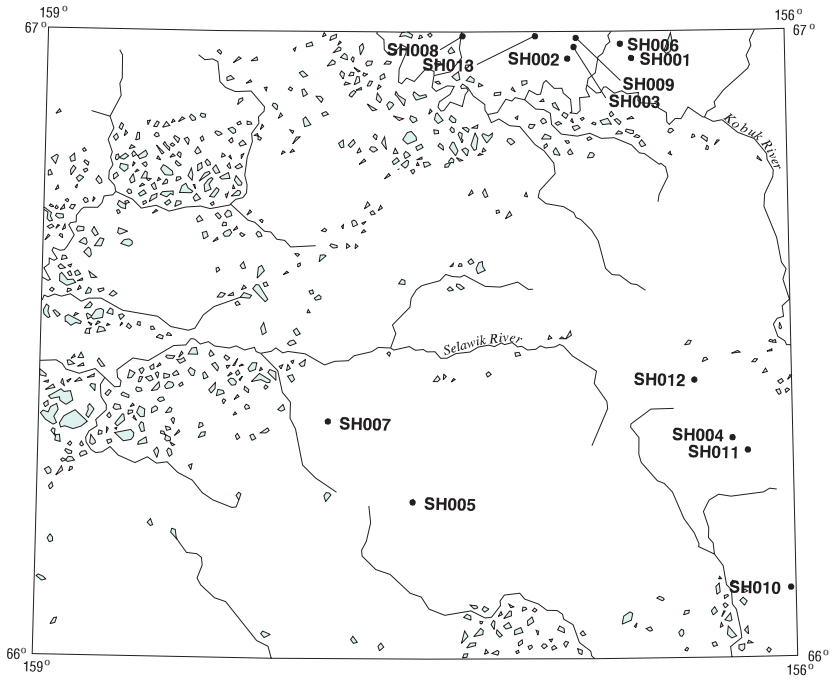
USGS
science for a changing world

Alaska Resource Data File

Shungnak quadrangle

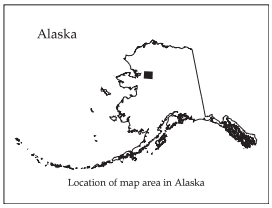
Descriptions of the mineral occurrences shown on the accompanying figure follow. See U.S. Geological Survey (1996) for a description of the information content of each field in the records. The data presented here are maintained as part of a statewide database on mines, prospects and mineral occurrences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



Distribution of mineral occurrences in the Shungnak 1:250,000-scale quadrangle, northwestern 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:

Anita Williams
Anchorage, AK



OPEN-FILE REPORT 00-022

Site name(s): California Creek

Site type: Mine

ARDF no.: SH001

Latitude: 66.9571 **Quadrangle:** SH D-2

Longitude: 156.6251

Location description and accuracy:

The California Creek placer deposit is on California Creek between Little Creek and Wonder Creek. The coordinates are for the mine symbol on Shungnak D-2 quadrangle. The deposit is in sections 14, 15, and 22, T. 18 N., R. 10 E., of the Kateel River Meridian. Cobb (1972, MF-448), location 16, and Mayfield and Grybeck (1978), location 34.

Commodities:

Main: Au

Other: Asbestos, nephrite

Ore minerals: Gold

Gangue minerals:

Geologic description:

At California Creek, placer gold occurs in the lower 5 feet of creek gravels, but not in bedrock crevices. The gold is smooth, flat and coarse; about half of it was nugget size. It was worth about $17.20 per ounce in 1931. The grade of the deposit was said to average $0.81 per cubic yard up to and including production from 1930. In 1931 the ground averaged about $0.385 per cubic yard (gold at $20.67/ounce). Both creek and bench deposits were auriferous. Depth to bedrock ranged from 14 to 20 feet. The gravel is coarse, up to 3 inches in diameter, and contains numerous subangular boulders of greenstone and greenschist up to 3 feet in diameter. Nephrite boulders were common, but few of gem quality. Asbestos fibers said to be as long as 3 inches were found in placer workings.

The valley is unglaciated. The stream drains an area of lower Paleozoic metavolcanic rock and phyllite that is cut by many quartz veins from which the gold in the placers was probably derived. The veins may be genetically linked to the mid-Paleozoic granitic intrusion that outcrops on lower Lynx Creek (ARDF number SH006) (Reed, 1931). Quartz crystals have been recovered from gold placers.

Alteration:

Age of mineralization:

Quaternary.

Deposit model:
Placer Au-PGE (Cox and Singer, 1986; model 39a).

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

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:
California Creek has been mined since gold was discovered on it in 1918. The deposit was mined by hydraulicking pits and washing the lower 6 to 10 feet of gravel through a sluice box. Flumes, hydraulic mining equipment and piles of stripped gravel remain along the creek. The deposit is probably mined out.

Production notes:

Reserves:
The deposit is probably mined out.

Additional comments:
Stream gradient is approximately 200 feet per mile. Asbestos fibers said to be as long as 3 inches were found in placer workings.

References:
Cathcart, 1920; Martin, 1920; Brooks and Capps, 1924; Brooks, 1925; Moffit, 1927; Smith, 1929; Smith, 1930 (B 810); Smith, 1930 (B 813); Smith and Mertie, 1930; Reed, 1931; Smith, 1932; Smith, 1933 (B 836); Smith, 1933 (B 844A); Smith, 1934; Smith, 1937; Smith, 1938; Smith, 1942; Anderson, 1945; Anderson, 1947; Fritts, 1969; Fritts, 1970; Cobb, 1972 (MF 448); Cobb, 1973 (B 1374); Cobb, 1975 (OFR 75-627); Cobb, 1977 (OFR 77-168B); Grybeck, 1977; Mayfield and Grybeck, 1978.

Primary reference: Reed, 1931

Reporter(s): Anita Williams (Anchorage, AK)

Last report date: 12/16/99

Site name(s): Lower Dahl Creek

Site type: Mine

ARDF no.: SH002

Latitude: 66.957 **Quadrangle:** SH D-2

Longitude: 156.885

Location description and accuracy:

The lower Dahl Creek placer deposit is about 3/4 mile north of the Dahl Creek landing strip and about 4 miles by road from Kobuk. The deposit, which extends for about a mile along the creek, is in sections 15, 16, and 21, T. 18 N., R. 9 E., of the Kateel River Meridian. Mayfield and Grybeck (1978), location 30.

Commodities:

Main: Au

Other: Nephrite

Ore minerals: Gold

Gangue minerals:

Geologic description:

At the lower Dahl Creek placer deposit, gold occurs on false bedrock or in glacial drift commonly less than 10 ft. below the surface. The gold is irregularly distributed through the gravel. The gold is fairly coarse but with few nuggets. It was worth about $16.50 per ounce in 1931. Where the stream valley opens into the Kobuk Valley three shafts were sunk through glacial till, two to 25 feet and one to 80 feet. These test holes went through alternating beds of sand and gravel dipping slightly to the south and failed to reach bedrock. Fine colors of gold were found in the sand and gravel in all the holes, but no regular paystreak was found. One-half mile below the mouth of the canyon the depth to bedrock varies from 2 to 8 feet. Two lines, at 500 foot spacing, of three shafts each cross the stream valley in this area. The shafts were sunk to 25 feet and did not reach bedrock. Gold reportedly occurs in a paleo-channel. The ground mined in this area was estimated to yield about $1.02 per cubic yard (Reed, 1931).

Bedrock in the area consists of conglomeratic metasediments and black phyllite of early to mid-Paleozoic age. The black phyllite is cut by numerous quartz veins. Stream gravel is medium fine, containing well waterworn pieces up to 2 inches in diameter. Distributed throughout the gravel are numerous large boulders of greenstone or metamorphosed conglomerate, and an occasional boulder of gneissic granite (Reed, 1931).

Alteration:

Age of mineralization:
Quaternary.

Deposit model:
Placer Au-PGE (Cox and Singer, 1986; model 39a).

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

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:
Gold was first discovered in 1898 and the claims have been worked more or less consistently up to 1968. Starting in 1950, nephrite boulders were recovered during the mining process. This continued into the early 1970's. In 1988 and 1989 NANA took jig samples from each of the claim blocks in an attempt to complete a patenting application on the claims. These data are available by request from NANA Regional Corp.

Production notes:
Total production from Dahl Creek (also see ARDF number SH003) is estimated to be 15,000 ounces to more than 17,000 ounces (Degenhart and others, 1978).

Reserves:

Additional comments:
Dahl Creek was the main placer gold producer in the district. Nephrite boulders were recovered from stream gravels during placer mining starting in the 1950's. Nephrite was produced from the creek up to the 1970's. The land is owned by NANA Regional Corporation.

References:
Brooks, 1909; Brooks, 1910; Smith and Eakins, 1911; Brooks, 1912; Smith, 1913; Brooks, 1914; Brooks, 1916; Martin, 1919; Brooks and Martin, 1921; Brooks, 1922; Brooks and Capps, 1924; Brooks, 1925; Moffit, 1927; Smith, 1929; Smith, 1930 (B 810); Smith, 1930 (B 813); Smith and Mertie, 1930; Reed, 1931; Smith, 1932; Smith, 1933 (B 836); Smith, 1933 (B 844A); Smith, 1934 (B 857A); Smith, 1934 (B 864A); Smith, 1936; Smith, 1937; Smith, 1938; Smith, 1939 (B 910); Smith, 1939 (B 917A); Smith, 1941; Smith, 1942; Coats, 1944; Anderson, 1945; Anderson, 1947; Fritts, 1969; Fritts, 1970; Cobb, 1972 (MF 448); Cobb, 1973 (B 1374); Cobb, 1975 (OFR 75-627); Cobb, 1977 (OFR 77-168B); Grybeck, 1977; Degenhart and others, 1978; Mayfield and Grybeck, 1978; WGM Staff, 1980.

Primary reference: Reed, 1931

Reporter(s): Anita Williams (Anchorage, AK)

Last report date: 12/16/99

Site name(s): Upper Dahl Creek

Site type: Mine

ARDF no.: SH003

Latitude: 66.9755 **Quadrangle:** SH D-2

Longitude: 156.8592

Location description and accuracy:

The upper Dahl Creek placer mine extends along the creek from just below Wye Creek to just above Harry Creek. The coordinates are for the mine symbol at the confluence of Wye Creek. The deposit is in sections 3 and 10, T. 18 N., R. 9 E., of the Kateel River Meridian. Cobb (1972, MF-448), locations 13, 14.

Commodities:

Main: Au

Other: Ag, Cd, Cr, Cu, nephrite

Ore minerals: Gold, native silver

Gangue minerals:

Geologic description:

At the upper Dahl Creek placer mine most of the gold lies on, or just above, bedrock, although some spongy gold occurs in black, soil-like overburden (A. Williams, unpublished data, 1998). The gold was most abundant near the mouth of Wye Creek. Creek gravels range from 5 to 25 feet thick. The gold is in the lower 1 to 2 feet of gravel as well as on bedrock; it is unevenly distributed and patchy, occurring in pockets. There is no continuous pay streak. The gold is reddish to brass yellow in color. Some of the nuggets were spongy and rare wire gold has been reported. Nuggets of considerable size have been recovered from the deposit. One nugget was worth about $65 in 1913 and had considerable greasy-looking milky quartz attached. A flat nugget worth over $600 was recovered just below Harry Creek. The gold was valued at $17.20 per ounce (Reed, 1931). Concentrates from the placers are predominately magnetite, along with some chromite and native copper. Nuggets of native silver up to 1 inch in diameter been reported in the concentrates. The silver carries a small amount of cadmium. (Smith, 1913). Nephrite boulders have been recovered during placer mining.

The upper Dahl Creek placer is in thawed ground. Bedrock is lower Paleozoic, black slate with quartz stringers, and schist which breaks into small, rectangular blocks. The joint faces on these blocks are commonly iron-stained. The dominant strike of the bedrock is perpendicular to the creek, forming natural riffles for catching gold. Holes sunk

on some low benches on either side of the creek are in unconsolidated deposits up to 15 feet thick. Quartz veins cutting bedrock on these benches are 1 inch to 4 feet thick. Serpentinite near Dahl Creek around the confluence of Stockley Creek contains chrysotile and fibrous serpentine.

Alteration:

Age of mineralization:
Quaternary.

Deposit model:
Placer Au-PGE (Cox and Singer, 1986; model 39a).

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

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:
Gold was first discovered in 1898 and the claims were worked more or less continuously up to 1968. From the late 50's into the early 70's nephrite boulders were recovered and cut during the mining process. Early mining was done with shovels and sluice box. In the 1920's, hydraulic equipment was installed and used extensively around Wye Creek. In 1988 and 1989 NANA took jig samples from each of the claim blocks in an attempt to complete a patenting application on the claims.

Production notes:
Total production from the Dahl Creek placers (also see ARDF number SH002) is estimated to be 15,000 ounces to more than 17,000 ounces (Degenhart and others, 1978).

Reserves:

Additional comments:
The gradient of Dahl Creek is approximately 150 feet per mile. Much of material collected as nephrite jade was serpentinite rather than nephrite. Best placer ground is worked out. The mine area is accessible by trail from Kobuk and is owned by NANA Regional Corp. Data on Dahl Creek are available by request from NANA Regional Corp.

References:
Brooks, 1909; Brooks, 1910; Smith and Eakins, 1911; Brooks, 1912; Smith, 1913; Brooks, 1914; Brooks, 1916; Martin, 1919; Brooks and Martin, 1921; Brooks, 1922; Brooks and Capps, 1924; Brooks, 1925; Moffit, 1927; Smith, 1929; Smith, 1930 (B 810); Smith, 1930 (B 813); Smith and Mertie, 1930; Reed, 1931; Smith, 1932; Smith, 1933 (B 836); Smith, 1933 (B 844A); Smith, 1934 (B 857A); Smith, 1934 (B 864A); Smith, 1936;

Smith, 1937; Smith, 1938; Smith, 1939 (B 910); Smith, 1939 (B 917A); Smith, 1941; Smith, 1942; Coats, 1944; Anderson, 1945; Anderson, 1947; Saunders, 1953; Fritts, 1969; Fritts, 1970; Cobb, 1972 (MF 448); Cobb, 1973 (B 1374); Cobb, 1975 (OFR 75-627); Cobb, 1977 (OFR 77-168B); Grybeck, 1977; Degenhart and others, 1978; Mayfield and Grybeck, 1978; WGM Staff, 1980.

Primary reference: Smith, 1913; Reed, 1931

Reporter(s): Anita Williams (Anchorage, AK)

Last report date: 12/16/99

Site name(s): Dakli

Site type: Occurrence

ARDF no.: SH004

Latitude: 66.35 **Quadrangle:** SH B-1

Longitude: 156.24

Location description and accuracy:

This occurrence is at an elevation of about 3,000 feet on the Continental Divide in section 14, T. 11 N., R. 12 E., of the Kateel River Meridian. Cobb (1972, MF-448), locations 8, 9, 10 and Miller and Ferrians (1968), figure 3.

Commodities:

Main: Ag, Au, Cu

Other:

Ore minerals: Chalcopyrite, covellite, gold, malachite, pyrite

Gangue minerals: Quartz

Geologic description:

The Dakli occurrence is at the northern edge of the Zane Hills pluton at the contact between Cretaceous hornblende-biotite granodiorite and Jurassic-Cretaceous andesite. According to Miller and ferrians (1968), copper and other minerals occur at three places along the contact . At locality 1, massive chalcopyrite in fractured quartz occurs in frost-riven blocks of meta-andesite. Pyrite, malachite, and covellite are also present. Grab samples of chalcopyrite in quartz contain as much as 150 ppm Ag, 0.8 ppm Au, 10,000 ppm Cu, 150 ppm Mo, and 1,000 ppm Zn. Several streams near this locality have meta-andesite float that is cut by sulfide-bearing quartz veins and contains disseminated sulfides. At locality 2, malachite and limonitic chalcopyrite occur in fractures in blocks of brecciated quartz, andesite and altered granodiorite in a zone 100 feet wide. Grab samples from this location contain as much as 30 ppm Ag, 0.09 ppm gold, 700 ppm Zn, 70 ppm Mo, and from 1,000 to 20,000 ppm Cu. At locality 3, a sample of sulfide-bearing quartz contained 1,000 ppm Cu, 2 ppm Ag, and 15 ppm Mo. At locality 4, about one mile south of the contact, rusty-colored molybdenite-bearing quartz veins as much as 2 feet thick cut the andesite near the granodiorite contact. A grab sample from one vein contained 2,000 ppm Mo. Sediments in streams draining the Dakli occurrence contain anomalous values of copper ranging from 100 to 300 ppm.

The intrusives and volcanics both show little or no hydrothermal alteration. Copper and traces of molybdenum minerals are essentially restricted to the contact between the grano-

diorite and andesite and to the quartz veins within the contact area (unpublished industry data, NANA Regional Corp. files).

Alteration:
Oxidation of pyrite and chalcopyrite to limonite and secondary copper minerals.

Age of mineralization:
Cretaceous or younger.

Deposit model:
Disseminated and massive sulfides in quartz veins cutting andesite and granodiorite.

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

Production Status: None

Site Status: Inactive

Workings/exploration:
This occurrence was mapped by the U.S. Geological Survey in the mid 1960's (Miller and Ferrians, 1968). Numerous rock and stream sediment samples were collected and analyzed. A number of exploration companies examined the site during reconnaissance geologic programs in the 1970's and early 1980's.

Production notes:

Reserves:

Additional comments:

References:
Miller and Ferrians, 1968; Cobb, 1972 (MF 448); Cobb, 1975 (OFR 75-627); Eberlein and others, 1977; Grybeck, 1977.

Primary reference: Miller and Ferrians, 1968

Reporter(s): Anita Williams (Anchorage, AK)

Last report date: 12/16/99

Site name(s): Unnamed (east of Billy Hawk Creek)

Site type: Occurrence

ARDF no.: SH005

Latitude: 66.25 **Quadrangle:** SH B-4

Longitude: 157.51

Location description and accuracy:

This occurrence is at an elevation of about 2,500 feet on an east-trending ridge, about 1.5 mile east of Billy Hawk Creek. The map site is in section 24, T. 10 N., R. 6 E., of the Kateel River Meridian. Cobb (1972, MF-448), locations 3 and 4.

Commodities:

Main: Ag, Cu, Pb

Other:

Ore minerals: Argentiferous galena, chalcopyrite, malachite, pyrite

Gangue minerals: Quartz

Geologic description:

Bedrock in the area of this occurrence consists of andesitic volcanic rocks of Late Jurassic-Early Cretaceous age, and quartz latite volcanic rocks of Late Cretaceous age, both of which are intruded by the Late Cretaceous Hawk River quartz monzonite. The older andesitic volcanics are thermally metamorphosed in the vicinity of the Hawk River pluton. Numerous fine-grained, pyritiferous, felsic dikes cut both the andesitic and quartz latite volcanics throughout this area. Pyrite-bearing, milky-white, vuggy, quartz veins cut the volcanics in a northwest-trending belt about 6.5 miles long by 1.5 mile wide. This belt parallels a zone of prominent, northwest-trending lineations and faults. The veins are narrow, appear to strike NE and dip steeply to the north. Locally they contain irregular segregations of argentiferous galena along with lesser chalcopyrite and malachite. Pyrite occurs in cubes up to one inch on a side and is almost completely oxidized to limonite. The galena is fresh and fills vugs and fissures along the edges of the veins. No galena or chalcopyrite were found in the volcanics, although the andesitic wallrock locally contains abundant pyrite. Grab samples contained up to 200 ppm Ag, 0.3 ppm Au, 3,000 ppm Cu, 20,000 ppm Pb, and 1,500 ppm Zn (Miller and Ferrians, 1968).

Alteration:

Pyrite is almost completely oxidized to limonite.

Age of mineralization:
Late Cretaceous or younger.

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:
The area was mapped by Miller and others (1966). Six rock samples and sixteen stream sediment samples were collected and analyzed by Miller and Ferrians (1968) during their field investigations. One hundred and fifty lode claims were staked in 1972 (Grybeck, 1977).

Production notes:

Reserves:

Additional comments:

References:
Miller and others, 1966; Miller and Ferrians, 1968; Cobb, 1972 (MF 448); Cobb, 1975 (OFR 75-627); Eberlein and others, 1977; Grybeck, 1977.

Primary reference: Miller and Ferrians, 1968

Reporter(s): Anita Williams (Anchorage, AK)

Last report date: 12/16/99

Site name(s): Lynx Creek

Site type: Mine

ARDF no.: SH006

Latitude: 66.98 **Quadrangle:** SH D-2

Longitude: 156.67

Location description and accuracy:
The Lynx Creek placer mine is about 1.2 mile above its confluence with Kogoluktul River. The deposit extends from NE1/4, section 9 to S1/2 section 3, T. 18 N., R. 10 E., of the Kateel River Meridian. The main workings were in sections 9 and 10. The location is plotted from description in Bundtzen and others (1986) and Mayfield and Grybeck (1978), location 33.

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:
The upper portion of Lynx Creek is underlain by lower Paleozoic mica schist and the lower portion of the creek is underlain by lower to mid Paleozoic granite gneiss. Placer gold occurs mostly on the mica schist bedrock beneath eight feet of overburden. The overburden consists of two feet of vegetation and muck and six feet of gravel. The gravel is up to one inch in diameter with numerous small boulders. The ground is thawed and bedrock is soft and decomposed. One to 2 feet of bedrock are mined with the gravel. The gold is of two types. About half is in small nuggets and the rest is fine, rounded grains. It was worth about $17.20 per ounce in 1931. The ground yielded between $0.273 to $0.375 per cubic yard of material. No gold has been found on the gneiss bedrock (Reed, 1931).

Alteration:

Age of mineralization:
Quaternary.

Deposit model:

Placer Au-PGE (Cox and Singer, 1986; model 39a).

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

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:
A one- to two-man operation mined on the creek for at least 28 years from the early 1900's to the early 1930's (Reed, 1931).

Production notes:

Reserves:
Deposit probably is mined out.

Additional comments:
Stream gradient approximately 300-500 feet per mile.

References:
Brooks, 1913; Brooks, 1914; Brooks, 1916; Martin, 1919; Moffit, 1927; Smith, 1930; Reed, 1931; Smith, 1932; Smith, 1933 (B 836); Smith, 1933 (B 844A); Smith, 1934 (B 857A); Smith, 1934 (B 864A); Smith, 1936; Smith, 1937; Smith, 1938; Smith, 1939 (B 910); Smith, 1939 (B 917A); Smith, 1941; Smith, 1942; Fritts, 1969; Fritts, 1970; Cobb, 1972 (MF 448); Cobb, 1973 (B 1374); Cobb, 1975 (OFR 75-627); Cobb, 1977 (OFR 77-168B); Bundtzen and others, 1986; Mayfield and Grybeck, 1978.

Primary reference: Reed, 1931

Reporter(s): Anita Williams (Anchorage, AK)

Last report date: 12/16/99

Site name(s): Shovel Creek

Site type: Mine

ARDF no.: SH007

Latitude: 66.3784 **Quadrangle:** SH B-4

Longitude: 157.8479

Location description and accuracy:
The Shovel Creek placer mine is at an elevation of about 1,200 feet on this northwest-flowing tributary of Ingruksukruk Creek. The coordinates are for the mine symbol on Shungnak B-4 topographic map. The map site is in section 9, T. 11 N., R. 5 E., of the Kateel River Meridian. Cobb (1972, MF-448), location 17.

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:
Shovel Creek heads in the Upper Cretaceous Purcell Mountain quartz monzonite pluton, and crosses a contact between Jurassic-Lower Cretaceous andesitic volcanic rocks and the quartz monzonite. No large zones of altered rock were observed in the area, but abundant cobbles of black tourmaline and of albitized quartz monzonite containing tourmaline veinlets occur in the placer tailings and stream gravels. The quartz monzonite appears to be altered adjacent to the veinlets. Analyses of two tourmaline-rich cobbles show 700 and 1,000 ppm copper but no detectable gold. Indications are that the placer gold may have come from the quartz-tourmaline veins (Miller and Ferrians, 1968).

Alteration:
Albitization of quartz monzonite adjacent to tourmaline veinlets.

Age of mineralization:
Quaternary.

Deposit model:
Placer Au-PGE (Cox and Singer, 1986; model 39a).

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

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:
The creek has been placer mined on a small scale. The site was examined and some rock samples collected by the U.S. Geological Survey during the 1960's. One hundred lode claims were staked in the vicinity in 1972 (Grybeck, 1977).

Production notes:

Reserves:

Additional comments:
Stream gradient approximately 250-300 feet per mile.

References:
Miller and Ferrians, 1968; Cobb, 1972 (MF 448); Cobb, 1973 (B 1374); Cobb, 1975 (OFR 75-627); Cobb, 1977 (OFR 77-168B); Eakins and others, 1977; Eberlein and others, 1977; Grybeck, 1977.

Primary reference: Miller and Ferrians, 1968

Reporter(s): Anita Williams (Anchorage, AK)

Last report date: 12/16/99

Site name(s): Shungnak River

Site type: Mine

ARDF no.: SH008

Latitude: 66.996 **Quadrangle:** SH D-3

Longitude: 157.305

Location description and accuracy:
The Shungnak River placer mine is about a mile below the mouth of the river canyon. The deposit probably extends northward into the Ambler river quadrangle. The map site is in the E1/2 section 34, T. 19 N., R. 7 E., of the Kateel River Meridian. Location is accurate to within a radius of 1,000 feet.

Commodities:

Main: Au

Other: Ag, Cu, nephrite

Ore minerals: Gold, native copper, native silver, nephrite

Gangue minerals:

Geologic description:
Placer gold was first mined from the Shungnak River in 1898. It was mined continuously through 1913, and intermittently on a small scale into the 1950's. Bedrock is predominately lower to mid-Paleozoic black shale and schist; some Jurassic-Cretaceous serpentinite also is in the immediate area. The stream gravels are unfrozen. Typically the top 2 feet of gravel was removed as overburden. The gold is mostly on bedrock, particularly in areas of black shale. The gold is reddish with a dull luster, shaped like flattened shot, and usually in small pieces. Assay value was $16.70 per ounce in 1931. The recovery during 1931 was on the order of $0.90 per cubic yard. Pay streaks were irregular and unpredictable. Magnetite is the most abundant mineral in the concentrates. Occasionally small nuggets of copper and silver were found in the sluice box (Smith, 1913). Some boulders of semiprecious nephrite (jade) were recovered during mining.

Alteration:

Age of mineralization:
Quaternary.

Deposit model:

Placer Au-PGE (Cox and Singer, 1986; model 39a).

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

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:
Gold was first mined from the Shungnak River in 1898. It was mined continuously through 1913, and intermittently on a small scale into the 1950's.

Production notes:
Smith (1913) states that a liberal estimate of total production to 1912 would be less than $50,000.

Reserves:

Additional comments:
Semiprecious quality nephrite (jade) boulders were found during placer mining and in the stream gravels of the Shungnak River (Bernice Sheldon, oral communication, 1991).

References:
Smith, 1913; Reed, 1931; Cobb, 1973 (B 1374); Cobb, 1977 (OFR 77-168B); Mayfield and Grybeck, 1978.

Primary reference: Smith, 1913; Reed, 1931

Reporter(s): Anita Williams (Anchorage, AK)

Last report date: 12/16/99

Site name(s): Unnamed (mouth of Stockley Creek)

Site type: Occurrence

ARDF no.: SH009

Latitude: 66.99 **Quadrangle:** SH D-2

Longitude: 156.85

Location description and accuracy:
This occurrence is near the mouth of Stockley Creek, a tributary to upper Dahl Creek. The map site is in section 3, T. 18 N., R. 9 E., of the Kateel River Meridian. Cobb (1972, MF-448), location 2.

Commodities:

Main: Ni

Other: Asbestos

Ore minerals:

Gangue minerals:

Geologic description:
This occurrence consists of nickel in asbestiform minerals in stream float (Anderson, 1945). A specimen of chrysotile and antigorite taken from the mouth of Stockley Creek was submitted to the U.S. Bureau of Mines for analysis. The samples returned good tests for nickel.

Alteration:
Serpentinization.

Age of mineralization:

Deposit model:
Nickel in asbestiform minerals in stream float.

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

Production Status: None

Site Status: Inactive

Workings/exploration:

Production notes:

Reserves:

Additional comments:

References:

Anderson, 1945; Berg and Cobb, 1967; Fritts, 1969; Fritts, 1970; Cobb, 1972 (MF 448); Cobb, 1975 (OFR 75-627).

Primary reference: Anderson, 1945

Reporter(s): Anita Williams (Anchorage, AK)

Last report date: 12/16/99

Site name(s): Unnamed (northeast of Solsmunket Lake)

Site type: Occurrence

ARDF no.: SH010

Latitude: 66.11 **Quadrangle:** SH A-1

Longitude: 156.02

Location description and accuracy:
This occurrence is at an elevation of about 2,000 feet, in the saddle of a ridge 3 miles northeast of Solsmunket Lake. The map site is in section 12, T. 8 N., R. 13E., of the Kateel River Meridian. Cobb (1972, MF-448), location 12.

Commodities:

Main: W

Other: REE, Th, U

Ore minerals: Thorite, uranothorianite

Gangue minerals: Quartz

Geologic description:
This occurrence consists of a tungsten-bearing quartz vein, and of radioactive minerals, in monzonite (Miller and Ferrians, 1968). The quartz vein is 1 to 3 feet wide. It assayed 7,000 ppm W, but no tungsten mineral was noted. Samples of monzonite from the border facies of the Cretaceous Zane Hills pluton, which is mainly granodiorite, contained 14 to 33 ppm U and 75 to 199 ppm Th. The radioactivity apparently is mainly in uranothorianite, thorite, betafite, allanite, zircon and sphene.

Alteration:

Age of mineralization:
Cretaceous.

Deposit model:
Tungsten-bearing quartz vein and disseminated radioactive minerals in monzonite.

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

Production Status: None

Site Status: Inactive

Workings/exploration:

Site visited and sampled by U.S. Geological Survey (Miller and Ferrians, 1968).

Production notes:

Reserves:

Additional comments:

References:

Miller and Ferrians, 1968; Cobb, 1972 (MF 448); Cobb, 1975 (OFR 75-627); Eberlein and others, 1977; Grybeck, 1977; Cobb, 1981 (OFR 81-847A).

Primary reference: Miller and Ferrians, 1968

Reporter(s): Anita Williams (Anchorage, AK)

Last report date: 12/16/99

Site name(s): Unnamed (in Zane Hills)

Site type: Occurrence

ARDF no.: SH011

Latitude: 66.33 **Quadrangle:** SH B-1

Longitude: 156.18

Location description and accuracy:
This occurrence is at an elevation of about 3,100 feet, about 5 miles southeast of VABM Dakli in Zane Hills. The map site is in section 19, T. 11 N., R. 13 E., of the Kateel River Meridian. Cobb (1972, MF-448), location 11, and Miller and Ferrians (1968), figure 3.

Commodities:

Main: Mo

Other:

Ore minerals: Molybdenite

Gangue minerals:

Geologic description:
This occurrence consists of molybdenite-bearing, quartz veins that cut Jurassic-Cretaceous andesite near the contact with granodiorite of the Cretaceous Zane Hills pluton (Miller and Ferrians, 1968). The quartz veins are up to 2 feet thick. A grab sample from a mineralized vein contained 0.2% Mo.

Alteration:

Age of mineralization:
Jurassic-Cretaceous or younger.

Deposit model:
Molybdenite-bearing quartz vein.

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

Production Status: None

Site Status: Inactive

Workings/exploration:

Site visited and sampled by U.S. Geological Survey (Miller and Ferrians, 1968).

Production notes:

Reserves:

Additional comments:

References:

Miller and Ferrians, 1968; Cobb, 1972 (MF 448); Cobb, 1975 (OFR 75-627); Eberlein and others, 1977; Grybeck, 1977.

Primary reference: Miller and Ferrians, 1968

Reporter(s): Anita Williams (Anchorage, AK)

Last report date: 12/16/99

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

Site type: Occurrence

ARDF no.: SH012

Latitude: 66.443 **Quadrangle:** SH B-1

Longitude: 156.388

Location description and accuracy:
This occurrence is at an elevation of 1,600 feet in the Zane Hills about 4 miles southeast of Zane Pass. The map site is in the S1/2 section 7, T. 12 N., R. 12 E., of the Kateel River Meridian. Cobb (1972, MF-448), locations 5-7 and Miller and Ferrians (1968), figure 3.

Commodities:

Main: Au, Cu

Other:

Ore minerals: Chalcopyrite, gold, pyrite

Gangue minerals:

Geologic description:
This occurrence consists of pyrite- and chalcopyrite-bearing quartz veins as much as 3 feet thick (Miller and Ferrians, 1968). The veins cut Jurassic-Cretaceous meta-andesite north of the contact with the Cretaceous Zane Hills pluton. Grab samples contained 0.5% Cu and 0.6 ppm Au.

Alteration:

Age of mineralization:
Jurassic-Cretaceous or younger.

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:

Production notes:

Reserves:

Additional comments:

References:

Miller and Ferrians, 1968; Cobb, 1972 (MF 448); Cobb, 1975 (OFR 75-627).

Primary reference: Miller and Ferrians, 1968

Reporter(s): Anita Williams (Anchorage, AK)

Last report date: 12/16/99

Site name(s): Unnamed (upper Wesley Creek area)

Site type: Occurrence

ARDF no.: SH013

Latitude: 66.993 **Quadrangle:** SH D-3

Longitude: 157.016

Location description and accuracy:
The map site of this occurrence is at an elevation of about 2,200 feet on a ridge about midway between Wesley and Camp Creeks. The map site is in the N1/2 section 1, T. 18 N., R. 8 E., of the Kateel River Meridian. Cobb (1972, MF-448), location 1.

Commodities:

Main: Au, Pb

Other: Asbestos, nephrite

Ore minerals: Galena, gold

Gangue minerals: Quartz

Geologic description:
This occurrence consists of (a) galena-bearing quartz veins that cut mid-Paleozoic dolomite west of Wesley Creek, and (b) fine, placer gold in unminable quantities in the gravel of Wesley Creek (Reed, 1931). Prospect shafts on the placer failed to reach bedrock. Tremolite asbestos and gem-quality nephrite jade have been found near the head of Wesley Creek (Anderson, 1945).

Alteration:

Age of mineralization:
Quaternary (placer).

Deposit model:
Polymetallic veins (Cox and Singer, 1986; model 22c) and placer gold (Cox and Singer, 1986: model 39a).

Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):
22c and 39a

Production Status: None

Site Status: Inactive

Workings/exploration:

Work on this occurrence included prospecting for nephrite (jade), asbestos, and placer gold.

Production notes:

Reserves:

Additional comments:

References:

Reed, 1931; Anderson, 1945; Cobb, 1972 (MF 448); Cobb, 1975 (OFR 75-627); Grybeck, 1977; Mayfield and Grybeck, 1978; Mayfield and Tailleur, 1978.

Primary reference: Reed, 1931; Anderson, 1945

Reporter(s): Anita Williams (Anchorage, AK)

Last report date: 12/16/99

References

Alaska Division of Geological and Geophysical Surveys, 1975, Aeromagnetic map, northwest Shungnak Quadrangle: Alaska Division of Geological and Geophysical Surveys Open-File Report 79, 5 p., 1 sheet, scale 1:250,000.

Anderson, E., 1944, Petrographic descriptions of rocks collected during 1944 field investigation in northwest Alaska, and lists of ore and rock samples and placer concentrates collected in northwestern and interior Alaska during 1945 field season: Alaska Territorial Department of Mines Miscellaneous Report 195-28, 76 p.

Anderson, E., 1945, Asbestos and jade occurrences in the Kobuk River region, Alaska: Alaska Territorial Division of Mines Pamphlet 3-R, 26 p.

Anderson, E., 1947, Mineral occurrences other than gold deposits in northwestern Alaska: Alaska Territorial Division of Mines Pamphlet 5-R, 48 p.

Berg, H.C and Cobb, E.H., 1967, Metalliferous lode deposits of Alaska: U.S. Geological Survey Bulletin 1246, 254 p.

Brooks, A.H., 1909, The mining industry in 1908: U.S. Geological Survey Bulletin 379, p. 21-62.

Brooks, A.H., 1910, The mining industry in 1909: U.S. Geological Survey Bulletin 442, p. 20-46.

Brooks, A.H., 1912, The mining industry in 1911: U.S. Geological Survey Bulletin 520, p. 17-44.

Brooks, A.H., 1913, The mining industry in 1912: U.S. Geological Survey Bulletin 542, p. 18-51.

Brooks, A.H., 1914, The mining industry in 1913: U.S. Geological Survey Bulletin 592, p. 45-74.

Brooks, A.H., 1916, The mining industry in 1915: U.S. Geological Survey Bulletin 642, p. 16-71.

Brooks, A.H., 1922, The mining industry in 1920: U.S. Geological Survey Bulletin 722, p. 7-69.

Brooks, A.H., 1925, Alaska’s mineral resources and production, 1923: U.S. Geological Survey Bulletin 773, p. 3-52.

Brooks, A.H. and Capps, S.R., 1924, The mining industry in 1922: U.S. Geological Survey Bulletin 755, p. 3-49.

Brooks, A.H. and Martin, G.C., 1921, The mining industry in 1919: U.S. Geological Survey Bulletin 714, p. 59-95.

Bundtzen, T. K., Eakins, G. R., Green, C. B., and Lueck, L. L., 1986, Alaska's mineral industry 1985: Alaska Division of Geological and Geophysical Surveys Special Report 39, 68 p.

Burand, W. M., 1958, Itinerary report, summer of 1958, trips to Shungnak, Ruby Creek, and Kougarok: Alaska Territorial Department of Mines Itinerary Report 195-1, 7 p.

Cathcart, S.H., 1920, Mining in northwestern Alaska: U.S. Geological Survey Bulletin 712, p. 185-198.

Coats, R.R., 1944, Asbestos deposits of the Dahl Creek area, Kobuk River district, Alaska: U.S. Geological Survey Open-File Report, 4 p.

Cobb, E.H., 1972, Metallic mineral resources of the Shungnak quadrangle, Alaska: USGS Miscellaneous Field Studies Map MF-448, 1 sheet, scale 1:250,000.

Cobb, E.H., 1973, Placer deposits of Alaska: U.S. Geological Survey Bulletin 1374, 213 p.

Cobb, E.H., 1975, Summary of references to mineral occurrences (other than mineral fuels and construction materials) in five quadrangles in west central Alaska (Hughes, Kotzebue, Melozitna, Selawik, Shungnak): U. S. Geological Survey Open-File Report 75-627, 58 p.

Cobb, E.H., 1977, Placer deposits map of central Alaska: U.S. Geological Survey Open-File Report 77-168B, 65 p., 1 sheet, scale 1:1,000,000.

Cobb, E.H. and Miller, T.P., 1981, Summaries of data on and lists of references to metallic and selected nonmetallic mineral occurrences in the Hughes, Kotzebue, Melozitna, Selawik and Shungnak quadrangles, west-central Alaska: U.S. Geological Survey Open-File Report 81-847A, 14 p.

Decker, J., and Dillon, J. T., 1982, Aeromagnetic map of the northern portion of the Shungnak quadrangle: Alaska Division of Geological and Geophysical Surveys Open-File Report 177, 1 sheet, scale 1:250,000.

Degenhart, C.E. and Bigelow, C.G., 1974, Preliminary minerals evaluation NANA Regional corporation selection lands: unpublished industry report, WGM, Anchorage, Alaska, 62 p. (held by NANA Regional Corporation, Anchorage, Alaska).

Degenhart, C. E., Griffis, R.J., McQuat, J. F., and Bigelow, C. G., 1978, Mineral studies of the western Brooks Range performed under contract to the U.S. Bureau of Mines, Contract #JO155089: U. S. Bureau of Mines Open-File Report 103-78, 529 p., 11 sheets.

Eakins, G. R., Jones, B. K. and Forbes, R. B., 1977, Investigation of Alaska's uranium potential: Alaska Division of Geological and Geophysical Surveys Open-File Report 109, 213 p., 10 sheets scale 1:40,000.

Eberlein, G.D., Chapman, R.M., Foster, H.L. and Gassaway, J.S., 1977, Table describing known metalliferous and selected nonmetalliferous mineral deposits in central Alaska: U.S. Geological Survey Open File-Report 77-168D, 132 p., map scale 1:1000000.

Fernald, A. T., 1964, Surficial geology of the central Kobuk River valley, northwestern Alaska: U. S. Geological Survey Bulletin 1181K, p. K1-K31, 1 sheet, scale 1:250,000.

Fritts, C. E., 1969, Geology and geochemistry in the southeastern part of the Cosmos Hills, Shungnak D-2 quadrangle, Alaska: Alaska Division of Geological and Geophysical Surveys Geological Report 37, 35 p., 2 sheets, scale 1:48,000.

Fritts, C. E., 1970, Geology and geochemistry of the Cosmos Hills, Ambler River and Shungnak River Quadrangles, Alaska: Alaska Division of Geological and Geophysical Surveys Geological Report 39, 63 p., 4 sheets, scale 1:63,360.

Grybeck, D., 1977, Known mineral deposits of the Brooks Range, Alaska: U.S. Geological Survey Open-File Report 77-166C, 45 p., 1 sheet, scale 1:1,000,000.

Liss, S. A., Robinson, M. S., Burns, L. E., and Nye, C. J., 1993, Land selection area 32 (Shungnak-Hughes-Melozitna): Geochemistry, major oxides, sample locations, and reference data: Alaska Division of Geological and Geophysical Surveys Public-Data File 93-32, 23 p., 1 sheet, scale 1:250,000.

Martin, G.C., 1919, The Alaskan mining industry in 1917: U.S. Geological Survey Bulletin 692, p. 11-42.

Martin, G.C., 1920, The Alaskan mining industry in 1918: U.S. Geological Survey Bulletin 712, p. 11-58.

Mayfield, C.F. and Grybeck, D., 1978, Mineral occurrences and resource map of the Ambler river quadrangle, Alaska: U.S. Geological Survey Open-File Report 78-120I, 1 sheet, scale 1:250,000.

Mayfield, C.F. and Tailleur, I.L., 1978, Bedrock geology map of the Ambler River quadrangle, Alaska: U.S. Geological Survey Open-File Report 78-120A, 1 sheet, scale 1;250,000.

Mendenhall, W.C., 1902, Reconnaissance from Fort Hamlin to Kotzebue Sound, Alaska, by way of Dall, Kanuti, Allen and Kowak Rivers: U.S. Geological Survey Professional Paper 10, 68 p.

Miller, T.P. and Ferrians, O.J., Jr., 1968, Suggested areas for prospecting in the central Koyukuk River region, Alaska: U.S. Geological Survey Circular 570, 12 p.

Miller, T.P., Patton, W.W., and Lanphere, M.A., 1966, Preliminary report on a plutonic belt in west-central Alaska, in Geological Survey research in 1966: U.S. Geological Survey Professional Paper 550-D, p. D158-D162.

Moffit, F.H., 1927, Mineral industry of Alaska in 1925: U.S. Geological Survey Bulletin 792, p. 1-39.

Patton, W.W., Jr., Miller, T.P. and Tailluer, I.L., 1968, Regional geologic map of the Shungnak and southern part of the Ambler River quadrangles, Alaska: U.S. Geological Survey Miscellaneous Geologic Investigations Map I-554, scale 1:250,000.

Reed, I. M., 1931, Report on the placer deposits of the upper Kobuk goldfields: Alaska Territorial Department of Mines Miscellaneous Report 37-1, 33 p.

Saunders, R. H., 1953, Itinerary report of the Eagle and Shungnak district for the 1952 field season: Alaska Territorial Department of Mines Itinerary Report 195-44, 7 p.

Smith, P.S., 1913, The Noatak-Kobuk region Alaska: U.S. Geological Survey Bulletin 536, 160 p.

Smith, P.S., 1929, Mineral Industry of Alaska in 1926: U.S. Geological Survey Bulletin 797, p. 1-50.

Smith, P.S., 1930, Mineral Industry of Alaska in 1927: U.S. Geological Survey Bulletin 810, p. 1-64.

Smith, P.S., 1930, Mineral Industry of Alaska in 1928: U.S. Geological Survey Bulletin 813, p. 1-72.

Smith, P.S., 1932, Mineral Industry of Alaska in 1929: U.S. Geological Survey Bulletin 824, p. 1-81.

Smith, P.S., 1933, Mineral Industry of Alaska in 1930: U.S. Geological Survey Bulletin 836, p. 1-83.

Smith, P.S., 1933, Mineral Industry of Alaska in 1931: U.S. Geological Survey Bulletin 844 A, p. 1-82.

Smith, P.S., 1934, Mineral Industry of Alaska in 1932: U.S. Geological Survey Bulletin 857 A, p. 1-91.

Smith, P.S., 1934, Mineral Industry of Alaska in 1933: U.S. Geological Survey Bulletin 864 A, p. 1-94.

Smith, P.S., 1936, Mineral Industry of Alaska in 1934: U.S. Geological Survey Bulletin 868 A, p. 1-91.

Smith, P.S., 1937, Mineral Industry of Alaska in 1935: U.S. Geological Survey Bulletin 880 A, p. 1-95.

Smith, P.S., 1938, Mineral Industry of Alaska in 1936: U.S. Geological Survey Bulletin 897 A, p. 1-107.

Smith, P.S., 1939, Mineral Industry of Alaska in 1937: U.S. Geological Survey Bulletin 910 A, p. 1-113.

Smith, P.S., 1939, Mineral Industry of Alaska in 1938: U.S. Geological Survey Bulletin 917 A, p. 1-113.

Smith, P.S., 1941, Mineral Industry of Alaska in 1939: U.S. Geological Survey Bulletin 926 A, p. 1-106.

Smith, P.S., 1942, Mineral Industry of Alaska in 1940: U.S. Geological Survey Bulletin 933 A, p. 1-102.

Smith, P.S. and Eakin, H.M., 1911, Mineral resources of Alaska 1910: U.S. Geological Survey Bulletin 480, 333 p..

Smith, P.S. and Mertie, J.B., Jr., 1930, Geology and mineral resources of northwestern Alaska: U.S. Geological Survey Bulletin 815, 351 p.

U.S. Bureau of Mines, 1978, Mineral appraisal of the proposed Kobuk Valley National Park, Alaska: U.S. Bureau of Mines Open-File Report 110-78, 31 p.

U.S. Bureau of Mines, 1979, Mineral appraisal of the proposed Selawik National Wildlife Refuge, Alaska: a preliminary comment: U. S. Bureau of Mines Open-File Report 22-79, 7 p.

WGM Staff, 1980, Non-fuel mineral resources of Alaska, for Phillips Petroleum Co., Anchorage, Alaska: unpublished industry report, WGM, Anchorage, Alaska, 320 p. (held by NANA Regional Corporation, Anchorage, Alaska).