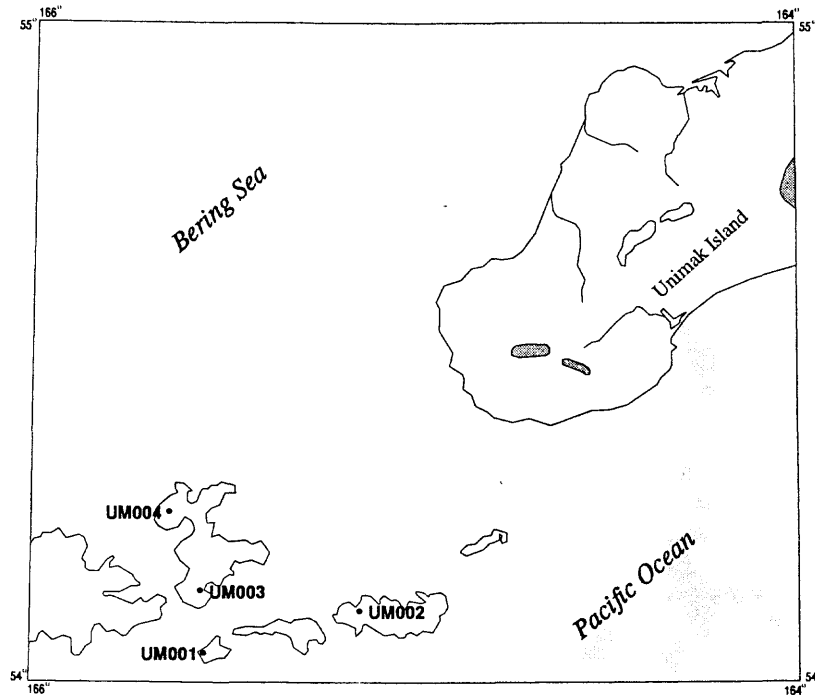


## Unimak quadrangle

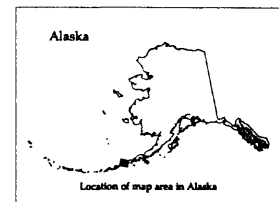
Descriptions of the mineral occurrences shown on the accompanying figure follow. See U.S. Geological Survey (1996) for a description of the information content of each field in the records. The data presented here are maintained as part of a statewide database on mines, prospects and mineral occurrences throughout Alaska.



*Distribution of mineral occurrences in the Unimak  
1:250,000-scale quadrangle, Aleutian Islands, Alaska*

This and related reports are accessible through the USGS World Wide Web site <http://ardf.wr.usgs.gov>. Comments or information regarding corrections or missing data, or requests for digital retrievals should be directed to: Frederic Wilson, USGS, 4200 University Dr., Anchorage, AK 99508-4667, e-mail [fwilson@usgs.gov](mailto:fwilson@usgs.gov), telephone (907) 786-7448. This compilation is authored by:

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*This report is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards or with the North American Stratigraphic code. Any use of trade, product, or firm names is for descriptive purposes only and does not imply endorsement by the U.S. Government.*

**Site name(s):** Unnamed (on western Rootok Island)

**Site type:** Occurrence

**ARDF no.:** UM001

**Latitude:** 54.042

**Quadrangle:** UM A-5

**Longitude:** 165.561

**Location description and accuracy:**

This site, anomaly 42 of Christie (1974), is located on the westernmost part of Rootok Island approximately 1/2 mile east of VABM Root. This location is accurate to within 500 feet.

**Commodities:**

**Main:** Ag, Au, Cu

**Other:** Mo, Zn

**Ore minerals:** Chalcocite, chalcopyrite, malachite, pyrite

**Gangue minerals:** Quartz, tourmaline

**Geologic description:**

At this site the rocks consist of amygdoidal and porphyritic andesites of probable Tertiary or later age. They are cut by diorite dikes or plugs (Christie, 1974). All of the intrusive rocks examined contained pyrite as disseminations and fracture fillings. This occurrence consists of a northern and a southern color anomaly separated by a covered area approximately 1000 feet wide.

In the northern area copper minerals occur along a north-facing sea cliff irregularly for 800 feet. The minerals are mainly malachite and minor chalcopyrite and chalcocite, and are sporadically distributed throughout the area. The minerals are mainly in breccia bodies, up to 60 feet in width, consisting of angular and rotated fragments of quartz-sericite-pyrite in a matrix of comminuted fragments and iron oxides. Malachite is present both in the fragments and matrix. One breccia contains 1 to 2 percent tourmaline. Wall rock around the breccias varies from pyritiferous volcanics to malachite-chalcopyrite-chalcocite-bearing diorite. The quartz-sericite-pyrite alteration grades outward to pervasive propylitization marked by epidote and pyrite.

The southern color anomaly exhibits pervasive propylitic alteration which grades southward to unaltered volcanics over distance of approximately 3000 feet.

Seventeen rock samples collected by the Aleut-Quintana-Duval JV contained up to 159 ppm copper, 0.46 ppm gold, 6 ppm molybdenum, 2.2 ppm silver, and 120 ppm zinc (Christie, 1974).

In 1975 Christie (1976) returned to this site and collected soils and silts and conducted a magnetometer survey of the covered area. This examination revealed strongly altered, biotite-bearing rock containing widely-spaced quartz veins. This material contained up to 790 ppm copper and 0.04 ppm gold.

**Alteration:**

The rocks exhibit pervasive propylitic alteration consisting of chlorite, epidote, and pyrite. The breccia bodies in the northern area are altered to quartz-sericite-pyrite. Wall rock adjoining the breccias varies from pyritized volcanics to malachite-chalcopyrite-chalcopyrite-bearing porphyritic diorite, whose feldspar phenocrysts are altered to clay.

**Age of mineralization:**

Probably Tertiary.

**Deposit model:**

Porphyry copper (Cox and Singer, 1986; model 17)

**Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):**

17

**Production Status:** None

**Site Status:** Inactive

**Workings/exploration:**

Christie (1974) conducted reconnaissance geologic mapping and limited sampling. That sampling generally indicated low values of copper and molybdenum and gold values as high as 0.46 ppm and silver values as high 2.2 ppm. Zinc values were moderately anomalous: a number of samples yielded values in the range of 90 to 120 ppm. Although Christie (1974) mentions copper values up to 0.25 percent, his sample data does not support this.

Christie (1976) did some additional work in the covered area in 1975, but concluded the area was not worth drilling.

**Production notes:****Reserves:****Additional comments:**

This site is on land patented by or conveyed to the Aleut Native Corporation.

**References:**

Christie, 1974; Christie, 1976.

**Primary reference:** Christie, 1974

**Reporter(s):** S.H. Pilcher (Anchorage)

**Last report date:** 1/27/00

**Site name(s):** Unnamed (on western Tigalda Island)

**Site type:** Occurrence

**ARDF no.:** UM002

**Latitude:** 54.11

**Quadrangle:** UM.A-4

**Longitude:** 165.14

**Location description and accuracy:**

This site represents several color anomalies on the west end of the island between Derkin and Kelp Bays. Site location is accurate to within 1 mile.

**Commodities:**

**Main:** Ag, Au

**Other:** Pb, Zn

**Ore minerals:** Gold, pyrite

**Gangue minerals:** Calcite, quartz

**Geologic description:**

This occurrence consists of several color anomalies along a northwest-trending fault which crosses the island between Derkin and Kelp Bays. Rocks in these areas are mostly Tertiary andesites and dacite porphyries which have been intruded by diorite 'bodies' and basalt dikes (Butherus and others, 1979). Within the color anomalies the andesite and diorite are fractured, pyritized, and moderately argillically altered. Quartz-calcite veins, some up to 2 feet thick, are common in the altered and fractured areas.

A sample of quartz-calcite vein material collected by Resource Associates of Alaska contained values of up to 85 ppm copper, 1.2 ppm gold, 96 ppm lead, 18.1 ppm silver, and 176 ppm zinc (Butherus and others, 1979). They also reported values to 8700 ppm arsenic, 250 ppm copper, and 7 ppm mercury from an unknown location on the south side of the island. Kennecott collected 15 samples of vein material in 1985 (Simpson, 1986). They reported gold in quantities up to 4.6 ppm.

**Alteration:**

Country rocks are propylitized, pyritized, and locally argillized.

**Age of mineralization:**

Tertiary.

**Deposit model:**

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**Alaska Resource Data File**

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Epithermal gold veins or Creede epithermal veins(?) (Cox and Singer, 1986; **1**

**Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):**  
25b?

**Production Status:** None

**Site Status:** Inactive

**Workings/exploration:**

Sampling by Resource Associates of Alaska of one vein returned metal values ppm copper, 1.2 ppm gold, 96 ppm lead, 18.1 ppm silver, and 176 ppm zinc (B and others, 1979). Kennecott collected 15 samples of vein material and reported values up to 4.6 ppm (Simpson, 1986).

**Production notes:**

**Reserves:**

**Additional comments:**

This site is on lands selected by the Aleut Native Corporation.

**References:**

Butherus and others, 1979; Simpson, 1986; Randolph, 1990.

**Primary reference:** Butherus and others, 1979

**Reporter(s):** S.H. Pilcher (Anchorage)

**Last report date:** 1/27/00

**Site name(s):** Unnamed (on shore of Trident Bay)

**Site type:** Occurrence

**ARDF no.:** UM003

**Latitude:** 54.141

**Quadrangle:** UM A-5

**Longitude:** 165.557

**Location description and accuracy:**

This site, color anomaly 43 of Christie (1974), is located on the southeast coast of Akun Island. The occurrence is on the north and south shores of the southwest arm of Trident Bay. Site location is accurate to within 500 feet.

**Commodities:**

**Main:** Fe

**Other:**

**Ore minerals:** Pyrite

**Gangue minerals:**

**Geologic description:**

This occurrence represents a color anomaly which is approximately 1,500 by 200 feet (Christie, 1974). Rocks at this site include andesite, vesicular andesite, feldspar porphyry, basalt, tuff, and conglomerate. The volcanic rocks are of probable Tertiary age (Christie, 1974; Simpson, 1985). The primary feldspars have been partially altered to clay and epidote. Strong gossan occurs along the north shore of the southwest arm at Trident Bay. Extensions of this gossan may be covered by the conglomerate. A weak gossan is present along the south shore of this arm of the bay. The altered rocks contain 1 to 4 percent pyrite, with only a minor amount of which occurs as fracture fillings.

The Aleut-Quintana-Duval JV collected 5 silt and 2 soil samples at this site in 1974 (Christie, 1974). No anomalous metal values were detected.

**Alteration:**

Primary volcanic feldspars are partly altered to clay and epidote.

**Age of mineralization:**

Tertiary or younger.

**Deposit model:**

**Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):**

**Production Status:** None

**Site Status:** Inactive

**Workings/exploration:**

The Aleut-Quintana-Duval JV briefly examined the site and collected a few silt and soil samples in 1974 (Christie, 1974). No anomalous metal values were detected.

**Production notes:**

**Reserves:**

**Additional comments:**

This site is on lands patented or conveyed to the Aleut Native Corporation.

**References:**

Christie, 1974.

**Primary reference:** Christie, 1974

**Reporter(s):** S.H. Pilcher (Anchorage)

**Last report date:** 1/27/00



**Site name(s):** Unnamed (on northern Akun Island)

**Site type:** Prospect

**ARDF no.:** UM004

**Latitude:** 54.26

**Quadrangle:** UM B-5

**Longitude:** 165.64

**Location description and accuracy:**

This site is at elevations between 1,400 and 1,600 feet on the northwest part of Akun Island approximately 0.8 miles northeast of Mt. Gilbert. Site location is accurate to within 1/2 mile.

**Commodities:**

**Main:** S

**Other:** Cu, Hg, Zn

**Ore minerals:** Native sulfur, pyrite

**Gangue minerals:**

**Geologic description:**

Rocks at this site consist of andesitic flows, agglomerates, and tuff breccias which exhibit extreme argillic alteration (Butherus and others, 1979). These rocks are thought to be Tertiary or younger in age (Simpson, 1985). Native sulfur occurs with the altered rock. Several small zones of altered material occur over a 15 to 20 acre area. The main zone of alteration and sulfur mineralization measures approximately 500 by 1200 feet. The altered material varies from dull yellowish earthy masses to gray pyritic clay. Maddren (1919) describes the surface material as a highly decomposed earthy zone having a thickness of 1 to 4 feet. Below this zone is a 6 to 10 foot layer of seimleached decomposed rock which appears to be massive clay.

A small amount of sulfur commonly occurs as thin encrustations on walls of fractures and cavities. The encrustations are generally less than 1/8 inch thick, but may be up to 1 inch thick. Some sulfur is also present as disseminations in the altered rock. Most of the sulfur occurs within 1 to 4 feet of the surface. Two samples collected in 1917 contained 55.5 and 22.8 percent sulfur (Maddren, 1919). Using an average thickness of 2 feet and a sulfur content of 40 percent, he estimated a total resource of 1200 tons. Bain (1979), however, cites a U.S. Geological Survey estimate of 15,000 to 20,000 tons.

Resource Associates of Alaska examined this area in 1979 and again in 1984, looking primarily for precious metals (Butherus and others, 1979; Butherus, 1984). Three samples collected in 1979 contained up to 270 ppm copper, 7.6 ppm mercury, 16 ppm tungsten,

and 260 ppm zinc. No gold was detected. In 1984, sixty-seven samples were collected and all but one were highly anomalous in mercury. A few samples were also anomalous in copper and zinc.

**Alteration:**

Argillic.

**Age of mineralization:**

Tertiary or younger.

**Deposit model:**

Solfataric sulfur

**Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):**

**Production Status:** Undetermined.

**Site Status:** Inactive

**Workings/exploration:**

Attempts to mine the sulfur at this site continued off and on from 1917 to at least 1937, as described in various U.S. Geological Survey reports (see following). Maddren (1919) reported that numerous trenches, ranging in depth from 4 to 15 feet had been dug in 1917 and that 2 samples had assayed 55.5 and 22.8 percent sulfur. Martin (1920) reported a test shipment in 1918. Brooks (1921, 1922, and 1923) reported that a commercial deposit of sulfur was being opened up and that equipment for mining and reduction of sulfur was supposed to be in place at the end of 1920. Nothing of consequence was reported until it was announced that in 1930 Pacific Coast Sulfur Company was organized to mine the sulfur with a steam shovel and transport it to the beach using an aerial tram (Smith, 1933). The tram was actually built and the remains of it have been noted by recent workers in the area. In 1935 the prospect was acquired by Alaska Northwest Sulfur Company. No record of any production has been found.

Resource Associates of Alaska examined and sampled the prospect in 1979 and in 1984, looking for precious metals (Butherus and others, 1979; Butherus, 1984). All samples were anomalous in mercury, and a few were anomalous in copper and zinc. No gold was detected.

**Production notes:****Reserves:**

Estimates of the sulfur resource range from 1,200 tons (Maddren, 1919) to 20,000 tons (Bain, 1979).

**Additional comments:**

This site is on land selected by the Aleut Native Corporation.

**References:**

Maddren, 1919; Martin, 1920; Brooks, 1921; Brooks, 1922; Brooks, 1923; Brooks and Martin, 1921; Brooks and Capps, 1924; Smith, 1933; Smith, 1933; Smith, 1934; Smith, 1937; Bain, 1979; Cobb, 1980 (OFR 80-909); Butherus and others, 1979; Butherus, 1984.

**Primary reference:** Maddren, 1919

**Reporter(s):** S.H. Pilcher (Anchorage)

**Last report date:** 1/27/00

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