COMPANY: **ENERFIN RESOURCES NORTHWEST**

WELL: **John Hancock 32-27-64**

FIELD: **Mist**

COUNTY: **Columbia** **STATE:** **Oregon**

COUNTY: Columbia
Field: Mist
Location: 1632' S & 1387' N From the
Well: John Hancock 32-27-64
Company: ENERFIN RESOURCES NORTH

Schlumberger

Platform Express
Array Induction/SP/GR/ML
Density/Neutron/Sonic

LOCATION

1632' S & 1387' N From the
NE Corner of Section 27

Elev.:	K.B.	1046 F
	G.L.	1036 F
	D.F.	

Permanent Datum:	GROUND LEVEL	Elev.:	1036 F
Log Measured From:	KELLY BUSHING	10.0 F	above Perm. Datum
Drilling Measured From:	KELLY BUSHING		

API Serial No.	SECTION	TOWNSHIP	RANGE
	27	6N	4W

Logging Date		7-NOV-1998			
Run Number		One			
Depth Driller		2212 F			
Schlumberger Depth		2185 F			
Bottom Log Interval		2177 F			
Top Log Interval		30 F			
Casing Driller Size @ Depth		7.000 IN	@ 522 F		@
Casing Schlumberger		520 F			
Bit Size		6.250 IN			
Type Fluid In Hole		Cypan /LCM			
MUD Density	Viscosity	9.1 LB/G	42 S		
Fluid Loss	PH	5.6 C3	7.8		
Source Of Sample		Flowline			
RM @ Measured Temperature		5.700 OHMM	@ 65 DEGF		@
RMF @ Measured Temperature		4.700 OHMM	@ 46 DEGF		@
RMC @ Measured Temperature		4.500 OHMM	@ 45 DEGF		@
Source RMF	RMC	Press	Press		
RM @ MRT	RMF @ MRT	4.826 @ 78	2.926 @ 78	@	@
Maximum Recorded Temperatures		78 DEGF			
Circulation Stopped	Time	7-NOV-1998	0:15		
Logger On Bottom	Time	7-NOV-1998	4:45		
Unit Number	Location	3152	Sacramento		
Recorded By		Jason Gendur			
Witnessed By		Dave Huggins			

Logging Date
Run Number
Depth Driller
Schlumberger De
Bottom Log Interv
Top Log Interval
Casing Driller Siz
Casing Schlumbe
Bit Size
Type Fluid In Hole
MUD Density
Fluid Loss
Source Of Samp
RM @ Measured
RMF @ Measurec
RMC @ Measurec
Source RMF
RM @ MRT
Maximum Record
Circulation Stopp
Logger On Bottor
Unit Number
Recorded By
Witnessed By

pth
al
e @ Depth
rger
e
Viscosity
PH
le
Temperature
l Temperature
d Temperature
RMC
RMF @ MRT
ed Temperatures
ed
Time
n
Time
Location

Run 1
Run 2
Run 3
Run 4

ALL INTERPRETATIONS ARE OPINIONS BASED ON INFERENCES FROM ELECTRICAL OR OTHER MEASUREMENTS AND WE CANNOT, AND DO NOT GUARANTEE THE ACCURACY OR CORRECTNESS OF ANY INTERPRETATIONS, AND WE SHALL NOT, EXCEPT IN THE CASE OF GROSS OR WILLFUL NEGLIGENCE ON OUR PART, BE LIABLE OR RESPONSIBLE FOR ANY LOSS, COSTS, DAMAGES OR EXPENSES INCURRED OR SUSTAINED BY ANYONE RESULTING FROM ANY INTERPRETATION MADE BY ANY OF OUR OFFICERS, AGENTS OR EMPLOYEES. THESE INTERPRETATIONS ARE ALSO SUBJECT TO CLAUSE 4 OF OUR GENERAL TERMS AND CONDITIONS AS SET OUT IN OUR CURRENT PRICE SCHEDULE.

OTHER SERVICES1	OTHER SERVICES2
OS1:	OS1:
OS2:	OS2:
OS3:	OS3:
OS4:	OS4:
OS5:	OS5:

REMARKS: RUN NUMBER 1	REMARKS: RUN NUMBER 2
Thank you for choosing Schlumberger!	
Rig: Taylor Drilling #7	
AIT run with 1/2" standoffs.	
Log run on sandstone matrix = 2.65 g/c3.	
Rwa computed with density porosity.	
SP shifted at 1575 ft.	
Sonic cycle skip at 879 ft.	
Your crew today is Forehand & Wright.	

RUN 1		RUN 2	
SERVICE ORDER #:	1222193	SERVICE ORDER #:	
PROGRAM VERSION:	8C1-205	PROGRAM VERSION:	
FLUID LEVEL:		FLUID LEVEL:	

LOGGED INTERVAL	START	STOP	LOGGED INTERVAL	START	STOP

EQUIPMENT DESCRIPTION

RUN 1	RUN 2

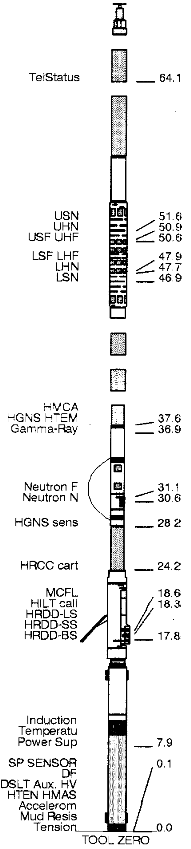
SURFACE EQUIPMENT

GSR-U/Y
NCT-B
CNB-AB
NCS-VB

WITM (CTS)-A

DOWNHOLE EQUIPMENT

LEH-QT	LEH-QT	70.0
TCC-BF	ECH-KC TCC-BF	67.1
DSLT-TCC	DSLC-B ECH-KH SLS-W	64.1
AH-107	AH-107	43.5
AH-107	AH-107	41.5
HILTB-DTB	HTBCC HMCA HGNS-CAN-B HGNS-H NLS-KL NSR-F HACCZ HCNT HGR HRCC-B 723 HRMS-B 923 HRGD 723 GLS-VJ 1924 MCFL Device HILT Nucl. LS HILT Nucl. SS HILT Nucl. BS AIT-H AHIS-BA BOW-SPR NPV-N	39.5



0.5 IN
Standoff

0.5 IN
Standoff

MAXIMUM STRING DIAMETER 4.88 IN
MEASUREMENTS RELATIVE TO TOOL ZERO
ALL LENGTHS IN FEET

Input DLIS Files

DEFAULT	HILTB .014	FN:11	FIELD	07-Nov-1998 05:56	2196.0 FT	390.5 FT

Output DLIS Files

Integrated Hole/Cement Volume Summary

Hole Volume = 361.56 F3

Cement Volume = 280.17 F3 (assuming 2.88 IN casing O.D.)

Computed from 2196.0 FT to 391.0 FT using data channel(s) HCAL

OP System Version: 8C1-205

MCM

HILTB-DTB	APCW-98Q2	DSLT-TCC	APCW-98Q2
TCC-BF	APCW-98Q2		

PIP SUMMARY

├ Integrated Hole Volume Minor Pip Every 10 F3

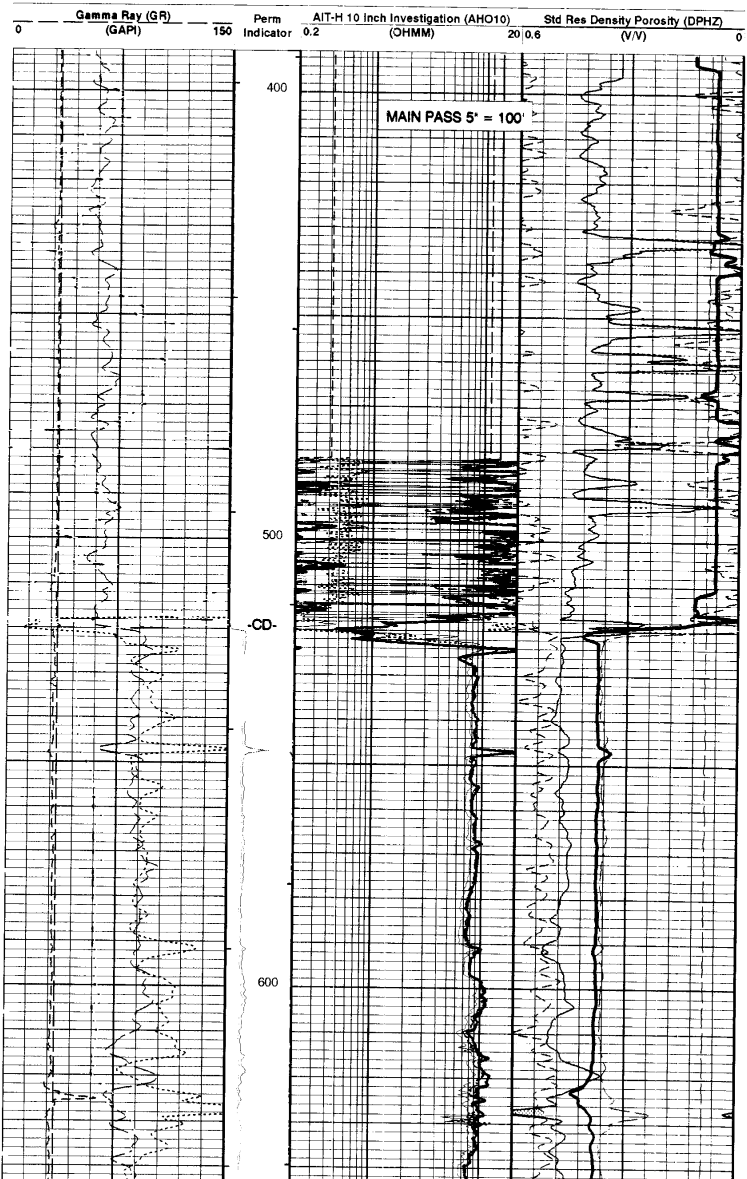
┣ Integrated Hole Volume Major Pip Every 100 F3

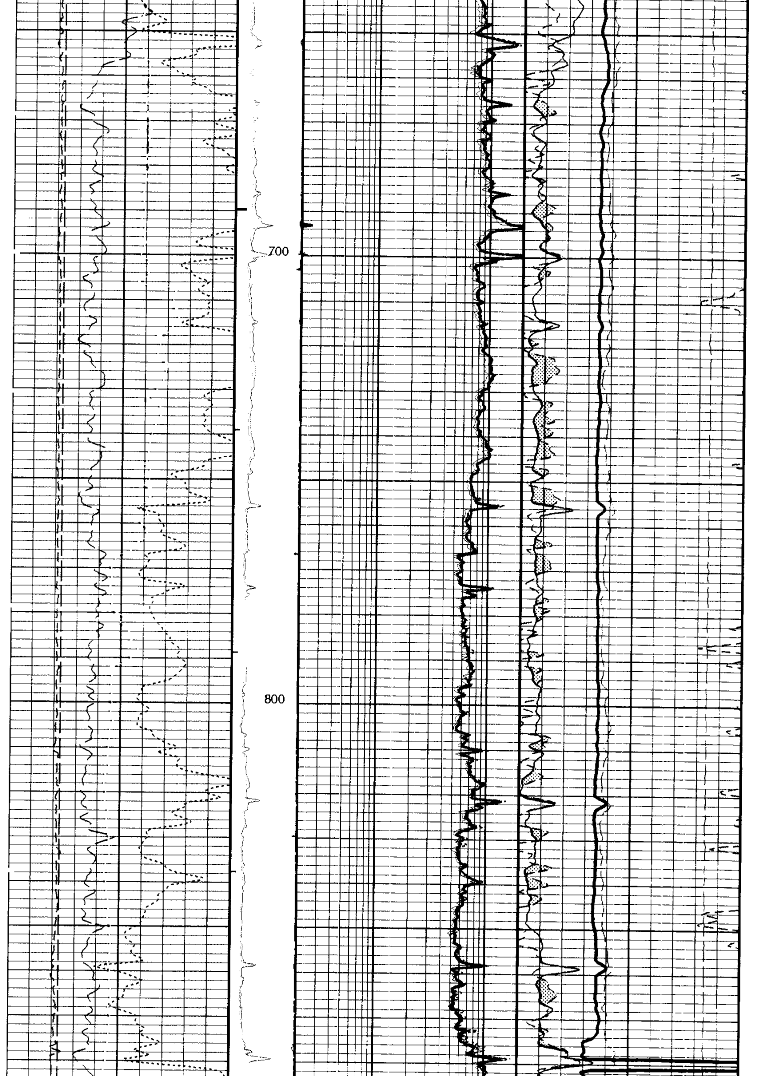
┤ Integrated Cement Volume Minor Pip Every 10 F3

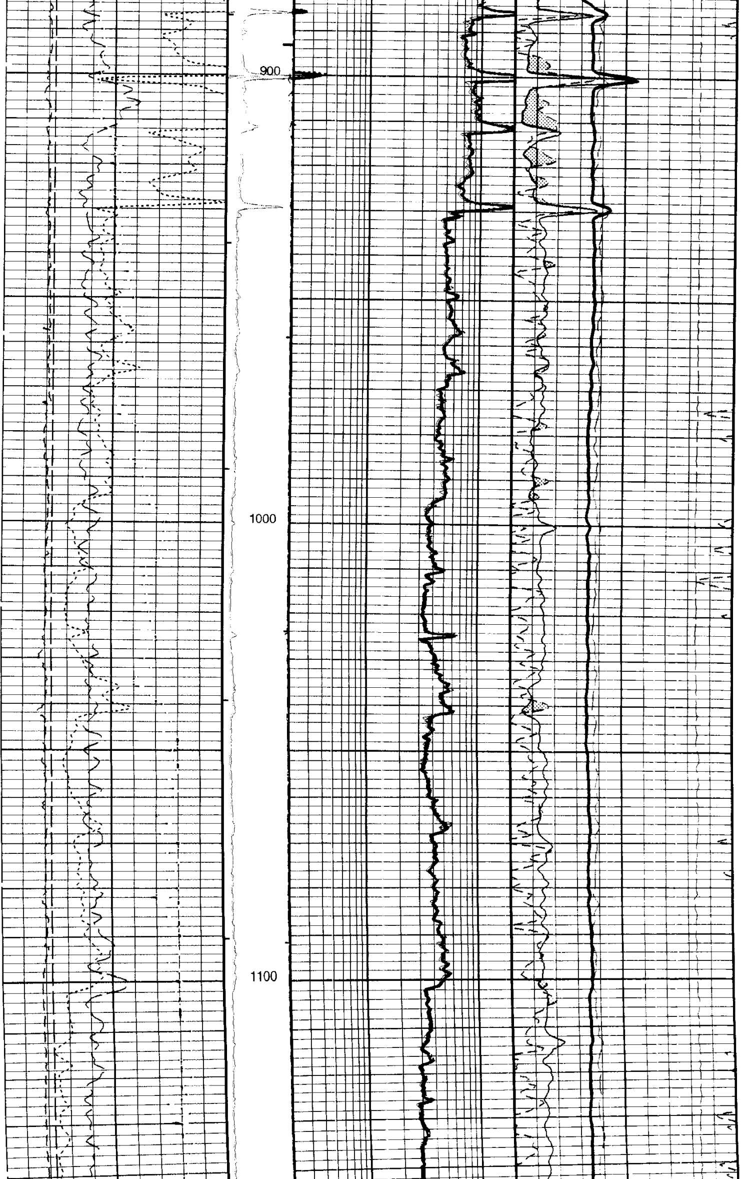
┫ Integrated Cement Volume Major Pip Every 100 F3

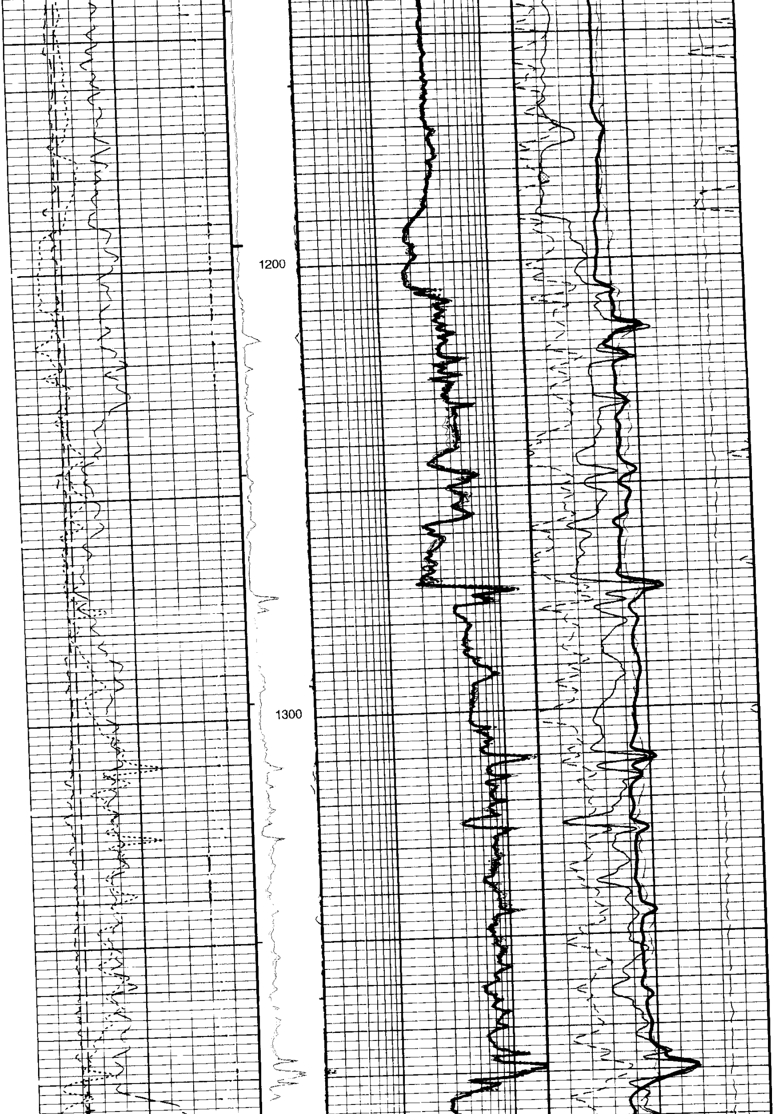
■ Time Mark Every 60 S

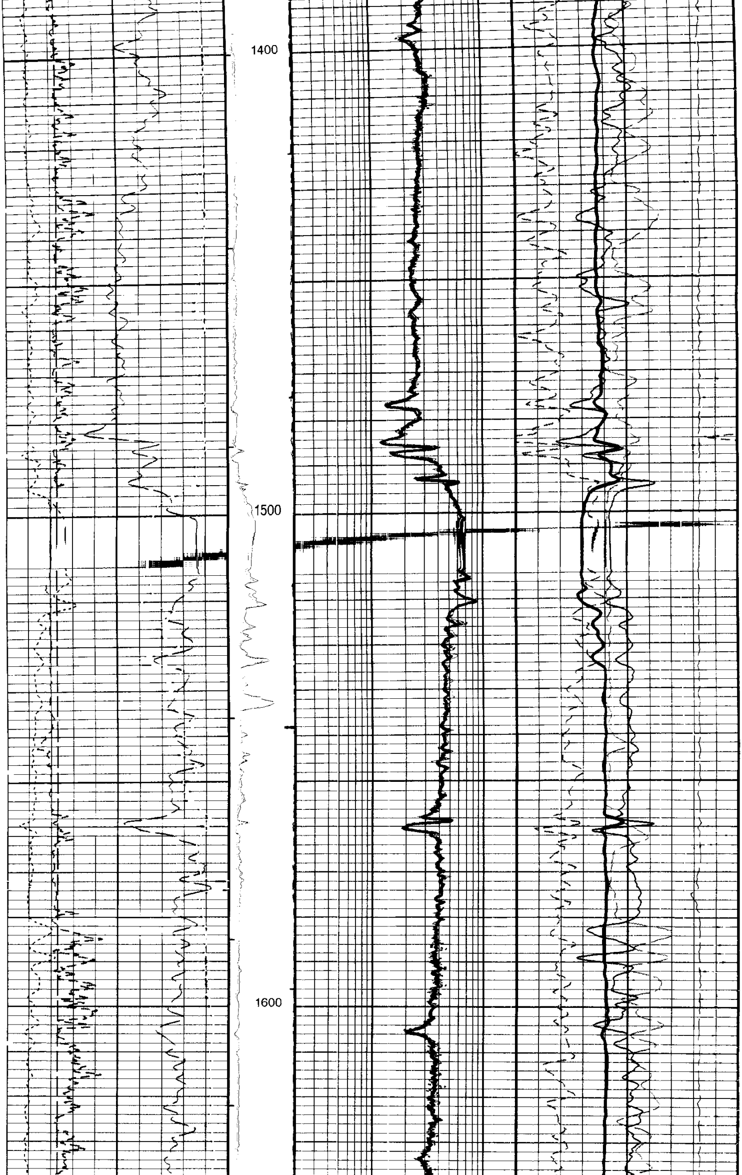
			Env.Corr.Thermal Neutron Porosity (TNPH) 1.2 (V/V) 0.6
			Env.Corr.Thermal Neutron Porosity (TNPH) 0.6 (V/V) 0
			Crossover
	Micro Normal Resistivity (HMNO) (OHMM) 0 30	AIT-H 90 Inch Investigation (AHO90) 0.2 (OHMM) 20	Tension (TENS) 10000 (LBF) 0
RWA (RWA) 0 (OHMM) 3	Micro Inverse Resistivity (HMIN) (OHMM) 0 30	AIT-H 60 Inch Investigation (AHO60) 0.2 (OHMM) 20	Sonic Porosity (SPHI) 0.6 (V/V) 0
Caliper (HCAL) 4 (IN) 14	Resistivity standoff (RSOZ) 2 (IN) 0	AIT-H 30 Inch Investigation (AHO30) 0.2 (OHMM) 20	Formation Pe (PEFZ) -1 (----) 9
Bit Size (BS) 4 (IN) 14		AIT-H 20 Inch Investigation (AHO20) 0.2 (OHMM) 20	Std Res Density Porosity (DPHZ) 1.2 (V/V) 0.6

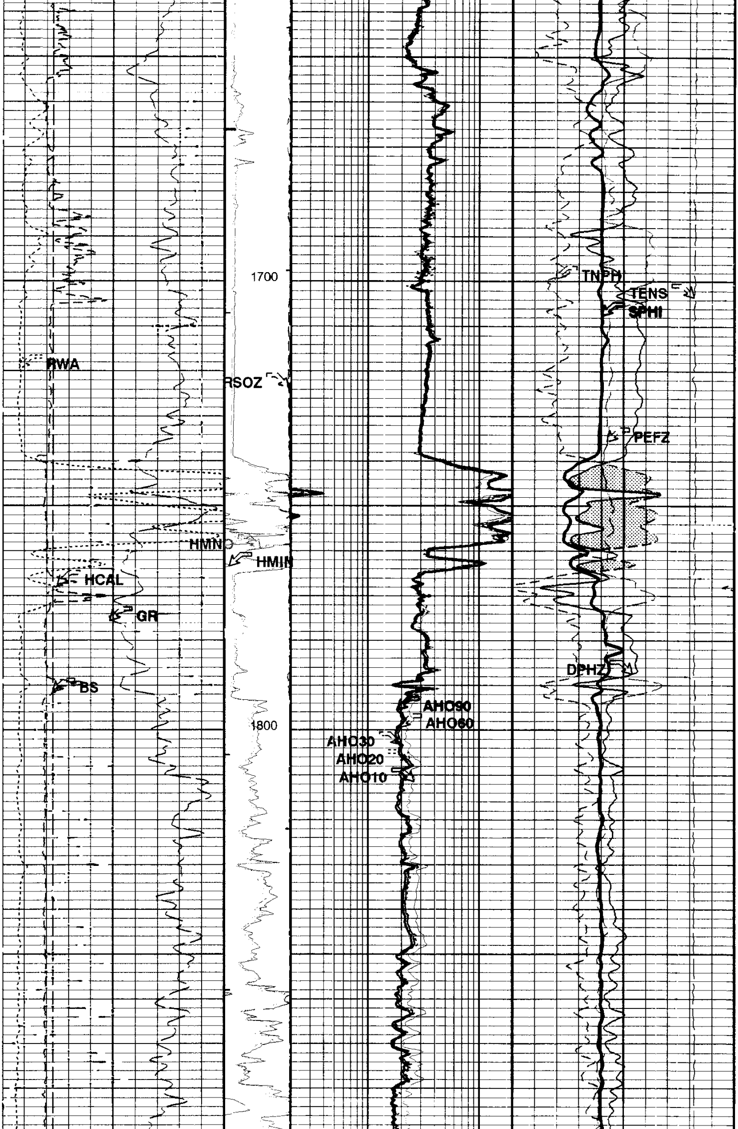


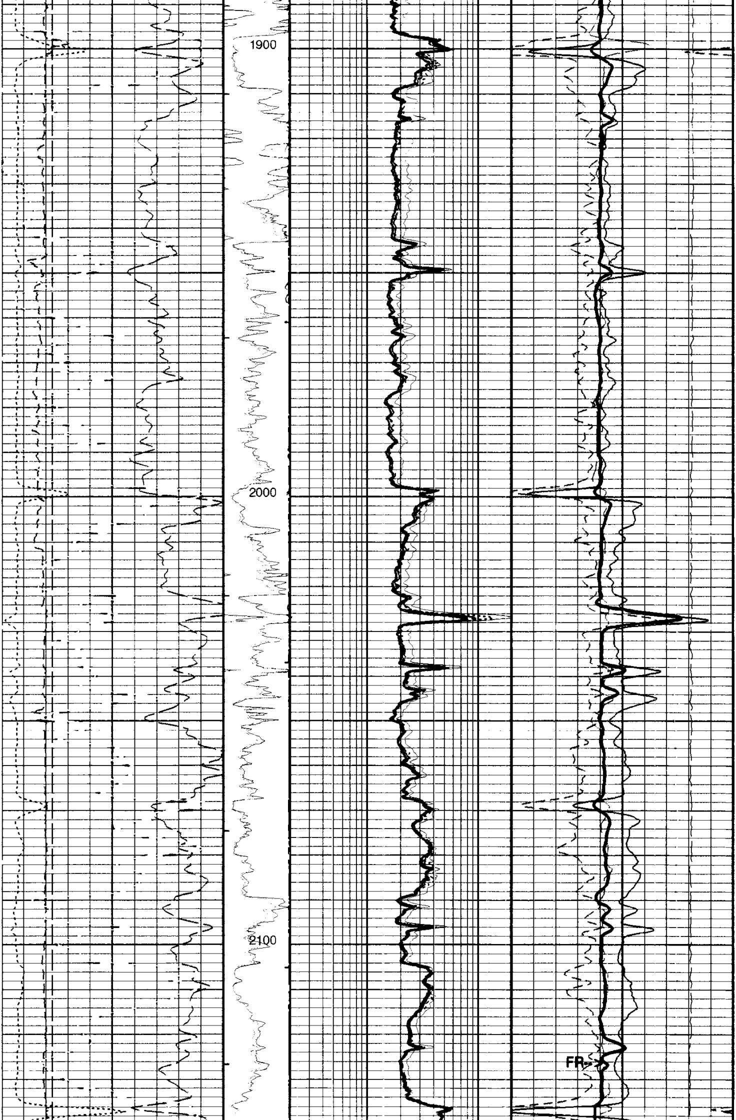


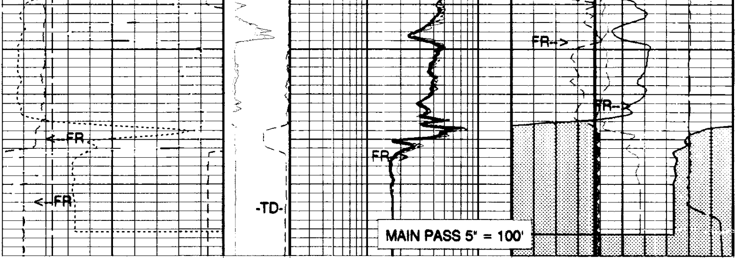












Gamma Ray (GR) 0 (GAPI) 150	Perm Indicator	AIT-H 10 Inch Investigation (AHO10) 0.2 (OHMM) 20	Std Res Density Porosity (DPHZ) 0.6 (V/V) 0
Bit Size (BS) 4 (IN) 14		AIT-H 20 Inch Investigation (AHO20) 0.2 (OHMM) 20	Std Res Density Porosity (DPHZ) 1.2 (V/V) 0.6
Caliper (HCAL) 4 (IN) 14	Resistivity standoff (RSOZ) 2 (IN) 0	AIT-H 30 Inch Investigation (AHO30) 0.2 (OHMM) 20	Formation Pe (PEFZ) -1 (----) 9
RWA (RWA) 0 (OHMM) 3	Micro Inverse Resistivity (HMIN) (OHMM) 0 30	AIT-H 60 Inch Investigation (AHO60) 0.2 (OHMM) 20	**Sonic Porosity (SPHI)** **0.6 (V/V) 0**
	Micro Normal Resistivity (HMNO) (OHMM) 0 30	**AIT-H 90 Inch Investigation (AHO90)** **0.2 (OHMM) 20**	Tension (TENS) 10000 (LBF) 0
			▨ Crossover
			Env.Corr.Thermal Neutron Porosity (TNPH) 0.6 (V/V) 0
			Env.Corr.Thermal Neutron Porosity (TNPH) 1.2 (V/V) 0.6

PIP SUMMARY

⊢ Integrated Hole Volume Minor Pip Every 10 F3
⊢ Integrated Hole Volume Major Pip Every 100 F3
⊣ Integrated Cement Volume Minor Pip Every 10 F3
⊣ Integrated Cement Volume Major Pip Every 100 F3

■ Time Mark Every 60 S

AIT-H Answer Product Processing Summary. Data taken with tool # 277 (AHTNO)
...Acquired data from HILT/HAIT

***** Bhole Correction *****

Effective Tool Standoff computed. Borehole diameter and mud res. taken as input (see GCSE and GRSE parameters)

Tool is run in ECCENTERED mode with a tool stand-off of 0.50 IN. Bit Size is 6.25 IN.

***** Input Selections to AIT Answer Product processing *****

Caliper (GCSE): HCAL Mud Resistivity (GRSE): AHMF Temperature (GTSE): LINEAR_ESTIMATE Porosity (FPHI): DPHZ

***** Other parameters used by AIT-H/SAIT Answer Product processing *****

Surface Hole Temperature (SHT)	68.000 DEGF	Bottom Temperature (BHT)	78.000 DEGF
Total Depth (TD)	2212.000 FT		
Form Factor Exponent (FEXP)	2.000	Form Factor Numerator (FNUM)	1.000
Mud Filtrate Sample Resistivity (RMFS)	4.700 OHMM	Mud Filtrate Sample Temperature (MFST)	46.000 DEGF
Resitivity Connate Water (RW)	1.000 OHMM		

***** AIT-H/SAIT Answer Product processing control parameters *****

Playback Mode: OFF

Parameters

DLIS Name	Description	Value	
AHBHM	AIT-H Bhole Correction Mode	2_ComputeStandoff	
AHBLM	AIT-H Basic Logs Mode	6_One_Two_and_Four	
AHCDE	AIT-H Casing Detection Enable	Yes	
AHCEN	AIT-H Tool Centering Flag (in Borehole)	Eccentered	
AHCSED	AIT-H Casing Shoe Estimated Depth	-50000	FT
AHMRF	AIT-H Mud Resistivity Factor	1	
AHSTA	AIT-H Tool Standoff	0.5	IN
ARTS	AIT Rt Selection (for ALLRES computation)	13_AHT90	
BHFL	Borehole Fluid Type	WATER	
BHS	Bore Hole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	78	DEGF
BS	Bit Size	6.250	IN
BSAL	Borehole Salinity	350.00	PPM
BSCO	Borehole Salinity Correction Option	NO	
CCCO	Casing & Cement Thickness Correction Option	NO	
CDTS	C-Delta-T Shale	100	US/F
CWEI	Casing Weight	-50000.00	LB/F
DFD	Drilling Fluid Density	9.10	LB/G
DHC	Density Hole Correction	BS	
DO	Depth Offset	0.0	FT
DTF	Delta-T Fluid	189	US/F
DTM	Delta-T Matrix	56	US/F
FD	Fluid Density	1	G/C3
FEXP	Form Factor Exponent	2	
FNUM	Form Factor Numerator	1	
FPHI	Form Factor Porosity Source	DPHZ	
FSAL	Formation Salinity	-50000	PPM
FSCO	Formation Salinity Correction Option	NO	
GCSE	Generalized Caliper Selection	HCAL	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.01	DF/F
GRSE	Generalized Mud Resistivity Selection	AITH_RESIST	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
HSCM	HILT Speed Correction Mode	TSCD_SPEED_CORRECTION	
HSCO	Hole Size Correction Option	YES	
HSTI	STI Uses HILT Acceleration	YES	
MATR	Rock Matrix Type	SANDSTONE	
MCCO	Mud Cake Correction Option	NO	
MCOR	Mud Correction	NATU	
MDEN	Matrix Density	2.65	G/C3
MPOF	MCFL Processing Operation Mode	ON	
MST	Mud Sample Temperature	65.00	DEGF
MWCO	Mud Weight Correction Option	NO	
NMT	HILT Nuclear Mud Type	NOBARITE	
NPRM	HRDD Processing Mode	StdRes	
NSAR	HRDD Depth Sampling Rate	1	IN
PP	Playback Processing	OFF	
PTCO	Pressure/Temperature Correction Option	NO	
RMFS	Resistivity of Mud Filtrate Sample	4.7000	OHMM
RTCO	RTCO - Rt Invasion Correction	YES	
RW	Resistivity of Connate Water	1.0000	OHMM
SDAT	Standoff Data Source	SOCN	
SHT	Surface Hole Temperature	68	DEGF
SOCN	Standoff Distance	0.125	IN
SOCO	Standoff Correction Option	NO	
SPFS	Sonic Porosity Formula	RAYMER_HUNT	
SPNV	SP Next Value	-15	MV
SPSO	Sonic Porosity Source	DT	
TD	Total Depth	2212	FT
TDL	Total Depth - Logger	2185.00	FT
TWS	Temperature of Connate Water Sample	100.00	DEGF

Format: S5 Vertical Scale: 5" per 100' Graphics File Created: 07-Nov-1998 06:10

OP System Version: 8C1-205

MCM

HILTB-DTB	APCW-98Q2	DSLT-TCC	APCW-98Q2
TCC-BF	APCW-98Q2		

Speed Corrected - Depth Matched LOG

Input DLIS Files

DEFAULT HILTB .014 FN:11 FIELD 07-Nov-1998 05:56 2196.0 FT 390.5 FT

Output DLIS Files

Output DLIS Files

DEFAULT HILTB .010 FN:7 FIELD 07-Nov-1998 04:37 1920.0 FT 1524.2 FT

Integrated Hole/Cement Volume Summary

Hole Volume = 75.57 F3
Cement Volume = 58.74 F3 (assuming 2.88 IN casing O.D.)
Computed from 1920.0 FT to 1547.0 FT using data channel(s) HCAL

OP System Version: 8C1-205

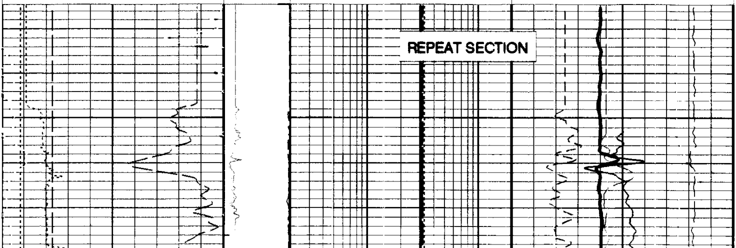
MCM

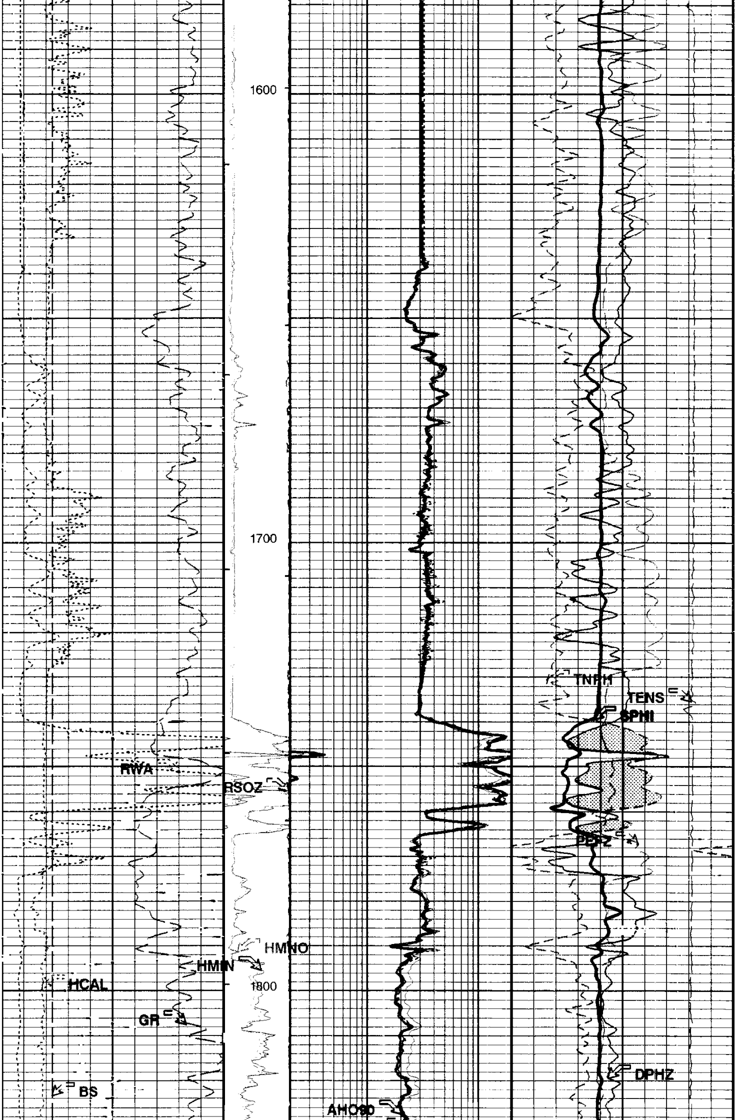
HILTB-DTB	APCW-98Q2	DSLT-TCC	APCW-98Q2
TCC-BF	APCW-98Q2		

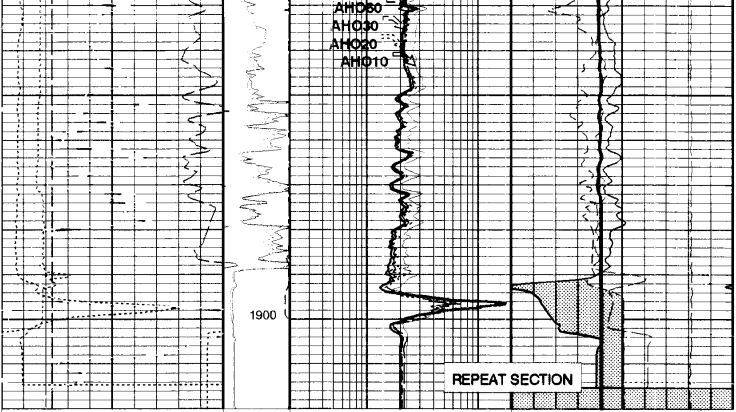
PIP SUMMARY

⊢ Integrated Hole Volume Minor Pip Every 10 F3
⟝ Integrated Hole Volume Major Pip Every 100 F3
⊣ Integrated Cement Volume Minor Pip Every 10 F3
⟞ Integrated Cement Volume Major Pip Every 100 F3
■ Time Mark Every 60 S

			Env.Corr.Thermal Neutron Porosity (TNPH) 1.2 (V/V) 0.6
			Env.Corr.Thermal Neutron Porosity (TNPH) 0.6 (V/V) 0
			Crossover
	Micro Normal Resistivity (HMNO) (OHMM) 0 30	**AIT-H 90 Inch Investigation (AHO90)** **0.2 (OHMM) 20**	Tension (TENS) 10000 (LBF) 0
RWA (RWA) 0 (OHMM) 3	Micro Inverse Resistivity (HMIN) (OHMM) 0 30	AIT-H 60 Inch Investigation (AHO60) 0.2 (OHMM) 20	**Sonic Porosity (SPHI)** **0.6 (V/V) 0**
Caliper (HCAL) 4 (IN) 14	Resistivity standoff (RSOZ) 2 (IN) 0	AIT-H 30 Inch Investigation (AHO30) 0.2 (OHMM) 20	Formation Pe (PEFZ) -1 (----) 9
Bit Size (BS) 4 (IN) 14		AIT-H 20 Inch Investigation (AHO20) 0.2 (OHMM) 20	Std Res Density Porosity (DPHZ) 1.2 (V/V) 0.6
Gamma Ray (GR) 0 (GAPI) 150	Perm Indicator	AIT-H 10 Inch Investigation (AHO10) 0.2 (OHMM) 20	Std Res Density Porosity (DPHZ) 0.6 (V/V) 0







Gamma Ray (GR) 0 (GAPI) 150	Perm Indicator	AIT-H 10 Inch Investigation (AHO10) 0.2 (OHMM) 20	Std Res Density Porosity (DPHZ) 0.6 (V/V) 0
Bit Size (BS) 4 (IN) 14		AIT-H 20 Inch Investigation (AHO20) 0.2 (OHMM) 20	Std Res Density Porosity (DPHZ) 1.2 (V/V) 0.6
Caliper (HCAL) 4 (IN) 14	Resistivity standoff (RSOZ) 2 (IN) 0	AIT-H 30 Inch Investigation (AHO30) 0.2 (OHMM) 20	Formation Pe (PEFZ) -1 (----) 9
RWA (RWA) 0 (OHMM) 3	Micro Inverse Resistivity (HMIN) (OHMM) 0 30	AIT-H 60 Inch Investigation (AHO60) 0.2 (OHMM) 20	**Sonic Porosity (SPHI)** **0.6 (V/V) 0**
	Micro Normal Resistivity (HMNO) (OHMM) 0 30	**AIT-H 90 Inch Investigation (AHO90)** **0.2 (OHMM) 20**	Tension (TENS) 10000 (LBF) 0
			▨ Crossover
			Env.Corr.Thermal Neutron Porosity (TNPH) 0.6 (V/V) 0
			Env.Corr.Thermal Neutron Porosity (TNPH) 1.2 (V/V) 0.6

PIP SUMMARY

⊢ Integrated Hole Volume Minor Pip Every 10 F3
⊢ Integrated Hole Volume Major Pip Every 100 F3
⊣ Integrated Cement Volume Minor Pip Every 10 F3
⊣ Integrated Cement Volume Major Pip Every 100 F3

■ Time Mark Every 60 S

AIT-H Answer Product Processing Summary. Data taken with tool # 277 (AHTNO)
...Acquired data from HILT/HAIT

***** Bhole Correction *****

Effective Tool Standoff computed. Borehole diameter and mud res. taken as input (see GCSE and GRSE parameters)

Tool is run in ECCENTERED mode with a tool stand-off of 0.50 IN. Bit Size is 6.25 IN.

***** Input Selections to AIT Answer Product processing *****

Caliper (GCSE): HCAL Mud Resistivity (GRSE): AHMF Temperature (GTSE): LINEAR_ESTIMATE Porosity (FPHI): DPHZ

***** Other parameters used by AIT-H/SAIT Answer Product processing *****

Surface Hole Temperature (SHT) 68.000 DEGF Bottom Temperature (BHT) 212.000 DEGF
Total Depth (TD) 2212.000 FT

***** AIT-H/SAIT Answer Product processing control parameters *****

(AHAPL): 2_BholeCorr_BasicLogs
(AHBHM): 2_ComputeStandoff (AHBLM): 6_One_Two_and_Four

Parameters

DLIS Name	Description	Value	
AHBHM	AIT-H Bhole Correction Mode	2_ComputeStandoff	
AHBLM	AIT-H Basic Logs Mode	6_One_Two_and_Four	
AHCDE	AIT-H Casing Detection Enable	Yes	
AHCEN	AIT-H Tool Centering Flag (in Borehole)	Eccentered	
AHCSED	AIT-H Casing Shoe Estimated Depth	-50000	FT
AHMRF	AIT-H Mud Resistivity Factor	1	
AHSTA	AIT-H Tool Standoff	0.5	IN
ARTS	AIT Rt Selection (for ALLRES computation)	13_AHT90	
BHFL	Borehole Fluid Type	WATER	
BHS	Bore Hole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	212	DEGF
BS	Bit Size	6.250	IN
BSAL	Borehole Salinity	350.00	PPM
BSCO	Borehole Salinity Correction Option	NO	
CCCO	Casing & Cement Thickness Correction Option	NO	
CDTS	C-Delta-T Shale	100	US/F
CWEI	Casing Weight	-50000.00	LB/F
DFD	Drilling Fluid Density	9.10	LB/G
DHC	Density Hole Correction	BS	
DTF	Delta-T Fluid	189	US/F
DTM	Delta-T Matrix	56	US/F
FD	Fluid Density	1	G/C3
FEXP	Form Factor Exponent	2	
FNUM	Form Factor Numerator	1	
FPHI	Form Factor Porosity Source	DPHZ	
FSAL	Formation Salinity	-50000	PPM
FSCO	Formation Salinity Correction Option	NO	
GCSE	Generalized Caliper Selection	HCAL	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.01	DF/F
GRSE	Generalized Mud Resistivity Selection	AITH_RESIST	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
HSCM	HILT Speed Correction Mode	TSCD_SPEED_CORRECTION	
HSCO	Hole Size Correction Option	YES	
HSTI	STI Uses HILT Acceleration	YES	
MATR	Rock Matrix Type	SANDSTONE	
MCCO	Mud Cake Correction Option	NO	
MCOR	Mud Correction	NATU	
MDEN	Matrix Density	2.65	G/C3
MPOF	MCFL Processing Operation Mode	ON	
MST	Mud Sample Temperature	65.00	DEGF
MWCO	Mud Weight Correction Option	NO	
NMT	HILT Nuclear Mud Type	NOBARITE	
NPRM	HRDD Processing Mode	StdRes	
NSAR	HRDD Depth Sampling Rate	1	IN
PTCO	Pressure/Temperature Correction Option	NO	
RMFS	Resistivity of Mud Filtrate Sample	4.7000	OHMM
RTCO	RTCO - Rt Invasion Correction	YES	
RW	Resistivity of Connate Water	1.0000	OHMM
SDAT	Standoff Data Source	SOCN	
SHT	Surface Hole Temperature	68	DEGF
SOCN	Standoff Distance	0.125	IN
SOCO	Standoff Correction Option	NO	
SPFS	Sonic Porosity Formula	RAYMER_HUNT	
SPNV	SP Next Value	-80	MV
SPSO	Sonic Porosity Source	DT	
TD	Total Depth	2212	FT
TDL	Total Depth - Logger	2212.00	FT
TWS	Temperature of Connate Water Sample	100.00	DEGF

Format: S5 Vertical Scale: 5" per 100' Graphics File Created: 07-Nov-1998 04:37

OP System Version: 8C1-205

MCM

HILTB-DTB	**APCW-98Q2**	**DSLT-TCC**	**APCW-98Q2**
TCC-BF	**APCW-98Q2**		

Speed Corrected - Depth Matched LOG

Output DLIS Files

DEFAULT **HILTB .010** **FN:7** **FIELD** **07-Nov-1998 04:37**

Calibration and Check Summary

High resolution Integrated Logging Tool-CTS Wellsite Calibration - Electronics Calibration Check - Thru Cal Mag. & Phase
Master: Calibration out of date Aug 03 18:14 1998 Before: Nov 07 04:34 1998

Measurement	Nominal	Master	Before	After	Change	Limit	Units
Thru Cal Magnitude - 0	0	0.6325	0.6461	N/A	N/A	N/A	V
Thru Cal Magnitude - 1	0	1.302	1.328	N/A	N/A	N/A	V
Thru Cal Magnitude - 2	0	0.6452	0.6577	N/A	N/A	N/A	V
Thru Cal Magnitude - 3	0	0.7288	0.7440	N/A	N/A	N/A	V
Thru Cal Magnitude - 4	0	1.366	1.395	N/A	N/A	N/A	V
Thru Cal Magnitude - 5	0	1.975	2.017	N/A	N/A	N/A	V
Thru Cal Magnitude - 6	0	1.976	2.018	N/A	N/A	N/A	V
Thru Cal Magnitude - 7	0	1.404	1.442	N/A	N/A	N/A	V
Phase - 0	0	67.94	69.96	N/A	N/A	N/A	DEG
Phase - 1	0	66.90	68.95	N/A	N/A	N/A	DEG
Phase - 2	0	63.14	65.25	N/A	N/A	N/A	DEG
Phase - 3	0	62.35	64.47	N/A	N/A	N/A	DEG
Phase - 4	0	55.98	58.18	N/A	N/A	N/A	DEG
Phase - 5	0	54.04	56.35	N/A	N/A	N/A	DEG
Phase - 6	0	54.04	56.35	N/A	N/A	N/A	DEG
Phase - 7	0	49.55	52.56	N/A	N/A	N/A	DEG

High resolution Integrated Logging Tool-CTS Wellsite Calibration - Electronics Calibration Check - Auxilliary
Master: Calibration out of date Aug 03 18:14 1998 Before: Nov 07 04:34 1998

Measurement	Nominal	Master	Before	After	Change	Limit	Units
AIT-H SPA Plus	990.5	990.1	992.2	N/A	N/A	N/A	MV
AIT-H SPA Zero	0	-0.04235	-0.07744	N/A	N/A	N/A	MV
AIT-H Temperature Plus	0.9150	0.9169	0.9187	N/A	N/A	N/A	V
AIT-H Temperature Zero	0	-0.00004235	-0.00007805	N/A	N/A	N/A	V

High resolution Integrated Logging Tool-CTS Wellsite Calibration - Test Loop Gain Correction
Master: Calibration out of date Aug 03 18:14 1998

Measurement	Nominal	Master	Before	After	Change	Limit	Units
Test Loop Gain Magnitude - 0	0	1.046	N/A	N/A	N/A	N/A	V
Test Loop Gain Magnitude - 1	0	1.020	N/A	N/A	N/A	N/A	V
Test Loop Gain Magnitude - 2	0	1.022	N/A	N/A	N/A	N/A	V
Test Loop Gain Magnitude - 3	0	1.034	N/A	N/A	N/A	N/A	V
Test Loop Gain Magnitude - 4	0	1.028	N/A	N/A	N/A	N/A	V
Test Loop Gain Magnitude - 5	0	1.012	N/A	N/A	N/A	N/A	V
Test Loop Gain Magnitude - 6	0	1.028	N/A	N/A	N/A	N/A	V
Test Loop Gain Magnitude - 7	0	1.031	N/A	N/A	N/A	N/A	V
Phase - 0	0	0.5125	N/A	N/A	N/A	N/A	DEG
Phase - 1	0	0.1616	N/A	N/A	N/A	N/A	DEG
Phase - 2	0	-0.01271	N/A	N/A	N/A	N/A	DEG
Phase - 3	0	-0.04204	N/A	N/A	N/A	N/A	DEG
Phase - 4	0	-0.8896	N/A	N/A	N/A	N/A	DEG
Phase - 5	0	-0.4409	N/A	N/A	N/A	N/A	DEG
Phase - 6	0	-0.1964	N/A	N/A	N/A	N/A	DEG
Phase - 7	0	-0.5525	N/A	N/A	N/A	N/A	DEG

High resolution Integrated Logging Tool-CTS Wellsite Calibration - Sonde Error Correction
Master: Calibration out of date Aug 03 18:14 1998

Measurement	Nominal	Master	Before	After	Change	Limit	Units
R Sonde Error Correction - 0	0	-115.2	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction - 1	0	192.8	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction - 2	0	115.1	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction - 3	0	65.91	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction - 4	0	27.73	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction - 5	0	17.07	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction - 6	0	11.30	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction - 7	0	-0.5137	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction - 0	0	103.9	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction - 1	0	-63.62	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction - 2	0	15.03	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction - 3	0	-57.04	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction - 4	0	-35.87	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction - 5	0	31.51	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction - 6	0	0.7215	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction - 7	0	-0.03157	N/A	N/A	N/A	N/A	MM/M

High resolution Integrated Logging Tool-CTS Wellsite Calibration - Mud Gain Correction
Master: Calibration out of date Aug 03 18:14 1998

Measurement	Nominal	Master	Before	After	Change	Limit	Units
Coarse - Mag, Real, Imag - 0	0	0.9107	N/A	N/A	N/A	N/A	
Coarse - Mag, Real, Imag - 1	0	0.9107	N/A	N/A	N/A	N/A	
Coarse - Mag, Real, Imag - 2	0	0.9107	N/A	N/A	N/A	N/A	
Fine - Mag, Real, Imag - 0	0	0.9140	N/A	N/A	N/A	N/A	
Fine - Mag, Real, Imag - 1	0	0.9140	N/A	N/A	N/A	N/A	
Fine - Mag, Real, Imag - 2	0	0.9140	N/A	N/A	N/A	N/A	

High resolution Integrated Logging Tool-CTS Wellsite Calibration - Stab Measurement Summary
Before: Nov 01 20:36 1998

BS Window Ratio	1.030	N/A	1.019	N/A	N/A	N/A	
BS Window Sum	14710	N/A	14730	N/A	N/A	N/A	CPS
SS Window Ratio	0.5038	N/A	0.5041	N/A	N/A	N/A	
SS Window Sum	11880	N/A	11830	N/A	N/A	N/A	CPS
LS Window Ratio	0.2865	N/A	0.2825	N/A	N/A	N/A	
LS Window Sum	1206	N/A	1193	N/A	N/A	N/A	CPS

High resolution Integrated Logging Tool-CTS Wellsite Calibration - Photo-multiplier High Voltages Calibrations
Before: Nov 01 20:36 1998

BS PM High Voltage (Command)	1625	N/A	1588	N/A	N/A	N/A	V
SS PM High Voltage (Command)	1938	N/A	1927	N/A	N/A	N/A	V
LS PM High Voltage (Command)	1992	N/A	1986	N/A	N/A	N/A	V

High resolution Integrated Logging Tool-CTS Wellsite Calibration - Crystal Quality Resolutions Calibration
Before: Nov 01 20:36 1998

BS Crystal Resolution	12.17	N/A	12.22	N/A	N/A	N/A	%
SS Crystal Resolution	11.80	N/A	12.25	N/A	N/A	N/A	%
LS Crystal Resolution	10.81	N/A	10.72	N/A	N/A	N/A	%

High resolution Integrated Logging Tool-CTS Wellsite Calibration - MCFL Calibration
Before: Nov 01 20:37 1998

Raw B0 Resistivity	3875	N/A	3856	N/A	N/A	N/A	OHMM
Raw B1 Resistivity	3830	N/A	3810	N/A	N/A	N/A	OHMM
Raw B2 Resistivity	3830	N/A	3823	N/A	N/A	N/A	OHMM

High resolution Integrated Logging Tool-CTS Wellsite Calibration - HILT Caliper Calibration
Before: Nov 01 20:27 1998

HILT Caliper Zero Measurement	8.000	N/A	7.974	N/A	N/A	N/A	IN
HILT Caliper Plus Measurement	12.00	N/A	12.25	N/A	N/A	N/A	IN

High resolution Integrated Logging Tool-CTS Wellsite Calibration - Detector Calibration
Before: Nov 01 20:33 1998

Gamma Ray Background	30.00	N/A	43.55	N/A	N/A	N/A	GAPI
Gamma Ray (Jig - Bkg)	170.8	N/A	170.8	N/A	N/A	15.52	GAPI
Gamma Ray (Calibrated)	165.0	N/A	165.0	N/A	N/A	15.00	GAPI

High resolution Integrated Logging Tool-CTS Wellsite Calibration - Zero Measurement
Master: Sep 09 20:02 1998 Before: Nov 01 20:34 1998

CNTC Background	26.01	26.01	24.65	N/A	N/A	3.902	CPS
CFTC Background	28.05	28.05	27.83	N/A	N/A	4.207	CPS

High resolution Integrated Logging Tool-CTS Wellsite Calibration - Accelerometer Calibration
Before: Nov 07 04:36 1998

Z-Axis Acceleration	32.19	N/A	32.16	N/A	N/A	N/A	F/S2

High resolution Integrated Logging Tool-CTS Master Calibration - Inversion results
Master: Oct 09 18:09 1998

Rho Aluminium	2.596	2.595	--	--	--	--	G/C3
Rho Magnesium	1.686	1.685	--	--	--	--	G/C3
Pe Aluminium	2.570	2.553	--	--	--	--	
Pe Magnesium	2.650	2.664	--	--	--	--	

High resolution Integrated Logging Tool-CTS Master Calibration - Deviation Summary
Master: Oct 09 18:09 1998

BS Average Deviation	0	0.2436	--	--	--	--	%
BS Max Deviation	0	1.197	--	--	--	--	%
SS Average Deviation	0	0.5320	--	--	--	--	%
SS Max Deviation	0	1.210	--	--	--	--	%
LS Average Deviation	0	0.7904	--	--	--	--	%
LS Max Deviation	0	1.727	--	--	--	--	%

High resolution Integrated Logging Tool-CTS Master Calibration - Tank Measurement
Master: Sep 09 20:02 1998

Thermal Near Corr. (Tank)	6031	5686	--	--	--	--	CPS
Thermal Far Corr. (Tank)	2793	2397	--	--	--	--	CPS
CNTC/CFTC (Tank)	2.159	2.372	--	--	--	--	

The GLS-VJ source activity is acceptable.

The HGNS Neutron Master Calibration was done with the following parameters :

NCT-B Water Temperature	90.0	DEGF.
Thermal Housing Size	3.361	IN.

High resolution Integrated Logging Tool-CTS / Equipment Identification

Primary Equipment:

Array Induction Tool - H	AIT - H	
Array Induction Sonde	AHIS - BA	
HILT high-Resolution Mechanical Sonde	HRMS - B	923
HILT Rxo Gamma-ray Device	HRGD -	723
HILT Nuclear Back-Scatter Detector	HILT -	
HILT Nuclear Short-Spacing Detector	HILT -	
HILT Nuclear Long-Spacing Detector	HILT -	
Micro Cylindrically Focused Log Device	MCFL -	

Auxiliary Equipment:

High resolution Integrated Logging Tool-CTS Wellsite Calibration

Electronics Calibration Check - Thru Cal Mag. & Phase

Idx	Phase	Value	Thru Cal Magnitude V	Nominal	Value	Phase DEG	Nominal
0	Master	0.6325		0.6050	67.94		71.00
	Before	0.6461			69.96		
1	Master	1.302		1.270	66.90		70.00
	Before	1.328			68.95		
2	Master	0.6452		0.6230	63.14		66.00
	Before	0.6577			65.25		
3	Master	0.7288		0.7040	62.35		65.00
	Before	0.7440			64.47		
4	Master	1.366		1.337	55.98		59.00
	Before	1.395			58.18		
5	Master	1.975		1.955	54.04		57.00
	Before	2.017			56.35		
6	Master	1.976		1.955	54.04		57.00
	Before	2.018			56.35		
7	Master	1.404		1.415	49.55		53.00
	Before	1.442			52.56		
			60.00 % (Minimum) (Nominal) 140.0 % (Maximum)			Nom -60.00 (Minimum) (Nominal) Nom + 60.00 (Maximum)	

Master: Calibration out of date Aug 03 18:14 1998 Before: Nov 07 04:34 1998

High resolution Integrated Logging Tool-CTS Wellsite Calibration

Electronics Calibration Check - Auxilliary

Phase	AIT-H SPA Plus MV	Value	Phase	AIT-H SPA Zero MV	Value
Master		990.1	Master		-0.04235
Before		992.2	Before		-0.07744
	941.0 (Minimum) 990.5 (Nominal) 1040 (Maximum)			-50.00 (Minimum) 0 (Nominal) 50.00 (Maximum)	

Phase	AIT-H Temperature Plus V	Value	Phase	AIT-H Temperature Zero V	Value
Master		0.9169	Master		-4.235E-00
Before		0.9187	Before		-7.805E-00
	0.8700 (Minimum) 0.9150 (Nominal) 0.9600 (Maximum)			-0.05000 (Minimum) 0 (Nominal) 0.05000 (Maximum)	

Master: Calibration out of date Aug 03 18:14 1998 Before: Nov 07 04:34 1998

High resolution Integrated Logging Tool-CTS Wellsite Calibration

Test Loop Gain Correction

Idx	Value	Test Loop Gain Magnitude V	Value	Phase DEG
0	1.046		0.5125	
		0.9500 (Minimum) 1.000 (Nominal) 1.050 (Maximum)		-3.000 (Minimum) 0 (Nominal) 3.000 (Maximum)
1	1.020		0.1616	
		0.9500 (Minimum) 1.000 (Nominal) 1.050 (Maximum)		-3.000 (Minimum) 0 (Nominal) 3.000 (Maximum)
2	1.022		-0.01271	
		0.9500 (Minimum) 1.000 (Nominal) 1.050 (Maximum)		-3.000 (Minimum) 0 (Nominal) 3.000 (Maximum)
3	1.034		-0.04204	
		0.9500 (Minimum) 1.000 (Nominal) 1.050 (Maximum)		-3.000 (Minimum) 0 (Nominal) 3.000 (Maximum)
4	1.028		-0.8896	
		0.9500 (Minimum) 1.000 (Nominal) 1.050 (Maximum)		-3.000 (Minimum) 0 (Nominal) 3.000 (Maximum)
5	1.012		-0.4409	
		0.9500 (Minimum) 1.000 (Nominal) 1.050 (Maximum)		-3.000 (Minimum) 0 (Nominal) 3.000 (Maximum)
6	1.028		-0.1964	
		0.9500 (Minimum) 1.000 (Nominal) 1.050 (Maximum)		-3.000 (Minimum) 0 (Nominal) 3.000 (Maximum)
7	1.031		-0.5525	
		0.9500 (Minimum) 1.000 (Nominal) 1.050 (Maximum)		-3.000 (Minimum) 0 (Nominal) 3.000 (Maximum)

Master: Calibration out of date Aug 03 18:14 1998

High resolution Integrated Logging Tool-CTS Wellsite Calibration

Sonde Error Correction

Idx	Value	R Sonde Error Correction MM/M			Value	X Sonde Error Correction MM/M		
		(Minimum)	(Nominal)	(Maximum)		(Minimum)	(Nominal)	(Maximum)
0	-115.2	-231.0	-56.00	119.0	103.9	-2250	0	2250
1	192.8	114.0	159.0	204.0	-63.62	-625.0	0	625.0
2	115.1	66.00	111.0	156.0	15.03	-350.0	0	350.0
3	65.91	39.00	64.00	89.00	-57.04	-250.0	0	250.0
4	27.73	15.00	25.00	35.00	-35.87	-63.00	0	63.00
5	17.07	4.000	14.00	24.00	31.51	-50.00	0	50.00
6	11.30	5.000	10.00	15.00	0.7215	-30.00	0	30.00
7	-0.5137	-5.000	0	5.000	-0.03157	-30.00	0	30.00

Master: Calibration out of date Aug 03 18:14 1998

High resolution Integrated Logging Tool-CTS Wellsite Calibration

Mud Gain Correction

Idx	Value	Coarse - Mag, Real, Imag			Value	Fine - Mag, Real, Imag		
		(Minimum)	(Nominal)	(Maximum)		(Minimum)	(Nominal)	(Maximum)
0	0.9107	0.6000	1.000	1.400	0.9140	0.6000	1.000	1.400
1	0.9107	0.6000	1.000	1.400	0.9140	0.6000	1.000	1.400
2	0.9107	0.6000	1.000	1.400	0.9140	0.6000	1.000	1.400

Master: Calibration out of date Aug 03 18:14 1998

High resolution Integrated Logging Tool-CTS Wellsite Calibration

Stab Measurement Summary

Phase	BS Window Ratio			Value	Phase	SS Window Ratio			Value	Phase	LS Window Ratio			Value
	(Minimum)	(Nominal)	(Maximum)			(Minimum)	(Nominal)	(Maximum)			(Minimum)	(Nominal)	(Maximum)	
Before	0.9767	1.030	1.082	1.019	Before	0.4786	0.5038	0.5290	0.5041	Before	0.2722	0.2865	0.3008	0.2825

Phase	BS Window Sum CPS			Value	Phase	SS Window Sum CPS			Value	Phase	LS Window Sum CPS			Value
	(Minimum)	(Nominal)	(Maximum)			(Minimum)	(Nominal)	(Maximum)			(Minimum)	(Nominal)	(Maximum)	
Before	13970	14710	15440	14730	Before	11280	11880	12470	11830	Before	1146	1206	1267	1193

Before: Nov 01 20:36 1998

High resolution Integrated Logging Tool-CTS Wellsite Calibration

Photo-multiplier High Voltages Calibrations

Phase	BS PM High Voltage (Command) V			Value	Phase	SS PM High Voltage (Command) V			Value	Phase	LS PM High Voltage (Command) V			Value
	(Minimum)	(Nominal)	(Maximum)			(Minimum)	(Nominal)	(Maximum)			(Minimum)	(Nominal)	(Maximum)	
Before	1525	1625	1725	1588	Before	1838	1938	2038	1927	Before	1892	1992	2092	1986

Before: Nov 01 20:36 1998

High resolution Integrated Logging Tool-CTS Wellsite Calibration

Crystal Quality Resolutions Calibration

Phase	BS Crystal Resolution %			Value	Phase	SS Crystal Resolution %			Value	Phase	LS Crystal Resolution %			Value
	(Minimum)	(Nominal)	(Maximum)			(Minimum)	(Nominal)	(Maximum)			(Minimum)	(Nominal)	(Maximum)	
Before	11.17	12.17	13.17	12.22	Before	10.80	11.80	12.80	12.25	Before	9.810	10.81	11.81	10.72

Before: Nov 01 20:36 1998

High resolution Integrated Logging Tool-CTS Wellsite Calibration

MCFL Calibration

Phase	Raw B0 Resistivity OHMM			Value	Phase	Raw B1 Resistivity OHMM			Value	Phase	Raw B2 Resistivity OHMM			Value
	(Minimum)	(Nominal)	(Maximum)			(Minimum)	(Nominal)	(Maximum)			(Minimum)	(Nominal)	(Maximum)	
Before	3565	3875	4185	3856	Before	3524	3830	4136	3810	Before	3524	3830	4136	3823

Before: Nov 01 20:37 1998

High resolution Integrated Logging Tool-CTS Wellsite Calibration

HILT Caliper Calibration

Phase	HILT Caliper Zero Measurement IN	Value	Phase	HILT Caliper Plus Measurement IN	Value
Before		7.974	Before		12.25
	6.000 (Minimum) 8.000 (Nominal) 10.00 (Maximum)			9.000 (Minimum) 12.00 (Nominal) 15.00 (Maximum)	

Before: Nov 01 20:27 1998

High resolution Integrated Logging Tool-CTS Wellsite Calibration

Detector Calibration

Phase	Gamma Ray Background GAPI	Value	Phase	Gamma Ray (Jig - Bkg) GAPI	Value	Phase	Gamma Ray (Calibrated) GAPI	Value
Before		43.55	Before		170.8	Before		165.0
	0 (Minimum) 30.00 (Nominal) 120.0 (Maximum)			155.2 (Minimum) 170.8 (Nominal) 186.3 (Maximum)			150.0 (Minimum) 165.0 (Nominal) 180.0 (Maximum)	

Before: Nov 01 20:33 1998

High resolution Integrated Logging Tool-CTS Wellsite Calibration

Zero Measurement

Phase	CNTC Background CPS	Value	Phase	CFTC Background CPS	Value
Master		26.01	Master		28.05
Before		24.65	Before		27.83
	5.000 (Minimum) 26.01 (Nominal) 40.00 (Maximum)			5.000 (Minimum) 28.05 (Nominal) 40.00 (Maximum)	

Master: Sep 09 20:02 1998 Before: Nov 01 20:34 1998

High resolution Integrated Logging Tool-CTS Wellsite Calibration

Accelerometer Calibration

Phase	Z-Axis Acceleration F/S2	Value
Before		32.16
	31.53 (Minimum) 32.19 (Nominal) 32.84 (Maximum)	

Before: Nov 07 04:36 1998

High resolution Integrated Logging Tool-CTS Master Calibration

Electronics Calibration Check - Thru Cal Mag. & Phase

Idx	Phase	Value	Thru Cal Magnitude V	Nominal	Value	Phase DEG	Nominal
0	Master	0.6325		0.6050	67.94		71.00
1	Master	1.302		1.270	66.90		70.00
2	Master	0.6452		0.6230	63.14		66.00
3	Master	0.7288		0.7040	62.35		65.00
4	Master	1.366		1.337	55.98		59.00
5	Master	1.975		1.955	54.04		57.00
6	Master	1.976		1.955	54.04		57.00
7	Master	1.404		1.415	49.55		53.00
			60.00 % (Minimum) (Nominal) 140.0 % (Maximum)			Nom -60.00 (Minimum) (Nominal) Nom + 60.00 (Maximum)	

Master: Calibration out of date Aug 03 18:14 1998

High resolution Integrated Logging Tool-CTS Master Calibration

Electronics Calibration Check - Auxilliary

Phase	AIT-H SPA Plus MV	Value	Phase	AIT-H SPA Zero MV	Value
Master		990.1	Master		-0.04235
	941.0 (Minimum) 990.5 (Nominal) 1040 (Maximum)			-50.00 (Minimum) 0 (Nominal) 50.00 (Maximum)	
Phase	AIT-H Temperature Plus V	Value	Phase	AIT-H Temperature Zero V	Value
Master		0.9169	Master		-4.235E-00
	0.8700 (Minimum) 0.9150 (Nominal) 0.9600 (Maximum)			-0.05000 (Minimum) 0 (Nominal) 0.05000 (Maximum)	

Master: Calibration out of date Aug 03 18:14 1998

High resolution Integrated Logging Tool-CTS Master Calibration

Test Loop Gain Correction

Idx	Value	Test Loop Gain Magnitude V			Value	Phase DEG		
0	1.046				0.5125			
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)		-3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)
1	1.020				0.1616			
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)		-3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)
2	1.022				-0.01271			
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)		-3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)
3	1.034				-0.04204			
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)		-3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)
4	1.028				-0.8896			
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)		-3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)
5	1.012				-0.4409			
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)		-3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)
6	1.028				-0.1964			
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)		-3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)
7	1.031				-0.5525			
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)		-3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)

Master: Calibration out of date Aug 03 18:14 1998

High resolution Integrated Logging Tool-CTS Master Calibration

Sonde Error Correction

Idx	Value	R Sonde Error Correction MM/M			Value	X Sonde Error Correction MM/M		
0	-115.2				103.9			
		-231.0 (Minimum)	-56.00 (Nominal)	119.0 (Maximum)		-2250 (Minimum)	0 (Nominal)	2250 (Maximum)
1	192.8				-63.62			
		114.0 (Minimum)	159.0 (Nominal)	204.0 (Maximum)		-625.0 (Minimum)	0 (Nominal)	625.0 (Maximum)
2	115.1				15.03			
		66.00 (Minimum)	111.0 (Nominal)	156.0 (Maximum)		-350.0 (Minimum)	0 (Nominal)	350.0 (Maximum)
3	65.91				-57.04			
		39.00 (Minimum)	64.00 (Nominal)	89.00 (Maximum)		-250.0 (Minimum)	0 (Nominal)	250.0 (Maximum)
4	27.73				-35.87			
		15.00 (Minimum)	25.00 (Nominal)	35.00 (Maximum)		-63.00 (Minimum)	0 (Nominal)	63.00 (Maximum)
5	17.07				31.51			
		4.000 (Minimum)	14.00 (Nominal)	24.00 (Maximum)		-50.00 (Minimum)	0 (Nominal)	50.00 (Maximum)
6	11.30				0.7215			
		5.000 (Minimum)	10.00 (Nominal)	15.00 (Maximum)		-30.00 (Minimum)	0 (Nominal)	30.00 (Maximum)
7	-0.5137				-0.03157			
		-5.000 (Minimum)	0 (Nominal)	5.000 (Maximum)		-30.00 (Minimum)	0 (Nominal)	30.00 (Maximum)

Master: Calibration out of date Aug 03 18:14 1998

High resolution Integrated Logging Tool-CTS Master Calibration

Mud Gain Correction

Idx	Value	Coarse - Mag, Real, Imag			Value	Fine - Mag, Real, Imag		
0	0.9107				0.9140			
		0.6000 (Minimum)	1.000 (Nominal)	1.400 (Maximum)		0.6000 (Minimum)	1.000 (Nominal)	1.400 (Maximum)
1	0.9107				0.9140			
		0.6000 (Minimum)	1.000 (Nominal)	1.400 (Maximum)		0.6000 (Minimum)	1.000 (Nominal)	1.400 (Maximum)
2	0.9107				0.9140			
		0.6000 (Minimum)	1.000 (Nominal)	1.400 (Maximum)		0.6000 (Minimum)	1.000 (Nominal)	1.400 (Maximum)

Master: Calibration out of date Aug 03 18:14 1998

High resolution Integrated Logging Tool-CTS Master Calibration

Inversion results

Phase	Rho Aluminium G/C3	Value	Phase	Rho Magnesium G/C3	Value
Master		2.595	Master		1.685
2.586 (Minimum)	2.596 (Nominal)	2.606 (Maximum)	1.676 (Minimum)	1.686 (Nominal)	1.696 (Maximum)
Phase	Pe Aluminium	Value	Phase	Pe Magnesium	Value
Master		2.553	Master		2.664
2.470 (Minimum)	2.570 (Nominal)	2.670 (Maximum)	2.550 (Minimum)	2.650 (Nominal)	2.750 (Maximum)

Master: Oct 09 18:09 1998

High resolution Integrated Logging Tool-CTS Master Calibration

Deviation Summary

Phase	BS Average Deviation %	Value	Phase	SS Average Deviation %	Value	Phase	LS Average Deviation %	Value
Master		0.2436	Master		0.5320	Master		0.7904
-0.6000 (Minimum)	0 (Nominal)	0.6000 (Maximum)	-1.000 (Minimum)	0 (Nominal)	1.000 (Maximum)	-1.500 (Minimum)	0 (Nominal)	1.500 (Maximum)
Phase	BS Max Deviation %	Value	Phase	SS Max Deviation %	Value	Phase	LS Max Deviation %	Value
Master		1.197	Master		1.210	Master		1.727
-1.600 (Minimum)	0 (Nominal)	1.600 (Maximum)	-2.500 (Minimum)	0 (Nominal)	2.500 (Maximum)	-3.500 (Minimum)	0 (Nominal)	3.500 (Maximum)

Master: Oct 09 18:09 1998

High resolution Integrated Logging Tool-CTS Master Calibration

Tank Measurement

Phase	Thermal Near Corr. (Tank) CPS	Value	Phase	Thermal Far Corr. (Tank) CPS	Value	Phase	CNTC/CFTC (Tank)	Value
Master		5686	Master		2397	Master		2.372
5000 (Minimum)	6031 (Nominal)	7200 (Maximum)	2075 (Minimum)	2793 (Nominal)	3125 (Maximum)	2.120 (Minimum)	2.159 (Nominal)	2.540 (Maximum)

Master: Sep 09 20:02 1998

COMPANY:	**ENERFIN RESOURCES NORTHWEST**	BOTTOM LOG INTERVAL	2177 F
		SCHLUMBERGER DEPTH	2185 F
WELL:	**John Hancock 32-27-64**	DEPTH DRILLER	2212 F
FIELD:	**Mist**	KELLY BUSHING	1046 F
COUNTY:	**Columbia**	DRILL FLOOR	
STATE:	**Oregon**	GROUND LEVEL	1036 F

Schlumberger

Platform Express
Array Induction/SP/GR/ML
Density/Neutron/Sonic