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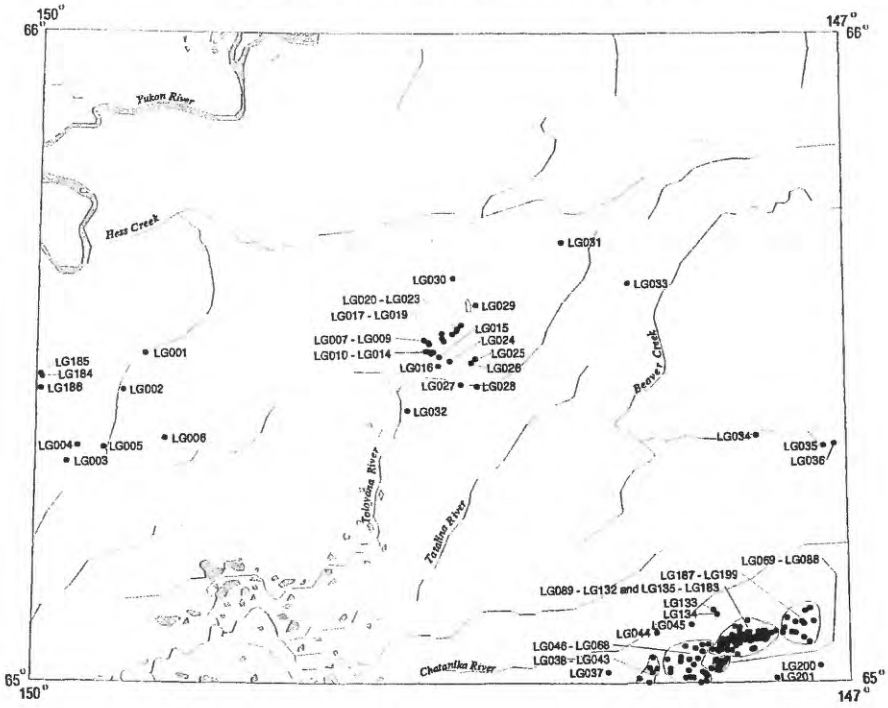
Alaska Resource Data File

Livengood 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 Livengood 1:250,000-scale quadrangle, Alaska

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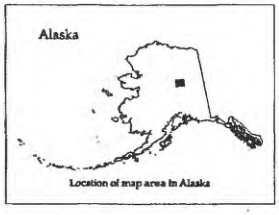

OPEN-FILE REPORT 99-574

Site name(s): Troublesome Creek

Site type: Mine

ARDF no.: LG001

Latitude: 65.506 **Quadrangle:** LG C-6

Longitude: 149.601

Location description and accuracy:
Cobb (1972, MF-413), loc. 62. This placer mine is along Troublesome Creek, just below the mouth of Union Creek; NW1/4SW1/4 sec. 22, T. 8 N., R. 10 W., of the Fairbanks Meridian.

Commodities:

Main: Au

Other: Hg, Pb, Sn

Ore minerals: Cassiterite, cinnabar, galena, gold

Gangue minerals:

Geologic description:
By 1912, placer gold was found in Troublesome Creek (Prindle and Katz, 1913, p. 146). Both prospecting and mining have been reported (Mertie, 1934, p. 192). A sample from below the mouth of Union Creek contained barite, hematite, magnetite, ilmenite, picotite, pyrite, cinnabar, gold, garnet, galena, zircon and cassiterite (Waters, 1934, p. 236).

Alteration:

Age of mineralization:

Deposit model:
Placer gold deposit (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:
Both prospecting and mining have been reported (Mertie, 1934, p. 192).

Production notes:
Both prospecting and mining have been reported, but there is no data on production (Mertie, 1934, p. 192).

Reserves:

Additional comments:

References:
Prindle and Katz, 1913; Mertie, 1934; Waters, 1934; Joesting, 1942 (ATDM Pamph. 1); Wayland, 1961; Malone, 1962; Malone, 1965; Cobb, 1972 (MF 413); Cobb, 1973 (B 1374); Cobb, 1976 (OFR 76-633).

Primary reference: Cobb, 1976 (OFR 76-633)

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Gunnison Creek

Site type: Mine

ARDF no.: LG002

Latitude: 65.45 **Quadrangle:** LG B-6

Longitude: 149.679

Location description and accuracy:
Cobb (1972, MF-413), loc. 61; SW1/4NE1/4 sec. 7, T. 7 N., R. 10 W., of the Fairbanks Meridian. The coordinates given are for the mine marked on the Livengood (B-6) quadrangle along Gunnison Creek near its confluence with Troublesome Creek.

Commodities:

Main: Au

Other: W

Ore minerals: Gold, scheelite

Gangue minerals:

Geologic description:
Placer mining was reported in 1904 and 1918 in stream placers near the mouth of the creek; mining may have been carried on in a few other years (Cobb, 1976; OFR 76-633, p. 84). A concentrate sample contained magnetite, ilmenite, picotite, zircon, scheelite, garnet, gold, pyrite, rutile and other nonmetallic minerals (Waters, 1934). Gunnison Creek drains a contact zone between granitic rock and quartzite, phyllite, slate, and chert (Eberlein and others, 1977, p. 65).

Alteration:

Age of mineralization:

Deposit model:
Placer gold deposit (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 mining was reported in 1904 and 1918 in stream placers near the mouth of the creek; mining may have been carried on in a few other years (Cobb, 1976; OFR 76-633, p. 84). Some prospecting and mining was reported near the mouth of the creek in the late 1950's (Eberlein and others, 1977, p. 65).

Production notes:

Some prospecting and mining was reported near the mouth of the creek in 1904, 1918 and in the late 1950's, but the amount of production is unknown (Cobb, 1976; OFR 76-633, p. 84; Eberlein and others, 1977, p. 65).

Reserves:

Additional comments:

References:

Prindle and Hess, 1906; Hess, 1908; Martin, 1920; Overbeck, 1920; Mertie, 1934; Waters, 1934; Joesting, 1942 (ATDM Pamph. 1); Cobb, 1972 (MF 413); Cobb, 1975 (C 722); Cobb, 1976 (OFR 76-633); Eberlein and others, 1977.

Primary reference: Cobb, 1976 (OFR 76-633)

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Wolverine Mountain

Site type: Occurrence

ARDF no.: LG003

Latitude: 65.338 **Quadrangle:** LG B-6

Longitude: 149.883

Location description and accuracy:
Cobb (1972, MF-413), loc. 1; NE1/4 sec. 19, T. 6 N., R. 11 W., of the Fairbanks Meridian. This occurrence is on Wolverine Mountain, near the summit. Accuracy is within 3,000 feet.

Commodities:

Main: Sb

Other:

Ore minerals: Stibnite

Gangue minerals:

Geologic description:
The only information is that the occurrence is a stibnite-bearing, mafic dike (Berg and Cobb, 1967).

Alteration:

Age of mineralization:

Deposit model:
Stibnite-bearing mafic dike.

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

Production Status: No

Site Status: Inactive

Workings/exploration:

Production notes:

Reserves:

Additional comments:

References:
Berg and Cobb, 1967; Cobb, 1972 (MF 413); Cobb, 1976 (OFR 76-633).

Primary reference: Berg and Cobb, 1967

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Quail Creek (between Green Gulch and Eldorado Creek)

Site type: Mine

ARDF no.: LG004

Latitude: 65.363 **Quadrangle:** LG B-6

Longitude: 149.846

Location description and accuracy:
Cobb (1972, MF-413), loc. 59; SE1/4NE1/4 sec. 8, T. 6 N., R. 11 W., of the Fairbanks Meridian. This placer mine is on Quail Creek, between Green Gulch and Eldorado Creek, about 2 miles NNE of Wolverine Mountain.

Commodities:

Main: Au

Other:

Ore minerals:

Gangue minerals:

Geologic description:
Bench and/or creek placers were mined sporadically from 1898 to as recently as 1940 (Cobb, 1976; OFR 76-633). No data on total production.

Alteration:

Age of mineralization:

Deposit model:
Placer gold deposit (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:
Bench and/or creek placers were mined sporadically from 1898 to as recently as 1940

(Cobb, 1976; OFR 76-633).

Production notes:
No data on total production.

Reserves:

Additional comments:

References:
Cobb, 1976 (OFR 76-633).

Primary reference: Cobb, 1976 (OFR 76-633)

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Quail Creek

Site type: Mine

ARDF no.: LG005

Latitude: 65.361 **Quadrangle:** LG B-6

Longitude: 149.75

Location description and accuracy:
Cobb (1972, MF-413), loc. 60; NW1/4SE1/4 sec. 11, T. 6 N., R. 11 W., of the Fairbanks Meridian. This mine is marked on Livengood (B-6) near the confluence of Quail Creek with Troublesome Creek; about 4 miles ENE of Wolverine Mountain.

Commodities:

Main: Au

Other: Ag, Hg, Sn, W

Ore minerals: Cassiterite, cinnabar, gold, scheelite

Gangue minerals:

Geologic description:
Most of the gold is in a bench placer in the lower mile of the creek where there is a well-defined bench 150 feet above the creek on its north side. Above this bench, about 400 feet in elevation above the creek, an old channel on the spur between the main branch and the south fork of Quail Creek shows colors (Mertie, 1934). Concentrates contain picotite, cassiterite, barite, scheelite, pyrite, garnet, gold, zircon, rutile and one grain of cinnabar (Mertie, 1934; Waters, 1934). Bedrock is slaty shale with many quartz veinlets and small porphyry dikes (Prindle and Hess, 1905). Bench and/or creek placers were mined sporadically from 1898 to as recently as 1940 (Cobb, 1976; OFR 76-633). No data on total production.

Alteration:

Age of mineralization:

Deposit model:
Placer gold deposit (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:
Bench and/or creek placers were mined sporadically from 1898 to as recently as 1940 (Cobb, 1976; OFR 76-633).

Production notes:
Bench and/or creek placers were mined sporadically from 1898 to as recently as 1940, but there is no data on total production (Cobb, 1976; OFR 76-633).

Reserves:

Additional comments:
Discoverers of gold wanted to call the stream 'Ptarmigan' Creek, but could not spell it, so they settled for 'Quail' Creek (Prindle and Hess, 1906).

References:
Prindle and Hess, 1905; Prindle and Hess, 1906; Hess, 1908; Brooks, 1909; Ellsworth, 1910; Brooks, 1911; Ellsworth and Parker, 1911; Eakin, 1912; Eakin, 1913; Ellsworth and Davenport, 1913; Prindle and Katz, 1913; Chapin, 1914; Brooks, 1915; Brooks, 1916 (B 642); Brooks, 1918; Martin, 1920; Overbeck, 1920; Smith, 1930 (B 813); Smith, 1932; Mertie, 1934; Smith, 1934 (B 864); Waters, 1934; Smith, 1936; Smith, 1937; Smith, 1941; Joesting, 1942 (ATDM Pamph. 1); Smith, 1942; Malone, 1962; Malone, 1965; Koschmann and Bergendahl, 1968; Cobb, 1972 (MF 413); Cobb, 1973 (B 1374); Cobb, 1975 (C 722); Cobb, 1976 (OFR 76-633).

Primary reference: Mertie, 1934

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Sawtooth Mountain

Site type: Mine

ARDF no.: LG006

Latitude: 65.376 **Quadrangle:** LG B-6

Longitude: 149.524

Location description and accuracy:
Cobb (1972, MF-413), loc. 2; NW1/4SW1/4 sec. 1, T. 6 N., R. 10 W., of the Fairbanks Meridian. This deposit is on Sawtooth Mountain. It is marked on the Livengood (B-6) quadrangle by a trail up Buckeye Creek from the landing strip to the saddle on Sawtooth Mountain.

Commodities:

Main: Sb

Other: Ag, Au

Ore minerals: Gold, stibnite

Gangue minerals:

Geologic description:
Massive stibnite occurs as a vertical cylinder about 3 m wide; it is hosted in argillite of Jurassic or Cretaceous flysch near a contact with Cretaceous granitic rock (Nokleberg and others, 1987; R. M. Chapman, written commun., 1985). The granitic rock has been K-Ar dated at 88.3 m.y. Grab samples from the dump have up to 46.2% Sb, 0.7 g/ton Au and 15.1 g/ton Ag (Nokleberg and others, 1987). The vein produced 590 tonnes of ore with 58% stibnite through 1970, with minor production in 1984 and 1985.

Alteration:

Age of mineralization:

Deposit model:
Stibnite vein (Cox and Singer, 1986; model 27d).

Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):
27d

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:
A shaft reached a depth of 83 feet (Saunders, 1958; ATDM PE 49-14).

Production notes:
The vein produced 590 tonnes of ore with 58% stibnite through 1970, with minor production in 1984 and 1985 (Nokleberg, 1987, p. 32).

Reserves:

Additional comments:

References:
Joesting, 1943; Saunders, 1958 (ATDM PE 49-14); Berg and Cobb, 1967; Cobb, 1972 (MF 413); Cobb, 1973 (B 1374); Cobb, 1976 (OFR 76-633); Nokleberg and others, 1987.

Primary reference: Nokleberg and others, 1987

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Myrtle Creek

Site type: Mine

ARDF no.: LG007

Latitude: 65.528 **Quadrangle:** LG C-4

Longitude: 148.56

Location description and accuracy:
Cobb (1972, MF-413), loc. 64; SW1/4 sec. 10, T. 8 N., R. 5 W., of the Fairbanks Meridian. This placer deposit is located where Myrtle Creek crosses a bench of Livengood Creek; It is just west of the old town of Livengood. Accuracy is within 1,500 feet.

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:
Placer mining was reported in 1916 (Brooks, 1918, p. 56). Cobb (1973; B 1374) indicated that the gold was probably reconcentrated from bench deposits of Livengood Creek. This site is no longer a separate placer deposit, but is included with Livengood Creek (ARDF no. LG008) in more recent references.

Alteration:

Age of mineralization:

Deposit model:
Placer gold deposit (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:
Mining was reported in 1916 (Brooks, 1918, p. 56).

Production notes:
Mining was reported in 1916, but there is no record of production (Brooks, 1918, p. 56).

Reserves:

Additional comments:

References:
Brooks, 1918; Cobb, 1972 (MF 413); Cobb, 1973 (B 1374); Cobb, 1976 (OFR 76-633).

Primary reference: Brooks, 1918

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Livengood Creek

Site type: Mines

ARDF no.: LG008

Latitude: 65.525 **Quadrangle:** LG C-4

Longitude: 148.544

Location description and accuracy:
A productive placer area of approximately 25 square miles, near the town of Livengood. Most of the gold production in the district has been from buried placers along the north side of the valley half a mile from Livengood Creek (Overbeck, 1920).

Commodities:

Main: Au

Other: Ag, Sn, W

Ore minerals: Cassiterite, gold, scheelite

Gangue minerals:

Geologic description:
Mertie (1918, p. 256), reported that most of the mining occurred along the old channel from bench claims northwest of Livengood Creek. The old channel has an average width of 127 feet, an average depth to bedrock of 80 feet, and at the time of Mertie's report, had been traced for approximately 4 miles. The bedrock is mainly chert, with some greenstone and limestone. Gold is found in basal gravel and weathered bedrock. Concentrates contain gold, magnetite, ilmenite, limonite, picotite, hematite, barite, and pyrite.
By 1939, a large auriferous bench that occupied the northwest limit of Livengood Creek valley was defined (Bundtzen and others, 1982).

Alteration:

Age of mineralization:

Deposit model:
Placer gold deposit (Cox and Singer, 1986; model 39a).

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

Production Status: Yes; large

Site Status: Active

Workings/exploration:

Placer mining has taken place from 1914 to the present. Much of the development and production had been confined to relatively shallow pay in tributaries of Livengood Creek. By 1939, a large auriferous bench that occupied the northwest limit of Livengood Creek valley was defined (Bundtzen and others, 1982). This bench was covered by 80 to 110 feet of muck but because the pay streaks were thawed, extensive drift mining was not possible. A larger company, Livengood Placers, was formed to develop these bench deposits, which vary from 100 to 1,000 feet in width and extend for at least 6 miles (Bundtzen and others, 1982). Gold reserves of over 1 million ounces were defined by drilling prior to 1940. A dredge operated near the town of Livengood in 1940, 1946 and probably other years (Cobb, 1976; OFR 76-633, p. 115). In the winter of 1981, Livengood Joint Ventures (LJV), a consortium of Asamera Minerals, Canadian Natural Resources, and Stanford Mines of Canada and the United States, contracted Doyon, Ltd., to strip overburden from the bench and construct a large settling pond; both projects were completed in June, 1981 (Bundtzen and others, 1982). Annual production from 1978 t0 1981 varied from 800 to about 3,000 ounces of gold (Bundtzen and others, 1982). The washing plant for this operation consisted of two sluice boxes fed by a dozer or front-end loader. By 1981, a large washing plant was acquired. Alaska Placer Development reported mining activity on the Livengood bench in 1988, 1994, 1996 and 1997. In 1994, a crew of 8 to 10 processed approximately 156,000 cubic yards of auriferous pay using opencut-hydraulic mine technology (Swainbank and others, 1995, p. 28). In 1996, Alaska Placer Development conducted a vigorous exploration program to ascertain the full extent of the pay zone (Swainbank and others, 1997).

Production notes:

Placer mining has taken place from 1914 to the present; however, exact production figures are not available. Annual production from 1978 to 1981 varied from 800 to about 3,000 ounces of gold (Bundtzen and others, 1982). In 1994, a crew of 8 to 10 processed approximately 156,000 cubic yards of auriferous pay using open cut-hydraulic mine technology (Swainbank and others, 1995, p. 28).

Reserves:

Gold reserves of over 1 million ounces were defined by drilling prior to 1940 (Bundtzen and others, 1982). One reserve estimate based on data from 640 drill holes indicates about 17 million cubic yards of placer gravel that would average about $2.10 per cubic yard in gold at its 1976 price (Eberlein and others, 1977, p. 67).

Additional comments:

References:

Overbeck, 1920; Cobb, 1973; Cobb, 1976 (OFR 76-633); Eberlein and others, 1977; Bundtzen and others, 1982; Eakins and others, 1983; Swainbank and others, 1995; Swain-

bank and others, 1997.

Primary reference: Bundtzen and others, 1982

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Ruth Creek

Site type: Mine

ARDF no.: LG009

Latitude: 65.522 **Quadrangle:** LG C-4

Longitude: 148.54

Location description and accuracy:
Cobb (1972, MF-413), loc. 65; SE1/4NE1/4 sec. 15, T. 8 N., R. 5 W., of the Fairbanks Meridian. The Ruth Creek placer mine is near the mouth of Ruth Creek, a tributary of Livengood Creek, near the old town of Livengood.

Commodities:

Main: Au

Other: Cr, Hg, Sb, W

Ore minerals: Gold, chromite, cinnabar, monazite, scheelite, stibnite

Gangue minerals:

Geologic description:
Gold is found at the base of the gravels and in the top 2 feet of bedrock with a paystreak 30 to 40 feet wide (Mertie, 1918). Black crystalline limestone with calcite and quartz veins slopes away from the creek on both sides (Mertie, 1918). Gold was reportedly high grade, netting $18/oz after charges (Mertie, 1918). Placer mining took place from as early as 1916 to as late as 1940 (Cobb, 1976; OFR 76-633). Concentrates contain gold, scheelite, magnetite, cinnabar, chromite, pyrite, arsenopyrite, zircon, monazite, chrome spinels and stibnite (Cobb, 1976; OFR 76-633, p. 164-166).

Alteration:

Age of mineralization:

Deposit model:
Placer gold deposit (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 mining took place from as early as 1916 to as late as 1940 (Cobb, 1976; OFR 76-633).

Production notes:

Foster (1968) reported that Ruth Creek had been a major placer-gold producer, but there is no data on the amount produced.

Reserves:

Additional comments:

References:

Smith, 1917 (BMB 153); Brooks, 1918; Mertie, 1918; Martin, 1920; Overbeck, 1920; Smith, 1926; Moffit, 1927; Smith, 1929; Smith, 1930 (B 813); Smith, 1932; Smith, 1933 (B 836); Smith, 1933 (B 844); Smith, 1934 (B 857); Smith, 1934 (B 864); Smith, 1936; Smith, 1937; Smith, 1938; Smith, 1939 (B 910); Smith, 1939 (B 917); Smith, 1941; Joesting, 1942 (ATDM Pamph. 1); Smith, 1942; Joesting, 1943; Bates and Wedow, 1953; Wedow and others, 1954; Burand, 1966; Berg and Cobb, 1967; Foster and Chapman, 1967; Overstreet, 1967; Foster, 1968; Koschmann and Bergendahl, 1968; Cobb, 1972 (MF 413); Cobb, 1973 (B 1374); Cobb, 1976 (OFR 76-633).

Primary reference: Mertie, 1918

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Lillian Creek

Site type: Mine

ARDF no.: LG010

Latitude: 65.511 **Quadrangle:** LG C-4

Longitude: 148.553

Location description and accuracy:
Cobb (1972, MF-413), loc. 66; sec. 22, T. 8 N., R. 5 W., of the Fairbanks Meridian. Placer mining extended for about a mile from the head to the mouth of Lillian Creek, a tributary of Livengood Creek. Lillian Creek drains the west side of Money Knob, just north of Livengood. The coordinates given are for the center of placer mined ground.

Commodities:

Main: Au

Other: Cr, Hg, Sb, W

Ore minerals: Gold, chromite, cinnabar; gold, scheelite, stibnite

Gangue minerals:

Geologic description:
Gold occurs in all the gravels and the top foot of bedrock in both bench and stream placers (Mertie, 1918). Placers were being worked from 4 to 30 feet deep, with most of the gold in low benches. Gold is angular and coarse. Concentrates contain gold, magnetite, ilmenite, picotite, limonite, cinnabar, scheelite, zircon, pyrite, stibnite, and barite (Mertie, 1918). The bedrock surface is very irregular and pitches steeply down the creek (Overbeck, 1920). Mining began in 1915 and was being carried on as recently as 1988 (Cobb, 1976; OFR 76-633, p. 111; Green and others, 1989).

Alteration:

Age of mineralization:

Deposit model:
Placer gold deposit (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:

Mining began in 1915 and was being carried on as recently as 1988 (Cobb, 1976; OFR 76-633, p. 111; Green and others, 1989).

Production notes:

Mining occurred from 1915 to 1988, but there is no record of the amount of production.

Reserves:

Additional comments:

References:

Brooks, 1916 (B 642); Smith, 1917 (BMB 153); Brooks, 1918; Mertie, 1918; Martin, 1920; Overbeck, 1920; Mertie, 1923; Smith, 1926; Moffit, 1927; Smith, 1929; Smith, 1930 (B 813); Smith, 1932; Smith, 1933 (B 836); Smith, 1933 (B 844); Smith, 1934 (B 857); Smith, 1934 (B 864); Smith, 1936; Smith, 1937; Smith, 1938; Smith, 1939 (B 910); Smith, 1939 (B 917); Smith, 1941; Joesting, 1942 (ATDM Pamph. 1); Smith, 1942; Malone, 1965; Burand, 1966; Berg and Cobb, 1967; Foster and Chapman, 1967; Foster, 1968; Koschmann and Bergendahl, 1968; Cobb, 1972 (MF 413); Mulligan, 1974; Cobb, 1975 (C 722); Cobb, 1976 (OFR 76-633); Green and others, 1989.

Primary reference: Mertie, 1918

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Lillian Creek

Site type: Prospect

ARDF no.: LG011

Latitude: 65.511 **Quadrangle:** LG C-4

Longitude: 148.543

Location description and accuracy:
Cobb (1972), U.S.G.S. MF-413, loc. 3; NE1/4 sec. 22, T. 8 N., R. 5 W., of the Fairbanks Meridian. This prospect is near the head of Lillian Creek about 3/4 of a mile south of Livengood and 3/4 of a mile northwest of Money Knob. Accuracy is within 1,000 feet.

Commodities:

Main: Au

Other: Ag, Hg, Sb

Ore minerals: Cinnabar, gold, stibnite, unknown Ag

Gangue minerals: Scorodite

Geologic description:
Narrow auriferous arsenopyrite-quartz-scorodite veins occur in and near a limonite-stained dike in altered and contorted graywacke-argillite country rock; samples contained from 0.5 to 48 ppm Au (Foster, 1968). Joesting (1942, ATDM Pamph. 1), reported a mineralized zone in a cut bank that contains stibnite and traces of cinnabar and gold.

Alteration:
Dike is limonite-stained.

Age of mineralization:

Deposit model:
Auriferous arsenopyrite-quartz-scorodite veins.

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

Production Status: None

Site Status: Inactive

Workings/exploration:

Amax Gold Exploration, Inc., drilled on the Lillian Creek property in 1990 (Swainbank and others, 1991).

Production notes:

Reserves:

Additional comments:

References:

Brooks, 1916 (B 642); Smith, 1917 (BMB 153); Brooks, 1918; Mertie, 1918; Martin, 1920; Overbeck, 1920; Mertie, 1923; Smith, 1926; Smith, 1929; Smith, 1930 (B 813); Smith, 1932; Smith, 1933 (B 836); Smith, 1933 (B 844); Smith, 1934 (B 857); Smith, 1934 (B 864); Smith, 1936; Smith, 1937; Smith, 1938; Smith, 1939 (B 910); Smith, 1939 (B 917); Smith, 1941; Joesting, 1942 (ATDM Pamph. 1); Smith, 1942; Malone, 1965; Burand, 1966; Berg and Cobb, 1967; Foster and Chapman, 1967; Foster, 1968; Koschmann and Bergendahl, 1968; Cobb, 1972 (MF 413); Mulligan, 1974; Cobb, 1976 (OFR 76-633); Swainbank and others, 1991.

Primary reference: Foster, 1968

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Ruth Creek

Site type: Prospect

ARDF no.: LG012

Latitude: 65.51 **Quadrangle:** LG C-4

Longitude: 148.532

Location description and accuracy:
Cobb (1972, MF-413), loc. 3; NW1/4NW1/4 sec. 23, T. 8 N., R. 5 W., of the Fairbanks Meridian. The Ruth Creek prospect is a mineralized area on a spur west of Ruth Creek; it extends from an elevation of 1,400 feet southward to the top of the spur on the northwest side of Money Knob. Accuracy is within 1,500 feet.

Commodities:

Main: Au

Other: Ag, Cr

Ore minerals: Arsenopyrite, chromite, gold, pyrite

Gangue minerals:

Geologic description:
Gold is found in numerous, nearly vertical quartz veinlets striking S. 20-60 E.; they contain pyrite and arsenopyrite (Mertie, 1918). Some of these veins contain up to 0.58 ounces of gold per ton (Mertie, 1918). The quartz veinlets are cut by calcite veins carrying some gold and sulfides (Mertie, 1918). Contiguous mineralized zones are up to 36 inches wide in altered dolomite-calcite-quartz-sulfide rock (Foster and Chapman, 1967). Small pits expose chromite in serpentinite, and a stibnite vein was uncovered in a placer cut (Joesting, 1942, ATDM Pamph. 1; Mertie, 1918).

Alteration:

Age of mineralization:

Deposit model:
Gold-quartz veins.

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

Production Status: None

Site Status: Inactive

Workings/exploration:

Small excavations exposed chromite in serpentinite and a stibnite vein was uncovered in a placer cut (Joesting, 1942, ATDM Pamph. 1; Mertie, 1918).

Production notes:

Reserves:

Additional comments:

References:

Smith, 1917 (BMB 153); Brooks, 1918; Mertie, 1918; Martin, 1920; Overbeck, 1920; Smith, 1926; Moffit, 1927; Smith, 1929; Smith, 1930 (B 813); Smith, 1932; Smith, 1933 (B 836); Smith, 1933 (B 844); Smith, 1934 (B 857); Smith, 1934 (B 864); Smith, 1936; Smith, 1937; Smith, 1938; Smith, 1939 (B 910); Smith, 1939 (B 917); Smith, 1941; Smith, 1942; Joesting, 1942 (ATDM Pamph. 1); Joesting, 1943; Bates and Wedow, 1953; Wedow and others, 1954; Burand, 1966; Berg and Cobb, 1967; Foster and Chapman, 1967; Overstreet, 1967; Foster, 1968; Koschmann and Bergendahl, 1968; Cobb, 1972 (MF 413); Cobb, 1973 (B 1374); Cobb, 1976 (OFR 76-633).

Primary reference: Mertie, 1918

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Griffin

Site type: Prospect

ARDF no.: LG013

Latitude: 65.508 **Quadrangle:** LG C-4

Longitude: 148.533

Location description and accuracy:
Cobb (1972, MF-413), loc. 3; NW1/4 sec. 23, T. 8 N., R. 5 W., of the Fairbanks Meridian. The Griffin prospect is between 1/4 and 1/2 mile northwest of Money Knob; it is about 1 mile south of Livengood, near the trail marked on the southeast corner of the Livengood (C-4) quadrangle. Accuracy is within 1,000 feet.

Commodities:

Main: Au

Other: Cr, Ni

Ore minerals: Chromite, gold, pentlandite?, pyrite

Gangue minerals:

Geologic description:
This prospect consists of a massive, sulfide-bearing, green-stained silica-carbonate-talc rock veined by quartz ; samples contain as much as 3.9 ppm Au, 1,000 ppm Ni, and 1,000 ppm Cr (Foster, 1968, p. 2, 10-11). A fire assay of one sample showed 5.6 ppm Au (Foster, 1968, p. 10-11). The nature of the contact between pyritiferous metasedimentary country rock and silica-carbonate-talc rock is not known (Foster, 1968, p. 2).

Alteration:
Deposit stained green by weathering of disseminated sulfides.

Age of mineralization:

Deposit model:
Quartz veins associated with silica-carbonate-talc rock.

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

Production Status: None

Site Status: Inactive

Workings/exploration:

In 1955, the workings on the property included a shaft filled with water, an adit and several pits and trenches (Saunders, 1955).

Production notes:

Reserves:

Additional comments:

References:

Saunders, 1955; Foster and Chapman, 1967; Foster, 1968; Cobb, 1972 (MF 413); Cobb, 1976 (OFR 76-633).

Primary reference: Foster, 1968

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Old Smoky

Site type: Prospect

ARDF no.: LG014

Latitude: 65.51 **Quadrangle:** LG C-4

Longitude: 148.524

Location description and accuracy:
The Old Smoky prospect is 1/4 mile north of Money Knob, just north of the old town of Livengood; NW1/4 sec. 23, T. 8 N., R. 5 W., of the Fairbanks Meridian.

Commodities:

Main: Au

Other: Sb

Ore minerals: Gold, stibnite

Gangue minerals:

Geologic description:
Trenching near the head of Olive Creek has exposed narrow, northwest-trending auriferous arsenopyrite-quartz veins in ferruginous quartzite near the intersection of an altered, porphyritic, biotite-monzonite dike, and a potassium feldspar-porphyry dike (Foster, 1968). Mineralization at the Old Smoky prospect is in Devonian sedimentary rocks composed of shale, argillite, fine-grained sandstone, and pebbly conglomerate (Allegro, 1984, p. 3). Narrow zones of thermal metamorphism occur along sheared contacts between these sedimentary rocks and hypabyssal igneous intrusive rocks (Allegro, 1984, p. 3). Similar felsic intrusive rocks throughout the Livengood Quadrangle have been potassium-argon dated at 58.0 to 88.8 m.y. (Turner and others, 1975).

Most of the intrusive rocks and some of the sedimentary host rocks have experienced variable degrees of metasomatic hydrothermal alteration followed by lower temperature supergene alteration (Allegro, 1984, p. 4). Allegro (1984) described four types of hydrothermal **Alteration:** 1) silicification, as partial to complete replacement of the host rock by a dense network of quartz veinlets generally localized along contacts between the intrusive and sedimentary rocks; 2) sericitization, as fine- to medium-grained white mica in selvages along quartz veins, as anastomosing sericite-opaque mineral veinlets, and as patchy to massive sericitic replacement of feldspar, ferromagnesium minerals and quartz; 3) deposition of trigonal nets of needle-like rutile often associated with secondary quartz and minor feldspar; and 4) epidote +/- sericite as a replacement of calcic plagioclase and ferromagnesian minerals resulting in massive aggregates, pseudomorphs, veins, and vug

fillings of epidote commonly associated with sericite, opaque minerals, and quartz.

Allegro's (1984) investigation and sample data reveal that the mineralization in the southern portion of the cut is localized along the contact zones between the biotite monzonite and the surrounding sedimentary rocks, and along a contact between biotite monzonite and feldspar porphyry. Channel and chip samples of arsenopyrite-stibnite quartz veins from these zones contained 1.0 to 29.8 ppm gold. Selected samples from the prospect contain 3 to 13 ppm gold as determined by atomic absorption, and 1.6 to 7.0 ppm gold as determined by fire assay-atomic absorption (Foster, 1968, p. 2).

Adjacent to the sheared contact zone, the intrusive rocks are either highly silicified with abundant rutile and some epidote, sericite, arsenopyrite, and monor stibnite, or contain epidote with sericite, rutilated quartz and arsenopyrite (Allegro, 1984, p. 6). Other rocks from the contact zone show intense supergene effects such as clay alteration, covellite and iron-oxides. In some cases these zones contain gold. Green scorodite is present throughout the mineralized areas.

In the northern section of the prospect, the most abundant mineralization is located along the contact area between the feldspar porphyry and a roof pendant of sandstone and shale (Allegro, 1984). A massive 1-meter-wide stibnite lens surrounded by a bleached sericite zone occurs along the northern contact of the roof pendant. Channel samples along this contact zone range from 0.5 to 4.3 ppm gold (Allegro, 1984, p. 6). Some gold is also associated with saprolitic zones in all the intrusive phases but these zones are not limited to shear zones or contacts (Allegro, 1984, p. 6).

Alteration:

Most of the intrusive rocks and some of the sedimentary host rocks have experienced variable degrees of metasomatic hydrothermal alteration followed by lower temperature supergene alteration (Allegro, 1984, p. 4). Allegro (1984) described four types of hydrothermal **Alteration:** 1) silicification, as partial to complete replacement of the host rock by a dense network of quartz veinlets generally localized along contacts between the intrusive and sedimentary rocks; 2) sericitization, as fine- to medium-grained white mica in selvages along quartz veins, as anastomosing sericite-opaque mineral veinlets, and as patchy to massive sericitic replacement of feldspar, ferromagnesium minerals and quartz; 3) deposition of trigonal nets of needle-like rutile often associated with secondary quartz and minor feldspar; and 4) epidote ± sericite as a replacement of calcic plagioclase and ferromagnesian minerals resulting in massive aggregates, pseudomorphs, veins, and vug fillings of epidote commonly associated with sericite, opaque minerals, and quartz.

Age of mineralization:

Felsic intrusive rocks throughout the Livengood Quadrangle, similar to those at the mineralized contact zone of the Old Smoky prospect, have been potassium-argon dated at 58.0 to 88.8 m.y. (Turner and others, 1975).

Deposit model:

Gold-bearing shear zone at contact of hypabyssal intrusions into sediments.

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

Production Status: None

Site Status: Inactive

Workings/exploration:
Some trenching and prospect pits that have been channel and chip sampled.

Production notes:

Reserves:

Additional comments:

References:
Foster, 1968; Cobb, 1972 (MF 413); Cobb, 1976 (OFR 76-633); Allegro, 1984.

Primary reference: Allegro, 1984

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Hudson; Sunshine No. 2

Site type: Mine

ARDF no.: LG015

Latitude: 65.503 **Quadrangle:** LG C-4

Longitude: 148.504

Location description and accuracy:

Cobb (1972, MF-413), loc. 4; SE1/4, sec. 23, T. 8 N., R. 5 W., of the Fairbanks Meridian. The mine is along Olive Creek, near the intersection with the Elliot Highway. Accuracy is within 1,000 feet. Olive Creek is a small stream flowing about due south into the North Fork of the Tolovana River, about two miles south of the town of Livengood. The Hudson tunnel is at the head of the west fork of Olive Creek.

Commodities:

Main: Hg

Other: Au

Ore minerals: Cinnabar, gold

Gangue minerals:

Geologic description:

In 1917, Hudson found evenly distributed small specks and grains of cinnabar in highly altered granitic rock at what is now commonly called the Hudson prospect (Malone, 1962). Some of this material was reported to have run 20 to 30 pounds of mercury per ton (Malone, 1962). Mertie (1918, p. 274) reported that a small landslide exposed much-weathered granitic rock from which cinnabar was panned. In the main tunnel of the Hudson mine, the highly altered granitic rock is heavily impregnated with cinnabar (Reed, 1931). The cinnabar is evenly disseminated all through the rock in small red specks and grains. Reed (1931) reported that the rock was so altered that it resembled talc or soft, white, impure sandstone. The alteration and mineralization continues back in the Hudson mine tunnel as far as the winze, and from there on in, the cinnabar becomes rapidly leaner and the country rock becomes harder and darker (Reed, 1931, p. 3). The decomposed quartz feldspar porphyry contains crushed white feldspar phenocrysts in a light gray to white ground mass of quartz, talc and clay minerals. Many iron-stained streaks in the porphyry are caused by oxidation of arsenopyrite-bearing quartz veins, which also carry some gold (Joesting, 1942; ATDM Pamph. 1, p. 2).

The Sunshine no. 2 prospect is a few hundred feet above the Hudson prospect. It consists of a northwest-trending, crumbly, auriferous dike with internal limonite veinlets in

contact with altered argillite (Foster, 1968). Foster (1968, p.2) reported that soil samples contain anomalous concentrations of arsenic silver, bismuth, cobalt, copper, zinc, tin, molybdenum and tungsten.

Alteration:
The decomposed quartz feldspar porphyry contains crushed white feldspar phenocrysts in a light gray to white ground mass of quartz, talc and clay minerals. Many iron-stained streaks in the porphyry are caused by oxidation of arsenopyrite-bearing quartz veins, which also carry some gold (Joesting, 1942; ATDM Pamph. 1, p. 2).

Age of mineralization:

Deposit model:
Disseminated cinnabar associated with a granitic intrusive.

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

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:
Explored by about 270 feet of adits and tunnels (Malone, 1962).

Production notes:
The owner attempted to mill the ore as if it were gold-bearing quartz and thus lost much of the cinnabar. The ore was ground and fed into sluice boxes in an attempt to recover the cinnabar. Much of the cinnabar was probably so finely ground that the sluice boxes were ineffective in trapping the ore (Reed, 1931, p. 3).

Reserves:

Additional comments:

References:
Brooks, 1915; Brooks, 1916 (B 642); Smith, 1917 (BMB 142); Smith, 1917 (BMB 153); Brooks, 1918; Mertie, 1918; Martin, 1920; Overbeck, 1920; Brooks and Capps, 1924; Moffit, 1927; Smith, 1929; Smith, 1930 (B 813); Smith, 1932; Smith, 1933 (B 836); Smith, 1933 (B 844); Smith, 1934 (B 857); Smith, 1934 (B 864); Smith, 1936; Smith, 1938; Smith, 1939 (B 910); Smith, 1939 (B 917); Smith, 1941; Joesting, 1942 (ATDM Pamph. 1); Smith, 1942; Malone, 1962; Malone, 1965; Burand, 1966; Berg and Cobb, 1967; Foster and Chapman, 1967; Foster, 1968; Koschmann and Bergendahl, 1968; Cobb, 1972 (MF 413); Cobb, 1973 (B 1374); Cobb, 1976 (OFR 76-633).

Primary reference: Foster, 1968

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Olive Creek

Site type: Mine

ARDF no.: LG016

Latitude: 65.489 **Quadrangle:** LG B-4

Longitude: 148.506

Location description and accuracy:
Cobb (1972, MF-413), loc. 72; SE1/4 sec. 26, T. 8 N., R. 5 W., of the Fairbanks Meridian. The Olive Creek placer mine tailings are marked along Olive Creek in the extreme northeast corner of Livengood (B-4) quadrangle. Coordinates given are for buildings adjacent to tailings.

Commodities:

Main: Au

Other: Cr, Hg, W

Ore minerals: Chromite, cinnabar, gold, scheelite

Gangue minerals:

Geologic description:
Placer gold on the Discovery claim is in the lower 7 feet of 10 feet of angular slide gravel, and a little coarse gold is found on bedrock (Mertie, 1918). Bedrock is slate and sandstone intruded by now highly altered granitic rock. Concentrates contain gold, magnetite, ilmenite, picotite, scheelite, chromite, pyrite, arsenopyrite, zircon, limonite and plentiful cinnabar (Mertie, 1918; Overbeck, 1920).

Alteration:

Age of mineralization:

Deposit model:
Placer gold deposit (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:

Mining was reported in 1915, 1916, 1918, 1922, 1926, 1928-34, and 1936-40 (Cobb, 1976; OFR 76-633). Gold production was also reported in the 1980's by a small-scale sluicing opertation (Green and others, 1989).

Production notes:

Mining was reported in 1915, 1916, 1918, 1922, 1926, 1928-34, 1936-40, and as recently as 1988, but no record of amount of production (Cobb, 1976; OFR 76-633; Green and others, 1989).

Reserves:

Additional comments:

References:

Brooks, 1915; Brooks, 1916 (B 642); Smith, 1917 (BMB 142); Smith, 1917 (BMB 153); Brooks, 1918; Mertie, 1918; Martin, 1920; Overbeck, 1920; Brooks and Capps, 1924; Moffit, 1927; Smith, 1929; Smith, 1930 (B 813); Smith, 1932; Smith, 1933 (B 836); Smith, 1933 (B 844); Smith, 1934 (B 857); Smith, 1934 (B 864); Smith, 1936; Smith, 1938; Smith, 1939 (B 910); Smith, 1939 (B 917); Smith, 1941; Joesting, 1942 (ATDM Pamph. 1); Smith, 1942; Malone, 1962; Malone, 1965; Burand, 1966; Berg and Cobb, 1967; Foster and Chapman, 1967; Foster, 1968; Koschmann and Bergendahl, 1968; Cobb, 1972 (MF 413); Cobb, 1973 (B 1374); Cobb, 1976 (OFR 76-633); Green and others, 1989.

Primary reference: Cobb, 1976 (OFR 76-633)

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Glen Gulch

Site type: Mine

ARDF no.: LG017

Latitude: 65.527 **Quadrangle:** LG C-3

Longitude: 148.486

Location description and accuracy:
Cobb (1972, MF-413), loc. 67. The coordinates given are on the discovery claim along the lower part of Glen Gulch, approximately 2.5 miles northwest of Amy Dome, and about 3 miles east of Livengood. Glen Gulch is a tributary of Gertrude Creek. Accuracy is within 1,000 feet.

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:
Mertie (1918) reported that fine, angular gold is found in 2-4 feet of gravel on silicified limestone bedrock covered by 10-25 feet of muck. Mining in 1916 and then from 1931 to 1934 (Cobb, 1976; OFR 76-633, p. 74).

Alteration:

Age of mineralization:

Deposit model:
Placer gold deposit (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:
Mining in 1916 and the from 1931 to 1934 (Cobb, 1976; OFR 76-633, p. 74).

Production notes:
Mining in 1916 and then from 1931 to 1934, but total production is not known (Cobb, 1976; OFR 76-633, p. 74).

Reserves:

Additional comments:

References:
Mertie, 1918; Smith, 1933 (B 844); Smith, 1934 (B 857); Smith, 1934 (B 864); Smith, 1936; Cobb, 1972 (MF 413); Cobb, 1976 (OFR 76-633).

Primary reference: Cobb, 1976 (OFR 76-633)

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Gertrude Creek

Site type: Mine

ARDF no.: LG018

Latitude: 65.531 **Quadrangle:** LG C-3

Longitude: 148.492

Location description and accuracy:
Cobb (1972, MF-413), loc. 76. The Gertrude Creek mine tailings are east of Gertrude Creek downstream from the junction of Glen Gulch; approximately 2.5 miles northwest of Amy Dome and about 2 miles east of Livengood.

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:
Gold is found in shallow bench and creek placers. Bedrock at the mouth of the creek is metabasalt; in the middle of the creek, the bedrock is chert and silicified dolomite; and serpentinite bedrock is near the head (Eberlein, 1977, p. 64) Concentrates contain gold, magnetite, ilmenite, picotite and zircon (Mertie, 1918, p. 256).

Alteration:

Age of mineralization:

Deposit model:
Placer gold deposit (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:

Shallow bench and creek placers were mined intermittently from 1915 to 1918 and from the 1930's to the 1960's (Eberlein, 1977, p. 64). Overbeck (1920) reported that the bench at the mouth was hydraulicked and 12,000 feet of bedrock cleaned.

Production notes:

Shallow bench and creek placers were mined intermittently from 1915 to 1918 and from the 1930's to the 1960's (Eberlein, 1977, p. 64). No information on amount of production.

Reserves:

Additional comments:

References:

Brooks, 1916 (B 642); Brooks, 1918; Mertie, 1918; Martin, 1920; Overbeck, 1920; Smith, 1933 (B 836); Smith, 1933 (B 844); Smith, 1934 (B 857); Smith, 1936; Smith, 1937; Smith, 1938; Smith, 1939 (B 910); Smith, 1939 (B 917); Smith, 1941; Smith, 1942; Foster, 1968; Koschmann and Bergendahl, 1968; Cobb, 1972 (MF 413); Cobb, 1976 (OFR 76-633); Eberlein and others, 1977.

Primary reference: Eberlein and others, 1977

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Franklin Creek

Site type: Mine

ARDF no.: LG019

Latitude: 65.539 **Quadrangle:** LG C-3

Longitude: 148.494

Location description and accuracy:
Cobb (1972, MF-413), loc. 64. The Franklin Creek placer mine is near the mouth of Franklin Creek, approximately 3.5 miles northwest of Amy Dome. Franklin Creek is a tributary of Livengood Creek. Accuracy is within 1,500 feet.

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:
A shallow placer carries gold and was probably mined in 1915 (Brooks, 1916; B 642, p. 208).

Alteration:

Age of mineralization:

Deposit model:
Placer gold deposit (Cox and Singer, 1986; model 39a).

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

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:
A shallow placer carries gold and was mined, probably in 1915 (Brooks, 1916; B 642,

p. 208).

Production notes:

A shallow placer carries gold and was mined, probably in 1915 (Brooks, 1916; B 642, p. 208), but no information on amount of gold produced.

Reserves:

Additional comments:

References:

Brooks, 1916 (B 642); Cobb, 1972 (MF 413); Cobb, 1976 (OFR 76-633).

Primary reference: Brooks, 1916 (B 642)

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Lucille Creek

Site type: Prospect

ARDF no.: LG020

Latitude: 65.538 **Quadrangle:** LG C-3

Longitude: 148.454

Location description and accuracy:
Cobb (1972, MF-413), loc. 68. This prospect is along Lucille Creek, a tributary of Livengood Creek, approximately 2.5 miles NNW of Amy Dome. Accuracy is within 1,500 feet.

Commodities:

Main: Au

Other: Cr

Ore minerals: Chromite, gold

Gangue minerals:

Geologic description:
Some prospecting occurred on this creek in 1916, 1934, and possibly other years, but there are no records of mining (Mertie, 1918; Smith, 1936). A stream sediment sample showed 2.3 ppm gold, an anomalous amount (Eberlein, 1977, p. 67). Chromite and chrome spinels were found in placers (Joesting, 1942; ATDM Pamph. 1). Bedrock is silicified limestone/dolomite, chert, and greenstone.

Alteration:

Age of mineralization:

Deposit model:
Placer gold deposit (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:
One or two prospect shafts were sunk prior to 1916 (Mertie, 1918).

Production notes:

Reserves:

Additional comments:

References:
Mertie, 1918; Smith, 1936; Joesting, 1942 (ATDM Pamph. 1); Foster, 1968; Cobb, 1972 (MF 413); Cobb, 1976 (OFR 76-633); Eberlein and others, 1977.

Primary reference: Mertie, 1918

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Amy Creek

Site type: Mine

ARDF no.: LG021

Latitude: 65.543 **Quadrangle:** LG C-3

Longitude: 148.438

Location description and accuracy:
Cobb (1972, MF-413), loc. 69, on the tailings along Amy Creek. The placer-mined ground is located near the mouth of Amy Creek, approximately 3 miles north of Amy Dome.

Commodities:

Main: Au

Other: Cr, Sb

Ore minerals: Chromite, gold, stibnite

Gangue minerals:

Geologic description:
Gold has been found in in the lower 3 feet of gravel and on bedrock (Overbeck, 1920, p. 181; Mertie, 1918). Bedrock is mainly chert but there is some granite at the mouth of the second tributary above Livengood Creek. Basalt porphyry is the bedrock at the head of the creek; there is limestone and argillite near the mouth (Mertie, 1918).

Bench gravels were mined east of the creek in 1918, to a depth of 25 to 100 feet, above a pay streak of 40 to 60 feet wide (Overbeck, 1920, p. 181). Concentrates of these gravels contain magnetite, limonite, hematite, chromite and pyromorphite. Joesting (1942, ATDM Pamph. 1) reported that the chromite and chrome spinel in placers was probably derived from serpentine in Middle Devonian basic volcanic rocks. Mining occurred in 1916, 1922, 1924, 1926, 1928-1939, 1967-1968 (Cobb, 1976; OFR 76-633, p. 9).

Alteration:

Age of mineralization:

Deposit model:
Placer gold deposit (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:
Shafts on different claims range from 25 to 100 feet deep.

Production notes:

Reserves:

Additional comments:

References:
Smith, 1917; Mertie, 1918; Martin, 1920; Overbeck, 1920; Brooks and Capps, 1924; Smith, 1926; Smith, 1929; Smith, 1930 (B 813); Smith, 1932; Smith, 1933 (B 844); Smith, 1934 (B 864); Smith, 1936; Smith, 1937; Smith, 1938; Smith, 1939 (B 910-A); Smith, 1939 (B 917); Smith, 1941; Joesting, 1942 (ATDM Pamph. 1); Smith, 1942; Foster, 1968; Cobb, 1972 (MF 413); Cobb, 1973 (B 1374); Cobb, 1976 (OFR 76-633).

Primary reference: Overbeck, 1920

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Unnamed (upper Livengood Creek)

Site type: Mine

ARDF no.: LG022

Latitude: 65.546 **Quadrangle:** LG C-3

Longitude: 148.436

Location description and accuracy:
Cobb (1972, MF-413), loc. 5. This lode deposit is between Livengood Creek and Amy Creek, near the tailings marked on the Livengood (C-3) quadrangle. Accuracy is within 2,000 feet.

Commodities:

Main: Sb

Other:

Ore minerals: Stibnite

Gangue minerals:

Geologic description:
Stibnite was found in place in weathered bedrock on a bench claim near the head of Livengood Creek (Overbeck, 1920). Stibnite from this vein was said to have been shipped during World War I (Joesting, 1942; ATDM Pamph. 1).

Alteration:

Age of mineralization:

Deposit model:
Stibnite vein (Cox and Singer, 1986; model 27d).

Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):
27d

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:

Production notes:

Stibnite from this vein was said to have been shipped during World War I (Joesting, 1942; ATDM Pamph. 1).

Reserves:

Additional comments:

References:

Brooks, 1915; Brooks, 1916 (B 642); Smith, 1917 (BMB 142); Smith, 1917 (BMB 153); Brooks, 1918; Mertie, 1918; Martin, 1920; Overbeck, 1920; Brooks and Martin, 1921; Brooks, 1922; Brooks, 1923; Brooks and Capps, 1924; Brooks, 1925; Smith, 1926; Moffit, 1927; Smith, 1929; Smith, 1930 (B 810); Smith, 1930 (B 813); Smith, 1932; Smith, 1933 (B 836); Smith, 1934 (B 857); Smith, 1934 (B 864); Smith, 1936; Smith, 1937; Smith, 1938; Smith, 1939 (B 910); Smith, 1939 (B 917); Smith, 1941; Joesting, 1942 (ATDM Pamph. 1); Smith, 1942; Wedow and White, 1954; Berg and Cobb, 1967; Foster and Chapman, 1967; Foster, 1968; Koschmann and Bergendahl, 1968; Cobb, 1972 (MF 413); Cobb, 1973 (B 1374); Eakins, 1974; Cobb, 1976 (OFR 76-633).

Primary reference: Overbeck, 1920

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Lucky Creek (also known as Goodluck Creek)

Site type: Mine

ARDF no.: LG023

Latitude: 65.552 **Quadrangle:** LG C-3

Longitude: 148.422

Location description and accuracy:

Cobb (1972, MF-413) loc. 70. These placer deposits are scattered in the lower mile of Lucky Creek, a tributary of Livengood Creek. The coordinates given are for the placer deposits closest to the mouth of Lucky Creek. Accuracy is within 2,000 feet. Lucky Creek is also called 'Goodluck Creek' and 'Lucky Gulch'. The creek is named 'Lucky Creek' on the U.S.G.S. Livengood C-3 quadrangle.

Commodities:

Main: Au

Other: Cr, Hg, REE, Sn

Ore minerals: Cassiterite, chromite, cinnabar, gold, niobium-titanium-uranium-rare earth mineral

Gangue minerals:

Geologic description:

Placer mining was reported in 1918, 1934, and 1939. At the lower placer, some flakey gold was obtained just above bedrock. About 1,500 feet upstream, some fine gold is present in angular wash almost at the surface (Mertie, 1918). Minerals in samples from old placer dumps included limonite, hematite, magnetite, epidote, spinel, chromite, ilmenite, gold, cinnabar and cassiterite (Wedow and others, 1954).

The bedrock in the basin is chiefly chert and silicified Mississippian limestone. There is a small body of diorite on greenstone near the head of Lucky Creek which may be a dike between the chert and limestone (Wedow and others, 1954). One sample contained a mineral in the euxenite-polycrase series, rare-earth, uranium, niobates and titanates (Wedow and others, 1954). Chromite and chrome spinels are abundant in Lucky Gulch and are probably derived from serpentine in Middle Devonian basic volcanics (Joesting, 1942; ATDM Pamph. 1, p. 17).

Alteration:

Age of mineralization:

Deposit model:
Placer gold deposit (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:
During placer mining, one shaft was sunk 60 feet to bedrock (Mertie, 1918, p. 268).

Production notes:
Placer mining was reported in 1918, 1934, and 1939, but there is no record of amount of production.

Reserves:

Additional comments:

References:
Mertie, 1918; Martin, 1920; Smith, 1936; Smith, 1941; Joesting, 1942 (ATDM Pamph. 1); Wedow and White, 1954; Cobb, 1972 (MF 413); Cobb, 1973 (B 1374); Cobb, 1976 (OFR 76-633).

Primary reference: Wedow and others, 1954

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Ester Creek

Site type: Mine

ARDF no.: LG024

Latitude: 65.497 **Quadrangle:** LG B-3

Longitude: 148.464

Location description and accuracy:
Cobb (1972, MF-413), loc. 73; NW1/4NW1/4 sec. 30, T. 8 N., R. 4 W., of the Fairbanks Meridian. The Ester Creek mine is along Ester Creek about one half mile north of the Elliot Highway, about three miles southeast of Livengood, at an elevation of about 1,000 feet. Accuracy is within 1,500 feet.

Commodities:

Main: Au

Other: Hg

Ore minerals: Cinnabar, gold

Gangue minerals:

Geologic description:
Gold is found on bedrock and/or at the base of the gravel. Bedrock was 20 feet deep where it was being mined in 1916, and 90 feet deep further downstream. Concentrates contain gold, magnetite, ilmenite, picotite, cinnabar, limonite and zircon (Mertie, 1918, p. 271-272). Mining occurred in 1915 and 1916, and from 1928 to 1934 (Cobb, 1976; OFR 76-633, p. 60).

Alteration:

Age of mineralization:

Deposit model:
Placer gold deposit (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:

Workings included at least 2 shafts, one 20 feet deep and one 90 feet deep (Mertie, 1918).

Production notes:

Mining occurred in 1915 and 1916, and from 1928 to 1934, but the amount of production was not reported (Cobb, 1976; OFR 76-633, p. 60).

Reserves:

Additional comments:

References:

Brooks, 1916 (B 642); Mertie, 1918; Smith, 1930 (B 813); Smith, 1932; Smith, 1933 (B 844); Smith, 1934 (B 857); Smith, 1934 (B 864); Smith, 1936; Malone, 1965; Cobb, 1972 (MF 413); Cobb, 1976 (OFR 76-633).

Primary reference: Mertie, 1918

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Unnamed (near Amy Dome)

Site type: Occurrence

ARDF no.: LG025

Latitude: 65.5 **Quadrangle:** LG C-3

Longitude: 148.367

Location description and accuracy:
SE1/4SE1/4 sec. 21, T. 8 N., R. 4 W., of the Fairbanks Meridian. This occurrence is approximately 1.5 miles east of Amy Dome.

Commodities:

Main: Hg

Other:

Ore minerals: Cinnabar

Gangue minerals: Quartz

Geologic description:
Cinnabar occurs in disseminations and quartz veins in altered granite dikes and plutons that intrude Ordovician to Devonian siltstone and argillite (Robinson and others, 1982).

Alteration:

Age of mineralization:
Host rock is Late Cretaceous to early Tertiary granite.

Deposit model:
Cinnabar-quartz vein.

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

Production Status: None

Site Status: Inactive

Workings/exploration:

Production notes:

Reserves:

Additional comments:

This site was referred to as the 'Hudson Cinnabar' prospect in Nokleberg and others (1987), but it is in a different location than the Hudson cinnabar mine on Olive Creek (ARDF no. LG015).

References:

Robinson and others, 1982; Nokleberg and others, 1987.

Primary reference: Robinson and others, 1982

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Parker

Site type: Occurrence

ARDF no.: LG026

Latitude: 65.494 **Quadrangle:** LG B-3

Longitude: 148.383

Location description and accuracy:
Cobb (1972, MF-413), loc. 6; sec. 28 T. 8 N., R. 4 W. The deposit is in the saddle of a divide about 1.5 miles ESE of Amy Dome.

Commodities:

Main: Cr

Other: Ni

Ore minerals: Chromite, Ni-silicates, Ni-spinels, Ni-sulfides

Gangue minerals: Spinel

Geologic description:
Nickeliferous alpine-type serpentinites with Ni in silicates, spinels, alloys, and sulfides (Foster and Chapman, 1967). Chromite is also present. Select samples assayed as much as 0.42% Ni.

Alteration:

Age of mineralization:

Deposit model:
Nickeliferous alpine-type serpentinites with Ni in silicates, spinels, alloys, and sulfides.

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

Production Status: None

Site Status: Inactive

Workings/exploration:

Production notes:

Reserves:

Additional comments:

References:
Foster and Chapman, 1967; Cobb, 1972 (MF 413); Cobb, 1976 (OFR 76-633).

Primary reference: Foster and Chapman, 1967

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Steel Creek

Site type: Occurrence

ARDF no.: LG027

Latitude: 65.461 **Quadrangle:** LG B-3

Longitude: 148.422

Location description and accuracy:
Cobb (1972, MF-413), loc. 74; NE1/4SW1/4 sec. 5, T. 7 N., R. 4 W., of the Fairbanks Meridian. This occurrence is thought to be in the lower mile of Steel Creek.

Commodities:

Main: W

Other:

Ore minerals: Wolframite

Gangue minerals:

Geologic description:
Joesting (1943) reported considerable wolframite in a sample of placer concentrate that was identified 'a number of years ago'.

Alteration:

Age of mineralization:

Deposit model:

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

Production Status: None

Site Status: Inactive

Workings/exploration:

Production notes:

Reserves:

Additional comments:

References:

Joesting, 1943; Cobb, 1972 (MF 413); Cobb, 1973 (B 1374); Cobb, 1975 (C 722); Cobb, 1976 (OFR 76-633).

Primary reference: Joesting, 1943

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Wilbur Creek

Site type: Mine

ARDF no.: LG028

Latitude: 65.458 **Quadrangle:** LG B-3

Longitude: 148.361

Location description and accuracy:
Cobb (1972, MF-413), loc. 75; SW1/4SW1/4 T. 7 N., R. 4 W., of the Fairbanks Meridian. The coordinates given are for the center of placer deposits that are on the lower half mile of Wilbur Creek, a tributary of the Tolovana River.

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:
Gold prospects were found in 1915 and 1921. Mining began about 1926 and continued on a small scale into the 1940's and sporadically until the late 1980's when Green and others (1988) reported that drift mining had been discontinued (Eberlein and others, 1977; Cobb, 1976, OFR 76-633; Green and others, 1989). Mining is apparently confined to the lower one-half mile of Wilbur Creek (Eberlein and others, 1977, p. 73).

Alteration:

Age of mineralization:

Deposit model:
Placer gold deposit (Cox and Singer, 1986; model 39a).

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

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:

Small scale placer mining. Mining began about 1926 and continued on a small scale into the 1940's and sporadically until the late 1980's when Green and others (1988) reported that drift mining was discontinued (Eberlein and others, 1977, p. 73; Cobb, 1976; OFR 76-633, p. 210; Green and others, 1989, p. 36). In 1987, 4500 cubic yards of pay gravel was extracted from an underground mining operation.

Production notes:

No record of amount of production.

Reserves:

Additional comments:

References:

Brooks, 1916 (B 642); Brooks, 1923; Brooks and Capps, 1924; Smith, 1929; Smith, 1930 (B 813); Smith, 1932; Smith, 1933 (B 836); Smith, 1933 (B 844); Smith, 1934 (B 857); Smith, 1934 (B 864); Smith, 1936; Smith, 1937; Smith, 1938; Smith, 1939 (B 917); Smith, 1939 (B 910); Smith, 1941; Smith, 1942; Cobb, 1972 (MF 413); Cobb, 1973 (B 1374); Cobb, 1976 (OFR 76-633); Eberlein and others, 1977.

Primary reference: Eberlein and others, 1977

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Alabam Creek

Site type: Prospect

ARDF no.: LG029

Latitude: 65.583 **Quadrangle:** LG C-3

Longitude: 148.367

Location description and accuracy:
The Alabam Creek prospect is about 6.5 miles NE of Livengood, about 1 mile above the mouth of Alabam Creek.

Commodities:

Main: Au

Other:

Ore minerals:

Gangue minerals:

Geologic description:
Good prospects of fine placer gold were reported in 1915 (Brooks, 1916; B 642); a hole about a mile above the mouth hit bedrock at 52 feet. About 1.5 miles above the mouth on slope gravel, bedrock is greater than 125 feet deep (Brooks, 1916; B 642). Bedrock is mainly Ordovician chert possibly with some limestone and dolomite (Eberlein and others, 1977). There is no mention of mining or prospecting after 1915.

Alteration:

Age of mineralization:

Deposit model:
Placer gold deposit (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 prospect holes were reported in 1915 (Brooks, 1916; B 642).

Production notes:

Reserves:

Additional comments:

References:
Brooks, 1916 (B 642); Cobb, 1976 (OFR 76-633); Eberlein and others, 1977.

Primary reference: Brooks, 1916 (B 642)

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Willow Creek

Site type: Mine

ARDF no.: LG030

Latitude: 65.625 **Quadrangle:** LG C-3

Longitude: 148.453

Location description and accuracy:
Cobb (1972, MF-413), loc. 63. The placer mine is about 1 mile above the mouth of Willow Creek and about 2.5 miles north of Livengood Dome. Accuracy is within 3,000 feet.

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:
Placer gold mining was reported in 1924 (Smith, 1926, p. 14).

Alteration:

Age of mineralization:

Deposit model:
Placer gold deposit (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 mining was reported in 1924 (Smith, 1926, p. 14).

Production notes:

Reserves:

Additional comments:

References:
Smith, 1926; Cobb, 1972 (MF 413); Cobb, 1973 (B 1374); Cobb, 1976 (OFR 76-633).

Primary reference: Smith, 1926

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Butte Creek

Site type: Mine

ARDF no.: LG031

Latitude: 65.68 **Quadrangle:** LG C-3

Longitude: 148.046

Location description and accuracy:
The Butte Creek prospect is approximately 18 miles northeast of the town of Livengood.

Commodities:

Main: Au

Other:

Ore minerals:

Gangue minerals:

Geologic description:
Gold occurs in bench placers. The average depth to bedrock exceeds 30 feet (D. Wietchy, oral commun., 1999).

Alteration:

Age of mineralization:

Deposit model:
Placer gold deposit (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:
Multiple reworked bench placers were noted on the right limit (D. Wietchy, oral commun., 1999). In 1983, Wietchy and others re-mined and extended those bench placer

workings.

Production notes:

Reserves:

Additional comments:

References:
This description.

Primary reference: This description

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

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

Site type: Prospect

ARDF no.: LG032

Latitude: 65.42 **Quadrangle:** LG B-4

Longitude: 148.622

Location description and accuracy:
This prospect was drilled at several locations south of the confluence of Livengood Creek and the Tolovana River, south of Shorty Creek, near Winter Creek; sec. 20, T. 7 N., R. 5 W., of the Fairbanks Meridian.

Commodities:

Main: Cu, Mo

Other:

Ore minerals:

Gangue minerals:

Geologic description:
This copper-molybdenum prospect was discovered in 1972 and was drilled at several locations (Eakins, 1974, p. 2). The geologic setting is Cretaceous clastic rocks intruded by felsic dikes.

Alteration:

Age of mineralization:

Deposit model:
Porphyry Cu-Mo ? (Cox and Singer, 1986; model 21a).

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

Production Status: None

Site Status: Inactive

Workings/exploration:

This prospect was drilled at several locations in 1972, however there was no activity in the following years (Eberlein and others, 1977).

Production notes:

Reserves:

Additional comments:

References:
Eakins, 1974; Eberlein and others, 1977.

Primary reference: Eakins, 1974

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Unnamed

Site type: Occurrence

ARDF no.: LG033

Latitude: 65.617 **Quadrangle:** LG C-2

Longitude: 147.8

Location description and accuracy:
SE1/4SW1/4 sec. 8, T. 9 N., R. 1 W., of the Fairbanks Meridian.

Commodities:

Main: Cr

Other:

Ore minerals: Chromite

Gangue minerals:

Geologic description:
Foster (1969) reported sheared chromite in scree.

Alteration:

Age of mineralization:

Deposit model:

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

Production Status: None

Site Status: Inactive

Workings/exploration:

Production notes:

Reserves:

Additional comments:

References:
Foster, 1969; Cobb, 1976 (OFR 76-633); Eberlein and others, 1977.

Primary reference: Foster, 1969

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Trail Creek

Site type: Prospect

ARDF no.: LG034

Latitude: 65.381 **Quadrangle:** LG B-1

Longitude: 147.328

Location description and accuracy:
Trail Creek is over 14 miles long and the location of 'encouraging prospects' reported in 1911 is unknown (Ellsworth and Parker, 1911, p. 165). The location given for this report is near the mouth of Trail Creek where it flows into Beaver Creek.

Commodities:

Main: Au

Other:

Ore minerals:

Gangue minerals:

Geologic description:
Encouraging prospects were reported at an unknown location on Trail Creek (Ellsworth and Parker, 1911, p. 165).

Alteration:

Age of mineralization:

Deposit model:
Placer gold deposit (Cox and Singer, 1986; model 39a).

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

Production Status: None

Site Status: Inactive

Workings/exploration:

Production notes:

Reserves:

Additional comments:

References:
Ellsworth and Parker, 1911; Prindle and Katz, 1913.

Primary reference: Ellsworth and Parker, 1911

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Ophir Creek

Site type: Mine

ARDF no.: LG035

Latitude: 65.364 **Quadrangle:** LG B-1

Longitude: 147.081

Location description and accuracy:
Cobb (1972, MF-413), loc. 93. Mining occurred in the lower section of Ophir Creek, a tributary of Nome Creek. Accuracy is within 1,500 feet.

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:
Coarse gold was discovered along Ophir Creek in 1910 (Ellsworth and Parker, 1911, p. 165). Pay gravel was discovered in shallow bench deposits in 1918 (Martin, 1920, p. 38). The largest nugget was valued at $4.30 and the gravel ran $1.25 to $1.75 per bed-rock foot (Ellsworth and Parker, 1911, p. 165).

Alteration:

Age of mineralization:

Deposit model:
Placer gold deposit (Cox and Singer, 1986; model 39a).

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

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:

Small scale mining and prospecting 1910 - 1918 (Cobb, 1976; OFR 76-633, p. 148).

Production notes:

Reserves:

Additional comments:

References:

Ellsworth and Parker, 1911; Ellsworth, 1912; Ellsworth and Davenport, 1913; Prindle and Katz, 1913; Martin, 1920; Cobb, 1972 (MF 413); Cobb, 1973 (B 1374); Cobb, 1976 (OFR 76-633).

Primary reference: Ellsworth and Parker, 1911

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Nome Creek

Site type: Mine

ARDF no.: LG036

Latitude: 65.367 **Quadrangle:** LG B-1

Longitude: 147.042

Location description and accuracy:
Cobb (1972, MF-413), loc. 93. The coordinates given are for a bench north of Nome Creek, east of the mouth of Ophir Creek, however, most of the mining on Nome Creek took place upstream, in the Circle quadrangle (ARDF no. CI041).

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:
Coarse placer gold, in 2 to 4 feet of pay gravel, was first found near the mouth of Ophir Creek in 1910 (Ellsworth and Parker, 1911, p. 165; Ellsworth, 1912). However, most of the mining and all of the dredging took place upstream in the Circle quadrangle (ARDF no. CI041).

Alteration:

Age of mineralization:

Deposit model:
Placer gold deposit (Cox and Singer, 1986; model 39a).

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

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:

Some placer mining occurred prior to WWI in lower Nome Creek. The upper portion of Nome Creek lies within the Circle quadrangle (ARDF no. CI041), and has been actively mined up until at least 1982 (Menzie and others, 1983).

Production notes:

Mining reported before WWI, but no record of amount of production.

Reserves:

Additional comments:

References:

Ellsworth and Parker, 1911; Ellsworth, 1912; Ellsworth and Davenport, 1913; Prindle and Katz, 1913; Smith, 1937; Smith, 1942; Cobb, 1972 (MF 413); Cobb, 1973 (B 1374); Cobb, 1976 (OFR 76-633).

Primary reference: Ellsworth and Parker, 1911

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Our Creek

Site type: Mine

ARDF no.: LG037

Latitude: 65.017 **Quadrangle:** LG A-2

Longitude: 147.875

Location description and accuracy:
Cobb (1972, MF-413), loc. 77, 78; SW1/4NW1/4 sec. 12, T. 2 N., R. 2 W., of the Fairbanks Meridian. The Our Creek placer mine is in the vicinity of the confluence of Our Creek and Any Creek, about 7 miles SW of the nearly abandoned town of Olnes. Accuracy is within 2,000 feet.

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:
Placer gold was discovered in 1906. Bedrock is mainly schist with 'a small amount of rusty granitic rock' (Prindle and Katz, 1913). The depth to bedrock is 75 feet where most of the work took place (Prindle and Katz, 1913). In the lower part of the valley, prospect holes were sunk to a depth of 317 and 218 feet (Prindle and Katz, 1913). A nugget worth $12 was found in 1908 (Prindle and Katz, 1913).

Alteration:

Age of mineralization:

Deposit model:
Placer gold deposit (Cox and Singer, 1986; model 39a).

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

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:
In the lower part of the valley, prospect holes were sunk to a depth of 317 and 218 feet (Prindle and Katz, 1913). Small-scale mining in 1908.

Production notes:
$5,000 worth of production was reported in 1908 (Prindle and Katz, 1913); gold worth $18.43 per ounce.

Reserves:

Additional comments:

References:
Brooks, 1908; Prindle, 1908; Prindle and Katz, 1909; Prindle and Katz, 1913; Cobb, 1972 (MF 413); Cobb, 1976 (OFR 76-633).

Primary reference: Prindle and Katz, 1913

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Goodwin

Site type: Mine

ARDF no.: LG038

Latitude: 65.001 **Quadrangle:** LG A-2

Longitude: 147.729

Location description and accuracy:
Cobb (1972, MF-413), loc. 10; NW1/4SW1/4 sec. 15, T. 2 N., R. 1 W., of the Fairbanks Meridian. The coordinates given are for a shaft along Independence Gulch, about a mile east of Scrafford mine. Accuracy is within 1,500 feet.

Commodities:

Main: Sb

Other:

Ore minerals: Stibnite

Gangue minerals:

Geologic description:
Hill (1933, p. 157) describes this antimony mine as consisting of lenses of massive stibnite in crushed schist with some pyrite. The ore is in a clay-rich gouge in brecciated quartz and schist. The ore zone strikes N 80 E and dips 45 S. This is the eastern extension of the Scrafford mine stibnite zone. A sample of stibnite ore from the Goodwin mine dump contained 32.95% Sb (Killeen and Mertie, 1951, p. 12). Workings consisted of an 85-foot inclined shaft and a 60-foot tunnel (Hill, 1933, p. 157).

Alteration:

Age of mineralization:

Deposit model:
Quartz-stibnite vein (Cox and Singer, 1986; model 27d).

Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):
27d

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:
Workings consisted of an 85-foot inclined shaft and a 60-foot tunnel (Hill, 1933, p. 157).

Production notes:
Hill (1933, p. 157) reported that ore was mined and shipped in 1916, but the amount is not known. Mulligan (1974, p. 12) reported development and an unknown amount of production in 1968-69.

Reserves:

Additional comments:

References:
Smith, 1917 (BMB 153); Hill, 1933; Joesting, 1943; Killeen and Mertie, 1951; Chapman and Foster, 1969; Cobb, 1972 (MF 413); Mulligan, 1974; Cobb, 1976 (OFR 76-633).

Primary reference: Hill, 1933

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Treasure Creek

Site type: Occurrence

ARDF no.: LG039

Latitude: 65.007 **Quadrangle:** LG A-2

Longitude: 147.763

Location description and accuracy:
Cobb (1972, MF-413), loc 8; NE1/4NW1/4 sec. 16, T. 2 N., R. 1 W., of the Fairbanks Meridian. This gold occurence is just east of the confluence of Treasure Creek and Eagle Creek. Accuracy is within 2,500 feet.

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:
A gold lode was reported near the mouth of Eagle Creek, a tributary of Treasure Creek (Smith, 1913; B 525, p. 196).

Alteration:

Age of mineralization:

Deposit model:
Gold-quartz vein.

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

Production Status: None

Site Status: Inactive

Workings/exploration:

Production notes:

Reserves:

Additional comments:

References:
Smith, 1913 (B 525); Cobb, 1972 (MF 413); Cobb, 1976 (OFR 76-633).

Primary reference: Smith, 1913 (B 525)

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Wildcat Creek

Site type: Mine

ARDF no.: LG040

Latitude: 65.016 **Quadrangle:** LG A-2

Longitude: 147.717

Location description and accuracy:
Cobb (1972, MF-413), loc. 82; SW1/4NE1/4 sec. 10, T. 2 N., R. 1 W., of the Fairbanks Meridian. The coordinates given are for the center of placer deposits in the lower one-half mile of Wildcat Creek. Accuracy is within 1,000 feet.

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:
Low-grade gold-bearing gravels were mined for about half a mile above the mouth of Wildcat Creek (Prindle and Katz, 1913, p. 101).

Alteration:

Age of mineralization:

Deposit model:
Placer gold deposit (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:
Mining was reported in 1912, 1913 and 1915 (Ellsworth and Davenport, 1913; Brooks,

1914; Chapin, 1914; Brooks, 1916; B 642).

Production notes:
No record on amount of production.

Reserves:

Additional comments:

References:
Ellsworth and Davenport, 1913; Prindle and Katz, 1913; Brooks, 1914; Chapin, 1914; Brooks, 1916 (B 642); Cobb, 1972 (MF 413); Cobb, 1976 (OFR 76-633).

Primary reference: Prindle and Katz, 1913

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Hoel Brothers; Johnson and Witmer

Site type: Prospect

ARDF no.: LG041

Latitude: 65.022 **Quadrangle:** LG A-2

Longitude: 147.7

Location description and accuracy:
Cobb (1972, MF-413), loc. 11; NW1/4NW1/4 sec. 11, T. 2 N., R. 1 W., of the Fairbanks Meridian. This prospect is near the divide between Wildcat Creek and Vault Creek. Accuracy is within 2,500 feet.

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:
Lode consists of a 30-foot vein carrying low gold values and a richer vein, 8 inches to 2 feet in width (Brooks, 1912, p. 32). By 1910, there was 280 feet of shaft and 60 feet of drift (Brooks, 1912, p. 32).

Alteration:

Age of mineralization:

Deposit model:
Gold-quartz vein.

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

Production Status: Undetermined

Site Status: Inactive

Workings/exploration:
Brooks (1912) reported that there was 280 feet of shaft and 60 feet of drift.

Production notes:

Reserves:

Additional comments:

References:
Brooks, 1912; Smith, 1913 (B 525); Smith, 1913 (B 542); Chapman and Foster, 1969; Cobb, 1972 (MF 413); Mulligan, 1974; Cobb, 1976 (OFR 76-633).

Primary reference: Brooks, 1912

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Treasure Creek

Site type: Mine

ARDF no.: LG042

Latitude: 65.023 **Quadrangle:** LG A-2

Longitude: 147.725

Location description and accuracy:
This drift mine is just south of the pipeline, west of Treasure Creek; it is approximately 600 yards NNW of the mouth of Wildcat Creek in SW1/4SE1/4 sec. 3, T. 2 N., R. 1 W., of the Fairbanks Meridian. Drift mining in the 1990's took place just upstream of this location, above the mouth of Independence Creek (C.J. Freeman, 1999, oral commun.)

Commodities:

Main: Au

Other: Ag

Ore minerals: Gold, unknown Ag

Gangue minerals:

Geologic description:
Gold is found in a buried frozen placer over 200 feet deep. Gold was drift mined from a paystreak from 25 to 225 feet wide and 7 feet thick (Mulligan, 1974). Production from 1907 to 1910 was worth $250,000 with gold valued at $17.77 per ounce (Prindle and Katz, 1913).

Alteration:

Age of mineralization:

Deposit model:
Placer gold deposit (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 drift mined from a paystreak from 25 to 225 feet wide and 7 feet thick (Mulligan, 1974). In 1990, a small drift mine operated and old tailings from pre-WWII drift mines were reprocessed (Swainbank and others, 1991).

Production notes:

Production from 1907 to 1910 was worth $250,000 with gold worth $17.77 per ounce (Prindle and Katz, 1913).

Reserves:

Additional comments:

References:

Brooks, 1907; Prindle, 1908; Prindle and Katz, 1909; Ellsworth, 1910; Ellsworth, 1912; Ellsworth and Davenport, 1913; Prindle and Katz, 1913; Smith, 1913 (B 525); Brooks, 1914; Chapin, 1914; Cobb, 1972 (MF 413); Mulligan, 1974; Cobb, 1976 (OFR 76-633); Swainbank and others, 1991.

Primary reference: Mulligan, 1974

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Vault Creek

Site type: Mine

ARDF no.: LG043

Latitude: 65.039 **Quadrangle:** LG A-2

Longitude: 147.715

Location description and accuracy:

Vault Creek has been mined for almost four miles over most of its length. Drift mines are marked on the Livengood A-2 quadrangle from the mouth of Treasure Creek, down into the Chatanika Flats where more recent mining has occurred. The location given is on a placer mine along Vault Creek, 2.5 miles SSW of Olnes; SE1/4SE1/4 sec. 34, T. 3 N., R. 1 W., of the Fairbanks Meridian.

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:

Vault Creek has been mined over most of its length, for about 4 miles. Drift mining took place to the east of the current position of Vault Creek, from the mouth of Treasure Creek, down to the Chatanika River. Several of these drift mines are marked on the Livengood A-2 quadrangle. Placer gold is found in gravels up to 200 feet deep. Near the mouth in the Chatanika Flats, where recent drift mining has occurred, the alluvium is over 300 feet thick. The pay streak of early mining operations was reported to be 100 or more feet wide and 3 to 6 feet thick (Prindle, 1908). Most of the mining before World War II was drift mining. Mining occurred from 1906 to 1940, and drift mining in the Chatanika flats was reported as recently as 1994 (Cobb, 1976; OFR 76-633; Swainbank and others, 1995). Gold production, including tributaries, through 1924 was worth $2,749,000 with gold valued at $20.67 per ounce (Smith, 1926, p. 13). There is no record of the amount of production from recent drift mining activities.

Alteration:

Age of mineralization:

Deposit model:
Placer gold deposit (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 mining, mainly from drift mines, occurred from 1906 to 1940 (Cobb, 1976; OFR 76-633). Placer gold was mined from a small underground drift near the old site of Vault, in 1989 (Bundtzen and others, 1990, p. 35). Sam Skidmore started underground production at his Vault Creek property in 1994 (Swainbank and others, 1995).

Production notes:
Production, including tributaries, through 1924 was worth $2,749,000 (Smith, 1926, p. 13). Sam Skidmore started underground production at his Vault Creek property in 1994, however, production figures were not reported (Swainbank and others, 1995).

Reserves:

Additional comments:

References:
Brooks, 1907; Brooks, 1908; Prindle, 1908; Prindle and Katz, 1909; Ellsworth, 1910; Ellsworth and Parker, 1911; Ellsworth, 1912; Ellsworth and Davenport, 1913; Prindle and Katz, 1913; Brooks, 1914; Chapin, 1914; Brooks, 1915; Eakin, 1915; Brooks, 1916 (B 642); Smith, 1917 (BMB 142); Smith, 1917 (BMB 153); Brooks, 1918; Martin, 1919; Martin, 1920; Brooks and Martin, 1921; Brooks, 1922; Brooks, 1923; Brooks and Capps, 1924; Capps, 1924; Brooks, 1925; Smith, 1926; Moffit, 1927; Smith, 1929; Smith, 1933 (B 836); Smith, 1933 (B 844); Smith, 1934 (B 857); Smith, 1934 (B 864); Smith, 1936; Smith, 1937; Smith, 1938; Smith, 1939 (B 910); Smith, 1939 (B 917); Smith, 1941; Smith, 1942; Koschmann and Bergendahl, 1968; Cobb, 1972 (MF 413); Mulligan, 1974; Cobb, 1976 (OFR 76-633); Bundtzen and others, 1990.

Primary reference: Cobb, 1976 (OFR 76-633)

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Unnamed (lower Dome Creek in the Chatanika flats)

Site type: Mines

ARDF no.: LG044

Latitude: 65.077 **Quadrangle:** LG A-2

Longitude: 147.699

Location description and accuracy:

These drift mines are located in the lower portion of Dome Creek near the Chatanika River, and are marked on the Livengood A-2 topographic map. They cover an area of approximately one mile by one-quarter mile, and are on both sides of the Elliot Highway, less than one mile northwest of the town of Olnes.

Commodities:

Main: Au

Other:

Ore minerals:

Gangue minerals:

Geologic description:

Drift mining operations in the Chatanika flats on lower Dome Creek were active in the early 1900's. Most production has come from drift mines from Seatte Creek to Olnes, and from dredge operations that took place in the 1950's between the mouth of Moose Creek to Seattle Creek; these operations are described in a separate record, ARDF no. LG049. Most of the mining in 1912 and 1914 was reported to have come from near the mouth in the Chatanika flats, however, production figures generally include the drift mines that were producing south of the town of Olnes (Eakin, 1915; Ellsworth and Davenport, 1913). The depth to bedrock for all drift mining along the creek has been described as from 30 to 200 feet (Prindle, 1908; Prindle and Katz, 1913). Most likely, the depth to bedrock in the Chatanika flats is closer to 200 feet. The bedrock surface is uneven, and the pay streak was 130 to 165 feet wide within the lower 2 to 3 feet of gravel and upper 2 to 3 feet of bedrock (Prindle, 1908).

Alteration:

Age of mineralization:

Deposit model:

Placer gold deposit (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:
Mining by drift methods only (Cobb, 1976).

Production notes:
Most of the mining in 1912 and 1914 was reported to have come from near the mouth in the Chatanika flats, however, production figures generally include the drift mines that were producing south of the town of Olnes (Eakin, 1915; Ellsworth and Davenport, 1913). By 1973, production from the entire creek was estimated to be about $4,000,000 in gold from both surface and underground workings (Cobb, 1973).

Reserves:

Additional comments:

References:
Prindle, 1906; Brooks, 1907; Brooks, 1908; Prindle, 1908; Prindle and Katz, 1909; Ellsworth, 1910; Ellsworth and Parker, 1911; Ellsworth, 1912; Ellsworth and Davenport, 1913; Prindle and Katz, 1913; Brooks, 1914; Chapin, 1914; Brooks, 1915; Eakin, 1915; Brooks, 1916 (B 642); Smith, 1917 (BMB 142); Smith, 1917 (BMB 153); Brooks, 1918; Martin, 1919; Martin, 1920; Brooks and Martin, 1921; Brooks, 1922; Brooks, 1923; Capps, 1924; Moffit, 1927; Smith, 1930 (B 810); Smith, 1930 (B 813); Smith, 1932; Smith, 1934 (B 864); Smith, 1934 (B 857); Smith, 1936; Smith, 1937; Smith, 1938; Smith, 1939 (B 910); Smith, 1939 (B 917); Smith, 1941; Smith, 1942; Thorne and others, 1948; Byers, 1957; Koschmann and Bergendahl, 1968; Cobb, 1972 (MF 413); Cobb, 1973 (B 1374); Mulligan, 1974; Cobb, 1975 (C 722); Cobb, 1976 (OFR 76-633); Bundtzen and others, 1990.

Primary reference: Cobb, 1976 (OFR 76-633)

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 9/1/99

Site name(s): Unnamed (lower Little Eldorado Creek in the Chatanika flats)

Site type: Mine

ARDF no.: LG045

Latitude: 65.09 **Quadrangle:** LG A-2

Longitude: 147.572

Location description and accuracy:
These drift mines are located in lower Little Eldorado Creek in the Chatanika flats; NW1/4, sec. 16, T. 3 N., R. 1 E., of the Fairbanks Meridian.

Commodities:

Main: Au

Other:

Ore minerals:

Gangue minerals:

Geologic description:
Little Eldorado Creek drains the north side of Pedro Dome. Bedrock in the headwaters area consists of granodiortie on Pedro Dome and micaceous quartzite, quartz-mica schist and pelitic schist of the Fairbanks schist unit (Weber and others, 1992). These drift mines access deep aurfierous gravel in the Chatanika flats. Production figures for these drift mines have not been reported.

Alteration:

Age of mineralization:

Deposit model:
Placer gold deposit (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:

Mining by drift methods only. During the winter of 1995-1996, a crew of six mined 17,000 cubic yards of high grade gravel using low profile loaders and excavators. The gravel was sluiced during the summer months of 1996 (Swainbank and others, 1997). Underground placer operations continued in 1997 (Swainbank and others, 1998).

Production notes:

Production figures for these drift mines have not been reported.

Reserves:

Additional comments:

References:

Weber and others, 1992; Swainbank and others, 1997; Swainbank and others, 1998.

Primary reference: Swainbank and others, 1997

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 9/1/99

Site name(s): Gilmer

Site type: Mine

ARDF no.: LG046

Latitude: 65.016 **Quadrangle:** LG A-2

Longitude: 147.65

Location description and accuracy:
Cobb (1972, MF-413), loc. 14; SW1/4NE1/4 sec. 12, T. 2 N., R. 1 W., of the Fairbanks Meridian. The Gilmer mine is located along both sides of the old railroad grade on the east slope of Vault Creek, about 1/2 mile south of the Fredericks gold mine. It is about 4.5 miles north of Fox near the Elliot Highway. Accuracy is within 2,000 feet.

Commodities:

Main: Sb

Other: Ag, Pb, Sb

Ore minerals: Argentiferous galena, gold, stibnite

Gangue minerals: Calcite

Geologic description:
This site consists of a fracture or shear zone that has been traced for 600-700 feet; it is 3 to 5 feet wide and contains shoots and kidneys of stibnite as much as 4 feet across (Brooks, 1916; B 649). In places the fracture zone appears to have little ore in it and in others the stibnite occupies the entire zone. Between the shoots, quartz and mineralized schists contain small kidneys of ore. The stibnite forms finely granular and fibrous aggregates and shows only a thin film of oxidation products. Fine grains of vitreous quartz occur in the masses of stibnite. Some fractured quartz is cemented by stibnite. Some gold and argentiferous galena are also present. The shear zone is in part bounded by smooth walls and in part by zones of fractured schist. Mica schist country rock strikes N 80 E, and dips 80 S. One sample contained 46.53% Sb and ore samples averaged 0.75 ounces of gold and a trace to 1.96 ounces of silver per ton (Joesting, 1942, ATDM Pamph. 1; Killeen and Mertie, 1951).

Alteration:
Ore highly oxidized.

Age of mineralization:

Deposit model:
Gold-stibnite-quartz vein.

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

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:
Workings caved and inaccessible in 1942 (Joesting, 1942; ATDM Pamph. 1).

Production notes:
Antimony ore was mined on a small scale in 1915, but amount of production is unknown (Brooks, 1916, p. 29; B 642).

Reserves:

Additional comments:

References:
Brooks, 1916 (B 642); Brooks, 1916 (B 649); Joesting, 1942 (ATDM Pamph. 1); Ebbley and Wright, 1948; Killeen and Mertie, 1951; Chapman and Foster, 1969; Cobb, 1972 (MF 413); Mulligan, 1974; Cobb, 1976 (OFR 76-633).

Primary reference: Brooks, 1916 (B 649)

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Frederich

Site type: Mine

ARDF no.: LG047

Latitude: 65.022 **Quadrangle:** LG A-2

Longitude: 147.65

Location description and accuracy:
The Frederich mine is located about 5 miles north of Fox along the Elliot Highway; NW1/4NE1/4 sec. 12, T. 2 N., R. 1 W., of the Fairbanks Meridian. Accuracy is within 2,000 feet.

Commodities:

Main: Au

Other: Sb

Ore minerals: Arsenopyrite, gold, limonite, pyrite, stibnite

Gangue minerals:

Geologic description:
This site is a mineralized shatter zone in schist that is cut by granitic dikes. The lode consisits of quartz and sulfides and their oxidation products. Kidneys of stibnite, some coarsely columnar and some finely granular, are more abundant near the footwall than the hanging wall (Brooks, 1916; B 649). Some of the ore is very rich in gold; production occured from 1910 to 1912 (Brooks, 1911; Brooks, 1912). A shaft, a little more than 300 feet deep was sunk in a vein that dips from 70 degrees at the surface to 45 degrees at the bottom of the shaft, and is as much as 3.5 feet wide (Smith, 1913; B 525). Granitic rock was encountered 50 feet from the shaft in a crosscut into the hanging wall. A decomposed granite dike was encountered in a crosscut on a 300-foot level drift. Grab samples from probable mill ore taken in 1931 assayed 0.07 to 0.14 ounces of gold per ton (Hill, 1933).

Antimony ore was mined in 1916 (Smith, 1917; BMB 153). Some stibnite was produced during World Wars I and II (Mulligan, 1974, p. 11).

Alteration:
Quartz, sericite, calcite, ankerite; the stibnite is partly oxidized on the 100-foot level and the granite weathers rusty yellow.

Age of mineralization:

Deposit model:
Gold-stibnite quartz vein.

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

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:
Two shafts sunk; drifts on 100-foot, 200-foot, and 300-foot levels (Smith, 1913; B 525).

Production notes:
Gold mined from 1910 to 1912; antimony ore mined in 1916 and during WWII, but total production is unknown (Cobb, 1976; OFR 76-633, p. 69).

Reserves:

Additional comments:

References:
Brooks, 1911; Brooks, 1912; Smith, 1913 (B 542); Smith, 1913 (B 525); Chapin, 1914; Brooks, 1916 (B 649); Smith, 1917 (BMB 153); Hill, 1933; Joesting, 1942 (ATDM Pamph. 1); Ebbley and Wright, 1948; Killeen and Mertie, 1951; Chapman and Foster, 1969; Cobb, 1972 (MF 413); Mulligan, 1974; Cobb, 1976 (OFR 76-633).

Primary reference: Cobb, 1976 (OFR 76-633)

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Thrift

Site type: Mine

ARDF no.: LG048

Latitude: 65.036 **Quadrangle:** LG A-2

Longitude: 147.661

Location description and accuracy:
Cobb (1972, MF-413), loc. 12; NE1/4NW1/4 sec. 1, T. 2 N., R. 1 W., of the Fairbanks Meridian. The Thrift mine is near the ridgetop, adjacent to the old railroad grade marked on the Livengood (A-2) quadrangle. It is just west of the Elliot Highway, about 4 miles SE of the Chatanika River.

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:
Some ore from a quartz vein reported to have been mined and milled before 1912, yielded about 0.53 ounces of gold per ton (Smith, 1913; B 525).

Alteration:

Age of mineralization:

Deposit model:
Gold-quartz vein.

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

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:
Some ore from a quartz vein reported to have been mined and milled before 1912,

yielding about 0.53 ounces per ton in gold (Smith, 1913; B 525).

Production notes:

Reserves:

Additional comments:

References:

Smith, 1913 (B 525); Smith, 1913 (B 542); Chapman and Foster, 1969; Cobb, 1972 (MF 413); Mulligan, 1974; Cobb, 1976 (OFR 76-633).

Primary reference: Smith, 1913 (B 525)

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Dome Creek

Site type: Mine

ARDF no.: LG049

Latitude: 65.033 **Quadrangle:** LG A-2

Longitude: 147.613

Location description and accuracy:
The coordinates given are near the western end of a placered area along Dome Creek at Dome Camp, just below the mouth of Murray Creek; NW1/4NE1/4 sec. 6, T. 2 N., R. 1 E., of the Fairbanks Meridian.

Commodities:

Main: Au

Other: Sn, W

Ore minerals: Cassiterite, gold, scheelite

Gangue minerals:

Geologic description:
Dome Creek was one of the most productive placer gold streams in the Fairbanks mining district, and by 1973, the creek had produced more than $4,000,000 in gold from both surface and underground workings (Cobb, 1973). Dome Creek has been mined for more than three miles from above Seattle Creek nearly to Olnes on the Elliot Highway. Before WWI, most mining was by drifting with a depth to bedrock of up to 200 feet (Prindle and Katz, 1913). The portion from near the mouth of Moose Creek to Seattle Creek was dredged from 1955 to 1959 (R.M. Chapman, 1978, unpublished U.S.G.S. memorandum). Surface mining has continued intermittently to the present, notably in upper Dome Creek, and for several miles below the Dome Creek camp site, shown on the Livengood A-2 topographic map. The location of drift mines on lower Dome Creek in the Chatanika Flats is described in ARDF No. LG044.

Depth to uneven bedrock surface ranges from 30 to 200 feet, with a paystreak of 130 to 165 feet wide in the lower 2 to 3 feet of gravel and the upper 2 to 3 feet of bedrock (Prindle, 1908, p. 29). The middle part of the stream course is not productive, and auriferous gravel extends into the Chatanika Flats (Prindle and Katz, 1913). Concentrates contained gold, scheelite, and a little cassiterite (Cobb, 1976; OFR 76-633, p. 51).

Production, including that from tributaries, from 1903 through 1920 was about 394,245 ounces (Cobb, 1976, p. 51). U.S.S.R. & M. Dredge no. 5 moved to Dome Creek in winter of 1954 to 1955, and worked there from 1955 to 1959 (R.M. Chapman, 1978, un-

pulished U.S.G.S. memorandum). During winter and early spring 1989, about 14,000 cubic yards were brought to the surface in a small scale undergound drift mine operation below the lower limit of the former U.S.S.R.& M. operations. Gravel sluiced during the summer of 1989 averaged 0.04 ounces of gold per cubic yard (Bundtzen and others, 1990, p. 35). In 1991, this same operation continued to rework old drifts and removed side pay left by the early 20th century hand miners (Bundtzen and others, 1992). Current sluicing is taking place above the dredge tailings (J. Schaefer, 1999, field observation).

Alteration:

Age of mineralization:

Deposit model:
Placer gold deposit (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:
Surface and underground workings have produced gold. U.S.S.R. & M. Dredge no. 5 moved to Dome Creek in winter of 1954 to 1955, and worked there from 1955 to 1959 (Chapman, 1978, U.S.G.S. memorandum). A small scale undergound drift mine by Roberts Mining was started in 1989 below the lower limit of former U.S.S.R. & M. dredging activities (Bundtzen and others, 1990, p. 35) and continued until 1993 (Bundtzen and others, 1994, p. 29). In 1991, Robert's Mining mined 11,470 cubic meters (15,000 cubic yards) of rich placer pay at the drift mine, reworking old drifts and removing side pay left by the early 20th century hand miners (Bundtzen and others, 1992). RCL Mining worked both an underground drift mine and washed old drift tailings on Dome Creek, below the Roberts Mining operation (Swainbank and others, 1993). Current operations consist of a cat feeding a sluice box, above the dredge tailings (J. Schaefer, 1999, field observation).

Production notes:
Dome Creek was one of the most productive placer gold streams in the Fairbanks mining district, and by 1973, the creek had produced more than $4,000,000 in gold from both surface and underground workings (Cobb, 1973). During winter and early spring 1989, about 14,000 cubic yards were brought to the surface and stockpiled for summer sluicing. Gravel sluiced during the summer of 1989 averaged 0.04 ounces per cubic yard (Bundtzen and others, 1990, p. 35).

Reserves:

Additional comments:

References:

Prindle, 1906; Brooks, 1907; Brooks, 1908; Prindle, 1908; Prindle and Katz, 1909; Ellsworth, 1910; Ellsworth and Parker, 1911; Ellsworth, 1912; Ellsworth and Davenport, 1913; Prindle and Katz, 1913; Brooks, 1914; Chapin, 1914; Brooks, 1915; Eakin, 1915; Brooks, 1916 (B 642); Smith, 1917 (BMB 142); Smith, 1917 (BMB 153); Brooks, 1918; Martin, 1919; Martin, 1920; Brooks and Martin, 1921; Brooks, 1922; Brooks, 1923; Capps, 1924; Moffit, 1927; Smith, 1930 (B 810); Smith, 1930 (B 813); Smith, 1932; Smith, 1934 (B 864); Smith, 1934 (B 857); Smith, 1936; Smith, 1937; Smith, 1938; Smith, 1939 (B 910); Smith, 1939 (B 917); Smith, 1941; Joesting, 1942 (ATDM Pamph. 1); Smith, 1942; Joesting, 1943; Thorne and others, 1948; Byers, 1957; Koschmann and Bergendahl, 1968; Cobb, 1972 (MF 413); Cobb, 1973 (B 1374); Mulligan, 1974; Cobb, 1975 (C 722); Cobb, 1976 (OFR 76-633); Bundtzen and others, 1990.

Primary reference: Cobb, 1976 (OFR 76-633)

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Mother Lode; Dome Creek

Site type: Prospect

ARDF no.: LG050

Latitude: 65.039 **Quadrangle:** LG A-2

Longitude: 147.611

Location description and accuracy:
Cobb (1972, MF-413), loc. 15; SE1/4SE1/4 sec. 31, T. 3 N., R. 1 E., of the Fairbanks Meridian. The prospect is 1/2 mile north of Dome Camp, at an elevation of about 1,000 feet. Accuracy is within 2,500 feet.

Commodities:

Main: Cu

Other:

Ore minerals: Chalcopyrite

Gangue minerals:

Geologic description:
Material on dumps is graphitic limestone heavily impregnated with disseminated sulfides, mainly pyrite with some chalcopyrite and arsenopyrite (Smith, 1913; B 525, p. 194). Smith (1913, B 525) also reported post-sulfide faulting.

Two shafts were sunk on this prospect (Smith, 1913; B 525, p. 180). The western shaft was 147 feet deep, with a short crosscut at the bottom running eastward. The eastern shaft, 200 paces east of the western shaft, was sunk 215 feet. The first 60 feet was sunk through muck and the rest through rock with no intervening gravel. No production has been reported.

Alteration:

Age of mineralization:

Deposit model:
Polymetallic carbonate replacement.

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

Production Status: None

Site Status: Inactive

Workings/exploration:

Two shafts were sunk on this prospect (Smith, 1913; B 525, p. 180). The western shaft was 147 feet deep, with a short crosscut at the bottom running eastward. The eastern shaft, 200 paces east of the western shaft, was sunk 215 feet. The first 60 feet was sunk through muck and the rest through rock with no intervening gravel. The two shafts were nearly filled with water in 1912 (Smith, 1913; B 525, p. 180).

Production notes:

No production reported.

Reserves:

Additional comments:

References:

Prindle and Katz, 1913; Smith, 1913 (B 525); Smith, 1913 (B 542); Chapman and Foster, 1969; Cobb, 1972 (MF 413); Cobb, 1976 (OFR 76-633).

Primary reference: Smith, 1913 (B 525)

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Woods; Alpha; Omega

Site type: Prospect

ARDF no.: LG051

Latitude: 65.036 **Quadrangle:** LG A-2

Longitude: 147.581

Location description and accuracy:
Cobb (1972, MF-413), loc. 16; NE1/4NE1/4 sec. 5, T. 2 N., R. 1 E., of the Fairbanks Meridian. This prospect is near Davidson Ditch, about 1 mile east of Dome Camp. Accuracy is within 3,000 feet.

Commodities:

Main: Au

Other: Pb, Sb

Ore minerals: Arsenopyrite, galena, gold, pyrite, stibnite

Gangue minerals:

Geologic description:
The prospect consists of quartz veins that pinch and swell. In part, they are massive and contain some gold, but mainly they are shattered and sugary with some visible flakes of gold. Some clay gouge and iron- and manganese-staining is present (Spencer and O'Neill, 1934; Chapman and Foster, 1969). The veins dip north and strike N 60-80 W and N 45-77 E.

Alteration:
Some clay gouge and iron- and manganese-staining is present (Spencer and O'Neill, 1934; Chapman and Foster, 1969).

Age of mineralization:

Deposit model:
Gold-quartz vein.

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

Production Status: None

Site Status: Inactive

Workings/exploration:

Production notes:

Reserves:

Additional comments:

References:
Hill, 1933; Spencer and O'Neill, 1934; Chapman and Foster, 1969; Cobb, 1972 (MF 413); Cobb, 1976 (OFR 76-633).

Primary reference: Chapman and Foster, 1969

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Soo; Spaulding; Wild Rose; Chief; Waterbury; Waverly; Inspiration; Carnation

Site type: Mine

ARDF no.: LG052

Latitude: 65.037 **Quadrangle:** LG A-2

Longitude: 147.55

Location description and accuracy:
Cobb (1972, MF-413), loc. 23, 24; NE1/4SE1/4 sec. 33, T. 3 N., R. 1 E., of the Fairbanks Meridian. This mine is near the head of Dome Creek, about 1.5 miles WNW of Pedro Dome. Accuracy is within 1,500 feet.

Commodities:

Main: Au

Other: Ag, Pb, Sb

Ore minerals: Arsenopyrite, galena, gold, limonite, pyrite, stibnite, tetrahedrite

Gangue minerals:

Geologic description:
Gold is found in quartz veins in a shear zone containing stibnite, arsenopyrite, auriferous tetrahedrite, and galena. Two veins, the Wild Rose and the Soo, trend east and dip north. The Chief vein trends N 50 E and dips 50 NW. The veins contain free gold, some of which is smeared on slickenside surfaces (Smith, 1913; B 525). Gold fineness ranges from 823 to 843 (Smith, 1913; B 525). Much of the ore contained $50 to $60 or more per ton, with some of the richest running over $250 per ton (Smith, 1913; B 525). Hill (1933) reported that typical ore from the H-K vein shows two generations of quartz; one with a little gold and the second with pyrite, arsenopyrite, stibnite and free gold.

The Wild Rose vein contains small bunches of stibnite with a little galena, tetrahedrite, and copper sulfides (Chapin, 1914). Specimens of stibnite consist of columnar and fibrous masses, together with fine granular aggregates (Brooks, 1916; B 649). Specimens of curved and bladed crystals of stibnite contain over 60% Sb (Joesting, 1942; ATDM Pamph. 1).

The mine operated intermittently from 1910 to 1936. Total gold production from 1912 to 1914 and from 1925 to 1931 was between $140,000 and $165,000, or about 7500 ounces (Hill, 1933). Ebbley and Wright (1948, p. 38) reported that antimony ore had been produced.

Alteration:

Age of mineralization:

Deposit model:
Gold, galena and antimony sulfides in quartz veins.

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

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:
Mine development consisted of several shafts and extensive underground workings, mainly along the Wild Rose vein on the Soo claim (Chapin, 1914).

Production notes:
The mine operated intermittently from 1910 to 1936. Total gold production from 1912 to 1914 and from 1925 to 1931 was between $140,000 and $165,000, or about 7500 ounces (Hill, 1933). Ebbley and Wright (1948, p. 38) reported that antimony ore had been produced.

Reserves:

Additional comments:

References:
Brooks, 1911; Brooks, 1912; Smith, 1913 (B 525); Smith, 1913 (B 542); Chapin, 1914; Eakin, 1915; Brooks, 1916 (B 642); Brooks, 1916 (B 649); Smith, 1917 (BMB 142); Smith, 1929; Smith, 1930 (B 810); Smith, 1930 (B 813); Smith, 1932; Hill, 1933; Smith, 1933 (B 844); Smith, 1934 (B 857); Smith, 1934 (B 864); Smith, 1936; Smith, 1937; Smith, 1938; Joesting, 1942 (ATDM Pamph. 1); Joesting, 1943; Ebbley and Wright, 1948; Killeen and Mertie, 1951; Burand, 1966; Chapman and Foster, 1969; Cobb, 1972 (MF 413); Cobb, 1976 (OFR 76-633).

Primary reference: Smith, 1913 (B 525)

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Spruce Creek

Site type: Prospect

ARDF no.: LG053

Latitude: 65.056 **Quadrangle:** LG A-2

Longitude: 147.595

Location description and accuracy:
Cobb (1972, MF-413), loc. 21; NE1/4SW1/4 sec. 29, T. 3 N., R. 1 E., of the Fairbanks Meridian. This prospect is near the head of Spruce Creek, about 3 miles northwest of Pedro Dome. Accuracy is within 4,000 feet.

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:
Lode said to carry about 0.58 ounces of gold per ton (Smith, 1913; B 525, p. 190). By 1912, a 150-foot shaft had been dug (Smith, 1913; B 525, p. 190).

Alteration:

Age of mineralization:

Deposit model:
Gold-quartz vein?

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

Production Status: Undetermined

Site Status: Inactive

Workings/exploration:
Opened by a shaft 150 feet deep (Smith, 1913; B 525).

Production notes:

Reserves:

Additional comments:

References:

Smith, 1913 (B 525); Chapman and Foster, 1969; Cobb, 1972 (MF 413); Cobb, 1976 (OFR 76-633).

Primary reference: Smith, 1913 (B 525)

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Hindenburg; Markovich

Site type: Mine

ARDF no.: LG054

Latitude: 65.053 **Quadrangle:** LG A-2

Longitude: 147.558

Location description and accuracy:
Cobb (1972, MF-413), loc. 22; SE1/4SW1/4 sec. 28, T. 3 N., R. 1 E., of the Fairbanks Meridian. This deposit is on the divide between Spruce and Little Eldorado Creeks at an elevation of about 1,600 feet. Accuracy is within 2,500 feet. The Hindenberg zone is now within the main orebody of the True North prospect (ARDF no. LG055).

Commodities:

Main: Sb

Other: Au

Ore minerals: Gold, stibnite

Gangue minerals:

Geologic description:
The Hindenberg zone is now within the main orebody of the True North prospect (ARDF no. LG055). At least two veins have been worked for stibnite. One strikes N 40 E, dips 68 SE; and the other strikes N 65 E and dips 74 W. Hill (1933) described three shallow shafts on a vein that strikes about east. The ore on the dump is badly crushed, iron- and manganese-stained quartz carrying stibnite and arsenopyrite. Killeen and Mertie (1951), reported a sample of stibnite ore containing 57.76% Sb.

The Hindenberg claim was worked for stibnite in 1916 and the Ohio claim was mined in 1918 (Mertie, 1918; Martin, 1920). Two hundred tons of ore was reported to have been shipped from the Hindenberg claim (Mertie, 1918). 16.5 tons of ore containing 38.5% Sb sold in 1942 (Joesting, 1943).

Alteration:
Quartz is iron and manganese stained.

Age of mineralization:

Deposit model:
Stibnite vein (Cox and Singer, 1986; model 27d).

Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):
27d

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:
Over 500 feet of tunnel and other workings (Killeen and Mertie, 1951). In 1916, workings consisted of a shaft 25 feet deep, with drifts from the bottom (Mertie, 1918). The Hindenberg zone is now within the main orebody of the True North prospect (ARDF no. LG055).

Production notes:
During WWI, two hundred tons of ore was reported to have been shipped from the Hindenberg claim (Mertie, 1918); 16.5 tons of ore containing 38.5% Sb were sold in 1942 (Joesting, 1943).

Reserves:

Additional comments:

References:
Mertie, 1918; Martin, 1920; Hill, 1933; Joesting, 1942 (ATDM Pamph. 1); Joesting, 1943; Ebbley and Wright, 1948; Killeen and Mertie, 1951; Chapman and Foster, 1969; Cobb, 1972 (MF 413); Cobb, 1976 (OFR 76-633).

Primary reference: Mertie, 1918

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): True North

Site type: Prospect

ARDF no.: LG055

Latitude: 65.048 **Quadrangle:** LG A-2

Longitude: 147.533

Location description and accuracy:

The True North property lies approximately 2 miles northwest of Pedro Dome. It covers approximately 11,000 acres of State of Alaska Mining claims and patented Federal mining claims (Masterman, 1998). The location given is the approximate center of those claims. The Hindenburg/Markovich mine (ARDF no. LG054) is part of the True North prospect.

Commodities:

Main: Au

Other:

Ore minerals:

Gangue minerals:

Geologic description:

The True North gold deposit is a structurally controlled, disseminated gold deposit located on the northwest flank of Pedro Dome. Gold was recognized on the property as early as 1913, but historic production was limited to stibnite ore, mined from the Hindenburg/Markovich mine (ARDF no. LG054), which is located within the current True North land holdings.

Mineralization at True North is associated with quartz-carbonate veins in a heterogeneous high-grade metamorphic package containing calcareous eclogites, particularly where carbonaceous schists and quartzite are prevalent (Swainbank and others, 1998, p. 8). Gold occurs within a northeast-trending zone, 2500 feet wide and 5000 feet long, west of the northeast-trending Eldorado Fault. Gold-bearing zones are typically 20 to 60 feet thick within gently dipping shear zones and faulted lithologic contacts (Masterman, 1998). Gold grades within the shear zones average 0.05 to 0.10 ounces of gold per ton (Masterman, 1998). Ar-Ar dating of alteration associated with mineralization at Fort Knox, Ryan Lode, Golden Summit and True North all place the main mineralizing event at +/- 90 Ma (Masterman, 1998).

Exploration activities on the True North property from 1991 to 1997 consisted of 9,832 top-of-bedrock soil samples, 15,621 feet of trenching, 40,133 feet of core drilling and

153,914 feet of RC drilling (Masterman, 1998). Auger soil-sampling programs occurred in 1998 (Szumigala and Swainbank, 1999, p. 10). There is particular interest in a 400 foot by 1,000 foot gold-arsenic-antimony anomaly occurring southwest of the True North trend (Szumigala and Swainbank, 1999, p. 10).

As of 1997, geologic resources were calculated to be 1.3 million ounces of gold with a grade of 0.072 ounces of gold per ton (Swainbank and others, 1998, p. 8; Masterman, 1998). In 1997, core drilling and 55,000 feet of reverse-circulation drilling led to the discovery of the Merlyn and Dome Creek mineralized zones (Swainbank and others, 1998, p.8).

Alteration:

Quartz, manganese-oxides, ankerite, mariposite, sericite and carbon.

Age of mineralization:

Deposit model:

Disseminated carbonate-replacement gold mineralizaton associated with intrusion- and schist-hosted crushed veins and low-angle shears.

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

Production Status: None

Site Status: Active

Workings/exploration:

The following history of exploration is based on an extended abstract presented by Steve Masterman, Newmont Exploration Limited, at the 1998 Alaska Miners Association Meeting. In 1990, Dick Swainbank brought the property to the attention of AMAX Gold, Inc. (AGI). AGI acquired the claims and conducted soil sampling, trenching, and 6,332 feet of reverse-circulation (RC) drilling. In 1994, after drilling 14 RC holes under an exploration agreement, LaTeko acquired the property from AGI. During the summer of 1994, LaTeko expanded the soil grid, excavated additional trenches, drilled 52,000 feet of RC and 2,040 feet of HQ core. In 1995, Newmont Exploration Ltd. began exploration on the property, after entering into a joint venture with LaTeko. Exploration activities on the True North property from 1991 to 1997 consisted of 9,832 top-of-bedrock soil samples, 15,621 feet of trenching, 40,133 feet of core drilling, and 153,914 feet of RC drilling (Masterman, 1998). In 1998, most exploration work consisted of auger soil sampling programs (Szumigala and Swainbank, 1999, p. 10). In 1999, Kinross Gold Exploration acquired Newmont's 65% interest in the True North Venture.

Production notes:

Reserves:

As of 1997, geologic resources were calculated to be 1.3 million ounces of gold with a grade of 0.072 ounces of gold per ton (Swainbank and others, 1998, p. 8; Masterman,

1998).

Additional comments:

Metallurgical tests found that gold recoveries would probably be 85-95% for the 1.3 million ounces of gold in the non-sulfide, coarse material from the oxide zones at the Hindenburg and Shepard prospects (Szumigala and Swainbank, 1999, p. 10). Deeper, more sulfide-rich samples from the Hindenburg and the Shepard prospects probably will have gold recoveries ranging from 61 to 68%.

References:

Masterman, 1998; Swainbank and others, 1998; Szumigala and Swainbank, 1999.

Primary reference: Swainbank and others, 1998

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Little Eldorado Creek

Site type: Mine

ARDF no.: LG056

Latitude: 65.058 **Quadrangle:** LG A-2

Longitude: 147.533

Location description and accuracy:
Cobb (1972, MF-413), loc. 86, 87; NW1/4SW1/4 sec. 27, T. 3 N., R. 1 E., of the Fairbanks Meridian. The mine tailings are marked on the Livengood (A-2) quadrangle. The coordinates given are for the center of the tailings at the head of Little Eldorado Creek.

Commodities:

Main: Au

Other: Sn, W

Ore minerals: Cassiterite, gold, scheelite

Gangue minerals:

Geologic description:
Little Eldorado Creek drains the north side of Pedro Dome. Bedrock in the headwaters area consists of granodiortie on Pedro Dome and micaceous quartzite, quartz-mica schist and pelitic schist of the Fairbanks schist unit (Weber and others, 1992). Gold is mainly in the bench placers with some gold in the creek. Bedrock is quartz-mica schist at a depth of 60 to 120 feet (Prindle, 1908). Concentrates contain gold, cassiterite, scheelite, and wolframite (Prindle and Katz, 1909; Johnson, 1910). Bench placer mining took place in 1907-27, 1930-31, 1938-40 and drift mining has been active throughout the 1990's, especially in the lower parts of the creek (Cobb, 1976; OFR 76-633, p. 113-114; Swainbank and others, 1998). U.S.S.R. & M. Dredge no. 5 moved to Little Eldorado Creek in 1948 and worked there from 1948 to 1954 (R. M. Chapman, 1978, U.S.G.S. memorandum). Total production as of 1924 was worth $2,414,000 (Smith, 1926), and production figures are not available for more recent operations. More recent drift mining in the 1990's has taken place in the Chatanika flats, near the mouth of Little Eldorado Creek (ARDF no. LG045).

Alteration:

Age of mineralization:

Deposit model:
Placer gold deposit (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:
Mining took place in 1907-27, 1930-31, 1938-40 (Cobb, 1976; OFR 76-633, p. 113-114) and Al Hopen mined Little Eldorado Creek throughout the 1990's. Drift mining was reported in 1925 (Moffit, 1927, p. 17). U.S.S.R. & M. Dredge no. 5 moved to Little Eldorado Creek in 1948 and worked there from 1948 to 1954.

Production notes:
Total production as of 1924 was worth $2,414,000 (Smith, 1926). Production records are not available for recent mining activity.

Reserves:

Additional comments:

References:
Brooks, 1908; Prindle, 1908; Prindle and Katz, 1909; Ellsworth, 1910; Johnson, 1910; Ellsworth and Parker, 1911; Ellsworth, 1912; Ellsworth and Davenport, 1913; Prindle and Katz, 1913; Smith, 1913 (B 525); Smith, 1913 (B 542); Brooks, 1914; Chapin, 1914; Brooks, 1915; Eakin, 1915; Brooks, 1916 (B 642); Smith, 1917 (BMB 142); Smith, 1917 (BMB 153); Brooks, 1918; Martin, 1919; Martin, 1920; Brooks and Martin, 1921; Brooks, 1922; Brooks, 1923; Brooks and Capps, 1924; Capps, 1924; Brooks, 1925; Smith, 1926; Moffit, 1927; Smith, 1929; Smith, 1930 (B 810); Smith, 1933 (B 836); Smith, 1933 (B 844); Smith, 1939 (B 917); Smith, 1941; Joesting, 1942 (ATDM Pamph. 1); Smith, 1942; Byers, 1957; Cobb, 1972 (MF 413); Cobb, 1975 (C 722); Cobb, 1976 (OFR 76-633); Weber and others, 1992; Swainbank and others, 1997; Swainbank and others, 1998.

Primary reference: Cobb, 1976 (OFR 76-633)

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Fran

Site type: Prospect

ARDF no.: LG057

Latitude: 65.059 **Quadrangle:** LG A-2

Longitude: 147.512

Location description and accuracy:
The location given is the center of the Fran claim block which is approximately 2640 feet by 2640 feet; it is just east of the site of the 'Eldorado Camp' on upper Eldorado Creek.

Commodities:

Main: Au

Other:

Ore minerals:

Gangue minerals:

Geologic description:
Northeast-trending gold quartz veins, associated with anomalous gold in soils, are reported on the west half of the property (D. Wietchy, oral commun., 1999).

Alteration:

Age of mineralization:

Deposit model:
Gold-quartz vein.

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

Production Status: None

Site Status: Inactive

Workings/exploration:
Random soil sampling and resampling of old shafts (D. Wietchy, oral commun., 1999).

Production notes:

Reserves:

Additional comments:

References:
This description.

Primary reference: This description

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Alaska Flyer

Site type: Prospect

ARDF no.: LG058

Latitude: 65.028 **Quadrangle:** LG A-2

Longitude: 147.565

Location description and accuracy:
Cobb (1972, MF-413), loc. 17; NE1/4SW1/4 sec. 4, T. 2 N., R. 1 E., of the Fairbanks Meridian. This prospect is on the ridge between Dome Creek and the lower tributary of Seattle Gulch, at an elevation of 1,200 feet. Accuracy is within 2,500 feet.

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:
An auriferous quartz vein in schist was reported near a contact with Cretaceous-Tertiary granodiorite (Smith, 1913; B 525, p. 194).

Alteration:

Age of mineralization:

Deposit model:
Schist-hosted auriferous quartz vein near an igneous contact.

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

Production Status: None

Site Status: Inactive

Workings/exploration:
A shaft was sunk to 30 feet (Smith, 1913; B 525, p. 194).

Production notes:

Reserves:

Additional comments:

References:
Smith, 1913 (B 525); Smith, 1913 (B 542); Chapman and Foster, 1969; Cobb, 1972 (MF 413); Cobb, 1976 (OFR 76-633).

Primary reference: Smith, 1913 (B 525)

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Old Glory-Seattle Creek; Leslie

Site type: Prospect

ARDF no.: LG059

Latitude: 65.019 **Quadrangle:** LG A-2

Longitude: 147.583

Location description and accuracy:
Cobb (1972, MF-413), loc. 18, 19; NE1/4 sec. 8, T. 2 N., R. 1 E., of the Fairbanks Meridian. This prospect is on the ridge between Seattle Creek and Moose Creek No. 2, about 2.5 miles southwest of the summit of Pedro Dome.

Commodities:

Main: W

Other:

Ore minerals: Scheelite

Gangue minerals:

Geologic description:
A 3-foot zone of scheelite was found in weathered schist; most was disseminated, but there were a few high-grade spots. The scheelite zone strikes N 44 E and dips 45 SE. The average tungsten tri-oxide content was estimated at 0.5 to 1% (Joesting, 1943). Byers (1957) reported that channel samples across 4.5 feet of the disseminated scheelite zone contained 0.48% tungsten tri-oxide. A fine-grained quartz diorite dike was found 8 feet below the surface in the bottom of a small pit sunk in the same trench where the scheelite was encountered (Joesting, 1943). Bedrock is quartz-mica schist and quartzite (Byers, 1957).

Alteration:

Age of mineralization:

Deposit model:
Contact metamorphic tungsten deposit (Cox and Singer, 1986; model 14a).

Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):
14a

Production Status: None

Site Status: Inactive

Workings/exploration:

Development consists of an open cut, 20 feet long, and a small pit in the floor of the cut (Byers, 1957).

Production notes:

Reserves:

Additional comments:

References:

Joesting, 1943; Thorne and others, 1948; Byers, 1957; Berg and Cobb, 1967; Chapman and Foster, 1969; Cobb, 1972 (MF 413); Cobb, 1975 (C 722); Cobb, 1976 (OFR 76-633).

Primary reference: Byers, 1957

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Freeman and Scharf

Site type: Prospect

ARDF no.: LG060

Latitude: 65.009 **Quadrangle:** LG A-2

Longitude: 147.579

Location description and accuracy:
Cobb (1972, MF-413), loc. 20; SE1/4SE1/4 sec. 8, T. 2 N., R 1 E., of the Fairbanks Meridian. The Freeman and Scharf lode prospect is near the head of Fox Creek, approximately 3 miles southwest of Pedro Dome.

Commodities:

Main: Au

Other: Ag, Pb

Ore minerals: Argentiferous galena, gold

Gangue minerals:

Geologic description:
This prospect consists of a vein carrying considerable silver-bearing galena and gold (Smith, 1913; B 525, p. 198).

Alteration:

Age of mineralization:

Deposit model:
Polymetallic vein (Cox and Singer, 1986; model 22c).

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

Production Status: None

Site Status: Inactive

Workings/exploration:
In 1911, some work was done on a vein (Brooks, 1912, p. 32).

Production notes:

Reserves:

Additional comments:

References:
Brooks, 1912; Smith, 1913 (B 525); Smith, 1913 (B 542); Chapman and Foster, 1969; Cobb, 1972 (MF 413); Cobb, 1976 (OFR 76-633).

Primary reference: Smith, 1913 (B 525)

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Fox Creek

Site type: Mine

ARDF no.: LG061

Latitude: 65.008 **Quadrangle:** LG A-2

Longitude: 147.594

Location description and accuracy:
The location given is on upper Fox Creek, near the upper limits of placer activity on the creek.

Commodities:

Main: Au

Other:

Ore minerals:

Gangue minerals:

Geologic description:
Bedrock in the Fox Creek drainage is quartz muscovite schist, quartzite and chlorite quartzose schist with the upper drainage intruded by Cretaceous granite, tonalite and quartz diorite (Newberry and others, 1996). Based on field observations in 1999, Fox Creek had been placer mined, possibly in the 1980's, up to the head of the creek, in the northeast quarter of section 17, T. 2 N., R. 1 E., of the Fairbanks Meridian (J. Schaefer, 1999, field observation).

Alteration:

Age of mineralization:

Deposit model:
Placer gold deposit (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:
Based on field observations in 1999, Fox Creek was probably placer mined in the 1980's.

Production notes:
No record of amount of production.

Reserves:

Additional comments:

References:
This description.

Primary reference: This description

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 7/26/99

Site name(s): Silver Fox; Silvertone; Busty Belle

Site type: Mine

ARDF no.: LG062

Latitude: 65.0085 **Quadrangle:** LG A-2

Longitude: 147.566

Location description and accuracy:
Cobb (1972, MF-413), loc. 20. This prospect is approximately 2 miles east of the Elliot Highway on the divide between Fox and Flume Creek; SW1/4SW1/4 sec. 9, T. 2 N., R. 1 E., of the Fairbanks Meridian. The mine is marked on the Livengood A-2 SE quadrangle.

Commodities:

Main: Ag

Other: Au, Cu, Mo, Pb, Sb, W, Zn

Ore minerals: Argentiferous galena, cerussite, chalcopyrite, gold, jamesonite, molybdenite, powellite, sphalerite, stibnite, tetrahedrite

Gangue minerals:

Geologic description:
The Silver Fox mine consists of a series of quartz veins within a Cretaceous tonalite intrusive, surrounded by quartz muscovite schist, quartzite and chlorite quartzose schist. Quartz veins in tonalite contain scattered, flattened, small pods of molybdenite (Mowatt, 1974). Pyrite and chalcopyrite are smeared on slickensided fracture surfaces that offset these molybdenite-quartz veins. Across the fault zone is an area of fissure veins carrying pyrite, argentiferous galena, and sphalerite. Channel samples of iron-stained quartz veins containing argentiferous galena, jamesonite, alteration products, and some gold contained 2-5 % Pb, 2.9-8.8 ounces of silver per ton and 0.06-0.36 ounces of gold per ton (Berg and Cobb, 1967). Forbes and others (1968) reported fissure veins in quartz diorite consisting of argentiferous galena, sphalerite, tetrahedrite and pyrite, with subordinate gold values. Trenching exposed a roof zone of quartz monzonite plutons, roof pendants of silicified schist, and auriferous quartz stringers and veins. A 30-foot-wide altered zone includes both silicified schist and silicified quartz monzonite. Stibnite lenses occur along the hanging wall of the south vein, and a sample from an altered rind of one lens contained 23.0 ppm Au (Forbers and others, 1968). Chapman and Foster (1969) described this site as having NW-trending fissure veins in quartz diorite with scheelite and powellite limited to thin calcite veinlets and coatings along joints and fracture planes.

In 1974, workings consisted of a 375 foot adit with a working face at the end of a 50

foot long drift and another face about 85 feet below the ground surface (Mowatt, 1974). In the late 1970's (probably 1978), the 50 foot long drift was extended approximately another 100 feet , and six 55-gallon barrels of silver ore were shipped (D. Wietchy, oral commun., 1999).

In 1973, the mine was operated as a tourist attraction. Currently the mine is owned by the University of Alaska and is used as a teaching mine.

Alteration:

Age of mineralization:

Deposit model:
Intrusion hosted polymetallic quartz veins.

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

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:
Workings consisted of a 375 foot adit with a working face at the end of a 50 foot long drift and another face about 85 feet below the ground surface (Mowatt, 1974). The mine operated in 1973 principally as a tourist attraction (Mowatt, 1974), and is now a teaching mine owned by the University of Alaska.

Production notes:
In the late 1950's, about 60 tons of hand-sorted ore were shipped and about 25 tons of ore were stockpiled in 1958 (Berg and Cobb, 1967). In the late 1970's, six 55-gallon barrels of silver ore were shipped from the mine (D. Wietchy, oral commun., 1999).

Reserves:

Additional comments:

References:
Berg and Cobb, 1967; Forbes and others, 1968; Chapman and Foster, 1969; Cobb, 1972 (MF 413); Mowatt, 1974; Cobb, 1975 (C 722); Cobb, 1976 (OFR 76-633); Sherman, 1983.

Primary reference: Mowatt, 1974

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Flume Creek

Site type: Mine

ARDF no.: LG063

Latitude: 65.001 **Quadrangle:** LG A-2

Longitude: 147.54

Location description and accuracy:
The coordinates given are for the approximate center of a 0.5 mile long placered area along Flume Creek, which is about 4 miles northeast of Fox off the Steese Highway; NE1/4 sec. 18, T. 2 N., R. 1 E., of the Fairbanks Meridian.

Commodities:

Main: Au

Other:

Ore minerals:

Gangue minerals:

Geologic description:
Placer gold was mined by open-cut in 1915 and by small scale operations in the 1960's (Brooks, 1915; Eberlein and others, 1977).

Alteration:

Age of mineralization:

Deposit model:
Placer gold deposit (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:
Open-cut placer gold mining was reported in 1915 (Brooks, 1915, p. 59). Small-scale

mining was reported a few years in the 1960's (Eberlein and others, 1977, p. 39).

Production notes:
Mining has been reported but the amount of gold produced is unknown.

Reserves:

Additional comments:

References:
Brooks, 1915; Chapman and Foster, 1969; Eberlein and others, 1977.

Primary reference: Eberlein and others, 1977

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Pedro Creek

Site type: Mine

ARDF no.: LG064

Latitude: 65.003 **Quadrangle:** LG A-1, A-2

Longitude: 147.522

Location description and accuracy:
Cobb (1972, MF-413), loc. 89; NW1/4SE1/4 sec. 15, T. 2 N., R. 1 E., of the Fairbanks Meridian. The coordinates given are for Pedro Camp. Mine tailings are marked along Pedro Creek on the Fairbanks (D-2) quadrangle and the Livengood (A-1) and (A-2) quadrangles and cover an area of almost 4.5 miles.

Commodities:

Main: Au

Other: Sn

Ore minerals: Cassiterite, gold

Gangue minerals:

Geologic description:
Pedro Creek was a major placer gold producer in the Fairbanks mining district, with placered ground extending almost 4.5 miles, from the mouth of Twin Creek to the confluence with Gilmore Creek. Placer gold on Pedro Creek is both very fine and coarse and was found in the bottom 2 to 7 feet of gravel and the top 1 to 5 feet of bedrock (Prindle, 1904; Brooks, 1905). The depth to quartzite schist bedrock is 9 to 35 feet (Prindle, 1904; Prindle and Katz, 1909). Heavy minerals found with the gold are magnetite, garnet, rutile and pyrite (Prindle, 1905). The paystreak is from 4 to over 200 feet wide (Brooks, 1905). Mining was by drifting, open cuts, and dredges (Cobb, 1976; OFR 76-633). U.S.S.R. & M. Co. dredge no. 4 was built on Pedro Creek in 1939, and the dredge worked there from 1939 to 1942, and from 1952 to 1958 (R.M. Chapman, U.S.G.S. unpublished memorandum, 1978). Recent mining has been reported near the mouth of Steamboat Creek (D. Grybeck, oral commun., 1999). The value of gold produced from 1903 to 1910 was $1,250,000 (the gold was then valued at $17.68 per ounce) (Prindle and Katz, 1913). More recent production figures are not available.

Alteration:

Age of mineralization:

Deposit model:
Placer gold deposit (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:
Mining was by drifting, open cuts, and dredges (Cobb, 1976; OFR 76-633). No mining was reported from 1917 through 1925. U.S.S.R. & M. Co. dredge no. 4 was built on Pedro Creek in 1939 and the dredge worked there from 1939 to 1942, and from 1952 to 1958 (R.M. Chapman, U.S.G.S. unpublished memorandum, 1978). Recent mining has been reported near the mouth of Steamboat Creek (D. Grybeck, oral commun., 1999).

Production notes:
The value of gold produced from 1903 to 1910 was $1,250,000 with the gold then valued at $17.68 per ounce (Prindle and Katz, 1913).

Reserves:

Additional comments:
Felix Pedro discovered gold here in 1902 - the first discovery in the Fairbanks district.

References:
Prindle, 1904; Brooks, 1905; Prindle, 1905; Purington, 1905; Prindle, 1906; Brooks, 1907; Prindle, 1908; Prindle and Katz, 1909; Ellsworth, 1910; Ellsworth and Parker, 1911; Ellsworth, 1912; Ellsworth and Davenport, 1913; Prindle and Katz, 1913; Brooks, 1914; Chapin, 1914; Eakin, 1915; Brooks, 1916 (B 642); Smith, 1917 (BMB 142); Smith, 1917 (BMB 153); Brooks, 1918; Smith, 1929; Smith, 1930 (B 810); Smith, 1930 (B 813); Smith, 1932; Smith, 1933 (B 836); Smith, 1933 (B 844); Smith, 1934 (B 857); Smith, 1934 (B 864); Smith, 1936; Smith, 1937; Smith, 1938; Smith, 1939 (B 910); Smith, 1939 (B 917); Smith, 1941; Joesting, 1942 (ATDM Pamph. 1); Smith, 1942; Wedow and others, 1954; Cobb, 1972 (MF 413); Cobb, 1973 (B 1374); Cobb, 1976 (OFR 76-633).

Primary reference: Cobb, 1976 (OFR 76-633)

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Steamboat Creek

Site type: Mine

ARDF no.: LG065

Latitude: 65.011 **Quadrangle:** LG A-2

Longitude: 147.517

Location description and accuracy:
Cobb (1972, MF-413), loc. 89; SW1/4SE1/4 sec. 10, T. 2 N., R. 1 E., of the Fairbanks Meridian. The coordinates given are for the approximate center of placer mining that occurred along the lower and middle section of Steamboat Creek. Accuracy is within 1,500 feet.

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:
A narrow paystreak of gold-bearing gravel was mined in 1915 (Brooks, 1916; B 642). The gold was worth $18 per ounce (Prindle and Katz, 1913). Placer ground is shallow in lower to middle part of the stream course where mining took place. The creek was remined by open-cut methods from 1966 to 1968.

Alteration:

Age of mineralization:

Deposit model:
Placer gold deposit (Cox and Singer, 1986; model 39a).

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

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:
Small-scale placer and open-cut mining in 1915 and from 1966 to 1968.

Production notes:
No data on total production.

Reserves:

Additional comments:

References:
Prindle and Katz, 1913; Brooks, 1916 (B 642); Chapman and Foster, 1969; Cobb, 1972 (MF 413); Cobb, 1976 (OFR 76-633).

Primary reference: Cobb, 1976 (OFR 76-633)

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Lundgren-Rowley

Site type: Prospect

ARDF no.: LG066

Latitude: 65.013 **Quadrangle:** LG A-2

Longitude: 147.518

Location description and accuracy:
At milepost 16.2 of the Steese Highway, a mining road follows Steamboat Creek to the northwest. Dozer cuts of the Lundgren-Rowley prospect are located 0.4 miles up the road on the east side of the road; NW1/4SE1/4 sec. 10, T. 2 N., R. 1 E., of the Fairbanks Meridian.

Commodities:

Main: W

Other:

Ore minerals: Scheelite

Gangue minerals: Amphibole, biotite, plagioclase, potassium feldspar, quartz

Geologic description:
Samples of quartz diorite with scheelite contained from 0.045 to 0.35% tungsten (Conwell, 1972). Petrographic examination of the quartz diorite identified the following minerals associated with the tungsten ore: quartz, plagioclase, potassium feldspar, biotite, and amphibole. No significant gold or silver was found upon atomic absorption analysis (0.002 to 0.008 ounces of gold per ton; 0.015 to 0.02 ounces of silver per ton) (Conwell, 1972).

Alteration:

Age of mineralization:

Deposit model:
Scheelite in quartz diorite.

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

Production Status: None

Site Status: Inactive

Workings/exploration:
Surface samples were taken in the early 1970's from bedrock exposed by a dozer trench (Conwell, 1972).

Production notes:

Reserves:

Additional comments:

References:
Conwell, 1972.

Primary reference: Conwell, 1972

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Nightingale

Site type: Prospect

ARDF no.: LG067

Latitude: 65.015 **Quadrangle:** LG A-2

Longitude: 147.522

Location description and accuracy:
Cobb (1972, MF-413), loc. 25; NE1/4SW1/4 sec. 10, T. 2 N., R. 1 E., of the Fairbanks Meridian. The Nightingale prospect is in Steamboat Creek Valley about 1 mile north of Pedro Camp. Accuracy is within 2,000 feet.

Commodities:

Main: Ag

Other: Pb, Sb

Ore minerals: Argentiferous galena, stibnite

Gangue minerals:

Geologic description:
Massive silver-bearing galena with stibnite occurs in stockworks and veins in altered quartz diorite (Chapman and Foster, 1969).

Alteration:
Oxidation products of stibnite and galena (Chapman and Foster, 1969).

Age of mineralization:

Deposit model:
Argentiferous galena and stibnite in stockworks and veins in altered quartz diorite.

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

Production Status: None

Site Status: Inactive

Workings/exploration:

Production notes:
No record of production.

Reserves:

Additional comments:

References:
Smith, 1913 (B 525); Smith, 1913 (B 542); Killeen and Mertie, 1951; Chapman and Foster, 1969; Cobb, 1972 (MF 413); Cobb, 1976 (OFR 76-633).

Primary reference: Chapman and Foster, 1969

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Steamboat Creek

Site type: Prospect

ARDF no.: LG068

Latitude: 65.017 **Quadrangle:** LG A-2

Longitude: 147.532

Location description and accuracy:
The coordinates given are for the location of numerous trenches, pits and auger holes dug on the prospect that cover an area several hundred yards in size. The prospect is approximately 1 mile from the Steese Highway along Steamboat Creek; SW1/4NW1/4 sec. 10, T. 2 N., R. 1 E., of the Fairbanks Meridian.

Commodities:

Main: Ag

Other: Pb

Ore minerals: Galena

Gangue minerals:

Geologic description:
A prospect shaft revealed a 7-foot-wide shear zone that strikes north and dips vertically (Saunders, 1963; ATDM PE 49-15). A channel sample cut across four feet of the shear zone assayed 0.18 ounces of gold per ton and 3.50 ounces per ton silver. Subsequent samples revealed only trace to 0.02 ounces of gold per ton and 0.70 to 1.31 ounces of silver per ton. The shear zone is at the contact between mica schist and quartz diorite. In 1963, a trial shipment of galena ore from a vein exposed in a trench contained 106.0 ounces of silver per ton, 0.02 ounces of gold per ton, 49.0% lead and 0.04% copper (Saunders, 1963; ATDM PE 49-15).

Alteration:

Age of mineralization:

Deposit model:
Polymetallic shear zone.

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

Production Status: Undetermined

Site Status: Inactive

Workings/exploration:

In 1958, Pete Smith, a local placer miner, found some pieces of galena-bearing float in the valley of Steamboat Creek (Saunders, 1963; ATDM PE 49-15). He attempted to trace the float to its bedrock source by hand-trenching and trenching with a bulldozer. The Alaska Department of Mines investigated the area in the early 1960's by bulldozer trenching, hand-digging pits and auger hole drilling for geochemical sampling. By 1968, the owners of the lode prospect were conducting rotary drilling and intended to drill about 450 feet (Vance, 1968).

Production notes:

In 1963, it was reported that the owners of the prospect planned to mine and ship ore from an exposed vein. It is not known whether or not mining took place (Saunder, 1963; ATDM PE 49-15).

Reserves:

Additional comments:

References:

Saunders, 1963 (ATDM PE 49-15); Vance, 1968.

Primary reference: Saunders, 1963 (ATDM PE 49-15)

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Hoover

Site type: Prospects

ARDF no.: LG069

Latitude: 65.022 **Quadrangle:** LG A-2

Longitude: 147.501

Location description and accuracy:
Cobb (1972, MF-413), loc. 26; NW1/4NW1/4 sec. 11, T. 2 N., R. 1 W., of the Fairbanks Meridian. The Hoover prospect is located on both sides of Granite Creek about three quarters of a mile above the mouth; it is about one mile south of Pedro Dome. Accuracy is within 1,500 feet.

Commodities:

Main: Au

Other: Sb

Ore minerals: Arsenopyrite, gold, pyrite, stibnite

Gangue minerals:

Geologic description:
Chapin (1914, p. 347-348) reported that this site consists of three lode prospects. One is a brecciated zone in schist with quartz stringers carrying pyrite and arsenopyrite. The second is a 50-foot zone of quartz, horses of schist, and gouge with pyrite and arsenopyrite in the quartz and schist. The third prospect is quartz carrying pyrite, arsenopyrite and free gold. Dump samples contained stibnite, pyrite and arsenopyrite mixed with schist (Hill, 1933).

Alteration:

Age of mineralization:

Deposit model:
Gold-quartz vein.

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

Production Status: Undetermined

Site Status: Inactive

Workings/exploration:

Chapin (1914) reported a 14-foot shaft on the third lode; a 390-foot tunnel driven to intersect the third lode crossed the other two lodes in route. The workings were caved in 1931 (Hill, 1933).

Production notes:

Reserves:

Additional comments:

References:

Brooks, 1912; Smith, 1913 (B 542); Smith, 1913 (B 525); Chapin, 1914; Hill, 1933; Killeen and Mertie, 1951; Chapman and Foster, 1969; Cobb, 1972 (MF 413); Cobb, 1976 (OFR 76-633).

Primary reference: Chapin, 1914

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Zimmerman (near junction of Twin and Pedro Creeks)

Site type: Prospect

ARDF no.: LG070

Latitude: 65.019 **Quadrangle:** LG A-1

Longitude: 147.471

Location description and accuracy:
Cobb (1972, MF-413), loc. 31; SW1/4NW1/4 sec. 12, T. 2 N., R. 1 E., of the Fairbanks Meridian. This prospect is 1/4 mile northeast of the mouth of Twin Creek. Accuracy is within 1,000 feet.

Commodities:

Main: Au

Other:

Ore minerals: Arsenopyrite, gold

Gangue minerals:

Geologic description:
Hill (1933) visited the site and the following geologic description is a summary of his observations. Extensive exposures of mineralized quartz diorite and schist occur in a hydraulic cut on the Zimmerman property. Near the southwest or lower end of the cut, a fault zone strikes east and dips 85 N. The fault zone consists of 11 feet of blue clay gouge that contains a large amount of fragmental quartz and silicified schist. Some of the fragments contain arsenopyrite and have a peculiar greenish-yellow stain. A few samples from a 3-foot zone of silicified mineralized schist contained as much as 0.08 ounces of gold per ton.

Northeast of the gouge, the rock is quartz diorite. For seven feet above the fault, the diorite is badly crushed, but farther to the northeast, it is less altered, breaks in blocky forms, and is cut by several minor fault fractures that strike from west to N 60 W. Southwest of the main fault, the rock is highly silicified schist with many quartz veinlets and everywhere contains a small amount of finely disseminated arsenopyrite. The rock is bluish gray, hard, and heavier than the nomal quartz-mica schist. For at least 70 feet south of the main fault, this rock is broken and crushed, and there are several well-defined slip planes that vary in strike from N 70 W to west and dip north, all roughly parallel to the main fault.

The samples of the altered quartz diorite north of the fault contained neither gold nor silver. The silicified mineralized schist south of the fault carried only a trace of precious

metals except for a few samples from a 3-foot zone that contained as much as 0.08 ounces of gold per ton. The gold-bearing samples contained notable sulfides (Hill, 1933, p. 118-119).

Alteration:
The schist in the vicinity of the Zimmerman prospect is silicifed, and some schist fragments carry a peculiar greenish-yellow stain (Hill, 1933).

Age of mineralization:

Deposit model:
Auriferous, silicified schist.

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

Production Status: None

Site Status: Inactive

Workings/exploration:
Surface samples were taken from a hydraulic cut (Hill, 1933).

Production notes:

Reserves:

Additional comments:

References:
Hill, 1933; Chapman and Foster, 1969; Cobb, 1972 (MF 413); Cobb, 1976 (OFR 76-633).

Primary reference: Hill, 1933

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Steese Highway; Mile 17.5

Site type: Occurrence

ARDF no.: LG071

Latitude: 65.02 **Quadrangle:** LG A-1

Longitude: 147.481

Location description and accuracy:
This occurrence is adjacent to mile marker 17.5 of the Steese Highway near the junction of Pedro and Twin Creeks; NW1/4NE1/4 sec. 11, T. 2 N., R. 1 E., of the Fairbanks Meridian.

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:
The following is an excerpt from Forbes and others (1968):
'A small pluton of quartz diorite is exposed in road cuts along the Steese Highway south of Granite Creek. The south border of the quartz diorite mass is strongly sheared, altered and iron-stained. Vein quartz, 0.5 feet thick, occurs in the gouge zone which trends N 87 W and dips steeply to the south. Gold values up to 2.70 ppm occur in the altered quartz diorite adjacent to the quartz vein, but decrease progressively away from the vein.'

Alteration:

Age of mineralization:

Deposit model:
Gold in altered quartz diorite adjacent to a quartz vein.

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

Production Status: None

Site Status: Inactive

Workings/exploration:
Surface samples taken.

Production notes:

Reserves:

Additional comments:

References:
Forbes and others, 1968; Cobb, 1976 (OFR 76-633).

Primary reference: Forbes and others, 1968

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Eagan; Eagan Twin Creek

Site type: Prospect

ARDF no.: LG072

Latitude: 65.024 **Quadrangle:** LG A-1

Longitude: 147.478

Location description and accuracy:
Cobb (1972, MF-413), loc. 31; SE1/4SE1/4 sec. 2, T. 2 N., R. 1 E., of the Fairbanks Meridian. This prospect is about one mile southeast of Pedro Dome, west of the Steese highway near mile post 18.

Commodities:

Main: W

Other:

Ore minerals: Scheelite

Gangue minerals:

Geologic description:
Scheelite occurs as sparsely disseminated grains in thin (less than 6 inches) pegmatite dikes intruding granodiortie. The dikes are related to a porphyritic granite nearby (Byers, 1957, p. 206).

Alteration:

Age of mineralization:

Deposit model:
Quartz-scheelite veins.

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

Production Status: None

Site Status: Inactive

Workings/exploration:
Open cuts and several small trenches expose the dikes (Byers, 1957).

Production notes:

Reserves:

Additional comments:

References:

Joesting, 1943; Thorne and others, 1948; Wedow and others, 1954; Byers, 1957; Chapman and Foster, 1969; Cobb, 1972 (MF 413); Cobb, 1975 (C 722); Cobb, 1976 (OFR 76-633).

Primary reference: Byers, 1957

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Burnet Galena

Site type: Prospect

ARDF no.: LG073

Latitude: 65.025 **Quadrangle:** LG A-1

Longitude: 147.474

Location description and accuracy:
Cobb (1972, MF-413), loc. 30; SE1/4SE1/4 sec. 2, T. 2 N., R. 1 E., of the Fairbanks Meridian. This prospect is about 300 feet northwest of milepost 18 on the Steese Highway, about half way betwen the mouth of Granite Creek and Skoogy Creek.

Commodities:

Main: Ag

Other: Hg, Pb, Sb

Ore minerals: Argentiferous galena, cerrusite, jamesonite, limonite, pyrite

Gangue minerals: Pyromorphite

Geologic description:
This site was described by Chapin (1914) as a flat-lying body of quartz containing lenses of argentiferous galena accompanied by jamesonite in quartz diorite intruded by granite porphyry. Cubic cavities with limonitic material probably derived from pyrite also occur. There is also secondary pyromorphite and cerusite (Chapin, 1914). Dark quartz diorite is intruded by coarse- and fine-grained granite porphyry, all cut by quartz veinlets of at least two ages (Hill, 1933, p. 118).

Alteration:
Secondary minerals formed from the alteration of galena are pyromorphite and cerusite.

Age of mineralization:

Deposit model:
Polymetallic vein (Cox and Singer, 1986; model 22c).

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

Production Status: None

Site Status: Inactive

Workings/exploration:
Hill (1933) reported an old shaft, an open cut, and a caved tunnel by 1931.

Production notes:
Hill (1933) reported sacks of galena-jamesonite-cerusite ore on the dump at the prospect, but there is no record of production.

Reserves:

Additional comments:

References:
Chapin, 1914; Hill, 1933; Killeen and Mertie, 1951; Chapman and Foster, 1969; Cobb, 1972 (MF 413); Cobb, 1976 (OFR 76-633).

Primary reference: Chapin, 1914

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Burnet

Site type: Mine

ARDF no.: LG074

Latitude: 65.026 **Quadrangle:** LG A-1

Longitude: 147.467

Location description and accuracy:
Cobb (1972, MF-413), loc. 32; SW1/4 sec. 1, T. 2 N., R. 1 E., of the Fairbanks Meridian. This mine is on the east side of Twin Creek below the mouth of Skoogy Gulch. Accuracy is within 1,000 feet.

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:
A number of parallel quartz veins cut granite and carry gold. The granite is also auriferous. The gold in granite is thought to be due to concentration from the brecciated surface portion of the veins. In working a narrow bench placer, it was discovered that the irregular granite bedrock and the adjoining bank contained gold (Chapin, 1914).

Alteration:

Age of mineralization:

Deposit model:
Intrusion-hosted gold-quartz vein.

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

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:

Surface workings of a narrow bench placer deposit were reported (Chapin, 1914).

Production notes:

Reserves:

Additional comments:

References:

Chapin, 1914; Chapman and Foster, 1969; Cobb, 1972 (MF 413); Cobb, 1976 (OFR 76-633).

Primary reference: Chapin, 1914

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Independence

Site type: Mine

ARDF no.: LG075

Latitude: 65.029 **Quadrangle:** LG A-1

Longitude: 147.465

Location description and accuracy:
Cobb (1972, MF-413), loc. 32; NW1/4SW1/4 sec. 1, T. 2 N., R. 1 E., of the Fairbanks Meridian. The Independence mine is on the southeast side of Twin Creek almost opposite the mouth of Skoogy Gulch; it is about 7 miles by road northeast of Fox along the Steese Highway.

Commodities:

Main: Au

Other: Pb

Ore minerals: Arsenopyrite, galena, gold, pyrite

Gangue minerals:

Geologic description:
Gold is found in an east-west-striking, vertical fracture zone in coarse porphyritic granite that has been cut by quartz veins. The quartz veins are broken by iron-stained joints whose surfaces are mineralized and carry gold (Brooks, 1916; B 642; Brooks, 1918). The mineralized zone has been traced for 900 feet on the surface (Brooks, 1918). The fracture zone becomes barren where it crosses the contact from granite into the schist (Brooks, 1916; B 642). Pyrite, arsenopyrite, and galena are present (Brooks, 1916; B 642).

This deposit has been developed by two tunnels. In the upper tunnel, quartz veinlets are in a zone 8-10 inches wide in porphyritic granite. This zone is vertical and strikes N 70 E (Hill, 1933). About two-thirds of the gold is in sulfide minerals, and assays show 0.19 to 1.84 ounces of gold per ton (Cobb, 1976; OFR 76-633, p. 103).

Alteration:
Joint surfaces are iron-stained.

Age of mineralization:

Deposit model:
Gold-quartz vein.

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

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:
Workings were badly caved by July 1931 (Hill, 1933).

Production notes:
Probably has been minor production (Cobb, 1976; OFR 76-633, p. 103; Chapman and Foster, 1969).

Reserves:

Additional comments:

References:
Brooks, 1916 (B 642); Brooks, 1918; Hill, 1933; Chapman and Foster, 1969; Cobb, 1972 (MF 413); Cobb, 1976 (OFR 76-633).

Primary reference: Brooks, 1916 (B 642)

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Goepfert

Site type: Prospect

ARDF no.: LG076

Latitude: 65.031 **Quadrangle:** LG A-1

Longitude: 147.467

Location description and accuracy:
Cobb (1972, MF-413), loc. 30; SW1/4NW1/4 sec. 1, T. 2 N., R. 1 E., of the Fairbanks Meridian. The Goepfert prospect is located at the mouth of Skoogy Gulch, about 8 miles northeast of Fox along the Steese Highway. Accuracy is within 1,000 feet.

Commodities:

Main: Au

Other: Pb

Ore minerals: Galena, gold

Gangue minerals:

Geologic description:
Cobb (1976) reports that there are at least two prospects. At one prospect, a short adit follows a thin auriferous quartz vein in granite near a contact with schist; at another prospect, a short adit was driven on a ledge containing galena. No mining was reported.

Alteration:

Age of mineralization:

Deposit model:
Gold-quartz vein.

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

Production Status: None

Site Status: Inactive

Workings/exploration:
Smith (1913, B 525) reported that a short adit had been driven in granite near a contact

with schist.

Production notes:
No production reported.

Reserves:

Additional comments:

References:
Smith, 1913 (B 525); Smith, 1913 (B 542); Chapman and Foster, 1969; Cobb, 1972 (MF 413); Cobb, 1976 (OFR 76-633).

Primary reference: Smith, 1913 (B 525)

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Twin Creek

Site type: Mine

ARDF no.: LG077

Latitude: 65.031 **Quadrangle:** LG A-1

Longitude: 147.467

Location description and accuracy:
Cobb (1972, MF-413), loc. 89; SW1/4NW1/4 sec. 1, T. 2 N., R. 1 E., of the Fairbanks Meridian. This placer mine is located near the confluence of Twin Creek and Skoogy Gulch.

Commodities:

Main: Au

Other: Sn

Ore minerals: Cassiterite, gold

Gangue minerals:

Geologic description:
Pay gravel is shallow, from 8 to 12 feet deep, over quartzite schist and porphyritic granite bedrock (Prindle, 1904; Prindle and Katz, 1909). Cassiterite is common in concentrates (Prindle and Katz, 1909). This placer was mined sporadically from 1903 to 1927 (Cobb, 1976; OFR 76-633). Production from 1903 to 1910 was valued at $120,000 with gold worth $17.66 per ounce (Prindle and Katz, 1913).

Alteration:

Age of mineralization:

Deposit model:
Placer gold deposit (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:

Mined sporadically from 1903 to 1927 (Cobb, 1976; OFR 76-633). Mining was also reported in 1992 (Swainbank and others 1993).

Production notes:

Production from 1903 to 1910 was worth $120,000 with gold valued at $17.66 per ounce (Prindle and Katz, 1913).

Reserves:

Additional comments:

References:

Prindle, 1904; Brooks, 1905; Prindle, 1905; Purington, 1905; Prindle and Katz, 1909; Johnson, 1910; Ellsworth and Davenport, 1913; Prindle and Katz, 1913; Chapin, 1914; Eakin, 1915; Brooks, 1916 (B 642); Smith, 1930 (B 810); Joesting, 1942 (ATDM Pamph. 1); Cobb, 1972 (MF 413); Cobb, 1976 (OFR 76-633); Swainbank and others, 1993.

Primary reference: Cobb, 1976 (OFR 76-633)

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): David

Site type: Mine

ARDF no.: LG078

Latitude: 65.032 **Quadrangle:** LG A-1

Longitude: 147.475

Location description and accuracy:
Cobb (1972, MF-413), loc. 30; SE1/4NE1/4 sec. 2, T. 2 N., R. 1 E., of the Fairbanks Meridian. This mine is west of Skoogy Creek about 3/4 of a mile east southeast of Pedro Dome and about 1/4 mile west of Golden City. Accuracy is within 1,000 feet.

Commodities:

Main: Au

Other:

Ore minerals: Arsenopyrite, gold

Gangue minerals:

Geologic description:
Gold occurs in a quartz vein in silicified schist; the vein is oriented N 70 E, 35 S (Hill, 1933). The vein varies in width from 6 inches to 22 inches wide (Chapin, 1919; Hill, 1933). Samples assayed $1.04 and $1.24 gold per ton, or 0.05 to 0.06 ounces of gold per ton (Hill, 1933). Two veins, 1/2 to 1 inch wide and 1 to 4 inches wide, contain arsenopyrite and visible gold, they assayed $13.46 and $77.84 per ton (0.65 ounces of gold per ton and 3.77 ounces of gold per ton) (Hill, 1933). A 100 foot adit was driven on the vein with a 65 foot long stope (Chapin, 1919). Production was reported in 1917 and 1918 but the amount is not known (Chapin, 1919; Martin, 1920).

Alteration:

Age of mineralization:

Deposit model:
Gold-quartz vein.

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

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:
A 100 foot adit was driven on the vein with a 65 foot long stope (Chapin, 1919).

Production notes:
Production was reported in 1917 and 1918 but the amount is not known (Chapin, 1919; Martin, 1920).

Reserves:

Additional comments:

References:
Smith, 1913 (B 525); Smith, 1913 (B 542); Chapin, 1919; Martin, 1920; Hill, 1933; Chapman and Foster, 1969; Cobb, 1972 (MF 413); Cobb, 1976 (OFR 76-633).

Primary reference: Hill, 1933

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): S.S.

Site type: Prospect

ARDF no.: LG079

Latitude: 65.033 **Quadrangle:** LG A-1

Longitude: 147.483

Location description and accuracy:
Cobb (1972, MF-413), loc. 30; SW1/4NE1/4 sec. 2, T. 2 N., R. 1 E., of the Fairbanks Meridian. The prospect is about 0.5 miles northwest of the confluence of Twin Creek and Skoogy Gulch, along the western slope of Skoogy Gulch. Accuracy is within 2,000 feet.

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:
The S.S. prospect is assumed to be on an auriferous quartz vein. Prindle (1910) reported it as a gold prospect in schist close to intrusive rocks.

Alteration:

Age of mineralization:

Deposit model:
Gold-quartz vein?

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

Production Status: None

Site Status: Inactive

Workings/exploration:

Production notes:

Reserves:

Additional comments:

References:
Prindle, 1910; Smith, 1913 (B 525); Smith, 1913 (B 542); Chapman and Foster, 1969; Cobb, 1972 (MF 413); Cobb, 1976 (OFR 76-633).

Primary reference: Prindle, 1910

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Thompson and Burns

Site type: Prospect

ARDF no.: LG080

Latitude: 65.035 **Quadrangle:** LG A-1

Longitude: 147.485

Location description and accuracy:
Cobb (1972, MF-413), loc. 30; NW1/4NE1/4 sec. 2, T. 2 N., R. 1 E., of the Fairbanks Meridian. This prospect tunnel is just above the Central Star shaft, on the south side of the west fork of Skoogy Gulch, at an elevation of 2,100 feet. Accuracy is within 1,000 feet.

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:
A tunnel was driven N 70 W along a fracture dipping 80 S (Hill, 1933). Reddish-yellow, crushed brecciated schist and dike rock were on the dump and two samples assayed no more than 83 cents of gold per ton or 0.04 ounces of gold per ton (Hill, 1933).

Alteration:

Age of mineralization:

Deposit model:
Gold-quartz vein.

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

Production Status: Undetermined

Site Status: Inactive

Workings/exploration:

An exploration tunnel was driven along a fracture sometime before 1933 (Hill, 1933).

Production notes:

Reserves:

Additional comments:

References:
Hill, 1933; Chapman and Foster, 1969; Cobb, 1972 (MF 413); Cobb, 1976 (OFR 76-633).

Primary reference: Hill, 1933

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): North Star Extension

Site type: Mine

ARDF no.: LG081

Latitude: 65.034 **Quadrangle:** LG A-1

Longitude: 147.478

Location description and accuracy:
Cobb (1972, MF-413), loc. 30; NE1/4NE1/4 sec. 2, T. 2 N., R. 1 E., of the Fairbanks Meridian. The mine is on the south side of the west fork of Skoogy Gulch; it is at an elevation of 1,780 feet, about 7.5 miles northeast of Fox along the Steese Highway. The North Star Extension claim covers part of the old Central Star shaft. Accuracy is within 1,000 feet.

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:
Gold occurs in a 20-foot-wide quartz porphyry dike that strikes N 30 W and dips 45 SW. This dike was exposed by a tunnel driven 50 feet through schist. The dump material on the Central Star shaft is composed mainly of schist but contains some fragments of quartz porphyry (Hill, 1933, p. 118). In 1909, this shaft was 65 feet deep (Prindle, 1910).

Alteration:

Age of mineralization:

Deposit model:
Gold-bearing quartz porphyry dike.

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

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:

This property was developed by tunnels and shafts. In 1909 the Central Star shaft was 65 feet deep with 200 feet of tunnel (Prindle, 1910).

Production notes:

In 1916, some ore was milled on the ground in a home-made 1-stamp mill driven by a 6-horsepower gasoline engine (Hill, 1933, p. 118).

Reserves:

Additional comments:

References:

Prindle, 1910; Smith, 1913 (B 525); Smith, 1913 (B 542); Mertie, 1918; Hill, 1933; Chapman and Foster, 1969; Cobb, 1972 (MF 413); Cobb, 1976 (OFR 76-633).

Primary reference: Prindle, 1910

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): North Star; Skoogy Gulch; Big Lead

Site type: Prospect

ARDF no.: LG082

Latitude: 65.033 **Quadrangle:** LG A-1

Longitude: 147.47

Location description and accuracy:

Cobb (1972, MF-413), loc. 30; NW1/4 sec. 1, T. 2 N., R. 1 E., of the Fairbanks Meridian. This prospect is in the lower part of Skoogy Gulch about 1/4 mile north of confluence with Twin Creek; it is about 7.5 miles northeast of Fox along the Steese Highway. The location given is on the workings exposing the Big Lead vein. There are also open cuts and a shallow shaft above a tunnel that runs westward from Skoogy Gulch under the highway. Accuracy is within 1,000 feet.

Commodities:

Main: Au

Other: Sb

Ore minerals: Arsenopyrite, gold, stibnite

Gangue minerals:

Geologic description:

This prospect consists of gold-bearing quartz veins in heavily silicified schist. Hill (1933, p. 116-117) visited the area in 1931 and described the prospect: A shallow shaft was driven on a vein trending N 84 W and dipping 85 S, which yielded ore valued at $5,000. As exposed in the tunnel, this vein is from 1 to 4 inches wide and consists of white quartz frozen to a dark, heavily silicified schist. Some of the quartz carries minor sulfides, but in general it has no visible metallic mineralization. This vein cuts across a lenticular mass of quartz lying parallel to the schistosity, which dips 15 SE. A 30-inch aplite dike that strikes north and dips 15 E is also cut by this vein. In open cuts, the vein was observed to be 3 to 6 inches wide and in places lies along the contact of schist and porphyritic granite. About 140 feet north of this vein, another 5-inch quartz vein in schist was said to have produced a ton of $35 ore (1.69 ounces of gold per ton).

When Hill (1933) visited the site in 1931, the Big Lead vein was exposed along an old wagon road on the east side of Skoogy Gulch just south of a cabin. Several feet of tunnels were driven on this vein and an engineer that visited the site estimated that the whole ore body exposed in these tunnels would average about $4 per ton (0.19 ounces of gold per ton). The tunnels were caved by 1931, but the material on the dump consisited of

heavily iron-stained mineralized schist and quartzite. One dump site contained boulders dominated by arsenopyrite and stibnite. There is evidence of silicification and mineralization over a width of 75.5 feet. The mineralized zone shows an alternation of schist, altered dike rocks, quartz veinlets, and faults. A sample of granular, highly altered, brick-red dike rock containing irregular veinlets and bunches of manganese-oxide; it assayed $0.43 per ton (0.02 ounces of gold per ton).

Alteration:
Schist iron-stained.

Age of mineralization:

Deposit model:
Gold-quartz veins.

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

Production Status: Undetermined

Site Status: Inactive

Workings/exploration:
Several feet of tunnels and shallow shafts (Hill, 1933).

Production notes:

Reserves:

Additional comments:

References:
Prindle, 1910; Smith, 1913 (B 525); Smith, 1913 (B 542); Martin, 1920; Hill, 1933; Killeen and Mertie, 1951; Chapman and Foster, 1969; Cobb, 1972 (MF 413); Cobb, 1976 (OFR 76-633); Freeman, 1992.

Primary reference: Hill, 1933

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Whitman & Murray

Site type: Mine

ARDF no.: LG083

Latitude: 65.033 **Quadrangle:** LG A-1

Longitude: 147.467

Location description and accuracy:
Cobb (1972, MF-413), loc. 30; NW1/4 sec. 1, T. 2 N., R. 1 E., of the Fairbanks Meridian. This deposit is just north of the junction of Skoogy Creek and Twin Creek, about a mile east of Pedro Dome. Accuracy is within 1,000 feet.

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:
Ore was milled from two shafts, 40 to 50 feet deep, that connected to 400 feet of drifts and crosscuts (Brooks, 1911, p. 35). This may be the same site as the Rainbow mine (ARDF no. LG084) where gold is found in a nearly vertical quartz vein that strikes east-west. The vein contains pyrite, arsenopyrite, galena, sphalerite (Smith, 1913; B 525). The vein has been described as varying from 18 inches wide to 3 feet wide (Brooks, 1912; Chapin, 1914); it cuts schist, quartzite and granite (Chapin, 1914).

Alteration:

Age of mineralization:

Deposit model:
Gold-quartz vein.

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

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:
Two shafts were driven 40 to 50 feet deep, that connected to 400 feet of drifts and crosscuts (Brooks, 1911, p. 35).

Production notes:
Considerable ore was milled in 1910 (Brooks, 1911, p. 35).

Reserves:

Additional comments:
This is the only reference to this property by this name; it may have been known by another name in later years.

References:
Brooks, 1911; Smith, 1913 (B 525); Chapman and Foster, 1969; Cobb, 1972 (MF 413); Cobb, 1976 (OFR 76-633).

Primary reference: Cobb, 1976 (OFR 76-633)

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Rainbow

Site type: Mine

ARDF no.: LG084

Latitude: 65.033 **Quadrangle:** LG A-1

Longitude: 147.464

Location description and accuracy:
Cobb (1972, MF-413), loc. 30; NW1/4 sec. 1, T. 2 N., R. 1 E., of the Fairbanks Meridian. The Rainbow mine is on the point of the ridge between Twin Creek and Skoogy Gulch at an elevation of 1,700 feet.

Commodities:

Main: Au

Other: Pb, W, Zn

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

Gangue minerals:

Geologic description:
Gold is found in a nearly vertical, east-striking, quartz vein. The vein also contains pyrite, arsenopyrite, galena, sphalerite (Smith, 1913; B 525). The vein has been variously described as from 18 inches wide to 3 feet wide (Brooks, 1912; Chapin, 1914). The vein cuts schist, quartzite, and granite (Chapin, 1914). About 500 feet of underground workings were reported by 1912 (Brooks, 1912). Four hundred and eighty tons of ore was shipped from these workings (Chapin, 1914). The vein contained 1.11 ounces of gold per ton with a narrow 2 inch band containing 10.26 ounces of gold per ton (Hill, 1933).

Alteration:
Quartz, iron- and manganese-stained in places.

Age of mineralization:

Deposit model:
Polymetallic vein (Cox and Singer, 1986; model 22c).

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

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:

Workings consisted of a vertical shaft 100 feet deep and 270 feet of drifts on the vein (Smith, 1913; B 525). The vein was also marked by surface pits (Chapin, 1914). The old shaft and adit were inaccessible in 1931 (Hill, 1933).

Production notes:

By 1914, 480 tons of ore had been shipped (Chapin, 1914).

Reserves:

Additional comments:

References:

Brooks, 1912; Smith, 1913 (B 525); Smith, 1913 (B 542); Chapin, 1914; Eakin, 1915; Chapin, 1919; Hill, 1933; Byers, 1957; Berg and Cobb, 1967; Chapman and Foster, 1969; Cobb, 1972 (MF 413); Cobb, 1976 (OFR 76-633).

Primary reference: Smith, 1913 (B 525)

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Moonlight

Site type: Prospect

ARDF no.: LG085

Latitude: 65.031 **Quadrangle:** LG A-1

Longitude: 147.453

Location description and accuracy:
Cobb (1972, MF-413), loc. 33; SW1/4NW1/4 sec. 1, T. 2 N., R. 1 E., of the Fairbanks Meridian. The prospect is on the hillside southeast of Twin Creek, across the creek from the Rainbow Mine and a short distance above the mouth of Skoogy Gulch. The Moonlight shaft is at an approximate elevation of 1,900 feet, about 7 miles by road northeast of Fox along the Steese Highway. Accuracy is within 1,000 feet.

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:
The Moonlight prospect is a vein of crushed quartz and schist, less than one foot wide, in a fracture zone in quartzite schist and granite. The vein is said to carry considerable gold and large amounts of unspecified sulfides (Smith, 1913; B 525, p. 201). The vein was traced by prospect pits for 2500 feet. It strikes N 70 W and dips steeply NE (Chapin, 1914, p. 349). Grab samples of ore on dump contained 0.16 ounces per ton in gold (Hill, 1933, p. 114). There were about 170 feet of underground workings by 1914 (Chapin, 1914).

Alteration:

Age of mineralization:

Deposit model:
Gold-quartz vein.

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

Production Status: Undetermined

Site Status: Inactive

Workings/exploration:

There were about 170 feet of underground workings by 1914 (Chapin, 1914, p. 349). The vein was traced by prospect pits for 2500 feet (Chapin, 1914, p. 349). By 1931, the three tunnels and connecting raises were in bad condition (Hill, 1933).

Production notes:

No record of production.

Reserves:

Additional comments:

References:

Smith, 1913 (B 525); Smith, 1913 (B 542); Chapin, 1914; Eakin, 1915; Hill, 1933; Chapman and Foster, 1969; Cobb, 1972 (MF 413); Cobb, 1976 (OFR 76-633).

Primary reference: Smith, 1913

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Zimmerman (near Skoogy Gulch)

Site type: Prospect

ARDF no.: LG086

Latitude: 65.032 **Quadrangle:** LG A-1

Longitude: 147.453

Location description and accuracy:
Cobb (1972, MF-413), loc. 33; SW1/4NE1/4 sec. 1, T. 2 N., R. 1 E., of the Fairbanks Meridian. This prospect is on the hillside about 0.4 miles ENE of the junction of Twin Creek and Skoogy Gulch. Accuracy is within 1,500 feet.

Commodities:

Main: Au

Other: Ag

Ore minerals: Gold, unknown Ag

Gangue minerals:

Geologic description:
Sulfide-bearing material contains as much as $12 per ton in silver and $4 per ton in gold (Smith, 1913; B 525). The strike of the lode varies from E to N and the dips varies from N to E (Smith, 1913; B 525).

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:
Surface samples were taken.

Production notes:

Reserves:

Additional comments:
Supposed continuation of Rainbow lode.

References:
Smith, 1913 (B 525); Smith, 1913 (B 542); Chapman and Foster, 1969; Cobb, 1972 (MF 413); Cobb, 1976 (OFR 76-633).

Primary reference: Smith, 1913 (B 525)

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Hirschberger and Zimmerman

Site type: Mine

ARDF no.: LG087

Latitude: 65.035 **Quadrangle:** LG A-1

Longitude: 147.45

Location description and accuracy:
Cobb (1972, MF-413), loc. 33; SW1/4NE1/4 sec. 1, T. 2 N., R. 1 E., of the Fairbanks Meridian. The mine is located in the vicinity of Twin Creek, about 8 miles by road northeast of Fox along the Steese Highway. Accuracy is within 1,500 feet.

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:
Ore was shipped in 1911 from an auriferous vein said to be 1 to 5 feet wide (Brooks, 1912, p. 32).

Alteration:

Age of mineralization:

Deposit model:
Gold-quartz vein.

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

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:

Production notes:

Reserves:

Additional comments:

References:

Brooks, 1912; Chapman and Foster, 1969; Cobb, 1972 (MF 413); Cobb, 1976 (OFR 76-633).

Primary reference: Brooks, 1912

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): White Elephant

Site type: Mine

ARDF no.: LG088

Latitude: 65.036 **Quadrangle:** LG A-1

Longitude: 147.442

Location description and accuracy:
Cobb (1972, MF-413), loc. 34; NE1/4 sec. 1, T. 2 N., R. 1 E., of the Fairbanks Meridian. This deposit is near the head of Twin Creek on the hillside east of the creek. Accuracy is within 1,500 feet.

Commodities:

Main: Ag

Other: Pb

Ore minerals: Argentiferous galena, pyrite

Gangue minerals:

Geologic description:
A 20-foot adit had been driven on a flat-lying massive sulfide lens which is parallel to the enclosing schists (Chapin, 1914). A five-inch-thick lens of this material was milled and reportedly contained significant silver values. Sulfide minerals include galena and pyrite which are oxidized to iron-oxide and lead-oxide. The adit was caved and inaccessible by 1931 (Hill, 1933).

Alteration:
Galena has oxidized to cerusite and a mixture of lead-oxide and limonite.

Age of mineralization:

Deposit model:
Polymetallic carbonate replacement.

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

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:
A 20-foot adit had been driven but was caved by 1931 (Hill, 1933).

Production notes:

Reserves:

Additional comments:

References:
Chapin, 1914; Hill, 1933; Chapman and Foster, 1969; Cobb, 1972 (MF 413); Cobb, 1976 (OFR 76-633); Freeman, 1992.

Primary reference: Hill, 1933

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Unnamed

Site type: Prospect

ARDF no.: LG089

Latitude: 65.043 **Quadrangle:** LG A-1

Longitude: 147.405

Location description and accuracy:
This prospect is located approximately 1 mile ESE of Cleary Summit in the NE1/4SE1/4 sec. 31, T. 3 N., R. 2 E., of the Fairbanks Meridian.

Commodities:

Main: Au

Other:

Ore minerals:

Gangue minerals:

Geologic description:
An eight-foot-wide, gold-bearing quartz vein was uncovered by a dozer trench in the mid-1980's (R. Vetter, oral commun., 1999).

Alteration:

Age of mineralization:

Deposit model:
Gold-quartz vein.

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

Production Status: None

Site Status: Inactive

Workings/exploration:
A dozer trench exposed a gold-bearing quartz vein, but no other work was done on the property.

Production notes:

Reserves:

Additional comments:

References:
This description.

Primary reference: This description

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Wackwitz; Silver King; Little Jim

Site type: Prospect

ARDF no.: LG090

Latitude: 65.049 **Quadrangle:** LG A-1

Longitude: 147.424

Location description and accuracy:
The Wackwitz prospect is located on the divide between Twin Creek and Bedrock Creek, approximately one-quarter mile east of Cleary Summit.

Commodities:

Main: Ag, Pb, Sb

Other: Au, Zn

Ore minerals: Arsenopyrite, galena, sphalerite, stibnite, tetrahedrite

Gangue minerals:

Geologic description:
By 1912, William Jackson had staked the Silver King claim and exposed a flat-lying bed of massive sulfides (Times Publishing Company, 1912). This occurrence contained arsenopyrite, stibnite, galena, pyrite and at least one lead sulfosalt; it was conformable to the surrounding schists (Smith, 1913; B 525). The sulfide bed was one foot thick and was largely oxidized to scorodite and antimony oxides with borders of quartz and sulfide stringers in the surrounding schist (Chapin, 1914). By 1916, the prospect was known as the Silver King or Little Jim prospect and consisted of two open cuts approximately 250 feet apart, both of which hosted a flat-lying sulfide horizon in the metamorphic country rocks (Mertie, 1918). The southeastern open cut exposed 12 inches of massive sulfides, trending east-west and dipping 25 S. A shaft was sunk about 25 feet south of the open cut to intersect the horizon. The other open cut, 250 feet to the northeast exposed a 4-inch-thick sulfide-bearing seam with euhedral quartz crystals in its matrix. This occurrence strikes N 45 E and dips at a low angle to the southeast. The mica schist country rock is heavily stained with iron-oxides for 6 to 7 inches on either side of the sulfide horizon and assays $6 to $7 per ton in gold (0.29 to 0.33 ounces of gold per ton). The sulfide horizons on the Wackwitz prospect contained extremely high silver contents relative to gold (Mertie, 1918).

In the early 1950's, the prospect was known as the 'Polaris' lead-silver prospect when 34 tons of hand-picked lead-silver ore was produced from two open cuts, approximately 1300 feet apart (Saunders, 1954). The mineral deposit was said to strike about N 80 W

and dip 20 S. The vein-filling was mostly sulfides, mainly galena and stibnite. The vein had an average thickness of about 8 inches. Smelter returns of sorted ore contained 0.10 to 0.20 ounces of gold per ton, 16.97 to 98.95 ounces of silver per ton and 23.35% to 47.7% lead (Saunders, 1954, p. 5).

Metz and Robinson (1980) examined the Wackwitz prospect and noted the mineralization consisted of a one-meter-thick massive sulfide horizon in quartz muscovite schist striking N 60 E and dipping flatly to the southeast. Polished sections of the mineralization contained stibnite, jamesonite, galena, sphalerite, arsenopyrite and pyrite which occur in discrete bands. By volume stibnite constitutes 90% of the lens, sphalerite 5%, galena 2% and jamesonite, arsenopyrite and pyrite 1% each.

In 1983, a 100-pound metallurgical sample was collected from a 12-inch thick horizon of massive sulfide on the Wackwitz prospect. This sample assayed 3 to 5 ounces of silver per ton, 0.08 ounces of gold per ton, 5 to 10% arsenic, 1 to 10% antimony and greater than 10% lead (Wu-Ming, 1983). Oxide phases present included senarmontite, scorodite, cervantite and bindhemite, while metallic phase minerals included arsenopyrite, pyrite, jamesonite, boulangerite, tetrahedrite, galena, stibnite and sphalerite. Gold was associated as free inclusions in arsenopyrite; silver was present in tetrahedrite. Crushing and grinding tests indicated precious metals were most abundant in the minus-265-mesh fraction. Thiourea leaching of the Wackwitz ores indicated optimum silver recovery of only 40% on a 24 hour leach. Gold recovery by thiourea leaching was not investigated (Wu-Ming, 1983).

Alteration:

The mica schist country rock is heavily iron oxide stained for 6 to 7 inches on either side of the sulfide horizon.

Age of mineralization:

Deposit model:

Massive sulfide horizon hosted by quartz muscovite schist.

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

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:

By 1916, the prospect was known as the Silver King or Little Jim prospect and consisted of two open cuts approximately 250 feet apart (Mertie, 1918). The prospect was known as the 'Polaris' lead-silver prospect in the early 1950's when 34 tons of hand-picked lead-silver ore was produced from two open cuts, approximately 1300 feet apart (Saunders, 1954).

Production notes:

About 34 tons of hand-picked lead-silver ore was produced in 1951 and 1952

(Saunders, 1954, p. 3). Smelter returns indicated gold values from 0.10 to 0.20 ounces of gold per ton, silver from 16.97 to 98.95 ounces of silver per ton and lead from 45.89 to 143.45 ounces of lead per ton (Saunders, 1954, p. 5).

Reserves:

Additional comments:

References:

Times Publishing Company, 1912; Smith, 1913 (B 525); Smith, 1913 (B 542); Chapin, 1914; Mertie, 1918; Saunders, 1954; Metz and Robinson, 1980; Wu-Ming, 1983; Freeman, 1992.

Primary reference: Mertie, 1918

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Jackson

Site type: Prospect

ARDF no.: LG091

Latitude: 65.05 **Quadrangle:** LG A-1

Longitude: 147.424

Location description and accuracy:
Cobb (1972, MF-413), loc. 36. This prospect is located near the crest of the spur between Bedrock Creek and Tamarack Creek, northeast of Cleary Summit; it is approximately 1/4 mile northwest of bench mark 2301. Accuracy is within 1,500 feet.

Commodities:

Main: Au

Other: Ag, Pb, Sb

Ore minerals: Argentiferous galena, arsenopyrite, gold, jamesonite, pyrite, stibnite

Gangue minerals: Limonite

Geologic description:
Several lode discoveries had been made on the prospect by 1912 including a gold-silver-base metal occurrence on the Your Jim, Big Jim and Our Jim claims which is described here as the Jackson prospect. Development on the Your Jim claims in 1912 consisted of a 60-foot shaft and 30 feet of drifting on the 30-foot level. Mineralization consists of a 26-inch-wide, northeast-striking, 45 degree southeast-dipping shear zone containing 12 inches of white quartz and 8 inches of gouge. Pyrite with gold and silver values is the primary metallic mineral. Two assays conducted in April, 1912 returned values of 5 ounces per ton in gold and 2 ounces per ton in silver, and 19.1 ounces per ton in gold and 9 ounces per ton in silver (Times Publishing Company, 1912). In late 1912, work was being planned to deepen the shaft to 100 feet and begin development drifting at that level.

By 1913, an adit had been driven on the Your Jim and Our Jim claims for a length of 428 feet in quartzite schist (Chapin, 1914). At the 70-foot station, the adit intersected a thin quartz stringer containing gold and silver of unspecified grade. A series of east-west trending faults which cut the adit also reportedly contained considerable gold. A fault which cuts the adit at the 300-foot station contains abundant sulfides but no free gold (Chapin, 1914). The shaft previously sunk to a depth of 60 feet was abandoned and a second shaft 25 feet south of that point was sunk prior to 1916. This shaft follows a N 45 E, 45 SE shear zone containing galena, arsenopyrite and minor pyrite (Mertie, 1918). By

1916, the adit on the Jackson prospect had been extended to 516 feet and crossed a series of mineralized shear zones. At 70 feet, the adit intersected a N 45 E, 65 NE shear zone. At 123 feet, the adit intersected a N 75 W, 75 SW shear zone. At 200 feet, the adit intersected a N 75 W, 65 SW shear zone. At 300 feet, the adit intersected a N 75 W, steeply southwest-dipping shear zone which exposes a 4-inch-wide crushed quartz stringer containing gold and sulfides. At 380 feet, the adit intersected a N 40 W striking, 45 NE shear zone which exposed an 18 inch wide gouge zone containing silver mineralization (Mertie, 1916).

The prospect was examined in 1931 by Hill (1933) but had been abandoned for many years at that time. The adit and shafts were caved and only a minor amount of mineralization was exposed on the dumps. This dump material contained pyrite, galena, arsenopyrite, stibnite, jamesonite and free gold along with an unspecified silver-bearing mineral. The Jackson prospect was examined as a possible source of antimony in 1942 but no additional exploration was conducted due to insufficient tonnage potential (Killeen and Mertie, 1951).

Alteration:

Oxidation products of stibnite ore.

Age of mineralization:

Deposit model:

Polymetallic vein (Cox and Singer, 1986; model 22c).

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

22c

Production Status: Undetermined

Site Status: Inactive

Workings/exploration:

In 1912, the Your Jim claims had a 60 foot shaft and 30 feet of drifting on the 30-foot level. By 1913, an adit had been driven on the Your Jim and Our Jim claims 428 feet in quartzite schist (Chapin, 1914). The shaft previously sunk to a depth of 60 feet was abandoned and a second shaft 25 feet south of that point was sunk prior to 1916. By 1916, the adit on the Jackson prospect had been extended to 516 feet and crossed a series of mineralized shear zones (Mertie, 1918). By 1931, the adit and shafts were caved (Hill, 1933).

Production notes:

No record of production.

Reserves:

Additional comments:

References:

Times Publishing Company, 1912; Smith, 1913 (B 525); Smith, 1913 (B 542); Chapin, 1914; Mertie, 1918; Hill, 1933; Killeen and Mertie, 1951; Chapman and Foster, 1969; Cobb, 1972 (MF 413); Cobb, 1976 (OFR 76-633); Freeman, 1992.

Primary reference: Mertie, 1918

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Cheyenne; Vergil

Site type: Prospect

ARDF no.: LG092

Latitude: 65.049 **Quadrangle:** LG A-1

Longitude: 147.442

Location description and accuracy:
The Cheyenne prospect is located about 1400 feet northwest of Cleary Summit along the Steese Highway, on the south side of the road; NE1/4NE1/4, sec. 36, T. 3 N., R. 1 E., of the Fairbanks Meridian.

Commodities:

Main: Au

Other: Ag, Sb

Ore minerals: Arsenopyrite, stibnite, tetrahedrite

Gangue minerals:

Geologic description:
By October of 1912, the prospect was known as the Vergil prospect and an 11 foot shaft had been sunk on base metal bearing mineralization which averaged $6.50 per ton in gold (0.3 ounces of gold per ton) and $4.50 per ton in silver (9 ounces of silver per ton). Smith (1913, B 525) was unable to determine the strike and dip of the prospect due to frost action on surface exposures. By 1916, the shaft was 14 feet deep with a short drift at the bottom on a 8-inch-wide, N 55 E, 15 SE shear zone. Mineralization consisted of stibnite with gold and silver credits, arsenopyrite and silver-bearing tetrahedrite. The shear zone was hosted in an iron oxide stained schist cut by numerous quartz stringers (Mertie, 1918). The Cheyenne prospect was examined as a possible source of antimony in 1942 but no additional exploration was conducted due to insufficient tonnage (Killeen and Mertie, 1951).

Alteration:

Age of mineralization:

Deposit model:
Polymetallic vein (Cox and Singer, 1986; model 22c).

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

Production Status: Undetermined

Site Status: Inactive

Workings/exploration:
By 1916, the shaft was 14 feet deep with a short drift at the bottom (Mertie, 1918). There has apparently been little work since.

Production notes:

Reserves:

Additional comments:

References:
Smith, 1913 (B 525); Smith, 1913 (B 542); Mertie, 1918; Killeen and Mertie, 1951; Freeman, 1992.

Primary reference: Mertie, 1918

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Emma; Overgard; Kathrine

Site type: Mine

ARDF no.: LG093

Latitude: 65.051 **Quadrangle:** LG A-1

Longitude: 147.444

Location description and accuracy:
Cobb (1972, MF-413), loc. 35; NE1/4 sec. 36, T. 3 N., R 1 E., of the Fairbanks Meridian. This mine is on the east side of Willow Creek, near its head, at an elevation of 2,100 feet; it is about 1/4 mile northwest of Cleary Summit along the Steese Highway. Accuracy is within 1,000 feet.

Commodities:

Main: Au

Other: Sb, Zn

Ore minerals: Arsenopyrite, gold, pyrite, sphalerite, stibnite

Gangue minerals:

Geologic description:
By 1909, a 40 foot shaft had been sunk on the prospect and a northeast striking, steeply southeast dipping quartz-bearing shear zone was exposed. The higher grade portion of the shear was 2 to 16 inches wide and contained gold, stibnite, arsenopyrite, pyrite and minor sphalerite (Prindle, 1910). The schist host rock is strongly brecciated and cemented by quartz. By 1912, the shaft had been sunk to a depth of 60 feet with short drifts at the 60-foot level (Smith, 1913; B 525). The shear is hosted in part by mafic metavolcanic rocks and exhibits considerable offset by faulting. The shear dips steeply to the south at the surface but flattens to 45 degrees at depth. Ten tons of ore from this prospect were milled in Fairbanks and contained $38 per ton in gold (1.8 ounces of gold per ton). Chapin (1914) reported that in 1913 the drifts at the 60-foot level were 30 feet and 70 feet long to the east and west, respectively. An adit was being driven from the Willow Creek basin to allow exploration and development to proceed. A minor amount of exploration was completed on the prospect in 1914 (Eakin, 1915). A small amount of production was recorded from the prospect in 1917 however no tonnage or grade information is available (Martin, 1919). The prospect was idle until 1924 when it was re-opened, however, it was abandoned shortly afterwards and was idle when visited in 1931 (Hill, 1933).

Alteration:

Age of mineralization:

Deposit model:
Polymetallic vein (Cox and Singer, 1986; model 22c).

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

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:
By 1910, the vein was exposed by a 40 foot shaft (Prindle, 1910). Chapin (1914) reported a 60 foot inclined shaft and 100 feet of drifts.

Production notes:
Ten tons of ore from this prospect were milled in Fairbanks and contained $38 per ton in gold (1.8 ounces of gold per ton) (Smith, 1913; B 525). A small amount of production was recorded from the prospect in 1917 however no tonnage or grade information is available (Martin, 1919).

Reserves:

Additional comments:

References:
Prindle, 1910; Smith, 1913 (B 525); Smith, 1913 (B 542); Chapin, 1914; Eakin, 1915; Chapin, 1919; Martin, 1919; Hill, 1933; Chapman and Foster, 1969; Cobb, 1972 (MF 413); Cobb, 1976 (OFR 76-633); Freeman, 1992.

Primary reference: Cobb, 1976 (OFR 76-633)

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Mother Lode

Site type: Prospect

ARDF no.: LG094

Latitude: 65.05 **Quadrangle:** LG A-1

Longitude: 147.463

Location description and accuracy:
Cobb (1972, MF-413), loc. 37; NW1/4 sec. 36, T. 3 N., R. 1 E., of the Fairbanks Meridian. This prospect is on the ridge at the head of Willow Creek, about a mile WNW of Cleary Summit. Accuracy is within 2,500 feet.

Commodities:

Main: Au

Other: Sb

Ore minerals: Gold, stibnite

Gangue minerals:

Geologic description:
The prospect consists of a sericitized granite porphyry dike which cuts a stibnite-bearing schist. The stibnite occurs as pods and veinlets in the schist and as a surface coating on the dike contact (Prindle, 1910). Specimens of ore from this deposit are made up of a granular aggregate of stibnite (Brooks, 1916, p. 33; B 649). The aggregates are highly weathered, and a little pyrite occurs with the stibnite. There are also some vitreous quartz grains buried in the stibnite; some of these grains showed crystal terminations (Brooks, 1916, p. 33; B 649).

The stibnite contains less that $1 per ton in gold (0.05 ounces of gold per ton) but the grade of the granite porphyry is unknown. The prospect was idle in 1916 and was noted to be associated with a horizontal structure which may have been parallel to foliation (Brooks, 1916; B 649). The Mother Lode prospect was examined as a possible source of antimony in 1942 but no additional exploration was conducted due to insufficient tonnage potential (Killeen and Mertie, 1951).

Alteration:
Stibnite aggregates are highly oxidized and sericite alteration was observed in the granite porphyry dike.

Age of mineralization:

Deposit model:
Stibnite vein (Cox and Singer; model 27d).

Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):
27d

Production Status: None

Site Status: Inactive

Workings/exploration:

Production notes:

Reserves:

Additional comments:

References:
Prindle, 1910; Brooks, 1916 (B 649); Killeen and Mertie, 1951; Chapman and Foster, 1969; Cobb, 1972 (MF 413); Cobb, 1976 (OFR 76-633); Freeman, 1992.

Primary reference: Brooks, 1916 (B 649)

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Robinson; Mohawk; Franklin; Rose; Heilig and Creighton

Site type: Mine

ARDF no.: LG095

Latitude: 65.048 **Quadrangle:** LG A-1

Longitude: 147.473

Location description and accuracy:
Cobb (1972, MF-413), loc 29; NE1/4 sec. 35, T. 3 N., R. 1 E., of the Fairbanks Meridian. The Robinson mine is located approximately 3200 feet south of the Newsboy shaft near the power substation on the Pedro Dome access road.

Commodities:

Main: Au

Other: Sb

Ore minerals: Arsenopyrite, gold, stibnite

Gangue minerals:

Geologic description:
The Robinson mine contains several quartz veins that contain free gold, stibnite, pyrite, and arsenopyrite. The veins cut gray calcareous quartzites with stockwork quartz. Pyrite and arsenopyrite are the two most abundant disseminated minerals in the wall rocks (Freeman, 1992). The initial 1-foot-wide shear zone, exposed in a 180 foot adit, has a strike of N 10 E with a steep dip to the west. A second shear was discovered near the shaft house. This shear strikes N 70 W, dips vertically, and is 8 inches wide (Chapin, 1914). Another shear zone was intersected west of the 50-foot level of an inclined shaft. This high-grade quartz-rich vein is 16 to 18 inches thick and strikes N 20 E and dips 60 NW. A second shaft, known as the Boyd shaft, was located 75 feet northwest of the Robinson shaft and had been sunk to a depth of 30 feet in 1916. The shear exposed in the Boyd shaft contains abundant arsenopyrite; it is oriented N 80 W, 35 SW.

Dump samples collected from the Robinson prospect in 1986 contained from trace to 4.182 ounces of gold per ton, greater than 1,000 ppm arsenic, minor antimony, and trace levels of silver (Freeman and others, 1986).

Accurate production records for the Robinson mine are not available, however, based on mine maps provided by Charles Lazeration, production is estimated at approximately 5,000 tons of ore (Freeman, 1992).

Alteration:

Age of mineralization:

Deposit model:
Gold, stibnite, sulfide-rich quartz veins.

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

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:
By 1912, a 180 foot adit had been driven on a 1-foot-wide, quartz-rich shear zone (Smith, 1913; B 525). By 1913, the prospect was being explored by L. Goyett through a 50-foot inclined shaft on a 4-foot-wide shear zone (Chapin, 1914). At the 50-foot level, the shaft becomes vertical for 25 feet, at which point a 20-foot cross-cut was driven to intersect an 8-foot-wide shear zone. A second shaft, known as the Boyd shaft, was located 75 feet northwest of the Robinson shaft and had been sunk to a depth of 30 feet by 1916 (Mertie, 1918). By 1917, the Robinson prospect was known as the Heilig and Creighton mine, and was equipped with a Little Giant mill (Martin, 1919). No new development work had been conducted on the prospect in 1917. Work was continued in 1918 but no production was reported (Martin, 1920). In 1934, the Robinson shaft and Boyd and Shaw shaft were flooded and the open cut between the two shafts filled with debris and water (Spencer and O'Neill, 1934). In 1934, Fred C. Robinson was living on the Robinson prospect but no work had been done on the prospect for several years (Spencer and O'-Neill, 1934). In 1938, Fred Robinson cleaned out the Robinson shaft and repaired the mill. The Robinson prospect was examined as a possible source of antimony in 1942, but no additional exploration was recommended due to insufficient potential for significant tonnage (Killeen and Mertie, 1951).

Saarela (1951) reported active mining at the Robinson prospect in 1950 by Vern Jokela and Charles Lazeration. Ore was milled at the Cleary Hill mill. Mr. Lazeration, presently residing in Fairbanks, has provided two mine maps of the Robinson mine which show workings on the 60-, 100- and 200-foot levels from a shaft driven to a depth of approximately 210 feet (Fairbanks Exploration Inc., unpublished report, 1986). Drifts on the 200-foot level had been driven 470 feet along the shear to the northeast and 250 feet to the southwest. A ventilation shaft at the 190 foot station of the southwest drift connects with the surface. At the 470-foot station of the northeast drift on the 200-foot level, a stope had been worked to the 100-foot level and nine ore draw points had been installed and were ready for use. The 100-foot level was driven 470 feet to the northeast and 190 feet to the southwest where a ventilation shaft connected it with the surface. The 100-foot level was mined out over its entire 470-foot length on the northeastern side of the 100-foot level and over its entire 190-foot length on the southwestern side of the shaft. The 60-foot level was mined out over a 90-foot length from the raise to the ventilation shaft connecting the three levels on the southwestern side of the shaft. The Robinson shaft currently is flooded and inaccessible (Freeman, 1992).

Production notes:

By 1912, a 180-foot adit had been driven on a 1-foot-wide quartz-rich shear zone (Smith, 1913; B 525). Two tons of ore from this adit were custom milled in Fairbanks and produced a large amount of sulfide concentrate and an unspecified amount of gold. By 1916, the prospect was known as the Mohawk prospect and produced 46 tons of ore over a four month period. Work was continued in 1918 but no production was indicated (Martin, 1920). Active mining was being conducted on the Robinson prospect in 1950; the ore was milled at the Cleary Hill mill (Saarela, 1951).

Accurate production records for the Robinson mine are not available, however, based on mine maps provided by Charles Lazeration; the production is estimated at approximately 5,000 tons of ore (Freeman, 1992).

Reserves:

Additional comments:

The Robinson mine was previously known as the Creighton mine but was sometimes called the Franklin mine (the owner at one time was Duane Franklin).

References:

Smith, 1913 (B 525); Smith, 1913 (B 542); Chapin, 1914; Mertie, 1918; Chapin, 1919; Martin, 1920; Hill, 1933; Spencer and O'Neill, 1934; Killeen and Mertie, 1951; Chapman and Foster, 1969; Cobb, 1972 (MF 413); Cobb, 1976 (OFR 76-633); Freeman, 1992.

Primary reference: Freeman, 1992

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Dome View

Site type: Prospect

ARDF no.: LG096

Latitude: 65.049 **Quadrangle:** LG A-1

Longitude: 147.479

Location description and accuracy:
Cobb (1972, MF-413), loc. 27; NE1/4NW1/4 sec. 35, T. 3 N., R. 1 E., of the Fairbanks Meridian. The Dome View claims lie in the head of the west fork of Last Chance Creek, about 1 mile northeast of Pedro Dome. Accuracy is within 2,500 feet.

Commodities:

Main: Au

Other: Ag, As, Sb

Ore minerals: Gold

Gangue minerals:

Geologic description:
The quartz mica schist which makes up the country rock at this prospect trends N 60 E and dips 15 to 20 SE. Diorite of the Pedro Dome intrusive crops out a short distance south of the adit. The prospect was accessed by a 145-foot-long adit on a shear zone striking N 40 E and dipping 70 NW. The shear zone ranges from 12 to 40 inches wide and averages 30 inches. It is composed of crushed and brecciated white quartz in the hanging wall and more massive white quartz in the footwall. Samples collected from the margins of the shear contained from $0.38 to $3.26 per ton in gold (0.02 to 0.15 ounces of gold per ton) but do not represent the higher grade portion of the shear which was unsafe to sample (Hill, 1933). Approximately 1,300 tons of ore was extracted from the adit which was estimated to contain $5 per ton in gold (0.24 ounces of gold per ton). A second tunnel, known as the Dome View #2, was driven on a shear about 1,000 feet southwest of the Dome View #1 adit. The Dome View #2 was thought to be the same shear as exposed in the Dome View #1 adit; however, the Dome View #2 shear dips in the opposite direction and probably represents a different shear zone.

The prospect was mapped and sampled in 1933 by Spencer and O'Neill (1934) who reported that a shaft sunk near the Dome View #2 adit had exposed arsenopyrite- and pyrite-rich quartz containing a little free milling gold. Spencer and O'Neill (1934) attributed the formation of the Dome View prospect to the Pedro Dome intrusive body. Scorodite and iron oxide are common in brecciated quartz from the Dome View prospect. Two

samples collected at 18 and 30 feet from the Dome View #1 portal averaged 0.10 and 0.12 ounces of gold per ton, over 18 and 24 inches, respectively. A grab sample of quartz-rich material from this adit's dump returned 0.32 ounces of gold per ton A dump sample from the Dome View #2 shaft contained 1.94 ounces of gold per ton from material containing 30 to 40% sulfides. The shear at the Dome View #2 shaft trends N 85 E and dips 70 SW. Two samples collected from the dump of the Dome View #2 shaft in 1969 contained greater than 150 ppm gold.

The prospect was examined in 1986 by Fairbanks Exploration Inc. (Fairbanks Exploration Inc., unpublished report, 1986). Exploration pits and at least two caved adits on the prospect expose bedrock similar to those at the Newsboy mine; however felsic schist apparently constitutes a smaller portion of the rock section in the vicinity of the Dome View prospect. The predominant alteration present in samples collected on the prospect was stockwork silicification accompanied by hematite after pyrite, and scorodite after arsenopyrite (Fairbanks Exploration Inc., unpublished report, 1986). Despite the lack of intense alteration, gold values ranged up to 6100 ppb and were accompanied by anomalous silver, antimony and arsenic. No work has been conducted on this prospect since 1986.

Alteration:

The predominant alteration present in samples collected on the prospect was stockwork silicification accompanied by hematite after pyrite, and scorodite after arsenopyrite (Fairbanks Exploration Inc., unpublished report, 1986).

Age of mineralization:

Deposit model:

Polymetallic vein (Cox and Singer, 1986; model 22c).

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

22c

Production Status: Undetermined

Site Status: Inactive

Workings/exploration:

The Dome View prospect contains exploration pits and two adits, Dome View #1 and Dome View #2. The adits were caved by 1986 (Fairbanks Exploration Inc., unpublished report, 1986). Dome View #2 is about 1,000 feet southwest of Dome View #1.

Production notes:

Approximately 1300 tons of ore was mined from the Dome View #1 adit and it was estimated to contain $5 per ton in gold (0.24 ounces of gold per ton) (Hill, 1933).

Reserves:

Additional comments:

References:

Hill, 1933; Spencer and O'Neill, 1934; Chapman and Foster, 1969; Cobb, 1972 (MF 413); Cobb, 1976 (OFR 76-633); Freeman, 1992.

Primary reference: Hill, 1933

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Thompson

Site type: Prospect

ARDF no.: LG097

Latitude: 65.051 **Quadrangle:** LG A-1

Longitude: 147.481

Location description and accuracy:
Cobb (1972, MF-413), loc. 28; NE1/4 sec. 35, T. 3 N., R. 1 E., of the Fairbanks Meridian. The Thompson prospect is near the head of Last Chance Creek, about 1.2 miles northeast of Pedro Dome, at an elevation of 1,775 feet. Accuracy is within 1,500 feet.

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:
By 1912, prospect pits revealed gold-bearing quartz rubble (Smith, 1913; B 525). A 15-foot vertical shaft was sunk on a 2-foot-wide shear zone in 1913; about 40 feet below the collar of the shaft, a 100-foot drift was driven parallel to the shear zone. A 20-foot cross-cut from this adit intersected a 5-inch-thick quartz stringer but failed to intersect the 2-foot-wide shear zone found on the surface (Chapin, 1914). Both the quartz stringers and the black carbonaceous schist host rock contained gold.

Alteration:

Age of mineralization:

Deposit model:
Auriferous quartz stringers and auriferous carbonaceous schist.

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

Production Status: None

Site Status: Inactive

Workings/exploration:

By 1912, prospect pits revealed gold bearing quartz rubble (Smith, 1913; B 525). A 15-foot vertical shaft was sunk on a 2-foot-wide shear zone in 1913; about 40 feet below the collar of the shaft, a 100-foot draft was driven parallel to the shear zone. A 20-foot cross-cut from this adit was driven to intersect a 5-inch-thick quartz stringer (Chapin, 1914).

Production notes:

Reserves:

Additional comments:

References:

Smith, 1913 (B 525); Smith, 1913 (B 542); Chapin, 1914; Hill, 1933; Cobb, 1972 (MF 413); Cobb, 1976 (OFR 76-633); Freeman, 1992.

Primary reference: Chapin, 1914

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Hidden Treasure

Site type: Mine

ARDF no.: LG098

Latitude: 65.051 **Quadrangle:** LG A-1

Longitude: 147.497

Location description and accuracy:
Cobb (1972, MF-413), loc. 28; SW1/4 sec. 26, T. 3 N., R. 1 E., of the Fairbanks Meridian. The Hidden Treasure mine tunnel is at the main forks of Last Chance Creek; it is at an elevation of 1,350 feet, about 1.8 miles west of Cleary Summit. The east end of the claim joins the Newsboy property. Accuracy is within 1,500 feet.

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:
Brooks (1911) reported that by 1910 a 140 foot adit had been driven on a 3-foot-wide quartz-rich shear zone on the prospect. The shear reportedly contained elevated gold values. In addition, a 38-foot-deep shaft had been sunk on a 5-foot-wide quartz-rich shear zone in the same area and may be part of the same shear zone. By 1914, the adit had been extended to 250 feet. The mineralization was hosted in a N 60 E trending, steeply south dipping shear zone which contained visible gold in quartz and in the schist host rocks. Strike-slip motion of undetermined magnitude was noted along the Hidden Treasure shear zone (Brooks, 1914). Although ore was milled from these workings, no production figures are available due to loss of the amalgam from the custom mill (Brooks, 1914).

There are no references to the Hidden Treasure prospect from 1914 through 1930. The Hidden Treasure prospect was examined in 1931 but the adit had caved and the dumps were overgrown with vegetation (Hill, 1933). Samples collected by Spencer and O'Neill (1934) from shaft dumps on the prospect contained only a trace of gold. In 1938, the prospect was owned by Fred C. Robinson and was leased in the fall of 1938 to Paul Bittner, Normal Crooks, and Ed Saponch (Reed, 1939). In November, 1938 the lessees excavated a road to the prospect from the Newsboy mine, removed the ice from the adit and opened a raise in the old workings. Samples collected in the raise averaged $6 per ton in gold (0.17 ounces of gold per ton). After three weeks, the work was abandoned and the

lease terminated.

In 1985, Dwayne Savage leased the prospect and reported visible gold in quartz samples from the Hidden Treasure dump (D. Savage, oral commun., 1985). Samples collected from the prospect contained anomalous arsenic but only trace gold, silver and antimony (Resource Associates of Alaska, unpublished report, 1985).

Alteration:

Age of mineralization:

Deposit model:
Gold-quartz vein.

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

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:
This prospect was discovered in 1909 by L. Goyett. Brooks (1911) reported that by 1910 a 140 foot adit had been driven on a 3-foot-wide quartz-rich shear zone on the prospect. In addition, a 38-foot-deep shaft had been sunk on a 5-foot-wide quartz-rich shear zone in the same area. By 1914, the adit had been extended to 250 feet. Although ore was milled from these workings, no production figures are available due to loss of the amalgam from the custom mill (Brooks, 1914).

The Hidden Treasure prospect was examined in 1931 but the adit had caved and the dumps were overgrown with vegetation (Hill, 1931). In November, 1938 a road was built to the prospect from the Newsboy mine, ice was removed from the adit and a raise opened in the old workings. After three weeks the work was abandoned (Reed, 1939).

Production notes:
Although ore was milled from these workings before WWI, no production figures are available due to loss of the amalgam from the custom mill (Brooks, 1914).

Reserves:

Additional comments:

References:
Brooks, 1911; Brooks, 1914; Chapin, 1914; Hill, 1933; Spencer and O'Neill, 1934; Reed, 1939; Cobb, 1972 (MF 413); Cobb, 1976 (OFR 76-633); Freeman, 1992.

Primary reference: Brooks, 1914

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Sunrise #2

Site type: Prospect

ARDF no.: LG099

Latitude: 65.055 **Quadrangle:** LG A-1

Longitude: 147.467

Location description and accuracy:
The Sunrise #2 prospect is located 800 feet southeast of the Newsboy mine near the Steese Highway, and about 1.1 miles northwest of Cleary Summit; NW1/4SW1/4 sec. 25, T. 3 N., R. 1 E., of the Fairbanks Meridian.

Commodities:

Main: Au

Other:

Ore minerals:

Gangue minerals:

Geologic description:
The only reference to the prospect indicated that surface pits were present in 1913 (Chapin, 1914). Quartz veinlets in schist were observed on the dumps of these pits but no information regarding gold grades is known (Freeman, 1991).

Alteration:

Age of mineralization:

Deposit model:
Gold-quartz vein.

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

Production Status: None

Site Status: Inactive

Workings/exploration:
The only reference to the prospect indicated that surface pits were present in 1913

(Chapin, 1914).

Production notes:

Reserves:

Additional comments:

References:
Chapin, 1914; Freeman, 1991; Freeman, 1992.

Primary reference: Chapin, 1914

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Newsboy

Site type: Mine

ARDF no.: LG100

Latitude: 65.056 **Quadrangle:** LG A-1

Longitude: 147.47

Location description and accuracy:

Cobb (1972, MF-413), loc. 37; SE1/4 sec. 26, T. 3 N., R. 1 E., of the Fairbanks Meridian. The Newsboy mine is just south of the saddle between Cleary Creek and Last Chance Creek; it is at an elevation of 1,750 feet, approximately two miles NNE of Pedro Dome.

Commodities:

Main: Au

Other: Cu, Sb, Zn

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

Gangue minerals:

Geologic description:

The Newsboy mine as one of the major producers of the Cleary Hill area. It began production in 1911 and continued intermittently until World War II.

The Newsboy mine is hosted in dark green, massive to tightly foliated chlorite-actinolite schist of basaltic origin. The country rocks trend N 60-80 E and dip 0 to 30 NW (Robinson and others, 1990). Mine dumps also indicate a significant proportion of quartz-biotite-mica schist and quartz-sericite schist with abundant white to granular quartz stockwork and pervasive flood silica (Freeman, 1992). Movement on the main Newsboy structure appears to be of multiple-age, strike-slip character. However, dip-slip displacement is probably present, but difficult to discern due to the intensity and complexity of the movements (Freeman, 1992). The Newsboy shear zone is situated on the northwest limb of the Cleary antiform and is cut by a series of poorly understood, east-west trending faults which dip predominantly to the north at angles ranging from 57 to 80 degrees. These structures truncate the mineralization and despite several hundred feet of drilling and exploratory drifting, the continuation of the shear zone could not be located (Freeman, 1992).

Mineralization at the Newsboy mine consists primarily of native gold plus arsenopyrite, some of it auriferous, with lesser amounts of stibnite, chalcopyrite, sphalerite and ubiquitous pyrite (Fairbanks Exploration Inc., unpublished report, 1986). Ore in the Newsboy

mine is similar to that at the nearby Tolovana mine, about one mile east and 650 feet lower than the Newsboy shaft (Brooks, 1913). White quartz, shear zones and stockworks range from 2 to 14 feet wide and average about 4 to 5 feet wide in the upper 200 feet of workings (Hill, 1933; Stewart, 1931).

Samples collected in 1986 from the Newsboy mine dumps contain high arsenic and gold contents coupled with erratic but generally low antimony and silver contents (Fairbanks Exploration Inc., unpublished report, 1986). Gold values range from 260 ppb to 4.180 troy ounces per ton. Samples taken from mill sulfide concentrates and stamp tailings near the old Newsboy mill contain much gold with abundant arsenopyrite and pyrite. Sulfide-rich mill concentrates varied from 1.433 to 3.377 ounces of gold per ton. Stamp sand tailings returned grades ranging from 0.087 to 0.163 ounces of gold per ton (Fairbanks Exploration Inc., unpublished report, 1986). A significant amount of gold (810 to 5700 ppb) was detected in quartz-sericite schist derived from rhyolite tuff and exhalite (Fairbanks Exploration Inc., unpublished report, 1986).

Alteration:

Quartz, sericite and ankerite.

Age of mineralization:

Deposit model:

Gold-quartz vein.

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

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:

The Newsboy mine was first staked June 25, 1909 (Times Publishing Company, 1912). The Newsboy shear zone was traced for several hundred feet on the surface and additional claims were staked. In October, 1911, a 5-stamp Joshua Hendy Mill was erected (Brooks, 1912; Smith, 1913, B 525). The mill operated for only a few months due to lack of water. Brooks (1912) indicated that by mid-1911 the Newsboy Mine shaft had reached the 200-foot level and working drifts had been driven on the 60-foot and 115-foot levels. By the end of 1911 the bottom of the shaft was at the 315-foot level and drifting was being conducted on a 4-foot-wide shear zone on the 215-foot and 315-foot levels.

By May 12, 1912, the mill had been moved to placer claim #11 above Discovery on Cleary Creek, about 4,000 feet northeast of and 600 feet lower than the Newsboy mine. Water for the mill was taken from a 100-foot-deep 6-inch well, located near the mill (Smith, 1913; B 525).

By 1913, the Newsboy mine was being developed on the 60-, 115-, 168-, 215- and 315-foot levels. The 115-foot level extended 140 feet southwest and 100 feet northeast of the shaft and much of the ore between this level and the 168-foot level had been mined (Chapin, 1914). A few feet east of the shaft on the 115-foot level the shear zone was

mined over a 14 foot width. The 315-foot level was accessed by 250 feet of drifts, but this level of the mine was flooded in 1913 (Chapin, 1914).

Surface trenching was conducted along the shear zone in 1923 but the mine was idle (Stewart, 1923). During 1931, renovation was completed on the mine and the old mill on upper Cleary Creek (Pilgrim, 1932; Smith, 1933; B 836), and the shaft was opened to the 160-foot level (Hill, 1933). In October, the nearly retrofitted mill burned to the ground. Development work continued in the mine and de-watering was begun in the lower mine levels (Pilgrim, 1932; Stewart, 1933; Hill, 1933).

In 1932, a diesel-powered 180-cubic-foot-capacity Sullivan compressor was installed at the mine. One-hundred and fifty tons of ore from above the 215-foot level was shipped seven miles to the Tom Gilmore Mill on Fairbanks Creek. The 215-foot level was re-opened in 1932 and minor exploratory work was conducted in 1933 (Smith, 1934; B 864). The Newsboy mill was rebuilt in 1933. New grinding and flotation equipment was added to the mill in 1935 and mining resumed underground (Smith, 1938). In 1938, the mine was de-watered at the 215-foot level (Reed, 1939). A 1200-foot-long surface trench was emplaced and drifting on the 165-foot level took place in 1938; no ore was produced in 1938 (Stewart, 1939). In December, 1940, the prospect was idle (Stewart, 1941).

Production notes:

In May of 1911, the Newsboy mine produced a 66 ton ore shipment which yielded $5008.20 in gold, or about 244 ounces of gold. An additional 7.5 tons of ore was shipped in 1911 to the Garden Island Mill in Fairbanks and was reported to contain $104 gold per ton (5 ounces of gold per ton) in free milling gold (Brooks, 1913; Smith, 1913, B 525). Drifting and mining continued at the Newsboy mine in 1913 although no production figures for the year are available (Chapin, 1914). Despite production of nearly $150,000 worth of gold (7250 troy ounces), the mine was shut down in 1915. In 1932, 150 tons of ore from above the 215-foot level was shipped 7 miles to the Tom Gilmore Mill on Fairbanks Creek. The total estimated production from 175 feet to the surface is 35,937 tons of ore and 8,125 tons of waste from which 35,937 troy ounces of gold were recovered (Freeman, 1992).

Reserves:

The following discussion of reserves is taken from Freeman (1992) and is based on analysis of old mine maps. Ore reserves blocked out between the 350-foot and 175-foot levels are estimated at 21,875 tons of ore, 10,937 tons of waste and 21,875 ounces of gold in place. The estimated potential ore reserves on the Newsboy shear zone system on the Newsboy prospect are considerably larger. Based on the past production figures, an estimated 75% of the reserves will consist of 4 feet of shear zone in a 6 foot heading; the remaining 25% of the reserves are figured on a 14 feet wide shear zone on 14 feet of heading. Reserves are based on free gold at a grade of 0.5 ounces of gold per ton. Sulfide-encapsulated fine gold is expected to contribute a significant amount to the total gold, however, since reliable figures on the average amount of sulfide-encapsulated gold are not available, no value is given to this form of gold in the geologic reserves. The adjusted total geologic reserves takes into account the 44,062 tons of ore and waste estimated to have been mined from the Newsboy shaft. Based on the above assumptions, the total geologic reserve of the Newsboy shear zone system to the 1200' elevation is 813,938 tons

at a grade of 0.5 ounces of gold per ton. It should be noted that the reserves are hypothetical reserves (USBM nomenclature) and as such no dilution or recovery factors have been included in the calculations.

Additional comments:

References:

Brooks, 1912; Times Publishing Company, 1912; Smith, 1913 (B 525); Smith, 1913 (B 542); Chapin, 1914; Eakin, 1915; Brooks, 1916 (B 649); Stewart, 1923; Stewart, 1931; Hill, 1933; Smith, 1933 (B 836); Smith, 1933 (B 844); Smith, 1934 (B 864); Smith, 1936; Smith, 1937; Killeen and Mertie, 1951; Chapman and Foster, 1969; Cobb, 1972 (MF 413); Cobb, 1976 (OFR 76-633); Robinson and others, 1990; Freeman, 1992.

Primary reference: Freeman, 1992

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): RV

Site type: Mine

ARDF no.: LG101

Latitude: 65.057 **Quadrangle:** LG A-1

Longitude: 147.463

Location description and accuracy:
The RV prospect is located 800 feet northeast of the Newsboy mine on the divide between Cleary Creek and Last Chance Creek; NE1/4SW1/4 sec. 25, T. 3 N., R. 1 E., of the Fairbanks Meridian.

Commodities:

Main: Au

Other:

Ore minerals: Arsenopyrite, gold, stibnite

Gangue minerals: Quartz

Geologic description:
The shear zone contains 10 inches of crushed to massive quartz, with gold, arsenopyrite, and stibnite. The shear strikes N 79 E and dips 60 S. The shear is parallel to and north of a small granite porphyry dike but its relationship to the dike is not known. By 1931, a shaft had been sunk 15 feet with 30 feet of drift extending to the west (Hill, 1933). Pilgrim (1933) states that surface exposures on this prospect produced 35 tons of ore prior to 1932. This material averaged $35 per ton in gold (1.7 ounces of gold per ton).

Alteration:

Age of mineralization:

Deposit model:
Gold-quartz vein.

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

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:

By 1931, a shaft had been sunk 15 feet with 30 feet of drift extending to the west (Hill, 1933).

Production notes:

Pilgrim (1933) states that surface exposures on this prospect produced 35 tons of ore prior to 1932. This material averaged $35 per ton in gold (1.7 ounces of gold per ton).

Reserves:

Additional comments:

References:

Hill, 1933; Pilgrim, 1933; Freeman, 1992.

Primary reference: Hill, 1933

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Newsboy Extension

Site type: Prospect

ARDF no.: LG102

Latitude: 65.058 **Quadrangle:** LG A-1

Longitude: 147.471

Location description and accuracy:
NW1/4SW1/4 sec. 25, T. 3 N., R. 1 E., of the Fairbanks Meridian. The Newsboy Extension prospect is located 500 feet northeast of the Newsboy mine (ARDF no. LG100), just east of the Steese Highway, and about 1.3 miles northwest of Cleary Summit.

Commodities:

Main: Au

Other: Cu, Sb, Zn

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

Gangue minerals:

Geologic description:
The shear zone at the Newsboy Extension shear trends N 15 E and dips 77 NW, whereas the Newsboy shear (described in Newsboy mine, ARDF no. LG100) strikes N 40 E and dips 73 NW (Smith, 1913; B 525). The ore is similar in character to that from the Newsboy mine but contains less free quartz.

Considerable development work was completed on the Newsboy extension in 1911 (Brooks, 1912). The mine was worked from a 115-foot deep shaft with short production drifts at the 60-foot level. The ore was reported to average about $15 per ton in free milling gold (0.72 ounces of gold per ton) (Smith, 1913; B 525). The mine was inactive and the shaft flooded by 1913 (Chapin, 1914). Hill (1933) indicated that the prospect had been idle for 20 years and none of the workings were accessible.

Alteration:

Age of mineralization:

Deposit model:
Gold-quartz vein.

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

Production Status: Undetermined

Site Status: Inactive

Workings/exploration:

Considerable development work was completed on the Newsboy extension in 1911 (Brooks, 1912). The mine was worked from a 115 foot deep shaft with short production drifts at the 60 foot level. The mine was inactive and the shaft flooded by 1913 (Chapin, 1914). Hill (1933) indicated that the prospect had been idle for 20 years and none of the workings were accessible.

Production notes:

By late 1911, the prospect was leased by Mr. McGillivray and Mr. Fisher who erected an 8-ton-per-day, 5-stamp mill which was connected to the hoist house during the winter of 1911-1912 (Times Publishing Company, 1912; Smith, 1913; B 525). The mine was worked from a 115 foot deep shaft with short production drifts at the 60 foot level. The ore was reported to average about $15 per ton in free milling gold (0.72 ounces of gold per ton, Smith, 1913; B 525).

Reserves:

Additional comments:

References:

Brooks, 1912; Times Publishing Company, 1912; Smith, 1913 (B 525); Chapin, 1914; Hill, 1933; Freeman, 1992.

Primary reference: Smith, 1913 (B 525)

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Steil

Site type: Prospect

ARDF no.: LG103

Latitude: 65.061 **Quadrangle:** LG A-1

Longitude: 147.467

Location description and accuracy:
Cobb (1972, MF-413), loc. 37; SW1/4NW1/4 sec. 25, T. 3 N., R. 1 E., of the Fairbanks Meridian. This prospect is at the head of Cleary Creek, at an elevation of 1,475 feet.

Commodities:

Main: Sb

Other:

Ore minerals: Stibnite

Gangue minerals:

Geologic description:
Some stibnite and less pyrite occur in narrow quartz veins that branch through the metabasaltic country rock (Smith, 1913; B 525). By 1912, the adit was 400 feet long and had working drifts driven along the mineralized shear zones. Smith (1913, B 525) indicated the tunnel was caved in 1912 and the property had not reached the production stage, but that a road had been built from the tunnel to the main road to the north.

The Steil prospect was examined as a possible source of antimony in 1942 but no additional exploration was conducted due to lack of indication of significant tonnage (Killeen and Mertie, 1951).

Alteration:

Age of mineralization:

Deposit model:
Stibnite in quartz veins.

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

Production Status: None

Site Status: Inactive

Workings/exploration:

By 1912, an adit was 400 feet long and had working drifts along the mineralized shear zones. But, Smith (1913, B 525) indicated the tunnel was caved in 1912 and the property had not reached the production stage, but that a road had been built from the tunnel to the main road to the north.

Production notes:

Reserves:

Additional comments:

The prospect was discovered prior to 1912 by Peter Steil and was one of the first adits driven in the Fairbanks district (Times Publishing Company, 1912).

References:

Smith, 1913 (B 525); Smith, 1913 (B 542); Brooks, 1916 (B 649); Killeen and Mertie, 1951; Chapman and Foster, 1969; Cobb, 1972 (MF 413); Cobb, 1976 (OFR 76-633); Freeman, 1992.

Primary reference: Smith, 1913 (B 525)

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Moore-Sheldon

Site type: Occurrence

ARDF no.: LG104

Latitude: 65.061 **Quadrangle:** LG A-1

Longitude: 147.463

Location description and accuracy:
Cobb (1972, MF-413), loc. 37; NW1/4 sec. 25, T. 3 N., R. 1 E., of the Fairbanks Meridian. This occurrence is near the head of Cleary Creek, about 1.3 miles northwest of Cleary Summit. Accuracy is within 3,000 feet.

Commodities:

Main: Sb

Other:

Ore minerals: Stibnite

Gangue minerals:

Geologic description:
The only known reference to this prospect indicates it consists of blue and white, sulfide-bearing marble which is cut by an iron-oxide-stained shear zone trending N 55 E. Sulfide minerals identified are stibnite and pyrite (Chapman and Foster, 1969).

Alteration:
Iron-stained crushed zone.

Age of mineralization:

Deposit model:
Polymetallic carbonate replacement.

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

Production Status: None

Site Status: Inactive

Workings/exploration:

Production notes:

Reserves:

Additional comments:

References:

Chapman and Foster, 1969; Cobb, 1972 (MF 413); Cobb, 1976 (OFR 76-633); Freeman, 1992.

Primary reference: Chapman and Foster, 1969

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Stibnite

Site type: Prospect

ARDF no.: LG105

Latitude: 65.063 **Quadrangle:** LG A-1

Longitude: 147.455

Location description and accuracy:
The Stibnite prospect is located above the confluence of Willow Creek and Cleary Creek; NE1/4NW1/4 sec. 25, T. 3 N., R. 1 E., of the Fairbanks Meridian.

Commodities:

Main: Ag, Pb, Sb

Other: Au

Ore minerals: Argentiferous galena, pyrite, stibnite

Gangue minerals:

Geologic description:
By 1916, the Stibnite prospect was being explored by the Eldorado Mining and Milling Company and consisted of an open cut and a 40-foot shaft (Mertie, 1918). The 3- to 12-inch thick shear zone being developed contained 'commercial grade' lead and silver with minor gold. The principal metallic minerals identified were argentiferous galena, stibnite and pyrite. The ore is in quartzite and is parallel to the schistosity of the country rock.

Alteration:

Age of mineralization:

Deposit model:
Lead, silver, antimony and gold mineralization in quartzite.

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

Production Status: None

Site Status: Inactive

Workings/exploration:

By 1916, the Stibnite prospect was being explored by the Eldorado Mining and Milling Company and consisted of an open cut and a 40 foot shaft (Mertie, 1918).

Production notes:

Reserves:

Additional comments:

References:
Mertie, 1918; Freeman, 1992.

Primary reference: Mertie, 1918

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Johnson; Johnson and Martin

Site type: Prospect

ARDF no.: LG106

Latitude: 65.064 **Quadrangle:** LG A-1

Longitude: 147.455

Location description and accuracy:
Cobb (1972, MF-413), loc. 38; NW1/4NE1/4 sec. 25, T. 3 N., R. 1 E., of the Fairbanks Meridian. The Johnson prospect is near the mouth of Willow Creek, a headwater tributary of Cleary Creek. Accuracy is within 1,000 feet.

Commodities:

Main: Sb

Other: W

Ore minerals: Arsenopyrite, pyrite, stibnite, scheelite

Gangue minerals:

Geologic description:
In 1942, a placer cut on Willow Creek exposed high-grade stibnite in several parts of a wide quartz zone (Joesting, 1943). The vertical vein of stibnite with occasional quartz and other sulfides is 6 to 8 inches wide and was traced N 40 E for 75 feet (Killeen and Mertie, 1951). Nearby in 1912, a shaft was sunk 16 feet on a narrow quartz stringer carrying stibnite (Killeen and Mertie, 1951). Massive stibnite was identified on the dumps at the Johnson and Martin prospect with coarse grained scheelite (Byers, 1957). The prospect was examined by Metz and Robinson (1980) who noted that massive stibnite and scheelite were in quartz muscovite schist striking N 60 E and dipping 25 NW. Ore exposed in a 28-inch-thick horizon in a small pit on the prospect contained abundant coarse- to fine-grained stibnite, discrete bands of coarse scheelite grains to 0.8 inches across, and minor pyrite and arsenopyrite. By volume, stibnite constitutes 95% of the lens, scheelite 4% and arsenopyrite and pyrite constitute 1% each.

In 1986 the prospect was examined by Fairbanks Exploration Inc. (Fairbanks Exploration Inc., unpublished report, 1986). The deposit consisted of disseminated to massive coarse-bladed stibnite with coarse-grained scheelite crystals disseminated in the stibnite. Gold values ranged from 420 ppb to 2450 ppb, silver values ranged from trace to 2.21 ounces of silver per ton, antimony values were greater than 10,000 ppm and arsenic values ranged from 600 to 800 ppm. Extensive trenching was conducted by Yukon Tanana Mining Company in the vicinity of the Johnson and Martin prospect in 1988, however the

results of this work are not known (Freeman, 1992).

Alteration:

Age of mineralization:

Deposit model:
Stibnite vein (Cox and Singer, 1986; model 27d).

Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):
27d

Production Status: Undetermined

Site Status: Inactive

Workings/exploration:
In 1912, a shaft was sunk 16 feet on a narrow quartz stringer carrying stibnite (Killeen and Mertie, 1951). Extensive trenching was conducted by Yukon Tanana Mining Company in the vicinity of the Johnson and Martin prospect in 1988 (Freeman, 1992).

Production notes:
No record of production.

Reserves:

Additional comments:

References:
Joesting, 1943; Thorne and others, 1948; Killeen and Mertie, 1951; Byers, 1957; Berg and Cobb, 1967; Chapman and Foster, 1969; Cobb, 1972 (MF 413); Cobb, 1975 (C 722); Cobb, 1976 (OFR 76-633); Metz and Robinson, 1980; Freeman, 1992.

Primary reference: Freeman, 1992

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Chechako No. 1; Eldorado; Westonvitch

Site type: Mine

ARDF no.: LG107

Latitude: 65.065 **Quadrangle:** LG A-1

Longitude: 147.463

Location description and accuracy:
Cobb (1972, MF-413), loc. 37; NW1/4, sec. 25, T. 3 N., R. 1 E., of the Fairbanks Meridian. This prospect is at the head of Cleary Creek about 1/4 mile west of the confluence with Willow Creek. Accuracy is within 2,000 feet.

Commodities:

Main: Au

Other: Ag, Cu, Pb, Sb, Zn

Ore minerals: Argentiferous galena, arsenopyrite, chalcopyrite, gold, pyrite, sphalerite, stibnite

Gangue minerals:

Geologic description:
The Chechako prospect contains two types of mineralization: lead, zinc and silver mineralization in flat-lying replacement bodies in marble and high angle shear-related mineralization which cuts the replacement bodies and is composed of complex sulfosalts containing antimony, arsenic and lead (Kent, 1985). The shear-hosted mineralization has been traced for 2800 feet along strike. Average grade of composite samples from this material was 14.4% lead, 2.06% zinc, 7.3% antimony, 13.7 ounces of silver per ton, 0.268 ounces of gold per ton, and variable arsenic (Kent, 1985). Geophysical surveys indicated the bedded sulfide horizon extended to the north and was down-dropped by the main shear zone indicating normal motion on the Chechako shear zone. Average grade of composite samples from the bedded replacement mineralization was 27% lead, 20% zinc, 1% antimony, 60 ounces of silver per ton, and 0.092 ounces of gold per ton (Kent, 1985).

In July, 1980, approximately 186 dry tons of sorted ore was extracted from the oxidized portion of the Chechako shear zone; it averaged 0.07 ounces of gold per ton, 37.87 ounces of silver per ton, 18.98% Pb, 2.00% Zn, 2.61% Sb, and 1.83% As (Fairbanks Exploration Inc., unpublished report, 1985). Gold values appear to be higher in the unoxidized portion of the exposed lode than in oxidized ore shipped in 1980. Separation of sulfide versus oxide ore indicates the Chechako prospect carries average grades of oxidized ore of 0.07 ounces of gold per ton, 37.87 ounces of silver per ton, 18.98% Pb, 2.00% Zn and

2.61% Sb; unoxidized ore averages of 0.20 ounces of gold per ton, 25.20 ounces of silver per ton, 22.50% Pb, 3.77% Zn, and 7.80% Sb (Fairbanks Exploration Inc., unpublished report, 1985).

Sampling of the exposed workings on the Chechako prospect was conducted by Fairbanks Exploration Inc. in 1986 (Fairbanks Exploration Inc., unpublished report, 1986). Silver values ranged up to 87 ounces per ton while gold values ranged up to 3400 ppb (0.1 ounces of gold per ton). Elevated arsenic (+1000 ppm) and antimony (+10000 ppm) values also were noted. Mineralization is most intense peripheral to high angle normal faults which cut the marble. Weak prograde skarn alteration in the form of pyroxene, diopside and biotite replacement is associated with blackjack sphalerite in marble units (Fairbanks Exploration Inc., unpublished report, 1985).

In 1988 and 1989, Yukon Tanana Mining conducted extensive surface trenching on the Chechako and adjoining Tolovana mine prospects and outlined a surface mineable gold reserve of about 150,000 ounces (J. Blakestad, oral commun., 1991).

In 1998, three holes were drilled in the Chechako area to invesitgate extremely high grade gold values that were found in soils (Freeman and others, 1998). On one 400 ppb soil anomaly, a drill hole intercepted 10 feet with 0.096 ounces of gold per ton and another 10 feet with 0.064 ounces of gold per ton. Another hole intercepted 20 feet with 0.037 ounces of gold per ton, 5 feet with 0.066 ounces of gold per ton, and another 5 feet with 0.041 ounces of gold per ton.

Alteration:

Oxidation and weak prograde skarn alteration in the marble as pyroxene, diopside and biotite replacement (Fairbanks Exploration Inc., unpublished report, 1985).

Age of mineralization:

Deposit model:

Polymetallic carbonate replacement.

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

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:

A 30-foot deep shaft was sunk on the prospect in 1910 but the prospect was inactive when visited in 1912 (Smith, 1913; B 525). By 1916, the prospect was being actively mined from an open cut and a 40-foot deep shaft (Mertie, 1918). The shaft was 45 feet deep with 30 feet of adjoining drifts and stopes by 1917 (Martin, 1919). By 1922, the prospect had two shafts which exposed a 3- to 5-foot-wide shear zone striking N 35 E and dipping 85 NW. (Stewart, 1922; Davis, 1922). The southwest shaft was 45 feet deep with a 30-foot drift to the southwest and a 45-foot drift to the northeast at the 45-foot level. From the 15- to the 40-foot station in the northeast drift, ore had been stoped out over a 12-foot height and 20-foot width. The northeast shaft is located 200 feet along strike

from the southwest shaft and was sunk to a depth of 35 feet by 1922. A drift extends 45 feet to the southwest from the 35-foot level. Two adits had been driven an unknown length on the prospect between 1922 and 1931. These two adits and both previously described shafts were inaccessible in 1931 (Hill, 1933).

The Chechako prospect was examined as a possible source of antimony in 1942 but no additional exploration was conducted due to low antimony values in the ore (Killeen and Mertie, 1951).

In 1981, the Chechako prospect was leased to Placid Oil Company who conducted soil sampling, VLF and CEM ground geophysics and drilled 462 feet in three diamond drill holes (Porterfield and Croff, 1986). In 1998, three holes were drilled in the Chechako area to invesitgate extremely high grade gold values that were found in soils (Freeman and others, 1998).

Production notes:

Two shipments of ore from the prospect in 1916 totalled 24 tons and contained 3.67 tons of lead (15%) and 1,083 ounces of silver (45 ounces of silver per ton) (Smith, 1917; BMB 153). In July, 1980, approximately 186 dry tons of sorted ore from the prospect were shipped to the Asarco smelter at East Helena, Montana (Fairbanks Exploration Inc., unpublished report, 1985).

Reserves:

In 1988 and 1989, Yukon Tanana Mining conducted extensive surface trenching on the Chechako and adjoining Tolovana mine prospects and outlined a surface mineable gold reserve of about 150,000 ounces (J. Blakestad, oral commun., 1991).

Additional comments:

References:

Smith, 1913 (B 525); Smith, 1913 (B 542); Brooks, 1916 (B 649); Smith, 1917 (BMB 153); Mertie, 1918; Chapin, 1919; Hill, 1933; Killeen and Mertie, 1951; Chapman and Foster, 1969; Cobb, 1972 (MF 413); Cobb, 1976 (OFR 76-633); Kent, 1985; Freeman, 1992; Freeman and others, 1998.

Primary reference: Fairbanks Exploration Inc., unpublished report, 1985

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Herschberger; Beall; Phipps

Site type: Prospect

ARDF no.: LG108

Latitude: 65.063 **Quadrangle:** LG A-1

Longitude: 147.452

Location description and accuracy:
Cobb (1972, MF-413), loc. 38; SW1/4NE1/4 sec. 25, T. 3 N., R. 1 E., of the Fairbanks Meridian. This prospect is along Willow Creek, a headwater tributary of Cleary Creek, about 1.2 miles NNW of Cleary Summit. Accuracy is within 2,000 feet.

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:
The only published record of this prospect states that some rich gold ore was extracted prior to 1910 (Brooks, 1911). The prospect was clearly separate from the Tolovana mine (ARDF no. LG110) at that time, but may have been developed with the Tolovana mine after that point. No information is available as to the character of mineralization on the prospect.

Alteration:

Age of mineralization:

Deposit model:
Gold-quartz vein.

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

Production Status: Undetermined

Site Status: Inactive

Workings/exploration:

Brooks (1911, p. 34), reported that some ore was taken out in the course of development work in 1910.

Production notes:

Brooks (1911, p. 34), reported that some ore was taken out in the course of development work in 1910.

Reserves:

Additional comments:

References:

Brooks, 1911; Chapman and Foster, 1969; Cobb, 1972 (MF 413); Cobb, 1976 (OFR 76-633); Freeman, 1992.

Primary reference: Brooks, 1911

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Willow Creek

Site type: Prospect

ARDF no.: LG109

Latitude: 65.063 **Quadrangle:** LG A-1

Longitude: 147.45

Location description and accuracy:
Cobb (1972, MF-413), loc. 88; NE1/4 sec. 25, T. 3 N., R. 1 E., of the Fairbanks Meridian. This prospect is situated in the bed of Willow Creek, about 100 yards from its mouth. Willow Creek is a tributary of Cleary Creek.

Commodities:

Main: Sb

Other: Au, Sn, W

Ore minerals: Cassiterite, gold, scheelite, stibnite

Gangue minerals:

Geologic description:
This antimony prospect was uncovered during placer mining operations and was described by Henry Joesting in a report to the Alaska Territorial Department of Mines in 1942. The antimony ore occurs as stibnite in a zone of white quartz and gouge that strikes east-west, across the valley of Willow Creek (Joesting, 1942; ATDM PE 49-7). In the hydraulic cut, where the overburden and gravel have been removed, high-grade ore could be traced continuously from the west side of the cut to the creek, a distance of about 75 feet. Ore is also found on the east side of the cut, about 100 feet from the creek. Between these two showings of ore, the zone consists mainly of quartz and gouge, with minor amounts of stibnite and pyrite, and occasionally arsenopyrite. Some pieces of high-grade stibnite found on the surface measured about a foot across. Most of the ore is fine-grained and massive with a minor portion made up of coarse bladed crystals. The higher grade portions contained 56 percent antimony. Small amounts of pyrite and arsenopyrite occur in the lower grade material.

The bedrock is mainly a soft, badly weathered mica schist, containing considerable clay. The schist strikes east-west and dips steeply north. Several thin limestone beds were noted. A few of these beds, about 100 feet upstream from the stibnite, contain sphalerite and pyrite. Numerous small veins and lenses of quartz were also noted in the bedrock. Most veins are glassy, but some contain small amounts of pyrite, arsenopyrite, and sphalerite.

Alteration:

Age of mineralization:

Deposit model:
Stibnite-quartz vein (Cox and Singer, 1986; model 27d).

Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):
27d

Production Status: None

Site Status: Inactive

Workings/exploration:
The vein was exposed by a hydraulic cut during placer mining operations.

Production notes:

Reserves:

Additional comments:

References:
Prindle, 1904; Prindle, 1905; Prindle, 1906; Prindle, 1908; Ellsworth, 1910; Ellsworth and Parker, 1911; Ellsworth and Davenport, 1913; Prindle and Katz, 1913; Chapin, 1914; Eakin, 1915; Brooks, 1916 (B 642); Smith, 1917 (BMB 142); Smith, 1939 (B 910); Smith, 1939 (B 917); Smith, 1941; Joesting, 1942 (ATDM MR 194-11); Joesting, 1942 (ATDM PE 49-7); Joesting, 1942 (ATDM Pamph. 1); Smith, 1942; Killeen and Mertie, 1951; Cobb, 1972 (MF 413); Cobb, 1975 (C 722).

Primary reference: Joesting, 1942 (ATDM PE 49-7)

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Tolovana

Site type: Mine

ARDF no.: LG110

Latitude: 65.063 **Quadrangle:** LG A-1

Longitude: 147.449

Location description and accuracy:

Cobb (1972, MF-413), loc. 38; NW1/4NE1/4 sec. 25, T. 3 N., R. 1 E., of the Fairbanks Meridian. The Tolovana mine is about 25 feet above Willow Creek at an elevation of 1,300 feet. It is approximately 1/8 of a mile upstream from the confluence of Willow Creek and Cleary Creek.

Commodities:

Main: Au

Other: Ag, Sb, W

Ore minerals: Arsenopyrite, gold, pyrite, scheelite, stibnite

Gangue minerals:

Geologic description:

The Tolovana Mine is an old property that was first discovered before 1910. It operated intermittently until at least 1949, and was the site of considerable work in the 1980's.

Three different metamorphic rock types are visible at the Tolovana prospect (LeLacheur, 1991). The dominant rock unit is a micaceous quartzite. A layer of crenulated biotite-schist and a thin layer of amphibole-biotite schist are enclosed between the quartzite layers. Strongly altered plutonic rock is exposed in several trenches at the south end of the property (LeLacheur, 1991). The dominant process of ore deposition seems to have been replacement of the country rock and fault products by quartz, sericite and sulfides, rather than vein quartz deposition (LeLacheur, 1991, p. 50). Mineralization occurs within fault gouge zones cutting through micaceous quartzite.

Initial development began on a series of 1- to 3-inch quartz veinlets which trend N 75 E. These stringers contained visible gold and in one case a barren quartz-albite stringer was found suggesting an igneous affinity (Prindle, 1910). Ore in the Tolovana mine varies from ribbon texture quartz stringers to massive quartz zones which vary from a few inches to 3 feet in width. The mineralization had been traced for over 1,500 feet along strike. The Tolovana shear zone strikes east-west and dips 60 S (Smith, 1913; B 525). The 1- to 3-inch quartz stringers are separated by calcareous schist containing disseminated pyrite. The gold-bearing quartz stringers contain euhedral stibnite but do not nor-

mally contain pyrite (Smith, 1913; B 525). The gold fineness analyses, conducted through 1912, varied from 792 to 824 fine, with the highest silver content being 180 parts per thousand from the sample with a gold fineness of 792 (Smith, 1913; B 525). Several phases of quartz introduction were noted at the Tolovana prospect with gold being most common in a glassy variety which post-dates the more abundant milky white quartz (Smith, 1913; B 525).

A new shear zone was discovered on the Tolovana mine prospect in mid-1913 (Chapin, 1914). The occurrence is 100 feet south of the portal of the adit; it strikes east-west and dips 50 S. The shear is 18 inches to 36 inches wide and consists of massive white quartz with gouge on each contact. This shear is parallel to the shear exposed in the Tolovana adit. Shaft sinking was in progress in 1913. This shaft, referred to here as the South shaft, was later connected to the Tolovana adit by a cross-cut.

The western extension of the Tolovana shear was discovered in 1930 and was developed by the 160-foot Parenteau adit. The Tolovana shear strikes N 30-65 E and dips 30-60 SE. The mineralization is in 1- to 12-inch wide stringer zones similar to that mined from the Tolovana adit. The ore contained gold associated with arsenopyrite, stibnite, pyrite, galena and tetrahedrite (Stewart, 1933; Pilgrim, 1933).

The prospect was sampled by Fairbanks Exploration Inc. in 1986 (Fairbanks Exploration Inc., unpublished report, 1986). Backhoe and dozer trenches on the Tolovana prospect exposed a large section of metarhyolite tuff, exhalite and volcaniclastic metaquartzite of the upper Cleary Sequence. These rocks contain disseminated and shear-zone-controlled arsenopyrite, pyrite, stibnite and native gold. The structures which hosted the high grade gold-quartz shear zones in the old Tolovana mine trend predominantly N 60-80 E and dip steeply southeast; they transect the flat-lying, northeast-trending Cleary Sequence. Samples collected in the Upper Pit area were chip samples across exposures of sulfide-bearing metarhyolite tuff units cut by numerous 1-6 inch thick white quartz veins. Gold values from these samples were 520 to 3600 ppb. Samples from high-grade dump material at the small mill set up near the old Tolovana shaft ranged from 0.27 to 0.52 ounces of gold per ton. The samples consisted of white, massive, quartz vein material with 1-3% arsenopyrite and minor stibnite. Country rock welded to the shear zone selvages was metarhyolite similar to that seen in the upper pit area. As a check on the efficiency of the old gravity milling circuit used in the Tolovana mill, a sample was collected from the tailings pond below the mill. This sample consisted of coarse sand-size material (20-30 mesh); it contained mainly quartz, arsenopyrite, pyrite and stibnite. The sample assayed 0.458 ounces of gold per ton, suggesting that the mill did a poor job of recovery of the fine gold in the ore (Fairbanks Exploration Inc., unpublished report, 1986).

In 1988 and 1989, Yukon Tanana Mining conducted extensive surface trenching on the Tolovana and adjoining Chechako prospects and outlined an estimated 150,000 ounces of gold that could be mined from the surface pit (R. Blakestad, oral commun., 1991).

Alteration:

Pods and disseminations of jamesonite occur in an amorphous, green vuggy matrix in the walls surrounding the gouge zone (LeLacheur, 1991). Quartz, sericite, ankerite and carbon alteration also present.

Age of mineralization:

Deposit model:
Disseminated veins and shear zones containing gold in intrusive rocks and schist.

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

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:
By 1910, an 85 foot adit had been driven. In July, 1911 a Huntington disc mill was installed and began operation on the prospect. The mill ran continuously through mid-November when lack of water forced it to close. The mill began operating again in March, 1912 after a well and pump had been installed on Willow Creek (Times Publishing Company, 1912). In July, 1912 a two stamp Nissen mill was erected and began crushing ore on August 23, 1912.

In 1912, the mine consisted of a 400 foot adit from which several short drifts were driven; small stopes were also developed (Smith, 1913; B 525). The adit extends along the main shear zone for 130 feet where it intersects a vertical fault. The workings turn north for 30 feet and then turn east again along the offset extension of the shear zone. Approximately 100 feet from the portal of the adit, a winze was sunk to a depth of 50 feet and drifts driven to the east and west. A second winze inclined at 60 degrees south was driven from the east end of the drift but was flooded in 1912. A second winze, located 330 feet from the portal, was sunk from the adit level to a depth of 100 feet (Loftus, 1927). A shaft near the adit portal had been sunk to a depth of 100 feet and a drift driven on the 50-foot level connects with the winze in the adit. Due to flooding of the shaft near the Tolovana adit in late 1912, work was shifted to the Willow Creek-Bedrock Creek divide where a 55 foot shaft, referred to here as the Scheuyemere #1 shaft, was sunk on a 12- to 14-inch-thick shear zone (Times Publishing Company, 1912). This shaft is sometimes referred to as the Tolovana Stibnite prospect (Chapin, 1914).

By 1913, the shaft and the winze had been connected by a drift on the 100-foot level and the ore between the adit and the 100 foot level was mined (Chapin, 1914). Additional stoping took place above the adit level. The Scheuyemere #1 shaft had been sunk to a depth of 100 feet by 1913 and drifting had been conducted for 50 feet to the east and 30 feet to the west on the 50-foot level (Chapin, 1914). A raise located 24 feet west of the shaft connected with the surface and the block of ground between the shaft and the raise had been stoped from the 50 foot level to the surface.

In 1913, a new shear zone was discovered and shaft sinking was in progress (Chapin, 1914). This shaft, referred to here as the South shaft, would be connected to the Tolovana adit by a cross-cut drift.

In 1922, the Tolovana adit was 530 feet long. A drift had also been driven from the 50 foot level of the winze for 30 feet to the east where it intersected a fault which offsets the shear zone 30 feet to the north (Stewart, 1922; Davis, 1922). In the South shaft, drifting at the 50-foot level went out 15 feet to the west and 20 feet to the east along the shear zone. A total of 150 feet of new drifting was completed on the Tolovana prospect in 1923

and 8 to 10 tons of ore milled on site (Stewart, 1923).

The Tolovana mine remained inactive until 1930 when exploration was renewed (Smith, 1933; B 836). The western extension of the Tolovana shear, on the west side of Willow Creek, was discovered in 1930 and was referred to as the Parenteau adit (Stewart, 1931). This adit had been driven 160 feet to the west and 50 tons of ore had been treated in the mill in 1930. The Parenteau adit had caved about 75 feet from the portal when visited in 1931 (Hill, 1933).

Antimony and gold were mined from the prospect in 1949 (Saarela, 1950).

In August 1984, dozer and backhoe exploration of the prospect was conducted. A small gravity mill was constructed on the prospect near the old portal of the Tolovana adit and several large open cuts were excavated in the vicinity of the Scheuyemere #1 shaft (Freeman, 1992). Surface samples of the Upper pit area and the dump were also collected in 1986 (Fairbanks Exploration Inc., unpublished report, 1986).

Production notes:

Ore was shipped from the prospect as early as 1909 (Times Publshing Company, 1912). Production through 1912 averaged $20 to $105 per ton (1 to 5 ounces per ton gold) (Smith, 1913; B 525). In 1923, 8 to 10 tons of ore were milled on site, averaging $16 gold per ton (0.8 ounces of gold per ton) (Stewart, 1923). A small amount of ore was milled in 1924 and in 1931(Stewart, 1923; Pilgrim, 1932; Smith, 1933, B 844). Antimony and gold were mined in 1949 (Saarela, 1950).

Reserves:

In 1988 and 1989 Yukon Tanana Mining conducted extensive surface trenching on the Tolovana and adjoining Chechako prospects and outlined a reserve of about 150,000 ounces of gold that could be mined from a surface pit (R. Blakestad, oral commun., 1991).

Additional comments:

References:

Prindle, 1910; Brooks, 1911; Times Publishing Company, 1912; Smith, 1913 (B 525); Smith, 1913 (B 542); Chapin, 1914; Brooks, 1916 (B 649); Davis, 1922; Stewart, 1922; Stewart, 1923; Loftus, 1927; Moffit, 1927; Hill, 1933; Smith, 1933 (B 836); Smith, 1933 (B 844); Stewart, 1931; Stewart, 1933; Pilgrim, 1933; Joesting, 1942 (ATDM Pamph. 1); Killeen and Mertie, 1951; Wedow and White, 1954; Byers, 1957; Berg and Cobb, 1967; Chapman and Foster, 1969; Cobb, 1972 (MF 413); Cobb, 1976 (OFR 76-633); Le-Lacheur, 1991; Freeman, 1992.

Primary reference: Freeman, 1992

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Marshall Dome

Site type:

ARDF no.: LG111

Latitude: 65.067 **Quadrangle:** LG A-1

Longitude: 147.459

Location description and accuracy:
SE1/4SW1/4 sec. 24, T. 3 N., R. 1 E., of the Fairbanks Meridian. The Marshall Dome prospect is a zone of anomalous gold in soils in an area just west of the headwaters of Cleary Creek on the west side of the Steese Highway.

Commodities:

Main: Au

Other:

Ore minerals:

Gangue minerals:

Geologic description:
Soil samples at the Marshall Dome prospect contained up to 2030 ppb gold (0.06 ounces of gold per ton). Altered intrusive rocks have been noted on the property. A sample of quartz-veined, altered intrusive rock picked up during soil sampling assayed 1760 ppb gold (0.05 ounces of gold per ton) (Silverado Mines press release, October 12, 1995).

Alteration:

Age of mineralization:

Deposit model:
Gold in altered intrusive rocks.

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

Production Status: None

Site Status: Inactive

Workings/exploration:

Soil sampling only.

Production notes:

Reserves:

Additional comments:

References:
This description.

Primary reference: This description

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/11/99

Site name(s): Dolphin

Site type: Prospect

ARDF no.: LG112

Latitude: 65.062 **Quadrangle:** LG A-1

Longitude: 147.444

Location description and accuracy:
The Dolphin intrusive body forms an elongate northeast-trending exposure covering a 2,000 foot by 1,200 foot area on the ridge between Willow Creek and Bedrock Creek; NE1/4 sec. 25, T. 3 N., R. 1 E., of the Fairbanks Meridian.

Commodities:

Main: Au

Other: Ag, Bi, Te

Ore minerals: Arsenopyrite, bismuthinite, boulangerite, gold, maldonite, pentlandite, pyrite, pyrrhotite, stibnite, tetradymite, tetrahedrite

Gangue minerals: Calcite, feldspar, sericite

Geologic description:
In 1995, Freegold discovered significant disseminated gold mineralization in the granodiorite and tonalite of the Dolphin stock (Freeman and others, 1998). Additional soil sampling conducted in 1995 and 1996 delineated a large northeast trending gold anomaly (+100 ppb gold) which closely mimics the south contact of the Dolphin stock. The mineralization is controlled by the district-scale Dolphin shear zone. The gold-in-soil anomaly also is highly anomalous in silver, arsenic, lead, antimony and zinc. The anomaly forms the southeast portion of a broad gold-in-soil anomaly which extends from the west bank of Willow Creek to Bedrock Creek.

The Dolphin stock forms an elongate northeast-trending exposure of equigranular biotite granodiorite covering a 2,000 foot by 1,200 foot area at the surface. Drilling along the northern edge of the stock encountered calc-silicate skarn at a vertical depth of 400 feet, suggesting the north edge of the stock dips steeply north . The southern contact of the stock dips shallowly to the south. Drilling on the northeast end of the intrusive suggests that the main stock branches into a dike swarm in that area and that the main stock may be faulted at depth. Mineralization is open to the west into Willow Creek and below 1000 feet, the deepest hole drilled on the deposit.

During 1995-96, Freegold conducted 15,559 feet of reverse circulation drilling in the Dolphin prospect in 46 drill holes. In 1998, a single vertical core hole was drilled to a

depth of 1,033 feet. This hole encountered only intrusive rock over its entire length and both compositional phases of the Dolphin stock were encountered. Upper portions (0-622 feet) of the intrusive consisted of granodiorite while tonalite was encountered below 622 feet. The tonalite phase is texturally similar to the main granodiorite body but with abundant biotite and possible amphibole. The contacts of both the dikes and the main stock were loci for well developed brittle fracturing as evidenced by abundant crushed quartz and clay. The tonalite has a distinctive geochemical signature of relatively elevated Ni, Li, K, Na, Mg, V, Sc, and Ti. A chloritic and sericitic altered intrusive has also been recognized; given the chlorite content, the rock likely represents altered tonalite.

Most of the visible sulfide mineralization is in the form of arsenopyrite, pyrite, stibnite, pyrrhotite, and pentlandite. As would be expected the pyrrhotite and pentlandite has only been recognized in the mafic tonalite and does not seem to be associated with the quartz veining. Significant intervals of rock with more than 0.03 ounces of gold per ton were encountered at depths well below previous drilling, and the hole bottomed in anomalous gold mineralization.

Sulfide mineralogy is dominated by 1 to 5% disseminated pyrite and arsenopyrite, and pervasive zones with more than 50% sulfides are characterized by large amounts of galena, tetrahedrite and sphalerite. Up to 2% disseminated scheelite is locally abundant. Electron microprobe analyses and polished section microscopy reveal native gold and bismuthinite as inclusions in arsenopyrite. Visible gold is rare and is hosted in white, quartz stockwork veins in drill cuttings and core. Preliminary metallic sieve analyses also suggest little or no nugget effect (Adams, 1997). Bottle roll analyses from granodiorite in the oxide zone recovered 82% to 92% of the gold, while analysis of the sulfide-rich altered granodiorite recovered less than 10%.

Gold grade at the Dolphin prospect is controlled by the thin quartz veinlets, typically less than 1 mm, which cut the host intrusive. Vein orientations vary with no apparent preferred orientation for mineralization. At least three separate hydrothermal events are present in the Dolphin core. The Dolphin deposit consists of multiple flooded zones of alternating silicification and sericitization, with local scheelite-bearing carbonate zones and sulfide rich zones containing elevated base metal values. Scheelite-bearing carbonate alteration zones generally contain lower gold values and tend to form halos around the higher grade gold intercepts. Silica flooding occurs throughout the intrusive and locally reaches up to about 90% SiO_2. Silica flooded zones often contain chalcedonic green, brown or black quartz. In some drill holes the flood silicification in granodiorite results in near-complete obliteration of original igneous textures. Chloritic alteration is rare.

Preliminary resource calculations estimated a gold resource of approximately 600,000 ounces grading 0.020 ounces of gold per ton (Adams, 1997).

Alteration:

The Dolphin deposit consists of multiple flooded zones of alternating silicification and sericitization, with local scheelite-bearing carbonate zones (Freeman and others, 1998). In some drill holes the silicification of the granodiorite results in near-complete obliteration of original igneous textures. Chloritic alteration is rare.

Age of mineralization:

Deposit model:
Low-grade igneous-hosted gold deposit; disseminated veins and shears.

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

Production Status: None

Site Status: Inactive

Workings/exploration:
During 1995-96, Freegold conducted 15,559 feet of reverse circulation drilling in the Dolphin prospect in 46 drill holes. In 1998, a single vertical core hole was drilled to a depth of 1,033 feet (Freeman and others, 1998).

Production notes:

Reserves:
Preliminary resource calculations estimated a gold resource of approximately 600,000 ounces in material with 0.020 ounces of gold per ton (Adams, 1997).

Additional comments:

References:
Adams, 1997; Freeman and others, 1998; Swainbank and others, 1998; Szumigala and Swainbank, 1999.

Primary reference: Freeman and others, 1998

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Hess and Burnett

Site type: Prospect

ARDF no.: LG113

Latitude: 65.057 **Quadrangle:** LG A-1

Longitude: 147.442

Location description and accuracy:
The Hess and Burnett prospect is located near the crest of the ridge between Willow Creek and Bedrock Creek, approximately one mile south of the Cleary Hill mine; NE1/4SE1/4 sec. 25, T. 3 N., R. 1 E., of the Fairbanks Meridian.

Commodities:

Main: Ag

Other:

Ore minerals:

Gangue minerals:

Geologic description:
The date of discovery of the Hess and Burnett prospect is not known but samples collected from the prospect by Jack Burnett in May, 1910 assayed $85 per ton in silver (170 ounces of silver per ton) (Times Publishing Company, 1912). In late 1912 Jack Burnett and August Hess sunk a short shaft on the prospect but the shaft was flooded by the summer of 1913 (Chapin, 1914). No other published or private references to the Hess and Burnett prospect are known.

Alteration:

Age of mineralization:

Deposit model:
Silver-bearing vein.

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

Production Status: Undetermined

Site Status: Inactive

Workings/exploration:
In late 1912, Jack Burnett and August Hess sunk a short shaft on the prospect but the shaft was flooded by the summer of 1913 (Chapin, 1914).

Production notes:

Reserves:

Additional comments:

References:
Times Publishing Company, 1912; Chapin, 1914; Freeman, 1992.

Primary reference: Chapin, 1914

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Crosscut

Site type: Prospect

ARDF no.: LG114

Latitude: 65.065 **Quadrangle:** LG A-1

Longitude: 147.446

Location description and accuracy:
The Crosscut prospect is located just east of the confluence of Willow Creek with Cleary Creek; NW1/4NE1/4 sec. 25, T. 3 N., R. 1 E., of the Fairbanks Meridian.

Commodities:

Main: Sb

Other:

Ore minerals: Stibnite

Gangue minerals:

Geologic description:
Mineralization consisted of bladed stibnite and pyrite with abundant antimony, arsenic and iron oxides found in prospect pits (Smith, 1913; B 525). A 100 foot adit was driven due south below the prospect pits but did not intersect the mineralization seen in the pits.

Alteration:
Abundant antimony, arsenic and iron oxides were found in prospect pits (Smith, 1913).

Age of mineralization:

Deposit model:
Polymetallic vein (Cox and Singer, 1986; model 22c).

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

Production Status: None

Site Status: Inactive

Workings/exploration:

Prospect pits and a 100 foot adit were driven (Smith, 1913, B 525).

Production notes:

Reserves:

Additional comments:

References:
Smith, 1913 (B 525); Chapin, 1914; Freeman, 1992.

Primary reference: Smith, 1913 (B 525)

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Stepovich #1

Site type: Prospect

ARDF no.: LG115

Latitude: 65.067 **Quadrangle:** LG A-1

Longitude: 147.442

Location description and accuracy:
The Stepovich prospect is located near the confluence of Bedrock Creek and Cleary Creek; SE1/4SE1/4 sec. 24, T. 3 N., R. 1 E., of the Fairbanks Meridian.

Commodities:

Main: Au

Other:

Ore minerals:

Gangue minerals:

Geologic description:
On August 26, 1910, a 2.5 ton lot of ore from the Stepovich prospect yielded $700 in gold (13.5 ounces of gold per ton) (Times Publishing Company, 1912). The only other reference to the Stepovich prospect is a map location shown by Chapin in 1914.

Alteration:

Age of mineralization:

Deposit model:
Gold-quartz vein.

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

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:

Production notes:

In 1910, a 2.5 ton lot of ore from the Stepovich prospect contained $700 in gold (13.5 ounces of gold per ton) (Times Publishing Company, 1912).

Reserves:

Additional comments:

References:
Times Publishing Company, 1912; Chapin, 1914; Freeman, 1992.

Primary reference: Times Publishing Company, 1912

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Bedrock Creek

Site type: Mine

ARDF no.: LG116

Latitude: 65.066 **Quadrangle:** LG A-1

Longitude: 147.438

Location description and accuracy:
Cobb (1972, MF-413), loc. 88; NW1/4NW1/4 sec. 30, T. 3 N., R. 2 E., of the Fairbanks Meridian. The coordinates given are for the approximate center of placered ground. It is unclear where the gold-quartz vein was encountered in the bedrock.

Commodities:

Main: Au

Other:

Ore minerals:

Gangue minerals:

Geologic description:
Bedrock uncovered in the placer apparently contained some auriferous quartz veins that were mined from an open cut and milled at nearby Cleary Hill Mill (Brooks, 1923, p. 30).

Alteration:

Age of mineralization:

Deposit model:
Gold-quartz vein.

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

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:
Auriferous quartz veins were mined from an open cut and milled at nearby Cleary Hill Mill (Brooks, 1923, p. 30).

Production notes:
Mining was reported but there is no record of amount of production.

Reserves:

Additional comments:

References:
Brooks, 1923; Joesting, 1942 (ATDM Pamph. 1); Byers, 1957; Cobb, 1972 (MF 413); Cobb, 1975 (C 722); Cobb, 1976 (OFR 76-633).

Primary reference: Brooks, 1923

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Bedrock Creek

Site type: Mine

ARDF no.: LG117

Latitude: 65.066 **Quadrangle:** LG A-1

Longitude: 147.438

Location description and accuracy:
Cobb (1972, MF-413), loc. 88; NW1/4NW1/4 sec. 30, T. 3 N., R. 2 E., of the Fairbanks Meridian. The coordinates given are for the approximate center of placered ground.

Commodities:

Main: Au

Other: Sn, W

Ore minerals: Cassiterite, gold, scheelite

Gangue minerals:

Geologic description:
Placer gold was found, cassiterite is common, but scheelite is scarce (Joesting, 1942; ATDM Pamph. 1, p. 32).

Alteration:

Age of mineralization:

Deposit model:
Placer gold deposit (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:

Production notes:

Reserves:

Additional comments:

References:
Brooks, 1923; Joesting, 1942 (ATDM Pamph. 1); Byers, 1957; Cobb, 1972 (MF 413); Cobb, 1975 (C 722); Cobb, 1976 (OFR 76-633).

Primary reference: Brooks, 1923

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Wyoming

Site type: Mine

ARDF no.: LG118

Latitude: 65.064 **Quadrangle:** LG A-1

Longitude: 147.435

Location description and accuracy:
Cobb (1972, MF-413), loc. 39; NW1/4NW1/4 sec. 31, T. 3 N., R. 2 E., of the Fairbanks Meridian. This mine is about 400 yards south of the Cleary Hill Mine (ARDF no. LG119) on the east side of Bedrock Creek.

Commodities:

Main: Au

Other: Sb, W

Ore minerals: Gold, scheelite, stibnite

Gangue minerals:

Geologic description:
The Wyoming shear zone consists of quartz veins up to 2 feet thick containing gold, stibnite and scheelite. Scheelite was particularly abundant in the wall rocks and on shear margins (Moffit, 1927). The shear zone strikes N 80 E and dips 50 S (Hill, 1933). Ore in the main stope averaged about $6.00 of gold per ton (0.3 ounces of gold per ton) and consisted of 12 to 14 inches of hard white quartz and brecciated schist with minor iron-oxide stains (Hill, 1933).

The Wyoming prospect was investigated in 1943 as a possible souce of tungsten (Byers, 1957). Scheelite is present in limestone lenses found east of the north-south fault in both the Wyoming and Lower adits. By 1943, the Wyoming adit consisted of 350 feet of drift west of the north-south fault, a 100 foot crosscut drift to the south on the east side of the north-south fault, and 200 feet of drift along the Wyoming shear from the end of the 100-foot crosscut (Byers, 1957). A 70-foot section of the 200-foot drift east of the fault averaged 0.3% tungsten oxide over 6 inches. In a sublevel stope above the same zone, a 1-foot by 3-foot area averaged 20% tungsten oxide in a limestone replacement body (Byers, 1957). Samples found on the Lower adit dump, and samples collected in place from the Wyoming shear in the Lower adit, varied from 0.28% to 1.64% tungsten oxide with trace molybdenum, manganese, antimony and arsenic.

Fairbanks Exploration Inc. conducted 11 man-days of field work on the Wyoming prospect in 1987. Nineteen rock samples were collected and the alteration zones were

mapped. Several samples were collected from bedrock exposures and dumps in and around the Wyoming mine site (Fairbanks Exploration Inc., unpublished report, 1987). These samples returned low Au, Sb and Ag values and elevated As values. Gold values were higher where jamesonite and/or boulangerite are visible in the shear zone. Most of the dump material on the Wyoming dump is sulfide-free, white quartz, attesting to close grade control during mining. Stratiform arsenopyrite lenses up to 4 inches thick were discovered on bedrock exposures in a placer cut below the Lower adit dump. These occurrences were associated with rhyolitic tuff beds and returned unexpectedly low gold values (Fairbanks Exploration Inc., unpublished report, 1987).

In 1989, Fairbanks Exploration Inc. conducted 10 man-days of field work on the prospect and collected eighteen rock samples (Fairbanks Exploration Inc., unpublished report, 1989). Exposures in the old placer cut on lower Bedrock Creek consist of pale-yellow to gray, thinly bedded, felsic volcanic tuff and siliceous exhalite containing quartz, sericite, minor chlorite and disseminated pyrite and lesser arsenopyrite. These units are correlative with the upper third of the Cleary Sequence. Foliation in this area trends N 60-80 E and dips 10 to 20 SE. The rocks are heavily jointed and appear to have undergone minor dip-slip deformation along sericite-rich bedding planes. Sulfide mineralization is concentrated along stratiform horizons which vary from one inch to over six inches in thickness. Visible gold was found in one of these horizons early in 1989 after heavy rains exposed new outcrops in this area. Sulfide contents in the exhalite beds range from 5% to 25% of the rock; the ground mass consists of fine-grained quartz, and clay after feldspar.

Sample results from the 1989 program indicate that highly anomalous gold and arsenic, weakly anomalous antimony, lead and zinc are associated with felsic tuff and exhalite over the entire area exposed along the creek bottom and side walls of lower Bedrock Creek (Fairbanks Exploration Inc., unpublished report, 1989). The extent of this mineralization on the prospect is unknown.

Alteration:

The rocks in the old placer cut on lower Bedrock Creek are heavily jointed and appear to have undergone minor dip-slip deformation along sericite rich bedding planes. Sulfide mineralization is concentrated along stratiform horizons which vary from one inch to over six inches in thickness.

Age of mineralization:

Deposit model:

Gold-quartz vein.

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

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:

By 1909, development work had begun on the Wyoming shear zone (Prindle, 1910).

By the end of 1910, 300 feet of adit had been driven on the Wyoming shear and 50 feet of shaft had been sunk on the Carlisle Fraction claim which was adjacent to the Cleary Hill mine on the west (Brooks, 1911). At the 80-foot station of the Wyoming adit, a 50-foot winze was sunk at an angle of 60 degrees south, but was flattened to 49 degrees south near the bottom of the winze (Smith, 1913; B 525). An unknown amount of material from the winze was custom milled and reportedly returned high values in gold.

In 1913, surface mining was conducted on the Wyoming prospect. Four tons of ore were custom milled at the Blue Moon Mazeppa mine on Chatham Creek and another 4.5 tons was stockpiled (Chapin, 1914). No production records are available for these two shipments. Limited development was carried out at the Wyoming prospect in 1914. In 1915, development activities continued on the Wyoming shear and were expanded to the Colorado shear located about 500 feet north of and parallel to the Wyoming shear (Stewart, 1915). Thirty-nine tons of ore from these two shear zones were custom milled at the Blue Moon Mazeppa mill on Chatham Creek but no production figures are available. Development of the Wyoming prospect was discontinued by 1916 (Brooks, 1918) but limited mining was conducted on the prospect in 1917 (Martin, 1919).

Development work on the Wyoming adit began again in 1921 when the adit was lengthened and a 60-foot winze sunk from the adit level (Brooks, 1921). The Wyoming shear was traced onto the adjacent Alabama claim in 1922 (Davis, 1922; Stewart, 1922). By 1923, the Wackwitz brothers erected a small, ball mill and mined a limited amount of high grade ore from the Wyoming adit. Ore grades averaged $10-20 per ton in gold (0.5 to 1.0 ounces of gold per ton) with recovery estimated at 85% (Loftus, 1927). The prospect was operated by the Gustafson brothers in 1924 and produced a small amount of gold (Smith, 1926). A new ball mill was installed in 1925 and operated for one month.

By 1927, the Wyoming shear was intercepted by three adits, the Lower, Wyoming (upper) and Crawford adits, for a total of 500 feet of workings over 150 vertical feet of shear zone (Loftus, 1927). Production continued in 1927, and ore was milled at the nearby Cleary Hill mill (Smith, 1930; B 810). Development work increased and surface facilities were improved in 1928 (Smith, 1930; B 810). Minor production from the prospect continued in 1929 and 1930 (Smith, 1932; Smith, 1933, B 836). By 1930, developments at the Wyoming mine consisted of the 165 foot long Wyoming adit and a Lower adit 1000 feet long situated approximately 100 feet lower than the Wyoming adit (Pilgrim, 1931; Stewart, 1931). The Crawford adit was 75 feet long and approximately 40 feet above the Wyoming adit. By 1931, the fourth adit had been driven 60 feet on a gold-quartz shear zone parallel to the Wyoming shear zone (Pilgrim, 1931; Stewart, 1933).

In 1931, the Wyoming adit was caved and inaccessible. The Lower adit followed the Wyoming shear zone for 300 feet at which point the shear was faulted about 100 feet south (Hill, 1933). A raise connected the Lower and Wyoming adits. A stope about 70 feet along strike was extended from the Lower to the Wyoming adit and appears to rake about 45 degrees to the west (Hill, 1933). Development work in the Crawford adit followed a north-dipping shear zone which is separate from the Wyoming shear.

Reed (1939) reported that in 1938 Fred and Ernest Wackwitz completed 30 feet of drifting, 20 feet of cross-cuts, 125 feet of adit and milled 56 tons of ore with an average grade of $47 per ton in gold (1.34 ounces of gold per ton). The ore was milled on site in a 20 ton Herman ball mill. By 1943, the Wyoming adit consisted of 350 feet of drift west of

the north-south fault, a 100 foot crosscut to the south on the east side of the north-south fault, and 200 feet of drift along the Wyoming shear from the end of the 100-foot crosscut (Byers, 1957).

In 1987, Fairbanks Exploration Inc. conducted eleven man-days of field work on the Wyoming prospect. Nineteen rock samples were collected and an alteration map prepared. Several samples were collected from bedrock exposures and dumps in and around the Wyoming mine site (Fairbanks Exploration Inc., unpublished report, 1987). In 1989, Fairbanks Exploration Inc. conducted ten man-days of field work on the prospect and collected eighteen rock samples (Fairbanks Exploration Inc., unpublished report, 1989). Alteration and geologic mapping was also conducted in the old placer cut on lower Bedrock Creek.

Production notes:

Smith (1913, B 525) reported that production began by 1913 with an unknown amount of material being custom milled from the Wyoming adit. In 1913, surface mining was conducted on the Wyoming prospect. Four tons of ore were custom milled at the Blue Moon Mazeppa mine on Chatham Creek and another 4.5 tons was stockpiled by August, 1913 (Chapin, 1914). No production records are available for these two shipments. By 1915, development activities continued on the Wyoming shear and were expanded to the Colorado shear located about 500 feet north of and parallel to the Wyoming shear (Stewart, 1915). Thirty-nine tons of ore from these two shear zones were custom milled at the Blue Moon Mazeppa mill on Chatham Creek but no production figures are available.

By 1923, the Wackwitz brothers erected a small, ball mill and mined a limited amount of high grade ore from the Wyoming adit. Ore grades averaged $10-20 per ton in gold (0.5 to 1.0 ounces of gold per ton) with recovery estimated at 85% (Loftus, 1927). Production continued in 1927, and ore was milled at the nearby Cleary Hill mill (Smith, 1930; B 810). Minor production from the prospect continued in 1929 and 1930 (Smith, 1932; Smith, 1933, B 836). Reed (1939) reported that 56 tons of ore were milled with an average grade of $47 per ton in gold (1.34 ounces of gold per ton).

Reserves:

Additional comments:

References:

Prindle, 1910; Brooks, 1911; Brooks, 1912; Smith, 1913 (B 525); Smith, 1913 (B 542); Chapin, 1914; Eakin, 1915; Maloney, 1915; Smith, 1917 (BMB 142); Brooks, 1918; Mertie, 1918; Chapin, 1919; Martin, 1919; Brooks, 1923; Smith, 1926; Loftus, 1927; Moffit, 1927; Smith, 1929; Smith, 1930 (B 810); Smith, 1932; Smith, 1933 (B 836); Smith, 1936; Smith, 1937; Smith, 1938; Reed, 1939; Killeen and Mertie, 1951; Byers, 1957; Berg and Cobb, 1967; Chapman and Foster, 1969; Cobb, 1972 (MF 413); Cobb, 1975 (C 722); Cobb, 1976 (OFR 76-633); Freeman, 1992.

Primary reference: Freeman, 1992

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Cleary Hill; Summit; Cleary; Freegold

Site type: Mine

ARDF no.: LG119

Latitude: 65.067 **Quadrangle:** LG A-1

Longitude: 147.433

Location description and accuracy:
The coordinates given are near the Cleary Hill Mine marked on the Livengood (A-1) quadrangle; SW1/4SW1/4 sec. 19, T. 3 N., R. 2 E., of the Fairbanks Meridian. The mine is east of Bedrock Creek, a tributary of Cleary Creek.

Commodities:

Main: Au

Other: Ag, Cu, Pb, Sb, W, Zn

Ore minerals: Arsenopyrite, boulangerite, chalcopyrite, covellite, galena, gold, jamesonite, pyrite, scheelite, silver, sphalerite, stibnite, tetrahedrite

Gangue minerals: Quartz

Geologic description:
The Cleary Hill mine was the largest lode gold producer in the Fairbanks mining district, prior to the first production from the Fort Knox gold mine in 1996. The average grade of gold produced was approximately 1.3 ounces of gold per ton. Recent drilling in the 1990's has shown that the Cleary Hill mine still has an approximate resource of 100,000 ounces of gold with a grade of 0.81 ounces of gold per ton.

In the early 1900's, gold was reported to be found in quartz veins within schist with quartz stringers (Prindle, 1910). Visible gold was found in quartz veins that were largely free of sulfides (Smith, 1913; B 525). The principle vein averages about 1 foot in thickness with a maximum thickness of about 3 feet. There are smaller, similar, parallel veins in both the hanging and footwalls; the veins are crushed, cross the foliation of schist country rock, and are complexly faulted (Smith, 1913; B 525).

The Cleary Hill Mine is hosted in mafic volcanics, quartzites and quartz muscovite schists on the north flank of the Cleary antiform (Freeman and others, 1998). The Cleary Hill vein strikes N 70-80 W and dips 45 to 70 S. The dip of the vein varies according to the host rock, with steeper dips in more competent rock units and shallow dips in less competent rock units (Freeman and others, 1998). The mine consisted of over six levels that produced ore from quartz veins that contained coarse free gold, and trace arsenopyrite, pyrite, boulangerite, and tetrahedrite. Higher grade intervals have gold values from

the hundreds to the thousands of ounces of gold per ton. These intervals are commonly associated with acicular needles and felted masses of boulangerite and jamesonite, in white to gray quartz veins that are 1 to 5 feet thick (Freeman and others, 1998).

During the 1986 field season, the mine waste dumps of the Cleary Hill mine were examined and grab samples were collected by Fairbanks Exploration Inc. (Fairbanks Exploration Inc., unpublished report, 1986). Quartz vein samples on the Penrose and Upper adit dumps are associated with chlorite-actinolite schists of mafic volcanic origin, typical of the the lower third of the Cleary Sequence. Dump samples contained arsenopyrite, pyrite, stibnite, jamesonite, native gold, and minor scheelite hosted by quartz-bearing shear zones and stockworks with thin argillized selvages. Significant ankerite occurs in some shear zones and weathers to a bright ocherous, red color. Visible gold is usually associated with jamesonite needles and rosettes similar to mineralization in the Christina adit (ARDF no. LG146) and Nordale adit of the Homestake mine (ARDF no. LG157). Up to one-half percent scheelite is finely disseminated in chlorite-actinolite schist and less commonly forms coarser grained crystal aggregates in sulfide-free quartz shear zones. Gold values vary up to 0.558 ounces of gold per ton and appear to be higher in samples of siliceous exhalite, metarhyolite tuff and carbonaceous quartzite from the lower production dumps at the mine. Reserve estimates of the waste dump made by Fairbanks Exploration Inc. in 1988 indicated the Cleary Hill mine dumps contained 71,176 tons of rock grading 0.159 ounces of gold per ton and 0.099 ounces of silver per ton (Fairbanks Exploration Inc., unpublished report, 1987; Fairbanks Exploration Inc., unpublished report, 1988).

Reverse circulation drilling at the Cleary Hill Mine in late 1996 encountered at least two vein systems with values of more than 0.5 ounces of gold per ton over narrow widths below the old underground workings (Freeman and others, 1997).

Complete production records are not available for the Cleary Hill mine, however, existing published and private records indicate the Cleary Hill mine produced more than 100,000 fine ounces of gold from approximately 77,000 tons of material with an average grade of 1.3 ounces of gold per ton (Porterfield and Croff, 1986; Metz and others, 1987). This ranks the Cleary Hill mine as the largest lode gold producer in the Fairbanks Mining District, prior to the development of the Fort Knox mine.

Recent drilling shows that Cleary Hill Mine, in addition to a 100,000-ounce resource grading 0.81 ounces of gold per ton, has potential for bulk tonnage, lower-grade material in the footwall of the high-grade veins (Swainbank and others, 1998).

Alteration:

Quartz, sericite and ankerite.

Age of mineralization:

Deposit model:

Schist-hosted auriferous shear systems with discrete and/or crushed veins and skarn.

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

Production Status: Yes

Site Status: Inactive

Workings/exploration:

Mineralization was first discovered on the Freegold claim prior to 1910, near the juncture of Cleary and Bedrock Creeks. Shortly after discovering the rich surface outcrops of the Cleary Hill lode (selected samples assayed up to 5,950 ounces of gold per ton), the main production adit was collared about 50 feet above Bedrock Creek (Freeman, 1991).

By the summer of 1910 the Main adit had been driven 630 feet on the Free Gold claim and a 50 foot shaft with 90 feet of drift was also driven on the main shear zone approximately 800 feet uphill from the Main adit portal (Brooks, 1911). On August 27, 1911, a five stamp Joshua Hendy mill, the first private mill in the Fairbanks Mining District, was put into production on the Free Gold claim. By the end of 1911 there were about 1,200 feet of underground workings at the Cleary Hill mine (Brooks, 1911). By 1912 the Main adit had been driven over 1,050 feet and a second adit, the 215 foot deep Penrose adit, had been driven at an elevation 140 feet higher than the Main adit (Cunningham, 1912). The two adits were connected by a 170 foot raise driven 900 feet from the Main adit portal. Over 500 feet of drifting from the Main adit level had developed over 20 stopes. A 30 foot winze was sunk 650 feet from the main adit portal but water hampered its sinking. By the end of 1912, the winze exposed ore 300 feet below the surface outcrops of the lode (Cunningham, 1912). By the end of 1913, Brooks and others (1913) stated that the Main adit of the Cleary Hill mine was 1,280 feet long, the Penrose adit was 280 feet long and the Upper adit was 200 feet long at an elevation 50 feet above the Penrose adit. A total of 1,000 feet of workings were accessed by the main winze with working drifts at the 70- and 112-foot levels.

Operating cost allowed only 200 feet of new drifting to be completed in 1915 and the mine closed on September 10, 1915 (Brooks, 1915; Stewart, 1915). The Cleary Hill mine remained closed until 1924 when it was amalgamated with the neighboring Wyoming mine (Stewart, 1923).

Efforts to reopen the Cleary Hill mine began in the fall of 1923 and continued through 1929 (Smith, 1924; Moffit and others, 1927; Smith, 1930, B 813). This work included driving a 400 foot adit to access the mine at the 70-foot level of the Main winze. This Lower adit was collared at the level of Bedrock Creek near the mill site (Moffit and others, 1927). In addition, the Upper adit was extended to a total length of 900 feet and 538 feet of crosscuts and a 40 foot raise were extended from this adit (Stewart, 1931). The Penrose adit was extended 45 feet (total length 325 feet) and three crosscuts were driven a total of 595 feet from this adit. An 89 foot raise was driven to connect the Penrose and Upper adits. The Main adit was extended 192 feet (total length of 1,472 feet) and 51 feet of drift was driven on the Powder House shear zone while 154 feet of drift was driven on the Doget shear zone. At a point near the mill a shaft was driven 185 feet and a crosscut extended from the shaft bottom for 280 feet. A shaft was also sunk on the ridge an unknown distance above the Upper adit. This shaft, known as the Deep shaft, was 50 feet deep with an 80 foot crosscut at the bottom (Stewart, 1931).

The mine was back in production again in 1929 and rapidly became one of the largest operations in the district (Smith, 1930, B 810; Smith, 1931). In 1930, mining was concentrated in the Penrose adit (Stewart, 1931) and the Cleary Hill mine was again the largest producer in the Fairbanks Mining District (Pilgrim, 1931). The mill operated for a to-

tal of 7 months during 1932 and development was concentrated below the Main adit level (Pilgrim, 1933). In 1938 the Cleary Hill mine conducted 250 feet of new drifts and crosscuts, sank 100 feet of winze and drilled 4,200 feet of AX diamond core.

No other work was conducted at the Cleary Hill mine until 1969 when International Minerals and Chemicals excavated two bull dozer trenches on the expected trace of the Cleary Hill shear zone (Pilkington, 1970). This work produced only weakly anomalous gold and silver.

The mine waste dumps of the Cleary Hill mine were examined and grab samples were collected by Fairbanks Exploration Inc. during the 1986 field season (Fairbanks Exploration Inc., unpublished report, 1986). In 1988, Tri-Con Mining conducted bulk sampling of the upper and lower Cleary Hill mine dumps to determine if this material could be profitably trucked to the Grant mill for processing.

Production notes:

The first recorded production from the Cleary Hill mine was on February 9, 1910, when a five-ton lot was sent to the Tacoma, Washington, smelter and returned an average grade of 22.25 ounces of gold per ton (Times Publishing Company, 1912). On September 7, 1910, a 17-ton lot of ore from the Free Gold claim averaged 8.61 ounces of gold per ton. An additional 75 tons of ore was shipped to the Chena mill in Fairbanks in November, 1910, followed by a 100 ton lot sent to the Chena mill in early 1911. The grade of this material is unknown but reportedly paid for all past development work and a new stamp mill (Cunningham, 1912). On June 3, 1912, the Alaska Citizen, a Fairbanks newspaper, reported that 147 tons of ore from the Cleary Hill mine were milled at the Chena mill in 1911. The Cleary Hill mine operated 365 days and the mill operated for 350 days in 1914 and produced an estimated 5,950 tons of ore from 1,800 feet of productive lode (Brooks and others, 1914). Up through 1915, the Cleary Hill mine had produced approximately 29,000 fine ounces of gold from an estimated 17,000 tons of ore averaging 1.69 ounces of gold per ton (Stewart, 1922). Production from 1929 to the end of 1931 was 19,000 ounces from 9,800 tons grading 1.94 ounces of gold per ton (Hill, 1933). The high grades were derived from the Bankers stope between the Penrose and Upper adits. Total production from the mine was estimated at $1,000,000 in gold, or 48,379 ounces, through 1930 (Pilgrim, 1931). Pilgrim (1932) stated that in 1931 the Cleary Hill mine was the largest producer in the district and fourth largest lode producer in Alaska. The Cleary Hill mine remained the largest producer in the district in 1934 and 1935 due to additional production from the Main shaft and addition of a flotation circuit in the mill which increased recovery (Smith, 1936; Smith, 1937). Production from the Cleary Hill mine was interrupted in 1936 when a fire destroyed the mill and power plant (Smith, 1938). Production levels increased in 1937 due to the more efficient nature of the new mill installed after the fire (Smith and Mertie, 1941). A total of 2,085 tons of ore with an average grade of $80 per ton in gold (2.3 ounces of gold per ton) was milled in 1938 (Reed, 1939).

In 1942, the War Powers Act Limitation Order L208 banned all non-essential mining in the United States, thereby forcing the closure of the Cleary Hill mine. Shortly after the Cleary Hill mine was closed, a 5 ton lot of high grade stibnite ore was shipped to Fairbanks for sale to the federal government (Joesting, 1943). This material was taken from a fault intersection just above the Main adit (Killeen and Mertie, 1951). A small amount of ore was mined by Doug Jackson and Earl Beistline during 1949 and 1950 from previously

worked areas above the Main adit (Saarela, 1950; Wedow and others, 1954). The Cleary Hill mill was rehabilitated and used for custom milling by Adolph, Rudy and Grace Vetter in 1956.

Complete production records are not available for the Cleary Hill mine, however, existing published and private records indicate the Cleary Hill mine produced in excess of 100,000 fine ounces of gold from approximately 77,000 tons of material at an average grade of 1.3 ounces of gold per ton (Porterfield and Croff, 1986; Metz and others, 1987). This ranks the Cleary Hill mine as the largest lode gold producer in the Fairbanks Mining District, prior to the development of the Fort Knox mine.

Reserves:

Waste dump reserve estimates made by Fairbanks Exploration Inc. in 1988 indicated the Cleary Hill mine dumps contained 71,176 tons of rock grading 0.159 ounces of gold per ton and 0.099 ounces of silver per ton (Freeman and others, 1987; Freeman and others, 1988).

Recent drilling shows that Cleary Hill Mine, in addition to a 100,000-ounce resource grading 0.81 ounces of gold per ton, has potential for bulk tonnage, lower-grade material in the footwall of the high-grade veins (Swainbank and others, 1998).

Additional comments:

References:

Prindle, 1910; Brooks, 1911; Brooks, 1912; Cunningham, 1912; Times Publishing Company, 1912; Smith, 1913 (B 525); Smith, 1913 (B 542); Brooks, 1914; Chapin, 1914; Eakin, 1915; Brooks, 1916 (B 642); Brooks, 1916 (B 649); Smith, 1917 (BMB 142); Stewart, 1922; Brooks, 1923; Smith, 1926; Moffit, 1927; Smith, 1930 (B 810); Smith, 1930 (B 813); Pilgrim, 1931; Stewart, 1931; Pilgrim, 1932; Smith, 1932; Hill, 1933; Pilgrim, 1933; Smith, 1933 (B 836); Smith, 1933 (B 844); Smith, 1934 (B 857); Smith, 1934 (B 864); Smith, 1936; Smith, 1937; Smith, 1938; Reed, 1939; Smith, 1939 (B 910); Smith, 1939 (B 917); Smith, 1941; Joesting, 1942 (ATDM Pamph. 1); Smith, 1942; Joesting, 1943; Killeen and Mertie, 1951; Wedow and White, 1954; Byers, 1957; Berg and Cobb, 1967; Burand, 1968; Chapman and Foster, 1969; Pilkington, 1970; Cobb, 1972 (MF 413); Cobb, 1975 (C 722); Cobb, 1976 (OFR 76-633); Porterfield and Croff, 1986; Metz and others, 1987; Nokleberg and others, 1987; Freeman, 1991; Freeman, 1992; Freeman and others, 1998; Swainbank and others, 1998.

Primary reference: Freeman, 1991

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Paupers Dream

Site type: Prospect

ARDF no.: LG120

Latitude: 65.065 **Quadrangle:** LG A-1

Longitude: 147.427

Location description and accuracy:
The Paupers Dream prospect is located on the divide between Bedrock Creek and Chatham Creek, approximately one-quarter mile southeast of the Cleary Hill mine; NE1/4NW1/4 sec. 30, T. 3 N., R. 2 E., of the Fairbanks Meridian.

Commodities:

Main: Au

Other:

Ore minerals:

Gangue minerals:

Geologic description:
The Paupers Dream prospect is a north-south trending shear zone which extends from the Paupers Dream claim (MS1639) on the south, through the California claim (MS1639), and onto the Texas claim. Where exposed on the Paupers Dream claim, the shear dips steeply west and has a high sulfide content, primarily as arsenopyrite (Smith, 1913; B 525). Free gold was particularly abundant in weathered portions of the shear zone. This shear trends across the California prospect to the east of the eastern-most shaft on the California prospect (ARDF no. LG121).

Alteration:

Age of mineralization:

Deposit model:
Gold-quartz vein.

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

Production Status: Undetermined

Site Status: Inactive

Workings/exploration:

Smith (1913, B 525) describes the shear zone of the Paupers Dream prospect as extending through the California and Texas claims, but there is no detailed description of the workings.

Production notes:

Reserves:

Additional comments:

The date of discovery of this prospect is not known however Anthony Goessman began prospecting in the area in 1905. In December of 1908, Mr. Goessman transferred his interest in the Wyoming, Paupers Dream, Texas, Alabama, California, New Year's Fraction, Idaho, Colorado and Apex Fraction claims to the Tanana Quartz and Hydraulic Mining Company (Times Publishing Company, 1912).

References:

Smith, 1913 (B 525); Freeman, 1992.

Primary reference: Smith, 1913 (B 525)

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): California

Site type: Prospect

ARDF no.: LG121

Latitude: 65.068 **Quadrangle:** LG A-1

Longitude: 147.427

Location description and accuracy:
The California prospect is located on the divide between Bedrock Creek and Chatham Creek approximately one-quarter mile east of the Cleary Hill mine; SE1/4SW1/4 sec. 19, T. 3 N., R. 2 E., of the Fairbanks Meridian.

Commodities:

Main: Au

Other:

Ore minerals:

Gangue minerals:

Geologic description:
A shaft was sunk on the California prospect on what was believed to be the extension of the Cleary Hill shear zone which was mined extensively on the adjacent Free Gold claim. The shaft was sunk 20 feet at a 60 S. dip along the shear zone and then flattened to 40 S. for an additional 40 feet (Smith, 1913; B 525). A 1- to 3-foot-wide quartz-bearing zone extends nearly to the bottom of the shaft where it is cut off by a flat-lying fault. The ore was reportedly of lower grade than other shear zones in the area; production records are not available. A second shaft was sunk to an unknown depth east of the first shaft but was not accessible in 1912 when visited by Smith (1913, B 525). Dump material at this shaft included quartz-feldspar granite which was reportedly associated with a gold-bearing shear zone in the shaft.

Alteration:

Age of mineralization:

Deposit model:
Gold-quartz vein.

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

Production Status: Undetermined

Site Status: Inactive

Workings/exploration:

A shaft was sunk on the California prospect on what was believed to be the extension of the Cleary Hill shear zone which was mined extensively on the adjacent Free Gold claim. The shaft was sunk 20 feet at a 60 degree south dip along the shear zone and then flattened to 40 degrees south for an additional 40 feet (Smith, 1913; B 525). A 1- to 3-foot-wide quartz-bearing zone extends nearly to the bottom of the shaft where it is cut off by a flat-lying fault. The ore was reportedly of lower grade than other shear zones in the area; production records are not available. A second shaft was sunk to an unknown depth east of the first shaft but was not accessible in 1912 when visited by Smith (1913, B 525).

Production notes:

Production records are not available.

Reserves:

Additional comments:

References:

Smith, 1913 (B 525); Freeman, 1992.

Primary reference: Smith, 1913 (B 525)

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Cunningham

Site type: Prospect

ARDF no.: LG122

Latitude: 65.07 **Quadrangle:** LG A-1

Longitude: 147.425

Location description and accuracy:
Cobb (1972, MF-413), loc. 40; SW1/4 sec. 19, T. 3 N., R. 2 E., of the Fairbanks Meridian. This prospect is on the divide between Bedrock and Chatham Creeks, at an elevation of about 1,300 feet; it is east, north-east of the Cleary Hill mine (ARDF no. LG119). Accuracy is within 1,500 feet.

Commodities:

Main: Au

Other: Sb

Ore minerals: Arsenopyrite, gold, stibnite

Gangue minerals:

Geologic description:
By 1912, a short adit had been driven on a north-south trending shear zone which contained arsenopyrite and stibnite (Smith, 1913; B 525). A shallow winze was sunk from the tunnel but the prospect was partially filled with water in 1912. The shear reportedly contained abundant gold; however, no production was known from the prospect.

Alteration:

Age of mineralization:

Deposit model:
Polymetallic vein (Cox and Singer, 1986; model 22c).

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

Production Status: None

Site Status: Inactive

Workings/exploration:

By 1912, a short adit had been driven on a north-south trending shear zone which contained arsenopyrite and stibnite (Smith, 1913; B 525). A shallow winze was sunk from the tunnel but the prospect was partially filled with water in 1912.

Production notes:

No production has been reported.

Reserves:

Additional comments:

References:

Smith, 1913 (B 525); Smith, 1913 (B 542); Chapman and Foster, 1969; Cobb, 1972 (MF 413); Cobb, 1976 (OFR 76-633); Freeman, 1992.

Primary reference: Smith, 1913 (B 525)

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Sunrise #1

Site type: Prospect

ARDF no.: LG123

Latitude: 65.073 **Quadrangle:** LG A-1

Longitude: 147.425

Location description and accuracy:
Cobb (1972, MF-413), loc. 40; NE1/4SW1/4 sec. 19, T. 3 N., R. 2 E., of the Fairbanks Meridian. The Sunrise prospect is at the confluence of Cleary Creek and Chatham Creek.

Commodities:

Main: Au?

Other: Sb

Ore minerals: Gold?, stibnite

Gangue minerals: Limonite

Geologic description:
By 1913, a short adit had been driven to explore an east-west trending shear zone that dips 25 S. (Chapin, 1914). A short drift was driven on the shear about 25 feet from the portal. The quartz-rich portion of the shear is 1 foot thick and contains iron-oxide-stained ribbon quartz in brecciated schist and clay gouge. No sulfides were seen in the shear zone underground however, quartz on the dumps is stained by antimony oxides. The total length of the adit is unknown because flooding made it inaccessible 30 feet from the portal (Chapin, 1914).

The prospect was examined in 1942 as a possible source of antimony but was not developed due to insufficient grade and thickness of antimony mineralization (Killeen and Mertie, 1951).

Alteration:
Cavities in quartz are filled with limonite.

Age of mineralization:

Deposit model:
Gold-quartz vein.

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

Production Status: None

Site Status: Inactive

Workings/exploration:

By 1913, a short adit had been driven to explore an east-west trending, shear zone that dips 25 S. (Chapin, 1914). A short drift was driven on the shear about 25 feet from the portal. The total length of the adit is unknown because flooding made it inaccessible 30 feet from the portal.

Production notes:

Reserves:

Additional comments:

References:

Chapin, 1914; Killeen and Mertie, 1951; Chapman and Foster, 1969; Cobb, 1972 (MF 413); Cobb, 1976 (OFR 76-633); Freeman, 1992.

Primary reference: Chapin, 1914

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Butler and Petree

Site type: Prospect

ARDF no.: LG124

Latitude: 65.07 **Quadrangle:** LG A-1

Longitude: 147.421

Location description and accuracy:
Cobb (1972, MF-413), loc. 41; SE1/4 sec. 19, T. 3 N., R. 2 E., of the Fairbanks Meridian. This prospect is on the west side of Chatham creek, less than half a mile above the junction of Cleary and Chatham Creeks. Accuracy is within 1,500 feet.

Commodities:

Main: Au

Other: Pb, Sb, Zn

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

Gangue minerals:

Geologic description:
Schist in a shear zone contain disseminated arsenopyrite and pyrite along with lesser galena, sphalerite and stibnite. These sulfides also occur in numerous quartz stringers in the shear zone. Free gold is more common in the upper oxidized portions of the lode while gold appears to be associated with sulfides at depth. Tourmaline is present in the schists along the margins of quartz stringers and is strongly correlative with elevated arsenopyrite and pyrite (Prindle, 1910).

By 1909, a 90-foot-long adit had been driven on the prospect and had intersected a 6-foot-thick shear zone 50 feet from the portal (Prindle, 1910). A drift was driven from the main adit to the northwest along the shear and a 150-foot-deep winze was sunk on the shear from this drift. A raise to the surface was later put in above the winze (Prindle, 1910). Approximately 100 feet below the main adit level drift, a second working level was started and drifts driven 40 feet to the northwest and southeast from the shaft, which was then known as the Robertson shaft. Brooks (1911) reported the shaft was 160 feet deep on a 4- to 8-foot-wide shear zone. Smith (1913, B 525) reported that attempts to develop the Butler and Petree prospect failed due to the low gold and high base metal content on the prospect. In 1931, the prospect was abandoned and the workings were inaccessible (Hill, 1933). The prospect was examined in 1942 as a possible source of antimony but was not developed due to insufficient grade and thickness of antimony values (Killeen and Mertie, 1951).

Alteration:

Age of mineralization:

Deposit model:
Polymetallic vein (Cox and Singer, 1986; model 22c).

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

Production Status: Undetermined

Site Status: Inactive

Workings/exploration:
This prospect was discovered and first staked in October, 1908. By 1909, a 90-foot-long adit had been driven on the prospect and had intersected a 6-foot-thick shear zone 50 feet from the portal (Prindle, 1910). A drift was driven from the main adit to the northwest along the shear and a 150-foot-deep winze was sunk on the shear from this drift. A raise to the surface was later put in above the winze (Prindle, 1910). Approximately 100 feet below the main adit level drift, a second working level was started and drifts driven 40 feet to the northwest and southeast from the shaft, that was then known as the Robertson shaft.

By 1910, the prospect was in litigation which prevented active exploration and development. Brooks (1911) reported the shaft was 160 feet deep on a 4- to 8-foot-wide shear zone. The prospect was erroneously referred to as the Rex Mining Company prospect which may have been the company in litigation with the owners of the Butler and Petree prospect (Freeman, 1992). A minor amount of work was conducted on the Butler and Petree prospect in 1911 (Brooks, 1912). Smith (1913, B 525) reported that attempts to develop the Butler and Petree prospect failed due to the low gold and high base metal content on the prospect. In 1931 the prospect was abandoned and the workings inaccessible (Hill, 1933). The prospect was examined in 1942 as a possible source of antimony but was not developed due to insufficient grade and thickness of antimony values (Killeen and Mertie, 1951).

Production notes:

Reserves:

Additional comments:

References:
Prindle, 1910; Brooks, 1911; Brooks, 1912; Smith, 1913 (B 525); Smith, 1913 (B 542); Hill, 1933; Killeen and Mertie, 1951; Chapman and Foster, 1969; Cobb, 1972 (MF 413); Cobb, 1976 (OFR 76-633); Freeman, 1992.

Primary reference: Prindle, 1910

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Chatham Creek

Site type: Mine

ARDF no.: LG125

Latitude: 65.071 **Quadrangle:** LG

Longitude: 147.417

Location description and accuracy:
Cobb (1972, MF-413), loc. 88; NW1/4SE1/4 sec. 19, T. 3 N., R. 2 E., of the Fairbanks Meridian. The coordinates given are for the approximate center of placer-mined ground that extends for about a mile from the head to the mouth of Chatham Creek.

Commodities:

Main: Au

Other: Sb, Sn, W

Ore minerals: Cassiterite, gold, scheelite, stibnite

Gangue minerals:

Geologic description:
Bedrock is quartz muscovite schist, quartzite, and chlorite quartzose schist (Newberry and others, 1996). Gold has been found in stream placers from the head to the mouth of the creek. Stibnite has been found in places as veins a foot or more thick, parallel to the structure in the schist (Prindle, 1906, p. 114). Scheelite has been found in concentrates (Byers, 1957, p. 188, 210), along with cassiterite (Joesting, 1942; ATDM Pamph. 1, p. 10-11). Considerable stibnite float was found in old dredge tailings (Joesting, 1943, p. 9).
Mining was largely by open-cut methods in most years from 1903 to 1915.
A dredge operated from 1926 or 1927 through 1934 (Cobb, 1976, p. 29). Gold production from 1903 to 1910 was over 17,700 ounces (Prindle and Katz, 1913, p. 112-113). Mining has continued intermittently to as recently as 1997 (A. Miscovich, oral commun., 1998).

Alteration:

Age of mineralization:

Deposit model:
Placer gold deposit (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:
Mining was largely by open-cut methods in most years from 1903 to 1915. A dredge operated from 1926 or 1927 through 1934 (Cobb, 1976, p. 29). Mining has continued intermittently to as recently as 1997 (A. Miscovich, oral commun., 1998).

Production notes:
Gold production from 1903 to 1910 was over 17,700 ounces (Prindle and Katz, 1913, p. 112-113).

Reserves:

Additional comments:

References:
Prindle, 1904; Brooks, 1905; Prindle, 1905; Purington, 1905; Prindle, 1906; Brooks, 1907; Prindle, 1908; Ellsworth, 1910; Prindle, 1910; Ellsworth, 1912; Ellsworth and Davenport, 1913; Prindle and Katz, 1913; Chapin, 1914; Eakin, 1915; Brooks, 1916 (B 642); Smith, 1929; Smith, 1930 (B 810); Smith, 1930 (B 813); Smith, 1932; Smith, 1933 (B 836); Smith, 1933 (B 844); Smith, 1934 (B 864); Smith, 1936; Smith, 1937; Joesting, 1942 (ATDM Pamph. 1); Joesting, 1943; Killeen and Mertie, 1951; Byers, 1957; Cobb, 1972 (MF 413); Cobb, 1975 (C 722); Cobb, 1976 (OFR 76-633).

Primary reference: Cobb, 1976 (OFR 76-633)

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): IXL

Site type: Mine

ARDF no.: LG126

Latitude: 65.07 **Quadrangle:** LG A-1

Longitude: 147.413

Location description and accuracy:
The IXL prospect is located 500 feet downstream from the Blue Moon Mazeppa prospect (ARDF no. LG128) on north side of Chatham Creek; SE1/4 sec. 19, T. 3 N., R. 2 E., of the Fairbanks Meridian.

Commodities:

Main: Au

Other:

Ore minerals:

Gangue minerals:

Geologic description:
The claim was being explored by Fred C. Robinson in 1938 and 25 tons of high grade material was hand cobbed from the dumps. This ore averaged $22 per ton in gold (0.63 ounces of gold per ton) (Reed, 1939).

Alteration:

Age of mineralization:

Deposit model:
Gold-quartz vein.

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

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:
The IXL prospect was originally discovered prior to 1912 and was known as the Union

claim. The IXL prospect eventually came under the ownership of Nels Giske, Paul Ringseth, Willie Larson and Louis Grimsmoe who staked the North Star Group which included the North Star, Union, Bill Taft and Grimsmoe claims (Times Publishing Company, 1912). The claim was being explored by Fred C. Robinson in 1938 and 25 tons of high grade material was hand cobbled from the dumps. This ore averaged $22 per ton in gold (0.63 ounces of gold per ton) (Reed, 1939).

Production notes:

Twenty five tons of material averaging 0.63 ounces of gold per ton was hand cobbled from the dumps (Reed, 1939).

Reserves:

Additional comments:

References:

Reed, 1939; Freeman, 1992.

Primary reference: Reed, 1939

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Scott Reese; Rex

Site type: Prospect

ARDF no.: LG127

Latitude: 65.067 **Quadrangle:** LG A-1

Longitude: 147.415

Location description and accuracy:
The Scott Reese prospect, formerly known as the Rex prospect, is located approximately one half mile southwest of the Blue Moon Mazeppa prospect (ARDF no. LG128) on lower Chatham Creek; SW1/4SE1/4 sec. 19, T. 3 N., R. 2 E., of the Fairbanks Meridian.

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:
Free gold is found in 3-inch quartz stringers that strike N 60-75 E and dip 25 SE (Pilgrim, 1932; Stewart, 1933). Prior to 1931, the shear zone had produced a small amount of ore that averaged $8.50 per ton in gold (0.4 ounces of gold per ton) (Pilgrim, 1932).

Alteration:

Age of mineralization:

Deposit model:
Gold-quartz veins.

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

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:

The prospect was staked as the Rex claim in 1911 by W.S. Reese who conducted a minor amount of exploration in that year (Times Publishing Company, 1912; Brooks, 1912). Legal problems prevented additional work and in 1912 no work was conducted (Smith, 1913; B 525). By 1931, a 320-foot adit had been driven on the Rex shear zone (Hill, 1933). This adit intersected a 4-inch-thick fault zone 20 feet from the portal and a 3-inch quartz-bearing shear 150 feet from the portal. A 3-foot-thick, northeast-striking shear was intersected 72 feet from the portal and had produced a few tons of ore averaging $8.50 per ton in gold (0.4 ounces of gold per ton) prior to 1931 (Pilgrim, 1932). The adit intersected a fault zone oriented N 60 E, 80 SE, about 230 feet from the portal. At the 258-foot station of the tunnel, drifts had been driven on a N 60 E shear zone. The northeast drift had followed this shear for 45 feet and the southwest drift was extended 100 feet. Free gold was recovered from a 3-inch-thick quartz stringer near the face of the northeast drift; the stringer had an east-west strike and a 45 S dip. Approximately 40 feet from the main adit, the southwest drift intersected a 3-inch-wide, N 75 E, 25 SE. quartz stringer which also contained free gold (Pilgrim, 1932; Stewart, 1933). W.S. Reese still owned the prospect in 1938 when a small amount of work was conducted in the main adit (Reed, 1939).

Production notes:

Prior to 1931, the shear zone had produced a small amount of ore that contained an average of $8.50 per ton in gold (0.4 ounces of gold per ton) (Pilgrim, 1932).

Reserves:

Additional comments:

References:

Times Publishing Company, 1912; Pilgrim, 1932; Stewart, 1933; Reed, 1939; Pilkington, 1970.

Primary reference: Pilgrim, 1932

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Blue Moon Mazeppa; Pioneer; Blue Bell

Site type: Mine

ARDF no.: LG128

Latitude: 65.067 **Quadrangle:** LG A-1

Longitude: 147.408

Location description and accuracy:
The mine is located on Chatham Creek , 1/4 mile below the mouth of Tamarack Creek. Accuracy is within 1,000 feet. SE1/4SE1/4 sec. 19, T. 3 N., R. 2 S., of the Fairbanks Meridian.

Commodities:

Main: Au

Other: Sb, Zn

Ore minerals: Arsenopyrite, gold, pyrite, sphalerite, stibnite

Gangue minerals:

Geologic description:
Mineralization on the Blue Moon Mazeppa prospect consists of at least three separate types of mineralization (Freeman, 1992). Gold-bearing quartz shear zones of the Blue Moon shaft consist of thin quartz-bearing shear zones (6 inches to 3 feet wide) that contain free gold, pyrite, arsenopyrite, stibnite and minor sphalerite; grades are up to 4 ounces of gold per ton (Prindle, 1910). A large proportion of the free gold is disseminated within pyrite and arsenopyrite grains.

Massive coarse-grained stibnite mineralization was also uncovered on the Blue Moon Mazeppa prospect. The stibnite lode uncovered was reported to be 8 feet wide and was exposed over 100 feet of strike length (J. Taylor, oral commun., 1986).

The third style of mineralization on the Blue Moon Mazeppa prospect is present only as float on a dump excavated during placer operations along Chatham Creek. Boulders of tabular gray to white marble contain coarse-grained cubic pyrite and blackjack sphalerite in grains up to a centimeter across and minor galena and boulangerite (Freeman, 1992).

Alteration:

Age of mineralization:

Deposit model:

Gold-quartz-sulfide shear zones; carbonate replacements; and stibnite lenses.

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

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:

The property was located as the Blue Bell lode in 1903 and development work began in 1909 with a 24 foot shaft. This shaft was flooded with water seepage from Chatham Creek and was abandoned (Smith, 1913, B 525; Prindle, 1910). A second shaft was sunk approximately 100 feet upslope from the first shaft and reached a depth of 85 feet before it too was abandoned due to heavy water influx (Prindle, 1910). In 1912, approximately 100 feet uphill from these shafts, the Blue Moon shaft was sunk to a depth of 60 feet. By December, 1912, the shaft had been sunk to a depth of 100 feet, 150 feet of drift had been driven and 5 stopes were opened for production. The eastern drift was longer than the western drift and only a small amount of water had been encountered in the workings (Smith, 1913; B 525). Over the period extending from November, 1912 through the middle of 1913, the Pioneer Mining Company mill treated approximately 200 tons of ore from the Blue Moon shaft (Chapin, 1914). The ore ran $50 to $100 per ton in free milling gold (2.4 to 4.8 ounces of gold per ton).

The Pioneer Quartz Mining Company mill consisted of a five-stamp Joshua Hendy mill utilizing 1000 pound stamps dropping at a rate of 100 times per minute. The rock was trammed from the mine 300 feet to the northwest where it was screened with undersize going directly to the feed bins and oversize going through a Joshua Hendy jaw crusher. Minus-40 pulp from the stamps fed onto 20 feet of amalgamation plate which fed an amalgam trap and a 6-foot-long riffle box (Chapin, 1914). Tailings from the mill contained $0.50 to $3.00 per ton in gold (0.02 to 0.1 ounces of gold per ton). Stamp sand concentrates were not saved. By the summer of 1913, the mill had closed and the Blue Moon shaft was inaccessible (Chapin, 1914). In 1914, the mill was dismantled and moved to the Hi Yu mine (Stewart, 1922). By 1931, the shaft house had been torn down and the prospect was idle (Hill, 1933).

In 1986, the Blue Moon shaft was marked by a 50 foot diameter depression centered on the shaft collar (Freeman, 1992). The upper 50 feet of overburden surrounding the shaft has been removed by placer operations (Freeman, 1992).

Production notes:

A one ton shipment of ore from the prospect on April 17, 1909 contained $50 per ton in gold (2.4 ounces of gold per ton) (Prindle, 1910). Prospecting on the prospect continued in 1910 but no production was recorded (Brooks, 1911). Several shipments of ore form the Blue Moon shaft were custom milled in Fairbanks and returned values ranging from $50 to $100 per ton in gold (2.4 to 4.8 ounces of gold per ton) (Times Publishing Company, 1912). Over the period extending from November, 1912 through the middle of 1913 the Pioneer Mining Company mill treated approximately 200 tons of ore from the Blue Moon shaft (Chapin, 1914). The ore ran $50 to $100 per ton in free milling gold

(2.4 to 4.8 ounces of gold per ton). Total production for the prospect is unknown.

Reserves:

Additional comments:

References:

Ellsworth, 1910; Prindle, 1910; Times Publishing Company, 1912; Smith, 1913 (B 525); Smith, 1913 (B 542); Brooks, 1911; Chapin, 1914; Brooks, 1916 (B 649); Hill, 1933; Killeen and Mertie, 1951; Chapman and Foster, 1969; Cobb, 1976 (OFR 76-633); Freeman, 1992.

Primary reference: Freeman, 1992

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Bobbie

Site type: Prospect

ARDF no.: LG129

Latitude: 65.061 **Quadrangle:** LG A-1

Longitude: 147.417

Location description and accuracy:
Cobb (1972, MF-413), loc. 41; SW1/4NE1/4 sec. 30, T. 3 N., R. 2 E., of the Fairbanks Meridian. This prospect is west of the junction of Tamarack and Chatham Creeks, at an elevation of 1,650 feet. Accuracy is within 1,500 feet.

Commodities:

Main: Ag, Au

Other: Pb, Sb

Ore minerals: Argentiferous galena, pyrite, stibnite

Gangue minerals:

Geologic description:
A 60-foot adit was driven on a northwest striking, southwest dipping shear zone which varied from 12 to 14 inches thick and contained abundant galena. The ore contained $79.58 per ton in gold and silver (equivalent to about 3.8 ounces of gold per ton) and significant values in lead (Times Publishing Company, 1912). Smith (1913, B 525) reported that the Bobbie shear zone trends nearly north-south with a west dip and consists of banded galena with stibnite as the main components. Galena crystals near the wall rock grade into the center of the sulfide vein where coarse euhedral galena occurs. Brooks (1916, B 649) noted that stibnite occurred as kidney-shaped masses with euhedral quartz crystals; minor pyrite was embedded in the stibnite. The Bobbie prospect was examined as a possible source of antimony in 1942 but no additional exploration was conducted due to insufficient tonnage potential (Killeen and Mertie, 1951).

Alteration:

Age of mineralization:

Deposit model:
Polymetallic vein (Cox and Singer, 1986; model 22c).

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

Production Status: None

Site Status: Inactive

Workings/exploration:
A 60-foot adit was been driven on a northwest striking, southwest dipping shear zone. The ore contained $79.58 per ton in gold and silver (equivalent to about 3.8 ounces of gold per ton) and significant values in lead (Times Publishing Company, 1912).

Production notes:

Reserves:

Additional comments:

References:
Times Publishing Company, 1912; Smith, 1913 (B 525); Smith, 1913 (B 542); Brooks, 1916; Killeen and Mertie, 1951; Chapman and Foster, 1969; Cobb, 1972 (MF 413); Cobb, 1976 (OFR 76-633); Freeman, 1992.

Primary reference: Smith, 1913 (B 525)

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Anna Mary

Site type: Prospect

ARDF no.: LG130

Latitude: 65.06 **Quadrangle:** LG A-1

Longitude: 147.397

Location description and accuracy:
Cobb (1972, MF-413), loc. 42; NW1/4 sec. 29, T. 2 N., R. 3 E., of the Fairbanks Meridian. This prospect is located on the hill between Chatham and Tamarack Creeks, at an elevation of about 500 meters.

Commodities:

Main: Au

Other: Ag, Pb, Sb

Ore minerals: Arsenopyrite, galena, gold, limonite, stibnite

Gangue minerals:

Geologic description:
The discovery on the Mary claims was explored in 1931 and consisted of a N 70 W, 70 SW shear zone which averaged 4 to 8 feet wide. The hanging wall consists of 1 to 6 feet of crushed quartz while the footwall is 1 to 2 feet of blue clay-rich gouge (Hill, 1933). Iron oxide staining was present on some quartz, and arsenopyrite, and argentiferous galena had been identified on the prospect. A sample collected by Hill (1933) across 5 feet at the bottom of a 15 foot shaft averaged $0.46 of gold per ton (0.02 ounces of gold per ton). The Anna prospect was one hundred feet south and uphill from the Mary but had not been exposed to any degree in 1931. By 1931, the shaft on the Mary prospect had been sunk to a depth of 25 feet but had caved when visited by Stewart (1933) and Pilgrim (1932). Dump samples contained galena, arsenopyrite and stibnite with moderate gold. No production records are available from this shaft. The prospect was purchased by George Warmbold in 1938 and several pits and trenches were dug in late 1938 in an attempt to trace the shear zone.

Alteration:

Age of mineralization:

Deposit model:

Sulfide bearing, auriferous quartz, shear zone.

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

Production Status: None

Site Status: Inactive

Workings/exploration:
By 1931 the shaft on the Mary prospect had been sunk to a depth of 25 feet but had caved when visited by Stewart in 1932 and Pilgrim in 1931.

Production notes:

Reserves:

Additional comments:

References:
Pilgrim, 1932; Hill, 1933; Stewart, 1933; Chapman and Foster, 1969; Cobb, 1972 (MF 413); Cobb, 1976 (OFR 76-633); Freeman, 1992.

Primary reference: Hill, 1933

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Tamarack

Site type: Prospect

ARDF no.: LG131

Latitude: 65.059 **Quadrangle:** LG A-1

Longitude: 147.405

Location description and accuracy:

The location given is the approximate center of a prospect area that includes the Bobbie (ARDF no. LG129), Colbert and Warmbold (ARDF no. LG132) and Anna Mary (ARDF no. LG130) prospects; it is about 1.2 miles northeast of Cleary Summit in the E1/2 sec. 30 and W1/2 sec. 29, T. 3 N., R. 2 E, of the Fairbanks Meridian, and covers an area of approximately 1 square mile.

Commodities:

Main: Ag, Au

Other: As, Bi, Pb, Sb, Zn

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

Gangue minerals: Calcite, sericite

Geologic description:

The Tamarack prospect was discovered by grid soil sampling by auger, initiated in 1997 and completed in 1998 (Freeman and others, 1998). Gold values from 1998 soil sampling were up to 1,986 ppb, with arsenic values to 6,266 ppm, lead values to 9,536 ppm and bismuth values to 18.1 ppm. The strongest gold values were clustered around the old Colbert and Warmbold prospect (ARDF no. LG132) and the Anna Mary prospect (ARDF no. LG130) where northwest striking quartz veins had been mined prior to World War II. Lead values were particularly high over the old Bobbie prospect (ARDF no. LG129) where galena had been noted in old workings, however, gold values from 1998 soils in the Bobbie prospect area were low. Bismuth values are strongest along a 3,000-foot-long N-S trending zone through the Colbert and Warmbold prospect. As a follow-up to the gold-arsenic-bismuth anomalies discovered in soils, fourteen reverse circulation drill holes totalling 4,747 feet, were completed in the Tamarack area in 1998. These were the first drill holes of any kind to be drilled on the Tamarack prospect. Initial drilling consisted of seven vertical holes with follow-up drilling consisting of seven angle holes intended to intercept a combination of structures and areas of interest found during vertical drilling. Eight of the fourteen holes drilled on the prospect encountered significant gold mineralization and all of the holes returned anomalous gold and gold-pathfinder elements.

Alteration:
Sericite.

Age of mineralization:

Deposit model:
Gold-quartz vein.

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

Production Status: None

Site Status: Inactive

Workings/exploration:
The Tamarack prospect was discovered by grid soil sampling by auger, initiated in 1997 and completed in 1998. As a follow-up to the gold-arsenic-bismuth anomalies discovered in soils, fourteen reverse circulation drill holes totalling 4,747 feet, were completed in the Tamarack area in 1998. Initial drilling consisted of 7 vertical holes followed by 7 angle holes (Freeman and others, 1998).

Production notes:

Reserves:

Additional comments:

References:
Freeman and others, 1998.

Primary reference: Freeman and others, 1998

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Colbert and Warmbold

Site type: Occurrence

ARDF no.: LG132

Latitude: 65.056 **Quadrangle:** LG A-1

Longitude: 147.411

Location description and accuracy:
Cobb (1972, MF-413), loc. 42; SE1/4 sec. 30, T. 3 N., R. 2 E., of the Fairbanks Meridian. This occurrence is near the head of Tamarack Creek, about 1 mile northeast of Cleary Summit. Accuracy is within 3,000 feet.

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:
This occurrence consists of small gold-bearing quartz veins in schist; the veins strike N 50 W and dip 28 S (Chapman and Foster, 1969). In October, 1932, an adit was driven to intersect three quartz-bearing shear zones previously found on the surface. In early February, 1933, the adit had been driven a distance of 550 feet (Pilgrim, 1933). At the 175 foot station of the adit, a one-inch-thick quartz veinlet was intersected. This stringer zone strikes N 48 W and dips 53 SW and carried a small amount of free gold. The adit intersects a second mineralized zone at the 240 foot station. This shear zone consists of barren brecciated schist and gouge. At the 380 foot station, the adit intersected a shear zone trending N 60 W and dipping 28 SW (Pilgrim, 1933; Stewart, 1933). This shear zone dips 45 SW at the surface. The shear contains a 5-inch-thick crushed quartz stockwork zone containing abundant free gold. The zone was iron-oxide stained and contained no visible sulfides.

Alteration:
Iron oxide stains.

Age of mineralization:

Deposit model:

Gold-quartz vein.

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

Production Status: Undetermined

Site Status: Inactive

Workings/exploration:

In October, 1932, an adit was driven to intersect three quartz-bearing shear zones previously found on the surface. In early February, 1933 the adit had been driven a distance of 550 feet (Pilgrim, 1933). Mineralized zones were encountered at the 175 foot, 240 foot, and 380 foot stations (Pilgrim, 1933).

Production notes:

Reserves:

Additional comments:

References:

Pilgrim, 1933; Stewart, 1933; Chapman and Foster, 1969; Cobb, 1972 (MF 413); Cobb, 1976 (OFR 76-633); Freeman, 1992.

Primary reference: Pilgrim, 1933

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Chatanika River

Site type: Mine

ARDF no.: LG133

Latitude: 65.112 **Quadrangle:** LG A-1

Longitude: 147.492

Location description and accuracy:
Cobb (1972, MF-413), loc. 88; SW1/4 sec. 2, T. 3 N., R. 2 E., of the Fairbanks Meridian. This location is on the tailings along the bench gravels on the west side of the Steese Highway, opposite the village of Chatanika. This location is the approximate center of several miles of placer mined ground along the Chatanika River.

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:
Bedrock is schist and the gravel is largely quartzite, igneous rocks and vein quartz. Depth to bedrock (measured on 5 claims) was from 75 to 125 feet (Prindle and Katz, 1913, p. 107). Most mining was at and below the mouth of Cleary Creek and near the mouths of Dome and Vault Creeks. Placers are about 65 to 200 feet deep at the mouths of Dome and Vault Creeks (Mulligan, 1974, p. 11). From 1911 to 1927 all mining was from drift mines, and dredging began near the mouth of Cleary Creek in 1928. USSR&M dredge no. 3 worked on the Chatanika from 1928 to 1942, and from 1946 to 1963 (R.M. Chapman, USGS unpublished memorandum, 1978). Production from 1907 to 1910 was 70,658 ounces of gold (Prindle and Katz, 1913). Gold assayed at 852 fine.

Alteration:

Age of mineralization:

Deposit model:
Placer gold deposit (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:
Surface and underground; ground 65-200 feet deep.

Production notes:

Reserves:

Additional comments:

References:
Prindle and Katz, 1909; Ellsworth and Parker, 1911; Prindle and Katz, 1913; Brooks, 1914; Smith, 1917; Smith, 1930 (B 810); Smith, 1930 (B 813); Smith, 1932; Smith, 1933 (B 836); Smith, 1933 (B 844); Smith, 1934 (B 857); Smith, 1934 (B 864); Smith, 1937; Smith, 1938; Smith, 1939 (B 910); Smith, 1939 (B 917); Smith, 1941; Smith, 1942; Koschmann and Bergendahl, 1968; Cobb, 1972 (MF 413); Mulligan, 1974; Cobb, 1976 (OFR 76-633).

Primary reference: Prindle and Katz, 1913

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Cora Bluff

Site type: Prospect

ARDF no.: LG134

Latitude: 65.105 **Quadrangle:** LG A-1

Longitude: 147.479

Location description and accuracy:
The Cora Bluff prospect is just east of Lulu Creek, about a mile southeast of Chatanika; SW1/4NE1/4 sec. 11, T. 3 N., R. 1 E., of the Fairbanks Meridian.

Commodities:

Main: Au

Other:

Ore minerals:

Gangue minerals:

Geologic description:
Exploration consists of several trenches and hand excavations in an area approximately 500 feet by 300 feet wide (R. Ferrenbach, written commun., 1998).

Alteration:

Age of mineralization:

Deposit model:
Placer gold deposit (Cox and Singer, 1986; model 39a).

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

Production Status: None

Site Status: Active

Workings/exploration:
Exploration consists of several trenches and hand excavations in an area approximately 500 feet by 300 feet wide (R. Ferrenbach, written commun., 1998).

Production notes:

Reserves:

Additional comments:

References:
This description.

Primary reference: This description

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Cleary Creek

Site type: Mine

ARDF no.: LG135

Latitude: 65.086 **Quadrangle:** LG A-1

Longitude: 147.414

Location description and accuracy:

Cobb (1972, MF-413), loc. 88; sec. 18, T. 3 N., R. 2 E., of the Fairbanks Meridian. The coordinates given are on the mining tailings at the confluence of Wolf Creek and Cleary Creek. Cleary Creek has been mined over most of its extent for 6 miles from the headwaters near Willow Creek to its mouth at the Chatanika River. Cleary Creek runs along the Steese Highway from Cleary Summit to near the village of Chatanika.

Commodities:

Main: Au

Other: Ag, Sb, Sn, W

Ore minerals: Cassiterite, gold, scheelite, stibnite

Gangue minerals:

Geologic description:

Cleary Creek is a highly productive placer gold creek that has been mined over its entire length of over 5 miles. Gold production began as early as 1903 and production continues today from fresh placer cuts near the mouth of Chatham Creek.

In the early 1900's, reports about Cleary Creek describe the depth to bedrock schist as being from 14 to more than 135 feet (Prindle and Katz, 1913, p. 107). Gravel is a variety of schist, some hornblende-garnet rock and boulders of vein quartz. These early reports also describe the gold occurring in the basal 1 to 7 feet of gravel and the top 1.5 to 4 feet of bedrock, with a paystreak of 35 to 150 feet wide; the average value of the paystreak was 0.566 ounces of gold per cubic yard (Prindle, 1905). Concentrates contained gold, stibnite, cassiterite, scheelite, pyrite, garnet, and rutile (Prindle, 1905).

From 1903 through 1924 production was about 1,129,650 fine ounces (Cobb, 1976; OFR 76-633). The largest nugget reported weighed 13.51 ounces. Most production was from drift mines working a pay streak 150 feet wide with an average thickness of 5 feet. In 1915, most mining in the Chatanika flats was on benches on the south side of the Chatanika valley (Eakin, 1915). U.S.S.R. & M. Dredge no. 3 worked on lower Cleary Creek and near Chatanika from 1928 to 1942 and from 1946 to 1963. Dredge no. 5 worked on upper Cleary Creek from 1929 to 1942 (R.M. Chapman, 1978, U.S.G.S. memorandum).

In 1996 and 1997, Alf Hopen leased placer ground from the Alaska Gold Co. on Upper Cleary Creek (Swainbank and others, 1997). In 1999, fresh placer cuts on Cleary Creek were observed at the mouth of Chatham Creek (J. Schaefer, field observation, 1999).

Alteration:

Age of mineralization:

Deposit model:
Placer gold deposit (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:
In 1915, most mining in the Chatanika flats was on benches on the south side of the Chatanika valley (Eakin, 1915). U.S.S.R. & M. Dredge no. 3 worked on lower Cleary Creek and near Chatanika from 1928 to 1942 and from 1946 to 1963. Dredge no. 5 worked on upper Cleary Creek from 1929 to 1942 (R.M. Chapman, 1978, U.S.G.S. memorandum). In 1996 and 1997, Alf Hopen leased placer ground from the Alaska Gold Co. on Upper Cleary Creek (Swainbank and others, 1997). In 1999, fresh placer cuts on Cleary Creek were observed at the mouth of Chatham Creek (J. Schaefer, field observation, 1999).

Production notes:
From 1903 through 1924 production was about 1,129,650 fine ounces (Cobb, 1976; OFR 76-633). Production amounts have not been reported for recent mining activites.

Reserves:

Additional comments:

References:
Brooks, 1905; Prindle, 1904; Collier, 1905; Hess and Graton, 1905; Prindle, 1905; Purington, 1905; Prindle, 1906; Brooks, 1907; Brooks, 1908; Prindle, 1908; Prindle and Katz, 1909; Ellsworth, 1910; Johnson, 1910; Brooks, 1911; Ellsworth and Parker, 1911; Ellsworth, 1912; Hess, 1912; Ellsworth and Davenport, 1913; Prindle and Katz, 1913; Brooks, 1914; Chapin, 1914; Brooks, 1915; Eakin, 1915; Brooks, 1916 (B 642); Smith, 1917 (BMB 142); Smith, 1917 (BMB 153); Brooks, 1918; Martin, 1919; Martin, 1920; Brooks and Martin, 1921; Brooks, 1922; Brooks, 1923; Capps, 1924; Brooks, 1925; Smith, 1926; Moffit, 1927; Smith, 1929; Smith, 1932; Hill, 1933; Smith, 1933 (B 844); Smith, 1933 (B 836); Smith, 1934 (B 857); Smith, 1934 (B 864); Smith, 1936; Smith,

1937; Smith, 1938; Smith, 1939 (B 910); Smith, 1939 (B 917); Smith, 1941; Joesting, 1942 (ATDM Pamph. 1); Smith, 1942; Joesting, 1943; Thorne and others, 1948; Killeen and Mertie, 1951; Wedow and White, 1954; Byers, 1957; Burand, 1968; Koschmann and Bergendahl, 1968; Cobb, 1972 (MF 413); Cobb, 1973 (B 1374); Cobb, 1975 (C 722); Cobb, 1976 (OFR 76-633); Orris and Bliss, 1985.

Primary reference: Prindle, 1905

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Wolf Creek

Site type: Mine

ARDF no.: LG136

Latitude: 65.085 **Quadrangle:** LG A-1

Longitude: 147.396

Location description and accuracy:
Cobb (1972, MF-413), loc. 88; SW1/4 sec. 17, T. 3 N., R. 2 E., of the Fairbanks Meridian. The coordinates given are for the center of mine tailings along Wolf Creek, a tributary of Cleary Creek.

Commodities:

Main: Au

Other: Bi, Te

Ore minerals: Arsenopyrite, gold

Gangue minerals: Sericite

Geologic description:
Gold is found at the base of bench gravels and top 2 feet of bedrock (Prindle, 1904, p. 68). The depth to bedrock on the upper part of the creek is 4 to 10 feet; the ground deepens downstream to 60 feet (Prindle, 1904; Eakin, 1915). Mining was sporadic from 1903 to 1915 and 1937 to 1940 (Cobb, 1976; OFR 76-633, p. 213). Production in 1903 and from 1908 to 1910 was worth $33,000 with gold valued at $17.85 per ounce (Prindle and Katz, 1913). Placer mining began again in 1997 and 1998 in upper Wolf Creek; it should be completed in 1999 or 2000 (A. Miscovich, oral commun., 1999).

Alteration:

Age of mineralization:

Deposit model:
Placer gold deposit (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:

Mining was sporadic from 1903 to 1915 and 1937 to 1940 (Cobb, 1976; OFR 76-633, p. 213). Placer mining began again in 1997 and 1998 in upper Wolf Creek; it should be completed in 1999 or 2000 (A. Miscovich, oral commun., 1999).

Production notes:

Production in 1903 and from 1908 to 1910 was worth $33,000 with gold valued at $17.85 per ounce (Prindle and Katz, 1913). Current production figures are not available.

Reserves:

Additional comments:

References:

Prindle, 1904; Prindle, 1905; Prindle, 1906; Prindle, 1908; Ellsworth, 1910; Ellsworth and Parker, 1911; Ellsworth and Davenport, 1913; Prindle and Katz, 1913; Chapin, 1914; Eakin, 1915; Brooks, 1916 (B 642); Smith, 1917 (BMB 142); Brooks, 1918; Smith, 1939; Smith, 1941; Smith, 1942; Cobb, 1972 (MF 413); Cobb, 1976 (OFR 76-633).

Primary reference: Cobb, 1976 (OFR 76-633)

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Morgana

Site type: Prospect

ARDF no.: LG137

Latitude: 65.095 **Quadrangle:** LG A-1

Longitude: 147.368

Location description and accuracy:
SW1/4SW1/4 sec.9, T. 3 N., R. 2 E., of the Fairbanks Meridian. The coordinates given are for the southeast corner of a soil grid; it is about a mile north of the junction of Wolf and Goose Creeks. The property is accessed by the Fairbanks-Circle trail, a seasonal four-wheel-drive road. An ATV trail turns off the Fairbanks-Circle trail at about mile 1.1 and continues to the NW for about 2 miles to the grid.

Commodities:

Main: Au

Other:

Ore minerals:

Gangue minerals:

Geologic description:
Altered, carbonaceous schist in old prospect pits assayed 60 ppb gold. The highest assay of approximately 520 soil samples was 725 ppb gold. Six reverse circulation holes were drilled in the area and returned assays of 60 feet of 154 ppb gold and 10 feet of 140 ppb gold (D. McCoy, written commun., 1999).

Alteration:
Calc-silicate alteration.

Age of mineralization:

Deposit model:
Carbonaceous, schist-hosted, gold-bearing quartz veins and gouge.

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

Production Status: None

Site Status: Inactive

Workings/exploration:
Old prospect pits that revealed gold mineralization were followed up with soil sampling and reverse circulation drilling in 1997.

Production notes:

Reserves:

Additional comments:

References:
This description.

Primary reference: This description

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Wolf Creek

Site type: Prospect

ARDF no.: LG138

Latitude: 65.079 **Quadrangle:** LG A-1

Longitude: 147.398

Location description and accuracy:
The location given is on a series of reverse circulation holes drilled on a 2,900 ppb gold in soil anomaly (Freeman and others, 1998); Three holes were spaced approximately 300 feet apart in a north-south orientation; NW1/4 sec. 20, T. 3 N., R. 2 E., of the Fairbanks Meridian.

Commodities:

Main: Au

Other:

Ore minerals:

Gangue minerals:

Geologic description:
This northeast-trending gold soil anomaly is part of the district scale Dolphin shear zone. Anomalous gold is associated with anomalous As, Pb, Sb and sporadic Bi (Freeman and others, 1998). This regional structure also controls mineralization on the Dolphin prospect (ARDF no. LG112) and Cleary Hill mine (ARDF no. LG119) to the southwest. At this prospect, the structure juxtaposes lower plate rocks of the Fairbanks Schist on the southeast with upper plate rocks of the Chatanika terrane on the northwest. Three holes were drilled in the Wolf Creek area. While all of them had anomalous gold values, none of the intercepts exceeded 350 ppb (Freeman and others, 1998).

Alteration:

Age of mineralization:

Deposit model:
Gold-quartz vein.

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

Production Status: None

Site Status: Inactive

Workings/exploration:
Four reverse circulation holes were drilled in the Wolf Creek area in 1998 (Freeman and others, 1998).

Production notes:

Reserves:

Additional comments:

References:
Freeman and others, 1998.

Primary reference: Freeman and others, 1998

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Sky High; Quemboe #2

Site type: Occurrence

ARDF no.: LG139

Latitude: 65.075 **Quadrangle:** LG A-1

Longitude: 147.396

Location description and accuracy:
Cobb (1972, MF-413), loc. 43; NE1/4SW1/4 sec. 20, T. 3 N., R. 2 E., of the Fairbanks Meridian. This deposit is on the ridge between Wolf Creek and Chatham Creek at an elevation of 1,850 feet. Accuracy is within 1,500 feet.

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:
By 1912, two areas of low grade gold mineralization were exposed (Times Publishing Company, 1912). One area consisted of a 3- to 6-inch-wide, iron-oxide-cemented breccia exposed in a short tunnel. Small amounts of free gold could be panned from this material (Smith, 1913; B 525). This mineralization is flat-lying and appeared to be a capping rather than a shear zone. The second occurrence on the Sky High prospect is 14 feet wide and is accessed by a 15 foot deep shaft. The gold content of this occurrence was not considered to be of commercial grade in 1912 (Smith, 1913; B 525).

Alteration:

Age of mineralization:

Deposit model:
Gold mineralization in iron-oxide cemented breccia.

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

Production Status: None

Site Status: Inactive

Workings/exploration:
Workings consist of a short tunnel and a 15-foot-deep shaft.

Production notes:

Reserves:

Additional comments:
The Sky High prospect, also known as the Quemboe #2 claim, was discovered by Iver and John Quemboe, prior to 1912, by which time they had staked the Sky High claim.

References:
Times Publishing Company, 1912; Smith, 1913 (B 525); Smith, 1913 (B 542); Chapman and Foster, 1969; Cobb, 1972 (MF 413); Cobb, 1976 (OFR 76-633); Freeman, 1992.

Primary reference: Smith, 1913 (B 525)

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Foster Hungerford; Empire; Alaska Group

Site type: Prospect

ARDF no.: LG140

Latitude: 65.07 **Quadrangle:** LG A-1

Longitude: 147.395

Location description and accuracy:
The Foster Hungerford prospect is located above Chatham Creek approximately 1 mile northwest of the Christina prospect (ARDF no. LG146); SW1/4 sec. 20, T. 3 N., R. 2 E., of the Fairbanks Meridian.

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:
During the summer of 1912 an east-west striking, south-dipping shear zone was discovered on the Blarney Stone claim. A twelve-inch-thick high-grade quartz-bearing zone was exposed and reported to contain significant gold. A shaft was sunk through the winter of 1912-1913 and 14 tons of ore were produced (Chapin, 1914). Hill (1933) reports that this ore averaged $40 per ton gold (1.9 ounces of gold per ton). Several northeast trending shear zones were exposed on the Foster Hungerford prospect in 1931. A N 50-60 E trending stringer approximately 8 to 10 inches wide was exposed in a 10 foot deep shaft on the Alaska #2 claim (Hill, 1933). This shear zone assayed $16.88 per ton in gold (0.8 ounces of gold per ton). A second shear near the east end of Alaska #2 is 18 inches wide; it strikes N 45 E and dips 50 SE.

Alteration:

Age of mineralization:

Deposit model:
Gold-quartz vein.

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

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:
A shaft had been sunk that produced ore (Chapin, 1914).

Production notes:
Shaft sinking through the winter of 1912-1913 produced 14 tons of ore (Chapin, 1914). Hill (1933) reports that this ore averaged $40 per ton (1.9 ounces of gold per ton).

Reserves:

Additional comments:
The first known reference to the Foster Hungerford prospect dates to the winter of 1911-1912 when Mr. Foster and Mr. Hungerford acquired a lease on the New York, Blarney Stone, Comstock and Stockholm claims (Times Publishing Company, 1912). These claims were then known as the Empire group and were owned by the Empire Mining Company. By 1931, Fred M. Wackwitz had staked the ground under the Alaska claim group (Hill, 1933).

References:
Chapin, 1914; Hill, 1933; Freeman, 1992.

Primary reference: Chapin, 1914

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Alaska; Gladstone; Jupiter-Mars; Grace E#2?

Site type: Mine

ARDF no.: LG141

Latitude: 65.069 **Quadrangle:** LG A-1

Longitude: 147.392

Location description and accuracy:
Cobb (1972, MF-413), loc. 42; NE1/4SW1/4 sec. 20, T. 3 N., R. 2 S., of the Fairbanks Meridian. The mine is on the hillside east of Chatham Creek at an elevation of about 1,700 feet. Accuracy is within 2,000 feet.

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:
The Alaska prospect originally was known by the name Jupiter Mars prospect after several claims and fractions bearing that name. The prospect was discovered prior to 1910 by which time the Jupiter Mars claim was being explored by a 70-foot adit and a 50-foot crosscut (Brooks, 1911). Work continued in 1911 and by 1912, seven or eight claims in the area had been purchased by the Jupiter-Mars Consolidated Gold Company (Brooks, 1912; Smith, 1913; B 525). This company owned the Shamrock, Emerald, Gladstone, Richman, Henchman, Chatham, Jupiter, Mars, and Jupiter Mars Extensions Nos. 1, 2, 3 and 4 (Times Publishing Company, 1912). Work was concentrated in two short adits on the Goldstone claim. These adits intersected a northwest-striking, shallowly south-dipping shear zone from which several tons of custom milled ore returned values of about $30 per ton (1.45 ounces of gold per ton) (Smith, 1913; B 525, p. 175). Sulfides make up only a small proportion of the shear zone. Gold is associated with white-quartz vein material (Smith, 1913; B 525, p 175). The shear zone is cut off in the northern tunnel by frozen fluvial gravels indicating the material in which the tunnel is driven may be part of large slump block. A 66-foot deep shaft had been sunk to the east of the adits by 1912 to prospect along the shear zone (Smith, 1913; B 525). Work continued in 1913 when the shaft was deepened to 125 feet and 112 feet of drift were driven from the shaft (Chapin, 1914, p. 337).

The area was restaked as the Alaska, Alaska #2 and Alaska #3 claims by Fred M.

Wackwitz on July 1, 1931 (Hill, 1933). The prospect subsequently became known as the Alaska group and was first prospected with large ditches cut by ground sluicing to remove surface debris. A scorodite-stained quartz-bearing shear zone oriented east-west with a 30 degree north dip, was exposed in this manner; it measured 3 to 5 feet wide and averaged $0.43 per ton (0.02 ounces of gold per ton).

In 1979, Placid Oil began surface trenching, diamond core drilling and geochemical sampling of the shear zones which had been discovered previously. Between 1979 and 1986, Placid Oil drilled 5,137 feet of diamond core and cut several thousand feet of dozer trenches on the prospect, primarily on the Christina shear zone north of the adits and shaft previously driven on the prospect (Porterfield and Croff, 1986).

In 1986, Placid Oil Company dropped its lease on the prospect. The trenches on the Alaska prospect were reclaimed by Placid Oil in 1985; however, sidewall exposures of gold quartz and sulfide shear zones remain and served as sample sites for field work conducted by Fairbanks Exploration Inc. in 1987. Samples collected from the prospect contained anomalous gold (70 to 1600 ppb), silver (5.5 ppm to 179.9 ounces of silver per ton), arsenic (+1000 ppm) and antimony (330 to +10000 ppm) hosted in white quartz and quartz-sericite, rhyolite tuff, stained by scorodite, iron oxide and antimony oxide (Fairbanks Exploration Inc., unpublished report, 1987). The core of the Jupiter Mars shear zone was exposed in trench walls where it contained 1 to 6 inch wide quartz stringers which were broken and recemented by later quartz. The shear strikes N 80 E and dips 55 SE. Host rocks in the trench exposures and on the dumps of one of the old adits were highly oxidized rhyolitic tuff with pervasive scorodite and iron-oxide stains. No other work has been conducted on the Alaska prospect and all underground workings are now inaccessible.

Alteration:

Sericite, scorodite, iron oxide and antimony oxide.

Age of mineralization:

Deposit model:

Gold, silver, arsenic and antimony minerals in quartz-bearing shear zones and quartz sericite rhyolite tuff.

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

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:

A 70-foot adit tunnel and a 50-foot crosscut were completed in 1910 on the Jupiter-Mars property (Brooks, 1911, p. 34). Two tunnels were dug on a flat-lying vein that dips south and shaft was sunk 125 feet to a vein (Chapin, 1914, p. 337). All of the old workings caved by 1931, and newer workings consisted mainly of trenches and pits (Hill, 1933, p. 99-100).

Production notes:
Chapin (1914), reported 'some production', however the exact amount is unknown.

Reserves:

Additional comments:

References:
Brooks, 1911; Brooks, 1912; Times Publishing Company, 1912; Smith, 1913 (B 525); Smith, 1913 (B 542); Chapin, 1914; Hill, 1933; Forbes, 1968; Chapman and Foster, 1969; Cobb, 1976 (OFR 76-633); Porterfield and Croff, 1986; Freeman, 1992.

Primary reference: Cobb, 1976 (OFR 76-633)

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Empire

Site type: Mine

ARDF no.: LG142

Latitude: 65.067 **Quadrangle:** LG A-1

Longitude: 147.394

Location description and accuracy:
Cobb (1972, MF-413), loc. 42; SE1/4SW1/4 sec. 20, T. 3 N., R. 2 E., of the Fairbanks Meridian. The Empire mine site adjoins the Jupiter-Mars property on the hillside east of Chatham Creek. Accuracy is within 2,000 feet.

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:
Fourteen tons of ore was mined in 1912, presumably for gold (Chapin, 1914, p. 337).

Alteration:

Age of mineralization:

Deposit model:
Gold-quartz vein.

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

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:

Production notes:
Fourteen tons of ore was mined in 1912, presumably for gold (Chapin, 1914, p. 337).

Reserves:

Additional comments:

References:
Chapin, 1914; Chapman and Foster, 1969; Cobb, 1972 (MF 413); Cobb, 1976 (OFR 76-633).

Primary reference: Chapin, 1914

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Nils Genki

Site type: Prospect

ARDF no.: LG143

Latitude: 65.068 **Quadrangle:** LG A-1

Longitude: 147.39

Location description and accuracy:
The Nils Genki prospect is located approximately 1/2 mile NW of the Chatham mine (ARDF no. LG147) in the upper Chatham Creek drainage; SE1/4SW1/4 sec. 20, T. 3 N., R. 2 E., of the Fairbanks Meridian.

Commodities:

Main: Au

Other:

Ore minerals:

Gangue minerals:

Geologic description:
The Nils Genki site consists of a shallow shaft on a vein that strikes N 60 E and appears to be from 10 to 12 inches wide (Hill, 1933, p. 100). The quartz is crushed and stained with both iron and arsenic oxides (Hill, 1933, p. 100).

Alteration:
The quartz is crushed and stained with both iron- and arsenic-oxides (Hill, 1933, p. 100).

Age of mineralization:

Deposit model:
Gold-quartz vein.

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

Production Status: None

Site Status: Inactive

Workings/exploration:
A shallow shaft was driven on a quartz vein (Hill, 1933, p. 100).

Production notes:

Reserves:

Additional comments:

References:
Hill, 1933; Freeman, 1992.

Primary reference: Hill, 1933

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Quemboe Bros.

Site type: Prospect

ARDF no.: LG144

Latitude: 65.074 **Quadrangle:** LG A-1

Longitude: 147.389

Location description and accuracy:
Cobb (1972, MF-413), loc. 44; SE1/4 sec. 20, T. 3 N., R. 2 E., of the Fairbanks Meridian. The prospect is on the ridge between Chatham Creek and Wolf Creek, at an elevation of 2,125 feet. Accuracy is within 1,000 feet.

Commodities:

Main: Au

Other: Sb

Ore minerals: Arsenopyrite, gold, pyrite, stibnite

Gangue minerals:

Geologic description:
Gold occurs in a shear zone oriented N 70 W, dipping 50 S; it is composed of quartz stringers in a soft schist (Times Publishing Company, 1912; Brooks, 1916; B 649). The dip of the shear flattens with depth and early quartz is cemented by later stibnite, pyrite and arsenopyrite (Smith, 1913; B 525, p. 171). The hanging wall contact is a fault plane in the Quemboe shaft. Samples collected by the owners in 1912 assayed $22.50 to $32 of gold per ton, or about 1 to 1.5 ounces of gold per ton (Smith, 1913; B 525). An unspecified quantity of ore which was custom milled in Fairbanks averaged $35 of gold per ton (1.7 ounces of gold per ton) (Times Publishing Company, 1912). The prospect was examined in 1942 as a possible source of antimony, however, the low grade and restricted distribution of antimony did not warrant additional exploration (Killeen and Mertie, 1951). No other published or private references to the Quemboe prospect are known.

Alteration:

Age of mineralization:

Deposit model:
Gold-quartz vein.

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

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:
In 1913, the development work consisted of a 60 foot shaft with a short drift to the east and another to the west (Smith, 1913; B 525, p. 171).

Production notes:
An unspecified quantity of ore which was custom milled in Fairbanks averaged $35 per ton in gold (1.7 ounces of gold per ton) (Times Publishing Company, 1912).

Reserves:

Additional comments:

References:
Times Publishing Company, 1912; Smith, 1913 (B 525); Smith, 1913 (B 542); Brooks, 1916 (B 649); Killeen and Mertie, 1951; Chapman and Foster, 1969; Cobb, 1972 (MF 413); Cobb, 1976 (OFR 76-633); Freeman, 1992.

Primary reference: Smith, 1913 (B 525)

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Harris and Brown; Sky High; Grace E#1

Site type: Prospect

ARDF no.: LG145

Latitude: 65.069 **Quadrangle:** LG A-1

Longitude: 147.379

Location description and accuracy:

Cobb (1972, MF-413), loc. 44; SW1/4SE1/4 sec. 20, T. 3 N., R. 2 E., of the Fairbanks Meridian. This prospect is on the summit of the divide between Chatham and Wolf Creeks; it is at an elevation of 2,050 feet, between the two northernmost pinnacles of schist. Accuracy is within 1,000 feet.

Commodities:

Main: Au

Other: Sb

Ore minerals: Arsenopyrite, gold, jamesonite, pyrite, stibnite, zinkenite(?)

Gangue minerals:

Geologic description:

Mineralization consists of stibnite filling open fractures and a small proportion of sulfides (Smith, 1913; B 525). Minor amounts of jamesonite, arsenopyrite, pyrite and zinkenite(?) also were identified (Chapman and Foster, 1969). By 1912, a 60-foot-deep shaft had been sunk and 120 feet of drift had been driven at the 60-foot-level. Stoping of ore began in December, 1912. A 6- to 30-inch wide brecciated and quartz-cemented shear zone in the shaft trends N 70 E and dips 45 S (Times Publishing Company, 1912, p. 64). Assays from the development muck ranged from $28 to $130 per ton in gold (1.3 to 6.3 ounces of gold per ton) and average $30 per ton (1.4 ounces of gold per ton).

Cobb (1976, p. 80) noted that Grace E #1 is probably the same ground as Harris and Brown or Sky High. Forbes and others (1968) reported that the Grace E #1 prospect opened two small quartz veins that carry 2%-3% sulfides (including arsenopyrite and minor pyrite) and free-milling gold. An unaltered schist 9 feet into the hanging wall assayed 1.3 ppm gold.

Alteration:

Age of mineralization:

Deposit model:
Polymetallic vein (Cox and Singer, 1986; model 22c).

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

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:
By 1912, a 60-foot-deep shaft had been sunk and 120 feet of drift had been driven at the 60 foot level (Times Publishing Company, 1912, p. 64). Stoping of ore began in December, 1912.

Production notes:

Reserves:

Additional comments:

References:
Times Publishing Company, 1912; Smith, 1913 (B 542); Smith, 1913 (B 525); Killeen and Mertie, 1951; Forbes and others, 1968; Chapman and Foster, 1969; Cobb, 1972 (MF 413); Cobb, 1976 (OFR 76-633); Freeman, 1992.

Primary reference: Tanana Magazine, 1912

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Christina; Vetter; Shelden

Site type: Mine

ARDF no.: LG146

Latitude: 65.069 **Quadrangle:** LG A-1

Longitude: 147.378

Location description and accuracy:
Cobb (1972, MF-413), loc. 43; SE1/4 sec. 20, T. 3 N., R. 2 E., of the Fairbanks Meridian. This deposit is on the divide separating Chatham Creek and Wolf Creek. Accuracy is within 2,000 feet.

Commodities:

Main: Au

Other: Ag, Sb

Ore minerals: Gold, stibnite

Gangue minerals:

Geologic description:
In the 1950's through the 1970's, almost 20,000 ounces of gold was mined from surface and underground workings on the Christina prospect. Exploration continued throughout the 1980's, when several holes were drilled to explore the extent of mineralization in the Christina system. Based on the drilling conducted in the 1980's, reserves have been estimated at over 68,000 ounces of gold.

The following geologic description is based on mapping conducted by Fairbanks Exploration Inc. (unpublished report, 1988): The Christina prospect consists of a N 70-80 W, 75 S shear zone. The Christina shear separates Cleary sequence rocks to the north from Fairbanks Schist to the south. The Cleary sequence forms the footwall and consists of interbedded rhyolite metatuff, laminated graphitic quartzite, black graphitic schist and chloritic calc-schist. The hanging wall is composed of biotite-quartz-mica schist, and micaceous quartzite. Both the hanging wall and foot wall are gently folded into east-west trending open folds whose axes plunge 10 to 20 degrees to the west. Amplitudes of the open folds range from 4 to 8 feet and wavelengths range from approximately 10 to 40 feet.

On an outcrop scale, the Christina structure contains a series of parallel quartz veinlets which pinch and swell and form a sinuous outcrop pattern along strike. For example, the Christina shear on the west end consists of two discrete, quartz-rich zones with a total thickness of approximately 2 feet. Within 60 feet of strike length to the east, the quartz-

rich zones merge and pinch down to a thickness of a few inches. In general, the Christina shear contains less massive quartz and more stockwork quartz to the east.

Hypogene and supergene alteration of the shear and adjacent wallrock has produced reddish hematite after pyrite, greenish scorodite after arsenopyrite, and yellow to white antimony oxides after stibnite, jamesonite and boulangerite. Sulfide and oxide alteration typically form envelopes paralleling the shear. Alteration in the footwall reaches at least 40 feet from the shear in the lower sample area near the Vetter shaft while alteration in the hanging wall is minor. Scorodite and hematite alteration were most prevalent in the western portion of sample area. Antimony oxide alteration becomes pervasive in the central portion of the vein where quartz-free pods of massive, striated stibnite occur.

In 1981, Placid Oil Company completed 4661 feet of diamond drilling in 16 holes on the Christina and Orange Free shear zones. The Orange Free shear zone has a northeast strike nearly perpendicular to the Christina shear zone. In 1985, Placid Oil utilized reverse circulation rotary drilling techniques to complete 4623 feet of drilling in 18 holes on the Christina shear zone. At a 5-foot mining width, the Christina system had drill indicated reserves of 39,600 tons grading 0.660 ounces of gold per ton and 1.74 ounces of silver per ton in one block; another block containing 73,900 tons grading 0.370 ounces of gold per ton and 0.71 ounces of silver per ton. The Spirit shear zone, located in the hanging wall of the Christina shear zone, contained an estimated reserve of 36,900 tons grading 0.411 ounces of gold per ton and 0.40 ounces of silver per ton over a five-foot mining width (Porterfield and Croff, 1986). The average grade of the Christina shear zone was 0.551 ounces of gold per ton and 0.61 ounces of silver per ton while the Orange Free shear zone averaged 0.167 ounces of gold per ton and 15.4 ounces of silver per ton (Bentzen, 1982).

Alteration:

Hypogene and supergene alteration of the shear and adjacent wallrock has produced reddish hematite after pyrite, greenish scorodite after arsenopyrite, and yellow to white antimony oxides after stibnite, jamesonite and boulangerite. Sulfide and oxide alteration typically form envelopes paralleling the shear. Alteration in the footwall reaches at least 40 feet from the shear near the Vetter shaft while alteration in the hanging wall is minor. Scorodite and hematite alteration were most prevalent in the western portion of the deposit. Antimony oxide alteration becomes pervasive in the central portion where quartz-free pods of massive, striated stibnite occur (Fairbanks Exploration Inc., unpublished report, 1988).

Age of mineralization:

Deposit model:

Schist-hosted auriferous shear systems with discrete and/or crushed veins and skarn.

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

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:

Mineralization on the Kawalita claim, which adjoins the Christina prospect to the south and east, was discovered in 1908 (Smith, 1913; B 525). Between 1961 and 1963, Ed Ebbert sank an inclined shaft to a depth of 50 feet on the western end of the Kawalita claim. In 1963, this shaft was deepened to 147 feet and the haulage levels moved into the footwall to better control the heavy ground and water (Warfield, 1970). The underground portion of the mine was closed in 1965, but surface mining on the Kawalita claim continued through 1966.

In late 1977, Tri-Con Mining and Mohawk Oil Company extracted shear zone material from surface cuts on the Christina claim over a strike length of 450 feet to a depth of 15 feet. In early 1978, Placid Oil Company leased the Christina prospect and began an extensive exploration and development program. Geological mapping, VLF and magnetics geophysical surveys, and soil and rock geochemical sampling surveys were followed up in 1978 with dozer trenching and completion of 5174 feet of diamond core drilling in 23 holes. Approximately 2314 feet of diamond core drilling in nine holes as well as extensive soil grid geochemical surveys were completed in 1980 on the Christina shear zone system. In 1981, approximately 1489 feet of trackless underground drifting was driven to and on the Christina shear zone system. The Christina adit was constructed at a design size of 8 feet by 8 feet, however, timbering in some areas reduced the finished dimensions of the workings. During construction of the adit a previously undiscovered shear zone, the Orange Free shear zone, was intersected approximately 300 feet from the portal. In addition to the underground workings, Placid Oil completed 4661 feet of diamond drilling in 16 holes on the Christina and Orange Free shear zone.

Activities on the Christina in 1982 consisted of 13,045 feet of diamond core drilling in 25 holes designed to test the down-dip extension of the Christina system. In addition, 600 pound bulk samples were collected by Placid Oil Company from the Christina shear zone and the Orange Free shear zone where these shears were exposed in underground workings (Bentzen, 1982). Activities on the Christina prospect in 1983 consisted of 8512 feet of diamond core drilling in 23 holes to further outline ore shoots on the Christina shear zone (Porterfield and Croff, 1986). In 1985 Placid Oil utilized reverse circulation rotary drilling techniques to complete 4623 feet of drilling in 18 holes on the Christina shear zone. In 1986, Fairbanks Exploration Inc. conducted preliminary grab sampling of the Christina adit and Nordale adit dumps (Fairbanks Exploration Inc., unpublished report, 1986).

During July, 1988, Fairbanks Exploration Inc. extracted a bulk sample from a high grade portion of the Christina shear zone in the same area as the 1986 bulk sample and the Mohawk open cut. Initial work on the program entailed stripping overburden to prepare a 12 foot wide pad along the length of the shear zone. Ore was extracted with a backhoe by digging a trough approximately 3 feet wide and 3 feet deep. After each three-foot lift was mined, the footwall and hangingwall were stripped to expose the next lower bench for mining. Two separate areas on the Christina prospect were mined to obtain the 1988 bulk sample. Most of the tonnage (approximately 85%) was excavated from the upper sample area; the remaining 15% of the ore was extracted from the lower sample area.

During the summer and fall of 1990, Polar Mining conducted bulk sampling of the Christina shear zone near the Kawalita shaft. Unlike the Christina shear in the 1988 bulk

sample area, the Polar Mining sample area contains mineralization in both the foot wall and hanging wall of the Christina shear. Polar Mining exposed this shear zone for approximately 500 strike feet. Approximately 1,000 to 1,200 tons of material were extracted from this area and treated in a one stage wet jig. This method of sampling proved unsatisfactory since tailings ponds averaged 0.14 ounces of gold per ton (P. Metz, oral commun., 1991) while the recovered grades averaged 0.030 to 0.033 ounces of gold per ton (D. May, oral commun., 1990).

Production notes:

Between 1957 and 1961, approximately 4900 troy ounces of gold was extracted from 500 feet of surface strike on the Kawalita claim (R. Vetter, oral commun., 1991; Saunders, 1960, ATDM MR 49-4). The shear zone material averaged one troy ounce per ton (Brown, 1962; R. Vetter, 1986, oral commun.). Between 1961 and 1966, an estimated 10,000 ounces of gold was extracted from surface and underground workings on the Christina prospect on the Kawalita claim (R. Vetter, oral commun.1986). In 1963 and 1964, Scott Haskins extracted 962 troy ounces of gold from shear zone material which averaged 1.96 ounces per ton over 350 feet of strike to a depth of 10 feet (S. Haskins, 1986, oral commun.). Mr. Haskins also sunk a 90 foot shaft on the shear zone but production from this shaft was insignificant. In 1967 and 1968 approximately 250 troy ounces of gold was extracted from a 35-foot-deep shaft and 110 feet of surface workings (R. Vetter, oral commun., 1986). In late 1977, Tri-Con Mining and Mohawk Oil Company leased the Christina claim and extracted shear zone material from surface cuts over a strike length of 450 feet to a depth of 15 feet. Material from this open cut averaged approximately 3 troy ounces of gold per ton (R. Vetter, oral commun., 1986). Total production by Tri-Con-Mohawk is estimated at 3375 troy ounces of gold.

Reserves:

At a 5-foot mining width, the Christina system has drill-indicated reserves of 39,600 tons with 0.660 ounces of gold per ton and 1.74 ounces of silver per ton in one block, and 73,900 tons with 0.370 ounces of gold per ton and 0.71 ounces of silver per ton in an adjacent block. The Spirit shear zone, located in the hanging wall of the Christina shear zone, contains an estimated reserve of 36,900 tons with 0.411 ounces of gold per ton and 0.40 ounces of silver per ton over a five-foot mining width (Porterfield and Croff, 1986).

Additional comments:

References:

Saunders, 1960 (ATDM MR 49-4); Brown, 1962; Burand, 1968; Chapman and Foster, 1969; Cobb, 1972 (MF 413); Cobb, 1976 (OFR 76-633); Bentzen, 1982; Porterfield and Croff, 1986; Freeman, 1992.

Primary reference: Freeman and others, 1988

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Chatham

Site type: Mine

ARDF no.: LG147

Latitude: 65.065 **Quadrangle:** LG A-1

Longitude: 147.378

Location description and accuracy:
Cobb (1972, MF-413), loc. 44; NE1/4NE1/4 sec. 29, T. 3 N., R. 2 E., of the Fairbanks Meridian. This mine is at the extreme head of Chatham Creek, at an elevation of 1,825 feet, adjacent to the cabins marked on the Livengood (A-1) quadrangle map.

Commodities:

Main: Au

Other: Sb

Ore minerals: Gold, stibnite

Gangue minerals:

Geologic description:
The prospect was located in 1908 when Fred Fey discovered a large quartz boulder with visible gold (Times Publishing Company, 1912). About 150 feet below this discovery, an adit revealed a shear zone striking N 60 W and dipping 65 to 80 S. The shear exhibits prominent slickensides showing nearly horizontal strike-slip motion (Smith, 1913; B 525). Average ore width in the stopes was 14 inches (Times Publishing Company, 1912).

A stibnite-bearing shear zone striking east and dipping south cuts the Chatham shear in the southeast drift about 150 feet from the main adit (Brooks, 1914). The stibnite occurs in massive, lenticular pods oriented diagonally to the strike of the shear zone. The shear zone is 10 to 15 feet wide and was traced on the surface for over 500 feet. Individual pods range from a few inches to several feet in width and are 10 to 12 feet in length. In a raise 825 feet from the portal, the stibnite is along a N 70 E, vertically-dipping shear zone with about 18 inches of pure stibnite in a clay-rich gouge zone (Brooks, 1918).

This mine produced both gold and anitmony ore. Ore from the Chatham mine was estimated to contain $30 to $40 per ton in gold (1.45 to 1.93 ounces of gold per ton) (Times Publishing Company, 1912). Workings consisted of the main 1300 foot Chatham adit and a Lower adit which was collared 120 feet below the Chatham adit.

The Chatham mine area was examined by Fairbanks Exploration Inc. in 1986 and preliminary sampling conducted (Fairbanks Exploration Inc., unpublished report, 1986). A sample taken from a small pit near the head of Chatham Creek contained 1800 ppb gold,

with anomalous silver, arsenic and antimony. The sample consisted of scorodite and stibiconite in stained carbonaceous quartzite with no visible sufides. Visible gold was found in the pit from which this sample was extracted.

Alteration:
Scorodite and stibiconite in carbonaceous quartzite.

Age of mineralization:

Deposit model:
Polymetallic vein (Cox and Singer, 1986; model 22c).

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

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:
By mid-1916, the main Chatham adit had been driven 1,300 feet (Brooks, 1918). Approximately 400 feet of the shear zone had been stoped from the drift level to the surface; the workings extended from a point 175 feet northwest of the main adit to a point 225 feet southeast of it (Brooks, 1914). A second adit was collared 120 feet below the Chatham adit.

Production notes:
On August 12, 1912, a 12-ton-per-day two-stamp Joshua Hendy mill began treating the Chatham mine gold ore (Times Publishing Company, 1912). Approximately 100 tons of stibnite was mined from a four-foot-thick pod in the east drift (Stewart, 1915). Total amount of gold and antimony ore production is not known.

Reserves:

Additional comments:

References:
Brooks, 1912; Times Publishing Company, 1912; Brooks, 1914; Smith, 1913 (B 525); Smith, 1913 (B 542); Brooks, 1914; Chapin, 1914; Eakin, 1915; Maloney, 1915; Brooks, 1916 (B 642); Brooks, 1916 (B 649); Smith, 1917 (BMB 142); Smith, 1917 (BMB 153); Brooks, 1918; Mertie, 1918; Chapin, 1919; Hill, 1933; Smith, 1936; Smith, 1938; Joesting, 1942 (ATDM Pamph. 1); Joesting, 1943; Ebbley and Wright, 1948; Killeen and Mertie, 1951; Chapman and Foster, 1969; Cobb, 1972 (MF 413); Cobb, 1976 (OFR 76-633); Freeman, 1992.

Primary reference: Cobb, 1976 (OFR 76-633)

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Bellows Creek

Site type: Prospect

ARDF no.: LG148

Latitude: 65.051 **Quadrangle:** LG A-1

Longitude: 147.351

Location description and accuracy:
The Bellows Creek prospect is located near the confluence of Bear Creek and Bellows Creek; SW1/4NE1/4 sec. 33, T. 3 N., R. 2 E., of the Fairbanks Meridian.

Commodities:

Main: Au

Other: Sb

Ore minerals: Arsenopyrite, gold, stibnite

Gangue minerals:

Geologic description:
The Bellows Creek prospect was discovered by Roudolph Vetter and Mike Marley in June 1983. During that year, a dozer trench excavated on a geochemical anomaly exposed a shear zone containing free gold, stibnite, arsenopyrite, and fine grained boulangerite and jamesonite. The mineralization is hosted by quartz mica schist and quartzite of the Fairbanks Schist. The shear zone is approximately 2 feet wide, trends east-west and dips 45 N (R. Vetter, oral commun., 1992). Assays showed gold grades up to 0.5 ounces of gold per ton.

Alteration:

Age of mineralization:

Deposit model:
Polymetallic vein (Cox and Singer, 1986; model 22c).

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

Production Status: None

Site Status: Inactive

Workings/exploration:
A dozer trench excavated on a geochemical anomaly exposed an auriferous shear zone (R. Vetter, oral commun., 1992).

Production notes:

Reserves:

Additional comments:

References:
Freeman, 1992.

Primary reference: This description

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Roughneck

Site type: Prospect

ARDF no.: LG149

Latitude: 65.052 **Quadrangle:** LG A-1

Longitude: 147.344

Location description and accuracy:
The location given is on a drill hole that encountered a 25-foot interval of weak gold mineralization (Freeman and others, 1998). The prospect is above the Bellows Creek prospect (ARDF no. LG148), approximately 2.6 miles east of Cleary Summit.

Commodities:

Main: Au

Other:

Ore minerals: Pyrite

Gangue minerals:

Geologic description:
A single hole, 505 feet long, was drilled at the Roughneck prospect in 1998 (Freeman and others, 1998). It intersected a 25-foot interval of weak gold mineralization that averaged about 310 ppb.

Alteration:

Age of mineralization:

Deposit model:
Disseminated sulfides and gold in a carbonate layer in schist, near an intrusion.

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

Production Status: None

Site Status: Inactive

Workings/exploration:
A single hole, 505 feet deep, was drilled at the Roughneck prospect in 1998 (Freeman

and others, 1998).

Production notes:

Reserves:

Additional comments:

References:
Freeman and others, 1998.

Primary reference: Freeman and others, 1998

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): McCarty shaft

Site type: Mine

ARDF no.: LG150

Latitude: 65.063 **Quadrangle:** LG A-1

Longitude: 147.36

Location description and accuracy:

Cobb (1972, MF-413), loc. 46; NW1/2 sec. 28, T. 3 N., R. 2 E., of the Fairbanks Meridian. The McCarty shaft is located on the McCarty vein and is the westernmost shaft in a group of six claims of the McCarty and American Eagle Mine group that lie at the head of Fairbanks Creek, just east of the Wolf Creek divide (ARDF no. LG152).

Commodities:

Main: Au

Other:

Ore minerals:

Gangue minerals:

Geologic description:

The McCarty vein varies from a few inches to five feet wide at this location. The vein strikes N 70 W and dips 65 SW. It has been traced for 1200 feet and ore from the surface pits along the full extent of this distance has been found to carry gold. There has been considerable shearing along the vein walls and several small faults have been encountered. The vein filling is a milky quartz but often contains impregnations of arsenopyrite (W.J. McCarty, unpublished report, 1932).

By 1930, the McCarty shaft was 60 feet deep along the south dipping McCarty shear zone (Stewart, 1931). A drift from the 60-foot level of the shaft extended 135 feet east and 369 feet west. Two raises had been driven to the surface from the 60-foot level, one at the 135-foot station in the east drift and one at the 284-foot station of the west drift. All mill grade ore had been stoped from above the 60-foot level and the shaft was being deepened to the 200-foot level in 1930. Stoping from the 60-foot level produced a little over 1200 tons of ore. This ore was milled at the McCarty mine downslope from the McCarty shaft. Shaft sinking at the McCarty shaft continued in 1932 with the intent to deepen the shaft from 80 to 150 feet and drive production drifts at that level (Pilgrim, 1933).

Alteration:

Age of mineralization:

Deposit model:
Gold-quartz vein.

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

Production Status: Yes; medium

Site Status: Inactive

Workings/exploration:
By 1930, the McCarty shaft was 60 feet deep along the dip of the 65 degree south-dipping McCarty shear zone (Stewart, 1931). A drift from the 60-foot level extended 135 feet east and 369 feet west of the shaft. Two raises had been driven to the surface from the 60-foot level, one at the 135-foot station in the east drift and one at the 284-foot station of the west drift. All mill grade ore had been stoped from above the 60-foot level and the shaft was being deepened to the 200-foot level in 1930. Shaft sinking at the McCarty shaft continued in 1932 with the intent to deepen the shaft from 80 to 150 feet and drive production drifts at that level (Pilgrim, 1933).

Production notes:

Reserves:

Additional comments:

References:
Stewart, 1931; Pilgrim, 1933; Cobb, 1972 (MF 413).

Primary reference: W.J. McCarty, unpublished report, 1932

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Saddle

Site type: Prospect

ARDF no.: LG151

Latitude: 65.065 **Quadrangle:** LG A-1

Longitude: 147.362

Location description and accuracy:
The saddle prospect is located on the divide between Wolf Creek and Fairbanks Creek; NW1/4 sec. 28, T. 3 N., R. 2 E., of the Fairbanks Meridian.

Commodities:

Main: Au

Other: Ag, Sb

Ore minerals: Gold, silver, stibnite

Gangue minerals:

Geologic description:
Prior to 1969, the divide between Fairbanks and Wolf Creeks was host to several producing mines and numerous prospects. The mineralization sought in all of these mines and prospects was high grade gold mineralization hosted by large northwest and northeast trending shear zones. Low grade mineralization was known to be present at the McCarty (ARDF no. LG152), Pioneer (ARDF no. LG155) and Pennsylvania (ARDF no. LG156) mines, along the margins of higher grade portions of the shear zones. However, these lower grade zones could not be profitably worked using the existing technology (W. McCarty, oral commun., 1988). In 1969, International Minerals and Chemicals (IMC) began an exploration program designed to address the possibility of surface mining the lower grade material in this area. IMC conducted trenching and rotary drilling targeted at low grade, zones adjacent to previously mined high grade shear zones. These activities resulted in discovery of the Saddle prospect (Pilkington, 1970).

IMC's initial exploration efforts on the Saddle prospect consisted of geological mapping and sampling of four, previously excavated trenches and open cuts. IMC also excavated 5 new dozer trenches totalling 4,299 feet. Initial sampling was conducted in three trenches previously excavated by Keystone Mines Inc. One of these trenches was located in the footwall of the Pennsylvania shear zone, approximately 1,300 feet northeast of the Pioneer shaft . This trench exposed a schist-hosted quartz-bearing shear zone oriented N 35 E, 65 NW. One-foot channel samples collected in the hanging wall of this shear included 9 feet that assayed 0.9 ppm gold (0.029 ounces of gold per ton) and 58.3 ppm silver (1.70

ounces of silver per ton). The rocks consisted of iron-, arsenic- and antimony-oxide-stained silver-gray schist.

IMC also sampled two dozer trenches previously excavated by Keystone Mines approximately 500 feet west of the Pioneer shaft. These two dozer trenches cut the Pioneer shear zone which trends N 70 W and dips 50 S. The first trench had 17 feet that assayed 0.54 ppm gold (0.016 ounces of gold per ton) and 75.6 ppm silver (2.20 ounces of silver per ton); the rocks in the trench consisted of brecciated and silicified quartz-mica schist containing minor iron- and antimony-oxide staining. The second trench had 25 feet that assayed 5.68 ppm gold (0.166 ounces of gold per ton) and 142.6 ppm silver (4.16 ounces of silver per ton) in silicified and brecciated quartz-mica schist with weak iron-oxide staining.

In order to test the down-dip extent of suspected northeast-trending mineralization picked up in trenches on the Saddle prospect, IMC conducted rotary drilling using a 5-inch rotary drilling rig (Pilkington, 1970). Two vertical rotary holes totalling 485 feet were drilled on the Saddle prospect.

Based on the results from trenching and drilling, IMC calculated drill inferred reserves of 2,111,000 tons grading 0.037 ounces of gold per ton and 0.46 ounces of silver per ton in the Saddle Zone (Pilkington, 1970). These reserves were considered subeconomic at then-current gold and silver prices and IMC terminated its lease with Keystone Mines Inc. in 1970.

Alteration:

Age of mineralization:

Deposit model:
Gold-quartz veins.

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

Production Status: None

Site Status: Inactive

Workings/exploration:

In 1969 International Minerals and Chemicals (IMC) began an exploration program designed to address the possibility of surface mining the lower grade material in this area. IMC conducted trenching and rotary drilling targeted at low-grade zones adjacent to previously mined high-grade shear zones. These activities resulted in discovery of the Saddle prospect (Pilkington, 1970).

IMC's initial exploration efforts on the Saddle prospect consisted of geological mapping and sampling of four previously excavated trenches and open cuts. IMC also excavated five new dozer trenches totalling 4,299 feet. Initial sampling was conducted in three trenches previously excavated by Keystone Mines Inc. IMC also sampled two dozer trenches previously excavated by Keystone Mines approximately 500 feet west of the Pioneer shaft. IMC conducted rotary drilling using a 5-inch rotary drilling rig (Pilkington,

1970). Two vertical rotary holes totalling 485 feet were drilled on the Saddle prospect.

In 1987, Keystone Mines leased their holdings to Fairbanks Exploration Inc. and in 1988 BP Minerals, acting as operator of a joint venture with Fairbanks Exploration Inc. conducted drilling designed to confirm and expand on the results previously generated by IMC. BP Minerals drilled 3,465 feet of reverse circulation drilling in 7 holes Klessig (1988).

Production notes:

Reserves:

Based on the results from trenching and drilling, IMC calculated drill inferred reserves of 2,111,000 tons grading 0.037 ounces of gold per ton and 0.46 ounces of silver per ton in the Saddle Zone (Pilkington, 1970). These reserves were considered subeconomic at then-current gold and silver prices and IMC terminated its lease with Keystone Mines Inc. in 1970.

Additional comments:

References:

Pilkington, 1970; Klessig, 1988; Freeman, 1992.

Primary reference: Pilkington, 1970

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): McCarty

Site type: Mine

ARDF no.: LG152

Latitude: 65.065 **Quadrangle:** LG A-1

Longitude: 147.351

Location description and accuracy:
Cobb (1972, MF-413), loc. 46; NW1/4NE1/4 sec. 28, T. 3 N., R. 2 E., of the Fairbanks Meridian. The McCarty Mine is labeled on the Livengood A-1 quadrangle. Ore was brought to this mill from a group of six claims at the head of Fairbanks Creek.

Commodities:

Main: Au

Other: Sb, Zn

Ore minerals: Arsenopyrite, gold, jamesonite, sphalerite, stibnite

Gangue minerals:

Geologic description:
The McCarty mine milled ore from the Henry Ford group of claims which included ore from both the McCarty vein (ARDF no. LG150), the Henry Ford vein (ARDF no. LG153) and the American Eagle vein, which is located closest to the mill. This mine is located at the head of Fairbanks Creek and has been one of the largest lode-gold producers in the Fairbanks Creek area, second only to the Hi-Yu mine (ARDF no. LG182).

Country rock in the area is generally quartz-mica schist, but quartzite schist and calcareous schist are also present. Sericitization is said to characterize the wall rock near the vein (Joesting, 1941).

Most ore milled came from the nearby American Eagle vein, which is from one to three feet thick, strikes N 60 W, dips 55 to 60 SW; it consists of coarsely crystalline quartz with free gold and small proportions of jamesonite, stibnite, arsenopyrite and sphalerite (Joesting, 1941, p. 3). Occasional large kidneys of high-grade stibnite, with up to 60.66% antimony, are associated with the vein (Joesting, 1941, p. 3). The McCarty group of veins at the head of Fairbanks creek were mined sporadically from 1911 to 1917 and almost continously from 1927 to 1942, with production estimates ranging from 26,800 ounces from 16,750 tons of ore grading 1.6 ounces of gold per ton (Porterfield and Croff, 1986), to an estimated 60,000 ounces of gold (Metz and others ,1987).

There is no record of work on the property from 1942 until 1984, when Placid Oil Company drilled 6,137 feet in 23 diamond core holes. Preliminary ore reserves from this work

were calculated at 15,000 tons grading 0.80 ounces of gold per ton.

In 1987 and 1988, Fairbanks Exploration, Inc. conducted geochemical sampling of stamp sand tailings and waste dumps of the McCarty mine. Stamp sands yielded gold values of 0.314 and 1.028 ounces of gold per ton with highly anomalous silver, antimony and arsenic (Fairbanks Exploration Inc., unpublished report, 1986). Geochemical samples collected during the 1987 field program were designed to test the precious metal content of the McCarty mine tailings dumps. This site contains stamp sands with interbeds of sulfide rich material in which fine gold occurs in its native form and as inclusions in arsenopyrite and pyrite. The McCarty mine tailings ponds exhibit distinct sulfide and gold rich lenses from 1 to 4 inches thick separated by 1 to 2 feet of virtually clean quartz sand. The average gold grades from the McCarty mine waste dumps range from 0.132 to 0.158 ounces of gold per ton (Fairbanks Exploration Inc., unpublished report, 1988).

Alteration:

Seritization.

Age of mineralization:

Deposit model:

Polymetallic vein (Cox and Singer, 1986; model 22c).

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

22c

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:

The McCarty mine, also known as the American Eagle mine, was one of the most productive gold mines in the district. The American Eagle shear zone was accessed through the American Eagle adit and American Eagle shaft. Although the old stamp mill and head-frame of the American Eagle shaft are still standing, the underground workings of the mine are inaccessible (Freeman, 1992). During the winter of 1914-1915, a 450 foot adit was driven on the American Eagle claim and significant amounts of ore were extracted during the summer of 1915 (Stewart, 1915). The American Eagle shaft had been sunk to a depth of 107 feet by 1915 (Brooks, 1915).

In 1936, United States Smelting Refining and Mining Company (USSR&M) began drifting along the 135-foot level through the American Eagle shaft (Smith, 1939; B 910). Extensive development continued in 1938 but the results of bulk sampling were not encouraging (Smith, 1939; B 917). USSR&M sank 120 feet of shaft in the American Eagle shaft, put in 625 feet of raise and drove 1,816 feet of drift, cross-cuts and adit in 1938 (Reed, 1939). Mining continued in 1939 when USSR&M completed 465 feet of drifts and crosscuts and nearly 400 feet of raising. The ore was treated in a 2 stamp Nissen mill and the tailings were impounded for later up-grading (Smith, 1941). Mining continued in 1940 during which 639 feet of drifts and crosscuts were driven as well as 545 feet of

raises. The American Eagle shaft was deepened to 250 feet giving access to over a mile of drifts and 1,750 feet of raises on the 28, 135 and 235 foot levels (Smith, 1942). Mining continued in 1941 when USSR&M sank a 65 foot winze from the east end of the 235 level. USSR&M maintained the properties until 1958 but no further mining was reported from the mine (Porterfield and Croff, 1986).

In 1984, Placid Oil Company drilled 6,137 feet in 23 diamond core holes. During this period Alaska Mineral Services constructed a small carbon-in-pulp leach plant (the Haskins mill) at the McCarty mine site to treat stamp mill sands from the McCarty mine and the Hi Yu mine. The open pits, mine waste dumps and stamp sand tailings of the McCarty mine were examined and sampled in 1986 (Fairbanks Exploration Inc., unpublished report, 1986).

Production notes:

Total production from the American Eagle shear through 1917 was approximately 967 ounces of gold with an average grade of about one ounce of gold per ton (J. McCarty, unpublished report, 1932). Milling of development material in 1929 and 1930 produced 1,274 ounces of gold from 1,225 tons of ore averaging 1.04 ounces of gold per ton (J. McCarty, unpublished report, 1932; Hill, 1931). During 1931, approximately 34 ounces of gold averaging 1.25 ounces of gold per ton was recovered from 27 tons of material excavated from a surface cut on the American Eagle shear zone (J. McCarty, unpublished report, 1932). Smith (1933; B 844) reported that the McCarty mine was the largest producer in the Fairbanks Creek basin in 1931. A total of 600 tons of ore from the American Eagle workings was milled in 1938 at a rate of 240 tons per month (Reed, 1939).

The McCarty mine ceased operations in 1942 due to War Production Board Limitation Order L208. However, about 15 tons of high grade stibnite ore was shipped from the prospect in 1942. This ore graded 60.66% antimony (Joesting, 1942; ATDM Pamph. 1). In addition, about 5 tons of stibnite ore grading 45% antimony was also shipped from the American Eagle mine in 1942 (Joesting, 1943; Killeen and Mertie, 1943).

Total production from the McCarty mine workings (American Eagle, Henry Ford and McCarty shear zones) is estimated at 26,800 ounces from 16,750 tons of ore grading 1.6 ounces of gold per ton (Porterfield and Croff, 1986). However, Metz and others (1987) estimate production from the McCarty mine was approximately 60,000 ounces of gold.

Reserves:

In 1984 Placid Oil Company drilled 6,137 feet in 23 diamond core holes. Preliminary ore reserves from this work were calculated at 15,000 tons grading 0.80 ounces of gold per ton.

In 1988, Fairbanks Exploration Inc. conducted bulk sampling of the American Eagle mine tailings and waste dump. Based on the results of this sampling, ore grade and tonnage estimates were calculated. These reserve estimates do not reflect mining conducted by Tri-Con Mining after mid-August 1988. The average gold grades from the American Eagle mine tailings range from 0.091 to 0.168 ounces of gold per ton. However, a portion of the samples were taken from stamp sands which had been re-treated in a cyanide mill erected on the prospect for this purpose in the early 1980's. Therefore, composite sample results are not an accurate estimate of gold grades for the bulk of the American Eagle mine stamp sands. Channel sampling of American Eagle mine tailings conducted in 1987

indicated average grades of 0.123 ounces of gold per ton and 0.74 ounces of silver per ton (Fairbanks Exploration Inc., unpublished report, 1987). Estimated tonnage of stamp sands at the American Eagle mine is 3,000 tons. The average gold grades from the American Eagle mine waste dumps range from 0.132 to 0.158 ounces of gold per ton (Fairbanks Exploration Inc., unpublished report, 1988).

Additional comments:

References:

Brooks, 1912; Smith, 1913 (B 525); Smith, 1913 (B 542); Eakin, 1915; Brooks, 1916 (B 642); Smith, 1917 (BMB 142); Chapin, 1919; Smith, 1930 (B 813); Smith, 1930 (B 810); Smith, 1932; Pilgrim, 1933; Smith, 1933 (B 836); Smith, 1933 (B 844); Smith, 1934 (B 864); Smith, 1938; Reed, 1939; Smith, 1939 (B 917); Joesting, 1941; Smith, 1941; Joesting, 1942 (ATDM Pamph. 1); Smith, 1942; Joesting, 1943; Killeen and Mertie, 1951; Burand, 1968; Chapman and Foster, 1969; Cobb, 1972 (MF 413); Cobb, 1976 (OFR 76-633); Metz and others, 1987; Freeman, 1992.

Primary reference: W.J. McCarty, unpublished report, 1932

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Henry Ford

Site type: Mine

ARDF no.: LG153

Latitude: 65.066 **Quadrangle:** LG A-1

Longitude: 147.355

Location description and accuracy:
Cobb (1972, MF-413), loc. 46; NW1/2 sec. 28, T. 3 N., R. 2 E., of the Fairbanks Meridian. The Henry Ford shaft is the northernmost shaft on a group of six claims of the McCarty and American Eagle Mine group (ARDF no. LG152) that lie at the head of Fairbanks Creek, just east of the Wolf Creek divide.

Commodities:

Main: Au

Other: Ag

Ore minerals: Arsenopyrite, gold

Gangue minerals:

Geologic description:
The upper Henry Ford vein strikes N 40 E and dips to the northwest. This quartz vein carries free gold, but also a large percentage of arsenopyrite. Assays of concentrates from one of the surface pits near the creek showed this arsenopyrite to carry some gold and 1600 ounces of silver per ton. The vein is cut in three places by stringers, all of which carry gold (W. J. McCarty, unpublished report, 1932).

Alteration:

Age of mineralization:

Deposit model:
Gold-quartz vein.

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

Production Status: Yes; medium

Site Status: Inactive

Workings/exploration:
Shaft on a vein.

Production notes:
Total production from the American Eagle mine workings (including the Henry Ford vein and McCarty vein) is estimated at 26,800 ounces from 16,750 tons of ore grading 1.6 ounces of gold per ton (Porterfield and Croff, 1986).

Reserves:

Additional comments:

References:
Smith, 1913 (B 542); Hill, 1933; Killeen and Mertie, 1951; Cobb, 1972 (MF 413); Porterfield and Croff, 1986.

Primary reference: W. J. McCarty, unpublished report, 1932

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Ebbert

Site type: Prospect

ARDF no.: LG154

Latitude: 65.067 **Quadrangle:** LG A-1

Longitude: 147.359

Location description and accuracy:
The Ebbert prospect is situated in upper Wolf Creek approximately 2,000 feet northwest of the McCarty mine (ARDF no. LG152); SE1/4SW1/4 sec. 21, T. 3 N., R. 2 E., of the Fairbanks Meridian.

Commodities:

Main: Au

Other: Ag, As, Pb, Sb, Sn

Ore minerals: Arsenopyrite?, galena?, gold, jamesonite, stibnite

Gangue minerals:

Geologic description:
Gold is found in quartz-rich portions of a shear zone. The lode was sampled and mapped in 1968 and indicated extremely high gold, silver, lead, antimony, arsenic and tin values (Forbes and others, 1968). Quartz veins and wall rock in old prospect trenches carry as much as 2.87 ppm Au (Pilkington and others, 1969, p. 11). Veins that strike N 70 W, dip 55 S, and veins that strike N 65 E, dip 70 S. Altered schist as much as 1 foot into the footwall of the latter vein carries significant gold. Grab samples from veins contained betweeen 0.05 and 2.87 ppm Au (Pilkington and others, 1969). In 1969, the Ebberts prospect was sampled by International Minerals and Chemicals (IMC) in the vicinity of the main shaft. At this point, the shear zone trends N 85 W and dips 60 S and consists of narrow quartz stockwork zones on the hanging wall and foot wall, separated by altered schist. Stibnite and jamesonite occur on the hanging wall as kidney shaped masses. The mineralized zone was 13 feet wide and averaged 0.06 ounces of gold per ton and 8.4 ounces of silver per ton (Pilkington, 1970). IMC also excavated a dozer trench which crossed the Ebberts shear 200 feet east of the Ebberts shaft. The trench exposure assayed 0.046 ounces of gold per ton and 0.32 ounces of silver per ton over 25 feet.

Alteration:

Age of mineralization:

Deposit model:
Polymetallic vein (Cox and Singer, 1986; model 22c).

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

Production Status: None

Site Status: Inactive

Workings/exploration:
The first activity was by Hugh M. Hinton who conducted hand trenching on the prospect (Saunders, 1960; ATDM MR 49-4). The prospect remained inactive until dozer trenching was conducted by United States Smelting Refining and Mining (USSR&M) sometime around 1950. Initial exploration examined the prospect's potential for antimony. In June 1960, Arctic Alaska Fisheries and Enterprises Inc. conducted dozer trenching on the prospect and exposed the Ebberts shear zone which was referred to as the Jamesonite shear zone (Saunders, 1960; ATDM MR 49-4). The Ebbert prospect was mined for antimony via a shallow shaft and open cuts from 1961 through 1964 by Ed Ebbert (R. Vetter, oral commun., 1986). The prospect was idle until 1967 when Ed Ebbert re-opened the shaft and open cuts after finding higher gold values in quartz-rich portions of the shear zone (Anderson and Johnson, 1970). In 1969, the Ebberts prospect was sampled by International Minerals and Chemicals (IMC) in the vicinity of the main shaft (Pilkington, 1970). IMC also excavated a dozer trench which crossed the Ebberts shear 200 feet east of the Ebberts shaft.

Production notes:

Reserves:

Additional comments:

References:
Saunders, 1960 (ATDM MR 49-4); Forbes and others, 1968; Pilkington, 1970.

Primary reference: Pilkington, 1970

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Pioneer

Site type: Mine

ARDF no.: LG155

Latitude: 65.068 **Quadrangle:** LG A-1

Longitude: 147.355

Location description and accuracy:

The Pioneer mine is located on the divide between Fairbanks Creek and Wolf Creek along the old Circle-Fairbanks trail; SE1/4SW1/4 sec. 21, T. 3 N., R. 2 E., of the Fairbanks Meridian. This site consists of several claims: War Eagle, Leroy, Pioneer, Iron Mask, Black Warrior and Willie. Most production came from the Pioneer claim.

Commodities:

Main: Au

Other: Sb

Ore minerals: Gold, stibnite

Gangue minerals:

Geologic description:

This site consists of several claims containing gold-bearing quartz shear zones; these are the Pioneer, Willie, Iron Mask, War Eagle, Leroy and Black Warrior claims. Most production came from the Pioneer claim.

The Pioneer shaft and prospect pits exposed a shear zone of over 800 feet in strike length. By 1912, $22,000 worth of gold (1,064 ounces) of ore had been mined; the average width of the vein was 34 inches, and the average grade was 2.2 ounces of gold per ton. The highest value was obtained from a 22 ton shipment to the Chena mill which returned an average of $180 gold per ton (8.7 ounces of gold per ton) (Times Publishing Company, 1912). By 1916, two shafts had been sunk on the Pioneer claim on an 18-inch-thick antimony-bearing shear zone oriented N 85 E, 80 N. (Mertie, 1918). Five hundred feet west of the antimony-bearing zone, three gold-bearing quartz stockwork shears were exposed. Two of these zones ranged from 12- to 14-inches-thick and were oriented N 35-45 E, 60-80 NW. The third zone had an east-west strike and a dip of 45 S. These exposures averaged about $10 gold per ton or 0.5 ounces of gold per ton (Mertie, 1918).

The Willie claim contained a 4- to 5-foot-wide iron-oxide-stained quartz stockwork zone oriented N 50 E, 80 SE (Prindle, 1910). Free gold could be panned from its 1,000 foot strike length. Shaft sinking in 1910 revealed a 10-inch-thick high grade portion of the shear zone.

The Iron Mask claim contained an eight-foot-wide mineralized shear zone oriented east-west and dipping 65 S. A 50-foot shaft had been sunk on this claim by late 1912 and the ore averaged $25 gold per ton or 1.2 ounces of gold per ton (Times Publishing Company, 1912). A three-foot-wide, high grade zone was also exposed on the Iron Mask claim. This zone has a hanging wall consisting of a bleached white decomposed rock believed to be a fine-grained intrusive (Smith, 1913; B 525). The gold-bearing portion of the lode is in fault contact with the decomposed intrusive rock. On the Iron Mask claim, an 8-inch-thick stibnite-bearing shear had been exposed which strikes N 80 W and dips 75 SW. Farther to the east but still on the Iron Mask claim, a 4-foot-thick shear zone carrying low grade gold and stibnite mineralization was exposed and traced into Fairbanks Creek. At the War Eagle claim, visible gold was found in two separate zones which average 1 to 2 feet wide (Smith, 1913; B 525). In the Leroy claim, the high grade portion of the shear averaged 1 foot wide (Smith, 1913; B 525). The farthest east claim, the Black Warrior, contained test pits that exposed high grade gold-quartz shear zones which averaged 8 to 10 inches wide.

The average fineness of the Pioneer group gold through 1912 was 814.5 (Smith, 1913; B 525).

Alteration:

Yellowish oxidation products of stibnite common in quartz.

Age of mineralization:

Deposit model:

Gold and stibnite in quartz shear zones.

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

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:

Exploration began in 1904, and the Pioneer group of claims were eventually staked; these included the War Eagle, Leroy, Pioneer, Iron Mask and Black Warrior claims (Times Publishing Company, 1912). The adjacent Willie claim was staked in 1909. In the winter of 1910, shaft sinking was begun on the Willie claim. By 1912, the Pioneer shaft had been sunk to a depth of 120 feet and two other shafts sunk to depths of 49 and 85 feet. Additional prospect pits have exposed the shear zone over 800 feet along strike. In early 1912, a 50-foot-shaft was sunk on the Iron Mask claim. By mid-1912, the western-most claim of the Pioneer group, the War Eagle claim, had been traced in several 8- to 10-foot deep pits (Smith, 1913; B 525). On the Leroy claim, two shafts were sunk on one of the leads that was exposed on the War Eagle claim. Development work on the Pioneer claim included about 200 feet of drifts to the east and west at the 110 foot level (Smith, 1913; B 525). Fifty feet of drift had been completed from the 75-foot level in the next shaft to the east and still further east, a 38-foot-deep shaft had been sunk. The far-

thest east claim of the Pioneer group, the Black Warrior claim, contained test pits 12- to 15-feet deep every 50 feet over 400 to 500 feet along strike. By 1916, two shafts had been sunk on the Pioneer claim on an inch-thick antimony-bearing shear zone (Mertie, 1918).

In 1951, dozer trenching at the Pioneer Group exposed the tops of the old drifts on the antimony shear zone (Saunders, 1960; ATDM MR 49-4, p.2). A shaft was sunk an additional 20 feet to determine if high grade stibnite mineralization was present (Saunders, 1960; ATDM MR 49-4, p.2). In 1969, the Pioneer group of claims were examined by dozer trenching and rotary dirlling. Active exploration of the Pioneer mine area was conducted by Placid Oil in 1984 and 1985 when 2,154.7 feet of diamond core hole was drilled in 13 holes in the Pioneer and Pennsylvania mine site areas (Porterfield and Croff, 1986). In 1988, BP Minerals conducted reverse circulation drilling in the Pioneer mine area (Freeman, 1992).

Production notes:

Production from the Pioneer mine through 1931 was estimated at $14,000 (677 ounces). This production was primarily derived from above the 50-foot level of the main shaft (Hill, 1933).

Reserves:

Additional comments:

Angus McDougall conducted the first exploration in the vicinity of the Pioneer mine beginning in 1904 (Times Publishing Company, 1912). He and his partners Julius Hoffman, Mr. McGowan and Mr. Clark, eventually staked the Pioneer group which consisted of the War Eagle, Leroy, Pioneer, Iron Mask and Black Warrior claims (Times Publishing Company, 1912). The adjacent Willie claim was staked in 1909 by Lawrence J. McCarty. By 1910 the Willie claim was owned by Frank Lawson and Lawrence McCarty and an unspecified amount of ore had been custom milled from the prospect (Brooks, 1910). In the winter of 1910, shaft sinking was begun on the Willie claim by Lawrence McCarty's sons, Lawrence Junior, age 9 and Willie, age 7. The two boys were assisted by their older sister who acted as surface superintendent (Times Publishing Company, 1912).

References:

Prindle, 1910; Brooks, 1911; Brooks, 1912; Times Publishing Company, 1912; Prindle and Katz, 1913; Smith, 1913 (B 525); Smith, 1913 (B 542); Chapin, 1914; Eakin, 1915; Brooks, 1916 (B 642); Mertie, 1918; Chapin, 1919; Hill, 1933; Killeen and Mertie, 1951; Saunders, 1960 (ATDM MR 49-4); Chapman and Foster, 1969; Cobb, 1972 (MF 413); Cobb, 1976 (OFR 76-633); Freeman, 1992.

Primary reference: Smith, 1913 (B 525)

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Pennsylvania

Site type: Mine

ARDF no.: LG156

Latitude: 65.069 **Quadrangle:** LG A-1

Longitude: 147.355

Location description and accuracy:

The Pennsylvania mine prospect is located near the head of Wolf Creek northeast of the Pioneer mine (ARDF no. LG155); SE1/4SW1/4 sec. 21, T. 3 N., R. 2 E., of the Fairbanks Meridian. The location given is on the northwest shaft, on the divide between the head of Wolf Creek and Fairbanks Creek.

Commodities:

Main: Au

Other: Sb

Ore minerals: Gold, stibnite

Gangue minerals:

Geologic description:

Free gold occurs associated with antimony oxides in white quartz in a shear zone that strikes N 76 W and dips 56 SW (Smith, 1913; B 525). The high grade portion of the shear zone averaged 12 to 15 inches thick.

In late 1911, an 8.5 ton sample of material from the claim averaged $100 gold per ton (4.8 ounces of gold per ton). A second lot of Pennsylvania mine ore was custom milled in early 1912 and averaged $52 gold per ton (2.5 ounces of gold per ton). By 1913, the Pennsylvania shaft was deepened to 146 feet and between 1922 and 1931; the west drift on the 50 foot level was extended to a length of 70 feet and stoped through to the surface. This work yielded approximately $10,000 worth of gold (484 ounces) (Hill, 1933).

The Pennsylvania mine was examined in 1942 as a possible source of antimony. A one-half ton stockpile of oxidized stibnite near the shaft contained an average grade of 57.01% antimony but the mine did not posses sufficient quantity of this material to warrant additional exploration or development (Killeen and Mertie, 1951).

Alteration:

Age of mineralization:

Deposit model:
Gold- and antimony-oxides in quartz veins.

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

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:
By late 1912, the Pennsylvania shaft had been sunk to a depth of 140 feet. Drifting had proceeded 20 feet to the northwest and southeast on the 140 foot level. At the 50 foot level, drifts extended 50 feet northwest and 50 feet southeast with a raise connected to the surface on the southeast drift (Times Publishing Company, 1912). The ore was hoisted using a Little Giant steam hoist and was shipped to the company mill constructed on upper Fairbanks Creek by L.J. McCarty and Emil C. Fursteneau. This mill began operation on September 28, 1912 and consisted of a Little Giant #3 roll mill which fed minus 40 mesh pulp over amalgamation plates (Times Publishing Company, 1912). The tailings were not impounded at this mill. The mill has a capacity of 8 to 20 tons of ore per day (Smith, 1913; B 525). The Pennsylvania shaft had been deepened to 146 feet by mid-1913 (Chapin, 1914). At some point between 1922 and 1931, the western drift on the 50-foot-level was extended to a length of 70 feet and stoped through to the surface. This work yielded approximately $10,000 worth of gold (484 ounces) (Hill, 1933). The shaft and workings were flooded in 1931.

Production notes:
In late 1911, an 8.5 ton sample of material from the claim averaged $100 per ton in gold (4.8 ounces of gold per ton). A second lot of Pennsylvania mine ore was custom milled in early 1912 and averaged $52 per ton (2.5 ounces of gold per ton). The mine was not in production in 1913. The mine was examined in 1922 by Stewart (1922) and Davis (1922) but was not in production at that time. At some point between 1922 and 1931, the western drift on the 50-foot level was extended to a length of 70 feet and stoped through to the surface. This work yielded approximately $10,000 worth of gold (484 ounces, Hill, 1933).

Reserves:

Additional comments:
The Pennsylvania claim was staked in October 1911 by Lawrence J. McCarty and soon became part of the McCarty group of claims which included the Pennsylvania, Willie, Dorothy, Marie, Kentucky and Freegold claims (Times Publishing Company, 1912).

References:
Times Publishing Company, 1912; Smith, 1913 (B 525); Hill, 1933; Killeen and Mertie, 1951; Freeman, 1992.

Primary reference: Smith, 1913 (B 525)

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Homestake

Site type: Mine

ARDF no.: LG157

Latitude: 65.071 **Quadrangle:** LG A-1

Longitude: 147.366

Location description and accuracy:
Cobb (1972, MF-413), loc. 45; NW1/4SW1/4 sec. 21, T. 3 N., R. 2 E., of the Fairbanks Meridian. This mine is at the head of Wolf Creek, adjacent to the cabins marked on the Livengood (A-1) quadrangle map.

Commodities:

Main: Au

Other: Ag, Cu

Ore minerals: Chalcocite, galena, gold, pyrite, stibnite, tetrahedrite

Gangue minerals:

Geologic description:
In 1908, the Homestake Tunnel site, which is currently known as the Nordale adit, was staked (Times Publishing Company, 1912). Five gold-bearing, quartz-rich shear zones were located on the surface above the intended site of the Homestake adit (Smith, 1913; B 525). Stibnite, pyrite and chalcopyrite were noted in a bulk sample. This material was extracted from a 3-inch-wide 'stringer' zone encountered in the adit approximately 315 feet from the portal. The shear strikes east-west and dips 45 S (Brooks, 1914). Two drifts were driven along the 45 S, east-west trend of mineralization along this main stringer zone known as the Nordale shear (Times Publishing Company, 1912).

By mid-1913, the eastern drift on the Nordale shear was 300 feet long and two stopes had been mined out. The shear zone in the east drift is discontinuous along strike, and in both dip directions, although the mineralized shear zone appears to have the same orientation as barren portions of the shear zone. An 8-foot-deep winze on the east drift ore shoot indicated that the mineralization pinched out at depth and extended for a distance of 12 feet along the dip slope. The ore shoot extends along the east drift floor for 160 feet from a point 90 feet east of the main adit. The eastern 50 feet of the east drift was barren. Approximately 135 feet east of the 315-foot station in the main adit, a 150-foot raise was driven on the Nordale shear which confirmed the presence of the shear zone to the surface. At a point 30 feet up-dip from the east drift, the raise intersected 10 dip-feet of mineralized shear zone which was stoped out over a 100-foot length. The upper ore shoot has

a horizontal pitch and is 3 to 12 inches thick and averages 9 inches thick (Brooks, 1914). The upper portion of the ore shoot is truncated by a horizontal fault of unknown displacement. Barren white quartz veins in the metamorphic country rock commonly increase in abundance near higher grade portions of the shear zone. At least two phases of mineralization are recognized in the east-drift stopes. Early quartz-rich lenses in the country rock are cut by later mineralized quartz veinlets in the shear zone.

At 600 feet from the Homestake adit portal, another shear zone trends N 60 W and dips 45 S. The quartz-rich portions of the shear average 1 foot in width, but pinch and swell along strike. Mineralization consisted of poly-phase quartz containing free gold, stibnite, pyrite, chalcocite and copper carbonates. Total sulfide content is low. Bladed chalcocite associated with higher gold values is described by Brooks (1914) but probably is jamesonite or boulangerite (Freeman, 1992).

Development of the Nordale shear in the east drift of the Homestake adit in 1916 discovered another ore shoot in a raise approximately 100 feet up-dip from the east drift. The raise was driven approximately 235 feet east of the main Homestake adit (Brooks, 1918; Stewart, 1922). The new ore shoot was similar in character to previously encountered shoots in the Homestake workings and strikes N 68 E and dips 40 SW. The horizontal fault which truncates the upper ore shoot in the adjacent raise was also encountered in the new raise where it had a strike of N 60 E with a dip of 30 NW. Gold mineralization was restricted to the quartz-rich portion of the shear zone and was associated with stibnite and minor pyrite and chalcocite.

Metallurgical work conducted on material from the Nordale shear zone revealed the presence of variable amounts of scheelite commonly associated with stibnite and high silver values (Hall, 1940). The high gold and silver content of the Nordale shear zone was investigated with a series of tests which indicated most of the gold was contained in quartz rather than sulfides, and sulfides were liberated at approximately 100 mesh. The highest gold and silver values were found in the -200 mesh size fraction. The silver-bearing mineral is argentiferous tetrahedrite (Metz, 1987).

Plans to continue development and produce antimony from discrete stibnite pods in the mine were abandoned when assays indicated unacceptably high lead contents in the ore (Joesting, 1943). Analytical results from a dump sample of stibnite taken in 1942 returned a grade of 45.64% antimony (Killeen and Mertie, 1951).

A ten foot thick sequence of massive sulfide known as the Truck system was intersected in drilling beneath the Nordale adit. This mineralization was 10 feet thick and graded 0.04 ounces of gold per ton, 12 ounces of silver per ton, 6.24% lead and 7.31% zinc (Porterfield and Croff, 1986). Mineralization was hosted by chloritic and manganiferous quartzite, graphitic schist and exhalite of the middle Cleary Sequence.

Samples from the Nordale adit dump contained highly anomalous gold, silver, arsenic and antimony hosted by chloritic and manganiferous quartzite, graphitic schist and exhalite of the middle Cleary Sequence (Fairbanks Exploration Inc., unpublished report, 1986). Samples from the dump averaged 0.030 ounces of gold per ton and 0.25 ounces of silver per ton, with anomalous arsenic and antimony; visible galena, sphalerite and rare chalcopyrite are also present.

In early May, 1911, 1,300 tons of ore from the Homestake adit returned average grades of $470 per ton in gold (22.7 ounces of gold per ton). Smith (1913) reported that this bulk sample contained $308 per ton in free gold (14.9 ounces of gold per ton) with the re-

mainder of the values being in gold and high silver in concentrates not recoverable by amalgamation. Work at the Homestake adit continued in 1914, and 30 to 50 tons of ore were mined that contained approximately $100 of gold per ton (4.8 ounces of gold per ton) (Brooks, 1915; Stewart, 1915). Approximately 50 tons of ore was mined from the Homestake mine in 1915 and returned an average value of $100 per ton in gold (4.8 ounces of gold per ton) (Smith, 1917; BMB 142). A total of 80 tons of ore of unknown grade was mined from the Homestake adit in 1916 (Mertie, 1918).

Gold production from the Homestake adit was estimated at $60,000 (about 2,900 ounces) through 1931 (Hill, 1933). A total of 54 tons of ore from the Nordale shear were milled at the McCarty mill and returned an average grade of $52 of gold per ton (1.5 ounces of gold per ton) (Reed, 1939).

Alteration:

Quartz and sericite; throughout the vein, vugs and veinlets contain limonite and oxidation products of vein minerals.

Age of mineralization:

Deposit model:

Sulfide and gold-bearing, quartz shear zones in schist.

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

Production Status: Yes; medium

Site Status: Inactive

Workings/exploration:

In 1908, the Homestake tunnel, which currently is known as the Nordale adit, was staked (Times Publishing Company, 1912). Five, gold-bearing quartz-rich shear zones were located on the surface above the intended site of the Homestake adit (Smith, 1913; B 525). Between October, 1908 and May 1911, the adit was driven approximately 315 feet. Work continued in the Homestake adit until November, 1912, when the adit was approximately 680 feet long. Work concentrated on the main stringer zone, now known as the Nordale shear, where two drifts were driven along the 45 degree south-dipping, east-west trend of mineralization. The western drift was 50 feet in length and the eastern drift had been driven 100 feet when mineralization was cut off by a fault (Times Publishing Company, 1912). By mid-1913, the eastern drift on the Nordale shear was 300 feet long and two stopes had been mined out. Approximately 135 feet east of the 315-foot station in the main adit, a 150-foot raise was driven on the Nordale shear which confirmed the presence of the shear zone to the surface.

By mid-1913, the Homestake adit had been extended to 750 feet in length and had intercepted three mineralized shear zones. In 1938, the Homestake adit was re-opened and 200 feet of drift driven on the Nordale shear zone west of the main adit (Reed, 1939). A 50-foot shaft was sunk on this shear and a 65-foot exploration adit driven on the nearby Wolf shear. By 1940, Hall (1940) reported the east drift of the Homestake adit to be 700

feet long with little or no cross-faults along this length. Development efforts at the Homestake adit were terminated by War Production Board Limitation Order L208 in 1942.

In 1982, Placid Oil Company (POC) began rehabilitation of the Homestake adit, now known as the Nordale adit (Porterfield and Croff, 1986). Efforts in 1982 consisted of rehabilitation of 950 feet of old adit and completion of 1,561 feet of new adit and drift. Of this total, 600 feet of drift was driven west of the main adit to access the Christina shear zone and 250 feet of cross-cut was driven to access the shear zone along strike. In 1983, POC drove an additional 163 feet of drift east of the main adit and 103 feet of new drift west of the main adit. POC also completed 700 feet of underground diamond drilling in 7, BQ (1.433 inch) wireline holes (Porterfield and Croff, 1986). Placid Oil did not conduct any work on the Nordale shear zone and the east and west drifts remained caved.

In the spring of 1986, the portal of the Nordale adit caved and the adit has remained inaccessible since that time. The prospect was examined in 1986 by Fairbanks Exploration Inc. and grab samples were collected from a small portion of the Nordale adit dump.

Production notes:

In early May, 1911, 1,300 tons of ore from the Homestake adit returned average grades of $470 per ton in gold (22.7 ounces of gold per ton). Smith (1913, B 525) reported that this bulk sample contained $308 per ton in free gold (14.9 ounces of gold per ton) with the remainder of the values being in gold and high silver in concentrates not recoverable by amalgamation. Work at the Homestake adit continued in 1914, and 30 to 50 tons of ore were produced that contained approximately $100 per ton in gold (4.8 ounces of gold per ton) (Brooks, 1915; Stewart, 1915). Approximately 50 tons of ore was mined from the Homestake mine in 1915 and returned an average value of $100 per ton in gold (4.8 ounces of gold per ton) (Smith, 1917; BMB 142). A total of 80 tons of ore of unknown grade was mined from the Homestake adit in 1916 (Mertie, 1918).

Gold production from the Homestake adit was estimated at $60,000 (2,900 ounces) through 1931 (Hill, 1933). A total of 54 tons of ore from the Nordale shear were milled at the McCarty mill and returned an average grade of $52 per ton (1.5 ounces of gold per ton) (Reed, 1939).

Reserves:

Additional comments:

References:

Brooks, 1911; Brooks, 1912; Times Publishing Company, 1912; Smith, 1913 (B 525); Smith, 1913 (B 542); Brooks, 1914; Chapin, 1914; Brooks, 1915; Eakin, 1915; Maloney, 1915; Brooks, 1916 (B 642); Brooks, 1916 (B 649); Smith, 1917 (BMB 142); Brooks, 1918; Mertie, 1918; Stewart, 1922; Hill, 1933; Reed, 1939; Hall, 1940; Joesting, 1942 (ATDM Pamph. 1); Joesting, 1943; Killeen and Mertie, 1951; Saunders, 1963 (Keystone mines report); Burand, 1968; Forbes and others, 1968; Chapman and Foster, 1969; Pilkington and others, 1969; Anderson and Johnson, 1970; Warfield, 1970; Cobb, 1972 (MF 413); Cobb, 1976 (OFR 76-633); Porterfield and Croff, 1986; Metz, 1987; Freeman, 1992.

Primary reference: Brooks, 1914

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Banner

Site type: Prospect

ARDF no.: LG158

Latitude: 65.073 **Quadrangle:** LG A-1

Longitude: 147.363

Location description and accuracy:
Cobb (1972, MF-413), loc. 45; SW1/4NW1/4 sec. 21, T. 3 N., R. 2 E., of the Fairbanks Meridian. This deposit is above Rexall Cabin at the head of Wolf Creek. Accuracy is within 1,000 feet.

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:
The prospect was discovered prior to 1912 when the shaft had already caved. The prospect reportedly contained ore with free gold but no production records are available (Smith, 1913; B 525). Chapin (1914) plotted the location of the Banner prospect but did not examine the prospect in 1913. No other published or private references to the Banner prospect are known.

Alteration:

Age of mineralization:

Deposit model:
Gold-quartz vein?

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

Production Status: Undetermined

Site Status: Inactive

Workings/exploration:
Shaft caved and partly flooded by 1912 (Smith, 1913; B 525).

Production notes:

Reserves:

Additional comments:

References:
Smith, 1913 (B 525); Smith, 1913 (B 542); Chapin, 1914; Chapman and Foster, 1969; Cobb, 1972 (MF 413); Cobb, 1976 (OFR 76-633); Freeman, 1992.

Primary reference: Smith, 1913 (B 525)

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Rexall

Site type: Mine

ARDF no.: LG159

Latitude: 65.073 **Quadrangle:** LG A-1

Longitude: 147.365

Location description and accuracy:

The Rexall mine is located approximately 200 feet north of the Nordale adit of the Homestake mine on the east side of upper Wolf Creek; NW1/4SW1/4 sec. 21, T. 3 N., R. 2 E., of the Fairbanks Meridian.

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:

Gold is found in quartz-rich shear zones. Mining initially began on a 3- to 5-foot wide shear zone trending N 25 E, 25 NW (Smith, 1913; B 525). Samples collected from the Rexall mine in 1910 averaged 6 ounces of gold per ton. By 1911, an adit had been driven 127 feet and 50 feet of drift had been driven on a quartz-rich shear zone that varied from 8 to 32 inches wide (Brooks, 1912). A richer ore shoot was intersected about 140 feet from the portal of the Rexall adit. This zone contained a 1- to 8-inch-wide quartz-rich shear that trends east-west and dips 60 N. The smaller shear is offset a few feet by the larger shear (Smith, 1913; B 525).

By November, 1912, a total of 340 feet of drift had been driven on the smaller shear and two winzes and five production stopes were ready for mining. The smaller shear zone was intersected in the main Rexall adit approximately 140 feet below the surface. Several custom lots of Rexall ore were milled in Fairbanks during 1912. A 25 ton lot from the small shear averaged $112 per ton in free gold (5.4 ounces of gold per ton); a 10 ton lot from the small shear averaged $166 of gold per ton in free gold (8.0 ounces of gold per ton) and a 3 ton lot from the large shear averaged $37 of gold per ton, or 1.8 ounces of gold per ton (Smith, 1913; B 525).

Alteration:

Age of mineralization:

Deposit model:
Gold-quartz vein.

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

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:
The Rexall mine was discovered by J.L. Solomon in March, 1910, and shortly afterwards, he staked four claims on the property (Times Publishing Company, 1912). Mining was started on a 3- to 5-foot-wide shear zone oriented N 25 E, 25 NW (Smith, 1913; B 525). By the end of 1911, an adit had been driven 127 feet, and 50 feet of drift cut on a quartz-rich shear zone that varied from 8 to 32 inches wide (Brooks, 1912). By mid-1912, a richer ore shoot was intersected about 140 feet from the portal of the Rexall adit. Work on the larger, northeast-trending shear was abandoned and a winze was sunk to the water table on the smaller, east-west trending shear. A total of 340 feet of drift had been driven on the smaller shear; two winzes and five production stopes were ready for mining by November, 1912. The smaller shear zone was intersected in the main Rexall adit approximately 140 feet below the surface.

In the fall of 1912, a two-stamp Joshua Hendy mill was erected on the Rexall claim and began milling ore in November, 1912. By this time the Rexall adit was 485 feet long and six stopes were ready for mining (Times Publishing Company, 1912).

Production notes:
Over the winter of 1911-1912, approximately 25-tons of ore were custom milled; they averaged $120 per ton or about 5.8 ounces per ton gold (Times Publishing Company, 1912). Several custom lots of Rexall mine ore were milled in Fairbanks during 1912. A 25 ton lot from the small shear averaged $112 per ton in free gold (5.4 ounces per ton gold), a 10 ton lot from the small shear averaged $166 per ton in free gold (8.0 ounces per ton gold) and a 3 ton lot from the large shear averaged $37 per ton in free gold, or about 1.8 ounces of gold per ton (Smith, 1913; B 525). In the fall of 1912, a two-stamp Joshua Hendy mill was erected on the Rexall claim and began milling ore on November 28, 1912. By this time the Rexall adit was 485 feet long and six stopes were ready for production (Times Publishing Company, 1912). No references to the Rexall mine are available for the period 1913 through 1921. By 1922, Davis (1922) and Stewart (1922) reported that the Rexall mill had been sold to the owners of the David mine and moved to Skoogy Gulch.

Reserves:

Additional comments:

References:

Brooks, 1911; Brooks, 1912; Times Publishing Company, 1912; Brooks, 1913; Smith, 1913 (B 525); Chapin, 1914; Davis, 1922; Stewart, 1922; Hill, 1933; Cobb, 1972 (MF 413); Cobb, 1976 (OFR 76-633); Cobb, 1981; Freeman, 1992.

Primary reference: Smith, 1913 (B 525)

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Solomon

Site type: Prospect

ARDF no.: LG160

Latitude: 65.077 **Quadrangle:** LG A-1

Longitude: 147.37

Location description and accuracy:
Cobb (1972, MF-413), loc. 45; SE1/4NE1/4 sec. 20, T. 3 N., R. 2 E., of the Fairbanks Meridian. The deposit is in the Wolf Creek valley, less than 1/2 mile northwest of the Homestake mine (ARDF no. LG157). Accuracy is within 1,000 feet.

Commodities:

Main: Sb

Other:

Ore minerals: Stibnite

Gangue minerals:

Geologic description:
A prospect pit on the prospect exposed a northeast-striking shear zone containing 3 to 4 inches of quartz-stockwork veins containing stibnite (Smith, 1913; B 525).

Alteration:

Age of mineralization:

Deposit model:
Stibnite-bearing quartz vein.

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

Production Status: None

Site Status: Inactive

Workings/exploration:
Prospect pit only. The prospect was examined in 1942 as a possible source for antimony but the limited exposures and insufficient quantities of mineralization did not war-

rant additional exploration (Killeen and Mertie, 1951).

Production notes:

Reserves:

Additional comments:

References:
Smith, 1913 (B 525); Smith, 1913 (B 542); Killeen and Mertie, 1951; Chapman and Foster, 1969; Cobb, 1972 (MF 413); Cobb, 1976 (OFR 76-633); Freeman, 1992.

Primary reference: Smith, 1913 (B 525)

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Goose Creek

Site type: Prospect

ARDF no.: LG161

Latitude: 65.077 **Quadrangle:** LG A-1

Longitude: 147.36

Location description and accuracy:
The location given is the approximate center of the Goose Creek soil anomaly; it is on an unamed creek between Goose Creek and upper Wolf Creek in the NW1/4 sec. 21, T. 3 N., R. 2 E., of the Fairbanks Meridian.

Commodities:

Main: Au

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

Ore minerals: Arsenopyrite, pyrite, sphalerite, stibnite, tetrahedrite

Gangue minerals: Sericite

Geologic description:
In 1996, Freegold Recovery Inc. outlined a +5,000 foot long multi-element soil anomaly on the Goose Creek prospect (Freeman and others, 1998). The core of the grid, covering an area approximately 2,000 feet by 1,000 feet, averaged over 100 ppb gold, three times the mean gold value over the project area. This anomaly trends N 80 W and was extended to a length of +10,000 feet in 1997. The anomaly is located in lower plate rocks of the Fairbanks Schist and appears to have secondary anomalies associated with district scale northeast trending structures similar to those on the Cleary Hill (ARDF no. LG119), Dolphin (ARDF no. LG112) and Wolf Creek (ARDF no. LG138) prospects. Initial drilling in late 1997 consisted of 5,038 feet of reverse circulation drilling in 11 holes. Preliminary assay results from one hole returned intercepts averaging up to 0.118 ounces of gold per ton over 160 feet in highly sericitized chlorite schist cut by 10-20% white quartz veins. Anomalous gold is associated with anomalous As, Sb, Pb, Ag, and Zn. Pyrite is relatively abundant in the sericitic alteration envelope but does not appear to be correlative with gold values.

In 1998, 10 reverse circulation holes totaling 5,017 feet were drilled in the Goose Creek prospect to determine the extent and geometry of the higher grade intercepts encountered in the 1997 drill program. Results indicate that mineralization is controlled by an 85 degree south dipping structure. The gold-bearing alteration envelope around this structure is restricted in size indicating limited potential for bulk tonnage mineralization in this area.

Alteration:
Sericitic alteration.

Age of mineralization:

Deposit model:
Intrusion and schist-hosted, gold bearing stockwork veins, shears and disseminations.

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

Production Status: None

Site Status: Inactive

Workings/exploration:
Soil sampling in 1996 lead to the discovery of a multi-element soil anomaly more than 5,000 feet long. Initial drilling in late 1997 consisted of 5,038 feet of reverse circulation drilling in 11 holes. In 1998, 10 reverse circulation holes totaling 5,017 feet were drilled (Freeman and others, 1998).

Production notes:

Reserves:

Additional comments:

References:
Freeman and others, 1998.

Primary reference: Freeman and others, 1998

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Circle Trail

Site type: Prospect

ARDF no.: LG162

Latitude: 65.07 **Quadrangle:** LG A-1

Longitude: 147.341

Location description and accuracy:
The Circle Trail prospect is located on the divide between Too Much Gold Creek, Fairbanks Creek and Wolf Creek; SE1/4 sec. 21, T. 3 N., R. 2 E., of the Fairbanks Meridian.

Commodities:

Main: Au

Other: Ag, As, Pb

Ore minerals: Arsenopyrite, boulangerite, jamesonite, pyrite

Gangue minerals:

Geologic description:
Prior to 1969, the divide between Too Much Gold Creek, Fairbanks Creek and Wolf Creeks was host to several producing mines and numerous prospects. The target of all of these mines and prospects was high grade gold mineralization associated with large northwest and northeast trending shear zones. Low grade mineralization was known to be present on these properties within and along the margins of higher grade portions of the shear zones. However, these lower grade zones could not be profitably worked using the existing technology (W. McCarty, oral commun., 1988). In 1969, International Minerals and Chemicals (IMC) conducted an exploration program designed to address the possibility of surface mining the lower grade material in this area. This work had been prompted by the findings presented in Forbes and others (1968) and Pilkington and others (1969) which indicated significant low grade gold and silver mineralization around higher grade quartz-rich portions of the shear zones. IMC conducted trenching and rotary drilling targeted at low grade gold-silver mineralization in surface mineable zones adjacent to previously mined high grade shear zones. These activities resulted in discovery of the Circle Trail prospect.

IMC's exploration efforts on the Circle Trail prospect consisted of geological mapping, grid rock and soil sampling, and excavation of 4 dozer trenches totalling 1874 feet (Pilkington, 1970). In order to test the down-dip extent of mineralization picked up in trenches, IMC conducted rotary drilling using a 5-inch-diameter conventional rotary drilling rig (Pilkington, 1970). A total of 12 vertical holes totalling 2,250 feet was drilled on

the Circle Trail prospect in 1969. Based on this drilling and trenching IMC calculated reserves of 1,050,000 tons with 0.050 ounces of gold per ton and 2.09 ounces of silver per ton (Pilkington, 1970).

In 1988, BP Minerals conducted additional drilling as operator of a joint venture with Fairbanks Exploration Inc. This program was designed to test for the suspected northwest trending shear zones previously mapped in the area. BP Minerals constructed 2,100 feet of new access road and drilled 2,362 feet of reverse circulation drilling in five holes (Klessig, 1988). Based on the work conducted by IMC and BP Minerals, Fairbanks Exploration Inc. estimated indicated reserves for the Circle Trail zone of 449,808 tons grading 0.070 ounces of gold per ton equivalent to a depth of 50 feet (P. Metz, written commun., 1988). No additional work has been conducted on the project since 1988.

The following is a summary of some of the characteristics of the Circle Trail prospect (Freeman, 1991). Mineralization is hosted by both northeast-trending gold-silver-sulfosalt-bearing, D2 shear zones and later northwest-trending gold-silver-arsenic-bearing, D3 shear zones. These shears are hosted by flat-lying felsic metavolcanics and metaquartzites of the middle to upper Cleary sequence. Rocks encountered in trenching and drilling include chloritic quartzite, chlorite schist, quartzite and quartz-chlorite-biotite schist. Sulfide minerals have been oxidized to depths that vary from 80 to 340 feet below surface.

Below the oxide zone, arsenopyrite, pyrite, boulangerite and jamesonite have been identified. Gold and silver values are not always elevated where iron, arsenic or lead sulfides occur, but sulfides containing these metals usually are present where gold and silver values are anomalous. Drilling intercepted five separate shear zones over a strike length of 1,500 feet and a combined width (perpendicular to strike) of 1,000 feet. The Circle Trail prospect extends along strike for 10,000 feet, is 1,800 feet wide and has been tested over a vertical distance of 700 feet in drilling, trenching and mining. Mineralization remains open in all directions.

Alteration:

Sulfide minerals have been oxidized to depths that vary from 80 to 340 feet below surface (Freeman, 1991).

Age of mineralization:

Deposit model:

Polymetallic vein (Cox and Singer, 1986; model 22c).

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

22c

Production Status: None

Site Status: Inactive

Workings/exploration:

In 1969 International Minerals and Chemicals (IMC) conducted trenching and rotary

drilling targeted at low grade gold-silver mineralization in surface mineable zones adjacent to previously mined high grade shear zones. IMC's exploration efforts on the Circle Trail prospect consisted of geological mapping, grid rock and soil sampling and excavation of 4 dozer trenches totalling 1874 feet (Pilkington, 1970). IMC conducted rotary drilling using a 5-inch-diameter rotary drilling rig (Pilkington, 1970). A total of 12 vertical holes totalling 2,250 feet was drilled on the Circle Trail prospect in 1969. In 1988, BP Minerals conducted additional drilling as operator of a joint venture with Fairbanks Exploration Inc. BP Minerals constructed 2,100 feet of new access road and drilled 2,362 feet in five holes by reverse circulation drilling (Klessig, 1988).

Production notes:

Reserves:

Additional comments:

References:

Forbes, 1968; Pilkington and others, 1969; Pilkington, 1970; Klessig, 1988; Freeman, 1991; Freeman, 1992.

Primary reference: Freeman, 1991

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Kellen

Site type: Prospect

ARDF no.: LG163

Latitude: 65.066 **Quadrangle:** LG A-1

Longitude: 147.334

Location description and accuracy:
Cobb (1972, MF-413), loc. 48; NE1/4 sec. 27, T. 3 N., R. 2 E., of the Fairbanks Meridian. The Kellen prospect is on Fairbanks Creek, 1/4 to 1/2 mile above the mouth of Too Much Gold Creek.

Commodities:

Main: Au

Other: Sb

Ore minerals: Gold, stibnite

Gangue minerals:

Geologic description:
Smith (1913, B 525) reported that the Kellen property had been prospected by a shaft and tunnel. The tunnel had been driven 80 feet northward in blocky schistose quartzite that dips 60 S. Some quartz stringers that were said to carry gold were intercepted by the tunnel, but they were too small to be mined. A shaft was sunk just above the north end of the tunnel and uncovered a narrow lode of crushed and recemented quartz. Stibnite was observed in irregular patches and was reported to be fairly common throughout the quartz; it showed the usual oxidation to secondary antimony oxides. The prospect did not produce prior to 1912 and contained only low gold values of unspecified grade (Smith, 1913; B 525).

The prospect was examined as a possible antimony producer in 1916 but contained insufficient grade to warrant additional exploration or development (Brooks, 1916; B 649). The prospect was examined as a possible antimony producer in 1942 but contained insufficient grade to warrant additional exploration or development (Killeen and Mertie, 1951). No ore has been produced at this property.

Alteration:
Stibnite oxidized to senarmontite and other antimony oxides.

Age of mineralization:

Deposit model:

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

Production Status: None

Site Status: Inactive

Workings/exploration:
Smith (1913; B 525) reported that the Kellen property had been prospected by a shaft and an 80-foot tunnel.

Production notes:
No ore has been produced at this property.

Reserves:

Additional comments:

References:
Smith, 1913 (B 525); Smith, 1913 (B 542); Brooks, 1916 (B 649); Killeen and Mertie, 1951; Chapman and Foster, 1969; Cobb, 1972 (MF 413); Cobb, 1976 (OFR 76-633); Freeman, 1992.

Primary reference: Smith, 1913 (B 525)

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Gilmore

Site type: Prospect

ARDF no.: LG164

Latitude: 65.067 **Quadrangle:** LG A-1

Longitude: 147.317

Location description and accuracy:
The Gilmore prospect is located on the north side of Fairbanks Creek approximately 1.5 miles downstream from the American Eagle mine (ARDF no. LG152); SW1/4SE1/4 sec.22, T. 3 N., R. 2 E., of the Fairbanks Meridian.

Commodities:

Main: Au

Other:

Ore minerals:

Gangue minerals:

Geologic description:
The Gilmore adit was designed to facilitate exploration and haulage from the Ohio and Mizpah mines however, several new gold-bearing lodes were intersected by the adit. The adit was completed to a length of 800 feet in 1917 (Killeen and Mertie, 1951). The schist through which the adit cuts dips 10 to 15 N. In 1922, the adit was 1,000 feet in length (N 30 E trend), contained cross-cuts at the 700-, 800- and 1,000-foot stations, and connected the Mizpah and Ohio mine workings to the Gilmore mill (Davis, 1922). At the 700-foot station, a thin stringer was followed in a 50-foot long drift to the northwest. At the 800-foot station, the northwest drift is 100 feet long and the southeast drift is 75 feet long. At the 1,000-foot station, the southeast drift runs 150 feet to the upper shaft on the Ohio claim. The northwest drift runs 350 feet to intersect with the 200-foot level of the Mizpah mine (Davis, 1922). No information is available concerning the grade or extent of gold mineralization intersected in the Gilmore adit.

Alteration:

Age of mineralization:

Deposit model:
Gold-quartz vein.

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

Production Status: Undetermined

Site Status: Inactive

Workings/exploration:

The Gilmore adit was completed to a length of 800 feet in 1917 (Killeen and Mertie, 1951). In 1922, the adit was 1,000 feet in length (N. 30 E. trend), contained cross-cuts at the 700, 800 and 1,000 foot stations and connected the Mizpah and Ohio mine workings to the Gilmore mill (Davis, 1922). At the 700 foot station, a thin stringer was followed in a 50 foot long drift to the northwest. At the 800 foot station, the northwest drift is 100 feet long and the southeast drift is 75 feet long. At the 1,000 foot station, the southeast drift runs 150 feet to the upper shaft on the Ohio claim. The northwest drift runs 350 feet to intersect with the 200 foot level of the Mizpah mine (Davis, 1922).

Production notes:

Although several feet of adits and drifts were reported, there is no information on the amount of ore mined from these workings.

Reserves:

Additional comments:

References:

Davis, 1922; Killeen and Mertie, 1951; Freeman, 1992.

Primary reference: Davis, 1922

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Ohio; Early Bird; Mayflower; Connors and Stevens

Site type: Mine

ARDF no.: LG165

Latitude: 65.067 **Quadrangle:** LG A-1

Longitude: 147.315

Location description and accuracy:
Cobb (1972, MF-413), loc. 48; SW1/4SE1/4 sec. 22, T. 3 N., R. 2 E., of the Fairbanks Meridian. This mine is north of Fairbanks Creek, about 1/2 mile west of Too Much Gold Creek, and adjacent to a dirt road. Accuracy is within 1000 feet. This prospect is sometimes referred to as the Mayflower mine or the Connors and Stevens prospect.

Commodities:

Main: Au

Other: Ag, Pb, Sb

Ore minerals: Argentiferous galena, gold, stibnite

Gangue minerals:

Geologic description:
Gold is found in quartz-rich shear zones that contain galena, stibnite and pyrite (Smith, 1913; B 525; Killeen and Mertie, 1951). The Ohio claim had a 50-foot shaft which exposed a high-grade stringer varying in width from 6 to 20 inches. The Mayflower claim had an upper shaft 45-feet deep and a lower shaft 60-feet deep. The upper shaft is driven on a northeast striking shear. The lower or southern shaft is driven on two northwest-trending, steeply south-dipping shear zones with vertical slickensides that indicate south-side-down motion (Brooks, 1913, p. 148).

In 1916, several shafts were accessible on the Ohio prospect and were examined by Mertie (1918). A 25-foot-deep shaft on the prospect exposed two coalescing quartz-rich zones that strike N 70 W and dip 45 SW. This ore was considered to be of commercial grade, i.e., approximately 1 ounce of gold per ton. A 57-foot-deep shaft exposed an 8-inch-wide shear zone that assayed $4 to $5 per ton in gold (0.19 to 0.24 ounces of gold per ton). This shear strikes east-west and dips 45 N. A 70-foot-deep shaft had 70 feet of drift at the bottom of the shaft. A gold-bearing, quartz-rich shear zone in this drift averages 4 to 6 inches thick, strikes east-west, and dips 45 SW. This material also was considered to be of commercial grade and carried accessory pyrite and stibnite. Up slope from the 70-foot-deep shaft is a 30-foot-deep shaft driven on a base-metal-rich shear zone containing arsenopyrite, pyrite and quartz. This rock reportedly has high silver values and

contained what was thought to be native silver (bismuth?) similar to that identified at the adjacent Mizpah mine (Mertie, 1918). Ore grades in 1912 were estimated at $50 per ton in gold (2.4 ounces of gold per ton) with minor silver (Smith, 1913; B 525).

Alteration:

Age of mineralization:

Deposit model:
Gold-quartz vein.

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

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:
In 1912, the Ohio claim had a 50-foot-shaft which exposed a high grade stringer that varied from 6 to 20 inches wide (Times Publishing Company, 1912). The Mayflower claim had an upper shaft 45 feet deep and a lower shaft 60 feet deep. By 1914 the Ohio shaft was 80 feet deep.

A five-stamp mill (see Gilmore prospect) was erected southeast of the Ohio mine in 1915 and operated from September 1 through the end of the year on ore from the Ohio mine and other producers in the area (Brooks, 1915; Smith, 1917; BMB 142). An adit was collared in 1915 which was planned to extend 800 feet at N 30 W to intersect the Ohio shear zone below the surface weathering zone which had hampered mining on the prospect. By August, 1916, this adit was 240 feet long (Mertie, 1918). In 1916, several shafts were accessible on the Ohio prospect and were examined by Mertie (1918). The Ohio prospect was inactive and the workings obstructed with ice when the prospect was examined in 1931 (Hill, 1933).

Production notes:
The Ohio mine operated in 1914 but production figures are not available (Eakin, 1915). By 1916, the Gilmore mill had treated approximately 350 tons of ore from the Ohio mine (Mertie, 1918).

Reserves:

Additional comments:

References:
Times Publishing Company, 1912; Smith, 1913 (B 525); Smith, 1913 (B 542); Chapin, 1914; Brooks, 1915; Eakin, 1915; Brooks, 1916 (B 642); Brooks, 1916 (B 649); Smith, 1917 (BMB 142); Mertie, 1918; Chapin, 1919; Martin, 1920; Hill, 1933; Killeen and Mertie, 1951; Chapman and Foster, 1969; Cobb, 1972 (MF 413); Cobb, 1976 (OFR 76-

633); Freeman, 1992.

Primary reference: Mertie, 1918

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Schaefer

Site type: Prospect

ARDF no.: LG166

Latitude: 65.066 **Quadrangle:** LG A-1

Longitude: 147.306

Location description and accuracy:
The Schaefer prospect is located along the north side of Fairbanks Creek upstream from its confluence with Too Much Gold Creek; NE1/4NE1/4 sec. 27, T. 3 N., R. 2 E., of the Fairbanks Meridian.

Commodities:

Main: Ag

Other:

Ore minerals:

Gangue minerals:

Geologic description:
By late 1912, a 30-foot shaft had been sunk on a 2.5-foot-wide shear zone which assayed 26 ounces of silver per ton. Smith (1913, B 525) indicated the Schaefer prospect consisted of a flat-lying quartz-rich zone along which a 150 foot adit had been driven by 1912. The adit trends N 5 E in highly oxidized and weathered schist. It is believed the Schaefer adit was being driven to access the high grade silver mineralization encountered in the 30 foot shaft.

Alteration:

Age of mineralization:

Deposit model:
High-grade silver mineralization in a shear zone with quartz.

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

Production Status: Undetermined

Site Status: Inactive

Workings/exploration:

By late 1912, a 30-foot shaft had been sunk on a 2.5-foot-wide shear zone which assayed 26 ounces of silver per ton. Smith (1913, B 525) indicated the Schaefer prospect consisted of a flat-lying, quartz-rich zone along which a 150 foot adit was driven by 1912. The adit trends N 5 E in highly oxidized and weathered schist. It is believed the Schaefer adit was being driven to access the high grade silver mineralization encountered in the 30-foot shaft.

Production notes:

Reserves:

Additional comments:

The prospect was staked in 1912 as the Eugenia claim by M.A. Schaefer (Times Publishing Company, 1912).

References:

Times Publishing Company, 1912; Smith, 1913 (B 525); Smith, 1913 (B 542); Pilkington, 1970.

Primary reference: Smith, 1913 (B 525)

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

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

Site type: Prospect

ARDF no.: LG167

Latitude: 65.065 **Quadrangle:** LG A-1

Longitude: 147.303

Location description and accuracy:
Cobb (1972, MF-413), loc. 50; NE1/4NE1/4 sec. 27, T. 3 N., R. 2 E., of the Fairbanks Meridian. The prospect is along Fairbanks Creek about 1/4 mile upstream of the mouth of Too Much Gold Creek. Accuracy is within 1,000 feet.

Commodities:

Main: Au

Other: Ag

Ore minerals: Gold, silver

Gangue minerals:

Geologic description:
Mineralized schist, opened by a short tunnel, carries 0.2 ounces of gold per ton and 60 ounces of silver per ton (Smith, 1913; B 525). Quartz stringers carry gold, but no silver. Bedrock is mainly schist (Cobb, 1976; OFR 76-633).

Alteration:

Age of mineralization:

Deposit model:
Gold-quartz vein.

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

Production Status: Undetermined

Site Status: Inactive

Workings/exploration:
A short tunnel was excavated in the mineralized schist (Smith, 1913; B 525).

Production notes:

Reserves:

Additional comments:

References:
Smith, 1913 (B 525); Cobb, 1976 (OFR 76-633).

Primary reference: Smith, 1913 (B 525)

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Plumbum

Site type: Prospect

ARDF no.: LG168

Latitude: 65.067 **Quadrangle:** LG A-1

Longitude: 147.3

Location description and accuracy:
The Plumbum prospect is located on the west side of Too Much Gold Creek near its confluence with Fairbanks Creek; SW1/4SW1/4 sec. 23, T. 3 N., R. 2 S., of the Fairbanks Meridian.

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:
This prospect contains a silver and gold-bearing carbonate-rich shear zone. The country rock is schist that strikes east-west and dips to the south at a shallow angle parallel to the schist (Brooks, 1913, p. 146).

Prior to 1912, a 26-foot-deep shaft was sunk on the prospect and exposed the silver- and gold-bearing, carbonate-rich shear zone. In the summer of 1912, a 4- to 18-inch-wide cross-shear had been discovered on the prospect. A high grade sample from this cross-shear averaged over 820 ounces of gold per ton (Times Publishing Company, 1912). A 15-foot-deep test pit on this cross-shear exposed an east-west striking, steeply dipping quartz-bearing shear zone that varied from 3 inches to 2 feet wide (Smith, 1913, B 525; Brooks, 1913). The shear zone material was heavily stained by iron-oxides (Brooks, 1913, p. 146). Later phase, crystalline quartz vugs also contained iron-oxides after sulfides (Brooks, 1913, p. 146). By 1913, the shear zone had been traced for approximately 1,500 feet along strike and 1.5 tons of material had been stockpiled for later shipment to a nearby custom mill (Brooks, 1913, p. 146). Hill (1933) reported that exposures on the Plumbum prospect indicated the shear zone strikes N 70 W and dips 70 S. The prospect had not been worked for some time prior to 1931.

Alteration:

Age of mineralization:

Deposit model:
Silver and gold-bearing, carbonate-rich shear zone.

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

Production Status: Undetermined

Site Status: Inactive

Workings/exploration:
A 26 foot deep shaft was dug by 1912 (Times Publishing Company, 1912). Brooks (1913) reported that the shear zone could be traced for approximately 1,500 feet along strike and 1.5 tons of material had been stockpiled for later shipment to a nearby custom mill.

Production notes:

Reserves:

Additional comments:

References:
Brooks, 1913; Smith, 1913 (B 525); Smith, 1913 (B 542); Freeman, 1992.

Primary reference: Brooks, 1913

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Too Much Gold Creek

Site type: Mine

ARDF no.: LG169

Latitude: 65.067 **Quadrangle:** LG A-1

Longitude: 147.297

Location description and accuracy:
Too Much Gold Creek is a tributary of Fairbanks Creek, located approximately 4 miles from Cleary Summit, and accessible via the Fairbanks Creek road. The location given is near the confluence with Fairbanks Creek on the north side of the road.

Commodities:

Main: Au

Other:

Ore minerals:

Gangue minerals:

Geologic description:
Evidence of recent placer mining (1980's?) near the confluence of Too Much Gold Creek and Fairbanks Creek was observed in 1999 (J. Schaefer, field observation, 1999). Bedrock in the area is quartz muscovite schist, quartzite and chlorite quartzose schist (Newberry and others, 1996). Too Much Gold Creek drains an area that includes several prospects and mines that have been worked for their gold in quartz veins (Too Much Gold Creek Divide, ARDF no. LG176; Basham, ARDF no. LG177; Excelsior, ARDF no. LG179; Plumbum, ARDF no. LG168; Governor, ARDF no. LG172; and Whitehorse, ARDF no. LG170).

Alteration:

Age of mineralization:

Deposit model:
Placer gold deposit (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 ground near the mouth of the creek, just north of Fairbanks Creek road appears to have been placer mined. The amount of vegetation suggests that this mining probably took place in the 1980's (J. Schaefer, field observation, 1999).

Production notes:
No record of production.

Reserves:

Additional comments:

References:
This description.

Primary reference: This description

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 7/27/99

Site name(s): Whitehorse

Site type: Mine

ARDF no.: LG170

Latitude: 65.069 **Quadrangle:** LG A-1

Longitude: 147.296

Location description and accuracy:

Cobb (1972, MF-413), loc. 49; SW1/4 sec. 23, T. 3 N., R. 2 E., of the Fairbanks Meridian. This mine is just north of the junction of Too Much Gold Creek and Fairbanks Creek, adjacent to the road, east of the creek. Accuracy is within 1,500 feet.

Commodities:

Main: Au

Other: Pb, Sb

Ore minerals: Galena, gold, stibnite

Gangue minerals:

Geologic description:

By 1912, an 18-foot-deep pit had been excavated and exposed a highly brecciated quartz-rich, shear zone cemented by pyrite, galena and stibnite (Smith, 1913; B 525). This brecciation post-dates an auriferous quartz stockwork zone from which a small amount of material had been sacked for shipment to a nearby custom mill. Several white porphyritic granite dikes up to 70 feet wide were exposed in the immediate vicinity of this exposure. These dikes are roughly parallel to the gold-quartz shear zone which strikes N 70-80 W and dips vertically. This granite was not thought to be highly mineralized however, no analytical data are available (Smith, 1913; B 525). In late 1915, about 30 tons of ore from the prospect was custom milled and some development work was carried out (Stewart, 1915; Smith, 1917, BMB 142). The workings on the Whitehorse prospect were caved by 1931 and the site was still inactive in 1942 (Hill, 1933; Killeen and Mertie, 1951).

In 1969, International Minerals and Chemicals Company conducted soil sampling at the site and excavated a 700 foot dozer trench across the Whitehorse shear zone to follow-up soil geochemical anomalies (Pilkington, 1970). This trench was oriented north-south and the shear zones exposed in the trench coincided with soil geochemistry. Sporadic gold was encountered in this trench; one, five-foot sample contained 1.2 ppm gold (0.035 ounces of gold per ton). The host for this mineralization is unknown.

Alteration:

Age of mineralization:

Deposit model:
Gold-quartz veins.

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

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:
In late 1915 about 30 tons of ore from the prospect was custom milled and some development work carried out (Stewart, 1915, Smith 1917, BMB 142). The workings on the Whitehorse prospect were caved by 1931 and the site was still inactive in 1942 (Hill, 1933; Killeen and Mertie, 1951). In 1969, International Minerals and Chemicals Company conducted soil sampling and excavated a 700 foot dozer trench across the Whitehorse shear zone to follow-up soil geochemical anomalies (Pilkington, 1970).

Production notes:
In late 1915, about 30 tons of ore from the prospect was sent to a custom mill nearby (Smith, 1917; BMB 142).

Reserves:

Additional comments:

References:
Smith, 1913 (B 525); Smith, 1913 (B 542); Maloney, 1915; Smith, 1917 (BMB 142); Hill, 1933; Killeen and Mertie, 1951; Chapman and Foster, 1969; Pilkington, 1970; Cobb, 1972 (MF 413); Cobb, 1976 (OFR 76-633); Freeman, 1992.

Primary reference: Smith, 1913 (B 525)

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Iowa

Site type: Prospect

ARDF no.: LG171

Latitude: 65.071 **Quadrangle:** LG A-1

Longitude: 147.294

Location description and accuracy:
The location given is on one of five drill holes which covered an area of approximately 1 mile by 0.5 miles on the ridge between Too Much Gold Creek and Moose Creek (Freeman and others, 1998).

Commodities:

Main: Au

Other: Ag

Ore minerals: Arsenopyrite, pyrite

Gangue minerals: Sericite

Geologic description:
Five holes were drilled in the area to test anomalous soil values and follow up on altered and weakly mineralized dikes exposed on the Governor mine dump (ARDF no. LG172) and a nearby trench (Freeman and others, 1998). One hole intercepted 50 feet of 0.028 ounces of gold per ton. Another hole intersected thick intervals of anomalous gold but did not find significant grades. A third hole intercepted 55 feet of 0.028 ounces of gold per ton, and 0.843 ounces of silver per ton. The two other holes did not intersect significant gold values.

Alteration:
Sericitic alteration with silicification was found along the entire length of one drill hole.

Age of mineralization:

Deposit model:
Fort Knox type, intrusion-hosted low-grade gold deposit.

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

Production Status: None

Site Status: Inactive

Workings/exploration:
In 1998, five reverse circulation holes were drilled in the area to test anomalous soil sample values (Freeman and others, 1998).

Production notes:
None.

Reserves:

Additional comments:

References:
Freeman and others, 1998.

Primary reference: Freeman and others, 1998

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Governor

Site type: Mine

ARDF no.: LG172

Latitude: 65.074 **Quadrangle:** LG A-1

Longitude: 147.294

Location description and accuracy:

Cobb (1972, MF-413), loc. 49; SW1/4NW1/4 sec. 23, T. 3 N., R. 2 S., of the Fairbanks Meridian. The Governor prospect is on the ridge between Too Much Gold Creek and Moose Creeks, at an elevation of 1,850 feet, approximately 1/2 mile north of the junction of Too Much Gold Creek and Fairbanks Creek. Accuracy is within 1,000 feet.

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:

The Governor prospect was originally staked by Aaron and Matt Cook as the Governor and Mayor claims on August 15, 1910 (Times Publishing Company, 1912). Three and one-half tons of ore from the Governor mine were custom milled in December 1910 and averaged $73 gold per ton (3.5 ounces of gold per ton) (Times Publishing Company, 1912). By 1911, a 30-foot-deep shaft had been sunk on a one-foot-wide shear zone (Brooks, 1912). By 1912, the shaft had been deepened to 70 feet and 40 feet of drift had been driven from the bottom of the shaft (Times Publishing Company, 1912). The workings were driven on a vertically-dipping, N 80 W striking, shear zone which varied from 8 to 30 inches wide (Smith, 1913; B 525; Times Publishing Company, 1912). Some of the ore was derived from a fine grained granitic rock which carried $10 to $15 gold per ton (0.48 to 0.72 ounces of gold per ton). This rock contains iron stained vugs where sulfide minerals have been oxidized. The granitic rock is highly sheared and slickensided. In 1912, the possible extension of the Governor shear was being prospected approximately 900 feet east of the Governor shaft (Smith, 1913; B 525).

In 1969, International Minerals and Chemicals Company conducted soil sampling and excavated an 805 foot trench across the Governor shear zone to follow-up soil geochemical anomalies (Pilkington, 1970). This trench was oriented north-south and although shear zones exposed in the trench coincided with soil geochemistry anomalies, no signifi-

cant gold was found samples.

Alteration:

Age of mineralization:

Deposit model:
Gold-quartz vein.

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

Production Status: Undetermined

Site Status: Inactive

Workings/exploration:
By 1911, a 30 foot deep shaft had been sunk on a one foot wide shear zone (Brooks, 1912). By 1912 the shaft had been deepened to 70 feet and 40 feet of drift had been driven from the bottom of the shaft (Times Publishing Company, 1912). The workings were driven on a vertically-dipping, N 80 W striking, shear zone which varies from 8 to 30 inches wide (Smith, 1913; B 525; Times Publishing Company, 1912). In 1912, the possible extension of the Governor shear was being prospected approximately 900 feet east of the Governor shaft (Smith, 1913; B 525).

In 1969, International Minerals and Chemicals Company conducted soil sampling and excavated an 805 foot north-south trench across the Governor shear zone to follow-up soil geochemical anomalies (Pilkington, 1970).

Production notes:
Three and one-half tons of ore from the Governor prospect were custom milled in December 1910 and averaged $73 per ton in gold (3.5 ounces of gold per ton, Times Publishing Company, 1912).

Reserves:

Additional comments:

References:
Brooks, 1912; Times Publishing Company, 1912; Smith, 1913 (B 525); Smith, 1913 (B 542); Chapman and Foster, 1969; Pilkington, 1970; Cobb, 1972 (MF 413); Cobb, 1976 (OFR 76-633); Freeman, 1992.

Primary reference: Times Publishing Company, 1912

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Rob Roy; Saucy; Wolf

Site type: Mine

ARDF no.: LG173

Latitude: 65.079 **Quadrangle:** LG A-1

Longitude: 147.304

Location description and accuracy:
Cobb (1972, MF-413), loc. 51; NW1/4NE1/4 sec. 22, T. 3 N., R. 2 E., of the Fairbanks Meridian. This deposit is on the divide at the head of Too Much Gold Creek. Accuracy is within 1,500 feet.

Commodities:

Main: Au

Other: Sb

Ore minerals: Gold, pyrite, stibnite

Gangue minerals:

Geologic description:
High grade gold mineralization occurs in a shear zone 30 feet wide that strikes N 60 W. The shear exhibits two mineralized zones that contain quartz with pyrite, gold and stibnite, as well as irregular or kidney-shaped pods of stibnite (Brooks, 1916; B 649). Intrusive breccia was noted to be present on the dump of the Rob Roby shaft (Pilkington, 1970). A small amount of ore was custom milled from a 100-foot shaft with 170 feet of drifts (Brooks, 1916; B 649). Operation were suspended in mid-1918 because of excess water in the workings (Martin, 1920).

Alteration:

Age of mineralization:

Deposit model:
Gold and stibnite in quartz shear zones.

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

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:
Workings consisted of a 100 foot shaft and 170 feet of drifts on two levels (Brooks, 1916; B 649).

Production notes:
A small amount of ore was customed milled but production figures are not known (Brooks, 1916; B 649).

Reserves:

Additional comments:

References:
Eakin, 1915; Brooks, 1916 (B 642); Brooks, 1916 (B 649); Martin, 1920; Chapman and Foster, 1969; Pilkington, 1970; Cobb, 1972 (MF 413); Cobb, 1976 (OFR 76-633); Freeman, 1992.

Primary reference: Brooks, 1916 (B 642)

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Nars Anderson; Dorando

Site type: Prospect

ARDF no.: LG174

Latitude: 65.079 **Quadrangle:** LG A-1

Longitude: 147.314

Location description and accuracy:

The Nars Anderson prospect is located approximately one mile northwest of the Hi Yu mine (ARDF no. LG182) along the access road on the ridge between the heads of Moose Creek and Too Much Gold Creek; NW1/4NE1/4 sec. 22, T. 3 N., R. 2 E., of the Fairbanks Meridian.

Commodities:

Main: Au

Other:

Ore minerals:

Gangue minerals:

Geologic description:

Smith (1913, B 525) reported a shear zone with quartz-rich intervals from 6 inches to 2 feet wide, although mineralization in the surrounding wall rocks made an ore zone up to 6 feet wide. The hanging wall of the shear is highly faulted and slickensided with post-mineral motion visible. The foot wall contains mixed wall rock and quartz and the contact is not faulted above the 80-foot station in the shaft. Below the 80-foot station both the hanging wall and foot wall appear to be fault contacts (Smith, 1913; B 525).

By 1912, the shear zone hosting the gold was traced for over 1,700 feet along its east-west strike and the high grade portion of the shear was 8 to 18 inches wide and dipped 65 N (Times Publishing Company, 1912). In the fall of 1911, a one ton sample of ore from this zone was custom milled and averaged $60 per ton in gold (2.9 ounces of gold per ton). An additional 1.5 tons of material was custom milled in 1911 and 4 tons of material were custom milled in the spring of 1912 (Smith, 1913; B 525). The grade of these two lots is unknown.

By 1922, the Hi Yu shear zone (ARDF no. LG182) had been traced to the northwest and identified as the same shear zone as the Nars Anderson (Davis, 1922).

Alteration:

Age of mineralization:

Deposit model:
Polymetallic vein (Cox and Singer, 1986; model 22c).

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

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:
The Nars claim was staked on September 14, 1911 by Otto Nars (Times Publishing Company, 1912). By October, 1912, a shaft had been sunk to depth of 105 feet with working drifts on the 60- and 100-foot levels. On the 60-foot level drifts extended 50 feet to the west and 25 feet to the east. At the 100-foot level, a drift extended 10 feet on each side of the shaft. Bad air in the shaft curtailed operations in 1912 until artificial ventilation could be provided. At that time about 2.5 tons of material was sacked and stockpiled at the mine site awaiting custom milling. A small boiler and steam hoist had been erected over the shaft and work continued through the winter of 1912. In 1915, the workings on the prospect consisted of a 100-foot adit and a 100-foot deep shaft with working levels at 60 and 100 feet (Brooks, 1916; B 642). By 1922, the drifts on the 60-foot level were 50 and 60 feet long (Davis, 1922). Production to 1922 was estimated at 200 tons of ore and subsequent mining of the Nars Anderson prospect was expected to be conducted through the upper adit at the Hi Yu mine.

In 1985, Placid Oil Company drilled two diamond drill holes on the Nars Anderson prospect. Placid Oil Company records refer to this prospect as the Dorando prospect and mistakenly refer to the Rob Roy prospect as the Nars Anderson prospect. Holes 1DD-85 and 2DD-85 were drilled to the south at inclinations of 70 and 85 degrees to a total depth of 179 and 185 feet, respectively (Porterfield and Croff, 1986). No significant mineralization was encountered and no additional work has been conducted on this prospect.

Production notes:
Production to 1922 was estimated at 200 tons of ore; subsequent mining of the Nars Anderson prospect was expected to be conducted through the upper adit at the Hi Yu mine (Davis, 1922).

Reserves:

Additional comments:

References:
Times Publishing Company, 1912; Smith, 1913 (B 525); Brooks, 1916 (B 642); Davis, 1922; Porterfield and Croff, 1986; Freeman, 1992.

Primary reference: Smith, 1913 (B 525)

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): McNeil; Branholm-Jenkins

Site type: Prospect

ARDF no.: LG175

Latitude: 65.077 **Quadrangle:** LG A-1

Longitude: 147.323

Location description and accuracy:
Cobb (1972, MF-413), loc. 47; NW1/4NW1/4 sec. 22, T. 3 N., R. 2 E., of the Fairbanks Meridian. This location is a shaft at the head of the west fork of Too Much Gold Creek, a little below the summit of the divide to Wolf Creek, at an elevation of 2,250 feet. Accuracy is within 1,000 feet.

Commodities:

Main: Sb

Other: Pb

Ore minerals: Arsenopyrite, galena, jamesonite

Gangue minerals:

Geologic description:
This site consists of a quartz vein containing arsenopyrite, jamesonite, and galena, in quartz-mica schist (Hill, 1933, p. 104). The vein strikes N 60 W and dips 70 S.

Alteration:

Age of mineralization:

Deposit model:
Polymetallic quartz vein.

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

Production Status: Undetermined

Site Status: Inactive

Workings/exploration:
Workings consisted of a shaft, tunnel and surface pits. In 1931, the shaft was iced up

and the tunnel caved at the mouth. The surface pits on the divide to the NW were also inaccessible (Hill, 1933).

Production notes:

Mined by McNeil and Huddelson in 1915, but no record of production (Smith, 1917; BMB 142, p.23). Antimony ore may have been mined (Killeen and Mertie, 1951, p. 14).

Reserves:

Additional comments:

References:

Smith, 1917 (BMB 142); Mertie, 1918; Hill, 1933; Killeen and Mertie, 1951; Chapman and Foster, 1969; Cobb, 1972 (MF 413); Cobb, 1976 (OFR 76-633); Freeman, 1992.

Primary reference: Hill, 1933

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Unnamed (on the ridge at the headwaters of Too Much Gold Creek)

Site type: Occurrence

ARDF no.: LG176

Latitude: 65.078 **Quadrangle:** LG A-1

Longitude: 147.329

Location description and accuracy:
This gold occurrence is on the divide at the head of Too Much Gold Creek, an upper tributary to Fairbanks Creek; NW1/4NW1/4 sec. 22, T. 3 N., R. 2 E., of the Fairbanks Meridian. Accuracy is within 2,000 feet.

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:
Thin quartz veins and mica schist wall rock, less than 1 foot thick, contain as much as 3.96 ppm gold (Pilkington and others, 1969). Another vein, that strikes N 75 W and dips 70 S, carries less gold. Samples across the richer veins and wall rock contained 0.63 to 3.96 ppm Au. A sample across the less-rich vein and wall rock contained 0.13 to 0.65 ppm Au.

Alteration:

Age of mineralization:

Deposit model:
Gold-quartz vein.

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

Production Status: None

Site Status: Inactive

Workings/exploration:
Only surface samples were taken (Pilkington and others, 1969).

Production notes:

Reserves:

Additional comments:

References:
Pilkington and others, 1969; Cobb, 1972 (MF 413); Cobb, 1976 (OFR 76-633).

Primary reference: Pilkington and others, 1969

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Basham

Site type: Prospect

ARDF no.: LG177

Latitude: 65.077 **Quadrangle:** LG A-1

Longitude: 147.331

Location description and accuracy:
The Basham prospect is located in upper Too Much Gold Creek near the divide with Wolf Creek; NW1/4NW1/4 sec. 22, T. 3 N., R. 2 E., of the Fairbanks Meridian.

Commodities:

Main: Au

Other:

Ore minerals:

Gangue minerals:

Geologic description:
This prospect is situated on a N 60 W, 80 S shear zone which is parallel to and 200 feet south of the Branholm-Jenkins (McNeil) shear. The only known reference to this prospect indicates that in the early 1960's Bill Basham and Art Wells extracted a sample which returned a grade of $5,000 per ton in gold (142 ounces of gold per ton) (Pilkington, 1970; R. Vetter, oral commun., 1992). Previous grab samples of vein quartz from the prospect returned values of 1.25 and 7.00 ppm gold (0.036 and 0.204 ounces of gold per ton) (Pilkington and others, 1969). Follow-up trenching and channel sampling indicated no significant mineralization on the prospect (Pilkington, 1970).

Alteration:

Age of mineralization:

Deposit model:
Gold-quartz vein.

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

Production Status: None

Site Status: Inactive

Workings/exploration:
Grab samples, trenching and channel sampling.

Production notes:

Reserves:

Additional comments:

References:
Pilkington and others, 1969; Pilkington, 1970; Freeman, 1992.

Primary reference: Pilkington, 1970

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Too Much Gold

Site type: Prospect

ARDF no.: LG178

Latitude: 65.074 **Quadrangle:** LG A-1

Longitude: 147.324

Location description and accuracy:

The Too Much Gold prospect is located on the ridge between upper Too Much Gold Creek and Fairbanks Creek; NW1/4 sec. 22, T. 3 N., R. 2 E., of the Fairbanks Meridian.

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:

This prospect was discovered in the early 1980's when Placid Oil Company conducted soil sampling over the Wolf Creek and Too Much Gold Creek basins (Porterfield and Croff, 1986). This work outlined extensive gold and arsenic soil anomalies extending over 10,000 feet on a west-northwesterly trend from the southwest side of lower Too Much Gold Creek to near the junction of Goose Creek and Wolf Creek. The soil samples defined two parallel gold-arsenic soil anomaly zones in the Too Much Gold Creek basin with values ranging from 400 to over 1,000 ppm arsenic and 1 to over 3 ppm gold.

In 1985, Placid Oil drilled three diamond drill holes in the Wolf Creek basin in an attempt to determine the source for the gold-arsenic soil anomaly in this area. These holes intersected the lower exhalitive unit of the Cleary sequence which contained disseminated sulfides and stibnite but no significant gold mineralization (Porterfield and Croff, 1986). Placid Oil also drilled two diamond drill holes on the gold-arsenic soil anomaly in the Too Much Gold Creek basin. These two holes failed to intersect significant mineralization. Placid Oil Company conducted no further work on the prospect.

A total of eight trenches covering 3,942 feet were excavated, following up on the soil anomalies (Klessig, 1988). Following the return of trench analyses, a total of 2,476 feet of reverse circulation drilling was completed in 8 holes. Trenching and drilling were concentrated on the smaller, southwestern, linear gold-arsenic soil anomaly. Significant mineralization was encountered in trenching and drilling. Based on these results, inferred reserves for the Too Much Gold zone are 1,613,885 tons that contain 0.065 ounces of gold

per ton to a depth of 50 feet (P. Metz, written commun., 1988).

Freeman (1992) summarized the following important characteristics of the Too Much Gold prospect. Mineralization is hosted by highly oxidized metarhyolite tuff, iron-oxide stained chloritic schist, and quartzite. Except for sporadic silver-sulfosalts, sulfide minerals are rare in the Too Much Gold prospect trenches due to intense supergene and possible hypogene oxidation. Small amounts of oxidized argentiferous tetrahedrite and jamesonite-boulangerite are present where elevated silver grades occur. Oxidation of pyrite, arsenopyrite and lead-silver-antimony sulfosalt minerals results in intense red hematite, limonite, kermesite, apple-green scorodite, and white to pale-yellow stibiconite-cervantite. Gold mineralization is accompanied by an average of less than 10% white to clear quartz veinlets. Anomalous gold commonly is associated with elevated silver, arsenic, antimony, lead and zinc. The trenching indicated that a poorly defined shear zone hosts significant gold and silver mineralization; it trends approximately N 80 W through the prospect from Too Much Gold Creek to the ridgeline between Goose Creek and Too Much Gold Creek.

Alteration:

Except for sporadic silver-sulfosalts, sulfide minerals are rare in the Too Much Gold trenches due to intense supergene and possible hypogene oxidation. Small amounts of oxidized argentiferous tetrahedrite and jamesonite-boulangerite are present where elevated silver grades occur. Oxidation of pyrite, arsenopyrite and lead-silver-antimony sulfosalt minerals results in intense red hematite, limonite, kermesite, apple-green scorodite, and white to pale-yellow stibiconite-cervantite (Freeman, 1991).

Age of mineralization:

Deposit model:

Gold mineralization hosted by low-sulfide highly oxidized metarhyolite tuff, iron-oxide-stained chloritic schist, and quartzite.

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

Production Status: None

Site Status: Inactive

Workings/exploration:

Exploration consisted of soil sampling, trenching, diamond drilling and reverse circulation drilling. A total of eight trenches covering 3,942 feet were excavated (Klessig, 1988). Following the return of trench analyses, a total of 2,476 feet of reverse circulation drilling was completed in eight holes.

Production notes:

Reserves:

Additional comments:

References:
Porterfield and Croff, 1986; Klessig, 1988; Freeman, 1991; Freeman, 1992.

Primary reference: Freeman, 1992

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Excelsior; Cross Vein

Site type: Prospect

ARDF no.: LG179

Latitude: 65.071 **Quadrangle:** LG A-1

Longitude: 147.315

Location description and accuracy:

Cobb (1972, MF-413), loc. 49; SW1/4NE1/4 sec. 22, T. 3 N., R. 2 E., of the Fairbanks Meridian. This prospect is near the head of Too Much Gold Creek, a tributary to upper Fairbanks Creek, at an elevation of 1,625 feet. Accuracy is within 1,000 feet.

Commodities:

Main: Au

Other: Ag, Pb, Sb

Ore minerals: Arsenopyrite, galena, gold?, limonite, silver?, stibnite

Gangue minerals:

Geologic description:

By 1911, several prospect pits were reported along a 7-foot-wide mineralized zone containing $10 to $20 gold per ton (0.5 to 0.9 ounces of gold per ton) and $15 to $30 silver per ton (30 to 60 ounces of silver per ton, Brooks, 1911). A second shear contained chiefly galena with about $5 gold per ton (0.25 ounces of gold per ton). An unspecified amount of ore from the Excelsior prospect was custom milled in Fairbanks by 1911; however, production figures are not available.

By 1912, a southern adit 70 feet long and a northern adit 60 feet long had been driven. Both adits are located on the right-limit wall of Too Much Gold Creek. The shear averages 12 feet wide in the adits, and trends east-west with a steep south dip (Times Publishing Company, 1912; Smith, 1913; B 525). The ore in the adit contained 22 ounces of silver per ton. In the 70 foot adit, a drift had been turned off to the south on a crosscutting shear zone. The country rock in both adits consists of hard quartzite with lesser black carbonaceous schist (Smith, 1913; B 525). High silver grades in the northern adit are in carbonaceous schist that contains minor galena, arsenopyrite and stibnite. Above the Excelsior adits, exposures of fine grained quartz porphyry granite appear to be related to the mineralization in the Excelsior adits. This rock contains small cavities surrounded by limonite after sulfides. Although iron staining is pervasive in this rock, no metallic minerals were noted (Smith, 1913; B 525).

The Excelsior prospect was examined in 1916 to determine if commercial quantities of

antimony existed; however, insufficient quantities were found to warrant exploration and development (Brooks, 1916; B 649). The Excelsior prospect was again examined in 1942 to determine if commercial quantities of antimony existed, however insufficient quantities were found to warrant exploration and development (Killeen and Mertie, 1951).

Alteration:

Age of mineralization:

Deposit model:
Polymetallic vein (Cox and Singer, 1986; model 22c).

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

Production Status: Undetermined

Site Status: Inactive

Workings/exploration:
By 1912, a southern adit 70 feet long and a northern adit 60 feet long had been driven. Both adits are located on the right limit wall of Too Much Gold Creek. In the 70 foot adit, a drift was driven to the south on a crosscutting shear zone (Smith, 1913; B 525).

Production notes:
An unspecified amount of ore from the Excelsior prospect was custom milled in Fairbanks by 1911; however, production figures are not available (Brooks, 1911).

Reserves:

Additional comments:

References:
Brooks, 1911; Times Publishing Company, 1912; Smith, 1913 (B 525); Smith, 1913 (B 542); Brooks, 1916 (B 649); Killeen and Mertie, 1951; Chapman and Foster, 1969; Cobb, 1972 (MF 413); Cobb, 1976 (OFR 76-633); Freeman, 1992.

Primary reference: Smith, 1913 (B 525)

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Mizpah; Black Joe

Site type: Mine

ARDF no.: LG180

Latitude: 65.069 **Quadrangle:** LG A-1

Longitude: 147.319

Location description and accuracy:
Cobb (1972, MF-413), loc. 48; SW1/4 sec. 22, T. 3 N., R. 2 E., of the Fairbanks Meridian. The mine is on the north side of Fairbanks Creek, one-half to one mile west of Too Much Gold Creek, at an elevation of 1,800 feet.

Commodities:

Main: Au

Other: Ag, Mn, Pb, Sb, W

Ore minerals: Argentiferous galena, gold, scheelite, stibnite

Gangue minerals:

Geologic description:
The Mizpah shear zone in the main shaft trends east-west and dips 75 S (Smith, 1913; B 525). The shaft exposed a high-grade, quartz-rich shoot which averages 2 feet in width. The Mizpah shear was traced to the northwest where the Black Joe claim was staked and a 12 foot prospect pit showed that the high grade portion of the shear was 2.5 feet thick (Times Publishing Company, 1912). The Mizpah shear contains gold and minor sulfides in a highly sheared quartz stockwork zone on the 80-foot level; strike-slip motion was noted. The gold-bearing quartz-rich zones mined to 1918 varied from 3 inches to 3 feet in width and averaged 1 foot wide. The gold-bearing shoots clearly cross-cut earlier, barren bull-quartz bodies (Mertie, 1918).

Antimony-gold-lead-silver ore in an earthy manganese wad was encountered at the 60 foot station of the east drift on the 80-foot level (Mertie, 1918). Stibnite was encountered at the 80-foot station on the west drift of the 80-foot level. Stibnite in the Mizpah mine contained extremely high gold values up to $2,000 per ton (96.7 ounces of gold per ton). The average grade of ore mined through 1916 was $30 to $40 per ton in gold (1.4 to 1.9 ounces of gold per ton).

In addition to gold, antimony, lead and silver, tungsten in the form of scheelite was identified on the Mizpah and Black Joe claims (Capps, 1924). Quartzite comprises the country rock in the Black Joe shaft; it strikes N 20 W and dips 18 SW. The shear zone being mined ranged in dip from 45 to 85 S. Gold values were higher and tungsten values

lower on the 60-foot level, while gold values are lower and tungsten values higher between the 60- and 80-foot levels (Mertie, 1918, p. 421).

By 1922, the Mizpah shaft was 220 feet deep (Davis, 1922; Stewart, 1922). Working drifts had been opened on the 80, 160 and 220 levels. Working drifts on the 80 foot level extended for 100 feet to the east and west from the shaft. Working drifts on the 160- and 220-foot levels extended for 100 feet to the east and 175 feet to the west from the shaft. The east drift on the 200-foot level was connected to the Gilmore adit via a 350-foot drift driven from the 1,000-foot station of the Gilmore adit. Davis (1922) also reported a second shaft had been sunk on a parallel shear zone 150 feet from the Mizpah shear. This shear contains 20% stibnite with minor gold and was being explored from a 120-foot deep shaft. Production through 1922 was estimated at 1,500 tons grading $25 per ton (1.2 ounces of gold per ton) (Davis, 1922).

Hill (1933), sampled fractured schist, with little or no quartz, at the face of the western drift; it contained $2.30 per ton in gold (0.11 ounces of gold per ton) over a width of 16 inches.

The Mizpah mine was examined as a possible antimony and/or tungsten producer in 1942 however, the mine was not found to contain either element in amounts which justified exploration or development (Killeen and Mertie, 1951; Byers, 1957). In late 1991, Dave Ebberhardt conducted limited dozer trenching on the Mizpah shear zone and exposed black-brown manganese wad on the main shear zone (R. Vetter, oral commun., 1991). The Black Joe claim remained inactive.

Alteration:

Age of mineralization:

Deposit model:
Polymetallic vein (Cox and Singer, 1986; model 22c).

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

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:

By late 1912, the Mizpah shaft had been sunk to a depth 120 feet with 50 feet of drifts on the 80- and 100-foot levels. The prospect remained idle until late in 1914 when development work was renewed (Eakin, 1915). By 1915, the mine was in production and was treating its ore at the nearby Heilig mill on Fairbanks Creek. A new headframe and steam hoist were installed to facilitate additional development (Stewart, 1915; Brooks, 1916, B 642; Smith, 1917, BMB 142). Mertie (1918) reported a shaft driven to a depth of 90 feet on the Black Joe claim and development drifts on the 60- and 80-foot levels.

The Mizpah shaft had been extended to 160 feet deep in 1917 and the western drift on the 80-foot level had been stoped to the surface over a distance of 170 feet (Chapin,

1919). The mine was equipped with a Huntington mill situated on Fairbanks Creek below the mine. The Gilmore adit, collared at the Mizpah mill site, was 800 feet long in 1917 and nearing intersection with the Mizpah mine workings (see Gilmore prospect). By 1918, the Mizpah mine shaft was 200 feet deep and production was continuing (Martin, 1920). By 1922, the Mizpah prospect was owned by Charles Thompson and associates and the shaft was 220 feet deep (Davis, 1922; Stewart, 1922). Working drifts had been opened on the 80-, 160- and 220-foot levels. Working drifts on the 80-foot level extended for 100 feet to the east and west from the shaft. Working drifts on the 160- and 220-foot levels extended for 100 feet to the east and 175 feet to the west from the shaft. The east drift on the 200-foot level was connected to the Gilmore adit via a 350 foot drift driven from the 1,000-foot station of the Gilmore adit. Davis (1922) also reported a second shaft had been sunk on a parallel shear zone 150 feet from the Mizpah shear.

In 1923, the only activity recorded at the Mizpah mine involved timber repair in the Gilmore adit (Stewart, 1923). When visited in 1931, Hill (1933) reported the shaft caved at the 130-foot level. The drift on the 80-foot level was open for 120 feet to the face, but the east drift on the 80-foot level was caved 50 feet from the shaft.

In late 1991, Dave Ebberhardt conducted limited dozer trenching on the Mizpah shear zone.

Production notes:

In late 1911 six tons of high grade ore from the main shaft had an average grade of $100 per ton in gold (4.8 ounces of gold per ton). A three-ton lot of ore from the Mizpah shear was milled in 1912 and returned average values of $92 per ton in gold or 4.4 ounces of gold per ton (Smith, 1913; B 525). Development work continued on the Mizpah prospect in 1913 but no production was recorded (Chapin, 1914). The prospect remained idle until late in 1914 when development work was renewed (Eakin, 1915). By 1915, the mine was in production and was treating its ore at the nearby Heilig mill on Fairbanks Creek. In 1916, the Mizpah mine was in production for several months and produced 200 tons of ore (Mertie, 1918). Production through 1922 was estimated at 1,500 tons grading $25 in gold per ton (1.2 ounces of gold per ton) (Davis, 1922).

Reserves:

Additional comments:

The Mizpah claim was staked by August Hess on October 8, 1910 (Times Publishing Company, 1912). By 1912, additional partners in the claim included R.J. Geis and Charles L. Thompson.

References:

Times Publishing Company, 1912; Smith, 1913 (B 525); Smith, 1913 (B 542); Chapin, 1914; Eakin, 1915; Brooks, 1916 (B 642); Smith, 1917; Mertie, 1918; Chapin, 1919; Martin, 1920; Davis, 1922; Stewart, 1922; Stewart, 1923; Capps, 1924; Hill, 1933; Killeen and Mertie, 1951; Byers, 1957; Berg and Cobb, 1967; Chapman and Foster, 1969; Cobb, 1972 (MF 413); Cobb, 1975 (C 722); Cobb, 1976 (OFR 76-633); Freeman, 1992.

Primary reference: Freeman, 1992

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Perrault

Site type: Prospect

ARDF no.: LG181

Latitude: 65.07 **Quadrangle:** LG A-1

Longitude: 147.326

Location description and accuracy:
Cobb (1972, MF-413), loc. 48; SW1/4 sec. 22, T. 3 N., R. 2 E., of the Fairbanks Meridian. The Perrault prospect is north of Fairbanks Creek and about 3/4 of a mile west of Too Much Gold Creek; it is at an elevation of 1,980 feet. Accuracy is within 1,500 feet.

Commodities:

Main: Au

Other: Ag, Sb

Ore minerals: Gold, stibnite, unknown Ag

Gangue minerals:

Geologic description:
Gold is found in three or four nearly parallel veins of quartz enclosing masses of schist (Chapin, 1914, p. 329). Limonitic material taken from the dump is said to occur in vein-like bodies parallel to the quartz vein; it contains small amounts of both gold and silver (Chapin, 1914, p. 329). Narrow reticulating veinlets of stibnite occur in both quartz and schist, and yellow-green stains of antimony-oxide is abundant (Chapin, 1914, p. 329). The high grade portion of the shear zone was 2-feet-wide (Times Publishing Company, 1912, p. 22). The shear zone strikes N 80 W and dips 60 S. in quartz-mica schist (Chapin, 1914, p. 329).

The prospect was examined in 1942 as a possible source of antimony but did not exhibit sufficient antimony mineralization to warrant further exploration or development (Killeen and Mertie, 1951).

Alteration:
Yellow-green stains of antimony-oxide are abundant (Chapin, 1914, p. 329).

Age of mineralization:

Deposit model:
Gold-quartz veins.

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

Production Status: None

Site Status: Inactive

Workings/exploration:

George Perrault located the Minnie and Aroostook claims and made a surface opening on a lode striking N 80 W that dipped 60 S. Chapin (1914) reported that these workings were caved by 1913.

Production notes:

Reserves:

Additional comments:

The prospect was discovered by George Perrault at some time prior to 1912 and consisted of the Minnie and Aroostook claims (Times Publishing Company, 1912; Chapman and Foster, 1969).

References:

Times Publishing Company, 1912; Chapin, 1914; Killeen and Mertie, 1951; Chapman and Foster, 1969; Cobb, 1972 (MF 413); Cobb, 1976 (OFR 76-633); Freeman, 1992.

Primary reference: Chapin, 1914

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Hi-Yu; Crites and Feldman

Site type: Mine

ARDF no.: LG182

Latitude: 65.075 **Quadrangle:** LG A-1

Longitude: 147.28

Location description and accuracy:
Cobb (1972, MF-413), loc. 51; SE1/4NE1/4 sec.23, T. 3 N., R. 2 E., of the Fairbanks Meridian. The coordinates given are for the mill marked on the Livengood (A-1) quadrangle along Moose Creek, a tributary of Fairbanks Creek. Deposits trend northwest of the mill, along a dirt road.

Commodities:

Main: Au

Other: Ag, Pb, Sb, Zn

Ore minerals: Argentiferous galena, arsenopyrite, gold, pyrite, sphalerite, stibnite

Gangue minerals:

Geologic description:
The Hi-Yu mine was one of the major producers in the Fairbanks district prior to WWII. This mine consists of many quartz veins, some along faults and most offset by faults, containing free gold and sulfides including stibnite, argentiferous galena, arsenopyrite, pyrite, and sphalerite (Cobb, 1976; OFR 76-633).

Before 1913, the Hi-Yu shear was traced over 900 strike feet over a vertical range of 625 feet before an adit was collared on the right limit of Moose Creek (Prindle, 1913; Smith, 1913; B 525). By 1913, the Main adit was 450 feet long. A second adit known as the Lower adit, was collared in 1913. The northwest-trending, south-dipping shear zones containd several ore shoots over the 3,000 foot strike length outlined on the surface (Chapman, 1914). A twenty-three-ton lot of ore from the first 150 feet of the Main adit yielded 6.29 ounces of gold per ton. This gold had a fineness of 850 to 857 and contained 13 to 14% silver (Chapman, 1914). By 1916, the Lower adit had been abandoned and a new adit, the Hi-Yu adit wa collared on the Hi-Yu claim approximately 500 feet above the level of Moose Creek (Stewart, 1922). A the 350 foot station of the Hi-Yu adit, the lode bifurcated. The northern branch, striking N 75 W and dipping steeply south, was traced for an additional 125 feet underground and could be followed on the surface for over 2,000 feet from the portal of the Upper adit (Mertie, 1918). By 1920, the Hi-Yu adit had been driven 1,300 feet. The average recovered grade of the ore in 1922 was $25 to

$30 gold per ton (1.21 to 1.45 ounces of gold per ton). Stamp tailings were being collected in a settling pond since they contained approximately $4.00 gold per ton (0.20 ounces of gold per ton) (Stewart, 1922).

Production records indicate that by 1933 this mine had produced 13,560 troy ounces of gold from 8,200 tons of ore with an average grade of 1.65 ounces of gold per ton (Hill, 1933). In August of 1933, a rich ore shoot was discovered in the Upper adit on the Helen S claim. Between August 1933 and June, 1934, this shoot produced 3,010 ounces of gold from material grading 2.1 ounces of gold per ton (Joralemon, 1934).

In the fall of 1941, a 2-foot-wide stibnite pod was re-discovered on the Antimony shear zone approximately 600 feet north of the Main adit portal. This material contained 60 to 66% antimony with 0.01 ounces of gold per ton and 1 ounces of silver per ton (Joesting, 1942; ATDM Pamph. 1). Approximately 15 tons of this material had been identified in surface pits by 1942 (Joesting, 1943).

Fairbanks Exploration Inc. conducted limited sampling of the Hi-Yu mine waste dumps and stamp sand tailings ponds in 1986 (Fairbanks Exploration Inc., unpublished report, 1986). Waste dump material from both levels of the mine indicate that the mineralization is hosted by siliceous exhalite, metarhyolite tuff, and black carbonaceous quartzite of the Cleary Sequence. Mineralization consists of fine-grained, stratiform arsenopyrite and pyrite in metavolcanic lenses with stibnite-pyrite mineralization in pelitic host rock. Intense argillic alteration is all but destroyed by the nearly complete supergene alteration present on most samples. Samples collected from the Main adit dump contained gold values ranging from 260 to 3200 ppb and were associated with highly anomalous arsenic, antimony and silver (Fairbanks Exploration Inc., unpublished report, 1986). Samples collected from the stamp mill tailings pond below the mill contain highly anomalous gold (to 1.701 ounces of gold per ton), silver (to 6.14 ounces of silver per ton), arsenic and antimony, all of which appear to be concentrated in sulfide-rich lenses in the stamp sands (Fairbanks Exploration Inc., unpublished report, 1986). Gold values in stamp sands from the Hi-Yu mill indicate that a significant proportion of the gold in the Hi-Yu ores is contained in the -30 mesh size range.

In 1988, Tri-Con Mining reportedly mined 14,600 tons of material from the Hi Yu mine stamp-tailings dump and the American Eagle mine waste dump. The average gold grade mined was 0.10 ounces of gold per ton (Freeman, 1992). Tri-Con Mining removed all of the mineable stamp sands in the Hi Yu dump.

Alteration:

Quartz, sericite and ankerite; intense argillic alteration is all but destroyed by the nearly complete supergene alteration present on most samples.

Age of mineralization:

Deposit model:

Polymetallic vein (Cox and Singer, 1986; model 22c).

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

22c

Production Status: Yes; large

Site Status: Inactive

Workings/exploration:

The Hi-Yu lode was discovered in 1912 (Times Publishing Company, 1912). Initial development began on the Helen S claim, and by 1913 the Main adit was 450 feet long with a 65 foot raise connected to the surface approximately 250 feet from the portal. A second adit, 50 feet below the Main adit, known as the Lower adit, was collared in 1913. In 1914, the Main adit was lengthened to 550 feet and the Lower adit driven 450 feet (Stewart, 1922). By the end of 1915, the Main adit had been driven to a total length 700 feet and the Lower adit remained 450 feet in length. By 1916, the Lower adit had been abandoned and a new adit, the Hi-Yu adit, was collared on the Hi-Yu claim approximately 500 feet above the level of Moose Creek (Stewart, 1922). By 1920 the Hi-Yu adit had been driven 1,300 feet. A raise connected the Hi-Yu adit with the surface at the 800 foot station of the adit (Stewart, 1922).

By the end of 1922, the Hi-Yu mine had stoped out all of the ore on the Helen S claim between the Lower and Main adits from the portal for a distance of 400 feet. Similarly, all of the ore had been stoped out between the Main and Upper adits for a distance of 800 feet from the portal. The Main adit was extended to a length of 1,000 feet and the Upper adit, located 175 feet above the Main adit, was 40 feet deep. On the Hi-Yu claim, all of the ore had been stoped out between the Hi-Yu adit and the surface for a distance of 1,100 feet from the portal except for a block 150 feet long near the middle of the adit (Stewart, 1922). The branch tunnel in the Hi-Yu adit was extended to a depth of 200 feet from the Hi-Yu tunnel. Stamp tailings were being collected in a settling pond since they contained approximately $4.00 per ton in gold (0.20 ounces of gold per ton) (Stewart, 1922).

Stewart (1923) reported the Upper adit on the Helen S claim had been extended to a length of 600 feet by 1923. This adit level is approximately 125 feet below the level of the Hi-Yu adit on the Hi-Yu claim. In addition, the Lower adit on the Helen S claim was extended to a length of 500 feet. In 1931 a raise was being driven between the Main adit and Upper adit (Smith, 1933; Smith, 1933, B 844; Stewart, 1933). In 1932, the Upper adit was 1,200 feet long and the Main adit was 1,525 feet long (Pilgrim, 1933). Patty (1933) indicated the Upper adit on the Helen S claim was 1600 feet long in early 1933. The Upper adit was 1,875 feet long in 1934. A cross-cut was being driven from the Upper adit in 1934 to intersect the Antimony shear zone, a 4-foot-wide shear zone reportedly averaging 0.5 ounces of gold per ton. In 1938, the Hi-Yu mine completed 300 feet of drifting and 250 feet of raises on the Lower adit level and in sublevels between the Lower and Main adit levels.

In 1984, Placid Oil Company conducted dozer trenching and drilled a total of 8,205 feet in 19 diamond core holes (Porterfield and Croff, 1986). Additional diamond core drilling in 1985 on the Hi Yu shear consisted of 2 holes (515 feet) on the Hi Yu shear zone. Fairbanks Exploration Inc. conducted limited sampling of the Hi Yu mine waste dumps and stamp sand tailings ponds in 1986 (Fairbanks Exploration Inc., unpublished report, 1986). During July, 1988, a total of 27 stamp sand samples were collected from the Hi Yu mine tailings dump (Fairbanks Exploration Inc., unpublished report, 1988). The Hi Yu mine workings are currently inaccessible but the ten stamp mill and powerhouse are still stand-

ing and in excellent condition.

Production notes:

The Hi-Yu mine, also known as the Crites and Feldman mine, was the second largest lode gold producer in the Fairbanks District. By September 1914, the mine was in full production, milling an average of 7 tons of ore per day, primarily from the Lower adit (Stewart, 1915; Brooks, 1916). By 1916, the Hi-Yu mine had replaced the Cleary Hill mine as the largest producer in the Fairbanks Mining District. The mine continued to be the largest producer in the district from 1924 to 1926 (Brooks and Capps, 1924; Brooks, 1924; Moffit, 1927). Smith (1930) reported primarily development work at the mine in 1927, but significant production was again reported in 1928 and 1929 (Smith, 1930; Smith, 1932). There was no production reported in 1930 and the mine was not in operation for most of 1931. During the winter of 1932-33 over $100,000 worth of gold (4,837 ounces) was produced from stopes above the Upper adit. Production records from the Hi-Yu and Helen S shear zones provided by the owners in 1933, indicate production of 13,560 troy ounces of gold from 8,200 tons of ore with an average grade of 1.65 ounces of gold per ton (Hill, 1933). In August of 1933, a rich ore shoot was discovered in the Upper adit on the Helen S claim. Between August 1933 and June, 1934, this shoot produced 3,010 fine ounces of gold from material grading 2.1 ounces of gold per ton (Joralemon, 1934). The Hi-Yu mine remained the second largest producer in the Fairbanks Mining District during 1936, 1937 and 1938 (Smith, 1938; Smith, 1939, B 910; Smith, 1939, B 917). In 1938, the mine produced 2,500 tons of ore which averaged $24 per ton in gold (0.68 ounces of gold per ton) (Reed, 1939). The mine recorded continuous production in 1939 and 1940 (Smith, 1941; Smith, 1942). Killeen and Mertie (1943) reported that the Hi-Yu mine was shut down in 1942 by the War Production Board Order L208, and like most other mines in the district, the Hi-Yu mine did not reopen after World War II. Existing records indicate the Hi-Yu mine produced approximately 22,161 ounces of gold between 1933 and 1941 (E. Brandell, written commun., 1949). In 1988, Tri-Con Mining reportedly mined 14,600 tons of material from the Hi-Yu mine stamp sand tailings dump and the American Eagle mine waste dump. The average gold grade mined was 0.10 oz/ton gold (Freeman, 1992). Mining conducted by Tri-Con Mining removed all of the mineable stamp sands in the Hi-Yu dump site.

Reserves:

Ore reserve estimates of the Hi Yu mine waste dumps are limited to the Main adit dump where sampling conducted in 1986 indicated 34,530 tons grading 0.397 ounces of gold per ton and 1.60 ounces of silver per ton. However, these estimates are not representative of the true grades in the dumps since 1986 sampling was restricted to material with visible metallic sulfide or oxide mineralization. The true grade of the Hi Yu waste dumps is suspected to range from 0.05 to 0.10 ounces of gold per ton (Freeman, 1992).

Additional comments:

References:

Times Publishing Company, 1912; Prindle, 1913; Smith, 1913 (B 542); Smith, 1913 (B 525); Chapin, 1914; Eakin, 1915; Brooks, 1916 (B 642); Brooks, 1916 (B 649); Smith,

1917 (BMB 142); Mertie, 1918; Chapin, 1919; Martin, 1920; Brooks and Martin, 1921; Brooks, 1922; Stewart, 1922; Brooks, 1923; Stewart, 1923; Brooks, 1924; Brooks and Capps, 1924; Brooks, 1925; Smith, 1926; Moffit, 1927; Smith, 1929; Smith, 1930 (B 813); Smith, 1930 (B 810); Smith, 1932; Hill, 1933; Smith, 1933 (B 836); Smith, 1933 (B 844); Joralemon, 1934; Smith, 1934 (B 864); Smith, 1937; Smith, 1938; Smith, 1939 (B 910); Smith, 1939 (B 917); Smith, 1941; Joesting, 1942 (ATDM Pamph. 1); Smith, 1942; Joesting, 1943; Killeen and Mertie, 1951; Burand, 1968; Chapman and Foster, 1969; Cobb, 1972 (MF 413); Cobb, 1976 (OFR 76-633); Porterfield and Croff, 1986; Freeman, 1992.

Primary reference: Freeman and others, 1986

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Creeks

Site type: Prospect

ARDF no.: LG183

Latitude: 65.078 **Quadrangle:** LG A-1

Longitude: 147.265

Location description and accuracy:
The Creeks prospect is defined by a series of multi-element soil anomalies extending from the Hi Yu mine (ARDF no. LG182) on the west to Walnut Creek on the east. The location given is on a drill hole; 135 feet of it contained 0.014 ounces of gold per ton (Freeman and others, 1998).

Commodities:

Main: Au

Other: As, Sb

Ore minerals: Arsenopyrite, pyrite, stibnite

Gangue minerals:

Geologic description:
The Creeks prospect is defined by a series of multi-element soil anomalies extending from the Hi Yu mine on the west to Walnut Creek on the east (Freeman and others, 1998). These anomalies consist of large areas of moderate to strongly anomalous gold, arsenic, and antimony. 1998 drilling was designed to find mineralization in previously untested areas using widely spaced (+1,000 feet) reverse circulation drilling. One hole intercepted 135 feet with 0.014 ounces of gold per ton and anomalous gold pathfinder elements. Because of disappointing drill results, no work was recommended on the Creeks prospect in 1999.

Alteration:
Sericite.

Age of mineralization:

Deposit model:
Gold-quartz vein.

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

Production Status: None

Site Status: Inactive

Workings/exploration:
Reverse circulation drilling was conducted in 1998 to follow up on soil auger anomalies (Freeman and others, 1998).

Production notes:

Reserves:

Additional comments:

References:
Freeman and others, 1998.

Primary reference: Freeman and others, 1998

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Dawson Creek

Site type: Mine

ARDF no.: LG184

Latitude: 65.468 **Quadrangle:** LG B-6

Longitude: 149.979

Location description and accuracy:
Cobb (1972, MF-413), loc. 57; NE1/4 sec. 3, T. 7 N., R. 12 W., of the Fairbanks Meridian. Placer mining occurred along the lower section of Dawson Creek. Dawson Creek is a tributary of Hunter Creek, about 9 miles NNW of Wolverine Mountain.

Commodities:

Main: Au

Other: Cu

Ore minerals: Gold, native copper

Gangue minerals:

Geologic description:
Small-scale placer mining too place from 1911 to 1913 (Cobb, 1976; OFR 76-633, p. 49).

Alteration:

Age of mineralization:

Deposit model:
Placer gold deposit (Cox and Singer, 1986; model 39a).

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

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:
Small-scale placer mining too place from 1911 to 1913 (Cobb, 1976; OFR 76-633, p.

49).

Production notes:
No record of amount of production.

Reserves:

Additional comments:

References:
Ellsworth, 1910; Eakin, 1912; Eakin, 1913; Ellsworth and Davenport, 1913; Chapin, 1914; Mertie, 1934; Cobb, 1972 (MF 413); Cobb, 1976 (OFR 76-633); Orris and Bliss, 1985.

Primary reference: Cobb, 1976 (OFR 76-633)

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Hunter Creek

Site type: Mine

ARDF no.: LG185

Latitude: 65.472 **Quadrangle:** LG B-6

Longitude: 149.985

Location description and accuracy:
Cobb (1972, MF-413), loc. 57; SE1/4SE1/4 sec. 34, T. 8 N., R. 12 W., of the Fairbanks Meridian. The coordinates given are for the eastern end of the placer mine tailings along Hunter Creek. The placer ground continues downstream into the Tanana Quadrangle.

Commodities:

Main: Au

Other: Ag, Cu, Hg, Pb, Sn

Ore minerals: Cassiterite, cinnabar, galena, gold, native copper

Gangue minerals:

Geologic description:
Except near the mouth and the extreme headwaters of this placer-mined creek, the bedrock is shale, tuff and diabase of the Rampart series (Spurr, 1898). Prindle and Hess (1906) describe the bedrock as slate near the head, quartzite with tuffaceous greenstone in the lower part of the valley, and Kenai (Tertiary) sandstone and conglomerate near the mouth. More recent geologic mapping of the area indicates that most of the Hunter Creek drainage is underlain by mafic igneous rocks with a few interlayered sedimentary rocks (Weber and others, 1992). Prospectors found gold through the entire length of the creek (Spurr, 1898).

Gravels are 2 to 12 feet thick and overlain by as much as 40 feet of frozen muck (Prindle and Hess, 1906). Much of the gold was found in bedrock cracks along with considerable barite and some hematite in the concentrates (Prindle and Hess, 1906). Eakin (1912) reported that there was very little production from stream gravels and that most gold came from the bench 15 to 20 feet above the stream. The bedrock surface was noted to be uneven with overburden thickening toward the valley wall (Eakin, 1912). The gravel and the top 4 feet of shattered greenstone bedrock were mined (Mertie, 1934). Heavy mineral in concentrates include magnetite, ilmenite, hematite, barite, pyrite, picotite, cinnabar, galena, cassiterite, and native copper (Mertie, 1934). Waters (1934) reported that concentrate samples also contained garnet, zircon, limonite, quartz, diopside, and epidote.

Mining began in 1896 and continued with few interruptions to as recently as 1940 (Cobb, 1976; OFR 76-633, p. 100). The ground was apparently mined out with little gold being found upstream from Dawson Creek (Eberlein, 1977, p. 66).

Alteration:

Age of mineralization:

Deposit model:
Placer gold deposit (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:
Mining began in 1896 and continued with few interruptions to as recently as 1940 (Cobb, 1976; OFR 76-633, p. 100).

Production notes:
Mining began in 1896 and continued with few interruptions to as recently as 1940 (Cobb, 1976; OFR 76-633, p. 100).

Reserves:

Additional comments:

References:
Spurr, 1898; Collier, 1903; Brooks, 1904; Prindle and Hess, 1905; Purington, 1905; Prindle and Hess, 1906; Brooks, 1907; Brooks, 1908; Hess, 1908; Brooks, 1909; Ellsworth, 1910; Ellsworth and Parker, 1911; Eakin, 1912; Eakin, 1913; Ellsworth and Davenport, 1913; Chapin, 1914; Brooks, 1915; Brooks, 1916; Smith, 1917 (BMB 153); Brooks, 1918; Martin, 1919; Martin, 1920; Brooks and Martin, 1921; Brooks, 1923; Smith, 1926; Smith, 1929; Smith, 1930 (B 813); Smith, 1932; Smith, 1933 (B 836); Smith, 1933 (B 844); Mertie, 1934; Smith, 1934 (B 857); Smith, 1934 (B 864); Waters, 1934; Smith, 1936; Smith, 1937; Smith, 1939 (B 910); Smith, 1939 (B 917); Smith, 1941; Smith, 1942; Wayland, 1961; Malone, 1962; Malone, 1965; Cobb, 1972 (MF 413); Cobb, 1973 (B 1374); Cobb, 1976 (OFR 76-633); Orris and Bliss, 1985; Forbes and Cannon, 1991.

Primary reference: Cobb, 1976 (OFR 76-633)

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Idaho Bar

Site type: Mine

ARDF no.: LG186

Latitude: 65.45 **Quadrangle:** LG B-6

Longitude: 149.983

Location description and accuracy:
Cobb (1972, MF-413), loc. 58; SE1/4NE1/4 sec.10, T. 7 N., R. 12 W., of the Fairbanks Meridian. This deposit is on a high gravel bench between Little Minook, Dawson and Hunter Creeks. Accuracy is within 1,500 feet.

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:
Coarse and shotty gold occurs in high Pliocene (?) gravels about 1,000 feet higher than the mouth of Little Minook Creek (Mertie, 1934). A shaft at the crest of the ridge is said to have been sunk 100 feet to bedrock (Mertie, 1934). Coarse gravels contain quartzite, quartzite breccia, vein quartz and chert (Prindle and Hess, 1905). Heavy minerals include ilmenite, hematite, and magnetite (Mertie, 1934). Although there was not enough water for large-scale mining, prospecting and drift mining occurred in 1913, the late 1920's and the 1930's (Cobb, 1976; OFR 76-633, p. 102). Some work was reported as late as 1975 (Eberlein and others, 1977, p. 66), and trench work was reported in 1985 (J. Munsell, oral commun., 1999).

Alteration:

Age of mineralization:

Deposit model:
Placer gold deposit (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:
Although there was not enough water for large-scale mining, prospecting and drift mining occurred in 1913, the late 1920's and the 1930's (Cobb, 1976; OFR 76-633, p. 102). Some work was reported as late as 1975 (Eberlein and others, 1977, p. 66) and trench work was reported in 1985 (J. Munsell, oral comm., 1999).

Production notes:
Although there was not enough water for large-scale mining, prospecting and drift mining occurred in 1913, the late 1920's and the 1930's, and some work was reported as late as 1975 (Cobb, 1976; OFR 76-633, p. 102; Eberlein and others, 1977, p.66).

Reserves:

Additional comments:
Similar deposits that lie on the top of the ridges southeast of Little Minook and Hoosier Creeks, in the Tanana quadrangle, are known as California and Florida Bars.

References:
Prindle and Hess, 1905; Prindle and Hess, 1906; Chapin, 1914; Smith, 1930 (B 813); Smith, 1933 (B 836); Smith, 1933 (B 844); Mertie, 1934; Smith, 1934 (B 857); Smith, 1934 (B 864); Waters, 1934; Smith, 1936; Smith, 1937; Cobb, 1972 (MF 413); Cobb, 1973 (B 1374); Cobb, 1976 (OFR 76-633); Eberlein and others, 1977.

Primary reference: Cobb, 1976

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Crane Creek

Site type: Mine

ARDF no.: LG187

Latitude: 65.075 **Quadrangle:** LG A-1

Longitude: 147.239

Location description and accuracy:
Cobb (1972, MF-413), loc. 91; SE1/4NE1/4 sec. 24, T. 3 N., R. 2 E., of the Fairbanks Meridian. Mining most likely occurred in the lower section of Crane Creek, a north tributary of Fairbanks Creek.

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:
Crane Creek is a tributary of Fairbanks Creek and is underlain by quartz muscovite schist, quartzite, and chlorite quartzose schist (Newberry and others, 1996). About 1,765 ounces of gold was produced in 1908 which assayed at 822 fine (Prindle and Katz, 1913). Recent field observation of Crane Creek indicates that more recent mining has taken place in the lower section of the creek, probably in the 1980's (J. Schaefer, field observation, 1999).

Alteration:

Age of mineralization:

Deposit model:
Placer gold deposit (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:
Recent field observation of lower Crane Creek indicates that mining has occurred recently, probably in the 1980's (J. Schaefer, field observation, 1999).

Production notes:
About 1,765 ounces of gold was produced in 1908 (Prindle and Katz, 1913).

Reserves:

Additional comments:

References:
Prindle and Katz, 1913; Cobb, 1972 (MF 413); Cobb, 1976 (OFR 76-633).

Primary reference: Prindle and Katz, 1913

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Queen

Site type: Prospect

ARDF no.: LG188

Latitude: 65.083 **Quadrangle:** LG A-1

Longitude: 147.233

Location description and accuracy:
The Queen prospect is located on the divide between Crane Creek and Alder Creek; it is approximately 2.5 miles west, southwest of Coffee Dome in SW1/4 sec. 18, T. 3 N., R. 3 E., of the Fairbanks Meridian.

Commodities:

Main: Au

Other: Sb

Ore minerals: Gold, stibnite

Gangue minerals:

Geologic description:
By late 1912, a 100-foot-deep inclined shaft had been sunk on a northeast shear zone that dipped 45 N.; it contained antimony-oxide-stained quartz and gouge. The shear zone is 6 feet wide at the surface and steepens to vertical at 100 feet. By October 1912, a second shaft, located 100 feet northwest of the old shaft, was down 20 feet. The shear contained free-milling gold but no assay information is available. By 1913, this prospect consisted of a short shaft and a 100-foot inclined shaft with an 18-inch-wide quartz-bearing shear zone exposed about 30 feet from the top of the incline. This shear is cut off by a fault striking N 70 W and dipping 33 NE (Chapin, 1914). The fault cuts the shear at a low angle and was followed by the incline to its full 100 foot depth. The prospect was not being explored in 1913 and no information is available on the grade or character of the mineralization.

Alteration:

Age of mineralization:

Deposit model:
Gold and antimony-bearing quartz shear zones.

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

Production Status: None

Site Status: Inactive

Workings/exploration:

By late 1912, a 100-foot-deep inclined shaft had been sunk on a northeast shear zone that dipped 45 N; it contained antimony-oxide-stained quartz and gouge. The shear zone is 6 feet wide at the surface and steepens to vertical at 100 feet. By October 1912, a second shaft, located 100 feet northwest of the old shaft, was down 20 feet. By 1913, this prospect consisted of a short shaft and a 100-foot inclined shaft with an 18-inch-wide quartz-bearing shear zone exposed about 30 feet from the top of the incline. This shear is cut off by a fault oriented N 70 W, 33 NE (Chapin, 1914). The fault cuts the shear at a low angle and was followed by the incline to its full 100-foot depth.

Production notes:

Reserves:

Additional comments:

The Queen prospect was staked in 1910 by Ross Patton (Times Publishing Company, 1912).

References:

Times Publishing Company, 1912; Chapin, 1914; Freeman, 1992.

Primary reference: Chapin, 1914

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Alder Creek

Site type: Prospect

ARDF no.: LG189

Latitude: 65.098 **Quadrangle:** LG A-1

Longitude: 147.223

Location description and accuracy:

Cobb (1972, MF-413), loc. 52; SW1/4SW1/4 sec. 7, T. 3 N., R. 3 E., of the Fairbanks Meridian. This prospect is between the headwater forks of Alder Creek at an elevation of 2,100 feet. Accuracy is within 1,500 feet.

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:

Gold was found in a 12- to 13-foot-wide vertical shear zone striking N 40 E; it contained highly fractured quartz. Mineralization is along the margin of the vein and along fragments of schist in the vein (Prindle, 1910, p. 227).

The original prospect consisted of three claims: the Lemon, Lime and North Star claims (Prindle, 1910). By 1909, a 120-foot-long adit had been driven parallel to the shear and a cross-cut had intersected the shear zone approximately 50 feet below surface. Samples collected from the site panned $40 gold per ton in free gold (1.9 ounces of gold per ton); they were from the six-inch-wide, high grade portion of the shear. The remainder panned approximately $2 gold per ton in free gold (0.09 ounces of gold per ton) (Times Publishing Company, 1912). Two other parallel quartz-bearing shear zones were known to exist but had not been explored in 1909. Smith (1913, B 525) reported the prospect was inactive in 1912 by which time the adit was 150 feet long (Times Publishing Company, 1912). By 1913 the adit had been extended to 160 feet in length and several cross-cuts driven to explore the shear zone (Brook, 1914).

Alteration:

Age of mineralization:

Deposit model:
Auriferous quartz shear zone in schist.

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

Production Status: None

Site Status: Inactive

Workings/exploration:
Smith (1913, B 525) reported the prospect was inactive in 1912 when an adit was 150 feet long (Times Publishing Company, 1912). By 1913, the adit had been extended to 160 feet in length and several cross-cuts were driven to explore the shear zone (Brook, 1914).

Production notes:

Reserves:

Additional comments:

References:
Prindle, 1910; Times Publishing Company, 1912; Smith, 1913 (B 525); Smith, 1913 (B 542); Chapin, 1914; Brooks, 1916 (B 642); Chapman and Foster, 1969; Cobb, 1972 (MF 413); Cobb, 1976 (OFR 76-633); Freeman, 1992.

Primary reference: Prindle, 1910

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Eureka

Site type: Mine

ARDF no.: LG190

Latitude: 65.092 **Quadrangle:** LG A-1

Longitude: 147.192

Location description and accuracy:
Cobb (1972, MF-413), loc. 53; NW1/4 sec. 17, T. 3 N., R. 3 E., of the Fairbanks Meridian. The Eureka mine is on the ridge between Ginger and Walnut Creeks at an elevation of 2,000 feet. The location is marked by a prospect pit 1.5 miles north of Alder Creek Camp. Accuracy is within 1,000 feet.

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:
This prospect was discovered in 1910 (Times Publishing Company, 1912). By 1911, a 50-foot-deep shaft had been sunk and an unspecified amount of gold ore had been custom milled at the Chena mill in Fairbanks (Brooks, 1912). The width of ore in the Eureka shaft was three feet. The prospect was inactive in 1912 (Smith, 1913; B 525). In 1969, Pilkington and others (1969) collected two samples of shear-zone quartz from the prospect. These samples contained 2.48 and 150 ppm gold (0.072 and 4.38 ounces of gold per ton, respectively).

Alteration:

Age of mineralization:

Deposit model:
Gold-quartz vein.

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

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:
Brooks (1912) reported a 50 foot shaft.

Production notes:
Some ore was milled in 1911 (Brooks, 1912).

Reserves:

Additional comments:

References:
Times Publishing Company, 1912; Brooks, 1912; Smith, 1913 (B 525); Smith, 1913 (B 542); Pilkington and others, 1969; Cobb, 1972 (MF 413); Cobb, 1976 (OFR 76-633); Freeman, 1992.

Primary reference: Brooks, 1912

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Coffee Dome

Site type: Prospect

ARDF no.: LG191

Latitude: 65.092 **Quadrangle:** LG A-1

Longitude: 147.168

Location description and accuracy:
Cobb (1972, MF-413), loc. 56; NE1/4 sec. 17, T. 3 N., R. 3 E., of the Fairbanks Meridian. This prospect is at the head of Walnut Creek on the southwestern flank of Coffee Dome. Accuracy is within 2,000 feet.

Commodities:

Main: Au

Other: Ag, Pb

Ore minerals: Galena, gold

Gangue minerals:

Geologic description:
Holdsworth (1952) reported that Walter Lindgren had conducted exploration activity of an unspecified nature on this prospect in 1952. The only other known references to this prospect indicates exploration uncovered gold-lead-silver mineralization of unknown grade or character (R.M. Chapman and Foster, 1969). No other published or private references to the Coffee Dome prospect are known.

Alteration:

Age of mineralization:

Deposit model:
Polymetallic vein (Cox and Singer, 1986; model 22c).

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

Production Status: None

Site Status: Inactive

Workings/exploration:
Holdsworth (1952) reported that Walter Lindgren had conducted exploration activity of an unspecified nature on this prospect in 1952.

Production notes:

Reserves:

Additional comments:

References:
Holdsworth, 1952; Burand, 1968; Chapman and Foster, 1969; Cobb, 1972 (MF 413); Cobb, 1976 (OFR 76-633); Freeman, 1992.

Primary reference: Chapman and Foster, 1969

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Charles

Site type: Prospect

ARDF no.: LG192

Latitude: 65.089 **Quadrangle:** LG A-1

Longitude: 147.161

Location description and accuracy:
Cobb (1972, MF-413), loc 54; NW1/4 sec. 16, T. 3 N., R. 3 E., of the Fairbanks Meridian. This prospect is near the head of Walnut Creek, about 0.5 miles southwest of the summit of Coffee Dome. Accuracy is within 1,500 feet.

Commodities:

Main: Au

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

Ore minerals: Cervantite, galena, gold, scheelite, scorodite, stibnite

Gangue minerals:

Geologic description:
By 1911, the prospect had a 40-foot deep shaft on an 18-inch-wide quartz and base metal-bearing shear zone that trended northwest, and dipped 45 NE (Times Publishing Company, 1912; Brooks, 1911). The surface width of the shear was 8 feet. Another shear zone, was traced for 1,500 feet in pits no more than 12 feet deep. One ton of material mined from the Charles prospect in 1911 averaged $25 gold per ton (1.2 ounces of gold per ton) in free milling gold (Times Publishing Company, 1912). The one ton sample was extracted from a high grade portion of the shear which averaged 10 inches in width.

Burand (1968) notes that work had been conducted on a lead-silver prospect in upper Walnut Creek and it is believed this reference was to the Charles prospect. Samples of shear zone quartz collected by Pilkington and others (1969) from the Eleanor claim area on the northwest end of the Charles prospect ranged from 1.95 to 43.5 ppm gold (0.057 to 1.27 ounces of gold per ton). A sample of mineralized schist from this same area contained 1.27 ppm gold (0.037 ounces of gold per ton).

In 1976 and 1977, prospect owners Richard Griff and James Madonna conducted dozer trenching and drilled three 80-foot holes (L. Katkin, written commun., 1978). Samples contained 0.037 to 1.969 ounces of gold per ton, 0.12 to 57.84 ounces of silver per ton, 0.02 to 15.9% lead, from a trace to 2% antimony, and traces of copper and zinc.

The prospect was remapped and sampled in 1980; the work revealed two sub-parallel,

N 60-80 W trending shear zones approximately 800 feet apart (Blakestad, 1980). The lower of these two zones ranged from 2 to 12 feet wide and contained quartz-stockwork shear zones up to several feet thick in the most intensely sheared areas. Gold, stibnite and galena were identified on the lower zone. The upper zone was hosted in mariposite-bearing schist and ankerite-bearing quartz-mica schist with conformable oxidized and leached zones stained by scorodite and cervantite. Scheelite was identified on one siliceous unit in the upper zone. Limited sample results from Blakestad (1980) indicated the prospect has a high lead and silver content.

Reconnaissance-scale soil sampling in the Charles area was conducted in 1997 and expanded in 1998 (Freeman and others, 1998). Trenching was completed in the Charles area subsequent to the 1997 soil sampling program and returned sporadic high-grade gold associated with antimony and arsenic, but did not outline contiguous intervals of significant gold mineralization. Both upper and lower plate lithologies were encountered in trenches and higher gold values are more common in rocks containing abundant iron- and manganese-oxides. Three reverse-circulation holes were drilled in the Charles area during 1998 to target anomalous gold, arsenic, antimony, bismuth, and tellurium values in soils. The primary target in this area was the down-dip extension of a flat-lying crushed quartz vein zone exposed in an old trench east of the Charles Shaft. The drill hole intersected crushed quartz of only moderate grades, 0.102 ounces of gold per ton over five feet.

Alteration:

Higher gold values are more common in rocks containing abundant iron and manganese oxides. Oxidized and leached zones are stained by scorodite and cervantite (Freeman and others, 1998).

Age of mineralization:

Deposit model:

Polymetallic vein (Cox and Singer, 1986; model 22c).

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

22c

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:

By 1911 the prospect had a 40 foot deep shaft (Times Publishing Company, 1912). In 1976 and 1977, prospect owners Richard Griff and James Madonna conducted dozer trenching and drilled three 80-foot holes (Katkin, written commun., 1978). The prospect was remapped and sampled in 1980 (Blakestad, 1980). Reconnaissance scale soil sampling in the Charles area was conducted in 1997 and expanded in 1998 (Freeman and others, 1998). Three reverse circulation holes were drilled in the Charles area during 1998 (Freeman and others, 1998).

Production notes:

One ton of material was mined from the Charles prospect in 1911 (Times Publishing Company, 1912).

Reserves:

Additional comments:

The first reference to this prospect indicates it was staked as the Sunnyside claim by Clarence Crites and Henry Feldman prior to 1911 (Times Publishing Company, 1912).

References:

Brooks, 1911; Brooks, 1912; Times Publishing Company, 1912; Prindle and Katz, 1913; Smith, 1913 (B 525); Smith, 1913 (B 542); Chapman and Foster, 1969; Pilkington and others, 1969; Cobb, 1972 (MF 413); Cobb, 1976 (OFR 76-633); Blakestad, 1980; Freeman, 1992; Freeman and others, 1998.

Primary reference: Freeman, 1992

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Coffee East

Site type: Prospect

ARDF no.: LG193

Latitude: 65.093 **Quadrangle:** LG A-1

Longitude: 147.127

Location description and accuracy:
The location given is the approximate center of a northeast trending gold-bismuth anomaly that covers approximately one square mile on the east to northeast side of Coffee Dome; NW1/4 sec. 15, T. 3 N., R. 3 E., of the Fairbanks Meridian.

Commodities:

Main: Au

Other:

Ore minerals:

Gangue minerals:

Geologic description:
Six reverse circulation holes were placed over a strong narrow, northeast trending gold-bismuth anomaly (Freeman and others, 1998). The holes were drilled near a 947 ppb and 1,337 ppb gold anomaly. Although altered upper plate rocks were encountered in all of the holes, assays returned only scattered intercepts ranging from 100 to 400 ppb Au.

Alteration:
Sericite.

Age of mineralization:

Deposit model:
Gold-quartz vein.

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

Production Status: None

Site Status: Inactive

Workings/exploration:

Soil sampling and reverse circulation drilling examined a northeast trending gold-bismuth anomaly, but no substantial intercepts were encountered (Freeman and others, 1998).

Production notes:

Reserves:

Additional comments:

References:

Freeman and others, 1998.

Primary reference: Freeman and others, 1998

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Eagan and Eagan

Site type: Prospect

ARDF no.: LG194

Latitude: 65.109 **Quadrangle:** LG A-1

Longitude: 147.156

Location description and accuracy:
Cobb (1972, MF-413), loc. 55; NW1/4 sec. 9, T. 3 N., R. 3 E., of the Fairbanks Meridian. This prospect is located near the confluence of the two headwater forks of Kokomo Creek at an elevation of about 1,500 feet. It is approximately 1 mile north of Coffee Dome. Accuracy is within 2,000 feet.

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:
By 1931, several hand trenches exposed four or five quartz-bearing shear zones approximately 100 feet apart (Hill, 1933). The shear zones trend N 40 W and dip 45-60 SW The prospect is hosted in flat-lying biotite schist. One shear consists of an 8-foot-thick zone of mixed schist and quartz although most of quartz-rich portions are 1 to 2 feet wide. A 20-inch-wide quartz shear zone contained 0.36 ounces of gold per ton. In 1938, two 15-foot shafts were sunk on the prospect but no information about these shafts is known (Reed, 1939). Placer gold was produced from Kokomo Creek below the Egan prospect but its relationship to mineralization on the Eagan prospect is unknown (Burand, 1968).

Alteration:

Age of mineralization:

Deposit model:
Gold-quartz vein.

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

Production Status: Undetermined

Site Status: Inactive

Workings/exploration:

By 1931, several hand trenches exposed four or five quartz-bearing shear zones approximately 100 feet apart (Hill, 1933). In 1938, two 15-foot shafts were sunk on the prospect but no information about these shafts is known (Reed, 1939).

Production notes:

Reserves:

Additional comments:

This prospect was discovered and staked by J.J. Egan and Dan Egan about 1930 (Hill, 1933).

References:

Hill, 1933; Reed, 1939; Burand, 1968; Chapman and Foster, 1969; Cobb, 1972 (MF 413); Cobb, 1976 (OFR 76-633); Freeman, 1992.

Primary reference: Hill, 1933

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Kokomo Creek

Site type: Mine

ARDF no.: LG195

Latitude: 65.113 **Quadrangle:** LG A-1

Longitude: 147.139

Location description and accuracy:
Cobb (1972, MF-413), loc. 92; SE1/4 sec. 4, T. 3 N., R. 3 E., of the Fairbanks Meridian. The mine and tailings are marked on the Livengood (A-1) quadrangle; it is about 1 mile north of Coffee Dome.

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:
Gold in stream gravels was discovered in 1921 (Brooks, 1923). Mining took place from 1937 to 1940 (Cobb, 1976; OFR 76-633, p. 110).

Alteration:

Age of mineralization:

Deposit model:
Placer gold deposit (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 mining from 1937 to 1940 (Cobb, 1976; OFR 76-633, p. 110).

Production notes:

Placer mining from 1937 to 1940, but no record of production (Cobb, 1976; OFR 76-633, p. 110).

Reserves:

Additional comments:

References:

Brooks, 1923; Smith, 1939 (B 910); Smith, 1939 (B 917); Smith, 1941; Smith, 1942; Cobb, 1972 (MF 413); Cobb, 1976 (OFR 76-633).

Primary reference: Cobb, 1976 (OFR 76-633)

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Alder Creek

Site type: Mine

ARDF no.: LG196

Latitude: 65.076 **Quadrangle:** LG A-1

Longitude: 147.207

Location description and accuracy:
Cobb (1972, MF-413), loc. 91; SE1/4NE1/4 sec. 19, T. 3 N., R. 3 E., of the Fairbanks Meridian. This is an accurate location on the center of the tailings near the mouth of Alder Creek. Alder Creek is a tributary of Fairbanks Creek.

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:
Gold in shallow stream placers was mined by open-cut method at various times between 1912 and 1940, possibly later, but there was probably no mining after 1959. The creek was worked over a distance of about 0.5 miles from the mouth (Eberlein and others, 1977, p. 59).

Alteration:

Age of mineralization:

Deposit model:
Placer gold deposit (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 mining in 1912, 1915, and 1940 (Cobb, 1976; OFR 76-633, p. 8).

Production notes:

Reserves:

Additional comments:

References:
Ellsworth and Davenport, 1913; Brooks, 1914; Chapin, 1914; Smith, 1917 (BMB 142); Smith, 1942; Cobb, 1972 (MF 413); Cobb, 1976 (OFR 76-633); Eberlein and others, 1977.

Primary reference: Eberlein and others, 1977

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Walnut Creek

Site type: Mine

ARDF no.: LG197

Latitude: 65.075 **Quadrangle:** LG A-1

Longitude: 147.192

Location description and accuracy:
Cobb (1972, MF-413), loc. 91; SE1/4NW1/4 sec. 20, T. 3 N., R. 3 E., of the Fairbanks Meridian. Placer deposits are in the lower section of Walnut Creek, a tributary of Fairbanks Creek. Accuracy is within 1,000 feet.

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:
Coarse gold was mined from shallow placer ground on lower Walnut Creek (Ellsworth and Parker, 1911; Prindle and Katz, 1913). One nugget was valued at $45 (Prindle and Katz, 1913). Production from 1906 to 1908 was worth $8700 from gold valued at $17 per ounce (Prindle and Katz, 1913). Mining was reported from 1906 to 1908 and 1912 (Prindle and Katz, 1913; Ellsworth and Davenport, 1913).

Alteration:

Age of mineralization:

Deposit model:
Placer gold deposit (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 mining was reported from 1906 to 1908 and 1912 (Prindle and Katz, 1913; Ellsworth and Davenport, 1913).

Production notes:
Production from 1906 to 1908 was worth $8700 from gold valued at $17 per ounce (Prindle and Katz, 1913).

Reserves:

Additional comments:

References:
Ellsworth and Parker, 1911; Ellsworth and Davenport, 1913; Prindle and Katz, 1913; Cobb, 1972 (MF 413); Cobb, 1976 (OFR 76-633).

Primary reference: Prindle and Katz, 1913

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Fairbanks Creek

Site type: Mine

ARDF no.: LG198

Latitude: 65.068 **Quadrangle:** LG A-1

Longitude: 147.161

Location description and accuracy:
Cobb (1972, MF-413), loc. 91. A productive placer area of approximately 8 miles along Fairbanks Creek. The coordinates given are for the abandoned village of Meehan which lies in about the middle of the placered area along Fairbanks Creek.

Commodities:

Main: Au

Other: Ag, Sb, Sn, W

Ore minerals: Cassiterite, gold, scheelite, stibnite, unknown Ag, wolframite

Gangue minerals:

Geologic description:
Fairbanks Creek is one of the major placer creeks in the Fairbanks mining district. It has been mined almost continuous for a distance of 8 miles from the McCarty Mine (ARDF no. LG152) to the Fish Creek flats near the mouth of Clark Creek.

Bedrock is mainly schist, from 15 to over 110 feet deep (Cobb, 1976). The gravels are schist, vein quartz and some gneiss. Minerals in concentrates include gold, wolframite, cassiterite, rutile, stibnite, and scheelite (Cobb, 1976; OFR 76-633).

U.S.S.R. & M. Co. (F.E. Co.) operated Dredge no. 2 on Fairbanks Creek from 1950 through 1961 (R.M. Chapman, 1978, unpublished U.S.G.S. memorandum). Cook's Mining has been actively mining Fairbanks Creek throughout the 1980's and 1990's, and has mined to within approximately 200 yards of the McCarty mill at the head of the creek (J. Schaefer, field observation, 1999). Cook's Mining was not active in the creek when visited in 1999 (J. Schaefer, field observation, 1999).

Alteration:

Age of mineralization:

Deposit model:
Placer gold deposit (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 mining including dredging and drift mining methods from 1903 to present (Cobb, 1976; OFR 76-633; Swainbank and others, 1997).U.S.S.R. & M. Co. (F.E. Co.) operated Dredge no. 2 on Fairbanks Creek from 1950 through 1961 (R.M. Chapman, 1978, unpublished U.S.G.S. memorandum). Cook's Mining has been actively mining Fairbanks Creek throughout the 1980's and 1990's, however, they were not active in the creek when visited in 1999 (J. Schaefer, field observation, 1999).

Production notes:
Placer mining from 1903 to present. Dredging began in 1911, but drift and other mining also continued. Production, including that from tributaries, from 1903 through 1920 was about 380,115 fine ounces of gold (Cobb, 1976; OFR 76-633, p. 63). In the 1980's and 1990's, Cook's Mining produced an unreported amount from Fairbanks Creek.

Reserves:

Additional comments:

References:
Prindle, 1904; Brooks, 1905; Prindle, 1905; Purington, 1905; Prindle, 1906; Brooks, 1907; Brooks, 1908; Prindle, 1908; Prindle and Katz, 1909; Ellsworth, 1910; Johnson, 1910; Brooks, 1911; Ellsworth and Parker, 1911; Ellsworth, 1912; Hess, 1912; Ellsworth and Davenport, 1913; Prindle and Katz, 1913; Smith, 1913 (B 525); Smith, 1913 (B 542); Brooks, 1914; Chapin, 1914; Brooks, 1915; Eakin, 1915; Brooks, 1916; Smith, 1917 (BMB 142); Smith, 1917 (BMB 153); Brooks, 1918; Martin, 1919; Martin, 1920; Brooks and Martin, 1921; Brooks, 1922; Brooks, 1923; Capps, 1924; Brooks, 1925; Smith, 1926; Moffit, 1927; Smith, 1929; Smith, 1930 (B 810); Smith, 1930 (B 813); Smith, 1932; Smith, 1933 (B 836); Smith, 1933 (B 844); Smith, 1934 (B 857); Smith, 1934 (B 864); Smith, 1936; Smith, 1937; Smith, 1938; Smith, 1939 (B 910); Smith, 1939 (B 917); Smith, 1941; Joesting, 1942 (ATDM Pamph. 1); Smith, 1942; Wedow and others, 1954; Byers, 1957; Chapman and Foster, 1969; Cobb, 1972 (MF 413); Cobb, 1973 (B 1374); Cobb, 1975 (C 722); Cobb, 1976 (OFR 76-633); Bundtzen and others, 1994; Swainbank and others, 1995; Swainbank and others, 1997.

Primary reference: Cobb, 1976 (OFR 76-633)

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Deep Creek

Site type: Mine

ARDF no.: LG199

Latitude: 65.061 **Quadrangle:** LG A-1

Longitude: 147.142

Location description and accuracy:
Cobb (1972, MF-413), loc. 91; NE1/4 sec. 28, T. 3 N., R. 3 E., of the Fairbanks Meridian. Deep Creek is a tributary of Fairbanks Creek, about a mile east of the old town of Meehan. Accuracy is within 1,000 feet.

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:
Placer gold was discovered in 1913 (Chapin, 1914, p. 359). There is no indication of further activity on the creek.

Alteration:

Age of mineralization:

Deposit model:
Placer gold deposit (Cox and Singer, 1986; model 39a).

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

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:
Some placer exploration in 1913 (Chapin, 1914).

Production notes:
No record of amount of production.

Reserves:

Additional comments:

References:
Chapin, 1914; Cobb, 1972 (MF 413); Cobb, 1976 (OFR 76-633).

Primary reference: Chapin, 1914

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Gil

Site type: Prospect

ARDF no.: LG200

Latitude: 65.025 **Quadrangle:** LG A-1

Longitude: 147.103

Location description and accuracy:
The Gil prospect is located on the ridge approximtely 1 mile southeast of the confluence of Fairbanks Creek and Fish Creek.

Commodities:

Main: Au

Other:

Ore minerals:

Gangue minerals:

Geologic description:
Drilling on the Gil East prospect in the 1990's intercepted up to 160 feet of 0.09 ounces of gold per ton. The indicated and inferred resource at the Gil prospects is 10.7 million tons that contains 0.042 ounces of gold per ton (Szumigala and Swainbank, 1999, p. 9).

Alteration:

Age of mineralization:

Deposit model:
Gold skarn; carbonate replacement.

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

Production Status: None

Site Status:

Workings/exploration:
Drilling and soil sampling.

Production notes:

Reserves:

The indicated and inferred resource at the Gil prospect is 10.7 million tons that contains 0.042 ounces of gold per ton (Szumigala and Swainbank, 1999, p. 9).

Additional comments:

References:

Szumigala and Swainbank, 1999.

Primary reference: Szumigala, 1999

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

Site name(s): Fish Creek

Site type: Mine

ARDF no.: LG201

Latitude: 65.006 **Quadrangle:** LG A-1

Longitude: 147.263

Location description and accuracy:
Cobb (1972, MF-413), loc. 90; NW1/4 sec. 13, T. 2 N., R. 2 E., of the Fairbanks Meridian. The coordinates mark the middle of an approximate 2-mile-long placered area along Fish Creek.

Commodities:

Main: Au

Other: Bi, Sb, Sn, W

Ore minerals: Auriferous bismuth, bismuth nuggets, cassiterite, gold, scheelite, stibnite

Gangue minerals:

Geologic description:
Placer mining began in about 1909 where depth to bedrock was about 25 feet. Drift mining from 1909-1916, dredging from 1926 to 1935 (Cobb, 1976; OFR 76-633, p. 66), and dredging from 1940 to 1942 (R.M. Chapman, 1978, U.S.G.S. unpublished memorandum). Two mines on Fish Creek were reported as recently as 1990 (Swainbank and others, 1991). No information on amount of gold production. Most of the dredging appears to have taken place on the bench north of the creek. Stibnite, auriferous bismuth nuggets, cassiterite and scheelite are found in concentrates (Cobb, 1976; OFR 76-633, p. 66).

Alteration:

Age of mineralization:

Deposit model:
Placer gold deposit (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:

Drift mining from 1909 to 1916; dredging from 1926 to 1935 (Cobb, 1976; OFR 76-633, p. 66) Chapman (1978, unpublished U.S.G.S. memorandum) also reported that Dredge no. 7, a wooden hull dredge, worked on Fish Creek above Solo Creek from 1940 to 1942. Two mines on Fish Creek were reported as recently as 1990 (Swainbank and others, 1991).

Production notes:

Drift mining from 1909 to 1916, dredging from 1926 to 1935, and from 1940 to 1942 (Cobb, 1976; OFR 76-633, p.66; R.M. Chapman, 1978, unpublished U.S.G.S. memorandum). No information on amount of gold production.

Reserves:

Additional comments:

References:

Prindle and Katz, 1909; Ellsworth, 1910; Ellsworth and Parker, 1911; Ellsworth, 1912; Ellsworth and Davenport, 1913; Prindle and Katz, 1913; Brooks, 1914; Eakin, 1915; Smith, 1917 (BMB 142); Smith, 1917 (BMB 153); Smith, 1929; Smith, 1930 (B 810); Smith, 1930 (B 813); Smith, 1932; Smith, 1933 (B 836); Smith, 1933 (B 844); Smith, 1934 (B 864); Smith, 1936; Smith, 1937; Smith, 1938; Smith, 1939 (B 910); Smith, 1939 (B 917); Smith, 1941; Smith, 1942; Wedow and others, 1954; Byers, 1957; Cobb, 1972 (MF 413); Hasler and others, 1973; Cobb, 1976 (OFR 76-633); Swainbank and others, 1991.

Primary reference: Cobb, 1976 (OFR 76-633)

Reporter(s): C.J. Freeman, J.R. Guidetti Schaefer (Avalon Development Corporation)

Last report date: 5/4/99

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