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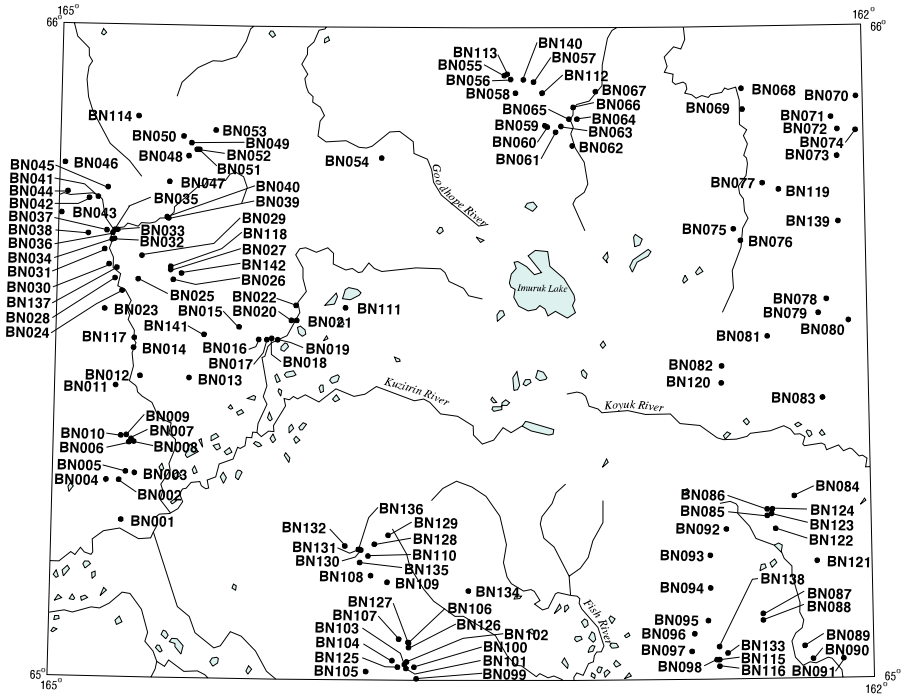
Alaska Resource Data File

Bendeleben 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 Bendeleben 1:250,000-scale quadrangle, western Alaska

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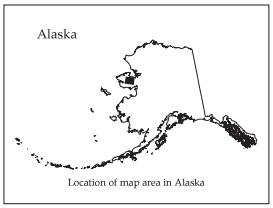

OPEN-FILE REPORT 99-332

Site name(s): Idaho Creek

Site type: Mine

ARDF no.: BN001

Latitude: 65.241 **Quadrangle:** BN A-6

Longitude: 164.745

Location description and accuracy:
This location is on Idaho Creek, 3,000 to 4,500 feet north of its mouth on the Kuzitrin River, and 10,500 feet east of the Nome-Taylor road. It is locality 46 of Cobb (1972; MF 417).

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:
Gold colors are reported from an 18-foot deep test pit in stream gravels. The test pit, dug in 1899, did not reach bedrock and its digging was hampered by the presence of large rock fragments (Brooks and others, 1901). Sainsbury and others (1969) show 1,500 feet of the drainage to have been placer mined. This mine is near a regional fault contact between high grade metamorphic rocks and lower grade Lower Paleozoic metasedimentary rocks (Sainsbury and others, 1969; Till and others, 1986). Significant gold placers are spatially associated with the lower metamorphic grade, metasedimentary assemblage elsewhere on Seward Peninsula.

Alteration:

Age of mineralization:
Quaternary

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

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

Production Status: None

Site Status: Inactive

Workings/exploration:

An 18-foot deep test pit was dug in 1899 to test the stream gravels. About 1,500 feet of the drainage has been placer mined from open cuts.

Production notes:

Reserves:

Additional comments:

References:

Brooks and others, 1901; Sainsbury and others, 1969; Cobb, 1972 (MF 417); Cobb, 1975 (OFR 75-429); Till and others, 1986.

Primary reference: Sainsbury and others, 1969

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Camp Creek

Site type: Mine

ARDF no.: BN002

Latitude: 65.302 **Quadrangle:** BN B-6

Longitude: 164.756

Location description and accuracy:
This site is a 1,500 foot -long area of placer workings centered on the mouth of Camp Creek where it joins with Coffee Creek. This location is 1,000 feet east of the Nome-Taylor road. It is locality 44 of Cobb (1972; MF 417).

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:
A small area of mining at the intersection of Camp Creek with Coffee Creek was mapped by Sainsbury and others (1969). The Camp Creek/Coffee Creek area is underlain by low grade, Lower Paleozoic metasedimentary rocks (Till and others, 1986).

Alteration:

Age of mineralization:
Quaternary

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

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

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:

About 1,500 feet of the active stream channel has been mined by open cut methods, probably a dozer and sluice operation.

Production notes:

Reserves:

Additional comments:

References:

Smith, 1932; Sainsbury and others, 1969; Cobb, 1972 (MF 417); Cobb, 1975 (OFR 75-429); Till and others, 1986.

Primary reference: Sainsbury and others, 1969

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Coffee Creek

Site type: Mine

ARDF no.: BN003

Latitude: 65.313 **Quadrangle:** BN B-6

Longitude: 164.699

Location description and accuracy:

Coffee Creek crosses the Nome-Taylor road at about mile 74 and again at almost mile 75. Placer mining took place for about 8,500 feet downstream from the Nome-Taylor road crossing at about mile 75. Coffee Creek merges with Quartz Creek to become Whelan Creek 10,000 feet downstream from the lower mine workings. Small tributaries to the mined section of Coffee Creek, including Dome Creek and Wonder Gulch (BN005), were mined adjacent to Coffee Creek and are included as part of this locality. Coffee Creek is location 45 of Cobb (1972; MF 417).

Commodities:

Main: Au

Other: Hg

Ore minerals: Cerussite, cinnabar, gold, pyromorphite

Gangue minerals:

Geologic description:

Up to 25 feet of muck covered, gold-bearing stream gravels were initially mined in 1901 here (Collier, 1902). The lower part of the mined drainage is cut into alluvial terrace gravels, the Kougarok gravel, (Hopkins, 1963) but most of the mined drainage is on low grade Lower Paleozoic metasedimentary bedrock (Till and others, 1986). Kougarok gravel carries small amounts of gold (Sainsbury and others, 1969; Sainsbury, 1975) but at least part of the gold in Coffee Creek appears to be derived from local bedrock sources. A residual placer contains angular, spongy, and bright gold in 4 to 7 feet of angular schist and quartz and adjacent weathered schist bedrock (Collier and others, 1908) in the headwaters of Wonder Gulch (BN005). Small amounts of cinnabar are present in placer concentrate from Coffee Creek and Wonder Gulch; cerussite and pyromorphite are also present in concentrate from Wonder Gulch (Anderson, 1947).

Alteration:

Age of mineralization:

Quaternary

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

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

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:
Various combinations of hand, scraper, dozer, dragline, and sluice surface operations have taken place along 8,500 feet of the Coffee Creek drainage and the adjacent 1,000 feet of Dome Creek, and 1,500 feet of Wonder Gulch (Sainsbury and others, 1969). Early mining included winter underground drifting and summer sluicing (Cobb, 1975).

Production notes:

Reserves:

Additional comments:

References:
Collier, 1902; Collier and others, 1908; Anderson, 1947; Hopkins, 1963; Sainsbury and others, 1969; Cobb, 1972 (MF 417); Cobb, 1975 (OFR 75-429); Till and others, 1986.

Primary reference: Cobb, 1975

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Coffee Creek (the upper portion)

Site type: Mine

ARDF no.: BN004

Latitude: 65.302 **Quadrangle:** BN B-6

Longitude: 164.803

Location description and accuracy:

Coffee Creek crosses the Nome-Taylor road at about mile 74 and again at about almost mile 75. The upper part of Coffee Creek that has been placer mined is 5,000 feet upstream from the road crossing at mile 74. About 1,500 feet of the drainage was open-cut mined at this location (Sainsbury and others, 1969). This is locality 43 of Cobb (1972; MF 417).

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:

This small area of placer workings is primarily known from the mapping of Sainsbury and others (1969). Early references to a residual gold placer near the head of Coffee Creek (Collier and others, 1908; Cobb, 1975, OFR 75-429) are for the Wonder Gulch tributary (BN005)\ and not this location. Thick muck deposits are present on Coffee Creek and bedrock is not exposed in this area. Bedrock here is expected to be low grade, Lower Paleozoic metasedimentary rocks like those exposed on lower parts of Coffee Creek and nearby uplands (Till and others, 1986).

Alteration:

Age of mineralization:

Quaternary

Deposit model:

Placer Au-PGE (Cox and Singer; 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 mining, probably dozer and sluice operations, took place along 1,500 feet of the active drainage.

Production notes:

Reserves:

Additional comments:

References:

Collier and others, 1908; Sainsbury and others, 1969; Cobb, 1972 (MF 417); Cobb, 1975 (OFR 75-429); Till and others, 1986.

Primary reference: Sainsbury and others, 1969

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Wonder Gulch

Site type: Occurrence

ARDF no.: BN005

Latitude: 65.315 **Quadrangle:** BN B-6

Longitude: 164.732

Location description and accuracy:

Wonder Gulch is a tributary on the north side of Coffee Creek. The mouth of Wonder Gulch on Coffee Creek is at the Nome-Taylor road crossing at almost mile 75. This occurrence is on Wonder Gulch about 1,500 feet upstream form the mouth. The lower 1,500 feet of Wonder Gulch has been placer mined and this section of the drainage is included with the Coffee Creek mine (BN003). This is locality 5 of Cobb (1972; MF 417).

Commodities:

Main: Au

Other: Hg, Pb

Ore minerals: Cerussite, cinnabar, gold, pyromorphite

Gangue minerals:

Geologic description:

The early descriptions of a residual gold placer on schist bedrock is believed to be at this location. This residual placer contains angular, spongy, and bright gold in 4 to 7 feet of angular schist and quartz and adjacent weathered schist bedrock (Collier and others, 1908). Small amounts of cinnabar, cerussite, and pyromorphite are present in placer concentrate from Wonder Gulch (Anderson, 1947). Sainsbury and others (1969) indicate that an attempt to mine an auriferous quartz ledge here was unsuccessful. Large iron-stained quartz boulders are present in the upper part of the placer on Wonder Gulch (Sainsbury and others, 1969). Bedrock here is part of a low grade Lower Paleozoic metasedimentary assemblage (Till and others, 1986).

Alteration:

Age of mineralization:

Possibly mid-Cretaceous; this is the age of some lode gold deposits on southern Seward Peninsula. The southern Seward Peninsula lode gold deposits formed as a result of mid-Cretaceous metamorphism (Apodoca, 1994; Ford, 1993, Ford and Snee, 1996; Goldfarb and others, 1997) that accompanied regional extension (Miller and Hudson, 1991) and

crustal melting (Hudson, 1994). This higher temperature metamorphism was superimposed on high pressure/low temperature metamorphic rocks of the region.

Deposit model:
Gold-bearing quartz veins and schist

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

Production Status: None

Site Status: Inactive

Workings/exploration:
Open-cut mining of a residual placer has exposed weathered schist and angular surface debris of auriferous quartz and schist.

Production notes:

Reserves:

Additional comments:
Also see Coffee Creek (BN003).

References:
Collier and others, 1908; Anderson, 1947; Sainsbury and others, 1969; Cobb, 1972 (MF 417); Cobb, 1975 (OFR 75-429); Till and others, 1986; Miller and Hudson, 1991; Ford, 1993; Apodoca, 1994; Hudson, 1994; Ford and Snee, 1996; Goldfarb and others, 1997.

Primary reference: Cobb, 1975 (OFR 75-429)

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Dahl Creek

Site type: Mine

ARDF no.: BN006

Latitude: 65.36 **Quadrangle:** BN B-6

Longitude: 164.722

Location description and accuracy:

Dahl Creek is a northeast -flowing tributary to Quartz Creek. Quartz Creek crosses the Nome-Taylor road at about mile 78.5 at Brakes Bottom. The mouth of Dahl Creek on Quartz Creek is about 8,000 feet upstream from the road crossing. This location is the lower 10,000 feet of Dahl Creek, all of which has been placer mined (Sainsbury and others, 1969). This drainage is included as part of locality 42 of Cobb (1972; MF 417).

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:

The lower 10,000 feet of Dahl Creek has been placer mined for gold. This mining, starting as early as 1901, has been by various open-cut methods but dozer and sluice operations took place as recently as 1967 (Sainsbury and others, 1969). Some of the gold is coarse and some is intergrown with quartz. A nugget worth $200 (10 ounces?) was recovered in 1931 (Smith, 1933). The gold-bearing gravels are covered by fozen muck from which mammoth and horse bones have been recovered (Collier, 1902). Bench placers were also mined along the lower creek. This part of the creek is just west of Kougarok gravel deposits of Pliocene-Pleistocene age (Hopkins, 1963; Till and others, 1986). The bench gravels, which are about 50 feet above the active drainage and covered by 15 to 20 feet of muck, carry gold in 3 to 4 feet of gravel on a clay bottom (Collier and others, 1908). Brooks (1905) reported that drilling showed the bench gravels to a depth of 180 feet. Early reports described the alluvial pay in the main drainage to be on a false bedrock of clay below which there was a quartz gravel (Collier and others, 1908). A test shaft, which did not reach bedrock, indicated this deep gravel to be at least 187 feet thick. However, Sainsbury and others (1969) reported clay-altered zones with broken quartz veins in bedrock and concluded that the false bedrock described by early reports was instead altered bedrock. Bedrock is locally exposed in the area, primarily on the crest of nearby up-

lands, but Sainsbury and others (1969) note some bedrock in the drainage 7,000 feet above the mouth. All known bedrock in the area is part of a low grade, Lower Paleozoic metasedimentary assemblage (Sainsbury and others, 1969; Till and others, 1986). Sainsbury and others (1969) emphasize that gold placers in this area are most strongly associated with exposures of the metamorphic bedrock assemblage rather than with Kougarok gravel.

Alteration:

Age of mineralization:
Quaternary

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

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

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:
The lower 10,000 feet of Dahl Creek has been placer mined for gold. This mining, starting as early as 1901, has been by various open-cut methods, but dozer and sluice operations took place as recently as 1967 (Sainsbury and others, 1969). At least one deep (187 feet) test shaft is reported.

Production notes:

Reserves:

Additional comments:
Unnamed tributaries to Quartz Creek are reported to have scheelite in placer concentrates (Anderson, 1947).

References:
Collier, 1902; Brooks, 1905; Collier and others, 1908; Smith, 1933; Anderson, 1947; Hopkins, 1963; Sainsbury and others, 1969; Cobb, 1972 (MF 417); Cobb, 1975 (OFR 75-429); Till and others, 1986.

Primary reference: Cobb, 1975 (OFR 75-429)

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Dahl Creek

Site type: Occurrence

ARDF no.: BN007

Latitude: 65.365 **Quadrangle:** BN B-6

Longitude: 164.714

Location description and accuracy:

This is approximatly located near the mouth of Dahl Creek (probably within a half mile). Dahl Creek is a northeast -flowing tributary to Quartz Creek. Quartz Creek crosses the Nome-Taylor road at about mile 78.5, Brakes Bottom. The mouth of Dahl Creek on Quartz Creek is about 8,000 feet upstream from the road crossing. This is the location used for altered bedrock reported by Sainsbury and others (1969). It is locality 4 of Cobb (1972; MF 417; 1975; OFR 75-429).

Commodities:

Main: Au (?)

Other:

Ore minerals: Gold (?)

Gangue minerals:

Geologic description:

Sainsbury and others (1969) describe a highly sericitized, clay-rich altered zone containing groundup and angular vein quartz but do not report any geochemical data for this area. Altered schist is apparently common where bedrock is exposed in the Dahl Creek drainage. Early reports described the alluvial pay in the main Dahl Creek drainage to be on a false bedrock of clay below which there was a quartz gravel (Collier and others, 1908). A test shaft, which did not reach bedrock, indicated this deep gravel to be at least 187 feet thick. However, Sainsbury and others (1969) concluded that the false bedrock described by early reports was instead altered bedrock. Bedrock is locally exposed in the area, primarily on the crest of nearby uplands, but Sainsbury and others (1969) note some bedrock in the drainage 7,000 feet above the mouth. All known bedrock in the area is part of a lower Paleozoic metasedimentary assemblage (Sainsbury and others, 1969; Till and others, 1986).

Alteration:

Schist in this area is apparently highly sericitized and clay-rich (Sainsbury and others, 1969). The presence of broken quartz veins in the alteration zones may indicate that the

alteration is developed along fault structures.

Age of mineralization:

Possibly mid-Cretaceous; if gold-bearing lode structures are present here they may be similar in age to some lode gold deposits of southern Seward Peninsula. The southern Seward Peninsula lode gold deposits formed as a result of mid-Cretaceous metamorphism (Apodoca, 1994; Ford, 1993, Ford and Snee, 1996; Goldfarb and others, 1997) that accompanied regional extension (Miller and Hudson, 1991) and crustal melting (Hudson, 1994). This higher temperature metamorphism was superimposed on high pressure/low temperature metamorphic rocks of the region.

Deposit model:

Gold-bearing quartz veins and schist

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

Production Status: None

Site Status: Inactive

Workings/exploration:

Local bedrock exposures along Dahl Creek are the result of open-cut placer mining operations, particulaly dozer and sluice operations since WWII.

Production notes:

Reserves:

Additional comments:

References:

Collier and others, 1908; Smith, 1933; Sainsbury and others, 1969; Cobb, 1972 (MF 417); Cobb, 1975 (OFR 75-429); Till and others, 1986; Miller and Hudson, 1991; Ford, 1993; Apodoca, 1994; Hudson, 1994; Ford and Snee, 1996; Goldfarb and others, 1997.

Primary reference: Sainsbury and others, 1969

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Quartz Creek

Site type: Mine

ARDF no.: BN008

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

Longitude: 164.704

Location description and accuracy:

Quartz Creek crosses the Nome-Taylor road at about mile 78.5 (Brakes Bottom). Cobb (1972,1975) reports that placer mining took place from about 3,000 feet upstream of the road crossing to the intersection of North Fork of Quartz Creek and Quartz Creek, a total distance of about 7,000 feet. This is locality 42 of Cobb (1972; MF 417).

Commodities:

Main: Au

Other: W

Ore minerals: Gold

Gangue minerals:

Geologic description:

This part of Quartz Creek drains across schist in the upper part and Pliocene-Pleistocene Kougarok gravel in the lower part (Hopkins, 1963; Sainsbury and others, 1969; Till and others, 1986). Gold was discovered here in 1999 or 1900 (Brooks and others, 1901; Collier and others, 1908). Even the first workers (Brooks and others, 1901) suspected that at least some of the gold was reworked from Kougarok gravel which has been shown to contain small amounts of gold (Sainsbury and others, 1969; Sainsbury, 1975). Gravel mined at the mouth of Dahl Creek was 2 to 3 foot-thick on a blue clay false bedrock (Collier and others, 1908). The medium coarse gold here probably came from Dahl Creek (BN006). However, the best placers were reported to be on bedrock in the upstream parts of the creek. All bedrock in the area is part of a Lower Paleozoic metasedimentary assemblage (Sainsbury and others, 1969; Till and others, 1986). Sainsbury and others (1969) emphasize that gold placers in this area are most strongly associated with exposures of the metamorphic bedrock assemblage rather than with Kougarok gravel.

Alteration:

Age of mineralization:

Quaternary

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

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

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:
Open-cut placer mining operations have occurred at several places along about 7,000 feet of the creek.

Production notes:

Reserves:

Additional comments:
Unnamed tributaries to Quartz Creek are reported to have scheelite in placer concentrates (Anderson, 1947).

References:
Brooks and others, 1901; Collier and others, 1908; Anderson, 1947; Hopkins, 1963; Sainsbury and others, 1969; Cobb, 1972 (MF 417); Cobb, 1975 (OFR 75-429); Sainsbury, 1975; Till and others, 1986.

Primary reference: Cobb, 1975 (OFR 75-429)

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Joe Creek

Site type: Mine

ARDF no.: BN009

Latitude: 65.371 **Quadrangle:** BN B-5

Longitude: 164.732

Location description and accuracy:

Joe Creek is a small north tributary to Quartz Creek. Quartz Creek crosses the Nome-Taylor road at about mile 78.5 (Brakes Bottom). The mouth of Joe Creek is 2,000 feet upstream of the intersection of Quartz Creek and North Fork of Quartz Creek. Joe Creek is locality 41 of Cobb (1972; MF 417; 1975; OFR 75-429).

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:

Some placer gold mining is reported to have taken place near the mouth of Joe Creek before 1906 (Collier and others, 1908). Bedrock is locally exposed in the area, primarily on the crest of nearby uplands and along lower Atlas Creek 3,000 feet to the west (Sainsbury and other,1969). Bedrock in the area is part of a Lower Paleozoic metasedimentary assemblage (Sainsbury and others, 1969; Till and others, 1986). Sainsbury and others (1969) emphasize that gold placers in this area are associated with exposures of the metamorphic bedrock.

Alteration:

Age of mineralization:

Quaternary

Deposit model:

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

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

39a

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:

A small amount of surface workings, completed by hand or horses, may be present.

Production notes:

Reserves:

Additional comments:

Unnamed tributaries to Quartz Creek are reported to have scheelite in placer concentrates (Anderson, 1947).

References:

Collier and others, 1908; Anderson, 1947; Sainsbury and others, 1969; Cobb, 1972 (MF 417); Cobb, 1975 (OFR 75-429); Till and others, 1986.

Primary reference: Cobb, 1975 (OFR 75-429)

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Atlas Creek

Site type: Mine

ARDF no.: BN010

Latitude: 65.37 **Quadrangle:** BN B-6

Longitude: 164.752

Location description and accuracy:

Atlas Creek is a small north tributary to Quartz Creek. Quartz Creek crosses the Nome-Taylor road at about mile 78.5 (Brakes Bottom). The mouth of Atlas Creek is 4,500 feet upstream of the juncture between Quartz Creek and North Fork of Quartz Creek. This locality was not included by Cobb (1972; MF 417; OFR 75-429).

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:

The lower 2,000 feet of Atlas Creek is shown to have been placer mined for gold by Sainsbury and others (1969). Bedrock is locally exposed in the area, primarily on the crest of nearby uplands and along lower Atlas Creek (Sainsbury and other,1969). Bedrock in the area is part of a Lower Paleozoic metasedimentary assemblage (Sainsbury and others, 1969; Till and others, 1986). Sainsbury and others (1969) emphasize that gold placers in this area are associated with exposures of the metamorphic bedrock assemblage.

Alteration:

Age of mineralization:

Quaternary

Deposit model:

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

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

39a

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:

Sainsbury and others (1969) show that the lower 2,000 feet of this drainage has been open-cut placer mined. This was probably by dozer and sluice operations.

Production notes:

Reserves:

Additional comments:

Unnamed tributaries to Quartz Creek are reported to have scheelite in placer concentrates (Anderson, 1947).

References:

Anderson, 1947; Sainsbury and others, 1969; Cobb, 1972 (MF 417); Cobb, 1975 (OFR 75-429); Till and others, 1986.

Primary reference: Sainsbury and others, 1969

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Windy Creek; Anderson Gulch

Site type: Mine

ARDF no.: BN011

Latitude: 65.447 **Quadrangle:** BN B-6

Longitude: 164.775

Location description and accuracy:

Windy Creek is a west tributary to Kougarok River. The mouth of Windy Creek is 2,000 feet west of the Nome-Taylor road at about mile 85.5. This is about 2.1 miles upstream from the Kougarok bridge. Anderson Gulch is a small north tributary to Windy Creek who's mouth is 2.5 miles upstream from Kougarok River. The lower part of Anderson Gulch and 1,500 feet of the adjacent Windy Creek valley have been placer mined for gold. This is locality 38 of Cobb (1972; MF 417; 1975; OFR 75-429).

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:

Gold was reported here as early as 1902 (Collier, 1902) and placer mining took place by 1906 (Collier and others, 1908). Mining was along the lower part of Anderson Gulch and a bench along the north side of the Windy Creek valley. Gold was present in 2 to 4 feet of gravel over bedrock; pay included 1 to 2 feet of bedrock. Bedrock in the area of upper Windy Creek and Anderson Gulch is a Lower Paleozoic metasedimentary assemblage that is regionally faulted against Ordovician mafic-metavolcanic rocks to the north and east of Anderson Gulch (Till and others, 1986).

Alteration:

Age of mineralization:

Quaternary

Deposit model:

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

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

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:
Surface open-cut placer operations including hydraulicking took place at least up to 1909 (Cobb, 1975).

Production notes:

Reserves:

Additional comments:

References:
Collier, 1902; Collier and others, 1908; Cobb, 1972 (MF 417); Cobb, 1975 (OFR 75-429); Till and others, 1986.

Primary reference: Cobb, 1975 (OFR 75-429)

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Neva Creek

Site type: Mine

ARDF no.: BN012

Latitude: 65.462 **Quadrangle:** BN B-6

Longitude: 164.686

Location description and accuracy:

Neva Creek is a small east tributary to Kougarok River. The Nome-Taylor road crosses Neva Creek at about mile 85.6. The road crossing is 1,000 feet upstream of the creek mouth on Kougarok River. The creek mouth is about 12,000 feet upstream of the Kougarok bridge on the Nome-Taylor road. Placer gold mining appears to have been on the lower part of the creek near Kougarok River. This is locality 39 of Cobb (1972; MF 417; 1975; OFR 75-429).

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:

Shallow gravels, presumably on bedrock, were mined early in the century (Collier, 1902). Placer gold mining appears to have been mined on the lower part of the creek near Kougarok River. Bedrock in the area is extensively tundra-covered and is not exposed (Till and others, 1986).

Alteration:

Age of mineralization:

Quaternary

Deposit model:

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

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

39a

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:
Small scale, surface placer mine workings are probably present but they have not been described.

Production notes:

Reserves:

Additional comments:

References:
Collier, 1902; Cobb, 1972 (MF 417); Cobb, 1975 (OFR 75-429); Till and others, 1986.

Primary reference: Cobb, 1975 (OFR 75-429)

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Garfield Creek

Site type: Mine

ARDF no.: BN013

Latitude: 65.46 **Quadrangle:** BN B-6

Longitude: 164.505

Location description and accuracy:

Garfield Creek is a south-flowing tributary to the Kuzitrin River. Placer gold mining has taken place on this drainage near the mouth of Angeles Creek. Sainsbury and others (1969) show 1,000 feet of placer workings just upstream of the eastern boundary of the Bendeleben B-6 quadrangle. This location is 5.2 miles east of the Nome-Taylor road from a point at about mile 85.5. This is locality 40 of Cobb (1972; MF 417; 1975; OFR 75-429).

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:

Placer mining took place early in the century on a shallow , 2 foot-thick paystreak that rests on a white clay false bedrock (Collier and others, 1908). Initial mining produced $25,000 (about 1,400 ounces) in 1900-1901. Sainsbury and others (1969) report intensely mashed and veined slaty rocks supposedly near an inferred thrust fault somewhere in the vicinity of Garfield Creek. This is an area of extensive tundra cover and bedrock exposures are minimal. The mapping by Sainsbury and others (1969) does suggest that Lower Paleozoic metasedimentary rocks (Till and others, 1986) are present in this area.

Alteration:

Age of mineralization:

Quaternary

Deposit model:

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

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

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:
Surface, open-cut placer mining including dozer and sluice operations have taken place here. Sainsbury and others (1969) show 1,000 feet of placer workings just upstream of the Bendeleben B-6 quadrangle eastern boundary.

Production notes:
Early production is reported to be $25,000 or about 1,400 ounces (at $18 per ounce). Placer mining took place here after WW II and additional but unknown amounts of gold has been produced.

Reserves:

Additional comments:

References:
Collier and others, 1908; Sainsbury and others, 1969; Cobb, 1972 (MF 417); Cobb, 1975 (OFR 75-429); Till and others, 1986.

Primary reference: Cobb, 1975 (OFR 75-429)

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Kougarok River (lower)

Site type: Mine

ARDF no.: BN014

Latitude: 65.505 **Quadrangle:** BN C-6

Longitude: 164.712

Location description and accuracy:

Sainsbury and others (1969) show that 3,000 feet of the main Kougarok River drainage has been placer mined upstream from a point 500 feet north of the Bendeleben C-6 and B-6 quadrangle boundary. The center of this mined section of the river is 1.2 miles west of the Nome-Taylor road. This locality was not included by Cobb (1972; MF 417; 1975; OFR 75-429).

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:

At least 3,000 feet of the Kougarok River has been placer mined for gold here. This mining was probably by dredge and/or dragline. Information about the nature of the paystreak or production is not available. Bedrock in nearby uplands is part of an Ordovician mafic metavolcanic assemblage (Sainsbury and others. 1969; Till and others, 1986) but the gold in this part of the stream may not be locally derived. The Kougarok River drainage has been locally placer mined over most of its length upstream from this locality (Sainsbury and others, 1969; Cobb, 1972, MF 417; 1975, OFR 75-429). Placer mining in this drainage has also recovered significant gold from bench gravels; the placers in this part of the stream are probably the result of at least two major cycles of erosion and alluvial placer development.

Alteration:

Age of mineralization:

Quaternary

Deposit model:

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

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

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:
Placer mine tailings from surface operations (probably dredge or dragline) are present along at least 3,000 feet of the main Kougarok River drainage (Sainsbury and others, 1969). Sainsbury and others (1969) note that placer mining for gold occurred at many places along the Kougarok River from this location north to near Taylor (see Kougarok River, BN035).

Production notes:

Reserves:

Additional comments:

References:
Sainsbury and others, 1969; Cobb, 1972 (MF 417); Cobb, 1975 (OFR 75-429); Till and others, 1986.

Primary reference: Sainsbury and others, 1969

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Boulder Creek

Site type: Mine

ARDF no.: BN015

Latitude: 65.539 **Quadrangle:** BN C-5

Longitude: 164.323

Location description and accuracy:

Boulder Creek is a north tributary of the Noxapaga River. Placer mining has occurred along the main drainage of Boulder Creek at a location slightly over a mile upstream of its juncture with the west tributary, Turner Creek. This is 1.4 miles downstream of the mouth of Goodall Creek, a smaller west tributary to Boulder Creek. This is locality 47 of Cobb (1872; MF 417; 1975; OFR 75-429).

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:

Gold was discovered on Boulder Creek in 1901 and initial mining encountered 2.5 feet of muck and 4 to 5 feet of unfrozen gold-bearing gravel over frozen gravel (Collier and others, 1908). Some gold was coarse and rounded; a 2-ounce nugget was recovered. The gold-bearing character of the deeper, frozen gravel was not determined by early work. A 11 foot-deep prospect pit, 1.75 miles upstream of the mouth, did not reach bedrock. Bedrock in the area is extensively covered by tundra (Till and others, 1986) but Collier and others (1908) indicate that it includes calcareous schist, limestone (marble), and minor graphitic schist. These lithologies are present regionally in a Lower Paleozoic metasedimentary assemblage (Till and others, 1986).

Alteration:

Age of mineralization:

Quaternary

Deposit model:

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

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

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:
Surface, open-cut placer workings are present.

Production notes:
About $7,000 or 400 ounces of gold were recovered in 1901 (Collier, 1902).

Reserves:

Additional comments:

References:
Collier, 1902; Collier and others, 1908; Cobb, 1972 (MF 417); Cobb, 1975 (OFR 75-429); Till and others, 1986.

Primary reference: Cobb, 1975 (OFR 75-429)

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Winona Creek

Site type: Mine

ARDF no.: BN016

Latitude: 65.52 **Quadrangle:** BN C-5

Longitude: 164.25

Location description and accuracy:

Winona Creek is an east tributary to Boulder Creek, a north tributary to the Noxapaga River. The mouth of Winona Creek is 1.4 miles downstream from the juncture of Boulder Creek with Turner Creek, a west tributary. This location is approximate and only known to be on Winona Creek. It is locality 48 of Cobb (1972; MF 417; 1975; OFR 75-429).

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:

Gold was discovered soon after the turn of the century on tributaries to the Noxapaga River including Winona Creek (Collier and others, 1908) and mining took place here after WW II (Hopkins, 1963). Frozen, stratified peat and silt (muck), 20 to 30 feet-thick, commonly overlies a few feet of auriferous gravel on schist bedrock (Hopkins, 1963, Figure 8, p. 94). Muck locally contains bones of extinct Pleistocene mammals. Although tundra cover of bedrock is extensive in the area (Till and others, 1986), Hopkins (1963) indicates that quartz-calcite veins are common in schist bedrock of the gold- producing tributaries to the Noxapaga River.

Alteration:

Age of mineralization:

Quaternary; an early radiocarbon age on shallow parts of the frozen and stratifed peat and silt of the nearby Black Gulch (BN018) was 8,800 +/- 200 years (Hopkins, 1963, Figure 8).

Deposit model:

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

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

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:
Surface, open-cut placer mine workings are present somewhere on this drainage.

Production notes:

Reserves:

Additional comments:

References:
Collier and others, 1908; Hopkins, 1963; Cobb, 1972 (MF 417); Cobb, 1975 (OFR 75-429); Till and others, 1986.

Primary reference: Hopkins, 1963

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Grouse Creek

Site type: Mine

ARDF no.: BN017

Latitude: 65.52 **Quadrangle:** BN C-5

Longitude: 164.22

Location description and accuracy:

Grouse Creek is a small, north tributary to Noxapaga River. The mouth of Grouse Creek is 9,000 feet east of the mouth of Winona Creek on Boulder Creek. This location is approximate but Grouse Creek is only about 1.5 miles long. This is locality 49 of Cobb (1972; MF 417; 1975; OFR 75-429).

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:

Gold was discovered soon after the turn of the century on tributaries to the Noxapaga River including Grouse Creek (Collier and others, 1908), and mining took place here after WW II (Hopkins, 1963). Frozen, stratified peat and silt (muck), 20 to 30 feet-thick, commonly overlies a few feet of auriferous gravel on schist bedrock (Hopkins, 1963, Figure 8, p. 94). Muck locally contains bones of extinct Pleistocene mammals. Although tundra cover of bedrock is extensive in the area (Till and others, 1986), Hopkins (1963) indicates that quartz-calcite veins are common in schist bedrock of the gold- producing tributaries to the Noxapaga River.

Alteration:

Age of mineralization:

Quaternary; an early radiocarbon age on shallow parts of the frozen and stratifed peat and silt of the nearby Black Gulch (BN018) was 8,800 +/- 200 years (Hopkins, 1963, Figure 8).

Deposit model:

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

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

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:
Surface, open-cut placer workings are present somewhere on this drainage.

Production notes:

Reserves:

Additional comments:

References:
Collier and others, 1908; Hopkins, 1963; Cobb, 1972 (MF 417); Cobb, 1975 (OFR 75-429); Till and others, 1986.

Primary reference: Hopkins, 1963

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Black Gulch

Site type: Mine

ARDF no.: BN018

Latitude: 65.522 **Quadrangle:** BN C-5

Longitude: 164.202

Location description and accuracy:

Black Gulch is a small north tributary to Noxapaga River. Grouse Creek (BN017) is 4,000 feet to the west and Buzzard Creek (BN019) is 1,500 feet to the east of Black Gulch. The location of placer workings on this creek is approximate but the stream is only about 3,000 feet long. This is locality 50 of Cobb (1972; MF 417; 1975; OFR 75-429).

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:

Gold was discovered soon after the turn of the century on tributaries to the Noxapaga River including Black Gulch (Collier and others, 1908) and mining took place here after WW II (Hopkins, 1963; Cobb, 1975, OFR 75-429). Frozen, stratified peat and silt (muck), 20 to 30 feet-thick, commonly overlies a few feet of auriferous gravel on schist bedrock in the general area (Hopkins, 1963, Figure 8, p. 94). Muck locally contains bones of extinct Pleistocene mammals. Although tundra cover of bedrock is extensive in the area (Till and others, 1986), Hopkins (1963) indicates that quartz-calcite veins are common in schist bedrock of the gold- producing tributaries to the Noxapaga River.

Alteration:

Age of mineralization:

Quaternary; an early radiocarbon age on shallow parts of the frozen and stratifed peat and silt of Black Gulch was 8,800 +/- 200 years (Hopkins, 1963, Figure 8). The thin gold-bearing gravels on bedrock here were many feet stratigraphically below the radiocarbon dated deposits.

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

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

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:
Surface open-cut placer mining, including dozer and sluice operations, took place on this creek.

Production notes:
Although gold was discovered here at least by 1906 (Brooks, 1907), significant mining seems to have taken place just before WW II (Smith, 1939 (B 910A); 1939 (B917A); 1941) and after (Hopkins (1963).

Reserves:

Additional comments:

References:
Brooks, 1907; Collier and others, 1908; Smith, 1939 (B 910A); Smith, 1939 (B 917A); Smith, 1941; Hopkins, 1963; Cobb, 1972 (MF 417); Cobb, 1975 (OFR 75-429); Till and others, 1986.

Primary reference: Cobb, 1975 (OFR 75-429)

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Buzzard Creek (Gulch)

Site type: Mine

ARDF no.: BN019

Latitude: 65.52 **Quadrangle:** BN C-5

Longitude: 164.18

Location description and accuracy:
Buzzard Creek is a small north tributary to Noxapaga River. It is about 2,500 feet to the east and parallel to Black Gulch (BN018). The location of placer workings on this creek is approximate but its entire length is less than one mile. This is locality 51 of Cobb (1972; MF 417; 1975; OFR 75-429).

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:
Gold was discovered soon after the turn of the century on tributaries to the Noxapaga River including Buzzard Creek (Collier and others, 1908) and mining took place here after WW II (Hopkins, 1963; Cobb, 1975, OFR 75-429). Frozen, stratified peat and silt (muck), 20 to 30 feet-thick, commonly overlies a few feet of auriferous gravel that is on schist bedrock (Hopkins, 1963, Figure 8, p. 94). Muck locally contains bones of extinct Pleistocene mammals. Although tundra cover of bedrock is extensive in the area (Till and others, 1986), Hopkins (1963) indicates that quartz-calcite veins are common in schist bedrock of the gold- producing tributaries to the Noxapaga River.

Alteration:

Age of mineralization:
Quaternary; an early radiocarbon age on shallow parts of the frozen and stratifed peat and silt of nearby Black Gulch was 8,800 +/- 200 years (Hopkins, 1963, Figure 8).

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

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

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:
Surface open-cut placer mining, including dozer and sluice operations, took place on this creek.

Production notes:
Significant mining seems to have taken place just before WW II (Smith, 1939, B 910A; 1939, B 017A; 1941) and after (Hopkins, 1963).

Reserves:

Additional comments:

References:
Collier and others, 1908; Smith, 1939 (B 910A); Smith, 1939 (B 917A); Smith, 1941; Hopkins, 1963; Cobb, 1972 (MF 417); Cobb, 1975 (OFR 75-429); Till and others, 1986.

Primary reference: Cobb, 1975 (OFR 75-429)

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Goose Creek

Site type: Mine

ARDF no.: BN020

Latitude: 65.55 **Quadrangle:** BN C-5

Longitude: 164.13

Location description and accuracy:

Goose Creek is a northwest tributary to Noxapaga River. The mouth of Goose Creek is 1.7 miles downstream from the mouth of Andesite Creek, an eastern tributary to Noxapaga River. The location of placer workings on this creek is approximate. This is locality 54 of Cobb (1972; MF 417; 1975; OFR 75-429).

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:

Gold was reportedly discovered on Goose Creek in 1900 (Brooks, 1901) and mining soon followed (Collier, 1902). Mining also took place here before and after WW II (Smith, 1941; Hopkins, 1963). Frozen, stratified peat and silt (muck), 20 to 30 feet-thick, commonly overlies a few feet of auriferous gravel on schist bedrock (Hopkins, 1963, Figure 8, p. 94). Muck locally contains bones of extinct Pleistocene mammals. Although tundra cover of bedrock is extensive in the area (Till and others, 1986), Hopkins (1963) indicates that quartz-calcite veins are common in schist bedrock of the gold- producing tributaries to the Noxapaga River.

Alteration:

Age of mineralization:

Quaternary; an early radiocarbon age on shallow parts of the frozen and stratified peat and silt of nearby Black Gulch was 8,800 +/- 200 years (Hopkins, 1963, Figure 8).

Deposit model:

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

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

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:
Surface open-cut placer mining has taken place on this creek.

Production notes:

Reserves:

Additional comments:

References:
Brooks and others, 1901; Collier, 1902; Smith, 1941; Hopkins, 1963; Cobb, 1972 (MF 417); Cobb, 1975 (OFR 75-429); Till and others, 1986.

Primary reference: Cobb, 1975 (OFR 75-429)

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Noxapaga River

Site type: Occurrence

ARDF no.: BN021

Latitude: 65.55 **Quadrangle:** BN C-5

Longitude: 164.11

Location description and accuracy:
Noxapaga River is a major north tributary to the Kuzitrin River in the west-central part of the Bendeleben quadrangle. This locality is described by Hopkins (1963) as being a few hundred yards upstream of the mouth of Goose Creek (BN020). It is locality 53 of Cobb (1972; MF 417; 1975; OFR 75-429)); it is misplotted by Cobb (1972; MF 417).

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:
Hopkins (1963) states that a small patch of Kougarok gravel (Pliocene-Pleistocene) has been prospected and found to be sparsely auriferous here. Although Kougarok gravel has been shown to carry small amounts of gold elsewhere (Sainsbury and others, 1969; Sainsbury, 1975), significant gold placers have not been identified within it.

Alteration:

Age of mineralization:
Pliocene-Pleistocene; the age of Kougarok gravel.

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

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

Production Status: No

Site Status: Inactive

Workings/exploration:

No mine workings are present; perhaps a few test pits have been dug.

Production notes:

Reserves:

Additional comments:

References:

Hopkins, 1963; Sainsbury and others, 1969; Cobb, 1972 (MF 417); Cobb, 1975 (OFR 75-429); Sainsbury, 1975.

Primary reference: Hopkins, 1963

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Frost Creek

Site type: Occurrence

ARDF no.: BN022

Latitude: 65.573 **Quadrangle:** BN C-5

Longitude: 164.113

Location description and accuracy:
Frost Creek is a small northwest tributary to Noxapaga River. The mouth of Frost Creek is across from the mouth of Andesite Creek, a major east tributary to Noxapaga River. This is locality 55 of Cobb (1972; MF 417; 1975; OFR 75-429).

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:
Early reports (Collier and others, 1908) indicate that gold was identified on Frost Creek but no subsequent mining or other work has been reported. If gold-bearing placers are present here, they may be similar in general setting to those on other north tributaries to the Noxapaga River including Winona Creek (BN016), Grouse Creek (BN017), Black Gulch (BN018), Buzzard Creek (BN019), and Goose Creek (BN020).

Alteration:

Age of mineralization:
Quaternary

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

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

Production Status: No

Site Status: Inactive

Workings/exploration:

No workings are described or reported for this drainage.

Production notes:

Reserves:

Additional comments:

References:

Collier and others, 1908; Hopkins, 1963; Cobb, 1972 (MF 417); Cobb, 1975 (OFR 75-429).

Primary reference: Cobb, 1975 (OFR 75-429)

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Coarse Gold Creek (central)

Site type: Mine

ARDF no.: BN023

Latitude: 65.564 **Quadrangle:** BN C-6

Longitude: 164.822

Location description and accuracy:

Coarse Gold Creek is a west tributary to Kougarok River. Its mouth is 2 miles west of the Nome-Taylor road measured from just north of the roads crossing of North Fork (Kougarok River). Placer mining along the central part of this creek took place over a length of 4,000 feet starting 2.3 miles upstream of the mouth. This mining was above and below the mouth of Nugget Creek, a small south tributary to Coarse Gold Creek. This locality was not included by Cobb (1972; MF 417). Cobb (1975; OFR 75-429) references may be for locations along the creek or at the mouth (BN024).

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:

Little is reported concerning placer gold on central Coarse Gold Creek. Gold was reported and some mining took place somewhere on the creek by 1908 (Collier and others, 1908; Smith, 1909). Sainsbury and others (1969) show 4,000 feet of placer mine workings both above and below the mouth of Nugget Creek, a small south tributary to Coarse Gold Creek. Bedrock exposures in a small area along the placer-mined part of the creek are shown by Sainsbury and others (1969) to be both metasedimentary rocks (part of a Lower Paleozoic metasedimentary assemblage of Till and others, 1986) and metagabbroic rocks. The metagabbroic rocks are part of a mafic metavolcanic assemblage that Till and others (1986) consider to be Ordovician in age.

Alteration:

Age of mineralization:

Quaternary

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

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

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:
Surface open-cut placer workings are present along 4,000 feet of the main stream channel.

Production notes:

Reserves:

Additional comments:

References:
Collier and others, 1908; Smith, 1909; Sainsbury and others, 1969; Cobb, 1972 (MF 417); Cobb, 1975 (OFR 75-429); Till and others, 1986.

Primary reference: Sainsbury and others, 1969

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Coarse Gold Creek

Site type: Mine

ARDF no.: BN024

Latitude: 65.592 **Quadrangle:** BN C-6

Longitude: 164.759

Location description and accuracy:

Coarse Gold Creek is a west tributary to Kougarok River. Its mouth is 2 miles west of the Nome-Taylor road measured from just north of where it crosses North Fork (Kougarok River). Sainsbury and others (1969) show placer mine workings to be present along 2,000 feet of the drainage starting 1,000 feet upstream of its mouth on Kougarok River. This is locality 33 of Cobb (1972; MF 417; 1975; OFR 75-429).

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:

Little is reported concerning placer gold on central Coarse Gold Creek. Gold was reported and some mining took place somewhere on the creek by 1908 (Collier and others, 1908; Smith, 1909). Sainsbury and others (1969) show placer mine workings to be present along 2,000 feet of the drainage starting 1,000 feet upstream of its mouth on Kougarok River. Bedrock is not exposed in the area of these workings. The diorite in bedrock referred to in early reports (Collier and others, 1908) is probably metadiabase or metagabbro of the mafic metavolcanic assemblage of the region, considered to be Ordovician by Till and others (1986). As Sainsbury and others (1969) show some metagabbroic rocks in bedrock upstream where other placer mining took place on this creek (BN023), the early reports may be for upstream locations rather than for the area at the mouth (locality 33 of Cobb, 1972, MF 417).

Alteration:

Age of mineralization:

Quaternary

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

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

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:
Sainsbury and others (1969) show placer mine workings to be present along 2,000 feet of the drainage starting 1,000 feet upstream of the creek's mouth on Kougarok River.

Production notes:

Reserves:

Additional comments:

References:
Collier and others, 1908; Smith, 1909; Sainsbury and others, 1969; Cobb, 1972 (MF 417); Cobb, 1975 (OFR 75-429); Till and others, 1986.

Primary reference: Sainsbury and others, 1969

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Eureka Creek

Site type: Mine

ARDF no.: BN025

Latitude: 65.61 **Quadrangle:** BN C-6

Longitude: 164.7

Location description and accuracy:

Eureka Creek is a small north tributary of North Fork (Kougarok River). It is the first north tributary upstream from the mouth of North Fork on Kougarok river. The mouth of Eureka Creek is 500 feet east of the Nome-Taylor road and 2,000 feet northeast of the roads crossing of North Fork. Placer mine workings are shown by Sainsbury and others (1969) to start 3,500 feet upsteam from the mouth and extend for 1,500 feet to Camp Creek, a small west tributary to Eureka Creek. This is locality 34 of Cobb (1972; MF 417; 1975; OFR 75-429).

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:

Early reports (Collier and others, 1908) reported mining about one mile upstream from the mouth that recovered fine gold from alluvial gravel containing schist and vein quartz fragments. Placer mine workings are shown by Sainsbury and others (1969) to start 3,500 feet upsteam from the mouth and extend for 1,500 feet to Camp Creek, a small west triburtary to Eureka Creek. Much bedrock is covered by tundra in the area but the nearest exposures are Lower Paleozoic metasedimentary rocks (Sainsbury and others, 1969; Till and others, 1986).

Alteration:

Age of mineralization:

Quaternary

Deposit model:

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

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

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:
Surface open-cut placer mine workings start 3,500 feet upsteam from the mouth and extend for 1,500 feet to Camp Creek, a small west tributary to Eureka Creek.

Production notes:

Reserves:

Additional comments:

References:
Collier and others, 1908; Sainsbury and others, 1969; Cobb, 1972 (MF 417); Cobb, 1975 (OFR 75-429); Till and others, 1986.

Primary reference: Sainsbury and others, 1969

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): North Fork (Kougarok River)

Site type: Mine

ARDF no.: BN026

Latitude: 65.61 **Quadrangle:** BN C-6

Longitude: 164.57

Location description and accuracy:

North Fork (Kougarok River) is the principal east tributary to Kougarok River. The Nome-Taylor road crosses North Fork about 7.3 miles south of Taylor. The mouth of Harris Creek, the principal north tributary to North Fork, is about 3.7 miles upstream of the Nome-Taylor road crossing of North Fork. Sainsbury and others (1969) show 3,500 feet of placer mine workings on the main channel of North Fork starting 2,000 feet upstream from the mouth of Harris Creek. This is locality 36 of Cobb (1972; MF 417; 1975; OFR 75-429).

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals: Hemitite, magnetite, pyrite

Geologic description:

Gold was discovered on North Fork (Kougarok River) by 1902 (Collier, 1902) and placer mining started by 1903 (Brooks, 1904). Sainsbury and others (1969) show 3,500 feet of placer mine workings on the main channel of North Fork starting 2,000 feet upstream from the mouth of Harris Creek. Gravel benches on North fork are also reported to be gold-bearing (Collier and others, 1908). Early reports (Collier and others, 1908) indicate that coarse, bright, and well-rounded gold was concentrated on limestone (marble) bedrock. Placer concentrates are reported to contain pyrite, hematite, and magnetite (Cobb, 1973, B 1374). The top 3 feet of broken and fractured bedrock was mined. Bedrock in the area is Paleozoic marble that is only locally fossiliferous. Poorly constrained ages for the marble, based on scattered fossil occurrences, are Ordovician to Devonian (Till and others, 1986).

Alteration:

Age of mineralization:

Quaternary; this area has probably gone through at least two cycles of erosion and placer development.

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

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

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:
Surface open-cut placer mine workings extend 3,500 feet along the main channel of North Fork starting 2,000 feet upstream from the mouth of Harris Creek.

Production notes:

Reserves:

Additional comments:

References:
Collier, 1902; Brooks, 1904; Collier and others, 1908; Sainsbury and others, 1969; Cobb, 1972 (MF 417); Cobb, 1973 (B 1374); Cobb, 1975 (OFR 75-429); Till and others, 1986.

Primary reference: Cobb, 1975 (OFR 75-429)

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Harris Creek

Site type: Mine

ARDF no.: BN027

Latitude: 65.625 **Quadrangle:** BN C-6

Longitude: 164.58

Location description and accuracy:

Harris Creek is the principal north tributary to the North Fork of Kougarok River. The mouth of Harris Creek is about 3.7 miles upstream from the Nome-Taylor road crossing of North Fork. Sainsbury and others (1969) show placer mine workings on the main channel of Harris Creek starting at the mouth and continuing upstream for 4.3 miles. This is locality 35 of Cobb (1972; MF 417; OFR 75-429).

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals: Garnet

Geologic description:

Gold was discovered in gravels of Harris Creek by 1900 and placer mining started here by 1901 (Collier, 1902; Collier and others, 1908). Sainsbury and others (1969) show placer mine workings on the main channel of Harris Creek starting at the mouth and continuing upstream for 4.3 miles. A dredge operated on at least parts of this drainage. The lower 2 miles of the stream channel crosses Paleozoic marble bedrock and the upper 2-plus miles crosses Lower Paleozoic metasedimentary rocks (Sainsbury and others, 1969; Till and others, 1986). Some auriferous bench gravels are reported along upper parts of the creek. The Harris Creek channel gravels are locally thin, 6 feet or less, and covered by up to 6 feet of muck. Gold was rough and concentrated on broken and fractured limestone (marble) bedrock. Garnet was present in some placer concentrates. This area has undergone at least two cycles of erosion and placer development. The garnet in placer concentrates was probably derived from headwater areas where schist is present.

Alteration:

Age of mineralization:

Quaternary; the area has probably undergone at least two cycles of erosion and placer

development.

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

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

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:
Sainsbury and others (1969) show placer mine workings on the main channel of Harris Creek starting at the mouth and continuing upstream for 4.3 miles. A dredge operated on at least parts of this drainage.

Production notes:

Reserves:

Additional comments:

References:
Collier, 1902; Collier and others, 1908; Smith, 1909; Sainsbury and others, 1969; Cobb, 1972 (MF 417); Cobb, 1975 (OFR 75-429); Till and others, 1986.

Primary reference: Sainsbury and others, 1969

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Arizona Creek

Site type: Mine

ARDF no.: BN028

Latitude: 65.611 **Quadrangle:** BN C-6

Longitude: 164.786

Location description and accuracy:

Arizona Creek is a west tributary to Kougarok River. The mouth of Arizona Creek is 4.5 miles south of Taylor and 1.7 miles west of the Nome-Taylor road. Sainsbury and others (1969) show 1,500 feet of placer mine workings on the main channel starting 1,500 feet upstream of the mouth. This is locality 32 of Cobb (1972; MF 417; 1975; OFR 75-429).

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:

Sainsbury and others (1969) show 1,500 feet of placer mine workings on the main channel of Arizona Creek starting 1,500 feet upstream of the mouth. Much of the early placer mining here was on bench gravels at elevations of 20 to 70 feet above the flood-plain (Collier and others, 1908; Smith, 1909). The bench placers arer probably in gravels related to locally preserved Kougarok River terraces.

Alteration:

Age of mineralization:

Quaternary; placers on present floodplains are probably the result of at least two cycles of erosion and placer development.

Deposit model:

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

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

39a

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:

Surface open-cut placer workings, at least 1,500 feet, are on the main channel of Arizona Creek starting 1,500 feet upstream of the mouth. Much of the early placer mining here was on bench gravels at elevations of 20 to 70 feet above the floodplain (Collier and others, 1908; Smith, 1909).

Production notes:

Reserves:

Additional comments:

References:

Collier and others, 1908; Smith, 1909; Sainsbury and others, 1969; Cobb, 1972 (MF 417); Cobb, 1975 (OFR 75-429).

Primary reference: Cobb, 1975 (OFR 75-429)

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Unnamed (Arctic Creek)

Site type: Occurrence

ARDF no.: BN029

Latitude: 65.646 **Quadrangle:** BN C-6

Longitude: 164.688

Location description and accuracy:

This occurrence is on the ridge crest at the head of Arctic Creek, 3.8 miles southeast of Taylor on the Nome-Taylor road. Sainsbury and others (1969) report mineralization in marble outcrops just to the east of the road here. This is locality 3 of Cobb (1972; MF 417; 1975; OFR 75-429).

Commodities:

Main: Cu

Other:

Ore minerals: Chalcopyrite

Gangue minerals: Pyrite, quartz

Geologic description:

Marble interlayered in pelitic schist forms outcrops just east of the Nome-Taylor road. Sainsbury and others (1969) describe replacements of marble by banded, fine-grained silica containing pyrite and traces of chalcopyrite. Although mapped as klippe by Sainsbury and others (1969), the marble is interlayered with schist and part of a low grade, Lower Paleozoic metasedimentary assemblage (Till and others, 1986).

Alteration:

Silica replacements of marble (?).

Age of mineralization:

Unknown but possibly Cretaceous; the major episode of epigenetic mineralization on Seward Peninsula accompanied higher temperature metamophism and mid- to Late Cretaceous granitic plutonism in the region.

Deposit model:

Siliceous zones in marble with pyrite and traces of chalcopyrite

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

Production Status: No

Site Status: Inactive

Workings/exploration:
Some shallow propecting pits may be present.

Production notes:

Reserves:

Additional comments:

References:
Sainsbury and others, 1969; Cobb, 1972 (MF 417); Cobb, 1975 (OFR 75-429); Till and others, 1986.

Primary reference: Sainsbury and others, 1969

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): California Creek

Site type: Mine

ARDF no.: BN030

Latitude: 65.632 **Quadrangle:** BN C-6

Longitude: 164.809

Location description and accuracy:
California Creek is a small west tributary to Kougarok River. The mouth of California Creek is 3.2 miles south of Taylor. Sainsbury and others (1969) show the lower 1,500 feet of the main channel of California Creek to have been placer mined. This is locality 31 of Cobb (1972; MF 417; 1975; OFR 75-429).

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:
The presence of gold on the active floodplain and on benches 20 feet above it was noted in early reports (Collier and others, 1908). Sainsbury and others (1969) show the lower 1,500 feet of the main channel of California Creek to have been placer mined but the early reports indicate the benches were also mined. Gold on the active floodplain may be reworked from the nearby benches and these are probably remnants of Kougarok River terraces. There may not be a local bedrock source for the gold mined here. Bedrock of the area is extensively coverd by tundra, but upland exposures are primarily Lower Paleozoic metasedimentary rocks (Sainsbury and others, 1969; Till and others, 1986).

Alteration:

Age of mineralization:
Quaternary; placers on present floodplains are probably the result of at least two cycles of erosion and placer development.

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

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

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:
Sainsbury and others (1969) show the lower 1,500 feet of the main channel of California Creek to have been open-cut placer mined but the early reports indicate the benches were also mined.

Production notes:

Reserves:

Additional comments:

References:
Collier and others, 1908; Sainsbury and others, 1969; Cobb, 1972 (MF 417); Cobb, 1975 (OFR 75-429); Till and others, 1986.

Primary reference: Cobb, 1975 (OFR 75-429)

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Henry Creek (including Merrit Gulch)

Site type: Mine

ARDF no.: BN031

Latitude: 65.655 **Quadrangle:** BN C-6

Longitude: 164.827

Location description and accuracy:

Henry Creek is a major west tributary to Kougarok River. The mouth of Henry Creek is 2 miles south of Taylor. Sainsbury and others (1969) show placer mine workings to be at two locations on this drainage. The first is a 1,500 foot-long segment of the active channel and an adjacent gulch on the north side that starts 4,000 feet upstream of the mouth. The second is another 1,500 foot-long segment of the active channel that starts 7,000 feet above the mouth. This is locality 29 of Cobb (1972; MF 417; 1975; OFR 75-429). Cobb (1975; OFR 75-429) notes that placer mining has taken place on Merrit Gulch, an unidentified location in Henry Creek valley.

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:

Gold was identified in Henry Creek gravels as early as 1901 (Collier, 1902) and some sporadic mining activity was noted up to 1937 (Smith, 1939, B 910A). Sainsbury and others (1969) show placer mine workings to be at two locations on this drainage. The first is a 1,500 foot-long segment of the active channel and an adjacent gulch on the north side that starts 4,000 feet upstream of the mouth. The second is another 1,500 foot-long segment of the active channel that starts 7,000 feet above the mouth. The gold recovered from early work was reported to be relatively coarse and flat (Collier and others, 1908). Bedrock of the area is extensively coverd by tundra, but upland exposures are primarily Lower Paleozoic metasedimentary rocks (Sainsbury and others, 1969; Till and others, 1986). A report of schist bedrock with enclosed greenstone bodies (Collier and others, 1908) refers to the mafic metavolcanic assemblage in the headwater areas of Henry Creek (Sainsbury and others, 1969; Till and others, 1986).

Alteration:

Age of mineralization:
Quaternary

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

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

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:
Sainsbury and others (1969) show placer mine workings to be at two locations on this drainage. The first is a 1,500 foot-long segment of the active channel and an adjacent gulch on the north side that starts 4,000 feet upstream of the mouth. The second is another 1,500 foot-long segment of the active channel that starts 7,000 feet above the mouth.

Production notes:

Reserves:

Additional comments:

References:
Collier, 1902; Collier and others, 1908; Smith, 1939 (B 910A); Sainsbury and others, 1969; Cobb, 1972 (MF 417); Cobb, 1975 (OFR 75-429); Till and others, 1986.

Primary reference: Sainsbury and others, 1969

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Dreamy Gulch

Site type: Mine

ARDF no.: BN032

Latitude: 65.671 **Quadrangle:** BN C-6

Longitude: 164.791

Location description and accuracy:
Dreamy Gulch is a small gulch on the eastern side of the Kougarok River. It is 0.6 miles south of Taylor and 1.1 miles west of the Nome-Taylor road. The mouth of Eldorado Creek, a small east tributary to Kougarok River, is 1,000 feet to the north. This is locality 30 of Cobb (1972; MF 417; 1975; OFR 75-429).

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:
Dreamy Gulch is only about 1,500 long and mining appears to have taken place along at least the lower 800 feet down the Kougarok River. Early mining recovered coarse, rusty and well-rounded gold from 3 to 4 feet of gravel on calcareous schist bedrock (Collier and others, 1908). This gold could be reworked from Kougarok River terrace deposits.

Alteration:

Age of mineralization:
Quaternary; the area has probably undergone at least two cycles of erosion and placer development.

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

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

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:

Dreamy Gulch is only about 1,500 long and open-cut placer mining appears to have taken place along at least the lower 800 feet down to the Kougarok River.

Production notes:

Reserves:

Additional comments:

References:

Collier and others, 1908; Cobb, 1972 (MF 417); Cobb, 1975 (OFR 75-429).

Primary reference: Cobb, 1975 (OFR 75-429)

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Taylor Creek

Site type: Mine

ARDF no.: BN033

Latitude: 65.685 **Quadrangle:** BN C-6

Longitude: 164.78

Location description and accuracy:

Taylor Creek is a major east tributary to Kougarok River. The mouth of Taylor Creek is 1,000 feet north of the termination of the Nome-Taylor road at Taylor. Sainsbury and others (1969) show placer mine workings along about 1,500 of the active channel of Taylor Creek starting 1,500 feet upstream from the mouth. This is locality 27 of Cobb (1972; MF 417; 1975; OFR 75-429).

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:

Early placer mining was reported here (Collier and others, 1908) but many reports of subsequent mining, particularly that by dredge operations, was probably for nearby parts of Kougarok River (BN035; Cobb, 1975, OFR 75-429). Sainsbury and others (1969) show placer mine workings along about 1,500 of the active channel of Taylor Creek starting 1,500 feet upstream from its mouth. Bedrock in the area is part of a Lower Paleozoic metasedimentary assemblage (Sainsbury and others, 1969; Till and others, 1986). Some bedrock was apparently exposed by early mining (Collier and others, 1908). Placer deposits on active floodplains in this part of the Kougarok River drainage have probably resulted from at least two cycles of erosion and placer development.

Alteration:

Age of mineralization:

Quaternary; placer deposits on active floodplains in this part of the Kougarok River drainage have probably resulted from at least two cycles of erosion and placer development.

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

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

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:
Sainsbury and others (1969) show surface open-cut placer mine workings along about 1,500 of the active channel of Taylor Creek starting 1,500 feet upstream from its mouth.

Production notes:

Reserves:

Additional comments:

References:
Collier and others, 1908; Sainsbury and others, 1969; Cobb, 1972 (MF 417); Cobb, 1975 (OFR 75-429); Till and others, 1986.

Primary reference: Sainsbury and others, 1969

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Unnamed (Kougarok River)

Site type: Occurrence

ARDF no.: BN034

Latitude: 65.67 **Quadrangle:** BN C-6

Longitude: 164.8

Location description and accuracy:

This location is approximately located, probably within one mile. Smith (1908) reports it to be a lode occurrence near the mouth of Taylor Creek. Taylor Creek is a major east tributary to Kougarok River. The mouth of Taylor Creek is 1,000 feet north of the termination of the Nome-Taylor road at Taylor. This is locality 1 of Cobb (1972; MF 417; 1975; OFR 75-429).

Commodities:

Main: Cu

Other:

Ore minerals: Chalcopyrite ?

Gangue minerals:

Geologic description:

Smith (1908, p, 244) reports that copper sulfides (chalcopyrite ?)are present in metamorphosed limestone (marble) on Kougarok River somewhere near the mouth of Taylor Creek. Bedrock in the upper Kougarok River area is part of a lower Paleozoic metasedimentary assemblage (Sainsbury and others, 1969; Till and others, 1986).

Alteration:

Age of mineralization:

Unknown; if epigenetic then perhaps Cretaceous. The major episode of epigenetic mineralization on Seward Peninsula accompanied higher temperature metamophism and mid- to Late Cretaceous granitic plutonism in the region.

Deposit model:

Chalcopyrite in marble ?

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

Production Status: None

Site Status: Inactive

Workings/exploration:
No workings are known for this occurrence.

Production notes:

Reserves:

Additional comments:

References:
Smith, 1908; Sainsbury and others, 1969; Cobb, 1972 (MF 417); Cobb, 1975 (OFR 75-429); Till and others, 1986.

Primary reference: Smith, 1908

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Kougarok River

Site type: Mine

ARDF no.: BN035

Latitude: 65.685 **Quadrangle:** BN C-6

Longitude: 164.789

Location description and accuracy:

Kougarok River is the largest and most important drainage in the Kougarok mining district. It drains south from its headwaters in Washington Creek (BN041) and Macklin Creek (BN045) in the northern part of the Bendeleben C-6 quadrangle; it is at least locally gold-bearing over a length of 18 miles in this quadrangle. The part of the Kougarok River included in this locality is the mile upstream and the 7 to 8 miles downstream from the mouth of Taylor Creek. Taylor Creek is a major east tributary to Kougarok River. The mouth of Taylor Creek is 1,000 feet north of the termination of the Nome-Taylor road at Taylor. This part of the Kougarok River includes localities 24 and 25 of Cobb (1972; MF 417; 1975; OFR 75-429).

Commodities:

Main: Au

Other: Ag, Pb, Sn

Ore minerals: Cassiterite, galena, gold

Gangue minerals: Magnetite, pyrite

Geologic description:

Kougarok River is the largest and most important drainage in the Kougarok mining district. Placer mining started here as early as 1900 when $50,000 worth of gold (about 3,000 ounces at $18 per ounce) were recovered (Brooks and others, 1901). Extensive dredging of the active floodplain has taken place from a mile upstream to 7-8 miles downstream from the mouth of Taylor Creek (Sainsbury and others, 1969). Placer mining, including dredging, has continued locally to the present. Most of the more than 240,000 ounces of known production from the Kougarok district (Hudson and DeYoung, 1977) is from the upper part of Kougarok River. The recovered gold is dark compared to that from tributaries (Collier and others, 1908). Placer concentrates contain cassiterite, abundant pyrite, and magnetite (Knopf, 1908). A gray, sulfide-rich dredge concentrate contained 2,000 ppm Ag, 7,000 ppm Bi, and greater than 10 % Pb (Sainsbury and others, 1969, p. 39). Bedrock in the upper Kougarok River drainage is dominately Lower Paleozoic metasedimentary rocks (Sainsbury and others, 1969; Till and others, 1986). Placer

deposits on the active floodplain are the result of two or more cycles of erosion and placer development in the area.

Alteration:

Age of mineralization:
Quaternary; placer deposits on the active floodplain are the result of two or more cycles of erosion and placer development in the area.

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

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

Production Status: Yes; medium

Site Status: Active?

Workings/exploration:
The entire length of this segment of the Kougarok River has been extensively placer mined for gold. Sainsbury and others (1969) show where many of these mine workings are located but additional mine tailings are also shown on the USGS 1:63,360 topographic map of the area (Bendeleben C-6 quadrangle). Most of these placer mine workings are the result of dredge operations.

Production notes:
Brooks (1901) reports initial production at the turn of the century to be $50,000 (about 3,000 ounces at $18 per ounce); this is an indication of the richness of the upper Kougarok River area. Most of the more than 240,000 ounces of known production from the Kougarok district (Hudson and DeYoung, 1978) is from the upper part of Kougarok River.

Reserves:

Additional comments:

References:
Brooks and others, 1901; Collier and others, 1908; Knopf, 1908; Sainsbury and others, 1969; Cobb, 1972 (MF 417); Cobb, 1975 (OFR 75-429); Hudson and DeYoung, 1978; Till and others, 1986.

Primary reference: Cobb, 1975 (OFR 75-429)

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Unnamed (along Kougarok River)

Site type: Occurrence

ARDF no.: BN036

Latitude: 65.68 **Quadrangle:** BN C-6

Longitude: 164.798

Location description and accuracy:

This location is for bedrock exposures in old placer workings on the west side of the former cummunity of Taylor. Taylor is located at the end of the Nome-Taylor road, on the west bank of Kougarok River, about 1,000 feet south of the mouth of Taylor Creek. This is locality 6 of Gamble (1988)

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals: Pyrite, quartz

Geologic description:

Graphitic metasedimentary rocks, exposed in old placer workings, contain numerous hydrothermally altered zones with fractured quartz veinlets and abundant pyrite (Sainsbury and others, 1969, p. 30). A sample of ribbon quartz contained 200 ppm As and a pyrite-rich pan concentrate from the altered zones contained 1.3 ppm Au, 2 ppm Ag, greater than 10,000 ppm As, 750 ppb Hg, 200 ppm Co, and weakly elevated base metals (Sainsbury and others, 1969, p. 39).

Alteration:

Quartz veining and possibly clay alteration appear to be present.

Age of mineralization:

Unknown but possibly Cretaceous; if gold-bearing lode structures are present here they may be similar in age to some lode gold deposits of southern Seward Peninsula. The southern Seward Peninsula lode gold deposits formed as a result of mid-Cretaceous metamorphism (Apodoca, 1994; Ford, 1993, Ford and Snee, 1996; Goldfarb and others, 1997) that accompanied regional extension (Miller and Hudson, 1991) and crustal melting (Hudson, 1994). This higher temperature metamorphism was superimposed on high pressure/low temperature metamorphic rocks of the region.

Deposit model:
Gold-bearing quartz veins and schist (?)

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

Production Status: None

Site Status: Inactive

Workings/exploration:
The only workings here are from placer mining, including those from dragline operations.

Production notes:

Reserves:

Additional comments:

References:
Sainsbury and others, 1969; Gamble, 1988; Miller and Hudson, 1991; Ford, 1993; Apodoca, 1994; Hudson, 1994; Ford and Snee, 1996; Goldfarb and others, 1997.

Primary reference: Sainsbury and others, 1969

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Homestake Creek

Site type: Occurrence

ARDF no.: BN037

Latitude: 65.684 **Quadrangle:** BN C-6

Longitude: 164.82

Location description and accuracy:

Homestake Creek is a west tributary of the Kougarok River. The mouth of Homestake Creek is 2,500 feet upstream from the mouth of Taylor Creek. Sainsbury and others (1969) show the lower 5,000 feet of the channel of Homestake Creek to have been placer mined. This is locality 37 of Cobb (1972; MF 417; 1975; OFR 75-429).

Commodities:

Main: Au

Other: W

Ore minerals: Gold, scheelite

Gangue minerals:

Geologic description:

Placer mining for gold took place here as early as 1903 (Brooks, 1904). Sainsbury and others (1969) show the lower 5,000 feet of Homestake Creek to have been placer mined. One-fourth mile upstream from the mouth, mining encountered 4 to 5 feet of muck over fine sand on bedrock (Collier and others, 1908). Some of the gold is coarse with a nugget worth $14.40 (0.8 ounces) being recovered by early operations (Collier and others, 1908). Scheelite is reported to be present in the placer deposits (Anderson, 1947; Moxham and West, 1953). Bedrock is extensively mantled by tundra in the area but where exposed in nearby uplands it is part of a low grade, lower Paleozoic metasedimentary assemblage (Sainsbury and others, 1969; Till and others, 1986). Some bedrock , graphitic and calcareous mica schist, was apparently exposed by early mining operations (Collier and others, 1908). Placer deposits on the active floodplains of the area are probably the result of at least two cycles of erosion and placer developement.

Alteration:

Age of mineralization:

Quaternary; placer deposits on the active floodplains of the area are probably the result of at least two cycles of erosion and placer developement.

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

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

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:
Sainsbury and others (1969) show the lower 5,000 feet of the channel of Homestake Creek to have been placer mined.

Production notes:

Reserves:

Additional comments:

References:
Brooks, 1904; Collier and others, 1908; Anderson, 1947; Moxham and West, 1953; Sainsbury and others, 1969; Cobb, 1972 (MF 417); Cobb, 1975 (OFR 75-429); Till and others, 1986.

Primary reference: Cobb, 1975 (OFR 75-429)

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Upper Homestake Creek

Site type: Mine

ARDF no.: BN038

Latitude: 65.679 **Quadrangle:** BN C-6

Longitude: 164.889

Location description and accuracy:

Homestake Creek is a west tributary of the Kougarok River. The mouth of Homestake Creek is 2,500 feet upstream of the mouth of Taylor Creek. Sainsbury and others (1969) show that 3,000 feet of the upper part of the creek, starting about 2.2 miles upstream from the mouth, has been placer mined. Cobb (1972; MF 417; 1975; OFR 75-429) summarizes information for Homestake Creek in general and locates previous mining here on lower Homestake Creek (locality 37 of Cobb, 1972; MF 417; see ARDF locality BN037).

Commodities:

Main: Au

Other: W

Ore minerals: Gold, scheelite

Gangue minerals:

Geologic description:

Sainsbury and others (1969) show that 3,000 feet of upper Homestake Creek, starting about 2.2 miles upstream of its mouth, has been placer mined. Some of the gold recovered from Homestake Creek is coarse; a nugget worth $14.40 (0.8 ounces) was reported by early operators (Collier and others, 1908). Scheelite is reported to be present in the placer deposits here (Anderson, 1947; Moxham and West, 1953). Bedrock is extensively mantled by tundra in the area, but where exposed in nearby uplands it is part of a Lower Paleozoic metasedimentary assemblage (Sainsbury and others, 1969; Till and others, 1986). Some bedrock, graphitic and calcareous mica schist, was apparently exposed by early mining operations somewhere on this drainage (Collier and others, 1908).

Alteration:

Age of mineralization:

Quaternary

Deposit model:

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

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

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:
Sainsbury and others (1969) show that 3,000 feet of the upper part of the creek, starting about 2.2 miles upstream from the mouth, has been open-cut placer mined.

Production notes:

Reserves:

Additional comments:

References:
Collier and others, 1908; Anderson, 1947; Moxham and West, 1953; Sainsbury and others, 1969; Cobb, 1972 (MF 417); Cobb, 1975 (OFR 75-429); Till and others, 1986.

Primary reference: Sainsbury and others, 1969

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Salmon Creek; upper Taylor Creek

Site type: Mine

ARDF no.: BN039

Latitude: 65.704 **Quadrangle:** BN C-6

Longitude: 164.591

Location description and accuracy:

Salmon Creek is a north tributary to Taylor Creek. The mouth of Salmon Creek (formerly known as Solomon Creek, Cobb, 1975) is about 6 miles upstream from the mouth of Taylor Creek (BN033). Sainsbury and others (1969) show about 1,000 feet of placer workings along the lower part of this creek. This is part of locality 28 of Cobb (1972; MF 417; 1975; OFR 75-429).

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:

Sainsbury and others (1969) show about 1,000 feet of linear placer workings along the lower part of this creek. This may be the approximate location of gravels on the sloping bench near the mouth that were mined in early years (Collier and others, 1908). Gold-bearing gravels associated with this drainage are 3 to 7 feet thick and covered by 8 to 10 feet of muck (Collier and others, 1908). Bedrock is extensively mantled by tundra in the area but where exposed in nearby uplands, it is part of a Lower Paleozoic metasedimentary assemblage (Sainsbury and others, 1969; Till and others, 1986).

Alteration:

Age of mineralization:

Quaternary

Deposit model:

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

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

39a

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:
Sainsbury and others (1969) show about 1,000 feet of linear, surface open-cut placer mine workings.

Production notes:

Reserves:

Additional comments:

References:
Collier and others, 1908; Sainsbury and others, 1969; Cobb, 1972 (MF 417); Cobb, 1975 (OFR 75-429); Till and others, 1986.

Primary reference: Sainsbury and others, 1969

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Salmon Creek

Site type: Mine

ARDF no.: BN040

Latitude: 65.706 **Quadrangle:** BN C-6

Longitude: 164.597

Location description and accuracy:

Salmon Creek is a north tributary to Taylor Creek. The mouth of Salmon Creek (formerly known as Solomon Creek, Cobb, 1975) is about 6 miles upstream from the mouth of Taylor Creek (BN033). Sainsbury and others (1969) show 1,500 feet of placer workings in the stream channel starting 2,000 feet upstream of the mouth. Placer workings at the mouth of this stream are included as ARDF locality BN039. This is locality 28 of Cobb (1972; MF 417; 1975; OFR 75-429).

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:

Sainsbury and others (1969) show 1,500 feet of placer workings in the stream channel starting 2,000 feet upstream from the mouth. Gold-bearing gravels associated with this drainage are 3 to 7 feet thick and covered by 8 to 10 feet of muck (Collier and others, 1908). Bedrock is extensively mantled by tundra in the area but where exposed in nearby uplands it is part of a lower Paleozoic metasedimentary assemblage (Sainsbury and others, 1969; Till and others, 1986).

Alteration:

Age of mineralization:

Quaternary

Deposit model:

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

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

39a

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:

Sainsbury and others (1969) show 1,500 feet of open-cut placer workings in the stream channel, starting 2,000 feet upstream from the mouth.

Production notes:

Reserves:

Additional comments:

References:

Collier and others, 1908; Sainsbury and others, 1969; Cobb, 1972 (MF 417); Cobb, 1975 (OFR 75-429); Till and others, 1986.

Primary reference: Cobb, 1975 (OFR 75-429)

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Kougarok River; Washington Creek

Site type: Mine

ARDF no.: BN041

Latitude: 65.735 **Quadrangle:** BN C-6

Longitude: 164.855

Location description and accuracy:

Kougarok River is the largest and most important drainage in the Kougarok mining district. Washington Creek is the western headwater tributary of Kougarok River. This location includes the upper 2 miles of the Kougarok River and the lower, almost 3 miles of Washington Creek; placer mining has been continuous over this length (Sainsbury and others, 1969). This is locality 23 of Cobb (1972; MF 417; 1975; OFR 75-429).

Commodities:

Main: Au

Other: Pb, Sn

Ore minerals: Cassiterite, galena, gold

Gangue minerals:

Geologic description:

Kougarok River is the largest and most important drainage in the Kougarok mining district. Placer mining started on Kougarok River as early as 1900 when $50,000 worth of gold (about 3,000 ounces at $18 per ounce) was recovered (Brooks and others, 1901). Extensive dredging of the active floodplain has taken place throughout the upper two miles of the river and at least the lower parts of Washington Creek. Various dragline and dozer operations have also taken place along Washington Creek and bench placers have been locally productive along both drainages. Placer mining, including dredging, has continued locally in the upper Kougarok River area to the present. Most of the more than 240,000 ounces of known production from the Kougarok district (Hudson and DeYoung, 1977) is from the upper part of Kougarok River. The gold is dark compared to that from tributaries (Collier and others, 1908). Placer concentrates have contained cassiterite, abundant pyrite, and magnetite (Knopf, 1908). The cassiterite that is reported from early operations may have been recovered from Washington Creek as the headwaters of Washington Creek drain Kougarok Mountain where lode tin deposits are present (Hudson, 1998). Sainsbury (1975, p. 69) reports that placer concentrate from Washington Creek contains cassiterite, pyrite, galena, and a silvery sulfide that predominately contains silver, tin and bismuth. Bits of cassiterite and base metal sulfides were also noted by Marsh and

others (1972) in Washington Creek placer deposits. Bedrock is extensively mantled by tundra in the area but where exposed it is part of a Lower Paleozoic metasedimentary assemblage (Sainsbury and others, 1969; Till and others, 1986).

Alteration:

Age of mineralization:
Quaternary; placer deposits on the active floodplains of the area are probably the result of at least two cycles of erosion and placer developement.

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

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

Production Status: Yes; medium

Site Status: Active

Workings/exploration:
Open-cut placer workings, including extensive areas of dredging, are continuous along the upper 2 miles of Kougarok River and the lower almost 3 miles of Washington Creek.

Production notes:
Brooks (1901) reported initial production at the turn of the century of $50,000 (about 3,000 ounces at $18 per ounce); thisis an indication of the richness of the upper Kougarok River area. Most of the more than 240,000 ounces of known production from the Kougarok district (Hudson and DeYoung, 1978) is from the upper part of Kougarok River.

Reserves:
Placer mining claims cover much of the upper Kougarok River area, including the area south of Taylor (BN035). Placer mining has continued locally in this area and reserves probably remain, particularly between meanders on the active floodplain and on unmined benches.

Additional comments:

References:
Brooks and others, 1901; Collier and others, 1908; Knopf, 1908; Sainsbury and others, 1969; Cobb, 1972 (MF 417); Marsh and others, 1972; Cobb, 1975 (OFR 75-429); Sainsbury, 1975; Hudson and DeYoung, 1978; Till and others, 1986; Hudson, 1998.

Primary reference: Cobb, 1975 (OFR 75-429)

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Trinity Creek

Site type: Mine

ARDF no.: BN042

Latitude: 65.733 **Quadrangle:** BN C-6

Longitude: 164.888

Location description and accuracy:
Trinity Creek is a small south tributary to Washington Creek; Washington Creek (BN041) is the western headwater tributary of Kougarok River (BN035). The mouth of Trinity Creek is about one mile upstream from the mouth of Washington Creek. This is locality 22 of Cobb (1972; MF 417; 1975; OFR 75-429).

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:
Brooks (1907) reported that gold was discovered on this creek but there is no history of mining operations (Cobb, 1975, OFR 75-429). Sainsbury and others (1969) did not show placer workings on this drainage although both upstream and downstream parts of nearby Washington Creek (BN041) were extensively mined.

Alteration:

Age of mineralization:
Quaternary

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

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

Production Status: None

Site Status: Inactive

Workings/exploration:

There are no reported workings on this creek but some gold may have been mined.

Production notes:

Reserves:

Additional comments:

References:

Brooks, 1907; Sainsbury and others, 1969; Cobb, 1972 (MF 417); Cobb, 1975 (OFR 75-429).

Primary reference: Cobb, 1975 (OFR 75-429)

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Columbia Creek

Site type: Mine

ARDF no.: BN043

Latitude: 65.71 **Quadrangle:** BN C-6

Longitude: 164.99

Location description and accuracy:

Columbia Creek is a south tributary to Washington Creek, the western headwater tributary of Kougarok River (BN041). The mouth of Columbia Creek is 4 miles upstream from the mouth of Washington Creek. This locality was not included by Cobb (1972; MF 417; 1975; OFR 75-429).

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:

Sainsbury and others (1969) show 3,500 feet of placer mine workings along the main channel of Columbia Creek ,starting 5,000 feet upstream from its mouth. There are no other reports of mining on this creek. Bedrock in this area is primarily exposed on the crest of nearby uplands (Sainsbury and others, 1969) where rocks of a mafic metavolcanic assemblage, considered Ordovician in age by Till and others (1986) are present.

Alteration:

Age of mineralization:

Quaternary

Deposit model:

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

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

39a

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:

Sainsbury and others (1969) show 3,500 feet of open-cut placer mine workings along the main channel of Columbia Creek starting 5,000 feet upstream from its mouth.

Production notes:

Reserves:

Additional comments:

References:

Sainsbury and others, 1969; Cobb, 1972 (MF 417); Cobb, 1975 (OFR 75-429); Till and others, 1986.

Primary reference: Sainsbury and others, 1969

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Mascot Gulch

Site type: Mine

ARDF no.: BN044

Latitude: 65.74 **Quadrangle:** BN C-6

Longitude: 164.97

Location description and accuracy:

Mascot Gulch is a small north tributary to Washington Creek in the northwest corner of the Bendeleben C-6 quadrangle. Washington Creek is the northwest headwater tributary of Kougarok River. The mouth of Mascot Gulch is about 3.5 miles upstream from the mouth of Washington Creek. This is locality 21 of Cobb (1972; MF 417; 1975; OFR 75-429).

Commodities:

Main: Au

Other: Sn

Ore minerals: Cassiterite, gold

Gangue minerals:

Geologic description:

Sainsbury and others (1969) show about 1,500 feet of placer mine workings along the channel of Mascot Gulch starting about 1,000 feet upstream from its mouth. Initial mining took place here at least by 1906 (Brooks, 1907) and unlike many gold placers in the upper Kougarok River drainage, the deposit on Mascot Gulch seems to be residual and close to its bedrock source. The bright, angular gold, some with crystal faces, occurs in irregular patches on phyllitic schist bedrock (Collier and others, 1908). Bedrock contains many quartz stringers and mining worked 2 to 3 feet of talus and decomposed bedrock. Considerable cassiterite was present in the placer concentrates (Collier and others, 1908). Bedrock in the area is part of a Lower Paleozoic metasedimentary assemblage (Till and others, 1986).

Alteration:

Age of mineralization:

Quaternary

Deposit model:

Placer Au-PGE (partly residual; 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:
Sainsbury and others (1969) show about 1,500 feet of placer mine workings along the channel of Mascot Gulch starting about 1,000 feet upstream from its mouth.

Production notes:

Reserves:

Additional comments:

References:
Brooks, 1907; Collier and others, 1908; Sainsbury and others, 1969; Cobb, 1972 (MF 417); Cobb, 1975 (OFR 75-429); Till and others, 1986.

Primary reference: Cobb, 1975 (OFR 75-429)

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Macklin Creek

Site type: Mine

ARDF no.: BN045

Latitude: 65.75 **Quadrangle:** BN C-6

Longitude: 164.819

Location description and accuracy:

Macklin Creek is the northeast headwater tributary of Kougarok River. Macklin Creek joins with Washington Creek to become Kougarok River in the northcentral Bendeleben C-6 quadrangle. This location includes areas of placer mining on Macklin Creek that continues upstream across the Bendeleben C-6 and D-6 quadrangle boundary. Sainsbury and others (1969) show 8,500 feet of continuous placer workings along the main channel of Macklin Creek starting 4,500 feet upstream of the mouth. This is locality 26 of Cobb (1972; MF 417; 1975; OFR 75-429).

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:

Placer gold deposits were first reported to be worked on Macklin Creek in 1901 (Collier, 1902). This first mining included paystreaks with pans worth $0.75 (0.04 ounces at $18 per ounce). Sainsbury and others (1969) show 8,500 feet of continuous placer workings along the main channel of Macklin Creek starting 4,500 feet upstream of its mouth. Macklin Creek has been exrtensively worked over this distance and has apparently been an important producer in the upper Kougarok River area. Bedrock in the area is part of a Lower Paleozoic metasedimentary assemblage (Till and others, 1986).

Alteration:

Age of mineralization:

Quaternary

Deposit model:

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

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

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:
Sainsbury and others (1969) show 8,500 feet of continuous placer workings along the main channel of Macklin Creek starting 4,500 feet upstream from its mouth.

Production notes:

Reserves:

Additional comments:

References:
Collier, 1902; Sainsbury and others, 1969; Cobb, 1972 (MF 417); Cobb, 1975 (OFR 75-429); Till and others, 1986.

Primary reference: Cobb, 1975 (OFR 75-429)

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Dick Creek

Site type: Mine

ARDF no.: BN046

Latitude: 65.787 **Quadrangle:** BN D-6

Longitude: 164.981

Location description and accuracy:

Dick Creek, located along the southwest border of the Bendeleben D-6 quadrangle, is a north-flowing tributary to Bryan Creek. Bryan Creek is a northeast-flowing drainage with some headwater tributaries on the northeast flank of the Kougarok Mountain upland (TE070, Hudson, 1998). The continental divide separates the Dick Creek drainage from that of Mascot Gulch (BN044) to the south (in the Bendeleben C-6 quadrangle). Sainsbury and others (1969) show 9,000 feet of placer workings along the channel of Dick Creek in its headwater reaches. This is locality 19 of Cobb (1972; MF 417; 1975; OFR 75-429).

Commodities:

Main: Au

Other: Sn, W

Ore minerals: Cassiterite, gold, scheelite

Gangue minerals:

Geologic description:

Sainsbury and others (1969) show 9,000 feet of placer workings along the channel of Dick Creek in its headwater reaches. This location is across the continental divide (about 1,140 feet high here) and about 2.3 miles north of the placer workings on Mascot Gulch (BN044). Because there is indication that placer mining took place near the mouth of Dick Creek (locality TE070, Hudson, 1998), the area of mining here may be more extensive than that shown by Sainsbury and others (1969). The presence of stream tin (cassiterite) in the gravels was reported in 1906 (Hess, 1906, p. 157) and mining took place at least by 1908 (Collier and others, 1908). Anderson (1947) reported that both scheelite and cassiterite were present in this drainage. Mining was continuous from 1927 to 1940 and included some dredging (Cobb, 1975, OFR 75-429). Some mining took place as recently as 1952 (Cobb, 1973, B 1374)). The character of the placer deposits has not been described but all mining appears to have been in the main channel and floodplain of Dick Creek; bench placers are apparently not present. Bedrock in the area is part of a Lower Paleozoic metasedimentary assemblage (Sainsbury and others, 1969; Till and

others, 1986).

Alteration:

Age of mineralization:
Quaternary

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

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

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:
Sainsbury and others (1969) show 9,000 feet of placer workings in the headwater reaches of Dick Creek. However, because mining is also indicated near the mouth (locality TE070, Hudson, 1998) and because there is a long history of mining of this creek (including dredging, Cobb, 1975), the area of placer mine workings may be more extensive than that shown by Sainsbury and others (1969).

Production notes:

Reserves:

Additional comments:

References:
Hess, 1906; Collier and others, 1908; Anderson, 1947; Sainsbury and others, 1969; Cobb, 1972 (MF 417); Cobb, 1973 (B 1374); Cobb, 1975 (OFR 75-429); Till and others, 1986.

Primary reference: Cobb, 1975 (OFR 75-429)

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Midnight Mountain

Site type: Prospect

ARDF no.: BN047

Latitude: 65.76 **Quadrangle:** BN D-6

Longitude: 164.59

Location description and accuracy:

Midnight Mountain is a prominent upland reaching an elevation of 2,720 feet in the southeast part of the Bendeleben D-6 quadrangle. It is located on the continental divide which separates the drainages of the Serpentine River (Schlitz Creek) and Kougarok River (Taylor Creek) in this area. This location is on the south flank of Midnight Mountain at an elevation of about 2,100 feet.

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals: Arsenopyrite, quartz

Geologic description:

Midnight Mountain is composed of Lower Paleozoic metasedimentary rocks on its northwest side and polydeformed pelitic schist of possible Precambrian age elsewhere (Hudson, 1984; Till and others, 1986). Surface material in the prospect area is frost-riven rubble; outcrops are restricted to a few places at higher elevations on Midnight Mountain. White quartz veinlets and stringers are ubiquitous in the metasedimentary rocks of this area. On the south flank of the mountain, quartz vein fragments are associated with rust-stained frost boils and some contain arsenopyrite. Here, soil and selected rock samples collected over a length of about 2,000 feet between elevations of 2,000 and 2,100 feet contain highly anomalous amounts of gold and arsenic (Hudson, 1984). Iron oxide-stained soil samples, commonly with quartz vein fragments, contain up to 725 ppb Au and greater than 1,000 ppm As. Quartz vein fragments, some with visible arsenopyrite, contain up to 765 ppb gold and greater than 1,000 ppm arsenic. This gold-bearing area seems to be mostly in altered and quartz-veined polydeformed metapelitic schist on the south side of Midnight Mountain. Bedrock exposures of this mineralization have not been observed. Lode gold deposits in the upper Kougarok River area, including this prospect on Midnight Mountain, may be associated with emplacement and crystallization of the Oonatut Granite Complex. The Midnight Mountain prospect is 4 to 4.5 miles south of

outcrops of the Oonatut Granite Complex (Hudson, 1979). Regional gravity data show that the Oonatut Granite is extensively distributed in the subsurface (Barnes and Hudson, 1977); it probably extends to the south under the Midnight Mountain area (McDermott, 1983). The Oonatut Granite is part of the western Seward Peninsula tin granite suite (Hudson and Arth, 1983). K/Ar ages for the Oonatut Granite Complex are about 70 my (Hudson, 1979, p. 24).

Alteration:

The area contains abundant small quartz veins, veinlets, and stringers in pelitic metasedimentary rocks. Iron oxide-staining of frost-riven soils is well-developed in the area of anomalous gold and arsenic samples.

Age of mineralization:

The epigenetic mineralization here is probably mid- to Late Cretaceous in age. Lode gold deposits in the upper Kougarok River area, including this prospect on Midnight Mountain, may be associated with emplacement and crystallization of the Oonatut Granite Complex. The Midnight Mountain prospect is 4 to 4.5 miles south of outcrops of the Oonatut Granite Complex (Hudson, 1979). Regional gravity data show that the Oonatut Granite is extensively distributed in the subsurface (Barnes and Hudson, 1977) and that it probably estends to the south under the Midnight Mountain area (M. McDermott, unpublished data, 1983). This large exposed granite complex is part of the western Seward Peninsula tin granite suite (Hudson and Arth, 1983). K/Ar ages for the Oonatut Granite Complex are about 70 my. Alternatively, gold-bearing mineralization here may be similar in age to some lode gold deposits of southern Seward Peninsula. The southern Seward Peninsula lode gold deposits formed as a result of mid-Cretaceous metamorphism (Apodoca, 1994; Ford, 1993, Ford and Snee, 1996; Goldfarb and others, 1997) that accompanied regional extension (Miller and Hudson, 1991) and crustal melting (Hudson, 1994). This higher temperature metamorphism was superimposed on high pressure/low temperature metamorphic rocks of the region.

Deposit model:

Gold-bearing quartz veins and schist

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

Production Status: None

Site Status: Inactive

Workings/exploration:

There are no workings on this prospect.

Production notes:

Reserves:

Additional comments:

References:

Barnes and Hudson, 1977; Hudson, 1979; Hudson and Arth, 1983; McDermott, 1983; Hudson, 1984; Till and others, 1986; Miller and Hudson, 1991; Ford, 1993; Apodoca, 1994; Hudson, 1994; Ford and Snee, 1996; Goldfarb and others, 1997.

Primary reference: Hudson, 1984

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Unnamed (near headwaters of Midnight Creek)

Site type: Occurrence

ARDF no.: BN048

Latitude: 65.8 **Quadrangle:** BN D-6

Longitude: 164.52

Location description and accuracy:

This location is 1,500 feet east of the headwaters of Midnight Creek, a north tributary to Taylor Creek. It is a flat southeast-trending spur at 1,950 feet elevation that is 8,000 to 8,500 feet east of elevation 2,370 feet on the continental divide. The continental divide separates the headwaters of Hot Springs Creek and Midnight Creek.

Commodities:

Main: Ag, Au, Pb

Other: Cu, Zn

Ore minerals:

Gangue minerals: Iron-oxides, quartz

Geologic description:

A linear altered zone in polydeformed metapelitic schist of possible Precambrian age (Till and others, 1986) trends about N 55 W across this spur. Sainsbury and others (1970) indicate that rusty graphitic schist and quartz vein fragments are present over a length of 2,000 feet. A sample of iron-stained fracture fillings contained 0.8 ppm Au, 700 ppm Ag, 10,000 ppm As, 1,500 ppm Cu, greater than 10,000 ppm Pb, 150 ppm Sb, and 5,000 ppm Zn. A composite grab sample of surface float collected along 300 feet of the altered zone contained 0.02 ppm gold, 3 ppm Ag, 300 ppm As, 150 ppm Cu, 1,500 ppm Pb, and 500 ppm Zn (Sainsbury and others, 1970, Table 2). The altered zone is probably developed along a high-angle fault. This occurrence, and other nearby occurrences in the headwaters of Humbolt and Ferndale Creeks to the north (BN049-BN052), are interpreted to be structurally above subsurface extensions of the Oonatut Granite Complex (Hudson, 1979). The Oonatut Granite outcrops 2.5 miles to the northwest of this occurrence. This large exposed granite complex is part of the western Seward Peninsula tin-granite suite (Hudson and Arth, 1983). Sainsbury and others (1970, p. H8) suggest that the polymetallic character of the mineralization in this altered zone is similar to what is found in the peripheral silver zone of tin deposit systems. However, only pan concentrate samples from this occurrence had anomalous tin values (to 200 ppm, Sainsbury and others, 1970, Table 2).

Alteration:

Quartz veining and iron-oxide fracture fillings and staining are common. There may have been some clay development. Unoxidized mineralization probably contains pyrite and base metal sulfides.

Age of mineralization:

Probably Late Cretaceous; this occurrence may be associated with emplacement and crystallization of the Oonatut Granite Complex. K/Ar ages for the Oonatut Granite Complex are about 70 my (Hudson, 1979).

Deposit model:

Polymetallic veins developed peripheral to tin deposits

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

Production Status: None

Site Status: Inactive

Workings/exploration:

Shallow hand-dug prospect pits may be present.

Production notes:

Reserves:

Additional comments:

References:

Sainsbury and others, 1970; Hudson, 1979; Hudson and Arth, 1983; Till and others, 1986.

Primary reference: Sainsbury and others, 1970

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Unnamed (northwest of headwaters of Humbolt Creek)

Site type: Occurrence

ARDF no.: BN049

Latitude: 65.82 **Quadrangle:** BN D-6

Longitude: 164.51

Location description and accuracy:

This occurrence is on a level spur, at 2,000 feet elevation, 1,000 feet northwest of the upstream termination of the west headwater tributary of Humbolt Creek. Humbolt Creek is a northeast-flowing tributary to Goodhope River. This location is 2,000 feet north of the continental divide and 5,000 feet north-northwest of ARDF locality BN048.

Commodities:

Main: Au

Other: Cu, Pb, Sn, Zn

Ore minerals:

Gangue minerals: Quartz

Geologic description:

Till and others (1986) show bedrock here to be part of a polydeformed metapelitic schist that may be Precambrian in age. Sainsbury and others (1970) indicate that rusty and quartz-veined metasedimentary rocks are present over parts of this ridge spur. This and other nearby altered zones (BN048, BN050, BN052) have been interpreted to be localized along normal faults (Sainsbury and others, 1970) that are structurally above subsurface parts of the Oonatut Granite Complex (Hudson, 1979) which outcrops 11,000 feet to the northwest. Samples of rust-stained quartz veins and brecciated quartz veins contain 0.02 to 0.06 ppm Au and up to 500 ppm As (Sainsbury and others, 1970, Table 2). Base metals were only weakly to moderately anomalous in these samples but two had tin contents of 200 ppm. The Oonatut Granite is part of the western Seward Peninsula tin granite suite (Hudson and Arth, 1983).

Alteration:

The altered zones contain quartz veins and are commonly iron-oxide stained. Clay alteration may be present.

Age of mineralization:

Probably Late Cretaceous; this occurrence may be associated with emplacement and

crystallization of the Oonatut Granite Complex. K/Ar ages for the Oonatut Granite Complex are about 70 my (Hudson, 1979).

Deposit model:
Quartz veins in schist

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

Production Status: None

Site Status: Inactive

Workings/exploration:
Shallow hand-dug prospect pits may be present.

Production notes:

Reserves:

Additional comments:

References:
Sainsbury and others, 1970; Hudson, 1979; Hudson and Arth, 1983; Till and others, 1986.

Primary reference: Sainsbury and others, 1970

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Unnamed (Ferndale Creek)

Site type: Prospect

ARDF no.: BN050

Latitude: 65.83 **Quadrangle:** BN D-6

Longitude: 164.54

Location description and accuracy:

This occurrence is on a flat ridge crest at an elevation of 2,220 feet; it overlooks the headwaters of Hot Springs Creek and Ferndale Creek (a tributary to Humbolt Creek, Hudson, 1979, Plate 1). It is one mile north of the continental divide and 2,000 feet east of outcrops of the Oonatut Granite Complex (Hudson, 1979).

Commodities:

Main: Ag, Pb, Zn (gold has not been determined for samples from this occurrence)

Other: Cu, Sn

Ore minerals:

Gangue minerals: Clay minerals (?), iron oxides, quartz

Geologic description:

A very fine-grained granite dike trends N 80 W west and intrudes hornfels in the country rocks to the Oonatut Granite Complex here (Hudson, 1979). This dike and adacent country rocks have been altered and rust-stained soils, rock fragments, and small gossan fragments are localized along the trend of the dike. The presence of slickensided rock fragments in the soils suggests that the dike was emplaced along a fault that has had recurring movement. Twelve composite grab samples of soil, altered rocks, and gossan fragments collected across the altered zone contain up to 150 ppm Ag, 10,000 ppm As, 200 ppm Cd, 500 ppm Cu, greater than 20,000 ppm Pb, greater than 10,000 ppm Zn, and 700 ppm Sn. Gold was not determined (Hudson, 1979, p. 26). The length of the altered zone that was sampled is about 1,000 feet. This altered zone is interpreted to have developed above buried parts of the Oonatut Granite Complex and to be related to its crystallization. The Oonatut Granite is part of the western Seward Peninsula tin granite suite (Hudson and Arth, 1983) and the polymetallic character of this mineralization may be reflective of the lead-zinc zone in tin deposit systems (Hudson, 1979).

Alteration:

Iron-oxide staining and bleached discoloration are common; some clay development is probably present.

Age of mineralization:
Probably Late Cretaceous; this occurrence is thought to be related to emplacement and crystallization of the Oonatut Granite Complex. K/Ar ages for the Oonatut Granite Complex are about 70 my (Hudson, 1979).

Deposit model:
Sulfide veining or impregnations in hornfels and granite dike

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

Production Status: None

Site Status: Inactive

Workings/exploration:
Shallow hand-dug prospect pits may be present.

Production notes:

Reserves:

Additional comments:

References:
Sainsbury and others, 1970; Hudson, 1979; Hudson and Arth, 1983.

Primary reference: Hudson, 1979

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Unnamed (near headwaters of Humbolt Creek)

Site type: Occurrence

ARDF no.: BN051

Latitude: 65.81 **Quadrangle:** BN D-5

Longitude: 164.48

Location description and accuracy:

This occurrence is on the north side of the central headwater tributary to Humbolt Creek. Humbolt Creek is a northeast-flowing tributary to Goodhope River. The occurrence is 3,500 to 4,000 feet north of the continental divide and about 500 feet north of the the Humbolt Creek headwater. The locality is plotted separately by Sainsbury and others (1970, sample locality 23, Plate 1).

Commodities:

Main: Ag, Au, Pb

Other: Sn, Zn

Ore minerals: Galena

Gangue minerals: Quartz

Geologic description:

Sainsbury and others (1970, Table 2) give analytical data for several rock and pan concentrate samples from this locality. It is in an area of extensive tundra cover (Till and others, 1986) and only 2,500 feet southeast of another galena-bearing locality (BN052). The possibility exists that the samples reported from here are actually from the unnamed galena-bearing occurrence closer to Humbolt Creek (BN052). However, this occurrence is described separtely in keeping with the location given by Sainsbury and others (1970). Samples from this locality are described as galena in schist, stained float below galena prospect, quartz and galena, and cemented fault breccia (Sainsbury and others, 1970, Table 2). These samples contained up to 0.2 ppm Au, 150 ppm Ag, 500 ppm As, greater than 20,000 ppm Pb, 300 ppm Sb, 300 ppm Sn, and 1,500 ppm Zn. Epigenetic mineralization in this area is interpreted to have introduced into low grade, Lower Paleozoic metasedimentary rocks over buried parts of the Oonatut Granite Complex. The Oonatut Granite is part of the western Seward Peninsula tin granite suite (Hudson and Arth, 1983) and the polymetallic character of this mineralization may be reflective of the lead-zinc zone in tin deposit systems (Hudson, 1979).

Alteration:

Age of mineralization:
Probably Late Cretaceous; this occurrence may be related to emplacement and crystallization of the Oonatut Granite Complex. K/Ar ages for the Oonatut Granite Complex are about 70 my (Hudson, 1979).

Deposit model:
Quartz and sulfide veins in schist

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

Production Status: None

Site Status: Inactive

Workings/exploration:
Shallow hand-dug prospect pits may be present.

Production notes:

Reserves:

Additional comments:

References:
Sainsbury and others, 1970; Hudson, 1979; Hudson and Arth, 1983; Till and others, 1986.

Primary reference: Sainsbury and others, 1970

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Unnamed (near headwaters of Humbolt Creek)

Site type: Occurrence

ARDF no.: BN052

Latitude: 65.81 **Quadrangle:** BN D-5

Longitude: 164.49

Location description and accuracy:

This occurrence is on the north side of the ridge overlooking the main west headwater tributary to Humbolt Creek. Humbolt Creek is a northeast-flowing tributary to Goodhope River. It is at an elevation of 1,460 feet adjacent to a flat spot on the ridge and 5,300 feet north of the continental divide. This is locality 2 of Cobb (1972; MF 417; 1975; OFR 429).

Commodities:

Main: Ag, Au, Pb

Other: Cu, Sn, Zn

Ore minerals: Galena

Gangue minerals: Iron oxides, quartz

Geologic description:

This occurrence is poorly exposed at the break in slope on the north side of the ridge overlooking the main west headwater tributary to Humbolt Creek. It appears to be associated with an altered fault zone that trends N 50 W and contains veins, veinlets, stringers and disseminations of quartz and iron oxide staining over a distance of at least 2,500 feet (Sainsbury and others, 1970; Hudson, 1979). The fault zone and related mineralization is in lower Paleozoic metasedimentary rocks. This fault appears to mark the boundary between Lower Paleozoic metasedimentary rocks and polydeformed, metapelitic schist that may be Precambrian in age (Till and others, 1986). Float of argentiferous galena was sampled from an old caved prospect pit at this locality. This sample contained 0.8 ppm Au, 5,000 ppm Ag, 700 ppm As, 9 ppm Hg, 3,000 ppm cu, greater than 20,000 ppm Pb, 1,500 ppm Sb, greater than 1,500 ppm Sn, 150 ppm Mo, and 3,000 ppm Zn. Samples of frost-heaved bedrock taken over a 1,000 by 200 feet area contained anomalous levels of Au, Ag, Pb, Hg, As, Mo, Sb, Sn, Cu, and Zn (Sainsbury and others, 1970). Epigenetic mineralization in this area is interpreted to have developed above buried parts of the Oonatut Granite Complex. The Oonatut Granite, exposed 2.5 miles to the northwest, is part of the western Seward Peninsula tin granite suite (Hudson and Arth, 1983). The polymetallic character of this mineralization may be reflective of the lead-zinc zone in tin

deposit systems (Hudson, 1979).

Alteration:

Quartz veining and oxidation of iron-bearing sulfide minerals is common along a high angle fault zone.

Age of mineralization:

Probably Late Cretaceous; this occurrence is probably related to emplacement and crystallization of the Oonatut Granite Complex. K/Ar ages for the Oonatut Granite Complex are about 70 my (Hudson, 1979).

Deposit model:

Polymetallic quartz and sulfide-bearing veins and stringers along a fault zone in metasedimentary rocks

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

Production Status: No

Site Status: Inactive

Workings/exploration:

Shallow hand-dug prospect pits are present.

Production notes:

Reserves:

Additional comments:

References:

Sainsbury and others, 1970; Cobb, 1972 (MF 417); Cobb, 1975 (OFR 75-429); Hudson, 1979; Hudson and Arth, 1983; Till and others, 1986.

Primary reference: Sainsbury and others, 1970

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Humboldt Creek

Site type: Mine

ARDF no.: BN053

Latitude: 65.84 **Quadrangle:** BN D-5

Longitude: 164.42

Location description and accuracy:

About 5,000 feet of placer gold mine workings are present along the main channel of upper Humbolt Creek. Humbolt Creek is a northeast-flowing tributary to Goodhope River. The placer mine workings begin about 6 miles upstream of the mouth of Ballard Creek, a southeast tributary to Humbolt Creek. This is locality 20 of Cobb (1972; MF 417; 1975; OFR 75-429).

Commodities:

Main: Au, Sn

Other:

Ore minerals: Cassiterite, gold

Gangue minerals: Hematite, magnetite, pyrite (abundant)

Geologic description:

The headwaters of Humbolt Creek are in an area southeast of the Oonatut Granite Complex (Hudson, 1979; Hudson and Arth, 1983). This area, consists of a Lower Paleozoic metasedimentary assemblage and a polydeformed, metapelitic schist of possible Precambrian age (Till and others, 1986); it is interpreted to be over buried extensions of the Oonatut Granite (Barnes and Hudson, 1977; Hudson, 1979). Cassiterite-rich mineralized zones have not been identified in the headwater bedrock but several high angle fault zones with polymetallic veins (BN048, BN 049, BN050, BN051, BN052) are probably part of tin metallizing systems. The alluvial gravels of Humbolt Creek carry significant gold, for which they have been placer mined, and abundant cassiterite. As early as 1908, gold-bearing concentrate with abundant pyrite and cassiterite was reported (Knopf, 1908). Hydraulic mining and dozer/sluice operations along 5,000 feet of the stream channel took place primarily before WW II (Cobb, 1975). The abundance of cassiterite was a handicap to gold mining; as much as 30 tons of tin concentrate (containing 36,000 pounds of metallic tin) were produced in 1919 (Brooks and Martin, 1921). Most of the cassiterite that was recovered by placer mining was not marketed; oil drums containing cassiterite-rich concentrate (60 % tin) were still stored at this location in the 1960's (Sainsbury and others, 1968). The recovered cassiterite included nuggets up to 4 inches across, some show

crystal faces, some are brecciated, and some iare ntergrown with quartz (Sainsbury and others, 1968). Gold and cassiterite can be panned from the surface down through several feet of unmined gravel near the headwater fork of the creek. The gravels here are not mined out (Cobb, 1975, OFR 75-429). The cassiterite-bearing placer deposits are the best indication that significant tin metallization has occurred in the headwaters of the drainage.

Alteration:

Age of mineralization:
Quaternary

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

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

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:
About 5,000 feet of placer gold mine workings are present along the main channel of Humbolt Creek. Some test pits and shafts are present in unmined areas.

Production notes:
The abundance of cassiterite was a handicap to gold mining; as much as 30 tons of tin concentrate (containing 36,000 pounds of metallic tin) were produced in 1919 (Brooks and Martin, 1921). Most of the cassiterite that was recovered by placer mining was not marketed; oil drums containing cassiterite-rich concentrate (60 % tin) were still stored at this location in the 1960's (Sainsbury and others, 1968).

Reserves:

Additional comments:

References:
Knopf, 1908; Brooks and Martin, 1921; Sainsbury and others, 1968; Cobb, 1972 (MF 417); Cobb, 1975 (OFR 75-429); Barnes and Hudson, 1977; Hudson, 1979; Hudson and Arth, 1983; Till and others, 1986.

Primary reference: Sainsbury and others, 1968

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Esperanza Creek

Site type: Mine

ARDF no.: BN054

Latitude: 65.8 **Quadrangle:** BN D-4

Longitude: 163.8

Location description and accuracy:
Esperanza Creek is a south tributary to Goodhope River. This location is very approximate and is arbitrarily chosen on the lower part of the creek at an elevation of 250 feet, 3.1 miles north of the continental divide. It is locality 55 of Cobb (1972; MF 417; 1975; OFR 75-429).

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:
Gold was discovered on Esperanza Creek in 1907-1908 (Smith, 1909). Gold is present in the narrow main channel where gravels are exposed between muck banks. The exact location of this discovery and the small amount of mining is not known. It is assumed to be along the lower part of the creek where the stream valley is narrow. There is extensive surficial cover in this area and bedrock, exposed locally on uplands, is mostly part of a schistose impure marble assemblage of probable Paleozoic age(Sainsbury, 1975; Till and others, 1986) . At least part of this bedrock assemblage is probably equivalent to Ordovician impure marble known elsewhere on Seward Peninsula (Till and others, 1986). Quaternary/Tertiary basalt flows locally cap the valley walls in this area.

Alteration:

Age of mineralization:
Quaternary

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

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

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:
Small surface placer mine workings are probably present; probably mostly accomplished by hand.

Production notes:

Reserves:

Additional comments:

References:
Smith, 1909; Cobb, 1972 (MF 417); Cobb, 1975 (OFR 75-429); Sainsbury, 1975; Till and others, 1986.

Primary reference: Cobb, 1975 (OFR 75-429)

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Harrys Creek

Site type: Prospect

ARDF no.: BN055

Latitude: 65.927 **Quadrangle:** BN D-3

Longitude: 163.342

Location description and accuracy:

Harrys Creek is a small headwater tributary to Cunningham Creek, a north tributary to Hannum Creek. Hannum Creek is a north tributary to Inmachuk River. This prospect extends across Harrys Creek approximately 1,500 feet upstream of its mouth. It is locality 7 of Cobb (1972; MF 417; 1975; 75-429).

Commodities:

Main: Ag, Au, Pb, Zn

Other:

Ore minerals: Boulangerite, galena, sphalerite

Gangue minerals: Pyrite, quartz

Geologic description:

A poorly exposed, interlayered metasedimentary schist and dolomitic marble sequence strikes northwest across Harrys Creek and dips moderately (15 to 65 degrees) to the north in the general area. The presence of lode galena deposits was noted by 1905 (Moffit, 1905). On both sides of Harrys Creek, over a distance of 1,400 feet, local deeply weathered and gossanous exposures of bedrock and surficial debris in dozer trenches show evidence of alteration and mineralization in marble and siliceous schist (Hudson and others, 1977). The mineralization is near a contact between dolomitic marble and siliceous schist (Hudson and others, 1977). Herreid (1966) describes the silica-rich rock as quartzite and interprets it to be silicified marble. The silica-rich zones are coarse-grained, porous, and contain some quartz crystal-lined cavities (Herreid, 1966). Mineralization includes pods, veinlets, and disseminations of galena in silica-rich rock, in places with disseminated pyrite and sphalerite. Pebbles and cobbles of massive galena are abundant in the stream bed of Harrys Creek at and below the dolomitized marble. Boulangerite is disseminated with galena in gossan float from a dozer trench on the south side of the creek (Herreid, 1966). Light brown surficial material containing fragments of silica-rich rock and massive limonite gossan contained 0.05 % Cu, 4.0 % Pb, 0.62 % Zn, 0.04 ounces/ton Au, and 1 ounces/ton Ag. An 18 inch-wide gossan with a 2 to 3 inch core of galena assayed 0.05 % Cu, 10.0 % Pb, 2.2 % Zn, 1.76 ounces/ton Ag, and nil Au. Other elements were not de-

termined in these two samples (Herreid, 1966, Table 1). Samples of surficial materials from slopes and dozer trenches have highly anomalous lead contents (greater than 1,000 ppm) over a length of 1,250 feet. These samples also contain some significant zinc anomalies (to greater than 1,000 ppm) but not copper; other elements were not analyzed for in these samples (Herreid, 1966, Table 2). Sampling by Mulligan (1965) also indicated traces of gold in the mineralized zones. The 1,400 foot length of this mineralized zone is indicated by natural exposures near the creek and six dozer trenches (totaling 1,250 feet of length) on the south side of the creek (Herried, 1966, Figure 2). The dozer trenches primarily expose deeply weathered material and not bedrock. Burand (1957) collected a series of 5-foot channel samples in two of the dozer trenches; (1) five samples of yellow, sandy soil with visible quartz and galena contained 2.3 to 5.8 % Pb, 0.37 to 10.11 ounces/ton Ag, and nil to 0.06 opunces/ton Au, (2) eight samples over poorly exposed carbonate-bearing bedrock contained 1.7 to 6.2 % Pb, 0.23 to 7.52 ounces/ton Ag, and nil to 0.03 ounces/ton Au, and (3) five fivesamples over a yellow clay-rich zone contained 2.3 to 9.6 % Pb, 6.42 to 10.09 ounces/ton Ag, and 0.01 to 0.06 ounces/ton Au. The mineralized zone is open to both the northwest and southeast. Similar mineralization is present on Hannum Creek (BN056), 4,000 feet southeast and on strike with the eastern exposures of this locality.

Alteration:

Development of silica-rich rock is characteristic; variably developed but extensive. The deposit is deeply weathered and oxidized. Dolomitic marble is also present.

Age of mineralization:

The deposit may be epigenetic and younger than the host metasedimentary rocks. Epigenetic deposits on Seward Peninsula are primarily Cretaceous in age, a significant period of regional metamorphism and granitic plutonism. The Inmachuk River and many of its tributaries, including Cunningham and Hannum Creeks, contain signficant placer gold deposits. Some lode gold deposits on southern Seward Peninsula are mid-Cretaceous in age (see Midnight Mountain, BN047). If the deposit is stratiform, it may be similar in age to its host sedimentary rocks. The protoliths for the metasedimentary rocks in this area are lower Paleozoic in age (Till and others, 1986).

Deposit model:

Sulfide-bearing pods, veinlets, and disseminations in silica-rich metasedimentary rocks; it is not clear whether this is a recrystallized stratiform deposit or an epigenetic deposit much younger than its host rocks. It has a polymetallic character with significant precious metal values.

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

Production Status: None

Site Status: Inactive

Workings/exploration:

Six dozer trenches (totaling 1,250 feet of length) are present on the south side of the creek (Herried, 1966, Figure 2). The dozer trenches primarily expose deeply weathered material and not bedrock. The mineralized zone is open to both the northwest and southeast. Similar mineralization is present on Hannum Creek (BN056), 4,000 feet southeast and on strike with the eastern exposures of this locality.

Production notes:

Reserves:

Additional comments:

References:

Moffit, 1905; Burand, 1957; Mulligan, 1965; Herreid, 1966; Cobb, 1972 (MF 417); Cobb, 1975 (OFR 75-429); Hudson and others, 1977; Till and others, 1986.

Primary reference: Herreid, 1966

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Hannum

Site type: Prospect

ARDF no.: BN056

Latitude: 65.921 **Quadrangle:** BN D-3

Longitude: 163.318

Location description and accuracy:

The Hannum prospect is on the west bank of the headwater part of Hannum Creek, 1,000 feet upstream of the confluence with Cunningham Creek. Hannum Creek is a north tributary to Inmachuk River. This is locality 8 of Cobb (1972; MF 417; 1975; OFR 75-429).

Commodities:

Main: Pb, Zn

Other: As, Ba

Ore minerals: Galena, sphalerite

Gangue minerals: Arsenopyrite (?), barite (?), calcite, limonite, pyrite, quartz

Geologic description:

A poorly exposed, interlayered metasedimentary schist and dolomitic marble sequence strikes northwest and dips moderately (15 to 65 degrees) to the north in the general area. Part of this meatsedimentary sequence is siliceous and described as quartzite (Herried, 1966). Herried considers the quartzite here and at Harrys Creek (BN055), 4,000 feet to the northwest, to be replacements of marble (silicified marble). Hudson and others (1977) described outcrops of the silica-rich rock on Harrys Creek as siliceous schist. The frozen ground in the Hannum prospect area has handicapped efforts to expose bedrock (Mulligan, 1965; Herreid, 1966). Although dozer trenching along the west bank of Hannum Creek is extensive (totalling about 1,500 feet in at least 6 different trenches) mineralization was only locally exposed; a 30 foot-wide gossan zone within marble is exposed in one trench. Mineralization is apparently pods and stringers of sulfides (primarily galena, sphalerite and pyrite) in silica-rich rock. An assay of a 6-foot wide siliceous zone contained 0.05 % Cu, 0.38 % Zn, and 0.12 % Pb, and nil amounts of Ag and Au (Herried, 1966, Table 1). Soil samples collected upslope 125 to 375 feet to the west, contained anomalous lead and zinc values (to greater than 1,000 ppm); soil samples in this prospect area commonly contain more anomalous zinc than lead values (Herreid, 1966, Table 2). Although continuity of mineralization over the 4,000 feet of strike length between the Hannum prospect and Harrys Creek (BN055) to the west is possible, it has not been dem-

onstrated.

Alteration:

Development of silica-rich rock is characteristic. The deposit is deeply weathered and oxidized.

Age of mineralization:

The deposit may be epigenetic and younger than the host metasedimentary rocks. Epigenetic deposits on Seward Peninsula are primarily Cretaceous in age, a time of significant regional metamorphism and granitic plutonism. The Inmachuk River and many of its tributaries, including Cunningham and Hannum Creeks, contain signficant placer gold deposits. Some lode gold deposits on southern Seward Peninsula are mid-Cretaceous in age (see Midnight Mountain, BN047). If the deposit is stratiform, it may be similar in age to its host sedimentary rocks. The protoliths for the metasedimentary rocks in this area are lower Paleozoic in age (Till and others, 1986).

Deposit model:

Sulfide-bearing pods and disseminations in silica-rich metasedimentary rocks; it is not clear whether this is a recrystallized stratiform deposit or an epigenetic deposit much younger than its host rocks

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

Production Status: No

Site Status: Active?

Workings/exploration:

Dozer trenching along the west bank of Hannum Creek is extensive; it totals about 1,500 feet in at least 6 different trenches. Mineralization was only locally exposed; a 30 foot-wide gossan zone within marble is exposed in one trench.

Production notes:

Reserves:

Additional comments:

References:

Mulligan, 1965; Herried, 1966; Cobb, 1972 (MF 417); Cobb, 1975 (OFR 75-429); Hudson and others, 1977; Till and others, 1986.

Primary reference: Herried, 1966

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Hannum Creek

Site type: Mine

ARDF no.: BN057

Latitude: 65.917 **Quadrangle:** BN D-3

Longitude: 163.232

Location description and accuracy:
Placer gold mining has occurred for over 4 miles of the channel of Hannum Creek, extending from the mouth of Collins Creek (a south tributary to Hannum Creek) upstream to the confluence with Cunningham Creek. Hannum Creek is a north tributary to Inmachuk River. This is locality 69 of Cobb (1972; MF 417; 1975; OFR 75-429).

Commodities:

Main: Au

Other: Pb, Sn

Ore minerals: Cassiterite, galena, gold

Gangue minerals: Hematite, pyrite

Geologic description:
Gold was discovered on Hannum Creek in 1900 (Moffit, 1905) and placer mining has occurred for over 4 miles of the channel, from the mouth of Collins Creek upstream to the confluence with Cunningham Creek. Gold is irregularly distributed on schist bedrock that is locally decomposed to blue clay. Gravels in the creek are 2-6 ft thick and the paystreak was 6 inches to 4 feet thick, with widths up to 100 feet. Galena (with hematite and pyrite) was recognized in early in placer concentrate (Moffit, 1905) and cassiterite was reported in 1947 (Anderson, 1947). Galena- and sphalerite-bearing lode deposits are present in headwaters to Hannum Creek (BN056) and Cunningham Creel (Harrys Creek, BN055). Bedrock of the area is a metasedimentary schist and marble sequence of Lower Paleozoic age (Till and others, 1986). Quaternary/Teritiary basalt flows locally cap ridges along the Hannum Creek valley.

Alteration:

Age of mineralization:
Quaternary

Deposit model:

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

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

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:
Over 4 miles of surface, open-cut placer workings are present along the channel of Hannum Creek, extending from the mouth of Collins Creek (a south tributary) upstream to the confluence with Cunningham Creek.

Production notes:

Reserves:

Additional comments:

References:
Moffit, 1905; Anderson, 1947; Cobb, 1972 (MF 417); Cobb, 1975 (OFR 75-429); Till and others, 1986.

Primary reference: Cobb, 1975 (OFR 75-429)

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Unnamed occurrence (Inmachuk River)

Site type: Occurrence

ARDF no.: BN058

Latitude: 65.9 **Quadrangle:** BN D-3

Longitude: 163.3

Location description and accuracy:
This occurrence is supposed to be on the left limit of the Inmachuk River, on the ridge between Inmachuk River and Collins Creek. The location is very approximate and unconfirmed. It is locality 6 of Cobb (1972; MF 417; 1975; OFR 75-429).

Commodities:

Main: Ag, Pb

Other:

Ore minerals: Galena

Gangue minerals: Limonite, magnetite, pyrite

Geologic description:
Mertie (1919) described a sample said to be from this occurrence as containing galena, magnetite, limonite, and pyrite. The galena was supposedly argentiferous. The gossanous character of the occurrence was reported by Anderson (1947), but its location and nature have not been confirmed. Bedrock of the area is a metasedimentary schist and marble sequence of Lower Paleozoic age (Till and others, 1986).

Alteration:
A gossanous, limonitic cap is reportedly developed.

Age of mineralization:
Unknown

Deposit model:
Galena in metasedimentary rocks; epigenetic (?); stratiform (?)

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

Production Status: No

Site Status: Inactive

Workings/exploration:

Anderson (1947) reports that some development work has taken place; surface prospecting pits are most likely.

Production notes:

Reserves:

Additional comments:

All references to this site are from secondary sources and the site was not visited by USGS personnel during 1982 field work in the area.

References:

Mertie, 1918; Anderson, 1947; Cobb, 1972 (MF 417); Cobb, 1975 (OFR 75-429); Till and others, 1986.

Primary reference: Cobb, 1975 (OFR 75-429)

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Nelson Creek

Site type: Occurrence

ARDF no.: BN059

Latitude: 65.85 **Quadrangle:** BN D-3

Longitude: 163.19

Location description and accuracy:

Nelson Creek is a small north tributary to Old Glory Creek; the mouth of Nelson Creek is 6,500 feet upstream of the confluence of Old Glory Creek and American Creek. Old Glory Creek is a southwest tributary to Pinnell River. This is part of locality 72 of Cobb (1972; MF 417; 1975; OFR 75-429).

Commodities:

Main: Au

Other: Ag

Ore minerals:

Gangue minerals: Clay (?), pyrite (?), quartz

Geologic description:

An abandoned placer cut on a north bench just above the mouth of Nelson Creek exposes schist bedrock containing quartz segregations and boudins. A sample of boudined quartz and some enclosing schist assayed 0.02 ounces/ton Au, 0.10 ounces/ton Ag, 0.05 % Cu, 0.05 % Pb, and 0.05 % Zn (Herried, 1966, Table 1). Herried (1966) also reported this analytical result as $0.70 per ton gold (not 0.70 ounces/ton Au as restated by Cobb, 1975, and Hudson and others, 1977). The bedrock here is locally bleached and cut by a clay altered zone. Bedrock of the area is a metasedimentary schist and marble sequence of Lower Paleozoic age (Till and others, 1986).

Alteration:

Schist is bleached locally and crosscut by a zone of clay alteration.

Age of mineralization:

Epigenetic mineralization in metamorphic rocks of Seward Peninsula is primarily of Cretaceous age. Some lode gold deposits on southern Seward Peninsula are mid-Cretaceous in age (see Midnight Mountain, BN047).

Deposit model:

Quartz veins and segregations in metasedimentary rocks.

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

Production Status: No

Site Status: Inactive

Workings/exploration:

An abandoned placer cut on a north bench just above the mouth of Nelson Creek exposes schist bedrock containing quartz segregations and boudins.

Production notes:

Reserves:

Additional comments:

References:

Herreid, 1966; Cobb, 1972 (MF 417); Cobb, 1975 (OFR 75-429); Hudson and others, 1977; Till and others, 1986.

Primary reference: Herried, 1966

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Nelson Creek; Nelson Gulch

Site type: Mine

ARDF no.: BN060

Latitude: 65.848 **Quadrangle:** BN D-3

Longitude: 163.181

Location description and accuracy:
Nelson Creek is a small north tributary to Old Glory Creek; the mouth of Nelson Creek is 6,500 feet upstream of the confluence of Old Glory Creek and American Creek. Old Glory Creek is a southwest tributary to Pinnell River. This is part of locality 72 of Cobb (1972; MF 417; 1975; OFR 75-429).

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals: Garnet, magnetite, pyrite

Geologic description:
Nelson Creek is only about 3,000 feet long but gravel benches are present, at least near the mouth (related to Old Glory Creek ?). A placer cut here revealed (top to bottom): 18 inches of muck, up to 12 inches of blue clay, 24 inches of red clay, up to 60 inches of peaty material, and and 24 to 36 inches of gravel on schist bedrock. Gold is rough, angular, and associated with considerable quartz; placer concentrates contain considerable pyrite, some garnet, and a little magnetite (Moffit, 1905). Mineralized bedrock is exposed in one bench cut (BN059; Herried, 1966).

Alteration:

Age of mineralization:
Quaternary; two or more cycles of placer development are probably present in the area.

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

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

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:

Surface, open-cut placer workings are present. These include some open cuts on a gravel bench near the mouth of the creek.

Production notes:

Reserves:

Additional comments:

References:

Moffit, 1905; Herried, 1966; Cobb, 1972 (MF 417); Cobb, 1975 (OFR 75-429); Till and others, 1986.

Primary reference: Moffit, 1905

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): American Creek

Site type: Prospect

ARDF no.: BN061

Latitude: 65.84 **Quadrangle:** BN D-3

Longitude: 163.15

Location description and accuracy:
American Creek is a northeast-flowing, south tributary to Old Glory Creek, a major southwest tributary to Pinnell River. This is locality 73 of Cobb (1972; MF 417; 1975; OFR 75-429).

Commodities:

Main: Au, Sn

Other:

Ore minerals: Cassiterite, gold

Gangue minerals:

Geologic description:
Moffit (1905) reports that small amounts of bright gold have been found in gravels of American Creek, and Anderson (1947, p. 41) reports that cassiterite is also present. Mining activities have not been reported (Cobb, 1975, OFR 75-429). Most of the bedrock in the area is a metasedimentary schist and marble sequence of Lower Paleozoic age (Till and others, 1986). However, the headwaters of American Creek includes Crossfox Butte which is underlain by Cretaceous granitic rocks (Till and others, 1986).

Alteration:

Age of mineralization:
Quaternary

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

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

Production Status: Undetermined.

Site Status: Inactive

Workings/exploration:

Some exploration activities have taken place on the creek, probably mostly by hand. There are no reported mining activities.

Production notes:

Reserves:

Additional comments:

References:

Moffit, 1905; Anderson, 1947; Cobb, 1972 (MF 417); Cobb, 1975 (OFR 75-429); Till and others, 1986.

Primary reference: Moffit, 1905

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Perry Creek

Site type: Mine

ARDF no.: BN062

Latitude: 65.819 **Quadrangle:** BN D-3

Longitude: 163.088

Location description and accuracy:

Perry Creek is a southwest tributary to Pinnell River. Its mouth is about 5 miles upstream of the confluence of the Pinnell and Inmachuk Rivers. This location includes terrace gravels on both the north and south sides of Perry Creek overlooking Pinnell River. The terrace gravels are capped by basalt flows about 200 to 250 feet vertically above the Pinnell River. This is location 74 of Cobb (1972; MF 417; 1975; OFR 75-429).

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:

This location includes terrace gravels on both the north and south sides of Perry Creek overlooking Pinnell River. The terrace gravels are capped by basalt flows about 200 to 250 feet vertically above the Pinnell River (Henshaw, 1910). One terrace sequence includes (bottom to top); 3 to 9 feet of gold-bearing gravel on schist bedrock, 20 feet of muck including wood fragments near the base (a 3 foot-diameter log is reported to have been encountered somewhere in the Perry Creek mine workings), 25 feet of basalt, an indeterminate thickness of nonauriferous gravel, and an indeterminate thickness of basalt (Hopkins, 1963, p. C32). Henshaw (1910) indicates that one terrace level is 52 feet higher than another in the area. The fine, bright gold here -- some nuggets worth $0.15 at $20/ounce -- was in quartz-rich gravel (Moffit, 1905). Most of the bedrock in the area is a metasedimentary schist and marble sequence of Lower Paleozoic age (Till and others, 1986). The basalt flows are part of the Pleistocene Imuruk Volcanics and the terrace gravels may be correlative with the Pliocene-Pleistocene Kougarok gravels (Hopkins, 1963).

Alteration:

Age of mineralization:
Late Tertiary to Pleistocene; the age of the Kougarok gravels (Hopkins, 1963).

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

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

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:
These basalt-covered terrace gravels are old channels that required underground drift mining; the extent and nature of these workings are not known.

Production notes:

Reserves:

Additional comments:

References:
Moffit, 1905; Henshaw, 1910; Hopkins, 1963; Cobb, 1972 (MF 417); Cobb, 1975 (OFR 75-429); Till and others, 1986.

Primary reference: Hopkins, 1963

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Old Glory Creek

Site type: Mine

ARDF no.: BN063

Latitude: 65.849 **Quadrangle:** BN D-3

Longitude: 163.13

Location description and accuracy:

Old Glory Creek is a northeast-flowing tributary to Pinnell River. The mouth Old Glory Creek is about 1.5 miles upstream of the confluence of Pinnell and Inmachuk Rivers. Mining on Old Glory Creek is primarily below the mouth of Nelson Creek (BN060), a small north tributary. This is part of location 72 of Cobb (1972; MF 417; 1975; OFR 75-429).

Commodities:

Main: Au

Other: Sn

Ore minerals: Cassiterite, gold

Gangue minerals:

Geologic description:

Placer gold was first produced from Old Glory Creek in 1901 (Mendenhall, 1902). There are well-defined benches near Nelson Creek (Gulch; BN060) but mining was from gravel on schist bedrock in the active channel, primarily below the mouth of Nelson Creek. Placer concentrates contain hematite, pyrite, and cassiterite (Moffit, 1905). Most of the bedrock in the area is a metasedimentary schist and marble sequence of Lower Paleozoic age (Till and others, 1986). However, the headwaters of American Creek includes Crossfox Butte which is underlain by Cretaceous granitic rocks (Till and others, 1986).

Alteration:

Age of mineralization:

Quaternary

Deposit model:

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

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

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:
Surface open-cut placer workings and possibly some workings from underground drift mining are present.

Production notes:

Reserves:

Additional comments:

References:
Mendenhall, 1902; Moffit, 1905; Cobb, 1972 (MF 417); Cobb, 1975 (OFR 75-429); Till and others, 1986.

Primary reference: Moffit, 1905

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Pinnell River

Site type: Occurrence

ARDF no.: BN064

Latitude: 65.86 **Quadrangle:** BN D-3

Longitude: 163.07

Location description and accuracy:
Pinnell River is a major north-flowing tributary to Inmachuk River. This occurrence is on the east side of the Pinnell River valley, just above the Fairhaven ditch at an elevation of 750 feet. It is 1.8 miles south of Inmachuk River.

Commodities:

Main: Au

Other: Ag, Cr, Pb, Zn

Ore minerals:

Gangue minerals: Fuchsite, quartz

Geologic description:
A small orange gossan is developed in black dolomitic marble just above the Fairhaven ditch at an elevation of 750 feet. The marble is partially replaced by disseminations and stockwork veinlets of quartz and veinlets of fuchsite (Herried, 1966). A gossan sample contained 0.02 ounces/ton Au, 0.023 ounces/ton Ag, 0.05 % Cu, 0.05 % Pb, 0.05 % Zn, and 0.5 % Cr (Herried, 1966, Table 1). Most of the bedrock in the area is a metasedimentary schist and marble sequence of Lower Paleozoic age (Till and others, 1986).

Alteration:
The occurrence is oxidized and quartz veining of marble is present.

Age of mineralization:
Epigenetic mineralization in metamorphic rocks of Seward Peninsula is primarily of Cretaceous age. Some lode gold deposits on southern Seward Peninsula are mid-Cretaceous in age (see Midnight Mountain, BN047).

Deposit model:
Vein and replacement in marble ?

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

Production Status: No

Site Status: Inactive

Workings/exploration:
Small, hand dug prospecting pits may be present.

Production notes:

Reserves:

Additional comments:

References:
Herried, 1966; Till and others, 1986.

Primary reference: Herried, 1966

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Old Glory

Site type: Occurrence

ARDF no.: BN065

Latitude: 65.86 **Quadrangle:** BN D-3

Longitude: 163.1

Location description and accuracy:

This occurrence is on the east side of Old Glory Creek valley, at an elevation of 400 feet. It is about 4,000 feet upstream of the mouth of Old Glory Creek. Old Glory Creek is a northeast-flowing tributary to Pinnell River. The mouth Old Glory Creek is about 1.5 miles upstream of the confluence of Pinnell and Inmachuk Rivers.

Commodities:

Main: Au

Other: Ag, Zn

Ore minerals:

Gangue minerals: Chlorite, dolomite, fuchsite, pyrite (?), quartz, sericite

Geologic description:

A ferruginous gossan in dolomitic marble is developed over a 110 by 500 foot area. The gossan is developed along a marble layer that now contains dolomite, quartz, pyrite (?), sericite, chlorite and minor fuchsite. A composite grab sample of ferruginuous marble collected over a distance of 115 feet contained 0.04 ounces/ton Au, 0.24 ounces/ton Ag, and 0.05 % Zn (Herried, 1966, Table 1). Most of the bedrock in the area is a metasedimentary schist and marble sequence of Lower Paleozoic age (Till and others, 1986).

Alteration:

The occurrence is oxidized and the dolomitic marble is replaced by sulfides and phyllosilicates.

Age of mineralization:

Epigenetic mineralization in metamorphic rocks of Seward Peninsula is primarily of Cretaceous age. Some lode gold deposits on southern Seward Peninsula are mid-Cretaceous in age (see Midnight Mountain, BN047).

Deposit model:

Replacement in marble

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

Production Status: No

Site Status: Inactive

Workings/exploration:
Small, hand dug prospecting pits may be present.

Production notes:

Reserves:

Additional comments:

References:
Herried, 1966; Till and others, 1986.

Primary reference: Herried, 1966

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Pinnell River

Site type: Mine

ARDF no.: BN066

Latitude: 65.878 **Quadrangle:** BN D-3

Longitude: 163.084

Location description and accuracy:
Pinnell River is a major north-flowing tributary to Inmachuk River. Placer gold mining has taken place below the mouth of Old Glory Creek (BN063), especially the 3,000 feet of the active channel above the mouth (on Inmachuk River, BN067). This is part of location 72 of Cobb (1972; MF 417; 1975; OFR 75-429).

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:
Placer gold production started on Pinnell River by 1903 (Moffit, 1905). The main channel was worked intermittently up to the late 1930's, primarily by hydraulic operations (Cobb, 1975). A terrace gravel, capped by basalt, is preserved along the west side of the Pinnell River valley in this area. Gold in the active floodplain of Pinnell River is, at least in part, probably reworked from these terrace gravels. Most of the bedrock in the area is a metasedimentary schist and marble sequence of Lower Paleozoic age (Till and others, 1986).

Alteration:

Age of mineralization:
Quaternary; two or more cycles of placer development have occurred in the area.

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

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

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:
Surface, open-cut placer mine workings are present, especially along the lower part of the stream. Some dredging may have taken place near the mouth as well.

Production notes:

Reserves:

Additional comments:

References:
Moffit, 1905; Cobb, 1972 (MF 417); Cobb, 1975 (OFR 75-429); Till and others, 1986.

Primary reference: Cobb, 1975 (OFR 75-429)

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Inmachuk River

Site type: Mine

ARDF no.: BN067

Latitude: 65.902 **Quadrangle:** BN D-3

Longitude: 163

Location description and accuracy:

Inmachuk River is a major drainage on northeast Seward Peninsula that flows northward to Deering on Kotzebue Sound. Its floodplain has been extensively placer mined for gold over about 8.5 miles of length starting at an elevation of about 100 feet and continuing upstream to an elevation of about 250 feet. This is locality 71 of Cobb (1972; MF 417; 1975; OFR 75-429).

Commodities:

Main: Au

Other: Hg

Ore minerals: Cinnabar, gold

Gangue minerals: Hematite, pyrite

Geologic description:

A significant part of the 578,000 ounces of gold and 32,000 ounces of silver recorded as produced from the Fairhaven district came from Inmachuk River (Hudson and DeYoung, 1978) . Its floodplain has been extensively placer mined, mostly by dredging (Cobb, 1975), over about 8.5 miles of length starting at an elevation of about 100 feet and continuing upstream to an elevation of about 250 feet. These elevations suggest that nearshore processes that accompanied Quaternary sea level fluctuations could have influenced the character of these deposits. The sides of Inmachuk River valley contain terrace gravels capped by basalt flows. Some of these gravels are gold-bearing (Moffit, 1927), and some Inmachuk River gold could have been reworked from them. However, early mining reported that the gold was little worn, some with quartz, and some in hematite pebbles (Moffit, 1905). Cinnabar pebbles up to 1/2 inch across were reported to be present in dredge concentrate by Anderson (1947). Most of the bedrock in the area is a metasedimentary schist and marble sequence of Lower Paleozoic age (Till and others, 1986).

Alteration:

Age of mineralization:

Quaternary; two or more cycles of erosion and placer development occurred in the area.

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

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

Production Status: Yes; medium

Site Status: Active?

Workings/exploration:
The floodplain of Inmachuk River has been extensively placer mined, mostly by dredging (Cobb, 1975), over about 8.5 miles of length starting at an elevation of about 100 feet and continuing upstream to an elevation of about 250 feet.

Production notes:
A significant part of the 578,000 ounces of gold and 32,000 ounces of silver recorded as produced from the Fairhaven district came from Inmachuk River (Hudson and De Young, 1978). The majority came from the Candle Creek area (BN074).

Reserves:

Additional comments:

References:
Moffit, 1905; Moffit, 1927; Anderson, 1947; Cobb, 1972 (MF 417); Cobb, 1975 (OFR 75-429); Hudson and DeYoung, 1978; Till and others, 1986.

Primary reference: Cobb, 1975 (OFR 75-429)

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Chicago Creek

Site type: Mine

ARDF no.: BN068

Latitude: 65.905 **Quadrangle:** BN D-1

Longitude: 162.454

Location description and accuracy:
This placer gold mine is reported to be on a bench near the mouth of Chicago Creek (Mendenhall, 1902). Chicago Creek is an east tributary to Kugruk river. The mouth of Chicago Creek on Kugruk River is 4,000 feet downstream of the Chicago Creek coal mine. This site is approximately located and is only known within one mile. It is locality 62 of Cobb (1972; MF 417; 1975; OFR 75-429).

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:
This placer gold mine is reported to be on a bench near the mouth of Chicago Creek (Mendenhall, 1902) and some mining took place in 1906 (Brooks, 1907). The exact location and the nature of the deposit has not been described. Bedrock in the area is extensively covered by tundra but it is probably part of a Lower Paleozoic metasedimentary assemblage (Till and others, 1986). Tertiary coal-bearing sediments are locally exposed along Kugruk River upstream from Chicago Creek.

Alteration:

Age of mineralization:
Quaternary

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

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

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:
Some surface, open-cut placer workings are probably present.

Production notes:

Reserves:

Additional comments:

References:
Mendenhall, 1902; Brooks, 1907; Cobb, 1972 (MF 417); Cobb, 1975 (OFR 75-429); Till and others, 1986.

Primary reference: Cobb, 1975 (OFR 75-429)

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Kugruk River

Site type: Mine

ARDF no.: BN069

Latitude: 65.873 **Quadrangle:** BN D-1

Longitude: 162.451

Location description and accuracy:

Kugruk River is a major north-flowing drainage in the northeast Bendeleben quadrangle. The mouth of Kugruk River is east of Deering on Kotzebue Sound. This mine is approximately located as on Kugruk River, 1 to 3 miles upstream of Chicago Creek, (BN068), an east tributary. This is locality 63 of Cobb (1972; MF 417; 1975; OFR 75-429).

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:

At this location, Kugruk River is a meandering stream in a 3,000 to 4,000 foot-wide floodplain. The elevation of the floodplain is less than 100 feet but some river terraces are present locally. A 30-foot high bench just above the mouth of Chicago Creek is reported to be auriferous (Roehm, 1941, p. 111). Placer mining for gold began as early as 1903 and initially included drift operations. Mining was variably located to be 1 to 3 miles upstream of Chicago Creek (BN068), an east tributary. Some dredging took place and an abandoned dredge was reported to be present by Cobb (1975). Between 1903 and 1905, gold production worth $150,000 (over 8,000 ounces) was reported from a crescent-shaped paystreak on Discovery claim (Henshaw, 1909). The gold was finer at the ends of the paystreak than in the middle. The depth to bedrock on Discovery claim was 12 to 14 feet including overburden. Henshaw (1909) descibes a section 0.75 mile from Kugruk River near Discovery claim that included two gravel intervals. This section (from top down) was: 25 feet of clear ice, 60 feet of muck, 8 feet of reddish gravel, 3 feet of muck, and 10 feet of blueish gravel on schist bedrock. One mile above Chicago Creek, gravels were 8 to 10 feet thick on schist and marble bedrock; overburden was 5 to 7 feet thick (Henshaw, 1910). Bedrock in the area is mostly covered by tundra but it is probably part of a Lower Paleozoic metasedimentary assemblage (Till and others, 1986). Tertiary coal-

bearing sediments are locally exposed along Kugruk River upstream from Chicago Creek.

Alteration:

Age of mineralization:
Quaternary; two or more cycles of placer deposit development are indicated. The low elevation of the Kugruk River floodplain here indicates that Quaternary sea level fluctuations may have influenced the character of the placer deposits.

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

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

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:
Both drift mining and dredging have take place here.

Production notes:
Between 1903 and 1905, gold production worth $150,000 (over 8,000 ounces) was reported (Henshaw, 1909). This production was probably from drift mining.

Reserves:

Additional comments:

References:
Henshaw, 1909; Henshaw, 1910; Roehm, 1941; Cobb, 1972 (MF 417); Cobb, 1975 (OFR 75-429); Till and others, 1986.

Primary reference: Cobb, 1975 (OFR 75-429)

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Jump Creek; Wild Bunch

Site type: Mine

ARDF no.: BN070

Latitude: 65.891 **Quadrangle:** BN D-1

Longitude: 162.025

Location description and accuracy:
Jump Creek, which crosses the northeast boundary of the Bendeleben quadrangle, is a west tributary to Candle Creek. The mouth of Jump Creek on Candle Creek is in the Candle quadrangle. This location is approximate. It is locality 64 of Cobb (1972; MF 417; 1975; OFR 75-429).

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:
Placer gold was discovered on Jump Creek by 1901 and mining took place at least up to WW II (Cobb, 1975). Candle Creek, nearby, continued to be an area of active placer operations up to recent years. Much of the mining on Jump Creek was probably along downstream parts close to Candle Creek (Cobb, 1975). Information about the nature of the placer deposit on Jump Creek has not been reported. What little bedrock is exposed in the area is part of a Lower Paleozoic metasedimentary assemblage (Till and others, 1986). A small granitic stock is exposed on the ridge south of upper Candle Creek (Till and others, 1986) and Sandvik (1956) notes that granitic rocks have been identified in the headwaters of Jump Creek and Minehaha Creek. Intermediate to felsic dikes and sills crosscutting metamorphic rocks have been exposed in placer workings along Candle Creek (BN074).

Alteration:

Age of mineralization:
Quaternary

Deposit model:

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

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

Production Status: Yes; small

Site Status: Active

Workings/exploration:
Surface, open-cut placer mine workings are present on this creek. Altar Resoures (P. O. Box 42831, Tuscon, AZ 85733) maintains an active claim block (Wild Bunch claims) covering the uplands to the north and south of JumpCreek (Altar Resources, 1999).

Production notes:

Reserves:

Additional comments:

References:
Sandvik, 1956; Cobb, 1972 (MF 417); Cobb, 1975 (OFR 75-429); Till and others, 1986; Altar Resources, 1999.

Primary reference: Cobb, 1975 (OFR 75-429)

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Wild Bunch (on headwater tributary to Patterson Creek)

Site type: Occurrence

ARDF no.: BN071

Latitude: 65.86 **Quadrangle:** BN D-1

Longitude: 162.12

Location description and accuracy:
This occurrence is in the upper part (elevation of 600 to 700 feet) of the north headwater tributary to Patterson Creek. Patterson Creek is a west tributary to Candle Creek.

Commodities:

Main: Au

Other:

Ore minerals:

Gangue minerals:

Geologic description:
Important placer gold deposits were developed on Patterson Creek (BN072) and on Candle Creek (BN074), above and below the mouth of Patterson Creek. Reconnaissance soil samples in the tundra-covered north headwaters of Patterson Creek (elevation 600 to 700 feet) contain anomalous arsenic and one sample contains 20 ppb gold (Hudson and Wyman, 1983). The gold-bearing sample contained 200 ppm As and two other samples from this area contained 115 ppm and greater than 1,000 ppm As. Bedrock is extensively covered by tundra but what is exposed in the area is part of a Lower Paleozoic metasedimentary assemblage (Till and others, 1986). A small granitic stock is exposed on the ridge south of upper Candle Creek (Till and others, 1986) and Sandvik (1956) notes that granitic rocks have been identified in the headwaters of Jump Creek and Minehaha Creek. Intermediate to felsic dikes and sills crosscutting metamorphic rocks have been exposed in placer workings along Candle Creek (BN074).

Alteration:

Age of mineralization:
Cretaceous ?; Epigenetic mineralization in metamorphic rocks of Seward Peninsula is primarily of Cretaceous age. Some lode gold deposits on southern Seward Peninsula are mid-Cretaceous in age (see Midnight Mountain, BN047).

Deposit model:
Quartz-arsenopyrite veins in metasedimentary rocks ?

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

Production Status: None

Site Status: Active

Workings/exploration:
There are no workings at this location. Only reconnaissance soil sampling has taken place here. Altar Resoures (P. O. Box 42831, Tuscon, AZ 85733) maintains an active claim block (Wild Bunch claims) covering the uplands to the north and south of Patterson Creek (Altar Resources, 1999).

Production notes:

Reserves:

Additional comments:

References:
Hudson and Wyman, 1983; Till and others, 1986; Altar Resources, 1999.

Primary reference: Hudson and Wyman, 1983

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Patterson Creek

Site type: Mine

ARDF no.: BN072

Latitude: 65.841 **Quadrangle:** BN D-1

Longitude: 162.097

Location description and accuracy:
Patterson Creek is a west tributary to Candle Creek. The mouth of Patterson Creek is 1,500 feet upstream of Camp 19 on Candle Creek. This is locality 65 of Cobb (1972; MF 417; 1975; OFR 75-429).

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:
Placer gold was discovered on Patterson Creek early in the century and mining was reported to have taken place by 1909 (Henshaw (1910). Six to eight feet of gravel on blue clay was reported from early workings (Moffit, 1905). The gravel contains abundant vein quartz and quartzite, a few pebbles of limonite and barite(?), and rare fragments resembling altered rhyolite porphyry (Briskey, 1983). Mining was done by both drift and open-cut methods (Cobb, 1975, OFR 75-429). Drift mining is reported to have locally exposed galena-bearing veins (BN073) in bedrock. Mining operations may have taken place over a fair amount of the creek; it is about 2.4 miles long below the headwater tributaries. Bedrock is extensively covered by tundra but what is exposed in the area is part of a Lower Paleozoic metasedimentary assemblage (Till and others, 1986). A small granitic stock is exposed on the ridge south of upper Candle Creek (Till and others, 1986) and Sandvik (1956) notes that granitic rocks have been identified in the headwaters of Jump Creek and Minehaha Creek. Intermediate to felsic dikes and sills crosscutting metamorphic rocks have been exposed in placer workings along Candle Creek (BN074).

Alteration:

Age of mineralization:
Quaternary

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

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

Production Status: Yes; small

Site Status: Active (1983)

Workings/exploration:
Both drift and open-cut placer operations have taken place; most work has been surface open-cut operations.

Production notes:

Reserves:

Additional comments:

References:
Moffit, 1905; Henshaw, 1910; Sandvik, 1956; Cobb, 1972 (MF 417); Cobb, 1975 (OFR 75-429); Briskey, 1983; Till and others, 1986.

Primary reference: Cobb, 1975 (OFR 75-429)

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Patterson Creek

Site type: Occurrence

ARDF no.: BN073

Latitude: 65.8 **Quadrangle:** BN D-1

Longitude: 162.1

Location description and accuracy:

This location is very approximate, probably within one mile. Anderson (1947) reports that drift mine operations exposed galena-bearing veins in bedrock somewherre on Patterson Creek. Patterson Creek is a west tributary to Candle Creek. The mouth of Patterson Creek is 1,500 feet upstream of Camp 19 on Candle Creek. This is locality 10 of Cobb (1972; MF 417; 1975; OFR 75-429).

Commodities:

Main: Ag, Pb

Other:

Ore minerals: Galena

Gangue minerals:

Geologic description:

Anderson (1947, p. 31) reports that drift mine operations on claim no. 4 Above exposed a one foot-wide galena vein (low in silver content); and on claim no. 8 Above several veins from 8 inches to one foot-wide were exposed that carried considerable silver. Anderson (1947) also notes that earlier work uncovered a 3-foot wide galena vein somewhere on the creek but it apparently pinched out at a shallow depth. Local miners indicated in 1982 that they had not encountered such veins or old workings that may have exposed them (Briskey, 1983). Bedrock is extensively covered by tundra but what is exposed in the area is part of a Lower Paleozoic metasedimentary assemblage (Till and others, 1986). A small granitic stock is exposed on the ridge south of upper Candle Creek (Till and others, 1986) and Sandvik (1956) notes that granitic rocks have been identified in the headwaters of Jump Creek and Minehaha Creek. Intermediate to felsic dikes and sills crosscutting metamorphic rocks have been exposed in placer workings along Candle Creek (BN074).

Alteration:

Age of mineralization:

Cretaceous ?; Epigenetic mineralization in metamorphic rocks of Seward Peninsula is primarily of Cretaceous age.

Deposit model:
Galena-bearing veins in metamorphic rocks

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

Production Status: None

Site Status: Inactive

Workings/exploration:
Early drift mining is reported to have exposed galena-bearing veins in bedrock. A short shaft was apparently sunk on one of these veins but evidence of this early work has not been observed by recent workers (Briskey, 1983).

Production notes:

Reserves:

Additional comments:

References:
Anderson, 1947; Sandvik, 1956; Cobb, 1972 (MF 417); Cobb, 1975 (OFR 75-429); Briskey, 1983; Till and others, 1986.

Primary reference: Anderson, 1947

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Candle Creek

Site type: Mine

ARDF no.: BN074

Latitude: 65.839 **Quadrangle:** BN D-1

Longitude: 162.029

Location description and accuracy:

Candle Creek is a northeast-flowing stream that crosses the northeast boundary of the Bendeleben quadrangle. The mouth of Candle Creek is on Spafarief Bay in the northwest Candle quadrangle. It is the most important placer gold producer in the Fairhaven district and mining has taken place along at least 8 miles of its length, including 4 miles in the Bendeleben quadrangle. This is locality 66, 67, and 68 of Cobb (1972; MF 417; 1975; OFR 75-429).

Commodities:

Main: Au

Other:

Ore minerals: Chalcopyrite, galena, gold

Gangue minerals: Arsenopyrite, garnet, hematite, ilmenite, limonite, magnetite, pyrite, rutile, sphene, unidentified uranium-thorium mineral, zircon

Geologic description:

Over 8 miles of the channel and floodplain of Candle Creek, as well as many low level benches, have been placer mined for gold. Mining by hand started in 1901 (Mendenhall, 1902) but hydraulic, dozer, and dredge operations were subsequently employed (Cobb, 1975). The majority of the 578,000 ounces of gold and 32,000 ounces of silver recorded as produced from the Fairhaven district came from Candle Creek (Hudson and De Young, 1978). Mining was primarily at elevations less than 250 feet and included much was at lower elevations near the mouth of the creek. At least locally, gravels in the creek were 12 ro 18 feet-thick and covered by 10 to 20 feet of tundra and muck (Gault and others, 1953). Bench gravels were thinner, 4 to 10 feet thick, and covered by 5 to 10 feet of overburden. At the mouth of Willow Creek, a west tributary at the upper end of mining, 5 to 9 feet of gravel was present. Bench gravels at claim no. 19 were 4 to 5 feet of fine schist gravel covered by 10 to 12 ft of ice and 2 ft of muck. At claim no. 17 gravels were 8 to 18 feet thick with Au primarily present in the lower 6 in to 3 feet. A placer concentrate contained chalcopyrite, galena, gold, arsenopyrite, garnet, hematite, ilmenite, limonite, magnetite, pyrite, rutile, sphene, zircon, and an unidentified uranium-thorium mineral

(Gault and others, 1953). Bedrock is extensively covered by tundra but what is exposed in the area is part of a Lower Paleozoic metasedimentary assemblage (Till and others, 1986). Intermediate to felsic dikes and sills locally crosscut the metasedimentary rocks along the drainage and one small granitic stock has been mapped on the ridge south of the creek valley (Till and others, 1986). Sandvik (1956) notes that granitic rocks have been identified in the headwaters of Jump Creek and Minehaha Creek. The low elevation of the creek and its proximity to the coast along its lower reaches indicate that Quaternary sea level fluctuations could have influenced the nature of the placer deposits here.

Alteration:

Age of mineralization:

Quaternary; two or more cycles of placer deposit development are indicated. The low elevation of Candle Creek and proximity to the coast indicates that Quaternary sea level fluctuations may have influenced the character of the placer deposits.

Deposit model:

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

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

39a

Production Status: Yes; medium

Site Status: Active

Workings/exploration:

The long history of placer mining, including some in recent years, has employed many mining methods. Dredging has been extensive but hydraulic, dozer, and drift mining has also occurred. Much of the placer ground is frozen.

Production notes:

The majority of the 578,000 ounces of gold and 32,000 ounces of silver recorded as produced from the Fairhaven district came from Candle Creek (Hudson and De Young, 1978).

Reserves:

Additional comments:

References:

Mendenhall, 1902; Gault and others, 1953; Sandvik, 1956; Cobb, 1972 (MF 417); Cobb, 1975 (OFR 75-429); Till and others, 1986.

Primary reference: Cobb, 1975 (OFR 75-429)

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Billiken

Site type: Prospect

ARDF no.: BN075

Latitude: 65.69 **Quadrangle:** BN C-1

Longitude: 162.49

Location description and accuracy:

The Billiken prospect is a magnetite-bearing skarn on the east side of Kugruk Mountain (elevation 1,607 feet), at an elevation of about 760 feet. This is 2 miles northwest of the Independence Mine (BN076) on the Kugruk River. Although tundra cover is extensive in this area, the deposit is well expressed in aeromagnetic data.

Commodities:

Main: Cu, Fe

Other: Ag, Au

Ore minerals: Chalcopyrite, magnetite

Gangue minerals: Clinohumite, diopside, dolomite, idocrase, olivine, phlogopite, pyrite, serpentine

Geologic description:

This magnetite-rich skarn prospect was discovered and core drilled by Placid Oil and Minerals in the mid-1970's. Although tundra cover is extensive in this area, the deposit is well expressed in aeromagnetic data. A large, positive, north-south trending aeromagnetic anomaly over this prospect is about 0.4 mile wide and 2 miles long. The deposit contains massive to brecciated magnetite in dolomite with blebs to stringers of pyrite and chalcopyrite (Hudson and others, 1977). Newberry and others (1997) classify this prospect as a magnesian iron skarn developed in dolomite. It contains clinohumite, olivine, diopside, and idocrase. Serpentine minerals replace diopside and olivine and phlogopite is present. A sample of the skarn contained 0.06 ounces/ton Ag, 0.0003 ounces/ton Au, 0.2 % Cu, 0.02 % Zn, 0.01 % Co, and 45 % Fe (Newberry and others, 1997, Table 2). This deposit is in the east contact zone of the Kugruk pluton, which has yielded a K/Ar age of 94.9 +/- 2.9 Ma (Till and others, 1986, p. A-15).

Alteration:

Mg-bearing silicate minerals have been serpentinized and phlogopite is well-developed.

Age of mineralization:

Cretaceous; this deposit is in the east contact zone of the Kugruk pluton, which has yielded a K/Ar age of 94.9 +/- 2.9 Ma (Till and others, 1986, p. A-15).

Deposit model:
Magnesian iron skarn (Newberry and others, 1997; Cox and Singer, 1986; model 18d)

Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):
18d

Production Status: No

Site Status: Inactive

Workings/exploration:
The general area is extensively mantled with tundra; the prospect was initially explored by core drilling. Some core may still be stored at Independence (BN076).

Production notes:

Reserves:

Additional comments:

References:
Hudson and others, 1977; Newberry and others, 1997.

Primary reference: Newberry and others, 1997

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Independence

Site type: Mine

ARDF no.: BN076

Latitude: 65.672 **Quadrangle:** BN C-1

Longitude: 162.464

Location description and accuracy:

Independence mine is on a low ridge (maximum elevation of 685 feet) between lower Independence Creek and Kugruk River. Independence Creek is a southeast tributary to Kugruk River and this deposit is exposed in outcrop (about 250 feet elevation) on the east side of Kugruk River, about 1,000 feet upstream of the mouth of Independence Creek. The north-south trending deposit extends from 0.25 mile north of Kugruk River south for about a mile along the low ridge. This is locality 9 of Cobb (1972; MF 417; 1975; OFR 75-429).

Commodities:

Main: Ag, Pb

Other: Zn

Ore minerals: Galena, sphalerite, tetrahedrite

Gangue minerals: Actinolite (?), calcite, limonite, manganese oxides (?), pyrite, quartz, siderite

Geologic description:

This deposit is localized along a north-south trending marble-schist contact that is faulted and sheared. The contact dips steeply west and the marble is in the hanging wall. Mineralization has been traced laterally along this contact zone for 6,200 feet, and vertically to depths of 136 feet. On the 40 foot level, galena, sphalerite, tetrahedrite, and some pyrite are primarily in footwall schist although siderite bodies are reported to replace marble locally and ore minerals to in turn replace siderite and marble (Levensaler, 1941). On the 140 foot level, at least part of the schist is described as calcareous (Levelsaler, 1941). The mode of ore mineral occurrence in the underground workings has not been discribed but boulders of limonitic galena and lead carbonates up to 2 feet in diameter are present on surface dumps. The ore minerals may be in veins and stringers that pinch and swell, in disseminations, or as irregular replacements. Four ore zones were identified and sampled on the 40 foot level and one on the 140 foot level. On the 40 foot level, the four ore zones include: (1) a 10-wide by 75-foot long zone averaging 6.8 % Pb and 10 ounces/ton Ag; (2) a 20-foot wide by 38-foot long zone averaging 7 % Pb and 10 ounces/ton Ag; (3)

a 7-foot wide by 75-foot long zone averaging 6 % Pb and 6.4 ounces/ton Ag; and (4) a 10-foot wide by 25-foot long zone averaging 6 % Pb, and 6.3 opunces/ton Ag. On the 140 foot level, the one exposed ore zone was 5-feet wide and 35-feet long and averaged 3.4 % Pb and 2.5 ounces/ton Ag. The fourth ore zone on the 40 foot level was open at the south end of the drift. Although this deposit has historically been thought of as epigenetic, there is a possiblity that it is stratabound. The faulted and deformed high grade mineralization is apparently discontinuous both laterally and vertically. Bedrock is extensively covered by tundra but what is exposed in the area is part of a Lower Paleozoic metasedimentary assemblage (Till and others, 1986). Bedrock to the east of Independence Creek and northwest of Kiwalik Mountain may contain felsic metavolcanic rocks. Felsic metavolcanic rocks are associated with massive sulfide prospects, one near upper Minas Creek (BN119) and one at Big Bar (BN083) southeast of Kiwalik Mountain.

Alteration:

The deposit is oxidized and an early description (Levensaler, 1941) notes that siderite bodies replace limestone (marble).

Age of mineralization:

If the deposit is epigenetic, it is probably Cretaceous as epigenetic mineralization in metamorphic rocks of Seward Peninsula is primarily of this age. If the deposit is stratabound, it may be the same age as the sedimentary host rocks which are Paleozoic (Ordovician to Devonian).

Deposit model:

Massive to disseminated sulfide minerals along a deformed and faulted marble-schist contact. Polymetallic veins ? (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:

Exploration and production workings include surface dozer trenches, three shafts, and two levels of short drifts. The main shaft, 136 feet deep, was sunk on outcropping mineralization near the Kugruk River (about 250 feet elevation). Two drifts driven from this shaft included one at 36 feet depth (referred to as the 40 foot level) that trended southerly for 260 feet and northerly for 15 feet along structure and another at 136 feet depth (referred to as the 140 foot level) that trended southerly for 205 feet and northerly for 45 feet along structure. A 30 foot-deep exploration shaft (Galena Homestake claim) was dug 5,000 feet south (and 300 feet higher) of the main shaft. Another exploration shaft (Valley Galena claim) was dug 1,200 feet north of the main shaft on the west side of Kugruk River.

Production notes:

Two high-graded ore shipments have been documented (Levensaler, 1941). A shipment of thirty three tons was received at the Selby smelter on October 28, 1921 that contained 33.25 ounces/ton Ag, 29.9 % Pb, 4.8 % Zn, 5.8 % silica, 20.8 % Fe, and 0 % arsenic and antimony. On December 10, 1922, 1.75 tons were received at the Bunker Hill smelter that contained 29.4 ounces/ton Ag, 33.5 % Pb, 6.3 % Zn, and 12.3 % Fe.

Reserves:

Very little production has occurred and the deposit(s) is intact.

Additional comments:

Descriptions vary widely with respect to ore mineralogy, grade, and ore body dimensions.

References:

Levensaler, 1941; Cobb, 1972 (MF 417); Cobb, 1975 (OFR 75-429); Till and others, 1986.

Primary reference: Levensaler, 1941

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Unnamed (Champion Creek)

Site type: Prospect

ARDF no.: BN077

Latitude: 65.76 **Quadrangle:** BN C-1

Longitude: 162.38

Location description and accuracy:

Champion Creek is a small, north tributary to Mina Creek. This prospect is on the ridge crest at an elevation of 840 feet, overlooking the mouth of Mina Creek on Kugruk River. The mouth of Mina Creek, an east tributary to Kugruk River, is 6.5 miles north of the Independence Mine (BN076). This is locality 30 of Gamble (1988).

Commodities:

Main: Ag, Cu, Pb, Zn

Other: Cd

Ore minerals:

Gangue minerals:

Geologic description:

Samples collected in the prospect trenches described as partly brecciated, iron-stained, dolomitic marble (Gamble, 1988), contain up to 1.4 % Zn, 7,000 ppm Pb, 10 ppm Ag, 1,000 ppm Cu, 300 ppm Cd, 360 ppm As, and 600 ppm Sb. Bedrock is extensively covered by tundra but what is exposed in the area is part of a lower Paleozoic metasedimentary assemblage (Till and others, 1986). Bedrock to the east of Independence Creek and northwest of Kiwalik Mountain may contain felsic metavolcanic rocks. Felsic metavolcanic rocks are associated with massive sulfide prospects, one 9,000 feet to the southeast of this locality (BN119) and one at Big Bar (BN083), southeast of Kiwalik Mountain.

Alteration:

Oxidized; limonitic staining of marble.

Age of mineralization:

Unknown; if epigenetic, probably Cretaceous. If stratiform, probably Paleozoic.

Deposit model:

Polymetallic sulfide mineralization in marble

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

Production Status: None

Site Status: Inactive

Workings/exploration:
Some prospect (dozer ?) trenches are reported (Gamble, 1988).

Production notes:

Reserves:

Additional comments:

References:
Till and others, 1986; Gamble, 1988.

Primary reference: Gamble, 1988

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Glacier Creek

Site type: Mine

ARDF no.: BN078

Latitude: 65.581 **Quadrangle:** BN C-1

Longitude: 162.149

Location description and accuracy:

Glacier Creek is a northeast-flowing stream on the east side of Monument Mountain. At least 4,000 feet of the creek has been placer mined. The center of this mined area is 11,200 feet southeast of the summit of Monument Mountain and 30,000 feet northeast of the summit of Kiwalik Mountain. The locality is about 1.3 miles upstream of the beginning of the Candle ditch. This is locality 60 of Cobb (1972; MF 417; 1975; OFR 75-429).

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:

Placer gold was discovered in 1908 (Henshaw, 1909). Two men reportedly produced $400 (20 ounces) in 7 hours of mining from a 20 foot-wide paysteak in thin gravels. Apparently gold values have been found from the Candle ditch intake upstream for 1.5 miles but the mapped extent of placer workings start about a mile above the ditch. There are at least 4,000 feet of placer workings along the floodplain of the creek. Monument Mountain is underlain by a polydeformed metapelitic schist that may be Precambrian in age but the bedrock of Glacier Creek is a metasedimentary sequence of Lower Paleozoic age (Till and others, 1986). The Paleozoic metasedimentary rocks locally include felsic metavolcanic rocks in areas peripheral to Kiwalik Mountain. Float of very fine-grained, siliceous, tan-weathering metasediment (tuff or exhalite ?) has been observed in the headwater gravels of Glacier Creek (T. L. Hudson, unpublished data, 1982).

Alteration:

Age of mineralization:

Quaternary

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

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

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:
Surface, open-cut placer workings are present along at least 4,000 feet of the channel and floodplain of the creek.

Production notes:

Reserves:

Additional comments:

References:
Henshaw, 1909; Cobb, 1972 (MF 417); Cobb, 1975 (OFR 75-429); Till and others, 1986.

Primary reference: Cobb, 1975 (OFR 75-429)

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Unnamed (near headwaters of Glacier Creek)

Site type: Occurrence

ARDF no.: BN079

Latitude: 65.56 **Quadrangle:** BN C-1

Longitude: 162.18

Location description and accuracy:

This occurrence is at an elevation of 1,260 feet on a small ridge between the headwater tributaries of Glacier Creek. Glacier Creek (BN078) is a northeast-flowing stream on the east side of Monument Mountain.

Commodities:

Main: Ag, Pb, Zn

Other:

Ore minerals:

Gangue minerals:

Geologic description:

A stream sediment sample in upper Glacier Creek contained 164 ppm Pb, 367 ppm Zn, and 12 ppm As (Hudson and Wyman, 1983). Follow-up reconnaissance soil sampling in the headwaters of Glacier Creek identified this occurrence. The soil sample collected here contained 51 ppm Cu, 420 ppm Pb, 1,520 ppm Zn, 10 ppm Ag, and 62 ppm As. Monument Mountain is underlain by a polydeformed metapelitic schist that may be Precambrian in age but the bedrock of Glacier Creek is a metasedimentary sequence of Lower Paleozoic age (Till and others, 1986). The Paleozoic metasedimentary rocks locally include felsic metavolcanic rocks in areas peripheral to Kiwalik Mountain. Float of very fine-grained, siliceous, tan-weathering metasediment (tuff or exhalite ?) has been observed in the headwater gravels of Glacier Creek (T. L. Hudson, unpublished data, 1982).

Alteration:

Age of mineralization:

Not known

Deposit model:

Base metal occurrences around Kiwalik Mountain may be epigenetic veins or replacements, volcanogenic massive sulfide deposits, or skarns.

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

Production Status: None

Site Status: Inactive

Workings/exploration:
There are no workings on this occurrence.

Production notes:

Reserves:

Additional comments:

References:
Hudson and Wyman, 1983; Till and others, 1986.

Primary reference: Hudson and Wyman, 1983

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Gold Run

Site type: Mine

ARDF no.: BN080

Latitude: 65.548 **Quadrangle:** BN C-1

Longitude: 162.069

Location description and accuracy:
Gold Run Creek is a northeast-flowing stream with headwaters against the northeast side of the Kiwalik Mountain upland. This location is approximately located on upper Gold Run Creek, probably within one mile. It is locality 61 of Cobb (1972; MF 417; 1975; OFR 75-429).

Commodities:

Main: Au

Other: W

Ore minerals: Gold, scheelite, wolframite

Gangue minerals: Kyanite

Geologic description:
Placer gold was discovered on Gold Run Creek in 1908 and mining or exploration activities were reported for many years up to WW II (Cobb, 1975, OFR 75-429). Early mining was in ground 6 to 12 feet deep in the upper creek (Henshaw, 1910). Scheelite, wolframite, and kyanite were reported to be present in placer concentrates and kyanite was exposed in a placer cut (Anderson, 1947). Bedrock along the north and east side of Kiwalik Mountain is part of Lower Paleozoic metasedimentary assemblage that includes metamophosed felsic dikes or sills thought to be related to the Devonian Kiwalik Mountain gneiss (Till and others, 1986). The metasedimentary assemblage includes marble, metapelitic rocks, and in some areas quartz-mica rocks that may be metatuffs or exhalites. Felsic metavolcanic rocks are present in this assemblage at the HOM (BN077) and Big Bar (BN083) prospects. Some skarn-like rocks are also present locally on this side of Kiwalik Mountain. The Lower Paleozoic assemblage is inferred to lay unconformably on polydeformed metapelitic schist of Monument Mountain that may be Precambrian in age.

Alteration:

Age of mineralization:
Quaternary

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

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

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:
Surface open-cut placer workings are present locally on this creek.

Production notes:

Reserves:

Additional comments:

References:
Henshaw, 1910; Anderson, 1947; Cobb, 1972 (MF 417); Cobb, 1975 (OFR 75-429); Till and others, 1986.

Primary reference: Cobb, 1975 (OFR 75-429)

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Dixie Creek

Site type: Mine

ARDF no.: BN081

Latitude: 65.525 **Quadrangle:** BN C-1

Longitude: 162.37

Location description and accuracy:
Dixie Creek is a small headwater tributary to Independence Creek. The mouth of Dixie Creek is 5.4 miles northwest of Kiwalik Mountain. This is locality 59 of Cobb (1972; MF 417; 1975; OFR 75-429).

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:
Placer gold was reported to have been discovered in 1903 and a small amount of mining, probably by hand, also apparently took place that year (Moffit, 1905). This is the only report of activity on this creek (Cobb, 1975, OFR 75-429). The nature of the bedrock in this area is not known due to almost continuous surficial cover (Till and others, 1986).

Alteration:

Age of mineralization:
Quaternary

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

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

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:
Small areas of surface workings, dug by hand, may be present.

Production notes:

Reserves:

Additional comments:

References:
Moffit, 1905; Cobb, 1972 (MF 417); Cobb, 1975 (OFR 75-429); Till and others, 1986.

Primary reference: Moffit, 1905

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): French Creek

Site type: Occurrence

ARDF no.: BN082

Latitude: 65.48 **Quadrangle:** BN B-2

Longitude: 162.54

Location description and accuracy:

French Creek is a south tributary to Holtz Creek, a west tribuary to Independence Creek. Sainsbury (1975, p. 85) originally described the location as a chalcopyrite vein in a limestone cliff on the north side of the headwaters to Independence Creek. The bedrock geology (Till and others, 1986) that best matches this location description is used here. This location is very approximate, probably within 1 to 2 miles. It is locality 33 of Gamble (1988).

Commodities:

Main: Cu

Other:

Ore minerals: Chalcopyrite

Gangue minerals:

Geologic description:

Sainsbury (1975, p. 85) describes this occurrence as a 4 inch-wide chalcopyrite vein in a limestone (marble) cliff. This exposure is supposed to be on the north side of the headwaters to Independence Creek and near to a large magnetic anomaly. Till and others (1986) show exposures of Paleozoic marble on both sides of French Creek at this location. This is the only place in the headwaters of Independence Creek that the bedrock geology appears to match Sainsbury's (1975, p. 85) original description.

Alteration:

Age of mineralization:

Cretaceous ?; Epigenetic mineralization in metamorphic rocks of Seward Peninsula is primarily of Cretaceous age.

Deposit model:

Sulfide vein in marble

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

Production Status: No

Site Status: Inactive

Workings/exploration:
No workings are known at this location.

Production notes:

Reserves:

Additional comments:

References:
Sainsbury, 1975; Till and others, 1986; Gamble, 1988.

Primary reference: Sainsbury, 1975

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Big Bar

Site type: Prospect

ARDF no.: BN083

Latitude: 65.43 **Quadrangle:** BN B-1

Longitude: 162.17

Location description and accuracy:

The Big Bar prospect is 5 miles southeast of Kiwalik Mountain on a ridge crest north of Big Bar Creek. It is 4,000 feet downslope to the southwest from elevation 1,230 feet on this ridge. This locality is at an elevation of 850 feet.

Commodities:

Main: Ag, Cu, Pb, Zn

Other:

Ore minerals: Chalcopyrite, malachite

Gangue minerals: Feldspar, limonite, muscovite, pyrite, quartz

Geologic description:

Big Bar is a volcanogenic massive sulfide deposit in an interlayered metavolcanic and metasedimentary sequence that strikes northwest and dips moderately south. It was discovered and initially explored by Anaconda Minerals Company from 1982 to 1984 (North Pacific Mining Corporation, 1991). The interbedded sequence includes metapelitic schist, white to tan siliceous muscovite schist, and muscovite-quartz-feldspar schist. The felsic schist contains apple green muscovite and up to 50 % feldspar porphyroblasts. The mineralized schists are highly oxidized and limonitic blebs and and streaks are common along the foliation. Only a few remnants of pyrite and chalcopyrite are observed at the surface. Exposure is primarily frost-riven rubble although one non-mineralized felsic schist outcrop is present upslope of the defined mineralization. The prospect is primarily defined by the geochemical results from a 3,900 by 3,000 foot soil sample grid. Sample spacing along strike was 330 feet (100 meters) and 165 feet (50 meters) along dip. This sampling defined a copper anomaly greater than 200 ppm that was over 3,900 feet long and 165 to 330 feet wide. Copper values within this anomaly were locally greater than 1,000 ppm. A zinc anomaly greater than 200 ppm in soils overlaps the copper anomaly to the west but is roughly parallel and displaced downslope from it to the east. The lead soil anomaly greater than 100 ppm)is irregular and more discontinuous than the copper anomaly. Both the east and west limits of the anomaly are on slopes where downslope migration of surficial materials is to be expected but copper values greater than 200 ppm do extend to both

the northwest and southeast limits of the sample grid. A soil sample with gossan fragments contained 920 ppm Cu, 605 ppm Pb, 3,900 ppm Zn, and 1.6 ounces/ton Ag. Silver values in soil samples were only locally greater than 1 ppm however. Initial soil samples in the area (Hudson and Wyman, 1983) contained some low level gold values up to 25 ppb. Some reconnaissance geophysical surveys (IP, MAXMIN, EM, gravity, and magnetics) were completed on the prospect. One distinct IP anomaly, coincident with a magnetic high, was identified upslope of the copper anomaly. The metamorphic assemblage that hosts this prospect is peripheral to the Devonian Kiwalik Mountain gneiss (Till and others, 1986). The assemblage appears to contain metatuff and metarhyolite components that resemble lithologies in the Ambler district of the southern Brooks Range. The metavolcanic-bearing assemblage of the Kiwalik Mounatin area has only locally been separately mapped along Independence Creek (Till and others, 1986). This assemblage flanks Kiwalik Mountain to the east, south, west and northwest. The HOM prospect (BN119) is another volcanogenic massive sulfide deposit associated with this assemblage.

Alteration:

This prospect is highly oxidized. Quartz-sericite-pyrite alteration may be present in unoxidized parts of the prospect.

Age of mineralization:

Devonian ?; this is a strataform deposit and the host felsic schist is interpreted to be similar in age to the Devonian gneiss at Kiwalik Mountain (Till and others, 1986).

Deposit model:

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

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

28a

Production Status: None

Site Status: Probably inactive

Workings/exploration:

Some blasting has been done in an unsuccessful attempt to expose bedrock mineralization. The prospect is primarily defined by the geochemical results from a 3,900 by 3,000 foot soil sample grid. Sample spacing along strike was 330 feet (100 meters) and 165 feet (50 meters) along dip. Some reconnaissance geophysical surveys (IP, MAXMIN, EM, gravity, and magnetics) were completed on the prospect. One distinct IP anomaly, coincident with a magnetic high, was identified upslope of the soil copper anomaly.

Production notes:

Reserves:

Additional comments:

References:

Hudson and Wyman, 1983; North Pacific Mining Corporation, 1991.

Primary reference: North Pacific Mining Corporation, 1991

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Timber Creek

Site type: Prospect

ARDF no.: BN084

Latitude: 65.28 **Quadrangle:** BN B-1

Longitude: 162.28

Location description and accuracy:

This occurrence is very approximately located (probably within 2 miles) in the headwaters of Timber Creek, a south tributary to Koyuk River. The confluence of Timber Creek and its west tributary Nutmoyuk Creek (as shown on the Bendeleben B-1 quadrangle) is about 3 miles downstream of this location (the 1:250,000 Bendeleben quadrangle shows Timber Creek to be a tributary of Nutmoyuk Creek). This is locality 18 of Cobb (1972; MF 417; 1975; OFR 75-429).

Commodities:

Main: Ag, Au, Cu

Other:

Ore minerals: Malachite

Gangue minerals:

Geologic description:

Copper-stained greenstone near a contact with limestone was apparently discovered and initially explored in 1906-1907 (Smith and Eakin, 1911). Shallow prospect pits were dug and some high-grade samples were taken that supposedly contained 17 to 70 ounces/ton Ag and about 0.05 ounces/ton Au. The location of this occurrence is uncertain but mafic metavolcanic rocks and Devonian marble are mapped in the headwaters of Timber Creek (Till and others, 1986).

Alteration:

Oxidation is well-developed.

Age of mineralization:

If epigenetic, probably Cretaceous or younger.

Deposit model:

Copper-bearing greenstone

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

Production Status: No

Site Status: Inactive

Workings/exploration:
Shallow prospect pits were apparently dug when the occurrence was first discovered.

Production notes:

Reserves:

Additional comments:

References:
Smith and Eakin, 1911; Cobb, 1972 (MF 417); Cobb, 1975 (OFR 75-429); Till and others, 1986.

Primary reference: Smith and Eakin, 1911

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Unnamed (north of the Tubutulik River)

Site type: Occurrence

ARDF no.: BN085

Latitude: 65.25 **Quadrangle:** BN A-1

Longitude: 162.38

Location description and accuracy:
This occurrence is on a small ridge on the north side of Death Valley and between the headwater reaches of two unnamed north tributaries to Tubutulik River. It is at approximately 1,500 feet in elevation. This is locality 44 and 45 of Gamble (1988).

Commodities:

Main: Bi

Other: W

Ore minerals:

Gangue minerals:

Geologic description:
This occurrence is in the eastern-most part of the Bendeleben Mountains in an area of high-grade metamorphic rocks intruded by many small granitic bodies (Till and others, 1986). A grab sample of gossanous schist contained greater than 10,000 ppm bismuth (Miller and Grybeck, 1973). Another grab sample of calc-silicate hornfels, schist, and granitic rock contained 68 ppm Bi and 100 ppm W (Gamble, 1988).

Alteration:

Age of mineralization:
Cretaceous ?; Epigenetic mineralization in metamorphic rocks of Seward Peninsula is primarily of Cretaceous age.

Deposit model:
Bismuth in metamorphic rocks

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

Production Status: No

Site Status: Inactive

Workings/exploration:
Exploration activities at this location are not known but are probably minimal.

Production notes:

Reserves:

Additional comments:

References:
Miller and Grybeck, 1973; Till and others, 1986; Gamble, 1988.

Primary reference: Miller and Grybeck, 1973

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Unnamed (near pass on upper Nutmoyuk Creek)

Site type: Occurrence

ARDF no.: BN086

Latitude: 65.26 **Quadrangle:** BN B-1

Longitude: 162.38

Location description and accuracy:
Nutmoyuk Creek is a west tributary to Timber Creek (BN084) and Timber Creek is a south tributary to Koyuk River. This approximate location is on the south side of the pass between upper Nutmoyuk Creek and a northeast headwater tributary to Tubutulik River. It is locality 43 of Gamble (1988).

Commodities:

Main: Cu

Other: Ag (?), Au (?)

Ore minerals: Malachite

Gangue minerals: Limonite, quartz

Geologic description:
Locally dolomitic and silicified marble, is cut by quartz veinlets and some oxidized sulfide veinlets (Hudson and others, locality 179, p. 16). There is some minor malachite staining. Mining claims were located in this area in 1975.

Alteration:
Silicification, quartz veining, and oxidation of sulfides is present.

Age of mineralization:
Cretaceous ?; Epigenetic mineralization in metamorphic rocks of Seward Peninsula is primarily of Cretaceous age.

Deposit model:
Sulfide-bearing veinlets in marble

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

Production Status: No

Site Status: Inactive

Workings/exploration:

The nature of any exploratioin work that may have taken place at this locality is not known.

Production notes:

Reserves:

Additional comments:

References:

Hudson and others, 1977; Gamble, 1988.

Primary reference: Hudson and others, 1977

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Foster (in headwaters of Otter Creek)

Site type: Prospect

ARDF no.: BN087

Latitude: 65.1 **Quadrangle:** BN A-1

Longitude: 162.4

Location description and accuracy:
This prospect is in the headwaters of Otter Creek, a west tributary to Tubutulik River on the south side of Death Valley. The mouth of Otter Creek is 4 miles south of Camp Haven. This locality is about 4 miles upsteam from the mouth of Otter Creek. It is locality 56 of Cobb (1972; MF 417; 1975; OFR 75-429).

Commodities:

Main: Sn

Other:

Ore minerals: Cassiterite (?)

Gangue minerals:

Geologic description:
Tin-bearing alluvial gravels have been prospected here (Herreid, 1965). Several dozer cuts in the gravels have been made but little bedrock was exposed and none was mineralized. Bedrock in the area is Lower Paleozoic metamorphic rocks (Till and others, 1986).

Alteration:

Age of mineralization:
Quaternary

Deposit model:
Alluvial placer Sn (Cox and Singer, 1986; model 39e)

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

Production Status: No

Site Status: Inactive

Workings/exploration:
Several dozer cuts in the alluvial gravels of the creek channel are present.

Production notes:
Probably no production.

Reserves:

Additional comments:

References:
Herreid, 1965; Cobb, 1972 (MF 417); Cobb, 1975 (OFR 75-429); Till and others, 1986.

Primary reference: Herreid, 1965

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Otter Creek

Site type: Prospect

ARDF no.: BN088

Latitude: 65.09 **Quadrangle:** BN A-1

Longitude: 162.4

Location description and accuracy:

This prospect is in the headwaters of Otter Creek, a west tributary to Tubutulik River on the south side of Death Valley. The mouth of Otter Creek is 4 miles south of Camp Haven. It is about 4.6 miles upstream from the mouthof the creek or 3,000 feet upstream of the dozer cuts (BN087) on the creek. A 20 foot-deep shaft near two decaying log cabins marks the locality (Herreid, 1965). This is locality 17 of Cobb (1972; MF 417; 1975; OFR 75-429).

Commodities:

Main: Ag, Au

Other:

Ore minerals:

Gangue minerals:

Geologic description:

A caved shaft, estimated to be 20 feet deep, is located next to two decaying log cabins at this prospect. The shaft is in quartz-mica schist which contains less than 1 % sulfides along tiny quartz veins (Herreid, 1965). Grab samples of quartz-rich and quartz-poor schist from the shaft dump contained 0.03 ounces/ton Au (trace Ag) and 0.01 ounces/ton Au (0.27 ounces/ton Ag) respectively. Bedrock in the area is Lower Paleozoic metasedimentary rocks (Herreid, 1965; Till and others, 1986).

Alteration:

Quartz veining in schist.

Age of mineralization:

Cretaceous ?; Epigenetic mineralization in metamorphic rocks of Seward Peninsula is primarily of Cretaceous age.

Deposit model:

Low sulfide Au-quartz veins ? (Cox and Singer, 1986; model 36a ?)

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

Production Status: No

Site Status: Inactive

Workings/exploration:
An old caved shaft, estimated to originally be 20 feet deep, is present here.

Production notes:

Reserves:

Additional comments:

References:
Herreid, 1965; Cobb, 1972 (MF 417); Cobb, 1975 (OFR 75-429); Till and others, 1986.

Primary reference: Herreid, 1965

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Death Valley

Site type: Prospect

ARDF no.: BN089

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

Longitude: 162.25

Location description and accuracy:

The Death Valley uranium deposit is located in the headwaters of Boulder Creek, a north tributary to the middle Tubutulik River. It is 3.5 miles south of the point where the Tubutulik River leaves Death Valley. The deposit has been explored on the east side of Boulder Creek and the discovery pits are 4,500 feet southeast of Hill 990 and 5,000 feet east of Tubutulik River. This is locality 60 of Gamble (1988).

Commodities:

Main: U

Other:

Ore minerals: Coffinite, meta-autunite, sphalerite

Gangue minerals: Pyrite

Geologic description:

The Death Valley sandstone-type uranium deposit (Dickinson and others, 1987) was discovered in 1977 and soon explored by the Houston International Minerals Corporation. It is in early Eocene continental sediments that are unconformably deposited on deeply weathered granitic rocks of the Darby pluton (Miller and Bunker, 1976; Johnson and others, 1979). The Eocene sediments were deposited in a graben between the uplifted Darby pluton to the west and lower Paleozoic metamorphic rocks to the east (this is probably an onshore, exposed equivalent of the deeper parts of the offshore Norton basin, see below). The proximity to the slightly uraniferous Darby pluton seems to be an important control on the development of this deposit. The continental sediments are conglomerate, arkosic sandstone, mudstone, and coal. The unconformable contact between the coarse, poorly sorted basal sediments and the granitic pluton is gradational and some sediments in this part of the section are interpreted to be mudflows within alluvial systems. The upper part of the sedimentary section contains mudstones deposited in lucustrine environments. Eocene basalt is interbedded with and caps the sedimentary section in this area. These basalts may have created a dam that led to lucustrine sedimentation. The lucustrine mudstones contain laminated siderite but all the sediments compositionally reflect the nearby granitic provenance of the Darby pluton; granitic clasts, quartz, and k-feldspar are com-

mon detrital components. Carbonized wood fragments are also common in the section and it contains bituminous coal beds up to 100 feet thick.

Uranium mineralization is both epigenetic and supergene. Epigenetic mineralization consists of coffinite, small amounts of pyrite, and trace amounts of sphalerite; it extends vertically over a stratigraphic interval of 300 feet both above and below basalt layers. This primary mineralization, interpreted to be early Eocene in age, is formed by the reduction of oxidized groundwaters derived from areas of granitic bedrock by carbonized-wood in conglomerate and arkosic sandstone. The principal mineralized zone defined by drilling covers an area of 395 by 9,850 feet and averages 10 feet in thickness. With an average grade of 0.27 % U3O8, this deposit has a calculated resource of 1,000,000 pounds of U3O8 (Dickinson and others, 1987). The supergene mineralization, related to the present surface, consists of several varieties of meta-autunite in soil and weathered bedrock intervals less than 20 feet thick. The mineralized surficial materials include three zones: (1) a one-foot thick zone of organic-rich clay and sand containing basalt cobbles that may be a debris flow; (2) a zone up to 10-feet thick of arkosic sand containing carbonized wood fragments; and (3) a zone of granitic grus or semiconsolidated arkosic sandstone and mudstone. Some arkosic sandstone fragments contain 11 % U3O8 and some basalt fragments have uraniferous weathering rinds. Epigenetic mineralization is considered to be early Eocene in age, a time when the climate was temperate or subtropical (Dickinson and others, 1987). This is the age of the host sediments and mineralization must have occurred before later Tertiary faulting disrupted groundwater flow eastward from the Darby pluton. The supergene mineralization is Recent in age and may be ongoing today. The Death Valley sandstone-type uranium deposit is the farthest north deposit of its type in the world. At the time of its formation, it was probably at an even higher latitude than it is today, 64 degrees north.

Alteration:

Various clays are developed in the host sedimentary rocks of the epigenetic deposit that may reflect alteration processes. The supergene enrichment accompanies alteration associated with weathering processes.

Age of mineralization:

Epigenetic mineralization is considered to be early Eocene in age, a time when the climate was temperate or subtropical (Dickinson and others, 1987). This is the age of the host sediments and mineralization must have occurred before Tertiary faulting disrupted groundwater flowing eastward from the Darby pluton. The supergene mineralization is Recent in age and may be ongoing today.

Deposit model:

Sandstone U (Cox and Singer, 1986; model 30c)

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

30c

Production Status: No

Site Status: Active

Workings/exploration:

Surface pits, surface mapping, and extensive core drilling have been completed on this deposit.

Production notes:

Reserves:

The principal mineralized zone that has been defined by drilling covers an area of 395 by 9,850 feet and averages 10 feet in thickness. This deposit has a calculated resource of 1,000,000 pounds of U3O8 at an average grade of 0.27 % U3O8 (Dickinson and others, 1987). This is the largest presently known uranium deposit in Alaska.

Additional comments:

The prospect is presently controlled by David Hedderly-Smith, P. O. Box 443, Park City, UT 84060. The non-mineralized, early Eocene geology exposed and documented at this prospect may be representative of the basal parts of Tertiary basins elsewhere in the region. This includes the offshore Norton basin to the south of Seward Peninsula that has been explored for its hydrocarbon potential (e. g. Fisher and others, 1982; Worrall, 1991).

References:

Miller and Bunker, 1976; Johnson and others, 1979; Fisher and others, 1982; Dickinson and others, 1987; Gamble, 1988; Worrall, 1991.

Primary reference: Dickinson and others, 1987

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Boulder Creek (= Grouse Creek)

Site type: Prospect

ARDF no.: BN090

Latitude: 65.03 **Quadrangle:** BN A-1

Longitude: 162.22

Location description and accuracy:

The original reference for this occurrence (West, 1953) describes it as on Grouse Creek whch is the same as Boulder Creek (BN089) on the current USGS topographic map of the area (Bendeleben A-1 quadrangle). The current topographic map shows Grouse Creek to be the northeast tributary to Boulder Creek and it was this location that was identified as locality 57 by Cobb (1972; MF 417; 1975; OFR 75-429). This prospect is here taken to be on Boulder Creek as shown on the current topographic map of the area. Boulder Creek is a small north tributary to the middle Tubutulik River.

Commodities:

Main: Au ?, radioactive minerals

Other:

Ore minerals: Gold ?, radioactive minerals

Gangue minerals:

Geologic description:

West (1953) noticed the remains of old placer mine workings on this creek, as well as coal-bearing rocks in its headwaters, and collected a slightly radioactive heavy-mineral concentrate containing ilmenite, magnetite, garnet, and sphene. The Death Valley sandstone uranium deposit (BN089) is now known to be in the headwaters of this stream (Dickinson and others, 1987). The upper part of Boulder Creek approximately coincides with the contact between the Cretaceous Darby pluton to the west and early Eocene continental sediments and basalt to the east.

Alteration:

Age of mineralization:

Quaternary

Deposit model:

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

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

Production Status: Undetermined.

Site Status: Inactive

Workings/exploration:
Surface placer mine workings have been noted here (West, 1948) but their success in recovering gold is uncertain.

Production notes:

Reserves:

Additional comments:

References:
West, 1953; Cobb, 1972 (MF 417); Cobb, 1975 (OFR 75-429); Dickinson and others, 1987.

Primary reference: West, 1953

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Camp Creek

Site type: Prospect

ARDF no.: BN091

Latitude: 65.03 **Quadrangle:** BN A-1

Longitude: 162.11

Location description and accuracy:

Camp Creek is a small north tributary to middle Tubutulik River. It is unnamed on the current USGS topographic map of the area (Bendeleben A-1 quadrangle). It is identified by Cobb (1972; MF 417; 1975; OFR 75-429) as locality 58; he places the mouth of Camp Creek 0.7 miles downstream of the mouth of Admiral Creek and 1.2 miles upstream of the mouth of Lost Creek. The location of this prospect is very approximate (probably within 1 or 2 miles).

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:

An early report (Smith and Eakin, 1911) indicates that some small scale placer mining by horse scrapers was done for a few years before 1909. Schist is reported nearby (Smith and Eakin, 1911) but Ordovician carbonate rocks are what have been mapped more recently in the area (Till and others, 1986).

Alteration:

Age of mineralization:

Quaternary

Deposit model:

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

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

39a

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:

Some surface placer workings, including those done by horse scraper, are reported to be present.

Production notes:

Reserves:

Additional comments:

References:

Smith and Eakin, 1911; Cobb, 1972 (MF 417); Cobb, 1975 (OFR 75-429); Till and others, 1986.

Primary reference: Smith and Eakin, 1911

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

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

Site type: Occurrence

ARDF no.: BN092

Latitude: 65.23 **Quadrangle:** BN A-2

Longitude: 162.53

Location description and accuracy:

This occurrence is on the northwest flank of Death Valley. It is on a small ridge (elevation 1,284 feet) between the east and west forks of a north tributary to Granite Creek. Granite Creek is the principal drainage in northwest Death Valley. This is locality 46 of Gamble (1988).

Commodities:

Main: Ag, Au, Pb, Zn

Other:

Ore minerals: Chalcopyrite, galena, sphalerite

Gangue minerals: Fluorite, quartz

Geologic description:

Quartz-aplite breccia fillings and quartz-fluorite veins cut black slate hornfels (Miller and Grybeck, 1973). These contain up to several percent galena and sphalerite and minor chalcopyrite. Analytical data for four samples were reported by Miller and Grybeck (1973, Table 2). Two samples of aplite with disseminated galena and sphalerite each contain greater than 20,000 ppm Pb and greater than 10,000 ppm Zn; they also contain 30 and 50 ppm Ag and one contains 0.1 ppm Au. The other two samples from this locality contain anomalous Pb, Zn, and Ag as well as 0.02 and 0.04 ppm Au. This occurrence is in the hanging wall of the major normal fault that marks the southern boundary of the high grade metamorphic rocks and granitic intrusives of the Bendeleben Mountains (Till and others, 1986). Mining claims existed in this area in 1975 (Hudson and others, 1977).

Alteration:

Quartz-fluorite veining (and possibly other alteration of intrusive rocks) is present.

Age of mineralization:

Cretaceous ?; Epigenetic mineralization in metamorphic rocks of Seward Peninsula is primarily of Cretaceous age.

Deposit model:
Polymetallic veins ? (Cox and Singer, 1986; model 22c ?)

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

Production Status: None

Site Status: Probably inactive

Workings/exploration:
Workings have not been reported but mining claims have been staked in the area and were current as of 1975 (Hudson and others, 1977).

Production notes:

Reserves:

Additional comments:

References:
Miller and Grybeck, 1973; Hudson and others, 1977; Till and others, 1986; Gamble, 1988.

Primary reference: Miller and Grybeck, 1973

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

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

Site type: Occurrence

ARDF no.: BN093

Latitude: 65.19 **Quadrangle:** BN A-2

Longitude: 162.59

Location description and accuracy:

This occurrence is on the ridge crest (elevation 1,425 feet) between headwater tributaries of Granite Creek. Granite Creek is the principal drainage in the northwest part of Death Valley.

Commodities:

Main: Pb, Zn

Other: Ag, Cu, Sn

Ore minerals:

Gangue minerals: Pyrite

Geologic description:

This occurrence is in the east part of the Windy Creek stock, a mid-Cretaceous composite pluton of quartz monzonite, monzonite, syenite and some melanite-bearing nepheline syenite (Miller and others, 1971; 1972). Latite and greenish quartz porphyry, both commonly pyritiferous, locally crosscut the alkalic phases of the Windy Creek stock. Two samples of pyritiferous quartz monzonite from this ridge crest have weakly anomalous lead values (150 ppm) and one contains 20 ppm Sn. A pyritiferous aphanitic dike from this ridge contains 150 ppm Cu, 700 ppm Pb, 700 ppm Zn, 15 ppm Sn, and 1 ppm Ag (Miller and others, 1971, Table 2). Molybdenum was detected at low levels in the aphanitic dike but was below detection in the other two samples. This occurrence primarily serves to illustrate that late, cross-cutting phases of the Windy Creek stock are mineralized compared to earlier, pyrite-bearing phases.

Alteration:

One of the samples here is described as oxidized quartz monzonite.

Age of mineralization:

Mid-Cretaceous; the Windy Creek stock is inferred to be mid-Cretaceous based on similarities to the Granite Mountain stock to the east in the Candle quadrangle (Miller and others, 1971).

Deposit model:
Polymetallic sulfide mineralization in quartz monzonite

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

Production Status: None

Site Status: Inactive

Workings/exploration:
None; propecting has primarily been on the west side of the Windy Creek stock (see BN094).

Production notes:

Reserves:

Additional comments:

References:
Miller and others, 1971; Miller and others, 1972.

Primary reference: Miller and others, 1971

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Windy Creek

Site type: Prospect

ARDF no.: BN094

Latitude: 65.14 **Quadrangle:** BN A-2

Longitude: 162.59

Location description and accuracy:

This prospect is on the west side of the Windy Creek stock. It is on the ridge crest at an elevation 1,725 feet between the headwater forks of the major north tributary to Mosquito Creek. Mosquito Creek drains westward from headwaters in the northern Darby Mountains to the Fish River in McCarthy's Marsh. This is approximately located; it is sample locality 8 of Miller and others (1971). This location covers localities 47 and 48 of Gamble (1988).

Commodities:

Main: Mo, Pb, Zn

Other: Ag, Ba, La, Sn

Ore minerals: Galena, molybdenite, scheelite,sphalerite

Gangue minerals: Fluorite, pyrite, pyrrhotite, quartz

Geologic description:

This propect is in the west part of the Windy Creek stock, a mid-Cretaceous composite pluton of quartz monzonite, monzonite, syenite and some melanite-bearing nepheline syenite (Miller and others, 1971; 1972). Latite and greenish quartz porphyry, both commonly pyritiferous, and biotite granodiorite dikes locally crosscut the alkalic-related phases of the Windy Creek stock (Miller and others, 1971; 1972; Till and others, 1986). Roof pendants of metamorphic rocks are present. Miller and others (1971) collected five samples over a distance of about 2 miles. A sample of an oxidized quartz vein, their sample locality 8, contained 1,500 ppm Mo, 3,000 ppm Pb, 1,500 ppm Zn, 500 ppm Sn, 3 ppm Ag, and greater than 1,000 ppm La. The other four samples collected by Miller and others (1971) included quartz veins, quartz-veined monzonite, and oxidized aphanitic intrusive rock. Except for the aphanitic intrusive rock, these samples contained anomalous metal contents including up to 7 ppm Ag, greater than 5,000 ppm Ba, 15,000 ppm Pb, 700 ppm Mo, and 150 ppm Sn. In general, the west side of the Windy Creek stock is fractured and both quartz-sulfide and quartz-fluorite-sulfide veins are present (Till and others, 1986). Rare quartz veins up to 5 inches wide contain up to several percent fluorite, 1 to 2 percent molydenite, galena, and sphalerite. Thin quartz veinlets containing pyrite, fluo-

rite, molybdenite, scheelite, and minor galena and sphalerite are more common although stockwork vein systems have not been observed (Till and others, 1986). Alteration in the intrusive rocks includes limonite staining, weak to strong sericitization of plagioclase, and variable chloritization and sericitization of hornblende (Till and others, 1986). This area was staked in the 1970's as a potential porphyry molybdenum prospect.

Alteration:

Alteration in the intrusive rocks includes limonite staining, weak to strong sericitization of plagioclase, and variable chloritization and sericitization of hornblende (Till and others, 1986).

Age of mineralization:

Mid-Cretaceous; the Windy Creek stock is inferred to be mid-Cretaceous based on similarities to the Granite Mountain stock to the east in the Candle quadrangle (Miller and others, 1971).

Deposit model:

Porphyry Mo, low-F ? (Cox and Singer, 1986; model 21b ?) However, the prospect is associated with an alkalic intrusive rock complex and highly polymetallic in character.

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

21b ?

Production Status: No

Site Status: Inactive

Workings/exploration:

No workings are known but mining claims were staked in the area in the 1970's.

Production notes:

Reserves:

Additional comments:

References:

Miller and others, 1971; Miller and others, 1972; Till and others, 1986; Gamble, 1988.

Primary reference: Miller and others, 1971

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Unnamed (headwaters of North Fork, Mosquito Creek)

Site type: Occurrence

ARDF no.: BN095

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

Longitude: 162.6

Location description and accuracy:

This occurrence is on the ridge crest (approximate 1,850 feet elevation) on the north side of the headwaters of North Fork, Mosquito Creek. Mosquito Creek flows westward from headwaters in the northern Darby Mountains to Telephone Creek, a tributary to Fish River in McCarthy's Marsh. It is approximately the location of sample localities 5 and 6 of Miller and Grybeck (1973). Gamble (1988) showed these as locations 50 and 51.

Commodities:

Main: Ag, Pb, Zn

Other: Sb, Sn

Ore minerals:

Gangue minerals:

Geologic description:

Two samples of apparently small, iron-stained zones in metamorphosed carbonate rocks were collected by Miller and Grybeck (1973) near this location. A composite grab sample of iron-stained carbonate contained 70 ppm Ag, 2,000 ppm As, 0.1 ppm Au, 200 ppm Cu, greater than 20,000 ppm Pb, 700 ppm Sb, 500 ppm Sn, and 7,000 ppm Zn. A grab sample of gossan in calcareous metasedimentary rock contained 3 ppm Ag, 3,000 ppm As, 200 ppm Cu, 70 ppm Mo, 1,500 ppm Pb, and greater than 10,000 ppm Zn. These occurrences are in lower Paleozoic metasedimentary rocks (Till and others, 1986).

Alteration:

These occurrences are oxidized, gossanous zones in metacarbonate rocks.

Age of mineralization:

Cretaceous ?; Epigenetic mineralization in metamorphic rocks of Seward Peninsula is primarily of Cretaceous age.

Deposit model:

Sulfide veins and/or replacements in carbonate rocks

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

Production Status: None

Site Status: Inactive

Workings/exploration:
None are known, some shallow hand dug prospecting pits may be locally present in this area.

Production notes:

Reserves:

Additional comments:

References:
Miller and Grybeck, 1973; Till and others, 1986; Gamble, 1988.

Primary reference: Miller and Grybeck, 1973

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Unnamed (north side of North Fork, Mosquito Creek)

Site type: Occurrence

ARDF no.: BN096

Latitude: 65.07 **Quadrangle:** BN A-2

Longitude: 162.65

Location description and accuracy:

This occurrence is on the north side of North Fork, Mosquito Creek at an elevation of approximately 1,250 feet. Mosquito Creek flows westward from headwaters in the northern Darby Mountains to Telephone Creek, a tributary to Fish River in McCarthy's Marsh. This location approximates sample locality 7 of Miller and Grybeck (1973). It is location 52 of Gamble (1988).

Commodities:

Main: Sb, Zn

Other: Cu, Pb

Ore minerals:

Gangue minerals:

Geologic description:

Miller and Grybeck (sample 7, 1973) collected a grab sample of gossan developed at a marble/schist contact at this locality. This sample contained 7,000 ppm As, 700 ppm Cu, 70 ppm Mo, 3,000 ppm Pb, 10,000 ppm Sb, and 10,000 ppm Zn. These occurrences are in Lower Paleozoic or Precambrian high grade metasedimentary rocks (Till and others, 1986).

Alteration:

This is an oxidized gossan zone.

Age of mineralization:

Cretaceous ?; Epigenetic mineralization in metamorphic rocks of Seward Peninsula is primarily of Cretaceous age.

Deposit model:

Sulfide veins and/or replacements in carbonate rocks

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

Production Status: None

Site Status: Inactive

Workings/exploration:
None are known, some shallow hand dug prospecting pits may be locally present in this area.

Production notes:

Reserves:

Additional comments:

References:
Miller and Grybeck, 1973; Till and others, 1986; Gamble, 1988.

Primary reference: Miller and Grybeck, 1973

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Omilak

Site type: Mine

ARDF no.: BN097

Latitude: 65.043 **Quadrangle:** BN A-2

Longitude: 162.66

Location description and accuracy:

The Omilak mine is on the west end of the ridge between the North and South Forks of Mosquito Creek at an elevation of 1,450 feet. Mosquito Creek flows westward from headwaters in the northern Darby Mountains to Telephone Creek, a tributary to Fish River in McCarthy's Marsh. The confluence of the North and South Forks is at the range front where the drainages leave the mountains and flow onto the lowlands of McCarthy's Marsh. This is locality 14 of Cobb (1972; MF 417; 1975; OFR 75-429).

Commodities:

Main: Ag, Pb, Sb

Other: Au, Cu

Ore minerals: Cerussite, Chalcopyrite (?), galena (argentiferous), stibnite

Gangue minerals: Arsenopyrite, limonite, pyrite (?), pyrrhotite

Geologic description:

The Omilak mine is one of the oldest in Alaska (Cobb, 1975). It was discovered before 1880, claims were staked in 1881, ore shipments took place between 1881 and 1890, and the claims were patented in 1884 (Brooks and others, 1901; Mendenhall, 1901; Smith and Eakin, 1911). Forty- one tons of galena were shipped in 1890; they contained 74.7 % Pb, 142.2 ounces/ton Ag, and 0.1 ounces/ton Au (Smith and Eakin, 1911). Nine assays of ore shipped in the 1880's ranged from 60.7 to 173.0 ounces/ton Ag and 10.27 to 82.0 % Pb and some contained up to 0.4 ounces/ton Au (Smith and Eakin, 1911). The mineral deposits consist of discontinuous lenses or veins of argentiferous galena and cerussite in fractured marble. Samples from the shaft dump contain limonite after pyrite or pyrrhotite (and possibly chalcopyrite) and marble cut by veinlets of calc-silicate minerals with disseminated pyrrhotite and pyrite(?). Typical specimens of high grade ore from the shaft dump contained 55.2 % Pb, 12.1 % Fe, 1.0 % Sb, 0.15 % Cu, 0.2 % Sn, 0.1 % Zn, 0.13 ounces/ton Au, and 88.01 ounces/ton Ag (Mulligan, 1962). Thin stibnite veinlets and disseminations are scattered through marble float on the dump of a caved prospect shaft 350 feet southeast of the main shaft (Herreid, 1965; Briskey, 1983). A specimen from this dump contained 0.06 % Pb, 3.4 % Fe, 31.7 % Sb, 0.05 ounces/ton Au, and 0.19 ounces/

ton Ag (Mulligan, 1962). The host rock is slightly recrystallized, partly dolomitic marble intercalated with schist in the core of a small anticline that plunges northwest and is overturned to the northeast (Herreid, 1965). The Omilak mine had a 180 foot main shaft, two working levels, and a 500 foot adit. Smith and Eakin (1911) estimated about 600 feet of workings in the main mine area and Herreid (1965) suggested that the adit may have not reached the ore zone due to an inferred plunge of the mineralization. This is a polymetallic vein and replacement in high grade metasedimentary rocks of probable Lower Paleozoic or Precambrian age (Till and others, 1986).

Alteration:

The deposits are variably oxidized with secondary iron oxides and lead carbonates developed.

Age of mineralization:

Cretaceous ?; Epigenetic mineralization in metamorphic rocks of Seward Peninsula is primarily of Cretaceous age.

Deposit model:

Polymetallic vein or replacement in marble (Cox and Singer, 1986; model 19a or 22c ?)

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

19a (?), 22c (?)

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:

The Omilak mine had a 180 foot main shaft, two working levels, and a 500 foot adit. Smith and Eakin (1911) estimated about 600 feet of workings in the main mine area and Herreid (1965) suggested that the adit may have not reached the ore zone due to an inferred plunge of the mineralization. Some stopes are now caved to the surface. An inclined prospect shaft (now caved) is 350 feet southeast of the main shaft.

Production notes:

Smith and Eakin (1911) estimate that a total of 300 to 400 tons of high grade ore was shipped from the Omilak mine. Forty-one tons of galena shipped in 1890 contained 74.7 % Pb, 142.2 ounces/ton Ag, and 0.1 ounces/ton Au (Smith and Eakin, 1911). Nine assays of ore shipped in the 1880's ranged from 60.7 to 173.0 ounces/ton Ag and 10.27 to 82.0 % Pb and some contained up to 0.4 ounces/ton Au (Smith and Eakin, 1911).

Reserves:

Additional comments:

References:

Brooks and others, 1901; Mendenhall, 1901; Smith and Eakin, 1911; Mulligan, 1962; Herreid, 1965; Cobb, 1972 (MF 417); Cobb, 1975 (OFR 75-429); Briskey, 1983; Till and others, 1986.

Primary reference: Smith and Eakin, 1911

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Foster

Site type: Prospect

ARDF no.: BN098

Latitude: 65.03 **Quadrangle:** BN A-2

Longitude: 162.57

Location description and accuracy:

The Foster prospect is in the headwaters of a north tributary of Omilak Creek at an elevation of approximately 1,250 feet. Omilak Creek flows westward from headwaters in the northern Darby Mountains to the Fish River in McCarthy's Marsh. This is locality 15 of Cobb (1972; MF 417; 1975; OFR 75-429) and locality 55 of Gamble (1988).

Commodities:

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

Other:

Ore minerals: Anglesite, cerussite, galena

Gangue minerals: Clay, goethite, limonite, quartz

Geologic description:

The Foster prospect is a zone of massive galena-bearing gossan, 700 feet long that is localized along the vertically fractured axis of an anticline. The host rocks are bleached and partly silicified marble that is part of a high grade metasedimentary assemblage of lower Paleozoic or Precambrian age (Till and other, 1986). The deposit is extensively and deeply oxidized and the gossan material is primarily limonite, goethite, cerussite, and anglesite (Herreid, 1965). Nodules of massive galena (to 2 feet across) encased in secondary oxides and carbonates are scattered through the mineralized zone and are residually concentrated at and near the surface (Mulligan, 1962). Dozer trenching has exposed a 12 by 90 foot gossan zone to a depth of 20 feet (Mulligan, 1962). Eight, three-foot long channel samples collected in the surface trench contained a trace to 25.6 % Pb (average 9.8 % P), a trace to 7.6 % Zn (average 1.5 % Zn), 5.7 to 42.5 % Fe (average 22.2 % Fe), a trace Au, 0.14 to 14.90 ounces/ton Ag (average 4.9 ounces/ton Ag), 0.1 to 0.3 % Sn (average 0.16 % Sn) adn 0.1 to 0.3 % Cu (Mulligan, 1962). Diamond drilling showed that extensive oxidation is present to depths greater than 400 feet. This drilling did not encounter massive sulfides, but sixteen assays of mixed core and sludge samples through the oxidized and mineralized zone averaged 4.6 % Pb and 0.95 ounces/ton Ag (Mulligan, 1962).

Alteration:
Oxidation, fracturing, and leaching of wall-rock is known to a depth of 430 feet.

Age of mineralization:
Cretaceous ?; Epigenetic mineralization in metamorphic rocks of Seward Peninsula is primarily of Cretaceous age.

Deposit model:
Polymetallic vein or replacement in marble (Cox and Singer, 1986; model 19a or 22c ?)

Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):
19a (?), 22c (?)

Production Status: No

Site Status: Inactive

Workings/exploration:
Several trenches and pits were dug in about 1890 when the nearby Omilak mine (BN097) was in operation. Initial dozer trenching took place in 1949 and the U. S. Bureau of Mines later added seven more dozer trenches. The U. S. Bureau of mines also completed 11 diamond drill holes between 201 and 430 feet in length, totalling 3,015 linear feet of drilling (Mulligan, 1962).

Production notes:
Several tons of hand sorted, high grade ore have been collected and piled near the prospect.

Reserves:

Additional comments:

References:
Mulligan, 1962; Herreid, 1965; Cobb, 1972 (MF 417); Cobb, 1975 (OFR 75-429); Till and others, 1986; Gamble, 1988.

Primary reference: Mulligan, 1962

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Ophir Creek

Site type: Mine

ARDF no.: BN099

Latitude: 65 **Quadrangle:** BN A-4

Longitude: 163.662

Location description and accuracy:

Ophir Creek is a north tributary to Niukluk River. Its headwaters are along the south flank of the Bendeleben Mountains, just west of the terminal moraine complex of the Pargon River valley. It flows south and crosses from the Bendeleben to the Solomon quadrangle about 6 miles upstream from its mouth. The entire creek -- channel, flood plain, and benches -- has been placer mined downstream from the mouth of Crooked Creek. The main part of Ophir Creek in the Bendeleben quadrangle that has been placer mined is the 7,500 feet downstream from the mouth of Crooked Creek. This is locality 78 and 79 of Cobb (1972; MF 417; 1975; OFR 75-429).

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:

Ophir Creek is the most important producer of placer gold in the Council district. The majority of the 707,000 ounces of gold production recorded for the Council district probably came from Ophir Creek (Hudson and DeYoung, 1978). Placer gold was discovered here in 1897 and extensive mining, especially dredging, has taken place over its entire length downstream from the mouth of Crooked Creek (Cobb, 1975). Dredging of the entire floodplain, in places almost 1,000 feet wide, took place along the 7,500 feet of the drainage downstream from Crooked Creek. Benches have been mined here and there along the drainage and at the mouth of Crooked Creek. Terrace gravels at the mouth of Crooked Creek were 5 to 6 feet deep and covered by 2 to 3 feet of overburden. The paystreak at the mouth of Crooked Creek was 250 feet wide, 6 feet thick, and contained 0.22 ounces Au per cubic yard (Smith and Eakin, 1911). Below Crooked Creek , Ophir Creek is at elevations less than 250 feet. This low elevation suggest the possiblity that the character of Ophir Creek placer deposits was influenced by Quaternary sea level fluctuations. The presence of terrace gravels and bench placer deposits indicates that two or

more cycles of placer deposit development have occurred. However, there are gold-bearing localities in Lower Paleozoic metasedimentary bedrock (schist and marble; Till and others, 1986) near the mouth of Ophir Creek (Smith and Eakin, 1911), the mouth of Crooked Creek (BN100), and the headwaters of Crooked Creek (BN104). Gold-bearing bedrock is most commonly described as areas with small quartz or quartz-carbonate veins in schist or schistose limestone.

Alteration:

Age of mineralization:

Quaternary; the presence of terrace gravels and bench placer deposits indicates that two or more cycles of placer formation have occurred. Below Crooked Creek, Ophir Creek is at elevations less than 250 feet. This low elevation proximal to the Niukluk River coastal area suggest the possiblity that Quaternary sea level fluctuations influenced the character of Ophir Creek placer deposits.

Deposit model:

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

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

39a

Production Status: Yes; medium

Site Status: Active?

Workings/exploration:

Dredging of the entire floodplain, in places almost 1,000 feet wide, took place over the 7,500 feet of the drainage downstream from Crooked Creek. Benches have been mined here and there along the drainage and at the mouth of Crooked Creek. Some dredging took place as recently as the 1980's.

Production notes:

The majority of the 707,000 ounces of gold production recorded for the Council district (Hudson and DeYoung, 1978) probably came from Ophir Creek. About 50,000 ounces ($1,000,000) were estimated to have been produced in 1901 alone (Brooks, 1903).

Reserves:

Additional comments:

References:

Brooks, 1903; Smith and Eakin, 1911; Cobb, 1972 (MF 417); Cobb, 1975 (OFR 75-429); Hudson and DeYoung, 1978; Till and others, 1986.

Primary reference: Cobb, 1975 (OFR 75-429)

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Lower Crooked Creek

Site type: Occurrence

ARDF no.: BN100

Latitude: 65.02 **Quadrangle:** BN A-4

Longitude: 163.67

Location description and accuracy:

Crooked Creek is a short, 2.3 mile long west tributary to Ophir Creek. The mouth of Crooked Creek is 7,500 feet upstream (on Ophir Creek) from the southern boundary of the Bendeleben quadrangle. This occurrence is described as being near the mouth of Crooked Creek and is only approximately located, probably within one mile. It is locality 13 of Cobb (1972; MF 417; 1975; OFR 75-429).

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals: Pyrite, quartz

Geologic description:

A 12 foot-wide mineralized zone in schistose limestone (marble) contains quartz veins and pyrite. Collier and others (1908) report that a quartz stringer with pyrite assayed 0.06 ounces/ton Au and a trace of silver from this area and Smith and Eakin (1911) were told that assays as high as 0.04 ounces/ton Au had been obtained from this occurrence. Bedrock in the area is metasedimentary schist and marble of a Lower Paleozoic assemblage (Till and others, 1986).

Alteration:

Quartz veining and possibly pyrite disseminatioin in the metasedimentary host rocks is present.

Age of mineralization:

Possibly mid-Cretaceous; if gold-bearing lode structures are present here they may be similar in age to some lode gold deposits of southern Seward Peninsula. The southern Seward Peninsula lode gold deposits formed as a result of mid-Cretaceous metamorphism (Apodoca, 1994; Ford, 1993, Ford and Snee, 1996; Goldfarb and others, 1997) that accompanied regional extension (Miller and Hudson, 1991) and crustal melting (Hudson,

1994). This higher temperature metamorphism was superimposed on high pressure/low temperature metamorphic rocks of the region.

Deposit model:
Gold-bearing quartz veins in schistose marble

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

Production Status: No

Site Status: Probably inactive

Workings/exploration:
This occurrence may have been exposed by surface placer mine workings on a bench along lower Crooked Creek.

Production notes:
Placer gold from lower Crooked Creek was both coarse and rounded as well as sharp, angular, and with quartz attached (Smith and Eakin, 1911). Collier and others (1908) also noted that the fragile and crystalline placer gold suggested a local source.

Reserves:

Additional comments:

References:
Collier and others, 1908; Smith and Eakin, 1911; Cobb, 1972 (MF 417); Cobb, 1975 (OFR 75-429); Till and others, 1986; Miller and Hudson, 1991; Ford, 1993; Apodoca, 1994; Hudson, 1994; Ford and Snee, 1996; Goldfarb and others, 1997.

Primary reference: Smith and Eakin, 1911

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Balm Of Gilead Gulch

Site type: Mine

ARDF no.: BN101

Latitude: 65.018 **Quadrangle:** BN A-4

Longitude: 163.699

Location description and accuracy:
Balm of Gilead Gulch is a small south tributary of Crooked Creek. Crooked Creek is a short, 2.3 mile long west tributary to Ophir Creek. The mouth of Crooked Creek is 7,500 feet upstream (on Ophir Creek) from the southern boundary of theBendeleben quadrangle. The mouth of Balm of Gilead Gulch is 4,500 feet upstream of the mouth of Crooked Creek. This is locality 82 of Cobb (1972; MF 417; 1975; OFR 75-429).

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:
Detrital gold was recovered from fractures and crevices in limestone (marble) bedrock. The gold-bearing bedrock was covered by 5 feet of soil (Collier and others, 1908). Bedrock in the area is metasedimentary schist and marble of a Lower Paleozoic assemblage (Till and others, 1986).

Alteration:

Age of mineralization:
Quaternary

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

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

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:

Surface placer mine workings are present; apparently only small-scale mining took place here prior to WW I. The relation of the gold-bearing zone to alluvial channels or possible benches in the area is not known.

Production notes:

Reserves:

Additional comments:

References:

Collier and others, 1908; Cobb, 1972 (MF 417); Cobb, 1975 (OFR 75-429); Till and others, 1986.

Primary reference: Collier and others, 1908

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Crooked Creek

Site type: Mine

ARDF no.: BN102

Latitude: 65.028 **Quadrangle:** BN A-4

Longitude: 163.697

Location description and accuracy:

This placer mine comprises 3,500 feet of the channel of Crooked Creek, between an elevation of 350 and 450 feet; it that begins about one mile upstream from its mouth. Crooked Creek is a short, 2.3 mile long west tributary to Ophir Creek. The mouth of Crooked Creek is 7,500 feet upstream on Ophir Creek from the southern boundary of the Bendeleben quadrangle. This is locality 80 of Cobb (1972; MF 417; 1975; OFR 75-429).

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals: Garnet, magnetite, topaz (from placer concentrate near mouth of the creek, Smith and Eakin, 1911)

Geologic description:

Stream gravels of Crooked Creek merge with floodplain deposits of Ophir Creek where the paystreak was 250 feet wide, 6 feet thick, and contained 0.22 ounces Au per cubic yard (Collier and others, 1908; Smith and Eakin, 1911). The paystreak narrowed to 6 feet wide 0.25 mile upstream of the mouth. About three quarters of a mile above the mouth of Crooked Creek, the paystreak consisted of 5 feet of auriferous sandy clay mixed with limestone (marble) fragments; it was 20 feet wide and overlain by 6 feet of barren clay. At 1.25 miles above the mouth, the paystreak widened to 150 to 200 feet and consisted of auriferous yellow clay mixed with limestone (marble) boulders. Much of the mining in the two decades before WW II, including dredging (Cobb, 1975, OFR 75-429), probably took place here. Bedrock in the area is metasedimentary schist and marble of a Lower Paleozoic assemblage (Till and others, 1986).

Alteration:

Age of mineralization:

Quaternary; two or more cycles of placer development have occured in the area.

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

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

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:
Surface open-cut placer workings and dredging have taken place along this part of Crooked Creek.

Production notes:
Placer gold from lower Crooked Creek was both coarse and rounded as well as sharp and angular with quartz attached (Smith and Eakin, 1911). Collier and others (1908) also noted fragile and crystalline placer gold that suggests a local source.

Reserves:

Additional comments:

References:
Collier and others, 1908; Smith and Eakin, 1911; Cobb, 1972 (MF 417); Cobb, 1975 (OFR 75-429); Till and others, 1986.

Primary reference: Smith and Eakin, 1911

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Albion Creek

Site type: Mine

ARDF no.: BN103

Latitude: 65.024 **Quadrangle:** BN A-4

Longitude: 163.705

Location description and accuracy:
Albion Creek is a small west tributary to Crooked Creek; its mouth is about 6,000 feet upstream of the confluence of Crooked Creek (BN102) and Ophir Creek (BN099). Crooked Creek is a short, 2.3 mile long west tributary to Ophir Creek. The mouth of Crooked Creek is 7,500 feet upstream on Ophir Creek from the southern boundary of the Bendeleben quadrangle. This is locality 81 of Cobb (1972; MF 417; 1975; OFR 75-429).

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:
Placer gold mining, including dredging, has taken place along at least the lower 2,000 feet of Albion Creek as well as on the slope along the north bank up to 100 feet in elevation above the creek. The placer deposit above the creek was called a hillside placer (Smith, 1908) but it is not known if this was residual in character. Gravels in the creek are reported to be locally derived and auriferous throughout its length (Collier and others, 1908; Smith and Eakin, 1911). A section near its mouth included 3 feet of locally derived gravel covered by 3 feet of overburden. Bedrock in the area is metasedimentary schist and marble of a lower Paleozoic assemblage (Till and others, 1986). Two occurrences of gold in bedrock (BN104 and BN125) are known near the headwaters of Albion Creek.

Alteration:

Age of mineralization:
Quaternary; two or more cycles of placer development have occured in the area.

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

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

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:
Surface open-cut placer mining, including hydraulic and dredging operations, have taken place along at least the lower 2,000 feet of Albion Creek as well as on the slope along the north bank up to 100 feet in elevation above the creek.

Production notes:

Reserves:

Additional comments:

References:
Collier and others, 1908; Smith and Eakin, 1911; Cobb, 1972 (MF 417); Cobb, 1975 (OFR 75-429); Till and others, 1986.

Primary reference: Cobb, 1975 (OFR 75-429)

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Upper Crooked Creek

Site type: Occurrence

ARDF no.: BN104

Latitude: 65.03 **Quadrangle:** BN A-4

Longitude: 163.75

Location description and accuracy:

This occurrence is on the divide between the headwaters of Virginia Creek, Oxide Creek, Crooked Creek (BN102), and Albion Creek (BN103). It is very approximately located at an elevation of 900 feet; probably located within one mile. This is locality 12 of Cobb (1972; MF 417; 1975; OFR 75-429).

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals: Quartz

Geologic description:

A gold-bearing lode that consists of quartz veins containing up to 2 ounces Au per ton, occurs on the divide between Goldbottom and Crooked Creeks; it is reported to be near a marble-schist contact (Collier and others, 1908) and to be similar to an occurrence near the mouth of Crooked Creek (BN100; Smith and Eakin, 1911). The occurrence near the mouth of Crooked Creek is a 12-foot wide mineralized zone in schistose limestone (marble) that contains quartz veins and pyrite. Bedrock in the area of this occurrence is metasedimentary schist and marble of a lower Paleozoic assemblage (Till and others, 1986).

Alteration:

Quartz veining and possibly disseminated pyrite is present in the metasedimentary host rocks.

Age of mineralization:

Possibly mid-Cretaceous; if gold-bearing lode structures are present here they may be similar in age to some lode gold deposits of southern Seward Peninsula. The southern Seward Peninsula lode gold deposits formed as a result of mid-Cretaceous metamorphism (Apodoca, 1994; Ford, 1993, Ford and Snee, 1996; Goldfarb and others, 1997) that ac-

companied regional extension (Miller and Hudson, 1991) and crustal melting (Hudson, 1994). This higher temperature metamorphism was superimposed on high pressure/low temperature metamorphic rocks of the region.

Deposit model:
Gold-bearing quartz veins in schistose marble

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

Production Status: No

Site Status: Inactive

Workings/exploration:
Some small surface prospecting pits are probably present.

Production notes:

Reserves:

Additional comments:

References:
Collier and others, 1908; Smith and Eakin, 1911; Cobb, 1972 (MF 417); Cobb, 1975 (OFR 75-429); Till and others, 1986; Miller and Hudson, 1991; Ford, 1993; Apodoca, 1994; Hudson, 1994; Ford and Snee, 1996; Goldfarb and others, 1997.

Primary reference: Collier and others, 1908

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Goldbottom Creek

Site type: Mine

ARDF no.: BN105

Latitude: 65.013 **Quadrangle:** BN A-4

Longitude: 163.845

Location description and accuracy:

Goldbottom Creek is a north tributary to Niukluk River that, in its upper part, is 6 miles west of Ophir Creek. Only its upper parts (including its headwater triburtaries Virginia and Russel Creeks) are within the Bendeleben quadrangle. Most of the placer gold mining on Goldbottom Creek took place to the south in the Solomon quadrangle. This location is very approximate; probably located within one mile. It is locality 76 of Cobb (1972; MF 417; 1975; OFR 75-429).

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:

Collier and others (1908) report that 3 feet of schist gravel (covered by 2 feet of sod and muck) from a claim near the head of Goldbottom Creek., was shovelled into a sluice and fine, angular gold was recovered. This description could indicate a location farther up Goldbottom Creek (perhaps a headwater tributary) than that identified here. Gold-bearing bedrock is known at two localities (BN104 and BN125) on the divide at the head of Goldbottom Creek. Bedrock in the area is metasedimentary schist and marble of a Lower Paleozoic assemblage (Till and others, 1986).

Alteration:

Age of mineralization:

Quaternary

Deposit model:

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

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

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:
Surface placer mine workings, perhaps only the result of hand operations, have been reported here. Much more extensive placer mining, including dredging, has taken place lower on Goldbottom Creek (primarily in the Solomon quadrangle).

Production notes:

Reserves:

Additional comments:

References:
Collier and others, 1908; Cobb, 1972 (MF 417); Cobb, 1975 (OFR 75-429); Till and others, 1986.

Primary reference: Collier and others, 1908

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Upper Ophir Creek

Site type: Mine

ARDF no.: BN106

Latitude: 65.057 **Quadrangle:** BN A-4

Longitude: 163.69

Location description and accuracy:

This is an area of placer gold mining on upper Ophir Creek (BN099). It is about 1,000 feet of the drainage just below the confluence of Ophir Creek and its northeast headwater tributary, Flat Creek. These workings start about 3.4 miles upstream of the confluence of Ophir Creek (BN099) and Crooked Creek. This is just above the section of Ophir Creek that flows through a narrow canyon-like valley. The north side of this canyon marks the southwest limit of the Late Pleistocene terminal moraine complex of the Pargon River valley. This is locality 78 of Cobb (1972; MF 417; 1975; OFR 75-429).

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:

The Bendeleben A-4 topographic map shows placer mine workings over about 1,000 feet of the Ophir Creek just downstream from its confluence with Flat Creek. This may be the location referred to by Smith and Eakin (1911) as the bench at the head of the canyon that was being mined in 1903. This area is proximal to the Late Pleistocene terminal moraine complex of the Pargon River valley. The possible influence of outwash waters or sediments from this moraine complex on placer deposits of the Ophir Creek drainage is not known. The Ophir Creek (and Crooked Creek) placers were well developed, rich, and the product of more than one cycle of erosion and placer development. Perhaps drainage from the moraine complex did not flow down Ophir Creek.

Alteration:

Age of mineralization:

Quaternary

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

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

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:
The Bendeleben A-4 quadrangle shows placer mine workings over about 1,000 feet of the Ophir Creek just downstream from its confluence with Flat Creek.

Production notes:

Reserves:

Additional comments:

References:
Smith and Eakin, 1911; Cobb, 1972 (MF 417); Cobb, 1975 (OFR 75-429).

Primary reference: Smith and Eakin, 1911

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Oxide Creek

Site type: Mine

ARDF no.: BN107

Latitude: 65.063 **Quadrangle:** BN A-4

Longitude: 163.726

Location description and accuracy:
Oxide Creek is a small west headwater tributary to Ophir Creek (BN099). The confluence of Oxide Creek and Ophir Creek is at elevation 428 feet, about 2,500 feet upstream from the confluence of Ophir Creek and Flat Creek. This is locality 77 of Cobb (1972; MF 417; 1975; OFR 75-429).

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:
There is only one early report (Collier and others, 1908, p. 244) of placer gold being produced on this creek (Cobb, 1975, OFR 75-429).

Alteration:

Age of mineralization:
Quaternary

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

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

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:
Some small scale surface placer workings may be present.

Production notes:

Reserves:

Additional comments:

References:
Collier and others, 1908; Cobb, 1972 (MF 417); Cobb, 1975 (OFR 75-429).

Primary reference: Collier and others, 1908

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Unnamed; Nesbit Creek ?

Site type: Occurrence

ARDF no.: BN108

Latitude: 65.16 **Quadrangle:** BN A-4

Longitude: 163.83

Location description and accuracy:

Smith and Eakin (1911) describe this location as being on the divide between Kingsland and Nugget Creeks. Neither creek is identified on the current topographic map of the area (Bendeleben A-4 quadrangle). However, Nesbit Creek is the main headwater tributary to what is now known as Kingsley Creek. It is assumed that an unnamed east tributary to upper Niukluk River is the creek referred to as Nugget Creek by Smith and Eakin (1911). Therefore, this very approximately located occurrence is assumed to be on the ridge crest between Nesbit Creek and the unnamed tributary to Niukluk River. It is locality 11 of Cobb (1972; MF 417; 1975; OFR 75-429).

Commodities:

Main: Au, Cu

Other:

Ore minerals: Chalcopyrite

Gangue minerals:

Geologic description:

Simth and Eakin (1911) report disseminated lenses and stringers of chalcopyrite and its oxidation products, near a contact between schist and limestone (marble). A little gold is also reported. This base metal occurrence, and several others in this part of the Bendeleben A-4 quadrangle, are in high grade metasedimentary rocks that are structurally above or peripheral to the croscutting Pargon pluton. The Pargon pluton is mostly granodiorite and assumed to be Cretaceous in age (Till and others, 1986). It was emplaced at shallower depths than the more deep-seated Bendeleben pluton to the east.

Alteration:

Oxidation.

Age of mineralization:

Cretaceous; this occurrence is probably related to emplacement of the Pargon pluton which is assumed to be Cretaceous in age.

Deposit model:
Polymetallic veins and disseminations in high grade metamorphic rocks

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

Production Status: No

Site Status: Inactive

Workings/exploration:
Some small hand dug prospecting pits may be present.

Production notes:

Reserves:

Additional comments:

References:
Smith and Eakin, 1911; Cobb, 1972 (MF 417); Cobb, 1975 (OFR 75-429); Till and others, 1986.

Primary reference: Smith and Eakin, 1911

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Unnamed (northeast of Chauik Mountain)

Site type: Occurrence

ARDF no.: BN109

Latitude: 65.15 **Quadrangle:** BN A-4

Longitude: 163.77

Location description and accuracy:

This occurrence is on the ridge crest between the headwaters of Nesbit and Stab Creeks at an elevation 2,400 feet. It is 3,500 feet northwest of Chauik Mountain which is 3,464 feet high.

Commodities:

Main: Ag, Pb, Zn

Other:

Ore minerals: Galena

Gangue minerals:

Geologic description:

This occurrence is a thin gossan zone, about 10 inches wide, that trends across the ridge crest. It may be along a small fault. A grab sample contained 12.4 % Pb, 3.45 ounces/ton Ag, 6,250 ppm Zn, and less than 5 ppb Au (Hudson and Wyman, 1983). This base metal occurrence, and several others in this part of the Bendeleben A-4 quadrangle, are in high grade metasedimentary rocks that are structurally above or peripheral to the crosscutting Pargon pluton. The Pargon pluton is mostly granodiorite and assumed to be Cretaceous in age (Till and others, 1986). It was emplaced at shallower depths than the more deep-seated Bendeleben pluton to the east.

Alteration:

Oxidation; thin gossan zone in metasedimentary rocks.

Age of mineralization:

Cretaceous; this occurrence is probably related to emplacement of the Pargon pluton which is assumed to be Cretaceous in age.

Deposit model:

Galena-bearing vein in high grade metasedimentary rocks

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

Production Status: None

Site Status: Inactive

Workings/exploration:
No workings are present and only reconnaissance sampling has been done.

Production notes:

Reserves:

Additional comments:

References:
Hudson and Wyman, 1983; Till and others, 1986.

Primary reference: Hudson and Wyman, 1983

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Unnamed (in headwaters of Niukluk River)

Site type: Prospect

ARDF no.: BN110

Latitude: 65.19 **Quadrangle:** BN A-4

Longitude: 163.84

Location description and accuracy:

This prospect is on the ridge between two unnamed northeast headwater tributaries of Niukluk River. It is on the east-souteast slopes at an elevation of 2,995 feet. It is approximately location 82 of Gamble (1988).

Commodities:

Main: Ag, Cu, Pb, Zn

Other:

Ore minerals: Chalcopyrite, galena, sphalerite

Gangue minerals: Actinolite, biotite, calcite, chlorite, epidote, garnet, mica, quartz

Geologic description:

This prospect is a sulfide-bearing skarn prospect (Hudson and Wyman, 1983). It is developed in impure carbonate layers in high grade metasedimentary rocks that are variably replaced by epidote and garnet. Alteration of the skarn includes development of mica, actinolite, and chlorite. Lenses and pods of galena and sphalerite also replace metacarbonate layers, but chalcopyrite seems to favor replacement of metaclastic, metavolcanic (?), or amphibolite layers. Grab samples of skarn contained from up to 1.4 % Cu, 13.5 % Pb, 9.5 % Zn, and 5.1 ounces/ton Ag. Gold was below the detection level (5 ppb) in these samples (Hudson and Wyman, 1983). A sample from a sulfide-bearing limonitic quartz vein from the top of the ridge east of elevation 2,995 feet contained 6.22 % Cu, 7.75 % Pb, 2.38 % Zn, 4.98 ounces/ton Ag, and only 10 ppb Au. In general, skarn mineralization appears to carry more lead, zinc and silver values than copper. This base metal prospect, and several other occurrences in this part of the Bendeleben A-4 quadrangle, are in high grade metasedimentary rocks that are structurally above or peripheral to the crosscutting Pargon pluton. The Pargon pluton is mostly granodiorite and assumed to be Cretaceous in age (Till and others, 1986). It was emplaced at shallower depths than the more deep-seated Bendeleben pluton to the east. The metamorphic rocks peripheral to the Pargon pluton are also intruded by small, felsic dikes and plugs including quartz porphyry and muscovite granite. A sample of altered quartz porphyry contained 475 ppm Cu and 520 ppm Pb (Hudson and Wyman, 1983).

Alteration:
The epidote-garnet skarn appears to have an overprinting hydrous alteration of mica, actinolite, and chlorite. Limonitic staining is present.

Age of mineralization:
Cretaceous; this occurrence is probably related to emplacement of the Pargon pluton which is assumed to be Cretaceous in age.

Deposit model:
Zn-Pb skarn (Cox and Singer, 1986; model 18c)

Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):
18c

Production Status: None

Site Status: Inactive

Workings/exploration:
Mining claims have existed on this propect (Hudson and others, 1977). Work has consisted of surface observations and shallow, hand-dug prospecting pits.

Production notes:

Reserves:

Additional comments:

References:
Hudson and others, 1977; Hudson and Wyman, 1983; Till and others, 1986.

Primary reference: Hudson and Wyman, 1983

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Andesite Creek; Lava Lake

Site type: Occurrence

ARDF no.: BN111

Latitude: 65.57 **Quadrangle:** BN C-4

Longitude: 163.93

Location description and accuracy:
Hopkins (1963) discribes three exposures of diatomite in the upper valley of Andesite Creek, the northeasternmost exposure being due south of Lava Lake. The terminal parts of Lost Jim lava flow cover parts of the diatomite deposit. This location is approximate, probably within 1 mile.

Commodities:

Main: Diatomite

Other:

Ore minerals: Diatomite

Gangue minerals:

Geologic description:
Diatomite was deposited in a former lake formed when a Quaternary lava flow dammed Andesite Creek. The diatomite, as observed in three areas of exposure by Hopkins (1963,) is progressively more contaminated with darker-colored organic material to the southwest. The northeasternmost exposure is nearly pure diatomite covering an area of at least 2,500 feet by 1,000 feet. Diatomitet thicknesses of 4 to 10 feet have been observed in stream and lake banks and the base is not exposed. These diatomaceous lake deposits are locally overlain by terminal parts of the Holocene Lost Jim lava flow (Hopkins, 1963).

Alteration:

Age of mineralization:

Deposit model:
Lacustrine sedimentary deposits

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

Production Status: No

Site Status: Inactive

Workings/exploration:
None.

Production notes:

Reserves:

Additional comments:

References:
Hopkins, 1963.

Primary reference: Hopkins, 1963

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Collins Creek

Site type: Occurrence

ARDF no.: BN112

Latitude: 65.9 **Quadrangle:** BN D-3

Longitude: 163.2

Location description and accuracy:
Collins Creek is a southern tributary to Hannum Creek. The mouth of Collins Creek is 1.5 miles upstream of the confluence of Hannum Creek and Inmachuk River. This is locality 70 of Cobb (1972; MF 417; 1975; OFR 75-429).

Commodities:

Main: Au

Other: Pb

Ore minerals: Gold

Gangue minerals: Galena, lead carbonates, pyromorphite

Geologic description:
Coarse gold (Moffit, 1905) and lead minerals including lead carbonates, pyromorphite, and galena are reported from gravels in this creek (Anderson, 1947), but information about exploration or mining here is not available (Cobb, 1975, OFR 75-429). Bedrock of the area is a metasedimentary schist and marble sequence of Lower Paleozoic age (Till and others, 1986). Quaternary/Teritiary basalt flows locally cap ridges along the Hannum Creek valley.

Alteration:

Age of mineralization:
Quaternary

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

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

Production Status: Undetermined.

Site Status: Inactive

Workings/exploration:

Some small open-cut placer mine workings may be present. Hannum Creek (BN057) has been placer mined at the mouth of Collins Creek.

Production notes:

Reserves:

Additional comments:

References:

Moffit, 1905; Anderson, 1947; Cobb, 1972 (MF 417); Cobb, 1975 (OFR 75-429); Till and others, 1986.

Primary reference: Cobb, 1975 (OFR 75-429)

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Cunningham Creek

Site type: Mine

ARDF no.: BN113

Latitude: 65.929 **Quadrangle:** BN D-3

Longitude: 163.331

Location description and accuracy:

Cunningham Creek is a west headwater tributary to Hannum Creek (BN057). Hannum Creek is a west tributary to Inmachuk River. Herried (1966) shows placer mine workings to be present 500 feet downstream of the mouth of Harrys Creek but other workings may be present between here and the confluence with Hannum Creek (Cobb, 1975). This is locality 75 of Cobb (1972; MF 417; 1975; OFR 75-429).

Commodities:

Main: Au

Other: Ag, Pb

Ore minerals: Galena, gold, lead carbonates, pyromorphite

Gangue minerals: Pyrite

Geologic description:

Placer gold mining took place as early as 1901 on Cunningham Creek when $1,200 (about 70 ounces) was said to have been recovered near its mouth (Moffit, 1905). Herried (1966) shows placer mine workings to be present 500 feet downstream of the mouth of Harrys Creek but other workings may be present between here and the confluence with Hannum Creek (Cobb, 1975, OFR 75-429). Anderson (1947) reports that a placer concentrate produced by drift mining in 1942 contained lead carbonates, pyromorphite, and galena and assayed 50 % Pb and 5.7 ounces/ton Ag. Mining from near Harrys Creek produced coarse gold and abundant galena and pyrite (Mulligan, 1965). Sulfides are also apparently present in colluvial materials along stream. Galena- and sphalerite-bearing lode deposits are present on Harrys Creek (BN055) and Hannum Creek (BN056). Bedrock of the area is a metasedimentary schist and marble sequence of Lower Paleozoic age (Till and others, 1986). Quaternary/Teritiary basalt flows locally cap ridges along stream valleys.

Alteration:

Age of mineralization:

Quaternary

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

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

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:
Open-cut surface placer mine workings are locally present between the confluence with Hannum Creek and the mouth of Harrys Creek.

Production notes:

Reserves:

Additional comments:

References:
Moffit, 1905; Anderson, 1947; Mulligan, 1965; Herried, 1966; Cobb, 1972 (MF 417); Cobb, 1975 (OFR 75-429); Till and others, 1986.

Primary reference: Cobb, 1975 (OFR 75-429)

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Hot Springs Creek

Site type: Occurrence

ARDF no.: BN114

Latitude: 65.86 **Quadrangle:** BN D-6

Longitude: 164.71

Location description and accuracy:

The location of this occurrence is very approximate; it can only be located to within one or two miles. Moxham and West (1953) note cinnabar 'in concentrates panned from a shallow gully in the south side of the eastern fork of Hot Springs CreeK'. Hot Springs Creek is a tributary of the Serpentine River with headwaters in the Oonatut Granite Complex (Hudson, 1979). The location description suggests that the occurrence is in an area underlain by Oonatut Granite; the presence of cinnabar has not been confirmed and the locality was not shown by Cobb (1972; MF 417). Cobb (1975; OFR 75-429) summarized references to this locality under the name 'Hot Springs Cr.'.

Commodities:

Main: Hg

Other: Radioactive minerals

Ore minerals: Cinnabar

Gangue minerals: Allanite, hydrogoethite, sphene, u-bearing secondary minerals, zircon

Geologic description:

Moxham and West (1953) note cinnabar 'in concentrates panned from a shallow gully in the south side of the eastern fork of Hot Springs CreeK'. Hot Springs Creek is a tributary of the Serpentine River with headwaters in the Oonatut Granite Complex (Hudson, 1979). The location description suggests that the occurrence is in an area underlain by Oonatut Granite; the presence of cinnabar here has not been confirmed. In general, only the central, late-forming part of the Oonatut Granite Complex is hydrothermally altered (Hudson, 1979). This is an evolved tin granite complex (Hudson and Arth, 1983) and its accessory mineral content (apatite, allanite, sphene, and zircon) is responsible for its slightly elevated levels of uranium and thorium (Moxham and West, 1953). The weathering of the granite has contributed these minerals to alluvial gravels in the area.

Alteration:

Age of mineralization:

Not known; the Oonatut Granite is Late Cretaceous (about 70 my, Hudson, 1979) but if cinnabar is present it may be different in age.

Deposit model:
Placer cinnabar concentration (?)

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

Production Status: No

Site Status: Inactive

Workings/exploration:
None.

Production notes:

Reserves:

Additional comments:

References:
Moxham and West, 1953; Cobb, 1972 (MF 417); Cobb, 1975 (OFR 75-429); Hudson, 1979; Hudson and Arth, 1983.

Primary reference: Moxham and West, 1953

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

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

Site type: Occurrence

ARDF no.: BN115

Latitude: 65.03 **Quadrangle:** BN A-2

Longitude: 162.56

Location description and accuracy:
This occurrence is 2,600 feet S 22 E of the Foster prospect (BN098). Omilak Creek flows westward from headwaters in the northern Darby Mountains to the Fish River in McCarthy's Marsh.

Commodities:

Main: Pb

Other:

Ore minerals: Cerussite

Gangue minerals: Limonite

Geologic description:
Cerussite has been identified in a limonitic float sample at this locality (Mulligan, 1962). No assay data are available. This is in high grade carbonate metamorphic rocks of probable Lower Paleozoic age (Till and others, 1986).

Alteration:
Oxidation of sulfide minerals.

Age of mineralization:
Cretaceous ?; Epigenetic mineralization in metamorphic rocks of Seward Peninsula is primarily of Cretaceous age.

Deposit model:
Polymetallic vein or replacement in marble (Cox and Singer, 1986; model 19a or 22c ?). May be similar to Foster propect (BN098).

Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):
19a ?; 22c ?

Production Status: No

Site Status: Inactive

Workings/exploration:
No workings are known at his locality.

Production notes:

Reserves:

Additional comments:

References:
Mulligan, 1962; Briskey, 1983; Till and others, 1986.

Primary reference: Mulligan, 1962

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

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

Site type: Occurrence

ARDF no.: BN116

Latitude: 65.02 **Quadrangle:** BN A-2

Longitude: 162.56

Location description and accuracy:
This occurrence is 3,000 feet S 60 E of the Foster prospect (BN098). Omilak Creek flows westward from headwaters in the northern Darby Mountains to the Fish River in McCarthy's Marsh.

Commodities:

Main: Pb

Other:

Ore minerals: Cerrussite, galena

Gangue minerals: Limonite

Geologic description:
A small gossan in metacarbonate rocks contains limonite, cerussite and some galena. A grab sample assayed 6.3 % Pb (Mulligan, 1962). This is in high grade carbonate metamorphic rocks of probable lower Paleozoic age (Till and others, 1986).

Alteration:
Oxidation of sulfide minerals.

Age of mineralization:
Cretaceous ?; Epigenetic mineralization in metamorphic rocks of Seward Peninsula is primarily of Cretaceous age.

Deposit model:
Polymetallic vein or replacement in marble (Cox and Singer, 1986; model 19a or 22c ?). May be similar to Foster propect (BN098).

Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):
19a ?; 22c ?

Production Status: No

Site Status: Inactive

Workings/exploration:
No workings are known at his locality.

Production notes:

Reserves:

Additional comments:

References:
Mulligan, 1962; Till and others, 1986.

Primary reference: Mulligan, 1962

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Unnamed (Left Fork)

Site type: Occurrence

ARDF no.: BN117

Latitude: 65.52 **Quadrangle:** BN C-6

Longitude: 164.71

Location description and accuracy:

This occurrence is at the mouth of Left Fork, a west tributary to Kougarok River. It is 2.5 miles west of the Nome-Taylor road and about a 1,000 feet west of the mouth of Louisa Creek, a small east tributary to Kougarok River. This is locality 3 of Gamble (1988).

Commodities:

Main: Cu

Other: Ag

Ore minerals: Chalcopyrite

Gangue minerals:

Geologic description:

Gamble (1988) describes this occurrence as disseminated chalcopyrite in chlorite schist and reports one per cent copper and 15 ppm silver from one sample. Bedrock exposed in the area around the mouth of Left Fork is part of a mafic metavolcanic assemblage that Till and others (1986) consider to be Ordovician in age.

Alteration:

Age of mineralization:

Unknown; if the occurrence is related to a volcanogenic massive sulfide environment then mineralization would be Paleozoic in age.

Deposit model:

Unknown; possibly related to volcanogenic massive sulfide environment

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:
Till and others, 1986; Gamble, 1988.

Primary reference: Gamble, 1988

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Harris Creek

Site type: Occurrence

ARDF no.: BN118

Latitude: 65.63 **Quadrangle:** BN C-6

Longitude: 164.58

Location description and accuracy:

Harris Creek is the principal north tributary to the North Fork of Kougarok River. The mouth of Harris Creek is about 3.7 miles upstream from the Nome-Taylor road crossing of North Fork. Sainsbury and others (1969) show placer mine workings on the main channel of Harris Creek starting at the mouth and continuring upstream for 4.3 miles. This is locality 4 of Gamble (1988). This occurrence has not been confirmed and it is very approximately located; probably within a distance of 2 miles.

Commodities:

Main: Pb

Other:

Ore minerals: Galena

Gangue minerals:

Geologic description:

Galena-bearing veins in bedrock of Harris Creek reportedly were discovered during early placer mining (Berg and Cobb, 1967, p. 118). Sainsbury and others (1969) show placer mine workings on the main channel of Harris Creek starting at the mouth and continuing upstream for 4.3 miles. The lower two miles of the stream channel crosses Paleozoic marble bedrock and the upper two miles or more crosses Lower Paleozoic metasedimentary rocks (Sainsbury and others, 1969; Till and others, 1986).

Alteration:

Age of mineralization:

Unknown; if this occurrence is epigenetic, then it may be Cretaceous in age, the age of most epigenetic mineral deposits on Seward Peninsula.

Deposit model:

Galena-bearing veins in metamorphic rocks

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

Production Status: None

Site Status: Inactive

Workings/exploration:

Sainsbury and others (1969) show placer mine workings on the main channel of Harris Creek starting at the mouth and continuing upstream for 4.3 miles. A dredge was operated on at least parts of this drainage.

Production notes:

Reserves:

Additional comments:

References:

Berg and Cobb, 1967; Sainsbury and others, 1969; Till and others, 1986; Gamble, 1988.

Primary reference: Berg and Cobb, 1967

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): HOM (Mina Creek)

Site type: Prospect

ARDF no.: BN119

Latitude: 65.75 **Quadrangle:** BN D-1

Longitude: 162.32

Location description and accuracy:

This prospect is very approximately located to be on the ridge crest between the headwaters of Mina Creek and its north tributary Champion Creek at an elevation 1,000 feet. The mouth of Mina Creek, an east tributary to Kugruk River, is 6.5 miles north of the Independence mine (BN076).

Commodities:

Main: Ag, Pb, Zn

Other: Cu

Ore minerals: Chalcopyrite (?), galena, sphalerite

Gangue minerals: Pyrite (?), quartz

Geologic description:

This is a volcanogenic massive sulfide prospect that was explored by Houston Oil and Minerals (HOM) in the 1970's. Exploration included core drilling. Drilling encountered up to 5 % sphalerite in felsic schist with some galena and silver values (R. Cunningham, written communication, 1998). The felsic schist is probably similar to other felsic schist sequences that are present in a belt to the east, south, and west of Kiwalik Mountain. The metamorphic assemblage containing felsic schist was not mapped separately by Till and others (1986) except along a part of Independence Creek. It is inferred to be of Devonian age, the age of the Kiwalik Mountain gneiss (Till and others, 1986). The geologic setting for this prospect and that at Big Bar (BN083, south of Kiwalik Mountain) seems to be similar to that of the Ambler district in the southern Brooks Range.

Alteration:

The deposit is oxidized; quartz-sericite-pyrite alteration is inferred to be present.

Age of mineralization:

Devonian ?; this is a strataform deposit and the host felsic schist is interpreted to be similar in age to the Devonian gneiss at Kiwalik Mountain (Till and others, 1986).

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

Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):
28a

Production Status: None

Site Status: Probably inactive

Workings/exploration:
Some core drilling took place here in the 1970's.

Production notes:

Reserves:

Additional comments:

References:
Till and others, 1986.

Primary reference: This description

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Unnamed (in the headwaters of French Creek)

Site type: Occurrence

ARDF no.: BN120

Latitude: 65.454 **Quadrangle:** BN B-2

Longitude: 162.542

Location description and accuracy:
This occurrence is on the crest of the continental divide in the headwaters of French Creek. It is about 1,000 feet east of elevation 1,223 on the divide. This is locality 34 of Gamble (1988).

Commodities:

Main: Zn

Other:

Ore minerals:

Gangue minerals: Hematite (?), limonite, quartz

Geologic description:
Quartz-hematite (?) veins and gossan zones in marble are developed near a small fault (Gamble, 1988). A sample of gossan contained 20 % Fe, 1,100 ppm As, 270 ppm Zn, 80 ppm Sb, and 10 ppm Mo. A sample of the veins contained 1,400 ppm Zn and 250 ppm As. The marble is Lower Paleozoic in age (Till and others, 1986).

Alteration:
The occurrence is oxidized; gossan is well developed.

Age of mineralization:
Cretaceous ?; Epigenetic mineralization in metamorphic rocks of Seward Peninsula is primarily of Cretaceous age.

Deposit model:
Quartz veins in marble

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

Production Status: None

Site Status: Inactive

Workings/exploration:
There are no known workings here.

Production notes:

Reserves:

Additional comments:

References:
Till and others, 1986; Gamble, 1988.

Primary reference: Gamble, 1988

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Unnamed (Copper Creek)

Site type: Occurrence

ARDF no.: BN121

Latitude: 65.18 **Quadrangle:** BN A-1

Longitude: 162.2

Location description and accuracy:
This occurrence is approximately located, possibly within two miles. According to the original description (Sainsbury, 1975, p. 92-93), malachite in dolomite occurs in the headwaters of Copper Creek. Copper Creek is an east-flowing drainage with headwaters on the ridge east of Camp Haven (Death Valley). The location used here differs from that of Gamble (1988; locality 39).

Commodities:

Main: Cu

Other:

Ore minerals: Malachite

Gangue minerals: Dolomite

Geologic description:
Sainsbury (1975, p. 92-93) very briefly describes this occurrence as schistose limestone, almost completely converted to dolomite, that carries visible malachite. The geologic map of the area (Till and others, 1986) shows Paleozoic marble on both sides of upper Copper Creek.

Alteration:
Dolomitization.

Age of mineralization:
Not known

Deposit model:
Malachite in marble

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

Production Status: None

Site Status: Inactive

Workings/exploration:
There are no known workings or exploration activities in this area.

Production notes:

Reserves:

Additional comments:

References:
Sainsbury, 1975; Till and others, 1986; Gamble, 1988.

Primary reference: Sainsbury, 1975

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Cold Spring

Site type: Occurrence

ARDF no.: BN122

Latitude: 65.23 **Quadrangle:** BN A-1

Longitude: 162.35

Location description and accuracy:
This occurrence is along the range front on the north side of Death Valley. It is on the north side of an unnamed north tributary to Tubutulik River where it enters Death Valley from its headwater uplands. This occurrence is 3.7 miles northwest of Camp Haven (northeast Death Valley). It is locality 40 of Gamble (1988).

Commodities:

Main: Bi

Other:

Ore minerals:

Gangue minerals:

Geologic description:
A cold spring comes to the surface at this locality and a grab sample of surface material here contained greater than 10,000 ppm bismuth (Miller and Grybeck, 1973). This location is close to an inferred range front normal fault with probable Quaternary displacement. However, an alluvial fan is developed where the nearby stream enters onto the lowland of Death Valley and the surface trace for the inferred fault is not apparent.

Alteration:

Age of mineralization:
Quaternary

Deposit model:
Surface precipitates from a cold spring contain Bi

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

Production Status: None

Site Status: Inactive

Workings/exploration:
None.

Production notes:

Reserves:

Additional comments:

References:
Miller and Grybeck, 1973; Gamble, 1988.

Primary reference: Miller and Grybeck, 1973

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

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

Site type: Occurrence

ARDF no.: BN123

Latitude: 65.253 **Quadrangle:** BN B-1

Longitude: 162.364

Location description and accuracy:
This occurrence is on the ridge crest along the north side of Death Valley between the headwaters of Nutmoyuk Creek and north tributaries to the Tubutulik River. It is about 1,000 feet south of elevation 1,920 and 3,000 feet southeast of the pass at the head of Nutmoyuk Creek (see BN086). It is locality 41 of Gamble (1988).

Commodities:

Main: Au

Other:

Ore minerals:

Gangue minerals: Fluorite, pyrite

Geologic description:
This is an area of marble and calc-silicate rock in the eastern-most Bendeleben Mountains. The carbonate rocks here are separated from other high-grade metamorphic rocks to the west by a high-angle fault that crosses the ridge at the saddle between Nutmoyuk Creek and Death Valley (Till and others, 1986). A sample of a pyrite-fluorite vein in calc-silicate rock here contained 0.5 ppm Au (Gamble, 1988).

Alteration:

Age of mineralization:
Cretaceous ?; Epigenetic mineralization in metamorphic rocks of Seward Peninsula is primarily of Cretaceous age.

Deposit model:
Quartz and fluorite vein in calc-silicate rock

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

Production Status: None

Site Status: Inactive

Workings/exploration:

It is not known it exploration activities have been undertaken here. Mining claims existed in the area in 1975 (see BN086).

Production notes:

Reserves:

Additional comments:

References:

Till and others, 1986; Gamble, 1988.

Primary reference: Gamble, 1988

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Unnamed (in the headwaters of Nutmoyuk Creek)

Site type: Occurrence

ARDF no.: BN124

Latitude: 65.26 **Quadrangle:** BN B-1

Longitude: 162.361

Location description and accuracy:
This occurrence is on the ridge crest along the north side of Death Valley between the headwaters of Nutmoyuk Creek and north tributaries to the Tubutulik River. It is about 1,500 feet north of elevation 1,920 and 3,000 feet northeast of the pass at the head of Nutmoyuk Creek (see BN086). It is locality 42 of Gamble (1988).

Commodities:

Main: Ag, Pb

Other: Sn

Ore minerals:

Gangue minerals: Quartz

Geologic description:
This is an area of marble and calc-silicate rock in the eastern-most Bendeleben Mountains. The carbonate rocks here are separated from other high-grade metamorphic rocks to the west by a high-angle fault that crosses the ridge at the saddle between Nutmoyuk Creek and Death Valley (Till and others, 1986). A sample of pyrite-bearing siliceous rock contained 5 ppm Ag, 500 ppm Pb, 1,200 ppm As, 70 ppm Bi, and 70 ppm Sn (Gamble, 1988). A sample of a pyrite-fluorite vein in calc-silicate rock here contained 0.5 ppm Au (Gamble, 1988).

Alteration:

Age of mineralization:
Cretaceous ?; Epigenetic mineralization in metamorphic rocks of Seward Peninsula is primarily of Cretaceous age.

Deposit model:
Polymetallic mineralization in siliceous rock

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

Production Status: None

Site Status: Inactive

Workings/exploration:

It is not known it exploration activities have been undertaken here. Mining claims existed in the area in 1975 (see BN086).

Production notes:

Reserves:

Additional comments:

References:

Till and others, 1986; Gamble, 1988.

Primary reference: Gamble, 1988

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Unnamed (near head of Albion Creek)

Site type: Occurrence

ARDF no.: BN125

Latitude: 65.02 **Quadrangle:** BN A-4

Longitude: 163.73

Location description and accuracy:
This occurrence is on the divide at the headwaters of Albion Creek (BN103). This is at an elevation of approximately 860 feet on the crest of the divide between Albion Creek and the headwaters of Warm Creek, an eastern tributary to Goldbottom Creek (BN105). This is locality 74 of Gamble (1988).

Commodities:

Main: Au

Other:

Ore minerals:

Gangue minerals: Quartz

Geologic description:
Gamble (1988) reports banded quartzite or silicified marble in in an area of marble bedrock contains 0.1 ppm Au. Other information about the occurrence is not available. Bedrock in the area of this occurrence is metasedimentary schist and marble of a Lower Paleozoic assemblage (Till and others, 1986).

Alteration:
Silicification may be present.

Age of mineralization:
Cretaceous ?; epigenetic mineralization in metamorphic rocks of Seward Peninsula is primarily of Cretaceous age.

Deposit model:
Anomalous gold in silicified (?) marble

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

Production Status: None

Site Status: Inactive

Workings/exploration:
No workings or exploration activities are known at this occurrence.

Production notes:

Reserves:

Additional comments:

References:
Till and others, 1986; Gamble, 1988.

Primary reference: Gamble, 1988

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

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

Site type: Occurrence

ARDF no.: BN126

Latitude: 65.05 **Quadrangle:** BN A-4

Longitude: 163.69

Location description and accuracy:
This occurrence is in bedrock exposures along upper Ophir Creek (BN099) about 2.8 miles upstream of its confluence with Crooked Creek. It is locality 76 of Gamble (1988).

Commodities:

Main: Au

Other:

Ore minerals:

Gangue minerals:

Geologic description:
Gamble (1988) reports that a quartz boudin in chlorite schist from this locality contained 0.1 ppm Au. Bedrock exposures are limited in this area; this occurrence may be close to a regional contact between lower Paleozoic mafic metavolcanic and metasedimentary assemblages (Till and others, 1986).

Alteration:

Age of mineralization:
Unknown; not clear if this is a metamorphosed anomaly or if it is superimposed on the metamorphic rocks.

Deposit model:
Quartz boudin in chloritic schist

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

Production Status: None

Site Status: Inactive

Workings/exploration:
No workings or exploration activities are known at this locality.

Production notes:

Reserves:

Additional comments:

References:
Till and others, 1986; Gamble, 1988.

Primary reference: Gamble, 1986

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

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

Site type: Occurrence

ARDF no.: BN127

Latitude: 65.058 **Quadrangle:** BN A-4

Longitude: 163.692

Location description and accuracy:
This occurrence is in bedrock exposures along upper Ophir Creek (BN099) about 3.4 miles upstream of its confluence with Crooked Creek. This is at the confluence of upper Ophir Creek and Flat Creek. It is locality 77 of Gamble (1988). As shown by Gamble (1988), it is just upstream of old placer mine workings (BN106).

Commodities:

Main: Au

Other:

Ore minerals:

Gangue minerals: Calcite

Geologic description:
Gamble (1988) reports that a calcite vein in marble contains 0.25 ppb gold at this locality. Bedrock exposures are limited in this area; this occurrence may be close to a regional contact between lower Paleozoic mafic metavolcanic and metasedimentary assemblages (Till and others, 1986).

Alteration:
Calcite veining.

Age of mineralization:
Cretaceous ?; epigenetic mineralization in metamorphic rocks of Seward Peninsula is primarily Cretaceous in age.

Deposit model:
Calcite vein in marble

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

Production Status: None

Site Status: Inactive

Workings/exploration:
No workings or exploration activities are known at this locality.

Production notes:

Reserves:

Additional comments:

References:
Till and others, 1986; Gamble, 1988.

Primary reference: Gamble, 1988

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Unnamed (near headwaters of Dillon Creek)

Site type: Prospect

ARDF no.: BN128

Latitude: 65.208 **Quadrangle:** BN A-4

Longitude: 163.817

Location description and accuracy:

This prospect is on the divide between Dillon Creek, a west headwater tributary of Pargon River, and an unnamed east headwater tributary of Niukluk River. It is about 1,000 feet south of the saddle between these two drainages at an elevation is 2.035 feet. It is locality 81 of Gamble (1988).

Commodities:

Main: Ag, Au, Cu, Pb, Zn

Other:

Ore minerals: Chalcopyrite, chrysocolla, galena, malachite

Gangue minerals: Limonite, quartz

Geologic description:

Chalcopyrite, galena, pyrite (?), and duftite (?) are intergrown with drusy comb-quartz in fissure veins along a 30 foot-wide fault zone in high grade metamorphic rocks here (Briskey, 1983). The vein is oxidized and secondary minerals include limonite, malachite, and chrysocolla. A grab sample contained 0.5 ppm Au, 8 % As, 6,000 ppm Zn, 680 ppm Sb, 300 ppm Ag, 1.5 % Cu, greater than 2 % Pb, and 30 ppm Mo (Gamble, 1988). This occurrence, and several others in this part of the Bendeleben A-4 quadrangle, are in high grade metamorphic rocks that are structurally above or peripheral to the crosscutting Pargon pluton. The Pargon pluton is mostly granodiorite and assumed to be Cretaceous in age (Till and others, 1986). It was emplaced at shallower depths than the more deep-seated Bendeleben pluton to the east. The metamorphic rocks peripheral to the western Pargon pluton are also intruded by small, felsic dikes and plugs including quartz porphyry and muscovite granite.

Alteration:

Oxidation of vein sulfides has occurred.

Age of mineralization:

Cretaceous; this occurrence is probably related to emplacement of the Pargon pluton which is assumed to be Cretaceous in age.

Deposit model:
Polymetallic vein in high grade metamorphic rocks (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 shallow, 16 foot-long prospect trench trending N 55 W has been dug here.

Production notes:

Reserves:

Additional comments:

References:
Briskey, 1983; Till and others, 1986; Gamble, 1988.

Primary reference: Gamble, 1988

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Unnamed (on north side of Dillon Creek)

Site type: Occurrence

ARDF no.: BN129

Latitude: 65.222 **Quadrangle:** BN A-4

Longitude: 163.767

Location description and accuracy:

This occurrence is on the crest of a narrow ridge on the north side of Dillon Creek at an elevation of about 1,700 feet. Dillon Creek is a west headwater tributary of Pargon River. This is locality 80 of Gamble (1988).

Commodities:

Main: Ag, Cu, Pb, Zn

Other:

Ore minerals: Azurite, bornite (?), chalcopyrite, malachite

Gangue minerals:

Geologic description:

Gossan float from near calc-silicate hornfels outcrops contains azurite, bornite (?), chalcopyrite, and malachite. Two grab samples contain 100 ppm Ag each, 700 and 110 ppm Cd, greater than 2 % Pb, 3.4 % and 8,000 ppm Zn, and 12 and 14 ppm Sb (Gamble, 1988). There is also some malachite staining in a felsic dike near this locality (Briskey, 1983). This occurrence, and several others in this part of the Bendeleben A-4 quadrangle, are in high grade metamorphic rocks that are structurally above or peripheral to the cross-cutting Pargon pluton. The Pargon pluton is mostly granodiorite and assumed to be Cretaceous in age (Till and others, 1986). It was emplaced at shallower depths than the more deep-seated Bendeleben pluton to the east. The metamorphic rocks peripheral to the western Pargon pluton are also intruded by small, felsic dikes and plugs including quartz porphyry and muscovite granite.

Alteration:

Oxidation of sulfides has occurred.

Age of mineralization:

Cretaceous; this occurrence is probably related to emplacement of the Pargon pluton which is assumed to be Cretaceous in age.

Deposit model:
Zn-Pb skarn? Polymetallic vein ? (Cox and Singer, 1986; model 18c or 22c ?)

Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):
18c ?, 22c ?

Production Status: None

Site Status: Inactive

Workings/exploration:
No workings are known at this locality.

Production notes:

Reserves:

Additional comments:

References:
Briskey, 1983; Till and others, 1986; Gamble, 1988.

Primary reference: Gamble, 1988

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Unnamed (near upper Niukluk River)

Site type: Prospect

ARDF no.: BN130

Latitude: 65.199 **Quadrangle:** BN A-4

Longitude: 163.866

Location description and accuracy:

This prospect is on a ridge crest along the south side of an unnamed east headwater tributary of Niukluk River. It is about 2,000 feet south of the creek at an elevation of approximately 2,000 feet. It is 4,500 feet northwest of the skarn propect at BN110. This is locality 83 of Gamble (1988).

Commodities:

Main: Ag, Cu, Pb, Zn

Other:

Ore minerals: Azurite, cerrusite, chalcopyrite, chrysocolla, galena, malachite

Gangue minerals: Limonite, pyrite, quartz

Geologic description:

Highly oxidized, locally brecciated pyrite-chalcopyrite-galena-bearing drusy comb-quartz veins in high grade metamorphic rocks are present here. Secondary minerals include limonite, azurite, cerussite, chrysocolla, and malachite. Grab samples contain up to greater than 2 % Pb, greater than 2% Cu, 8,200 ppm Zn, 300 ppm Ag, 460 ppm Sb, 1,000 ppm As, 190 ppm Cd, 70 ppm Sn, and 14 ppm Bi (Gamble, 1988). The mineralized rocks occur as float and on dumps of shallow prospect pits or short adits. This locality, and several others in this part of the Bendeleben A-4 quadrangle, are in high grade metamorphic rocks that are structurally above or peripheral to the crosscutting Pargon pluton. The Pargon pluton is mostly granodiorite and assumed to be Cretaceous in age (Till and others, 1986). It was emplaced at shallower depths than the more deep-seated Bendeleben pluton to the east. The metamorphic rocks peripheral to the western Pargon pluton are also intruded by small, felsic dikes and plugs including quartz porphyry and muscovite granite.

Alteration:

Abundant secondary minerals are developed from the oxidation of sulfides.

Age of mineralization:

Cretaceous; this occurrence is probably related to emplacement of the Pargon pluton which is assumed to be Cretaceous in age.

Deposit model:
Polymetallic vein in high-grade metamorphic rocks (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:
Some shallow prospecting pits or short adit(s) are present here.

Production notes:

Reserves:

Additional comments:

References:
Sainsbury and others, 1973; Till and others, 1986; Gamble, 1988.

Primary reference: Gamble, 1988

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Unnamed (along tributary to the Niukluk River)

Site type: Occurrence

ARDF no.: BN131

Latitude: 65.2 **Quadrangle:** BN A-4

Longitude: 163.87

Location description and accuracy:
This occurrence is on the south bank of an unnamed east headwater tributary to the Niukluk River at an elevation of about 1,200 feet. It is locality 84 of Gamble (1988).

Commodities:

Main: Ag, Cu, Zn

Other:

Ore minerals:

Gangue minerals: Pyrite

Geologic description:
A pyritized zone at a greenstone (amphibolite ?) contact with schist carries anomalous amounts of copper, zinc, and silver (Bundzten, 1974). This locality, and several others in this part of the Bendeleben A-4 quadrangle, are in high grade metamorphic rocks that are structurally above or peripheral to the crosscutting Pargon pluton. The Pargon pluton is mostly granodiorite and assumed to be Cretaceous in age (Till and others, 1986). It was emplaced at shallower depths than the more deep-seated Bendeleben pluton to the east. The metamorphic rocks peripheral to the western Pargon pluton are also intruded by small, felsic dikes and plugs including quartz porphyry and muscovite granite.

Alteration:
Probably oxidized.

Age of mineralization:
Cretaceous ?; this occurrence may be related to emplacement of the Pargon pluton which is assumed to be Cretaceous in age.

Deposit model:
Pyritized zone at greenstone-marble contact

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

Production Status: None

Site Status: Inactive

Workings/exploration:
No workings are known at this locality.

Production notes:

Reserves:

Additional comments:

References:
Bundzten, 1974; Till and others, 1986; Gamble, 1988.

Primary reference: Bundzten, 1974

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Unnamed (northwest side of upper Niukluk River)

Site type: Occurrence

ARDF no.: BN132

Latitude: 65.2 **Quadrangle:** BN A-4

Longitude: 163.93

Location description and accuracy:
This occurrence is at an elevation of about 1,050 feet along the northwest side of the upper Niukluk River. It is 500 to 1,000 feet upslope of the river. This is locality 85 of Gamble (1988).

Commodities:

Main: Ag, Cu, Pb, Zn

Other:

Ore minerals: Azurite, (native) copper, malachite, sphalerite

Gangue minerals:

Geologic description:
Native copper is disseminated in malachite-azurite-sphalerite-rich rock from near a marble-schist contact here. Analytical data reported by Bundzten (1974) shows significant concentrations of Ag, Cu, Pb, and Zn. This locality, and several others in this part of the Bendeleben A-4 quadrangle, are in high grade metamorphic rocks that are structurally above or peripheral to the crosscutting Pargon pluton. The Pargon pluton is mostly granodiorite and assumed to be Cretaceous in age (Till and others, 1986). It was emplaced at shallower depths than the more deep-seated Bendeleben pluton to the east. The metamorphic rocks peripheral to the western Pargon pluton are also intruded by small, felsic dikes and plugs including quartz porphyry and muscovite granite.

Alteration:
Extensive oxidation of sulfide minerals has occurred.

Age of mineralization:
Cretaceous ?; this occurrence may be related to emplacement of the Pargon pluton which is assumed to be Cretaceous in age.

Deposit model:
Base metal mineralization near marble-schist contact

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

Production Status: None

Site Status: Inactive

Workings/exploration:
No workings are known at this locality.

Production notes:

Reserves:

Additional comments:

References:
Bundzten, 1974; Till and others, 1986; Gamble, 1988.

Primary reference: Bundzten, 1974

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Unnamed (Omilak Creek)

Site type: Prospect

ARDF no.: BN133

Latitude: 65.04 **Quadrangle:** BN A-2

Longitude: 162.53

Location description and accuracy:

This prospect is 1.6 miles N 36 E of the Foster prospect (BN098). The Foster prospect is in the headwaters of a north tributary of Omilak Creek at an elevation of approximately 1,250 feet. Omilak Creek flows westward from headwaters in the northern Darby Mountains to the Fish River in McCarthy's Marsh.

Commodities:

Main: Ag, Pb, Zn

Other:

Ore minerals: Galena, secondary lead minerals

Gangue minerals:

Geologic description:

Oxidized galena in soil and gossan material occurs with ubiquitous fragments of black phyllite in a prospect trench (Briskey, 1983). This is within a northwest-trending zone of iron-oxide staining that is traceable at the surface for 800 feet. Assays of 24 samples of material in the prospect trench contained 20 ppm to 6.8 % Pb, 25 ppm to 3.4 % Zn, 10 to 2,200 ppm Cu, and 0.2 to 1,850 ppm Ag. The average of these samples was 0.84 % Pb, 0.37 % Zn, 221 ppm Cu, and 320 ppm Ag. This mineralization is localized near the axis and along the west limb of a large northwest plunging syncline in high grade metasedimentary rocks (Till and others, 1986).

Alteration:

Oxidation of sulfide minerals.

Age of mineralization:

Cretaceous ?; Epigenetic mineralization in metamorphic rocks of Seward Peninsula is primarily of Cretaceous age.

Deposit model:

Polymetallic vein or replacement in marble (Cox and Singer, 1986; model 19a or 22c ?).

May be similar to Foster propect (BN098).

Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):
19a ?; 22c ?

Production Status: No

Site Status: Inactive

Workings/exploration:
A small surface prospect trench is present here.

Production notes:

Reserves:

Additional comments:

References:
Briskey, 1983; Till and others, 1986.

Primary reference: Briskey, 1983

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Pargon Mountain

Site type: Mine

ARDF no.: BN134

Latitude: 65.137 **Quadrangle:** BN A-3

Longitude: 163.473

Location description and accuracy:

The Pargon Mountain mica mine is on the low, mountain front slopes between the two eastern headwater tributaries of Oregon Creek. It is estimated to be between 600 and 800 feet elevation. Oregon Creek is a west tributary to Boston Creek. The headwaters of Oregon Creekare on the flank of Pargon Mountain on the south side of the Bendeleben Mountains. This locality was not included by Cobb (1972; MF 417) but Cobb (1975; OFR 75-429) summarizes references under the name 'Pargon Mtn.'.

Commodities:

Main: Muscovite

Other:

Ore minerals: Muscovite

Gangue minerals: Biotite, calcite, feldspar (including albite), garnet, quartz, tourmaline

Geologic description:

Granite pegmatite with large muscovite crystals was first prospected here in 1901 (Anderson, 1943). Sheets of muscovite up to 20 inches long and 14 inches wide and commonly 6 inches across have been recovered and used by residents of Nome for stove windows and lamps. The pegmatite is poorly exposed and at least 6 shallow pits, 2 hand-dug trenches, and 4 dozer trenches are present. Imperfections in the muscovite are few and most unweathered crystals are clear and unstained; some strategic mica was recovered and processed in the laboratory during WW II (Anderson, 1943). Other minerals common in the pegmatite are quartz, feldspar (including albite), black tourmaline, and red garnet. Microscopic examination revealed a few small biotite crystals. Some inclusions of magnetite (in mica ?) were also observed. The host pegmatite is in high grade metamorphic rocks of the Bendeleben Mountains (Till and others, 1986).

Alteration:

Clay coatings on weathered muscovite crystals is present.

Age of mineralization:

Probably mid-Cretaceous, the age of extensive crustal melting and granitic plutonism in this region (Hudson, 1994).

Deposit model:
Granite pegmatite

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

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:
The pegmatite is poorly exposed and at least 6 shallow pits, 2 hand-dug trenches, and 4 dozer trenches are present (Anderson, 1943).

Production notes:

Reserves:

Additional comments:

References:
Anderson, 1943; Cobb, 1972 (MF 417); Cobb, 1975 (OFR 75-429); Till and others, 1986; Gamble, 1988; Hudson, 1994.

Primary reference: Anderson, 1943

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Unnamed (in headwaters of upper Niukluk River)

Site type: Occurrence

ARDF no.: BN135

Latitude: 65.18 **Quadrangle:** BN A-4

Longitude: 163.87

Location description and accuracy:
This occurrence is on the ridge crest between two unnamed, east headwater tributaries to the Niukluk River, near elevation 2,247 feet.

Commodities:

Main: Cu (?), Pb (?)

Other:

Ore minerals: Duftite (?)

Gangue minerals:

Geologic description:
This is a possible duftite occurrence along the trend of an apparently conformable pyrrhotite-bearing schist layer that is better expressed about one half mile to the ENE (Briskey, 1983). This locality, and several others in this part of the Bendeleben A-4 quadrangle, are in high grade metamorphic rocks that are structurally above or peripheral to the crosscutting Pargon pluton. The Pargon pluton is mostly granodiorite and assumed to be Cretaceous in age (Till and others, 1986). It was emplaced at shallower depths than the more deep-seated Bendeleben pluton to the east. The metamorphic rocks peripheral to the western Pargon pluton are also intruded by small, felsic dikes and plugs including quartz porphyry and muscovite granite.

Alteration:
Oxidation?

Age of mineralization:
Cretaceous ?

Deposit model:
Duftite (?) in metamorphic rocks

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

Production Status: No

Site Status: Inactive

Workings/exploration:
No workings are known at this locality.

Production notes:

Reserves:

Additional comments:

References:
Briskey, 1983; Till and others, 1986.

Primary reference: Briskey, 1983

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Unnamed (upper Niukluk River)

Site type: Prospect

ARDF no.: BN136

Latitude: 65.2 **Quadrangle:** BN A-4

Longitude: 163.875

Location description and accuracy:
This prospect is on the same ridge as BN130 but about 1,500 feet downslope to the west at an elevation of about 1,750 feet.

Commodities:

Main: Cu, Pb

Other:

Ore minerals: Azurite, cerussiste, chalcopyrite, chrysocolla, duftite (?), galena

Gangue minerals: Limonite, pyrite, quartz

Geologic description:
Complex intergrowths of limonite (replacing pyrite and chalcopyrite) and drusy comb-quartz are present in a tabular body of silicified breccia 2 feet-wide. Abundant secondary minerals include malachite, chrysocolla, azurite, cerussite, and duftite(?). This is at the silicified contact between marble and amphibolite schist and there is minor silicified gouge in the breccia. This locality, and several others in this part of the Bendeleben A-4 quadrangle, are in high grade metamorphic rocks that are structurally above or peripheral to the crosscutting Pargon pluton. The Pargon pluton is mostly granodiorite and assumed to be Cretaceous in age (Till and others, 1986). It was emplaced at shallower depths than the more deep-seated Bendeleben pluton to the east. The metamorphic rocks peripheral to the western Pargon pluton are also intruded by small, felsic dikes and plugs including quartz porphyry and muscovite granite.

Alteration:
Silicification; extensive oxidation and secondary mineral development; faulting and gouge development.

Age of mineralization:
Cretaceous ?; this occurrence may be related to emplacement of the Pargon pluton which is assumed to be Cretaceous in age.

Deposit model:
Polymetallic vein (and breccia) in high grade metamorphic rocks (Cox and Singer, 1986; model 22c ?)

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

Production Status: No

Site Status: Inactive

Workings/exploration:
Shallow prospect pits and short caved adit are present in the area.

Production notes:

Reserves:

Additional comments:

References:
Briskey, 1983; Till and others, 1986.

Primary reference: Briskey, 1983

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Arctic Creek

Site type: Mine

ARDF no.: BN137

Latitude: 65.627 **Quadrangle:** BN C-6

Longitude: 164.78

Location description and accuracy:
Arctic Creek is a small east tributary to Kougarok River. The mouth of Arctic Creek is about 4 miles south of Taylor. Sainsbury and others (1969) show the lower 2,000 feet of the main channel of Arctic Creek to have been placer mined.

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:
Sainsbury and others (1969) show the lower 2,000 feet of the main channel of Arctic Creek to have been placer mined. The mined part of Arctic Creek crosses the east side of Kougarok River valley and the placer deposits here could represent reworked bench gravels of the Kougarok River drainage rather than erosion of local bedrock sources. Bedrock of the area is extensively coverd by tundra but upland exposures are primarily low grade, Lower Paleozoic metasedimentary rocks (Sainsbury and others, 1969; Till and others, 1986).

Alteration:

Age of mineralization:
Quaternary; placer deposits of the Kougarok River area are commonly the result of at least two cycles of erosion and placer development.

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

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

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:

Sainsbury and others (1969) show the lower 2,000 feet of the main channel of Arctic Creek to have been open-cut placer mined.

Production notes:

Reserves:

Additional comments:

References:

Sainsbury and others, 1969; Till and others, 1986.

Primary reference: Sainsbury and others, 1969

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Omilak East

Site type: Prospect

ARDF no.: BN138

Latitude: 65.05 **Quadrangle:** BN A-2

Longitude: 162.56

Location description and accuracy:

The Omilak East prospect is located in the headwaters of the South Fork of Mosquito Creek, at an approximate elevation of 1,350 feet. Mosquito Creek flows westward from headwaters in the northern Darby Mountains to Telephone Creek, a tributary to Fish River in McCarthy's Marsh. It is locality 56 of Gamble (1988).

Commodities:

Main: Ag, Cu, Pb, Zn

Other:

Ore minerals: Galena

Gangue minerals: Hematite

Geologic description:

Galena-bearing gossans and oxidized veins in schist are present here (Gamble, 1988). This is probably similar to the Foster prospect (BN098) although it is apparently not hosted by carbonate rocks. Gossan and veinlets are hosted by a calc-silicate schist and biotite schist unit (Hedderly-Smith, 1980). Geologic mapping, soil sampling, selected rock sampling, and EM surveys have been completed here by Greatland Exploration Ltd. (Hedderly-Smith, 1980). This work was primarily between 1976 and 1980. The reconnaissance soil sample lines have anomalous zinc values over a length of of at least 1,200 feet. Rock samples contain up to 4.4 % Pb, 3.4 % Zn, 0.2 % Cu, and 50 ounces/ton Ag. The EM survey defines a strong and continuous electrically conductive zone that is 11,000 feet long with a depth to top varying from 100 to 300 feet (Clayton, 1998). Surface mineralization is highly oxidized; galena and pyrite form remnant nodules in gossan. The indicated electrical conductivity is moderately high and permafrost, which may be present to a depth of a few hundred feet, may have reduced its intensity.

Alteration:

Oxidation; iron oxide-rich gossan float and fragments common in mineralized areas.

Age of mineralization:

Cretaceous ?; Epigenetic mineralization in metamorphic rocks of Seward Peninsula is primarily of Cretaceous age.

Deposit model:
Polymetallic vein or replacement (Cox and Singer, 1986; model 19a or 22c ?)

Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):
19a (?), 22c (?)

Production Status: None

Site Status: Active

Workings/exploration:
Geologic mapping, soil sampling, selected rock sampling, and EM surveys have been completed here by by Greatland Exploration Ltd. (Hedderly-Smith, 1980). This work was primarily between 1976 and 1980. The active claim group here is maintained by Greatland Exploration Ltd. (3512 Campbell Airstrip Road, Anchorage, AK 99504).

Production notes:

Reserves:

Additional comments:

References:
Hedderly-Smith, 1980; Gamble, 1988; Clayton, 1998.

Primary reference: Hedderly-Smith, 1980

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Dome Creek

Site type: Prospect

ARDF no.: BN139

Latitude: 65.7 **Quadrangle:** BN C-1

Longitude: 162.1

Location description and accuracy:

Dome Creek heads against the northeast side of Monument Mountain. A locality on this creek was not included by Cobb (1972; MF 417) but Cobb (1975; OFR 75-429; 1981; OFR 81-363A, p. A7) includes a prospect by this name in the quadrangle (he places it in the Koyuk district however). This locality could be anywhere in the Dome Creek drainage and cannot be located closer than a few miles.

Commodities:

Main: Au (?)

Other:

Ore minerals: Gold (?)

Gangue minerals:

Geologic description:

Good prospects were reported to be found on Dome Creek in 1901 (Mendenhall, 1902). It is assumed here that this reference is to placer gold prospects and that these were on the Dome Creek that has headwaters against Monument Mountain.

Alteration:

Age of mineralization:

Quaternary

Deposit model:

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

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

39a

Production Status:

Site Status:

Workings/exploration:

Production notes:

Reserves:

Additional comments:

References:

Mendenhall, 1902; Cobb, 1972 (MF 417); Cobb, 1975 (OFR 75-429); Cobb, 1981 (OFR 81-363A).

Primary reference: Cobb, 1981 (OFR 81-363A)

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Milroy Creek

Site type: Occurrence

ARDF no.: BN140

Latitude: 65.9 **Quadrangle:** BN D-3

Longitude: 163.3

Location description and accuracy:
Milroy Creek is a north tributary to Hannum Creek (BN056 and BN057). A locality on this creek was not included by Cobb (1972; MF 417) but Cobb (1975; OFR 75-429; 1981; OFR 81-363A, p. A15) does make reference to it. This locality could be anywhere along Milroy Creek and therefore cannot be located to closer than a few miles.

Commodities:

Main: Ag, Pb

Other:

Ore minerals: Galena, lead carbonates, pyromorphite

Gangue minerals:

Geologic description:
Anderson (1947, p. 31) reports that heavy mineral concentrates from Milroy Creek gravels are similar to those from Cunningham Creek (BN113) which contain galena, lead carbonates, and pyromorphite. The Harrys Creek (BN055) and Hannum Creek (BN056) galena-bearing lode deposits are sources of lead minerals in gravels downstream from them. The presence of placer gold has not been specifically reported (Cobb, 1981; OFR 81-363A).

Alteration:

Age of mineralization:
Quaternary

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

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

Production Status: Undetermined.

Site Status: Probably inactive

Workings/exploration:

Production notes:

Reserves:

Additional comments:

References:

Anderson, 1947; Cobb, 1972 (MF 417); Cobb, 1975 (OFR 75-429); Cobb, 1981 (OFR 81-363A).

Primary reference: Anderson, 1947

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Turner Creek

Site type: Mine

ARDF no.: BN141

Latitude: 65.5 **Quadrangle:** BN C-5

Longitude: 164.4

Location description and accuracy:
Turner Creek is a west tributary to Boulder Creek (BN015). A locality on this creek was not included by Cobb (1972; MF 417) but Cobb (1975; OFR 75-429; 1981; OFR 81-363A) does make reference to it. This locality could be anywhere along Turner Creek and therfore cannot be located closer than a few miles.

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:
Placer gold was reported to have been discovered and the creek staked by 1901 (Collier, 1902). Placer mining was reported to have taken place in 1938 (Smith, 1938).

Alteration:

Age of mineralization:
Quaternary

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

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

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:

Some placer workings are reported but the specific location is not known.

Production notes:

Reserves:

Additional comments:

References:

Collier, 1902; Smith, 1938; Cobb, 1972 (MF 417); Cobb, 1975 (OFR 75-429); Cobb, 1981 (OFR 81-363A); Cobb, 1981 (OFR 81-363B).

Primary reference: Collier, 1902

Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

Site name(s): Gold Dome

Site type: Prospect

ARDF no.: BN142

Latitude: 65.62 **Quadrangle:** BN C-6

Longitude: 164.54

Location description and accuracy:
The Gold Dome prospect is on the east side of Harris Dome, 5 miles east of the Nome-Taylor road. The active claims here straddle the divide between Little Harris Creek and Harris Creek which is at an elevation of about 1,175 feet.

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals: Iron oxide, quartz

Geologic description:
Altar Resources (P. O. Box 42831, Tuscon, AZ 85733) maintains a small claim block on a faulted contact between marble and schist. Stream sediment samples in the area contain up to 390 ppb gold and six soil samples from the divide area between Litle Harris Creek and Harris Creek contain between 10 and 155 ppb gold (Altar Resources, 1999). Metasedimentary rocks in this area are Paleozoic in age (Till and others, 1986).

Alteration:
Iron oxide staining and quartz veining have been locally observed.

Age of mineralization:
Unknown but possibly Cretaceous; if gold-bearing lode structures are present here they may be similar in age to some lode gold deposits of southern Seward Peninsula. The southern Seward Peninsula lode gold deposits formed as a result of mid-Cretaceous metamorphism (Apodoca, 1994; Ford, 1993, Ford and Snee, 1996; Goldfarb and others, 1997) that accompanied regional extension (Miller and Hudson, 1991) and crustal melting (Hudson, 1994). This higher temperature metamorphism was superimposed on high pressure/low temperature metamorphic rocks of the region.

Deposit model:

Gold-bearing quartz veins in metamorphic rocks

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

Production Status:

Site Status: Active

Workings/exploration:
Some geologic mapping, soil sampling, and stream sediment sampling has been completed.

Production notes:

Reserves:

Additional comments:

References:
Till and others, 1986; Miller and Hudson, 1991; Ford, 1993; Apodoca, 1994; Hudson, 1994; Ford and Snee, 1996; Goldfarb and others, 1997; Altar Resources, 1999.

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Reporter(s): Travis L. Hudson (Applied Geology)

Last report date: 03/15/99

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