UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

SYSTEM OR SERIES · GROUP · FORMATION · MICROFAUNAL ZONE · HEAVY-MINERAL ZONE · DEPTH (IN FEET) · SPONTANEOUS POTENTIAL (MILLIVOLTS) · COMPOSITION · RESISTIVITY (OHMS m²/m) · SELECTED LITHOLOGIC DESCRIPTION · FORMATION TEST · DIP · DEVIATION · CORE: NUMBER, RECOVERY (FEET, INCHES) · 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) · DEPTH (IN FEET)

QUATERNARY

LOWER AND UPPER CRETACEOUS

NANUSHUK GROUP

GRANDSTAND FORMATION

CHANDLER MEMBER (LAKOTA TONGUE)

Ground level

RUN 1

Sea level

RUN 2

RUN 3

RUN 4

RUN 5

RUN 6

RUN 7

Reverse fault

Broken geological line

Total depth 6212

Note: Samples down to 130 ft were taken before surface casing was set and consist primarily of surface sand and gravel. Rare fragments of siltstone between 80 and 130 feet suggest that surface alluvium is no more than 80 ft thick, and may be thinner

Gravel and sand; composed of black, gray, and yellow chert and fragments of fine-grained siliceous sandstone

Gravel and sand as above, with rare fragments of medium-grey argillaceous micaceous siltstone and medium-light-grey very fine-grained sandstone

Sandstone, medium-light-gray, very fine-grained, silty, argillaceous

Clay shale; dark-gray and carbonaceous in upper part; medium-gray in lower part

Sandstone, with some siltstone and clay shale

Interbedded medium-dark-gray clay shale, medium-gray siltstone, and medium-light-gray sandstone

Sandstone, very fine- to fine-grained, slightly argillaceous, slightly calcareous, with a small amount of coal in upper part

Interbedded medium-dark-gray slightly to very silty clay shale and medium-light-gray argillaceous siltstone

Sandstone, medium-light-gray, very silty and argillaceous

Clay shale, medium-dark-gray, with 3-in. bed of greyish-white bentonite with abundant minute mica flakes

Sandstone, medium-light-gray, silty; permeability 20-72 millidarcys; porosity 13.3-17.0 percent; with patches of medium-dark-gray clay shale in upper part

Interbedded claystone, medium-dark-gray, slightly to very silty, conchoidal fracture; medium-light-gray sericitic sandstone, with laminae of siltstone and clay shale, and rare small carbonized plant fragments

Sandstone, medium-light-gray, silty, argillaceous, partly sericitic; permeability <10-78 millidarcys; porosity 8.2-16.4 percent; composed of subangular to subround grains of clear and white quartz, gray chert and dark rock fragments. Carbonaceous particles and biotite rare to common. Thin beds of medium-dark-gray claystone and a 1-in. bed of clay ironstone in lower part of sandstone

Clay shale, medium-dark-gray, slightly to very silty, micaceous. Ditrupa sp. at 465 ft

Sandstone, medium-light-gray, silty, slightly micaceous; permeability <10-270 millidarcys; porosity 10-15.7 percent, with thin beds of siltstone and clay shale in upper part

Clay shale, medium-dark-gray, silty, with thin beds of siltstone and sandstone and scattered partings and minute fragments of carbonaceous material

Clay shale and claystone, medium-dark-gray; slightly to very silty in part; micaceous; rare laminae of siltstone and sandstone

Sandstone, medium-light-gray, very silty and argillaceous

Clay shale and claystone, medium-dark-gray; slightly to very silty in part; slightly micaceous with rare laminae and thin beds of siltstone and sandstone. Clay ironstone rare at 758 ft

Sandstone, medium-light-gray, slightly silty, non-calcareous; permeability 9.6-72 millidarcys; porosity 12.7-18 percent; composed of subangular to subround grains of clear and white quartz, with dark rock fragments, and rare grey chert. Sandstone is thinbedded. Thin beds of medium-dark-gray claystone rare in lower part

Siltstone, medium-light-gray, partly slightly sandy, argillaceous, noncalcareous

Sandstone, medium-light-gray, slightly silty, partly micaceous, noncalcareous to very calcareous; permeability <10 millidarcys; porosity 9.8-12.8 percent; composed of subangular to subround grains of clear and white quartz, with dark rock fragments, and gray chert. Carbonaceous particles rare to common; carbonaceous partings rare. Clay intercalations common to rare in lower part

Clay shale, medium-dark-gray, very silty, micaceous, with intercalations and thin beds of medium-gray argillaceous siltstone

SHORT NORMAL AM=18 INCHES
LONG NORMAL AM=72 INCHES

Claystone, medium-dark-gray, slightly silty, micaceous, noncalcareous, irregular fracture. Clay shale at 1200-1205 ft is dark gray, carbonaceous; at 1210-1215 ft, medium gray, nonsilty, nonmicaceous

Clay shale and siltstone, medium-gray, very argillaceous

Clay shale, slightly to very silty, with siltstone in upper part

Clay shale with some siltstone, medium-gray, very argillaceous

Clay shale, medium-dark-gray, slightly silty, with some dark-gray very slightly carbonaceous clay shale at 1380-1385 ft. Very rare pyrite and siltstone in basal 10 ft

Claystone, medium-dark-gray, slightly to very silty, micaceous, noncalcareous, with streaks of argillaceous siltstone. Fracture irregular, except for some smooth, nearly vertical joint planes between 1433 and 1434 ft. Ditrupa sp. at 1429-1439 ft

Siltstone, medium-gray, very sandy, with a small amount of very fine-grained sandstone and some clay shale

Clay shale, medium-dark-gray, partly very silty, with some dark-gray slightly carbonaceous clay shale in upper part and some siltstone between 1515 and 1535 ft. Pyrite very rare

Clay shale, with some siltstone
Claystone, medium-dark-gray, very silty, micaceous, partly sandy, with abundant intercalations and patches of siltstone and some very fine-grained sandstone totalling about half of the rock; irregular fracture

Clay shale, medium-dark-gray, slightly to very silty, with medium-gray very argillaceous non-calcareous siltstone in upper part

Clay shale, medium-dark-gray, partly silty, micaceous, with rare pyrite

Clay shale, with a small amount of siltstone and sandstone in lower part
Sandstone, medium-light-gray, silty to very silty and argillaceous; composed of subangular grains of clear and white quartz with some dark rock fragments, rare muscovite
Siltstone, medium-light-gray, partly sandy, argillaceous

Clay shale, medium-dark-gray, slightly silty

Clay shale, with some medium-gray slightly calcareous siltstone in upper part

Clay shale, medium-dark-gray, slightly silty, micaceous, with rare pyrite

Clay shale, with a very small amount of siltstone in upper part; calcite very rare

Clay shale, medium-dark-gray; slightly silty in part, slightly micaceous; poor shaly parting; Gastropilites sp. at 2148 ft

Clay shale, medium-dark-gray, with some medium-gray, partly very sandy, slightly calcareous siltstone

Clay shale, medium-dark-gray, partly slightly silty, with very rare pyrite

Clay shale, with a small amount of very argillaceous siltstone

Clay shale, medium-dark-gray, micaceous; slightly silty in part

Claystone, medium-dark-gray, very silty, micaceous, with rare siltstone intercalations. Faint lines of pyrite one-eighth in. long scattered through the rock. A very small amount of siltstone and sandstone in the lower part
Sandstone, medium-light-gray, very silty and argillaceous; composed of angular grains of clear and white quartz, gray chert and dark rock fragments, with very rare muscovite
Clay shale with a small amount of siltstone
Sandstone, medium-light-gray, very silty and argillaceous, grading to medium-gray sandy argillaceous siltstone

Clay shale, medium-dark-gray, and medium-gray sandy argillaceous siltstone decreasing gradually with depth

Clay shale, medium-dark-gray, with some dark-gray clay shale and a very small amount of siltstone in upper part

Clay shale, with a small amount of medium-gray and medium-dark-gray siltstone; siltstone contains larger proportion of dark rock fragments and gray chert and is very argillaceous
Clay shale, medium-dark-gray, slightly silty, with commne laminae and beds (less than 2 in. thick) of siltstone, crossbedded in part. Gastropilites sp. at 2634 ft

Clay shale, medium-dark-gray, with very small amount of medium-gray siltstone, increasing slightly with depth

Clay shale, medium-dark-gray; slightly silty in part; pyrite very rare in lower 10 ft

Claystone, medium-dark-gray, slightly silty, with rare laminae of siltstone

Clay shale, medium-dark-gray, slightly silty and micaceous; rare medium-gray slightly sandy siltstone and medium-dark-grey very argillaceous siltstone

Clay shale, medium-dark-gray, with very rare light-gray siltstone and very rare pyrite in lower part
Claystone, medium-dark-gray, slightly to very silty, micaceous; irregular fracture; Ditrupa sp. at 3004 ft

Clay shale, medium-dark-gray, with some dark-gray shale at top

Clay shale as above, with some medium-gray siltstone and medium- and medium-light-gray sandstone, increasing with depth

Test 1, 103-345 ft: Bailed hole dry; recovered very slight show of oil and gas

Test 2, 389-444 ft: Swabbed through tubing; recovered water with gas odor and stain of oil

Test 3, 103-444 ft: Bailed hole dry; recovered slight show oil and gas

Test 4, 103-544 ft: Replaced drilling mud with water. Bailed hole down; bailed again after 15 min, recovered 25 gal fresh water with skim of oil. Bailed 25 gal of fresh water and 1 pt of oil on each of several bailing trips

Test 5, 755-822 ft: Swabbed 1 bbl drilling mud and brackish water with a skim of oil per hour for 6 1/2 hr

SAG

CRETACEOUS

LOWER CRETACEOUS

TOPAGORUK

Verneuilinoides borealis

OUMALIK

Core bit numbers: NO.1 NO.2 OWS 5¾ · NO.3 SRK · NO.4 CBRK · NO.5 · NO.6 SRK · NO.7 · NO.8 SHR · NO.9 CBRK · NO.10 · NO.11 CBRK · NO.12 W-7 · NO.13 · NO.14 · NO.15 · NO.16 SOW · NO.17 W-7 · NO.18 OSO-2 · NO.19 W-7 · NO.20 · NO.21 · NO.22 · NO.23 · NO.24 · NO.25 · NO.26 · NO.27 · NO.28 OSO-2 · NO.29 OSO-3A · NO.30 RT · NO.31 · NO.32 · NO.33 OSO-3A · NO.34 OSO-2 · NO.35 · NO.36 · NO.37 · NO.38 RT · NO.39 · NO.40 · NO.41 · NO.42 · NO.43 · NO.44 · NO.45 · NO.46 W-7 · NO.47 OSO-2 · NO.48 · NO.49 OSO-3 · NO.50 RT · NO.51

Reamer sizes: 10⅝ · 9⅞ · 9⅝ · 7⅞ · 6¾ · 6⅛ · 5⅞

EXPLANATION

Gravel
Sandstone
Silty sandstone
Calcareous sandstone
Siltstone
Sandy siltstone
Clay shale or claystone
Silty clay shale or claystone
Clay ironstone
Coal or carbonaceous material
Bentonite
Cored interval
No samples recovered
Oil show
Gas show
Very fine grained
Fine grained
Medium grained
Coarse grained
AM
OM
Electrode spacing

BIT SYMBOLS

DRILL BITS

CBRK Crum Brainard rock
GB Globe basket
OSO-2 Hughes OSO-2
OSO-3A Hughes OSO-3A
OWS Hughes OWS
W-7 Hughes W-7
RR Reed pilot reamer
RT Reed T
SOW Security OW
SRK Security rock
SHR Smith hard formation reamer

CORE BITS

NOS. 1-16 A-1 wire line
NOS. 17-29 Hughes type J

Location: Lat 69°23'04"N, Long 150°03'01"W
Elevation: Kelly bushing 342 feet, Ground 333 feet
Spudded: June 25, 1947
Completed: December 12,1947
Total depth: 6212 feet
Status: Dry and abandoned

Drilling and engineering data supplied by Arctic Contractors

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

Electric log by Schlumberger Well Surveying Corporation

All depths are measured from the top of the kelly bushing

INTERIOR-GEOLOGICAL SURVEY, WASHINGTON, D. C.

GRAPHIC LOG OF UMIAT TEST WELL 2

Logged by Florence P. Rucker