COMPANY: Enerfin Resources Northwest

WELL: C.C. 32-28-75 (Hadrasaur)

FIELD: Mist Gas

COUNTY: Columbia **STATE:** Oregon

COUNTY: Columbia
Field: Mist Gas
Location: 1818.7' S & 2231.71' W from
Well: C.C. 32-28-75 (Hadrasaur)
Company: Enerfin Resources Northwest

Schlumberger

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

LOCATION

1818.7' S & 2231.71' W from
the NE corner of Section 28

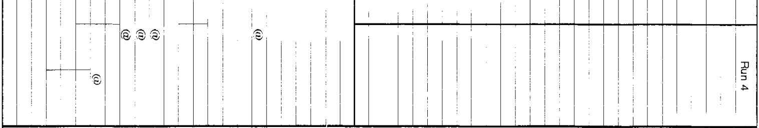
Elev.: K.B. 1337.74 ft
G.L. 1327.74 ft
D.F.

Permanent Datum:	Ground Level	Elev.:	1327.74 ft
Log Measured From:	Kelly Bushing	10.0 ft	above Perm. Datum
Drilling Measured From:	Kelly Bushing		

API Serial No.	SECTION	TOWNSHIP	RANGE
	28	5W	5W

Logging Date		31-JUL-1999		
Run Number		1		
Depth Driller		2863 ft		
Schlumberger Depth		2860 ft		
Bottom Log Interval		2852 ft		
Top Log Interval				
Casing Driller Size @ Depth		7.000 in	@	570 ft
Casing Schlumberger		570 ft		
Bit Size		6.250 in		
Type Fluid In Hole		Accu-gauge		
MUD Density	Viscosity	9.3 lbm/gal	47 s	
Fluid Loss	PH	5.6 cm3	9.5	
Source Of Sample		Flowline		
RM @ Measured Temperature		0.720 ohm.m	@	80 degF
RMF @ Measured Temperature		0.780 ohm.m	@	62 degF
RMC @ Measured Temperature		0.890 ohm.m	@	63 degF
Source RMF	RMC	Press	Press	
RM @ MRT	RMF @ MRT	0.554 @ 106	0.476 @ 106	
Maximum Recorded Temperatures		106 degF		
Circulation Stopped	Time	31-JUL-1999		1:00
Logger On Bottom	Time			12:45
Unit Number	Location	3152	Sacramento	
Recorded By		Clayton Campbell		
Witnessed By		Dave Huggins		

		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			
Fluid Loss	PH			
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				



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

REMARKS: RUN NUMBER 1	REMARKS: RUN NUMBER 2
0.5 inch standoffs used on Array Induction	
2 centralizers used on sonic sonde	
Cement Volume calculated assuming 2.875 inch production casing	
Logs calculated on Sandstone matrix; 2.65 g/cc 56 us/ft	
Rig: Taylor Drilling Inc. #7	

RUN 1		RUN 2	
SERVICE ORDER #:	6075774	SERVICE ORDER #:	
PROGRAM VERSION:	9C0-413	PROGRAM VERSION:	
FLUID LEVEL:		FLUID LEVEL:	

LOGGED INTERVAL	START	STOP	LOGGED INTERVAL	START	STOP

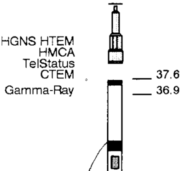
EQUIPMENT DESCRIPTION

RUN 1	RUN 2
SURFACE EQUIPMENT	**SURFACE EQUIPMENT**
WITM (CTS)-A NCS-VB GSR-U/Y NCT-B CNB-AB	STM-C GSR-U/Y WITM (CTS)-A

DOWNHOLE EQUIPMENT

LEH-QT 40.6
LEH-QT

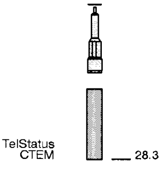
HILTB-CTS 37.6
HGNSC-B
HMCA
TCC-B
HGNS-H
NLS-KL
NSR-F
HACCZ

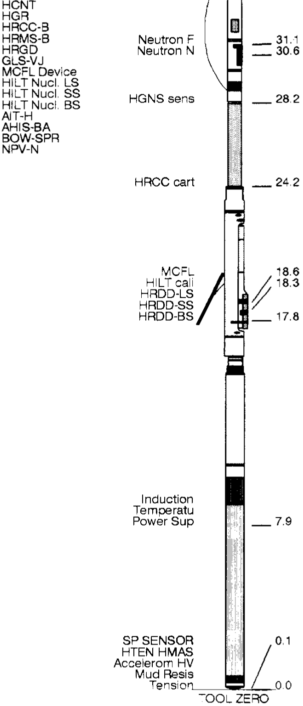


DOWNHOLE EQUIPMENT

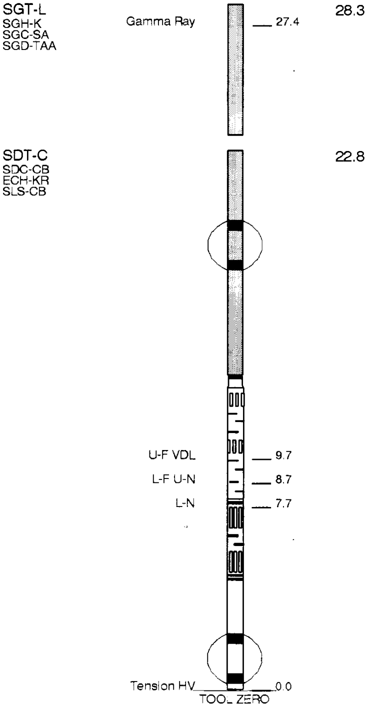
LEH-QT 34.2
LEH-QT 1080

TCC-B 31.3
ECH-KC
TCC-B





MAXIMUM STRING DIAMETER 4.63 IN
MEASUREMENTS RELATIVE TO TOOL ZERO
ALL LENGTHS IN FEET



MAXIMUM STRING DIAMETER 4.50 IN
MEASUREMENTS RELATIVE TO TOOL ZERO
ALL LENGTHS IN FEET

Input DLIS Files

DEFAULT	HILTC .016	FN:1	PRODUCER	31-Jul-1999 16:09	2874.0 FT	391.5 FT

Output DLIS Files

DEFAULT	HILTB .017	FN:14	PRODUCER	31-Jul-1999 16:12	2874.0 FT	392.0 FT

Integrated Hole/Cement Volume Summary

Hole Volume = 488.65 F3

Cement Volume = 385.23 F3 (assuming 2.88 IN casing O.D.)

Computed from 2863.0 FT to 570.0 FT using data channel(s) BS

OP System Version: 9C0-413

MCM

HILTB-DTB	OP9-KP1	SDT-C	9C0-413
SGT-L	9C0-413	TCC-B	9C0-413

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

Tension (TENS)
10000 (LBF) 0

RWA (RWA)
0 (OHMM) 3

Micro Inverse Resistivity (HMIN) (OHMM)
0 30

Sonic Porosity (SPHI)
0.6 (V/V) 0

Caliper (HCAL)
4 (IN) 14

Resistivity standoff (RSOZ)
2 (IN) 0

AIT-H 90 Inch Investigation (AHT90)
0 (OHMM) 20

Formation Pe (PEFZ)
-1 (----) 9

Bit Size (BS)
4 (IN) 14

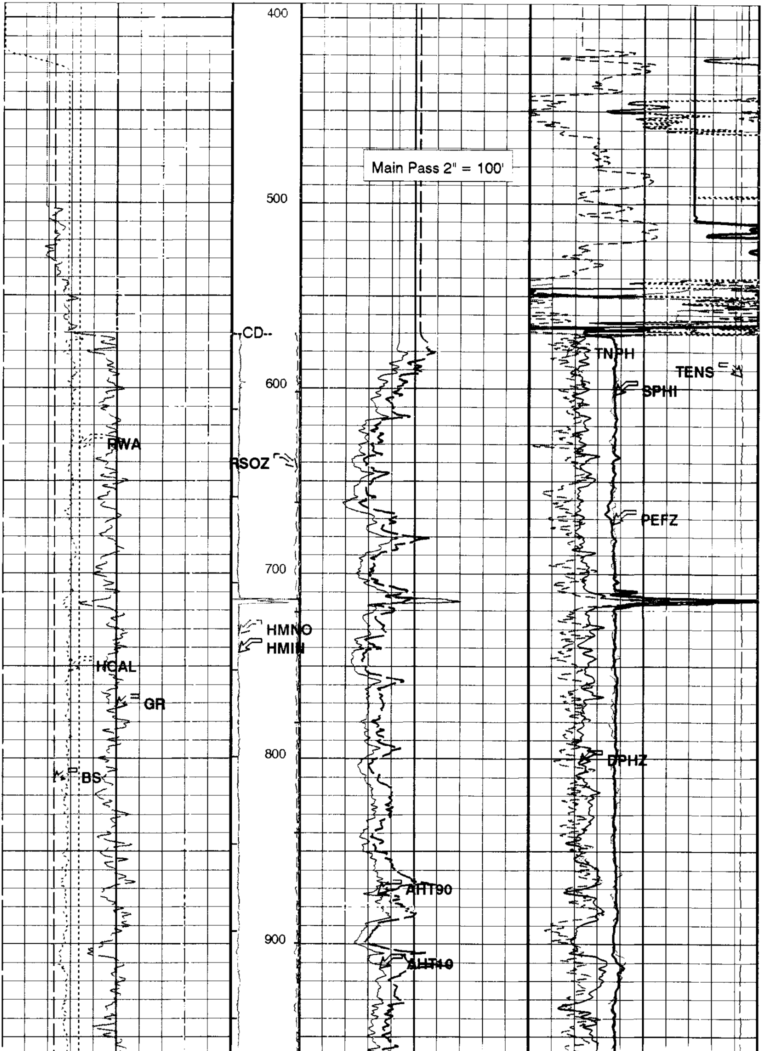
Std Res Density Porosity (DPHZ)
1.2 (V/V) 0.6

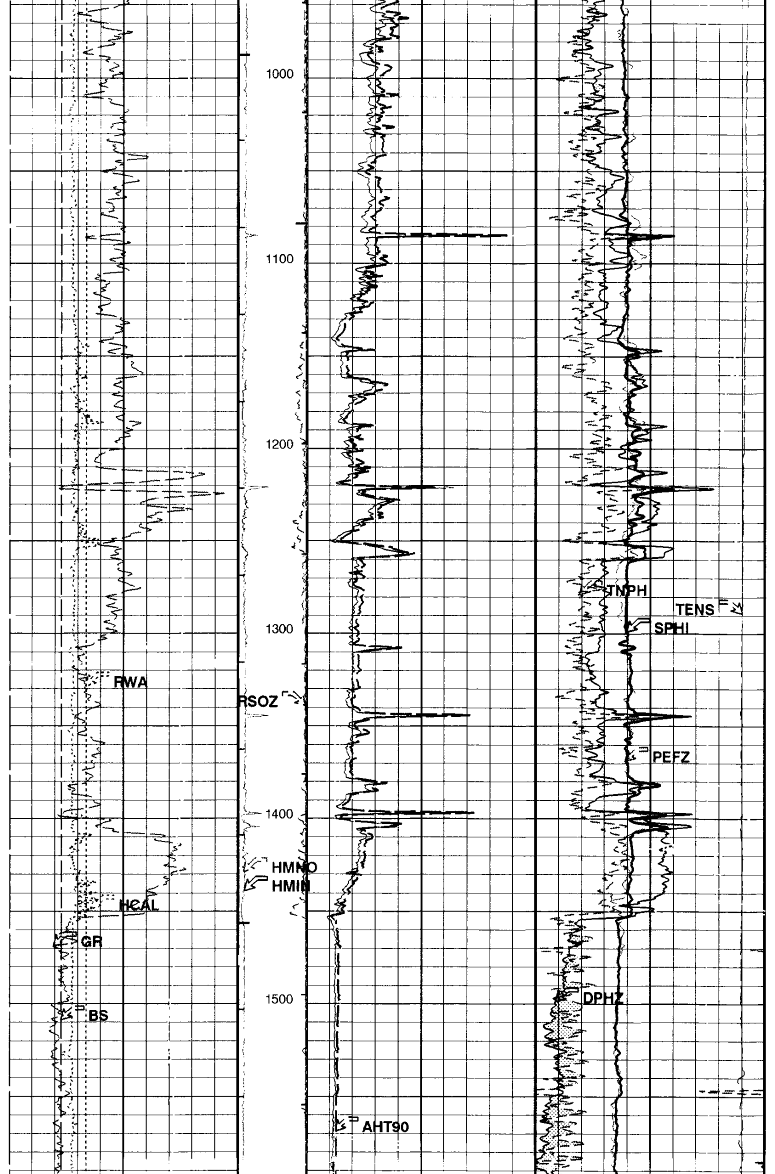
Gamma Ray (GR)
0 (GAPI) 150

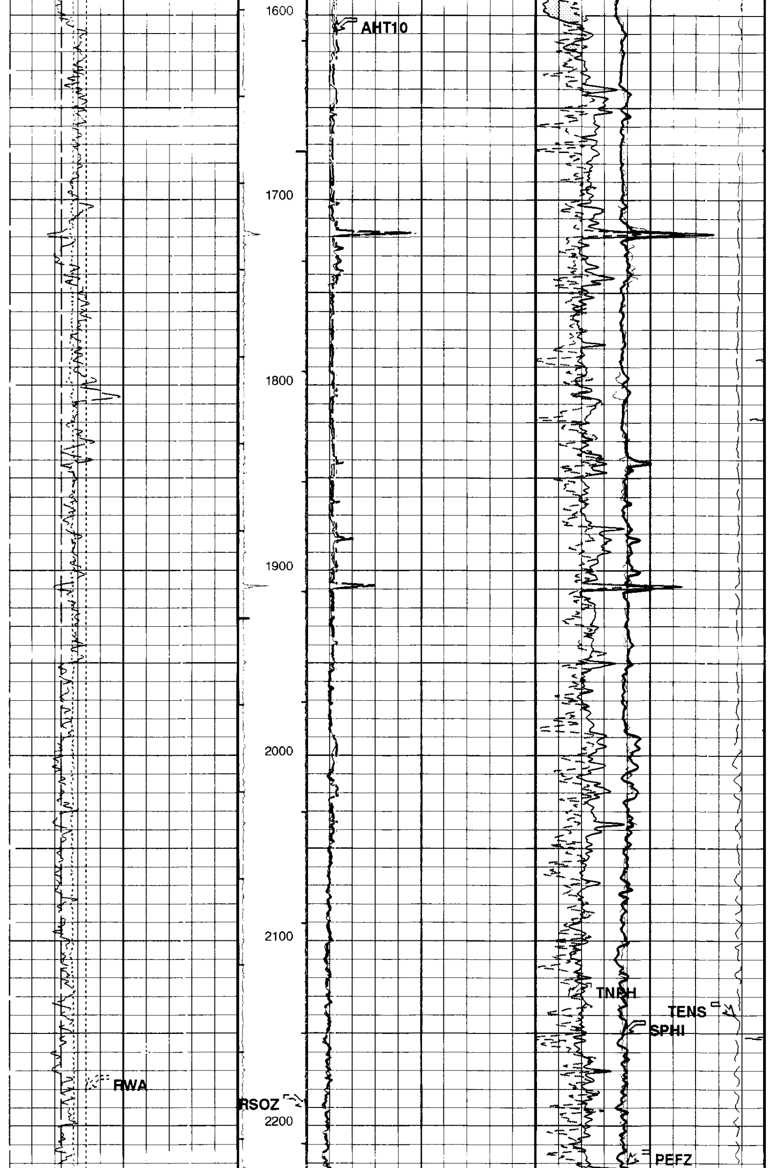
Perm Indicator

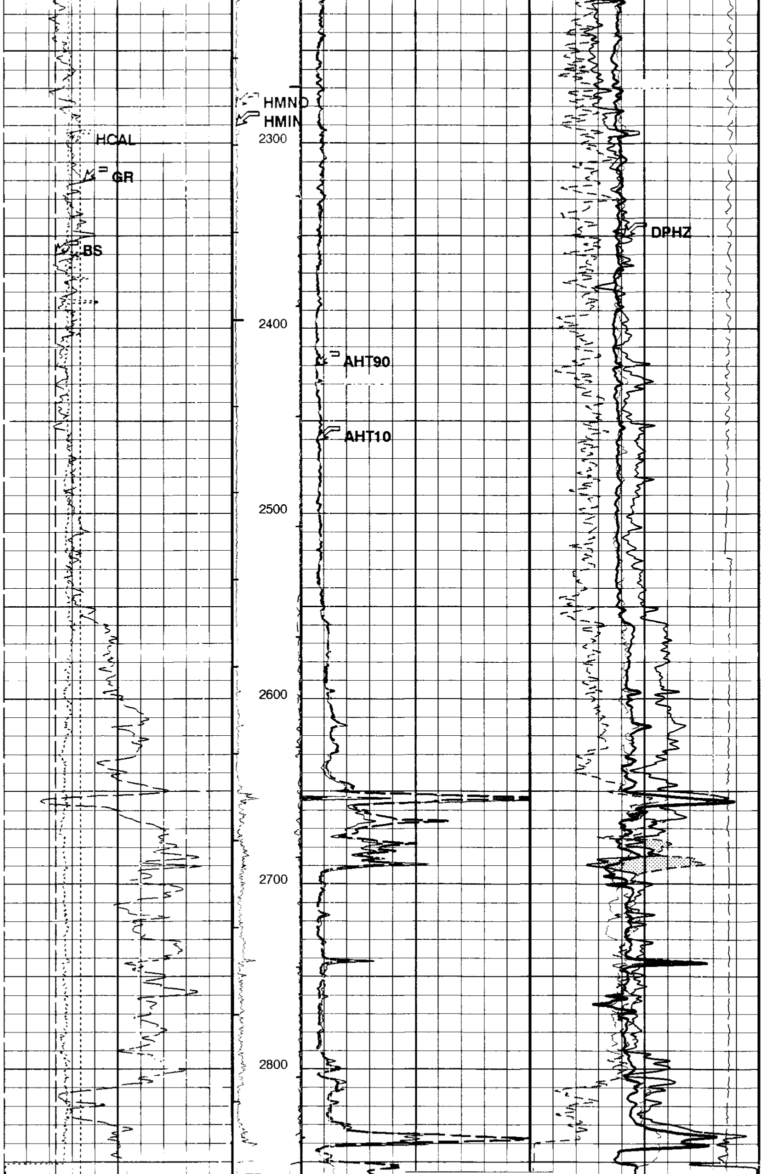
AIT-H 10 Inch Investigation (AHT10)
0 (OHMM) 20

Std Res Density Porosity (DPHZ)
0.6 (V/V) 0









Gamma Ray (GR) 0 (GAPI) 150	Perm Indicator	AIT-H 10 Inch Investigation (AHT10) 0 (OHMM) 20	Std Res Density Porosity (DPHZ) 0.6 (V/V) 0
Bit Size (BS) 4 (IN) 14			Std Res Density Porosity (DPHZ) 1.2 (V/V) 0.6
Caliper (HCAL) 4 (IN) 14	Resistivity standoff (RSOZ) 2 (IN) 0	AIT-H 90 Inch Investigation (AHT90) 0 (OHMM) 20	Formation Pe (PEFZ) -1 (----) 9
RWA (RWA) 0 (OHMM) 3	Micro Inverse Resistivity (HMIN) (OHMM) 0 30		Sonic Porosity (SPHI) 0.6 (V/V) 0
	Micro Normal Resistivity (HMNO) (OHMM) 0 30		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 Mud Resistivity computed. Borehole diameter taken as input (see GCSE parameter)
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)	100.000 DEGF
Total Depth (TD)	2863.000 FT		
Form Factor Exponent (FEXP)	2.000	Form Factor Numerator (FNUM)	1.000
Mud Filtrate Sample Resistivity (RMFS)	0.780 OHMM	Mud Filtrate Sample Temperature (MFST)	62.000 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	0_ComputeMudResistivity	
AHBLM	AIT-H Basic Logs Mode	6_One_Two_and_Four	
AHBPO	AIT-H Basic Logs Processing Option	Standard_Processing	
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)	100	DEGF
BS	Bit Size	6.250	IN
BSAL	Borehole Salinity	4100.00	PPM
BSCO	Borehole Salinity Correction Option	NO	
CCCO	Casing & Cement Thickness Correction Option	NO	
CDTS	C-Delta-T Shale	100	US/F
CSIZ	Current Casing Size	7.000	IN
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	80.00	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	0.7800	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	YES	
SPFS	Sonic Porosity Formula	RAYMER_HUNT	
SPNV	SP Next Value	0	MV
SPSO	Sonic Porosity Source	DT	
TD	Total Depth	2863	FT
TDL	Total Depth - Logger	2858.00	FT
TWS	Temperature of Connate Water Sample	100.00	DEGF

Format: S2 Vertical Scale: 2" per 100' Graphics File Created: 31-Jul-1999 16:12

OP System Version: 9C0-413

MCM

HILTB-DTB	OP9-KP1	SDT-C	9C0-413
SGT-L	9C0-413	TCC-B	9C0-413

Speed Corrected - Depth Matched LOG

Input DLIS Files

DEFAULT	HILTC .016	FN:1	PRODUCER	31-Jul-1999 16:09	2874.0 FT	391.5 FT

Output DLIS Files

DEFAULT	HILTB .017	FN:14	PRODUCER	31-Jul-1999 16:12

Input DLIS Files

DEFAULT	HILTC .016	FN:1	PRODUCER	31-Jul-1999 16:09	2874.0 FT	391.5 FT

Output DLIS Files

DEFAULT	HILTB .017	FN:14	PRODUCER	31-Jul-1999 16:12	2874.0 FT	392.0 FT

Integrated Hole/Cement Volume Summary

Hole Volume = 488.65 F3

Cement Volume = 385.23 F3 (assuming 2.88 IN casing O.D.)

Computed from 2863.0 FT to 570.0 FT using data channel(s) BS

OP System Version: 9C0-413

MCM

HILTB-DTB	OP9-KP1	SDT-C	9C0-413
SGT-L	9C0-413	TCC-B	9C0-413

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

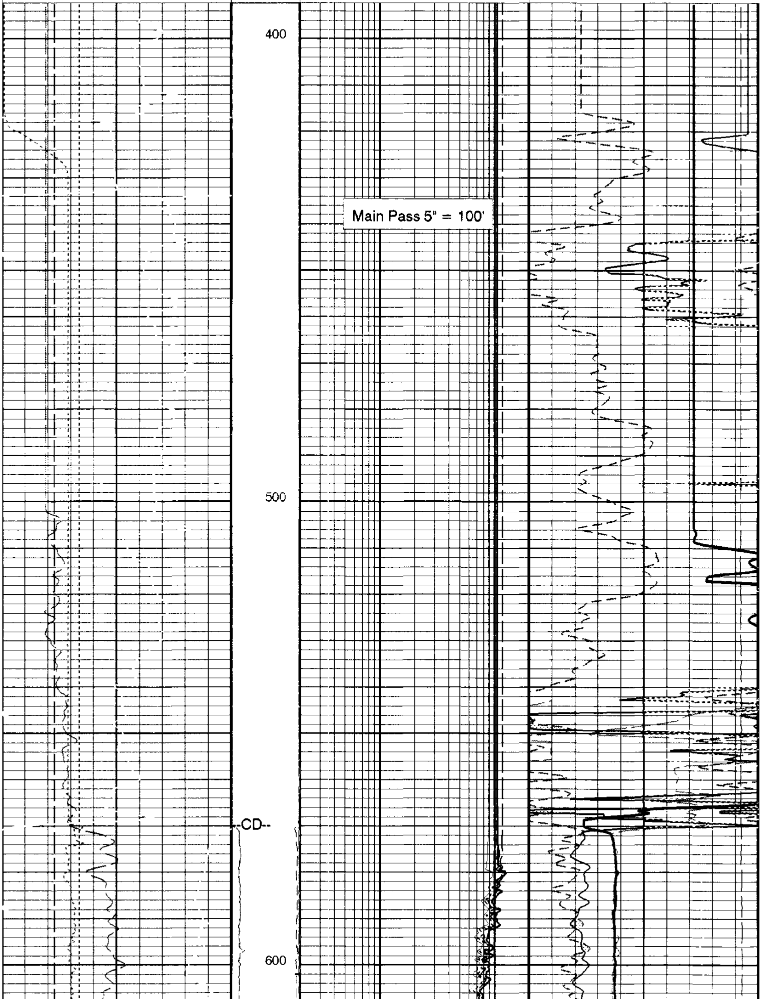
■ Time Mark Every 60 S

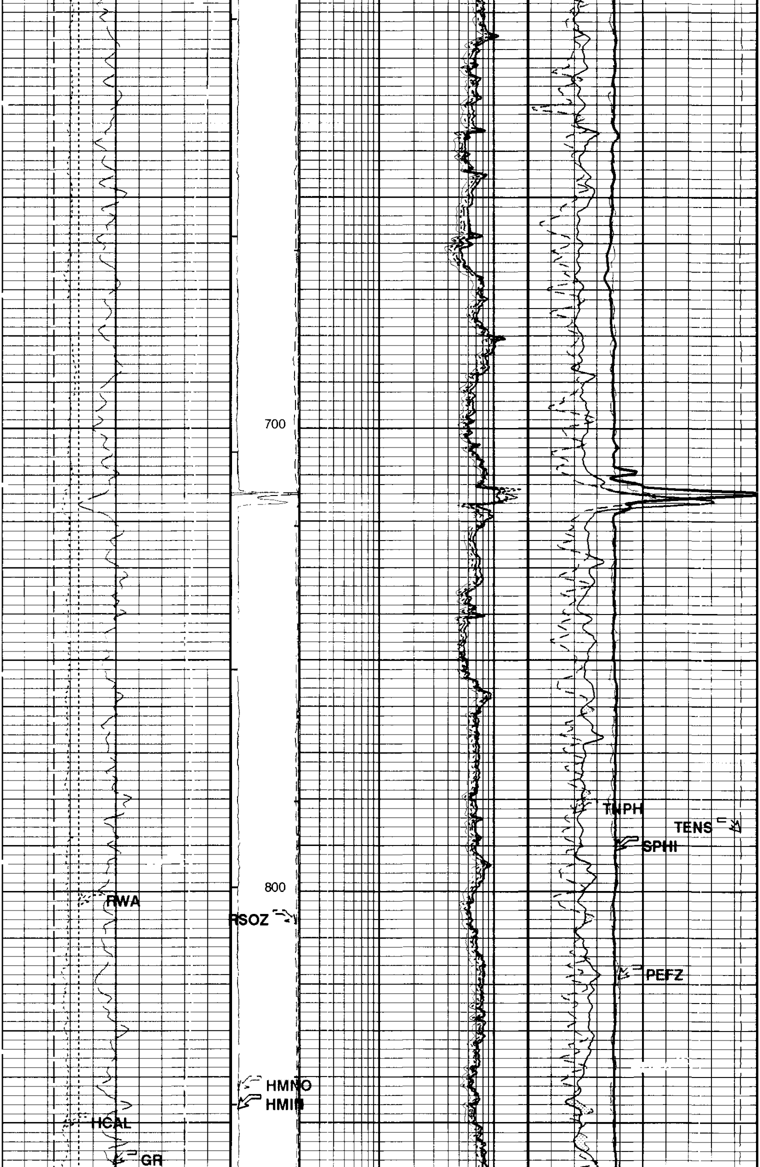
Env.Corr.Thermal Neutron Porosity (TNPH) 1.2 (V/V) 0.6

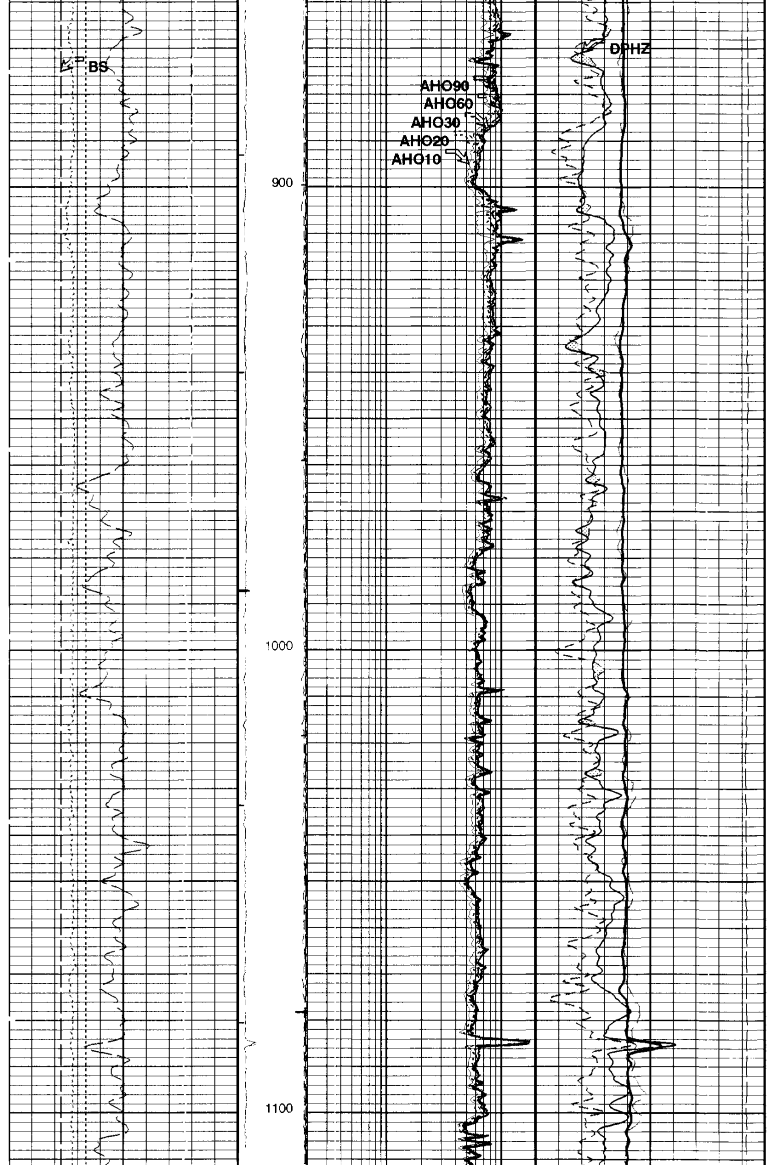
Env.Corr.Thermal Neutron Porosity (TNPH) 0.6 (V/V) 0

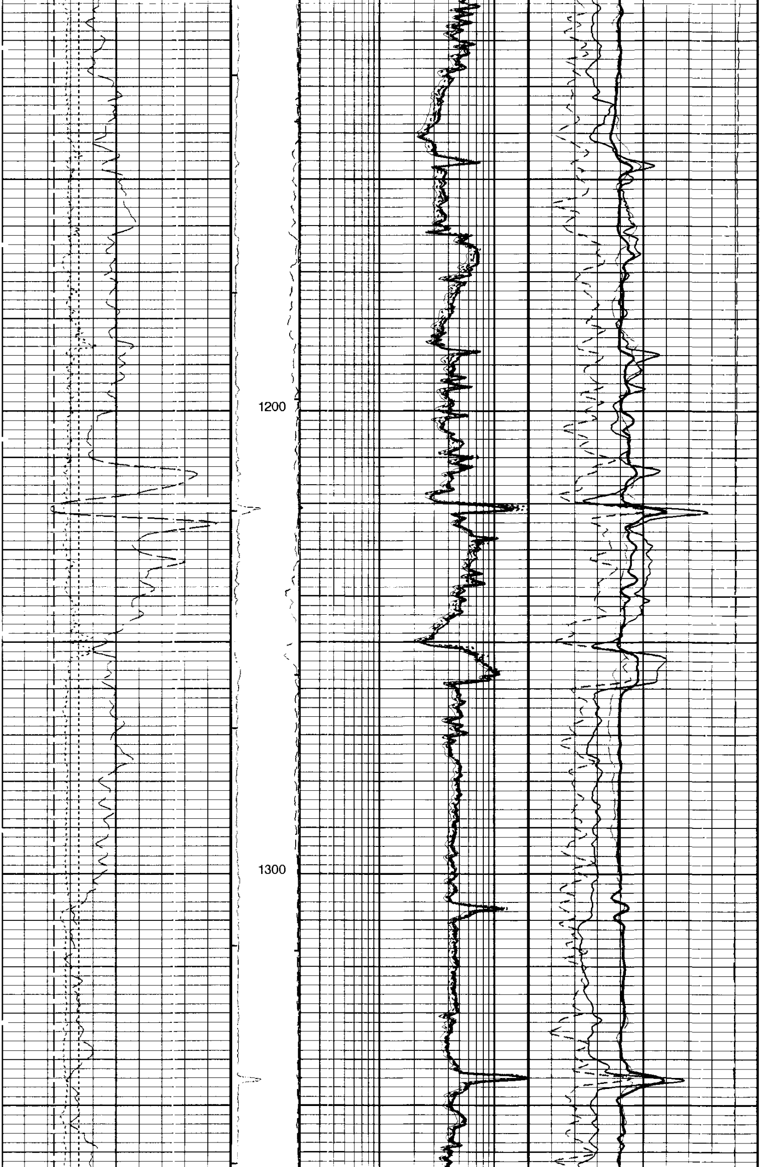
▨ Crossover

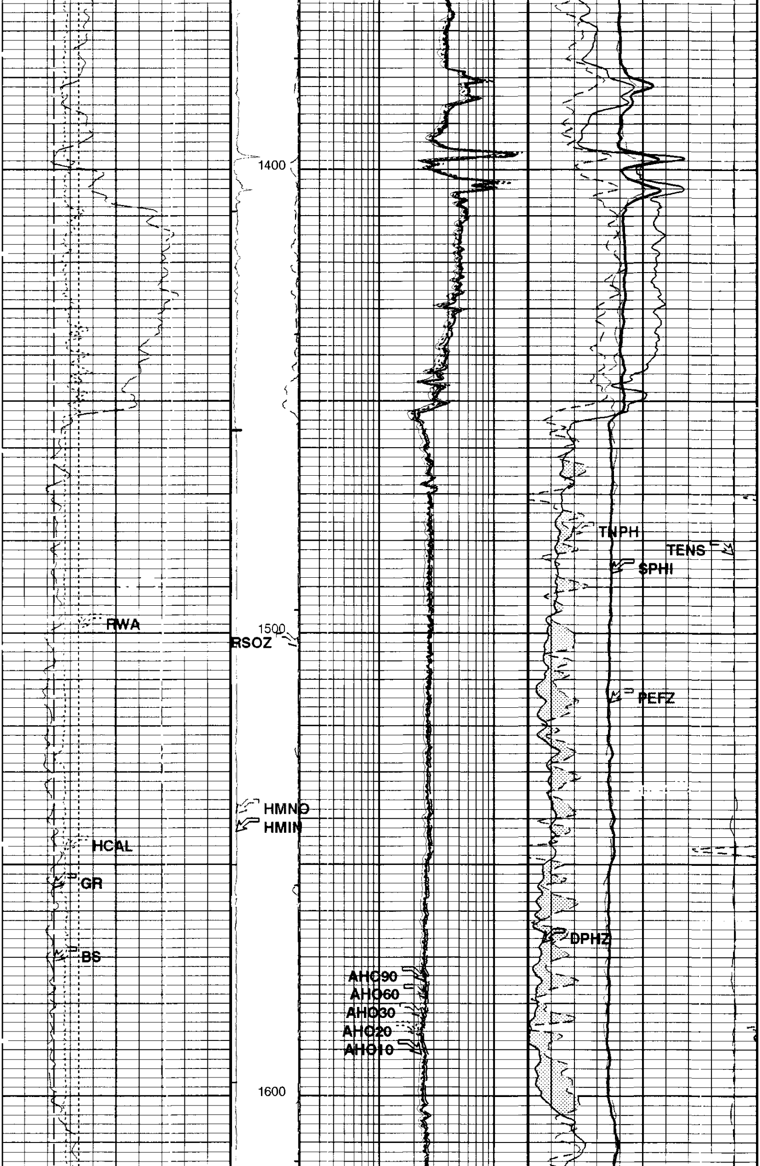
Track 1	Depth track	Track 2	Track 3
	Micro Normal Resistivity (HMNO) (OHMM) 0 30	AIT-H 90 Inch Investigation (AHO90) 0.2 (OHMM) 20	Tension (TENS) 10000 (LBF) 0
RWA (RWA) 0 (OHMM) 3	Micro Inverse Resistivity (HMIN) (OHMM) 0 30	AIT-H 60 Inch Investigation (AHO60) 0.2 (OHMM) 20	Sonic Porosity (SPHI) 0.6 (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

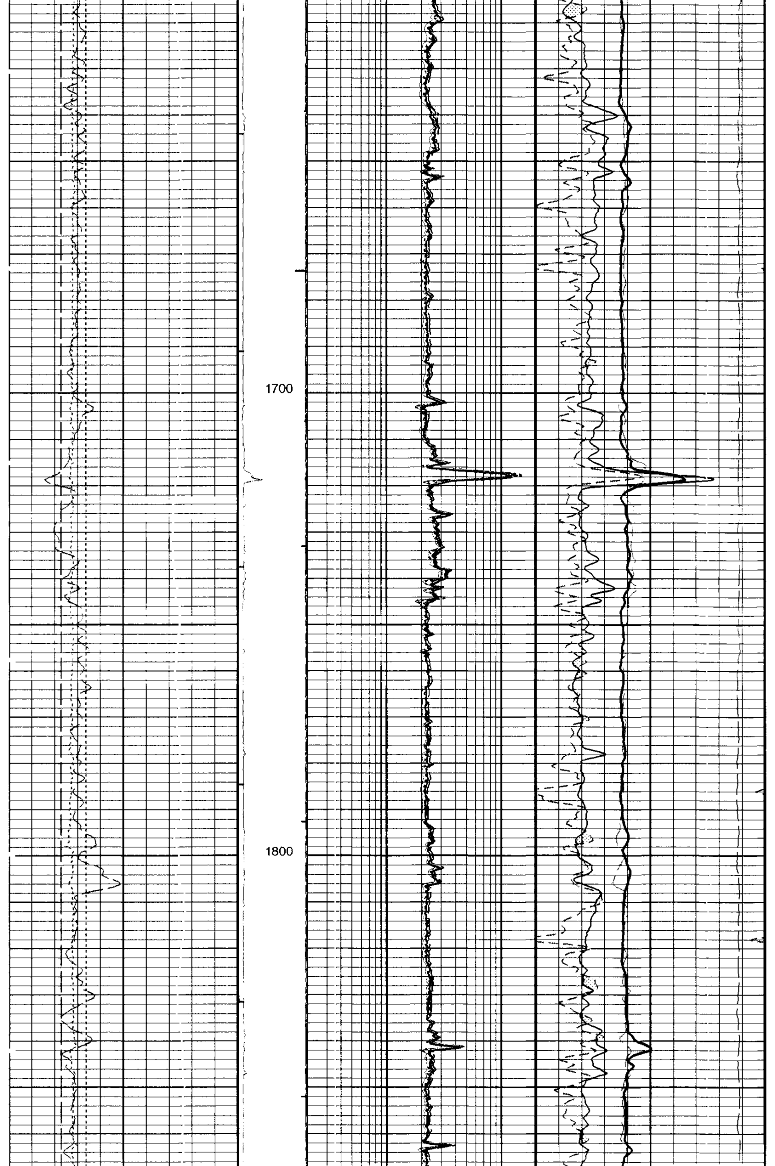


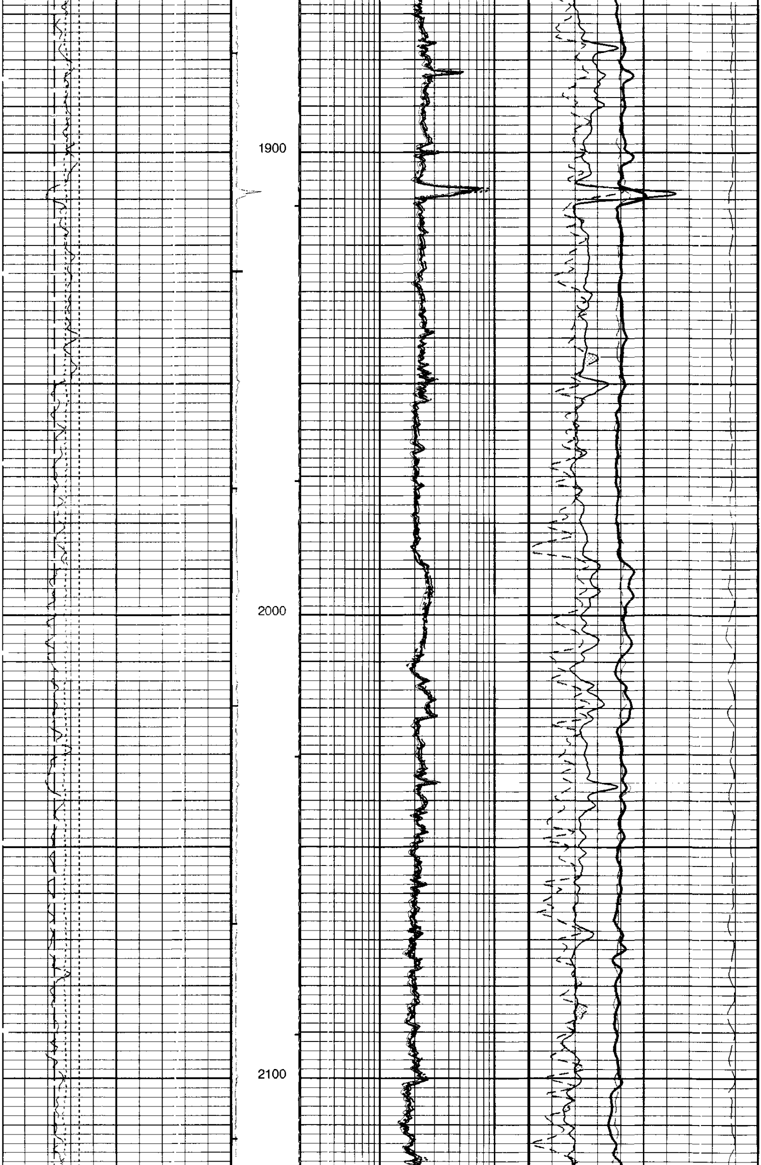


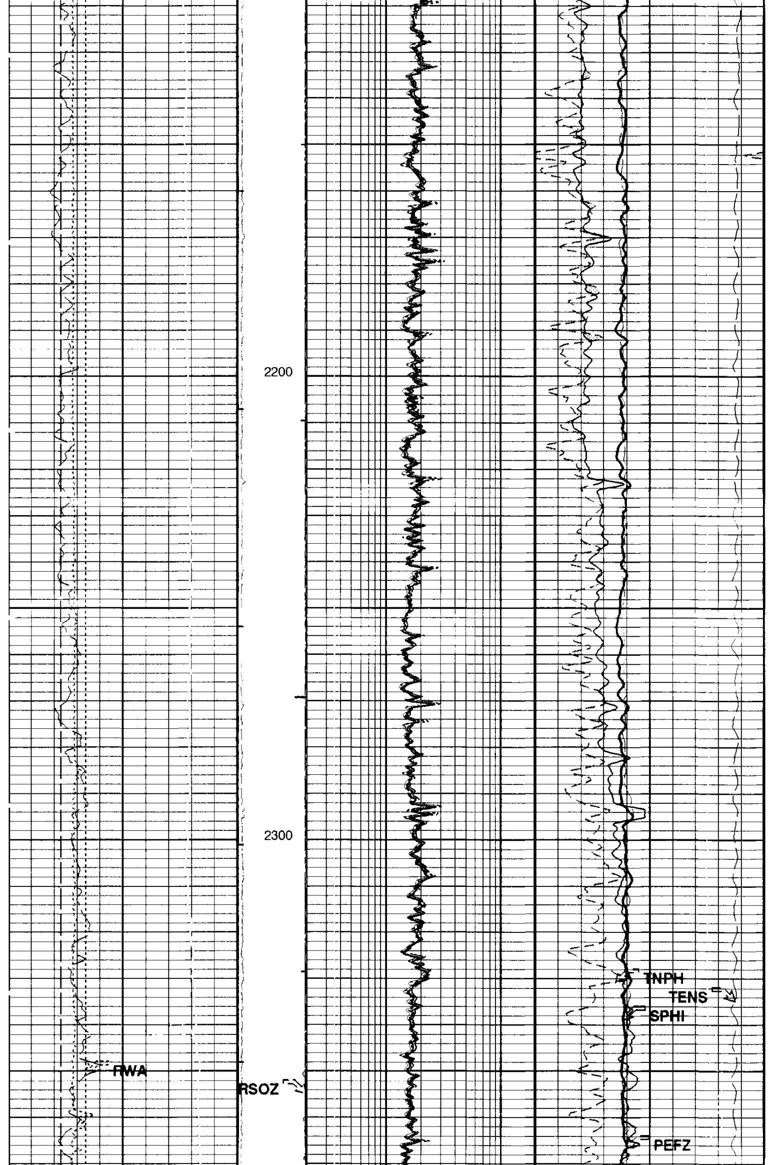


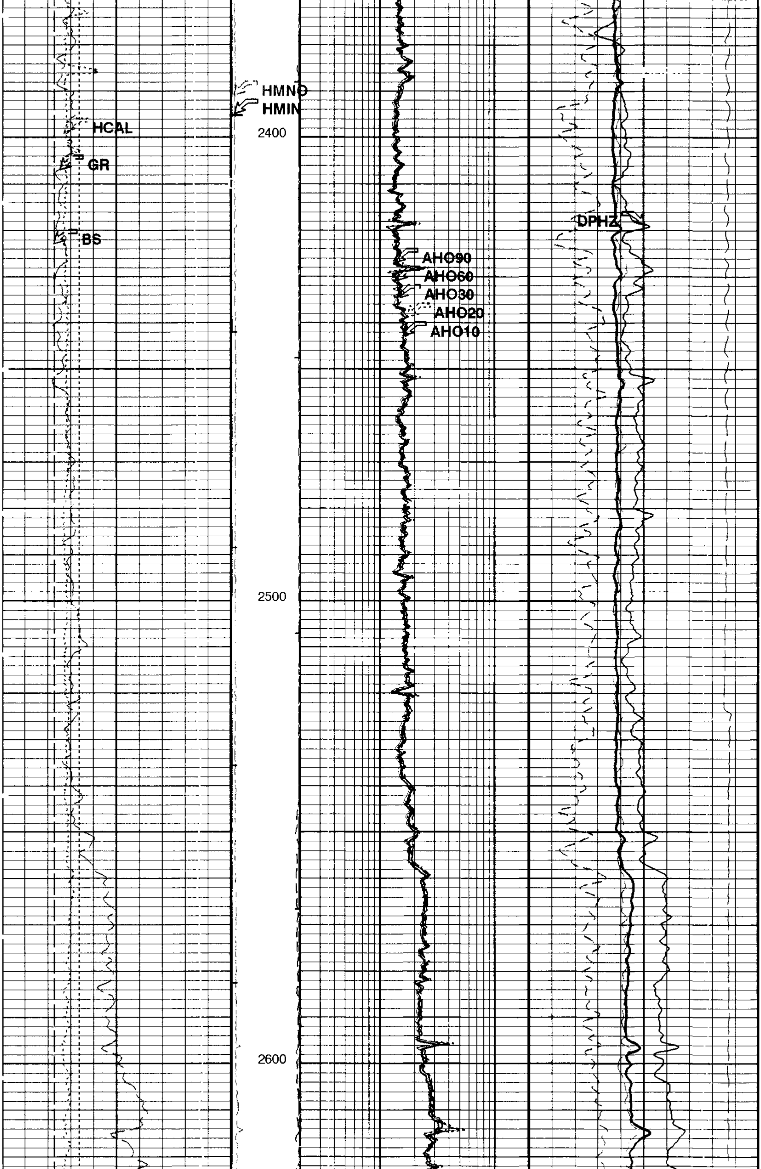


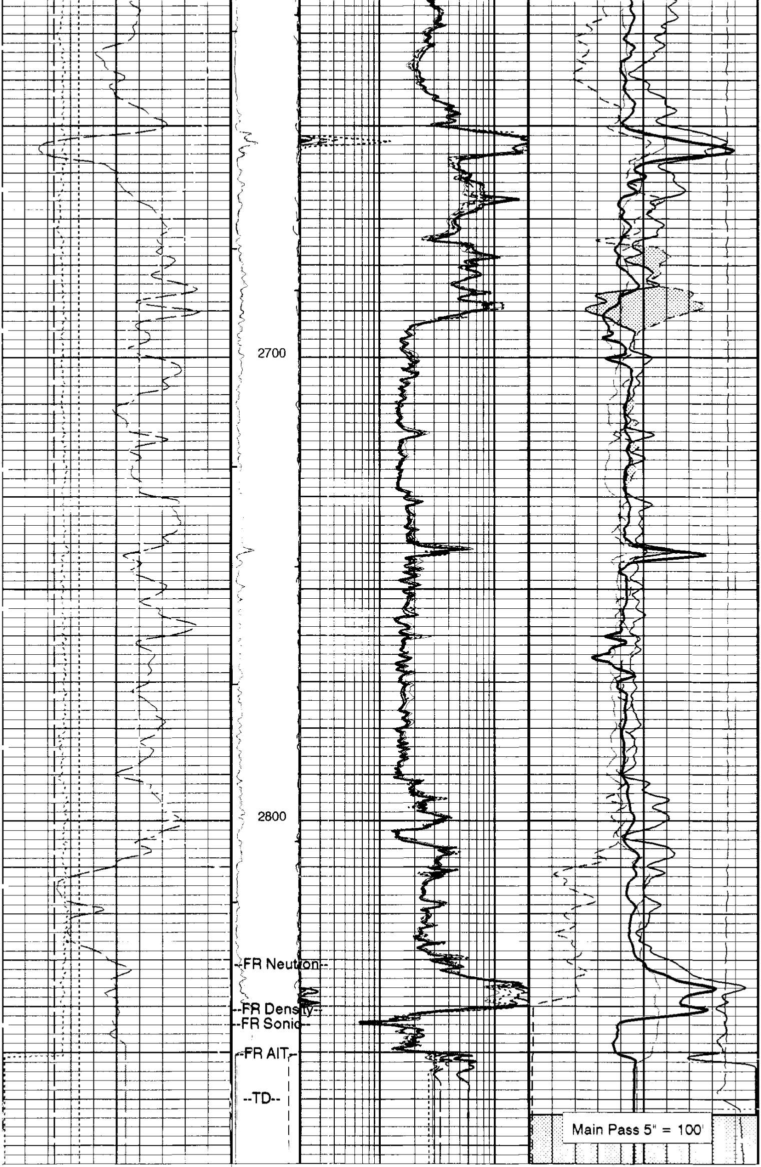












Gamma Ray (GR) 0 (GAPI) 150	Perm Indicator	AIT-H 10 Inch Investigation (AHO10) 0.2 (OHMM) 20	Std Res Density Porosity (DPHZ) 0.6 (V/V) 0
Bit Size (BS) 4 (IN) 14		AIT-H 20 Inch Investigation (AHO20) 0.2 (OHMM) 20	Std Res Density Porosity (DPHZ) 1.2 (V/V) 0.6
Caliper (HCAL) 4 (IN) 14	Resistivity standoff (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 Mud Resistivity computed. Borehole diameter taken as input (see GCSE parameter)

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)	100.000 DEGF
Total Depth (TD)	2863.000 FT		
Form Factor Exponent (FEXP)	2.000	Form Factor Numerator (FNUM)	1.000
Mud Filtrate Sample Resistivity (RMFS)	0.780 OHMM	Mud Filtrate Sample Temperature (MFST)	62.000 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	0_ComputeMudResistivity	
AHBLM	AIT-H Basic Logs Mode	6_One_Two_and_Four	
AHBPO	AIT-H Basic Logs Processing Option	Standard_Processing	
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)	100	DEGF
BS	Bit Size	6.250	IN
BSAL	Borehole Salinity	4100.00	PPM
BSCO	Borehole Salinity Correction Option	NO	
CCCO	Casing & Cement Thickness Correction Option	NO	
CDTS	C-Delta-T Shale	100	US/F
CSIZ	Current Casing Size	7.000	IN
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	80.00	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	0.7800	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	YES	
SPFS	Sonic Porosity Formula	RAYMER_HUNT	
SPNV	SP Next Value	0	MV
SPSO	Sonic Porosity Source	DT	
TD	Total Depth	2863	FT
TDL	Total Depth - Logger	2858.00	FT
TWS	Temperature of Connate Water Sample	100.00	DEGF

Format: S5 Vertical Scale: 5" per 100' Graphics File Created: 31-Jul-1999 16:12

OP System Version: 9C0-413

MCM

HILTB-DTB	OP9-KP1	SDT-C	9C0-413
SGT-L	9C0-413	TCC-B	9C0-413

Speed Corrected - Depth Matched LOG

Input DLIS Files

DEFAULT	HILTC .016	FN:1	PRODUCER	31-Jul-1999 16:09	2874.0 FT	391.5 FT

Output DLIS Files

DEFAULT	HILTB .017	FN:14	PRODUCER	31-Jul-1999 16:12

COMPANY:	Enerfin Resources Northwest	BOTTOM LOG INTERVAL	2852 ft
		SCHLUMBERGER DEPTH	2860 ft
WELL:	C.C. 32-28-75 (Hadrasaur)	DEPTH DRILLER	2863 ft
FIELD:	Mist Gas	KELLY BUSHING	1337.74 ft
COUNTY:	Columbia	DRILL FLOOR	
STATE:	Oregon	GROUND LEVEL	1327.74 ft

Schlumberger

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