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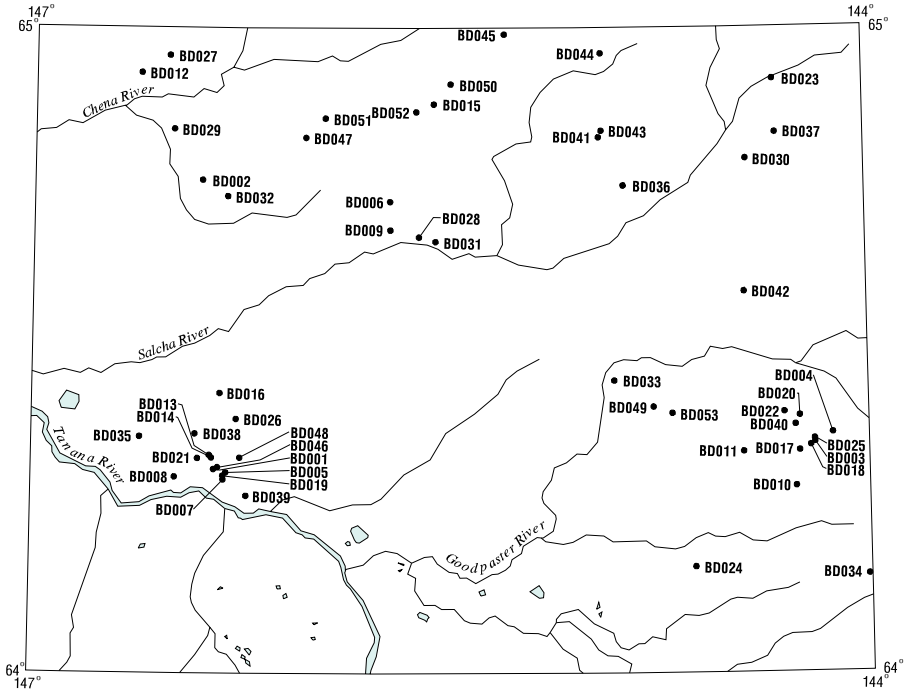
Alaska Resource Data File

Big Delta 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 Big Delta 1:250,000-scale quadrangle, Alaska

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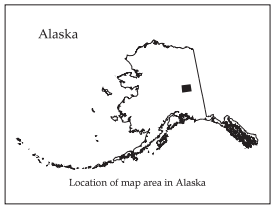
Cameron Rombach
Alaska Division of Geological & Geophysical Surveys
794 University Ave., Suite 200
Fairbanks, AK 99709-3645



OPEN-FILE REPORT 99-354

Site name(s): Banner Creek

Site type: Mines

ARDF no.: BD001

Latitude: 64.316 **Quadrangle:** BD B-5

Longitude: 146.346

Location description and accuracy:

Banner Creek drains southward into the Tanana River. The approximate center of mining activity on Banner Creek is in SW1/4SW1/4 section 10, T. 7 S., R. 7 E., of the Fairbanks Meridian, approximately 2 miles north of the town of Richardson on the Richardson Highway. The creek is approximately 6 miles long and has several tributaries with associated placers. These include Buckeye Creek (BD005), Democrat Pup Creek (BD013), and Susie Creek (not identified on existing maps). Placer workings are found from just above the confluence of Democrat Pup Creek to the Tanana River (Olson and others, 1985). Numerous unimproved roads provide access to the Banner Creek drainage. It is locality 13 of Cobb and Eberlein (1980), who summarized relevant references under the name 'Banner Creek'.

Commodities:

Main: Au

Other: Ag, Cu, Pb, REE, Sb, Sn, W

Ore minerals: Arsenopyrite, cassiterite, chalcopyrite, galena, gold, monazite, pyrite, scheelite, stibnite

Gangue minerals:

Geologic description:

The Richardson area is characterized by gentle slopes and broad alluvium filled valleys (Prindle and Katz, 1913, p. 140). The area is unglaciated and largely overlain by windblown silt, sand, and loess, locally up to 50 meters thick (Foster and others, 1979). The bedrock in the region comprises greenschist to amphibolite facies schist, marble, and gneiss that have been intruded by various igneous bodies (Bundtzen and Reger, 1977, p. 29). The schist and marble are probably Paleozoic, and the gneiss has a probable protolith of Precambrian and Paleozoic sedimentary and igneous rocks (Weber and others, 1978). The intrusive bodies in the area range in composition from rhyolite to andesite. Fine-grained rhyolite containing quartz and feldspar phenocrysts is common throughout the area (Olson and others, 1985). At the nearby Democrat Lode (BD014), the rhyolite contains arsenopyrite, gold, and pyrite, and is albitic, clay, and sericite altered (R.J. New-

berry, oral communication, 1998). Structurally, the Richardson region is cut by a northwest-trending fracture system termed the Richardson Lineament. The lineament appears to correspond with the distribution of the rhyolite and other intrusive bodies and placer gold deposits (Bundtzen and Reger, 1977, p. 29). Also, the lineament tends to separate gneissic rocks to the northeast from schistose rocks to the southwest (Swainbank and others, 1984).

The placer gold fineness mined from Banner Creek ranged from 639.5 to 785 (Menzie and Foster, 1979). Metz and Hawkins (1981) reported the average gold fineness to be 737. Glover (1920?) reported a range in gold fineness of 738 to 798 for Banner Creek. Placer and churn-drill hole concentrates contain actinolite, arsenopyrite, biotite, cassiterite, chalcopyrite, dolomite, epidote, feldspar, fluorapatite, galena, garnet, gold, hornblende, ilmenite, magnetite, monazite, muscovite, quartz, pyrite, pyroxene, rutile, scheelite, sphene, stibnite, tourmaline, and zircon (Bundtzen and Reger, 1977). Mining along Banner Creek has included open-cut and drifting methods (Ellsworth and Parker, 1911). In the Banner Creek drainage, schist and gneiss in contact with the rhyolite dikes is hydrothermally altered (Swainbank and others, 1984).

Placer gold was first discovered in the Richardson district in 1905. Mining initially occurred on the nearby Tenderfoot Creek (BD039) and expanded to Banner Creek and associated tributaries soon after. Following peak gold production in 1908, mining in the area declined (Olson and others, 1985). From 1905 through 1921, gold production for the Richardson district was approximately 95,000 ounces of gold and 24,000 ounces of silver (Bundtzen and Reger, 1977). Since 1980, mining in the district has produced an additional 10,000 ounces of gold (Olson and others, 1985). Gold production for individual mines and sections of Banner Creek and its tributaries has not been reported separately.

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 was first discovered in the Richardson area in 1905. Mining initially occurred on the nearby Tenderfoot Creek (BD039) and expanded to Banner Creek and associated tributaries soon after. Following peak gold production in 1908, mining in the area declined (Olson and others, 1985). Mining along Banner Creek has included open-cut and drifting methods (Ellsworth and Parker, 1911). Bundtzen and Reger (1977) reported

4 churn-drill holes along the creek. Currently (1998), exploration work is being conducted along the Banner Creek drainage (F.L. Blystone, written communication, 1998).

Production notes:

From 1905 through 1921, gold production for the Richardson area was approximately 95,000 ounces of gold and 24,000 ounces of silver (Bundtzen and Reger, 1977). Since 1980, mining in the district has produced an additional 10,000 ounces of gold (Olson and others, 1985). Gold production for individual mines and sections of Banner Creek and its tributaries has not been reported separately.

Reserves:

Additional comments:

References:

Ellsworth and Parker, 1911; Prindle and Katz, 1913; Chapin, 1914; Glover, 1920?; Saunders, 1965; Bundtzen and Reger, 1977; Eberlein and others, 1977; Weber and others, 1978; Menzie and Foster, 1979; Cobb and Eberlein, 1980; Metz and Hawkins, 1981; Swainbank and others, 1984; Olson and others, 1985

Primary reference: Cobb and Eberlein, 1980

Reporter(s): Cameron S. Rombach (ADDGS)

Last report date: 4/26/99

Site name(s): Beaver Creek

Site type: Mine

ARDF no.: BD002

Latitude: 64.764 **Quadrangle:** BD D-5

Longitude: 146.394

Location description and accuracy:

Beaver Creek drains west into the South Fork of the Chena River. The creek is roughly 12 miles long and has several tributaries, including Pine Creek (BD032). The Alaska Division of Mining Kardex file system reports placer mining on Beaver Creek at the base of Emory Creek. The approximate center of mining activity on Beaver Creek is in SE1/4SW1/4 section 5, T. 2 S., R. 7 E., of the Fairbanks Meridian. There are references to additional placer mining along Beaver Creek, but it is unclear where. It is locality 8 of Cobb (1972; MF-388), who summarized relevant references under the name 'Beaver Creek'.

Commodities:

Main: Au

Other: Sn

Ore minerals: Cassiterite, gold

Gangue minerals:

Geologic description:

Weber and others (1978) described the bedrock in the drainage as primarily greenschist facies rocks with some marble, quartzite, and phyllite. Locally, there is an extensive cover of windblown silt and sand that ranges from 0.1 to 50 meters in thickness. In addition, much of the ground in the swampy lowlands of the Chena River and its tributaries is permanently frozen (Foster and others, 1979). Scarce cassiterite was reported in the placer concentrates (Joesting, 1942). Glover (1920?) reported a range in gold fineness of 721 to 758 for Beaver Creek.

Ellsworth and Davenport (1913) report that gold was first mined in significant amounts in the winter of 1911-12. Prospecting also occurred on nearby Pine Creek (BD032). The Alaska Division of Mining Kardex file system records active claims on Beaver Creek as recent as 1984. Ellsworth and Davenport (1913) reported that gold production was measured in dollars per foot. Total amounts of gold produced from Beaver Creek were not reported.

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 was first mined on Beaver Creek in the winter of 1911-12. Prospecting also occurred on nearby Pine Creek (BD032).

Production notes:
Ellsworth and Davenport (1913) reported that gold production was measured in dollars per foot. Total amounts of gold produced from Beaver Creek were not reported.

Reserves:

Additional comments:

References:
Ellsworth and Davenport, 1913; Glover, 1920?; Joesting, 1942; Cobb, 1972 (MF-388); Eberlein and others, 1977; Weber and others, 1978; Foster and others, 1979; Menzie and Foster, 1979; Cobb and Eberlein, 1980

Primary reference: Ellsworth and Davenport, 1913

Reporter(s): Cameron S. Rombach (ADDGS)

Last report date: 4/26/99

Site name(s): Blue Lead; Blue Lead Extension

Site type: Mines

ARDF no.: BD003

Latitude: 64.356 **Quadrangle:** BD B-1

Longitude: 144.194

Location description and accuracy:

The Blue Lead and Blue Lead Extension mines are situated on the ridge of Black Mountain near the divide that separates the headwaters of Johnson Creek, a tributary of Tibbs Creek (BD040), and Summitt Creek, a tributary of Boulder Creek (BD004). The mines are located at NW1/4NW1/4 section 33, T. 6 S., R. 17 E., of the Fairbanks Meridian, 54 miles north of Delta Junction. A winter trail from the South Fork of the Goodpaster River provides access up Divide Creek to the mine. The Blue Lead and Blue Lead Extension mines are located near an ore processing mill. The mine shaft entrances and ore processing mill were still accessible in 1970 (Thomas, 1970). There are numerous surface workings at and surrounding the site. It is locality 5 of Cobb and Eberlein (1980) who summarized relevant references under the name 'Blue Lead'.

Commodities:

Main: Au

Other: Ag, Cu, Pb, Sb

Ore minerals: Arsenopyrite, covellite, digenite, gold, jamesonite, pyrite, stibnite

Gangue minerals: Quartz

Geologic description:

The area is characterized by rounded hills and flat topped ridges (Thomas, 1970). The most prominent ridge is Black Mountain, which trends about 12 miles in a northerly direction and is underlain by Cretaceous granodiorite (Weber and others, 1978). Several creeks flow westward from Black Mountain in steep, parallel, v-shaped valleys to form the headwaters of Tibbs Creek. Bordering Black Mountain to the west is a combination of augen gneiss, gneissic schist, and schist. There is intense shearing and faulting in the contact between the metamorphic and intrusive rocks. This shearing is observed in the underground workings, and at the surface as pronounced saddle-like depressions across the spurs separating the westward-flowing tributaries of Tibbs Creek. This shear zone trends roughly N15E and dips 65 degrees NW.

The lode deposits in the area are gold-bearing quartz veins in the shear zone. Most of the veining occurs in the shear zone, although some is found in the intrusive rocks. The

quartz veins contain gold and a variable combination of sulfides, including arsenopyrite, covellite, digenite, jamesonite, pyrite, and stibnite. Typically, gold content decreases as sulfides increase. Veins are commonly 2 to 3 feet in width; some are as wide as 8 feet (Thomas, 1970). When gold is present, it is usually extremely fine grained. However, veins at the Grizzly Bear mine (BD018) contain relatively coarse gold, which is easily visible in hand specimen. The Blue Lead mine is centered on a 2.5 foot wide quartz vein containing jamesonite and minor pyrite (Menzie and Foster, 1979). Based on underground workings, the vein is relatively flat lying or dips to the north (Reed, 1937). Thomas (1970) assayed a grab sample from the mill concentration plates that contained 4.58 ounces/ton Au, and 6.50 ounces/ton Ag. Foster and others (1978) recorded an emmision spectroscopy analysis from the Blue Lead Mine: sample 74WR-186b contained 10,000 ppm As, 10 ppm B, 50 ppm Ba, 1 ppm Cr, 100 ppm Se, 5 ppm Sr, 15 ppm Zr, and 1 ppm Au. Glover (1920?) reported a range in gold fineness of 724.4 to 773.7 for the Blue Lead mine.

The Goodpaster region was first explored for placer gold in 1915. In the early 1930's, gold-bearing quartz veins were discovered in the upper Tibbs Creek area. By the winter of 1936, the first underground workings were being installed. The original base camp was on Summit Creek. A 450-foot tunnel was driven following a small vein, termed the Blue Lead Extension. After disappointing results, the work was stopped. In the summer of 1936, five men drove a 300-foot tunnel at the outcrop of the Blue Lead vein (Reed, 1937). During the winter of 1937, a 300-foot tunnel was driven at the Grizzly Bear mine (BD018) and a 50-ton mill was constructed. In the summer of 1938, the mill was moved to the Blue Lead mine and operated for a year and a half until the fall of 1939 (Joesting, 1938). The Blue Lead and Blue Lead Extension have approximately 775 feet of underground workings. There was limited exploration in the 1970's. The mill was still on site and the mine shaft openings were accessible in 1970, but blocked by ice (Thomas, 1970). It is reported that the Blue Lead mine produced 132 ounces of gold and 25 ounces of silver from approximately 150 tons of ore (Thomas, 1970). Gold recovery from the Blue Lead Extension was negligible (Reed, 1937).

Alteration:

Age of mineralization:

Postdates Cretaceous intrusion

Deposit model:

Shear-hosted, magmatic-hydrothermal vein

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

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:

The Goodpaster region was first explored for placer gold in 1915. In the early 1930's,

gold-bearing quartz veins were discovered in the upper Tibbs Creek area. By the winter of 1936, the first underground workings were being installed. The original base camp was on Summit Creek. A 450 foot tunnel was driven following a small vein, termed the Blue Lead Extension. After disappointing results, the work was stopped. In the summer of 1936, five men drove a 300-foot tunnel at the outcrop of the Blue Lead vein (Reed, 1937). During the winter of 1937, a 300-foot tunnel was driven at the Grizzly Bear mine (BD018) and a 50-ton mill was constructed. In the summer of 1938, the mill was moved to the Blue Lead mine and operated for a year and a half until the fall of 1939 (Joesting, 1938). The Blue Lead and Blue Lead Extension have approximately 775 feet of underground workings. There was limited exploration in the 1970's. The mill was still on site and the mine shaft openings were accessible in 1970, but blocked by ice (Thomas, 1970).

Production notes:

It is reported that the Blue Lead mine produced 132 ounces of gold and 25 ounces of silver from approximately 150 tons of ore (Thomas, 1970). Gold recovery from the Blue Lead Extension was negligible (Reed, 1937).

Reserves:

Additional comments:

References:

Glover, 1920?; Reed, 1937; Joesting, 1938; Smith, 1938; Smith, 1939 (B 917-A); Saunders, 1967; Thomas, 1970; Cobb, 1972 (MF-388); Eberlein and others, 1977; Foster and others, 1978; Weber and others, 1978; Foster and others, 1979; Menzie and Foster, 1979; Cobb and Eberlein, 1980

Primary reference: Thomas, 1970

Reporter(s): Cameron S. Rombach (ADDGS)

Last report date: 4/26/99

Site name(s): Boulder Creek

Site type: Prospect

ARDF no.: BD004

Latitude: 64.37 **Quadrangle:** BD B-1

Longitude: 144.13

Location description and accuracy:

The Boulder Creek prospect is situated on a north facing ridge of Black Mountain that separates Summit Creek and Boulder Creek, a tributary of the Goodpaster River (Doyon Limited, 1998). The prospect is located at SW1/4 section 26, T. 6 S., R. 18 E., of the Fairbanks Meridian, approximately 54 miles east-northeast of Delta Junction, Alaska. A winter trail from the South Fork of the Goodpaster River provides access up Divide Creek to the immediate vicinity of the prospect. There are numerous surface workings at and surrounding the site. It is locality 7 of Cobb and Eberlein (1980), who summarized relevant references under the name 'Boulder Creek'.

Commodities:

Main: Mo

Other:

Ore minerals: Molybdenite

Gangue minerals: Quartz

Geologic description:

The area is characterized by rounded hills and flat-topped ridges (Thomas, 1970). The most prominent ridge is Black Mountain, which trends about 12 miles in a northerly direction and is underlain by Cretaceous granodiorite (Weber and others, 1978). A combination of augen gneiss, gneissic schist, and schist borders Black Mountain to the west. There is intense shearing and faulting in the contact between the metamorphic and intrusive rocks. Although most of the veining occurs in the shear zone, some is found in the intrusive rocks. This shear zone trends roughly N15E and dips 65 degrees NW. Veins are commonly 2 to 3 feet in width; some are as wide as 8 feet (Thomas, 1970). Molybdenite was observed sparingly in quartz veins in the granitic rock (Joesting, 1942). Doyon Limited (1998) documents the site as a Mo lode deposit.

The Goodpaster region was first explored for placer gold in 1915. In the early 1930's, gold-bearing quartz veins were discovered in the nearby upper Tibbs Creek area. From 1936 to 1941, the Blue Lead (BD003), Gray Lead (BD017), and Grizzly Bear (BD018) in the nearby Tibbs Creek area were mined for lode gold. The original base camp was on

Summit Creek, a tributary of Boulder Creek (Joesting, 1938) . Information regarding production or workings on Boulder Creek is not available.

Alteration:

Age of mineralization:
Veins cut Cretaceous intrusion

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:
The Goodpaster region was first explored for placer gold in 1915. In the early 1930's, gold-bearing quartz veins were discovered in the upper Tibbs Creek area. From 1936 to 1941, the Blue Lead (BD003), Gray Lead (BD017), and Grizzly Bear (BD018) in the nearby Tibbs Creek area were mined for lode gold. The original base camp was on Summit Creek (Joesting, 1938).

Production notes:
Information regarding production on Boulder Creek is not available.

Reserves:

Additional comments:

References:
Joesting, 1938; Joesting, 1942; Thomas, 1970; Cobb, 1972 (MF-388); Eberlein and others, 1977; Weber and others, 1978; Foster and others, 1979; Menzie and Foster, 1979; Cobb and Eberlein, 1980; Doyon Limited, 1998

Primary reference: Joesting, 1942

Reporter(s): Cameron S. Rombach (ADDGS)

Last report date: 4/26/99

Site name(s): Buckeye Creek; Martha; Moore Creek

Site type: Mines

ARDF no.: BD005

Latitude: 64.311 **Quadrangle:** BD B-5

Longitude: 146.303

Location description and accuracy:

Buckeye Creek drains southwest into Banner Creek (BD001). The approximate center of mining activity on Buckeye Creek is in SE1/4NW1/4 section 14, T. 7 S., R. 7 E., of the Fairbanks Meridian, approximately 2 miles north of the town of Richardson on the Richardson Highway. The creek is roughly 4 miles long and has several tributaries with associated placers. This includes Hinkley Gulch (BD019) and Moore Creek (not identified on existing maps). Hinkley Gulch is located on a south-facing slope 0.5 miles upstream of the confluence with Banner Creek (Swainbank and others, 1984). The mouth of Moore Creek is in NE1/4NE1/4 section 14, T. 7 S., R. 7 E., of the Fairbanks Meridian. It is locality 12 of Cobb (1972; MF-388). Martha is reported to be on upper Buckeye Creek (Menzie and Foster, 1979). Its location was not included by Cobb (1972; MF-388) or by Cobb and Eberlein (1980). Placer workings on Buckeye Creek are concentrated near the Hinkley Gulch area, but are also found along the lower half of the creek (Olson and others, 1985). Numerous unimproved roads provide access to the Buckeye Creek drainage. It is locality 11 of Cobb (1972; MF-388) who summarized relevant references under the name 'Buckeye Creek'.

Commodities:

Main: Au

Other: Ag, Cu, Pb, REE, Sb, Sn, W

Ore minerals: Arsenopyrite, cassiterite, chalcopyrite, galena, gold, monazite, pyrite, pyrrhotite, scheelite, stibnite

Gangue minerals:

Geologic description:

The Richardson area is characterized by gentle slopes and broad, alluvium-filled valleys (Prindle and Katz, 1913, p. 140). The area is unglaciated and largely overlain by windblown silt, sand, and loess, locally up to 50 meters thick (Foster and others, 1979). The bedrock in the region comprises greenschist to amphibolite facies schist, marble, and gneiss that have been intruded by various igneous bodies (Bundtzen and Reger, 1977, p. 29). The schist and marble are probably Paleozoic, and the gneiss has a probable proto-

lith of Precambrian and Paleozoic sedimentary and igneous rocks (Weber and others, 1978). The intrusive bodies in the area range in composition from rhyolite to andesite. Fine-grained rhyolite containing quartz and feldspar phenocrysts is common throughout the area (Olson and others, 1985). At the nearby Democrat Lode (BD014), the rhyolite contains arsenopyrite, gold, and pyrite, and is albitic, clay, and sericite altered (R.J. Newberry, oral communication, 1998). Structurally, the Richardson region is cut by a northwest-trending fracture system termed the Richardson Lineament. The lineament appears to correspond with the distribution of the rhyolite and other intrusive bodies and placer gold deposits (Bundtzen and Reger, 1977). Also, the lineament tends to separate gneissic rocks to the northeast from schistose rocks to the southwest (Swainbank and others, 1984).

At the headwaters of Buckeye Creek there is coarse-grained K-spar, quartz, and muscovite metagranite in contact with epidote and actinolite hornfels. At Hinkley Gulch there is a cut exposing epidote and hornblende gneiss. The gold fineness in pan concentrates from Hinkley Gulch averaged 670 (Bundtzen and Reger, 1977) and 693 (Metz and Hawkins,1981). Placer and churn-drill hole concentrates contain actinolite, arsenopyrite, biotite, cassiterite, chalcopyrite, dolomite, epidote, feldspar, fluorapatite, galena, garnet, gold, hornblende, ilmenite, magnetite, monazite, muscovite, quartz, pyrite, pyroxene, rutile, scheelite, sphene, stibnite, tourmaline, and zircon (Bundtzen and Reger, 1977). Glover (1920?) reported a range in gold fineness of 730 to 787 for Buckeye Creek.

Placer gold was first discovered in the Richardson district in 1905. Mining initially occurred on the nearby Tenderfoot Creek (BD039) and soon expanded to Buckeye Creek and associated tributaries. After peak gold production in 1908, mining in the area declined (Olson and others, 1985). From 1905 through 1921, production in the Richardson district was approximately 95,000 ounces of gold and 24,000 ounces of silver (Bundtzen and Reger, 1977). Since 1980, the district has produced approximately 10,000 additional ounces of gold from intermittent mining (Olson and others, 1985).

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 Richardson area in 1905. Mining initially occurred on the nearby Tenderfoot Creek and expanded to Buckeye Creek and associated

tributaries. After peak gold production in 1908, mining in the area declined (Olson and others, 1985). Mining along Buckeye Creek has included open-cut and drifting methods (Ellsworth and Parker, 1911). Exploration work is continuing along the Buckeye Creek drainage. Preliminary work has identified a mineralized fracture trend in the Buckeye Creek drainage called the Buckeye Zone (F.L. Blystone, written communication, 1998). No other information regarding the Buckeye Zone is available.

Production notes:

From 1905 through 1921, production for the Richardson area was approximately 95,000 ounces of gold and 24,000 ounces of silver (Bundtzen and Reger, 1977). Since 1980, mining in the district has produced an additional 10,000 ounces of gold (Olson and others, 1985). Gold production for individual mines or sections of Buckeye Creek, Martha, and Moore Creek is not available.

Reserves:

Additional comments:

References:

Ellsworth and Parker, 1911; Prindle and Katz, 1913; Chapin, 1914; Glover, 1920?; Saunders, 1965; Cobb, 1972 (MF-388); Bundtzen and Reger, 1977; Eberlein and others, 1977; Weber and others, 1978; Menzie and Foster, 1979; Cobb and Eberlein, 1980; Metz and Hawkins, 1981; Swainbank and others, 1984; Olson and others, 1985

Primary reference: Cobb and Eberlein, 1980

Reporter(s): Cameron S. Rombach (ADDGS)

Last report date: 4/26/99

Site name(s): Butte Creek; Twentymile Cr.

Site type: Prospect

ARDF no.: BD006

Latitude: 64.731 **Quadrangle:** BD C-4

Longitude: 145.715

Location description and accuracy:

Butte Creek drains southwest into the Salcha River. The creek is about 12 miles long and has several tributaries with associated placers. This includes Twentymile Creek (not identified on existing maps). The Alaska Division of Mining Kardex file system reports placer mining on Butte Creek south of VABM The Butte. Several collapsed drift-mining shafts and surface tailings are situated at the confluence of several tributaries in the headwaters of Butte Creek . The approximate center of the mining activity on the creek is in NW1/4NE1/4 section 22, T. 2 S., R. 10 E., of the Fairbanks Meridian. There are references to additional placer mining along Butte Creek, but it is unclear where. Several trails and a short unimproved landing strip provide access to the Butte Creek drainage. It is locality 15 of Cobb and Eberlein (1980), who summarized relevant references under the name 'Butte Creek'.

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:

The bedrock in the region comprises schist, gneiss, some granite, and minor amounts of serpentinite and limestone. The schist is composed of quartz, feldspar, and mica, with localized garnetiferous and marble zones. The gneiss is coarse to fine grained with various amounts of quartz, feldspar, hornblende, and biotite. The schist and gneiss probably have protoliths of Precambrian and Paleozoic sedimentary and igneous rocks. The intrusive bodies in the area range in composition from granodiorite to quartz monzonite, and have Cretaceous to Tertiary K-Ar ages (Weber and others, 1978).

Butte Creek is larger than several nearby streams and flows in a broad valley that narrows to steep gulches towards the headwaters. The gravels average 18 to 20 feet in thickness and consists of a variety of schist, gneiss, granite, and vein quartz (Prindle, 1906; B 284). Brooks (1908) reported the fineness of the gold to be higher than that found in the

Richardson District.

Placer gold was first discovered on Butte Creek in 1905. Prospecting initially occurred on Butte Creek and soon expanded to nearby Caribou Creek (BD009), No Grub Creek (BD028), Pasco Creek (BD031), and Gold Run Creek (BD016) and associated tributaries. As of late 1905, three holes had been sunk 24 to 26 feet to bedrock on Butte Creek. Live water and thawed ground presented the biggest obstacles during prospecting (Prindle, 1906; B 284). By 1910, most of the mining activity in the area was focused on Caribou Creek. Exploration to determine the lode source for the placer gold is currently (1998) being conducted in the Butte Creek drainage (R. Van Nieuwenhuyse, oral communication, 1998). Historically, Butte Creek has been grouped with the mines and prospects of the Richardson district. From 1905 through 1921, production from the Richardson district was approximately 95,000 ounces of gold and 24,000 ounces of silver (Bundtzen and Reger, 1977). Since 1980, the district has produced approximately 10,000 additional ounces of gold from intermittent mining (Olson and others, 1985). Individual gold production for Butte Creek has not been reported separately. The creek has been heavily prospected, but no pay streak was detected during early work (Brooks, 1906).

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 was first discovered on Butte Creek in 1905. Prospecting initially occurred on Butte Creek and expanded to nearby Caribou Creek, No Grub Creek, and Gold Run Creek and associated tributaries. As of late 1905, three holes had been sunk 24 to 26 feet to bedrock on Butte Creek. Water and thawed ground presented the biggest obstacles during prospecting (Prindle, 1906; B 284). By 1910, most of the mining activity in the area was focused on Caribou Creek. Exploration to determine the lode source for the placer gold is currently (1998) being conducted in the Butte Creek drainage (R. Van Nieuwenhuyse, oral communication, 1998).

Production notes:

Historically, Butte Creek has been grouped with the mines and prospects of the Richardson area. From 1905 through 1921, production in the Richardson area was approximately 95,000 ounces of gold and 24,000 ounces of silver (Bundtzen and Reger,

1977). Individual gold production for Butte Creek has not been reported separately. The creek has been heavily prospected, but no pay streak was detected during early work (Brooks, 1906).

Reserves:

Additional comments:

References:

Brooks, 1906; Prindle, 1906 (B 284); Brooks, 1908; Ellsworth, 1910; Ellsworth and Parker, 1911; Prindle, 1913; Bundtzen and Reger, 1977; Cobb, 1977 (OFR 77-168B); Eberlein and others, 1977; Weber and others, 1978; Menzie and Foster, 1979; Cobb and Eberlein, 1980

Primary reference: Prindle, 1906; B 284

Reporter(s): Cameron S. Rombach (ADDGS)

Last report date: 4/26/99

Site name(s): Campbell-Monroe; Campbell

Site type: Mine

ARDF no.: BD007

Latitude: 64.3 **Quadrangle:** BD B-5

Longitude: 146.312

Location description and accuracy:

The Campbell-Monroe mine is located in the Banner Creek (BD001) drainage. The approximate center of mining activity is in NW1/4 section 23, T. 7 S., R. 7 E., of the Fairbanks Meridian. The site covers several acres and is approximately 1.5 miles north-northeast of the town of Richardson on the Richardson Highway (Olson and others, 1985). An unimproved road leading east from the confluence of Buckeye Creek (BD005) and Banner Creek to VABM Tenderfoot provides access to the mine. Currently (1999), the mine is unvegetated with several shallow ponds and trenches and can be easily identified on the north side of the road. The surface exposure is a characteristic white to light tan color with numerous quartz cobbles. It is locality 7 of Menzie and Foster (1979), who summarized relevant references under the name 'Campbell'.

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:

The Richardson area is characterized by gentle slopes and broad, alluvium-filled valleys (Prindle and Katz, 1913, p. 140). The area is unglaciated and largely overlain by wind-blown silt, sand, and loess, locally up to 50 meters thick (Foster and others, 1979). The bedrock in the region comprises greenschist to amphibolite facies schist, marble, and gneiss that have been intruded by various igneous bodies (Bundtzen and Reger, 1977, p. 29). The schist and marble are probably Paleozoic, and the gneiss has a probable protolith of Precambrian and Paleozoic sedimentary and igneous rocks (Weber and others, 1978). The intrusive bodies in the area range in composition from rhyolite to andesite. Fine-grained rhyolite containing quartz and feldspar phenocrysts is common throughout the area (Olson and others, 1985). At the nearby Democrat Lode (BD014), the rhyolite contains arsenopyrite, gold, and pyrite, and is albitic, clay, and sericite altered (R.J. Newberry, oral communication, 1998). Structurally, the Richardson region is cut by a north-

west-trending fracture system termed the Richardson Lineament. This lineament appears to correspond with the distribution of the rhyolite and other intrusive bodies and placer gold deposits in the area (Bundtzen and Reger, 1977). Also, the lineament tends to separate gneissic rocks to the northeast from schistose rocks to the southwest (Swainbank and others, 1984).

The Campbell-Monroe mine is situated in a section of the Richardson Lineament. The site is interpreted to be a residual placer. The bulk of the surface exposure contains clays (possibly kaolinite?), feldspar, muscovite, and quartz veinlets. There appear to be at least 3 episodes of veinlet formation (Swainbank and others, 1984). The quartz formd 1 to 35 centimeter cobbles, which are translucent to gray, angular to sub-rounded, and commonly accompanied by feldspar. Feldpar also forms cobbles that are locally pitted and weathered. The cobbles are in a matrix of fine, powdery clay and muscovite. Minor tourmaline is also present (D.J. Szumigala, oral communication, 1998). The gold fineness ranges from 650-695 and has a coarse morphology (D. May, oral communication, 1998). Although alteration and/or weathering and mining operations have altered the original characteristics of the site, several samples have the appearance of hydrothermal vein quartz in intrusive rock and other samples have a pegmatitic appearance. Olson and others (1985) described the altered and/or weathered clay as kaolin. It is suspected that Hinkley Gulch (BD019) and the Campbell-Monroe deposit are situated on the same or similar shear zones (Swainbank and others, 1984).

The Campbell-Monroe deposit was discovered in 1908. However, lack of water at the site made conventional mining difficult at the time. Throughout the 1930's and 1940's, Fred Campbell transported ore mined from the Campbell-Monroe to Hinkley Gulch for processing (Olson and others, 1985). Don May leased the property from Gil Monroe and Bruce Erickson, and mined the bulk of the deposit from 1978-81 utilizing water pumped from Buckeye Creek. Approximately 8,000 ounces of gold was produced (D. May, oral communication, 1998).

Alteration:

Possible alteration of intrusive and/or schistose host rocks to kaolinite (Swainbank and others, 1984).

Age of mineralization:

Quaternary?

Deposit model:

Residual placer

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

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:

The Campbell-Monroe deposit was discovered in 1908. However, lack of water at the

site made conventional mining difficult at the time. Throughout the 1930's and 1940's, Fred Campbell transported ore mined from the Campbell-Monroe to Hinkley Gulch for processing (Olson and others, 1985). Don May leased the property from Gil Monroe and Bruce Erickson, and mined the bulk of the deposit from 1978-81 utilizing water pumped from Buckeye Creek.

Production notes:

Approximately 8,000 ounces of gold was produced (D. May, oral communication, 1998).

Reserves:

Additional comments:

References:

Prindle and Katz, 1913; Chapin, 1914; Bundtzen and Reger, 1977; Weber and others, 1978; Menzie and Foster, 1979; Swainbank and others, 1984; Olson and others, 1985

Primary reference: Olson and others, 1985

Reporter(s): Cameron S. Rombach (ADDGS)

Last report date: 4/26/99

Site name(s): Canyon Creek

Site type: Prospect

ARDF no.: BD008

Latitude: 64.304 **Quadrangle:** BD B-5

Longitude: 146.486

Location description and accuracy:

Canyon Creek drains southeast into the Tanana River approximately 4 miles west of the town of Richardson on the Richardson Highway. The creek is approximately 3.5 miles long and has several tributaries. The approximate midpoint of Canyon Creek is NE1/4SW1/4 section 14, T. 7 S., R. 6 E., of the Fairbanks Meridian. There are references to placer mining along Canyon Creek, but it is unclear where. The Richardson Highway provides access to all but the headwaters of the Canyon Creek drainage. It was not identified as a separate location by Cobb (1972) or by Cobb and Eberlein (1980).

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:

The Richardson area is characterized by gentle slopes and broad, alluvium-filled valleys (Prindle and Katz, 1913, p. 140). The area is unglaciated and largely overlain by windblown silt, sand, and loess, locally up to 50 meters thick (Foster and others, 1979). The bedrock in the region comprises greenschist to amphibolite facies schist, marble, and gneiss that have been intruded by various igneous bodies (Bundtzen and Reger, 1977, p. 29). The schist and marble are probably Paleozoic, and the gneiss has a probable protolith of Precambrian and Paleozoic sedimentary and igneous rocks (Weber and others, 1978). The intrusive bodies in the area range in composition from rhyolite to andesite. Fine-grained rhyolite containing quartz and feldspar phenocrysts is common throughout the area (Olson and others, 1985). At the nearby Democrat Lode (BD014), the rhyolite contains arsenopyrite, gold, and pyrite, and is albitic, clay, and sericite altered (R.J. Newberry, oral communication, 1998). Structurally, the Richardson region is cut by a northwest trending fracture system termed the Richardson Lineament. The lineament appears to correspond with the distribution of the rhyolite and other intrusive bodies and placer gold deposits (Bundtzen and Reger, 1977, p. 29). Also, the lineament tends to separate

gneissic rocks to the northeast from schistose rocks to the southwest (Swainbank and others, 1984).

Metz (1991) described early drift mine and surface tailings in the Canyon Creek drainage. Placer gold was first discovered in the Richardson district in 1905. Mining initially occurred on the nearby Tenderfoot Creek (BD039) and soon expanded to nearby creeks. After peak gold production in 1908, mining in the area declined (Olson and others, 1985). The placer gold mined from the area ranged from 639.5 to 785 in fineness (Menzie and Foster, 1979). From 1905 through 1921, production from the Richardson district was approximately 95,000 ounces of gold and 24,000 ounces of silver (Bundtzen and Reger, 1977). Since 1980, the district has produced approximately 10,000 additional ounces of gold from intermittent mining (Olson and others, 1985). Gold production for Canyon Creek has not been reported separately.

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:
Metz (1991) described early drift mine and surface trench tailings in the Canyon Creek drainage. Placer gold was first discovered in the Richardson area in 1905. Mining initially occurred on the nearby Tenderfoot Creek and soon expanded to nearby creeks. After peak gold production in 1908, mining in the area declined (Olson and others, 1985).

Production notes:
From 1905 through 1921, production for the Richardson area was approximately 95,000 ounces of gold and 24,000 ounces of silver (Bundtzen and Reger, 1977). Since 1980, mining in the district has produced an additional 10,000 ounces of gold (Olson and others, 1985). Gold production for Canyon Creek has not been reported separately.

Reserves:

Additional comments:

References:
Ellsworth and Parker, 1911; Prindle and Katz, 1913; Chapin, 1914; Saunders, 1965;

Bundtzen and Reger, 1977; Eberlein and others, 1977; Weber and others, 1978; Menzie and Foster, 1979; Cobb and Eberlein, 1980; Swainbank and others, 1984; Olson and others, 1985; Metz, 1991

Primary reference: Metz, 1991

Reporter(s): Cameron S. Rombach (ADDGS)

Last report date: 4/26/99

Site name(s): Caribou Creek

Site type: Mine

ARDF no.: BD009

Latitude: 64.687 **Quadrangle:** BD C-4

Longitude: 145.714

Location description and accuracy:

Caribou Creek drains south to southwest into the Salcha River. The creek is roughly 6 miles long and has several small tributaries. Mining occurred on the lower 4.5 miles of the creek. The approximate center of the mining activity is in NE1/4NW1/4 section 3, T. 3 S., R. 10 E., of the Fairbanks Meridian. Several trails and a landing strip provide access to the Caribou Creek drainage. It is locality 16 of Cobb and Eberlein (1980), who summarized relevant references under the name 'Caribou Creek'.

Commodities:

Main: Au

Other: Bi, Sn, W

Ore minerals: Bismuth, cassiterite, gold, scheelite

Gangue minerals:

Geologic description:

The bedrock in the region comprises schist, gneiss, some granite, and minor amounts of serpentinite and marble. The schist is composed of quartz, feldspar, and mica, with localized garnetiferous and marble zones. The gneiss is coarse to fine grained with various amounts of quartz, feldspar, hornblende, and biotite. The schist and gneiss have suspected protoliths of Precambrian and Paleozoic sedimentary and igneous rocks. The intrusive bodies in the area range in composition from granodiorite to quartz monzonite, and have Cretaceous to Tertiary K-Ar ages (Weber and others, 1978). The gravels in the region average 18 to 20 feet in thickness and contain a variety of schist, gneiss, granite, and vein quartz (Prindle, 1906; B 284). Brooks (1908) reported the fineness of the gold in the area to be higher than that mined in the Richardson district.

It is reported that coarse gold, native bismuth, and minor scheelite were found in quartz veins in the Caribou Creek drainage (Menzie and Foster, 1979). Joesting (1942) noted the occurrence of scheelite and cassiterite in stream concentrates. Hasler and others (1973) report igneous and metamorphic-hosted quartz veins containing variable amounts of native bismuth, bismuthinite, gold, graphite, and scheelite at an unknown location in the Caribou Creek drainage. Nuggets of native bismuth, up to 3 inches in diameter were

found during placer mining (D.L. Grybeck, oral communication, 1999). Glover (1920?) reported a range in gold fineness of 884 to 899 for Caribou Creek.

Placer gold was first discovered in the area in 1905. Prospecting initially occurred on Butte Creek (BD006) and expanded to Caribou Creek, and Gold Run Creek (BD016) and associated tributaries. Live water and thawed ground presented the biggest obstacles during prospecting (Prindle, 1906). Initially, only a few holes were sunk to bedrock in gravel deposits 24 to 36 feet thick (Prindle, 1906; B 284). In 1909, Caribou Creek became a major producer in the Salcha-Tenderfoot area. Due to thawed ground, drift mining proved difficult. As a result, machinery for ditching and open-cut methods was installed (Ellsworth, 1910). Smith (1939; B 910-A) reports that drilling programs were carried out in 1937 to justify the installation of a dredge equipped with 6-cubic-foot buckets. Additional drilling and evaluation was continued in 1938 and 1939 (Smith, 1941). A dredge was installed in the 1940's and worked most of the stream length (Eberlein and others, 1977). The dredge is still located approximately 4.5 miles up the stream bed (M.B. Werdon, oral communication, 1998).

Historically, Caribou Creek has been grouped with the mines and prospects of the Richardson district. From 1905 through 1921, production from the Richardson district was approximately 95,000 ounces of gold and 24,000 ounces of silver (Bundtzen and Reger, 1977). Since 1980, the district has produced approximately 10,000 additional ounces of gold from intermittent mining (Olson and others, 1985). Individual gold production for Caribou Creek has not been reported separately. Exploration to determine the lode source for the placer gold is currently (1998) being conducted in the Caribou Creek drainage (R. Van Nieuwenhuyse, oral communication, 1998).

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 first discovered in the area in 1905. Prospecting initially occurred on Butte Creek (BD006) and expanded to nearby Caribou Creek (BD008), and Gold Run Creek (BD016) and associated tributaries. Live water and thawed ground presented the biggest obstacles during prospecting (Prindle, 1906). Initially, only a few holes were sunk to bedrock in gravel deposits ranging from 24 to 36 feet thick (Prindle, 1906; B 284). In 1909, Caribou Creek became a major producer in the Salcha-Tenderfoot area.

Due to thawed ground, drift mining proved difficult. As a result, machinery for ditching and open-cut methods was installed (Ellsworth, 1910). Smith (1939; B 910-A) reports that drilling programs were carried out in 1937 to justify the installation of a dredge equipped with 6-cubic-foot buckets. Additional drilling and evaluation was continued in 1938 and 1939 (Smith, 1941). The dredge was installed in the 1940's and worked most of the stream length (Eberlein and others, 1977). The gold dredging operation was completed in 1952 (Saunders, 1954). The dredge is still located approximately 4.5 miles up the stream bed (M. Werdon, oral communication, 1998). Exploration to determine the lode source for the placer gold is currently (1998) being conducted in the Caribou Creek drainage (R. Van Nieuwenhuyse, oral communication, 1998).

Production notes:

Historically, Caribou Creek has been grouped with the mines and prospects of the Richardson area. From 1905 through 1921, production for the Richardson area was approximately 95,000 ounces of gold and 24,000 ounces of silver (Bundtzen and Reger, 1977). Since 1980, the district has produced approximately 10,000 additional ounces of gold from intermittent mining (Olson and others, 1985). Individual gold production for Caribou Creek has not been reported separately.

Reserves:

Additional comments:

References:

Brooks, 1906; Prindle, 1906 (B 284); Brooks, 1908; Ellsworth, 1910; Ellsworth and Parker, 1911; Prindle, 1913; Brooks, 1916; Glover, 1920?; Brooks, 1923; Smith, 1926; Smith, 1939 (B 910-A); Smith, 1939 (B 917-A); Smith, 1941; Joesting, 1942; Saunders, 1954; Cobb, 1972 (MF-388); Cobb, 1973 (B 1374); Hasler and others, 1973; Cobb, 1977 (OFR 77-168B); Eberlein and others, 1977; Weber and others, 1978; Menzie and Foster, 1979; Cobb and Eberlein, 1980

Primary reference: Eberlein and others, 1977

Reporter(s): Cameron S. Rombach (ADDGS)

Last report date: 4/26/99

Site name(s): Carrie Creek; Lynx Saddle; Missing Lynx; Tripper Ridge; West Carrie Creek

Site type: Prospects

ARDF no.: BD010

Latitude: 64.288 **Quadrangle:** BD B-1

Longitude: 144.263

Location description and accuracy:

The Carrie Creek prospect is located in the headwaters of the West Fork of the South Fork of the Goodpaster River, approximately 54 miles east-northeast of Delta Junction. The prospect covers 5 to 6 square miles, and is divided into four areas: Lynx Saddle, Missing Lynx, Tripper Ridge, and West Carrie Creek. The approximate center of the prospect is in SW1/4SW1/4 section 19, T. 7 S., R. 18 E., of the Fairbanks Meridian. A winter trail from the South Fork of the Goodpaster River provides access up Divide Creek. Carrie Creek and its tributaries are not labeled on current U.S.G.S. maps. It was not identified as a separate location by Cobb (1972) or by Cobb and Eberlein (1980). The Carrie Creek prospect is located on land selected by Doyon Limited. An occurrence was cited in Cobb and Eberlein (1980) for a sample assay reported in Menzie and Foster (1979). This sample was collected from somewhere on Tripper Ridge on Black Mountain in section 20, T. 7 S., R. 18 E., of the Fairbanks Meridian.

Commodities:

Main: Au

Other: Ag, Bi, Cu, Hg, Mo, Pb, Sb, Sn, W, Zn

Ore minerals: Arsenopyrite, bismuthinite, chalcopyrite, gold, molybdenite, pyrite, pyrrhotite, scheelite, sphalerite, stibnite

Gangue minerals: Carbonate, clay, quartz, sericite

Geologic description:

The Carrie Creek prospect is located in the headwaters of the West Fork of the South Fork of the Goodpaster River, southwest of Black Mountain. The exploration efforts have been concentrated in the north-trending Goodpaster River drainage and two tributaries: Tripper Creek and Missing Lynx Creek. Both creeks flow to the northwest. The area is characterized by rounded hills and flat-topped ridges (Thomas, 1970). The most prominent ridge is Black Mountain, which trends about 12 miles in a northerly direction and is underlain by Cretaceous granodiorite (Weber and others, 1978). Bordering the Black Mountain intrusive is a combination of augen gneiss, gneissic schist, and schist. There is

intense shearing and faulting along the contact between the metamorphic and intrusive rocks. This shearing is observed in the underground workings to the north and at the surface as pronounced saddle-like depressions across the spurs extending westward from Black Mountain. This shear zone trends roughly N15E. The lode deposits in the area are gold-bearing quartz veins. Most of the veining and alteration occurs in the shear zone, although some alteration and veining favors the intrusive rocks (Doyon Limited, 1998). Silicic, sericitic, argillic, clay, and carbonate alteration are concentrated in the contact zones. The quartz veins contain various combinations of sulfides, including arsenopyrite, bismuthinite, chalcopyrite, molybdenite, pyrite, pyrrhotite, scheelite, sphalerite, and stibnite. Veins are commonly 1 to 2 feet in width; some are as wide as 8 feet (Doyon Limited, 1998).

The Carrie Creek prospect has been divided into four areas: Lynx Saddle, Missing Lynx, Tripper Ridge, and West Carrie Creek. Further, these areas contain four mineralized shear zones: Gunsight Shear, Missing Lynx, Black Mountain, and Raincoat Ridge. These shear zones are typically north-northeast trending, subparallel, up to 2.5 miles long and 1000 feet wide. Soil anomalies are found on identified faults and contact zones. Soil samples contain up to 8,370 ppm As, 300 ppb Au, 6 ppm Bi, and 34 ppm Mo. Rock chip samples contain up to 5.62 ppm Au, 2,430 ppm As, 1,875 ppm Bi, 2,900 ppm Mo, greater than 10,000 ppm Sb, and 900 ppm W. Au often correlates with As and Sb. In intrusive rocks, Mo also correlates with gold, but is absent in metamorphic rocks (Doyon Limited, 1998). An occurrence was cited in Cobb and Eberlein (1980) for a sample assay reported by Menzie and Foster (1979) collected from the Carrie Creek area. This sample was collected from somewhere on Tripper Ridge on Black Mountain. The sample contained pyrite and molybdenite in quartz from a mineralized area in granitic rocks. The sample assayed 7 ppm Ag, greater than 10,000 ppm As, 0.3 ppm Au, 1.5 ppm Cu, and 20 ppm Pb (Menzie and Foster, 1979).

The Goodpaster region was first explored for placer gold in 1915. In the early 1930's, gold-bearing quartz veins were discovered in the upper Tibbs Creek (BD040) area to the north. Underground work in the Tibbs Creek drainage continued from 1936 to 1941. From 1978 to 1979, exploration of the Carrie Creek prospect included reconnaissance mapping, along with stream-sediment and selective grab rock-chip sampling. Additional mapping and a soil and rock chip grid were completed in 1981. In 1984, some composite vein sampling and surface investigations were carried out. Further soil and rock chip sampling was done in 1989. Exploration efforts increased from 1996 to 1998. A soil and rock chip grid was extended over an area 3 miles wide and 5 miles long. Three drill holes (core), totaling 1,997 feet, were completed in 1998. Further drilling is planned (Doyon Limited, 1998).

Alteration:

Silicic, sericitic, argillic, clay, and carbonate alteration are concentrated in the contact zones (Doyon Limited, 1998).

Age of mineralization:

Veins cut Cretaceous intrusion

Deposit model:

Shear-hosted, magmatic-hydrothermal vein

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

Production Status: None

Site Status: Active

Workings/exploration:

The Goodpaster region was first explored for placer gold in 1915. In the early 1930's, gold-bearing quartz veins were discovered in the upper Tibbs Creek area to the north of the Carrie Creek prospect. Underground work in the Tibbs Creek drainage continued from 1936 to 1941. From 1978 to 1979, exploration efforts at the Carrie Creek prospect included reconnaissance mapping, along with stream-sediment and selective grab rock-chip sampling. Additional mapping and a soil and rock chip grid were completed in 1981. In 1984, some composite vein sampling and surface investigations were carried out. Further soil and rock chip sampling was done in 1989. Exploration efforts increased from 1996 to 1998. A soil and rock chip grid was extended over an area 3 miles wide and 5 miles long. Three drill holes (core), totaling 1,997 feet, were completed in 1998. Further drilling is planned (Doyon Limited, 1998).

Production notes:

Reserves:

Additional comments:

The Carrie Creek Prospect is located on land selected by Doyon Limited. For additional information contact Doyon Limited, Fairbanks, Alaska.

References:

Thomas, 1970; Weber and others, 1978; Menzie and Foster, 1979; Doyon Limited, 1998

Primary reference: Doyon Limited, 1998

Reporter(s): Cameron S. Rombach (ADDGS)

Last report date: 4/26/99

Site name(s): Central Creek

Site type: Prospect

ARDF no.: BD011

Latitude: 64.342 **Quadrangle:** BD B-2

Longitude: 144.449

Location description and accuracy:

Central Creek drains west into the Goodpaster River, approximately 55 miles east-northeast of Delta Junction. The creek is approximately 20 miles long and has numerous small tributaries. The Alaska Division of Mining Kardex file system reports placer mining in the headwaters of Central Creek. The approximate center of the mining activity is in NE1/4NW1/4 section 6, T. 7 S., R. 17 E., of the Fairbanks Meridian. There are references to additional placer mining along Central Creek, but it is unclear where. Winter trails from the Goodpaster and South Fork of the Goodpaster River provide access to the entire creek drainage. It is locality 9 of Menzie and Foster (1979), who summarized relevant references under the name 'Central Creek'.

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:

The area is characterized by rounded hills and flat topped ridges (Thomas, 1970). According to Weber and others (1978), the area is composed of gneiss, quartzite, augen gneiss, and some amphibole schist. The headwaters of Central Creek are proximal to Tibbs Creek (BD040), which hosts numerous shear zones that are locally quartz veined and mineralized (Thomas, 1970). Glover (1920?) reported a range in gold fineness of 827.1 to 838.9 for Central Creek.

The Goodpaster region was first explored for placer gold in 1915. Thomas (1970) reports a stampede of prospectors to the Goodpaster area in 1915 that ended soon after due to low grade deposits. Smith (1930; B 810) reports some exploratory work on Central Creek in 1927. According to Joesting (1938), work utilizing a light drill and bulldozer on Central Creek found sufficient prospects to warrant hydraulic mining. Additional placer claims were filed in 1939 (Menzie and Foster, 1979). From 1974 to 1978, lode and placer claims were staked (Cobb and Eberlein, 1980). The Alaska Division of Mining Kardex

file system records active claims on Central Creek as recent as 1984. Cobb (1973; B1374) reports insignificant placer gold production from the Goodpaster region. It is unclear how much, if any, gold was produced from Central 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:
The Goodpaster region was first explored for placer gold in 1915. Thomas (1970) reports a stampede of prospectors to the Goodpaster area in 1915 that ended soon after due to low grade deposits. Smith (1930; B 810) reports some exploratory work on Central Creek in 1927. According to Joesting (1938), work utilizing a light drill and bulldozer on Central Creek found sufficient prospects to warrant hydraulic mining. Additional placer claims were filed in 1939 (Menzie and Foster, 1979). From 1974 to 1978, lode and placer claims were staked (Cobb and Eberlein, 1980). The Alaska Division of Mining Kardex file system records active claims on Central Creek as recent as 1984.

Production notes:
Cobb (1973; B 1374) reports insignificant placer gold production from the Goodpaster region. It is unclear how much, if any, gold was produced from Central Creek.

Reserves:

Additional comments:

References:
Smith, 1930 (B 810); Joesting, 1938; Thomas, 1970; Cobb, 1973 (B 1374); Eberlein and others, 1977; Weber and others, 1978; Foster and others, 1979; Menzie and Foster, 1979; Cobb and Eberlein, 1980

Primary reference: Joesting, 1938

Reporter(s): Cameron S. Rombach (ADDGS)

Last report date: 4/26/99

Site name(s): Colorado Creek; Willie Association

Site type: Prospect

ARDF no.: BD012

Latitude: 64.93 **Quadrangle:** BD D-6

Longitude: 146.619

Location description and accuracy:

Colorado Creek is roughly 10 miles long and drains southwest into the Chena River. The Alaska Division of Mining Kardex file system reports the Willie Association placer claims on Colorado Creek. The approximate center of the mining activity is in NW1/4SW1/4 section 7, T. 1 N., R. 6 E., of the Fairbanks Meridian. There may be additional placer mining along Colorado Creek, but it is unclear where. It is locality 39 of Menzie and Foster (1979), who summarized relevant references under the name 'Willie Association'.

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:

Colorado Creek flows into the Chena River. Weber and others (1978) described the bedrock in the drainage as primarily upper-greenschist to lower-amphibolite facies quartzite and schists, along with some marble, argillite and phyllite. At the headwaters of the Colorado Creek drainage there is a granodiorite to quartz monzonite pluton of Tertiary to Cretaceous age. Locally, there is an extensive cover of windblown silt and sand that ranges from 0.1 to 50 meters in thickness. Much of the ground in the swampy lowlands of the Chena River, including Colorado Creek, is permanently frozen (Foster and others, 1979). The Munzie Lode (BD027) is located in the headwaters of the Colorado Creek drainage. Menzie and Foster (1979) reported that the creek was an active gold placer claim from 1970 to 1977. The Alaska Division of Mining Kardex file system records active claims on Colorado Creek as recent as 1984.

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:
Menzie and Foster (1979) reported that the creek was an active gold placer claim from 1970 to 1977.

Production notes:

Reserves:

Additional comments:

References:
Foster and others, 1978; Weber and others, 1978; Foster and others, 1979; Menzie and Foster, 1979

Primary reference: Menzie and Foster, 1979

Reporter(s): Cameron S. Rombach (ADDGS)

Last report date: 4/26/99

Site name(s): Democrat Creek; Democrat Gulch; Democrat Pup

Site type: Mine

ARDF no.: BD013

Latitude: 64.338 **Quadrangle:** BD B-5

Longitude: 146.362

Location description and accuracy:

Democrat Creek drains into Banner Creek (BD001), approximately 3.5 miles north of the town of Richardson, Alaska, on the Richardson Highway. The creek is approximately 1 mile long and has placer workings throughout its length. The approximate center of the mining activity is in SW1/4NE1/4 section 4, T. 7 S., R. 7 E., of the Fairbanks Meridian. Numerous unimproved roads provide access to the area. It is locality 17 of Cobb (1972; MF-388), who summarized relevant references under the name 'Democrat Creek'. Note: The Democrat Creek labeled on U.S.G.S, Big Delta (B-5) quadrangle, 1:63,360 map is not the same creek discussed here.

Commodities:

Main: Au

Other: Ag, Sb

Ore minerals: Arsenopyrite, gold, pyrite, stibnite

Gangue minerals:

Geologic description:

The Richardson area is characterized by gentle slopes and broad, alluvium-filled valleys (Prindle and Katz, 1913, p. 140). The area is unglaciated and largely overlain by wind-blown silt, sand, and loess, locally up to 50 meters thick (Foster and others, 1979). The bedrock in the region comprises greenschist to amphibolite facies schist, marble, and gneiss that have been intruded by various igneous bodies (Bundtzen and Reger, 1977, p. 29). The schist and marble are probably Paleozoic, and the gneiss has a probable proto-lith of Precambrian and Paleozoic sedimentary and igneous rocks (Weber and others, 1978). Some quartz veins in the schist and gneiss are mineralized (Chapin, 1914). The intrusive bodies in the area range in composition from rhyolite to andesite. Fine-grained rhyolite containing quartz and feldspar phenocrysts is common throughout the area (Olson and others, 1985). At the nearby Democrat Lode (BD014), the rhyolite contains arsenopyrite, gold, and pyrite, and is albitic, clay, and sericite altered (R.J. Newberry, oral communication, 1998). Structurally, the Richardson region is cut by a northwest-trending fracture system termed the Richardson Lineament. The lineament appears to correspond

with the distribution of the rhyolite and other intrusive bodies and placer gold deposits (Bundtzen and Reger, 1977, p. 29). Also, the lineament tends to separate gneissic rocks to the northeast from schistose rocks to the southwest (Swainbank and others, 1984).

The Democrat Creek placers are located on a section of the Richardson Lineament termed the Democrat dike. Bedrock in the Democrat Creek drainage is composed primarily of biotite gneiss and rhyolite. The gold source for the residual and fluvial placers of Democrat Creek is interpreted to be the rhyolite. The rhyolite has an aphanitic groundmass, and quartz, plagioclase, and K-spar phenocrysts. Locally, the plagioclase phenocrysts are weathered to clay, possibly montmorillonite. Albite accompanies quartz in the veins (R.J. Newberry, oral communication, 1998). Quartz stringers locally containing sulfides are also present (Olson and others, 1985). The lode contains fractures with Fe-stained void-space quartz veins and localized sericite. K-spar from the rhyolite yielded a K-Ar minimum age of 86.9 +/- 2.6 Ma (Bundtzen and Reger, 1977). Minerals in the rhyolite are arsenopyrite, gold, pyrite, and stibnite (McCoy and others, 1997). Metz and Hawkins (1981) reported the average gold fineness to be 928.

Gold was first discovered in the Richardson district in 1905. Placer mines began operating in several streams in the immediate area. These include Tenderfoot Creek (BD039), Banner Creek, and Buckeye Creek (BD005) and associated tributaries. After peak gold production in 1908, mining in the area declined (Olson and others, 1985). From 1905 through 1921, production from the Richardson district was approximately 95,000 ounces of gold and 24,000 ounces of silver (Bundtzen and Reger, 1977). Since 1980, the district has produced approximately 10,000 additional ounces of gold from intermittent mining (Olson and others, 1985). Because of the depth to bedrock, mining along Democrat Creek has primarily used open-cut methods (Ellsworth and Parker, 1911). Recently, limited placer mining has occurred in association with the development of the Democrat Lode (BD014).

Alteration:

Age of mineralization:

Quaternary

Deposit model:

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

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

39a

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:

Gold was first discovered in the Richardson area in 1905. Placer mines began operating in several streams in the immediate area. These include Tenderfoot Creek (BD039), Banner Creek, Buckeye Creek (BD005) and associated tributaries. After peak gold produc-

tion in 1908, mining in the area declined (Olson and others, 1985). Because of the depth to bedrock, mining along Democrat Creek has primarily used open-cut methods (Ellsworth and Parker, 1911). Recently, limited placer mining has occurred in association with the development of the Democrat Lode (BD014).

Production notes:

From 1905 through 1921, production in the Richardson district was approximately 95,000 ounces of gold and 24,000 ounces of silver (Bundtzen and Reger, 1977). Since 1980, the district has produced approximately 10,000 additional ounces of gold from intermittent mining (Olson and others, 1985). For this time period, information regarding individual mine production was not available.

Reserves:

Additional comments:

References:

Ellsworth and Parker, 1911; Prindle and Katz, 1913; Chapin, 1914; Saunders, 1965; Cobb, 1972 (MF-388); Bundtzen and Reger, 1977; Eberlein and others, 1977; Weber and others, 1978; Menzie and Foster, 1979; Cobb and Eberlein, 1980; Metz and Hawkins, 1981; Swainbank and others, 1984; Olson and others, 1985; McCoy and others, 1997

Primary reference: Bundtzen and Reger, 1977

Reporter(s): Cameron S. Rombach (ADDGS)

Last report date: 4/26/99

Site name(s): Democrat Lode; John Mitchell Lode

Site type: Mine

ARDF no.: BD014

Latitude: 64.334 **Quadrangle:** BD B-5

Longitude: 146.354

Location description and accuracy:

The Democrat Lode is located on Democrat Creek (BD013), a tributary of Banner Creek (BD001). The lode is approximately 3.5 miles north of the town of Richardson on the Richardson Highway in NE1/4SE1/4 section 4, T. 7 S., R. 7 E., of the Fairbanks Meridian. Numerous unimproved roads provide access to the mine. It is identified by an approximately 900 foot-long and 70 foot-deep open cut in the hillside along Democrat Creek. There are placer workings up- and downstream of the site. It is locality 1 of Cobb and Eberlein (1980), who summarized relevant references under the name 'Democrat'.

Commodities:

Main: Au

Other: Ag, Sb

Ore minerals: Arsenopyrite, gold, pyrite, stibnite

Gangue minerals: Ankerite, carbonate, muscovite, quartz

Geologic description:

The Richardson area is characterized by gentle slopes and broad, alluvium-filled valleys (Prindle and Katz, 1913, p. 140). The area is unglaciated and largely overlain by windblown silt, sand, and loess, locally up to 50 meters thick (Foster and others, 1979). The bedrock in the region comprises greenschist to amphibolite facies schist, marble, and gneiss that have been intruded by various igneous bodies (Bundtzen and Reger, 1977, p. 29). The schist and marble are probably Paleozoic, and the gneiss has a probable protolith of Precambrian and Paleozoic sedimentary and igneous rocks (Weber and others, 1978). The intrusive bodies in the area range in composition from rhyolite to andesite. Fine-grained rhyolite containing quartz and feldspar phenocrysts is common throughout the area (Olson and others, 1985). At the Democrat Lode, the rhyolite contains arsenopyrite, gold, and pyrite, and is albitic, clay, and sericite altered (R.J. Newberry, oral communication, 1998). Structurally, the Richardson region is cut by a northwest-trending fracture system termed the Richardson Lineament. The lineament appears to correspond to the distribution of the rhyolite and other intrusive bodies and placer gold deposits (Bundtzen and Reger, 1977, p. 29). Also, the lineament tends to separate gneissic rocks

to the northeast from schistose rocks to the southwest (Swainbank and others, 1984).

The Democrat Lode is located on a section of the lineament termed the Democrat dike. The deposit is primarily hosted in rhyolite consisting of quartz, plagioclase, and K-spar phenocrysts in an aphanitic groundmass. Quartz stringers, locally containing sulfides are present (Olson and others, 1985). The lode contains fractures filled with gossanized quartz veins with voids and localized sericite. McCoy and others (1997) describe several stages of alteration at the Democrat Lode. An early stage of alteration consists of quartz-tourmaline-muscovite +/- biotite +/- K-spar +/- clinozoisite. The stage more commonly associated with gold is an assemblage of quartz-white mica +/- ankerite +/- carbonaceous material. Locally, the plagioclase and K-spar phenocrysts are weathered to montmorillonite and kaolinite, respectively (D.J. Szumigala, oral communication, 1998). Albite is present in veins with quartz (R.J. Newberry, oral communication, 1998). In addition, the surrounding gneiss displays evidence of hornfelsing (K. Ausburn, oral communication, 1998). Mineralization in the rhyolite includes arsenopyrite, gold, pyrite, and stibnite (McCoy and others, 1997). An assay of a gossanized rock chip sample collected from the portal of an adit at the Democrat Lode contained 0.32 ppm Au, 7.5 ppm Ag, 58 ppm Cu, 137 ppm Pb, 21 ppm Zn, 6 ppm Mo, 150 ppm Sb, 20.5 ppm U, and 22.5 ppm Th (Bundtzen and Reger, 1977). Metz and Hawkins (1981) reported the average gold fineness to be 928. K-spar from the rhyolite yielded a K-Ar minimum age of 86.9 +/- 2.6 Ma (Bundtzen and Reger, 1977).

Gold was first discovered in the Richardson district in 1905. Placer mines began operating in several streams in the immediate area. These include Tenderfoot Creek (BD039), Banner Creek, Buckeye Creek (BD005), and Democrat Pup Creek (BD013). After peak gold production in 1908, mining in the area declined. In 1913, B.E. Shuff discovered gold at the Democrat Lode. Subsequently, a 93-foot adit was driven through a veined zone. An ore processing mill was built in 1921, but there are no records of actual production (Olson and others, 1985). Further exploration activities have occurred on and around the lode in recent years. These include geochemical, geological, biochemical, and geophysical sampling and analysis (F.L. Blystone, written communication, 1994). In 1998, a 100,000 ton bulk sample was collected from an open cut at the Democrat Lode. The sample will be processed in Fairbanks, Alaska, to assess the total amount and recoverability of gold from the rhyolite (F.L. Blystone, written communication, 1998). Results are currently not available.

From 1905 through 1921, production in the Richardson district was approximately 95,000 ounces of gold and 24,000 ounces of silver (Bundtzen and Reger, 1977). Since 1980, the district has produced approximately 10,000 additional ounces of gold from intermittent mining (Olson and others, 1985). However, information regarding individual mine production in the Richardson district is not available. In 1989, a sluicing operation took place at the Democrat Lode. During the operations, approximately 3,000 ounces of gold and 450 ounces of silver were recovered (F.L. Blystone, press release, 1998). F.L. Blystone (press release, 1994) has estimated a resource of 1,000,000 +/- 200,000 ounces of gold at the lode and surrounding areas.

Alteration:

Areas of the rhyolite at the Democrat Lode exhibit several types of alteration. The lode contains fractures filled with gossanized quartz veins with voids and localized sericite.

McCoy and others (1997) describe several stages of alteration at the Democrat Lode. An early stage of alteration consists of quartz-tourmaline-muscovite +/- biotite +/- K-spar +/- clinozoisite. The stage more commonly associated with gold is an assemblage of quartz-white mica +/- ankerite +/- carbonaceous material. Albite is present in veins with quartz (R.J. Newberry, oral communication, 1998). The surrounding gneiss displays evidence of hornfelsing (K. Ausburn, oral communication, 1998).

Age of mineralization:

Veins cut Cretaceous rhyolite intrusion

Deposit model:

Plutonic-related mesothermal

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

Production Status: Yes; small

Site Status: Active?

Workings/exploration:

Gold was first discovered in the Richardson area in 1905. Placer mines began operating in several streams in the immediate area. These include Tenderfoot Creek, Banner Creek, Buckeye Creek, and Democrat Pup. After peak gold production in 1908, mining in the area declined. In 1913, B.E. Shuff discovered gold at the Democrat Lode. Subsequently, a 93-foot adit was driven through a vein-rich zone. An ore processing mill was built in 1921, but there are no records of production (Olson and others, 1985). In 1989, a crushing and trommel sluicing operation took place. Further exploration activities have occurred on and around the lode in recent years. These include geochemical, geological, biochemical, and geophysical sampling and analysis (F.L. Blystone, written communication, 1994). In 1998, a 100,000 ton bulk sample was collected from an open cut at the Democrat Lode. The sample will be processed in Fairbanks, Alaska, to assess the total amount and recoverability of gold from the rhyolite (F.L. Blystone, written communication, 1998).

Production notes:

From 1905 through 1921, production in the Richardson district was approximately 95,000 ounces of gold and 24,000 ounces of silver (Bundtzen and Reger, 1977). Since 1980, mining in the district has produced an additional 10,000 ounces of gold (Olson and others, 1985). However, information regarding individual mine production in the Richardson district is not available. During the 1989 sluicing operations at the Democrat Lode, approximately 3,000 ounces of gold and 450 ounces of silver were recovered (F.L. Blystone, written communication, 1998).

Reserves:

F.L. Blystone (press release, 1994) has estimated a resource of 1,000,000 +/- 200,000 ounces of gold at the lode and surrounding areas.

Additional comments:

References:

Ellsworth and Parker, 1911; Prindle and Katz, 1913; Chapin, 1914; Saunders, 1965; Bundtzen and Reger, 1977; Eberlein and others, 1977; Weber and others, 1978; Menzie and Foster, 1979; Cobb and Eberlein, 1980; Metz and Hawkins, 1981; Swainbank and others, 1984; Olson and others, 1985

Primary reference: Bundtzen and Reger, 1977

Reporter(s): Cameron S. Rombach (ADDGS)

Last report date: 4/26/99

Site name(s): Gold Creek

Site type: Prospect

ARDF no.: BD015

Latitude: 64.882 **Quadrangle:** BD D-4

Longitude: 145.556

Location description and accuracy:

Gold Creek drains east into the North Fork of the Salcha River. The creek is roughly 12 miles long and has several tributaries with associated placers, including Bluestone Creek, Eldorado Creek, Greystone Creek, Quartz Creek, Wickersham Creek, Little Gold Creek, and Flume Creek. The Alaska Division of Mining Kardex file system reports placer claims on Gold Creek and its tributaries. The approximate center of the mining activity is in SW1/4SW1/4 section 16, T. 1 S., R. 11 E., of the Fairbanks Meridian. An unimproved trail provides access to the middle of the Gold Creek drainage from No Grub Creek (BD028) on the Salcha River. It is locality 12 of Menzie and Foster (1979), who summarized relevant references under the name 'Gold Creek'.

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:

The bedrock in the region is schist, gneiss, some granite, and minor amounts of serpentinite and limestone. The schist is composed of quartz, feldspar, and mica, with localized garnetiferous and marble zones. The gneiss is coarse to fine grained with various amounts of quartz, feldspar, hornblende, and biotite. The schist and gneiss have suspected protoliths of Precambrian and Paleozoic sedimentary and igneous rocks. The intrusive bodies in the area range in composition from granodiorite to quartz monzonite with Cretaceous to Tertiary K-Ar ages (Weber and others, 1978). The gravels in the region average 18 to 20 feet in thickness and contain a variety of schist, gneiss, granite, and vein quartz (Prindle, 1906; B 284). Brooks (1908) reported the fineness of the gold in the area to be higher than that mined in the Richardson district.

It is unclear where or when placer mining activities took place on Gold Creek and its tributaries. Placer gold was first discovered on nearby Butte Creek (BD006) in 1905. Prospecting initially occurred on Butte Creek and soon extended to nearby creeks. By

1910, most of the mining activity was focused on Caribou Creek. A trail from No Grub Creek was put in by C.F. Shield in the early 1940's (C.F. Shield, unpublished data, 1979). The Alaska Division of Mining Kardex file system records active claims on Gold Creek and its tributaries as recent as 1986. Exploration to determine the lode source for the placer gold in the Gold Creek drainage is currently being conducted in the Gold Creek drainage (R. Van Nieuwenhuyse, oral communication, 1998).

Historically, creek placers in the region have been grouped with the mines and prospects of the Richardson district. From 1905 through 1921, production from the Richardson district was approximately 95,000 ounces of gold and 24,000 ounces of silver (Bundtzen and Reger, 1977). Since 1980, the district has produced approximately 10,000 additional ounces of gold from intermittent mining (Olson and others, 1985). Individual gold production for Gold Creek has not been reported separately.

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:

It is unclear where or when placer mining took place on Gold Creek and its tributaries. Placer gold was first discovered on nearby Butte Creek (BD006) in 1905. Prospecting initially occurred on Butte Creek and soon extended to nearby creeks. By 1910, most of the mining activity was focused on Caribou Creek. A trail from No Grub Creek was put in by C.F. Shield in the early 1940's (C.F. Shield, unpublished data, 1979). The Alaska Division of Mining Kardex file system records active claims on Gold Creek and its tributaries as recent as 1986. Exploration to determine the lode source for the placer gold in the Gold Creek drainage is currently being conducted in the Gold Creek drainage (R. Van Nieuwenhuyse, oral communication, 1998).

Production notes:

Historically, creek placers in the region have been grouped with the mines and prospects of the Richardson district. From 1905 through 1921, production from the Richardson district was approximately 95,000 ounces of gold and 24,000 ounces of silver (Bundtzen and Reger, 1977). Since 1980, the district has produced approximately 10,000 additional ounces of gold from intermittent mining (Olson and others, 1985). Individual gold production for Gold Creek has not been reported separately.

Reserves:

Additional comments:

References:

Brooks, 1906; Brooks, 1908; Ellsworth, 1910; Ellsworth and Parker, 1911; Prindle, 1913; Cobb, 1977 (OFR 77-168B); Eberlein and others, 1977; Weber and others, 1978; Menzie and Foster, 1979; Cobb and Eberlein, 1980

Primary reference: Foster and others, 1978

Reporter(s): Cameron S. Rombach (ADDGS)

Last report date: 4/26/99

Site name(s): Gold Run Creek

Site type: Prospect

ARDF no.: BD016

Latitude: 64.434 **Quadrangle:** BD B-5

Longitude: 146.326

Location description and accuracy:

Gold Run Creek drains north into McCoy Creek, approximately 12 miles north of the town of Richardson on the Richardson Highway. The creek is approximately 6.5 miles long and has several small tributaries. There are references to placer mining along Gold Run Creek, but it is unclear where. The approximate midpoint of the creek is in SE1/4SE1/4 section 34, T. 5 S., R. 7 E., of the Fairbanks Meridian. Several unimproved roads provide access to the lower half, while the Trans-Alaska Pipeline provides access to the upper half of the Gold Run Creek drainage. It is locality 7 of Cobb (1977; OFR 77-168B) who summarized relevant references under the name 'Gold Run Creek'.

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:

The Richardson area is characterized by gentle slopes and broad, alluvium-filled valleys (Prindle and Katz, 1913, p. 140). The area is unglaciated and largely overlain by wind-blown silt, sand, and loess, locally up to 50 meters thick (Foster and others, 1979). The bedrock in the region comprises greenschist to amphibolite facies schist, marble, and gneiss that have been intruded by various igneous bodies (Bundtzen and Reger, 1977, p. 29). The schist and marble are probably Paleozoic, and the gneiss has a probable proto-lith of Precambrian and Paleozoic sedimentary and igneous rocks (Weber and others, 1978). The intrusive bodies in the area range in composition from rhyolite to andesite. Fine-grained rhyolite containing quartz and feldspar phenocrysts is common throughout the area (Olson and others, 1985). At the nearby Democrat Lode (BD014), the rhyolite contains arsenopyrite, gold, and pyrite, and is albitic, clay, and sericite altered (R.J. New-berry, oral communication, 1998). Structurally, the Richardson region is cut by a north-west trending fracture system termed the Richardson Lineament. The lineament appears to correspond to the distribution of the rhyolite and other intrusive bodies and placer gold

deposits (Bundtzen and Reger, 1977, p. 29). Also, the lineament tends to separate gneissic rocks to the northeast from schistose rocks to the southwest (Swainbank and others, 1984).

Placer gold was first discovered in the Richardson district in 1905. Mining initially occurred on the nearby Tenderfoot Creek (BD039) and soon expanded to nearby creeks. After peak gold production in 1908, mining in the area declined (Olson and others, 1985). Glover (1920?) reported a range in gold fineness of 694 to 847 for Gold Run Creek. From the investigations during the planning of the Trans-Alaska Pipeline route, Mulligan (1974) reported that Gold Run Creek contained prospect workings, but no mining. Metz (1991) described early drift mine and surface trench tailings in the Gold Run Creek drainage. From 1905 through 1921, production from the Richardson district was approximately 95,000 ounces of gold and 24,000 ounces of silver (Bundtzen and Reger, 1977). Since 1980, the district has produced approximately 10,000 additional ounces of gold from intermittent mining (Olson and others, 1985). No production for Gold Run Creek has been reported.

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: No

Site Status: Inactive

Workings/exploration:
Placer gold was first discovered in the Richardson district in 1905. Mining initially occurred on the nearby Tenderfoot Creek and soon expanded to nearby creeks. After peak gold production in 1908, mining in the area declined (Olson and others, 1985). From the investigations during the planning of the Trans-Alaska Pipeline route, Mulligan (1974) reported that Gold Run Creek contained prospect workings, but no mining. Metz (1991) described early drift mine and surface trench tailings in the Gold Run Creek drainage.

Production notes:
From 1905 through 1921, production for the Richardson district was approximately 95,000 ounces of gold and 24,000 ounces of silver (Bundtzen and Reger, 1977). Since 1980, the district has produced approximately 10,000 additional ounces of gold from intermittent mining (Olson and others, 1985). No production for Gold Run Creek has been reported.

Reserves:

Additional comments:

References:

Ellsworth, 1910; Ellsworth and Parker, 1911; Prindle and Katz, 1913; Chapin, 1914; Saunders, 1965; Mulligan, 1974; Bundtzen and Reger, 1977; Eberlein and others, 1977; Weber and others, 1978; Menzie and Foster, 1979; Cobb and Eberlein, 1980; Swainbank and others, 1984; Olson and others, 1985; Metz, 1991

Primary reference: Mulligan, 1974

Reporter(s): Cameron S. Rombach (ADDGS)

Last report date: 4/26/99

Site name(s): Gray Lead

Site type: Mine

ARDF no.: BD017

Latitude: 64.343 **Quadrangle:** BD B-1

Longitude: 144.249

Location description and accuracy:

The Gray Lead mine is situated on a ridge extending northwest from Black Mountain, just south of the headwaters of King Creek, a tributary of Tibbs Creek (BD040). The mine is located at NE1/4NW1/4 section 6, T. 7 S., R. 18 E., of the Fairbanks Meridian, approximately 54 miles northeast of Delta Junction. Winter trails up Tibbs Creek and the South Fork of the Goodpaster River provide access up Divide Creek to the top of Black Mountain. There are numerous surface workings at and surrounding the site. The Gray Lead mine is not labeled on current U.S.G.S. maps. It is locality 3 of Cobb and Eberlein (1980) who summarized relevant references under the name 'Gray Lead'.

Commodities:

Main: Au

Other: Ag, Cu, Pb, Sb

Ore minerals: Arsenopyrite, covellite, digenite, gold, jamesonite, pyrite, stibnite

Gangue minerals: Quartz

Geologic description:

The area is characterized by rounded hills and flat-topped ridges (Thomas, 1970). The most prominent ridge is Black Mountain, which trends about 12 miles in a northerly direction and is underlain by a Cretaceous granodiorite (Weber and others, 1978). Several creeks flow westward off Black Mountain in steep, parallel, v-shaped valleys to form the Headwaters of Tibbs Creek. Bordering Black Mountain to the west is a combination of augen gneiss, gneissic schist, and schist. There is intense shearing and faulting in the contact between the metamorphic and intrusive rocks. This shearing is observed in the underground workings and at the surface as pronounced saddle-like depressions across the spurs separating the westward-flowing tributaries of Tibbs Creek. This shear zone trends roughly N15E and dips 65 degrees NW. The lode deposits in the area are gold-bearing quartz veins in the shear zone. Most of the veins are in the shear zone, although some are found in intrusive rocks. The veins contain gold and a variable combination of sulfides, including arsenopyrite, covellite, digenite, jamesonite, pyrite, and stibnite. Typically, gold content decreases as sulfides increase. Veins are commonly 2 to 3 feet in

width, with some as wide as 8 feet (Thomas, 1970). When gold is present, it is usually extremely fine grained. However, several nearby veins such as the Blue Lead mine (BD003) and Grizzly Bear mine (BD018) contain relatively coarse gold, which is easily visible in hand specimen.

The Gray Lead mine is centered on a quartz vein 2 feet in width. Based on underground workings, the vein dips steeply to the west (Joesting, 1938). Foster and others (1978) performed two emission spectroscopy analyses on rock samples from the Gray Lead mine: sample 74WR-181c contained greater than 10,000ppm As, 15 ppm Ba, 150 ppm Bi, 5 ppm Co, 1 ppm Cr, 7 ppm Cu, 50 ppm Pb, 500 ppm Se, and 4.0 ppm Au; and sample 74WR-181d contained 10,000ppm As, 30 ppm B, 300 ppm Ba, 10 ppm Bi, 2 ppm Cr, 50 ppm Cu, 50 ppm La, 5 ppm Nb, 7 ppm Pb, 7 ppm Sc, 20 ppm Sn, 7 ppm Sr, 30 ppm V, 15 ppm Y, 70 ppm Zr, and 1.5 ppm Au.

The Goodpaster region was first explored for placer gold in 1915. In the early 1930's, gold-bearing quartz veins were discovered in the upper Tibbs Creek area. By the winter of 1936, the first underground workings were being installed. The original base camp was on Summit Creek. A 450 foot tunnel was driven along a small vein, termed the Blue Lead Extension. After disappointing results, the work was stopped. In the summer of 1936, five men drove a 300-foot tunnel at the outcrop of the Blue Lead vein (Reed, 1937). During the winter of 1937, a 300-foot tunnel was driven at the Grizzly Bear mine (BD018) and a 50-ton mill was constructed. In the summer of 1938, the mill was moved to the Blue Lead mine and operated for a year and a half until the fall of 1939 (Joesting, 1938). Subsequently, from 1939 to 1941, approximately 1,300 feet of surface and subsurface workings were completed at the Gray Lead mine (Thomas, 1970). Over 300 feet of the vein was traced at the surface(Joesting, 1938). There was limited exploration reported in the 1970's. The mine shaft opening was accessible, but blocked by ice (Thomas, 1970). It is reported that 350 tons of ore was produced from the nearby Grizzly Bear mine and processed at the mill at the Blue Lead mine. Another 150 tons was produced from the Blue Lead mine (Reed, 1937). Thomas (1970) reports that no ore from the Gray Lead mine was taken to the mill. It is unknown how much, if any, ore was processed elsewhere.

Alteration:

Age of mineralization:

Postdates Cretaceous granodiorite intrusion

Deposit model:

Shear hosted, magmatic-hydrothermal vein

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

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:

The Goodpaster region was first explored for placer gold in 1915. In the early 1930's, gold-bearing quartz veins were discovered in the upper Tibbs Creek area. By the winter of 1936, the first underground workings were being installed. The original base camp was on Summit Creek. A 450-foot tunnel was driven along a small vein, termed the Blue Lead Extension (BD003). After disappointing results, the work stopped. In the summer of 1936, five men drove a 300-foot tunnel at the outcrop of the Blue Lead vein (Reed, 1937). During the winter of 1937, a 300 foot tunnel was driven at the Grizzly Bear mine along with the construction of a 50-ton amalgamation recovery mill. In the summer of 1938, the mill was moved to the Blue Lead mine and operated for 1.5 years until the fall of 1939 (Joesting, 1938). Subsequently, from 1939 to 1941, approximately 1,300 feet of surface and subsurface workings were completed at the Grey Lead mine (Thomas, 1970). Over 300 feet of the surface expression of the vein was traced (Joesting, 1938). There has been limited exploration reported in the 1970's. The mine shaft opening is accessible, but blocked by ice (Thomas, 1970).

Production notes:

It is reported that 350 tons of ore was produced from the Grizzly Bear mine and processed at the mill at the Blue Lead mine. Another 150 tons was produced from the Blue Lead mine (Reed, 1937). Thomas (1970) reports that no ore from the Gray Lead mine was taken to the mill. It is unknown how much, if any, ore was processed elsewhere.

Reserves:

Additional comments:

References:

Reed, 1937; Joesting, 1938; Smith, 1938; Smith, 1939 (B 917-A); Saunders, 1967; Thomas, 1970; Cobb, 1972 (MF-388); Eberlein and others, 1977; Weber and others, 1978; Foster and others, 1979; Menzie and Foster, 1979; Cobb and Eberlein, 1980

Primary reference: Thomas, 1970

Reporter(s): Cameron S. Rombach (ADDGS)

Last report date: 4/26/99

Site name(s): Grizzly Bear; Yellow Jacket

Site type: Mine

ARDF no.: BD018

Latitude: 64.351 **Quadrangle:** BD B-1

Longitude: 144.209

Location description and accuracy:

The Grizzly Bear mine is situated on a ridge of Black Mountain separating the headwaters of Antimony Creek, a tributary of Tibbs Creek (BD040), and Summit Creek, a tributary of Boulder Creek (BD004). The mine is located in the SW1/4NE1/4 section 32, T. 6 S., R. 18 E., of the Fairbanks Meridian, approximately 54 miles north of Delta Junction. The Yellow Jacket deposit is located nearby in the SW1/4SE1/4 section 32, T. 6 S., R. 18 E., of the Fairbanks Meridian. A winter trail from the South Fork of the Goodpaster River provides access up Divide Creek. The mine entrance was still accessible in 1970 (Thomas, 1970). There are numerous surface workings at and surrounding the site. Note: The Grizzly Bear Mine is incorrectly labeled on current U.S.G.S. maps. It is locality 4 of Cobb and Eberlein (1980), who summarized relevant references under the name 'Grizzly Bear'.

Commodities:

Main: Au

Other: Ag, Cu, Pb, Sb

Ore minerals: Arsenopyrite, covellite, digenite, gold, jamesonite, pyrite, stibnite

Gangue minerals: Quartz

Geologic description:

The Grizzly Bear mine and Yellow Jacket deposit are situated on a ridge of Black Mountain separating the headwaters of Antimony Creek, a tributary of Tibbs Creek (BD040), and Summit Creek, a tributary of Boulder Creek. The area is characterized by rounded hills and flat-topped ridges (Thomas, 1970). The most prominent ridge is Black Mountain, which trends about 12 miles in a northerly direction and is underlain by Cretaceous granodiorite (Weber and others, 1978). Several creeks flow westward off Black Mountain in steep, parallel, V-shaped valleys to form the headwaters of Tibbs Creek. A combination of augen gneiss, gneissic schist, and schist are to the west of Black Mountain. There is intense shearing and faulting in the contact between the metamorphic and intrusive rocks. This shearing is observed in the underground workings and at the surface as pronounced saddle-like depressions across the spurs separating the westward-flowing

tributaries of Tibbs Creek. This shear zone trends roughly N15E and dips 65 degrees NW. The lode deposits in the area are gold-bearing quartz veins in the shear zone. Most of the veins are in the shear zone, although some are in the intrusive rocks. The veins contain gold and a variable assemblage of sulfides, including arsenopyrite, covellite, digenite, jamesonite, pyrite, and stibnite. Typically, gold content decreases as sulfides increase. Veins are commonly 2 to 3 feet in width, with some as wide as 8 feet (Thomas, 1970). When gold is present, it is usually extremely fine grained. However, other veins such as the Blue Lead mine (BD003) contain relatively coarse gold, which is easily visible in hand specimen.

The Grizzly Bear mine is centered on an 18-inch-wide quartz vein. Based on underground workings, the vein dips steeply to the south (Reed, 1937). Much of the ore is on the hanging wall (Thomas, 1970). Thomas (1970) shows the Yellow Jacket as a vein exposure at the surface approximately one third of a mile southwest of the Grizzly Bear mine. Foster and others (1978) cite the following emission spectroscopy assay of a rock sample from the area surrounding the Grizzly Bear mine: sample 74WR-180e contained greater than 10,000ppm As, 15 ppm B, 100 ppm Ba, 1.5 ppm Cr, 100 ppm Cu, 2 ppm Sr, 5 ppm V, 10 ppm Zr, and 0.3 ppm Au. Glover (1920?) reported a range in gold fineness of 766 to 780 for the Grizzly Bear mine.

The Goodpaster region was first explored for placer gold in 1915. In the early 1930's, gold-bearing quartz veins were discovered in the upper Tibbs Creek area. By the winter of 1936, the first underground workings were being installed. The original base camp was on Summit Creek. A 450-foot tunnel was driven following a small vein, termed the Blue Lead Extension. After disappointing results, the work was stopped. In the summer of 1936, five men drove a 300-foot tunnel at the outcropping of the Blue Lead vein (Reed, 1937). During the winter of 1937, a 300-foot tunnel was driven at the Grizzly Bear mine (BD018) and a 50-ton mill was constructed. In the summer of 1938, the mill was moved to the Blue Lead mine and operated for a year and a half until the fall of 1939 (Joesting, 1938). The Blue Lead mine and Blue Lead Extension have approximately 775 feet of underground workings. There was limited exploration in the 1970's. The mill was still on site and the mine shaft openings were accessible in 1970, but blocked by ice (Thomas, 1970). It is reported that 350 tons of ore was produced from the Grizzly Bear mine and processed at the mill at the Blue Lead mine. Another 150 tons was produced from the Blue Lead mine (Reed, 1937). No ore was mined from the Yellow Jacket vein (Thomas, 1970).

Alteration:

Age of mineralization:

Postdates Cretaceous granodiorite intrusion

Deposit model:

Shear-hosted, magmatic-hydrothermal vein

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

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:

The Goodpaster region was first explored for placer gold in 1915. In the early 1930's, gold-bearing quartz veins were discovered in the upper Tibbs Creek area. By the winter of 1936, the first underground workings were being installed. The original base camp was on Summit Creek. A 450-foot tunnel was driven following a small vein, termed the Blue Lead Extension. After disappointing results, the work was stopped. In the summer of 1936, five men drove a 300-foot tunnel at the outcropping of the Blue Lead vein (Reed, 1937). During the winter of 1937, a 300-foot tunnel was driven at the Grizzly Bear mine (BD018) and a 50-ton mill was constructed. In the summer of 1938, the mill was moved to the Blue Lead mine and operated for a year and a half until the fall of 1939 (Joesting, 1938). The Blue Lead mine and Blue Lead Extension have approximately 775 feet of underground workings. There was limited exploration in the 1970's. The mill was still on site and the mine shaft openings were accessible in 1970, but blocked by ice (Thomas, 1970).

Production notes:

It is reported that 350 tons of ore was produced from the Grizzly Bear mine and processed at the mill at the Blue Lead mine. Another 150 tons was produced from the Blue Lead mine (Reed, 1937). No ore was mined from the Yellow Jacket vein (Thomas, 1970).

Reserves:

Additional comments:

References:

Glover, 1920?; Reed, 1937; Joesting, 1938; Smith, 1938; Smith, 1939 (B 917-A); Saunders, 1967; Thomas, 1970; Cobb, 1972 (MF-388); Eberlein and others, 1977; Weber and others, 1978; Foster and others, 1979; Menzie and Foster, 1979; Cobb and Eberlein, 1980

Primary reference: Joesting, 1938

Reporter(s): Cameron S. Rombach (ADDGS)

Last report date: 4/26/99

Site name(s): Hinkley Gulch

Site type: Mines

ARDF no.: BD019

Latitude: 64.306 **Quadrangle:** BD B-5

Longitude: 146.313

Location description and accuracy:

Hinkley Gulch is a northwest-trending drainage that flows into Buckeye Creek (BD005). It is located approximately 1.2 miles north of the town of Richardson on the Richardson Highway in the NW1/4SW1/4 section 14, T. 7 S., R. 7 E., of the Fairbanks Meridian. Numerous unimproved roads provide access to the Hinkley Gulch area. It is not labeled on current U.S.G.S. maps. It is locality 12 of Cobb (1972), who summarized relevant references under the name 'Hinkley Gulch'.

Commodities:

Main: Au

Other: Ag, Cu, Sn, W

Ore minerals: Arsenopyrite, cassiterite, chalcopyrite, gold, pyrite, pyrrhotite, scheelite

Gangue minerals: Clays (kaolinite), feldspar, muscovite, quartz, tourmaline

Geologic description:

The Richardson area is characterized by gentle slopes and broad, alluvium-filled valleys (Prindle and Katz, 1913, p. 140). The area is unglaciated and largely overlain by wind-blown silt, sand, and loess, locally up to 50 meters thick (Foster and others, 1979). The bedrock in the region comprises greenschist to amphibolite facies schist, marble, and gneiss that have been intruded by various igneous bodies (Bundtzen and Reger, 1977, p. 29). The schist and marble are probably Paleozoic, and the gneiss has a probable protolith of Precambrian and Paleozoic sedimentary and igneous rocks (Weber and others, 1978). The intrusive bodies in the area range in composition from rhyolite to andesite. Fine-grained rhyolite containing quartz and feldspar phenocrysts is common throughout the area (Olson and others, 1985). At the nearby Democrat Lode (BD014), the rhyolite contains arsenopyrite, gold, and pyrite, and is albitic, clay, and sericite altered (R.J. Newberry, oral communication, 1998). Structurally, the Richardson region is cut by a northwest-trending fracture system termed the Richardson Lineament. The lineament appears to correspond to the distribution of the rhyolite and other intrusive bodies and placer gold deposits (Bundtzen and Reger, 1977, p. 29). Also, the lineament tends to separate gneissic rocks to the northeast from schistose rocks to the southwest (Swainbank and others,

1984).

At Hinkley Gulch and in the headwaters of Buckeye Creek (BD005), coarse-grained K-spar, quartz, and muscovite metagranite is in contact with epidote and actinolite hornfels, and a cut also exposes epidote and hornblende gneiss (Bundtzen and Reger, 1977). At Hinkley Gulch, the rocks are hydrothermally altered and intensely fractured. The distinctive rock types are skarn and gneiss. The skarn contains garnet, epidote, and amphibole. The gneiss is white, is altered to kaolinite, and has experienced at least three episodes of quartz veining. Some of the quartz appears as purplish boulders, often associated with tourmaline (Swainbank and others, 1984). This setting is similar to the Campbell-Monroe mine (BD007). It is suspected that Hinkley Gulch and the Campbell-Monroe are situated on the same or similar shear zones (Swainbank and others, 1984). Placer and churn-drill-hole concentrates contain arsenopyrite, biotite, cassiterite, chalcopyrite, epidote, feldspar, garnet, gold, ilmenite, magnetite, muscovite, quartz, pyrite, rutile, scheelite, sphene, tourmaline, and zircon. An assay of a porphyry rock chip sample collected from Hinkley Gulch contained 0.30 ppm Au, 45 ppm Cu, 67 ppm Pb, 52 ppm Zn, 7 ppm Mo, 9 ppm Sb, 21.9 ppm U, and 10.3 ppm Th. The gold fineness in pan concentrates from Hinkley Gulch averaged 670. (Bundtzen and Reger, 1977). Glover (1920?) reported a range in gold fineness of 677 to 680 for Hinkley Gulch.

Placer gold was first discovered in the Richardson district in 1905. Mining initially occurred on the nearby Tenderfoot Creek (BD039) and extended to Buckeye Creek and associated tributaries. After peak gold production in 1908, mining in the area declined (Olson and others, 1985). There are references to early mining at Hinkley Gulch, but it is unclear when. Mining at Hinkley Gulch has included open-cut and drifting methods (Ellsworth and Parker, 1911). Exploration work is continuing along the Buckeye Creek drainage and Hinkley Gulch. Preliminary work has identified a mineralized fracture trend locally called the Buckeye Zone (F.L. Blystone, written communication, 1998).

From 1905 through 1921, production from the Richardson district was approximately 95,000 ounces of gold and 24,000 ounces of silver (Bundtzen and Reger, 1977). Since 1980, the district has produced approximately 10,000 additional ounces of gold from intermittent mining (Olson and others, 1985). There are references of early mining at Hinkley Gulch, but it is unclear how much Au was produced. Approximately 3,000 ounces of gold was recovered by Terry Anderson from Hinkley Gulch (D. May, oral communication, 1998).

Alteration:

Hydrothermal alteration of intrusive and/or schist host rocks to clays (kaolinite?).

Age of mineralization:

Deposit model:

Residual placer and 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 was first discovered in the Richardson district in 1905. Mining initially occurred on the nearby Tenderfoot Creek and expanded to Buckeye Creek (BD005) and associated tributaries. After peak gold production in 1908, mining in the area declined (Olson and others, 1985). There are references to early mining at Hinkley Gulch, but it is unclear when. Mining at Hinkley Gulch has included open-cut and drifting methods (Ellsworth and Parker, 1911). Exploration work is continuing along the Buckeye Creek drainage and Hinkley Gulch. Preliminary work has identified a mineralized fracture trend locally called the Buckeye Zone (F.L. Blystone, written communication, 1998).

Production notes:

From 1905 through 1921, production for the Richardson district was approximately 95,000 ounces of gold and 24,000 ounces of silver (Bundtzen and Reger, 1977). Since 1980, mining from the district has produced an additional 10,000 ounces of gold (Olson and others, 1985). There are references to early mining at Hinkley Gulch, but it is unclear how much Au was produced. Approximately 3,000 ounces of gold was recovered by Terry Anderson from Hinkley Gulch (D. May, oral communication, 1998).

Reserves:

Additional comments:

References:

Ellsworth and Parker, 1911; Prindle and Katz, 1913; Chapin, 1914; Glover, 1920?; Saunders, 1965; Bundtzen and Reger, 1977; Eberlein and others, 1977; Weber and others, 1978; Menzie and Foster, 1979; Cobb and Eberlein, 1980; Swainbank and others, 1984; Olson and others, 1985

Primary reference: Bundtzen and Reger, 1977

Reporter(s): Cameron S. Rombach (ADDGS)

Last report date: 4/26/99

Site name(s): Jackie; Granite Creek; Granite Creek Lode

Site type: Prospect

ARDF no.: BD020

Latitude: 64.397 **Quadrangle:** BD B-1

Longitude: 144.247

Location description and accuracy:

The Jackie prospect is centered around Granite Creek, a tributary of Tibbs Creek (BD040), approximately 54 miles northeast of Delta Junction. The approximate center of the 9 square mile claim area is in SW1/4NE1/4 section 18, T. 6 S., R. 18 E., of the Fairbanks Meridian. The Granite Creek Lode is located in the NE1/4NW1/4 section 17, T. 6 S., R. 18 E., of the Fairbanks Meridian. A winter trail from the South Fork of the Goodpaster River provides access up Divide Creek. It was not identified as a separate location by Cobb (1972; MF-388) or by Cobb and Eberlein (1980). The Jackie Prospect is located on land selected by Doyon Limited. Within the Jackie prospect claims, Thomas (1970) noted an occurrence on the ridge separating Granite Creek and Wolverine Creek to the south in the NW1/4NW1/4 section 20, T. 6 S., R. 18 E., of the Fairbanks Meridian.

Commodities:

Main: Au

Other: Ag, As, Sb

Ore minerals:

Gangue minerals: Quartz

Geologic description:

The area is characterized by rounded hills and flat-topped ridges (Thomas, 1970). The most prominent ridge is Black Mountain, which trends about 12 miles in a northerly direction and is underlain by Cretaceous granodiorite (Weber and others, 1978). A combination of augen gneiss, gneissic schist, and schist are to the west of Black Mountain. There is intense shearing and faulting at the contact between the metamorphic and intrusive rocks. This shearing is observed in the underground workings to the north and at the surface as pronounced saddle-like depressions across the spurs extending westward from Black Mountain. This shear zone trends roughly N15E. The lode deposits in the area are gold-bearing quartz veins in the shear zone. Most of the veining and alteration occurs in the shear zone, although some alteration and veining favors the intrusive rocks (Doyon Limited, 1998).

The geology at the Jackie Prospect is assumed to be similar to that of the Carrie Creek

(BD010) area, the Blue Lead Mine (BD003), and Grizzly Bear Mine (BD018). The drainage of Granite Creek is interpreted to follow a fault. A thick organic layer in the area has made soil sampling efforts difficult. A small, weak Au and As zone was identified on the southern face of the hill north of the mouth of Granite Creek; samples contained up to 1,125 ppm Sb. The Granite Creek Lode is reported to be 3/4 of the way up Granite Creek on the north-facing slope (Doyon limited, 1998). No other information regarding the Granite Creek Lode is available. An occurrence noted by Thomas (1970) on the ridge between Wolverine Creek and Granite Creek is described as a sample of drusy quartz with sulfide from a vein 2.2 feet wide. An assay from the sample showed 0.06 ounce/ton Ag and 2.39% Sb (Thomas, 1970).

The Goodpaster region was first explored for placer gold in 1915. In the early 1930's, gold-bearing quartz veins were discovered in the upper Tibbs Creek (BD040) area to the south. Thomas (1970) performed some limited exploration of the Tibbs Creek area. In 1997 and 1998, exploration efforts on the Jackie prospect included stream-sediment, soil, and rock-chip grid sampling. Information regarding exploration and/or production from the Granite Creek Lode was not available (Doyon limited, 1998).

Alteration:

Age of mineralization:

Postdates Cretaceous granodiorite intrusion

Deposit model:

Shear-hosted, magmatic-hydrothermal vein

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

Production Status: None

Site Status: Inactive

Workings/exploration:

The Goodpaster region was first explored for placer gold in 1915. In the early 1930's, gold-bearing quartz veins were discovered in the upper Tibbs Creek (BD040) area to the south. Thomas (1970) performed some limited exploration of the Tibbs Creek area. In 1997 and 1998, exploration efforts on the Jackie prospect included stream-sediment, soil, and rock-chip grid sampling. Information regarding exploration of the Granite Creek Lode was not available (Doyon limited, 1998).

Production notes:

Information regarding production from the Granite Creek Lode was not available (Doyon limited, 1998).

Reserves:

Additional comments:

The Jackie Prospect is located on land selected by Doyon Limited. For additional information contact Doyon Limited, Fairbanks, Alaska.

References:

Thomas, 1970; Cobb, 1972 (MF-388); Weber and others, 1978; Foster and others, 1979; Cobb and Eberlein, 1980; Doyon Limited, 1998

Primary reference: Doyon Limited, 1998

Reporter(s): Cameron S. Rombach (ADDGS)

Last report date: 4/26/99

Site name(s): Junction Creek

Site type: Mines

ARDF no.: BD021

Latitude: 64.333 **Quadrangle:** BD B-5

Longitude: 146.404

Location description and accuracy:

Junction Creek, approximately 3.5 miles north of the town of Richardson on the Richardson Highway, is a tributary of Redmond Creek (BD035) that drains to the north into the Salcha River. The creek is approximately 10 miles long and has several tributaries. The Alaska Division of Mining Kardex file system reports placer mining along Junction Creek. The approximate center of the mining activity is in SE1/4SW1/4 section 5, T. 7 S., R. 7 E., of the Fairbanks Meridian. The headwaters of the creek are within 0.5 mile of the Democrat Lode (BD014). Numerous unimproved roads provide access to the Junction and Redmond Creek drainage. It is locality 19 of Menzie and Foster (1979), who summarized relevant references under the name 'Junction Creek'.

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:

The Richardson area is characterized by gentle slopes and broad, alluvium-filled valleys (Prindle and Katz, 1913, p. 140). The area is unglaciated and largely overlain by windblown silt, sand, and loess, locally up to 50 meters thick (Foster and others, 1979). The bedrock in the region comprises greenschist to amphibolite facies schist, marble, and gneiss that have been intruded by various igneous bodies (Bundtzen and Reger, 1977, p. 29). The schist and marble are probably Paleozoic, and the gneiss has a probable protolith of Precambrian and Paleozoic sedimentary and igneous rocks (Weber and others, 1978). The intrusive bodies in the area range in composition from rhyolite to andesite. Fine-grained rhyolite containing quartz and feldspar phenocrysts is common throughout the area (Olson and others, 1985). At the nearby Democrat Lode (BD014), the rhyolite contains arsenopyrite, gold, and pyrite, and is albitic, clay, and sericite altered (R.J. Newberry, oral communication, 1998). Structurally, the Richardson region is cut by a northwest-trending fracture system termed the Richardson Lineament. The lineament appears

to correspond to the distribution of the rhyolite and other intrusive bodies and placer gold deposits (Bundtzen and Reger, 1977, p. 29). Also, the lineament tends to separate gneissic rocks to the northeast from schistose rocks to the southwest (Swainbank and others, 1984).

Placer gold was first discovered in the Richardson district in 1905. Mining initially occurred on the nearby Tenderfoot Creek (BD039) and soon expanded to nearby creeks. After peak gold production in 1908, mining in the area declined (Olson and others, 1985). The placer gold mined from the Richardson area ranged from 639.5 to 785 in fineness (Menzie and Foster, 1979). Metz (1991) described early drift mine and surface tailings in the Junction Creek drainage. The Alaska Division of Mining Kardex file system records active claims on Junction Creek as recent as 1984. From 1905 through 1921, production for the Richardson district was approximately 95,000 ounces of gold and 24,000 ounces of silver (Bundtzen and Reger, 1977). Since 1980, the district has produced approximately 10,000 additional ounces of gold from intermittent mining (Olson and others, 1985). Gold production for Junction Creek has not been reported separately.

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 was first discovered in the Richardson district in 1905. Mining initially occurred on the nearby Tenderfoot Creek and soon expanded to nearby creeks. After peak gold production in 1908, mining in the area declined (Olson and others, 1985). Metz (1991) described early drift mine and surface tailings in the Junction Creek drainage. The Alaska Division of Mining Kardex file system records active claims on Junction Creek as recent as 1984.

Production notes:
From 1905 through 1921, production for the Richardson district was approximately 95,000 ounces of gold and 24,000 ounces of silver (Bundtzen and Reger, 1977). Since 1980, the district has produced approximately 10,000 additional ounces of gold from intermittent mining (Olson and others, 1985). Gold production for Junction Creek has not been reported separately.

Reserves:

Additional comments:

References:

Ellsworth and Parker, 1911; Prindle and Katz, 1913; Chapin, 1914; Saunders, 1965; Bundtzen and Reger, 1977; Eberlein and others, 1977; Weber and others, 1978; Menzie and Foster, 1979; Cobb and Eberlein, 1980; Olson and others, 1985; Metz, 1991

Primary reference: Menzie and Foster, 1979

Reporter(s): Cameron S. Rombach (ADDGS)

Last report date: 4/26/99

Site name(s): Last Chance Creek

Site type: Mine

ARDF no.: BD022

Latitude: 64.403 **Quadrangle:** BD B-1

Longitude: 144.302

Location description and accuracy:

Last Chance Creek drains into Tibbs Creek (BD040), a tributary of the Goodpaster River, approximately 54 miles northeast of Delta Junction. The creek is approximately 4.5 miles long and has several small tributaries. Placer workings are concentrated near the confluence with Tibbs Creek (Doyon Limited, 1998). The Alaska Division of Mining Kardex file system reports placer mining at the base of Last Chance Creek. The approximate center of the mining activity is in SE1/4SE1/4 section 11, T. 6 S., R. 17 E., of the Fairbanks Meridian. A winter trail from the South Fork of the Goodpaster River provides access up Divide Creek and over Black Mountain to the east. It was not identified as a separate location by Cobb (1972) or by Cobb and Eberlein (1980).

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:

The area around the Last Chance Creek placers is characterized by rounded hills and flat-topped ridges (Thomas, 1970). The most prominent ridge is Black Mountain, which trends about 12 miles in a northerly direction and is underlain by Cretaceous granodiorite (Weber and others, 1978). A combination of augen gneiss, gneissic schist, and schist are to the west of Black Mountain. There is intense shearing and faulting in the contact between the metamorphic and intrusive rocks. This shearing is observed in the underground workings and at the surface as pronounced saddle-like depressions across the spurs separating the westward-flowing tributaries of Tibbs Creek. This shear zone trends roughly N15E and dips 65 degrees NW (Thomas, 1970).

The Goodpaster region was first explored for placer gold in 1915. Thomas (1970) reports a stampede of prospectors in 1915 that ended soon after due to low grade deposits. In the early 1930's, gold-bearing quartz veins were discovered in the upper Tibbs Creek area. Cobb (1973) reports insignificant placer gold production from the Goodpaster re-

gion. The Alaska Division of Mining Kardex file system records active claims on Last Chance Creek as recent as 1984. No production totals for Last Chance Creek are available.

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:
The Goodpaster region was first explored for placer gold in 1915. Thomas (1970) reports a stampede of prospectors in 1915 that ended soon after due to low grade deposits. In the early 1930's, gold-bearing quartz veins were discovered in the upper Tibbs Creek area. The Alaska Division of Mining Kardex file system records active claims on Last Chance Creek as recent as 1984.

Production notes:
Cobb (1973) reports insignificant placer gold production from the Goodpaster region. No production totals for Last Chance Creek are available.

Reserves:

Additional comments:

References:
Smith, 1939 (B 917-A); Thomas, 1970; Cobb, 1972 (MF-388); Cobb, 1973 (B 1374); Eberlein and others, 1977; Weber and others, 1978; Foster and others, 1979; Menzie and Foster, 1979; Cobb and Eberlein, 1980; Doyon Limited, 1998

Primary reference: Doyon Limited, 1998

Reporter(s): Cameron S. Rombach (ADDGS)

Last report date: 4/26/99

Site name(s): Lost Creek

Site type: Mine

ARDF no.: BD023

Latitude: 64.919 **Quadrangle:** BD D-1

Longitude: 144.326

Location description and accuracy:

Lost Creek drains southwest into the Salcha River. The creek is roughly 19 miles long and has several tributaries. The Alaska Division of Mining Kardex file system reports placer mining on Lost Creek, but it is unclear where mining activity took place. The approximate midpoint of the creek is in NW1/4NE1/4 section 17, T. 1 S., R. 17 E., of the Fairbanks Meridian. The creek can be accessed by the Salcha River. It was not identified as a separate location by Cobb (1972; MF-388) or by Cobb and Eberlein (1980).

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:

Weber and others (1978) described the bedrock in the region as primarily quartzite, phyllite, schist, gneiss, slate, and marble. Numerous Tertiary and Cretaceous granodiorite to quartz monzonite igneous bodies intrude the area. The Alaska Division of Mining Kardex file system records active claims on Lost Creek as recent as 1980. It is unclear how much gold has been produced from Lost 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:

The Alaska Division of Mining Kardex file system records active claims on Lost Creek as recent as 1980.

Production notes:

It is unclear how much gold has been produced from Lost Creek.

Reserves:

Additional comments:

References:

Foster and others, 1978; Weber and others, 1978

Primary reference: Foster and others, 1978

Reporter(s): Cameron S. Rombach (ADDGS)

Last report date: 4/26/99

Site name(s): Michigan Creek

Site type: Mine

ARDF no.: BD024

Latitude: 64.164 **Quadrangle:** BD A-2

Longitude: 144.626

Location description and accuracy:

Michigan Creek drains into the South Fork of the Goodpaster River, approximately 32 miles north-northeast of Big Delta. The creek is approximately 8 miles long and has several small tributaries. The Alaska Division of Mining Kardex file system reports placer mining on Michigan Creek, but it is unclear where mining activity took place. The approximate midpoint of the creek is in SW1/4NW1/4 section 4, T. 9 S., R. 16 E., of the Fairbanks Meridian. A winter trail from the South Fork of the Goodpaster River provides access to the Creek. It is locality 18 of Cobb and Eberlein (1980), who summarized relevant references under the name 'Michigan Creek'.

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:

The area is characterized by rounded hills and flat-topped ridges (Thomas, 1970). According to Weber and others (1978) the bedrock in the area is composed of gneiss, quartzite, augen gneiss, and some amphibole schist. The gravels on Michigan Creek are 12 to 25 feet thick and contain coarse gold (Brooks, 1916). Eberlein and others (1977) reported that a 1/2 ounce nugget was found on Michigan Creek. Stream-sediment and rock-chip samples collected from unknown locations in the creek drainage contain up to 10 ppb Au (North Star Exploration Inc., unpublished data, 1998).

The first discovery of placer gold in the Goodpaster region was on Michigan Creek in 1915 (Thomas, 1970). However, deposits were low grade, and mining activities soon ended. Before World War I, reports of placer mining deposits in the region were vague (Cobb, 1973; B 1374). Therefore, it is unclear where mining activities on Michigan Creek took place. Cobb (1973; B 1374) reports insignificant placer gold production from the Goodpaster region. It is unclear how much gold was produced from Michigan 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:
The first discovery of placer gold in the Goodpaster region was on Michigan Creek in 1915 (Thomas, 1970). However, deposits were low grade, and mining activities soon ended. Before World War I, reports from placer mining deposits in the region were vague (Cobb, 1973; B 1374). Therefore, it is unclear where mining activities on Michigan Creek took place.

Production notes:
Cobb (1973; B 1374) reports insignificant placer gold production from the Goodpaster region. It is unclear how much gold was produced from Michigan Creek.

Reserves:

Additional comments:

References:
Brooks, 1918; Joesting, 1938; Thomas, 1970; Cobb, 1972 (MF-388); Cobb, 1973 (B 1374); Eberlein and others, 1977; Weber and others, 1978; Foster and others, 1979; Menzie and Foster, 1979; Cobb and Eberlein, 1980

Primary reference: Thomas, 1970

Reporter(s): Cameron S. Rombach (ADDGS)

Last report date: 4/26/99

Site name(s): Michigan Lode; Michigan Lead

Site type: Prospect

ARDF no.: BD025

Latitude: 64.361 **Quadrangle:** BD B-1

Longitude: 144.195

Location description and accuracy:

The Michigan Lode is situated on a ridge of Black Mountain separating the headwaters of Antimony Creek, a tributary of Tibbs Creek (BD040), and Summitt Creek, a tributary of Boulder Creek (BD004). The prospect is located in the SW1/4SW1/4 section 28, T. 6 S., R. 18 E., of the Fairbanks Meridian, approximately 54 miles east-northeast of Delta Junction, Alaska. A winter trail from the South Fork of the Goodpaster River provides access up Divide Creek. There are numerous surface workings at and surrounding the site. The site is incorrectly labeled on current U.S.G.S. maps as a mine. It was not identified as a separate location by Cobb (1972) or by Cobb and Eberlein (1980). Approximately one mile north of the Michigan Lode, U.S.G.S. maps note some mining activity on the ridge between Wolverine Creek and Antimony Creek in the SW1/4SE1/4 section 20, T. 6 S., R. 18 E., of the Fairbanks Meridian.

Commodities:

Main: Au

Other: Ag, Cu, Pb, Sb

Ore minerals: Arsenopyrite, covellite, digenite, gold, jamesonite, pyrite, stibnite

Gangue minerals: Quartz

Geologic description:

The topography of the area is characterized by rounded hills and flat-topped ridges (Thomas, 1970). The most prominent ridge is Black Mountain, which trends about 12 miles in a northerly direction and is underlain by Cretaceous granodiorite (Weber and others, 1978). Several creeks flow westward off Black Mountain in steep, parallel, V-shaped valleys to form the headwaters of Tibbs Creek. A combination of augen gneiss, gneissic schist, and schist are to the west of Black Mountain. There is intense shearing and faulting in the contact between the metamorphic and intrusive rocks. This shearing is observed in the underground workings and at the surface as pronounced saddle-like depressions across the spurs separating the westward-flowing tributaries of Tibbs Creek. This shear zone trends roughly N15E and dips 65 degrees NW. The lode deposits in the area are gold-bearing quartz veins in the shear zone. Most of the veins are in the shear zone,

although some are in the intrusive rocks. The quartz veins contain gold and a variable assemblage of sulfides, including arsenopyrite, covellite, digenite, jamesonite, pyrite, and stibnite. Typically, gold content decreases as sulfides increase. Veins are commonly 2 to 3 feet in width, with some as wide as 8 feet (Thomas, 1970). When gold is present, it is usually extremely fine grained. However, several veins such as the Blue Lead mine (BD003) and Grizzly Bear mine (BD018) contain relatively coarse gold, which is easily visible in hand specimen.

Thomas (1970) describes the Michigan Lode as a surface vein. Assays from the site show 0.10 ounce/ton Au from vein quartz with a blue hue, and 0.42 ounce/ton Au and 0.08 ounce/ton Ag from some Fe-stained quartz (Thomas, 1970). The mining activity noted on U.S.G.S. maps on the ridge between Wolverine Creek and Antimony Creek is described by Thomas (1970) as trenches. An assay of a sample containing cryptocrystalline quartz with a blue cast showed 8.76 ounces/ton Au and 3.26 ounces/ton Ag (Thomas, 1970).

The Goodpaster region was first explored for placer gold in 1915. In the early 1930's, gold-bearing quartz veins were discovered in the upper Tibbs Creek area. By the winter of 1936, the first underground workings were being installed. The original base camp was on Summit Creek. A 450 foot tunnel was driven following a small vein, termed the Blue Lead Extension. After disappointing results, the work was stopped. In the summer of 1936, five men drove a 300-foot tunnel at the outcrop of the Blue Lead vein (Reed, 1937). During the winter of 1937, a 300-foot tunnel was driven at the Grizzly Bear mine (BD018) and a 50-ton mill was constructed. In the summer of 1938, the mill was moved to the Blue Lead mine and operated for a year and a half until the fall of 1939 (Joesting, 1938). There was been limited exploration reported in the 1970's. The mill was still on site and the mine shaft opening were accessible in 1970, but blocked by ice (Thomas, 1970). It is reported that 350 tons of ore was produced from the Grizzly Bear mine and processed at the mill. This is compared with 150 tons from the Blue Lead mine (Reed, 1937). No ore was mined from the Michigan Lode (Thomas, 1970).

Alteration:

Age of mineralization:

Postdates Cretaceous granodiorite intrusion

Deposit model:

Shear-hosted magmatic-hydrothermal vein

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

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:

The Goodpaster region was first explored for placer gold in 1915. In the early 1930's, gold-bearing quartz veins were discovered in the nearby upper Tibbs Creek area. By the

winter of 1936, the first underground workings were being installed. The original base camp was on Summit Creek. A 450-foot tunnel was driven following a small vein, termed the Blue Lead Extension. After disappointing results, the work was stopped. In the summer of 1936, five men drove a 300-foot tunnel at the outcrop of the Blue Lead vein. (Reed, 1937). During the winter of 1937, a 300-foot tunnel was driven at the Grizzly Bear Mine along with the construction of a 50-ton amalgamation recovery mill. In the summer of 1938, the mill was moved to the Blue Lead Mine and operated for 1.5 years until the fall of 1939 (Joesting, 1938). There has been limited exploration reported in the 1970's. The mill is still on site and the mine shaft opening is accessible, but blocked by ice (Thomas, 1970). It is unknown if any development took place at the Michigan Lead Mine.

Production notes:

It is reported that 350 tons of ore was produced from the nearby Grizzly Bear Mine and 150 tons from the Blue Lead Mine (Reed, 1937). No ore was mined from the Michigan Lode (Thomas, 1970).

Reserves:

Additional comments:

References:

Reed, 1937; Joesting, 1938; Smith, 1938; Smith, 1939 (B 917-A); Saunders, 1967; Thomas, 1970; Cobb, 1972 (MF-388); Eberlein and others, 1977; Weber and others, 1978; Foster and others, 1979; Menzie and Foster, 1979; Cobb and Eberlein, 1980

Primary reference: Thomas, 1970

Reporter(s): Cameron S. Rombach (ADDGS)

Last report date: 4/26/99

Site name(s): Minton Creek

Site type: Occurrence

ARDF no.: BD026

Latitude: 64.394 **Quadrangle:** BD B-5

Longitude: 146.267

Location description and accuracy:

Minton Creek drains north into McCoy Creek, approximately 11 miles north of the town of Richardson, Alaska, on the Richardson Highway. The creek is approximately 5 miles long and has several small tributaries. There are references to prospecting along Minton Creek, but it is unclear where. The approximate midpoint of the creek is in NW1/4SW1/4 section 13, T. 6 S., R. 7 E., of the Fairbanks Meridian. The Trans-Alaska Pipeline and an unimproved road provide access to the Minton Creek drainage. Cobb and Eberlein (1980) summarized relevant references under the name 'Minton Creek'.

Commodities:

Main: W

Other:

Ore minerals: Ilmenite, magnetite, scheelite

Gangue minerals:

Geologic description:

Saunders (1965) first reported that Minton Creek contained scheelite found in a pan concentrate, with magnetite, ilmenite, and zircon. There has been no reported workings or production at Minton Creek.

Alteration:

Age of mineralization:

Quaternary

Deposit model:

Alluvial W placer

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

Production Status: No

Site Status: Inactive

Workings/exploration:

There are no reported workings at Minton Creek.

Production notes:

There has been no production reported for Minton Creek.

Reserves:

Additional comments:

References:

Ellsworth, 1910; Ellsworth and Parker, 1911; Prindle and Katz, 1913; Chapin, 1914; Saunders, 1965; Bundtzen and Reger, 1977; Eberlein and others, 1977; Weber and others, 1978; Menzie and Foster, 1979; Cobb and Eberlein, 1980; Swainbank and others, 1984; Olson and others, 1985

Primary reference: Saunders, 1965

Reporter(s): Cameron S. Rombach (ADDGS)

Last report date: 4/26/99

Site name(s): Munzie Lode

Site type: Prospect

ARDF no.: BD027

Latitude: 64.957 **Quadrangle:** BD D-6

Longitude: 146.517

Location description and accuracy:

The Munzie Lode is situated in the headwaters of Colorado Creek (BD012) which drains southwest into the Chena River. The Alaska Division of Mining Kardex file system reports mining claims in the NW1/4SW1/4 section 34, T. 2 N., R. 6 E., of the Fairbanks Meridian. It is locality 25 of Menzie and Foster (1979), who summarized relevant references under the name 'Munzie Lode'.

Commodities:

Main: Au

Other:

Ore minerals:

Gangue minerals:

Geologic description:

The Munzie Lode is situated in the headwaters of Colorado Creek (BD012) which flows into the Chena River. Weber and others (1978) described the bedrock in the drainage as primarily upper-greenschist to lower amphibolite facies quartzite and schists with some marble, argillite and phyllite. A granodiorite to quartz monzonite pluton of Tertiary to Cretaceous age is north of the lode area. Locally, there is an extensive cover of wind-blown silt and sand that ranges from 0.1 to 50 meters in thickness. Menzie and Foster (1979) reported that the prospect was a lode claim from 1971 to 1977. The Alaska Division of Mining Kardex file system records active claims at the Munzie Lode as recent as 1984. There are no indications of production at the Munzie Lode.

Alteration:

Age of mineralization:

Deposit model:

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

Production Status: Undetermined.

Site Status: Inactive

Workings/exploration:

Menzie and Foster (1979) reported that the prospect was a lode claim from 1971 to 1977. The Alaska Division of Mining Kardex file system records active claims at the Munzie Lode as recent as 1984.

Production notes:

There are no indications of production at the Munzie Lode.

Reserves:

Additional comments:

References:

Foster and others, 1978; Weber and others, 1978; Foster and others, 1979; Menzie and Foster, 1979

Primary reference: Menzie and Foster, 1979

Reporter(s): Cameron S. Rombach (ADDGS)

Last report date: 4/26/99

Site name(s): No Grub Creek

Site type: Mine

ARDF no.: BD028

Latitude: 64.676 **Quadrangle:** BD C-4

Longitude: 145.611

Location description and accuracy:

No Grub Creek is roughly 2 miles long and drains south into the Salcha River at the town of Caribou. The Alaska Division of Mining Kardex file system reports placer mining 1 mile along the base of No Grub Creek. The approximate center of the mining activity is in NW1/4NE1/4 section 7, T. 3 S., R. 11 E., of the Fairbanks Meridian. A tractor trail from the town of Caribou, and the Salcha River provide access to the lower No Grub Creek drainage. An airstrip on the Salcha River, shown on U.S.G.S. maps, is washed out and unsuitable for use (M.B. Werdon, oral communication, 1998). It is locality 17 of Cobb and Eberlein (1980), who summarized relevant references under the name 'No Grub Creek'.

Commodities:

Main: Au

Other: Bi, W

Ore minerals: Bismuth, gold, scheelite

Gangue minerals: Graphite (?), quartz

Geologic description:

The bedrock in the region is schist, gneiss, some granite, and minor amounts of serpentinite and marble. The schist is composed of quartz, feldspar, and mica, with localized garnetiferous and marble zones. The gneiss is coarse to fine grained with various amounts of quartz, feldspar, hornblende, and biotite. They have suspected protoliths of Precambrian and Paleozoic sedimentary and igneous rocks. The intrusive bodies in the area range in composition from granodiorite to quartz monzonite with Cretaceous to Tertiary K-Ar ages (Weber and others, 1978). The intrusive bodies in the area range in composition from granodiorite to quartz monzonite with Cretaceous to Tertiary K-Ar ages (Weber and others, 1978). The gravels in the region average 18 to 20 feet in thickness and contain a variety of schist, gneiss, granite, and vein quartz (Prindle, 1906). Brooks (1908) reported the fineness of the gold in the Salcha region to be higher than that mined in the Richardson district.

It is reported that coarse gold, native bismuth, and minor scheelite were found in quartz

veins in the No Grub Creek drainage (Menzie and Foster, 1979). Joesting (1942) noted an assay of gold and bismuth reported by C.F. Shield in 1938. Hasler and others (1973) report igneous and metamorphic hosted quartz veins containing variable amounts of native bismuth, bismuthinite, gold, graphite, and scheelite in the No Grub Creek drainage. Glover (1920?) reported a range in gold fineness of 868 to 878 for No Grub Creek.

Placer gold was first discovered in the Salcha River area in 1905. Prospecting initially occurred on the Butte Creek (BD006) and soon extended to nearby Caribou Creek (BD009), Pasco Creek (BD031), and Gold Creek (BD015) and associated tributaries. Live water and thawed ground presented the biggest obstacles during prospecting (Prindle, 1906; B 284). No Grub Creek was reported as a major regional producer through 1915 (Brooks ,1916). Smith (1942) reported that No Grub Creek was mined using methods other than dredging. The property was mined hydraulically in the late 1930's and early 1940's (C.F. Shield, unpublished data, 1979). Eberlein and others (1977) report intermittent mining continued through the late 1970's. In 1997 and 1998, there was small-scale placer mining and prospecting along No Grub Creek (M.B. Werdon, oral communication, 1998). Exploration to determine the lode source for the placer gold is currently being conducted in the No Grub Creek drainage (R. Van Nieuwenhuyse, oral communication, 1998).

Historically, No Grub Creek placer has been grouped with the mines and prospects of the Richardson district. From 1905 through 1921, gold production for the Richardson district was approximately 95,000 ounces of gold and 24,000 ounces of silver (Bundtzen and Reger, 1977). During the late 1930's and early 1940's, values for two years of gold production on No Grub Creek were $43,000 and $100,000. But only 1,000 troy ounces of gold were recovered during a third year, and the operation was shut down (C.F. Shield, unpublished data, 1979).

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: Yes; small

Site Status: Active

Workings/exploration:
Placer gold was first discovered in the Salcha River area in 1905. Prospecting initially occurred on Butte Creek (BD006) and soon extended to nearby Caribou Creek (BD009), Pasco Creek (BD031), and Gold Creek (BD015) and associated tributaries. Live water and thawed ground presented the biggest obstacles during prospecting (Prindle, 1906; B 284). No Grub Creek was reported as a major regional producer through 1915

(Brooks,1916). Smith (1942) reported No Grub Creek was mined using methods other than dredging. The property was mined hydraulically in the late 1930's and early 1940's (C.F. Shield, unpublished data, 1979). Eberlein and others (1977) report intermittent mining through the late 1970's. Exploration to determine the lode source for the placer gold is currently being conducted in the No Grub Creek drainage (R. Van Nieuwenhuyse, oral communication, 1998).

Production notes:

Historically, No Grub Creek placer has been grouped with the mines and prospects of the Richardson district. From 1905 through 1921, gold production for the Richardson district was approximately 95,000 ounces of gold and 24,000 ounces of silver (Bundtzen and Reger, 1977). During the late 1930's and early 1940's, values for two years of gold production were $43,000 and $100,000. But only 1,000 troy ounces of gold were recovered during a third year, and the operation was shut down (C.F. Shield, unpublished data, 1979).

Reserves:

Additional comments:

References:

Brooks, 1906; Prindle, 1906 (B 284); Brooks, 1908; Ellsworth, 1910; Ellsworth and Parker, 1911; Prindle, 1913; Brooks, 1916; Glover, 1920?; Smith, 1942; Hasler and others, 1973; Cobb, 1977 (OFR 77-168B); Eberlein and others, 1977; Weber and others, 1978; Menzie and Foster, 1979; Cobb and Eberlein, 1980

Primary reference: Menzie and Foster, 1979

Reporter(s): Cameron S. Rombach (ADDGS)

Last report date: 4/26/99

Site name(s): Nugget Discovery

Site type: Prospect

ARDF no.: BD029

Latitude: 64.843 **Quadrangle:** BD D-5

Longitude: 146.498

Location description and accuracy:

The Nugget Discovery prospect is located on Nugget Creek, which drains west into the South Fork of the Chena River. The creek is roughly 2.5 miles long. The Alaska Division of Mining Kardex file system reports placer mining at the base of Nugget Creek. The approximate center of the mining activity is in SW1/4NW1/4 section 11, T. 1 S., R. 6 E., of the Fairbanks Meridian. It is locality 28 of Menzie and Foster (1979), who summarized relevant references under the name 'Nugget Discovery'.

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:

Nugget Creek flows into the South Fork of the Chena River. Weber and others (1978) described the bedrock in the drainage as primarily marble, quartzite, argillite and phyllite of unknown age. Locally, there is an extensive cover of windblown silt and sand that ranges from 0.1 to 50 meters in thickness. In addition, much of the ground in the swampy lowlands of the Chena River and its tributaries is permanently frozen (Foster and others, 1979). Menzie and Foster (1979) reported that the creek was an active gold placer claim from 1976 to 1978. The Alaska Division of Mining Kardex file system records active claims on Nugget Creek as recent as 1984. There are no indications of production for the Nugget Discovery prospect.

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:
Menzie and Foster (1979) reported that the creek was an active gold placer claim from 1976 to 1978. The Alaska Division of Mining Kardex file system records active claims on Nugget Creek as recent as 1984.

Production notes:
There is no record of production for the Nugget Discovery prospect.

Reserves:

Additional comments:

References:
Weber and others, 1978; Foster and others, 1979; Menzie and Foster, 1979

Primary reference: Menzie and Foster, 1979

Reporter(s): Cameron S. Rombach (ADDGS)

Last report date: 4/26/99

Site name(s): Paldo Creek

Site type: Mine

ARDF no.: BD030

Latitude: 64.796 **Quadrangle:** BD D-1

Longitude: 144.428

Location description and accuracy:

Paldo Creek is roughly 17 miles long and drains west into the Salcha River. The Alaska Division of Mining Kardex file system reports placer mining on Paldo Creek, but it is unclear where mining activity took place. The approximate midpoint of the creek is in SE1/4SE1/4 section 25, T. 1 S., R. 17 E., of the Fairbanks Meridian. The creek can be accessed by the Salcha River. It was not identified as a separate location by Cobb (1972) or by Cobb and Eberlein (1980).

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:

Paldo Creek drains west into the Salcha River. The bedrock comprises quartzite, phyllite, schist, gneiss, slate and marble. The schist is composed of quartz, feldspar, and mica, with localized garnetiferous and marble zones. The gneiss is coarse to fine grained with various amounts of quartz, feldspar, hornblende, and biotite. The schist and gneiss have suspected protoliths of Precambrian and Paleozoic sedimentary and igneous rocks. Numerous Tertiary and Cretaceous granodiorite to quartz monzonite igneous bodies intrude the area (Weber and others, 1978). The Alaska Division of Mining Kardex file system records active claims on Paldo Creek as recent as 1986. There are no indications of production from Paldo 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:
The Alaska Division of Mining Kardex file system records active claims on Paldo Creek as recent as 1986.

Production notes:
There are no indications of production from Paldo Creek.

Reserves:

Additional comments:

References:
Weber and others, 1978

Primary reference: Weber and others, 1978

Reporter(s): Cameron S. Rombach (ADDGS)

Last report date: 4/26/99

Site name(s): Pasco Creek

Site type: Prospect

ARDF no.: BD031

Latitude: 64.669 **Quadrangle:** BD C-4

Longitude: 145.551

Location description and accuracy:

Pasco Creek is roughly 5 miles long and drains southeast into the Salcha River. The Alaska Division of Mining Kardex file system reports placer mining at the base of Paldo Creek. The approximate center of the mining activity is in SW1/4NW1/4 section 9, T. 3 S., R. 11 E., of the Fairbanks Meridian. A tractor trail and a landing strip provide access to the lower Pasco Creek drainage. It is locality 29 of Cobb and Eberlein (1980), who summarized relevant references under the name 'Pasco Creek'.

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:

The bedrock in the region is primarily schist, gneiss, some granite, and minor amounts of serpentinite and limestone. The intrusive bodies in the area range in composition from granodiorite to quartz monzonite with Cretaceous to Tertiary K-Ar ages (Weber and others, 1978). The gravels in the region average 18 to 20 feet in thickness and contain a variety of schist, gneiss, granite, and vein quartz (Prindle, 1906). Brooks (1908) reported the fineness of the gold to be higher than that mined in the Richardson district.

Placer gold was first discovered in the Salcha River area in 1905. Prospecting initially occurred on Butte Creek (BD006) and soon extended to nearby Caribou Creek (BD009), and Gold Creek (BD015) and associated tributaries. Live water and thawed ground presented the biggest obstacles during prospecting (Prindle, 1906; B 284). The first claims on Pasco Creek were staked in 1954 (Cobb and Eberlein, 1980). Subsequently, there have been active claims in 1976, 1977, and 1980 (Eberlein and others, 1977). The Alaska Division of Mining Kardex file system records active claims on Pasco Creek as recent as 1986. There is evidence of surficial mining operations, but the period of activity is unknown (Eberlein and others, 1977). It is unclear how much gold was produced from Pasco 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:
Placer gold was first discovered in the Salcha River area in 1905. Prospecting initially occurred on Butte Creek (BD006) and soon extended to nearby Caribou Creek (BD009), and Gold Creek (BD015) and associated tributaries. Live water and thawed ground presented the biggest obstacles during prospecting (Prindle, 1906; B 284). The first claims on Pasco Creek were staked in 1954 (Cobb and Eberlein, 1980). Subsequently, there have been active claims in 1976, 1977, and 1980 (Eberlein and others, 1977). The Alaska Division of Mining Kardex file system records active claims on Pasco Creek as recent as 1986. There is evidence of surficial mining operations, but the period of activity is unknown (Eberlein and others, 1977).

Production notes:
It is unclear how much gold was produced from Pasco Creek.

Reserves:

Additional comments:

References:
Brooks, 1906; Prindle, 1906 (B 284); Brooks, 1908; Ellsworth, 1910; Ellsworth and Parker, 1911; Prindle, 1913; Brooks, 1916; Cobb, 1977 (OFR 77-168B); Eberlein and others, 1977; Weber and others, 1978; Menzie and Foster, 1979; Cobb and Eberlein, 1980

Primary reference: Eberlein and others, 1977

Reporter(s): Cameron S. Rombach (ADDGS)

Last report date: 4/26/99

Site name(s): Pine Creek; Pyne Creek

Site type: Prospect

ARDF no.: BD032

Latitude: 64.739 **Quadrangle:** BD C-5

Longitude: 146.302

Location description and accuracy:

Pine Creek, also referred to as Pyne Creek, drains north into Beaver Creek (BD002). The creek is roughly 4.5 miles long and has several tributaries. There are several cabins approximately 2 miles from the mouth of Pine Creek. The Alaska Division of Mining Kardex file system reports placer mining along Pine Creek near the cabins. The approximate center of the mining activity is in NW1/4SW1/4 section 15, T. 2 S., R. 7 E., of the Fairbanks Meridian. A tractor trail and landing strip, approximately 1 mile to the east provide access to the Pine Creek drainage. It is locality 9 of Cobb (1972), who summarized relevant references under the name 'Pine Creek'.

Commodities:

Main: Au

Other: Sn

Ore minerals: Cassiterite, gold

Gangue minerals:

Geologic description:

Weber and others (1978) report the bedrock is primarily greenschist facies rocks with some marble, quartzite, and phyllite. Locally, there is an extensive cover of windblown silt and sand that ranges from 0.1 to 50 meters in thickness. In addition, much of the ground in the swampy lowlands of the Chena River and its tributaries is permanently frozen (Foster and others, 1979). Glover (1920?) reported a gold fineness of 748 for Pine Creek.

Ellsworth and Davenport (1913) report that gold was first mined on nearby Beaver Creek in significant amounts in the winter of 1911-12. Scarce cassiterite was reported in the placer concentrates of Pine Creek by Joesting (1942). Cobb (1977) and Eberlein and others (1977) reported that the presence of gold was assumed. About $3,000 of gold was hydraulically mined from Pine Creek in the late 1930's; which was too small to continue mining and operations shut down (C.F. Shield, unpublished data data, 1979). Ellsworth and Davenport (1913) reported gold mined from nearby Beaver Creek in amounts measured in dollars per foot. The total gold production from Pine Creek is unknown. There

are lode claims in the Pine Creek drainage (Menzie and Foster, 1979). The Alaska Division of Mining Kardex file system records active claims on Pine Creek as recent as 1986.

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:
Ellsworth and Davenport (1913) report that gold was first mined on nearby Beaver Creek in significant amounts in the winter of 1911-12. Scarce cassiterite was reported in the placer concentrates of Pine Creek by Joesting (1942). Cobb (1977) and Eberlein and others (1977) reported that the presence of gold was assumed. The Pine Creek property was hydraulically placer mined in the late 1930's. There are lode claims in the Pine Creek drainage (Menzie and Foster, 1979). The Alaska Division of Mining Kardex file system records active claims on Pine Creek as recent as 1986.

Production notes:
About $3,000 of gold was produced, which was too small to continue mining and operations shut down (C.F. Shield, unpublished data data, 1979). Ellsworth and Davenport (1913) reported gold mined from nearby Beaver Creek in amounts measured in dollars per foot. The total gold production from Pine Creek is unknown.

Reserves:

Additional comments:

References:
Ellsworth and Davenport, 1913; Joesting, 1942; Cobb, 1972 (MF-388); Cobb, 1977 (OFR 77-168B); Eberlein and others, 1977; Weber and others, 1978; Menzie and Foster, 1979; Cobb and Eberlein, 1980

Primary reference: Eberlein and others, 1977

Reporter(s): Cameron S. Rombach (ADDGS)

Last report date: 4/26/99

Site name(s): Pogo; Liese Creek

Site type: Prospects

ARDF no.: BD033

Latitude: 64.453 **Quadrangle:** BD B-2

Longitude: 144.91

Location description and accuracy:

The Pogo deposit is located on the Goodpaster River drainage approximately 5 miles north of the mouth of Central Creek (BD011), and approximately 35 miles northeast of Big Delta. The prospect is part of a 72 square-mile claim block that includes Sonora Creek (BD049) and parts of Central Creek. The approximate center of the Pogo deposit is in section 26, T. 25 S., R. 14 E., of the Fairbanks Meridian, which is bordered on the north and south by Liese Creek and Pogo Creek. A winter trail from Big Delta provides access up the Goodpaster River. The base camp of operations, a 24-trailer exploration camp, is located at SE1/4SE1/4 section 27, T. 5 S., R. 14 E., of the Fairbanks Meridian. A 1,500-foot airstrip is also located at the site. The Pogo prospect was not identified as a separate location by Cobb (1972) or by Cobb and Eberlein (1980).

Commodities:

Main: Au

Other: Ag, As, Bi, Cu, Mo, Pb, Te, Zn

Ore minerals: Arsenopyrite, bismuth, bismuthinite, chalcopyrite, gold, loellingite, maldonite, pyrite, pyrrhotite, sphalerite, tetradymite

Gangue minerals: Biotite, dolomite, feldspar, quartz, sericite

Geologic description:

The regional bedrock is composed of high grade gneisses intruded by Cretaceous granitic bodies. The area is predominantly cut by northwest-trending high-angle faults. However, there are other high-angle faults with various orientations. To the north, the region is intruded by the Cretaceous Goodpaster Batholith. At the Pogo deposit the host rock is predominantly biotite-quartz-feldspar amphibolite-grade gneiss. In the Liese Creek drainage, a series of granodiorite dikes intrude the gneisses. These dikes are interpreted to be related to the batholith. The youngest geologic unit in the area is a northwest-trending, steeply dipping, diorite dike situated in Liese Creek. This dike partly cuts off mineralization on the northeast edge of the deposit (Teck Resources Inc., 1998).

The Pogo deposit underlies a 1-square-mile area with soil geochemistry analyses greater than 100 ppb Au. Subsurface drilling has revealed several distinct zones of gold miner-

alization. These zones are roughly flat lying, vertically stacked, tabular in shape, and subparallel to each other. The Pogo deposit is divided along a flexure point with an almost sinusoidal wave shape. The west portion of the deposit strikes northeast and dips northwest about 30 degrees. The east portion of the deposit strikes east and dips north about 30 degrees. The upper Liese Zone (L1) is the largest and shallowest of the zones. It is at least 4000 by 2000 feet and varies from 0 to 65 feet in thickness. The lower Liese zone (L2) lies 300 to 500 feet below the L1. It is generally thinner, but higher grade than the L1. The L3 zone is a mineralized section approximately 800 feet below L1, intercepted by two drill holes (Smith, 1999). Its size and shape have not yet been defined. Although there are no mappable thrust faults, the zones of mineralization cut the foliation of the host rock by 15 degrees. These zones are interpreted to occur along low angle structures. In addition, the area is predominantly cut by northwest-trending high-angle faults. However, a north trending, high angle fault zone in the north-central part of the deposit has been tentatively identified as the feeder zone for the deposit. This zone is composed of 225 feet of intermittent quartz in sheared gneiss containing 0.25 ounces/ton Au (M. Smith, oral communication, 1999).

All of the mineralized zones are predominantly quartz carrying approximately 3% sulfides. Minerals found within the quartz include arsenopyrite, bismuth, bismuthinite, chalcopyrite, gold, loellingite, maldonite, pyrite, pyrrhotite, sphalerite, and tetradymite (Smith, 1999). The gold occurs as 1 to 25 micron grains in arsenopyrite along fractures, and as inclusions in bismuth, tetradymite, and other various Au-Pb-Bi-Te +/- S minerals. Geochemical data suggest a strong correlation between gold and bismuth, and a weaker correlation between gold and other lithophile elements (Smith, 1999).

The Liese Zones all are associated with vein and replacement type textures. The veining textures are characterized by two styles of quartz veins and alteration assemblages. The early veins are typified by white quartz containing arsenopyrite, chalcopyrite, pyrite, pyrrhotite and loellingite with secondary biotite in selvages up to 1 meter in width (Smith, 1998). The later veins are typified by gray quartz as stockwork veins and replacement selvages containing arsenopyrite and pyrite, along with secondary disseminated sericite and dolomite. It is common to find the sericite-dolomite alteration overprinted upon the earlier secondary biotite. Some silica flooding is observed in the gneiss and intrusive (M. Smith, oral communication, 1999).

Geochronology studies have focused on the granodiorite and diorite dikes in the Liese Creek drainage. The diorite dike has an 40Ar/39Ar biotite age of 94 Ma, and a U-Pb zircon age of 94 Ma. The granodiorite dike has an 40Ar/39Ar biotite age of 91.7 Ma, an 40Ar/39Ar white mica age of 91.2 Ma, and a U-Pb monazite age of 107 Ma (M. Smith, oral communication, 1999).

Metallurgical testing has shown that 92 to 94% of the gold is recoverable using conventional flotation and cyanidation of the sulfide concentrate. Currently, reserve estimates are 9.98 million tons with an average grade of 0.52 ounces/ton for 5.21 million total ounces of gold using a cutoff grade of 0.1 ounces/ton gold (Teck Resources Inc., 1998).

The Goodpaster region was first explored for placer gold in 1915. Thomas (1970) reports a stampede of prospectors that ended soon after, due to the lack of substantial deposits. A regional stream sediment sampling program identified gold, arsenic, and tungsten anomalies in Liese Creek and Pogo Creek in 1981. From 1991 to 1994, exploration efforts consisted of a soil sampling grid, minor prospecting, and geophysics. Three core

drill holes were completed on Liese Creek in 1994. Based on those findings,13 additional core holes were drilled in the area in 1995. This led to the initial identification of the L1 zone. Work in 1996 consisted of 22 drill holes to further define the zone. From 1991 to 1996, the exploration program drilled a total of 36,703 feet of core, and collected 4,142 core samples, and 3,520 geochemical samples. An additional 41 drill holes in 1997 enlarged the deposit and found the lower L2 zone. Drilling in 1998 focused on better defining the inner section of L1 and L2. A total of 91,263 feet of drilling has been completed and 3,404 core samples and 1,500 geochemistry samples have been collected (M. Smith, oral communication, 1999). Other work included exploration, and evaluation of a proposed adit, tailings storage, and plant site. The spatial extent of the subsurface zones are not fully delineated; they are still open to the southeast and northwest. Currently, regional work has identified an 8 mile long trend of anomalous soil geochemistry extending from the Pogo deposit to the southeast (M. Smith, 1998). In addition to infill and step-out drilling, a smaller surface exploration program is planned for 1999. An adit to obtain geotechnical data, test for continuity of the veins, and obtain a bulk sample for metallurgical testing is planned for 1999. The proposed adit will involve the mining and removal of 63,000 cubic yards of rock. Permitting for the adit and associated facilities is in progress (Teck Resources Inc., 1998).

Alteration:

The Liese Zones all are associated with vein and replacement type textures. The veining textures are characterized by two styles of quartz veins and alteration assemblages. The early veins are typified by white quartz containing arsenopyrite, chalcopyrite, pyrite, pyrrhotite and loellingite with secondary biotite in selvages up to 1 meter in width. The later veins are typified by gray quartz as stockwork veins and replacement selvages containing arsenopyrite and pyrite, along with secondary disseminated sericite and dolomite. It is common to find the sericite-dolomite alteration overprinted upon the earlier secondary biotite. Some silica flooding is observed in the gneiss and intrusive (M. Smith, oral communication, 1999).

Age of mineralization:

Mineralization at the Pogo deposit is thought to be plutonic-related. Geochronology studies have focused on the granodiorite and diorite dikes in the Liese Creek drainage. The diorite dike has an 40Ar/39Ar biotite age of 94 Ma, and a U-Pb zircon age of 94 Ma. The granodiorite dike has an 40Ar/39Ar biotite age of 91.7 Ma, an 40Ar/39Ar white mica age of 91.2 Ma, and a U-Pb monazite age of 107 Ma. (M. Smith, oral communication, 1999).

Deposit model:

Shear-hosted, plutonic-related mesothermal

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

Production Status: None

Site Status: Active

Workings/exploration:

The Goodpaster region was first explored for placer gold in 1915. Thomas (1970) reports a stampede of prospectors that ended soon after, due to the lack of substantial deposits. A regional stream-sediment sampling program identified gold, arsenic, and tungsten anomalies in Liese Creek and Pogo Creek in 1981. From 1991 to 1994, exploration efforts consisted of a soil-sampling grid, minor prospecting, and geophysics. Three core-drill holes were completed on Liese Creek in 1994. Based on those findings,13 additional core holes were drilled in the area in 1995. This led to the initial identification of the L1 zone. Work in 1996 consisted of 22 drill holes to further define the zone. From 1991 to 1996, the exploration program drilled a total of 171,859 feet of core, and collected 9,641 core samples, and 5,508 geochemical samples. An additional 41 drill holes in 1997 enlarged the deposit and found the lower L2 zone. Drilling in 1998 focused on better defining the inner section of L1 and L2. A total of 91,263 feet of drilling has been completed and 3,404 core samples and 1,500 geochemistry samples have been collected (M. Smith, oral communication, 1999). Other work included exploration, and evaluation of a proposed adit, tailings storage, and plant site. The spatial extent of the subsurface zones is not fully delineated; they are still open to the southeast and northwest. Currently, regional work has identified an 8 mile long trend of anomalous soil geochemistry extending from the Pogo deposit to the southeast (M. Smith, 1998). In addition to infill and step-out drilling, a smaller surface exploration program is planned for 1999. An adit to obtain geotechnical data, test for continuity of the veins, and obtain a bulk sample for metallurgical testing is planned for 1999. The proposed adit will involve the mining and removal of 63,000 cubic yards of rock. Permitting for the adit and associated facilities is in progress (Teck Resources Inc., 1998).

Production notes:

No production has occurred at the Pogo deposit.

Reserves:

Metallurgical testing has shown that 92 to 94% of the gold is recoverable using conventional flotation and cyanidation of the sulfide concentrate. Currently, reserve estimates are 9.98 million tons with an average grade of 0.52 opt for 5.21 million total ounces of gold using a cutoff grade of 0.1 opt gold (Teck Resources Inc., 1998).

Additional comments:

The Pogo project is a joint venture of Teck Corporation, Sumitomo Metal Mining, and Sumitomo Corporation. The Teck Corporation is the principal operator of the project and can earn a 40% interest in the property.

References:

Smith, 1998; Teck Resources, 1998; Smith, 1999

Primary reference: M. Smith, 1999

Reporter(s): Cameron S. Rombach (ADDGS)

Last report date: 4/26/99

Site name(s): Rainy Mountain Lode; Raven

Site type: Prospect

ARDF no.: BD034

Latitude: 64.15 **Quadrangle:** BD A-1

Longitude: 144.01

Location description and accuracy:

The Rainy Mountain Lode is situated on a ridge, approximately 55 miles east of Big Delta. The Alaska Division of Mining Kardex file system reports active lode claims at the Rainy Mountain Lode. The approximate center of the lode is in NE1/4 section 3, T. 27 N., R. 7 E., of the Copper River Meridian. The site can be accessed from the Healy River, approximately 3 miles to the south. It is locality 32 of Menzie and Foster (1979), who summarized relevant references under the name 'Raven'.

Commodities:

Main: Mo

Other:

Ore minerals: Molybdenite

Gangue minerals: Quartz

Geologic description:

The Rainy Mountain Lode is situated on a ridge of undifferentiated Tertiary-Cretaceous granodiorite to monzonite, metamorphic gneiss, and quartzite (Weber and others, 1978). The area is characterized by rounded hills and flat-topped ridges (Thomas, 1970). Information from Doyon Limited (1998) records the Rainy Mountain Lode as a Mo deposit. Menzie and Foster (1979) also classify the Raven site as a Mo deposit. The Alaska Division of Mining Kardex file system records active claims at the Rainy Mountain Lode as recent as 1980. There are no indications of production from Rainy Mountain Lode.

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:

The Alaska Division of Mining Kardex file system records active claims at the Rainy Mountain Lode as recent as 1980.

Production notes:

There are no indications of production from Rainy Mountain Lode.

Reserves:

Additional comments:

References:

Thomas, 1970; Cobb, 1973 (B 1374); Weber and others, 1978; Menzie and Foster, 1979; Doyon Limited, 1998

Primary reference: Menzie and Foster, 1979

Reporter(s): Cameron S. Rombach (ADDGS)

Last report date: 4/26/99

Site name(s): Redmond Creek; Mosquito Creek

Site type: Prospect

ARDF no.: BD035

Latitude: 64.366 **Quadrangle:** BD B-6

Longitude: 146.612

Location description and accuracy:

The confluence of Junction Creek (BD021) and Mosquito Creek produces Redmond Creek. Redmond Creek flows north towards the Salcha River, approximately 5 miles north of Birch Lake on the Richardson Highway. The creek is approximately 11 miles long and has several tributaries. The Alaska Division of Mining Kardex file system reports placer mining on Redmond Creek near the confluence of Junction Creek and Mosquito Creek. The approximate center of the mining activity is in SW1/4NW1/4 section 29, T. 6 S., R. 6 E., of the Fairbanks Meridian. There are references to additional placer mining along Redmond Creek, but it is unclear where. An unimproved road provides access to the Redmond Creek and Junction Creek drainages. It is locality 33 of Menzie and Foster (1979), who summarized relevant references under the name 'Redmond Creek'.

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:

The Richardson area is characterized by gentle slopes and broad, alluvium-filled valleys (Prindle and Katz, 1913, p. 140). The area is unglaciated and largely overlain by wind-blown silt, sand, and loess, locally up to 50 meters thick (Foster and others, 1979). The bedrock in the region comprises greenschist to amphibolite facies schist, marble, and gneiss that have been intruded by various igneous bodies (Bundtzen and Reger, 1977, p. 29). The schist and marble are probably Paleozoic, and the gneiss has a probable protolith of Precambrian and Paleozoic sedimentary and igneous rocks (Weber and others, 1978). The intrusive bodies in the area range in composition from rhyolite to andesite. The most commonly observed igneous rock in the area is fine-grained rhyolite containing quartz and feldspar phenocrysts (Olson and others, 1985). At the nearby Democrat Lode (BD014), the rhyolite contains arsenopyrite, gold, and pyrite, and is albitic, clay, and sericite altered (R.J. Newberry, oral communication, 1998). Structurally, the Richardson

region is cut by a northwest-trending fracture system termed the Richardson Lineament. However, in the Redmond Creek and Junction Creek area, the structures tend to bend more to the west (Swainbank and others, 1984). The lineament appears to correspond to the distribution of the rhyolite and other intrusive bodies and placer gold deposits (Bundtzen and Reger, 1977, p. 29). Also, the lineament tends to separate gneissic rocks to the northeast from schistose rocks to the southwest (Swainbank and others, 1984). At the confluence of Mosquito Creek and Junction Creek, the depth to bedrock is reported to be 40 to 50 feet (Ellsworth, 1910). The placer gold mined from the Redmond Creek area ranged from 639.5 to 785 in fineness (Menzie and Foster, 1979).

Placer gold was first discovered in the Richardson district in 1905. Mining initially occurred on Tenderfoot Creek and soon expanded to nearby creeks and associated tributaries. After peak gold production in 1908, mining in the area declined (Olson and others, 1985). The Alaska Division of Mining Kardex file system records active claims on Redmond Creek as recent as 1980. From 1905 through 1921, production for the Richardson district was approximately 95,000 ounces of gold and 24,000 ounces of silver (Bundtzen and Reger, 1977). Since 1980, the district has produced approximately 10,000 additional ounces of gold from intermittent mining (Olson and others, 1985). It is unclear how much gold was produced from Redmond 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:
Placer gold was first discovered in the Richardson district in 1905. Mining initially occurred on Tenderfoot Creek and soon extended to nearby creeks and associated tributaries. After peak gold production in 1908, mining in the area declined (Olson and others, 1985). The Alaska Division of Mining Kardex file system records active claims on Redmond Creek as recent as 1980.

Production notes:
From 1905 through 1921, production for the Richardson district was approximately 95,000 ounces of gold and 24,000 ounces of silver (Bundtzen and Reger, 1977). Since 1980, the district has produced approximately 10,000 additional ounces of gold from intermittent mining (Olson and others, 1985). It is unclear how much gold was produced

from Redmond Creek.

Reserves:

Additional comments:

References:

Ellsworth, 1910; Ellsworth and Parker, 1911; Prindle and Katz, 1913; Chapin, 1914; Saunders, 1965; Bundtzen and Reger, 1977; Eberlein and others, 1977; Weber and others, 1978; Menzie and Foster, 1979; Cobb and Eberlein, 1980; Swainbank and others, 1984; Olson and others, 1985

Primary reference: Ellsworth, 1910

Reporter(s): Cameron S. Rombach (ADDGS)

Last report date: 4/26/99

Site name(s): Rick's; Rick's Creek; Rick's Nickel; Rick's Prospect; Nickel Creek; Nail Allochthon; Nail Ridge

Site type: Prospects

ARDF no.: BD036

Latitude: 64.755 **Quadrangle:** BD D-2

Longitude: 144.872

Location description and accuracy:

Rick's, also referred to as Rick's Prospect, Rick's Creek, Rick's Nickel, Nickel Creek, Nail Ridge, and Nail Allochthon, is centered at VABM Nail, approximately 55 miles northeast of Delta Junction. The prospect covers a 60-square-kilometer area situated on a 12 kilometer long ridge (Southworth, 1985). The approximate center of the prospect is in SW1/4NE1/4 section 11, T. 2 S., R. 14 E., of the Fairbanks Meridian. Rick's Creek and Black Bear Creek drain the ridge to the northwest for 9 to 12 miles towards the North Fork of the Salcha River (Saunders, 1954). It is locality 2 of Cobb (1972), who summarized relevant references under the name 'Nickel Creek'.

Commodities:

Main: Cr, Cu

Other: Ag, As, Mg, Ni

Ore minerals: Azurite, chalcopyrite, chromite, magnesite, magnetite, malachite

Gangue minerals:

Geologic description:

Rick's Prospect is approximately 12 km long and 2 km wide (Southworth, 1984). Foster and others (1979) describe the bedrock as greenschist to amphibolite facies rocks that have been intruded by Mesozoic and Tertiary igneous bodies. Locally, the area is overlain by Tertiary sedimentary and volcanic rocks. The stratigraphy of the ridge consists of metamorphic rocks overlain by siliceous carbonate rock with localized areas of intense Fe-staining and alteration. This is overlain by peridotite with localized phases of harzburgite, dunite, and serpentinite, and capped by gabbro and diorite rubble (Southworth, 1985). The underlying metamorphic rocks contain cherts that have radiolaria and conodonts of Permian age.

The gabbro and diorite contain disseminated magnetite with trace chalcopyrite. Both the peridotite and the underlying siliceous carbonate rock contain 0.25 to 4% disseminated chromite. Rare pods and schlieren of chromite have also been found. Cobb and Eberlein (1980) reported pods of high-grade chromite 1 foot in thickness and 3 feet in

length. Chromian spinel is common in the weathered area of the siliceous carbonate rock. The chromian spinel is high in Al and Mg, and probably of no economic or industrial use.

The underlying siliceous carbonate rocks contain areas of serpentinite that are interpreted to have been altered to serpentinite by a CO2-rich fluid. Unweathered sections of the siliceous carbonate rock contain significant amounts of magnesite. Assays have revealed up to 17% MgO; a possible resource of magnesium (Southworth, 1985). Throughout the ridge, numerous assay results revealed no significant amounts of Ni, Co, Au or PGE. One occurrence of small pods of azurite and malachite, less than 0.5 cm in diameter, was observed in Fe-stained siliceous carbonate. A sample of this material contained relict chromite and minor veinlets of serpentinite, and assayed 1.14% Cu, 6,800 ppm Sb, 174 ppm As, and 24.6 ppm Ag (Southworth, 1985).

The first published geologic description of the region was by Prindle (1905). Saunders (1965) performed a limited geochemical investigation of the prospect at the invitation of the then claim holder. Large-scale mapping of the area was completed by Weber and others (1979). The most recent detailed work on the ridge was completed in a joint effort by the Alaska Division of Geological & Geophysical Surveys, the U.S. Bureau of Mines, and the U.S. Geological Survey in 1983 (Southworth, 1985). Menzie and Foster (1979) reported some placer claim staking nearby on Rick's Creek and Black Bear Creek, which drain Nail Ridge to the northwest. No production has been reported for the area.

Alteration:

The peridotite contains areas of serpentinite. The underlying siliceous carbonate rocks also contain areas of serpentinite; interpreted to have been altered to serpentinite by a CO2-rich fluid (Southworth, 1985).

Age of mineralization:

Deposit model:

Disseminated sulfides and chromite in serpentinite allochthon

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

Production Status: No

Site Status: Inactive

Workings/exploration:

The first published geologic description of the prospect was by Prindle (1905). Saunders (1965) performed a limited geochemical investigation of the prospect at the invitation of the claim holder. Large-scale mapping of the area was completed by Weber and others (1978). The most recent detailed work on the ridge was by a joint effort in 1983 by the Alaskan Division of Geological and Geophysical Surveys, the U.S. Bureau of Mines, and the U.S. Geological Survey published by Southworth (1985). Menzie and Foster (1979) reported some placer claim staking nearby on Rick's Creek and Black Bear Creek, which drain Nail Ridge to the northwest.

Production notes:

There has only been prospecting on Nail Ridge and on some placer claims nearby on Rick's Creek and Black Bear Creek, which drain Nail Ridge to the northwest (Menzie and Foster,1979).

Reserves:

Additional comments:

References:

Prindle, 1905; Joesting, 1942; Saunders, 1954; Berg and Cobb, 1967; Eberlein and others, 1977; Weber and others, 1978; Foster and others, 1979; Menzie and Foster, 1979; Cobb, 1972 (MF-388); Cobb and Eberlein, 1980; Southworth, 1985

Primary reference: Southworth, 1985

Reporter(s): Cameron S. Rombach (ADDGS)

Last report date: 4/26/99

Site name(s): Serpentine Creek

Site type: Mine

ARDF no.: BD037

Latitude: 64.836 **Quadrangle:** BD D-1

Longitude: 144.32

Location description and accuracy:

Serpentine Creek drains west into the Salcha River. The creek is roughly 17 miles long and has several tributaries. The Alaska Division of Mining Kardex file system reports placer mining on Serpentine Creek, but it is unclear where mining activity took place. The approximate midpoint of the creek is in SW1/4SW1/4 section 10, T. 1 S., R. 16 E., of the Fairbanks Meridian. The creek can be accessed from the Salcha River. It was not identified as a separate location by Cobb (1972) or by Cobb and Eberlein (1980).

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:

Weber and others (1978) described the bedrock as primarily quartzite, phyllite, schist, gneiss, slate, and marble of unknown age. Numerous Tertiary and Cretaceous granodiorite to quartz monzonite igneous bodies intrude the area. Weber and others (1978) infer an extension of the Shaw Creek Fault through the Serpentine Creek drainage. The Alaska Division of Mining Kardex file system records active claims on Serpentine Creek as recent as 1986. There are no indications of production from Serpentine 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:

The Alaska Division of Mining Kardex file system records active claims on Serpentine Creek as recent as 1986.

Production notes:

There are no indications of production from Serpentine Creek.

Reserves:

Additional comments:

References:

Foster and others, 1978; Weber and others, 1978

Primary reference: Foster and others, 1978

Reporter(s): Cameron S. Rombach (ADDGS)

Last report date: 4/26/99

Site name(s): Shamrock Creek; VABM Buck

Site type: Prospects

ARDF no.: BD038

Latitude: 64.371 **Quadrangle:** BD B-5

Longitude: 146.414

Location description and accuracy:

Shamrock Creek is a lode prospect located on the southwest side of VABM Buck, approximately 7 miles northwest of the town of Richardson, Alaska, on the Richardson Highway. There are numerous prospecting trenches in the area southwest of VABM Buck. The approximate center of prospecting is in NW1/4NW1/4 section 29, T. 6 S., R. 6 E., of the Fairbanks Meridian. Shamrock Creek can be accessed from an unimproved road in the Redmond Creek drainage. It was not identified as a separate location by Cobb (1972) or by Cobb and Eberlein (1980).

Commodities:

Main: Au

Other:

Ore minerals: Gold, pyrite

Gangue minerals: Fe-carbonates, quartz, tourmaline

Geologic description:

The Richardson area is characterized by gentle slopes and broad, alluvium-filled valleys (Prindle and Katz, 1913, p. 140). The area is unglaciated and largely overlain by windblown silt, sand, and loess, locally up to 50 meters thick (Foster and others, 1979). The bedrock in the region comprises greenschist to amphibolite facies schist, marble, and gneiss that have been intruded by various igneous bodies (Bundtzen and Reger, 1977, p. 29). The schist and marble are probably Paleozoic, and the gneiss has a probable protolith of Precambrian and Paleozoic sedimentary and igneous rocks (Weber and others, 1978). The intrusive bodies in the area range in composition from rhyolite to andesite. Fine-grained rhyolite containing quartz and feldspar phenocrysts is common throughout the area (Olson and others, 1985). Structurally, the Richardson region is cut by a northwest-trending fracture system termed the Richardson Lineament. Bundtzen and Reger (1977) interpreted the lineament to extend from Shamrock Creek to Tenderfoot Creek (BD039). The lineament appears to correspond to the distribution of the rhyolite and other intrusive bodies and placer gold deposits (Bundtzen and Reger, 1977, p. 29). Also, the lineament tends to separate gneissic rocks to the northeast from schistose rocks to the

southwest (Swainbank and others, 1984).

There are several granitic intrusions and associated hornfels on the southwest side of VABM Buck . Numerous northwest-trending shear zones in contact with the intrusions, contain gold-bearing quartz veins (D. Bohme, written communications, 1998). In 1992, trenching and sampling operations defined a 3/4 square mile area with several mineralized intervals. The best trench sample results were 10 meters of 1,750 ppb Au, and 6 meters of 2,354 ppb Au. However, a 1997 exploration program sampled the same trench intervals and failed to reproduce the 1992 gold values. In the hornfels, mineralization is associated with Fe-carbonate alteration, quartz, tourmaline, and pyrite. The system has been interpreted to be shear-hosted and comparable to an intrusive-distal 'True North' style of mineralization (D. Bohme, written communications, 1998).

In 1992, approximately 7,750 feet of trenching was completed, and 106 composite rock chip samples were collected. Resampling and exploration activities were conducted in 1997 (D. Bohme, written communications, 1998). Continued exploration in the Shamrock Creek area is expected in 1999. There has been no gold production from the Shamrock Creek prospect.

Alteration:

Fe-carbonate, quartz, and tourmaline alteration is associated with shear hosted gold mineralization (D. Bohme, written communications, 1998).

Age of mineralization:

Deposit model:

Plutonic-related mesothermal, shear-hosted deposit, distal to intrusive?

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

Production Status: None

Site Status: Active

Workings/exploration:

Placer gold was first discovered in the Richardson area in 1905. Mining initially occurred on nearby Tenderfoot Creek and extended to other nearby creeks. After peak gold production in 1908, mining in the area declined (Olson and others, 1985). Metz (1991) described early drift mine and surface trench tailings in the Shamrock Creek drainage. In 1992, approximately 7,750 feet of trenching was completed, and 106 composite rock chip samples were collected. Resampling and exploration activities were conducted in 1997 (D. Bohme, written communications, 1998).

Production notes:

From 1905 through 1921, production for the Richardson area was approximately 95,000 ounces of gold and 24,000 ounces of silver (Bundtzen and Reger, 1977). Since 1980, mining from the district has produced an additional 10,000 ounces of gold (Olson and others, 1985). Gold production for Shamrock Creek has not been reported separately.

Reserves:

Additional comments:

References:

Ellsworth and Parker, 1911; Prindle and Katz, 1913; Chapin, 1914; Saunders, 1965; Bundtzen and Reger, 1977; Eberlein and others, 1977; Weber and others, 1978; Menzie and Foster, 1979; Cobb and Eberlein, 1980; Olson and others, 1985; Metz, 1991

Primary reference: Bundtzen and Reger, 1977

Reporter(s): Cameron S. Rombach (ADDGS)

Last report date: 4/26/99

Site name(s): Tenderfoot Creek

Site type: Mines

ARDF no.: BD039

Latitude: 64.275 **Quadrangle:** BD B-5

Longitude: 146.23

Location description and accuracy:

Tenderfoot Creek drains southeast into the Tanana River, approximately 4.5 miles east of the town of Richardson on the Richardson Highway. The creek is approximately 6 miles long and has several small tributaries. Placer workings are found from its mouth on the Tanana River to about 4 miles upstream (Chapin, 1914). The approximate center of the mining activity is in SW1/4SE1/4 section 30, T. 8 S., R. 8 E., of the Fairbanks Meridian. The Richardson Highway follows the creek for several miles. Numerous unimproved roads provide access to the Tenderfoot Creek drainage. It is locality 14 of Cobb and Eberlein (1980) who summarized relevant references under the name 'Tenderfoot Creek'.

Commodities:

Main: Au

Other: Ag, Pb

Ore minerals: Galena, gold

Gangue minerals:

Geologic description:

The Richardson area is characterized by gentle slopes and broad, alluvium-filled valleys (Prindle and Katz, 1913, p. 140). The area is unglaciated and largely overlain by windblown silt, sand, and loess, locally up to 50 meters thick (Foster and others, 1979). The bedrock in the region comprises greenschist to amphibolite facies schist, marble, and gneiss that have been intruded by various igneous bodies (Bundtzen and Reger, 1977, p. 29). The schist and marble are probably Paleozoic, and the gneiss has a probable protolith of Precambrian and Paleozoic sedimentary and igneous rocks (Weber and others, 1978). The intrusive bodies in the area range in composition from rhyolite to andesite. Fine-grained rhyolite containing quartz and feldspar phenocrysts is common throughout the area (Olson and others, 1985). At the nearby Democrat Lode (BD014), the rhyolite contains arsenopyrite, gold, and pyrite, and is albitic, clay, and sericite altered (R.J. Newberry, oral communication, 1998). Structurally, the Richardson region is cut by a northwest-trending fracture system termed the Richardson Lineament. The lineament appears

to correspond with the distribution of the rhyolite and other intrusive bodies and placer gold deposits (Bundtzen and Reger, 1977, p. 29). Also, the lineament tends to separate gneissic rocks to the northeast from schistose rocks to the southwest (Swainbank and others, 1984).

Tenderfoot Creek has been the largest gold producer in the Richardson district. However, the gold from Tenderfoot Creek is the lowest grade of any in the Yukon region (Chapin, 1914). Bundtzen and Reger (1977) reported a gold fineness of 670 for Tenderfoot Creek. Metz and Hawkins (1981) reported the average gold fineness to be 901. Glover (1920?) reported a range in gold fineness of 622 to 735 for Tenderfoot Creek. Mining operations occurred in the lower 4 miles of the creek. The alluvium ranges from 30 feet in thickness at the head of the creek to 155 feet near the mouth (Chapin, 1914). Pan concentrates contain amphibole, clinopyroxene, feldspar, garnet, gold, ilmenite, magnetite, quartz, sphene, and zircon (Bundtzen and Reger, 1977). Chapin (1914) reports that a piece of gold-bearing galena float was recovered during mining operations. However, the bedrock source was not found.

Placer gold was first discovered in the Richardson district in 1905. Mining initially occurred on Tenderfoot Creek and expanded to nearby Banner Creek (BD001) and associated tributaries. Because the depth to bedrock in the drainage is 30 to 155 feet, early mining on Tenderfoot Creek was largely by drifting methods (Ellsworth and Parker, 1911). In recent years, surface mining, utilizing earth moving equipment, has taken place in the upper portions of Tenderfoot Creek. After peak gold production in 1908, mining in the area declined (Olson and others, 1985). From 1905 through 1921, production for the Richardson district was approximately 95,000 ounces of gold and 24,000 ounces of silver (Bundtzen and Reger, 1977). Since 1980, the district has produced approximately 10,000 additional ounces of gold from intermittent mining (Olson and others, 1985). Production figures specifically for Tenderfoot Creek are not available, but it has been one of the major producers in the district.

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: Inactive

Workings/exploration:
Placer gold was first discovered in the Richardson district in 1905. Mining initially occurred on Tenderfoot Creek and expanded to nearby Banner Creek (BD001) and associ-

ated tributaries. Because the depth to bedrock in the drainage is 30 to 155 feet, early mining on Tenderfoot Creek was largely by drifting methods (Ellsworth and Parker, 1911). In recent years, surface mining, utilizing earth moving equipment, has taken place in the upper portions of Tenderfoot Creek.

Production notes:

After peak gold production in 1908, mining in the area declined (Olson and others, 1985). From 1905 through 1921, production for the Richardson district was approximately 95,000 ounces of gold and 24,000 ounces of silver (Bundtzen and Reger, 1977). Since 1980, the district has produced approximately 10,000 additional ounces of gold from intermittent mining (Olson and others, 1985). Production figures specifically for Tenderfoot Creek are not available, but it has been one of the major producers in the district.

Reserves:

Additional comments:

References:

Ellsworth and Parker, 1911; Prindle and Katz, 1913; Chapin, 1914; Glover, 1920?; Saunders, 1965; Bundtzen and Reger, 1977; Eberlein and others, 1977; Weber and others, 1978; Menzie and Foster, 1979; Cobb and Eberlein, 1980; Metz and Hawkins, 1981; Swainbank and others, 1984; Olson and others, 1985

Primary reference: Cobb and Eberlein, 1980

Reporter(s): Cameron S. Rombach (ADDGS)

Last report date: 4/26/99

Site name(s): Tibbs Creek; Lucky Star

Site type: Mine

ARDF no.: BD040

Latitude: 64.383 **Quadrangle:** BD B-1

Longitude: 144.263

Location description and accuracy:

Tibbs Creek drains north into the Goodpaster River, approximately 60 miles northeast of Delta Junction. The creek is approximately 11 miles long and has numerous small tributaries including Last Chance Creek (BD022), Granite Creek (BD020), Antimony Creek, Wolverine Creek, Johnson Creek, and King Creek. Placer workings are concentrated near the confluences with Last Chance Creek, Granite Creek, Antimony Creek, Wolverine Creek, and the Lucky Star mouth of Tibbs Creek (Menzie and Foster, 1979). The approximate center of the mining activity is in SW1/4NW1/4 section 19, T. 6 S., R. 18 E., of the Fairbanks Meridian. A winter trail from the South Fork of the Goodpaster River provides access up Divide Creek and over Black Mountain to the east. It is locality 19 of Cobb and Eberlein (1980), who summarized relevant references under the name 'Tibbs Creek'.

Commodities:

Main: Au

Other: Mo, Pb, Sb

Ore minerals: Gold, jamesonite, molybdenite, stibnite

Gangue minerals:

Geologic description:

The area arounding the Tibbs Creek placers is characterized by rounded hills and flat-topped ridges (Thomas, 1970). The most prominent ridge is Black Mountain, which trends about 12 miles in a northerly direction and is underlain by Cretaceous granodiorite (Weber and others, 1978). Several creeks flow westward off Black Mountain in steep, parallel, V-shaped valleys to form the headwaters of Tibbs Creek. A combination of augen gneiss, gneissic schist, and schist are to the west of Black Mountain. There is intense shearing and faulting in the contact between the metamorphic and intrusive rocks. This shearing is observed in the underground workings and at the surface as pronounced saddle-like depressions across the spurs separating the westward flowing tributaries of Tibbs Creek. This shear zone trends roughly N15E and dips 65 degrees NW. Tibbs Creek is thought to lie in a structural zone. Quartz veins along the creek contain gold,

jamesonite, molybdenite, and stibnite (Cobb and Eberlein, 1980).

The Goodpaster region was first explored for placer gold in 1915. Thomas (1970) reports a stampede of prospectors in 1915 that ended soon after, due to low grade deposits. In the early 1930's, gold bearing quartz veins were discovered in the upper Tibbs Creek drainage. From 1936 to 1941, the area was mined for lode gold at the Blue Lead and Blue Lead Extension (BD003), Grizzly Bear (BD018), and Gray Lead (BD017) mines. Joesting (1938) reports that Tibbs Creek was churn drilled near the landing field near the mouth of Wolverine Creek. Cobb (1973; B 1374) reports insignificant placer gold production from the Goodpaster region. No production figures for Tibbs Creek are available.

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 Goodpaster region was first explored for placer gold in 1915. Thomas (1970) reports a stampede of prospectors in 1915 that ended soon after, due to low-grade deposits. In the early 1930's, gold-bearing quartz veins were discovered in the upper Tibbs Creek drainage. From 1936 to 1941, the area was mined for lode gold at the Blue Lead and Blue Lead Extension (BD003), Grizzly Bear (BD018), and Gray Lead (BD017) mines. Joesting (1938) reports that Tibbs Creek was churn drilled near the landing field near the mouth of Wolverine Creek.

Production notes:
Cobb (1973; B 1374) reports insignificant placer gold production from the Goodpaster region. No production figures for Tibbs Creek are available.

Reserves:

Additional comments:

References:
Joesting, 1938; Smith, 1939; Thomas, 1970; Cobb, 1972 (MF-388); Cobb, 1973 (B 1374); Eberlein and others, 1977; Weber and others, 1978; Foster and others, 1979; Menzie and Foster, 1979; Cobb and Eberlein, 1980

Primary reference: Joesting, 1938

Reporter(s): Cameron S. Rombach (ADDGS)

Last report date: 4/26/99

Site name(s): Unnamed (headwaters of Rick's Creek)

Site type: Occurrence

ARDF no.: BD041

Latitude: 64.83 **Quadrangle:** BD D-2

Longitude: 144.96

Location description and accuracy:

An occurrence noted by Albanese (1984) is located on a ridge in the headwaters of Rick's Creek (BD036). The approximate location of the occurrence is in NW1/4 section 16, T. 1 S., R. 14 E., of the Fairbanks Meridian. It was not identified as a separate location by Cobb (1972) or by Cobb and Eberlein (1980).

Commodities:

Main: W

Other: Cu

Ore minerals: Arsenopyrite, chalcopyrite, pyrite

Gangue minerals: Calc-silicates, Quartz

Geologic description:

As reported by Albanese (1984), the occurrence is a pod of gossan containing arsenopyrite, chalcopyrite, and chalcopyrite in calc-silicate rock. Weber and others (1978) describe the country rock as quartzite, slate, calc-phyllite and marble. The occurrence is located near contact of a Tertiary to Cretaceous granodiorite to quartz monzonite intrusion. An assay of a rock sample contained 475 ppm Cu, 3 ppm Pb, 3 ppm Zn, 1.5 ppm Ag, 2 ppm Mo, 5 ppm Sn, greater than 1000 ppm W, 465 ppm As, and 1,330 ppm Mn (Albanese, 1984).

Alteration:

Age of mineralization:

Deposit model:

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

Production Status: Undetermined.

Site Status: Undetermined

Workings/exploration:
Occurrence noted during geologic mapping.

Production notes:

Reserves:

Additional comments:

References:
Weber and Foster, 1978; Albanese, 1984

Primary reference: Albanese,1984

Reporter(s): Cameron S. Rombach (ADDGS)

Last report date: 4/26/99

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

Site type: Occurrence

ARDF no.: BD042

Latitude: 64.59 **Quadrangle:** BD C-1

Longitude: 144.44

Location description and accuracy:
Menzie and Foster (1979) noted a mineral occurrence in the headwaters of Porcupine Creek, a tributary of the Salcha River in section 1, T. 4 S., R. 16 E., of the Fairbanks Meridian. It was not identified as a separate location by Cobb (1972) or by Cobb and Eberlein (1980).

Commodities:

Main: Pb

Other:

Ore minerals: Galena

Gangue minerals:

Geologic description:
Menzie and Foster (1979) noted a mineral occurrence of galena in quartzite and quartz-mica schist in the headwaters of Porcupine Creek. Weber and others (1978) report the regional geology as greenschist, quartzite, phyllite, and marble.

Alteration:

Age of mineralization:

Deposit model:

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

Production Status: Undetermined.

Site Status: Undetermined

Workings/exploration:
Menzie and Foster (1979) noted the mineral occurrence during geologic mapping.

Production notes:

Reserves:

Additional comments:

References:
Weber and others, 1978; Menzie and Foster, 1979

Primary reference: Menzie and Foster, 1979

Reporter(s): Cameron S. Rombach (ADDGS)

Last report date: 4/26/99

Site name(s): Unnamed (headwaters of Rick's Creek)

Site type: Prospect

ARDF no.: BD043

Latitude: 64.84 **Quadrangle:** BD D-2

Longitude: 144.95

Location description and accuracy:

An occurrence noted by Albanese (1984) is located on a ridge in the headwaters of Rick's Creek (BD036). The occurrence is in SW1/4 section 9, T. 1 S., R. 14 E., of the Fairbanks Meridian. This occurrence is situated approximately 1 mile from another occurrence in the headwaters of Rick's Creek (BD041). It was not identified as a separate location by Cobb (1972) or by Cobb and Eberlein (1980).

Commodities:

Main: W

Other: Ag, As, Au, Cu, Mn, Sb, Zn

Ore minerals: Arsenopyrite, chalcopyrite, pyrite

Gangue minerals: Carbonate, garnet, pyroxene

Geologic description:

The occurrence noted by Albanese (1984) included the analysis of three samples: 1) a sulfide zone containing arsenopyrite, chalcopyrite, and pyrite. A rock sample from a trench in a garnet-diopside skarn contained 518 ppm Cu, 39 ppm Pb, 436 ppm Zn, 0.1 ppm Au, 1.3 ppm Ag, 1 ppm Mo, 222 ppm Sb, 20 ppm Sn, 60 ppm W, greater than 19,800 ppm As, and 686 ppm Mn; 2) an arsenopyrite-, chalcopyrite-, and pyrite-bearing calc-silicate contained 64 ppm Cu, 4 ppm Pb, 50 ppm Zn, 0.1 ppm Au, 0.4 ppm Ag, 2 ppm Mo, 10 ppm Sb, 4 ppm Sn, 900 ppm W, 213 ppm As, and 1,360 Mn; and 3) an arsenopyrite and pyrite bearing calc-silicate contained 462 ppm Cu, 34 ppm Pb, 37 ppm Zn, 4.3 ppm Ag, 1 ppm Mo, 4 ppm Sn, 450 ppm W, 818 ppm As, and 364 ppm Mn. Weber and others (1978) describe the regional bedrock as quartzite, slate, calc-phyllite and marble. The occurrence is located near the contact of a Tertiary to Cretaceous granodiorite to quartz monzonite intrusion.

Alteration:

Age of mineralization:

Deposit model:
Skarn

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

Production Status: Undetermined.

Site Status: Undetermined

Workings/exploration:
Menzie and Foster (1979) noted the mineral occurrence during geologic mapping.

Production notes:

Reserves:

Additional comments:

References:
Weber and Foster, 1978; Albanese, 1984

Primary reference: Albanese,1984

Reporter(s): Cameron S. Rombach (ADDGS)

Last report date: 4/26/99

Site name(s): Unnamed (headwaters of North Fork of Salcha River)

Site type: Occurrence

ARDF no.: BD044

Latitude: 64.96 **Quadrangle:** BD D-2

Longitude: 144.95

Location description and accuracy:
The occurrence noted by Albanese (1984) is located on an unnamed ridge north of the headwaters of the North Fork of the Salcha River. The approximate location of the occurrence is in NW1/4 section 32, T. 2 N., R. 14 E., of the Fairbanks Meridian. It was not identified as a separate location by Cobb (1972) or by Cobb and Eberlein (1980).

Commodities:

Main: Au

Other:

Ore minerals:

Gangue minerals: Quartz

Geologic description:
The occurrence noted by Albanese (1984) is a sample of limonite-stained quartzite. A rock sample contained 294 ppm Cu, 7 ppm Pb, 42 ppm Zn, 15.0 ppm Au, 4.2 ppm Ag, 20 ppm Mo, 4 ppm Sn, 525 ppm W, and 609 ppm Mn. Weber and others (1978) describe the regional geology as gneiss and quartzite.

Alteration:

Age of mineralization:

Deposit model:

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

Production Status: Undetermined.

Site Status: Undetermined

Workings/exploration:

Production notes:

Reserves:

Additional comments:

References:
Weber and Foster, 1978; Albanese, 1984

Primary reference: Albanese,1984

Reporter(s): Cameron S. Rombach (ADDGS)

Last report date: 4/26/99

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

Site type: Occurrence

ARDF no.: BD045

Latitude: 64.99 **Quadrangle:** BD D-3

Longitude: 145.3

Location description and accuracy:
The occurrence noted by Albanese (1984) is located on a ridge east of Ohio Creek. The approximate location of the occurrence is in SW1/4 section 16, T. 2 N., R. 12 E., of the Fairbanks Meridian. It was not identified as a separate location by Cobb (1972) or by Cobb and Eberlein (1980).

Commodities:

Main: Ag

Other: Zn

Ore minerals:

Gangue minerals: Quartz

Geologic description:
The occurrence noted by Albanese (1984) is a sample of quartz in black slate. The sample contained 226 ppm Cu, 6 ppm Pb, 469 ppm Zn, 11.4 ppm Ag, 4 ppm Mo, 86 ppm Sb, 2 ppm Sn, 1 ppm W, 31 ppm As, and 174 ppm Mn. Weber and others (1978) describe the regional geology as quartzite, phyllite, slate, and marble.

Alteration:

Age of mineralization:

Deposit model:

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

Production Status: Undetermined.

Site Status: Undetermined

Workings/exploration:

Production notes:

Reserves:

Additional comments:

References:
Weber and Foster, 1978; Albanese, 1984

Primary reference: Albanese,1984

Reporter(s): Cameron S. Rombach (ADDGS)

Last report date: 4/26/99

Site name(s): Banner Dike Zone

Site type: Prospects

ARDF no.: BD046

Latitude: 64.319 **Quadrangle:** BD B-5

Longitude: 146.332

Location description and accuracy:

The Banner Dike Zone is situated in the Banner Creek (BD001) drainage approximately 2 miles north of the town of Richardson on the Richardson Highway. The full extent of the Banner Dike Zone is not well defined. It is situated approximately 3 miles west of the Buckeye Zone (BD048) and about 1.5 miles southeast of the Democrat Lode (BD014). The approximate center of the zone is in SW1/4SE1/4 section 10, T. 7 S., R. 7 E., of the Fairbanks Meridian. Numerous unimproved roads provide access to the Banner Creek drainage. It was not identified as a separate location by Cobb (1972) or by Cobb and Eberlein (1980).

Commodities:

Main: Au

Other: Ag, As, Pb, Sb, Zn

Ore minerals: Arsenopyrite, galena, gold, pyrite, stibnite, sulfosalts (Pb-Sb)

Gangue minerals: Limonite, quartz, sericite

Geologic description:

The Richardson area is characterized by gentle slopes and broad, alluvium-filled valleys (Prindle and Katz, 1913, p. 140). The area is unglaciated and largely overlain by windblown silt, sand, and loess, locally up to 50 meters thick (Foster and others, 1979). The bedrock in the region comprises greenschist to amphibolite facies schist, marble, and gneiss that have been intruded by various igneous bodies (Bundtzen and Reger, 1977, p. 29). The schist and marble are probably Paleozoic, and the gneiss has a probable protolith of Precambrian and Paleozoic sedimentary and igneous rocks (Weber and others, 1978). The intrusive bodies in the area range in composition from rhyolite to andesite. Fine-grained rhyolite containing quartz and feldspar phenocrysts is common throughout the area (Olson and others, 1985). At the nearby Democrat Lode (BD014), the rhyolite contains arsenopyrite, gold, and pyrite, and is albitic, clay, and sericite altered (R.J. Newberry, oral communication, 1998). Structurally, the Richardson region is cut by a northwest-trending fracture system termed the Richardson Lineament. The lineament appears to correspond to the distribution of the rhyolite and other intrusive bodies and placer gold

deposits (Bundtzen and Reger, 1977, p. 29). Also, the lineament tends to separate gneissic rocks to the northeast from schistose rocks to the southwest (Swainbank and others, 1984).

The extent of the Banner Dike Zone is not well defined, but it appears to trend northwest-southeast and is subparallel to the nearby Democrat Lode (BD014). The zone is defined by mineralized areas of strongly-fractured, limonite-stained, altered quartz-sericite-pyrite gneiss that is cut by rhyodacite dikes. Gold mineralization in the Banner Dike Zone is characterized by quartz veinlets containing gold and silver, and arsenic, and quartz veinlets that contain silver, arsenic, antimony, lead, and zinc. The best assay results range between 0.026 to 0.05 ounces/ton Au and 2.3 to 5.0 ounces/ton Ag (F.L. Blystone, press release, 1998). Sulfide assemblages include variable combinations of arsenopyrite, galena, pyrite, stibnite, and Pb-Sb sulfosalts (K. Ausburn, oral communication, 1998). The zones of mineralization are open to the northwest and southeast along strike (F.L. Blystone, press release, 1998).

Placer gold was first discovered in the Richardson district in 1905. Mining initially occurred on the nearby Tenderfoot Creek (BD039) and expanded to Banner Creek and associated tributaries. After peak gold production in 1908, mining in the area declined (Olson and others, 1985). In 1998, an exploration program consisting of reconnaissance mapping, stream-sediment, heavy-mineral concentrate, and rock-chip sampling was conducted in the Richardson area. A total of 182 rock-chip samples were collected from 38 prospect pits and 109 pan concentrates from local streams. The Banner Dike Zone has been prospected in a 3,000- by 1,000-foot area (F.L. Blystone, press release, 1998). There has been no gold production from the Banner Dike Zone prospect.

Alteration:

Age of mineralization:

Deposit model:

Plutonic-related mesothermal, shear-hosted deposit

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

Production Status: None

Site Status: Active

Workings/exploration:

Placer gold was first discovered in the Richardson district in 1905. Mining initially occurred on the nearby Tenderfoot Creek (BD039) and expanded to Banner Creek and associated tributaries. After peak gold production in 1908, mining in the area declined (Olson and others, 1985). In 1998, an exploration program consisting of reconnaissance mapping, stream-sediment, heavy-mineral concentrate, and rock-chip sampling was conducted in the Richardson area. A total of 182 rock-chip samples were collected from 38 prospect pits and 109 pan concentrates from local streams. The Banner Dike Zone has been prospected within a 3,000- by 1,000-foot area (F.L. Blystone, press release, 1998).

Production notes:
There has been no gold production from the Banner Dike Zone prospect.

Reserves:

Additional comments:

References:
Prindle and Katz, 1913; Chapin, 1914; Bundtzen and Reger, 1977; Eberlein and others, 1977; Weber and others, 1978; Menzie and Foster, 1979; Cobb and Eberlein, 1980; Metz and Hawkins, 1981; Swainbank and others, 1984; Olson and others, 1985

Primary reference: Swainbank and others, 1984

Reporter(s): Cameron S. Rombach (ADDGS)

Last report date: 4/26/99

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

Site type: Occurrence

ARDF no.: BD047

Latitude: 64.83 **Quadrangle:** BD D-5

Longitude: 146.02

Location description and accuracy:

The occurrence noted by Menzie and Foster (1979) is located somewhere in the Wheeler Creek drainage. Cobb and Eberlein report the approximate location of the occurrence is near section 18, T. 1 S., R. 9 E., of the Fairbanks Meridian. It is described as an occurrence in Cobb and Eberlein (1980), who summarized relevant references under the name 'Wheeler Creek'.

Commodities:

Main: Cu

Other:

Ore minerals: Azurite, bornite, chalcocite, malachite

Gangue minerals: Quartz

Geologic description:

Cobb and Eberlein (1980) and Menzie and Foster (1979) reported a single sample of quartz containing azurite, bornite, chalcocite, and malachite. No assay was performed. Weber and others (1978) describe the regional geology as primarily of lower to upper greenschist facies rocks with some marble, quartzite, slate and phyllite. Locally, there is an extensive cover of windblown silt and sand that ranges from 0.1 to 50 meters in thickness.

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:

Cobb and Eberlein (1980) and Menzie and Foster (1979) reported a single sample of quartz containing azurite, bornite, chalcocite, and malachite during geologic mapping. No assay was performed.

Production notes:

Reserves:

Additional comments:

References:

Weber and others, 1978; Foster and others, 1979; Menzie and Foster, 1979; Cobb and Eberlein, 1980

Primary reference: Menzie and Foster, 1979

Reporter(s): Cameron S. Rombach (ADDGS)

Last report date: 4/26/99

Site name(s): Buckeye Zone

Site type: Prospects

ARDF no.: BD048

Latitude: 64.334 **Quadrangle:** BD B-5

Longitude: 146.253

Location description and accuracy:

The Buckeye Zone is situated in the Buckeye Creek (BD005) drainage approximately 3.5 miles northeast of the town of Richardson on the Richardson Highway. The exact location and extent of the Buckeye Zone is not well defined. It is situated approximately 3 miles east of the Banner Dike Zone (BD046) and roughly 3.5 miles east of the Democrat Lode (BD014). The approximate center of the zone is in NE1/4SE1/4 section 1, T. 7 S., R. 7 E., of the Fairbanks Meridian. Numerous unimproved roads provide access to the Buckeye Creek drainage. It was not identified as a separate location by Cobb (1972) or by Cobb and Eberlein (1980).

Commodities:

Main: Au

Other: Ag, As, Bi, Pb, Sb, Te

Ore minerals: Arsenopyrite, bismuth, galena, gold, lead-antimony sulfosalts, pyrite, pyrrhotite, stibnite

Gangue minerals: Limonite, quartz

Geologic description:

The Richardson area is characterized by gentle slopes and broad, alluvium-filled valleys (Prindle and Katz, 1913, p. 140). The area is unglaciated and largely overlain by windblown silt, sand, and loess, locally up to 50 meters thick (Foster and others, 1979). The bedrock in the region comprises greenschist to amphibolite facies schist, marble, and gneiss that have been intruded by various igneous bodies (Bundtzen and Reger, 1977, p. 29). The schist and marble are probably Paleozoic, and the gneiss has a probable protolith of Precambrian and Paleozoic sedimentary and igneous rocks (Weber and others, 1978). The intrusive bodies in the area range in composition from rhyolite to andesite. Fine-grained rhyolite containing quartz and feldspar phenocrysts is common throughout the area (Olson and others, 1985). At the nearby Democrat Lode (BD014), the rhyolite contains arsenopyrite, gold, and pyrite, and is albitic, clay, and sericite altered (R.J. Newberry, oral communication, 1998). Structurally, the Richardson region is cut by a northwest-trending fracture system termed the Richardson Lineament. The lineament appears

to correspond to the distribution of the rhyolite and other intrusive bodies and placer gold deposits (Bundtzen and Reger, 1977, p. 29). Also, the lineament tends to separate gneissic rocks to the northeast from schistose rocks to the southwest (Swainbank and others, 1984).

The location and extent of the Buckeye Zone is poorly defined, but it appears to be situated in a narrow north-trending tributary of Buckeye Creek at the approximate intersection of the northwest-trending Richardson Lineament and a northeast-trending structural zone that confines Buckeye Creek. The zone is defined by mineralized areas of variably fractured, limonite-stained, massive quartz veins. Gold mineralization of the Buckeye Zone is characterized by high gold-bismuth-tellurium values. The best assay results are as high as 53 ppm Au, 846 ppm Bi, and 127 ppm Te (F.L. Blystone, press release, 1998). Sulfide assemblages include variable combinations of arsenopyrite, galena, pyrite, stibnite, and Pb-Sb sulfosalts (K. Ausburn, oral communication, 1998). Based on prospect-pit observations, the host rock appears to be predominantly biotite gneiss, amphibolite, and quartzite containing fine grained pyrrhotite. Prospect pits approximately 5,800 feet north-northeast and 750 feet southeast of the zone contain similar zones of mineralization and lithologies (F.L. Blystone, press release, 1998).

Placer gold was first discovered in the Richardson district in 1905. Mining initially occurred on the nearby Tenderfoot Creek (BD039) and expanded to Banner Creek and associated tributaries. After peak gold production in 1908, mining in the area declined (Olson and others, 1985). In 1998, an exploration program consisting of reconnaissance mapping, stream-sediment, heavy-mineral concentrate, and rock-chip sampling was conducted in the Richardson area. A total of 182 rock-chip samples were collected from 38 prospect pits and 109 pan concentrates from local streams (F.L. Blystone, press release, 1998). There has been no gold production from the Banner Dike Zone prospect.

Alteration:

Age of mineralization:

Deposit model:

Plutonic-related mesothermal, shear hosted deposit

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

Production Status: None

Site Status: Active

Workings/exploration:

Placer gold was first discovered in the Richardson area in 1905. Mining initially occurred on the nearby Tenderfoot Creek (BD039) and expanded to Buckeye Creek. After peak gold production in 1908, mining in the area declined (Olson and others, 1985). In 1998, an exploration program consisting of reconnaissance mapping, stream-sediment, heavy-mineral concentrate, and rock-chip sampling was conducted in the Richardson area. A total of 182 rock-chip samples were collected from 38 prospect pits and 109 pan

concentrates from local streams (F.L. Blystone, press release, 1998).

Production notes:

There has been no gold production from the Banner Dike Zone prospect.

Reserves:

Additional comments:

References:

Prindle and Katz, 1913; Chapin, 1914; Bundtzen and Reger, 1977; Eberlein and others, 1977; Weber and others, 1978; Menzie and Foster, 1979; Cobb and Eberlein, 1980; Metz and Hawkins, 1981; Swainbank and others, 1984; Olson and others, 1985

Primary reference: Swainbank and others, 1984

Reporter(s): Cameron S. Rombach (ADDGS)

Last report date: 4/26/99

Site name(s): Sonora Creek Ridge

Site type: Prospects

ARDF no.: BD049

Latitude: 64.412 **Quadrangle:** BD B-2

Longitude: 144.77

Location description and accuracy:

The Sonora Creek Ridge prospect is located on a ridge in the headwaters of Sonora Creek, a tributary of Central Creek (BD011). The prospect is part of a 72-square-mile claim block that includes the Pogo deposit (BD033) and parts of Central Creek. The approximate center of the prospect is in SE1/4NE1/4 section 9, T. 6 S., R. 15 E., of the Fairbanks Meridian. A winter trail from Big Delta on the Richardson Highway provides access up the Goodpaster River. A 1,500-foot airstrip is also located at the mouth of Pogo Creek, about 7 miles northwest. Sonora Creek Ridge was not identified as a separate location by Cobb (1972; MF-388) or by Cobb and Eberlein (1980).

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:

The Sonora Creek Ridge prospect is part of a 72-square-mile claim block that includes the Pogo deposit (BD033) and parts of Central Creek (BD011). The regional bedrock is composed of high grade gneisses intruded by Cretaceous granitic bodies. The area is predominantly cut by northwest-trending, high-angle faults. However, there are other high angle faults with various orientations (Smith, 1998). To the north, the region is intruded by the Cretaceous Goodpaster Batholith (Teck Resources Inc., unpublished report, 1998).

A regional stream-sediment sampling program identified gold, arsenic, and tungsten anomalies at nearby Liese Creek and Pogo Creek in 1981. From 1991 to 1998, exploration of the claim block has included a total of 171,859 feet of drilling and collected 9,641 core samples and 5,508 geochemistry samples (M. Smith, oral communication, 1999). A rock sample collected during the 1998 field season from Sonora Creek Ridge contained 3 ounces/ton Au. The exploration program of the claim block identified an 8-mile-long trend of anomalous soil geochemistry extending from the Pogo deposit to the southeast (Teck Resources Inc., unpublished report, 1998).

Alteration:

Age of mineralization:

Deposit model:
Plutonic-related mesothermal

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

Production Status: None

Site Status: Active

Workings/exploration:
A regional stream sediment sampling program identified gold, arsenic, and tungsten anomalies in the nearby Liese Creek and Pogo Creek in 1981. From 1991 to 1998, the exploration program of the claim block has drilled a total of 171,859 feet of drilling and collected 9,641 core samples and 5,508 geochemistry samples (M. Smith, oral communication, 1999). During the 1998 field season, a rock sample collected from Sonora Creek Ridge contained 3 ounces/ton Au. The exploration program of the claim block identified an 8 mile long trend of anomalous soil geochemistry extending from the Pogo deposit to the southeast (Teck Resources Inc., unpublished report, 1998).

Production notes:

Reserves:

Additional comments:
Sonora Creek Ridge is part of the Pogo project, a joint venture of Teck Corporation, Sumitomo Metal Mining, and Sumitomo Corporation. The Teck Corporation is the principal operator of the project and can earn a 40% interest in the property.

References:
Cobb, 1972 (MF-388); Cobb and Eberlein, 1980; Smith, 1998; Teck Resources, 1998; Smith, 1999

Primary reference: Teck Resources, 1998

Reporter(s): Cameron S. Rombach (ADDGS)

Last report date: 4/26/99

Site name(s): Teuchet Creek; TC

Site type: Prospect

ARDF no.: BD050

Latitude: 64.913 **Quadrangle:** BD D-3

Longitude: 145.495

Location description and accuracy:

The TC prospect is situated in the headwaters of Teuchet Creek. Teuchet Creek drains north into the East Fork of the Chena River. The TC prospect covers approximately 3 square miles. The approximate location of center of the prospect is in NW1/4SW1/4 section 15., T. 1 N., R. 11 E., of the Fairbanks Meridian. It was not identified as a separate location by Cobb (1972; MF-388) or by Cobb and Eberlein (1980).

Commodities:

Main: Pb, Zn

Other: Ag, As, Cu, Sb

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

Gangue minerals: Quartz

Geologic description:

The prospect is in the Chena Slate Belt, originally delineated by Menzie and Foster (1979), and later defined by Dusel-Bacon and others (1998). They describe the region as thrust sheets of ductilely deformed, metasedimentary and metaigneous rocks of uncertain age and origin that are overlain by klippen of weakly metamorphosed oceanic rocks, and intruded by post-kinematic, Lower Jurassic, Cretaceous, and Tertiary granite. Based on stratigraphic similarities and limited fossil ages and a U-Pb zircon age of 356 Ma, Mortenson (1992) interpreted that the rocks are similar to metamorphosed rocks in the eastern Alaska Range, western and southeastern Yukon (Dusel-Bacon and others, 1998), and unmetamorphosed rocks of the Selwyn Basin (Murphy and Abbott, 1995).

The Chena Slate Belt is composed of siliceous and carbonaceous black quartzite, slate, and phyllite. At the Teuchet Prospect, drilling encountered 30 meters of tan sericitic phyllite underlain by at least 550 meters of interlayered gray to black siliceous phyllite and quartzite. Mineralization of the prospect consists of layered zones parallel to foliation that contain a variable combination of sulfides, including boulangerite, galena, pyrite, and sphalerite, along with minor arsenopyrite, chalcopyrite, and pyrrhotite. The best mineralization is 4.6 meters thick and contains 0.92% Zn and 0.32% Pb; and 12 centimeters thick containing 10.1% Zn, 3.6% Pb, and 38 ppm Ag. Massive sulfide layers of up to 52

centimeters thick with bands of red-brown sphalerite, galena, and pyrite up to 12 centimeters thick. Pyrite occurs as subhedral cubes and porphyroblasts. Sphalerite occurs as anhedral lenses with a composition of approximately 84% ZnS. Galena is interstitial to pyrite and sphalerite. Boulangerite and selenium-rich galena were found with galena in one interval of drill core (Dusel-Bacon and others, 1998).

The original sedimentary features in the carbonaceous rocks have been eliminated by ductile shearing, folding, and low- to medium-grade metamorphism. Early, near-vertical, quartz veining is cut by low angle shears, which commonly contain pyrite. Deformation of the sulfides indicates that mineralization of the TC Prospect predates regional metamorphism. Pyrite deposition occurred both before and after quartz veining and shearing events (Dusel-Bacon and others, 1998).

Isotopic Pb data from galena collected from the Chena Slate Belt indicates a mineralization age of Devono-Mississippian. In addition, a 346.4 +/-1 Ma U-Pb zircon age was obtained from interlayered felsic tuffs from the eastern section of the Chena Slate Belt. These dates and the presence of sulfide deposition textures parallel to metamorphic foliation and compositional layering indicate a syngenetic origin for the sulfides (Dusel-Bacon and others, 1998).

Exploration of the Chena Slate Belt was conducted intermittently from 1981 through 1994. A preliminary stream-sediment sampling program defined a 30-kilometer belt of anomalous Zn. In 1991, further soil and rock geochemistry, gravity surveys, and airborne and horizontal-loop EM surveys delineated three Zn-Pb zones at the TC Prospect. Subsequently, eight drill holes totaling 1,600 meters were completed (Dusel-Bacon and others, 1998). There is no production reported for the TC Prospect.

Alteration:

Age of mineralization:

Probably Devonian to Mississippian (?). Younger than U-Pb age of 356 Ma.

Deposit model:

Sedimentary exhalative Zn-Pb? (Cox and Singer, 1986; model 31a). Volcanogenic massive sulfide deposit? (Cox and Singer, 1986; model 28a), similar to Selwyn Basin deposits in Yukon, Canada (Murphy and Abbott, 1995)

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

31a? or 28a?

Production Status: None

Site Status: Inactive

Workings/exploration:

Exploration of the Chena Slate Belt was conducted intermittently from 1981 through 1994. A preliminary stream-sediment sampling program located a 30-kilometer belt of anomalous Zn. In 1991, further soil and rock geochemistry, gravity surveys, and airborne and horizontal-loop EM surveys delineated three Zn-Pb zones at the TC Prospect. Subse-

quently, eight drill holes totaling 1,600 meters were completed (Dusel-Bacon and others, 1998).

Production notes:

There is no production reported for the TC Prospect.

Reserves:

Additional comments:

References:

Cobb, 1972 (MF-388); Cobb and Eberlein, 1980; Menzie and Foster, 1979; Mortenson, 1992; Murphy and Abbott, 1995; Dusel-Bacon and others, 1998

Primary reference: Dusel-Bacon and others, 1998

Reporter(s): Cameron S. Rombach (ADDGS)

Last report date: 4/26/99

Site name(s): Drone Creek; DC

Site type: Prospect

ARDF no.: BD051

Latitude: 64.86 **Quadrangle:** BD D-4

Longitude: 145.95

Location description and accuracy:

The Drone Creek, or DC, Prospect is situated on a north-facing slope to Munson Creek, about 2 miles south of the junction of Munson Creek and Wheeler Creek (BD047). The exact location and extent of the Drone Creek prospect is not well defined. The approximate location of the center of the prospect is in section 4., T. 1 S., R. 6 E., of the Fairbanks Meridian. It was not identified as a separate location by Cobb (1972; MF-388) or by Cobb and Eberlein (1980).

Commodities:

Main: Pb, Zn

Other: Ag, As, Cu, Sb

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

Gangue minerals: Quartz

Geologic description:

The prospect is part of the Chena Slate Belt, originally delineated by Menzie and Foster (1979), and later defined by Dusel-Bacon and others (1998). They describe the region as thrust sheets of ductilely deformed, metasedimentary and metaigneous rocks of uncertain age and origin that are overlain by klippen of weakly metamorphosed oceanic rocks, and intruded by post-kinematic, Lower Jurassic, Cretaceous, and Tertiary granite. Based on stratigraphic similarities and limited fossil ages and a U-Pb zircon age of 356 Ma, Mortenson (1992) interpreted that the rocks are similar to metamorphosed rocks in the eastern Alaska Range, western and southeastern Yukon (Dusel-Bacon and others, 1998), and unmetamorphosed rocks of the Selwyn Basin (Murphy and Abbott, 1995).

The Chena Slate Belt is composed of siliceous and carbonaceous black quartzite, slate, and phyllite. At the Drone Creek Prospect, drilling encountered 45 meters of sulfide-bearing zones. Mineralization of the prospect consists of layered zones parallel to foliation that contain a variable combination of sulfides, including boulangerite, galena, pyrite, and sphalerite, with minor arsenopyrite, chalcopyrite, and pyrrhotite. The best intervals include: 1) 17 meters of black, carbonaceous slate with laminae containing 5% to 7% sphalerite, galena, pyrite, and pyrrhotite; and 2) a sphalerite-rich zone, 1.2 meters thick

containing 1.88% Zn, 820 ppm Pb, and 4.4 ppm Ag. Pyrite occurs as subhedral cubes and porphyroblasts. Sphalerite, with an 84% ZnS composition, occurs as anhedral lenses. Galena is interstitial to pyrite and sphalerite (Dusel-Bacon and others, 1998).

The original sedimentary features in the carbonaceous rocks have been eliminated by ductile shearing, folding, and low- to medium-grade metamorphism. Early, near-vertical, quartz veining is cut by low angle shears, which commonly contain pyrite. Deformation of the sulfides indicated that mineralization of the DC Prospect predates regional metamorphism. Pyrite deposition occurred both before and after quartz veining and shearing (Dusel-Bacon and others, 1998).

Isotopic Pb data from galena collected from the Chena Slate Belt indicates a mineralization age of Devono-Mississippian. In addition, a 346.4 +/-1 Ma U-Pb zircon age was obtained from interlayered felsic tuffs from the eastern section of the Chena Slate Belt. These dates and the presence of sulfide deposition textures parallel to metamorphic foliation and compositional layering indicate a syngenetic origin for the sulfides (Dusel-Bacon and others, 1998).

Exploration of the Chena Slate Belt was conducted intermittently from 1981 through 1994. A preliminary stream-sediment sampling program defined a 30-kilometer belt of anomalous Zn. In 1991, further soil and rock geochemistry, gravity surveys, and airborne and horizontal-loop EM surveys delineated a Zn-Pb zone at the DC Prospect. Subsequently, the prospect was drilled (Dusel-Bacon and others, 1998). There is no production reported for the DC Prospect.

Alteration:

Age of mineralization:

Probably Devonian to Mississippian (?). Younger than U-Pb age of 356 Ma.

Deposit model:

Sedimentary exhalative Zn-Pb? (Cox and Singer, 1986; model 31a). Volcanogenic massive sulfide deposit? (Cox and Singer, 1986; model 28a), similar to Selwyn Basin deposits in Yukon, Canada (Murphy and Abbott, 1995)

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

31a? or 28a?

Production Status: None

Site Status: Inactive

Workings/exploration:

Exploration of the Chena Slate Belt was conducted intermittently from 1981 through 1994. A preliminary stream-sediment sampling program defined a 30-kilometer belt of anomalous Zn. In 1991, further soil and rock geochemistry, gravity surveys, and airborne and horizontal-loop EM surveys delineated a Zn-Pb zone at the DC Prospect. Subsequently, the prospect was drilled (Dusel-Bacon and others, 1998).

Production notes:

There is no production reported for the DC Prospect.

Reserves:

Additional comments:

References:

Cobb, 1972 (MF-388); Cobb and Eberlein, 1980; Menzie and Foster, 1979; Mortenson, 1992; Murphy and Abbott, 1995; Dusel-Bacon and others, 1998

Primary reference: Dusel-Bacon and others, 1998

Reporter(s): Cameron S. Rombach (ADDGS)

Last report date: 4/26/99

Site name(s): Unnamed

Site type: Occurrence

ARDF no.: BD052

Latitude: 64.87 **Quadrangle:** BD D-4

Longitude: 145.62

Location description and accuracy:
Menzie and Foster (1979) noted a mineral occurrence situated in the headwaters of Gold Creek in section 36, T. 1 N., R. 10 E., of the Fairbanks Meridian. It was not identified as a separate location by Cobb (1972; MF-388) or by Cobb and Eberlein (1980).

Commodities:

Main: Pb, Zn

Other:

Ore minerals: Galena, sphalerite

Gangue minerals: Quartz

Geologic description:
Menzie and Foster (1979) noted a mineral occurrence situated in the headwaters of Gold Creek, a tributary of the North Fork of the Salcha River. The occurrence is reported to be galena and sphalerite in a secondary silica layer in impure limestone. Weber and others (1978) describe the local bedrock as quartzite, phyllite, slate, and marble. Exploration to determine the lode source for the placer gold in the Gold Creek drainage is currently being conducted (R. Van Nieuwenhuyse, oral communication, 1998).

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:

Exploration to determine the lode source for the placer gold in the Gold Creek drainage is currently being conducted (R. Van Nieuwenhuyse, oral communication, 1998).

Production notes:

Reserves:

Additional comments:

References:

Cobb, 1972 (MF-388); Weber and others, 1978; Menzie and Foster, 1979; Cobb and Eberlein, 1980

Primary reference: Menzie and Foster, 1979

Reporter(s): Cameron S. Rombach (ADDGS)

Last report date: 4/26/99

Site name(s): Tan Creek Ridge

Site type: Prospects

ARDF no.: BD053

Latitude: 64.402 **Quadrangle:** BD B-2

Longitude: 144.703

Location description and accuracy:

The Tan Creek Ridge prospect is located on a ridge above the eastern tributary of Sonora Creek, a tributary of Central Creek (BD011). The prospect is part of a 72-square-mile claim block that includes the Pogo deposit (BD033) and parts of Central Creek. The approximate center of the prospect is in SW1/4SE1/4 section 11, T. 6 S., R. 15 E., of the Fairbanks Meridian. A winter trail from Big Delta on the Richardson Highway provides access up the Goodpaster River. A 1,500-foot airstrip is also located at the mouth of Pogo Creek, about 7 miles northwest. Tan Creek Ridge was not identified as a separate location by Cobb (1972; MF-388) or by Cobb and Eberlein (1980).

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:

The Tan Creek Ridge prospect is part of a 72-square-mile claim block that includes the Pogo deposit (BD033) and parts of Central Creek (BD011). The regional bedrock is composed of high grade gneisses intruded by Cretaceous granitic bodies. The area is predominantly cut by northwest-trending, high-angle faults. However, there are other high-angle faults with various orientations (Smith, 1998). To the north, the region is intruded by the Cretaceous Goodpaster Batholith (Teck Resources Inc., unpublished report, 1998).

A regional stream-sediment sampling program identified gold, arsenic, and tungsten anomalies of nearby Liese Creek and Pogo Creek in 1981. From 1991 to 1998, exploration of the claim block has included a total of 171,859 feet of drilling and collected 9,641 core samples and 5,508 geochemistry samples (M. Smith, oral communication, 1999). Two rock samples collected during the 1998 field season from Tan Creek Ridge contained 13 ounces/ton Au and 28 ounces/ton Au. Exploration of the claim block identified an 8-mile-long trend of anomalous soil geochemistry extending from the Pogo deposit to the southeast (Teck Resources Inc., unpublished report, 1998).

Alteration:

Age of mineralization:

Deposit model:
Plutonic-related mesothermal

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

Production Status: None

Site Status: Active

Workings/exploration:
A regional stream-sediment sampling program identified gold, arsenic, and tungsten anomalies in the nearby Liese Creek and Pogo Creek in 1981. From 1991 to 1998, exploration of the claim block has included a total of 171,859 feet of drilling and collected 9,641 core samples and 5,508 geochemistry samples (M. Smith, oral communication, 1999). Two rock samples collected during the 1998 field season from Tan Creek Ridge contained 13 ounces/ton Au and 28 ounces/ton Au. The exploration program of the claim block identified an 8-mile-long trend of anomalous soil geochemistry extending from the Pogo deposit to the southeast (Teck Resources Inc., unpublished report, 1998).

Production notes:

Reserves:

Additional comments:
Tan Creek Ridge is part of the Pogo project, a joint venture of Teck Corporation, Sumitomo Metal Mining, and Sumitomo Corporation. The Teck Corporation is the principal operator of the project and can earn a 40% interest in the property.

References:
Cobb, 1972 (MF-388); Cobb and Eberlein, 1980; Smith, 1998; Teck Resources, 1998; Smith, 1999

Primary reference: Teck Resources, 1998

Reporter(s): Cameron S. Rombach (ADDGS)

Last report date: 4/26/99

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