

Company: PETRO-CANADA		Schlumberger	
Well: PETRO-CANADA BLACKWATER KWIJIKA M-59			
Field: KWIJIKA			
Province: NORTHWEST TERRITORIES		*** MD ***	

CEMENT VOLUME LOG		NEB COPY	
LSD: M-59		Elev: KB 252.1 m	
UWID: 300M596440122300		G.L. 245.9 m	
		D.F. 251.8 m	
Permanent Datum: GROUND LEVEL		Elev: 245.9 m	
Log Measured From: KELLY BUSHING		6.2 m above Perm. Datum	
Drilling Measured From: KELLY BUSHING			
API Serial No. 1165			

Logging Date	5-Mar-2008		
Run Number	TWO		
Depth Driller	1640 m		
Schlumberger Depth	1641 m		
Bottom Log Interval	1616.4 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	58 s	
Fluid Loss	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	@	
RM @ Measured Temperature	0.103 ohm.m @ 17 degC	@	
Source RMF	PRESSED		
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		

Logging Date			
Run Number			
Depth Driller			
Schlumberger Depth			
Bottom Log Interval			
Top Log Interval			
Casing Driller Size @ Depth			
Casing Schlumberger			
Bit Size			
Type Fluid In Hole			
Density			
Fluid Loss			
Source Of Sample			
RM @ Measured Temperature		@	
RMF @ Measured Temperature		@	
RM @ Measured Temperature		@	
Source RMF			
RM @ MRT		@	
Maximum Recorded Temperatures			
Circulation Stopped			
Logger On Bottom			
Unit Number			
Recorded By			
Witnessed By			

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	Conveyance Method: Wireline Rig Type: LAND	
Calibration Cable Type:	7-46P	Calibration Gain:	0.88		
Wheel Correction 1:	-4	Calibration Offset:	336.00		
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

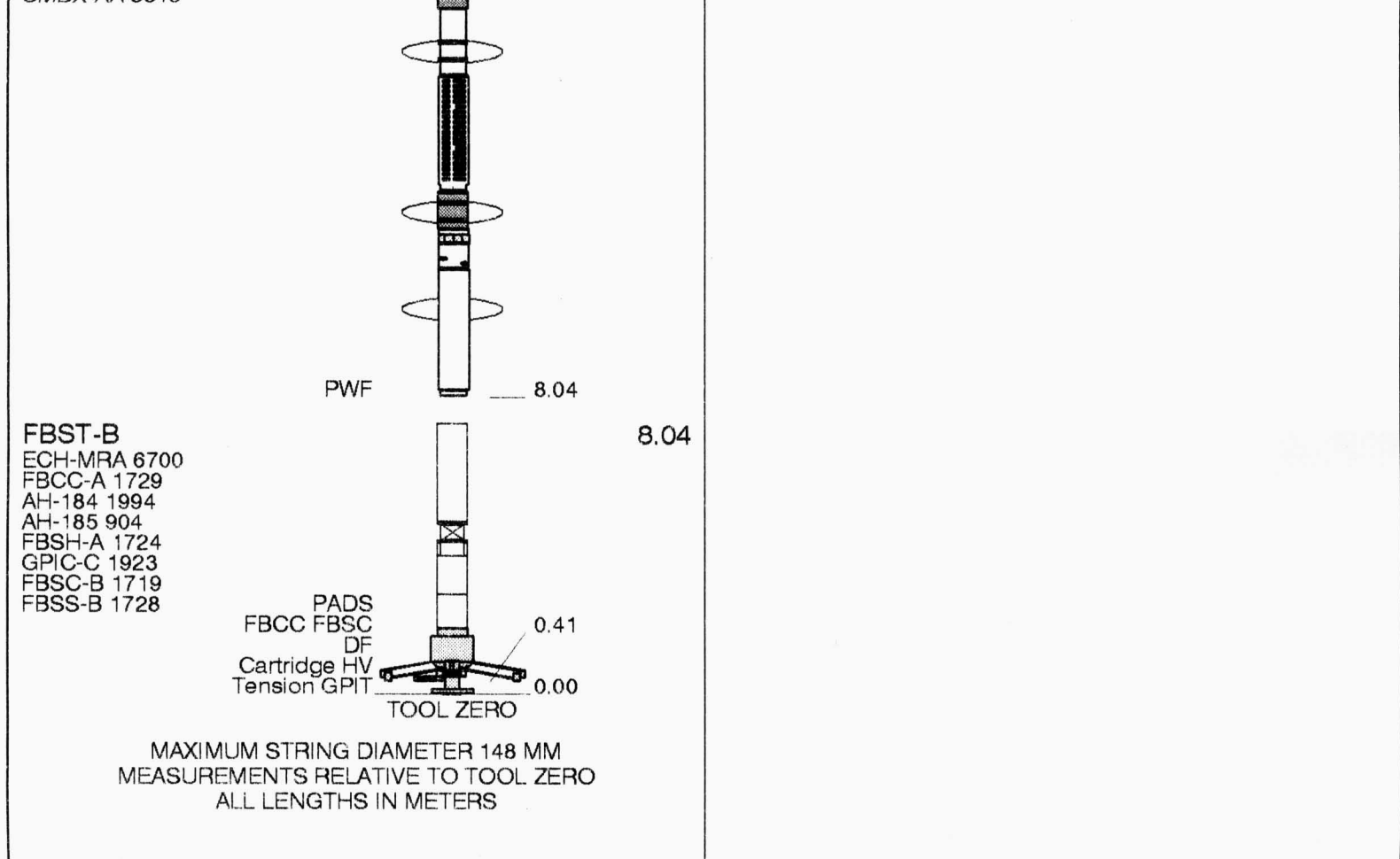
DISCLAIMER

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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 #:		11958996	SERVICE ORDER #:		
PROGRAM VERSION:		15C0-309	PROGRAM VERSION:		
FLUID LEVEL:			FLUID LEVEL:		
LOGGED INTERVAL	START	STOP	LOGGED INTERVAL	START	STOP

EQUIPMENT	DESCRIPTION
1	1000
2	1000
3	1000
4	1000
5	1000
6	1000
7	1000
8	1000
9	1000
10	1000
11	1000
12	1000
13	1000
14	1000
15	1000
16	1000
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90	1000
91	1000
92	1000
93	1000
94	1000
95	1000
96	1000
97	1000
98	1000
99	1000
100	1000

RUN 1		RUN 2	
SURFACE EQUIPMENT			
GSR-U 1237 GSR-U/Y 11 WITM (DTS)-A			
DOWNHOLE EQUIPMENT			
LEH-QT 2657			39.38
DTC-H	CTEM TelStatus ToolStatu		38.49
SAH-F 1874 SAH-F 1874			37.58
SGT-N SGH-K 3169 SGC-TB 10388	Gamma Ray		36.09
MLT-B MLT-B 109	BMNO BMIN MCAL		34.41
	MLT Statu		32.10
HNGS-BA HNGS-BA 163 HNSH-BA 160	Upper_1 Lower_2		32.10
HNGC-B HNGH-A 346	HNGC Stat		29.60
AH-184 2713			28.54
EMS-B EMA-B 8018 RES EMC-B 8035 ECH-KH 8045 EMM-B 8052	Mud Resis Mud Tempe		27.93
	Calipers		24.61
DSST-B SPAC-B 8321 ECH-SD 8303 SMDR-BD 8400 SSIJ-BA 8317 SMDX-AA 8315			23.59



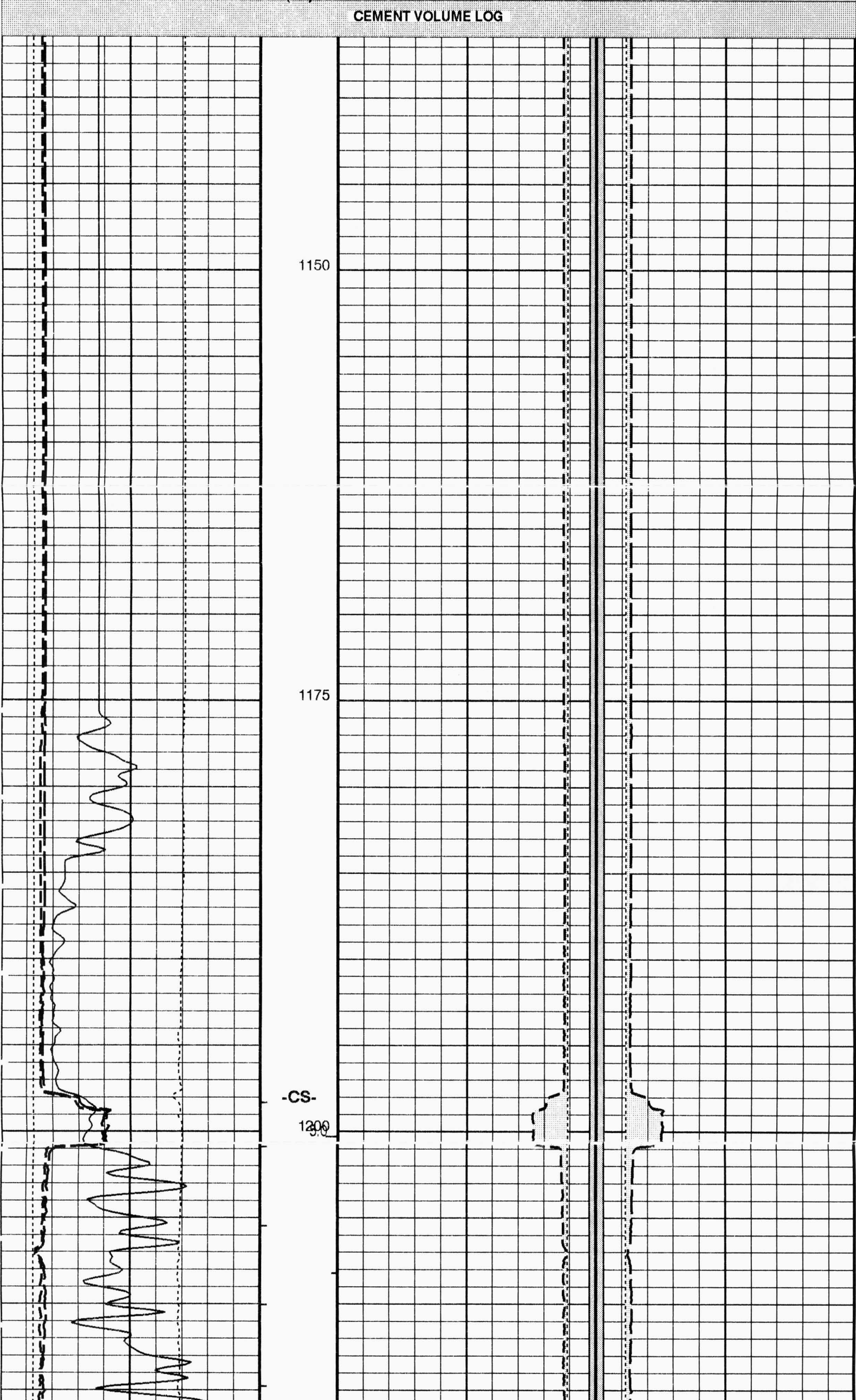
Input DLIS Files						
DEFAULT	FMI_DSI_EMS_NGS_040LUP	FN:62	PRODUCER	05-Mar-2008 11:09	1643.6 M	1123.9 M
Output DLIS Files						
DEFAULT	FMI_DSI_EMS_NGS_045PUP	FN:71	PRODUCER	05-Mar-2008 13:17	1643.6 M	1136.4 M
BACKUP	FMI_DSI_EMS_NGS_045PUP	FN:72	PRODUCER	05-Mar-2008 13:17	1643.6 M	1136.4 M
REDUCED	FMI_DSI_EMS_NGS_045PUP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

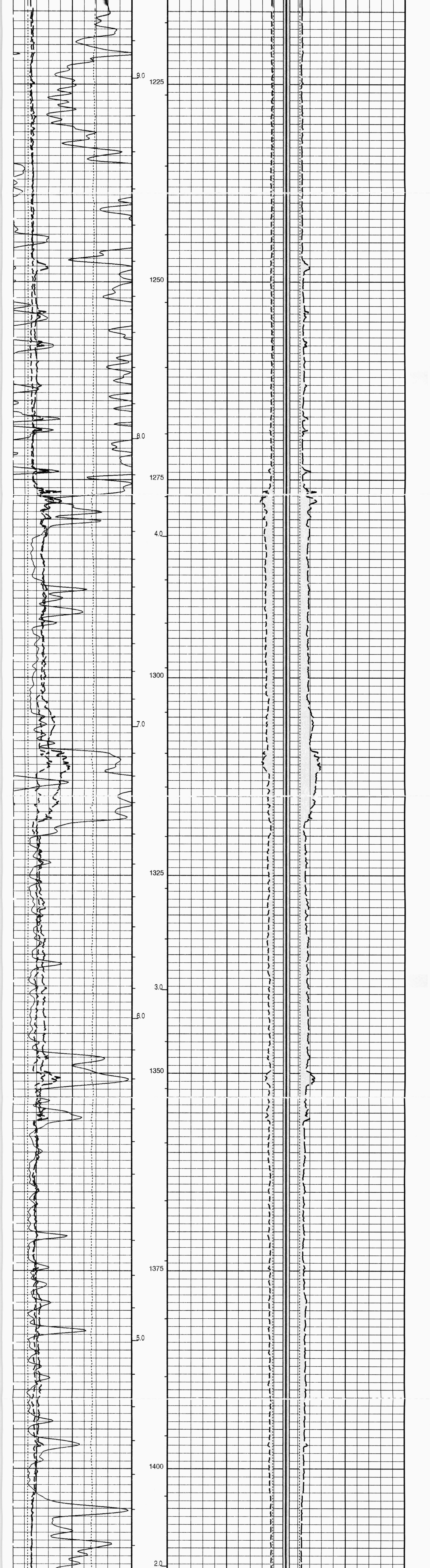
Integrated Hole/Cement Volume Summary	
Hole Volume =	9.61 M3
Cement Volume =	5.06 M3 (assuming 114.30 MM casing O.D.)
Computed from	1640.9 M to 1198.0 M using data channel(s) RD1 RD2 RD3 RD4 RD5 RD6

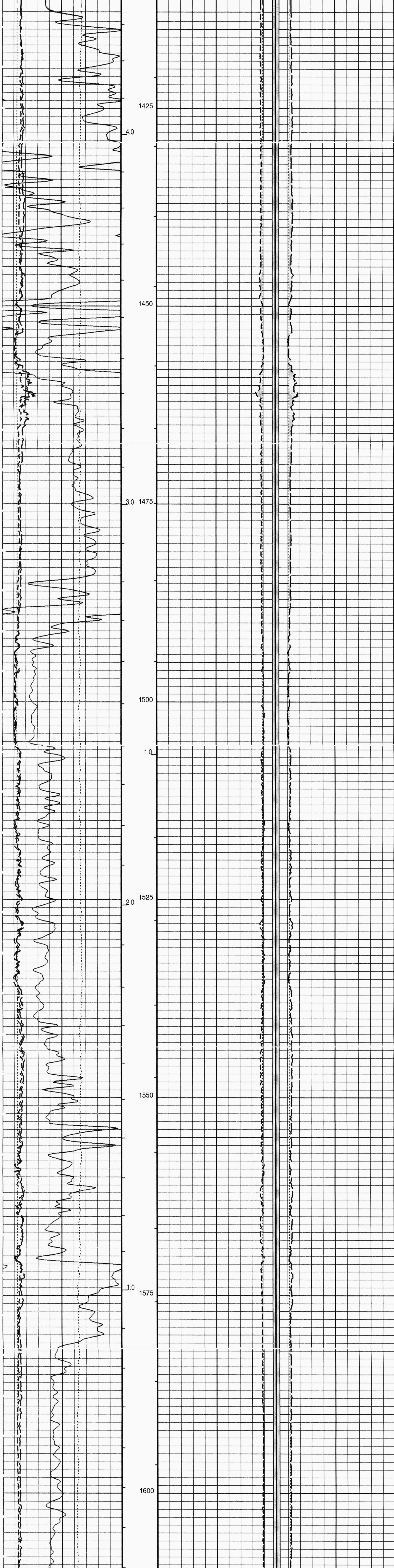
OP System Version: 15C0-309			
MCM			
FBST-B	15C0-309	DSST-B	15C0-309
EMS-B	15C0-309	HNGC-B	SPC-3530-NUCL
HNGS-BA	SPC-3530-NUCL	MLT-B	15C0-309
SGT-N	15C0-309	DTC-H	15C0-309

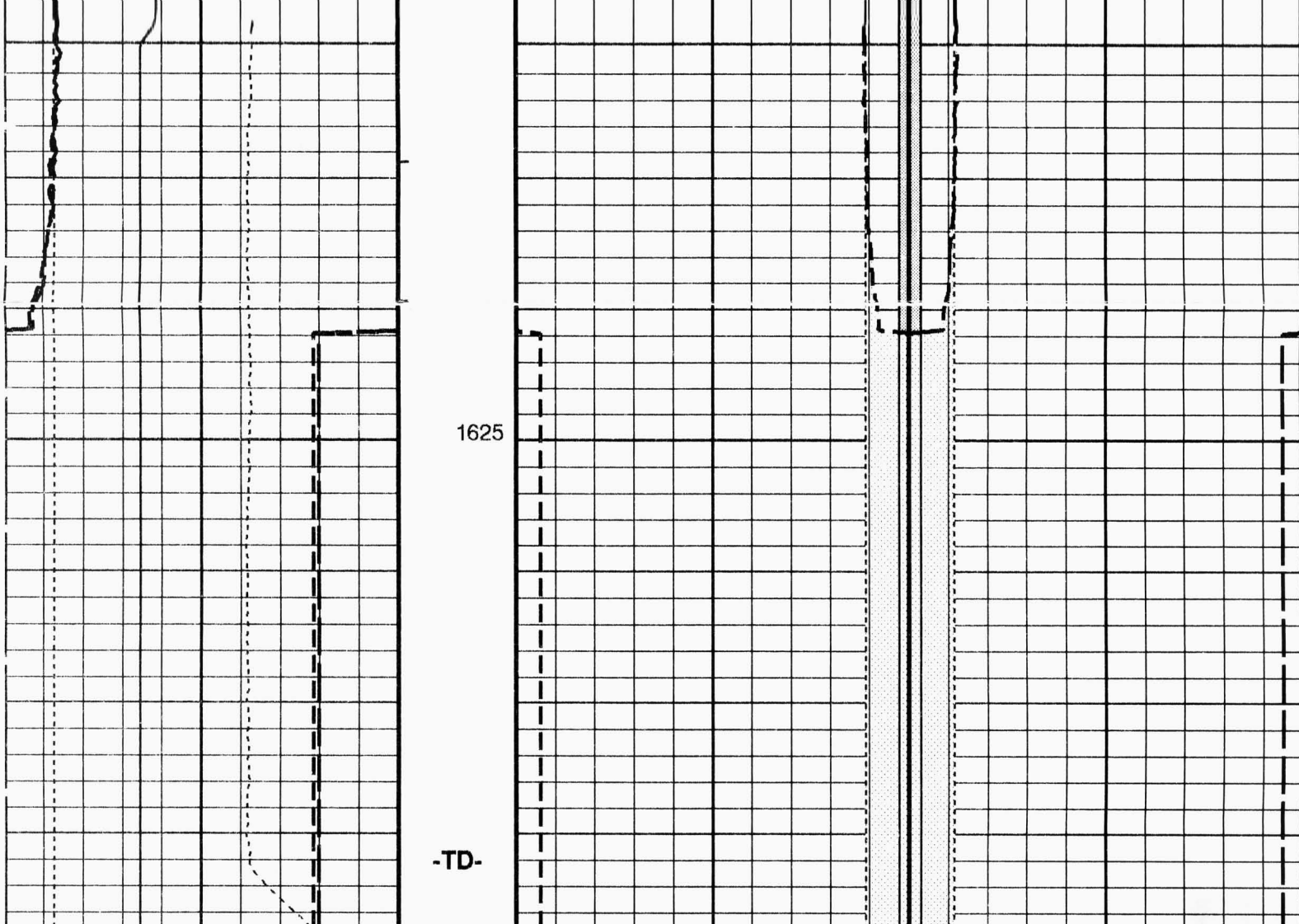
PIP SUMMARY	
└ Integrated Hole Volume Minor Pip Every	0.1 M3
└ Integrated Hole Volume Major Pip Every	1 M3
└ Integrated Cement Volume Minor Pip Every	0.1 M3
└ Integrated Cement Volume Major Pip Every	1 M3

Tension (TENS) 25000 (N) 0 Hole Diameter Maximum (HDMX) 125 (MM) 375 Hole Diameter Minimum (HDMI) 125 (MM) 375 Gamma Ray (GR) 0 (GAPI) 150 Bit Size (BS) 125 (MM) 375			Tight Spot From BS2 to HDMI_1		Washout From BS3 to HDMX_1	
			Washout From HDMI_1 to BS2		Tight Spot From HDMX_1 to BS3	
			Production Casing From FCD2 to FCD3			
			Hole Diameter Minimum (HDMI) 600 (MM) 100		Hole Diameter Maximum (HDMX) 100 (MM) 600	
			CEMENT VOLUME - RIGHT (ICV) (M3)		Future Casing (FCD) 600 (MM) 100	
HOLE VOLUME - LEFT (IHV) (M3)			Bit Size (BS) 600 (MM) 100		Bit Size (BS) 100 (MM) 600	









CEMENT VOLUME LOG

CEMENT VOLUME LOG										
Bit Size (BS) ----- 125 (MM) 375			HOLE VOLUME - LEFT (IHV) (M3) CEMENT VOLUME - RIGHT (ICV) (M3)	Bit Size (BS) ----- 600 (MM) 100 100			Bit Size (BS) ----- 100 (MM) 600			
Gamma Ray (GR) ----- 0 (GAPI) 150				Future Casing (FCD) ----- 600 (MM) 100 100			Future Casing (FCD) ----- 100 (MM) 600			
Hole Diameter Minimum (HDMI) ----- 125 (MM) 375				Hole Diameter Minimum (HDMI) ----- 600 (MM) 100 100			Hole Diameter Maximum (HDMX) ----- 100 (MM) 600			
Hole Diameter Maximum (HDMX) ----- 125 (MM) 375				Production Casing From FCD2 to FCD3						
Tension (TENS) ----- 25000 (N) 0				Washout From HDMI_1 to BS2			Tight Spot From HDMX_1 to BS3			
				Tight Spot From BS2 to HDMI_1			Washout From BS3 to HDMX_1			

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			
ECOF	EMS Caliper Offset	50.8	MM
EFC	EMS Fixed Caliper Operation	OFF	
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	
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: CVL HD MIN MAX 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

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REDUCED	FMI_DSI_EMS_NGS_045PUP	FN:73	PRODUCER	05-Mar-2008 13:17		

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	182.1	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	4.872	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 - MHA

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 EMS Cartridge EMS Adaptor Resistivity Meter	EMM - B EMC - B EMA - B 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 Gamma Source Radioactive	HNSH - BA GSR - U	160 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		Value
Master			39.78	Master			15.38	Master			1258
Before			39.64	Before			14.71	Before			1196
	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		Value
Master			143.7	Master			8.442	Master			22.14
Before			144.3	Before			7.752	Before			-19.41
	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		Value
Master			39.66	Master			14.86	Master			1273
Before			39.58	Before			14.28	Before			1211
	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		Value
Master			142.7	Master			8.234	Master			21.49
Before			142.6	Before			8.033	Before			-20.13
	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)	201.0 (Minimum)			209.6 (Nominal)	5.000 (Minimum)			7.000 (Nominal)	9.000 (Maximum)
43.00 (Maximum)				218.3 (Maximum)								
Phase	Background Count Rate CPS		Value	Phase	Gain Ratio		Value					
Master			82.05	Master			1.009					
10.00 (Minimum)			142.5 (Nominal)	0.9400 (Minimum)			1.000 (Nominal)					
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)

0	30.00	120.0	144.9	159.4	173.9	147.0	162.0	177.0
(Minimum)	(Nominal)	(Maximum)	(Minimum)	(Nominal)	(Maximum)	(Minimum)	(Nominal)	(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**

Schlumberger

Well: **PETRO-CANADA BLACKWATER KWIJKA M-59**

Field: **KWIJKA**

Province: **NORTHWEST TERRITORIES**

*****MD*****

*****MD*****

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