

Company: PETRO-CANADA Well: PETRO-CANADA BLACKWATER KWIJKA M-59 Field: KWIJKA Province: NORTHWEST TERRITORIES		Schlumberger	
MICROLOG NEB COPY		Province: NORTHWEST TERRITORIES Field: KWIJKA Location: LSD: M-59 Well: PETRO-CANADA BLACKWATER KWIJKA M-59 Company: PETRO-CANADA	
LOCATION LSD: M-59 UWI: 300MS96440122300		Elev.: K.B. 252.1 m G.L. 245.9 m D.F. 251.8 m	
Permanent Datum: GROUND LEVEL Log Measured From: KELLY BUSHING Drilling Measured From: KELLY BUSHING		Elev.: 245.9 m above Perm. Datum	
API Serial No. 1165			
Logging Date 5-Mar-2008			
Run Number TWO			
Depth Driller 1640 m			
Schlumberger Depth 1641 m			
Bottom Log Interval 1607.6 m			
Top Log Interval 1198 m			
Casing Driller Size @ Depth 177.800 mm @ 1198 m			
Casing Schlumberger 1198 m			
Bit Size 156.000 mm			
Type Fluid In Hole KCL POLYMER			
Density 1315 kg/m ³		Viscosity 58 s	
Fluid Loss PH 6.5 cm ³		11.5	
Source Of Sample FLOWLINE			
RM @ Measured Temperature 0.048 ohm.m @ 15 degC		@	
RMF @ Measured Temperature 0.044 ohm.m @ 15 degC		@	
RMC @ Measured Temperature 0.103 ohm.m @ 17 degC		@	
Source RMF FMC PREPRESSED		PREPRESSED	
RM @ MRT 0.032 @ 34 0.029 @ 34		@	
Maximum Recorded Temperatures 34 degC		@	
Circulation Stopped 4-Mar-2008 12:15			
Logger On Bottom 5-Mar-2008 10:56			
Unit Number 4301		NORMAN WELLS	
Recorded By J.ROLLINGS / R. JACOBS			
Witnessed By G. TIMMONS / G. DEON			

DEPTH SUMMARY LISTING

Date Created: 5-MAR-2008 11:43:21

Depth System Equipment

Depth Measuring Device		Tension Device		Logging Cable	
Type:	IDW-B	Type:	CMTD-B/A	Type:	7-46A XXS
Serial Number:	6423	Serial Number:	2565	Serial Number:	6199
Calibration Date:	15-FEB-2008	Calibration Date:	15-FEB-2008	Length:	7800.14 M
Calibrator Serial Number:	4	Calibrator Serial Number:	-999		
Calibration Cable Type:	7-46P	Calibration Gain:	0.88	Conveyance Method: Wireline	
Wheel Correction 1:	-4	Calibration Offset:	336.00	Rig Type: LAND	
Wheel Correction 2:	-5				

Depth Control Parameters

Log Sequence:	Subsequent Trip To the Well
Reference Log Name:	PLATFORM EXPRESS COMPENSATED NEUTRON DUAL LITHOLOGY DENSITY LOG
Reference Log Run Number:	ONE
Reference Log Date:	23-FEB-2008
Subsequent Trip Down Log Correction:	1.40 M

Depth Control Remarks

- | |
|---|
| 1. IDW IS PRIMARY DEPTH MEASUREMENT |
| 2. Z-CHART USED AS A SECONDARY DEPTH MEASUREMENTS |
| 3. MAIN PASS TIED INTO PREVIOUS RUN AS PER SLB DEPTH CONTROL PROCEDURES |
| 4. |
| 5. |
| 6. |

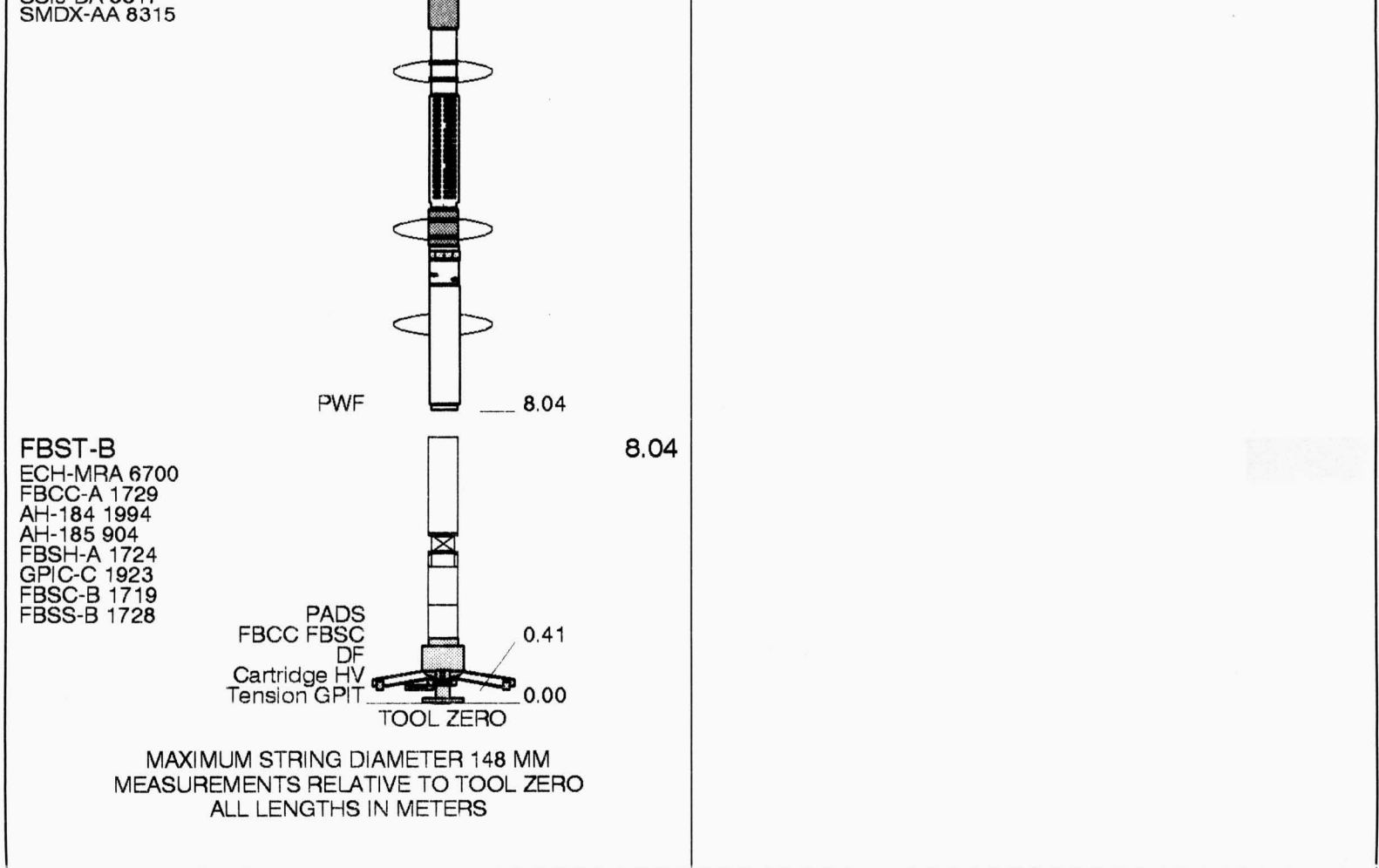
DISCLAIMER

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: PEX-HRLA-TLD2-CMR-ML			OS1:		
OS2: MSCT			OS2:		
OS3: FMI-DSI-HNGS-EMS			OS3:		
OS4: MDT			OS4:		
OS5: VSP			OS5:		
REMARKS: RUN NUMBER 1			REMARKS: RUN NUMBER 2		
ALL PRESENTATIONS AS PER LOGGING PROGRAM DATED FEB 6, 2008					
INTERVALS CONFIRMED ON LOCATION BY WELLSITE GEOLOGIST					
MAXIMUM TEMPERATURE TAKEN FROM HEAD THERMOMETER					
ALL INTERVALS FROM TD-ICS					
FMI GPIT MAGNETIC FIELD INCLINATION AFFECTED FROM IRON IN BASEMENT ROCK					
P&S MODE, LOWER & UPPER DIPOLE MODES LOGGED FOR DSI					
PRESENTED BEST OF DIPOLE DATA FOR FINAL PRINT					
MLT RAN AGAIN FOR OPTIMAL RESULTS					
FMI LOG STOPPED BEFORE CASING TO PREVENT DAMAGE TO TOOL					
SONIC RELABELLED IN FIELD FOR FINAL PRINTS					
EMS CALIPERS USED FOR CEMENT & HOLE VOLUMES					
RIG: AKITA 51					
CREW: BILLY LIM, LARRY DUDUS					
RUN 1			RUN 2		
SERVICE ORDER #:			SERVICE ORDER #:		
PROGRAM VERSION:			PROGRAM VERSION:		
FLUID LEVEL:			FLUID LEVEL:		
LOGGED INTERVAL	START	STOP	LOGGED INTERVAL	START	STOP

[illegible]

RUN 1		RUN 2	
SURFACE EQUIPMENT			
GSR-U 1237			
GSR-U/Y 11			
WITM (DTS)-A			
DOWNHOLE EQUIPMENT			
LEH-QT 2657			39.38
	CTEM	38.21	
DTC-H	TelStatus		38.49
	ToolStatu	37.58	
SAH-F 1874			37.58
SAH-F 1874			
SGT-N	Gamma Ray	35.81	36.09
SGH-K 3169			
SGC-TB 10388			
MLT-B	BMNO		34.41
	BMIN	33.37	
MLT-B 109	MCAL		
	MLT Statu	32.10	
HNGS-BA	Upper_1	31.40	32.10
HNGS-BA 163	Lower_2	31.19	
HNSH-BA 160			
HNGC-B	HNGC Stat	29.07	29.60
HNGH-A 346			
AH-184 2713			28.54
	Mud Resis	27.75	
EMS-B	Mud Tempe	27.50	27.93
EMA-B 8018			
RES			
FMC-B 8035			
ECH-KH 8045	Calipers	24.61	
EMM-B 8052			
DSST-B			23.59
SPAC-B 8321			
ECH-SD 8303			
SMDR-BD 8400			
SSLI-BA 8317			



Input DLIS Files						
DEFAULT	FMI_DSI_EMS_NGS_040LUP	FN:62	PRODUCER	05-Mar-2008 11:09	1643.6 M	1123.9 M
Output DLIS Files						
DEFAULT	FMI_DSI_EMS_NGS_045PUP	FN:71	PRODUCER	05-Mar-2008 13:17	1643.6 M	1136.4 M
BACKUP	FMI_DSI_EMS_NGS_045PUP	FN:72	PRODUCER	05-Mar-2008 13:17	1643.6 M	1136.4 M
REDUCED	FMI_DSI_EMS_NGS_045PUP	FN:73	PRODUCER	05-Mar-2008 13:17	1643.6 M	1136.4 M

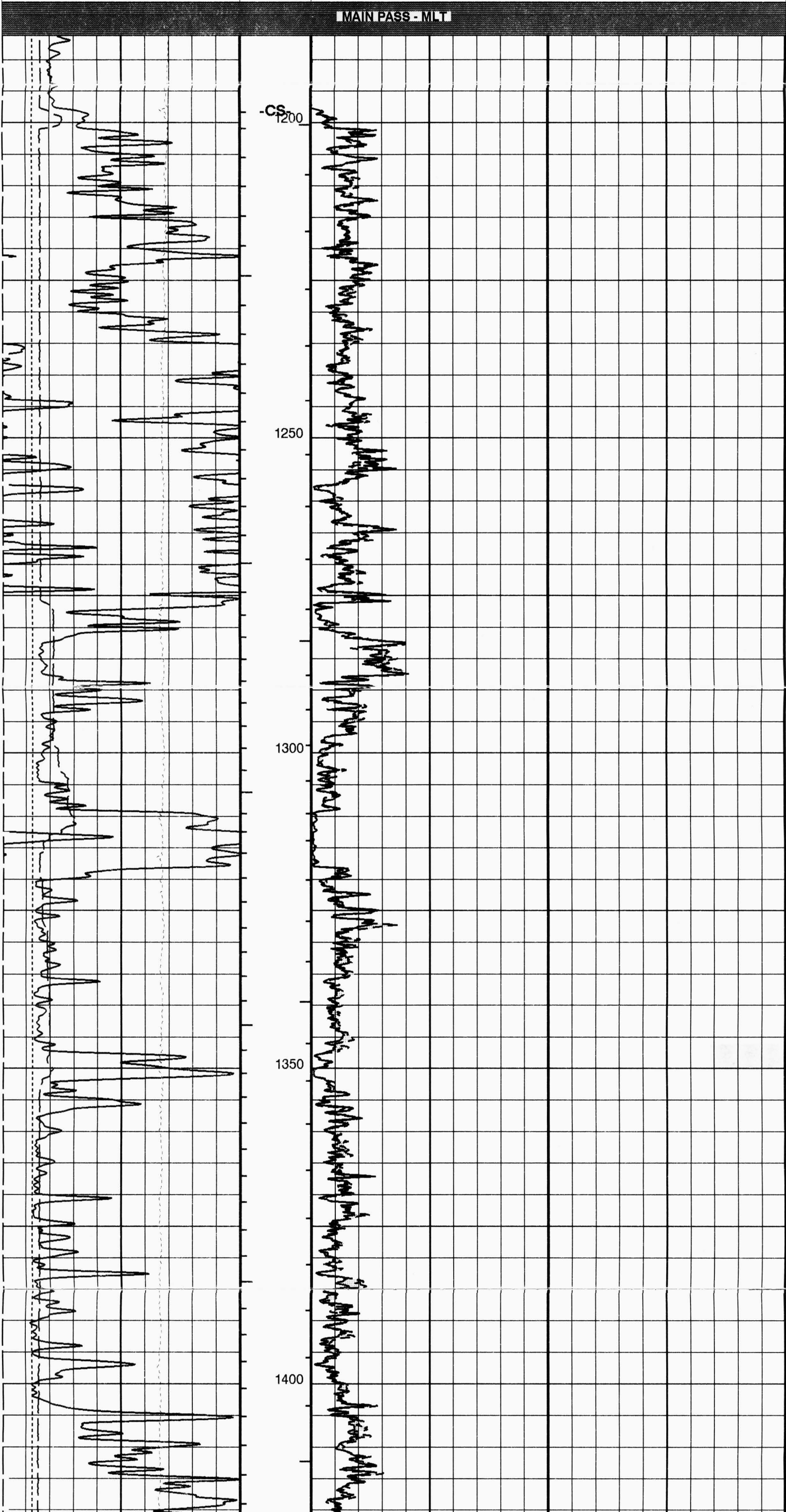
Integrated Hole/Cement Volume Summary	
Hole Volume =	9.61 M3
Cement Volume =	5.06 M3 (assuming 114.30 MM casing O.D.)
Computed from	1640.9 M to 1198.0 M using data channel(s) RD1 RD2 RD3 RD4 RD5 RD6

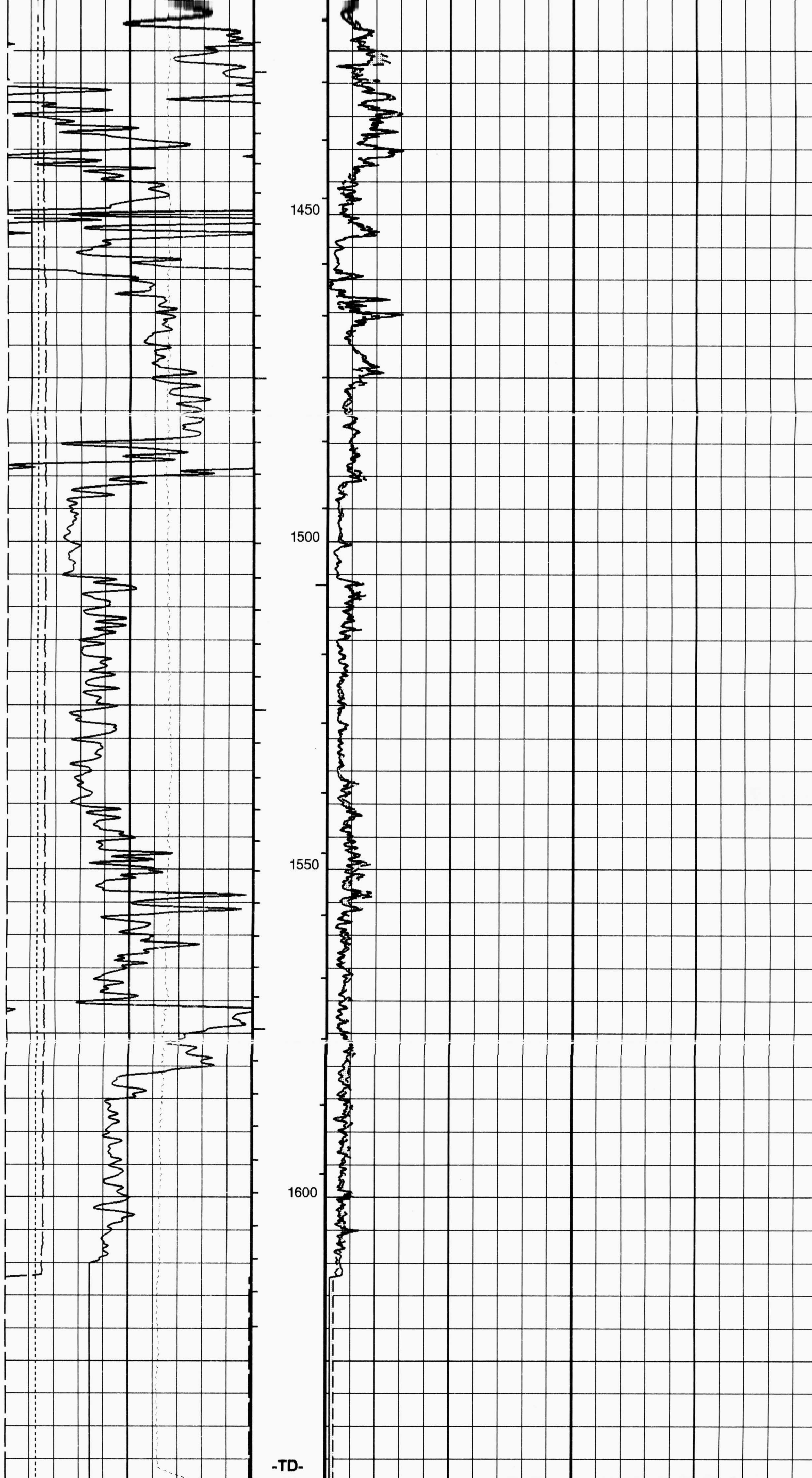
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MCM			
FBST-B	15C0-309	DSST-B	15C0-309
EMS-B	15C0-309	HNGC-B	SPC-3530-NUCL
HNGS-BA	SPC-3530-NUCL	MLT-B	15C0-309
SGT-N	15C0-309	DTC-H	15C0-309

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	
Tension (TENS)	25000 (N)
Calliper (MCAL)	(MM)
Gamma Ray (GR)	(GAPI)
Bit Size (BS)	(MM)

BMIN TO BMNO	
Micro Inverse Resistivity (BMIN)	(OHMM)
Micro Normal Resistivity (BMNO)	(OHMM)





MAIN PASS - MLT			
Bit Size (BS) (MM)		Micro Normal Resistivity (BMNO) (OHMM)	
125	375	0	40
Gamma Ray (GR) (GAPI)		Micro Inverse Resistivity (BMIN) (OHMM)	
0	150	0	40
Caliper (MCAL) (MM)		BMIN TO BMNO	
125	375		
Tension (TENS) 25000 (N)			
	0		

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	
EMS-B: Environment Measurement Sonde	Future Casing (Outer) Diameter	114.3	MM
FCD HVCS	Integrated Hole Volume Caliper Selection	EMS_Calipers	
HOLEV: Integrated Hole/Cement Volume	Future Casing (Outer) Diameter	114.3	MM
FCD HVCS	Integrated Hole Volume Caliper Selection	EMS_Calipers	
STI: Stuck Tool Indicator	Trigger for MAXIS First Reading Label	STI	
LBFR	STI Stuck Threshold	1.524	M
STKT	Total Depth - Driller	1640.00	M
TDD	Total Depth - Logger	1641.00	M
TDL	DIR: Directional Survey Computation		
SPVD	TVD of Starting Point	0	M
TIMD	Along-hole depth of Tie-in Point	1198	M
TIVD	TVD of Tie-in Point	1198	M
System and Miscellaneous			
BS	Bit Size	156.000	MM
DO	Depth Offset for Playback	0.0	M
DORL	Depth Offset for Repeat Analysis	0.0	M
PP	Playback Processing	RECOMPUTE	
TD	Total Depth	1641	M

Format: MLT-S2 Vertical Scale: 1:600 Graphics File Created: 05-Mar-2008 13:17

OP System Version: 15C0-309			
MCM			
FBST-B	15C0-309	DSST-B	15C0-309
EMS-B	15C0-309	HNGC-B	SPC-3530-NUCL
HNGS-BA	SPC-3530-NUCL	MLT-B	15C0-309
SGT-N	15C0-309	DTC-H	15C0-309

Input DLIS Files						
DEFAULT	FMI_DSI_EMS_NGS_040LUP	FN:62	PRODUCER	05-Mar-2008 11:09	1643.6 M	1123.9 M
Output DLIS Files						
DEFAULT	FMI_DSI_EMS_NGS_045PUP	FN:71	PRODUCER	05-Mar-2008 13:17		
BACKUP	FMI_DSI_EMS_NGS_045PUP	FN:72	PRODUCER	05-Mar-2008 13:17		
REDUCED	FMI_DSI_EMS_NGS_045PUP	FN:73	PRODUCER	05-Mar-2008 13:17		

Input DLIS Files						
DEFAULT	FMI_DSI_EMS_NGS_040LUP	FN:62	PRODUCER	05-Mar-2008 11:09	1643.6 M	1123.9 M
Output DLIS Files						
DEFAULT	FMI_DSI_EMS_NGS_045PUP	FN:71	PRODUCER	05-Mar-2008 13:17	1643.6 M	1136.4 M
BACKUP	FMI_DSI_EMS_NGS_045PUP	FN:72	PRODUCER	05-Mar-2008 13:17	1643.6 M	1136.4 M
REDUCED	FMI_DSI_EMS_NGS_045PUP	FN:73	PRODUCER	05-Mar-2008 13:17	1643.6 M	1136.4 M

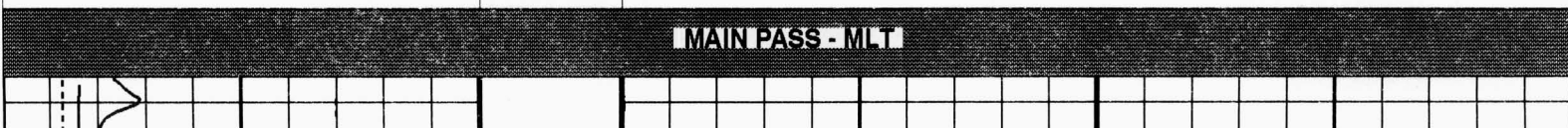
Integrated Hole/Cement Volume Summary			
Hole Volume = 9.61 M3			
Cement Volume = 5.06 M3 (assuming 114.30 MM casing O.D.)			
Computed from 1640.9 M to 1198.0 M using data channel(s) RD1 RD2 RD3 RD4 RD5 RD6			

OP System Version: 15C0-309			
MCM			
FBST-B	15C0-309	DSST-B	15C0-309
EMS-B	15C0-309	HNGC-B	SPC-3530-NUCL
HNGS-BA	SPC-3530-NUCL	MLT-B	15C0-309
SGT-N	15C0-309	DTC-H	15C0-309

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			

		Tension (TENS)	
		25000 (N)	0
Caliper (MCAL)			
125	(MM)	375	
Gamma Ray (GR)			
0	(GAPI)	150	
Bit Size (BS)			
125	(MM)	375	

BMIN TO BMNO		
Micro Inverse Resistivity (BMIN)		
0	(OHMM)	40
Micro Normal Resistivity (BMNO)		
0	(OHMM)	40



-CS-

1200

1225

1250

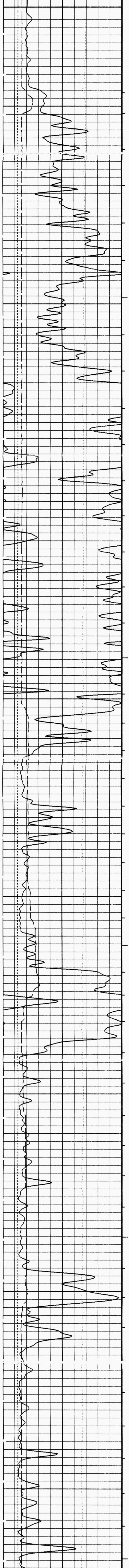
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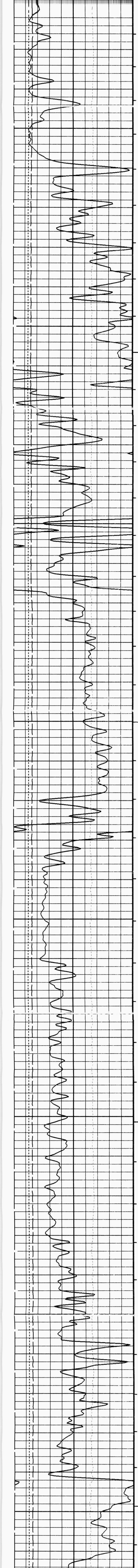
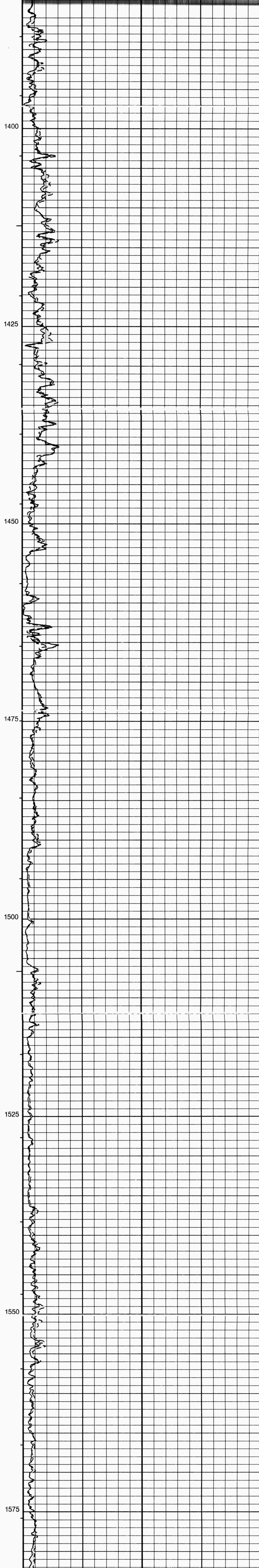
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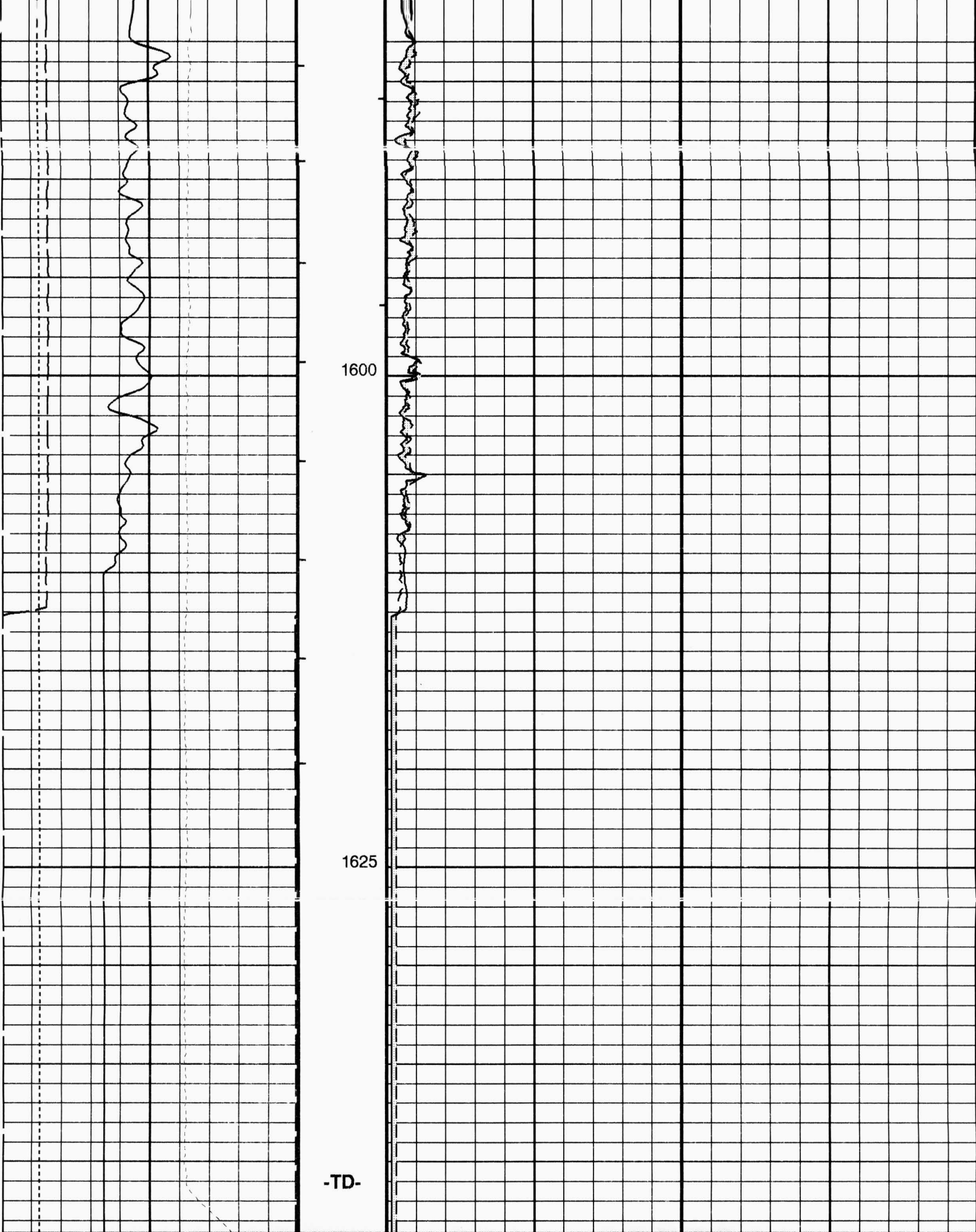
1325

1350

1375







MAIN PASS - MLT

Bit Size (BS) (MM)		375	Micro Normal Resistivity (BMNO) (OHMM)		40
Gamma Ray (GR) (GAPI)		150	Micro Inverse Resistivity (BMIN) (OHMM)		40
Caliper (MCAL) (MM)		375	BMIN TO BMNO		
Tension (TENS) 25000 (N)		0			

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	
EMS-B	Environment Measurement Sonde		
FCD	Future Casing (Outer) Diameter	114.3	MM
HVCS	Integrated Hole Volume Caliper Selection	EMS_Calipers	
HOLEV	Integrated Hole/Cement Volume		
FCD	Future Casing (Outer) Diameter	114.3	MM
HVCS	Integrated Hole Volume Caliper Selection	EMS_Calipers	
LBFR	STI: Stuck Tool Indicator		
STKT	Trigger for MAXIS First Reading Label	STI	
TDD	STI Stuck Threshold	1.524	M
TDL	Total Depth - Driller	1640.00	M
DIR	Total Depth - Logger	1641.00	M
SPVD	DIR: Directional Survey Computation		
TIMD	TVD of Starting Point	0	M
TIVD	Along-hole depth of Tie-in Point	1198	M
	TVD of Tie-in Point	1198	M
BS	System and Miscellaneous		
DO	Bit Size	156.000	MM
DORL	Depth Offset for Playback	0.0	M
PP	Depth Offset for Repeat Analysis	0.0	M
TD	Playback Processing	RECOMPUTE	
	Total Depth	1641	M

Format: MLT-S5 Vertical Scale: 1:240 Graphics File Created: 05-Mar-2008 13:17

OP System Version: 15C0-309			
MCM			
FBST-B	15C0-309	DSST-B	15C0-309
EMS-B	15C0-309	HNGC-B	SPC-3530-NUCL
HNGS-BA	SPC-3530-NUCL	MLT-B	15C0-309
SGT-N	15C0-309	DTC-H	15C0-309

Input DLIS Files						
DEFAULT	FMI_DSI_EMS_NGS_040LUP	FN:62	PRODUCER	05-Mar-2008 11:09	1643.6 M	1123.9 M
Output DLIS Files						
DEFAULT	FMI_DSI_EMS_NGS_045PUP	FN:71	PRODUCER	05-Mar-2008 13:17		
BACKUP	FMI_DSI_EMS_NGS_045PUP	FN:72	PRODUCER	05-Mar-2008 13:17		
REDUCED	FMI_DSI_EMS_NGS_045PUP	FN:73	PRODUCER	05-Mar-2008 13:17		

Input DLIS Files						
DEFAULT	FMI_DSI_EMS_NGS_037LUP	FN:53	PRODUCER	05-Mar-2008 10:16	1643.6 M	1423.0 M
Output DLIS Files						
DEFAULT	FMI_DSI_EMS_NGS_044PUP	FN:68	PRODUCER	05-Mar-2008 13:05	1579.9 M	1441.4 M
BACKUP	FMI_DSI_EMS_NGS_044PUP	FN:69	PRODUCER	05-Mar-2008 13:05	1579.9 M	1441.4 M
REDUCED	FMI_DSI_EMS_NGS_044PUP	FN:70	PRODUCER	05-Mar-2008 13:05	1579.9 M	1441.4 M

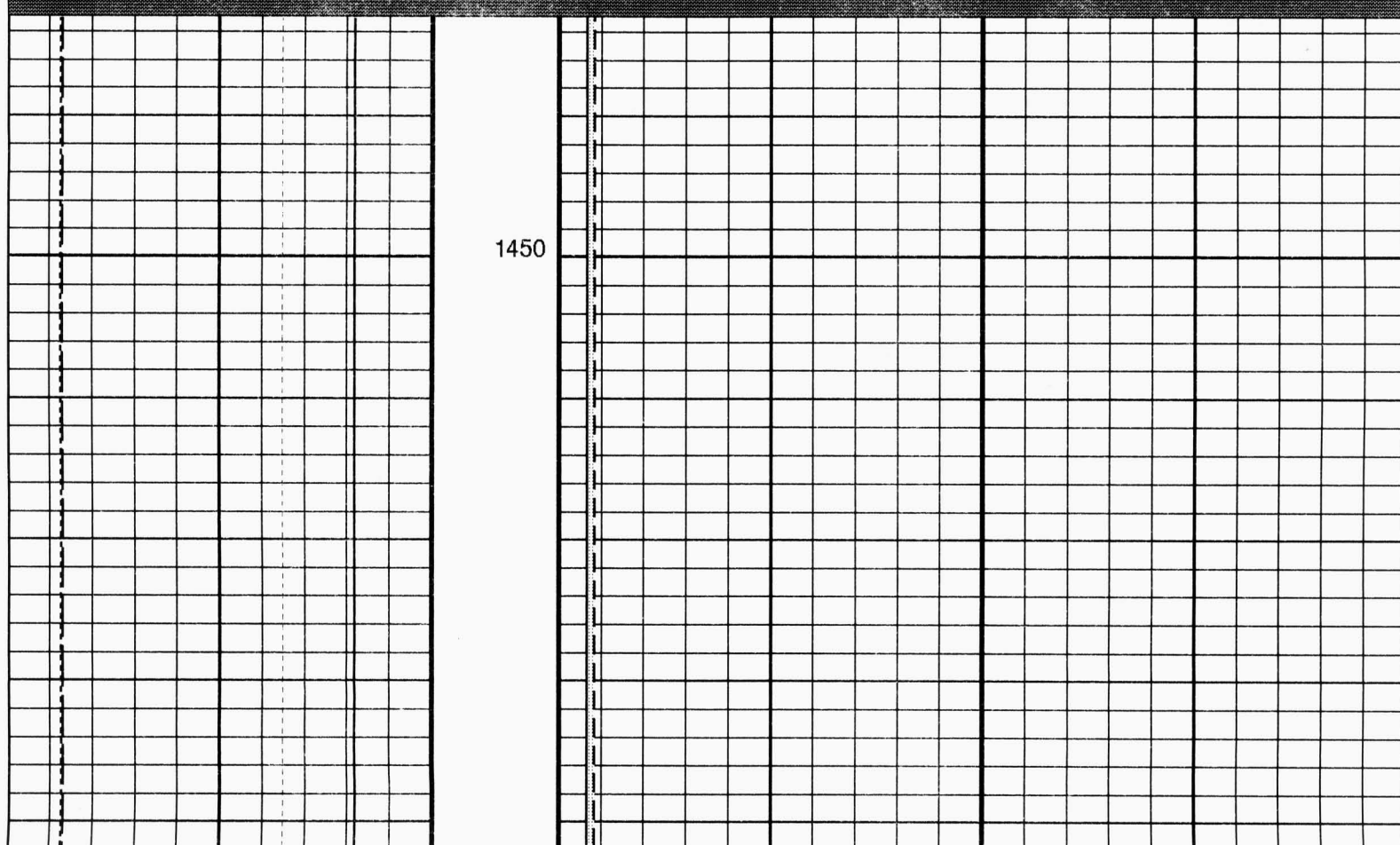
Integrated Hole/Cement Volume Summary	
Hole Volume = 2.00 M3	
Cement Volume = 0.97 M3 (assuming 114.30 MM casing O.D.)	
Computed from 1579.9 M to 1479.7 M using data channel(s) RD1 RD2 RD3 RD4 RD5 RD6	

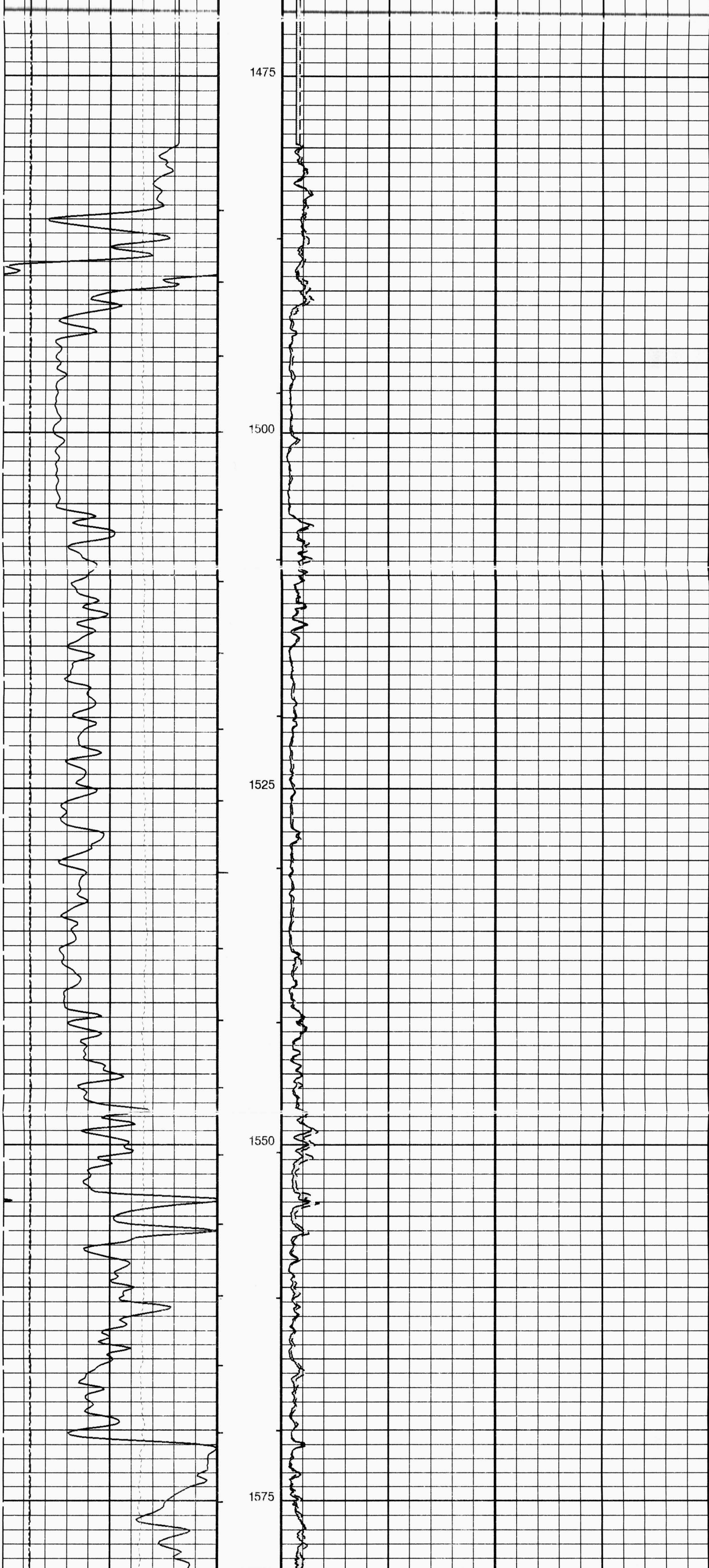
OP System Version: 15C0-309			
MCM			
FBST-B	15C0-309	DSST-B	15C0-309
EMS-B	15C0-309	HNGC-B	SPC-3530-NUCL
HNGS-BA	SPC-3530-NUCL	MLT-B	15C0-309
SGT-N	15C0-309	DTC-H	15C0-309

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					

Tension (TENS) 25000 (N)		0	BMIN TO BMNO		
Caliper (MCAL) (MM)		375	Micro Inverse Resistivity (BMIN) (OHMM)		40
Gamma Ray (GR) (GAPI)		150	Micro Normal Resistivity (BMNO) (OHMM)		40
Bit Size (BS) (MM)		375			

REPEAT SECTION - MLT





REPEAT SECTION - MLT			
Bit Size (BS) (MM)		Micro Normal Resistivity (BMNO) (OHMM)	
125	375	0	40
Gamma Ray (GR) (GAPI)		Micro Inverse Resistivity (BMIN) (OHMM)	
0	150	0	40
Caliper (MCAL) (MM)		BMIN TO BMNO	
125	375		
Tension (TENS) 25000 (N)			
	0		

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	
EMS-B: Environment Measurement Sonde			
FCD	Future Casing (Outer) Diameter	114.3	MM
HVCS	Integrated Hole Volume Caliper Selection	EMS_Calipers	
HOLEV: Integrated Hole/Cement Volume			
FCD	Future Casing (Outer) Diameter	114.3	MM
HVCS	Integrated Hole Volume Caliper Selection	EMS_Calipers	
STI: Stuck Tool Indicator			
LBFR	Trigger for MAXIS First Reading Label	STI	
STKT	STI Stuck Threshold	1.524	M
TDD	Total Depth - Driller	1640.00	M
TDL	Total Depth - Logger	1641.00	M
DIR: Directional Survey Computation			
SPVD	TVD of Starting Point	0	M
TIMD	Along-hole depth of Tie-in Point	1198	M
TIVD	TVD of Tie-in Point	1198	M
System and Miscellaneous			
BS	Bit Size	156.000	MM
DO	Depth Offset for Playback	1.4	M
DORL	Depth Offset for Repeat Analysis	0.0	M
PP	Playback Processing	RECOMPUTE	
TD	Total Depth	1641	M

Format: MLT-REPEAT Vertical Scale: 1:240 Graphics File Created: 05-Mar-2008 13:05

OP System Version: 15C0-309			
MCM			
FBST-B	15C0-309	DSST-B	15C0-309
EMS-B	15C0-309	HNGC-B	SPC-3530-NUCL
HNGS-BA	SPC-3530-NUCL	MLT-B	15C0-309
SGT-N	15C0-309	DTC-H	15C0-309

Input DLIS Files						
DEFAULT	FMI_DSI_EMS_NGS_037LUP	FN:53	PRODUCER	05-Mar-2008 10:16	1643.6 M	1423.0 M
Output DLIS Files						
DEFAULT	FMI_DSI_EMS_NGS_044PUP	FN:68	PRODUCER	05-Mar-2008 13:05		
BACKUP	FMI_DSI_EMS_NGS_044PUP	FN:69	PRODUCER	05-Mar-2008 13:05		
REDUCED	FMI_DSI_EMS_NGS_044PUP	FN:70	PRODUCER	05-Mar-2008 13:05		

Calibration and Check Summary							
Measurement	Nominal	Master	Before	After	Change	Limit	Units
Full-Bore Scanner - B WellSite Calibration - Caliper Calibration							
Before: 16-Feb-2008 15:30							
Caliper 1 Small Jig	203.2	N/A	195.0	N/A	N/A	N/A	MM
Caliper 2 Small Jig	203.2	N/A	193.4	N/A	N/A	N/A	MM
Caliper 1 Large Jig	304.8	N/A	289.7	N/A	N/A	N/A	MM
Caliper 2 Large Jig	304.8	N/A	289.1	N/A	N/A	N/A	MM
Full-Bore Scanner - B WellSite Calibration - CROUZET ACCELEROMETER PROM HAS BEEN READ CORRECTLY							
Before: 5-Mar-2008 9:14							
TEMPERATURE REFERENCE :	N/A	N/A	20	N/A	N/A	N/A	DEGC
YEAR OF CALIBRATION :	N/A	N/A	6	N/A	N/A	N/A	
MONTH OF CALIBRATION :	N/A	N/A	12	N/A	N/A	N/A	
SERIAL NUMBER :	N/A	N/A	1076	N/A	N/A	N/A	
Full-Bore Scanner - B WellSite Calibration - CROUZET MAGNETOMETER PROM HAS BEEN READ CORRECTLY							
Before: 5-Mar-2008 9:14							
TEMPERATURE REFERENCE :	N/A	N/A	20	N/A	N/A	N/A	DEGC
YEAR OF CALIBRATION :	N/A	N/A	6	N/A	N/A	N/A	
MONTH OF CALIBRATION :	N/A	N/A	5	N/A	N/A	N/A	
SERIAL NUMBER :	N/A	N/A	725	N/A	N/A	N/A	
Environment Measurement Sonde WellSite Calibration - EMS Caliper Calibration							
Before: 16-Feb-2008 15:25							
Radius 1 Short Radius	101.6	N/A	81.34	N/A	N/A	5.080	MM

Radius 1 Long Radius	203.2	N/A	187.4	N/A	N/A	5.080	MM
Radius 2 Short Radius	101.6	N/A	79.42	N/A	N/A	5.080	MM
Radius 2 Long Radius	203.2	N/A	184.6	N/A	N/A	5.080	MM
Radius 3 Short Radius	101.6	N/A	79.37	N/A	N/A	5.080	MM
Radius 3 Long Radius	203.2	N/A	184.5	N/A	N/A	5.080	MM
Radius 4 Short Radius	101.6	N/A	87.87	N/A	N/A	5.080	MM
Radius 4 Long Radius	203.2	N/A	190.2	N/A	N/A	5.080	MM
Radius 5 Short Radius	101.6	N/A	83.27	N/A	N/A	5.080	MM
Radius 5 Long Radius	203.2	N/A	186.9	N/A	N/A	5.080	MM
Radius 6 Short Radius	101.6	N/A	78.00	N/A	N/A	5.080	MM
Radius 6 Long Radius	203.2	N/A	183.6	N/A	N/A	5.080	MM
Hostile Natural Gamma Ray Sonde Wellsite Calibration - Detector 1 Check							
Master: 4-Jan-2008 9:55 Before: 3-Mar-2008 14:57							
Na 511 Peak Loc	40.00	39.78	39.64	N/A	N/A	1.000	
Na 511 Peak Res	15.50	15.38	14.71	N/A	N/A	2.000	%
High Voltage	1150	1258	1196	N/A	N/A	N/A	V
Na 1785 Peak Loc	142.6	143.7	144.3	N/A	N/A	7.000	
Na 1785 Peak Res	8.500	8.442	7.752	N/A	N/A	2.000	%
Temperature	15.50	22.14	-19.41	N/A	N/A	N/A	DEGC
Na Count Rate	45.00	35.30	35.42	N/A	N/A	8.000	CPS
Hostile Natural Gamma Ray Sonde Wellsite Calibration - Detector 2 Check							
Master: 4-Jan-2008 9:55 Before: 3-Mar-2008 14:57							
Na 511 Peak Loc	40.00	39.66	39.58	N/A	N/A	1.000	
Na 511 Peak Res	15.50	14.86	14.28	N/A	N/A	2.000	%
High Voltage	1150	1273	1211	N/A	N/A	N/A	V
Na 1785 Peak Loc	142.6	142.7	142.6	N/A	N/A	7.000	
Na 1785 Peak Res	8.500	8.234	8.033	N/A	N/A	2.000	%
Temperature	15.50	21.49	-20.13	N/A	N/A	N/A	DEGC
Na Count Rate	45.00	35.28	35.35	N/A	N/A	8.000	CPS
Hostile Natural Gamma Ray Sonde Wellsite Calibration - Ratio Of Detector 1 To Detector 2							
Master: 4-Jan-2008 9:55 Before: 3-Mar-2008 14:57							
Coincidence Count Rate Ratio	1.000	1.001	1.001	N/A	N/A	0.05000	
Hostile Natural Gamma Ray Sonde Master Calibration - Detector 1 Calibration							
Master: 4-Jan-2008 9:50							
Na 511 Peak Set Point	40.00	41.00	--	--	--	--	
Th Peak Loc	209.6	211.0	--	--	--	--	
Th Peak Res	7.000	6.765	--	--	--	--	%
Background Count Rate	142.5	82.05	--	--	--	--	CPS
Gain Ratio	1.000	1.009	--	--	--	--	
Hostile Natural Gamma Ray Sonde Master Calibration - Detector 2 Calibration							
Master: 4-Jan-2008 9:50							
Na 511 Peak Set Point	40.00	41.00	--	--	--	--	
Th Peak Loc	209.6	211.2	--	--	--	--	
Th Peak Res	7.000	7.094	--	--	--	--	%
Background Count Rate	142.5	80.00	--	--	--	--	CPS
Gain Ratio	1.000	1.013	--	--	--	--	
MicroLog - B Wellsite Calibration - MLT Caliper Calibration							
Before: 3-Mar-2008 13:47							
MLT Caliper Small Ring	203.2	N/A	162.1	N/A	N/A	N/A	MM
MLT Caliper Large Ring	304.8	N/A	265.8	N/A	N/A	N/A	MM
MicroLog - B Wellsite Calibration - MLT Micro Inverse Calibration							
Before: 3-Mar-2008 13:45							
Micro Inverse Zero	0	N/A	0.0006272	N/A	N/A	0.2000	OHMM
Micro Inverse Plus	5.000	N/A	4.672	N/A	N/A	0.2000	OHMM
MicroLog - B Wellsite Calibration - MLT Micro Normal Calibration							
Before: 3-Mar-2008 13:45							
Micro Normal Zero	0	N/A	0.002347	N/A	N/A	0.2000	OHMM
Micro Normal Plus	6.720	N/A	6.560	N/A	N/A	0.2000	OHMM
Scintillation Gamma Ray Tool - N Wellsite Calibration - Detector Calibration							
Before: 3-Mar-2008 13:04							
Gamma Ray (Jig - Bkg)	159.4	N/A	159.4	N/A	N/A	14.49	GAPI
Gamma Ray (Calibrated)	162.0	N/A	162.0	N/A	N/A	15.00	GAPI

Full-Bore Scanner - B / Equipment Identification	
Primary Equipment:	
FullBore Scanner Sonde	FBSS - B
FullBore Scanner Sonde Upper part	FBSH - A
FullBore Scanner Sonde Cartridge	FBSC - B
GPIT Cartridge - C	GPIC - C
Insulating Sub	AH - 185
Flex Joint	AH - 184
FullBore Scanner Control Cartridge	FBCC - A
Auxiliary Equipment:	
Electronics Cartridge Housing	ECH - MRA

Full-Bore Scanner - B Wellsite Calibration					
Caliper Calibration					
Phase	Caliper 1 Small Jig MM	Value	Phase	Caliper 2 Small Jig MM	Value
Before		195.0	Before		193.4
	172.7 (Minimum) 203.2 (Nominal) 233.7 (Maximum)			172.7 (Minimum) 203.2 (Nominal) 233.7 (Maximum)	
Phase	Caliper 1 Large Jig MM	Value	Phase	Caliper 2 Large Jig MM	Value
Before		289.7	Before		289.1
	259.1 (Minimum) 304.8 (Nominal) 350.5 (Maximum)			259.1 (Minimum) 304.8 (Nominal) 350.5 (Maximum)	
Before: 16-Feb-2008 15:30					

Environment Measurement Sonde / Equipment Identification	
Primary Equipment:	
EMS Mechanical	EMM - B
EMS Cartridge	EMC - B
EMS Adaptor	EMA - B
Resistivity Meter	RES -
Auxiliary Equipment:	
Electronics Cartridge Housing	ECH - KH

Environment Measurement Sonde Wellsite Calibration					
EMS Caliper Calibration					
Phase	Radius 1 Short Radius MM	Value	Phase	Radius 1 Long Radius MM	Value
Before		81.34	Before		187.4
	76.20 (Minimum) 101.6 (Nominal) 127.0 (Maximum)			177.8 (Minimum) 203.2 (Nominal) 228.6 (Maximum)	
Phase	Radius 2 Short Radius MM	Value	Phase	Radius 2 Long Radius MM	Value
Before		79.42	Before		184.6
	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		79.37	Before		184.5
	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		87.87	Before		190.2
	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		83.27	Before		186.9
	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		78.00	Before		183.6
	76.20 (Minimum) 101.6 (Nominal) 127.0 (Maximum)			177.8 (Minimum) 203.2 (Nominal) 228.6 (Maximum)	
Before: 16-Feb-2008 15:25					

Hostile Natural Gamma Ray Cartridge - B / Equipment Identification		
Primary Equipment:		
HNGC Cartridge	HNGC - B	405
Auxiliary Equipment:		
HNGC Housing	HNGH - A	346

Hostile Natural Gamma Ray Sonde / Equipment Identification			
Primary Equipment:			
HNGS Sonde	HNGS - BA	163	
Auxiliary Equipment:			
HNGS Sonde Housing	HNSH - BA	160	
Gamma Source Radioactive	GSR - U	1237	

Hostile Natural Gamma Ray Sonde Wellsite Calibration							
Detector 1 Check							
Phase	Na 511 Peak Loc	Value	Phase	Na 511 Peak Res %	Value	Phase	High Voltage V
Master		39.78	Master		15.38	Master	
Before		39.64	Before		14.71	Before	
	37.50 (Minimum) 40.00 (Nominal) 43.50 (Maximum)			12.00 (Minimum) 15.50 (Nominal) 19.00 (Maximum)			900.0 (Minimum) 1150 (Nominal) 1600 (Maximum)
Phase	Na 1785 Peak Loc	Value	Phase	Na 1785 Peak Res %	Value	Phase	Temperature DEGC
Master		143.7	Master		8.442	Master	
Before		144.3	Before		7.752	Before	
	135.0 (Minimum) 142.6 (Nominal) 150.3 (Maximum)			7.000 (Minimum) 8.500 (Nominal) 11.00 (Maximum)			-28.89 (Minimum) 15.50 (Nominal) 60.00 (Maximum)
Phase	Na Count Rate CPS	Value					
Master		35.30					
Before		35.42					
	10.00 (Minimum) 45.00 (Nominal) 100.0 (Maximum)						
Master: 4-Jan-2008 9:55				Before: 3-Mar-2008 14:57			

Hostile Natural Gamma Ray Sonde Wellsite Calibration							
Detector 2 Check							
Phase	Na 511 Peak Loc	Value	Phase	Na 511 Peak Res %	Value	Phase	High Voltage V
Master		39.66	Master		14.86	Master	
Before		39.58	Before		14.28	Before	
	37.50 (Minimum) 40.00 (Nominal) 43.50 (Maximum)			12.00 (Minimum) 15.50 (Nominal) 19.00 (Maximum)			900.0 (Minimum) 1150 (Nominal) 1600 (Maximum)
Phase	Na 1785 Peak Loc	Value	Phase	Na 1785 Peak Res %	Value	Phase	Temperature DEGC
Master		142.7	Master		8.234	Master	
Before		142.6	Before		8.033	Before	
	135.0 (Minimum) 142.6 (Nominal) 150.3 (Maximum)			7.000 (Minimum) 8.500 (Nominal) 11.00 (Maximum)			-28.89 (Minimum) 15.50 (Nominal) 60.00 (Maximum)
Phase	Na Count Rate CPS	Value					
Master		35.28					
Before		35.35					
	10.00 (Minimum) 45.00 (Nominal) 100.0 (Maximum)						
Master: 4-Jan-2008 9:55				Before: 3-Mar-2008 14:57			

Hostile Natural Gamma Ray Sonde Wellsite Calibration		
Ratio Of Detector 1 To Detector 2		
Phase	Coincidence Count Rate Ratio	Value
Master		1.001
Before		1.001
	0.9500 (Minimum) 1.000 (Nominal) 1.050 (Maximum)	

Master: 4-Jan-2008 9:55

Before: 3-Mar-2008 14:57

Hostile Natural Gamma Ray Sonde Master Calibration

Detector 1 Calibration

Phase	Na 511 Peak Set Point			Value	Phase	Th Peak Loc			Value	Phase	Th Peak Res %			Value
Master				41.00	Master				211.0	Master				6.765
	38.00 (Minimum)	40.00 (Nominal)	43.00 (Maximum)			201.0 (Minimum)	209.6 (Nominal)	218.3 (Maximum)			5.000 (Minimum)	7.000 (Nominal)	9.000 (Maximum)	
Phase	Background Count Rate CPS			Value	Phase	Gain Ratio			Value					
Master				82.05	Master				1.009					
	10.00 (Minimum)	142.5 (Nominal)	265.0 (Maximum)			0.9400 (Minimum)	1.000 (Nominal)	1.060 (Maximum)						

Master: 4-Jan-2008 9:50

Hostile Natural Gamma Ray Sonde Master Calibration

Detector 2 Calibration

Phase	Na 511 Peak Set Point		Value	Phase	Th Peak Loc		Value	Phase	Th Peak Res %		Value
Master			41.00	Master			211.2	Master			7.094
	38.00 (Minimum)	40.00 (Nominal)	43.00 (Maximum)		201.0 (Minimum)	209.6 (Nominal)	218.3 (Maximum)		5.000 (Minimum)	7.000 (Nominal)	9.000 (Maximum)
Phase	Background Count Rate CPS		Value	Phase	Gain Ratio		Value				
Master			80.00	Master			1.013				
	10.00 (Minimum)	142.5 (Nominal)	265.0 (Maximum)		0.9400 (Minimum)	1.000 (Nominal)	1.060 (Maximum)				

Master: 4-Jan-2008 9:50

MicroLog - B / Equipment Identification

Primary Equipment:

MicroLog - B (sonde)

MLT - B

Auxiliary Equipment:

MicroLog - B Wellsite Calibration

MLT Micro Inverse Calibration

Phase	Micro Inverse Zero OHMM	Value	Phase	Micro Inverse Plus OHMM	Value	
Before		0.0006272	Before		4.872	
	-2.000 (Minimum)	0 (Nominal)	2.000 (Maximum)	1.000 (Minimum)	5.000 (Nominal)	9.000 (Maximum)

Before: 3-Mar-2008 13:45

MicroLog - B Wellsite Calibration

MLT Micro Normal Calibration

Phase	Micro Normal Zero OHMM	Value	Phase	Micro Normal Plus OHMM	Value	
Before		0.002347	Before		6.560	
	-2.000 (Minimum)	0 (Nominal)	2.000 (Maximum)	2.720 (Minimum)	6.720 (Nominal)	10.72 (Maximum)

Before: 3-Mar-2008 13:45

Scintillation Gamma Ray Tool - N / Equipment Identification

Primary Equipment:

Scintillation Gamma Cartridge

Scintillation Gamma Detector

SGC - TB

SGD - TAB

Auxiliary Equipment:

Scintillation Gamma Housing

Gamma Source Radioactive

SGH - K

GSR - U/Y

Scintillation Gamma Ray Tool - 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		10.45	Before		159.4	Before		162.0	
	0 (Minimum)	30.00 (Nominal)	120.0 (Maximum)	144.9 (Minimum)	159.4 (Nominal)	173.9 (Maximum)	147.0 (Minimum)	162.0 (Nominal)	177.0 (Maximum)

Before: 3-Mar-2008 13:04

DTS Telemetry Tool / Equipment Identification

Primary Equipment:

DTC-H Auxiliary Cartridge

DTC-H Telemetry Cartridge

DTCH - A

DTCH - A

Auxiliary Equipment:

DTCH Telemetry Cartridge Housing

ECH - KC

Company: PETRO-CANADA

Well: PETRO-CANADA BLACKWATER KWIJKA M-59

Field: KWIJKA

Province: NORTHWEST TERRITORIES

MD

Schlumberger

MD

MICROLOG