SIMON PETROLEUM TECHNOLOGY **WELL:** 2/5-4

Print: 1956G	**Units:** M [✓ F]	**Top**	**Bottom**	**Scale**	**TD**
Length: 25 FT	**Initials:** TS	1900	11450	1:500	11450

DIGITAL WIRELINE LOGS PACKAGE
1994
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SIMON PETROLEUM TECHNOLOGY

COMPLETION LOG

llb.101.1

COMPLETION - 0 G

AMOCO NORWAY OIL CO.

FINAL WELL LOG

2/5-4

VERTICAL SCALE: 1:500

LOCATION: 56° 33' 54.4" N
03° 36' 56,4" E

AREA: OFFSHORE NORWEGIAN NORTH SEA

K.B.E.: 116'

WATER DEPTH: 222'

DATE SPUDDED: 3.9.72

DATE COMPLETED: 31.10.72

TOTAL DEPTH: 11.450'

PLUG BACK TOTAL DEPTH: 11.390'

CASING: 36" at 496', 20" at 1,248', 13 3/8 at 6,013', 9 5/8 at 11,411'

RIG TYPE: JACK UP

LEG PENETRATION: 7 1/2 feet

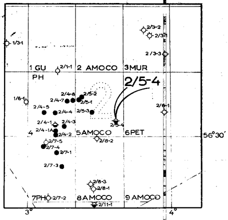
CLASSIFICATION WHEN STARTED: WILDCAT

DISTANCE FROM BOTTOM OF BARGE TO M.S.L.: 116'

CLASSIFICATION AFTER COMPLETION: P & A

METHOD OF COMPLETION:

INDEX MAP



LITHOLOGIC SYMBOLS

- ▨ BRECCIA
- ▨ CONGLOMERATE
- ▨ SANDSTONE
- ▨ SILTSTONE
- ▨ CALCAREOUS SILTSTONE
- ▨ CLAY
- ▨ SHALE
- ▨ CALCAREOUS SHALE
- ▨ MARL
- ▨ CHALK
- ▨ ARGILLACEOUS LIMESTONE
- ▨ LIMESTONE
- ▨ DOLOMITIC LIMESTONE
- ▨ DOLOMITE
- ▨ GYPSUM
- ▨ ANHYDRITE
- ▨ SALT
- ▨ POTASSIUM SALT
- ▨ CHERT
- ▨ COAL

OPERATIONAL SYMBOLS

- C I ⌶ INTERVAL CORED
- ◢ CASING SEAT
- 2130 ⁞ 2150 INTERVAL PERFORATED
- ⊏ SIDEWALL CORE
- ⊢ PLUG BACK T.D.
- DST ▮ DRILL STEM TEST

ACCESSORY MINERALS & MATERIALS

- ▰ PYRITE
- ● OOLITES & PISOLITES
- □ LIMONITE HEMATITE
- ⬭ CONCRETIONS

FOSSILS

- ～～ SHELL DEBRIS
- ✱ FORAMINIFERA

Ⓢ SIDERITE

PEBBLES

BRYOZOA

GLAUCONITE

SPICULES

AGE

FORMATION

CASING, PLUGS, LINER, PACKER, PERF, DEVIAT

CALIPER
HOLE DIAMETER IN INCHES
6" 16"

GAMMA RAY
API UNITS
0 100

TEST

CORES

GRAPHIC LITHOLOGY

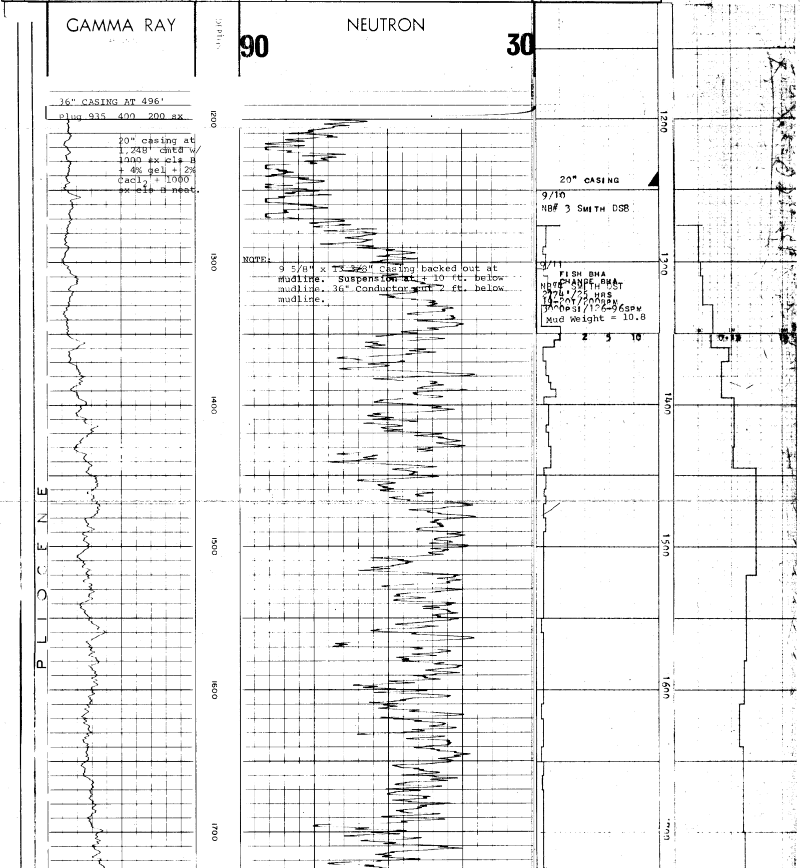
INTERVAL TRANSIT TIME
mic sec / ft
240 140 40

POROSITY

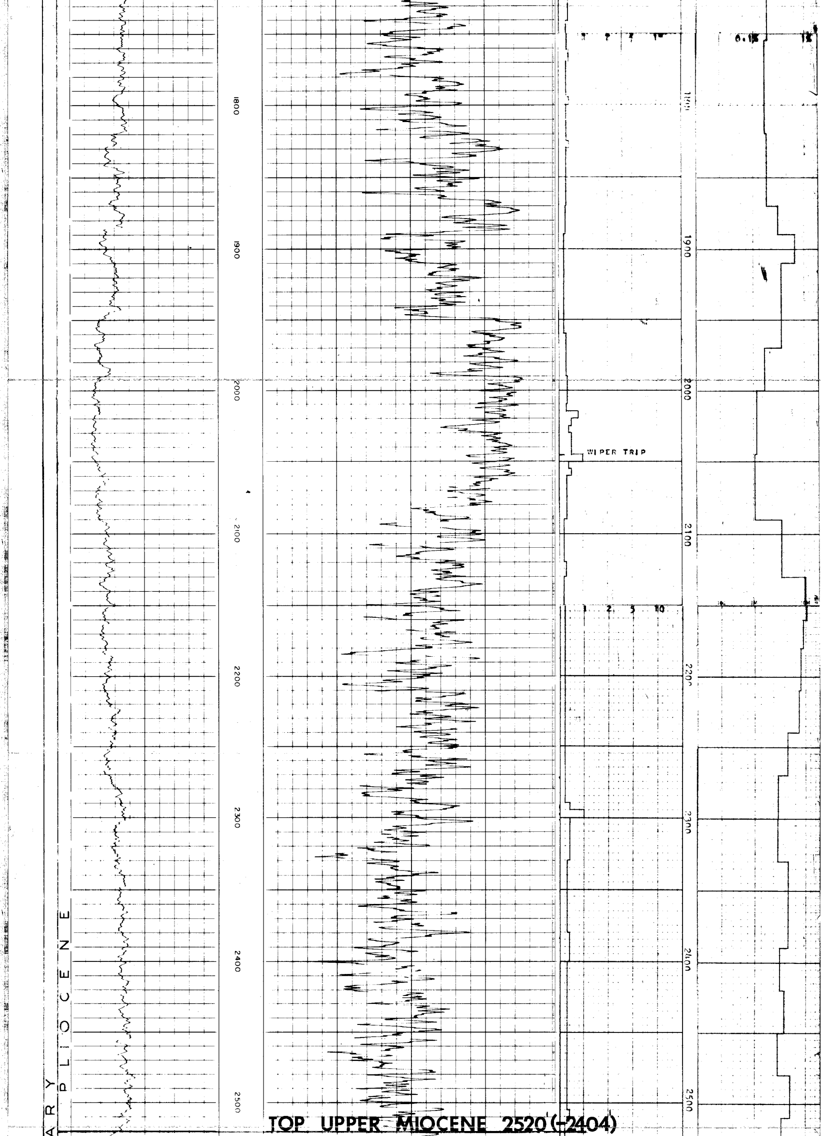
SHOWS

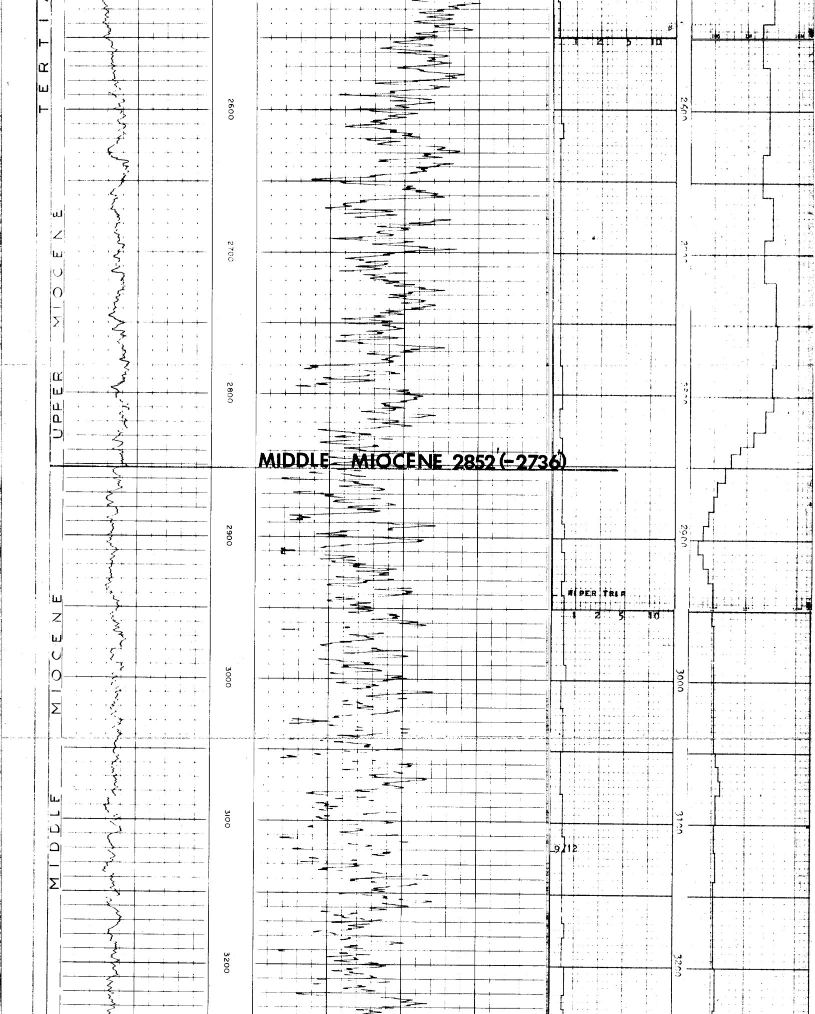
DESCRIPTION
PALEONTOLOGY REMARKS

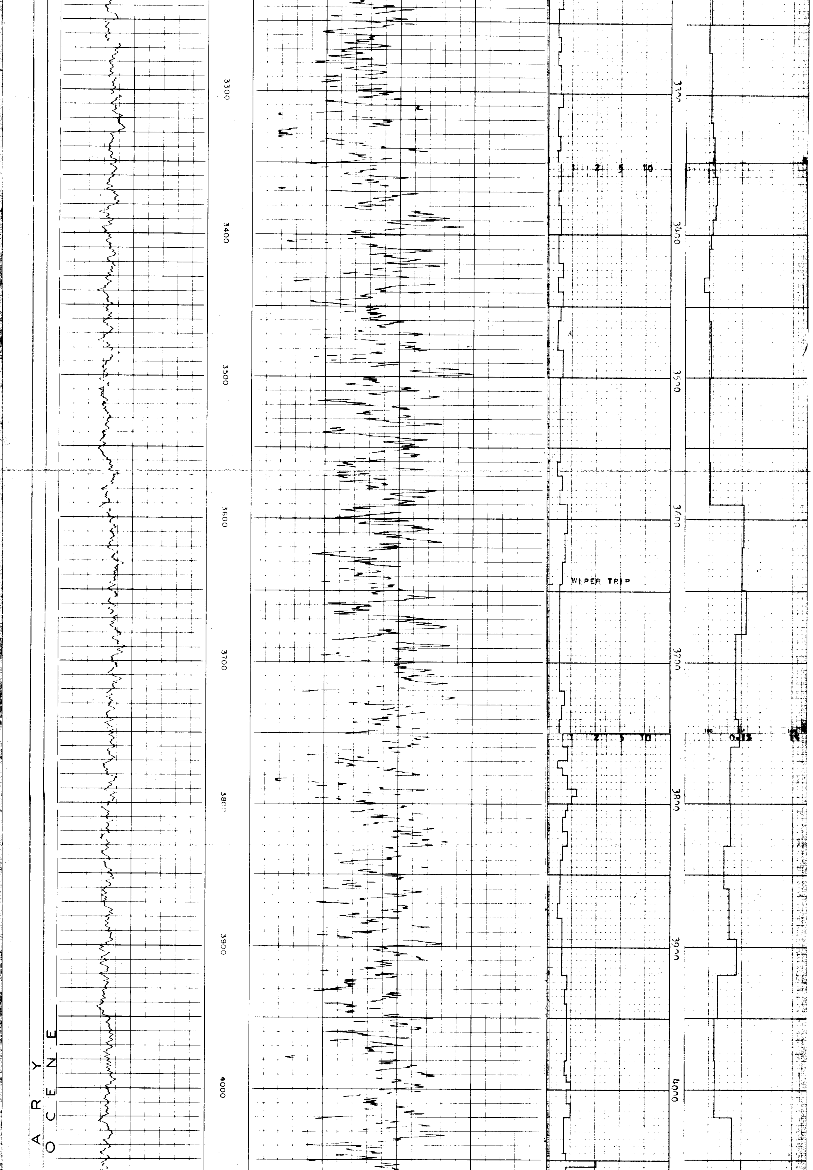
DRILLING RATE

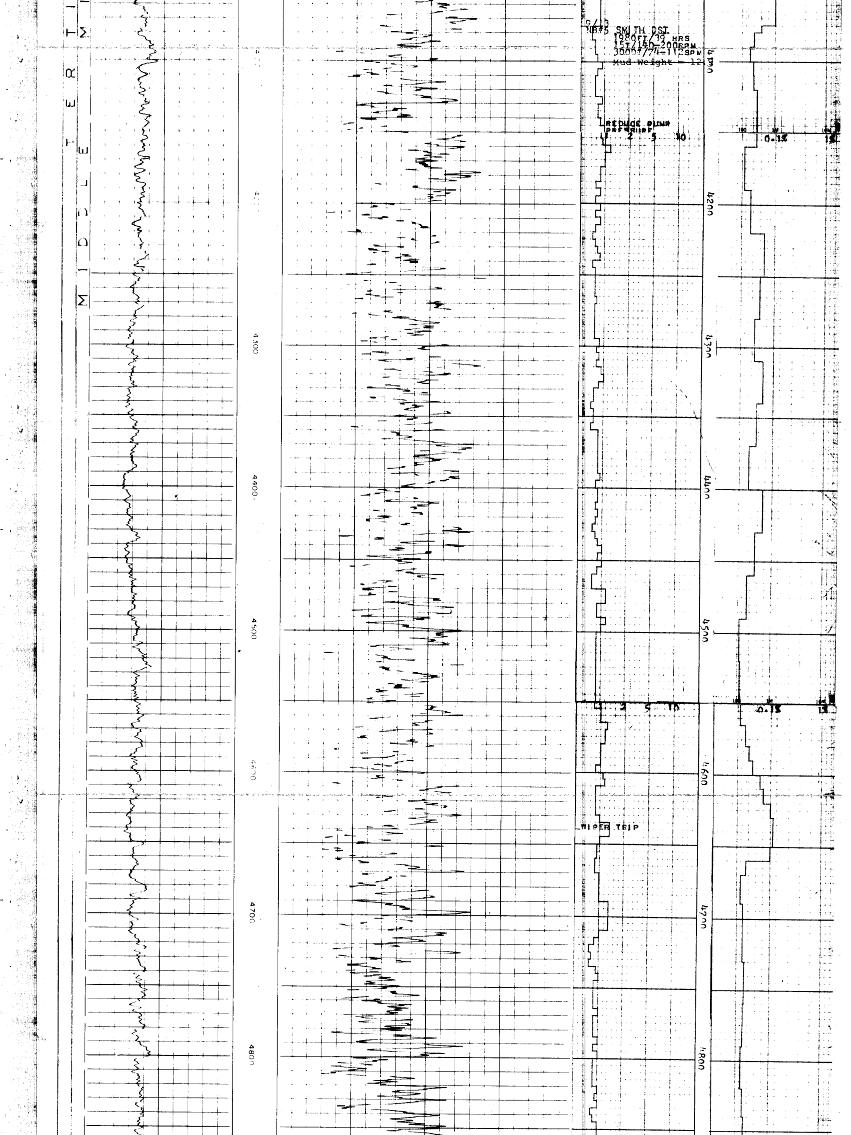


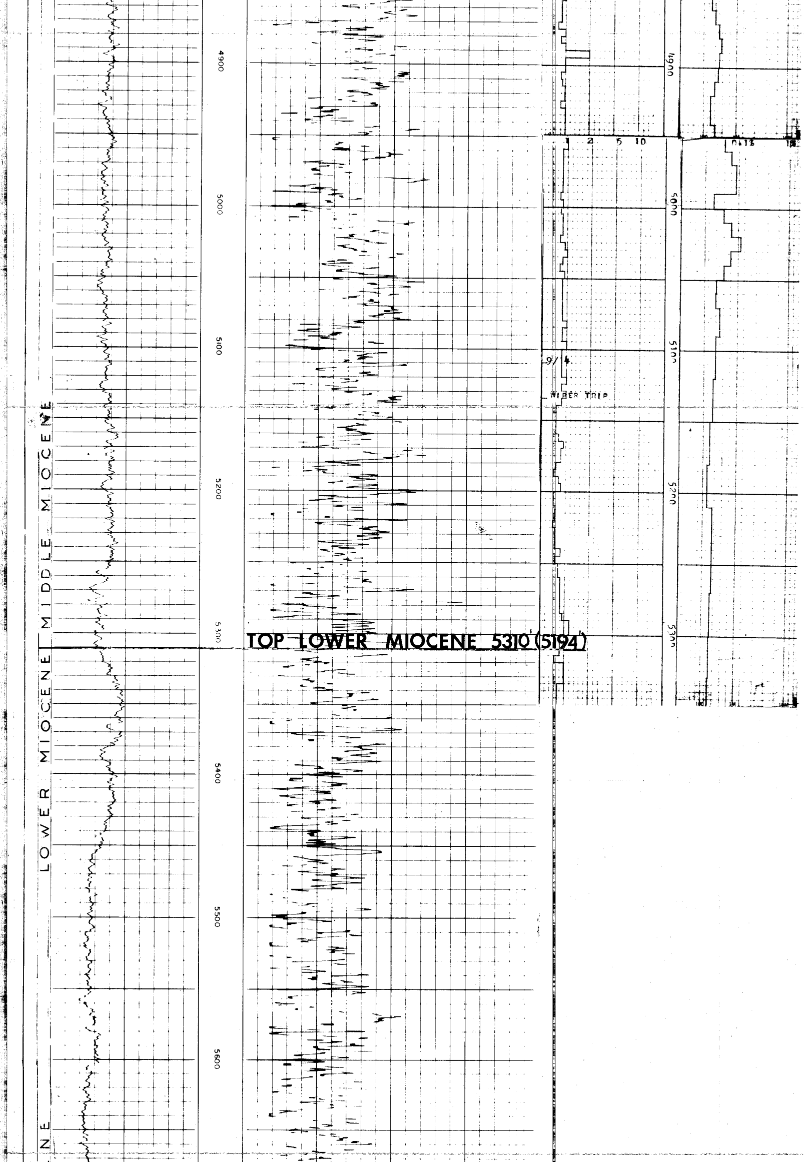
NOTE: 9 5/8" x 13 3/8" Casing backed out at mudline. Suspension at + 10 ft. below mudline. 36" Conductor cut 2 ft. below mudline.

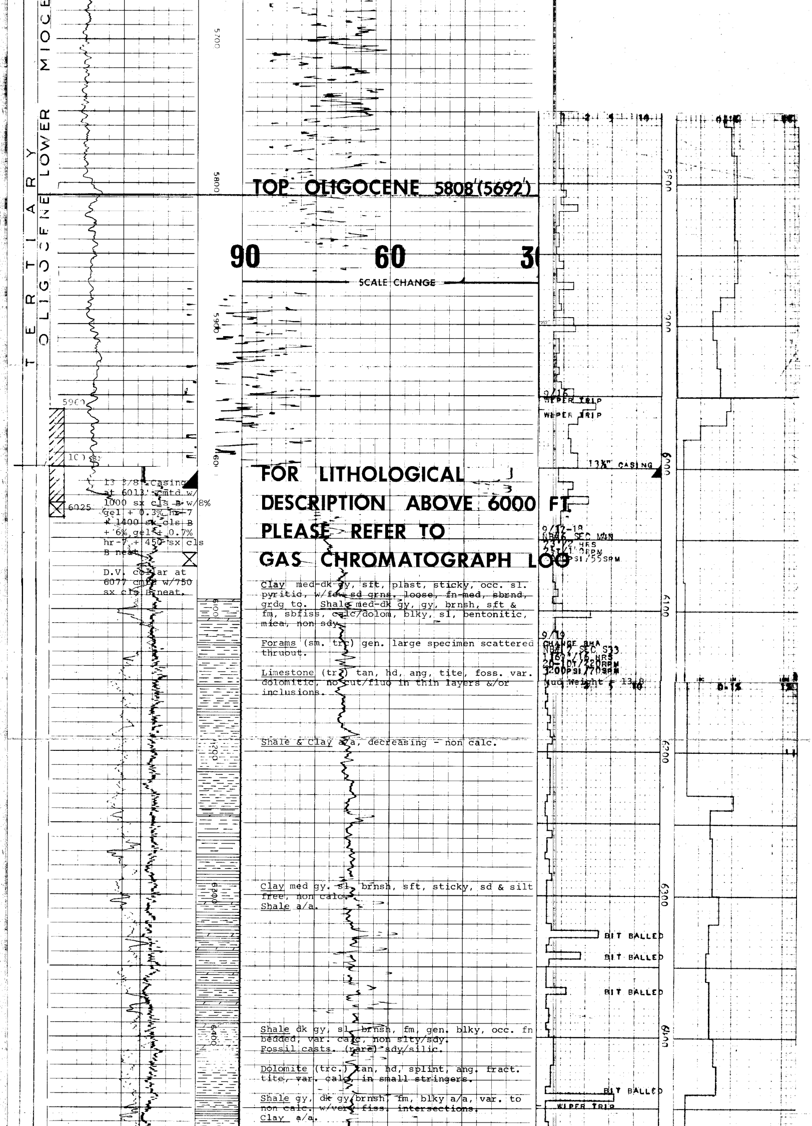












TOP OLIGOCENE 5808'(5692')

FOR LITHOLOGICAL DESCRIPTION ABOVE 6000 FT. PLEASE REFER TO GAS CHROMATOGRAPH LOG

13 3/8" Casing at 6013' cmtd w/ 1000 sx cls B w/8% gel + 0.3% hr-7 + 1400 sx cls B + 6% gel + 0.7% hr-7 + 450 sx cls B neat.

D.V. collar at 6077 cmtd w/750 sx cls B neat.

9/12-18
NB#6 SEC M4N
23 1/2 HRS
23-1/110RPM
PSI/55SPM

9/19
CHANGE BHA
NB#7 SEC S33
1169'/16 HRS
20-10T/220RPM
3200PSI/70SPM
Mud Weight = 13.8

Clay med-dk gy, sft, plast, sticky, occ. sl. pyritic, w/few sd grns. loose, fn-med, sbrnd, grdg to. Shale med-dk gy, gy, brnsh, sft & fm, sbfiss, calc/dolom, blky, sl, bentonitic, mica, non sdy.

Forams (sm. trc) gen. large specimen scattered thruout.

Limestone (tr.) tan, hd, ang, tite, foss. var. dolomitic, no cut/fluo in thin layers &/or inclusions.

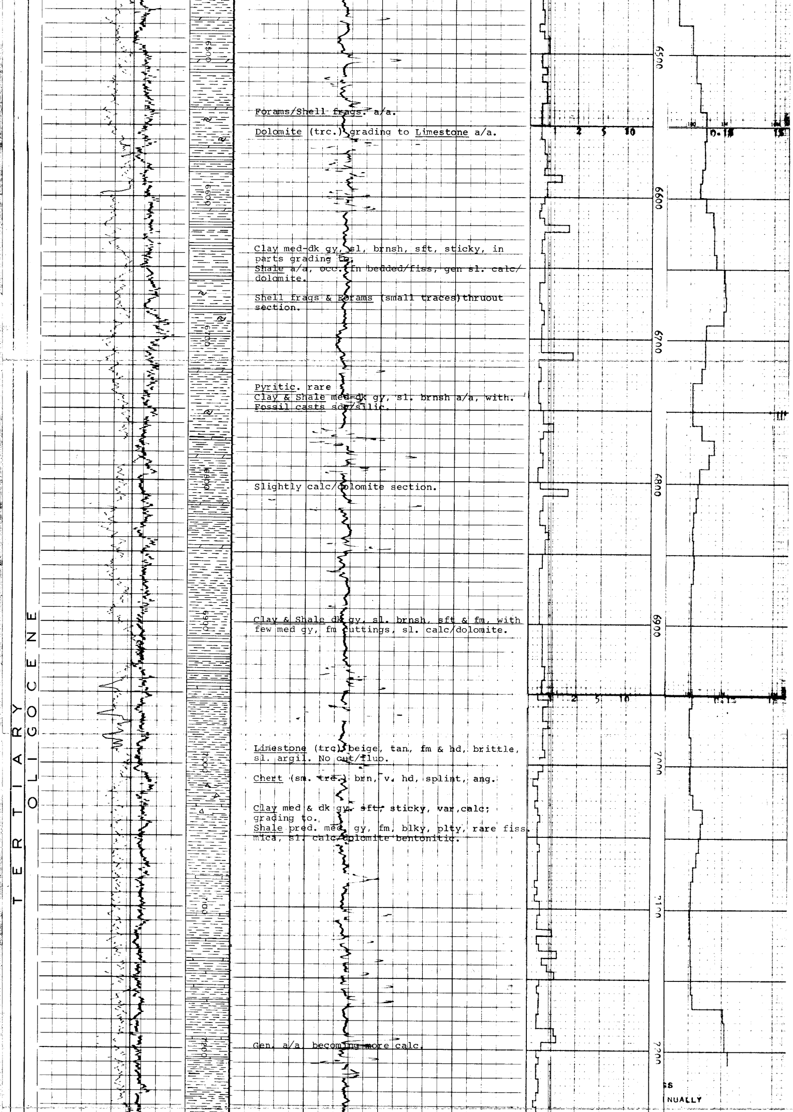
Shale & Clay a/a, decreasing - non calc.

Clay med gy. sl. brnsh, sft, sticky, sd & silt free, non calc.
Shale a/a.

Shale dk gy, sl. brnsh, fm, gen. blky, occ. fn bedded, var. calc, non slty/sdy.
Fossil casts. (rare) sdy/silic.

Dolomite (trc.) tan, hd, splint, ang. fract. tite, var. calc, in small stringers.

Shale gy, dk gy/brnsh, fm, blky a/a, var. to non calc. w/very fiss. intersections.
Clay a/a.



Forams/Shell frags. a/a.

Dolomite (trc.) grading to Limestone a/a.

Clay med-dk gy, sl, brnsh, sft, sticky, in parts grading to.
Shale a/a, occ. fn bedded/fiss, gen sl. calc/dolomite.

Shell frags & Forams (small traces) thruout section.

Pyritic. rare
Clay & Shale med-dk gy, sl. brnsh a/a, with.
Fossil casts sdy/silic.

Slightly calc/dolomite section.

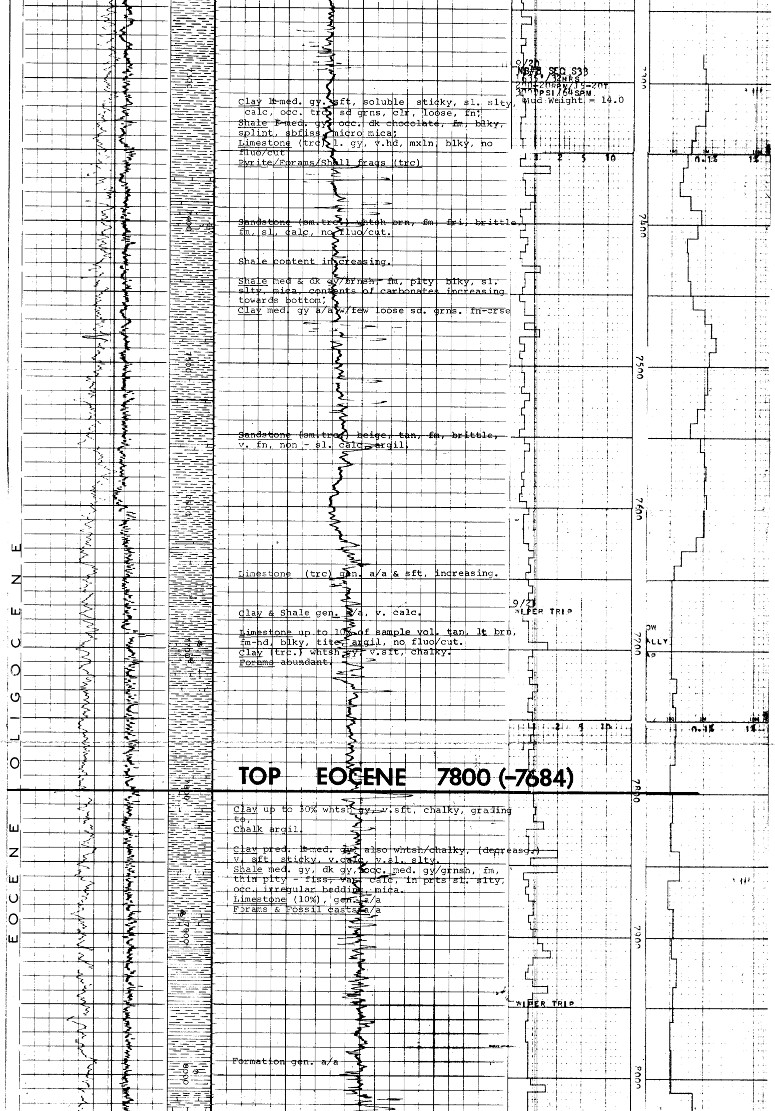
Clay & Shale dk gy, sl. brnsh, sft & fm, with few med gy, fm cuttings, sl. calc/dolomite.

Limestone (trc) beige, tan, fm & hd, brittle, sl. argil. No cut/fluo.

Chert (sm. trc.) brn, v. hd, splint, ang.

Clay med & dk gy, sft, sticky, var, calc; grading to.
Shale pred. med. gy, fm, blky, plty, rare fiss. mica, sl. calc/dolomite bentonitic.

Gen. a/a becoming more calc.



9/20
NB#8, SEC S33
1635'/32HRS
200+20RPM/15-20T
3000PSI/64SPM
Mud Weight = 14.0

Clay lt-med. gy. sft, soluble, sticky, sl. slty, calc, occ. trc. sd grns, clr, loose, fn;
Shale lt-med. gy, occ. dk chocolate, fm, blky, splint, sbfiss, micro mica;
Limestone (trc) l. gy, v.hd, mxln, blky, no fluo/cut
Pyrite/Forams/Shell frags (trc)

Sandstone (sm.trc.) whtsh orn, fm, fri, brittle, fm, sl, calc, no fluo/cut.

Shale content increasing.

Shale med & dk gy/brnsh, fm, plty, blky, sl. slty, mica, contents of carbonates increasing towards bottom;
Clay med. gy a/a w/few loose sd. grns. fn-crse

Sandstone (sm.trc.) beige, tan, fm, brittle, v. fn, non - sl. calc, argil.

Limestone (trc) gen. a/a & sft, increasing.

9/21

Clay & Shale gen. a/a, v. calc.

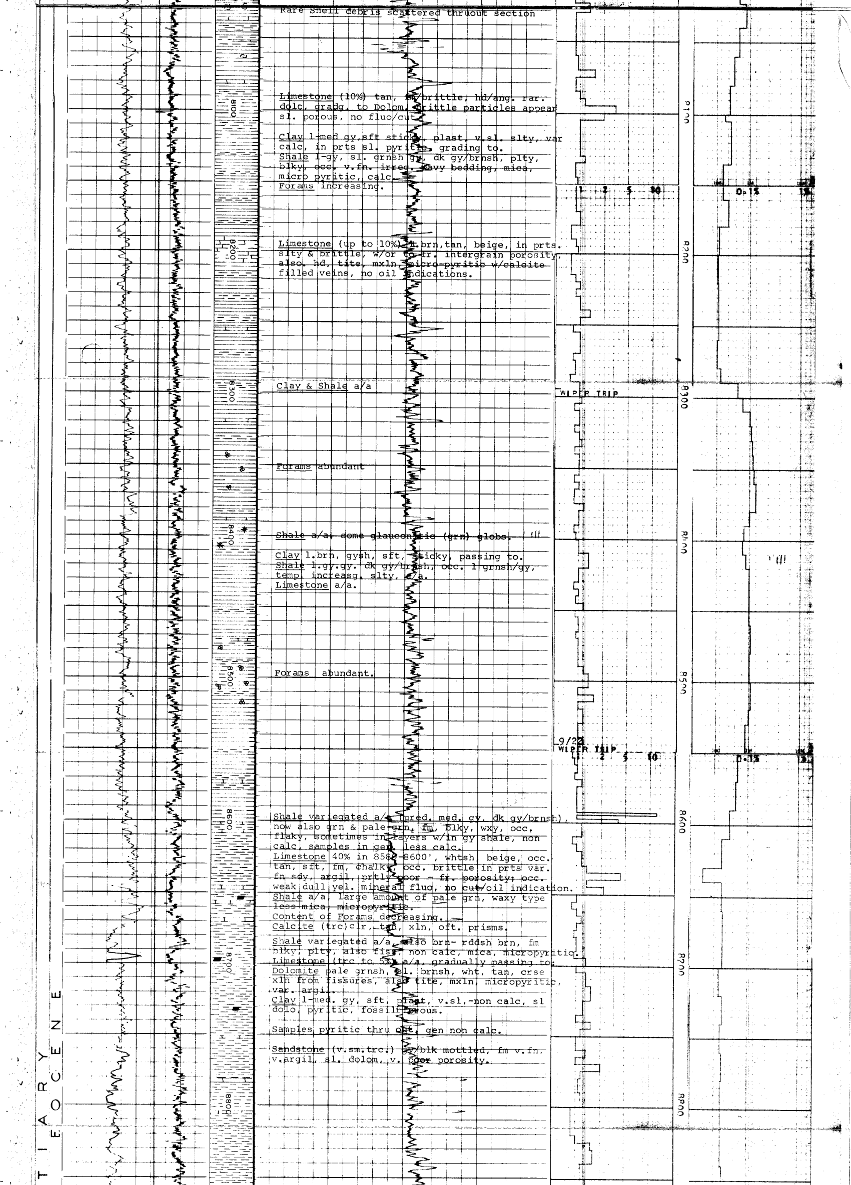
Limestone up to 10% of sample vol. tan, lt brn, fm-hd, blky, tite, argil, no fluo/cut.
Clay (trc.) whtsh gy, v.sft, chalky.
Forams abundant.

TOP EOCENE 7800 (-7684)

Clay up to 30% whtsh gy, v.sft, chalky, grading to,
Chalk argil.

Clay pred. lt-med. gy, also whtsh/chalky, (decreasg.) v. sft, sticky, v.calc, v.sl. slty.
Shale med. gy, dk gy, occ. med. gy/grnsh, fm, thin plty - fiss, var. calc, in prts sl. slty, occ. irregular bedding, mica.
Limestone (10%), gen. a/a
Forams & Fossil casts a/a

Formation gen. a/a



Rare Shell debris scattered thruout section

Limestone (10%) tan, fm/brittle, hd/ang. rar. dolo, gradg. to Dolom. brittle particles appear sl. porous, no fluo/cut.

Clay l-med gy, sft sticky, plast, v.sl. slty, var calc, in prts sl. pyritic, grading to.
Shale l-gy, sl. grnsh gy, dk gy/brnsh, plty, blky, occ. v.fn. irreg. wavy bedding, mica, micro pyritic, calc.
Forams increasing.

Limestone (up to 10%) lt.brn, tan, beige, in prts. slty & brittle, w/or to-fr. intergrain porosity, also. hd, tite, mxln, micro-pyritic w/calcite filled veins, no oil indications.

Clay & Shale a/a

Forams abundant

Shale a/a, some glauconitic (grn) globs.

Clay l.brn, gysh, sft, sticky, passing to.
Shale l.gy.gy. dk gy/brnsh, occ. l grnsh/gy, temp. increasg. slty, a/a.
Limestone a/a.

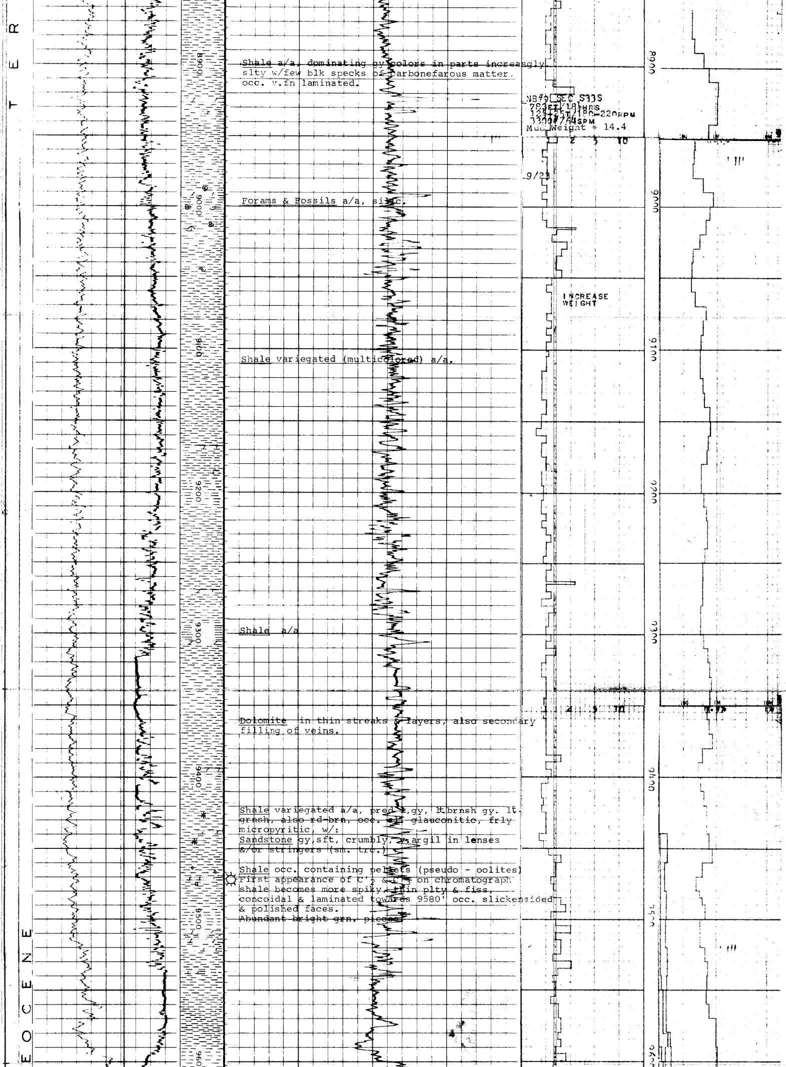
Forams abundant.

Shale variegated a/a (pred. med. gy, dk gy/brnsh), now also grn & pale grn, fm, blky, wxy, occ. flaky, sometimes in layers w/in gy shale, non calc, samples in gen. less calc.
Limestone 40% in 8580-8600', whtsh, beige, occ. tan, sft, fm, chalky, occ. brittle in prts var. fn sdy, argil, prtly poor - fr. porosity; occ. weak dull yel. mineral fluo, no cut/oil indication.
Shale a/a, large amount of pale grn, waxy type less mica, micropyritic.
Content of Forams decreasing.
Calcite (trc) clr, tan, xln, oft. prisms.

Shale variegated a/a, also brn- rddsh brn, fm blky, plty, also fiss, non calc, mica, micropyritic.
Limestone (trc to 5%) a/a, gradually passing to:
Dolomite pale grnsh, sl. brnsh, wht, tan, crse xln from fissures, also tite, mxln, micropyritic, var. argil.
Clay l-med. gy, sft, plast, v.sl,-non calc, sl dolo, pyritic, fossiliferous.

Samples pyritic thru out, gen non calc.

Sandstone (v.sm.trc.) gy/blk mottled, fm v.fn, v.argil, sl. dolom, v. poor porosity.



Shale a/a, dominating gy colors in parts increasgly slty w/few blk specks of carbonefarous matter, occ. v.fn laminated.

NB#9 SEC S33S
783FT/18½HRS
13#+25T/180-220RPM
3300#/74SPM
Mud Weight = 14.4

Forams & Fossils a/a, sidc.

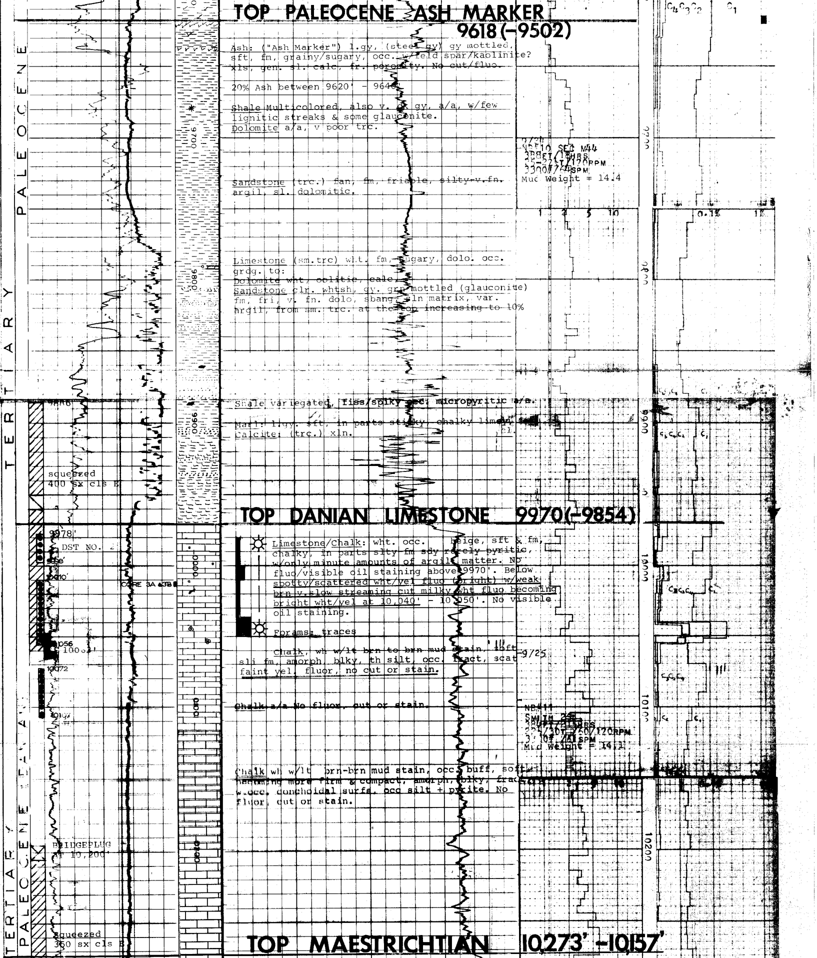
Shale variegated (multicolored) a/a.

Shale a/a

Dolomite in thin streaks & layers, also secondary filling of veins.

Shale variegated a/a, pred lt.gy, lt.brnsh gy. lt. grnsh, also rd-brn, occ. sl. glauconitic, frly micropyritic, w/:
Sandstone gy,sft, crumbly, v.argil in lenses &/or stringers (sm. trc.)

Shale occ. containing pellets (pseudo - oolites)
First appearance of C'_2 & C'_3 on chromatograph
shale becomes more spiky, thin plty & fiss, concoidal & laminated towards 9580' occ. slickensided & polished faces.
Abundant bright grn. pieces.



TOP PALEOCENE ASH MARKER 9618 (-9502)

Ash: ("Ash Marker") l.gy, (steel gy) gy mottled, sft, fm, grainy/sugary, occ. w/feld spar/kaolinite? xls, gen. sl. calc, fr. porosity. No cut/fluo.

20% Ash between 9620' - 9640'

Shale Multicolored, also v. dk gy, a/a, w/few lignitic streaks & some glauconite.
Dolomite a/a, v poor trc.

Sandstone (trc.) fan, fm, friable, silty-v.fn. argil, sl. dolomitic.

Limestone (sm.trc) wht. fm, sugary, dolo. occ. grdg. to:
Dolomite wht, oolitic, calc,
Sandstone clr. whtsh, gy. grn mottled (glauconite) fm, fri, v. fn. dolo, sbang, sln matrix, var. argil, from sm. trc. at the top increasing to 10%

Shale variegated, fiss/spiky occ. micropyritic a/a.

Marl: l.gy. sft, in parts sticky, chalky limestn cl.
Calcite: (trc.) xln.

TOP DANIAN LIMESTONE 9970(-9854)

Limestone/Chalk: wht. occ. beige, sft & fm, chalky, in parts slty fm sdy rarely pyritic, w/only minute amounts of argill. matter. No fluo/visible oil staining above 9970'. Below spotty/scattered wht/yel fluo (bright) w/weak brn v.slow streaming cut milky wht fluo becoming bright wht/yel at 10,040' - 10,050'. No visible oil staining.

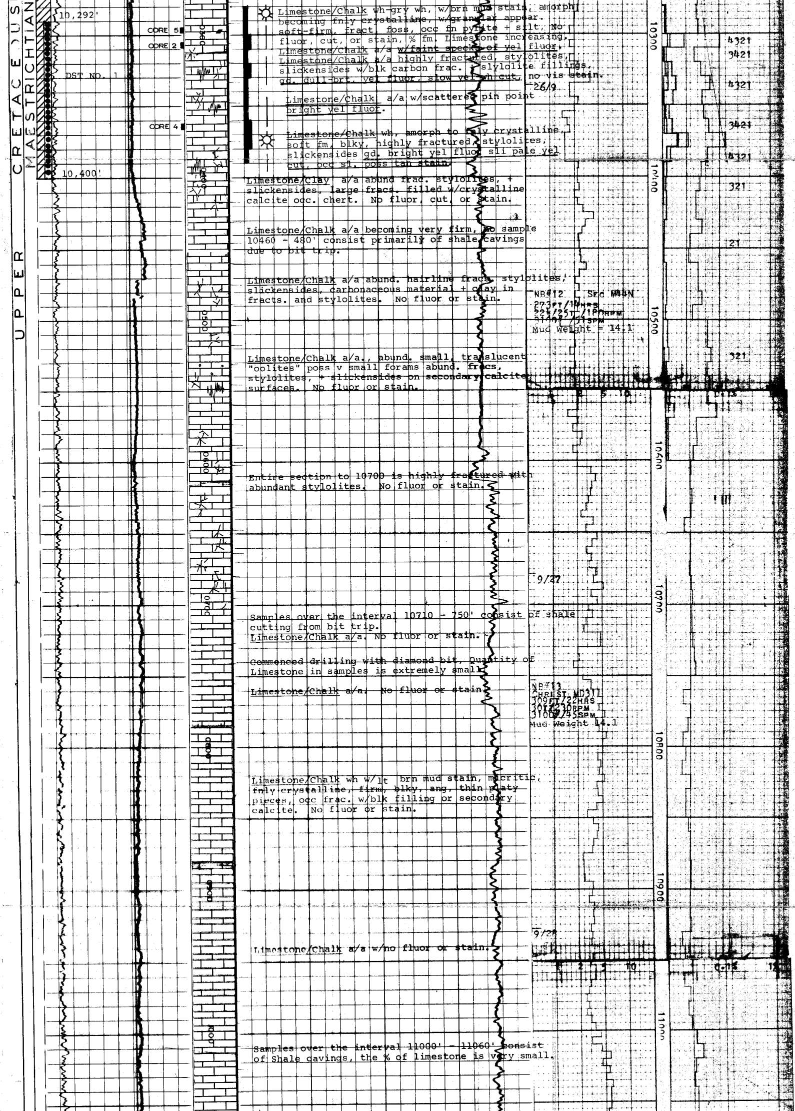
Forams: traces

Chalk, wh w/lt brn to brn mud stain, soft sli fm, amorph, blky, th silt, occ. fract, scat faint yel. fluor, no cut or stain.

Chalk a/a No fluor, cut or stain.

Chalk wh w/lt brn-brn mud stain, occ. buff, soft, becoming more firm & compact, amorph, blky, fract w.occ. conchoidal surfs. occ silt + pyrite. No fluor, cut or stain.

TOP MAESTRICHTIAN 10,273' -10,157'



Limestone/Chalk wh-gry wh, w/brn mud stain, amorph becoming fnly crystalline, w/granular appear. soft-firm, fract, foss, occ fn pyrite + silt, No fluor, cut, or stain, % fm. Limestone increasing.

Limestone/Chalk a/a w/faint specks of yel fluor.

Limestone/Chalk a/a highly fractured, stylolites, slickensides w/blk carbon frac. + slylolite fillings, gd. dull-brt. yel fluor, slow yel wh cut, no vis stain.

Limestone/Chalk a/a w/scattered pin point bright yel fluor.

Limestone/Chalk wh, amorph to fnly crystalline, soft fm, blky, highly fractured, stylolites, slickensides gd. bright yel fluor sli pale yel cut, occ sl. poss tan stain.

Limestone/Clay a/a abund frac. stylolites, + slickensides, large fracs. filled w/crystalline calcite occ. chert. No fluor, cut, or stain.

Limestone/Chalk a/a becoming very firm, no sample 10460 - 480' consist primarily of shale cavings due to bit trip.

Limestone/Chalk a/a abund. hairline fracs, stylolites, slickensides, carbonaceous material + clay in fracts. and stylolites. No fluor or stain.

NB#12 SEc M44N
273FT/14HRS
22½/25T/180RPM
3100#/51SPM
Mud Weight = 14.1

Limestone/Chalk a/a., abund. small, translucent "oolites" poss v small forams abund. fracs, stylolites, + slickensides on secondary calcite surfaces. No fluor or stain.

Entire section to 10700 is highly fractured with abundant stylolites. No fluor or stain.

Samples over the interval 10710 - 750' consist of shale cutting from bit trip.

Limestone/Chalk a/a. No fluor or stain.

Commenced drilling with diamond bit, Quantity of Limestone in samples is extremely small.

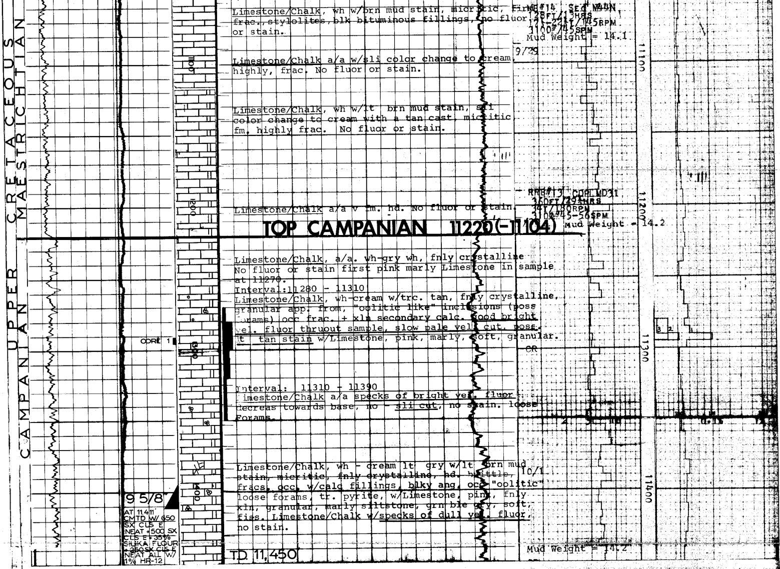
Limestone/Chalk a/a. No fluor or stain.

NB#13
CHRIST. MD31L
309FT/22HRS
30T/230RPM
3100#/45SPM
Mud Weight 14.1

Limestone/Chalk wh w/lt brn mud stain, micritic, fnly crystalline, firm, blky, ang, thin platy pieces, occ frac. w/blk filling or secondary calcite. No fluor or stain.

Limestone/Chalk a/a w/no fluor or stain.

Samples over the interval 11000' - 11060' consist of Shale cavings, the % of limestone is very small.



Limestone/Chalk, wh w/brn mud stain, micritic, firm, ~~frac., stylolites, blk bituminous fillings~~, no fluor or stain.

Limestone/Chalk a/a w/sli color change to cream, highly, frac. No fluor or stain.

Limestone/Chalk, wh w/lt brn mud stain, sli ~~color change to cream with a tan cast~~, micritic fm. highly frac. No fluor or stain.

Limestone/Chalk a/a v fm. hd. No fluor or stain.

TOP CAMPANIAN 11220(-11104)

Limestone/Chalk, a/a. wh-gry wh, fnly crystalline
No fluor or stain first pink marly Limestone in sample at 11270.

Interval: 11280 - 11310
Limestone/Chalk, wh-cream w/trc. tan, fnly crystalline, ~~granular app. from, "oolitic like" inclusions~~ (poss forams) occ frac. + xln secondary calc. good bright yel. fluor thruout sample, slow pale yell cut, poss. lt tan stain w/Limestone, pink, marly, soft, granular.

Interval: 11310 - 11390
Limestone/Chalk a/a specks of bright yel. fluor decreas towards base, no - sli cut, no stain. loose Forams.

Limestone/Chalk, wh - cream lt gry w/lt brn mud ~~stain, micritic, fnly crystalline, hd.~~ brittle, fracs, occ, w/calc fillings, blky ang, occ "oolitic" loose forams, tr. pyrite, w/Limestone, pink, fnly ~~xln, granular, marly siltstone, grn ble gry~~, soft, fiss. Limestone/Chalk w/specks of dull yel. fluor, no stain.

CORE DESCRIPTIONS (SCHLUMBERGER CORE SLICER SAMPLES)

Core 1: 11,294-11,291FT, REC 1FT 3 INCH

Limestone, whitish grey with light brown mud stain, mottled appearance, micritic, hard, dense, abundant dark grey shale partings, numerous hairline fractures, major fractures along thin shale partings, fractures are well healed with crystalline calcite, clay, and carbonaceous material, occasional inclusions of finely crystalline calcite, pyritic, pale yellow fluorescence on and around major fractures no fluorescence in matrix, no visible porosity.

Core 2: 10,309-10,306FT, REC 2FT 1 1/2 INCH

Limestone, white-light tan with medium brown mud stain, micritic, hard, abundant horizontal fractures, major fractures exhibit dark grey argillaceous-carbonaceous fillings, most fractures filled with finely crystalline calcite, numerous stylolites, no fluoresence or oil stain, no visible porosity, thick mud cake development.

Core 3A: 10,015-10,012FT, REC 2FT 1 INCH

Limestone, white - cream with medium-dark brown mud stain, slightly mottled appearance, micritic, hard, chalky, argillaceous, lower 12 1/2" highly fractured with narrow healed horizontal fractures and unfilled large vertical fractures, numerous thin, flat stylolites, no fluorescence or stain; middle 7 1/2" contains no fractures or stylolites, displays abundant patches of oil stain with good dull yellow fluorescence and fair cut, oil staining creates a mottled appearance, no visible porosity; upper 11" with abundant healed hairline fractures, no fluorescence or stain. Thick mud cake on core.

Core 3B: 10,015-10,012FT, REC 2FT

Limestone, cream - light tan with brown mud stain and tan oil stain in part, micritic, chalky, hard, dense, blebs and streaks of finely crystalline calcite, abundant hairline fractures with crystalline calcite and argilaceous fillings, pyritic, no fluorescence or stain over most of the core, oil stain limited to non-fractured interal, with good dull yellow fluorescence and white cut, no visible porosity. This core was mixed with cores 1, 2 and 3A when core collecting barrel failed to function properly. It is not considered to be a representative sample.

Core 4: 10,366-10,363FT, REC 2FT 11 INCH

Limestone, white with light to medium brown mud stain, micritic, hard, dense, highly fractured, two black "shale" partings at base, abundant stylolites, fractures and stylolites horizontal and at steep angles, fractures + stylolites filled with finely crystalline calcite and dark grey to black argillaceous material. Thick mud cake on core. Pale yellow fluorescence along and adjacent to fractures, pale yellow fluorescence along some stylolites, no stain, no visible porosity.

Core 5: 10,298-10,295FT, REC 0FT 11 INCH

Limestone, cream-tan, with light to medium brown mud stain, micritic, hard, dense, argillaceous, some very fine quartz?, very pitted surface indicating some porosity, numerous healed hairline fractures in bottom 4 1/2", numerous stylolites in upper 6 1/2", especially in top 1 1/2", good pale yellow fluorescence along and adjacent to stylolites at the top, scattered spots of faint fluorescence in matrix, no stain. Thick mud cake on core.

DST DATA

Test No. 1 (Clock No. 1 at 10375')

INTERVAL: 10292' - 10400'

Water cushion: 3000 feet fresh water with J4.

IHP: 9926

FHP: 9840

	Periods	Pressures
Initial flow pressure	0	1648
1st flow final	135 mins	3961
1st shut in		not taken
2nd flow initial	15 mins	5949
Flow initial	1281 mins	5172
2nd SI.	1420 mins	6487

DST No. 1 FARO 3498 BOPD + 3043 BWPD DECLINING TO 2488 BOPD + 2282 BWPD OVER A 20 HOUR PERIOD ON 1/2" CHOKE. CRUDE GRAVITY: 39°

Test No. 2 b. packer 9950. (Clock at 10058')

INTERVAL: 9978' - 9998', 10010' - 10056', 10072' - 10107'

IHP: 7370

FHP: 7343

Water cushion: Full string diesel

	Periods	Pressures
1st flow initial	0	4016
flow final	65	4714
flow shut in		not recorded
2nd flow initial	0	4584
final	540	4505
shut in	330	7252
3rd flow initial	15	4414
final	120	4371
Shut in		not recorded

NO FLOW BEFORE OR AFTER STIMULATION.

DST No. 1

Acidized 347.5 bbls acid displaced with 194.6 bbls

DST NO. 2

Acidized 714 bbls acid displaced with 236 bbls