

G.C.C. O.F. 1869
GRAND BANKS

PALYNOLOGICAL BIOSTRATIGRAPHY OF ARCHER K-19,

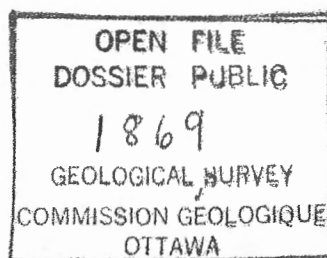
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BUJAK DAVIES GROUP

PALYNOLOGICAL BIOSTRATIGRAPHY OF
ARCHER K-19, GRAND BANKS

REPORT NO. 87-0066
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CALGARY, ALBERTA



BIOSTRATIGRAPHIC SUMMARY: ARCHER K-19

- 900-1130m Deflandrea heterophlycta Zone (early Oligocene)
- 1150-1490m Diphyes colligerum Zone (late Eocene)
- 1510-1790m Adnatosphaeridium reticulense Zone (middle Eocene)
- 1810-1970m Areoligera senonensis Zone (early Eocene)
- 1990-2090m Palaeoperidinium pyrophorum Zone (early Paleocene)
- 2110-2150m Stellatopollis sp. A Zone: Subzones 11A-B (early
Albian)
- 2170-2210m Parvisaccites amplus Zone: Subzone 10C (late Aptian)
- 2230-2240m Pseudoceratium pelliiferum Zone: Subzones 7A-B
(early Valanginian)
- 2260-2330m Cerebropollenites macroverrucosus Zone: Subzones 6A-B
(late Berriasian to early Valanginian)
- 2350-2420m Ctenidodinium panneum Zone: Subzone 5A (Portlandian
to early Berriasian)
- 2440-2450m Gonyaulacysta dualis Zone: Subzones 4A-B
(late Kimmeridgian to Portlandian)
- 2470-2700m Subtilisphaera paeminosa Zone: Subzone 3C (late
Kimmeridgian)

- 2691-2887m Subtilisphaera paeminosa Zone: Subzones 3A-B (middle to late Kimmeridgian)
- 2890-2960m Pilosisorites sp. A Zone: Subzone 2C (middle Kimmeridgian)
- 2980-3230m Pilosisorites sp. A Zone: Subzone 2B (early to middle Kimmeridgian)
- 3250-3650m Pilosisorites sp. A Zone: Subzone 2A (early Kimmeridgian)
- 3640-3650m possible Scriniodinium crystallinum Zone: Subzone 1B (possible early Kimmeridgian)
- 3668-4090m Gonyaulacysta jurassica Zone or older (Oxfordian or older)
- 4120-4290m possible Diacanthum filapicatum Zone (possible Bathonian)

SELECTED PALYNOMORPHS900-1130m: Deflandrea heterophlycta Zone (early Oligocene)

- 900-910m Areosphaeridium arcuatum (large form)
 Corylus #LA
 Deflandrea phosphoritica
 Hystriocholpoma salacium (questionably present)
 Membranophoridium aspinatum
 Micrhystridium fragile
 Quercoidites #LA
 Tricolpites #LR
- 920-930m Carpinipites #LA
 Lentinia serrata
 Paralecaniella indentata
 Phthanoperidinium #LG
- 950-960m Cerebrocysta bartonensis
 Tiliaepollenites vespites
- 970-980m Glaphyrocysta intricata (large form)
 Momipites coryloides
 Phthanoperidinium comatum
 Tiliaepollenites vespites (common)
- 1000-1010m Homotryblum pallidum
 Retitricolpites #LA
 Rhombodinium draco
 Tectatodinium pellitum

1120-1130m Camarozonosporites #LA
 Rouseisporites #LA

1150-1490m: Diphyes colligerum Zone (late Eocene)

1150-1160m Areosphaeridium fenestratum
 Cordosphaeridium multispinosum
 Systematophora placacantha

1180-1190m Phthanoperidinium alectrolophum

1240-1250m Hystrichosphaeridium patulum

1270-1280m Dinopterygium cladoides
 Momipites tenuipolus

1300-1310m Cicatricosisporites dorogensis

1390-1400m Rhombodinium draco

1450-1460m Microthallites spp.
 Phthanoperidinium levimurum

1480-1490m Glaphyrocysta laciniiforme
 Samlandia chlamydophora

1510-1790m: Adnatosphaeridium reticulense Zone (middle Eocene)

1510-1520m Hystrichosphaeridium patulum (common)

1540-1550m Deflandrea #LR (present)
 Glaphyrocysta exuberans
 Gochtodinium simplex

Hystriosphæridium patulum (abundant)
Wetzeliella ovalis

1570-1580m Achilleodinium biformoides
Phthanoperidinium alectrolophum

1600-1610m Areoligera sentosa
Areoligera undulata
Glaphyrocysta spineta

1630-1640m Heteraulacacysta leptalea
Microhystridium fragile (abundant)
Paralecaniella indentata (common)
Quadrina pallida

1660-1670m Apectodinium homomorphum (questionably present)

1690-1700m Glaphyrocysta intricata (small form)
Pesavis tagluensis

1720-1730m Phthanoperidinium multispinosum

1750-1760m Adnatosphaeridium multispinosum

1780-1790m Lingulodinium machaerophorum (common)

1810-1970m: Areoligera senonensis Zone (early Eocene)

1810-1820m Areoligera senonensis
Areoligera tauloma

1840-1850m Adnatosphaeridium robustum
Apectodinium homomorphum

	<u>Areoligera senonensis</u> (common)
	<u>Cordosphaeridium gracile</u>
	<u>Hystrichokolpoma salacium</u>
	<u>Polysphaeridium subtile</u> (common)
	<u>Wetzeliella meckelfeldensis</u>
1870-1880m	<u>Apectodinium homomorphum</u> (common)
	<u>Apectodinium hyperacanthum</u> (common)
	<u>Areoligera senonensis</u> (abundant)
	<u>Cordosphaeridium inodes inodes</u>
	<u>Diphyes colligerum</u>
	<u>Dracodinium condylos</u>
	<u>Hafniasphaera septata</u>
	<u>Hystrichosphaeridium tubiferum</u>
	<u>Impletosphaeridium scalenfurcatum</u>
	<u>Systematophora</u> #LC
1900-1910m	<u>Apectodinium homomorphum</u>
	<u>Apectodinium hyperacanthum</u> (abundant)
	<u>Systematophora</u> #LE
	<u>Thalassiphora patula</u>
	<u>Trinovantedinium</u> #LA
1930-1940m	<u>Deflandrea isfeldensis</u>
1960-1970m	<u>Dracodinium solidum</u>
	<u>Hystrichokolpoma unispinum</u>

1990-2090m: Palaeoperidinium pyrophorum Zone (early Paleocene)

- 1990-2000m Ceratiopsis speciosa glabra
 Eisenackia crassitabulata
 Oligosphaeridium complex
- 2020-2030m Cribroperidinium wetzelii
- 2050-2060m Hystriochokolpoma cinctum
 Isabelidium viborgense (questionably present)

2110-2150m: Stellatopollis sp. A Zone: Subzones 11A-B (early to middle
(Albian))

- 2110-2120m Gonyaulacysta helicoidea
- 2140-2150m Callialasporites dampieri
 Odontochitina operculata
 Plicatella baconensis
 Plicatella crimensis

2170-2210m: Parvisaccites amplus Zone: Subzone 10C (late Aptian)

- 2170-2180m Cicatricosisporites delicatus
 Crybelisporites pannaceus
 Parvisaccites amplus
 Canningia ringnesiorum
 Vitreisporites pallidus
- 2200-2210m Cribroperidinium edwardsii

2230-2240m: Pseudoceratium pelliiferum Zone: Subzones 7A-B
(Valanginian)

2230-2240m Callaiosphaeridium asymmetrica
 Cyclonephelium distinctum
 Phoberocysta neocomica cruciformis
 Oligosphaeridium diluculum

2260-2330m: Cerebropollenites macroverrucosus Zone: Subzones 6A-B
(Berriasian-early
Valanginian)

2260-2270m Corollina echinata
 Corollina torosa
 Muderongia simplex
 Occisucysta distincta

2290-2330m Callialasporites infrapunctatus
 Densoisporites microrugulatus
 Gardodinium eisenackii
 Callialasporites monoalatus
 Muderongia staurata

2320-2330m Cerebropollenites macroverrucosus
 Escharisphaeridia pocockii

2350-2420m: Ctenidodinium panneum Zone: Subzone 5A (Portlandian)

2350-2360m Achomosphaera neptunii (depressed top)
 Amphorula #EA
 Corollina itunensis (common)
 Millioudodinium jubaris

2380-2390m Muderongia simplex perforata

2410-2420m Corollina vignoiensis

2440-2450m: Gonyaulacysta dualis Zone: Subzones 4A-B (Portlandian)

2440-2450m Amphorula metaelliptica
Cometodinium #EA
Cribroperidinium globatum

2470-2700m: Subtilisphaera paeminosa Zone: Subzone 3C (late
Kimmeridgian)

2470-2480m Breodoxiella #EB
Cribroperidinium granuligerum
Ctenidodinium panneum
Dingodinium jurassicum
Endoscrinium pharos
Lanterna sportula
Subtilisphaera paeminosa

2500-2510m Muderongia sp. A (common)

2544-2554m Striatella #EK
Systematophora fasciculigera

2560-2570m Corollina echinata
Hystrichodinium lanceatum
Meiourogonaulax deflandrei
Pityosporites dividiuus

2572.12-2582m Cribroperidinium ehrenbergii
Glossodinium dimorphum (questionably present)

- 2590-2600m Aequitriradites conosimilis
 Senoniasphaera jurassica
- 2604-2614m Occisucysta evittii (questionably present)
 Systematophora ovata
- 2620-2630m Histiocysta ornata
 Mendicodinium groenlandicum
- 2650-2660m Adnatosphaeridium paucispinum (questionably present)
 Oligosphaeridium pulcherrimum cf. sensu Ioannides et
 al. 1977
- 2663-2673m Breodoxiella #EA
 Callialasporites infrapunctatus
 Ellipsoidictyum cinctum
 Gonyaulacysta dualis
 Varirugosisporites #EK
- 2680-2690m Corollina chateniensis
 Leptodinium mamilliferum
- 2691-2887m: Subtilisphaera paeminosa Zone: Subzones 3A-B (middle to
 late Kimmeridgian)
- 2691-2701m Cribroperidinium #EZ
 Hystriochodinium #DA
- 2736-2745m Ctenidodinium culmulum (questionably present)
- 2770-2780m Cicatricosisporites #EO (questionably present)
 Gochteodinia villosa cf.

3970-3980m Aldorfia scarburghense

4120-4290m: possible Diacanthum filapicatum Zone (Bathonian)

4120-4130m Diacanthum filapicatum (questionably present)
 Moesiodinium spp.
 Sentusidinium asymmetricum (questionably present)
 Wallodinium elongatum (questionably present)

APPENDIX AAlphabetical Listing of Species Shown on Occurrence Chart:Marine Dinoflagellates

Index number	Taxon names	Index number	Taxon names
171	Acanthaulax sp. cf. senta	195	Ctenidodinium #ER
176	Acanthaulax spp.	188	Ctenidodinium chondrum
39	Achilleodinium bifurmoides	169	Ctenidodinium culmulum
131	Achomosphaera #EA	119	Ctenidodinium panneum
16	Achomosphaera alaicornu	194	Ctenidodinium schizoblatum
100	Achomosphaera neptunii	109	Ctenidodinium spp.
47	Adnatosphaeridium multispinosum	80	Cyclonephelium distinctum
153	Adnatosphaeridium paucispinum	3	Dapsilodinium pastielsii
51	Adnatosphaeridium robustum	38	Deflandrea #LR
99	Amphorula #EA	65	Deflandrea oebisfeldensis
147	Amphorula #EE	4	Deflandrea phosphoritica
112	Amphorula metaelliptica	117	Dingodinium jurassicum
97	Amphorula spp.	29	Dinopterygium cladoides
44	Apectodinium homomorphum	56	Diphyes colligerum
53	Apectodinium hyperacanthum	57	Dracodinium condylos
127	Aptecodinium nuciforme	68	Dracodinium solidum
50	Areoligera senonensis	166	Egmontodinium spp.
40	Areoligera sentosa	71	Eisenackia crassitabulata
49	Areoligera tauloma	158	Ellipsodictyum cinctum
41	Areoligera undulata	116	Endoscrinium pharo
1	Areosphaeridium arcuatum (large form)	180	Epiplosphaeridium retispinosum
25	Areosphaeridium fenestratum	95	Escharisphaeridia pocockii
31	Areosphaeridium multicornutum (large)	104	Escharisphaeridia rudis
96	Astrocysta cretacea	187	Escharisphaeridia spp.
157	Breodoxiella #EA	89	Gardodinium eisenackii
120	Breodoxiella #EB	35	Glaphyrocysta exuberans
168	Breodoxiella #EG	17	Glaphyrocysta intricata (large form)
192	Breodoxiella #ER	45	Glaphyrocysta intricata (small form)
111	Caddosphaera halosa	32	Glaphyrocysta laciniiforme
82	Callaiosphaeridium asymmetrica	26	Glaphyrocysta sp. indet.
173	Canningia minor	42	Glaphyrocysta spineta
78	Canningia ringnesiorum : y	133	Glossodinium dimorphum
123	Canningia spp.	172	Gochteodinia villosa
69	Ceratiopsis speciosa glabra	37	Gochteodinium simplex
15	Cerebrocysta bartonensis	76	Gonyaulacysta helicoidea
177	Cleistosphaeridium ehrenbergii	200	Gonyaulacysta #EA
107	Cometodinium #EA	159	Gonyaulacysta dualis
22	Cordosphaeridium cantharellum	206	Gonyaulacysta hyalodermopsis
52	Cordosphaeridium gracile	154	Gonyaulacysta jurassica
48	Cordosphaeridium inodes inodes	183	Gonyaulacysta sp. cf. serrata
70	Cordosphaeridium inodes longipes	181	Gonyaulacysta spp.
24	Cordosphaeridium multispinosum	58	Hafniasphaera septata
163	Cribroperidinium #EZ	43	Heteraulacysta leptalea
132	Cribroperidinium ehrenbergii	148	Histiocysta ornata
2	Cribroperidinium giuseppi	19	Homotryblum pallidum
110	Cribroperidinium globatum	149	Hystrichodinium #DA
118	Cribroperidinium granuligerum	130	Hystrichodinium lanceatum
14	Cribroperidinium orthoceras	150	Hystrichogonyaulax #EA
79	Cribroperidinium spp.	199	Hystrichogonyaulax cladophora
73	Cribroperidinium wetzelii	74	Hystrichokolpoma cinctum
122	Ctenidodinium #EA	5	Hystrichokolpoma salacium
121	Ctenidodinium #EB	67	Hystrichokolpoma unispinum

APPENDIX A (Cont'd)Alphabetical Listing of Species Shown on Occurrence Chart:Marine Dinoflagellates

Index number	Taxon names	Index number	Taxon names
28	Hystrichosphaeridium patulum	7	Pentadinium laticinctum granulatum
59	Hystrichosphaeridium tubiferum	175	Perisseiasphaeridium #EB
204	Hystrichosphaerina orbifera	135	Perisseiasphaeridium spp.
140	Imbatodinium #EX	85	Phoberocysta neocomica cruciforme
201	Imbatodinium attenuatum	105	Phoberocysta spp.
186	Imbatodinium kondratjevii	10	Phthanoperidinium #LG
190	Imbatodinium spp.	27	Phthanoperidinium alectrolophum
60	Impletosphaeridium scalenfurcatum	18	Phthanoperidinium comatum
75	Isabelidinium viborgense	30	Phthanoperidinium levimurum
193	Kalyptea #EA	46	Phthanoperidinium multispinosum
81	Kleithriasphaeridium loffrense	106	Polysphaeridium sp. indet.
170	Kleithriasphaeridium spp.	53	Polysphaeridium subtile
128	Lanterna bulgaria	86	Polystephanophorus schindewolfii
115	Lanterna sportula	108	Pseudoceratium pelliiferum
125	Lanterna spp.	20	Rhombodinium draco
9	Lentinia serrata	34	Samlandia chlamydochora
178	Leptodinium hyalodermopsis	205	Seriodinium crystallinum
160	Leptodinium mammiliferum	167	Senoniasphaera jurassica
103	Leptodinium spp.	136	Sentusidinium cucculiformis
33	Lingulodinium machaerophorum	182	Sentusidinium rioultii
174	Lithodinia jurassica	198	Sentusidinium spp.
207	Luxadinium #ES	137	Spiniferites #EE
197	Meiourugonyaulax callomonii	12	Spiniferites pseudofurcatus
129	Meiourugonyaulax deflandrei	8	Spiniferites ramosus
196	Meiourugonyaulax dicrypta	101	Spiniferites sp. indet.
184	Meiourugonyaulax porosa	87	Stiphrosphaeridium diluculum
164	Meiourugonyaulax spp.	93	Subtilisphaera inaffecta
6	Membranophoridium aspinatum	141	Subtilisphaera paeminosa
151	Mendicodinium groenlandicum	113	Subtilisphaera paeminosa
179	Millioudodinium #EZ	142	Subtilisphaera spp.
98	Millioudodinium jubaris	61	Systematophora #LC
83	Muderogia imparilis	64	Systematophora #LE
156	Muderongia #EA	11	Systematophora ancylaea
126	Muderongia #EG	152	Systematophora areolata
114	Muderongia #LA	94	Systematophora fasciculigera
88	Muderongia simplex	146	Systematophora ovata
102	Muderongia simplex perforata	23	Systematophora placacantha
124	Muderongia sp. A	143	Systematophora spp.
90	Muderongia staurata	185	Taeniophora #EA
134	Occisucysta #ES	165	Taeniophora spp.
203	Occisucysta balios	138	Tanyosphaeridium isocalamum
144	Occisucysta evittii	13	Taxosphaeridium spp.
145	Occisucysta spp.	21	Tectatodinium pellitum
77	Odontochitina operculata	62	Thalassiphora patula
91	Oligosphaeridium asterigerum	66	Thalassiphora pelagica
72	Oligosphaeridium complex	63	Trinovantedinium #LA
155	Oligosphaeridium pulcherrimum cf.	139	Tubotuberella apatela
84	Oligosphaeridium vasiiforme	202	Wallodinium spp.
161	Paragonyaulacysta spp.	162	Wanaea spp.
189	Pareodinia borealis	54	Wetzeliella meckelfeldensis
92	Pareodinia ceratophora	36	Wetzeliella ovalis
191	Pareodinia sp. C		

APPENDIX A (Cont'd)Alphabetical Listing of Species Shown on Occurrence Chart:Pollen and Spores

Index number	Taxon names	Index number	Taxon names
33	Abiespollenites spp.	104	Corollina chateniensis
89	Aequitriradites #EL	54	Corollina echinata
83	Aequitriradites conosimilis	62	Corollina itunensis
110	Aequitriradites cooksoniae	42	Corollina torosa
146	Aequitriradites spinulosus	55	Corollina torosa
73	Aequitriradites spp.	64	Corollina vignoiensis
84	Aequitriradites subverrucosus	105	Coronatispora spp.
144	Aequitriradites verrucosus	76	Coronatispora valdensis
37	Alisporites bilateralis	80	Coronatispora valdensis
75	Alisporites grandis	4	Corylus #LA
1	Alisporites thomasi	43	Crybelisporites pannaceus
2	Alnipollenites verus	31	Cyathidites minor
70	Araucariacites australis	30	Cyathidites spp.
108	Araucariacites punctatus	92	Cycadopites #EC
85	Baculatisporites comaumensis	68	Deltoidospora hallii
18	Betulaceipollenites betuloides	58	Densoisporites microrugulatus
38	Callialasporites dampieri	123	Densoisporites spp.
57	Callialasporites infrapunctatus	111	Densoisporites velatus
101	Callialasporites infrapunctatus	36	Densosporites spp.
67	Callialasporites monoalatus	118	Dictyotrilletes spp.
136	Callialasporites obtulatus	120	Distaltriangulisporites spp.
71	Callialasporites trilobatus	93	Eucosmiidites minor
97	Callialasporites turbatus	59	Exesipollenites tumulus
31	Camarozonosporites #LA	126	Exesiporites scabratus
109	Campania #EA	46	Gleicheniidites senonicus
19	Carpinipites #LA	127	Inaperturopollenites #EA
27	Caryapollenites simplex	56	Inaperturopollenites dettmanniae
119	Cedripites #EA	86	Inaperturopollenites granulatus
69	Cedripites canadensis	28	Juglanspollenites nigripites
60	Cerebropollenites macroverrucosus	149	Klukisporites pseudoreticulatus
61	Cerebropollenites mesozoicus	100	Klukisporites spp.
117	Chasmatosporites major	153	Klukisporites variegatus
133	Chasmatosporites nelsonii	5	Laevigatosporites ovatus
53	Cicatricosisporites #EAL	87	Leiotrilletes mecklenburgensis
98	Cicatricosisporites #ED	66	Leptolepidites major
157	Cicatricosisporites #EX	6	Lycopodiumsporites annotinioides
145	Cicatricosisporites abacus	128	Lycopodiumsporites austroclavitudites
41	Cicatricosisporites delicatus	135	Matonisporites equiexinus
35	Cicatricosisporites dorogensis	94	Microreticulatisporites spp.
130	Cicatricosisporites globosus	29	Momipites coryloides
90	Cicatricosisporites mohrioides	34	Momipites tenuipolus
150	Cicatricosisporites notabilis	47	Ornamentifera baculata
82	Cicatricosisporites purbeckensis	7	Osmundacidites claytonites
91	Cicatricosisporites reticicatricos	77	Osmundacidites major
74	Cicatricosisporites spp.	52	Osmundacidites wellmannii
122	Clavatriletes spp.	44	Parvisaccites amplius
3	Compositae #LA	72	Parvisaccites radiatus
134	Concavissimisporites giganteus	48	Parvisaccites rugosus
124	Concavissimisporites punctatus	125	Parvisaccites sp. R
99	Concavissimisporites verrucatus	49	Perinopollenites elatoides
155	Contignisporites dorsostratus	8	Piceapollenites spp.
107	Convolutisporites spp.	131	Pilosporites #EB
103	Corollina #EV		

APPENDIX A (Cont'd)Alphabetical Listing of Species Shown on Occurrence Chart:Pollen and Spores

96	<i>Pilosiporites semicapillosus</i>
9	<i>Pinuspollenites</i> spp.
63	<i>Pityosporites dividius</i>
39	<i>Plicatella baconensis</i>
40	<i>Plicatella crimensis</i>
114	<i>Podocarpidites epistriatus</i>
112	<i>Podocarpidites granulatus</i>
115	<i>Podocarpidites tricoccus</i>
148	<i>Polycingulatisporites</i> spp.
129	<i>Psilatriletes</i> spp.
20	<i>Pterocaryapollenites stellatus</i>
10	<i>Quercoidites</i> #LA
11	<i>Quercoidites</i> #LG
12	<i>Quercoidites</i> #LV
13	<i>Retitricolpites</i> #LA
25	<i>Retitricolpites</i> #LF
26	<i>Retitricolpites</i> #LL
151	<i>Rotverrusporites</i> spp.
21	<i>Rouseisporites</i> #LA
152	<i>Rugubivesiculites</i> #EW
121	<i>Saxosporis</i> spp.
95	<i>Saxosporis variabilis</i>
137	<i>Staplinisporites parvus</i>
50	<i>Stellatopollis</i> sp. D
14	<i>Stereisporites antiquasporites</i>
15	<i>Stereisporites clavus</i>
140	<i>Stereisporites</i> spp.
78	<i>Striatella</i> #EK
139	<i>Striatella</i> #EW
156	<i>Striatella</i> #EZ
147	<i>Taurocusporites reduncus</i>
16	<i>Taxodiaceapollenites hiatus</i>
116	<i>Tigrisporites scurrundus</i>
24	<i>Tilliaepollenites vespites</i>
88	<i>Todisporites minor</i>
141	<i>Triangulopsis discoidalis</i>
17	<i>Tricolpites</i> #LR
65	<i>Trilobosporites aornatus</i>
81	<i>Trilobosporites granulatus</i>
79	<i>Trilobosporites obsitus</i>
132	<i>Trilobosporites valangiensis</i>
23	<i>Tsugaepollenites igniculus</i>
22	<i>Tsugaepollenites igniculus</i>
32	<i>Ulmipollenites undulosus</i>
138	<i>Uvaesporites glomeratus</i>
102	<i>Varirugosisporites</i> #EK
154	<i>Varirugosisporites grossituberculatus</i>
106	<i>Varirugosisporites mutabilis</i>
142	<i>Varirugosisporites planirugulatus</i>
143	<i>Varirugosisporites</i> spp.
113	<i>Vitreisporites minor</i>
45	<i>Vitreisporites pallidus</i>

APPENDIX A (Cont'd)Alphabetical Listing of Species Shown on Occurrence Chart:Brackish and Freshwater Algae

Index number	Taxon names
6	Baltisphaeridium spp.
5	Concentricystes minor
1	Micrhystridium fragile
11	Micrhystridium stellatum
2	Paralecaniella indentata
3	Pediastrum boryanum
10	Pterospermella helios
9	Pterospermella spp.
4	Quadrina pallida
7	Schizosporis reticulatus
8	Solisphaeridium spp.

APPENDIX A (Cont'd)Fungi and Foraminiferal Liners

Index number	Taxon names
4	foraminiferal liners
2	Microthallites spp.
3	Pesavis tagluensis
1	Pluricellaesporites spp.

Reworked Palynomorphs

Index number	Taxon names
1	*Chatangiella spp.
3	*Cyclonephelium distinctum
2	*Densosporites spp.
6	*Kraeselisorites linearis
5	*Odontochitina spp. : y
4	*Ovoidinium verrucosum

APPENDIX BExamined Samples: Archer K-19

900.00 : Cuttings	2572.12 : sidewall core	3330.00 : sidewall core
920.00 : Cuttings	2590.00 : Cuttings	3338.00 : sidewall core
950.00 : Cuttings	2604.00 : sidewall core	3340.00 : Cuttings
970.00 : Cuttings	2620.00 : Cuttings	3343.00 : sidewall core
1000.00 : Cuttings	2637.00 : sidewall core	3366.00 : sidewall core
1030.00 : Cuttings	2650.00 : Cuttings	3370.00 : Cuttings
1060.00 : Cuttings	2662.00 : sidewall core	3392.00 : sidewall core
1090.00 : Cuttings	2680.00 : Cuttings	3400.00 : Cuttings
1120.00 : Cuttings	2690.00 : sidewall core	3400.00 : sidewall core
1150.00 : Cuttings	2691.00 : sidewall core	3404.00 : sidewall core
1180.00 : Cuttings	2710.00 : Cuttings	3415.00 : sidewall core
1210.00 : Cuttings	2735.00 : sidewall core	3430.00 : Cuttings
1240.00 : Cuttings	2740.00 : Cuttings	3435.00 : sidewall core
1270.00 : Cuttings	2770.00 : Cuttings	3440.00 : sidewall core
1300.00 : Cuttings	2784.00 : sidewall core	3460.00 : Cuttings
1330.00 : Cuttings	2800.00 : Cuttings	3463.00 : sidewall core
1360.00 : Cuttings	2808.00 : sidewall core	3487.00 : sidewall core
1390.00 : Cuttings	2830.00 : Cuttings	3490.00 : Cuttings
1420.00 : Cuttings	2833.00 : sidewall core	3520.00 : Cuttings
1450.00 : Cuttings	2860.00 : Cuttings	3580.00 : Cuttings
1480.00 : Cuttings	2877.00 : sidewall core	3610.00 : Cuttings
1510.00 : Cuttings	2890.00 : Cuttings	3610.00 : sidewall core
1540.00 : Cuttings	2908.00 : sidewall core	3631.00 : sidewall core
1570.00 : Cuttings	2920.00 : Cuttings	3640.00 : Cuttings
1600.00 : Cuttings	2924.00 : sidewall core	3668.00 : sidewall core
1630.00 : Cuttings	2950.00 : Cuttings	3670.00 : Cuttings
1660.00 : Cuttings	2980.00 : Cuttings	3688.00 : sidewall core
1690.00 : Cuttings	2980.00 : sidewall core	3700.00 : Cuttings
1720.00 : Cuttings	2997.00 : sidewall core	3702.00 : sidewall core
1750.00 : Cuttings	3002.00 : sidewall core	3724.00 : sidewall core
1780.00 : Cuttings	3010.00 : Cuttings	3730.00 : Cuttings
1810.00 : Cuttings	3011.00 : sidewall core	3752.00 : sidewall core
1840.00 : Cuttings	3031.00 : sidewall core	3760.00 : Cuttings
1870.00 : Cuttings	3040.00 : Cuttings	3790.00 : Cuttings
1900.00 : Cuttings	3048.00 : sidewall core	3809.00 : sidewall core
1930.00 : Cuttings	3057.00 : sidewall core	3820.00 : Cuttings
1960.00 : Cuttings	3069.00 : sidewall core	3831.00 : sidewall core
1990.00 : Cuttings	3070.00 : Cuttings	3850.00 : Cuttings
2020.00 : Cuttings	3072.00 : sidewall core	3880.00 : Cuttings
2050.00 : Cuttings	3092.00 : sidewall core	3892.00 : sidewall core
2080.00 : Cuttings	3100.00 : Cuttings	3910.00 : Cuttings
2110.00 : Cuttings	3101.00 : sidewall core	3940.00 : Cuttings
2140.00 : Cuttings	3109.00 : sidewall core	3970.00 : Cuttings
2170.00 : Cuttings	3128.00 : sidewall core	3996.00 : sidewall core
2200.00 : Cuttings	3130.00 : Cuttings	4000.00 : Cuttings
2230.00 : Cuttings	3140.00 : sidewall core	4003.00 : sidewall core
2260.00 : Cuttings	3160.00 : Cuttings	4028.00 : sidewall core
2290.00 : Cuttings	3160.00 : sidewall core	4030.00 : Cuttings
2320.00 : Cuttings	3183.00 : sidewall core	4060.00 : Cuttings
2350.00 : Cuttings	3185.00 : sidewall core	4090.00 : Cuttings
2380.00 : Cuttings	3190.00 : Cuttings	4120.00 : Cuttings
2410.00 : Cuttings	3220.00 : Cuttings	4150.00 : Cuttings
2440.00 : Cuttings	3250.00 : Cuttings	4180.00 : Cuttings
2470.00 : Cuttings	3269.00 : sidewall core	4210.00 : Cuttings
2500.00 : Cuttings	3280.00 : Cuttings	4240.00 : Cuttings
2530.00 : Cuttings	3283.00 : sidewall core	4270.00 : Cuttings
2544.37 : sidewall core	3302.00 : sidewall core	4290.00 : Cuttings
2560.00 : Cuttings	3310.00 : Cuttings	