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#2

September 5, 1979

TO: Husky/U. S. Geological Survey

RE: Husky/U.S.G.S., NPRA
J. W. Dalton #1
Sec. 14, 18N/5W, U.B.M.
North Slope, Alaska

PALYNOLOGY REPORT

A total of 278 samples were processed and analyzed from the subject well. The total consists of 103 ditch cuttings composited into 90 foot intervals, 5 sidewall cores, and 170 core samples. The total sequence examined ranges from 90-9365.8' T.D.

Included with this report are Figures 1, 2 and 3 which illustrate the distribution of the ditch samples, cores, and sidewall cores respectively. A summary of the findings is given below.

90-270'

Undifferentiated bisaccates (A), Araucariacites australis (R), Deltoidospora spp. (R), Laevigatosporites spp. (R), Lycopodiumsporites spp. (R), Osmundacidites spp. (R), Sphagnum (R), Taxodiaceae (F), Betula (R).

Cleistosphaeridium spp. (R), Spiniferites ramosus (R).

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90-270' (con't.)

AGE: Indeterminate

ENVIRONMENT: Nonmarine to Marginal Marine

Palynomorphs recovered from this interval are of mixed ages. Numerous Cretaceous taxa are present along with those ranging from Tertiary to Recent.

270-900'

Undifferentiated bisaccates (F-A), Alnus (R), Betula (R-F), Carya (R), Cicatricosisporites dorogensis (R), Gleicheniidites senonicus (R-F), Laevigatosporites spp. (R-F), Taxodiaceae (R-F).

Cladopyxidium septatum (R), Deflandrea phosphoritica (R), Dinopterygium cladoides (R), Hemicystodinium sp. (R), Spiniferites ramosus (R), Wetzeliella articulata (R).

AGE: Paleogene (P-M11 to P-M12)

ENVIRONMENT: Marine to Marginal Marine

A Paleogene age is suggested by the presence of Cladopyxidium septatum, Deflandrea phosphoritica, Wetzeliella articulata, and Cicatricosisporites dorogensis.

900-2160'

Undifferentiated bisaccates (F-A), Aequitriradites spinulosus (R), Cicatricosisporites dorogensis (R), C. hallei (R-F), Costatoperforosporites foveolatus (R),

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900-2160' (con't.)

Cyathidites australis (R), C. minor (R-C), Distaltriangulisporites spp. (R), Foraminisporis asymmetricus (R), F. wonthaggiensis (R), Gleicheniidites senonicus (R-A), Lycopodiumsporites spp. (R-F), Osmundacidites (R-A), Sestrosporites pseudoalveolatus (R), Taxodiaceae (R-A), Triloborosporites crassus (R), Triporolites radiatus (R), Vitreisporites pallidus (R).

Alterbia acuminata (R-A), Chatangiella biapertura (R), C. coronata (R), C. decorosa (R-C), C. ditissima (R), C. granulifera (R), C. spectabilis (R), C. victoriensis (R-A), Chlamydophorella nyei (R-F), Cyclonephelium compactum (R-A), C. distinctum (R-C), Exochosphaeridium spp. (R-C), Gonyaulacysta tenuiceras (R-A), Hexagonifera chlamydata (R-F), Hystrichodinium pulchrum (R), Hystrichosphaeridium difficle (R-A), Kleithriasphaeridium spp. (R-F), Membranosphaera tabulata (R-C), Odontochitina costata (R), O. operculata (R-F), Oligosphaeridium complex (R), Operculodinium spp. (R-F), Palaeoperidinium basilium (R-F), Palambages sp. (R-F), Spinidinium echinoideum (R), Spiniferites cingulatus (R-F), S. ramosus (R-C).

AGE: Santonian to Campanian (P-M14)

ENVIRONMENT: Marine

The Santonian to Campanian age for this unit can be recognized by numerous and diverse taxa of Cretaceous age. Those of special importance are Chatangiella spp., Chlamydophorella nyei, Cyclonephelium spp., and Odontochitina spp.

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2160-2520'

Undifferentiated bisaccates (A), Cicatricosisporites australiensis (R), Cyathidites minor (F-A), Gleicheniidites senonicus (R-A), Osmundacidites (C-A), Taxodiaceae (A).

Alterbia acuminata (R-C), Canningia minor (R), Chatangiella victoriensis (R-C), Cribroperidinium edwardsi (R), Cyclonephelium compactum (C-A), Gonyaulacysta tenuiceras (R-C), Isabelidinium belfastense (R-C), Oligosphaeridium complex (R-F), Spiniferites ramosus (R-C).

AGE: Turonian to Coniacian (P-M15)
ENVIRONMENT: Marine

This interval is recognized by the first rare occurrences of Cribroperidinium edwardsi.

2520-2970'

Undifferentiated bisaccates (F-A), Cyathidites minor (R), Gleicheniidites senonicus (R-F), Taxodiaceae (R-A).

Alterbia acuminata (R-A), Cribroperidinium edwardsi (R-C), Cyclonephelium distinctum (R-F), Fromea amphora (R), Hystrichodinium pulchrum (R-F), Indeterminate yellow cysts (F-A), Isabelidinium cooksoniae (C), Odontochitina costata (R-C), Oligosphaeridium complex (R-C), Palaeoperidinium cretaceum (R-F), Palambages spp. (R-F), Spiniferites ramosus (R-F), Surculosphaeridium longifurcatum (R), Xiphophoridium alatum (R).

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2520-2970' (con't.)

AGE: Cenomanian (P-M16)
ENVIRONMENT: Marine

This interval is characterized by common to abundant occurrences of Cribroperidinium edwardsi and the "indeterminate yellow cysts". Other useful taxa that indicate the age given are Fromea amphora, Surculosphaeridium longifurcatum, and Xiphophoridium alatum.

2970-5490'

Undifferentiated bisaccates (F-A), Aequitriradites spinulosus (R), Araucariacites australis (R-F), Cingutriletes clavus (R), Classopollis classoides (R), Cyathidites minor (R-C), Eucommiidites minor (R), Gleicheniidites senonicus (R-F), Osmundacidites spp. (R-C), Punctatosporites scabratus (R), Rogalskaisporites cicatricosus (R), Schizosporis parvus (R), Taxodiaceae (R-A), Trilobosporites apiverrucatus (R), T. perverulentus (R).

Aptea polymorpha (R), Apteodinium grande (R-C), Canningia colliveri (R), C. minor (R-F), Cribroperidinium edwardsi (R-C), Cyclonephelium distinctum (R-A), Genus "W" (R), Hystrichosphaeridium cooksoniae (R), Luxadinium propatulum (R-A), Muderongia asymmetrica (R), Odontochitina operculata (R-A), Oligosphaeridium complex (R-A), Palaeoperidinium cretaceum (R-A), Palambages sp. (R), Pseudoceratium expolitum (R-F), P. retusum (R-F), P. turneri (R-A), Spinidinium vestitum (R-C).

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2970-5490' (con't.)

AGE: Middle to Late Albian (P-M17)
ENVIRONMENT: Marine

The top and base for this unit are defined by the total ranges of Genus "W", Luxadinium propatulum, and Spinidinium vestitum which do not occur either above or below the P-M17 zonule. Those occurrences of these taxa in the ditch samples that do occur lower in the well are probably the result of "uphole" contamination.

5490-7380'

Undifferentiated bisaccates (A), Callialasporites dampieri (R), Cyathidites minor (R-F), Gleicheniidites senonicus (R-F), Taxodiaceae (R-F), Trilobosporites minor (R), T. trioreticulatus (R).

Canningia colliveri (R), Cribroperidinium edwardsi (R), Gardodinium trabeculosum (R), Odontochitina operculata (R-F), Oligosphaeridium complex (R), Palaeoperidinium cretaceum (R-C), Pseudoceratium retusum (R), Spiniferites ramosus (R-F).

AGE: Aptian to Early Albian (P-M18)
ENVIRONMENT: Marine

As described for the interval above, the top of this unit is defined by the base of Genus "W", Luxadinium propatulum and Spinidinium vestitum. Callialasporites dampieri is also an important fossil which can be used to define the top of this interval.

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7380-7650'

Undifferentiated bisaccates (A), Cyathidites australis (R), Gleicheniidites senonicus (R), Taxodiaceae (R-F).

Canningia colliveri (R-F), Cleistosphaeridium spp. (R-C), Cyclonephelium distinctum (F-C), Gardodinium trabeculosum (R-C), Herendeenia pisciformis (R), Muderongia simplex (R), Odontochitina operculata (R-A), Oligosphaeridium complex (A), O. complex (thick-wall) (F), Palaeoperidinium cretaceum (F-C), Pterospermopsis sp. (C-A).

AGE: Probable Neocomian
ENVIRONMENT: Marine

The interval defined here is distinguished from the proceeding by the increased numbers and diversity of taxa present. No important new forms appear, and therefore the age is suggested as probable Neocomian.

7714-7967'

Undifferentiated bisaccates (R-A), Acanthotriletes varius (R), Callialasporites dampieri (R), Densosporites fissus (R), Leptolepidites argenteaeformis (R), Limbosporites lundbladii (R).

Cymatiosphaera spp. (R-F), Tasmanaceae (R), Tytthodiscus foveolatus (R).

AGE: Late Triassic to Early Jurassic
ENVIRONMENT: Nonmarine to Marginal Marine

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7714-7967' (con't.)

The age for this unit is based on taxa found in the sidewall core samples. Those of importance are: Acanthotriletes varius, Densosporites fissus, Leptolepidites argenteaeformis, Limbosporites lundbladii, and Cymatiosphaera spp. The ditch samples collected over this interval contain taxa similar to the "uphole" intervals.

7967-8370'

Undifferentiated bisaccates (R-A), Anaplanisporites stipulatus (R), Apiculatisporis lanjouwii (R), Aratrisporites sp. (R), Convolutispora sp. (R), Granulatisporites sp. (R), Hystricosporites sp. (R), Kraeuselisporites sp. (R), Lycospora sp. (R), Ovalipollis sp. (R), Punctatisporites spp. (R-F), Raistrickia sp. (R), Spinotriletes sp. (R), Striatites richteri (R), Taeniaesporites sp. (R), undifferentiated verrucate spores (C), Vestispora sp. (R), Vitreisporites pallidus (R).

Micrhystridium sp. (R).

AGE: Permian to Triassic
ENVIRONMENT: Nonmarine to Marginal Marine

Occurrences of such taxa as Apiculatisporis lanjouwii, Aratrisporites sp., Ovalipollis sp., Striatites richteri, and Taeniaesporites sp. all suggest a Permian to Triassic age for this interval.

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7967-8370' (con't.)

Two core samples (i.e., 8081 and 8113) contain Cretaceous aged taxa. In both cases they are the top samples and alien to the remaining core samples. They are here considered to be either contaminated by mud invasion or collected from rubble in the top of the core barrel.

8370-9365.8' T.D.

Undifferentiated bisaccates (R-A), Punctatisporites spp. (R), Striatites richteri (R), Taeniaesporites sp. (R), undifferentiated verrucate spores (R).

AGE: Indeterminate
ENVIRONMENT: Indeterminate

Taxa from this interval in the ditch samples are the same as those noted in higher units and are probably derived from "uphole" contamination. The core samples are all barren of palynomorphs.

Interpreted by:

G. L. Waanders

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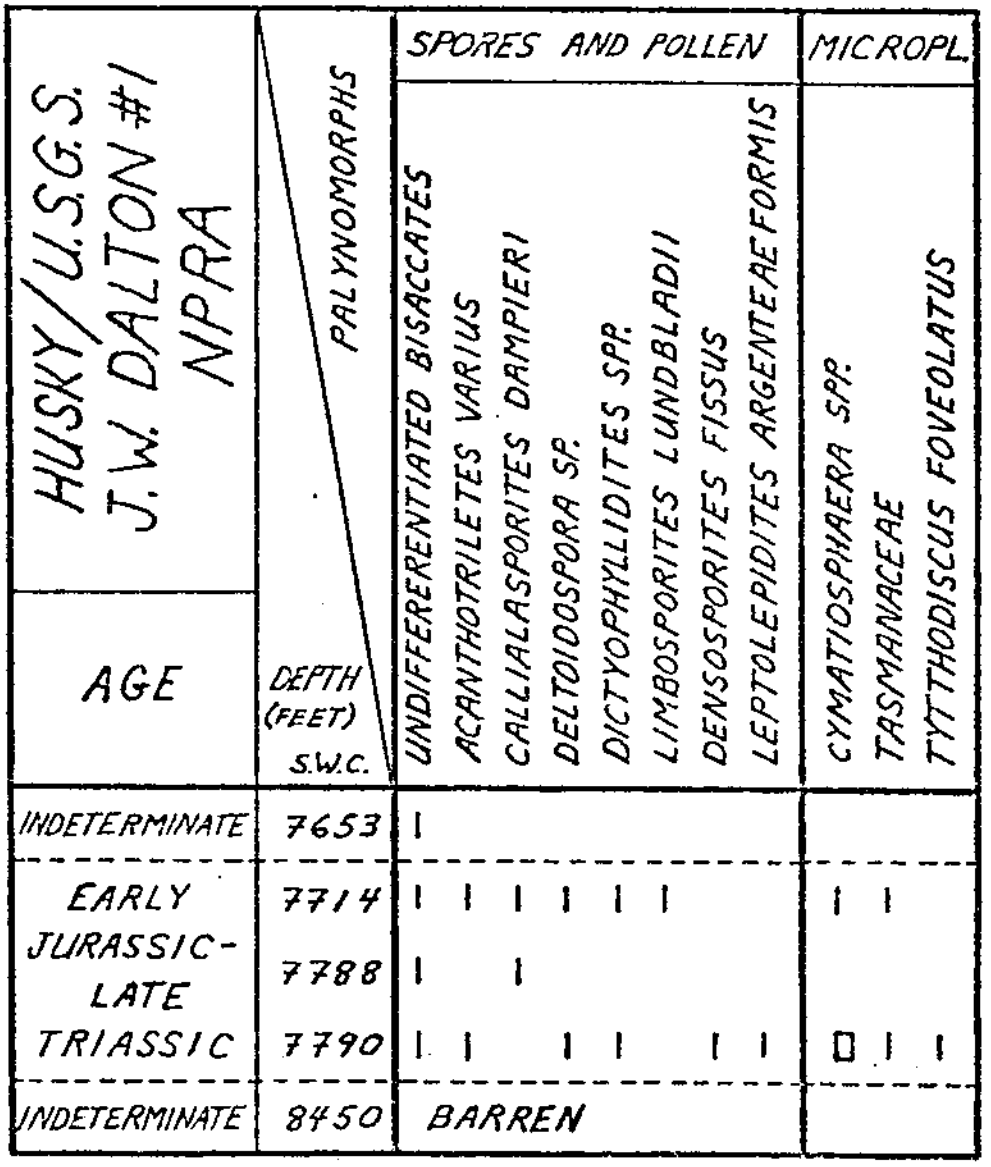
Hideyo Haga



| RARE (1 - 5)

□ FREQUENT (6 - 15)

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SAN DIEGO, CA.
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FIGURE 3