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BIOSTRATIGRAPHIC REPORT OF THIRTY-THREE
WELLS DRILLED FROM 1975 TO 1981 IN
NATIONAL PETROLEUM RESERVE IN ALASKA

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This report is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards and stratigraphic nomenclature.

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SUMMARY

Biostratigraphic results, in the form of recorded tops for zones, as well as systems, series, and stages, are released for 33 test and field wells drilled during the National Petroleum Reserve in Alaska (N.P.R.A.) program and the earlier Naval Petroleum Reserve No. 4 (N.P.R.-4) program. Two microfossil groups, Foraminifera and palynomorphs (dinoflagellates, acritarchs, pollen, and spores), were analyzed by the N.P.R.A. subcontractors Anderson, Warren, and Associates, Inc., and BioStratigraphics, of San Diego, California. Only those wells with continuous micropaleontologic coverage of cuttings, sidewall cores, and conventional cores for the entire drilled/cored section are included in this report. All data have been computer encoded by Petroleum Information Corporation, Denver, Colorado.

INTRODUCTION

A total of 81 test and field wells has been drilled in a vast region of northern Alaska during two petroleum exploration programs under the supervision of the U.S. Government. This area of approximately 37,000 square miles on the North Slope was originally established as the Naval Petroleum Reserve No. 4 (N.P.R.-4) in 1923. The U.S. Navy began actively exploring in 1944 and completed 36 test and field wells, 45 core tests, and one Barrow gas field replacement well by 1955 (Gryc, 1970). During a second phase of exploration and development from 1964 to mid 1977, the Navy drilled an additional 17 wells. On June 1, 1977, the jurisdiction of N.P.R.-4 was transferred from the Department of the Navy to the Department of the Interior (U.S. Geological Survey), and the Reserve became officially known as the National Petroleum Reserve in Alaska (N.P.R.A.). Since the transfer date, another 27 test and gas field wells have been drilled by Husky Oil N.P.R. Operations, Inc., contractor for the U.S.G.S. Active exploration under the N.P.R.A. program has now been terminated.

This report provides biostratigraphic results for 33 test and field wells (see Figure 1 for locations) drilled in the Reserve from 1975 to 1981. Nine of these wells were completed during the N.P.R.-4 program and 24 during the N.P.R.A. program. Only those wells with continuous micropaleontologic (Foraminifera and palynomorph) coverage are included in this report. Samples of well cuttings, sidewall cores, and conventional cores were processed and slides prepared and analyzed by the N.P.R.A. subcontractors Anderson, Warren, and Associates, Inc., and BioStratigraphics, both of San Diego, California. All biostratigraphic data have been encoded in computers at Petroleum Information Corporation, Denver, Colorado.

GENERAL GEOLOGIC HISTORY

The geologic history of N.P.R.A. has been summarized in Carter et al. (1977) and more recently in Bird (1981a). In general, the subsurface lithologic units (see Figure 2, p. 6) encountered in the wells of this report can be grouped into three stratigraphic sequences in terms of sediment provenance (Lerand, 1973; Grantz et al., 1975):

(1) Franklinian sequence: These steeply-dipping, metamorphosed clastics and carbonates of pre-Mississippian age were originally derived from an orogenic uplift in what is now extreme northern Alaska. Most of the wells that have penetrated this sequence, considered economic basement in the Reserve, have encountered a dark gray, wavy-banded argillite.

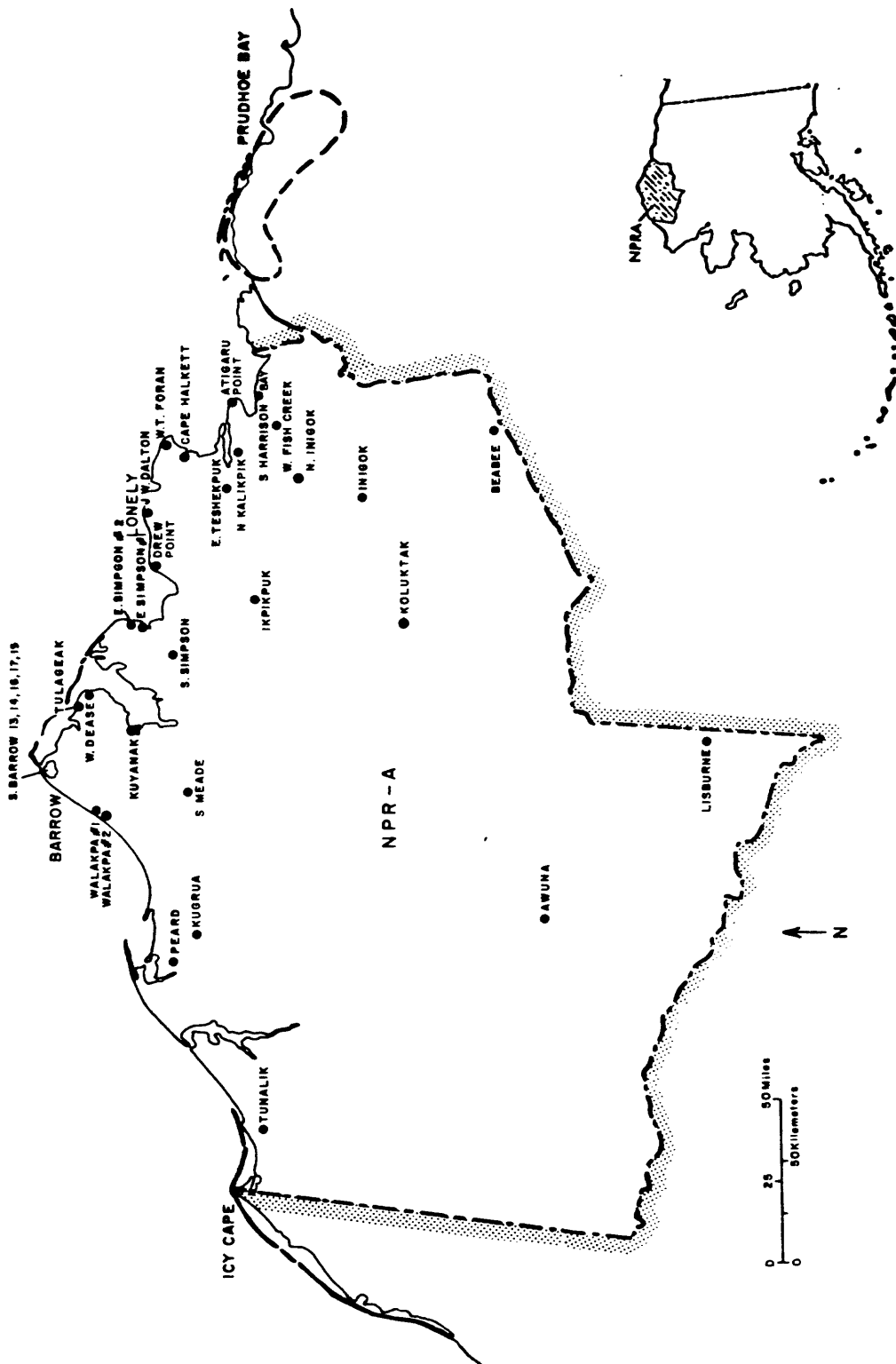


Figure 1. Map of N.P.R.A. showing locations of 33 wells included in report.

(2) Ellesmerian sequence: Unconformably overlying the Franklinian sequence are the shallow marine and non-marine clastics and platform carbonates of the Ellesmerian sequence. Based on both sedimentologic and stratigraphic evidence, sediments of this succession of rocks appear also to have been derived from a northern source area. The Ellesmerian shorelines likely approximated the present Alaskan Arctic coast with open seas southward. This sequence ranges in age from Mississippian to Early Cretaceous (Neocomian) in the N.P.R.A. coastal plain and northern foothills. Lithologic units constituting the Ellesmerian sequence include the following (in ascending order):

- Endicott Group (Mississippian)
- Lisburne Group (Late Mississippian-Early Permian)
- Sadlerochit Group (Early Permian-Early Triassic)
- Shublik Formation (Middle-Late Triassic)
- Sag River Sandstone (Late Triassic-Early Jurassic)
- Kingak Shale (Jurassic)
- pebble shale unit (Early Cretaceous:Neocomian)

(3) Brookian sequence: This final interval of sediments was derived from a southern source, the ancestral Brooks Range. Concomitant large scale subsidence to the north of the orogen resulted in the Colville Basin. Essentially paralleling the present Alaskan Beaufort Sea shoreline is the Barrow Arch, a linear basement high resulting from subsidence of the northern land area by northward downwarping and normal faulting. After deposition of the predominantly northern-derived pebble shale unit, thick clastic wedges periodically prograded into the Colville Basin from Early Cretaceous (Aptian?) through Tertiary time. The following progradational packages of sediments resulted (in ascending order):

- Torok Formation/Nanushuk Group (Cretaceous: Aptian-Cenomanian)
(see Bird and Andrews (1979) and Molenaar (1981) for detailed information)
- Colville Group (Late Cretaceous: Cenomanian-Maastrichtian)
- Sagavanirktok Formation (Tertiary)

The Quaternary sediments of the coastal plain are represented by the Gubik Formation, as well as Recent surficial deposits.

Depths to the tops of the lithologic units shown in the "Generalized Groups, Formations, and Members" column of Figure 2 (p. 6) have been compiled in the North Slope Rock Unit Report (Bird, 1981b) for wells in N.P.R.A., in addition to many outside the Reserve.

BIOSTRATIGRAPHIC FRAMEWORK

Introduction

The subsurface strata of N.P.R.A. have been biostratigraphically zoned on the basis of primarily Foraminifera dinoflagellate cysts, and spores and pollen. The zonation scheme (see Figure 2) was established at the laboratory of the subcontractor Anderson, Warren, and Associates, Inc. (A.W.A.).

Most of the zonal boundaries on the chart are shown as level lines suggesting isochroneity. In reality, however, many of these interfaces are likely diachronous to varying degrees. The time-transgressive nature of the zones resulted from the sedimentary facies influence on the biotas. All of the foraminifers used in the N.P.R.A. zonation are benthonic, and consequently were tied closely to particular facies as they migrated geographically and temporally. Even the dinoflagellate assemblages, although planktonic, may also have been generally restricted to particular facies, as an indirect consequence of water depth, distance from shore, nutrient supply, current dynamics, etc. Zonation of the prograding complexes of the Torok Formation/Nanushuk Group and the Colville Group points out especially well the time-transgressive nature of these strata. The diachronous zonal boundaries are indicated by slanted, dashed lines (see foraminiferal zones F-5/F-6 and F-9/F-10/F-11, and palynological zones PM-11/PM-12 in Figure 2).

Foraminiferal Zonation

The foraminiferal zonation, erected by Michael B. Mickey, consists of 21 A.W.A. zones (designated "F"), as well as 20 Paleozoic zones (designated "Z") of Mamet (see Mamet and Ross (1971) and Armstrong and Mamet (1977)). The F zones recognized in the wells of this report range from the Early Permian Lisburne Group F-21 zone to the Quaternary Gubik Formation F-1 zone. In addition, Mamet Z zones observed extend from the Late Mississippian Endicott Group Z-10 zone to the Late Pennsylvanian Lisburne Group Z-22 (and younger) zone. In a number of test wells, pre-Z-10 zone Endicott Group (Kayak Shale - Kekiktuk Conglomerate) strata have been observed, but zones could not be definitively assigned.

Palynological Zonation

Nineteen A.W.A. dinoflagellate cyst zones (designated "PM") and 11 A.W.A. spore-pollen zones (designated "PT") constitute the palynological zonation, established by Hideyo Haga. The PM zones recognized in the N.P.R.A. wells included in this report range from the Late Triassic Shublik Formation PM-27 zone to the Paleocene-Eocene Sagavanirktok Formation PM-11 zone. Observed PT zones range from the Mississippian Lisburne/Endicott strata PT-21 zone to the Paleocene Sagavanirktok Formation PT-10 zone.

Era	System or Period	Series Epoch	Stage	Generalized Groups, Formations and Members	A.W.A. post-Penn. and Mesozoic pre-Penn. formational zones	A.W.A. Dinoflagellate Cyst Zones	A.W.A. Spore-Pollen Zones
CENOZOIC	QUATERNARY	Holocene			F-1		
		Pleistocene		Gubb. Fm.			
	TERTIARY	Pliocene			F-2		
		Miocene					
		Oligocene		Sagavonkik Fm.	F-3	P-M11	
		Eocene			F-4	P-M12 ?	P-T10
MESOZOIC	CRETACEOUS	Upper	Maastrichtian	Prince Creek Fm.		P-M13	P-T11
			Campanian	Achrador Bluff Fm.	F-5	P-M14	P-T12
			Santonian				
			Coniacian	Prince Creek Fm.			
			Turonian	Aiyuk Mbr.	F-6	P-M15	
		Late	Cenomanian	Sasbee Fm.	F-7	P-M16	
				Shole Wall Mbr.	F-8	P-M17	
				Manushuk Group	F-9	P-M18	
			Albian		F-10	P-M19	
			Aptian	Torch Fm.	F-11	P-M20	
	JURASSIC	Early	Barremian		F-12	P-M21	
			Hauterivian	gamma-ray zone		P-M22	
			Valanginian	pebble shale unit	F-13	P-M23	
			Berriasian	Sands	F-14	P-M24	
					F-15	P-M25	
		Late	Tithonian		F-16	P-M26	
			Portlandian		F-17	P-M27	
			Kimmeridgian		F-18	P-M28	
			Oxfordian	Kingak Shale	F-19	P-M29	
			Callovian		F-20	P-M30	
	TRIASSIC	Upper	Bathonian				
			Bajocian				
			Asenian				
			Toarcian				
			Pliensbachian				
		Lower	Sinemurian				
			Hettangian				
			Rhaetian	Sag River Sandstone			
			Norian				
			Karnian	Shubik Fm.	F-21	P-M31	P-T15
PALEOZOIC	PERMIAN	Upper	Ladinian				
			Anisian				
			Spathian				
			Smithian	Wichak Fm.	F-22		P-T16
			Dianian	Kavik Mbr.			P-T17
	PERMSYLVANIAN	Lower	Griesbachian				
			Ochoan	Echoke Fm.			
			Guadalupian				
			Leonardian				
			Wolfcampian				
	MISSISSIPPIAN	Upper	Kawvian				
			Atokan				
			Morrowan				
			Chatterian				
	DEVONIAN	Late	Maramesian				
			Ozagean				
			Kinderhookian				

Figure 2. N.P.R.A. subsurface time-stratigraphic/stratigraphic/biostratigraphic units. (Modified from Anderson, Warren, and Associates, Inc. chart, 1980)

BIOSTRATIGRAPHIC RESULTS OF THIRTY-THREE WELLS

Introduction

Each of the 33 wells included in this release have been analyzed for both Foraminifera and palynomorphs from well cuttings, and sidewall and conventional cores, from near the top of the well to total depth. Of this total, nine wells were completed before June 1, 1977, during the N.P.R.-4 drilling program, and the remaining 24 wells were part of the present N.P.R.A. program. Table 1 is an alphabetical listing of the wells with their completion dates, total depths, and deepest lithologies (ages) penetrated.

Foraminiferal and palynomorph microscope slides upon which the micropaleontologic analyses were based have been released for examination in Open-File Reports No. 80-193 (Witmer, 1979), No. 81-13 (Witmer, 1980), and No. 81-1081 (Witmer, 1981). Inquiries regarding purchase of the complete package of Foraminifera and palynology reports, including detailed distribution (range) charts, prepared by the subcontractors should be addressed to:

National Geophysical and Solar-Terrestrial Data Center
D-621
NOAA/EDIS/NGSDC
Boulder, Colorado 80303

The reader is referred to Bergquist (1966 and additional references of author therein) for discussions of the foraminiferal distributions of numerous test wells and core tests drilled from 1944 to 1953 in the N.P.R.-4 program.

Computerized Report

The tops (drilling depths) of A.W.A. biostratigraphic zones, and systems, series, and stages, recorded by the micropaleontology consultants for the 33 wells have been encoded in computers by Petroleum Information Corporation of Denver, Colorado. A computer print-out of these tops has been compiled in a format that is intended to be a concise, easy to use reference.

The report contains a single page listing for each of the 33 wells as follows: (1) drilling depths to the tops of systems/series/stages based on Foraminifera and palynomorphs; and (2) drilling depths to the tops of zones based on Foraminifera and palynomorphs. The abbreviations of the systems/series/stages (alphabetical) and the zones used in this report are listed on Table 2. Refer to Figure 2 for their relative position in the time-stratigraphic column. In the systems/series/stages listing, the system is reported first, followed in parentheses by the series or stages. The interval may span two or more systems (e.g., J(L.)-K(NEO.)) or stages (e.g., K(APT.-ALB.)). In the zones listing, if the interval spans two or more zones, it is reported as follows: PM17PM18 or F12F13.

Table 1. List of 33 wells included in report with completion dates, total depths, and deepest units (ages) penetrated.

Well	Completion Date	Total Depth	Deepest Unit Penetrated (Age)
Atigaru Test Well No. 1	3/77 ¹	11,535 ft.	Argillite Basement (Indeterminate ²)
Awuna Test Well No. 1	4/81	11,200 ft.	Torok Fm. (Indeterminate ³)
S. Barrow Field Well No. 13	1/77 ¹	2,535 ft.	Argillite Basement (Indeterminate ²)
S. Barrow Field Well No. 14	3/77 ¹	2,257 ft.	Sag River Sand (Triassic)
S. Barrow Field Well No. 16	2/78	2,400 ft.	Argillite Basement (Indeterminate ²)
S. Barrow Field Well No. 17	4/78	2,382 ft.	Argillite Basement (Indeterminate ²)
S. Barrow Field Well No. 19	5/78	2,300 ft.	Argillite Basement (Indeterminate ²)
Cape Halkett Test Well No. 1	6/75 ¹	9,900 ft.	Argillite Basement (Indeterminate ²)
J. W. Dalton Test Well No. 1	8/79	9,367 ft.	Argillite Basement (Indeterminate ²)
W. Dease Test Well No. 1	3/80	4,170 ft.	Argillite Basement (Indeterminate ²)
Drew Point Test Well No. 1	3/78	7,946 ft.	Argillite Basement (Indeterminate ²)
W. Fish Creek Test Well No. 1	4/77 ¹	11,427 ft.	Kayak Shale (Probable Mississippian)
W. T. Foran Test Well No. 1	4/77 ¹	8,864 ft.	Argillite Basement (Indeterminate ²)
S. Harrison Bay Test Well No. 1	2/77 ¹	11,290 ft.	Lisburne Group (Middle Pennsylvanian or younger)
Ikpikpuk Test Well No. 1	2/80	15,481 ft.	Kekiktuk Fm.? (Probable Mississippian)
Inigok Test Well No. 1	5/79	20,102 ft.	Kekiktuk Fm.? (Mississippian)
N. Inigok Test Well No. 1	4/81	10,170 ft.	Shublik Fm. (Triassic)
N. Kalikpik Test Well No. 1	4/78	7,395 ft.	Kingak Sh. (Jurassic)
Koluktak Test Well No. 1	4/81	5,882 ft.	Torok Fm. (Early Cretaceous: Aptian-Albian)
Kugrua Test Well No. 1	5/78	12,588 ft.	Lisburne Group (Middle Pennsylvanian)
Kuyanak Test Well No. 1	3/81	6,690 ft.	Argillite Basement (Indeterminate ²)

Table 1 (continued).

Well	Completion Date	Total Depth	Deepest Unit Penetrated (Age)
Lisburne Test Well No. 1	6/80	17,000 ft.	Lisburne Group (Late Mississippian)
S. Meade Test Well No. 1	1/79	9,945 ft.	Clay shales/siltstones of indeterminate unit (Indeterminate) ⁴
Peard Test Well No. 1	4/79	10,225 ft.	Argillite Basement (Indeterminate) ²
Seabee Test Well No. 1	4/80	15,611 ft.	Pebble Shale Unit (Latest Jurassic?-Early Cretaceous: Neocomian)
E. Simpson Test Well No. 1	4/79	7,739 ft.	Argillite Basement (Indeterminate) ²
E. Simpson Test Well No. 2	3/80	7,505 ft.	Argillite Basement (Indeterminate) ²
S. Simpson Test Well No. 1	4/77 ¹	8,795 ft.	Argillite Basement (Indeterminate) ²
E. Teshekpuk Test Well No. 1	5/76 ¹	10,664 ft.	Granite Basement OR Kekiktuk Fm.? (Mississippian) ⁵
Tulageak Test Well No. 1	3/81	4,015 ft.	Argillite Basement (Indeterminate) ²
Tunalik Test Well No. 1	1/80	20,335 ft.	Lisburne Group (Mississippian)
Walakpa Test Well No. 1	2/80	3,666 ft.	Argillite Basement (Indeterminate) ²
Walakpa Test Well No. 2	2/81	4,360 ft.	Argillite Basement (Indeterminate) ²

Footnotes:

- 1 - Well was drilled during Naval Petroleum Reserve No. 4 (N.P.R.-4) program.
- 2 - Argillite in these wells is barren of palynomorphs and foraminifers, hence, the Indeterminate age designation. The following reports shed some light on its possible age range: Ordovician - Silurian aged graptolites and chitinozoans recovered from argillite at Point Barrow and Prudhoe Bay wells (Carter and Laufeld, 1975); Early Cambrian radiometric ages from mica in argillite of Prudhoe Bay well (Drummond, 1974); Early? - Middle Devonian aged carbonized plant fragments in steeply-dipping carbonaceous clay shale, likely part of argillite basement sequence, near bottom of Topagoruk well (Collins, 1958; Bergquist, 1966). The age of economic basement in N.P.R.A. is typically considered as Middle Devonian or older.
- 3 - This interval could not be dated based on the few palynomorphs and foraminifers recovered. The lithology appears to be Torok, which has been dated elsewhere as Early Cretaceous: Aptian - Albian.
- 4 - The clay shales/siltstones near the bottom of this well are steeply-dipping and very similar in character to those in the basal part of the Topagoruk well dated as Early? - Middle Devonian on the basis of plant fragments. These strata are barren of foraminifers in both wells. The interval in S. Meade is essentially barren of palynomorphs; in Topagoruk these basal strata are suggestive of a pre-Carboniferous age.
- 5 - Bird et al. (1977) concluded that this well bottomed in a granitic intrusive (Lisburne/granite contact given as 10,617 ft.). Radiometric dates based on two different minerals yielded discordant ages: 332 ± 10 m.y. (Mississippian age) for K feldspar and 243 ± 7 m.y. (Late Permian age) for biotite. Alternatively, an A.W.A., Inc., report for this well suggests the following:

Foraminifera

10,590 - 10,650 ft.: Endicott Group, Kekiktuk Fm.? (Mississippian)
 10,650 - 10,664 ft. TD: Quartzite? (Indeterminate age)

Palynology

9,870 - 10,664 ft. TD: Carboniferous

Table 2. Dictionary of abbreviations used in computer print-out of biostratigraphic results.

SYSTEMS/SERIES/STAGES ABBREVIATIONS

ALB.	ALBIAN	MZ.	MESOZOIC
APT.	APTIAN	NEO.	NEOCOMIAN
BAJ.	BAJOCIAN	NOR.	NORIAN
BARR.	BARREMIAN	OXF.	OXFORDIAN
BERR.	BERRIASIAN	PALEO.	PALEOCENE
CAMP.	CAMPANIAN	PALEOG.	PALEOGENE
CB.	CARBONIFEROUS	PM.	PERMIAN
CEN.	CENOMANIAN	PN.	PENNSYLVANIAN
CON.	CONIACIAN	PLEIS.	PLEISTOCENE
E.	EARLY	PLIEN.	PLIENSCHACHIAN
EO.	EOCENE	PLIO.	PLIOCENE
HAUT.	HAUTERIVIAN	Q.	QUATERNARY
J.	JURASSIC	RHAE.	RHAETIAN
K.	CRETACEOUS	SANT.	SANTONIAN
KAR.	KARNIAN	SEN.	SENONIAN
KIMM.	KIMMERIDGIAN	T.	TERTIARY
L.	LATE	TITH.	TITHONIAN
MAEST.	MAESTRICHTIAN	TR.	TRIASSIC
M.	MIDDLE	TUR.	TURONIAN
MS.	MISSISSIPPIAN	VAL.	VALANGINIAN

ZONE ABBREVIATIONS

F	A.W.A. FORAMINIFERAL ZONE
PM	A.W.A. DINOFLAGELLATE CYST ZONE
PT	A.W.A. SPORE-POLLEN ZONE
Z	MAMET PALEOZOIC FORAMINIFERAL ZONE
+	OR YOUNGER IN AGE

MISC. ABBREVIATIONS

INDET.	INDETERMINATE
NOT RP.	NOT REPORTED
UNDIFF.	UNDIFFERENTIATED

CERTAINTY CODE

POSS.	POSSIBLE
PROB.	PROBABLE
QUES.	QUESTIONABLE

SAMPLE CODE

C	CONVENTIONAL CORE
S	SIDEWALL CORE
	(ALL OTHERS - WELL CUTTINGS)

Miscellaneous abbreviations listed in Table 2 require some explanation. The Indeterminate (INDET.) designation indicates that no definitive system/series/stage, or zone, could be assigned to the interval on the basis of the fossil assemblages recovered or because it was simply barren of microfossils. The Not Reported (NOT RP.) designation found in the zones listings reveals that no zone assignment was given in the micropaleontology report for a particular interval. An Undifferentiated (UNDIFF.) assignment was recorded for those intervals in which a specific system/series/stage call could not be made (e.g., TR.-J. (UNDIFF.)).

Two types of codes, Certainty Code (CERT. CODE) and Sample Code (SPL. CODE), are used in the report. If a system/series/stage, or zone, could not be assigned with absolute confidence, it is so indicated in the Certainty Code column with a Possible (POSS.), Probable (PROB.), or Questionable (QUES.) designation. This code would apply to a single system/series/stage, or zone, entry or a range of these units. In a few cases, however, only one part of the range of the age or zone assignment is designated as Probable or Questionable. These entries will contain a Probable (PROB.) or Questionable (QUES.) designation in the Certainty Code, and the part of the entry which is Probable or Questionable will have a P or ?, respectively, to the immediate right of it (e.g., T (PLIO.,P.)-PLEIS., or PM24?PM23).

Most of the tops of the units were derived from analyses of well cuttings (ditch) samples; no code is recorded in the Sample Code column for this type of sample. Should the top be based on a sidewall core sample or conventional core sample, it is so indicated in the Sample Code column as S or C, respectively.

N.P.R.A. BIOSTRATIGRAPHIC REPORT

(COMPUTER PRINT-OUT)

ATIGARU POINT NO. 1
A.P.I. 5010320008
T.D. 11535 FEET

FORAMINIFERA

SYSTEM/SERIES/STAGE	CERT. CODE	TOP SPL. FT. CODE	
K (SEN.)		530	
K (CON.-SAN.)		2300	
K (TUR.-CON.)		2630	
K (CEN.-TUR.)		3080	
K (ALB.-CEN.)		3410	
K (ALB.)		3530	
K (APT.-E.ALB.)		5630	
J (L.)-K (NEO.)		7282	S
J (E.-M.)		7340	
TR		8310	
PM-TR		8580	
PM (E.)	PROF	9490	
PM (M.-L.)		9550	
PM (M.)		9910	
PM (E.)		10270	
MS (L.)		10460	
MS	PROP	10850	
INDET		11330	

PALYNOLOGY

SYSTEM/SERIES/STAGE	CERT. CODE	TOP SPL. FT. CODE	
K (L.)-T		530	
K (MAEST.)		890	
K (CAMP.)		1160	
K (SANT.-CAMP.)		1520	
K (TUR.-CON.)	QUES	2330	
K (CEN.)		2780	
K (M.-L.ALB.)		3950	
K (APT.-E.ALB.)		7083	S
K (NEO.)		7163	S
J (L.PLIEN-E.BAJ.)		7350	
TP-J (E.)		8012	S
PM-TF		8540	
PM	POSS	9440	
INDET		9530	
PM		10250	
MS	PROB	11070	
INDET		11330	

FORAMINIFERA

ZONULE	CERT. CODE	TOP SPL. FT. CODE	
F05		530	
F05F06		2300	
F06		2630	
F07		3080	
F08		3410	
F09F10		3530	
F11		5630	
F12F13		7282	S
F17F18		7340	
F19		8310	
F20		8580	
F21		9490	
Z21+		9550	
Z21		9910	
Z20		10270	
Z18Z19		10460	
Z17Z18		10640	
Z16		10740	
NOT RP		10850	
INDET		11330	

PALYNOLOGY

ZONULE	CERT. CODE	TOP SPL. FT. CODE	
NOT RP		530	
PT11		890	
PT12		1160	
PM14		1520	
PM15		2330	
PM16		2780	
PM17		3950	
PM18		7083	S
PM19PM20		7163	S
PM23		7350	
PT15PM24		8012	S
PT16PT17		8540	
PT18	QUES	9440	
INDET		9530	
PT19		10250	
PT21		11070	
INDET		11330	

AWUNA
A.P.I. 5015520001
T.D. 11200 FEET

NO. 1

FORAMINIFERA

SYSTEM/SERIES/STAGE	CERT. CODE	TOP FT.	SPL. CODE
K (APT.-E.ALB.)	PROB	100	
K (APT.-ALB.)		5310	
INDET		8740	

PALYNOLOGY

SYSTEM/SERIES/STAGE	CERT. CODE	TOP FT.	SPL. CODE
K (APT.-E.ALB.)		100	
K (APT.-E.ALB.)	PROB	5310	
INDET		10730	

FORAMINIFERA

ZONULE	CERT. CODE	TOP FT.	SPL. CODE
NOT RP		100	
F11	PROB	5310	
INDET		8740	

PALYNOLOGY

ZONULE	CERT. CODE	TOP FT.	SPL. CODE
PM18		100	
PM18		5310	
INDET		10730	

SOUTH BARROW NO. 13
 A.P.I. 5002320008
 T.D. 2535 FEET

FORAMINIFERA

SYSTEM/SERIES/STAGE	CEPT. CODE	TOP FT.	SPL. CODE
K (APT.-ALB.)		200	
K (NEO.)	PROB	1740	
J (L.)-K(NEO.)		2080	
J (E.-M.)		2220	
TR		2411	C
INDET		2460	

PALYNOLOGY

SYSTEM/SERIES/STAGE	CEPT. CODE	TOP FT.	SPL. CODE
K (APT.-ALB.)		200	
K (NEO.)	POSS	1710	
K (HAUT.-BARR.)		2181	C
J (E.)	PROB	2288	C
TR	POSS	2411	C
INDET		2430	

FORAMINIFERA

ZONULE	CERT. CODE	TOP FT.	SPL. CODE
NOT RF		200	

PALYNOLOGY

ZONULE	CERT. CODE	TOP FT.	SPL. CODE
PM17PM18		200	
PM18	GUES	1710	
PM19		2181	C
PM24	GUES	2288	C
NOT RF		2411	C
INDET		2430	

SOUTH BARROW NO. 14
 A.P.I. 5002320009
 T.D. 2257 FEET

FORAMINIFERA

SYSTEM/SERIES/STAGE	CERT. CODE	TOP FT.	SPL. CODE
Q (PLEIS.)		53	
K (APT.-ALB.)		80	
K (NEO.)	PROB	1370	
J (L.)-K (NEO.)		1750	
J (E.-M.)		1900	
TR		2130	

PALYNOLOGY

SYSTEM/SERIES/STAGE	CERT. CODE	TOP FT.	SPL. CODE
K (APT.-ALB.)		53	
K (NEO.)	PROB	1400	
MZ (UNDIFF.)		2030	

FORAMINIFERA

ZONULE	CERT. CODE	TOP FT.	SPL. CODE
NOT RP		53	

PALYNOLOGY

ZONULE	CERT. CODE	TOP FT.	SPL. CODE
NOT RP		53	

SOUTH BARROW NO. 16
 A.P.I. 5002320010
 T.D. 2400 FEET

FORAMINIFERA

SYSTEM/SERIES/STAGE	CERT. CODE	TOP FT.	SPL. CODE
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K (APT.-ALB.)		200	
K (NEO.)		1900	S
INDET		2338	S

PALYNOLOGY

SYSTEM/SERIES/STAGE	CERT. CODE	TOP FT.	SPL. CODE
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K (APT.-ALB.)		200	
K (NEO.)		1900	S
INDET		2340	S

FORAMINIFERA

ZONULE	CERT. CODE	TOP FT.	SPL. CODE
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F09F11		200	
F12F13		1900	S
INDET		2338	S

PALYNOLOGY

ZONULE	CERT. CODE	TOP FT.	SPL. CODE
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PM17PM18		200	
PM19		1900	S
INDET		2340	S

SOUTH BARROW NO. 17
 A.P.I. 5002320011
 T.D. 2392 FEET

FORAMINIFERA

SYSTEM/SERIES/STAGE	CERT. CODE	TOP FT.	SPL. CODE

K (APT.-ALB.)		100	
K (APT.)		1000	
K (HAUT.-BARR.)		1450	
K (BERR.-VAL.)		1730	
J (E.)		1820	
TR		2170	
INDET		2344	

PALYNOLOGY

SYSTEM/SERIES/STAGE	CERT. CODE	TOP FT.	SPL. CODE

K (APT.-E.ALB.)		100	
K (NEO.)	POSS	1450	
K (HAUT.-BARR.)		1640	
J (PLIEN.-BAJ.)	PROB	1800	
TR		2180	
TR (NOR.-RHAE.)		2335	
INDET		2350	

FORAMINIFERA

ZONULE	CERT. CODE	TOP FT.	SPL. CODE

F10		100	
F11		1000	
F12F13		1450	
F13F14		1730	
F18		1820	
F19		2170	
INDET		2344	

PALYNOLOGY

ZONULE	CERT. CODE	TOP FT.	SPL. CODE

PM12		100	
PM18A		1450	
PM19		1640	
PM23		1800	
PM26PM25		2180	
NOT RP		2335	
INDET		2350	

SOUTH BARROW NO. 19
 A.P.I. 5002320012
 T.D. 2300 FEET

FORAMINIFERA

SYSTEM/SERIES/STAGE	CERT. CODE	TOP FT.	SPL. CODE
K (APT.-ALB.)		100	
K (NEO.)		1330	
J (L.)-K (NEO.)		1680	
J (E.-M.)		1740	S
TR		2153	S
INDET		2250	

PALYNOLOGY

SYSTEM/SERIES/STAGE	CERT. CODE	TOP FT.	SPL. CODE
K (APT.-ALB.)		100	
K (NEO.)	POSS	1352	C
K (NEO.)		1657	S
J (E.-M.)		1740	S
TR (NOR.)	PROB	2147	S
TR		2230	C
INDET		2245	

FORAMINIFERA

ZONULE	CERT. CODE	TOP FT.	SPL. CODE
INDET		100	
F17F18		1740	S
F19		2153	S
INDET		2250	

PALYNOLOGY

ZONULE	CERT. CODE	TOP FT.	SPL. CODE
PM17PM18		100	
PM19	QUES	1352	C
PM19		1657	S
PM23		1740	S
PM26	PROB	2147	S
NOT RP		2230	C
INDET		2245	

CAPE HALKETT
A.P.I. 5010320004
T.D. 9900 FEET

NO. 1

FORAMINIFERA

SYSTEM/SERIES/STAGE	CERT. CODE	TOP SPL. FT. CODE
K (SEN.)		510
K (CON.-SAN.)		2190
K (TUR.-CON.)		2440
K (CEN.-TUR.)		2940
K (M.-L.ALB.)		3340
K (ALB.)		4430
K (L.APT.-E.ALB.)		5600
K (APT.)		6800
K (HAUT.-BARR.)		7320
INDET		7510
TR (L.)-J(E.)		7630
TR		7960
PM-TR		8160
PN (M.)		8820
PN (E.)		9020
MS (L.)		9160
MS (L.)	PCSS	9320
INDET		9779 S

PALYNOLOGY

SYSTEM/SERIES/STAGE	CERT. CODE	TOP SPL. FT. CODE
T (UNDIFF.)		510
K (CAMP.-MAEST.)		1100
K (SANT.-CAMP.)		1320
K (TUR.-CON.)	QUES	2040
K (CEN.)		2500
K (M.-L.ALB.)		3357 S
K (APT.-E.ALB.)		6820
K (HAUT.-BARR.)		7506 S
INDET		7660
TR (L.) UNDIFF.)		7715 S
TR (NOR.)		7810
TR		8040
PM-TR		8620
INDET		8826 S
CR		9320
INDET		9779 S

FORAMINIFERA

ZONULE	CERT. CODE	TOP SPL. FT. CODE
F05		510
F05F06		2190
F06		2440
F07F08		2940
F09		3340
F10		4430
F10F11		5600
F11		6800
F12F13		7320
INDET		7510
F18F19		7630
F19		7960
F20		8160
F21		8820
F20		9020
F18Z19		9160
NOT RP		9320
INDET		9779 S

PALYNOLOGY

ZONULE	CERT. CODE	TOP SPL. FT. CODE
NOT RP		510
PT11PT12		1100
PN14		1320
PM15		2040
PM16		2500
PM17		3357 S
PM18		6820
PM19		7506 S
INDET		7660
PT15	QUES	7715 S
PM26		7810
PT15PT16		8040
PT17		8620
INDET		8826 S
PT21	QUES	9320
INDET		9779 S

J. W. DALTON NO. 1
A.P.I. 5027920006
T.D. 9367 FEET

FORAMINIFERA

SYSTEM/SERIES/STAGE	CERT. CODE	TOP FT.	SPL. CODE
T (PLIO.-P)-PLEIS.	PROB	90	
T (PALEO.)	QUES	210	
K (SEN.)		1050	
K (TUR.-CON.)		2160	
K (CEN.-TUR.)		2550	
K (ALB.-CEN.)	PROB	2730	
K (ALB.)		2820	
K (APT.)		4740	
K (NEO.)		7380	
TR		7730	
PM-TR		7880	
PN (M.-L.)	PROB	8317	C
PN (M.)		8560	
PN (E.)		8980	
MS-PN(E.)		9160	
INDET		9250	

PALYNOLOGY

SYSTEM/SERIES/STAGE	CERT. CODE	TOP FT.	SPL. CODE
INDET		90	
T (PALEOG.)		270	
K (SANT.-CAMP.)		500	
K (TUR.-CON.)		2160	
K (CEN.)		2520	
K (M.-L.ALB.)		2970	
K (APT.-E.ALB.)		5490	
K (NEO.)	POSS	7380	
TR (L.)-J(E.)		7714	S
PM-TR		7967	S
INDET		8370	

FORAMINIFERA

ZONULE	CERT. CODE	TOP FT.	SPL. CODE
F01F02		90	
F04	QUES	210	
F05		1050	
F05F06		2160	
F07		2550	
F08		2730	
F09F10		2820	
F11		4740	
F12F13		7380	
F19		7730	
F20		7880	
Z21+	PROB	8317	C
Z21		8560	
Z20		8980	
NOT RP		9160	
INDET		9250	

PALYNOLOGY

ZONULE	CERT. CODE	TOP FT.	SPL. CODE
INDET		90	
PM11PM12		270	
PM14		500	
PM15		2160	
PM16		2520	
PM17		2970	
PM18		5490	
PM18A		7380	
PT15PM24		7714	S
PT17PT16		7967	S
INDET		8370	

WEST DEASE
A.P.I. 5002320014
T.C. - 4170 FEET

NO. 1

FORAMINIFERA

SYSTEM/SERIES/STAGE	CERT. CODE	TOP FT.	SPL. CODE

K (M.-L.ALB.)		100	
K (L.APT.-E.ALB.)		690	
K (APT.)		1850	
K (HAUT.-BARR.)		2930	
TR (L.)-J(E.)		3360	
TR		3732	C
INDET		4012	S

PALYNOLOGY

SYSTEM/SERIES/STAGE	CERT. CODE	TOP FT.	SPL. CODE

K (APT.-E.ALB.)		110	
K (NEO.)	POSS	2945	C
K (NEO.)		3356	S
TR (L.?) - J(E.)	QUES	3360	
TR (RHAE.)		3800	C
TR (NOR.)		3850	C
INDET		4003	C

FORAMINIFERA

ZONULE	CERT. CODE	TOP FT.	SPL. CODE

F09		100	
F10		690	
F11		1850	
F12F13		2930	
F18F19		3360	
F19		3732	C
INDET		4012	S

PALYNOLOGY

ZONULE	CERT. CODE	TOP FT.	SPL. CODE

PM18		110	
PM18A		2945	C
PM19		3356	S
PM24	QUES	3360	
PM25		3800	C
PM26		3850	C
INDET		4003	C

BREW POINT
A.P.I. 5027920002
T.D. 7946 FEET

NO. 1

FORAMINIFERA

SYSTEM/SERIES/STAGE	CERT. CODE	TOP SPL. FT.	SPL. CODE
Q (PLEIS.-RECENT)		80	
K (SEN.)		140	
K (TUR.-CON.)		350	
K (CEN.-TUR.)		1040	
K (M.-L.ALB.)		1760	
K (L.APT.-E.ALB.)		2860	
K (APT.)		4740	
K (NEO.)		6740	
J (E.)	PROB	6900	
TR		6977	C
TR		7554	C
INDET		7830	C

PALYNOLOGY

SYSTEM/SERIES/STAGE	CERT. CODE	TOP SPL. FT.	SPL. CODE
K (SANT.-CAMP.)		80	
K (TUR.-CON.)	QUES	620	
K (CEN.)	PROB	980	
K (M.-L.ALB.)		1610	
K (APT.-E.ALB.)		2420	
K (NEO.)	POSS	6750	
TR-J	QUES	6905	C
TR (RHAE.)		6977	C
TR (KAR.-NOR.)	QUES	7093	C
TR (E.-M.)	PROB	7544	C
INDET		7794	C

FORAMINIFERA

ZONULE	CERT. CODE	TOP FT.	SPL. CODE
F01		80	
F05		140	
F05F06		350	
F07F08?	QUES	1040	
F09		1760	
F10		2860	
F11		4740	
F12F13		6740	
F18	PROB	6900	
F19		6977	C
F20		7554	C
INDET		7830	C

PALYNOLOGY

ZONULE	CERT. CODE	TOP FT.	SPL. CODE
PM14		80	
PM15		620	
PM16		980	
PM17	PROB	1610	
PM18		2420	
PM18A		6750	
INDET		6905	C
PM25		6977	C
PM26PM27?	QUES	7093	C
PT16	PROB	7544	C
INDET		7794	C

WEST FISH CREEK NO. 1
A.P.I. 5910320009
T.O. 11427 FEET

FORAMINIFERA

SYSTEM/SERIES/STAGE	CERT. CODE	TOP SPL. FT. CODE
K (SEN.)		500
K (CON.-SAN.)		1220
K (TUR.-CON.)		1550
K (CEN.-TUR.)		2090
K (ALB.-CEN.)		2510
K (ALB.)		2630
K (APT.-E.ALB.)		4800
K (NEO.)	PROP	7250
J (KIMM.-TITH.)		7280
J (OXF.)		7870
J (E.-M.)		8910
TR		9270
PM-TR		9660
PN (M.-L.)		10470
PN (M.)		10620
PN (E.)		10950
MS (L.)	QUES	11100
MS (L.)		11160
MS	PROP	11310

PALYNOLOGY

SYSTEM/SERIES/STAGE	CERT. CODE	TOP SPL. FT. CODE
K (SANT.-CAMP.)		500
K (TUR.-CON.)	GUES	770
K (CEN.)		1670
K (M.-L.ALB.)		2840
K (APT.-E.ALB.)		4620
K (NEO.)	POSS	7260
J (KIMM.-TITH.)		7290
J (OXF.)		7630
J (L.PLIEN-E.BAJ.)		8940
TR-J(E.)		9210
PM-TR		9660
INDET		10470

FORAMINIFERA

ZONULE	CERT. CODE	TOP FT.	SPL. CODE
F05		500	
F05F06		1220	
F06		1550	
F07		2090	
F08		2510	
F09F10		2630	
F11		4800	
F12F13		7250	
F15F16		7280	
F16		7870	
F17F18		8910	
F19		9270	
F19F20		9515	
F20		9660	
Z21+		10470	
Z21		10620	
Z20		10950	
Z18Z19	GUES	11100	
Z17Z18		11160	
NOT RP		11310	

PALYNOLOGY

ZONULE	CERT. CODE	TOP FT.	SPL. CODE
PM14		500	
PM15		770	
PM16		1670	
PM17		2840	
PM18		4620	
PM18A		7260	
PM21		7290	
PM22		7630	
PM23		8940	
PT15PM24		9210	
PT16PT17		9660	
INDET		10470	

W T FORAN
A.P.I. 8018320010
T.D. 8864 FRET

NO. 1

FORAMINIFERA

SYSTEM/SERIES/STAGE	CERT. CODE	TOP SPL. FT. CODE
T (PALEO.)	QUES	500
K (SEN.)		1010
K (TUR.-CON.)		2450
K (CEN.-TUR.)		2840
K (ALB.-CEN.)		3650
K (M.-L.ALB.)		3770
K (ALB.)		5000
K (APT.-E.ALB.)		5950
K (NEO.)	PROB	7380
INDET		7510
TR	POSS	7590
PM-TR		7650
PN (M.)		8200
PN (E.)		8500
NOT RP		8590
INDET		8770

PALYNOLOGY

SYSTEM/SERIES/STAGE	CERT. CODE	TOP SPL. FT. CODE
T (EO.)	PROB	500
T (PALEO.)		590
K (MAEST.)		1490
K (CAMP.)		1670
K (SANT.-CAMP.)		1850
K (TUR.-CON.)	QUES	2570
K (CEN.)		3020
K (M.-L.ALB.)		4010
K (APT.-E.ALB.)		5800
K (NEO.)	POSS	7330
K (HAUT.-BARR.)		7510
INDET		7551
PM-TR		7610
INDET		8240
MS		8510
INDET		8780

FORAMINIFERA

ZONULE	CERT. CODE	TOP SPL. FT. CODE
F04	QUES	500
F05		1010
F05F06		2450
F06		2840
F07		3410
F08		3650
F09		3770
F10		5000
F11		5950
F12F13		7380
INDET		7510
F19		7590
F20		7650
Z21		8200
Z20		8500
NOT RP		8590
INDET		8770

PALYNOLOGY

ZONULE	CERT. CODE	TOP SPL. FT. CODE
PM11	PROB	500
PT10		590
PT11		1490
PT12		1670
PM14		1850
PM15		2570
PM16		3020
PM17		4010
PM18		5800
PM18A		7330
PM19		7510
INDET		7551
PT17PT16		7610
INDET		8240
PT21	PROB	8510
INDET		8780

SOUTH HARRISON BAY NO. 1
A.P.I. 5010320007
T.O. 11290 FEET

FORAMINIFERA

SYSTEM/SERIES/STAGE	CERT. CODE	TOP FT.	SPL. CODE

K (SEN.)	PROP	500	
K (CON.-SAN.)		2090	
K (TUR.-CON.)		2330	
K (CEN.-TUR.)		2880	
K (ALB.-CEN.)		3210	
K (ALB.)		3330	
K (APT.-E.ALB.)		5260	
J (OXF.-KIMM.)		7270	
J (OXF.)		7360	
J (E.-M.)		8230	
TR		8970	
PM-TR		9360	
PM (E.)		10210	
PM (M.-L.)		10275	
PM (M.)		10720	
PM (E.)		11170	

PALYNOLOGY

SYSTEM/SERIES/STAGE	CERT. CODE	TOP FT.	SPL. CODE

K (MAEST.)		500	
K (CAMP.)		770	
K (SANT.-CAMP.)		950	
K (TUR.-CON.)	QUES	1850	
K (CEN.)		2210	
K (M.-L.ALB.)		3376	S
K (APT.-E.ALB.)		6090	
J (OXF.)		7188	S
J (L.PLIEN-E.BAJ.)		8230	
TR-J(E.)		9300	
PM-TR		9570	
INDET		10210	

FORAMINIFERA

ZONULE	CERT. CODE	TOP FT.	SPL. CODE

F05		500	
F05F06		2090	
F06		2330	
F07		2880	
F08		3210	
F09F10		3330	
F11		5260	
F15F16		7270	
F16		7360	
F17F18		8230	
F19		8970	
F19F20		9240	
F20		9360	
F21		10210	
Z21+		10275	
Z21		10720	
Z20		11170	

PALYNOLOGY

ZONULE	CERT. CODE	TOP FT.	SPL. CODE

PT11		500	
PT12		770	
PM14		950	
PM15		1850	
PM16		2210	
PM17		3376	S
PM19		6090	
PM22		7188	S
PM23		8230	
PT15PM24		9300	
PT16PT17		9570	
INDET		10210	

IKPIKPUK
A.P.I. 5027920004
T.D. 15481 FEET

NO. 1

FORAMINIFERA

SYSTEM/SERIES/STAGE	CERT. CODE	TOP SPL. FT. CODE	
K (CEN.)		100	
K (ALB.-CEN.)		160	
K (M.-L.ALB.)		740	
K (L.APT.-E.ALB.)		3485	
K (APT.)	PROB	5180	
K (HAUT.-BARR.)		7240	
INDET		7420	
K (BERR.-VAL.)		7480	
J (KIMM.-TITH.)		8100	
J (OXF.)		8190	
J (E.-M.)		9180	
TR (L.)-J(E.)		9600	
TR		10110	S
PM-TR		10390	
PM (E.)		11380	
PN (M.-L.)		11830	
PN (M.)		12480	
PN (E.)		12930	
MS (L.)		13480	
MS	PROB	15310	

PALYNOLOGY

SYSTEM/SERIES/STAGE	CERT. CODE	TOP SPL. FT. CODE	
K (CEN.)		100	
K (M.-L.ALB.)		550	
K (APT.-E.ALB.)		3440	
K (NEO.)	POSS	7360	S
K (BERR.-VAL.)		7480	
J (KIMM.-TITH.)		7840	
J (OXF.)		8290	
J (E.-M.)		9100	
INDET		9730	
PM-TR		10700	
INDET		11830	
PN		13020	
CP (UNDIFF.)		13470	

FORAMINIFERA

ZONULE	CERT. CODE	TOP FT.	SPL. CODE
F08		100	
F08F09		160	
F09		740	
F10		3485	
F11	PROB	5180	
F12F13		7240	
INDET		7420	
F13F14		7480	
F15F16		8100	
F16		8190	
F17F18		9180	
F18F19		9600	
F19		10110	S
F20		10390	
F21		11380	
Z21Z24		11830	
Z21		12480	
Z20		12930	
Z18Z19		13480	
Z17Z18		13760	
Z16		14000	
Z14Z16		14210	
INDET		15310	

PALYNOLOGY

ZONULE	CERT. CODE	TOP FT.	SPL. CODE
PM16		100	
PM17		550	
PM18		3440	
PM18A		7360	S
PM20		7480	
PM21		7840	
PM22		8290	
PM23		9100	
INDET		9730	
NOT RP		10700	
INDET		11830	
PT19		13020	
NOT RP		13470	

INIGOK
A.P.I. 5027920003
T.D. 20102 FEET

NO. 1

FORAMINIFERA

CERT. TOP SPL.
SYSTEM/SERIES/STAGE CODE FT. CODE

K (SEN.) 110
K (TUR.-CON.) 560
K (CEN.-TUR.) 1490
K (ALB.-CEN.) 2090
K (ALB.) 2360
K (L.APT.-E.ALB.) 3520
K (APT.) 5130
K (APT.) PROF 8310
K (HAUT.-BARR.) 9060
K (BERR.-VAL.) 9480
J (KIMM.-TITH.) 10260
J (OXF.) 11006 C
J (E.-M.) 11670
TR 12210
PM-TR 12480
PM (E.) 13890
PN (L.)-PM(E.) 14150
PN (M.-L.) 14450
PN (M.) 14740
PN (E.) 15210
MS (L.) 15740
MS (L.) PROB 16880
INDET 16110

PALYNOLOGY

CERT. TOP SPL.
SYSTEM/SERIES/STAGE CODE FT. CODE

K (SANT.-CAMP.) 110
K (TUR.-CON.) QUES 560
K (CEN.) 1460
K (M.-L.ALB.) 2360
K (APT.-E.ALB.) 7064 C
K (HAUT.-BARR.) 9210
K (BERR.-VAL.) 9448 C
TR-J 9814 S
PM-TP 12630
PM 14020 C
PN 14250
CE (UNDIFF.) 15203 C
MS 18300

FORAMINIFERA

CERT. TOP SPL.
ZONULE CODE FT. CODE

F05 110
F06 560
F07 1490
F08 2090
F09 2360
F10 3520
F11 5130
F11 PROB 8310
F12F13 9060
F13F14 9480
F15F16 10260
F16 11006 C
F17F18 11670
F19 12210
F20 12480
F21 13890
F21Z24 14150
Z21Z24 14450
Z21 14740
Z20 15210
Z18Z19 15740
Z17Z18 16220
Z16 PROB 16490
Z10Z16 PROB 16880
INDET 16110

PALYNOLOGY

CERT. TOP SPL.
ZONULE CODE FT. CODE

PM14 110
PM15 560
PM16 1460
PM17 2360
PM18 7064 C
PM19 9210
PM20 9448 C
NOT RP 9814 S
PT17PT16 12630
PT18 14020 C
PT19 14250
PT20 15203 C
PT21 18300

NORTH INIGCK NO. 1
A.P.I. 5010320017
T.O. 10170 FEET

FORAMINIFERA

SYSTEM/SERIES/STAGE	CERT. CODE	TOP FT.	SPL. CODE
T (UNDIFF.)		120	
K (SEN.)-T (PALEO.)		540	
K (CEN.-TUR.)		1530	
K (L.ALB.-CEN.)		2040	
K (M.-L.ALB.)		2220	
K (APT.-ALB.)		5100	
K (HAUT.-BARR.)		7460	
K (BERR.-VAL.)		7790	
J (KIMM.-TITH.)		8180	
J (OXF.)	PROB	8570	
INDET		8930	
J (E.-M.)	PROB	9290	
TR		10100	

PALYNOLOGY

SYSTEM/SERIES/STAGE	CERT. CODE	TOP FT.	SPL. CODE
K (CAMP.)		120	
K (SANT.-CAMP.)		660	
K (TUR.-CON.)	QUES	1110	
K (CEN.)		1650	
K (M.-L.ALB.)		2100	
K (APT.-E.ALB.)		4860	
K (HAUT.-BARR.)		7470	
K (PERR.-VAL.)		7650	
J (OXF.)	QUES	8550	
TR-J (UNDIFF.)		8990	
INDET		10160	C

FORAMINIFERA

ZONULE	CERT. CODE	TOP FT.	SPL. CODE
WOT RP		120	
F04F06		540	
F07		1530	
F08	QUES	2040	
F09		2220	
F10		5100	
F11		5680	
F12F13		7460	
F13F14		7790	
F15F16		8180	
F16		8570	
INDET		8930	
F17F18		9290	
F19		10100	

PALYNOLOGY

ZONULE	CERT. CODE	TOP FT.	SPL. CODE
PT12		120	
PM14		660	
PM15		1110	
PM16		1650	
PM17		2100	
PM18		4860	
PM19		7470	
PM20		7650	
PM22	QUES	8550	
NOT RP		8990	
INDET		10160	C

NORTH KALIKPIK NO. 1
A.P.I. 5010320011
T.D. 7395 FEET

FORAMINIFERA

SYSTEM/SERIES/STAGE	CERT. CODE	TOP SPL. FT. CODE
K (SEN.)		80
K (TUR.-CON.)		1100
K (TUR.)		1340
K (CEN.-TUR.)		2030
K (ALB.-CEN.)		2450
K (M.-L.ALB.)		2570
K (L.APT.-E.ALB.)		4265
K (APT.)		5180
K (NEO.)		6970
J (OXF.)		7137 C

PALYNOLOGY

SYSTEM/SERIES/STAGE	CERT. CODE	TOP SPL. FT. CODE
K (SANT.-CAMP.)		80
K (TUR.-CON.)	QUES	1010
K (CEN.)	POSS	1490
K (CEN.)		2390
K (M.-L.ALB.)		2570
K (APT.-E.ALB.)		5876 C
K (NEO.)	POSS	6990
K (NEO.)		7047 C
J (OXF.)		7137 C

FORAMINIFERA

ZONULE	CERT. CODE	TOP FT.	SPL. CODE
F05		80	
F05F06		1100	
F06		1340	
F07	QUES	2030	
F08		2450	
F09		2570	
F10		4265	
F11		5180	
F12F13		6970	
F16		7137	C

PALYNOLOGY

ZONULE	CERT. CODE	TOP FT.	SPL. CODE
PM14		80	
PM15		1010	
PM16	POSS	1490	
PM16		2390	
PM17		2570	
PM18		5876	C
PM18A		6990	
PM19		7047	C
PM22		7137	C

KOLUKTAK
A.P.I. 5011920001
T.D. 5002 FEET

NO. 1

FORAMINIFERA

SYSTEM/SERIES/STAGE	CERT. CODE	TOP FT.	SPL. CODE
K (M.-L.ALB.)		110	
K (APT.-ALB.)		3420	

PALYNOLOGY

SYSTEM/SERIES/STAGE	CERT. CODE	TOP FT.	SPL. CODE
K (M.-L.ALB.)	POSS	110	
K (APT.-E.ALB.)	PROB	1220	

FORAMINIFERA

ZONULE	CERT. CODE	TOP FT.	SPL. CODE
F09		110	
F10		3420	

PALYNOLOGY

ZONULE	CERT. CODE	TOP FT.	SPL. CODE
PM17	QUES	110	
PM18	PROE	1220	

KUGRUA
A.P.I. 5016320002
T.D. 12588 FEET

NO. 1

FORAMINIFERA

SYSTEM/SERIES/STAGE CODE	CERT. FT. CODE	TOP SPL. CODE
K (M.-L.ALB.)	100	
K (L.APT.-M.ALB.)	2760	
K (APT.)	4110	
K (HAUT.-BARR.)	6890	
K (BERR.-VAL.)	7450	
J (OXF.)	8020	
J (E.-M.)	8890	
TR-J(E.)	9330	
TR	9700	
PM-TR	9970	
PM (E.)	11130	
PN (M.-L.)	11600	
PN (M.)	12380	

PALYNOLOGY

SYSTEM/SERIES/STAGE CODE	CERT. FT. CODE	TOP SPL. CODE
K (APT.-E.ALB.)	100	
K (NEO.)	6912	S
TR-J	7202	C
TR (E.)	10480	
PM	11032	C
INDET	11130	
PN	12330	
PROB		

FORAMINIFERA

ZONULE	CERT. CODE	TOP FT.	SPL. CODE
F09		100	
F10		2760	
F11		4110	
F12F13		6890	
F13F14		7450	
F16		8020	
F17F18		8890	
F18F19		9330	
F19		9700	
F20		9970	
F21		11130	
Z22Z24		11600	
Z21	POSS	12380	

PALYNOLOGY

ZONULE	CERT. CODE	TOP FT.	SPL. CODE
PM17PM18		100	
PM19		6912	S
NOT RP		7202	C
PT16		10480	
PT18		11032	C
INDET		11130	
PT19	PROB	12330	

KUYANAK
A.P.I. 5016320003
T.D. 6690 FEET

NO. 1

FORAMINIFERA

SYSTEM/SERIES/STAGE	CERT. CODE	TOP FT.	SPL. CODE
K (M.-L.ALB.)		100	
K (APT.-ALB.)		990	
K (HAUT.-BARR.)		4680	
K (BERR.-VAL.)		5040	
INDET		5090	
J (OXF.)		5150	
J (E.-M.)		5330	
TR		6310	
INDET		6580	

PALYNOLOGY

SYSTEM/SERIES/STAGE	CERT. CODE	TOP FT.	SPL. CODE
K (APT.-E.ALB.)		100	
K (NEO.)	POSS	4690	
K (HAUT.-BARR.)		5038	C
K (BERR.-VAL.)		5072	C
J (OXF.)		5093	C
J (E.-M.)		5320	
TR (L.)-J(E.)		6254	C
INDET		6560	

FORAMINIFERA

ZONULE	CERT. CODE	TOP FT.	SPL. CODE
F09		100	
F10		990	
F11		2980	
F12F13		4680	
F13F14		5040	
INDET		5090	
F16		5150	
F17F18		5330	
F18F19		6310	
F19		6370	
INDET		6580	

PALYNOLOGY

ZONULE	CERT. CODE	TOP FT.	SPL. CODE
PM18		100	
PM18A		4690	
PM19		5038	C
PM20		5072	C
PM22		5093	C
PM24PM23		5320	
PM26?PM24	QUES	6254	C
INDET		6560	

LISBURN
A.P.I. 5013720003
T.D. 17000 FFET

NO. 1

FORAMINIFERA

SYSTEM/SERIES/STAGE	CERT. CODE	TOP SPL. FT. CODE
K (APT.)	PROB	130
K (HAUT.-BARR.)		2220
J-K(NEO.)		6100
TR		6940
PM-TR		7210
MS (L.)		7390
J-K(NEO.)		8610
TR		9030
PM-TR		9420
MS (L.)		9650
J-K(NEO.)		10900
TR		11050
PM-TR		11320
MS (L.)		11540
PM-TR		13370
MS (L.)		13730
PM-TR		15320
MS (L.)		15410

PALYNOLOGY

SYSTEM/SERIES/STAGE	CERT. CODE	TOP SPL. FT. CODE	
K (APT.-E.ALB.)		130	
K (NEO.)		2087	C
INDET		6070	
CB	POSS	7870	
INDET		8410	
TP	POSS	9215	S
INDET		9300	
CB	POSS	12180	
INDET		13160	
CB	POSS	14510	
INDET		15332	C
MS		16220	
INDET		16590	

FORAMINIFERA

ZONULE	CERT. CODE	TOP SPL. FT. CODE
F11	PROB	130
F12F13		2220
NOT RP		6100
F19		6940
F20F21	PROB	7210
Z14Z16	PROB	7390
Z12Z13		8220
NOT RP		8610
F19		9030
F20F21	PROB	9420
Z14Z16	PROB	9650
Z12Z13		10570
NOT RP		10900
F19		11050
F20F21	PROB	11320
Z14Z16	PROB	11540
Z12Z13		12330
Z12Z13	PROB	13050
F20F21	PROB	13370
Z14Z16	PROB	13730
Z12Z13		14480
Z12Z13	PROB	15150
F20F21	PROB	15320
Z14Z16	PROB	15410
Z12Z13		16060
Z12Z13	PROB	16680

PALYNOLOGY

ZONULE	CERT. CODE	TOP SPL. FT. CODE	
PH16		130	
PH19		2087	C
INDET		6070	
NOT RP		7870	
INDET		8410	
NOT RP		9215	S
INDET		9300	
NOT RP		12180	
INDET		13160	
NOT RP		14510	
INDET		15332	C
PT21		16220	
INDET		16590	

SOUTH MEADE
A.P.I. 5016320001
T.D. 9945 FEET

NO. 1

FORAMINIFERA

SYSTEM/SERIES/STAGE	CERT. CODE	TOP FT.	SPL. CODE
K (M.-L.ALB.)		95	
K (L.APT.-E.ALB.)		1740	
K (APT.)		3360	
K (HAUT.-BARR.)		6500	
K (BERR.-VAL.)		6760	
J (OXF.)		6970	
J (E.-M.)		7990	
TR-J(E.)		8520	
TR		8930	
PM-TR		9170	
INDET		9530	

PALYNOLOGY

SYSTEM/SERIES/STAGE	CERT. CODE	TOP FT.	SPL. CODE
K (APT.-ALB.)		95	
K (NEO.)	PROB	6560	
J-K(UNDIFF.)		6830	S
J (L.)	POSS	7600	
TR-J(UNDIFF.)		7840	
INDET		8520	
TR (NOR.)		8819	C
TR		8880	
INDET		9510	

FORAMINIFERA

ZONULE	CERT. CODE	TOP FT.	SPL. CODE
F09		95	
F10		1740	
F11		3360	
F12F13		6500	
F13F14		6760	
F16		6970	
F17F18		7990	
F18F19		8520	
F19		8930	
F20		9170	
INDET		9530	

PALYNOLOGY

ZONULE	CERT. CODE	TOP FT.	SPL. CODE
PM17PM18		95	
PM19PM20	PROB	6560	
NOT RP		6830	S
INDET		8520	
PM26		8819	C
PT16	PROB	8873	C
INDET		9510	

PEARO
A.P.I. 5030120002
T.D. 10225 FEET

NO. 1

FORAMINIFERA

SYSTEM/SERIES/STAGE	CERT. CODE	TOP SPL. FT. CODE
K (M.-L.ALB.)		90
K (L.APT.-E.ALB.)		2610
K (APT.)	POSS	4110
K (HAUT.-BARR.)		6240
K (BERR.-VAL.)		6720
J (OXF.)		7243 S
J (E.-M.)		7920
TR-J(E.)		8280
TR		8532 S
PM-TP		8730
INDET		9630

PALYNOLOGY

SYSTEM/SERIES/STAGE	CERT. CODE	TOP SPL. FT. CODE
K (APT.-ALB.)		90
K (NEO.)	POSS	6210
K (HAUT.-BARR.)	PROB	6660
K (BERR.-VAL.)		6688 S
J (UNDIFF.)	PROB	7243 S
TR (UNDIFF.)	PROB	8214 S
INDET		9630

FORAMINIFERA

ZONULE	CERT. CODE	TOP FT.	SPL. CODE
F09		90	
F10		2610	
F11	POSS	4110	
F12F13		6240	
F13F14		6720	
F16		7243	S
F17F18		7920	
F18F19		8280	
F19		8532	S
F20		8730	
INDET		9630	

PALYNOLOGY

ZONULE	CERT. CODE	TOP FT.	SPL. CODE
PM17PM18		90	
PM18A		6210	
PM19	PROB	6660	
PM20		6688	S
NOT RP		7243	S
INDET		9630	

SEABEE
A.P.I. 5028720007
T.D. 15611 FEET

NO. 1

FORAMINIFERA

SYSTEM/SERIES/STAGE	CERT. CODE	TOP FT.	SPL. CODE
K (ALB.)		115	
K (L.APT.-E.ALB.)		2340	
K (APT.)	PROB	4110	
K (NEO.)		13100	

PALYNOLOGY

SYSTEM/SERIES/STAGE	CERT. CODE	TOP FT.	SPL. CODE
K (M.-L.ALB.)		43	
K (APT.-E.ALB.)		2370	
K (NEO.)	PROB	13230	
J (L.)-K (NEO.)		13500	

FORAMINIFERA

ZONULE	CERT. CODE	TOP FT.	SPL. CODE
F09F10		115	
F10		2340	
F11	PROB	4110	
NOT RP		13100	

PALYNOLOGY

ZONULE	CERT. CODE	TOP FT.	SPL. CODE
PM17		43	
PM18		2370	
PM18A		13230	
NOT RP		13500	

EAST SIMPSON NO. 1
A.P.I. 5027920005
T.D. 7739 FEET

FORAMINIFERA

SYSTEM/SERIES/STAGE	CERT. CODE	TOP SPL. FT.	SPL. CODE
K (CEN.-TUR.)		100	
K (L.ALB.-E.CEN.)		460	
K (M.-L.ALB.)		670	
K (L.APT.-E.ALB.)		1960	
K (APT.)		3540	
K (NEO.)		6420	
J (E.)	PROB	6620	
TR		6900	C
PM-TR	PROB	7460	
INDET		7620	

PALYNOLOGY

SYSTEM/SERIES/STAGE	CERT. CODE	TOP SPL. FT.	SPL. CODE
K (CEN.)		100	
K (M.-L.ALB.)		460	
K (APT.-E.ALB.)		1360	
K (NEO.)	PROB	6330	
J (UNDIFF.)	PROB	6602	S
TR (L.)	QUES	6897	S
PM-TR		7070	
INDET		7680	

FORAMINIFERA

ZONULE	CERT. CODE	TOP FT.	SPL. CODE
F07		100	
F08		460	
F09		670	
F10		1960	
F11		3540	
F12F13		6420	
F18	PROB	6620	
F19		6900	C
NOT RP		7460	
INDET		7620	

PALYNOLOGY

ZONULE	CERT. CODE	TOP FT.	SPL. CODE
P*16		100	
P*17		460	
P*18		1360	
PM19PM20	PROB	6330	
INDET	PROB	6602	S
PM26PM25?	QUES	6897	S
PT17PT16		7070	
INDET		7680	

EAST SIMPSON NO. 2
A.P.I. 5027920007
T.D. 7505 FRET

FORAMINIFERA

SYSTEM/SERIES/STAGE	CEPT. CODE	TOP SPL. FT. CODE
INDET		90
K (M.-L.ALB.)		1050
K (L.APT.-E.ALB.)		2640
K (APT.)		3510
K (HAUT.-BARR.)		6340 C
J (E.)	QUES	6600
TR		6705 C
INDET		7167 C

PALYNOLOGY

SYSTEM/SERIES/STAGE	CEPT. CODE	TOP SPL. FT. CODE
K (SANT.-CAMP.)		90
K (L.)		930
K (M.-L.ALB.)		1088 S
K (APT.-E.ALB.)		2410
K (NEO.)	POSS	6340
J (F.)	QUES	6660
TR (NOR.)		6705 C
INDET		6736 C
MS (L.)		7167 C

FORAMINIFERA

ZONULE	CERT. CODE	TOP FT.	SPL. CODE
INDET		90	
F09		1050	
F10		2640	
F11		3510	
F12F13		6340	C
F18	QUES	6600	
F19		6705	C
INDET		7167	C

PALYNOLOGY

ZONULE	CERT. CODE	TOP FT.	SPL. CODE
PM14		90	
PM15		930	
PM17		1088	S
PM18		2410	
PM18A		6340	
PM24	QUES	6660	
PM26		6705	C
INDET		6736	C
PT21		7167	C

SOUTH SIMPSON
A.P.I. 5027920001
T.D. 8795 FEET

NO. 1

FORAMINIFERA

SYSTEM/SERIES/STAGE	CERT. CODE	TOP SPL. FT. CODE
K (ALB.)		510
K (APT.-E.ALB.)		2640
K (APT.)		3780
K (NEO.)		6340
J (E.-M.)		6520
TR		7660
PM-TR		8200
CB-PM	PROP	8590
INDET		8740

PALYNOLOGY

SYSTEM/SERIES/STAGE	CERT. CODE	TOP SPL. FT. CODE
K (M.-L.ALB.)		510
K (APT.-E.ALB.)		870
K (NEO.)	POSS	6340
J (L.PLIEN-E.BAJ.)		6700
TR (NOR.-RHAE.)	PROB	7690
PM-TR		8230
CB		8680
INDET		8718 S

FORAMINIFERA

ZONULE	CERT. CODE	TOP SPL. FT. CODE
F09		510
F10		2640
F11		3780
F12F13		6340
F17F18		6520
F19		7660
F20		8200
Z16F21	PROB	8590
INDET		8740

PALYNOLOGY

ZONULE	CERT. CODE	TOP SPL. FT. CODE
PM17		510
PM18		870
PM18A		6340
PM23		6700
PM25PM26	PROB	7690
PT18PT15	PROB	8230
NOT RP		8680
INDET		8718 S

EAST TESHEKPUK
A.P.I. 5010320006
T.D. 10664 FEET

NO. 1

FORAMINIFERA

SYSTEM/SERIES/STAGE	CERT. CODE	TOP SPL. FT. CODE
K (SEN.)		533
K (TUR.-CON.)		1050
K (CEN.-TUR.)		1540
K (ALB.-CEN.)		1940
K (M.-L.ALB.)		2100
K (ALB.)		3560
K (L.APT.-E.ALB.)		4800
K (APT.)		5700
K (NEO.)		6930
J (OXF.)	PROB	7200
J (E.-M.)		7530
TR-J(F.)		8370
TR		8700
PM-TR		8920
PM (E.)		9655 S
PN (M.-L.)		9680
PN (M.)		9930
PN (E.)		10285 S
MS (L.)		10440
MS	QUES	10620
INDET		10650

PALYNOLOGY

SYSTEM/SERIES/STAGE	CERT. CODE	TOP SPL. FT. CODE
K (SANT.-CAMP.)		533
K (TUR.-CON.)	QUES	680
K (CEN.)		1540
K (M.-L.ALB.)		2260
K (APT.-E.ALB.)		4650
K (NEO.)	POSS	6930
K (NEO.)		7110
J (OXF.)	PROB	7290
J (E.-M.)		7470
TP-J(E.)		8080
TR-(M.-L.)	PROB	8700
TP (E.)		9052 S
PM-TE		9510
INDET		9690
CR		9870

FORAMINIFERA

ZONULE	CERT. CODE	TOP FT.	SPL. CODE
F05		533	
F06		1050	
F07		1540	
F08		1940	
F09		2100	
F10		3560	
F10F11		4800	
F11		5700	
F12F13		6930	
F16		7200	
F17F18		7530	
F18F19		8370	
F19		8700	
F20		8920	
F21		9655	S
Z21+		9680	
Z21		9930	
Z20	QUES	10285	S
Z18Z19		10440	
NOT RP		10620	
INDET		10650	

PALYNOLOGY

ZONULE	CERT. CODE	TOP FT.	SPL. CODE
PM14		533	
PM15		680	
PM16		1540	
PM17		2260	
PM18		4650	
PM18A		6930	
PM19		7110	
PM22	PROB	7290	
PM23		7470	
PT15PM24?	QUES	8080	
PT15	QUES	8700	
PT16		9052	S
PT17		9510	
INDET		9690	
NOT RP		9870	

TULAGEAK NO. 1
A.P.I. 5002320018
T.D. 4015 FEET

FORAMINIFERA

SYSTEM/SERIES/STAGE	CERT. CODE	TOP FT.	SPL. CODE
K (M.-L.ALB.)	PROB	105	
K (APT.-ALB.)		540	
K (HAUT.-BARR.)		2490	
J (E.-M.)		2949	C
TR (L.)-J(E.)		3560	
TR	PROP	3710	
INDET		3950	

PALYNOLOGY

SYSTEM/SERIES/STAGE	CERT. CODE	TOP FT.	SPL. CODE
K (APT.-E.ALB.)		105	
K (NEO.)	POSS	2520	
K (NEO.)		2880	
J (E.-M.)		2949	C
TR (RHA.E.)		3783	C
TR (NOR.)		3870	
INDET		3960	

FORAMINIFERA

ZONULE	CERT. CODE	TOP FT.	SPL. CODE
F09		105	
F10		540	
F11		1980	
F12F13		2490	
F17F18		2949	C
F18F19		3560	
F19		3710	
INDET		3950	

PALYNOLOGY

ZONULE	CERT. CODE	TOP FT.	SPL. CODE
PM18		105	
PM18A		2520	
PM19		2880	
PM24?PM23 QUES		2949	C
PM25		3783	C
PM26		3870	
INDET		3960	

TUNALIK
A.P.I. 5030120001
T.D. 20335 FET

NO. 1

FORAMINIFERA

SYSTEM/SERIES/STAGE	CERT. CODE	TOP SPL. FT. CODE
K (M.-L.ALB.)	PROP	90
K (M.-L.ALB.)		3620
K (L.APT.-E.ALB.)		5950
K (APT.)	POSS	7350
K (HAUT.-BARR.)		10620
K (BERR.-VAL.)		12620
J (L.)		13300
J (OXF.)		13590
J (E.)	PROB	14040
TR		14250
PM-TR		14810
PM (E.)		17110
PM (M.-L.)		19050
PM (M.)		19550

PALYNOLOGY

SYSTEM/SERIES/STAGE	CERT. CODE	TOP SPL. FT. CODE
K (APT.-ALB.)		90
INDET		8230
K (HAUT.-BARR.)		10692 C
K (BERR.-VAL.)		13340
J (OXF.)		13520
J (E.-K.)		13880
TR (NOR.)		14330
TP		14690
PM		16929 C
INDET		17858 C
PN		19620
INDET		19890

FORAMINIFERA

ZONULE	CERT. CODE	TOP FT.	SPL. CODE
F09	PROB	90	
F09		3620	
F10		5950	
F11	POSS	7350	
F12F13		10620	
F13F14		12620	
NOT RP		13380	
F16		13590	
F18	PROB	14040	
F19		14250	
F20		14810	
F21		17110	
Z21Z24		19050	
Z21		19550	

PALYNOLOGY

ZONULE	CERT. CODE	TOP FT.	SPL. CODE
PM17PM18		90	
INDET		8230	
PM19	PROB	10692	C
PM20	PROB	13340	
PM22		13520	
PM23PM24		13880	
PM26		14330	
PT15PT16		14690	
PT18		16929	C
INDET		17858	C
PT19		19620	
INDET		19890	

WALAKPA NO. 1
A.P.I. 5002320013
T.D. 3666 FEET

FORAMINIFERA

SYSTEM/SERIES/STAGE	CERT. CODE	TOP FT.	SPL. CODE
K (APT.-ALB.)		90	
K (APT.-E.ALB.)		900	
K (NEO.)		1690	
INDET		2064	C
J (OXF.-KIMM.)		2080	C
J (OXF.)		2220	
J (E.-M.)		2370	
TR (L.)-J(E.)		3087	C
TR		3360	C
INDET		3620	

PALYNOLOGY

SYSTEM/SERIES/STAGE	CERT. CODE	TOP FT.	SPL. CODE
K (APT.-ALB.)		90	
K (NEO.)	PROB	1650	
K (NEO.)		1920	
INDET		2065	
J (KIMM.-TITH.)		2078	C
J (OXF.)		2190	
J (E.-M.)		2370	
INDET		3090	
TR (NOR.)		3360	C
TR (M.-L.)		3384	C
INDET		3545	

FORAMINIFERA

ZONULE	CERT. CODE	TOP FT.	SPL. CODE
INDET		90	
F11		900	
F12F14		1690	
INDET		2064	C
F16		2080	C
F17F18		2370	
F18F19		3087	C
F19		3360	C
INDET		3620	

PALYNOLOGY

ZONULE	CERT. CODE	TOP FT.	SPL. CODE
PM18		90	
PM18A		1650	
PM19		1920	
INDET		2065	
PM21		2078	C
PM22		2190	
PM23		2370	
PM23PM24		2640	
INDET		3090	
PM26		3360	C
PT15		3384	C
INDET		3545	

MALAKPA
A.P.I. 5002320019
T.D. 4360 FEET

NO. 2

FORAMINIFERA

SYSTEM/SERIES/STAGE	CERT. CODE	TOP SPL. FT. CODE
K (ALB.)	PROB	130
K (APT.-E.ALB.)		1060
K (HAUT.-BARR.)		2230
K (BERR.-VAL.)	PROB	2530
J (OXF.-KIMM.)		2650
INDET		3010
J (E.-M.)		3220
TR (L.)-J(E.)		3644 S
TR		3990
INDET		4290

PALYNOLOGY

SYSTEM/SERIES/STAGE	CERT. CODE	TOP SPL. FT. CODE
K (APT.-E.ALB.)		130
K (NEO.)	POSS	2200
K (NEO.)		2470
J (OXF.)		2650
J (E.-M.)		2988 C
TR (NOR.-RHAE.?)	QUES	3693 C
INDET		4260

FORAMINIFERA

ZONULE	CERT. CODE	TOP SPL. FT. CODE
F09F10		130
F11		1060
F12F13		2230
F13F14		2530
F16		2650
INDET		3010
F17F18		3220
F18F19		3644 S
F19		3990
INDET		4290

PALYNOLOGY

ZONULE	CERT. CODE	TOP SPL. FT. CODE
PM18		130
PM18A		2200
PM19		2470
PM22		2650
PM24?PM23	QUES	2988 C
PM26PM25?	QUES	3693 C
INDET		4260

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