UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

PROFESSIONAL PAPER 305 PLATE 35

ERA, SYSTEM, OR SERIES: QUATERNARY–; LOWER CRETACEOUS
GROUP: NANUSHUK; GRANDSTAND
FORMATION: GUBIK; TOPAGORUK; OUMALIK; TOPAGORUK; LOWER JURASSIC; UPPER TRIASSIC; SHUBLIK; PRE-MESOZOIC
MICROFAUNAL ZONE: *Verneuilinoides borealis*; Glaucophane
HEAVY-MINERAL ZONE: Zircon at 7498; Tourmaline at 6473; Tide depth 7002

DEPTH (IN FEET)

SELF POTENTIAL (MILLIVOLTS)

Ground level
Sea level

RUN 1
RUN 2
RUN 3
RUN 4
RUN 5
RUN 6
RUN 8

COMPOSITION

RESISTIVITY (OHMS m²/m)

LN = LONG NORMAL
SN = SHORT NORMAL
LONG NORMAL AM=72 INCHES
SHORT NORMAL AM=16 INCHES

SELECTED LITHOLOGIC DESCRIPTION

No samples

Gravel, sand, and clay. Gravel contains well-rounded pebbles and granules of variegated chert and quartzite, clear quartz, gray sandstone, limestone, and calcareous clay shale. Sand is light gray; grains are subangular to rounded; mostly clear quartz; some dark chert and yellow quartz. Clay is light olive gray. White mollusk fragments present. Material is probably mostly contamination from surface

Clay shale, medium-light-gray; some sandstone

Sandstone, light-gray, soft and friable; grains 95 percent white and clear quartz; remainder is mica, rock fragments, and small amount of carbonaceous material

Clay shale, medium-light-gray, slightly silty, medium-soft; poor to fair cleavage

Siltstone, light-gray, very argillaceous, soft

Sandstone, light-gray, massive, medium-hard but slightly friable; grains 90 percent white and clear quartz; remainder is carbonaceous material, rock particles, mica, and siderite

Clay shale, light- to medium-light-gray, silty, medium-soft; fair cleavage; grades to argillaceous siltstone. Top occurrence of *Dittrupa* sp. at 275 ft; pelecypod and crinoid fragments

Limestone, medium-light-gray with slight brownish cast, argillaceous, hard, dense; irregular fracture; rare minute calcite veins

Clay shale, medium-light-gray with yellowish cast; poor to fair cleavage; rare thin silt laminae

Sandstone, light-olive- to olive-gray, soft; poor to fair cleavage; grains 90 percent white and clear quartz; remainder is dark chert, rock fragments, and carbonaceous material; some mica; argillaceous matrix; some silty layers; clay ironstone concretion at 396 1/2 ft

Sandstone, light-gray, medium-soft, friable; partly massive but partly with cleavage parallel to bedding; grains angular to subrounded; primarily white and clear quartz; some siderite grains; small amount of mica, and dark minerals

Clay shale, light- to medium-light-gray, medium-soft; poor to fair cleavage; rare streaks of light-gray siltstone

Siltstone, light-gray, medium-soft, friable. Pelecypod fragments, *Dittrupa* sp.

Siltstone, light-gray, medium-soft, friable; pale-yellowish-brown siderite layer containing black carbonaceous flecks at 714 1/2 ft; also some medium-light-gray medium-soft clay shale

Sandstone, light-gray, medium-soft, friable; massive but breaks at right angles to axis of core; grains subangular to subrounded; made up of 85 percent white and clear quartz; remainder of grains are dark chert, carbonaceous particles, rock fragments, white mica, and feldspar (?); argillaceous matrix

Limestone and siltstone. Limestone is pale yellowish brown, very hard, massive, with vertical fracture. Grades into medium-light-gray very calcareous very hard siltstone with irregular fracture; very thin beds; black carbonaceous partings

Sandstone; similar to above but contains up to 5 percent yellowish-brown siderite grains in places; fine grained; grades to light-gray siltstone containing laminae of medium-light-gray clay shale

Clay shale, 20 percent, interbedded with 80 percent siltstone. Clay shale is medium-gray to medium-light-gray; with poor cleavage, rare silty partings. Siltstone is light gray, argillaceous, soft, with poor cleavage, and very rare sandy partings. *Inoceramus* sp. shell fragments present

Limestone, medium-light-gray, silty, argillaceous, finely crystalline, very hard; irregular fracture

Siltstone, light-gray, soft, slightly sandy; fair cleavage; contains a few thin clay shale beds

Clay shale and siltstone. *Dittrupa* sp. crinoid ossicles, *Inoceramus* sp., and other pelecypods present

Clay shale, 70 percent, interbedded with 30 percent siltstone. Clay shale is medium light gray, very silty, medium soft, with fair cleavage. Siltstone is light gray, slightly softer than clay shale. Molluscan-yellowish-brown clay ironstone nodule at 1283 ft. *Dittrupa* sp., *Inoceramus* sp. and other pelecypods present

Siltstone, 60 percent, interbedded with 40 percent light-gray soft and friable sandstone; contains a few clay shale laminae. Sand grains subangular to subrounded; 90 percent white and clear quartz; remainder is carbonaceous material, rock fragments, and dark chert; argillaceous matrix. Trace of yellowish clay ironstone. *Inoceramus* present

Dittrupa sp., *Inoceramus* sp., and other shell fragments present

Clay shale, medium-light-gray; and light-gray siltstone. *Inoceramus* sp. and *Dittrupa* sp. present

Clay shale, medium-light-gray, medium-hard; fair cleavage; rare silty partings and laminae

Clay shale and siltstone. *Inoceramus* sp. and *Dittrupa* sp. present. Crinoid ossicles at 1740–1750 ft

Clay shale, medium-light-gray; fair cleavage

Clay shale, siltstone, and a trace of sandstone. *Inoceramus* sp. and *Dittrupa* sp. present. Echinoid spine at 1860–1870 ft

Clay shale, medium-light-gray, medium-hard; fair cleavage

Clay shale, medium-light-gray, medium-hard; fair cleavage; rare carbonaceous and micaceous partings

Clay shale and siltstone, light- to medium-light-gray. *Inoceramus* prisms rare

Clay shale, medium-light-gray, medium-hard; fair to good cleavage; rare carbonaceous and micaceous partings

Clay shale, medium-light-gray, slightly micaceous; fair cleavage; contains a scattering of minute black carbonaceous particles

Limestone, medium-light-gray, silty, argillaceous, massive, hard; breaks at right angles to axis of core; contains dark mica flecks

Clay shale, medium-light- to medium-gray, medium-hard; fair to poor cleavage; very rare minute carbonaceous particles

Clay shale, medium-light- to medium-gray, medium-hard; fair cleavage; rare dark carbonaceous partings; scattered light-gray silty laminae which are slightly softer than the clay shale

Clay shale, medium-light- to medium-gray, medium-hard; good cleavage; rare thin silty laminae

Clay shale, medium-light- to medium-gray, medium-hard; good cleavage; rare thin silty laminae and partings

Clay shale, medium-gray, slightly silty, moderately hard; good cleavage; rare medium-light-gray silty partings and laminae

C Clay shale, as in core above

Clay shale, medium-light-gray

Clay shale, medium-gray; slightly micaceous, medium-hard; fair cleavage

Clay shale, medium-gray; slightly silty

Clay shale, medium-gray; slightly softer than core 193 above; trace of medium-dark-gray clay shale

Clay shale, medium-light- to medium-gray; silty

Clay shale or claystone, medium-light- to medium-gray, slightly micaceous, silty, medium-hard; poor cleavage; irregular fracture; rare medium-light-gray siltstone laminae

Claystone and clay shale; as in cores above

Claystone, medium-gray, medium-hard; irregular fracture

Clay shale, medium-gray; medium-hard; fair to good cleavage

Clay shale, medium-gray; slightly silty near bottom

Clay shale, medium-gray, medium-hard; good cleavage; scattered very thin light-gray silty laminae and partings

Clay shale, medium-gray; trace of siltstone

Clay shale, medium-gray; also a few light-gray silty laminae

Clay shale, medium-gray; some light-gray siltstone at 4660–4686 ft

Clay shale and claystone, 60 percent, interbedded with 40 percent siltstone; poor to good cleavage. Clay shale is medium hard, with poor to excellent cleavage. Siltstone is light gray; medium hard, and alternates in beds with the clay shale. Trace beds of sandstone up to 4 in. thick were light gray, hard, fine grained, and subangular to subrounded; 90 percent white and clear quartz; remainder is rock fragments, yellowish quartz and mica; matrix is calcareous

Siltstone, light-gray; some clay shale; trace of sandstone

Siltstone and sandstone, 70 percent, and 30 percent clay shale. Siltstone is light gray, medium hard with fair cleavage. Sandstone is light gray, fine grained, "dirty", with vertical fracture; grains subangular to subrounded; contains quite a few rock fragments in addition to white and clear quartz; argillaceous matrix. Clay shale is medium gray

Siltstone, light- to medium-gray, interbedded with medium-gray to medium-dark-gray clay shale

C Clay shale, medium-gray, medium-hard; fair cleavage

Clay shale, medium-gray to medium-dark-gray; trace to 10 percent siltstone

Clay shale, medium-dark- to dark-gray, medium-hard, poor to fair cleavage. The clay shale contains, scattered at random, rounded sand grains of clear quartz ranging from very fine to medium grained, very rare pebbles of white vein quartz, and carbonaceous material; rare to moderately large (slabbed cuttings) plates of biotite and patches and lines of pyrite. Very rare medium-light-gray laminae of pyritic siltstone. One 1/4-in.-thick layer of greenish-gray clay shale (possibly volcanic material)

Clay shale, medium-dark- to dark-gray; contains rare rounded very coarse clear quartz grains, chunks of *Inoceramus* prisms

Clay shale, medium-dark-gray, medium-hard; fair cleavage; irregular fracture; contains rare rounded clear quartz grains and very rare black chert granules. Bit tinches of limestone in middle is medium dark gray, lithographic, argillaceous, very hard. Clay shale contains many black carbonaceous plant remains and pyritized fishbone fragments

Clay shale, medium-dark- to dark-gray; medium to coarse rounded quartz sand grains common; rounded black chert granules at 5480–5500, 5580–5640 and 5620–5630 ft; trace of medium-dark-gray siltstone

Clay shale, medium-gray, some darker colored, silty; also trace of medium-gray siltstone

Claystone, medium-gray, slightly micaceous, silty, hard; irregular fracture; vermicular pyrite streaks and aggregations up to 1 in. diameter. Ammonites present

Clay shale, medium-gray to medium-dark-gray; trace of light- to medium-light-gray siltstone. Siltstone containing glauconite at 5620–5630 ft. Trace of light-gray very fine-grained sandstone at 5555–5560 ft

Claystone, as in core 221 above, slightly less silty. Leaf impression at 5675 ft

Clay shale, medium- to dark-gray; trace to 10 percent medium-light-gray hard siltstone

Claystone, 60 percent, closely and irregularly interbedded and graded with 40 percent hard medium-gray to medium-dark-gray finely micaceous siltstone; numerous vermicular pyritic streaks about one thirty-second of an inch wide

Clay shale, medium-gray to medium-dark-gray, silty; trace of light-gray siltstone. One chip of clay shale contains glauconite pellets; another contains quartz grains (medium size) in pyritic matrix

Sandstone, light-gray, massive, hard; irregular fracture; grains angular to subangular; rather high sphericity; 90 percent white and clear quartz, 5 percent dark chert, 5 percent feldspar; remainder is rock fragments, abundant clay carbonaceous fragments, calcareous matrix. Lenticular and rounded masses up to 1/2 x 1 in. of grayish-brown sandstone with oil stain. Many pelecypods

Siltstone, light-gray and dark-greenish-gray, massive, mottled, hard; irregular fracture; abundant green glauconite; some sandstone and claystone; vermicular markings; plants, pelecypod remains common

Siltstone, mottled medium-gray to medium-dark gray, hard; mottled because of varying amounts of argillaceous material; irregular to vertical fracture; very calcareous; grades to limestone; bright-bluish-green glauconite present; finely disseminated pyrite; 10 percent subrounded clear quartz grains; paper-thin calcite veinlets; abundant pelecypods throughout

Siltstone, medium-gray and grayish-green, hard, mottled with argillaceous siltstone; vertical fracture; much light-blue-green glauconite; vermicular pyritic stringers; some sand grains

Siltstone, mottled medium-gray to medium-dark-gray, hard; vertical fracture. Made up primarily of quartz plus finely disseminated pyrite, scattered grains of glauconite, and carbonaceous material; rare sand grains; very calcareous matrix; rare pyritic nodules. Siltstone grades to medium-light-gray limestone. Many pelecypod shell fragments

Argillite, greenish-gray, very hard; contains minute crystals of pyrite; laminated color banding probably represents bedding—dips 80°. Thin films of pyrite and brown calcite coat joints of slickensided fracture planes. Fracture planes dip 25°–80°

Argillite, as in core above; but with greenish-gray and grayish-red-purple laminal banding. Fractures dip 60°

Argillite, mostly greenish-gray; but about 2 ft contains grayish-red bedding bands; Fracture dips 45°

Argillite, greenish-gray; no red bands; numerous slickensided fracture planes at various angles up to 80°; veinlets of calcite present particularly along fractures

Argillite; banded gray green and grayish red purple in upper 10 ft and primarily gray green in lower part; fracture planes coated with calcite and some pyrite dipping 30°–70°

C Argillite, as above, hard; faintly banded red and green

FORMATION TEST

Test 1. 115–306 ft; Bailed 1 or 2 qt of oil. A very little gas came in

Test 2. 115–413 ft; Hole bailed several times. Recovered about 1 gal of oil

Directional survey, 0°45', S. 88° W.
Directional survey, 1°00', N. 87° W.
Directional survey, 1°05', S. 82° W.
Directional survey, 1°10', S. 83° W.
Directional survey, 1°40', S. 76° W.
Directional survey, 3°00', N. 85° W.
Directional survey, 2°30', N. 85° W.
Directional survey, 2°39', N. 82° W.
Directional survey, 1°05', N. 85° W.

DIP

DEVIATION

CORE

NUMBER	RECOVERY (FEET - INCHES)
1	2-0
2	2-0
3	2-0
4	2-0
5	0-10
6	5-0
7	5-0
8	5-0
9	5-0
10	5-0
11	7-0
12	5-0
13	5-0
14	5-0
15	8-6
16	3-9
17	5-0
18	5-0
19	5-0
20	5-0
21	5-0
22	5-0
23	5-0
24	5-0
25	5-0
26	5-0
27	5-0
28	5-0
29	5-0
30	4-6
31	7-6
32	3-0
33	6-4
34	7-6
35	8-6
36	3-9
37	5-0
38	5-0
39	5-0
40	4-6
41	3-0
42	7-6
43	2-6
44	6-9
45	2-6
46	5-0
47	5-0
48	5-0
49	5-0
50	5-0
51	5-0
52	5-0
53	5-0
54	5-0
55	5-0
56	5-0
57	5-0
58	5-0
59	5-0
60	5-0
61	7-0
62	5-0
63	5-0
64	5-0
65	5-0
66	5-0
67	5-0
68	5-0
69	5-0
70	5-0
71	5-0
72	5-0
73	5-0
74	5-0
75	5-0
76	5-0
77	5-0
78	5-0
79	5-0
80	5-0
81	7-0
82	5-0
83	5-0
84	7-6
85	8-6
86	2-0
87	5-0
88	6-0
89	3-0
90	5-0
91	4-0
92	5-0
93	10-0
94	9-0
95	5-0
96	4-0
97	5-0
98	8-6
99	3-9
100	5-0
101	5-4
102	7-6
103	9-0
104	6-4
105	5-4
106	7-6
107	9-0
108	5-0
109	4-0
110	6-0
111	5-0
112	10-0
113	9-0
114	10-0
115	10-0
116	9-0
117	3-0
118	5-0
119	6-4
120	5-4
121	3-0
122	4-0
123	8-0
124	9-0
125	8-6
126	8-0
127	6-0
128	6-0
129	5-0
130	4-6
131	4-6
132	7-6
133	2-9
134	0-4
135	3-0
136	4-0
137	6-9
138	2-6
139	5-0
140	4-0
141	7-6
142	3-6
143	5-6
144	7-9
145	9-0
146	9-0
147	6-0
148	2-0
149	5-6
150	10-0
151	2-9
152	2-6
153	10-0
154	3-0
155	3-0
156	4-6
157	4-0
158	7-6
159	9-0
160	7-6
161	9-6
162	8-6
163	0-6
164	8-0
165	10-0
166	6-0
167	2-6
168	8-0
169	10-0
170	8-0
171	8-0
172	9-0
173	2-6
174	9-0
175	10-0
176	7-6
177	9-0
178	2-0
179	6-0
180	7-6
181	10-0
182	3-0
183	6-4
184	4-0
185	3-0
186	4-0
187	9-0
188	10-0
189	3-0
190	11-0
191	3-0
192	3-0
193	7-0
194	5-0
195	5-0
196	5-0
197	5-0
198	5-0
199	5-0
200	5-0
201	5-0
202	5-0
203	5-0
204	5-0
205	5-0
206	5-0
207	5-0
208	5-0
209	0-0
210	1-0
211	5-0
212	5-0
213	0-9
214	4-4
215	5-0
216	7-0
217	1-0
218	7-0
219	7-0
220	5-0
221	5-0
222	5-0
223	3-6
224	0-0
225	4-0
226	5-0
227	5-0
228	5-0
229	5-0
230	16-6
231	14-0
232	5-0
233	10-0
234	9-0
235	8-0
236	10-0
237	8-6
238	6-0
239	7-4
240	8-6
241	9-6
242	8-0
243	10-0
244	10-0
245	1-10
246	7-6
247	12-0
248	18-6
249	16-0

HOLE DIAMETER AND CASING DIAMETER (IN INCHES)

REVOLUTIONS PER MINUTE
WEIGHT ON BIT (TONS)

RATE OF PENETRATION (DASHED WHERE CORED)
AVERAGE MINUTES PER FOOT

CORE BIT NUMBER (SIZE IN INCHES)

DRILL BIT (SIZE IN INCHES) (DASHED WHERE REAMED)

Test 3. 5905–7002 ft; Five-eighths-inch bean. Open 1 hr 25 min. Recovered 4050 ft of gas-cut mud. Closed-in pressure 2120–2275 lb

Test 4. 5901–7002 ft; Open 12 hr 6 min, but well did not flow. Fluid rose 5471 ft. Bottom 2000 ft of recovered fluid was gas cut and showed trace of salt

Test 5. 5919–7002 ft; Swabbing test made inside 2 1/2-in. tubing that was run to 6136 ft. Tested 20 bbl salt water per hour with small volume of gas on each run of swab. No oil

UPPER JURASSIC (?) AND LOWER CRETACEOUS (?)
LOWER JURASSIC
UPPER TRIASSIC
PRE-MESOZOIC

EXPLANATION

Conglomerate
Sandstone
Silty sandstone
Calcareous sandstone
Siltstone
Sandy siltstone
Calcareous siltstone
Clay shale or claystone
Sandy clay shale or claystone
Silty clay shale or claystone
Calcareous clay shale or claystone
Clay ironstone
Limestone
Argillite
Glauconite
Cored interval
No samples recovered
Oil show
Gas show
vf Very fine grained
f Fine grained
m Medium grained
AM Electrode spacing

BIT SYMBOLS

DRILL BITS

NO.2B-C
Indicates core bit used in drilling the interval

4D
4-way drag (Shop made)

CRP
Crum Brainard pilot

H-3D
Hughes 3-blade drag

OSO 2
Hughes OSO-2

OSO-3A
Hughes OSO-3A

OWS
Hughes OWS

HTC
Hughes Tricone rock

W-7
Hughes W-7

W-7A
Hughes W-7A

W-7R
Hughes W-7R

2M
Reed 2M

RR
Reed reamer

RT
Reed T

SRK
Security rock

SMP
Smith pilot

SMRK
Smith rock

ZDO
Zublin differential-disc

ZDST
Zublin differential-saw tooth

ZS
Zublin simplex

CORE BITS

HC
Hughes core, hard formation

RR-3
Reed (Barrett-Robishaw) wire line 3-way drag

K-24
Reed K-24 hard formation

K-25
Reed K-25 soft formation

PC-1
Reed wire line PC-1, hard formation

PC-2
Reed wire line PC-2, hard formation

PC-2C
Reed wire line PC-2C, hard formation

Location: Lat 70°57'12" N., Long 155°21'52" W.
Elevation: Kelly bushing 29 feet; Ground 15 feet
Spudded: June 14, 1947
Completed: June 9, 1948
Total depth: 7002 feet
Status: Dry and abandoned

Drilling and engineering data compiled from records of Arctic Contractors

Electric log by Schlumberger Well Surveying Corporation

All depths are measured from the top of the kelly bushing

Colors were determined by comparison of dry samples with the National Research Council Rock Color Chart, 1948

Logged by Florence M. Robinson, 1957

GRAPHIC LOG OF SIMPSON TEST WELL 1, ALASKA

168503 O—54 (In pocket)