



Baker Atlas

**BOREHOLE PROFILE  
FOR 177.8 MM CASING  
AND 216.0 MM BOREHOLE  
ORIENTED TO TRUE NORTH**

FILE NO:	COMPANY	NALCOR ENERGY
API NO:	WELL	NALCOR ET AL FINNEGAN #1
	FIELD	FINNEGAN
	PROVINCE	NEWFOUNDLAND AND LABRADOR
Ver. 3.87	LOCATION:	
LICENSE: 2010-128-04	LAT 49.92 N	LONG 63.33 W
PERMANENT DATUM	G.L.	ELEVATION 118.75 M
LOG MEASURED FROM	K.B.	6.25 M ABOVE P.D.
DRILL MEAS. FROM	KELLY BUSHING	
		OTHER SERVICES DZDL-CN-XYCAL-CR HDIL-CR-CAL DLL-CR RCOR / VSP SBT
		ELEVATIONS: KB 125.00 M DF GL 118.75 M

DATE	27-NOV-2010				
RUN	TRIP	2	1		
SERVICE ORDER	CA209243				
DEPTH DRILLER	3130.0 M				
DEPTH LOGGER	NA				
BOTTOM LOGGED INTERVAL	3018.8 M				
TOP LOGGED INTERVAL	2275.0 M				
CASING DRILLER	244.5 MM			2276.0 M	①
CASING LOGGER	2275.0 M				
BIT SIZE	216.0 MM				
TYPE OF FLUID IN HOLE	GELCHEM				
DENSITY	VISCOSITY	1245.0 G/L	82.0 S		
PH	FLUID LOSS	10.0	5.7 MIL		
SOURCE OF SAMPLE	TOOL MEASURED				
RM AT MEAS. TEMP.		0.674 OHMM	47.4 DEGC		①
RMF AT MEAS. TEMP.		0.583 OHMM	47.4 DEGC		①
RMC AT MEAS. TEMP.		0.809 OHMM	47.4 DEGC		①
SOURCE OF RMF	RMC	CALCULATED	CALCULATED		
RM AT BHT		0.601 OHMM	54.0 DEGC		①
TIME SINCE CIRCULATION	8.7 HOURS				
MAX. RECORDED TEMP.	54.0 DEGC				
EQUIP. NO.	LOCATION	HL4291	OH NISKU		
RECORDED BY	S.CREWE\J. HOUSE				
WITNESSED BY	R.STRICKLAND\N.WATSON				

IN MAKING INTERPRETATIONS OF LOGS OUR EMPLOYEES WILL GIVE CUSTOMER THE BENEFIT OF THEIR BEST JUDGEMENT. BUT SINCE ALL INTERPRETATIONS ARE OPINIONS BASED ON INFERENCES FROM ELECTRICAL OR OTHER MEASUREMENTS, WE CANNOT, AND WE DO NOT GUARANTEE THE ACCURACY OR CORRECTNESS OF ANY INTERPRETATION. WE SHALL NOT BE LIABLE OR RESPONSIBLE FOR ANY LOSS, COST, DAMAGES, OR EXPENSES WHATSOEVER INCURRED OR SUSTAINED BY THE CUSTOMER RESULTING FROM ANY INTERPRETATION MADE BY ANY OF OUR EMPLOYEES.

BOREHOLE RECORD		
BIT SIZE	FROM	TO
444.5 MM	0.0 M	570.0 M
311.0 MM	570.0 M	2285.0 M
216.0 MM	2285.0 M	3130.0 M

CASING RECORD				
SIZE	WEIGHT	GRADE	FROM	TO
339.7 MM	81.1 KG/M	K-55	0.0 M	570.0 M
244.5 MM	64.7 KG/M	NA	570.0 M	2276.0 M
177.8 MM				

REMARKS	
RUN 2 TRIP 1 :	TIME STOPPED CIRCULATION: 27-NOV-2010 09:30 AM
	TD NOT LOGGED DUE TO DOWNHOLE CONDITIONS.
	SAMPLE MEASURED: RM 0.955 @ 15.2 DEG RMF 0.825 @ 15.2 DEG RMC 1.146 @ 15.2 DEG
	HOLE VOLUMES OBTAINED FROM 6-ARM STAR CALIPERS. INTEGRATED BOREHOLE VOLUME TICS EVERY: 0.1, 1.0 & 10.0 M3. INTEGRATED CEMENT VOLUME TICS EVERY: 0.1, 1.0, & 10.0 M3.
	TOTAL BOREHOLE VOLUME = 28.43 M3

TOTAL CEMENT VOLUME = 9.8 M3

RIG: STONEHAM 11

CREW: S.CREWE, J.HOUSE, L.BAZIAN, J.HENNESSEY, C.DROVER, J.WOODS, J. JEWEL  
K. HASIUK, B. BARRS

### EQUIPMENT DATA

RUN	TRIP	TOOL	SERIES NO.	SERIAL NO.	POSITION
2	1	SWIVEL	3944XB	73682	FREE
2	1	DHPA	4430XB	10152148	FREE
2	1	TMA	3981XB	370721	FREE
2	1	COMM	3514XB	150740	FREE
2	1	WTS DGR/SIJ	1329XB	370830	FREE
2	1	ACOUSTIC EL	1677EA	10149056	CENTRALIZED
2	1	XMAC RX MDR	1678MB	10039363	CENTRALIZED
2	1	XMAC ISO	1678PB	10148319	FREE
2	1	XMAC TX ELC	1678BA	370862	CENTRALIZED
2	1	XMAC TX ELC	1678FA	10051497	CENTRALIZED
2	1	ORIT	4401XB	10119993	FREE
2	1	WTS DBL KNJ	3939XA	10238695	FREE
2	1	STAR II PS	1022PA	10569170	FREE
2	1	F/ GOM	1036EA	10103726	FREE
2	1	STAR MANDRE	4236MA	10103666	6-PAD DEVICE

## INSTRUMENT CONFIGURATION

Source File: /dat1a/pass/nalcor\_finn\_run2/r2t1-ldg

#### CABLEHEAD

Diameter : 8.6 cm  
Length : 167.6 cm  
Weight : 10.9 kg  
Series : CABL338  
Mnemonic : CBLH

#### SWIVEL

Diameter : 8.6 cm  
Length : 101.6 cm  
Weight : 30.0 kg  
Series : 3944XB  
Mnemonic : SWVL

#### DOWNHOLE POWER ADAPTER

Diameter : 9.2 cm  
Length : 160.7 cm  
Weight : 39.1 kg  
Series : 4430XB  
Mnemonic : DHPA

#### TTRM SUB

Diameter : 9.2 cm  
Length : 116.8 cm  
Weight : 28.2 kg  
Series : 3981XA  
Mnemonic : TTRM  
Tensile Str. : 16818 kg

#### WTS COMMON REMOTE

Diameter : 9.2 cm  
Length : 194.0 cm  
Weight : 57.3 kg  
Series : 3514XB  
Mnemonic : WTS  
Tensile Str. : 35455 kg  
Compressive : 51818 kg



34.74 m

CABLEHEAD TOP 33.90 m

TEMP MP 29.69 m  
RM MP 29.82 m

#### DIGITAL SPECTRALOG

Diameter : 9.2 cm  
Length : 222.8 cm  
Weight : 59.1 kg  
Series : 1329XA  
Mnemonic : DSL  
Tensile Str. : 35455 kg  
Compressive : 38636 kg

GR MP — 25.59 m

#### ARRAY ACOUSTILOG ELECTRONICS, 8 CHANNEL

Diameter : 8.6 cm  
Length : 238.3 cm  
Weight : 46.4 kg  
Series : 1677EA  
Mnemonic : XMAC  
Tensile Str. : 23636 kg  
Compressive : 32727 kg

#### CROSS MULTIPOLE ARRAY ACOUSTILOG

Diameter : 9.8 cm  
Length : 332.4 cm  
Weight : 101.8 kg  
Series : 1678MB  
Mnemonic : XMAC  
Tensile Str. : 13636 kg  
Compressive : 13636 kg

R8 — 21.07 m  
R7 — 20.92 m  
R6 — 20.77 m  
R5 — 20.62 m  
R4 — 20.46 m  
R3 — 20.31 m  
R2 — 20.16 m  
R1 — 20.01 m

#### SHEAR WAVE ACOUSTILOG

Diameter : 9.2 cm  
Length : 152.4 cm  
Weight : 61.4 kg  
Series : 1678PB  
Mnemonic : XMAC  
Tensile Str. : 20455 kg  
Compressive : 20455 kg

#### MULTI-POLE ARRAY ACOUSTIC

Diameter : 9.8 cm  
Length : 241.3 cm  
Weight : 77.3 kg  
Series : 1678BA  
Mnemonic : XMAC  
Tensile Str. : 13636 kg  
Compressive : 13636 kg

MONOPOLE T2 — 17.42 m  
QUADRUPOLE T5 — 17.42 m

X-DIPOLE T3 — 16.88 m  
Y-DIPOLE T4 — 16.88 m

MONOPOLE T1 — 16.35 m

#### MULTI-POLE ARRAY ACOUSTIC

Diameter : 8.6 cm  
Length : 131.6 cm  
Weight : 26.4 kg  
Series : 1678FA  
Mnemonic : MAC  
Tensile Str. : 35455 kg

#### DIGITAL ORIENTATION

Diameter : 8.6 cm  
Length : 329.4 cm  
Weight : 50.0 kg  
Series : 4401XB  
Mnemonic : ORIT  
Tensile Str. : 35455 kg

ORIENT MP — 10.85 m

**KNUCKLE JOINT (DOUBLE)**

Diameter : 8.8 cm  
Length : 141.8 cm  
Weight : 40.9 kg  
Series : 3939XA  
Mnemonic : KJUT  
Tensile Str. : 14545 kg  
Compressive : Borehole Size Dependent

**C6PC IMAGER POWER SUPPLY**

Diameter : 9.2 cm  
Length : 276.9 cm  
Weight : 52.7 kg  
Series : 1022PA  
Mnemonic : C6PC  
Tensile Str. : 35455 kg  
Compressive : 25455 kg

**C6PC IMAGER ELECTRONICS**

Diameter : 9.2 cm  
Length : 276.9 cm  
Weight : 42.7 kg  
Series : 1036EA  
Mnemonic : C6PC  
Tensile Str. : 35455 kg  
Compressive : Borehole Size Dependent

**C6PC IMAGER MANDREL**

Diameter : 13.3 cm  
Length : 381.0 cm  
Weight : 126.4 kg  
Series : 4236MA  
Mnemonic : C6PC

**BULL PLUG 3 3/8**

TOTAL LENGTH: 34.74 m  
TOTAL WEIGHT: 859.5 kg  
MAX DIAMETER: 13.3 cm



PAD MP 1.09 m

0.00 m

**BOREHOLE PROFILE ORIENTED TO TRUE NORTH - 177.8 MM CASING**

LOGGING MODE: DEPTH / TIME / DISTANCE / DIRECTION: UP  
TOP DEPTH: 2245.919 m BOTTOM DEPTH: 3018.968 m

SYMMETRIC FILTER

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (m)	
CHT	FILTER ( )	medium (1)		TOP	BOTTOM
TENSION	FILTER ( )	medium (1)		"	"
GR	FILTER ( )	medium (1)		"	"

BOREHOLE & CEMENT

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (m)	
CASING - BOREHOLE & CEMENT VOLUME	CASING O.D.	177.800	mm	TOP	BOTTOM
MULTI-ARM (6) CALIPER PROCESSING	CALC. METHOD	CHAD (SPLINE FIT)		"	"
BIT SIZE	BIT SIZE	216.000	mm	"	"

CURVE DESCRIPTION REPORT

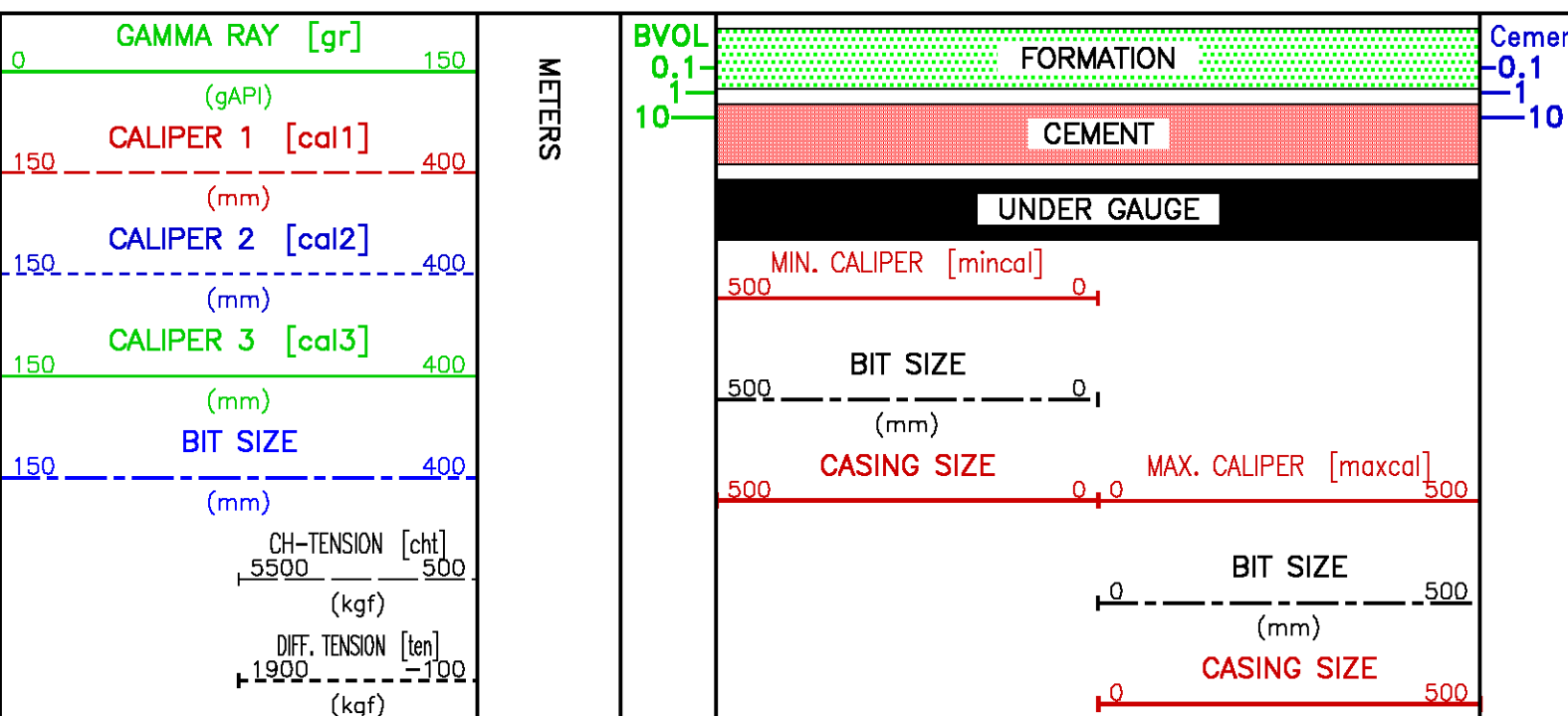
CURVE NAME	CREATION DATE	CURVE DESCRIPTION
F1:BIT	Nov 27 14:41:47 2010	BIT SIZE
F1:BVOL	Nov 27 14:41:47 2010	BOREHOLE VOLUME
F1:CAL1	Nov 27 14:41:47 2010	DIAMETER FROM PAD 1 AND ITS OPPOSITE
F1:CAL2	Nov 27 14:41:47 2010	DIAMETER FROM PAD 2 AND ITS OPPOSITE
F1:CAL3	Nov 27 14:41:47 2010	DIAMETER FROM PAD 3 AND ITS OPPOSITE
F1:CHT	Nov 27 14:41:47 2010	CABLE HEAD TENSION
F1:CVOL	Nov 27 14:41:47 2010	CEMENT VOLUME
F1:GR	Nov 27 14:41:47 2010	GAMMA RAY
F1:TEN	Nov 27 14:41:47 2010	DIFFERENTIAL TENSION

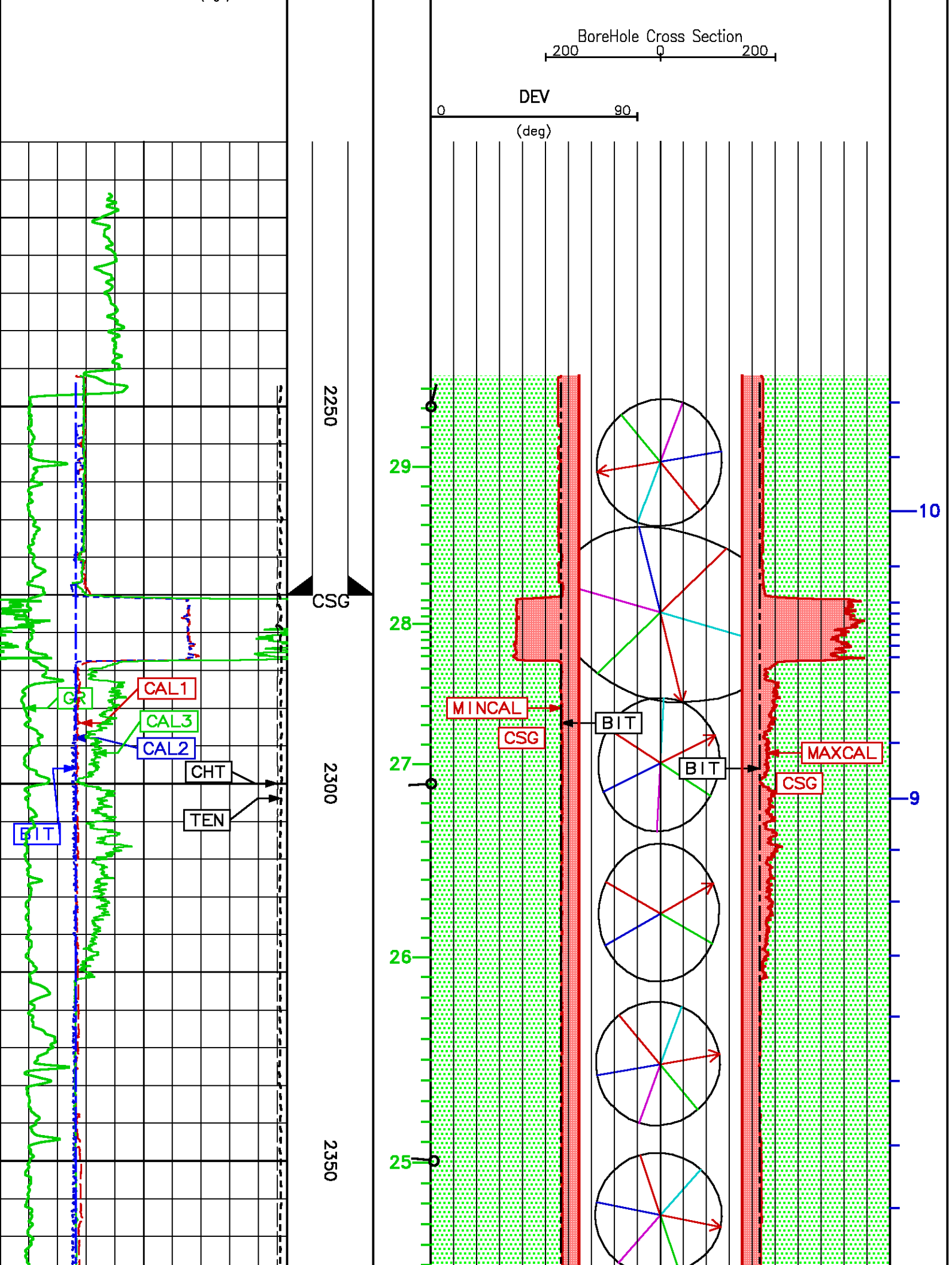
CURVE MEASURE POINT OFFSET

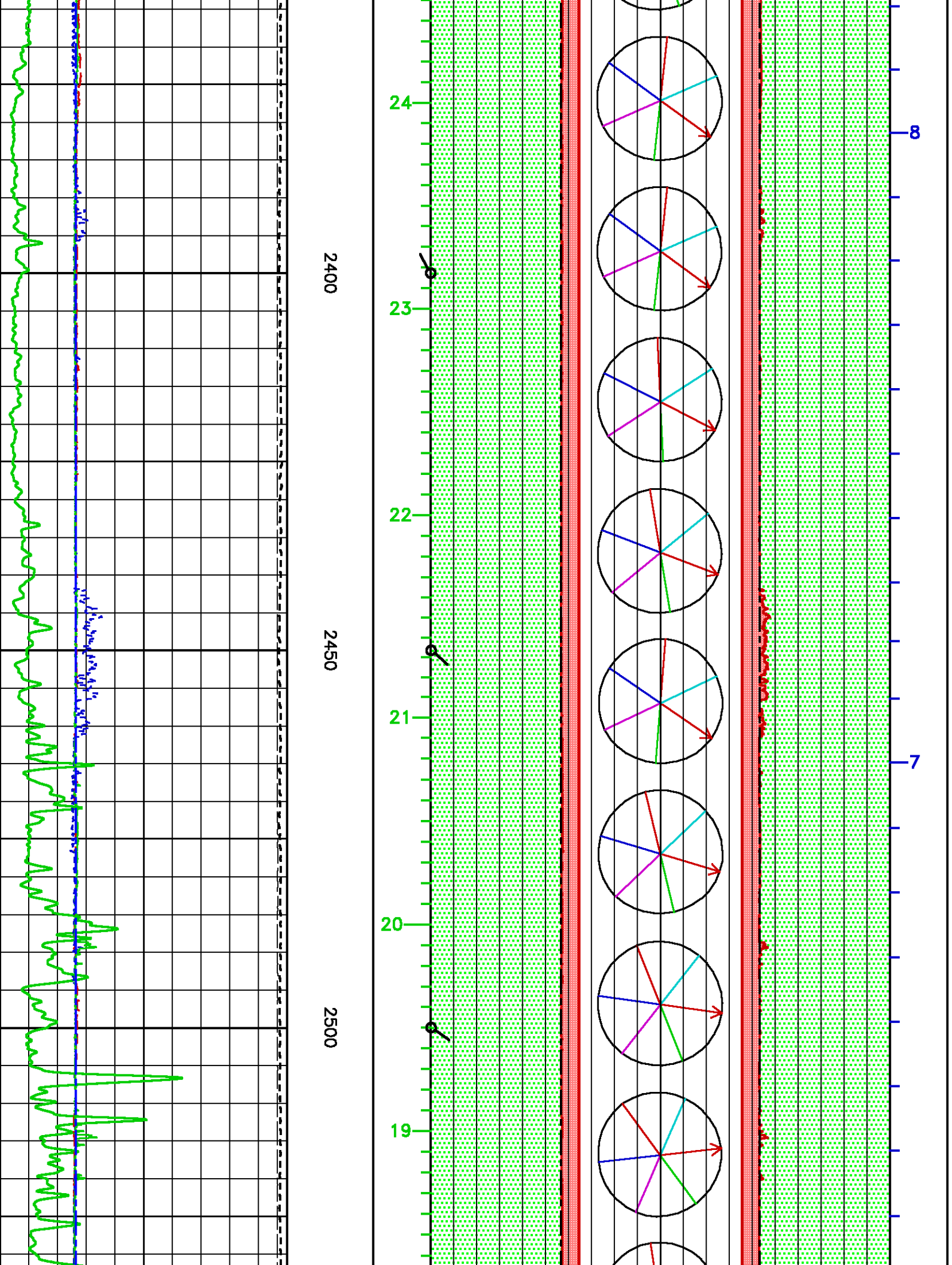
CURVE	OFFSET (m)	CURVE	OFFSET (m)	CURVE	OFFSET (m)	CURVE	OFFSET (m)
BIT	0.00	CAL2	0.99	CHT	0.00	TEN	0.00
CAL1	0.99	CAL3	0.99	GR	25.49		

Presentation : cpu1:/dat1a/pass/nalcor\_flnn\_run2/bhphexcals-true\_177.8.pdf [1:600 Scale]  
Plot Interval : 2217.42 - 3040 Meters

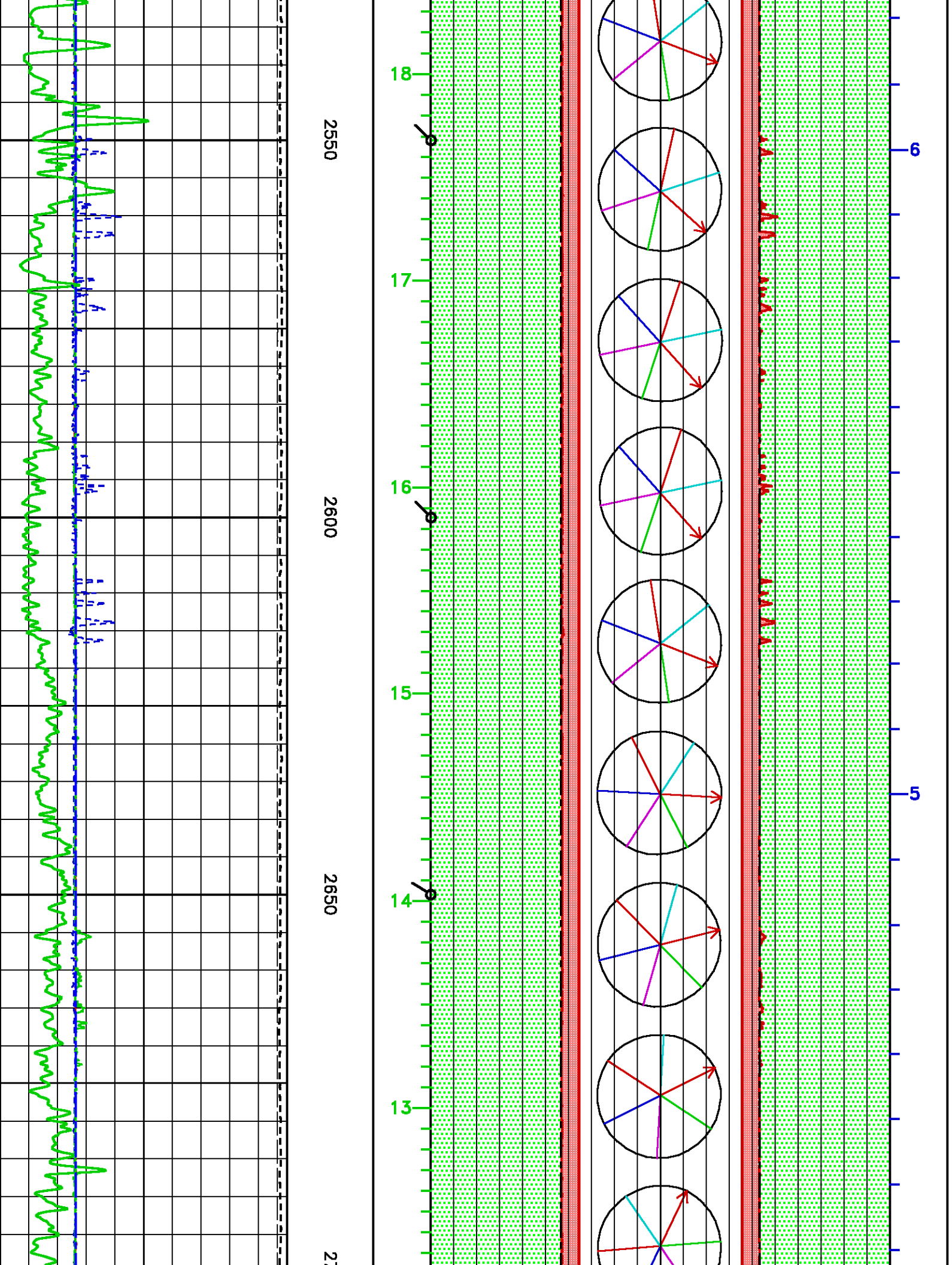
Data File 1 : F1 : cpu1:/dat1a/pass/nalcor\_flnn\_run2/bhp.xtf  
Created On : Nov 27 14:41:47 2010  
Company : NALCOR ENERGY  
Well : NALCOR ET AL FINNEGAN 1  
Field : FINNEGAN  
File Interval : 2217.42 - 3020.03 Meters  
Oct : m837c\_xm



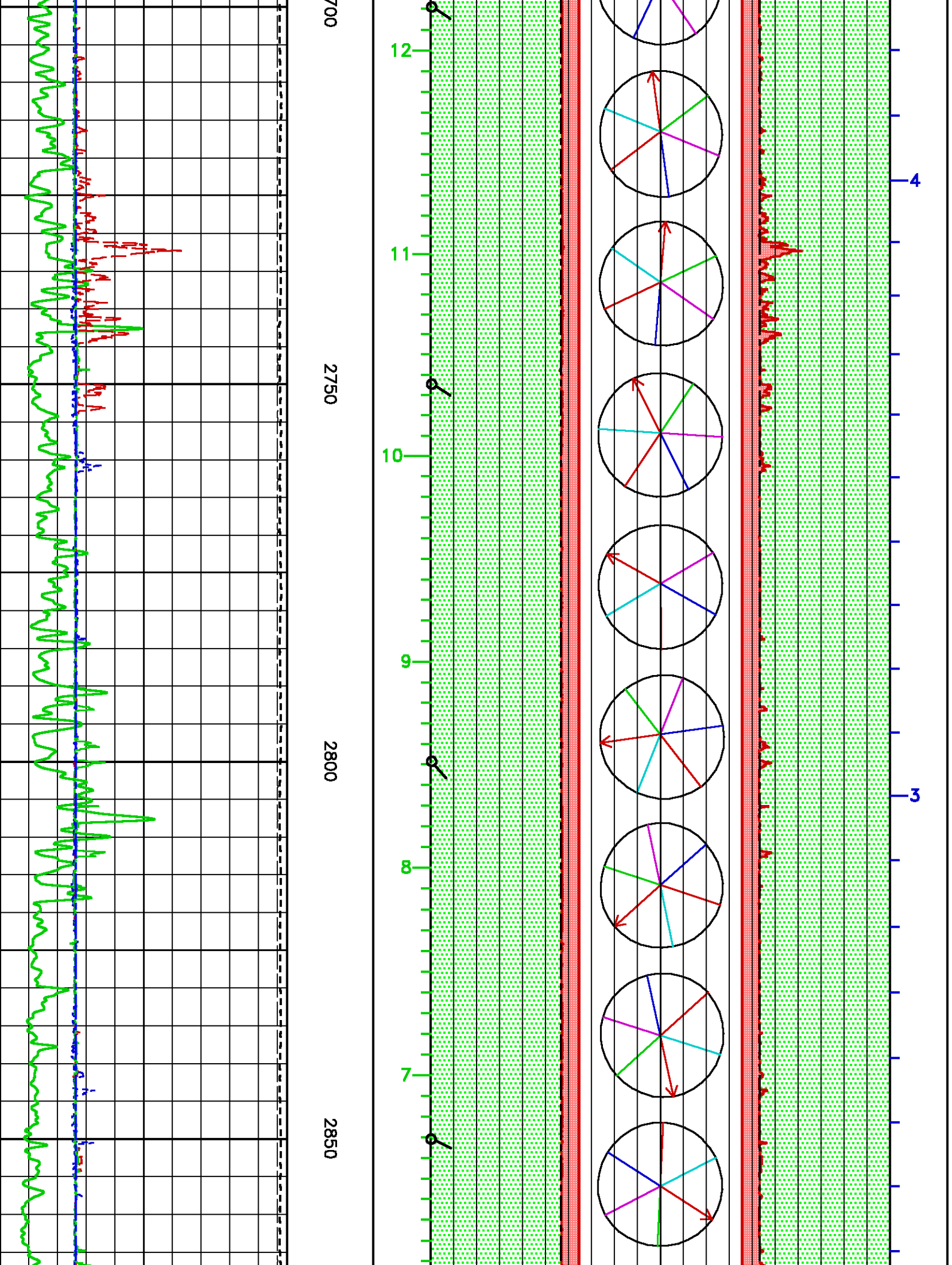


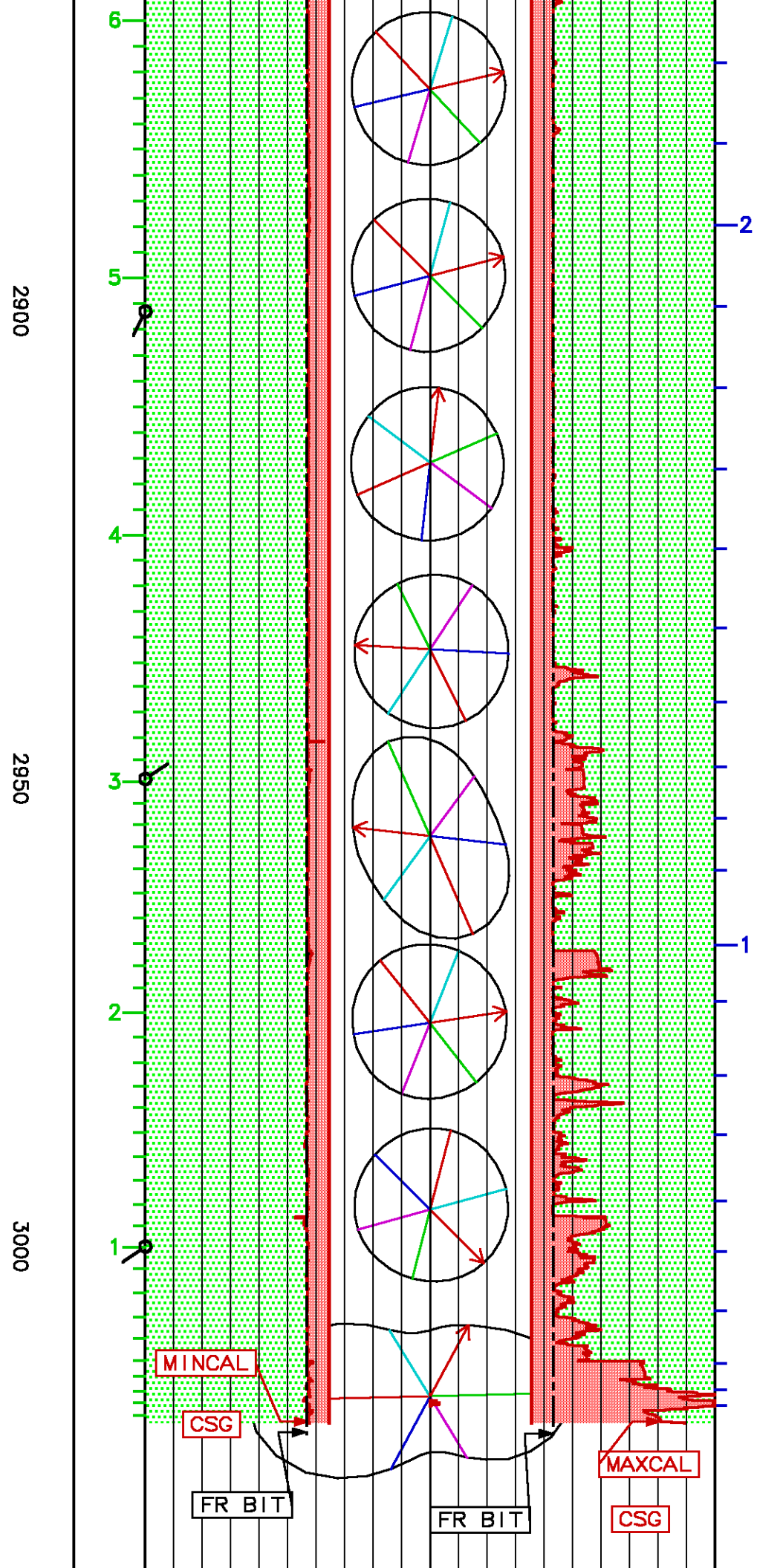
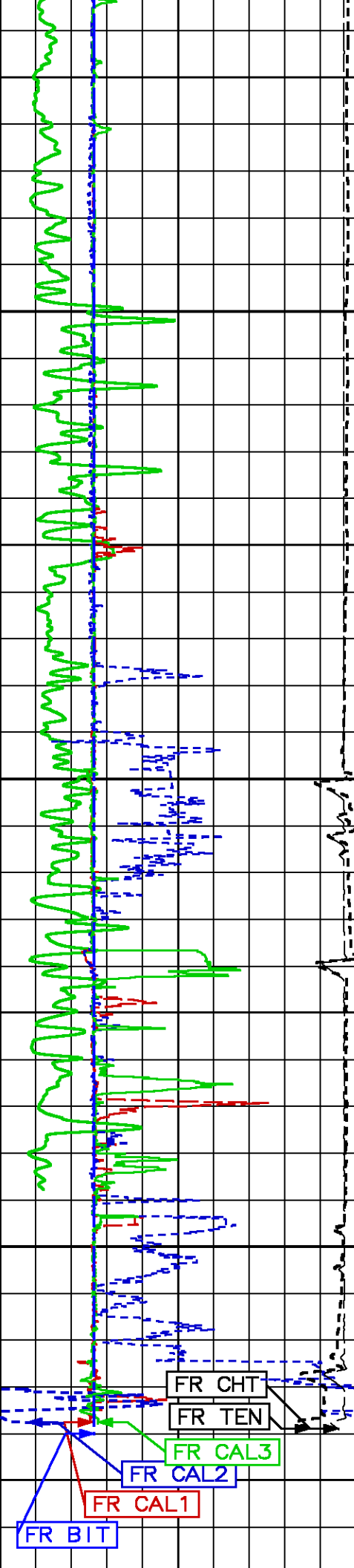


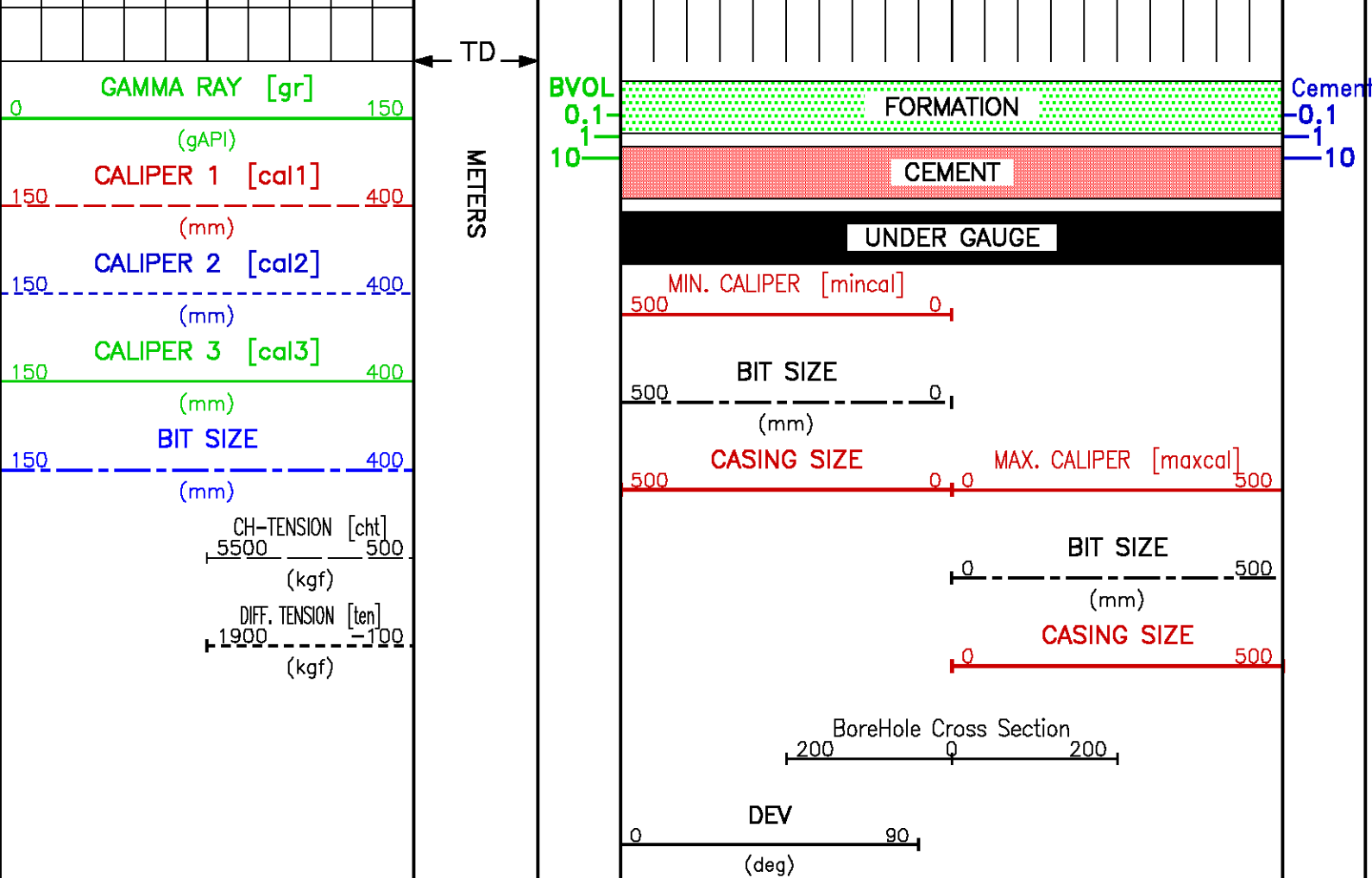












## CALIBRATION / VERIFICATION SUMMARY

Source File: /dat1a/pass/nalcor\_finn\_run2/r2t1\_cals.tp1

### GR PRIMARY CALIBRATION SUMMARY

TOOL #: 1329XA 370830

DATE/TIME PERFORMED: Sun Nov 21 15:11:44 2010

UNIT #: 3885TF 004291

CALB JIG #: 4702NK DA-549

	BACKGROUND CALBTR ON (cts/s)	CR DIFF (cts/s)	MULT	BACKGROUND CALBTR ON (gAPI)	CALBTR (gAPI)
GR	313.38	1248.40	0.160	50.27	200.27
		830.0 960.0			150

### GR PRIMARY VERIFICATION SUMMARY

TOOL #: 1329XA 370830

DATE/TIME PERFORMED: Sun Nov 21 15:16:00 2010

UNIT #: 3885TF 004291

CALB JIG #: 4702NK DA-549

UNIT #: 3885TF 004291

VERI JIG #: 4702NK DA-549

	BACKGROUND CALBRTR ON (cts/s)	MULT	BACKGROUND CALBRTR ON (gAPI)	DIFF. (gAPI)
GR	310.42	0.160	49.80	148.20
	1234.20		198.00	140.00 160.00

## GR BEFORE LOG VERIFICATION SUMMARY

TOOL #: 1329XA 370830 DATE/TIME PERFORMED: Sat Nov 27 12:29:10 2010 DAYS SINCE CAL: 5

UNIT #: 3885TF 004291 VERI JIG #: 4702NK DA-549

	BACKGROUND CALBRTR ON (cts/s)	MULT	BACKGROUND CALBRTR ON (gAPI)	DIFF. (gAPI)
GR	139.69	0.160	22.41	140.53
	1015.67		162.94	138.20 158.20

## GR AFTER LOG VERIFICATION SUMMARY

TOOL #: 1329XA 370830 DATE/TIME PERFORMED: Sat Nov 27 16:59:08 2010 DAYS SINCE CAL: 6

UNIT #: 3885TF 004291 VERI JIG #: 4702NK DA-549

	BACKGROUND CALBRTR ON (cts/s)	MULT	BACKGROUND CALBRTR ON (gAPI)	DIFF. (gAPI)
GR	133.62	0.160	21.44	144.11
	1031.93		165.55	130.53 150.53

## STARCAL PRIMARY CALIBRATION SUMMARY

TOOL #: 4236MA 10103666

DATE/TIME PERFORMED: Sun Nov 21 14:35:34 2010

UNIT #: 3885TF 004291

	SMALL RING (raw)	LARGE RING (raw)	MULT (mm/raw)	ADD (mm)	SMALL RING (mm)	LARGE RING (mm)
RADIUS 1	1222.2	2550.8	0.0526	37.3462	101.600	171.450
RADIUS 2	1252.4	2587.9	0.0523	36.0917	101.600	171.450
RADIUS 3	1213.4	2583.0	0.0510	39.7186	101.600	171.450
RADIUS 4	1198.7	2558.8	0.0514	40.0377	101.600	171.450
RADIUS 5	1200.9	2608.4	0.0496	42.0003	101.600	171.450
RADIUS 6	1192.6	2548.8	0.0515	40.1747	101.600	171.450
CALIPER 1					203.200	342.900

CALIPER 2

203.200

342.900

CALIPER 3

203.200

342.900

SMALL RING LARGE RING

PAD FORCE % 9.630 10.172

DC MOTOR V 1.6 1.6

## STARCAL BEFORE LOG VERIFICATION SUMMARY

TOOL #: 4236MA 10103666 DATE/TIME PERFORMED: Sat Nov 27 14:06:16 2010 DAYS SINCE CAL: 5

UNIT #: 3885TF 004291

	I.D. (row)	MULT	ADD	I.D. (mm pct V)	CASING SIZE (mm)
RADIUS 1	1450.4	0.05257	37.34620	113.601	
RADIUS 2	1236.6	0.05230	36.09169	100.770	
RADIUS 3	1199.5	0.05100	39.71860	100.890	
RADIUS 4	1305.2	0.05136	40.03770	107.067	
RADIUS 5	1559.6	0.04963	42.00031	119.399	
RADIUS 6	1585.9	0.05150	40.17473	121.857	
CALIPER 1				220.668	222.400
CALIPER 2				220.169	
CALIPER 3				222.747	
PAD FORCE				5.635	
DC MOTOR V				1.6	

## STARCAL AFTER LOG VERIFICATION SUMMARY

TOOL #: 4236MA 10103666 DATE/TIME PERFORMED: Sat Nov 27 16:13:31 2010 DAYS SINCE CAL: 6

UNIT #: 3885TF 004291

	I.D. (row)	MULT	ADD	I.D. (mm pct V)	CASING SIZE (mm)
RADIUS 1	1315.9	0.05257	37.34620	106.529	

RADIUS 2 1311.8 0.05230 36.09169 104.703

RADIUS 3 1335.4 0.05100 39.71860 107.825

RADIUS 4 1347.6 0.05136 40.03770 109.248

RADIUS 5 1476.1 0.04963 42.00031 115.255

RADIUS 6 1384.5 0.05150 40.17473 111.483

CALIPER 1 215.777 222.400  
207.968 233.368

CALIPER 2 219.958  
207.469 232.869

CALIPER 3 219.309  
210.047 235.447

PAD FORCE 6.124

DC MOTOR V 1.9

## STAR\_OR PRIMARY CALIBRATION SUMMARY

TOOL #: 102NBX 10103666

DATE/TIME PERFORMED: Sun Nov 21 14:20:20 2010

UNIT #: 3885TF 004291

ORIENTATION #: 4401XB 10119993

	DEV (deg)	QA (mG)	MEAS RB (deg)	RB OFFSET (deg)	ROTATED RB (deg)
ORIT TBM CHECK	90.0	1001.0 990.0 1010.0	360.0 357.5 2.5		
STAR ORIENTATION			72.6	72.6	0.0



Baker Atlas



COMPANY NALCOR ENERGY  
WELL NALCOR ET AL FINNEGAN #1  
FIELD FINNEGAN  
PROVINCE NEWFOUNDLAND AND LABRADOR

LOCATION:

LAT 49.92 N LONG 63.33 W

ELEVATIONS:

KB 125.00 M  
DF  
GL 118.75 M

DATE 27-NOV-2010

FILE NO:

API NO:

LICENSE:  
2010-128-04