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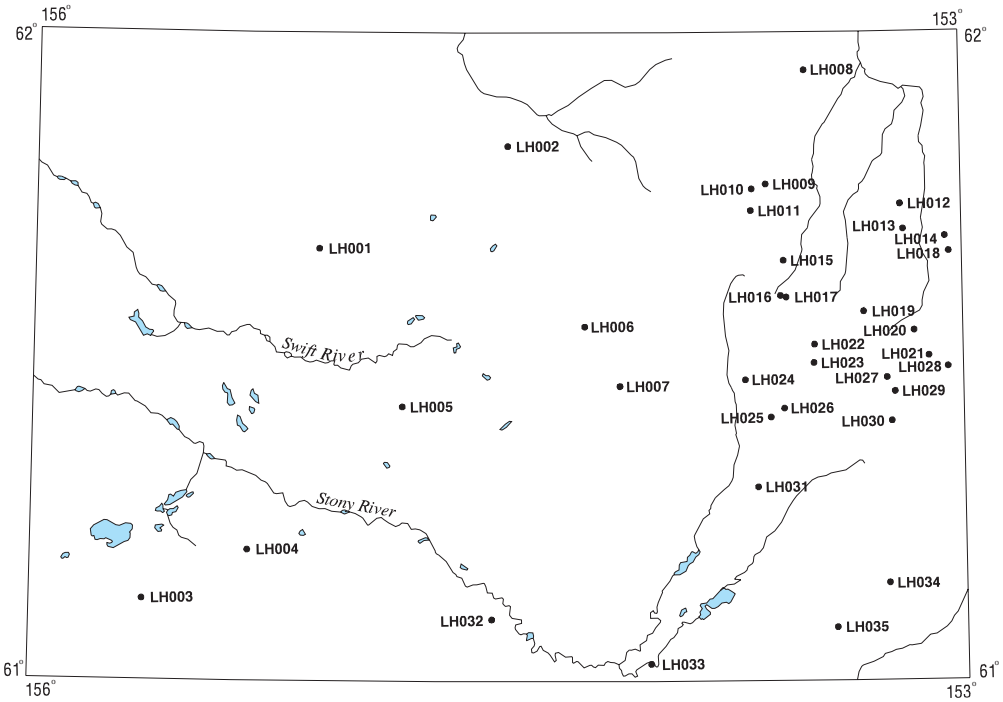
Alaska Resource Data File

Lime Hills 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 Lime Hills 1:250,000-scale quadrangle, 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:

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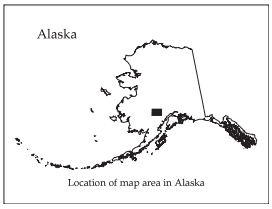

OPEN-FILE REPORT 02-76

Site name(s): Gagaryah River

Site type: Occurrences

ARDF no.: LH001

Latitude: 61.6666 **Quadrangle:** LH C-6

Longitude: 155.0820

Location description and accuracy:

Occurrences of placer gold and cinnabar are present in a several-square-mile area in uplands at the south end of the Lyman Hills and north of the Gagaryah River (Eppinger, 1993). The map site is at an elevation of 1,300 feet on a south-flowing tributary to the Gagaryah River in the SW1/4 section 4, T 18 N, R 32 W, of the Seward Meridian. The map site is chosen to represent the general area of gold and cinnabar occurrences.

Commodities:

Main: Au, Hg

Other:

Ore minerals: Cinnabar, gold

Gangue minerals:

Geologic description:

Pan concentrates from several drainages in this area contain detrital gold and cinnabar (Eppinger, 1993). Bedrock in the area is dominantly Paleozoic sedimentary rocks (Eppinger, 1993).

Alteration:

Age of mineralization:

Quaternary.

Deposit model:

Placer Au (Cox and Singer, 1986, model 39a); placer cinnabar is also present

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

39a

Production Status: None

Site Status: Inactive

Workings/exploration:

Production notes:

Reserves:

Additional comments:

References:

Eppinger, 1993.

Primary reference: Eppinger, 1993

Reporter(s): Travis L. Hudson and Madelyn A. Millholland

Last report date: 06/10/01

Site name(s): Gagaryah

Site type: Occurrence

ARDF no.: LH002

Latitude: 61.8252 **Quadrangle:** LH D-4

Longitude: 154.4726

Location description and accuracy:

This occurrence is in the easternmost headwaters of the Gagaryah River near a low divide with a creek draining northwest to Big River. It is at an elevation of 2,500 feet and 0.6 mile southeast of peak 3125. The map site is in the NE1/4 section 14, T 20 W, R 29 W, of the Seward Meridian. This location is from Bundtzen and Gilbert (1991, figs. 1 and 2).

Commodities:

Main: Ba

Other:

Ore minerals: Barite

Gangue minerals:

Geologic description:

This occurrence consists of nodular, laminated, composite, and massive light-gray to light blueish-gray barite interbedded with Devonian (Frasnian) shale and siltstone (Bundtzen and Gilbert, 1991). The barite-rich intervals are at least 640 m long and vary from 6 or 7 m to as much as 39 m thick. The barite does not contain significant amounts of other elements including strontium, silver, lead, or zinc. Bundtzen and Gilbert (1991, p. 15) estimate that the deposit contains 2.3 million tonnes with an overall average grade of 57 percent barite. The setting and character of the Gagaryah deposit is similar to Middle to Upper Devonian barite deposits in northeastern British Columbia and the Selwyn Basin of central Yukon Territory (Bundtzen and Gilbert, 1991).

Alteration:

Age of mineralization:

Devonian. Two brachiopod-rich fossil localities that are 50 to 60 meters stratigraphically above the barite-bearing interval are Frasnian in age (Gilbert and others, 1990).

Deposit model:

Bedded barite (Cox and Singer, 1986, model 31b)

Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):
31b

Production Status: None

Site Status: Inactive

Workings/exploration:
Surface observation and sampling have been completed on this deposit.

Production notes:

Reserves:
The deposit is estimated to contain 2.3 million tonnes with an overall average grade of 57 percent barite.

Additional comments:

References:
Gilbert and others, 1990; Bundtzen and Gilbert, 1991.

Primary reference: Bundtzen and Gilbert, 1991

Reporter(s): Travis L. Hudson and Madelyn A. Millholland

Last report date: 06/10/01

Site name(s): Sparrevohn

Site type: Occurrences

ARDF no.: LH003

Latitude: 61.1250 **Quadrangle:** LH A-8

Longitude: 155.6391

Location description and accuracy:

Drainages in a several-square-mile area northwest of Sparrevohn Air Force Station contain detrital gold (Eppinger, 1993). The map site is at an elevation of 1,250 feet on one of the drainages flowing northwest from the Sparrevohn uplands in the SE1/4 section 15, T 12 N, R 36 W, of the Seward Meridian. The map site is chosen to represent the general area of gold occurrences.

Commodities:

Main: Au, Hg

Other:

Ore minerals: Cinnabar, gold

Gangue minerals:

Geologic description:

Pan concentrates from several drainages in this area contain detrital gold, and one contains gold and cinnabar (Eppinger, 1993). Most of the gold is well-rounded and flat, except for that in the one sample that contains cinnabar. Bedrock in the area is dominantly Cretaceous clastic sedimentary rocks (Eppinger, 1993).

Alteration:

Age of mineralization:

Quaternary.

Deposit model:

Placer Au (Cox and Singer, 1986, model 39a)

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

39a

Production Status: None

Site Status: Inactive

Workings/exploration:

Production notes:

Reserves:

Additional comments:

References:

Eppinger, 1993.

Primary reference: Eppinger, 1993

Reporter(s): Travis L. Hudson and Madelyn A. Millholland

Last report date: 06/10/01

Site name(s): Cairn Mountain

Site type: Occurrences

ARDF no.: LH004

Latitude: 61.2016 **Quadrangle:** LH A-7

Longitude: 155.3043

Location description and accuracy:

Several occurrences of placer gold are present in a several-square-mile area along the northern flanks of the Cairn Mountain upland (Eppinger, 1993). The map site is at an elevation of 1,300 feet on one of the drainages flowing north from these uplands in the NW1/4 section 24, T 13 N, R 34 W, of the Seward Meridian. The map site is chosen to represent the general area of gold occurrences.

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:

Pan concentrates from several drainages in this area contain detrital gold (Eppinger, 1993). Most of the gold is well-rounded and flat. Bedrock in the area is dominantly Cretaceous clastic sedimentary rocks (Eppinger, 1993).

Alteration:

Age of mineralization:

Quaternary.

Deposit model:

Placer Au (Cox and Singer, 1986, model 39a)

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

39a

Production Status: None

Site Status: Inactive

Workings/exploration:

Production notes:

Reserves:

Additional comments:

References:

Eppinger, 1993.

Primary reference: Eppinger, 1993

Reporter(s): Travis L. Hudson and Madelyn A. Millholland

Last report date: 06/10/01

Site name(s): Anchor

Site type: Occurrences

ARDF no.: LH005

Latitude: 61.4232 **Quadrangle:** LH B-5

Longitude: 154.8102

Location description and accuracy:

Occurrences of placer gold are present in a several-square-mile area centered on USGS benchmark Anchor (Eppinger, 1993). The map site is at an elevation of 1,500 feet on one of the drainages flowing north from these uplands in the SE1/4 section 34, T 16 N, R 31 W, of the Seward Meridian. The map site is chosen to represent the general area of gold occurrences.

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:

Pan concentrates from several drainages in this area contain detrital gold (Eppinger, 1993). The gold is subangular to angular and includes some grains to 1 mm across with very delicate features, such as serrated edges (Eppinger, 1993). Bedrock in the area is dominantly Cretaceous clastic sedimentary rocks (Eppinger, 1993).

Alteration:

Age of mineralization:

Quaternary.

Deposit model:

Placer Au (Cox and Singer, 1986, model 39a)

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

39a

Production Status: None

Site Status: Inactive

Workings/exploration:

Production notes:

Reserves:

Additional comments:

References:

Eppinger, 1993.

Primary reference: Eppinger, 1993

Reporter(s): Travis L. Hudson and Madelyn A. Millholland

Last report date: 06/10/01

Site name(s): Unnamed (near Swift River)

Site type: Occurrence

ARDF no.: LH006

Latitude: 61.5470 **Quadrangle:** LH C-4

Longitude: 154.2225

Location description and accuracy:

This occurrence is in a small cirque valley at the head of an unnamed east tributary to the Swift River. It is at elevation of 4,200 feet, 0.5 mile east of peak 5848. The map site is in the SW1/4 section 20, T 17 N, R 27 W, of the Seward Meridian. This is locality 1 of Cobb (1972 [MF 412]; 1976 [OF 76-485]). The location is probably accurate to within a quarter of a mile.

Commodities:

Main: REE

Other:

Ore minerals: Allanite, monazite, xenotime

Gangue minerals:

Geologic description:

Reed and Anderson (1969) reported that biotite granite of the Tired Pup pluton contains abundant accessory allanite and monazite and (or) xenotime. The Tired Pup pluton is a Lower Tertiary pluton of the Alaska-Aleution Range batholith (Reed and Lanphere, 1973).

Alteration:

Age of mineralization:

Early Tertiary. Several K-Ar ages from the Tired Pup pluton are about 55 to 60 Ma (Reed and Lanphere, 1973).

Deposit model:

Disseminated accessory minerals in granite

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

Production Status: None

Site Status: Inactive

Workings/exploration:
Reconnaissance sampling has been completed in this area.

Production notes:

Reserves:

Additional comments:

References:
Reed and Anderson, 1969; Cobb, 1972 (MF 412); Reed and Lanphere, 1973; Cobb, 1976 (OF 76-485); Cobb and Reed, 1981.

Primary reference: Reed and Anderson, 1969

Reporter(s): Travis L. Hudson and Madelyn A. Millholland

Last report date: 06/10/01

Site name(s): Unnamed (near Swift River)

Site type: Occurrence

ARDF no.: LH007

Latitude: 61.4552 **Quadrangle:** LH B-3

Longitude: 154.1089

Location description and accuracy:

This occurrence is at the head of an unnamed southeast tributary to the Swift River. It is at an elevation of about 3,350 feet, 1.7 miles northwest of peak 7646. The map site is in the NW1/4 section 27, T 16 N, R 27 W, of the Seward Meridian. This is locality 2 of Cobb (1972 [MF 412]; 1976 [OF 76-485]). The location is probably accurate to within a quarter of a mile.

Commodities:

Main: REE

Other:

Ore minerals: Allanite, monazite, xenotime

Gangue minerals:

Geologic description:

Reed and Anderson (1969) reported that biotite granite of the Tired Pup pluton contains abundant accessory allanite and monazite and/or xenotime. The Tired Pup pluton is a Lower Tertiary pluton of the Alaska-Aleution Range batholith (Reed and Lanphere, 1973).

Alteration:

Age of mineralization:

Early Tertiary. Several K-Ar ages from the Tired Pup pluton are about 55 to 60 Ma in age (Reed and Lanphere, 1973).

Deposit model:

Disseminated accessory minerals in granite

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

Production Status: None

Site Status: Inactive

Workings/exploration:
Reconnaissance sampling has been completed in this area.

Production notes:

Reserves:

Additional comments:

References:
Reed and Anderson, 1969; Cobb, 1972 (MF 412); Reed and Lanphere, 1973; Cobb, 1976 (OF 76-485); Cobb and Reed, 1981.

Primary reference: Reed and Anderson, 1969

Reporter(s): Travis L. Hudson and Madelyn A. Millholland

Last report date: 06/10/01

Site name(s): Terra Cotta Mountains

Site type: Occurrence

ARDF no.: LH008

Latitude: 61.9414 **Quadrangle:** LH D-2

Longitude: 153.5062

Location description and accuracy:

This occurrence is on a ridge in the Terra Cotta Mountains, east of upper Post River. It is on the north flank of peak 5830, at an elevation of about 5,400 feet. The map site is in the NW1/4 section 4, T 21 N, R 23 W, of the Seward Meridian. This occurrence is sample locations 809 and 810 of Allen (1990); Allen and others (1990), and Allen and Slaughter (1990).

Commodities:

Main: Ag, Au, Cu, Pb, Sb

Other:

Ore minerals: Arsenopyrite, chalcopyrite, pyrite, pyrrhotite, stibnite

Gangue minerals: Carbonate, quartz

Geologic description:

Quartz-carbonate breccia veins are developed in altered granitic rocks and nearby graywacke country rock. The veins commonly contain pyrite, arsenopyrite, lesser stibnite and chalcopyrite, and some pyrrhotite. Allen and others (1990, samples 805 to 814) collected several samples in the general area of this locality. These samples contain as much as 1 ppm gold, 100 ppm silver, 1,000 ppm barium, 300 ppm bismuth, 1,000 ppm cobalt, 7,000 ppm copper, 20,000 ppm lead, 1,500 ppm antimony, and 500 ppm tin and greater than 10,000 ppm arsenic, 2,000 ppm boron, and 5,000 ppm manganese. The sedimentary rocks are Jurassic or Lower Cretaceous, and the Upper Cretaceous or Tertiary granitic rocks are part of the Alaska-Aleutian Range batholith (Reed and Lanphere, 1973; Nokleberg and others, 1994).

Alteration:

Silicification.

Age of mineralization:

Late Cretaceous or Tertiary. The veins crosscut Upper Cretaceous or Tertiary granitic rocks of the Alaska-Aleutian Range batholith.

Deposit model:
Polymetallic veins (Cox and Singer, 1986, model 22c)

Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):
22c

Production Status: None

Site Status: Inactive

Workings/exploration:
Surface observation and sampling has occurred at this locality.

Production notes:

Reserves:

Additional comments:

References:
Reed and Lanphere, 1973; Nokleberg and others, 1994; Allen, 1990; Allen and others, 1990; Allen and Slaughter, 1990.

Primary reference: Allen, 199o

Reporter(s): Travis L. Hudson and Madelyn A. Millholland

Last report date: 06/10/01

Site name(s): Three Cub

Site type: Occurrence

ARDF no.: LH009

Latitude: 61.7659 **Quadrangle:** LH D-2

Longitude: 153.6342

Location description and accuracy:

This occurrence is on the north side of a hanging-glacier moraine in the headwaters of an unnamed south tributary to uppermost Fish Creek. It is at an elevation of about 4,800 feet, 0.9 mile north of peak 6590. The map site is in the NE1/4 section 4, T 19 N, R 24 W, of the Seward Meridian.

This occurrence is sample locations 823 and 824 of Allen and others (1990), Allen and Slaughter (1990), and Allen (1991).

Commodities:

Main: Ag, Au, Cu, Pb, Sb, W, Zn

Other:

Ore minerals: Arsenopyrite, chalcopyrite, galena, pyrite, scheelite, sphalerite, stibnite

Gangue minerals: Barite, carbonate, quartz

Geologic description:

Thin, sulfide-bearing quartz veins, generally less than 15 cm wide, locally crosscut Jurassic or Lower Cretaceous graywacke and Upper Cretaceous or Tertiary granitic rocks at this locality (Allen, 1990; Allen and others, 1990; Allen and Slaughter, 1990). The veins consist dominantly of quartz, carbonate, pyrite, and arsenopyrite, and less commonly contain barite, chalcopyrite, stibnite, galena, and sphalerite. Some aplite dikes, quartz veins, and pyrite-bearing fracture surfaces in the granitic rocks contain scheelite and arsenopyrite. Calc-silicate skarn is very locally developed in sedimentary rocks adjacent to the granitic rock contacts. Quartz veins in graywacke contain as much as 1.3 ppm gold, 70 ppm silver, 3,000 ppm copper, and 500 ppm zinc. A sample from a sulfide-rich quartz-carbonate vein at a granitic rock contact contained 1.9 ppm gold, 150 ppm silver, 2,000 ppm arsenic, 150 ppm bismith, 1,000 ppm lead, 1,000 ppm antimony, 50 ppm tin, and 3,000 ppm zinc. Although scheelite has been reported in quartz veins from the general area, samples at this locality contained less than 20 ppm tungsten. The granitic rocks are part of the Alaska-Aleutian Range batholith (Reed and Lanphere, 1973).

Alteration:

Silicification and local calc-silicate skarn.

Age of mineralization:
Late Cretaceous or Tertiary. The veins crosscut Upper Cretaceous or Tertiary granitic rocks of the Alaska-Aleutian Range batholith.

Deposit model:
Polymetallic veins (Cox and Singer, 1986, model 22c)

Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):
22c

Production Status: None

Site Status: Inactive

Workings/exploration:
Surface observation and sampling has occurred at this locality.

Production notes:

Reserves:

Additional comments:

References:
Reed and Lanphere, 1973; Nokleberg and others, 1994; Allen, 1990; Allen and others, 1990; Allen and Slaughter, 1990.

Primary reference: Allen, 1991

Reporter(s): Travis L. Hudson and Madelyn A. Millholland

Last report date: 06/10/01

Site name(s): Terra

Site type: Prospect

ARDF no.: LH010

Latitude: 61.7586 **Quadrangle:** LH D-2

Longitude: 153.6799

Location description and accuracy:

The Terra prospect is located in the headwaters of the Hartman River at an elevation between 2590 and 7054 feet in sections 6,7,8,13 and 14, T19N, R24W, of the Seward Meridian south of Fish Creek and approximately one mile southwest of the Three Cub occurrence (LH009). The map site is chosen to represent the general area of gold occurrences within the prospect area.

Commodities:

Main: Ag, Au, Cu, Mo,Pb

Other: As, Sb, W

Ore minerals: Arsenopyrite, chalcopyrite, galena, jordanite, molybdenite, native gold, pyrite, pyrrhotite, tennantite

Gangue minerals: Carbonate, quartz, sericite

Geologic description:

In 1990 Allen reported anomalous gold in a rock at sample location 819 from a basal moraine at this locality. A GIS compilation and follow-up of published U.S. Geological survey mapping and sampling in the area (Allen, 1990; Allen and others 1990; Allen and Slaughter, 1990) by Kennecott Exploration led to the discovery of finely disseminated native gold and minor sulfides and sulfosalts in tectonic breccias and carbonate-quartz veins in monzonite and diorite intrusive rocks of the Hartman sequence and Jurassic or Lower Cretaceous hornfelsed sedimentary rocks of the Kahiltna terrane on the Terra property (Porterfield, 2000). Porterfield (2000) describes two target areas, each approximately 6,000 feet in length, that contain high-grade mineralization in quartz veins (as much as 687 ppm gold and 1,135 ppm silver) and carbonate-cemented tectonic breccias (as much as 71 ppm gold and 572 ppm silver) that cut intrusive rock and hornfels. Rock chip samples, talus fines, and soil samples were collected from two target areas on the Terra prospect. Gold assays have a positive correlation with arsenic, silver, antimony, copper, and lead, and Porterfield (2000) reports that bismuth and tungsten are anomalous in some samples.

Alteration:
Carbonate, iron-oxide, quartz, and sericite.

Age of mineralization:
Cretaceous? Sericite from a quartz vein in hornfels gave an Ar/Ar age date of 66.4 +/- 5.7 Ma (Porterfield, 2000).

Deposit model:
Polymetallic veins (Cox and Singer, 1986, model 22c)

Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):
22c

Production Status: None

Site Status: Active

Workings/exploration:
Reconnaissance and prospect mapping by Kennecott Exploration in the late 1990's included surface observation and sampling (Porterfield, 2000).

Production notes:

Reserves:

Additional comments:

References:
Reed and Elliott, 1970; Allen, 1990; Allen and others, 1990; Allen and Slaughter, 1990; Porterfield, 2000.

Primary reference: Porterfield, 2000

Reporter(s): Madelyn A. Millholland and Travis L. Hudson

Last report date: 6/27/01

Site name(s): Unnamed (head of Hartman River)

Site type: Occurrence

ARDF no.: LH011

Latitude: 61.7252 **Quadrangle:** LH C-2

Longitude: 153.6834

Location description and accuracy:

This occurrence is on a ridge along the north side of the upper Hartman River valley. It is at an elevation of 6,000 feet, one mile north of the glacier in the northwest headwater tributary of Hartman River. The map site is in the NE1/4 section 19, T 19 N, R 24 W, of the Seward Meridian. This is locality 3 of Cobb (1972 [MF 412]; 1976 [OF 76-485]) and and Cobb and Reed (1981). The location is probably accurate to within a quarter of a mile.

Commodities:

Main: Au, Mo, W

Other: Ag, Cu, Sb

Ore minerals: Chalcopyrite, molybdenite, pyrite

Gangue minerals: Calcite, limonite, quartz

Geologic description:

Reed and Elliott (1970, p. 22) reported that a 2-inch-wide quartz vein containing less than 2 percent finely disseminated molybdenite crosscuts quartz diorite at this locality. A sample of this vein also contained 300 ppm tungstenand 3.2 ppm gold. Allen and others (1990, samples 104, 111, 112) collected several samples from the south flank of the ridge where this vein was found. These samples were of graywacke containing disseminated pyrite; limonite-stained quartz veins containing pyrite and some chalcopyrite; and quartz-calcite veins in granitic rock. These samples contained as much as 3.5 ppm gold, 200 ppm silver, 700 ppm copper, 150 ppm antimony, and greater than 10,000 ppm arsenic. The sedimentary rocks are Jurassic and Lower Cretaceous, and the Upper Cretaceous or Tertiary granitic rocks are part of the Alaska-Aleutian Range batholith (Reed and Lanphere, 1973; Nokleberg and others, 1994).

Alteration:

Silicification and oxidation.

Age of mineralization:

Late Cretaceous or Tertiary. The veins crosscut granitic rocks of the Upper Cretaceous or Tertiary part of the Alaska-Aleutian Range batholith.

Deposit model:
Polymetallic veins (Cox and Singer, 1986, model 22c)

Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):
21c

Production Status: None

Site Status: Inactive

Workings/exploration:
Reconnaissance surface observation and sampling has been completed at this locality (Reed and Elliott, 1970).

Production notes:

Reserves:

Additional comments:

References:
Reed and Elliott, 1970; Cobb, 1972 (MF 412); Reed and Lanphere, 1973; Cobb, 1976 (OF 76-485); Cobb and Reed, 1981; Allen and others, 1990; Nokleberg and others, 1994.

Primary reference: Reed and Elliott, 1970

Reporter(s): Travis L. Hudson and Madelyn A. Millholland

Last report date: 06/10/01

Site name(s): Jimmy Lake

Site type: Occurrence

ARDF no.: LH012

Latitude: 61.7340 **Quadrangle:** LH C-1

Longitude: 153.1979

Location description and accuracy:

This occurrence is at ane elevation of about 5,000 feet, in the head of a cirque valley, 1.4 miles northeast of Jimmy Lake. The map site is in the southwest 1/4 of section 13, T 19 N, R 22 W, of the Seward Meridian. This is locality 12 of Cobb (1972 [MF 412]; 1976 [OF 76-485]) and locality 11 and 12 of Gamble and others (1989). The location is probably accurate to within 1/4 mile.

Commodities:

Main: Ag, Cu, Mo, Pb, Zn

Other:

Ore minerals: Arsenopyrite, chalcopyrite, galena, molybdenite, sphalerite

Gangue minerals: Albite, fluorite, kaolinite, quartz, sericite

Geologic description:

Reed and Elliott (1970) reported that an altered and mineralized biotite granite stock is present at this locality. Mineralization, mostly identified in float boulders and cobbles, includes (1) altered granite that contains less than 5 percent disseminated galena and sphalerite, (2) altered granite that contains veinlets of quartz, sphalerite, galena, and chalcopyrite, and (3) altered granite that contains a 1-inch-wide quartz-molybdenite vein. The alteration consists of variably developed replacement of granite by quartz, sericite, kaolinite, and albite. Samples contain as much as 15,000 ppm copper, 300 ppm silver, and greater than 20,000 ppm lead, 2,000 ppm molybdenum, and 10,000 ppm zinc. Stream sediment samples from the area contain high contents of silver, arsenic, copper, lead, and zinc. The biotite granite stock contains accessory fluorite and intrudes upper Mesozoic clastic sedimentary rocks and possibly overlying Tertiary volcanic rocks (Cobb and Reed, 1981).

Alteration:

Granite locally replaced by quartz-sericite-kaolinite-albite assemblages.

Age of mineralization:

Tertiary. Mineralization crosscuts Tertiary granite.

Deposit model:
Polymetallic veins? and porphyry Cu-Mo? (Cox and Singer, 1986, models 22c and 21a)

Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):
21a?, 22c?

Production Status: None

Site Status: Inactive

Workings/exploration:
Reconnaissance sampling has been completed in this area (Reed and Elliott, 1970).

Production notes:

Reserves:

Additional comments:

References:
Reed and Elliott, 1970; Cobb, 1972 (MF 412); Cobb, 1976 (OF 76-485); Cobb and Reed, 1981; Gamble and others, 1989.

Primary reference: Cobb And Reed, 1981

Reporter(s): Travis L. Hudson and Madelyn A. Millholland

Last report date: 06/10/01

Site name(s): Unnamed (southeast of Jimmy Lake)

Site type: Occurrence

ARDF no.: LH013

Latitude: 61.6954 **Quadrangle:** LH C-1

Longitude: 153.1896

Location description and accuracy:

This occurrence is on the south side of the pass between Styx River and South Fork Kuskokwim River valleys, just south of Jimmy Lake. It is at an elevation of about 3,800 feet, 2 miles southeast of Jimmy Lake. The map site is in the NW1/4 section 36, T 19 N, R 22 W, of the Seward Meridian. It is sample locality 25 of Reed and Miller (1980) and is included as an unnamed occurrence by Cobb and Reed (1981). The location is probably accurate to within one quarter of a mile.

Commodities:

Main: Pb, Th, U

Other: Zn?

Ore minerals: Arsenopyrite, galena, sphalerite(?), unidentified uranium- and thorium-bearing minerals

Gangue minerals:

Geologic description:

Granite porphyry of the Tertiary Styx River pluton contains 14.8 ppm uranium and 38.3 ppm thorium, and grab samples of radioactive hornblende granite contain as much as 882 ppm uranium (Reed and Miller, 1980; Cobb and Reed, 1981). The uranium is enriched along iron-stained joint surfaces that also contain arsenopyrite, galena, and sphalerite(?). Purple fluorite is an abundant accessory mineral in the granite.

Alteration:

Oxidation.

Age of mineralization:

Tertiary. Uranium is enriched along fractures in Tertiary granite.

Deposit model:

Fracture-controlled, U-bearing veins in granite

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

Production Status: None

Site Status: Inactive

Workings/exploration:
Reconnaissance sampling has been completed in this area.

Production notes:

Reserves:

Additional comments:

References:
Reed and Miller, 1980; Cobb and Reed, 1981.

Primary reference: Reed and Miller, 1980

Reporter(s): Travis L. Hudson and Madelyn A. Millholland

Last report date: 06/10/01

Site name(s): Unnamed (near Styx River)

Site type: Occurrence

ARDF no.: LH014

Latitude: 61.6839 **Quadrangle:** LH C-1

Longitude: 153.0541

Location description and accuracy:

This occurrence is on the nose of a ridge above an east tributary to the Styx River. It is at an elevation of about 4,500 feet, 0.6 mile northwest of peak 6050. The map site is in the NE1/4 section 3, T 18 N, R 21 W, of the Seward Meridian. This is locality 12 of Cobb (1972 [MF 412]; 1976 [OF 76-485]). The location is probably accurate to within a quarter of a mile.

Commodities:

Main: Ag, Cu, Sn

Other:

Ore minerals: Azurite, bornite, chalcopyrite, malachite

Gangue minerals: Albite, iron oxide, quartz, sericite, tourmaline

Geologic description:

Reed and Elliott (1970) reported that a northwest-trending shear zone in altered granodiorite contains as much as 10 percent pyrite and chalcopyrite. The shear zone is about 5 feet wide, exposed over a length of 30 feet, and locally stained with iron oxide, malachite, and azurite. Alteration minerals in the shear zone include quartz, sericite, albite, and iron oxides. Disseminated chalcopyrite is present in granodiorite within 10 feet of the shear zone. Float downslope of a nearby iron oxide-stained zone contains chalcopyrite, bornite, other sulfides, and tourmaline. In addition to anomalous copper values, rock samples contain as much as 700 ppm tin, and 15 ppm silver. Nearby float samples contain as much as 300 ppm silver and greater than 1,000 ppm tin. Quartz-feldspar porphyry dikes trend northwest parallel to the mineralized shear zone. The host intrusive rocks are Tertiary plutons of the Alaska-Aleutian Range batholith (Cobb and Reed, 1981).

Alteration:

Granodiorite in the shear zone is altered to quartz, sericite, albite, and iron oxide minerals.

Age of mineralization:

Tertiary. Shear zone and mineralization crosscuts Tertiary intrusive rocks.

Deposit model:
Polymetallic veins? (Cox and Singer, 1986, model 22c)

Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):
22c?

Production Status: None

Site Status: Inactive

Workings/exploration:
Reconnaissance observation and sampling has been completed in this area (Reed and Elliott, 1970).

Production notes:

Reserves:

Additional comments:

References:
Reed and Elliott, 1970; Cobb, 1972 (MF 412); Cobb, 1976 (OF 76-485); Cobb and Reed, 1981; Gamble and others, 1989.

Primary reference: Reed and Elliott, 1970

Reporter(s): Travis L. Hudson and Madelyn A. Millholland

Last report date: 06/10/01

Site name(s): Unnamed (head of Hartman River)

Site type: Occurrence

ARDF no.: LH015

Latitude: 61.6481 **Quadrangle:** LH A-2

Longitude: 153.5786

Location description and accuracy:

This occurrence is in the peaks between Sled Pass and the southeast headwaters of the Hartman River. It is at an elevation of about 5,900 feet, 1.3 miles east-southeast of peak 7435. The map site is in the SW1/4 section 14, T 18 N, R 24 W, of the Seward Meridian. This is locality 4 of Cobb (1972 [MF 412]; 1976 [OF 76-485]) and locality 18 of Gamble and others (1989). The location is probably accurate to within a quarter of a mile.

Commodities:

Main: Au, Sb

Other:

Ore minerals: Stibnite

Gangue minerals:

Geologic description:

Reed and Elliott (1970) reported blocks of massive stibnite as much as a foot across in frost-heaved rubble near the top of the ridge and in talus. This float is within a few feet of its source, which is probably stibnite-bearing veins localized along faults or shears in Upper Mesozoic argillite and graywacke. In addition to high concentrations of antimony, samples contain as much as 500 ppm lead and 0.45 ppm gold. The mineralized area is near the contact with a Cretaceous or Tertiary granite pluton.

Alteration:

Age of mineralization:

Tertiary? Mineralization crosscuts Upper Mesozoic sedimentary rocks. Polymetallic mineralization in this region is commonly associated with Tertiary granitic rocks.

Deposit model:

Simple Sb deposits (Cox and Singer, 1986, model 27d)

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

27d

Production Status: None

Site Status: Inactive

Workings/exploration:
Reconnaissance sampling has been completed in this area (Reed and Elliott, 1970).

Production notes:

Reserves:

Additional comments:

References:
Reed and Elliott, 1970; Cobb, 1972 (MF 412); Cobb, 1976 (OF 76-485); Cobb and Reed, 1981; Gamble and others, 1989.

Primary reference: Reed and Elliott, 1970

Reporter(s): Travis L. Hudson and Madelyn A. Millholland

Last report date: 06/10/01

Site name(s): Unnamed (head of Hartman River)

Site type: Occurrence

ARDF no.: LH016

Latitude: 61.5939 **Quadrangle:** LH C-2

Longitude: 153.5886

Location description and accuracy:

This occurrence is in the peaks at the head of the southeast headwaters of the Hartman River. It is at an elevation of about 5,800 feet on the west flank of peak 6215. The map site is in the NW1/4 section 2, T 17 N, R 24 W, of the Seward Meridian. This is locality 5 of Cobb (1972 [MF 412]; Cobb, 1976 [OF 76-485]) and locality 20 of Gamble and others (1989). The location is probably accurate to within a quarter of a mile.

Commodities:

Main: Cu

Other:

Ore minerals: Arsenopyrite, chalcopyrite

Gangue minerals: Quartz

Geologic description:

Reed and Elliott (1970) reported a 3-foot-wide quartz vein containing 10 percent arsenopyrite and lesser chalcopyrite, pyrite, and pyrrhotite in a shear zone cutting upper Mesozoic sedimentary rocks at this locality. In addition to base metal anomalies, samples contain up to 10 ppm silver and 0.1 ppm gold. This mineralized area is about a mile from a small Tertiary granitic intrusive.

Alteration:

Quartz veining.

Age of mineralization:

Tertiary? Mineralization crosscuts Upper Mesozoic sedimentary rocks. Polymetallic mineralization in this region is commonly associated with Tertiary granitic rocks.

Deposit model:

Polymetallic veins (Cox and Singer, 1986, model 22c)

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

22c

Production Status: None

Site Status: Inactive

Workings/exploration:
Reconnaissance sampling has been completed in this area (Reed and Elliott, 1970).

Production notes:

Reserves:

Additional comments:

References:
Reed and Elliott, 1970; Cobb, 1972 (MF 412); Cobb, 1976 (OF 76-485); Cobb and Reed, 1981; Gamble and others, 1989.

Primary reference: Reed and Elliott, 1970

Reporter(s): Travis L. Hudson and Madelyn A. Millholland

Last report date: 06/10/01

Site name(s): Unnamed (head of Hartman River)

Site type: Occurrence

ARDF no.: LH017

Latitude: 61.5914 **Quadrangle:** LH C-2

Longitude: 153.5703

Location description and accuracy:

This occurrence is in the peaks at the head of the southeast headwaters of the Hartman River. It is at an elevation of about 5,100 feet and 1.2 miles northwest of peak 5875. The map site is in the NE1/4 section 2, T 17 N, R 24 W, of the Seward Meridian. This is locality 6 of Cobb (1972 [MF 412]; 1976 [OF 76-485]). The location is probably accurate to within a quarter of a mile.

Commodities:

Main: Ag, Au, Cu, Zn

Other:

Ore minerals: Arsenopyrite, chalcopyrite, pyrite, pyrrhotite, sphalerite

Gangue minerals: Quartz, tourmaline

Geologic description:

Reed and Elliott (1970) reported finding mineralized float boulders at this locality. The boulders include argillite cut by 6-inch-wide quartz veins containing arsenopyrite, pyrite, tourmaline, and chalcopyrite, as well as quartz porphyry cut by thin veinlets containing pyrite and sphalerite. Cobb and Reed (1981) reported that upper Mesozoic graywacke, shale, and argillite are cut by mineralized shear zones and faults that contain disseminated sulfides, narrow veins of massive sulfide minerals, and quartz veins with minor amounts of sulfide minerals. In addition to copper and zinc anomalies, samples contain as much as 70 ppm silver and 0.9 ppm gold. This mineralized area is about one mile from a small Tertiary granitic stock.

Alteration:

Quartz and tourmaline veining.

Age of mineralization:

Tertiary? Mineralization crosscuts Upper Mesozoic sedimentary rocks. Polymetallic mineralization in this region is commonly associated with Tertiary granitic rocks.

Deposit model:
Polymetallic veins (Cox and Singer, 1986, model 22c)

Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):
22c

Production Status: None

Site Status: Inactive

Workings/exploration:
Reconnaissance sampling has been completed in this area (Reed and Elliott, 1970).

Production notes:

Reserves:

Additional comments:

References:
Reed and Elliott, 1970; Cobb, 1972 (MF 412); Cobb, 1976 (OF 76-485); Cobb and Reed, 1981; Gamble and others, 1989.

Primary reference: Reed and Elliott, 1970

Reporter(s): Travis L. Hudson and Madelyn A. Millholland

Last report date: 06/10/01

Site name(s): Unnamed (near Styx River)

Site type: Occurrence

ARDF no.: LH018

Latitude: 61.6606 **Quadrangle:** LH C-1

Longitude: 153.0425

Location description and accuracy:

This occurrence is on a ridge along the east side of an unnamed east tributary to the Styx River. It is at an elevation of about 5,300 feet, 0.8 mile west of peak 6665. The map site is in the SW1/4 section 11, T 18 N, R 21 W, of the Seward Meridian. This is locality 13 of Cobb (1972 [MF 412]; 1976 [OF 76-485]) and localities 16 and 17 of Gamble and others (1989). The location is probably accurate to within a quarter of a mile.

Commodities:

Main: Ag, Au, Cu, Pb, Zn

Other:

Ore minerals: Chalcopyrite, galena, pyrite, pyrrhotite, sphalerite

Gangue minerals: Quartz, sericite(?)

Geologic description:

Reed and Elliott (1970) reported that float of mineralized granitic rock contains disseminated pyrite and minor chalcopyrite and that float of altered felsic rock contains pyrrhotite, sphalerite, galena, and pyrite. The float also contains quartz veins. Samples of altered felsic rock contain as much as 150 ppm silver, 2 percent copper, greater than 2 percent lead and 1 percent zinc, and 0.4 ppm gold. Other float samples from the general area contain as much as 1,000 ppm silver and 0.5 ppm gold. The granitic rocks are Tertiary plutons of the Alaska-Aleutian Range batholith (Cobb and Reed, 1981).

Alteration:

Quartz veining and possibly quartz-pyrite-sericite replacement.

Age of mineralization:

Tertiary. Quartz veins and mineralization crosscut float boulders of Tertiary intrusive rocks.

Deposit model:

Polymetallic veins and porphyry Cu? (Cox and Singer, 1986, model 22c and 17)

Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):
22c, 17?

Production Status: No

Site Status: Inactive

Workings/exploration:
Reconnaissance sampling has been completed in this area (Reed and Elliott, 1970).

Production notes:

Reserves:

Additional comments:

References:
Reed and Elliott, 1970; Cobb, 1972 (MF 412); Cobb, 1976 (OF 76-485); Cobb and Reed, 1981; Gamble and others, 1989.

Primary reference: Reed and Elliott, 1970

Reporter(s): Travis L. Hudson and Madelyn A. Millholland

Last report date: 06/10/01

Site name(s): Unnamed (head of South Fork Kuskokwim River)

Site type: Occurrence

ARDF no.: LH019

Latitude: 61.5687 **Quadrangle:** LH C-1

Longitude: 153.3201

Location description and accuracy:

This occurrence is at an elevation of about 6,200 feet on a ridge along the east side of the southeast headwater tributary of South Fork Kuskokwim River. The map site is 0.4 mile south-southwest of peak 6980, in the northeast corner of section 17, T 17 N, R 22 W, of the Seward Meridian. This is locality Cobb (1972 [MF 412]; 1976 [OF 76-485]). The location is probably accurate to within a quarter of a mile.

Commodities:

Main: Ag, Cu

Other:

Ore minerals: Chalcopyrite, pyrite

Gangue minerals: Quartz

Geologic description:

Reed and Elliott (1970) reported that sparse fractures as much as 1 cm wide in quartz monzonite are filled with quartz, chalcopyrite, pyrite, and traces of other sulfide minerals. Pyrite and chalcopyrite are also disseminated in the quartz monzonite. A sample of a vein contained greater than 20,000 ppm copper, 100 ppm silver, and anomalous lead. The mineralized quartz monzonite is Tertiary; it intrudes upper Mesozoic slate and graywacke as well as older, probably Cretaceous, granitic rocks (Cobb and Reed, 1981).

Alteration:

Quartz veining.

Age of mineralization:

Tertiary. Quartz veins and mineralization crosscut Tertiary intrusive rocks.

Deposit model:

Polymetallic veins (Cox and Singer, 1986, models 22c)

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

22c

Production Status: None

Site Status: Inactive

Workings/exploration:
Reconnaissance sampling has been completed in this area (Reed and Elliott, 1970).

Production notes:

Reserves:

Additional comments:

References:
Reed and Elliott, 1970; Cobb, 1972 (MF 412); Cobb, 1976 (OF 76-485); Cobb and Reed, 1981.

Primary reference: Reed and Elliott, 1970

Reporter(s): Travis L. Hudson and Madelyn A. Millholland

Last report date: 06/10/01

Site name(s): Styx River

Site type: Occurrence

ARDF no.: LH020

Latitude: 61.5391 **Quadrangle:** LH C-1

Longitude: 153.1577

Location description and accuracy:

This occurrence is at an elevation of about 4,000 feet on a small east tributary to the upper Styx River. The map site is just within the north boundary of the NW 1/4 section 30, T 17 N, R 21 W, of the Seward Meridian. It is locality 14 of Cobb (1972, MF-412; 1976, OFR 76-485) and locality 26 of Gamble and others (1989). The location is probably accurate to within one quarter of a mile.

Commodities:

Main: Ag, Mo, Pb, Zn

Other:

Ore minerals: Galena, pyrite, sphalerite

Gangue minerals: Quartz, sericite

Geologic description:

Reed and Elliott (1970) reported that iron-stained and altered intrusive rocks are present along about 200 feet of this creek. The altered rocks consist dominantly of quartz and sericite with minor potassium feldspar and altered biotite. These rocks generally contain less than one percent sulfide minerals, including pyrite, sphalerite, and galena, that are disseminated and in quartz veins as much as 2 inches wide. Sphalerite and galena also occur as thin veinlets and disseminations in felsite. Shear zones in the altered intrusions are also mineralized with sulfides. Besides zinc and lead values, rock samples contain as much as 15 ppm silver and 300 ppm molybdenum. The altered intrusive rocks are probably Late Cretaceous or Tertiary parts of the Alaska-Aleutian Range batholith (Reed and Lanphere, 1973).

Alteration:

Quartz-sericite-pyrite replacement and veining.

Age of mineralization:

Late Cretaceous or Tertiary? Mineralized granitic rocks in this area are commonly Late Cretaceous or Early Tertiary parts of the Alaska-Aleutian Range batholith (Reed and

Elliott, 1970; Reed and Lanphere, 1973).

Deposit model:
Polymetallic veins? or porphyry Cu-Mo? (Cox and Singer, 1986, model 22c and 21a)

Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):
22c?, 21a?

Production Status: None

Site Status: Inactive

Workings/exploration:
Reconnaissance surface observation and sampling has been completed in this area (Reed and Elliott, 1970).

Production notes:

Reserves:

Additional comments:

References:
Reed and Elliott, 1970; Cobb, 1972 (MF 412); Reed and Lanphere, 1973; Cobb, 1976 (OF 76-485); Cobb and Reed, 1981; Gamble and others, 1989.

Primary reference: Reed and Elliott, 1970

Reporter(s): Travis L. Hudson and Madelyn A. Millholland

Last report date: 06/10/01

Site name(s): Unnamed (upper Styx River)

Site type: Occurrence

ARDF no.: LH021

Latitude: 61.5000 **Quadrangle:** LH C-1

Longitude: 153.1113

Location description and accuracy:

This occurrence adjoins a small tributary on the east side of the Styx River valley. The map site is at an elevation of about 4,600 feet, just north of the south boundary of the Lime Hills C-1 quadrangle, in the SW1/4 section 6, T 16 N, R 21 W, of the Seward Meridian. It is included as an unnamed occurrence by Cobb and Reed (1981). It is approximately located, perhaps within one-half mile.

Commodities:

Main: Ag, Pb, Zn

Other:

Ore minerals: Galena, sphalerite

Gangue minerals:

Geologic description:

Cobb and Reed (1981) reported that silver-bearing veins with abundant galena and sphalerite are present in this area. Other information about the occurrence or its setting is not available.

Alteration:

Age of mineralization:

Tertiary? Polymetallic mineralization in this region is commonly associated with Tertiary igneous rocks.

Deposit model:

Polymetallic veins? (Cox and Singer, 1986, model 22c)

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

22c?

Production Status: None

Site Status: Inactive

Workings/exploration:
Reconnaissance sampling has been done in this area.

Production notes:

Reserves:

Additional comments:
This occurrence is within Lake Clark National Park.

References:
Cobb and Reed, 1981.

Primary reference: Cobb and Reed, 1981

Reporter(s): Travis L. Hudson and Madelyn A. Millholland

Last report date: 06/10/01

Site name(s): Unnamed (head of South Fork Kuskokwim River)

Site type: Occurrence

ARDF no.: LH022

Latitude: 61.5182 **Quadrangle:** LH C-2

Longitude: 153.4803

Location description and accuracy:

This occurrence is at an elevation of about 4,800 feet on the south side of a glacier that occupies the central headwater tributary of the South Fork Kuskokwim River. The map site is in the SE1/4 section 32, T 17 N, R 23 W, of the Seward Meridian. This is locality 8 of Cobb (1972 [MF 412]; 1976 [OF 76-485]) and locality 24 of Gamble and others (1989). The location is probably accurate to within a quarter of a mile.

Commodities:

Main: Ag, Cu, Mo, Sn

Other:

Ore minerals: Chalcopyrite, pyrite

Gangue minerals: Quartz, tourmaline

Geologic description:

Reed and Elliott (1970) reported finding two sulfide-bearing boulders at this locality. The boulders are of Tertiary quartz diorite and diorite gneiss (Cobb and Reed, 1981). The quartz diorite boulder contained quartz-tourmaline veins carrying 15 percent chalcopyrite and 5 percent pyrite. The diorite gneiss boulder contained tourmaline and 15 percent disseminated chalcopyrite. Rock samples contained as much as 50 ppm silver, 700 ppm molybdenum, 700 ppm tin, and 0.7 ppm gold.

Alteration:

Quartz-tourmaline veining and replacement(?).

Age of mineralization:

Tertiary. Quartz veins and mineralization crosscut Tertiary intrusive rocks.

Deposit model:

Polymetallic veins and porphyry Cu ? (Cox and Singer, 1986, models 22c and 21a?)

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

22c and 21a?

Production Status: None

Site Status: Inactive

Workings/exploration:
Reconnaissance sampling has been completed in this area (Reed and Elliott, 1970).

Production notes:

Reserves:

Additional comments:

References:
Reed and Elliott, 1970; Cobb, 1972 (MF 412); Cobb, 1976 (OF 76-485); Cobb and Reed, 1981; Gamble and others, 1989.

Primary reference: Reed and Elliott, 1970

Reporter(s): Travis L. Hudson and Madelyn A. Millholland

Last report date: 06/10/01

Site name(s): Unnamed (head of Kuskokwim River)

Site type: Occurrences

ARDF no.: LH023

Latitude: 61.4900 **Quadrangle:** LH B-2

Longitude: 153.4826

Location description and accuracy:

This occurrence is in the headwaters of the South Fork Kuskokwim River. It is at an elevation of 4,000 feet along the south side of the river valley and 5.3 miles northeast of Snowcap Mountain. The map site is in the SE 1/4 section 12, T 16 N, R 24 W, of the Seward Meridian. This is locality 9 of Cobb (1972 [MF 412]; 1976 [OF 76-485]). The location is probably accurate to within one mile. Included with this location is a reported gold occurrence (Resource Associates of Alaska, 1976, p. 86) that is about 1 mile to the east, near peak 6425.

Commodities:

Main: Au, Cu, Mo, Zn

Other:

Ore minerals: Arsenopyrite, chalcopyrite, pyrite, pyrrhotite, molybdenite, sphalerite

Gangue minerals: Ankerite, calcite, quartz

Geologic description:

Reed and Elliott (1970) reported that quartz float at this locality includes cobbles containing (1) as much as 40 percent disseminated pyrrhotite and minor chalcopyrite, (2) less than 2 percent molybdenite, and (3) 1- to 3-mm- wide veinlets with less than 10 percent sphalerite and pyrite. Samples contained as much as 12 ppm gold (Reed and Elliott, 1970; Gamble and others, 1989). Quartz veins 1 mile to the east, near peak 6425, are as much as 6 inches wide and contain arsenopyrite, pyrite, chalcopyrite, pyrrhotite, and as much as 2.3 ppm gold (Resource Associates of Alaska, 1976). These occurrences are near the contact of Tertiary diorite and quartz monzonite stocks with Cretaceous sedimentary rocks.

Alteration:

Silicification.

Age of mineralization:

Tertiary. Quartz veins crosscut Tertiary intrusive rocks or nearby, thermally metamor-

phosed sedimentary rocks.

Deposit model:
Polymetallic veins (Cox and Singer, 1986, model 22c)

Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):
21c

Production Status: None

Site Status: Inactive

Workings/exploration:
Reconnaissance sampling has been completed in this area (Reed and Elliott, 1970).

Production notes:

Reserves:

Additional comments:

References:
Reed and Elliott, 1970; Cobb, 1972 (MF 412); Cobb, 1976 (OF 76-485); Cobb and Reed, 1981; Gamble and others, 1989.

Primary reference: Reed and Elliott, 1970

Reporter(s): Travis L. Hudson and Madelyn A. Millholland

Last report date: 06/10/01

Site name(s): Unnamed (west of Snowcap Mountain)

Site type: Occurrence

ARDF no.: LH024

Latitude: 61.4644 **Quadrangle:** LH B-2

Longitude: 153.7046

Location description and accuracy:

This occurrence is on a glacial moraine at the head of a small east tributary to the Stony River. It is at an elevation of about 4,600 feet, 2.6 miles west-northwest of Snowcap Mountain. The map site is in the NE1/4 of section 23, T 16 N., R 25 W, of the Seward Meridian. This is locality 7 of Cobb (1972 [MF 412]; 1976 [OF 76-485]) and Cobb and Reed (1981). The location is probably accurate to within a quarter of a mile.

Commodities:

Main: Ag, Cu, Pb, Sb, Zn

Other:

Ore minerals: Bornite, chalcopyrite, galena, pyrite, sphalerite

Gangue minerals:

Geologic description:

Reed and Elliott (1970, p. 23) reported finding a 2-foot-diameter, float boulder of volcanic breccia containing 60 percent sulfide minerals at this locality. The boulder is in glacial float apparently derived from altered Tertiary volcanic rocks in the nearby cirque. A sample of the boulder contained 3,000 ppm silver and 1.5 percent copper, and greater than 2 percent lead, 1 percent antimony, and 1 percent zinc. Country rocks in this area are mostly Jurassic or Lower Cretaceous clastic sedimentary rocks and Upper Cretaceous or Tertiary volcanic rocks (Reed and Lanphere, 1973; Nokleberg and others, 1994).

Alteration:

Sulfidation.

Age of mineralization:

Late Cretaceous or Tertiary. The volcanic breccia is Upper Cretaceous or Tertiary.

Deposit model:

Polymetallic veins? (Cox and Singer, 1986, model 22c)

Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):
22c?

Production Status: None

Site Status: Inactive

Workings/exploration:
Reconnaissance surface observation and sampling has been completed at this locality (Reed and Elliott, 1970).

Production notes:

Reserves:

Additional comments:

References:
Reed and Elliott, 1970; Cobb, 1972 (MF 412); Reed and Lanphere, 1973; Cobb, 1976 (OF 76-485); Cobb and Reed, 1981; Nokleberg and others, 1994.

Primary reference: Reed and Elliott, 1970

Reporter(s): Travis L. Hudson and Madelyn A. Millholland

Last report date: 06/10/01

Site name(s): Nunatak (south of Snowcap Mountain)

Site type: Occurrence

ARDF no.: LH025

Latitude: 61.4068 **Quadrangle:** LH B-2

Longitude: 153.6225

Location description and accuracy:

This occurrence is at an elevation of 5,500 feet on the south end of a small nunatak, 3.25 miles south of Snowcap Mountain. It is in the NW1/4 section 8, T 15 N, R 24 W, of the Seward Meridian. This location is accurate; other vein occurrences are within a quarter of a mile of this location (Gamble and others, 1989).

Commodities:

Main: Ag, Au, Cu

Other: Co, Ni, Pb, Zn

Ore minerals: Alloclasite(?), arsenopyrite, chalcopyrite, erythite, galena, glaucodot(?), magnetite, pyrite, pyrrhotite, sphalerite

Gangue minerals: Amphibole, apatite, clinopyroxene, chlorite, epidote, quartz, plagioclase

Geologic description:

Barren quartz veins, quartz-amphibole veins, and sulfide-bearing veins occupy east-west trending, sub-vertical fractures in biotite-hornblende monzodiorite to quartz monzodiorite in this area (Gamble and others, 1989). Two sulfide-bearing veins at an elevation of 5,500 feet on the south end of a small nunatak are about 1 to 2 feet wide and contain 5 to 70 percent chalcopyrite, arsenopyrite, and magnetite, and lesser amounts of galena, sphalerite, pyrite, and pyrrhotite. Erythite (cobalt bloom) is locally present and gangue minerals in the sulfide-bearing veins include amphibole, apatite, clinopyroxene, chlorite, epidote, quartz, and plagioclase. Composite chip samples of these veins contain as much as 1.5 ppm gold, 150 ppm silver, and greater than 20,000 ppm copper, 2,000 ppm arsenic, and 2,000 ppm copper. Apatite is locally abundant in the veins, and some samples contain as much as 1 percent phosphorus. Other sulfide-rich samples from the area contain up to 12 ppm gold, 700 ppm silver, and 640 ppm bismuth, and greater than 20,000 ppm copper, 2,000 ppm arsenic, and 2,000 ppm cobalt. A sample that contains greater than 20,000 ppm arsenic, 5,000 ppm cobalt, and 10,000 ppm nickel and only 7 percent iron may be glaucodot- or alloclasite-bearing (Gamble and others, 1989). The gangue mineralogy of the sulfide-bearing veins may indicate that they are in part mineralized mafic dikes.

Alteration:
The sulfide-bearing veins may be variably altered and replaced mafic dikes.

Age of mineralization:
Cretaceous or Tertiary? The veins crosscut granitic rocks that may be Late Cretaceous or Tertiary parts of the Alaska-Aleutian Range batholith.

Deposit model:
Polymetallic veins? (Cox and Singer, 1986, model 22c)

Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):
22c?

Production Status: None

Site Status: Inactive

Workings/exploration:
Reconnaissance sampling has been done in this area (Gamble and others, 1989).

Production notes:

Reserves:

Additional comments:

References:
Gamble and others, 1989.

Primary reference: Gamble and others, 1989

Reporter(s): Travis L. Hudson and Madelyn A. Millholland

Last report date: 06/10/01

Site name(s): Breccia (south of Snowcap Mountain)

Site type: Occurrence

ARDF no.: LH026

Latitude: 61.4203 **Quadrangle:** LH B-2

Longitude: 153.5792

Location description and accuracy:

This occurrence is at an elevation of about 4,500 feet on the east side of a small glacier, 2.9 miles southeast of Snowcap Mountain. It is in the SE1/4 section 4, T 15 N, R 24 W, of the Seward Meridian. The location is accurate to within 0.2 mile.

Commodities:

Main: Ag, Au, Cu

Other: Bi

Ore minerals: Arsenopyrite, chalcopyrite, galena, pyrite, pyrrhotite, sphalerite

Gangue minerals: Calcite, chlorite, epidote, quartz, sericite, tourmaline

Geologic description:

A tourmaline-cemented breccia as much as 80 feet across is present in monzogranite at this locality (Gamble and others, 1989). The breccia, includes vein quartz, light-colored angular rock fragments, and monzogranite clasts to about 3 feet across suspended in a black tourmaline matrix that also contains lesser amounts of sericite, quartz, calcite, and chlorite. Discontinuous quartz-tourmaline-sulfide veins to a foot wide cut the breccia along vertical, north-south-trending fractures. Sulfides in the veins include arsenopyrite, chalcopyrite, pyrrhotite, pyrite, and lesser amounts of galena and sphalerite; gangue minerals include quartz, tourmaline, chlorite, and epidote. A composite grab sample of 5 veins in the breccia contains as much as 4.1 ppm gold, 7 ppm silver,and greater than 2,000 ppm arsenic. Selected sulfide-rich samples contain as much as 21 ppm gold, 150 ppm silver, 10,000 ppm copper, and greater than 2,000 ppm arsenic and 1,000 ppm bismuth (Gamble and others, 1989).

Alteration:

Tourmaline replacement and veining.

Age of mineralization:

Cretaceous or Tertiary? The breccia and veins crosscut granitic rocks that may be Late Cretaceous or Tertiary parts of the Alaska-Aleutian Range batholith.

Deposit model:
Tourmaline-cemented breccia in granitic rocks

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

Production Status: None

Site Status: Inactive

Workings/exploration:
Reconnaissance sampling has been done in this area (Gamble and others, 1989).

Production notes:

Reserves:

Additional comments:

References:
Gamble and others, 1989.

Primary reference: Gamble and others, 1989

Reporter(s): Travis L. Hudson and Madelyn A. Millholland

Last report date: 06/10/01

Site name(s): West Chilligan

Site type: Occurrence

ARDF no.: LH027

Latitude: 61.4668 **Quadrangle:** LH B-1

Longitude: 153.2472

Location description and accuracy:

This occurrence is on the east side of an unnamed north tributary valley to the upper Chilligan River. It is near the toe of a small glacier at an elevation of about 5,000 feet, 0.9 mile north-northwest of peak 6237. The map site is in the NE1/4 section 20, T 16 N, R 22 W, of the Seward Meridian. This occurrence is included under the name West Chilligan by Cobb and Reed (1981); it is location 31 of Gamble and others (1989). It is approximately located, perhaps within one-half mile.

Commodities:

Main: Ag, Cu, Mo, Pb, Zn

Other:

Ore minerals: Chalcopyrite, galena, molybdenite, pyrite, sphalerite

Gangue minerals: Clay, chlorite, quartz, sericite

Geologic description:

This occurrence consists mainly of pyrite-filled fractures and of quartz-chlorite veins containing traces of chalcopyrite, galena, and sphalerite in argillized granitic rocks. Disseminated sulfides are present locally, and molybdenite occurs as coarse flakes in some quartz veins. Rock samples contained from 0.1 to 1.6 percent copper (Resource Associates of Alaska, 1976). Geochemical anomalies trend northwest and may be controlled by splays of a regional northwest-southeast fault in Chilligan River valley. The granitic host rocks are small stocks of Tertiary granodiorite that intrude locally mineralized quartz diorite (Cobb and Reed, 1981). The granitic rocks are overlain by barren volcanic rocks.

Alteration:

Argillization and quartz-chlorite veining.

Age of mineralization:

Tertiary. Sulfide-bearing quartz veins crosscut Tertiary granitic rocks.

Deposit model:

Porphyry Cu-Mo (Cox and Singer, 1986, model 21a)

Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):
21a

Production Status: None

Site Status: Inactive

Workings/exploration:
Reconnaissance surface observation and sampling has been completed in this area.

Production notes:

Reserves:

Additional comments:
This occurrence is within Lake Clark National Park.

References:
Resource Associates of Alaska, 1976; Cobb and Reed, 1981; Gamble and others, 1989.

Primary reference: Resource Associates of Alaska, 1976

Reporter(s): Travis L. Hudson and Madelyn A. Millholland

Last report date: 06/10/01

Site name(s): Chill

Site type: Prospect

ARDF no.: LH028

Latitude: 61.4831 **Quadrangle:** LH B-1

Longitude: 153.0499

Location description and accuracy:

This prospect area is in the eastern headwaters of a large, east tributary to the Chilligan River. The map site is at an elevation of about 4,200 feet at the toe of glacial moraine that covers much of the headwater drainage. It is in the NW 1/4 section 16, T 16 N, R 21 W, of the Seward Meridian. This is locality 16 of Cobb (1972 [MF 412]; 1976 [OF 76-485]) and localities 27 and 28 of Gamble and others (1989). The location is probably accurate to within one-half mile.

Commodities:

Main: Ag, Au, Cu, Pb, Sn, Zn

Other:

Ore minerals: Arsenopyrite, chalcopyrite, galena, pyrite, pyrrhotite, sphalerite

Gangue minerals: Quartz, tourmaline

Geologic description:

Reed and Elliott (1970) reported several types of mineralization in this area, including: (1) tourmaline-chalcopyrite veins and fracture coatings in and near the contact zone between Tertiary monzonite-granite and country rock sandstone, (2) pyrite-arsenopyrite-chalcopyrite-galena-sphalerite veins in a fault zone that cuts granite, and (3) replacement of limestone by pyrite, pyrrhotite, as much as 5 percent chalcopyrite, and traces of galena. Mineralized float in the area includes (1) mafic rock with 30 percent chalcopyrite and pyrite, (2) tourmaline-quartz rock with 20 percent disseminated arsenopyrite, pyrite, and chalcopyrite, and (3) altered felsic rock with 3 percent disseminated pyrite and galena and limonite and malchite along fractures (Cobb and Reed, 1981). Samples of mineralized bedrock and float contained anomalous silver, copper, lead, tin, zinc, and traces of gold. The Chill claim group that was once located in this area covered a porphyry-type copper deposit and various sulfide-bearing veins. Samples from the general area contained up to 2.8 percent copper, 200 ppm silver, 25 ppm molybdenum, 3,250 ppm lead, 1,350 ppm zinc, and 0.2 ppm gold (Reed and Elliott, 1970; Cobb and Reed, 1981; Gamble and others, 1989). The country rocks are probably Mesozoic sedimentary rocks (Nokleberg and others, 1994) and the Tertiary granitic rocks are part of the Alaska-Aleutian Range batho-

lith (Reed and Lanphere, 1973).

Alteration:
Quartz-tourmaline veining and sulfide-rich replacement.

Age of mineralization:
Tertiary. Mineralization crosscuts Tertiary intrusive rocks or nearby, thermally metamorphosed sedimentary rocks.

Deposit model:
Polymetallic veins and porphyry Cu (Cox and Singer, 1986, models 22c and 17)

Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):
17, 22c

Production Status: None

Site Status: Inactive

Workings/exploration:
Reconnaissance surface observation and sampling has been completed in this area (Reed and Elliott, 1970).

Production notes:

Reserves:

Additional comments:
This occurrence is within Lake Clark National Preserve.

References:
Reed and Elliott, 1970; Cobb, 1972 (MF 412); Reed and Lanphere, 1973; Cobb, 1976 (OF 76-485); Cobb and Reed, 1981; Gamble and others, 1989; Nokleberg and others, 1994.

Primary reference: Gamble and others, 1989

Reporter(s): Travis L. Hudson and Madelyn A. Millholland

Last report date: 06/10/01

Site name(s): Unnamed (upper Chilligan River)

Site type: Occurrence

ARDF no.: LH029

Latitude: 61.4451 **Quadrangle:** LH B-1

Longitude: 153.2218

Location description and accuracy:

This occurrence is on the north side of the upper Chilligan River within a small glacier-filled valley. It is at the toe of a south-flowing glacier, at an elevation of about 4,600 feet, and 1.5 miles north of Chilligan River. The map site is in the SE1/4 section 28, T 16 N, R 22 W, of the Seward Meridian. This is locality 15 of Cobb (1972 [MF 412]; 1976 [OF 76-485]) and location 30 of Gamble and others (1989). The location is probably accurate to within one-half mile.

Commodities:

Main: Ag, Cu, Pb, Sn, Zn

Other:

Ore minerals: Galena, pyrite, sphalerite

Gangue minerals: Quartz, sericite

Geologic description:

Reed and Elliott (1970) reported that float in a medial moraine at this locality consists of silicified and sericitized quartz monzonite that contains 5 to 10 percent galena, sphalerite, and pyrite. The sulfide minerals are in clots as much as 2 cm in diameter and in thin veinlets up to 5 mm wide. Shear zones in nearby metasedimentary rocks contain galena and sphalerite. Sulfide-bearing samples contain up to greater than 20,000 ppm lead, greater than 10,000 ppm zinc, greater than 1,000 ppm tin, 2,000 ppm copper, and 150 ppm silver. The mineralization is near the contact between a Tertiary granitic pluton and Mesozoic metamorphic rocks.

Alteration:

Silicification? and sericite-pyrite replacement?

Age of mineralization:

Tertiary. Mineralization occurs in Tertiary intrusive rocks and in shear zones in nearby metasedimentary rocks.

Deposit model:
Polymetallic veins (Cox and Singer, 1986, model 22c)

Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):
22c

Production Status: None

Site Status: Inactive

Workings/exploration:
Reconnaissance sampling has been completed in this area (Reed and Elliott, 1970).

Production notes:

Reserves:

Additional comments:
This occurrence is within Lake Clark National Park.

References:
Reed and Elliott, 1970; Cobb, 1972 (MF 412); Cobb, 1976 (OF 76-485); Cobb and Reed, 1981; Gamble and others, 1989.

Primary reference: Reed and Elliott, 1970

Reporter(s): Travis L. Hudson and Madelyn A. Millholland

Last report date: 06/10/01

Site name(s): Pass Lake

Site type: Occurrence

ARDF no.: LH030

Latitude: 61.3998 **Quadrangle:** LH B-1

Longitude: 153.2334

Location description and accuracy:

This occurrence is at the toe of a glacier in small south tributary valley to the upper Chilligan River. It is at an elevation of about 4,800 feet, 0.4 mile southwest of peak 6017. The map site is in the SW/4 section 9, T 15 N, R22 W, of the Seward Meridian. It is locality 16 of MacKevett and Holloway (1977), locality 40 of Gamble and others (1989), and it is included under the name Pass Lake by Cobb and Reed (1981). It is approximately located, perhaps within one-half mile.

Commodities:

Main: Cu, Mo, Zn

Other:

Ore minerals: Chalcopyrite, molybdenite, pyrite, pyrrhotite, sphalerite

Gangue minerals:

Geologic description:

This occurrence represents an approximately 5-square-mile area of local base metal geochemical anomalies (Resource Associates of Alaska, 1976). At the map site, Tertiary biotite granite float containing disseminated molybdenite assayed 960 ppm molybdenum. Tertiary granite throughout the area locally contains molybdenite, pyrite, and pyrrhotite, and, less commonly, chalcopyrite and sphalerite. At least some of the mineralization is probably in quartz veins.

Alteration:

Quartz veining(?).

Age of mineralization:

Tertiary. Sulfide mineralization is in Tertiary granitic rocks.

Deposit model:

Porphyry Cu-Mo (Cox and Singer, 1986, model 21a)

Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):
21a

Production Status: None

Site Status: Inactive

Workings/exploration:
Reconnaissance surface observation and sampling has been completed in this area.

Production notes:

Reserves:

Additional comments:
This occurrence is within Lake Clark National Park.

References:
Resource Associates of Alaska, 1976; MacKevett and Holloway, 1977; Cobb and Reed, 1981; Gamble and others, 1989.

Primary reference: Resource Associates of Alaska

Reporter(s): Travis L. Hudson and Madelyn A. Millholland

Last report date: 06/10/01

Site name(s): Unnamed (east of Stony River)

Site type: Occurrence

ARDF no.: LH031

Latitude: 61.2993 **Quadrangle:** LH B-2

Longitude: 153.6655

Location description and accuracy:

This occurrence is at an elevation of about 5,000 feet on the south flank of a ridge on the east side of Stony River valley. The map site is near the southeast corner of section 13, T 14 N, R 25 W, of the Seward Meridian. This is location 17 of MacKevett and Holloway (1977), location 6 of Resource Associates of Alaska (1976), and location 44 of Gamble and others (1989). It is included as an unnamed occurrence by Cobb and Reed (1981). It is approximately located, perhaps to within one-half mile.

Commodities:

Main: Cu

Other: Ag

Ore minerals: Chalcopyrite, pyrite, pyrrhotite

Gangue minerals: Epidote, quartz

Geologic description:

Cobb and Reed (1981) reported that chalcopyrite, pyrite, and pyrrhotite occur as blebs and disseminations in Cretaceous(?) metasedimentary rocks adjacent to a Tertiary granitic pluton. The mineralization is localized in metasiltstone and metaconglomerate adjacent to and in roof pendants of the quartz diorite to quartz monzonite pluton. The metasedimentary rocks contain blebs and vugs of epidote, quartz, and feldspar. The area is cross-cut by a regional northwest-trending fault. A 1,500-foot-diameter gossan containing 20 percent pyrite lies to the north of the occurrence. Rock samples contain as much as 2,700 ppm coppper and 7 ppm silver (Resource Associates of Alaska, 1976).

Alteration:

Silicification and epidote replacement.

Age of mineralization:

Tertiary. Mineralization is in the altered zone around a Tertiary pluton.

Deposit model:

Disseminated sulfides in contact zone of granitic pluton

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

Production Status: None

Site Status: Inactive

Workings/exploration:
Reconnaissance sampling has been completed in this area.

Production notes:

Reserves:

Additional comments:

References:
Resource Associates of Alaska, 1976; MacKevett and Holloway, 1977; Cobb and Reed, 1981; Gamble and others, 1989.

Primary reference: Resource Associates of Alaska, 1976

Reporter(s): Travis L. Hudson and Madelyn A. Millholland

Last report date: 06/10/01

Site name(s): Only

Site type: Occurrences

ARDF no.: LH032

Latitude: 61.0955 **Quadrangle:** LH A-5

Longitude: 154.5208

Location description and accuracy:
Occurrences of placer gold are present in a several square mile area centered on USGS benchmark Only in the Lime Hills A-4 quadrangle (Eppinger, 1993). The map site is at an elevation of 1,700 feet on one of the drainages flowing north from these uplands in the south-central part of section 25, T 12 N, R 30 W, of the Seward Meridian. The map site is chosen to represent the general area of gold occurrences.

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:
Pan concentrates from several drainages in this area contain detrital gold (Eppinger, 1993). The gold includes grains with sharp edges, embayments, and other delicate features. Bedrock in the area is dominantly Cretaceous clastic sedimentary rocks (Eppinger, 1993).

Alteration:

Age of mineralization:
Quaternary.

Deposit model:
Placer Au (Cox and Singer, 1986, model 39a)

Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):
39a

Production Status: None

Site Status: Inactive

Workings/exploration:

Production notes:

Reserves:

Additional comments:

References:

Eppinger, 1993.

Primary reference: Eppinger, 1993

Reporter(s): Travis L. Hudson and Madelyn A. Millholland

Last report date: 06/10/01

Site name(s): Necons River

Site type: Prospect

ARDF no.: LH033

Latitude: 61.0268 **Quadrangle:** LH A-3

Longitude: 154.0112

Location description and accuracy:
Cobb and Reed (1981) reported that placer gold activity has occurred at about this location on the Necons River. The Necons River is a moderate-size stream that flows southwest to the Stony River from headwaters in the Alaska Range. The map site is below Two Lakes, in the NW1/4 section 24, T 11 N, R 27 W, of the Seward Meridian. The location is very approximate, perhaps within several miles.

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:
Cobb and Reed (1981) reported that placer gold activity has occurred at approximately this location on the Necons River.

Alteration:

Age of mineralization:
Quaternary.

Deposit model:
Placer Au (Cox and Singer, 1986, model 39a)

Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):
39a

Production Status: None

Site Status: Probably inactive

Workings/exploration:
Some surface prospecting has apparently occurred along the Necons River.

Production notes:

Reserves:

Additional comments:
This occurrence is within Lake Clark National Park.

References:
Cobb and Reed, 1981.

Primary reference: Cobb and Reed, 1981

Reporter(s): Travis L. Hudson and Madelyn A. Millholland

Last report date: 06/10/01

Site name(s): Unnamed (southeast of Merrill Pass)

Site type: Occurrence

ARDF no.: LH034

Latitude: 61.1502 **Quadrangle:** LH A-1

Longitude: 153.2479

Location description and accuracy:

This occurrence is on the west side of a south tributary valley to the upper Another River. It is about 3.8 miles southeast of Merrill Pass and 2.8 miles northwest of The Tusk. The map site is at an elevation of about 3,600 feet, in the NW1/4 section 7, T 12 N, R 22 W, of the Seward Meridian. This occurrence was included by Cobb and Reed (1981) under the name Another R. It is approximately located, perhaps within a mile.

Commodities:

Main: Ag, Mo, Pb, Zn

Other:

Ore minerals: Galena, molybdenite, pyrite, sphalerite

Gangue minerals: Quartz

Geologic description:

Cobb and Reed (1981) reported that molybdenite- and pyrite-bearing quartz veins are present in Tertiary granitic rocks at this locality. Galena- and sphalerite-bearing veins are also present nearby. The veins are disseminated and appear to be associated with quartz monzonite and in adjacent fractured quartz diorite. Samples of veins contain as much as 3 ounces of silver per ton (Resource Associates of Alaska, unpublished data, 1976).

Alteration:

Silicification.

Age of mineralization:

Tertiary. Sulfide-bearing quartz veins crosscut Tertiary granitic rocks.

Deposit model:

Porphyry Mo, low-F? (Cox and Singer, 1986, model 21b)

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

21b

Production Status: None

Site Status: Inactive

Workings/exploration:
Reconnaissance sampling has been completed in this area.

Production notes:

Reserves:

Additional comments:
This occurrence is within Lake Clark National Preserve.

References:
Resource Associates of Alaska, 1976; Cobb and Reed, 1981.

Primary reference: Cobb and Reed, 1981

Reporter(s): Travis L. Hudson and Madelyn A. Millholland

Last report date: 06/10/01

Site name(s): Unnamed (north of Neacola River)

Site type: Occurrence

ARDF no.: LH035

Latitude: 61.0823 **Quadrangle:** LH A-2

Longitude: 153.4162

Location description and accuracy:

This occurrence is near the terminus of a glacier at the head of a north tributary to the upper Neacola River. It is at an elevation of about 2,400 feet, 0.6 mile northwest of peak 5690. The map site is in the SE1/4 section 31, T 12 N, R 23 W,of the Seward Meridian. This locality was referred to by Cobb and Reed (1981) as Two Lakes. It is approximately located, perhaps within one-half mile.

Commodities:

Main: Cu, Mo

Other:

Ore minerals: Molybdenite

Gangue minerals:

Geologic description:

Cobb and Reed (1981) report that molybdenite and copper-bearing minerals are associated with Tertiary rhyolite plugs and flows at this locality.

Alteration:

Age of mineralization:

Tertiary. Mineralization is in Tertiary rhyolite plugs and flows.

Deposit model:

Porphyry Cu-Mo (Cox and Singer, 1986 model 21a)

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

21a

Production Status: None

Site Status: Inactive

Workings/exploration:
Reconnaissance sampling has been completed in this area.

Production notes:

Reserves:

Additional comments:
This occurrence is within Lake Clark National Park.

References:
Cobb and Reed, 1981.

Primary reference: Cobb and Reed, 1981

Reporter(s): Travis L. Hudson and Madelyn A. Millholland

Last report date: 06/10/01

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