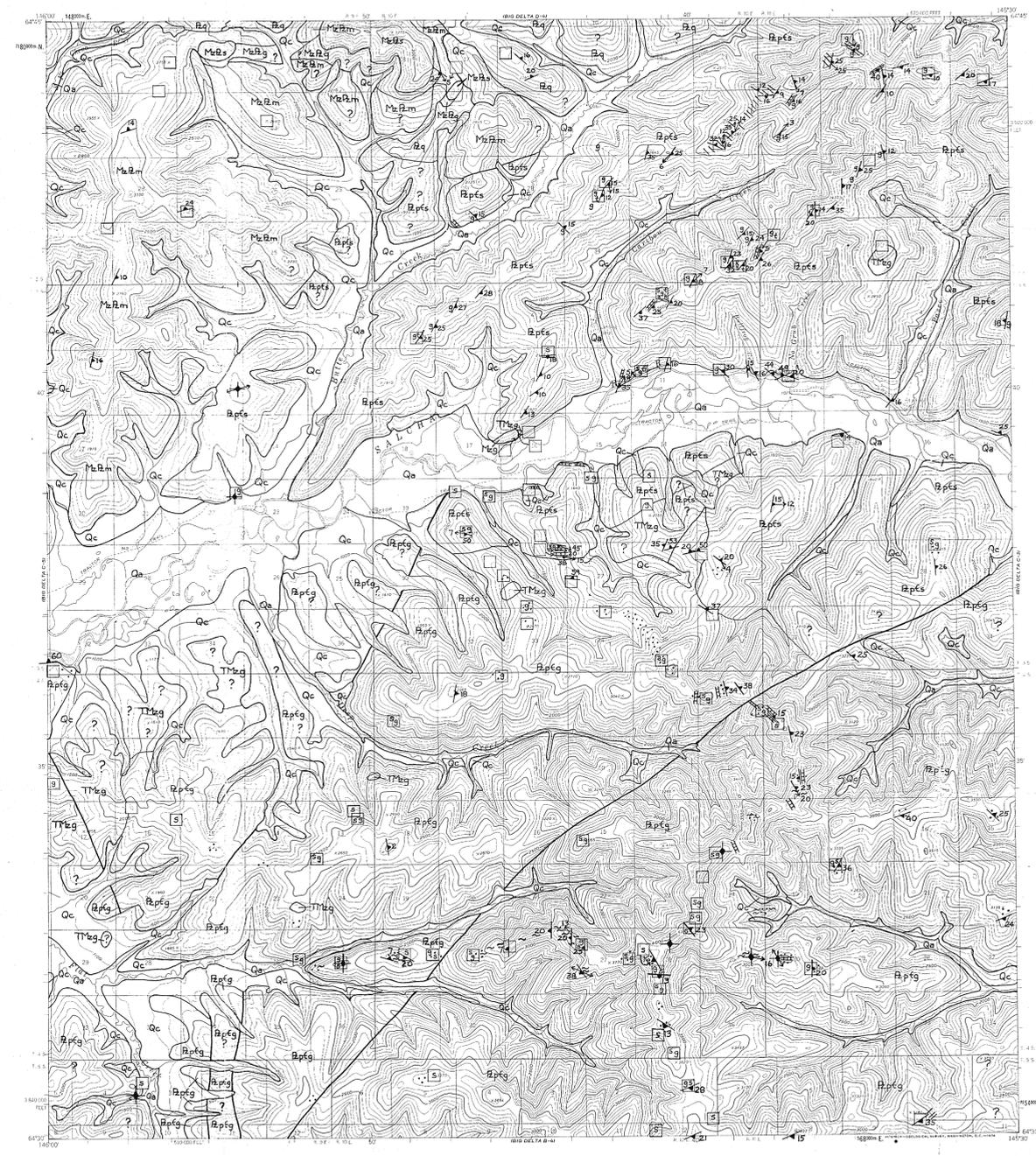


DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY

U.S. GEOLOGICAL SURVEY
OPEN FILE MAP
77-262



EXPLANATION

CORRELATION OF MAP UNITS

- Qa Qc } QUATERNARY
- TMeq } TERTIARY OR MESOZOIC
- Meq } MESOZOIC(?)
- MeBq MeBm MeBn } MESOZOIC AND (OR) PALEOZOIC
- Bq } PALEOZOIC(?)
- BpEg BpEs } PALEOZOIC AND (OR) PRECAMBRIAN

DESCRIPTION OF MAP UNITS

- Qa** ALLUVIUM—Gravel, sand, and silt; gray or buff; locally contains dark-colored organic silt and peat, especially along Salcha River where it fills old channels and cutoff meanders
- Qc** COLLUVIUM—Includes some alluvium. Mostly boulders, gravel, sand, silt, and angular rock fragments; gray, buff, and brown. Mostly on slopes, low hillsides, and in small valleys; in small valleys mixed with fan deposits and alluvium
- TMeq** GRANITIC ROCKS, UNDIFFERENTIATED—Mostly granite but locally includes quartz monzonite and granodiorite. Light gray or tan; mostly medium grained. Composed dominantly of potassium feldspar altered to sericite and kaolinite, strained quartz, oligoclase, and minor muscovite and biotite. Tourmaline commonly abundant. Garnet locally present. Outcrops of granitic rocks are rare, and these rocks occur mostly as rubble probably partially derived from small sills, dikes, or lenses
- Meq** GABBRO—Dark-greenish gray; medium to coarse-grained; dike or small lenslike mass. Consists dominantly of green hornblende with minor biotite, quartz, and plagioclase. Hornblende locally altered to actinolite. Minor quartz veins
- MeBq** GREENSTONE—Greenish gray, fine grained, massive to weakly foliated; locally finely banded with thin calcite layers. Commonly composed of light-green to bluish-green amphibole with minor epidote, zircon, chlorite, sericite, sphene, and opaque minerals
- MeBm** SERPENTINIZED PERIDOTITE—Dark gray, dark green, or black on fresh surfaces; gray or tan on weathered surfaces. Dominantly composed of dark-gray, black, and green serpentine. Generally massive and structureless, but locally may have weak foliation. Basite indicates original rock was peridotite. In places weathers with a lumpy surface. Cut by gabbroic and basaltic dikes. Has diabase pods or inclusions
- MeBn** NYLONITE AND BLASTOMYLONITE—Light tan and light gray, coarse- to fine-grained rocks; most are well foliated and, in places, appear layered; some have quartz and potassium feldspar augen. Composed mostly of severely strained quartz, including mosaics of small quartz crystals, feldspar, and white mica. Biotite locally present in minor amounts
- Bq** QUARTZITE AND PHYLITE—Quartzite mostly gray and dark gray; fine grained, finely banded, phyllite light to dark gray; commonly occurs as thin layers in quartzite; locally has calcareous layers. Includes amphibole schist and chert-bearing meta breccias; small tight folds with superimposed kink folds in places
- BpEg** GNEISS—Gray, weathers tan; locally orange-brown where altered; mostly medium-grained, equigranular; representative mineralogy is strained quartz, red-brown biotite, white mica, sillimanite, and garnet; tourmaline, zircon, and apatite are common accessory minerals. White mica is scarce in the central part of the gneiss terrane. Crystals commonly broken and margins of crystals granulated. Minor chlorite has developed from biotite locally. Potassium feldspar commonly present and epidote occurs locally. This gneiss forms most of the high terrain south of the Salcha River. Locally, the gneiss has xenolithic blocks of gray, white, and green marble and thin, irregular layers of green and white marble and quartzite. Near northern margin some gneissic rocks are calcareous and some contain amphibole and diopside. Gneiss is tectonically folded; weathered surfaces have a crude layered appearance probably due to differential weathering along isoclinally folded foliation planes. The eastern and southern boundaries of the gneiss are not within the quadrangle, but the western margin appears to be a fairly sharp contact with granitic rock at the one locality where observed. Distribution of aluminosilicates in the amphibolite facies suggests that the metamorphic rocks decrease in grade northward from the northern margin of the gneiss. The gneiss appears to occur as a small gneiss dome. The northern contact is gradational into quartz-mica schists, marble, and calcareous schists. A small granitic intrusive north of the Salcha River contains small lenses of gneiss near its contact
- BpEs** SCHIST—Quartz-mica schist with marble and quartzite, calcareous diopside schist, quartz-feldspar rock, and amphibolite layers. Locally rock is high in feldspar and has gneissic appearance. Much of the rock is garnetiferous. Sillimanite is locally abundant near the Salcha River and sporadic kyanite, andalusite, and kyanite also occur. A typical mineral composition north of the Salcha River is quartz, oligoclase or andesine, potassium feldspar, white mica, biotite, garnet, and staurolite, with zircon, apatite, opaque minerals, and locally sphene or rutile as accessory minerals and, in places, chlorite and sericite as alteration products. Tourmaline is locally an abundant accessory mineral. Andalusite, sillimanite, and kyanite have been identified in a single thin section north of the Salcha River, but equilibrium conditions cannot be determined. Amphibole-bearing rocks crop out on a ridge top in the northeastern part of the quadrangle north of Caribou Creek. Typical mineralogy of the amphibole-bearing rocks is biotite, quartz, blue-green amphibole, chlorite, and epidote with minor zircon and opaque minerals. Foliation of all of the rocks of this unit is folded, and locally the schist is so tightly folded that it appears crinkled

- Contact approximate, contact, and inferred contact
- Lineament observed on aerial photographs. Not field checked
- Rubble of granitic rocks, including pegmatite, mixed with rocks of the unit mapped or granite and (or) pegmatite dikes cutting the unit mapped
- Marble layers or marble rubble
- Amphibole gneiss or amphibole schist
- Altered (mostly oxidized) zones in gneiss
- Areas for which there is no data and identification of the unit is particularly uncertain
- Thin section of rock from locality available
 - a Andalusite observed in thin section
 - k Kyanite observed in thin section or determined by X-ray diffraction
 - s Sillimanite observed in thin section
 - t Staurolite observed in thin section
 - g Garnet observed megascopically and (or) in thin section
- 37 Strike and dip of foliation
- Horizontal foliation
- Bearing and plunge of lineation caused by minor fold
- Bearing of horizontal lineation caused by minor fold

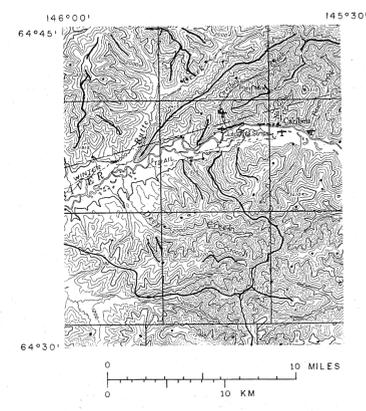
Geologic units are not indicated in extreme northwest corner of map because this area has not been visited. Information derived from adjacent areas to the north and west suggests that it may consist of a group of greenschist facies metamorphic rocks not mapped elsewhere in this quadrangle.

RECONNAISSANCE GEOLOGIC MAP OF THE BIG DELTA C-4 QUADRANGLE, ALASKA

BY

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1977



MAP OF BIG DELTA C-4 QUADRANGLE
SHOWING LOCATION OF FIELD OBSERVATIONS

- TRAVERSE
- POINT OBSERVATION

This report is preliminary and has not been edited or reviewed for conformity with Geological Survey standards and nomenclature.