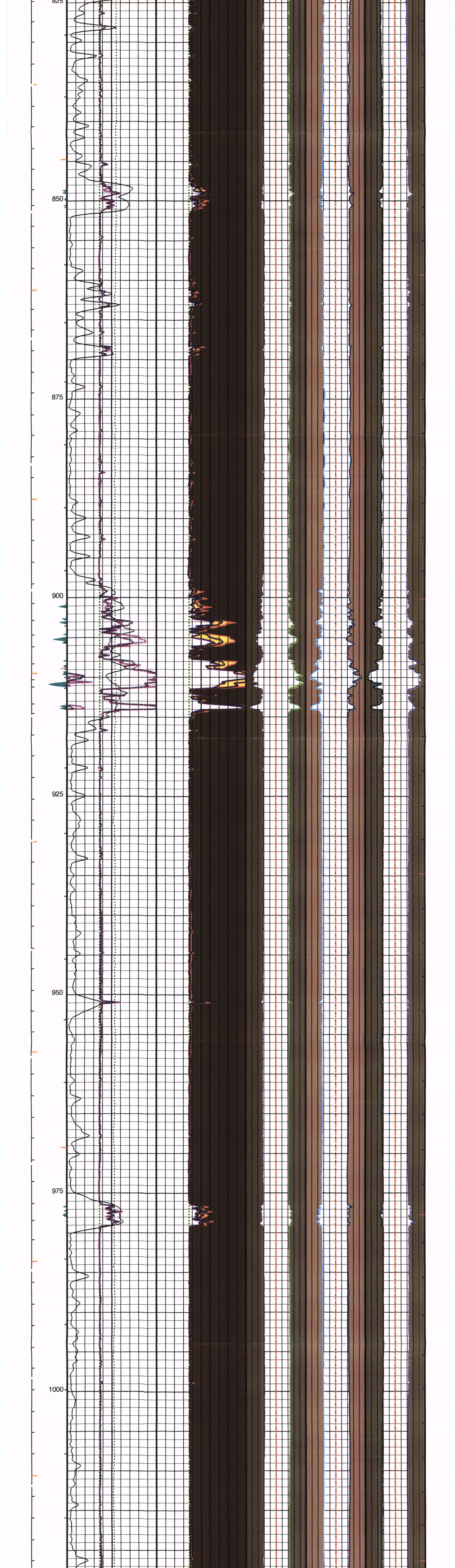
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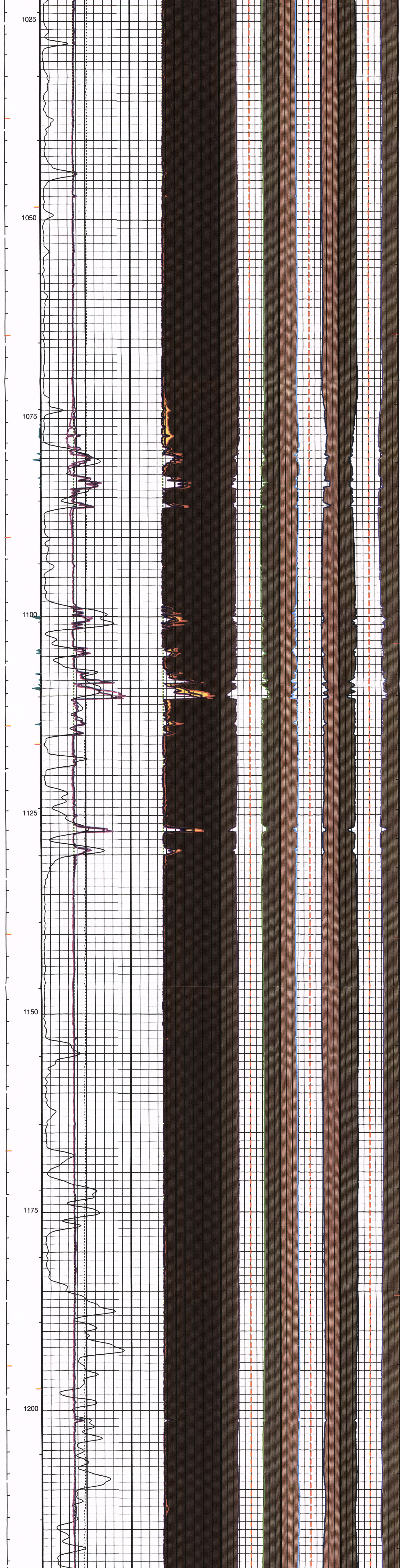
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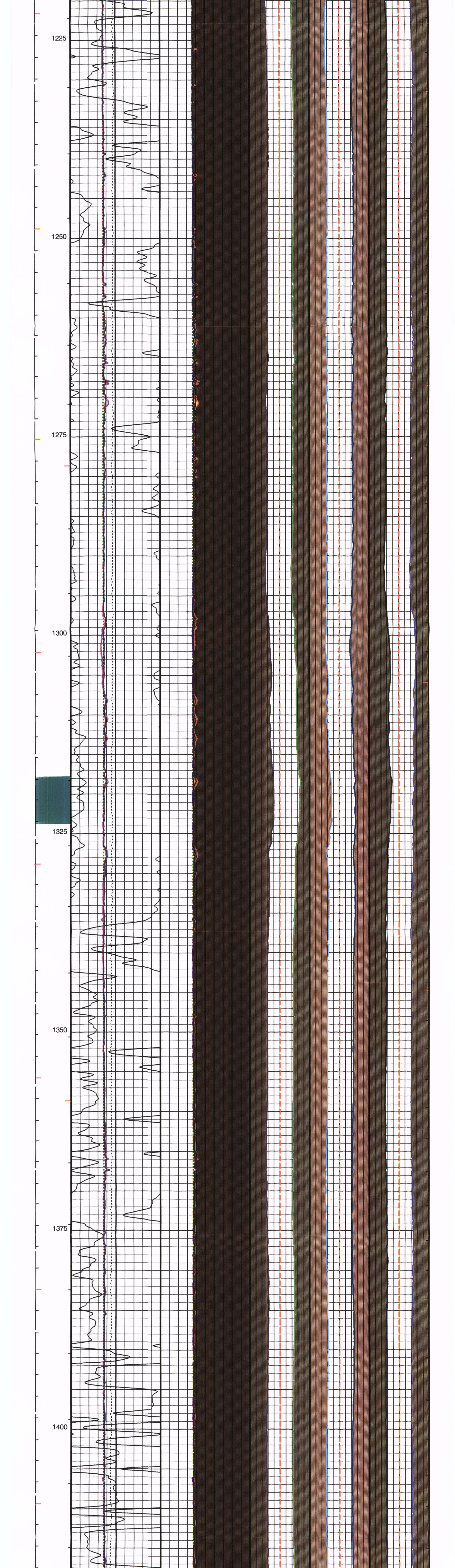
MAIN PASS: *** ENVIRONMENTAL MEASUREMENT ***

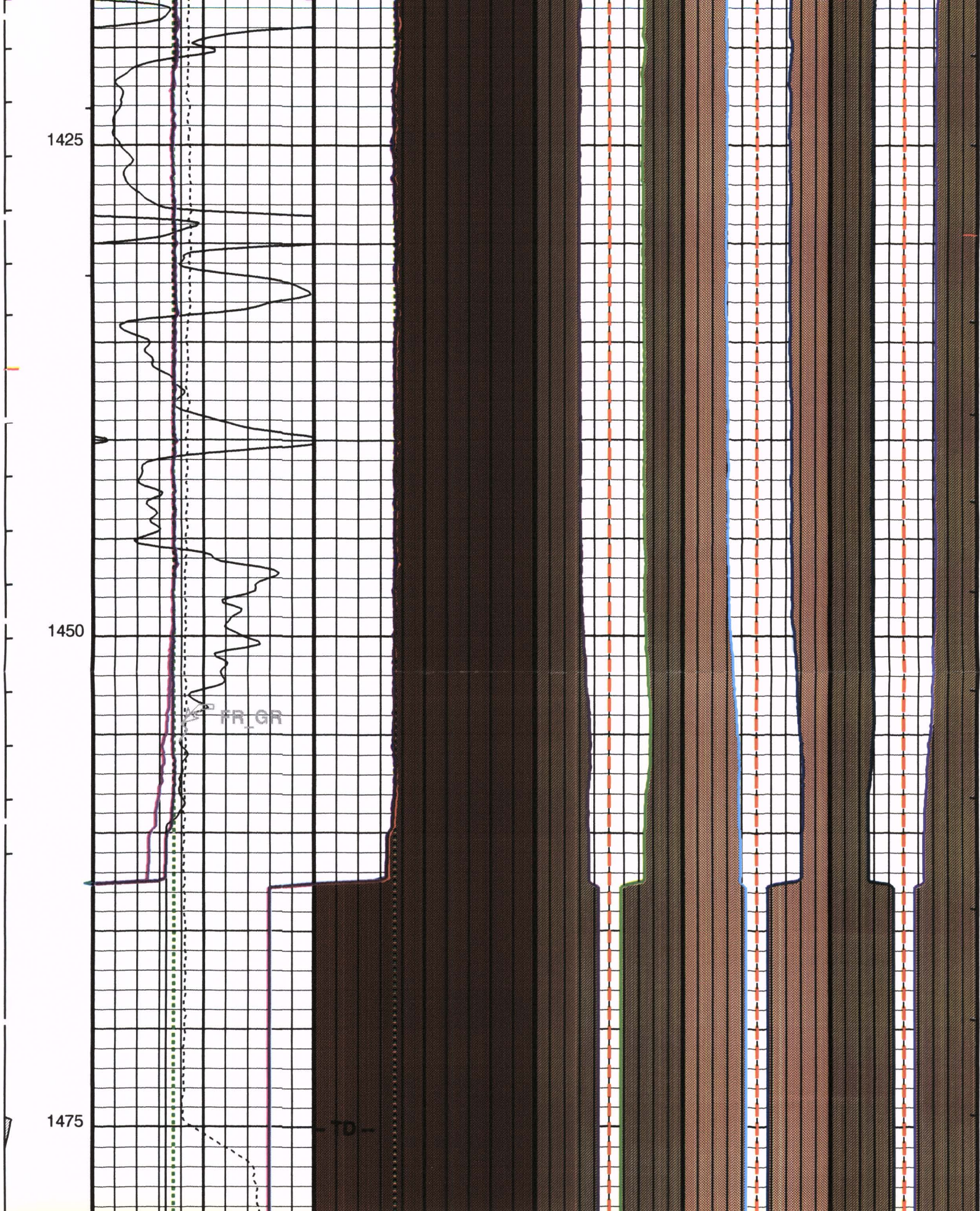












MAIN PASS: *** ENVIRONMENTAL MEASUREMENT ***

EMS Fixed Caliper Flag (EFCF) 0 () 20	Bit Size (BS) (MM) 125 375	Bit Size (BS) (MM) 125 375	EMS Tool Center (ETC1) (MM) 250 -250	EMS Tool Center (ETC2) (MM) 250 -250	EMS Tool Center (ETC3) (MM) 250 -250
Stuck Stretch (STIT) 0 (M) 20	Gamma Ray (GR) (GAPI) 0 150	Hole Diameter Maximum (HDMX) (MM) 125 375	Radius 1 (RD1) (MM) 250 -250	Radius 2 (RD2) (MM) 250 -250	Radius 3 (RD3) (MM) -250 250
Cable Drag From D4T to STIT	Hole Diameter 1 (HD1) (MM) 125 375	Hole Diameter Minimum (HDMI) (MM) 125 375	Radius 4 (RD4) (MM) -250 250	Radius 5 (RD5) (MM) -250 250	Radius 6 (RD6) (MM) 250 -250
Tool/Tot. Drag From D4T to STIA	Hole Diameter from Area (HDAR) (MM) 125 375	Hole Diameter from Area (HDAR) (MM) 125 375	Formation From RHT2 to RD1	Formation From LHT3 to RD2	Formation From RD3 to RHT3
Oval Standard Deviation (OSDV) 23 () 3	Tension (TENS) (N) 20000 0	HD difference From HDMI to HDMX	Formation From RD4 to RHT2	Formation From RD5 to LHT3	Formation From RHT3 to RD6
Fixed caliper flag From D4T to EFCF		Formation From HDMX to F2			
Probability angle for HDMI From D4T to CHAM					
Probability Angle for HDMI (CHAM) (DEG) 90 240					
Standard deviation for HDAR From OSDV to D4T					

PIP SUMMARY

- Integrated Hole Volume Minor Pip Every 0.1 M3

Integrated Hole Volume Major Pip Every 1 M3

Integrated Cement Volume Minor Pip Every 0.1 M3

Integrated Cement Volume Major Pip Every 1 M3
- Integrated Transit Time Minor Pip Every 1 MS
- Integrated Transit Time Major Pip Every 10 MS
- Time Mark Every 60 S

Parameters

DLIS Name	Description	Value
ITTS	DSST-B: Dipole Shear Imager - B	Integrated Transit Time Source
ECOF	EMS-B: Environment Measurement Sonde	DTCO
EFC	EMS Caliper Offset	50.8 MM
ESCL	EMS Fixed Caliper Operation	OFF
FCD	EMS Synthetic Caliper Log	OFF
HVCS	Future Casing (Outer) Diameter	177.8 MM
	Integrated Hole Volume Caliper Selection	EMS_Calipers
FCD	HOLEV: Integrated Hole/Cement Volume	177.8 MM
HVCS	Future Casing (Outer) Diameter	EMS_Calipers
	Integrated Hole Volume Caliper Selection	
LBFR	STI: Stuck Tool Indicator	TDL
STKT	Trigger for MAXIS First Reading Label	1.524 M
TDD	STI Stuck Threshold	1476.00 M
TDL	Total Depth - Driller	1475.00 M
	Total Depth - Logger	
BS	System and Miscellaneous	216.000 MM
DO	Bit Size	-0.1 M
PP	Depth Offset for Playback	NORMAL
PD	Playback Processing	1475 M
TD	Total Depth	

Format: EMS_Caliper1 Vertical Scale: 1:240 Graphics File Created: 15-Mar-2004 08:02

OP System Version: 11C0-305

MCM

DSST-B	OP11-KP1	EMS-B	11C0-305
SGT-N	11C0-305	DTC-H	11C0-305

Input DLIS Files

DEFAULT	DSI_EMS_026LUP	FN:59	PRODUCER	15-Mar-2004 05:55	1479.5 M	-4.6 M
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Output DLIS Files

DEFAULT	DSI_EMS_028PUP	FN:63	PRODUCER	15-Mar-2004 08:02
BACKUP	DSI_EMS_028PUP	FN:64	PRODUCER	15-Mar-2004 08:18
CUST	DSI_EMS_028PUP	FN:65	PRODUCER	15-Mar-2004 08:02

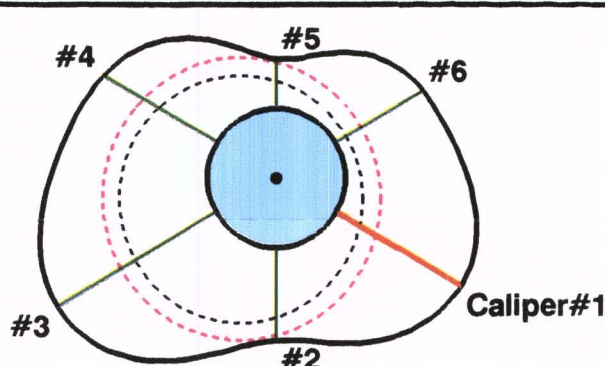
Graphics File Name: BORE_GRAPHIC_5.PDS

Graphics File Created: 15-Mar-2004 08:02

Borehole Cross Section

Parameters

DLIS Name	Description	Value
BGVS	Borehole Graphic Vertical Scale	D200_Metric
BGDI	Borehole Graphic Depth Interval	20_M
BGDM	Borehole Graphic Display Mode	Xsec_Tool_CalAll_Data
BGHW	Borehole Graphic Horizontal Width	400_MM
BGAI	Borehole Graphic Angle Index	None
BGUN	Borehole Graphic Unit	METRIC



Orientation Index : None

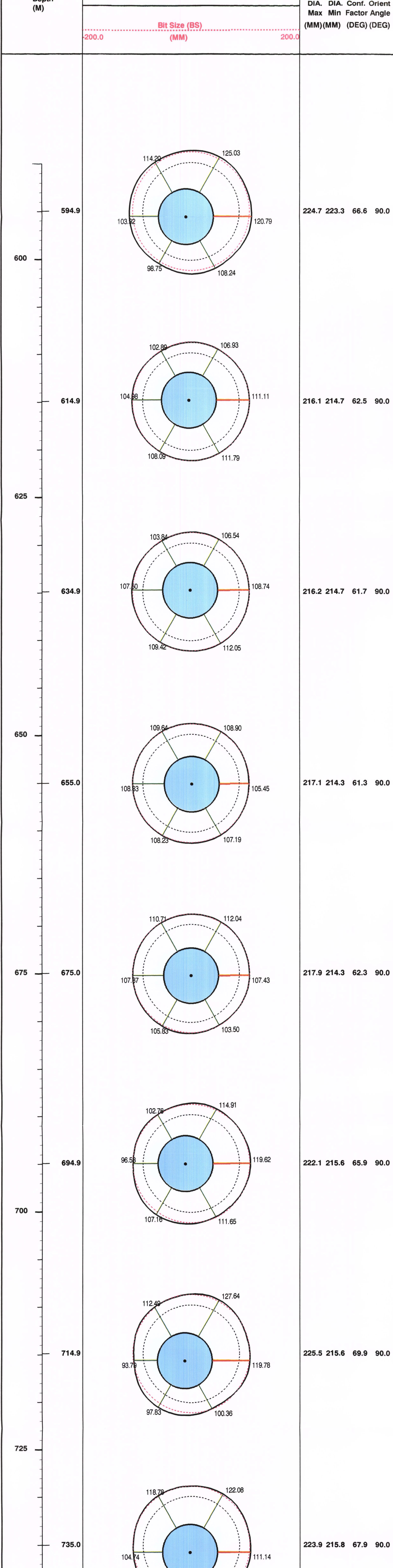
Future Casing Diameter (FCD)
(MM)

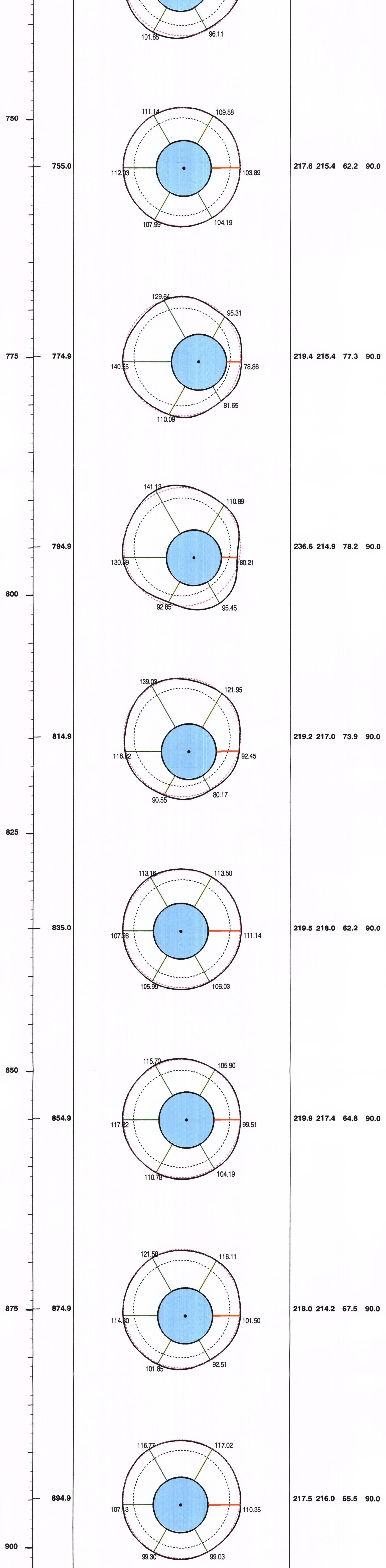
Borehole Data

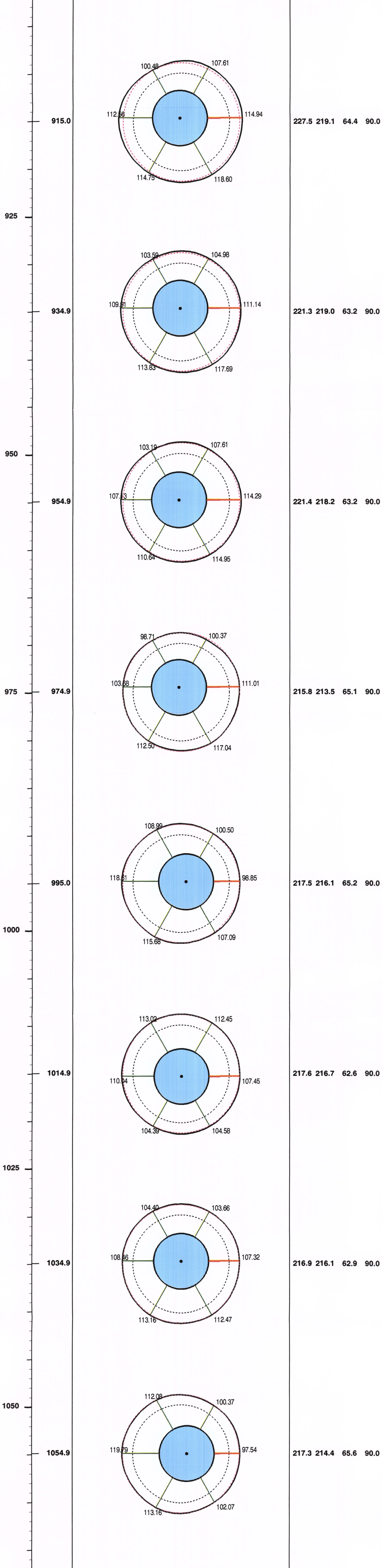
Depth

-200.0

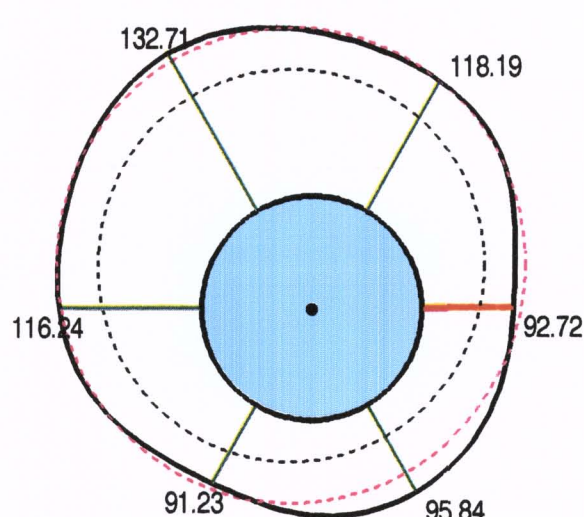
200.0





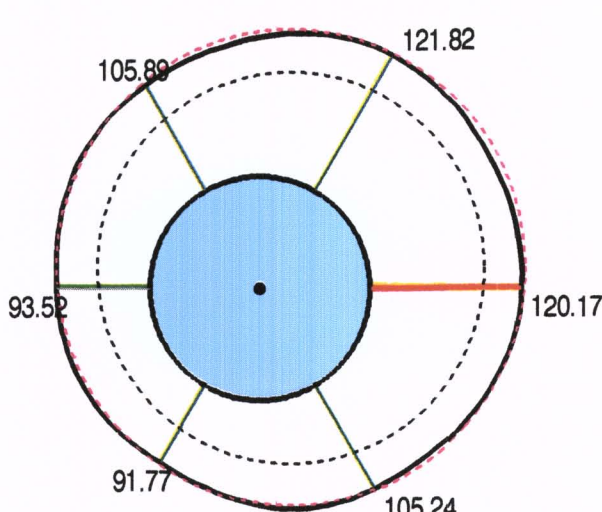


1075 1075.0



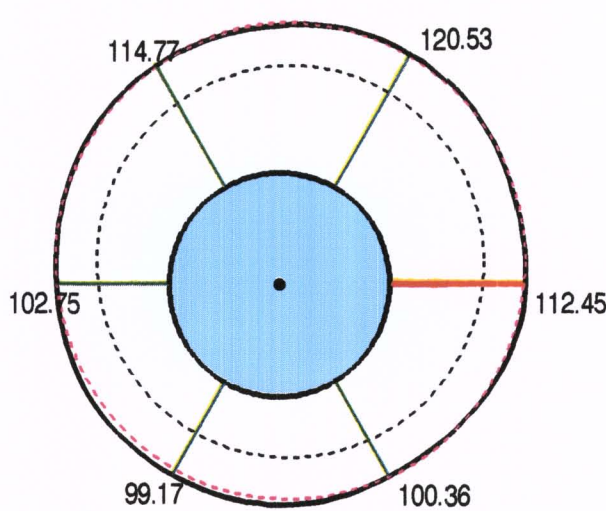
228.6 213.7 72.1 90.0

1100 1095.0



213.7 213.2 68.8 90.0

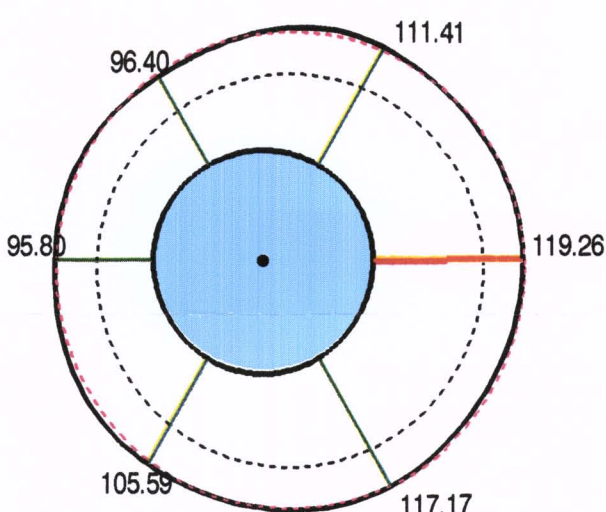
1114.9



219.7 216.0 66.0 90.0

1125

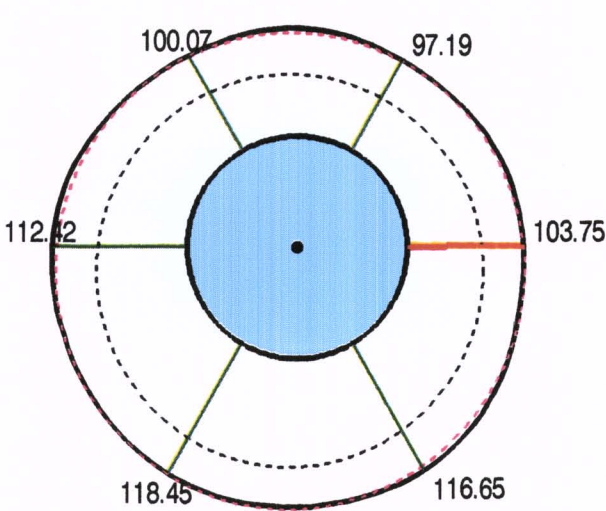
1134.9



217.0 214.2 67.0 90.0

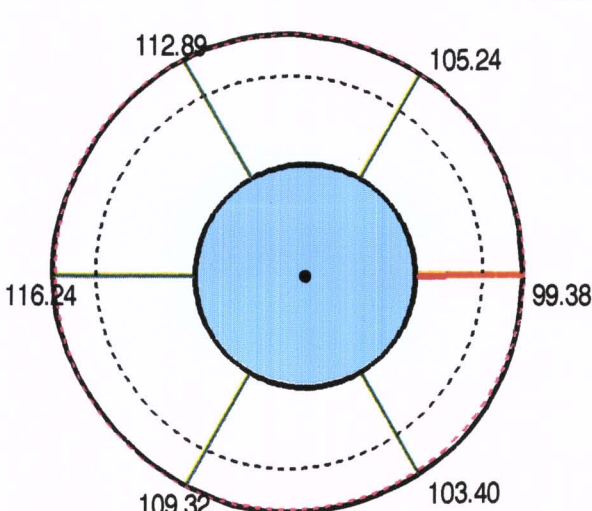
1150

1155.0



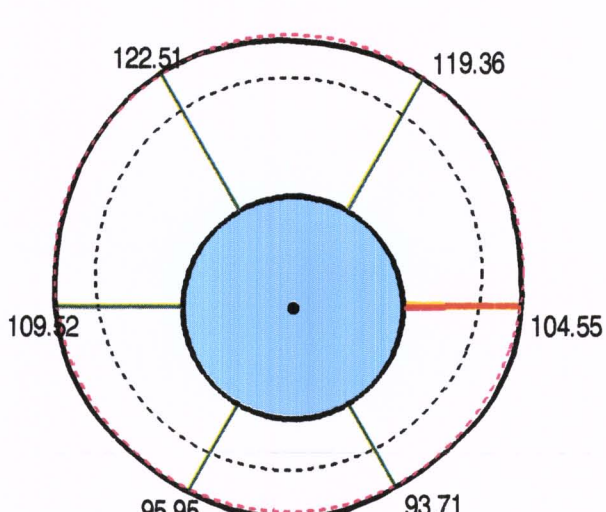
216.7 215.4 65.5 90.0

1175 1175.0



216.3 214.7 64.2 90.0

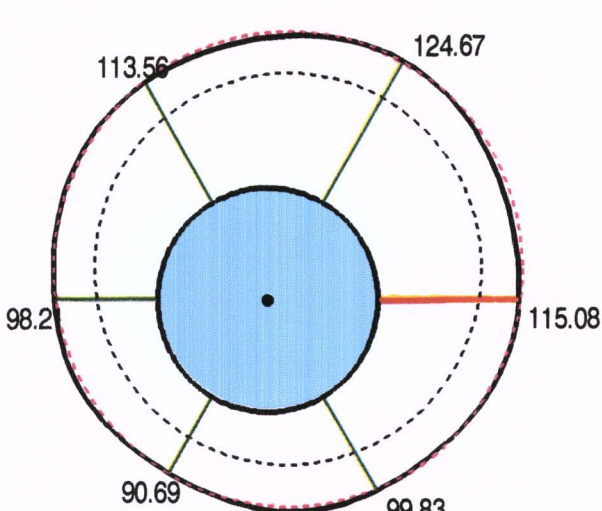
1194.9



216.2 216.1 67.9 90.0

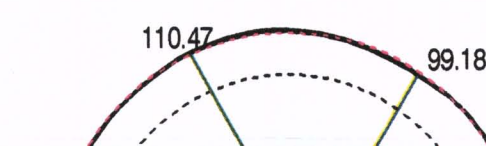
1200

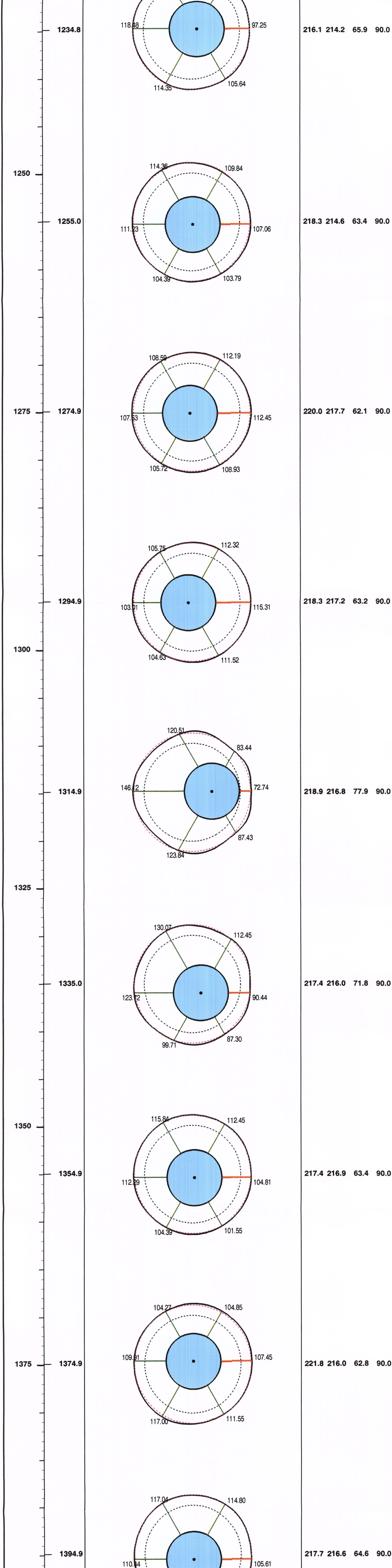
1214.9

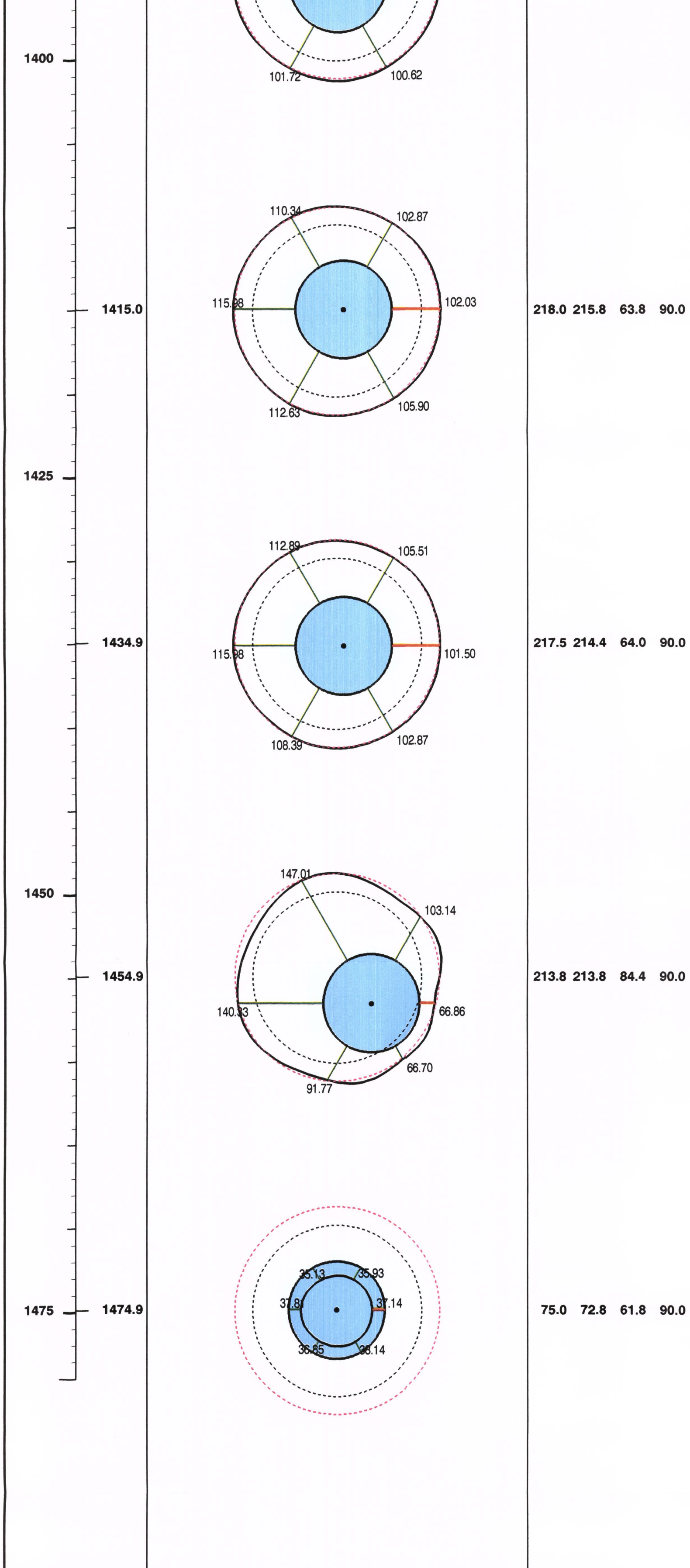


215.4 214.1 67.8 90.0

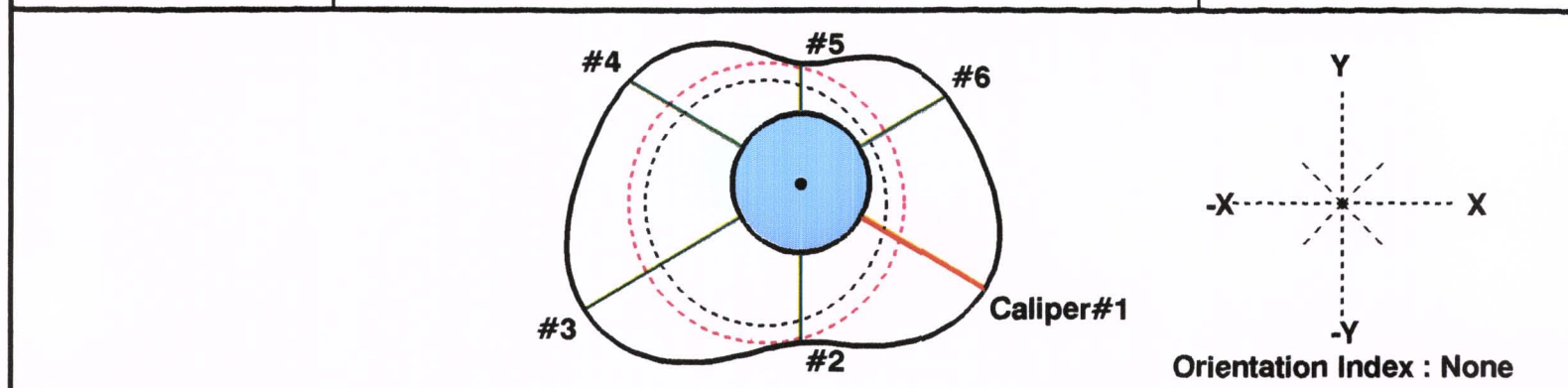
1225







Depth (M)	Future Casing Diameter (FCD) (MM)		Borehole Data			
	-200.0	200.0	DIA. Max (MM)	DIA. Min (MM)	Conf. Factor (DEG)	Orient Angle (DEG)
	Bit Size (BS) (MM)					
	-200.0	200.0				



Parameters		
DLIS Name	Description	Value
BGVS	Borehole Graphic Vertical Scale	D200_Metric
BGDI	Borehole Graphic Depth Interval	20_M
BGDM	Borehole Graphic Display Mode	Xsec_Tool_CalAll_Data
BGHW	Borehole Graphic Horizontal Width	400_MM
BGAI	Borehole Graphic Angle Index	None
BGUN	Borehole Graphic Unit	METRIC

Borehole Cross Section	
Graphics File Name: BORE_GRAPHIC_5.PDS	
Graphics File Created: 15-Mar-2004 08:02	

Calibration and Check Summary							
Measurement	Nominal	Master	Before	After	Change	Limit	Units
Environment Measurement Sonde Wellsite Calibration - EMS Caliper Calibration							
Before: 15-Mar-2004 4:43							
Radius 1 Short Radius	101.6	N/A	88.03	N/A	N/A	5.080	MM
Radius 1 Long Radius	203.2	N/A	192.0	N/A	N/A	5.080	MM
Radius 2 Short Radius	101.6	N/A	83.84	N/A	N/A	5.080	MM
Radius 2 Long Radius	203.2	N/A	188.6	N/A	N/A	5.080	MM
Radius 3 Short Radius	101.6	N/A	83.99	N/A	N/A	5.080	MM
Radius 3 Long Radius	203.2	N/A	187.4	N/A	N/A	5.080	MM
Radius 4 Short Radius	101.6	N/A	85.39	N/A	N/A	5.080	MM
Radius 4 Long Radius	203.2	N/A	189.0	N/A	N/A	5.080	MM
Radius 5 Short Radius	101.6	N/A	84.48	N/A	N/A	5.080	MM
Radius 5 Long Radius	203.2	N/A	186.6	N/A	N/A	5.080	MM
Radius 6 Short Radius	101.6	N/A	78.24	N/A	N/A	5.080	MM
Radius 6 Long Radius	203.2	N/A	183.6	N/A	N/A	5.080	MM
Scintillation Gamma-Ray - N Wellsite Calibration - Detector Calibration							
Before: 15-Mar-2004 4:38							
Gamma Ray (Jig - Bkg)	150.5	N/A	150.5	N/A	N/A	13.68	GAPI
Gamma Ray (Calibrated)	165.0	N/A	165.0	N/A	N/A	15.00	GAPI

Environment Measurement Sonde / Equipment Identification			
Primary Equipment:			
EMS Mechanical	EMM - B	8062	
EMS Cartridge	EMC - B	8067	
Auxiliary Equipment:			
Electronics Cartridge Housing	ECH - KH	8550	

Environment Measurement Sonde Wellsite Calibration					
EMS Caliper Calibration					
Phase	Radius 1 Short Radius MM	Value	Phase	Radius 1 Long Radius MM	Value
Before		88.03	Before		192.0
	76.20 (Minimum)	101.6 (Nominal)		177.8 (Minimum)	203.2 (Nominal)
		127.0 (Maximum)			228.6 (Maximum)
Phase	Radius 2 Short Radius MM	Value	Phase	Radius 2 Long Radius MM	Value
Before		83.84	Before		188.6

76.20 (Minimum)	101.6 (Nominal)	127.0 (Maximum)		177.8 (Minimum)	203.2 (Nominal)	228.6 (Maximum)	
Phase	Radius 3 Short Radius MM	Value		Phase	Radius 3 Long Radius MM	Value	
Before		83.99		Before		187.4	
76.20 (Minimum)	101.6 (Nominal)	127.0 (Maximum)		177.8 (Minimum)	203.2 (Nominal)	228.6 (Maximum)	
Phase	Radius 4 Short Radius MM	Value		Phase	Radius 4 Long Radius MM	Value	
Before		85.39		Before		189.0	
76.20 (Minimum)	101.6 (Nominal)	127.0 (Maximum)		177.8 (Minimum)	203.2 (Nominal)	228.6 (Maximum)	
Phase	Radius 5 Short Radius MM	Value		Phase	Radius 5 Long Radius MM	Value	
Before		84.48		Before		186.6	
76.20 (Minimum)	101.6 (Nominal)	127.0 (Maximum)		177.8 (Minimum)	203.2 (Nominal)	228.6 (Maximum)	
Phase	Radius 6 Short Radius MM	Value		Phase	Radius 6 Long Radius MM	Value	
Before		78.24		Before		183.6	
76.20 (Minimum)	101.6 (Nominal)	127.0 (Maximum)		177.8 (Minimum)	203.2 (Nominal)	228.6 (Maximum)	
Before: 15-Mar-2004 4:43							

Scintillation Gamma-Ray - N / Equipment Identification

Primary Equipment:

Scintillation Gamma Cartridge
Scintillation Gamma Detector

SGC - TB 9586
SGD - TAA

Auxiliary Equipment:

Scintillation Gamma Housing
Gamma Source Radioactive

SGH - K 9396
GSR - U/Y

Scintillation Gamma-Ray - N Wellsite Calibration

Detector Calibration

Phase	Gamma Ray Background GAPI	Value	Phase	Gamma Ray (Jig - Bkg) GAPI	Value	Phase	Gamma Ray (Calibrated) GAPI	Value
Before		21.82	Before		150.5	Before		165.0
0 (Minimum)	30.00 (Nominal)	120.0 (Maximum)	136.8 (Minimum)	150.5 (Nominal)	164.2 (Maximum)	150.0 (Minimum)	165.0 (Nominal)	180.0 (Maximum)
Before: 15-Mar-2004 4:38								

Company: **APACHE CANADA LTD.**

Schlumberger

Well: **APACHE PARAMOUNT NOGHA B-23**

Field: **UNDEFINED**

Province: **NORTHWEST TERRITORIES**

CEMENT VOLUME LOG