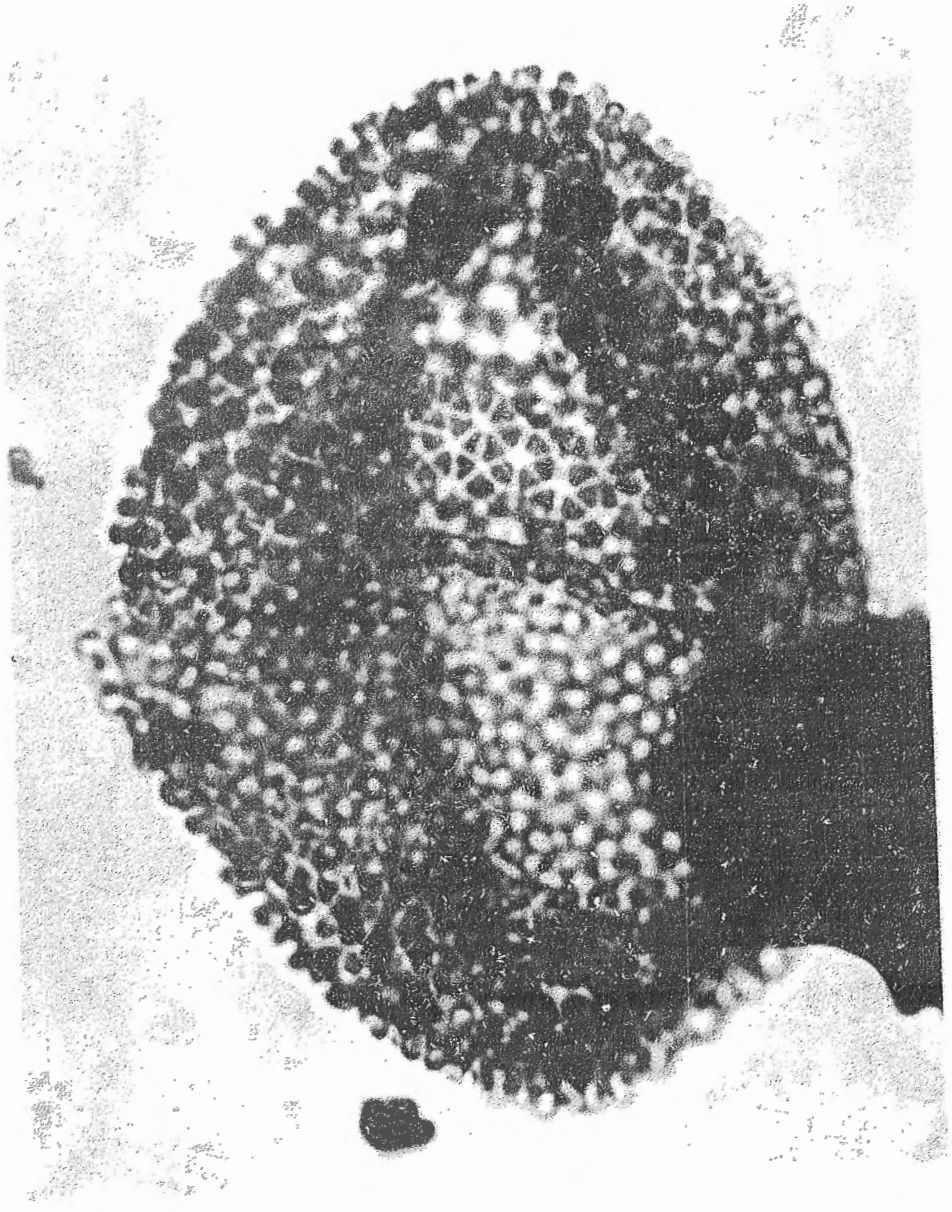
BIOSTRATIGRAPHIC AND MATURATION STUDIES

OF THE SCOTIAN SHELF

PART 2

HUSKY-BOW VALLEY et al.
CHEBUCTO G-90



BIOSTRATIGRAPHIC AND MATURATION STUDIES OF THE SCOTIAN SHELF

- PART 2 -

HUSKY-BOW VALLEY et al. CHEBUCTO K G-90

BY

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C O N T E N T S

MAP POCKETS:

PALYNOLOGY DISTRIBUTION CHART CHEBUCTO G-90

Part 1

Part 2

MICROPALEO. DISTRIBUTION CHART CHEBUCTO G-90

Part 1

Part 2

BIOSTRATIGRAPHIC AND MATURATION STUDIES

OF THE SCOTIAN SHELF

- PART 2

HUSKY-BOW VALLEY et al. CHEBUCTO G-90

GSC locality: D242

Location: 43 39'25.45"N; 50 42'43.93+"W

K.B.elevation: 22m Water depth: 122m

Casing set at: 396.2m, 922.3m, 3407m, 3713.4m, 4807.3m.

Total depth: 5234m Interval studied: 440-5234m

Palynology by: S. de Gasparis.

Micropaleontology by: S.E. Cameron

INTRODUCTION

This is the second in a series of five reports detailing the palynology, micropaleontology kerogen and fluorescence analysis from four wells on the Scotian Shelf. Each specialty will be presented in separate chapters in each of the well reports. Rangecharts, which integrate graphically the three parts of the studies, are included in a pocket at the back of each report. The fifth and final report will compare and correlate the four wells.

Species cards with photographs of all palynological taxa will be presented with the final report. Appendix A of each well report contains a complete list of photographs of palynomorphs from that well. All foraminifera taxa are represented by at least one specimen, stained green and attached to a designated square in the assemblage slides. The depth and square number is given following the name of each taxon in Appendix B.

CHAPTER 1

PALYNOLOGY

One hundred sixty one cutting samples were studied from this well. All of the cuttings samples contained palynomorphs, with the exception of samples 3410-3420m and 4900-4910m, which were barren. The following biostratigraphic zonations and age determinations have been made:

0440-0550m Miocene

0570-0970m Oligocene

0990-1120m Early Oligocene

-Unconformity-

1140-1360m *A. reticulense* Peak Zone (Middle Eocene)

1380-1630m *A. senonensis* s. Gocht Peak Zone (Early Eocene)

1650-1720m Late Paleocene

1740-1775m *P. pyrophorum* Zone (Early Paleocene)

-Unconformity-

1795-1895m *O. operculata* Zone (Campanian)

1915-1925m *P. truncigerum* Zone (Santonian)

-Unconformity-

1945-1985m *K. williamsii* Zone (Cenomanian)

2005-2650m *C.* cf. *vestitum* Zone (Albian)

2670-3420m undiangostic

3430-5180m *A. anaphrissa* Peak Zone (Barremian)

5200-5234m *C. elegantulum* Zone? (Hauterivian)

A questionably identified specimen of *Occisucysta* sp. A of Bujak

& Williams, 1978 is present at 5200-5210m, giving a possible age of Hauterivian to the lowest 34m of the well. Sedimentation is probably essentially uninterrupted in the Lower Cretaceous, resulting in a thickness of over thirty two hundred meters of Lower Cretaceous deposits. An unconformity is present in the Upper Cretaceous, as attested by the absence of part of the Cenomanian, the Turonian, the Coniacian and most of the Santonian record. The Upper Cretaceous sediments are two hundred and eighty meters thick. In the Tertiary, no record of Late Eocene sediments is present. The total thickness of the Tertiary sediments is in excess of thirteen hundred meters. Extensive reworking was observed in this well, most notably of *Adnatosphaeridium multispinosum* and *Areoligera senonensis s.* Gocht into Oligocene sediments, and of *Subtilisphaera perlucida* into Albian sediments.

The depositional environment appears to have been mostly marine, with the exception of level 3730-3740m, which contains only terrestrial fossils. The possible masking effect of caving at other levels cannot, however, be discounted.

SELECTED PALYNOMORPHS:

0440-0550m: Miocene.

Pentadinium laticinctum, Operculodinium centrocarpum, Spiniferites pseudofurcatus, Tuberculodinium vancampoae, Tsugapollenites igniculus, Achomosphaera alcicornu, Achomopshaera ramulifera, Cordosphaeridium inodes, Glaphyrocysta ordinata, Hemicystodinium zoharii, Homotryblium tenuispinosum (reworked), *Reticulatosphaera stellata, Operculodiunium placitum, Spiniferites ramosus, Impagidinium paradoxum.*

0570-0970m: Oligocene.

Cyclopsiella vieta, Tricolporites sp. C of Williams & Brideaux 1975, *Glaphyrocysta microfenestrata, Lejeunecysta hyalina, Caryapollenites simplex, Ovoidites arcticus, Spiniferites granulatus, Spiniferites speciosus, Tricolporopollenites* sp. N of Williams & Brideaux 1975 (reworked), *Lingulodinium macherophorum, Cordosphaeridium cantharellum, Hystrichokolpoma unispinum* (reworked), *Hystrichosphaeropsis quasicribrata* (reworked).
This interval contains assemblages with dominant *Cyclopsiella vieta* alternating with dominant *Cyclopsiella coniata. Cyclopsiella* is considered to be indicative of estuarine conditions.

0990–1120m: Early Oligocene.

Wetzeliella ovalis, Wetzeliella symmetrica, Fibrocysta axialis, Hystrichokolpoma salacium, Distatodinium craterum, Thalassiphora delicata s. Williams & Brideaux 1975, *Chiropteridium lobospinosum, Exochosphaeridium bifidum* (reworked), *Heteraulacacysta campanula, Thalassiphora pelagica.*

1140–1360m: *A. reticulense* Peak Zone (Middle Eocene).

Dinopterygium fehmarnense, Hystrichokolpoma cinctum, Homotryblium abbreviatum, Areoligera senonensis s. Gocht, *Adnatosphaeridium multispinosum, Delandrea phosphoritica, Bipolaribucina paradoxum, Lejeunecysta granosa, Glaphyrocysta exhuberans, Litosphaeridium siphoniphorum* (reworked), *Homotryblium pallidum.*

1380–1630m: *A. senonensis* Peak Zone (Early Eocene).

Deflandrea oebisfeldensis, Apectodinium homomorphum, Heteraulacacysta porosa, Ceratiopsis speciosa glabra, Deflandrea andromiensis, Deflandrea heterophlycta, Membranophoridium aspinatum, Rhombodinium draco, Cordosphaeridium funiculatum, Areosphaeridium arcuatum, Areosphaeridium dictyoplokus, Diphyes colligerum, Distatodinium ellipticum, Gochtodinium spinulum, Rottnestia borussica, Cordosphaeridium gracile, Melitasphaeridium pseudorecurvatum, Spiniferites cingulatus, Spiniferites cornutus, Wetzeliella articulata conopia, Wetzeliella echinulata, Wilsonidium lineidentatum, Wilsonidium tabulatum, Cribroperidinium fetchamense (reworked), *Leptodinium maculatum, Membranilarnacia ursulae, Turbiosphaera filosa.*

1650–1670m: Late Paleocene.

Cordosphaeridium fibrospinosum, Palaeoperidinium pyrophorum, Ceratiopsis pannucea, Lejeunecysta hyalina, Oligosphaeridium complex, Turbiosphaera galatea.

1740–1775m: *P. pyrophorum* Zone (Early Paleocene).

Danea californica, Isabelidinium bakeri, Ceratiopsis diebeli, Hystrichosphaeridium bowerbankii (reworked).

1795–1825m: *O. operculata* Zone (Campanian).

Hystrichosphaeridium bowerbankii, Odontochitina costata, Odontochitina porifera, Xenascus ceratioides, Xenascus gochtii.

1915–1925m: *P. truncigerum* Zone (Santonian).

Pervosphaeridium truncigerum, Codoniella campanulata.

1945–1985m: *K. williamsii* Zone (Cenomanian).

Epelidosphaeridia spinosa, Florentinia cooksonae, Ariadnaesporites spinocaperatus, Oligosphaeridium pulcherrimum, Cyclonephelium vannophorum, Surculosphaeridium longifurcatum, Cyclonephelium distinctum, Cyclonephelium paucispinum, Litosphaeridium siphoniphorum, Oligosphaeridium asterigerum (reworked), *Rugubivesciculites reductus.*

2005–2650m: *C.* cf. *vestitum* Zone (Albian).

Chichaouadinium cf.*vestitum, Oligosphaeridium poculum, Costatoperforosporites foveolatus, Vesperopsis mayi, Kiokansium williamsii, Palaeoperidinium cretaceum, Cribroperidinium edwardsii, Subtilisphaera perlucida* (reworked), *Aequitriradites ornatus, Florentinia verdierii, Odontochitina ancala, Senoniasphaera rotundata, Cyclonephelium chabaca, Palaeperidiunium* sp. A of Bujak & Williams, 1978, *Acanthotriletes reductus, Rugubivesciculites rugosus, Polyspaheridium laminaspinosum, Appendicisporites bifurcatus, Ariadnaesporites fustiformis, Oligosphaeridium totum, Appendicisoprites auritus, Appendicisporites problematicus, Cymososphaeridium validum, Florentinia mantellii, Palaeohytrichophora infusorioides, Rouseisporites reticulatus, Ascodinium scabrosum hostium, Gonyaulacysta cassidata, Taurocusporites segmentatus, Appendicisporites cristatus, Microreticulatisporites diatretus, Chichaouadinium vestitum, Callaiosphaeridium asymmetricum, Aequitriradites spinulosum, Canningia attadalica, Trilobosporites marylandensis.*

2670–3420m Undiagnostic.

No diagnostic fossils were found in this section of the well. Due to extensive reworking of Aptian fossils, notably *Subtilisphaera perlucida,* the Aptian cannot be located with assurance in this well.

3430–5180m *A. anaphrissa* Peak Zone (Barremian).

Cicatricosisporites australiensis, Contignisporites cooksonae, Pseudoceratium pelliferum, Coronifera albertii, Endoceratium ludbrookiae, Callialasporites trilobatus, Occisucysta duxburii, Oligosphaeridium anthophorum, Hystrichosphaerina schindewolfii, Muderongia simplex, Occisucysta tentoria, Cerbia tabulata, Cleistosphaeridium polypes, Callaiosphaeridium trycherium, Stiphrosphaeridium dictyophorum, Trichodinium speetonense, Cribroperidinium cooksonae, Aptea eisenackii, Tuberositriletes grossetuberculatus, Taleisphaera hydra, Aptea polymorpha, Oligosphaeridium diluculum, Heterosphaeridium heteracanthum, Subtilisphaera rotundata, Cicatricosisporites pseudotripartitus, Cicatricosisporites sprumontii, Veryhachium reductum, Muderongia pariata, Aptea anaphrissa, Pseudoceratium expolitum, Pseudoceratium parvum.

5200–5234m *C. elegantulum* Zone? (Hauterivian).

Occisucysta sp. A of Bujak & Williams, 1978 was tentatively identified from this interval.

CHAPTER 2

MICROPALEONTOLOGY

One hundred and sixty-two cuttings samples were studied for micropaleontology for Chebucto G-90. The following zonations have been made:

0415-0940m	Oligocene
0960-1450m	Upper Eocene
1470-1570m	Middle Eocene
1590-1630m	Lower Eocene
1650-1750m	Paleocene
	-Unconformity-
1765-1865m	Campanian
1885-1895m	Santonian
	-Unconformity-
1915-2015m	Cenomanian
2035-2255m	Albian
2275-3300m	Aptian
3320-4790m	Barremian
4810-5234m	Barremian or Hauterivian

The environment of deposition of the Barremian or Hauterivian section of the well was marginal marine to fresh or brackish swamp. The Barremian section was mostly marginal marine with a few inner neritic incursions in its lower part and some evidence of swamp conditions in the upper part. During the Aptian, conditions fluctuated between marginal and inner neritic at first and then became marginal. Albian deposition took place in a marginal marine environment. During the Cenomanian, conditions varied

from inner to middle neritic at first and then became outer neritic. During the Santonian and Campanian, the environment was outer neritic, it became bathyal at the base of the Paleocene, and did not change until late in the Upper Eocene. A shallowing episode caused conditions to become outer neritic in the late Upper Eocene, inner to outer neritic in the lower part of the Oligocene and inner neritic to marginal marine in the upper part of the Oligocene.

SELECTED FOSSILS:

0415-0940m: Oligocene.

FORAMINIFERA: *Turborotalia opima opima, Globigerina ouachitaensis, Orbulina universa, Globigerina officinalis, Nonionella auris, Cibicides floridana, Planulina depressa, Marginulina superba, Pullenia bulloides, Plectofrondicularia vaughani, Marginulinopsis tuberculata, Melonis planatus, Nodosaria stainforthi, Heterolepa pippeni, Bulimina inflata, Tritaxia alazanensis, Oridorsalis umbonatus, Spiroplectammina mississippiensis, Globocassidulina subglobosa, Stilostomella curvatura, Melonis pompilioides.*

ENVIRONMENT OF DEPOSITION: Top of interval - low diversity benthonic and planktonic foraminifera, common echinoid and bivalve debris, suggesting an inner neritic to marginal marine environment. The presence of glauconite and bone fragments suggests a relatively low sedimentation rate, while frosted sand grains and carbonized plant rootlets indicate a depositional site close to shore in a relatively high energy environment. Abundant Miocene cavings are present in the upper part of the interval. More numerous planktonic individuals and higher benthonic diversity in the lower part of the interval suggest deeper depositional conditions.

0960-1450m: Upper Eocene.

FORAMINIFERA: *Globoratalia centralis, Globigerina venezuelana, Globigerina eocena, Siphonina danvillensis, Hoeglundina eocenica, Nodosaria lamellata, Stilostomella cookei, Heterolepa pseudoungerianus, Marginulinopsis texasensis, Planulina cooperensis, Guttulina elegans, Guttulina spicaeformis, Massilina decorata, Globocassidulina subglobosa, Marginulina hantkeni, Heterolepa pippeni, Gyroidinoides planata, Stilostomella*

subspinosa, Bulimina cooperensis, Uvigerina cocoaensis, Plectofrondicularia cookei, Ammodiscus glabratus, Ceratobulimina contraria, Pullenia quinqueloba, Melonis affine, Glomospira diffundens, Bulimina alazaensis, Siphonina jacksonensis.

ENVIRONMENT OF DEPOSITION: in the upper and middle part of the interval, a well oxygenated outer neritic environment is indicated by the high diversity of benthonic and planktonic foraminifera. In the lower part, bathyal conditions are indicated by the presence of abundant deep water agglutinated and planktonic species. Much Miocene and Oligocene caving throughout.

1470-1570m : Middle Eocene.

FORAMINIFERA: *Pseudohastigerina micra, Globorotalia cerroazulensis cerroazulensis, Globorotalia cerroazulensis cocoaensis, Globorotalia cerroazulensis pommeroli, Globorotalia broedermanni, Globigerinatheca mexicana, Globigerinatheca index, Globorotalia bullbrooki, Globorotalia lehneri, Bulimina tuxpamensis, Pleurostomella cubensis, Bulimina impendens.*

ENVIRONMENT OF DEPOSITION: Very rich planktonic facies with highly diversified benthonic fauna suggests an upper slope bathyal marine environment. Moderate amount of Oligocene and Upper Eocene caving.

1590-1630m : Lower Eocene.

FORAMINIFERA: *Globorotalia acuta, Globorotalia aragonensis, Globorotalia pentacamerata, Pseudohastigerina wilcoxensis, Globorotalia formosa, Gavelinella cushmani, Bulimina trinitatensis, Tritaxia globulifera, Marssonella trinitatensis, Cibicidoides constrictus, Tritaxilina cubensis, Allomorphina subtriangularis.*

ENVIRONMENT OF DEPOSITION: Bathyal. Rich planktonic and diverse benthonic species including such deeper water indicators as *Cibicidoides, Tritaxia* and ornate *Bulimina* spp.. Very chalky facies with fairly common Oligocene and Eocene caving.

1765-1865m: Campanian.

FORAMINIFERA: *Planoglobulina glabrata, Pseudotextularia difformis, Rosita fornicata, Rosita contusa, Abathomphalus*

mayaroensis, Heterohelix punctulata, Globotruncanella petaloidea, Planoglobulina brazoensis, Pseudotextularia elegans, Globotruncanita elevata, Globotruncanita stuartiformis, Marginotruncana marginata, Globotruncana bulloides, Globotruncana linneiana, Bolivinoides draco miliaris, Neoflabellina rugosa leptodisca, Stensioina exsculpta exsculpta, Bolivina incrassata gigantea, Arenobulimina americana, Stensioina excolata, Stensioina pommerana, Gaudryina rudita, Dorothia bulletta, Heterostomella americana, Heterostomella austinana, Gaudryina austinana.

ENVIRONMENT OF DEPOSITION: Very rich and diversified planktonic and benthonic faunas suggest an open marine, outer shelf environment. Abundant Maastrichtian indicators in the upper portion suggest that a thin Maastrichtian interval occurs in the top few meters or immediately above the interval studied. The Maastrichtian forms are well preserved, while the Campanian forms tend to be chalky.

1885-1895m : Santonian.

FORAMINIFERA: *Marginotruncana marginata, Marginotruncana coronata, Marginotruncana pseudolinneiana, Marginotruncana schneegansi, Whiteinellla baltica, Whiteinella brittonensis, Dicarinella asymmetrica, Lenticulina munsteri.*

ENVIRONMENT OF DEPOSITION: Very chalky, planktonic rich environment. An open marine, outer shelf depositional site is suggested.

1915-2015m: Cenomanian.

FORAMINIFERA: *Praeglobotruncana stephani, Heterohelix moremani, Hedbergella delrioensis, Rotalipora greenhornensis, Gavelinella tourainensis, Gavelinella cenomanica, Ammobaculites comprimatus, Ammobaculites subcretaceus, Marssonella trochus, Quinqueloculina lirellangula, Tritaxia pyramidata, Quasispiroplectammina nuda, Gavelinella ammonoides.*
OSTRACODES: *Protocythere alexanderi, Schuleridea jonesiana.*

ENVIRONMENT OF DEPOSITION: Fairly good diversity of planktonics and benthonics suggests an open marine, outer shelf environment. A thin Turonian layer occurs in the uppermost part of this interval or immediately above. The lower part of the interval was deposited in a somewhat shallower, inner neritic environment,

where agglutinating foraminifers and ostracodes were much more frequent. Abundant Upper Cretaceous and Lower Tertiary cavings throughout.

2035-2255m: Albian.

FORAMINIFERA: *Ammobaculites goodlandensis, Lenticulina gaultina, Ammobaculites subcretaceus, Ammobaculites comprimatus, Ammobaculites reophacoides.*
OSTRACODES: *Eocytheropteron paenorbiculatum, Protocythere speetonensis, Cornicythere bonnemai.*

ENVIRONMENT OF DEPOSITION: Microfaunas consist of a dominance f shallow marine ostracodes and agglutinating foraminifers. A marginal marine environment is indicated. Many of the *in situ* species are limonite stained suggesting a very shallow, well oxygenated, low energy environment.

2275-3300m: Aptian.

FORAMINIFERA: *Favusella washitaensis, Hedbergella trochoidea, Hedbergella delrioensis, Lenticulina nodosa, Gavelinella intermedia, Gavelinella berthelini, Epistomina cretosa, Gavelinella cenomanica, Gavelinella barremiana, Tritaxia singularis, Epistomina carpenteri.*
OSTRACODES: *Mandocythere harrisiana.*

ENVIRONMENT OF DEPOSITION: Low diversity benthonic, especially agglutinating, foraminiferal fauna, and fairly common ostracodes indicate marginal marine conditions at the top of the interval. Slightly deeper inner neritic conditions exist in places in the lower part of the interval, where a few planktonic and calcareous benthonic species occur. Marginal marine conditions are also indicated by an abundance of coal, wood and carbonized plant rootlets.

3320-4790m: Barremian.

FORAMINIFERA: *Verneuilinoides neocomiensis, Ammobaculites reophacoides, Gavelinella barremiana, Epistomina hechti, Reophax minuta, Gaudryinella tealbyensis, Textularia foeda, Marssonella kummi, Epistomina ornata, Epistomina caracolla, Marginulinopsis humilis, Planularia crepidularis.*

ENVIRONMENT OF DEPOSITION: The upper part of the interval contains low diversity agglutinating fauna and few ostracodes, sug

where agglutinating foraminifers and ostracodes were much more frequent. Abundant Upper Cretaceous and Lower Tertiary cavings throughout.

2035-2255m: Albian.

FORAMINIFERA: *Ammobaculites goodlandensis, Lenticulina gaultina, Ammobaculites subcretaceus, Ammobaculites comprimatus, Ammobaculites reophacoides.*
OSTRACODES: *Eocytheropteron paenorbiculatum, Protocythere speetonensis, Cornicythere bonnemai.*

ENVIRONMENT OF DEPOSITION: Microfaunas consist of a dominance of shallow marine ostracodes and agglutinating foraminifers. A marginal marine environment is indicated. Many of the *in situ* species are limonite stained suggesting a very shallow, well oxygenated, low energy environment.

2275-3300m: Aptian.

FORAMINIFERA: *Favusella washitaensis, Hedbergella trochoidea, Hedbergella delrioensis, Lenticulina nodosa, Gavelinella intermedia, Gavelinella berthelini, Epistomina cretosa, Gavelinella cenomanica, Gavelinella barremiana, Tritaxia singularis, Epistomina carpenteri.*
OSTRACODES: *Mandocythere harrisiana.*

ENVIRONMENT OF DEPOSITION: Low diversity benthonic, especially agglutinating, foraminiferal fauna, and fairly common ostracodes indicate marginal marine conditions at the top of the interval. Slightly deeper inner neritic conditions exist in places in the lower part of the interval, where a few planktonic and calcareous benthonic species occur. Marginal marine conditions are also indicated by an abundance of coal, wood and carbonized plant rootlets.

3320-4790m: Barremian.

FORAMINIFERA: *Verneuilinoides neocomiensis, Ammobaculites reophacoides, Gavelinella barremiana, Epistomina hechti, Reophax minuta, Gaudryinella tealbyensis, Textularia foeda, Marssonella kummi, Epistomina ornata, Epistomina caracolla, Marginulinopsis humilis, Planularia crepidularis.*

ENVIRONMENT OF DEPOSITION: The upper part of the interval contains low diversity agglutinating fauna and few ostracodes, sug

gesting a marginal marine environment for the most part. A complete absence of marine indicators and presence of coal and rootlets suggest brackish or fresh water, swamp conditions. The lower part of the interval contains a few marine incursions, with a few calcareous and agglutinating benthonics.

4810-5234m: Barremian or Hauterivian.

FORAMINIFERA: A few poorly preserved and undiagnostic agglutinating foraminifera.

ENVIRONMENT OF DEPOSITION: Very poor *in situ* foraminiferal fauna. A few, poorly preserved, undiagnostic agglutinating forms may be in place. The abundance of coal, goethite and other terrestrial indicators suggets an environment ranging from marginal marine to fresh or brackish water swamp.

CHAPTER 3

INTRODUCTION

Kerogen analysis has been completed on twenty-four samples. These samples, spaced approximately 200 meters apart in the well, have been examined for kerogen type, determination of the thermal alteration index (TAI), and epifluorescence. The data from these analyses are presented on analysis sheets provided by the Geological Survey and are included as Appendix C. A summary of each analysis follows.

KEROGEN

It is impossible to determine the kerogen distribution in the 820m, 1000m, and 1210m samples with any degree of confidence due to the large amounts of mineral matter in the preparations. Most of the organic residue in this section appears to be finely degraded collinite with very rare spores and pollen. Below this level the samples are dominated by phyrogen and melanogen. The kerogen at 4820m appears to consist of coal fragments which may have been a mud additive.

Structured sapropels (spores, pollen, dinocysts and cuticle) vary from trace amounts to 20% of the total kerogen. High values were recorded at 610m, 1600m, 1805m, and 2015m, all within the immature section. Apart from these samples, the kerogen in the remainder of the well appears to be gas-prone.

THERMAL ALTERATION INDEX

A series of color readings was taken on spores wherever possible and the results are presented on the chart. Where values fall between two TAI levels, both are plotted.

Some of the spores present down to 2015m suggest a higher maturity factor than other factors would indicate. These may have been reworked or partially oxydized prior to burial. The well penetrates an immature section down to 2015m. Below this level, maturity values equal to TAI 2 were encountered. The maturity level gradually increases to TAI 2+ at 3620m and TAI 3- at 4220m. At 5234m (T.D.), the maturity reaches a value of TAI 3. The oil window was reached at approximately 2225m, but the kerogens indicate a gas-prone source rock. The maturation levels appear to be high enough to generate wet gas at and below 4220m and the oil floor was probably reached at approximately 4700m.

FLUORESCENCE

The strong fluorescence of the mounting medium strongly affected the study of the epifluorescence of the kerogens throughout the well. This was particularly noticeable below 3620m where the kerogens appear to have ceased fluorescing. The maturity values indicate that the palynomorphs should show some residual, very dull orange/brown colors down to at least 4400m.

Fluorescent material is very rare in the above-mentioned clay-dominated samples down to 1210m. *In situ* colors down to 1660m are generally a strong, bright yellow or yellow-green. There is a distinct reworked or oxydized component down to 1420m, which either does not fluoresce or shows dull orange colors. Cavings contaminants are obvious down to 2225m. The brightness of the *in situ* component diminishes and the colors shift through orange to orange/brown as the maturity increases. The fluorescence "floor" appears to be at 4220m, but this level is probably too high, due to the masking effect of the fluorescent mounting medium.

APPENDIX A

PHOTOGRAPHIC RECORD

Chebucto G-90

#	Name	Well #	Depth	Coordinate
S-1	Spiniferites sp. #TA WB/75	D242	500-510m	34.0 x 110.3
S-2	Homotryblium tenuispinosum	D242	540-550m	39.3 x 94.1
S-3	Operculodinium placitum	D242	540-550m	31.1 x 97.4
S-4	Operculodinium israelianum s. WB/75	D242	540-550m	37.5 x 100.4
S-5	Tuberculodinium sp. WB/75	D242	540-550m	34.0 x 103.8
S-6	Achomosphaera ramulifera	D242	500-510m	28.7 x 93.1
S-7	Glaphyrocysta sp. B WB/75	D242	500-510m	35.6 x 95.7
S-8	Canningia sp. #TA	D242	500-510m	39.6 x 95.1
S-9	Operculoidinium centrocarpum	D242	500-510m	35.7 x 98.0
S-10	Wetzeliella sp. #TA	D242	500-510m	43.1 x 98.3
S-11	Glaphyrocysta ordinata	D242	500-510m	31.7 x 99.8
S-12	Tsugapollenites igniculus	D242	500-510m	41.9 x 106.3
S-13	Lentinia extensa	D242	500-510m	31.8 x 112.5
S-14	Lingulodinium sp. B WB/75	D242	470-480m	49.9 x 92.2
S-15	Pentadinium laticinctum	D242	470-480m	35.8 x 97.0
S-16	Osmundacidites sp.	D242	470-480m	34.6 x 108.3

S-17	Tuberculodinium vancampoae	D242	440-450m	44.4 x 109.5
S-18	Spiniferites ramosus	D242	570-580m	36.2 x 91.4
S-19	Spiniferites speciosus	D242	690-700m	34.2 x 97.3
S-20	Spiniferites pseudofurcatus	D242	570-580m	42.4 x 101.0
S-21	Tricolporopollenites sp. #TA	D242	600-610m	45.8 x 94.4
S-22	Camarozonosporites sp. #TA	D242	600-610m	29.9 x 92.1
S-23	?Platicarya sp. #TA	D242	810-820m	47.5 x 92.0
S-24	?Corylus sp. #TA	D242	780-790m	40.7 x 99.0
S-25	Membranophoridium sp. #TA	D242	720-730m	30.9 x 102.8
S-26	Lingulodinium macherophorum	D242	720-730m	39.7 x 100.8
S-27	Homotryblium abbreviatum	D242	1110-1120m	44.6 x 105.0
S-28	Distatodinium craterum	D242	1110-1120m	36.0 x 111.2
S-29	Ascostomocystis potane	D242	1140-1150m	36.0 x 111.2
S-30	Canningia ringnesiorum	D242	1140-1150m	29.2 x 101.2
S-31	Taxodiaceopollenites hiatus	D242	1140-1150m	05.5 x 103.9
S-32	Fibrocysta axialis	D242	1170-1180m	40.6 x 92.6
S-33	Exochosphaeridium bifidum	D242	1170-1180m	34.3 x 97.7
S-34	Dinopterygium fehmarnense	D242	1200-1210m	43.6 x 91.9
S-35	Thalassiphora pelagica	D242	1230-1240m	45.6 x 100.5
S-36	Heteraulacacysta campanula	D242	1260-1270m	43.6 x 101.6
S-37	Homotryblium pallidum	D242	1260-1270m	44.7 x 109.8

S-38	Glaphyrocysta exhuberans	D242	1260-1270m	36.0 x 111.4
S-39	Cordosphaeridium sp. A WB/75	D242	810-820m	43.5 x 93.0
S-40	Hystrichokolpoma rigaudiae	D242	810-820m	38.5 x 97.0
S-41	Hystrichosphaeropsis quasicribrata	D242	720-730m	42.8 x 94.8
S-42	Impagidinium paradoxum	D242	570-580m	40.2 x 109.0
S-43	Impletosphaeridium sp. I s. M/76	D242	500-510m	31.5 x 110.7
S-44	Caryapollenites simplex	D242	600-610m	30.3 x 95.2
S-45	Cyclopsiella vieta	D242	600-610m	34.7 x 97.4
S-46	Lentinia serrata	D242	600-610m	49.0 x 97.7
S-47	Tricolpate grain	D242	600-610m	43.5 x 97.3
S-48	Onagraceous pollen	D242	600-610m	38.8 x 103.8
S-49	Kallosphaeridium cf. capulatum	D242	600-610m	45.4 x 104.8
S-50	Triporate grain	D242	600-610m	32.0 x 108.4
S-51	Faguspollenites sp. #TA	D242	600-610m	40.5 x 109.6
S-52	Achomosphaera #TA	D242	690-700m	35.0 x 99.1
S-53	Appendicisporites sp. #TA	D242	690-700m	38.0 x 98.2
S-54	Ovoidites arcticus	D242	690-700m	40.1 x 97.0
S-55	Spiniferites speciosus	D242	690-700m	43.4 x 92.9
S-56	Triatriopollenites sp. #TA	D242	660-670m	14.2 x 108.9
S-57	Impagidinium sp. #TA	D242	660-670m	39.6 x 107.0
S-58	Operculodinium sp. #TA	D242	660-670m	45.5 x 104.4
S-59	Tricolporites sp. C s. WB/75	D242	630-640m	19.6 x 103.8

S-60	Glaphyrocysta microfenestrata	D242	630-640m	42.4 x 104.0
S-61	Thalassiphora delicata	D242	630-640m	41.9 x 98.3
S-62	Lejeunecysta hayalina	D242	600-610m	35.2 x 112.0
S-63	Adnatosphaeridium multispinosum	D242	630-640m	35.6 x 96.4
S-64	Lingulodinium sp. A s. WB/75	D242	630-640m	30.0 x 93.6
S-65	Apteodinium sp. s. G/69	D242	1350-1650m	42.2 x 111.0
S-66	Pyxidiniopsis sp. #TA	D242	1350-1360m	42.0 x 102.2
S-67	Chiropteridium sp. #TA	D242	1350-1360m	30.0 x 95.5
S-68	?Apectodinium sp. #TC	D242	1350-1360m	29.9 x 92.8
S-69	Kleithriasphaeridium cf. truncatum	D242	1290-1300m	40.3 x 90.9
S-70	Kleithriasphaeridium truncatum	D242	1290-1300m	33.0 x 93.3
S-71	Exochosphaeridium sp. #TA	D242	1290-1300m	49.8 x 101.0
S-72	Thalassiphora delicata s. WB/75	D242	990-1000m	43.8 x 99.8
S-73	Nyssapollenites sp. #TA	D242	960-970m	32.2 x 101.5
S-74	Liquidambar sp. #TA	D242	960-970m	34.9 x 96.9
S-75	Pterocarya sp. #TA	D242	930-940m	22.0 x 108.5
S-76	Cyclopsiella sp. #TA	D242	930-940m	42.5 x 108.3
S-77	Lejeunecysta spatiosa	D242	930-940m	30.0 x 101.2
S-78	Achomosphaera alcicornu	D242	810-820m	41.5 x 104.5
S-79	Spiniferites speciosus	D242	810-820m	46.0 x 101.0
S-80	Adnatosphaeridium caulleryi	D242	810-820m	29.2 x 99.7

S-81	Tuberculodinium sp. s. WB/75	D242	810-820m	36.0 x 97.8
S-82	Hemicystodinium zoharii	D242	810-820m	41.0 x 97.1
S-83	Hystrichokolpoma unispinum	D242	810-820m	40.7 x 96.8
S-84	Cyclopsiella coniata	D242	810-820m	31.0 x 105.6
S-85	Retitricolpites sp. #TA	D242	900-910m	28.4 x 110.6
S-86	Hafniasphaera saeptata	D242	870-880m	42.0 x 93.7
S-87	Apectodinium sp. #TB	D242	840-850m	39.9 x 106.1
S-88	Lejeunecysta sp. #TA	D242	840-850m	34.3 x 93.6
S-89	Palaeocystodinium gozlowense	D242	840-850m	36.0 x 92.4
S-90	Apectodinium sp. #TA	D242	840-850m	45.6 x 91.0
S-91	Selenopemphix cf. selenoides	D242	840-850m	41.0 x 92.0
S-92	Cordosphaeridium cantharellum	D242	810-820m	39.0 x 106.2
S-93	Momipites sp. #TA	D242	990-1000m	06.0 x 103.8
S-94	Eurydinium ingramii	D242	0990-1000m	34.0 x 101.5
S-95	Selenopemphyx nephroides	D242	1020-1030m	43.0 x 96.2
S-96	Wetzeliella cf. ovalis	D242	1380-1390m	41.9 x 92.8
S-97	Pentadinium laticinctum granulatum	D242	1380-1390m	37.0 x 92.1
S-98	Deflandrea phosphoritica	D242	1380-1390m	40.3 x 96.7
S-99	Wetzeliella symmetrica	D242	1380-1390m	44.2 x 96.7
S-100	Deflandrea medcalfii	D242	1380-1390m	41.7 x 100.7
S-101	Wetzeliella symmetrica incisa	D242		32.7 x 102.5

S-102	Deflandrea oebisfeldensis	D242	1380-1390m	31.0 x 107.3
S-103	Ilexpolleuites sp. A s. WB/75	D242	1380-1390m	09.0 x 103.8
S-104	Apectodinium homomorphum quinquelatum	D242	1410-1420m	30.9 x 92.0
S-105	Apectodinium homomorphum	D242	1410-1420m	41.4 x 95.0
S-106	Deflandrea andromiensis	D242	1410-1420m	38.6 x 96.4
S-107	Membranophoridum aspinatum	D242	1410-1420m	45.2 x 97.4
S-109	Rhombodinium draco	D242	1410-1420m	48.3 x 101.0
S-110	Adnatosphaeridium cf. vittatum	D242	1410-1420m	43.8 x 101.3
S-111	Hystrichokolpoma salacium	D242	1410-1420m	32.9 x 101.4
S-112	Achilleodinium sp. #TA	D242	1410-1420m	42.6 x 107.3
S-113	Tricolporate grain 1	D242	780-790m	48.2 x 103.0
S-114	Deflandrea heterophlycta	D242	1410-1420m	35.5 x 112.6
S-115	Hystrichokolpoma eisenackii	D242	1410-1420m	28.3 x 112.5
S-116	Gen. et sp. indet.	D242	1440-1450m	36.6 x 93.0
S-117	Melitasphaeridium sp. #TA	D242	1440-1450m	35.0 x 92.5
S-119	Heteraulacacysta porosa	D242	1440-1450m	46.9 x 94.0
S-120	Cordosphaeridium sp. #TB	D242	1140-1450m	48.6 x 94.6
S-121	Apteodinium sp. B s. WB/75	D242	1440-1450m	44.0 x 94.2
S-122	Bipolaribucina paradoxum	D242	1140-1450m	30.0 x 95.0

S-123	Areosphaeridium dictyoplokus	D242	1470-1480m	46.3 x 91.5
S-124	Glaphyrocysta sp. #TB	D242	1470-1480m	42.2 x 92.7
S-125	Cyclonephelium sp. #TA	D242	1470-1480m	39.6 x 92.0
S-126	Gochtodinium spinulum	D242	1470-1480m	36.4 x 95.1
S-127	Aerosphaeridium arcuatum	D242	1470-1480m	33.8 x 96.0
S-128	Lejeunecysta granosa	D242	1470-1480m	32.8 x 98.0
S-129	Wetzeliella sp. #TA	D242	1470-1480m	33.3 x 98.1
S-130	Kisselovia cf. coleothrypta	D242	1470-1480m	40.5 x 97.5
S-132	Distatodinium ellipticum	D242	1500-1510m	48.0 x 92.5
S-133	Melitasphaeridqum pseudorecurvatum	D242	1500-1510m	36.4 x 98.2
S-134	Letinia sp. #TA	D242	1500-1510m	39.0 x 98.5
S-135	Cleistosphaeridium cf. tenuifilum	D242	1500-1510m	42.0 x 98.7
S-136	Wetzeliella articulata v. conopia	D242	1560-1570m	45.5 x 92.6
S-137	Diphyes colligerum	D242	1560-1570m	45.5 x 92.6
S-138	Wilsonidium tabulatum	D242	1560-1570m	40.7 x 92.6
S-139	Wilsonidium lineidentatum	D242	1560-1570m	28.8 x 92.5
S-140	Firocysta sp. #TA	D242	1560-1570m	47.7 x 93.3
S-141	Rottnestia borussica	D242	1560-1570m	30.4 x 95.0
S-142	Wetzeliella echinulata	D242	1560-1570m	47.1 x 98.2
S-143	Hystrichostrogylon sp. #TA	D242	1560-1570m	33.7 x 104.0
S-144	Spiniferites cornutus	D242	1560-1570m	31.3 x 104.4
S-147	Cannosphaeropsis sp. #TA	D242	1590-1600m	36.6 x 96.0

S-148	Gonyaulacysta sp. #TA	D242	1620-1630m	45.6 x 92.2
S-149	Membranilarnacia ursulae	D242	1620-1630m	35.0 x 92.2
S-151	Leptodinium maculatum	D242	1620-1630m	32.7 x 93.6
S-152	Heteraulacacysta sp. #TA	D242	1620-1630m	30.7 x 93.0
S-153	Areoligera senonensis s. G/69	D242	1620-1630m	31.9 x 96.4
S-154	Cordosphaeridium gracilis	D242	1620-1630m	97.0 x 96.0
S-155	Cribroperidinium fetchamense	D242	1620-1630m	47.0 x 97.5
S-156	Turbiosphaera filosa	D242	1620-1630m	39.5 x 92.6
S-157	Ceratiopsis speciosa glabra	D242	1620-1630m	32.9 x 95.2
S-158	Cordosphaeridium fibrospinosum	D242	1650-1660m	41.5 x 104.4
S-159	Oligosphaeridium complex	D242	1680-1690m	47.5 x 93.6
S-159	Palaeoperidinium pyrophorum	D242	1680-1690m	32.3 x 92.6
S-160	Ceratiopsis pannucea	D242	1580-1690m	54.7 x 102.9
S-161	Turbiosphaera galatea	D242	1680-1690m	29.8 x 107.7
S-162	Palaeocystodinium sp. #TA	D242	1680-1690m	38.7 x 112.4
S-163	Cleistosphaeridium sp. #TA	D242	1710-1720m	45.4 x 91.3
S-164	Deflandrea sp. #TA	D242	1710-1720m	29.6 x 93.3
S-165	Isabelidinium bakeri	D242	1710-1720m	44.7 x 95.6
S-166	Oligosphaeridium sp. #TA	D242	1710-1720m	43.2 x 99.1
S-167	Ceratiopsis diebeli	D242	1765-1775m	41.0 x 95.6
S-168	Danea mutabilis	D242	1740-1750m	30.0 x 95.5

S-169	Hystrichosphaeridium bowerbankii	D242	1765-1775m	39.8 x 107.2
S-170	Odontochitina operculata	D242	1795-1805m	40.5 x 94.2
S-171	Criboperidinium sp. #TB	D242	1795-1805m	42.7 x 95.0
S-172	Odontochitina porifera	D242	1795-1805m	34.7 x 97.1
S-173	Turbiosphaera magnifica	D242	1825-1835m	42.8 x 99.4
S-175	Craspedodinium sp. #TA	D242	1855-1865m	46.1 x 97.8
S-176	Xenascus ceratioides	D242	1855-1865m	34.8 x 99.4
S-177	Xenascus gochtii	D242	1855-1865m	39.1 x 102.6
S-178	Odontochitina/Xenascus	D242	1855-1865m	40.6 x 102.6
S-179	?Wallodinium sp. #TA	D242	1855-1865m	36.1 x 106.6
S-180	Hystrichodinium sp. #TA	D242	1855-1865m	32.8 x 108.2
S-181	Hystrichosphaeridium truncigerum	D242	1885-1895m	35.4 x 96.5
S-182	Codoniella campanulata	D242	1885-1895m	34.6 x 96.5
S-183	Cyclonephelium vannophorum	D242	1915-1925m	36.2 x 95.5
S-184	Surculosphaeridium longifurcatum	D242	1915-1925m	34.6 x 95.2
S-185	Ariadnaesporites spinocaperatus	D242	1915-1925m	44.6 x 97.3
S-186	Florentinia cooksoniae	D242	1915-1925m	30.8 x 100.2
S-187	Oligosphaeridium anthophorum	D242	1915-1925m	37.7 x 101.9
S-188	Epelidosphaeridia spinosa	D242	1915-1925m	35.2 x 103.8
S-189	Membranophoridium sp. #TB	D242	1915-1925m	36.0 x 105.0

S-189B	Arcellites sp. #TA	D242	1915-1925m	36.0 x 105.0
S-192	Oligosphaeridium asterigerum	D242	1945-1955m	41.9 x 91.8
S-193	Litosphaeridium siphoniphorum	D242	1945-1955m	48.6 x 94.6
S-194	Cyclonephelium distinctum	D242	1945-1955m	44.9 x 94.8
S-195	Biharisporites sp. #TA	D242	1945-1955m	44.8 x 109.1
S-196	Kiokansium williamsii	D242	1975-1985m	33.7 x 93.6
S-197	Chichaouadinium cf. vestitum	D242	1975-1985m	42.2 x 93.6
S-198	Cribroperidinium edwardsii	D242	2005-2015m	34.0 x 91.8
S-199	Odontochitina cf. rhakodes	D242	2005-2015m	35.6 x 92.5
S-200	Florentinia deanei	D242	2005-2015m	36.2 x 93.0
S-201	Vesperopsis sp. #TA	D242	2005-2015m	42.4 x 95.6
S-202	Vesperopsis mayi	D242	2035-2045m	42.2 x 97.9
S-203	Aequitriradites ornatus	D242	2035-2045m	45.1 x 104.6
S-204	Subtilisphaera perlucida	D242	2035-2045m	23.0 x 101.4
S-204	Cicatricosisporites angustus	D242	2035-2045m	43.0 x 204.5
S-205	Palaeohystrichophora infusorioides	D242	2065-2075m	41.8 x 93.6
S-206	?Appendicisporites	D242	2065-2075m	46.5 x 104.0
S-207	Odontochitina ancala	D242	2065-2075m	47.5 x 105.5
S-208	Senoniasphaera rotundata	D242	2065-2075m	37.0 x 110.8
S-209	Chlamydophorella sp. #TA	D242	2095-2105m	42.3 x 91.8
S-210	Cibotiidites sp. #TA	D242	2095-2104m	35.6 x 94.0

S-212	Rugubivesiculites reductus	D242	2115-2125m	33.8 x 94.6
S-213	Acanthotriletes sp. #TA	D242	2115-2125m	41.0 x 102.8
S-214	Polysphaeridium laminaspinosum	D242	2155-2165m	30.2 x 91.8
S-215	?Exochosphaeridium sp.	D242	2155-2165m	29.2 x 91.4
S-216	Appendicisporites bifurcatus	D242	2155-2165m	46.5 x 98.0
S-217	Rouseisporites sp. #TA	D242	2155-2165m	35.1 x 107.2
S-218	Ariadnaesporites fustiformis	D242	2155-2165m	30.5 x 110.3
S-219	Florentinia verdieri	D242	2185-2195m	35.5 x 104.3
S-220	Oligosphaeridium sp. #TA	D242	2215-2525m	49.6 x 98.0
S-222	Costatoperforosporites foveolatus	D242	2215-2525m	35.5 x 93.2
S-224	Biretisporites sp. #TA	D242	2215-2225m	31.5 x 98.7
S-225	Appendicisporites auritus	D242	2215-2225m	43.8 x 99.5
S-226	Oligosphaeridium totum	D242	2215-2225m	29.5 x 106.0
S-227	Appendicisporites problematicus	D242	2215-2225m	36.7 x 108.0
S-228	Cymosophaeridium validum	D242	2245-2255m	44.5 x 91.2
S-229	Oligosphaeridium poculum	D242	2245-2255m	48.2 x 97.7
S-230	Megaspore sp. #TA	D242	2245-2255m	40.2 x 99.7
S-230	Cibotiidites sp. #TB	D242	2245-2255m	43.2 x 99.7
S-231	Appendicisporites sp. #CB	D242	2275-2285m	29.6 x 99.5
S-232	Florentinia mantellii	D242	2275-2285m	29.6 x 100.6

S-233	Palaeoperidinium cretaceum	D242	2275-2284m	34.9 x 103.7
S-234	Cribroperidinium sp. #TC	D242	2275-2285m	32.6 x 112.3
S-235	Kiokansium sp. #TA	D242	2305-2315m	28.6 x 93.4
S-236	Ascodinium scabrosum ostium	D242	2305-2315m	31.8 x 94.1
S-237	Gonyaulacysta cassidata	D242	2305-2315m	35.0 x 96.6
S-238	Apteodinium sp. #TA	D242	2305-2315m	44.0 x 92.2
S-239	Cyclonephelium chabaca	D242	2305-2315m	28.6 x 107.0
S-240	Pterodinium sp. #TB	D242	2365-2375m	32.3 x 94.3
S-241	Pterodinium sp. #TC	D242	2400-2410m	39.7 x 97.2
S-242	Taurocusporites segmentatus	D242	2400-2410m	35.5 x 97.8
S-243	Aequitriradites sp. #TA	D242	2430-2440m	34.1 x 93.4
S-244	Appendicisporites cristatus	D242	2430-2440m	35.8 x 96.0
S-245	Kiokansium sp. #TB	D242	2430-2440m	36.1 x 111.3
S-246	Cicatricosisporites sp. #TA	D242	2460-2470m	37.3 x 94.6
S-247	?Tubotuberella sp. #TA	D242	2520-2530m	37.2 x 107.8
S-248	Callaiosphaeridium asymmetricum	D242	2550-2560m	40.6 x 111.4
S-249	Microreticulati-sporites diatretus	D242	2580-2590m	37.6 x 94.0
S-250	Canningia attadalica	D242	2610-2620m	30.8 x 111.1
S-251	Protoellipsodinium spinosum	D242	2640-2650m	46.6 x 102.2
S-252	Trilobosporites marylandensis	D242	2670-2680m	46.0 x 92.7

S-253	Concavissimisporites apigranulosus	D242	2670-2680m	35.2 x 103.7
S-254	Nyktericysta cf. vitrea	D242	2850-2860m	30.7 x 104.2
S-255	Neoraistrichia truncata	D242	2940-2950m	33.4 x 100.0
S-256	Nyktericysta davisii	D242	2970-2980m	34.9 x 86.6
S-257	Chichaouadiniun vestitum	D242	3090-3100m	40.0 x 99.4
S-258	Maculatisporites microverrucatus	D242	3120-3130m	36.0 x 101.0
S-259	Achomosphaera verdieri	D242	3180-3190m	39.0 x 96.7
S-260	Pilosisporites trichopapillosus	D242	3320-3330m	38.9 x 103.0
S-261	Systematophora cf. silyba	D242	3430-3440m	37.8 x 96.2
S-262	Subtilisphaera terrula	D242	3430-3440m	49.2 x 102.4
S-263	Callialasporites trilobatus	D242	3430-3440m	47.2 x 104.1
S-264	Canningia sp. #TB	D242	3430-3440m	38.6 x 107.6
S-265	Canningia sp. #TE	D242	3430-3440m	49.1 x 107.6
S-266	Pilosisporites sp. #TA	D242	3430-3440m	46.0 x 109.5
S-267	Cicatricosisporites australiensis	D242	3460-3470m	35.7 x 93.9
S-268	Oligosphaeridium anthophorum	D242	3460-3470m	45.8 x 108.0
S-269	Hystrichosphaerina schindewolfii	D242	3520-3530m	42.1 x 93.3
S-270	Occisucysta tentoria	D242	3580-3590m	43.2 x 100.8
S-271	Amphorosphaeridium sp. #TA	D242	3580-3590m	45.0 x 102.7
S-272	Endoscrinium cf. galeritum	D242	3580-3590m	43.8 x 102.1

S-273	Contignisporites cooksonae	D242	3640-3650m	29.8 x 97.0
S-274	Cerbia tabulata	D242	3670-3680m	33.8 x 102.0
S-274	Pseudoceratium pelliferum	D242	3670-3680m	46.0 x 102.2
S-285	Cleistosphaeridium polypes s.s.	D242	3790-3800m	44.7 x 92.0
S-276	Callaiosphaeridium trycherium	D242	3910-3920m	38.8 x 108.4
S-278	Stiphrosphaeridium dictyophorum	D242	3940-3950m	47.0 x 92.8
S-279	Appendicisporites sp. #TC	D242	3970-3980m	43.1 x 106.7
S-280	Trichodinium speetonensis	D242	4060-4070m	41.6 x 95.9
S-281	Kleithriasphaeridium sp. #TA	D242	4060-4070m	44.9 x 98.1
S-282	Pterodinium sp. #TD	D242	4060-4070m	38.2 x 106.4
S-283	Occisucysta duxburyi	D242	4060-4070m	45.1 x 107.4
S-284	Canningia sp. #TC	D242	4090-4100m	34.7 x 100.3
S-285	Trilobosporites sp. #TA	D242	4120-4130m	43.2 x 96.0
S-286	Tuberositriletes grossetuberculatus	D242	4120-4130m	45.3 x 104.0
S-287	Cribroperidinium cooksonae	D242	4250-4160m	43.4 x 112.2
S-288	Coronifera albertii	D242	4030-4040m	40.7 x 99.1
S-289	Polystephanephorus sp. #TA	D242	4180-4190m	45.8 x 101.2
S-290	Aptea polymorpha	D242	4300-4310m	20.1 x 103.3
S-291	Taleisphaera hydra	D242	4270-4280m	39.0 x 93.3
S-292	Gleicheniidites sp. #TB	D242	4270-4280m	38.3 x 99.9
S-293	Aptea eisenackii	D242	4270-4280m	34.6 x 103.2

S-294	Oligosphaeridium diluculum	D242	4300-4310m	44.3 x 103.5
S-295	Kreuselisporites sp. #TA	D242	4300-4310m	52.1 x 103.5
S-296	Microreticulatisporites sp. #TA	D242	4330-4340m	30.0 x 101.8
S-297	Pseudoceratium pelliferum	D242	4330-4340m	39.6 x 103.3
S-300	Oligosphaeridium cf. complex	D242	4360-4370m	47.4 x 100.7
S-301	Subtiliisphaera rotundata	D242	4420-4430m	47.0 x 95.0
S-302	Canningia sp. #TC	D242	4420-4430m	24.3 x 104.6
S-303	Cicatricosisporites pseudotripartitus	D242	4450-4460m	29.5 x 92.0
S-303A	Cicatricosisporites sprumontii	D242	4450-4460m	31.0 x 94.7
S-304	Contignisporites cf. fornicatus B/80	D242	4450-4460m	44.3 x 96.6
S-305	Cerbia sp. #TA	D242	4450-4460m	46.1 x 99.9
S-306	Callaiosphaeridium sp. #TA	D242	4480-4490m	35.8 x 94.1
S-309	Staplinisporites sp. #TA	D242	4540-4550m	43.3 x 101.3
S-310	Cribroperidinium sp. #TD	D242	4540-4550m	32.0 x 102.4
S-313	Tehamadinium cf. tenuiceras	D242	4570-4580m	38.2 x 96.5
S-314	Lycopodiumsporites sp. #TA	D242	4660-4670m	29.0 x 112.3
S-315	Muderongia pariata	D242	4690-4700m	42.2 x 107.5
S-316	Endoceratium cf. ludbrookiae	D242	4720-4730m	32.6 x 101.7
S-319	Coronifera sp. #TB	D242	4720-4730m	31.1 x 110.0

S-320	Pseudoceratium expolitum	D242	4780-4790m	49.6 x 98.1
S-321	Pseudoceratium parvum	D242	4780-4790m	45.2 x 105.0
S-322	Aequitriradites sp. #TB	D242	5200-5210m	29.5 x 92.7
S-323	?Occisucysta sp. A s. BW/78	D242	5200-5210m	43.0 x 97.9
S-324	Palaeoperidinium cretaceum	D242	2365-2375m	32.4 x 96.1
S-327	Alnipollenites sp. #TA	D242	960-970m	32.7 x 94.4
S-328	Quercoidites sp. #TA	D242	1170-1180m	21.7 x 104.3
S-118	Cordosphaeridium funiculatum	D242	1440-1450m	33.6 x 91.6
S-143	Caryapollenites sp. #TA	D242	990-1000m	43.7 x 105.7
S-144	Cribroperidinium sp. #TA	D242	1590-1600m	34.0 x 103.9
S-145	Pyxidinopsis sp. #TB	D242	1590-1600m	34.6 x 98.3
S-173	Ulmipollenites sp. #TA	D242	1050-1060m	10.8 x 111.6
S-174	*Retitricolpites* sp. #TA	D242	780-790m	38.5 x 92.6
S-298	Heterosphaeridium	D242	4330-4340m	34.0 x 104.8
S-299	Contignisporites sp. #TA	D242	4360-4370m	36.3 x 101.6
S-307	Tehamadinium cg. sp. #TA	D242	4510-4530m	29.6 x 106.8
S-308	Veryhachium reductum	D242	4540-4550m	47.8 x 96.1
S-324	Diervilla echinata	D242	1140-1150m	30.1 x 99.3
S-325	Membranophoridium sp. #TC	D242	1170-1180m	47.3 x 98.7

S-325	Spiniferites cf. cingulatus	D242	1500-1510m	36.4 x 102.6
S-327	Spiniferites granulatus	D242	690-700m	43.3 x 92.3
S-328	Tricolporopollenites sp. N s. WB/75	D242	690-700m	40.7 x 111.3
S-311	Odontochitina sp. #TA	D242	4540-4550m	43.3 x 102.5
S-312	Subtilisphaera perlucida	D242	4570-4580m	45.0 x 97.4
S-325	Tiliaepollenites sp. #TA	D242	780-790m	38.4 x 104.6
S-326	Triporopollenites sp. F s. WB/75	D242	780-790m	37.6 x 97.3
S-8	Spiniferites sp. A s. WB/75	D242	540-550m	45.1 x 100.4

Appendix B

LOCATION OF FORAMINIFERA AND OSTRACODE SPECIES

0415-0940m: Oligocene.

FORAMINIFERA

Turborotalia opima opima (440-50, sq. 6)
Globigerina cf. praebulloides (440-50, sq. 18)
Globigerina cf. bulloides (470-80, sq. 8)
Globigerina cf. trilobus (500-10. sq. 20)
Globigerina cf. senelis (540-50, sq. 18)
Globigerina ouachitaensis (570-80, sq. 5)
Orbulina universa (750-60, sq. 21)
Globigerina officinalis (840-50, sq. 19)
Globigerina cf. tripartita (840-50, sq. 32)
Marginulina cf. glabra (415-25, sq. 5)
Nonionella auris (480-90, sq. 31)
Textularia cf. badensis (470-80, sq. 22)
Cibicides floridana (540-50, sq. 7)
Planulina depressa (570-80, sq. 6)
Uvigerina cf. danvillensis (630-40, sq. 18)
Marginulina subperba (630-40, sq. 31)
Pullenia bulloides (630-40, sq. 19)
Hoeglundina cf. eocenica (630-40, sq. 30)
Plectofrondiculina vaughan (720-30, sq. 5)
Marginulinopsis tuberculata (720-30, sq. 7)
Melonis planatus (720-30, sq. 20)
Nodosaria stainforthi (720-30, sq. 19)
Sphaeroidina cf. bulloides (720-30, sq. 18)
Heterolepa peppeni (720-30, sq. 17)
Bulimina inflata (720-30, sq. 31)
Tritaxia alazanensis (750-60, sq. 8)
Uvigerina cf. yazooensis (750-60, sq. 19)
Gyroidinoides cf. soldani (750-60, sq. 9)
Oridorsalis umbonatus (750-60, sq. 22)
Spiroplectammina mississippiensis (780-90, sq. 7)
Bolvina cf. gardnerai (780-90, sq. 31)
Globocassidulina subglobosa (780-90, sq. 8)
Stilostomella curvatura (780-90, sq. 20)
Melonis pompiliodes (810-20, sq. 21)

0960-1450m: Upper Eocene

FORAMINIFERA

Globorotalia centralis (960-70, sq. 8)

Globigerina venezuelana (1380-90, sq. 20)
Globigerina eocaena (1380-90, sq. 22)
Siphonina danvillensis (960-70, sq. 7)
Hoeflundina eocenica (960-70, sq. 9)
Ceratobulimia af. eximia (960-70, sq. 33)
Nodosaria lamellata (960-70, sq. 32)
Stilostomella cookei (960-70, sq. 22)
Uvigerina cf. glabrans (960-70, sq. 10)
Heterolepa pseudoungerinaus (960-70, sq. 46)
Marginulinopsis texasensis (960-70, sq. 20)
Planulina cooperensis (990-1000, sq. 7)
Guttulina elegans (990-1000, sq. 8)
Guttulina spicaeformis (990-1000, sq. 20)
Gyroidinoides cf. soldanii (990-1000, sq. 32)
Massilina decorata (1050-60, sq. 21)
Globocassidulina subglobosa (1050-60, sq. 9)
Marginulina hantkeni (1050-60, sq. 20)
Heterolepsa pippeni (1080-90, sq. 21)
Cibicides cf. lobatus (1080-90, sq. 9)
Gyroidinoides planata (1110-20, sq. 9)
Stilostomella subspinosa
Cassidulinoides sp. #CA (1140-50, sq. 6)
Bulimina cooperennsis (1170-80, sq. 7)
Uvigerina cocoaensis (1200-10, sq. 6)
Uvigerina cocoaensis (1230-40, sq. 7)
Plectofrondicularia cookei (1230-40, sq. 6)
Martinotiella cf. petrosa (1350-60, sq. 22)
Ammodiscus glabratus (1350-60, sq. 10)
Cyclammina cf. cancellata (1350-60, sq. 8)
Ceratobulimina contraria (1380-90, sq. 7)
Hoeglundina af. eocenica (1380-90, sq. 8)
Pullenia quinqueloba (1380-90, sq. 21)
Melonis affine (1380-90, sq. 10)
Martinotiella cf. cocoaensis (1380-90, sq. 34)
Glomospira diffundens (1410-20, sq. 9)
Bulimina alazanensis (1440-50, sq. 19)
Uvigerina cocoaensis (1440-50, sq. 7)
Siphonina jacksonensis (1440-50, sq. 32)
Valvulina cf. jarvisi (1440-50, sq. 8)

OSTRACODES:

Henryhowella sp. #CA (990-1000, sq. 44)

1470-1570m: Middle Eocene

Pseudohastigerina micra (1470-80, sq. 32)
Globorotalia cerroazulensis s.s (1480-90, sq. 8)

Globorotalia cerroazulensis cocoaensis (1470-80, sq. 20)
Globorotalia cerroazulensis pomeroli (1470-80, sq. 9)
Globorotalia broedermanni (1470-80, sq. 21)
Globigerinatheca mexicana (1470-80, sq. 7)
Globigerinatheca index (1470-80, sq. 19)
Globorotalia bulbrooki (1470-80, sq. 22)
Globorotalia cf. spinulosa (1470-80, sq. 34)
Globorotalia lehneri (1500-10, sq. 8)
Bulimina tuxpamensis (1500-10, sq. 7)
Bulimina cf. semicostata (1500-10, sq. 19)
Pleurostomella cubensis (1569-70, sq. 8)
Bulimina impendens (1560-70, sq. 18)

OSTRACODES:

Krithe sp. #CA (1470-80, sq. 10)

1590-1630m: Lower Eocene

Globorotalia acuta (1590-1600, sq. 30)
Globorotalia aragonensis (1590-1600, sq. 32)
Globorotalia pentacamerata (1590-1600, sq. 31)
Pseudohastigerina wilcoxensis (1620-30, sq.7)
Globorotalis formosa (1620-30, sq. 32)
Chiloguembelina cf. moresi (1620-30, sq. 18)
Gavelinella cushmani (1590-1600, sq. 20)
Bulimina trinitatensis (1590-1600, sq. 8)
Anomalinoides cf. vulgaris (1590-1600, sq. 18)
Tritaxia cf. jarvisi (1590-1600, sq. 5)
Tritaxia globulifera (1590-1600, sq. 6)
Marssonella trinitatensis (1590-1600, sq. 17)
Cibicidioides constrictus (1590-1600, sq. 29)
Marginuliopsis cf. enbornensis (1620-30, sq. 19)
Tritaxia cubensis (1620-30, sq. 9)
Allomorphia subtriangularis (1620-30, sq. 31)

OSTRACODES:

Occultocythereis (?) sp. #CA (1590-1600, sq. 19)
Cytherella #CA
Bairdia #CA
Krithe #CB

1650-1750m: Paleocene

Globorotalia pseudomenardii (1650-60, sq. 33)
Chiloguembelina crinita (1680-90, sq. 8)

Spiroplectammania spectabilis (1650-60, sq. 32)
Textularia plummerae (1650-60, sq. 21)
Glomospira charoides (1650-60, sq. 9)

1765-1865m: Campanian

FORAMINIFERA

Planoglobulina glabrata (1765-75, sq. 32)
Pseudotextularia difformis (1765-75, sq. 9)
Rosita fornicata (1765-75, sq. 33)
Rosita contusa (1765-75, sq. 45)
Abathomphalus mayaroensis (1765-75, sq. 31)
Heterohelis punctulata (1765-75, sq. 18)
Globotruncanella petaloidea (1765-75, sq. 42)
Planoglobulina brazoensis (1765-75, sq. 20)
Pseudotextularia elegans (1795-1805, sq. 20)
Globotruncanita elevata (1795-1805, sq. 8)
Globotruncanita stuartiformis (1795-1805, sq. 32)
Marginotruncana marginata (1795-1805, sq. 19)
Globotruncana bulloides (1795-1805, sq. 9)
Globotruncana linneiana (1855-65, sq. 32)
Bolivinoides draco miliaris (1765-75, sq. 7)
Neoflabellina rugosa leptodisca (765-75, sq. 8)
Stensoina exsculpta s.s. (1765-75, sq. 22)
Bolivina incrassata gigantea (1765-75, sq. 19)
Arenobulimina americana (1765-75, sq. 6)
Stensoina excolata (1765-75, sq. 30)
Stensoina pommerana (1765-75, sq. 21)
Gaudryina rudita (1795-1805, sq. 9)
Dorothia bullata (1795-1805, sq. 21)
Heterostomella americana (1795-1805, sq. 34)
Heterostomella austinana (1825-35, sq. 20)
Gavelinella cf. clementiana (1855-65, sq. 21)
Gaudryina austinana (1855-65, sq. 9)

1885-1895m: Santonian

FORAMINIFERA:

Marginotruncana marginata
Marginotruncana coronata (1885-1895, sq. 44)
Marginotruncana pseudolinneiana (1885-95, sq. 45)
Marginotruncana schneegansi (1885-95, sq. 32)
Whiteinella baltica (1885-95,sq. 21)
Dicarinella cf. concavata (1885-95, sq. 9)
Dicarinella asymetrica (1885-95, sq. 8)

Lenticulina munsteri
Stensoina exsculpta s.s.

OSTRACODES:

Cythereis (?) sp. #CA (1885-95, sq. 20)

1915-2015: Cenomanian

FORAMINIFERA

Praiglobtruncana stephani (1915-25, sq. 8)
Heterohelix moremani (1915-25, sq. 31)
Hedbergella delrioensis (1915-25, sq. 7)
Rotalipora greenhornensis (1945-55, sq. 43)
Rotolipora cf. deeckei (1945-55, sq. 42)
Gavelinella tourainensis (1915-25, sq. 21)
Gavelinella cenomanica (1915-25, sq. 20)
Dorothia af. filiformis (1915-25, sq. 19)
Ammobaculites comprimatua (1945-55, sq. 18)
Ammobaculites subcretaceus (1945-55, sq. 19)
Marssonella trochus (1945-55, sq. 8)
Quinqueloculina lirellangula (1945-55, sq. 20)
Tritaxia pyramidata (1945-55, sq. 30)
Quasispiroplectammina nuda (1945-55, sq. 32)
Gavelinella ammonides (1975-85, sq. 18)

OSTRACODES:

Rhacythereis sp #CA (1915-25, sq. 32)
Protocythere alexanderi (1945-55, sq. 44)
Schuleridea jonesiana (2005-2015, sq. 20)
Rehacythereis af. dentonensis (2005-15, sq. 19)
Cythereis cf. eaglefordensis (2005-15, sq. 7)

2035-2255m: Albian

FORAMINIFERA

Ammobaculites goodlandensis
Lenticulina gaultina
Ammobaculites subcretaceous
Ammobaculites comprimatus
Ammobaculites reophacoides (2245-55, sq. 6)

OSTRACODES:

Cornicythereis cf. subgoodlandnesis (2035-45, sq. 6)
Pontocyprella (?) sp #CA (2035-45, sq. 17)
Protocythere sp. #CA 2035-45, sq. 19)
Eocytheropteron paenorbiculatum (2035-45, sq. 7)
Mandocythere (?) sp. #CA (2035-45, sq. 18)
Protochthere speetonensis (2065-75, sq. 7)
Rehacythereis cf. dentonensis (2065-75, sq. 19)
Rehacythereis af. reticulata (2125-35, sq. 7)
Cornnicythereis bonnemai (2125-35, sq. 18)
Cytherella sp. #CC
Asciocythere sp. #CA
Rehacythereis sp. #CB
Eocytheropteron sp. #CB

2275-3300: Aptian

FORAMINIFERA

Favusella washitaensis (2610-20, sq. 19)
Hedbergella trochoidea (2610-20, sq. 8)
Hedbergella delrioensis (2610-20, sq. 20)
Lenticulina nodosa (2275-85, sq. 29)
Gavelinella intermedia (2275-85, sq. 17)
Gavelinella berthelini (2305-15, sq. 29)
Trochammina sp. #CA (2335-45, sq. 18)
Cribrostomoides sp. #CA
Recurvoides sp. #CA
Bathysiphon sp. #CB
Verneuilinoides sp. #CA
Epistomina cretosa (2550-60, sq. 18)
Gavelinella cenomanica
Trocholina af. infragranulata (2640-50, sq. 7)
Gavelinella barremiana (2640-50, sq. 8)
Epistomina cf. carpenteri 2640-50, sq. 6)
Tritaxia singularis (2760-70, sq. 8)
Epistomina carpenteri (2760-70, sq. 9)
Gyroidinoides sp. #CA
Saracenaria sp #CA
Saracenaria cf. frankei (2850-60, sq. 7)
Haplophagmium (?) sp. #CA
Marssonella cf. oxsycona (3150-60, sq. 19)

OSTRACODES:

Mandocythere harrisiana (2305-15)
Neocythere cf. mertensi

Cornicythereis (?) sp. #CA
Rehacythereis sp #CC
Eocytheropteron sp. #CB
Paracypris sp. #CA

3320-4790: Barremian

FORAMINIFERA

Verneuilinoides neocomiensis (3320-30, sq. 18)
Ammobaculites reophacoides
Gavelinella barremiana
Epistomina hechti (3550-60, sq. 5)
Reophax minuta (3550-60, sq. 17)
Gaudryinella tealbyensis (3610-20, sq. 4)
Textularia foeda (3700-10, sq. 2)
Discorbis sp. #CA
Cancris sp. #CA
Marsonella kummi (4240-50, sq. 5)
Epistomina oronata (4540-50, sq. 18)
Epistomina caracolla (4540-50-60, sq.6)
Lagena sp. #CA
Marginuliopsis humilus (4630-40, sq. 4)
Lenticulina cf. guttata (4630-40, sq. 5)
Planularia crepidularis (4780-90, sq. 14)

OSTRACODES:

Asciocythere sp. #CB

4810-5234m: Barremian or Hauterivian

FORAMINIFERA:

A few poorly preserved and undiagnostic agglutinating foraminifera.

D242 CHEBUCTO G-90

TYPE OF ORGANIC MAT.

Prep. No	DEPTH	RECOGNIZABLE ALGAE	AMORPHOUS-SAPROPEL	PALYNOMORPHS-CUTICLE-MEMB DEBRIS	WOODY-STRUCTURED DEBRIS	COAL DEBRIS	PYROBITUMEN	NONRECOGNIZABLE DEBRIS
P26620	4610m			05	25	10		
P26627	4820m							
P26634	5030m			T	70	30		
P26641	5234m			02	88	10		

COLOR OF ORGANIC MATTER

Prep. No	GREENISH LIGHT YELLOW	YELLOW	YELLOW ORANGE (BROWN YELLOW)	ORANGE BROWN (YELLOW BROWN)	LIGHT BROWN	BROWN	DARK BROWN	BLACK
P26620					X			
P26627					X	X		
P26634					X	X		
P26641						X		

STATE OF ORGANIC MATTER

Prep. No	PARTICLE SIZE: FINELY DISSEMINATED	FINE	MEDIUM	COARSE	PRESERVATION: EXCELLENT	GOOD	FAIR	POOR
P26620			X	X			X	X
P26627				X				X
P26634			X				X	X
P26641			X	X			X	X

MATURATION INDEX (UNALTERED, SLIGHTLY ALTERED, MODERATELY ALTERED, STRONGLY ALTERED, SEVERELY ALTERED, METAMORPHOSED)

Prep. No	1	1+	2-	2	2+	3-	3	3+	4-	4	5
P26620						X					
P26627						X	X				
P26634						X	X				
P26641							X				

DEPOSITIONAL ENVIRONMENT

Prep. No	OFFSHORE MARINE	NEARSHORE MARINE	RESTRICTED NEARSHORE - MARSH	LACUSTRINE	CONTINENTAL	REMARKS
P26620						
P26627						Mainly coaly lumps. ? mud
P26634						
P26641						

D242 CHEBUCTO G-90

Prep. No.	Depth	TYPE OF ORGANIC MAT.: Recognizable algae	Amorphous-sapropel	Paltynomorphs-cuticle-memb debris	Woody-structured debris	Coal debris	Pyrobitumen	Nonrecognizable debris	COLOR OF ORGANIC MATTER: Greenish light yellow	Yellow	Yellow orange (brown yellow)	Orange brown (yellow brown)	Light brown	Brown	Dark brown	Black	STATE OF ORGANIC MATTER: Particle size: Finely disseminated	Fine	Medium	Coarse	Preservation: Excellent	Good	Fair	Poor	MATURATION INDEX: 1 (Unaltered)	1+	2- (Slightly altered)	2	2+	3- (Moderately altered)	3	3+	4- (Strongly altered)	4	5 (Severely altered / Metamorphosed)	DEPOSITIONAL ENVIRONMENT: Offshore marine	Nearshore marine	Restricted nearshore - marsh	Lacustrine	Continental	REMARKS
P26486	610m			20	80	T			X	X								X	X			X	X		X																Some pollen stained.
P26493	820m																X							X		X															V. fine collinite. Few spores
P26499	1000m																X							X		X		X													" ? Reworked component
P26506	1210m																X							X		X		X													" " "
P26513	1420m			T	99	T				X							X							X			X	X													" " "
P26519	1600m			10	90						X							X	X				X				X	X													Few spores. " "
P26526	1805m			20	78	02					X								X	X	X	X	X				X														Few spores. Dinos abundant
P26533	2015m			15	80	05					X							X	X	X		X					X														Cavings contaminated. Bimodal color distribution
P26540	2225m			05	65	30					X								X	X		X					X	X													Cavings contaminated. Bimodal color distribution
P26546	2410m			05	55	40					X								X	X			X					X													
P26553	2620m			05	45	50					X						X	X	X				X					X													
P26560	2830m			02	46	52					X						X	X	X				X	X				X	X												Mainly fines. Difficult to estimate %.
P26567	3040m			02	55	43					X								X	X			X	X				X	X												
P26574	3250m			05	55	40						X						X	X				X					X	X												S/P v. rare
P26580	3420m			02	88	10					X						X	X		X			X	X				X	X												Mainly fine. Difficult to estimate %
P26587	3620m			04	78	18						X					X	X	X				X	X					X												Mainly fines. Difficult to estimate %.
P26594	3830m			T	55	45						X							X	X			X	X					X												
P26600	4010m			T	95	05						X	X					X	X				X	X					X	X											S/P obscured & v. rare
P26607	4220m			02	95	03							X						X	X	X	X								X											
P26613	4400m			05	87	08							X						X	X		X								X											

GEOLOGICAL SURVEY OF CANADA - QUALITATIVE FLUORESCENCE ANALYSIS SHEET

LOCALITY NUMBER: D,2,4,2,
LOCALITY NAME: C,H,E,B,U,C,T,O ,6-,9,0,
FT M. M ANALYSIS BY: _____ DATE: _____

PREP. NUMBER	SAMPLE TYPE	SAMPLE INTERVAL	COLOR: 0 BLUE-WHITE	1 BLUE	2 BLUE-GREEN	3 GREEN	4 GREEN-YELLOW	5 YELLOW	6 YELLOW-ORANGE	7 ORANGE	8 ORANGE-RED	9 RED	INTENSITY: 5 BRIGHT	4 MEDIUM-BRIGHT	3 MEDIUM	2 MEDIUM-DULL	1 DULL	0 NO FLUORESCENCE	COMMENTS
P,2,6,4,8,6,		– 6,1,0,					X	X					X						
P,2,6,4,9,3,		– 8,2,0,						X			X		X				X	X	Rare fluor. material
P,2,6,4,9,9,		– 1,0,0,0,					X	X			X		X				X	X	" " "
P,2,6,5,0,6,		– 1,2,1,0,					X	X			X		X				X	X	" " "
P,2,6,5,1,3,		– 1,4,2,0,					X	X			X		X				X	X	" " "
P,2,6,5,1,9,		– 1,6,0,0,					X	X	X	X			X			X			Mix of bright pale Y and Y/O. Some curved Y's
P,2,6,5,2,6,		– 1,8,0,5,						X	X				X	X					Rich in dinocysts. Mostly bright Y/O.
P,2,6,5,3,3,		– 2,0,1,5,					X	X	X		X		X	X			X		AA
P,2,6,5,4,0,		– 2,2,2,5,					X	X	X		X		X	X		X			Dinos bright Y. Pale spores non-fluor
P,2,6,5,4,6,		– 2,4,1,0,							X		X				X	X			
P,2,6,5,5,3,		– 2,6,2,0,							X						X				Rare fluor matter. Mostly Y/O
P,2,6,5,6,0,		– 2,8,3,0,								X					X	X			AA . Mostly O.
P,2,6,5,6,7,		– 3,0,4,0,							X	X				X	X	X			Rare fluor matter. Mostly O – dull O
P,2,6,5,7,4,		– 3,2,5,0,								X						X			In situ medium-dull O.
P,2,6,5,8,0,		– 3,4,2,0,								X						X	X		Rare fluor matter.
P,2,6,5,8,7,		– 3,6,2,0,								X	X					X	X		Rare fluor matter. Masking by medium to serious
P,2,6,5,9,4,		– 3,8,3,0,									X						X	X	AA
P,2,6,6,0,0,		– 4,0,1,0,						X	X					X	X				Cavings. In situ masked.
P,2,6,6,0,7,		– 4,2,2,0,									X						X		In situ very dull O.
P,2,6,6,1,3,		– 4,4,0,0,																X	In situ masked
P,2,6,6,2,0,		– 4,6,1,0,																X	" " "
P,2,6,6,2,7,		– 4,8,2,0,																X	See comments on kerogen.
P,2,6,6,3,4,		– 5,0,3,0,																X	
P,2,6,6,4,1,		– 5,2,3,4,																X	
P,		–																	