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AVAILABILITY OF PALYNOMORPH AND FORAMINIFERA MICROSCOPE SLIDES FROM TEST WELLS OF NATIONAL PETROLEUM RESERVE IN ALASKA: GROUP III - FINAL RELEASE

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AVAILABILITY OF PALYNOMORPH AND FORAMINIFERA MICROSCOPE SLIDES FROM TEST WELLS OF NATIONAL PETROLEUM RESERVE IN ALASKA: GROUP III - FINAL RELEASE

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SUMMARY

Two groups of palynomorph (dinoflagellates, acritarchs, pollen, and spores) and Foraminifera microscope slides from wells drilled during the National Petroleum Reserve in Alaska (N.P.R.A.) exploration program and the earlier Naval Petroleum Reserve No. 4 (N.P.R.A.-4) program have been previously made available for examination. The first group, which includes slides from 29 N.P.R.-4/N.P.R.A. test and field wells, was released in Open-File Report No. 80-193. The second group, which inventories slides from an additional nine N.P.R.A. test wells, was released in Open-File Report No. 81-13. This report announces the availability of slides (prepared by BioStratigraphics, San Diego, California) from the final six test wells drilled in N.P.R.A. No additional wells are scheduled.

All palynomorph and Foraminifera slides are now stored at the Office of N.P.R.A. at Menlo Park, California, where they may be examined. Microscopes are not available for use at this facility. No slides remain at the laboratories of the subcontractors Anderson, Warren, and Associates, Inc. and BioStratigraphics, San Diego, California.

Palynology and Foraminifera micropaleontological reports and charts prepared by Anderson, Warren, and Associates, Inc. (for wells listed in the two previous open-file reports) and BioStratigraphics (for wells listed in this open-file report) can now be purchased from the National Geophysical and Solar-Terrestrial Data Center, National Oceanic and Atmospheric Administration, Boulder, Colorado.

INTRODUCTION

An area of approximately 37,000 square miles in northern Alaska was established as the Naval Petroleum Reserve No. 4 (N.P.R.-4) in 1923. During the first period of oil exploration under the auspices of the U.S. Navy from 1944 to 1953, a total of 36 test and field wells and 45 core tests were drilled in and adjacent to the Reserve. One replacement well was drilled in 1955 at Barrow (Gryc, 1970). The Navy began exploring again in 1964, and an additional 17 test and field wells were drilled up to mid-1977. Then 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 known as the National Petroleum Reserve in Alaska (N.P.R.A.). From the transfer date to present, the drilling contractor, Husky Oil N.P.R. Operations, Inc., has completed a total of 27 test and field wells. No additional wells are to be drilled by the government in N.P.R.A.

The palynomorph (dinoflagellates, acritarchs, pollen, spores) and Foraminifera microscope slides prepared from wells drilled during the N.P.R.-4 and N.P.R.A. programs were previously released in two groups. Open-File Report No. 80-193 (Witmer, 1979) announced the availability of slides from 17 test wells and 12 field wells drilled over a period spanning both programs. Open-File Report No. 81-13 (Witmer, 1980) made available for examination slides from an additional nine test wells drilled during the N.P.R.A. program. This report releases the third group of palynomorph and Foraminifera microscope slides prepared from well cuttings (ditch), sidewall cores, and conventional cores from the final six test wells drilled in N.P.R.A. Figure 1 is a map of the Reserve showing the locations of all the wells drilled to date for which slides are available on open-file; underlined well names are those with slides being made available in this report.

The wells included in this release are located in the Arctic Coastal Plain and northern Arctic Foothills provinces of the Reserve. They have penetrated varying segments of the generalized stratigraphic column shown in Figure 2. A recent summary of the general geologic framework of N.P.R.A. can be found in Bird (1981).

PREVIOUSLY RELEASED MICROSCOPE SLIDES

Naval Petroleum Reserve No. 4 Microscope Slides

Scott (1967a,b; 1968a-i; 1969a-g; 1970a,b) announced the availability of palynomorph microscope slides prepared from cores of many of the test wells, field wells, and core tests drilled during the N.P.R.-4 program (see Table 1(A) of this report). The U.S. Geological Survey in Denver, Colorado, processed these samples and prepared the slides. Information concerning loan of these slides can be obtained from Richard A. Scott, U.S.

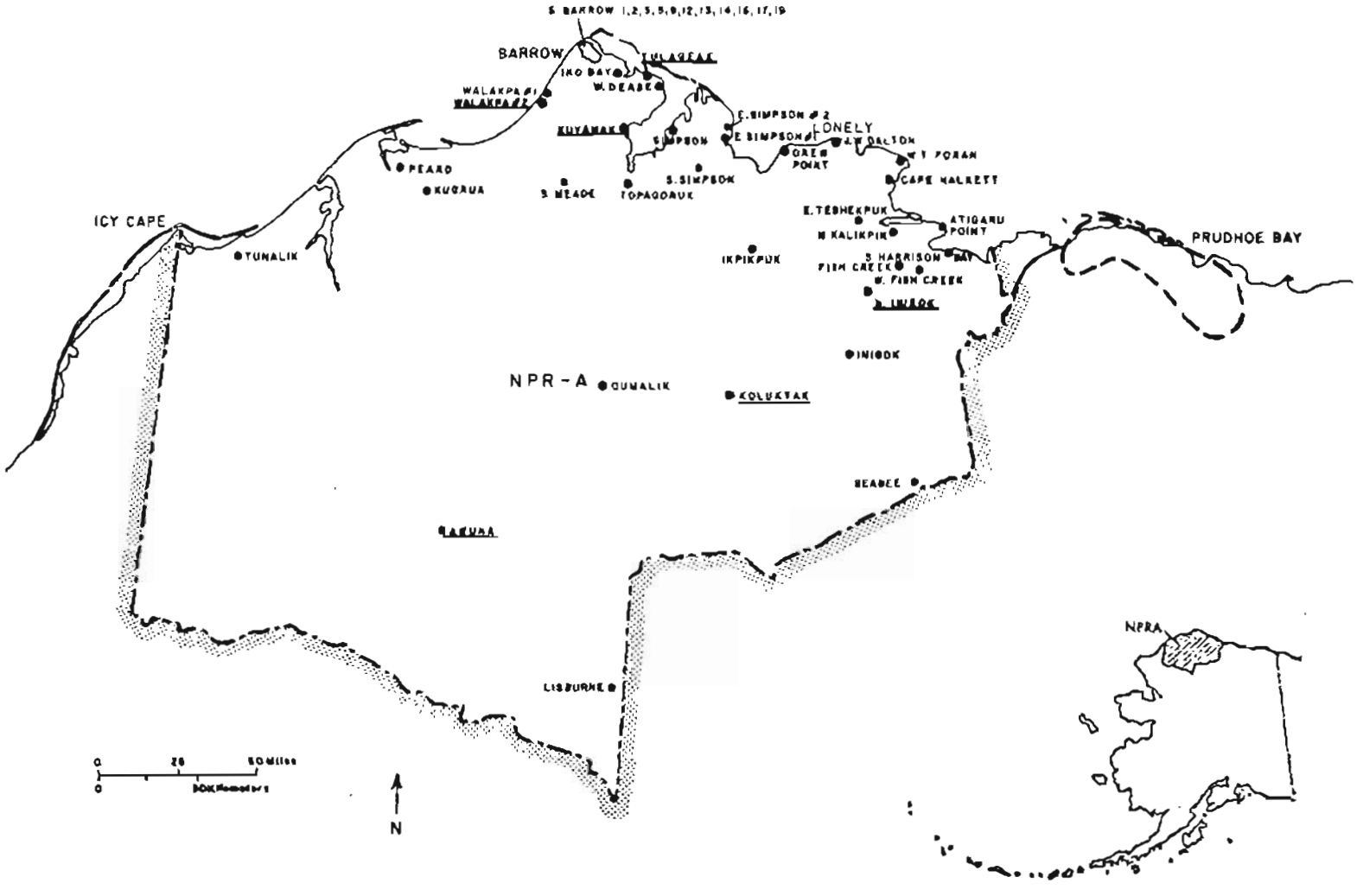

Figure 1. Map of N.P.R.A. showing locations of all wells with available microscope slides.

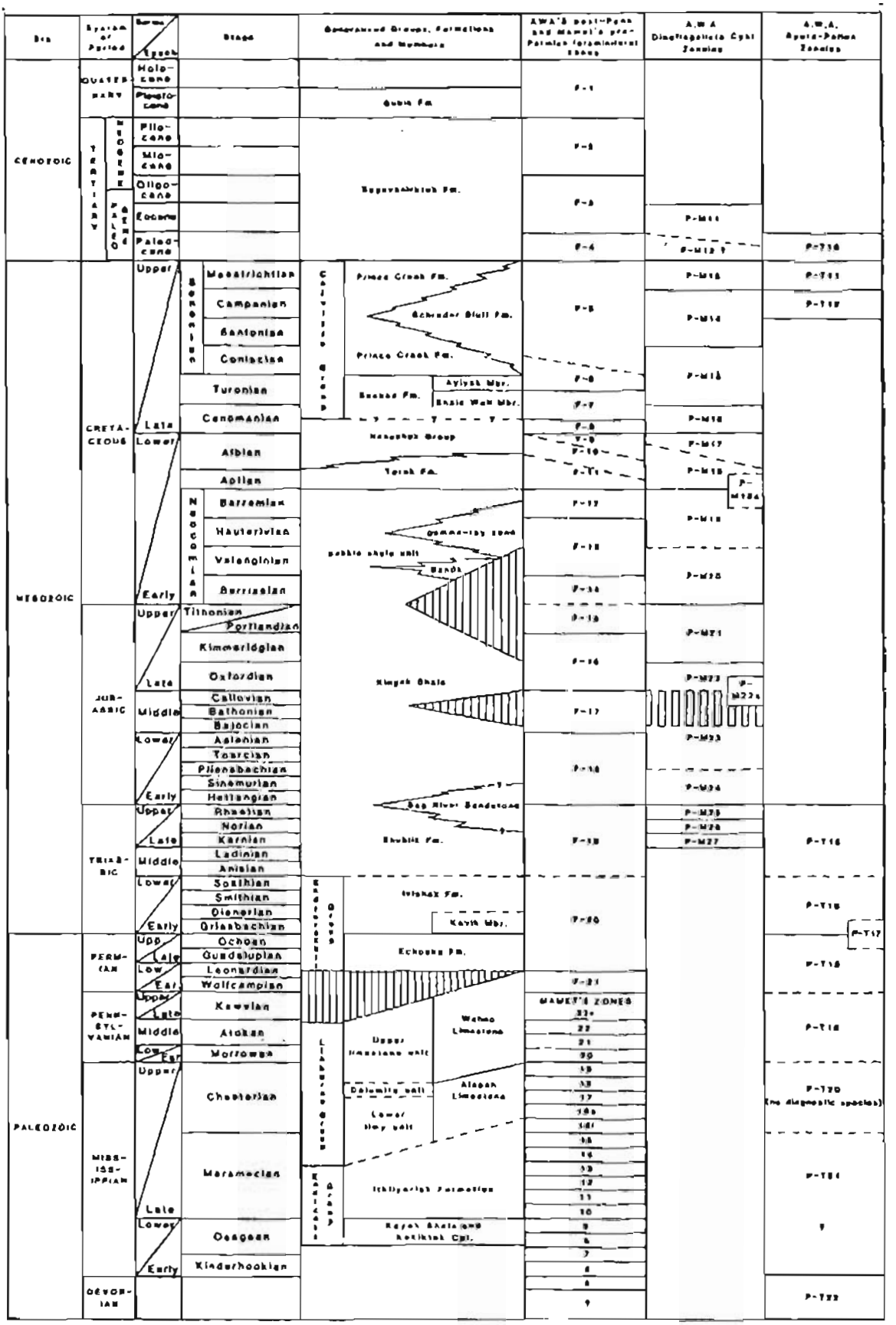

Figure 2. N.P.R.A. subsurface time-stratigraphic/stratigraphic/ biostratigraphic units. (Modified from Anderson, Warren, and Associates, Inc. chart, 1980)

Geological Survey, Paleontology and Stratigraphy Branch, Denver Federal Center, Denver, Colorado 80225. Foraminifera microscope slides are not presently available for loan.

National Petroleum Reserve in Alaska Microscope Slides (Group I Release)

Open-File Report No. 80-193 (Witmer, 1979) made available for examination 3,395 palynomorph and 6,821 Foraminifera (picked, thin-section, and lithology) microscope slides. The samples were processed and slides prepared by Anderson, Warren, and Associates, Inc., from ditch, sidewall cores, and conventional cores of 17 test wells and 12 field wells drilled during the N.P.R.-4/N.P.R.A. programs. This inventory report can be purchased from the U.S. Geological Survey, Open-File Services Section, Branch of Distribution, Box 25425, Denver, Colorado 80225, at a cost of $3.00 (for paper copy) or $3.50 (for microfiche). Refer to Table 1 (B) of this report for the list of wells with available slides in the Group I release and the map in Figure 1 for locations of these wells. Loan and examination policy for these slides is the same as is set forth in this report.

National Petroleum Reserve in Alaska Microscope Slides (Group II Release)

A second group of 2,754 palynomorph and 6,221 Foraminifera microscope slides prepared from ditch, and sidewall/conventional core samples by Anderson, Warren, and Associates, Inc., was released in Open-File Report No. 81-13 (Witmer, 1980). This report can be obtained at the U.S.G.S. facility listed in the previous section at a cost of $2.50 (for paper copy) or $3.50 (for microfiche). Wells with available slides in the Group II release are listed in Table 1 (C) of this report; the map in Figure 1 shows the well locations. Loan and examination policy for these slides is the same as is outlined on page 7.

NATIONAL PETROLEUM RESERVE IN ALASKA MICROSCOPE SLIDES: GROUP III - FINAL RELEASE

Introduction

Because the N.P.R.A. drilling program has been terminated, this group will be the final release of palynomorph and Foraminifera microscope slides. Samples of well cuttings, sidewall cores, and conventional cores have been processed and slides prepared by BioStratigraphics Micropaleontology Consultants of San Diego, California, (except as indicated) for the following six N.P.R.A. test wells:

Awuna No. 1 (100-5,300 ft. interval reported by A.W.A., Inc.)
N. Inigok No. 1
Kuyanak No. 1
Koluktak No. 1
Tulageak No. 1
Walakpa No. 2

Table 1(A). Test wells, field wells, and core tests of N.P.R.-4 program with palynomorph microscope slides released in Scott (1967a - 1970b).

Arcon Barrow Core Test No. 1
Avak Field Well No. 1
S. Barrow Field Well Nos. 1, 2, 3, 4
Fish Creek Test Well No. 1
Grandstand Test Well No. 1
Gubik Test Well Nos. 1, 2
Kaolak Test Well No. 1
Knifeblade Test Well Nos. 1, 2, 2A
Meade Test Well No. 1
Oumalik Test Well No. 1
E. Oumalik Test Well No. 1
Sentinel Hill Core Test No. 1
Simpson Core Test Nos. 13, 14, 21, 25, 30, 30A
Simpson Test Well No. 1
N. Simpson Test Well No. 1
Skull Cliff Core Test No. 1
Square Lake Test Well No. 1
Titaluk Test Well No. 1
Topagoruk Test Well No. 1
E. Topagoruk Test Well No. 1
Umiat Test Well Nos. 1, 2, 3, 8, 9, 11
Wolf Creek Test Well Nos. 1, 2, 3

Table 1(B). Test wells and field wells of N.P.R.-4/N.P.R.A. programs with palynomorph and Foraminifera microscope slides released in Open-File Report No. 80-193.

Atigaru Point Test Well No. 1
S. Barrow Field Well Nos. 1, 2, 3, 5, 9, 12, 13, 14, 16, 17, 19
Cape Halkett Test Well No. 1
Drew Point Test Well No. 1
Fish Creek Test Well No. 1
W. Fish Creek Test Well No. 1
S. Harrison Bay Test Well No. 1
Iko Bay Field Well No. 1
N. Kalikpik Test Well No. 1
Kugrua Test Well No. 1
S. Meade Test Well No. 1
Oumalik Test Well No. 1
Peard Bay Test Well No. 1
E. Simpson Test Well No. 1
Simpson Test Well No. 1
S. Simpson Test Well No. 1
E. Teshekpuk Test Well No. 1
Topagoruk Test Well No. 1
W. T. Foran Test Well No. 1

Table 1(C). Test wells of N.P.R.A. program with palynomorph and Foraminifera microscope slides released in Open-File Report No. 81-13.

J. W. Dalton Test Well No. 1
W. Dease Test Well No. 1
Ikpikpuk Test Well No. 1
Inigok Test Well No. 1
Lisburne Test Well No. 1
Seabee Test Well No. 1
E. Simpson Test Well No. 2
Tunalik Test Well No. 1
Walakpa Test Well No. 1

Microscope slides from these wells are now available for loan as described below.

Palynomorph Microscope Slides

Standard maceration procedures were used by BioStratigraphics to recover the palynomorphs, including both marine dinoflagellates and acritarchs and terrestrial plant pollen and spores. The process included treatment with HCl (cold and hot), HF, and HNO_3, and sieving with a 10-micrometer mesh. Cellosize was used to mount the unstained palynomorphs on the coverslips, which were in turn bonded to the glass slides with Coverbond. Four slides were prepared for each sample provided enough residue was present.

The six wells covered in this release yielded 630 palynomorph microscope slides. Table 2 lists the numbers of slides and types of samples for the well depth intervals (in feet) sampled.

Foraminifera Microscope Slides

BioStratigraphics used standard techniques in extracting Foraminifera from the sediments. The samples were boiled in Quaternary-O solution and then washed over 20- and 200-mesh screens. Picked slides and thin-sections were prepared from well cuttings, sidewall core, and conventional core samples. In addition, some slides were made from well cuttings for lithologic analyses. One slide was prepared for each sample.

The six wells included in this report produced 1,512 Foraminifera microscope slides. The numbers of the various types of slides (picked, thin-sections, lithology) prepared from ditch and sidewall/conventional core samples for each of the well depth intervals (in feet) sampled are given in Table 2.

Loan and On-Site Examination Policy

BioStratigraphics has prepared four nearly identical sets of palynomorph slides. One of these sets can be borrowed directly from the following facility:

U.S. Geological Survey
Office of National Petroleum Reserve in Alaska
Mail Stop 87
345 Middlefield Road
Menlo Park, California 94025
(Attn: R. J. Witmer)

Slides from one well at a time may be examined for a three-week loan period. All requests should be made by letter. Boxes of slides will be sent via certified or registered mail and should be returned in a similar manner.

N.P.R.A. TEST WELL	LOCATION	PENETRATION	PALYNOMORPH MICROSCOPE SLIDES			FORAMINIFERA MICROSCOPE SLIDES			
(A.P.I. No.)	Latitude Longitude Sec.Twp.Rge.	Total Depth Deepest Horizon Date Completed	Depths	Type Sample	No. Slides	Depths	Type Sample	Type Slide	No. Slides
AWUNA No. 1 (50-155-20001)	Sec. 32, T3S, R25W	11,200' Torok Formation (Indeterminate)* April, 1981	5310-11200' 6010- 6040' 7925'	Ditch Core Sidewall	56 11 1	5310-11200' 6010- 6040' 7925'	Ditch Core Sidewall	Picked Picked Picked	163 11 1
N. INIGOK No. 1 (50-103-20017)	Sec. 36, T11N, R4W	10,170' Shublik Formation (Triassic) April, 1981	120-10160' 6852-10170' 930- 2375'	Ditch Core Sidewall	116 21 2	120-10160' 6852-10170' 930- 2375'	Ditch Core Sidewall	Picked Picked Picked	381 21 2
KOLUKTAK No. 1 (50-119-20001)	Sec. 27, T5N, R11W	5882' Torok Formation (Aptian/Albian) April, 1981	110- 5882'	Ditch	68	110- 5882'	Ditch	Picked	229
		*Basal interval of what is likely Torok lithology is essentially barren of foraminifera and palynomorphs. Torok formation in other wells has been dated as Aptian/Albian.							

Table 2. Inventory of N.P.R.A. palynomorph and Foraminifera microscope slides (Group III - Final Release).

N.P.R.A. TEST WELL	LOCATION	PENETRATION	PALYNOMORPH MICROSCOPE SLIDES			FORAMINIFERA MICROSCOPE SLIDES			
(A.P.I. No.)	Latitude Longitude Sec.Twp.Rge.	Total Depth Deepest Horizon Date Completed	Depths	Type Sample	No. Slides	Depths	Type Sample	Type Slide	No. Slides
KUYANAK No. 1 (50-163-20003)	Sec. 10, T18N, R16W	6,690' Argillite Basement (Devonian/older) March, 1981	100- 5320' 4965- 6690' 1886- 4712'	Ditch Core Sidewall	83 90 10	100- 6688' 4965- 6690' 1886- 4712' 6682- 6690'	Ditch Core Sidewall Core	Picked Picked Picked Thin Section	245 90 10 4
TULAGEAK No. 1 (50-023-20018)	Sec. 7, T21N, R14W	4014' Argillite Basement (Devonian-older) March, 1981	105- 4010' 2940- 4014'	Ditch Core	44 29	105- 4010' 2940- 4014' 4005- 4014'	Ditch Core Core	Picked Picked Thin Section	129 29 4
WALAKPA No. 2 (50-023-20019)	Sec. 31, T20N, R19W	4360' Argillite Basement (Devonian/older) February, 1981	130- 4360' 2611- 3750' 2713- 3952'	Ditch Core Sidewall	48 45 6	130- 4360' 2611- 3750' 2713- 3952'	Ditch Core Sidewall	Picked Picked Picked	142 45 6

Table 2 (con't.). Inventory of N.P.R.A. palynomorph and Foraminifera microscope slides (Group III - Final Release).

Palynomorph slides may now also be examined on-site at the office listed above for all the wells included in this report, as well as the previous two reports. Microscopes will not be available for use. Please write to the address provided, or call (415) 323-8111 (ext. 2138), to make examination appointments or to obtain further information.

The single sets of Foraminifera slides prepared for each of the six test wells released in this report, as well as for those released in the previous two reports, are now also stored at O.N.P.R.A., Menlo Park, California. These slides may be examined on-site and are not available for loan by mail. To arrange for appointments to study the slides at Menlo Park, please call the number or write to the address given above.

It should be understood that no palynomorph or Foraminifera microscope slides remain at either of the subcontractors (Anderson, Warren, and Associates, Inc., or BioStratigraphics, both of San Diego, California).

PALYNOLOGY AND FORAMINIFERA REPORTS

Palynology and Foraminifera micropaleontology reports and species distribution charts have been prepared by Anderson, Warren, and Associates, Inc., using the slides from the wells included in Open-File Reports No. 80-193 and No. 81-13. Reports and charts have been prepared by BioStratigraphics for the wells released in this report (except for the 100-5,300 ft. interval of Awuna No. 1 prepared by A.W.A., Inc.). Palynology reports discuss the marine palynomorphs (dinoflagellates and acritarchs) and terrestrially derived palynomorphs (plant pollen and spores). Foraminifera reports list primarily the foraminifers, but include Radiolaria and other observed miscellaneous microfossils, minerals, and rock fragments as well. Both palynology and Foraminifera reports include species lists, time-stratigraphic stages, biostratigraphic zones, and inferred paleoenvironments for specified well depth intervals. Detailed species distribution charts with relative abundances noted are also included.

Inquiries regarding purchase of the micropaleontology reports and charts, which are available in both paper copy and microfilm, should be addressed to:

National Geophysical and Solar-Terrestrial Data Center (D-621)
NOAA/EDIS/NGSDC
Boulder, Colorado 80303
Telephone: (303) 499-1000 (ext. 6338).

In addition to the reports and charts discussed above, foraminiferal distributions have been recorded and discussed for many of the test wells, field wells, and core tests drilled during the N.P.R.-4 program in Bergquist (1956; 1958a, b; 1966).

These U.S.G.S. Professional Papers (see References of this report for numbers) are available at the following address:

Superintendent of Documents
U.S. Government Printing Office
Washington, D. C. 20402.

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_____1967b, Availability of palynological material from Naval Petroleum Reserve No. 4, Koalak Test Well No. 1: U.S. Geological Survey Open-File Report 67-198, 2 p.

_____1968a, Availability of palynological material from Naval Petroleum Reserve No. 4, East Oumalik Test Well No. 1: U.S. Geological Survey Open-File Report 68-239, 2 p.

_____1968b, Availability of palynological material from Naval Petroleum Reserve No. 4, North Simpson Test Well No. 1: U.S. Geological Survey Open-File Report 68-240, 1 p.

_____1968c, Availability of palynological material from Naval Petroleum Reserve No. 4, Oumalik Test Well No. 1, U.S. Geological Survey Open-File Report 68-241, 2 p.

_____1968d, Availability of palynological material from Naval Petroleum Reserve No. 4, South Barrow Test Well No. 3: U.S. Geological Survey Open-File Report 68-242, 1 p.

_____1968e, Availability of palynological material from Naval Petroleum Reserve No. 4, Topagoruk Test Well No. 1 (Supplemental set): U.S. Geological Survey Open-File Report 68-243, 1 p.

_____1968f, Availability of palynological material from Naval Petroleum Reserve No. 4, Gubik Test Well No. 2 (Supplemental set): U.S. Geological Survey Open-File Report 68-244, 1 p.

_____1968g, Availability of palynological material from Naval Petroleum Reserve No. 4, Gubik Test Well No. 1, (Supplemental set): U.S. Geological Survey Open-File Report 68-245, 1 p.

_____1968h, Availability of palynological material from Naval Petroleum Reserve No. 4, Avak Test Well No. 1: U.S. Geological Survey Open-File Report 68-246, 1 p.

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_____1969e, Availability of palynological material from Naval Petroleum Reserve No. 4, Fish Creek Test Well No. 1: U.S. Geological Survey Open-File Report 69-248, 1 p.

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