1027/0P/5

MUDLOG.

FIGURE 4

EXPLORATION LOGGING INC.

A GEOLOGICAL - ENGINEERING SERVICE CO.

DEPT. NAT. RES & ENV

PE600319

REMARKS

DRILLING CONTRACTOR: ODECO

RIG NO.: OCEAN DIGGER

SPUD DATE:

TYPE MUDS: SPERSENE/XP-20

CASING RECORD

20" AT 950'

_____ AT _____

HOLE SIZE

8½" TO _____

_____ TO _____

ABBREVIATIONS

NB	NEW BIT	W	MUD WEIGHT
RRB	RERUN BIT	V	MUD VISCOSITY
CB	CORE BIT	F	MUD FILTRATE ☐ CC/30 MIN
CR	CIRCULATE RETURNS	FC	FILTER CAKE
NR	NO RETURNS	SD	SAND CONTENT
PR	POOR RETURNS	S	SALINITY ☐ G/G _____
LAT	LOGGED AFTER TRIP		☒ PPM _____
TG	TRIP GAS	R	RESISTIVITY OF MUD
CG	CONNECTION GAS	RF	RESISTIVITY MUD FILTRATE
C	CARBIDE		
DST	DRILL STEM TEST		
]	DST INTERVAL		
▮	CORE INTERVAL		

COMPANY: ESSO-BHP

WELL: NAUTILUS A-1

FIELD: OTWAY BASIN

LOCATION: OFFSHORE, VICTORIA

COUNTY, STATE:

API WELL INDEX NO.:

ELEVATION: SEA LEVEL

DATE FROM APR. 19, 1968 TO

DEPTH FROM 1000' TO

UNIT NO. 25

LOGGING GEOLOGISTS: JOHN WATT, THOMAS CLARKE

OIL: Based on live oil in unwashed cuttings and percentage staining of washed cuttings.

GAS UNITS: Gas Detector calibrated to record 100 units with a mixture of 2% methane-in-air.

LITHOLOGY SYMBOLS

⊡	Z	⧄	⌐	■	☐	⊟	⊟	⊡	⊙	⊚	Λ	V	☒	☐	☐
LIMESTONE	DOLOMITE	GYPSUM AND ANHYDRITE	SALT	COAL AND LIGNITE	CLAY	SHALE	SILTSTONE	SANDY SILTST.	SAND	CONGLOMERATE	CHERT	VOLCANICS	INTRUSIVE		

EXPLORATION LOGGING

DRILLING RATE AND DATA: ☒ FT/HR ☐ MIN/FT; VISUAL POROSITY: GD. FAIR TR

DEPTH: CORE TEST

LITHOLOGY

OIL: TRACE GD. TRACE FAIR GOOD V. GOOD

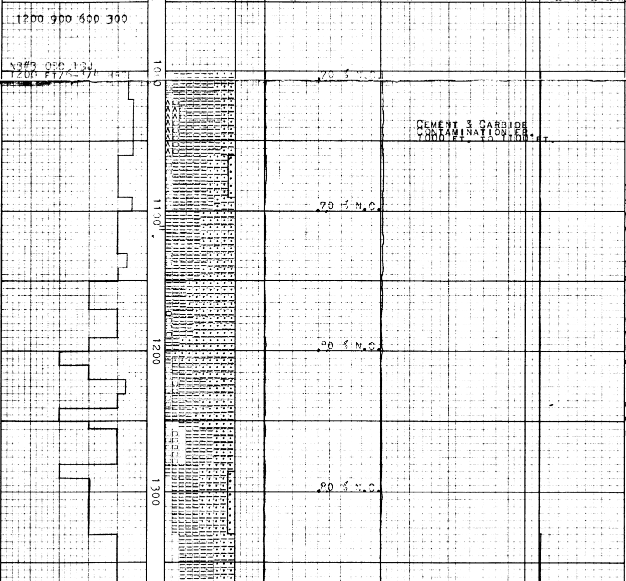
DRILLING MUD

CONTINUOUS DITCH GAS: OIL IN MUD (TR. X, FAIR XX, GD. XXX); TOTAL GAS _____ (BACKUP SCALE 10X); PETROL VAP ___ ___; 20 40 60 80 100

CHROMATOGRAPHIC ANALYSIS: METHANE _____ BUTANES __4__; ETHANE __2__ PENTANES __5__; PROPANE __3__ M - 1000; 100 1M PPM IN AIR 10M 40M

CUT: FAIR GOOD

CUTTINGS GAS: TOTAL GAS _____ (BACKUP SCALE 10X); PETROL VAP ___ ___; 20 40 60 80 100



REMARKS AND LITHOLOGY DESCRIPTION

C = 35U AT 30V

DRILLING 8½" HOLE

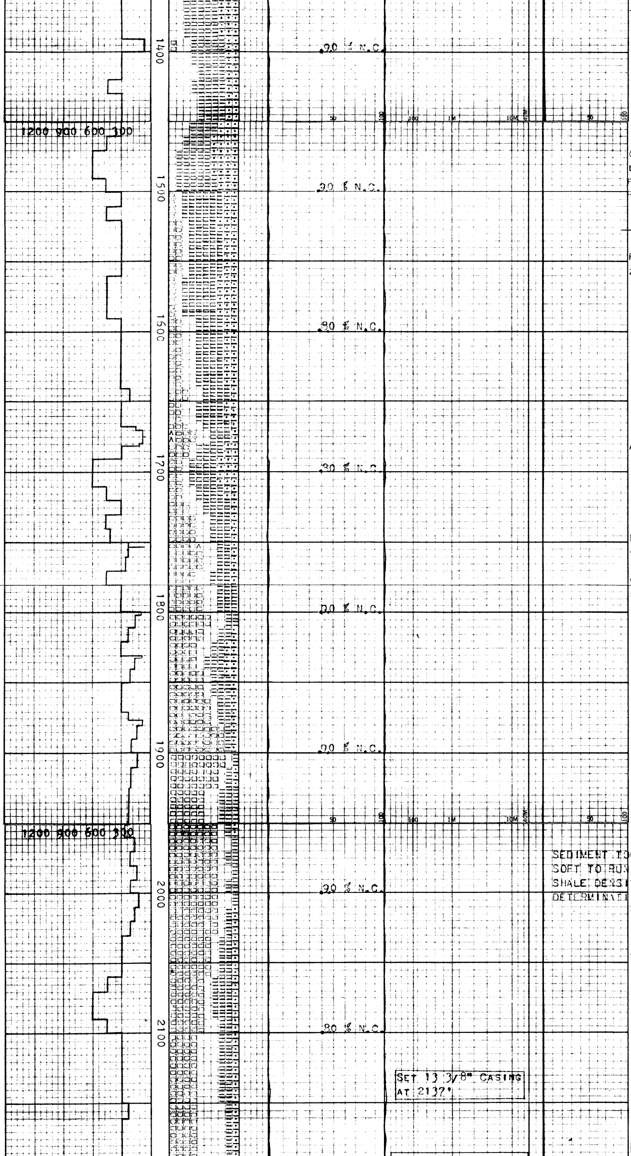
SILTSTONE: MEDIUM-GRAY, FIRM TO HARD, CALCAREOUS, SPECKLED.

C = 11U AT 38V

SAND: CLEAR & TAN SCATTERED GRAINS OF MEDIUM TO COARSE, VERY ANGULAR QUARTZ.

CALCARENITE: WHITE, CREAM, LIGHT-GRAY, FRIABLE, LOOSELY PACKED, SILTY-MEDIUM SUB-ROUNDED QUARTZ GRAINS WITH ABUNDANT CORAL, BRYOZOA, & FORAMS; VERY CALCAREOUS MATRIX WITH OCCASIONAL LIGHT-GRAY SOLUBLE MARLY CLAY; PERSISTENT SOLVENT CUTS, IMMEDIATELY STRAW, PROBABLY CONTAMINATION.

INCREASE IN STICKY, LIGHT-GRAY CLAY.



TRACE BLOCKY LIGNITE.

CONTINUED SILTY, SLIGHTLY CLAYEY & LIGNITIC, FOSILIFEROUS CALCARENITE; TRACE PYRITIC.

1[illegible]00'

FLOODS CORAL & BRYOZOAN COQUINA.

w 9.1 ; v 60

LIMESTONE: WHITE, CREAMY, HARD, SUCROSE, SOME PLATEY: PROBABLY FRACTURE FILLINGS. WITH ABUNDANT FOSSILS.

w 9.1 ; v 45

LIMESTONE: VERY LIGHT GRAY COQUINA, MOSTLY SMALL BRYOZOAN FRAGMENTS, WITH OCCASIONAL CLEAR & BROWN, NODULAR CHERT TRACES.

C = 11 U AT 44 V

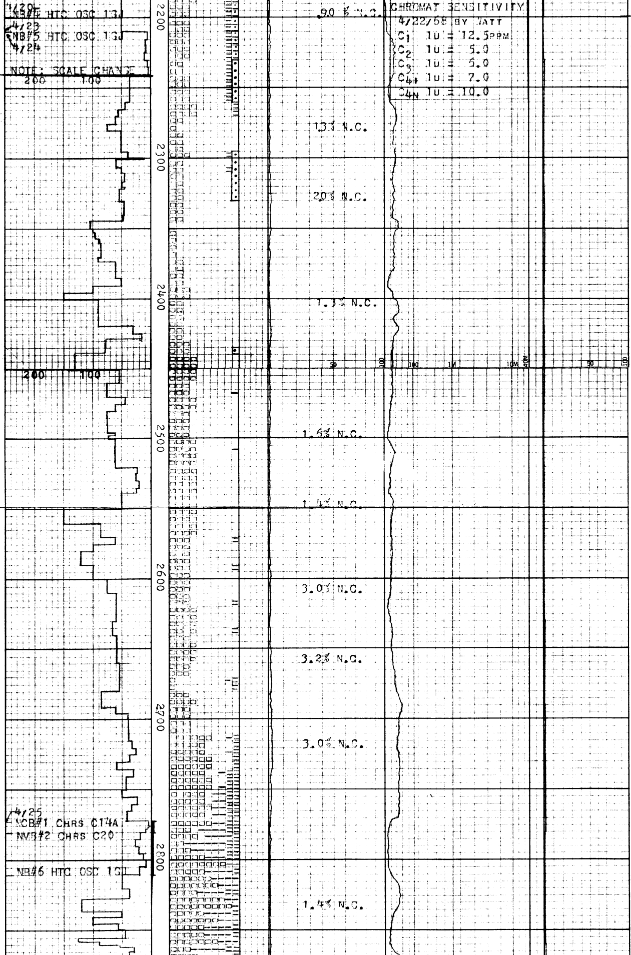
SEDIMENT TOO SOFT TO RUN SHALE DENSITY DETERMINATIONS

SANDY SILTSTONE: WHITE, FIRM-FRIABLE, LOOSELY PACKED SUBROUNDED QUARTZ GRAINS IN LIME.

SET 13 3/8" CASING AT 2137'

CLAY: LIGHT-GRAY, STICKY, SOLUBLE, MARLY, NON-SWELLING, MAKES MUD READILY. FOSSILS.

MUD: w 9.5 v 47
F 9.0 FC 2
SD 2 S 10,000



0°45'

RAN SCHLUBERGER IES, GRSC, & SIDEWALL.

DRILLING 12¼" HOLE

C = 27U AT 33V

MARL & CLAY: LT GRAY VERY FOSSILIFEROUS, DIRTY, SLIGHTY SANDY

WT 9.1, V 38

CLAY: LT GRAY WITH LIMESTONE, TAN, VERY FOSSILIFEROUS BCMG HARD, WHITE LS COMMON CHLORITE

CLAY & LIMESTONE: VERY FOSSILIFEROUS AS ABOVE

WT 9.4 V 39

W 9.5 V 46

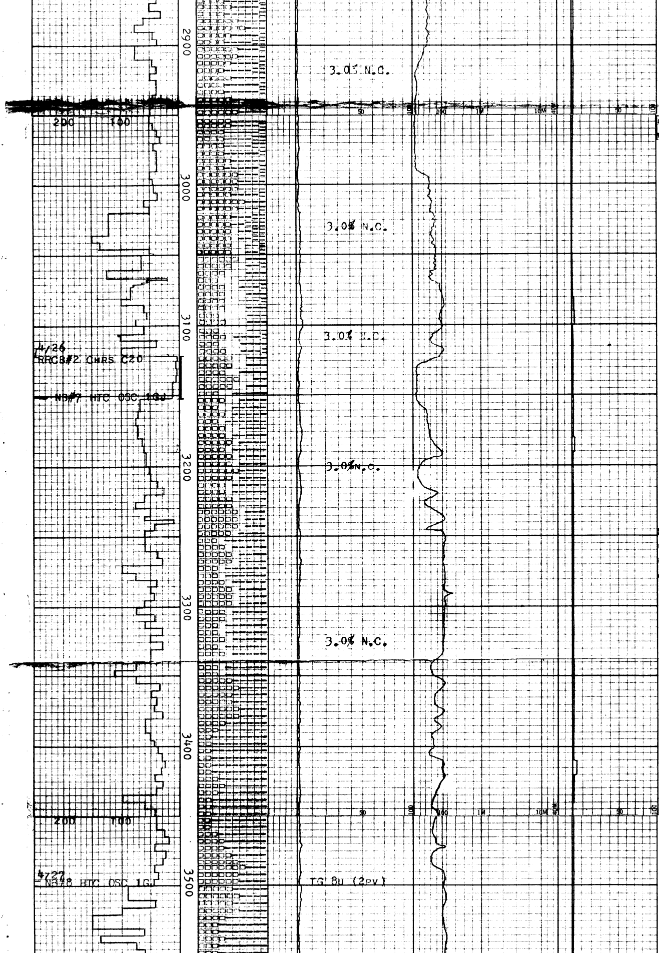
CLAY & LIMESTONE GRAY-BROWN AS ABOVE

LIMESTONE & CLAY: MED. BROWN, ARGILLACEOUS SUCROSIC, MUCH LESS FOSSILS SOME GRAY-GREEN LIMY SHALE.

CORE #1 2772-2780'
CUT 8' REC. 8'

CORE #2 2780-2810'
CUT 30' REC. 20'

LIMESTONE: MED. BROWN FOSSILS, PYRITIC, TO LT. BROWN, HARD WITH INTERBEDDED MED. GRAY-BROWN FOSSIL SHALE



BEGAN ADDING SALT WATER TO MUD

LIMESTONE: HARD A/A

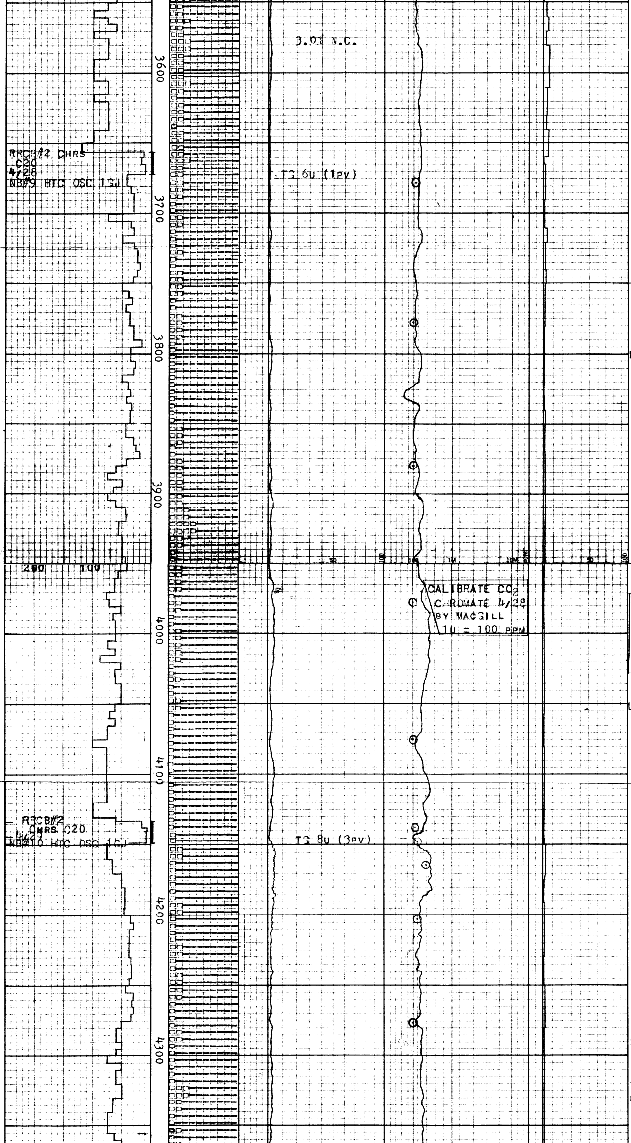
LIMESTONE: A/A SOFTER MORE CLAY & SILT

INCREASING CLAY & SOFT LIMY SHALE

CORE #3 3122-3152'
CUT 30' REC. 30'

LIMESTONE: PALE GREY, HARD LIME MUD; SHALE: DARK GREY, LIMY. FORAMS &BRYOZOA FAIRLY ABNDT.

LIMESTONE & SHALE AS ABOVE



SHALE, HIGHLY CALC., DARK GREY, WITH STREAKS PALE GREY MICRITIC LIMESTONE. FORAMS & BRYOZOANS FAIRLY ABNDT

CORE #4 3656-3672
CUT 16' REC. 16'

WT 10.0 VIS 39

C=17U AT 39 VIS.

LIMESTONE & SHALE, AS ABOVE.

LIMESTONE FRACTION INCREASINGLY HARD, DARK, FINELY CRYST'LINE

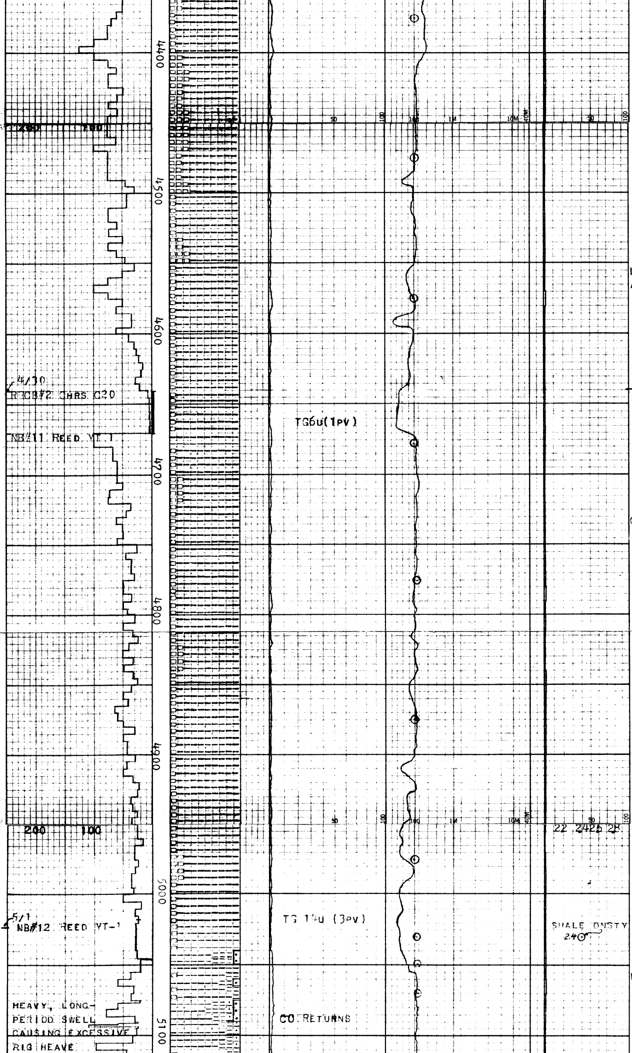
FORMATION DOES NOT HAVE SHALE SUITABLE FOR SHALE DENSITY DETERMINATION

LIMESTONE & SHALE, AS ABOVE.

LIME MUD: SHALE IN APPEARANCE BUT COMPOSED OF $CaCO_3$

CORE #5 4133-4149
CUT 16' REC. 16'

SHALE: DARK GRAY TO BROWN, MICRITIC, GRADG. INTO PALE GRAY MICRITIC LIMESTONE; ABNDT. FORAMS & BRYOZOANS.



LIMESTONE & SHALE,
AS ABOVE.

¼°

CORE #6 4640–4670
CUT 30', REC. 30'

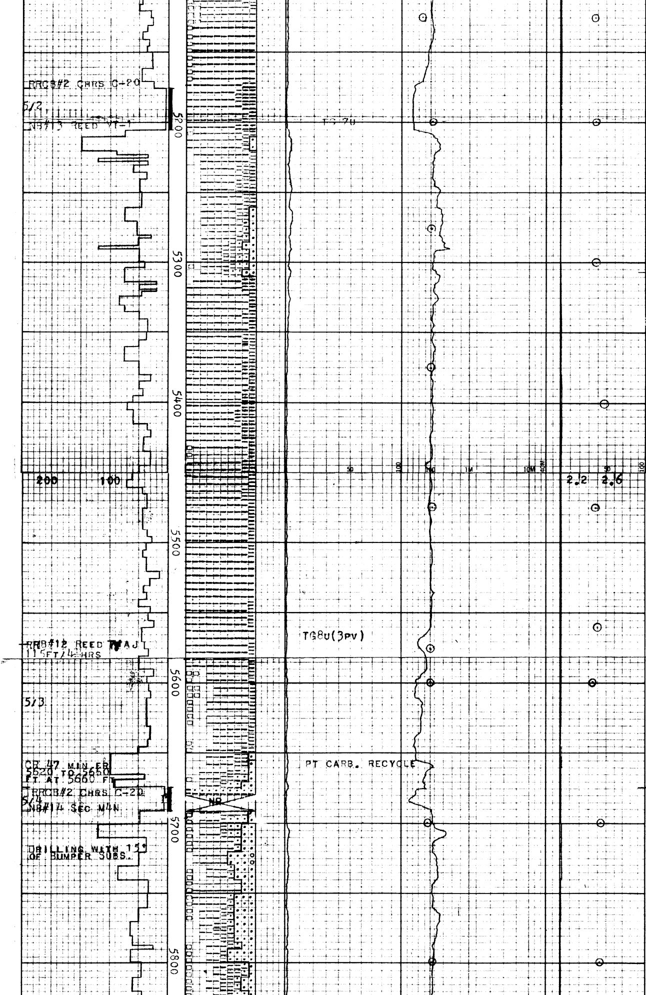
WT. 10.5 VIS. 47

CARBONATE SHALE: PALE TO DARK GREY MICRITE, WITH RARE STREAKS HARD LIMESTONE.

-1½°

WT 10.6 VIS 53

LIMY SHALE: BROWN, AS ABOVE WITH TRACES OF SAND.



CORE #7: 5175-5205
CUT 30', REC. 26'

SILTSTONE: MEDIUM-GRAY-BROWN, FIRM, LOOSE-PACKED, ANGULAR QUARTZ & MICA IN MARLY MATRIX. TRACES PYRITE & FORAMS.

1½°

SHALE: GREY-BROWN, MICRITIC, GRADING INTO CALCAREOUS SILTSTONE.

WT 10.5 VIS 45

SHALE & SILTY SHALE: GREY-BROWN, MICRITIC; FORAMS ABUNDANT.

LIMESTONE; TAN, HARD, SUCROSE, SOME SILTY.

C = 11U AT 56V

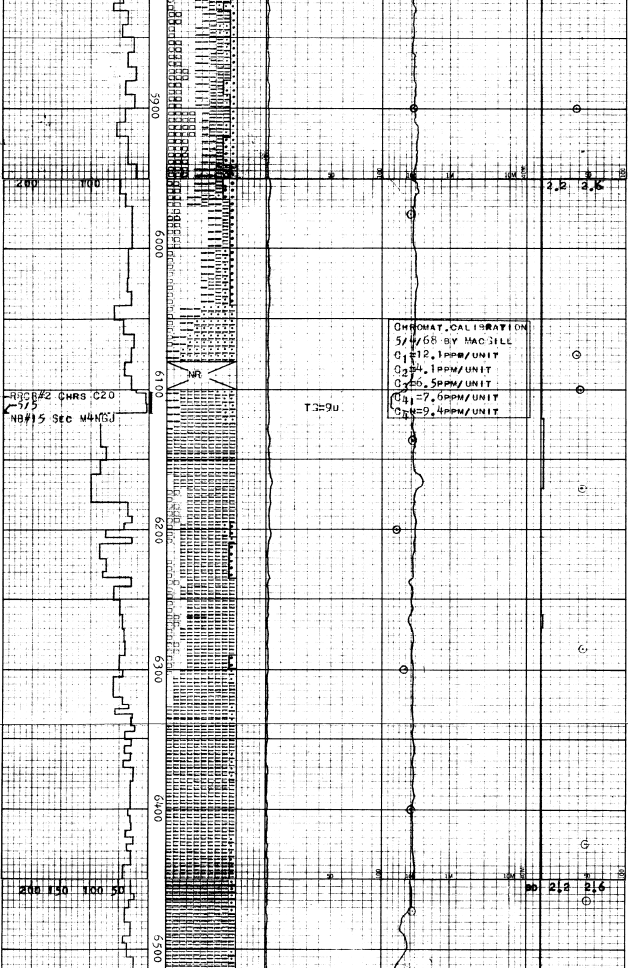
MUD: W 10.2 V 54
F 8.3 FC 2
SD $\frac{1}{4}$ S 3130

1-3/4°

CORE #8: 5674-5691
CUT 17', REC. 5'

SHALE: DARK-GRAY & DARK-BROWN, VERY LIMEY & FISSILE, FIRM TO HARD, DENSE; PYRITIC.

SAND: CLEAR, OPALES-BLUE, FINE TO PEBBLEY, ANGULAR TO WELL ROUNDED, PITTED GRAINS OF SCATTERED QUARTZ; VERY POORLY SORTED, WITH TRACES OF SILTY KAOLINITE; NO STAIN OR CUT.



RBCB#2 CHRS C20 5/5

NB#15 SEC M4NGJ

TG=9U

CHROMAT. CALIBRATION
5/4/68 BY MACGILL
C_1=12.1PPM/UNIT
C_2=4.1PPM/UNIT
C_3=6.5PPM/UNIT
C_4I=7.6PPM/UNIT
C_4N=9.4PPM/UNIT

INCREASINGLY FINER & MORE ANGULAR.

LIMESTONE: DENSE, PREDOMINANTLY LIGHT-GRAY.

FLOOD GLAUCONITE OOIDS & PYRITE CLUSTERS.

WT 10.2 VIS 49

CLAY: DARK-BROWN, SOFT, STICKY, SLIGHTLY SILTY, MAKES MUD.

SHALE: MICRITIC;
SANDY SILTSTONE: PYRITIC & GLAUCONITIC, AS CORE #8.

W 10.0	V 65
F 9.0	FC 2.5
SD ½	S 5115

CORE #9: 6102-6117
CUT 15', REC. 15'

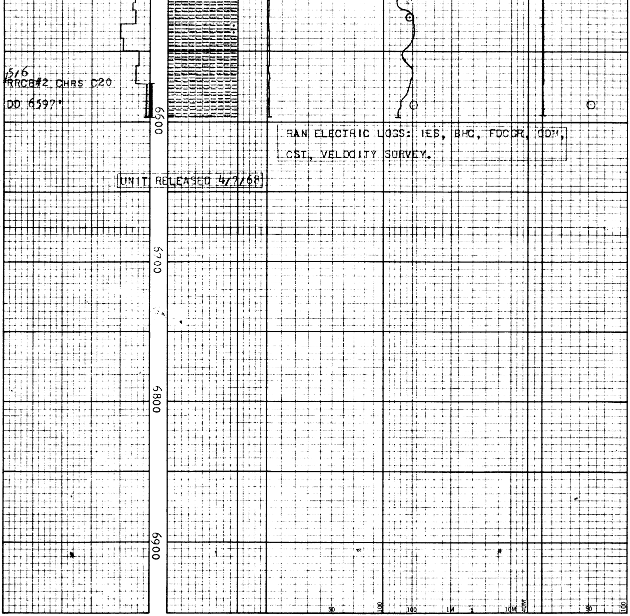
SILTSTONE: DARK-GRAY, BROWN, FIRM, MAINLY NON-CALCAREOUS, SOME TAN LIMESTONE.

C=16U AT 45V

FLOODS OF PYRITE.

SILTSTONE: AS ABOVE; SOME VERY-FINE QUARTZ SAND.

SILTSTONE: DARK BROWN, SLIGHTLY SANDY AS ABOVE.



5/6
RRCB#2 CHRS C20
DD 6597'

RAN ELECTRIC LOGS: IES, BHC, FDCGR, CDM, CST, VELOCITY SURVEY.

UNIT RELEASED 4/7/68

WT.10.1 VIS.58

CORE #10 6572-6597'
Cut 25' Rec. 25'