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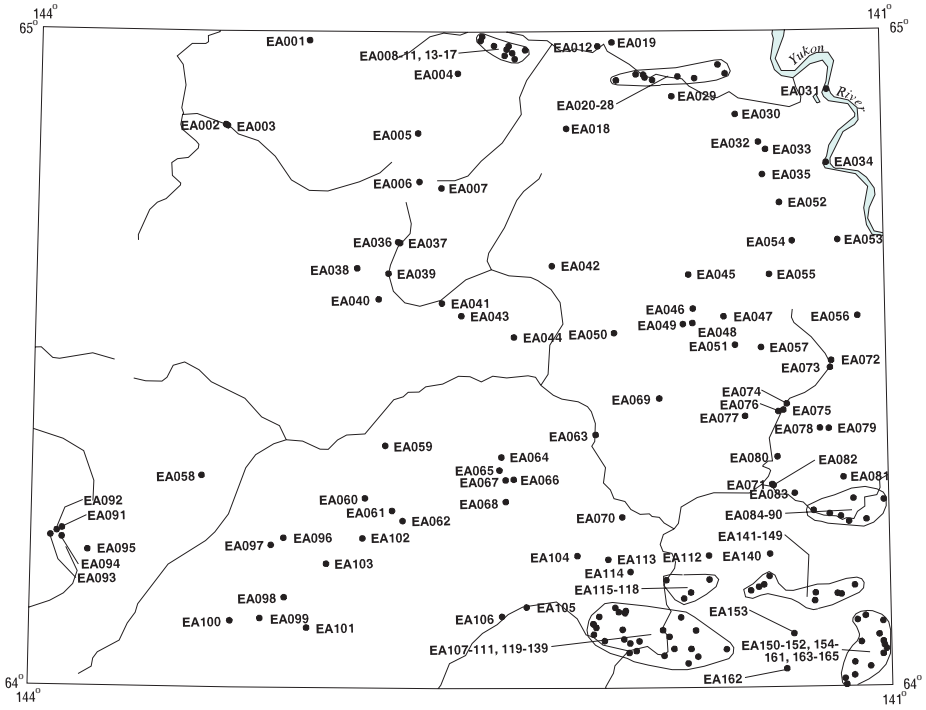
Alaska Resource Data File

Eagle 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 Eagle 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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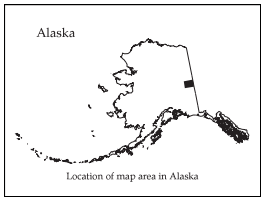

OPEN-FILE REPORT 2004-1056

Site name(s): Mount Sorensen

Site type: Occurrences

ARDF no.: EA001

Latitude: 64.9866 **Quadrangle:** EA D-5

Longitude: 143.0420

Location description and accuracy:

The Mount Sorensen occurrences cover an approximately 4-square-mile area centered about 3 miles west of Mount Sorensen, in section 22, T. 2 N., R. 23 E., of the Fairbanks Meridian.

Commodities:

Main: Cr, Pd, Pt

Other:

Ore minerals: Chromite

Gangue minerals: Serpentine

Geologic description:

Mount Sorensen is the largest ultramafic body in the Eagle quadrangle, and it is composed of partially serpentinized peridotite, dunite, and harzburgite (Foster and Keith, 1974). As much as 1 percent chromite is present in some of the least serpentinized rocks. Serpentinized dunite and harzburgite at Mount Sorensen were assayed using fire assay and spectrographic methods; they contain as much as 0.01 ppm platinum and up to 0.01 ppm palladium (Keith and Foster, 1973).

Alteration:

Age of mineralization:

Deposit model:

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:

Keith and Foster, 1973; Foster and Keith, 1974.

Primary reference: Foster and Keith, 1974

Reporter(s): M.B. Werdon

Last report date: 5/1/02

Site name(s): Copper Creek (lode); Wolverine Copper

Site type: Prospect

ARDF no.: EA002

Latitude: 64.8571 **Quadrangle:** EA D-5

Longitude: 143.3386

Location description and accuracy:

The Copper Creek prospect is on the north bank of Copper Creek about 47 miles east of its mouth on the Charley River. The coordinates are the location of the adit, in section 4, T. 1 S., R. 22 E., of the Fairbanks Meridian. The location is accurate within 1,000 feet. Anderson (1946) referred to the Copper Creek prospect as the Wolverine Copper prospect. The Copper Creek prospect is located within Yukon-Charley Rivers National Preserve. The Copper Creek prospect is locality 1 of Cobb (1972 [MF-393]) and locality 18 of Eberlein and others (1977).

Commodities:

Main: Cu

Other: Ag, Au, Bi, Pb, U?, W

Ore minerals: Azurite, bornite, chalcopyrite, covellite, galena, malachite, pyrrhotite, scheelite, uranium?

Gangue minerals: Amphibole, calcite, garnet, pyroxene, quartz, wollastonite

Geologic description:

The Copper Creek prospect is a skarn in limestone that is surrounded by fine-grained sedimentary rocks (Anderson, 1946). The prospect is in limestone and amphibolite that are interpreted to be a roof pendant several square miles in area on the margin of the Charley River batholith of Tertiary to Mesozoic age (Wedow and others, 1954; Foster, 1976).

The Copper Creek prospect is a 4- to 5-foot-wide, vertically dipping mineralized zone exposed in the face of a steep cliff (Saunders, 1955). The gangue and ore minerals in the Copper Creek prospect consists of garnet, calcite, bornite, chalcopyrite, quartz, pyrrhotite, amphibole or pyroxene, galena, and scheelite, as well as secondary minerals that include covellite, malachite, and azurite (Anderson, 1946; Wedow and others, 1954). Trace gold, silver, and tungsten are reported in assays. Most of the sulfides are in calc-silicate rocks near the contact with the amphibolite (Wedow and others, 1954). Two samples from the Copper Creek prospect contain 0.80 to 1.16 ounces of silver per ton, 2.5 to 5.26 percent copper, 0.3 percent zinc; one sample contains trace gold,and the other sample contains as

much as 5 percent bismuth (Saunders, 1955). The portal of the adit is located 10 to 15 feet above Copper Creek; it extends 114 feet. Mineralization is present only in the first 40 feet (Wedow and others, 1954).

Minor radioactivity is associated with the copper mineralization; the uranium? may occur in bornite and malachite inclusions in wollastonite skarn (Wedow and others, 1954). Placer concentrates taken about 100 feet upstream of the Copper Creek prospect are slightly radioactive and contain thorium and trace monazite.

The Copper Creek prospect was staked and an adit was driven in about 1903 (Anderson, 1946). The Copper Creek prospect was examined by the Alaska Territorial Department of Mines in 1946 (Anderson, 1946) and 1955 (Saunders, 1955) and by the U.S. Geological Survey in 1949 during a regional reconnaissance for radioactive deposits (Wedow and others, 1954). The portal of the adit was caved in 1955 (Saunders, 1955).

Alteration:

Age of mineralization:

The prospect is in skarn associated with Tertiary or Mesozoic intrusive rocks.

Deposit model:

Cu skarn? (Cox and Singer, 1986; model 18b).

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

18b?

Production Status: None

Site Status: Inactive

Workings/exploration:

The Copper Creek prospect was staked and an adit was driven in about 1903 (Anderson, 1946). The Copper Creek prospect was examined by the Alaska Territorial Department of Mines in 1946 (Anderson, 1946) and 1955 (Saunders, 1955) and by the U.S. Geological Survey in 1949 during a regional reconnaissance for radioactive deposits (Wedow and others, 1954). The portal of the adit was caved in 1955 (Saunders, 1955).

Production notes:

Reserves:

Additional comments:

References:

Anderson, 1946; Wedow and others, 1954; Saunders, 1955; Cobb, 1972 (MF-393); Foster, 1976; Cobb, 1977 (OFR 77-845); Eberlein and others, 1977.

Primary reference: Wedow and others, 1954

Reporter(s): R.L. Flynn

Last report date: 5/1/02

Site name(s): Copper Creek

Site type: Occurrence

ARDF no.: EA003

Latitude: 64.8556 **Quadrangle:** EA D-5

Longitude: 143.3321

Location description and accuracy:

The Copper Creek occurrence is about 4.9 miles east-southeast of the creek mouth on the Charley River. It is in section 4, T. 1 S., R. 22 E., of the Fairbanks Meridian. The location is accurate within 1,000 feet. The Copper Creek occurrence is within the Yukon-Charley Rivers National Preserve. The Copper Creek prospect is locality 16 of Cobb (1972 [MF-393]) and locality 18 of Eberlein and others (1977).

Commodities:

Main: Au?, U?

Other:

Ore minerals: Gold?, monazite, thorium

Gangue minerals:

Geologic description:

The rocks along Copper Creek are Paleozoic schist, marble and amphibolite that are interpreted to be a roof pendant several square miles in aera on the margin of the Charley River batholith of Tertiary to Mesozoic age (Wedow and others, 1954; Foster, 1976). Quaternary terrace gravel deposits are extensive along the south side of Copper Creek.

The Copper Creek occurrence was examined by the U.S. Geological Survey in 1949 during a regional reconnaissance for radioactive deposits (Wedow and others, 1954). Placer concentrates taken about 100 feet upstream of the Copper Creek lode prospect (EA002) are slightly radioactive, and contain thorium and trace monazite. Minor radioactivity is associated with copper mineralization at the Copper Creek lode prospect (EA002) (Wedow and others, 1954).

Alteration:

Age of mineralization:

Quaternary.

Deposit model:

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

Production Status: Undetermined.

Site Status: Probably inactive

Workings/exploration:

The Copper Creek occurrence was examined by the U.S. Geological Survey in 1949 during a regional reconnaissance for radioactive deposits (Wedow and others, 1954).

Production notes:

Reserves:

Additional comments:

References:

Wedow and others, 1954; Cobb, 1972 (MF-393); Foster, 1976; Cobb, 1977 (OFR 77-845); Eberlein and others, 1977.

Primary reference: Wedow and others, 1954; Cobb, 1972 (MF-393)

Reporter(s): M.B. Werdon

Last report date: 5/1/02

Site name(s): Arctic Creek

Site type: Prospect

ARDF no.: EA004

Latitude: 64.9368 **Quadrangle:** EA D-4

Longitude: 142.5106

Location description and accuracy:

Arctic Creek is a small west tributary of Flume Creek. The location of placer gold mining on Arctic Creek is uncertain; the coordinates are about 1 mile upstream of the mouth of the creek, in section 5, T. 1 N., R. 26 E., of the Fairbanks Meridian. Arctic Creek is within the Yukon-Charley Rivers National Preserve. Arctic Creek is locality 1 of Burleigh and Lear (1994).

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:

The rocks in the upper part of Arctic Creek are Paleozoic quartz-mica schist and greenschist (Foster, 1976); the lower mile consists of quartz-graphite schist (Clark and Foster, 1969). A northwest-trending belt of Paleozoic greenstone with small serpentinized ultramafic bodies crosses upper Arctic Creek. Very little is known about the placer activity on Arctic Creek, but Ellsworth and Davenport (1913) reported that (as of 1912) the only valuable placers in the Flume Creek drainage were near the mouth of Flume Creek (EA 113) and on Arctic Creek.

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:

Ellsworth and Davenport (1913) reported that (as of 1912) the only valuable placers in the Flume Creek drainage were near the mouth of Flume Creek (EA008) and on Arctic Creek.

Production notes:

Reserves:

Additional comments:

References:

Ellsworth and Davenport, 1913; Clark and Foster, 1969; Foster, 1976; Cobb, 1977 (OFR 77-845); Burleigh and Lear, 1994.

Primary reference: Ellsworth and Davenport, 1913

Reporter(s): R.L. Flynn; M.B. Werdon

Last report date: 5/1/02

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

Site type: Prospect

ARDF no.: EA005

Latitude: 64.8456 **Quadrangle:** EA D-4

Longitude: 142.6523

Location description and accuracy:

This prospect is the probable source of tungsten anomalies in the north fork of Granite Creek; the prospect coordinates are in the center of the prospect area, in section 11, T. 1 S., R. 25 E., of the Fairbanks Meridian. Tungsten anomalies occur in a northwest-trending zone about 3.5 miles long by 0.5 mile wide. The location is only accurate within 2 miles. The Granite Creek prospect is located within Doyon, Ltd. selected or conveyed land.

Commodities:

Main: Ag, Au, Cu, Hg, Mo, Pb, Sn, W

Other:

Ore minerals: Chalcopyrite, molybdenite, scheelite

Gangue minerals: Quartz

Geologic description:

Upper Granite Creek drains a Late Cretaceous granitic batholith that underlies much of the northern Eagle quadrangle (Foster, 1976; Dashevsky and others, 1986). Biotite from granite adjacent to a gold-bearing quartz-arsenopyrite vein on upper Granite Creek gives a 40Ar/39Ar plateau age of 93.3 +/- 0.5 Ma (Newberry and others, 1998).

Elevated tungsten was found in panned heavy-mineral concentrates for 16 miles of Granite Creek near the contact with the granitic batholith (Dashevsky and others, 1986). Portions of the tungsten anomaly were traced to quartz-scheelite-chalcopyrite-molybdenite veinlets in west-northwest-trending joint sets in unaltered quartz monzonite and quartz diorite. A 30 foot-long chip sample from one of these zones contains 1,750 ppm copper, 125 ppm tungsten, and 200 ppm tin. Panned heavy-mineral samples down-stream of this zone contain 630 ppm tungsten and 1,590 ppm tin. Molybdenite was found along hairline fractures and in float of phyllic-altered monzonite near high-angle breccia zones. Alteration is generally restricted to vein selvages. One float sample with 4,060 ppm molybdenum contains visible molybdenite and ferrimolybdenite. There are also quartz veins without tungsten or molybdenum that contain as much as several percent copper and several ounces of silver per ton, as well as elevated lead, zinc, arsenic, gold,

and tin. Stream-sediment samples and panned-concentrate samples from lower Granite Creek contain elevated gold, mercury, tin, and tungsten. The Ole Creek prospect (EA007) is located nearby at the head of the south fork of Granite Creek.

WGM Inc. conducted stream-sediment sampling along Granite Creek in 1975 and 1976 (Dashevsky and others, 1986). In 1979, WGM Inc. panned heavy-mineral concentrates and sampled rocks in the Granite Creek area and discovered a lode source for the tungsten sediment and pan concentrate anomalies. In 1982, Doyon, Ltd. sampled rocks and stream sediments, and discovered breccia zones in the Granite Creek area.

Alteration:

Molybdenite was found along hairline fractures and in phyllic-altered monzonite float near high-angle breccia zones (Dashevsky and others, 1986). Alteration is generally restricted to vein selvages.

Age of mineralization:

Biotite from granite adjacent to a gold-bearing quartz-arsenopyrite vein on upper Granite Creek gives a 40Ar/39Ar plateau age of 93.3 +/- 0.5 Ma (Newberry and others, 1998). Mineralization in the Granite Creek area is probably this age or younger.

Deposit model:

Possibly a porphyry Mo deposit (Cox and Singer, 1986; model 21b?).

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

21b?

Production Status: None

Site Status: Probably inactive

Workings/exploration:

WGM Inc. conducted stream-sediment sampling along Granite Creek in 1975 and 1976 (Dashevsky and others, 1986). In 1979, WGM Inc. panned heavy-mineral concentrates and sampled rocks in the Granite Creek area, and discovered a lode source for the tungsten sediment and pan concentrate anomalies. In 1982, Doyon, Ltd. sampled rocks and stream sediments and discovered breccia zones in the Granite Creek area.

Production notes:

Reserves:

Additional comments:

The Granite Creek prospect is located within Doyon, Ltd. selected or conveyed land. For more information contact Doyon, Ltd., Fairbanks, Alaska.

References:

WGM Inc., 1976 (DLR 76-05a); WGM Inc., 1976 (DLR 76-05b); WGM Inc., 1979 (DLR

79-03); WGM Inc., 1979 (DLR 79-38); Dashevsky, 1983; Dashevsky and Nicol, 1985; Dashevsky and others, 1986; Newberry and others, 1998.

Primary reference: Dashevsky and others, 1986

Reporter(s): R.L. Flynn; M.B. Werdon

Last report date: 5/1/02

Site name(s): Unnamed (headwaters of Slate Creek)

Site type: Occurrence

ARDF no.: EA006

Latitude: 64.7717 **Quadrangle:** EA D-4

Longitude: 142.6468

Location description and accuracy:

This unnamed occurrence is a large mineralized quartz vein that was traced for several hundred feet along a small tributary near the head of Slate Creek. The coordinates are the map location of Foster (1970), in section 1, T. 2 S., R. 25 E., of the Fairbanks Meridian. The location is accurate within one-half mile. This unnamed occurrence is locality 171 on figure 2 in Foster (1970), but there is a misprint in the text that refers to figure 1. Locality 7 in the text of Cobb (1972 [MF-393]) refers to this unnamed occurrence, but the map location of Cobb (1972 [MF-393]) is incorrect due to the misprint in Foster (1970). This unnamed occurrence is locality 57 of Eberlein and others (1977).

Commodities:

Main: Ag, Au

Other: Pb, Zn

Ore minerals:

Gangue minerals: Quartz

Geologic description:

This occurrence is a large mineralized quartz vein in granitic rocks, mostly granodiorite, that can be traced for several hundred feet along a small tributary near the head of Slate Creek (Foster, 1970). The vein is 2 to 5 feet wide, and contains as much as 80 ppb gold, 0.7 ppm silver, and greater than 10,000 ppm arsenic. A felsic dike that cuts granodiorite one-half mile to the east contains 1,000 ppm lead and 1,500 ppm zinc. Felsic dikes are abundant in the headwaters of Slate Creek and form orange-brown stained zones that can be recognized from a distance. The Ole Creek prospect (EA007) is 3 miles to the east. Biotite from a nearby granite on upper Granite Creek (see EA128) adjacent to a gold-bearing quartz-arsenopyrite vein gives a 40Ar/39Ar plateau age of 93.3 +/- 0.5 Ma (Newberry and others, 1998). The veins here are similar and occurrence is also probably Cretaceous or younger.

Alteration:

Age of mineralization:

Biotite from a nearby granite on upper Granite Creek (EA005) adjacent to a gold-bearing quartz-arsenopyrite vein gives a 40Ar/39Ar plateau age of 93.3 +/- 0.5 Ma (Newberry and others, 1998). The veins here are similar and occurrence is also probably Cretaceous or younger.

Deposit model:

Possibly Comstock epithermal veins (Cox and Singer, 1986; model 25c?).

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

25c?

Production Status: None

Site Status: Inactive

Workings/exploration:

Samples were collected at this unnamed occurrence at the headwaters of Slate Creek by the U.S. Geological Survey in 1969 (Foster, 1970).

Production notes:

Reserves:

Additional comments:

References:

Foster, 1970; Cobb, 1972 (MF-393); Cobb, 1977 (OFR 77-845); Eberlein and others, 1977; Newberry and others, 1998.

Primary reference: Foster, 1970

Reporter(s): R.L. Flynn; M.B. Werdon

Last report date: 5/1/02

Site name(s): Ole Creek

Site type: Prospect

ARDF no.: EA007

Latitude: 64.7620 **Quadrangle:** EA D-4

Longitude: 142.5685

Location description and accuracy:

The Ole Creek prospect is in a saddle on the ridgeline between the headwaters of the west fork of Ole Creek and Granite Creek. The coordinates are the approximate center of the Ole Creek prospect ,at about the center of the boundary between sections 5 and 8, T. 2 S., R. 26 E., of the Fairbanks Meridian; the location is accurate. The Ole Creek prospect is located within Doyon, Ltd. selected or conveyed land.

Commodities:

Main: Ag, Au

Other: As, Ba, Bi, Pb, Sb, W, Zn

Ore minerals: Arsenopyrite, gold, pyrite

Gangue minerals: Calcite, quartz

Geologic description:

The Ole Creek prospect is in a quartz monzonite, granodiorite, and quartz syenite pluton (DiMarchi, 1993). Seven miles to the north, biotite from a similar granite on upper Granite Creek (see EA005) gives a 40Ar/39Ar plateau age of 93.3 +/- 0.5 Ma (Newberry and others, 1998). At the Ole Creek prospect, plutonic rocks in a saddle on the ridgeline between Granite Creek and Ole Creek exhibit chlorite, sericite, and calcite alteration. Limited prospecting and sampling has defined a zone more than 200 feet wide that is cut by east-northeast-trending quartz veins. There are numerous sulfide-bearing veins, which vary from thin stockwork stringers to massive quartz-calcite veins. Strong zones of alteration and quartz veining are associated with several generations of faulting (WGM Inc., 1998 [DLR 98-19]). Quartz veining is locally associated with secondary potassium feldspar and chlorite.

Stibnite, pyrite, and arsenopyrite occur in drusy quartz veins across a northeasterly trending zone 5 to 40 feet wide (DiMarchi, 1993). Numerous similar zones are present in the area. A 10- by 50-foot zone in the saddle contains iron- and arsenic-oxide stained quartz vein rubble with 0.5 percent disseminated pyrite and 1 to 2 percent disseminated arsenopyrite. Vein samples contain as much as 935 ppb gold, 53.6 ppm silver, greater than 10,000 ppm arsenic, and 1,095 ppm antimony. The veins shows multiple episodes

of quartz deposition and contain gray bands of very fine grained sulfides and coarser grained pyrite and arsenopyrite. Altered quartz monzonite is anomalous in barium (250 ppm), tungsten (230 ppm), and zinc (430 ppm). Altered granodiorite contains 885 ppb gold, 30 ppm silver, 9,610 ppm lead, greater than 10,000 ppm arsenic, 16 ppm bismuth, and 1,075 ppm zinc. A yellow-gray massive quartz vein contains 335 ppb gold, 20 ppm silver, 646 ppm lead, 3,810 ppm arsenic, and 5.2 ppm bismuth (DiMarchi, 1993).

Stream sediment and panned heavy-mineral concentrate samples from the Ole Creek drainage contain as much as 410 ppm lead and 500 ppm zinc (DiMarchi, 1993). An iron-stained quartz vein without visible sulfides found in stream float contains 40 ppb gold, 20.2 ppm silver, 2,220 ppm lead, 5,460 ppm arsenic, 56 ppm bismuth, and 16 ppm molybdenum.

During reconnaissance field work in 1975, WGM Inc. identified tungsten and lead-zinc stream-sediment and heavy-mineral-concentrate anomalies in the Ole Creek drainage (WGM Inc., 1998 [DLR 98-19]). The area was revisited in 1977, and additional geochemically anomalous samples were collected. In 1993, ASA Inc. prospected and collected stream-sediment and heavy-mineral concentrate samples in the Ole Creek drainage to verify these anomalies, and to identify potential lode sources (DiMarchi, 1993). WGM Inc. conducted a short traverse on the ridge between Ole and Granite Creeks in 1996, and collected follow-up samples in the saddle area between Ole and Granite Creeks in 1997 (WGM Inc., 1998 [DLR 98-19]).

Alteration:

At the Ole Creek prospect, plutonic rocks exhibit chlorite, sericite, and calcite alteration. Quartz veining is locally associated with secondary potassium feldspar and chlorite.

Age of mineralization:

Cretaceous or younger, on the basis of the age of host rocks.

Deposit model:

Possibly Comstock epithermal veins (Cox and Singer, 1986; model 25c?).

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

25c?

Production Status: None

Site Status: Probably inactive

Workings/exploration:

During reconnaissance field work in 1975, WGM Inc. identified tungsten and lead-zinc stream-sediment and heavy-mineral-concentrate anomalies in the Ole Creek drainage (WGM Inc., 1998 [DLR 98-19]). The area was revisited in 1977, and additional geochemically anomalous samples were collected. In 1993, ASA Inc. prospected and collected stream-sediment and heavy-mineral concentrate samples in the Ole Creek drainage to verify these anomalies and to identify potential lode sources (DiMarchi, 1993). WGM Inc. conducted a short traverse on the ridge between Ole and Granite Creeks in 1996 and

collected follow-up samples in the saddle area between Ole and Granite Creeks in 1997 (WGM Inc., 1998 [DLR 98-19]).

Production notes:

Reserves:

Additional comments:

The Ole Creek prospect is located within Doyon, Ltd. selected or conveyed land. For more information contact Doyon, Ltd., Fairbanks, Alaska.

References:

Foster, 1976; WGM Inc., 1977; Dashevsky and Nicol, 1985; Dashevsky and others, 1986; DiMarchi, 1993; Newberry and others, 1998; Rogers and Bradley, 1998; WGM Inc., 1998 (DLR 98-19).

Primary reference: DiMarchi, 1993; WGM Inc., 1998 (DLR 98-19)

Reporter(s): M.B. Werdon; R.L. Flynn

Last report date: 5/1/02

Site name(s): Flume Creek

Site type: Mine

ARDF no.: EA008

Latitude: 64.9929 **Quadrangle:** EA D-3

Longitude: 142.4242

Location description and accuracy:

Flume Creek is a 12-mile-long tributary of the Seventymile River. Ellsworth and Davenport (1913) reported that the only placers found on Flume Creek were near the mouth of the creek, in section 22, T. 2 N., R. 26 E., of the Fairbanks Meridian. The location is accurate. Flume Creek is locality 19 (locality 17 on the map) of Cobb (1972 [MF-393]), locality 26 of Eberlein and others (1977), and locality 2 of Burleigh and Lear (1994).

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:

The rocks along the lower 1 mile of Flume Creek consist of serpentinite and mafic dikes. Metasedimentary rocks, greenstone, and greenschist of probable Paleozoic age occur along the middle portion of the creek. Permian quartzite and argillite, as well as serpentinized peridotite are intruded by granitic rocks of probable Mesozoic age in the headwaters (Clark and Foster, 1969; Foster, 1976).

In 1903, Flume Creek was being actively prospected; some coarse gold was found, and nuggets of considerable value were reported (Prindle, 1905). Mining is reported on Flume Creek in several years from 1908 to 1914 and in 1935. Ellsworth and Davenport (1913) reported that in 1912, prospecting was taking place about 3 miles above the mouth of Flume Creek. Approximately 200 feet of holes were sunk, but no good prospects were found. The only valuable placers found on Flume Creek were located near its mouth. The Flume Creek lode gold prospect (EA007) is upstream from the Flume Creek placer; it is a likely source for the placer gold. There also has been placer gold production on the Seventymile River (see EA025) downstream of Flume Creek.

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: Probably inactive

Workings/exploration:
In 1903, Flume Creek was being actively prospected; some coarse gold was found, and nuggets of considerable value were reported (Prindle, 1905). Mining is reported on Flume Creek in several years from 1908 to 1914, and in 1935. Ellsworth and Davenport (1913) reported that in 1912, prospecting was taking place about 3 miles above the mouth of Flume Creek. Approximately 200 feet of holes were sunk, but no good prospects were found. The only valuable placers found on Flume Creek were located near its mouth. The Flume Creek lode gold prospect (EA009) is upstream from the Flume Creek placer; it is a likely source for the placer gold. There also has been placer gold production on the Seventymile River (see EA025) downstream of Flume Creek.

Production notes:
Prindle (1905) reported that, as of 1903, Flume Creek was being actively prospected; some coarse gold was found, and nuggets of considerable value were reported.

Reserves:

Additional comments:

References:
Prindle, 1905; Brooks, 1909; Prindle, 1909; Ellsworth and Parker, 1911; Porter, 1912; Ellsworth and Davenport, 1913; Prindle, 1913; Brooks, 1915; Smith, 1937; Mertie, 1938; Clark and Foster, 1971; Cobb, 1972 (MF-393); Foster and Keith, 1974; Foster, 1976; Cobb, 1977 (OFR 77-845); Eberlein and others, 1977; Burleigh and Lear, 1994.

Primary reference: Prindle, 1905; Ellsworth and Davenport, 1913

Reporter(s): R.L. Flynn; M.B. Werdon

Last report date: 5/1/02

Site name(s): Flume Creek (lode)

Site type: Prospect

ARDF no.: EA009

Latitude: 64.9866 **Quadrangle:** EA D-3

Longitude: 142.4300

Location description and accuracy:

This lode prospect covers about a third of a square mile near the mouth of Flume Creek on both sides of the creek. The coordinates are the approximate center of the prospect in the SE1/4 section 22, T. 2 N., R. 26 E., of the Fairbanks Meridian; this location is accurate within 500 feet. The prospect is locality 2 of Cobb (1972 [MF-393]) and locality 26 of Eberlein and others (1977). The prospect is located within Doyon, Ltd. selected or conveyed land.

Commodities:

Main: As, Au

Other:

Ore minerals: Arsenopyrite, gold, pyrite

Gangue minerals: Ankerite, arsenopyrite, calcite, dolomite, garnierite?, magnesite?, mariposite, quartz

Geologic description:

The lode prospect on Flume Creek is one of a northwest-trending set of ophiolite-hosted gold prospects informally referred to as the Flume trend that consists of a semi-continuous 4-mile-long soil anomaly with greater than 10 ppb gold and elevated arsenic. Other lode gold prospects within the Flume trend include Flanders (EA015), Bonanza Creek (EA010), and Alder Creek (EA013). One-half mile to the south, and subparallel to the Flume trend, the Deep Creek trend of volcanic-hosted gold prospects includes the Deep Creek (EA017) and Kill Zone 2 (EA016) prospects and the Jay Creek and Kill Zone 3 gold anomalies that are defined by soil sampling.

The prospects in the Flume trend are in weakly metamorphosed ultramafic, mafic, and oceanic sedimentary rocks of the Seventymile terrane (Foster and others, 1985). Rocks of the Seventymile terrane are deformed and cut by internal thrust faults. These rocks are juxtaposed with Paleozoic metamorphic rocks to the north and south,along northwest-trending strands of the Tintina strike-slip fault. Bimodal Tertiary(?) dikes, including porphyritic rhyolite and diorite-gabbro, intrude all of the older rocks.

At this lode prospect, small gold-bearing quartz veins cut serpentinite. The serpentinite

is intruded by mafic dikes along the lower mile of Flume Creek (Prindle, 1908). A silica-carbonate (magnesite) zone near the mouth of Flume Creek within the serpentinite and altered diorite(?) is cut by small quartz and carbonate veins. These veins locally have a green garnierite(?) stain and contain as much as 0.9 ppm gold (Clark and Foster, 1971). A few hundred feet farther upstream, a short adit was driven into a small body of limonite-stained altered diorite(?) that is cut quartz veins. The diorite adjacent to the veins is silicified, and samples of vein material contain as much as 6 ppm gold (Clark and Foster, 1971). Hydrothermal white mica from a gold-bearing quartz-arsenopyrite vein at the Flume Creek lode prospect gives a 40Ar/39Ar plateau age of 100 +/- 3 Ma, interpreted to estimate the age of gold mineralization (Newberry and others, 1998).

An estimated 10,000 tons of talus with 0.25 ounce of gold per ton was mined from outcrops here in the 1950's (WGM Inc., 1998 [DLR 98-19]). A plant with a crusher and ball mill processed the gold-bearing, quartz-carbonate ore. The mine is currently considered to be a bulk tonnage, low-grade gold target with the gold hosted in silica-carbonate-altered greenstone (WGM Inc., 1998 [DLR 98-19]). Central Alaska Gold Co. reports an inferred resource of 1,000,000 ounces of gold in material that has an average of 0.025 ounce per ton, on ths basis of limited drilling. The Flume Creek soil gold anomaly (with values exceeding 1,000 ppb gold) is 2,000 feet long and 1,000 feet wide. Veins as wide as 3.5 feet contain as much as 0.85 ounce of gold per ton. Core holes have been drilled to a maximum depth of 400 feet within a 300-foot segment of the gold anomaly in the soil. Intercepts include 8 feet with 0.31 ounce of gold per ton, 18 feet with 0.09 ounce of gold per ton, and 31.5 feet with 0.06 ounce of gold per ton. The upper zones in hole FC90-11 average 0.045 ounce of gold per ton over 49 feet (WGM Inc., 1998 [DLR 98-19]).

Reconnaissance exploration by WGM Inc. in mid-1970s located several mineral targets in the Seventymile region (WGM Inc., 1998 [DLR 98-19]). In 1989 and 1990, Central Alaska Gold Co. explored this area and the Deep Creek (EA017) area; limited drilling was done at the Flume Creek prospect. In 1996, WGM Inc. expanded soil grids at the Flanders (EA015) and Deep Creek (EA017) prospects; conducted ridgetop sampling along a 13-mile segment between the Crooked Creek trend and Flume and Deep Creek trends; and an airborne geophysical survey was flown over the Flume, Deep Creek, and Crooked Creek trends.

Alteration:

Quartz-carbonate-mariposite alteration accompanies the vein gold mineralization here, and this alteration is favorable indicator of gold at other prospects along the Flume trend (WGM Inc., 1998 [DLR 98-19]). Greenstone, diorite, gabbro, and serpentinite wall rocks next to the veins and in the stockwork zone are intensely altered to an assemblage of quartz, dolomite, ankerite, mariposite, arsenopyrite, and pyrite. Diorite(?) at the Flume Creek prospect is silicified along the margins of the quartz veins.

Age of mineralization:

Hydrothermal white mica from the margin of a gold-bearing quartz-arsenopyrite vein at the Flume Creek prospect gives a 40Ar/39Ar plateau age of 100 +/- 3 Ma, interpreted to estimate the age of gold mineralization (Newberry and others, 1998).

Deposit model:

Listwaenite (altered ophiolite) Au (Newberry and others, 1998).

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

Production Status: None

Site Status: Active?

Workings/exploration:

An estimated 10,000 tons of talus that contained 0.25 ounce of gold per ton was mined from outcrops here in the 1950's (WGM Inc., 1998 [DLR 98-19]). A plant with a crusher and ball mill processed the gold-bearing, quartz-carbonate ore. The Flume Creek soil gold anomaly (with values exceeding 1,000 ppb gold) is 2,000 feet long and 1,000 feet wide. Veins as wide as 3.5 feet contain as much as 0.85 ounce of gold per ton. Core holes have been drilled to a maximum depth of 400 feet within a 300-foot segment of the gold anomaly in the soil. Intercepts include 8 feet with 0.31 ounce of gold per ton, 18 feet with 0.09 ounce of gold per ton, and 31.5 feet with 0.06 ounce of gold per ton. The upper zones in hole FC90-11 average 0.045 ounce of gold per ton over 49 feet (WGM Inc., 1998 [DLR 98-19]).

Reconnaissance exploration by WGM Inc. in mid-1970s located several mineral targets in the Seventymile region (WGM Inc., 1998 [DLR 98-19]). In 1989 and 1990, Central Alaska Gold Co. explored this area and the Deep Creek (EA017) area; limited drilling was done at the Flume Creek prospect. In 1996, WGM Inc. expanded soil grids at the Flanders (EA015) and Deep Creek (EA017) prospects; conducted ridgetop sampling along a 13-mile segment between the Crooked Creek trend and Flume and Deep Creek trends; and an airborne geophysical survey was flown over the Flume, Deep Creek, and Crooked Creek trends.

Production notes:

An estimated 10,000 tons of talus that has 0.25 ounces gold per ton was mined from the Flume Creek outcrop in the 1950's (WGM Inc., 1998 [DLR 98-19]).

Reserves:

Flume Creek is currently considered to be a bulk tonnage low-grade gold target with the gold hosted in silica-carbonate-altered greenstone (WGM Inc., 1998 [DLR 98-19]). Central Alaska Gold Co. reports an inferred resource of 1,000,000 ounces of gold in material with an average grade of 0.025 ounce per ton at the Flume Creek prospect, on the basis of limited drilling (WGM Inc., 1998 [DLR 98-19]).

Additional comments:

The Flume Creek Lode prospect is located within Doyon, Ltd. selected or conveyed land. For more information contact Doyon, Ltd., Fairbanks, Alaska.

References:

Prindle, 1908; Saunders, 1954; Clark and Foster, 1971; Cobb, 1972 (MF-393); Foster and

Keith, 1974; Foster, 1976; Cobb, 1977 (OFR 77-845); Eberlein and others, 1977; Keith and others, 1981; Dashevsky, 1983; Dashevsky and Nicol, 1985; Foster and others, 1985; Dashevsky and others, 1986; Freeman and Puchner, 1990; Newberry and others, 1998; Rogers and Bradley, 1998; WGM Inc., 1998 (DLR 98-19); WGM Inc., 2000 (Seventymile property summary).

Primary reference: Clark and Foster, 1971; WGM Inc., 1998 (DLR 98-19)

Reporter(s): M.B. Werdon; R.L. Flynn

Last report date: 5/1/02

Site name(s): Bonanza Creek (lode)

Site type: Prospect

ARDF no.: EA010

Latitude: 64.9789 **Quadrangle:** EA D-3

Longitude: 142.3816

Location description and accuracy:

The Bonanza Creek prospect covers about one-third of a square mile near the midpoint of Bonanza Creek, mainly on the east side of the creek. Bonanza Creek is a small south tributary of the Seventymile River. The coordinates are the approximate center of the prospect, at the southeast corner of section 23, T. 2 N., R. 26 E., of the Fairbanks Meridian; this location is accurate within 500 feet. Bonanza Creek is locality 3 of Cobb (1972 [MF-393]) and locality 5 of Eberlein and others (1977). The Bonanza Creek prospect is located within Doyon, Ltd. selected or conveyed land.

Commodities:

Main: Au

Other:

Ore minerals: Arsenopyrite, gold, pyrite

Gangue minerals: Ankerite, calcite, dolomite, mariposite, quartz

Geologic description:

The Bonanza Creek prospect is one of a northwest-trending set of ophiolite-hosted gold prospects informally referred to as the Flume trend. Other lode gold prospects within the Flume trend include Flume Creek (EA009), Alder Creek (EA013), and Flanders (EA015). One-half mile to the south, and subparallel to the Flume trend, the Deep Creek trend of volcanic-hosted lode gold prospects includes the Deep Creek (EA017) and Kill Zone 2 (EA016) prospects and the Jay Creek and Kill Zone 3 gold anomalies that are defined by soil sampling.

The Flume trend prospects are in weakly metamorphosed ultramafic, mafic, and oceanic sedimentary rocks of the Seventymile terrane (Foster and others, 1985). Rocks of the Seventymile terrane are deformed and cut by internal thrust faults. These rocks are bordered by Paleozoic metamorphic rocks to the north and south along northwest-trending strands of the Tintina strike-slip fault. Bimodal Tertiary(?) dikes, including porphyritic rhyolite and diorite-gabbro, intrude all older rocks.

At the Bonanza Creek prospect, stockwork veining and widespread gold mineralization occurs in multiple zones associated with extensive silica-carbonate alteration (WGM Inc.,

1998 [DLR 98-19]). The prospect consists of fault-controlled stockwork veining spatially associated with the steeply dipping contact between strongly altered serpentinite to the north and strongly altered volcaniclastic rocks and tuffaceous rocks to the south. The hanging wall consists of interlayered, folded, crystal lithic tuff and volcaniclastic rocks; the footwall consists of serpentinite, gabbro, crystal lithic tuff, and volcaniclastic rocks. Mineralized zones occur above and below the fault in several sub-parallel, tabular zones. The deposit is cut by a late high-angle fault.

Three types of mineralization have been distinguished by WGM Inc. (1998 [DLR 98-19]): (1) sulfide-poor, visible gold-bearing, quartz stockwork veins cutting dolomite-altered serpentinite and gabbro; (2) sulfide-bearing silica-ankerite alteration in tuffs and tuffaceous siltstone cut by arsenopyrite-quartz stockwork veins; and (3) quartz veins in argillite, locally with pyrite, with little apparent alteration. Hydrothermal white mica from wall rocks adjacent to a gold-bearing quartz-arsenopyrite vein at the nearby Flume Creek prospect (EA009) gives a 40Ar/39Ar plateau age of 100 +/- 3 Ma, interpreted to estimate the age of the gold mineralization (Newberry and others, 1998). Geologic similarities between the two prospects suggest the Bonanza Creek gold mineralizing event is of the same age.

The prospects along the Flume trend form a semicontinuous 4-mile-long soil anomaly with greater than 10 ppb gold and elevated arsenic. At the Bonanza prospect, the soil anomaly in gold is about 3,000 feet long and 1,000 feet wide, and values reach 470 ppb gold (WGM Inc., 1998 [DLR 98-19]). Adjacent gold anomalies extend an additional 1,200 feet east and 3,000 feet west. Samples from trenches include 20 feet with 0.192 ounce of gold per ton. An interval 200 feet long and 7.8 feet thick averaged 0.17 ounce of gold per ton. Intercepts from seven drillholes include 7.5 feet with 0.32 ounce of gold per ton, 27 feet with 0.055 ounce of gold per ton, and 10 feet with 0.08 ounce of gold per ton. The highest grade reported is in a narrow quartz vein with 3.36 ounces of gold per ton. A 143-foot-thick zone in hole FC90-4 averages 0.038 ounce of gold per ton. Drilling has been confined to about 1,200 feet of the strike of the soil anomaly, only 12 percent of the total length. WGM Inc. concluded that there is the potential for a bulk tonnage deposit with 0.07 to 0.12 ounce of gold per ton (WGM Inc., 1998 [DLR 98-19]).

The Bonanza Creek prospect was discovered during reconnaissance mapping by the U. S. Geological Survey in 1967 (Clark and Foster, 1971). A channel sample 5 feet long of silica-carbonate rock contained 11 ppm gold, and a channel sample across the contact zone contained 7 ppm gold.

Reconnaissance exploration by WGM Inc. in the mid-1970's located several gold targets in the Seventymile region (WGM Inc., 1998 [DLR 98-19]). In 1989 and 1990, Central Alaska Gold Co. explored the Flume Creek (EA009) and Deep Creek (EA017) areas. In 1996, WGM Inc. expanded soil grids at the Flanders (EA015) and Deep Creek (EA017) prospects, conducted ridgetop sampling along a 13-mile-long segment between the Crooked Creek trend and Flume and Deep Creek trends, and had an airborne geophysical survey flown over the Flume, Deep Creek, and Crooked Creek trends.

Alteration:

At the Bonanza Creek prospect, stockwork veining and widespread gold mineralization occur in multiple zones associated with extensive silica-carbonate alteration (WGM Inc., 1998 [DLR 98-19]).

Quartz-carbonate-mariposite alteration accompanies the gold mineralization here, and this alteration is a favorable indicator of gold at other prospects along the Flume trend (WGM Inc., 1998 [DLR 98-19]). Greenstone, diorite, gabbro, and serpentinite next to the veins and in the stockwork zone are intensely altered to an assemblage of quartz, dolomite, ankerite, mariposite, arsenopyrite, and pyrite.

Age of mineralization:

Hydrothermal white mica from wall rocks adjacent to a gold-bearing quartz-arsenopyrite vein at the nearby Flume Creek (EA009) prospect gives a 40Ar/39Ar plateau age of 100 +/- 3 Ma, interpreted to estimate the age of gold mineralization (Newberry and others, 1998). Geologic similarities suggest the Bonanza Creek gold mineralizing event may be of the same age.

Deposit model:

Listwaenite (altered ophiolite) gold (Newberry and others, 1998).

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

Production Status: None

Site Status: Active?

Workings/exploration:

The Bonanza Creek prospect was discovered during reconnaissance mapping by the U. S. Geological Survey in 1967 (Clark and Foster, 1971). A channel sample 5 feet long of silica-carbonate rock contained 11 ppm gold, and a channel sample across the contact zone contained 7 ppm gold.

Reconnaissance exploration by WGM Inc. in the mid-1970's located several gold targets in the Seventymile region (WGM Inc., 1998 [DLR 98-19]). In 1989 and 1990, Central Alaska Gold Co. explored the Flume Creek (EA009) and Deep Creek (EA017) areas. In 1996, WGM Inc. expanded soil grids at the Flanders (EA015) and Deep Creek (EA017) prospects, conducted ridgetop sampling along a 13-mile-long segment between the Crooked Creek trend and Flume and Deep Creek trends, and had an airborne geophysical survey flown over the Flume, Deep Creek, and Crooked Creek trends.

Work by WGM Inc. and Central Alaska Gold Co. indicates the prospects along the Flume trend form a semicontinuous 4-mile-long soil anomaly with greater than 10 ppb gold and elevated arsenic. At the Bonanza prospect, the soil anomaly in gold is about 3,000 feet long and 1,000 feet wide; values reach 470 ppb gold (WGM Inc., 1998 [DLR 98-19]). Adjacent gold anomalies extend an additional 1,200 feet east and 3,000 feet west. Samples from trenches include 20 feet with 0.192 ounce of gold per ton. An interval 200 feet long and 7.8 feet thick averaged 0.17 ounce of gold per ton. Intercepts from 7 drillholes include 7.5 feet with 0.32 ounce of gold per ton, 27 feet with 0.055 ounce of gold per ton, and 10 feet with 0.08 ounce of gold per ton. The highest grade reported is in a narrow quartz vein with 3.36 ounces of gold per ton. A 143-foot-thick zone in hole FC90-4 averages 0.038 ounce of gold per ton. Drilling has been confined to about 1,200 feet of the strike of the soil anomaly, only 12 percent of the total length. WGM Inc. con-

cluded that there is the potential for a bulk tonnage deposit with 0.07 to 0.12 ounce of gold per ton (WGM Inc., 1998 [DLR 98-19]).

Production notes:

Reserves:

WGM Inc. concluded that there is the potential for a bulk tonnage deposit with 0.07 to 0.12 ounce of gold per ton at Bonanza Creek (WGM Inc., 1998 [DLR 98-19]).

Additional comments:

The Bonanza Creek prospect is located within Doyon, Ltd. selected or conveyed land. For more information contact Doyon, Ltd., Fairbanks, Alaska.

References:

Clark and Foster, 1971; Cobb, 1972 (MF-393); Cobb, 1977 (OFR 77-845); Eberlein and others, 1977; WGM Inc., 1977; Keith and others, 1981; Foster and others, 1985; Freeman and Puchner, 1990; Newberry and others, 1998; Rogers and Bradley, 1998; WGM Inc., 1998 (DLR 98-19); WGM Inc., 2000 (Seventymile property summary).

Primary reference: WGM Inc., 1998 (DLR 98-19)

Reporter(s): M.B. Werdon; R.L. Flynn

Last report date: 5/1/02

Site name(s): Alder Creek

Site type: Mine

ARDF no.: EA011

Latitude: 64.9786 **Quadrangle:** EA D-3

Longitude: 142.3291

Location description and accuracy:

Alder Creek is a 6-mile-long south tributary of the Seventymile River. The coordinates correspond to placer workings shown along Alder Creek on the U.S. Geological Survey topographic map of the Eagle D-3 quadrangle (1956). The workings are located about 1 mile upstream of the mouth of the creek, in section 30, T. 2 N., R. 27 E., of the Fairbanks Meridian. The location is accurate. Alder Creek is locality 17 (locality 18 on the map) of Cobb (1972 [MF-393]), locality 1 of Eberlein and others (1977), and locality 3 of Burleigh and Lear (1994).

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:

The rocks along Alder Creek vary widely and consist of Paleozoic gneiss, amphibolite, quartzite, argillite, schist, greenschist, and greenstone and Cretaceous to Pliocene sedimentary rocks. Igneous rocks include granitic to ultramafic plutons and Tertiary felsic volcanic rocks (Foster, 1976). Several strands of the Tintina Fault cross Alder Creek, and there are extensive Quaternary terrace deposits near its mouth. The Alder Creek Lode (EA013), Kill Zone 2 (EA016) prospects and Kill Zone 3 anomaly are epithermal gold deposits located just upstream from the Alder Creek placer mine. There has been placer gold production on the Seventymile River (see EA025) downstream of Alder Creek as well.

Auriferous gravels in Alder Creek lie within or near the creek's main channel, where the gravels are 4 feet thick; nuggets valued at as much as $19 (gold at $20.67 per ounce) were found (Ellsworth and Parker, 1911). Nine assays of placer gold from Alder Creek averaged 841 parts of gold and 153 parts of silver per thousand (Mertie, 1942).

Mining on Alder Creek is reported in most years from 1910 to 1940. A small hydraulic plant was installed on Alder Creek in 1916 and operated until about 1928 (Brooks, 1918;

Mertie, 1938). In the 1960's, mining in the Seventymile area was restricted to a small operation on Alder Creek (Cobb, 1973 [B 1374]).

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

Site Status: Probably inactive

Workings/exploration:
Mining on Alder Creek is reported in most years from 1910 to 1940. A small hydraulic plant was installed on Alder Creek in 1916 and operated until about 1928 (Brooks, 1918; Mertie, 1938). In the 1960's, mining in the Seventymile area was restricted to a small operation on Alder Creek (Cobb, 1973 [B 1374]).

Production notes:
Nuggets valued at as much as $19 (goldat $20.67 per ounce) were found (Ellsworth and Parker, 1911). Nine assays of placer gold from Alder Creek averaged 841 parts of gold and 153 parts of silver per thousand (Mertie, 1942).

Reserves:

Additional comments:

References:
Ellsworth and Parker, 1911; Porter, 1912; Ellsworth and Davenport, 1913; Prindle, 1913; Brooks, 1918; Martin, 1919; Brooks, 1923; Brooks and Capps, 1924; Smith, 1926; Smith, 1929; Mertie, 1930 (B 816); Smith, 1930 (B 813); Smith, 1932; Smith, 1933 (B 836); Smith, 1933 (B 844-A); Smith, 1934 (B 864-A); Powers, 1935; Smith, 1937; Mertie, 1938; Smith, 1938; Smith, 1939 (B 910-A); Smith, 1939 (B 917-A); Smith, 1941 (B 926-A); Mertie, 1942; Smith, 1942 (B 933-A); Clark and Foster, 1971; Cobb, 1973 (B 1374); Cobb, 1972 (MF-393); Foster, 1976; Cobb, 1977 (OFR 77-845); Eberlein and others, 1977; Burleigh and Lear, 1994.

Primary reference: Ellsworth and Parker, 1911

Reporter(s): M.B. Werdon; R.L. Flynn

Last report date: 5/1/02

Site name(s): Placer Creek; Pleasant Creek

Site type: Mine

ARDF no.: EA012

Latitude: 64.9781 **Quadrangle:** EA D-3

Longitude: 142.0106

Location description and accuracy:

Placer Creek is a small tributary on the north side of the Seventymile River; Placer Creek is also known as Pleasant Creek. The location of placer mining on Placer Creek is uncertain; the coordinates are arbitrarily placed near the mouth of the creek, in section 27. T. 2 N., R. 28 E., of the Fairbanks Meridian. The location is accurate within 1.5 miles. Placer Creek is locality 48 of Eberlein and others (1977).

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:

The rocks along the southwest side of Placer Creek are Paleozoic quartz-mica schist and greenschist; Upper Cretaceous to Pliocene terrigenous sedimentary rocks are exposed on the northeast side of the creek (Foster, 1976). The two units are separated by the Tintina Fault, along which Placer Creek runs.

Bench gravels on Placer Creek were reported to carry gold, and there was an unsuccessful attempt at mining a bench gravel deposit in 1912 (Ellsworth and Parker, 1911; Ellsworth and Davenport, 1913). Placer Creek was mined in 1914 (Brooks, 1915). Placer gold has been produced downstream of Placer Creek on the Seventymile River (see EA025).

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:
Bench gravels on Placer Creek were reported to carry gold, and there was an unsuccessful attempt at mining a bench gravel deposit in 1912 (Ellsworth and Parker, 1911; Ellsworth and Davenport, 1913). Placer Creek was mined in 1914 (Brooks, 1915).

Production notes:

Reserves:

Additional comments:

References:
Ellsworth and Parker, 1911; Ellsworth and Davenport, 1913; Brooks, 1915; Foster, 1976; Cobb, 1977 (OFR 77-845); Eberlein and others, 1977.

Primary reference: Ellsworth and Davenport, 1913

Reporter(s): R.L. Flynn; M.B. Werdon

Last report date: 5/1/02

Site name(s): Alder Creek (lode in Eagle D-3 quadrangle)

Site type: Prospect

ARDF no.: EA013

Latitude: 64.9735 **Quadrangle:** EA D-3

Longitude: 142.3360

Location description and accuracy:

The Alder Creek prospect covers about one-third of a square mile along lower Alder Creek, a small south tributary of the Seventymile River. The coordinates are the approximate center of the prospect area, in section 30, T. 2 N., R. 27 E., of the Fairbanks Meridian; the location is accurate. There is another Alder Creek lode prospect (EA069) in the Eagle B-2 quadrangle. The Alder Creek lode prospect is located within Doyon, Ltd. selected or conveyed land.

Commodities:

Main: Au

Other:

Ore minerals: Arsenopyrite, gold, pyrite

Gangue minerals: Ankerite, calcite, dolomite, mariposite, quartz

Geologic description:

The Alder Creek prospect is one of a northwest-trending set of ophiolite-hosted gold prospects informally referred to as the Flume trend. Other lode gold prospects within the Flume trend include Flume Creek (EA009), Bonanza Creek (EA010), and Flanders (EA015). One-half mile to the south, subparallel to the Flume trend, the Deep Creek trend of volcanic-hosted lode gold prospects includes the Deep Creek (EA017) and Kill Zone 2 (EA016) prospects and the Jay Creek and Kill Zone 3 gold anomalies that are defined by soil sampling. There is also a placer gold mine on Alder Creek (EA011), just downstream from the Alder Creek lode prospect.

The Flume trend prospects are in weakly metamorphosed ultramafic, mafic, and oceanic sedimentary rocks of the Seventymile terrane (Foster and others, 1985). Rocks of the Seventymile terrane are deformed and cut by internal thrust faults. These rocks are juxtaposed with Paleozoic metamorphic rocks to the north and south along northwest-trending strands of the Tintina strike-slip fault. Bimodal Tertiary(?) dikes, including porphyritic rhyolite and diorite-gabbro, intrude all older rocks.

The host rocks for the Alder Creek prospect are mixed layers or units of folded Paleozoic greenstone, pillow basalt, crystal-lithic tuff, and argillite. These units are cut by a set

of sub-parallel quartz-carbonate zones associated with the gold mineralization; these are cut by a set of later high-angle faults. Gold predominantly occurs in propylitically altered basalt on the south limb of a northwest-trending anticline (WGM Inc., 1998 [DLR 98-19]). Numerous zones of quartz-carbonate alteration as much as 60 feet thick contain gold-bearing quartz veins. The veins are mostly in stockworks and gash structures with ribbon veins, breccia in-fills, and comb-texture veins. Arsenopyrite and pyrite are common in the veins and adjacent quartz-carbonate alteration zones. Hydrothermal white mica from wall rocks adjacent to a gold-bearing quartz-arsenopyrite vein at the nearby Flume Creek prospect (EA009) gives a 40Ar/39Ar plateau age of 100 +/- 3 Ma, interpreted to be the age of gold mineralization (Newberry and others, 1998). Geologic similarities suggest the Alder Creek gold mineralizing event may be of the same age.

The prospects along the Flume trend form a semi-continuous 4-mile-long soil anomaly with greater than 10 ppb gold and elevated arsenic. The Alder Creek prospect is defined by an 1,800-foot-wide gold anomaly in soils (WGM Inc., 1998 [DLR 98-19]). Soils contain as much as 2,340 ppb gold; bedrock float exposed in placer tailings assay as much as 0.16 ounce of gold per ton. Four holes have been drilled, all of which are located east of the creek and the main gold-in-soil anomaly. Significant drill intercepts reported by Central Alaska Gold Co. include 22 feet with 0.084 ounce of gold per ton and 18 feet with 0.052 ounce of gold per ton. The Alder Creek drilling and trenching are south of the anticlinal crest believed to be the center of fracturing, alteration, and gold mineralization. On the basis of data from four drill holes on a single north-south line and one trench, there is an inferred resource of 71,000 tons of material that contains 0.06 ounce of gold per ton (WGM Inc., 1998 [DLR 98-19]).

Reconnaissance exploration by WGM Inc. in the mid-1970's located several gold targets in the Seventymile region (WGM Inc., 1998 [DLR 98-19]). In 1989 and 1990, Central Alaska Gold Co. explored the Flume Creek (EA009) and Deep Creek (EA017) areas. In 1996, WGM Inc. expanded their soil sampling grids at the Flanders (EA015) and Deep Creek (EA017) prospects; conducted ridgetop sampling along a 13-mile-long segment between the Crooked Creek trend and Flume and Deep Creek trends; and had an airborne geophysical survey flown over the Flume, Deep Creek, and Crooked Creek trends.

Alteration:

Gold mineralization at the Alder Creek prospect occurs within propylitically altered basalt. Quartz-carbonate alteration accompanies the gold mineralization and is a favorable indicator for gold at prospects along the Flume trend (WGM Inc., 1998 [DLR 98-19]).

Age of mineralization:

Hydrothermal white mica from wall rocks adjacent to a gold-bearing quartz-arsenopyrite vein at the nearby Flume Creek prospect (EA009) gives a 40Ar/39Ar plateau age of 100 +/- 3 Ma, interpreted to be the age of gold mineralization (Newberry and others, 1998). Geologic similarities suggest the Alder Creek prospect may be of the same age.

Deposit model:

Listwaenite (altered ophiolite) Au (Newberry and others, 1998).

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

Production Status: None

Site Status: Active?

Workings/exploration:

Reconnaissance exploration by WGM Inc. in the mid-1970's located several gold targets in the Seventymile region (WGM Inc., 1998 [DLR 98-19]). In 1989 and 1990, Central Alaska Gold Co. explored the Flume Creek (EA009) and Deep Creek (EA017) areas. In 1996, WGM Inc. expanded their soil sampling grids at the Flanders (EA015) and Deep Creek (EA017) prospects; conducted ridgetop sampling along a 13-mile-long segment between the Crooked Creek trend and Flume and Deep Creek trends; and had an airborne geophysical survey flown over the Flume, Deep Creek, and Crooked Creek trends.

The prospects along the Flume trend form a semicontinuous 4-mile-long soil anomaly with greater than 10 ppb gold, and elevated arsenic. The Alder Creek prospect is defined by an 1,800-foot-wide gold anomaly in soils (WGM Inc., 1998 [DLR 98-19]). Soils contain as much as 2,340 ppb gold; bedrock float exposed in placer tailings assay as much as 0.16 ounce of gold per ton. Four holes have been drilled, all of which are located east of the creek and the main gold-in-soil anomaly. Significant drill intercepts reported by Central Alaska Gold Co. include 22 feet with 0.084 ounce of gold per ton and 18 feet with 0.052 ounce of gold per ton.

Production notes:

Reserves:

On the basis of data from four drill holes on a single north-south line and one trench, there is an inferred resource of 71,000 tons of material that contains 0.06 ounce of gold per ton (WGM Inc., 1998 [DLR 98-19]).

Additional comments:

The Alder Creek Lode prospect is located within Doyon, Ltd. selected or conveyed land. For more information contact Doyon, Ltd., Fairbanks, Alaska.

References:

Clark and Foster, 1971; WGM Inc., 1977; Lessman and Rishel, 1978 [DLR 78-19]; Keith and others, 1981; Dashevsky, 1983; Dashevsky and Nicol, 1985; Foster and others, 1985; Newberry and others, 1998; Rogers and Bradley, 1998; WGM Inc., 1998 (DLR 98-19); WGM Inc., 2000 (Seventymile Property Summary).

Primary reference: WGM Inc., 1998 (DLR 98-19)

Reporter(s): M.B. Werdon; R.L. Flynn

Last report date: 5/1/02

Site name(s): Nugget Creek

Site type: Mine

ARDF no.: EA014

Latitude: 64.9724 **Quadrangle:** EA D-3

Longitude: 142.2696

Location description and accuracy:

Nugget Creek is a small south tributary of the Seventymile River. Gold-bearing placer deposits were mainly found along the lower mile of Nugget Creek. The coordinates are about one-half mile upstream of the mouth of the creek, in section 28, T. 2 N., R. 27 E., of the Fairbanks Meridian. The location is accurate. Nugget Creek is locality 18 (locality 19 on the map) of Cobb (1972 [MF-393]), locality 46 of Eberlein and others (1977), and locality 4 of Burleigh and Lear (1994).

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:

The rocks on lower Nugget Creek are Paleozoic gneiss, schist, quartzite, amphibolite, and feldspathic gneiss (Clark and Foster, 1969; Foster, 1976). Upper Nugget Creek is crossed by strands of the Tintina Fault; the rocks consist of Permian quartzite and argillite that have been intruded by Tertiary to Mesozoic granitic to ultramafic plutonic rocks; Tertiary felsic volcanic rocks are also present (Foster, 1976).

Gold placers are found mainly along the lower mile of the Nugget Creek (Mertie, 1938). The gravel has an average thickness of 4 feet; the pay was found over a width of 20 feet. (Prindle, 1905). Gold in Nugget Creek occurs as plates as much as one-quarter of an inch in diameter (Prindle, 1905). Placer concentrates contain minor black sand (magnetite?) and garnets (Prindle, 1905). An assay of placer gold from Nugget Creek contains 851 parts of gold and 143 parts of silver per thousand (Mertie, 1942).

Two men were working on Nugget Creek in 1903 (Prindle, 1905). Mining on Nugget Creek was sporadically reported from 1908 to 1936. There has been placer gold production on the Seventymile River (see EA025) downstream of Nugget Creek.

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: Probably inactive

Workings/exploration:
Two men were working on Nugget Creek in 1903 (Prindle, 1905). Mining on Nugget Creek was sporadically reported from 1908 to 1936.

Production notes:

Reserves:

Additional comments:

References:
Prindle, 1905; Brooks, 1909; Prindle, 1909; Ellsworth and Parker, 1911; Ellsworth and Davenport, 1913; Brooks, 1915; Smith, 1929; Mertie, 1930 (B 816); Smith, 1930 (B 813); Smith, 1932; Smith, 1933 (B 836); Powers, 1935; Smith, 1937; Mertie, 1938; Smith, 1938; Mertie, 1942; Clark and Foster, 1969; Cobb, 1972 (MF-393); Foster, 1976; Cobb, 1977 (OFR 77-845); Eberlein and others, 1977; Burleigh and Lear, 1994.

Primary reference: Mertie, 1938

Reporter(s): R.L. Flynn; M.B. Werdon

Last report date: 5/1/02

Site name(s): Flanders

Site type: Prospect

ARDF no.: EA015

Latitude: 64.9680 **Quadrangle:** EA D-3

Longitude: 142.3164

Location description and accuracy:

The Flanders prospect covers an area of about one-third of a square mile along lower Deep Creek, mostly on the slope and ridge west of the creek. The coordinates are the approximate center of the prospect, in the SE1/4 section 30, T. 2 N., R. 27 E., of the Fairbanks Meridian. The location is accurate. The Flanders prospect is located within Doyon, Ltd. selected or conveyed land.

Commodities:

Main: Au

Other: As, Cu, Pb, Zn

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

Gangue minerals: Albite, ankerite, calcite, clay, dolomite, mariposite, quartz, sericite

Geologic description:

The Flanders prospect is one of a northwest-trending set of ophiolite-hosted gold prospects informally referred to as the Flume trend. The Flume-trend prospects are associated with a semicontinuous, 4-mile-long soil anomaly with more than 10 ppb gold and elevated arsenic. Other lode gold prospects within the Flume trend include Flume Creek (EA009), Bonanza Creek (EA010), and Alder Creek (EA013). One-half mile to the south, and subparallel to the Flume trend, the Deep Creek trend of volcanic-hosted lode gold prospects includes the Deep Creek (EA017), and Kill Zone 2 (EA016) prospects and the Jay Creek and Kill Zone 3 gold anomalies that are defined by soil sampling.

The Flume trend prospects are in weakly metamorphosed ultramafic, mafic, and oceanic sedimentary rocks of the Seventymile terrane (Foster and others, 1985). Rocks of the Seventymile terrane are deformed and cut by internal thrust faults. These rocks are juxtaposed with Paleozoic metamorphic rocks to the north and south along northwest-trending strands of the Tintina strike-slip fault. Bimodal Tertiary(?) dikes, including porphyritic rhyolite and diorite-gabbro, intrude older rocks.

The Flanders prospect is in black aphanitic to fine-grained to porphyritic basalt, volcanic breccia, agglomerate, and minor chert and tuff (WGM Inc., 2001). These units are cut by a set of sub-parallel quartz-carbonate zones containing gold; the zones were subse-

quently cut by later high-angle faults. The quartz veins are localized along tabular tension fractures that dip north at 30 to 45 degrees (WGM Inc., 1998 [DLR 98-19]). Quartz veins exposed in trenches are broken and sheared and range from 1 inch to greater than 4 feet wide. Veins show multiple generations of bull, comb, breccia in-fill, and ribbon-quartz textures. Sulfides and visible gold are found in the quartz veins, silica-carbonate vein selvages, and in narrow silica-carbonate alteration zones. Sulfides include visible arsenopyrite, pyrite, and trace galena and microscopic sphalerite and chalcopyrite. The gold grains are 5 to 150 microns in diameter and some have sulfide inclusions. Wall-rock alteration includes propylitic, silica-carbonate with mariposite, sericitic, argillic, and albitic types. Hydrothermal white mica from wall rocks that border a gold-bearing quartz-arsenopyrite vein at the nearby Flume Creek prospect (EA009) gives a 40Ar/39Ar plateau age of 100 +/- 3 Ma, interpreted to be the age of gold deposition (Newberry and others, 1998). Geologic similarities between the two prospects suggest the Flanders prospect may be the same age.

The Flanders prospect is a high-grade gold target with the potential for several million tons of material that grades 0.5 ounce of gold per ton in quartz veins and zones of quartz-carbonate alteration (WGM Inc., 1998 [DLR 98-19]). Central Alaska Gold Co. calculated an inferred resource at the Flanders prospect of 275,000 tons of material with an average grade of 0.8 ounce of gold per ton, on the basis of limited drilling and trenching (WGM Inc., 1998 [DLR 98-19]). Core holes drilled by Central Alaska Gold Co. in the early 1990's intercepted 28.5 feet with 0.29 ounce of gold per ton. One high-grade interval 3 feet long has 1.63 ounces of gold per ton; another 5 feet long has 0.59 ounce of gold per ton. The core holes drilled by Central Alaska Gold Co. were located west of the widest part of the soil geochemistry anomaly that coincides with the deposit (WGM Inc., 2000 [Seventymile property summary]). Intercepts in core holes drilled by WGM Inc. in 2000 include 16 feet with 0.25 ounce of gold per ton, 11 feet with 0.11 ounce of gold per ton, and 3.6 feet with 6.01 ounces of gold per ton (Szumigala and others, 2001). Trench samples include one 3.5-foot-long interval with 3.27 ounces of gold per ton (WGM Inc., 1998 [DLR 98-19]). Soil surveys indicate that anomalies of as much as 280 ppb gold coincide with crystal lithic tuff. A strong magnetic anomaly coincides with basaltic and serpentinite host rocks. There is an arsenic anomaly that coincides with gold values east and west of Deep Creek.

Reconnaissance exploration by WGM Inc. in the mid-1970s identified several mineral targets in the Seventymile region (WGM Inc., 1998 [DLR 98-19]). In 1989 and 1990, Central Alaska Gold Co. explored the Flume Creek (EA009) and Deep Creek (EA017) areas. The Flanders prospect was discovered in 1990, and 11 core holes were drilled. In 1996, WGM Inc. expanded soil sampling at the Flanders and Deep Creek prospects, conducted ridgetop, sampling along a 13-mile segment between the Crooked Creek trend and Flume and Deep Creek trends, and had an airborne geophysical survey flown over the Flume, Deep Creek, and Crooked Creek trends. In 2000, 3,429 feet of core was drilled (Szumigala and others, 2001).

Alteration:

Wall-rock alteration types include propylitic, silica-carbonate with mariposite, sericitic, argillic, and albitic.

Age of mineralization:

Dating by 40Ar/39Ar of hydrothermal mica from the margin of a gold-bearing quartz-arsenopyrite vein at the Flume Creek (EA009) prospect nearby gives a plateau age of 100 +/- 3 Ma. This is probably age of gold deposition (Newberry and others, 1998).

Deposit model:

Listwaenite (altered ophiolite) gold (Newberry and others, 1998).

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

Production Status: None

Site Status: Active

Workings/exploration:

Reconnaissance exploration by WGM Inc. in the mid-1970s identified several mineral targets in the Seventymile region (WGM Inc., 1998 [DLR 98-19]). In 1989 and 1990, Central Alaska Gold Co. explored the Flume Creek (EA009) and Deep Creek (EA017) areas. The Flanders prospect was discovered in 1990, and 11 core holes were drilled. In 1996, WGM Inc. expanded soil sampling at the Flanders and Deep Creek (EA017) prospects, conducted ridgetop sampling along a 13-mile segment between the Crooked Creek trend and Flume and Deep Creek trends, and had an airborne geophysical survey flown over the Flume, Deep Creek, and Crooked Creek trends. In 2000, 3,429 feet of core was drilled (Szumigala and others, 2001).

Core holes drilled by Central Alaska Gold Co. in the early 1990's intercepted 28.5 feet with 0.29 ounce of gold per ton. One high-grade interval 3 feet long has 1.63 ounces of gold per ton; another 5 feet long has 0.59 ounce of gold per ton. The core holes drilled by Central Alaska Gold Co. were located west of the widest part of the soil geochemistry anomaly that coincides with the deposit (WGM Inc., 2000 [Seventymile property summary]). Intercepts in core holes drilled by WGM Inc. in 2000 include 16 feet with 0.25 ounce of gold per ton, 11 feet with 0.11 ounce of gold per ton, and 3.6 feet with 6.01 ounces of gold per ton (WGM Inc., 2001). Trench samples include one 3.5 -foot-long interval with 3.27 ounces of gold per ton (WGM Inc., 1998 [DLR 98-19]). Soil surveys indicate that anomalies of as much as 280 ppb gold coincide with crystal lithic tuff. A strong magnetic anomaly coincides with basaltic and serpentinite host rocks. There is an arsenic anomaly that coincides with gold values east and west of Deep Creek.

Production notes:

Reserves:

The Flanders prospect is a high-grade gold target with the potential for several million tons of material that grades 0.5 ounce of gold per ton in quartz veins and zones of quartz-carbonate alteration (WGM Inc., 1998 [DLR 98-19]). Central Alaska Gold Co. calculated an inferred resource at the Flanders prospect of 275,000 tons of material with an average grade of 0.8 ounce of gold per ton, on the basis of limited drilling and trenching (WGM Inc., 1998 [DLR 98-19]).

Additional comments:

The Flanders prospect is located within Doyon, Ltd. selected or conveyed land. For more information contact Doyon, Ltd., Fairbanks, Alaska.

References:

Clark and Foster, 1971; Keith and others, 1981; Foster and others, 1985; Newberry and others, 1998; Rogers and Bradley, 1998; WGM Inc., 1998 (DLR 98-19); WGM Inc., 2000 (Seventymile property summary); Szumigala and others, 2001.

Primary reference: WGM Inc., 1998 (DLR 98-19)

Reporter(s): M.B. Werdon; R.L. Flynn; D.J. Szumigala

Last report date: 4/4/03

Site name(s): Kill Zone 2

Site type: Prospect

ARDF no.: EA016

Latitude: 64.9641 **Quadrangle:** EA D-3

Longitude: 142.3433

Location description and accuracy:

The Kill Zone 2 prospect is located in the lower Alder Creek drainage (EA011), about 2 miles upstream from the mouth of the creek. The prospect is in the NW1/4 of section 31, T. 2 N., R. 27 E., of the Fairbanks Meridian. The location is accurate. The Kill Zone 2 prospect is located within Doyon, Ltd. selected or conveyed land.

Commodities:

Main: Ag, Au

Other: Hg, Sb

Ore minerals: Gold

Gangue minerals: Calcite, quartz

Geologic description:

The Kill Zone 2, lode prospect is located on the northwestern end of a northwest-trending set of volcanic-hosted epithermal gold prospects, informally referred to as the Deep Creek trend; it includes the Deep Creek (EA017) deposit, and the Jay Creek and Kill Zone 3 gold anomalies that are defined by soil sampling. One-half mile north, and parallel to the Deep Creek trend, the Flume trend of ophiolite-hosted gold prospects includes Flume Creek (EA009), Bonanza Creek (EA010), Alder Creek (EA013), and Flanders (EA015).

The Kill Zone 2 prospect is in pale green dacite that exhibits extensive silicification and sericite alteration. This alteration is associated with black quartz stockworks and cross-cutting quartz-carbonate veins (WGM Inc., 1998 [DLR 98-19]). Tertiary to Cretaceous monzonite and Tertiary conglomerate are also present. An assay of one oxidized volcanic rock contains 45 ppb gold and 1.6 ppm silver. WGM Inc. grid sampled soils on a 700 by 1,800 foot grid; they identified anomalous gold values (up to 130 ppb gold) at the north and south ends of the grid, and for 1,700 feet along a creek drainage (WGM Inc., 1998 [DLR 98-19]).

Reconnaissance exploration by WGM Inc. in the mid-1970's located several gold targets in the Seventymile region (WGM Inc., 1998 [DLR 98-19]). In 1996, WGM Inc. expanded soil grids at the Flanders (EA015) and Deep Creek (EA017) prospects; conducted

ridgetop sampling along a 13-mile-long segment between the Crooked Creek trend and Flume and Deep Creek trends; and had an airborne geophysical survey flown over the Flume, Deep Creek, and Crooked Creek trends.

Alteration:

The Kill Zone 2 prospect is in pale green dacite that exhibits extensive silicification and sericite alteration.

Age of mineralization:

Tertiary of younger based on age of host rocks.

Deposit model:

Possibly Comstock epithermal veins (Cox and Singer, 1986; model 25c).

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

25c

Production Status: None

Site Status: Active?

Workings/exploration:

Reconnaissance exploration by WGM Inc. in the mid-1970's located several gold targets in the Seventymile region (WGM Inc., 1998 [DLR 98-19]). In 1996, WGM Inc. expanded soil grids at the Flanders (EA015) and Deep Creek (EA017) prospects; conducted ridgetop sampling along a 13-mile-long segment between the Crooked Creek trend and Flume and Deep Creek trends; and had an airborne geophysical survey flown over the Flume, Deep Creek, and Crooked Creek trends.

Production notes:

Reserves:

Additional comments:

The Kill Zone 2 prospect is located within Doyon, Ltd. selected or conveyed land. For more information contact Doyon, Ltd., Fairbanks, Alaska.

References:

Rogers and Bradley, 1998; WGM Inc., 1998 (DLR 98-19); WGM Inc., 2000 (Seventymile Property Summary).

Primary reference: WGM Inc., 1998 (DLR 98-19)

Reporter(s): M.B. Werdon; R.L. Flynn

Last report date: 5/1/02

Site name(s): Deep Creek

Site type: Prospect

ARDF no.: EA017

Latitude: 64.9589 **Quadrangle:** EA D-3

Longitude: 142.3074

Location description and accuracy:

The Deep Creek prospect is located about 3 miles upstream of the mouth of Deep Creek, a small south tributary of the Seventymile River. The coordinates are the approximate center of the Deep Creek prospect, in section 32, T. 2 N., R. 27 E., of the Fairbanks Meridian. The location is accurate. The Deep Creek prospect is located within Doyon, Ltd. selected or conveyed land.

Commodities:

Main: Ag, Au

Other: Hg, Sb

Ore minerals: Gold

Gangue minerals: Calcite, quartz

Geologic description:

The Deep Creek trend is one-half mile south of, and parallel to the Flume Creek trend (WGM Inc., 2000 [Seventymile property summary]). Gold-silver mineralization in the Deep Creek trend is hosted by altered, veined, and fractured Tertiary felsic volcanic rocks. Reconnaissance soil surveys suggest that the Deep Creek trend is roughly parallels the Flume Creek ophiolite trend. The only target systematically sampled in the Deep Creek trend is the Deep Creek prospect (WGM Inc., 2000 [Seventymile property summary]). The Deep Creek trend of volcanic-hosted gold prospects includes the Deep Creek and Kill Zone 2 (EA016) prospects and the Jay Creek and Kill Zone 3 gold anomalies that are defined by soil sampling. One-half mile north, and parallel to the Deep Creek trend, the Flume trend of ophiolite-hosted gold prospects includes the Flume Creek (EA009), Bonanza Creek (EA010), Alder Creek (EA013), and Flanders (EA015) prospects. Hydrothermal white mica adjacent to a gold-bearing quartz-arsenopyrite vein at the nearby Flume Creek prospect (EA009) gives a 40Ar/39Ar plateau age of 100 +/- 3 Ma, probably the age of gold deposition (Newberry and others, 1998).

The Deep Creek prospect is in silicified Tertiary(?) dacitic volcaniclastic rocks and may be part of a distinct belt of epithermal gold mineralization parallel to the Flume Creek and Crooked Creek trends (WGM Inc., 1998 [DLR 98-19]). The Deep Creek trend is mostly

covered; the only rocks locally exposed are in stream cuts. Elevated gold, silver, and arsenic geochemical anomalies characterize the Deep Creek trend. The Deep Creek soil anomaly is 3,800 by 900 feet in area; it has as mucha as 445 ppb gold, as much as 5 ppm silver, and as much as 10 ppm mercury. Silicified volcanic rocks contain as much as 1,720 ppb gold, 68 ppm silver, and 26 ppm mercury. Mineralization appears to be structurally controlled. The gold anomaly includes two east-west-trending, parallel zones and is open to the southeast and northwest along strike.

Other prospective areas lie along the trend of the Deep Creek volcanic rocks (WGM Inc., 1998 [DLR 98-19]). The Kill Zone 2 prospect (EA016) is about 1 mile northwest of the Deep Creek prospect and has similar geology. Also, gold anomalies from 10 ppb to greater than 200 ppb are on a linear trend from Deep Creek southeastward across the Nugget Creek (EA014) and Granite Creek (EA005) prospects. A possible northwest extension is indicated by an isolated 480 ppb gold soil sample on the northwest edge of the Deep Creek sample grid. Other indications of mineralization include rusty seeps apparently lying south of the fault trends and soil-color anomalies extending southeast from Deep Creek.

Geochemical reconnaissance on the Deep Creek trend during 1996 by WGM Inc. consisted of widely spaced soil sampling along ridge tops adjacent to known prospects (WGM Inc., 1998 [DLR 98-19]). There are silver anomalies as high as 3 ppm and mercury anomalies as high as 1,680 ppm in the Deep Creek portion of the grid. Deep Creek shows no recognizable signature in airborne geophysics. Two reconnaissance core holes were drilled at the Deep Creek prospect by WGM Inc. during 2001, and no significant mineralization was encountered (Ventures Resources, 2002).

Alteration:

Age of mineralization:

Dating by 40Ar/39Ar of hydrothermal mica from the margin of a gold-bearing quartz-arsenopyrite vein at the nearby Flume Creek prospect (EA009) gives a plateau age of 100 +/- 3 Ma, probably the age of gold deposition (Newberry and others, 1998). Similarities to this prospect suggest the Deep Creek prospect may be of the same age.

Deposit model:

Possibly Comstock epithermal veins (Cox and Singer, 1986; model 25c?).

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

25c?

Production Status: None

Site Status: Active?

Workings/exploration:

Geochemical reconnaissance on the Deep Creek trend during 1996 by WGM Inc. consisted of widely spaced soil sampling along ridge tops adjacent to known prospects (WGM Inc., 1998 [DLR 98-19]). There are silver anomalies as high as 3 ppm and mer-

cury anomalies as high as 1,680 ppm in the Deep Creek portion of the grid. Deep Creek shows no recognizable signature in airborne geophysics. Two reconnaissance core holes were drilled at the Deep Creek prospect by WGM Inc. during 2001 and no significant mineralization was encountered (Ventures Resource Corp., 2002).

Production notes:

Reserves:

Additional comments:

The Deep Creek prospect is located within Doyon, Ltd. selected or conveyed land. For more information contact Doyon, Ltd., Fairbanks, Alaska.

References:

Newberry and others, 1998; Rogers and Bradley, 1998; WGM Inc., 1998 (DLR 98-19); WGM Inc., 2000 (Seventymile property summary); Ventures Resource Corp., 2002.

Primary reference: WGM Inc., 1998 (DLR 98-19)

Reporter(s): M.B. Werdon; R.L. Flynn; D.J. Szumigala

Last report date: 4/7/03

Site name(s): Deer Creek

Site type: Prospect

ARDF no.: EA018

Latitude: 64.8526 **Quadrangle:** EA D-3

Longitude: 142.1240

Location description and accuracy:

The Deer Creek prospect is at an elevation of about 4,700 feet on the ridge at the head of Deer Creek, about 0.8 mile north of hill 4886. The coordinates are the approximate center of the samples collected by the U.S. Bureau of Mines (1995), in section 4, T. 1 S., R. 28 E., of the Fairbanks Meridian. The location is accurate. The Deer Creek prospect is located within Doyon, Ltd. selected or conveyed land.

Commodities:

Main: Cu

Other: Ag, Au, Mo, Pb, W, Zn

Ore minerals: Bornite, chalcopyrite, molybdenite, powellite, scheelite

Gangue minerals: Calc-silicates, garnet, pyroxene

Geologic description:

The Deer Creek prospect consists of several, small, copper-rich, garnet-pyroxene skarn bodies in marble. The marble is interlayered within Paleozoic quartzite, argillite, and minor felsic meta-tuff (U.S. Bureau of Mines, 1995). A small Tertiary to Cretaceous granite and granodiorite body crops out about 2 miles north of the prospect. The deposit consists primarily of chalcopyrite and bornite and minor scheelite, powellite, and molybdenite. Samples collected by the U.S. Bureau of Mines (1995) contain as much as 9.81percent copper, 0.02 percent lead, 0.23 percent zinc, 0.18 percent bismuth, 240 ppm silver, and 460 ppb gold. Near the skarns, sparse, massive, coarse-grained galena is found within silicified metatuff and quartzite; samples of this galena contain 69 to 97 ppm silver and 15 to 52 ppb gold.

There is conflicting evidence for the age of the Deer Creek prospect. Galena from the Deer Creek prospect has lead isotope ratios nearly identical to those of the Devonian Delta district massive sulfide deposits in the Alaska Range (Church and others, 1987). This suggests that the galena in the Deer Creek deposit is Devonian. However, the proximity of the deposit to Tertiary to Cretaceous plutons, the mineralogy (scheelite, powellite, molybdenite), and the trace metals (gold and bismuth) strongly suggest the Deep Creek prospect is a pluton-related Tertiary to Cretaceous skarn.

Exploration by WGM Inc. from 1975 to 1977 of the Deer Creek prospect area consisted of stream-sediment sampling, reconnaissance mapping, soil sampling on a grid, and EM, REM, CEM, and magnetic surveys (Dashevsky and others, 1986). In the early 1990's, the Deer Creek prospect was examined by the U.S. Bureau of Mines (1995).

Alteration:

Age of mineralization:

Galena from the Deer Creek prospect has lead isotope ratios nearly identical to those of the Devonian Delta district massive sulfide deposits in the Alaska Range, suggesting the galena at the Deer Creek prospect is Devonian (Church and others, 1987; U.S. Bureau of Mines, 1995). However, the proximity of the deposit to Tertiary to Cretaceous plutons, the mineralogy (scheelite, powellite, molybdenite), and the trace metals (gold-bismuth) strongly suggest the Deep Creek prospect is a pluton-related Tertiary to Cretaceous skarn.

Deposit model:

Cu skarn (Cox and Singer, 1986; model 18b).

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

18b

Production Status: None

Site Status: Probably inactive

Workings/exploration:

Exploration by WGM Inc. from 1975 to 1977 of the Deer Creek prospect area consisted of stream-sediment sampling, reconnaissance mapping, soil sampling on a grid, and EM, REM, CEM, and magnetic surveys (Dashevsky and others, 1986). In the early 1990's, the Deer Creek prospect was examined by the U.S. Bureau of Mines (1995).

Production notes:

Reserves:

Additional comments:

The Deer Creek prospect is located within Doyon, Ltd. selected or conveyed land. For more information contact Doyon, Ltd., Fairbanks, Alaska.

References:

WGM Inc., 1977; Dashevsky and others, 1986; Church and others, 1987; Burleigh and Lear, 1994; U.S. Bureau of Mines, 1995.

Primary reference: U.S. Bureau of Mines, 1995

Reporter(s): R.L. Flynn; M.B. Werdon

Last report date: 5/1/02

Site name(s): Barney Creek

Site type: Mines

ARDF no.: EA019

Latitude: 64.9839 **Quadrangle:** EA D-2

Longitude: 141.9594

Location description and accuracy:

Barney Creek is a small tributary on the north side of the Seventymile River. Barney Creek was mined for about one-half mile upstream from the mouth. The coordinates are the approximate midpoint of this section of the creek, in section 24, T. 2 N., R. 28 E., of the Fairbanks Meridian. The location is accurate. Barney Creek is locality 20 of Cobb (1972 [MF-393]), locality 3 of Eberlein and others (1977), and locality 5 of Burleigh and Lear (1994).

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:

The rocks in the vicinity of Barney Creek are Upper Cretaceous to Pliocene tightly folded conglomerate and plant fossil-bearing shales (Prindle, 1905; Foster, 1976). The gold in the stream and bench placers on Barney Creek was probably reconcentrated from these rocks (Mertie, 1938). Gravel in Barney Creek are 1.5 to 3 feet thick; the gravel is composed of conglomerate pebbles, cobbles, and boulders of quartzite as much as 3 feet in diameter. Gold occurs as thin plates as much as one-quarter of an inch in diameter (Prindle, 1905). Gravel benches as much as 50 feet high are present at the mouth of Barney Creek and between the forks of the creek located about one-half mile upstream from the mouth. These benches were covered with about 3 feet of gravel and 3 feet of sand and muck. The gravel at the forks contained large quartzite boulders that carried gold (Prindle, 1905). Placer gold from Barney Creek has 875 parts of gold and 122 parts of silver per thousand (Mertie, 1942). There has been placer gold production on the Seventymile River (see EA025) downstream of Barney Creek.

Barney Creek was first prospected in 1895 and was said to be a good producer in 1896 (Prindle, 1905). There are reports of mining on Barney Creek for most years from 1908 to 1940. A new hydraulic plant was completed on Barney Creek in 1930 but accom-

plished only a small amount of mining by the end of the season (Smith, 1933 [B 836-A]). Work on Barney Creek in the years just prior to 1936 was confined to a bench on the west side of the creek (Mertie, 1938).

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: Probably inactive

Workings/exploration:
Barney Creek was first prospected in 1895 and was said to be a good producer in 1896 (Prindle, 1905). There are reports of mining on Barney Creek for most years from 1908 to 1940. A new hydraulic plant was completed on Barney Creek in 1930 but accomplished only a small amount of mining by the end of the season (Smith, 1933 [B 836-A]). Work on Barney Creek in the years just prior to 1936 was confined to a bench on the west side of the creek (Mertie, 1938).

Production notes:
Placer gold from Barney Creek has 875 parts of gold and 122 parts of silver per thousand (Mertie, 1942).

Reserves:

Additional comments:

References:
Prindle, 1905; Brooks, 1909; Prindle, 1909; Ellsworth, 1910; Ellsworth and Parker, 1911; Porter, 1912; Ellsworth and Davenport, 1913; Brooks, 1915; Brooks, 1918; Smith, 1929; Mertie, 1930 (B 816); Smith, 1930 (B 813); Smith, 1932; Smith, 1933 (B 836-A); Powers, 1935; Smith, 1936; Smith, 1937; Mertie, 1938; Smith, 1938; Smith, 1939 (B 910-A); Smith, 1941 (B 926-A); Smith, 1942 (B 933-A); Clark and Foster, 1971; Cobb, 1972 (MF-393); Foster, 1976; Cobb, 1977 (OFR 77-845); Eberlein and others, 1977; Burleigh and Lear, 1994.

Primary reference: Prindle, 1905; Mertie, 1938

Reporter(s): R.L. Flynn; M.B. Werdon

Last report date: 5/1/02

Site name(s): Lucky Gulch

Site type: Mine

ARDF no.: EA020

Latitude: 64.9490 **Quadrangle:** EA D-2

Longitude: 141.5804

Location description and accuracy:
Lucky Gulch is a small west tributary of Fox Creek. Gold placers of Lucky Gulch have been worked for an unknown distance upstream from Fox Creek; the coordinates are about one-half mile upstream of the mouth of the creek, in section 2, T. 1 N., R. 30 E., of the Fairbanks Meridian. The location is accurate to within one-half mile. Lucky Gulch is locality 30 of Cobb (1972 [MF-393]) and locality 13 of Burleigh and Lear (1994).

Commodities:

Main: Au

Other: Pt

Ore minerals: Gold, platinum

Gangue minerals:

Geologic description:
The rocks along Lucky Creek are primarily Upper Cretaceous to Pliocene conglomerate (Clark and Foster, 1971; Foster, 1976). Ellsworth and Davenport (1913) reported drift mining on Lucky Gulch about a half-mile above the mouth of the creek, but no rich gravels were found. Mining is also reported on Lucky Gulch in 1926 and 1937 to 1939. Mertie (1938) noted that gold placers of Lucky Gulch had been worked for some distance upstream from Fox Creek (see EA021). Because no workings are present on Fox Creek above Lucky Gulch, it appears that gold in Fox Creek came from Lucky Gulch. Platinum has been found in placers in Lucky Gulch, but not in significant amounts (Joesting, 1942).

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: Probably inactive

Workings/exploration:
Ellsworth and Davenport (1913) reported drift mining on Lucky Gulch about a half-mile above the mouth of the creek, but no rich gravels were found. Mining is reported on Lucky Gulch in 1926, and 1937 to 1939. Platinum has been found in placers in Lucky Gulch, but not in significant amounts (Joesting, 1942).

Production notes:

Reserves:

Additional comments:

References:
Porter, 1912; Ellsworth and Davenport, 1913; Smith, 1929; Mertie, 1938; Smith, 1939 (B 910-A); Smith, 1939 (B 917-A); Smith, 1941 (B 926-A); Joesting, 1942; Clark and Foster, 1971; Cobb, 1972 (MF-393); Foster, 1976; Cobb, 1977 (OFR 77-845); Burleigh and Lear, 1994.

Primary reference: Mertie, 1938

Reporter(s): R.L. Flynn; M.B. Werdon

Last report date: 5/1/02

Site name(s): Fox Creek

Site type: Mine

ARDF no.: EA021

Latitude: 64.9352 **Quadrangle:** EA D-2

Longitude: 141.5548

Location description and accuracy:

Fox Creek is a 5-mile-long north tributary of the Seventymile River. Mertie (1938) reported that Fox Creek has been mined for placer gold for some distance downstream from Lucky Gulch (EA020) but no workings are present above Lucky Gulch. The coordinates on Fox Creek are about 1 mile downstream of the mouth of Lucky Gulch, in section 12, T. 1 N., R. 30 E., of the Fairbanks Meridian. The location is accurate within one-half mile. Fox Creek is locality 30 of Cobb (1972 [MF-393]), locality 29 of Eberlein and others (1977), and locality 14 of Burleigh and Lear (1994).

Commodities:

Main: Au

Other: Cr, Cu, Ni, Sn, Zn

Ore minerals: Cassiterite, gold

Gangue minerals:

Geologic description:

The rocks in the vicinity of Fox Creek are Upper Cretaceous to Pliocene conglomerate (Clark and Foster, 1971; Foster, 1976). Gold placers of the valley floor and lower benches of Fox Creek have been worked for some distance downstream from Lucky Gulch. No workings are present above Lucky Gulch; thus it appears that the gold in Fox Creek is derived from Lucky Gulch (Mertie, 1938).

The earliest reported prospecting occurred on Fox Creek in 1911, when some ground was stripped in preparation for placer mining (Porter, 1912). In 1912, mining occurred on Fox Creek over a considerable area below the mouth of Lucky Gulch, but no rich gravels were found (Ellsworth and Davenport, 1913). Mining was sporadically reported on Fox Creek from 1912 to 1939. Mining occurred on a high bench just below the mouth of Lucky Gulch, where the bedrock is 70 feet above Fox Creek (Mertie, 1938). The conglomerate bedrock on the bench is overlain by 4 feet of well-rounded gravel. This is overlain by a mixture of fine gravel and muck 8 to 15 feet deep, in which mammoth tusks were found Mertie (1938). Gold from the bench is fine-grained and high-grade. Assays of gold mined from Fox Creek in 1933 and 1934 averaged 884 parts of gold aned scarce

placer cassiterite in Fox Creek, and Clark and Foster (1971) found anomalous zinc, copper, barium, boron, chromium, and nickel in stream-sediment samples.

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: Probably inactive

Workings/exploration:
The earliest reported prospecting occurred on Fox Creek in 1911, when some ground was stripped in preparation for placer mining (Porter, 1912). In 1912, mining occurred on Fox Creek over a considerable area below the mouth of Lucky Gulch, but no rich gravels were found (Ellsworth and Davenport, 1913). Mining is sporadically reported on Fox Creek from 1912 to 1939. Mining occurred on a high bench just below the mouth of Lucky Gulch, where the bedrock is 70 feet above Fox Creek (Mertie, 1938). Joesting (1942) reported scarce placer cassiterite in Fox Creek, and Clark and Foster (1971) found anomalous zinc, copper, barium, boron, chromium, and nickel in stream sediment-samples.

Production notes:
Assays of gold mined from Fox Creek in 1933 and 1934 averaged 884 parts of gold and 110 parts of silver per thousand (Mertie, 1938).

Reserves:

Additional comments:

References:
Porter, 1912; Ellsworth and Davenport, 1913; Brooks, 1915; Brooks, 1916; Smith, 1926; Smith, 1929; Smith, 1932; Smith, 1936; Mertie, 1938; Smith, 1938; Smith, 1939 (B 917-A); Smith, 1941 (B 926-A); Joesting, 1942; Mertie, 1942; Clark and Foster, 1971; Cobb, 1972 (MF-393); Foster, 1976; Cobb, 1977 (OFR 77-845); Eberlein and others, 1977; Burleigh and Lear, 1994.

Primary reference: Mertie, 1938

Reporter(s): R.L. Flynn; M.B. Werdon

Last report date: 5/1/02

Site name(s): Sonickson Creek

Site type: Mine

ARDF no.: EA022

Latitude: 64.9350 **Quadrangle:** EA D-2

Longitude: 141.8739

Location description and accuracy:

Sonickson Creek is a small south tributary of the Seventymile River (EA025). Work was conducted near the mouth of Sonickson Creek in section 8, T. 1 N., R. 29 E., of the Fairbanks Meridian. The location is accurate to within one-half mile. Sonickson Creek is locality 21 of Cobb (1972 [MF-393]), locality 55 of Eberlein and others (1977), and locality 6 of Burleigh and Lear (1994).

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:

The rocks in the vicinity of the mouth of Sonickson Creek are calcareous and graphitic schist that strike N80W and dip vertically (Prindle, 1905). Upstream, bedrock includes Paleozoic gneiss, amphibolite, schist, and greenschist, detrital rocks of Cretaceous to Pliocene age, Tertiary or Mesozoic granitic rocks, and Tertiary volcanic and shallow-intrusive rocks (Foster, 1976). Several strands of the Tintina Fault cross Sonickson Creek.

Sonickson Creek flows through a canyon with well-defined benches in the vicinity of the Seventymile River. Gravels in Sonnickson Creek contain boulders of schist, conglomerate, greenstone, and granite (Prindle, 1905). Near the mouth, the average depth to bedrock is about 8 feet. Gold is found in thin pieces, some with quartz attached (Prindle, 1905).

Some work was done on Sonickson Creek in 1903 near the mouth of the creek (Prindle, 1905). Brooks (1915) reportseda little prospecting and mining with only small returns on several creeks that include Sonickson Creek. There has been placer gold production on the Seventymile River (see EA025) downstream of the mouth of Sonickson Creek.

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: Probably inactive

Workings/exploration:
Some work was done on Sonickson Creek in 1903 near the mouth of the creek (Prindle, 1905). Brooks (1915) reported a little prospecting and mining with only small returns on several creeks that include Sonickson Creek.

Production notes:

Reserves:

Additional comments:

References:
Prindle, 1905; Prindle, 1909; Brooks, 1915; Cobb, 1972 (MF-393); Foster, 1976; Cobb, 1977 (OFR 77-845); Eberlein and others, 1977; Burleigh and Lear, 1994.

Primary reference: Prindle, 1905

Reporter(s): R.L. Flynn; M.B. Werdon

Last report date: 5/1/02

Site name(s): Little Washington Creek; Washington Creek

Site type: Mine

ARDF no.: EA023

Latitude: 64.9345 **Quadrangle:** EA D-2

Longitude: 141.8474

Location description and accuracy:

Little Washington Creek is a small north tributary of the Seventymile River. Little Washington Creek was formerly known as Washington Creek. Placer gold mining is reported at the mouth of the creek,in section 9, T. 1 N., R. 29 E., of the Fairbanks Meridian. The location is accurate. Little Washington Creek is locality 22 of Cobb (1972 [MF-393]), locality 64 of Eberlein and others (1977), and locality 7 of Burleigh and Lear (1994).

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:

The rocks along Little Washigton Creek are primarily Upper Cretaceous to Pliocene conglomerate (Clark and Foster, 1971; Foster, 1976). A small placer operation recovered a little gold at the mouth of Little Washington Creek and on neighboring benches in 1911 (Porter, 1912). In 1912, there was successful ground-sluicing at the mouth of Little Washington Creek, but prospecting on the upper portion of the creek did not yield significant placer gold (Ellsworth and Davenport, 1913). In 1915, a little prospecting and mining took place but the returns were minor (Brooks, 1915).

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: Probably inactive

Workings/exploration:
A small placer operation recovered a little gold at the mouth of Little Washington Creek and on neighboring benches in 1911 (Porter, 1912). In 1912, there was successful ground-sluicing at the mouth of Little Washington Creek, but prospecting on the upper portion of the creek did not yield significant placer gold (Ellsworth and Davenport, 1913). In 1915, a little prospecting and mining took place but the returns were minor (Brooks, 1915).

Production notes:

Reserves:

Additional comments:

References:
Porter, 1912; Ellsworth and Davenport, 1913; Brooks, 1915; Clark and Foster, 1971; Cobb, 1972 (MF-393); Foster, 1976; Cobb, 1977 (OFR 77-845); Eberlein and others, 1977; Burleigh and Lear, 1994.

Primary reference: Ellsworth and Davenport, 1913

Reporter(s): R.L. Flynn; M.B. Werdon

Last report date: 5/1/02

Site name(s): Broken Neck Creek

Site type: Mine

ARDF no.: EA024

Latitude: 64.9313 **Quadrangle:** EA D-2

Longitude: 141.7242

Location description and accuracy:

Broken Neck Creek is a small north tributary of the Seventymile River. Prindle (1905) reported that Broken Neck Creek was worked for about one-half mile upstream from the mouth. The coordinates are the approximate midpoint of this part of the creek, in section 7, T. 1 N., R. 30 E., of the Fairbanks Meridian. The location is accurate. Broken Neck Creek is locality 28 of Cobb (1972 [MF-393]), locality 7 of Eberlein and others (1977), and locality 10 of Burleigh and Lear (1994).

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:

Broken Neck Creek flows through a narrow, steep-walled valley; the canyon walls are only 120 feet apart where the creek emerges onto the Seventymile River flats. Bedrock along the creek consists of Upper Cretaceous to Pliocene conglomerate interbedded with shale containing abundant fossil leaves (Prindle, 1905; Foster, 1976). Placer gold has been produced on the Seventymile River (see EA025) downstream from the mouth of Broken Neck Creek.

In 1903, the placer workings at Broken Neck Creek were 100 feet wide, and extended about one-half mile upstream from the mouth (Prindle, 1905). The paystreak at this time was about 6 feet wide, and total production was about $10,000 (gold at $20.67 per ounce). Mining on Broken Neck Creek is sporadically reported from 1910 to 1940. Gravel worked in Broken Neck Creek was later reported to be 3 to 5 feet thick; the pay streak was 20 to 50 feet wide at the mouth of the canyon and much narrower upstream (Mertie, 1938). Work in the 1930's was confined to benches on the west side of the creek. Most of the gold on the benches was located close to and on bedrock; no coarse gold was recovered. An average of four assays of gold from the benches, collected in four separate years, was 829 parts of gold and 165 parts of silver per thousand (Mertie, 1938). Clark

and Foster (1971) found anomalous lead and zinc were found in stream sediments from Broken Neck Creek.

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: Probably inactive

Workings/exploration:
In 1903, the placer workings at Broken Neck Creek were 100 feet wide and extended about one-half mile upstream from the mouth (Prindle, 1905). The paystreak at this time was about 6 feet wide. Mining on Broken Neck Creek is sporadically reported from 1910 to 1940. Gravel worked in Broken Neck Creek was later reported to be 3 to 5 feet thick; the pay streak was 20 to 50 feet wide at the mouth of the canyon and much narrower upstream (Mertie, 1938). Work in the 1930's was confined to benches on the west side of the creek.

Production notes:
Total gold production from Broken Neck Creek as of 1903 was about $10,000 (gold at $20.67 per ounce) (Prindle, 1905). An average of four assays of gold from the benches, collected in four separate years, was 829 parts of gold and 165 parts of silver per thousand (Mertie, 1938).

Reserves:

Additional comments:

References:
Prindle, 1905; Prindle, 1909; Ellsworth and Parker, 1911; Ellsworth and Davenport, 1913; Mertie, 1930 (B 816); Smith, 1930 (B 813); Smith, 1932; Smith, 1933 (B 836); Powers, 1935; Smith, 1936; Smith, 1937; Mertie, 1938; Smith, 1938; Smith, 1939 (B 910-A); Mertie, 1942; Smith, 1942 (B 933-A); Clark and Foster, 1971; Cobb, 1972 (MF-393); Foster, 1976; Cobb, 1977 (OFR 77-845); Eberlein and others, 1977; Burleigh and Lear, 1994.

Primary reference: Prindle, 1905; Mertie, 1938

Reporter(s): R.L. Flynn; M.B. Werdon

Last report date: 5/1/02

Site name(s): Seventymile River

Site type: Mines

ARDF no.: EA025

Latitude: 64.9302 **Quadrangle:** EA D-2

Longitude: 141.8419

Location description and accuracy:

The Seventymile River is approximately 60 miles long and drains into the Yukon River about 10 miles northwest of the town of Eagle. Most mining on the Seventymile River occurred just above the falls of the Seventymile River, about 20 miles upstream of its mouth. The coordinates for these mines are placed at this point ,in section 9, T. 1 N., R. 29 E., of the Fairbanks Meridian. The location is accurate. The Seventymile River is localities 19 and 23 to 25 of Cobb (1972 [MF-393]), locality 53 of Eberlein and others (1977), and localities 9 and 11 of Burleigh and Lear (1994).

Commodities:

Main: Au

Other: Pt

Ore minerals: Gold

Gangue minerals:

Geologic description:

The rocks along the middle portion of the Seventymile River are Paleozoic gneiss, amphibolite, schist, and greenschist and Upper Cretaceous to Pliocene terrigenous sedimentary rocks (Foster, 1976). The main trace and subsidiary strands of the Tintina Fault run along and parallel the Seventymile River.

The falls of the Seventymile River are located about 20 miles upstream of the Yukon River; they are about 9 feet high (Prindle, 1905). Above the falls well-developed gravel benches are found on both sides of the river; low benches are best developed on the north side of the river. By 1936, small-scale mining had been carried out intermittently for many years on gravel on the lower benches (Mertie, 1938). One hundred holes were drilled on low benches on the north side of the river, from the falls upstream to within a mile of Barney Creek. The depth to bedrock averaged 19 feet to bedrock, with a maximum depth of 27 feet. Two assays of placer gold from the Seventymile River averaged of 828 parts of gold and 163 parts of silver per thousand. A sample of placer gold from the Seventymile River at the mouth of Broken Neck Creek contains 80.59 percent gold, 18.21percent silver, and 0.20 percent platinum (Mertie, 1942). No platinum grains were

observed; the platinum is presumably alloyed with gold and silver. Placer gold has been produced on many of the tributaries entering the Seventymile River, including Rock Creek (EA030), Fox Creek (EA021), Crooked Creek (EA026), Broken Neck Creek (EA024), Canyon Creek (EA027), Sonickson Creek (EA022), Barney Creek (EA019), Nugget Creek (EA014), Alder Creek (EA011), and Flume Creek (EA008).

In 1902, a hydraulic plant was used to mine on the Seventymile River about 15 miles upstream from the Yukon River (Brooks, 1903). Bar mining and sniping are reported on the Seventymile River in most years from 1902 to 1940. A small hydraulic outfit operated at the falls in 1903 (Brooks, 1904; Prindle, 1905), and in 1910 placer mining occurred at the falls and Curtis Bar (Ellsworth and Parker, 1911). Mining at the falls ceased in 1912, but more mining took place at Curtis Bar than in any recent year (Ellsworth and Davenport , 1913). In 1936, a drilling crew of Gold Placers, Inc. prospected benches along the Seventymile River. They drilled 100 holes above the falls, but results of the drilling were not as encouraging as had been expected (Mertie, 1938).

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

Site Status: Probably inactive

Workings/exploration:

In 1902, a hydraulic plant was used to mine on the Seventymile River about 15 miles upstream from the Yukon River (Brooks, 1903). Bar mining and sniping are reported on the Seventymile River in most years from 1902 to 1940. A small hydraulic outfit operated at the falls in 1903 (Brooks, 1904; Prindle, 1905), and in 1910 placer mining occurred at the falls and Curtis Bar (Ellsworth and Parker, 1911). Mining at the falls ceased in 1912, but more mining took place at Curtis Bar than in any recent year (Ellsworth and Davenport , 1913). In 1936, a drilling crew of Gold Placers, Inc. prospected benches along the Seventymile River. They drilled 100 holes above the falls, but results of the drilling were not as encouraging as had been expected (Mertie, 1938).

Production notes:

Two assays of placer gold from the Seventymile River averaged of 828 parts of gold and 163 parts of silver per thousand. A sample of placer gold from the Seventymile River at the mouth of Broken Neck Creek contains 80.59 percent gold, 18.21percent silver, and 0.20 percent platinum (Mertie, 1942). No platinum grains were observed; the platinum is

presumably alloyed with gold and silver.

Reserves:

Additional comments:

References:

Brooks, 1903; Brooks, 1904; Prindle, 1905; Prindle, 1906 (B 284); Prindle, 1906 (B 295); Prindle, 1909; Ellsworth, 1910; Ellsworth and Parker, 1911; Porter, 1912; Ellsworth and Davenport, 1913; Brooks, 1915; Brooks, 1918; Martin, 1919; Smith, 1926; Mertie, 1930 (B 816); Smith, 1930 (B 810); Smith, 1930 (B 813); Smith, 1932; Smith, 1933 (B 836); Smith, 1933 (B 844-A); Smith, 1934 (B 857-A); Smith, 1934 (B 864-A); Powers, 1935; Smith, 1936; Smith, 1937; Mertie, 1938; Smith, 1938; Smith, 1939 (B 910-A); Smith, 1939 (B 917-A); Smith, 1941 (B 910-C); Joesting, 1942; Mertie, 1942; Smith, 1942 (B 933-A); Mertie, 1969; Cobb, 1972 (MF-393); Foster, 1976; Cobb, 1977 (OFR 77-845); Eberlein and others, 1977; Burleigh and Lear, 1994.

Primary reference: Prindle, 1905; Mertie, 1938

Reporter(s): R.L. Flynn; M.B. Werdon

Last report date: 5/1/02

Site name(s): Crooked Creek

Site type: Mine

ARDF no.: EA026

Latitude: 64.9285 **Quadrangle:** EA D-2

Longitude: 141.6643

Location description and accuracy:

Crooked Creek is an 8-mile-long north tributary of the Seventymile River. The placer deposits are located in the lower 2 miles of Crooked Creek, downstream of Eldorado Creek; the coordinates are about 1 mile upstream of the mouth of Crooked Creek, in section 9, T. 1 N., R. 30 E., of the Fairbanks Meridian. Crooked Creek is locality 29 of Cobb (1972 [MF-393]), locality 19 of Eberlein and others (1977), and locality 12 of Burleigh and Lear (1994).

Commodities:

Main: Au

Other: Ag, Pb

Ore minerals: Galena, gold, silver

Gangue minerals:

Geologic description:

The rocks along Crooked Creek are primarily Cretaceous to Pliocene conglomerate with lesser sandstone and shale (Clark and Foster, 1971; Foster, 1976). Trachyte porphyry and other dikes cut the sedimentary rocks (Clark and Foster, 1971).

Mining in 1936 took place about 2 miles upstream of the mouth of the creek, where the paystreak was about 270 feet wide (Mertie, 1938). In general, 3 to 4 feet of muck covered the gravel, which is generally 5 to 6 feet thick, but locally as much as 8 feet thick. The gravel consists of well-rounded cobbles of rather uniform size; some boulders reach 2 feet in diameter. Gold was recovered from the entire section of gravel, rather than concentrated near bedrock. The gold was fine-grained, and some small silver nuggets were also recovered. Three assays of placer gold collected from Crooked Creek in 1934 and 1935 averaged 902 parts of gold and 92 parts of silver per thousand, the highest grade in the Seventymile area (Mertie, 1938). Mertie (1942) later reported 20 assays of placer gold from Crooked Creek that averaged 908 parts of gold and 88 parts of silver per thousand. Galena and hematite were also recovered from sluice boxes on Crooked Creek (Clark and Foster, 1971). Arsenic was found in all stream-sediment samples collected from Crooked Creek by Clark and Foster (1971).

No workable placers on Crooked Creek have been found above the mouth of Eldorado Creek, which heads against the same ridge as Lucky Gulch (see EA020). Mertie (1942) suggests that gold in Crooked Creek and Lucky Gulch is derived from the area between them. Placer gold has been produced on the Seventymile River (see EA025) near the mouth of Crooked Creek.

There are reports of mining on Crooked Creek for the most years from 1909 to 1940. A hydraulic plant was installed in 1916 (Brooks, 1918), and it was operating in 1921 (Brooks, 1923). In 1936, Crooked Creek had the only good-size hydraulic plant in the Seventymile River basin (Mertie, 1938). Mining in 1936 on Crooked Creek was taking place about 2 miles upstream from its mouth; earlier mining was located farther downstream (Mertie, 1938).

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

Site Status: Probably inactive

Workings/exploration:

There are reports of mining on Crooked Creek for the most years from 1909 to 1940. A hydraulic plant was installed in 1916 (Brooks, 1918), and it was operating in 1921 (Brooks, 1923). In 1936, Crooked Creek had the only good-size hydraulic plant in the Seventymile River basin (Mertie, 1938). Mining in 1936 on Crooked Creek was taking place about 2 miles upstream from its mouth; earlier mining was located farther downstream (Mertie, 1938).

Production notes:

Three assays of placer gold collected from Crooked Creek in 1934 and 1935 averaged 902 parts of gold and 92 parts of silver per thousand, the highest grade in the Seventymile area (Mertie, 1938). Mertie (1942) later reported 20 assays of placer gold from Crooked Creek that averaged 908 parts of gold and 88 parts of silver per thousand.

Reserves:

Additional comments:

References:

Ellsworth, 1910; Ellsworth and Parker, 1911; Porter, 1912; Ellsworth and Davenport, 1913; Brooks, 1915; Brooks, 1918; Brooks, 1923; Brooks and Capps, 1924; Smith, 1926; Smith, 1929; Mertie, 1930 (B 816); Smith, 1930 (B 813); Smith, 1932; Smith, 1933 (B 836); Smith, 1933 (B 844-A); Powers, 1935; Smith, 1936; Smith, 1937; Mertie, 1938; Smith, 1938; Smith, 1939 (B 910-A); Smith, 1939 (B 917-A); Mertie, 1942; Smith, 1942 (B 933-A); Clark and Foster, 1971; Cobb, 1972 (MF-393); Foster, 1976; Cobb, 1977 (OFR 77-845); Eberlein and others, 1977; Burleigh and Lear, 1994.

Primary reference: Mertie, 1938; Clark and Foster, 1971

Reporter(s): R.L. Flynn; M.B. Werdon

Last report date: 5/1/02

Site name(s): Canyon Creek; Gold Creek

Site type: Mine

ARDF no.: EA027

Latitude: 64.9262 **Quadrangle:** EA D-2

Longitude: 141.8150

Location description and accuracy:

Canyon Creek is a tributary to the Seventymile River; it is about 10 miles west of the Canadian border. Gold Creek is located one-half mile east of Canyon Creek. Many historic references to Canyon Creek are combined with, or may refer to Gold Creek in some cases; the two creeks are combined for this record. The coordinates for this mine are located near the mouth of Gold Creek,in section 10, T. 1 N., R. 29 E., of the Fairbanks Meridian. Canyon Creek is locality 26 of Cobb (1972 [MF-393]), locality 14 of Eberlein and others (1977), and locality 8 of Burleigh and Lear (1994).

Commodities:

Main: Au, Hg

Other:

Ore minerals: Cinnabar, gold

Gangue minerals:

Geologic description:

The rocks near the mouths of Canyon Creek and Gold Creek include Paleozoic amphibolite-facies? schist. Upstream, conglomerate and sandstone are present for the first 6,000 feet, and then greenschist-facies metasedimentary rocks underlie the head of the valley (Malone, 1962; Clark and Foster, 1969). The terrigenous sedimentary rocks along Canyon Creek are of Late Cretaceous to Pliocene age (Foster, 1976). The sedimentary rocks are contained within a fault-bounded block. The main trace of the Tintina Fault crosses lower Canyon Creek and Gold Creek, and another strand of the Tintina Fault crosses upper Canyon Creek and Gold Creek (Foster, 1976).

There has been placer gold production on the lower part of Gold Creek, and on the Seventymile River (EA025) near the mouth of Gold Creek. Cinnabar was found in sluicebox concentrates mined near the mouth of Canyon Creek; an attempt to find lode cinnabar along Canyon Creek was made around 1907 (Malone, 1962). Ellsworth and Davenport (1913) reported two men mining placer gold on Canyon Creek in 1912. The U.S. Geological Survey examined the Canyon Creek area in 1942, conducting an extensive program of trenching and digging test pits, but in most of the prospect pits the gravel con-

tained little or no cinnabar (Malone, 1962).

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: Probably inactive

Workings/exploration:
There has been placer gold production on the lower part of Gold Creek and on the Seventymile River (EA025) near the mouth of Gold Creek. Cinnabar was found in sluicebox concentrates mined near the mouth of Canyon Creek; an attempt to find lode cinnabar along Canyon Creek occurred around 1907 (Malone, 1962). Ellsworth and Davenport (1913) reportedtwo men mining placer gold on Canyon Creek in 1912. The U.S. Geological Survey examined the Canyon Creek area in 1942, conducting an extensive program of trenching and digging test pits, but in most of the prospect pits the gravel contained little or no cinnabar (Malone, 1962).

Production notes:

Reserves:

Additional comments:

References:
Ellsworth and Davenport, 1913; Saunders, 1956; Malone, 1962; Clark and Foster, 1969; Cobb, 1972 (MF-393); Foster, 1976; Cobb, 1977 (OFR 77-845); Eberlein and others, 1977; Burleigh and Lear, 1994.

Primary reference: Malone, 1962

Reporter(s): R.L. Flynn; M.B. Werdon

Last report date: 5/1/02

Site name(s): Ptarmigan Hill

Site type: Prospect

ARDF no.: EA028

Latitude: 64.9261 **Quadrangle:** EA D-2

Longitude: 141.9449

Location description and accuracy:

The Ptarmigan Hill gold prospect is located at the north end of the top of the ridge west of Sonickson Creek near hill 2750. The coordinates are the approximate center of the prospect, in the SE1/4 section 12, T. 1 N., R. 28 E., of the Fairbanks Meridian. The location is accurate within 500 feet. The Ptarmigan Hill prospect is located within Doyon, Ltd. selected or conveyed land.

Commodities:

Main: Ag, Au

Other: Hg, Sb

Ore minerals: Gold

Gangue minerals: Quartz

Geologic description:

The Ptarmigan Hill prospect is located at the western end of a linear trend of sediment-hosted epithermal gold prospects informally known as the Crooked Creek trend (Rogers and Bradley, 1998). The Crooked Creek trend includes the Ptarmigan Hill and Mogul Bluff (EA029) prospects and the Ruby and Hudson Coulee gold anomalies defined by soil sampling. At Ptarmigan Hill, a 3- to 30-meter-thick unit of Tertiary conglomerate crops out in the core of a broad northeast-trending anticline (U.S. Bureau of Mines, 1995). The conglomerate contains well-rounded quartz and chert clasts, as well as thin sandstone, siltstone, and shale interbeds (WGM Inc., 1998 [DLR 98-19]). This unit is bounded on the south by Tertiary felsic igneous rocks, and on the north by Paleozoic schist. Tertiary felsic igneous rocks, including quartz-eye rhyolite and quartz-feldspar porphyry, are juxtaposed along regional high-angle faults. Small serpentinite bodies are faulted into the conglomerate by splays of the Tintina fault.

At Ptarmigan Hill, epithermal gold-quartz veinlets are controlled by a steeply dipping, north-trending fracture system that is best developed in silicified conglomerate beds and related rocks (WGM Inc., 1998 [DLR 98-19]). An epithermal event is interpreted to have flooded permeable conglomerates, resulting in weak to moderate silicification (U.S. Bureau of Mines, 1995). Unaltered siltstones seem to have inhibited fluid flow, and higher

gold values appear to be concentrated at the siltstone-conglomerate contact. Detrital muscovite from silicified, gold-bearing conglomeratic sandstone at the Ptarmigan Hill prospect gives an average 40Ar/39Ar reset age of 54 Ma; this is considered to be the time of silicification and gold mineralization (Newberry and others, 1998).

Ptarmigan Hill has soil geochemistry anomalies over an area 3,500 feet long (east-west) by 1,000 feet wide (WGM Inc., 1998 [DLR 98-19]). A gold anomaly (greater than 50 ppb) is at least 2,400 feet long in an east-west direction and at least 800 feet wide. Soil assays exceed 1,000 ppb gold, 10 ppm silver, and 800 ppb mercury and are also anomalous in arsenic and antimony. The full extent of the soil anomaly is not known. A Tertiary felsic volcanic(?) rock from the ridge south of Ptarmigan Hill contains 140 ppb gold, 1.4 ppm silver, and 910 ppb mercury; it may be an easterly extension of the Deep Creek trend of volcanic-hosted epithermal gold prospects 15 miles to the west (Rogers and Bradley, 1998).

Drill hole intercepts at Ptarmigan Hill include 20 feet with 0.21 ounce of gold per ton; 22 feet with 0.13 ounce of gold per ton; and 80 feet with 0.055 ounce of gold per ton (WGM Inc., 1998 [DLR 98-19]). American Copper and Nickel Co. defined 3 million tons of material that averages 0.024 ounce of gold per ton. The Ptarmigan Hill and Mogul Bluff (EA029) prospects appear as distinct, resistivity highs due to the silicification of the clastic sedimentary rocks. Additional resistivity highs, coinciding with anomalous gold in soils, occur along the trend east of Mogul Bluff . A nearly continuous, narrow, linear magnetic high that is sub-parallel to the trend of the Tintina Fault, extends westward from Mogul Bluff to Ptarmigan Hill and the rest of the Seventymile gold belt. The magnetic anomalies suggests that an ultramafic(?) body extends beneath the Paleozoic schist and Tertiary sedimentary rocks.

The Crooked Creek trend was explored by American Copper and Nickel Co. (ACNC) from 1987 to 1989 (WGM Inc., 1998 [DLR 98-19]). ACNC drilled 37 holes totaling 13,413 feet at Ptarmigan Hill over an east-west-trending area 2,000 feet long by 400 feet wide. ACNC also conducted ground magnetic, EM, IP, and resistivity surveys at Ptarmigan Hill. In 1996, reconnaissance sampling by WGM Inc. west of Ptarmigan Hill confirmed the presence of gold in the 13-mile-long segment between the Crooked Creek trend and the Flume trend. An airborne EM-magnetic survey was flown over the Flume, Deep Creek, and Crooked Creek trends in 1997 for Ventures Resource Alaska.

Alteration:

An epithermal system flooded permeable conglomerates with weak to moderate silicification (U.S. Bureau of Mines, 1995). Unaltered siltstones seem to have inhibited fluid flow, and higher gold values appear to be concentrated at the siltstone-conglomerate contact.

Age of mineralization:

Detrital muscovite from silicified, gold-bearing conglomeratic sandstone at the Ptarmigan Hill prospect have an average 40Ar/39Ar reset age of 54 Ma; this is considered to be the time of silicification and gold mineralization (Newberry and others, 1998).

Deposit model:

Possibly epithermal veins (Cox and Singer, 1986; model 25c?).

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

Production Status: None

Site Status: Active?

Workings/exploration:
The Crooked Creek trend was explored by American Copper and Nickel Co. from 1987 to 1989 (WGM Inc., 1998 [DLR 98-19]). American Copper and Nickel Co. drilled 37 holes totaling 13,413 feet at Ptarmigan Hill over an east-west-trending area 2,000 feet long by 400 feet wide. American Copper and Nickel Co. also conducted ground magnetic, EM, IP, and resistivity surveys at Ptarmigan Hill. In 1996, reconnaissance sampling by WGM Inc. west of Ptarmigan Hill confirmed the presence of gold in the 13-mile segment between the Crooked Creek trend and the Flume trend. An airborne EM-magnetic survey was flown over the Flume, Deep Creek, and Crooked Creek trends in 1997 for Ventures Resource Alaska.

Production notes:

Reserves:
American Copper and Nickel Co. defined 3 million tons of material with an average grade of 0.024 ounce of gold per ton (WGM Inc., 1998 [DLR 98-19]).

Additional comments:
The Ptarmigan Hill prospect is located within Doyon, Ltd. selected or conveyed land. For more information contact Doyon, Ltd., Fairbanks, Alaska.

References:
Foster, 1976; Bright, 1992; Burleigh and Lear, 1994; U.S. Bureau of Mines, 1995; Newberry and others, 1998; Rogers and Bradley, 1998; WGM Inc., 1998 (DLR 98-19).

Primary reference: U.S. Bureau of Mines, 1995; WGM Inc., 1998 (DLR 98-19)

Reporter(s): M.B. Werdon; R.L. Flynn

Last report date: 5/1/02

Site name(s): Mogul Bluff

Site type: Prospect

ARDF no.: EA029

Latitude: 64.9013 **Quadrangle:** EA D-2

Longitude: 141.7468

Location description and accuracy:

The Mogul Bluff gold prospect is located on a bluff on the west side of Mogul Creek about 2 miles southeast of its mouth. The coordinates are located at the approximate center of drillhole-collar locations, in section 24, T. 4 N., R. 29 E., of the Fairbanks Meridian; the location is accurate. Mogul Creek is locality 27 of Cobb (1972 [MF-393]) and locality 40 of Eberlein and others (1977). The Mogul Bluff prospect is located within Doyon, Ltd. selected or conveyed land.

Commodities:

Main: Ag, Au

Other: As, Hg, Sb

Ore minerals: Gold

Gangue minerals:

Geologic description:

The Mogul Bluff epithermal gold prospect is located in the middle of a linear trend of gold prospects informally known as the Crooked Creek trend (Rogers and Bradley, 1998). This trend of sediment-hosted epithermal gold prospects also includes the Ptarmigan Hill (EA028) prospect and the Ruby and Hudson Coulee gold anomalies defined by soil sampling. Late Cretaceous to Pliocene, terrigenous sedimentary rocks crop out in the Mogul Bluff area (Foster, 1976). Conglomerate at Mogul Bluff contains well-rounded quartz and chert clasts and thin interbeds of sandstone, siltstone, and shale (WGM Inc., 1998 [DLR 98-19]). Tertiary felsic volcanic and hypabyssal intrusive rocks, including quartz-eye rhyolite and quartz-feldspar porphyry, are nearby along regional high-angle faults. Small serpentinite bodies are juxtaposed with the conglomerate by splays of the Tintina Fault. Detrital muscovite from silicified, gold-bearing conglomeratic sandstone at the Ptarmigan Hill prospect (EA028) gives an average 40Ar/39Ar reset age of 54 Ma; this is interpreted as the time of silicification and gold mineralization (Newberry and others, 1998). The Mogul Bluff prospect is similar and may be of the same age.

The gold potential is highest in the conglomerate units, but volcanic rocks in the area also show significant gold potential (Rogers and Bradley, 1998). Soil sampling on a de-

tailed grid indicates that the Mogul Bluff prospect is associated with an approximately 200-foot-wide by 800-foot-long soil anomaly in gold, with several values in excess of 3,000 ppb gold (WGM Inc., 1998 [DLR 98-19]). Strong mercury, arsenic, and antimony anomalies are coincident with, or more extensive than the gold anomaly. The anomaly may be truncated on the east by a north-trending fault that offsets mineralization to the south. Scarce placer cinnabar was found in Mogul Creek (Joesting, 1942). Drill holes at Mogul Bluff intersected gold mineralization within silicified conglomerate, including 81.2 feet with 0.055 ounce of gold per ton (WGM Inc., 1998 [DLR 98-19]). Gold (as much as 35 ppb) is present in soils about 1 mile to the south of Mogul Bluff. The Ptarmigan Hill (EA028) and Mogul Bluff prospects are characterized by distinct resistivity highs due to silicification of the clastic sedimentary rocks. Areas of high resistivity between Mogul Bluff and the Hudson Coulee soil geochemical anomaly to the east correlate with high gold values in panned heavy-mineral concentrate and soil samples.

In 1987 and 1988, the Crooked Creek trend was explored by American Copper and Nickel Company (Rogers and Bradley, 1998). They drilled 2,410 feet in nine holes to test a gold anomaly and conducted EM and magnetic surveys. In 1996, WGM Inc. conducted soil sampling on widely separated lines to the southeast of Mogul Bluff and reconnaissance soil sampling of ridges throughout the area (WGM Inc., 1998 [DLR 98-19]). An airborne EM-magnetic survey was flown over the Flume, Deep Creek, and Crooked Creek gold trends of the Seventymile gold belt in 1997.

Alteration:

There is silicification of conglomerates (WGM Inc., 1998 [DLR 98-19]).

Age of mineralization:

Detrital muscovite from silicified, gold-bearing conglomeratic sandstone at the Ptarmigan Hill (EA028) prospect gives an average 40Ar/39Ar reset age of 54 Ma, interpreted as the time of silicification and gold deposition (Newberry and others, 1998). Similarities to Ptarmigan Hill suggest the Mogul Bluff prospect may be of the same age.

Deposit model:

Possibly Comstock epithermal veins (Cox and Singer, 1986; model 25c?).

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

25c?

Production Status: None

Site Status: Active?

Workings/exploration:

In 1987 and 1988, the Crooked Creek trend was explored by American Copper and Nickel Company (Rogers and Bradley, 1998). They drilled 2,410 feet in 9 holes to test a gold anomaly and conducted EM and magnetic surveys. In 1996, WGM Inc. conducted soil sampling on lines to the southeast of Mogul Bluff and reconnaissance soil sampling of ridges throughout the area (WGM Inc., 1998 [DLR 98-19]). An airborne EM-magnetic

survey was flown over the Flume, Deep Creek, and Crooked Creek gold trends of the Seventymile gold belt in 1997.

Production notes:

Reserves:

Additional comments:

The Mogul Bluff prospect is located within Doyon, Ltd. selected or conveyed land. For more information contact Doyon, Ltd., Fairbanks, Alaska.

References:

Joesting, 1942; Cobb, 1972 (MF-393); Foster, 1976; Cobb, 1977 (OFR 77-845); Eberlein and others, 1977; U.S. Bureau of Mines, 1995; Newberry and others, 1998; Rogers and Bradley, 1998; WGM Inc., 1998 (DLR 98-19); WGM Inc., 2000 (Seventymile property summary).

Primary reference: WGM Inc., 1998 (DLR 98-19)

Reporter(s): M.B. Werdon; R.L. Flynn

Last report date: 5/1/02

Site name(s): Rock Creek

Site type: Mine

ARDF no.: EA030

Latitude: 64.8731 **Quadrangle:** EA D-2

Longitude: 141.5207

Location description and accuracy:

Rock Creek is a small south tributary of the Seventymile River on which some placer mining occurred hear the head of the creek. The coordinates are the location of placer workings, in section 31, T. 1 N., R. 31 E., of the Fairbanks Meridian. The location is accurate within 1 mile. Rock Creek is locality 31 of Cobb (1972 [MF-393]) and locality 51 of Eberlein and others (1977).

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:

The rocks along Rock Creek are Cretaceous to Pliocene terrigenous sedimentary rocks (Foster, 1976). The Tintina Fault crosses upper Rock Creek. Some coarse gold was found near the head of Rock Creek (Ellsworth and Parker, 1911) near the a lode gold prospect . The gold was concentrated on top of bedrock beneath about 50 feet of muck, but it could not be worked at a profit.

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:

Some coarse gold was found near the head of Rock Creek, but it could not be worked profitably (Ellsworth and Parker, 1911).

Production notes:

Reserves:

Additional comments:

References:

Ellsworth and Parker, 1911; Cobb, 1972 (MF-393); Foster, 1976; Cobb, 1977 (OFR 77-845); Eberlein and others, 1977.

Primary reference: Ellsworth and Parker, 1911

Reporter(s): R.L. Flynn; M.B. Werdon

Last report date: 5/1/02

Site name(s): Unnamed (on Calico Bluff)

Site type: Occurrence

ARDF no.: EA031

Latitude: 64.9093 **Quadrangle:** EA D-1

Longitude: 141.1923

Location description and accuracy:

Calico Bluff is located on the west bank of the Yukon River about 12 miles downstream from the town of Eagle. The coordinates are the approximate center of the outcrop of the Calico Bluff Formation along the Yukon River, in the SW1/4 section 14, T. 1 N., R. 32 E., of the Fairbanks Meridian. The location is accurate. Calico Bluff is locality 11 of Eberlein and others (1977).

Commodities:

Main: U

Other: V

Ore minerals:

Gangue minerals:

Geologic description:

The Calico Bluff Formation consists of rhythmically interbedded, bioclastic limestone and dark brownish-gray shale; it is about 1,400 feet thick (Foster, 1976). The Calico Bluff Formation contains rich invertebrate fauna and a few gymnosperm pollen grains and spores; it is of Late Mississippian to Early Pennsylvanian age (Foster, 1976).

In 1948, Wedow (1954) collected samples at scattered outcrops of the Calico Bluff Formation, from Calico Bluff to the Tatonduk River, during a reconnaissance for radioactive deposits in the Eagle-Nation area. Two units of black shale are slightly radioactive; both are near the base of the Calico Bluff Formation (Wedow, 1954). Selected samples that showed anomalous radioactivity in the field were assayed. They contain 0.001 to 0.005 percent uranium. A select sample of phosphatic material contains 0.019 percent uranium, and a sample of fossiliferous gray-black shale with a bluish phosphate bloom contains 0.009 percent uranium; these samples contain 0.46 and 0.68 percent V2O5, respectively (Wedow, 1954).

Alteration:

Age of mineralization:

The Calico Bluff Formation is of Late Mississippian to Early Pennsylvanian age (Foster, 1976).

Deposit model:
Sandstone U? (Cox and Singer, 1986; model 30c).

Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):
30c?

Production Status: None

Site Status: Inactive

Workings/exploration:
In 1948, Wedow (1954) collected samples at scattered outcrops of the Calico Bluff Formation, from Calico Bluff to the Tatonduk River, during a reconnaissance for radioactive deposits in the Eagle-Nation area. Two units of black shale are slightly radioactive; both are near the base of the Calico Bluff Formation (Wedow, 1954). Selected samples that showed anomalous radioactivity in the field were assayed. They contain 0.001 to 0.005 percent uranium. A select sample of phosphatic material contains 0.019 percent uranium, and a sample of fossiliferous gray-black shale with a bluish phosphate bloom contains 0.009 percent uranium; these samples contain 0.46 and 0.68 percent V2O5, respectively (Wedow, 1954).

Production notes:

Reserves:

Additional comments:

References:
Wedow, 1954; Foster, 1976; Cobb, 1977 (OFR 77-845); Eberlein and others, 1977.

Primary reference: Wedow, 1954

Reporter(s): R.L. Flynn; M.B. Werdon

Last report date: 5/1/02

Site name(s): Excelsior Creek; Twelvemile Creek

Site type: Mine

ARDF no.: EA032

Latitude: 64.8307 **Quadrangle:** EA D-1

Longitude: 141.4394

Location description and accuracy:

Excelsior Creek is about 8 miles west-northwest of Eagle; it is a tributary of Mission Creek. Excelsior Creek was formerly known as Twelvemile Creek. The location of placer gold minng on Excelsior Creek is uncertain; the coordinates are arbitrarily placed about 1.5 miles upstream of the mouth of the creek, in section 13, T. 1 S., R. 31 E., of the Fairbanks Meridian. The location is accurate within 1.5 miles. Excelsior Creek is locality 24 of Eberlein and others (1977) and locality 32 of Cobb (1972 [MF-393]).

Commodities:

Main: Au

Other: U?

Ore minerals: Gold, monazite

Gangue minerals:

Geologic description:

The rocks in the vicinity of upper Excelsior Creek are Paleozoic quartz-mica schist, greenschist, local marble, and greenstone; the rocks on lower Excelsior Creek are Upper Cretaceous to Pliocene terrigenous sedimentary rocks. These rocks have been intruded by Tertiary to Mesozoic granitic rocks (Foster, 1976). A strand of the Tintina Fault runs along the lower 3 miles of Excelsior Creek, and Quaternary terrace and alluvial deposits are present near the mouth.

Excelsior Creek was prospected for placer gold in 1896 (Spurr, 1898). Cretaceous to Tertiary sedimentary rocks in the area were interpreted to be the source of the placer gold (Mertie, 1969). Trace monazite was noted in a plutonic rock adjacent to the creek (Wedow, 1954).

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:
Excelsior Creek was prospected for placer gold in 1896 (Spurr, 1898). Cretaceous to Tertiary sedimentary rocks in the area were interpreted by Mertie (1969) to be the source of the placer gold. Trace monazite was noted in a plutonic rock adjacent to the creek (Wedow, 1954).

Production notes:

Reserves:

Additional comments:

References:
Spurr, 1898; Wedow, 1954; Overstreet, 1967; Mertie, 1969; Cobb, 1972 (MF-393); Foster, 1976; Cobb, 1977 (OFR 77-845); Eberlein and others, 1977.

Primary reference: Spurr, 1898

Reporter(s): M.B. Werdon; R.L. Flynn

Last report date: 5/1/02

Site name(s): Mission Creek

Site type: Mine

ARDF no.: EA033

Latitude: 64.8192 **Quadrangle:** EA D-1

Longitude: 141.4142

Location description and accuracy:

Mission Creek is a 35-mile-long tributary that drains into the Yukon River near the town of Eagle. The location of placer gold mining on Mission Creek is uncertain; the mine coordinates are placed about 8 miles upstream of the mouth of the creek, in section 24, T. 1 S., R. 31 E., of the Fairbanks Meridian. The location is only accurate within 8 miles. Mission Creek is locality 22 of Burleigh and Lear (1994), locality 38 of Eberlein and others (1977), and locality 33 of Cobb (1972 [MF-393]).

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:

Rocks in the valley of upper Mission Creek are Paleozoic quartz-mica schist, greenschist, and local marble that have been intruded by Mesozoic or Tertiary granitic rocks (Foster, 1976). The rocks along lower Mission Creek consists of Late Cretaceous to Pliocene terrigenous sedimentary rocks, Precambrian limestone and greenstone, and minor Mesozoic or Tertiary granitic rocks. There are extensive Quaternary terrace deposits on the lower part of the creek. Heavy-mineral concentrates near the mouth of the creek contain ilmenite, iron oxides, zircon, garnet, anatase, and trace rutile, tourmaline, and monazite (Wedow, 1954).

Mission Creek and its tributaries were prospected in the late 1800's and placer gold was observed in the gravel (Spurr, 1898). Coarse gold was found in many places on Mission Creek as of 1935, but no area had significant grades (Powers, 1935). Mining occurred on Mission Creek prior to 1936, and mining was planned for 1937 (Mertie, 1938). Gold could not be profitably recovered in 1938 (Mertie, 1942). Placer gold-bearing tributaries of Mission Creek include American Creek (EA054), Wolf Creek (EA052), Colorado Creek (EA035), and Excelsior Creek (EA032).

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: Probably inactive

Workings/exploration:
Mission Creek and its tributaries were prospected in the late 1800's and placer gold was observed in the gravel (Spurr, 1898). Coarse gold was found in many places on Mission Creek as of 1935, but no area had significant grades (Powers, 1935). Mining occurred on Mission Creek prior to 1936, and mining was planned for 1937 (Mertie, 1938). Gold could not be profitably recovered in 1938 (Mertie, 1942).

Production notes:

Reserves:

Additional comments:

References:
Spurr, 1898; Purington, 1905; Powers, 1935; Mertie, 1938; Smith, 1938; Mertie, 1942; Wedow, 1954; Mertie, 1969; Cobb, 1972 (MF-393); Foster, 1976; Cobb, 1977 (OFR 77-845); Eberlein and others, 1977; Burleigh and Lear, 1994.

Primary reference: Mertie, 1938

Reporter(s): M.B. Werdon; R.L. Flynn

Last report date: 5/1/02

Site name(s): Eagle Bluff

Site type: Prospect

ARDF no.: EA034

Latitude: 64.7981 **Quadrangle:** EA D-1

Longitude: 141.1988

Location description and accuracy:

Eagle Bluff is located along the west side of the Yukon River about 1 mile north of the town of Eagle. Eagle Bluff forms the southeast end of a northwest-trending ridge that rises approximately 1,400 feet above the Yukon River. The coordinates are on the east face of Eagle Bluff, in section 30, T. 1 S., R. 33 E., of the Fairbanks Meridian. The location is accurate. Several occurrences of mineralization are present for several miles along a northwest-southeast trend along the westward extension of Eagle Bluff. Eagle Bluff is locality 4 of Cobb (1972 [MF-393]) and locality 23 of Eberlein and others (1977).

Commodities:

Main: Cu

Other: Ag, Au, Co, Ni, Pb, Sn, Zn

Ore minerals: Azurite, chalcopyrite, malachite

Gangue minerals: Calcite, quartz

Geologic description:

Eagle Bluff consists mainly of greenstone on the south and east faces; argillite crops out on the north face (Clark and Foster, 1971). The greenstone and argillite are probably equivalent to units of the Proterozoic Tindir Group; possibly the argillite is equivalent to the Adams Argillite, which is of Early Cambrian age (Foster, 1976). Limestone also crops out on Eagle Bluff, and argillite crops out for several miles from Eagle Bluff on the opposite bank of the Yukon River. The main trace of the Tintina Fault runs along the southwest side of Eagle Bluff; strands of the fault run through the bluff (Foster, 1976).

Copper minerals at Eagle Bluff include chalcopyrite, malachite, and azurite (Saunders, 1953). Chalcopyrite occurs in veins with quartz and calcite, as disseminated grains in limestone, and in amygdules in greenstone. Rock samples contain as much as 3.47 percent copper. Small patches of nickel and cobalt bloom are found in a shear zone located about 1 mile southeast of Eagle Bluff on the north side of the Yukon River, as well as on Eagle Bluff about 2 miles northwest of the Yukon River (Saunders, 1953). Several samples of sulfide ore encrusted with cobalt bloom were reportedly collected from a gold- and nickel-bearing vein on Eagle Bluff by a prospector. A variety of rock types from Eagle

Bluff contain locally high but sporadic concentrations of copper (more than 10,000 ppm), lead (as much as 1,500 ppm), zinc (as much as 1,500 ppm), cobalt (as much as 2,000 ppm), silver (as much as 1.5 ppm), and tin (as much as 500 ppm) (Clark and Foster, 1971).

Eagle Bluff was visited by Wedow (1954) in 1948 in a reconnaissance for radioactive deposits in the Eagle-Nation area; he took samples but none was radioactive. Mining claims in the Eagle area were examined by Saunders (1954) in 1952. Clark and Foster (1971) conducted a geochemical and geological reconaissance in the Seventymile River area in 1968.

Alteration:

Age of mineralization:

Deposit model:

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

Production Status: None

Site Status: Inactive

Workings/exploration:

Eagle Bluff was visited by Wedow (1954) in 1948, in a reconnaissance for radioactive deposits in the Eagle-Nation area; he took samples, but none was no radioactive. Mining claims in the Eagle area were examined by Saunders (1954) in 1952. Clark and Foster (1971) conducted a geochemical and geological reconaissance in the Seventymile River area in 1968.

Production notes:

Reserves:

Additional comments:

References:

Saunders, 1953; Wedow, 1954; Clark and Foster, 1971; Foster, 1976; Cobb, 1977 (OFR 77-845); Eberlein and others, 1977.

Primary reference: Clark and Foster, 1971

Reporter(s): R.L. Flynn; M.B. Werdon

Last report date: 5/1/02

Site name(s): Colorado Creek; Boulder Creek

Site type: Mine

ARDF no.: EA035

Latitude: 64.7810 **Quadrangle:** EA D-1

Longitude: 141.4267

Location description and accuracy:

Colorado Creek is about 6 miles west of Eagle; it is a 12-mile-long tributary of Mission Creek. Colorado Creek has also been referred to as Boulder Creek. The location of placer gold mining on Colorado Creek is uncertain; the mine coordinates are arbitrarily placed at the approximate midpoint of the creek, in section 36, T. 1 S., R. 31 E., of the Fairbanks Meridian.

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:

The rocks in the vicinity of lower Colorado Creek are Paleozoic quartz-mica schist and greenschist and Tertiary to Cretaceous sedimentary rocks; the upper part of Colorado Creek is underlain by Paleozoic greenstone (Foster, 1976). Prospecting occurred on Colorado Creek in 1896, but gold was not found in paying quantities (Spurr ,1898). Mining occurred on Colorado Creek in 1902 (Brooks, 1903). Mission Creek (EA033) had placer gold production downstream of Colorado Creek.

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: Probably inactive

Workings/exploration:

Prospecting occurred on Colorado Creek in 1896, but gold was not found in paying quantities (Spurr ,1898). Mining occurred on Colorado Creek in 1902 (Brooks, 1903).

Production notes:

Reserves:

Additional comments:

References:

Spurr, 1898; Brooks, 1903; Foster, 1976; Cobb, 1977 (OFR 77-845).

Primary reference: Spurr, 1898

Reporter(s): M.B. Werdon; R.L. Flynn

Last report date: 5/1/02

Site name(s): Ben Creek

Site type: Mine

ARDF no.: EA036

Latitude: 64.6799 **Quadrangle:** EA C-4

Longitude: 142.7217

Location description and accuracy:

Ben Creek is a small northeast tributary of Slate Creek . Wedow and others (1954) found monazite and allanite in samples of panned concentrate at the mouth of Ben Creek, in section 4, T. 3 S., R. 25 E., of the Fairbanks Meridian. The location of placer gold mining on Ben Creek is not reported. Ben Creek is locality 40 of Cobb (1972 [MF-393]), locality 4 of Eberlein and others (1977), and locality 24 of Burleigh and Lear (1994).

Commodities:

Main: Au

Other: REE, Th

Ore minerals: Alanite, gold, monazite

Gangue minerals:

Geologic description:

The rocks along Ben Creek are granitic rocks of probable Mesozoic age and Paleozoic amphibolite-facies schist, quartzite, and marble (Foster, 1976). Monazite and allanite were found in heavy mineral concentrates from Ben Creek, but no anomalous radiation was detected in 1949 during 6- to 7-mile-long radioactivity traverses in the drainage (Wedow and others, 1954). The source of the monazite and allanite presumably is granitic rocks (Wedow and others, 1954). Biotite from the Ruby Creek granite gave a 40Ar/39Ar plateau age of 102.1 +/- 0.4 Ma (Newberry and others, 1998). Small-scale placer gold mining on Ben Creek occurred in 1967 (Alaska Division of Mines and Minerals, 1967).

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:
Monazite and allanite were found in heavy mineral concentrates from Ben Creek, but no anomalous radiation was detected in 1949 during 6- to 7-mile-long radioactivity traverses in the drainage (Wedow and others, 1954). Small-scale placer gold mining on Ben Creek occurred in 1967 (Alaska Division of Mines and Minerals, 1967).

Production notes:

Reserves:

Additional comments:

References:
Wedow and others, 1954; Alaska Division of Mines and Minerals, 1967;Foster, 1976; Cobb, 1972 (MF-393); Foster, 1976; Cobb, 1977 (OFR 77-845); Eberlein and others, 1977; Burleigh and Lear, 1994; Newberry and others, 1998.

Primary reference: Wedow and others, 1954

Reporter(s): M.B. Werdon; R.L. Flynn

Last report date: 5/1/02

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

Site type: Occurrence

ARDF no.: EA037

Latitude: 64.6786 **Quadrangle:** EA C-4

Longitude: 142.7146

Location description and accuracy:

Slate Creek is a 35-mile-long tributary of the North Fork of the Fortymile River. This occurrence is located in upper Slate Creek, just above the mouth of Ben Creek, in section 3, T. 3 S., R. 25 E., of the Fairbanks Meridian. The location is accurate within 1 mile. Slate Creek is locality 40 of Cobb (1972 [MF-393]).

Commodities:

Main: REE, Th

Other:

Ore minerals: Allanite, monazite

Gangue minerals:

Geologic description:

The rocks in upper Slate Creek are granitic rocks of probable Mesozoic age and Paleozoic schist, quartzite, and marble (Foster, 1976). Biotite from the nearby Ruby Creek granite give a 40Ar/39Ar plateau age of 102.1 +/- 0.4 Ma (Newberry and others, 1998). In 1949, Wedow and others (1954) found monazite and allanite in panned concentrates from upper Slate Creek, just above the mouth of Ben Creek, during a reconnaissance for radioactive deposits. The source of the monazite and allanite presumably is granitic rocks in the drainage. Wedow and others (1954) also found monazite and allanite in concentrate samples from Ruby Creek (EA039) and Ben Creek (EA036).

Alteration:

Age of mineralization:

Probable Mesozoic source for monazite and allanite.

Deposit model:

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

Production Status: None

Site Status: Inactive

Workings/exploration:

In 1949, Wedow and others (1954) found monazite and allanite in panned concentrates from upper Slate Creek, just above the mouth of Ben Creek (see EA036), during a reconnaissance for radioactive deposits.

Production notes:

Reserves:

Additional comments:

References:

Wedow and others, 1954; Cobb, 1972 (MF-393); Foster, 1976; Cobb, 1977 (OFR 77-845).

Primary reference: Wedow and others, 1954

Reporter(s): R.L. Flynn; M.B. Werdon

Last report date: 5/1/02

Site name(s): Ruby Creek; Green Creek

Site type: Prospect

ARDF no.: EA038

Latitude: 64.6398 **Quadrangle:** EA C-4

Longitude: 142.8666

Location description and accuracy:

The Ruby Creek prospect covers an area of about 1 square mile between Ruby Creek and Green Creek. The coordinates are the approximate center of the prospect, in section 23, T. 3 S., R. 24 E., of the Fairbanks Meridian. The location is accurate with one-half mile. The Ruby Creek prospect is located within Doyon, Ltd. selected or conveyed land.

Commodities:

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

Other:

Ore minerals: Pyrrhotite

Gangue minerals: Quartz

Geologic description:

Ruby Creek and Green Creek follow the margin of a fault-bounded wedge of Tertiary volcanic and sedimentary rocks (Dashevsky and others, 1986). The volcanic rocks consist of basalt and colorful quartz-feldspar porphyritic rhyolite; these are flanked by welded tuff, pyroclastic rocks, and detrital rocks. Between the head of Gold Run and Ruby Creek a small area of basalt is in contact on both its eastern and western sides with Tertiary(?) conglomerate (Foster and Clark, 1970). A random rock sample of fresh basalt collected about 500 feet from its eastern contact contains 1.6 ppm gold. Conglomerate adjacent to the basalt on the west contains 0.02 ppm gold, and a quartz vein on the ridge between Gold Run and Jim Creek contains 3,000 ppm arsenic. Pyrrhotite-bearing basalt and conglomerate contain as much as greater than 2 percent zinc, and the conglomerate also contains as much as 6.8 ppm silver, 800 ppb lead, and 188 ppm copper (Dashevsky and others, 1986). Stream sediment from Ruby and Green Creeks contains 110 to 3,320 ppm zinc.

WGM Inc. collected stream-sediment samples on Ruby and Green Creeks in 1975 and 1976 (Dashevsky and others, 1986). Doyon, Ltd. examined color anomalies and collected float samples in the area in 1984.

Alteration:

Age of mineralization:
Tertiary or younger.

Deposit model:
Shallow epithermal precious and base-metal deposits (Dashevsky and others, 1986).

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

Production Status: None

Site Status: Probably inactive

Workings/exploration:
WGM Inc. collected stream-sediment samples on Ruby and Green Creeks in 1975 and 1976 (Dashevsky and others, 1986). Doyon, Ltd. examined color anomalies and collected float samples in the area in 1984.

Production notes:

Reserves:

Additional comments:
The Ruby Creek Lode prospect is located within Doyon, Ltd. selected or conveyed land. For more information contact Doyon, Ltd., Fairbanks, Alaska.

References:
Foster and Clark, 1970; WGM Inc., 1977; Dashevsky and Nicol, 1985; Dashevsky and others, 1986.

Primary reference: Dashevsky and others, 1986

Reporter(s): R.L. Flynn; M.B. Werdon

Last report date: 5/1/02

Site name(s): Ruby Creek

Site type: Occurrence

ARDF no.: EA039

Latitude: 64.6320 **Quadrangle:** EA C-4

Longitude: 142.7556

Location description and accuracy:

Ruby Creek is a 10-mile-long wesy tributary of Slate Creek. The occurrence is located near the mouth of Ruby Creek, in section 29, T. 3 S., R. 25 E., of the Fairbanks Meridian. The location is accurate within one-half mile. Ruby Creek is locality 41 of Cobb (1972 [MF-393]).

Commodities:

Main: REE, Th

Other:

Ore minerals: Allanite, monazite

Gangue minerals:

Geologic description:

The rocks in the vicinity of Ruby Creek are granitic rocks of probable Mesozoic age, Tertiary felsic igneous rocks, and Paleozoic schist, greenschist, quartzite, and marble (Foster, 1976). Biotite from the Ruby Creek granite gives a 40Ar/39Ar plateau age of 102.1 +/- 0.4 Ma (Newberry and others, 1998). Monazite and allanite were found in heavy-mineral concentrates at the mouth of Ruby Creek in 1949 during a reconnaissance for radioactive deposits (Wedow and others, 1954). The source of the monazite and allanite is presumably granitic rocks in the drainage.

Alteration:

Age of mineralization:

Deposit model:

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

Production Status: None

Site Status: Inactive

Workings/exploration:

Monazite and allanite were found in heavy mineral concentrates at the mouth of Ruby Creek in 1949 during a reconnaissance for radioactive deposits (Wedow and others, 1954).

Production notes:

Reserves:

Additional comments:

References:

Wedow and others, 1954; Cobb, 1972 (MF-393); Cobb, 1977 (OFR 77-845); Newberry and others, 1998.

Primary reference: Wedow and others, 1954

Reporter(s): R.L. Flynn; M.B. Werdon

Last report date: 5/1/02

Site name(s): Gold Run

Site type: Mine

ARDF no.: EA040

Latitude: 64.5927 **Quadrangle:** EA C-4

Longitude: 142.7895

Location description and accuracy:

Gold Run is a small west tributary of Slate Creek. The location of placer gold mining is not reported; the coordinates are near an old cabin about 2.5 miles upstream of the mouth of the creek, in section 6, T. 4 S., R. 25 E., of the Fairbanks Meridian. Gold Run is locality 25 of Burleigh and Lear (1994), locality 32 of Eberlein and others (1977), and locality 42 of Cobb (1972 [MF-393]).

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:

The rocks along Gold Run are Paleozoic quartzite and micaceous, schistose quartzite (Prindle, 1913). At the head of Gold Run, there is a northeast-trending fault that separates metamorphic rocks to the southeast from Tertiary to Cretaceous conglomerate to the northwest (Foster, 1976). Just southeast of the fault, there is a small area of Tertiary to Mesozoic basalt or gabbro; northwest of the fault the sedimentary rocks have been intruded by Tertiary felsic volcanic rocks (Foster, 1976). Foster and Clark (1970) suggested the Tertiary(?) bedrock is the source for placer gold in Gold Run. The depth of the gravels is about 12 feet, and quartz is abundant (Brooks, 1905). Mining occurred on Gold Run in 1904 (Brooks, 1905). Foster and Clark (1970) reported Gold Run produced a considerable amount of placer gold.

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:
Brooks (1905) reported mining on Gold Run in 1904.

Production notes:
Foster and Clark (1970) reported Gold Run produced a considerable amount of placer gold.

Reserves:

Additional comments:

References:
Brooks, 1905; Prindle, 1906 (B 295); Prindle, 1913; Powers, 1935; Wedow and others, 1954; Foster and Clark, 1970; Cobb, 1972 (MF-393); Foster, 1976; Cobb, 1977 (OFR 77-845); Eberlein and others, 1977; Burleigh and Lear, 1994.

Primary reference: Brooks, 1905; Foster and Clark, 1970

Reporter(s): M.B. Werdon; R.L. Flynn

Last report date: 5/1/02

Site name(s): Unnamed (near mouth of Fourth of July Creek)

Site type: Occurrence

ARDF no.: EA041

Latitude: 64.5867 **Quadrangle:** EA C-4

Longitude: 142.5655

Location description and accuracy:
Fourth of July Creek is a small tributary of Slate Creek. This occurrence is near the mouth of the creek, in section 8, T. 4 S., R. 26 E., of the Fairbanks Meridian. Fourth of July Creek is locality 43 of Cobb (1972 [MF-393]).

Commodities:

Main: Pb

Other:

Ore minerals: Galena

Gangue minerals: Quartz?

Geologic description:
Bedrock along Fourth of July Creek is quartz-mica schist and greenschist of probable Paleozoic age (Foster, 1976). William Ott of Fairbanks reported large fragments of vein float that contains galena at the mouth of Fourth of July Creek (Wedow and others, 1954).

Alteration:

Age of mineralization:

Deposit model:

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

Production Status: None

Site Status: Inactive

Workings/exploration:
William Ott of Fairbanks reported large fragments of vein float that contains galena at the mouth of Fourth of July Creek (Wedow and others, 1954).

Production notes:

Reserves:

Additional comments:

References:

Wedow and others, 1954; Cobb, 1972 (MF-393); Foster, 1976; Cobb, 1977 (OFR 77-845).

Primary reference: Wedow and others, 1954

Reporter(s): R.L. Flynn

Last report date: 5/1/02

Site name(s): Butte Creek

Site type: Prospect

ARDF no.: EA042

Latitude: 64.6435 **Quadrangle:** EA C-3

Longitude: 142.1765

Location description and accuracy:

The Butte Creek prospect is at an elevation of about 3,700 feet on the ridge north of the North Fork of the Fortymile River, about 3.5 miles north of the mouth of Butte Creek. The deposit occurs as three separate lenses that cover approximately 0.5 square kilometer each and are less than 5 kilometers apart. The coordinates are the approximate center of the lenses in the NE1/4 section 20, T. 3 S., R. 28 E., of the Fairbanks Meridian. The location is accurate within one-half mile.

Commodities:

Main: Au, Pd, Pt

Other: Ir, Os, Pb, Rh, Ru, Zn

Ore minerals: Galena, pyrite, sphalerite, sperrylite, stadiopalladinite?

Gangue minerals: Actinolite, barite, chlorite, muscovite

Geologic description:

More than 97 separate, widely scattered occurrences of ultramafic rock were identified during reconnaissance geologic mapping of the Eagle quadrangle (Foster and Keith, 1974; Foster, 1976). These ultramafic bodies include pyroxenite, hornblende pyroxenite, pyroxene hornblendite, and hornblendite. Biotite is a common accessory mineral, but locally it may be a major constituent.

Butte Creek is an ultramafic-hosted, platinum-group-element prospect that consists of three separate lenses of mixed coarse-grained biotite clinopyroxenite and lesser hornblendite and minor biotitite (a rock consisting almost entirely of biotite). Hornblende from a biotite hornblendite from the prospect gives a 40Ar/39Ar plateau age of 181 +/- 0.7 Ma (Newberry and others, 1998). The ultramafic rocks, as well as biotite-schist country rock, appear to be pendants over a small hornblende granodiorite pluton of probable Mesozoic age (Keith and others, 1987). The ultramafic lenses each cover approximately 0.5 square kilometer, and together they extend for a distance of about 5 kilometers. The biotite clinopyroxenite consists of anhedral clinopyroxene and biotite crystals that vary from 0.25 to 2 centimeters in diameter; biotite locally comprises as much as 90 percent of the rock. The pyroxenite locally contains minor primary green amphibole, and small inclusions of

magnetite within clinopyroxene crystals.

Coarse-grained felsic dikes cut the biotite clinopyroxenite, some of which are brecciated and included within the dikes. Hydrothermal alteration and fracturing of the ultramafic rocks is spatially associated with the felsic dikes. Hydrothermal alteration has produced actinolite, chlorite, scarce muscovite, and trace pyrite in the ultramafic rocks. The felsic dikes are also extensively altered (Keith and others, 1987).

At the Butte Creek prospect, samples with anomalous platinum-group elements were found in biotite clinopyroxenite and in felsic dikes with inclusions of, or near contacts with biotite clinopyroxenite. Samples contain as much as 3.0 ppm platinum and 1.5 ppm palladium, with [Pt/(Pt + Pd)] ratios that average 0.7 to 0.8 (Keith and others, 1987). Platinum-group enrichment is spatially associated with the contact between biotite clinopyroxenite and felsic dikes. Platinum-group values in the biotite clinopyroxenite decrease with distance from the dikes; although still slightly anomalous, the felsic dikes are essentially barren. The low copper and nickel content of platinum-group-bearing rocks suggests that at least some of the platinum-group elements may be present as alloys (Keith and others, 1987).

Electron microscope imaging was used to locate platinum-group minerals less than 4 microns in diameter. They occur along cracks in clinopyroxene and magnetite and at grain contacts with magnetite of pyrite. These minerals contain platinum and arsenic (probably as sperrylite), palladium and antimony (stadiopalladinite?), and one complex platinum-group-bearing sulfide grain. Tiny grains of pyrite, galena, and sphalerite were also found in the clinopyroxenite. Tiny grains of barite occur in the felsic dikes (Keith and others, 1987).

The platinum-group element , Pt/(Pt + Pd) ratios, and platinum-group element mineralogy are consistent with an Alaska-type ultramafic-deposit model (Keith and others (1987). Significant differences from the Alaska-type model include the compositions of the biotite and amphibole in the clinopyroxenites and the lack of major magnetite and chromite.

Anomalous platinum and palladium values in samples from the Butte Creek prospect are reported by Keith and Foster (1973) and Foster (1975). Additional samples were collected in 1975 from biotite clinoproxenite and associated rocks at the Butte Creek prospect to study the mineralogy and possible origin of the anomalous platinum-group elements (Keith and others, 1987). Foley and others (1989) assayed a biotite-clinopyroxenite dike on Butte Creek; it contained elevated gold, platinum, and palladium. The assays indicates that platinum is present in greater concentrations than palladium and that gold concentrations are greater than those of osmium, iridium, ruthenium, and rhodium (Foley and others, 1989; U.S. Bureau of Mines, 1995).

Alteration:

Hydrothermal alteration and fracturing of the ultramafic rocks is spatially associated with the felsic dikes. Hydrothermal alteration has produced actinolite, chlorite, scarce muscovite, and trace pyrite within the ultramafic rocks. The felsic dikes are also extensively altered (Keith and others, 1987).

Age of mineralization:

Hornblende from a biotite hornblendite collected at the Butte Creek prospect gives a

40Ar/39Ar plateau age of 181 +/- 0.7 Ma (Newberry and others, 1998).

Deposit model:
Possibly Alaskan PGE (Cox and Singer, 1986; model 9?).

Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):
9?

Production Status: None

Site Status: Inactive

Workings/exploration:
More than 97 separate, widely scattered, occurrences of ultramafic rock were identified during reconnaissance geologic mapping of the Eagle quadrangle (Foster and Keith, 1974; Foster, 1976). Anomalous platinum and palladium values in samples from the Butte Creek prospect were reported by Keith and Foster (1973) and Foster (1975). Additional samples were collected in 1975 from biotite clinoproxenite and associated rocks at the Butte Creek prospect to study the mineralogy and possible origin of the anomalous platinum-group elements (Keith and others, 1987). Foley and others (1989) assayed a biotite-clinopyroxenite dike on Butte Creek; it contained elevated gold, platinum, and palladium. The assays indicates that platinum is present in greater concentrations than palladium and that gold concentrations are greater than those of osmium, iridium, ruthenium, and rhodium (Foley and others, 1989; U.S. Bureau of Mines, 1995).

Production notes:

Reserves:

Additional comments:

References:
Keith and Foster, 1973; Foster and Keith, 1974; Foster, 1975; Foster, 1976; Keith and others, 1987; Foley and others, 1989; Newberry and others, 1998.

Primary reference: Keith and others, 1987

Reporter(s): R.L. Flynn; M.B. Werdon

Last report date: 5/1/02

Site name(s): Slate Creek Asbestos; Alaska Asbestos; Eagle Asbestos

Site type: Prospect

ARDF no.: EA043

Latitude: 64.5674 **Quadrangle:** EA C-3

Longitude: 142.4970

Location description and accuracy:

The Slate Creek Asbestos prospect is located on the ridge between Bryan Creek and Happy New Year Creek. The coordinates are the center of the prospect, in section 15, T. 4 S., R. 26 E., of the Fairbanks Meridian. The location is accurate within 1,000 feet. The Slate Creek Asbestos prospect is locality 9 of Eberlein and others (1977). The Slate Creek Asbestos prospect is located within Doyon, Ltd. selected or conveyed land.

Commodities:

Main: Asbestos

Other:

Ore minerals: Chrysotile

Gangue minerals: Antigorite

Geologic description:

At least 60 serpentinized ultramafic bodies are known in the Eagle quadrangle (Dashevsky and others, 1986). Chrysotile asbestos is generally found in densely fractured and altered zones in tectonically emplaced serpentinized harzburgites. Serpentinized ultramafic bodies in the Eagle quadrangle are of either Mesozoic or Paleozoic age (Foster, 1976). The Slate Creek Asbestos prospect is an elongate mass of serpentinized ultramafic rocks apparently cutting Paleozoic greenschist-facies metamorphic rocks (Foster, 1969 [C 611]). The metamorphic rocks are complexly deformed and cut by numerous faults. The well-exposed part of the serpentinized ultramafic body is about 500 feet long and 200 feet wide and rises 30 feet or more above the main level of the ridge. The ultramafic rocks consist of dark-gray, black, and dark greenish- and brownish-black antigorite cut by closely spaced subparallel veins of cross-fiber chrysotile asbestos ranging in width from one-eighth to three-quaters of an inch. Slate Creek asbestos is white, unusually strong, and fast filtering (Dashevsky and others, 1986). Reserve estimates for the three asbestos deposits delineated at the Slate Creek Asbestos prospect total 60 million tons of material with 6.4 percent asbestos fiber. Several other prospects are located near these deposits.

The Slate Creek asbestos prospect was discovered in 1968 during geochemical sampling and geologic reconnaissance in connection with the U.S. Geological Survey's heavy

metals program (Foster, 1969 [C 611]). In 1976, Asarco conducted mapping, drilling, and a ground magnetic survey at the prospect but did not discover the main deposit (Dashevsky and others, 1986). The Slate Creek Asbestos prospect was explored from 1977 to 1983 by WGM Inc. for Alaska Asbestos, a joint venture of Tanana Asbestos Corporation, a subsidiary of Doyon Regional Corporation, and GCO Minerals Company, a subsidiary of International Paper Company. Exploration of the Slate Creek Asbestos prospect included 60,000 feet of drilling for bulk sampling and reserve estimates, most(?) with a 12-inch-diameter diamond core drill.

Alteration:

Age of mineralization:

Serpentinized ultramafic bodies in the Eagle quadrangle are either of Mesozoic or Paleozoic age (Foster, 1976).

Deposit model:

Serpentine-hosted asbestos (Cox and Singer, 1986; model 8d).

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

8d

Production Status: None

Site Status: Inactive

Workings/exploration:

The Slate Creek asbestos prospect was discovered in 1968 during geochemical sampling and geologic reconnaissance in connection with the U.S. Geological Survey's heavy metals program (Foster, 1969 [C 611]). In 1976, Asarco conducted mapping, drilling, and a ground magnetic survey at the prospect but did not discover the main deposit (Dashevsky and others, 1986). The Slate Creek Asbestos prospect was explored from 1977 to 1983 by WGM Inc. for Alaska Asbestos, a joint venture of Tanana Asbestos Corporation, a subsidiary of Doyon Regional Corporation, and GCO Minerals Company, a subsidiary of International Paper Company. Exploration of the Slate Creek asbestos prospect included 60,000 feet of drilling for bulk sampling and reserve estimates, most(?) with a 12-inch-diameter diamond core drill.

Production notes:

Reserves:

Reserve estimates for the three asbestos deposits at the Slate Creek asbestos prospect total 60 million tons of material containing 6.4 percent asbestos fiber. Several other prospects are located near these deposits. (Dashevsky and others, 1986).

Additional comments:

The Slate Creek Asbestos prospect is located within Doyon, Ltd. selected or conveyed

land. For more information contact Doyon, Ltd., Fairbanks, Alaska.

References:

Foster, 1969 (C 611); Keith and Foster, 1973; Foster and Keith, 1974; Foster, 1976; Cobb, 1977 (OFR 77-845); Eberlein and others, 1977; Jones and others, 1982; Eakins and others, 1983; Bright, 1984; Bundtzen and others, 1984; Eakins and others, 1985; Rodreguiz, 1984; Dashevsky and others, 1986.

Primary reference: Foster, 1969 (C 611); Dashevsky and others, 1986

Reporter(s): R.L. Flynn; M.B. Werdon

Last report date: 5/1/02

Site name(s): Happy

Site type: Prospect

ARDF no.: EA044

Latitude: 64.5351 **Quadrangle:** EA C-3

Longitude: 142.3113

Location description and accuracy:

The Happy prospect is at an elevation of about 3,600 feet and centered about 2 miles southeast of VABM Happy. The prospect includes the ridges on both sides of the valley of an unnamed stream that is a tributary of North Fork of the Fortymile River. The coordinates are the approximate center of the prospect ,in section 27, T. 4 S., R. 27 E., of the Fairbanks Meridian; the location is accurate within 1,000 feet. This prospect is located within Doyon, Ltd. selected or conveyed land.

Commodities:

Main: Mo, W, Zn

Other: Au, Ag, Cd, Cu, Pb, Zn

Ore minerals: Molybdenite, pyrrhotite, scheelite, wolframite

Gangue minerals: Biotite, calc-silicates, garnet, pyroxene, quartz, tremolite, wollastonite

Geologic description:

Scheelite and molybdenite are found in quartz veins ,and molybdenite occurs in rubble of quartz-porphyry stockworks (Dashevsky and others, 1986). A multi-phase granitic pluton composed of granite, quartz monzonite, and lesser diorite, alaskite, quartz porphyry, and quartz lamprophyre is inferred to underlie the heavily vegetated region. On the ridges surrounding the valley, Paleozoic hornfelsed metasedimentary rocks crop out; there is local development of garnet-pyroxene-biotite-tremolite skarn. Remnant felsic volcanic rocks cap some ridges. Weak argillic alteration of feldspars is common in the intrusive rocks with no sulfides (U.S. Bureau of Mines, 1995).

Six skarn bodies have been mapped at the Happy prospect; they consist of dark-green pyroxene-calc-silicate rocks with local wollastonite and marble (Robinson, 1979). The skarns locally contain small pods of pyrrhotite-rich skarn as much as 8 feet in diameter that assay as much as 624 ppm copper, 1,900 ppm lead, 6.4 percent zinc, and 8.6 ppm silver. Float boulders of quartz veins contain molybdenite and wolframite, with as much as 0.3 percent molybdenum and 0.82 percent tungsten. A soil survey in the heavily vegetated basin identified a molybdenum, soil anomaly 1,000 by 1,500 feet in size (Robinson, 1979). Samples of mineralized rocks collected by the U.S. Bureau of Mines (1995) in-

clude skarn that contains 1,680 ppb gold, 130 ppm silver, and 1.67 percent copper, as well as a massive pyrrhotite boulder that contains 3.0 percent zinc and 1,650 ppm cadmium. Muscovite from a tungsten-bearing greisen vein in granite at the Happy prospect gives a 40Ar/39Ar plateau age of 214 +/- 0.6 Ma (Newberry and others, 1998).

Exploration of the Happy prospect by WGM Inc. from 1975 to 1978 included sampling of stream sediments and panning heavy-mineral concentrates, rock and soil sampling, and geologic mapping (Dashevsky and others, 1986). In 1979, the Union Carbide Corp. conducted mapping and rock samping at the prospect and extended the soil grid. Samples of mineralized rocks were collected by the U.S. Bureau of Mines at the prospect in the early 1990's (U.S. Bureau of Mines, 1995).

Alteration:

Weak argillic alteration of feldspars is common in intrusive rocks at the Happy prospect (U.S. Bureau of Mines, 1995).

Age of mineralization:

Muscovite from a tungsten-bearing greisen vein in granite collected at the Happy prospect gives a 40Ar/39Ar plateau age of 214 +/- 0.6 Ma (Newberry and others, 1998).

Deposit model:

W skarn or porphyry Mo (Cox and Singer, 1986; models 14a and 21b).

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

14a or 21b

Production Status: None

Site Status: Inactive

Workings/exploration:

Exploration of the Happy prospect by WGM Inc. from 1975 to 1978 included sampling of stream sediments and panning heavy-mineral concentrates, rock and soil sampling, and geologic mapping (Dashevsky and others, 1986). In 1979, the Union Carbide Corp. conducted mapping and rock samping at the prospect and extended the soil grid. Samples of mineralized rocks were collected by the U.S. Bureau of Mines at the prospect in the early 1990's (U.S. Bureau of Mines, 1995).

Production notes:

Reserves:

Additional comments:

The Happy prospect is located within Doyon, Ltd. selected or conveyed land. For more information contact Doyon, Ltd., Fairbanks, Alaska.

References:

WGM Inc., 1977; Lessman and Rishel, 1978 (DLR 78-10); Yinger and others, 1978; Robinson, 1979; Carter, 1981; Dashevsky and others, 1986; Burleigh and Lear, 1994; U. S. Bureau of Mines, 1995; Newberry and others, 1998.

Primary reference: Dashevsky and others, 1986; U.S. Bureau of Mines, 1995

Reporter(s): R.L. Flynn; M.B. Werdon

Last report date: 5/1/02

Site name(s): Oregon Creek

Site type: Prospect

ARDF no.: EA045

Latitude: 64.6294 **Quadrangle:** EA C-2

Longitude: 141.6935

Location description and accuracy:

The Oregon Creek prospect is located in the headwaters of Oregon Creek, about 0.6 mile southwest of Wallcutt Mountain. Oregon Creek is not labeled on the U.S. Geological survey topographic map of the Eagle C-2 quadrangle (1956). The prospect area is in section 27, T. 3 S., R. 30 E., of the Fairbanks Meridian; the location is accurate to within 1,000 feet. The Oregon Creek prospect is located within Doyon, Ltd. selected or conveyed land.

Commodities:

Main: Ag, Cu, Pb, Zn

Other:

Ore minerals: Chalcopyrite, galena, pyrite, sphalerite

Gangue minerals:

Geologic description:

The rocks in the area near the Oregon Creek prospect are Paleozoic quartzite and amphibolite, which are in fault contact with chlorite-quartz-mica schist and associated pyritic felsic tuff. These rocks are intruded by a Cretaceous(?) hornblende granodiorite stock (WGM Inc., 1998 [DLR 98-12]). The schist occurs as northeast-trending, elongate, roof pendants in granodiorite. Gray dacite dikes that contain as much as 8 percent disseminated pyrite trend north to northeast across the pluton and schist. The area is also cut by a series of late, sub-parallel, east-trending high-angle faults.

At the Oregon Creek prospect, pods and veins of galena and minor sphalerite cut altered hornblende granodiorite (Dashevsky and others, 1986). Minor chalcopyrite occurs in talus samples of brecciated intrusive rock on the ridge south of Wallcutt Mountain. The exploration target is a base and (or) precious metal vein system, but mineralization is also found in skarn and schist spatially associated with the granodiorite (WGM Inc., 1998 [DLR 98-12]). The Oregon Creek prospect appears to be the source of base-metal anomalies in stream silts to the south of Wallcutt Mountain. Sampling and mapping of an 8,000 foot by 8,000 foot area shows that lead, zinc, copper, and silver anomalies are spatially associated with chloritic schist, dacite dikes, faults, and locally with granodiorite.

Silver is strongly associated with lead. Soil anomalies of lead are as much 2,630 ppm and indicate proximity to bedrock mineralization. Extensive areas exceed 100 ppm lead. The anomalies generally trend northeast, but this orientation might be the result of offset along the east-west faults. An 800-foot-wide soil anomaly that contains greater than 100 ppm lead is open to the west and coincides with a silver anomaly of as much as 14 ppm silver (WGM Inc., 1998 [DLR 98-12]).

A weak 3-mile by 2-mile magnetic anomaly coincides with the soil grid over the Oregon Creek prospect. The magnetic anomaly is distinctive relative to the low background magnetic values associated with the granodiorite. Weak linear-magnetic anomalies strike northeast, parallel to the trend of dacite dikes. The prospect coincides with a resistivity high, but no EM anomalies were identified. Champion I (EA048), Champion II (EA049), East Champion (EA047), and North Champion (EA046) are base-metal prospects within 7 miles of the Oregon Creek prospect. Lead isotopic ratios indicate a Late Cretaceous or early Tertiary age for the Champion II mineralization (U.S. Bureau of Mines, 1995); this suggests an intrusive origin for at least some of the mineralization in the area.

WGM Inc. conducted stream-sediment sampling, prospecting, and geologic mapping at the Oregon Creek prospect from 1975 to 1977 (Dashevsky and others, 1986). In 1996 and 1997, WGM Inc. sampled soil, and an EM-magnetics survey was commissioned by Ventures Resources Alaska (WGM Inc., 1998 [DLR 98-12]).

Alteration:

The hornblende granodiorite is altered (Dashevsky and others, 1986).

Age of mineralization:

Lead isotopic ratios indicate a Late Cretaceous or early Tertiary age for the nearby Champion II prospect (U.S. Bureau of Mines, 1995); similarities suggest the Oregon Creek prospect is also Late Cretaceous.

Deposit model:

Cu skarn, Zn-Pb skarn, or polymetallic veins (Cox and Singer, 1986; models 18b, 18c, or 22c).

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

18b, 18c, or 22c

Production Status: None

Site Status: Probably inactive

Workings/exploration:

WGM Inc. conducted stream stream sediment sampling, prospecting, and geologic mapping at the Oregon Creek prospect from 1975 to 1977 (Dashevsky and others, 1986). In 1996 and 1997, WGM Inc. sampled soil, and an EM-magnetics survey was commissioned by Ventures Resources Alaska (WGM Inc., 1998 [DLR 98-12]).

Production notes:

Reserves:

Additional comments:

The Oregon Creek prospect is located within Doyon, Ltd. selected or conveyed land. For more information contact Doyon, Ltd., Fairbanks, Alaska.

References:

WGM Inc., 1977; Lessman and Holm, 1978 (DLR 78-02); Dashevsky and others, 1986; Burleigh and Lear, 1994; U.S. Bureau of Mines, 1995; WGM Inc., 1998 (DLR 98-12).

Primary reference: WGM Inc., 1998 (DLR 98-12)

Reporter(s): M.B. Werdon; R.L. Flynn

Last report date: 5/1/02

Site name(s): North Champion

Site type: Prospect

ARDF no.: EA046

Latitude: 64.5775 **Quadrangle:** EA C-2

Longitude: 141.6785

Location description and accuracy:

The North Champion prospect covers approximately 4 square miles in the upper Bear Creek drainage about a mile southwest of hill 4460. The coordinates are the approximate center of the prospect, in the SE1/4 section 10, T. 4 S., R. 30 E., of the Fairbanks Meridian. The location is accurate. The North Champion prospect is located within Doyon, Ltd. selected or conveyed land.

Commodities:

Main: Cu, Pb

Other:

Ore minerals:

Gangue minerals:

Geologic description:

Bedrock around the North Champion prospect is predominantly Tertiary or Mesozoic diorite and granodiorite that are cut by dacite dikes. Gray quartzite is locally present. The granitic rocks have minor disseminated pyrite and pyrrhotite; fractures are commonly limonite-stained (Dashevsky and others, 1986). The North Champion prospect is delineated by lead and copper stream-sediment anomalies in the upper part of the Bear Creek drainage (WGM Inc., 1998 [DLR 98-12]). Soil sampling defined three northeast-trending zones of greater than 100 ppm lead (WGM Inc., 1998 [DLR 98-12]). The zones with as much as 882 ppm lead are 200 to 500 feet wide. The North Champion prospect is on trend with geochemical anomalies that extend northeast from the Champion II (EA049) prospect. Airborne geophysical data indicates that the North Champion prospect is on the northeast limb of a 'U'-shaped magnetic trend with granitic rocks in the middle. North Champion lies on a weak magnetic high in an area of fairly high resistivity. Champion I (EA048), Champion II (EA049), East Champion (EA047), and Oregon Creek (EA045) are base-metal prospects within 5 miles of the North Champion prospect. Lead isotopic ratios indicate a Late Cretaceous or early Tertiary age for the nearby Champion II mineralization (U.S. Bureau of Mines, 1995); this suggests a plutonic origin for at least some of the mineralization in the area.

WGM Inc. conducted a stream-sediment reconnaissance in the North Champion prospect area in 1975 and 1976, as well as reconnaissance mapping and selective soil sampling (WGM Inc., 1998 [DLR 98-12]). Three soil lines were sampled in 1996 by WGM Inc., and an airborne geophysical survey was flown in the area in 1997.

Alteration:

Age of mineralization:

Lead isotope ratios indicate a Late Cretaceous or early Tertiary age for the nearby Champion II mineralization (U.S. Bureau of Mines, 1995) that is geochemically similar to that of the North Champion prospect.

Deposit model:

Cu skarn or Zn-Pb skarn (Cox and Singer, 1986; models 18b or 18c).

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

18b or 18c

Production Status: None

Site Status: Active?

Workings/exploration:

WGM Inc. conducted a stream-sediment reconnaissance in the North Champion prospect area in 1975 and 1976, as well as reconnaissance mapping and selective soil sampling (WGM Inc., 1998 [DLR 98-12]). Three soil lines were sampled in 1996 by WGM Inc., and an airborne geophysical survey was flown in the area in 1997.

Production notes:

Reserves:

Additional comments:

The North Champion prospect is located within Doyon, Ltd. selected or conveyed land. For more information contact Doyon, Ltd., Fairbanks, Alaska.

References:

Lessman and Holm, 1978 (DLR 78-02); Dashevsky and others, 1986; U.S. Bureau of Mines, 1995; WGM Inc., 1998 (DLR 98-12).

Primary reference: WGM Inc., 1998 (DLR 98-12)

Reporter(s): M.B. Werdon; R.L. Flynn

Last report date: 5/1/02

Site name(s): East Champion

Site type: Prospect

ARDF no.: EA047

Latitude: 64.5653 **Quadrangle:** EA C-2

Longitude: 141.5705

Location description and accuracy:

The East Champion prospect is located on a ridge east of the upper drainage of Champion Creek and about a mile south-southwest of hill 3870. The East Champion prospect is about 1 mile wide; the coordinates are its approximate center, in section 17, T. 4 S., R. 31 E., of the Fairbanks Meridian. The location is accurate. The East Champion prospect is located within Doyon, Ltd. selected or conveyed land.

Commodities:

Main: Au, Pb, W, Zn

Other: Ag

Ore minerals: Chalcopyrite, galena

Gangue minerals: Calc-silicates, diopside, epidote, garnet

Geologic description:

The East Champion prospect is in Paleozoic quartz-mica schist, greenschist, biotite schist, quartzite, and marble (Foster, 1976). These units are intruded by granitic dikes, which may be related to plutons of Tertiary to Mesozoic age exposed 1 mile to the west or 1 mile to the southeast. Hornfelsing and other contact metamorphic features are common throughout the prospect. The East Champion prospect contains lead, tungsten, and silver geochemical anomalies in a contact metamorphic zone (WGM Inc., 1998 [DLR 98-12]). Stream-sediment samples are anomalous in lead (as much as 59 ppm). Soil samples contain as much as 168 ppm lead, 0.9 ppm silver, and 45 ppm tungsten. The anomalies occur in quartzite, pelitic schist, and marble. The marble is locally altered to diopside skarn with sparse galena and chalcopyrite. On the east end of the prospect area, a 100-m-long outcrop contains a 1.5-meter-thick marble bed with local alteration to calc-silicate rock and diopside skarn (U.S. Bureau of Mines, 1995). The skarn contains minor galena and chalcopyrite, but no scheelite was detected. Skarn is continuously exposed for approximately 60 meters along strike; small mineralized exposures have low base metal contents. A continuous chip sample across 0.3 meter of coarse-grained grossularite-epidote skarn contained 100 ppb gold, 4,733 ppm lead, and 2,060 ppm zinc. The East Champion prospect is on the periphery of a 'U'-shaped magnetic zone associated with contact metamor-

phism at the margins of an intrusion (WGM Inc., 1998 [DLR 98-12]). The prospect is located on a weak magnetic high associated with a zone of relatively high resistivity. Champion I (EA048), Champion II (EA049), North Champion (EA046), and Oregon Creek (EA045) are similar base-metal prospects within 5 miles of the East Champion prospect.

Exploration by WGM Inc. in the area from 1975 to 1977 included reconnaissance geochemical sampling, follow-up prospecting, and selective soil sampling (Dashevsky and others, 1986). An airborne geophysical survey was flown in the area in 1997 (WGM Inc., 1998 [DLR 98-12]).

Alteration:

A 100-m-long outcrop with a 1.5 m-thick marble bed in the east end of the prospect is locally altered to calc-silicate rock and diopside skarn (U.S. Bureau of Mines, 1995).

Age of mineralization:

Lead isotopic ratios indicate a Late Cretaceous or early Tertiary age for the nearby Champion II mineralization (U.S. Bureau of Mines, 1995), which is similar to this prospect.

Deposit model:

Cu skarn, Zn-Pb skarn (Cox and Singer, 1986; models 18b, 18c).

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

18b, 18c

Production Status: None

Site Status: Active?

Workings/exploration:

Exploration by WGM Inc. in the area from 1975 to 1977 included reconnaissance geochemical sampling, follow-up prospecting, and elective soil sampling (Dashevsky and others, 1986). An airborne geophysical survey was flown in the area in 1997 (WGM Inc., 1998 [DLR 98-12]).

Production notes:

Reserves:

Additional comments:

The East Champion prospect is located within Doyon, Ltd. selected or conveyed land. For more information contact Doyon, Ltd., Fairbanks, Alaska.

References:

Lessman and Holm, 1978 (DLR 78-02); Dashevsky and others, 1986; U.S. Bureau of Mines, 1995; WGM Inc., 1998 (DLR 98-12).

Primary reference: Dashevsky and others, 1986; U.S. Bureau of Mines, 1995

Reporter(s): M.B. Werdon; R.L. Flynn

Last report date: 5/1/02

Site name(s): Champion I

Site type: Prospect

ARDF no.: EA048

Latitude: 64.5555 **Quadrangle:** EA C-2

Longitude: 141.6806

Location description and accuracy:

The Champion I lode prospect is located on a ridge northwest of a large bend in Champion Creek in the southeast part of the Eagle C-2 quadrangle. The coordinates are the approximate center of the prospect, near the eastern boundary of section 22, T. 4 S., R. 30 E., of the Fairbanks Meridian. The location is accurate. The Champion I prospect is located within Doyon, Ltd. selected or conveyed land.

Commodities:

Main: Au, Cu

Other: Ag, Zn

Ore minerals: Chalcopyrite, magnetite, pyrrhotite

Gangue minerals: Calc-silicates, pyroxene

Geologic description:

The rocks in the vicinity of the Champion I prospect consist of a wide variety of undifferentiated, greenschist- to amphibolite-facies, Paleozoic schist, quartzite, marble, and lesser greenstone (Foster, 1976). The Champion I prospect contains gold and base-metal sulfides in hornfelsed roof pendants on the margin of a large granitic pluton of Tertiary or Mesozoic age (Foster, 1976; U.S. Bureau of Mines, 1995). Chalcopyrite, pyrrhotite, and magnetite occur within a 4.5- by 7.5-meter area of pyroxene skarn within biotite schist; samples contain as much as 0.41 percent copper and 11 to 490 ppb gold (WGM Inc., 1998 [DLR 98-12]). An adjacent light-green endoskarn contains as much as 78 ppm silver and 3.0 percent zinc. Fractured hornfels with gossan in the roof pendant contains as much as 872 ppb gold. Lead isotope analysis of a sample from the nearby Champion II skarn (EA049) indicates a Late Cretaceous to early Tertiary age for the skarn and its associated intrusion (U.S. Bureau of Mines, 1995); it is likely that the Champion I skarn is of the same age. Champion II (EA049), East Champion (EA047), North Champion (EA046), and Oregon Creek (EA045) are other base-metal lode prospects within 5 miles of the Champion I prospect.

The discovery of gold and base-metal sulfides at the Champion I prospect was made in the 1930's by prospectors, who hand excavated trenches (WGM Inc., 1998 [DLR 98-12]).

From 1975 to 1977, WGM Inc. conducted regional geochemical surveys, mapped, and sampled in the area. A large copper-lead-zinc-silver soil anomaly was defined, but there was no indication of the prospect in VLF, EM, and magnetic surveys. The Champion I prospect was abandoned as a viable target due to the small tonnage and grade inherent in these small roof-pendant-hosted deposits (Dashevsky and others, 1986).

Alteration:

Age of mineralization:

Lead isotopic ratios indicate a Late Cretaceous or early Tertiary age for the nearby Champion II skarn deposit (U.S. Bureau of Mines, 1995); it is likely that the Champion I prospect is the same age.

Deposit model:

Cu skarn or Zn-Pb skarn (Cox and Singer, 1986; models 18b and 18c).

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

18b or 18c

Production Status: None

Site Status: Active?

Workings/exploration:

The discovery of gold and base-metal sulfides at the Champion I prospect was made in the 1930's by prospectors, who hand excavated trenches (WGM Inc., 1998 [DLR 98-12]). From 1975 to 1977, WGM Inc. conducted regional geochemical surveys, mapped, and sampled in the area. A large copper-lead-zinc-silver soil anomaly was defined, but there was no indication of the prospect in VLF, EM, and magnetic surveys. The Champion I prospect was abandoned as a viable target due to the small tonnage and grade inherent in these small roof-pendant-hosted deposits (Dashevsky and others, 1986). In 1996 and 1997, sampling of soil on a grid extended the area of defined soil anomalies.

Production notes:

Reserves:

The Champion I prospect was abandoned as a viable target due to the small tonnage and grade inherent in these small roof-pendant-hosted deposits (Dashevsky and others, 1986).

Additional comments:

The Champion I prospect is located within Doyon, Ltd. selected or conveyed land. For more information contact Doyon, Ltd., Fairbanks, Alaska.

References:

Foster, 1976; WGM Inc., 1977; Lessman and Holm, 1978 (DLR 78-02); Dashevsky and others, 1986; Burleigh and Lear, 1994; U.S. Bureau of Mines, 1995; WGM Inc., 1998

(DLR 98-12).

Primary reference: U.S. Bureau of Mines, 1995; WGM Inc., 1998 (DLR 98-12)

Reporter(s): M.B. Werdon; R.L. Flynn

Last report date: 5/1/02

Site name(s): Champion II

Site type: Prospect

ARDF no.: EA049

Latitude: 64.5540 **Quadrangle:** EA C-2

Longitude: 141.7140

Location description and accuracy:

The Champion II lode prospect is on a ridge north of Champion Creek; it is in the southeast portion of the Eagle C-2 quadrangle about 0.3 mile south of hill 4230. The coordinates are the approximate center of the Champion II prospect area, near the eastern boundary of section 21, T. 4 S., R. 30 E., of the Fairbanks Meridian. The location is accurate. The Champion II prospect is located within Doyon, Ltd. selected or conveyed land.

Commodities:

Main: Ag, Cu, Pb, Zn

Other: Au

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

Gangue minerals: Calcite, chlorite, clay, clinopyroxene, epidote, garnet, idocrase, limonite, malachite, quartz, wollastonite

Geologic description:

The Champion II prospect is in interlayered Paleozoic metasedimentary and metavolcanic rocks at the south edge of an extensive complex of granitic intrusions of Tertiary or Mesozoic age (Foster, 1976; WGM Inc., 1998 [DLR 98-12]). Drilling indicates the dominant lithology is isoclinally folded quartzite with interlayered chlorite schist or gray schist, all of which have been variously hornfelsed. Marble is found throughout the quartzite and schist units; it is 60 feet thick in the center of the prospect area. The closest large intrusions are located approximately 1 mile to the north and 1 mile to the east. Igneous rocks near the prospect include andesite and dacite sills and dikes and diorite dikes and plugs. There is also an altered granodiorite dike immediately north of the marble body. Some marble layers have been altered to calc-silicate skarn, and contain chlorite, epidote, idocrase, garnet, wollastonite, and clinopyroxene. Shear zones and inferred steeply dipping faults truncate the east side of a soil anomaly (WGM Inc., 1998 [DLR 98-12]). A linear identified on aerial photographs on the west side of the soil anomaly roughly parallels the fault on the east side and suggests the soil anomaly is contained within a horst structure.

Chalcopyrite, galena, and sphalerite occur within high-grade sulfide bands along foliation and in scattered quartz-carbonate veins (WGM Inc., 1998 [DLR 98-12]). Pyrite is a minor constituent and most commonly occurs with pyrrhotite in graphitic phyllite. Pyrite also is found as disseminated grains or in small quartz-carbonate veins in other rock types. Pyrrhotite is a product of contact metamorphism adjacent to dikes. Chalcopyrite, galena, and sphalerite are primarily in skarn but also are present in significant concentrations in quartzite. In the skarn, sulfides are generally coarse grained and granular and form segregated mineral bands parallel to foliation. In chloritic, gray, and graphitic schist, sulfides vary from wispy, fine-grained disseminations and laminae to coarse-grained aggregates along foliation. Trace galena and sphalerite are present in altered diorite dikes as disseminated grains or in fractures and veinlets showing bleached selvages. Sphalerite is generally reddish brown in both fine and coarse crystals; a small portion of the finer sphalerite is pale brown to cream colored. Minor secondary minerals, including malachite and limonite, are present in fractures to depths of 200 feet. Lead isotopic ratios indicate a Late Cretaceous to early Tertiary age for the Champion II sulfides; this indicates an intrusive origin (U.S. Bureau of Mines, 1995).

Alteration associated with mineralization at the Champion II prospect includes silicification and calc-silicate development in marble and bleaching in all rocks types. Alteration of intrusive rocks includes weak argillic and propylitic alteration with development of clays in feldspars and a chlorite-quartz-epidote-calcite assemblage around mafic minerals (WGM Inc., 1998 [DLR 98-12]).

The lead soil anomaly at Champion II is about 6,000 feet by 6,000 feet in area ,and it is open to the south (WGM Inc., 1998 [DLR 98-12]). High lead values in soil trend east-west, and this orientation is also seen in zinc, copper, and silver anomalies. Some soil samples contain greater than 1,000 ppm lead, and as much aS 5,800 ppm copper, 6,500 ppm zinc, and 500 ppb gold. Rock samples contain as much as 12.6 percent lead, 3.9 percent copper, and 3.6 percent zinc. Two rock samples from a graphitic unit contain as much as 0.02 ounce of gold per ton.

Drilling at Champion II intersected significant copper-lead-zinc mineralization in 7 out of 9 drill holes (WGM Inc., 1998 [DLR 98-12]). Drill hole CH1 intersected sulfides within interlayered marble, chlorite-epidote skarn, and graphitic and chlorite schist. Assays over 19 feet within that schist averaged 1percent copper, 2.5 percent lead, 2.4 percent zinc, and 0.81 ounce of silver per ton. Drill hole CH2 intersected a 12-foot-thick zone of skarn and chlorite schist that averages 1.4 percent copper, 2.4 percent lead, 1.7 percent zinc, and 2 ounces of silver per ton. Drill hole CH3 intersected a shear zone containing a block of gray schist and skarn with chalcopyrite, galena, and sphalerite mineralization along foliation planes. This zone is 15 feet wide and averages 0.2 percent copper, 1.2 percent lead, 1.1 percent zinc, and 0.1 ounce of silver per ton. Below this zone, another shear contains trace chalcopyrite, galena, and sphalerite and pyrite in quartzite and gray schist. Drill hole CH4 intersected trace pyrite in an intrusion; scattered quartz veins with minor chalcopyrite, galena, and sphalerite in a shear zone; and trace chalcopyrite and galena within calcareous zones in the quartzite and schist. Drill hole CH5 was drilled to test a surface showing of chalcopyrite and malachite in quartzite; it intersected weakly mineralized magnetite-bearing marble. Champion I (EA048), East Champion (EA047), North Champion (EA046), and Oregon Creek (EA045) are other base-metal prospects within 5 miles of the Champion II prospect.

The discovery of base metals in the Champion II prospect area was made in the 1930's by prospectors who hand-excavated trenches (WGM Inc., 1998 [DLR 98-12]). From 1975 to 1977, WGM Inc. conducted regional geochemical reconnaissance and mapping in the area. A large copper-lead-zinc-silver soil anomaly was defined, but there was no indication of the prospect in VLF, EM, and magnetic surveys. In 1996 and 1997, soil sampling extended the anomalies. In 1997, 3,044 feet of HQ core was drilled and significant mineralization was intersected. In 1998, Ventures Resource Alaska drilled 3,000 feet of core (Swainbank and others, 1998).

Alteration:

Alteration associated with mineralization at the Champion II prospect includes silicification and calc-silicate development in marble and bleaching in all rocks types (WGM Inc., 1998 [DLR 98-12]). Alteration of intrusive rocks includes weak argillic and propylitic alteration with development of clays in feldspars and a chlorite-quartz-epidote-calcite assemblage around mafic minerals.

Age of mineralization:

Lead isotopic ratios indicate a Late Cretaceous or early Tertiary age for the Champion II mineralization (U.S. Bureau of Mines, 1995).

Deposit model:

Cu skarn, Zn-Pb skarn (Cox and Singer, 1986; models 18b, 18c).

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

18b, 18c

Production Status: None

Site Status: Active?

Workings/exploration:

The discovery of base metals in the Champion II prospect area was made in the 1930's by prospectors who hand-excavated trenches (WGM Inc., 1998 [DLR 98-12]). From 1975 to 1977, WGM Inc. conducted regional geochemical reconnaissance and mapping in the area. A large copper-lead-zinc-silver soil anomaly was defined, but there was no indication of the prospect in VLF, EM, and magnetic surveys. In 1996 and 1997, soil sampling extended the anomalies. In 1997, 3,044 feet of HQ core was drilled and significant mineralization was intersected. In 1998, Ventures Resource Alaska drilled 3,000 feet of core (Swainbank and others, 1998).

Production notes:

Reserves:

Additional comments:

The Champion II prospect is located within Doyon, Ltd. selected or conveyed land. For

more information contact Doyon, Ltd., Fairbanks, Alaska.

References:

Foster, 1976; WGM Inc., 1977; Lessman and Holm, 1978 (DLR 78-02); Dashevsky and others, 1986; Burleigh and Lear, 1994; U.S. Bureau of Mines, 1995; Swainbank and others, 1998; WGM Inc., 1998 (DLR 98-12).

Primary reference: WGM Inc., 1998 (DLR 98-12)

Reporter(s): M.B. Werdon; R.L. Flynn

Last report date: 5/1/02

Site name(s): Champion Creek

Site type: Prospect

ARDF no.: EA050

Latitude: 64.5411 **Quadrangle:** EA C-2

Longitude: 141.9578

Location description and accuracy:

Champion Creek is a 20-mile-long east tributary of the North Fork of the Fortymile River. The location of prospecting on Champion Creek is not reported; the coordinates are arbitrarily placed about 5 miles upstream of the mouth of the creek, in section 29, T. 4 S., R. 29 E., of the Fairbanks Meridian. Champion Creek is locality 23 of Burleigh and Lear (1994).

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:

The rocks along the lower half of Champion Creek consist predominantly of Paleozoic quartz-mica schist and greenschist; along the upper portions of the creek, the rocks are mostly Paleozoic biotite schist, quartzite and marble that have been intruded by Tertiary or Mesozoic granitic rocks (Foster, 1976). Quaternary terrace deposits are present along the lower portion of Champion Creek.

Powers (1935) reported that miners prospecting for placer gold on Champion Creek found low-grade pay. The Champion I (EA048), Champion II (EA049), East Champion (EA047), and North Champion (EA046) prospects are base-metal and gold lode prospects in the Champion Creek drainage.

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:
Powers (1935) reported that miners prospecting for placer gold on Champion Creek found low-grade pay.

Production notes:

Reserves:

Additional comments:

References:
Powers, 1935; Foster, 1976; Burleigh and Lear, 1994.

Primary reference: Burleigh and Lear, 1994

Reporter(s): M.B. Werdon; R.L. Flynn

Last report date: 5/1/02

Site name(s): Unnamed (on Little Champion Creek)

Site type: Occurrence

ARDF no.: EA051

Latitude: 64.5217 **Quadrangle:** EA C-2

Longitude: 141.5311

Location description and accuracy:
This occurrence is about 1.9 miles east of the junction of Champion and Little Champion Creeks at an elevation of about 3,100 feet. It is in section 33, T. 4 S., R. 31 E., of the Fairbanks Meridian. The location is accurate within 1 mile.

Commodities:

Main: Pb

Other:

Ore minerals: Galena

Gangue minerals:

Geologic description:
Bedrock in the area consists of Paleozoic quartz-mica schist and greenschist (Foster, 1976). Galena occurs here in float (Foster and Clark, 1970).

Alteration:

Age of mineralization:

Deposit model:

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

Production Status: None

Site Status: Undetermined

Workings/exploration:

Production notes:

Reserves:

Additional comments:

References:

Foster and Clark, 1970; Foster, 1976.

Primary reference: Foster and Clark, 1970

Reporter(s): M.B. Werdon

Last report date: 5/1/02

Site name(s): Wolf Creek

Site type: Mine

ARDF no.: EA052

Latitude: 64.7381 **Quadrangle:** EA C-1

Longitude: 141.3679

Location description and accuracy:

Wolf Creek is a 10-mile-long tributary of Mission Creek. One mile of Wolf Creek was mined. The mine coordinates are placed next to the cabin shown on the U. S. Geological Survey topographic map of the Eagle C-1 quadgangle (1956; revised in 1973); the location is accurate within 1/2 mile. Wolf Creek is locality 16 of Burleigh and Lear (1994), locality 65 of Eberlein and others (1977), and locality 34 and 36 of Cobb (1972 [MF-393]).

Commodities:

Main: Au

Other: Cr, U?

Ore minerals: Chromite, gold, monazite

Gangue minerals:

Geologic description:

The rocks in the vicinity of Wolf Creek are Paleozoic schist, greenschist, and greenstone, Paleozoic or Mesozoic serpentinite, and Cretaceous to Pliocene nonmarine detrital rocks (Foster, 1976). Quaternary terrace gravel deposits are extensive near the mouth of the creek.There has been placer gold production downstream on Mission Creek (EA033).

Placer gold on Wolf Creek was probably discovered in the early 1900's. Pay gravel was found on Wolf Creek, and it was mined for about 1 mile (Powers, 1935). An automatic dam was constructed on Wolf Creek in 1911 to facilitate placer mining (Porter, 1912). Mining also occurred in 1939 on Wolf Creek (Smith, 1941 [B 926-A]). Tertiary sedimentary rocks along Wolf Creek have been interpreted to be the source of the placer gold (Mertie, 1969). Heavy-mineral concentrates from Wolf Creek contain ilmenite, iron oxides, chromite, zircon, garnet, anatase, and trace rutile, tourmaline, and monazite (Wedow, 1954; Cobb, 1973 [B 1374]).

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: Probably inactive

Workings/exploration:
Placer gold on Wolf Creek was probably was discovered in the early 1900's. Pay gravel was found on Wolf Creek, and it was mined for about one mile (Powers, 1935). An automatic dam was constructed on Wolf Creek in 1911 to facilitate placer mining (Porter, 1912). Mining also occurred in 1939 on Wolf Creek (Smith, 1941 [B 926-A]).

Production notes:

Reserves:

Additional comments:

References:
Porter, 1912; Powers, 1935; Smith, 1941 (B 926-A); Wedow, 1954; Mertie, 1969; Cobb, 1972 (MF-393); Cobb, 1973 (B 1374); Foster, 1976; Cobb, 1977 (OFR 77-845); Eberlein and others, 1977; Burleigh and Lear, 1994.

Primary reference: Powers, 1935

Reporter(s): M.B. Werdon

Last report date: 5/1/02

Site name(s): Boundary Creek

Site type: Mine

ARDF no.: EA053

Latitude: 64.6801 **Quadrangle:** EA C-1

Longitude: 141.1628

Location description and accuracy:

Boundary Creek is a small east tributary of the Yukon River about 8 miles south of Eagle; the mouth of Boundary Creek is less than one-quarter of a mile west of the Canadian border. The location of placer gold mining on Boundary Creek is not reported; the coordinates are placed at the approximate midpoint of the creek ,in section 5, T. 3 S., R. 33 E., of the Fairbanks Meridian. Boundary Creek is locality 6 of Eberlein and others (1977) and locality 17 of Burleigh and Lear (1994).

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:

The rocks in the vicinity of Boundary Creek are undifferentiated Paleozoic greenschist-facies and lesser amphibolite-facies rocks, including schist, greenstone, and local marble, and minor Paleozoic or Mesozoic serpentinite (Foster, 1976). The pay streak on Boundary Creek is reported to be 10 miles long, but recovery in the early 1900's was hampered by large boulders and gravel that had to be removed to reach bedrock (Powers, 1935). The gold is coarse and sold for $18 per ounce (Powers, 1935). The placer gold contained 850 parts of gold and 145 parts of silver per thousand (Mertie, 1942). Smith (1941 [B 910-C]) reported a gold assay from Boundary Creek of 850 parts of gold per thousand.

Placer gold on Boundary Creek was discovered around 1891 (Powers, 1935). Brooks (1903) reports mining on Boundary Creek in 1902.

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: Probably inactive

Workings/exploration:
Placer gold on Boundary Creek was discovered around 1891 (Powers, 1935). Brooks (1903) reported mining on Boundary Creek in 1902.

Production notes:
The placer gold had 850 parts of gold per thousand and 145 parts of silver per thousand (Mertie, 1942). Smith (1941 [B 910-C]) reported a gold assay from Boundary Creek of 850 parts of gold per thousand.

Reserves:

Additional comments:

References:
Brooks, 1903; Powers, 1935; Mertie, 1938; Smith, 1941 (B 910-C); Mertie, 1942; Foster, 1976; Cobb, 1977 (OFR 77-845); Eberlein and others, 1977; Burleigh and Lear, 1994.

Primary reference: Powers, 1935

Reporter(s): M.B. Werdon; R.L. Flynn

Last report date: 5/1/02

Site name(s): American Creek; Teddys Fork; Discovery Fork; Alder Gulch

Site type: Mines

ARDF no.: EA054

Latitude: 64.6794 **Quadrangle:** EA C-1

Longitude: 141.3246

Location description and accuracy:

American Creek is a 20-mile-long tributary of Mission Creek, whose mouth is near Eagle. American Creek has two major branches, Teddys Fork and Discovery Fork, but most reports refer to Teddy's Fork simply as American Creek. The coordinates are where most placer mining occurred, near the junction of Discovery Fork, Teddys Fork, and American Creek, in section 4, T. 3 S., R. 32 E., of the Fairbanks Meridian. The location is accurate. This record combines the references to Teddys Fork, Discovery Fork, and Alder Gulch (a small tributary of Teddys Fork that is not labeled on the U.S. Geological Survey topographic map of the Eagle C-1 quadrangle (1956; revised in 1973). American Creek is localities 35, 37 and 38 of Cobb (1972 [MF-393]), locality 2 of Eberlein and others (1977), and localities 18, 19, and 21 of Burleigh and Lear (1994).

Commodities:

Main: Au

Other: Pt, REE

Ore minerals: Gold, monazite, platinum

Gangue minerals:

Geologic description:

The rocks along upper American Creek are Paleozoic quartz-mica schist, greenschist, marble, and greenstone and Paleozoic or Mesozoic serpentinite (Foster, 1976). Bedrock on lower American Creek is Paleozoic or Mesozoic serpentinite, Cretaceous to Tertiary nonmarine sedimentary rocks, and Paleozoic greenstone, quartzite, and argillite. Extensive Quaternary terrace deposits occur near the mouth of the creek.

Most placer gold mining occurred near the junction of Discovery Fork with American Creek, an area commonly referred to as the Forks. Placer mining also occurred on lower American Creek within 5 miles of the mouth, but little or no work was done in the intervening stretch. Placers of the lower valley are interpreted to have a secondary source in the Cretaceous to Tertiary clastic sedimentary rocks (Mertie, 1938). Gravel in the lower valley is 15 to 40 feet thick, and coarse gold was recovered (Powers, 1935).

Most placer gold from American Creek was recovered near the Forks. The average depth of overburden in this area was about 14 feet. The valley is about 30 yards wide, and gravels averaged about 65 cents to the square foot of bedrock in 1936 (gold at $35.00 per ounce) (Mertie, 1938). One cut just below the Forks exposed 12 feet of gravel. Gold was fairly coarse and included several large nuggets. Fineness of the gold at this site was not determined, but it sold for about $28 per ounce (gold at $35 an ounce) (Mertie, 1938). There is also a poorly defined bench about 1 mile north of the Forks, about 15 feet above the creek. The gravel here is about 5 feet thick and consists of 3 feet of loose gravel and 2 feet of clay-rich gravel. Gold is found throughout the lower half of this gravel, but the best pay is next to bedrock and within the upper 2 feet of bedrock (Prindle, 1905). Much of the gold is coarse.

Placer gold has also been recovered on Discovery Fork and its tributary Star Gulch. The depth to bedrock on the lower part of Discovery Fork is about 7 to 9 feet; the gold lies on and in bedrock. A 19-ounce nugget was recovered from Discovery Fork, but most of the gold was in smaller particles (Mertie, 1938). Near the upper part of Discovery Fork, the gravel is 5 to 7 feet thick. The gold is coarser than that found downstream. Alder Gulch, a small tributary to American Creek, was mined out in a period of a few years. Rich pay was found in gravels from the mouth of Alder Gulch for about one-half mile upstream (Powers, 1935). Gold was also mined from Gravel Gulch in the early 1900's, but the location of this stream is uncertain (Foster and Keith, 1969).

The average fineness of 10 samples of placer gold from the upper part of American Creek and its tributaries was 865 parts of gold and 130 parts of silver per thousand (Mertie, 1942). Smith (1941 [B 910-C]) reported assays of 5 gold samples from American Creek. The fineness of one sample was 902, and the other four samples fell between 858 and 898 parts of gold per thousand. A nugget recovered in 1899 was valued at $192 (gold at $20.67 per ounce) (Brooks, 1900); it must have weighed about 11 ounces (Mertie, 1938). Placer concentrates contain abundant magnetite and barite, as well as some monazite. American Creek placers also contain platinum (Burleigh and Lear, 1994). Gold-bearing quartz veins in bedrock were reported near the head of American Creek (Spurr, 1898), but their location is unknown.

Placer gold on American Creek was discovered around 1891, and the stream has been mined intermittently since 1896. Placer gold was being actively mined in the late 1800's and early to middle 1900's, and American Creek and its tributary Discovery Fork were considered the most important gold-mining area in the vicinity of Eagle in 1905 (Prindle, 1905). The discovery claim on American Creek is located at the mouth of Discovery Fork and serves as the reference point for numbering claims on both forks (Mertie, 1938). In 1903 and 1904, miners used a hydraulic plant approximately 1 mile above the confluence of Discovery Fork, and an automatic water dump gate was installed on Discovery Fork (Brooks, 1905; Prindle, 1905). The 1912 season was considered profitable; the gravel over about 17,000 square feet of bedrock on American Creek and over about 11,000 square feet of bedrock on Discovery Fork were processed by shoveling dirt into sluice boxes (Ellsworth and Davenport, 1913). A nugget worth $80 was found at this time (gold at $20.67 per ounce) (Ellsworth and Davenport, 1913). American Creek, Discovery Fork, and Star Gulch were still being mined for placer gold in 1936 (Mertie, 1938), and mining continued until at least 1940. The lower end of Teddys Fork was being mined for placer gold in the late 1970's (Eberlein and others, 1977). Bulldozers,

backhoes and sluice plants were used in later years to process the gravels. Small-scale placer mining on American Creek continues in the 1990's (Swainbank and others, 1993).

The first 15 years of mining on American Creek and its tributaries produced a considerable amount of gold (Powers, 1935). In 1896, one placer mine returned $27 per day per man (Spurr, 1898). Prindle (1905) estimated that as of 1905 about $20,000 worth of gold had been produced from Discovery Fork.

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; medium

Site Status: Active?

Workings/exploration:
Placer gold on American Creek was discovered around 1891, and the stream has been mined intermittently since 1896. Placer gold was being actively mined in the late 1800's and early to middle 1900's, and American Creek and its tributary Discovery Fork were considered the most important gold-mining area in the vicinity of Eagle in 1905 (Prindle, 1905). The discovery claim on American Creek is located at the mouth of Discovery Fork and serves as the reference point for numbering claims on both forks (Mertie, 1938). In 1903 and 1904, miners used a hydraulic plant (Prindle, 1905) approximately 1 mile above the confluence of Discovery Fork, and an automatic water dump gate was installed on Discovery Fork (Brooks, 1905). The 1912 season was considered profitable; the gravel overlying about 17,000 square feet of bedrock on American Creek and over about 11,000 square feet of bedrock on Discovery Fork were processed by shoveling dirt into sluice boxes (gold at $20.67 per ounce) (Ellsworth and Davenport, 1913). American Creek, Discovery Fork, and Star Gulch were still being mined for placer gold in 1936 (Mertie, 1938), and mining continued until at least 1940. The lower end of Teddys Fork was being mined for placer gold in the late 1970's (Eberlein and others, 1977). Bulldozers, backhoes and sluice plants were used in later years to process the gravels. Small-scale placer mining on American Creek continues in the 1990's (Swainbank and others, 1993).

Production notes:
The first 15 years of mining on American Creek and its tributaries produced a considerable amount of gold (Powers, 1935). In 1896, one placer mine returned $27 per day per man (Spurr, 1898). Prindle (1905) estimated that as of 1905 about $20,000 worth of gold

had been produced from Discovery Fork.

Reserves:

Additional comments:

References:

Spurr, 1898; Brooks, 1900; Brooks, 1903; Brooks, 1904; Brooks, 1905; Prindle, 1905; Purington, 1905; Prindle, 1906 (B 284); Brooks, 1907; Brooks, 1909; Prindle, 1909; Ellsworth, 1910; Ellsworth and Parker, 1911; Porter, 1912; Ellsworth and Davenport, 1913; Brooks, 1915; Brooks, 1916; Martin, 1919; Smith, 1926; Smith, 1929; Mertie, 1930 (B 813-C); Smith, 1930 (B 810); Smith, 1930 (B 813); Smith, 1932; Smith, 1933 (B 836); Smith, 1933 (B 844-A); Smith, 1934 (B 857-A); Smith, 1934 (B 864-A); Powers, 1935; Smith, 1936; Smith, 1937; Mertie, 1938; Smith, 1938; Smith, 1939 (B 910-A); Smith, 1939 (B 917-A); Smith, 1941 (B 910-C); Smith, 1941 (B 926-A); Mertie, 1942; Smith, 1942 (B 933-A); Wedow, 1954; Saunders, 1966; Koschmann and Bergendahl, 1968; Foster and Keith, 1969; Mertie, 1969; Clark and Foster, 1971; Cobb, 1972 (MF-393); Foster, 1976; Cobb, 1977 (OFR 77-845); Eberlein and others, 1977; Bundtzen and others, 1990; Swainbank and others, 1993; Burleigh and Lear, 1994.

Primary reference: Prindle, 1905; Mertie, 1938

Reporter(s): M.B. Werdon

Last report date: 5/1/02

Site name(s): Dome Creek

Site type: Mine

ARDF no.: EA055

Latitude: 64.6288 **Quadrangle:** EA C-1

Longitude: 141.4073

Location description and accuracy:

Dome Creek is a small tributary of American Creek about 17 miles southwest of Eagle. The location of placer gold mining on Dome Creek is uncertain; the mine coordinates are arbitrarily placed about 1.5 miles upstream of the mouth of the creek, in section 30, T. 3 S., R. 31 E., of the Fairbanks Meridian. There is another Dome Creek (EA079) in the Eagle B-1 quadrangle. Dome Creek is locality 20 of Burleigh and Lear (1994) and locality 39 of Cobb (1972 [MF-393]).

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:

The rocks in the vicinity of Dome Creek are Paleozoic quartz-mica schist, greenschist, and local marble (Foster, 1976). Mining was reported on Dome Creek in several years from 1926 to 1937 (Smith, 1929; Smith, 1932; Smith, 1933 [B 836]; Smith, 1939 [B 910-A]). There has been considerable placer gold mining on American Creek (EA054) downstream of Dome Creek.

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

Site Status: Probably inactive

Workings/exploration:

Mining was reported on Dome Creek in several years from 1926 to 1937 (Smith, 1929; Smith, 1932; Smith, 1933 [B 836]; Smith, 1939 [B 910-A]).

Production notes:

Reserves:

Additional comments:

References:

Smith, 1929; Smith, 1932; Smith, 1933 (B 836); Smith, 1939 (B 910-A); Cobb, 1972 (MF-393); Foster, 1976; Cobb, 1977 (OFR 77-845); Burleigh and Lear, 1994.

Primary reference: Smith, 1933 (B 836)

Reporter(s): M.B. Werdon; R.L. Flynn

Last report date: 5/1/02

Site name(s): Weeno

Site type: Prospect

ARDF no.: EA056

Latitude: 64.5641 **Quadrangle:** EA C-1

Longitude: 141.0972

Location description and accuracy:

The Weeno prospect is located in the headwaters of Weeno and Karen Creeks, which are not labeled on the U.S. Geological Survey topographic map of the Eagle C-1 quadrangle (1956). The prospect is centered just east of hill 4048 in the southeast part of the Eagle C-1 quadrangle. The coordinates are the approximate center of the Weeno prospect area in section 15, T. 4 S., R. 33 E of the Fairbanks Meridian. The location is accurate only within 2 miles. The Weeno prospect is located within Doyon, Ltd. selected or conveyed land.

Commodities:

Main: Ag, Cu, Pb, Zn

Other:

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

Gangue minerals:

Geologic description:

The rocks in the vicinity of the Weeno prospect are chert, weakly metamorphosed siltstone and carbonaceous shale, argillite, and graywacke, limestone, chlorite-quartz-muscovite-talc schist, and graphitic schist (WGM Inc., 1998 [DLR 98-12]). These rocks have been correlated with the Nasina assemblage of Devonian and (or) Mississppian age (Dusel-Bacon and others, 1998). At the Weeno prospect, a sulfide-bearing chert horizon that is at least 200 feet thick appears to dip moderately to the west-northwest and grades stratigraphically downward into interlayered siltstone and carbonaceous shale. The banded texture of the sulfides, the chert host rock, and the association with a contact between metavolcanic schist and graphitic schist suggest that the sulfides are of volcanogenic or sedimentary exhalative origin. The weakly metamorphosed carbonaceous siltstone and shale near the creek bottom and on east-facing slopes resemble rocks at the Lead Creek prospect nearby to the southwest (EA057).

Galena was first observed in the southeast Weeno prospect area by Foster and Clark (1969). Anomalous copper, lead, zinc, and silver were found in stream sediments near the headwaters of Weeno Creek and in tributaries to Karen Creek, located about one-half

mile to the south (WGM Inc., 1998 [DLR 98-12]. An assay of an iron-rich seep draining chlorite-quartz-muscovite-talc schist assayed 16 ppm silver, 133 ppm copper, 2,520 ppm lead, and 1,340 ppm zinc. Two bedded chert outcrops 1.5 miles apart that contain pyrite and pyrrhotite, and trace galena, sphalerite, and chalcopyrite contain as much as 6,358 ppm zinc and 1,500 ppm copper.

Lead, zinc, copper and silver anomalies in soils collected on a grid at the Weeno prospect trend northeast for 4,000 feet and are as much as 800 feet wide (WGM Inc., 1998 [DLR 98-12]). Silicified siltstone underlies the south part of the soil grid. Elsewhere, chlorite-quartz-muscovite-talc schist is thrust over chert. The lead anomaly on the upper plate of the thrust is wide but weak and trends southwest. On the lower plate, the lead anomaly is narrow and has two strong, 4,500-foot-long, northeast trends with as much as 1,825 ppm lead. The zinc anomaly (greater than 100 ppm zinc) is very broad on the upper plate and is open to the north and south. Zinc is elevated along the trace of the thrust fault, indicating possible remobilization of metals. The lower-plate zinc anomaly (as much as 2,390 ppm zinc) coincides with the lead anomaly and is open to the north and south. The copper anomaly (as much as 444 ppm) is uphill from the lead and zinc anomalies. It is broad, irregular, and weak on the upper plate but narrower and stronger on the lower plate. The silver anomaly is coincident with the other base metals and is open to the north and south (WGM Inc., 1998 [DLR 98-12]).

Airborne geophysical data indicate a zone of high resistivity over silicified rocks at the Weeno prospect, but the zone of highest resistivity is located approximately 3,000 feet west of the soil anomaly (WGM Inc., 1998 [DLR 98-12]). An area of high magnetic susceptibility is located south of the silicified zone, suggesting ultramafic rocks may underlie the siltstones.

WGM Inc. conducted reconnaissance stream-sediment sampling in the Weeno prospect area in 1976 (Dashevsky and others, 1986). Exploration of the Weeno prospect by WGM Inc. in the mid-1990's included stream-sediment sampling, geologic mapping, and soil and rock sampling (WGM Inc., 1998 [DLR 98-12]). In 1996, WGM Inc. conducted soil sampling on a 5,000 foot by 6,000 foot grid.

Alteration:

Siltstone at the Weeno prospect has been silicified (WGM Inc., 1998 [DLR 98-12]).

Age of mineralization:

Host rocks of sulfides at the Weeno prospect have been correlated with the Nasina assemblage of Devonian and (or) Mississippian age (Dusel-Bacon and others, 1998); hence, if the sulfides are stratiform, they may also be Devonian-Mississppian.

Deposit model:

Kuroko massive sulfide (Cox and Singer, 1986; model 28a).

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

28a

Production Status: None

Site Status: Probably inactive

Workings/exploration:

WGM Inc. conducted reconnaissance stream-sediment sampling in the Weeno prospect area in 1976 (Dashevsky and others, 1986). Exploration of the Weeno prospect by WGM Inc. in the mid-1990's included stream-sediment sampling, geologic mapping, and soil and rock sampling (WGM Inc., 1998 [DLR 98-12]). In 1996, WGM Inc. conducted soil sampling on a 5,000 foot by 6,000 foot grid.

Production notes:

Reserves:

Additional comments:

The Weeno prospect is located within Doyon, Ltd. selected or conveyed land. For more information contact Doyon, Ltd., Fairbanks, Alaska.

References:

Foster and Clark, 1969; WGM Inc., 1977; Dashevsky and others, 1986; Dusel-Bacon and others, 1998; WGM Inc., 1998 (DLR 98-12).

Primary reference: WGM Inc., 1998 (DLR 98-12)

Reporter(s): M.B. Werdon; R.L. Flynn

Last report date: 5/1/02

Site name(s): Lead Creek

Site type: Prospect

ARDF no.: EA057

Latitude: 64.5176 **Quadrangle:** EA C-1

Longitude: 141.4394

Location description and accuracy:

The Lead Creek prospect is located in the headwaters of Lead Creek, about 8 miles west-northwest of Liberty on the Taylor Highway. Lead Creek is not labeled on the U.S. Geological Survey topographic map of the Eagle C-1 quadrangle (1956). The coordinates are the approximate center of the 4-square-mile prospect area, located in the southwest corner of section 36, T. 4 S., R. 31 E., of the Fairbanks Meridian. The location is accurate. The hills around the head of Lead Creek (none named on the Eagle C-1 map) are, clockwise from west to east: Wizard Hill, Paradox Hill, Nodular Knob, Pebble Dike Hill, and Macarena Hill. Argent Creek is a small, west-flowing creek in the draw near the middle of section 5, T. 5 S., R. 32 E., of the Fairbanks Meridian, between Pebble Dike Hill and Macarena Hill. The west end of the Lead Creek prospect is locality 5 of Cobb (1973 [MF-393]) and locality 58 of Eberlein and others (1977). The Lead Creek prospect is located within Doyon, Ltd. selected or conveyed land.

Commodities:

Main: Ag, Pb, Zn

Other: As, Au, Bi, Cd, Cu, Hg, Sb

Ore minerals: Arsenopyrite?, chalcopyrite, galena, iron-oxide, manganese oxide, pyrite, sphalerite

Gangue minerals: Ankerite, dolomite, garnet, pyroxene, quartz, siderite, scorodite, wollastonite

Geologic description:

Rocks in the vicinity of the Lead Creek prospect include carbonaceous quartz-mica schist and phyllite; weakly metamorphosed silicified volcanic rocks, quartzite, marble, and metachert; unmetamorphosed limestone, sandstone, argillite, and tuff; slightly metamorphosed greenstone, basalt, and pillow basalt; and serpentinite (WGM Inc., 1998 [DLR 98-12]). The protolith ages for these rocks may be Triassic, Permian, or Mississippian and Devonian (Dusel-Bacon and others, 1998); they are tentatively correlated with Paleozoic rocks that host stratiform lead-zinc-silver deposits in the Yukon Territory. Granodiorite, diorite, and dacite intrusions of Tertiary to Mesozoic age also occur in the Lead

Creek area.

The models proposed for the Lead Creek prospect include: lead-zinc stratiform massive sulfide (Schmidt, 1997); manto replacement silver-lead-zinc; breccia-hosted silver-lead-zinc; skarn-hosted lead-zinc-silver; pluton-hosted lead-zinc-copper-silver; or another type of deposit indicated by precious and base metals in siliceous nodules (WGM Inc., 1998 [DLR 98-12]). The prospect is defined by anomalous lead in soils over a 3-mile by 1.5-mile area. The mineralized system may be more extensive than indicated by soil sampling since favorable ore intervals pass under overlying units on the ridges (WGM Inc., 2000 [Champion property summary]).

Graphitic quartz-mica schist and phyllite crop out on top of Paradox Hill and Nodular Knob (WGM Inc., 1998 [DLR 98-12]). A strongly graphitic schist east of Nodular Knob contains siliceous nodules and iron(?) oxide-cemented concretions that are anomalous in precious and base metals. The graphitic schist and phyllite grade into, or are in fault contact with, underlying silicified volcanic rocks.

A steeply dipping, east-southeast-trending fault separates the silicified metavolcanic rocks on Nodular Knob from limestone on Pebble Dike Hill (WGM Inc., 1998 [DLR 98-12]). Sections of impure massive limestone were intersected in drill holes on the west side of Pebble Dike Hill. The limestone has been bleached, silicified, brecciated, and mineralized; it has a trace to greater than 20 percent combined pyrite, galena, and sphalerite. A carbonaceous sequence of interlayered limestone, shale, argillite, siltstone, and sandstone underlies the massive limestones. Massive sulfides (50 percent or more galena, pyrite, and sphalerite) are present in strata-bound layers within the carbonaceous sedimentary rocks. Pillow basalts form prominent outcrops on the west side of Macarena Hill and are present northwest of Paradox Hill and in drill core.

Small granodiorite and quartz diorite bodies and numerous andesite, dacite, and feldspar porphyry dikes are scattered throughout the upper basin of Lead Creek (WGM Inc., 1998 [DLR 98-12]). Many of these intrusions are argillically altered, fractured, and sheared; the feldspar is altered to clays, and chlorite occurs along cleavage planes. Galena and sphalerite are sparsely disseminated within granodiorite in a drill hole on Wizard Hill. Fine-grained hornfels and skarn zones in limestone units contain garnet, wollastonite, and pyroxene. Skarns are generally small and spatially related to dikes and (or) sills. A 120-foot-thick intercept of hydrofracture breccia with greater than 25 percent disseminated pyrite that occurs in a drill hole on Pebble Dike Hill is possibly intrusion-related. A pebble dike cuts across limestone on Pebble Dike Hill.

Structural features at the Lead Creek prospect include Triassic to Jurassic thrust faults, folding, and later, north-south-trending and east-southeast-trending high-angle faults (WGM Inc., 1998 [DLR 98-12]). Airborne geophysical data indicate that Lead Creek is on the periphery of a semicircular magnetic zone that contains the Champion II (EA049), North Champion (EA046), East Champion (EA047), and Little Champion Creek (EA051) prospects. An arcuate trend of high conductivity follows topographic contours around the Lead Creek basin, possibly indicating a graphitic unit with the potential for stratiform sulfide mineralization (WGM Inc., 1998 [DLR 98-12]).

Sulfides at Lead Creek predominantly are galena, sphalerite, and pyrite, with trace chalcopyrite (WGM Inc., 1998 [DLR 98-12]). Sphalerite is typically reddish and coarse grained. Silver is closely associated with galena. Pyrite is the most widespread and abundant sulfide, and is present in all rock types. Silicification accompanies much of the sul-

fide mineralization and is especially strong in mineralized limestone. Carbonate alteration is marked by dolomite-ankerite and possibly siderite; the carbonates are primarily found in veins and breccia matrix.

There are four main target areas at the Lead Creek prospect: Nodular Knob, Argent Creek, Wizard Hill, and Paradox Hill (WGM Inc., 1998 [DLR 98-12]). Siliceous nodules and scorodite-cemented nodules found within graphitic schists and phyllite immediately east of Nodular Knob are anomalous in gold, silver, lead, zinc, arsenic, antimony, cadnium, mercury, and bismuth. One nodule contains 2,000 ppb gold, 31.4 ppm silver, greater than 10,000 ppm arsenic, 6 ppm bismuth, 374 ppm antimony, 1,330 ppm copper, 2.82 percent lead, and 744 ppm zinc.

In the Argent Creek area, drilling intersected a stratiform massive sulfide horizon; a 47-foot interval averages 1.4 percent lead, 1.3 percent zinc, and 1.53 ounces of silver per ton (WGM Inc., 1998 [DLR 98-12]). Base metals and abundant pyrite occur in brecciated and sheared carbonaceous shale, argillite, and gray limestone, and are also found as semi-massive replacements of graywacke. Another drill hole (LC-14) in the Argent Creek area has a 31.5 foot intercept with 23.3 ounces of silver per ton and 6.4 percent Pb. The Argent Creek fault has been identified as a possible ore control (Ventures Resource Corp., 2001). Quartz-vein float with iron and manganese oxides and sparse galena was found in sandstone and limestone north of Argent Creek; the float contains 2,500 ppm lead, 4,800 ppm zinc, and 1.8 ppm silver. A weakly developed skarn is exposed on Pebble Dike Hill. Step-out hole LC-15, drilled 430 feet to the southeast of 2000 hole LC-14, has a 50.6 foot intersect with 11.9 ounces of silver per ton, 5.1 percent lead, and 0.2 percent zinc in the same zone as hole LC-14. Mineralization is open west of hole LC-14, but it is tentatively closed off to the east by other 2001 holes (Swainbank and others, 2002; Ventures Resource Corp., 2002).

Paradox Hill contains complex, siliceous, metavolcanic breccias with clasts of quartzite, limestone, siltstone, claystone, basalt, and tuffaceous material (WGM Inc., 1998 [DLR 98-12]). Galena and sphalerite are disseminated within the quartzite clasts and occur as replacements and open-space fillings in silicified breccia matrix and in quartz-carbonate veins. The veins contain as much as 2.82 percent lead, 2.84 percent zinc, and 0.79 ounce of silver per ton. A small amount of sulfide-bearing skarn is also present in core.

At Wizard Hill, sparse pyrite, galena, sphalerite, and chalcopyrite are associated with quartz-carbonate veins in quartzite and graphitic schist. An altered granodiorite contains minor disseminated pyrite, chalcopyrite, galena, and sphalerite (WGM Inc., 1998 [DLR 98-12]).

The Lead Creek prospect was originally identified by stream-sediment sampling conducted by the Alaska Division of Mines and Minerals in 1968 (Smith, 1968). Argentiferous galena float was found on the ridge south of Champion Creek (the west end of Wizard Hill) in 1968 (Foster and Clark, 1970). In 1976, WGM Inc. conducted stream-sediment and soil sampling in the Lead Creek area (WGM Inc., 1998 [DLR 98-12]). In 1977 and 1978, WGM Inc. conducted soil sampling and gridded geophysical surveys, and they drilled about 600 feet of core in three holes. Three EM conductors were identified during a 13.3-mile vertical-loop survey. Analyses of soil, stream-sediment, pan-concentrate, and rock samples from the Lead Creek area are reported in Burleigh and Lear (1994). In 1996, WGM Inc. carried out a mapping and sampling program at Lead Creek and identified new drilling targets. In 1997, WGM Inc. followed up an airborne EM-

magnetics survey, carried out geologic mapping and sampling, and drilled a total of 3,853 feet in seven core holes. WGM Inc. drilled an additional 2,033 feet at Lead Creek in 2000 and 5,464 feet in 2001 and reported high-grade silver-lead mineralization (Ventures Resource Corp., 2001; Ventures Resource Corp., 2002). Additional assay results and the location of drill holes are available on-line at http://www.venturesresource.com.

Alteration:

Some limestones are bleached, silicified, brecciated, and (or) contain weak skarn alteration (WGM Inc., 1998 [DLR 98-12]). Metavolcanic rocks are locally silicified and altered to clay, but the relationship of alteration to mineralization is unclear. Granodiorite porphyry is argillically altered and contains green chlorite along fractures. Many intrusions are argillically altered, fractured, and sheared, with feldspars altered to clays; chlorite occurs along cleavages.

Age of mineralization:

Probably Mesozoic, on the basis of the presence of skarns adjacent to Mesozoic intrusions and a Cretaceous common lead age from galena (Dusel-Bacon and others, in press [in 2003]). The stratiform portion of the deposit could represent replacement of favorable host rocks by pluton-related mineralizing fluids, or less likely a Paleozoic stratabound sulfide deposit.

Deposit model:

Possibly Zn-Pb skarn, polymetallic replacement, or sedimentary exhalative (Cox and Singer, 1986; models 18c, 19a, or 31a).

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

18c, 19a, or 31a

Production Status: None

Site Status: Active

Workings/exploration:

The Lead Creek prospect was originally identified by stream-sediment sampling conducted by the Alaska Division of Mines and Minerals in 1968 (Smith, 1968). Argentiferous galena float was found on the ridge south of Champion Creek (the west end of Wizard Hill) in 1968 (Foster and Clark, 1970). In 1976, WGM Inc. conducted stream-sediment and soil sampling in the Lead Creek area (WGM Inc., 1998 [DLR 98-12]). In 1977 and 1978, WGM Inc. conducted soil sampling and gridded geophysics surveys and they drilled about 600 feet of core in three holes at the prospect. Three EM conductors were identified during a 13.3-mile vertical-loop survey. Analyses of soil, stream - ediment, pan-concentrate, and rock samples from the Lead Creek area are reported in Burleigh and Lear (1994). In 1996, WGM Inc. carried out a mapping and sampling program at Lead Creek and identified new drilling targets. In 1997, WGM Inc. followed up an airborne EM-magnetics survey, carried out geologic mapping and sampling, and drilled a total of 3,853 feet in seven core holes. WGM Inc. drilled an additional 2,033 feet at Lead

Creek in 2000 and 5,464 feet in 2001 (Ventures Resource Corp., 2001; Swainbank and others, 2002; Ventures Resource Corp., 2002). Additional assay results and locations of drill holes are available on-line at http://www.venturesresource.com.

Production notes:

Reserves:

Additional comments:

The Lead Creek prospect is located within Doyon, Ltd. selected or conveyed land. For more information contact Doyon, Ltd., Fairbanks, Alaska.

References:

Smith, 1968; Foster and Clark, 1970; Cobb, 1972 (MF-393); Cobb, 1977 (OFR 77-845); Eberlein and others, 1977; WGM Inc., 1977; Lessman and Holm, 1978 (DLR 78-02); Dashevsky and others, 1986; Burleigh and Lear, 1994; U.S. Bureau of Mines, 1995; Schmidt, 1997; Dusel-Bacon and others, 1998; Swainbank and others, 1998; WGM Inc., 1998 (DLR 98-12); WGM Inc., 2000 (Champion Property Summary); Szumigala and others, 2001; Ventures Resource Corp., 2001; Dusel-Bacon and others, in press [in 2003]; Swainbank and others, 2002; Ventures Resource Corp., 2002.

Primary reference: WGM Inc., 1998 (DLR 98-12)

Reporter(s): M.B. Werdon; D.J. Szumigala

Last report date: 4/7/03

Site name(s): Duval Creek

Site type: Prospect

ARDF no.: EA058

Latitude: 64.3224 **Quadrangle:** EA B-5

Longitude: 143.4065

Location description and accuracy:

The Duval Creek prospect covers about 6 square miles in upper Duval Creek, a small west tributary of the Middle Fork of the Fortymile River, in about the middle of the southwest portion of the Eagle B-5 quadrangle. Duval Creek is not named on the U.S. Geological Survey topographic map of the quadrangle. The coordinates are the approximate center of the prospect, on the bpundary between sections 8 and 9, T. 7 S., R. 22 E., of the Fairbanks Meridian; the location is accurate within 1 mile. The Duval Creek prospect is located within Doyon, Ltd. selected or conveyed land.

Commodities:

Main: W

Other: F

Ore minerals: Scheelite, wolframite?

Gangue minerals: Calc-silicates, fluorite, quartz

Geologic description:

The rocks in the Duval Creek area consist of hornfelsed Paleozoic gneiss, schist, quartzite, amphibolite, and augen gneiss (Foster, 1976). These rocks have been intruded by a large undifferentiated granitic plutonic body of Tertiary to Mesozoic age and various kinds of shallow felsic intrusive rocks. The intrusive rocks are mostly quartz diorite to granodiorite. The metamorphic country rocks occur as roof pendants in the central and southern part of the Duval Creek prospect (Dashevsky and others, 1986). Rhyodacite(?) caps the ridges in the southeastern portion of the prospect and forms a north-south-trending dike swarm in the southwest part. A major fault in the upper part of the Duval Creek valley cuts both the Paleozoic metamorphic rocks and Mesozoic intrusive rocks (Dashevsky and others, 1986).

In the Duval Creek area, tungsten occurs in skarn in roof pendants and along intrusive contacts; mineralization may be related to other tungsten and molybdenum occurrences in the Mount Harper area (for example, the Airplane Ridge prospect, EA093), about 20 km to the southwest (WGM Inc., 1998 [DLR 98-10]). Float of calcareous actinolite schist contains 0.026 percent WO3, and pyritic felsic intrusive rocks contain 0.2 percent tung-

sten (Dashevsky and others, 1986). These two samples were found in an area associated with several tungsten anomalies of as much as 385 ppm in panned heavy-mineral concentrates. Scheelite occurs as disseminated, coarse grains in calc-silicate schist. Scheelite was not observed in some of the tungsten-rich concentrate samples, suggesting that wolframite(?) may also be a source of tungsten anomalies in the area. Quartz-fluorite veinlets and small quartz-filled breccias with trace scheelite occur locally in the central part of the prospect.

Anomalous tungsten was discovered in stream-sediment and heavy-mineral concentrates in Duval Creek during reconnaissance sampling by WGM Inc. in 1978. This work was followed up in 1979 by additional reconnaissance rock, soil, and pan-concentrate sampling, mapping, and minor prospecting with an ultraviolet lamp (Dashevsky and others, 1986; WGM Inc., 1998 [DLR 98-10]). In 1981, Arctic Resources Inc. conducted 10 miles of traverses in the vicinity of the Duval Creek prospect; only four samples were collected, and no significant tactite (skarn) was observed (Dashevsky and others, 1986). In 1991, Central Alaska Gold Company conducted stream-sediment, and rock ,and soil sampling in the Duval Creek prospect area (Central Alaska Gold Co., 1992 [DLR 92-72]).

Alteration:

Age of mineralization:

The tungsten is probably related to Mesozoic or Tertiary intrusive rocks.

Deposit model:

W skarn (Cox and Singer, 1986; model 14a).

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

14a

Production Status: None

Site Status: Probably inactive

Workings/exploration:

Anomalous tungsten was discovered in stream-sediment and heavy-mineral concentrates in Duval Creek during reconnaissance sampling by WGM Inc. in 1978. This work was followed up in 1979 by additional reconnaissance rock, soil, and pan-concentrate sampling, mapping, and minor prospecting with an ultraviolet lamp (Dashevsky and others, 1986; WGM Inc., 1998 [DLR 98-10]). In 1981, Arctic Resources Inc. conducted 10 miles of traverses in the vicinity of the Duval Creek prospect; only four samples were collected,and no significant tactite (skarn) was observed (Dashevsky and others, 1986). In 1991, Central Alaska Gold Company conducted stream-sediment and rock and soil sampling in the Duval Creek prospect area (Central Alaska Gold Co., 1992 [DLR 92-72]).

Production notes:

Reserves:

Additional comments:

The Duval Creek prospect is located within Doyon, Ltd. selected or conveyed land. For more information contact Doyon, Ltd., Fairbanks, Alaska.

References:

Foster, 1976; Lessman, 1979; WGM Inc., 1979; Carter, 1981; Dashevsky and others, 1986; Central Alaska Gold Co., 1992 (DLR 92-70); Central Alaska Gold Co., 1992 (DLR 92-72); Burleigh and Lear, 1994; WGM Inc., 1998 (DLR 98-10).

Primary reference: Dashevsky and others, 1986; WGM Inc., 1998 (DLR 98-10)

Reporter(s): M.B. Werdon; R.L. Flynn

Last report date: 5/1/02

Site name(s): Fish Creek

Site type: Prospect

ARDF no.: EA059

Latitude: 64.3696 **Quadrangle:** EA B-4

Longitude: 142.7636

Location description and accuracy:

Fish Creek is a small south tributary of the Middle Fork of the Fortymile River. The location of placer gold prospecting on Fish Creek is not reported; the coordinates are about 3 miles upstream of the mouth of the creek, in section 27, T. 6 S., R. 25 E., of the Fairbanks Meridian. Fish Creek is locality 26 of Burleigh and Lear (1994).

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:

The rocks along Fish Creek consist of Paleozoic quartz-mica schist, greenschist, biotite schist, quartzite, and marble that have been intruded by Mesozoic hornblende granodiorite and Tertiary felsic igneous rocks (Foster, 1976). Prospecting occurred on Fish Creek in 1912 (Ellsworth and Davenport, 1913). Texas Creek (see EA061) is a tributary of Fish Creek that was prospected for placer gold.

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:
Prospecting occurred on Fish Creek in 1912 (Ellsworth and Davenport, 1913).

Production notes:

Reserves:

Additional comments:

References:
Ellsworth and Davenport, 1913; Brooks, 1914; Powers, 1935; Foster, 1976; Cobb, 1977 (OFR 77-845); Burleigh and Lear, 1994.

Primary reference: Ellsworth and Davenport, 1913

Reporter(s): M.B. Werdon; R.L. Flynn

Last report date: 5/1/02

Site name(s): Little Whiteman Creek

Site type: Prospect

ARDF no.: EA060

Latitude: 64.2896 **Quadrangle:** EA B-4

Longitude: 142.8337

Location description and accuracy:
The exact location of the Little Whiteman Creek prospect is unknown. The coordinates are for the midpoint of the creek, in section 20, T. 7 S., R. 25 E., of the Fairbanks Meridian.

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:
The rocks in the vicinity of Little Whiteman Creek are Paleozoic quartzite, schist, marble, and greenstone that have been intruded by Mesozoic granodiorite and quartz monzonite stocks and Jurassic syenite dikes (Foster, 1976; WGM Inc., 1998 [DLR 98-10]). Little Whiteman Creek was drilled to a limited extent for placer gold, and some gold was found (Burleigh and Lear, 1994). No details are known.

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: Undetermined

Workings/exploration:

Production notes:

Reserves:

Additional comments:

References:

Foster, 1976; Burleigh and Lear, 1994; WGM Inc., 1998 (DLR 98-10).

Primary reference: Burleigh and Lear, 1994

Reporter(s): M.B. Werdon

Last report date: 5/1/02

Site name(s): Texas Creek

Site type: Prospect

ARDF no.: EA061

Latitude: 64.2705 **Quadrangle:** EA B-4

Longitude: 142.7385

Location description and accuracy:

Texas Creek is a small southwest tributary of Fish Creek. Texas Creek is not labeled on the U.S. Geological Survey topographic map of the Eagle B-4 quadrangle (1956). The location of prospecting on Texas Creek is uncertain; the coordinates are arbitrarily placed about 1.5 miles upstream of the mouth of the creek,in section 26, T. 7 S., R. 25 E., of the Fairbanks Meridian. The location is only accurate within 1.5 miles. Texas Creek is locality 28 of Burleigh and Lear (1994).

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:

Bedrock along Texas Creek consists of Paleozoic schist, greenschist, quartzite, and marble that have been intruded by Mesozoic hornblende granodiorite (Foster, 1976). Good placer gold prospects were reported on Texas Creek in 1914 (Brooks, 1915).

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:
Good placer gold prospects were reported on Texas Creek in 1914 (Brooks, 1915).

Production notes:

Reserves:

Additional comments:

References:
Brooks, 1915; Foster, 1976; Cobb, 1977 (OFR 77-845); Burleigh and Lear, 1994.

Primary reference: Brooks, 1915

Reporter(s): M.B. Werdon; R.L. Flynn

Last report date: 5/1/02

Site name(s): Unnamed (north of Fish Creek)

Site type: Prospect

ARDF no.: EA062

Latitude: 64.2552 **Quadrangle:** EA B-4

Longitude: 142.7017

Location description and accuracy:

This prospect covers the drainages of several tributaries of Fish Creek. The prospect is about 0.6 mile northwest of hill 4280 near the center of the southern boundary of the Eagle B-4 quadrangle. The coordinates are the location of a quartz-carbonate vein and gossan zone at the headwaters of Texas Creek sampled by the U.S. Bureau of Mines (1995), in the NE1/4 section 1, T. 8 S., R. 25 E., of the Fairbanks Meridian. Texas Creek, a small tributary of Fish Creek, is not labeled on the U.S. Geological Survey topographic map of the Eagle B-4 quadrangle (1956); its mouth is located in the NE1/4 section 24, T. 7 S., R. 25 E., of the Fairbanks Meridian. The location is accurate. This prospect is located within Doyon, Ltd. selected or conveyed land.

Commodities:

Main: Cu, Pb, Zn

Other:

Ore minerals:

Gangue minerals: Carbonate, quartz

Geologic description:

In upper Fish Creek, Paleozoic metasedimentary and metavolcanic rocks are intruded by Mesozoic to early Tertiary(?) biotite-hornblende quartz monzonite and granodiorite stocks (Dashevsky and others, 1986). Hornfelsed metamorphic rocks are common near the contact of a quartz monzonite pluton. Quartz-carbonate veins and a gossan zone are present in the headwaters of Texas Creek (see EA061). Mineralization in one drainage appears to be associated with a 5- to 10-foot-wide gossan zone along a north-south-trending fault zone at a contact of granodiorite and metasedimentary rock. Gossan samples from the fault zone contain 8 to 24 percent zinc, as much as 2,000 ppm lead, and as much as 200 ppm copper. Samples collected from gossan and silicified zones contain greater than 30,000 ppm zinc, as much as 6,424 ppm lead, and 12 ppm silver (U.S. Bureau of Mines, 1995). Five VLF lines run at right angles to the trend of the fault zone showed 'crossovers' probably related to the fault. The geology in the prospect area is considered permissive for skarn, structurally controlled, or stratabound deposits (Dashevsky

and others, 1986). There has been placer gold prospecting Fish Creek (EA059) and Texas Creek (EA061) to the north and west of this prospect.

Sulfides in the area were first noted by Foster (1976). Reconnaissance stream-sediment sampling was done in the upper Fish Creek drainage in 1976 by WGM Inc. (Dashevsky and others, 1986). Initial reconnaissance sampling detected elevated zinc and lead in stream sediments (600 to 1,000 ppm zinc, and 60 to150 ppm lead) in several tributaries to Fish Creek. In 1977, WGM Inc. conducted reconnaissance traverses and soil and rock sampling, and fill-in stream sediment sampling. In 1981, Arctic Resources Inc. conducted ridgeline traverses and ran a soil sampling line across the north-south-trending fault zone. Soils with elevated lead and zinc were found west of the fault in hornfels and quartzite, but no mineralization was observed. In 1991, Central Alaska Gold Co. conducted rock sampling in the area; no gold was detected in any samples (WGM Inc., 1998 [DLR 98-10]). The U.S. Bureau of Mines briefly examined the Fish Creek area in 1994. Soil sampling and mapping by WGM Inc. in 2001 resulted in defining a steeply dipping metal-enriched shear zone that extends uninterrupted for 4,800 feet across a high ridge-crest to the edge of the soil grid. The zone is defined by zinc, lead, silver, copper, bismuth, arsenic, antimony, cadmium, and manganese anomalies. All zinc values exceed 1,000 ppm for the entire 4,800 feet. In mirror-image 1,200-foot segments on opposite sides of the ridge, all zinc values exceed 5,000 ppm. Near the south end of the soil grid a second polymetallic anomaly appears and is also open off the grid to the south. Gossan float extends 1,200 feet down the north and south slopes from the ridge crest. Twenty-eight grab samples average 11.6 percent zinc, 0.13 percent lead, and 18.7 ppm silver. Highest values are 28 percent zinc and 215 ppm (6.3 ounces per ton) silver. The mineralized zone thickness is estimated at 50 to 75 feet, based on gossan distribution (Swainbank and others, 2002; Ventures Resource Corp., 2002).

Alteration:

Age of mineralization:

Paleozoic metasedimentary and metavolcanic rocks are intruded by Mesozoic to early Tertiary(?) biotite-hornblende quartz monzonite and granodiorite stocks in the upper Fish Creek drainage (Dashevsky and others, 1986).

Deposit model:

Geologically permissible as a base-metal skarn, or a structurally-controlled base-metal deposit (Dashevsky and others, 1986).

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

Production Status: None

Site Status: Probably inactive

Workings/exploration:

Sulfides in the area were first noted by Foster (1976). Reconnaissance stream-sediment sampling was done in the upper Fish Creek drainage in 1976 by WGM Inc. (Dashevsky

and others, 1986). Initial reconnaissance sampling detected elevated zinc and lead in stream sediments (600 to 1,000 ppm zinc, and 60 to150 ppm lead) in several tributaries to Fish Creek. In 1977, WGM Inc. conducted reconnaissance traverses and soil and rock sampling and fill-in stream sediment sampling. In 1981, Arctic Resources Inc. conducted ridgeline traverses and ran a soil sampling line across the north-south-trending fault zone. Soils with elevated lead and zinc were found west of the fault in hornfels and quartzite, but no mineralization was observed. In 1991, Central Alaska Gold Co. conducted rock sampling in the area; no gold was detected in any samples (WGM Inc., 1998 [DLR 98-10]). The U.S. Bureau of Mines briefly examined the Fish Creek area in 1994. Soil sampling and mapping by WGM Inc. in 2001 resulted in defining a steeply dipping metal-enriched shear zone that extends uninterrupted for 4,800 feet across a high ridgecrest to the edge of the soil grid. The zone is defined by zinc, lead, silver, copper, bismuth, arsenic, antimony, cadmium, and manganese anomalies. All zinc values exceed 1,000 ppm for the entire 4,800 feet. In mirror-image 1,200-foot segments on opposite sides of the ridge, all zinc values exceed 5,000 ppm. Near the south end of the soil grid a second polymetallic anomaly appears and is also open off the grid to the south. Gossan float extends 1,200 feet down the north and south slopes from the ridge crest. Twenty-eight grab samples average 11.6 percent zinc, 0.13 percent lead, and 18.7 ppm silver. Highest values are 28 percent zinc and 215 ppm (6.3 ounces per ton) silver. The mineralized zone thickness is estimated at 50 to 75 feet, based on gossan distribution (Swainbank and others, 2002; Ventures Resource Corp., 2002).

Production notes:

Reserves:

Additional comments:

This prospect is located within Doyon, Ltd. selected or conveyed land. For more information contact Doyon, Ltd., Fairbanks, Alaska.

References:

Foster, 1976; WGM Inc., 1977; Lessman and Holm, 1978 (DLR 78-02); Carter, 1981; Dashevsky and others, 1986; Central Alaska Gold Co., 1992 (DLR 92-70); Central Alaska Gold Co., 1992 (DLR 92-72); Burleigh and Lear, 1994; U.S. Bureau of Mines, 1995; WGM Inc., 1998 (DLR 98-10); Swainbank and others, 2002; Ventures Resource Corp., 2002.

Primary reference: Dashevsky and others, 1986; U.S. Bureau of Mines, 1995

Reporter(s): M.B. Werdon; R.L. Flynn; D.J. Szumigala

Last report date: 4/7/03

Site name(s): The Kink; North Fork of the Fortymile River

Site type: Mine

ARDF no.: EA063

Latitude: 64.3862 **Quadrangle:** EA B-3

Longitude: 142.0247

Location description and accuracy:

The Kink is a meander in the North Fork of the Fortymile River that was artificially cut off (Brooks, 1904). The Kink is labeled on the U.S. Geological Survey topographic map of the Eagle B-3 quadrangle (1956); the coordinates are the location where the meander wall was blasted through, in section 20, T. 6 S., R. 29 E., of the Fairbanks Meridian. The location is accurate within 100 feet. The Kink is locality 33 of Burleigh and Lear (1994), locality 45 of Eberlein and others (1977), and locality 46 of Cobb (1972 [MF-393]).

Commodities:

Main: Au

Other: Sn

Ore minerals: Cassiterite, gold

Gangue minerals:

Geologic description:

The rocks in the vicinity of The Kink are Paleozoic quartz-biotite-garnet schist (Prindle, 1905). Other rocks include Mesozoic or Tertiary granitic rocks and Paleozoic schist, quartzite, marble, gneiss, and amphibolite (Foster, 1976).

In 1903, prospectors blasted through a ridge separating two arms of a meander to re-route the North Fork of the Fortymile River (Brooks, 1904). The meander was physically cut off to allow placer mining of the drained meander (see photo plates in Prindle, 1905). Mining or prospecting activity is reported during the years 1905, 1920, 1933, and 1934 (Cobb, 1977 [OFR 77-845]). A dredge was moved to The Kink around 1912(?), but it was not a success, and the dredge was idle in 1936 (Mertie, 1938). Placer cassiterite is common at The Kink (Joesting, 1943).

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: Probably inactive

Workings/exploration:
In 1903, prospectors blasted through a ridge separating two arms of a meander to re-route the North Fork of the Fortymile River (Brooks, 1904). The meander was physically cut off to allow placer mining of the drained meander (see photo plates in Prindle, 1905). Mining or prospecting activity is reported during the years 1905, 1920, 1933, and 1934 (Cobb, 1977 [OFR 77-845]). A dredge was moved to The Kink around 1912(?), but it was not a success, and the dredge was idle in 1936 (Mertie, 1938). Placer cassiterite is common at The Kink (Joesting, 1943).

Production notes:

Reserves:

Additional comments:

References:
Brooks, 1904; Brooks, 1905; Prindle, 1905; Prindle, 1906 (B 284); Brooks, 1922; Mertie, 1937; Mertie, 1938; Joesting, 1943; Cobb, 1972 (MF-393); Foster, 1976; Cobb, 1977 (OFR 77-845); Eberlein and others, 1977; Mitchell, 1988; Burleigh and Lear, 1994.

Primary reference: Brooks, 1904; Mertie, 1938

Reporter(s): M.B. Werdon

Last report date: 5/1/02

Site name(s): Unnamed (north of Montana Creek)

Site type: Occurrence

ARDF no.: EA064

Latitude: 64.3523 **Quadrangle:** EA B-3

Longitude: 142.3558

Location description and accuracy:

This occurrence is on a ridgeline at an elevation of 4,100 feet about 2.8 miles northwest of the junction of Montana Creek and Hutchinson Creek. The occurrence is in section 34, T. 6 S., R. 27 E., of the Fairbanks Meridian. The location is accurate.

Commodities:

Main: Au

Other:

Ore minerals:

Gangue minerals:

Geologic description:

The rocks in the vicinity of this occurrence are Paleozoic amphibolite-facies metamorphic rocks that are cut by high-angle faults and intruded by bimodal hypabyssal Tertiary felsic rocks, basalt, and gabbro (Foster, 1976; M.B. Werdon, unpub. mapping, 2000). The Tertiary igneous rocks have a distinctive geophysical signature as seen in airborne survey data (Alaska Division of Geological and Geophysical Surveys and others, 1999). The felsic volcanic rocks are rhyolitic to dacitic and are quartz and (or) feldspar porphyritic. A small, 1-foot-deep trench was dug at some unknown date in an area of quartz-veined felsic igneous rocks. Volcanic rocks cut and brecciated by milky, vuggy, crystalline, hydrothermal quartz contain as much as 85 ppb gold and 7.6 ppm silver (Werdon and others, 2000).

Alteration:

Age of mineralization:

Tertiary.

Deposit model:

Possibly epithermal veins? (Cox and Singer, 1986; model 25c?).

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

Production Status: None

Site Status: Undetermined

Workings/exploration:
A small, 1-foot-deep trench was dug at an unknown date in an area of quartz-veined felsic igneous rocks. Samples from the trench was assayed by geologists from the Alaska Division of Geological and Geophysical Surveys in 2000 (Werdon and others, 2000).

Production notes:

Reserves:

Additional comments:

References:
Foster, 1976; Alaska Division of Geological and Geophysical Surveys and others, 1999; Werdon and others, 2000.

Primary reference: Werdon and others, 2000

Reporter(s): M.B. Werdon

Last report date: 5/1/02

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

Site type: Occurrence

ARDF no.: EA065

Latitude: 64.3325 **Quadrangle:** EA B-3

Longitude: 142.3627

Location description and accuracy:
This occurrence is on a ridge top at an elevation of about 4,400 feet about 1.9 miles northwest of the mouth of Montana Creek. The occurrence is in section 3, T. 7 S., R. 27 E., of the Fairbanks Meridian. The location is accurate within 1 mile.

Commodities:

Main: As, Pb, Sn

Other:

Ore minerals:

Gangue minerals:

Geologic description:
The rocks along Montana Creek are Paleozoic biotite schist, quartzite, and marble (Foster, 1976). These metamorphic rocks are intruded by Tertiary felsic and mafic dikes and other small intrusions; most of these rocks are fine grained and porphyritic and may be shallow hypabyssal intrusions; volcanic rocks are also present (Foster and Clark, 1970). A quartz porphyry dike about 30 feet wide on the ridge north of Montana Creek contains as much as 50 ppm tin, 150 ppm lead, and 1,000 ppm arsenic (Foster and Clark, 1970).

Alteration:

Age of mineralization:
Tertiary or younger.

Deposit model:
Possibly Comstock epithermal veins (Cox and Singer, 1986; model 25c?).

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

Production Status: None

Site Status: Undetermined

Workings/exploration:

Production notes:

Reserves:

Additional comments:

References:

Foster and Clark, 1970; Foster, 1976.

Primary reference: Foster and Clark, 1970

Reporter(s): M.B. Werdon

Last report date: 5/1/02

Site name(s): Hutchinson Creek

Site type: Mine

ARDF no.: EA066

Latitude: 64.3184 **Quadrangle:** EA B-3

Longitude: 142.3127

Location description and accuracy:

Hutchinson Creek is a southwest tributary of the North Fork of the Fortymile River. Placer workings on Hutchinson Creek are present near the mouth of Montana Creek in section 12, T. 7 S., R. 27 E., of the Fairbanks Meridian. The location is accurate. Hutchinson Creek is locality 30 of Burleigh and Lear (1994), locality 34 of Eberlein and others (1977), and locality 44 of Cobb (1973 [MF-393]).

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:

The rocks along Hutchinson Creek are Paleozoic amphibolite-facies schist, quartzite, marble, gneiss, and amphibolite; they have been intruded by Mesozoic pyroxenite and hornblendite. Scattered Tertiary shallow intrusive and volcanic rocks are also present (Foster, 1976).

Five men were mining gold on Hutchinson Creek and its tributaries in 1910 (Prindle, 1913). Foster and Clark (1970) collected 32 stream-sediment and rock samples in the Hutchinson Creek drainage in 1968; they detected silver in 16 samples and zinc in 27 samples. Several tributaries of Hutchinson Creek produced placer gold, including Montana Creek (EA067) and Confederate Creek (EA068). WGM Inc. conducted a reconnaissance of streams draining Mount Warbelow in 1978 by panning concentrates from stream sediments. Arctic Resources Inc. panned stream sediments from tributaries of Hutchinson Creek tributaries in 1981 for gold (WGM Inc., 1998 [DLR 98-10]).

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:
Five men were mining gold on Hutchinson Creek and its tributaries in 1910 (Prindle, 1913). Foster and Clark (1970) collected 32 stream sediment and rock samples in the Hutchinson Creek drainage in 1968; they detected silver in 16 samples, and zinc in 27 samples. Several tributaries of Hutchinson Creek produced placer gold, including Montana Creek (EA067) and Confederate Creek (EA068). WGM Inc. conducted a reconnaissance of streams draining Mount Warbelow in 1978 by panning concentrates from stream sediments. Arctic Resources Inc. panned stream sediments from tributaries of Hutchinson Creek tributaries in 1981 for gold (WGM Inc., 1998 [DLR 98-10]).

Production notes:

Reserves:

Additional comments:

References:
Prindle, 1905; Ellsworth and Parker, 1911; Ellsworth and Davenport, 1913; Prindle, 1913; Powers, 1935; Foster and Clark, 1970; Cobb, 1972 (MF-393); Foster, 1976; Cobb, 1977 (OFR 77-845); Swainbank and others, 1993; Burleigh and Lear, 1994; WGM Inc., 1998 (DLR 98-10).

Primary reference: Prindle, 1913; Foster and Clark, 1970

Reporter(s): M.B. Werdon; R.L. Flynn

Last report date: 5/1/02

Site name(s): Montana Creek

Site type: Mine

ARDF no.: EA067

Latitude: 64.3174 **Quadrangle:** EA B-3

Longitude: 142.3410

Location description and accuracy:

Montana Creek is a small west tributary of Hutchinson Creek. The placer workings are located near the mouth of Montana Creek, in section 11, T. 7 S., R. 27 E., of the Fairbanks Meridian. The location is accurate. Montana Creek is locality 31 of Burleigh and Lear (1994) and locality 44 of Cobb (1973 [MF-393]).

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:

The rocks along Montana Creek are Paleozoic biotite schist, quartzite, and marble (Foster, 1976). These metamorphic rocks are intruded by Tertiary felsic and mafic dikes and other small intrusions (Foster and Clark, 1970).

In 1902, prospecting showed good results near the mouth of Montana Creek (Prindle, 1905). Mining was reported on Montana Creek in several years from 1902 to 1912. In 1968, Foster and Clark (1970) collected stream-sediment and rock samples in the drainage of Hutchinson Creek, including Montana Creek. WGM Inc. conducted a reconnaissance of streams draining Mount Warbelow in 1978 by panning concentrates from stream sediments. Arctic Resources Inc. panned stream sediments from tributaries of Hutchinson Creek 1981 for gold but did not find significant anomalies (WGM Inc., 1998 [DLR 98-10]). Placer gold has also been produced on Hutchinson Creek (EA066) near the mouth of Montana Creek.

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:
In 1902, prospecting showed good results near the mouth of Montana Creek (Prindle, 1905). Mining was reported on Montana Creek in several years from 1902 to 1912. In 1968, Foster and Clark (1970) collected stream-sediment and rock samples in the drainage of Hutchinson Creek, including Montana Creek. WGM Inc. conducted a reconnaissance of streams draining Mount Warbelow in 1978 by panning concentrates from stream sediments. Arctic Resources Inc. panned stream sediments from tributaries of Hutchinson Creek 1981 for gold but did not find significant anomalies (WGM Inc., 1998 [DLR 98-10]). Placer gold has also been produced on Hutchinson Creek (EA066) near the mouth of Montana Creek.

Production notes:

Reserves:

Additional comments:

References:
Prindle, 1905; Brooks, 1906; Prindle, 1906 (B 284); Prindle, 1906 (B 295); Prindle, 1908; Ellsworth and Parker, 1911; Ellsworth and Davenport, 1913; Prindle, 1913; Powers, 1935; Foster and Clark, 1970; Cobb, 1972 (MF-393); Foster, 1976; Cobb, 1977 (OFR 77-845); Burleigh and Lear, 1994; WGM Inc., 1998 (DLR 98-10).

Primary reference: Prindle, 1905; Foster and Clark, 1970

Reporter(s): M.B. Werdon; R.L. Flynn

Last report date: 5/1/02

Site name(s): Confederate Creek; Coldfoot Creek

Site type: Mine

ARDF no.: EA068

Latitude: 64.2843 **Quadrangle:** EA B-3

Longitude: 142.3403

Location description and accuracy:

Confederate Creek is a small west headwater tributary of Hutchinson Creek. Confederate Creek has also been known as Coldfoot Creek. The location of placer gold mining on Confederate Creek is not reported; the coordinates are about 1 mile upstream of the mouth of the creek, in section 26, T. 7 S., R. 27 E., of the Fairbanks Meridian. Confederate Creek is locality 45 of Cobb (1973 [MF-393]) and locality 29 of Burleigh and Lear (1994).

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:

The rocks along Confederate Creek are Paleozoic amphibolite-facies rocks that include gneiss, amphibolite, schist, quartzite, and marble (Foster, 1976). Approximately 6 feet of gravel overlies schist on Confederate Creek (Prindle, 1905). Hutchinson Creek (EA066) had placer gold production downstream of Confederate Creek.

Two men were working on Confederate Creek in 1903, but in 1910 it was too dry for mining (Prindle, 1905; Ellsworth and Parker, 1911). Work on Confedrate Creek continued in 1912 (Ellsworth and Davenport, 1913). In 1968, stream-sediment and rock samples were collected in the Hutchinson Creek drainage, including Confederate Creek (Foster and Clark, 1970). WGM Inc. conducted a reconnaissance of streams draining nearby Mount Warbelow by panning stream sediments in 1978, and Arctic Resources Inc. collected panned stream sediments in the tributaries of Hutchinson Creek in 1981, but gold was not detected (WGM Inc., 1998 [DLR 98-10]).

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:
Two men were working on Confederate Creek in 1903, but in 1910 it was too dry for mining (Prindle, 1905; Ellsworth and Parker, 1911). Work on Confedrate Creek continued in 1912 (Ellsworth and Davenport, 1913). In 1968, stream sediment and rock samples were collected in the Hutchinson Creek drainage, including Confederate Creek (Foster and Clark, 1970). WGM Inc. conducted a reconnaissance of streams draining nearby Mount Warbelow by panning stream sediments in 1978, and Arctic Resources Inc. collected panned stream sediments in the tributaries of Hutchinson Creek in 1981, but gold was not detected (WGM Inc., 1998 [DLR 98-10]).

Production notes:

Reserves:

Additional comments:

References:
Prindle, 1905; Ellsworth and Parker, 1911; Ellsworth and Davenport, 1913; Prindle, 1913; Powers, 1935; Cobb, 1972 (MF-393); Foster, 1976; Cobb, 1977 (OFR 77-845); Burleigh and Lear, 1994; WGM Inc., 1998 (DLR 98-10).

Primary reference: Prindle, 1905

Reporter(s): M.B. Werdon; R.L. Flynn

Last report date: 5/1/02

Site name(s): Unnamed (in headwaters of Alder Creek)

Site type: Occurrence

ARDF no.: EA069

Latitude: 64.4410 **Quadrangle:** EA B-2

Longitude: 141.8002

Location description and accuracy:

This prospect occurs near the headwaters of Alder Creek near hill 4075. The coordinates are the location of the occurrence, in section 33, T. 5 S., R. 30 E., of the Fairbanks Meridian. The location is accurate within one-half mile. There is another Alder Creek lode prospect (EA013) in the Eagle D-3 quadrangle. This occurrence is located within Doyon, Ltd. selected or conveyed land.

Commodities:

Main: Ag, Mo, Zn

Other:

Ore minerals:

Gangue minerals:

Geologic description:

This occurrence is in graphitic argillite (Dashevsky and others, 1986). It is adjacent to or on a regionally extensive, west-northwest-trending contact between greenschist-facies quartz-mica schist and greenschist and amphibolite-facies biotite gneiss and amphibolite, both of probable Paleozoic age. Unidentified disseminated sulfides were noted in bedrock by Foster (1976) during regional mapping of the area. WGM Inc. conducted reconnaissance stream-sediment sampling and float examination in the area in 1976 (Dashevsky and others, 1986). Stream -ediment samples contain 400 to 500 ppm zinc, 0.9 to 1.8 ppm silver, and 15 ppm molybdenum.

Alteration:

Age of mineralization:

Deposit model:

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

Production Status: None

Site Status: Inactive

Workings/exploration:

Unidentified disseminated sulfides were noted in bedrock by Foster (1976) during regional mapping of the area. WGM Inc. conducted reconnaissance stream-sediment sampling and float examination in the area in 1976 (Dashevsky and others, 1986).

Production notes:

Reserves:

Additional comments:

This occurrence is located within Doyon, Ltd. selected or conveyed land. For more information contact Doyon, Ltd., Fairbanks, Alaska.

References:

Foster, 1976; WGM Inc., 1977; Dashevsky and others, 1986.

Primary reference: Dashevsky and others, 1986

Reporter(s): R.L. Flynn; M.B. Werdon

Last report date: 5/1/02

Site name(s): Wilson Creek; Joe Wilson Creek

Site type: Prospect

ARDF no.: EA070

Latitude: 64.2604 **Quadrangle:** EA B-2

Longitude: 141.9332

Location description and accuracy:

Wilson Creek is a small southwest tributary of the North Fork of the Fortymile River; its mouth is about 5 miles upstream from the junction of the South Fork and North Fork of the Fortymile River. The location of placer gold prospecting on Wilson creek is not reported. The coordinates are about 1 mile upstream of the mouth of the creek ,in section 35, T. 7 S., R. 29 E., of the Fairbanks Meridian. The location is accurate to within about 1 mile. Wilson Creek is locality 72 of Burleigh and Lear (1994).

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:

The rocks along Wilson Creek are Paleozoic gneiss and amphibolite with local marble (Foster, 1976). Quaternary terrace-gravel deposits are extensive along the North Fork of the Fortymile River near the mouth of Wilson Creek. In the early 1900's prospecting on Wilson Creek found low-grade pay (Powers, 1935). Mining occurred on Joe Wilson Creek in 1935 (Smith, 1937).

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:

In the early 1900's prospectors on Wilson Creek found low-grade pay (Powers, 1935). Mining occurred on Joe Wilson Creek in 1935 (Smith, 1937).

Production notes:

Reserves:

Additional comments:

References:

Powers, 1935; Smith, 1937; Cobb, 1972 (MF-393); Foster, 1976; Bundtzen and others, 1990; Burleigh and Lear, 1994.

Primary reference: Powers, 1935

Reporter(s): M.B. Werdon; R.L. Flynn

Last report date: 5/1/02

Site name(s): Fortymile River (from mouth of Franklin Creek to Canadian border)

Site type: Mines

ARDF no.: EA071

Latitude: 64.3086 **Quadrangle:** EA B-1, B-2, A-2

Longitude: 141.4069

Location description and accuracy:

The Fortymile River is the major river cutting through the Fortymile mining district. This record includes all references to placer mining on the Fortymile River, from the mouth of Franklin Creek (see EA116) downstream to the Canadian border. The coordinates are arbitrarily placed at the Taylor Highway bridge on the lower Fortymile River. The lower Fortymile River is locations 60, 62, 64, and 65 of Cobb (1972 [MF-393]), location 28 of Eberlein and others (1977), and locations 35 to 69 of Burleigh and Lear (1994).

Commodities:

Main: Au

Other: Sn, W

Ore minerals: Cassiterite, gold, scheelite

Gangue minerals:

Geologic description:

The Fortymile River is the major river cutting through the Fortymile mining district, and it is a significant producer of placer gold. The lower Fortymile River follows an entrenched meandering course in a steep-walled canyon that cuts through Paleozoic amphibolite-facies metamorphic rocks that have been intruded by Tertiary to Mesozoic plutons and dikes (Foster, 1976). The Fortymile River has a gradient of about 9 feet per mile (Yeend, 1996). Placer gold is the primary commodity recovered from the Fortymile River valley, but cassiterite and scheelite are locally found in concentrates. Placer gold has been recovered primarily from gravel bars along the Fortymile River, but gold has also been recovered from riffles in the active river channel and from gravels on terrace benches. There are extensive terrace gravel deposits along both sides of the river, located on benches that are as high as 230 meters above the valley bottom (Pinney, 2001). The Fortymile River has at least 10 gold-bearing tributaries in Alaska that contribute gold to it. Placers of the Fortymile River are naturally renewing, with new material added during each flood (Cobb, 1973 [B 1374]). Cracks and crevices in fractured bedrock provide an excellent surface for retaining gold (Prindle, 1909). Bedrock with steeply dipping folia-

tion that is obliquely transverse to the river and locally abundant potholes trap gold on the Fortymile River (Yeend, 1996).

Gold in the Fortymile River occurs as fine flakes and can almost always be recovered when sampling gravel at the gravel-bedrock contact in the floodplain (Yeend, 1996). Gravels are largely restricted to bars scattered along the river. Well-rounded to sub-rounded boulders and cobbles elsewhere are generally 4 to 8 inches in diameter and locally form a pavement on the valley floors. The gravel thickness in the river bed is generally 1 meter or less, although locally it is as thick as 33 feet. Porter (1912) observed that near the mouth of Franklin Creek, gold seemed not to be deposited across the entire bed of the stream but mainly along the sides or inside edges of curves.

Placer gold was discovered near the mouth of the Fortymile River in the Yukon Territory, Canada, in 1886, and gravel bars were mined. Gold was discovered on Franklin Gulch (EA116) in Alaska in 1887 (Spurr, 1898). In the late 1800's and early 1900's, Fortymile River bars were worked using rocker boxes and small-scale hydraulic methods, utilizing water from tributaries. Several dredges have operated on the lower Fortymile River at various times (Yeend, 1996). Winter mining has occasionally been carried out on the Fortymile River.

The gravel bar opposite Smith Creek was first worked in 1887 and produced approximately $500,000 in gold in the early years of work. Discovery Bar, located about 2 miles downstream from Canyon Creek (EA143), produced approximately $80,000 in gold in the early years of mining on the Fortymile River (Prindle, 1909). About 35 miners produced gold valued at $25,000 on the Fortymile River in 1893 (Spurr, 1898). (All the early mined gold was valued at $20.67 per ounce.) There are reports of bar mining on the Fortymile River in most years between 1903 and 1940. In 1907, a dredge was operating on the Fortymile River near the international border, and another dredge was in the process of being installed on Pump Bar below the mouth of Franklin Creek (see EA116) (Prindle, 1908). Production from Fortymile River bars totalled 2,228 fine ounces of gold from 1904 to 1907 (Prindle, 1908). The dredge on Pump Bar was wrecked by spring flooding in 1908 (Brooks, 1909). A small dredge operated near the border on the Fortymile River in 1910 (Ellsworth and Parker, 1911). In 1911, the small dredge near the border was sunk in spring breakup, and the Mulvane dredge began operation at Pump Bar (Porter, 1912). In 1912, in addition to bar mining, there was bench mining at Bonanza and Discovery Bars, a small dredge operating near the border, and the dredge near Franlklin Creek working upstream (Ellsworth and Davenport, 1913). Gold placers were found in bench deposits near the mouth of Steele Creek in 1916 (Brooks, 1918). In 1917, a small dredge operated near the town of Franklin, and bench mining on the Fortymile River was proving very good (Martin, 1919). There are no reports of dredging or other extensive operations on the lower Fortymile River after 1917, although reports of bar mining continue for most years until 1940. Saunders (1957) reported an active placer gold mining operation just downstream of the Taylor Highway bridge in 1957. The gold price rise in the late 1970's caused a renewed interest in placer mining throughout Alaska, and numerous floating suction dredge operations appeared on the Fortymile River in the 1980's and 1990's; there were as many as 20 separate operations on the Fortymile River in 1992 (Yeend, 1996). Suction dredging continues to be actively pursued on the Fortymile River in 2002.

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; medium

Site Status: Active

Workings/exploration:
Placer gold was discovered near the mouth of the Fortymile River, in the Yukon Territory, Canada in 1886 and gravel bars were mined. Gold was discovered on Franklin Gulch (see EA116) in Alaska in 1887 (Spurr, 1898). In the late 1800's and early 1900's, Fortymile River bars were worked using rocker boxes and small-scale hydraulic methods, utilizing water from tributaries. Several dredges have operated on the lower Fortymile River at various times (Yeend, 1996). Winter mining has occasionally been carried out on the Fortymile River.

The gravel bar opposite Smith Creek was first worked in 1887 and produced approximately $500,000 in gold in the early years of work. Discovery Bar, located about 2 miles downstream from Canyon Creek (see EA143), produced approximately $80,000 in gold in the early years of mining on the Fortymile River (Prindle, 1909). About 35 miners produced gold valued at $25,000 on the Fortymile River in 1893 (Spurr, 1898). (All the early mined gold was valued at $20.67 per ounce.) There are reports of bar mining on the Fortymile River in most years between 1903 and 1940. In 1907, a dredge was operating on the Fortymile River near the international border, and another dredge was in the process of being installed on Pump Bar, below the mouth of Franklin Creek (EA116; Prindle, 1908). Production from Fortymile River bars totalled 2,228 fine ounces of gold from 1904 to 1907 (Prindle, 1908). The dredge on Pump Bar was wrecked by spring flooding in 1908 (Brooks, 1909). A small dredge operated near the border on the Fortymile River in 1910 (Ellsworth and Parker, 1911). In 1911, the small dredge near the border was sunk in spring breakup, and the Mulvane dredge began operation at Pump Bar (Porter, 1912). In 1912, in addition to bar mining, there was bench mining at Bonanza and Discovery Bars, a small dredge operating near the border, and the dredge near Franlklin Creek (EA116) working upstream (Ellsworth and Davenport, 1913). Gold placers were found in bench deposits near the mouth of Steele Creek in 1916 (Brooks, 1918). In 1917, a small dredge operated near the town of Franklin, and bench mining on the Fortymile River was proving very good (Martin, 1919). There are no reports of dredging or other extensive operations on the lower Fortymile River after 1917, although reports of bar mining continue for most years until 1940. Saunders (1957) reported an active placer gold mining operation just downstream of the Taylor Highway bridge in 1957. The gold price rise in the late 1970's caused a renewed interest in placer mining throughout Alaska, and numer-

ous floating suction dredge operations appeared on the Fortymile River in the 1980's and 1990's; there were as many as 20 separate operations on the Fortymile River in 1992 (Yeend, 1996). Suction dredging continues to be actively pursued on the Fortymile River in 2002.

Production notes:

The gravel bar opposite Smith Creek was first worked in 1887 and produced approximately $500,000 (dollar value at that time) in gold in the early years of work (Prindle, 1909). Discovery Bar, about 2 miles downstream from Canyon Creek (see EA143), produced approximately $80,000 (dollar value at that time) in gold in the early years of mining on the Fortymile River (Prindle, 1909). A mining population of 35 produced $25,000 (1893 dollars) on the Fortymile River in 1893 (Spurr, 1898).

Reserves:

Additional comments:

References:

Spurr, 1898; Brooks, 1903; Prindle, 1905; Prindle, 1906 (B 284); Brooks, 1907; Prindle, 1908; Brooks, 1909; Prindle, 1909; Ellsworth and Parker, 1911; Porter, 1912; Ellsworth and Davenport, 1913; Brooks, 1915; Brooks, 1916; Brooks, 1918; Martin, 1919; Brooks, 1923; Brooks and Capps, 1924; Smith, 1926; Moffit, 1927; Smith, 1929; Mertie, 1930 (B 813-C); Smith, 1930 (B 810); Smith, 1930 (B 813); Smith, 1932; Smith, 1933 (B 844-A); Smith, 1936; Smith, 1937; Mertie, 1938; Smith, 1939 (B 910-A); Smith, 1939 (B 917-A); Smith, 1941 (B 926-A); Smith, 1942 (B 933-A); Saunders, 1957; Foster, 1969 (B 1271-G); Cobb, 1973 (B 1374); Cobb, 1972 (MF-393); Foster, 1976; Cobb, 1977 (OFR 77-845); Eberlein and others, 1977; Bundtzen and others, 1987; Swainbank and others, 1991; Burleigh and Lear, 1994; Yeend, 1992; Swainbank and others, 1995; Yeend, 1996; Pinney, 2001.

Primary reference: Prindle, 1909; Yeend, 1996

Reporter(s): M.B. Werdon; R.L. Flynn

Last report date: 5/1/02

Site name(s): Howard

Site type: Prospect

ARDF no.: EA072

Latitude: 64.4964 **Quadrangle:** EA B-1

Longitude: 141.1926

Location description and accuracy:

The Howard prospect is in a barrow pit one-quarter mile northwest of the settlement of Liberty, along the Taylor Highway. The coordinates are the approximate location of the barrow pit, in section 9, T. 5 S., R. 33 E., of the Fairbanks Meridian; the location is accurate. The Howard prospect is located within Doyon, Ltd. selected or conveyed land.

Commodities:

Main: Ag, Au, Cu, Pb, Zn

Other: As

Ore minerals:

Gangue minerals: Quartz

Geologic description:

The Howard prospect is in Paleozoic greenstone, Paleozoic or Mesozoic serpentinite, and Permian quartzite and argillite (Foster, 1976). A soil grid tested the extent of mineralized quartz veins exposed in a barrow pit (WGM Inc., 1998 [DLR 98-12]). Rock samples contain as mcuh as 300 ppb gold, 23.6 ppm silver, and 632 ppm arsenic; base metal values are as much as 4,440 ppm lead, 4,320 ppm copper, and 334 ppm zinc. Results of soil sampling do not indicate significant anomalies. Two soil samples collected below a large quartz vein contained as much as 40 ppb gold and 0.6 ppm silver.

The Howard prospect is in a northeast-trending group of magnetic anomalies that extend for about 15 miles (WGM Inc., 1998 [DLR 98-12]). A strong magnetic anomaly covers the east part of the soil grid and may indicate the presence of greenstone, which is a favorable gold host in this area. The anomaly extends to the northeast and merges with an extensive magnetic high that spatially corresponds with serpentinite. Three strong EM conductors are parallel to faults adjacent to the magnetic anomalies. WGM Inc. (1998 [DLR 98-12]) suggests the Howard prospect may be a Cyprus-type massive sulfide or a greenstone-related, Mother Lode-type-gold deposit. The South Liberty (EA073) prospect is another gold prospect in the King Solomon Creek area.

Alteration:

Age of mineralization:
Paleozoic or younger, on the basis of the age of host rocks.

Deposit model:
Possibly Cyprus massive sulfide or low-sulfide gold-quartz veins (Cox and Singer, 1986; models 24a or 36a).

Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):
24a or 36a

Production Status: None

Site Status: Probably inactive

Workings/exploration:
A soil grid at the Howard prospect tested the extent of mineralized quartz veins exposed in a barrow pit (WGM Inc., 1998 [DLR 98-12]).

Production notes:

Reserves:

Additional comments:
The Howard prospect is located within Doyon, Ltd. selected or conveyed land. For more information contact Doyon, Ltd., Fairbanks, Alaska.

References:
WGM Inc., 1998 (DLR 98-12).

Primary reference: WGM Inc., 1998 (DLR 98-12)

Reporter(s): M.B. Werdon

Last report date: 5/1/02

Site name(s): South Liberty

Site type: Prospect

ARDF no.: EA073

Latitude: 64.4856 **Quadrangle:** EA B-1

Longitude: 141.1974

Location description and accuracy:

The South Liberty prospect is located in a road cut one-half mile south of the settlement of Liberty along the Taylor Highway. The coordinates are the approximate location of the road cut, in section 16, T. 5 S., R. 33 E., of the Fairbanks Meridian. The location is accurate. The South Liberty prospect is located within Doyon, Ltd. selected or conveyed land.

Commodities:

Main: Ag, Au, Hg, Sb

Other: As, Ba

Ore minerals:

Gangue minerals: Calcite, quartz

Geologic description:

The South Liberty prospect is in Paleozoic greenstone, Paleozoic or Mesozoic serpentinite, and Permian quartzite and argillite (Foster, 1976). The prospect consists of iron-stained quartz-carbonate veins that cut greenstone and quartz-muscovite schist (WGM Inc., 1998 [DLR 98-12]).

Soil samples were collected by WGM Inc. in 1990 (WGM Inc., 1998 [DLR 98-12]). One soil sample contains 7,517 ppb gold, 27.1 ppm silver, 2,000 ppm arsenic, 277 ppm antimony, and 176 ppb mercury; an adjacent soil sample contains 2,130 ppb gold, 9.8 ppm silver, greater than 10,000 ppm arsenic, 420 ppm barium, and 64 ppm antimony. Rock samples contain as much as 2,780 ppb gold, 8.8 ppm silver, greater than 10,000 ppm arsenic, and 104 ppm antimony.

The South Liberty prospect is within a northeast-trending group of magnetic anomalies that extends for about 15 miles (WGM Inc., 1998 [DLR 98-12]). The magnetic anomaly indicates a southwest trend to greenstone and suggests a relation to the Howard prospect (EA072), three-quarters of a mile to the north. Three strong EM conductors are parallel to faults adjacent to the magnetic anomalies. The prospect may be a Cyprus-type massive sulfide deposit or a greenstone-related, Mother Lode-type-gold deposit (WGM Inc., 1998 [DLR 98-12]).

Alteration:

Age of mineralization:
Paleozoic or younger.

Deposit model:
Possibly Cyprus massive sulfide or low-sulfide gold-quartz veins (Cox and Singer, 1986; models 24a? or 36a?).

Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):
24a? or 36a?

Production Status: None

Site Status: Probably inactive

Workings/exploration:
Soil samples were collected by WGM Inc. in 1990 at the South Liberty prospect (WGM Inc., 1998 [DLR 98-12]).

Production notes:

Reserves:

Additional comments:
The South Liberty prospect is located within Doyon, Ltd. selected or conveyed land. For more information contact Doyon, Ltd., Fairbanks, Alaska.

References:
WGM Inc., 1998 (DLR 98-12).

Primary reference: WGM Inc., 1998 (DLR 98-12)

Reporter(s): M.B. Werdon; R.L. Flynn

Last report date: 5/1/02

Site name(s): Unnamed (near mouth of Columbia Creek)

Site type: Occurrence

ARDF no.: EA074

Latitude: 64.4313 **Quadrangle:** EA B-1

Longitude: 141.3516

Location description and accuracy:

This occurrence is located in an outcrop on the east side of the Taylor Highway near the mouth of Columbia Creek. The occurrence is in section 35, T. 5 S., R. 32 E., of the Fairbanks Meridian. The location is accurate within 1,000 feet.

Commodities:

Main: Cu, Pb, Zn

Other: Au, Cd, Hg

Ore minerals: Chalcopyrite, galena, pyrite, sphalerite

Gangue minerals: Quartz

Geologic description:

The rocks in the vicinity of this occurrence are predominantly Paleozoic greenschist-facies black carbonaceous quartzite (Dusel-Bacon and others, 1998). Approximately 1.5 miles to the south, these rocks are in fault contact with Paleozoic amphibolite-facies metamorphic rocks (Foster, 1976). Sulfides occur in a carbon-free or carbon-poor quartzite that is interpreted to be metachert or possibly a metamorphosed exhalite(?). This occurrence is interpreted to be a sedimentary-exhalative massive sulfide occurrence by Dusel-Bacon and others (1998), but the presence of possible felsic metavolcanic rocks indicates that it could be a Kuroko-type volcanogenic massive sulfide deposit. The host rock is a tan to pale-gray quartzite with minor muscovite. The quartzite is interlayered with more muscovite-rich quartzite and muscovite schist, which may have originally been felsic tuff. Sulfides occur as discontinuous lenses, 1 to 2 centimeters thick, that contain sphalerite, and lesser galena and chalcopyrite (Dusel-Bacon and others, 1998). A sample of this material contains 8.1 percent zinc, 100 ppm cadmium, 38 ppb gold, and 132 ppm mercury.

Alteration:

Age of mineralization:

Paleozoic or younger.

Deposit model:
Sedimentary exhalative massive sulfide or Kuroko-type volcanogenic massive sulfide (Cox and Singer, 1986; model 31a or 28a).

Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):
31a or 28a

Production Status: None

Site Status: Inactive

Workings/exploration:

Production notes:

Reserves:

Additional comments:

References:
Foster, 1976; Dusel-Bacon and others, 1998.

Primary reference: Dusel-Bacon and others, 1998

Reporter(s): M.B. Werdon

Last report date: 5/1/02

Site name(s): Unnamed (near O'Brien Creek)

Site type: Occurrence

ARDF no.: EA075

Latitude: 64.4217 **Quadrangle:** EA B-1

Longitude: 141.3640

Location description and accuracy:
This occurrence is located along the Taylor Highway and O'Brien Creek, about 0.8 mile south of the mouth of Columbia Creek. The occurrence is in section 3, T. 5 S., R. 32 E., of the Fairbanks Meridian; the location is accurate within 1,000 feet.

Commodities:

Main: Ba, Pb, Zn

Other:

Ore minerals: Galena, pyrite, sphalerite

Gangue minerals: Celsian

Geologic description:
The rocks near this occurrence are predominantly Paleozoic greenschist-facies black carbonaceous quartzite (Dusel-Bacon and others, 1998). Approximately three-quarters of a mile to the south, these rocks are in fault contact with Paleozoic amphibolite-facies metamorphic rocks (Foster, 1976). Sulfides occur within buff-colored, celsian (barium-silicate)-bearing quartzite. The sulfides, in decreasing order of abundance, are sphalerite, pyrite, galena, and chalcopyrite (Dusel-Bacon and others, 1998). Celsian-bearing quartzite from this site and another nearby occurrence (EA074) contain between 1.6 and 3.6 percent barium, 1.8 and 2.7 percent zinc, and 1,040 ppm and 3,980 ppm lead (Dusel-Bacon and others, 1998). This occurrence is interpreted to be a sedimentary-exhalative massive sulfide occurrence (Dusel-Bacon and others, 1998).

Alteration:

Age of mineralization:
Paleozoic or younger.

Deposit model:
Sedimentary exhalative massive sulfide (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:

Production notes:

Reserves:

Additional comments:

References:
Foster, 1976; Dusel-Bacon and others, 1998.

Primary reference: Dusel-Bacon and others, 1998

Reporter(s): M.B. Werdon

Last report date: 5/1/02

Site name(s): Unnamed (near O'Brien Creek)

Site type: Occurrence

ARDF no.: EA076

Latitude: 64.4196 **Quadrangle:** EA B-1

Longitude: 141.3817

Location description and accuracy:
This occurrence is located along the Taylor Highway and O'Brien Creek, about 1.2 miles southeast of the mouth of Columbia Creek. The occurrence is in section 3, T. 5 S., R. 32 E., of the Fairbanks Meridian. The location is accurate within 1,000 feet.

Commodities:

Main: Ba, Pb, Zn

Other:

Ore minerals: Galena, pyrite, sphalerite

Gangue minerals: Celsian

Geologic description:
The rocks in the vicinity of this occurrence are predominantly Paleozoic greenschist-facies black carbonaceous quartzite (Dusel-Bacon and others, 1998). Approximately three-quarters of a mile to the south, these rocks are in fault contact with Paleozoic amphibolite-facies metamorphic rocks (Foster, 1976). Sulfides occur within buff-colored, celsian (barium-silicate)-bearing quartzite. The sulfides, in decreasing order of abundance, are sphalerite, pyrite, galena, and chalcopyrite (Dusel-Bacon and others, 1998). Celsian-bearing quartzite from this site and another nearby occurrence (EA076) contain between 1.6 and 3.6 percent barium, 1.8 and 2.7 percent zinc, and 1,040 ppm and 3,980 ppm lead (Dusel-Bacon and others, 1998). Dusel-Bacon and others (1998) interpret this occurrence is interpreted to be a sedimentary-exhalative massive sulfide occurrence.

Alteration:

Age of mineralization:
Paleozoic or younger.

Deposit model:
Sedimentary exhalative massive sulfide (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:

Production notes:

Reserves:

Additional comments:

References:
Foster, 1976; Dusel-Bacon and others, 1998.

Primary reference: Dusel-Bacon and others, 1998

Reporter(s): M.B. Werdon

Last report date: 5/1/02

Site name(s): Unnamed (at head of King Creek)

Site type: Occurrence

ARDF no.: EA077

Latitude: 64.4130 **Quadrangle:** EA B-1

Longitude: 141.4988

Location description and accuracy:

This occurrence is located along upper King Creek in section 12, T. 6 S., R. 31 E., of the Fairbanks Meridian. The location is accurate within one-half mile. This occurrence is located within Doyon, Ltd. selected or conveyed land.

Commodities:

Main: Pb, Zn

Other:

Ore minerals:

Gangue minerals:

Geologic description:

The rocks in the vicinity of King Creek area are Paleozoic amphibolite-facies metamorphic rocks and a small Mesozoic or Paleozoic serpentinite body on the north side of the drainage (Foster, 1976). A high-angle northeast-trending fault cuts across the upper part of the creek. Stream-sediment samples from King Creek contain 250 to 660 ppm zinc and 50 ppm lead (Dashevsky and others, 1986). WGM Inc. conducted reconnaissance stream-sediment sampling on King Creek in 1976 (Dashevsky and others, 1986). Disseminated sulfides associated with a tectonic breccia were mapped on the ridgeline at the head of King Creek (Foster, 1976).

Alteration:

Age of mineralization:

Deposit model:

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

Production Status: None

Site Status: Probably inactive

Workings/exploration:

Stream-sediment samples from King Creek contain 250 to 660 ppm zinc and 50 ppm lead (Dashevsky and others, 1986). WGM Inc. conducted reconnaissance stream-sediment sampling on King Creek in 1976 (Dashevsky and others, 1986). Disseminated sulfides associated with a tectonic breccia were mapped on the ridgeline at the head of King Creek (Foster, 1976).

Production notes:

Reserves:

Additional comments:

This occurrence is located within Doyon, Ltd. selected or conveyed land. For more information contact Doyon, Ltd., Fairbanks, Alaska.

References:

Foster, 1976; WGM Inc., 1977; Dashevsky and others, 1986.

Primary reference: Dashevsky and others, 1986

Reporter(s): R.L. Flynn; M.B. Werdon

Last report date: 5/1/02

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

Site type: Occurrence

ARDF no.: EA078

Latitude: 64.3936 **Quadrangle:** EA B-1

Longitude: 141.2366

Location description and accuracy:

This unnamed lode occurrence is located along the north side of Dome Creek near the mine symbol on the Eagle B-1 quadrangle topographic map, at about the center of section 17, T. 6 S., R. 33 E., of the Fairbanks Meridian. The location is accurate within 1 mile.

Commodities:

Main: Au?

Other:

Ore minerals: Arsenopyrite, cinnabar, galena, pyrite

Gangue minerals: Quartz

Geologic description:

The rocks along Dome Creek are Paleozoic amphibolite-facies gneiss, amphibolite, quartzite, schist, marble, and greenschist (Foster, 1976). Bedrock exposed in placer cuts on benches consists of quartzite, schist, serpentinized greenstone, and marble (Mertie, 1938). The bedrock is cut by shear zones filled with greenish gouge, some of which contain granulated vein quartz with pyrite. Quaternary terrace and colluvial deposits are extensive in the vicinity.

In 1928, bench gravels were being mined about 1.5 miles downstream from the mouth of Little Miller Creek on the north bench of Dome Creek (see EA079) (Mertie, 1930 [B 813-C]). In addition to gold, placer concentrates contain minor galena and cinnabar and abundant pyrite. Bedrock in this bench cut consists of schist and marble, and the schist is cut by quartz veins that contain pyrite and arsenopyrite (Mertie, 1930 [B 813-C]). Mertie suggested that these veins may have provided a local bedrock source for placer gold.

Alteration:

Age of mineralization:

Deposit model:

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:

Mertie, 1930 (B 813-C); Mertie, 1938; Foster, 1976.

Primary reference: Mertie, 1938

Reporter(s): M.B. Werdon

Last report date: 5/1/02

Site name(s): Dome Creek; Little Miller Creek

Site type: Mines

ARDF no.: EA079

Latitude: 64.3930 **Quadrangle:** EA B-1

Longitude: 141.2057

Location description and accuracy:

Dome Creek is a 15-mile-long west tributary of O'Brien Creek; it is about 7 miles south of Liberty (on the Taylor Highway). Little Miller Creek is a small tributary of Dome Creek. Placer gold along Dome Creek is found in bench gravels that extend 4 miles upstream from Little Miller Creek and 2 miles downstream (Mertie, 1938). The mines' coordinates are at the mouth of Little Miller Creek, in section 16, T. 6 S., R. 33 E., of the Fairbanks Meridian; the location is accurate. References to Little Miller Creek are grouped with those of Dome Creek. There is another Dome Creek (EA055) in the Eagle C-1 Quadrangle. Dome Creek is locality 34 of Burleigh and Lear (1994), locality 22 of Eberlein and others (1977), and locality 70 of Cobb (1972 [MF-393]).

Commodities:

Main: Au

Other: Hg, Pb

Ore minerals: Cinnabar, galena, gold, pyrite

Gangue minerals:

Geologic description:

The rocks in the vicinity of Dome Creek are Paleozoic amphibolite-facies gneiss, amphibolite, quartzite, schist, marble, and greenschist (Foster, 1976). Bedrock exposed in placer cuts on the benches along Dome Creek consists of quartzite, schist, serpentinized greenstone, and marble (Mertie, 1938). The bedrock is cut by shear zones filled with greenish gouge, some of which contains granulated vein quartz with pyrite. Quaternary terrace and colluvial deposits are extensive in the vicinity of the Dome and Little Miller Creek placer deposits.

Gold was discovered on Dome Creek at the mouth of Little Miller Creek in 1893 (Prindle, 1905). Placer gold along Dome Creek is predominantly found within bench gravels that extend 4 miles upstream from Little Miller Creek and at least 2 miles downstream (Mertie, 1938). Most of the bench gravels are found on the north side of Dome Creek, approximately 125 feet above the level of the creek. The bench gravels are about 300 feet wide. Little Miller Creek cuts across the Dome Creek bench gravels, and the ac-

tive stream has reconcentrated the gold. As a result, the stream placers mined near the mouth of Little Miller Creek were very high grade. Most of the bench mining on Dome Creek occurred downstream from Little Miller Creek because the bench gravels increase in thickness upstream.

Gravel in Little Miller Creek is about 8 feet thick. The pay streak occurs near bedrock in about 10 inches of gravel over a width of 20 feet (Prindle, 1905). The gold is mostly coarse and rough, but a few smooth pieces were found as well. The gold-bearing bench gravels adjacent to Little Miller Creek are as much as 80 feet thick (Mertie, 1938).

In 1928, bench gravels were being mined about 1.5 miles downstream from Little Miller Creek on the north bench of Dome Creek (Mertie, 1930 [B 813-C]). The gravels were as much as 80 feet thick; they are overlain by a muck layer that contains the remains of mammoth, bison and other ancient vertebrates of Pleistocene age. The placer gold on the bench is fairly porous, particularly in the larger pieces, and it contains abundant quartz (Mertie, 1930 [B 813-C]). The placer gold is mainly found near or on bedrock, but fine gold is disseminated throughout the 80 feet of bench gravel. The gold is bright yellow and mostly fin small pieces. Placer concentrates contain minor galena and cinnabar and abundant pyrite. An average of two assays of gold indicated that it has a fineness of 885 parts of gold per thousand and 107 parts of silver per thousand (Mertie, 1938). The bedrock consists of schist and marble, and the schist is cut by quartz seams (veins?) that contain pyrite and arsenopyrite; (see EA078) (Mertie, 1930 [B 813-C]).

One cleanup from the high bench gravel on the west side of Little Miller Creek yielded $27,000 at an average value of 35 cents per square foot of bedrock, or about 14 cents per cubic yard of gravel (gold at $20.67 per ounce). In 1930, the gold was worth about $18.50 to $18.75 an ounce (Mertie, 1930 [B 813-C]).

The earliest mining on Dome Creek occurred near the mouth of Little Miller Creek where gold was first discovered in 1893 (Prindle, 1905). Mining and prospecting on Dome Creek took place intermittently between 1893 and perhaps as late as 1920, when it was mostly mined out. Bench mining started in 1919 near Little Miller Creek and progressed westward. A large hydraulic plant mined the bench gravels (Brooks and Martin, 1921). Mining activity continued from 1937 through 1940 (Smith, 1942 [B 933-A]). In 1990, Dome Creek Mining and Development sluiced on Dome Creek at an unreported location (Swainbank and others, 1991).

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

Site Status: Undetermined

Workings/exploration:

The earliest mining on Dome Creek occurred near the mouth of Little Miller Creek where gold was first discovered in 1893 (Prindle, 1905). Mining and prospecting on the creek took place intermittently between 1893 and perhaps as late as 1920, when it was mined out. Bench mining started in 1919 near Little Miller Creek and progressed westward. A large hydraulic plant mined the bench gravels (Brooks and Martin, 1921). Mining activity continued from 1937 through 1940 (Smith, 1942 [B 933-A]). In 1977, there was a small mining operation at the mouth of Dome Creek; it had been active for several years (Eberlein and others, 1977). In 1990, Dome Creek Mining and Development sluiced on Dome Creek at an unreported location (Swainbank and others, 1991).

Production notes:

One cleanup from the high bench gravel on the west side of Little Miller Creek yielded $27,000 at an average value of 35 cents to the square foot of bedrock, or about 14 cents per cubic yard of gravel (gold at $20.67 per ounce). In 1930, the gold was worth about $18.50 to $18.75 an ounce (Mertie, 1930).

Reserves:

Additional comments:

References:

Spurr, 1898; Prindle, 1905; Prindle, 1908; Prindle, 1909; Porter, 1912; Ellsworth and Davenport, 1913; Brooks, 1916; Brooks and Martin, 1921; Brooks, 1923; Moffit, 1927; Mertie, 1930 (B 813-C); Smith, 1930 (B 813); Smith, 1932; Smith, 1933 (B 836); Smith, 1933 (B 844-A); Powers, 1935; Mertie, 1937; Smith, 1937; Mertie, 1938; Smith, 1939 (B 910-A); Smith, 1939 (B 917-A); Smith, 1941 (B 926-A); Smith, 1942 (B 933-A); Wimmler, 1949; Malone, 1962; Malone, 1965; Koschmann and Bergendahl, 1968; Cobb, 1972 (MF-393); Cobb, 1973 (B 1374); Foster, 1976; Cobb, 1977 (OFR 77-845); Eberlein and others, 1977; Swainbank and others, 1991; Burleigh and Lear, 1994.

Primary reference: Mertie, 1930 (B 813-C)

Reporter(s): M.B. Werdon; R.L. Flynn

Last report date: 5/1/02

Site name(s): Lower Dome Creek

Site type: Mine

ARDF no.: EA080

Latitude: 64.3508 **Quadrangle:** EA B-1

Longitude: 141.3868

Location description and accuracy:
The lower Dome Creek placer operation is located about a half-mile above its mouth, in section 34, T. 6 S., R. 32 E., of the Fairbanks Meridian. The location is accurate within one-half mile.

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:
In 1977, there was a small placer gold mining operation at the mouth of Dome Creek that had been active for several years (Eberlein and others, 1977).

Alteration:

Age of mineralization:

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: Undetermined

Workings/exploration:

Production notes:

Reserves:

Additional comments:

References:

Eberlein and others, 1977.

Primary reference: Eberlein and others, 1977

Reporter(s): M.B. Werdon

Last report date: 5/1/02

Site name(s): Unnamed (in headwaters of Nugget Gulch)

Site type: Occurrence

ARDF no.: EA081

Latitude: 64.3185 **Quadrangle:** EA B-1

Longitude: 141.1568

Location description and accuracy:

This occurrence is located at the hig point of the ridge between Nugget Gulch and the western branch of Sam Patch Creek. The coordinates are the approximate center of the occurrence ,on the boundary between sections 10 and 11, T. 7 S., R. 33 E., of the Fairbanks Meridian; the location is only accurate within 1 mile. This occurrence is located within Doyon, Ltd. selected or conveyed land.

Commodities:

Main: Au

Other: Cu

Ore minerals: Gold, pyrite

Gangue minerals: Calc-silicates, carbonate, quartz

Geologic description:

The rocks in the vicinty of this occurrence include Paleozoic quartz-mica-chlorite schist that is locally silicified and hornfelsed and Mesozoic or Paleozoic pyroxenite and hornblendite (Foster, 1976; DiMarchi, 1993). These rocks have been intruded by Tertiary or Mesozoic granitic rocks. Stream-sediment samples collected by WGM Inc. from the creeks draining the divide between Sam Patch Creek and Nugget Gulch contain between 25 and 32 ppb gold (DiMarchi, 1993). An anomalous soil sample with 85 ppb gold and a stream-sediment sample containing 1,081 ppb gold were collected by ASA Inc. Restricted zones of silicification and quartz-carbonate alteration are present, and pyrite is found in quartz veins and disseminated within folded layers of quartzite. There is abundant iron-oxide-stained soil with fragments of quartz-carbonate veining on ridge tops in the area, but without associated gold anomalies. There is a strong magnetic anomaly in the area of the 1,081-ppb gold sample, indicating the presence of a large, east-west-trending ultramafic body (WGM Inc., 1998 [DLR 98-12]). Two deposit models have been proposed for this occurrence. Copper-bearing calc-silicate rocks in the area suggest the potential for copper-gold skarns (DiMarchi, 1993). The presence of ultramafic rocks suggest the potential for Mother Lode-style, gold-quartz-carbonate vein mineralization (WGM Inc., 1998 [DLR 98-12]).

Stream -ediment samples were collected by WGM Inc. in 1990, from the creeks draining the divide between Sam Patch Creek and Nugget Gulch (DiMarchi, 1993). ASA Inc. collected stream and soil samples in the area in 1992. A geophysical survey was flown in the Nugget Gulch area in 1997 (WGM Inc., 1998 [DLR 98-12]).

Alteration:

There are restricted zones of silicification and quartz-carbonate alteration in the vicinity of this occurrence at the head of Nugget Gulch (DiMarchi, 1993).

Age of mineralization:

Paleozoic or younger.

Deposit model:

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

Production Status: None

Site Status: Inactive

Workings/exploration:

Stream-sediment samples were collected by WGM Inc. in 1990, from the creeks draining the divide between Sam Patch Creek and Nugget Gulch (DiMarchi, 1993). ASA Inc. collected stream and soil samples in the area in 1992. A geophysical survey was flown in the Nugget Gulch area in 1997 (WGM Inc., 1998 [DLR 98-12]).

Production notes:

Reserves:

Additional comments:

This occurrence is located within Doyon, Ltd. selected or conveyed land. For more information contact Doyon, Ltd., Fairbanks, Alaska.

References:

Foster, 1976; DiMarchi, 1993; WGM Inc., 1998 (DLR 98-12).

Primary reference: DiMarchi, 1993

Reporter(s): M.B. Werdon; R.L. Flynn

Last report date: 5/1/02

Site name(s): Weston

Site type: Occurrence

ARDF no.: EA082

Latitude: 64.3073 **Quadrangle:** EA B-1

Longitude: 141.4027

Location description and accuracy:

The Weston scheelite occurence is located about 300 feet downstream of the Taylor Highway bridge on the lower Fortymile River. The coordinates are the approximate location of the veins on the south side of the river, in section 16, T. 7 S., R. 32 E., of the Fairbanks Meridian; the location is accurate.

Commodities:

Main: W

Other:

Ore minerals: Scheelite

Gangue minerals: Quartz

Geologic description:

The rocks along the lower Fortymile River (EA071) are Paleozoic amphibolite-facies gneiss, schist, quartzite, marble, and amphibolite (Foster, 1976). Bedrock in the immediate vicinity of the Weston scheelite occurrence is schist that has been intruded by several small granitic bodies of Tertiary or Mesozoic age (Saunders, 1957; Foster, 1976).

The lower Fortymile River adjacent to the Weston occurrence has been mined for placer gold, and scheelite is abundant in sluice-box concentrates. In 1957, a narrow vein of scheelite-bearing quartz, 1 to 2 feet thick, was exposed at the Weston placer mine about 300 feet downstream of the Taylor Highway Bridge on the south side of the Fortymile River. Two similar quartz veins were found on the north side of the river. These veins are parallel to the veins on the south side of the river, and they are about 1 inch thick. Samples from a 1-inch-thick quartz vein containing scheelite were examined under ultraviolet light. One appeared to contain 5 to 10 percent WO3, and the other is somewhat lower in grade. Two other samples were assayed, but no gold, silver or tungsten were present (Saunders, 1957).

Alteration:

Age of mineralization:

Deposit model:

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

Production Status: None

Site Status: Inactive

Workings/exploration:

In 1957, a narrow vein of scheelite-bearing quartz was exposed by placer mining about 300 feet downstream of the Taylor Highway Bridge on the south side of the Fortymile River. Two similar veins were found on the north side of the river (Saunders, 1957).

Production notes:

Reserves:

Additional comments:

References:

Saunders, 1957; Foster, 1976.

Primary reference: Saunders, 1957

Reporter(s): M.B. Werdon

Last report date: 5/1/02

Site name(s): Flat Creek

Site type: Mine

ARDF no.: EA083

Latitude: 64.2949 **Quadrangle:** EA B-1

Longitude: 141.3287

Location description and accuracy:

Flat Creek is a small north tributary of the lower Fortymile River; it is about 10 miles west of the Canadian border. The location of placer gold mining on Flat Creek is uncertain; the coordinates are near the mouth of Flat Creek, in section 23, T. 7 S., R. 32 E., of the Fairbanks Meridian. Flat Creek is locality 61 of Cobb (1972 [MF-393]) and locality 25 of Eberlein and others (1977).

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:

The rocks along Flat Creek are Paleozoic amphibolite-facies gneiss and amphibolite (Foster, 1976). Extensive Quaternary terrace and alluvial gravel deposits are present near the mouth of Flat Creek; these terraces are as much as several hundred feet above the creek (Foster and Keith, 1968).

Placers at Flat Creek were mined in 1908 (Brooks, 1909). Little work was done on Flat Creek in 1911 due to low water (Porter, 1912), and little progress was made on Flat Creek in 1912 (Ellsworth and Davenport, 1913). Mining occurred on Flat Creek in 1915 (Brooks, 1916). There has been placer gold production on the lower Fortymile River (see also EA071) near the mouth of Flat Creek.

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:
Placers at Flat Creek were mined in 1908 (Brooks, 1909). Little work was done on Flat Creek in 1911 due to low water (Porter, 1912), and little progress was made on Flat Creek in 1912 (Ellsworth and Davenport, 1913). Mining occurred on Flat Creek in 1915 (Brooks, 1916). There has been placer gold production on the lower Fortymile River near the mouth of Flat Creek.

Production notes:

Reserves:

Additional comments:

References:
Brooks, 1909; Porter, 1912; Ellsworth and Davenport, 1913; Brooks, 1916; Foster and Keith, 1968; Cobb, 1972 (MF-393); Cobb, 1977 (OFR 77-845); Eberlein and others, 1977.

Primary reference: Brooks, 1909; Brooks, 1916

Reporter(s): R.L. Flynn; M.B. Werdon

Last report date: 5/1/02

Site name(s): Discovery Creek

Site type: Prospect

ARDF no.: EA084

Latitude: 64.2858 **Quadrangle:** EA B-1

Longitude: 141.1237

Location description and accuracy:

The Discovery Creek prospect is in the upper drainage of Discovery Creek near the junction of its headwater forks. Discovery Creek is a small north tributary of the lower Fortymile River about 3 miles west of the Canadian border. The coordinates are the approximate center of the prospect at the southeast corner of section 23, T. 7 S., R. 33 E., of the Fairbanks Meridian. The location is accurate. The Discovery Creek prospect is located within Doyon, Ltd. selected or conveyed land.

Commodities:

Main: Ag, Au, Cu, Zn

Other:

Ore minerals: Chalcopyrite

Gangue minerals: Calc-silicates

Geologic description:

The rocks along Discovery Creek are Paleozoic quartz-biotite schist and gneiss, chlorite-garnet-mica schist, and marble (Foster, 1976; Dashevsky and others, 1986). Small Mesozoic or Tertiary biotite granite and quartz monzonite stocks are near the mouth and in the headwaters of Discovery Creek, and Mesozoic pyroxenite or hornblendite crops out near the mouth of the creek (Foster, 1976). A sample of ferricrete float from Discovery Creek contains 1,350 ppm copper and 600 ppm zinc. Low-grade chalcopyrite mineralization in calc-silicate float is associated with anomalous copper in soil on the east side of the upper creek. A soil sample from the west side of the valley contained 460 ppm lead, 352 ppm zinc, and 3.2 ppm silver. A weak REM and VLF anomaly trends northwest in an area without a surface geochemical anomaly.

WGM Inc. conducted reconnaissance mapping and soil sampling in the Discovery Creek area in 1976 (Dashevsky and others, 1986). In 1977, WGM Inc. sampled soil on a grid and conducted REM, VLF, and magnetometer surveys in the area.

Alteration:

Samples of mineralized ferricrete and calc-silicate float were collected in the Discovery

Creek area.

Age of mineralization:

Deposit model:
Possibly a Cu skarn (Cox and Singer, 1986; model 18b) or an undetermined epithermal vein type (Dashevsky and others, 1986).

Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):
18b

Production Status: None

Site Status: Probably inactive

Workings/exploration:
WGM Inc. conducted reconnaissance mapping and soil sampling in the Discovery Creek area in 1976 (Dashevsky and others, 1986). In 1977, WGM Inc. sampled soil on a grid and conducted REM, VLF, and magnetometer surveys in the area.

Production notes:

Reserves:

Additional comments:
The Discovery Creek prospect is located within Doyon, Ltd. selected or conveyed land. For more information contact Doyon, Ltd., Fairbanks, Alaska.

References:
Foster, 1976; WGM Inc., 1977; Dashevsky and others, 1986.

Primary reference: Dashevsky and others, 1986

Reporter(s): R.L. Flynn; M.B. Werdon

Last report date: 5/1/02

Site name(s): Moose Creek (tributary to lower Fortymile River)

Site type: Mine

ARDF no.: EA085

Latitude: 64.2835 **Quadrangle:** EA B-1

Longitude: 141.0177

Location description and accuracy:

Moose Creek is a tributary of the lower Fortymile River located about three-quarters of a mile west of the Canadian border. The exact location of mining on Moose Creek is not reported; the mine coordinates are placed near the mouth of the creek, in section 28, T. 7 S., R. 34 E., of the Fairbanks Meridian. The location is accurate within 1 mile. Moose Creek is locality 37 of Burleigh and Lear (1994). There is another Moose Creek placer occurrence (EA105) in the Eagle A-3 quadrangle.

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:

Bedrock along lower Moose Creek consists of Paleozoic amphibolite-facies biotite gneiss and amphibolite (Foster, 1976). Bedrock along upper Moose Creek (in the Yukon Territory) includes orthogneiss, graphitic quartzite and quartz-muscovite schist of the Nasina Series and quartz-muscovite schist of the Klondike Schist (Mortensen, 1988). Extensive terrace gravel deposits are present on both sides of the lower portion of the Fortymile River, including near the mouth of Moose Creek. These terraces are as high as several hundred feet above the Fortymile River (Foster and Keith, 1968). Placer mining took place on Moose Creek in 1990 (Swainbank and others, 1991).

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: Active?

Workings/exploration:
Swainbank and others (1991) reportedan active placer mine on Moose Creek in 1990.

Production notes:

Reserves:

Additional comments:

References:
Foster and Keith, 1968; Foster, 1976; Mortensen, 1988; Swainbank and others, 1991; Burleigh and Lear, 1994.

Primary reference: Swainbank and others, 1991

Reporter(s): R.L. Flynn; M.B. Werdon

Last report date: 5/1/02

Site name(s): Twin Creek

Site type: Mine

ARDF no.: EA086

Latitude: 64.2684 **Quadrangle:** EA B-1

Longitude: 141.2633

Location description and accuracy:

Twin Creek is a small tributary of the lower Fortymile River; its mouth is about 8 miles west of the Canadian border. The location of placer gold mining on Twin Creek is uncertain. The mine coordinates are near the mouth of the creek, in section 31, T. 7 S., R. 33 E., of the Fairbanks Meridian. The location is accurate within 1 mile. Twin Creek is locality 62 of Cobb (1972 [MF-393]) and locality 60 of Eberlein and others (1977).

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:

The rocks along Twin Creek are Paleozoic amphibolite-facies gneiss and amphibolite (Foster, 1976). Extensive terrace gravel deposits are present on both sides of the lower portion of the Fortymile River, including in the vicinity of the mouth of Twin Creek. The terraces are as much as several hundred feet above the river (Foster and Keith, 1968). Placer gold has been produced on the lower Fortymile River (see EA071) near the mouth of Twin Creek. Mining on Twin Creek itself may be restricted to the area below the benches along the Fortymile River.

Prindle (1908) included Twin Creek in gold production totals with Napoleon Creek (EA123), Montana Creek (EA067), Buckskin Creek (EA113), Dome Creek (EA055 or EA079), and Eagle Creek (location unknown), which together produced 121.68 fine ounces of gold from 1904 to 1907. Ellsworth and Davenport (1913) reported that very little progress was made on Twin Creek in 1912. Powers (1935) reported a good showing was made on benches on the Fortymile River near Twin Creek.

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:
Ellsworth and Davenport (1913) reported that very little progress was made on Twin Creek in 1912. Powers (1935) reported a good showing was made on benches on the Fortymile River (see EA071) near Twin Creek.

Production notes:
Prindle (1908) included Twin Creek in gold production totals with Napoleon Creek (EA123), Montana Creek (EA067), Buckskin Creek (EA113), Dome Creek (EA079 or EA055), and Eagle Creek (location unknown), which together produced 121.68 fine ounces of gold from 1904 to 1907.

Reserves:

Additional comments:

References:
Prindle, 1908; Ellsworth and Davenport, 1913; Powers, 1935; Foster and Keith, 1968; Cobb, 1972 (MF-393); Foster, 1976; Cobb, 1977 (OFR 77-845); Eberlein and others, 1977.

Primary reference: Prindle, 1908; Ellsworth and Davenport, 1913

Reporter(s): R.L. Flynn; M.B. Werdon

Last report date: 5/1/02

Site name(s): Nugget Gulch

Site type: Mine

ARDF no.: EA087

Latitude: 64.2630 **Quadrangle:** EA B-1

Longitude: 141.2073

Location description and accuracy:

Nugget Gulch is a small tributary of the Fortymile River located about 6 miles west of the Canadian border and about 2.5 miles east of Steele Creek. Most of the gold found in Nugget Gulch was in the portion of the creek valley that cuts the benches along the Fortymile River, in about the center of section 33, T. 7 S., R. 33 E., of the Fairbanks Meridian. The location is accurate. Nugget Gulch is locality 45 of Burleigh and Lear (1994), locality 47 of Eberlein and others (1977), and locality 63 of Cobb (1972 [MF-393]).

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:

The rocks in the vicinity of Nugget Gulch are Paleozoic biotite gneiss and amphibolite (Foster, 1976). In the headwaters of Nugget Gulch, Paleozoic or Mesozoic metagabbro is present. Extensive terrace gravel deposits as high as several hundred feet above the Fortymile River occur on both sides of the lower portion of the river, including near the mouth of Nugget Gulch (Foster and Keith, 1968). Most of the gold found in Nugget Gulch was in the portion that cuts the terraces and was perhaps reconcentrated from them (Prindle, 1909). Nugget Gulch was considered a rich stream for its length (Powers, 1935). There has been placer gold production on the lower Fortymile River (EA071) near the mouth of Nugget Gulch.

Gold was produced from Nugget Gulch in commercial quantities in the 1890's (Brooks, 1900). Several hundred ounces of gold were produced from Nugget Gulch in the late 1800's and early 1900's (Eberlein and others, 1977).

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: Probably inactive

Workings/exploration:
Gold was produced from Nugget Gulch in commercial quantities in the 1890's (Brooks, 1900).

Production notes:
Several hundred ounces of gold were produced from Nugget Gulch in the late 1800's and early 1900's (Eberlein and others, 1977).

Reserves:

Additional comments:

References:
Brooks, 1900; Prindle, 1905; Prindle, 1909; Powers, 1935; Cobb, 1972 (MF-393); Foster, 1976; Cobb, 1977 (OFR 77-845); Eberlein and others, 1977; Burleigh and Lear, 1994.

Primary reference: Prindle, 1909

Reporter(s): M.B. Werdon; R.L. Flynn

Last report date: 5/1/02

Site name(s): Unnamed (east of Bonanza Bar)

Site type: Occurrence

ARDF no.: EA088

Latitude: 64.2590 **Quadrangle:** EA B-1

Longitude: 141.1684

Location description and accuracy:

This occurrence is exposed at river level along the north side of the Fortymile River 0.4 mile downstream from Bonanza Bar and about 1.0 miles upstream from the mouth of Nugget Creek. The occurrence is in section 34, T. 7 S., R. 33 E., of the Fairbanks Meridian. The location is accurate.

Commodities:

Main: Ag, Au, Cu, Pb

Other: Bi, W

Ore minerals: Galena, pyrite

Gangue minerals:

Geologic description:

The rocks in the vicinity of this occurrence are Paleozoic amphibolite-facies quartzite of the Fortymile River assemblage that has been intruded by granitic and ultramafic rocks of Jurassic age (Foster, 1976; Dusel-Bacon and others, 2002).

Sulfides occur as layers within biotite + quartz +/- staurolite +/- garnet schist and biotite quartzite. The sulfides are present in two modes: (A) a finely laminated, rusty-weathering, approximately 1-meter-thick oxidized layer, including a 1- to 2-centimeter-thick layer of massive pyrite or limonite after pyrite; and (B) a massive, foliation-parallel, quartz layer (quartz sweat?), in which layers of galena are apparently concordant with metamorphic layering. Petrographic analysis shows that the quartz-rich layer contains minor white mica and rare patches of sericitized and (or) kaolinitized feldspar; quartz grains are strained and have sutured contacts; tiny, thin, scattered white mica crystals occur between some quartz grains. A sample from mode A contains 260 ppm copper, 130 ppm lead, 2.8 ppm silver, and 20 ppb gold. A sample from mode B contains 6,350 ppm lead, 137 ppm copper, 13 ppm silver, and 295 ppb gold. Slightly elevated bismuth (as much as 10 ppm) and tungsten (as much as 680 ppm) in one quartz-rich rock suggests mineralization may be pluton related (Cynthia Dusel-Bacon, USGS, written commun., 2002).

Alteration:
Sericitized/kaolinitized feldspar?

Age of mineralization:

Deposit model:
Slightly elevated bismuth (as much as 10 ppm) and tungsten (as much as 680 ppm) in one quartz-rich rock suggests mineralization may be pluton related (Cynthia Dusel-Bacon, USGS, written commun., 2002).

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:
Foster, 1976; Dusel-Bacon and others, 2002; Cynthia Dusel-Bacon, USGS, written commun., 2002.

Primary reference: Cynthia Dusel-Bacon, USGS, written commun., 2002

Reporter(s): M.B. Werdon

Last report date: 08/27/02

Site name(s): Smith Creek

Site type: Mine

ARDF no.: EA089

Latitude: 64.2538 **Quadrangle:** EA B-1

Longitude: 141.0792

Location description and accuracy:

Smith Creek is a 12-mile-long south tributary of the lower Fortymile River, located about 3 miles west of the Canadian border and about 2 miles south of the Eldon landing strip. Pay was found for at least 2 miles along Smith Creek. The coordinates are placed about 1 mile upstream of the mouth of the creek, in section 6, T. 8 S., R. 34 E., of the Fairbanks Meridian. The location is accurate within 1 mile. Smith Creek is locality 54 of Eberlein and others (1977).

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:

The rocks along most of Smith Creek are Paleozoic gneiss, schist, amphibolite, quartzite, and marble (Foster, 1969 [B 1271-G]). Dioritic to granodioritic gneiss and graphitic quartzite and quartz-muscovite schist of the Nasina Series of Devonian to Mississippian age crop out at the head of Smith Creek (Mortensen, 1988; Mortensen, 1999). Extensive terrace gravel deposits occur on both sides of the lower portion of the Fortymile River (see EA071), including in the Smith Creek valley.

Gold-bearing gravels were found for at least 2 miles along Smith Creek and its benches, but the creek was not regarded as rich (Powers, 1935). Mining occurred on Smith Creek in 1932 (Smith, 1934 [B 857-A]), and two men were working on Smith Creek in the mid-1930's (Powers, 1935). There was prospecting on Smith Creek in 2000 (R.L. Flynn, unpub. data, 2000). Placer gold has also been produced on the lower Fortymile River near the mouth of Smith Creek.

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: Active?

Workings/exploration:
Gold-bearing gravels were found for at least 2 miles along Smith Creek and its benches, but the creek was not regarded as rich (Powers, 1935). Mining occurred on Smith Creek in 1932 (Smith, 1934 [B 857-A]), and two men were working on Smith Creek in the mid-1930's (Powers, 1935). There was prospecting on Smith Creek in 2000 (R.L. Flynn, un-pub. data, 2000). Placer gold has also been produced on the lower Fortymile River (see EA071) near the mouth of Smith Creek.

Production notes:

Reserves:

Additional comments:

References:
Smith, 1934 (B 857-A); Powers, 1935; Foster and Keith, 1968; Foster, 1969 (B 1271-G); Cobb, 1977 (OFR 77-845); Eberlein and others, 1977; Mortensen, 1988; Mortensen, 1999.

Primary reference: Powers, 1935

Reporter(s): R.L. Flynn; M.B. Werdon

Last report date: 5/1/02

Site name(s): Unnamed (southwest of Deadman Island)

Site type: Occurrence

ARDF no.: EA090

Latitude: 64.2509 **Quadrangle:** EA B-1

Longitude: 141.1403

Location description and accuracy:

This occurrence is exposed at river level along the east bank of the Fortymile River 0.2 mile downstream from the mouth of Canyon Creek and about 1.7 miles upstream from Deadman Island. The occurrence is in section 2, T. 8 S., R. 33 E., of the Fairbanks Meridian. The location is accurate.

Commodities:

Main: Pb, Zn

Other: Cu

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

Gangue minerals:

Geologic description:

The rocks in the vicinity of this occurrence are a Paleozoic, amphibolite-facies quartzite of the Fortymile River assemblage that has been intruded by granitic and ultramafic rocks of Jurassic age (Foster, 1976; Dusel-Bacon and others, 2002). The rocks are distinctly iron-stained and include white mica-bearing quartzite, white mica schist, and biotite +/- garnet +/- pyrite schist. These rocks occur in a fold hinge and form alternating 10- to 50-centimeter-thick layers of mostly quartzite and white mica schist; millimeter-thick, foliation-parallel, sulfide layers occur in the more quartz-rich layers. In one place, foliation-parallel pyrite and galena are cut by discordant pyrite veins. The quartzite and white mica schist are overlain to the north by garnet-bearing amphibolite, garnet-biotite schist, and white mica-biotite quartzite (C. Dusel-Bacon, written commun., 2002).

A sample of white mica-bearing quartzite, with pyrite and lesser galena and sphalerite contains 1,315 ppm zinc and 526 ppm lead. Petrographic analysis of this quartzite shows that the foliation is defined by fine-grained quartz with fairly uniform extinction in polygonized domains and scattered, aligned, about 0.5-millimeter-long, white mica crystals (Cynthia Dusel-Bacon, USGS, written commun., 2002).

A Paleozoic age and sedimentary-exhalative origin for the sulfides are suggested by the foliation-parallel sphalerite, galena, and pyrite in quartz-rich layers and by high barium concentration (as much as 1,790 ppm) in some samples. The alternating quartz-rich and

muscovite-rich layers in the rocks may represent multiple cycles of exhalite deposition alternating with ash deposition(?). Alternatively, or in addition, elevated tungsten (as much as 1,020 ppm) and possibly bismuth (as much as 4 ppm) suggest that mineralization may be related to Mesozoic metamorphism (associated with quartz sweats) or plutonism (C. Dusel-Bacon, written commun., 2002).

Alteration:

Age of mineralization:

A Paleozoic age and sedimentary-exhalative origin for the sulfides is suggested by the foliation-parallel sphalerite, galena, and pyrite in quartz-rich layers and by high barium concentration (as much as 1,790 ppm) in some samples. The alternating quartz-rich and muscovite-rich layers in the rocks may represent multiple cycles of exhalite deposition alternating with ash deposition(?). Alternatively, or in addition, elevated tungsten (as much as 1,020 ppm) and possibly bismuth (as much as 4 ppm) suggest that mineralization may be related to Mesozoic metamorphism (associated with quartz sweats), or plutonism (Cynthia Dusel-Bacon, USGS, written commun., 2002).

Deposit model:

A sedimentary-exhalative origin for the sulfides is suggested by the foliation-parallel sphalerite, galena, and pyrite in quartz-rich layers and by high barium cincentration (as high as 1,790 ppm) in some samples. The alternating quartz-rich and muscovite-rich layers in the rocks may represent multiple cycles of exhalite deposition alternating with ash deposition(?). Alternatively, or in addition, elevated tungsten (as much as 1,020 ppm) and possibly bismuth (as much as 4 ppm) suggests that mineralization may be related to Mesozoic metamorphism or plutonism (Cynthia Dusel-Bacon, USGS, written commun., 2002).

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:

Foster, 1976; Dusel-Bacon and others, 2002; Cynthia Dusel-Bacon, USGS, written commun., 2002.

Primary reference: Cynthia Dusel-Bacon, USGS, written commun., 2002

Reporter(s): M.B. Werdon

Last report date: 8/26/02

Site name(s): Larsen Ridge; Lucky 13

Site type: Prospect

ARDF no.: EA091

Latitude: 64.2396 **Quadrangle:** EA A-6

Longitude: 143.8916

Location description and accuracy:

The Larsen Ridge prospect is located on a northeast-trending ridge about 1.5 miles west of Mount Harper, in the headwaters of the Healy River. Larsen Ridge is not labeled on the U.S. Geological Survey topographic map of the Eagle A-6 quadrangle (1956). VABM Good is on a 6,077-foot-high peak at the southwest end of Larsen Ridge. Several skarns have been identified at the Larsen Ridge prospect; the largest is the Lucky 13 skarn, which is the location of the coordinates, in the NW1/4 section 12, T. 8 S., R. 19 E., of the Fairbanks Meridian; the location is accurate. The Mount Harper area is locality 6 of Cobb (1972 [MF-393]). The Larsen Ridge prospect is located within Doyon, Ltd. selected or conveyed land.

Commodities:

Main: Cu, Mo, W

Other: Ag, Pb, Zn

Ore minerals: Chalcopyrite, galena, magnetite, molybdenite, powellite, pyrite, pyrrhotite, scheelite, sphalerite

Gangue minerals: Amphibole, calc-silicates, epidote, garnet, pyroxene, quartz

Geologic description:

The Larsen Ridge prospect is in Paleozoic amphibolite-facies biotite gneiss, amphibolite, and quartzite (Foster, 1976). These rocks occur as a large roof pendant over a Cretaceous igneous body informally named the Mount Harper batholith. On Larsen Ridge, tungsten skarns are spatially associated with tungsten- and molybdenum-bearing intrusions (Dashevsky and others, 1986). The predominant intrusive rock in the Larsen Ridge area is quartz monzonite (U.S. Bureau of Mines, 1995). Biotite from the Mount Harper granite gives a 40Ar/39Ar plateau age of 105.8 +/- 0.4 Ma (Newberry and others, 1998). Biotite from a granitic body on Larsen Ridge gives a 40Ar/39Ar plateau age of 94.2 +/- 0.3 Ma; the location of the Lucky 13 skarn within 100 m of this granitic body suggests that it formed at approximately the same time (Newberry and others, 1998).

Tungsten-bearing garnet-, pyroxene-, and epidote-bearing skarns are found in irregular and discontinuous surface exposures over a 460 m by 1,220 m area on Larsen Ridge

(Huskey, 1981). Several sulfide-bearing skarns have been identified on Larsen Ridge, including Lucky 13, Middle Tactite, Rubble Ridge, and Amphibolite Band (Dashevsky and others, 1986). The largest skarn is Lucky 13; it is 90 meters long by 3 meters wide, as much as 7.6 meters thick, and composed of mixed biotite-amphibolite and calc-silicate skarn (Huskey, 1981). The Larsen Ridge skarns contain scheelite with accessory pyrite, pyrrhotite, magnetite, and chalcopyrite and minor molybdenite, powellite, galena, and sphalerite. WGM Inc. estimates that there are approximately 20,000 tons of material that averages 1.5 percent WO3 exposed at the surface in the Larsen Ridge area; local high-grade areas contain as much as 4.2 percent WO3 and 2.2 percent copper. There are also small discontinuous exposures of sulfide-bearing amphibolite in the Larsen Ridge area that average less than 0.25 percent WO3. Two holes were drilled at the prospect, but they did not reach target depth (WGM Inc., 1998 [DLR 98-10]). There are several other molybdenum-tungsten prospects in the Mount Harper area, including VABM Good (EA092), Quartz-Porphyry (EA094), Airplane Ridge (EA093), and Section 21 (EA095).

Molybdenite in a quartz vein on the southern slope of Mount Harper was first reported by Chapin (1919). Anomalous tungsten, copper, and molybdenum were found during a stream-sediment reconnaissance in the Mount Harper area by WGM Inc. in 1975; this work was followed by geologic mapping and rock sampling in 1976 (Dashevsky and others, 1986). The Larsen Ridge prospect was discovered in 1977. In 1979, Union Carbide Corp. sampled rocks at the Larsen Ridge prospect and flew an airborne magnetic survey of the area. Two core holes drilled by Union Carbide Corp. in 1981 were aborted early due to adverse ground conditions and mechanical failures.

Alteration:

Age of mineralization:

Dating by 40Ar/39Ar of biotite from a granitic body on Larsen Ridge gives a plateau age of 94.2 +/- 0.3 Ma; the location of the Lucky 13 skarn within 100 meters of this granitic body suggests that it formed at approximately the same time (Newberry and others, 1998).

Deposit model:

W skarn (Cox and Singer, 1986; model 14a).

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

14a

Production Status: None

Site Status: Probably inactive

Workings/exploration:

Molybdenite in a quartz vein on the southern slope of Mount Harper was first reported by Chapin (1919). Anomalous tungsten, copper, and molybdenum were found during a stream-sediment reconnaissance in the Mt. Harper area by WGM Inc. in 1975; this work was followed by geologic mapping and rock sampling in 1976 (Dashevsky and others,

1986). The Larsen Ridge prospect was discovered in 1977. In 1979, Union Carbide Corp. sampled rocks at the Larsen Ridge prospect and flew an airborne magnetic survey of the area. Two core holes drilled by Union Carbide Corp. in 1981 were aborted early due to adverse ground conditions and mechanical failures.

Production notes:

Reserves:

WGM Inc. estimates that there are approximately 20,000 tons of material with an average grade of 1.5 percent WO3 exposed at the surface in the Larsen Ridge area; local high-grade areas contain as much as 4.2 percent WO3 and 2.2 percent copper.

Additional comments:

The Larsen Ridge prospect is located within Doyon, Ltd. selected or conveyed land. For more information contact Doyon, Ltd., Fairbanks, Alaska.

References:

Chapin, 1919; Smith, 1942 (B 926-C); Cobb, 1972 (MF-393); Foster, 1976; WGM Inc., 1977; Union Carbide Corp., 1980; Hughs and Siems, 1981; Huskey, 1981; Dashevsky and others, 1986; DiMarchi and others, 1991 (DLR 91-8a); DiMarchi and others, 1991 (DLR 91-8b); DiMarchi and others, 1991 (DLR 91-8c); DiMarchi and others, 1991 (DLR 91-8d); Burleigh and Lear, 1994; U.S. Bureau of Mines, 1995; Newberry and others, 1997; WGM Inc., 1998 (DLR 98-10).

Primary reference: Dashevsky and others, 1986; U.S. Bureau of Mines, 1995

Reporter(s): R.L. Flynn; M.B. Werdon

Last report date: 5/1/02

Site name(s): Unnamed (near VABM Good)

Site type: Prospect

ARDF no.: EA092

Latitude: 64.2355 **Quadrangle:** EA A-6

Longitude: 143.9094

Location description and accuracy:

This prospect covers the southern and western peaks near VABM Good; it is about 2 miles west of Mount Harper in the headwaters of the Healy River. The coordinates are the approximate center of the prospect, in section 11, T. 8 S., R. 19 E., of the Fairbanks Meridian; the location is accurate. The Mount Harper area is locality 6 of Cobb (1973 [MF-393]). This prospect is located within Doyon, Ltd. selected or conveyed land.

Commodities:

Main: Cu, Mo, W

Other: Ag, Au, Bi

Ore minerals: Brochantite, chalcopyrite, chrysocolla, cuprite, malachite, molybdenite, powellite, scheelite

Gangue minerals: Quartz

Geologic description:

Biotite granodiorite of the Mount Harper intrusive complex comprises the peak around VABM Good (U.S. Bureau of Mines, 1995). Biotite from the Mount Harper granite gives a 40Ar/39Ar plateau age of 105.8 +/- 0.4 Ma (Newberry and others, 1998). An abrupt 90-gamma magnetic high over the southern summit of VABM Good coincides with an area of molybdenum-tungsten-bismuth enrichment in quartz veins (Dashevsky and others, 1986). Quartz-vein density is as high as 25 veins per square foot 500 feet west of VABM Good. About 800 feet southeast of the summit, abundant vuggy-quartz float contains malachite, brochantite, chrysocolla, chalcopyrite, and cuprite and minor scheelite, powellite, and molybdenite. Geochemical sampling suggests a molybdenum-tungsten stockwork system centered about 1,000 feet southwest of VABM Good. The magnetic anomaly in the area suggests an underlying skarn that extends to the Larsen Ridge skarn prospect (EA091) to the northeast. Several other molybdenum-tungsten prospects are in the Mount Harper area, including Airplane Ridge (EA093), Quartz-Porphyry (EA094), and Section 21 (EA095).

Molybdenite in a quartz vein on the southern slope of Mount Harper was first reported by Chapin (1919). Anomalous tungsten, copper, and molybdenum values were found

during a stream-sediment reconnaissance in the Mount Harper area by WGM Inc. in 1975; this was followed by geologic mapping and rock sampling in 1976 (Dashevsky and others, 1986). An airborne magnetic survey in 1979 by Union Carbide Corp. discovered the magnetic anomaly near the summit of VABM Good; this was followed by geologic mapping, rock sampling, and ground magnetics in 1980. In 1981, a drill hole by Union Carbide Corp. was abandoned at 623 feet due to adverse ground conditions; no significant mineralized intercepts were penetrated.

Alteration:

Age of mineralization:
Cretaceous or younger.

Deposit model:
W skarn or porphyry Mo (Cox and Singer, 1986; models 14a and 21b).

Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):
14a or 21b

Production Status: None

Site Status: Inactive

Workings/exploration:
Molybdenite in a quartz vein on the southern slope of Mount Harper was first reported by Chapin (1919). Anomalous tungsten, copper, and molybdenum values were found during a stream-sediment reconnaissance in the Mount Harper area by WGM Inc. in 1975; this was followed by geologic mapping and rock sampling in 1976 (Dashevsky and others, 1986). An airborne magnetic survey in 1979 by Union Carbide Corp. discovered the magnetic anomaly near the summit of VABM Good; this was followed by geologic mapping, rock sampling, and ground magnetics in 1980. In 1981, a drill hole by Union Carbide Corp. was abandoned at 623 feet due to adverse ground conditions; no significant mineralized intercepts were penetrated.

Production notes:

Reserves:

Additional comments:
The VABM Good prospect is located within Doyon, Ltd. selected or conveyed land. For more information contact Doyon, Ltd., Fairbanks, Alaska.

References:
Chapin, 1919; Smith, 1942 (B 926-C); Foster, 1976; WGM Inc., 1977; WGM Inc., 1978; Union Carbide Corp., 1980; Hughs and Siems, 1981; Huskey, 1981; Dashevsky and others, 1986; DiMarchi and others, 1991 (DLR 91-8a); DiMarchi and others, 1991 (DLR 91-

8b); DiMarchi and others, 1991 (DLR 91-8c); DiMarchi and others, 1991 (DLR 91-8g); Burleigh and Lear, 1994; U.S. Bureau of Mines, 1995; Newberry and others, 1998; WGM Inc., 1998 (DLR 98-10).

Primary reference: Dashevsky and others, 1986

Reporter(s): M.B. Werdon; R.L. Flynn

Last report date: 5/1/02

Site name(s): Airplane Ridge

Site type: Prospect

ARDF no.: EA093

Latitude: 64.2287 **Quadrangle:** EA A-6

Longitude: 143.9312

Location description and accuracy:

Airplane Ridge is a 1-mile-long north-south-trending ridge about 5,000 feet high about 2.7 miles west of Mount Harper, at the headwaters of the Healy River. Airplane Ridge is not labeled on the U.S. Geological Survey topographic map of the Eagle A-6 quadrangle (1956). The coordinates are the approximate center of the prospect, near the southwest corner of section 11, T. 8 S., R. 19 E., of the Fairbanks Meridian; he location is accurate within 1,000 feet. The Mount Harper area is locality 6 of Cobb (1972 [MF-393]). The Airplane Ridge prospect is located within Doyon, Ltd. selected or conveyed land.

Commodities:

Main: Mo, W

Other: Ag, Au, Cu, Sn

Ore minerals: Chalcopyrite, magnetite, molybdenite, pyrite

Gangue minerals: Gypsum, quartz

Geologic description:

Biotite gneiss, amphibolite, and minor marble crop out at the north and south end of Airplane Ridge; intrusive rocks form the center of the ridge (U.S. Bureau of Mines, 1995). Biotite from the nearby Mount Harper granite gives a 40Ar/39Ar plateau age of 105.8 +/- 0.4 Ma (Newberry and others, 1998). On Airplane Ridge, two breccia bodies parallel a quartz-porphyry dike that trends north-south (Dashevsky and others, 1986). The breccia bodies are 1,100 feet long and 15 to 50 feet wide. Outcrops of breccia and quartz-porphyry have low metal values, but float samples have anomalous molybdenum, as much as 0.23 ounce of silver per ton, as much as 675 ppm tungsten, as much as 22 ppm tin, and as much as 0.01 ounce of gold per ton. Breccia clasts are predominantly quartz porphyry with lesser chalcedony and quartz monzonite. The matrix is vuggy quartz and chalcedony; later gypsum lines vugs. Locally the quartz porphyry contains limonite, magnetite, pyrite, and chalcopyrite. The breccia generally is not limonitic or mineralized. There is limited phyllic alteration of quartz porphyry adjacent to breccia. There are several other molybdenum-tungsten prospects in the Mt. Harper area, including VABM Good (EA092), Larsen Ridge (EA091), Quartz-Porphyry (EA094), and Section

21 (EA095). Muscovite from a quartz-wolframite vein at the Section 21 prospect and biotite from a granitic body adjacent to a skarn at Larsen Ridge (see EA091) give mid-Cretaceous 40Ar/39Ar-plateau ages (Newberry and others, 1998). The Airplane Ridge molybdenum-tungsten prospect is similar and probably mid-Cretaceous as well.

Molybdenite in a quartz vein on the southern slope of Mount Harper was first reported by Chapin (1919). Anomalous tungsten, copper, and molybdenum were found during a stream-sediment reconnaissance in the Mount Harper area by WGM Inc. in 1975; this was followed by geologic mapping and rock sampling in 1976 (Dashevsky and others, 1986). An airborne magnetic survey and geologic mapping were conducted in the Mount Harper area by Union Carbide Corp. in 1979, and the Airplane Ridge prospect was identified during detailed mapping and rock sampling in 1980.

Alteration:

Limited phyllic alteration of quartz porphyry adjacent to breccia (Dashevsky and others, 1986).

Age of mineralization:

There are several other molybdenum-tungsten prospects in the Mount Harper area, including VABM Good (EA092), Larsen Ridge (EA091), Quartz-Porphyry (EA094), and Section 21 (EA095). Muscovite from a quartz-wolframite vein at the Section 21 prospect and biotite from a granitic body adjacent to a skarn at Larsen Ridge (EA091) give mid-Cretaceous 40Ar/39Ar-plateau ages (Newberry and others, 1998). The Airplane Ridge molybdenum-tungsten prospect is similar and probably mid-Cretaceous as well.

Deposit model:

Porphyry Mo (Cox and Singer, 1986; model 21b).

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

21b

Production Status: None

Site Status: Probably inactive

Workings/exploration:

Molybdenite in a quartz vein on the southern slope of Mount Harper was first reported by Chapin (1919). Anomalous tungsten, copper, and molybdenum were found during a stream-sediment reconnaissance in the Mount Harper area by WGM Inc. in 1975; this was followed by geologic mapping and rock sampling in 1976 (Dashevsky and others, 1986). An airborne magnetic survey and geologic mapping were conducted in the Mount Harper area by Union Carbide Corp. in 1979, and the Airplane Ridge prospect was identified during detailed mapping and rock sampling in 1980.

Production notes:

Reserves:

Additional comments:

The Airplane Ridge prospect is located within Doyon, Ltd. selected or conveyed land. For more information contact Doyon, Ltd., Fairbanks, Alaska.

References:

Chapin, 1919; Smith, 1942 (B 926-C); Cobb, 1972 (MF-393); Foster, 1976; Hughs and Siems, 1981; Dashevsky and others, 1986; DiMarchi and others, 1991 (DLR 91-8a); DiMarchi and others, 1991 (DLR 91-8b); DiMarchi and others, 1991 (DLR 91-8c); DiMarchi and others, 1991 (DLR 91-8d); Burleigh and Lear, 1994; U.S. Bureau of Mines, 1995; Newberry and others, 1998; WGM Inc., 1998 (DLR 98-10).

Primary reference: Dashevsky and others, 1986; WGM Inc., 1998 (DLR 98-10)

Reporter(s): R.L. Flynn; M.B. Werdon

Last report date: 5/1/02

Site name(s): Quartz-Porphyry

Site type: Prospect

ARDF no.: EA094

Latitude: 64.2262 **Quadrangle:** EA A-6

Longitude: 143.8916

Location description and accuracy:

The Quartz-Porphyry prospect is in a small gully at an elevation of about 4,000 feet about 1.8 miles southwest of Mount Harper. The prospect is in the NW1/4 section 13, T. 8 S., R. 19 E., of the Fairbanks Meridian; the location is accurate within 1,000 feet. The Mount Harper area is locality 6 of Cobb (1972 [MF-393]). The Quartz-Porphyry prospect is located within Doyon, Ltd. selected or conveyed land.

Commodities:

Main: Mo

Other: Cu, W

Ore minerals: Chalcopyrite, magnetite, molybdenite, pyrite

Gangue minerals: Quartz, sericite

Geologic description:

Several quartz porphyry dikes intrude a quartz-monzonite pluton and gneiss southeast of VABM Good in the headwaters of the Healy River (Dashevsky and others, 1986). Biotite from the nearby Mount Harper granite gives a 40Ar/39Ar plateau age of 105.8 +/- 0.4 Ma (Newberry and others, 1998). The Quartz-Porphyry prospect consists of well-developed porphyry-style alteration and mineralization within and peripheral to felsic dikes (Dashevsky and others, 1986). The dikes are limonite stained and contain rare disseminated molybdenite, pyrite, and chalcopyrite. Country rocks locally contain weak disseminated pyrite and chalcopyrite, stockworks and breccia with magnetite and silica flooding, and rare sub-horizontal molybdenite-rich quartz veins. These high-grade veins have low precious metal, tungsten, and tin values. A 1,000- by 500-foot zone with molybdenite, chalcopyrite, pyrite, and sericite spatially coincides with a slight magnetic low (WGM Inc., 1998 [DLR 98-10]). Several other molybdenum-tungsten prospects occur in the Mouint Harper area, including VABM Good (EA092), Larsen Ridge (EA091), Airplane Ridge (EA093), and Section 21 (EA095).

Molybdenite in a quartz vein on the southern slope of Mount Harper was first reported by Chapin (1919). Anomalous tungsten, copper, and molybdenum values were found during a stream-sediment reconnaissance in the Mount Harper area by WGM Inc. in

1975; this was followed by geologic mapping and rock sampling in 1976 (Dashevsky and others, 1986). The nearby Larsen Ridge skarn prospect (EA091) was discovered in 1977 on the ridge west of Mount Harper. In 1979, the Quartz-Porphyry prospect was discovered during an airborne magnetic survey and geologic mapping in the Mount Harper area by Union Carbide Corp. Additional detailed mapping and rock sampling were conducted in the area by Union Carbide Corp. in 1980.

Alteration:

Local, well-developed porphyry-style alteration and mineralization in and peripheral to felsic dikes (Dashevsky and others, 1986).

Age of mineralization:

Intrusive rocks, probably related to the deposit, are of Mesozoic or Tertiary age (Foster, 1976).

Deposit model:

Porphyry Mo (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:

Molybdenite in a quartz vein on the southern slope of Mount Harper was first reported by Chapin (1919). Anomalous tungsten, copper, and molybdenum values were found during a stream-sediment reconnaissance in the Mount Harper area by WGM Inc. in 1975; this was followed by geologic mapping and rock sampling in 1976 (Dashevsky and others, 1986). The nearby Larsen Ridge skarn prospect (EA091) was discovered in 1977 on the ridge west of Mount Harper. In 1979, the Quartz-Porphyry prospect was discovered during an airborne magnetic survey and geologic mapping in the Mount Harper area by Union Carbide Corp. Additional detailed mapping and rock sampling were conducted in the area by Union Carbide Corp. in 1980.

Production notes:

Reserves:

Additional comments:

The Quartz-Porphyry prospect is located within Doyon, Ltd. selected or conveyed land. For more information contact Doyon, Ltd., Fairbanks, Alaska.

References:

Chapin, 1919; Smith, 1942 (B 926-C); Cobb, 1972 (MF-393); WGM Inc., 1977; WGM

Inc., 1978; Union Carbide Corp., 1980; Hughs and Siems, 1981; Dashevsky and others, 1986; DiMarchi and others, 1991 (DLR 91-8a); DiMarchi and others, 1991 (DLR 91-8b); DiMarchi and others, 1991 (DLR 91-8c); DiMarchi and others, 1991 (DLR 91-8g); Burleigh and Lear, 1994; Newberry and others, 1998; WGM Inc., 1998 (DLR 98-10).

Primary reference: Dashevsky and others, 1986

Reporter(s): R.L. Flynn; M.B. Werdon

Last report date: 5/1/02

Site name(s): Section 21

Site type: Prospect

ARDF no.: EA095

Latitude: 64.2075 **Quadrangle:** EA A-6

Longitude: 143.8010

Location description and accuracy:

The Section 21 prospect is at an elevation of 4,700 feet on the southeast side of a ridge that extends south from Mount Harper. The prospect is about 2.5 miles southeast of Mount Harper in the headwaters of the Healy River. The coordinates are the approximate center of the prospect, in section 21, T. 8 S., R. 20 E, of the Fairbanks Meridian. The location is accurate. The Mount Harper area is locality 6 of Cobb (1972 [MF-393]). The Section 21 prospect is located within Doyon, Ltd. selected or conveyed land.

Commodities:

Main: Mo, W

Other: Ag

Ore minerals: Molybdenite, pyrite, scheelite, wolframite

Gangue minerals: Quartz

Geologic description:

The Section 21 prospect is in the Mount Harper quartz-monzonite-granodiorite intrusive complex (WGM Inc., 1978). Biotite from the Mount Harper granite gave a 40Ar/39Ar plateau age of 105.8 +/- 0.4 Ma (Newberry and others, 1998). Mineralization and alteration at the Section 21 prospect is associated with a quartz porphyry-aplite plug about 800 meters in diameter (WGM Inc., 1978). A northeast-trending andesitic to dacitic dike complex intrudes both the quartz porphyry and granodiorite. The quartz porphyry-aplite plug contains quartz-molybdenite veining; the quartz veinlets are generally less than 1 millimeter wide. The molybdenite is fine grained, and pyrite is also present. In the quartz porphyry-aplite plug, silicification is the dominant alteration type, with lesser amounts of sericite and clay. Similar alteration is also present in the granodiorite near the quartz porphyry contact. Airborne magnetic surveys detected a magnetic high centered under the altered plug. Samples of vein material in the quartz-porphyry-aplite plug contain as much as 500 ppm molybdenum and 40 ppm tungsten. Samples of milky-quartz, vein material that contains bladed wolframite bordered by scheelite assays as much as 0.4 percent WO3 and 14 ppm silver. Samples collected by the U.S. Bureau of Mines (1995) include a wolframite-bearing quartz vein with 1.7 percent tungsten and 14 ppm silver and aplite and

quartz-vein material with 180 ppm molybdenum. Muscovite from a quartz-wolframite vein at the Section 21 prospect gives a 40Ar/39Ar plateau age of 102 +/- 0.4 Ma (Newberry and others, 1998). There are several other molybdenum-tungsten prospects in the MtountHarper area, including VABM Good (EA092), Larsen Ridge (EA091), Quartz-Porphyry (EA094), and Airplane Ridge (EA093).

Molybdenite in a quartz vein on the southern slope of Mount Harper was first reported by Chapin (1919). Anomalous tungsten, copper, and molybdenum values were found during stream-sediment reconnaissance in the Mount Harper area by WGM Inc. in 1975; this was followed by geologic mapping and rock sampling in 1976 (Dashevsky and others, 1986). Molybdenum mineralization was discovered at the Section 21 prospect in 1977 (WGM Inc., 1978). WGM Inc. concluded that low grades at surface could not be expected to improve with depth. In 1979, Union Carbide Corp. decided that the property showed features similar to large porphyry molybdenum deposits and that the property warranted drilling (WGM Inc., 1998 [DLR 98-10]). A drill hole by Union Carbide Corp. in 1981 was aborted early without penetrating mineralization (U.S. Bureau of Mines, 1995).

Alteration:

In the quartz porphyry-aplite plug, silicification is the dominant alteration type; there are lesser amounts of sericite and clay. Similar alteration is also present in the granodiorite near the quartz porphyry contact.

Age of mineralization:

Muscovite from a quartz-wolframite vein at the Section 21 prospect gives a 40Ar/39Ar plateau age of 102 +/- 0.4 Ma (Newberry and others, 1998).

Deposit model:

Porphyry Mo (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:

Molybdenite in a quartz vein on the southern slope of Mount Harper was first reported by Chapin (1919). Anomalous tungsten, copper, and molybdenum values were found during stream-sediment reconnaissance in the Mount Harper area by WGM Inc. in 1975; this was followed by geologic mapping and rock sampling in 1976 (Dashevsky and others, 1986). Molybdenum mineralization was discovered at the Section 21 prospect in 1977 (WGM Inc., 1978). WGM Inc. concluded that low grades at surface could not be expected to improve with depth. In 1979, Union Carbide Corp. decided that the property showed features similar to large porphyry molybdenum deposits and that the property warranted drilling (WGM Inc., 1998 [DLR 98-10]). A drill hole by Union Carbide Corp.

in 1981 was aborted early without penetrating mineralization (U.S. Bureau of Mines, 1995).

Production notes:

Reserves:

Additional comments:

The Section 21 prospect is located within Doyon, Ltd. selected or conveyed land. For more information contact Doyon, Ltd., Fairbanks, Alaska.

References:

Chapin, 1919; Smith, 1942 (B 926-C); Cobb, 1972 (MF-393); WGM Inc., 1978; Jirik and others, 1979; Huskey, 1981; Dashevsky and others, 1986; DiMarchi and others, 1991 (DLR 91-8a); DiMarchi and others, 1991 (DLR 91-8b); DiMarchi and others, 1991 (DLR 91-8c); DiMarchi and others, 1991 (DLR 91-8g); Burleigh and Lear, 1994; U.S. Bureau of Mines, 1995; Newberry and others, 1998; WGM Inc., 1998 (DLR 98-10).

Primary reference: WGM Inc., 1978; U.S. Bureau of Mines, 1995

Reporter(s): R.L. Flynn; M.B. Werdon

Last report date: 5/1/02

Site name(s): Oscar

Site type: Prospect

ARDF no.: EA096

Latitude: 64.2284 **Quadrangle:** EA A-5

Longitude: 143.1176

Location description and accuracy:

The Oscar prospect covers about 5 square miles on the ridge west of Gold Bottom Creek, about 4 miles northwest of Mount Veta. The coordinates are the approximate center of the prospect, in section 14, T. 8 S., R. 23 E., of the Fairbanks Meridian; the location is accurate within 1,000 feet. The Oscar prospect is located within Doyon, Ltd. selected or conveyed land.

Commodities:

Main: Ag, Au, Cu, Pb, Zn

Other:

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

Gangue minerals: Calc-silicates

Geologic description:

The Oscar prospect is at the contact between the Mount Veta syenite of Jurassic age and Paleozoic marble, calcareous schist, and quartzite (WGM Inc., 1998 [DLR 98-10]). Hypabyssal Tertiary felsic intrusions and volcanic rocks and Tertiary or Mesozoic quartz-monzonite plutons are also present. The relation of these younger intrusions to the Oscar prospect is not known. Ten outcrops of skarn occur at the prospect, but vegetation cover is extensive (WGM Inc., 2000 [Veta property summary]; WGM Inc., 1998 [DLR 98-10]). Ground magnetometer surveys indicate that several skarns are connected in the shallow subsurface and blind extensions continue beneath tundra cover.

Magnetite, pyrrhotite, galena, sphalerite, and chalcopyrite occur in calc-silicate rocks and hornfels (Dashevsky and others, 1986). Average grades are generally less than 11 percent combined lead and zinc, and as much as 3 ounces of silver per ton. A massive chalcopyrite-pyrrhotite boulder in rubble contains 18.8 percent copper and 18 ounces of silver per ton. A trench over a ground-magnetic anomaly revealed iron-stained and geochemically anomalous soils that contain as much as 3.8 percent lead, 10 ounces of silver per ton, 0.4 percent copper, 0.9 percent zinc, and 860 ppb gold. Rock samples collected in 1990 contain as much as 2,040 ppb gold, 192 ppm silver, 9,134 ppm lead, greater than1 percent copper, and greater than1 percent zinc (WGM Inc., 1998 [DLR 98-10]). Four

northeast-trending soil anomalies are as much as2,000 feet long; they contain from 30 to greater than 7,000 ppb gold, 1 to 30 ppm silver, 100 to greater than 10,000 ppm copper, and as much as more than 10,000 ppm zinc (WGM Inc., 2000 [Veta property summary]). Molybdenum- and silver-bearing calc-silicate inclusions in quartz monzonite occur across Gold Bottom Creek, east of the Oscar prospect skarns. Several other prospects are associated with the Mount Veta intrusive complex, including Little Enchilada (EA103), East Eva (EA098), Eva Creek (EA099), Little Whiteman Creek (EA060), Oscar West (EA097), unnamed (north of Fish Creek) (EA062), Molly Creek (EA100), and Mitchell (EA101).

Bear Creek Mining Co. discovered the Oscar prospect in 1971; they conducted soil and rock sampling and a ground magnetic survey (Dashevsky and others, 1986). In 1975, WGM Inc. did stream sediment reconnaissance in the area; 1976 work by WGM Inc. included stream sediment sampling, reconnaissance geologic mapping, rock sampling, trenching, and soil sampling on a grid. In 1981, Arctic Resources Inc. extended the soil grid, and in 1982, Doyon, Ltd. traversed outlying ridges and slopes, sampled soils on a grid over a blind skarn, and conducted a ground magnetometer survey. In 1990, Central Alaska Gold Co. did geologic mapping and rock, soil, and stream-sediment sampling (WGM Inc., 1998 [DLR 98-10]). In 2000, WGM Inc. reported that the Oscar prospect was near the drilling stage; they proposed to: find the limit of the soil anomalies by expansion of the soil grid; follow up airborne geophysics and stream-sediment anomalies; complete geologic mapping; and commence drilling (WGM Inc., 2000 [Veta property summary]). Work by WGM Inc. in 2001 was restricted to stream-sediment sampling near the peripheries of the prospect (WGM Inc., 2002).

Alteration:

Age of mineralization:

Skarn mineralization is spatially associated with the contact of the Mount Veta syenite of Jurassic age and Paleozoic marble, calc-schist, and quartzite (WGM Inc., 1998 [DLR 98-10]).

Deposit model:

Cu skarn or Zn-Pb skarn (Cox and Singer, 1986; models 18b and18c).

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

18b or 18c

Production Status: None

Site Status: Active?

Workings/exploration:

Bear Creek Mining Co. discovered the Oscar prospect in 1971; they conducted soil and rock sampling and a ground magnetic survey (Dashevsky and others, 1986). In 1975, WGM Inc. did stream-sediment reconnaissance in the area; 1976 work by WGM Inc. included stream-sediment sampling, reconnaissance geologic mapping, rock sampling,

trenching, and soil sampling on a grid. In 1981, Arctic Resources Inc. extended the soil grid, and in 1982, Doyon, Ltd. traversed outlying ridges and slopes, sampled soils on a grid over a blind skarn, and conducted a ground magnetometer survey. In 1990, Central Alaska Gold Co. did geologic mapping and rock, soil, and stream-sediment sampling (WGM Inc., 1998 [DLR 98-10]). In 2000, WGM Inc. reported that the Oscar prospect was near the drilling stage; they proposed to: find the limit of the soil anomalies by expansion of the soil grid; follow up airborne geophysics and stream-sediment anomalies; complete geologic mapping; and commence drilling (WGM Inc., 2000 [Veta property summary]). Work by WGM Inc. in 2001 was restricted to stream-sediment sampling near the peripheries of the prospect (Ventures Resources, 2002).

Production notes:

Reserves:

Additional comments:

The Oscar prospect is located within Doyon, Ltd. selected or conveyed land. For more information contact Doyon, Ltd., Fairbanks, Alaska.

References:

WGM Inc., 1977; Lessman and Holm, 1978 (DLR 78-05); Carter, 1981; Dashevsky, 1983; Dashevsky and others, 1986; DiMarchi and others, 1991 (DLR 91-8a); DiMarchi and others, 1991 (DLR 91-8b); DiMarchi and others, 1991 (DLR 91-8c); DiMarchi and others, 1991 (DLR 91-8g); Burleigh and Lear, 1994; WGM Inc., 1998 (DLR 98-10); WGM Inc., 2000 (Veta property summary); Ventures Resource Corp., 2002.

Primary reference: Dashevsky and others, 1986; WGM Inc., 1998 (DLR 98-10)

Reporter(s): M.B. Werdon; R.L. Flynn; D.J. Szumigala

Last report date: 4/7/03

Site name(s): Oscar West

Site type: Prospect

ARDF no.: EA097

Latitude: 64.2173 **Quadrangle:** EA A-5

Longitude: 143.1611

Location description and accuracy:

The Oscar West prospect is located on an east-west trending ridge about 5 miles west of Mount Veta. The coordinates are the approximate center of the prospect, in section 15, T. 8 S., R. 23 E., of the Fairbanks Meridian. The location is accurate. The Oscar West prospect is located within Doyon, Ltd. selected or conveyed land.

Commodities:

Main: Ag, Cu, Pb, Zn

Other:

Ore minerals:

Gangue minerals:

Geologic description:

At the Oscar West prospect, local gossan-bearing rubble and boulders occur in Paleozoic biotite schist with marble interbeds as much as 150 feet thick (Dashevsky and others, 1986). Two hundred feet west and 200 to 300 feet east of the gossan occurrence, a 50- by 80-foot soil anomaly contains as much as 9,000 ppm lead, 1,800 ppm zinc, and 43 ppm silver. A grab sample of the gossan contains 0.02 percent copper, 0.87 percent lead, 1.02 percent zinc, and 1.25 ounces silver per ton. Several other prospects are associated with the Mount Veta intrusive complex, including Little Enchilada (EA103), East Eva (EA098), Eva Creek (EA099), Little Whiteman Creek (EA060), Oscar (EA096), unnamed (north of Fish Creek) (EA062), Molly Creek (EA100), and Mitchell (EA101).

WGM Inc. conducted reconnaisance mapping and prospecting in the Oscar West prospect area in 1976 and sampled the soil on a small grid in 1977 (Dashevsky and others, 1986). A trench dug in 1977 did not reach bedrock.

Alteration:

Age of mineralization:

Skarn mineralization in the Oscar prospect area appears to be at the contact of the Mount Veta syenite of Jurassic age and Paleozoic marble, calc-schist, and quartzite.

Deposit model:
Cu skarn or Zn-Pb skarn (Cox and Singer, 1986; models 18b or 18c).

Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):
18b or 18c

Production Status: None

Site Status: Probably inactive

Workings/exploration:
WGM Inc. conducted reconnaisance mapping and prospecting in the Oscar West prospect area in 1976 and sampled the soil on a small grid in 1977 (Dashevsky and others, 1986). A trench dug in 1977 did not reach bedrock.

Production notes:

Reserves:

Additional comments:
The Oscar West prospect is located within Doyon, Ltd. selected or conveyed land. For more information contact Doyon, Ltd., Fairbanks, Alaska.

References:
WGM Inc., 1977; Lessman and Holm, 1978 (DLR 78-5); Dashevsky and others, 1986; WGM Inc., 1998 (DLR 98-10).

Primary reference: Dashevsky and others, 1986

Reporter(s): R.L. Flynn; M.B. Werdon

Last report date: 5/1/02

Site name(s): East Eva

Site type: Prospect

ARDF no.: EA098

Latitude: 64.1378 **Quadrangle:** EA A-5

Longitude: 143.1139

Location description and accuracy:

The East Eva lode prospect is on a ridge east of the headwaters of Norvell Creek about 1 mile east of hill 4855. The coordinates are the appproximate center of the prospect ,in section 8, T. 27 N., R. 12 E., of the Copper River Meridian. The location is accurate to within 1 mile. The East Eva prospect is located within Doyon, Ltd. selected or conveyed land.

Commodities:

Main: Ag, Au, Cu, Pb

Other:

Ore minerals:

Gangue minerals:

Geologic description:

The East Eva prospect is associated with an elongate, northeast-trending, hornfelsed roof pendant composed of Paleozoic schist, quartzite, and marble that have been intruded by the Mount Veta syenite (WGM Inc., 1998 [DLR 98-10]). This syenite has a hornblende K-Ar age of 177 +/- 5 Ma (Foster, 1976). Mineralization is confined to a sulfide-bearing zone about 1 foot wide within the hornfels. A zone of moderately intense propylitization within syenite and quartzite did not contain anomalous precious or base metals; it was concluded that this mineralization is contact related and very limited in extent (WGM Inc., 1998 [DLR 98-10]). Rock samples collected at the East Eva Creek prospect in 1990 contain as much as 1,420 ppb gold, 10.8 ppm silver, and 7,365 ppm copper. Other rock-chip samples contain as much as 0.01 ounce of gold per ton, 15 ounces of silver per ton, 15 percent zinc, 7 percent lead, and 0.42 percent copper. Several other base-metal prospects are spatially associated with the Mount Veta intrusive complex, including Eva Creek (EA099), Oscar (EA096), Oscar West (EA097), Little Enchilada (EA103), unnamed (north of Fish Creek) (EA062), Molly Creek (EA100), Little Whiteman Creek (EA060), and Mitchell (EA101).

Central Alaska Exploration Corp. conducted mapping and rock sampling in the East Eva prospect area in 1989, and Central Alaska Gold Co. conducted rock, stream-

sediment, and soil sampling in 1990 (WGM Inc., 1998 [DLR 98-10]).

Alteration:

There is a zone of moderately intense propylitization within the syenite associated with hornfels (WGM Inc., 1998 [DLR 98-10]).

Age of mineralization:

The East Eva skarn is likely related to the Mount Veta syenite of Jurassic age.

Deposit model:

Cu skarn or Zn-Pb skarn (Cox and Singer, 1986; model 18b or 18c).

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

18b or 18c

Production Status: None

Site Status: Probably inactive

Workings/exploration:

Central Alaska Exploration Corp. conducted mapping and rock sampling in the East Eva prospect area in 1989, and Central Alaska Gold Co. conducted rock, stream-sediment, and soil sampling in 1990 (WGM Inc., 1998 [DLR 98-10]).

Production notes:

Reserves:

Additional comments:

The East Eva prospect is located within Doyon, Ltd. selected or conveyed land. For more information contact Doyon, Ltd., Fairbanks, Alaska.

References:

Foster, 1976; Caithness Alaska Mining Co., 1990 (DLR 90-06a); Caithness Alaska Mining Co., 1990 (DLR 90-06b); Caithness Alaska Mining Co., 1990 (DLR 90-06c); Caithness Alaska Mining Co., 1990 (DLR 90-06d); DiMarchi and others, 1990 (DLR 90-06j); DiMarchi and others, 1991 (DLR 91-8a); DiMarchi and others, 1991 (DLR 91-8b); DiMarchi and others, 1991 (DLR 91-8c); DiMarchi and others, 1991 (DLR 91-8g); WGM Inc., 1998 (DLR 98-10).

Primary reference: WGM Inc., 1998 (DLR 98-10)

Reporter(s): M.B. Werdon; R.L. Flynn

Last report date: 5/1/02

Site name(s): Eva Creek; Ruby Silver

Site type: Prospect

ARDF no.: EA099

Latitude: 64.1057 **Quadrangle:** EA A-5

Longitude: 143.1978

Location description and accuracy:

The center of the Eva Creek prospect is at an elevation of about 3,900 feet on the ridge north of Eva Creek. The prospect area extends several miles to the north and south into the Norvell Creek and Iron Creek drainages. The coordinates are the location of trenches, in the central part of the Eva Creek prospect in section 23, T. 27 N., R. 11 E., of the Copper River Meridian. The location is accurate. The Eva Creek prospect is locality 9 of Cobb (1972 [MF-393]) and locality 52 of Eberlein and others (1977). The Eva Creek prospect is located within Doyon, Ltd. selected or conveyed land.

Commodities:

Main: Ag, Cu, Pb, Zn

Other: Au, Sb

Ore minerals: Argentiferous galena, azurite, cerrusite, hematite, malachite, pyrite, pyrrhotite, sphalerite

Gangue minerals: Calcite, epidote, quartz

Geologic description:

The Eva Creek prospect is in Paleozoic gneiss, schist, quartzite, and marble, that have been intruded by the Mount Veta syenite of Jurassic age (Foster, 1976). Other Tertiary to Mesozoic monzonite and granite intrusions are located about 1 mile east of the prospect, and there are felsic and mafic dikes in the area (Dashevsky and others, 1986). The granitic intrusion to the east is epidotized and contains local altered zones near the contact (Foster and Clark, 1970). Several other prospects are spatially associated with the Mount Veta intrusive complex, including East Eva (EA098), Oscar (EA096), Oscar West (EA097), Little Enchilada (EA103), unnamed (north of Fish Creek) (EA062), Molly Creek (EA100), Little Whiteman Creek (EA060), and Mitchell (EA101).

At the Eva Creek prospect, pyrite and pyrrhotite occur as disseminated grains within gneiss and schist. There are scattered highly mineralized marble units that contain argentiferous galena, cerussite, sphalerite, azurite, and malachite filling vugs, boxworks, and quartz veinlets (Carter, 1981 [DLR 81-27]). Wedow and others (1954) reported quartz veins as much as several feet thick, most of which are highly fractured and stained with

hematite. These veins contain pods of galena, partly altered to cerrusite, and calcite. Rock samples from the Eva Creek prospect with galena, sphalerite, and malachite contain as much as 9.24 ounces of silver per ton, 29.13 percent lead, and 0.61 percent copper (Saunders, 1962 [PE 60-10]). Rock samples from trenches contain 0.4 to 2 percent copper, 7 to 52 percent lead, 0.6 to 21 percent zinc, and 31 to 99 ounces of silver per ton. Other samples of vein material and gossan in trenches contain as much as 32.4 ounces of silver per ton, 0.18 percent copper, 896 ppm antimony, 9.5 percent zinc, and 6.6 percent lead (U.S. Bureau of Mines, 1995). A vein that strikes at least 1,800 feet contains as much as 28.7 percent lead, 9.4 percent zinc, 0.28 percent copper, 0.003 ounce of gold per ton, and 19.4 ounces of silver per ton (Swainbank and others, 1998).

Metal anomalies in soils at the Eva Creek prospect are elongated northeast-southwest, and there is a subtle base-metal anomaly that extends to the northeast (Dashevsky and others, 1986). Both CEM and VLF-EM geophysical surveys detected narrow conductors striking north to northwest for 400 feet or less. Seven-hundred feet northwest of the trenches at the Eva Creek prospect, soils have elevated copper in an area of strong response to IP and ground magnetic surveys. A drill hole at the Eva Creek prospect penetrated pyrite- and magnetite-bearing, biotite schist, and calcite-filled breccia zones as much as 58 feet thick. At the head of Iron Creek, two core holes totaling 404 feet were drilled in an area with anomalous magnetite and zinc; these holes intersected disseminated pyrite and chalcopyrite, iron oxides, and rare galena in banded marble and dolomite (Dashevsky and others, 1986).

About 18 miles of traverses were conducted in the area in 1949 (Wedow and others, 1954), but no significant radioactivity was detected in panned heavy-mineral concentrates. Saunders (1962 [PE 60-10]) examined prospects in the My Creek and Eva Creek area in 1960. Rock and stream-sediment samples were collected from the Molly Creek drainage in 1968 (Foster and Clark, 1970). Apex Exploration, Ltd. conducted exploration in the Eva Creek area in the early 1970's (Dashevsky and others, 1986). Placid Oil Company explored in the area from 1975 to 1978, which included float mapping, soil sampling on a grid, and ground magnetic, CEM, and VLF-EM geophysical surveys. Three core holes were drilled in trenches at Eva Creek in 1977, and two core holes were drilled on Iron Creek in 1978. In 1981, Arctic Resources Inc. conducted soil and high-grade rock sampling at the Eva Creek prospect, and work by Doyon Ltd. in 1982 included two lines of IP-resistivity and magnetometer surveys.

Alteration:

Age of mineralization:

Jurassic or younger.

Deposit model:

Cu skarn, Zn-Pb skarn, or kuroko massive sulfide (Cox and Singer, 1986; models 18b, 18c, or 28a).

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

18b, 18c, or 28a

Production Status: None

Site Status: Probably inactive

Workings/exploration:

About 18 miles of traverses were conducted in the area in 1949 (Wedow and others, 1954), but no significant radioactivity was detected in panned heavy-mineral concentrates. Saunders (1962 [PE 60-10]) examined prospects in the My Creek and Eva Creek area in 1960. Rock and stream-sediment samples were collected from the Molly Creek drainage in 1968 (Foster and Clark, 1970). Apex Exploration, Ltd. conducted exploration in the Eva Creek area in the early 1970's (Dashevsky and others, 1986). Placid Oil Company explored in the area from 1975 to 1978, which included float mapping, soil sampling on a grid, and ground magnetic, CEM, and VLF-EM geophysical surveys. Three core holes were drilled in trenches at Eva Creek in 1977, and two core holes were drilled on Iron Creek in 1978. In 1981, Arctic Resources Inc. conducted soil and high-grade rock sampling at the Eva Creek prospect, and work by Doyon Ltd. in 1982 included two lines of IP-resistivity and magnetometer surveys.

Production notes:

Reserves:

Additional comments:

The Eva Creek prospect is located within Doyon, Ltd. selected or conveyed land. For more information contact Doyon, Ltd., Fairbanks, Alaska.

References:

Wedow and others, 1954; Saunders, 1962 (PE 60-10); Berg and Cobb, 1967; Foster and Clark, 1969; Foster and Clark, 1970; Cobb, 1972 (MF-393); Eberlein and others, 1977; Cobb, 1977 (OFR 77-845); Carter, 1981; Sweet, 1982 ; Dashevsky, 1983; Dashevsky, 1984; Dashevsky and others, 1986; Burleigh and Lear, 1994; U.S. Bureau of Mines, 1995; Swainbank and others, 1998; WGM Inc., 1998 (DLR 98-10).

Primary reference: Dashevsky and others, 1986; U.S. Bureau of Mines, 1995

Reporter(s): R.L. Flynn; M.B. Werdon

Last report date: 5/1/02

Site name(s): Molly Creek; My Creek

Site type: Prospect

ARDF no.: EA100

Latitude: 64.1017 **Quadrangle:** EA A-5

Longitude: 143.3022

Location description and accuracy:

The Molly Creek prospect is located in a saddle on the ridge between Our and My Creeks. The center of the prospect is in the SW1/4 section 20, T. 27 N., R. 11 E., of the Copper River Meridian. The location is accurate. The Molly Creek prospect is locality 8 of Cobb (1972 (MF-393) and locality 42 of Eberlein and others (1977). The Molly Creek prospect is located within Doyon, Ltd. selected or conveyed land.

Commodities:

Main: Sb

Other: Ag, Au

Ore minerals: Gold, orpiment, realgar, stibnite

Gangue minerals: Calcite, quartz

Geologic description:

The Molly Creek prospect is in Paleozoic gneiss, schist, quartzite, and marble that have been intruded by the Mount Veta syenite of Jurassic age (Foster, 1976). Other Tertiary to Mesozoic monzonite and granite intrusions are located about 1 mile east of the prospect, and there are felsic and mafic dikes in the area (Dashevsky and others, 1986). The granitic intrusion to the east is epidotized and contains local altered zones near the contact (Foster and Clark, 1970). Several other prospects are spatially associated with the Mount Veta intrusive complex, including East Eva (EA098), Oscar (EA096), Oscar West (EA097), Little Enchilada (EA103), Unnamed (north of Fish Creek) (EA062), Eva Creek (EA099), Little Whiteman Creek (EA060), and Mitchell (EA101).

The Molly Creek prospect consists of an east-dipping, northeast-striking quartz vein system with marble clasts that contain bladed stibnite along drusy vein walls. Trenches have been dug across 610 meters of the vein system. Stibnite in the trenches occurs as veinlets, blebs, and large radiating crystal masses in limonite-stained quartzitic and quartz-carbonate breccia; orpiment, realgar, and rare traces of gold also occur (Dashevsky and others, 1986). Rubble of a massive, milky quartz vein about 4 feet wide and silicified marble is exposed in several trenches. The vein follows the contact between footwall quartzo-feldspathic schist and hanging-wall marble. The footwall contact of the vein is

sharp, and mineralization and alteration do not extend into the adjacent schist. On the hanging wall, marble grades into silicified marble and quartz veining; silica flooding of the marble has produced 'sponge' rock (U.S. Bureau of Mines, 1995). This marble contains trace stibnite; drilling indicates the marble horizon may be as thick as 18 meters.

Seven short Winkie drill holes at various angles from the same location link the antimony mineralization to a fault-controlled silica-carbonate zone. There are local mineralized shoots on cross faults displacing the main structure (Dashevsky and others, 1986). Average grades in drill holes were under 0.5 percent antimony. Ore samples contain as much as 49 percent antimony; the highest gold value was 0.007 ounce of gold per ton. An eighth hole stepped out 700 feet along strike and cut 11 feet with more than 2 percent antimony. Two samples from the trenches contain as much as 37.7 percent antimony, and a sample of boxworks gossan contains 0.24 ounce of silver per ton (U.S. Bureau of Mines, 1995). There are gold anomalies of as much as 1,955 ppb gold in streams draining the prospect (WGM Inc., 2000 [Veta property summary]). The silver and antimony soil anomalies at the prospect continue beyond the sampling, and the mineralization may extend 3 miles along the structural zone.

The deposit was discovered in 1918 by following a 1,500 foot-long float train of stibnite in tundra (WGM Inc., 1998 [DLR 98-10]). About 4 tons of high-grade ore, estimated to contain more than 50 percent antimony, and several tons of lower grade ore were found in overburden during trenching that followed (Joesting and Anderson, 1942). The U.S. Bureau of Mines explored the prospect with a churn drill in 1943; stibnite was found in only one of the seven short holes that were drilled (Ebbley and Wright, 1948). Apex Exploration sampled soil on a grid in 1973 and did 4,000 feet of trenching at the prospect in 1974 (Dashevsky and others, 1986). Eight short Winkie holes were drilled and trench mapping was done by Consolidated Durham Mines in 1975; the average grade of the antimony found to be low and the stibnite shoots small (Dimarchi and others, 1990). Placid Oil Company remapped the prospect in 1976; they sampled soil on a grid and conducted a VLF-EM geophysics survey in 1977. In 1981, Arctic Resources Inc. briefly examined the trenches, and in 1982, Doyon,Ltd. surveyed the trenches, inventoried the core, and carried out magnetic and IP surveys. WGM Inc. conducted a soil sampling program in 2001 and identified a 5,800-foot-long antimony soil anomaly (Ventures Resource Corp., 2002).

Alteration:

Age of mineralization:

Probably related to the Mount Veta syenite of Jurassic age.

Deposit model:

Simple Sb deposit (Cox and Singer, 1986; model 27d).

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

27d

Production Status: Yes; small

Site Status: Probably inactive

Workings/exploration:

The deposit was discovered in 1918 by following a 1,500 foot-long float train of stibnite in tundra (WGM Inc., 1998 [DLR 98-10]). About 4 tons of high-grade ore, estimated to contain more than 50 percent antimony, and several tons of lower grade ore were found in overburden during trenching that followed (Joesting and Anderson, 1942). The U.S. Bureau of Mines explored the prospect with a churn drill in 1943; stibnite was found in only one of the seven short holes that were drilled (Ebbley and Wright, 1948). Apex Exploration sampled soil on a grid in 1973 and did 4,000 feet of trenching at the prospect in 1974 (Dashevsky and others, 1986). Eight short Winkie holes were drilled and trench mapping was done by Consolidated Durham Mines in 1975; the average grade of the antimony found to be low and the stibnite shoots small (Dimarchi and others, 1990b). Placid Oil Company remapped the prospect in 1976; they sampled soil on a grid and conducted a VLF-EM geophysics survey in 1977. In 1981, Arctic Resources Inc. briefly examined the trenches, and in 1982, Doyon, Ltd. surveyed the trenches, inventoried the core, and carried out magnetic and IP surveys. WGM Inc. conducted a soil sampling program in 2001 and identified a 5,800-foot-long antimony soil anomaly (Ventures Resource Corp., 2002).

Production notes:

About 4 tons of high-grade ore, estimated to contain more than 50 percent antimony, and several tons of lower grade ore were found in overburden during trenching at the Molly Creek prospect (Joesting and Anderson, 1942).

Reserves:

Additional comments:

The Molly Creek prospect is located within Doyon, Ltd. selected or conveyed land. For more information contact Doyon, Ltd., Fairbanks, Alaska.

References:

Joesting and Anderson, 1942; Joesting, 1943; Ebbley and Wright, 1948; Foster and Clark, 1969; Foster and Clark, 1970; Cobb, 1972 (MF-393); Foster, 1976; Cobb, 1977 (OFR 77-845); Eberlein and others, 1977; Carter, 1981; Sweet, 1982; Dashevsky, 1983; Dashevsky, 1984; Dashevsky and others, 1986; Caithness Alaska Mining Co., 1990 (DLR 90-06a); Caithness Alaska Mining Co., 1990 (DLR 90-06b); Caithness Alaska Mining Co., 1990 (DLR 90-06c); Caithness Alaska Mining Co., 1990 (DLR 90-06d); DiMarchi and others, 1990a (DLR 90-06j); Dimarchi and others, 1990b; Burleigh and Lear, 1994; U.S. Bureau of Mines, 1995; WGM Inc., 1998 (DLR 98-10); WGM Inc., 2000 (Veta property summary); Ventures Resource Corp., 2002.

Primary reference: Dashevsky and others, 1986; U.S. Bureau of Mines, 1995

Reporter(s): M.B. Werdon; R.L. Flynn; D.J. Szumigala

Last report date: 4/4/03

Site name(s): Mitchell; Ketchumstuk

Site type: Prospect

ARDF no.: EA101

Latitude: 64.0919 **Quadrangle:** EA A-5

Longitude: 143.0349

Location description and accuracy:

The Mitchell prospect is located on a hill about 1.5 miles south of Kechumstuk Creek, about 8 miles south of Mount Veta, and about 0.4 mile north of hill 4545. The coordinates are the location of trenches at the Mitchell prospect, in section 27, T. 27 N., R. 12 E., of the Copper River Meridian. The location is accurate. The Mitchell prospect is locality 10 of Cobb (1972 [MF-393]) and locality 39 of Eberlein and others (1977). The Mitchell prospect is located within Doyon, Ltd. selected or conveyed land.

Commodities:

Main: Ag, Au, Cu, Zn

Other: Bi, Mo, Pb, Sn

Ore minerals: Bornite, chalcopyrite, covellite, galena, magnetite, malachite, sphalerite, tetrahedrite

Gangue minerals: Calcite, diopside, epidote, garnet, quartz

Geologic description:

The rocks in the vicinity of the Mitchell prospect are Paleozoic quartz-mica schist and greenstone that have been intruded by Mesozoic or Tertiary granitic rocks, and the Mount Veta syenite of Jurassic age (Foster, 1976). The Mitchell prospect is a skarn that is hosted in a marble-rich section of a schist roof pendant associated with an extensive area of granitic rocks (Saunders, 1962 [PE 60-11]). The roof pendant is about 5,000 feet long and 500 to 1,000 feet wide; it is probably underlain at shallow depth by intrusive rocks, including hornblende granodiorite (WGM Inc., 1998 [DLR 98-10]). Other carbonate-bearing schist in roof pendants crops out west of the Mitchell prospect. Granodiorite adjacent to the Mitchell prospect skarn is foliated, suggesting a Late Triassic or Early Jurassic age for the intrusion and skarn mineralization (Newberry and others, 1998). Several other prospects are associated with the Mount Veta intrusive complex, including Little Enchilada (EA103), East Eva (EA098), Eva Creek (EA099), Oscar (EA096), Oscar West (EA097), unnamed (north of Fish Creek) (EA062), Molly Creek (EA100), and Little Whiteman Creek (EA060).

The Mitchell prospect is a gold-rich copper skarn (Newberry, 1995). The primary ore

mineral is bornite; chalcopyrite, covellite, magnetite, sphalerite, galena, and tetrahedrite are also present (WGM Inc., 1998 [DLR 98-10]). Gangue minerals include quartz, garnet, diopside, calcite, and epidote. Trenches at the prospect have boulders as much as 40 centimeters in diameter that contain massive sphalerite, bornite, tetrahedrite, covellite, and malachite. A 5-foot-wide, east-northeast-striking vein of quartz, bornite, and chalcopyrite is exposed in one of the trenches (Saunders, 1962 [PE 60-11]). In some areas the ore is banded on a 3- to 5-millimeter scale with alternating layers of calc-silicates and chalcopyrite and bornite (WGM Inc., 1998 [DLR 98-10]). Malachite is present on some fracture surfaces and also as earthy masses.

Soils at the Mitchell prospect contain as much as 4.4 percent zinc, 2,400 ppm lead, 3000 ppm copper, and 21 ppm silver (Dashevsky and others, 1986). The anomalies are at least partially open in all directions (WGM Inc., 1998 [DLR 98-10]). Magnetic highs are spatially associated with the soil anomalies near the trenches and at the northeast corner of the soil grid. A high-grade rock sample contains 230 ppb gold, 8 ppb platinum, 7 ppb palladium, 1.2 ppm tellurium, 150 ppm silver, 3.4 percent copper, 625 ppm lead, 3,100 ppm zinc, 21 ppm molybdenum, 2,830 ppm bismuth, 48 ppm arsenic, 5.9 ppm antimony, 34 ppm tin, and 10 ppm tungsten (Newberry, 1995). A sample of greenish, garnet skarn with disseminated to semimassive bornite contains 1,020 ppb gold, 8.5 ppm tellurium, 230 ppm silver, 6.5 percent copper, 178 ppm lead, 208 ppm zinc, greater than 2,000 ppm bismuth, 53 ppm arsenic, 5.6 ppm antimony, and 36 ppm tin (Burleigh and Lear, 1994). Additional geochemical analyses of several rock and mineralized samples from the Mitchell prospect are reported in Saunders (1962 [PE 60-11]), Foster and Clark (1970), Burleigh and Lear (1994), and WGM Inc. (1998 [DLR 98-10]). Newberry (1995) gives microprobe compositions for pyroxene, garnet, and epidote; lead and sulfur isotopic data; and rare-earth-element abundances from the Mitchell prospect.

The Mitchell prospect was discovered in the early 1900's and a little work was done in 1911 (Porter, 1912). The prospect was trenched and examined by Bear Creek Mining Co. in the early 1960's, and these trenches and pits were mapped by Saunders (1962 [PE 60-11]). In 1976, WGM Inc. did reconnaissance mapping in the Mitchell prospect area and conducted stream-sediment sampling, geologic mapping, and soil sampling in 1977 (Dashevsky and others, 1986). In 1997, WGM Inc. surveyed the trenches and collected rock samples at the prospect (WGM Inc., 1998 [DLR 98-10]).

Alteration:

The Mitchell prospect is a gold-rich copper skarn (Newberry, 1995).

Age of mineralization:

Granodiorite adjacent to the Mitchell prospect skarn is foliated, suggesting a Late Triassic or Early Jurassic age for the intrusion and skarn mineralization (Newberry and others, 1998).

Deposit model:

Cu skarn (Cox and Singer, 1986; model 18b).

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

18b

Production Status: None

Site Status: Probably inactive

Workings/exploration:

The Mitchell prospect was discovered in the early 1900's, and a little work was done in 1911 (Porter, 1912). The prospect was trenched and examined by Bear Creek Mining Co. in the early 1960's, and these trenches and pits were mapped by Saunders (1962 [PE 60-11]). In 1976, WGM Inc. did reconnaissance mapping in the Mitchell prospect area and conducted stream-sediment sampling, geologic mapping, and soil sampling in 1977 (Dashevsky and others, 1986). In 1997, WGM Inc. surveyed the trenches and collected rock samples at the prospect (WGM Inc., 1998 [DLR 98-10]).

Production notes:

Reserves:

Additional comments:

The Mitchell prospect is located within Doyon, Ltd. selected or conveyed land. For more information contact Doyon, Ltd., Fairbanks, Alaska.

References:

Porter, 1912; Ellsworth and Davenport, 1913; Mertie, 1937; Saunders, 1962 (PE 60-11); Foster and Clark, 1970; Cobb, 1972 (MF-393); Foster, 1976; Cobb, 1977 (OFR 77-845); Eberlein and others, 1977; WGM Inc., 1977; Lessman and Young, 1979; Dashevsky and Nicol, 1985; Dashevsky and others, 1986; Caithness Alaska Mining Co., 1990 (DLR 90-06a); Caithness Alaska Mining Co., 1990 (DLR 90-06b); Caithness Alaska Mining Co., 1990 (DLR 90-06c); Caithness Alaska Mining Co., 1990 (DLR 90-06d); Burleigh and Lear, 1994; Newberry, 1995; Newberry and others, 1997; Newberry and others, 1998; WGM Inc., 1998 (DLR 98-10).

Primary reference: WGM Inc., 1998 (DLR 98-10)

Reporter(s): M.B. Werdon; R.L. Flynn

Last report date: 5/1/02

Site name(s): Little Whiteman Creek

Site type: Occurrence

ARDF no.: EA102

Latitude: 64.2284 **Quadrangle:** EA A-4

Longitude: 142.8415

Location description and accuracy:

The Little Whiteman Creek prospect covers 9 square miles in upper Little Whiteman Creek. The coordinates mark the approximate center of the prospect area, in section 8, T. 8 S., R. 25 E., of the Fairbanks Meridian. The location is accurate within 1 mile. Little Whiteman Creek is locality 27 of Burleigh and Lear (1994). The Little Whiteman Creek prospect is located within Doyon, Ltd. selected or conveyed land.

Commodities:

Main: Ag, Au, Hg, Pb, W, Zn

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:

The rocks in upper Little Whiteman Creek consist of Paleozoic quartzite, schist, marble, and greenstone that have been intruded by Mesozoic granodiorite and quartz monzonite stocks and Jurassic syenite dikes (Foster, 1976; WGM Inc., 1998 [DLR 98-10]). A northeast-trending greenstone belt underlies the ridge at the south end of the prospect.

Anomalous lead, zinc, and silver are present in reconnaissance stream-sediment samples from Little Whiteman Creek, and panned heavy-mineral concentrates contain anomalous tungsten, silver, and mercury. Geochemical anomalies identified by the stream-sediment and panned concentrates are spatially separated and perhaps reflect input from two different deposit types. Sulfides noted by Foster (1976) on the ridge east of Little Whiteman Creek and on the ridgeline at the head of the creek are probable sources for the geochemical anomalies. Several other prospects are associated with the Mount Veta intrusive complex, including Little Enchilada (EA103), East Eva (EA098), Eva Creek (EA099), Oscar (EA096), Oscar West (EA097), unnamed (north of Fish Creek) (EA062), Molly Creek (EA100), and Mitchell (EA101).

WGM Inc. conducted a regional stream-sediment reconnaissance in the upper Little Whiteman Creek area in 1975 (Dashevsky and others, 1986). In 1977, WGM Inc. conducted ridge and hillside prospecting traverses, reconnaissance soil sampling, and a re-

connaissance magnetic survey. Follow-up panned heavy-mineral concentrates were collected in 1978. In 1981, Arctic Resources Inc. conducted ridge mapping and soil grab sampling in the Little Whiteman Creek area, and Doyon, Ltd. conducted placer reconnaissance in 1982. In 1990, Central Alaska Gold Co. conducted geologic mapping and soil, rock, and stream-sediment sampling in the Little Whiteman Creek prospect area (WGM Inc., 1998 [DLR 98-10]). WGM Inc. conducted sampling and mapping in 2001 and hypothesized that mineralization is hosted by gently dipping siliceous to carbonaceous phyllite. The target, which is open to the north, is well defined by a 6,000 by 1,200-foot zinc, lead ,and silver soil anomaly; zinc and lead values are greater than 1,000 ppm. All values in a 3,000 by as much as 800-foot segment of the anomaly exceed 500 ppm lead, 1,000 ppm zinc, and as much as 9.4 ppm silver. The only rock found in the heart of the target area is rare gossan in soil sample pits. Values from gossan samples include as much as34 percent lead, as much as 16 percent zinc, and as much as 13.75 ounces of silver per ton (Swainbank and others, 2002; Ventures Resource Corp., 2002).

Alteration:

Age of mineralization:

The upper Little Whiteman Creek drainage is underlain by Paleozoic metasedimentary and metavolcanic rocks and Mesozoic intrusive rocks (WGM Inc., 1998 [DLR 98-10]).

Deposit model:

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

Production Status: None

Site Status: Probably inactive

Workings/exploration:

WGM Inc. conducted regional stream sediment reconnaissance in the upper Little Whiteman Creek area in 1975 (Dashevsky and others, 1986). In 1977, WGM Inc. conducted ridge and hillside prospecting traverses, reconnaissance soil sampling, and a reconnaissance magnetic survey. Follow-up panned heavy-mineral concentrates were collected in 1978. In 1981, Arctic Resources Inc. conducted ridge mapping and soil grab sampling in the Little Whiteman Creek area, and Doyon, Ltd. conducted placer reconnaissance in 1982. In 1990, Central Alaska Gold Co. conducted geologic mapping and soil, rock, and stream-sediment sampling in the Little Whiteman Creek prospect area (WGM Inc., 1998 [DLR 98-10]). WGM Inc. conducted sampling and mapping in 2001 and hypothesized that mineralization is hosted by gently dipping siliceous to carbonaceous phyllite. The target, which is open to the north, is well defined by a 6,000 by 1,200-foot zin,000 ppm. All values in a 3,000 by up to 800-foot segment of the anomaly exceed 500 ppm lead, 1,000 ppm zinc, and up to 9.4 ppm silver. The only rock found in the heart of the target area is rare gossan in soil sample pits. Values from gossan samples include as much as34 percent lead, as much as 16 percent zinc, and as much as 13.75 ounces of silver per ton (Swainbank and others, 2002; Ventures Resource Corp., 2002).

Production notes:

Reserves:

Additional comments:

The Little Whiteman Creek prospect is located within Doyon, Ltd. selected or conveyed land. For more information contact Doyon, Ltd., Fairbanks, Alaska.

References:

Foster, 1976; WGM Inc., 1977; Lessman and Holm, 1978 (DLR 78-02); Lessman, 1979; Carter, 1981; Dashevsky, 1983; Dashevsky and others, 1986; DiMarchi and others, 1991 (DLR 91-8a); DiMarchi and others, 1991 (DLR 91-8b); DiMarchi and others, 1991 (DLR 91-8c); DiMarchi and others, 1991 (DLR 91-8g); Burleigh and Lear, 1994; WGM Inc., 1998 (DLR 98-10); Swainbank and others, 2002; Ventures Resource Corp., 2002.

Primary reference: WGM Inc., 1998 (DLR 98-10)

Reporter(s): M.B. Werdon; R.L. Flynn; D.J. Szumigala

Last report date: 4/7/03

Site name(s): Little Enchilada

Site type: Prospect

ARDF no.: EA103

Latitude: 64.1895 **Quadrangle:** EA A-4

Longitude: 142.9676

Location description and accuracy:

The Little Enchilada prospect is about 1.3 miles southeast of Mount Veta on a ridge between two forks of Veta Creek. The coordinates are the approximate center of the prospect ,in the SW1/4 section 27, T. 8 S., R. 24 E., of the Fairbanks Meridian. The location is accurate. The Little Enchilada prospect is located within Doyon, Ltd. selected or conveyed land.

Commodities:

Main: Cu, Mo, Pb

Other: Ag, Au

Ore minerals: Molybdenite

Gangue minerals: Quartz

Geologic description:

Bedrock in the Mount Veta area consists of granitic plutons of Jurassic to Cretaceous age that include quartz monzonite, quartz latite, and quartz porphyry (Laybourn and Doyon, Ltd., 1979). In the vicinity of the Little Enchilada prospect, biotite-quartz monzonite with well-developed sericitic/phyllic alteration is found in a saddle at an elevation of 4,100 feet. Alteration appears to diminish up the ridge to the north but continues down the ridge to the south for at least one-half mile. Quartz-molybdenite veins cut the altered quartz monzonite. Several other prospects are associated with the Mt. Veta intrusive complex, including East Eva (EA098), Eva Creek (EA099), Oscar (EA096), Oscar West (EA097), unnamed (north of Fish Creek) (EA062), Molly Creek (EA100), Little Whiteman Creek (EA060), and Mitchell (EA101).

At the Little Enchilada prospect, a soil grid on the east side of the ridge exhibits coincident zones of molybdenum and lead enrichment over an area about 488 meters by 610 meters in size that is open in three directions (U.S. Bureau of Mines, 1995]). Rocks collected by the U.S. Bureau of Mines (1995) contain as much as 3,087 ppm molybdenum, 59 ppm copper, and 189 ppm zinc. Rocks collected by Doyon Ltd. contain as much as 1,640 ppm copper, 100 ppm silver, 450 ppm molybdenum, 1,100 ppm lead, and 585 ppb gold. Anomalous copper, silver, and gold are present in altered quartz monzonite as

much as 915 meters away from the area of molybdenum mineralization (Laybourn and Doyon, Ltd., 1979). Laybourn and Doyon, Ltd. (1979) suggested that the low to moderate geochemical values and the general nature of the veins and alteration indicate that only the top of the mineralization is exposed. A ground-based survey indicates the IP/ resistivity response is slightly stronger on the west side of the ridge than on the east side and that a northeast-trending low-resistivity (fault?) zone crosses the saddle (Dashevsky and others, 1986).

Stream-sediment reconnaissance and follow-up prospecting were conducted in the Little Enchilada prospect area by WGM Inc. in 1977, and reconnaissance mapping and a soil survey were conducted in 1979 (Dashevsky and others, 1986). Arctic Resources Inc. extended the soil sampling grid in 1981, and three lines of IP/resistivity were run by Doyon, Ltd. in 1982. In 1989, Central Alaska Exploration Corp. conducted geologic mapping, and rock and soil sampling in the Little Enchilada prospect area (WGM Inc., 1998 [DLR 98-10]).

Alteration:

Well-developed sericitic/phyllic alteration in biotite quartz monzonite.

Age of mineralization:

The mineralization is probably related to the Jurassic or Cretaceous plutons in which it occurs.

Deposit model:

Porphyry Mo (Cox and Singer, 1986; model 21b).

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

21b

Production Status: None

Site Status: Probably inactive

Workings/exploration:

Stream-sediment reconnaissance and follow-up prospecting were conducted in the Little Enchilada prospect area by WGM Inc. in 1977, and reconnaissance mapping and a soil survey were conducted in 1979 (Dashevsky and others, 1986). Arctic Resources Inc. extended the soil sampling grid in 1981, and three lines of IP/resistivity were run by Doyon Ltd. in 1982. In 1989, Central Alaska Exploration Corp. conducted geologic mapping and rock and soil sampling in the Little Enchilada prospect area (WGM Inc., 1998 [DLR 98-10]).

Production notes:

Reserves:

Additional comments:

The Little Enchilada prospect is located within Doyon, Ltd. selected or conveyed land. For more information contact Doyon, Ltd., Fairbanks, Alaska.

References:

Laybourn and Doyon, Ltd., 1979; Magathan, 1979; Carter, 1981; Dashevsky, 1983; Dashevsky and Nicol, 1985; Dashevsky and others, 1986; Caithness Alaska Mining Co., 1990 (DLR 90-06a); Caithness Alaska Mining Co., 1990 (DLR 90-06b); Caithness Alaska Mining Co., 1990 (DLR 90-06c); Caithness Alaska Mining Co., 1990 (DLR 90-06d); Burleigh and Lear, 1994; U.S. Bureau of Mines, 1995; WGM Inc., 1998 (DLR 98-10).

Primary reference: Laybourn and Doyon, Ltd., 1979; U.S. Bureau of Mines, 1995

Reporter(s): M.B. Werdon; R.L. Flynn

Last report date: 5/1/02

Site name(s): Fortyfive Pup; Fortyfive Gulch; Fortyfive Pass

Site type: Mine

ARDF no.: EA104

Latitude: 64.2018 **Quadrangle:** EA A-3

Longitude: 142.0906

Location description and accuracy:

Fortyfive Pup is a tributary of Buckskin Creek (see EA113) that drains the south side of Mount Warbelow. Fortyfive Pup is also known as Fortyfive Gulch or Fortyfive Pass. Mertie (1938) reported a prospector indicated that there was pay gravel from the mouth of Fortyfive Pup for 5 miles upstream; the mine coordinates are the approximate midpoint of this section of the creek, in section 24, T. 8 S., R. 28 E., of the Fairbanks Meridian. The location is accurate. Fortyfive Pup is locality 73 of Burleigh and Lear (1994), locality 27 of Eberlein and others (1977), and locality 47 of Cobb (1972 [MF-393]).

Commodities:

Main: Au, W

Other: Sn

Ore minerals: Cassiterite, gold, scheelite

Gangue minerals:

Geologic description:

The rocks in the vicinity of Fortyfive Pup Creek are Paleozoic amphibolite-facies gneiss, amphibolite, and schist, Paleozoic or Mesozoic serpentinized peridotite, and Tertiary to Mesozoic granitic rocks surrounded by a large hornfels aureole (Foster, 1976). Marble is locally abundant, and many areas are underlain by granite (Joesting, 1943).

The pay streak was estimated to be 200 to 300 feet wide; the overburden varied from 12 to 16 feet thick on the lower 5 miles of Fortyfive Pup (Mertie, 1938). Gold in this area has a fairly low fineness of 620 parts of gold per thousand based on a single assay (Smith, 1941 [B 910-C]). Placer concentrates commonly contain scheelite and rare cassiterite (Joesting, 1943). No lode source for placer gold in Fortyfive Pup has been identified, but lode claims for scheelite were staked in about 1968(?) in the headwaters of the creek (Smith, 1968). There has been placer gold production on Buckskin Creek (EA113) downstream of Fortyfive Pup.

Pay gravel was found on Fortyfive Pup in 1910 (Ellsworth and Parker, 1911). In 1912, one man worked on Fortyfive Pup for the entire season and had very good success (Ellsworth and Davenport, 1913). In 1936, a prospector claimed to have found 5 miles of

dredging ground on Fortyfive Pup and 2 additional miles on Buckskin Creek below the mouth of Fortyfive Pup (Mertie, 1938). Fortyfive Pup was mined almost continuously from the early 1960's to at least 1977 (Eberlein and others, 1977). WGM Inc. conducted a panned heavy-mineral concentrate reconnaissance sampling of streams draining Mount Warbelow in 1978, and Doyon, Ltd. panned Fortyfive Pup upstream of the placer mining in 1982 (WGM Inc., 1998 [DLR 98-10]). Placer mining on Fortyfive Pup is reported for most years from 1986 to 1996. Ventures Resource Corp. staked claims in 2000 over an area that includes Fortyfive Pup. The panned-concentrate and stream-sediment samples from several creeks in the vicinity, including Fortyfive Pup, are strongly anomalous in gold (Szumigala and others, 2001).

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: Active?

Workings/exploration:
Pay gravel was found on Fortyfive Pup in 1910 (Ellsworth and Parker, 1911). In 1912, one man worked on Fortyfive Pup for the entire season and had very good success (Ellsworth and Davenport, 1913). In 1936, a prospector claimed to have found 5 miles of dredging ground on Fortyfive Pup and 2 additional miles on Buckskin Creek below the mouth of Fortyfive Pup (Mertie, 1938). Fortyfive Pup was mined almost continuously from the early 1960's to at least 1977 (Eberlein and others, 1977). WGM Inc. conducted a panned heavy-mineral concentrate reconnaissance sampling of streams draining Mount Warbelow in 1978, and Doyon, Ltd. panned Fortyfive Pup upstream of the placer mining in 1982 (WGM Inc., 1998 [DLR 98-10]). Placer mining on Fortyfive Pup is reported for most years from 1986 to 1996. Ventures Resource Corp. staked claims in 2000 over an area that includes Fortyfive Pup. The panned-concentrate and stream-sediment samples from several creeks, including Fortyfive Pup, are strongly anomalous in gold (Szumigala and others 2001).

Production notes:

Reserves:

Additional comments:

References:

Prindle, 1909; Ellsworth and Parker, 1911; Porter, 1912; Ellsworth and Davenport, 1913; Powers, 1935; Mertie, 1938; Smith, 1941 (B 910-C); Joesting, 1943; Thorne and others, 1948; Smith, 1968; Foster, 1969 (B 1271-G); Cobb, 1972 (MF-393); Foster and Clark, 1970; Cobb, 1973 (B 1374); Foster, 1976; Cobb, 1977 (OFR 77-845); Eberlein and others, 1977; Bundtzen and others, 1987; Bundtzen and others, 1988; Green and others, 1989; Bundtzen and others, 1990; Swainbank and others, 1991; Bundtzen and others, 1992; Swainbank and others, 1993; Burleigh and Lear, 1994; Swainbank and others, 1994; Swainbank and others, 1995; Swainbank and others, 1996; Swainbank and others, 1997; WGM Inc., 1998 (DLR 98-10); Szumigala and others, 2001.

Primary reference: Mertie, 1938

Reporter(s): M.B. Werdon; R.L. Flynn

Last report date: 5/1/02

Site name(s): Moose Creek (tributary to Mosquito Fork of the Fortymile River)

Site type: Prospect

ARDF no.: EA105

Latitude: 64.1237 **Quadrangle:** EA A-3

Longitude: 142.2680

Location description and accuracy:

Moose Creek is a small tributary that enters the Mosquito Fork of the Fortymile River about 4 miles north of the north summit of Taylor Mountain. The coordinates are placed at the mouth of Moose Creek, in section 16, T. 27 N., R. 16 E., of the Copper River Meridian. The location is accurate. There is another Moose Creek placer mine (EA085) in the Eagle B-1 quadrangle.

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:

The rocks in the Moose Creek area are Paleozoic amphibolite-facies metamorphic rocks that include paragneiss, amphibolite, schist, quartzite, marble, and orthogneiss (Foster, 1976). A small Tertiary to Mesozoic intrusion at the head of one of the forks of Moose Creek intrudes marble (Foster, 1976). Moose Creek was prospected for placer gold in the late 1990's, and some gold was found. Suction dredging along Mosquito Fork (see EA135) led to the discovery of gold at the mouth of Moose Creek (Sheldon Maier, oral commun., Jan. 2000).

Alteration:

Age of mineralization:

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: Active?

Workings/exploration:

Moose Creek was prospected for placer gold in the late 1990's, and some gold was found. Suction dredging along Mosquito Fork (see EA135) led to the discovery of gold at the mouth of Moose Creek (Sheldon Maier, oral commun., Jan. 2000).

Production notes:

Reserves:

Additional comments:

References:

Foster, 1976.

Primary reference: This record

Reporter(s): M.B. Werdon

Last report date: 5/1/02

Site name(s): Tweeden

Site type: Prospect

ARDF no.: EA106

Latitude: 64.1095 **Quadrangle:** EA A-3

Longitude: 142.3537

Location description and accuracy:

The Tweeden prospect is near the mouth of Gold Creek, at the base of the slope on the north side of Gold Creek, approximately one-half mile upstream of the mouth of the creek. It is in the NW1/4 section 19, T. 27 N., R. 16 E., of the Copper River Meridian. The location is accurate within one-half mile. The Tweeden prospect is locality 11 of Cobb (1972 [MF-393]) and locality 58 of Eberlein and others (1977).

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals: Quartz

Geologic description:

The Tweeden prospect is located near the mouth of Gold Creek, where a cliff of Paleozoic greenstone has quartz veins and stringers oriented along along the cleavage; these veins are iron-stained and contain gold (Porter, 1912). Along the lower 4 miles of Gold Creek, Tertiary or Mesozoic granitic rocks crop out (Foster, 1976). In 1911, development at the Tweeden prospect consisted of excavating a 40-foot tunnel at the base of the cliff (Porter, 1912). Operations were discontinued that year when the owner was unable to recover the gold which was very fine.

Alteration:

Age of mineralization:

Deposit model:

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

Production Status: None

Site Status: Inactive

Workings/exploration:

In 1911, development at the Tweeden prospect consisted of excavating a 40-foot tunnel at the base of the cliff (Porter, 1912). Operations were discontinued that year when the owner was unable to recover the gold which was very fine.

Production notes:

Reserves:

Additional comments:

References:

Porter, 1912; Cobb, 1972 (MF-393); Foster, 1976; Cobb, 1977 (OFR 77-845); Eberlein and others, 1977.

Primary reference: Porter, 1912

Reporter(s): R.L. Flynn; M.B. Werdon

Last report date: 5/1/02

Site name(s): Unnamed (head of Ingle Creek)

Site type: Occurrence

ARDF no.: EA107

Latitude: 64.1091 **Quadrangle:** EA A-3

Longitude: 142.0157

Location description and accuracy:

This occurrence is located near the head of Ingle Creek in about the center of the N1/2 section 23, T. 27 N., R 17 E., of the Copper River Meridian. The location is accurate to within 1 mile.

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals: Calcite, quartz

Geologic description:

The rocks along Ingle Creek are primarily upper Paleozoic greenschist-facies metasedimentary and metavolcanic rocks that have been intruded by granitic rocks that are either related to the Taylor Mountain batholith of Triassic age to the south or the Chicken pluton of Jurassic age that crops out at the head of the valley (Werdon and others, 2001). These units have been cut by numerous high-angle faults. In the lower part of Ingle Creek, Tertiary gabbro is overlain by tuffaceous material and sparse shale. Quaternary colluvium and alluvium are present in the lower valley.

Free gold occurs in quartz and calcite veins here (Smith, 1968). The occurrence is about 3 miles west of the Purdy lode gold mine (EA121), which is a similar deposit of gold in quartz and calcite veins.

Alteration:

Age of mineralization:

Deposit model:

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:
Smith, 1968; Werdon and others, 2001.

Primary reference: Smith, 1968

Reporter(s): M.B. Werdon

Last report date: 5/1/02

Site name(s): Lilliwig Creek

Site type: Prospect

ARDF no.: EA108

Latitude: 64.0981 **Quadrangle:** EA A-3

Longitude: 142.0364

Location description and accuracy:

The Lilliwig Creek prospect is located on Lilliwig Creek (EA109), a small tributary to Ingle Creek; it is about 4 miles northwest of Chicken. This lode prospect is in Lilliwig Creek at the upper limits of the Lilliwig Creek placer (EA109), on the section line between sections 26 and 27, T. 27 N., R. 17 E., of the Copper River Meridian. The location is accurate within 500 feet. This site is locality 74 of Burleigh and Lear (1994), locality 35 of Eberlein and others (1977), and locality 12 of Cobb (1972 [MF-393]).

Commodities:

Main: Ag, Au, Cu

Other:

Ore minerals: Chalcopyrite, gold, pyrite

Gangue minerals: Calcite, quartz, sericite

Geologic description:

The rocks in the vicinity of Lilliwig Creek are primarily upper Paleozoic greenschist-facies metasedimentary and metavolcanic rocks that have been intruded by granitic rocks that are either part of the Taylor Mountain batholith of Triassic age to the south or the Chicken pluton of Jurassic age that crops out at the head of the valley to the north (Foster, 1976; Werdon and others, 2001). These units have been cut by numerous high-angle faults. In the lower part of Lilliwig Creek, Tertiary gabbro is overlain by tuffaceous material and sparse shale. Quaternary colluvium and alluvium are present in the lower valley.

The prospect is in quartz diorite(?); it contains numerous parallel, east-trending stringers of quartz and calcite and a cross-cutting discontinuous stringers that trend north (Mertie, 1930 [B 813-C]). The host rock has been extensively altered to sericite, and both the sericitized pluton and the vein material contain gold, pyrite, and minor chalcopyrite. Secondary biotite gives a 40Ar/39Ar plateau age of 185.9 +/- 0.8 Ma (Newberry and others, 1998), interpreted to be the age of mineralization.

One select high-grade sample of sulfide-bearing material contains 1.87 ounces of gold per ton, 2.05 ounces of silver per ton, and 0.76 percent copper (Mertie, 1930 [B 813]). A shaft was sunk 55 feet and there is a rock dump at the site (Mertie, 1930 [B 813]). Placer

gold has been mined downstream from the Lilliwig Creek gold mine (EA109), and no placer gold was found above the lode.

Alteration:
Sericitic alteration of pluton.

Age of mineralization:
Secondary biotite gives a 40Ar/39Ar plateau age of 185.9 +/- 0.8 Ma (Newberry and others, 1998), interpreted to be the age of mineralization.

Deposit model:
Pluton-related Cu-Au deposit.

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

Production Status: Undetermined

Site Status: Inactive

Workings/exploration:
A shaft was sunk 55 feet, and there is a rock dump at the site (Mertie, 1930 [B 813]).

Production notes:

Reserves:

Additional comments:

References:
Ellsworth, 1910; Ellsworth and Parker, 1911; Mertie, 1930 (B 813-C); Mertie, 1937; Mertie, 1938; Berg and Cobb, 1967; Smith, 1968; Cobb, 1972 (MF-393); Foster, 1976; Cobb, 1977 (OFR 77-845); Eberlein and others, 1977; Burleigh and Lear, 1994; Werdon and others, 2001.

Primary reference: Mertie, 1930 (B 813-C)

Reporter(s): M.B. Werdon

Last report date: 5/1/02

Site name(s): Lilliwig Creek; Lilling Gulch

Site type: Mine

ARDF no.: EA109

Latitude: 64.0975 **Quadrangle:** EA A-3

Longitude: 142.0353

Location description and accuracy:

Lilliwig Creek is a small tributary of Ingle Creek; it is about 3.5 miles west-northwest of Chicken. The coordinates are at the upper limit of the placer workings, on the boundary of sections 26 and 27, T. 27 N., R. 17 E., of the Copper River Meridian. The location is accurate. This site is locality 74 of Burleigh and Lear (1994), locality 35 of Eberlein and others (1977), and locality 49 of Cobb (1972 [MF-393]). An old name for Lilliwig Creek was Lilling Gulch (Ellsworth, 1910).

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:

The rocks in the vicinity of Lilliwig Creek are primarily upper Paleozoic greenschist-facies metasedimentary and metavolcanic rocks that have been intruded by granitic rocks that are either related to the Taylor Mountain batholith of Triassic age to the south or the Chicken pluton of Jurassic age that is at the head of the valley to the north (Foster, 1976; Werdon and others, 2001). These units have been cut by numerous high-angle faults. In the lower part of Lilliwig Creek, Tertiary gabbro is overlain by tuffaceous material and sparse shale. Quaternary colluvium and alluvium are present in the lower valley; they consist of gravel and lesser silt and sand overlain by muck. Placer gold mining has exposed Pleistocene mammalian fossils, including mammoth, horse, caribou, and bison (Pinney, 2001).

Placer gold has been mined downstream from the Lilliwig Creek lode gold occurrence (EA108), and no placer gold was found above it. Lilliwig Creek was being mined for placer gold as early as 1909(?) and was mined in 1910 as well (Ellsworth, 1910; Ellsworth and Parker, 1911).

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: Undetermined

Workings/exploration:
Lilliwig Creek was being mined for placer gold as early as 1909(?) and was mined in 1910 as well (Ellsworth, 1910; Ellsworth and Parker, 1911).

Production notes:

Reserves:

Additional comments:

References:
Ellsworth, 1910; Ellsworth and Parker, 1911; Mertie, 1930 (B 813-C); Mertie, 1937; Mertie, 1938; Berg and Cobb, 1967; Smith, 1968; Cobb, 1972 (MF-393); Foster, 1976; Cobb, 1977 (OFR 77-845); Eberlein and others, 1977; Swainbank and others, 1991; Burleigh and Lear, 1994; Pinney, 2001; Werdon and others, 2001.

Primary reference: Cobb, 1977 (OFR 77-845)

Reporter(s): M.B. Werdon

Last report date: 5/1/02

Site name(s): Unnamed (midpoint of Ingle Creek)

Site type: Occurrences

ARDF no.: EA110

Latitude: 64.0923 **Quadrangle:** EA A-3

Longitude: 142.0260

Location description and accuracy:

These occurrences are located on Ingle Creek, just north of its intersection with Lilliwig Creek. There are two sites with anomalous gold here, and the coordinates are for the southwestern site, in section 26, T. 27 N., R. 17 E., of the Copper River Meridian. This location is accurate. The second site is located about 1,700 feet to the northeast.

Commodities:

Main: Au, Cu

Other:

Ore minerals: Chalcopyrite, pyrite

Gangue minerals: Calcite, chlorite, epidote, quartz

Geologic description:

The rocks in the vicinity of Ingle Creek are primarily upper Paleozoic greenschist-facies metasedimentary and metavolcanic rocks that have been intruded by granitic rocks that are either related to the Taylor Mountain batholith of Triassic age to the south or the Chicken pluton of Jurassic age to the north (Werdon and others, 2001). These units have been cut by numerous high-angle faults. In the lower part of Ingle Creek, Tertiary gabbro is overlain by tuffaceous material and sparse shale. Quaternary colluvium and alluvium are present in the lower valley.

There are two sites located about 1,700 feet apart that are included as part of this unnamed occurrence. At the southwestern site, greenstone with a fine-grained gabbroic texture exhibits chlorite-epidote alteration and is cut by veins of pyrite, quartz, calcite, and chalcopyrite. A select sample of one vein assayed 35 ppb gold and 603 ppm copper (Szumigala and others, 2000). At the northeastern site, many rock types are juxtaposed by many high-angle to moderately dipping faults; the rocks include upper Paleozoic greenstone; hypabyssal, feldspar porphyry dikes(?) of probable Jurassic age; highly foliated granitic plutonic rocks that are probably part of the Taylor Mountain batholith; and unfoliated dikes and plugs of Tertiary gabbro (M.B. Werdon, unpub. field mapping, 1999). A 5-foot-wide, highly silicified zone is present along the fault contact between a foliated granitic pluton and a hypabyssal porphyritic felsic rock. The silicified zone is

light gray, and contains abundant epidote, pyrite, sprays of chlorite, and calcite occurs along joint surfaces. An assay from this zone contains 30 ppb gold and 197 ppm molybdenum (Szumigala and others, 2000).

Alteration:

Age of mineralization:

Deposit model:

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:

Szumigala and others, 2000; Werdon and others, 2001.

Primary reference: Szumigala and others, 2000

Reporter(s): M.B. Werdon

Last report date: 5/1/02

Site name(s): Ingle Creek

Site type: Mine

ARDF no.: EA111

Latitude: 64.0819 **Quadrangle:** EA A-3

Longitude: 142.0346

Location description and accuracy:

Ingle Creek is a small tributary about 3.3 miles west-northwest of Chicken that drains southwest into the Mosquito Fork of the Fortymile River (EA135). Placer workings extend from the mouth of Ingle Creek upstream for approximately 1.25 miles. The coordinates correspond to the location of the placer mine shown at the mouth of the creek on the U.S. Geological Survey 1:63,360-scale topographic map of the Eagle A-3 quadrangle (1957). The placer is near the boundary between sections 34 and 35, T. 27 N., R. 17 E., of the Copper River Meridian; the location is accurate. This site is localities 75 and 76 of Burleigh and Lear (1994), locality 35 of Eberlein and others (1977), and locality 49 of Cobb (1972 [MF-393]). In Cobb (1977 [OFR 77-845]), there are several references to mining on Eagle Creek and Engle Creek. Ingle Creek may have been referred to by these names, or these reports may refer to another area of unknown location.

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:

The rocks in the vicinity of Ingle Creek are Paleozoic greenschist-facies metasedimentary and metavolcanic rocks that have been intruded by the Taylor Mountain Batholith of Triassic age and the Chicken pluton of Jurassic age (Foster, 1976; Werdon and others, 2001). These units have been cut by many high-angle faults and intruded by Tertiary gabbro. Well-bedded to locally unconsolidated Tertiary tuff interlayered with minor shale overlies the Tertiary gabbro on the east side of Ingle Creek. Quaternary alluvium, colluvium, and terrace deposits are extensive.

Ingle Creek flows through a narrow, steep-walled valley. It was mined from near its mouth upstream for about 1.25 miles. The gravels range from 2 to 4 feet thick. Placer gold mainly occurs on top of bedrock and within the top foot of bedrock (Mertie, 1930 [B 813]), but in places the gold has penetrated deeply into crevices and required hand quarry-

ing to obtain a high recovery of the gold. The gold is mainly coarse nuggets; one nugget weighing 3.5 ounces was recovered (Mertie, 1938). An average of three assays of placer gold indicates a fineness of 851 parts of gold per thousand and 144 parts of silver per thousand (Mertie, 1938). Possible lode sources for placer gold on Ingle Creek include the Ingle Creek (EA107) and Lilliwig Creek (EA108) gold prospects. Ingle Creek has one gold-bearing tributary, Lilliwig Creek (see EA109).

Ingle Creek was being mined for placer gold as early as 1905(?) (Prindle, 1908). The creek was mined intermittently from around 1905 to at least 1936, and then again in the 1970's (Eberlein and others, 1977). Production in 1904-1907 that included that from Myers Fork (EA124), Lost Chicken Creek (EA131), Stonehouse Creek (EA122), and Ingle Creek (EA111), totaled about 18,835 fine ounces of gold (Eberlein and others, 1977).

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: Probably inactive

Workings/exploration:

Placer gold on Ingle Creek was being mined as early as 1905(?) (Prindle, 1908). The creek was mined intermittently from around 1905 to at least 1936 and then again in the 1970's (Eberlein and others, 1977).

Production notes:

Production in 1904-1907, which included that from Myers Fork (EA124), Lost Chicken Creek (EA131), Stonehouse Creek (EA122), and Ingle Creek (EA111), totaled about 18,835 fine ounces of gold (Eberlein and others, 1977).

Reserves:

Additional comments:

References:

Prindle, 1906 (B 284); Prindle, 1908; Brooks, 1909; Prindle, 1909; Ellsworth, 1910; Ellsworth and Parker, 1911; Porter, 1912; Ellsworth and Davenport, 1913; Chapin, 1914; Brooks, 1915; Brooks, 1916; Moffit, 1927; Smith, 1929; Mertie, 1930 (B 813-C); Smith, 1930 (B 810); Smith, 1933 (B 844-A); Smith, 1934 (B 864-A); Smith, 1937; Mertie,

1938; Roehm, 1949; Wimmler, 1949; Williams, 1950; Williams, 1951; Saunders, 1953; Smith, 1968; Cobb, 1972 (MF-393); Foster, 1976; Cobb, 1977 (OFR 77-845); Eberlein and others, 1977; Bundtzen and others, 1992; Swainbank and others, 1993; Werdon and others, 2001.

Primary reference: Cobb, 1977 (OFR 77-845)

Reporter(s): M.B. Werdon

Last report date: 5/1/02

Site name(s): Uhler Creek

Site type: Mine

ARDF no.: EA112

Latitude: 64.2011 **Quadrangle:** EA A-2

Longitude: 141.6313

Location description and accuracy:

Uhler Creek drains west into the South Fork of the Fortymile River. Placer tailings are shown on the U.S. Geological Survey 1:63,360-scale topographic map of the Eagle A-2 quadrangle (1956; revised in 1971); the tailings start about 3.7 miles east of the mouth and extend for approximately 1 mile. The coordinates correspond to the midpoint of the tailings, in section 20, T. 8 S., R. 31 E., of the Fairbanks Meridian; the location is accurate. This site is locality 66 of Burleigh and Lear (1994), locality 61 of Eberlein and others (1977), and locality 57 of Cobb (1972 [MF-393]).

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:

The rocks in Uhler Creek are Paleozoic amphibolite-facies gneiss, amphibolite, amphibolite-feldspar gneiss, and marble (Werdon and others, 2001). The metamorphic rocks have been intruded by several plutonic bodies, including the Uhler pluton, which has a hornblende 40Ar/39Ar plateau age of 188.0 +/- 1.0 Ma, and the Napoleon pluton (see EA115), which has a hornblende 40Ar/39Ar plateau age of 186.5 +/- 1.3 Ma (Layer and others, 2002). These units have been offset by several north-south-trending high-angle faults. Small-scale placer mining occurred on Uhler Creek in the early 1900's and the 1960's, 1970's, and early 1990's (Eberlein and others, 1977; Swainbank and others, 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: Yes; small

Site Status: Inactive

Workings/exploration:
Small-scale placer mining occurred on Uhler Creek in the early 1900's and in the 1960's, 1970's, and early 1990's (Eberlein and others, 1977; Swainbank and others, 1993).

Production notes:

Reserves:

Additional comments:

References:
Cobb, 1972 (MF-393); Foster, 1976; Eberlein and others, 1977; Swainbank and others, 1993; Burleigh and Lear, 1994; Werdon and others, 2001; Layer and others, 2002.

Primary reference: Cobb, 1977 (OFR 77-845)

Reporter(s): M.B. Werdon

Last report date: 5/1/02

Site name(s): Buckskin Creek

Site type: Mine

ARDF no.: EA113

Latitude: 64.1960 **Quadrangle:** EA A-2

Longitude: 141.9829

Location description and accuracy:

Buckskin Creek is about 9 miles north-northwest of Chicken; it drains eastward into the South Fork of the Fortymile River. The exact location of placer workings on Buckskin Creek is unknown, although a prospector indicated that there was pay gravel from the mouth of Fortyfive Pup for about 2 miles down Buckskin Creek (Mertie, 1938). The co-ordinates are arbitrarily placed on Buckskin Creek approximately 1 mile east of the mouth of Fortyfive Pup, in section 27, T. 8 S., R. 29 E., of the Fairbanks Meridian. Buckskin Creek is locality 71 of Burleigh and Lear (1994), locality 10 of Eberlein and others (1977), and locality 48 of Cobb (1972 [MF-393]). Buckskin Creek has one placer gold-bearing tributary, Fortyfive Pup (EA104).

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:

The rocks in the vicinity of Buckskin Creek are primarily Paleozoic (and possibly Pre-cambrian), amphibolite-facies rocks that include biotite gneiss and amphibolite, as wellas lesser Jurassic to Triassic granodiorite (Foster, 1976). Quaternary colluvium and terrace deposits are locally extensive.

Small-scale placer mining on Buckskin Creek was reported in 1904, 1912, 1914, and in 1935 (Prindle, 1906; Brooks, 1915; Smith, 1937). In 1936, a prospector claimed to have found 5 miles of dredging ground on Fortyfive Pup and 2 additional miles on Buckskin Creek below the mouth of Fortyfive Pup (Mertie, 1938). The pay streak was estimated to be 200 to 300 feet wide, with overburden from 12 to 16 feet thick.

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: Probably inactive

Workings/exploration:
Small-scale placer mining on Buckskin Creek was reported in 1904, 1912, 1914, and in 1935 (Prindle, 1906; Brooks, 1915; Smith, 1937). In 1936, a prospector claimed to have found 5 miles of dredging ground on Fortyfive Pup and 2 additional miles on Buckskin Creek below the mouth of Fortyfive Pup (Mertie, 1938). The pay streak was estimated to be 200 to 300 feet wide, with overburden from 12 to 16 feet thick.

Production notes:

Reserves:

Additional comments:

References:
Brooks, 1906; Prindle, 1906 (B 284); Ellsworth and Parker, 1911; Ellsworth and Davenport, 1913; Brooks, 1915; Powers, 1935; Smith, 1937; Mertie, 1938; Williams, 1951; Cobb, 1972 (MF-393); Foster, 1976; Cobb, 1977 (OFR 77-845); Eberlein and others, 1977; Burleigh and Lear, 1994.

Primary reference: Cobb, 1977 (OFR 77-845); Burleigh and Lear, 1994

Reporter(s): M.B. Werdon

Last report date: 5/1/02

Site name(s): Unnamed (on ridge between Buckskin and Franklin Creeks)

Site type: Occurrence

ARDF no.: EA114

Latitude: 64.1771 **Quadrangle:** EA A-2

Longitude: 141.9057

Location description and accuracy:

This occurrence is located on the ridge between Buckskin Creek and Franklin Creek, about 3.9 miles west-northwest of the old town of Franklin and about 0.3 mile north of hill 3125. The coordinates are in section 36, T. 8 S., R. 29 E., of the Fairbanks Meridian. The location is accurate.

Commodities:

Main: Pb, Zn

Other:

Ore minerals: Limonite

Gangue minerals: Garnet, quartz

Geologic description:

The rocks in the vicinity of this occurrence are primarily interlayered Paleozoic amphibolite-facies paragneiss, amphibole-feldspar gneiss, and amphibolite (Werdon and others, 2001). These units have been intruded by small, slightly foliated, Jurassic granitic plutons and dikes and widely-scattered Jurassic biotite clinopyroxenite dikes. The metamorphic rocks adjacent to the granitic intrusions have been hornfelsed and are cut by sparse quartz and limonite veins. An assay of these veins contains 504 ppm zinc. A garnet-quartz skarn with disseminated limonite (pseudomorphs after unknown sulfide) contains 850 ppm zinc (Werdon and others, 2000).

Alteration:

Hornfelsing and calc-silicate alteration of gneiss.

Age of mineralization:

Probably Jurassic.

Deposit model:

Zinc skarn.

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:

Werdon and others, 2000; Werdon and others, 2001.

Primary reference: Werdon and others, 2000

Reporter(s): M.B. Werdon

Last report date: 5/1/02

Site name(s): Napoleon

Site type: Prospect

ARDF no.: EA115

Latitude: 64.1645 **Quadrangle:** EA A-2

Longitude: 141.6308

Location description and accuracy:

The Napoleon prospect consists of several gold-bearing zones within a 3-square-mile area on the ridgeline at the head of Napoleon Creek. The coordinates are the approximate center of the area that was drilled, in section 35, T. 28 N., R. 19 E., of the Copper River Meridian. The location is accurate. Gold showings also occur in sections 31 and 36.

Commodities:

Main: Ag, Au, Pd, Pt

Other:

Ore minerals: Gold, hematite, pyrite

Gangue minerals: Carbonate, chlorite, epidote, K-feldspar, quartz, sericite

Geologic description:

Rocks in the vicinity of the Napoleon prospect are Paleozoic amphibolite-facies amphibolite, quartzite, paragneiss, marble, orthogneiss, and minor schist (Werdon and others, 2001). These units have been intruded by the weakly to strongly foliated Napoleon hornblende-quartz-monzonite pluton. Hornblende from this pluton gives a 40Ar/39Ar plateau age of 186.5 +/- 1.3 Ma (Layer and others, 2002). The pluton contains small bodies of biotite clinopyroxenite and coarse-grained hornblende gabbro, which may be inclusions, dikes, and/or marginal phases (Werdon and others, 2001). Clinopyroxenite bodies within the Napoleon pluton contain as much as 25 ppb platinum and 6 ppb palladium (Werdon and others, 2000). Biotite clinopyroxenite dikes, which are compositionally and texturally similar in the northeastern Eagle quadrangle, give K-Ar ages of 184-185 Ma (Newberry and others, 1998). The Napoleon pluton and the inclusions/dikes of clinopyroxenite and hornblende gabbro are cut by minor, granite aplite-pegmatite dikes of unknown age. The Napoleon pluton and surrounding country rocks are cut and offset by late high-angle faults.

As of 2002, the Napoleon prospect is the most significant lode-gold target in the Fortymile mining district. The Napoleon prospect is primarily a shear-zone-hosted lode gold deposit in the Napoleon pluton. The Napoleon pluton is cut by veins of quartz +/- pyrite +/- hematite +/- epidote +/- carbonate +/- rare visible gold. Vein selvages commonly con-

tain K-feldspar, some of which is slightly replaced by sericite. Sericite-altered K-feldspar from the selvage of a gold + pyrite + quartz vein gives a 40Ar/39Ar isochron age of 127.8 +/- 1.6 Ma (Layer and others, 2002); this is approximately 60 Ma younger than the Napoleon pluton and is tentatively interpreted to reflect the timing of mineralization. A sample of altered, pyrite-bearing Napoleon pluton contains as much as 178.1 ppm gold, 53.2 ppm silver, and 500 ppm tungsten (Werdon and others, 2000).

Airborne magnetic and resistivity surveys were flown in the Fortymile Mining district in 1998 (Alaska Division of Geological and Geophysical Surveys and others, 1999). The Alaska Division of Geological and Geophysical Surveys conducted 1:63,360-scale bedrock and surficial geologic mapping in the area from 1999 to 2001. The Napoleon prospect was discovered by Kennecott Exploration in 1997 or 1998as part of their regional exploration program in the area. Kennecott Exploration conducted a detailed soil-sampling program and drilled the Napoleon prospect in 1999. Teck Resources, Inc. conducted a ground geophysical survey on a grid near the Twin Peaks portion of the prospect in 2000, and drilled the Napoleon prospect in 2001.

Alteration:

K-feldspar adjacent to quartz veins is locally altered to sericite.

Age of mineralization:

Sericite-altered K-feldspar from the selvage of a gold + pyrite + quartz vein gives a 40Ar/39Ar isochron age of 127.8 +/- 1.6 Ma (Layer and others, 2002); this is approximately 60 Ma younger than the Napoleon pluton and is tentatively interpreted to reflect the timing of mineralization.

Deposit model:

Shear-zone-hosted gold.

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

Production Status: None

Site Status: Active

Workings/exploration:

Airborne magnetic and resistivity surveys were flown in the Fortymile Mining district in 1998 (Alaska Division of Geological and Geophysical Surveys and others, 1999). The Alaska Division of Geological and Geophysical Surveys conducted 1:63,360-scale bedrock and surficial geologic mapping in the area from 1999 to 2001. The Napoleon prospect was discovered by Kennecott Exploration in 1997 or 1998 as part of their regional exploration program in the area. Kennecott Exploration conducted a detailed soil-sampling program and drilled the Napoleon prospect in 1999. Teck Resources, Inc. conducted a ground geophysical survey on a grid near the Twin Peaks portion of the prospect in 2000, and drilled the Napoleon prospect in 2001.

Production notes:

Reserves:

Additional comments:

References:

Newberry and others, 1998; Alaska Division of Geological and Geophysical Surveys and others, 1999; Werdon and others, 2000; Werdon and others, 2001; Layer and others, 2002.

Primary reference: Werdon and others, 2000

Reporter(s): M.B. Werdon

Last report date: 5/1/02

Site name(s): Franklin Creek; Franklin Gulch

Site type: Mine

ARDF no.: EA116

Latitude: 64.1642 **Quadrangle:** EA A-2

Longitude: 141.7811

Location description and accuracy:

Franklin Creek drains eastward into the South Fork of the Fortymile River. The mine coordinates are the small abandoned town of Franklin shown on the U.S. Geological Survey 1:63,360-scale topographic map of the Eagle A-2 quadrangle (1956; revised in 1971), in section 36, T. 28 N., R. 18 E., of the Copper River Meridian. The location is accurate. Placer mining occurred along the lower 4 miles of the creek. This site is locality 70 of Burleigh and Lear (1994), locality 30 of Eberlein and others (1977), and locality 55 of Cobb (1972 [MF-393]).

Commodities:

Main: Au

Other: Ag, Hg, Pb

Ore minerals: Barite, cinnabar, galena, gold, magnetite, native lead, native silver, pyrite

Gangue minerals:

Geologic description:

The rocks in the vicinity of Franklin Creek consist predominantly of Paleozoic amphibolite-facies paragneiss, quartzite, schist, hornblende-plagioclase gneiss, and marble (Werdon and others, 2001). These units are cut by a high-angle, east-west-trending fault that follows the upper portion of the Franklin Creek. South of the fault, the metamorphic rocks are intruded by the Chicken pluton, which has a hornblende 40Ar/39Ar plateau age of 187.8 +/- 0.9 Ma (Layer and others, 2002). The metamorphic rocks are also cut by widespread granite-pegmatite and clinopyroxenite dikes that are mineralogically and compositionally similar to Jurassic intrusions dated elsewhere in the area. Quaternary colluvium deposits are extensive in the upper part of the Franklin Creek.

All of the placer mining activity on Franklin Creek took place within 4 miles of its mouth; the valley here is narrow and the gravel is thinner than farther upstream. Gold was also found in prospecting pits in the upper part of the valley. Gravel in lower Franklin Creek is approximately 2 to 12 feet thick. Placer gold was mainly found on and within the top 2 feet of fractured bedrock and, to a lesser extent, within the lower 2 feet of the gravel (Mertie, 1930 [B 813-C]; Mertie, 1938). The pay streak was about 50 feet wide.

The gold is coarse and angular, and some nuggets have quartz attached to them. Small nuggets are common, and nuggets as large as 30 ounces were found in the early days near the mouth of the creek (Spurr, 1898). Mertie (1938) estimated a gold fineness of 820 parts of gold per thousand from the price per ounce reported by Spurr (1898); Smith (1941 [B 910-C]) reported a single value of 817 parts gold per thousand from Franklin Creek. Placer concentrates contain magnetite, garnet, ilmenite, limonite, barite, cinnabar, gold, and a trace of galena and pyrite (Mertie, 1930 [B 813-C]). In addition, native lead was observed by Prindle (1908 [B 345]).

Placer gold was first discovered in 1886 on Franklin Creek; according to Spurr (1898) and Smith (1968), it is the site of the first placer gold mine within the United States part of the Fortymile mining district. Yeend (1996) states that Howard Franklin found gold on Franklin Creek largely because he believed the gold at Troublesome Point just downstream on the Fortymile River was coming from the first creek above it (Buteau, 1967). Franklin Creek was mined almost continuously between 1886(?) and 1935 by drift and open cut methods. The placer deposits were nearly exhausted by 1935 (Powers, 1935). In 1935 a disastrous flood wiped out dams and filled all of the placer cuts with gravel (Mertie, 1938).

Gold was produced prior to 1899 (Brooks, 1900). Some of the ground prior to 1905 ran as high as $5 per square yard of bedrock (gold at $20.67 per ounce), but the average was lower (Prindle, 1905). Production between 1904 and 1907 was about 1,960 fine ounces of gold (Prindle, 1908). Mining during the winter of 1908-1909 and the summer of 1909 yielded $10,000 worth of gold (at $20.67 per ounce) (Ellsworth, 1910).

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:

The creek was mined almost continuously between 1886(?) and 1935 by drift and open cut methods. The placer deposits were nearly exhausted by 1935 (Powers, 1935). In 1935 a disastrous flood wiped out dams and filled all of the placer cuts with gravel (Mertie, 1938). All of the placer mining activity took place within 4 miles of its mouth; the valley here is narrow and the gravel is thinner than farther upstream. Gold was also found in prospecting pits in the upper part of the valley.

Production notes:

Gold was produced prior to 1899 (Brooks, 1900). Some of the ground prior to 1905 ran as high as $5 per square yard of bedrock (gold at $20.67 per ounce), but the average was lower (Prindle, 1905). Production between 1904 and 1907 was about 1,960 fine ounces of gold (Prindle, 1908). Mining during the winter of 1908/1909 and the summer of 1909 yielded $10,000 worth of gold (at $20.67 per ounce) (Ellsworth, 1910).

Reserves:

Additional comments:

References:

Spurr, 1898; Brooks, 1900; Brooks, 1904; Prindle, 1905; Prindle, 1906 (B 284); Prindle, 1908; Prindle, 1909; Ellsworth, 1910; Ellsworth and Parker, 1911; Porter, 1912; Ellsworth and Davenport, 1913; Brooks, 1915; Brooks, 1916; Smith, 1929; Mertie, 1930 (B 813-C); Smith, 1930 (B 810); Mertie, 1931; Smith, 1932; Smith, 1933 (B 836-A); Smith, 1933 (B 844-A); Smith, 1934 (B 857-A); Smith, 1934 (B 864-A); Smith, 1936; Mertie, 1937; Smith, 1937; Mertie, 1938; Smith, 1941 (B 910-C); Joesting, 1943; Malone, 1962; Malone, 1965; Buteau, 1967; Smith, 1968; Asher, 1970; Cobb, 1972 (MF-393); Cobb, 1973 (B 1374); Cobb, 1977 (OFR 77-845); Eberlein and others, 1977; Burleigh and Lear, 1994; Werdon and others, 2001; Layer and others, 2002.

Primary reference: Cobb, 1977 (OFR 77-845)

Reporter(s): M.B. Werdon

Last report date: 5/1/02

Site name(s): Unnamed (east of South Fork)

Site type: Occurrence

ARDF no.: EA117

Latitude: 64.1451 **Quadrangle:** EA A-2

Longitude: 141.6958

Location description and accuracy:
This occurrence is along a tractor trail on a ridge top at an elevation of about 3,050 feet about 2.9 miles east-southeast of the old town of Franklin. The occurrence is in section 4, T. 27 N., R. 19 E., of the Copper River Meridian. The location is accurate.

Commodities:

Main: Pb, Zn

Other: As

Ore minerals: Limonite, pyrite

Gangue minerals: Quartz

Geologic description:
The rocks in the vicinity of this occurrence are interlayered Paleozoic, amphibolite-facies paragneiss, schist, amphibolite, orthogneiss, and minor marble (Werdon and others, 2001) that to the south have been intruded by small Jurassic plutons. Quartz-feldspar-white mica gneiss is iron-oxide stained and contains disseminated limonite cubes (pseudomorphs after pyrite?). Pyrite cubes approximately 1 millimeter in diameter occur within vuggy quartz veins. Many fractures are filled with limonite. An assay of this material contains 40 ppm arsenic, 444 ppm lead, and 136 ppm zinc (Werdon and others, 2000).

Alteration:
Quartz-feldspar-white mica gneiss at the site is iron-oxide stained and contains disseminated limonite cubes (pseudomorphs after pyrite?).

Age of mineralization:
Paleozoic or younger; possibly related to nearby Jurassic intrusions.

Deposit model:
Distal Zn-Pb skarn?

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:

Werdon and others, 2000; Werdon and others, 2001.

Primary reference: Werdon and others, 2000

Reporter(s): M.B. Werdon

Last report date: 5/1/02

Site name(s): Unnamed (north of Napoleon Creek)

Site type: Occurrence

ARDF no.: EA118

Latitude: 64.1360 **Quadrangle:** EA A-2

Longitude: 141.7198

Location description and accuracy:

This occurrence is at an elevation of about 2,600 feet on a ridge about 2.6 miles southeast of the old town of Franklin. The occurrence is in section 8, T. 27 N., R. 19 E., of the Copper River Meridian. The location is accurate.

Commodities:

Main: Mo, Pb, W, Zn

Other:

Ore minerals: Pyrite, pyrrhotite

Gangue minerals: Quartz

Geologic description:

The rocks in the vicinity of this occurrence are interlayered Paleozoic amphibolite-facies paragneiss, schist, amphibolite, orthogneiss, and minor marble that have been intruded by small Jurassic plutons and dikes (Werdon and others, 2001). The Jurassic igneous rocks are generally white, fine-grained, aplitic- to graphic-textured granite dikes, but they transition westward into a tan, fine- to medium-grained, equigranular, biotite granite. Both the white and tan granites are cut by stockwork milky, quartz veins. Most quartz veins do not contain visible sulfides, but maany of the white granites contain as much as 2 percent disseminated limonite (pseudomorphs after pyrite?). Calc-silicate skarn float is present above the intrusions; t contains pyrrhotite, pyrite, and an unknown silver-gray mineral (hematite or molybdenite?); ore samples contain 120 ppm tungsten. An iron-stained, color-banded quartzite (or former quartzose gneiss?) with pyrite(?) or pyrrhotite along fracture surfaces contains 45 ppm molybdenum and 212 ppm zinc; a quartzite or hornfels with iron-sulfides and unknown silver-gray mineral contains 26 ppm molybdenum, 276 ppm lead, and 550 ppm zinc (Werdon and others, 2000).

Alteration:

Hornfelsing and the development of a calc-silicate skarn on the margin of the pluton.

Age of mineralization:

Probably related to a Jurassic pluton.

Deposit model:
Pb-Zn skarn.

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:
Werdon and others, 2000; Werdon and others, 2001.

Primary reference: Werdon and others, 2000

Reporter(s): M.B. Werdon

Last report date: 5/1/02

Site name(s): Unnamed (northwest of Purdy Mine)

Site type: Occurrence

ARDF no.: EA119

Latitude: 64.1226 **Quadrangle:** EA A-2

Longitude: 141.9597

Location description and accuracy:

This unnamed occurrence is located at an elevation of about 2,650 feet on the ridgeline between Stonehouse Creek and Myers Fork; It is about 3.4 miles north-northwest of Chicken. The occurrence is in section 18, T. 27 N., R. 18 E., of the Copper River Meridian. The location is accurate.

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals: Quartz

Geologic description:

The rocks in the vicinity of this occurrence are predominantly granitic rocks of the Chicken pluton of Jurassic age (Werdon and others, 2001). Hornblende from the pluton gives a 40Ar/39Ar plateau age of 187.8 +/-0.9 Ma (Layer and others, 2002). The pluton is intruded by an undated, K-feldspar-porphyritic, biotite hornblende granite that is spatially associated with numerous aplite dikes (Werdon and others, 2001). The southern margin of this granite is brecciated and in high-angle fault contact with upper Paleozoic metasedimentary and metavolcanic rocks. The aplite dikes are commonly sericite-altered. A sample of a quartz-veined aplite dike with a weak iron-oxide stain contains 70 ppb gold, 1.4 ppm silver, 4 ppm bismuth, 74 ppm lead, and 50 ppm zinc (Szumigala and others, 2000).

Alteration:

Aplite dikes are commonly altered to sericite and are locally iron stained.

Age of mineralization:

Jurassic or younger.

Deposit model:

Plutonic-related gold.

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

Production Status: None

Site Status: Undetermined

Workings/exploration:

Production notes:

Reserves:

Additional comments:

References:

Szumigala and others, 2000; Werdon and others, 2001; Layer and others, 2002.

Primary reference: Szumigala and others, 2000

Reporter(s): M.B. Werdon

Last report date: 5/1/02

Site name(s): Unnamed (northeast of Stonehouse Creek)

Site type: Prospect

ARDF no.: EA120

Latitude: 64.1176 **Quadrangle:** EA A-2

Longitude: 141.9233

Location description and accuracy:

This prospect occurs on a ridgeline just northeast of Stonehouse Creek. The coordinates are at the center of the prospect area, in the NE1/4SW1/4 section 17, T. 27 N., R. 18 E., of the Fairbanks Meridian. The location is accurate.

Commodities:

Main: Au

Other:

Ore minerals: Pyrite

Gangue minerals: Calcite

Geologic description:

The rocks near this prospect are upper Paleozoic greenschist-facies, light- to dark-gray phyllite (Werdon and others, 2001). The phyllite is locally contact metamorphosed, forming a medium-forest-green hornfels with trace disseminated pyrite. A single piece of hypabyssal porphyritic rhyolite or dacite (a dike?) with sparse disseminated pyrite was observed in float in the immediate prospect area. About 360 feet north, there are numerous pieces of rhyolite/dacite float with quartz, K-feldspar, and plagioclase phenocrysts in a gray aphanitic matrix. About 840 feet farther north, the upper Paleozoic phyllite is interpreted to be in high-angle fault contact with the Chicken pluton of Jurassic age (Werdon and others, 2001), which has a 40Ar/39Ar hornblende plateau age of 187.8 +/- 0.9 Ma (Layer and others, 2002). The dikes are compositionally similar to Jurassic plutons in the Eagle A-2 quadrangle, hence are likely Jurassic in age.

This occurrence is marked by two trenches, broad bulldozer cuts, and several small tests pits within phyllite. The phyllite is cut by calcite veins, many of which contain angular breccia clasts of phyllite. Calcite veins comprise approximately 1 to 2 percent of the rubble exposed by the trenching. An atomic-absorption spectroscopy assay of calcite-veined phyllite yielded 10 ppb gold (Szumigala and others, 2000). A whole-rock 40Ar/39Ar plateau age of 182.3 +/-0.9 Ma (Layer and others, 2002) was obtained from an altered hornfelsed phyllite near a gold-bearing calcite vein in the nearby Purdy mine (EA121); it is probably the age of gold deposition there. This prospect is geologically and mineralogi-

cally similar to the nearby Purdy lode gold mine; hence it may be similar in age.

In 1905, Prindle (1905 [B 251]) reported coarse grained visible gold in calcite veins that cut shale that overlies a dark, fine grained porphyritic rock. In 1908 he also reported that near the head of Chicken Creek, gold occurs in thin calcite veins associated with pyrite-bearing quartz veins in black Paleozoic phyllite (Prindle, 1908). These reports may refer either to the Purdy lode gold mine (EA121) or to this unnamed prospect. Downstream from this prospect, placer gold has been mined on Chicken Creek (EA128), and its tributaries Myers Fork (EA124) and Stonehouse Creek (EA122).

Alteration:

Horfelsing of phyllite.

Age of mineralization:

A hornfelsed phyllite near a gold-bearing calcite vein in the nearby Purdy mine (EA 039) has a whole-rock 40Ar/39Ar plateau age of 182.3 +/-0.9 Ma (Layer and others, 2002). This is probably the age of gold deposition. This prospect is geologically and mineralogically similar, hence it may be age-equivalent.

Deposit model:

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

Production Status: Undetermined.

Site Status: Inactive

Workings/exploration:

This prospect is marked by two trenches, broad bulldozer cuts, and several small tests pits within phyllite.

Production notes:

Reserves:

Additional comments:

References:

Prindle, 1905; Prindle, 1908 (B 345); Szumigala and others, 2000; Werdon and others, 2001; Layer and others, 2002.

Primary reference: Szumigala and others, 2000

Reporter(s): M.B. Werdon

Last report date: 5/1/02

Site name(s): Purdy

Site type: Mine

ARDF no.: EA121

Latitude: 64.1160 **Quadrangle:** EA A-2

Longitude: 141.9475

Location description and accuracy:

The Purdy lode-gold mine is located about 3 miles north-northwest of Chicken at an elevation of about 2,500 feet, on the ridge between Stonehouse Creek and Myers Fork. The mine is in section 18, T. 27 N., R. 18 E., of the Copper River Meridian. The location is accurate within 100 feet. This site is locality 50 of Eberlein and others (1977) and locality 13 of Cobb (1972 [MF-393]).

Commodities:

Main: Ag, Au, Cu

Other: As, Bi, Hg, Sb, Zn

Ore minerals: Chalcopyrite, gold, pyrite

Gangue minerals: Calcite, quartz

Geologic description:

The Purdy lode-gold mine is in phyllite within an east-west-trending, fault-bounded block of upper Paleozoic greenschist-facies metasedimentary and metavolcanic rocks (Werdon and others, 2001). South of the Purdy mine, the phyllite is in high-angle fault contact with the down-dropped Chicken basin that preserves a wedge of Tertiary gabbro and sedimentary rocks. North of the Purdy mine, the phyllite is in high-angle fault contact with the Chicken pluton of Jurassic age; hornblende from this pluton gives a 40Ar/39Ar plateau age of 187.8 +/- 0.9 Ma (Layer and others, 2002). The pluton intrudes Paleozoic amphibolite-facies metamorphic rocks. About 1,500 feet northwest of the Purdy mine, the Chicken pluton has been intruded by a porphyritic intrusion of unknown age that is spatially associated with aplite dikes that contain anomalous gold (see EA119) (Szumigala and others, 2000).

Prindle (1905) reported specimen-quality gold in calcite veins that occurs in shale overlying a dark, fine-grained porphyritic rock. He also reported that near the head of Chicken Creek gold occurs in thin calcite veins associated with pyrite-bearing quartz veins in black phyllite (Prindle, 1908). These reports likely refer to the Purdy lode gold mine. Foster (1969 [B 1271-G) described the Purdy deposit as a rich gold-quartz-calcite vein phyllite; it extended to a depth of 6 feet. Fred and Arthur Purdy discovered and

mined out the vein(s). Extensive prospecting around the Purdy mine has exposed only a few additional thin, discontinuous calcite veinlets, which contain specks of gold, and abundant bull quartz veins (Foster, 1969 [B 1271-G]). A very high grade sample containing visible coarse-grained gold in quartz-calcite veins within phyllite from the Purdy mine is currently (2002) on display at the University of Alaska Fairbanks museum in Fairbanks, Alaska as part of their permanent collection of historic gold.

The Purdy mine consists of two 20-foot-deep trenches that cover an area that extends for about 160 feet east-west by 70 feet north-south. In 1999, the Purdy trenches were mapped by Bryan A. Finseth as part of the Alaska Division of Geological and Geophysical Surveys' Fortymile mining-district geologic mapping project; the following observations are from his unpublished mapping. Two small east-west-trending high-angle faults cut the phyllite and are cut(?) by a 20- to 25-foot-wide north-northwest-trending breccia zone. No igneous rocks are exposed in the trenches. Disseminated pyrite occurs within an iron- and manganese-oxide-stained chert (hornfelsed phyllite?) layer within the phyllite. Along the north wall of the northern trench, both the phyllite and the breccia zone contain pyrite, and the breccia zone contains secondary copper minerals, including malachite and tenorite. Thin calcite coatings are present on some fracture surfaces. A sample of fault gouge with supergene copper minerals contains 1,055 ppb gold, 72.6 ppm silver, 308 ppm arsenic, 73,600 ppm copper, 253 ppm mercury, 2,850 ppm antimony, and 236 ppm zinc (Szumigala and others, 2000). A calcified fault breccia contains 225 ppb gold, 78.6 ppm silver, 134 ppm arsenic, 8 ppm bismuth, 3,100 ppm copper, 148 ppm mercury, 1,610 ppm antimony, and 626 ppm zinc. A whole-rock sample of altered hornfelsed phyllite adjacent to a gold-bearing calcite vein from the Purdy mine has a 40Ar/39Ar plateau age of 182.3 +/-0.9 Ma, probably the age of the gold deposition (Layer and others, 2002).

Alteration:

Hornfelsing of phyllite.

Age of mineralization:

A whole rock sample of altered hornfelsed phyllite adjacent to a gold-bearing calcite vein from the Purdy mine has a 40Ar/39Ar plateau age of 182.3 +/-0.9 Ma, probably the age of the gold deposition (Layer and others, 2002).

Deposit model:

Possibly epithermal veins (Cox and Singer, 1986; model 25c?).

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

25c?

Production Status: Yes; small

Site Status: Undetermined

Workings/exploration:

Fred and Arthur Purdy discovered and mined the vein. Extensive prospecting adjacent

to the Purdy mine has exposed only a few additional thin, discontinuous calcite veinlets, which contain specks of gold, and abundant bull quartz veins (Foster, 1969). The deposit was mined out prior to the early 1970's.

Production notes:

Reserves:

Additional comments:

References:

Prindle, 1905; Prindle, 1908; Mertie, 1938; Wasserberg and others, 1963; Smith, 1968; Foster, 1969 (B 1271-G); Foster and Clark, 1970; Cobb, 1972 (MF-393); Cobb, 1973 (B 1374); Foster, 1976; Cobb, 1977 (OFR 77-845); Eberlein and others, 1977; Szumigala and others, 2000; Werdon and others, 2001; Layer and others, 2002.

Primary reference: Foster, 1969 (B 1271-G)

Reporter(s): M.B. Werdon

Last report date: 5/1/02

Site name(s): Stonehouse Creek; Irene Gulch

Site type: Mine

ARDF no.: EA122

Latitude: 64.1144 **Quadrangle:** EA A-2

Longitude: 141.9258

Location description and accuracy:

Stonehouse Creek is a small creek about 3 miles north of Chicken; it drains southeast into Chicken Creek. Irene Gulch, a small gold-bearing tributary to Stonehouse Creek, is here grouped with Stonehouse Creek. Placer tailings on Stonehouse Creek are shown on the U.S. Geological Survey 1:63,360-scale topographic map of the Eagle A-2 quadrangle (1956; revised in 1971). The coordinates correspond to the approximate midpoint of the tailings, which are located on a terrace gravel bench about 250 feet above the creek level in section 17, T. 27 N., R. 18 E., of the Copper River Meridian. The location is accurate. This site is locality 78 and 79 of Burleigh and Lear (1994), locality 17 of Eberlein and others (1977), and locality 50 of Cobb (1972 [MF-393]).

Commodities:

Main: Au

Other: Hg, W

Ore minerals: Cinnabar, gold, scheelite

Gangue minerals:

Geologic description:

Stonehouse Creek flows through a fault-bounded, structurally down-dropped basin that preserves a wedge of Tertiary gabbro and sedimentary rocks (Werdon and others, 2001). Intra-basin, high-angle faults are rarely exposed in outcrop but are inferred from the distribution of geologic units, stratigraphic relations, and airborne resistivity and magnetic data (Alaska Division of Geological and Geophysical Surveys and others, 1999). The structural basin is bounded to the south and east by the Taylor Mountain batholith of Triassic age and to the north and west by upper Paleozoic greenschist-facies metasedimentary and metavolcanic rocks (Foster, 1969; Werdon and others, 2001). In the headwaters of Stonehouse Creek, the upper Paleozoic metamorphic rocks are in high-angle fault contact with theChicken pluton of Jurassic age to the north.

Quaternary alluvium and colluvium deposits are extensive within the area of Stonehouse Creek and in the Chicken Creek valley. They consist largely of gravel and lesser silt and sand overlain by muck. Placer gold mining in Chicken Creek (EA128) has ex-

posed numerous Pleistocene mammalian fossils, including mammoth, horse, caribou, and bison (Pinney, 2001). Many of the benches of Quaternary terrace gravel are of possible glaciofluvial origin (Pinney, 2001).

Most of the placer mining on Stonehouse Creek has been on benches of terrace gravel on the north wall of the valley; these terraces are as high as 70 feet above the creek. Alluvial deposits along the creek have been mined for placer gold as well. Gravel deposits on benches are 2 to 8 feet thick. The gold is rough and dark colored (Prindle, 1905). Smith (1941 [B 910-C]) reported a gold assay of 802.75 parts of gold per thousand from Stonehouse Creek. Placer concentrates contain mostly magnetite, ilmenite, and pyrite, but they also contain minor specular hematite and scheelite, and numerous grains of cinnabar.

Placer gold was produced intermittently from about 1903 to at least 1936 and perhaps at later times as well. Stonehouse Creek and its benches have been mined by drifting, open cuts, and bulldozer and scraper methods (Burleigh and Lear, 1994). At least some of the placer gold may have been derived from quartz and calcite veins (Prindle, 1909) from the nearby Purdy lode gold prospect (EA121). Gold production from 1904 to 1907, including that from Myers Fork (EA124), Lost Chicken Creek (EA131), Stonehouse Creek (EA122), and Ingle Creek (EA111), totaled about 18,835 fine ounces (Eberlein and others, 1977).

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: Undetermined

Workings/exploration:

Placer gold was produced intermittently from about 1903 to at least 1936, and perhaps at later times as well. Stonehouse Creek has been mined by drifting, open cut, and bulldozer and scraper methods. Most of the placer mining on Stonehouse Creek has been on benches of terrace gravel on the north wall of the valley; these bences are as high as 70 feet above the creek. Alluvial deposits along the creek have been mined for placer gold as well.

Production notes:

Smith (1941 [B 910-C]) reported a gold assay of 802.75 parts of gold per thousand from Stonehouse Creek. Gold production from 1904 to 1907 that included that from Myers Fork (EA124), Lost Chicken Creek (EA131), Stonehouse Creek (EA122), and Ingle

Creek (EA111) totaled about 18,835 fine ounces (Eberlein and others, 1977). Placer gold was produced intermittently from about 1903 to at least 1936 and perhaps at later times as well. Stonehouse Creek and its benches have been mined by drifting, open cut, and bull-dozer and scraper methods (Burleigh and Lear, 1994).

Reserves:

Additional comments:

References:

Prindle, 1905; Purington, 1905; Prindle, 1908; Brooks, 1909; Prindle, 1909; Ellsworth and Parker, 1911; Smith, 1929; Mertie, 1930 (B 813-C); Powers, 1935; Mertie, 1937; Smith, 1937; Mertie, 1938; Smith, 1939 (B 910-A); Smith, 1939 (B 917-A); Smith, 1941 (B 910-C); Smith, 1941 (B 926-A); Smith, 1942 (B 933-A); Joesting, 1943; Thorne and others, 1948; Roehm, 1949; Williams, 1950; Saunders, 1953; Malone, 1965; Smith, 1968; Cobb, 1972 (MF-393); Cobb, 1973 (B 1374); Foster, 1976; Cobb, 1977 (OFR 77-845); Eberlein and others, 1977; Burleigh and Lear, 1994; Alaska Division of Geological and Geophysical Surveys and others, 1999; Pinney, 2001; Werdon and others, 2001.

Primary reference: Mertie, 1938

Reporter(s): M.B. Werdon

Last report date: 5/1/02

Site name(s): Napoleon Creek

Site type: Mine

ARDF no.: EA123

Latitude: 64.1073 **Quadrangle:** EA A-2

Longitude: 141.7311

Location description and accuracy:

Napoleon Creek is an east tributary of the South Fork of the Fortymile River about 7 miles northeast of Chicken. Placer tailings are shown on the U.S. Geological Survey 1:63,360-scale topographic map of the Eagle A-2 quadrangle (1956; revised in 1971). The coordinates correspond to the midpoint of the tailings shown near the mouth of Napoleon Creek in section 20, T. 27 N., R. 19 E., of the Copper River Meridian. The location is accurate. This record also includes references to additional placer workings shown approximately 1 mile upstream and to terrace gravels that were mined near the mouth of Napoleon Creek. This site is locality 96 of Burleigh and Lear (1994), locality 44 of Eberlein and others (1977), and locality 58 of Cobb (1972 [MF-393]).

Commodities:

Main: Au

Other: Pt

Ore minerals: Gold

Gangue minerals:

Geologic description:

The rocks in the upper part of Napoleon Creek consist of Paleozoic amphibolite-facies metamorphic rocks that have been intruded by undifferentiated Jurassic granitic rocks (Foster, 1976; Werdon and others, 2001). The Napoleon pluton crops out at the head of the creek; the lode gold deposit (EA115) within the pluton is the likely source for at least some of the placer gold in Napoleon Creek. Bedrock near the mouth of Napoleon Creek consists mainly of unmetamorphosed Tertiary conglomerate and lesser sandstone, tuff, and local coal-bearing units (Spurr, 1898; Foster, 1976). These Tertiary rocks are preserved within a fault-bounded, structurally down-dropped basin. Near the eastern fault contact of the Tertiary sedimentary rocks with the older metamorphic rocks, Tertiary gabbro bodies intrude both units (Mertie, 1938; Werdon and others, 2001). At the mouth of the creek the valley is about 90 yards wide and is bordered by steep conglomerate bluffs (Mertie, 1938). Near the mouth of Napoleon Creek, terrace gravels depositionally overlie the Tertiary conglomerate and occur as high as 200 meters above the creek (Pinney,

2001).

Placer mining on Napoleon Creek occurred near the mouth of the creek, at a site approximately 1.5 miles upstream, and on terrace benches. Gravel in lower Napoleon Creek is approximately 8 to 18 feet thick,and the placer gold was mainly found on top of bedrock or in cracks within bedrock (Mertie, 1938). The gold is coarse grained and irregularly shaped. Nuggets heavier than 17 ounces have been recovered. Nuggets a half-inch in diameter or more are common, and the gold fineness is about 851 to 870 parts of gold per thousand (Mertie, 1938; Smith, 1941 [B 910-C]). In 1953, the gold being recovered had a fineness ranging from 870 to 872 parts of gold per thousand (Saunders, 1953). A high bench on the north side of the creek had rich pockets of gold on Tertiary bedrock. This bench is about 170 meters above Napoleon Creek (Yeend, 1992), and the gravels are approximately 40 meters thick. Vein quartz has been found in the stream gravels (Spurr, 1898). Spurr (1898) considered that the placer gold was derived from an older placer. The lode gold deposit within the Napoleon pluton (see EA115) at the head of the creek is a likely source for at least some of the placer gold in Napoleon Creek. Minor platinum has been found in Napoleon Creek. A likely source for the platinum is the Jurassic platinum-group-bearing clinopyroxenite bodies located on the ridge at the head of Napoleon Creek (Werdon and others, 2000).

Placer gold on Napoleon Creek was first discovered in 1893 (Spurr, 1898); since then, gravels from both the active stream and high bench terraces have been mined. The creek was mined intermittently from around 1898 to at least 1936. Prospecting on benches, as well as open-cut mining near the mouth of the creek, occurred in 1912 (Ellsworth and Davenport, 1913). The north valley walls were being mined in 1936 (Mertie, 1938), and Foster (1969 [B 1271-G]) reportd that rich pay streaks were found on the high terrace. In 1969, Foster and Keith (1969) noted that the placer mine on the bench had been abandoned. In 1990, as well as from 1999 to 2001, there was an active placer mining operation on Napoleon Creek (Yeend, 1992).

In 1896, the only paying claims were the two nearest the mouth where gold was first discovered (Spurr, 1898). By 1899, gold had been produced in commercial quantities (Brooks, 1900). Production on Napoleon Creek between 1904 and 1907, combined with that from Montana (EA067), Buckskin (EA113), Dome Creek (EA079), Eagle, and Twin Creeks, totaled about 122 fine ounces (Eberlein and others, 1977). Production from discovery to 1936 was worth about $200,000 (gold at $20.76 per ounce) (Mertie, 1938). The terrace 170 meters above Napoleon Creek yielded about 1,300 ounces of gold from an area no much larger than a quarter of an acre (Yeend, 1992).

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:

Placer gold on Napoleon Creek was first discovered in 1893 (Spurr, 1898); since then, gravels from both the active stream and high bench terraces have been mined. The creek was mined intermittently from around 1898 to at least 1936. Prospecting on benches, as well as open-cut mining near the mouth of the creek, occurred in 1912 (Ellsworth and Davenport, 1913). The north valley walls were being mined in 1936 (Mertie, 1938), and Foster (1969 [B 1271-G]) reported that rich pay streaks were found on the high terrace. In 1969, Foster and Keith (1969) noted that the placer mine on the bench had been abandoned. In 1990, as well as from 1999 to 2001, there was an active placer mining operation on Napoleon Creek (Yeend, 1992).

Production notes:

In 1896, the only paying claims were the two nearest the mouth where gold was first discovered (Spurr, 1898). By 1899 gold had been produced in commercial quantities (Brooks, 1900). Production on Napoleon Creek between 1904 and 1907, combined with that from Montana (EA067), Buckskin (EA113), Dome Creek (EA079), Eagle, and Twin Creeks, totaled about 122 fine ounces (Eberlein and others, 1977). Production from discovery to 1936 was worth about $200,000 (gold at $20.76 per ounce) (Mertie, 1938).

Reserves:

Additional comments:

References:

Spurr, 1898; Brooks, 1900; Prindle, 1905; Prindle, 1906 (B 284); Prindle, 1908; Brooks, 1909; Prindle, 1909; Ellsworth, 1910; Ellsworth and Parker, 1911; Porter, 1912; Ellsworth and Davenport, 1913; Brooks, 1916; Smith, 1929; Mertie, 1930 (B 813-C); Smith, 1930 (B 810); Smith, 1930 (B 813); Smith, 1932; Smith, 1933 (B 836-A); Smith, 1933 (B 844-A); Smith, 1934 (B 857-A); Smith, 1934 (B 864-A); Powers, 1935; Smith, 1936; Smith, 1937; Mertie, 1938; Smith, 1941 (B 910-C); Joesting, 1943; Foster, 1969 (B 1271-G); Foster and Keith, 1969; Cobb, 1972 (MF-393); Cobb, 1973 (B 1374); Foster, 1976; Cobb, 1977 (OFR 77-845); Eberlein and others, 1977; Yeend, 1992; Burleigh and Lear, 1994; Werdon and others, 2000; Pinney, 2001; Werdon and others, 2001.

Primary reference: Cobb, 1977 (OFR 77-845)

Reporter(s): M.B. Werdon

Last report date: 5/1/02

Site name(s): Myers Fork

Site type: Mine

ARDF no.: EA124

Latitude: 64.0891 **Quadrangle:** EA A-2

Longitude: 141.9343

Location description and accuracy:

Myers Fork is a small creek about a mile north of Chicken that drains southeast into Chicken Creek. Placer tailings on Myers Fork are shown on the U.S. Geological Survey 1:63,360-scale topographic map of the Eagle A-2 quadrangle (1956; revised in 1971). The coordinates for this mine correspond to the approximate midpoint of these tailings in section 29, T. 27 N., R. 18 E., of the Copper River Meridian; the location is accurate. This site is locality 77 and 80 of Burleigh and Lear (1994), locality 43 of Eberlein and others (1977), and locality 51 of Cobb (1972 [MF-393]).

Commodities:

Main: Au

Other: W

Ore minerals: Gold, scheelite

Gangue minerals:

Geologic description:

Myers Fork, a tributary of Chicken Creek , flows through a high-angle-fault bounded, structurally down-dropped basin that preserves a wedge of Tertiary gabbro and sedimentary rocks (Werdon and others, 2001). Intra-basin, high-angle faults are rarely exposed in outcrop but are inferred from the distribution of the geologic units, stratigraphic relations, and airborne resistivity and magnetic data (Alaska Division of Geological and Geophysical Surveys and others, 1999). The structural basin is bounded to the south and east by the Taylor Mountain batholith of Triassic age and to the north and west by upper Paleozoic greenschist-facies metasedimentary and metavolcanic rocks (Foster, 1969); Werdon and others, 2001). In the headwaters of Myers Fork, the upper Paleozoic metamorphic rocks are in high-angle fault contact with the Chicken pluton of Jurassic age to the north.

Quaternary alluvium and colluvium deposits are extensive within the Myers Fork area and Chicken Creek valley. They largely consist of gravel and lesser silt and sand overlain by muck. Placer mining of the sedimentary deposits in Chicken Creek (see EA128) has exposed numerous Pleistocene mammalian fossils, including mammoth, horse, caribou,

and bison (Pinney, 2001). Many Quaternary terrace gravel benches of possible glaciofluvial origin occur up to 600 feet above the creek (Pinney, 2001).

Along Myers Fork, at least four bedrock benches are recognized below the stream gravels. Near the lower part of Myers Fork, the alluvium is as much as 15 feet thick, and silt and muck over it is about 11 feet thick (Mertie, 1938). Most of the gold on the east side of the creek occurs on top of a clay- and silt-rich layer and in fine gravels just below it, a few inches above bedrock. Very little gold is present within or on top of bedrock. The gold is not coarse, but one 1.5-ounce nugget was found. The fineness of gold mined from benches from 1925 to 1935 ranged from 827 to 842 parts of gold per thousand and from 148 to 171 parts of silver per thousand (Mertie, 1938). The average gold fineness was 833 parts of gold per thousand and 160 parts of silver per thousand. The fineness of gold from a high bench on the southwest side of Myers Fork was 819 parts of gold per thousand and 176 parts of silver per thousand. Placer concentrates contain mostly magnetite and ilmenite, as well as minor garnet, barite, scheelite, and zircon. A potential source for placer gold in Myers Fork is the Purdy lode gold prospect (EA121), which is located on the ridge just north of the creek.

Myers Fork has been mined by drifting, sluicing, bulldozer, and hydraulic methods. Placer gold was produced from about 1903 to at least 1940, and intermittently in the 1970's. Two hydraulic plants were operating on Myers Fork in 1936 (Mertie, 1938). The estimated value of the cut that was mined in 1936 is about 30 cents to the square foot of bedrock (Mertie, 1938). In 1990, there was an active placer mine on Myers Fork (Yeend, 1992).

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: Probably inactive

Workings/exploration:

Myers Fork has been mined by drifting, sluicing, bulldozer, and hydraulic methods. Placer gold was produced from about 1903 to at least 1940 and intermittently in the 1970's. Two hydraulic plants were operating on Myers Fork in 1936 (Mertie, 1938).

Production notes:

The estimated value of the cut that was mined in 1936 is about 30 cents to the square foot of bedrock (Mertie, 1938). Production in 1904-1907 that included that from Myers

Fork (EA124), Lost Chicken Creek (EA131), Stonehouse Creek (EA122), and Ingle Creek (EA111) totaled about 18,835 fine ounces (Eberlein and others, 1977).

Reserves:

Additional comments:

References:

Prindle, 1905; Prindle, 1908; Brooks, 1909; Ellsworth and Parker, 1911; Smith, 1929; Mertie, 1930 (B 813-C); Powers, 1935; Mertie, 1937; Smith, 1937; Mertie, 1938; Smith, 1939 (B 910-A); Smith, 1939 (B 917-A); Smith, 1941 (B 926-A); Smith, 1942 (B 933-A); Joesting, 1943; Thorne and others, 1948; Roehm, 1949; Williams, 1950; Saunders, 1953; Foster, 1969; Cobb, 1972 (MF-393); Cobb, 1973 (B 1374); Foster, 1976; Cobb, 1977 (OFR 77-845); Eberlein and others, 1977; Burleigh and Lear, 1994; Alaska Division of Geological and Geophysical Surveys and others, 1999; Pinney, 2001; Werdon and others, 2001.

Primary reference: Mertie, 1938; Burleigh and Lear, 1994

Reporter(s): M.B. Werdon

Last report date: 5/1/02

Site name(s): Unnamed (along South Fork of the Fortymile River)

Site type: Occurrence

ARDF no.: EA125

Latitude: 64.0880 **Quadrangle:** EA A-2

Longitude: 141.7942

Location description and accuracy:

This occurrence is on the east shoreline of the South Fork of the Fortymile River, about 1.2 miles upstream from the mouth of Walker Fork. The occurrence is in section 25, T. 27 N., R. 18 E., of the Copper River Meridian. The location is accurate.

Commodities:

Main: Au

Other: Ag, As, Bi

Ore minerals: Gold, pyrite

Gangue minerals: Quartz

Geologic description:

This occurrence is in upper Paleozoic greenschist-facies metasedimentary and metavolcanic rocks (Werdon and others, 2001). Light-gray, sheared, siliceous muscovite-quartz phyllite is cut by a fault zone with pyrite-bearing quartz veins that contain 85 ppb gold, 4.2 ppm silver, 36 ppm arsenic, and 10 ppm bismuth (Szumigala and others, 2000).

Alteration:

Muscovite-quartz phyllite is sheared and silicified.

Age of mineralization:

Late Paleozoic or younger.

Deposit model:

Fault-hosted gold.

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:

Szumigala and others, 2000; Werdon and others, 2001.

Primary reference: Szumigala and others, 2000

Reporter(s): M.B. Werdon

Last report date: 5/1/02

Site name(s): Unnamed (Walker Fork)

Site type: Occurrence

ARDF no.: EA126

Latitude: 64.0871 **Quadrangle:** EA A-2

Longitude: 141.6797

Location description and accuracy:
This occurrence is located at water level at the apex of a sharp bend of the Walker Fork of the Fortymile River in section 28, T. 27 N., R. 19 E., of the Copper River Meridian. The location is accurate.

Commodities:

Main: Au

Other:

Ore minerals:

Gangue minerals: Ankerite?, calcite, chlorite, clay, quartz

Geologic description:
This occurrence is in a hornblende-biotite granodiorite of the Walker Fork pluton. Biotite from the pluton gives a 40Ar/39Ar plateau age of 99.0 +/- 0.5 Ma (Layer and others, 2002). The pluton is left-laterally offset about one-half mile by a northeast-trending high-angle fault (Werdon and others, 2001). A prominent circular magnetic low along the fault is present in airborne geophysical survey data (Alaska Division of Geological and Geophysical Surveys and others, 1999). The magnetic low corresponds to an area of extensive shearing. The granodiorite is partially altered to chlorite, clay, and calcite. Altered granodiorite that is cut by limonite and quartz veins with ankerite(?) and calcite contains as much as 55 ppb gold (Szumigala and others, 2000).

Alteration:
The granodiorite is partially altered to chlorite, clay, and calcite.

Age of mineralization:
Associated with a fault that offsets the Walker Fork pluton of Cretaceous age.

Deposit model:
Shear zone-hosted lode gold.

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:

Alaska Division of Geological and Geophysical Surveys and others, 1999; Szumigala and others, 2000; Werdon and others, 2001; Layer and others, 2002.

Primary reference: Szumigala and others, 2000

Reporter(s): M.B. Werdon

Last report date: 5/1/02

Site name(s): Unnamed (north of South Fork bridge)

Site type: Occurrence

ARDF no.: EA127

Latitude: 64.0779 **Quadrangle:** EA A-2

Longitude: 141.7719

Location description and accuracy:

This unnamed occurrence is at the waterline on the west bank of the South Fork of the Fortymile River; it may be under water during times of high water. The occurrence is about 1.5 miles north of the South Fork bridge on the Taylor Highway, and about 1.5 miles south of the mouth of Walker Fork, on the western edge of section 31, T. 27 N., R. 19 E., of the Copper River Meridian. The location is accurate.

Commodities:

Main: Au

Other:

Ore minerals: Gold, pyrite

Gangue minerals: Quartz

Geologic description:

This prospect is in upper Paleozoic greenschist-facies metasedimentary and metavolcanic rocks (Werdon and others, 2001). Light-gray to black chert (silicified limestone?) is cut by white quartz stringers and discontinuous pyrite veins. Portions of the outcrop have a banded appearance, and other portions are distinctly brecciated with a light matrix and dark clasts. Some fractures are filled with an unidentified yellow-orange material. Overall, brecciation is minor, and it probably is associated with quartz veining. An assay of a representative sample of quartz-veined and pyrite-rich chert (silicified limestone?) breccia contains 65 ppm gold (Szumigala and others, 2000).

Alteration:

Possible silicification of limestone?

Age of mineralization:

The veins cut upper Paleozoic rocks.

Deposit model:

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:

Szumigala and others, 2000; Werdon and others, 2001.

Primary reference: Szumigala and others, 2000

Reporter(s): M.B. Werdon

Last report date: 5/1/02

Site name(s): Chicken Creek

Site type: Mine

ARDF no.: EA128

Latitude: 64.0744 **Quadrangle:** EA A-2

Longitude: 141.9293

Location description and accuracy:

Chicken Creek is a small north tributary that drains south-southwest through the town of Chicken into the Mosquito Fork of the Fortymile River. Placer tailings on Chicken Creek are shown in two locations on the U.S. Geological Survey 1:63,360-scale topographic map of the Eagle A-2 quadrangle (1956; revised 1971). The lower tailings extend approximately 1.5 miles upstream from the mouth of Chicken Creek. The upper tailings start near the intersection with Stonehouse Creek and extend down tream for about 1 mile. The coordinates correspond to the town site of Chicken, located approximately 1 mile upstream from the mouth of Chicken Creek, in section 32, T. 27 N., R. 18 E., of the Copper River Meridian. This site is locality 81 of Burleigh and Lear (1994), locality 17 of Eberlein and others (1977), and locality 51 of Cobb (1972 [MF-393]).

Commodities:

Main: Au

Other: W

Ore minerals: Gold, scheelite

Gangue minerals:

Geologic description:

Chicken Creek is a major gold producer in the Fortymile mining district. Chicken Creek flows through a high-angle-fault-bounded, structurally down-dropped basin that preserves a wedge of Tertiary gabbro and sedimentary rocks (Werdon and others, 2001). Intra-basin high-angle faults are rarely exposed in outcrop but are inferred from the distribution of the geologic units, stratigraphic relations, and airborne resistivity and magnetic data (Alaska Division of Geological and Geophysical Surveys and others, 1999). These faults juxtapose blocks of Tertiary gabbro against Tertiary sedimentary rocks, which include sandstone, conglomerate, shale, tuff, coal, and chert(?) that contains fragments of petrified tree stems. Quaternary alluvium and colluvium deposits are extensive in the Chicken Creek valley; they largely consist of gravel and lesser silt and sand, overlain by muck. Placer gold mining of these sedimentary deposits has exposed numerous Pleistocene mammalian fossils, including mammoth, horse, caribou, and bison (Pinney, 2001).

Many Quaternary terrace gravel benches of possible glaciofluvial origin occur as high as 600 feet above the creek (Pinney, 2001). The structural basin is bounded to the south and east by the Taylor Mountain batholith of Triassic age, and to the north and west by upper Paleozoic greenschist-facies metasedimentary and metavolcanic rocks (Foster, 1969; Werdon and others, 2001). In the headwaters of Chicken Creek, upper Paleozoic greenschist-facies metasedimentary and metavolcanic rocks are in high-angle fault contact with the Chicken pluton of Jurassic age to the north.

Placer gold deposits on Chicken Creek extend for about 3.4 miles from Stonehouse Creek to the Mosquito Fork. Above Stonehouse Creek, Chicken Creek is in a deeply incised narrow valley; below, the gradient is more gentle and merges into the flats of Mosquito Fork (Mertie, 1938). The gravel mined in 1905 on Chicken Creek was 6 to 45 feet thick, and the gold was found on top of bedrock (Prindle, 1905). In the lower half of the valley, the gravels are 40 to 50 feet thick. Most of the mining below Myers Fork was along the west side of the Chicken Creek valley, 150 to 1,000 feet west of the creek. In 1928, most of the mining took place on a bench 500 to 1,000 feet west of Chicken Creek (Mertie, 1930 [B 813-C). In 1936, gold was found on bedrock, and the pay streak was 100 to 200 feet wide, frozen, and 20 to 38 feet deep (Mertie, 1938). Chalcedony occurs in the gravels (Spurr, 1898).

The gold in Chicken Creek is about the size of chicken feed (corn), hence the name of the creek (Spurr, 1898). The gold generally did not occur in large nuggets, and some pieces were attached to quartz. Four samples of gold produced in 1935 from Chicken Creek at the mouth of Stonehouse Creek (see EA122) averaged 835 parts of gold per thousand and 158 parts of silver per thousand (Mertie, 1938). Placer scheelite was found but it was scarce (Joesting, 1943). In 1977, the placer gold that was being recovered was characterized as bright and 3 to 4 millimeters and consisted of flattened flakes with only slightly rounded edges (Eberlein and others, 1977). The largest nuggets were about 1 pennyweight and had quartz attached to them. The coarsest piece of gold found as of 1936 was 0.5 ounce (Mertie, 1938).

Placer gold on Chicken Creek was discovered in about 1896 (Mertie, 1938). Prospecting occurred in 1896 (Spurr, 1898), and intermittent mining has taken place from about 1899 to 2001. Gravels have been mined from both the active stream and bench terraces about 275 feet above the creek. In 1907, the only active mining was at the head of the creek, where gold was discovered in gravel on the Last Chance bench (Prindle, 1908; Prindle, 1909). Placer gold has been mined by drifting in the early years, hydraulic mining, dredging, and other methods (Burleigh and Lear, 1994). Dredge mining took place in 1967, and small-scale mining occurred throughout the late 1960's (Foster, 1969 [B 1271-G]). The dredge is currently (2001) being used as a tourist attraction and is located just south of the Taylor Highway in the town of Chicken.

Gold was first produced in commercial quantities in 1899 (Brooks, 1900). In the early 1900's some ground ran as high as $2.50 in gold per pan (Foster and Keith, 1969). Placer gold production from the Chicken Creek basin in 1903 was worth about $100,000 (Prindle, 1905). In 1905, the ground being mined averaged about $1 per square foot of bedrock (Prindle, 1905). Mining during the winter of 1908-1909 and summer of 1909 yielded $16,000 worth of gold (Ellsworth, 1910). Mining during 1914 yielded between $15,000 and $25,000 worth of gold (Brooks, 1915). All production of gold was valued at $20.67 per ounce.

In 1905, Prindle (1905) reported specimen gold in calcite veins in shale overlying a dark, fine-grained porphyritic rock. In 1908 he also reported that near the head of Chicken Creek, gold occurs in thin calcite veins associated with pyrite-bearing quartz veins in black Paleozoic phyllite (Prindle, 1908). These reports may either refer to the Purdy lode mine (EA121) or an unnamed prospect northeast of Stonehouse Creek (EA162). Chicken Creek has several placer gold-bearing tributaries, including Myers Fork (EA124) and Stonehouse Creek (EA122).

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; medium

Site Status: Active

Workings/exploration:
Placer gold on Chicken Creek was discovered in about 1896. Prospecting occurred in 1896 (Spurr, 1898) and intermittent mining has taken place from about 1899 to 2001. Gravels have been mined from both the active stream and bench terraces about 275 feet above the creek. In 1907, the only active mining was at the head of Chicken Creek, where gold was discovered in gravel on the Last Chance bench (Prindle, 1908; Prindle, 1909). Placer gold was mined by drifting in the early years, later hydraulic mining, dredging, and other methods (Burleigh and Lear, 1994). By 1953, Fairbanks Exploration Company purchased most of the mining claims in the Chicken Creek drainage and began preparation for dredge operations (Burleigh and Lear, 1994). The Pedro #4 dredge operated from 1959 to 1967 in Chicken Creek. Small-scale mining occurred throughout the late 1960's (Foster, 1969). In 1977, hydraulic mining processed present stream and bench gravels about 200 feet above the present creek (Eberlein and others, 1977).

Production notes:
Gold was first produced in commercial quantities in 1899 (Brooks, 1900). In the early 1900's some ground ran as high as $2.50 in gold per pan (Foster and Keith, 1969). Placer gold production from the Chicken Creek basin in 1903 was worth about $100,000 (Prindle, 1905). In 1905, the ground being mined averaged about $1 per square foot of bedrock (Prindle, 1905). Mining during the winter of 1908-1909 and summer of 1909 yielded $16,000 worth of gold (Ellsworth, 1910). Mining during 1914 yielded between $15,000 and $25,000 worth of gold (Brooks, 1915). All production of gold was valued at $20.67 per ounce. Production in 1904-1907 that included that from Myers Fork (EA124),

Lost Chicken Creek (EA131), Stonehouse Creek (EA122), and Ingle Creek (EA111) totaled about 18,835 fine ounces (Eberlein and others, 1977).

Reserves:

Additional comments:

References:

Spurr, 1898; Brooks, 1900; Brooks, 1904; Brooks, 1905; Prindle, 1905; Purington, 1905; Prindle, 1906 (B 284); Brooks, 1907; Prindle, 1908; Brooks, 1909; Prindle, 1909; Ellsworth, 1910; Ellsworth and Parker, 1911; Porter, 1912; Ellsworth and Davenport, 1913; Chapin, 1914; Brooks, 1915; Brooks, 1916; Brooks, 1922; Smith, 1926; Smith, 1929; Mertie, 1930 (B 813-C); Smith, 1930 (B 810); Smith, 1930 (B 813); Smith, 1932; Smith, 1933 (B 836); Smith, 1933 (B 844-A); Smith, 1934 (B 857-A); Smith, 1934 (B 864-A); Powers, 1935; Smith, 1936; Mertie, 1938; Smith, 1939 (B 910-A); Smith, 1939 (B 917-A); Smith, 1941 (B 926-A); Smith, 1942 (B 933-A); Joesting, 1943; Thorne and others, 1948; Roehm, 1949; Wimmler, 1949; Williams, 1950; Saunders, 1953; Saunders, 1966; Berg and Cobb, 1967; Koschmann and Bergendahl, 1968; Smith, 1968; Foster, 1969 (B 1271-G); Foster and Keith, 1969; Foster and Clark, 1970; Cobb, 1972 (MF-393); Cobb, 1973 (B 1374); Foster, 1976; Cobb, 1977 (OFR 77-845); Eberlein and others, 1977; Boswell, 1979; Bundtzen and others, 1986; Bundtzen and others, 1987; Swainbank and others, 1991; Bundtzen and others, 1992; Burleigh and Lear, 1994; Alaska Division of Geological and Geophysical Surveys and others, 1999; Pinney, 2001; Werdon and others, 2001.

Primary reference: Cobb, 1977 (OFR 77-845); Burleigh and Lear, 1994

Reporter(s): M.B. Werdon

Last report date: 5/1/02

Site name(s): Cameron; Chicken West; Opal

Site type: Prospect

ARDF no.: EA129

Latitude: 64.0721 **Quadrangle:** EA A-2

Longitude: 141.9970

Location description and accuracy:

The Cameron prospect is about 2 miles west of Chicken. It is at an elevation of about 1,900 feet on the north wall of the Mosquito Fork in the SW1/4 section 36, T. 27 N, R. 17 E., of the Copper River Meridian.

Commodities:

Main: Ag, Au

Other:

Ore minerals: Gold

Gangue minerals: Clay, quartz

Geologic description:

The rocks in the vicinity of the Cameron prospect consist predominantly of granodiorite, quartz monzodiorite, tonalite, and quartz diorite of the Taylor Mountain batholith (Foster, 1976; Werdon and others, 2001). Sphene from the batholith gives a uranium-lead age of 214 Ma (Aleinikoff and others, 1981); this is interpreted to represent the age of intrusion. The batholith has undergone an early Jurassic heating and deformation event. It is cut by porphyritic hornblende quartz diorite dikes, one of which has a 40Ar/39Ar hornblende plateau age of 197.5 Ma (Layer and others, 2002). Minor Paleozoic phyllite, metatuffs, and greenstone are also present in the area. The batholith and the schists have been offset by high-angle faults, and intruded by Tertiary gabbro (Werdon and others, 2001). Tertiary sandstone, conglomerate, and tuff are locally present, and Quaternary alluvium, colluvium, and terrace deposits are extensive in the Mosquito Fork drainage.

The Cameron prospect is a weathered, 6-foot-thick mineralized zone that consists of clayey material and many fragments of vein quartz (Prindle, 1905). Rock sample assays contain 0.36 to 0.58 ounce of gold per ton and 0.10 ounce of silver per ton. The original host rock probably was a quartz diorite or granodiorite. Smith (1968) observed flour gold in a lode deposit about 200 feet above the river, and he probably was referring to this occurrence (Cobb, 1977 [OFR 77-845]).

Alteration:

Clay alteration of plutonic host rock.

Age of mineralization:
Triassic or younger.

Deposit model:
Gold in quartz along a fault zone; possibly a pluton-hosted lode gold deposit related to Triassic or younger intrusions.

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:
Prindle, 1905; Wasserberg and others, 1963; Smith, 1968; Foster, 1976; Cobb, 1977 (OFR 77-845); Aleinikoff and others, 1981; Werdon and others, 2001; Layer and others, 2002.

Primary reference: Prindle, 1905

Reporter(s): M.B. Werdon

Last report date: 5/1/02

Site name(s): Highway Copper; Bruce

Site type: Occurrence

ARDF no.: EA130

Latitude: 64.0713 **Quadrangle:** EA A-2

Longitude: 141.8765

Location description and accuracy:

The adit of the Highway Copper prospect is located below the Taylor Highway, about 1.5 miles east of the town of Chicken, Alaska. The adit is in the SE1/4 section 33, T. 27 N., R. 18 E. of the Copper River Meridian. The location is accurate. This prospect is locality 14 of Cobb (1972 [MF-393]), locality 8 of Eberlein and others (1977), and locality 82 of Burleigh and Lear (1994).

Commodities:

Main: Ag, Au, Cu

Other: As, Bi, Mo, Pb, Sb, Te, Zn

Ore minerals: Chalcopyrite, malachite, pyrite, sphalerite, tetrahedrite?

Gangue minerals: Calcite, quartz

Geologic description:

The Highway Copper lode deposit is in upper Paleozoic greenschist-facies unit of mainly hornblende metagabbro and metadiabase; these rocks are in high-angle fault contact with faulted slivers of foliated granitic rocks of the Taylor Mountain batholith of Triassic age (Werdon and others, 2001). Earlier reports simply referred to the host rocks as greenstone (Saunders, 1957; Smith, 1968). The greenstone exhibits epidote-chlorite-calcite alteration, and it is faulted, brecciated, and quartz-veined in the prospect area. Multiple generations of quartz veins are commonly present. Pyrite occurs in the quartz veins and as disseminated grains in surrounding host rocks. Other sulfides include chalcopyrite, sphalerite, and tetrahedrite(?); secondary malachite is also present (Burleigh and Lear, 1994). The greenstone is locally cut by granitic and pegmatitic dikes. Sericite from an altered quartz monzonite dike at the prospect gives an interpreted model age of 193.9 Ma (Layer and others, 2002). This suggests the deposit may be related to Jurassic intrusions in the area.

The Highway Copper prospect is interpreted to be a pluton-related, copper-gold prospect. Assays of mineralized samples contain as much as 31 ounces of silver per ton, 2,160 ppb gold, 2,150 ppm arsenic, 36 ppm bismuth, 4,450 ppm copper, 37 ppm molybdenum, 1.47 percent lead, 3,260 ppm antimony, 18.5 ppm tellurium, and 5,852 ppm zinc

(Burleigh and Lear, 1994; U.S. Bureau of Mines, 1995). Smith (1968) noted that silver(?) occurs in veinlets; samples of mineralized float contain 0.02 ounce of gold, 0.68 ounce of silver per ton, 0.1 percent copper, 0.2 percent lead, and 0.3 percent zinc (Smith, 1968).

The Highway Copper prospect was explored in the 1960's and 1970's (Eberlein and others, 1977) and was reexamined by the U.S. Bureau of Mines in the mid-1990's (Burleigh and Lear, 1994).

Alteration:

The greenstone host rock is altered to epidote, chlorite, and calcite; it is faulted, brecciated, and quartz-veined.

Age of mineralization:

Sericite from an altered quartz monzonite dike at the prospect gives an interpreted model age of 193.9 Ma (Layer and others, 2002). This suggests the deposit may be related to Jurassic intrusions in the area.

Deposit model:

Pluton-related Cu-Au deposit.

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

Production Status: Undetermined.

Site Status: Inactive

Workings/exploration:

The Highway Copper prospect was explored in the 1960's and 1970's (Eberlein and others, 1977) and was reexamined by the U.S. Bureau of Mines in the mid-1990's (Burleigh and Lear, 1994).

Production notes:

Reserves:

Additional comments:

References:

Smith, 1968; Cobb, 1972 (MF-393); Eberlein and others, 1977; Burleigh and others, 1994; U.S. Bureau of Mines, 1995; Werdon and others, 2001; Layer and others, 2002.

Primary reference: Burleigh and others, 1994

Reporter(s): M.B. Werdon

Last report date: 5/1/02

Site name(s): Lost Chicken Creek; Lost Chicken Hill

Site type: Mine

ARDF no.: EA131

Latitude: 64.0683 **Quadrangle:** EA A-2

Longitude: 141.9085

Location description and accuracy:

Lost Chicken Creek is a small tributary that drains southeast into the South Fork of the Fortymile River about a mile southeast of Chicken. Placer tailings are shown on the U.S. Geological Survey 1:63,360-scale topographic map of the Eagle A-2 quadrangle (1956; revised in 1971). The coordinates correspond to the approximate midpoint of the tailings, in section 5, T. 26 N., R. 18 E., of the Copper River Meridian. The location is accurate. This site is locality 82 of Burleigh and Lear (1994), locality 36 of Eberlein and others (1977), and locality 52 of Cobb (1972 [MF-393]). Lost Chicken Hill is a small hill located immediately southwest of Lost Chicken Creek. The Lost Chicken Creek placer deposit is referred to in some older references as Lost Chicken Hill.

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:

The rocks in the vicinity of Lost Chicken Creek are granitic rocks of the Taylor Mountain batholith of Triassic age and upper Paleozoic greenschist-facies metasedimentary and metavolcanic rocks (Werdon and others, 2001). These units have been cut by high-angle faults. The bedrock at the head of the creek exposed by placer mining is quartz diorite cut by a Tertiary basalt dike (Mertie, 1930 [B 813-C]). Quaternary alluvium and colluvium deposits are extensive in the valley of Lost Chicken Creek; they largely consist of gravel and lesser silt and sand overlain by muck. Placer gold mining of these deposits has exposed numerous Pleistocene mammalian fossils including mammoth, horse, caribou, and bison (Pinney, 2001). Near the head of Lost Chicken Creek, the valley is separated from that of Chicken Creek (see EA128) by a gravel-capped terrace about 80 to 90 meters above Chicken Creek (Mertie, 1938).

Placer mining on Lost Chicken Creek occurred along the creek and more extensively on a bench at the head of the creek. The high gravels were richly auriferous (Prindle, 1909).

Placer gold occurs in the lower part of the gravel and on top of bedrock (Mertie, 1938); the gold is mainly small, flattened pieces. Good-size nuggets are rare, but one weighing nearly 1.5 ounces was found before 1936. The fineness of gold mined from 1935 to 1936 ranged from 820.75 to 845.75 parts of gold per thousand and from 121 to 155 parts of silver per thousand (Mertie, 1938). A mean of seven assays indicates an average fineness of 842 parts of gold per thousand and 144 parts of silver per thousand; this is higher fineness than gold from the nearby Chicken Creek (EA128) and Myers Fork (EA124) placers (Mertie, 1938). Placer concentrates mainly contain magnetite, ilmenite, garnet, and zircon.

Placer gold on Lost Chicken Creek was discovered in 1895 (Foster and Keith, 1969), and the creek has been mined from about 1901 to as recently as 2000. Early mining occurred on the bench between Chicken Creek and Lost Chicken Creek. The bench deposit was initially mined by drifts run from shafts 33 to 53 feet deep (Prindle, 1905). The creek and bench gravels have also been mined by hydraulic, bulldozer, and sluice box methods (Burleigh and Lear, 1994). Lost Chicken Creek was one of the major gold producers of the Fortymile mining district in the early 1900's (Prindle, 1909). Ground mined in 1902 averaged about $1 per square foot of bedrock (gold at $20.67 per ounce) (Prindle, 1905). Gravels being mined in 1977 were 8 to 10 feet thick, and the frozen muck over the gravel was commonly 20 feet thick (Eberlein and others, 1977).

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; medium

Site Status: Probably inactive

Workings/exploration:

Placer mining on Lost Chicken Creek occurred along the creek and more extensively on a bench at the head of the creek. The high gravels were richly auriferous (Prindle, 1909). Placer gold occurs in the lower part of the gravel and on top of bedrock (Mertie, 1938); the gold is mainly small, flattened pieces. Good-size nuggets are rare, but one weighing nearly 1.5 ounces was found before 1936. The fineness of gold mined from 1935 to 1936 ranged from 820.75 to 845.75 parts of gold per thousand and from 121 to 155 parts of silver per thousand (Mertie, 1938). A mean of seven assays indicates an average fineness of 842 parts of gold per thousand and 144 parts of silver per thousand; this is higher fineness than gold from the nearby Chicken Creek (see EA128) and Myers Fork (EA124) placers (Mertie, 1938). Placer concentrates mainly contain magnetite, ilmenite, garnet, and zir-

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Production notes:

Lost Chicken Creek was one of the major gold producers of the Fortymile District in the early 1900's (Prindle, 1909). Ground mined in 1902 averaged about $1 per square foot (1902 dollars) (Prindle, 1905). Production in 1904-1907, including that from Myers Fork (EA124), Lost Chicken Creek (EA131), Stonehouse Creek (EA122), and Ingle Creek (EA111), totaled about 18,835 fine ounces (Eberlein and others, 1977).

Reserves:

Additional comments:

References:

Prindle, 1905; Brooks, 1906; Prindle, 1906 (B 284); Brooks, 1907; Prindle, 1908; Brooks, 1909; Prindle, 1909; Ellsworth and Parker, 1911; Brooks, 1915; Brooks, 1916; Smith, 1929; Mertie, 1930 (B 813-C); Smith, 1934 (B 864-A); Powers, 1935; Smith, 1937; Mertie, 1938; Smith, 1939 (B 910-A); Smith, 1939 (B 917-A); Smith, 1941 (B 910-C); Smith, 1941 (B 926-A); Smith, 1942 (B 933-A); Roehm, 1949; Williams, 1950; Williams, 1951; Saunders, 1953; Wasserberg and others, 1963; Smith, 1968; Foster, 1969; Foster and Keith, 1969; Foster and Clark, 1970; Cobb, 1972 (MF-393); Cobb, 1973 (B 1374); Foster, 1976; Cobb, 1977 (OFR 77-845); Eberlein and others, 1977; Bundtzen and others, 1987; Swainbank and others, 1991; Bundtzen and others, 1992; Yeend, 1992; Burleigh and Lear, 1994; Pinney, 2001; Werdon and others, 2001.

Primary reference: Cobb, 1977 (OFR 77-845); Burleigh and Lear, 1994

Reporter(s): M.B. Werdon

Last report date: 5/1/02

Site name(s): Wall Street

Site type: Mine

ARDF no.: EA132

Latitude: 64.0593 **Quadrangle:** EA A-2

Longitude: 141.7553

Location description and accuracy:

The Wall Street mine is shown near the mouth of Wall Street Creek with a mine symbol on the U.S. Geological Survey topographic map of the Eagle A-2 quadrangle (1956; revised in 1971). The mine is located about 1,000 feet east of the Taylor Highway, in section 6, T. 26 N., R. 19 E., of the Copper River Meridian. The location is accurate.

Commodities:

Main: Au?

Other:

Ore minerals:

Gangue minerals: Clay, quartz

Geologic description:

The rocks in the vicinity of the Wall Street mine are upper Paleozoic greenschist-facies metasedimentary and metavolcanic rocks and Paleozoic amphibolite-facies paragneiss, amphibolite, schist, and quartzite (Werdon and others, 2001). The Wall Street mine is in a northeast-trending fault at the contact between the greenschist-facies and amphibolite-facies rocks. Three miles to the northeast, the fault bounds the eastern margin of the Napoleon Creek sedimentary basin of Tertiary age; hence, it is likely that motion on the fault is Tertiary or younger.

The fault at the Wall Street mine is marked by sub-parallel sets of epithermal-style quartz veins and brecciation scattered over an approximately 150-foot-wide zone. The veins and breccias contain angular clasts of host rocks that have been mostly to completely replaced by clay and quartz. The quartz is generally bright white to translucent pale gray and finely banded to aphanitic and is locally iron-stained. Assays of two select samples of the veins and breccia contain as much as 0.2 ppm silver, 6 ppm arsenic, 200 ppm barium, and 78 ppm zinc, but no gold (Szumigala and others, 2000). No references to this mine are known prior to 2000, and it is uncertain if it was actually mined for gold or if it was only a materials site for building the Taylor Highway.

Alteration:

Clasts in veins and breccias have been partially to completely replaced by clay and quartz.

Age of mineralization:

The Wall Street mine is in a northeast-trending fault, at the contact between the green-schist-facies and amphibolite-facies rocks. Three miles to the northeast, the fault bounds the eastern margin of the Napoleon Creek, sedimentary basin of Tertiary age; hence, it is likely that motion on the fault is Tertiary or younger.

Deposit model:

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

Production Status: Undetermined.

Site Status: Inactive

Workings/exploration:

Production notes:

Reserves:

Additional comments:

References:

Szumigala and others, 2000; Werdon and others, 2001.

Primary reference: Szumigala and others, 2000

Reporter(s): M.B. Werdon

Last report date: 5/1/02

Site name(s): Unnamed (northeast of Wall Street Creek)

Site type: Occurrence

ARDF no.: EA133

Latitude: 64.0590 **Quadrangle:** EA A-2

Longitude: 141.6963

Location description and accuracy:

This unnamed occurrence is located on a ridgeline about 2 miles east of the mouth of Wall Street Creek, in section 4, T. 26 N., R. 19 E., of the Copper River Meridian. The location is accurate.

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:

The rocks in the vicinity of this occurrence are Paleozoic amphibolite-facies paragneiss, quartzite, schist, and amphibolite and Mississippian to Devonian augen gneiss (Werdon and others, 2001). These units are cut by a prominent, northeast-trending, high-angle fault that can be seen as a topographic linear in air photos. An assay of a calcite-veined breccia with igneous-textured clasts (probably augen gneiss) from this fault contains 75 ppb gold (Szumigala and others, 2000).

Alteration:

Age of mineralization:

The auriferous breccia cuts Paleozoic rocks.

Deposit model:

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:

Szumigala and others, 2000; Werdon and others, 2001.

Primary reference: Szumigala and others, 2000

Reporter(s): M.B. Werdon

Last report date: 5/1/02

Site name(s): Unnamed (east of Walker Fork)

Site type: Occurrence

ARDF no.: EA134

Latitude: 64.0582 **Quadrangle:** EA A-2

Longitude: 141.5735

Location description and accuracy:

This occurrence is at an elevation of about 2,600 feet, about 2 miles southeast of the Walker Fork Campground shown on the U.S. Geological Survey 1:63,360-scale topographic map of the Eagle A-2 quadrangle (1956; revised in 1971). The occurrence is in section 6, T. 26 N., R. 20 E., of the Copper River Meridian. The location is accurate.

Commodities:

Main: Mo, Pb

Other:

Ore minerals:

Gangue minerals:

Geologic description:

The rocks in the vicinity of this occurrence are Paleozoic amphibolite-facies paragneiss, quartzite, and schist that are cut by northeast-trending high-angle faults (Werdon and others, 2001). The quartzite is locally dark gray (biotite or carbon-bearing?), and it is interlayered with quartz-rich biotite gneiss. Samples of an unusual, light-sea-green quartzite contain 1,170 ppm lead and 51 ppm molybdenum (Werdon and others, 2000).

Alteration:

Age of mineralization:

Paleozoic or younger.

Deposit model:

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:

Werdon and others, 2000; Werdon and others, 2001.

Primary reference: Werdon and others, 2000

Reporter(s): M.B. Werdon

Last report date: 5/1/02

Site name(s): Mosquito Fork; South Fork of the Fortymile River; Atwater Bar

Site type: Mine

ARDF no.: EA135

Latitude: 64.0565 **Quadrangle:** EA A-2

Longitude: 141.8866

Location description and accuracy:

Mosquito Fork is a major tributary to the South Fork of the Fortymile River. Some references to the location of placer gold workings in this area are not consistent with the river names shown on the U.S. Geological Survey 1:63,360-scale topographic map of the Eagle A-2 quadrangle (1956; revised 1971). In the past, Mosquito Fork was considered either part of the South Fork or, alternatively, the area between the junction of Dennison Fork and Walker Fork was considered part of the Mosquito Fork. In this record, all references to these two rivers will correspond to those shown on the current Eagle A-2 quadrangle topographic map (1956; revised 1971). Atwater Bar is a gravel bar at the mouth of Atwater Creek (see EA137), and references to it are grouped with the Mosquito Fork-South Fork placers. The coordinates correspond to an arbitrarily chosen point located in section 4, T. 26 N., R. 18 E., of the Copper River Meridian. This site is locality 83 of Burleigh and Lear (1994), locality 57 of Eberlein and others (1977), and locality 54 of Cobb (1972 [MF-393]).

Commodities:

Main: Au

Other: Ag, Sn, U?, W

Ore minerals: Cassiterite, gold, scheelite

Gangue minerals:

Geologic description:

The rocks in the vicinity of Mosquito Fork and upper South Fork predominantly are Triassic granodiorite of the Taylor Mountain batholith (Foster, 1976). Sphene from the Taylor Mountain batholith gives a uranium-lead age of 214 Ma (Aleinikoff and others, 1981); this is interpreted to represent the age of the intrusion. Minor Paleozoic, quartz mica schist and greenschist is also present. The granodiorite and schist have been cut and intruded by Tertiary basalt. In the vicinity of Chicken Creek, early Tertiary sandstone, conglomerate, and tuff are locally abundant. Quaternary alluvium, colluvium, and terrace deposits are extensive in the Mosquito Fork and upper South Fork drainages.

Placer gold has been produced from both the upper South Fork and lower Mosquito Fork of the Fortymile River. The gold is very fine grained and light colored and has a fineness of approximately 900 parts of gold per thousand (Mertie, 1938). The gravel on the river floor is 2.5 inches to 10 feet thick (Yeend, 1996). Minerals in panned samples, probably all from Atwater Bar, include ilmenite, garnet, magnetite, zircon, sphene, tourmaline, pyrite, olivine, barite, and traces of scheelite, cassiterite, gold, silver, monazite, and uranium-bearing thorianite (Wedow and others, 1954; Overstreet, 1967). Dredge concentrates, probably from the Atwater dredge operated on Mosquito Fork near the mouth of Lost Chicken Creek(?) or from Atwater Bar, contained magnetite, ilmenite, marcasite, pyrite, barite, silver, and scheelite (Smith, 1968).

The first record of mining for placer gold on Mosquito Fork and upper South Fork was in 1905 (Prindle, 1906 [B 284]). In 1910, four men mined at Atwater Bar near the mouth of Atwater Creek. Prospecting took place in 1914 (Brooks, 1915). An extensive drilling program was conducted in 1925, and mining took place in 1926 (Moffit, 1927; Smith, 1929). In 1936, the Atwater dredge, owned and operated by the Alaska Gold Dredging Corporation, began operating at Gibralter Bar on the South Fork about 0.9 mile below the mouth of Lost Chicken Creek (EA131). In 1936, the Atwater dredge worked upriver mining gravel 1.4 to 6.5 feet in thickness; it mined a cut 150 feet wide that extended 1,200 feet along the river (Yeend, 1996). The dredge worked for about a year and a half in this area. In 1949, prospecting occurred at Atwater Bar. Eberlein and others (1977) noted that small suction dredges were being used in small-scale placer mining operations in the 1970's. The Mosquito Fork of the Fortymile River was being actively prospected in 1992 (Swainbank and others, 1993), and placer mining along the South Fork has been done exclusively by suction dredging in recent years (Yeend, 1996).

Approximately 2.5 miles above Chicken Creek on Mosquito Fork, there is an unnamed lode gold occurrence (EA129) exposed in the north canyon wall (Prindle, 1905). Smith (1968) observed flour gold in a lode deposit about 200 feet above the river and he probably was referring to this occurrence (Cobb, 1977 [OFR 77-845]). This lode occurrence and the Purdy lode (EA121), probably contributed gold to the placer deposits along Mosquito Fork.

Mosquito Fork has several placer gold-bearing tributaries, including Ingle Creek (EA111) and Chicken Creek (EA128). The upper part of South Fork has several placer gold-bearing tributaries, including Mosquito Fork, Dennison Fork (EA136), and Lost Chicken Creek (EA131).

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: Probably inactive

Workings/exploration:

The first record of mining for placer gold on Mosquito Fork and upper South Fork was in 1905 (Prindle, 1906). In 1910, four men mined at Atwater Bar near the mouth of Atwater Creek. Prospecting took place in 1914 (Brooks, 1915). An extensive drilling program was conducted in 1925, and mining took place in 1926 (Moffit, 1927; Smith, 1929). In 1936 and 1937 a dredge operated on upper South Fork and lower Mosquito Fork. The dredge was installed in the spring of 1936 at a point about 800 feet downstream from Gibraltar Rock, a prominent bluff on the north side of South Fork about three-quarters of a mile below the mouth of Lost Chicken Creek (see EA131; Mertie, 1938). The dredge worked upstream from this point. In 1949, prospecting occurred at Atwater Bar. Eberlein and others (1977) noted that small suction dredges were being used in small-scale placer mining operations in the 1970's. The Mosquito Fork of the Fortymile River was being actively explored for placer gold in 1992 (Swainbank and others, 1993).

Production notes:

Reserves:

Additional comments:

References:

Prindle, 1905; Prindle, 1906 (B 284); Prindle, 1908; Ellsworth and Parker, 1911; Brooks, 1915; Moffit, 1927; Smith, 1929; Smith, 1937; Mertie, 1938; Smith, 1938; Smith, 1939 (B 910-A); Smith, 1939 (B 917-A); Smith, 1941 (B 926-A); Smith, 1942 (B 933-A); Wedow and others, 1952; Wedow and others, 1954; White and others, 1963; Overstreet, 1967; Smith, 1968; Cobb, 1972 (MF-393); Cobb, 1973 (B 1374); Foster, 1976; Cobb, 1977 (OFR 77-845); Eberlein and others, 1977; Aleinikoff and others, 1981; Burleigh and Lear, 1994.

Primary reference: Cobb, 1977 (OFR 77-845)

Reporter(s): M.B. Werdon

Last report date: 5/1/02

Site name(s): Dennison Fork

Site type: Prospect

ARDF no.: EA136

Latitude: 64.0537 **Quadrangle:** EA A-2

Longitude: 141.9113

Location description and accuracy:

Dennison Fork is a tributary of the South Fork of the Fortymile River; its mouth is about 1.6 miles south-southeast of Chicken. Prospecting and drilling took place near the confluence of Dennison Fork with Mosquito Fork and South Fork. The coordinates are an arbitrarily point near the mouth of Dennison Fork,in section 8, T. 26 N., R. 18 E., of the Copper River Meridian. This site is locality 84 of Burleigh and Lear (1994), locality 21 of Eberlein and others (1977), and locality 53 of Cobb (1972 [MF-393]).

Commodities:

Main: Au

Other: W

Ore minerals: Gold, scheelite

Gangue minerals:

Geologic description:

The rocks in the lower part of the Dennison Fork valley consist predominantly of the Triassic granodiorite of the Taylor Mountain batholith (Foster, 1976). A rubidium/ strontium date on biotite from granodiorite of the batholith gives an age of approximately 190 Ma (Wasserberg and others, 1963). The granodiorite has been intruded by minor Tertiary gabbro. Quaternary alluvium, colluvium, and terrace deposits are extensive in the Dennison Fork drainage.

Considerable prospecting and drilling has been carried out near the mouth of Dennison Fork, but there is no record of actual placer mining. A ditch was dug in 1911 to work the bench gravels (Porter, 1912); despite completion of the ditch, no mining occurred (Ellsworth and Davenport, 1913). Gold near the mouth of Dennison Fork is very fine grained. In 1918, there was extensive prospecting of high benches near the mouth of Dennison Fork ,and plans were made to build a 21-mile-long ditch (Martin, 1920). Additional systematic prospecting of a large body of gravel occurred in 1920 (Brooks, 1922). A sample from the foot of the bluff at the junction of Dennison and Mosquito Forks contained trace scheelite (White and others, 1963).

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:
Considerable prospecting and drilling has been carried out near the mouth of Dennison Fork, but there is no record of actual placer mining. A ditch was dug in 1911 to work the bench gravels (Porter, 1912); despite completion of the ditch, no mining occurred (Ellsworth and Davenport, 1913). Gold near the mouth of Dennison Fork is very fine grained. In 1918, there was extensive prospecting of high benches near the mouth of Dennison Fork ,and plans were made to build a 21-mile-long ditch (Martin, 1920). Additional systematic prospecting of a large body of gravel occurred in 1920 (Brooks, 1922). A sample from the foot of the bluff at the junction of Dennison and Mosquito Forks contained trace scheelite (White and others, 1963).

Production notes:

Reserves:

Additional comments:

References:
Porter, 1912; Ellsworth and Davenport, 1913; Martin, 1920; Brooks and Martin, 1921; Brooks, 1922; Powers, 1935; Wasserberg and others, 1963; White and others, 1963; Cobb, 1972 (MF-393); Cobb, 1973 (B 1374); Foster, 1976; Cobb, 1977 (OFR 77-845); Eberlein and others, 1977; Swainbank and others, 1993; Burleigh and Lear, 1994.

Primary reference: Cobb, 1977 (OFR 77-845)

Reporter(s): M.B. Werdon

Last report date: 5/1/02

Site name(s): Atwater Creek

Site type: Mine

ARDF no.: EA137

Latitude: 64.0491 **Quadrangle:** EA A-2

Longitude: 141.7901

Location description and accuracy:

Atwater Creek is a small south tributary stream on the southeast side of the South Fork of the Fortymile River about 4.5 miles east-southeast of Chicken. Although there is a winter trail along Atwater Creek, placer mining likely occurred only at the mouth of the creek, in about the middle of section 12, T. 26 N., R. 18 E., of the Copper River Meridian. Atwater Creek is locality 89 of Burleigh and Lear (1994).

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:

Bedrock along Atwater Creek consists of Paleozoic greenschist-facies metavolcanic and metasedimentary rocks, which are in high-angle fault contact with the Taylor Mountain batholith of Triassic age (Foster, 1976; Werdon and others, 2001). Bundtzen and others (1990) reported placer mining occurred on Atwater Creek in 1989.

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:

Bundtzen and others (1990) reported placer mining occurred on Atwater Creek in 1989.

Production notes:

Reserves:

Additional comments:

References:

Foster, 1976; Bundtzen and others, 1990; Burleigh and Lear, 1994; Werdon and others, 2001.

Primary reference: Bundtzen and others, 1990

Reporter(s): M.B. Werdon

Last report date: 5/1/02

Site name(s): Unnamed (southeast of hill 3560)

Site type: Occurrence

ARDF no.: EA138

Latitude: 64.0472 **Quadrangle:** EA A-2

Longitude: 141.6730

Location description and accuracy:

This occurrence is near a four-wheeler (all-terrain vehicle) trail on a ridgeline northeast of Wall Street Creek. It is about 0.5 mile southeast of hill 3560. The occurrence is in section 10, T. 26 N., R. 19 E., of the Copper River Meridian. The location is accurate.

Commodities:

Main: Au

Other:

Ore minerals:

Gangue minerals: Quartz

Geologic description:

The rocks in the vicinity of this occurrence are Paleozoic amphibolite-facies paragneiss, quartzite, schist, and amphibolite and Mississippian to Devonian augen gneiss and orthogneiss (Werdon and others, 2001). These units are cut by a prominent, 50-foot-wide, northeast-trending, high-angle fault that can be seen as a topographic linear in air photos. Biotite(?) in schist and gneiss in the fault zone is altered to chlorite. An assay of iron-stained fault breccia with angular schist and (or) gneiss clasts cemented by crystalline quartz with open vugs contains 30 ppb gold (Szumigala and others, 2000).

Alteration:

Chlorite alteration of biotite(?) in schist and gneiss.

Age of mineralization:

Missippian or younger, because the fault offsets Mississippian to Devonian augen gneiss and orthogneiss.

Deposit model:

Fault-hosted gold.

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:
Szumigala and others, 2000; Werdon and others, 2001.

Primary reference: Szumigala and others, 2000

Reporter(s): M.B. Werdon

Last report date: 5/1/02

Site name(s): Unnamed (along Wall Street Creek)

Site type: Occurrence

ARDF no.: EA139

Latitude: 64.0371 **Quadrangle:** EA A-2

Longitude: 141.7069

Location description and accuracy:
This unnamed occurrence is located along the northeast side of Wall Street Creek, approximately 2.5 miles from the mouth. It is located in section 16, T. 26 N., R. 19 E., of the Copper River Meridian. The location is accurate within one-half mile.

Commodities:

Main: Zn

Other:

Ore minerals: Sphalerite?

Gangue minerals: Quartz

Geologic description:
The rocks in the area of this occurrence are Paleozoic amphibolite-facies quartzite and amphibolite (Werdon and others, 2001). There is a high-angle, northwest-trending, strike-slip fault along Wall Street Creek that juxtaposes amphibolite-facies rocks on the northeast side of the fault with upper Paleozoic greenschist-facies metasedimentary and metavolcanic rocks on the southwest side. In 1968, Smith (1969) collected a quartz-rich rock sample (quartzite?) from here that assayed 3 percent zinc.

Alteration:

Age of mineralization:
Paleozoic or younger.

Deposit model:

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:
Smith, 1969; Werdon and others, 2001.

Primary reference: Smith, 1969

Reporter(s): M.B. Werdon

Last report date: 5/1/02

Site name(s): Unnamed (head of Steele Creek)

Site type: Occurrence

ARDF no.: EA140

Latitude: 64.2029 **Quadrangle:** EA A-1

Longitude: 141.4182

Location description and accuracy:
This occurrence is located along the Taylor Highway at the head of Steele Creek in the SW1/4 section 21, T. 8 S., R. 32 E., of the Fairbanks Meridian. The location is accurate within 500 feet.

Commodities:

Main: Au

Other:

Ore minerals:

Gangue minerals:

Geologic description:
The rocks in the vicinity of this occurrence are Paleozoic amphibolite-facies metamorphic rocks that have been intruded by granitic plutons and dikes of probable Jurassic age (Foster, 1976; Szumigala and others, 2002). A porphyritic biotite-granodiorite dike contains 36 ppb gold (Crock and others, 2000).

Alteration:

Age of mineralization:
Possibly Jurassic?

Deposit model:
Plutonic-related gold.

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

Production Status: None

Site Status: Inactive

Workings/exploration:

A porphyritic biotite-granodiorite dike contains 36 ppb gold (Crock and others, 2000).

Production notes:

Reserves:

Additional comments:

References:

Foster, 1976; Crock and others, 2000; Szumigala and others, 2002.

Primary reference: Crock and others, 2000

Reporter(s): M.B. Werdon

Last report date: 5/1/02

Site name(s): Gilliland Creek

Site type: Mine

ARDF no.: EA141

Latitude: 64.1688 **Quadrangle:** EA A-1

Longitude: 141.4212

Location description and accuracy:

Gilliland Creek is a small north headwater tributary of Jack Wade Creek. Placer workings are present near the mouth of the creek. The coordinates correspond to the approximate location of the workings, in section 35, T. 28 N., R. 20 E., of the Copper River Meridian. The location is accurate. This site is locality 102 of Burleigh and Lear (1994), locality 31 of Eberlein and others (1977), and locality 59 of Cobb (1972 [MF-393]).

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:

Bedrock in the Gilliland Creek area consists of Paleozoic amphibolite-facies paragneiss, quartzite, amphibolite, schist, and marble (Szumigala and others, 2002). Near the head of the creek, the metamorphic rocks are intruded by granitic and pegmatitic dikes that are compositionally and mineralogically similar to Jurassic intrusions nearby.

Placer gold was recovered near the mouth of Gilliland Creek in an old channel about 125 feet wide; the channel is located west of Gilliland Creek, and the floor of this channel is 3 to 4 feet below the present creek level. The gravel is 5 feet thick and is overlain by 3 to 4 feet of muck. The gold has a fineness of 865 parts of gold per thousand and 129 parts of silver per thousand. Coarse gold was mined in the 1930's (Mertie, 1938).

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

Site Status: Undetermined

Workings/exploration:
Placer gold was recovered near the mouth of Gilliland Creek in an old channel about 125 feet wide; the channel is located west of Gilliland Creek, and the floor of this channel is 3 to 4 feet below the present creek level. The gravel is 5 feet thick and is overlain by 3 to 4 feet of muck. Coarse gold was mined in the 1930's (Mertie, 1938).

Production notes:
The gold has a fineness of 865 parts of gold per thousand and 129 parts of silver per thousand (Mertie, 1938).

Reserves:

Additional comments:

References:
Mertie, 1938; Cobb, 1972 (MF-393); Foster, 1976; Cobb, 1977 (OFR 77-845); Burleigh and Lear, 1994; Szumigala and others, 2002.

Primary reference: Mertie, 1938

Reporter(s): M.B. Werdon

Last report date: 5/1/02

Site name(s): Robinson Creek

Site type: Mine

ARDF no.: EA142

Latitude: 64.1560 **Quadrangle:** EA A-1

Longitude: 141.4407

Location description and accuracy:
Robinson Creek is a small south tributary of Jack Wade Creek. Placer workings are located near the mouth of the creek, in section 2, T. 27 N., R. 20 E., of the Copper River Meridian. The location is accurate within one-half mile. This site is locality 101 of Burleigh and Lear (1994).

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:
The rocks in the vicinty of Robinson Creek are Paleozoic amphibolite-facies biotite gneiss and amphibolite and lesser Mesozoic to Tertiary undifferentiated granitic rocks (Foster, 1976). Quaternary colluvial deposits are present along the entire length of the valley. Placer workings are present near the mouth of the creek (Burleigh and Lear, 1994). Robinson Creek was mined for placer gold in 1990 (Swainbank and others, 1991).

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: Active?

Workings/exploration:
Robinson Creek was mined for placer gold in 1990 (Swainbank and others, 1991).

Production notes:

Reserves:

Additional comments:

References:
Foster, 1976; Swainbank and others, 1991; Burleigh and Lear, 1994.

Primary reference: Swainbank and others, 1991

Reporter(s): M.B. Werdon

Last report date: 5/1/02

Site name(s): Canyon Creek

Site type: Mines

ARDF no.: EA143

Latitude: 64.1536 **Quadrangle:** EA A-1

Longitude: 141.1246

Location description and accuracy:

Canyon Creek is a north-south-trending, 10-mile-long creek that drains north from Boundary. Canyon Creek begins at the confluence of Arkansas Creek and Woods Creek . (Woods Creek is referred to as Canyon Creek by local placer miners.) Placer workings extend for 5 miles downstream from the junction of Arkansas Creek, Woods Creek, and Canyon Creek. Another 1-mile-long area of placer workings on Canyon Creek is near the mouth of Iles Creek (Yeend, 1996) and is included as part of this record. The coordinates are the approximate center of the upper headwater placer workings, in section 5, T. 28 N., R. 22 E., of the Copper River Meridian. Canyon Creek is localities 71, 72, and 74 of Cobb (1972 [MF-393]), locality 13 of Eberlein and others (1977), and locality 103 of Burleigh and Lear (1994). There is also a Canyon Creek (EA027) in the Seventymile area of the Eagle district.

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:

The rocks in the Canyon Creek valley consist of Paleozoic amphibolite-facies parag-neiss, orthogneiss, schist, amphibolite, hornblende-feldspar gneiss, quartzite, and marble (Foster, 1969 [B 1271-G]; Szumigala and others, 2002). Along Canyon Creek, there are several Jurassic? granitic bodies and pegmatite dikes, abundant marble outcrops, and breccia and fault gouge. Foster (1969 [B 1271-G]) suggested that the straight course of Canyon Creek is fault related; this interpretation is supported by a prominent north-south-trending conductive zone shown in airborne resistivity data (Alaska Division of Geological and Geophysical Surveys and others, 1999), and 1:63,360-scale mapping of the area (Szumigala and others, 2002).

Gravel in Canyon Creek ranges from 3 to 10 feet thick; the average thickness is 7 feet. Gold is generally found in the lower 1.5 feet of gravel, over a width of 50 feet. The placer

gold generally occurs as small flat pieces and fine flakes, but some coarser pieces were found. Some nuggets were worth as much as $43 (gold at $20.67 per ounce) (Prindle, 1909). Removal of about 2 feet of bedrock is necessary to recover all of the gold (Ellsworth and Parker, 1911). Mertie (1938) also noted the discovery of auriferous gravel along a west bench of Canyon Creek. Gravel at the upper end of Canyon Creek is low grade, but the grade appears to increase downstream (Powers, 1935). One assay indicates a fineness value of 791 parts of gold per thousand for the placer gold from Canyon Creek (Metz and Hawkins, 1981). Although a significant lode source for the placer gold in Canyon Creek has not been identified, Prindle (1908) reported a ferruginous, brecciated mass of vein quartz and quartzitic schist on Canyon Creek; fragments contain specks of visible gold. The exact location was not reported.

Gold was produced on Canyon Creek in commercial quantities in 1899 (Brooks, 1900). Mining on Canyon Creek is reported in many years from 1904 to 1940. Canyon Creek and its tributaries produced 447 fine ounces of gold from 1904 to 1907 (Prindle, 1908). Production in 1909 on Canyon Creek was worth $5,000 (gold at $20.67 per ounce) (Ellsworth, 1910). A 45-horsepower steam scraper was employed in mining on Canyon Creek in 1910 (Ellsworth and Parker, 1911), and a dredge began operating in 1938 (Smith, 1939 [B 917-A]). Foster (1969 [B 1271-G]) reported a small mining operation on Canyon Creek in the mid-1960's, and Asher (1970) reported mining on Canyon Creek in 1969. Small open-cut operations have been active on Canyon Creek from 1980 through 2000 (Norm LaFramboise, Boundary Explorations, Inc., written commun., 2000). Tributaries of Canyon Creek with placer gold production include Squaw Gulch (EA147), Baby Creek (EA148), Woods Creek (EA151), and Arkansas Creek (EA150). There also has been placer gold production on the lower Fortymile River (EA071) near the mouth of Canyon Creek.

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: Active

Workings/exploration:
Gold was produced on Canyon Creek in commercial quantities in 1899 (Brooks, 1900). Mining on Canyon Creek is reported in many years from 1904 to 1940. A 45-horsepower steam scraper was employed in mining on Canyon Creek in 1910 (Ellsworth and Parker, 1911), and a new dredge began operating in 1938 (Smith, 1939 [B 917-A]). Foster (1969

[B 1271-G]) reported a small mining operation on Canyon Creek in the mid-1960's, and Asher (1970) reported mining on Canyon Creek in 1969. Small open-cut operations have been active on Canyon Creek from 1980 through 2000 (Norm LaFramboise, Boundary Explorations, Inc., written commun., 2000).

Production notes:

Canyon Creek and its tributaries produced 447 fine ounces of gold from 1904 to 1907 (Prindle, 1908). In 1909, production on Canyon Creek was worth $5,000 (gold at $20.67 per ounce) (Ellsworth, 1910). One assay indicates a fineness value of 791 parts of gold per thousand for placer gold from Canyon Creek (Metz and Hawkins, 1981).

Reserves:

Additional comments:

References:

Brooks, 1900; Prindle, 1905; McConnell, 1905; Prindle, 1908; Prindle, 1909; Ellsworth, 1910; Ellsworth and Parker, 1911; Porter, 1912; Ellsworth and Davenport, 1913; Smith, 1929; Smith, 1930 (B 810); Smith, 1933 (B 844-A); Powers, 1935; Smith, 1936; Smith, 1937; Mertie, 1938; Smith, 1939 (B 917-A); Smith, 1941 (B 926-A); Smith, 1942 (B 933-A); Roehm, 1949; Williams, 1951; Saunders, 1966; Foster, 1969 (B 1271-G); Asher, 1970; Foster and Clark, 1970; Cobb, 1972 (MF-393); Cobb, 1977 (OFR 77-845); Eberlein and others, 1977; Metz and Hawkins, 1981; Green and others, 1989; Yeend, 1992; Swainbank and others, 1993; Burleigh and Lear, 1994; Swainbank and others, 1995; Swainbank and others, 1996; Yeend, 1996; Mortensen, 1999; Alaska Division of Geological and Geophysical Surveys and others, 1999; Szumigala and others, 2002.

Primary reference: Prindle, 1909

Reporter(s): R.L. Flynn; M.B. Werdon

Last report date: 5/1/02

Site name(s): Jack Wade Creek; Wade Creek

Site type: Mine

ARDF no.: EA144

Latitude: 64.1527 **Quadrangle:** EA A-1

Longitude: 141.4585

Location description and accuracy:

Jack Wade Creek, also known as Wade Creek, is a north tributary of the Walker Fork of the Fortymile River. Extensive placer tailings on Jack Wade Creek are shown on U.S. Geological Survey 1:63,360-scale topographic maps of the Eagle A-1 (1956) and A-2 (1956; revised in 1971) quadrangles. Placer tailings on Jack Wade Creek start near the mouth of Gilliland Creek (see EA141) and extend downstream for approximately 5 miles. The tailings end near the mouth of Ophelia Creek. The mine coordinates are at the village of Jack Wade along the Taylor Highway, near the approximate center of the tailings, in section 3, T. 27 N., R. 20 E., of the Copper River Meridian. The location is accurate. Jack Wade Creek is locality 99 of Burleigh and Lear (1994), locality 62 of Eberlein and others (1977), and locality 59 of Cobb (1972 [MF-393]).

Commodities:

Main: Au

Other: Hg, Sn, W

Ore minerals: Cassiterite, cinnabar, gold

Gangue minerals:

Geologic description:

Bedrock in Jack Wade Creek consists of Paleozoic amphibolite-facies metamorphic rocks that have been intruded by Jurassic plutons and dikes (Werdon and others, 2001; Szumigala and others, 2002). Quaternary terrace-gravel deposits are common on benches along the lower part of Jack Wade Creek, and deposits of alluvium and colluvium are more common in the upper parts of the creek.

Placer gold on Jack Wade Creek characteristically occurs as small flat pieces; there is little flour gold (Mertie, 1938). Most of the gold is bright and fairly well worn, but near the head of the creek and at the mouths of gulches, the gold is commonly iron stained and only slightly worn. Gold attached to quartz is common, and some large pieces of quartz filled with gold have been recovered. Jack Wade Creek is also known for the occurrence of large gold nuggets; nuggets of 25, 33, 56, and 70 ounces have been found (Yeend, 1996). The fineness of placer gold mined from 1926 to 1935 ranges from 807.5 to 842.5

parts of gold per thousand and from 131 to 189 parts of silver per thousand (Mertie, 1938). The average fineness in the upper valley of Jack Wade Creek is 830 parts of gold per thousand and 165 parts of silver per thousand, but the fineness for the entire creek is varied (Mertie, 1938). Smith (1941 [B 910-C]) reported assays of 23 gold samples from Jack Wade Creek and the samples ranged from 807.5 to 865 parts of gold per thousand, with an average of 834 parts of gold per thousand. Smith (1941 [B 910-C]) observed no systematic change in the gold fineness down the creek. Placer concentrates contain as much as 50 percent barite; magnetite, ilmenite, hematite, and garnet are common. Minor cinnabar, pyrite, and cassiterite (both crystalline and wood tin varieties) are also present (Mertie, 1938). Rounded barite pebbles, black shiny rounded grains of hematite, and scheelite grains are sometimes found associated with gold in the heavy fraction (Yeend, 1996).

Placers on Jack Wade Creek were first discovered in 1895 by Jack Anderson and Wade Nelson (Mertie, 1938). Gold has been mined on Jack Wade Creek almost continuously since its discovery (Yeend, 1996). In the early (pre-1910) history of the creek, mining was by drifting, hydraulicking, sluiceboxes, and open cuts. Large-scale open-cut mining has been used largely in the upper part of the Jack Wade Creek valley. Prindle (1905) reported that by 1904 much of the ground in the creek had been worked out and only about 50 men were mining on the creek. Production from 1904 through 1907 totaled about 16,230 ounces (Eberlein and others, 1977). A hydraulic plant was in operation on the creek in 1928 (Mertie, 1930 [B 813]), and during the 1936 season, one hydraulic plant and several small shoveling-in operations were present. In the winter of 1935-1936, the Russel King dredge was purchased by the North American Mining Company and moved to Jack Wade Creek from just above Franklin Creek on the South Fork of the Fortymile River (Mertie, 1938). The dredge began operating in 1936, and it operated until 1941. Gold was recovered at the rate of 70 to 100 ounces per day (Naske, 1977). Following the war, the Wade Creek Dredging Company continued to mine on Jack Wade Creek using bulldozers and sluice boxes. Between 1946 and 1947, the company recovered slightly more than 5,000 ounces of gold (Naske, 1977). The Wade Creek Dredging Company ceased mining operations at the end of the 1951 season. Small-scale mining operations using bulldozers have operated almost continuously on Jack Wade Creek from 1951 to 1990. From 1990 to 1993, small suction dredges occasionally mined in the creek (Eakins and others, 1985; Bundtzen and others, 1987; Swainbank and others, 1993). Jack Wade Creek has several placer gold-bearing tributaries, including Gilliland Creek (EA141), Robinson Creek (EA142), and Jefferson Creek (EA145).

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: Active

Workings/exploration:

Gold has been mined on Jack Wade Creek almost continuously since its discovery in 1895 (Yeend, 1996). In the early (pre-1910) history of the creek, mining was by drifting, hydraulicking, sluiceboxes, and open cuts. Large-scale open-cut mining has been used largely in the upper part of the Jack Wade Creek valley. Prindle (1905) reported that by 1904 much of the ground in the creek had been worked out and only about 50 men were mining on the creek. A hydraulic plant was in operation on the creek in 1928 (Mertie, 1930 [B 813-C]), and during the 1936 season, one hydraulic plant and several small shoveling-in operations were present. In the winter of 1935-1936, the Russel King dredge was purchased by the North American Mining Company and moved to Jack Wade Creek from just above Franklin Creek on the South Fork of the Fortymile River (Mertie, 1938). The dredge began operating in 1936, and it operated until 1941. Gold was recovered at the rate of 70 to 100 ounces per day (Naske, 1977). Following the war, the Wade Creek Dredging Company continued to mine on Jack Wade Creek using bulldozers and sluice boxes. Between 1946 and 1947, the company recovered slightly more than 5,000 ounces of gold (Naske, 1977). The Wade Creek Dredging Company ceased mining operations at the end of the 1951 season. Small-scale mining operations using bulldozers have operated almost continuously on Jack Wade Creek from 1951 to 1990. From 1990 to 1993, small suction dredges occasionally mined in the creek (Eakins and others, 1985; Bundtzen and others, 1987; Swainbank and others, 1993). Jack Wade Creek has several placer gold-bearing tributaries, including Gilliland Creek (EA141), Robinson Creek (EA142), and Jefferson Creek (EA145).

Production notes:

Production from 1904 through 1907 on Jack Wade Creek totaled about 16,230 ounces (Eberlein and others, 1977). Between 1946 and 1947 the Wade Creek Dredging Company recovered slightly more than 5,000 ounces of gold (Naske, 1977).

Reserves:

Yeend (1996) considers the unmined gold resource in Wade Creek to be small because there are only small pockets of unmined gravel on the valley margins.

Additional comments:

References:

Spurr, 1898; Brooks, 1900; Brooks, 1904; Brooks, 1905; Prindle, 1905; Purington, 1905; Brooks, 1906; Prindle, 1906 (B 284); Brooks, 1907; Brooks, 1908; Prindle, 1908; Brooks, 1909; Prindle, 1909; Ellsworth, 1910; Ellsworth and Parker, 1911; Porter, 1912; Ellsworth and Davenport, 1913; Chapin, 1914; Brooks, 1915; Brooks, 1916; Martin, 1919; Brooks and Martin, 1921; Brooks, 1922; Brooks and Capps, 1924; Smith, 1926; Smith, 1929; Mertie, 1930 (B 813-C); Smith, 1930 (B 810); Smith, 1930 (B 813); Mertie,

1931; Smith, 1933 (B 844-A); Smith, 1934 (B 857-A); Smith, 1934 (B 864-A); Powers, 1935; Smith, 1936; Smith, 1937; Mertie, 1938; Smith, 1938; Smith, 1939 (B 910-A); Smith, 1939 (B 917-A); Smith, 1941 (B 910-C); Smith, 1941 (B 926-A); Smith, 1942 (B 933-A); Joesting, 1942; Joesting, 1943; Thorne and others, 1948; Roehm, 1949; Williams, 1950; Williams, 1951; Nelson and others, 1954; Malone, 1965; Saunders, 1966; Koschmann and Bergendahl, 1968; Cobb, 1972 (MF-393); Foster, 1969 (B 1271-G); Foster, 1976; Foster and Keith, 1969; Foster and Clark, 1970; Cobb, 1977 (OFR 77-845); Eberlein and others, 1977; Eakins and others, 1985; Bundtzen and others, 1987; Swainbank and others, 1993; Burleigh and Lear, 1994; Pinney, 2001; Werdon and others, 2001; Szumigala and others, 2002.

Primary reference: Cobb, 1977 (OFR 77-845)

Reporter(s): M.B. Werdon

Last report date: 5/1/02

Site name(s): Jefferson Creek

Site type: Mine

ARDF no.: EA145

Latitude: 64.1472 **Quadrangle:** EA A-1

Longitude: 141.4864

Location description and accuracy:
Jefferson Creek is a small north tributary of Jack Wade Creek (EA144). The coordinates correspond to an arbitrarily chosen point on the lower part of Jefferson Creek, in section 4, T. 27 N., R. 20 E., of the Copper River Meridian. This site is locality 100 of Burleigh and Lear (1994).

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:
Bedrock in Jefferson Creek consists of Paleozoic amphibolite-facies metamorphic rocks that have been intruded by plutons and dikes of Jurassic age (Foster, 1976; Szumigala and others, 2002). Placer workings are present near the mouth of the creek. Jefferson Creek was mined for placer gold in 1990 (Swainbank and others, 1991).

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

Site Status: Undetermined

Workings/exploration:

Jefferson Creek was mined for placer gold in 1990 (Swainbank and others, 1991).

Production notes:

Reserves:

Additional comments:

References:

Foster, 1976; Swainbank and others, 1991; Burleigh and Lear, 1994; Szumigala and others, 2002.

Primary reference: Swainbank and others, 1991

Reporter(s): M.B. Werdon

Last report date: 5/1/02

Site name(s): Kal Creek; Kalamazoo Creek

Site type: Mine

ARDF no.: EA146

Latitude: 64.1427 **Quadrangle:** EA A-1

Longitude: 141.2612

Location description and accuracy:

Kal Creek, about 6 miles northwest of Boundary, is a small north tributary of Squaw Gulch. Kal Creek was referred to as Kalamazoo Creek in the early 1900's. The location of placer gold mining on Kal Creek is uncertain; the coordinates are near the mouth of Kal Creek, in section 3, T. 27 N., R. 21 E., of the Copper River Meridian; the location is accurate within 1 mile.

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:

The rocks in the vicinity of Kal Creek are Paleozoic amphibolite-facies metamorphic rocks that have been intruded by plutons and dikes of probable Jurassic age (Foster, 1976; Szumigala and others, 2002).

Ellsworth and Davenport (1913) reported placer gold mining at the head of Squaw Gulch, near the mouth of Kal (Kalamazoo) Creek. A small open-cut mining operation was active on Kal Creek in 1999 and 2000 (Norm LaFramboise, Boundary Explorations, Inc., written commun., 2000). Prindle (1909) reported that gold was found in a conspicuous outcrop of vein quartz and quartzitic schists about 1,000 feet long and 50 to 100 feet or more in width on the ridge south of Kalamazoo Creek (see EA149); local miners believed this to be the source of gold in the creek. There has been placer gold production on Squaw Gulch (EA147) downstream of Kal Creek.

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: Active

Workings/exploration:
Ellsworth and Davenport (1913) reported placer gold mining at the head of Squaw Gulch, near the mouth of Kal (Kalamazoo) Creek. A small open-cut mining operation was active on Kal Creek in 1999 and 2000 (Norm LaFramboise, Boundary Explorations, Inc., written commun., 2000).

Production notes:

Reserves:

Additional comments:

References:
Prindle, 1909; Ellsworth and Davenport, 1913; Foster, 1969 (B 1271-G); Szumigala and others, 2002.

Primary reference: Ellsworth and Davenport, 1913

Reporter(s): R.L. Flynn; M.B. Werdon

Last report date: 5/1/02

Site name(s): Squaw Gulch

Site type: Mine

ARDF no.: EA147

Latitude: 64.1415 **Quadrangle:** EA A-1

Longitude: 141.1850

Location description and accuracy:

Squaw Gulch is a tributary of Canyon Creek about 5 miles northwest of Boundary. Placer workings extend for most of the lower 4 miles of Squaw Gulch. The coordinates are located about 2 miles upstream of the mouth of the creek, in section 12, T. 27 N., R. 21 E., of the Copper River Meridian; the location is accurate. Squaw Gulch is locality 73 of Cobb (1972 [MF-393]), locality 56 of Eberlein and others (1977), and locality 104 of Burleigh and Lear (1994).

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:

The rocks in the vicinity of Squaw Gulch are Paleozoic amphibolite-facies paragneiss, orthogneiss, amphibolite, quartzite, schist, and marble (Szumigala and others, 2002) that have been intruded by numerous granitic and pegmatite dikes of probable Jurassic age. There has been extensive high-angle faulting of these units. Tertiary conglomerate with sparse interbedded sandstone crops out along the lower mile of Baby Creek and in a small area along Kal Creek in the valley of Squaw Gulch.

Gravel in Squaw Gulch is subrounded to angular, with some boulders of well-rounded quartz as much as 1.6 feet in diameter (Yeend, 1996). There is a large proportion of boulders relative to gravel in Squaw Gulch, particularly toward the mouth. Three to ten feet of gravel is generally present on fractured, somewhat weathered, clay-rich bedrock. Some clay-rich false bedrock horizons in the gravels contain gold. The gravel averages 8 feet thick, and gold is found in the lower 1.5 feet of gravel over widths as much as 50 feet (Prindle, 1905). Gold generally occurs as small flat pieces, but is in many places mixed with thin flakey gold. Coarse pieces are occasionally found, including nuggets worth as much as $43 (gold at $20.67 per ounce) (Prindle, 1909). Smith (1941 [B 910-C]) reported assays of two gold samples from Squaw Gulch that averaged 843.5 parts of gold

per thousand. Metz and Hawkins (1981) also reported a fineness value of 866 parts of gold per thousand. Placer gold has been produced on nearby Canyon Creek (EA143), and Baby Creek (EA148) and Kal Creek (EA146).

Squaw Gulch was the most important placer gold-bearing tributary of Canyon Creek (Prindle, 1905). As of 1903, the best gold grades averaged as much as $2 (agod at $20.67 per ounce) per cubic yard of gravel, and the creek produced a few thousand dollars worth of gold. Prindle (1908) included Squaw Gulch in production statistics for the Canyon Creek drainage; the streams produced 447 fine ounces of gold from 1904 to 1907. Small-scale mining and production occurred on Squaw Gulch between 1904 and 1907 (Prindle, 1908) and intermittently from 1910 to 1936. In 1912, Squaw Gulch was being mined by drifting just above Baby Creek, and a steam scraper and sluice boxes were used just below Baby Creek (Ellsworth and Davenport, 1913). In the latter operation, about 11,520 square feet of bedrock was mined with satisfactory returns. A small open-cut mining operation was active on Squaw Gulch intermittently from 1980 to 2000 (Swainbank and others, 1991; Swainbank and others, 1993; Yeend, 1996).

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

Site Status: Probably inactive

Workings/exploration:
Small-scale mining and production occurred on Squaw Gulch between 1903 and 1907, and intermittently from 1910 to 1936. In 1912 Squaw Gulch was being mined by drifting just above Baby Creek, and a steam scraper and sluice boxes were used just below Baby Creek (Ellsworth and Davenport, 1913). In the latter operation, about 11,520 square feet of bedrock was mined with satisfactory returns. A small open-cut mining operation was active on Squaw Gulch intermittently from 1980 to 2000 (Swainbank and others, 1991; Swainbank and others, 1993; Yeend, 1996).

Production notes:
Smith (1941 [B 910-C]) reported assays of 2 gold samples from Squaw Gulch that averaged 843.5 parts of gold per thousand. Metz and Hawkins (1981) also reported a fineness of 866 parts of gold per thousand. Placer gold has been produced on nearby Canyon Creek (EA143), Baby Creek (EA148), and Kal Creek (EA146). Squaw Gulch was the most important placer gold-bearing tributary of Canyon Creek (Prindle, 1905). As of

1903, the best gold grades averaged as much as $2 (gold at $20.67 per ounce) per cubic yard of gravel, and the creek produced a few thousand dollars worth of gold. Prindle (1908) included Squaw Gulch in production statistics for the Canyon Creek drainage; the streams produced 447 fine ounces of gold from 1904 to 1907.

Reserves:

Additional comments:

References:

Prindle, 1905; Prindle, 1908; Prindle, 1909; Ellsworth and Parker, 1911; Porter, 1912; Ellsworth and Davenport, 1913; Chapin, 1914; Brooks, 1915; Brooks, 1916; Smith, 1934 (B 857-A); Powers, 1935; Smith, 1936; Mertie, 1938; Smith, 1941 (B 910-C); Williams, 1951; Saunders, 1953; Foster, 1969 (B 1271-G); Asher, 1970; Cobb, 1972 (MF-393); Cobb, 1977 (OFR 77-845); Eberlein and others, 1977; Metz and Hawkins, 1981; Bundtzen and others, 1990; Swainbank and others, 1991; Swainbank and others, 1993; Burleigh and Lear, 1994; Yeend, 1996.

Primary reference: Prindle, 1905; Yeend, 1996

Reporter(s): M.B. Werdon

Last report date: 5/1/02

Site name(s): Baby Creek

Site type: Mines

ARDF no.: EA148

Latitude: 64.1402 **Quadrangle:** EA A-1

Longitude: 141.1716

Location description and accuracy:

Baby Creek is a small south tributary of Squaw Gulch (see EA147). Placer workings extend for the lower mile of Baby Creek. The coordinates are the approximate midpoint of the placer workings, in section 7, T. 27 N., R. 22 E., of the Copper River Meridian. The location is accurate. Baby Creek is locality 105 of Burleigh and Lear (1994).

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:

The rocks in the vicinity of Baby Creek are Paleozoic amphibolite-facies gneiss, orthogneiss, schist, amphibolite, quartzite, and marble (Foster, 1969). Tertiary conglomerate with sparse interbedded sandstone occurs along the lower mile of Baby Creek.

Gravel in Baby Creek and Squaw Gulch (see EA147) is subrounded to angular; some boulders of well-rounded quartz are as much as 1.6 feet in diameter (Yeend, 1996). Three to ten feet of gravel are generally present on top of fractured, somewhat weathered, clay-rich bedrock. Values of $4 per cubic yard of gravel were recovered during mining on Baby Creek in 1991, mostly from the lower 1.6 feet of gravel (Yeend, 1996).

Small-scale mining occurred on a bench above Baby Creek in 1912 (Ellsworth and Davenport, 1913). A small open-cut operation has been active at the intersection of Squaw Gulch (see EA147) and Baby Creek from 1980 through 2000 (Bundtzen and others, 1992; Swainbank and others, 1993; Norm LaFramboise, Boundary Explorations, Inc., written commun., 2000).

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: Active

Workings/exploration:
Small-scale mining occurred on a bench above Baby Creek in 1912 (Ellsworth and Davenport, 1913). A small open-cut operation has been active at the intersection of Squaw Gulch (see EA147) and Baby Creek from 1980 through 2000 (Bundtzen and others, 1992; Swainbank and others, 1993; Norm LaFramboise, Boundary Explorations, Inc., written commun., 2000).

Production notes:
Values of $4 per cubic yard of gravel were recovered during mining on Baby Creek in 1991, mostly from the lower 1.6 feet of gravel (Yeend, 1996).

Reserves:

Additional comments:

References:
Ellsworth and Davenport, 1913; Foster, 1969; Bundtzen and others, 1992; Swainbank and others, 1993; Burleigh and Lear, 1994; Yeend, 1996.

Primary reference: Yeend, 1996

Reporter(s): R.L. Flynn; M.B. Werdon

Last report date: 5/1/02

Site name(s): Unnamed (on ridge south of Kal Creek)

Site type: Occurrence

ARDF no.: EA149

Latitude: 64.1307 **Quadrangle:** EA A-1

Longitude: 141.2642

Location description and accuracy:

This unnamed gold occurrence is located on a ridge south of Kal Creek, about 2.4 miles east-southeast of Jack Wade Junction. The occurrence is in section 10, T. 27 N., R. 21 E., of the Copper River Meridian. The location is only accurate to within 2 miles.

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals: Quartz

Geologic description:

The rocks along Kal Creek are Paleozoic amphibolite-facies metamorphic rocks that have been intruded by plutons and dikes of probable Jurassic age (Foster, 1976; Szumigala and others, 2002). There is a small area of coarse conglomerate with sparse interbedded sandstone of Tertiary age along Kal Creek. Prindle (1909) reports that gold was found in a conspicuous outcrop of vein quartz and quartzitic schists. The vein was said to be about 1,000 feet long and 50 to 100 feet or more in width and on the ridge south of Kal (Kalamazoo) Creek. The vein was believed by local miners to be the source of gold in the creek. There is no more recent mention of this occurrence. There has been placer gold production on Kal Creek (EA146) and on Squaw Gulch (EA147) downstream of Kal Creek.

Alteration:

Age of mineralization:

Deposit model:

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:
Prindle, 1909; Foster, 1976; Szumigala and others, 2002.

Primary reference: Prindle, 1909

Reporter(s): M.B. Werdon

Last report date: 5/1/02

Site name(s): Arkansas Creek; Camp Creek

Site type: Mine

ARDF no.: EA150

Latitude: 64.1070 **Quadrangle:** EA A-1

Longitude: 141.0891

Location description and accuracy:

Arkansas Creek is a small east headwater tributary of Canyon Creek about 2 miles north of Boundary. Arkansas Creek was formerly known as Camp Creek. Placer workings from the early 1900's extend from the mouth of Arkansas Creek upstream to the mouth of Brophy Creek; the coordinates are the approximate midpoint of this section of the creek, in section 21, T. 27 N., R. 22 E., of the Copper River Meridian; the location is accurate. Arkansas Creek is locality 74 of Cobb (1972 [MF-393]), locality 12 of Eberlein and others (1977), and locality 106 of Burleigh and Lear (1994).

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:

The rocks in the vicinity of lower Arkansas Creek consist of Paleozoic amphibolite-facies biotite gneiss, schist, amphibolite, and orthogneiss (Foster, 1969 [B 1271-G]). The rocks on upper Arkansas Creek include quartz-mica schist of the Klondike Schist of middle Permian age and carbonaceous schist and quartzite of the Nasina Series of Mississippian age (McConnell, 1905; Mortensen, 1999). The Boundary polymetallic massive-sulfide prospect (EA152) is located in the Brophy Creek drainage about 1 mile upstream from Arkansas Creek. Placer gold has been produced on Canyon Creek (see EA143) downstream of Arkansas Creek.

Placer workings from the early 1900's extend from the mouth of Arkansas Creek upstream to the mouth of Brophy Creek. Arkansas Creek is included in production statistics for the Canyon Creek (EA143) drainage; they produced 447 fine ounces of gold from 1904 to 1907 (Prindle, 1908). Mining is reported on Arkansas Creek in 1915 (Brooks, 1916) and in 1989 (Bundtzen and others, 1990).

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:
Placer workings from the early 1900's extend from the mouth of Arkansas Creek upstream to the mouth of Brophy Creek. Mining is reported on Arkansas Creek in 1915 (Brooks, 1916) and in 1989 (Bundtzen and others, 1990).

Production notes:
Arkansas Creek is included in production statistics for the Canyon Creek (EA143) drainage; they produced 447 fine ounces of gold from 1904 to 1907 (Prindle, 1908).

Reserves:

Additional comments:

References:
McConnell, 1905; Prindle, 1908; Prindle, 1909; Brooks, 1916; Powers, 1935; Foster, 1969 (B 1271-G); Asher, 1970; Cobb, 1972 (MF-393); Cobb, 1977 (OFR 77-845); Eberlein and others, 1977; Bundtzen and others, 1990; Burleigh and Lear, 1994; Yeend, 1996; Mortensen, 1999.

Primary reference: Prindle, 1908

Reporter(s): M.B. Werdon; R.L. Flynn

Last report date: 5/1/02

Site name(s): Woods Creek

Site type: Mine

ARDF no.: EA151

Latitude: 64.1008 **Quadrangle:** EA A-1

Longitude: 141.1172

Location description and accuracy:

Woods Creek is a small south headwater tributary of Canyon Creek about 2 miles north of Boundary. Woods Creek is commonly referred to as Canyon Creek by local miners. Placer workings extend for the lower 1 mile of Woods Creek,and up an unnamed tributary on the east side of Woods Creek for one-half mile (Yeend, 1996). The mine coordinates are the aproximate midpoint of placer workings on Woods Creek, on the boundary of sections 20 and 21, T. 27 N., R. 22 E., of the Copper River Meridian; the location is accurate. Woods Creek is locality 107 of Burleigh and Lear (1994), locality 66 of Eberlein and others (1977), and locality 74 of Cobb (1972 [MF-393]).

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:

The rocks in the vicinity of Woods Creek are Paleozoic amphibolite-facies paragneiss, schist, amphibolite, and lesser quartzite and orthogneiss (Szumigala and others, 2002). These units are tightly folded and are cut by a northeast-trending high-angle fault; the creek follows the trace of the fault.

Placer gold was mined on Woods Creek in the early 1900's, notably in 1907 (Prindle, 1909). Prindle (1908) included Woods Creek in production statistics for the Canyon Creek drainage, and Canyon Creek and its tributaries produced 447 fine ounces of gold from 1904 to 1907. Placer mining occurred on Woods Creek in 1969 (Asher, 1970) and during the 1990's (Swainbank and others, 1993; Burleigh and Lear, 1994; Yeend, 1996). A small open-cut operation was active on Woods Creek in 2000.

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: Active

Workings/exploration:
Placer gold was mined on Woods Creek in the early 1900's, notably in 1907 (Prindle, 1909). Placer mining occurred on Woods Creek in 1969 (Asher, 1970) and during the 1990's (Swainbank and others, 1993; Burleigh and Lear, 1994; Yeend, 1996). A small open-cut operation was active on Woods Creek in 2000.

Production notes:
Canyon Creek and its tributaries (including Woods Creek) produced 447 fine ounces of gold from 1904 to 1907 (Prindle, 1908).

Reserves:

Additional comments:

References:
Prindle, 1908; Prindle, 1909; Powers, 1935; Foster, 1969 (B 1271-G); Asher, 1970; Cobb, 1972 (MF-393); Cobb, 1977 (OFR 77-845); Eberlein and others, 1977; Swainbank and others, 1993; Burleigh and Lear, 1994; Yeend, 1996; Szumigala and others, 2002.

Primary reference: Prindle, 1909

Reporter(s): M.B. Werdon

Last report date: 5/1/02

Site name(s): Boundary

Site type: Prospect

ARDF no.: EA152

Latitude: 64.0985 **Quadrangle:** EA A-1

Longitude: 141.0280

Location description and accuracy:

The Boundary prospect covers about 2 square miles; it is bounded to the east by the Canadian border, to the south by the Top of the World Highway, to the west by Arkansas Creek, and to the north by the ridge north of Brophy Creek. The coordinates are the approximate center of the drillholes, in the NE1/4 section 26, T. 27 N., R. 22 E., of the Copper River Meridian; the location is accurate.

Commodities:

Main: Pb, Zn

Other: Ag, Cu

Ore minerals: Chalcocite?, chalcopyrite, covellite, galena, pyrite, sphalerite

Gangue minerals: Chlorite, pyrite, quartz

Geologic description:

The Boundary prospect is interpreted to be a lead-zinc-copper-silver, volcanogenic massive-sulfide deposit. The prospect is in greenschist-facies metamorphic rocks, including quartz-white mica schist, and underlying quartz-chlorite-white mica schist and minor quartz-chlorite schist. Foliation and compositional layering generally dip 20 to 30 degrees to the north and northwest (Resource Associates of Alaska, 1977). These rocks are part of the Klondike Schist (the Klondike series of McConnell, 1905). The Klondike Schist has mid-Permian protolith ages determined by uranium-lead zircon dating (Mortensen, 1999). Because the Klondike Schist hosts mineralization that is probably syngenetic with its host rocks, the stratabound sulfide mineralization is probably mid-Permian. A galena sample taken from drill core from the Boundary prospect was analyzed for common lead values in two separate dissolutions. Both analyses fall within the middle of the field for galenas from other Permian Klondike Schist-hosted syngenetic occurrences in the area (J.K. Mortensen, written commun., 2002).

Klondike Schist near the Boundary prospect overlies carbonaceous schist and quartzite to the south that are part of the Nasina Series, which has a Mississippian protolith age (McConnell, 1905; Resource Associates of Alaska, 1977; Mortensen, 1999). Along the north side of the Boundary prospect, serpentinized ultramafic rocks (including an ul-

tramafic body more than 1 square mile in area along Hall Creek) crop out along a thrust contact with the overlying Nasina Series rocks and extend across the border into Yukon Territory (Mortensen, 1988; R.L. Flynn, unpub. data, 2000). Two base-metal sulfide prospects in Klondike Schist are located across the border in the Yukon Territory: the Baldy prospect is 2 miles to the east, and the Pub prospect is 5 miles to the east of the Boundary prospect (Mortensen, 1988).

At the Boundary prospect, the Klondike Schist contains abundant quartz lenses; locally abundant iron oxides replace pods of pyrite and occur along the foliation (R.L. Flynn, unpub. data, 2000). Surface oxidation is extensive to depths of more than 300 feet in drillcore, and there are local gossan zones. Where sulfides are present in outcrop, they are generally found as thin laminations and include pyrite and minor galena, sphalerite, and covellite and possibly chalcocite (Resource Associates of Alaska, 1977). The sulfides most commonly occur in felsic schist. Sulfides in drillcore are found to below 300 feet and consist primarily of pyrite, with rare galena, sphalerite, and chalcopyrite (Resource Associates of Alaska, 1977). Whole-rock analyses of some felsic schists indicate that they have high magnesium and iron contents, suggesting chlorite alteration; chlorite alteration is visible in some drillcore samples (Smit, 2000).

A lead-zinc-copper-silver geochemical anomaly occurs along the contact between felsic schists and mafic schists at the Boundary prospect (Smit, 2000). Rock samples from gossan zones commonly contain 3,000 to 5,000 ppm lead, 300 to 500 ppm zinc, 300 to 800 ppm copper, and 7 to 14 ppm silver; gold is below detection limits. Zinc is more dispersed than lead; a soil geochemistry anomaly approximately 6,000 by 2,000 feet in extent typically has 100 to 300 ppm lead, 300 to700 ppm zinc, and 75 to100 ppm copper, with less than 2 ppm silver. Stream sediments generally contain less than 50 ppm lead and copper, but they typically contain 400 to 900 ppm zinc (Resource Associates of Alaska, 1977). Several geochemically anomalous intervals were found in drillcore; a 48-foot section of pyritic chlorite schist has 241 ppm copper, 709 ppm lead, 1,933 ppm zinc, and 6.4 ppm silver (Smit, 2000).

The area between Arkansas Creek (see EA150) and Brophy Creek was first identified as a potential lead-zinc deposit by R.R. Asher of the Alaska Division of Mines and Geology (Asher, 1970). Asher observed a gossan zone with limonite replacing pyrite, and he reported that several samples contain anomalous lead, zinc, and copper. In 1977, Resource Associates of Alaska conducted regional and detailed geologic mapping, sampled soil on a grid over about 2 square miles, and drilled four diamond drill holes totaling 1,560 feet near Brophy Creek. Recoveries were poor; only two of the drillholes reached target depth, and massive sulfides were not intersected. Most of this drillcore is now stored at the University of Alaska Museum, Fairbanks, Alaska. Resource Associates of Alaska (1977) suggested that the drillholes may have been collared in the footwall of a potential massive-sulfide deposit and the deposit may be to the north of Brophy Creek, down-dip and up-section. However, recent mapping (R.L. Flynn, unpub. data, 2000) suggests that near Brophy Creek, Nasina Series rocks have been thrust over the Klondike Schist that hosts the Boundary prospect. A horizontal-loop-EM (electromagnetic) survey with a penetration depth of about 140 feet was run on six grid lines by Resource Associates of Alaska in 1977, but no conductors were found. Regional exploration was conducted by Anaconda in the Boundary area in 1978; about 70 square miles was mapped at a reconnaissance scale (Wiltse, 1978). In 1979, two drill holes totaling 1,004 feet were drilled by Ameri-

can Copper and Nickel Company in the same area, but they also failed to intersect massive-sulfide mineralization (Smit, 2000); most of this drillcore is still at the drill hole collars, but information concerning the orientation of the holes has been lost. Limited work on the Boundary prospect in 1999 by Grayd Resource Corporation did not produce new exploration targets (Smit, 2000).

Most streams in the Boundary area have had placer gold production; placer gold-producing streams draining the Boundary prospect area include Arkansas Creek (EA150), Canyon Creek (EA143), Davis Creek (EA155), and Walker Fork (EA156). The lode sources of the placer gold in the Boundary area have not been identified, but because the gold content of the Boundary deposit is so low, it is unlikely to be the source of the placer gold (Resource Associates of Alaska, 1977).

Alteration:

Oxidation is extensive to depths of more than 300 feet, and there are local gossan zones (Resource Associates of Alaska, 1977). Whole-rock analyses of some felsic schists indicate that they have high magnesium and iron contents, suggesting chlorite alteration; chlorite alteration is visible in some drillcore samples (Smit, 2000).

Age of mineralization:

Because the Klondike Schist hosts mineralization that is probably syngenetic with its host rocks, the stratabound sulfide mineralization is probably mid-Permian. A galena sample taken from drillcore from the Boundary prospect was analyzed for common lead values in two separate dissolutions. Both analyses fall within the middle of the field for galenas from other Permian, Klondike Schist-hosted syngenetic occurrences in the area (J. K. Mortensen, written commun., 2002).

Deposit model:

Kuroko massive sulfide (Cox and Singer, 1986; model 28a).

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

28a

Production Status: None

Site Status: Inactive

Workings/exploration:

A lead-zinc-copper-silver geochemical anomaly occurs along the contact between felsic schists and mafic schists at the Boundary prospect (Smit, 2000). Rock samples from gossan zones commonly contain 3,000 to 5,000 ppm lead, 300 to 500 ppm zinc, 300 to 800 ppm copper, and 7 to 14 ppm silver; gold is below detection limits. Zinc is more dispersed than lead; a soil geochemistry anomaly approximately 6,000 by 2,000 feet in extent typically has 100 to 300 ppm lead, 300 to 700 ppm zinc, and 75 to 100 ppm copper, with less than 2 ppm silver. Stream sediments generally contain less than 50 ppm lead and copper, but they typically contain 400 to 900 ppm zinc (Resource Associates of Alaska, 1977). Several geochemically anomalous intervals were found in drillcore; a 48-

foot section of pyritic chlorite schist has 241 ppm copper, 709 ppm lead, 1,933 ppm zinc, and 6.4 ppm silver (Smit, 2000).

The area between Arkansas Creek (see EA150) and Brophy Creek was first identified as a potential lead-zinc deposit by R.R. Asher of the Alaska Division of Mines and Geology (Asher, 1970). Asher observed a gossan zone with limonite replacing pyrite, and several samples contain anomalous lead, zinc, and copper. In 1977, Resource Associates of Alaska conducted regional and detailed geologic mapping, sampled soil on a grid over about 2 square miles, and drilled four diamond drill holes totaling 1,560 feet near Brophy Creek. Recoveries were poor; only two of the drill holes reached target depth, and massive sulfides were not intersected. Most of this drillcore is now stored at the University of Alaska Museum, Fairbanks, Alaska. Resource Associates of Alaska (1977) suggested that the drillholes may have been collared in the footwall of a potential massive-sulfide deposit and the deposit may be to the north of Brophy Creek, down-dip and up-section. However, recent mapping (R.L. Flynn, unpub. data, 2000) suggests that near Brophy Creek, Nasina Series rocks have been thrust over the Klondike Schist that hosts the Boundary prospect. A horizontal-loop-EM (electromagnetic) survey with a penetration depth of about 140 feet was run on six grid lines by Resource Associates of Alaska in 1977, but no conductors were found. Regional exploration was conducted by Anaconda in the Boundary area in 1978; about 70 square miles was mapped at a reconnaissance scale (Wiltse, 1978). In 1979, two holes totaling 1,004 feet were drilled by American Copper and Nickel Company in the same area, but they also failed to intersect massive-sulfide mineralization (Smit, 2000); most of this drillcore is still at the drill hole collars, but information about the orientation of the holes has been lost. Limited work on the Boundary prospect in 1999 by Grayd Resource Corporation did not produce new exploration targets (Smit, 2000).

Production notes:

Reserves:

Additional comments:

References:

McConnell, 1905; Foster, 1969 (B 1271-G); Asher, 1970; Resource Associates of Alaska, 1977; Wiltse, 1978; Mortensen, 1988; Dusel-Bacon and others, 1998; Mortensen, 1999; Smit, 2000.

Primary reference: Resource Associates of Alaska, 1977

Reporter(s): R.L. Flynn; M.B. Werdon

Last report date: 5/1/02

Site name(s): Twelvemile Creek

Site type: Mine

ARDF no.: EA153

Latitude: 64.0811 **Quadrangle:** EA A-1

Longitude: 141.3382

Location description and accuracy:

Twelvemile Creek is a small north tributary of the Walker Fork of the Fortymile River, located about 7 miles west of Boundary. Placer workings extend from one-half mile to one mile upstream of the mouth of Twelvemile Creek. The coordinates are the approximate midpoint of the placer workings, in section 32, T. 27 N., R. 21 E., of the Copper River Meridian; the location is accurate within 500 feet. Twelvemile Creek is locality 59 of Eberlein and others (1977) and locality 98 of Burleigh and Lear (1994). In the northeast Eagle quadrangle, Excelsior Creek (see EA032) was formerly known as Twelvemile Creek.

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:

Bedrock along Twelvemile Creek consists of Paleozoic amphibolite-facies paragneiss, orthogneiss, amphibolite, schist, quartzite, and marble (Szumigala and others, 2002). These metamorphic units are intruded by sparse granitic pegmatite dikes of probable Jurassic age. The north-south trend of Twelvemile Creek spatially corresponds to a strong north-south-trending conductive zone in the airborne geophysical data (Alaska Division of Geological and Geophysical Surveys and others, 1999). This trend also follows a prominent north-south-trending, high-angle fault (Szumigala and others, 2002). Terrace-gravel benches along the north side of Walker Fork near Twelvemile Creek are present as much as 300 feet above Walker Fork and above the level of placer workings in Twelvemile Creek (Yeend, 1996).

In the early 1930's, Twelvemile Creek was prospected extensively, but with little results (Powers, 1935). A bucket-type dredge operated on Walker Fork about a mile above the mouth of Twelvemile Creek from 1907 to 1909. Prospecting and possibly some mining occurred in the 1960's and 1970's on Twelvemile Creek (Eberlein and others, 1977). A

small open-cut mining operation was active on Twelvemile Creek from 1982 to 1984 (Norm LaFramboise, Boundary Explorations, Inc., written commun., 2000).

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: Probably inactive

Workings/exploration:
In the early 1930's, Twelvemile Creek was prospected extensively, but with little results (Powers, 1935). A bucket-type dredge operated on Walker Fork about a mile above the mouth of Twelvemile Creek from 1907 to 1909. Prospecting and possibly some mining occurred in the 1960's and 1970's on Twelvemile Creek (Eberlein and others, 1977). A small open-cut mining operation was active on Twelvemile Creek from 1982 to 1984 (Norm LaFramboise, Boundary Explorations, Inc., written commun., 2000).

Production notes:

Reserves:

Additional comments:

References:
Prindle, 1908; Powers, 1935; Foster, 1969 (B 1271-G); Cobb, 1977 (OFR 77-845); Eberlein and others, 1977; Burleigh and Lear, 1994; Yeend, 1996.

Primary reference: Powers, 1935

Reporter(s): R.L. Flynn; M.B. Werdon

Last report date: 5/1/02

Site name(s): Unnamed (on Davis Dome)

Site type: Occurrence

ARDF no.: EA154

Latitude: 64.0782 **Quadrangle:** EA A-1

Longitude: 141.0421

Location description and accuracy:
This occurrence is located along the Taylor highway, just east of Davis Dome and about 2 miles east of Boundary. The occurrence is in section 35, T. 27 N., R. 22 E., of the Copper River Meridian. The location is accurate within 500 feet.

Commodities:

Main: Au

Other:

Ore minerals:

Gangue minerals: Quartz

Geologic description:
The rocks in the vicinity of this occurrence are black carbonaceous Nasina Series schist and quartzite (McConnell, 1905), which has Mississippian protolith ages (Mortensen, 1999). A quartz vein in carbonaceous schist assayed 30 ppb Au (Crock and others, 2000).

Alteration:

Age of mineralization:
Mississippian or younger.

Deposit model:

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

Production Status: None

Site Status: Inactive

Workings/exploration:
A quartz vein in carbonaceous schist assayed 30 ppb Au (Crock and others, 2000).

Production notes:

Reserves:

Additional comments:

References:
McConnell, 1905; Mortensen, 1999; Crock and others, 2000.

Primary reference: Crock and others, 2000

Reporter(s): M.B. Werdon

Last report date: 5/1/02

Site name(s): Davis Creek

Site type: Mine

ARDF no.: EA155

Latitude: 64.0675 **Quadrangle:** EA A-1

Longitude: 141.0283

Location description and accuracy:

Davis Creek is a small headwater tributary of the Walker Fork of the Fortymile River. Davis Creek is about 3 miles long; the upper 1 mile is located in Yukon Territory, Canada. Placer workings extend about 1.5 miles upstream from the mouth of Davis Creek; the coordinates are the approximate midpoint of the placer workings, in section 2, T. 26 N., R. 22 E., of the Copper River Meridian. The location is accurate. Davis Creek is localities 15 and 76 of Cobb (1972 [MF-393]), localities 20 and 37 of Eberlein and others (1977), and locality 109 of Burleigh and Lear (1994).

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:

Bedrock along Davis Creek consists of greenschist-facies carbonaceous schist and quartzite with abundant quartz lenses, as awll as minor biotite-quartz schist (R.L. Flynn, unpub. data, 2000). These rocks are part of the Nasina Series of McConnell (1905) and are derived from a Mississippian protolith (Mortensen, 1999).

Near the mouth of the creek, the Davis Creek gravel consists of 4 feet of muck, overlying 4 feet of coarse gravel (with many boulders more than 8 inches in diameter), which in turn overlies 4 feet of finer gravel, pebbles, and sand that coarsen at the bottom (Spurr, 1898). The lower 4 feet of gravel was the pay streak; in many places gold also occurs in the top 6 to 8 inches of weathered bedrock. On the Discovery claim, located about one-half mile upstream of its mouth, the paystreak was 10 feet wide. Upstream, near the Canadian border, the gravel shallowed to just over 6 feet thick, and the paystreak at the base was reduced to 2 feet thick and less than 5 feet wide (Spurr, 1898). Gold in Davis Creek was coarse, and both rounded and flattened nuggets were recovered (Spurr, 1898). Placer gold from Davis Creek has a fineness of 885 parts gold per thousand (Metz and Hawkins, 1981).

Walker Fork (EA156) has produced placer gold downstream of Davis Creek; Poker Creek (EA158) and Younger Creek (EA159) are other nearby creeks with placer gold production. Although a significant lode source has not been identified for the gold in Davis Creek, Spurr (1898) described a horizontal quartz vein in schist that contained gold (see Lowry's Ledge, EA157).

Placer gold was first discovered in the Walker Fork drainage on Davis Creek in 1888; this discovery resulted in a stampede from Franklin Gulch (EA116) (Spurr, 1898). Thirty-five miners produced $30,000 of gold (gold at $20.67 per ounce)on Davis Creek in 1893 (Spurr, 1898). Davis Creek and the other headwater tributaries of Walker Fork were mostly mined out by the turn of the century, although there are several reports of mining on Davis Creek into the 1930's (Yeend, 1996). Mining was reported on Davis Creek in 1989 (Bundtzen and others, 1990). Yeend (1996) reports a small open-cut mining operation active in the early 1990's on Davis Creek. A small open-cut mining operation was active on Davis Creek from 1979 through 2000 (Norm LaFramboise, Boundary Explorations, Inc., written commun., 2000).

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: Active

Workings/exploration:
Placer gold was first discovered in the Walker Fork drainage on Davis Creek in 1888; this discovery resulted in a stampede from Franklin Gulch (EA116) (Spurr, 1898). Davis Creek and the other headwater tributaries of Walker Fork were mostly mined out by the turn of the century, although there are several reports of mining on Davis Creek into the 1930's (Yeend, 1996). Mining was reported on Davis Creek in 1989 (Bundtzen and others, 1990). Yeend (1996) reports a small open-cut mining operation active in the early 1990's on Davis Creek. A small open-cut mining operation was active on Davis Creek from 1979 through 2000 (Norm LaFramboise, Boundary Explorations, Inc., written commun., 2000).

Production notes:
Thirty-five miners produced $30,000 of gold (at $20.67 per ounce of gold) on Davis Creek in 1893 (Spurr, 1898). Placer gold from Davis Creek has a fineness of 885 parts gold per thousand (Metz and Hawkins, 1981).

Reserves:

Additional comments:

References:

Spurr, 1898; McConnell, 1905; Prindle, 1908 (B 345); Prindle, 1909 (B 375); Ellsworth and Parker, 1911; Porter, 1912; Ellsworth and Davenport, 1913; Chapin, 1914; Smith, 1934 (B 857-A); Smith, 1934 (B 864-A); Smith, 1936; Mertie, 1938; Foster, 1969 (B 1271-G); Asher, 1970; Cobb, 1972 (MF-393); Cobb, 1977 (OFR 77-845); Eberlein and others, 1977; Wiltse, 1978; Metz and Hawkins, 1981; Bundtzen and others, 1990; Burleigh and Lear, 1994; Yeend, 1996; Mortensen, 1999.

Primary reference: Spurr, 1898; Mertie, 1938

Reporter(s): R.L. Flynn; M.B. Werdon

Last report date: 5/1/02

Site name(s): Walker Fork

Site type: Mines

ARDF no.: EA156

Latitude: 64.0672 **Quadrangle:** EA A-1

Longitude: 141.1045

Location description and accuracy:

Walker Fork is a 20-mile-long tributary of the South Fork of the Fortymile River. Placer workings extend from the junction of Cherry Creek and Walker Fork,upstream to the head of the creek. There is a separate, 1-mile-long area of placer workings on Walker Fork just upstream from the confluence of Twelvemile Creek. The coordinates are the approximate midpoint of the upstream section of placer workings, in section 4, T. 26 N., R. 22 E., of the Copper River Meridian. The placer workings near Twelvemile Creek are located in section 32, T. 27 N., R. 21 E., of the Copper River Meridian. Walker Fork is localities 75 and 76 of Cobb (1972 [MF-393]), locality 63 of Eberlein and others (1977), and locality 110 of Burleigh and Lear (1994).

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:

The rocks along the upper Walker Fork are greenschist-facies Nasina Series carbonaceous schist and quartzite of Mississippian age (Foster, 1969 [B1271-G]; Mortensen, 1999; R.L. Flynn, unpub. data, 2000). South and west of the small town of Boundary, Walker Fork flows through metagabbro of unknown age and Paleozoic amphibolite-facies biotite gneiss and amphibolite. Most of the Walker Fork valley is broad and has extensive benches of terrace gravel as much as 400 feet above the stream (Yeend, 1996). A bench about 100 to 130 feet above the valley bottom is present along much of the north side of Walker Fork. Gold can be panned from it; 1 or 2 millimeter-size flakes per pan are common (Yeend, 1996).

The gravel in upper Walker Fork ranges from 4 to 10 feet thick and is generally covered by a thin layer of muck; in places a thin layer of clay is found between the gravel and bedrock (Mertie,1938). The pay streak is located in the bottom 2 feet of gravel and in the top foot of bedrock (Mertie, 1938); it is between 50 and 590 feet wide (Yeend, 1996). Most

of the gold occurs as small flat pieces, but nuggets as heavy as an ounce were recovered. Some of the gold, particularly at the upper end of the pay streak, had a rusty or black coating (Mertie, 1938). Placer concentrates contain magnetite, limonite, ilmenite, psilomelane, pyrite, and garnet. The gold in Walker Fork is finer grained than gold on Wade Creek (Prindle, 1905). In 1936, the fineness of gold that was recovered was about 830 parts per thousand of gold, and the fineness of gold on claims upstream was about 890 parts of gold per thousand. Assays of three gold samples from Walker Fork averaged 875 parts of gold per thousand, and ranged from 830 to 904 parts of gold per thousand (Smith, 1941 [B 910-C]). Tributaries of Walker Fork with placer gold production include Davis Creek (EA155), Poker Creek (EA158), Younger Creek (EA159), Cherry Creek (EA165), and Twelvemile Creek (EA153).

Placer gold on Walker Fork was discovered in 1889, and mining began in 1903 (Mertie, 1938). The headwater tributaries of Walker Fork were mostly mined out by the turn of the century, and miners moved down to the upper part of Walker Fork (Yeend, 1996). Most of the early work on Walker Fork was done by hydraulic open-cut methods (Mertie, 1938). Annual gold production from Walker Fork and its headwater tributaries during the first few years of the 1900's was about 1,000 to 1,500 ounces (Prindle, 1905). Production from Walker Fork, Davis Creek (EA155), and Poker Creek (EA158) from 1904 to 1907 was 4,015 fine ounces of gold (Prindle, 1908 [B 345]). The Russell King dredge was installed on Walker Fork in 1907 and operated from 1907 to 1909 (Mertie, 1938). The dredge ceased mining just above Cherry Creek, probably due to the decrease in the grade of the gravels (Yeend, 1996). In 1907, the first bucket-type dredge was installed on Walker Fork about a mile above the mouth of Twelvemile Creek; it operated on Walker Fork from 1907 to 1909, and then was moved to Uhler Creek (see EA112). A second dredge, known as the Mulvane Dredge, was installed on Walker Fork between the mouths of Davis and Poker Creeks in the winter of 1907-1908 and operated until 1912, when it ceased mining a few hundred feet up Poker Creek (Mertie, 1938). Gold production from the two dredges on Walker Fork in 1909 was $130,000 (gold at $20.67 per ounce ((Ellsworth, 1910). Walker Fork Gold Corp. mined about 14 miles of claims on Walker Fork in the 1920's (Naske, 1977). From 1925 to 1934, a large steam shovel was used in hydraulic mining on Walker Fork (Mertie, 1938). From 1934 to 1938, a stacker-type dredge operated on Walker Fork; this dredge is now abandoned on Walker Fork just above the mouth of Cherry Creek (Yeend, 1996). Gravels being worked around 1936 had a value of about 45 cents to $1.05 (gold at $35 per ounce) per square yard of bedrock (Mertie, 1938).

Mining on Walker Fork occurred sporadically from 1948 into the 1990's. Bulldozers and backhoes were commonly used to move gravel to sluice boxes (Yeend, 1996). In 1955, the LaCross Mining Co. produced 965 ounces of gold and 137 ounces of silver from 20,000 cubic yards of gravel (Naske, 1977). Small open-cut operations in 1989 and the early 1990's were active in at least two locations on Walker Fork (Bundtzen and others, 1990; Yeend, 1992; Yeend, 1996). Dredge tailings were remined in the early 1990's and yielded $3.75 to $5 per cubic yard of gravel (Yeend, 1996). Small open-cut mining operations were active on Walker Fork in 2000 at several locations between Cherry Creek and Poker Creek (R.L. Flynn, unpub. data, 2000). The operation on Walker Fork near Davis Creek (EA003) has been active since 1980 (Norm LaFramboise, Boundary Explorations, Inc., written commun., 2000). Small suction dredges are occasionally seen oper-

ating on Walker Fork during the summer months near the Taylor Highway bridge (Yeend, 1996). A moderate gold resource may be present along the middle section of Walker Fork in the flood plain and terrace gravels, but mining will probably have to await more favorable market conditions (Yeend, 1996).

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; medium

Site Status: Active

Workings/exploration:
Placer gold on Walker Fork was discovered in 1889, and mining began in 1903 (Mertie, 1938). The headwater tributaries of Walker Fork were mostly mined out by the turn of the century, and miners moved down to the upper part of Walker Fork (Yeend, 1996). Most of the early work on Walker Fork was done by hydraulic open-cut methods (Mertie, 1938). The Russell King dredge was installed on Walker Fork in 1907 and was operated from 1907 to 1909 (Mertie, 1938). The dredge ceased mining just above Cherry Creek, probably due to the decrease in the grade of the gravels (Yeend, 1996). In 1907, the first bucket-type dredge was installed on Walker Fork about a mile above the mouth of Twelvemile Creek (see EA153); it operated on Walker Fork from 1907 to 1909, and then was moved to Uhler Creek (see EA112). A second dredge, known as the Mulvane Dredge, was installed on Walker Fork between the mouths of Davis and Poker Creeks in the winter of 1907-1908 and operated until 1912, when it ceased mining a few hundred feet up Poker Creek (Mertie, 1938). Walker Fork Gold Corp. mined about 14 miles of claims on Walker Fork in the 1920's (Naske, 1977). From 1925 to 1934, a large steam shovel was used in hydraulic mining on Walker Fork (Mertie, 1938). From 1934 to 1938, a stacker-type dredge operated on Walker Fork; this dredge is now abandoned on Walker Fork just above the mouth of Cherry Creek (Yeend, 1996).

Mining on Walker Fork occurred sporadically from 1948 into the 1990's. Bulldozers and backhoes were commonly used to move gravel to sluice boxes (Yeend, 1996). Small open-cut operations in 1989 and the early 1990's were active in at least two locations on Walker Fork (Bundtzen and others, 1990; Yeend, 1992; Yeend, 1996). Small open-cut mining operations were active on Walker Fork in 2000 at several locations between Cherry Creek and Poker Creek (R.L. Flynn, unpub. data, 2000). The operation on Walker Fork near Davis Creek (EA155) has been active since 1980 (Norm LaFramboise, Boundary Explorations, Inc., written commun., 2000). Small suction dredges are occasionally

seen operating on Walker Fork during the summer months near the Taylor Highway bridge (Yeend, 1996).

Production notes:

Annual gold production from Walker Fork and its headwater tributaries during the first few years of the 1900's was about 1,000 to 1,500 ounces (Prindle, 1905). Production from Walker Fork, Davis Creek (EA155) and Poker Creek (EA158) from 1904 to 1907 was 4,015 fine ounces of gold (Prindle, 1908). Gold production from the two dredges on Walker Fork in 1909 was $130,000 (gold at $20.67 per ounce) (Ellsworth, 1910). Gravels being worked around 1936 had a value of about 45 cents to $1.05 (gold at $35 per ounce) per square yard of bedrock (Mertie, 1938). In 1955, the LaCross Mining Co. produced 965 ounces of gold and 137 ounces of silver from 20,000 cubic yards of gravel (Naske, 1977). Dredge tailings were remined in the early 1990's and yielded $3.75 to $5 per cubic yard of gravel (Yeend, 1996).

Reserves:

A moderate gold resource may be present along the middle section of Walker Fork in the flood plain and terrace gravels, but mining will probably have to await more favorable market conditions (Yeend, 1996).

Additional comments:

References:

Brooks, 1904; Brooks, 1905; Prindle, 1905; Purington, 1905; Prindle, 1908; Brooks, 1909; Prindle, 1909; Ellsworth, 1910; Ellsworth and Parker, 1911; Porter, 1912; Ellsworth and Davenport, 1913; Chapin, 1914; Brooks, 1915; Brooks and Martin, 1921; Moffit, 1927; Mertie, 1930 (B 813-C); Mertie, 1937; Mertie, 1938; Smith, 1941 (B 910-C); Smith, 1941 (B 926-A); Saunders, 1966; Foster, 1969 (B 1271-G); Foster and Keith, 1969; Cobb, 1972 (MF-393); Cobb, 1977 (OFR 77-845); Eberlein and others, 1977; Naske, 1977; Bundtzen and others, 1990; Yeend, 1992; Burleigh and Lear, 1994; Yeend, 1996; Mortensen, 1999.

Primary reference: Mertie, 1938; Yeend, 1996

Reporter(s): M.B. Werdon; R.L. Flynn

Last report date: 5/1/02

Site name(s): Lowery's Ledge

Site type: Occurrence

ARDF no.: EA157

Latitude: 64.0619 **Quadrangle:** EA A-1

Longitude: 141.0248

Location description and accuracy:

The Lowery's Ledge occurrence is located about 2.7 miles east-southeast of Boundary at an elevation of about 3,400 feet in section 2, T. 26 N., R. 22 E. The location is accurate within one-half mile. Lowery's Ledge is locality 15 of Cobb (1972 [MF-393]).

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals: Quartz

Geologic description:

The rocks in the vicinity of Lowrey's Ledge are Paleozoic greenschist-facies metamorphic rocks of the Nasina Series (Szumigala and others, 2002). Spurr (1898) observed quartz veins in schist that contain free gold and minute specks of iron and copper pyrites (chalcopyrite?). Free gold occurs in nearly horizontal quartz veins that are 10 to 12 inches thick (Eberlein and others, 1977). The quartz veins are parallel to the foliation of the schist. One specimen of quartz contained a gold flake that was about 0.003 inch in diameter. There is no record of any mining.

Alteration:

Age of mineralization:

Deposit model:

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:

Spurr, 1898; Eberlein and others, 1977; Szumigala and others, 2002.

Primary reference: Spurr, 1898

Reporter(s): M.B. Werdon

Last report date: 5/1/02

Site name(s): Poker Creek

Site type: Mine

ARDF no.: EA158

Latitude: 64.0562 **Quadrangle:** EA A-1

Longitude: 141.0179

Location description and accuracy:

Poker Creek is a small east headwater tributary of the Walker Fork of the Fortymile River. Poker Creek is about 3 miles long; the upper 2 miles extend into Yukon Territory, Canada. Placer workings on Poker Creek extend from its mouth for about a mile up-stream into Canada. The coordinates are the approximate midpoint of the section of the creek in Alaska; it is on the border between sections 1 and 2, T. 26 N., R. 22 E., of the Copper River Meridian. The location is accurate. Poker Creek is locality 108 of Burleigh and Lear (1994), locality 49 of Eberlein and others (1977), and locality 76 of Cobb (1972 [MF-393]).

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:

Bedrock along Poker Creek consists of carbonaceous schist and quartzite with abundant quartz lenses, as well as biotite-quartz schist (R.L. Flynn, unpub. data, 2000), which are part of the Nasina Series of McConnell (1905). The Nasina Series is Mississippian in age (Mortensen, 1999). Almost all of the gold from Poker Creek was extracted from the gravel just above bedrock. The paystreak was about 3 feet deep near the mouth of Poker Creek, thinning to 1 foot upstream (Spurr, 1898). The paystreak was covered by 4 to 6 feet of barren gravel. Placer gold in Poker Creek has a fineness of 864 parts gold per thousand (Metz and Hawkins, 1981). Walker Fork (EA156), Davis Creek (EA155), and Younger Creek (EA159) are other nearby headwater tributaries of Walker Fork with placer gold production.

Placer gold claims were first staked on Poker Creek in 1889, and mining began in 1896 (Spurr, 1898). The headwater tributaries of Walker Fork were mostly mined out by the turn of the century (Yeend, 1996). The Mulvane dredge worked a few hundred feet up Poker Creek from Walker Fork before being dismantled and moved in 1912 (Ellsworth

and Davenport, 1913). Mining on Poker Creek was reported from 1932 to 1934. Bundtzen and others (1990) reported mining on Poker Creek in 1989. A small open-cut mining operation was active on Poker Creek from 1982 to 1985 and from 1995 to 1998 (Norm LaFramboise, Boundary Explorations, Inc., written commun., 2000).

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: Active?

Workings/exploration:
Placer gold claims were first staked on Poker Creek in 1889, and mining began in 1896 (Spurr, 1898). The headwater tributaries of Walker Fork were mostly mined out by the turn of the century (Yeend, 1996). The Mulvane dredge worked a few hundred feet up Poker Creek from Walker Fork before being dismantled and moved in 1912 (Ellsworth and Davenport, 1913). Mining on Poker Creek is reported from 1932 to 1934. Bundtzen and others (1990) reported mining on Poker Creek in 1989. A small open-cut mining operation was active on Poker Creek from 1982 to 1985 and from 1995 to 1998 (Norm LaFramboise, Boundary Explorations, Inc., written commun., 2000).

Production notes:
Placer gold in Poker Creek has a fineness of 864 parts gold per thousand (Metz and Hawkins, 1981).

Reserves:

Additional comments:

References:
Spurr, 1898; McConnell, 1905; Prindle, 1908; Prindle, 1909; Ellsworth and Parker, 1911; Porter, 1912; Ellsworth and Davenport, 1913; Chapin, 1914; Smith, 1934 (B 857-A); Smith, 1934 (B 864-A); Smith, 1936; Mertie, 1938; Smith, 1941 (B 910-C); Foster, 1969 (B 1271-G); Asher, 1970; Cobb, 1972 (MF-393); Cobb, 1977 (OFR 77-845); Eberlein and others, 1977; Wiltse, 1978; Metz and Hawkins, 1981; Bundtzen and others, 1990; Burleigh and Lear, 1994; Yeend, 1996; Mortensen, 1999.

Primary reference: Spurr, 1898; Mertie, 1938

Reporter(s): R.L. Flynn; M.B. Werdon

Last report date: 5/1/02

Site name(s): Younger Creek; Walker Fork

Site type: Mine

ARDF no.: EA159

Latitude: 64.0484 **Quadrangle:** EA A-1

Longitude: 141.0296

Location description and accuracy:

Younger Creek is a small soutn headwater tributary of the Walker Fork of the Fortymile River, about 3 miles southeast of Boundary. Younger Creek has also been refered to as the headwater branch of Walker Fork. Younger Creek is about 3 miles long; the upper 1 mile of the creek is located in Yukon Territory, Canada. Placer workings on Younger Creek extend approximately 1 mile upstream from the mouth of the creek (Yeend, 1996). The coordinates are the approximate midpoint of the placer workings, in section 11, T. 26 N., R. 22 E., of the Copper River Meridian. The location is accurate.

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:

The rocks in Younger Creek valley are greenschist-facies carbonaceous schist and quartzite of the Nasina assemblage of Mississippian age (Foster, 1969 [B 1271-G]; Mortensen, 1999). Younger Creek, a headwater tributary of Walker Fork, produced placer gold from 1889 to 1896 (Spurr, 1898). The headwater tributaries of Walker Fork were mostly mined out by the turn of the century (Yeend, 1996). A small open-cut mining operation has been active on Younger Creek from 1980 through 2000 (Norm LaFramboise, Boundary Explorations, Inc., written commun., 2000).

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: Active

Workings/exploration:
Younger Creek, a headwater tributary of Walker Fork (see EA156), produced placer gold from 1889 to 1896 (Spurr, 1898). The headwater tributaries of Walker Fork were mostly mined out by the turn of the century (Yeend, 1996). A small open-cut mining operation has been active on Younger Creek from 1980 through 2000 (Norm LaFramboise, Boundary Explorations, Inc., written commun., 2000).

Production notes:

Reserves:

Additional comments:

References:
Spurr, 1898; Foster, 1969 (B 1271-G); Yeend, 1996; Mortensen, 1999.

Primary reference: Yeend, 1996

Reporter(s): M.B. Werdon; R.L. Flynn

Last report date: 5/1/02

Site name(s): Turk Creek

Site type: Mine

ARDF no.: EA160

Latitude: 64.0363 **Quadrangle:** EA A-1

Longitude: 141.1287

Location description and accuracy:

Turk Creek is a small tributary of Cherry Creek. Two separate areas with placer workings are present on Turk Creek; the first extends 500 feet upstream from the mouth of the creek, and the second area starts at the forks about a mile above its mouth and extends about 1,500 feet up the south fork of Turk Creek. The coordinates are the approximate midpoint of the upper placer workings on the south fork of Turk Creek, in section 17, T. 26 N., R. 22 E., of the Copper River Meridian. The location is accurate.

Commodities:

Main: Au

Other: Cr

Ore minerals: Chromite, gold

Gangue minerals:

Geologic description:

The rocks in the vicinity of Turk Creek are Paleozoic amphibolite-facies gneiss, schist, and amphibolite, and minor marble (Foster, 1969 [B 1271-G]). Bedrock along the north fork of Turk Creek largely consists of metagabbro; bedrock along the south fork of Turk Creek is serpentinized ultramafic rocks (R.L. Flynn, unpub. data, 2000). Sparse rocks comprised largely of chromite grains as large as 5 millimeters in diameter occur as float in the south fork of Turk Creek (R.L. Flynn, unpub. data, 2000); they may be derived from the large serpentinized ultramafic body in the headwaters of Turk Creek (see EA161). Placer gold in Turk Creek has a fineness of 815 parts of gold per thousand (Metz and Hawkins, 1981).

Prospecting for placer gold occurred on Turk Creek in 1954 (Alaska Department of Mines, 1955). Small open-cut mines were active on Turk Creek from 1983 to 1994 and in 1999 and 2000 (Yeend, 1996; Norm LaFramboise, Boundary Explorations, Inc., written commun., 2000).

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: Active

Workings/exploration:
Prospecting for placer gold occurred on Turk Creek in 1954 (Alaska Department of Mines, 1955). Small open-cut mines were active on Turk Creek from 1983 to 1994 and in 1999 and 2000 (Yeend, 1996; Norm LaFramboise, Boundary Explorations, Inc., written commun., 2000).

Production notes:
Placer gold in Turk Creek has a fineness value of 815 parts gold per thousand (Metz and Hawkins, 1981).

Reserves:

Additional comments:

References:
Alaska Department of Mines, 1955; Foster, 1969 (B 1271-G); Asher, 1970; Metz and Hawkins, 1981; Yeend, 1996.

Primary reference: Yeend, 1996

Reporter(s): R.L. Flynn; M.B. Werdon

Last report date: 5/1/02

Site name(s): Unnamed (at head of Turk Creek)

Site type: Occurrence

ARDF no.: EA161

Latitude: 64.0298 **Quadrangle:** EA A-1

Longitude: 141.0737

Location description and accuracy:

This magnetite prospect covers about 1 square mile about 2.8 miles south-southeast of Boundary, near the top of the ridge in the headwaters of Turk Creek. This occurrence is informally called the Turk Creek Magnetite prospect or the Minnesota Mountain prospect. The coordinates are the approximate center of the claims, in section 15, T. 26 N, R. 22 E., of the Copper River Meridian; the location is accurate within one-half mile.

Commodities:

Main: Fe

Other:

Ore minerals: Magnetite

Gangue minerals:

Geologic description:

Magnetite-bearing serpentinized ultramafic rocks crop out over about 1 square mile on the east side of the top of the ridge near VABM Minnesota in the headwaters of the south fork of Turk Creek (Foster, 1969 [B 1271-G]; R.L. Flynn, unpub. data, 2000). Field relations suggest that this large ultramafic body is thrust over greenschist-facies metamorphic rocks to the east, and many of the smaller, lens-like serpentinized ultramafic bodies in the Boundary area appear to be imbricated along thrust faults (Foster and others, 1985). The magnetite-bearing serpentinized ultramafic rocks define a strong magnetic high in the Alaska Division of Geological and Geophysical Surveys airborne geophysical data (Burns and Liss, 1999; Alaska Division of Geological and Geophysical Surveys and others, 1999).

Magnetite crystals range from one- to three-eighths of an inch in diameter. Assays of five rock samples range from 7.66 to 8.43 percent iron (Saunders, 1960). The ultramafic rocks are probably metamorphosed, serpentinized dunite that consists of large grains of magnetite surrounded by alteration rims of brucite and chlorite in a matrix of antigorite and relict olivine (Foster, 1969 [B 1271-G]). The rocks are cut by late veins of magnetite and magnesite. Locally, minor silica-carbonate alteration is present (R.L. Flynn, unpub. data, 2000). Nearby, Turk Creek (EA160) has produced placer gold. Five claims were

staked on magnetite-bearing rock in the vicinity in 1959 (Saunders, 1960).

Alteration:

The serpentinized ultramafic rocks in the headwaters of the south fork of Turk Creek are probably metamorphosed, serpentinized dunite that consists of large grains of magnetite surrounded by alteration rims of brucite and chlorite in a matrix of antigorite with relicts of olivine. The rocks are cut by late veins of magnetite and magnesite (Foster, 1969 [B-1271-G]). Minor silica-carbonate alteration is present locally (R.L. Flynn, unpub. data, 2000).

Age of mineralization:

Deposit model:

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

Production Status: None

Site Status: Inactive

Workings/exploration:

Magnetite-bearing rock south of Boundary was discovered by placer miners in 1958; they staked five claims in 1959, and the property was visited by R.H. Saunders, Territorial mining engineer in 1959 (Saunders, 1960). Saunders reported assays fortfive samples that contain from 7.66 to 8.43 percent iron.

Production notes:

Reserves:

Additional comments:

References:

Saunders, 1960; Foster, 1969 (B 1271-G); Asher, 1970; Keith and Foster, 1973; Foster and Keith, 1974; Foster and others, 1985; Alaska Division of Geological and Geophysical Surveys and others, 1999; Burns and Liss, 1999; Mortensen, 1999.

Primary reference: Saunders, 1960

Reporter(s): R.L. Flynn; M.B. Werdon

Last report date: 5/1/02

Site name(s): Unnamed (along McKinley Creek)

Site type: Occurrence

ARDF no.: EA162

Latitude: 64.0277 **Quadrangle:** EA A-1

Longitude: 141.3649

Location description and accuracy:
McKinley Creek is a southeast tributary to Walker Fork. The coordinates are placed on McKinley Creek at an abandoned cabin shown on the U.S. Geological Survey topographic map of the Eagle A-1 quadrangle (1956). The cabin is in section 18, T. 26 N., R. 21 E., of the Copper River Meridian. The location is accurate.

Commodities:

Main: Au?

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:
The rocks in the McKinley Creek area are Paleozoic amphibolite-facies paragneiss, amphibolite, orthogneiss, quartzite, and marble (Szumigala and others, 2002). Prospecting for placer gold probably occurred on McKinley Creek as indicated by the presence of small dirt piles, abandoned shovels, and others mining equipment. This exploration may have taken place in the late 1930's because the nearby cabin has a sign on it saying the building was completed December 1, 1938.

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:

Prospecting for placer gold probably occurred on McKinley Creek as indicated by the presence of small dirt piles, abandoned shovels, and others mining equipment. This exploration may have taken place in the late 1930's because the nearby cabin has a sign on it saying the building was completed December 1, 1938.

Production notes:

Reserves:

Additional comments:

References:

Szumigala and others, 2002.

Primary reference: This record

Reporter(s): M.B. Werdon

Last report date: 5/1/02

Site name(s): No Name Creek

Site type: Mine

ARDF no.: EA163

Latitude: 64.0166 **Quadrangle:** EA A-1

Longitude: 141.1301

Location description and accuracy:

No Name Creek is a small east tributary of Cherry Creek. No Name Creek is not labeled on the U.S. Geological survey topographic map of the Eagle A-1 quadrangle (1956), but it is widely referred to by placer miners in the Boundary area as No Name Creek. Placer workings extend from one-half to 1.5 miles upstream of the mouth of the creek. The coordinates are the approximate midpoint of the placer workings, in section 20, T. 26 S., R. 22 E., of the Copper River Meridian; the location is accurate. No Name Creek is locality 112 of Burleigh and Lear (1994).

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:

The rocks along lower No Name Creek are biotite gneiss, schist, and amphibolite, with granitic and quartzite layers and minor marble (R.L. Flynn, unpub. data, 2000), all of probable Paleozoic age (Foster, 1969 [B 1271-G]). Bedrock on upper No Name Creek consists of carbonaceous schist and quartzite and minor biotite-quartz schist (R.L. Flynn, unpub. data, 2000); these units are part of the Nasina Series of McConnell (1905), which is Mississippian in age (Mortensen, 1999). A large serpentinized ultramafic body crops on the ridge to the northeast, and small serpentinized ultramafic bodies crop out on the ridge to the south (R.L. Flynn, unpub. data, 2000).

A small area of placer workings on No Name Creek is shown on U.S. Geological Survey topographic map of the Eagle A-1 quadrangle (1956). Yeend (1996) notes a small open-cut operation was active in the early 1990's on a small tributary of Cherry Creek, which probably refers to No Name Creek. A small open-cut mining operation was active on No Name Creek from 1994 through 2000 (Norm LaFramboise, Boundary Explorations, Inc., written commun., 2000). Placer gold has also been produced on nearby Cherry Creek (see EA165).

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: Active

Workings/exploration:
A small area of placer workings on No Name Creek is shown on U.S. Geological Survey topographic map of the Eagle A-1 quadrangle (1956). Yeend (1996) notes a small open-cut operation was active in the early 1990's on a small tributary of Cherry Creek (see EA165), which probably refers to No Name Creek. A small open-cut mining operation was active on No Name Creek from 1994 through 2000 (Norm LaFramboise, Boundary Explorations, Inc., written commun., 2000).

Production notes:

Reserves:

Additional comments:

References:
McConnell, 1905; Foster, 1969 (B 1271-G); Burleigh and Lear, 1994; Yeend, 1996; Mortensen, 1999.

Primary reference: Yeend, 1996

Reporter(s): R.L. Flynn; M.B. Werdon

Last report date: 5/1/02

Site name(s): Crow Creek; Owl Creek

Site type: Prospect

ARDF no.: EA164

Latitude: 64.0117 **Quadrangle:** EA A-1

Longitude: 141.1631

Location description and accuracy:

Crow Creek is a small west headwater tributary of Cherry Creek. Prindle (1905) reported a little work done at the junction of Crow and Owl Creeks; the creek identified as Crow Creek on the U.S. Geological Survey topographic map of the Eagle A-1 quadrangle (1956) is identified as Owl Creek on the map of Prindle (1905). The coordinates are near the mouth of Crow Creek, in section 30, T. 26 N., R. 22 E., of the Copper River Meridian. Crow Creek is locality 113 of Burleigh and Lear (1994).

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:

Bedrock along Crow Creek consists of Paleozoic amphibolite-facies paragneiss, quartzite, orthogneiss, and lesser amphibolite and marble (Szumigala and others, 2002). Quartz-white mica schist with granitic and quartzite layers is also present (R.L. Flynn, unpub. data, 2000). A little prospecting was done and some pay found at the junction of Crow and Owl Creeks (Prindle, 1905). Placer gold has been produced on Cherry Creek (EA165), mostly upstream of Crow Creek. Placer workings on the upper part of Cherry Creek extend downstream to within 300 feet of the mouth of Crow Creek.

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:
A little prospecting was done and some pay found at the junction of Crow and Owl Creeks (Prindle, 1905).

Production notes:

Reserves:

Additional comments:

References:
Prindle, 1905; Foster, 1969 (B 1271-G); Burleigh and Lear, 1994; Szumigala and others, 2002.

Primary reference: Prindle, 1905

Reporter(s): R.L. Flynn; M.B. Werdon

Last report date: 5/1/02

Site name(s): Cherry Creek

Site type: Mines

ARDF no.: EA165

Latitude: 64.0024 **Quadrangle:** EA A-1

Longitude: 141.1578

Location description and accuracy:

Cherry Creek is an 8-mile-long south tributary of the Walker Fork of the Fortymile River. The creek is located about 5 miles west of the Canadian border. A small area of placer workings is located on Cherry Creek just downstream of Turk Creek, and about 1 mile of placer workings is present upstream of Crow Creek. The coordinates are the approximate midpoint of the placer workings upstream of Crow Creek, in section 30. T. 26 N., R. 22 E., of the Copper River Meridian. Cherry Creek is locality 111 of Burleigh and Lear (1994), locality 16 of Eberlein and others (1977), and locality 77 of Cobb (1972 [MF-393]), although Cobb locates the Cherry Creek mine on Turk Creek.

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:

Bedrock along Cherry Creek consists of amphibolite-facies biotite gneiss and schist, amphibolite, biotite-quartz-feldspar gneiss, and quartz-white mica schist with granitic and quartzite layers, and minor marble (R.L. Flynn, unpub. data, 2000). The rocks are of probable Paleozoic age (Foster, 1969 [B 1271-G]). A low gravel terrace is present roughly 100 to 130 feet above the valley bottom on the east side of Cherry Creek; it extends 3 miles south up Cherry Creek from Walker Fork (Yeend, 1996). Placer workings on Cherry Creek are located just downstream of Turk Creek, and about 1 mile of placer workings is present upstream of Crow Creek. Tributaries of Cherry Creek with placer gold mining or prospecting include Turk Creek (EA160), No Name Creek (EA163), and Crow Creek (EA164). There also has been placer gold production on Walker Fork (EA156) downstream of Cherry Creek.

Prospecting in the headwaters of Cherry Creek began in 1903 (Prindle, 1905). Prospecting occurred again in 1910, and mining took place in 1911 (Ellsworth and Parker, 1911; Porter, 1912). New development and mining took place in the 1970's (Eberlein and

others, 1977), and mining was reported on Cherry Creek in 1988 (Green and others, 1989). A small open-cut operation was active on Cherry Creek near the mouth of Turk Creek from 1983 to 1994 (Norm LaFramboise, Boundary Explorations, Inc., written commun., 2000).

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:
Prospecting in the headwaters of Cherry Creek began in 1903 (Prindle, 1905). Prospecting occurred again in 1910, and mining took place in 1911 (Ellsworth and Parker, 1911; Porter, 1912). New development and mining took place in the 1970's (Eberlein and others, 1977), and mining wass reported on Cherry Creek in 1988 (Green and others, 1989). A small open-cut operation was active on Cherry Creek near the mouth of Turk Creek from 1983 to 1994 (Norm LaFramboise, Boundary Explorations, Inc., written commun., 2000).

Production notes:

Reserves:

Additional comments:

References:
Prindle, 1905; Ellsworth and Parker, 1911; Porter, 1912; Foster, 1969 (B 1271-G); Asher, 1970; Cobb, 1972 (MF-393); Cobb, 1977 (OFR 77-845); Eberlein and others, 1977; Green and others, 1989; Burleigh and Lear, 1994; Yeend, 1996.

Primary reference: Yeend, 1996

Reporter(s): R.L. Flynn; M.B. Werdon

Last report date: 5/1/02

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