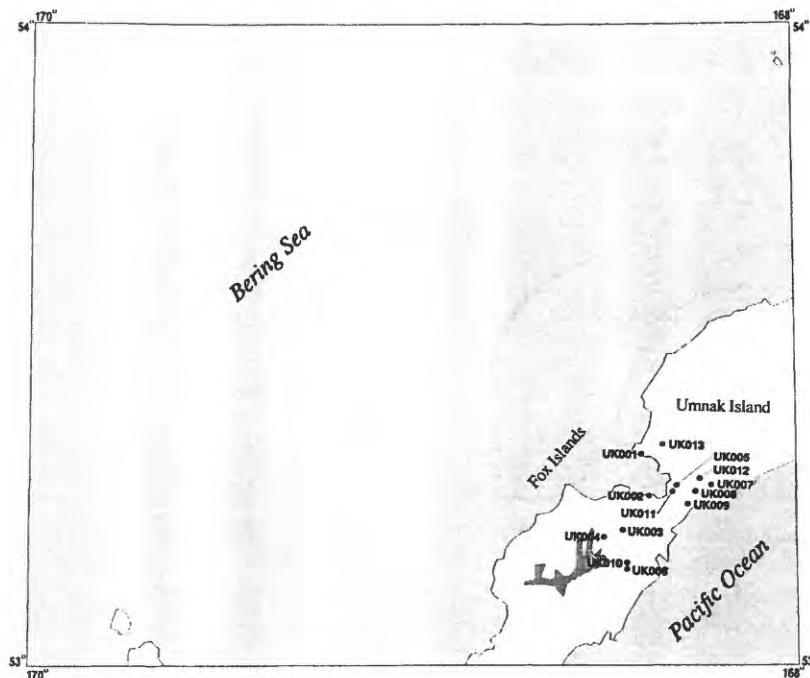


Umnak quadrangle

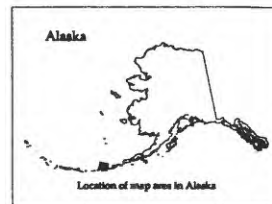
Descriptions of the mineral occurrences shown on the accompanying figure follow. See U.S. Geological Survey (1996) for a description of the information content of each field in the records. The data presented here are maintained as part of a statewide database on mines, prospects and mineral occurrences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



*Distribution of mineral occurrences in the Umnak Island
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, telephone (907) 786-7448. This compilation is authored by:

Steven H. Pilcher
Anchorage, AK



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 Cape Kigunak)

Site type: Prospect

ARDF no.: UK001

Latitude: 53.33

Quadrangle: UK B-2

Longitude: 168.41

Location description and accuracy:

This site is located on the west side of Umnak Island on Cape Kigunak, approximately 1 mile east of VABM Kig (Bundtzen and others, 1990, locality 24; Christie, 1974, color anomaly 35). The map site is at an elevation of about 600 feet and is accurate to within 1/2 mile.

Commodities:

Main: Ag, Au

Other: As, Cu, Hg, Mo, Zn

Ore minerals: Chalcopyrite, gold, molybdenite, pyrite

Gangue minerals: Quartz

Geologic description:

The rocks at this site consist of altered diorite and andesite of Tertiary age, which are overlain by unaltered agglomerate, flows, tuff, and ash of probable Quaternary age (Randolph and Ellis, 1989). The intrusives have been pervasively propylitized and contain localized areas of argillic alteration which in some cases is accompanied by silicification, quartz veining, pyrite, and gold mineralization. The alteration and mineralization are present in minor amounts discontinuously in an area of approximately 2000 by 12,000 feet. The most intense alteration is in the discovery outcrop, which consists of a western zone which is approximately 50 by 200 feet and an eastern zone which measures 25 by 300 feet. These zones are separated by about 100 feet. In these zones the rock has been completely argillized and contains areas of intense silicification and irregular pods of quartz breccia, resulting in a rock composed of finely-banded gold-bearing opaline silica, clay, quartz veins, quartz breccia, and pyrite. The breccia shows evidence of repeated periods of fracturing and healing.

Nineteen surface samples of the discovery zone collected by Kennecott in 1985 gave the following values: gold, 0.005 to 24.3 ppm; silver, 0.2 to 420 ppm; arsenic, 6 to 210 ppm; mercury, 0.12 to 5 ppm (Simpson, 1986, p. 18). Thirty-five surface samples collected elsewhere at this site gave the following ranges in values; gold, 0.1 to 1.55 ppm; silver, 0.2 to 5.7 ppm; arsenic, 4 to 600 ppm; mercury, 0.75 to 3.2 ppm (Simpson, 1986, p. 19).

The best values obtained from 5 holes drilled by Kennecott were 21 feet of 0.11 ounce of gold per ton and 5 feet of 0.034 ounce gold per ton. They were not successful in determining the geometry of the alteration/mineralization at the discovery outcrop.

Drilling of 6 holes by Battle Mountain Exploration in 1990 revealed the discovery outcrop to be a part of a tabular quartz breccia zone striking N 32 E and dipping 30-36 to the northwest (Randolph, 1990). The zone ranges in thickness from 20 to 60 feet and has a hanging wall of intensely argillized rock and a footwall of quartz stockwork with argillic alteration.

Detailed channel sampling of surface outcrops revealed an area 70 by 230 feet with gold values greater than 0.02 ounce per ton (Randolph, 1990). Thirty-six channel samples within this zone ranged in values as follows: gold, 0.021 to 2.47 ounces per ton; silver, 0.108 to 2.23 ounces per ton. The best intercepts from the drill core were 15 feet of 0.015 and 11 feet of 0.022 ounce of gold per ton. Core values from the quartz breccia were generally less than 100 ppb gold. The mineralized zone was found to be too small to be of economic significance.

Alteration:

The diorite and andesite exhibit pervasive propylitic alteration and localized argillic alteration accompanied by major silicification, quartz veining, brecciation, and gold mineralization.

Age of mineralization:

Late Tertiary or younger.

Deposit model:

Hot-spring Au-Ag? (Cox and Singer, 1986; model 25a)

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

25a?

Production Status: None**Site Status:** Inactive**Workings/exploration:**

The first reported visit to this site was in 1974 when the Quintana-Duval joint venture noted it as a color anomaly (number 35). Thirteen rock samples assayed as much as 38 ppm molybdenum, 116 ppm zinc, 1.8 ppm silver, and 0.2 ppm gold (Christie, 1974). The joint venture apparently did not sample the discovery zone.

In 1985 Kennecott conducted geological, geochemical, and geophysical surveys, and drilled 5 holes for a total of 1031 feet (Simpson 1986). Surface sampling of the discovery outcrop ranged in metal values as follows: gold, 0.005 to 24.3 ppm; silver, 0.2 to 420 ppm. The only significant intercepts from the core were 21 feet of 0.11 ounce of gold per ton, 0.24 ounce of silver per ton, and 5 feet of 0.034 ounce of gold per ton.

In 1989-1990 Battle Mountain Exploration Company explored the area (Randolph and Ellis, 1989; Randolph, 1990). They did detailed mapping, sampling and geophysical sur-

veys of the discovery outcrop, and drilled 6 holes. Sampling of the discovery outcrop outlined a zone measuring 70 by 230 with gold values of greater than 0.02 ounce per ton. This zone was found to be too small to be of economic significance. The best drill intercepts were 15 feet of 0.15 and 11 feet of 0.22 ounce of gold per ton. The values in the other holes, which cut the quartz breccia, were generally less than 100 ppb gold.

This prospect was briefly examined and sampled by Amax in 1986 and by Teck in 1994.

Production notes:

Reserves:

Additional comments:

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

References:

Christie, 1974; Simpson, 1986; Randolph and Ellis, 1989; Randolph, 1990.

Primary reference: Randolph, 1990

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

Last report date: 1/27/00

Site name(s): Unnamed (near southeast shoreline of Cemetery Cove)

Site type: Occurrence

ARDF no.: UK002

Latitude: 53.3

Quadrangle: UK B-2

Longitude: 168.4

Location description and accuracy:

This site is located on the west coast of Umnak Island along the southeast shore of Cemetery Cove (Christie, 1974, anomaly 34). The location is accurate to within 1 1/2 miles.

Commodities:

Main: Cu, Mo

Other: Ag, Au, Zn

Ore minerals: Chalcopyrite, gold, molybdenite, pyrite

Gangue minerals: Quartz

Geologic description:

At this site a color anomaly, measuring approximately 11,000 by 1000 feet, is present along the shore and represents the weathering of a very well-developed quartz stockwork in a dacitic or rhyolitic flow (Christie, 1974). These rocks have been mapped as Tertiary to Quaternary in age (Byers, 1959). The stockwork consists of thin, generally barren, vuggy quartz veinlets in highly pyritized and silicified wall rock. The veinlets are continuous but appear to be randomly oriented. The stockwork itself contains 0 to 10 percent pyrite and a trace of chalcopyrite. Metal values in 20 samples of quartz veins and pyritized wall rock contained up to 150 ppm copper, 21 ppm molybdenum, .03 ppm gold, 1.6 ppm silver, and 68 ppm zinc (Christie 1974). Forty-four samples collected at a later date contained up to 1130 ppm arsenic, 491 ppb gold, 2.8 ppm silver, 260 ppb mercury, and 94 ppm molybdenum (Randolph and Ellis, 1989).

Alteration:

The alteration consists of propylitization, along with localized silicification and pyritization.

Age of mineralization:

Tertiary.

Deposit model:

Quartz stockwork with minor copper, molybdenum, zinc, and precious metal values.

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

Production Status: None

Site Status: Inactive

Workings/exploration:

Brief reconnaissance mapping and fairly extensive rock-chip sampling were done by the Aleut-Quintana-Duval JV in 1974. Twenty rock chip samples yielded up to 150 ppm copper, 21 ppm molybdenum, 150 ppm copper, 0.03 ppm gold, 1.6 ppm silver and 68 ppm zinc. Most higher gold values came from samples of quartz veinlets (Christie, 1974).

Forty-four samples collected at a later date contained up to 1130 ppm arsenic, 491 ppb gold, 260 ppb mercury, 94 ppm molybdenum, and 2.8 ppm silver (Randolph and Ellis, 1989).

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

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

References:

Byers, 1959; Christie, 1974; Randolph and Ellis, 1989.

Primary reference: Christie, 1974

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

Last report date: 1/27/00

Site name(s): Unnamed (on Geyser Creek)

Site type: Occurrence

ARDF no.: UK003

Latitude: 53.21

Quadrangle: UK A-2

Longitude: 168.45

Location description and accuracy:

This site is located in central Umnak Island along the drainage of Geyser Creek about midway between Geyser Bight and Russian Bay (Nye and others, 1992, locality H; Christie, 1974, anomaly 36?). Site location is accurate to within 1/2 mile.

Commodities:

Main: Au

Other: As, Cu, Hg, Pb, S, Zn

Ore minerals: Gold, pyrite, sulfur

Gangue minerals: Quartz

Geologic description:

This site is an active geothermal area along Geyser Creek in which hot springs, fumaroles, and mud pots are common (Randolph and Ellis, 1989). Pleistocene volcanic flows, tuffs, and volcanoclastics of andesitic composition have been intensely argillized by the geothermal activity (Nye and others, 1992).

Four exploration companies have examined and sampled this site at various times. This sampling of the altered rocks has produced values of up to 418 ppm arsenic, 652 ppm copper, 0.64 ppm gold, 92 ppm lead, > 5 ppm mercury, 4 ppm molybdenum, 4.7 ppm silver, and 345 ppm zinc.

Nye and others (1992) report that the thermal waters are rich in boron (60 ppm) and arsenic (6 ppm).

Alteration:

Byers (1959) described the alteration as consisting of fine-grained aggregates of quartz, chlorite, pyrite, and adularia(?). Simpson (1985) and Randolph and Ellis (1989) described the alteration as advanced argillic with up to 10 percent pyrite. Randolph (1990) also noted silica seen locally as veinlets, vugs, and rare calcedonic stockworks.

Age of mineralization:

Quaternary.

Deposit model:

Hot-spring Au-Ag (Cox and Singer, 1986; model 25a)

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

25a

Production Status: None

Site Status: Inactive

Workings/exploration:

This site has been examined and sampled by Duval-Quintana, Kennecott, Amax, and Battle Mountain Exploration. Christie (1974) reported values of up to .02 ppm gold, 4 ppm molybdenum, 1.2 ppm silver, and 47 ppm zinc from 6 samples of altered rock. Nine samples collected by Kennecott contained up to 250 ppm arsenic, 0.2 ppm gold, and 2.8 ppm mercury (Simpson, 1986).

Randolph and Ellis (1989) sampled this site as well as a zone along a north-flowing tributary which flows into Geyser Creek at this site (named Fumarole Creek by Nye and others, 1992). They reported values in 20 samples of up to 418 ppm arsenic, 652 ppm copper, 638 ppb gold, 92 ppm lead, > 5 ppm mercury, 1.5 ppm silver, and 345 ppm zinc. Six samples of quartz plus clay gave values to up to 72 ppm arsenic, 186 ppb gold, 2.6 ppm mercury, and 4.7 ppm silver. A panned sample taken at the intersection of the two drainages contained 5 small colors and 2 samples of nearby altered rocks contained 140 and 638 ppb gold.

Randolph and Ellis (1989) state that the samples collected by Amax were similar in value to those collected by Battle Mountain Exploration.

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

Simpson (1986) considered this an active system, still depositing gold and altering country rocks. He found no ore grade zones and concluded it was unlikely that a deposit of significant size exists at the site. Battle Mountain Exploration (Randolph and Ellis, 1989) located numerous geochemically anomalous areas within the occurrence, but essentially agreed with previous interpretations.

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

References:

Byers, 1959; Christie, 1974; Simpson, 1986; Randolph and Ellis, 1989; Randolph, 1990; Nye and others, 1992.

Primary reference: Randolph and Ellis, 1989

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

Last report date: 1/27/00

Site name(s): Unnamed (near Geyser Creek)

Site type: Occurrence

ARDF no.: UK004

Latitude: 53.2

Quadrangle: UK A-2

Longitude: 168.5

Location description and accuracy:

This site is located near Geyser Creek on Umnak Island, approximately 3 miles south-east of Geyser Bight. Simpson's (1986) location of this site is vague and it could correspond to locations G or L which are mapped as clusters of hot-springs (Nye and others, 1992). The location is probably accurate to within 2 miles.

Commodities:

Main: Ag, Au

Other: As, Hg

Ore minerals: Gold, pyrite

Gangue minerals: Quartz

Geologic description:

Geothermal activity at this site is indicated by a 800 x 2000 foot color anomaly (Simpson, 1986). The rocks here consist of propylitized andesitic flows, tuffs, and volcanoclastics of Pleistocene age. The altered rocks exhibit local zones of intense argillization and weak silicification. The clay zones contain up to 2 percent disseminated pyrite.

Nye and others (1992) report dioritic and monzonitic plutons at low elevations on the east and west walls of the lower half of Geyser Creek valley, and they speculate that the plutons may host the geothermal reservoir system.

Analyses of 20 rock samples indicated values up to 150 ppm arsenic, 0.58 ppm gold, 1.25 ppm mercury, and 0.2 ppm silver (Simpson, 1985, table 11, pg. 38). In general, the only rocks which contain gold are those which exhibit pyritization and moderate silicification. There does not appear to be any lateral or vertical zonation of the metals.

Alteration:

The volcanic rocks exhibit regional propylitic alteration and local intense argillic alteration and weak silicification. The clay zones contain up to 2 percent pyrite and thin, discontinuous quartz veins.

Age of mineralization:

Quaternary.

Deposit model:

Hot-spring Au-Ag (Cox and Singer, 1986; model 25a)

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

25a

Production Status: None

Site Status: Inactive

Workings/exploration:

Twenty samples collected by Kennecott were found to contain 8 to 150 ppm arsenic, 0.005 to 0.58 ppm gold, 0.005 to 1.25 ppm mercury, and 0.2 to 0.6 ppm silver (Simpson, 1986).

Production notes:

Reserves:

Additional comments:

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

References:

Simpson, 1986; Nye and others, 1992.

Primary reference: Simpson, 1986

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

Last report date: 1/27/00

Site name(s): Two Fox

Site type: Prospect

ARDF no.: UK005

Latitude: 53.28

Quadrangle: UK B-1

Longitude: 168.31

Location description and accuracy:

The Two Fox prospect (Randolph and Ellis, 1989) is located approximately 1 mile west of VABM Ande and 1 mile east of the head of Stepanof Cove and may represent Christie's (1974) color anomaly 40. The site location is accurate to within 1/2 mile.

Commodities:

Main: Ag, Au

Other: As, Hg

Ore minerals: Gold, pyrite

Gangue minerals: Quartz

Geologic description:

This geothermal area is described by Randolph and Ellis (1989) as being similar to ARDF number UK011 - Steeple Point. The rocks consist of waterlain tuffs and lahars of Quaternary age. The site contains numerous fumaroles and hot-springs and is marked by a 7,000 x 4000 foot color anomaly. It consists of acid-leached rocks and localized silica stockworks. Some of the fumarolic centers also display strong silicification and pyritization. Hot-spring centers exhibit silicification and calcedonic breccias. Combined metal values from 55 samples obtained here and at Steeple Point (ARDF number UK011) are up to >2000 ppm arsenic, 115 ppb gold, >5 ppm mercury, 11 ppm molybdenum, and 4.4 ppm silver.

Alteration:

The alteration here includes argillization, silicification, acid leaching, and pyritization.

Age of mineralization:

Quaternary.

Deposit model:

Hot-spring Au-Ag? (Cox and Singer, 1986; model 25a)

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

Production Status: None

Site Status: Inactive

Workings/exploration:

The Aleut-Quintana-Duval JV briefly examined this or a nearby area in 1974 (Christie, 1974). Battle Mountain Exploration sampled the area in 1989.

Production notes:

Reserves:

Additional comments:

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

References:

Christie, 1974; Randolph and Ellis, 1989.

Primary reference: Randolph and Ellis, 1989

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

Last report date: 1/27/00

Site name(s): Unnamed (east of Mt. Recheshnoi)

Site type: Occurrence

ARDF no.: UK006

Latitude: 53.15

Quadrangle: UK A-2

Longitude: 168.44

Location description and accuracy:

This site is located near the southeast coast of central Umnak Island approximately 4 miles due east of Mt. Recheshnoi at an elevation of about 1000 feet. It is in T. 81 S., R. 133 W., of the Seward Meridian. The location is accurate to within 1/2 mile.

Commodities:

Main: Ag, Au

Other: As, Hg, Mo

Ore minerals: Gold, pyrite

Gangue minerals: Quartz

Geologic description:

This site was reported as the Mt. Recheshnoi prospect by Randolph and Ellis (1989). The rocks consist of altered andesites of Late Tertiary to Quaternary age. The occurrence is a 500 x 2600 foot color anomaly which exhibits propylitic alteration and localized argillization. Quartz occurs both as individual veins and as stockworks. Most of the veins exhibit propylitization and pyritization envelopes up to several feet on either side. In one locality, noted by Randolph and Ellis, several inches of blue-gray pyritic clay envelops comb-structure quartz-filled joints.

Six samples of clay muck and vein material contained up to 72 ppm arsenic, 186 ppb gold, 2.6 ppm mercury, 19 ppm molybdenum, and 4.7 ppm silver (Randolph and Ellis, 1989, p. 11).

Alteration:

The rocks exhibit propylitization with local argillization.

Age of mineralization:

Tertiary or younger.

Deposit model:

Hot-spring Au-Ag? (Cox and Singer, 1986; model 25a)

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

25a?

Production Status: None**Site Status:** Inactive**Workings/exploration:**

Six samples of clay and quartz collected by Battle Mountain Exploration (Randolph and Ellis, 1989) contained up to 72 ppm arsenic, 186 ppb gold, 2.6 ppm mercury, 19 ppm molybdenum, and 4.7 ppm silver.

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

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

References:

Randolph and Ellis, 1989.

Primary reference: Randolph and Ellis, 1989**Reporter(s):** S.H. Pilcher (Anchorage)**Last report date:** 1/27/00

Site name(s): Wind; Steeple Mountain

Site type: Prospect

ARDF no.: UK007

Latitude: 53.28

Quadrangle: UK B-1

Longitude: 168.22

Location description and accuracy:

The Wind prospect is located approximately 2 1/2 miles due east of VABM Ande and corresponds to Christie's (1974) color anomaly 30. This site is a part of Kennecott's Steeple Mountain prospect (Simpson, 1985; Bundtzen and others, 1990, locality 25). The site location is accurate to within 1/2 mile.

This site is one of many occurrences or prospects that occur within a 5 square-mile area, mostly within T. 80 S., R. 131 W., of the Seward Meridian. The center of this area is approximately located at VABM Ande.

Commodities:

Main: Ag, Au

Other: As, Cu, Hg, Mo

Ore minerals: Chalcopyrite, gold, molybdenite, pyrite

Gangue minerals: Quartz

Geologic description:

This site is marked by a color anomaly measuring approximately 10,000 by 6,000 feet. The rocks consist of Tertiary volcanics of probable andesitic composition which have been regionally propylitized and contain localized zones of silicification and quartz stockwork veining. Randolph and Ellis (1989) believe the prospect represents the exposed parts of one continuous uplifted block of basement rock.

Quartz veins are numerous and exhibit cockscomb structure and boiling zone breccias. They are said to resemble a gigantic stockwork, with veins ranging from <1 to 6 feet in width. Some veins, however, are up to 40 feet in width and can be traced for 7000 feet. Large faults have produced wide zones of quartz-filled breccias containing clasts of up to 6 feet across.

The quartz is usually white and contains few visible sulfides. The veins are enriched in arsenic, mercury, and molybdenum and locally in gold and silver. The highest metal values obtained are: 396 ppm arsenic, 64 ppm copper, 685 ppb gold, >5ppb mercury, 187 ppm molybdenum, 7.3 ppm silver, and 52 ppm zinc (Christie, 1974; Randolph and Ellis, 1989).

Alteration:

The volcanic rocks exhibit regional propylitic alteration overprinted by silicification, and local potassium flooding or secondary growth on primary feldspars (Randolph and Ellis, 1989). Trace amounts of adularia has been identified as fracture coatings. No argillic alteration has been recognized. Some pyrite-filled fractures show narrow kaolinite-epidote-sericite alteration envelopes. Quartz veins may be accompanied by pyritization and silicification in the surrounding wall rock.

Age of mineralization:

Late Tertiary or younger.

Deposit model:

Creede epithermal veins? (Cox and Singer, 1986; model 25b)

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

25b?

Production Status: None**Site Status:** Inactive**Workings/exploration:**

In 1974 the Aleut-Quintana-Duval JV did reconnaissance mapping and sampling of this prospect as a follow-up of the discovery of numerous color anomalies. Analyses of 9 rock samples indicated values of up to 64 ppm copper, <.01 ppm gold, 6.3 ppm molybdenum, 1.4 ppm silver, and 52 ppm zinc (Christie, 1974).

Kennecott sampled and mapped in this general area in 1985 (Simpson, 1985).

In 1989, Battle Mountain Exploration did detailed mapping, sampling, and geophysics. The sampling (119 rock samples) gave values of up to 396 ppm arsenic, 685 ppb gold, > 5 ppm mercury, 187 ppm molybdenum, and 7.3 ppm silver.

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

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

References:

Christie, 1974; Simpson, 1986; Randolph and Ellis, 1989; Bundtzen and others, 1990.

Primary reference: Randolph and Ellis, 1989**Reporter(s):** S.H. Pilcher (Anchorage)

Last report date: 1/27/00

Site name(s): Fog; Steeple Mountain**Site type:** Prospect**ARDF no.:** UK008**Latitude:** 53.27**Quadrangle:** UK B-1**Longitude:** 168.26**Location description and accuracy:**

The Fog prospect is located approximately 1 1/2 miles southeast of VABM Ande and may correspond to Christie's (1974) color anomaly 29. The site is part of the Steeple Mountain prospect of Kennecott (Simpson, 1985; Bundtzen and others 1990, locality 25). The site location is accurate to within 1/2 mile.

This site is one of many occurrences or prospects that occur within a 5 square-mile area, mostly within T. 80 S., R. 131 W., of the Seward Meridian. The center of this area is approximately located at VABM Ande.

Commodities:**Main:** Ag, Au**Other:** As, Cu, Hg, Mo**Ore minerals:** Chalcopyrite, gold, molybdenite, pyrite**Gangue minerals:** Quartz**Geologic description:**

This site is similar in character to the Wind prospect (ARDF number UK007) and is marked by a color anomaly measuring approximately 7000 x 4000 feet. Quartz veins are hosted by propylitized volcanic rocks of Tertiary age. The volcanic rocks exhibit localized silicification, especially near the quartz veins.

Some 20 veins thicker than 6 inches were mapped by Battle Mountain Exploraton (Randolph and Ellis, 1989, pg. 21). These generally strike east-west or northwest, and crop out over distances of several hundred feet, although their actual length may be much greater.

The quartz is usually white and contains few visible sulfides. The veins are enriched in arsenic, mercury, and molybdenum and locally in gold and silver. The highest metal values obtained are: 400 ppm arsenic, 107 ppm copper, 8.1 ppm gold, 1600 ppb mercury, 90 ppm molybdenum, 3.4 ounces silver per ton, and 46 ppm zinc (Christie, 1974; Randolph and Ellis, 1989).

Alteration:

The volcanic rocks exhibit regional propylitic alteration and localized silicification and potassium flooding or secondary growth on primary feldspars. Quartz veins exhibit pyritization and silicification in the surrounding wall rock. Some pyrite-filled fractures show narrow kaolinite-epidote-sericite alteration envelopes. No argillic alteration has been recognized.

Age of mineralization:

Late Tertiary or younger.

Deposit model:

Creede epithermal veins? (Cox and Singer, 1986; model 25b)

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

25b?

Production Status: None**Site Status:** Inactive**Workings/exploration:**

In 1975 the Aleut-Quintana-Duval JV did reconnaissance mapping and sampling of this prospect as a followup of the discovery of numerous color anomalies. Analyses of 9 rock samples indicated values of up to 107 ppm copper, <0.01 ppm gold, 6.5 ppm molybdenum, 1.5 ppm silver, and 46 ppm zinc (Christie, 1974).

Kennecott sampled and mapped in this general area in 1985 (Simpson, 1985).

Battle Mountain Exploration in 1989 did detailed mapping, sampling and geophysics at this site. The sampling (141 rock-chip and 87 channel samples) gave values of up to 400 ppm arsenic, 8.1 ppm gold, 1600 ppb mercury, 90 ppm molybdenum, and 3.4 ounces per ton silver (Randolph and Ellis, 1989).

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

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

References:

Christie, 1974; Simpson, 1986; Randolph and Ellis, 1989; Bundtzen and others, 1990.

Primary reference: Randolph and Ellis, 1989**Reporter(s):** S.H. Pilcher (Anchorage)**Last report date:** 1/27/00

Site name(s): Rain; Steeple Mountain**Site type:** Prospect**ARDF no.:** UK009**Latitude:** 53.25**Quadrangle:** UK B-1**Longitude:** 168.28**Location description and accuracy:**

The Rain prospect is located approximately 2 miles due south of VABM Ande and corresponds to Christie's (1974) color anomaly 28. The site is part of the Steeple Mountain prospect of Kennecott (Simpson, 1985; Bundtzen and others, 1990, locality 25). The site location is accurate to within 1/2 mile.

This site is one of many occurrences or prospects that occur within a 5 square-mile area, mostly within T. 80 S., R.131 W., of the Seward Meridian. The center of this area is approximately located at VABM Ande.

Commodities:**Main:** Ag, Au**Other:** As, Cu, Hg, Mo**Ore minerals:** Chalcopyrite, gold, molybdenite, pyrite**Gangue minerals:** Quartz**Geologic description:**

This site is similar in character to the Wind and Fog prospects (ARDF numbers UK007 and UK008). However, the metal values at this site are considerably lower. The site is marked by a color anomaly about 7,000 by 5,000 feet in extent. Propylitically altered Tertiary andesites overlie an argillite and diorite basement complex. The volcanic rocks exhibit quartz veining and local silicification.

The quartz is usually white and contains few visible sulfides. The veins are somewhat enriched in arsenic, copper, mercury, and molybdenum and locally in gold and silver. The highest metal values obtained are: 67 ppm arsenic, 200 ppm copper, 201 ppb gold, 125 ppb mercury, 36 ppm molybdenum, 2.1ppm silver, and 138 ppm zinc (Christie, 1974; Randolph and Ellis, 1989).

Alteration:

The volcanic rocks exhibit regional propylitization, localized silicification, and potassium flooding or secondary growth on primary feldspars. Wall rock adjacent to quartz veins has been silicified and pyritized. No argillic alteration has been recognized.

Age of mineralization:

Late Tertiary or younger.

Deposit model:

Epithermal gold quartz vein?

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

Production Status: None

Site Status: Inactive

Workings/exploration:

In 1975 the Aleut-Quintana-Duval JV did sampling at this site as a followup of the discovery of numerous color anomalies in the area. Analyses of 18 rock samples indicated metal values of up to 200 ppm copper, 0.05 ppm gold, 36 ppm molybdenum, 2.1 ppm silver, and 138 ppm zinc (Christie, 1974).

Kennecott mapped and sampled this general area in 1985 (Simpson, 1985).

Battle Mountain Exploration in 1989 did detailed sampling and mapping at this site. The sampling (56 rock) gave metal values of up to 67 ppm arsenic, 201 ppb gold, 125 ppb mercury, 34 ppm molybdenum, and 0.8 ppm silver (Randolph and Ellis, 1989).

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

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

References:

Christie, 1974; Simpson, 1986; Randolph and Ellis, 1989; Bundtzen and others, 1990.

Primary reference: Randolph and Ellis, 1989

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

Last report date: 1/27/00

Site name(s): Russian Bay

Site type: Occurrence

ARDF no.: UK010

Latitude: 53.16

Quadrangle: UK A-2

Longitude: 168.44

Location description and accuracy:

This site is at an elevation of about 800 feet, approximately 2 1/2 miles due west of the head of Russian Bay. Site location is accurate to within 1 mile.

Commodities:

Main: Ag, Au

Other: As, Hg, Mo

Ore minerals: Gold, pyrite

Gangue minerals: Quartz

Geologic description:

This site was called the Russian Bay prospect by Randolph and Ellis (1989). It is a geothermal area of hot-springs and one active fumarole and is marked by an 8,000 x 10,000 foot color anomaly.

Many centers of extreme acid leaching are present and consist of blue-grey pyritic clay and minor silica. An intensely silicified fault breccia occurs at one locality on the east edge of the color anomaly.

Fifty-three rock samples collected by Battle Mountain Exploration contained up to 745 ppm arsenic, 104 ppb gold, > 5 ppm mercury, 23 ppm molybdenum, and 3.8 ppm silver (Randolph and Ellis, 1989).

Alteration:

This site exhibits argillic alteration and minor silicification.

Age of mineralization:

Tertiary or younger.

Deposit model:

Hot-spring Au-Ag (Cox and Singer, 1986, model 25a)

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

25a

Production Status: None

Site Status: Inactive

Workings/exploration:

Fifty-three rock samples collected by Battle Mountain Exploration contained up to 745 ppm arsenic, 104 ppb gold, >5 ppm mercury, 23 ppm molybdenum, and 3.8 ppm silver (Randolph and Ellis, 1989, p. 11).

Production notes:

Reserves:

Additional comments:

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

References:

Randolph and Ellis, 1989.

Primary reference: Randolph and Ellis, 1989

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

Last report date: 1/27/00

Site name(s): Steeple Point**Site type:** Occurrence**ARDF no.:** UK011**Latitude:** 53.27**Quadrangle:** UK B-1**Longitude:** 168.32**Location description and accuracy:**

This site is at an elevation of about 1000 feet approximately 1 mile east-southeast of Steeple Point. Site location is accurate to within 1 mile. Ellis and Randolph (1989) named this the Steeple Point prospect.

Commodities:**Main:** Ag, Au**Other:** As, Hg**Ore minerals:** Gold, pyrite**Gangue minerals:** Quartz**Geologic description:**

This geothermal site is described by Randolph and Ellis (1989) as being similar to ARDF number UK005. The rocks consist of waterlain tuffs and lahars of Quaternary age. The site contains numerous fumaroles and hot-springs and is marked by a 7,000 by 4,000 foot color anomaly. It consists of acid-leached rocks and localized silica stockworks. Some of the fumarolic centers display strong silicification and pyritization. Hot-spring centers also exhibit silicification and calcedonic breccias. Combined metal values from 55 rock samples obtained here and at ARDF number UK005 are up to >2000 ppm arsenic, 115 ppb gold, >5 ppp mercury, 11 ppm molybdenum, and 4.4 ppm silver (Randolph and Ellis, 1989).

Alteration:

The rocks at this site exhibit silicification, argillization, acid leaching, and pyritization.

Age of mineralization:

Quaternary.

Deposit model:

Hot-springs Au-Ag (Cox and Singer, 1986, model 25a)

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

25a

Production Status: None**Site Status:** Inactive**Workings/exploration:**

Battle Mountain Exploration examined and sampled this site in 1989 (Randolph and Ellis, 1989).

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

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

References:

Randolph and Ellis, 1989.

Primary reference: Randolph and Ellis, 1989**Reporter(s):** S.H. Pilcher (Anchorage)**Last report date:** 1/27/00

Site name(s): Unnamed (west-northwest of Kettle Cape)

Site type: Occurrence

ARDF no.: UK012

Latitude: 53.29

Quadrangle: UK B-1

Longitude: 168.25

Location description and accuracy:

This site is located approximately 6 miles west-northwest of Kettle Cape and 2 miles northeast of VABM Ande, at an elevation of about 1000 feet. It corresponds Christie's (1974) color anomaly 31. Site location is accurate to within 1 mile.

Commodities:

Main: Au, Cu

Other: Ag, Mo, Zn

Ore minerals: Chalcopyrite, gold, pyrite

Gangue minerals: Quartz

Geologic description:

Host rocks at this site consist of propylitically-altered(?) andesitic volcanic rocks of Tertiary or younger age. They contain 2-10 percent epidote and chlorite and up to 1 percent disseminated pyrite (Christie, 1974). These volcanic rocks are cut by numerous quartz veins and stringers; individual veins are up to several feet in width. The veins exhibit cockade structure and contain traces of visible pyrite. Some veins contain banded calcedonic quartz. Twelve rock samples collected by the Aleut-Quintana-Duval JV contained up to 420 ppm Cu, 0.03 ppm gold, 99 ppm molybdenum, 2.1 ppm silver, and 91 ppm zinc (Christie, 1974).

Alteration:

Propylitic?

Age of mineralization:

Tertiary or younger.

Deposit model:

Creede epithermal veins? (Cox and Singer, 1986; model 25b)

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

25b?

Production Status: None

Site Status: Inactive

Workings/exploration:

The Aleut-Quintana-Duval JV sampled this site in 1974 (Christie, 1974). Best values obtained were 420 ppm copper, 0.03 ppm gold, 99 ppm molybdenite, 2.1 ppm silver, and 91 ppm zinc.

Production notes:

Reserves:

Additional comments:

This site is on land conveyed, patented, or selected by 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 (east-northeast of Cape Kigunak)

Site type: Occurrence

ARDF no.: UK013

Latitude: 53.3

Quadrangle: UK B-2

Longitude: 168.4

Location description and accuracy:

This site is located approximately 3 miles east-northeast of Cape Kigunak at an elevation of less than 200 feet. It corresponds to Christie's (1974) color anomaly 35. Site location is accurate to within 2 miles.

Commodities:

Main: Au

Other: Ag, Cu, Mo, Zn

Ore minerals: Chalcopyrite, gold, pyrite

Gangue minerals: Quartz

Geologic description:

This occurrence, measuring approximately 5,000 x 3,000 feet in area, consists of quartz stockwork veins in altered diorite (Christie, 1974). The stockwork is moderately to well-developed throughout and contains composite veins up to 6 feet in thickness. The quartz veins contain minor chalcopyrite and pyrite. Disseminated pyrite is common, especially adjacent to quartz veins. The diorite exhibits propylitic alteration increasing to pervasive sericitization and silicification adjacent to the quartz veins.

The Aleut-Quintana-Duval JV collected 10 rock samples in 1974. The best metal values obtained were 66 ppm copper, 0.2 ppm gold, 38 ppm molybdenum, 1.8 ppm silver, and 116 ppm zinc (Christie, 1974).

Alteration:

The rocks at this site exhibit propylitic alteration increasing to pervasive sericitization and silicification adjacent to the quartz veins.

Age of mineralization:

Tertiary or later.

Deposit model:

Creede epithermal veins? (Cox and Singer, 1986; model 25b)

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

25b?

Production Status: None**Site Status:** Inactive**Workings/exploration:**

The Aleut-Quintana-Duval JV sampled this site in 1974 (Christie, 1974). Best values from 10 rock samples were 66 ppm copper, 0.2 ppm gold, 28 ppm molybdenum, 1.8 ppm silver, and 116 ppm zinc.

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

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

References:

Christie, 1974.

Primary reference: Christie, 1974**Reporter(s):** S.H. Pilcher (Anchorage)**Last report date:** 1/27/00

References

- Bundtzen, T.K., Swainbank, R.C., Deagen, J.R., and Moore, J.L., 1990, Alaska mineral industry, 1989: Alaska Division of Geological and Geophysical Surveys, Special Report 44, 100 p.
- Byers, F.M., 1959, Geology of Umnak and Bogoslof Islands, Aleutian Islands, Alaska: U.S. Geological Survey Bulletin 1028-L, p. 267-369, 3 map sheets, scale 1:63,360, 1:96,000, 1:300,000.
- Christie, J.S., 1974, Aleut-Quintana-Duval 1974 joint venture final report, 24 p. (held by Aleut Native Corporation, Anchorage, Alaska).
- Cox, D.P., and Singer, D.A., 1986, Mineral deposit models: U.S. Geological Survey Bulletin 1696, 379 p.
- Hertzog, D.A., 1988, References to coastal mineral occurrences of Alaska: U.S. Bureau of Mines Open-File Report 29-88, 308 p.
- Nye, C.J., Motyka, R.J., Turner, D.L., and Liss, S.A., 1992, Geology and geochemistry of the Geysir Bight geothermal area, Umnak Island, Alaska: Alaska Division of Geological and Geophysical Surveys Report of Investigation 92-1, 85 p., 2 map sheets, scale 1/24,000.
- Randolph, D.B., and Ellis, W.T., 1989, Unalaska 1989 final report: Battle Mountain Exploration Company, 39 p. (held by the Aleut Native Corporation, Anchorage, Alaska).
- Randolph, D.B., 1990, Unalaska 1990 final report: Battle Mountain Exploration Company, 72 p. (held by the Aleut Native Corporation, Anchorage, Alaska).
- Ransome, A.L., and Kerns, W.H., 1954, Names and definitions of regions, districts, and subdivisions in Alaska: U.S. Bureau of Mines Information Circular 7679, 91 p.
- Roberts, P., 1974, The economic potential of selected mineral occurrences on Umnak, Unimak, and Sedanka Islands, Aleutian Islands, Alaska: Teck Corporation Limited, 30 p. (held by the Aleut Native Corporation, Anchorage, Alaska).
- Simpson, D.F., 1986, Aleutian Islands project, 1985 final report: Kennecott-Alaska Exploration Company, 54 p. (held by the Aleut Native Corporation, Anchorage, Alaska).