COMPANY: Enerfin Resources Northwest

WELL: CC 41-06-65 (Fishwhack) RD #1

FIELD: Mist

COUNTY: Columbia **STATE:** Oregon

COUNTY: Columbia
Field: Mist
Location: 501.46' S 47 deg 3 min 9 sec E
Well: CC 41-06-65 (Fishwhack) RD #
Company: Enerfin Resources Northwest

5" = 100'

Schlumberger

PLATFORM EXPRESS
Array Induction/Sonic
Neutron/Density/SP

LOCATION

501.46' S 47 deg 3 min 9 sec E
from the SW corner of Section 32 T7N R5W

Elev.: K.B. 919 F
G.L. 909 F
D.F.

Permanent Datum: Ground Level Elev.: 909 F
Log Measured From: Kelly Bushing 10.0 F above Perm. Datum
Drilling Measured From: Kelly Bushing

API Serial No.	SECTION	TOWNSHIP	RANGE
36-009-00340	6	6N	5W

Logging Date	24	~~17~~-DEC-1998			
Run Number		1			
Depth Driller		2970 F			
Schlumberger Depth		2950 F			
Bottom Log Interval		2953 F			
Top Log Interval		531 F			
Casing Driller Size @ Depth		7.000 IN	@ 531 F	@	
Casing Schlumberger		530.5 F			
Bit Size		6.750 IN			
Type Fluid In Hole		Cypan			
MUD Density	Viscosity	9.3 LB/G	38 S		
MUD Fluid Loss	PH	4.9 C3	9		
MUD Source Of Sample		Flowline			
RM @ Measured Temperature		3.620 OHMM	@ 45 DEGF	@	
RMF @ Measured Temperature		3.810 OHMM	@ 39 DEGF	@	
RMC @ Measured Temperature		3.510 OHMM	@ 39 DEGF	@	
Source RMF	RMC	Press	Press		
RM @ MRT	RMF @ MRT	2.264 @ 76	2.107 @ 76	@	@
Maximum Recorded Temperatures		76 DEGF			
Circulation Stopped	Time	24-DEC-1998	11:00		
Logger On Bottom	Time	17-DEC-1998			
Unit Number	Location	3152	Sacramento		
Recorded By		Clayton Campbell			
Witnessed By		Rob Lucas			

		Run 1	Run 2	Run 3
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				
MUD Density	Viscosity			
MUD Fluid Loss	PH			
MUD Source Of Sample				
RM @ Measured Temperature			@	
RMF @ Measured Temperature			@	
RMC @ Measured Temperature			@	
Source RMF	RMC			
RM @ MRT	RMF @ MRT	@	@	@
Maximum Recorded Temperatures				
Circulation Stopped	Time			
Logger On Bottom	Time			
Unit Number	Location			
Recorded By				
Witnessed By				

@ @ @ @ @

@

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: InterACT	OS1:
OS2:	OS2:
OS3:	OS3:
OS4:	OS4:
OS5:	OS5:

REMARKS: RUN NUMBER 1	REMARKS: RUN NUMBER 2
Rig: Taylor 7	
0.5 inch standoffs used on Array Induction	
2 centralizers used on sonic	

RUN 1		RUN 2	
SERVICE ORDER #:	6004669	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
CNB-AB
WITM (CTS)-A

DOWNHOLE EQUIPMENT

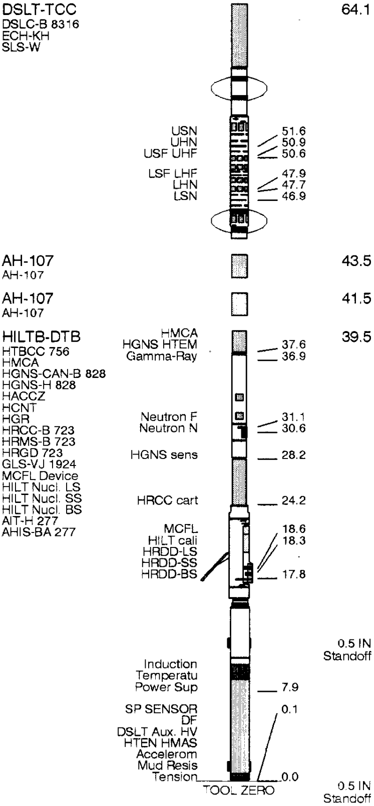
LEH-QT
LEH-QT

70.0

TCC-BF
ECH-KC
TCC-BF 189

TelStatus

67.1



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

Input DLIS Files

DEFAULT	HILTB .031	FN:1	FIELD	24-Dec-1998 17:45	2952.0 FT	332.0 FT

Output DLIS Files

DEFAULT	HILTB .033	FN:25	FIELD	24-Dec-1998 18:04	2952.0 FT	500.0 FT

Integrated Hole/Cement Volume Summary

Hole Volume = 611.67 F3

Cement Volume = 502.51 F3 (assuming 2.88 IN casing O.D.)

Computed from 2952.0 FT to 531.0 FT using data channel(s) HCAL

OP System Version: 8C1-205

MCM

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

Changed Parameter Summary

DLIS Name	New Value	Previous Value	Depth & Time
SPNV	-20 MV	-70 MV	2739.0 18:07:41
	-15 MV	-20 MV	2543.0 18:08:11
	-10 MV	-15 MV	2021.0 18:09:03
	-15 MV	-10 MV	1915.0 18:09:28
	-15 MV	-15 MV	601.0 18:11:42

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

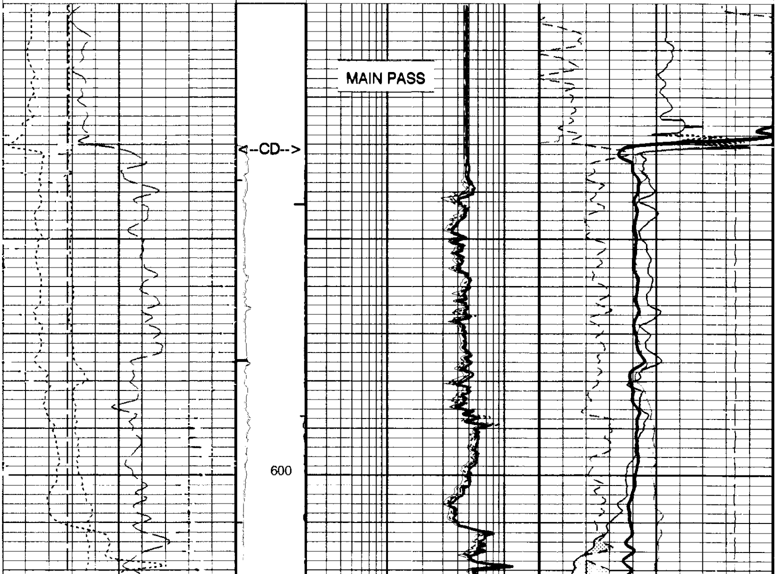
⊣ Integrated Cement Volume Major Pip Every 100 F3

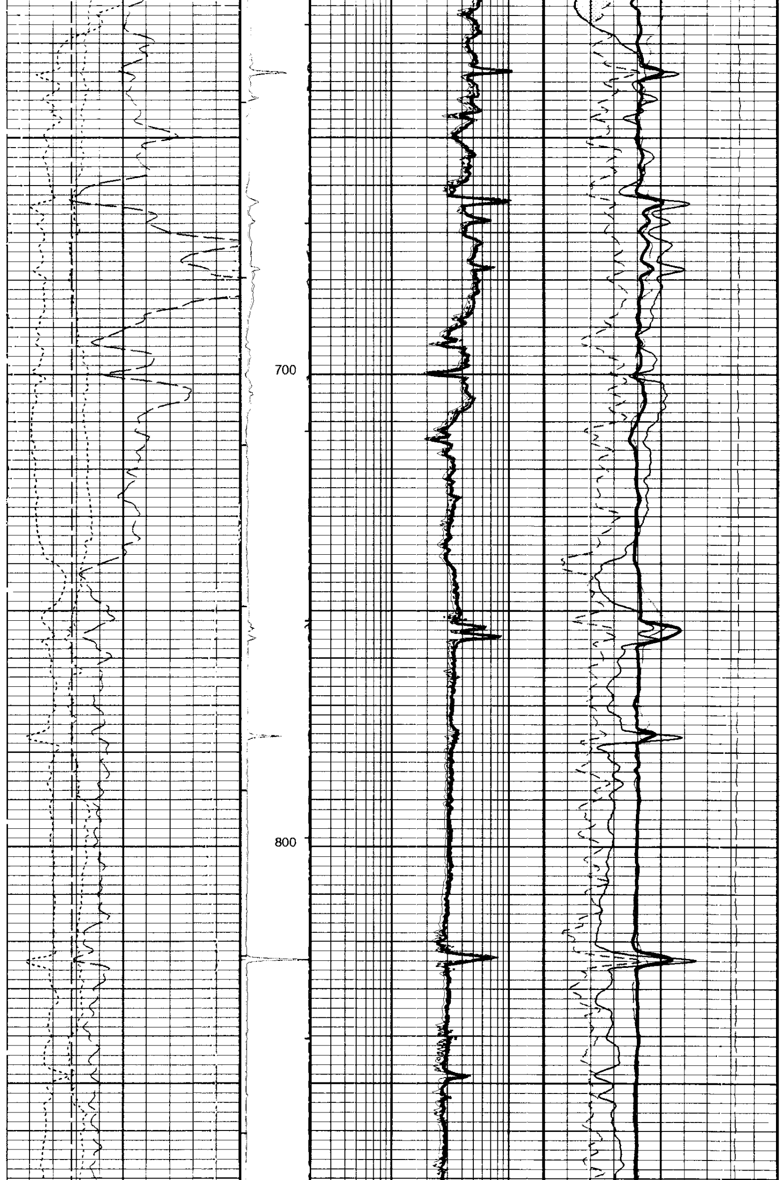
■ Time Mark Every 60 S

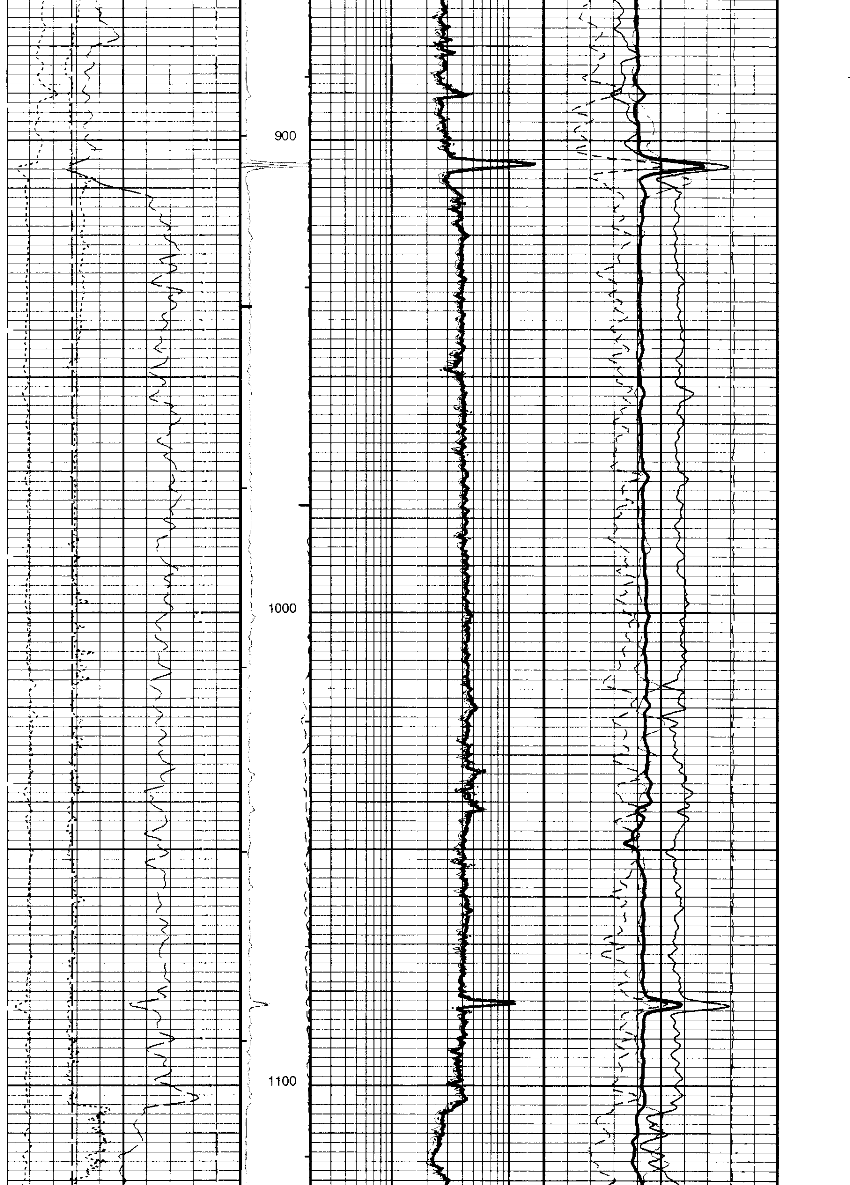
Env.Corr.Thermal Neutron Porosity
(TNPH)
1.2 (V/V) 0.6

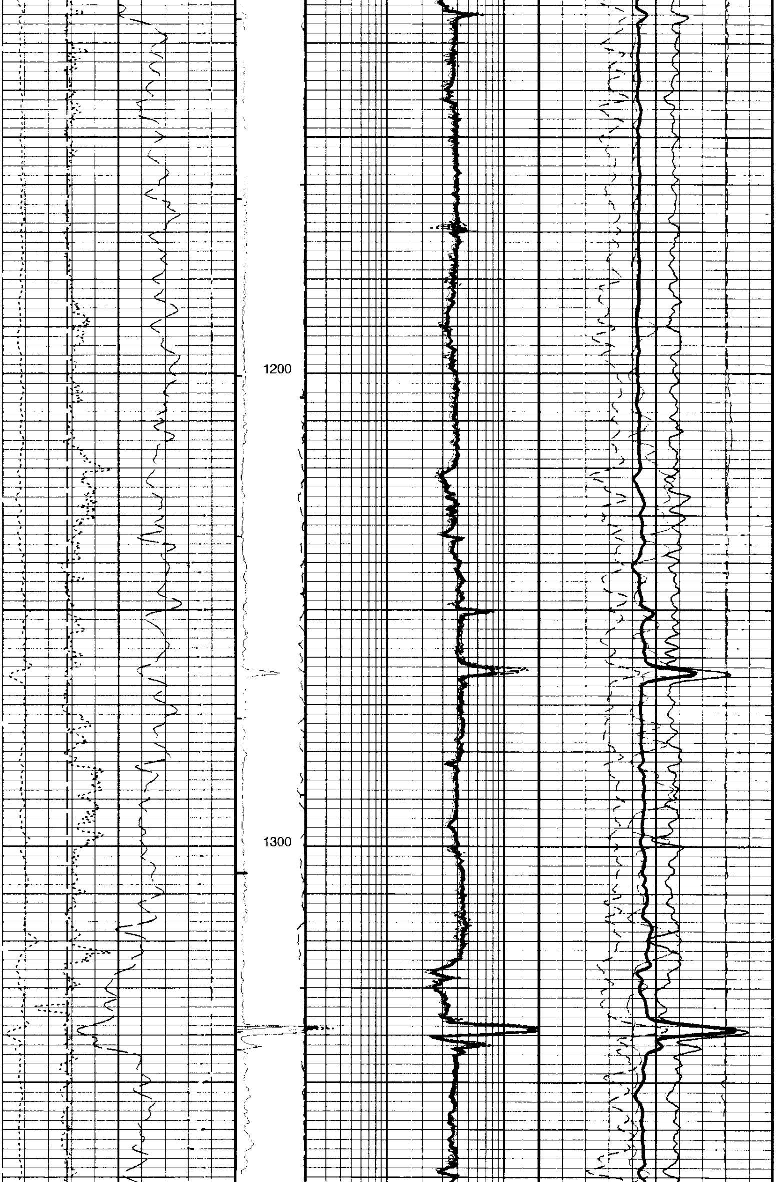
Env.Corr.Thermal Neutron Porosity
(TNPH)
0.6 (V/V) 0

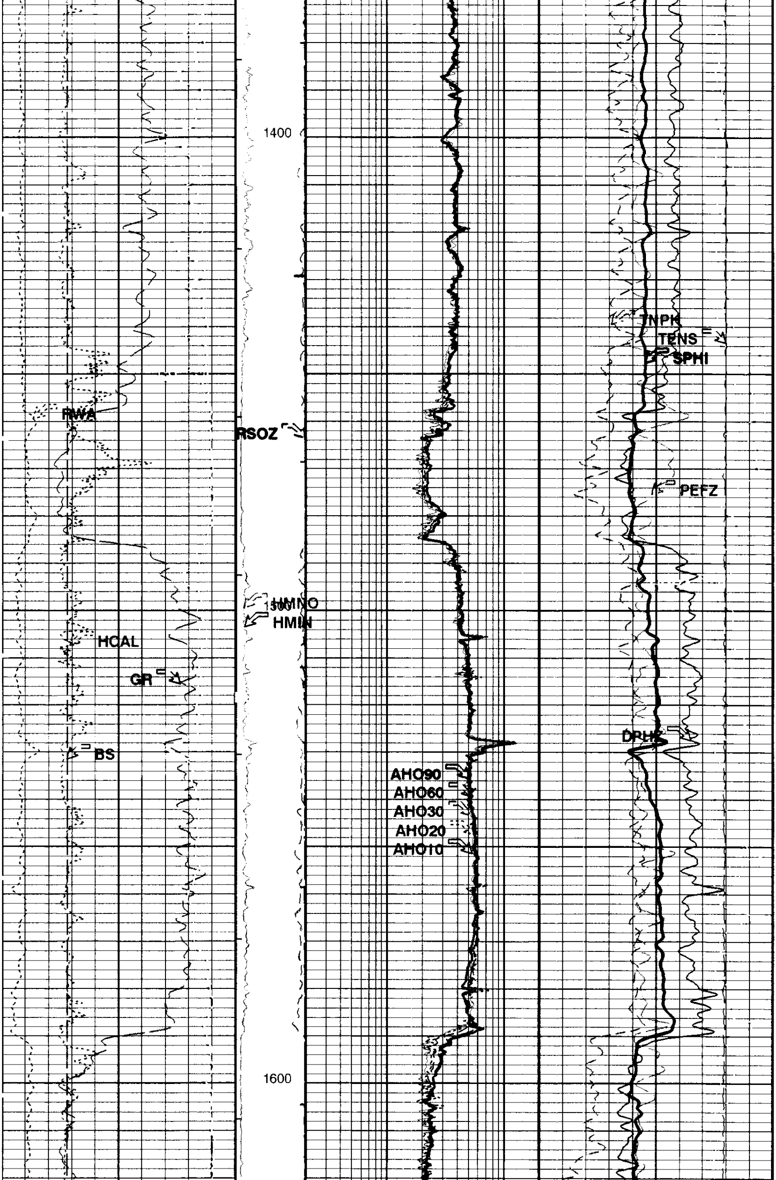
			Crossover
	Micro Normal Resistivity (HMNO) (OHMM) 0 30	**AIT-H 90 Inch Investigation (AHO90)** **0.2 (OHMM) 20**	Tension (TENS) 10000 (LBF) 0
RWA (RWA) 0 (OHMM) 3	Micro Inverse Resistivity (HMIN) (OHMM) 0 30	AIT-H 60 Inch Investigation (AHO60) 0.2 (OHMM) 20	**Sonic Porosity (SPHI)** **0.6 (V/V) 0**
Caliper (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

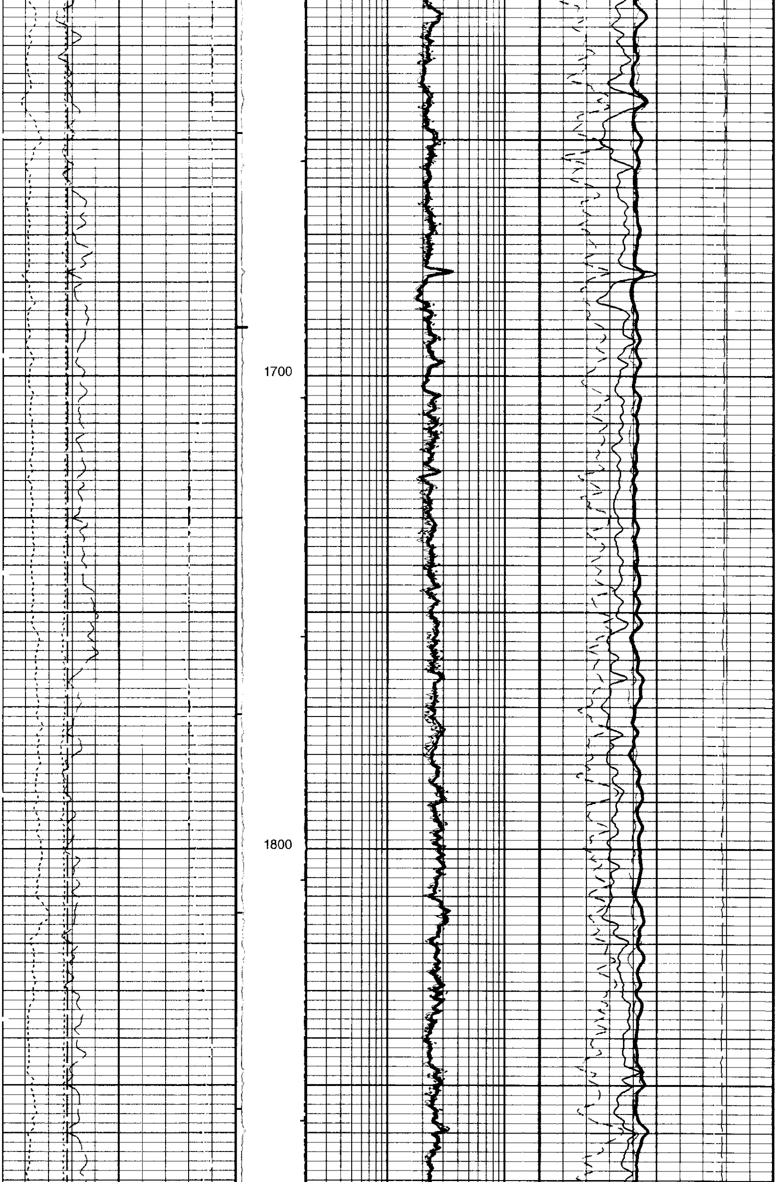


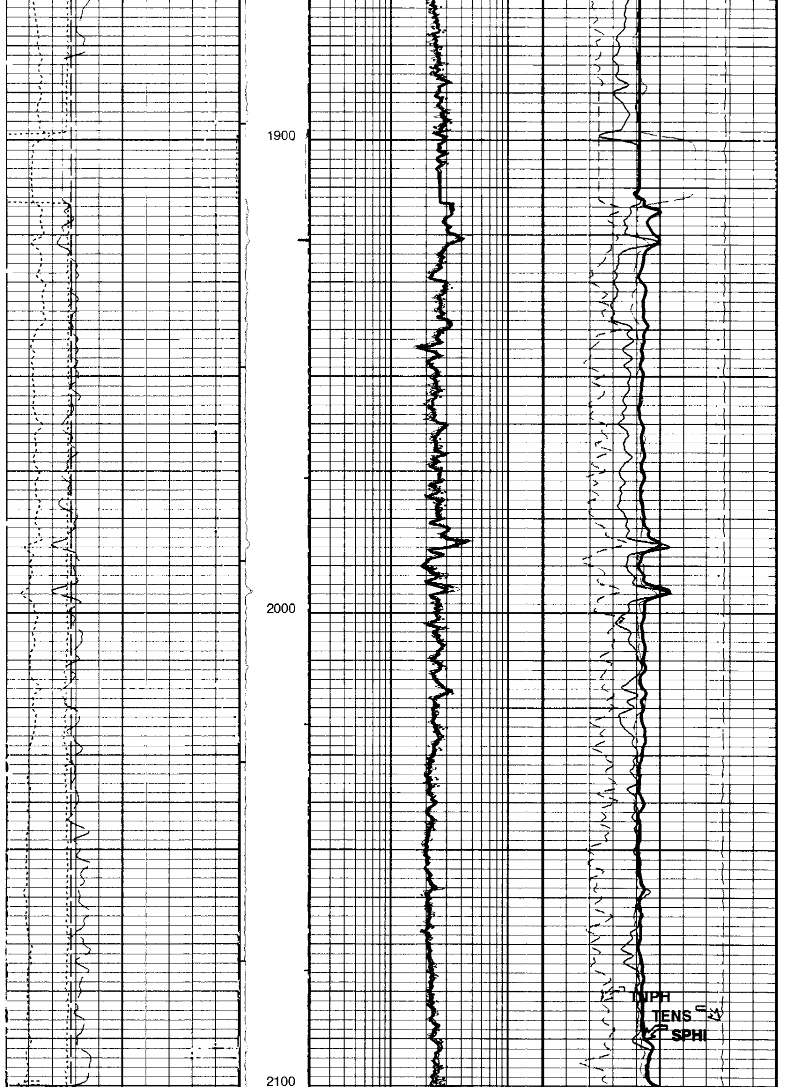


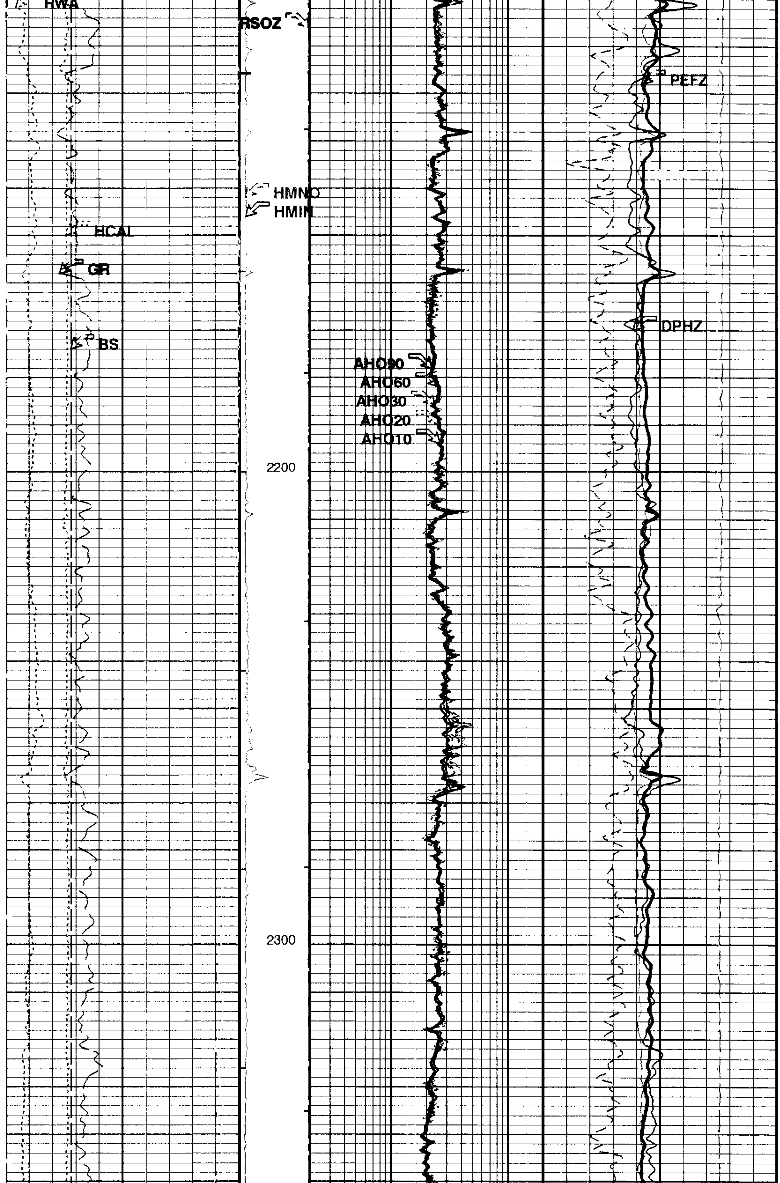


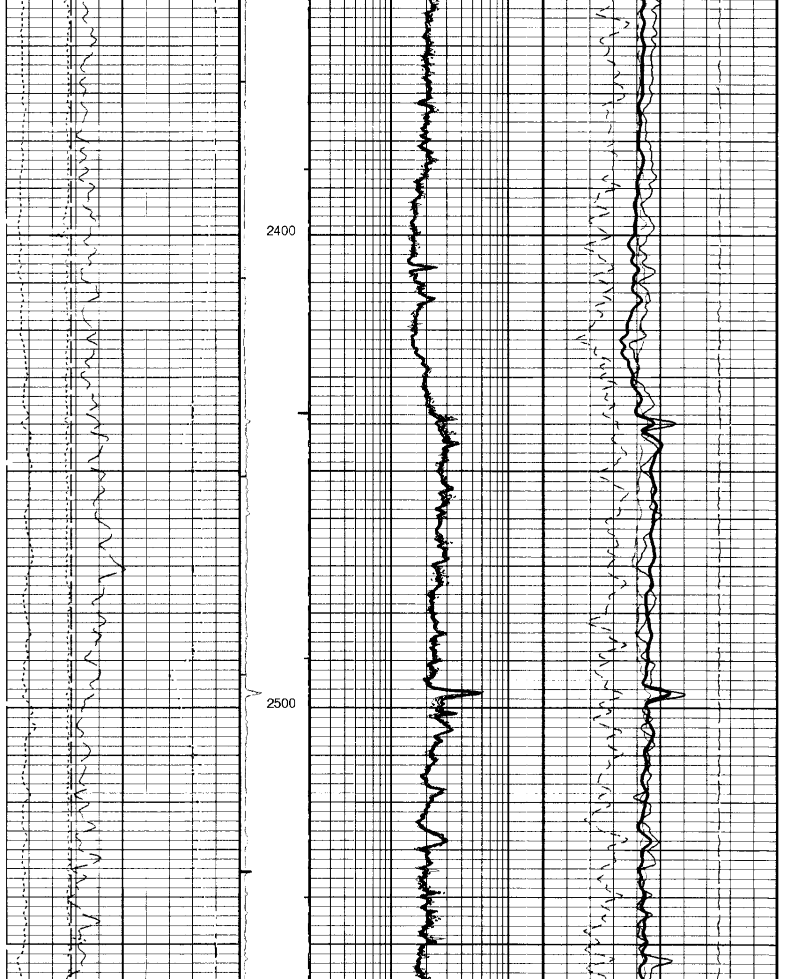


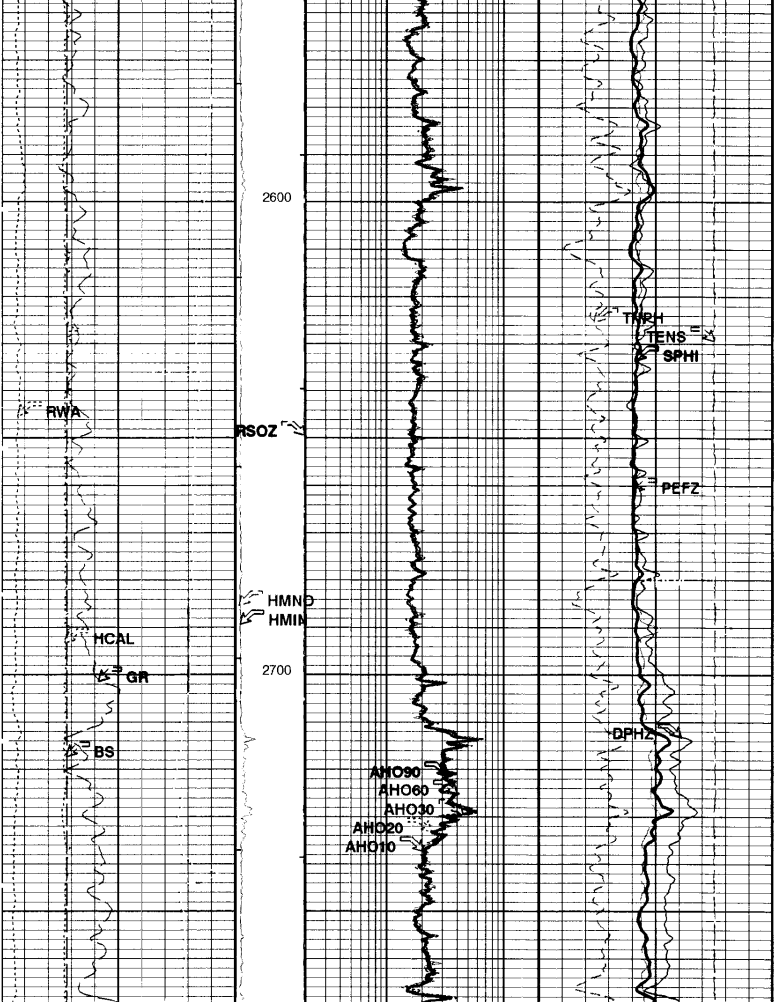


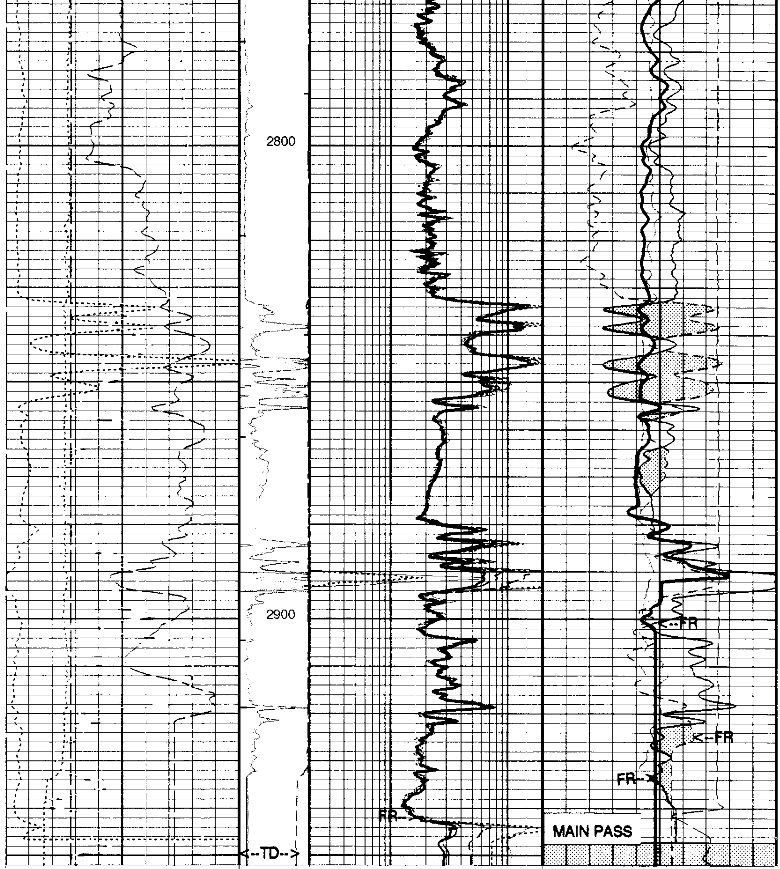












Gamma Ray (GR) 0 (GAPI) 150	Perm Indicator	AIT-H 10 Inch Investigation (AHO10) 0.2 (OHMM) 20	Std Res Density Porosity (DPHZ) 0.6 (V/V) 0
Bit Size (BS) 4 (IN) 14		AIT-H 20 Inch Investigation (AHO20) 0.2 (OHMM) 20	Std Res Density Porosity (DPHZ) 1.2 (V/V) 0.6
Caliper (HCAL) 4 (IN) 14	**Resistivity standoff (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 6.75 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)	48.000 DEGF	Bottom Temperature (BHT)	78.000 DEGF
Total Depth (TD)	2970.000 FT		
Form Factor Exponent (FEXP)	2.000	Form Factor Numerator (FNUM)	1.000
Mud Filtrate Sample Resistivity (RMFS)	3.810 OHMM	Mud Filtrate Sample Temperature (MFST)	39.000 DEGF
Resitivity Connate Water (RW)	1.000 OHMM		

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

Playback Mode: NORMAL

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	6.750	IN
BSAL	Borehole Salinity	600.00	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	0.00	LB/F
DFD	Drilling Fluid Density	9.30	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	45.00	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	NORMAL	
PTCO	Pressure/Temperature Correction Option	NO	
RMFS	Resistivity of Mud Filtrate Sample	3.8100	OHMM
RTCO	RTCO - Rt Invasion Correction	YES	
RW	Resistivity of Connate Water	1.0000	OHMM
SDAT	Standoff Data Source	SOCN	
SHT	Surface Hole Temperature	48	DEGF
SOCN	Standoff Distance	0.125	IN
SOCO	Standoff Correction Option	NO	
SPFS	Sonic Porosity Formula	RAYMER_HUNT	
SPNV	SP Next Value	-70	MV
SPSO	Sonic Porosity Source	DT	
TD	Total Depth	2970	FT
TDL	Total Depth - Logger	2950.00	FT
TWS	Temperature of Connate Water Sample	100.00	DEGF

Format: S5 **Vertical Scale: 5" per 100'** **Graphics File Created: 24-Dec-1998 18:04**

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 .031	FN:1	FIELD	24-Dec-1998 17:45	2952.0 FT	332.0 FT

Output DLIS Files

DEFAULT	HILTB .033	FN:25	FIELD	24-Dec-1998 18:04

Calibration and Check Summary

High resolution Integrated Logging Tool-CTS Wellsite Calibration - Electronics Calibration Check - Thru Cal Mag. & Phase
Master: Nov 13 14:05 1998 Before: Dec 22 19:37 1998

Measurement	Nominal	Master	Before	After	Change	Limit	Units
Thru Cal Magnitude - 0	0	0.6315	0.6571	N/A	N/A	N/A	V
Thru Cal Magnitude - 1	0	1.298	1.350	N/A	N/A	N/A	V
Thru Cal Magnitude - 2	0	0.6428	0.6686	N/A	N/A	N/A	V
Thru Cal Magnitude - 3	0	0.7272	0.7567	N/A	N/A	N/A	V
Thru Cal Magnitude - 4	0	1.364	1.419	N/A	N/A	N/A	V
Thru Cal Magnitude - 5	0	1.972	2.052	N/A	N/A	N/A	V
Thru Cal Magnitude - 6	0	1.973	2.053	N/A	N/A	N/A	V
Thru Cal Magnitude - 7	0	1.410	1.469	N/A	N/A	N/A	V
Phase - 0	0	69.32	70.04	N/A	N/A	N/A	DEG
Phase - 1	0	68.31	69.03	N/A	N/A	N/A	DEG
Phase - 2	0	64.61	65.34	N/A	N/A	N/A	DEG
Phase - 3	0	63.82	64.56	N/A	N/A	N/A	DEG
Phase - 4	0	57.54	58.30	N/A	N/A	N/A	DEG
Phase - 5	0	55.71	56.49	N/A	N/A	N/A	DEG
Phase - 6	0	55.71	56.49	N/A	N/A	N/A	DEG
Phase - 7	0	51.91	52.86	N/A	N/A	N/A	DEG

High resolution Integrated Logging Tool-CTS Wellsite Calibration - Electronics Calibration Check - Auxilliary

Master: Nov 13 14:05 1998 Before: Dec 22 19:37 1998

AIT-H SPA Plus	990.5	991.9	992.3	N/A	N/A	N/A	MV
AIT-H SPA Zero	0	-0.07865	-0.07926	N/A	N/A	N/A	MV
AIT-H Temperature Plus	0.9150	0.9185	0.9189	N/A	N/A	N/A	V
AIT-H Temperature Zero	0	-0.00008107	-0.00001997	N/A	N/A	N/A	V

High resolution Integrated Logging Tool-CTS Wellsite Calibration - Test Loop Gain Correction

Master: Nov 13 14:05 1998

Test Loop Gain Magnitude - 0	0	1.021	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	1.028	N/A	N/A	N/A	N/A	V
Test Loop Gain Magnitude - 3	0	1.039	N/A	N/A	N/A	N/A	V
Test Loop Gain Magnitude - 4	0	1.008	N/A	N/A	N/A	N/A	V
Test Loop Gain Magnitude - 5	0	1.007	N/A	N/A	N/A	N/A	V
Test Loop Gain Magnitude - 6	0	1.019	N/A	N/A	N/A	N/A	V
Test Loop Gain Magnitude - 7	0	1.026	N/A	N/A	N/A	N/A	V
Phase - 0	0	0.5495	N/A	N/A	N/A	N/A	DEG
Phase - 1	0	0.5732	N/A	N/A	N/A	N/A	DEG
Phase - 2	0	-0.1529	N/A	N/A	N/A	N/A	DEG
Phase - 3	0	-0.1251	N/A	N/A	N/A	N/A	DEG
Phase - 4	0	-0.1453	N/A	N/A	N/A	N/A	DEG
Phase - 5	0	-0.3386	N/A	N/A	N/A	N/A	DEG
Phase - 6	0	-0.1193	N/A	N/A	N/A	N/A	DEG
Phase - 7	0	-0.5297	N/A	N/A	N/A	N/A	DEG

High resolution Integrated Logging Tool-CTS Wellsite Calibration - Sonde Error Correction

Master: Nov 13 14:05 1998

R Sonde Error Correction - 0	0	-121.1	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction - 1	0	169.6	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction - 2	0	112.3	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction - 3	0	60.69	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction - 4	0	26.51	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction - 5	0	14.90	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction - 6	0	9.526	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction - 7	0	-0.8869	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction - 0	0	87.88	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction - 1	0	-57.69	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction - 2	0	-2.876	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction - 3	0	-49.28	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction - 4	0	-39.52	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction - 5	0	26.86	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction - 6	0	0.9300	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction - 7	0	-1.086	N/A	N/A	N/A	N/A	MM/M

High resolution Integrated Logging Tool-CTS Wellsite Calibration - Mud Gain Correction

Master: Nov 13 14:05 1998

Coarse - Mag, Real, Imag - 0	0	0.9692	N/A	N/A	N/A	N/A	
Coarse - Mag, Real, Imag - 1	0	0.9693	N/A	N/A	N/A	N/A	
Coarse - Mag, Real, Imag - 2	0	0.9693	N/A	N/A	N/A	N/A	
Fine - Mag, Real, Imag - 0	0	0.9740	N/A	N/A	N/A	N/A	
Fine - Mag, Real, Imag - 1	0	0.9740	N/A	N/A	N/A	N/A	
Fine - Mag, Real, Imag - 2	0	0.9740	N/A	N/A	N/A	N/A	

High resolution Integrated Logging Tool-CTS Wellsite Calibration - Stab Measurement Summary

Before: Dec 22 19:37 1998

BS Window Ratio	1.019	N/A	1.023	N/A	N/A	N/A	
BS Window Sum	14700	N/A	14730	N/A	N/A	N/A	CPS
SS Window Ratio	0.5057	N/A	0.5069	N/A	N/A	N/A	
SS Window Sum	11830	N/A	11760	N/A	N/A	N/A	CPS
LS Window Ratio	0.2824	N/A	0.2874	N/A	N/A	N/A	
LS Window Sum	1193	N/A	1194	N/A	N/A	N/A	CPS

High resolution Integrated Logging Tool-CTS Wellsite Calibration - Photo-multiplier High Voltages Calibrations

Before: Dec 22 19:37 1998

BS PM High Voltage (Command)	1625	N/A	1603	N/A	N/A	N/A	V
SS PM High Voltage (Command)	1944	N/A	1960	N/A	N/A	N/A	V
LS PM High Voltage (Command)	1993	N/A	1998	N/A	N/A	N/A	V

High resolution Integrated Logging Tool-CTS Wellsite Calibration - Crystal Quality Resolutions Calibration

Before: Dec 22 19:37 1998

BS Crystal Resolution	12.46	N/A	12.35	N/A	N/A	N/A	%
SS Crystal Resolution	12.00	N/A	12.66	N/A	N/A	N/A	%
LS Crystal Resolution	10.78	N/A	10.43	N/A	N/A	N/A	%

High resolution Integrated Logging Tool-CTS Wellsite Calibration - MCFL Calibration

Before: Dec 22 19:39 1998

Raw B0 Resistivity	3875	N/A	3860	N/A	N/A	N/A	OHMM
Raw B1 Resistivity	3830	N/A	3811	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: Dec 22 19:34 1998

HILT Caliper Zero Measurement	8.000	N/A	8.028	N/A	N/A	N/A	IN
HILT Caliper Plus Measurement	12.00	N/A	12.22	N/A	N/A	N/A	IN

High resolution Integrated Logging Tool-CTS Wellsite Calibration - Detector Calibration

Before: Dec 22 19:32 1998

Gamma Ray Background	30.00	N/A	28.79	N/A	N/A	N/A	GAPI
Gamma Ray (Jig - Bkg)	172.0	N/A	172.0	N/A	N/A	15.64	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: Dec 13 14:12 1998 Before: Dec 22 19:33 1998

CNTC Background	25.15	25.15	24.87	N/A	N/A	3.773	CPS
CFTC Background	27.33	27.33	26.95	N/A	N/A	4.100	CPS

High resolution Integrated Logging Tool-CTS Wellsite Calibration - Accelerometer Calibration
Before: Dec 17 13:32 1998

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

The GLS-VJ source activity is acceptable.

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

NCT-B Water Temperature	72.0	DEGF.
Thermal Housing Size	3.387	IN.

High resolution Integrated Logging Tool-CTS / Equipment Identification

Primary Equipment:

Array Induction Tool - H	AIT - H	277
Array Induction Sonde	AHIS - BA	277
HILT high-Resolution Mechanical Sonde	HRMS - B	723
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	0.6315		0.6050	69.32		71.00
	Before	0.6571			70.04		
1	Master	1.298		1.270	68.31		70.00
	Before	1.350			69.03		
2	Master	0.6428		0.6230	64.61		66.00
	Before	0.6686			65.34		
3	Master	0.7272		0.7040	63.82		65.00
	Before	0.7567			64.56		
4	Master	1.364		1.337	57.54		59.00
	Before	1.419			58.30		
5	Master	1.972		1.955	55.71		57.00
	Before	2.052			56.49		
6	Master	1.973		1.955	55.71		57.00
	Before	2.053			56.49		
7	Master	1.410		1.415	51.91		53.00
	Before	1.469			52.86		
			60.00 % (Minimum) (Nominal) 140.0 % (Maximum)			Nom -60.00 (Minimum) (Nominal) Nom + 60.00 (Maximum)	

Master Nov 13 14:05 1998 Before: Dec 22 19:37 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		991.9	Master		-0.07865
Before		992.3	Before		-0.07926
	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		0.9185	Master		-8.107E-00
Before		0.9189	Before		-1.997E-00
	0.8700 (Minimum) 0.9150 (Nominal) 0.9600 (Maximum)			-0.05000 (Minimum) 0 (Nominal) 0.05000 (Maximum)	

Master: Nov 13 14:05 1998 Before: Dec 22 19:37 1998

High resolution Integrated Logging Tool-CTS Wellsite Calibration

Test Loop Gain Correction

Idx	Value	Test Loop Gain Magnitude V	Value	Phase DEG
0	1.021	0.9500 (Minimum) 1.000 (Nominal) 1.050 (Maximum)	0.5495	-3.000 (Minimum) 0 (Nominal) 3.000 (Maximum)
1	1.020	0.9500 (Minimum) 1.000 (Nominal) 1.050 (Maximum)	0.5732	-3.000 (Minimum) 0 (Nominal) 3.000 (Maximum)
2	1.028	0.9500 (Minimum) 1.000 (Nominal) 1.050 (Maximum)	-0.1529	-3.000 (Minimum) 0 (Nominal) 3.000 (Maximum)
3	1.039	0.9500 (Minimum) 1.000 (Nominal) 1.050 (Maximum)	-0.1251	-3.000 (Minimum) 0 (Nominal) 3.000 (Maximum)
4	1.008	0.9500 (Minimum) 1.000 (Nominal) 1.050 (Maximum)	-0.1453	-3.000 (Minimum) 0 (Nominal) 3.000 (Maximum)
5	1.007	0.9500 (Minimum) 1.000 (Nominal) 1.050 (Maximum)	-0.3386	-3.000 (Minimum) 0 (Nominal) 3.000 (Maximum)
6	1.019	0.9500 (Minimum) 1.000 (Nominal) 1.050 (Maximum)	-0.1193	-3.000 (Minimum) 0 (Nominal) 3.000 (Maximum)
7	1.026	0.9500 (Minimum) 1.000 (Nominal) 1.050 (Maximum)	-0.5297	-3.000 (Minimum) 0 (Nominal) 3.000 (Maximum)

Master: Nov 13 14:05 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
0	-121.1	-231.0 (Minimum) -56.00 (Nominal) 119.0 (Maximum)	87.88	-2250 (Minimum) 0 (Nominal) 2250 (Maximum)
1	169.6	114.0 (Minimum) 159.0 (Nominal) 204.0 (Maximum)	-57.69	-625.0 (Minimum) 0 (Nominal) 625.0 (Maximum)
2	112.3	66.00 (Minimum) 111.0 (Nominal) 156.0 (Maximum)	-2.876	-350.0 (Minimum) 0 (Nominal) 350.0 (Maximum)
3	60.69	39.00 (Minimum) 64.00 (Nominal) 89.00 (Maximum)	-49.28	-250.0 (Minimum) 0 (Nominal) 250.0 (Maximum)
4	26.51	15.00 (Minimum) 25.00 (Nominal) 35.00 (Maximum)	-39.52	-63.00 (Minimum) 0 (Nominal) 63.00 (Maximum)
5	14.90	4.000 (Minimum) 14.00 (Nominal) 24.00 (Maximum)	26.66	-50.00 (Minimum) 0 (Nominal) 50.00 (Maximum)
6	9.526	5.000 (Minimum) 10.00 (Nominal) 15.00 (Maximum)	0.9300	-30.00 (Minimum) 0 (Nominal) 30.00 (Maximum)
7	-0.8869	-5.000 (Minimum) 0 (Nominal) 5.000 (Maximum)	-1.086	-30.00 (Minimum) 0 (Nominal) 30.00 (Maximum)

Master Nov 13 14:05 1998

High resolution Integrated Logging Tool-CTS Wellsite Calibration

Mud Gain Correction

Idx	Value	Coarse - Mag, Real, Imag	Value	Fine - Mag, Real, Imag
0	0.9692	0.6000 (Minimum) 1.000 (Nominal) 1.400 (Maximum)	0.9740	0.6000 (Minimum) 1.000 (Nominal) 1.400 (Maximum)
1	0.9693	0.6000 (Minimum) 1.000 (Nominal) 1.400 (Maximum)	0.9740	0.6000 (Minimum) 1.000 (Nominal) 1.400 (Maximum)
2	0.9693	0.6000 (Minimum) 1.000 (Nominal) 1.400 (Maximum)	0.9740	0.6000 (Minimum) 1.000 (Nominal) 1.400 (Maximum)

Master: Nov 13 14:05 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
Before		1.023	Before		0.5069	Before		0.2874
0.9680 (Minimum)	1.019 (Nominal)	1.070 (Maximum)	0.4804 (Minimum)	0.5057 (Nominal)	0.5309 (Maximum)	0.2682 (Minimum)	0.2824 (Nominal)	0.2965 (Maximum)

Phase	BS Window Sum CPS	Value	Phase	SS Window Sum CPS	Value	Phase	LS Window Sum CPS	Value
Before		14730	Before		11760	Before		1194
13970 (Minimum)	14700 (Nominal)	15440 (Maximum)	11240 (Minimum)	11830 (Nominal)	12420 (Maximum)	1133 (Minimum)	1193 (Nominal)	1253 (Maximum)

Before: Dec 22 19:37 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
Before		1603	Before		1960	Before		1996
1525 (Minimum)	1625 (Nominal)	1725 (Maximum)	1844 (Minimum)	1944 (Nominal)	2044 (Maximum)	1893 (Minimum)	1993 (Nominal)	2093 (Maximum)

Before: Dec 22 19:37 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
Before		12.35	Before		12.66	Before		10.43
11.46 (Minimum)	12.46 (Nominal)	13.46 (Maximum)	11.00 (Minimum)	12.00 (Nominal)	13.00 (Maximum)	9.778 (Minimum)	10.78 (Nominal)	11.78 (Maximum)

Before: Dec 22 19:37 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
Before		3860	Before		3811	Before		3823
3565 (Minimum)	3875 (Nominal)	4185 (Maximum)	3524 (Minimum)	3830 (Nominal)	4136 (Maximum)	3524 (Minimum)	3830 (Nominal)	4136 (Maximum)

Before: Dec 22 19:39 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		8.028	Before		12.22
6.000 (Minimum)	8.000 (Nominal)	10.00 (Maximum)	9.000 (Minimum)	12.00 (Nominal)	15.00 (Maximum)

Before: Dec 22 19:34 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		28.79	Before		172.0	Before		165.0
0 (Minimum)	30.00 (Nominal)	120.0 (Maximum)	156.4 (Minimum)	172.0 (Nominal)	187.6 (Maximum)	150.0 (Minimum)	165.0 (Nominal)	180.0 (Maximum)

Before: Dec 22 19:32 1998

High resolution Integrated Logging Tool-CTS Wellsite Calibration

Zero Measurement

Phase	CNTC Background CPS	Value	Phase	CFTC Background CPS	Value
Master		25.15	Master		27.33
Before		24.87	Before		26.95
5.000 (Minimum)	25.15 (Nominal)	40.00 (Maximum)	5.000 (Minimum)	27.33 (Nominal)	40.00 (Maximum)

Master: Dec 13 14:12 1998 Before: Dec 22 19:33 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: Dec 17 13:32 1998

COMPANY:	**Enerfin Resources Northwest**	BOTTOM LOG INTERVAL	2953 F
		SCHLUMBERGER DEPTH	2950 F
WELL:	**CC 41-06-65 (Fishwhack) RD #1**	DEPTH DRILLER	2970 F
FIELD:	**Mist**	KELLY BUSHING	919 F
COUNTY:	**Columbia**	DRILL FLOOR	
STATE:	**Oregon**	GROUND LEVEL	909 F

5" = 100'

Schlumberger

PLATFORM EXPRESS
Array Induction/Sonic
Neutron/Density/SP