COMPANY: **NORTHWEST NATURAL GAS**

WELL: **OM 22-26-65 RD**

FIELD: **MIST**

COUNTY: **COLUMBIA** STATE: **OREGON**

COUNTY: COLUMBIA
Field: MIST
Location: 1744.22' SOUTH, 2512.13' EAS
Well: OM 22-26-65 RD
Company: NORTHWEST NATURAL GAS

Schlumberger

PLATFORM EXPRESS
BHC SONIC /SP/GR
SCALE: 5" = 100'

LOCATION				
1744.22' SOUTH, 2512.13' EAST FROM THE NW CORNER OF 26		Elev.:	K.B. G.L. D.F.	631 ft 621 ft 629 ft
Permanent Datum:	GROUND LEVEL	Elev.:	621 ft	
Log Measured From:	K.B	10.0 ft	above Perm. Datum	
Drilling Measured From:	K.B			
API Serial No. 36-009-00330	SECTION 26	TOWNSHIP 6N	RANGE 5W	

Logging Date		21-MAY-2000				
Run Number		1				
Depth Driller		2151 ft				
Schlumberger Depth		2144 ft				
Bottom Log Interval		2136 ft				
Top Log Interval		487 ft				
Casing Driller Size @ Depth		7.000 in	@ 487 ft		@	
Casing Schlumberger		487 ft				
Bit Size		6.250 in				
Type Fluid In Hole		DMA				
MUD Density	Viscosity	8.9 lbm/gal	45 s			
MUD Fluid Loss	PH	6.6 cm3	9			
MUD Source Of Sample		FLOWLINE				
RM @ Measured Temperature		1.185 ohm.m	@ 76 degF		@	
RMF @ Measured Temperature		1.050 ohm.m	@ 72 degF		@	
RMC @ Measured Temperature		0.930 ohm.m	@ 76 degF		@	
Source RMF	RMC	PRESS	PRESS			
RM @ MRT	RMF @ MRT	0.954 @ 96	0.805 @ 96	@	@	
Maximum Recorded Temperatures		96 degF	96	96		
Circulation Stopped	Time	21-MAY-2000		9:30		
Logger On Bottom	Time	21-MAY-2000		11:50		
Unit Number	Location	3152	SACRAMENTO			
Recorded By		M.KHAN				
Witnessed By		JACK MEYER				

		Run 1	Run 2

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 3

Run 4

DISCLAIMER
THE USE OF AND RELIANCE UPON THIS RECORDED-DATA BY THE HEREIN NAMED COMPANY (AND ANY OF ITS AFFILIATES, PARTNERS, REPRESENTATIVES, AGENTS, CONSULTANTS AND EMPLOYEES) IS SUBJECT TO THE TERMS AND CONDITIONS AGREED UPON BETWEEN SCHLUMBERGER AND THE COMPANY, INCLUDING: (a) RESTRICTIONS ON USE OF THE RECORDED-DATA; (b) DISCLAIMERS AND WAIVERS OF WARRANTIES AND REPRESENTATIONS REGARDING COMPANY'S USE OF AND RELIANCE UPON THE RECORDED-DATA; AND (c) CUSTOMER'S FULL AND SOLE RESPONSIBILITY FOR ANY INFERENCE DRAWN OR DECISION MADE IN CONNECTION WITH THE USE OF THIS RECORDED-DATA.

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

REMARKS: RUN NUMBER 1

REMARKS: RUN NUMBER 2

RUN 1

SERVICE ORDER #:
PROGRAM VERSION: 9C1-303
FLUID LEVEL: 0 ft

LOGGED INTERVAL	START	STOP

RUN 2

SERVICE ORDER #:
PROGRAM VERSION:
FLUID LEVEL:

LOGGED INTERVAL	START	STOP

EQUIPMENT DESCRIPTION

RUN 1

SURFACE EQUIPMENT

GSR-U/Y
NCT-B
CNB-AB
NCS-VB
WITM (CTS)-A

DOWNHOLE EQUIPMENT

LEH-QT 70.2
LEH-QT 1808

TCC-BF 67.3
ECH-KC
TCC-BF 590 TelStatus 64.3

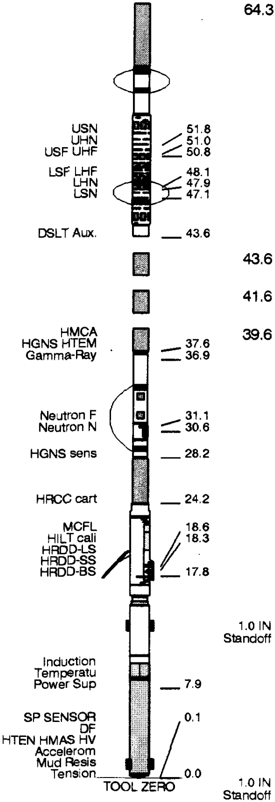
RUN 2

DSLT-TCC
DSLC-B 3152
ECH-KH 2590
SLS-W 1464

AH-107
AH-107

AH-107
AH-107

HILTB-DTB
HTBCC
HMCA 756
HGNS-CAN-B
HGNS-H 828
NLS-KL
NSR-F
HACCZ
HCNT
HGR
HRCC-B 723
HRMS-B 723
HRGD 723
GLS-VJ 1924
MCFL Device
HILT Nucl. LS
HILT Nucl. SS
HILT Nucl. BS
AIT-H
AHIS-BA 112
AHRM-A
BOW-SPR
NPV-N



MAXIMUM STRING DIAMETER 5.88 IN
MEASUREMENTS RELATIVE TO TOOL ZERO
ALL LENGTHS IN FEET

Input DLIS Files

DEFAULT	HILTB .006	FN:5	PRODUCER	21-May-2000 12:08	2148.0 FT	0.0 FT

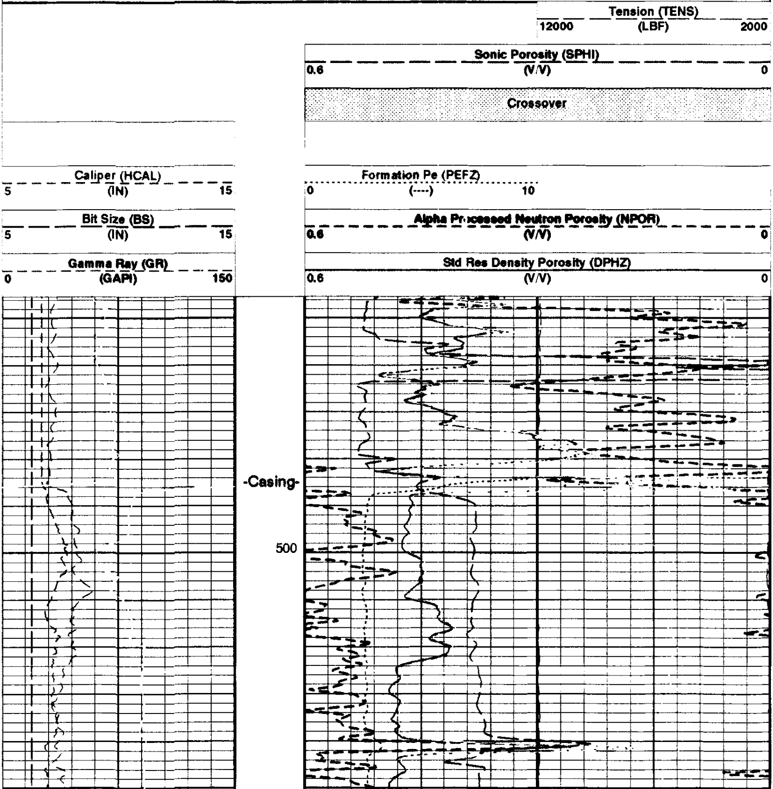
Output DLIS Files

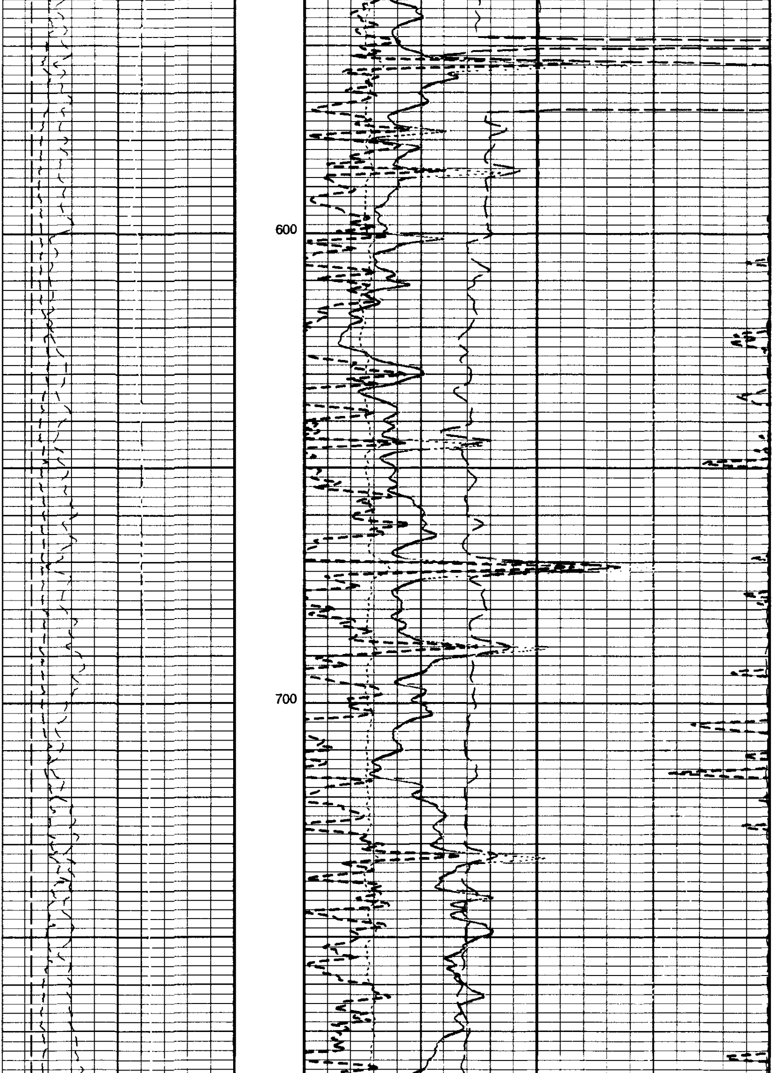
DEFAULT	HILTB .007	FN:6	PRODUCER	21-May-2000 13:30

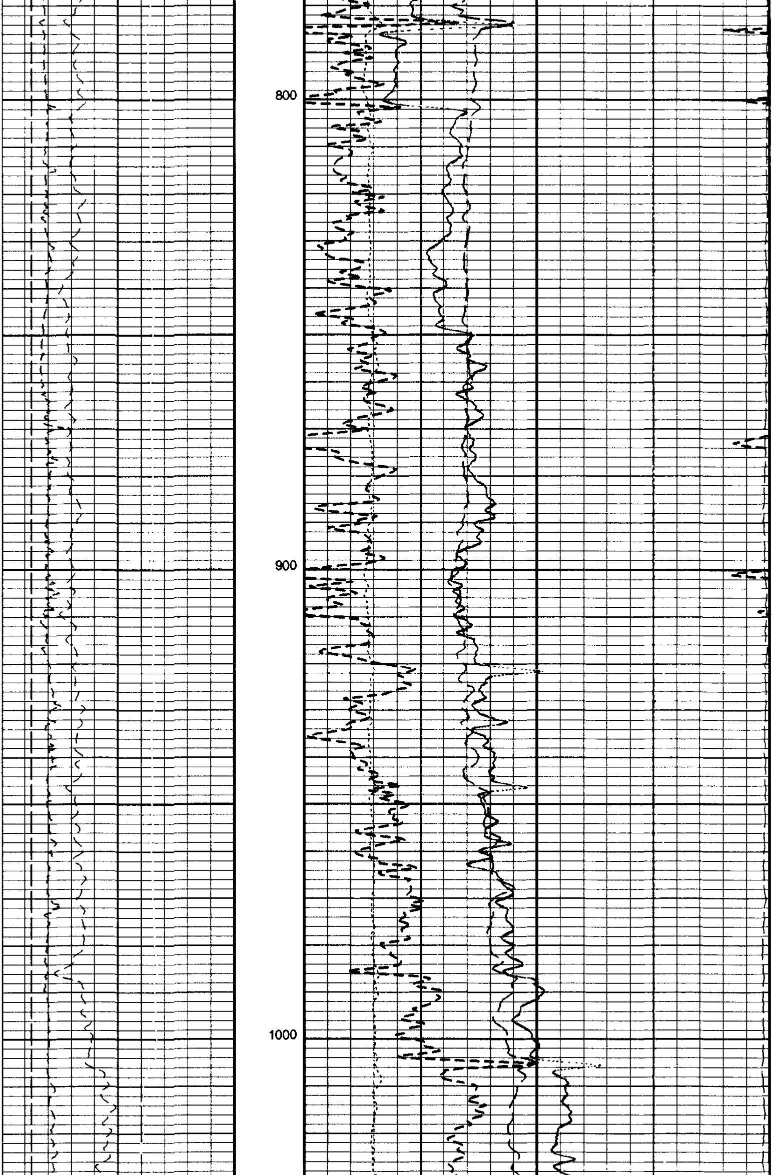
OP System Version: 9C1-303

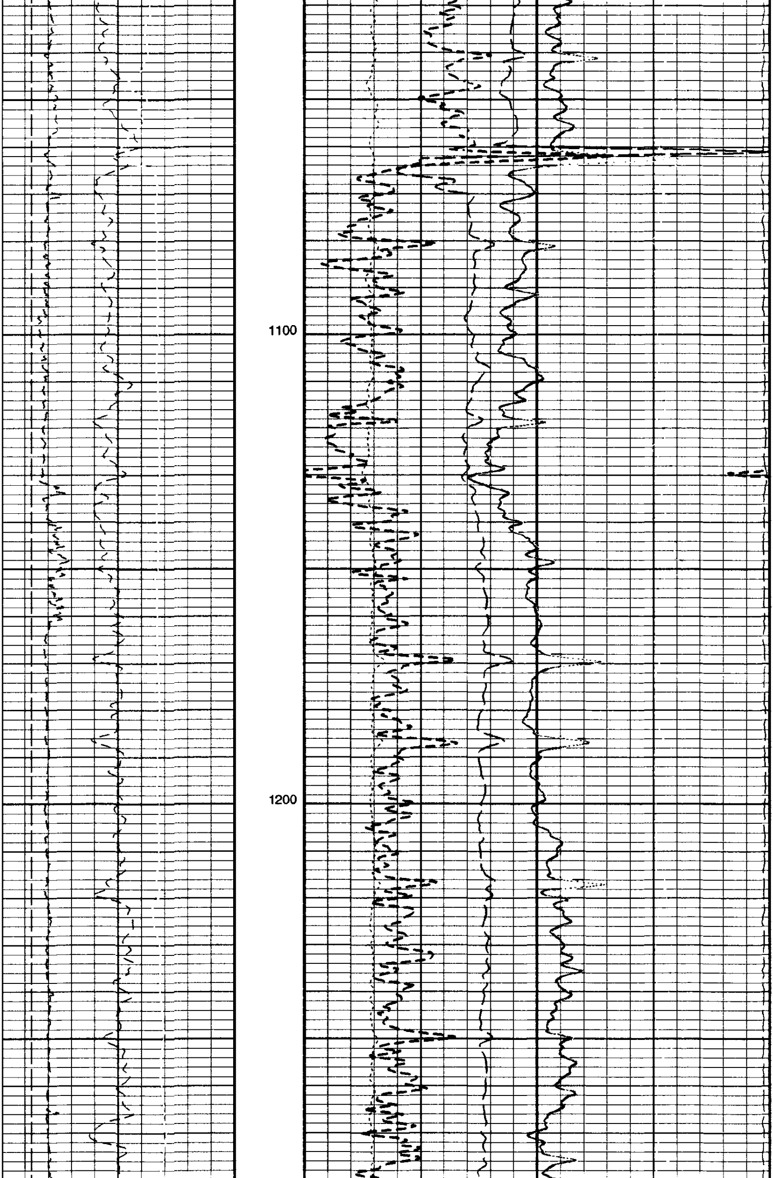
MCM

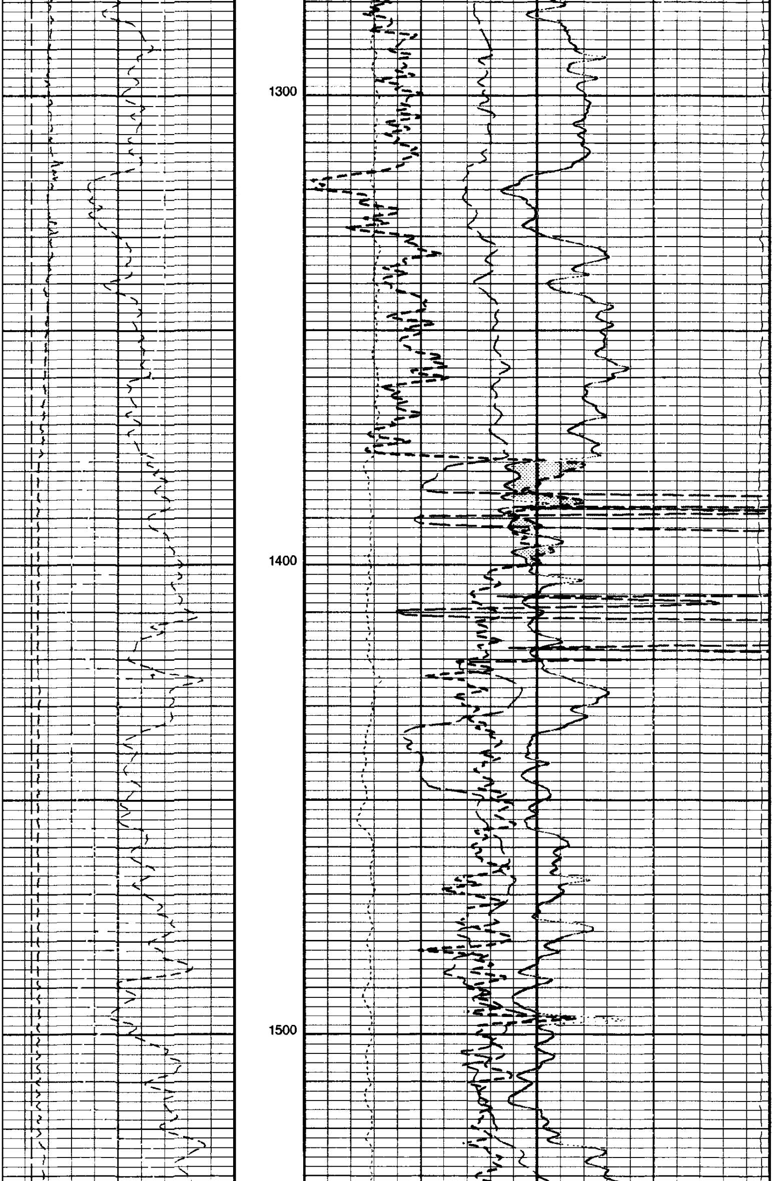
HILTB-DTB	OP91-KP1a	DSLT-TCC	OP91-KP1a
TCC-BF	OP91-KP1a		

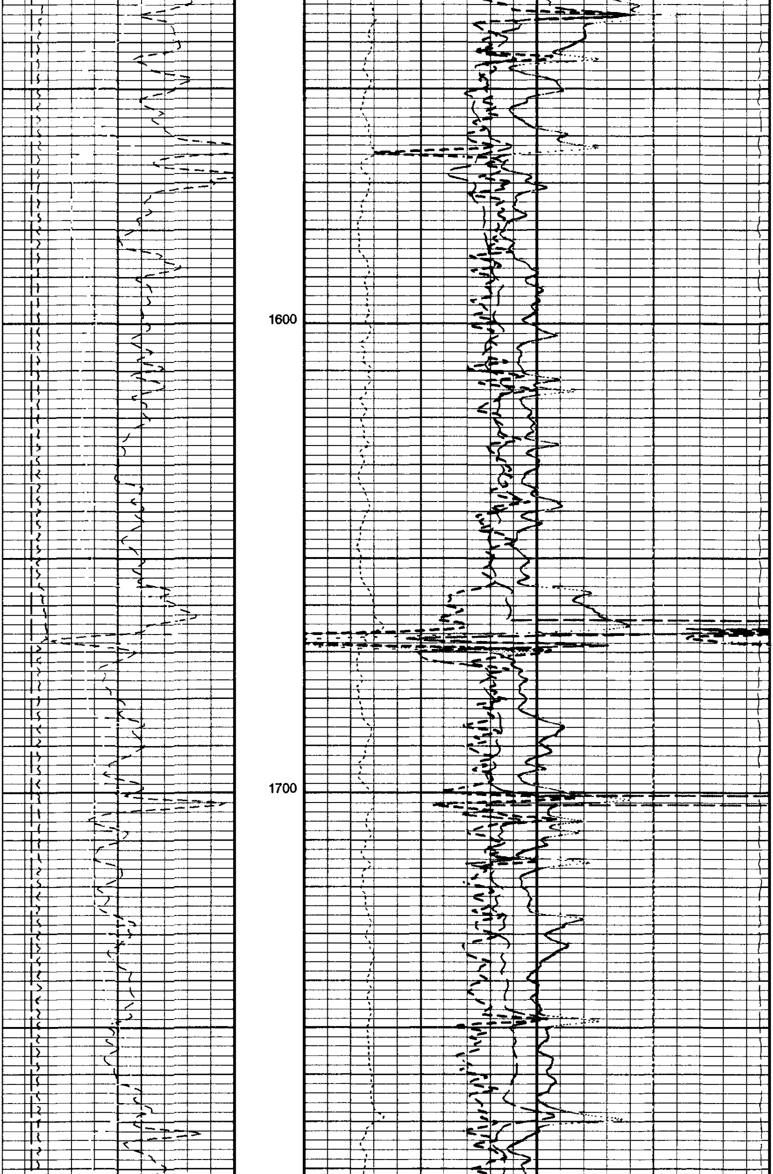


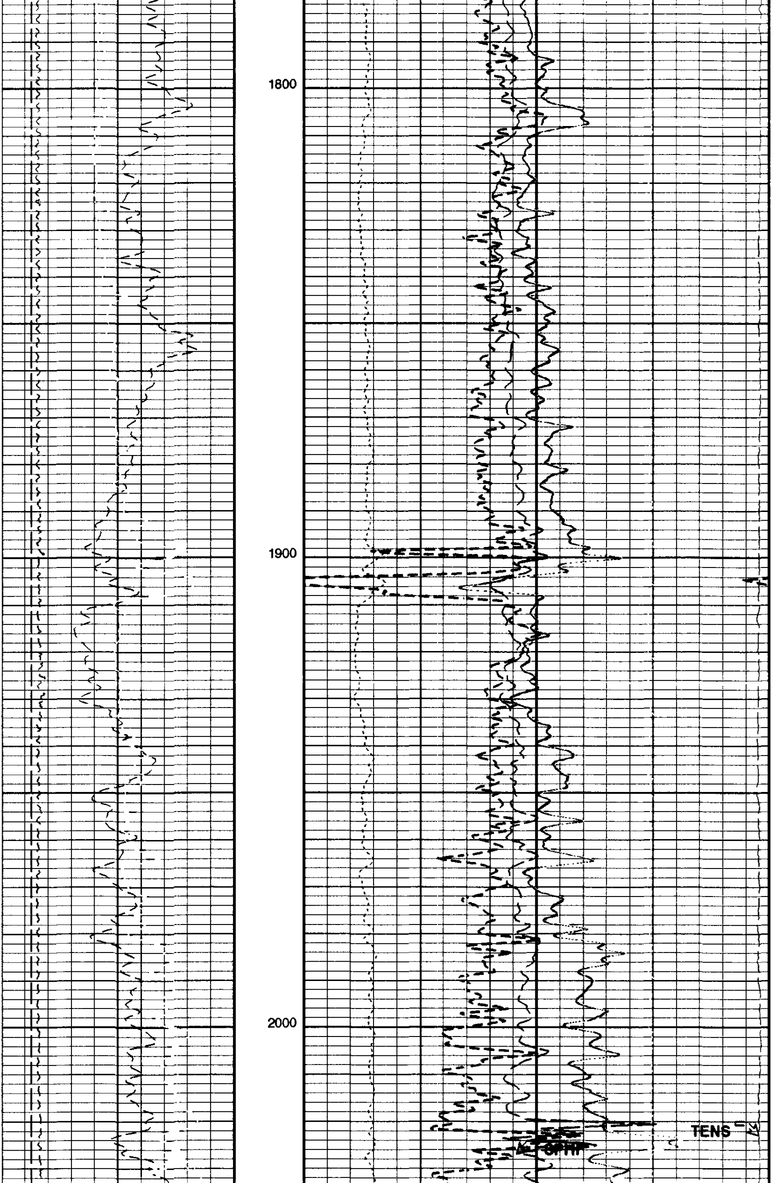


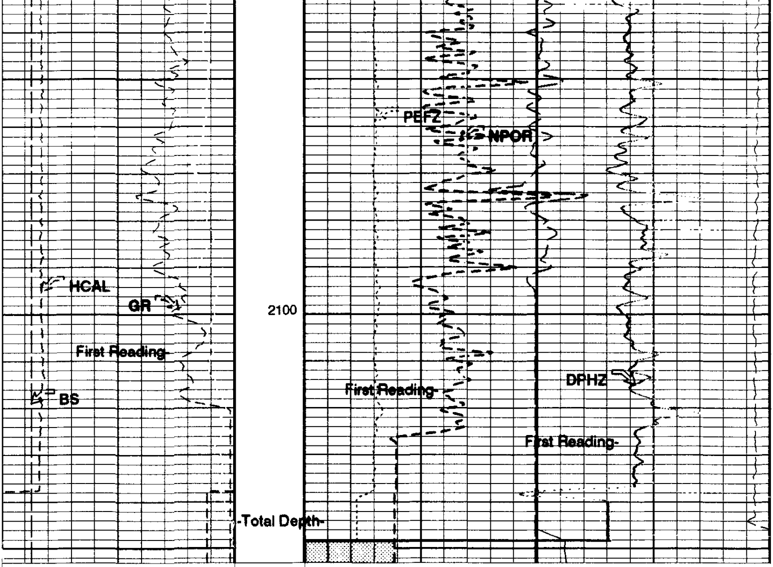












Gamma Ray (GR)
0 (GAPI) 150

Bit Size (BS)
5 (IN) 15

Caliper (HCAL)
5 (IN) 15

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

Alpha Processed Neutron Porosity (NPOR)
0.6 (V/V) 0

Formation Pe (PEFZ)
0 (----) 10

Crossover

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

Tension (TENS)
12000 (LBF) 2000

AIT-H Answer Product Processing Summary. Data taken with Tool # 112 (AHTNO)

...Acquired data from HILT/HAIT

******* Borehole 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 1.50 IN. Bit Size is 6.25 IN.

******* Input Selections to AIT-H Answer Product Processing *******

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

******* Other Parameters used by AIT-H Answer Product Processing *******

Surface Hole Temperature (SHT)	68.000 DEGF	Bottom Temperature (BHT)	86.000 DEGF
Total Depth (TD)	2151.000 FT		
Form Factor Exponent (FEXP)	2.000	Form Factor Numerator (FNUM)	1.000
Mud Filtrate Sample Resistivity (RMFS)	1.050 OHMM	Mud Filtrate Sample Temperature (MFST)	72.000 DEGF
Resitivity Connate Water (RW)	1.000 OHMM		

******* AIT-H Answer Product Processing Control Parameters *******

Playback Mode: NORMAL

Parameters

DLIS Name	Description	Value	
BHFL	Borehole Fluid Type	WATER	
BHS	Borehole Status	OPEN	
BS	Bit Size	6.250	IN
BSAL	Borehole Salinity	2600.00	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	23.00	LB/F
DFD	Drilling Fluid Density	8.90	LB/G
DHC	Density Hole Correction	BS	
DO	Depth Offset for Logical Unit 1	5.0	FT
DORL	Depth Offset Repeat Analysis	5.0	FT
DTF	Delta-T Fluid	189	US/F
DTM	Delta-T Matrix	56	US/F
FD	Fluid Density	1	G/C3
FSAL	Formation Salinity	-50000	PPM
FSCO	Formation Salinity Correction Option	NO	
GCSE	Generalized Caliper Selection	HCAL	
GDEV	Average Angular Deviation of Borehole from Normal	12	DEG
GGRD	Geothermal Gradient	0.01	DF/F
HSCM	HILT Speed Correction Mode	NO_SC	
HSCO	Hole Size Correction Option	YES	
HSTI	STI Uses HILT Acceleration	YES	
MATR	Rock Matrix for Neutron Porosity Corrections	SANDSTONE	
MCCO	Mud Cake Correction Option	NO	
MCOR	Mud Correction	NATU	
MDEN	Matrix Density	2.65	G/C3
MST	Mud Sample Temperature	76.00	DEGF
MWCO	Mud Weight Correction Option	NO	
NAAC	HRDD APS Activation Correction	OFF	
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	1.0500	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	0	MV
SPSO	Sonic Porosity Source	DT	
TDL	Total Depth - Logger	2144.00	FT

Format: PORO **Vertical Scale: 5" per 100'** **Graphics File Created: 21-May-2000 13:30**

OP System Version: 9C1-303

MCM

HILTB-DTB	OP91-KP1a	DSLT-TCC	OP91-KP1a
TCC-BF	OP91-KP1a		

Input DLIS Files

DEFAULT	HILTB .006	FN:5	PRODUCER	21-May-2000 12:08	2148.0 FT	0.0 FT

Output DLIS Files

DEFAULT	HILTB .007	FN:6	PRODUCER	21-May-2000 13:30

Schlumberger

REPEAT SECTION

TANIS [illegible]

Input DLIS Files

DEFAULT	HILTB .006	FN:5	PRODUCER	21-May-2000 12:08	2148.0 FT	0.0 FT
DEFAULT	HILTB .004	FN:3	PRODUCER	21-May-2000 11:50	2154.0 FT	1826.2 FT

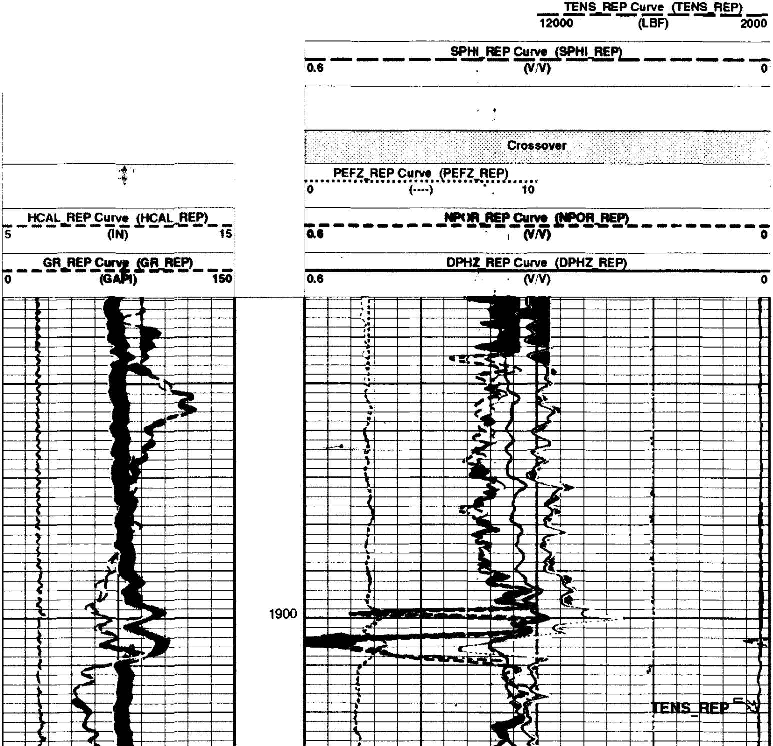
Output DLIS Files

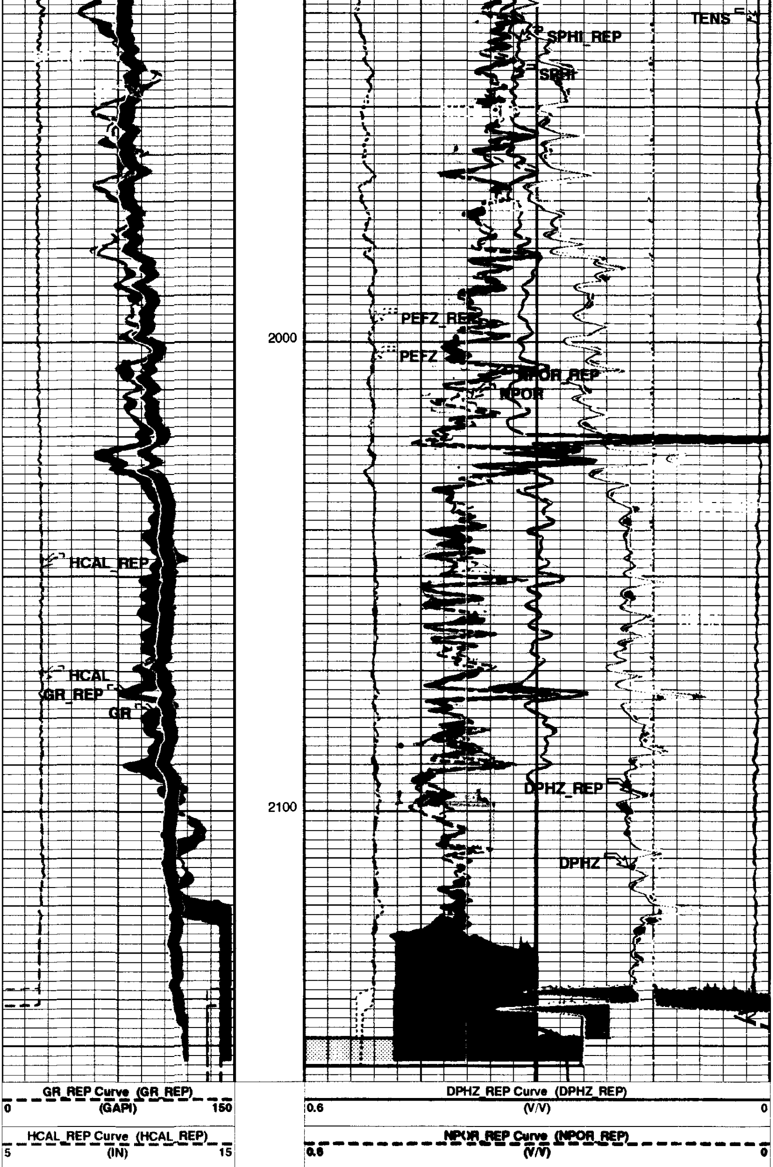
DEFAULT	HILTB .007	FN:6	PRODUCER	21-May-2000 13:30

OP System Version: 9C1-303

MCM

HILTB-DTB	OP91-KP1a	DSLT-TCC	OP91-KP1a
TCC-BF	OP91-KP1a		





PEFZ_REP Curve (PEFZ_REP)
0 (----) 10

Crossover

SPHI_REP Curve (SPHI_REP)
0.6 (V/V) 0

TENS_REP Curve (TENS_REP)
12000 (LBF) 2000

AIT-H Answer Product Processing Summary. Data taken with Tool # 112 (AHTNO)

...Acquired data from HILT/HAIT

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Playback Mode: NORMAL

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MCCO	Mud Cake Correction Option	NO	
MCOR	Mud Correction	NATU	
MDEN	Matrix Density	2.65	G/C3
MST	Mud Sample Temperature	76.00	DEGF
MWCO	Mud Weight Correction Option	NO	
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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	1.0500	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	0	MV

SPSO	Sonic Porosity Source	DT	
TDL	Total Depth - Logger	2144.00	FT

Format: PORO_REP **Vertical Scale: 5" per 100'** **Graphics File Created: 21-May-2000 13:31**

OP System Version: 9C1-303

MCM

HILTB-DTB	**OP91-KP1a**	**DSLT-TCC**	**OP91-KP1a**
TCC-BF	**OP91-KP1a**		

Input DLIS Files

DEFAULT	**HILTB .006**	**FN:5**	**PRODUCER**	**21-May-2000 12:08**	**2148.0 FT**	**0.0 FT**
DEFAULT	**HILTB .004**	**FN:3**	**PRODUCER**	**21-May-2000 11:50**	**2154.0 FT**	**1826.2 FT**

Output DLIS Files

DEFAULT	**HILTB .007**	**FN:6**	**PRODUCER**	**21-May-2000 13:30**

Schlumberger

CALIBRATIONS

MAXIS 500 Field Log

Calibration and Check Summary

High resolution Integrated Logging Tool-CTS Wellsite Calibration - Electronics Calibration Check - Thru Cal Mag. & Phase
Master: Calibration out of date 20-JAN-2000 11:39 Before: 21-MAY-2000 11:23

Measurement	Nominal	Master	Before	After	Change	Limit	Units
Thru Cal Magnitude - 0	0	0.6214	0.6342	N/A	N/A	N/A	V
Thru Cal Magnitude - 1	0	1.274	1.300	N/A	N/A	N/A	V
Thru Cal Magnitude - 2	0	0.6329	0.6459	N/A	N/A	N/A	V
Thru Cal Magnitude - 3	0	0.7152	0.7301	N/A	N/A	N/A	V
Thru Cal Magnitude - 4	0	1.335	1.362	N/A	N/A	N/A	V
Thru Cal Magnitude - 5	0	1.943	1.983	N/A	N/A	N/A	V
Thru Cal Magnitude - 6	0	1.947	1.987	N/A	N/A	N/A	V
Thru Cal Magnitude - 7	0	1.371	1.401	N/A	N/A	N/A	V
Phase - 0	0	64.91	65.66	N/A	N/A	N/A	DEG
Phase - 1	0	63.80	64.55	N/A	N/A	N/A	DEG
Phase - 2	0	60.03	60.78	N/A	N/A	N/A	DEG
Phase - 3	0	59.25	60.01	N/A	N/A	N/A	DEG
Phase - 4	0	52.91	53.69	N/A	N/A	N/A	DEG
Phase - 5	0	50.96	51.75	N/A	N/A	N/A	DEG
Phase - 6	0	50.92	51.71	N/A	N/A	N/A	DEG
Phase - 7	0	47.08	47.97	N/A	N/A	N/A	DEG

High resolution Integrated Logging Tool-CTS Wellsite Calibration - Electronics Calibration Check - Auxilliary
Master: Calibration out of date 20-JAN-2000 11:39 Before: 21-MAY-2000 11:23

Measurement	Nominal	Master	Before	After	Change	Limit	Units
Array Induction SPA Plus	990.5	989.8	990.4	N/A	N/A	N/A	MV
Array Induction SPA Zero	0	0.1083	0.1083	N/A	N/A	N/A	MV
Array Induction Temperature Pl	0.9150	0.9169	0.9175	N/A	N/A	N/A	V
Array Induction Temperature Ze	0	0.0001095	0.0001059	N/A	N/A	N/A	V

High resolution Integrated Logging Tool-CTS Wellsite Calibration - Test Loop Gain Correction
Master: Calibration out of date 20-JAN-2000 11:39

Measurement	Nominal	Master	Before	After	Change	Limit	Units
Test Loop Gain Magnitude - 0	0	1.042	N/A	N/A	N/A	N/A	V
Test Loop Gain Magnitude - 1	0	1.011	N/A	N/A	N/A	N/A	V
Test Loop Gain Magnitude - 2	0	1.012	N/A	N/A	N/A	N/A	V
Test Loop Gain Magnitude - 3	0	1.010	N/A	N/A	N/A	N/A	V
Test Loop Gain Magnitude - 4	0	0.9940	N/A	N/A	N/A	N/A	V
Test Loop Gain Magnitude - 5	0	0.9835	N/A	N/A	N/A	N/A	V
Test Loop Gain Magnitude - 6	0	0.9934	N/A	N/A	N/A	N/A	V
Test Loop Gain Magnitude - 7	0	0.9945	N/A	N/A	N/A	N/A	V
Phase - 0	0	0.3672	N/A	N/A	N/A	N/A	DEG
Phase - 1	0	-0.6191	N/A	N/A	N/A	N/A	DEG
Phase - 2	0	-0.01578	N/A	N/A	N/A	N/A	DEG
Phase - 3	0	0.1871	N/A	N/A	N/A	N/A	DEG
Phase - 4	0	0.1325	N/A	N/A	N/A	N/A	DEG
Phase - 5	0	-0.1680	N/A	N/A	N/A	N/A	DEG
Phase - 6	0	0.2889	N/A	N/A	N/A	N/A	DEG
Phase - 7	0	-0.2642	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 20-JAN-2000 11:39

R Sonde Error Correction - 0	0	-121.4	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction - 1	0	149.7	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction - 2	0	113.9	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction - 3	0	58.40	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction - 4	0	24.16	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction - 5	0	11.87	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction - 6	0	7.431	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction - 7	0	-3.605	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction - 0	0	34.14	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction - 1	0	-240.4	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction - 2	0	67.33	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction - 3	0	81.72	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction - 4	0	-1.172	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction - 5	0	-10.09	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction - 6	0	10.78	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction - 7	0	0.3313	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 20-JAN-2000 11:39

Coarse - Mag, Real, Imag - 0	0	1.013	N/A	N/A	N/A	N/A	
Coarse - Mag, Real, Imag - 1	0	1.013	N/A	N/A	N/A	N/A	
Coarse - Mag, Real, Imag - 2	0	1.013	N/A	N/A	N/A	N/A	
Fine - Mag, Real, Imag - 0	0	1.011	N/A	N/A	N/A	N/A	
Fine - Mag, Real, Imag - 1	0	1.011	N/A	N/A	N/A	N/A	
Fine - Mag, Real, Imag - 2	0	1.011	N/A	N/A	N/A	N/A	

High resolution Integrated Logging Tool-CTS Wellsite Calibration - Stab Measurement Summary
Before: 7-MAY-2000 5:52

BS Window Ratio	1.033	N/A	1.022	N/A	N/A	N/A	
BS Window Sum	14310	N/A	14410	N/A	N/A	N/A	CPS
SS Window Ratio	0.5004	N/A	0.5048	N/A	N/A	N/A	
SS Window Sum	11490	N/A	11420	N/A	N/A	N/A	CPS
LS Window Ratio	0.2862	N/A	0.2864	N/A	N/A	N/A	
LS Window Sum	1163	N/A	1156	N/A	N/A	N/A	CPS

High resolution Integrated Logging Tool-CTS Wellsite Calibration - Photo-multiplier High Voltages Calibrations
Before: 7-MAY-2000 5:52

BS PM High Voltage (Command)	1614	N/A	1634	N/A	N/A	N/A	V
SS PM High Voltage (Command)	1916	N/A	1955	N/A	N/A	N/A	V
LS PM High Voltage (Command)	1966	N/A	1974	N/A	N/A	N/A	V

High resolution Integrated Logging Tool-CTS Wellsite Calibration - Crystal Quality Resolutions Calibration
Before: 7-MAY-2000 5:52

BS Crystal Resolution	12.26	N/A	12.52	N/A	N/A	N/A	%
SS Crystal Resolution	11.63	N/A	12.18	N/A	N/A	N/A	%
LS Crystal Resolution	10.59	N/A	10.66	N/A	N/A	N/A	%

High resolution Integrated Logging Tool-CTS Wellsite Calibration - MCFL Calibration
Before: 21-MAY-2000 11:23

Raw B0 Resistivity	3875	N/A	3845	N/A	N/A	N/A	OHMM
Raw B1 Resistivity	3830	N/A	3806	N/A	N/A	N/A	OHMM
Raw B2 Resistivity	3830	N/A	3815	N/A	N/A	N/A	OHMM

High resolution Integrated Logging Tool-CTS Wellsite Calibration - HILT Caliper Calibration
Before: 21-MAY-2000 11:17

HILT Caliper Zero Measurement	8.000	N/A	7.179	N/A	N/A	N/A	IN
HILT Caliper Plus Measurement	16.00	N/A	15.34	N/A	N/A	N/A	IN

High resolution Integrated Logging Tool-CTS Wellsite Calibration - Detector Calibration
Before: 7-MAY-2000 5:47

Gamma Ray Background	30.00	N/A	23.06	N/A	N/A	N/A	GAPI
Gamma Ray (Jig - Bkg)	193.6	N/A	193.6	N/A	N/A	17.60	GAPI
Gamma Ray (Calibrated)	165.0	N/A	173.7	N/A	N/A	15.00	GAPI

High resolution Integrated Logging Tool-CTS Wellsite Calibration - Zero Measurement
Master: 6-APR-2000 4:31 Before: 7-MAY-2000 5:49

CNTC Background	27.31	27.31	26.03	N/A	N/A	4.096	CPS
CFTC Background	28.31	28.31	30.62	N/A	N/A	4.247	CPS

High resolution Integrated Logging Tool-CTS Wellsite Calibration - Accelerometer Calibration
Before: Calibration not done

Z-Axis Acceleration	32.19	N/A	32.19	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	90.0	DEGF.
Thermal Housing Size	3.375	IN.

High resolution Integrated Logging Tool-CTS / Equipment Identification

Primary Equipment:

Array Induction Tool - H	AIT - H	
Rm/SP Bottom Nose	AHRM - A	
Array Induction Sonde	AHIS - BA	112
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 -	

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	0.6214		0.6050	64.91		71.00
	Before	0.6342			65.66		
1	Master	1.274		1.270	63.80		70.00
	Before	1.300			64.55		
2	Master	0.6329		0.6230	60.03		66.00
	Before	0.6459			60.78		
3	Master	0.7152		0.7040	59.25		65.00
	Before	0.7301			60.01		
4	Master	1.335		1.337	52.91		59.00
	Before	1.362			53.69		
5	Master	1.943		1.955	50.96		57.00
	Before	1.983			51.75		
6	Master	1.947		1.955	50.92		57.00
	Before	1.987			51.71		
7	Master	1.371		1.415	47.08		53.00
	Before	1.401			47.97		
			60.00 % (Minimum) (Nominal) 140.0 % (Maximum)			Nom -60.00 (Minimum) (Nominal) Nom - 60.00 (Maximum)	

Master: Calibration out of date 20-JAN-2000 11:39 Before: 21-MAY-2000 11:23

High resolution Integrated Logging Tool-CTS Wellsite Calibration

Electronics Calibration Check - Auxilliary

Phase	Array Induction SPA Plus MV	Value	Phase	Array Induction SPA Zero MV	Value
Master		989.8	Master		0.1083
Before		990.4	Before		0.1083
	941.0 (Minimum) 990.5 (Nominal) 1040 (Maximum)			-50.00 (Minimum) 0 (Nominal) 50.00 (Maximum)	

Phase	Array Induction Temperature Plus V	Value	Phase	Array Induction Temperature Zero V	Value
Master		0.9169	Master		0.0001095
Before		0.9175	Before		0.0001059
	0.8700 (Minimum) 0.9150 (Nominal) 0.9600 (Maximum)			-0.05000 (Minimum) 0 (Nominal) 0.05000 (Maximum)	

Master: Calibration out of date 20-JAN-2000 11:39 Before: 21-MAY-2000 11:23

High resolution Integrated Logging Tool-CTS Wellsite Calibration

Test Loop Gain Correction

Idx	Value	Test Loop Gain Magnitude V			Value	Phase DEG		
0	1.042				0.3672			
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)		-3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)
1	1.011				-0.6191			
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)		-3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)
2	1.012				-0.01578			
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)		-3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)
3	1.010				0.1871			
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)		-3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)
4	0.9940				0.1325			
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)		-3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)
5	0.9835				-0.1680			
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)		-3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)
6	0.9934				0.2889			
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)		-3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)
7	0.9945				-0.2642			
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)		-3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)

Master: Calibration out of date 20-JAN-2000 11:39

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	-121.4				34.14			
		-231.0 (Minimum)	-56.00 (Nominal)	119.0 (Maximum)		-2250 (Minimum)	0 (Nominal)	2250 (Maximum)
1	149.7				-240.4			
		114.0 (Minimum)	159.0 (Nominal)	204.0 (Maximum)		-625.0 (Minimum)	0 (Nominal)	625.0 (Maximum)
2	113.9				67.33			
		66.00 (Minimum)	111.0 (Nominal)	156.0 (Maximum)		-350.0 (Minimum)	0 (Nominal)	350.0 (Maximum)
3	58.40				81.72			
		39.00 (Minimum)	64.00 (Nominal)	89.00 (Maximum)		-250.0 (Minimum)	0 (Nominal)	250.0 (Maximum)
4	24.16				-1.172			
		15.00 (Minimum)	25.00 (Nominal)	35.00 (Maximum)		-63.00 (Minimum)	0 (Nominal)	63.00 (Maximum)
5	11.87				-10.09			
		4.000 (Minimum)	14.00 (Nominal)	24.00 (Maximum)		-50.00 (Minimum)	0 (Nominal)	50.00 (Maximum)
6	7.431				10.78			
		5.000 (Minimum)	10.00 (Nominal)	15.00 (Maximum)		-30.00 (Minimum)	0 (Nominal)	30.00 (Maximum)
7	-3.605				0.3313			
		-5.000 (Minimum)	0 (Nominal)	5.000 (Maximum)		-30.00 (Minimum)	0 (Nominal)	30.00 (Maximum)

Master: Calibration out of date 20-JAN-2000 11:39

High resolution Integrated Logging Tool-CTS Wellsite Calibration

Mud Gain Correction

Idx	Value	Coarse - Mag, Real, Imag			Value	Fine - Mag, Real, Imag		
0	1.013				1.011			
		0.8000 (Minimum)	1.000 (Nominal)	1.200 (Maximum)		0.8000 (Minimum)	1.000 (Nominal)	1.200 (Maximum)
1	1.013				1.011			
		0.8000 (Minimum)	1.000 (Nominal)	1.200 (Maximum)		0.8000 (Minimum)	1.000 (Nominal)	1.200 (Maximum)
2	1.013				1.011			
		0.8000 (Minimum)	1.000 (Nominal)	1.200 (Maximum)		0.8000 (Minimum)	1.000 (Nominal)	1.200 (Maximum)

Master: Calibration out of date 20-JAN-2000 11:39

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		1.022	Before		0.5048	Before		0.2864
0.9818 (Minimum)	1.033 (Nominal)	1.085 (Maximum)	0.4754 (Minimum)	0.5004 (Nominal)	0.5255 (Maximum)	0.2719 (Minimum)	0.2862 (Nominal)	0.3005 (Maximum)
Phase	**BS Window Sum CPS**	**Value**	**Phase**	**SS Window Sum CPS**	**Value**	**Phase**	**LS Window Sum CPS**	**Value**
Before		14410	Before		11420	Before		1156
13590 (Minimum)	14310 (Nominal)	15020 (Maximum)	10920 (Minimum)	11490 (Nominal)	12070 (Maximum)	1105 (Minimum)	1163 (Nominal)	1221 (Maximum)

Before: 7-MAY-2000 5:52

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		1634	Before		1955	Before		1974
1514 (Minimum)	1614 (Nominal)	1714 (Maximum)	1816 (Minimum)	1916 (Nominal)	2016 (Maximum)	1866 (Minimum)	1966 (Nominal)	2066 (Maximum)

Before: 7-MAY-2000 5:52

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		12.52	Before		12.18	Before		10.66
11.26 (Minimum)	12.26 (Nominal)	13.26 (Maximum)	10.63 (Minimum)	11.63 (Nominal)	12.63 (Maximum)	9.591 (Minimum)	10.59 (Nominal)	11.59 (Maximum)

Before: 7-MAY-2000 5:52

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		3845	Before		3806	Before		3815
3565 (Minimum)	3875 (Nominal)	4185 (Maximum)	3524 (Minimum)	3830 (Nominal)	4136 (Maximum)	3524 (Minimum)	3830 (Nominal)	4136 (Maximum)

Before: 21-MAY-2000 11:23

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		7.179	Before		15.34
6.000 (Minimum)	8.000 (Nominal)	10.00 (Maximum)	12.00 (Minimum)	16.00 (Nominal)	20.00 (Maximum)

Before: 21-MAY-2000 11:17

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		23.06	Before		193.6	Before		173.7
0 (Minimum)	30.00 (Nominal)	120.0 (Maximum)	176.0 (Minimum)	193.6 (Nominal)	211.2 (Maximum)	150.0 (Minimum)	165.0 (Nominal)	180.0 (Maximum)

Before: 7-MAY-2000 5:47

High resolution Integrated Logging Tool-CTS Wellsite Calibration

Zero Measurement

Phase	CNTC Background CPS	Value	Phase	CFTC Background CPS	Value
Master		27.31	Master		28.31
Before		26.03	Before		30.62
5.000 (Minimum)	27.31 (Nominal)	40.00 (Maximum)	5.000 (Minimum)	28.31 (Nominal)	40.00 (Maximum)

Master: 6-APR-2000 4:31

Before: 7-MAY-2000 5:49

High resolution Integrated Logging Tool-CTS Wellsite Calibration

Accelerometer Calibration

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

Before: Calibration not done

COMPANY: NORTHWEST NATURAL GAS

WELL: OM 22-26-65 RD

FIELD: MIST

COUNTY: COLUMBIA

STATE: OREGON

BOTTOM LOG INTERVAL	2136 ft
SCHLUMBERGER DEPTH	2144 ft
DEPTH DRILLER	2151 ft
KELLY BUSHING	631 ft
DRILL FLOOR	629 ft
GROUND LEVEL	621 ft

Schlumberger

PLATFORM EXPRESS
BHC SONIC /SP/GR
SCALE: 5" = 100'