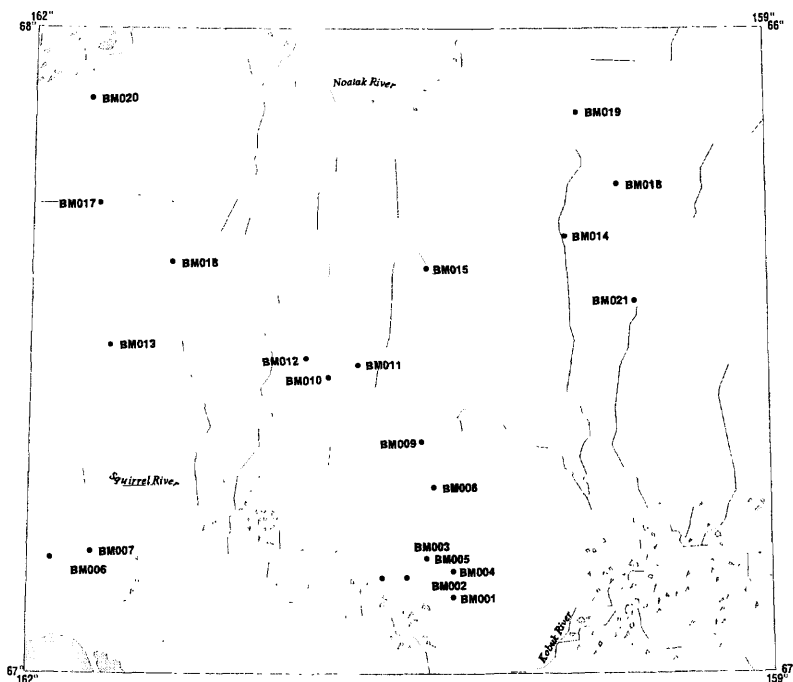


Baird Mountains quadrangle

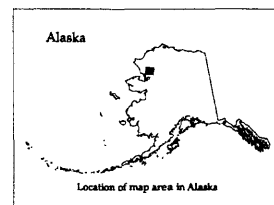
Descriptions of the mineral occurrences shown on the accompanying figure follow. See U.S. Geological Survey (1996) for a description of the information content of each field in the records. The data presented here are maintained as part of a statewide database on mines, prospects and mineral occurrences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



*Distribution of mineral occurrences in the Baird Mountains
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



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

Site name(s): Central Creek

Site type: Mine

ARDF no.: BM001

Latitude: 67.12

Quadrangle: BM A-3

Longitude: 160.28

Location description and accuracy:

The Central Creek placer mine is in section 19, T. 20 N., R. 7 W., of the Kateel River Meridian. Coordinates are for the approximate center of placer ground. Cobb (1972, MF-386), location 10. Schmidt and Allegro (1988), location 283.

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:

This placer gold deposit is located in the stream channel and benches along Central Creek. Bedrock along the creek is schist and limestone of early to mid-Paleozoic age. Depth to bedrock varies from 9 to 14 feet in the benches and from 1 to 5 feet in the stream bed. The gold is fine and flaky (Reed,1932).

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: Yes; small

Site Status: Inactive

Workings/exploration:

Many shallow shafts were sunk in the 1930s to test for gold along the creek and some winter drift mining was done. Early miners shoveled gravel directly from the stream bed. During the winter of 1930-31, a line of drill holes at 50 foot spacing were put across the stream valley. Results indicated an average value of \$0.64 per cubic yard (gold at \$20.67/ounce). Additional drilling was planned for the summer of 1932 (Reed, 1932).

Production notes:

Production through 1930 was approximately 145 ounces of fine, flaky gold (Schmidt and Allegro, 1988).

Reserves:**Additional comments:**

Stream gradient in the mining area is approximately 100 feet per mile.

References:

Reed, 1932; Smith, 1933 (B 844-A); Smith, 1934 (B 864-A); Smith, 1936; Smith, 1937; Smith, 1938; Cobb, 1972 (MF 386); Cobb, 1973 (B 1374); Cobb, 1975 (OFR 75-628); Cobb and others, 1981; Schmidt and Allegro, 1988.

Primary reference: Reed, 1932

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

Last report date: 12/29/99

Site name(s): Boldrin Creek; Baldwin Creek

Site type: Prospect

ARDF no.: BM002

Latitude: 67.15

Quadrangle: BM A-3

Longitude: 160.47

Location description and accuracy:

This placer prospect is near the bend in Boldrin Creek where its direction changes from SE to SW. It is in sections 5 and 8, T. 20 N., R. 8 W., of the Kateel River Meridian. Location is accurate to within 2,000 feet. Cobb (1972, MF-386), location 5. Boldrin Creek also has been referred to as Baldwin Creek.

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:

The bedrock of this placer deposit is early to mid-Paleozoic schist (Cobb and others, 1981). Depth to bedrock is 5 to 6 feet in the stream bed and 8 to 9 feet in areas adjacent to the stream bed. Gravel is pebble- to cobble-sized material, and a few boulders. Four holes were sunk to bedrock at the bend of the creek (Reed, 1932). The gold reportedly is fine and flaky.

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: Undetermined

Site Status: Inactive

Workings/exploration:

Four test holes were sunk to bedrock (Reed, 1932).

Production notes:

Reserves:

Additional comments:

Stream gradient approximately 100 to 150 feet per mile.

References:

Reed, 1932; Cobb, 1972 (MF 386); Cobb, 1975 (OFR 75-628); Cobb and others, 1981.

Primary reference: Reed, 1932

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

Last report date: 12/29/99

Site name(s): Peluk Creek; Peluck Creek

Site type: Prospect

ARDF no.: BM003

Latitude: 67.15

Quadrangle: BM A-4

Longitude: 160.57

Location description and accuracy:

This placer prospect is in section 11, T. 20 N., R. 9 W., of the Kateel River Meridian. Cobb (1972, MF-386), location 4. Peluk Creek also has been referred to as Peluck Creek.

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:

Bedrock in the area is lower to mid-Paleozoic schist, phyllite and dolomite. No actual gold placer mining has been reported at this site.

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: None

Site Status: Inactive

Workings/exploration:

The ground was prospected in the winter about 1/4 mile upstream from the mouth.

Coarse gold reportedly has been found at this place. No actual mining has been reported at this site (Reed, 1932).

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

Stream gradient is approximately 200 feet per mile.

References:

Smith, 1913; Reed, 1932; Cobb, 1972 (MF 386); Cobb, 1973 (B 1374); Cobb and others, 1981.

Primary reference: Reed, 1932

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

Last report date: 12/29/99

Site name(s): Bear Creek

Site type: Mine

ARDF no.: BM004

Latitude: 67.16

Quadrangle: BM A-3

Longitude: 160.28

Location description and accuracy:

The site is a placer mine 0.5 miles below the headwater forks of Bear Creek. Cobb (1972, MF-386), location 9 and Schmidt and Allegro (1988), location 284. This placer ground is in sections 6 and 7, T. 20 N., R. 7 W., of the Kateel River Meridian.

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:

This site is a gold placer mine about 0.5 mile below the headwater forks of Bear Creek. Bedrock in area is early to mid-Paleozoic marble and schist. Prospect was mined intermittently for several years prior to 1930. Mining was done in the portion of the stream underlain by schist (Reed, 1932).

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: Yes; small

Site Status: Inactive

Workings/exploration:

Central and Bear valleys were optioned as prospective placer ground in the early 1930's. Preliminary examinations were begun to determine the feasibility of installing hydraulic equipment or a dredge. A line for a ditch about 3 miles long was laid out and surveyed. Prospecting continued through the winter of 1934-35 (Smith, 1936).

Production notes:

Production through 1930 reported as 95 ounces (Cobb and others, 1981).

Reserves:**Additional comments:**

Stream gradient approximately 150 feet per mile in mining area.

References:

Reed, 1932; Smith, 1936; Cobb, 1972 (MF 386); Cobb, 1975 (OFR 75-628); Cobb and others, 1981; Schmidt and Allegro, 1988.

Primary reference: Reed, 1932

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

Last report date: 12/29/99

Site name(s): Klery Creek**Site type:** Mine**ARDF no.:** BM005**Latitude:** 67.18**Quadrangle:** BM A-3**Longitude:** 160.39**Location description and accuracy:**

This location includes placer ground on Klery Creek extending from the confluence of Bear Creek upstream to the confluence of Gold Run Creek downstream, a distance of approximately 13 miles. The description of Klery Creek includes Joe Gulch, a small left-limit tributary about 2 miles long, and Caribou Creek, a small right-limit tributary about 3 miles long just north of Jack Creek. Coordinates are for the mining camp of Klery Creek in section 34, T. 21 N., R. 8 W., of the Kateel River Meridian. Cobb (1972, MF-386), location 6 and Schmidt and Allegro (1988), location 281.

Commodities:**Main:** Au**Other:** W**Ore minerals:** Gold**Gangue minerals:****Geologic description:**

Rocks in the area of Klery Creek include quartz-mica schist, mafic greenschist, calcareous schist, chloritic quartz schist, phyllite, graphitic schist and limestone of lower to mid-Paleozoic age. The limestone is bluish-white, thick bedded, fractured, and folded. The rocks are cut by steeply-dipping to vertical, milky quartz veins ranging from an inch to 30 feet wide. The bedrock in most of Klery Creek is schist. In the area of Klery Creek camp and downstream for perhaps 1/2 mile bedrock is a massive, much fractured, steeply-dipping limestone which transversely intersects the creek (Smith, 1913).

The gold placer deposits along Klery Creek are both in stream channel and bench deposits. Some of the richer deposits may have resulted from the reworking and reconcentrating of gold eroded from a paleo-channel. Smith (1911) reported two types of gold. One is coarse, angular, dark in color and often attached to or enclosed by quartz or black, graphitic schist. This type of gold occurs in a few locations along the streambed and in bench deposits. It is thought to be derived from the paleo-channel. Gold forms filaments in the black schist country rock, indicating that some of the placer gold was derived from this unit (Smith, 1913). The other type of gold is very fine and brightly colored. It is the

more common gold found on the creek. An 8.5-ounce nugget of this type was found during the 1915 mining season (Brooks, 1916).

Pay gravels from 12 to 18 inches thick overlie schist bedrock. The pay gravels are overlain by 4 to 5 feet of overburden. During mining, the upper 1 to 2 feet of bedrock is taken up and processed. Depth to pay in the bench deposits varies from 6 to 20 feet. At the mouth of Klery Creek about 500 feet southeast of the mouth of Bear Creek, a shaft was sunk to a depth of 135 feet in frozen ground without hitting bedrock (Reed, 1932).

The ground on Klery Creek was said to run \$1.10 per cubic yard in 1933 (gold at \$20.67/ounce). This was a combination of both coarse and fine gold from a depth of 14 to 30 feet (Reed, 1932). Fineness of the coarse gold from Klery Creek was determined as 888.5 or a value of \$18.50 per ounce. The fine gold, although not assayed, has a higher gold tenor and was worth \$18.37 per ounce (Smith, 1913).

Concentrates contained much magnetite, some ilmenite, pyrite, limonite and very little garnet (Cobb and others, 1981). Three pan concentrate samples collected from the central portion of Klery Creek in 1978 contained tungsten values ranging from 10 to 18 ppm (Degenhart and others, 1978).

Alteration:

Limonite thought to be oxidized from pyrite.

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: Yes; small**Site Status:** Inactive**Workings/exploration:**

Gold was first discovered on Klery Creek in 1909. Placer deposits were worked more or less continuously up to World War II. Mining operations resumed in the late 1940's when the ground was worked with a 3-cubic-yard dredge. The dredge worked for 6 years and was abandoned on the creek. In the late 1980's a small mine was in operation just upstream from the mining camp on Klery Creek for several years.

Production notes:

Production from Klery Creek through 1931 estimated at 31,300 ounces (Schmidt and Allegro, 1988).

Reserves:

Additional comments:

Klery Creek has a large drainage area and a confined stream bed which causes water to rise rapidly during heavy rains. This causes severe wash-out problems for placer mine operations.

References:

Smith, 1911; Brooks, 1912; Smith, 1913; Brooks, 1914; Brooks, 1915; Brooks, 1916; Brooks, 1916; Martin, 1919; Brooks and Martin, 1921; Brooks, 1922; Brooks, 1923; Brooks and Capps, 1924; Brooks, 1925; Smith, 1926; Moffit, 1927; Smith, 1929; Smith, 1930 (B 810); Smith, 1930 (B 813); Reed, 1932; Smith, 1932; Smith, 1933 (B 836); Smith, 1933 (B 844-A); Smith, 1934 (B 857-A); Smith, 1934 (B 864-A); Smith, 1936; Smith, 1937; Smith, 1938; Smith, 1939 (B 910-A); Smith, 1939 (B 917-A); Smith, 1941; Smith, 1942; Anderson, 1947; Cobb, 1972 (MF 386); Cobb, 1973 (B 1374); Cobb, 1975 (OFR 75-628); Grybeck, 1977; Degenhart and others, 1978; Cobb and others, 1981; Stevens, 1986; Schmidt and Allegro, 1988.

Primary reference: Smith, 1913; Reed, 1932

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

Last report date: 12/29/99

Site name(s): Gallahorn**Site type:** Occurrence**ARDF no.:** BM006**Latitude:** 67.18**Quadrangle:** BM A-6**Longitude:** 161.91**Location description and accuracy:**

This occurrence is about one mile north of the headwaters area of Shiliak Creek. It is in sections 25 and 36, T. 21 N., R. 15 W., of the Kateel River Meridian. Grybeck (1977), location 6 and Schmidt and Allegro (1988), location 182.

Commodities:**Main:** Cu**Other:****Ore minerals:** Chalcopyrite**Gangue minerals:** Quartz**Geologic description:**

Two quartz veins containing chalcopyrite crosscut lower to mid-Paleozoic, pyritiferous schist and phyllite (Schmidt and Allegro, 1988).

Alteration:**Age of mineralization:**

Devonian?

Deposit model:

Chalcopyrite in quartz vein.

Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):**Production Status:** None**Site Status:** Inactive**Workings/exploration:**

The site has been visited by the U.S. Geological Survey (Schmidt and Allegro, 1988).

Production notes:

Reserves:

Additional comments:

References:

Grybeck, 1977; Cobb and others, 1981; Schmidt and Allegro, 1988.

Primary reference: Grybeck, 1977

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

Last report date: 12/29/99

Site name(s): Uhl**Site type:** Occurrence**ARDF no.:** BM007**Latitude:** 67.19**Quadrangle:** BM A-6**Longitude:** 161.75**Location description and accuracy:**

This occurrence is 3.4 miles east-northeast of the headwaters of Shilak Creek. It is in section 27, T. 21 N., R. 14 W., of the Kateel River Meridian. Schmidt and Allegro (1988), location 183.

Commodities:**Main:** Cu**Other:****Ore minerals:** Chalcopyrite**Gangue minerals:** Quartz**Geologic description:**

Chalcopyrite occurs in a quartz vein cutting lower to mid-Paleozoic schist and phyllite (Schmidt and Allegro, 1988).

Alteration:**Age of mineralization:**

Mid-Paleozoic?

Deposit model:

Chalcopyrite in 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 the U.S. Geological Survey (Schmidt and Allegro, 1988).

Production notes:

Reserves:

Additional comments:

References:

Cobb and others, 1981; Schmidt and Allegro, 1988.

Primary reference: Cobb and others, 1981

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

Last report date: 12/29/99

Site name(s): Gold Run Creek

Site type: Prospect

ARDF no.: BM008

Latitude: 67.29

Quadrangle: BM B-3

Longitude: 160.36

Location description and accuracy:

This placer deposit is thought to be near the mouth of Gold Run Creek. It is in section 23, T. 22 N., R. 8 W., of the Kateel River Meridian. Cobb (1972, MF-386), location 8.

Commodities:

Main: Au

Other: W

Ore minerals: Gold, scheelite

Gangue minerals:

Geologic description:

Placer gold occurs in alluvial deposits overlying kyanite schist on Gold Run Creek. A few ounces of placer gold were recovered during assessment work in 1931 or earlier. Scheelite is a common mineral in the placer concentrates, and kyanite, scheelite and wolframite make up a considerable portion of a sample obtained about 11 miles upstream from the mouth. Kyanite in the schist bedrock occurs in bands of coarse, bladed crystals, some as much as 10 inches in length. The width of the zone of kyanite in one prospect cut is 2 feet. It is exposed for a distance of 18 feet. Other narrower bands have been encountered in the same area (Anderson, 1947).

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: Undetermined

Site Status: Inactive

Workings/exploration:

Assessment work was done to hold several claims on the creek in the early 1930's.

Production notes:

Reserves:

Additional comments:

References:

Reed, 1932; Anderson, 1947; Cobb, 1972 (MF 386); Cobb, 1973 (B 1374); Cobb, 1975 (OFR 75-628).

Primary reference: Reed, 1932

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

Last report date: 12/29/99

Site name(s): Homestake Creek

Site type: Mine

ARDF no.: BM009

Latitude: 67.36

Quadrangle: BM B-3

Longitude: 160.41

Location description and accuracy:

The Homestake Creek mine is about 0.5 miles above the mouth of a north-flowing tributary to Timber Creek. It is in section 27, T. 23 N., R. 8 W., of the Kateel River Meridian. Cobb (1972, MF-386), location 7 and Schmidt and Allegro (1988), location 272.

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:

The Homestake Creek mine is a small, alluvial placer gold deposit that rests on bedrock of Paleozoic schist (Schmidt and Allegro, 1988).

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: Active?

Workings/exploration:

Bedrock at the Homestake Creek mine site is Paleozoic schist. Prior to 1981, one man placer mined coarse gold for 12 summers about 1/2 mile above the mouth of the creek. There was renewed activity in 1983 (Schmidt and Allegro, 1988).

Production notes:

Production total is estimated to be 50 ounces prior to 1981 (Schmidt and Allegro, 1988).

Reserves:**Additional comments:**

Stream gradient is approximately 150 feet per mile for lower mile of creek.

References:

Reed, 1932; Cobb, 1972 (MF 386); Cobb, 1973 (B 1374); Cobb, 1975 (OFR 75-628); Cobb and others, 1981 (OFR 81-767); Schmidt and Allegro, 1988.

Primary reference: Reed, 1932; Schmidt and Allegro, 1988

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

Last report date: 12/29/99

Site name(s): Powdermilk**Site type:** Prospect**ARDF no.:** BM010**Latitude:** 67.46**Quadrangle:** BM B-4**Longitude:** 160.79**Location description and accuracy:**

The Powdermilk prospect is just southeast of the confluence of the two major headwater forks of a major, unnamed, southeast flowing tributary of the Omar River. Coordinates are for the approximate center of the occurrence. The prospect covers an area of 2 square kilometers. It is in sections 24, 25, T. 24 N., R. 10 W., of the Kateel River Meridian. Schmidt and Allegro (1988), location 157.

Commodities:**Main:** Ag, Pb, Zn**Other:** Ba, Cd(?)**Ore minerals:** Galena, pyrite, sphalerite**Gangue minerals:** Barite**Geologic description:**

The Powdermilk deposit consists of disseminations and clots (under 2.5 centimeter diameter) of sphalerite, galena, and rare pyrite in Devonian light-gray dolostone (Schmidt and Allegro, 1988). The sphalerite is coarsely crystalline, locally zoned, and medium to dark brown and red. Barite forms veins in the dolostone. Soil samples from the western river bank exposure contain as much as 1600 ppm Pb, 420 ppm Zn and 7.2 ppm Ag. Rock samples from the more oxidized, eastern creek exposure contain as much as 280 ppm Pb, 230 ppm Zn and 21 ppm Ag. Rock samples contain as much as 20% sphalerite, 8% galena and 5% pyrite.

The host dolostone strikes NE and dips nearly vertically at the prospect. Synformal structure is suggested. Some gray limestone occurs east of the prospect. The Powdermilk deposit is similar to southeast Missouri Pb-Zn (Cox and Singer, 1986; model 32a) in host rock and mineralization. The sulfides are epigenetic with respect to the host dolostone. Mineralization may be structurally controlled by the synform (Schmidt and Folger, 1986).

Alteration:

Surficial weathering consists of rare iron oxide staining and local clay alteration.

Age of mineralization:

Devonian?

Deposit model:

Southeast Missouri Pb-Zn (Cox and Singer, 1986; model 32a).

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

32a

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

The U.S. Geological Survey did reconnaissance mapping, took 39 soil samples along a sample line, and collected additional rock and pan concentrate samples from the area (Zayatz and others, 1988).

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

Schmidt and Folger, 1986; Schmidt and Allegro, 1988; Zayatz and others, 1988.

Primary reference: Schmidt and Folger, 1986**Reporter(s):** Anita Williams (Anchorage, AK)**Last report date:** 12/29/99

Site name(s): Frost**Site type:** Prospect**ARDF no.:** BM011**Latitude:** 67.48**Quadrangle:** BM B-4**Longitude:** 160.67**Location description and accuracy:**

The Frost prospect is located along both sides of Frost Creek, an east-flowing branch of a northwest tributary of the Omar River. It is in sections 15, 16, and 22, T. 24 N., R. 9 W., of the Kateel River Meridian. The coordinates are for the approximate center of deposit. Schmidt and Allegro (1988), location 156 and Grybeck (1977), location 9.

Commodities:**Main:** Ba, Cu, Zn**Other:** Ag, Pb**Ore minerals:** Barite, chalcopyrite, galena, sphalerite**Gangue minerals:** Calcite, fluorite, limonite, quartz**Geologic description:**

The Frost prospect consists of discontinuous pods or lenses of barite in a zone 30 feet wide and 5,000 long. An iron-stained silicified zone surrounds the barite and is weakly mineralized. The silicified zone dips 25 to 45 degrees W and contains disseminated sphalerite and chalcopyrite, and sulfide-bearing quartz-calcite-barite veins. These veins trend N. 70 E.. Bedrock consists entirely of Devonian, light- to dark-gray limestone and medium- to coarse-grained, stratified dolomite and marble (Degenhart and others, 1978).

An 8-pound sample of barite assayed 96% BaSO₄ and 0.5% Zn. A sample from an 8-foot-wide, quartz-calcite-barite-sulfide vein assayed 0.49% Cu, 13.2% Zn and 20.7% Ba. This vein could only be traced for about 10 feet along strike before disappearing under talus (Degenhart and others, 1978).

Analytical results from three rock samples (Schmidt and Allegro, 1988) follow: 1) sample T, a limestone boulder with disseminated sulfides contains 110 ppm As, greater than 100 ppm Cd, 230 ppm Sb, greater than 2000 ppm Zn, 1 ppm Ag, 1000 ppm Ba, 500 ppm Cu and 3000 ppm Pb; 2) sample V, a boulder with quartz-fluorite-sphalerite-galena-bornite contains 40 ppm As, greater than 100 ppm Cd, 130 ppm Sb, greater than 2000 ppm Zn, 0.7 ppm Ag, greater than 5000 ppm Ba, 500 ppm Cu, 200 ppm Pb and 5000 ppm Sr; 3) sample X, a boulder containing vein galena and fine-grained pyrite and sphalerite contains 80 ppm As, 70 ppm Cd, 170 ppm Sb, greater than 2000 ppm Zn, 5 ppm Ag,

1000 ppm Ba, 700 ppm Cu, 5 ppm Mo and 7000 ppm Pb.

Alteration:

Silicification.

Age of mineralization:

Devonian.

Deposit model:

Kipushi Cu-Pb-Zn (Cox and Singer, 1986; model 32c).

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

32c

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

The Frost deposit was discovered in 1963 by Bear Creek Exploration during a regional stream and soil sampling program. Exposure in the area is poor. Preliminary geologic mapping and sampling have been done on the occurrence. An IP survey was done in 1965 (Walters, 1969). During an investigation of the prospect by the U.S. Bureau of Mines in 1978, over 140 soil, silt and rock samples were collected and analyzed (Degenhart and others, 1978). Detailed mapping and sampling were done by the U. S. Geological Survey during the AMRAP program in the late 1980's (Schmidt and Allegro, 1988; Zayatz and others, 1988).

Production notes:**Reserves:**

Possible reserves estimated to be from 1 to 10 million tons of barite (Walters, 1969).

Additional comments:

Trenching followed by drilling is recommended to determine the extent and grade of the sulfide-bearing vein both along strike and down dip (Degenhart and others, 1978).

References:

Walters, 1969; Grybeck, 1977; Degenhart and others, 1978; Grybeck and DeYoung, 1978; Cobb and others, 1981; Schmidt and Folger, 1986; Schmidt and Allegro, 1988; Zayatz and others, 1988.

Primary reference: Degenhart and others, 1978**Reporter(s):** Anita Williams (Anchorage, AK)

	Last report date: 12/29/99
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Site name(s): Omar**Site type:** Prospect**ARDF no.:** BM012**Latitude:** 67.49**Quadrangle:** BM B-4**Longitude:** 160.88**Location description and accuracy:**

The main occurrences at the Omar prospect are centered approximately 0.5 mile north-west of Omar Mountain at an elevation of 1,500 to 2,000 feet. They are in sections 9 and 10, T. 24 N., R. 10 W., of the Kateel River Meridian. Grybeck (1977), location 8, and Schmidt and Allegro (1988), location 152.

Commodities:**Main:** Cu**Other:** Co**Ore minerals:** Bornite, chalcopyrite, covellite, malachite, pyrite, tetrahedrite**Gangue minerals:** Calcite, iron oxides, quartz**Geologic description:**

The Omar deposit consists of copper and iron sulfides in discordant veinlets, blebs and stringers in Devonian carbonates. A 3-kilometer-long, complex fracture zone trends north northwest across the prospect and hosts the deposit. Highly leached gossans are in the southern and central areas of the prospect. Three samples of gossan contained 1,070 ppm copper, greater than 20,000 ppm copper, and 13,400 ppm copper. Mineralized zones containing chalcopyrite, bornite, covellite and malachite in breccias and fracture fillings range from 300 to 1,000 meters long and up to 30 meters wide. Bornite and chalcopyrite are the dominant copper sulfides. Typical samples of sulfide-bearing talus contain 9.6% Cu. A sample from the southwest slope of hill 2455 contained 15.39% copper; other samples collected along the 3-kilometer trend ranged from 0.1% Cu to 9.6% Cu (Degenhart and others, 1978). High values of cobalt accompany the copper sulfides, along with minor zinc and silver. The thickest intercepts from two drill cores 300 feet apart were 25 to 30 feet of 9% Cu. These holes intersected two parallel shear zones (C.G. Bigelow, personal communication, 1975).

Microscopic examination shows that the chalcopyrite forms coherent exsolution lamellae and non-coherent blebs and dots within bornite or tetrahedrite. Solution of the host dolostone created open spaces which were filled by dolomite, sulfide and quartz. The mineralizing event occurred prior to metamorphism and deformation associated with the

middle Jurassic to Cretaceous Brooks Range orogeny (Folger and Schmidt, 1986). The carbonate sequences at Omar have been folded into broad anticlines and synclines. Most rock units at Omar strike north-northeast to northwest. Dips vary from 6 degrees to vertical. The geologic setting and mineralization at Omar closely resemble those at Ruby Creek, 100 miles to the east in the Ambler quadrangle.

Alteration:

Hydrothermal dolomitization.

Age of mineralization:

Devonian.

Deposit model:

Kipushi Cu-Pb-Zn (Cox and Singer, 1986; model 32c).

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

32c

Production Status: None**Site Status:** Active?**Workings/exploration:**

The Omar deposit was discovered by Bear Creek Exploration in 1962 as a result of a regional geochemical reconnaissance program. Work done on the prospect includes geologic mapping, soil, silt and rock sampling, hand trenching, ATM and EM surveys and 19 core drill holes. The geophysical surveys produced indifferent results even though they were run in areas of known mineralization (C.G. Bigelow, personal communication, 1975).

Production notes:**Reserves:**

Based on results of two drill holes, Bear Creek Exploration calculated possible reserves of 200,000 tons of ore containing 9% copper.

Additional comments:

Outcrops are rare at Omar and extensive frost-heaved rubble obscures most lithologic contacts.

References:

Degenhart and others, 1978; WGM, 1980; Cobb and others, 1981; Jansons, 1982; Folger and Schmidt, 1986; Schmidt and Folger, 1986; U.S. Bureau of Land Management, 1989.

Primary reference: Degenhart and others, 1978; Folger and Schmidt, 1986

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

Last report date: 12/29/99

Site name(s): Eskimo**Site type:** Occurrence**ARDF no.:** BM013**Latitude:** 67.51**Quadrangle:** BM C-6**Longitude:** 161.68**Location description and accuracy:**

This occurrence is at an elevation of about 7 miles southeast of the headwaters of Agashashok River. It is in section 12, T.24 N., R. 14 W., of the Kateel River Meridian. Location is accurate to within 3,000 feet. Grybeck (1977), location 2, Schmidt and Allegro (1988), location 72.

Commodities:**Main:** Cu**Other:****Ore minerals:** Chalcocite, malachite**Gangue minerals:****Geologic description:**

The bedrock in this area is mapped as Devonian Skajit limestone, dolomite and marble with gray phyllite (Schmidt and Allegro, 1988). This occurrence consists of chalcocite and malachite in bleached limestone. The bedrock is cut by small quartz stringers.

Alteration:

Bleaching of limestone.

Age of mineralization:

Devonian?

Deposit model:

Sulfide-bearing quartz stringers in Paleozoic limestone.

Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):**Production Status:** None**Site Status:** Active

Workings/exploration:

Twenty-five claims were staked in the area in 1966. There was renewed activity in the area in the 1990's by local prospectors who have been mapping and sampling the area (Roy Barr, personal communication, 1997).

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

Located within the Noatak National Preserve.

References:

Grybeck, 1977; Cobb and others, 1981; Schmidt and Allegro, 1988.

Primary reference: Grybeck, 1977

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

Last report date: 12/29/99

Site name(s): Salmon River**Site type:** Occurrence**ARDF no.:** BM014**Latitude:** 67.68**Quadrangle:** BM C-2**Longitude:** 159.82**Location description and accuracy:**

This occurrence is on the Salmon River at an elevation of about 650 feet. It is in section 5, T. 26 N., R. 5 W., of the Kateel River Meridian. Cobb (1972, MF-386), location 3, and Schmidt and Allegro (1988), location 123.

Commodities:**Main:** Cu**Other:** Ag**Ore minerals:** Chalcopyrite, malachite, pyrite**Gangue minerals:** Quartz**Geologic description:**

The area of this occurrence is underlain by north-trending, lower to mid-Paleozoic sedimentary and metamorphic rocks (Schmidt and Allegro, 1988). Stream float and bedrock consist of graphitic schist, chloritic schist, light-colored quartz-mica schist and abundant quartz. The mineral occurrence consists of chalcopyrite-bearing quartz veins in graphite-chlorite phyllite. The veins are from 3 inches to 3 feet thick and 100 to 250 feet long. Stringers and blebs of pyrite and chalcopyrite, along with some malachite occur in the quartz veins.

A sample of quartz stream float contained more than 20,000 ppm Cu, 6 ppm Ag, and 80 ppb Au. Another sample of chalcopyrite-bearing stream float contained 8,200 ppm Cu, 11 ppm Ag, and 5 ppb Au. Twelve stream silt samples were analyzed and no significant metal values were found (Degenhart and others, 1978). Rock samples collected in the mid-1960's contain from 60 ppm to 2% Cu, 12 to 94 ppm Pb, 6 to 11 ppm Ag, and 5 to 80 ppb Au (Brosge and others, 1967).

Alteration:**Age of mineralization:**

Mid-Paleozoic?

Deposit model:

Chalcopyrite-bearing quartz veins in a graphite-chlorite phyllite.

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

Production Status: None

Site Status: Inactive

Workings/exploration:

Some evidence of placer exploration in the area was noted by Degenhart and others (1978). The U.S. Bureau of Mines investigated the area in the mid-1970's (Degenhart and others, 1978). They collected two rock samples and 12 stream silt samples. The area was also mapped and sampled by the U.S. Geological Survey (Brosge and others, 1967).

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

This occurrence is located in Kobuk Valley National Park.

References:

Cobb, 1972 (MF 386); Cobb, 1975 (OFR 75-628); Brosge and others, 1967; Grybeck, 1977; Degenhart and others, 1978; Schmidt and Allegro, 1988.

Primary reference: Brosge and others, 1967; Degenhart and others, 1978

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

Last report date: 12/29/99

Site name(s): Nakolikurok Creek

Site type: Occurrence

ARDF no.: BM015

Latitude: 67.63

Quadrangle: BM C-3

Longitude: 160.39

Location description and accuracy:

This occurrence is at an elevation of about 1,350 feet on the east bank of the middle reaches of Nakolikurok Creek. It is in section 23, T. 26 N., R. 8 W., of the Kateel River Meridian. Cobb (1972, MF-386), location 2, and Schmidt and Allegro (1988), location 104.

Commodities:

Main: Cu, Mo

Other:

Ore minerals: Pyrite

Gangue minerals: Quartz

Geologic description:

This occurrence consists of a quartz vein in a greenstone sill. The vein contains 1% copper, and the greenstone contains 0.02% copper (Schmidt and Allegro, 1988).

Alteration:

Age of mineralization:

Mid-Paleozoic?

Deposit model:

Sulfide-bearing quartz vein.

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

Production Status: None

Site Status: Inactive

Workings/exploration:

The site was visited and sampled by the U.S. Geological Survey (Schmidt and Allegro, 1988).

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

This location is in the Noatak Wilderness of the Noatak National Park Reserve.

References:

Brosge and others, 1967; Cobb, 1972 (MF 386); Cobb, 1975 (OFR 75-628); Grybeck, 1977; Schmidt and Allegro, 1988.

Primary reference: Cobb, 1975 (OFR 75-628)

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

Last report date: 12/29/99

Site name(s): Eli River; Agashashok River

Site type: Occurrence

ARDF no.: BM016

Latitude: 67.64

Quadrangle: BM C-5

Longitude: 161.43

Location description and accuracy:

This occurrence is at an elevation of about 2,200 feet, approximately 1.7 miles north of the headwaters of the Agashashok River. It is in section 20, T. 26 N., R. 12 W., of the Kateel River Meridian. Cobb (1972, MF-386), location 1, and Schmidt and Allegro (1988), location 72.

Commodities:

Main: Cu

Other:

Ore minerals: Chalcopyrite, malachite

Gangue minerals: Limonite, quartz

Geologic description:

The bedrock in this area is Devonian Skajit limestone, dolomite, marble, and minor gray phyllite (Schmidt and Allegro, 1988). The carbonates are cut by small quartz stringers containing small amounts of sulfides. A large quartz boulder contained small blebs of chalcopyrite, along with minor malachite. The quartz assayed 0.48% Cu. Other rock samples collected in the area returned no significant metal values (Degenhart and others, 1978). A quartz sample containing pyrite collected by the U.S. Geological Survey contained 100 ppm As, 4 ppm Sb, 3 ppm Ag, 3000 ppm Cu, 200 ppm La, 300 ppm Ni, and 30 ppm Pb (Schmidt and Allegro, 1988).

Alteration:

Age of mineralization:

Devonian?

Deposit model:

Sulfide-bearing quartz veins cutting Paleozoic limestone.

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

Production Status: None

Site Status: Inactive

Workings/exploration:

Six stream silt samples and one rock sample were collected during a U.S. Bureau of Mines investigation of the area in 1978 (Degenhart and others, 1978). The U.S. Geological Survey also visited and sampled the occurrence (Schmidt and Allegro, 1988).

Production notes:

Reserves:

Additional comments:

References:

Brosge and others, 1967; Cobb, 1972 (MF 386); Cobb, 1975 (OFR 75-628); Degenhart and others, 1978; Cobb and others, 1981; Karl and others, 1985; Schmidt and Allegro, 1988.

Primary reference: Degenhart and others, 1978

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

Last report date: 12/29/99

Site name(s): Ahua**Site type:** Occurrence**ARDF no.:** BM017**Latitude:** 67.73**Quadrangle:** BM C-6**Longitude:** 161.73**Location description and accuracy:**

The Ahua prospect is at an elevation of about 1,000 feet near a south-flowing creek that drains the Kilyaktalik Peaks. It is in section 24, T. 27 N., R. 14 W., of the Kateel River Meridian. Schmidt and Allegro (1988), location 47 and field stations 84RB103 and 84JS030.

Commodities:**Main:** Cu**Other:** Ag, Pb**Ore minerals:** Marcasite, pyrite**Gangue minerals:****Geologic description:**

The Ahua occurrence consists of stained and bleached zones in black shale containing lenses of massive, botryoidal pyrite-marcasite. Samples of the sulfides contain as much as 60 ppm As, 2 ppm Ag, 100 ppm Zn, 5 ppm Ag, 700 ppm Ba, 20 ppm Co, 200 ppm Cu, 20% Fe, 30 ppm Mo, 100 ppm Ni and 50 ppm Pb. Pyrite-rich samples contain as much as 200 ppm Cu, 50 ppm Pb, 30 ppm Mo, 100 ppm Ni, 100 ppm Zn, 5 ppm Ag, 60 ppm As, 700 ppm Ba, and 20 ppm Co (Schmidt and Allegro, 1988). The host rocks are Lower Mississippian black shale that are similar to the Kuna Formation (Karl and others, 1985).

Alteration:

Sulfide-bearing black shale is stained and bleached.

Age of mineralization:

Early Mississippian.

Deposit model:

Sedimentary exhalative Zn-Pb (Cox and Singer, 1986; model 31a).

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

31a

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

The occurrence has been visited and sampled by the U.S. Geological Survey (Schmidt and Allegro, 1988).

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

Karl and others, 1985; Schmidt and Allegro, 1988; Zayatz and others, 1988.

Primary reference: Schmidt and Allegro, 1988**Reporter(s):** Anita Williams (Anchorage, AK)**Last report date:** 12/29/99

Site name(s): Hub**Site type:** Prospect**ARDF no.:** BM018**Latitude:** 67.76**Quadrangle:** BM D-2**Longitude:** 159.61**Location description and accuracy:**

The Hub prospect is at an elevation of about 1,850 feet in a small, north-facing valley about 3 miles east of the junction of Kanaktok Creek and the Salmon River. It is in section 5, T. 27 N., R.4 W., of the Kateel River Meridian. Schmidt and Allegro (1988), locations 34 and 35.

Commodities:**Main:** Cu**Other:****Ore minerals:** Chalcopyrite, malachite, pyrite**Gangue minerals:** Calcite, quartz**Geologic description:**

Bedrock at the Hub prospect is Devonian Skajit limestone and dolomite underlain by green phyllite. The Skajit limestone in this area is bounded on the east, west and north by lower Paleozoic schists and phyllites (Schmidt and Allegro, 1988). Some chalcopyrite and malachite occur in stream float in the upper reaches of the Salmon River. Follow-up work identified copper minerals in two outcrops about 1,000 feet apart. The minerals are in small, quartz-calcite veins that cut dolomite. Rock units strike N. 30 W. and dip 50 degrees W.

A rock sample from the east side of the valley assayed 0.35% Cu and a rock sample from the west side assayed 1.1% Cu. Stream silt samples failed to detect anomalous copper. This may be attributed to the abundance of carbonate rocks in this area which may suppress chemical transport of metal ions (Degenhart and others, 1978).

Alteration:**Age of mineralization:**

Devonian?

Deposit model:

Sulfide-bearing quartz calcite veins cutting limestone.

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

Production Status: None

Site Status: Inactive

Workings/exploration:

Selected samples from the mineralized veins contained 1.1% Cu, 0.9-2.2 ppm Ag and 5 ppb Au (Degenhart and others, 1978).

Production notes:

Reserves:

Additional comments:

This occurrence is located within the Kobuk Valley National Park.

References:

Grybeck, 1977; Degenhart and others, 1978; Cobb and others, 1981; Schmidt and Allegro, 1988.

Primary reference: Degenhart and others, 1978

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

Last report date: 12/29/99

Site name(s): Chevron**Site type:** Occurrence**ARDF no.:** BM019**Latitude:** 67.87**Quadrangle:** BM D-2**Longitude:** 159.77**Location description and accuracy:**

The occurrence is at an elevation of about 2,100 feet on a divide halfway between Kanaktok Mountain and VABM Chevron (Grybeck, 1977). It is in section 34, T.29 N., R. 5 W., of the Kateel River Meridian.

Commodities:**Main:** Cu**Other:****Ore minerals:** Chalcopyrite, malachite, pyrite**Gangue minerals:****Geologic description:**

This occurrence consists of sulfide-bearing quartz lenses in Upper Devonian phyllite (Schmidt and Allegro, 1988). The lenses contain pyrite, chalcopyrite, and a little malachite. The mineral-bearing zone occurs in an area of about 100 feet by 6 feet. Assays of grab samples indicate an average grade of 0.37% copper (Degenhart and others, 1978).

Alteration:**Age of mineralization:**

Devonian?

Deposit model:

Kipushi Cu-Pb-Zn (Cox and Singer, 1986; model 32c).

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

32c

Production Status: None**Site Status:** Inactive

Workings/exploration:

The site has been visited and sampled by the U.S. Geological Survey (Schmidt and Allegro, 1988) and U.S. Bureau of Mines (Degenhart and others, 1978).

Production notes:**Reserves:**

The inferred tonnage and grade are very small. The potential for significant tonnage of material assaying more than 0.4% copper is considered remote (Degenhart and others, 1978).

Additional comments:

The occurrence is located in the Noatak Wilderness of the Noatak National Preserve.

References:

Grybeck, 1977; Degenhart and others, 1978; Cobb and others, 1981; Schmidt and Allegro, 1988.

Primary reference: Degenhart and others, 1978

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

Last report date: 12/29/99

Site name(s): Kivivik**Site type:** Occurrence**ARDF no.:** BM020**Latitude:** 67.89**Quadrangle:** BM D-6**Longitude:** 161.77**Location description and accuracy:**

This occurrence is at an elevation of about 600 feet, adjacent to Kivivik Creek about 5 miles above its confluence with the Noatak River. It is in section 24, T. 29 N., R. 14 W., of the Kateel River Meridian. Schmidt and Allegro (1988), location 4; field stations 84JS026A-D and 84PF070R.

Commodities:**Main:** Cu**Other:** Ag, Co, Mn, Zn**Ore minerals:** Chalcopyrite, pyrite**Gangue minerals:** Epidote, iron oxides, magnetite**Geologic description:**

At the occurrence, basalts of probable Jurassic age contain both disseminated chalcopyrite and pyrite, and pyrite and epidote in vesicles. A 30- by 40-meter area of red-orange-stained, pillow basalt contains pyrite, minor chalcopyrite and ochre. Magnetite occurs in the sediment of the stream draining this occurrence. A sample of pyrite contained 120 ppm Zn, 1 ppm Ag, 50 ppm Co, 300 ppm Cu, and 1000 ppm Mn. A sample from a heavily stained area contained 150 ppm Cu and 1000 ppm Mn. An ochre sample contained 110 ppm Zn and 200 ppm Cu. A sample of pyrite and epidote in vesicles contained 20 ppm As, 0.5 ppm Ag, and 1500 ppm Mn. A sample of chalcopyrite and pyrite in basalt contained 2 ppm Ag, 50 ppm Co and 500 ppm Cu (Schmidt and Allegro, 1988).

Alteration:

Iron-oxide staining.

Age of mineralization:

Jurassic?

Deposit model:

Basaltic copper (Cox and Singer, 1986; model 23).

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

23

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

Area was visited and sampled by the U.S. Geological Survey (Schmidt and Allegro, 1988).

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

Located in the Noatak Wilderness.

References:

Schmidt and Allegro, 1988; Zayatz and others, 1988.

Primary reference: Schmidt and Allegro, 1988**Reporter(s):** Anita Williams (Anchorage, AK)**Last report date:** 12/29/99

Site name(s): Temby; Salmon River

Site type: Occurrence

ARDF no.: BM021

Latitude: 67.58

Quadrangle: BM C-2

Longitude: 159.54

Location description and accuracy:

This occurrence is at an elevation of 1,585 feet in a saddle on a ridge about 1.5 miles northeast of VABM Temby. It is in section 10, T. 25 N., R. 4 W., Kateel River Meridian. Cobb, 1972 (MF 386), location 3, and Schmidt and Allegro (1988), location 122.

Commodities:

Main: Cu

Other:

Ore minerals: Chalcopyrite, malachite, pyrite

Gangue minerals: Quartz

Geologic description:

The country rocks in this area consist of Paleozoic clastic strata that are bounded to the north and east by mid-Paleozoic carbonates and to the south and west by metamorphic and calcareous clastic rocks (Schmidt and Allegro, 1988). The northeast trending Paleozoic clastic belt assumes a northerly trend in this area.

At the Temby occurrence, gray, graphite-chlorite-quartz phyllite hosts quartz veins. The attitudes of the phyllite are quite variable, probably due to small-scale folding. The deposit consists of pyrite, chalcopyrite and malachite associated with quartz veins. The sulfides occur as discontinuous stringers and small blebs. Distribution of quartz rubble indicates that three mineralized quartz veins are present within a zone 200 feet wide. The veins vary from 6 inches up to 3 feet in thickness and can be traced up to 250 feet along strike. Four rock samples were analyzed. The average values were 1.1% Cu, 0.07 ounce Ag per ton, and trace amount of Au (Degenhart and others, 1978).

Alteration:

Age of mineralization:

Mid-Paleozoic.

Deposit model:

Sulfide-bearing quartz veins cutting phyllite.

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

Production Status: None

Site Status: Inactive

Workings/exploration:

Placer gold claims have been reported in the Temby area, but Degenhart and others (1978) observed no placer activity. A mineralized sample was collected by the U.S. Geological Survey (Brosge and others, 1967). Four rock samples were collected and analyzed and a geologic sketch map was made by Degenhart and others (1978).

Production notes:

Reserves:

Additional comments:

References:

Brosge and others, 1967; Cobb, 1972 (MF 386); Cobb, 1975 (OFR 75-628); Grybeck, 1977; Degenhart and others, 1978; Schmidt and Allegro, 1988.

Primary reference: Degenhart and others, 1978

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

Last report date: 12/29/99

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