

ANDERSON, WILCOXON & ASSOCIATES, INC.

CONSULTING MICROPALAEONTOLOGY

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Cable: Micropaleo San Diego

June 16, 1975

TO: Tetra Tech, Inc.

RE: U.S.N.
Cape Halkett #1
NPR-4
North Slope, Alaska

PALYNOLOGY REPORT

A total of 101 ditch and 67 sidewall core samples were processed and analyzed for palynological age determinations. The samples covered the interval from 510 feet to the total depth of 9900 feet.

510-650'

Barren of palynomorphs.

AGE: Indeterminate
ENVIRONMENT: Indeterminate

680-1100'

Scattered occurrences of Osmunda, Betula, Sphagnum, gymnosperm pollen, ? Astrocysta cretacea, and Oligosphaeridium complex.

The palynomorph recoveries were poor. The rare dinoflagellates recorded suggest this unit to be Cretaceous in age. However, these specimens may have been redeposited.

AGE: (?) Cretaceous
ENVIRONMENT: (?) Marine

1100-1320'

Single specimens of Triprojectus magnus, Gleicheniidites senonicus, and Osmunda.

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1100-1300' (Con't.)

The palynomorph recoveries remain poor in this interval.

AGE: Probable Campanian-Maestrichtian

ENVIRONMENT: Nonmarine

1320-2040'

Australiella cooksoni (F), *A. victoriensis* (F), *Deflandrea acuminata* (R), *Hystrichodinium pulchrum* (F), *Odontochitina operculata* (C), *Diconodinium arcticum* (F), *Hystrichosphaeridium difficile* (F).

This interval contains an abundant and diverse microplankton assemblage.

AGE: Santonian-Campanian

ENVIRONMENT: Marine

2040-2500'

This interval shows a decrease in microplankton abundance and diversity. Many of the common forms from the above interval are present here in decreased numbers.

AGE: (?) Turonian- (?) Coniacian

ENVIRONMENT: Probably marginal marine

2500-3357'

Astrocysta cretacea (F), *Odontochitina operculata* (C), *Deflandrea acuminata* (F), *Cribroperidinium edwardsi* (F), *Pseudoceratium dettmanae* (R), *Broomea jaegeri* (R).

The return to an abundant microplankton assemblage is reflected in this interval.

AGE: Cenomanian

ENVIRONMENT: Marine

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3357' SWC - 4554'

"Scriniodinium eurypylum" (F), Ascodinium verrucosum (R),
Astrocysta cretacea (A), Oligosphaeridium complex (R), Broomea
jaegeri (R), Odontochitina operculata (C).

AGE: Albian

ENVIRONMENT: Marine

4554' SWC - 7506'

Astrocysta cretacea (A), Oligosphaeridium complex (R), Odonto-
chitina operculata (C), Cribroperidinium edwardsi (R), Broomea
jaegeri (R), Gardodinium eisenacki (R).

The interval between 5800 feet and 6550 feet possibly represents
nonmarine or very marginal marine deposition.

AGE: Aptian

ENVIRONMENT: Marine

7506' SWC - 7570'

Muderongia simplex (C), Psaligonyaulax apatela var. (R),
Oligosphaeridium complex (C), Broomea jaegeri (F), Gardodinium
eisenacki (R).

AGE: Neocomian

ENVIRONMENT: Marine

7570-7715'

Muderongia simplex (R), Astrocysta cretacea (R), Oligosphaeridium
complex (F), Gardodinium eisenacki (R), Broomea jaegeri (R).

The large amount of down-hole contamination renders the
selection of in situ elements difficult.

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7570-7715' (Con't.)

No sidewall cores within this short interval were processed for palynology. The age assignment must therefore remain questionable.

AGE: (?) Neocomian

ENVIRONMENT: (?) Marine

7715' SWC - 7810'

Single occurrences of *Heliosporites altmarkensis*, cf. *striate basaccate*, and indeterminate spore genus as seen at 6348 feet core sample in the Simpson #1.

AGE: Probably Triassic

ENVIRONMENT: Nonmarine

7810-8040'

Numerous undescribed Triassic dinoflagellates designated as: TRD-2, TRD-6, TRD-7.

AGE: Triassic (Carnian-Norian)

ENVIRONMENT: Marine

8040-8826'

Taenaesporites sp. (R), *Striatites richteri* (R-F), *Klauseripollenites* sp. (R), *Dulhuntyisporites minuta* (R), *Kraeuselisporites* sp. (R), *Crustaesporites* sp. (single).

The single specimen of *Crustaesporites* sp. in sample 8130-8220' D suggests an Early Triassic age at this depth.

The ditch samples contained common marine Triassic palynomorphs;

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8040-8826' (Con't.)

however, the sidewall cores indicate that this interval is nonmarine.

AGE: Permian-Triassic

ENVIRONMENT: Nonmarine

8826' SWC - 9900' T.D.

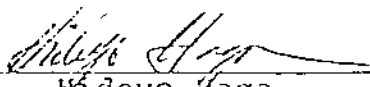
The sidewall cores within this interval were all barren of palynomorphs. The organic residues in cores below 9200 feet exhibited high thermal alteration and were black in color.

Two (2) separate ditch samples below 9600 feet yielded single fragments of a spore (Hystrichosporites sp.) characteristic of Devonian strata. These spores were colored dark red-brown, showing less thermal alteration than evidenced in the organic recoveries of the sidewall samples from similar depths. The conclusion, based on these color differences, is that the Devonian spores were probably redeposited into the Permian-Triassic section above and their appearance here cannot be taken as age indicative.

AGE: Indeterminate

ENVIRONMENT: Indeterminate

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Hideyo Haga