

SPERRY-SUN DRILLING SERVICES
LOGGING SYSTEMS
Anchorage, Alaska

CONFIDENTIAL

FINAL
WELL INFORMATION
ARCO Alaska, Inc.
OSC-Y-0865 No
Kuvlum 2; B
Beaufort Sea, Alaska

RELEASED TO PUBLIC FILE

20 NOV 1996

DATE

RECEIVED
DISTRICT OFFICE

OCT 08 1993

MINERAL MANAGEMENT SERVICE
ANCHORAGE, ALASKA

Information Packet
October 1993

PREPARED FOR:

ARCO Alaska, Inc.

sperry-sun
DRILLING SERVICES
LOGGING SYSTEMS

MINERALS MANAGEMENT SERVICE
 ANCHORAGE ALASKA

RECEIVED
 OCS DISTRICT OFFICE
 OCT 08 1993

COMPANY ARGO ALASKA INC.

WELL KIVLUK NO. 2

FIELD BEAUFORT SEA BLOCK 072

REGION _____

LOCATION ALASKA U.S.A.

CO-ORDS _____

CONTRACTOR GAMMAR

RIG/TYPE GOV KULLUK

TOTAL DEPTH 11125' TVD 11125

SPUD DATE 28 JULY 1989

HOLE DATA
21 (RISEN) To 171 17.5 To 3070
30" To 301 12.25 To 11125
20" To 1017 _____ To _____

CASING DATA
30" To 301 _____ To _____
20" To 1017 _____ To _____
13 3/8 To 3070 _____ To _____

MUD TYPES
SEA WATER _____ To 1017
GENERIC #2 _____ To 11125
 _____ To _____
 _____ To _____

LITHOLOGY SYMBOLS

	Coal		Sandstone
	Tuff		Sand
	Chert		Gravel
	Limestone		Conglom

ELEVATION AND LOGGING DATA

PERMANENT DATUM MEAN SEA LEVEL

ELEVATIONS: K.B. 85

D.F. 84

G.L./S.F. 101

LOG MEASURED FROM K.B.

LOGGED DEPTHS 100 To 11125

LOGGED DEPTHS _____ To _____

SUPV. ENGINEER JOHN PATTON UNIT 2215

ABBREVIATIONS
DRILLING DATA

NB New Bit
 RRB Run Bit
 TB Turbo Drill
 PDCB Polycrystalline Diamond Compound Bit
 CB Core Bit
 DB Diamond Bit
 WOB Weight on Bit
 RPM Revs Per Minute
 CO Circulate Out
 PR Partial Return
 NR No Return

MUD DATA

W Mud Density
 V Funnel Viscosity
 FL Filtrate Loss
 FC Filter Cake
 CL Salinity
 PH Hydrogen Ion Content

ENGINEERING DATA

 C1 Core No. 1 recovery
 DST 1 Drill Stem Test No. 1

Logged After Trip
 Gas Units
 Background Gas
 Trip Gas
 Short Trip Gas
 Connection Gas
 Drill Stem Test
 Direction Survey
 Depth Correction
 Carbide Test
 Check for Flow
 Flowline Temp.
 Bottomhole Temp.

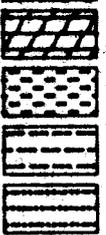
PV Plastic Viscosity
 YP Yield Point
 S Solids Content
 G Gels
 RM Mud Reactivity
 RNF Filtrate Reactivity

 Gas Traces
 Gas
 Oil traces
 Oil

LOGGING ENGINEERS

RAY FRENCH

JUSTIN PANTER



Dolomite
Clay
Shale
Siltstone

◀ Sidewall Core

RFT Interval Tester
E-LOG Wireline Log Run
LOT Leakoff Test
PIT Pressure Integrity Test

◇ Water
X Salt Water
+ Fresh Water
◇ Hydrocarbon smell
◇ H₂S smell

OTHER SERVICES:

SPERRY-SUN DRILLING SERVICES

LOGGING SYSTEMS A Baroid Company

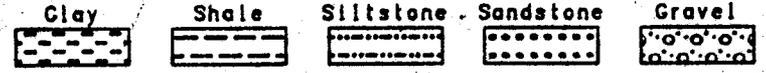
WELL QCS-Y-0865 NO. 1

COMPANY ARCO ALASKA, INC.

LOCATION BLOCK 672, BEAUFORT SEA, ALASKA

LEGEND

== 10,000 Units Total Gas in Air = 100 % = 1,000,000 ppm ==
NB New Bit NCB New Core Bit CKF Check for Flow
NR No Returns CO Circulate Out LAT Log after Trip
TG Trip Gas CG Connection Gas DST Drill Stem Test
DC Depth Corr STG Short Trip Gas SVY Direc Survey



LOGGING SERVICE SYSTEMS

COMBINATION MUD LOG

GAMMA RAY
Apparent API Units
DRILLING RATE
feet/hour
NMLZD ROP
feet/hour

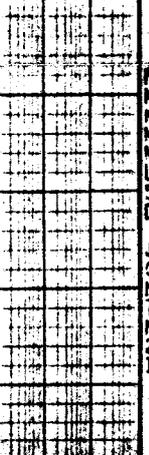
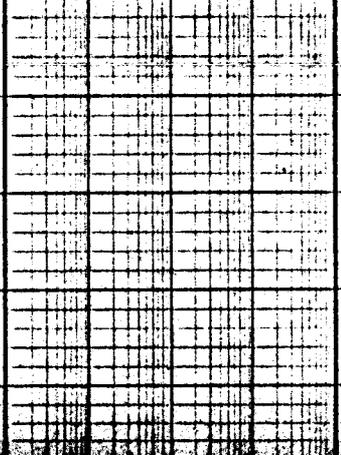
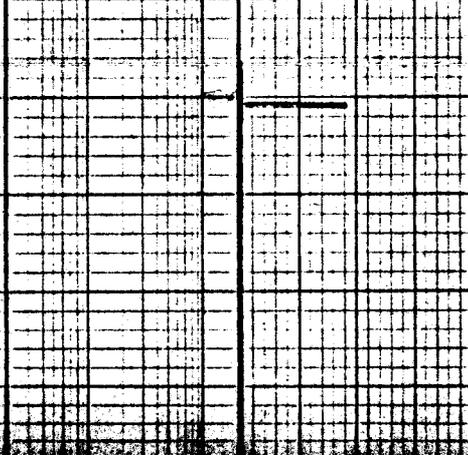
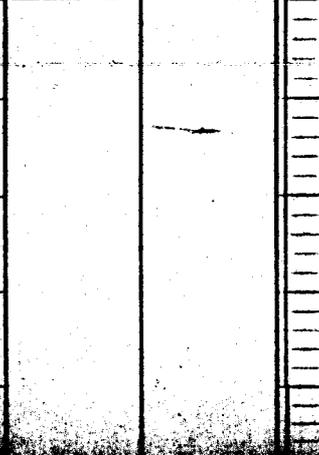
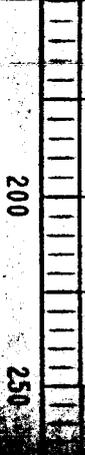
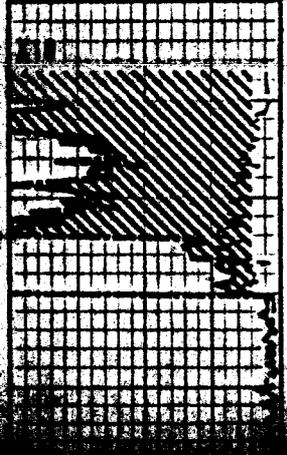
DEPTH-feet
VISUAL POROSITY
LITHOLOGY
VISUAL LITHOLOGY
INTERPRETED LITHOLOGY
OIL SHOW RATING

ELECTROMAGNETIC WAVE RESISTIVITY
ohms - m2/m
F.I.D. ANALYSIS TOTAL GAS IN AIR
CONNECTION = BAR
AVERAGE GAS
MAXIMUM GAS (%)
TOT PPM CUTTINGS CUTTINGS GAS (%)

F.I.D. CHROMATOGRAPH ANALYSIS
C1 --- C2 --- C3 ---
TOT C4 --- TOT C5 ---
HYDROCARBONS P.P.M. IN AIR
100 1% 10%

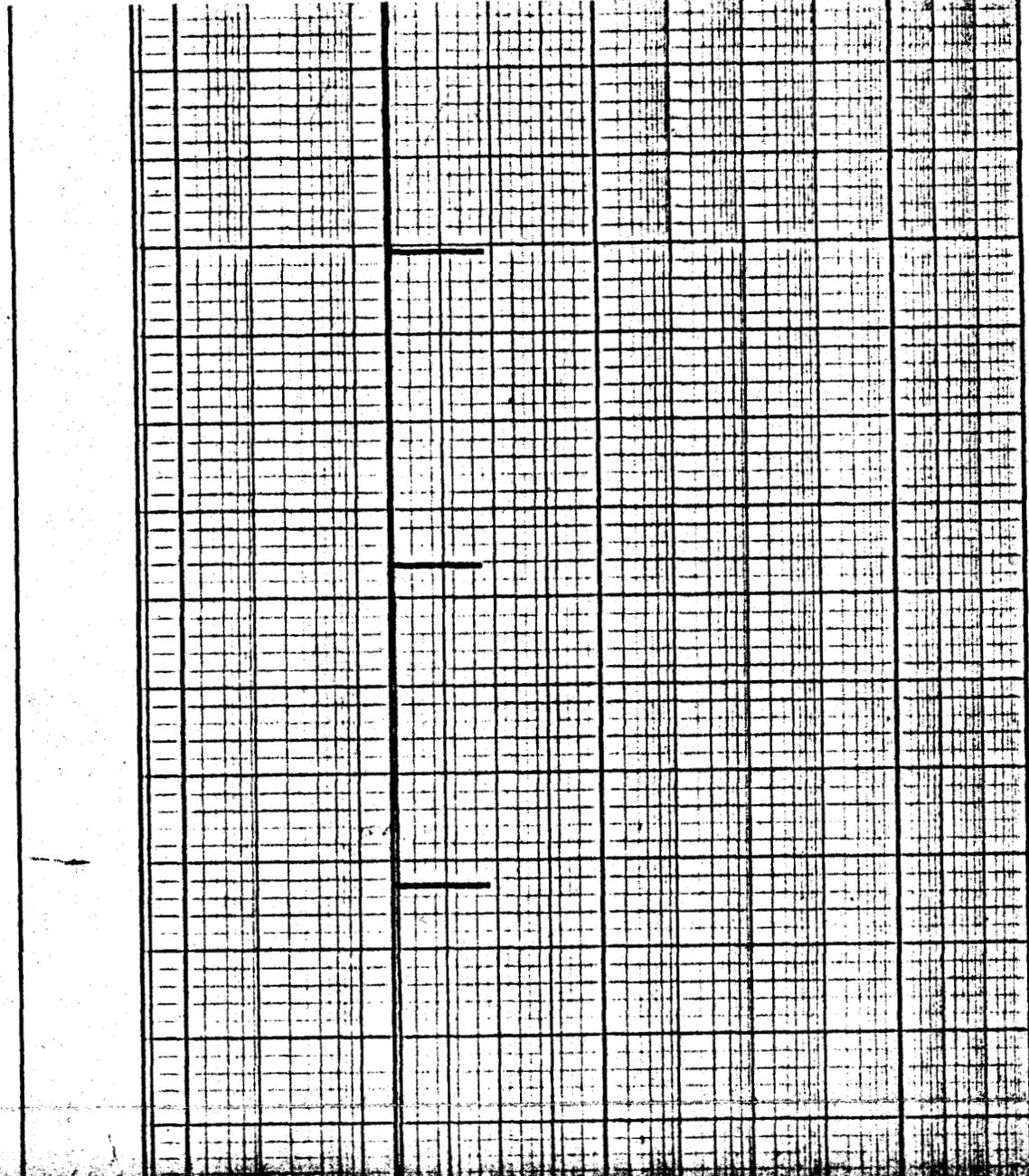
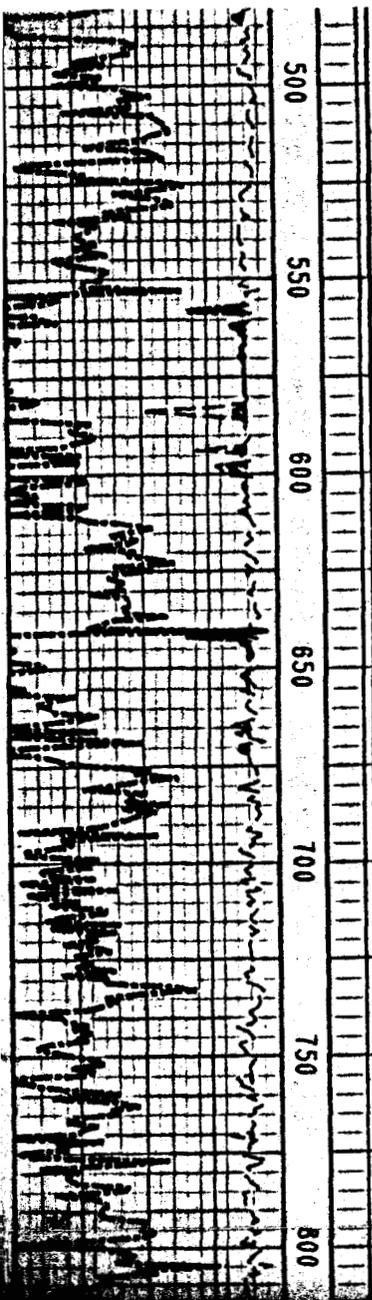
INDICATOR
HYDROCARBON
C1/C2
STEAM
STILL
OIL
GAS
NP

LITHOLOGICAL DESCRIPTIONS and REMARKS



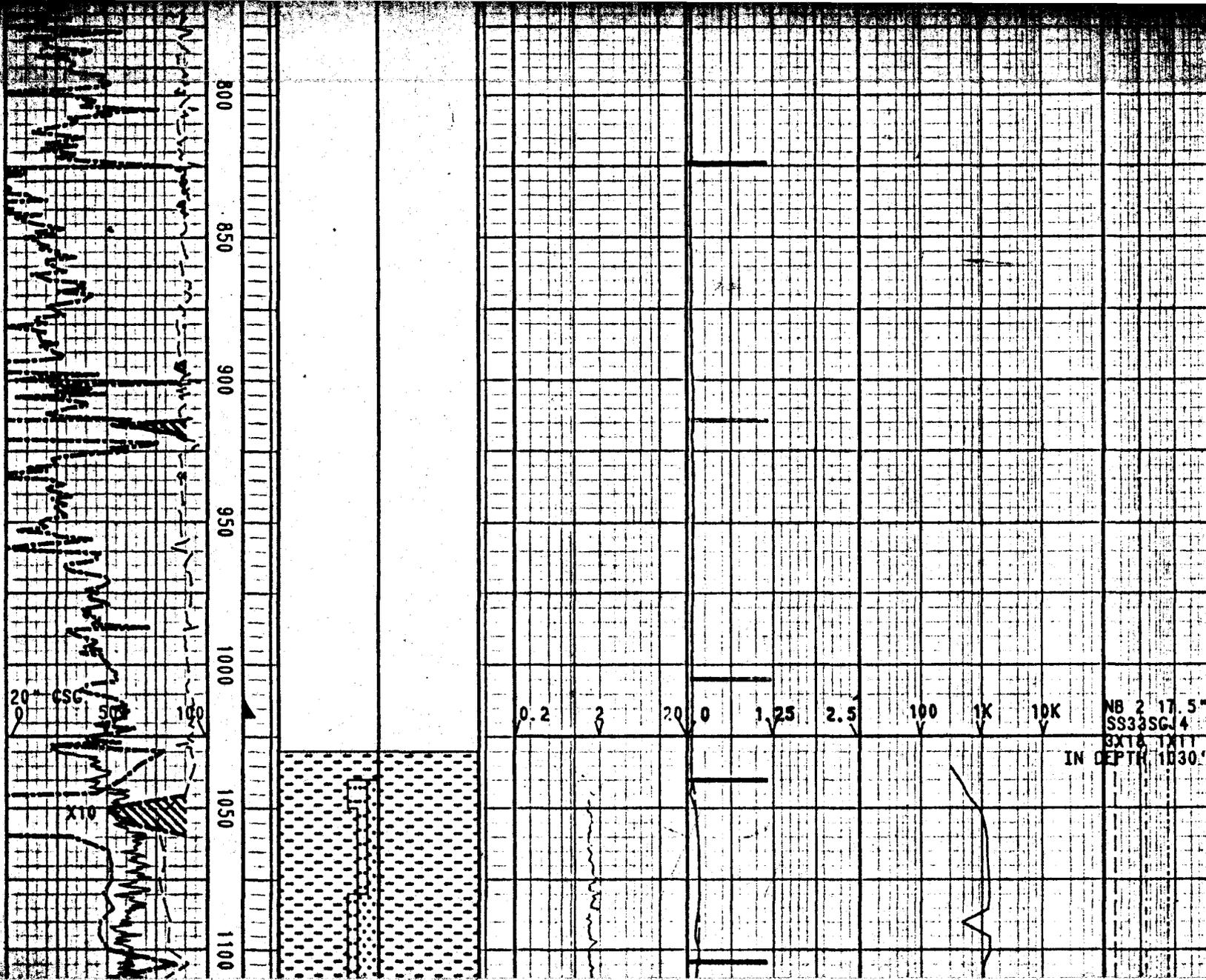
PERMANENT DATUM MEASURED FROM MSL.
 KB: 65' DF: 64'
 MEAN SEA LEVEL: 101'
 MUD LINE: 166' BELOW KB
 LOGS MEASURED FROM KB
 SPUD IN 7-28-93
 DRILLING GLORY HOLE

JETTING IN 30"
 CONDUCTOR
 NO RETURNS
 7-28-93
 NB 1 26" ATXC1
 21-21-21-22 JETS
 IN DEPTH @ 228'

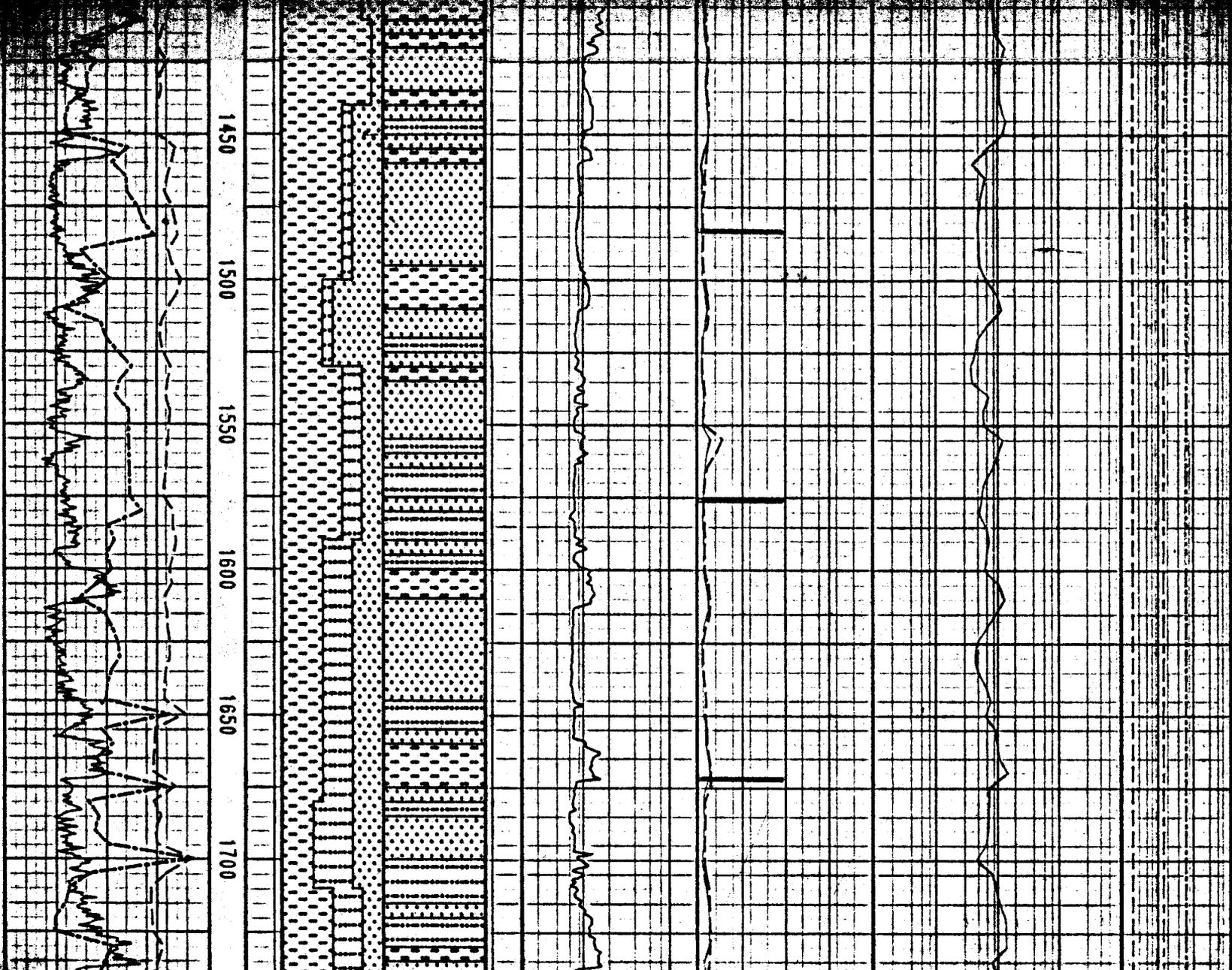


3 STD WEPER TRIP

7-30-83



NB 2 17.5" DRILLED TO 1030'
 SS33SG-4 RUN 20" OD 18.75" ID
 133 LB/FT CSG @ 1018'
 3X18 1X11 LOT=12.9 ppg EMM
 IN DEPTH 1030' 7-30/8-2-83
 NB 3 12.25" FDTC
 14-14-14-10
 IN DEPTH @ 1040'
 CLY-LTGY. INGY. AMORPH. CALI
 NICA. TR-10% SBRND-WRND
 LITH INCL. TR PRY NO
 PYR FOSS FRACS. TR WH
 FOSS SHELL FRACS. HYDR
 VSFT
 ABNDT PYR NODS + WOOD P



SD-WH. BLK. DKGY. CLR. M-CGR.
 OCC PBL SZ. SBRD-ANG. P-
 MSRT. UNCONS. 40% LITH
 FRAGS. 30% CHT. 30% QTZ.
 PYR INCL. TR WOOD. TR
 COAL. TR DUL YEL MIN FLOR.

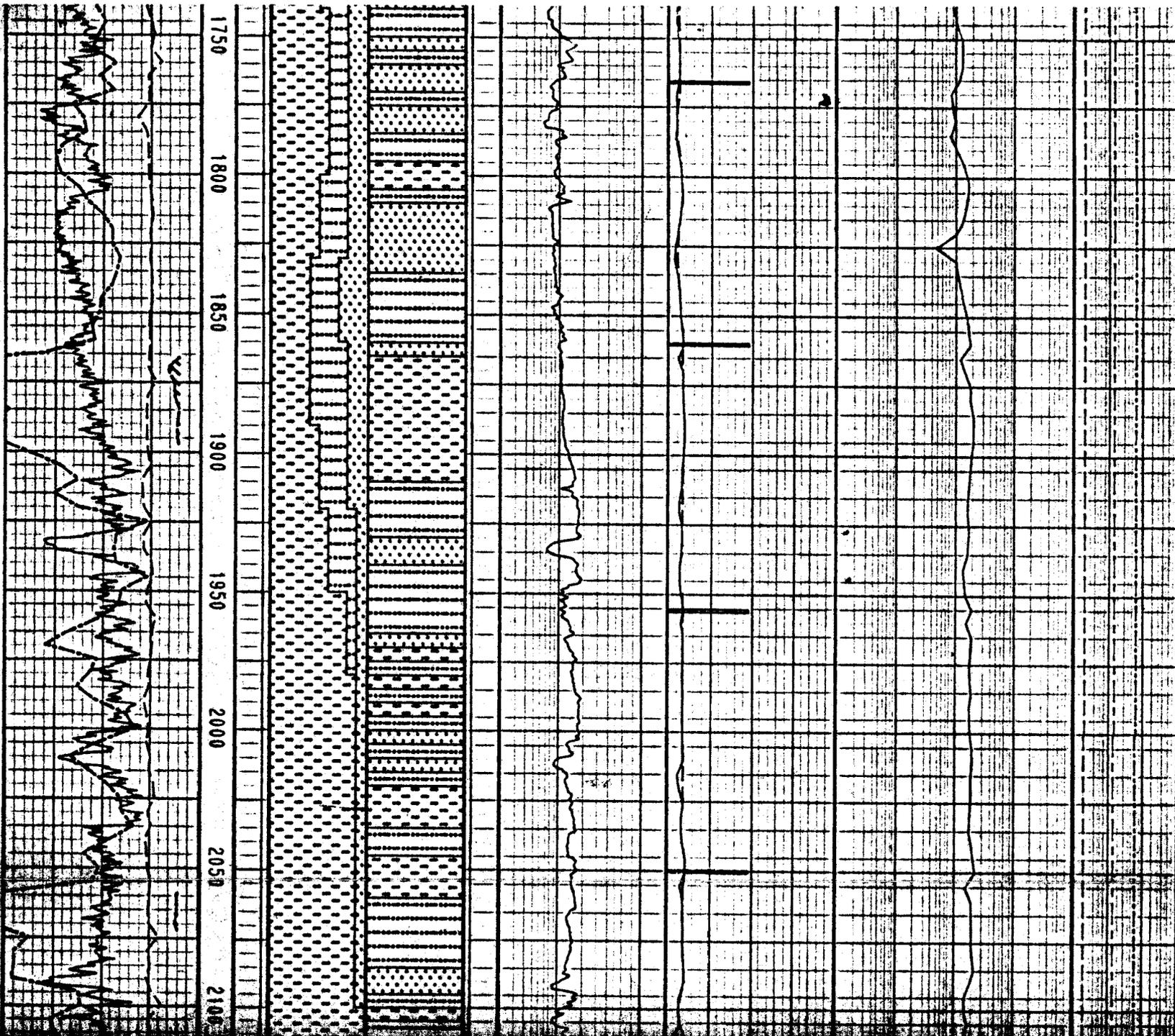
CLY-TN. LTGY. AMORPH. MIC
 MICA. CARB SPECS IP. CALC.
 TR WOOD. HYDRD. VSFT.

ADD CALC + SHL FRAGS.

SD-CLR. WH. BRN. BLK. M-CGR.
 SBRD-ANG. MSRT. UNCONS.
 50% QTZ. 20% LITH FRAGS.
 30% CHT. TR PYR. TR CALC
 + SHL FRAGS. NSOFC.

SLTST-TN. LTRN. M-DKGY. BLKY.
 CARB LAMS IP. INTBD W/SD
 IP. CALC. TR PYR. TR CALC +
 SHL FRAGS. FRM.

ADD TUFF-TN. BUFF. AMORPH.
 INTBD W/SD CRS. FRM-40.



CLY-LT-MCY. AMORPH. CARB MAT
IP. CALC. HYDRD. VSFT. ABD
SH FRACS. ABD PYR.

SLY-LT-MCY. CARB SPECS IP.
CALC. F SD CRS IN CLY
MTRX. CRDG TO CLY.
SVY @ 1852' 0.25 Deg.

ABD SHL FRACS + CALC.

SD-WH. BRN. BLK. CN. F-CGR.
RNDD-ANG. M-PSRT. UNCONS.
40% QTZ. 40% LITH FRACS.
20% CHT. TR PYR. TR CALC.
TR DUL YEL-ORG MIN FLOR.
NSOFC.

CLY-M-DKCY. AMORPH. CARB
SPECS. VFGR SD. HYDRD.
GMY. VSFT.
0-3-03

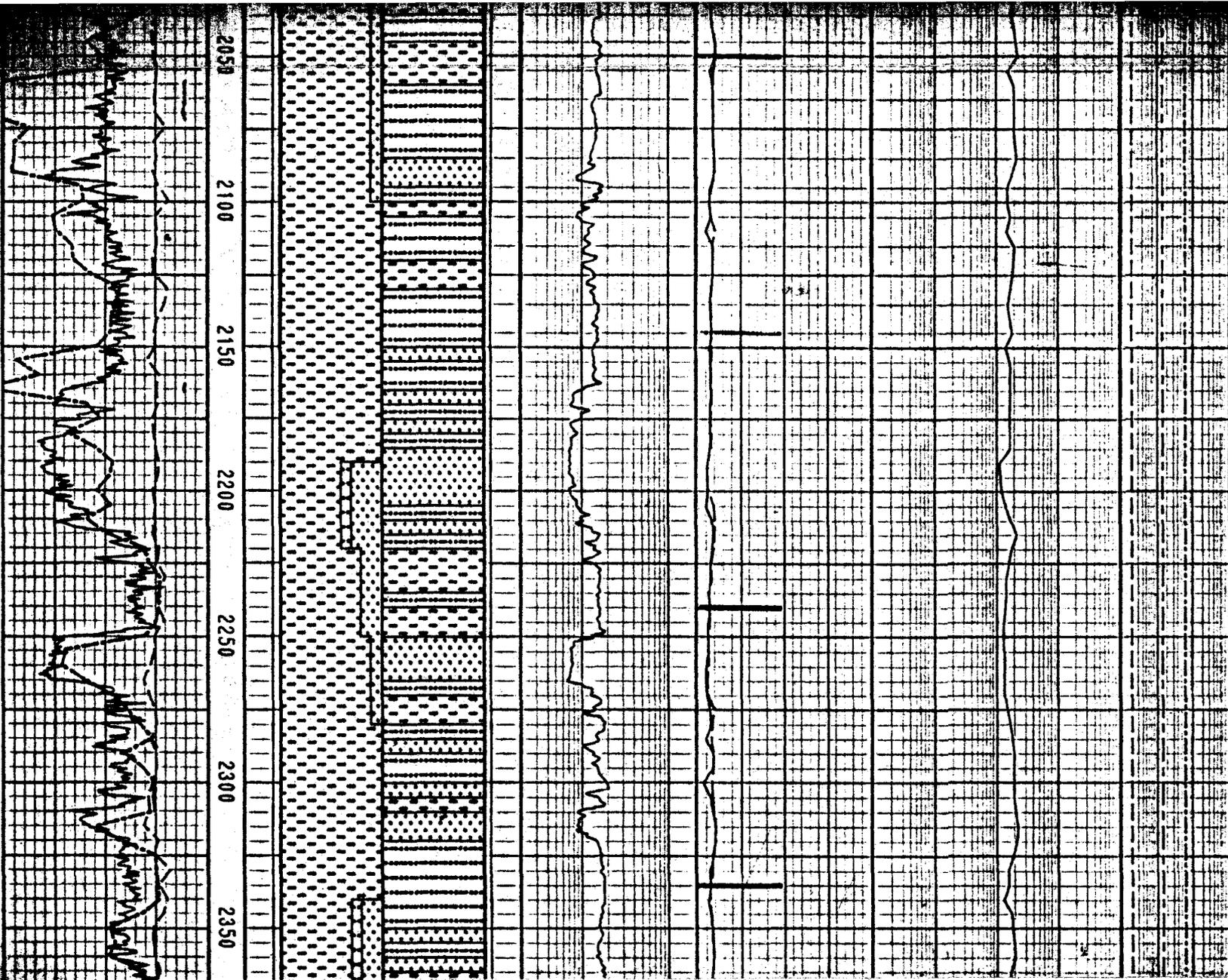
MW 9.8 VIS 50
PV/YP 24/21
FL 4.6 PH 9.6 CL 18000

CLY-M-DKCY. AMORPH. CARB
MAT. VF-FGR SD. SLI CALC.
GMY. SFT.

SD-CLR. WH. BRN. BLK. VF-
FGR. OCC CCR. SD ANG-SOED
MTRX. IMBDD IN CLY.

CLY-MCY. M-DKCY. AMORPH.
CARB SPECS

CLY-MGY. M-OKBRN. AMORPH. CARB. SPECS. VF-FGR SD. OCC. SLI CALC. HYDRD. TR CALC. VSFT.



CLY-MGY. M-OKBRN. AMORPH. CARB. SPECS. VF-FGR SD. OCC. SLI CALC. HYDRD. TR CALC. VSFT.

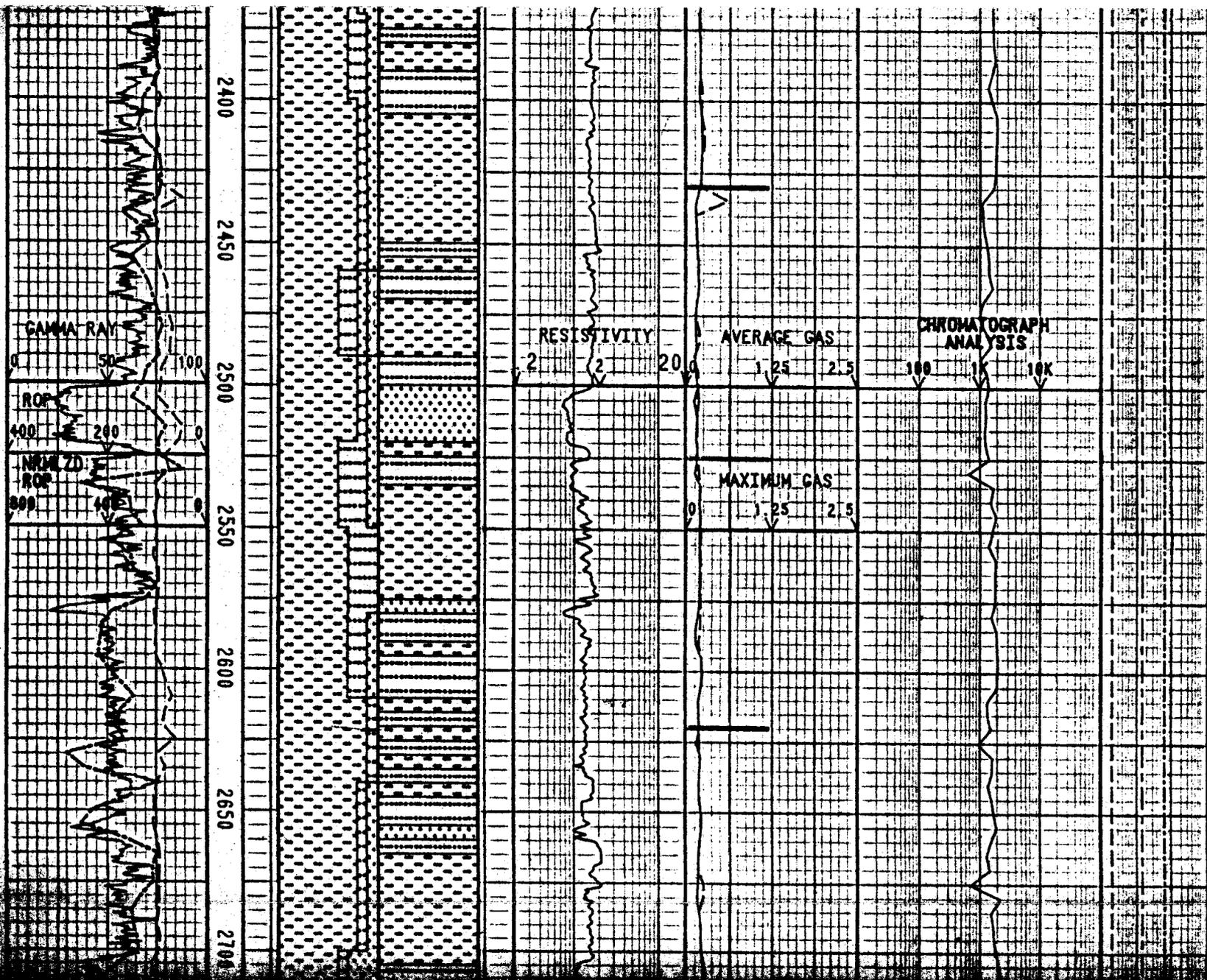
CLY-MGY. MBRN. AMORPH. CARB. SPECS. IP. SLI CALC. HYDRD. TR CGR SD. TR CALC. VSFT.

SVY ● 2210' 0.24 Deg.

SD-CLR. WH. BLK. F-CGR. SBRD-ANG. M-MSRT. UN-CONS. 30% QTZ. 50% LITH FRAGS. 20% CHT. TR. PYR. TR CALC. NSOFC.

CLY-MGY. AMORPH. CARB. SPECS. VF-FGR SD. OCC. CGR SD. SLI CALC. HYDRD. VSFT.

SD-CLR. WH. BLK. F-CGR. SBRD-ANG. MSRT. UNCONS. 30% QTZ. 50% LITH FRAGS. 20% CHT. TR. PYR. TR CALC. NSOFC.



CLY-L-TN. VLTGYBRN. AMORPH. CALC.
AREN IP. SLT + FGR SD INCL.
OCC MGR SD. MIC MICA. TR CARB
SPECS. VHYDRD. VSFT

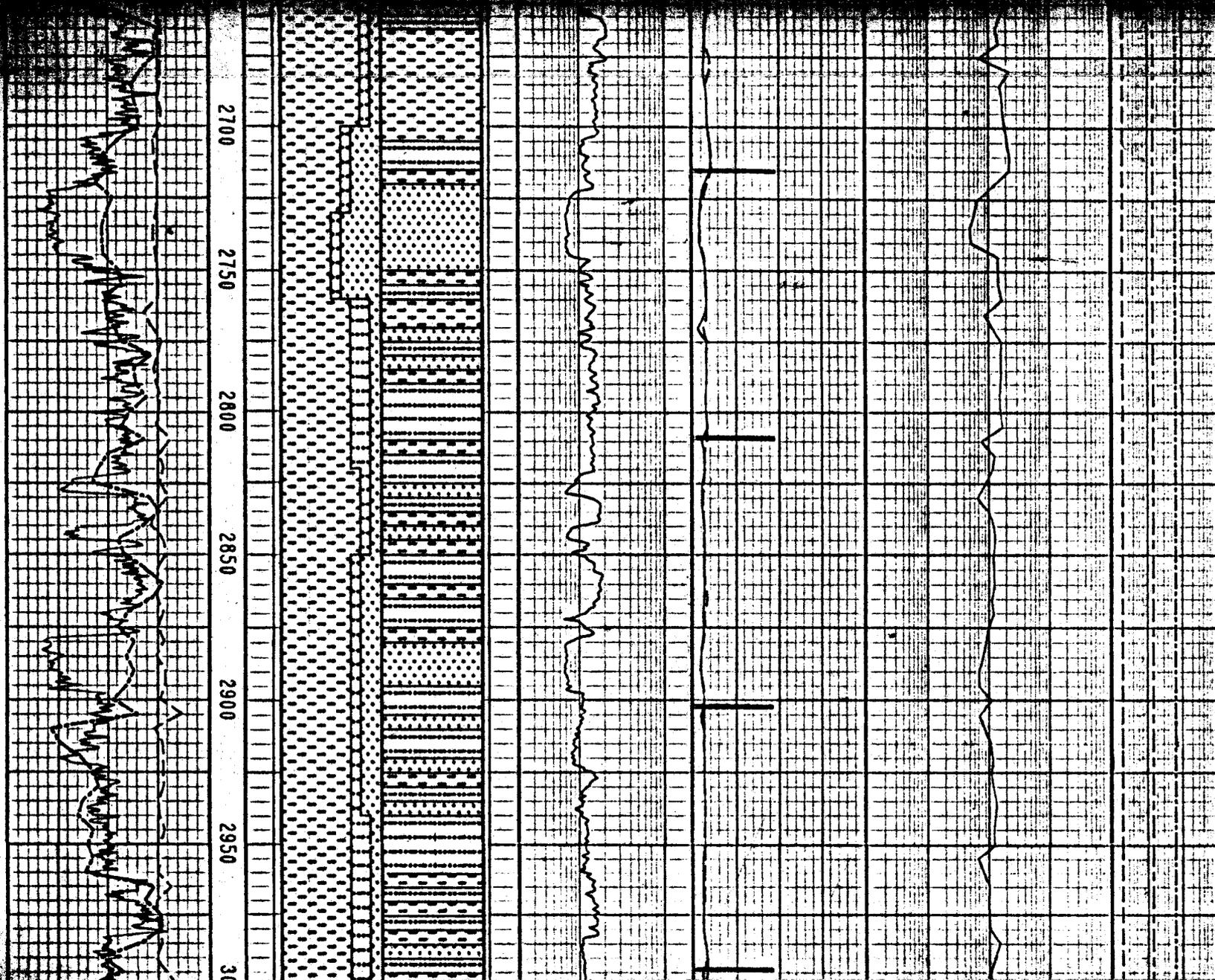
ST @ 2435'
STG 61u

GLV-DK-LTGY. M-DKBRN. WH. CLR.
CCR SD-FBL SZ FRACS. SBROD-
MROD. PRED RND. SMC ANG FRACS.
SUSPENDED INCL IN CLY MTRX.
80% CHT + LITH FRACS. 20%
CLR-FRSTO QTZ. TR PYR NOOS.
SVY @ 2405' 0.23 Deg.

ABNOT CARB LAMS + CARB SLTST
STRNGRS INTBD IN CLY

SLTST-TN. CY. CLR. MOTT IP. AMORPH-
BLKY. ARG. CLY MTRX. ENTHY. SLT-
V CALC. CRDNG TO VFGR SS IP.
TR F-MGR SD INCL. TR CARB
SPECS + LAMS IP. SFT +
VHYDRD-HD + BRIT IP.

CLY-TN. VLTGYBRN. AMORPH. MIC
MICA. AREN IP. CRDNG TO SLT
IP. TR VF-CGR SD INCL. TR PYR
NOOS. TR CARB LAMS. CMNY.
VHYDRD + VSFT



SD-LT-DKGY. CLR. WH. M-CGR.
 PRED. CGR. SBANG-WRND. PRED.
 SBRND. MSRT. UNCONS. POSS. CLY
 MTRX. 60% CHT + LITH FRACS.
 40% CLR-FRSTO QTZ. PYR. WOODS.
 NSOFC

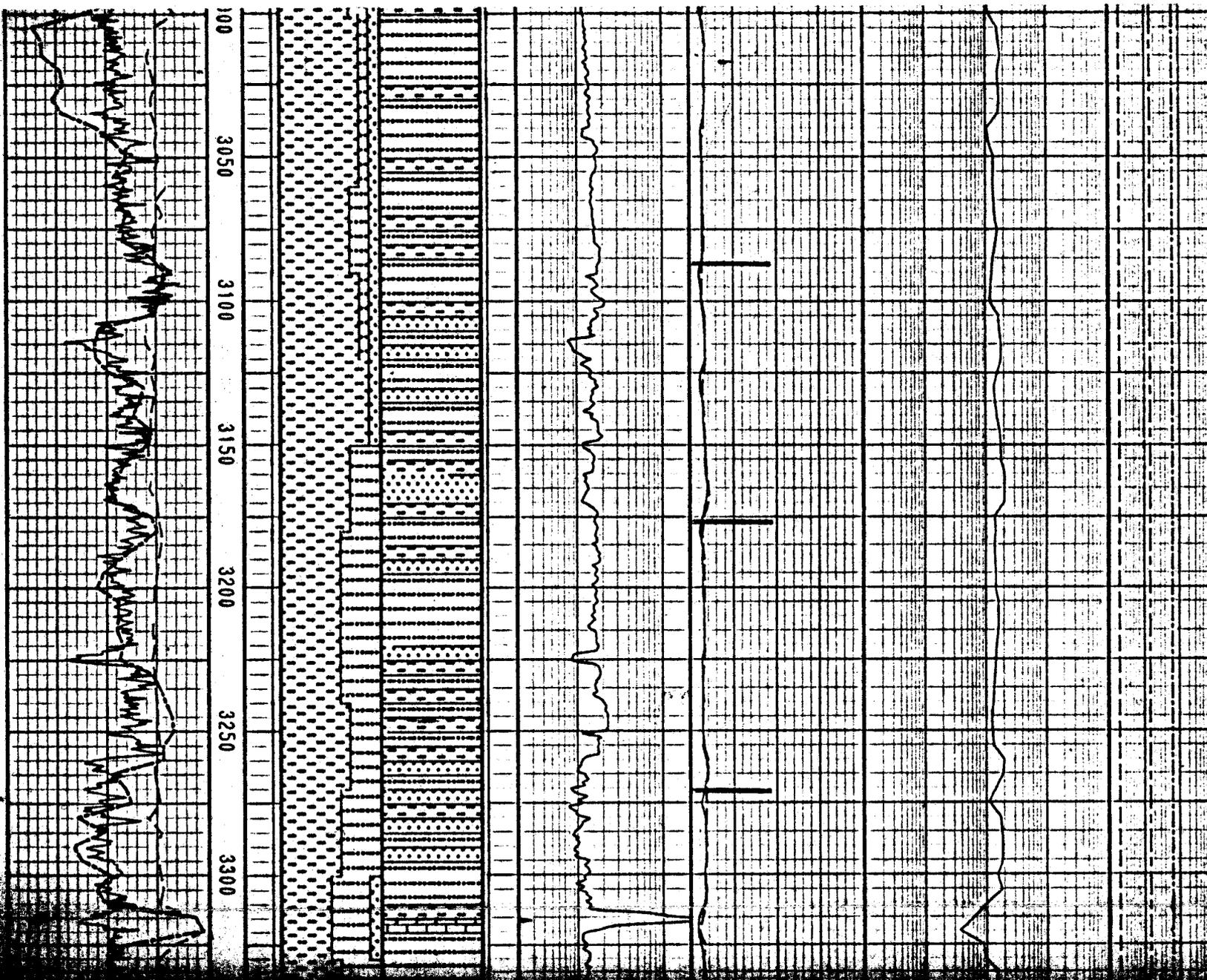
CLY-LT-MGY. MBRN. AMORPH.
 MIC MICA. TR VF-FGR SD
 INCL. OCC CGR SD. CALC.
 TR PYR. TR CALC. TR
 FORAMS. HYDRTO. VSFT.

CLY-LT-MGY. MBRN. AMORPH.
 TR VF-FGR SD INCL. OCC
 CGR SD. CALC. TR PYR.
 HYDRTO. VSFT.

SD-CLR. WH. BLK. VF-MGR. OCC
 CGR. PRED. SLT. SZ. ANG-
 RND. MSRT. UNCONS. IN
 CLY MTRX. 60% QTZ. 20%
 LITH FRACS. 20% CHT.
 TR PYR. TR CALC. NSOFC.

SVY @ 2963' 0.37 Deg.

SLT-LT-MGY. AMORPH. VAREN.
 CARB. SPECS. IP. HYDRTO.
 GMMY IP. VSFT.



CLY-MGY. MBRN. AMORPH.
MIC MICA. CALC. TR
PYR. HYDRTO. VSFT.

SLT-LT-MGY. AMORPH. AREN.
CARB MAT IP. HYDRTO.
GMMY IP. TR PYR. VSFT.

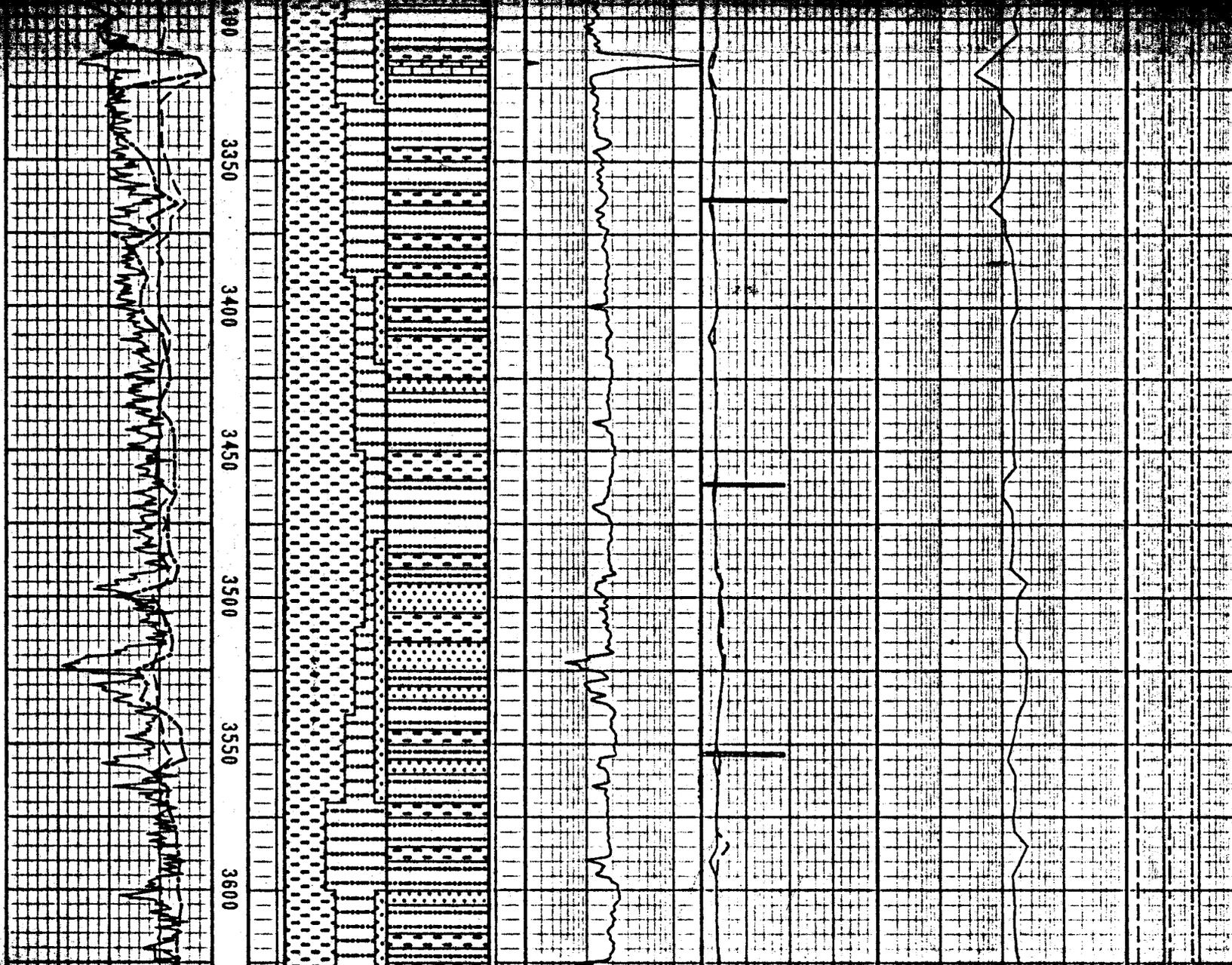
CLY-LT-MGY. MBRN. AMORPH.
CALC. TR PYR. HYDRTO.
VSFT.

SLT-MGY. AMORPH. AREN.
VFGR QTZ CRS. OCC GGR
SD. CALC. HYDRTO. VSFT.

CLY-MGY. MBRN. AMORPH. CALC.
MIC MICA. CARB SPECS IP.
HYDRTO. GMMY. SFT.

0-4-03

TR LS-MH. LTGY. AMORPH.
BLKY. CHLKY. CARB. SPECS
IP. TR. PYR. VSFT.



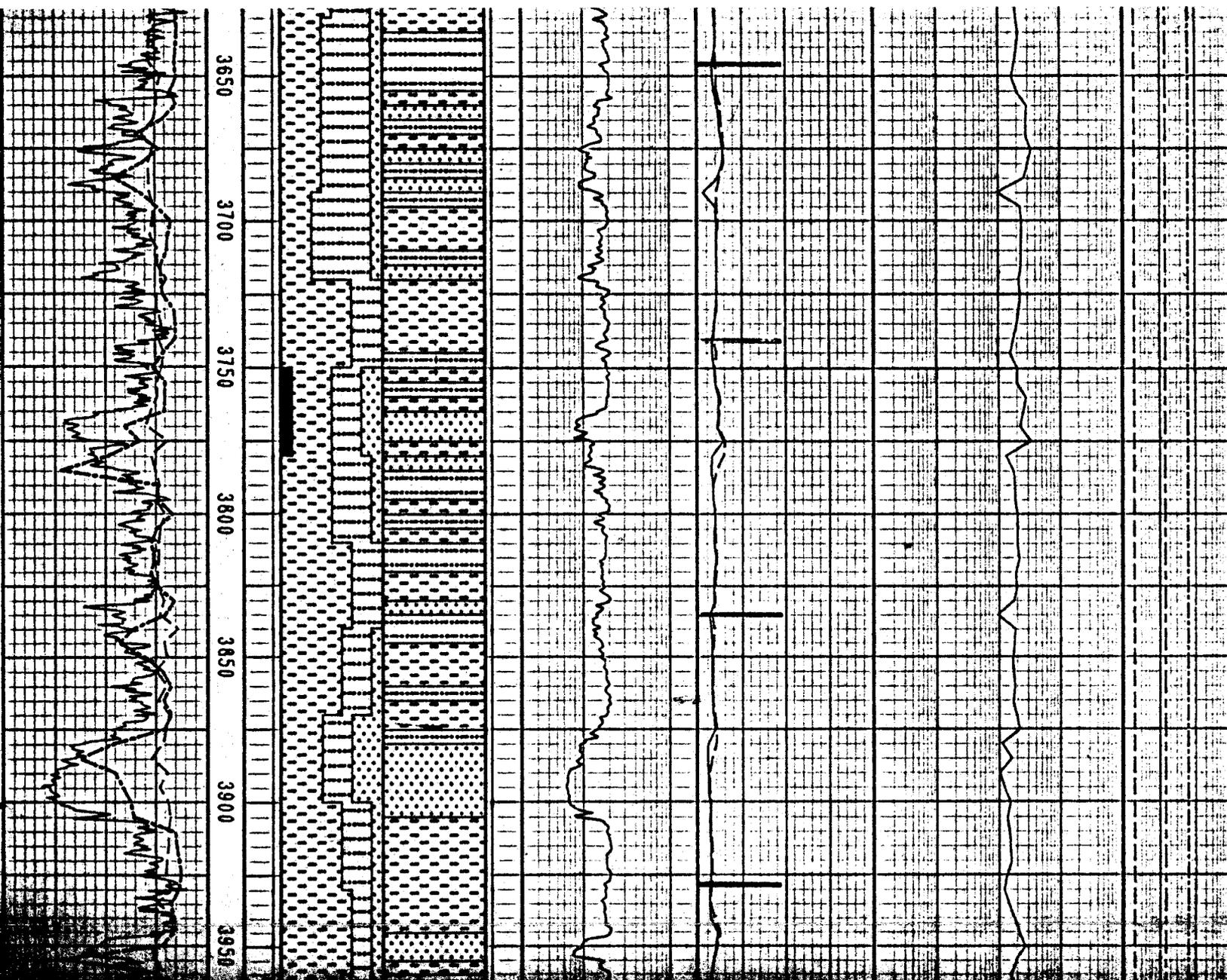
TR LS-WH. LTGY. AMORPH.
 BLKY. CHLKY. CARB SP
 IP. SDY IP. VCALC. HYDR
 VSF.
 SVY @ 3834' 0.40 Deg.
 MW 9.8 VIS 34
 PV/YP 27/23
 FL 4.0 PH 8.5 CL 1600

SLT-LT-MGY. AMORPH. AR
 VFGR QTZ CRS. OCC C
 SD. CALC. HYDRD. VSF

CLY-LT-MGY. MBRN. AMOR
 CARB SPECS IP. ARG.
 F-CGR SD. HYDRD. CMY.

SD-CLR. WH. BLK. VF-MGR
 OCC CGR. SBRD-ANG. M
 WSRT. UNCONS. 40% QT
 40% LITH FRAGS. 20%
 CHT. TR PYR. TR CALC
 NSOFC.

SLTST-W-LTGY. LTRN. AMORPH.
 IP. CALC. ARG. CLY MTRX W
 INCL. GRDNG TO CLY. SP
 MTRX IP



SVT @ 3614' 0.30 Sec.

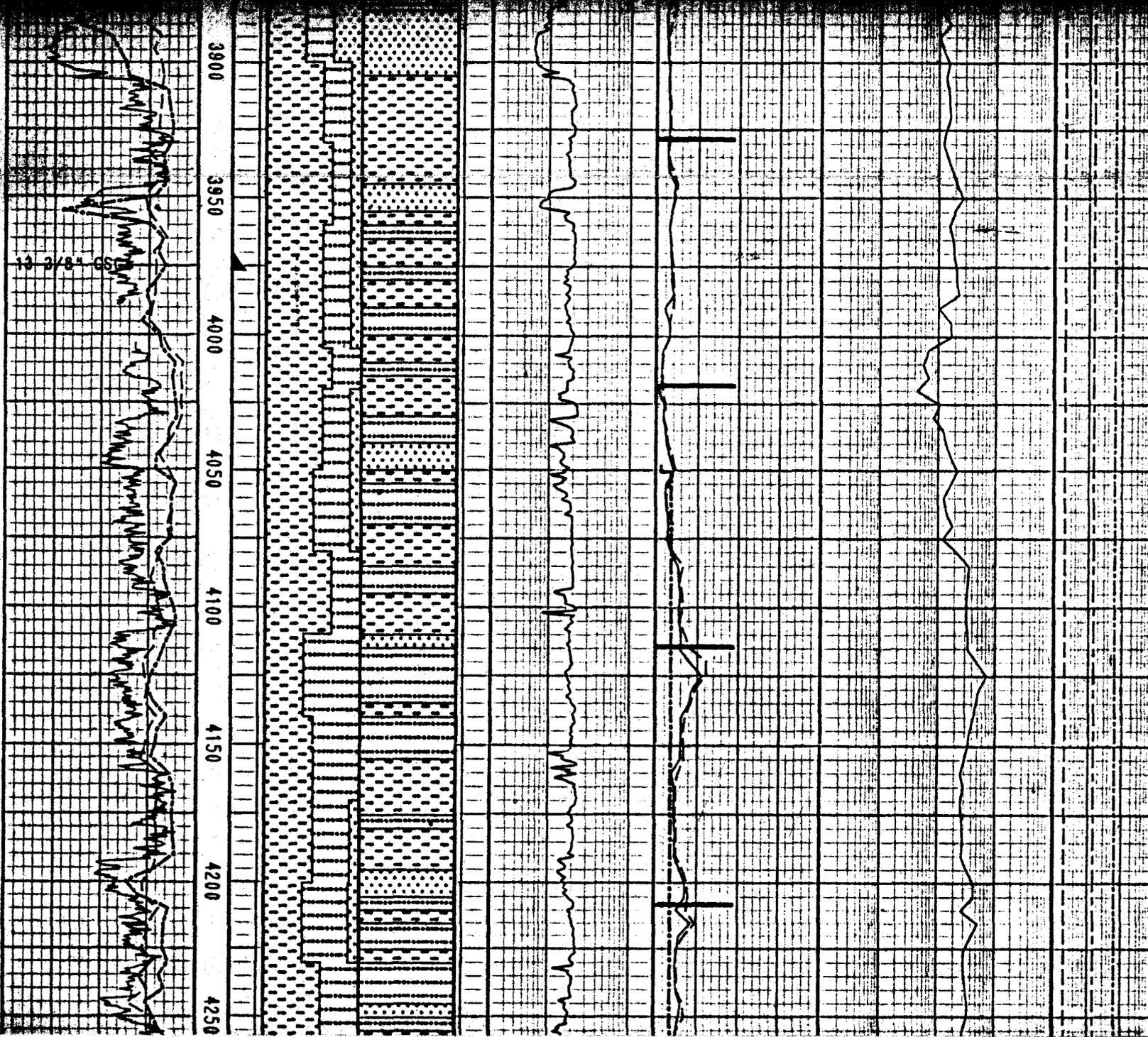
CLY-TNGY. VLTBRN. AMORPH. INTBD
W/ SLT + VFGR QTZ SD INCL.
SLT-MCALC. CRDNG TO SLTST IP.
ABNDT CARB LAMS. HYDRD. SFT

SD-LTGY. CLR. WH. TRANSL. VF-MGR.
OCC CGR. PRED FGR. ANG-SBRND.
PRED SBANG. PSRT. UNCONS. TR
PYR CNT. PROB CLY MTRX. TR
CALC CNT IP. TR CARB LAMS.
TR BLK PYR FOSS BRACH. 70%
QTZ. 30% LITH FRACS. NSOFC

COAL-BLK. VDKBRN. PLTY. HKLY.
BLKY IP. SBVT. PYR WOOD FRACS.
INTBD W/ SD + CLY. FRM-MHD +
BRIT

CLY-LTTN. VLTGY. AMORPH. SLI CALC.
SLTY. CRDNG TO SLI IP. TR VFGR
SD INCL. HYDRD. SFT

SD-M-DKGY. BLK. CLR. WH. M-CGR.
OCC PBL. SZ. PRED MGR. ANG-
SBRND. PRED SBANG. P-MSRT.
UNCONS. TR CALC CNT IP. PROB
CLY MTRX IP. SLI TR CALC XLS.
TR WH FOSS SHELL FRACS. TR
TUFF. SLI TR BUL. YEL MIN FLOW
ONLY IP. NSOFC



SD-M-DKCY. BLK. CLR. WH. M-CGR.
 OCC PBL SZ. PRED MGR. ANG-
 SBND. PRED SBANG. P-MSRT.
 UNCONS. TR. CALC. CNT. IP. PROB
 CLY MTRX. IP. SLI. TR. CALC. XLS.
 TR. WH. FOSS. SHELL. FRAGS. TR.
 TUFF. SLI. TR. DUL. YEL. MIN. FLOW
 ONLY. IP. NSOFC

SVY @ 3977' 0.25 Deg.

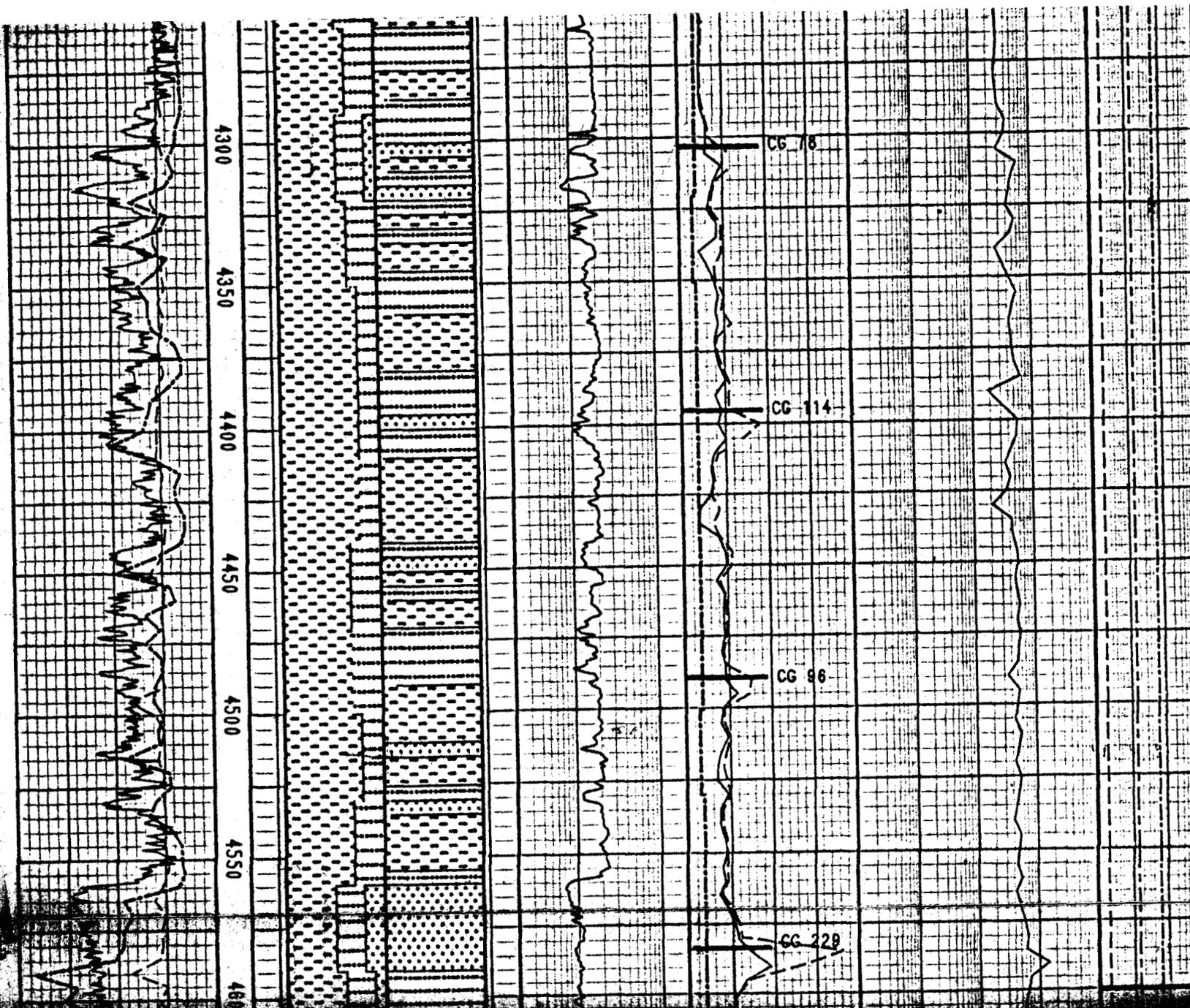
STG 67u
 8-5/10-83
 SET 13 3/8" CSG @ 3977'
 LOT = 14.9 pag EMM
 NB 4 12.25" FDTCL
 12-12-12-12 JETS
 IN DEPTH 4005'

CLY-LT-MCY. CYTN. AMORPH. SLTY.
 GRDNG TO SLT. IP. TR. CGR
 SD INCL. VHYDRD + VSFT

TR. COAL-BLK. BLKY. HKLY. IP.
 SBVT. LRG. FRAGS. INTBD. W/ CLY
 + SLT. HD + BRIT

MW 9.8 VIS 51
 PV/YP 15/17
 FL 3.0 PH 8.2 CL 16000

SD-CLR. LT-DKCY. TRANSL. WH. VFGR.
 SBANG-RND. PRED. SBRND.
 PSRT. UNCONS. CLY. MTRX. PROB
 SD INCL. IN CLY. GRDNG TO SLT
 SZ. CRS. INTBD. W/ CLY + SLT.
 NSOFC



SVY @ 4277' .378deg.

CLY-TN. LTGYBRN. AMORPH. CALC.
MIC MICA IP. VSLTY. GRDNG
TO SLT IP. VHYDRD + VSFT

CG 78

SLTST-LT-MGY. LTGYBRN. SFT.
SLI CALC-CALC. STKY. GMY.
VARG. GRDC TO SLTY CLY.

CG 114

CLY-LT-MGY. LTGYBRN. SFT.
SLTY IP. STKY. SLI CALC-
CALC. TR SD. TR COAL FRAGS.

CG 96

SD-CLR. LTGY. BLK. VF-FGR. SB
ANG. WSRT. UNCONS. 70%QTZ.
30%LITH FRAGS. NSOFC

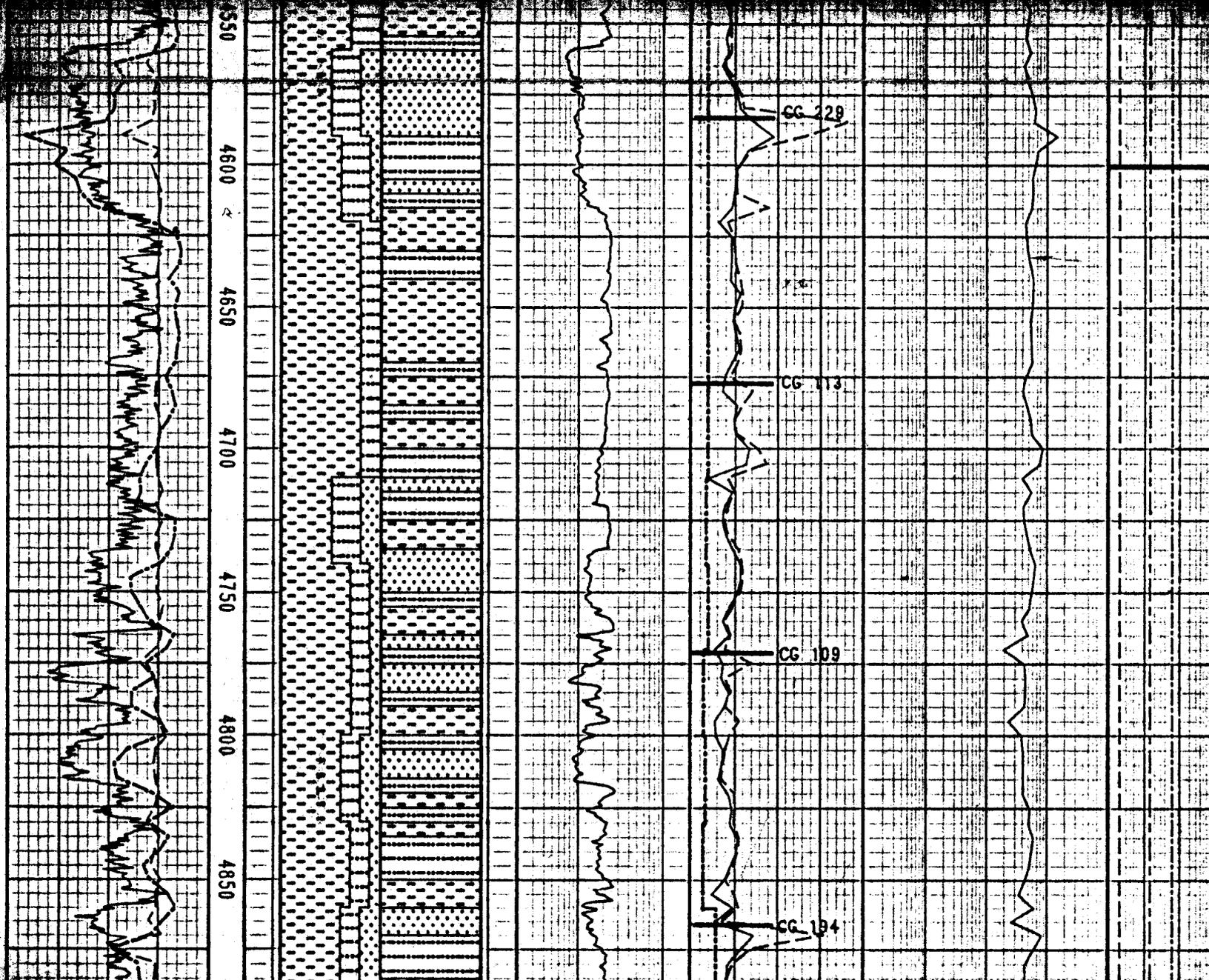
CG 229

CLY-LT-MGY. GYBRN. SLTY. VSLI
CALC IP. TR SD. OCC COAL SPKS.
SFT. STKY.

SVY @ 4552' .470deg.

CLY-LT-MGY. LTGYBRN. STKY.
SLTY. TR SD. VSLI-N CALC.
VSFT.

SD-M. VDKGY. TR BRN. CLR. MY
F-MCR. TR CGR. PRED. ANG. SB
ANG. OCC. SBAND. M-FR. BRD.
ABNT. CLR. VF-SLI. SZ. ANG. QTZ.
GRS. FLTR. TR. SLTY. CLY. MTK.



SLY-LT-MGY. LTGSRM. STKY.
SLTY. TR SD. VSLY-M. CALC.
VSFT.

SD-M-VDKGY. TR BRN. CLR. WH.
F-MGR. TR CGR. PRED ANG-SB
ANG. OCC SBRND. M-PR. SRTD.
ABNT CLR. VF-SLT. SZ. ANG. QTZ.
GRS. FLTG IN SLTY. CLY. MTX.

CLY-MGY. GYBRN. SLTY. OCC
SDY. NCALC. STKY. SFT.

SLTST-LT-MGY. VARG. TR SD.
NCALC. TR COAL. SPKS. GRD
TO VFGR SD. IP. SFT.

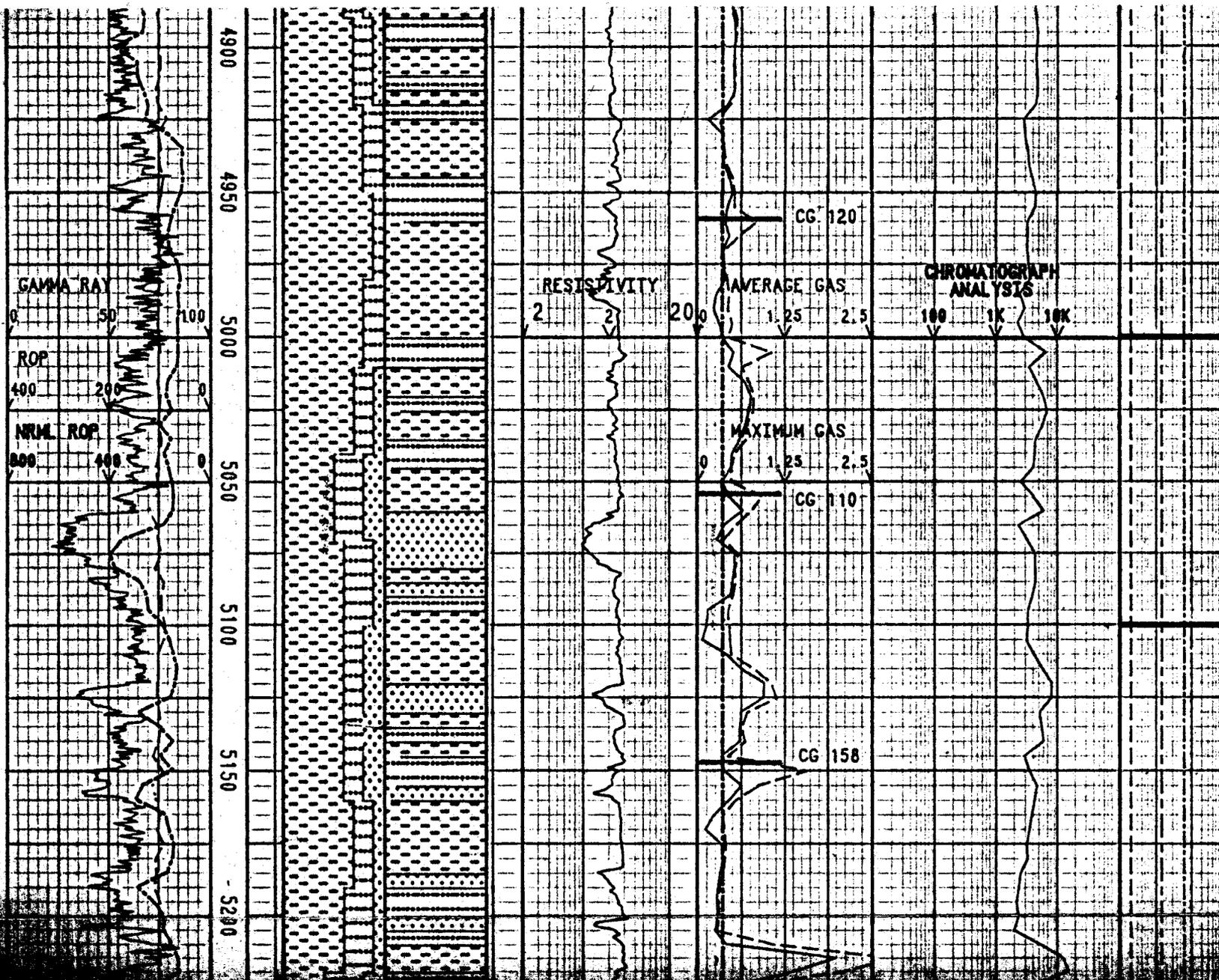
SD-DKGY. BRN. BLK. CLR. WH.
F-MGR. ANG-SBANG. M-PR.
SRTD. UNCONS. 40%LITH. FRAGS.
40%CHT. 20%QTZ. NSOFC

SD-CLR. LTGY. VF-FGR. SBANG-ANG.
M-SRTD. GRD TO SLTST. PRED
CLR. QTZ. UNCONS. NSOFC.

SVY @ 4835' . 390deg.

8-11-83

CLY-LT-MGY. MGYBRN. SLTY.
OCC VFGR. FLTG SD. NCALC.
TR. STKY. SFT.



SLTST-LT-MGY. GRDG TO VF
GR SD IP. VARG. TR PYR.
NCALC. SFT.

MW 9.8+ VIS 58
PV/YP 19/19
FL 3.2 PH 9.9 CL 17000

CLY-LT-MGY. CYBRN. NCALC.
SLI-VSLTY. FLTG SD GRS.
GMY. SFT.

SVY @ 5020' .41Deg.

SLTST-LT-MGY. VARG. ABNT VF
GR SD. NCALC. TR PYR. SFT.

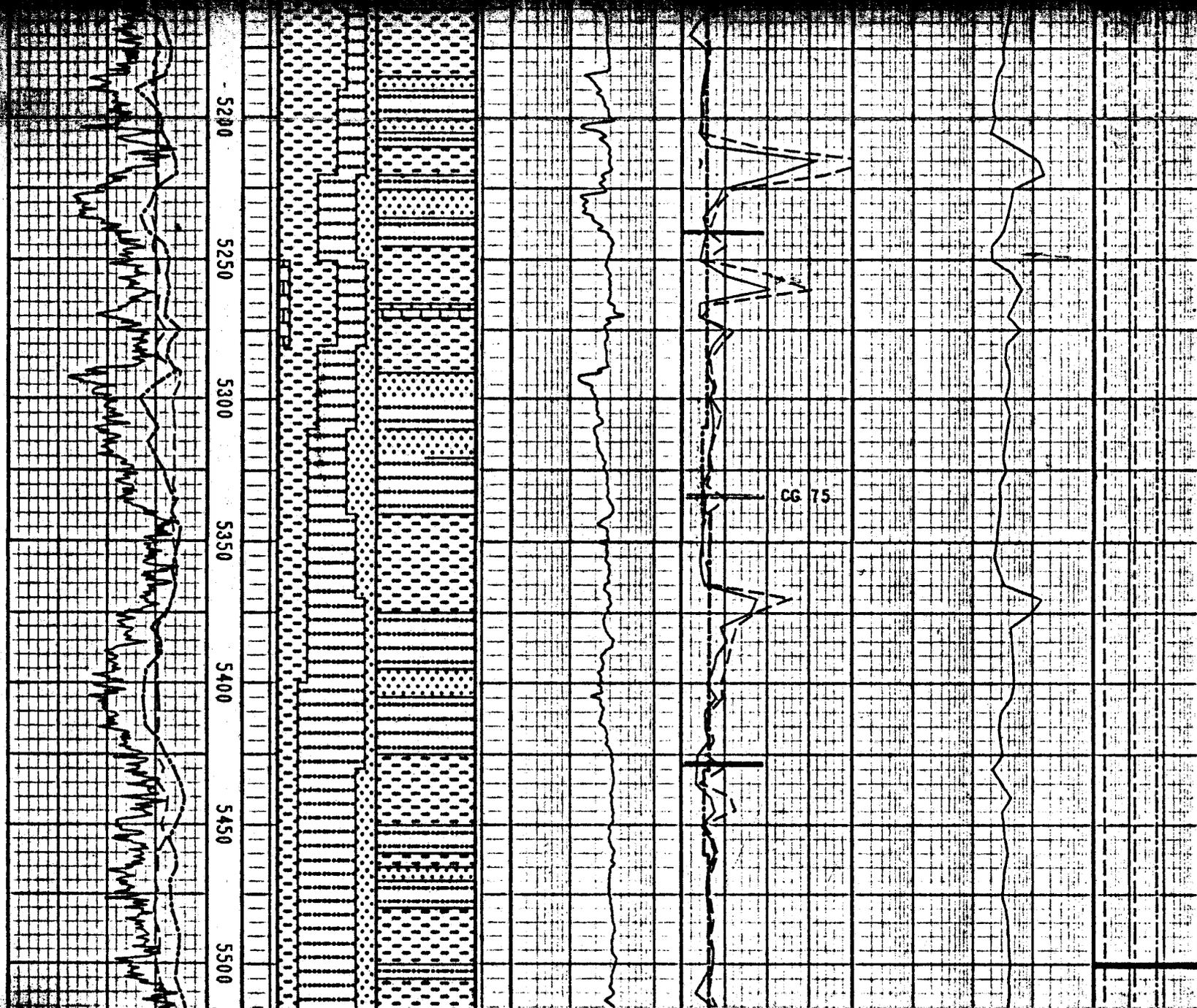
SD-CLR. LT-OKCY. BLK. BRN.
VF-MGR. SBANG-ANG. PR-M
SRD. FLTG IN SLTST & CLY
MTX. UNCON. NSOFC.

CLY-LT-MGY. CYBRN. SLTY. SLI
SDY. SLI CALC. TR PYR. STKY.
GMY. SFT.

TR AMBER

SLTST-LT-MGY. VARG. DECR VF
QTZ SD. TR PYR. SLI CALC.
TR DUL ORG & PNK MIN FLUOR.
CT. SFT.

SLTST-LT-MGY. IN
P. CALC. SFT.



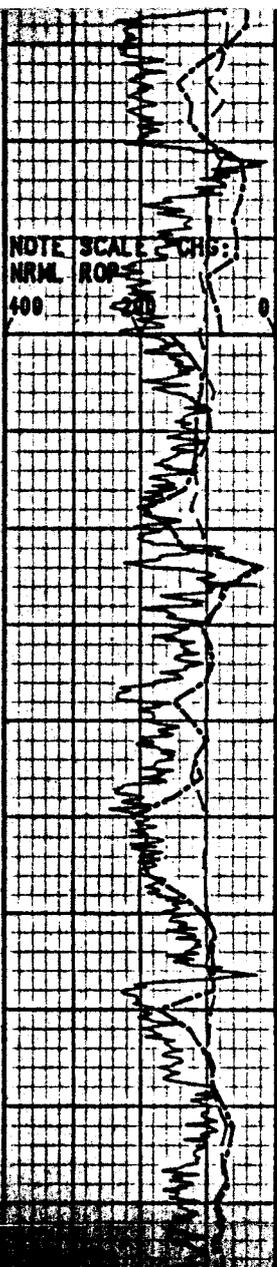
SLTST-M-OKGY. TN IP. AMORPH. BLK. IP. CALC-VCALC. TR VFGR SD IP. ARG. GRDNG TO CLY. TR CARB SPECS. SFT + HYDRD-MHD IP

LS-TN. ORNGYEL. BLKY. SLTY. AREN. GRDNG TO VCALC SLTST IP. TR CARB SPECS. TR CALC XLR. MHD

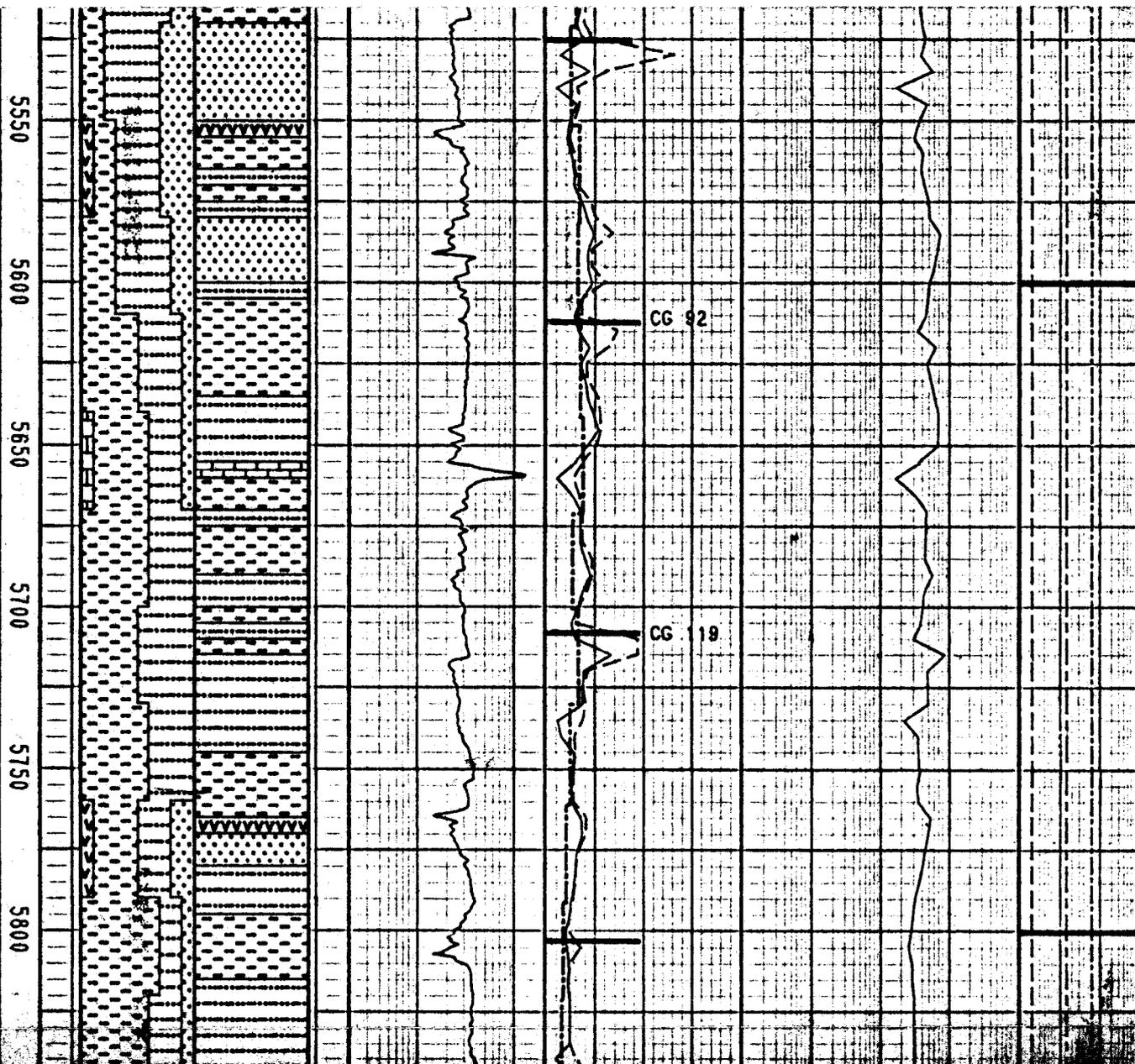
50-CLR. TRANSL. MGY. BLK. VF-FGR. PRED VFGR. OCC MGR ANG QTZ. ANG-SBRND. PRED SBANG. P-MSRT. UNCONS. SLI TR CALC GMT IP. ARG. CLY + SLT MTRX. 80% QTZ. 20% HRNBLND + LITH. NSOFC

SLTST-M-LTCY. AMORPH. ARG. GRDNG TO CLYST. MCALC. TR VFGR SD INCL. TR CARB MAT. VSFT

30-CLR. M-LTCY. WH. TRANSL. BLK. VF-FGR. PRED VFGR. ANG-SBRND. PRED SBANG. P-MSRT. UNCONS. PROB INCL IN CLY MTRX. 70% QTZ. 30% HRNBLND + LITH. TR CARB SPECS. NSOFC



NOTE SCALE CHG:
NRML ROP
400



SVY @ 3522' . 700deg.
STG 95

TUF-LTGY. WH. ORG. SLTY IP.
WXY IP. HEM STN IP. SFT.

SLTST-LT-MGY. PRED SDY. ARG
IP. OCC CARB SPECS. TUF IP.
VSLI-NCALC. SFT-SLI FRM.

CLY-LT-MGY. GYBRN. SLTY. TR
PYR. VSLI CALC. HYDRTO. SDY
IP. GMY. SFT.

8-12-83
LS-LTGY. LTGYBRN. SLTY.
TR PYR. ARG. FRM.

CLY-LTGY. LTGYBRN. SLTY.
TR PYR. CALC-VCALC. GMY.
STKY. SFT

SLTST-LT-MGY. ARG. SLI SDY. TR
CARB SPECS. SLI CALC. SFT

TUF-LTGY. WH. SLTY IP. ARG.
ALT TO BENT IP. OCC WXY
TEXT. SFT

SD-CL. R. LT-DKGY. VF-FGR. OCC MGR.
SBANG. M-PSRTO. SLTST/CLY MTX.
TOXOTZ. 30% LITH FRAGS & HRMBLD.
TR PYR. NSOFC

MW 19.0 VIS 55
PV/TP 20/22
PL 2.0 PM 0.2 G. 175M



10' CORE SAMPLES & ANALYSES
 10' PTK. NSOFC
 NW 10.0 VIS 33
 PV/TP 20/23
 PL 2.0 PM 8.3 CL 17300

 CLY-LT-MCY. CYBRN. SLI CALC.
 SLTY-SDY. OCC BENT. GMY. SFT

 SD-LTGY. CLR. TR BRN. VFGR.
 TR F-MGR. SBANG-ANG. M-W
 SRTO. CLY/SLTST MIX. TR
 TUF. TR MICA. N-SLI CALC.
 60%QTZ. 20%LITH FRACS. 10%
 HRNBLD. UNCONS. NSOFC

 CLY-LT-MCY. SLTY-SDY. TR
 PYR. N-SLI CALC. OCC TUF
 STRGRS. GMY. SFT

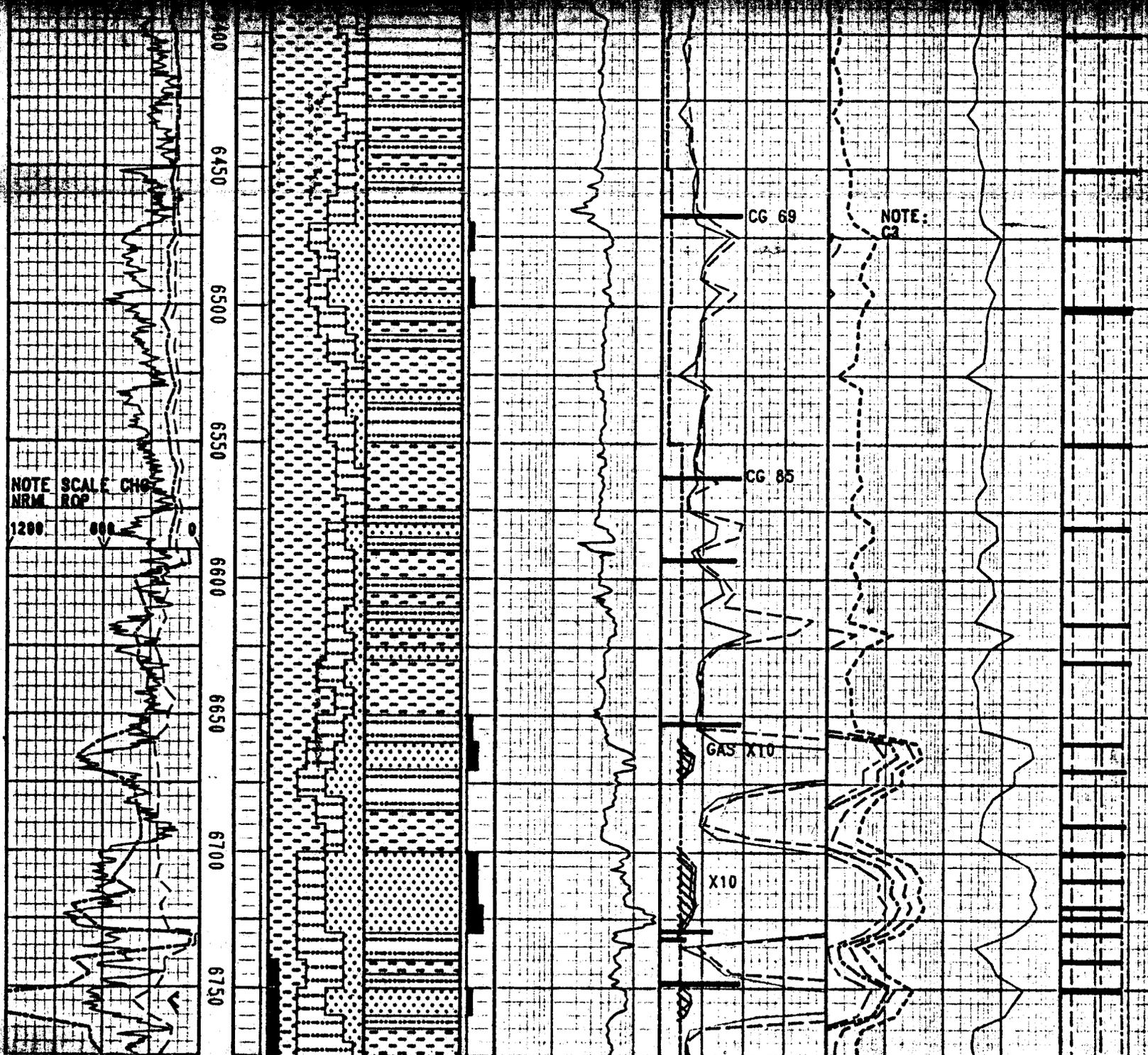
 SVY @ 5063' 1.24 Deg.
 TUFF-WH. TN. YEL. ORNG. BLKY. PLTY
 IP. CHKY. WXY IP. MICXLN. TR
 IRON STN. TR DUL. ORNG. MIN FLOR.
 SFT-NFRM

 START 10' SAMPLE INTERVAL

 SLTST-MCY. MCYBRN. AMORPH. FLKY IP.
 ARG. CLY MTRX. MCALC. TR VFGR
 SD INCL. GMY. SFT + HYDRTO

 SD/SS-CLR. TRANSL. BLK. WH. GY.
 S+P. SLT-VFGR. SBANG-RND. PRED
 SBRND. PSRT. PRED UNCONS. ABRMT
 CLY MTRX MAT. TR CHKLY WH CALC
 OR ALTRD CLY MTRX. TR CARB
 SPECS. 80% QTZ. 20% BLK + GY
 LITH FRACS. NSOFC

 TR VCGR DKCY RND LITH GR9



NOTE SCALE CHG
NRM ROP
1200 600 0

NOTE:
C2

SLT-LT-MGY. CYBRN. TN. ARG.
AREN. VSLI CALC. TR PYR. SFT.
GMY

SD-CLR. LTGY. OCC BLK-BRN.
VFGR. OCC F GR. ANG-SBANG.
M SRTO. PRED QTZ. OCC LITH
FRACS. CLY/SLTST MIX W/ PR
POR. <5% DUL ORG-ORG FLUOR.
TR YEL/GN FLUOR. FR YEL CUT
FLUOR IP. N STN. N ODOOR

CLY-LT-MGY. LTGYBRN. SLTY-
VSLTY. SLI-VSDY. OCC CARB
SPEC. SLI-M CALC. GMY. SFT

SVY @ 6547' 1.42 Deg.

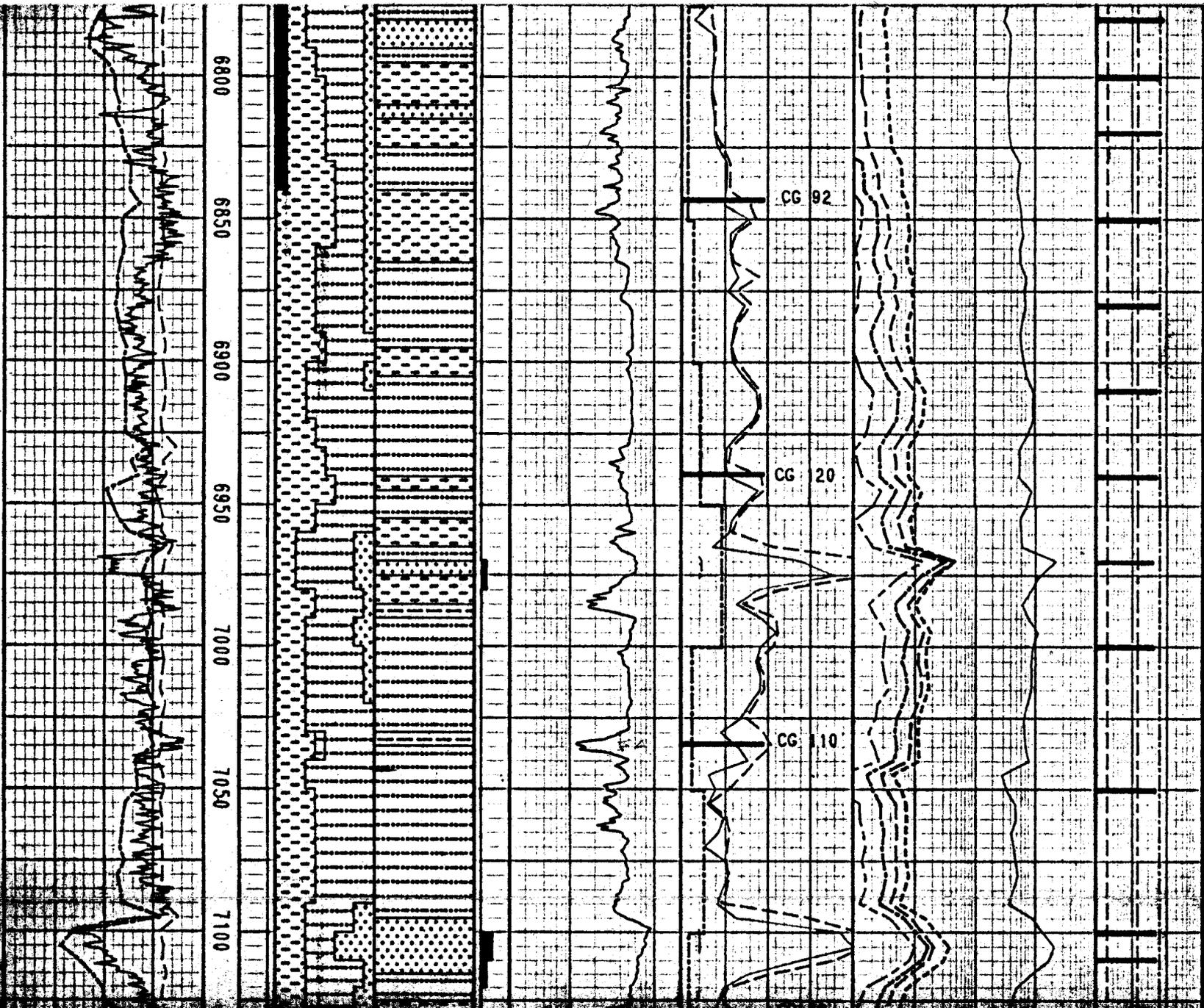
MW 10.0+ VIS 59
PV/YP 22/28
FL 2.7 PH 8.1 CL 17000

8-13-89
NB 5 12.25° DS-40H
2-14 3-13 JETS
TG 142

SD-CLR. TN. LTGY. BLK IP. SLT-VGR.
SBANG-SBRND. PRED SBRND. P-MSRT.
VARG-UNCONS. ABNDT CLY MTRX
MAT. 60-80% QTZ. 10-20% LITH.
M-BRI GRNGLD FLOR IN 50% OF
SMPL SURFACE. FAIR SLO MLKY
YEL CT FLOR. CD YELWH RESID
CT FLOR RING. OIL ODOOR.
NO VIS STN

SD-DKCY. BLK. CLR. TRANSL. MGY.
VF-MGR. PRED MGR. OCC C-VGR.
SBANG-BRND. PRED SBANG. P-MSRT.
ARG-UNCONS. SLTY. CLY MTRX
MAT. 60-70% CHT + LITH GRS.
30-40% CLR-FRSTD QTZ. TR PYR.
50-70% M-BRI GRNGLD SURFACE
SMPL FLOR. CD FAST STRMNG
MLKY WHYEL CT FLOR. CD WHYEL
RESID CT FLOR RINGS. OIL ODOOR.
SLI TR TN-LTBRN STN ONLY IP.

8-14-89 NCB1 RC412 TFA .7
CORE #1 6729-6732 NO REC.
TG 98
RNB 5 DS-40H
2-14 3-13 JETS
SD-DKCY. BLK-BRN. LTGY. CLR.
F-MGR. SBANG-ANG. M-PR
SRTO. TR PYR. PRED CHT &
LITH FRACS. 30-40% QTZ.



SLTY-LT-MGY. ARG. SLI-VSDY.
 MOD YEL/GR FLUOR. GD MLKY
 CUT FLUOR. YEL/GLD RESID CT
 SLTST-LT-MGY. ARG. SLI-VSDY.
 TR THN COAL STRGRS. TR
 PYR. SLI CALC. SFT
 SLTST-LT-MGY. ARG. SLI-VSDY.
 TR THN COAL STRGRS. TR
 PYR. SLI CALC. SFT.

CLY-LTGY. VSLTY. SDY STRGRS.
 SLI CALC. TR TN-BRN FOS
 FRAGS W/ ORG MIN FLUOR.
 TR BITMN. SFT.

MW 10.1+ VIS 89 FIL 3.0
 PV/YF 24/34 PH 8.9
 CL 17000

SLTST-LTGY-LTGYBRN. SDY.
 ARG. SLI CALC. TR TN-BRN
 FOS FRAGS W/ DUL ORG
 MIN FLUOR. TR BITMN. SFT
 SLTST-LTGY-TN. MOTT IP.
 TR TN-BRN FOS MAT W/
 DUL-MOD ORG FLUOR. SDY.
 ARG. SLI CALC. SFT

8-15-88

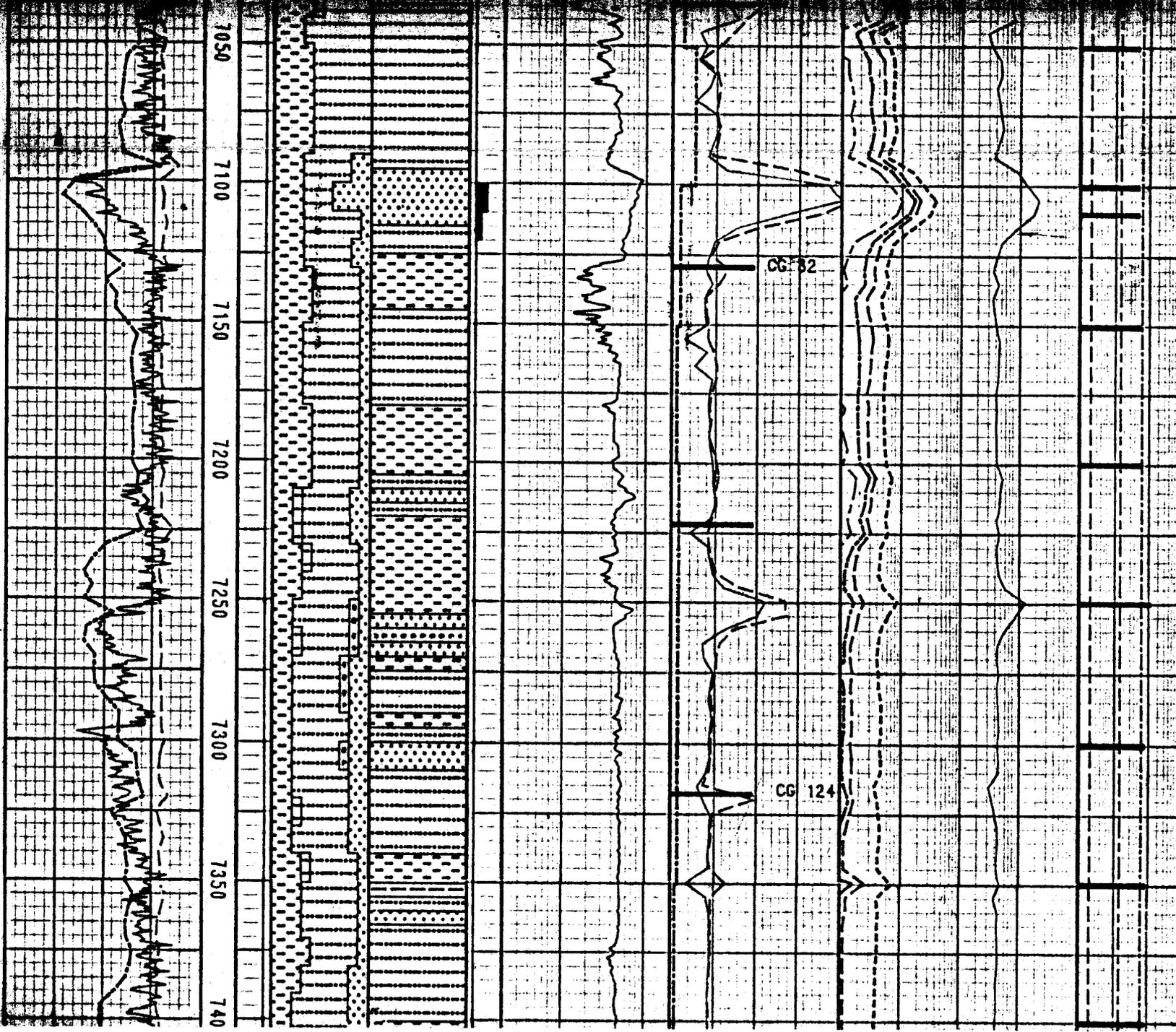
SVY @ 8940' 0.89Deg
 CLY-LT-MGY. GYBRN. SLTY.
 F-M CR FLTG SD CRS.
 OCC TN-BRN FOS FRAGS
 W/ DUL ORG MIN FLUOR.
 SLI CALC. SFT

SD-LT-DKCY. BLK. CLR. F-M
 GR. SB ANG-ANG. M-PR
 SRTD. PRED UNCON. TR W/
 TT CALC CNT. <5% OF SAMP
 SURF W/ YELGN FLUOR.
 FR STRMG YEL CT IP

SH-MGY. SLTY. OCC SDY.
 CALC-VCALC. HD

SLTST-LTGY. LTGYBRN. ARG. SLI-
 MOD CALC. OCC TN-BRN FOS
 FRAGS W/ DUL ORG MIN FLUOR.
 TR CARB SPECS. SFT

SD-M-DKCY. CLR. TRNSL. ML F-COR.
 PRED COR. ANG-ANG. M-PR
 UNCON. TR CALC CNT. <5%
 LITH FRAGS. SFT



SLTST-LTGY. LTGYBRN. ARG. SLT-
MOO CALC. OCC TN-BRN FOS
FRAGS W/ DUL ORG MIN FLOR.
TR CARB SPECS. SFT

SD-M-DKGY. CLR. TRNSL. WH. F-CGR.
PRED CGR. ANG-SBANG. PR SRTD.
UNCONS. TR CALC CMT IP. 80%
LITH FRAGTS. 20%QTZ. 10%DUL
ORG MIN FLOR. 10%BRT YEL/
WH SAMP FLOR. N RESID CT.
N STN. SLTY CLY NTX
CLY-LT-MGY. TN. SLTY-SDY.
MOTT IP. SLT CALC-CALC.
TR FOS. SFT

ABNDT CALC FRAGS
SLTST-LT-MBRN. TN. BLKY. AMORPH
IP. CALC. OCC V-CALC CMTD
STRNGRS. ABNDT F-MCR SD INCL.
GRDNG TO CLYST IP. SFT-HD +
BRIT

SS-BLK. GY. S+P. WH. F-V-CGR. PRED
MCR. ANG-SBRND. PRED SBANG.
PSRT. MCMF. UNCONS IP. CALC.
20% DUL ORNG MIN FLOR. NSOC

SLTST-LT-MBRN. TN. DKBRN + WH
MOTT IP. BLKY-UNCONS. VNCHT IP.
V-CALC. ARG. TR-10% VF-FGR SD
INCL. GRDNG TO SH IP. TR CARB
SPECS. TR MVEL CALC STRNGRS.
TR DUL ORNG MIN FLOR ONLY IP.
HYDRTD-HD + BRIT

CLYST-TN. LTGYBRN. AMORPH IN
SMPL. AREN. M-CALC. SLTY. TR VF-
OCC CGR SD INCL. PROB INBD
W/ SD STRNGRS. PROB GRDNG TO
HYDRTD SH IP. GMY. STKY. VSFT +
HYDRTD

TR PYR MOOS IN CLYST + SLTST



SVY @ 7413° 0.57Deg.

SLTST-TN. LTGYBRN. AMORPH-UNCONS. ARG. PROB. CLY. MTRX. MAT. CALC. OCC. VCALC. STRNGRS. TR-10% VFGR. SD INCL. CRDNG. TO CLYST. VSFT + VHYDRTD.

RESUME 30' SAMPLE INTERVAL

SLTST-LT-MBRN. TN. AMORPH-PLTY. IP. ARG. MCALC. BCMNG. FRMR. TR. VFGR. SD INCL. PRED. SBRND. QTZ. SLI. TR. PYR. BOOS. VSFT + HYDRTD. FRM + BRIT.

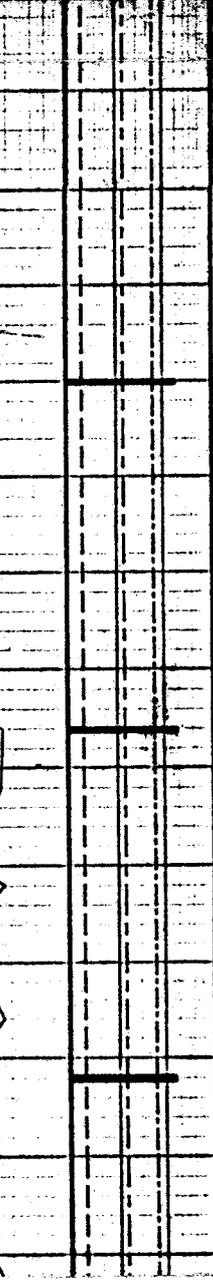
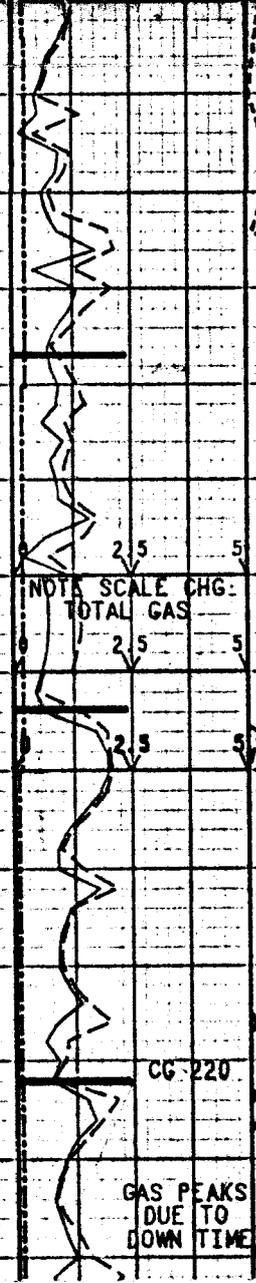
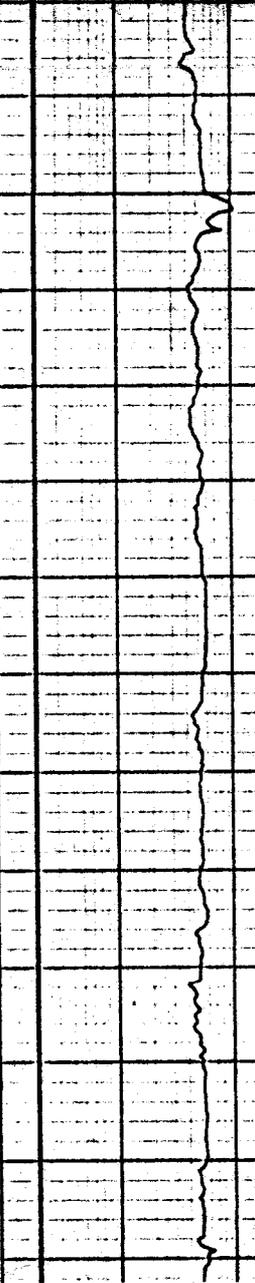
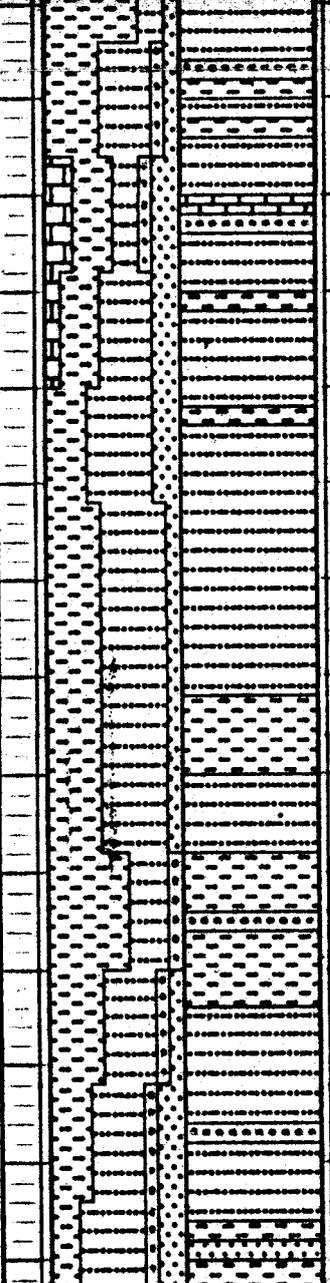
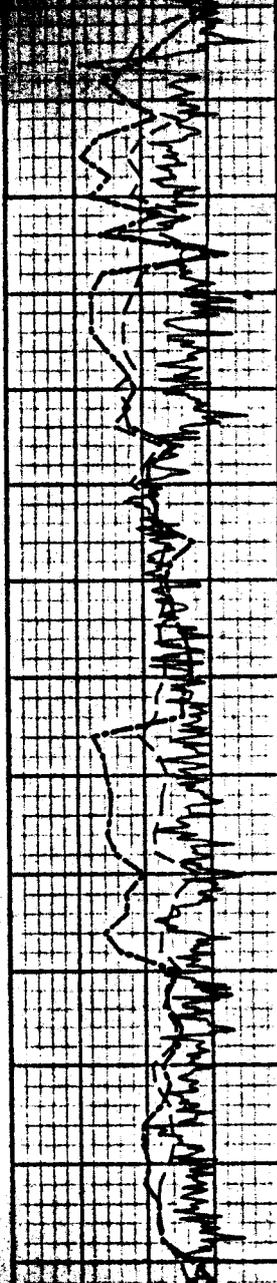
CLYST-TN. LTGYBRN. AMORPH. IN. SWPL. SLI-MCALC. AREN. 10% VFGR. QTZ. SD INCL. CRDNG. TO SLTST. IP. CMNY. STKY. VSFT + VHYDRTD.

SD-CLR. WH. LTGY. OCC. BLK. VF-MGR. PRED. VFGR. SBANG-VNRND. PRED. SBRND. PSRT. UNCONS. INCL. IN. CLYST + SLTST. PRED. QTZ. TR. LITH + CARB. FRAGS. NSOFC.

0-10-03
STG 625

HOW 10.0 VIS 50
PV/VP 25/30 PH 8.0
FIL 2.0 CL 17300
SS-LTGY. VF. FOR. BRNG. TR. SBRND. MSRTD. CRDNG. TO SLTST. IP. CALC. CNT. TT. DUL. ORG. MIN. FLUOR. MCI. NSTN.

7600
7750
7800
7850
7900
7950
8000



SS-LTGY. VF-FGR. BRANC-
SBRND. MSRTD. CRG TO
SLTST IP. CALC CMT. TT.
DUL ORG MIN FLUOR. NCT.
NSTN

LS-MGY. TN. BRN. WH. MICR-FXLN.
VFOS IP. CHLKY IP. PRED
VDNS OCC SDY SFT-HD.
DUL-BRT ORG/PNK MIN
FLUOR. N STN. N ODR.
SVY @ 7700' .0420deg

SLTST-LT-MGY. PRED ARG. SDY
IP. SLI CALC-CALC. TR CARB
SPTS. ABNT FOS SHL FRAGS.
SFT. PRED UNCON

SLTST-LTGY. TN. CALC. VSDY
IP. OCC FOS FRAC. TR CARB
SPEC. ARG. SFT

ABNDT CLAY BALLS OVER SHKRS

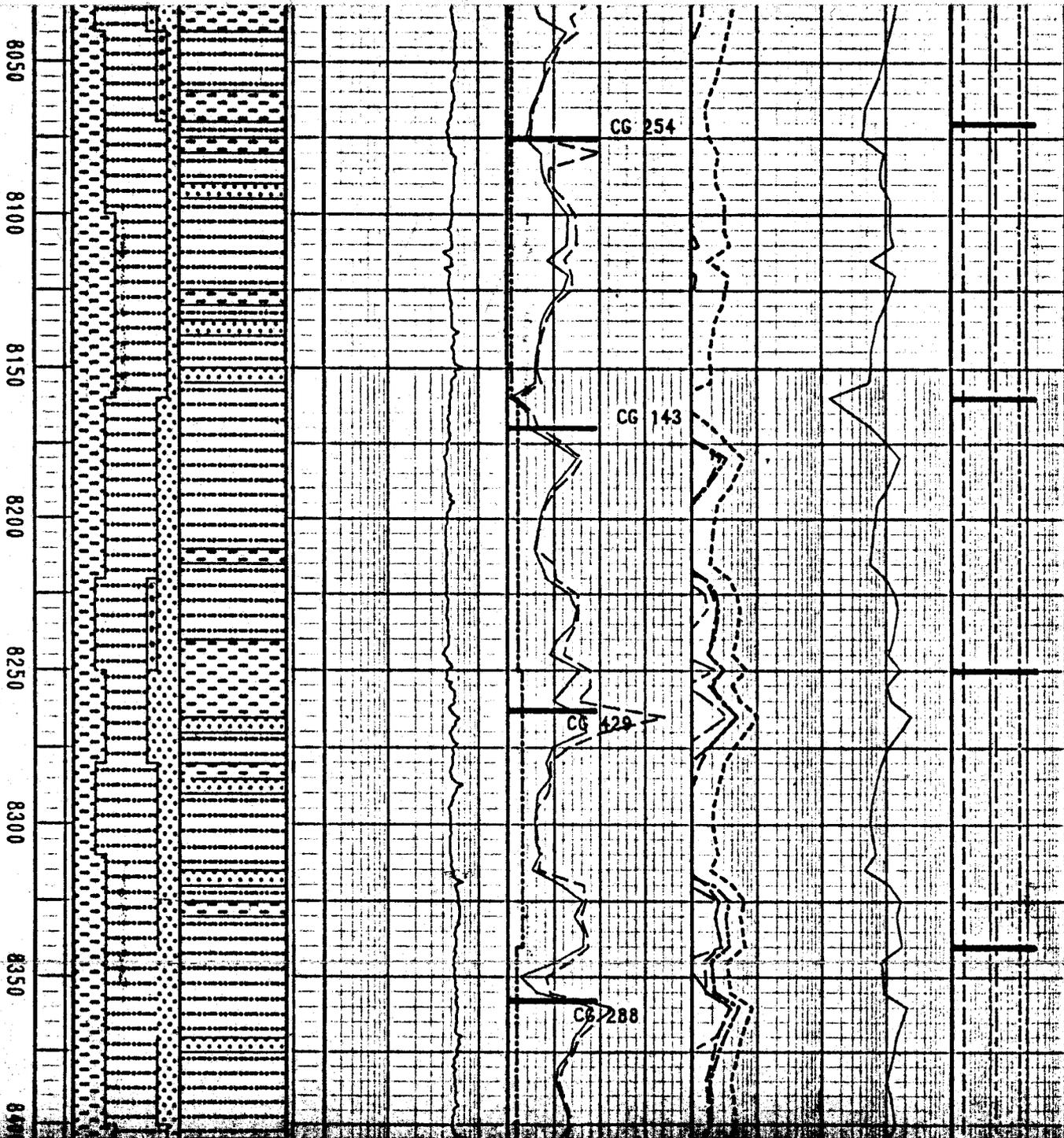
CLYST-M-OKGYBRN. WBRN. WH + TN
MOTT IP. AMORPH. BALLE. AREN.
VSLTY IP. INTBD W/ VFGR SD +
INCL. CALC. TR VCALC STRNGRS.
GMY. STKY. SFT

SD/SS-GY. WH. CLR. BLK. VF-FGR.
OCC MGR. SBRND. PSRT. UNCONS.
ABNDT CLY WTRX. SNE WH ALTRD
CLY OR CALC CMT. CRG TO

NOTE SCALE CHG:
TOTAL GAS
2.5 5
2.5 5

CG 220

GAS PEAKS
DUE TO
DOWN TIME



SLTST IP. VS LT TR UNCON-VEN
 SMPL FLOR. CD FAST STRNG WH CT
 FLOR IP. CD WH RESID CT FLOR
 NO STN. NO ODR

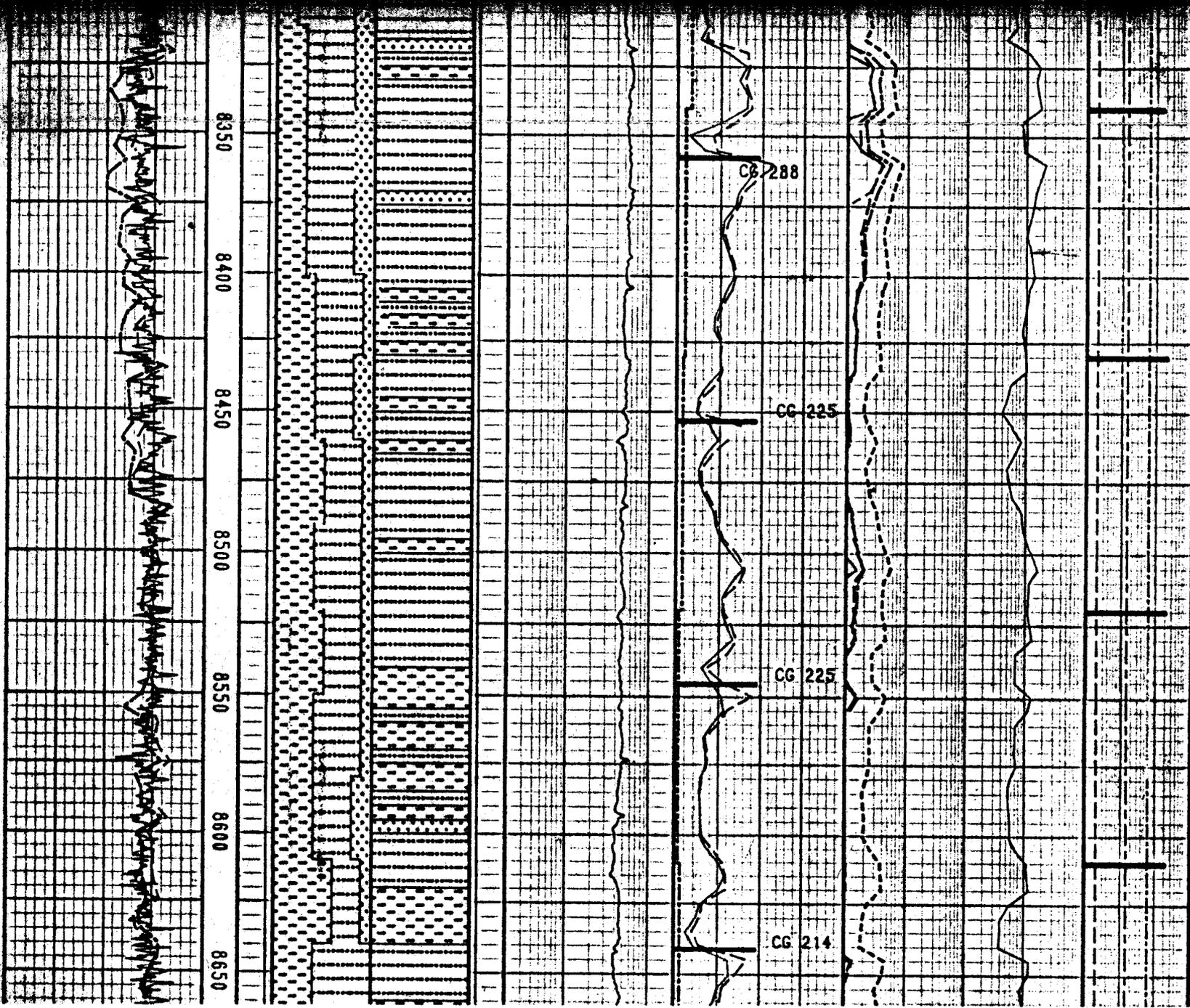
SLTST-TN. LT-MBRN. UNCONS-BLKY
 ONLY IP. VARG. GRNG TO CLYST.
 TR VFGR SD IP. SLI-MCALC. TR
 CARB SPECS. SFT-FRM

TR DISSEM PYR IN SLTST
 SYY @ 8100' 0.460g.

SD-CLR. LTGY. WH. TRANSL. TR LTGRN.
 VF-FGR. OCC M-CGR QTZ. SBANG-
 RND. PRED SBRND. PSRT. UNCONS
 IN SMPL. PROB INCL + STRNGRS
 IN SLT + CLY. SLI CALC. CARB
 PRNGS. TR PYR. MBRI-DUL YEL WH
 FLOR IN 5% OF SMPL. CD FAST
 STRNG WH CT FLOR. FR WH
 RESID CT FLOR. NO STN. NO ODR

SD/SLTST-A/A. TR CALC FRAC FILL
 DUL WHYEL FLOR IN 5% OF SMPL.
 VPR VSLO FMT WH CT FLOR.
 NO RESID CT FLOR. NO VIS STN.
 VFNT ODR

SLTST-M-LTGYBRN. WH IP. AMORPH
 IN SMPL. VARG. GRNG TO VFGR
 SD IP. TR MCR SD. SLI CALC.
 TR CARB SPECS. SFT-FRM
 GRNTEL SMPL FLOR. CD WH PLSM
 CT FLOR. CD STRNG WHYEL CT
 FLOR. FR-PR RESID CT FLOR.
 TR LTBRN OIL IN SMPL. FNT
 ODR



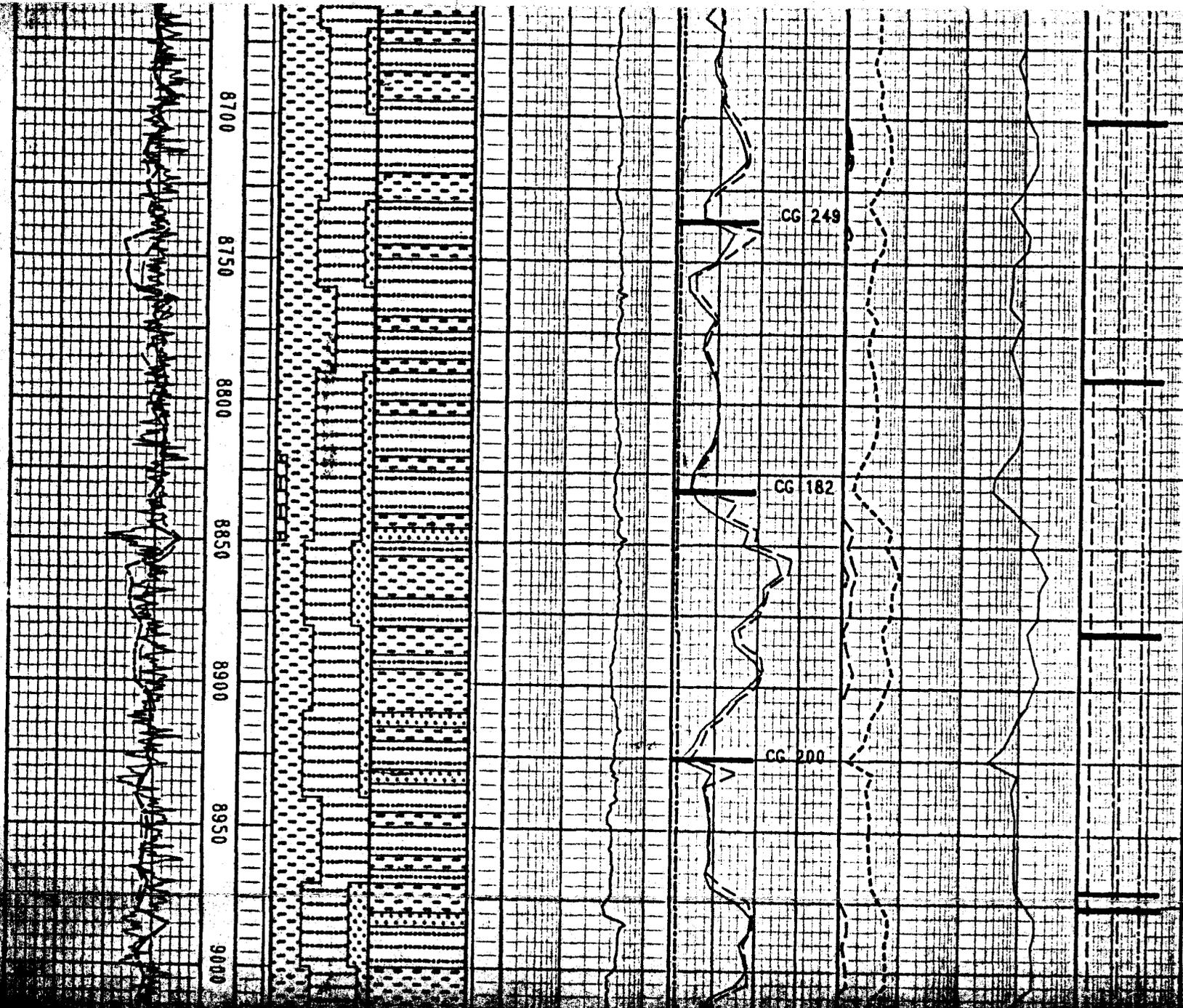
SLTST-M-LTGYBRN. NH IP. AMORPH
 IN SMPL. VARG. CRDNG TO VFGR
 SD IP. TR MGR SD. SLI CALC.
 TR CARB SPECS. 10% DUL. NH
 GRUYEL SMPL FLOR. CD NH FLSH
 CT FLOR. CD STRNGG NHYEL CT
 FLOR. FR-PR RESID CT FLOR.
 TR LTBRN OIL IN SMPL. FNT
 ODOOR

SVY @ 8453' 0.630deg.
 SLTST-TN. LTGYBRN. AMORPH IN
 SMPL. VARG. ABNDT CLY MTRX
 MAT. CRDNG TO CLYST. SLI
 CALC. 10% VFGR QTZ SD INCL.
 5% DUL LTGRN SMPL FLOR. PR-PR
 NHYEL CT FLOR. PR RESID CT
 FLOR. NO VIS STN. NO ODOOR

MW 10.2 IN
 CLYST-TN. AMORPH IN SMPL. SLTY.
 AREN. SLI-MCALC. GMY. STKY.
 VSFT + VHYDRD

SLTST-TN. LTGYBRN. NH + CY MOTT
 IP. AMORPH-BLKY ONLY IP. VARG.
 SLI-MCALC. CRDNG TO VFGR SD
 IP. TR CALC CNTD STRNGRS. TR
 CALC XLS. SFT + HYDRD-MCNT +
 MFRM

CALC FRAC FILL. BAN. YEL. XLM



TR PYR WOODS TR LRG XLS

SLTST-TN. LT-MBRN. TN + WH MOTT
 IP. VARG. SLI-NCALC. OCC CALC
 STRNGRS. CRONG TO CLYST. TR
 VFGR QTZ SD GRS. TR PYR. NSOFC

SVY @ 8735' 0.790ega.

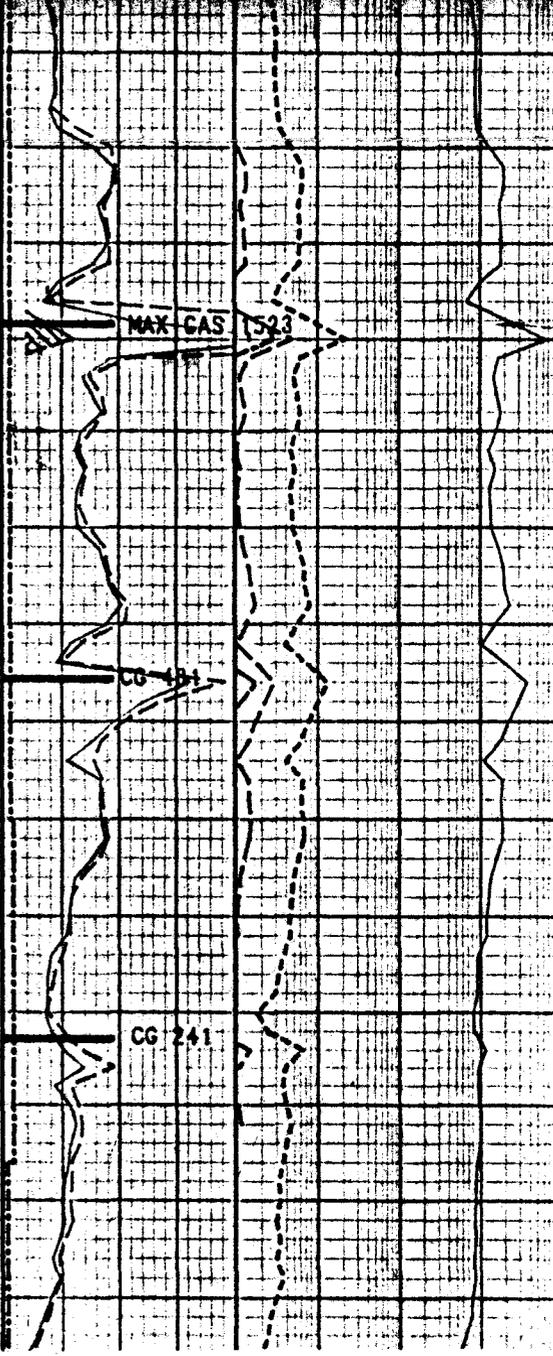
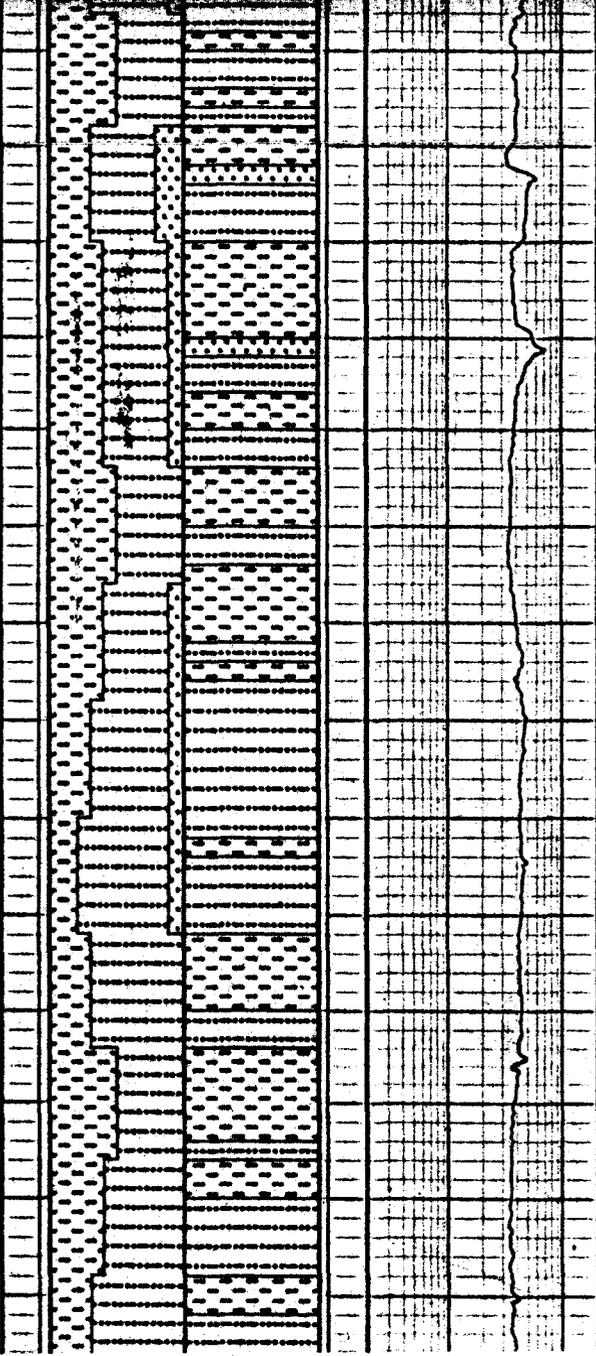
CLYST-TN. VLTGYBRN. AMORPH IN
 SMP. AREN IP. VSLTY. PROB
 LYRD W/ SLTST. TR VFGR SD
 INCL. STKY. GMY. VSFT + HYDRD

SD-CLR. LT-DKCY. BLK. VF-FGR.
 PRED VFGR. SBANG. MSRTD.
 FLTG IN SLTY CLY MTX.
 CALC IP. ABNT FOSS FRAGS.
 DUL ORG MIN FLUOR IP.
 MSTN. NCT

SLTST-LTGY. LTGYBRN. MOTT. SLI
 CALC. OCC FOS FRAGS. ARG.
 SDY IP. TR CARB SPECS. OCC
 WH CHLKY STRGRS. TR PYR.
 SFT

SS-LT-MCY. WH. VFGR. SBANG.
 CHLKY CALC CNT IP. VSLTY.
 ARG. N VIS POR. TR DUL ORG
 MIN FLUOR. MSTN. NCT

8950
9000
9050
9100
9150
9200
9250



MAX GAS 1523

CG 241

CG 241

WH CHLKY STRGRS. TR PYR. SFT

SS-LT-MGY. WH. VFGR. SBANG. CHLKY CALC. CMT. IP. VSLTY. ARG. N. VIS. POR. TR. DUL. ORG. MIN. FLUOR. NSTN. NCT

CLY-LTGY. TN. LTGYBRN. SLTY. SLI. CALC. OCC. WH. CHLKY. STRGRS. OCC. SDY. STRGRS. TR. FOS. SFT. GMY

SLTST-LTGY. TN. TR. WH. SLI-VARG. SLI. CALC. W/ OCC. WH. CHLKY. STRGRS. INTRBD. W/ CLY & SD. STRGRS. TR. FOS. FRAGS. SFT.

SLTST-LTGY. TN. OCC. MGY. WH. MOTT. IP. N-SLI. CALC. TR. FOS. FRAGS. VFGR. SDY. STRGRS. SLI-VARG. TR. PYR. N. FLUOR. N. STN. SFT

CLY-LTGY. TN. SDY. GRDG. TO. SLTST. SLI. CALC. SFT

SVY @ 9207' 0.87Dega.

SLTST-LT-MGY. OCC. WH. & CHLKY. MOTT. ARG. OCC. CARB. SPECS. SDY. STRGRS. TR. FOS. FRAGS. NSOFC

CLY-LT-MGY. CYBRN. OCC. WH. SLTY-SDY. VSLI. CALC. TR. CALC. FRAC. FIL. SFT. GMY

9300
9350
9400
9450
9500
9550
9600

CG 222

CG 185

CG 101

CG 111

SS-CLR. MH. LTGY. BLK. TN. VF-
FGR. FRED VFGR. SBANG. M-PR
SRTD. SLI-VSLTY. CRDG TO
SLTST. N-SLI CALC. FRI.
NSOFC

CLY-LT-MGY. CYBRN. OCC MH MOTT.
SLTY-SDY. VSLI CALC. CRDNG TO
SLTST. SLI CALC FRAC FIL. SFT.

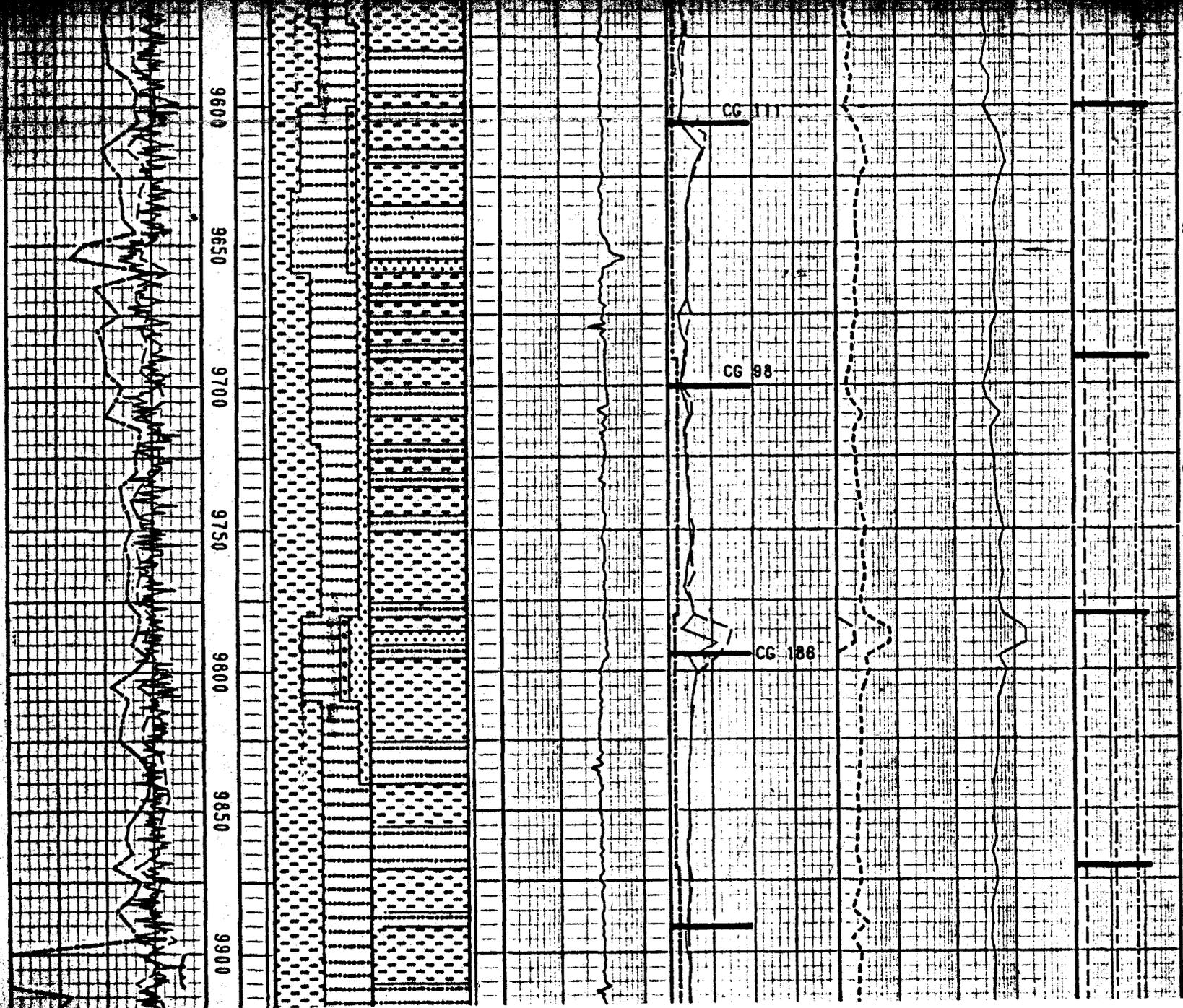
SLTST-LT-MGY. OCC MH + CHKY
MOTT. VARG. OCC CARB
SPECS. OCC SD STRNGRS. TR
FOSS FRACS. NSOFC

MW 10.4+ VIS 70 FIL 2.9
PV/YP 30/40 PH 8.8 CL 17000
8-17-83

SVY @ 9488' 1.250egs.

8-18-83
NB @ 12.25° DS40H
5-15 JETS
TG 1541

SLTST-M-OKBRN. MH MOTT IP. BLKY
IP. PLTY IP. ARG. CRDNG TO
CLYST IP. SLI CALC. TR PYR.
TR VFGR QTZ SD INCL. SFT-
MFRM + BRIT

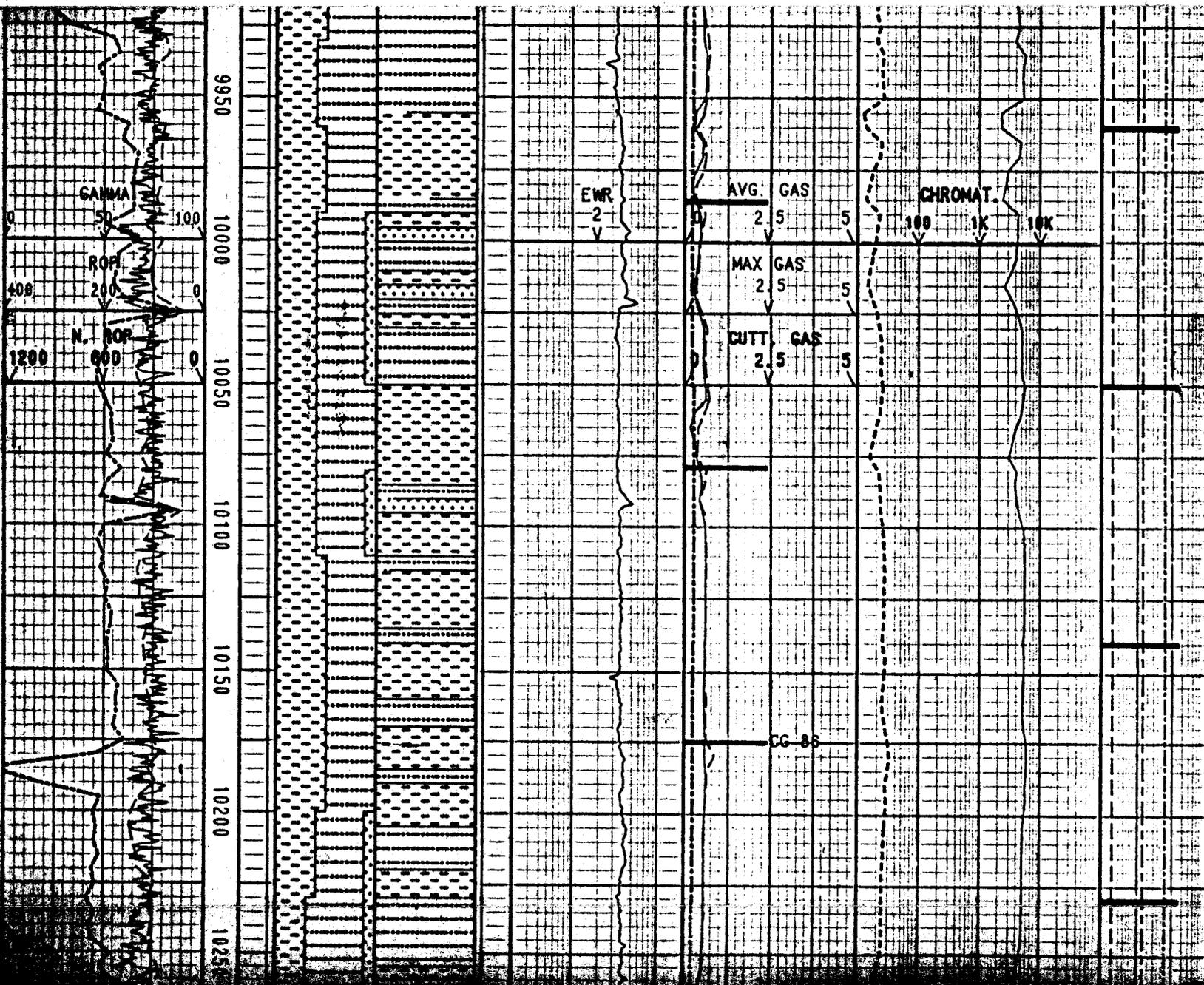


SS-CLR. WI. CY. BLK. TR GRN. VGR.
SBANG-RND. PRED SBAND. WSRT.
V.CALC. CLY MTRX MAT IP. CHKY
OR ALTRD CLY MTRX IP. TT.
80-90% QTZ. 10-20% BIOT OR
HRNDLND. NO VIS POR. NSOFC

CLYST-TN. LTGYBRN. AMORPH-
SLI BLKY IP. SLI CALC. INTBD
W/ PLTY SLTST. TR VGR SB INCL.
TR PYR. GMMY. SFT

SS-WH. CLR. CY. BLK. S+P. VGR.
SBAND-RND. PRED SBAND. W-WSRT.
MCMT-FRI. CALC. V.CALC IP.
GRDNG TO SLTST IP. TR CLY
MTRX. 80-90% QTZ. 10-20%
LITH FRACS. POSS HRNDLND. NSOFC

CLY-LTGY. SLTY. GRDC TO
SLTST. OCC SDY STRGRS.
TR PYR. N-VSLI CALC. SFT



SLTST-LT-MGY. VARG. GRDG TO
 CLY. OCC SD STRGRS. TR PYR.
 NCALC. SFT

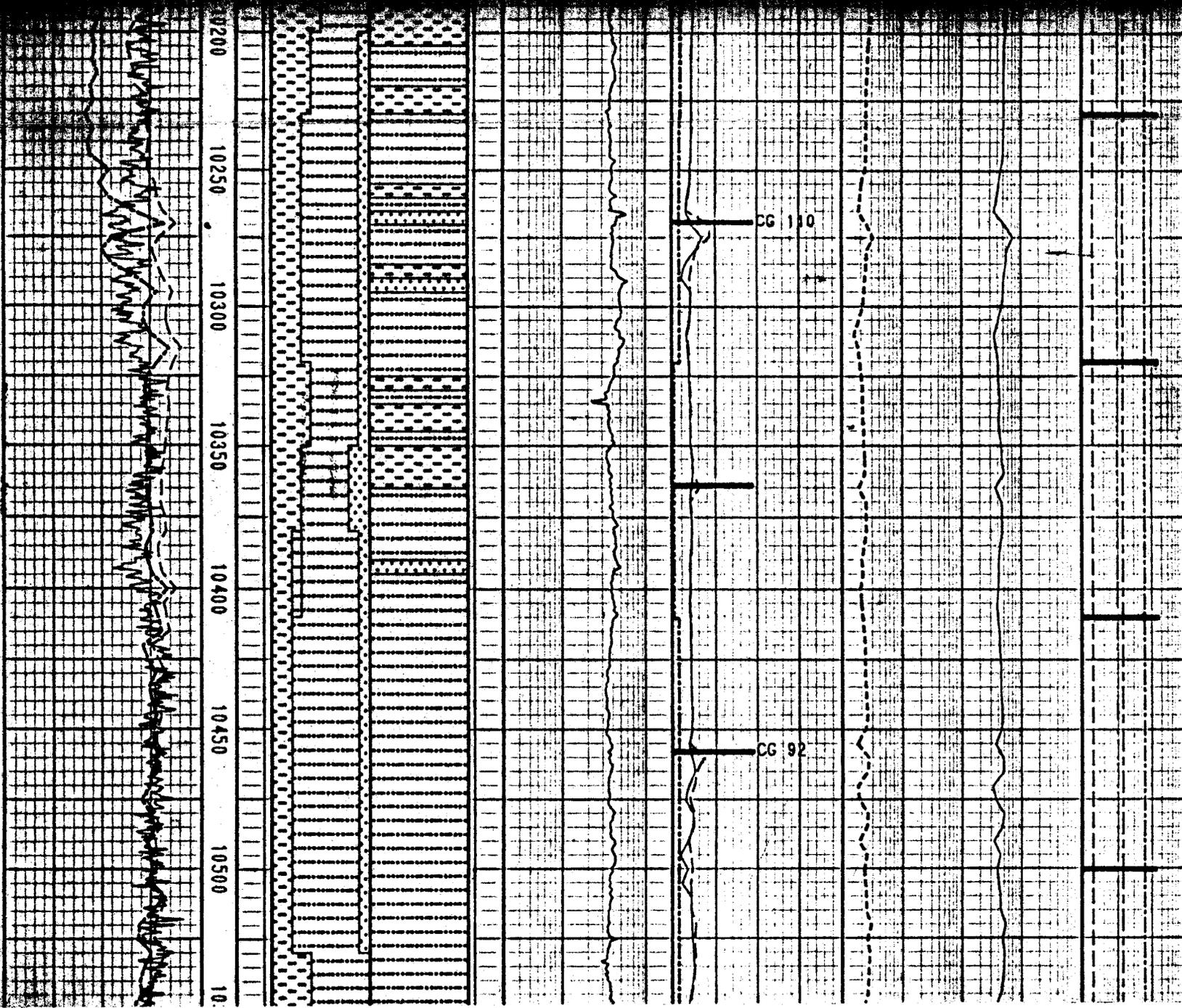
SVY @ 9884' 1.43Deps.

SD&SS-LTGY. CLR. WH. DKGY-
 BLK. TN. VFGR. OCC FGR. SB
 ANG-SBRND. M-WSRTO. PRED
 W/ SLI CALC WH CLY MTX.
 FRI-UNCON. NSOFC

CLY-LTGY. LTGYBRN. SLTY.
 OCC MOTT W/ CHLKY WH.
 SDY IP. N-VSLI CALC.
 SFT. GMY.

SLTST-LTGY-LTGYBRN. TN. WH.
 MOTT IP. ARG. VF FLTG SD
 GR. NCALC. SFT. UNCONS.

SLTST-MGY-GYBRN. SLI-VARG.
 NCALC. OCC CARB SPEC. BCMG
 CONSOL IP. SLI-VSDY. SFT.



SLTST-MGY-GYBRN. SLI-VARG.
 NCALC. OCC CARB SPEC. BCNG
 CONSOL IP. SLI-VSDY. SFT.

SVY @ 10280' @ 0.87Deps.

SD&SS-WH. LT-MGY. VFGR OCC
 FGR. SBANG-SBRND. M-WSRTD.
 ABNT WH CLY MTX. OCC CALC
 XLS. TR CARB SPECS. FRI-
 UNCONS. NSOFC

SLTST-LTGY-GYBRN. LTBRN. WH
 STRGRS. SLI-VARG. SDY IP W/
 SDY STRGRS. TR CARB PRIGS
 & SPECS. N-VSLI CALC. TR
 CALC XLS. SFT. BCNG INCRLY
 CONSOL

8-18-82

SLTST-LT-MGY. GYBRN. SDY
 W/ OCC THN SS STRGRS.
 SLI CALC IP. TR CARB
 SPECS. INCR CONSOL. TR
 CALC XLS. SFT-SLI FRM.

SLTST-LT-MGYBRN. LT-MGY.
 SLI CALC IP. ARG. SDY W/
 OCC THN SS STRGRS. OCC
 CARB SPECS. TR CARB
 PRIGS. CONSOL IP. SFT-
 FRM

550
10600
10650
10700
10750
10800
10850

CG 30

CG 88

STG 883

CLYST-TN. VLTRN. AMORPH-SLI
BLKY IP. SLI CALC. AREN IP.
GRDNG TO SH IP. INTBD W/
PLTY SLTST. VSFT + HYDRTD

SLTST-MBRN. RDCYBRN. BLKY. ARG.
UNCONS IP. NCALC. CLY MTRX.
MIC MICA. TR VFGR SD. TR CARB
SPECS. SFT-FRM

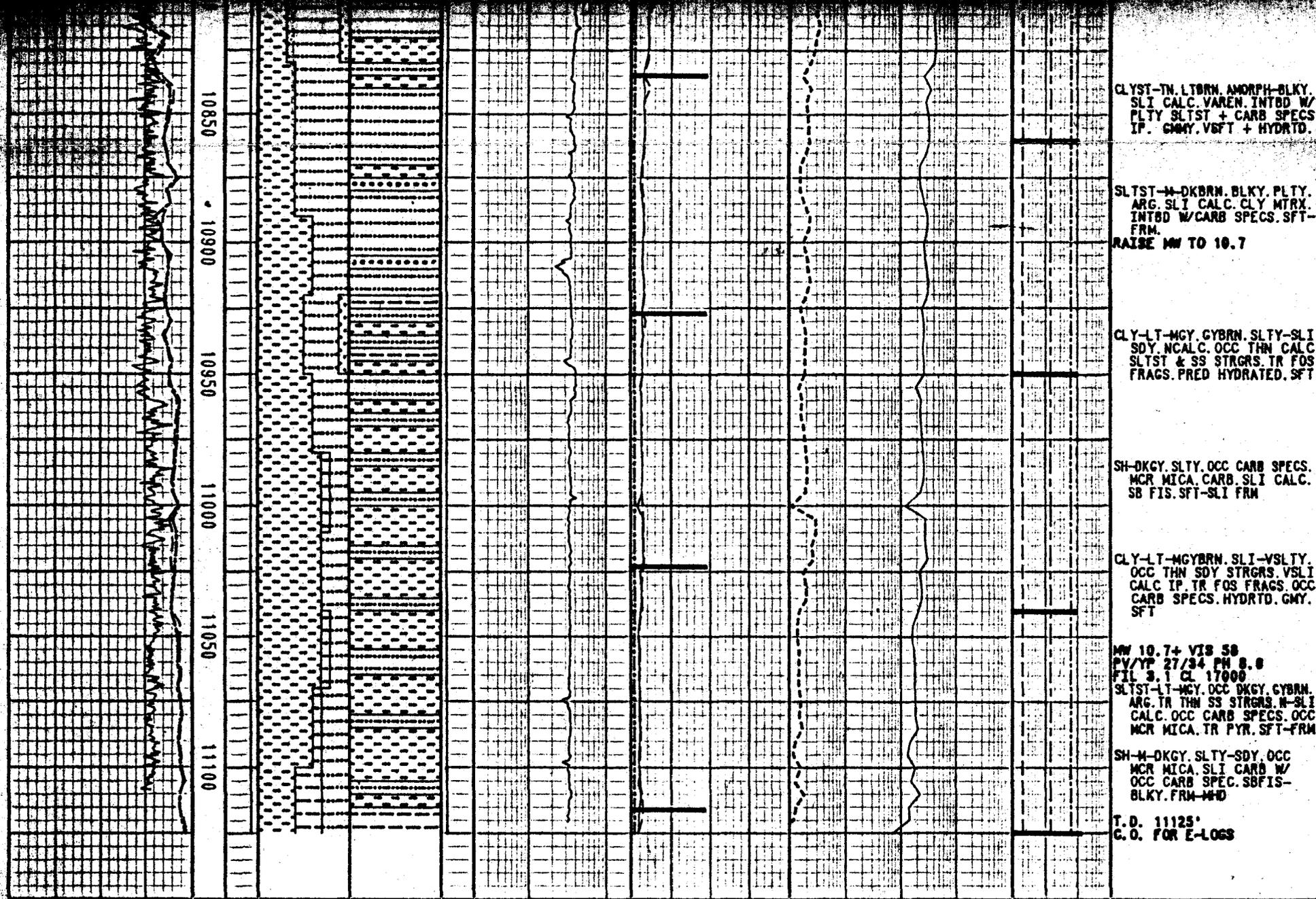
RAISE MW TO 10.8

ABNDT WH CHKY CALC STRGRS

SLTST-TN. LT-MGY. OCC WH
CHKY STRGRS. OCC THN SS
STRGRS. TR MICA. TR CARB
SPECS. ARG IP. SFT-SLI FRM

CLYST-TN. LTRN. AMORPH-BLKY.
SLI CALC. VAREN. INTBD W/
PLTY SLTST + CARB SPECS
IP. GMY. VSFT + HYDRTD.

SLTST-M-DRBRN. BLKY. PLTY.
ARG. BLK. CALC. CLY MTRX.



CLYST-TN. LTBRN. AMORPH-BLKY.
SLI CALC. VAREN. INTBD W/
PLTY SLTST + CARB SPECS
IP. GMY. VSFT + HYDRD.

SLTST-M-DKBRN. BLKY. PLTY.
ARG. SLI CALC. CLY MTRX.
INTBD W/CARB SPECS. SFT-
FRM.
RAISE MW TO 10.7

CLY-LT-MGY. CYBRN. SLTY-SLI
SDY. NCALC. OCC THN CALC
SLTST & SS STRGRS. TR FOS
FRAGS. PRED HYDRATED. SFT

SH-DKGY. SLTY. OCC CARB SPECS.
MCR MICA. CARB. SLI CALC.
SB FIS. SFT-SLI FRM

CLY-LT-MGYBRN. SLI-VSLTY.
OCC THN SDY STRGRS. VS LI
CALC IP. TR FOS FRAGS. OCC
CARB SPECS. HYDRD. GMY.
SFT

MW 10.7+ VIS 58
PV/YP 27/34 PH 8.8
FIL 3.1 CL 17000
SLTST-LT-MGY. OCC DKGY. CYBRN.
ARG. TR THN SS STRGRS. M-SLI
CALC. OCC CARB SPECS. OCC
MCR MICA. TR PYR. SFT-FRM

SH-M-DKGY. SLTY-SDY. OCC
MCR MICA. SLI CARB W/
OCC CARB SPEC. SBFIS-
BLKY. FRM-MWD

T. D. 11125'
C. O. FOR E-LOGS

GAMMA RAY

F. I. D. ANALYSIS
TOTAL GAS IN AIR

F. I. D. CHROMATOGRAPH

IN
HYD

Equivalent API Units		DEPTH-feet	VISUAL POROSITY	VISUAL LITHOLOGY	INTERPRETED LITHOLOGY	OIL SHOW RATING	ELECTROMAGNETIC WAVE RESISTIVITY	ANALYSIS		ROCARBON INDICATOR	LITHOLOGICAL DESCRIPTIONS and REMARKS	
DRILLING RATE	NMLZD ROP							CONNECTION = BAR	AVERAGE GAS			C1
feet/hour	feet/hour						ohms - m2/m	MAXIMUM GAS (%)				
								TOT PPM CUTTINGS CUTTINGS GAS (%)				
									HYDROCARBONS	STEAM STILL		
									P.P.M. IN AIR	OIL GAS NP		

SPERRY SUN DRILLING SERVICES

LOGGING SYSTEMS A Boreid Company

WELL OCS-Y-8865 NO. 1

COMPANY ARCO ALASKA, INC.

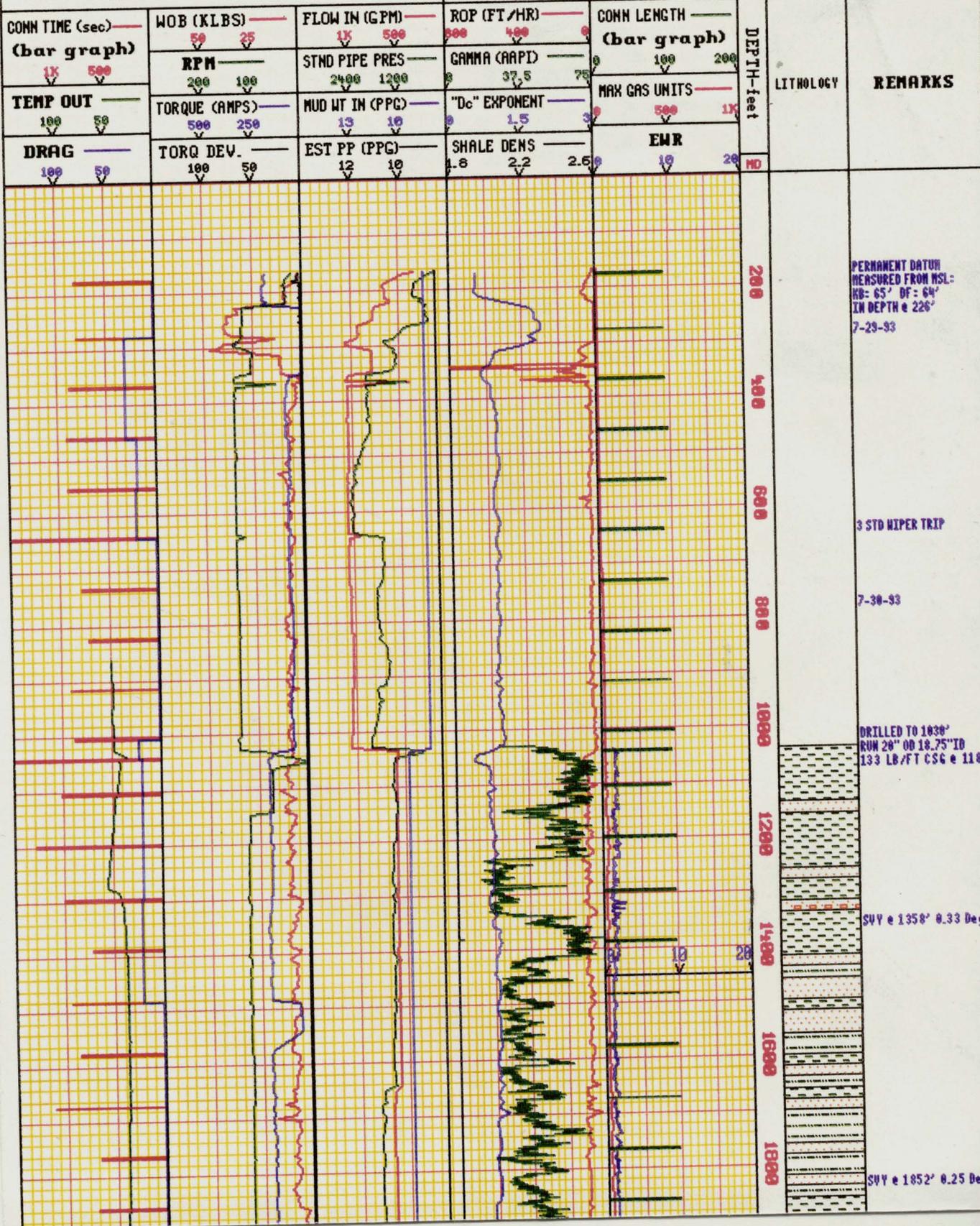
LOCATION BLOCK 672, BEAUFORT SEA, ALASKA

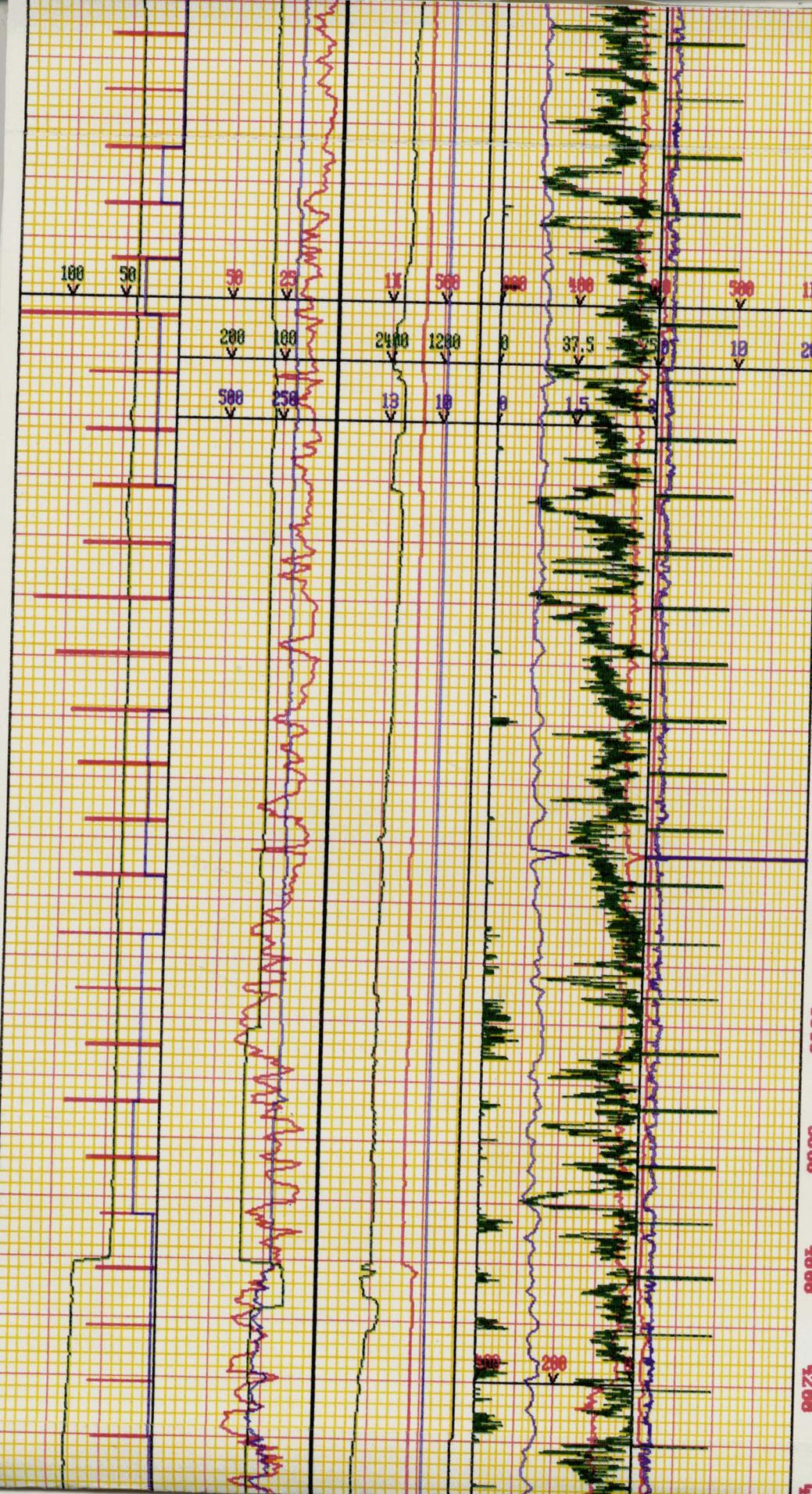
LEGEND

MB New Bit	MCB New Core Bit	OKF Check for Flow
MR No Returns	CO Circulate Out	LAT Log after Trip
TG Trip Gas	CG Connection Gas	DST Drill Stem Test
DC Depth Corr	STG Short Trip Gas	SVV Direc Survey
Clay	Shale	Siltstone
		Sandstone
		Gravel

LOGGING SYSTEMS
ADT SERVICE

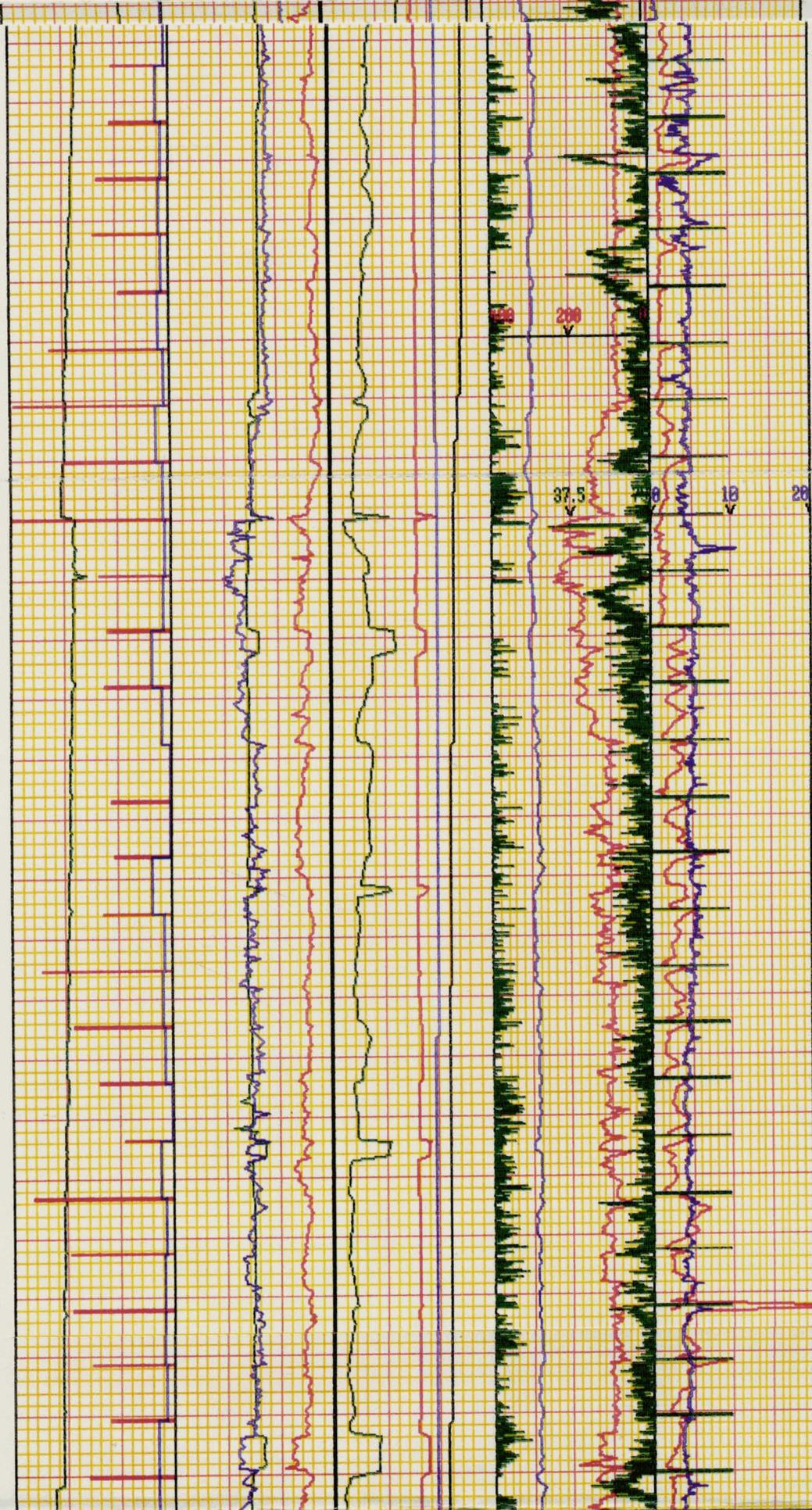
ENGINEERING LOG





2000 8-3-93
 2200 SVY e 2210' 0.24 Deg.
 2400 ST e 2435'
 SVY e 2495' 0.23 Deg.
 2600
 2800
 3000 SVY e 2963' 0.37 Deg.
 3200
 3400 8-4-93
 SVY e 3334' 0.40 Deg.
 3600
 3800 SVY e 3614' 0.39 Deg.
 4000 SVY e 3977' 0.25 Deg.
 8-5-10-93
 SET 13 3/8" CSCe 3977'
 LOT = 14.9 ppg ENH
 4200 MH 9.8 VIS 51
 PU/YP 15/17
 FL 3.0 PH 9.2 CL 16K
 4400 SVY e 4277' .37 Deg.

PV/YP 24/34
FIL 3.0 PN 8.9 CL 17K
SVY e 6940' 0.830deg.



7000
7200
7400
7600
7800
8000
8200
8400
8600
8800
9000
9200

SVY e 7413' 0.570deg.

8-16-93

SVY e 7798' 0.642Deg

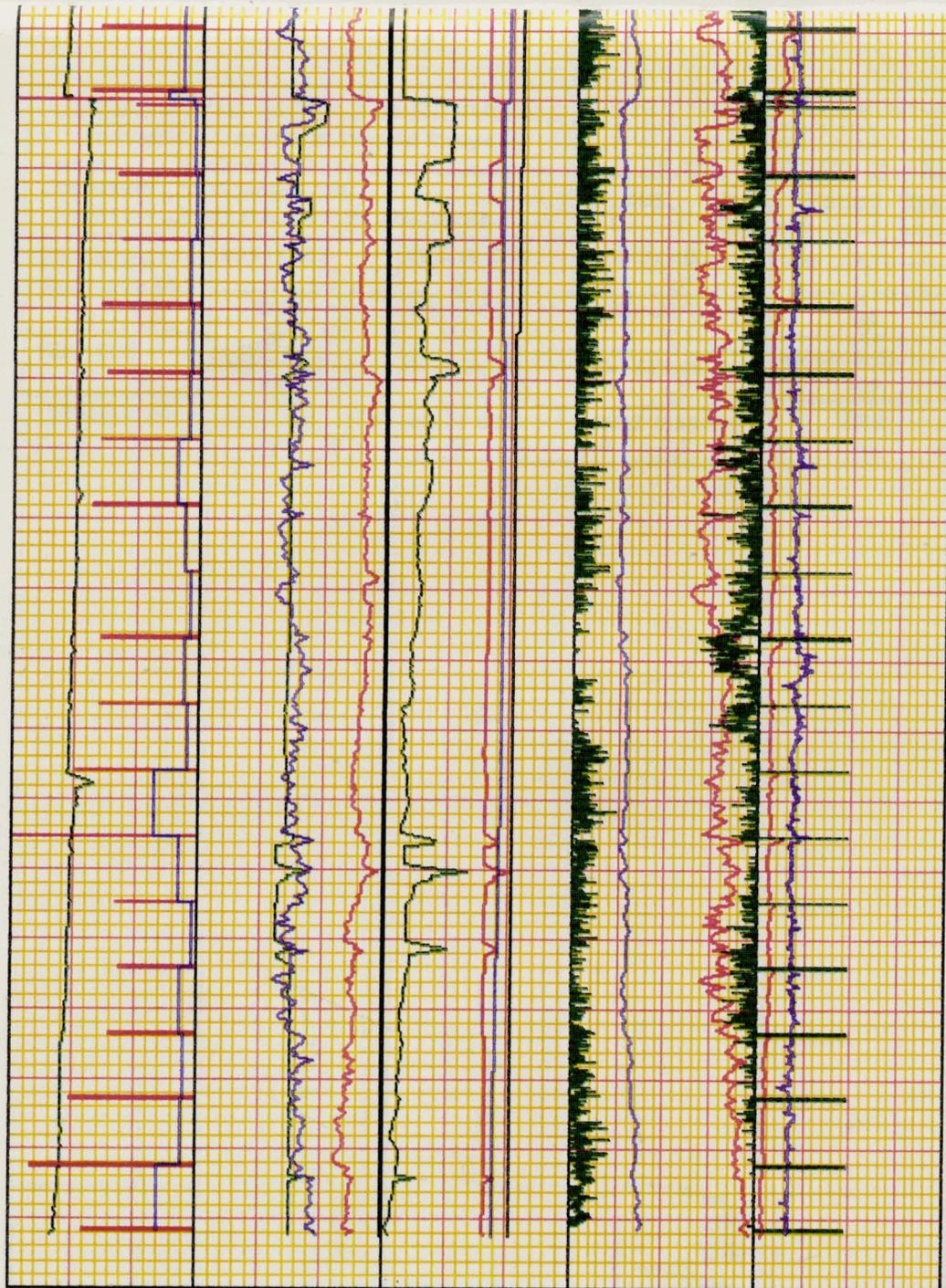
SVY e 8163' 0.460deg.

SVY e 8453' 0.630deg.

MW 10.2 IN

SVY e 8735' 0.700deg.

SVY e 9207' 0.670deg.



94.00
96.00
98.00
100.00
102.00
104.00
106.00
108.00
110.00
112



NH 10.4+VIS 70
PU/YP 30/40 PH 8.8
FIL 2.9 CL 17K

SVY e 9984' 1.430 degs.

SVY e 10269' 0.970 degs.

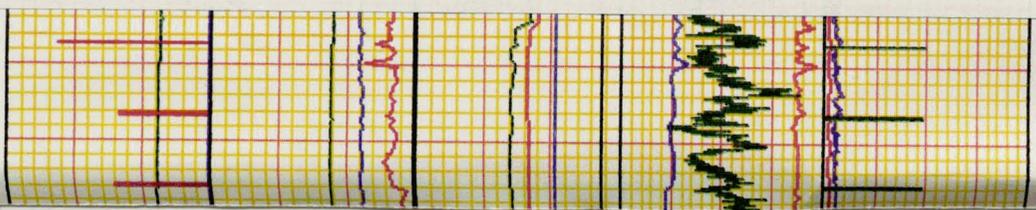
8-19-93

STG 683

RAISE NH TO 10.6

RAISE NH TO 10.7

NH 10.7+VIS 58
PU/YP 27/34 PH 8.6
FIL 3.1 CL 17K



108.00



SVY e 1852' 0.25 Deg.

**SPERRY-SUN DRILLING SERVICES
APPLIED DRILLING TECHNOLOGY**

WELL OCS-V-0865-1 KUVLUM NO. 2
 COMPANY ARCO ALASKA, INC.
 LOCATION BLK 672 BEAUFORT SEA, ALASKA

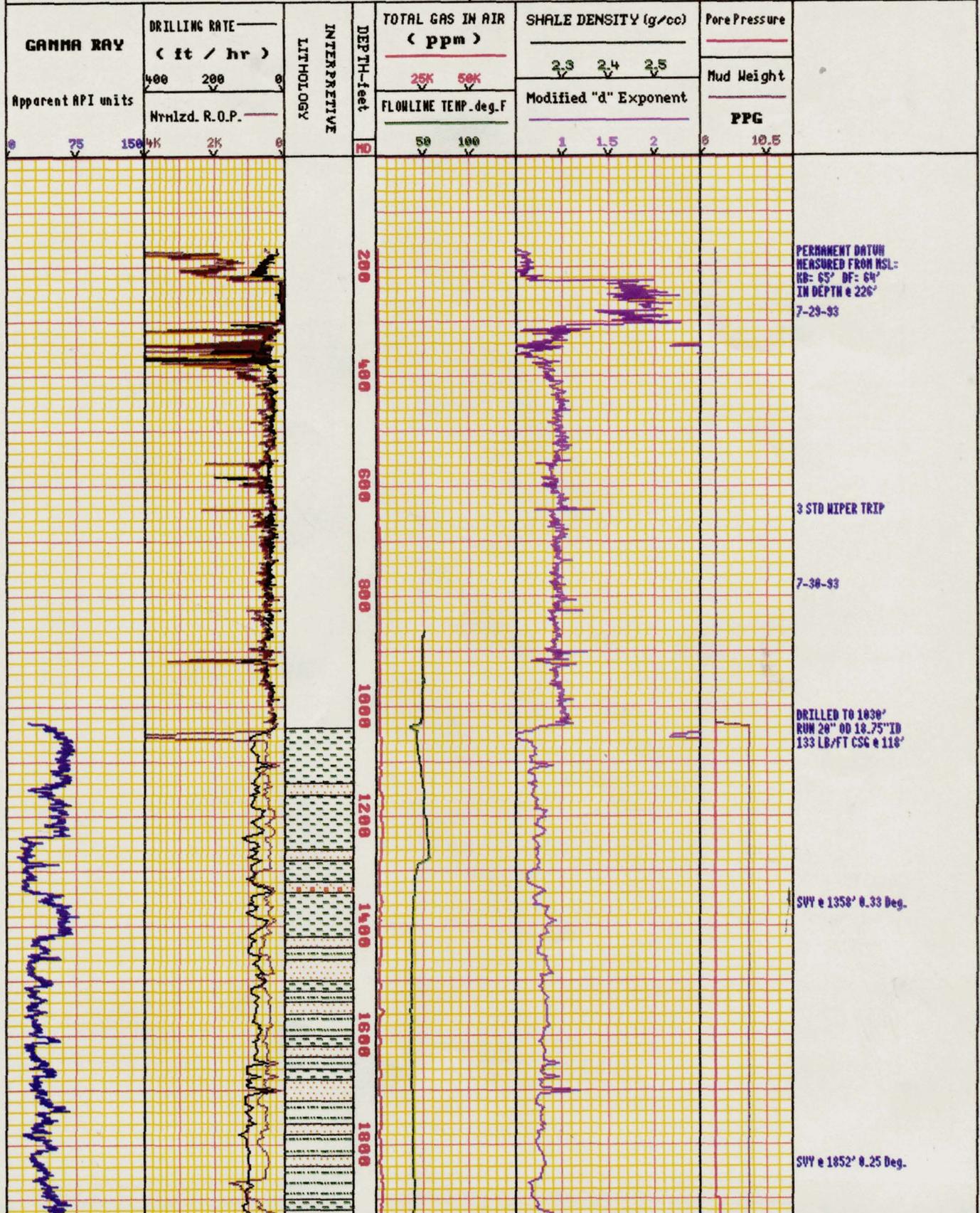
===== LEGEND =====

NB New Bit	NCB New Core Bit	CKF Check for Flow
NR No Returns	OO Oil Cutout Out	LAT Log after Trip
TC Trip Gas	TCL Trip Chlorides	SVY Direc Survey

Clay	Shale	Siltstone	Sandstone	Gravel

**LOGGING
SYSTEMS**

**ADT
LOG**

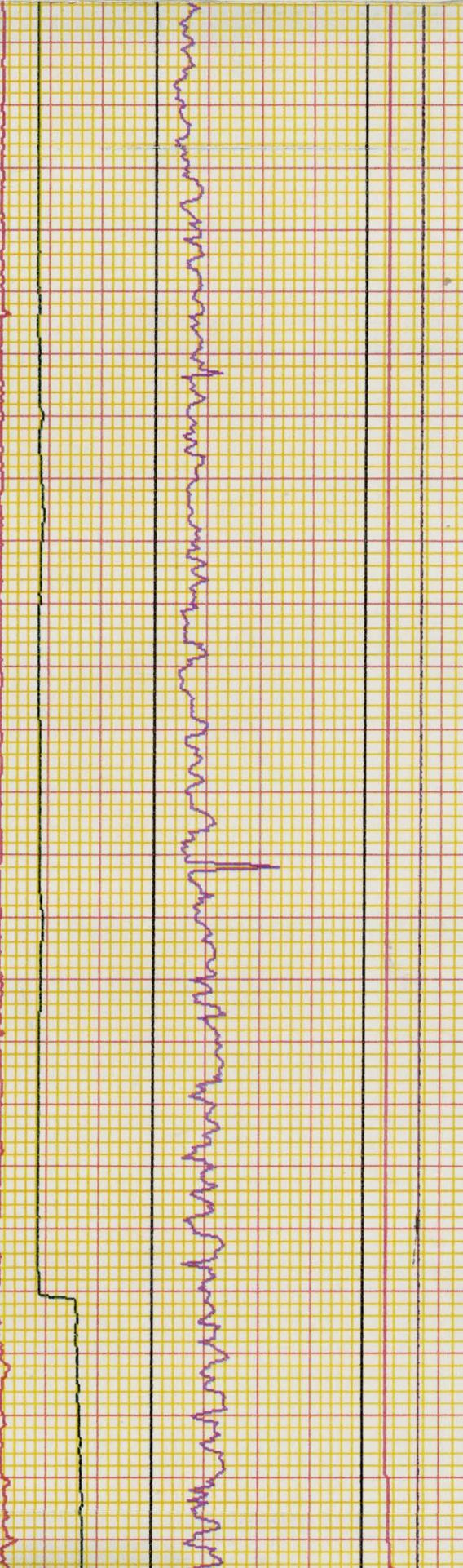


Handwritten notes in blue ink along the left margin of the page.

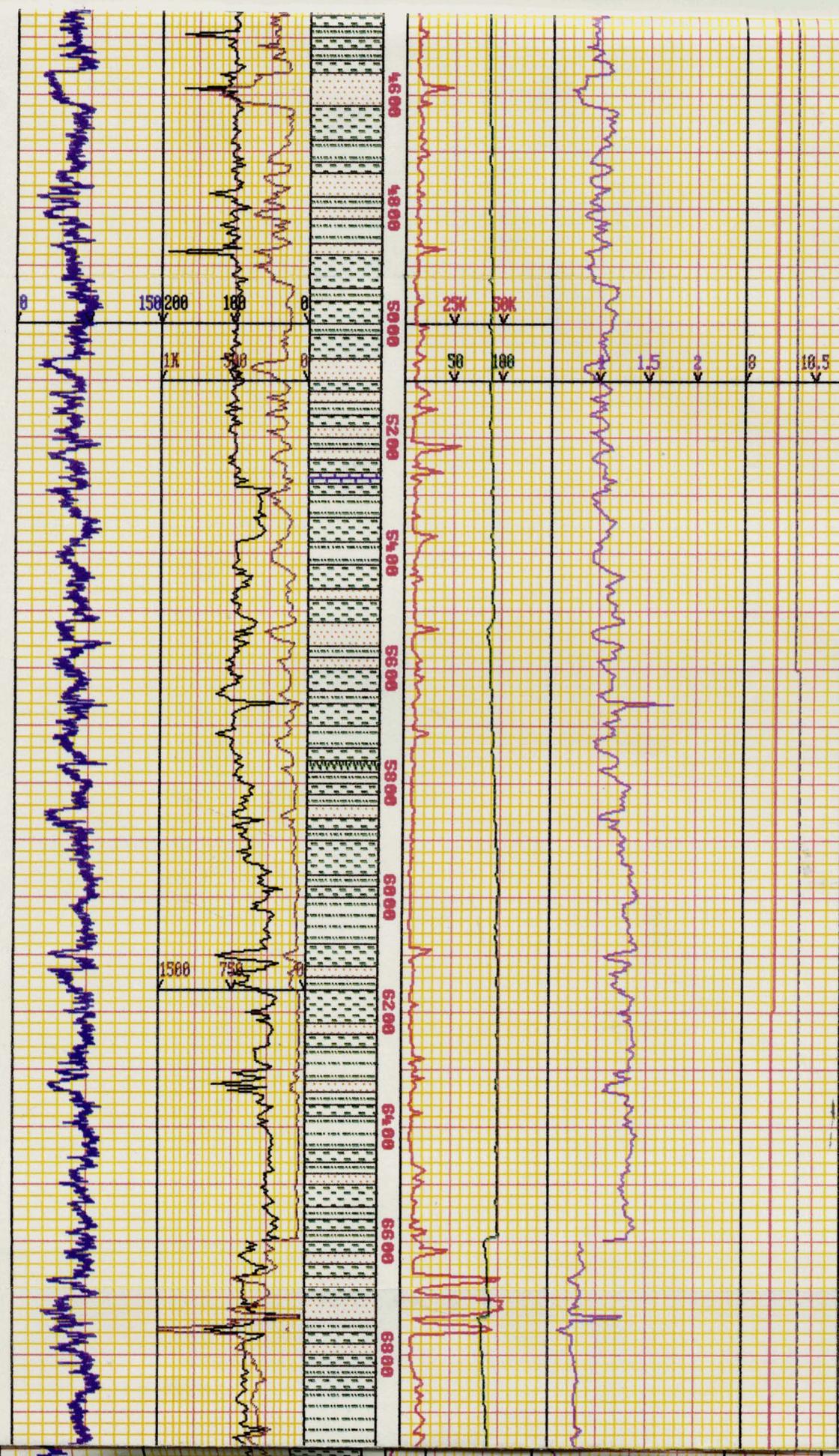
200
180
1K



2000
2200
2400
2600
2800
3000
3200
3400
3600
3800
4000
4200
4400



8-3-93
SVY e 2210' 0.24 Deg.
ST e 2495'
SVY e 2495' 0.23 Deg.
SVY e 2963' 0.37 Deg.
8-4-93
SVY e 3334' 0.40 Deg.
SVY e 3614' 0.39 Deg.
SVY e 3977' 0.25 Deg.
8-5/10-93
SET 13 3/8" CSGe3977'
LOT = 14.9 ppg ENH
HN 9.8 VIS 51
PV/YP 15/17
FL 3.0 PH 9.2 CL 16K
SVY e 4277' .37Deg.



SVY e 4552' .47Deg.

SVY e 4835' .39Deg.
8-11-93

NH 9.8+ VIS 58
PV/YP 19/19
FL 3.2 PH 9.9 CL 17K
SVY e 5028' .41Deg.

SVY e 5522' .70Deg.

8-12-93

NH 10.0 VIS 55
PV/YP 20/23
FL 3.0 PH 9.3 CL 17500

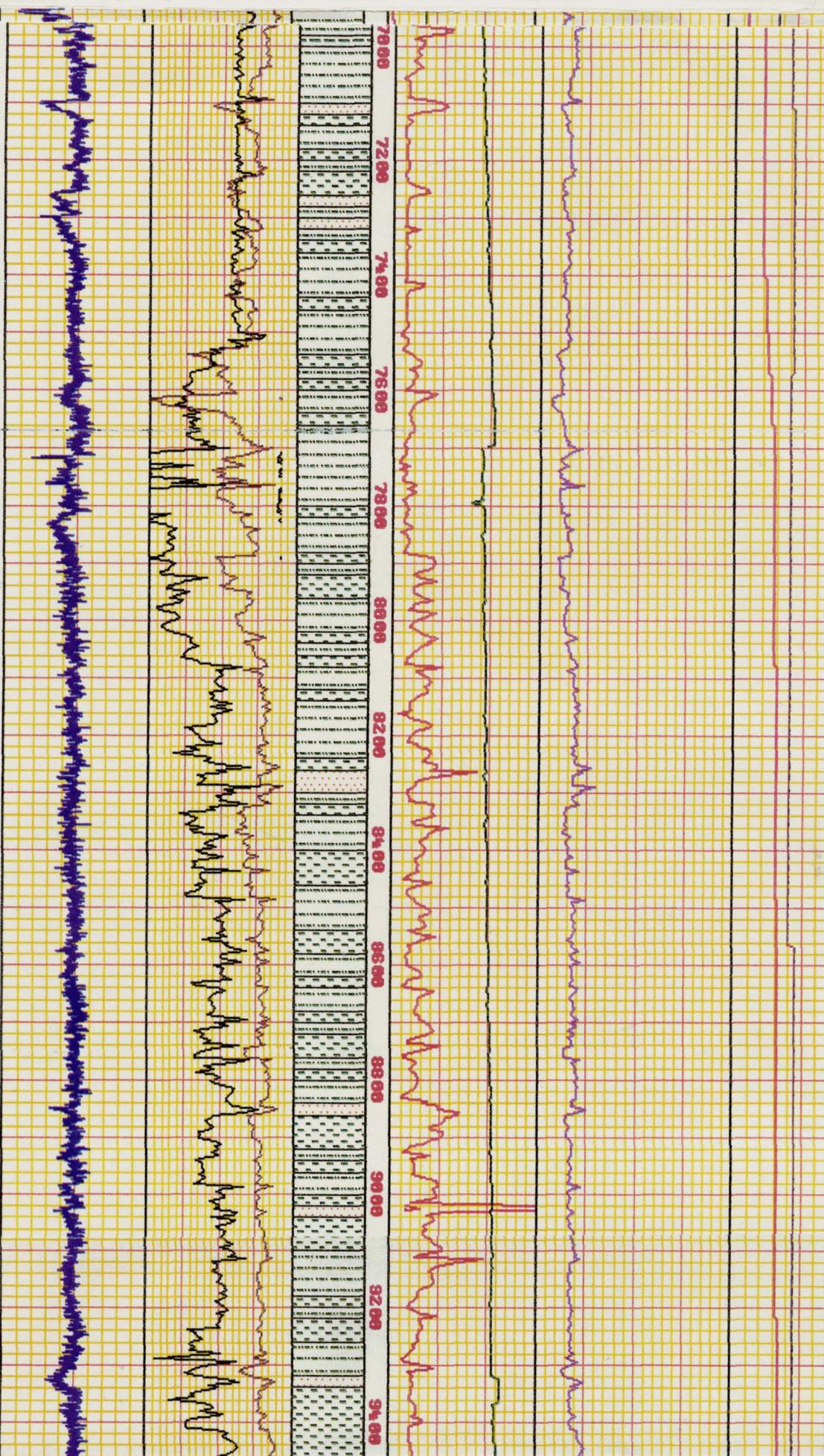
SVY e 5963' 1.24 Deg.

SVY e 6343' 1.42 Deg.

SVY e 6547' 1.42 Deg.
8-13-93
NB 5 12.25" DS-40H
2-14 3-13 JETS

8-14-93 NCB1 RC412 TFR .7

NH 10.1+ VIS 60
PV/YP 24/34
FIL 3.0 PH 8.9 CL 17K
SVY e 6940' 0.93Deg.



SVY e 7413' 0.57Deg.

8-16-93

SVY e 7790' .042Deg

SVY e 8169' 0.46Deg.

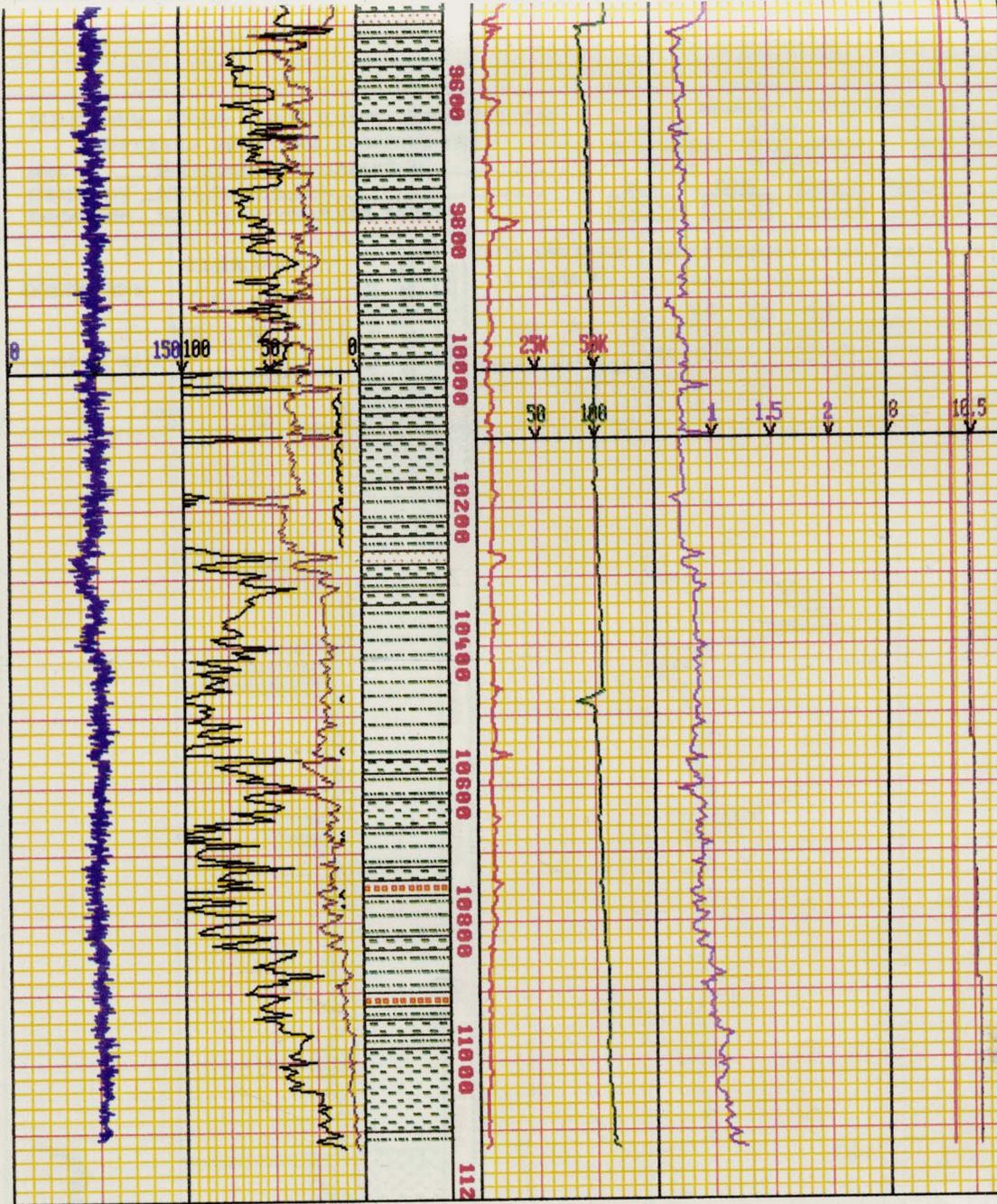
SVY e 8453' 0.63Deg.

NH 10.2 IN

SVY e 8735' 0.70Deg.

SVY e 9207' 0.67Deg.

PV/VP 30/40 PH 9.9
FIL 2.9 CL 17K



SVY e 9384' 1.43Degs.

SVY e 10269' 0.97Degs.

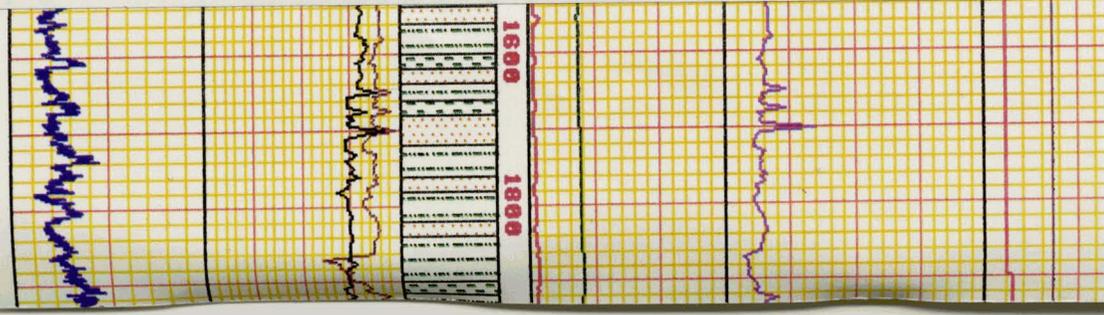
8-19-83

STG 683

RAISE NN TO 10.6

RAISE NN TO 10.7

NN 10.7+ VIS 58
PV/VP 27/34 PH 8.6
FIL 3.1 CL 17K



SVY e 1852' 0.25 Deg.