

SPERRY-SUN DRILLING SERVICES  
LOGGING SYSTEMS  
Anchorage, Alaska

**CONFIDENTIAL**

FINAL  
WELL INFORMATION  
ARCO Alaska, Inc.  
OSC-Y-0865 No. 1  
Kuvlum 2; B-12  
Beaufort Sea, Alaska

**RELEASED TO PUBLIC FILE**

**20 NOV 1996**

**DATE**

RECEIVED  
DPS 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**

COMPANY ARGO ALASKA INC.

WELL KIPULUM NO. 2

FIELD BEAUFORT SEA. BLOCK 872

REGION \_\_\_\_\_

LOCATION ALASKA U.S.A.

CO-ORDS \_\_\_\_\_

CONTRACTOR CANMAR

RIG/TYPE GOV KULLUK

TOTAL DEPTH 11125' TVD 11125

SPUD DATE 28 JULY 1989

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

HOLE DATA

21 (RISEN) To 171 17.5 To 3070

30" To 301 12.25 To 11125

28" 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


**ABBREVIATIONS**  
**DRILLING DATA**


NB New Bit  
 RRB Run Bit  
 TB Turb 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 Filler Cake  
 CL Salinity  
 PH Hydrogen Ion Content

**ENGINEERING DATA**

 C1 Core No. 1 recovery

 DST 1 Drill Stem Test No. 1





MINERALS MANAGEMENT SERVICE  
 ANCHORAGE ALASKA

OCT 08 1993

RECEIVED  
 OCS DISTRICT OFFICE

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.

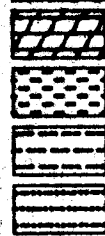
PV Plastic Viscosity  
 YP Yield Point  
 S Solids Content  
 G Gels  
 RM Mud Reactivity  
 RMF Filtrate Reactivity

 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

◇ H<sub>2</sub>S 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

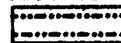
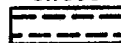
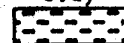
Clay

Shale

Siltstone

Sandstone

Gravel

LOGGING  
SERVICE  
SYSTEMSCOMBINATION  
MUD LOG

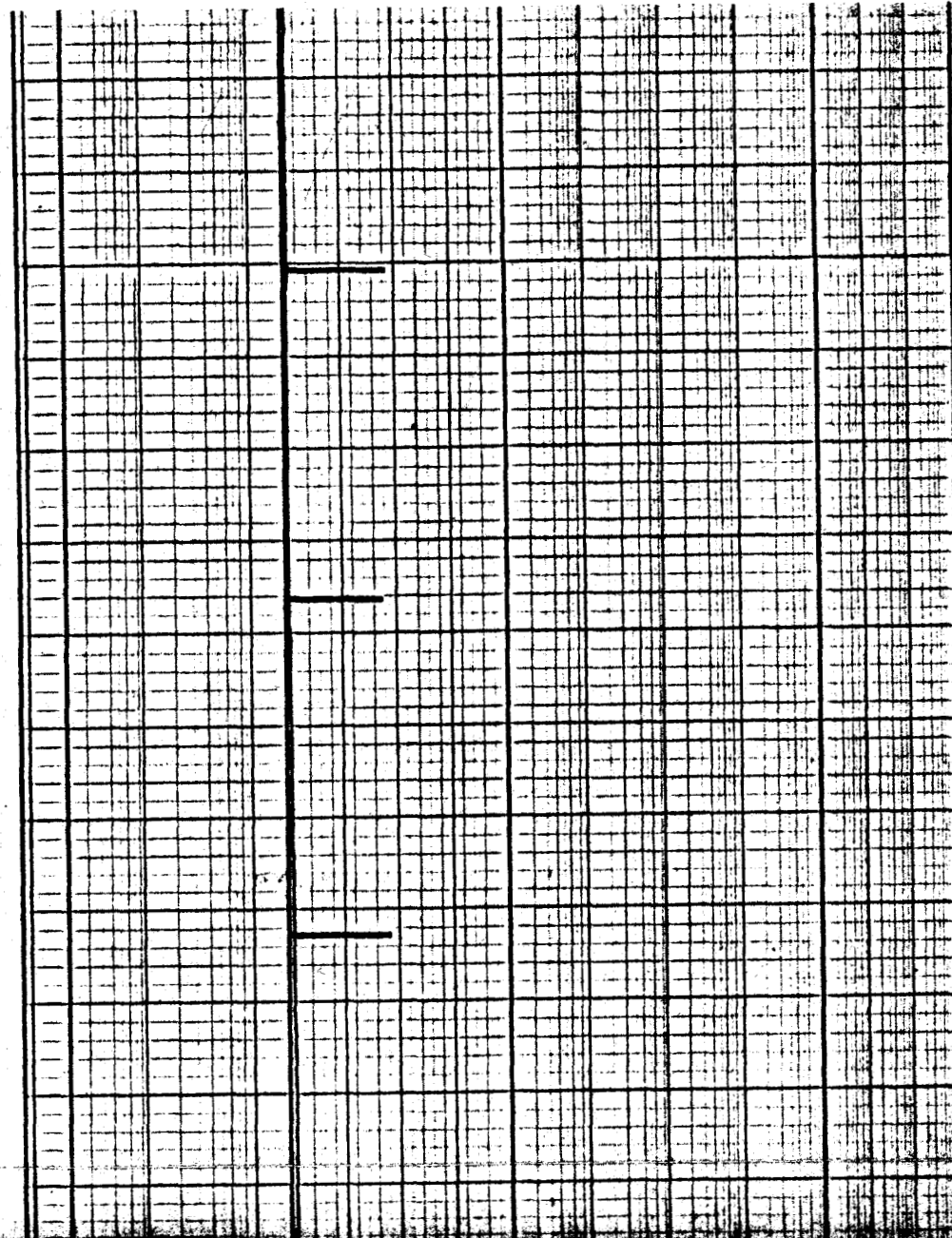
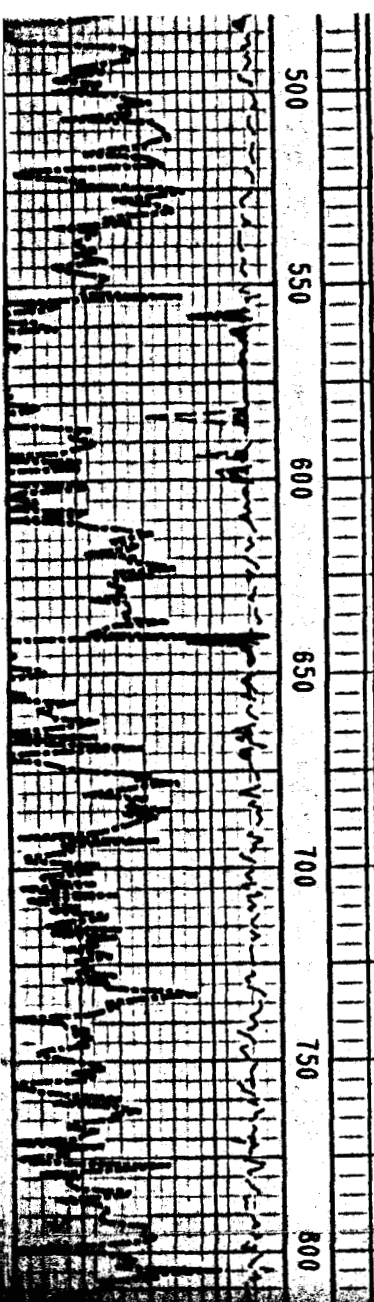
GAMMA RAY Apparent API Units	DEPTH-feet	VISUAL POROSITY	VISUAL LITHOLOGY	INTERPRETED LITHOLOGY	OIL SHOW RATING	ELECTROMAGNETIC WAVE RESISTIVITY ohms - m2/m	F.I.D. ANALYSIS TOTAL GAS IN AIR CONNECTION = BAR AVERAGE GAS MAXIMUM GAS ( % ) TOT PPM CUTTINGS CUTTINGS GAS ( % )	F.I.D. CHROMATOGRAPH ANALYSIS C1-----C2-----C3----- TOT C4-----TOT C5----- HYDROCARBONS P.P.M. IN AIR	INDICATOR HYDROCARBON C1/C2 STEAM STILL OIL GAS NP	LITHOLOGICAL DESCRIPTIONS and REMARKS
0 50 100							0 1.25 2.5			
DRILLING RATE -- feet/hour										
0 200 400							0 1.25 2.5			
NMLZD ROP ----- feet/hour										
0 300 600							0 1.25 2.5			
MD										
200										
250										

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" ATXG1  
21-21-21-22 JETS  
IN DEPTH @ 228'

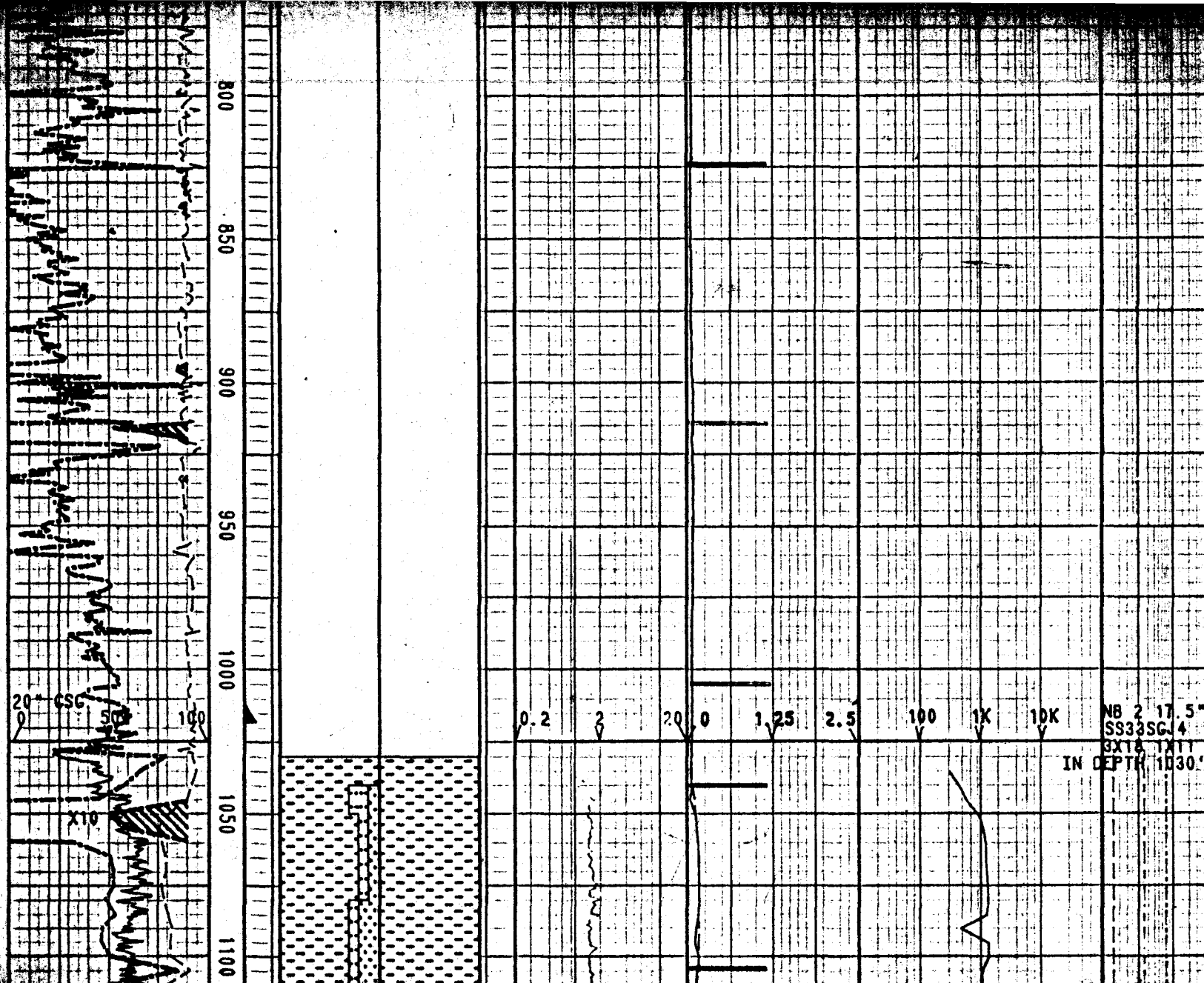
	NMLZD ROP feet/hour	% ANALYSIS	ohms - m2/m	TOT PPM CUTTINGS CUTTINGS GAS (%)	HYDROCARBONS P.P.M. IN AIR	STEAM STILL OIL NP GAS	and REMARKS
JR	MD			(%) 1.25 2.5	100 1K 10K		
	200						P permanent datum measured from MSL. KB: 85' DF: 84' MEAN SEA LEVEL: 101'
	250						MUD LINE: 166' BELOW LOGS MEASURED FROM KB SPUD IN 7-28-93 DRILLING GLORY HOLE
	300						JETTING IN 30" CONDUCTOR NO RETURNS 7-28-93 NB 1 26" ATXG1 21-21-21-22 JETS IN DEPTH @ 228'
	350						7-29-93
	400						DRILLING 26" HOLE WITH NO RETURNS
	450						



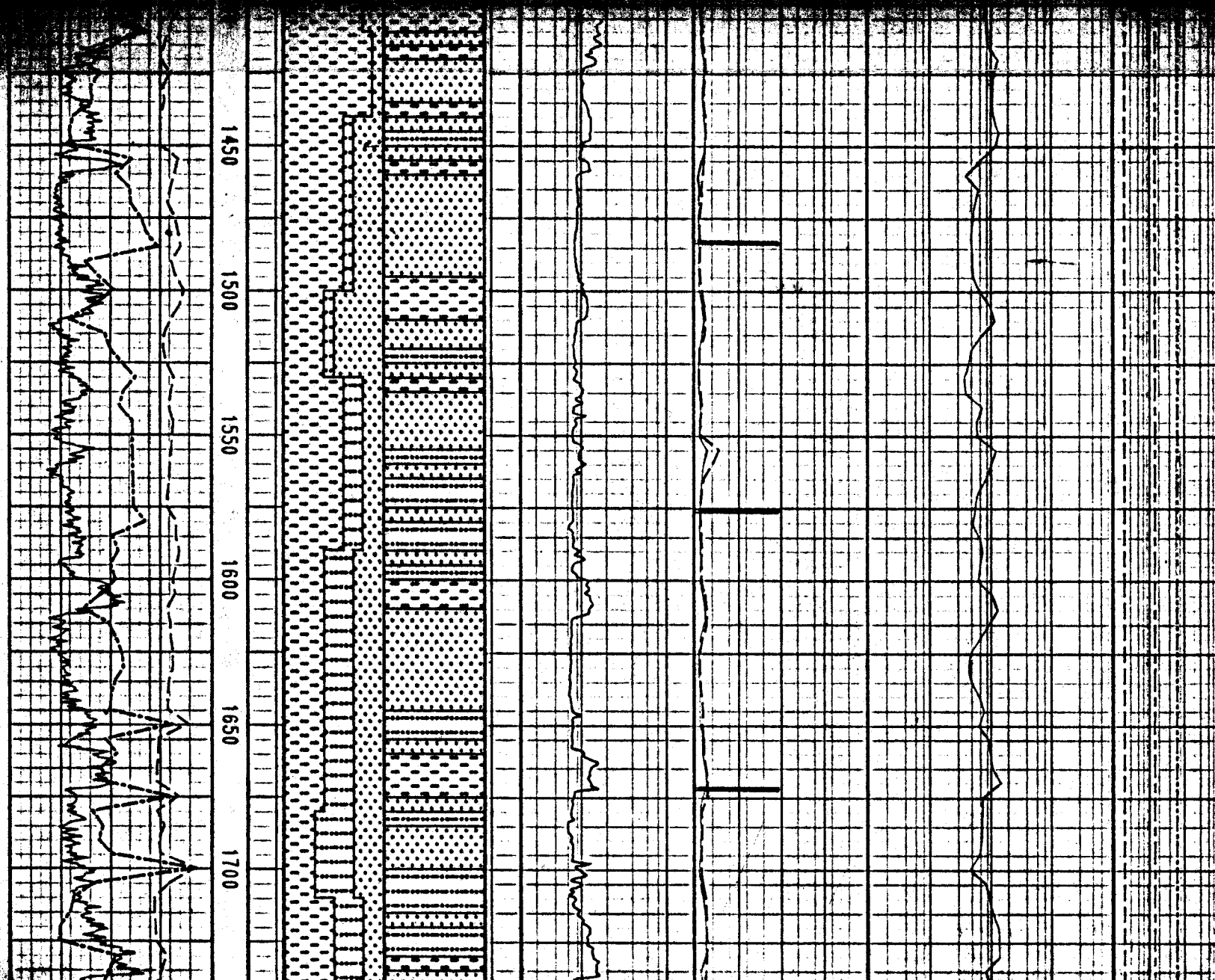


3 STD WIPER TRIP

7-30-83







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.

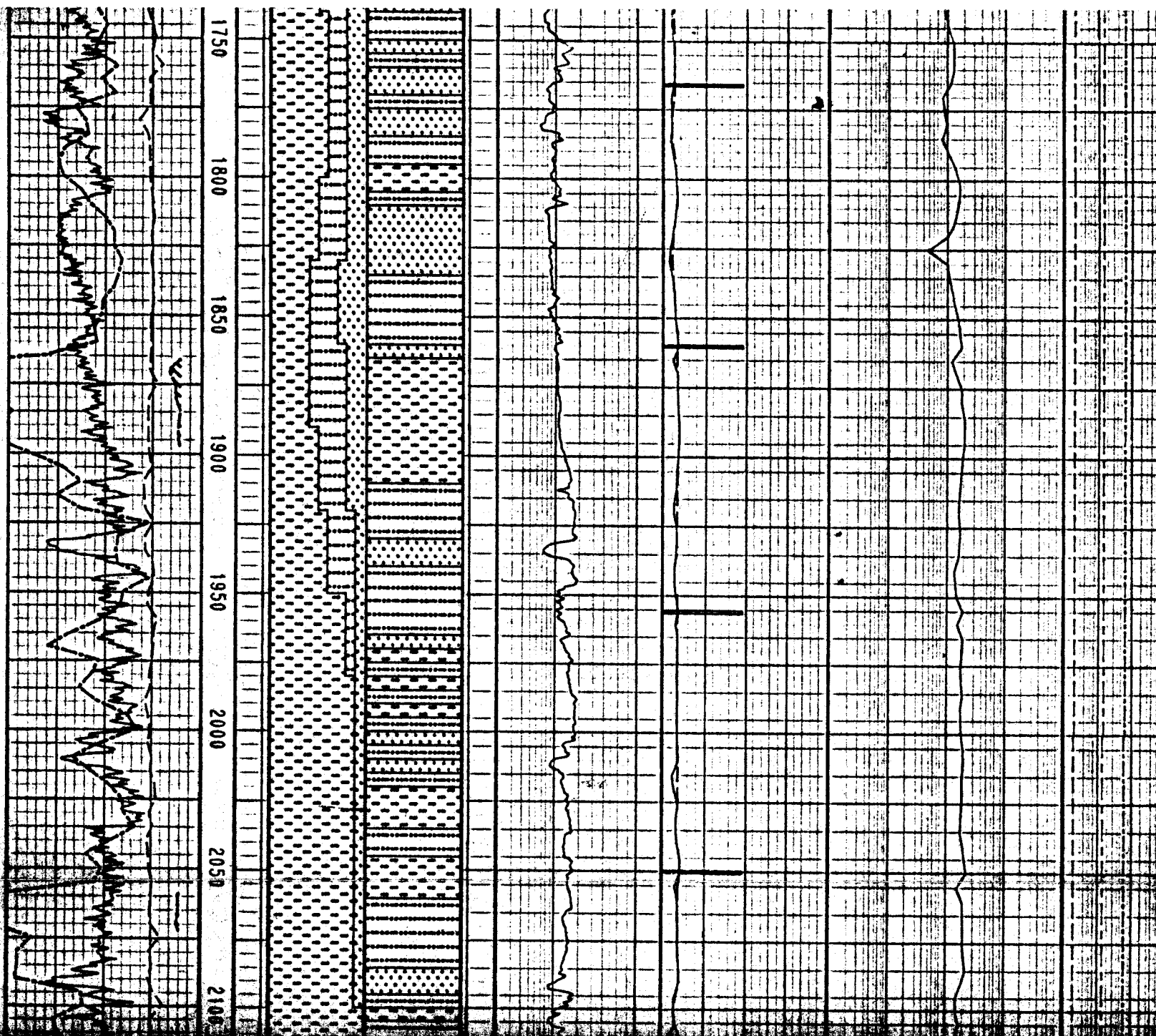
ADD CALC + SHL FRAGS.

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. LTBRN. 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. CM. 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.

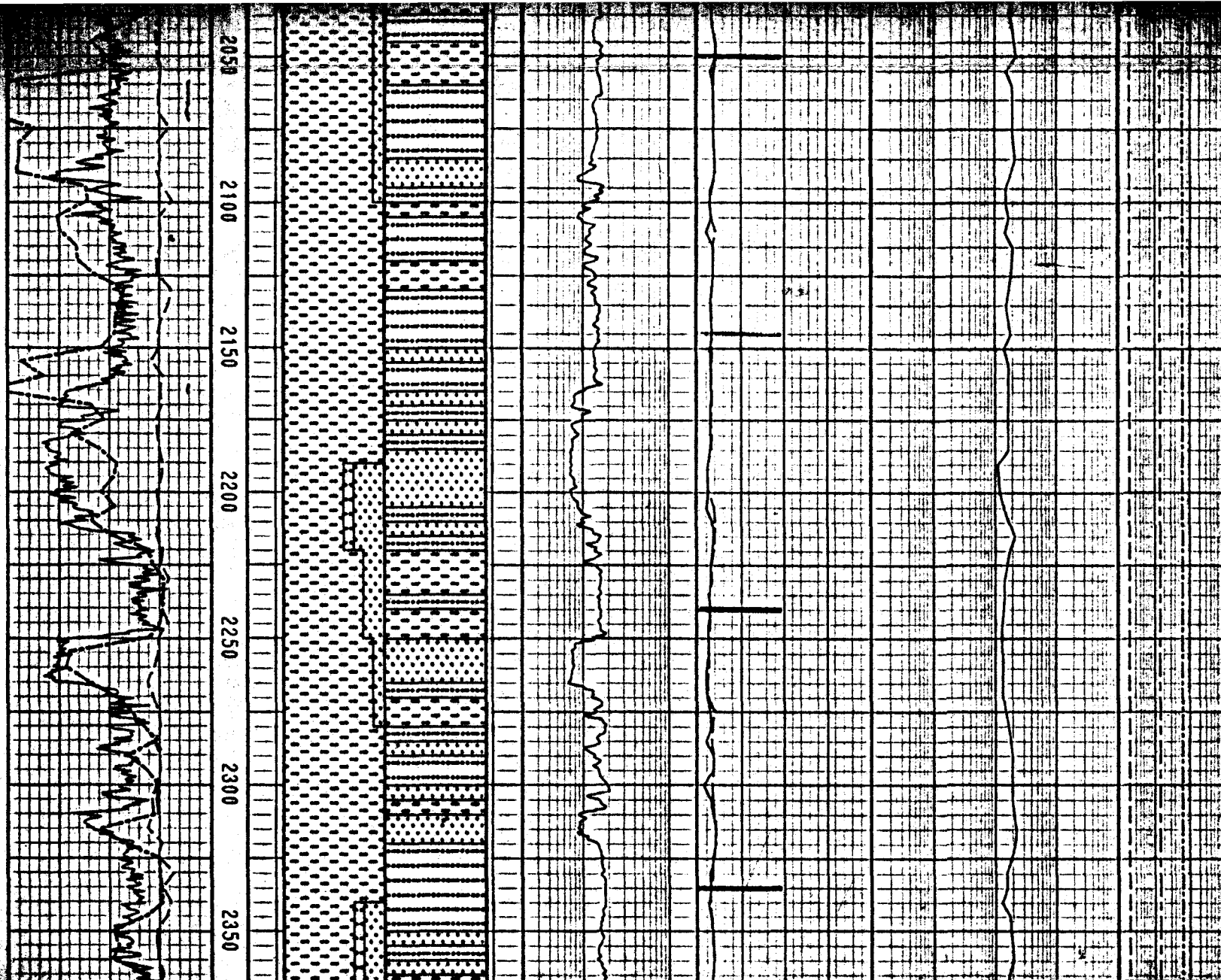
CLY-M-DKCY. AMORPH. CARB  
SPECS. VFGR SD. HYDRD.  
GMMY. VSFT.  
6-3-03

NW 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.  
GMMY. SFT.

SD-CLR. WH. BRN. BLK. VF-  
FGR. OCC CGR. SD ANG-SOED  
WEST. TMSO. IN CLY. (SAND)

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



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

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

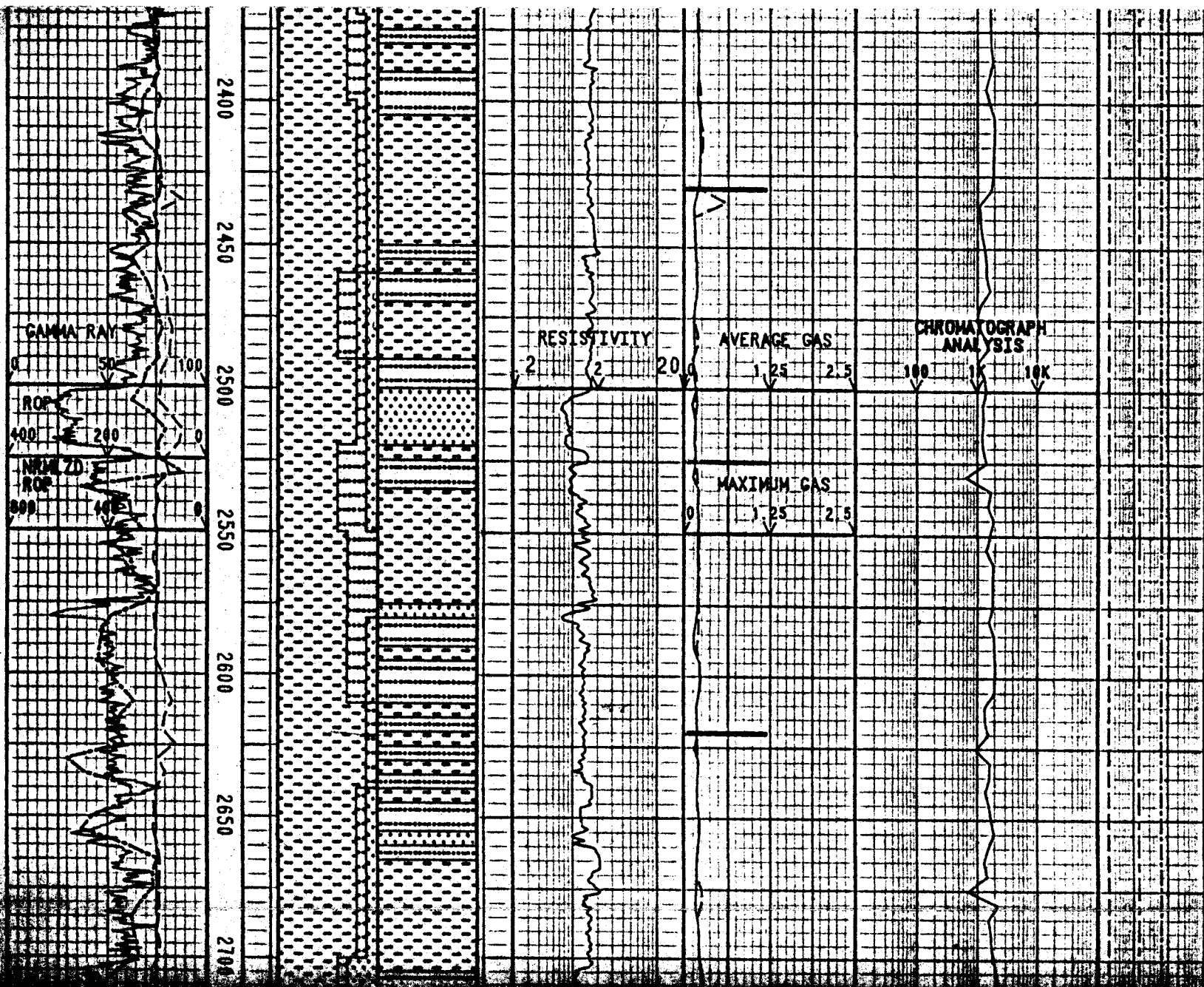
SVY • 2210' 0.24 Deg.

SD-CLR. WH. BLK. F-CGR. SBRD-ANG. M-MSRT. UNCONS. 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-LTTN. VLTGYBRN. AMORPH. CALC.  
AREN IP. SLT + FGR SD INCL.  
OCC MGR SD. MIC MICA. TR CARB  
SPECS. VHYDRD. VSFT

ST @ 2435'  
STG 61u

GVL-DK-LTGY. M-DKBRN. WH. CLR.  
CCR SD-PBL SZ FRACS. SBAND-  
MND. PRD RND. SNE 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-  
VCLC. CRONG TO VFGR SS IP.  
TR F-MGR SD INCL. TR CARB  
SPECS + LAMS IP. SFT +  
HYDRD-HD + BRIT IP.

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



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

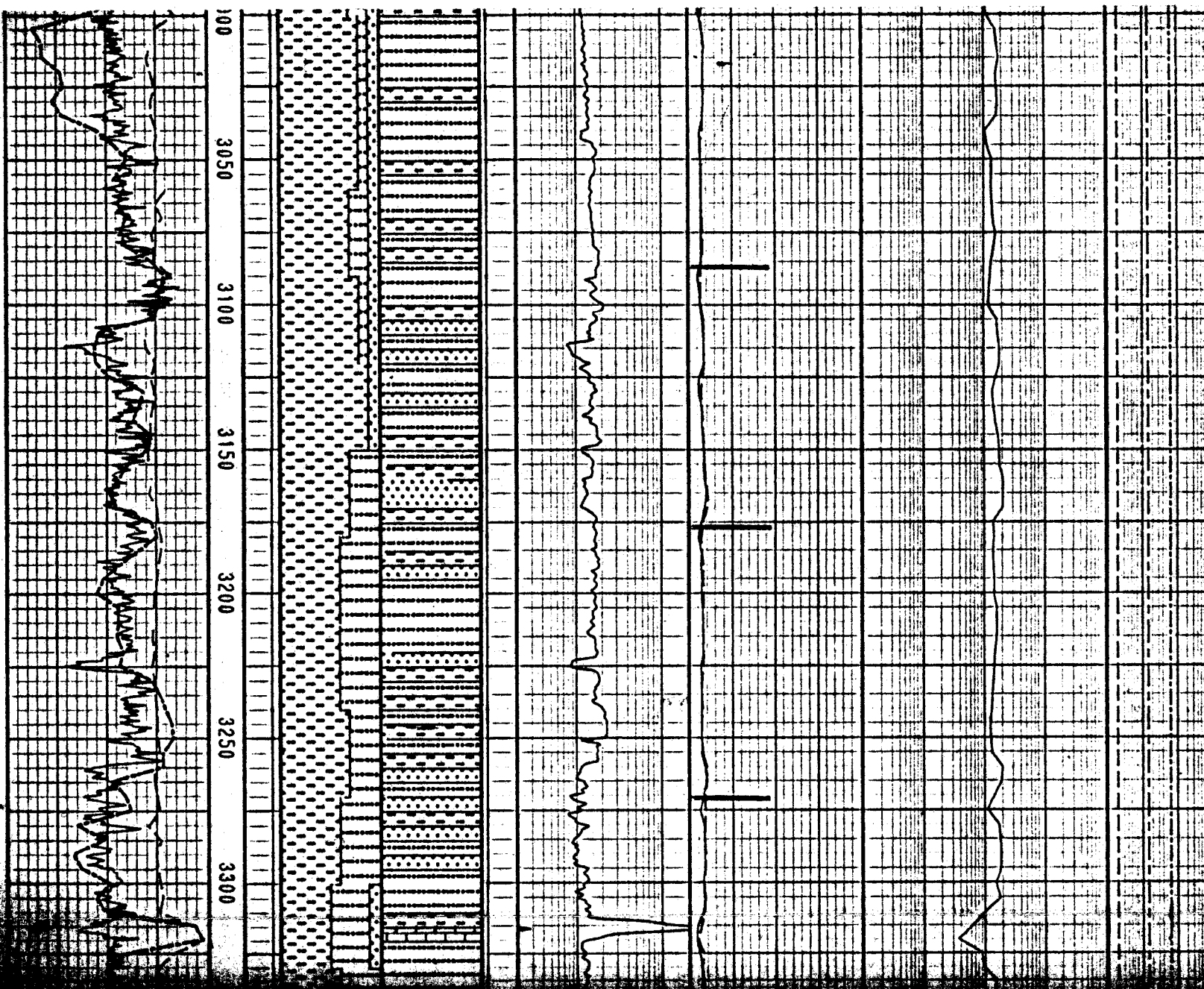
CLY-LT-MGY. MBRN. AMORPH.  
 MIC MICA. TR VF-FGR SD  
 INCL OCC CGR SD. CALC.  
 TR PYR. TR CALC. TR  
 FORAMS. HYDRD. VSFT.

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



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

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

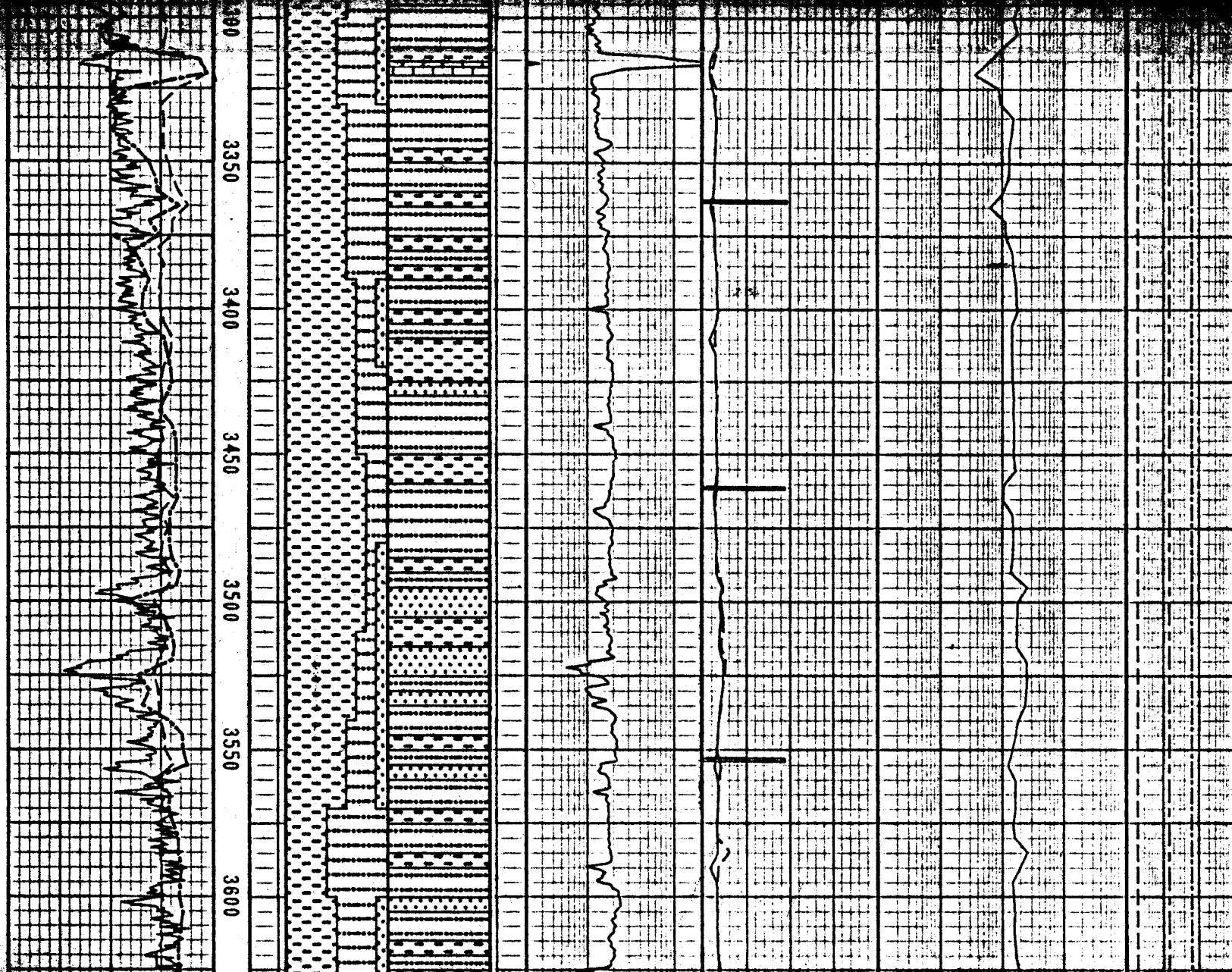
CLY-LT-MGY. MBRN. AMORPH.  
CALC. TR PYR. HYDRD.  
VSFT.

SLT-MGY. AMORPH. AREN.  
VFGR QTZ CRS. OCC CGR  
SD. CALC. HYDRD. VSFT.

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

8-4-83

TR LS-MH. LTGY. AMORPH.  
BLKY. CH. KY. CARB. SPECS  
IP. SD. TR. CALC. HYDRD.



TR LS-MI. LTGY. AMORPH.  
BLKY. CHLKY. CARB. SP.  
IP. SDY IP. VCALC. HYDR.  
VSFT.  
SVY @ 3334' 0.40 Deg.  
MW 9.8 VIS 34  
PV/YP 27/23  
FL 4.0 PH 8.5 CL 1600

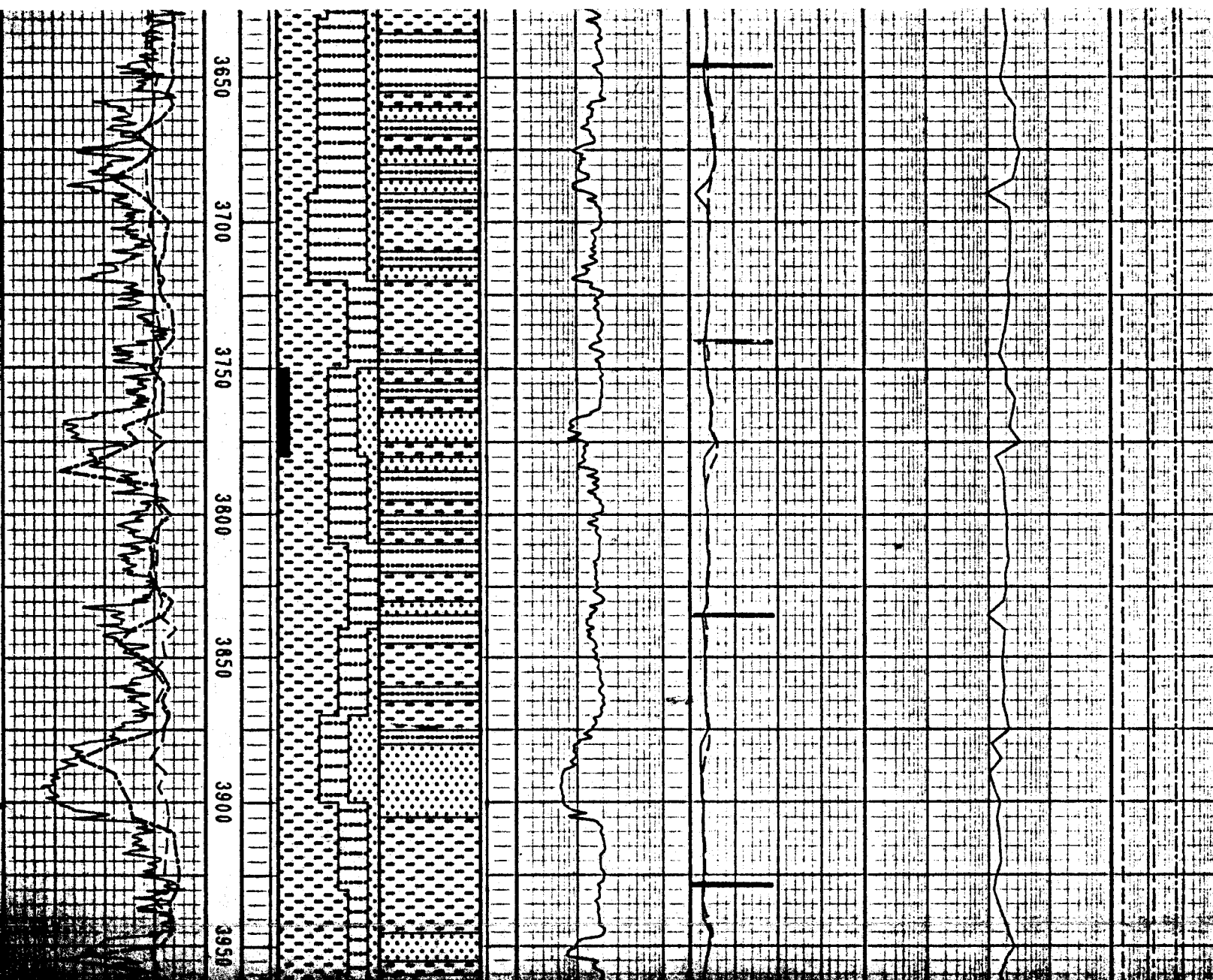
SLT-LT-MGY. AMORPH. AR.  
VFGR QTZ CRS. OCC C  
SD. CALC. HYDRID. VSF

CLY-LT-MGY. MBRN. AMORPH.  
CARB SPECS IP. ARG.  
F-CGR SD. HYDRID. CHMY.

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-M-LTGY. LTBRN. AMORPH.  
IP. CALC. ARG. CLY MTEX. W  
INCL. GRDNG TO CLY. SP  
MEX. IP





SVT @ 3614' 0.30 Sec.

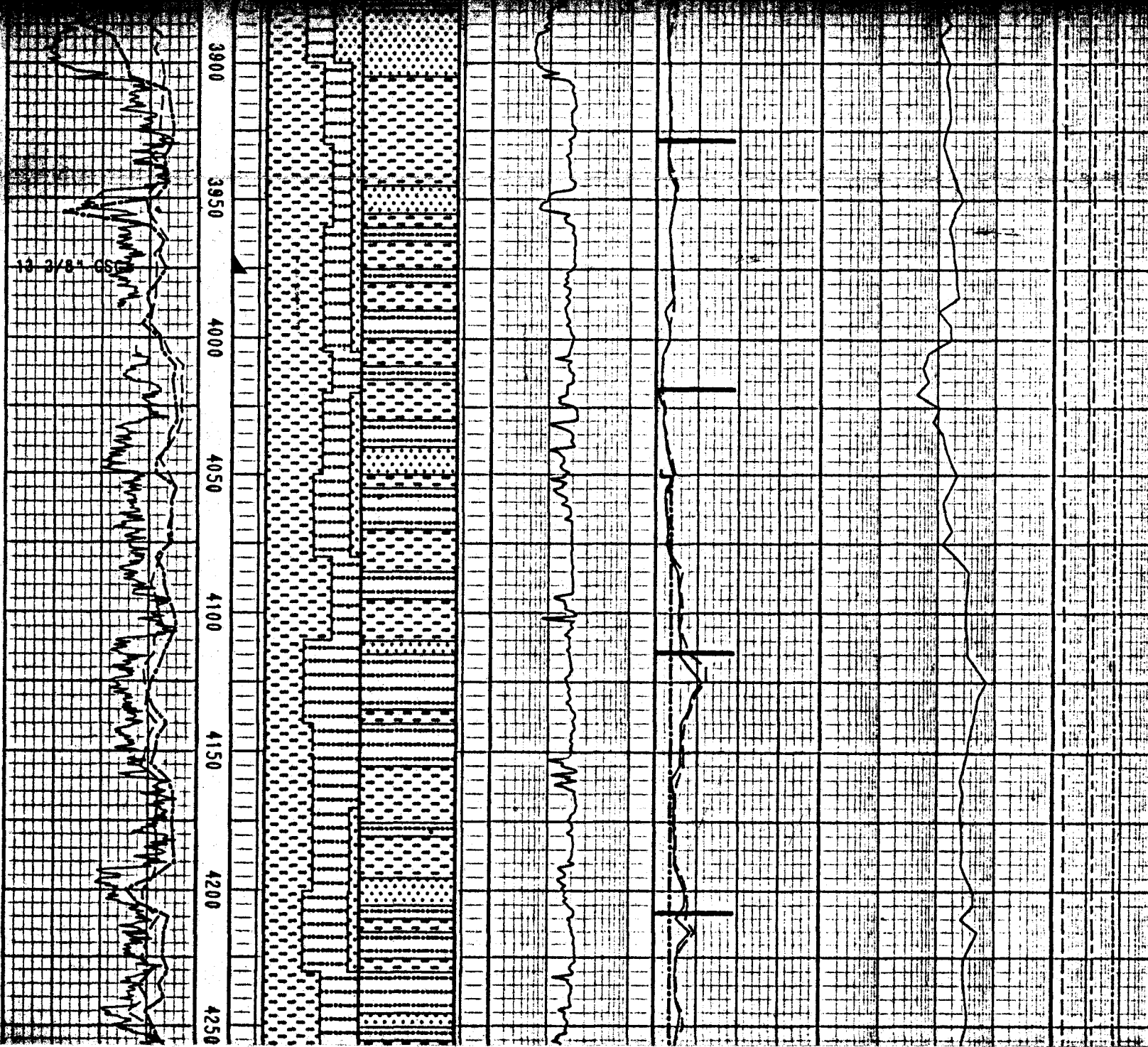
CLY-TNGY. VLTBRN. AMORPH. INTBO  
W/ SLT + VFGR QTZ SD INCL.  
SLT-MCALC. GRDNG TO SLTST IP.  
ABNDT CARB LAMS. HYDRD. SFT

SD-LTGY. CLR. MH. TRANSL. VF-MGR.  
OCC CGR. PRED FGR. ANG-SBRND.  
PRED SBANG. PSRT. UNCONS. TR  
PYR CMT. PROB CLY MTRX. TR  
CALC CMT 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.  
INTBO W/ SD + CLY. FRM-MHD +  
BRIT

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

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



SD-M-DKGY. BLK. CLR. WH. M-CGR.  
 OCC PBL SZ. PRED MGR. ANG-  
 SBAND. PRED SBAND. P-MSRT.  
 UNCONS. TR CALC CNT IP. PROB  
 CLY MTRX IP. SLT TR CALC XLS.  
 TR WH FOSS SHELL FRAGS. TR  
 TUFF. SLT TR BUL 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 ppg EMM  
 NB 4 12.25" FOTCL  
 12-12-12-12 JETS  
 IN DEPTH 4005'

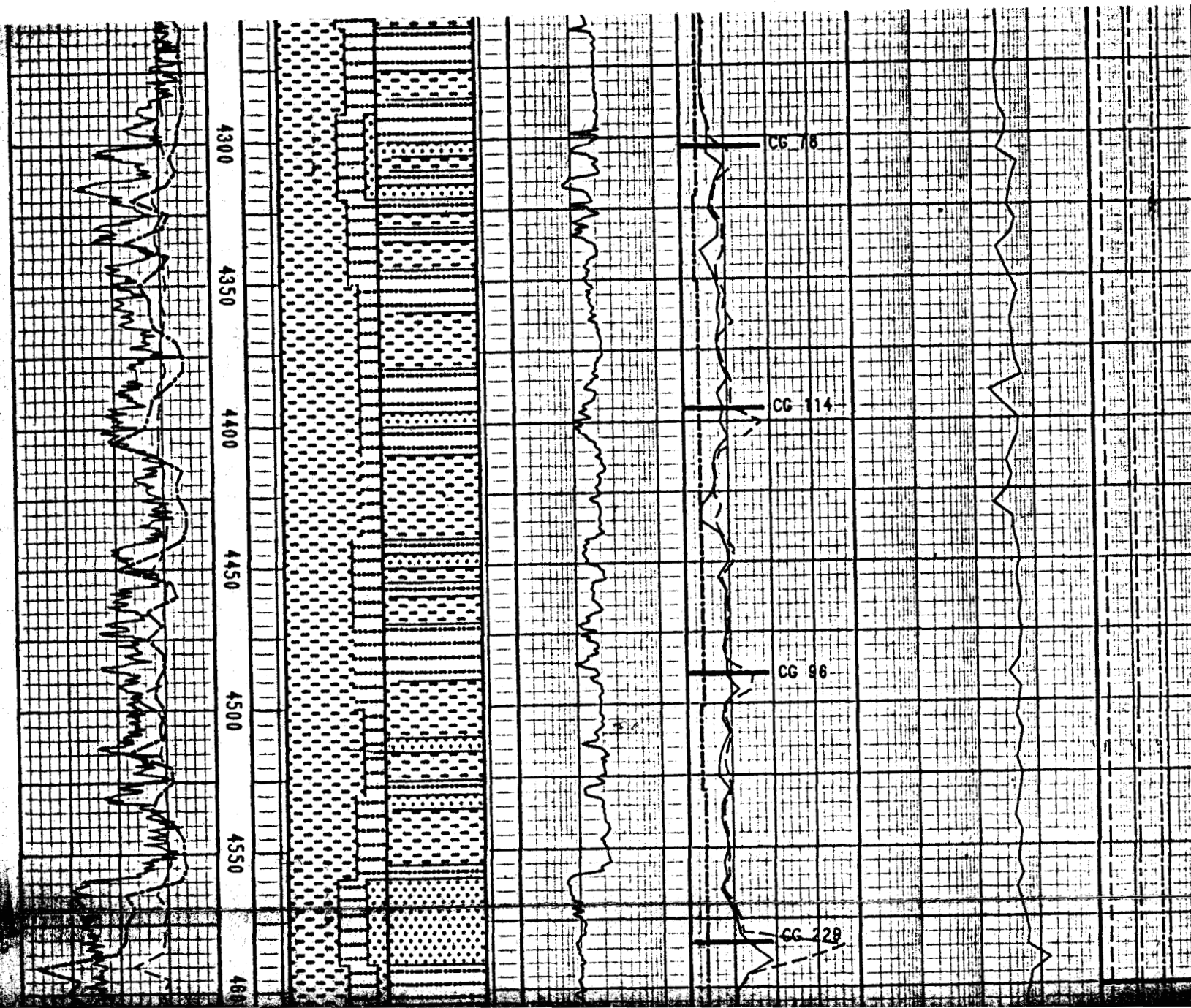
CLY-LT-MGY. CYTN. AMORPH. SLTY.  
 GRDNG TO SLT IP. TR CGR  
 SD INCL. VHYDRD + VSFT

TR COAL-BLK. BLKY. HKLY IP.  
 SBVIT. LRG FRACS. 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-DKGY. TRANSL. WH. VFGR.  
 SBAND-RND. PRED SBAND.  
 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

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

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

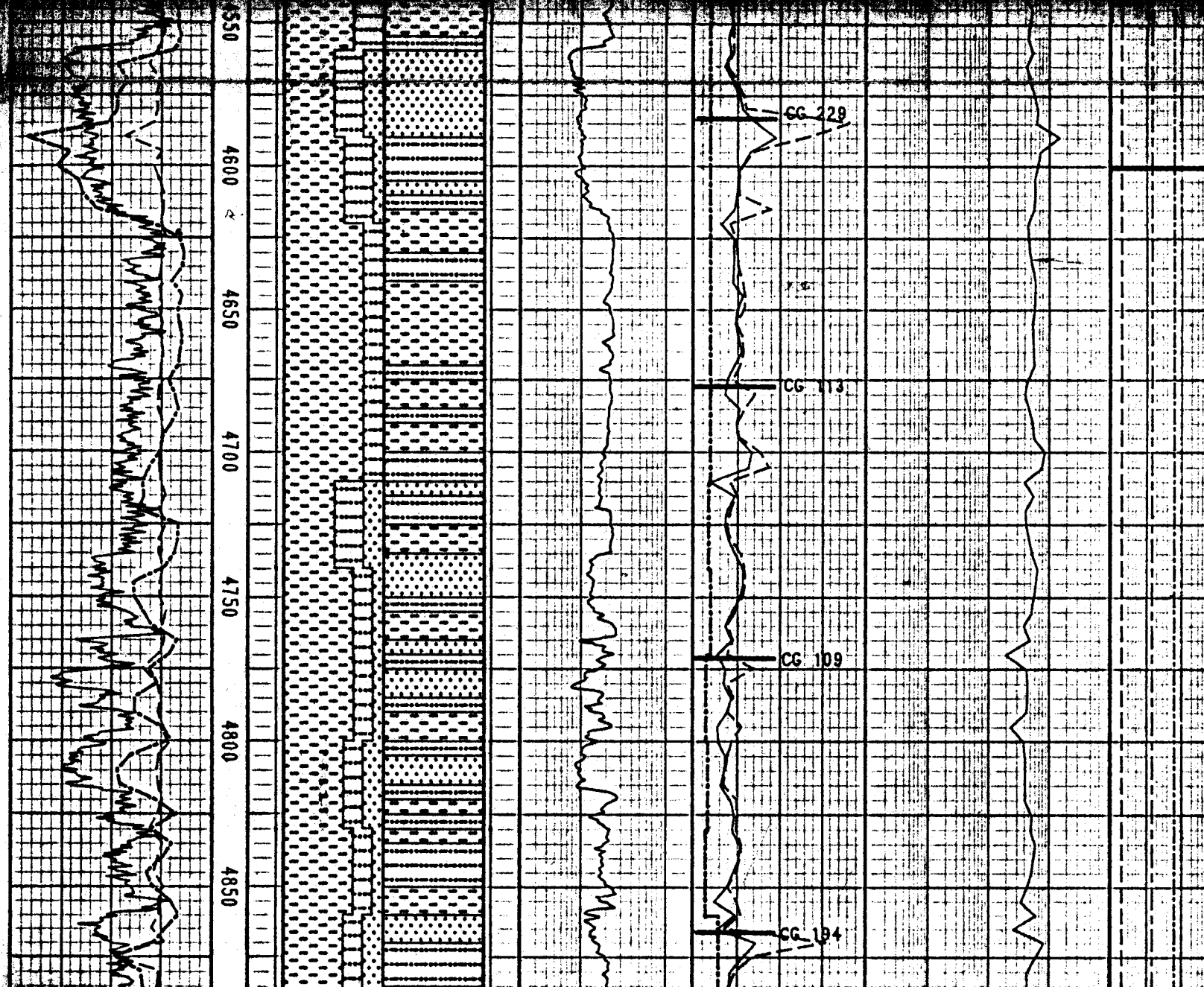
SD-CLR. LTGY. BLK. VF-FGR. SB  
ANG. WSRT. UNCONS. 70%QTZ.  
30%LITH FRAGS. NSOFC

CLY-LT-MGY. CYBRN. 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-VDKCY. TR BRN. CLR. MY  
F-MCR. TR CGR. PRED ANG-SB  
ANG. OCC SBAND. M-FR. GRD.  
ABNT CLR. VF-SLT. ST. ANG. QTZ  
GRS. FLTR. TR SLTY. CLY. MTK.



SLT-LT-MGY. LTGY. SLTY.  
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. CYBRN. SLTY. OCC  
SDY. NCALC. STKY. SFT.

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

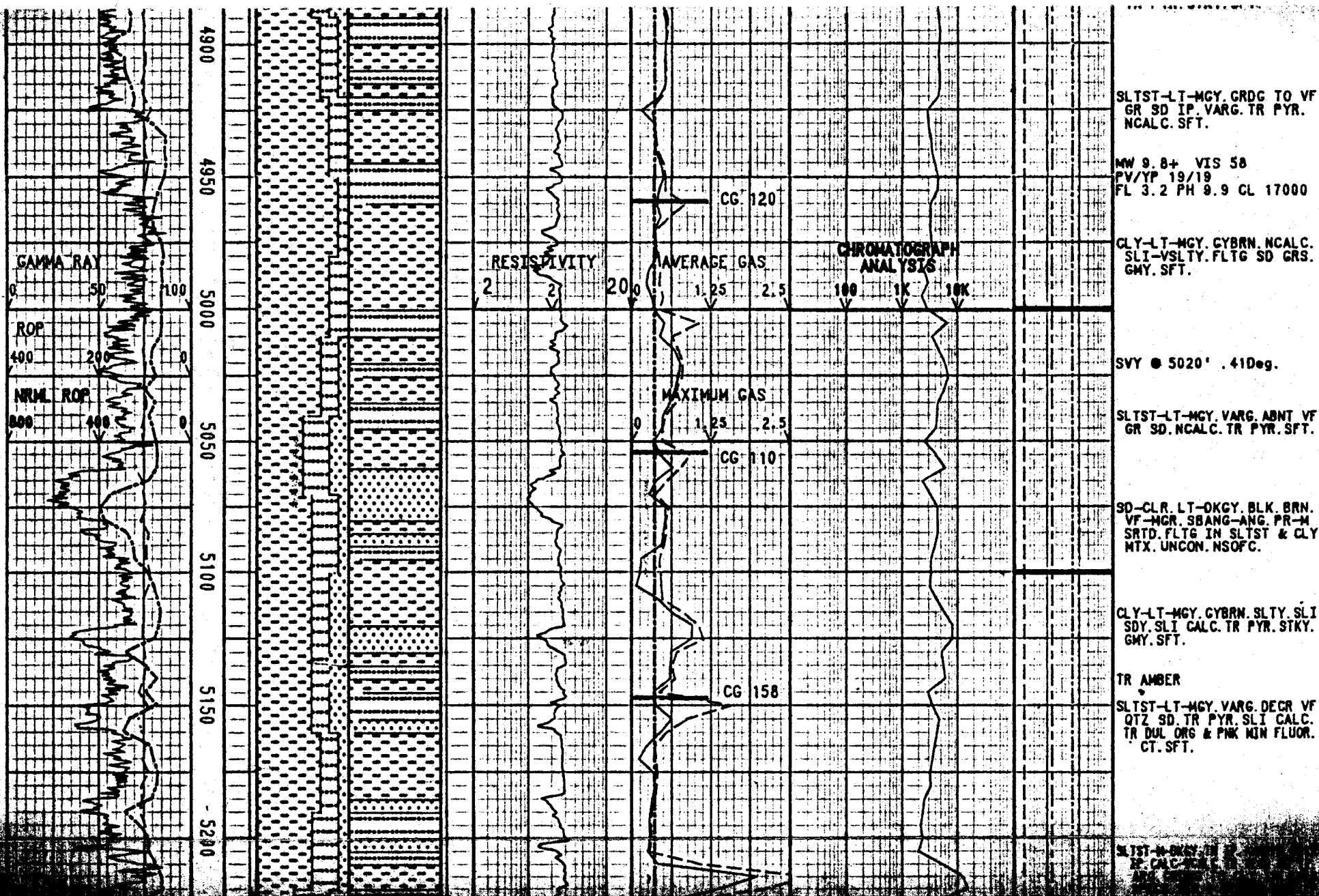
SD-DKGY. BRN. BLK. CLR. WH.  
F-MGR. ANG-SBANG. M-PR  
SRTD. UNCONS. 40%LITH FRAGS.  
40%CHT. 20%QTZ. NSOFC

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

SVY @ 4835' .390deg.

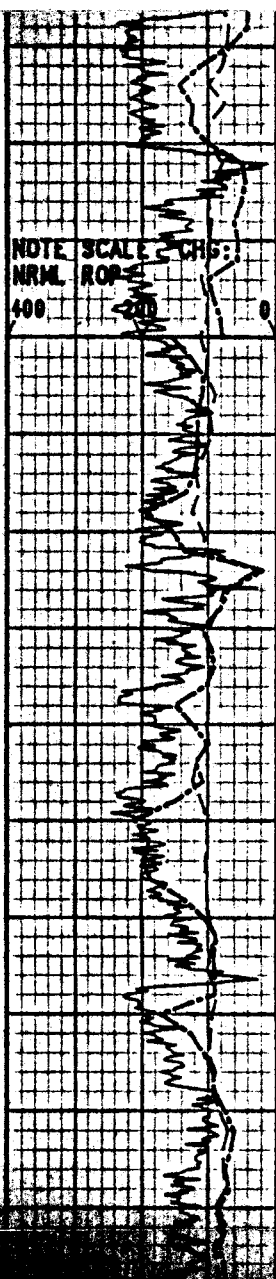
8-11-83

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

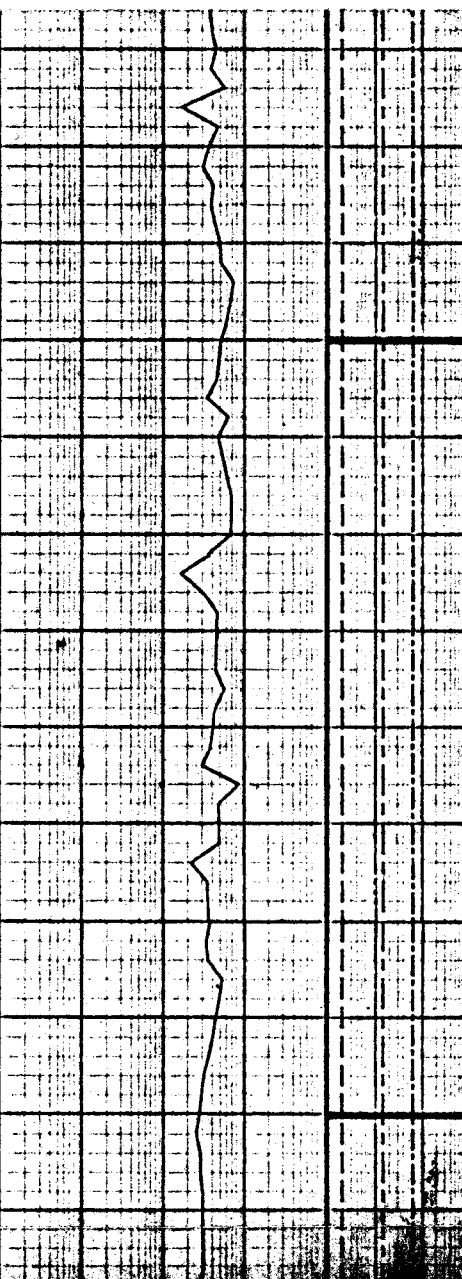
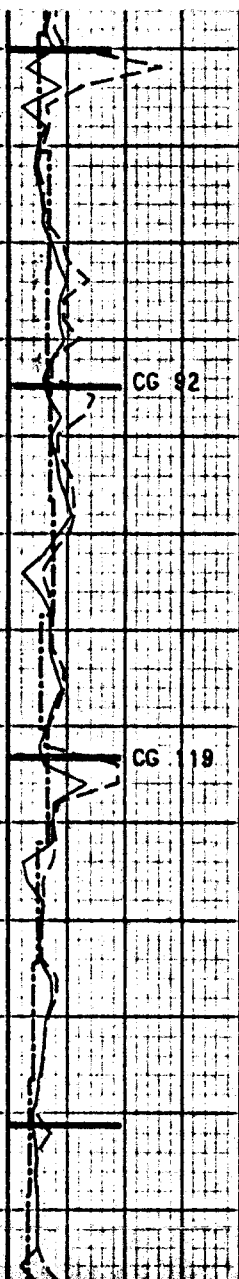
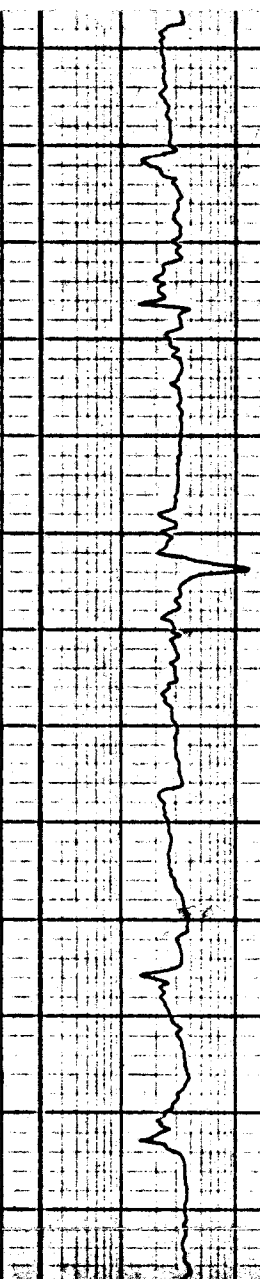
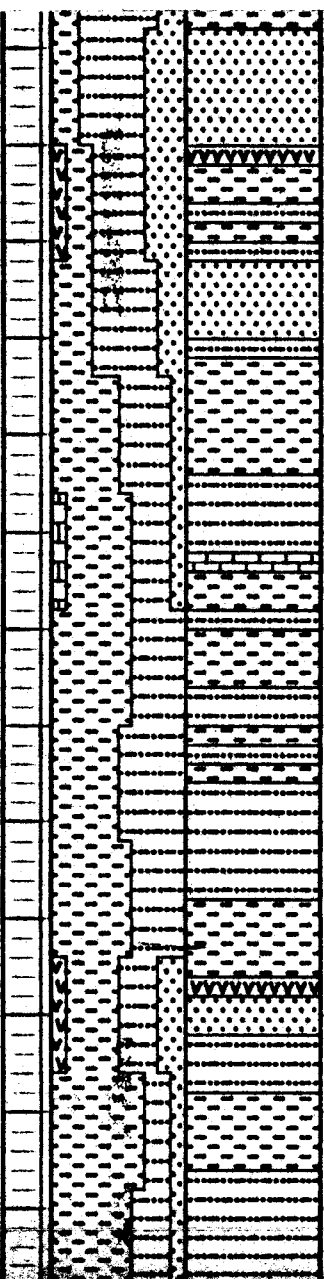








5550  
5600  
5650  
5700  
5750  
5800



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.

CG 92

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

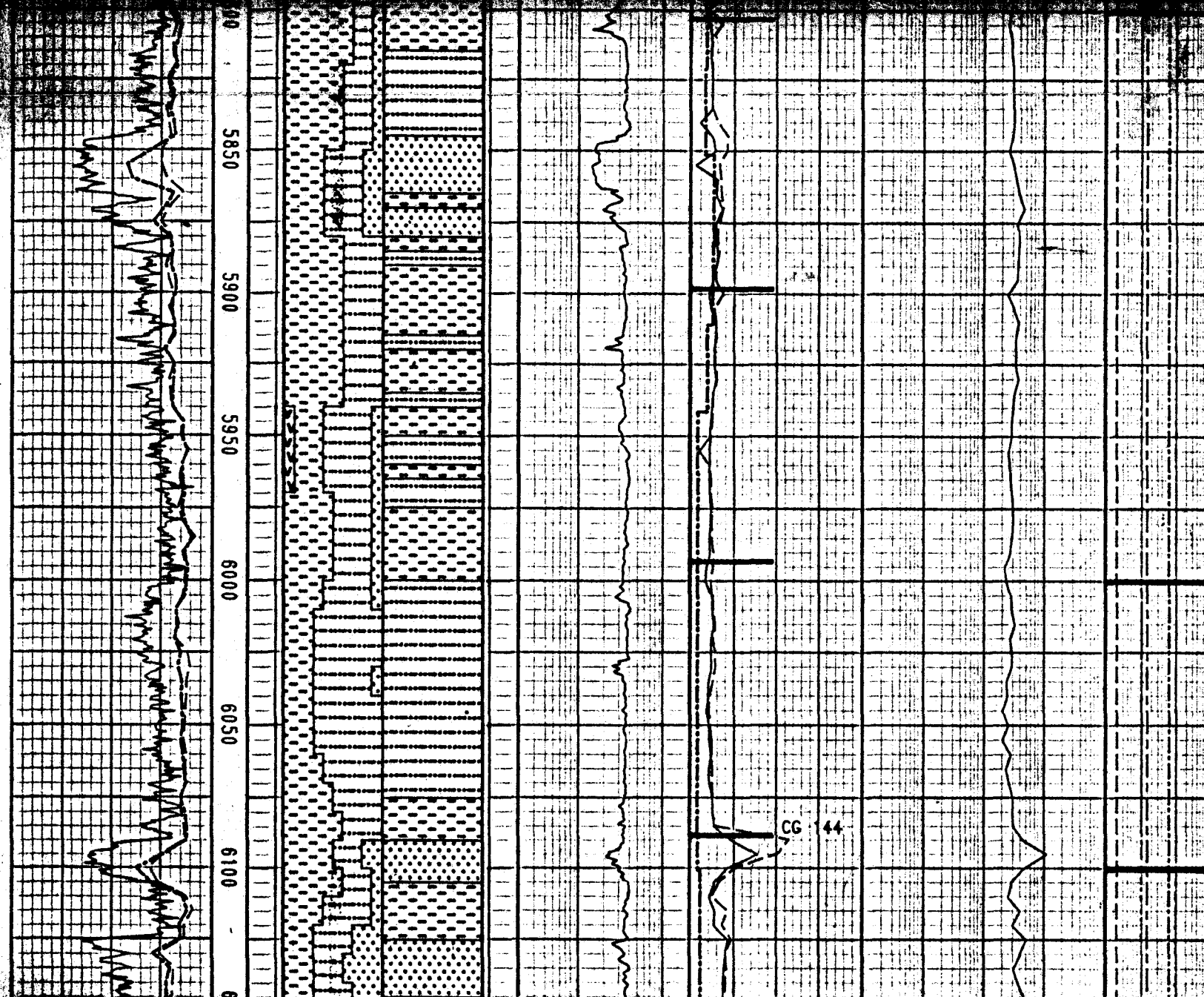
CG 19

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

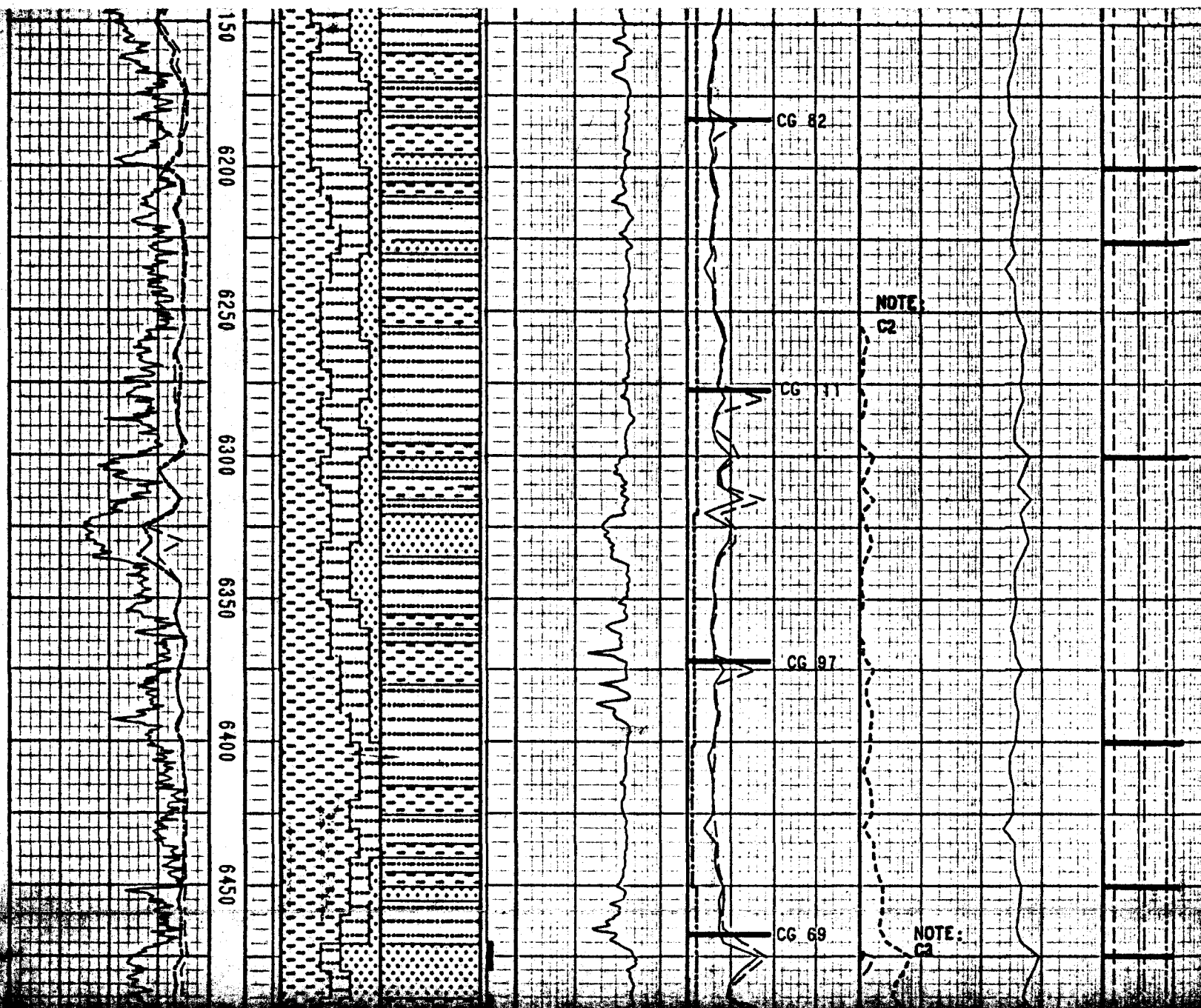
SD-CLR. LT-DKGY. VF-FGR. OCC MGR.  
SBANG. M-PSRTO. SLTST/CLY MTX.  
TOXOTZ. 30% LITH FRAGS & HRMBLD.  
TR PYR. NSOFC

MM 19.0 VIS 55  
PV/TP 20/23  
PL 2.0 PM 0.2 G. 1750



10' PTH. NSOFC  
 NW 10.0 VIS 33  
 PV/TT 20/23  
 PL 2.0 PM 0.3 CL 17500  
 CLY-LT-MCY. CYBRN. SLI CALC.  
 SLTY-SOY. OCC BENT. GMY. SFT  
 SD-LTGY. CLR. TR BRN. VFGR.  
 TR F-MGR. SBANG-ANG. M-W  
 SRTO. CLY/SLTST MTRX. TR  
 TUF. TR MICA. N-SLI CALC.  
 60%QTZ. 20%LITH FRAGS. 10%  
 HRNBLD. UNCONS. NSOFC  
 CLY-LT-MCY. SLTY-SOY. TR  
 PYR. N-SLI CALC. OCC TUF  
 STRGRS. GMY. SFT  
 SVY @ 5983' 1.24 Deg.  
 TUFF-WH. TN. YEL. ORNG. BLKY. PLTY  
 IP. CHKY. WXY IP. MICXLN. TR  
 IRON STN. TR DUL ORNG MIN FLOR.  
 SFT-HFRM  
 START 10' SAMPLE INTERVAL  
 SLTST-MCY. MCYBRN. AMORPH. FLKY IP.  
 ARG. CLY MTRX. MCALC. TR VFGR  
 SD INCL. CHMY. SFT + HYDRTO  
 CG 144  
 SD/SS-CLR. TRANSL. BLK. WH. CY.  
 S+P. SLT-VFGR. SBANG-RND. PRED  
 SBRND. PSRT. PRED UNCONS. ABNDT  
 CLY MTRX MAT. TR CHKY WH CALC  
 OR ALTRD CLY MTRX. TR CARB  
 SPECS. 80% QTZ. 20% BLK + CY  
 LITH FRAGS. NSOFC  
 TR VCGR DKCY RND LITH GR9





SLTST-OKCYBRN. BLKY. CALC. TR  
VGR SD INCL + INTBDS. PRED  
QTZ INCL. TR CARB FLKS. VARG.  
SFT-FRM + BRIT

SLTST-A/A. BCING FRMR. M-VCALC.  
TR WH CALC CLY STRNGRS OR  
INTBDS. OCC F-MGR SBRND QTZ  
INCL. VARG. CRONG TO CLYST IP.  
SFT-MFRM

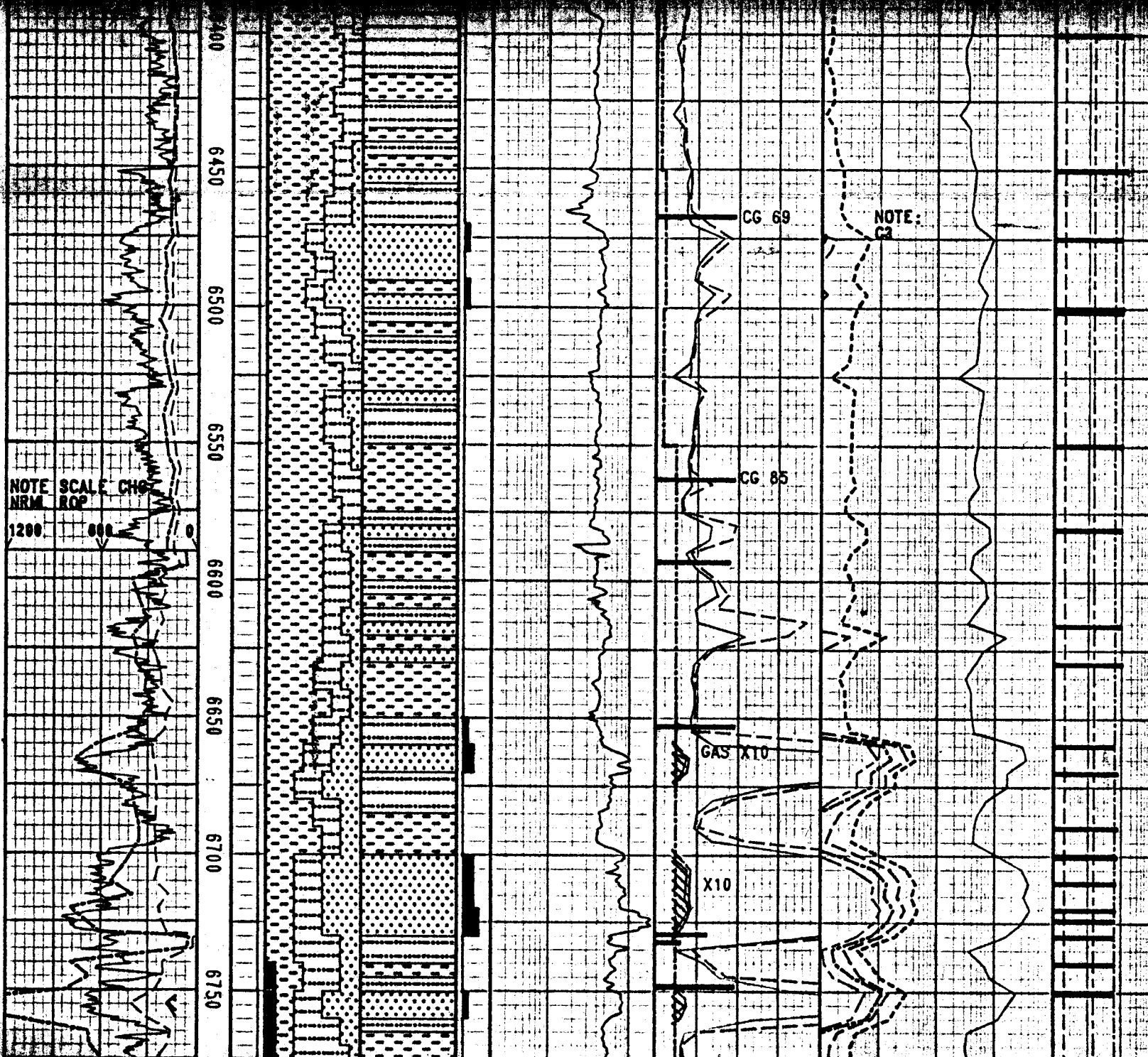
SD-CLR. CY. BLK. GRN. SLT-VFGR.  
TR OCC MGR. SBANG-RND. PRED  
SBRND. P-MSRT. UNCONS. ABNDT  
CLY MTRX. INTBD OR INCL IN  
SLTST + CLYST. 80-90% QTZ.  
10-20% LITH GRS. NSOFC

SVY @ 6343' 1.42 Deg.  
TR DISSEM MICKLN PYR IN SMPL

CLYST-TN. LT-MCYBRN. AMORPH.  
SLI-MCALC. SLTY. AREN. TR-10%  
VGR QTZ SD INCL. STKY. GMY.  
VSFT + VHYDRD

SLTST-LT-MCY. CYBRN. TN. ARG.  
AREN. VSLI CALC. TR PYR. SFT.  
GMY

SD-CLR. LTGY. OCC BLK. MGR.  
VGR. OCC F-MGR. AREN. TR-10%  
M. SBRND. PRED SBRND. P-MSRT.  
CLY MTRX. INTBD OR INCL IN  
SLTST + CLYST. 80-90% QTZ.  
10-20% LITH GRS. NSOFC



QTY - 1.00 E3 - 10000000000  
SLT - MCLC. SLTY. AREN. TR - 10%  
VGR QTZ SD INCL. STKY. GMY.  
VSFT + WHYDRT

SLTST - LT - MGY. CYBRN. TN. ARG.  
AREN. VSFT. CALC. TR PYR. SFT.  
GMY

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

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

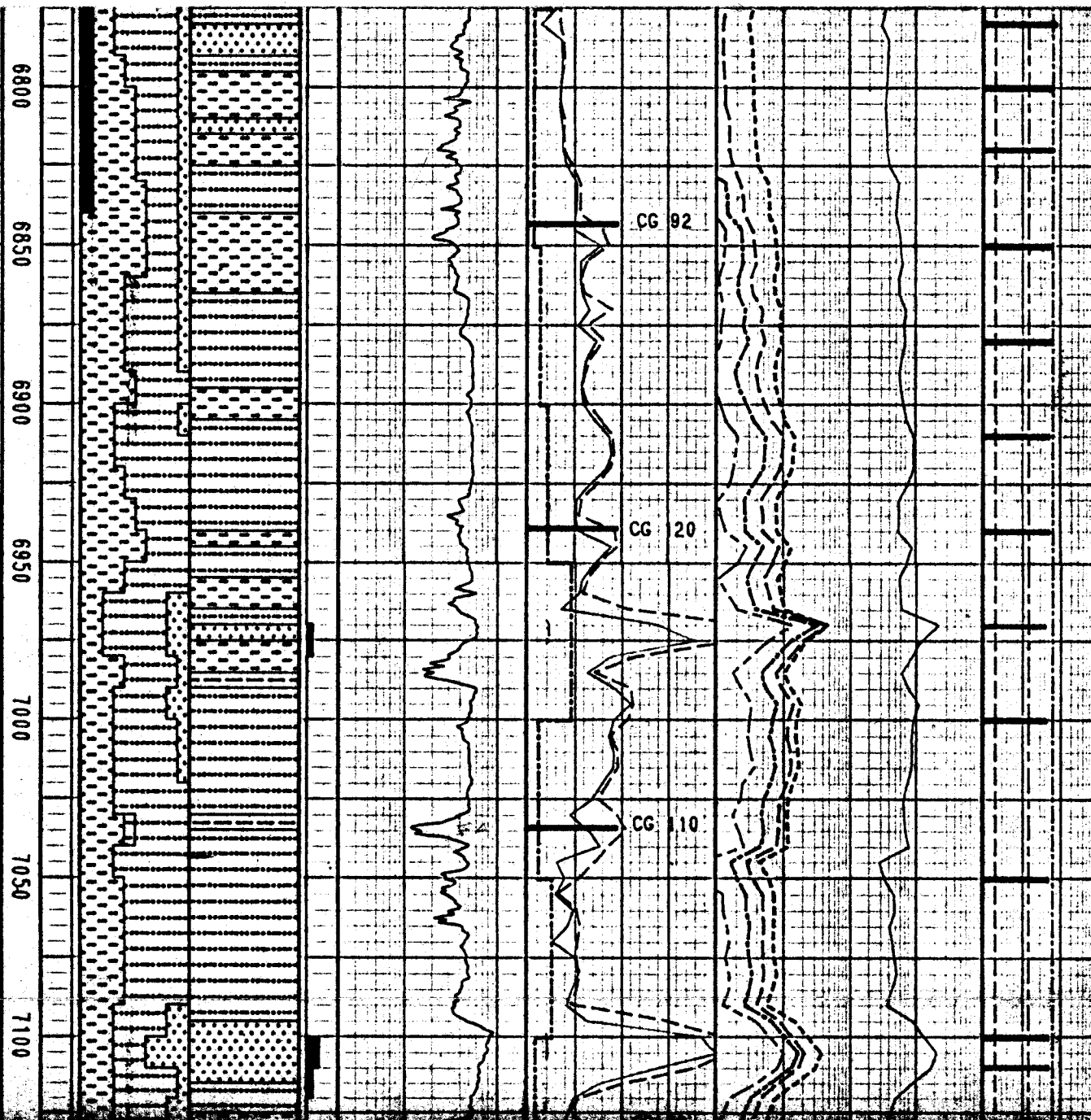
SVY @ 6547' 1.42 Deg.  
MW 10.0+ VIS 50  
PV/YP 22/28  
FL 2.7 PH 8.1 CL 17000

8-13-83  
NB 5 12.25° DS-40H  
2-14 3-13 JETS  
TG 142

SD - CLR. TN. LTGY. BLK IP. SLT - VGR.  
SBANG - SRDND. PRED SRDND. P - MSRT.  
VARG - UNCONS. ABNDT CLY MTRX  
MAT. 80-90% 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 ODOR.  
NO VIS STN

SD - OKGY. BLK. CLR. TRANSL. MGY.  
VF - MGR. PRED MGR. OCC C - VGR.  
SBANG - SRDND. 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 ODOR.  
SLT TR TN - LTBRN STN ONLY IP.

8-14-83 NCB1 RC412 TFA 7  
CORE #1 6729-6732 NO REC.  
TG 98  
NRB 5 DS-40H  
2-14 3-13 JETS  
SD - OKGY. BLK - BRN. LTGY. CLR.  
F - MGR. SBANG - ANG. M - PR  
SRD. TR PYR. PRED CHT &  
LITH FRACS. 30-40% QTZ.



SLT-LT-MGY. ARG. SLT-VSDY.  
MOD YEL/GR FLUOR. GO MLKY  
CUT FLUOR. YEL/CLD RESID CT  
SLTST-LT-MGY. ARG. SLT-VSDY.  
TR THN COAL STRGRS. TR  
PYR. SLI CALC. SFT  
SLTST-LT-MGY. ARG. SLT-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 8.8  
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

8-15-83

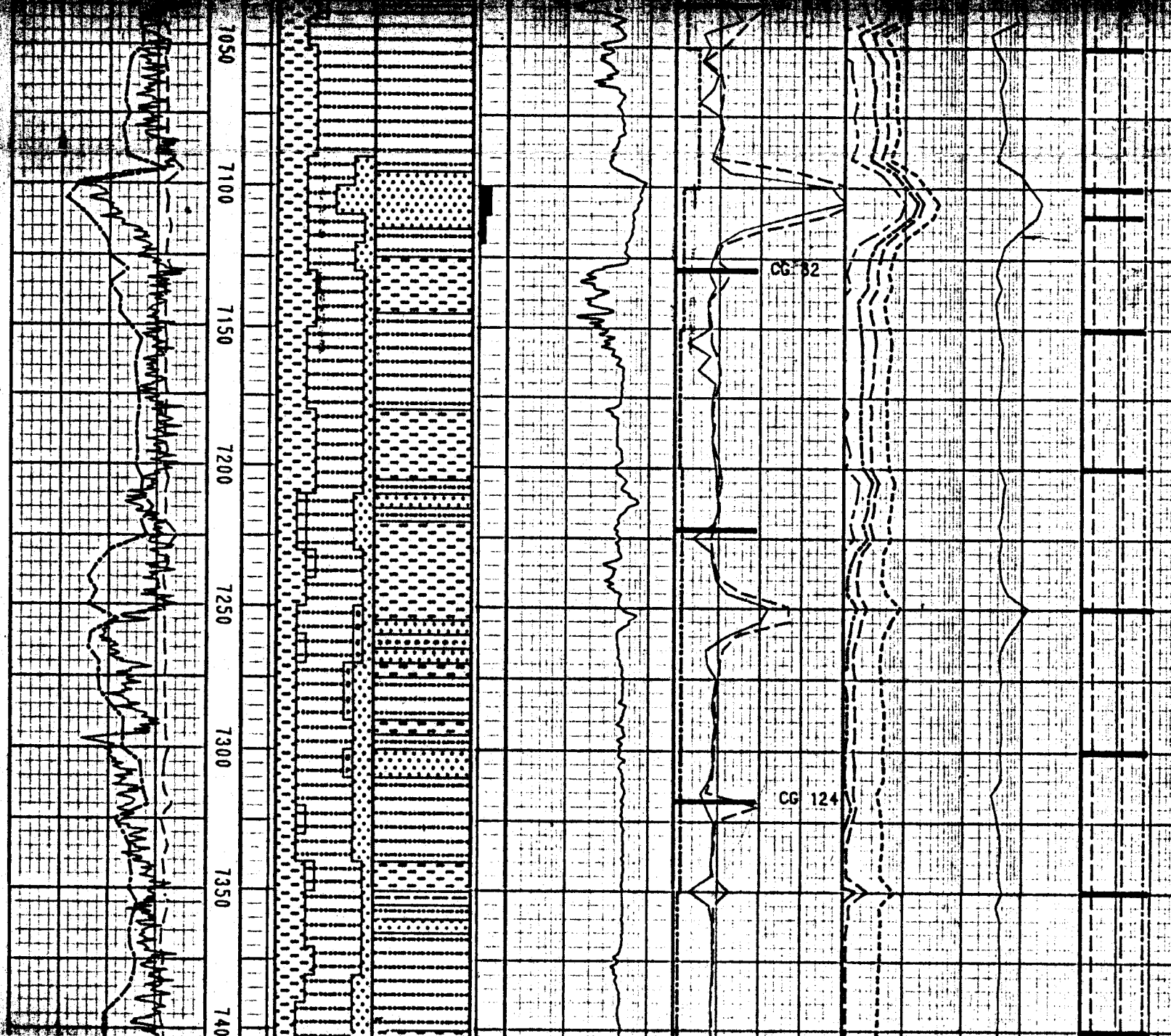
SVY @ 8940' 0.89Deg.  
CLY-LT-MGY. GYBRN. SLTY.  
F-M CR FLTG SD CRS.  
OCC TN-BRN FOS FRAGS  
W/ DUL ORG MIN FLUOR.  
SLI CALC. SFT

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

SH-MGY. SLTY. OCC SDY.  
CALC-VGALC. 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-DEANS. FR. SRTD.  
UNCONS. TR CALC CMT. <5% OF  
LITH FRAGS. SFT. TRNSL.  
COR. SFT.



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

SD-M-DKCY.CLR.TRNSL.WH.F-CGR.  
PRED CGR.ANG-SBANG.PR SRTD.  
UNCONS.TR CALC CMT IP.80%  
LITH FRAGTS.20XDTZ.10XDUL  
ORG MIN FLOR.10XBRT VEL/  
WH SAMP FLOR.N RESID CT.  
N STN.SLTY CLY MTX  
CLY-LT-MCY.TN.SLTY-SDY.  
MOTT IP.SLT CALC-CALC.  
TR FOS.SFT

#### ABNDT CALC FRAGS

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

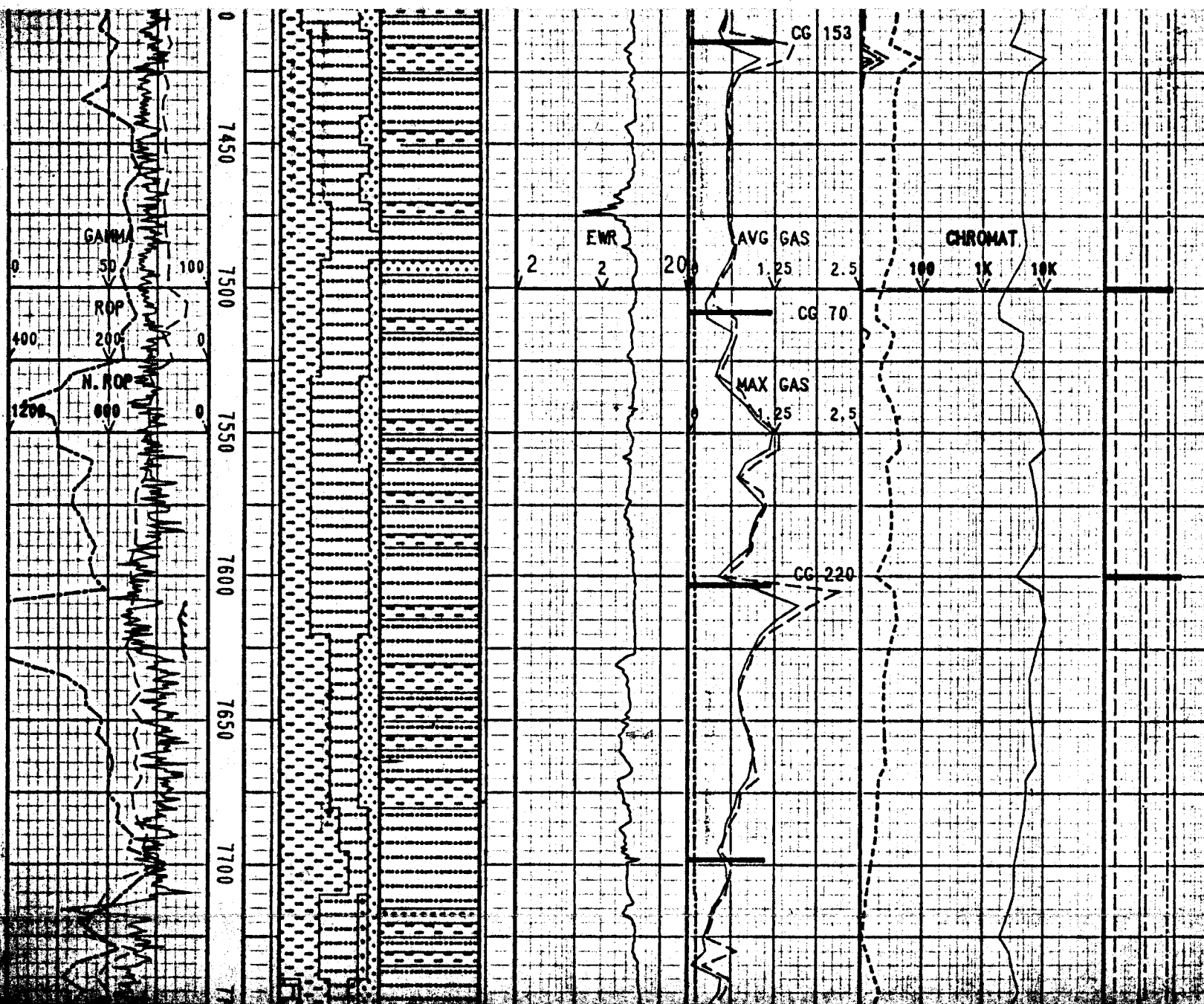
SS-BLK.CY.S+P.WH.F-VCGR.PRED  
MCR.ANG-SBRND.PRED SBANG.  
PSRT.MCMT.UNCONS IP.CALC.  
20% DUL ORNG MIN FLOR.NSOC

SLTST-LT-MBRN.TN.DKBRN + WH  
MOTT IP.BKLY-UNCONS.VMCT IP.  
VCALC.ARG.TR-10% VF-FGR SD  
INCL.GRDNG TO SH IP.TR CARB  
SPECS.TR WHVEL CALC STRNGRS.  
TR DUL ORNG MIN FLOR ONLY IP.  
HYDRD-HD + BRIT

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

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 SBRMD QTZ.  
SLI TR PYR. BODS. VSFT + HYDRTD-  
FRM + BRIT

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

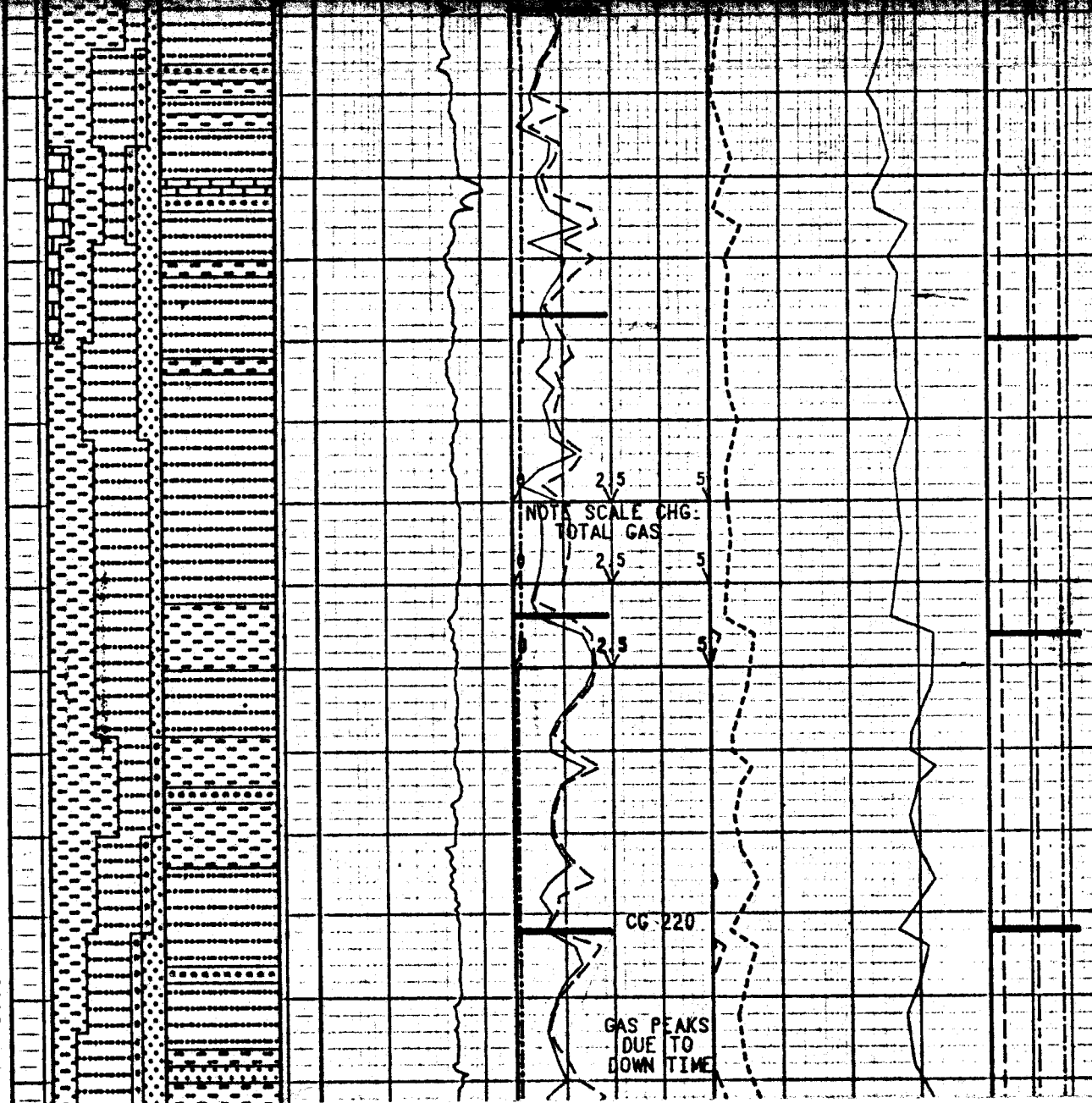
SD-CLR. WH. LTGY. OCC. BLK. VF-MGR.  
PRED VFGR. SBANG-VMRND. PRED  
SBRMD. PSRT. UNCONS. INCL. IN  
CLYST + SLTST. PRED QTZ. TR  
LITH + CARB FRAGS. NSOFC

8-16-83  
STG 625

AW 10.0 VIS 50  
PV/VP 25/30 PH 8.0  
FIL 2.8 CL 17300  
SS-LTGY. VF. FOR. SBRMD.  
SBRMD. MSRTD. CRDNG TO  
SLTST IP. CALC. CMT. TT.  
DUL. ORG. MIN. FLUOR. NCI.  
NSTN

7700  
7750  
7800  
7850  
7900  
7950  
8000

*Handwritten notes on the left margin, including "SS-LTGY. VF-FGR. BRN. WH. MICR-FXLN."*



SS-LTGY. VF-FGR. BRN. WH. MICR-FXLN.  
 SBRND. MSRTD. CRDG TO  
 SLTST IP. CALC CMT. TT.  
 DUL ORG MIN FLUOR. NCT.  
 NSTN  
  
 LS-MGY. TN. BRN. WH. MICR-FXLN.  
 VFOS IP. CHLKY IP. PRED  
 VDMS OCC SDY. SFT-HD.  
 DUL-BRT ORG/PNK MIN  
 FLUOR. N STN. N OOR.  
 SVY @ 7790' .0420deg  
  
 SLTST-LT-MGY. PRED ARG. SDY  
 IP. SLT CALC-CALC. TR CARB  
 SPECS. ABNT FOS SHEL FRAGS.  
 SFT. PRED UNCON  
  
 SLTST-LTGY. TN. CALC. VSDY  
 IP. OCC FOS FRAC. TR CARB  
 SPEC. ARG. SFT  
  
 ABNT CLAY BALLS OVER SHKRS  
  
 CLYST-M-OKGYBRN. MORN. 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.  
 ABNT CLY NTX. SKE WH ALTRD  
 CLY OR CALC CMT. CRDG TO



8050

8100

8150

8200

8250

8300

8350

8400

CG 254

CG 143

CG 429

CG 288

SLTST IP. VS. 1 TR. UNCON. YEL.  
SMPL. FLOR. CD. FAST STRNG. WH. CT.  
FLOR. IP. CD. WH. RESID. CT. FLOR.  
NO STN. NO ODOR

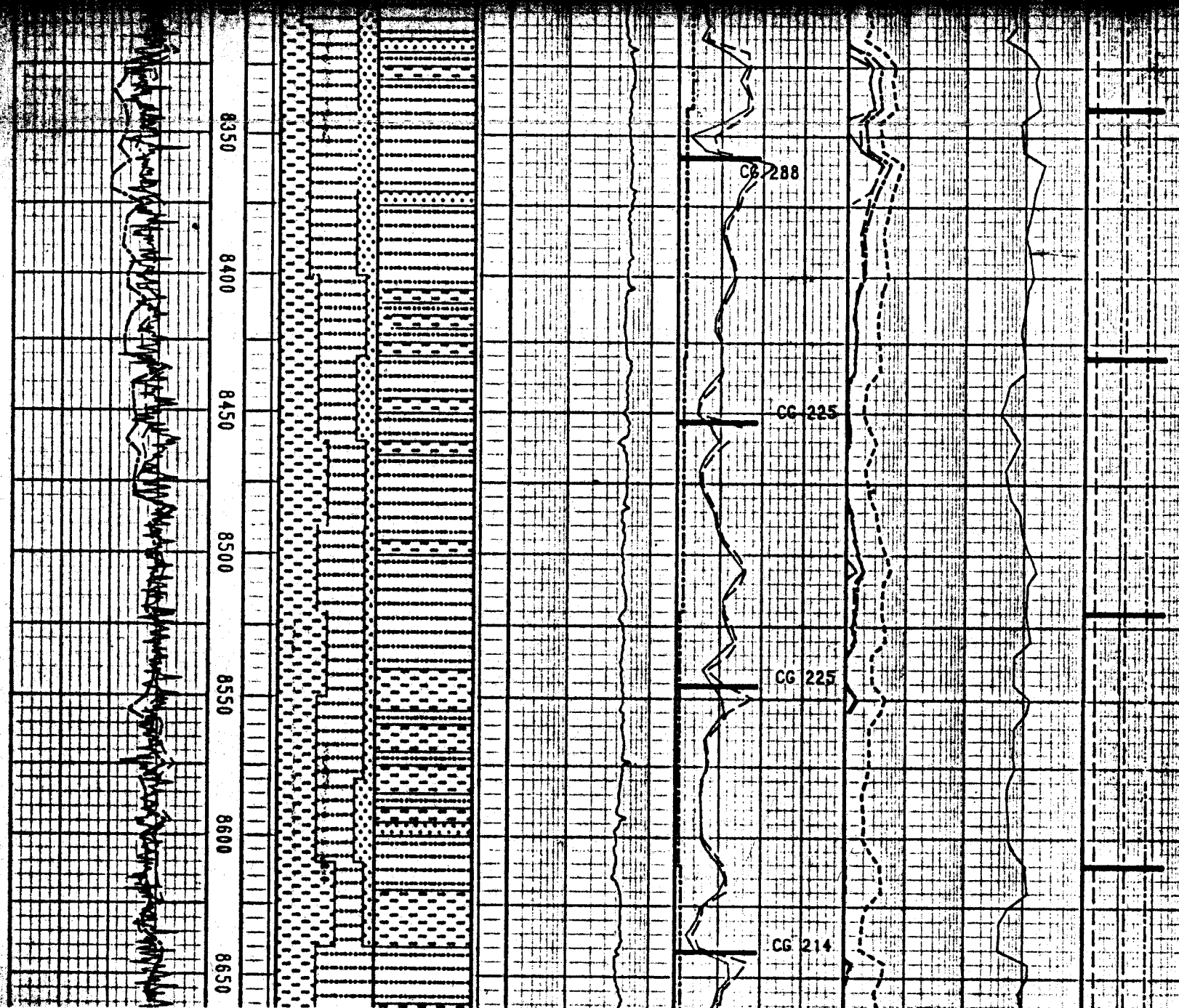
SLTST-TN. LT-MBRN. UNCONS-BLKY  
ONLY IP. VARG. GRNG. TO CLYST.  
TR. VFGR. SD. IP. SLT-MCALC. TR.  
CARB. SPECS. SFT-FRM

TR. DISSEM. PYR. IN. SLTST  
SYT @ 8100' 0.400g.

SD-CL. 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.  
PRINGS. 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 ODOR

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

SLTST-M-LTGYBRN. WH. IP. AMORPH.  
IN. SMPL. VARG. GRNG. TO VFGR.  
SD. IP. TR. MGR. SD. SLT. CALC.  
TR. CARB. SPECS. 10% WH. IP.  
GRNTEL. SMPL. FLOR. CD. WH. FLOR.  
CT. FLOR. CD. STRNG. WHYL. CT.  
FLOR. FR. PR. RESID. CT. FLOR.  
TR. LTBRN. OIL. IN. SMPL. FNT.  
ODOR



SLTST-M-LTGYBRN. WH IP. AMORPH  
IN SMPL. VARG. CRDNG TO VFGR  
SD IP. TR MGR SD. SLI CALC.  
TR CARB SPESS 10% DUL. WH  
GRUYEL SMPL FLOR. CD WH FLOR  
CT FLOR. CD STRNGG WHYEL CT  
FLOR. FR-PR RESID CT FLOR.  
TR LTBRN OIL IN SMPL. FNT  
ODOR

SVY @ 8453' 0.630 deg.

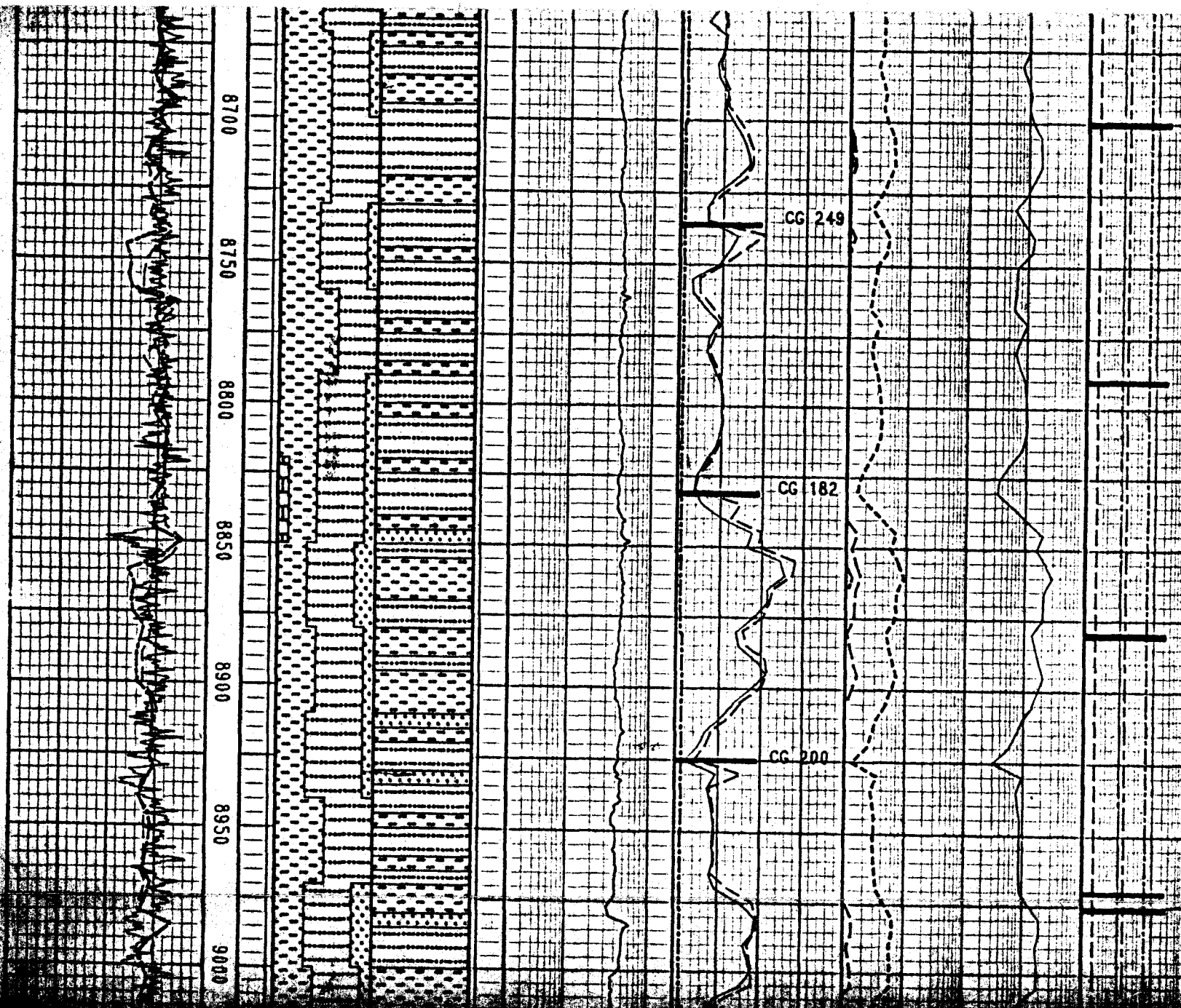
SLTST-TN. LTGYBRN. AMORPH IN  
SMPL. VARG. ABNOT CLY MTRX  
MAT. CRDNG TO CLYST. SLI  
CALC. 10% VFGR QIZ SD INCL.  
5% DUL LTGRN SMPL FLOR. PR-PR  
WHYEL CT FLOR. PR RESID CT  
FLOR. NO VIS STN. NO ODOR

MW 10.2 IN

CLYST-TN. AMORPH IN SMPL. SLTY.  
AREN. SLI-MCALC. GRMY. STKY.  
VSFT + VHYDRD

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

CALC FRAC FILL. BAN. YEL. XLN



TR PYR. MOBS. TR LRG XL'S

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' 0.790ggs.

CLYST-TN. VLTGYBRN. AMORPH IN  
SMPL. 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 FRACS.  
DUL ORG MIN FLUOR IP.  
NSTN. NCT

SLTST-LTGY. LTGYBRN. MOTT. SLI  
CALC. OCC FOS FRACS. 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. NSTN. NCT

8950  
9000  
9050  
9100  
9150  
9200  
9250

MAX GAS 1523

CG 181

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

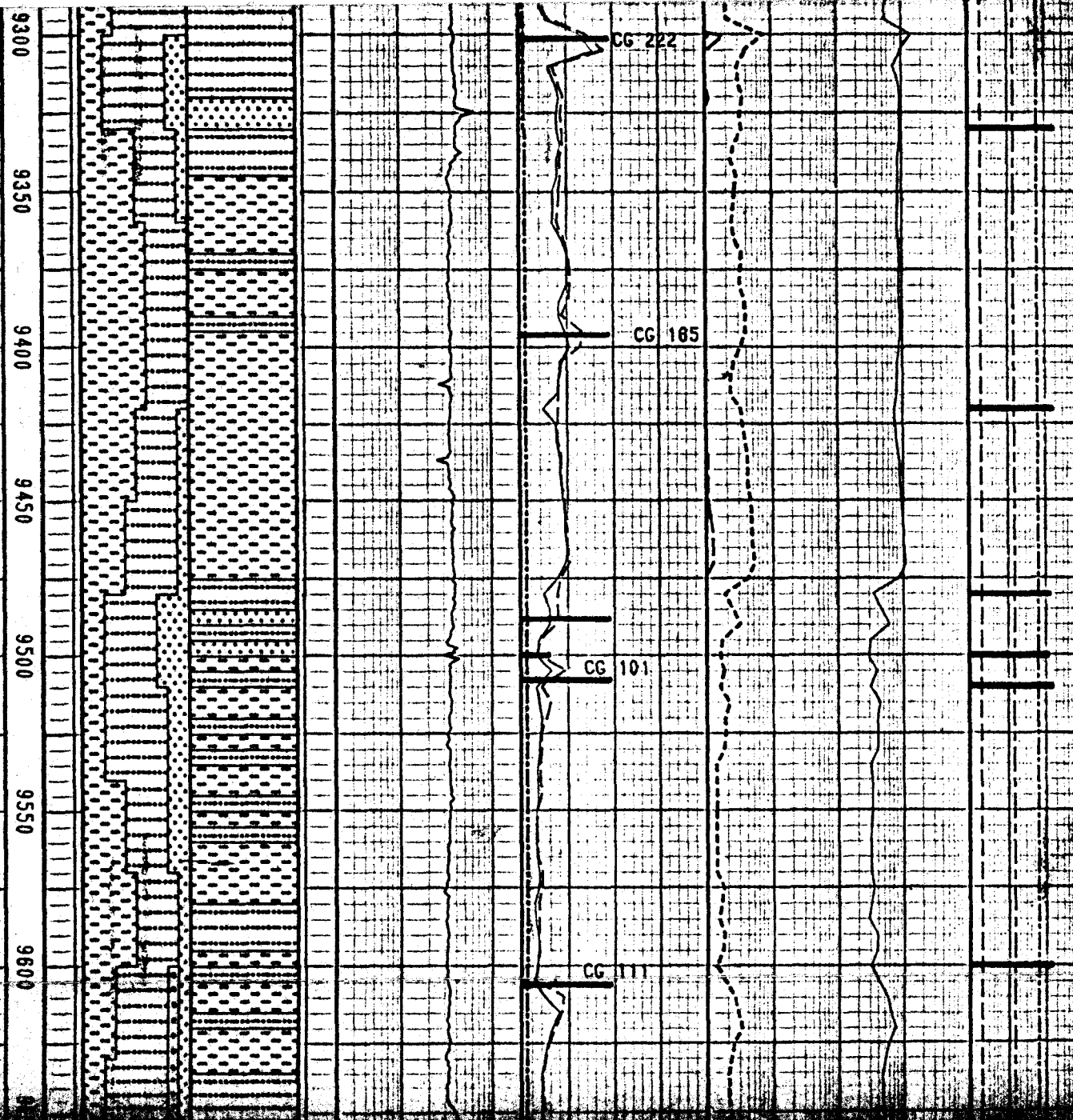
CLY-LTGY. TN. SDY. GRDC. TO  
SLTST. SLI. CALC. SFT

SVY @ 9207' 0.870deg.

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





SS-CLR. WH. 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 WH MOTT.  
SLTY-SDY. VSLTY CALC. CRDG TO  
SLTST. SLI CALC. FRAC FIL. SFT.

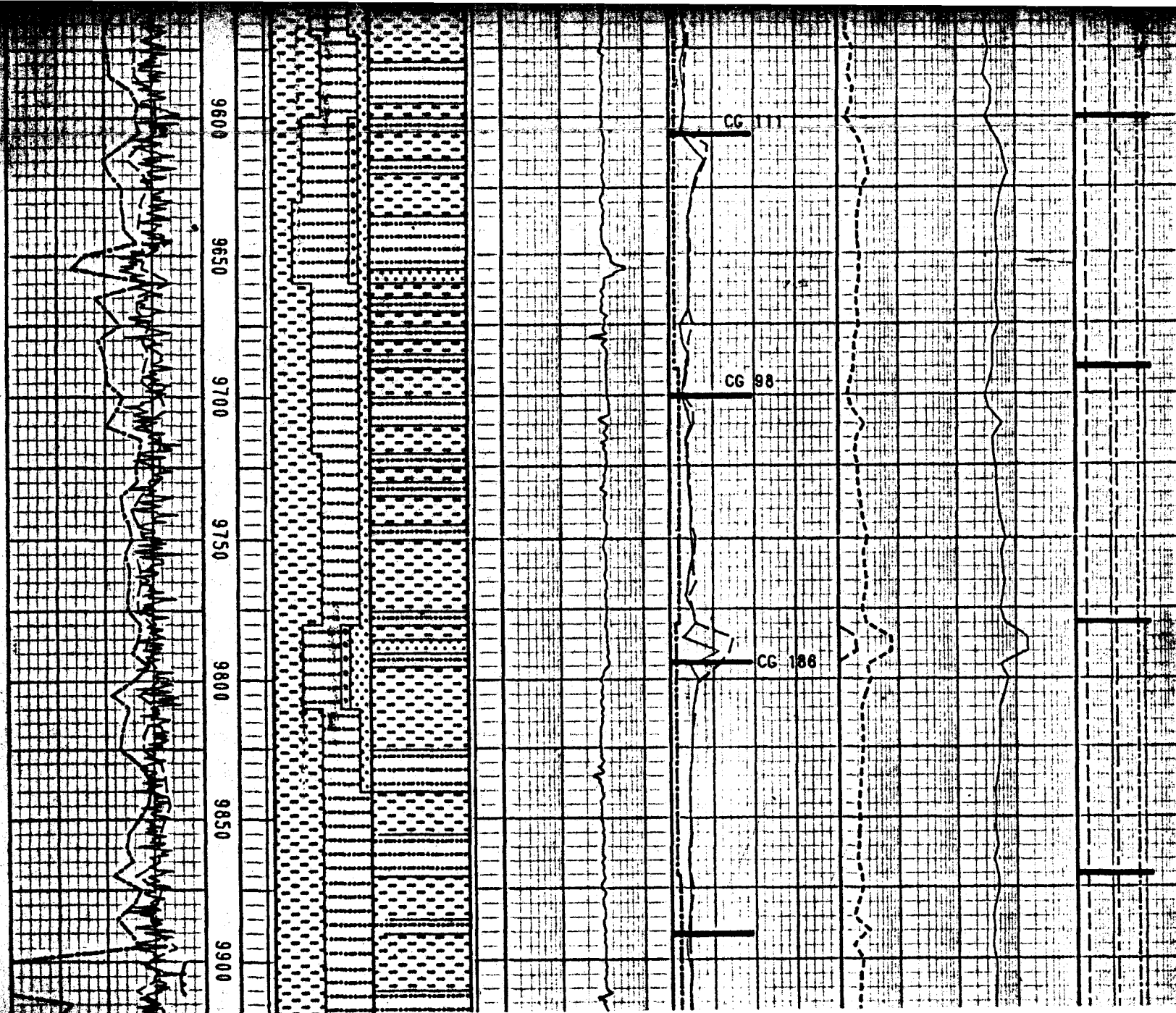
SLTST-LT-MGY. OCC WH + CHKY  
MOTT. VARG. OCC CARB  
SPECS. OCC SD STRNGRS. TR  
FOSS FRACS. NSOFC

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. WH MOTT IP. BLKY  
IP. PLTY IP. ARG. CRDG TO  
CLYST IP. SLI CALC. TR PYR.  
TR VFGR QTZ SD INCL. SFT-  
MFRM + BRIT

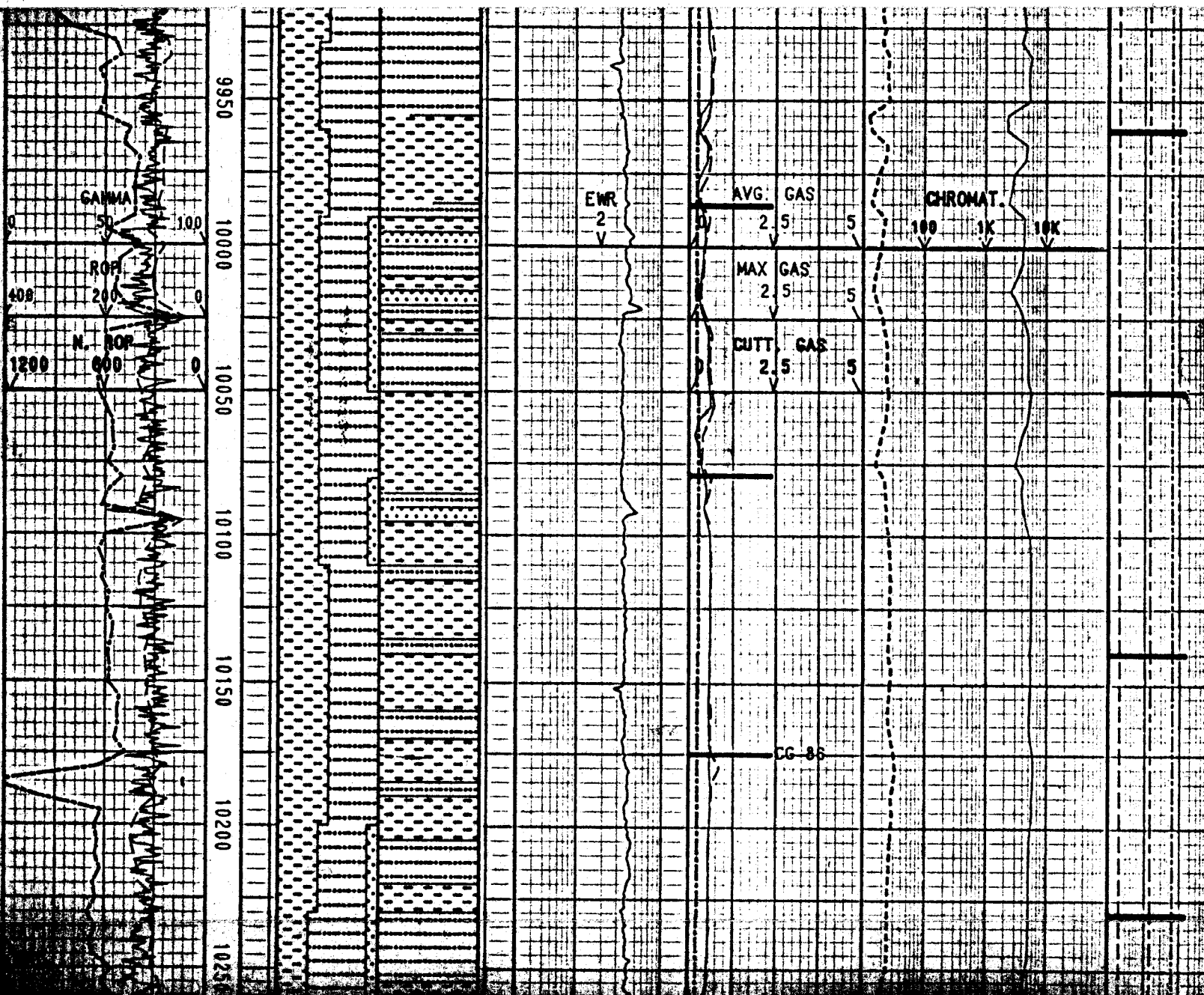


SS-CLR. WI. CY. BLK. TR GRN. VGR.  
SBANG-RND. PRED SBAND. MSRT.  
VCALC. CLY MTRX MAT IP. CHKY  
OR ALTRD CLY MTRX IP. TT.  
80-90% QTZ. 10-20% BIOT OR  
HRDLMD. NO VIS POR. NSOFC

CLYST-TN. LTGYBRN. AMORPH-  
SLT BLKY IP. SLT 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-MSRT.  
MCMT-FRI. CALC. VCALC IP.  
GRDNG TO SLTST IP. TR CLY  
MTRX. 80-90% QTZ. 10-20%  
LITH FRACS. POSS HRDLMD. NSOFC

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



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

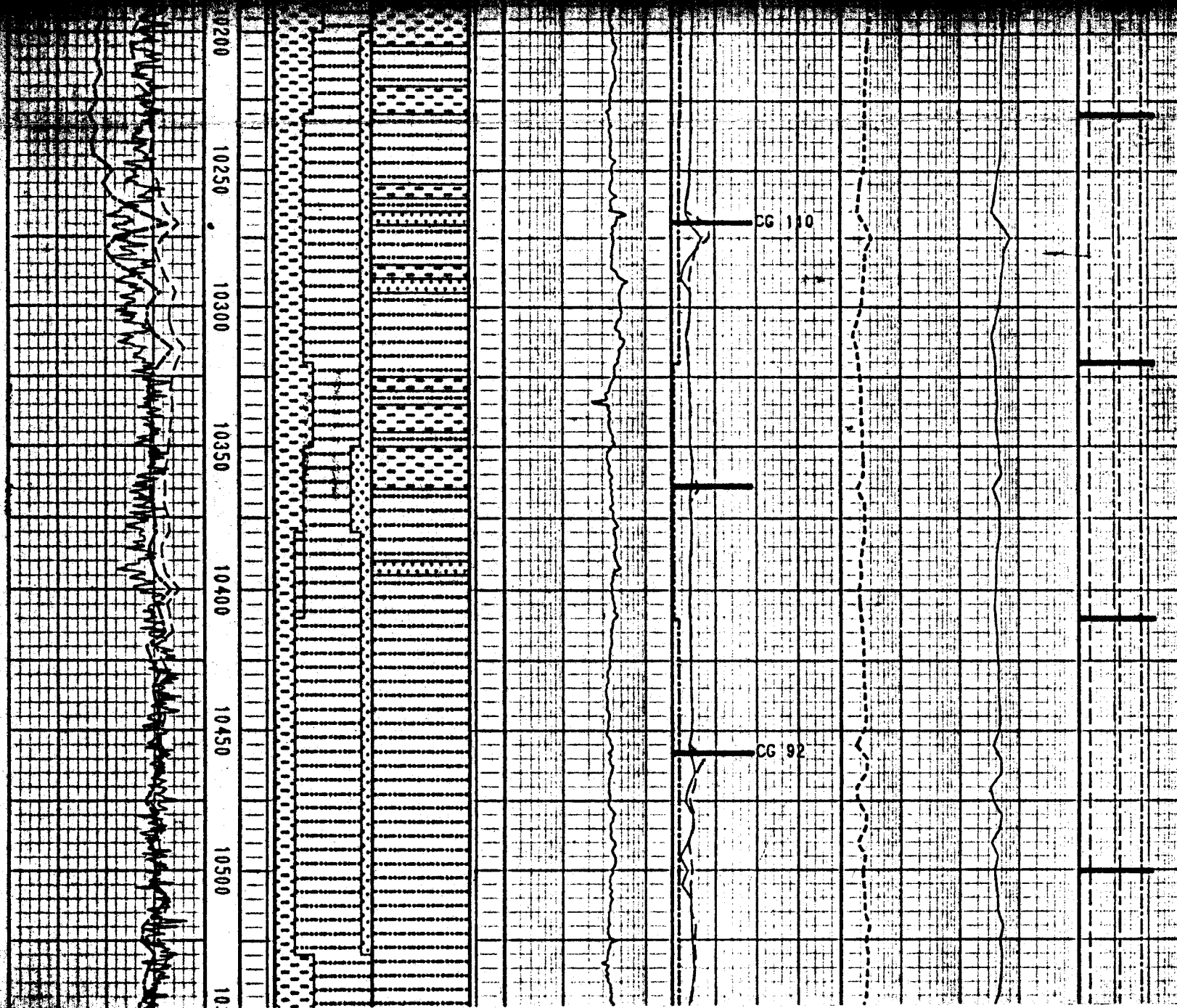
SVY @ 9984' 1.43Days.

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.

8VY @ 10280' 0.87Dogs.

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

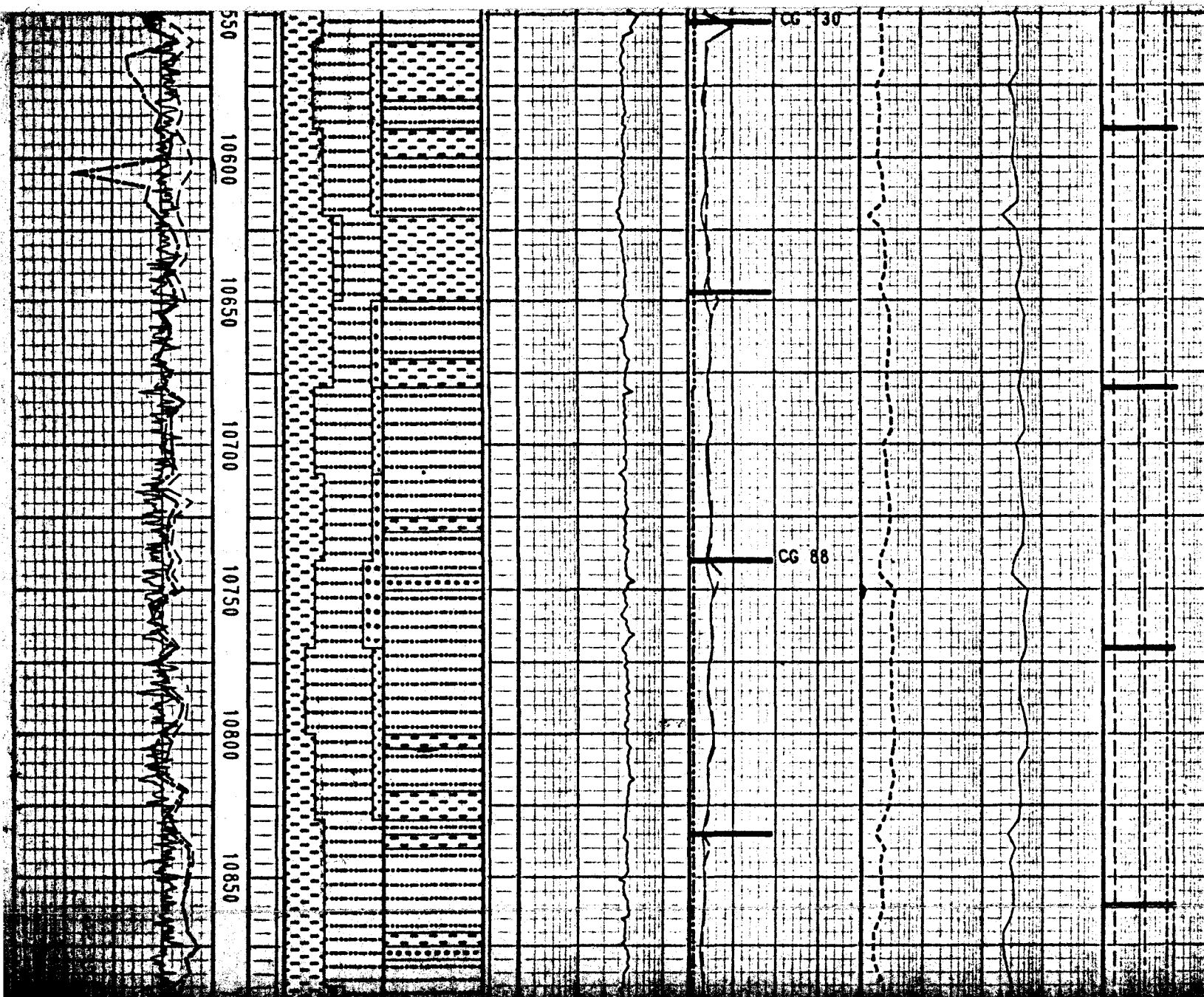
SLTST-LTGY-GYBRN. LTBRN. WH  
STRGRS. SLI-VARG. SDY IP W/  
SDY STRGRS. TR CARB PRIGS  
& SPECS. N-VSLI CALC. TR  
CALC XLS. SFT. BCNG INCRLY  
CONSOL

8-18-93

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





STG 883

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

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

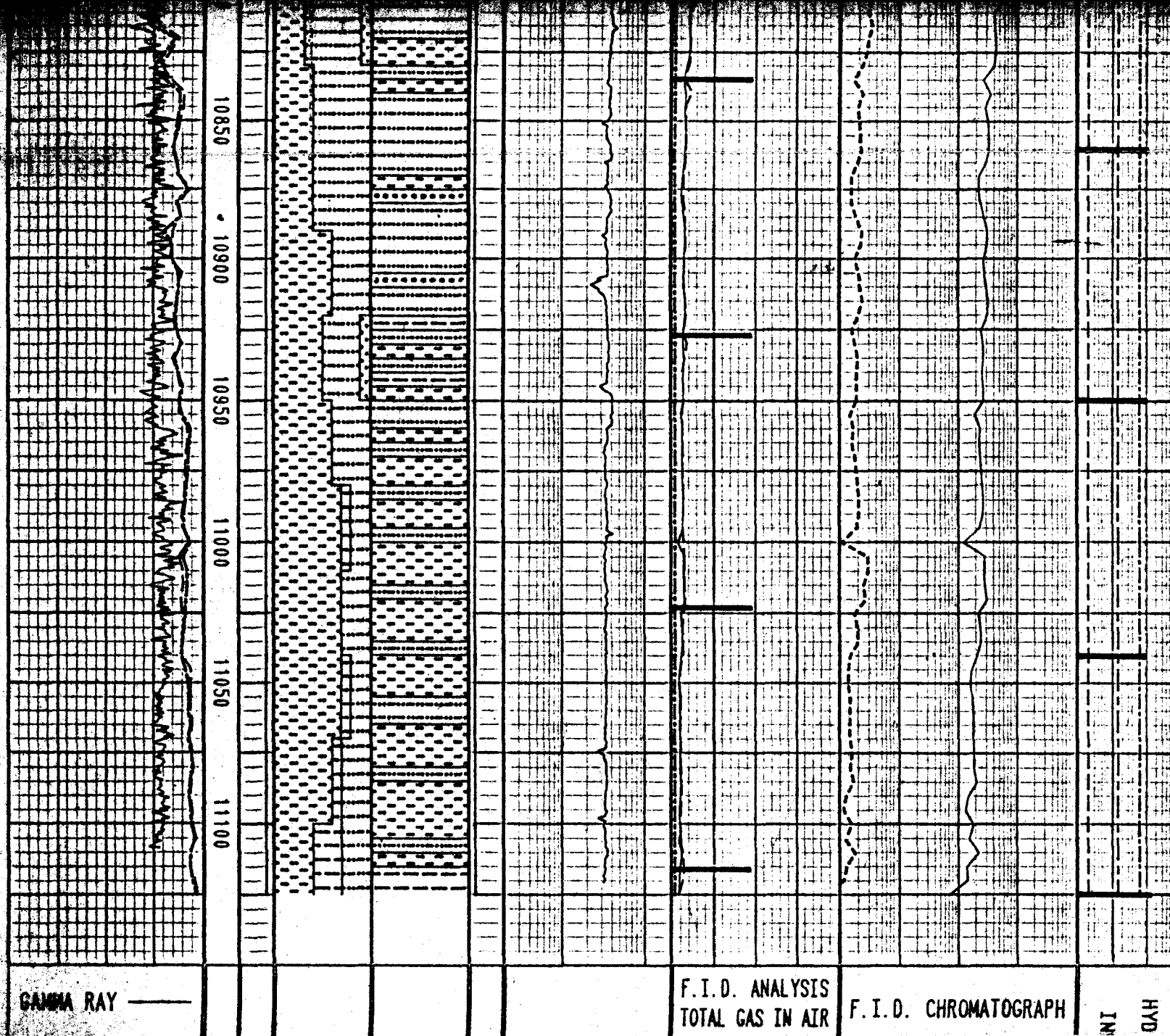
RAISE MW TO 10.8

ABNDT WH CHKY CALC STRGRS

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

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

SLTST-M. DKBRN. BLKY. PLTY.  
ARG. MICA. CLY. MTRX.



CLYST-TN. LTBRN. AMORPH-BLKY.  
SLI CALC. VAREN. INTBD W/  
PLTY SLTST + CARB SPECS  
IF. 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. VSLI  
CALC IF. 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. N-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

APPROX API Units	DEPTH-feet	VISUAL POROSITY	VISUAL LITHOLOGY	INTERPRETED LITHOLOGY	OIL SHOW RATING	ELECTROMAGNETIC WAVE RESISTIVITY  ohms - m2/m	CONNECTION = BAR	ANALYSIS	ROCARBON DICATOR	LITHOLOGICAL DESCRIPTIONS and REMARKS
DRILLING RATE -- feet/hour							AVERAGE GAS --- MAXIMUM GAS --- ( % )	C1 --- C2 ---- C3 --- TOT C4 --- TOT C5 ---		
NMLZD ROP ----- feet/hour							TOT PPM CUTTINGS CUTTINGS GAS ---- ( % )	HYDROCARBONS  P.P.M. IN AIR		
MD	6-1	%	ANALYSIS	1-6	2	2.5	3	100 1K 10K	NP GAS OIL	



# SPERRY SUN DRILLING SERVICES

LOGGING SYSTEMS A Baroid Company

WELL OGS-Y-8865 NO. 1

COMPANY ARCO ALASKA, INC.

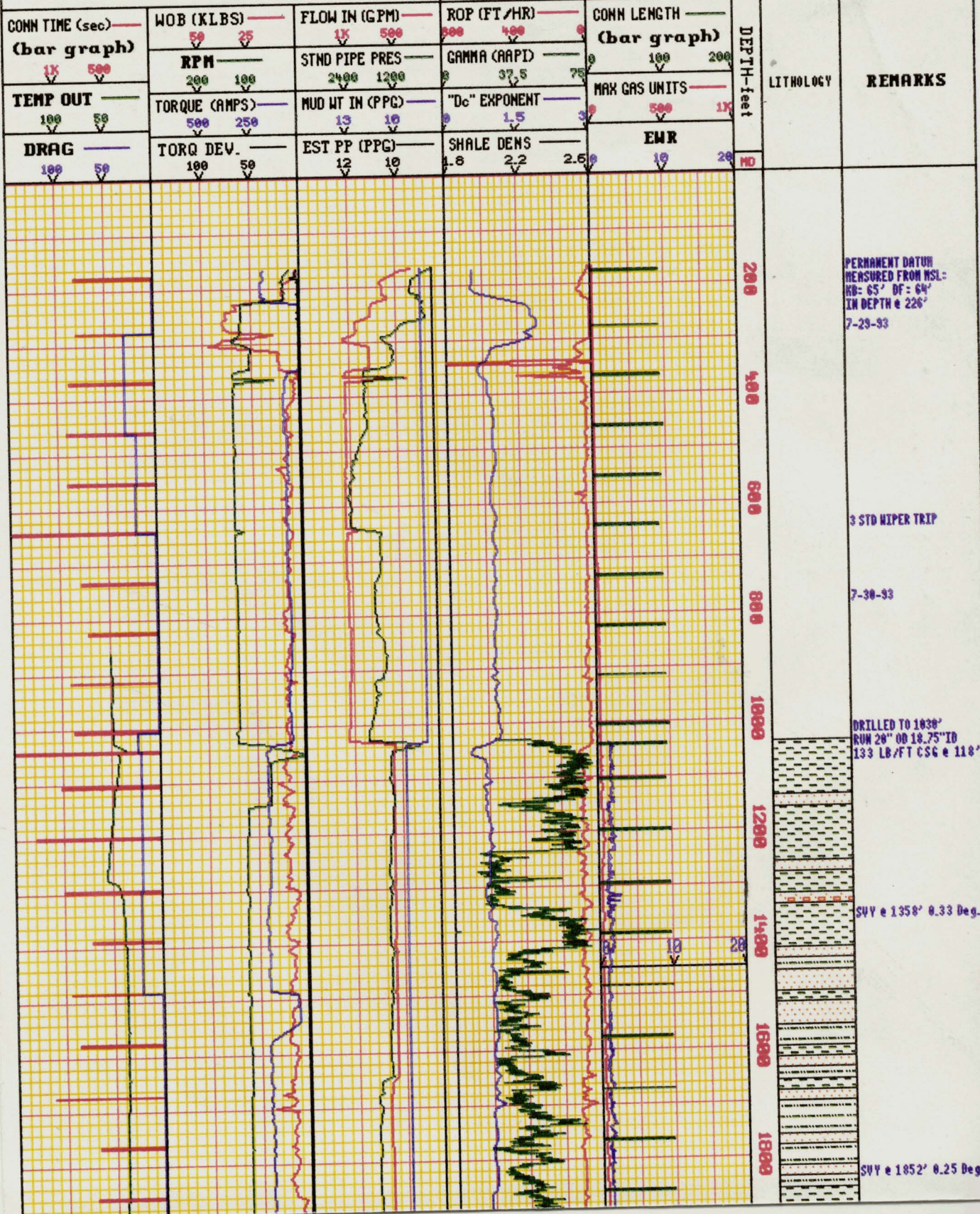
LOCATION BLOCK 672, BEAUFORT SEA, ALASKA

## LEGEND

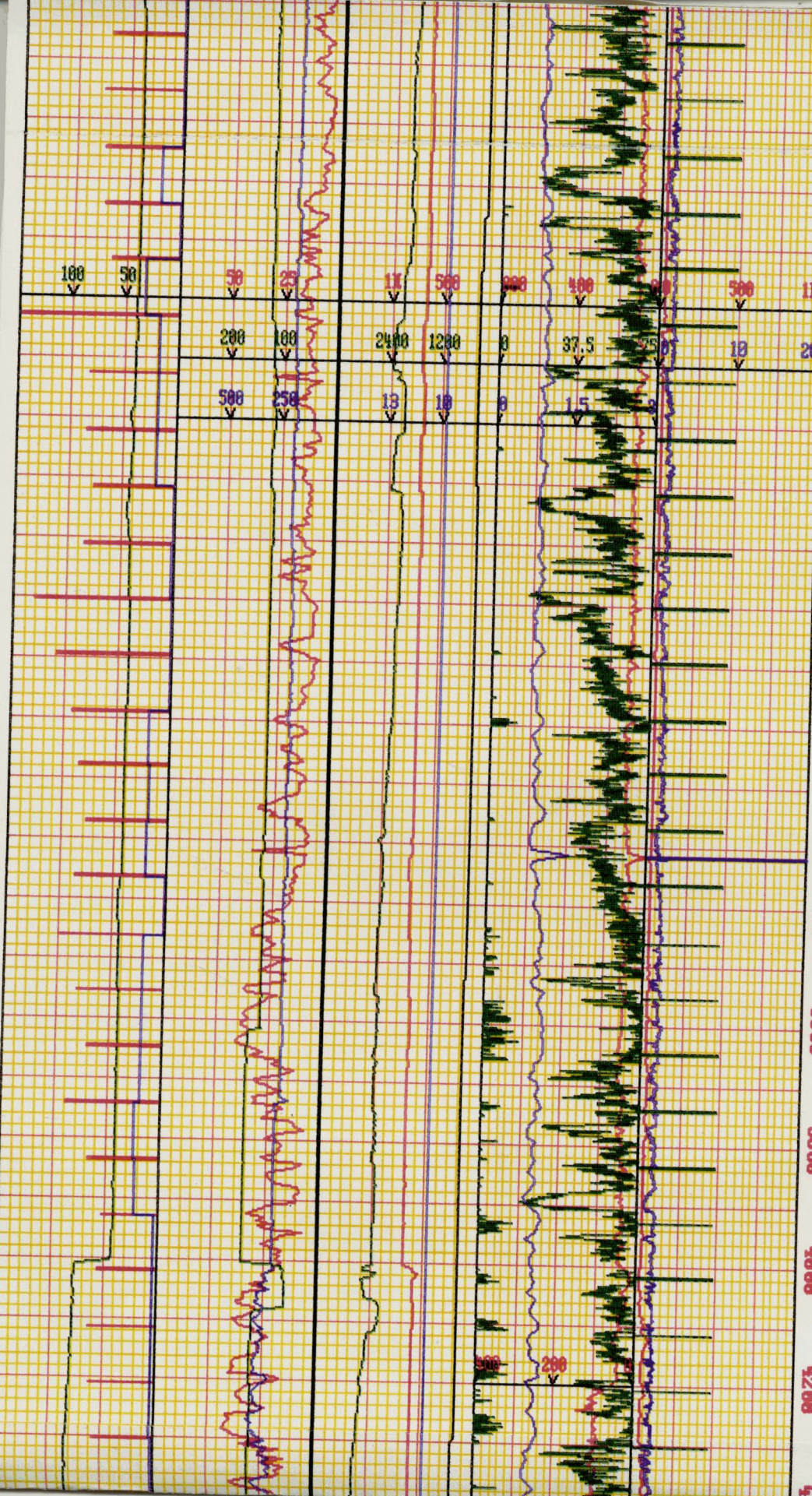
NB New Bit  
 NR No Returns  
 TG Trip Gas  
 DG Depth Corr  
 Clay  
 Shale  
 Siltstone  
 Sandstone  
 Gravel  
 OKF Check for Flow  
 LAT Log after Trip  
 DST Drill Stem Test  
 SVV Dirac Survey

LOGGING  
SYSTEMS  
ADT SERVICE

ENGINEERING  
LOG

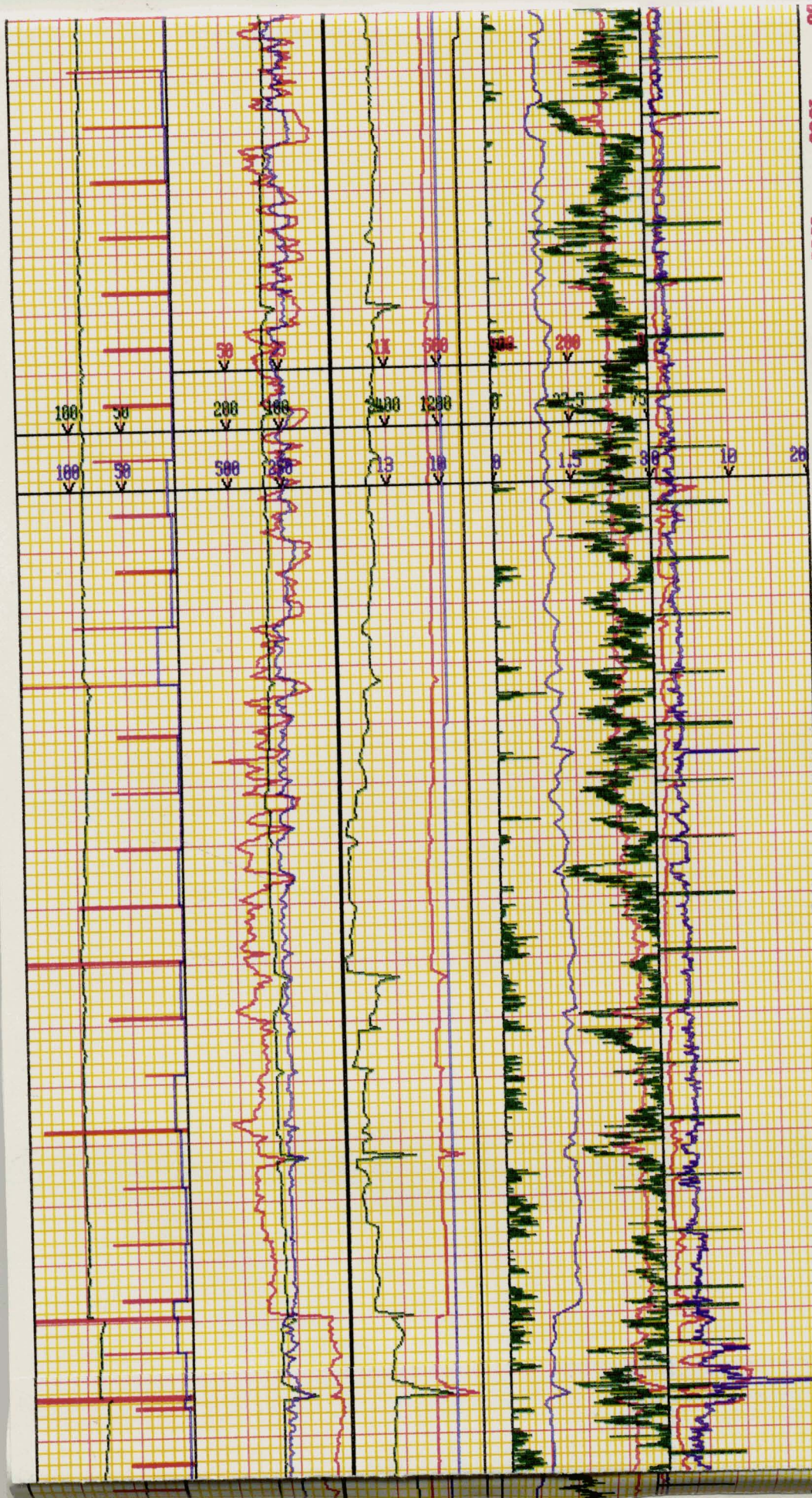






20.00	8-3-93
22.00	SVY e 2210' 0.24 Deg.
24.00	ST e 2435'
26.00	SVY e 2495' 0.23 Deg.
28.00	
30.00	SVY e 2963' 0.37 Deg.
32.00	
34.00	8-4-93
36.00	SVY e 3334' 0.40 Deg.
38.00	
40.00	SVY e 3614' 0.39 Deg.
42.00	SVY e 3977' 0.25 Deg.
44.00	8-5-10-93
	SET 13 3/8" CSCe3977'
	LOT = 14.9 ppg ENN
	MN 9.8 VIS 51
	PU/YP 15/17
	FL 3.0 PH 9.2 CL 16K
	SVY e 4277' .37 Deg.





SVY e 4552' .470 eg.

SVY e 4835' .390 eg.  
8-11-93

MW 9.8+ VIS 58  
PV/YP 19/19  
FL 3.2 PH 9.9 CL 17K  
SVY e 5020' .410 eg.

SVY e 5522' .780 eg.

8-12-93

MW 10.0 VIS 55  
PV/YP 28/23  
FL 3.0 PH 9.3 CL 17500

SVY e 5963' 1.24 Deg.

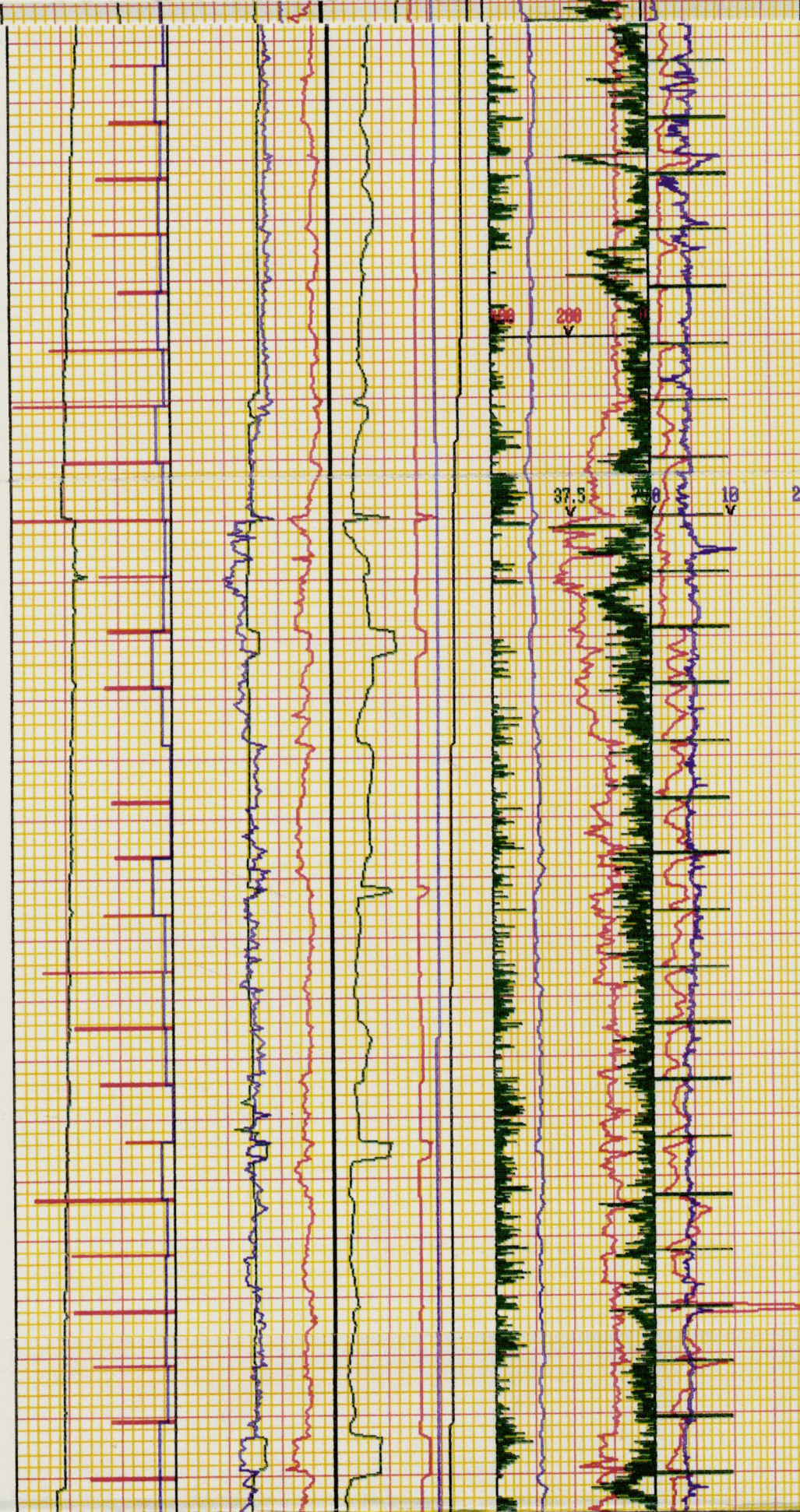
SVY e 6343' 1.42 Deg.

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

8-14-93 MCB1 RC412 TFR

MW 10.1+ VIS 69  
SVY e 1852' 0.25 Deg.





70.00  
72.00  
74.00  
76.00  
78.00  
80.00  
82.00  
84.00  
86.00  
88.00  
90.00  
92.00

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

SVY e 7413' 0.570deg.

8-16-93

SVY e 7798' 0.642Deg

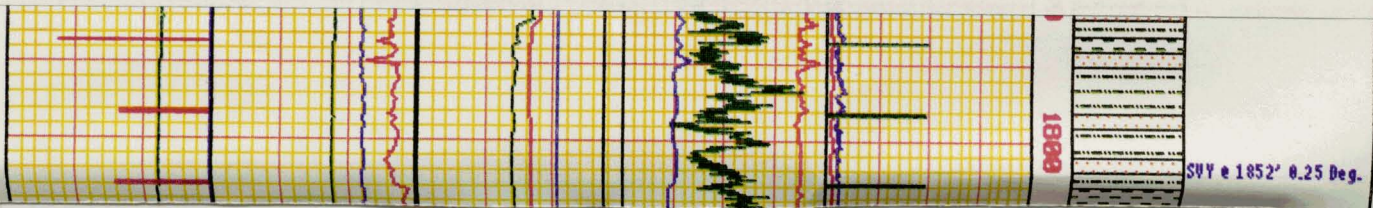
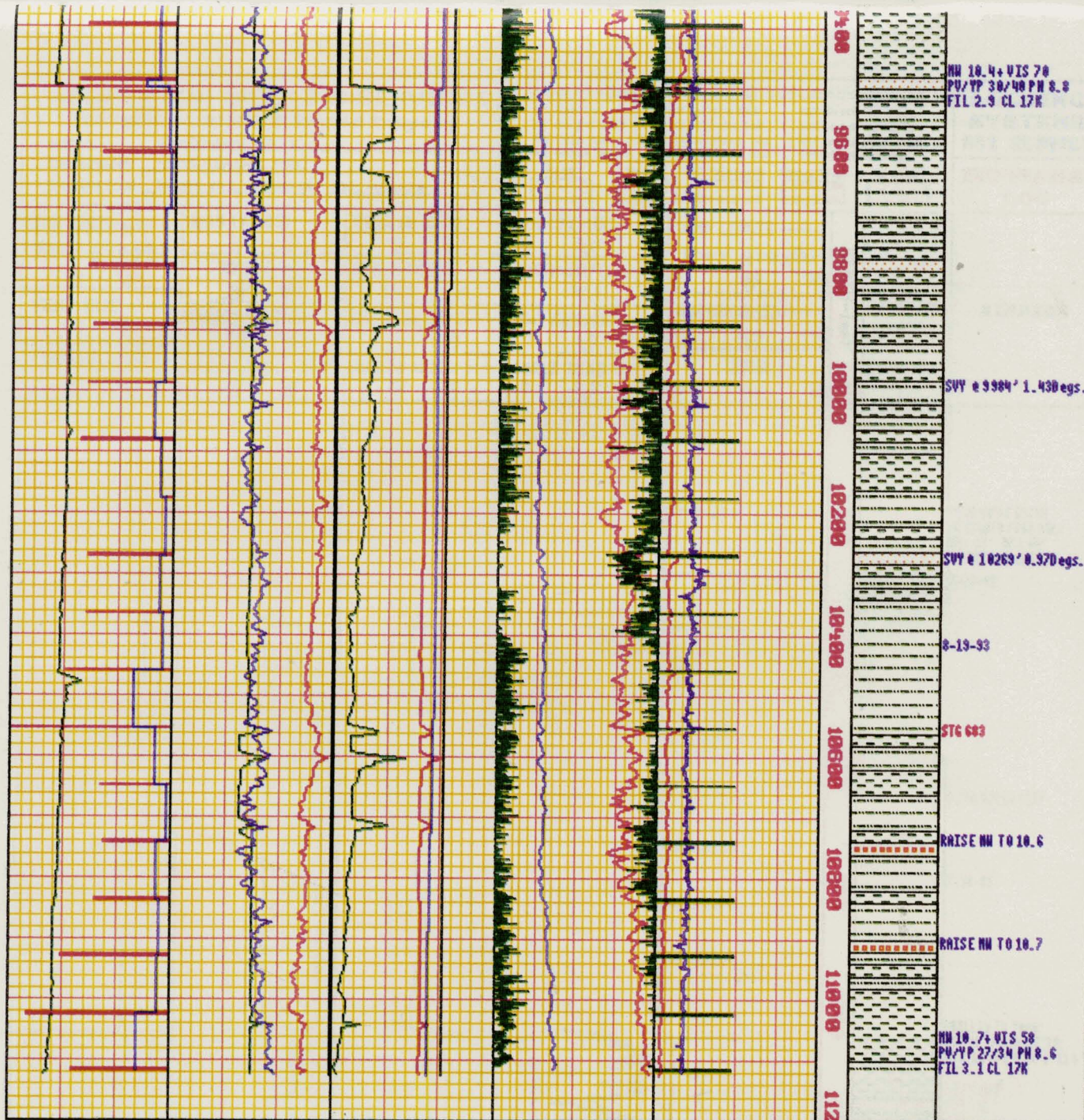
SVY e 8163' 0.460deg.

SVY e 8453' 0.630deg.  
NW 10.2 IN

SVY e 8735' 0.700deg.

SVY e 9207' 0.670deg.







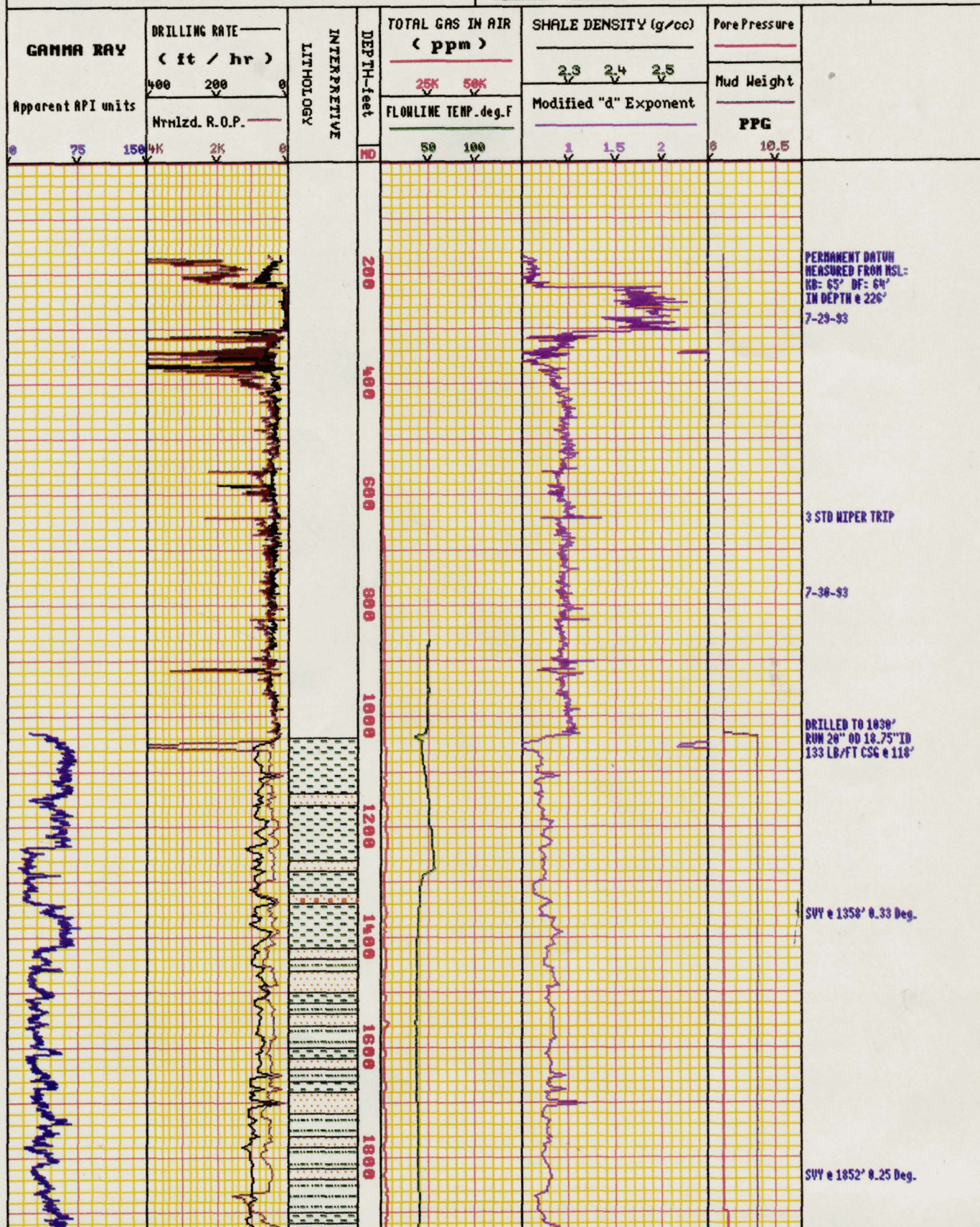
# SPERRY-SUN DRILLING SERVICES APPLIED DRILLING TECHNOLOGY

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

===== LEGEND =====				
MB New Bit	MOB New Core Bit	OKF Check for Flow		
MA No Returns	OO Circulate Out	LAT Log after Trip		
TC Trip Gas	TOL Trip Chlorides	SVY Direc Survey		
Clay	Shale	Siltstone	Sandstone	Gravel

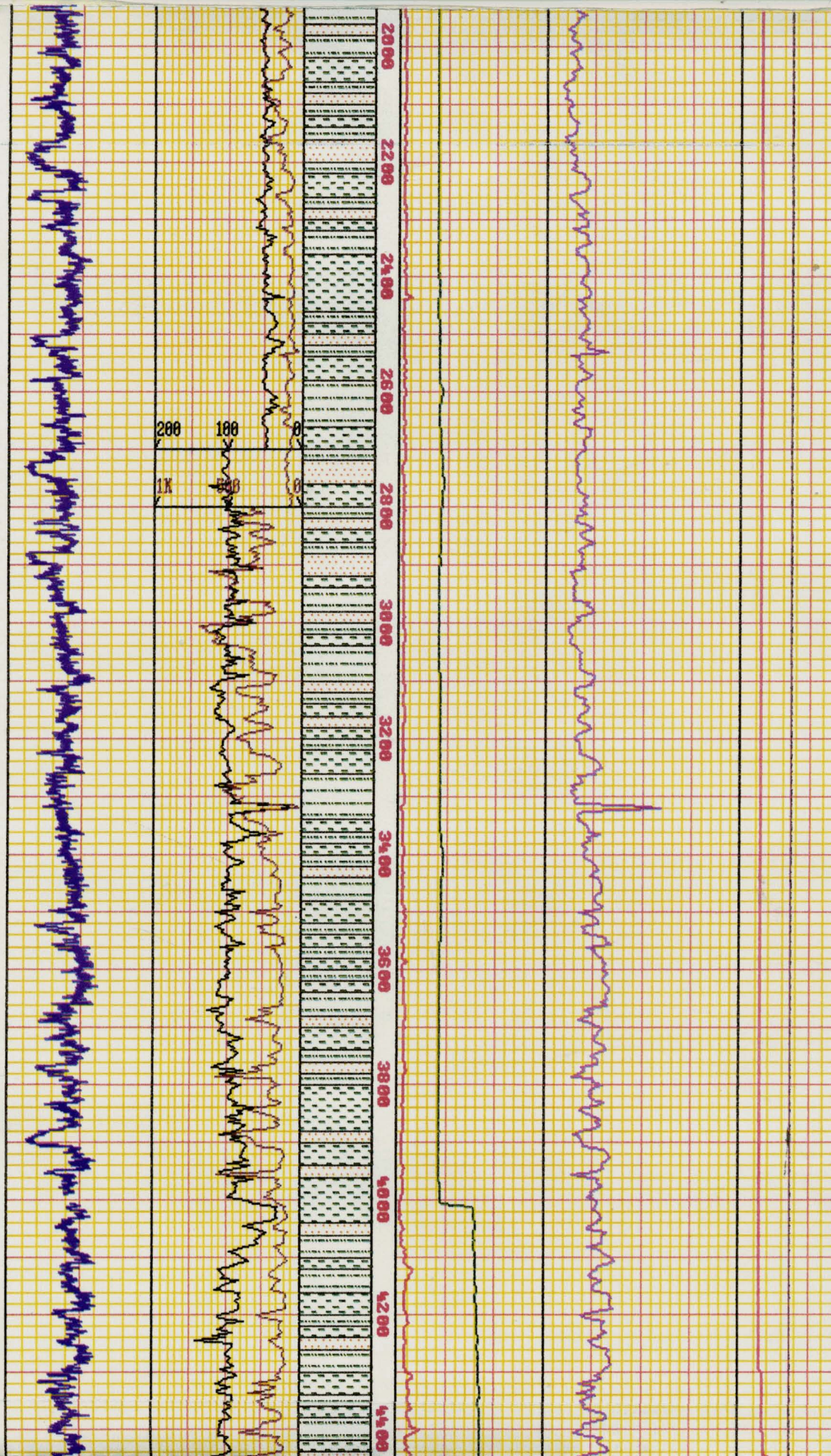
**LOGGING  
SYSTEMS**

**ADT  
LOG**

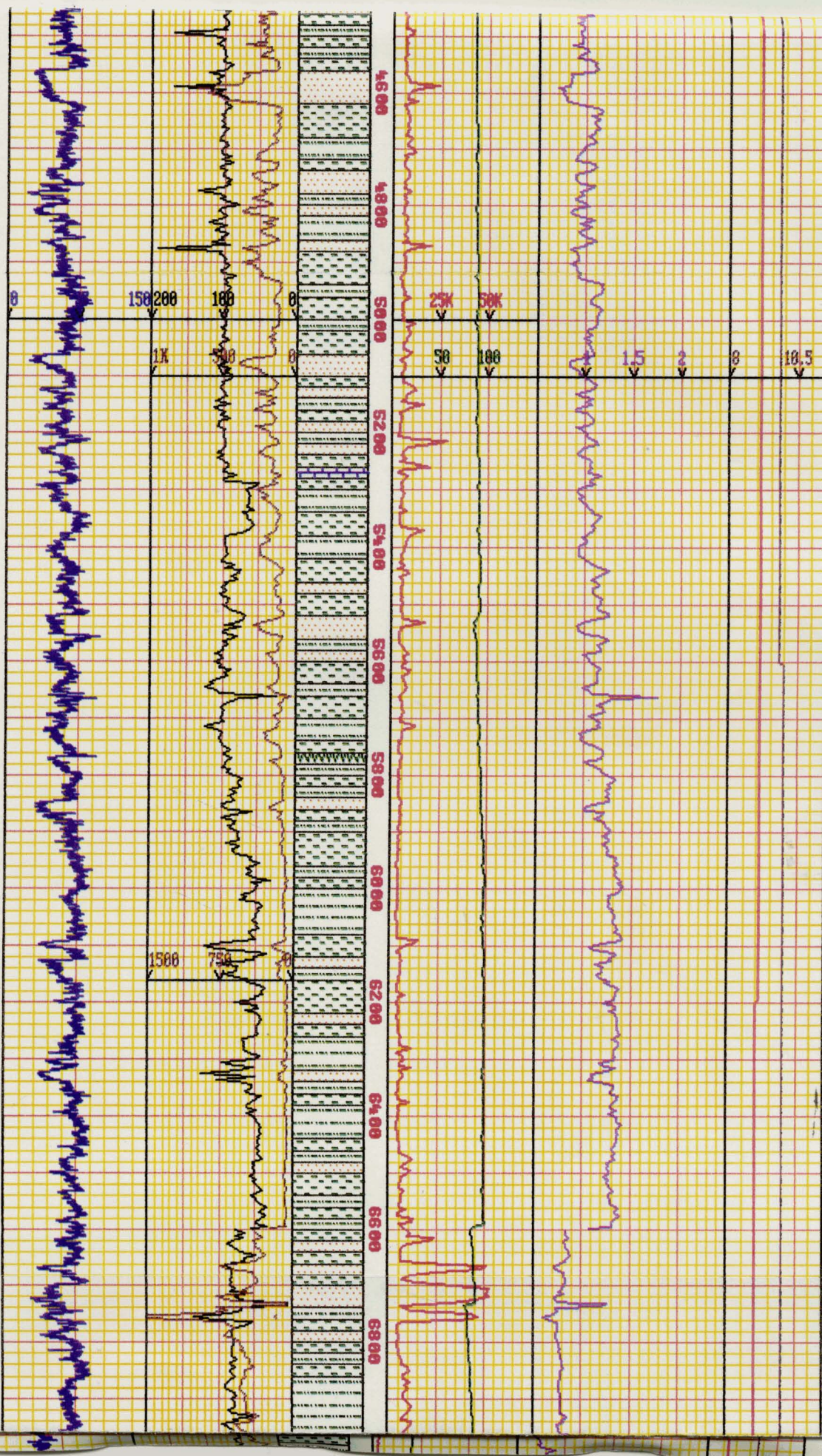




SUY e 4277'.370eg.







SYY e 4552' .47Deg.

SUY e 4835' .390eg.  
8-11-93

MM 9.8+ VIS 58  
PU/YP 19/19  
FL 3.2 PH 9.9 CL 17K  
SVY e 5020' .41deg.

SVY # 5522' .70deg.

8-12-93

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

SUY e 5963' 1.24 Deg.

SUY @ 6343' 1.42 Deg.

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

8-14-93 NCB1 RC412 TFA .2

NW 10.1+ VIS 69  
PU/YP 24/34  
FIL 3.0 PH 8.9 CL 17K  
SVY @ 6940' 0.89Deg.



SVY e 7413' 0.57Deg.

8-16-93

SVY e 7790' .042Deg

SVY e 8169' 0.46Deg.

SVY e 8453' 0.63Degs.

NH 10.2 IN

SVY e 8735' 0.70Degs.

SVY e 9207' 0.67Degs.



