U.S. Department of Interior
Bureau of Land Management

BLM-Alaska Technical Report 50
BLM/AK/ST-02/023+3090+932
July, 2002

Alaska State Office
222 W Seventh Avenue, #13
Anchorage, AK 99513

Mineral Investigations in the Koyukuk Mining District, Northern Alaska

Volume II - Summaries of mines, prospects, and mineral occurrences in the Melozitna, Survey Pass, Tanana, and Wiseman quadrangles

Joseph M. Kurtak, Robert F. Klieforth, John M. Clark, and Elizabeth A. Maclean

Mission Statement

The Bureau of Land Management sustains the health, diversity, and productivity of the public lands for the use and enjoyment of present and future generations.

Authors

Joseph M. Kurtak and Robert F. Klieforth are geologists with the Bureau of Land Management's Alaska State Office, Division of Lands, Minerals and Resources.

John M. Clark and Elizabeth A. Maclean are currently graduate students in geology at the University of Alaska, Fairbanks and part-time employees with the BLM.

Cover

BLM geologist Elizabeth Maclean examines Devonian schistose rocks near Michigan Creek, in the Endicott Mountains.

Technical Reports

Technical Reports issued by the Bureau of Land Management-Alaska present the results of research, studies, investigations, literature searches, testing or similar endeavors on a variety of scientific and technical subjects. The results presented are final, or are a summation and analysis of data at an intermediate point in a long-term research project, and have received objective review by peers in the author's field.

The reports are available while supplies last from BLM External Affairs, 222 West 7th Avenue #13, Anchorage, Alaska 99513 and from the Juneau Minerals Information Center, 100 Savikko Road, Mayflower Island, Douglas, AK 99824, (907) 364-1553. Copies are also available for inspection at the Alaska Resource Library and Information Service (Anchorage), the USDI Resources Library in Washington, D.C., various libraries of the University of Alaska, the BLM National Business Center Library (Denver), and other selected locations.

A complete bibliography of all BLM-Alaska scientific reports can be found on the Internet at: http://www.ak.blm.gov/affairs/sci_rpts.html. Related publications are also listed at http://juneau.ak.blm.gov

Mineral Investigations in the Koyukuk Mining District, Northern Alaska

by
Joseph M. Kurtak
Robert F. Klieforth
John M. Clark
Elizabeth A. Maclean

BLM-Alaska Technical Report 50
July, 2002

U.S. Department of Interior
Bureau of Land Management

TABLE OF CONTENTS

TABLE OF CONTENTS - continued

PLATES

FIGURES

TABLE OF CONTENTS - continued

TABLES

ABBREVIATIONS

%	percent
Btu/lb	British thermal unit per pound
cy	cubic yard(s)
°F	degrees Fahrenheit
lb(s)	pound(s)
lb(s)/cy	pound(s) per cubic yard
oz	ounce(s)
oz/cy	ounce(s) per cubic yard
oz/ton	ounce(s) per ton
ppb	parts per billion
ppm	parts per million
ppt	parts per thousand
tons	short tons

PROPERTY SUMMARY DEFINITIONS

Name: Historical or most commonly used name listed first, followed by associated claim names.

Map No: The properties are listed by map number. The number is prefaced by a letter designating the 1:250,000 quadrangle in which the site occurs. For example, Bettles (B), Chandalar (C), Chandler Lake (CL), Hughes (H), Melozitna (M), Survey Pass (SP), Tanana (T), and Wiseman (W). Refer to Plate 1 (in pocket).

MAS No: U.S. Bureau of Mines Minerals Availability System sequence number.

Kardex No: Alaska Mineral Property Reference File.

ARDF No: U.S. Geological Survey Alaska Resource Data Files.

ADL No: Alaska Division of Land reference number.

Deposit Type: As defined by the U.S. Geological Survey (Nokleberg and others, 1987; Cox and Singer, 1992).

Location: Coordinates, public land survey grid, and geographic descriptions are stated for each site. Land status is mentioned only if it directly effects mineral entry.

Coordinates: Coordinates are in degree-minute format, and use the North American datum 1927.

Quadrangle: Refers to U.S. Geological Survey 1:63,360 quadrangle.

Production: This information was gathered from a variety of sources, including U.S. Bureau of Mines Permanent Individual Mine Records (PIMRs), U.S. Mint records, U.S. Geological Survey Bulletins, unpublished company reports, and personal communications.

Bureau Investigation: The following placer gold size definitions are used throughout the text:

>2.0 mm - very coarse
1.0 - 2.0 mm - coarse
0.5 - 1.0 mm - fine
<0.5 mm - very fine

Resource Estimate: See definitions p. 33.

Mineral Development Potential: See definitions p. 35.

Appendix F

Summaries of mines, prospects, and mineral occurrences in the Melozitna quadrangle (listed by map number)

Property Summary

Name(s): Utopia Creek

Map No: M1
MAS No: 0020470011

Deposit Type: Placer

Commodities: Au, Ag, Pb, Zn, Ba

Location:

Quadrangle: Melozitna D-2
SE¼ sec. 25, T. 7 N., R. 24 E.
Meridian: Kateel River
Elevation: 1,450 feet
Latitude: 65° 59.183' N.
Longitude: 153° 47.040' W.
Geographic: A 5-mile-long western tributary of the Indian River, 5 miles south of Indian Mountain. Access is via 14-mile winter trail from Hughes. The airstrip at the nearby U.S. Air Force Indian Mountain Long Range Radar Site is not open to the public.

History:

1915 - Minor placer gold production at Utopia Creek (Brooks, 1916).

1936 - L. McGee and crew of 12 men begin prospecting on Utopia. Plans were to use a dragline scraper and drilling equipment (Smith, 1938).

1937 - McGee operation active. About 20 men employed. Overburden stripped and bedrock drain dug (Smith, 1939).

1938 - McGee operation active. Mining with dragline and bulldozers (Smith, 1939).

1939 - McGee's placer operation enlisted approximately 30 men. The company used a 1.5 yard dragline at the lower camp, near the mouth of Utopia Creek. At the upper camp, 4 miles upstream, they used hydraulic methods. At the time, Utopia was largest gold producer in the district (Smith, 1941).

1940 - McGee operation active (Smith, 1942).

1952 - Large scale placer operations ceased (Cobb, 1973).

Production: (oz Au)

1939 - 1,457
1941 - 2,314
1950 - 5,083
Total: 8,854 (Records incomplete.) Production may be more than 10,000 oz (Cobb and Miller, 1981).

Gold fineness: 849 (Metz and Hawkins, 1981).

Workings and Facilities:

The lower 3 miles of Utopia Creek have been mined with a dragline and large portable wash plant. The remains of the wash plant lie in a heavily vegetated area along the lower creek at (65° 59.066' N., 153° 43.424' W.). The plant consisted of a large hopper and attached sluice box, which is about 40 feet long. The hopper was fed by a 1.5-yard dragline shovel which was later moved up to the Indian River. The upper portion of the creek was mined by hydraulic methods (Smith, 1942).

Geologic Setting:

Utopia Creek drains the south side of the Indian Mountains (figure E-1). The geology of the area is best described by Miller and Ferrians (1968):

> The country rock is slightly metamorphosed andesite of Late Jurassic and Early Cretaceous age cut locally by fine-grained, felsic intrusives. The Indian Mountain granodiorite pluton is about two miles away, and Utopia Creek does not drain the granodiorite-andesite contact as do the other streams in the region that contain gold-bearing gravel deposits. The lack of granitic rocks in the tailings, together with the abundance and size of the barite boulders, suggests that the boulders were derived from tetrahedrite-sphalerite-galena-bearing veins in the andesite volcanic rocks. Veins of this sort may also have been the source of the placer found here. These may occur along a fault that underlies the creek bed. Also, the location of the tailings suggest that the pay streak did not lie in the main part of the valley in this area but instead continued up the south slope of the valley toward the area drained by the tributary stream containing sediments rich in lead and zinc.

Little is written about the setting of the placer deposits other than that the ground worked was said to be as much as 25 feet deep (Smith, 1941). Configuration of the tailings piles would indicate that mining concentrated on placers in the modern stream channel. Production records show that over the life of the dragline operation, yardage increased and grade dropped. The average grade, which started at 0.032 oz/cy, was down to 0.003 oz/cy by the last year of production (U.S. Bureau of Mines PIMRs).

Bureau Investigation:

Boulders of barite, as described by Miller and Ferrians (1968), were found at the upper end of the placer tailings on Utopia Creek. Pyrite, dolomite(?), and trace tetrahedrite(?) were found associated with the barite. Select samples (10608-10609, table F-1) contain up to 53.7% barium, 5,565 ppb gold, 4,846 ppm lead, 1,108 ppm zinc, 344 ppm arsenic, 342 ppm silver, and 173 ppm antimony. A float sample (10612) found nearby of gossaneous fault breccia(?) contains 1.95% lead, 599 ppm zinc, 160 ppm copper, and 100 ppb gold.

A pan concentrate sample collected in a southern tributary above the end of the mine workings (10611) contains >2,000 ppm barium, 194 ppm zinc, 143 ppm lead, and 33 ppb gold. A pan concentrate from the main drainage just beyond the upper end of the tailings (12262) contains 900 ppm barium, 720 ppm zinc, and 276 ppm lead. Bedrock was not exposed at either of these sample sites.

The creek headwaters were prospected in an effort to locate bedrock sources for the mineralized float found in the mine tailings. Rocks on the ridgetop above the site of sample (10611) include andesite, volcanic breccia, and vesicular basalt. Epidote-bearing quartz veinlets locally cut the andesite. Trace malachite and tetrahedrite(?) are associated with the veinlets and nearby fractures. A sample (10613) contains 529 ppm barium and 194 ppm copper.

Resource Estimate: None.

Mineral Development Potential:

Low development potential for placer and lode gold. Extensive tailings piles on Utopia Creek would indicate that the placers have been mostly worked out. Samples from the creek headwaters are anomalous in barium, lead, zinc, copper, gold, and silver, but no veins containing massive barite similar to that found in the placer tailings below, were located. Utopia Creek may follow a fault that contains the veins, which are covered by fluvial material. If so, then barite boulders turned up during placer mining have been produced by weathering of the underlying veins.

Recommendations:

Drill to test the ground under the portion of Utopia Creek where barite boulders are located.

References:

Bright, M.J., 1988, A review of the geology and mineral potential in the vicinity of Indian Mountain, near Hughes, Alaska: unpublished report 88-06 for Doyon Ltd., 29 p. [available from Doyon Ltd., Fairbanks, Alaska]

Brooks, A.H., 1916, Mineral resources of Alaska, report on progress of investigations in 1915: U.S. Geological Survey Bulletin 642, p. 64-65.

Cobb, E.H., 1973, Placer deposits of Alaska: U.S. Geological Survey Bulletin 1374, p. 144-145.

____1975, Summary of references to mineral occurrences (other than mineral fuels and construction materials) in five quadrangles in west-central Alaska (Hughes, Kotzebue, Melozitna, Selawik, Shungnak) Open-file Report 75-627, p. 28.

Cobb, E.H. and Miller, T.P., 1981, Summaries of data on and lists of references to metallic and selected nonmetallic mineral occurrences in the Hughes, Kotzebue, Melozitna, Selawik, and Shungnak Quadrangles, west-central Alaska, supplement to Open-file Report 75-627, U.S. Geological Survey Open-file Report 81-847A, p. A9.

Miller, T.P., and Ferrians, O.J., Jr., 1968, Suggested areas for prospecting in the central Koyukuk River region, Alaska: U.S. Geological Survey Circular 570, 12 p.

Smith, P.S., 1939a, Mineral resources of Alaska in 1937: U.S. Geological Survey Bulletin 910A, p. 56.

____1939b, Mineral resources of Alaska in 1938: U.S. Geological Survey Bulletin 917A, p. 55.

____1941, Mineral resources of Alaska in 1939: U.S. Geological Survey Bulletin 926A, p. 52.

____1942, Mineral resources of Alaska in 1940: U.S. Geological Survey Bulletin, 933A, p. 47.

Property Summary

Name(s): Indian River Trend

Map No: M2
MAS No: 0020470020

Deposit Type: Epithermal lode

Commodities: Au, Pb, Ag

Location:

Quadrangle: Melozitna D-2
secs. 4-8, T. 6 N., R. 24 E.
Meridian: Kateel River
Elevation: 1,100 feet
Latitude: 65° 56.977' N.
Longitude: 153° 48.973' W.
Geographic: A 7.5-mile-long linear trend south-southwest of Utopia Creek containing exposures of felsic intrusive rocks. The central portion of the trend is on Doyon Ltd. lands. A nearby airstrip at Utopia Creek is part of a U.S. Air Force installation and closed to the public. The site is 14 miles southeast of the village of Hughes on the Koyukuk River.

History:

1966 - Patton and Miller (1966) mapped the geology in the Hughes and northern Melozitna quadrangles.

1967 - Miller and Ferrians (1968) collected samples along the Indian River Trend south of Utopia Creek.

1989-90 - Central Alaska Exploration Corporation (1991) excavated three trenches, and did geologic mapping and grid soil and rock sampling along the Indian River Trend.

2000 - North Star Exploration Inc. drilled two core holes totaling 1,091 feet near Macaroni Creek at the east end of the Indian River Trend (Szumigala and others, 2001).

Production: None.

Workings and Facilities:

Central Alaska Gold excavated 3 trenches along the Indian River Trend which were subsequently backfilled.

Geologic Setting:

Reddish-orange exposures of pyritiferous, silicified, fine-grained intrusive rocks occur along a well-marked east-northeast-trending normal(?) fault south of Utopia Creek. The conspicuous gossaneous colors are the result of oxidation of the disseminated pyrite in the intrusives. About 10 such color anomalies occur within a 6-mile-long section of the fault. Locally intense argillic, sericitic (illite), silicic, and pyritic hydrothermal alterations are associated with the color anomalies. The age of the intrusions is unknown, but may be as young as early Tertiary. Wallrocks bordering the fault consist of Early Cretaceous andesitic volcanics (figure E-1) (Miller and Ferrians, 1968).

The zones of alteration commonly occur at fault intersections and have alteration styles associated with epithermal and fossil hot springs deposits. Typical intrusive rocks from these gossans reportedly to contain small but anomalous amounts of lead, copper, silver, and gold. Two core holes, totaling 1,091 feet, were drilled by North Star Exploration Inc. at the Macaroni Creek soil grid site just west of the creek. Chalcopyrite and pyrite were found throughout much of the core, and associated alteration minerals may have included gypsum. The assay results from the holes were not available (Patton and Miller, 1966; Miller and Ferrians, 1968; Central Alaska Gold, 1991; Szumigala and others, 2001). As of 2002, North Star has done no more drilling along the Indian River Trend.

Bureau Investigation:

Two sites along the Indian River Trend were sampled: the “My”soil grid site was established over a color anomaly by Central Alaska Exploration and is 0.2 mile west of Macaroni Creek. A sample (10616, table F-1) taken from brick-red soil, was anomalous in gold (91 ppb), lead (166 ppm), and barium (517 ppm). A rock sample (10615) contained 36 ppb gold. Samples from the Utopia Creek (map no. M1) and Hill 1342 (map no. H14) occurrences also have high barium contents.

The Macaroni color anomaly was sampled by Central Alaska Exploration and drilled by North Star Exploration Inc. A backfilled trench is located on a hill near the north end of the 150 by 350 foot color anomaly. A total of 15 soil and 2 rock samples were collected by the BLM at 100-foot intervals along a soil line, beginning near the trench and running northwest. None of the samples contained anomalous metal values. The Hill 1342 occurrence is similar, but is north of the Indian River Trend

Resource Estimate: None.

Mineral Development Potential:

Low mineral development potential exists along the Indian River Trend, due to low gold values in rock samples. However surface leaching has been extensive.

Recommendations:

Examine drill data from North Star drilling. The data is available from Doyon Ltd.

References:

Bright, M.J., 1988, A review of the geology and mineral potential in the vicinity of Indian Mountain, near Hughes, Alaska: unpublished report 88-06, 29 p.

Central Alaska Gold Company, 1990, 1989 Annual report to Doyon Limited, Alaska field operations, v. I: unpublished report 90-06A for Doyon Ltd. [available from Doyon Ltd., Fairbanks, Alaska]

____1991, 1990 Annual report, Alaska field operations- Doyon option, v. I: unpublished report 91-08A for Doyon Ltd., p. 46-95. [available from Doyon Ltd., Fairbanks, Alaska]

Miller, T.P., and Ferrians, O.J., Jr., 1968, Suggested areas for prospecting in the central Koyukuk River region, Alaska: U.S. Geological Survey Circular 570, p. 5-6.

Patton, W.W., Jr., and Miller, T.P., 1966, Regional geologic map of the Hughes quadrangle, Alaska: U.S. Geological Survey Miscellaneous Geologic Investigation Map I-459, 1 sheet, scale 1:250,000.

Szumigala, D.J., Swainbank, R.C., Henning, M.W., and Pillifant, F.M., 2001, Alaska's mineral industry 2000: Alaska Division of Geological and Geophysical Surveys Special Report 55, p. 7-8.

Table F-1. Selected results from samples collected in the Melozitna quadrangle.

Explanation

Sample site

core	drill core
drum	55 gallon drum
dump	mine dump
flt	float
otc	outcrop
rub	rubblecrop
tail	mine tailings
trn	trench

Sample type

cont	continuous chip
grab	grab sample
pan	pan concentrate
plac	placer concentrate
rand	random chip
rep	representative chip
sed	sediment sample
sel	select
slu	sluice concentrate
soil	soil sample
spac	spaced chip

Sample description

abu	abundant
alt	altered, alteration
amph	amphibole
ank	ankerite
apy	arsenopyrite
az	azurite
ba	barite
bio	biotite
blk	black
bn	bornite
box	boxwork texture
brn	brown
ca	calcite
calc	calcareous
carb	carbonate
cc	chalcocite
cgl	conglomerate
ch	chlorite
chm	chromite
comp	composite
cpy	chalcopyrite
cst	cassiterite
cv	covellite
diss	disseminated
ep	epidote
feld	feldspar
ft	foot (12 inches)
fuch	fuchsite
gar	garnet
gd	granodiorite
gn	galena
gwy	graywacke
hbl	hornblende
hem	hematite
hfls	hornfels
hydro	hydrothermal
in	inch
intr	intrusive
lim	limonite
ls	limestone
mag	magnetite

Sample description

mal	malachite
mar	marcasite
mdst	mudstone
meta	metamorphic
MnO	manganese oxide
mod	moderate
monz	monzonite
musc	muscovite
oz/cyd	ounces per cubic yard
oz/t	ounces per ton
pct	percent
po	pyrrhotite
porph	porphyry
ppb	parts per billion
ppm	parts per million
psuedo	psuedomorph
py	pyrite
qtz	quartzite
qz	quartz
sch	scheelite
sco	scorodite
ser	sericite
serp	serpentinized
sid	siderite
silic	siliceous
sl	sphalerite
slts	siltstone
ss	sandstone
stb	stibnite
tet	tetrahedrite
tm	tourmaline
tr	trace
v	very
val	valentinite
vis	visible
vlets	veinlets
volc	volcanic
w/	with
xcut	crosscutting
xln	crystalline
xls	crystals

Elements

Ag	silver
Al	aluminum
As	arsenic
Au	gold
Ba	barium
Bi	bismuth
Ca	calcium
Cd	cadmium
Co	cobalt
Cr	chromium
Cu	copper
Fe	iron
Ga	gallium
Hg	mercury
K	potassium
La	lanthanum
Li	lithium
Mg	magnesium
Mn	manganese
Mo	molybdenum
Na	sodium
Nb	niobium
Ni	nickel
Pb	lead
Pd	palladium
Pt	platinum
Sb	antimony
Sc	scandium
Sn	tin
Sr	strontium
Ta	tantalum
Te	tellurium
Th	thorium
Ti	titanium
U	uranium
V	vanadium
W	tungsten
Y	yttrium
Zn	zinc
Zr	zirconium

Placer gold: size classification

v. fine	< 0.5 mm
fine	0.5 - 1.0 mm
coarse	1 -2 mm
v. coarse	> 2 mm

Abbreviations:

Ck	creek
confl	confluence
Mtn	mountain
R	river

Footnotes:

Bold numbers indicate multiple erratic results, which were averaged.

Results for Au are reported in ppb unless other units are stated.

Table F-1. Selected results from samples collected in the Melozitna quadrangle.

Map no.	Field no.	Location	Sample Site	Sample Type	Sample Description	Au ppb	Pt ppb	Pd ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm	As ppm	Sb ppm	Fe pct	Ba ppm	Sn ppm	W ppm
M 1	10504	Utopia Ck	flt	sel	andesite w/ ep, qz vlets	<5			<0.2	12	9	10	6	<5	1.84	9	<20	<20
M 1	10535	Utopia Ck	flt	sel	hfls w/ 1% py, lim	<5			<0.2	36	10	57	8	<5	2.98	93	<20	<20
M 1	10536	Utopia Ck	flt	sel	fine grained andesite w/ 5% po	<5			<0.2	21	16	199	12	<5	4.49	171	<20	<20
M 1	10537	Utopia Ck	flt	sel	andesite w/ po, ep, lim	<5			<0.2	90	4	61	7	<5	4.66	66	<20	<20
M 1	10608	Utopia Ck	tail	rand	barite/ dolomite w/ <5% py	1141			2.4	486	40	10	58	<5	6.02	37.09%	<20	<20
M 1	10609	Utopia Ck	tail	sel	barite w/ 2% py, tet(?)	5565			342	750	4846	1108	344	173	3.15	53.71%	<20	<20
M 1	10610	Utopia Ck		sed		14			0.6	26	55	118	12	<5	3.37	839	<20	<20
M 1	10611	Utopia Ck		pan		33			<0.2	31	143	194	20	<5	7.18	>2000	<20	<20
M 1	10612	Utopia Ck	flt	sel	gossaneous, fault breccia w/ lim	100			4.4	160	1.95%	599	529	<5	>10.00	179	<20	<20
M 1	10613	Utopia Ck	otc	rand	andesitic breccia w/ tet, mal, ep	9			<0.2	194	43	16	12	<5	2.67	529	<20	<20
M 1	12236	Utopia Ck	flt	sel	silic rock w/ ep, gar	9			<0.2	6	17	11	5	<5	2.06	32	<20	<20
M 1	12237	Utopia Ck	flt	sel	silic rock w/ ep, gar, ba(?)	18			0.3	79	10	15	6	<5	2.82	56	<20	<20
M 1	12261	Utopia Ck		sed		13			<0.2	44	34	259	14	<5	8.00	148	<20	<20
M 1	12262	Utopia Ck		pan		10	<5	<1	0.3	70	276	720	37	<5	7.71	900	<20	<20
M 2	10614	"My" and "A" Grids	rub	rand	hydro alt rhyolite w/ py pits	<5			<0.2	4	28	4	13	<5	0.46	519	<20	<20
M 2	10615	"My" and "A" Grids	trn	sel	hydro alt rhyolite w/ 5% py	36			0.3	32	13	12	14	<5	6.61	7	<20	<20
M 2	10616	"My" and "A" Grids		soil		91			1.8	52	166	14	291	7	7.10	517	<20	<20
M 2	12238	Macaroni Soil Line		soil		<5			<0.2	11	<2	13	<5	<5	4.17	273	<20	<20
M 2	12239	Macaroni Soil Line		soil		<5			<0.2	2	<2	8	<5	<5	8.72	689	<20	<20
M 2	12240	Macaroni Soil Line		soil		<5			<0.2	3	3	9	6	<5	3.87	52	<20	<20
M 2	12241	Macaroni Soil Line		soil		6			<0.2	15	5	11	<5	<5	4.01	203	<20	<20
M 2	12242	Macaroni Soil Line		soil		<5			<0.2	4	4	6	<5	<5	5.60	328	<20	<20
M 2	12243	Macaroni Soil Line		soil		10			<0.2	10	27	6	<5	<5	2.36	518	<20	<20
M 2	12244	Macaroni Soil Line		soil		15			1.5	16	29	11	5	<5	3.19	140	<20	<20
M 2	12245	Macaroni Soil Line		soil		8			0.4	10	24	15	8	<5	4.35	188	<20	<20
M 2	12246	Macaroni Soil Line		soil		<5			<0.2	11	23	18	6	<5	3.91	122	<20	<20
M 2	12247	Macaroni Soil Line		soil		8			<0.2	44	10	36	7	<5	5.18	506	<20	<20
M 2	12248	Macaroni Soil Line		soil		24			<0.2	8	14	9	7	<5	8.82	169	<20	<20
M 2	12249	Macaroni Soil Line		soil		8			<0.2	5	8	8	<5	<5	3.34	305	<20	<20
M 2	12250	Macaroni Soil Line		soil		<5			<0.2	23	4	10	11	<5	5.72	289	<20	<20
M 2	12252	Macaroni Soil Line		soil		<5			<0.2	13	11	16	<5	<5	2.09	200	<20	<20
M 2	12253	Macaroni Soil Line		soil		<5			<0.2	6	8	11	<5	<5	1.96	248	<20	<20
M 2	12254	Macaroni Prospect	flt	sel	silic intr w/ 3% py, abu lim	<5			<0.2	23	5	4	<5	<5	2.72	191	<20	<20
M 2	12255	Macaroni Prospect	flt	sel	silic intr w/ 2-3% py, abu lim	<5			<0.2	31	3	5	6	<5	2.41	102	<20	<20

Appendix G

Summaries of mines, prospects, and mineral occurrences in the Survey Pass quadrangle (listed by map number)

Property Summary

Name(s): Pingaluk River

Map No: SP1
MAS No: 0020290009
Alaska Kardex 029-008

Deposit Type: Placer

Commodities: Au

Location:

Quadrangle: Survey Pass C-2 — NW¼ sec. 7, T. 25 N., R. 24 E.
Meridian: Kateel River — Elevation: 1,360 feet
Latitude: 67° 34.516' N. — Longitude: 153° 33.906' W.
Geographic: Just below a fork in the Pingaluk River, 10 miles upstream from the Alatna River.

History:

1931 - Two prospectors reported working on the Pingaluk River (Smith, 1934).

Production: Unknown.

Workings and Facilities: None observed.

Geologic Setting:

Bedrock in the area consists of Middle Devonian(?) phyllite and semischist thrust over slate and phyllite of the Upper Devonian Hunt Fork Shale (Nelson and Grybeck, 1980).

Bureau Investigation:

A site was investigated where the stream flows on bedrock just below a major fork. Bedrock is composed of phyllite that contains quartz lenses and pods parallel to schistosity. Test pans contained no visible gold. A pan concentrate sample (11429, table G-1) was not anomalous in gold, but did contain 606 ppm copper. Another pan concentrate (11430) contained 151 ppm zinc. Minor pyrite occurs in the quartz. A sample of pyrite-bearing quartz (11431) was not anomalous in any metals.

Resource Estimate: Unknown.

Mineral Development Potential: Low due to a lack of gold in gravel on bedrock in the river.

Recommendations: None.

References:

Smith, P.S., 1934, Mineral industry of Alaska in 1931, *in* Smith, P.S. and others, 1934, Mineral resources of Alaska, report of progress of investigations in 1931: U.S. Geological Survey Bulletin 844, p. 39.

WGM Inc., 1978, Mineral studies of the western Brooks Range, Alaska: U.S. Bureau of Mines Open-File Report 103-78, p. 158.

Property Summary

Name(s): Lucky Six Creek Lode
Whelan's Mining and Exploration
Copper King
Copper Queen
Silver King
Gray Eagle
Ground Hog
Iowa
Mammoth

Map No: SP2
MAS No: 0020290002
Alaska Kardex 029-003

Deposit Type: Polymetallic veins

Commodities: Au

Location:
Quadrangle: Survey Pass C-4
NW¼ sec. 22, T. 26 N., R. 18 E.
Meridian: Kateel River
Elevation: 4,770 feet
Latitude: 67° 35.500' N.
Longitude: 154° 52.000' W.
Geographic: Upper Lucky Six Creek, a northern tributary of the Noatak River.

History:

1898 - Placer gold discovered on lower Lucky Six Creek (Schrader, 1904; Smith, 1913).

1902-03 - Pyritiferous gold-bearing ore reported on the divide between the Alatna and Noatak Rivers (Schrader, 1904).

1903 - Prospecting continued in area. Specimens given to U.S. Geological Survey (USGS) for testing. The results were not encouraging (Schrader, 1904).

Production: None.

Workings and Facilities: None.

Geologic Setting:

Upper Lucky Six Creek cuts Upper Devonian Skajit Limestone that has been overthrust by Upper Paleozoic Calcareous phyllite. The Skajit locally contains lenses of chlorite schist, and the phyllite locally contains limestone lenses. Mineralized rocks reportedly consist of six or more veins, which vary from 10 to 75 feet in width. Some of the veins have been traced for distances ranging from several thousand feet to 2.0 miles. The veins are nearly parallel and reportedly lie within a 6- to 7-mile-wide northeast-trending belt. Vein specimens given to USGS geologists consisted of pyrite, quartz, and chalcopyrite associated with a little bornite and a trace of malachite. Other minerals which have been found include stibnite and epidote. Prospectors reported samples that contained from 1.94 oz/ton to 4.35 oz/ton gold. Assays of the samples given to the USGS averaged 0.075 oz/ton gold. The veins were never located by USGS geologists (Schrader, 1904).

Bureau Investigation:

BLM geologists made two brief examinations of the upper part of Lucky Six Creek. In the stream bottom at a point 1.7 miles north of Gull Pass, minor quartz-carbonate float was found which contained tetrahedrite(?), malachite, and azurite. A sample (8012, table G-1) contained 43 ppm silver, 672 ppm arsenic, and 3,580 ppm antimony. On the same stream, 1.0 mile north of Gull Pass, trace quartz float with graphitic partings contained malachite stain. No sulfides were observed in the quartz. A pan concentrate sample (11428) collected downstream on the same drainage was slightly anomalous in copper and zinc.

Resource Estimate: None.

Mineral Development Potential:

Low development potential due to low gold content of samples and lack of a bedrock source. Also the area lies within Gates of the Arctic National Park and is closed to mineral entry.

Recommendations: None.

References:

Anderson, E., 1947, Mineral occurrences other than gold deposits in northwestern Alaska: Alaska Department of Mines Pamphlet, 5-R, 48 p.

Berg, H.C., and Cobb, E.H., 1967, Metalliferous lode deposits of Alaska: U.S. Geological Survey Bulletin 1246, p.105.

Cobb, E.H., 1972, Metallic mineral resources map of the Survey Pass quadrangle, Alaska: U.S. Geological Survey Miscellaneous Field Studies Map MF-382, 1 sheet, scale 1:250,000.

Grybeck, D., and Nelson, S.W., 1981, Mineral deposit map of the Survey Pass quadrangle, Brooks Range, Alaska: U.S. Geological Survey Miscellaneous Field Studies Map MF-1176F, 1 sheet, scale 1:250,000.

Nelson, S.W., and Grybeck, D., 1980, Geologic map of the Survey Pass quadrangle, Brooks Range, Alaska: U.S. Geological Survey Miscellaneous Field Studies Map MF-1176-A, 2 sheets, scale 1:250,000.

Schrader, F.C., 1904, A reconnaissance in northern Alaska across the Rocky Mountains, along the Koyukuk, John, Anaktuvuk, and Colville Rivers and the Arctic coast to Cape Lisburne, in 1901: U.S. Geological Survey Professional Paper 20, p. 102-104.

Smith, P.S., 1913, The Noatak-Kobuk region, Alaska: U.S. Geological Survey Bulletin 536, p. 140-141.

Smith, P.S., and Mertie, J.B., Jr., 1930, Geology and mineral resources of northwestern Alaska: U.S. Geological Survey Bulletin 815, p. 337-338.

WGM Inc., 1978, Mineral Studies of the western Brooks Range, Alaska: U.S. Bureau of Mines Open-File Report 103-78, 550 p.

Property Summary

Name(s): Lucky Six Creek
Whelan's Mining and Exploration
Copper King
Copper Queen
Silver King
Gray Eagle
Ground Hog
Iowa
Mammoth

Map No: SP3
MAS No: 0020290003
Alaska Kardex 029-003

Deposit Type: Placer

Commodities: Au

Location:

Quadrangle: Survey Pass C-4
Meridian: Kateel River
Latitude: 67° 32.483' N.

NW¼ sec. 25, T. 25 N., R. 17 E.
Elevation: 2,300 feet
Longitude: 154° 56.000' W.

Geographic: On lower Lucky Six Creek, a 9-mile-long northern tributary of the Noatak River, 6 miles southwest of Gull Pass. The property is within the Gates of the Arctic National Park and closed to mineral entry.

History:

1898 - Placer gold discovered on lower Lucky Six Creek and some mining done in subsequent years. The area is very difficult to access and above timberline. Planks for sluice boxes were whipsawed from trees on the Reed River, about 30 miles away, and hauled to the site by dogs and men (Schrader, 1904).

1903-1981 - Claim staking activity (Schrader, 1904; Smith, 1913; Kardex)

Production: Unknown.

Workings and Facilities:

Remains of old campsites, ditches, hydraulic pipe, sluice boxes and stacked boulders are located about 0.7 mile upstream from the Noatak River.

Geologic Setting:

Bedrock on Lucky Six Creek consists of Mississippian and Devonian phyllite that is in thrust fault contact with Devonian and Silurian Skajit Limestone. The Skajit locally contains lenses of chlorite schist, and the phyllite locally contains limestone lenses. Polymetallic veins, containing significant gold values reportedly occur upstream from the placer site (map no. SP2) (Nelson and Grybeck, 1980).

Bureau Investigation:

The site was examined by U.S. Bureau of Mines personnel in 1994 as part of a mine hazards survey, but little evaluation was made of the mineral resources. Materials found at the site indicate that placer mining took place at some point. It appears that gravel was mined off shallow bedrock and sluiced back from the present stream bank for a distance of about 50 feet. A total of five test pans were taken. Sulfides were observed, but no visible gold (Fechner, 1995).

Resource Estimate: None.

Mineral Development Potential: Unknown.

Recommendations: None.

References:

Anderson, E., 1947, Mineral occurrences other than gold deposits in northwestern Alaska: Alaska Department of Mines Pamphlet, 5-R, 48 p.

Berg, H.C., and Cobb, E.H., 1967, Metalliferous lode deposits of Alaska: U.S. Geological Survey Bulletin 1246, p. 105.

Cobb, E.H., 1972, Metallic mineral resources map of the Survey Pass quadrangle, Alaska: U.S. Geological Survey Miscellaneous Field Studies Map MF-382, 1 sheet, scale 1:250,000.

Fechner, S.A., 1995, Mine hazards report - inactive mines, Lucky Six Creek, Alaska: U.S. Bureau of Mines unpublished report, 11 p. [available from BLM Anchorage, Alaska]

Grybeck, D., and Nelson, S.W., 1981, Mineral deposit map of the Survey Pass quadrangle, Brooks Range, Alaska: U.S. Geological Survey Miscellaneous Field Studies Map MF-1176F, 1 sheet, scale 1:250,000.

Nelson, S.W., and Grybeck, D., 1980, Geologic map of the Survey Pass quadrangle, Brooks Range, Alaska: U.S. Geological Survey Miscellaneous Field Studies Map MF-1176-A, 2 sheets, scale 1:250,000.

Schrader, F.C., 1904, A reconnaissance in northern Alaska across the Rocky Mountains, along the Koyukuk, John, Anaktuvuk, and Colville Rivers and the Arctic coast to Cape Lisburne, in 1901: U.S. Geological Survey Professional Paper 20, p. 102-104.

Smith, P.S., 1913, The Noatak-Kobuk region, Alaska: U.S. Geological Survey Bulletin 536, p. 140-141.

Smith, P.S., and Mertie, J.B., Jr., 1930, Geology and mineral resources of northwestern Alaska: U.S. Geological Survey Bulletin 815, p. 337-338.

WGM Inc., 1978, Mineral Studies of the western Brooks Range, Alaska: U.S. Bureau of Mines Open-File Report 103-78, 550 p.

Property Summary

Name(s): Arrigetch Peaks

Map No: SP4
MAS No: 0020290024

Deposit Type: Skarn

Commodities: Cu, Zn, Sn

Location:

Quadrangle: Survey Pass B-2, B-3
sec. 31, T. 24 N., R. 22 E.
Meridian: Kateel River
Elevation: 3,800 feet
Latitude: 67° 26.166' N.
Longitude: 153° 58.283' W.
Geographic: Headwaters of streams draining the north side of the Arrigetch pluton.

History:

late 1970s - Prospecting in the area by General Crude Oil Co. and Union Carbide Corp. (WGM Inc. 1978).

Production: None.

Workings and Facilities: None.

Geologic Setting:

The Arrigetch Peaks massif is made up of a granite orthogneiss pluton. Crystallization of the pluton occurred during Middle Devonian time. Regional metamorphism affected the area in the mid-Mesozoic with uplift and cooling in the Late Cretaceous. The orthogneiss is in contact with Silurian-Devonian marble of the Skajit Limestone and Proterozoic(?)-Lower Paleozoic schist (Adams, 1983).

The contact between the pluton and the surrounding country rock is defined by hornfels, skarn, and dikes and sills of aplitic and pegmatitic rocks. The skarns and associated veins are locally anomalous in copper, zinc, tin, tungsten, and silver (Adams, 1983)

Bureau Investigation:

The skarns occur as small discontinuous pods and lenses associated with carbonate rocks on the margins of the orthogneiss. The orthogneiss-metasediment contact was examined at three sites with reported mineralization on the northeast side of the Arrigetch Peaks. At area 1 (figure G-1) the skarn is composed of calc-silicate rock interlayered with magnetite-rich zones that give the rock a banded or “ribbon rock” appearance. A sample of the magnetite-rich skarn with minor pyrite (10863, table G-1) contained 4,052 ppm tin, 1,142 ppm copper and 7,782 ppm zinc. This skarn occurred as rubblecrop over a 3- by 50-foot area. A 0.5- by 1.5-foot quartz lense on the margin of the skarn contained pyrite, pyrrhotite, chalcopyrite, and arsenopyrite. A select sample (10864) contained 4,492 ppm copper, 880 ppm tin, and 859 ppm bismuth.

At area 2, four small skarn bodies at the orthogneiss-carbonate contact on the western wall of the canyon were sampled. The skarns contained abundant magnetite along with pyrite, chalcopyrite, and minor malachite. The skarns contained quartz veins 1 to 6 inches thick. A select sample of skarn float (10829)

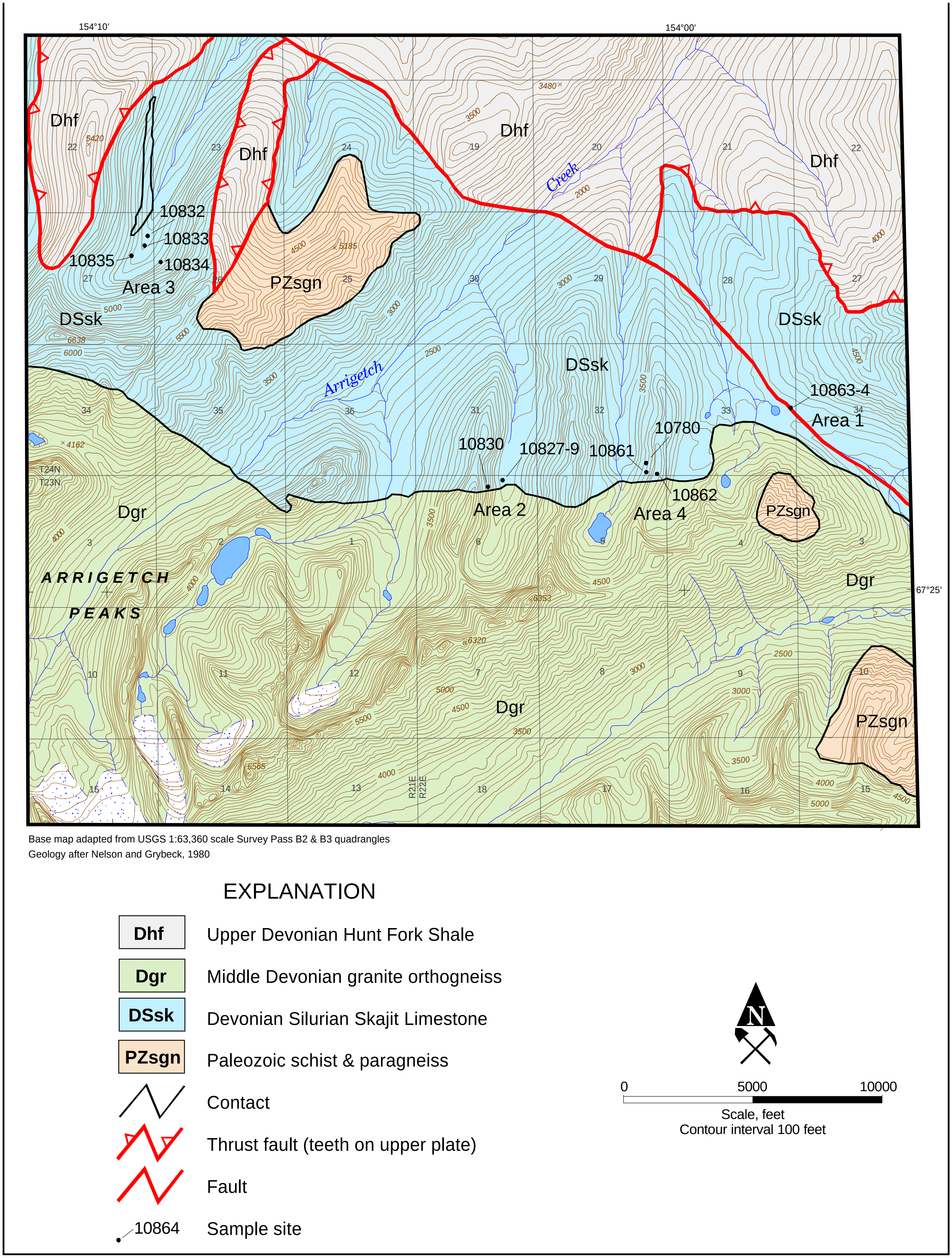


Figure G-1. Geology and sample location map of the Arrigetch Peaks.

contained 3,042 ppm copper, 269 ppm cobalt, and 638 ppm tin.

Area 3 is at the headwaters of an unnamed tributary of the Alatna River. A select sample of sulfide-bearing float (10835) contained 3,874 ppm copper.

At area 4, the banded skarn consists of magnetic-rich bands up to 5 feet wide interlayered with red garnet-bearing calc-silicate rocks and minor aplite. The magnetite is locally coarse grained and contains trace malachite stain. One pod-like mass of skarn measured 90 by 100 feet. A 4.5-foot-wide chip sample across one of the magnetite-rich zones (10780) contained 1,080 ppm tin, and 233 ppm copper.

Resource Estimate: Unknown.

Mineral Development Potential:

Low development potential for skarn-type deposits and associated polymetallic veins. Skarn exposures are small, and there appears to be little potential for undiscovered resources. The veins do not contain significant precious metal values.

Recommendations: None.

References:

Adams, D.D., 1983a, Geology of the northern contact area of Arrigetch Peaks Pluton, Brooks Range, Alaska: University of Alaska, Fairbanks, Masters thesis, 86 p.

____1983b, Geologic map of the northern contact of the Arrigetch Peaks pluton, Brooks Range, Alaska: Alaska Division of Geological and Geophysical Surveys Professional Report 83, 1 sheet, scale 1:18,000.

Dillon, J.T., Pessel, G.H., Chen, J.H., and Veach, N.C., 1980, Middle Paleozoic magmatism and orogenesis in the Brooks Range, Alaska: Geology, v. 8, p. 338-343.

Grybeck, D., 1977a, Known mineral deposits of the Brooks Range, Alaska: U.S. Geological Survey Open-File Report 77-166C, 45 p.

Grybeck, D., and Nelson, S.W., 1981, Mineral deposit map of the Survey Pass quadrangle, Brooks Range, Alaska: U.S. Geological Survey Miscellaneous Field Studies Map MF-1176F, 1 sheet, scale 1:250,000.

Nelson, S.W., and Grybeck, D., 1980, Geologic map of the Survey Pass quadrangle, Brooks Range, Alaska: U.S. Geological Survey Miscellaneous Field Studies Map MF-1176-A, 2 sheets, scale 1:250,000.

Newberry, R.J., Dillon, J.T., and Adams, D.D., 1986, Regionally metamorphosed, calc-silicate-host deposits of the Brooks Range, northern Alaska: Economic Geology, v. 81, p. 1728-1752.

WGM Inc., 1978, Mineral studies of the western Brooks Range, Alaska: U.S. Bureau of Mines Open-File Report 103-78, p. 454-463.

Property Summary

Name(s): Alatna River

Map No: SP5
MAS No: 0020290005
Alaska Kardex 029-006

Deposit Type: Placer

Commodities: Au

Location:

Quadrangle: Survey Pass A-1
sec: 35, T. 20 N, R. 25 E.
Meridian: Kateel River
Elevation: 710 feet
Latitude: 67° 05.498' N.
Longitude: 153° 19.581' W.
Geographic: On the Alatna River, 4.5 miles upstream of the Malumute Fork.

History:

1898 - Rush by prospectors into the Alatna River area, following rumors of gold on the Koyukuk River. Small amounts of gold were found, but no economic deposits (Mendenhall, 1902).
1901 - Only a few prospectors in the area (Mendenhall, 1902).
1924 - No miners living in the area (Smith and Mertie, 1930).
1928 - Activity reported in area (Smith, 1930).
1937 - Activity reported in area (Smith, 1939).
1938 - Activity reported in area Smith, 1939).
1939 - Activity reported in area (Smith, 1941).

Production: Unknown.

Workings and Facilities: None reported.

Geologic Setting:

Bedrock in the area consists of Devonian(?) mica schist, quartz-mica schist, and phyllite (Brosge and Reiser, 1971). Bedrock at the site consists of pyritic black schist containing quartz stringers parallel to schistosity (Nelson and Grybeck, 1980).

Bureau Investigation:

A test pan taken off bedrock contained 1 very fine gold flake plus unidentified sulfides (11497, table G-1). Sample results were not anomalous in gold. The sample was slightly anomalous in zinc, as was a sample of pyrrhotite-bearing schist collected nearby (11499).

Resource Estimate: Unknown.

Mineral Development Potential:

Low development potential due to low gold content of gravels on bedrock.

Recommendations: None.

References:

Cobb, E.H., 1972, Metallic Mineral Resources Map of the Survey Pass Quadrangle, Alaska: U.S. Geological Survey Miscellaneous Field Studies Map MF-382, 1 sheet, scale 1:250,000.

Mendenhall, W.C., 1902, Reconnaissance from Fort Hamlin to Kotzebue Sound, Alaska by way of Dall, Kanuti, Allen and Kowak Rivers: U.S. Geological Survey Professional Paper no. 10, p.50.

Nelson, S.W., and Grybeck, D., 1980, Geologic map of the Survey Pass quadrangle, Brooks Range, Alaska: U.S. Geological Survey Miscellaneous Field Studies Map MF-1176-A, 2 sheets, scale 1:250,000.

Smith, P.S., 1913, The Noatak-Kobuk region, Alaska: U.S. Geological Survey Bulletin 536, p. 143.

____1930, Mineral industry of Alaska in 1928, *in* Smith, P.S. and others, 1930, Mineral resources of Alaska, report on progress of investigations in 1928: U.S. Geological Survey Bulletin 813, p. 45.

____1939, Mineral resources of Alaska in 1937: U.S. Geological Survey Bulletin 910A, p. 56.

____1941, Mineral resources of Alaska in 1939: U.S. Geological Survey Bulletin 926A, p. 52.

Smith, P.S., and Mertie, J.B., Jr., 1930, Geology and mineral resources of northwestern Alaska: U.S. Geological Survey Bulletin 815, p. 334-335.

U.S. Bureau of Mines, 1979, Mineral deposits of the Alatna, John, Killik, Kobuk and the North Fork of the Koyukuk River areas, Alaska: Preliminary Comment: U.S. Bureau of Mines Open-File Report 36-79, p. 14-15.

WGM Inc., 1978, Mineral studies of the western Brooks Range, Alaska: U.S. Bureau of Mines Open-File Report 103-78, p. 158.

Table G-1. Selected results from samples collected in the Survey Pass quadrangle.

Explanation

Sample site

core	drill core
drum	55 gallon drum
dump	mine dump
flt	float
otc	outcrop
rub	rubblecrop
tail	mine tailings
trn	trench

Placer gold: size classification

v. fine	< 0.5 mm
fine	0.5 - 1.0 mm
coarse	1 -2 mm
v. coarse	> 2 mm

Abbreviations:

Ck	creek
confl	confluence
Mtn	mountain
R	river

Footnotes:

Bold numbers indicate multiple erratic results, which were averaged.

Results for Au are reported in ppb unless other units are stated.

Sample type

cont	continuous chip
grab	grab sample
pan	pan concentrate
plac	placer concentrate
rand	random chip
rep	representative chip
sed	sediment sample
sel	select
slu	sluice concentrate
soil	soil sample
spac	spaced chip

Sample description

abu	abundant
alt	altered, alteration
amph	amphibole
ank	ankerite
apy	arsenopyrite
az	azurite
ba	barite
bio	biotite
blk	black
bn	bornite
box	boxwork texture
brn	brown
ca	calcite
calc	calcareous
carb	carbonate
cc	chalcocite
cgl	conglomerate
ch	chlorite
chm	chromite
comp	composite
cpy	chalcopyrite
cst	cassiterite
cv	covellite
diss	disseminated
ep	epidote
feld	feldspar
ft	foot (12 inches)
fuch	fuchsite
gar	garnet
gd	granodiorite
gn	galena
gwy	graywacke
hbl	hornblende
hem	hematite
hfls	hornfels
hydro	hydrothermal
in	inch
intr	intrusive
lim	limonite
ls	limestone
mag	magnetite

Sample description

mal	malachite
mar	marcasite
mdst	mudstone
meta	metamorphic
MnO	manganese oxide
mod	moderate
monz	monzonite
musc	muscovite
oz/cyd	ounces per cubic yard
oz/t	ounces per ton
pct	percent
po	pyrrhotite
porph	porphyry
ppb	parts per billion
ppm	parts per million
psuedo	psuedomorph
py	pyrite
qtz	quartzite
qz	quartz
sch	scheelite
sco	scorodite
ser	sericite
serp	serpentinized
sid	siderite
silic	siliceous
sl	sphalerite
slts	siltstone
ss	sandstone
stb	stibnite
tet	tetrahedrite
tm	tourmaline
tr	trace
v	very
val	valentinite
vis	visible
vlets	veinlets
volc	volcanic
w/	with
xcut	crosscutting
xln	crystalline
xls	crystals

Elements

Ag	silver
Al	aluminum
As	arsenic
Au	gold
Ba	barium
Bi	bismuth
Ca	calcium
Cd	cadmium
Co	cobalt
Cr	chromium
Cu	copper
Fe	iron
Ga	gallium
Hg	mercury
K	potassium
La	lanthanum
Li	lithium
Mg	magnesium
Mn	manganese
Mo	molybdenum
Na	sodium
Nb	niobium
Ni	nickel
Pb	lead
Pd	palladium
Pt	platinum
Sb	antimony
Sc	scandium
Sn	tin
Sr	strontium
Ta	tantalum
Te	tellurium
Th	thorium
Ti	titanium
U	uranium
V	vanadium
W	tungsten
Y	yttrium
Zn	zinc
Zr	zirconium

Table G-1. Selected results from samples collected in the Survey Pass quadrangle.

Map no.	Field no.	Location	Sample Site	Sample Type	Sample Description	Au ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm	Bi ppm	As ppm	Sb ppm	Fe pct	Ba ppm	Sn ppm	W ppm	Al pct	U ppm	Th ppm
SP 1	11429	Pingaluk Ck		pan	minor py, no mag, no vis Au		<0.2	606	22	120	<5	14	<5	4.98	267	<20	<20	6.13		
SP 1	11430	Pingaluk Ck		pan	minor py, no mag, no vis Au	20	<0.2	71	11	151	<5	8	<5	5.56	225	<20	<20	5.69		
SP 1	11431	Pingaluk Ck	otc	sel	0.5-ft-wide qz vein w/ iron-carb	<5	<0.2	18	84	48	<5	<5	<5	2.50	15	<20	<20	0.51		
SP 2	8012	Lucky Six Ck	flt	grab	qz-carb vein w/ tet, mal, az	<75	43			<1100		672	3580.0	<0.8	<720	<3300	<9		<3.6	<5.8
SP 2	8013	Lucky Six Ck	flt	grab	vein qz w/ graphitic partings, mal	6	8			<200		3	3.3	2.8	140	<200	<2		1.4	4.2
SP 2	11426	Lucky Six Ck	flt	sel	qtz w/ 1-2% diss py, lim	<5	<0.2	2	17	6	<5	<5	<5	1.56	2	<20	<20	0.77		
SP 2	11427	Lucky Six Ck		pan			<0.2	45	18	91	<5	10	<5	5.77	263	<20	<20	6.68		
SP 2	11428	Lucky Six Ck		pan	mod mag	12	<0.2	135	16	111	<5	7	<5	6.02	211	<20	<20	5.69		
SP 4	10780	Arrigetch Peaks	otc	cont	skarn w/ massive mag, tr mal	<5	<0.2	3	15	233	11	15	<5	>10.00	16	1080	30	0.65		
SP 4	10827	Arrigetch Peaks	flt	sel	skarn w/ abu mag, tr mal	<5	0.3	904	8	1674	<5	7	<5	>10.00	76	7269	102	3.71		
SP 4	10828	Arrigetch Peaks	flt	sel	skarn w/ py and cpy, ep, hbl	<5	<0.2	174	3	229	<5	10	<5	2.33	12	56	<4	0.60		
SP 4	10829	Arrigetch Peaks	flt	sel	skarn w/ massive py, cpy, po	44	<0.2	3042	19	75	<5	8	<5	>10.00	2	638	5	0.53		
SP 4	10830	Arrigetch Peaks	otc	sel	skarn w/ abu mag, mod mal	<5	<0.2	66	33	280	36	12	<5	>10.00	21	2132	<4	1.92		
SP 4	10832	Arrigetch Peaks	flt	sel	skarn w/ massive sulfides	<5	<0.2	163	36	32	<5	<5	<5	>10.00	3	13	<4	0.06		
SP 4	10833	Arrigetch Peaks	flt	sel	skarn w/ massive sulfides	8	<0.2	195	2	43	<5	<5	<5	>10.00	23	54	<4	2.26		
SP 4	10834	Arrigetch Peaks	flt	sel	banded schist w/ py, tm(?)	<5	<0.2	30	5	38	<5	<5	<5	2.85	36	<4	<4	1.43		
SP 4	10835	Arrigetch Peaks	flt	sel	skarn w/ cpy py, lim	8	0.6	3874	15	59	<5	17	<5	>10.00	3	<4	<4	0.07		
SP 4	10861	Arrigetch Peaks	otc	cont	skarn w/ massive mag, mal	10	<0.2	29	7	219	88	25	<5	>10.00	27	830	116	1.07		
SP 4	10862	Arrigetch Peaks	rub	ran	gar ep skarn w/ 5% mag	30	<0.2	13	6	183	34	16	<5	>10.00	17	811	76	1.65		
SP 4	10863	Arrigetch Peaks	rub	ran	mag-rich skarn w/ minor py	14	0.9	1142	17	7782	79	238	<5	>10.00	8	4052	18	0.37		
SP 4	10864	Arrigetch Peaks	otc	sel	qz vein w/ py, cpy, apy, po	60	2.4	4492	74	262	859	>10000	29	>10.00	2	880	<4	0.92		
SP 5	11497	Alatna R		sed		<5	<0.2	21	8	67	<5	8	<5	3.13	34	<20	<20	0.91		
SP 5	11498	Alatna R		pan	1 v fine Au(?), sulfides	10	<0.2	38	16	102	<5	13	<5	5.61	169	<20	<20	2.42		
SP 5	11499	Alatna R	flt	sel	mica schist w/ 1-2% diss po, lim	13	<0.2	46	3	119	<5	37	<5	5.56	27	<20	<20	2.16		

Appendix H

Summaries of mines, prospects, and mineral occurrences in the Tanana quadrangle (listed by map number)

Property Summary

Name(s): Kanuti Kilolitna River Lode

Map No: T1
MAS No: 0020480133

Deposit Type: Podiform chromite

Commodities: Cr, Ni

Location:

Quadrangle: Tanana D-4 — SW¼ sec. 7, T. 13 N., R. 20 W.
Meridian: Fairbanks — Elevation: 1,230 feet
Latitude: 65° 57.855' N. — Longitude: 151° 52.718' W.
Geographic: On both sides of the Kanuti Kilolitna River, just upstream from where the drainage exits mountainous country onto the Kanuti Flats. About 18 miles southwest of Sithylemenkat Lake (map no. B27).

History:

1901 - U.S. Geological Survey noted serpentinites along the Kanuti River (Mendenhall, 1902).
1968-69 - U.S. Geological Survey sampled ultramafic rocks while geologic mapping in the Kanuti River region (Patton and Miller, 1970).
1979 - U.S. Bureau of Mines began investigations in area as part of assessment of lands adjacent to the Trans-Alaska Pipeline corridor (Foley and McDermott, 1983).

Production: None.

Workings and Facilities: None.

Geologic Setting: (modified from Patton and Miller, 1970; Foley and McDermott, 1983; Patton, 1989; Foley, 1992)

The Caribou Mountain-Melozitna ultramafic belt, also known as the Kanuti ultramafic belt, trends northeast for 62 miles in the Kokrine-Hodzana Highlands. This belt is included in a mafic sequence that follows the contact between the upper Paleozoic-Mesozoic Angayucham terrane on the north and the Proterozoic(?) and Paleozoic miogeoclinal rocks of the Ruby Geanticline to the south. A portion of the Ruby Geanticline underlies the mafic-ultramafic belt and consists of pelitic schist, quartzite, and phyllite with subordinate marble, metamorphosed graywacke, and slate.

The metamorphosed sedimentary rocks are overlain by a sequence of Permian through Jurassic mafic volcanic and intrusive rocks that include pillow basalt, diabase, and gabbro. Subordinate basaltic and andesitic volcaniclastic rocks, chert, and cherty mudstone also occur in the sequence. The mafic rocks appear to comprise erosional remnants of allochthonous sheets of ophiolite and allied oceanic crustal rocks that were thrust over the metasedimentary sequence in the late Mesozoic. The mafic rocks are commonly metamorphosed to greenstone.

It is with these mafic rocks that the ultramafic rocks of the Caribou Mountain-Melozitna belt are associated. The belt comprises 6 Permian(?) through Jurassic(?) ultramafic bodies that represent a dismembered ophiolite assembledge consisting of serpentinized dunite and pyroxene- peridotite, pyroxenite, gabbro, diabase altered pillow basalt and associated chert. Dunite exposures weather to a characteristic red-brown and have sparse vegetative cover. The ultramafic rocks outcrop as layered masses and grade upward into gabbroic and basaltic rocks. Bordering the ultramafic belt on the north are Cretaceous sedimentary and volcanic rocks of the upper Koyukuk basin.

The Kilolitna ultramafic body is a 20-mile-long mass of serpentinized peridotite with exposed widths of up to 2.5 miles. The river cuts a 0.5 mile-wide portion of the ultramafics. The body is composed almost entirely of serpentinized peridotite, mainly harzburgite, and serpentinized dunite. The peridotites are characterized by rough “hobnail” surfaces due to the weathering of the large pyroxene pseudomorphs. The dunites are generally smooth, except where they contain streaks of chromite, which stand out in relief. Both rock types are cut by veinlets and irregular masses of chalcedony and drusy quartz. The entire ultramafic body is reported to be at least 2,500 feet thick. The lower contact is faulted and the upper contact is poorly exposed. Where seen, it appears gradational from the ultramafics through a zone of interlayered mafic and ultramafic intrusives into the overlying assemblage of mafic volcanics and intrusives. Numerous small occurrences of disseminated and massive high-chrome chromite are reported in dunite bedrock and rubblecrop (Foley, 1992). Samples from Kilolitna have a chrome-to-iron ratio of 1.7:1, and concentrates contained 46.7 % chromite.

Bureau Investigation:

Chromite-bearing dunites were located on both the east and west sides of the river, adjacent to the narrows. The dunites contain a few small pods, but mostly wispy layers of disseminated chromite. One sample taken from a 3.0- by 8.5-foot pod of massive chromite (11472, table H-1) contained 28.80% chromium. A sample of dunite containing bands of disseminated chromite up to 0.5 foot wide (11473) contained 11.94% chromium and 1,525 ppm nickel. The average trend of the banded chromites is N. 70° E., with dips averaging 80° N. A 1-mile-long traverse was made across the northeasterly trend of the Kilolitna ultramafic body northwest of VABM Dummy. The entire sequence consisted of interlayered peridotite and dunite locally containing disseminated chromite grains. All samples contained <400 ppm chromium and averaged 2,190 ppm nickel. The average abundance of nickel in ultramafic rocks is 2,000 ppm (Levinson, 1974). No sulfides were observed in any of the ultramafic rocks in the area.

A pan concentrate (12048) collected off bedrock in the narrows on the east side of the creek contained 710 ppb gold. Parts of a floating suction dredge were located nearby on the river bank. The source of this gold is probably granitic intrusive rocks upstream on the Kanuti Kilolitna River (map no. T3).

Resource Estimate: Unknown.

Mineral Development Potential:

Low mineral development potential due to the small size and discontinuous nature of the chromite. There may be larger, higher grade podiform chromite mineralization in the subsurface.

Recommendations:

A low-cost subsurface exploration program and/or airborne geophysical survey of the area would better establish the extent of the chromite mineralization. Using an auger or small scale trenching would be of use in determining if drilling is necessary. Taking pan concentrates in the drainages would also be beneficial in determining extent of mineralization. This may be difficult as many of the smaller drainages do not contain running water.

References:

Clautice, K.H., 1978, Mineral deposits of the Kanuti River area: A summary report: U.S. Bureau of Mines Open-File Report 66-78, 63 p.

Dahlin, D.C., Brown, L.L. , and Kinney, J.J., 1983, Podiform chromite occurrences in the Caribou Mountain and lower Kanuti River areas, central Alaska, part II, beneficiation: U.S. Bureau of Mines Information Circular 8916, 15 p.

Foley, J.Y., 1992, Ophiolitic and other mafic-ultramafic metallogenic provinces in Alaska (west of the 141st Meridian): U.S. Geological Survey Open-File Report 92-20B, p. 15.

Foley, J.Y., Barker, J.C., and Brown, L.L., 1985, Critical and strategic minerals investigations in Alaska: chromium: U.S. Bureau of Mines Open-File Report 97-85, p. 16, 1 sheet.

Foley, J.Y., and McDermott, M.M., 1983, Podiform chromite occurrences in the Caribou Mountain and lower Kanuti River areas, central Alaska, Part 1: U.S. Bureau of Mines Information Circular 8915, 27 p.

Herreid, G., 1969, Geology and geochemistry Sithylemenkat Lake area, Bettles quadrangle, Alaska: Division of Mines and Geology, Geologic Report 35, 22 p.

Levinson, A.A., 1974, Introduction to exploration geochemistry: Applied Publishing Ltd., Wilmette, Illinois, U.S.A., p. 43-44.

Loney, R.A., and Himmelberg, G.R., 1983, Distribution and character of the peridotite-layered gabbro complex of the southeastern Yukon-Koyukuk ophiolite belt, *in* Bartsch-Winkler, S., and Reed, K.M., eds., 1985, The United States Geological Survey in Alaska: accomplishments during 1983: U.S. Geological Survey Circular 945, p. 46-48.

Mendenhall, W.C., 1902, Reconnaissance from Fort Hamlin to Kotzebue Sound, Alaska by way of Dall, Kanuti, Allen and Kowak Rivers: U.S. Geological Survey Professional Paper 10, 68 p.

Patton, W.W., Jr., 1989, Framework geology: Yukon River to Brooks Range, *in* Mull, C.G., and Adams, K.E., eds., Dalton Highway, Yukon River to Prudhoe Bay, Alaska, Bedrock geology of eastern Koyukuk basin, central Brooks Range, and eastcentral Arctic Slope: Alaska Division of Geological and Geophysical Surveys Guidebook 7, v. 1, p. 27-30.

Patton, W.W., Jr., and Miller, T.P., 1970, Preliminary geologic investigations in the Kanuti River region, Alaska: U.S. Geological Survey Bulletin 1312-J, p. J5-J8.

____1973a, Analyses of stream-sediment samples from the Bettles and the southern part of the Wiseman quadrangles, Alaska: U.S. Geological Survey Open-File Report 73-219, p. 7, 1 sheet, scale 1:250,000.

____1973b, Bedrock geologic map of the Bettles and southern part of the Wiseman quadrangles, Alaska: U.S. Geological Survey Miscellaneous Field Studies Map MF-492, 1 sheet, scale 1:250,000.

Property Summary

Name(s): Holanada Creek

Map No: T2
MAS No: 0020480134

Deposit Type: Podiform chromite

Commodities: Cr, Ni

Location:

Quadrangle: Tanana D-5 — NE¼ sec. 9, T. 12 N., R. 23 W.
Meridian: Fairbanks — Elevation: 2,420 feet
Latitude: 65° 52.905' N. — Longitude: 152° 20.948' W.
Geographic: Near ridgetop, 0.5 mile northeast of hill 2570. Just west of the west fork of Holanada Creek.

History:

1901 - U.S. Geological Survey noted serpentinites along the Kanuti River (Mendenhall, 1902).
1968-69 - U.S. Geological Survey sampled ultramafic rocks while geologic mapping in the Kanuti River region (Patton and Miller, 1970).
1979 - U.S. Bureau of Mines began investigations in area as part of assessment of lands adjacent to the Trans-Alaska Pipeline corridor (Foley and McDermott, 1983).

Production: None.

Workings and Facilities: None.

Geologic Setting: (modified from Patton and Miller, 1970; Foley and McDermott, 1983; Patton, 1989; Foley, 1992)

The Caribou Mountain-Melozitna ultramafic belt, also known as the Kanuti ultramafic belt, trends northeast for 62 miles in the Kokrine-Hodzana Highlands. This belt is included in a mafic sequence that follows the contact between the upper Paleozoic-Mesozoic Angayucham terrane on the north and the Proterozoic(?) and Paleozoic miogeoclinal rocks of the Ruby Geanticline to the south. A portion of the Ruby Geanticline underlies the mafic-ultramafic belt and consists of pelitic schist, quartzite, and phyllite with subordinate marble, metamorphosed graywacke, and slate.

The metasedimentary rocks are overlain by a sequence of Permian through Jurassic mafic volcanic and intrusive rocks that include pillow basalt, diabase and gabbro with subordinate basaltic and andesitic volcaniclastic rocks, chert, and cherty mudstone. The mafic rocks appear to comprise erosional remnants of allochthonous sheets of ophiolite and allied oceanic crustal rocks that were thrust over the metasedimentary sequence in the late Mesozoic. The mafic rocks are commonly metamorphosed to greenstone.

It is with these mafic rocks that the ultramafic rocks of the Caribou Mountain-Melozitna belt are associated. The belt comprises 6 Permian(?) through Jurassic(?) ultramafic bodies that represent a dismembered ophiolite assembledge consisting of serpentinized dunite and pyroxene- peridotite, pyroxenite, gabbro, diabase altered pillow basalt and associated chert. Dunite exposures weather to a characteristic red-brown and have sparse vegetative cover. The ultramafic rocks outcrop as layered masses and grade upward into gabbroic and basaltic rocks. Bordering the ultramafic belt on the north are Cretaceous sedimentary and volcanic rocks of the upper Koyukuk basin.

The Holanada ultramafic body is 10 miles long and up to 2 miles wide and is located at the extreme southwest end of the Caribou Mountain-Melozitna ultramafic belt. As with the other 5 ultramafic bodies in the belt, it is composed almost entirely of serpentinized peridotites, mainly harzburgite, and serpentinized dunite. The peridotites are characterized by rough "hobnail" surfaces due to the weathering of the large pyroxene pseudomorphs. The dunites are generally smooth, except where they contain streaks of chromite, which stand out in relief. Both rock types are cut by veinlets and irregular masses of chalcedony and drusy quartz. The entire ultramafic body is reported to be at least 2,500 feet thick. The lower contact is faulted and the upper contact is poorly exposed. Where seen, it appears gradational from the ultramafics through a zone of interlayered mafic and ultramafic intrusives into the overlying assemblage of mafic volcanics and intrusives. Numerous small occurrences of disseminated and massive high-chrome chromite are reported in dunite bedrock and rubblecrop. A 400-foot-long by 5- to 15-foot-wide zone contains over 20% high-chromium chromite (Foley, 1992).

Bureau Investigation:

The ophiolite complex in the area trends approximately N. 70° E. The north side of the complex is primarily dunite which becomes interlayered with coarser grained peridotites as one moves toward the south side of the complex. Zones of banded chromite appear concentrated mostly in the southern one third and stratigraphically lowest portion of the body. The chromite-bearing zones range from 1.5 feet to 50 feet wide and contain individual chromite bands up to 1 inch thick. In addition, finely disseminated chromite grains can be found throughout the dunite and to a lesser extent in the peridotites.

Several traverses were made across the strike of the Holanada ultrmafic body and a total of 17 samples collected (table H-1). Rock sample 11474 contained 28.36% chromium and 753 ppm nickel. This sample was collected in a zone of banded and disseminated chromite in dunite. The zone, up to 25 feet wide, strikes N. 80° E., dips steeply to the north, and is traceable for at least 150 feet along strike. A sample collected from similar rocks, 0.3 mile to the southwest (11444) contained 5.74% chromium. This site may be the extension of the zone previously described. Two additional samples of disseminated chromite bands in dunite (11424, 11445) averaged 2.42% chromium. These samples, collected south of hill 2358, may represent a farther southwestern extension of the zone described above. If these sample sites all lie within the same zone, then it is possible that it may extend for nearly 2 miles. The samples collected along this trend averaged 9.74% chromium.

Resource Estimate:

Inferred resource: 14,500 to 28,000 tons chromic oxide (Cr_2O_3) in a 400-foot-long by 5- to 15-foot-wide zone that contains over 20% high-chromium chromite. Four other low-grade occurrences contain inferred resources of <1,000 tons each (Foley and others, 1985; Foley, 1992).

Mineral Development Potential:

Low mineral development potential for chromite due to low grades and small size of occurrences.

Recommendations:

A low-cost subsurface exploration to show depth extent and/or airborne geophysical survey of the area to better establish the extent of the banded chromite zone within the Holanada ultramafic complex. Using an auger or small scale trenching would be of use in determining if drilling is necessary.

References:

Chapman, R.M., Yeend, W., Brosge, W.P., and Reiser, H.N., 1982, Reconnaissance geologic map of the Tanana quadrangle, Alaska: U.S. Geological Survey Open-File Report 82-734, 1 sheet, scale 1:250,000.

Dahlin, D.C., Brown, L.L. , and Kinney, J.J., 1983, Podiform chromite occurrences in the Caribou Mountain and lower Kanuti River areas, central Alaska, part II, beneficiation: U.S. Bureau of Mines Information Circular 8916, 15 p.

Foley, J.Y., 1992, Ophiolitic and other mafic-ultramafic metallogenic provinces in Alaska (west of the 141st Meridian): U.S. Geological Survey Open-File Report 92-20B, p. 16.

Foley, J.Y., Barker, J.C., and Brown, L.L., 1985, Critical and strategic minerals investigations in Alaska: chromium: U.S. Bureau of Mines Open-File Report 97-85, 54 p., 1 sheet.

Foley, J.Y., and McDermott, M.M., 1983, Podiform chromite occurrences in the Caribou Mountain and lower Kanuti River areas, central Alaska, Part 1: U.S. Bureau of Mines Information Circular 8915, 27 p.

Levinson, A.A., 1974, Introduction to exploration geochemistry: Applied Publishing Ltd., Wilmette, Illinois, U.S.A., p. 43-44.

Loney, R.A., and Himmelberg, G.R., 1983, Distribution and character of the peridotite-layered gabbro complex of the southeastern Yukon-Koyukuk ophiolite belt, *in* Bartsch-Winkler, S., and Reed, K.M., eds., 1985, The United States Geological Survey in Alaska: accomplishments during 1983: U.S. Geological Survey Circular 945, p. 46-48.

Mendenhall, W.C., 1902, Reconnaissance from Fort Hamlin to Kotzebue Sound, Alaska by way of Dall, Kanuti, Allen and Kowak Rivers: U.S. Geological Survey Professional Paper 10, 68 p.

Patton, W.W., Jr., 1989, Framework geology: Yukon River to Brooks Range, *in* Mull, C.G., and Adams, K.E., eds., Dalton Highway, Yukon River to Prudhoe Bay, Alaska, Bedrock geology of eastern Koyukuk basin, central Brooks Range, and eastcentral Arctic Slope: Alaska Division of Geological and Geophysical Surveys Guidebook 7, v. 1, p. 27-30.

Patton, W.W., Jr., and Miller, T.P., 1970, Preliminary geologic investigations in the Kanuti River region, Alaska: U.S. Geological Survey Bulletin 1312-J, p. J1-J10.

____1973, Bedrock geologic map of the Bettles and southern part of the Wiseman quadrangles, Alaska: U.S. Geological Survey Miscellaneous Field Studies Map MF-492, 1 sheet, scale 1:250,000.

Property Summary

Name(s): Kanuti Kilolitna River

Map No: T3
MAS No: 0020480105
Alaska Kardex 048-145

Deposit Type: Placer

Commodities: Sn, W, Au

Location:

Quadrangle: Tanana D-3
S½ sec. 24, T. 12 N., R. 18 W.
Meridian: Fairbanks
Elevation: 1,360 feet
Latitude: 65° 51.244' N.
Longitude: 151° 12.411' W.
Geographic: Near the headwaters of the south fork of the Kanuti Kilolitna River, 3 miles downstream from Kilo Hot Springs.

History:

1959 - Claims staked by W.M. Thomas (Kardex).
1960 - Claims staked by A. Totin, T. Anderson, and C. Ward (Kardex).
1978-80 - U.S. Bureau of Mines evaluated the placer tin potential of the area (Barker and Foley, 1986).

Production: Unknown.

Workings and Facilities: None.

Geologic Setting:

The south fork of the Kanuti Kilolitna River headwaters cuts through the Ray Mountains Batholith, a Cretaceous-aged, coarsely porphyritic biotite quartz monzonite. A contact aureole consisting of hornfels and gneiss occurs marginal to the quartz monzonite. This is most likely the result of contact metamorphism associated with intrusion of the batholith (Chapman and others, 1982).

Placer and pan concentrate samples collected in the Kanuti Kilolitna drainage are anomalous in tin, tungsten, and gold. Placer samples collected downstream from Kilo Hot Springs by the U.S. Bureau of Mines contained up to 0.25 lb/cy tin. The source of the metals could be the Ray Mountains Batholith as the Kanuti Kilolitna River drains a major portion of that body. The upper Kanuti Kilolitna River basin has the potential to contain placer tin deposits (Barker and Foley, 1986).

Bureau Investigation:

An initial investigation was made at the reported location of the placer claims. Very fine flood gold was panned from a point bar near that site. A pan concentrate sample (11479, table H-1) from the bar contained 6,976 ppb gold, 506 ppm tungsten, and 90 ppm tin. Spot checks were made of gravel bars farther upstream in an effort to follow up the source of the gold. A pan concentrate sample collected 0.25 mile upstream (12044) contained 504 ppm tin. A pan concentrate collected farther upstream (and 1.2 miles downstream from Kilo Hot Springs) (11681) contained 88 ppb gold. Another pan concentrate (11682) at the same site contained 3,289 ppm tin and 310 ppm tungsten. These are all anomalous metal values and probably have a source from within the granite or the surrounding contact aureole.

Portions of the contact were examined on the north and south side of the river. Chlorite-quartz schist and biotite gneiss were found along the contact, but no indications of the hornfels as described by Chapman and others (1982). Rock samples were not anomalous in gold, tin, or tungsten. A pan concentrate collected from a south tributary near the headwaters of the Kanuti Kilolitna River (12038) contained 86 ppm tungsten. A float sample of quartz and magnetite-rich vein material (12041) collected at the tributary headwaters contained 555 ppm tin and 94 ppm tungsten.

Resource Estimate:

Inferred resource 4 miles north of this site: 3.5 million cy containing 0.67 lb/cy tin (map no. B28) (Patino Inc., 1982).

Mineral Development Potential:

Low development potential for tin-tungsten greisen deposits, placer tin, and lode gold. None of the rock samples collected contained significant contents of these metals.

Recommendations:

Further investigation of the Ray Mountains Pluton and the surrounding contact aureole is needed to determine possible sources for the tin, tungsten, and gold.

References:

Barker, J.C., and Foley, J.Y., 1986, Tin reconnaissance of the Kanuti and Hodzana Rivers uplands, central Alaska: U.S. Bureau of Mines Information Circular 9104, 27 p.

Chapman, R.M., Yeend, W., Brosge, W.P., and Reiser, H.N., 1982, Reconnaissance geologic map of the Tanana quadrangle, Alaska: U.S. Geological Survey Open-File Report 82-734, 1 sheet, scale 1:250,000.

Cobb, E.H., 1978, Summary of references to mineral occurrences (other than mineral fuels and construction materials) in the Beaver, Bettles, and Medfra quadrangles, Alaska: U.S. Geological Survey Open-File Report 78-94, 55 p.

Patton, W.W., Jr., and Miller, T.P., 1970, Preliminary geologic investigations in the Kanuti River region, Alaska: U.S. Geological Survey Bulletin 1312-J, p. J1

WGM Inc., 1980a, 1979 Annual progress report, Block 4- Allakaket placer tin potential: unpublished report 80-01 for Doyon Ltd., 26 p. [available from Doyon Ltd., Fairbanks, Alaska]

____1980b, 1979 Geochemistry of the Sithylemenkat Pluton, Block 4: unpublished report 80-07, for Doyon Ltd., 33 p. [available from Doyon Ltd., Fairbanks, Alaska]

Table H-1. Selected results from samples collected in the Tanana quadrangle.

Explanation

Sample site

core	drill core
drum	55 gallon drum
dump	mine dump
flt	float
otc	outcrop
rub	rubblecrop
tail	mine tailings
trn	trench

Sample type

cont	continuous chip
grab	grab sample
pan	pan concentrate
plac	placer concentrate
rand	random chip
rep	representative chip
sed	sediment sample
sel	select
slu	sluice concentrate
soil	soil sample
spac	spaced chip

Placer gold: size classification

v. fine	< 0.5 mm
fine	0.5 - 1.0 mm
coarse	1 -2 mm
v. coarse	> 2 mm

Abbreviations:

Ck	creek
confl	confluence
Mtn	mountain
R	river

Footnotes:

Bold numbers indicate multiple erratic results, which were averaged.

Results for Au are reported in ppb unless other units are stated.

Sample description

abu	abundant
alt	altered, alteration
amph	amphibole
ank	ankerite
apy	arsenopyrite
az	azurite
ba	barite
bio	biotite
blk	black
bn	bornite
box	boxwork texture
brn	brown
ca	calcite
calc	calcareous
carb	carbonate
cc	chalcocite
cgl	conglomerate
ch	chlorite
chm	chromite
comp	composite
cpy	chalcopyrite
cst	cassiterite
cv	covellite
diss	disseminated
ep	epidote
feld	feldspar
ft	foot (12 inches)
fuch	fuchsite
gar	garnet
gd	granodiorite
gn	galena
gwy	graywacke
hbl	hornblende
hem	hematite
hfls	hornfels
hydro	hydrothermal
in	inch
intr	intrusive
lim	limonite
ls	limestone
mag	magnetite

Sample description

mal	malachite
mar	marcasite
mdst	mudstone
meta	metamorphic
MnO	manganese oxide
mod	moderate
monz	monzonite
musc	muscovite
oz/cyd	ounces per cubic yard
oz/t	ounces per ton
pct	percent
po	pyrrhotite
porph	porphyry
ppb	parts per billion
ppm	parts per million
psuedo	psuedomorph
py	pyrite
qtz	quartzite
qz	quartz
sch	scheelite
sco	scorodite
ser	sericite
serp	serpentinized
sid	siderite
silic	siliceous
sl	sphalerite
slts	siltstone
ss	sandstone
stb	stibnite
tet	tetrahedrite
tm	tourmaline
tr	trace
v	very
val	valentinite
vis	visible
vlets	veinlets
volc	volcanic
w/	with
xcut	crosscutting
xln	crystalline
xls	crystals

Elements

Ag	silver
Al	aluminum
As	arsenic
Au	gold
Ba	barium
Bi	bismuth
Ca	calcium
Cd	cadmium
Co	cobalt
Cr	chromium
Cu	copper
Fe	iron
Ga	gallium
Hg	mercury
K	potassium
La	lanthanum
Li	lithium
Mg	magnesium
Mn	manganese
Mo	molybdenum
Na	sodium
Nb	niobium
Ni	nickel
Pb	lead
Pd	palladium
Pt	platinum
Sb	antimony
Sc	scandium
Sn	tin
Sr	strontium
Ta	tantalum
Te	tellurium
Th	thorium
Ti	titanium
U	uranium
V	vanadium
W	tungsten
Y	yttrium
Zn	zinc
Zr	zirconium

Table H-1. Selected results from samples collected in the Tanana quadrangle.

Map no.	Field no.	Location	Sample Site	Sample Type	Sample Description	Au ppb	Pt ppb	Pd ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm	Ni ppm	Co ppm	Cd ppm	Bi ppm	As ppm	Ba ppm	Cr ppm	Sn ppm	W ppm	Al pct
T 1	11472	Peak 1458	otc	sel	dunite w/ massive chm, serp	<5	<5	4	<0.2	2	<2	7	59	4	<0.2	<5	<5	3	28.80%	<20	<20	0.09
T 1	11473	Peak 1458	rub	sel	dunite w/ 0.5-ft-wide chm, serp	<5	<5	3	<0.2	7	<2	12	1525	34	0.3	<5	<5	4	11.94%	<20	<20	0.01
T 1	11680	Kilolitna R		sed		<5			<0.2	6	15	58	8	7	0.4	<5	8	102	8	<20	24	1.16
T 1	11681	Kilolitna R		pan		88	<5	10	<0.2	7	11	28	8	4	<0.2	<5	7	51	372	<20	34	0.83
T 1	11682	Kilolitna R		pan		12	<5	11	<0.2	11	15	29	15	<3	<0.2	10	13	50	370	3289	310	0.83
T 1	12070	Peak 1458	otc	cont	dunite, peridotite, serpentine	<5	5	<1	<0.2	1	<2	31	465	67	<0.2	<5	<5	4	532	<20	<20	0.12
T 1	12100	Peak 1458	otc	spac	dunite, peridotite, serpentine	<5	5	1	<0.2	2	<2	52	1100	114	<0.2	<5	<5	2	129	<20	<20	0.03
T 1	12101	Peak 1458	flt	sel	chm-bearing float	6			<0.2	5	<2	22	1840	68	<0.2	<5	<5	<1	5.66%	<20	<20	0.01
T 2	11424	Holanada	rub	sel	dunite w/ banded chm	<5	<5	6	<0.2	4	7	25	1390	85	0.3	<5	<5	2	2.06%	<20	<20	<0.01
T 2	11425	Holanada	otc	sel	dunite w/ banded chm	<5	<5	7	<0.2	8	7	25	1908	76	0.3	<5	<5	2	0.99%	<20	<20	<0.01
T 2	11444	Holanada	otc	spac	dunite w/ banded chm	<5	<5	5	<0.2	5	2	18	1281	65	0.3	<5	<5	5	5.74%	<20	<20	<0.01
T 2	11445	Holanada, Peak 2358	flt	sel	dunite w/ banded chm	<5	10	6	<0.2	3	<2	25	1762	69	0.2	<5	<5	3	2.78%	<20	<20	<0.01
T 2	11474	Holanada	rub	sel	dunite w/ abu chm, serp	<5	<5	5	<0.2	4	<2	7	753	12	<0.2	<5	<5	9	28.36%	<20	<20	0.07
T 2	12256	Holanada	flt	sel	qtz w/ 1% fine diss py, lim	10	<5	3	0.5	95	7	230	288	56	0.2	<5	<5	140	116	<20	<20	2.76
T 2	12257	Holanada, Peak 2770	flt	sel	andesite w/ 2-3% fine mag, lim	<5	11	7	<0.2	97	<2	25	29	11	<0.2	<5	<5	71	73	<20	<20	2.23
T 2	12258	Holanada	flt	sel	granite w/ gar	6			<0.2	3	18	21	4	<1	<0.2	<5	<5	39	100	<20	<20	0.55
T 2	12267	Holanada	otc	rand	dunite w/ serp fracture surfaces	7	6	5	<0.2	11	<2	33	2159	96	<0.2	<5	<5	2	180	<20	<20	0.07
T 2	12268	Holanada	otc	rand	dunite w/ minor peridotite	<5	8	7	<0.2	8	<2	33	2052	94	<0.2	<5	<5	2	177	<20	<20	0.06
T 2	12269	Holanada	rub	sel	dunite w/ chm stringers	<5	<5	2	<0.2	13	<2	29	2143	100	0.3	<5	<5	2	484	<20	<20	0.09
T 2	12270	Holanada	rub	sel	banded chm	<5	<5	<1	<0.2	8	<2	14	2198	45	<0.2	<5	<5	5	896	<20	<20	0.04
T 2	12271	Holanada, Peak 2570	otc	cont	dunite & peridotite w/ chm	<5	5	<1	<0.2	3	<2	29	945	91	<0.2	<5	<5	1	87	<20	<20	0.01
T 2	12272	Holanada, Peak 2570	rub	sel	chm layers in dunite	<5	<5	1	<0.2	4	<2	7	1199	14	0.2	<5	<5	2	1098	<20	<20	0.03
T 2	12273	Holanada, Peak 2570	otc	rand	peridotite w/ interlayered dunite	<5	5	<1	<0.2	1	<2	16	463	55	<0.2	<5	<5	4	190	<20	<20	0.06
T 2	12274	Holanada		pan	tr mag	<5	<5	<1	<0.2	18	12	55	31	12	0.3	<5	6	135	431	<20	<20	1.43
T 2	12275	Holanada		sed		<5			<0.2	20	8	102	54	19	0.2	<5	<5	217	30	<20	<20	1.74
T 3	11450	Kanuti Kilolitna R trib		sed		<5			<0.2	20	15	75	24	10	0.4	<5	11	179	30	<20	<20	1.62
T 3	11451	Kanuti Kilolitna R trib		pan	mag, 4 silver-colored flakes	<5	<5	<1	<0.2	16	23	53	19	9	0.3	<5	19	108	373	<20	81	2.48
T 3	11478	Kanuti Kilolitna R		sed		<5			<0.2	13	15	66	14	9	0.4	<5	13	112	15	256	<20	1.17
T 3	11479	Kanuti Kilolitna R		pan	5 v fine, flat Au	6976	<5	<1	<0.2	29	46	57	18	7	0.3	<5	33	99	356	90	506	2.11
T 3	11480	Kanuti Kilolitna R trib		sed		<5			<0.2	9	12	52	12	8	<0.2	<5	7	120	16	13	<20	1.11
T 3	11481	Kanuti Kilolitna R trib		pan		6	<5	<1	<0.2	10	13	35	10	7	0.3	<5	20	82	278	<20	175	1.55
T 3	12017	Peak 2955	rub	sel	qz mica sch w/ cpy(?), lim	<5			0.3	17	66	109	7	1	<0.2	<5	10	435	276	<4	<20	0.36
T 3	12018	Kanuti Kilolitna R		sed		<5			<0.2	6	10	68	8	6	0.3	<5	7	90	10	6	<20	1.07
T 3	12019	Kanuti Kilolitna R		pan	minor mag, no vis Au	10	7	4	<0.2	8	9	27	14	5	0.8	<5	5	41	472	149	22	0.65
T 3	12023	Kanuti Kilolitna R		pan		6	<5	2	<0.2	9	16	70	9	8	0.6	<5	<5	41	251	7	<20	1.07
T 3	12024	Kanuti Kilolitna R	rub	grab	porphyritic granite	<5			<0.2	4	6	29	3	3	<0.2	<5	<5	14	127	28	<20	0.78
T 3	12032	Peak 2360	otc	sel	serp dunite	6			<0.2	21	<2	34	1858	85	<0.2	<5	<5	5	785	<20	<20	0.47

Table H-1. Selected results from samples collected in the Tanana quadrangle.

Map no.	Field no.	Location	Sample Site	Sample Type	Sample Description	Au ppb	Pt ppb	Pd ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm	Ni ppm	Co ppm	Cd ppm	Bi ppm	As ppm	Ba ppm	Cr ppm	Sn ppm	W ppm	Al pct
T 3	12033	Peak 2360	otc	cont	vein in dunite	6			<0.2	4	<2	17	645	35	<0.2	<5	<5	6	489	<20	<20	0.12
T 3	12034	Peak 2360	rub	grab	meta igneous(?) w/ fine qz	<5			0.4	41	<2	37	22	27	<0.2	<5	<5	856	30	<20	<20	6.64
T 3	12035	Peak 3170	rub	rand	meta intr gneiss w/ K-feld	<5			<0.2	14	12	31	4	6	<0.2	<5	<5	84	126	<4	<20	1.35
T 3	12036	Peak 3170	flt	rand	meta intr w/ secondary K-feld	<5			<0.2	84	28	24	4	6	<0.2	13	13	84	128	<4	<20	1.25
T 3	12037	Kanuti Kilolitna R	flt	sel	diopside(?), hfls	<5			<0.2	4	8	51	4	7	0.3	<5	<5	52	111	8	<20	1.32
T 3	12038	Kanuti Kilolitna R		pan		<5	<5	3	<0.2	6	5	12	13	4	<0.2	<5	<5	23	568	20	86	0.50
T 3	12039	Kanuti Kilolitna R	rub	rand	equigranular granite, med grained	<5			<0.2	9	11	33	2	2	<0.2	7	<5	16	131	15	<20	0.76
T 3	12040	Kanuti Kilolitna R	rub	rand	qz-rich intr w/ unknown mineral	<5			<0.2	9	13	12	5	<1	<0.2	<5	<5	13	237	5	<20	0.72
T 3	12041	Kanuti Kilolitna R	flt	sel	qz-mag-rich vein material	<5			0.2	102	<2	72	3	4	<0.2	24	<5	25	117	555	94	0.89
T 3	12042	Kanuti Kilolitna R	flt	sel	fine-grained granite w/ tm vlets	<5			<0.2	4	10	12	5	1	<0.2	223	<5	13	165	14	<20	0.63
T 3	12043	Kanuti Kilolitna R		sed		<5			<0.2	21	21	110	24	12	0.6	<5	20	141	21	6	26	1.72
T 3	12044	Kanuti Kilolitna R		pan	tr mag, no vis Au	<5	<5	2	<0.2	13	16	62	21	8	0.3	<5	16	60	419	504	67	1.06
T 3	12045	Kanuti Kilolitna R	flt	sel	vein qz w/ 1% apy, lim	44			0.3	39	12	44	19	9	1.2	<5	186	84	263	12	<20	1.67
T 3	12046	Kanuti Kilolitna R	otc	rand	musc-ch-qz-sch w/ lim	<5			<0.2	26	23	96	22	5	<0.2	<5	12	94	173	<20	<20	1.59
T 3	12047	Kanuti Kilolitna R	otc	rand	fine-grained dunite w/ chm	<5			<0.2	5	<2	14	1371	29	<0.2	<5	<5	2	16.45%	<20	<20	0.04
T 3	12048	Kanuti Kilolitna R		pan		710	11	3	<0.2	10	5	34	394	21	0.2	<5	9	50	562	<20	59	0.72
T 3	12049	Kanuti Kilolitna R trib	otc	rand	pyroxenite-peridotite w/ mag	<5	12	8	<0.2	20	<2	36	1819	82	<0.2	<5	<5	6	372	<20	<20	0.18
T 3	12066	Kanuti Kilolitna R trib	rub	rand	qz(?) & peridoitte	<5	<5	1	1.1	25	<2	39	7	9	<0.2	<5	<5	57	14	<20	<20	1.73
T 3	12067	Kanuti Kilolitna R trib	rub	rand	dunite w/ <1% chm	<5	<5	<1	<0.2	4	<2	45	2307	105	<0.2	<5	<5	9	92	20	<20	0.05
T 3	12068	Kanuti Kilolitna R trib	otc	cont	interbedded dunite & peridotite	<5	6	7	<0.2	20	<2	33	2053	88	<0.2	<5	<5	3	367	<20	<20	0.21
T 3	12069	Kanuti Kilolitna R trib	rub	sel	dunite w/ <1% chm	<5	12	3	<0.2	4	<2	42	2210	102	<0.2	<5	<5	2	216	<20	<20	0.10

Appendix I

Summaries of mines, prospects, and mineral occurrences in the Wiseman quadrangle (listed by map number)

Property Summary

Name(s): Union Creek

Map No: W1
MAS No: 0020300148

Deposit Type: Placer

Commodities: Au

Location:

Quadrangle: Wiseman D-1
SW¼ sec. 27, T. 37 N., R. 11 W.
Meridian: Fairbanks
Elevation: 3,200 feet
Latitude: 67° 59.850' N.
Longitude: 150° 03.167' W.
Geographic: Union Creek appears unnamed on U.S. Geological Survey topographic maps. Its headwaters are 4 miles northeast of Alhamblar Mountain along the Continental Divide of the Brooks Range, within Gates of the Arctic National Park.

History: Unknown.

Production: None.

Workings and Facilities: None.

Geologic Setting:

The bedrock at Union Creek (and Alhamblar Mountain) is Devonian Hunt Fork Shale. The Hunt Fork Shale is composed of a lower and upper member. The lower member can be as thick as 2,300 feet and contains thin, graded siltstone beds that increase in abundance upward. It is thought to have been deposited in low-energy and probably deep-marine settings. The overlying wacke member is composed of shale and shaly siltstone interbedded with fine- to medium-grained sandstone that contains abundant brachiopod fossils. This member is thought to have been deposited in marine-slope, outer shelf, and channel-mouth-bar environments (Moore and others, 1989, p. 222). The unit is described as a black slate and phyllite, minor fossiliferous limestone, lithic wacke in upper part, and basal quartz-chert-conglomerate and sandstone (Dillon and others, 1986).

Bureau Investigation:

Three samples were collected at Union Creek. The pan concentrate sample (11465, table I-1) was taken from gravel overlying interbedded (Hunt Fork) black shale and sandstone. No gold or black sands were noted in the pan concentrate. A select piece of vein quartz with 1% disseminated pyrite (11488) was also collected. None of the sample results are anomalous.

Resource Estimate: Unknown.

Mineral Development Potential:

There is no evidence of mining or prospecting, and the analytical results indicate that there is low potential for mineral development.

Recommendations: None.

References:

Dillon, J.T., Brosge, W.P., and Dutro, J.T., Jr., 1986, Generalized geologic map of the Wiseman quadrangle, Alaska: U.S. Geological Survey Open-File Report 86-219, 1 sheet, scale 1:250,000.

Moore, T.E., Nilsen, T.H., and Brosge, W.P., 1989, Sedimentology of the Kanyut conglomerate, *in* Mull, C.G., and Adams, K.E., eds., Dalton Highway, Yukon River to Prudhoe Bay, Alaska, Bedrock geology of eastern Koyukuk basin, central Brooks Range, and eastcentral Arctic Slope: Alaska Division of Geological and Geophysical Surveys Guidebook 7, v. 2, p. 219-252.

Property Summary

Name(s): Lucky Boy claims
Amawk Creek
St. Patrick's Creek
Kinnorutin Creek

Map No: W2
MAS No: 0020300062
Alaska Kardex 030-087

Deposit Type: Unknown lode

Commodities: Cu, Au, Ag, PGE

Location:

Quadrangle: Wiseman D-1
NE¼ sec. 34, T. 36 N., R. 13 W.
Meridian: Fairbanks
Elevation: 5,000 feet
Latitude: 67° 54.433' N.
Longitude: 150° 27.226' W.
Geographic: Located half a mile north of peak 5580, near the divide between St. Patrick's and Amawk Creeks. The site is within the Gates of the Arctic National Park.

History:

1963 - G. Herbert staked lode claims (Kardex).
1978 - General Crude Oil (Alvenco) reported high copper geochemical values from St. Patrick's Creek. Two mining claims were reportedly staked for gold and platinum near the headwaters of Kinnorutin Creek (WGM Inc., 1978).

Production: None.

Workings and Facilities: None.

Geologic Setting:

Rocks near peak 5580 have been described as a Cambrian to Ordovician(?) volcanic sequence consisting of andesitic to basaltic volcanoclastics with tuffaceous phyllite, gabbro, diabase, and black phyllite occurring locally. To the south, this sequence is in contact with Cambrian to Silurian siltstone and metaphyllite. Both sequences make up the lower plate rocks exposed in the Doonerak fenster (Dillon and others 1986). Geochemical samples anomalous in copper have been reported on lower St. Patrick's Creek.

Bureau Investigation:

The reported Lucky Boy site is located on a steep, rocky ridge. Investigations were limited to talus and outcrops on the lower portion of the ridge between peak 5580 and a small unnamed lake. In this area mafic volcanic rocks, "greenstones," appear to be intercalated with phyllite and mudstone. On the ridgetop west of the lake, bedrock is slatey phyllite that contains numerous quartz-carbonate veins. The veins appear to be filling tension fractures concentrated near fold noses in the phyllite. The veins appeared to contain galena and chalcopyrite, but samples only contain up to 62 ppm lead and 32 ppm copper (11501-11502, table I-1).

Farther to the south, on the eastern side of the ridgetop, iron-oxide-stained mudstone is in faulted(?)

contact with overlying andesitic volcanics. The contact trends N. 75° W. and dips 35° S. The stained exposure continues intermittently along strike for approximately 60 feet. The mudstone locally contains malachite and azurite on fracture surfaces, disseminated and stringer pyrite, and pyrite-filled fractures with boxworks. A select outcrop sample of mudstone with disseminated pyrite (11504) contains 219 ppm copper and 139 ppm zinc. A select float sample from rubblecrop of mudstone with disseminated and stringer pyrite (11505) contains 216 ppm copper. At the base of the mountain, below the stained outcrop, a select float sample of andesite greenstone with malachite, azurite, and chalcopyrite (11503) contains 824 ppm copper and 130 ppm zinc.

Stream sediment and pan concentrate samples were taken from the creek approximately 0.1 mile above the lake inlet. The stream sediment sample (11506) contains 422 ppm zinc, 115 ppm copper, and 107 ppm nickel. The pan concentrate sample (11507) contains 244 ppm zinc and 107 ppm nickel. Precious and platinum group elements (PGE) are reported to occur at the site (WGM Inc., 1978). The BLM samples were not anomalous in precious metals and were not analyzed for PGE.

Resource Estimate: None.

Mineral Development Potential: Low mineral development potential due to low metal values.

Recommendations: Check headwaters of Kinnorutin Creek where claims were staked.

References:

Dillon, J.T., Brosge, W.P., and Dutro, J.T., Jr., 1986, Generalized geologic map of the Wiseman quadrangle, Alaska: U.S. Geological Survey Open-File Report 86-219, 1 sheet, scale 1:250,000.

Tuttle, S.D., 1990, Gates of the Arctic National Park and Preserve *in* Harris, A.G. and Tuttle, E., Geology of National Parks (4th edition), p. 289-297.

U.S. Bureau of Mines, 1978, Mineral appraisal of the proposed Gates of the Arctic Wilderness National Park, Alaska: Preliminary Comment: U.S. Bureau of Mines Staff Report, 29 p.

WGM Inc., 1978, Mineral studies of the western Brooks Range, Alaska: U.S. Bureau of Mines Open-File Report 103-78, p. 140.

Property Summary

Name(s): VABM Kukluk
Allen River Head

Map No: W3
MAS No: 0020300061
Alaska Kardex 030-040

Deposit Type: Unknown lode

Commodities: Au

Location:

Quadrangle: Wiseman D-5
SE¼ sec. 26, T. 35 N., R. 20 W.
Meridian: Fairbanks
Elevation: 2,700 feet
Latitude: 67° 49.383' N.
Longitude: 152° 00.167' W.
Geographic: Located 3 miles northeast of VABM Kukluk, near the headwaters of Allen River and Publituk Creek. The site is within the Gates of the Arctic National Park.

History:

1957 - A. Rowe and R. Davis staked two lode claims in area (Kardex).

Production: None.

Workings and Facilities: None observed.

Geologic Setting:

Bedrock in the area is mainly Devonian Hunt Fork Shale, which includes black slate, phyllite, and minor fossiliferous limestone. The Hunt Fork Shale is composed of a lower and upper member. The lower contains thin, graded siltstone beds that increase in abundance upward. The upper, overlying wacke is composed of shale and shaly siltstone interbedded with fine- to medium-grained sandstone that contains abundant brachiopod fossils. Approximately 2 miles north of the occurrence, the shale contacts Devonian(?) metabasite units with basic intrusive and extrusive rocks (Dillon and others, 1986; Moore and others, 1989).

Bureau Investigation:

The occurrence is reportedly located near the headwaters of Allen River, where outcrop exposure is minimal. Approximately 1.5 miles upstream, the headwaters cut bedrock which is composed of black phyllite, with quartz veins that run parallel to and across the schistosity. The unit strikes N. 40° E. and dips south at a variable angle. Quartz, conglomerate, and fine-grained mafic intrusive rocks were observed in float. No sulfides were observed in any of the rocks. Three pan concentrate samples (10809-10811, table I-1) were collected off bedrock below prominent forks at the headwaters. No gold was observed in the pans and the results are not anomalous. Test pans (not submitted for analysis) were also collected above the forks, but no gold was observed.

Resource Estimate: None.

Mineral Development Potential:

Low mineral development potential for lode gold due to lack of gold in samples.

Recommendations: None.

References:

Dillon, J.T., Brosge, W.P., and Dutro, J.T., Jr., 1986, Generalized geologic map of the Wiseman quadrangle, Alaska: U.S. Geological Survey Open-File Report 86-219, 1 sheet, scale 1:250,000.

Moore, T.E., Nilsen, T.H., and Brosge, W.P., 1989, Sedimentology of the Kanyut conglomerate, *in* Mull, C.G., and Adams, K.E., eds., Dalton Highway, Yukon River to Prudhoe Bay, Alaska, Bedrock geology of eastern Koyukuk basin, central Brooks Range, and eastcentral Arctic Slope: Alaska Division of Geological and Geophysical Surveys Guidebook 7, v. 2, p. 219-252.

Property Summary

Name(s): Hunt Fork Lode

Map No: W4
MAS No: 0020300002

Deposit Type: Unknown lode

Commodities: Pb(?)

Location:
Quadrangle: Wiseman D-6 — W½ sec. 20, T. 35 N., R. 22 W.
Meridian: Fairbanks — Elevation: 1,312 feet
Latitude: 67° 50.500' N. — Longitude: 152° 36.000' W.
Geographic: Located on the Hunt Fork, near Walkaround Creek, 8 miles upstream from the John River. Site is within Gates of the Arctic National Park.

History: Unknown.

Production: None.

Workings and Facilities: None.

Geologic Setting:

Bedrock in the area is mainly Upper Devonian Hunt Fork Shale, consisting of shale, slate, and phyllite interbedded with sandstone, quartzite, and lenses of limestone. Several fault-bounded blocks of Middle Devonian Skajit Limestone occur in the area. Galena is reported to occur in quartz veins on the east side of the Hunt Fork near Walkaround Creek (Brosge amd Reiser, 1960).

Bureau Investigation:

Exposures in the vicinity of the reported occurrence were examined, on the east and west sides of the Hunt Fork. These exposures consist mainly of phyllite containing quartz lenses parallel to foliation. Ankerite(?) is associated with the quartz, which appeared to contain trace amounts of galena and chalcopyrite. However, a sample (10779, table I-1) does not contain anomalous amounts of those metals. On the east side of the river, reddish-stained exposures of Skajit Limestone were examined. The staining was concentrated in calcite-filled fractures that contain no sulfides.

Resource Estimate: Unknown.

Mineral Development Potential:

Low development potential due to lack of mineralized rocks.

Recommendations:

Investigate creek bed at the mouth of Walkaround Creek..

References:

Berg, H.C., and Cobb, E.H., 1967, Metalliferous lode deposits of Alaska: U.S. Geological Survey Bulletin 1246, p. 232-234.

Brosge, W.P., and Reiser, H.N., 1960, Progress map of the geology of the Wiseman quadrangle, Alaska: U.S. Geological Survey Open-File Report 60-19, 2 sheets, scale 1:250,000.

____1971, Preliminary geologic map, Wiseman, and eastern Survey Pass quadrangles, Alaska: U.S. Geological Survey Open-File Report 71-56, 1 sheet, scale 1:250,000.

Property Summary

Name(s): John River Lode

Map No: W5
MAS No: 0020300003

Deposit Type: Unknown lode

Commodities: Sb

Location:

Quadrangle: Wiseman D-5
SW¼ sec. 20, T. 34 N., R. 21 W.
Meridian: Fairbanks
Elevation: 1,492 feet
Latitude: 67° 45.667' N.
Longitude: 152° 22.500' W.
Geographic: Reported to occur on an unnamed eastern tributary of John River, south of the Hunt Fork. Site is within Gates of the Arctic National Park.

History:

1942 - Lode stibnite occurrence reported by Shorty Herbert (Joesting, 1942).

Production: None.

Workings and Facilities: None.

Geologic Setting:

Bedrock is predominated by the Upper Devonian Hunt Fork Shale and includes: black shale, slate, and phyllite; interbedded sandstone and quartzite; and lenses of brown muddy limestone. Fault-bounded blocks of Middle Devonian Skajit Limestone were found on the Hunt Fork. South of the Hunt Fork, Middle Devonian graywackes have been thrust over the Hunt Fork rocks (Brosge and Reiser, 1971).

Bureau Investigation:

Few outcrops exist on the John River in the vicinity of the Hunt Fork. An eastern tributary to the John River 1.5 miles upstream from the Hunt Fork was examined as it contained outcrops. Bluffs along the creek are composed of slate and phyllite that locally contain barren quartz segregations. A few cobbles of chloritic quartz-calcite float were thought to contain trace galena and chalcopyrite, but analysis did not show significant contents of either metal (10778, table I-1). A pan concentrate from the creek (10777) contains 184 ppm zinc. No stibnite-bearing rocks were found.

Resource Estimate: Unknown.

Mineral Development Potential:

Low development potential due to the scarcity of metal-bearing veins in the area.

Recommendations:

The area on the John River below the Hunt Fork should be investigated. Any outcrops in the vicinity should be examined, and gravel bars searched for mineralized stream float.

References:

Berg, H.C., and Cobb, E.H., 1967, Metalliferous lode deposits of Alaska: U.S. Geological Survey Bulletin 1246, p. 232-234.

Grybeck, D., 1977, Known mineral deposits of the Brooks Range, Alaska: U.S. Geological Survey Open-File Report 77-166C, 45 p.

Heiner, L.E., and Wolff, E.N., 1968, Final report, mineral resources of northern Alaska: Mineral Industry Research Laboratory, University of Alaska, Report 16, p. 134.

Joesting, H.R., 1942, Strategic mineral occurrences in interior Alaska: Alaska Department of Mines Pamphlet no. 1, p. 14.

Property Summary

Name(s): Kevuk Creek Lode
Unnamed occurrence

Map No: W6
MAS No: 0020300001

Deposit Type: Unknown lode

Commodities: Cu

Location:

Quadrangle: Wiseman C-6
SW¼ sec. 23, T. 33 N., R. 24 W.
Meridian: Fairbanks
Elevation: 4,550 feet
Latitude: 67° 40.500' N.
Longitude: 152° 54.000' W.
Geographic: Located on a ridge between Kevuk and Shukokluk Creeks, about 9 miles southwest of Sillyasheen Mountain. Site is within Gates of the Arctic National Park.

History:

1960 - Brosge and Reiser (1960) reported copper sulfides and malachite stains at the site.
1967 - Berg and Cobb (1967) reported a copper anomaly in the area.

Production: None.

Workings and Facilities: None.

Geologic Setting:

Bedrock at the site consists of interbedded calcareous, limonitic quartz sandstone and conglomerate, limestone, and phyllite. The unit is classified as Middle and Late Devonian Beaucoup Formation (Dillon and others, 1986).

Bureau Investigation:

Several square miles surrounding the site were examined; however, no copper staining was observed. A sample of mica schist with 2% pyrite and limonite staining found in float (11441, table I-1) contains 228 ppm copper and 226 ppm zinc. These results are considered slightly anomalous.

Resource Estimate: None.

Mineral Development Potential:

Low mineral development potential exists at the site: the copper anomaly is minimal, and there is no definable extent of mineralization.

Recommendations: None.

References:

Berg, H.C., and Cobb, E.H., 1967, Metalliferous lode deposits of Alaska: U.S. Geological Survey Bulletin 1246, p. 232-234.

Brosge, W.P., and Reiser, H.N., 1960, Progress map of the geology of the Wiseman quadrangle, Alaska: U.S. Geological Survey Open-File Report 60-19, 2 sheets, scale 1:250,000.

Cobb, E.H., 1972, Metallic mineral resources map of the Wiseman quadrangle, Alaska: U.S. Geological Survey Miscellaneous Field Studies Map MF-469, 1 sheet, scale 1:250,000.

Dillon, J.T., Brosge, W.P., and Dutro, J.T., Jr., 1986, Generalized geologic map of the Wiseman quadrangle, Alaska: U.S. Geological Survey Open-File Report 86-219, 1 sheet, scale 1:250,000.

Property Summary

Name(s): Buzz Prospect

Map No: W7
MAS No: 0020300095
Alaska Kardex 030-130

Deposit Type: Metamorphosed sulfide

Commodities: Zn, Pb, Ag

Location:

Quadrangle: Wiseman B-6 — NW¼ sec. 23, T. 30 N., R. 24 W.
Meridian: Fairbanks — Elevation: 4,050 feet
Latitude: 67° 24.815' N. — Longitude: 152° 51.705' W.
Geographic: Near the head of a north-south tributary of Pass Creek which drains into Mettenpherg Creek. Located 1.2 miles north of the Ann occurrence (map no. W8).

History:

1974 - Pursuing sediment anomalies, British Petroleum Alaska Exploration (BPAE), in a joint venture with General Crude, discovered zinc-lead sulfides (BP Alaska Exploration Inc., 1978).

1975 - Additional claims staked to link property with Ann Group claims (BP Alaska Exploration Inc., 1978).

1976-77 - Geophysics, soil sampling, geologic mapping, and trenching done. The property was found to have no economic value and subsequently abandoned (BP Alaska Exploration Inc., 1978).

Production: None.

Workings and Facilities: Trenching.

Geologic Setting:

The Buzz Prospect lies near the unconformable contact between Devonian Skajit Limestone and overlying upper Devonian Hunt Fork Shale (figure I-1). Isolated pods of massive sulfides up to 10 feet long occur within schist and Skajit Limestone. Some of the sulfides appear to be stratabound. An electromagnetic survey over the exposed sulfides did not get a response, but a weak magnetic anomaly was noted nearby. Scattered sulfides occur intermittently over a distance of 7,000 feet between the Buzz and adjacent Ann properties. Cretaceous granitic rocks occur half a mile from the prospect and surround the area on three sides (Brosge and Reiser, 1971; WGM Inc., 1977; BP Alaska Exploration Inc., 1978).

Bureau Investigation:

Two small pods of massive sulfides consisting of sphalerite, galena, arsenopyrite, minor chalcopyrite, and pyrite gangue were located. A sample from a 4- by 4-foot pod (11043, table I-1) contains 22.69% zinc, 7.23% lead, 5.72 oz/ton silver, and 2.34 ppm gold. The pod is hosted within marble with apparent vertical bedding. An 8- by 9-foot pod, 100 feet to the northwest, occurs in chlorite schist adjacent to a contact with marble. A sample from this pod (11044) contains lower base-metal values and 2.44 ppm gold.

It would appear that these occurrences are replacement type. Fluids could have picked up metals when migrating through neighboring schistose and volcanic rocks. Sulfides were precipitated when these fluids came into contact with carbonates of the Skajit Limestone. The driving mechanism for the fluids could have been structural deformation associated with the Late Mesozoic Brooks Range orogeny.

Resource Estimate: None.

Mineral Development Potential:

Low potential due to small size and lack of continuity of massive sulfide occurrences. Geophysics and soil geochemistry delineated no drill targets.

Recommendations: None.

References:

BP Alaska Exploration Inc., 1978, Annual progress report, 1978, BP General Crude Joint Venture, Buzz-Ann-Dome Property: unpublished report, 4 p. [available from BLM Anchorage, Alaska]

Brosge, W.P., and Reiser, H.N., 1971, Preliminary geologic map, Wiseman, and eastern Survey Pass quadrangles, Alaska: U.S. Geological Survey Open-File Report 71-56, 1 sheet, scale 1:250,000.

Grybeck, D., 1977, Known mineral deposits of the Brooks Range, Alaska: U.S. Geological Survey Open-File Report 77-166C, 45 p.

WGM Inc., 1977, Annual progress report, 1976, Buzz-Ann-Dome property, WAK-2 project: unpublished report, 21 p. [available from BLM Anchorage, Alaska]

____1978, 1977 Annual progress report, Wiseman area, WAK-1 project: unpublished report, 35 p. [available from BLM Anchorage, Alaska]

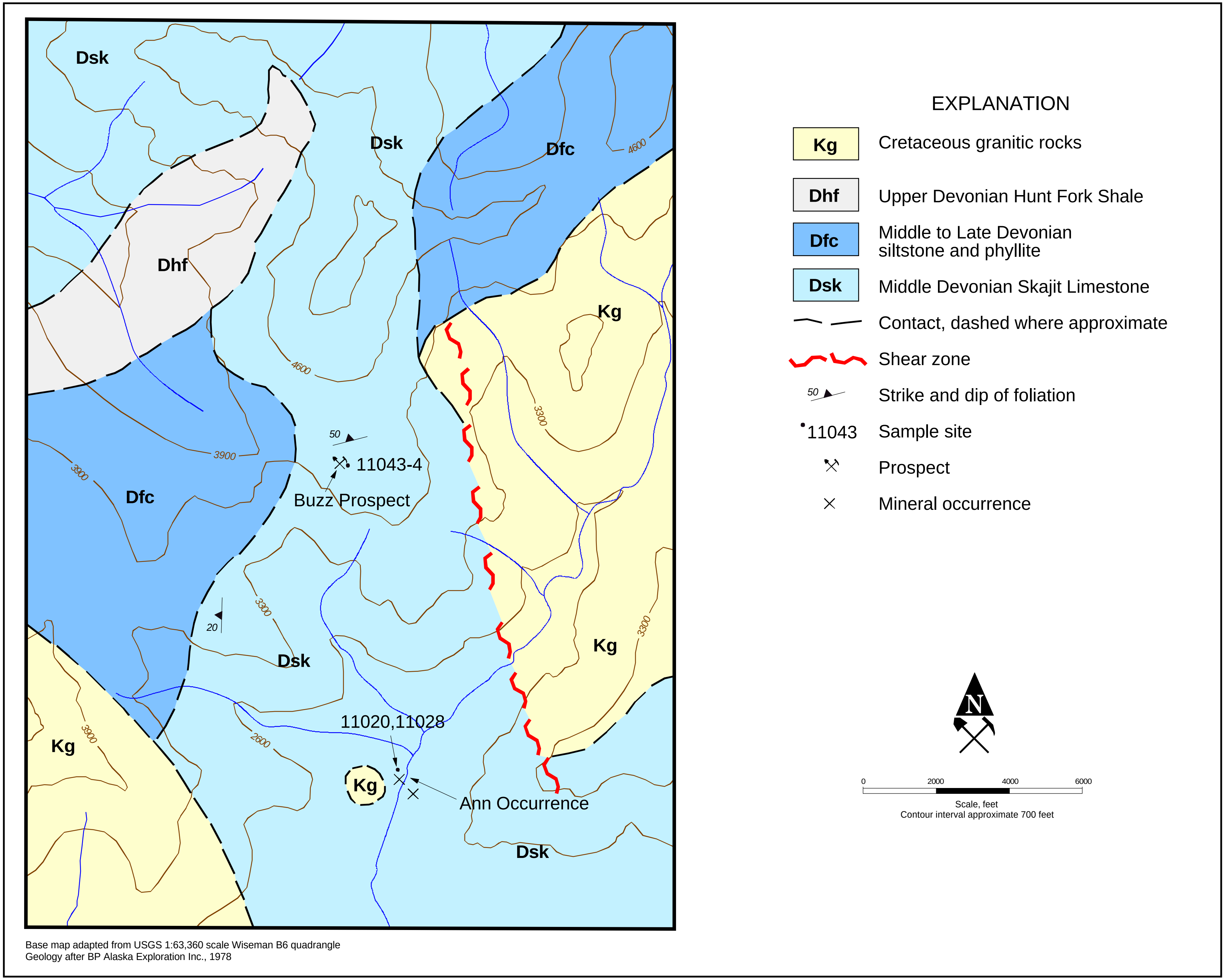


Figure I-1. Geology and sample location map of the Buzz and Ann Dome prospects.

Property Summary

Name(s): Ann Prospect

Map No: W8
MAS No: 0020300106
Alaska Kardex 030-142

Deposit Type: Metamorphosed sulfide

Commodities: Pb, Zn

Location:

Quadrangle: Wiseman B-6
E½ sec. 26, T. 30 N., R. 24 W.
Meridian: Fairbanks
Elevation: 1,800 feet
Latitude: 67° 23.783' N.
Longitude: 152° 51.500' W.
Geographic: On an unnamed tributary to Pass Creek, near Colorado Creek.

History:

1975 - Ann nos. 1-2 claims staked for British Petroleum by WGM Inc. based on mineralization in place and a soil anomaly (BP Alaska Exploration Inc., 1978).

1976 - Claims staked to link property with Buzz claims (map no. W7). Combined areas named Buzz-Ann-Dome prospect with 67 state claims. Geologic mapping, soil sampling, and trenching done (BP Alaska Exploration Inc., 1978).

1977 - Further work on property showed no economic potential for sulfide occurrences. Discovery of a bedded quartz-barite outcrop suggested the possibility of volcanogenic-type mineralization (BP Alaska Exploration Inc., 1978).

1978 - Additional geophysics and soil sampling did not locate significant mineralization. Geochemical results were generally inconclusive and discouraging. No further work done (BP Alaska Exploration Inc., 1978).

Production: None.

Workings and Facilities: Trenching.

Geologic Setting:

The Ann occurrence is near the unconformable contact between Devonian Skajit Limestone and overlying Upper Devonian Hunt Fork Shale (figure I-1). Schist, phyllite, and siltstone are also mapped locally. Isolated pods of massive sulfides up to 10 feet long occur within schist and Skajit Limestone. Some of the sulfides appear to be stratabound. An electromagnetic survey over the exposed sulfides did not get a response, but a weak magnetic anomaly was noted nearby. Scattered sulfides occur intermittently over a distance of 7,000 feet between Ann property and the adjacent Buzz property. Cretaceous granitic rocks also occur nearby (Brosge and Reiser, 1971; WGM Inc., 1977; BP Alaska Exploration, 1978).

Bureau Investigation:

Sulfides were observed in several small pods within schistose rocks. A limonite-stained pod of massive and disseminated pyrite, arsenopyrite, sphalerite, galena, and trace chalcopyrite outcrops on the west side of the creek at the contact between graphitic and sericite schist. A 6-foot-long continuous chip sample (11020, table I-1) contains 3.3% lead, 4.3% zinc, 5.7 oz/ton silver, and 2.5 ppm gold. A select sample from a similar pod nearby (11028), contains 11.2% lead, 6.1% zinc, and 1.4 ppm gold. Exposures of granitic rock lie east and west of the sulfide pod. The pod-like nature of these occurrences may be the result of remobilization of replacement-type mineralization during metamorphism.

Resource Estimate: Unknown.

Mineral Development Potential:

Low due to the discontinuous nature of the mineralization and lack of drill targets in covered areas.

Recommendations: None.

References:

BP Alaska Exploration Inc., 1978, Annual progress report, 1978, BP General Crude Joint Venture, Buzz-Ann-Dome Property: unpublished report, 4 p. [available from BLM Anchorage, Alaska]

Brosge, W.P., and Pessel, G.N. 1971, Preliminary geologic map, Wiseman, and eastern Survey Pass quadrangles, Alaska: U.S. Geological Survey Open-File Report 71-56, 1 sheet, scale 1:250,000.

Grybeck, D., 1977, Known mineral deposits of the Brooks Range, Alaska: U.S. Geological Survey Open-file report 77-166C, 45 p.

WGM Inc., 1977, Annual progress report, 1976, Buzz-Ann-Dome property, WAK-2 project: unpublished report, 21 p. [available from BLM Anchorage, Alaska]

____1978, 1977 Annual progress report, Wiseman area, WAK-1 project: unpublished report, 35 p. [available from BLM Anchorage, Alaska]

Property Summary

Name(s): Frog Prospect
Niakuk River

Map No: W9
MAS No: 0020300147

Deposit Type: Carbonate-hosted(?)

Commodities: Zn, Cu, Pb

Location:

Quadrangle: Wiseman B-6
NE¼ sec. 28, T. 29 N., R. 24 W.
Meridian: Fairbanks
Elevation: 3,500 feet
Latitude: 67° 19.028' N.
Longitude: 152° 54.823' W.
Geographic: Just north of divide at headwaters of Cummings Creek, 5.2 miles southeast of Ernie Lake.

History:

1975 - Zinc-lead mineralization discovered by WGM Inc. (1978).
1976 - Frog claims staked (WGM Inc., 1978).
1977 - Geologic mapping along with rock, soil, and silt sampling (WGM Inc. 1978).
1978 - A total of seven core holes drilled for a total of 2,061 feet. Electromagnetic (EM) and induced polarization (IP) surveys done (WGM Inc. 1979).
1979 - Claims dropped due to erratic results from drilling program (WGM Inc. 1979).

Production: None.

Workings and Facilities: Trenches and drill pads.

Geologic Setting:

The Frog Prospect is underlain by Devonian limestone and schist (figure I-2). The carbonates - consisting of limestone, calcarenite, and dolomite - are contained within the Middle Devonian Skajit Limestone. These rocks are thick-bedded, though internally deformed, and locally contain algal mounds or "bioherms." This carbonate sequence is separated from overlying chlorite schist by a thrust fault that strikes approximately east-west and dipping to the south. Zinc-lead mineralization is concentrated in calcarenites of the Middle Devonian Skajit Limestone on Bull and Frog Hills. Significant mineralization is of two types: carbonate-hosted pyrite, sphalerite, and galena along with pyrite, sphalerite and galena veins in calcarenite. It appears to be stratabound. The "main mineralized horizon" varies from 10 to 30 feet thick, occuring 400 feet stratigraphically beneath a siliceous horizon. It can be traced for up to 400 feet along strike (Brosge and Reiser, 1971; WGM Inc. 1978, p. 19-27; 1979, p. 11-46).

Beds of massive pyrite, sphalerite, and galena from ¼ to 4 feet thick are intercalated within the calcarenite. A 25-foot cumulative thickness consisting of several beds and stringers of pyrite, sphalerite, and galena is exposed for about 100 feet along strike. A chip sample collected across an 8.9-foot interval of this zone contains 8.7% zinc, 1.68% lead, and 0.38 oz/ton silver. The results of the chip sampling indicate that high-grade, sulfide-bearing beds exist, but the aggregate grade across mineable widths is low and grades do not persist for more than a few feet along strike. Up to several hundred feet of barren marble can occur between mineralized beds. Sulfides weather recessively, and there is no iron-oxide

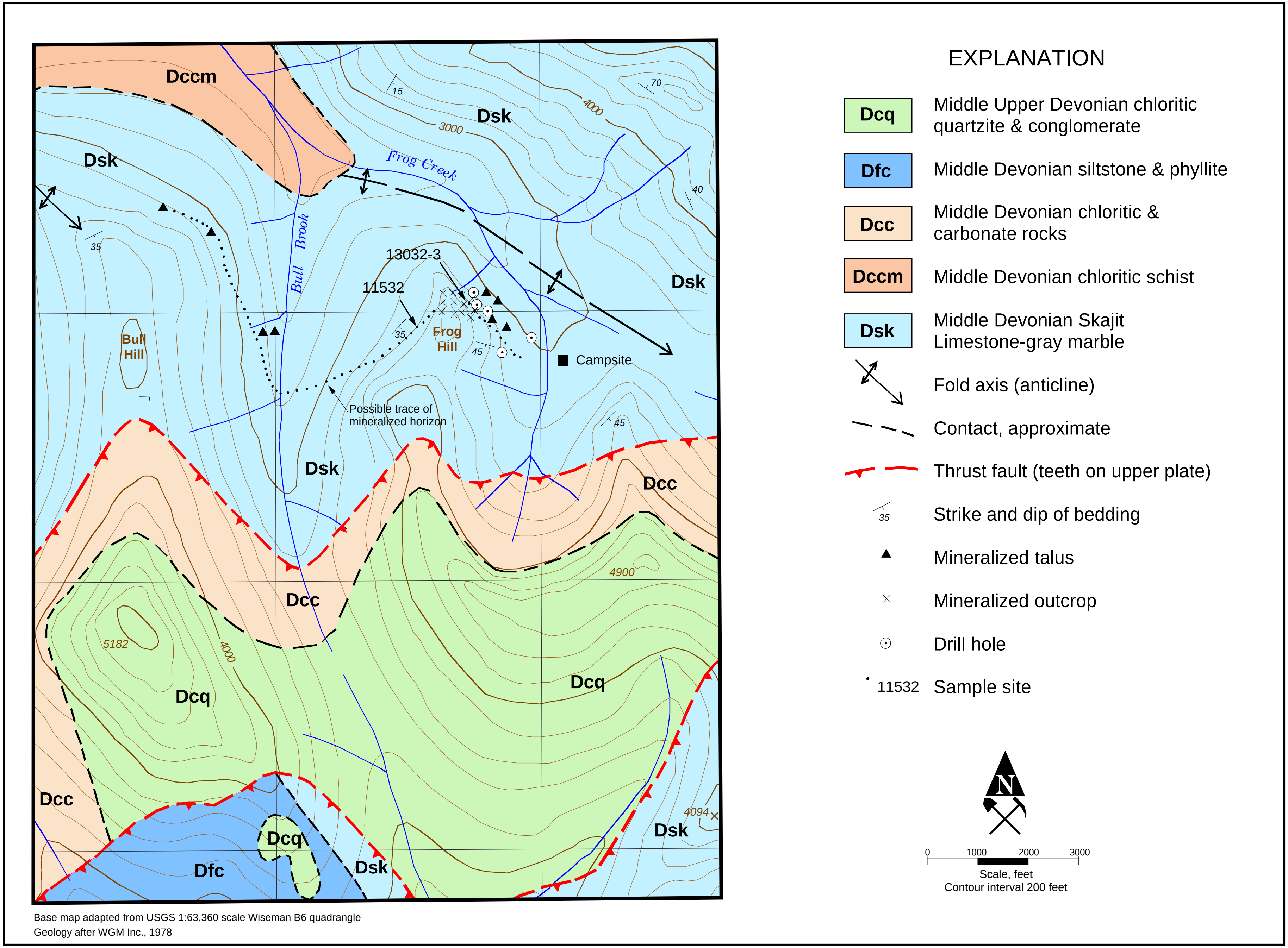


Figure I-2. Geology and sample location map of the Frog Prospect.

staining associated with them. Gossan and mineralized boulders, some containing over 50% sulfides, occur at several locations in the area. It has been proposed that the regional setting of the Frog mineralization is a carbonate shelf or platform between an active volcanic island arc and a clastic basin (WGM Inc. 1978).

A total of seven core holes were drilled by WGM Inc. on the east side of Frog Hill to test the thickness and continuity of the sulfide zones. Two of the holes intersected significant mineralization. The best was found in hole number 2, which intersected an 11.7-foot-thick zone that averages 0.72% lead and 5.68% zinc. Drilling results indicate that though high-grade zinc-lead is present, grades across mineable widths seldom exceed 2-3% combined zinc-lead. The mineralization is erratic along strike and has little continuity down dip (WGM Inc., 1978; Brosge and Reiser, 1971).

Bureau Investigation:

A 2- to 3-foot-thick zone of strataform(?) sulfides, trending N. 10° E. and dipping 45° S., was traced along the east side of Frog Hill. Rubblecrop and float of quartz-carbonate rock contains massive sphalerite, galena, and chalcopyrite. Samples (13032-13033, table I-1) contain up to 34.7% zinc, 17.1% copper, 4.4% lead, 368 ppb gold, and 32.8 ppm silver. Sulfide-bearing rocks can be distinguished by a coating of white hydrozincite. Rubblecrop and float could be traced for 50 feet along strike. A core drill pad was located nearby.

A 4- by 15-foot pod of pyritic siliceous rock enclosed within marble and schist was located 0.1 mile west of Frog Hill. This lies along the western projection of the Frog mineralized zone. A random chip sample (11532) contained 641 ppm lead, 556 ppm arsenic, 22.3 ppm silver, and 179 ppb gold.

Resource Estimate:

A preliminary grade estimate for the 10-foot-thick mineralized beds is 10% combined lead-zinc and 0.5 oz/ton silver. No tonnage estimate was made because sulfide-bearing beds appear to lack the continuity needed for a large orebody (WGM Inc., 1978, p. 26).

Mineral Development Potential: Low potential as an economic zinc-lead deposit.

References:

Brosge, W.P., and Reiser, H.N.,1971, Preliminary geologic map, Wiseman, and eastern Survey Pass quadrangles, Alaska: U.S. Geological Survey Open-File Report 71-56, 1 sheet, scale 1:250,000.

WGM Inc., 1978, 1977 Annual progress report, Wiseman area, WAK-1 project: unpublished report, 35 p. [available from BLM Anchorage, Alaska]

____1979, 1978 Annual progress report, western Alaska project, Wiseman (WAR-1) and Alaskan Range (WAR-7): unpublished report, 53 p. [available from BLM Anchorage, Alaska]

Property Summary

Name(s): Mettenpherg West

Map No: W10
MAS No: 20300165

Deposit Type: Metamorphosed sulfide(?)

Commodities: Pb, Zn, Ag

Location:

Quadrangle: Wiseman B-6
SE¼ sec. 34, T. 29 N., R. 24 W.
Meridian: Fairbanks
Elevation: 3,300 feet
Latitude: 67° 17.492' N.
Longitude: 152° 52.299' W.
Geographic: At the headwaters of western tributary to Mettenpherg Creek and 1 mile southeast of peak 1532 (meters). Located 2.2 miles southeast of the Frog Prospect (map no. W9).

History:

1974-75 - WGM Inc. found mineralized rocks during a regional geochemical survey follow-up (WGM Inc., 1976).

Production: None.

Workings and Facilities: None.

Geologic Setting:

Mettenpherg West occurs in a geologic environment similar to that of the Abo prospect (map no. W13). Bedrock is part of the Middle Devonian Skajit Limestone and includes massive marble, dolomite, quartzite-sandstone, and greenstone. Bedding attitudes are variable and shear zones within the carbonate sequence have a northeastern trend. The carbonate section contains strataform(?) and disseminated mineralization. Magnetite and associated sulfides are conformable and locally gradational with surrounding wallrocks, which include dolomite-marble, calcareous schist, and sandstone. Sulfides occur in bands up to 4 feet thick and have been traced for 100 to 150 feet along strike. Pyrite is the principal sulfide along with minor amounts of chalcopyrite, galena, and sphalerite. Pyrite is disseminated to massive, while the other sulfides occur as disseminated grains or stringers (WGM Inc., 1976).

Bureau Investigation:

The area of reported mineralization was investigated. Sulfide-bearing float was located on the south side of a broad, northeast-trending gully. One sample of dark siliceous rock (greenstone?) contains 2.0 % lead, 3,467 ppm zinc, and 80.7 ppm silver (13005, table I-1). The slope above the float location was investigated, but a bedrock source for the sulfides was not located.

Resource Estimate: None.

Mineral Development Potential:

Low development potential for lead and zinc due to limited extent of the mineralization.

Recommendations: Soil sampling and geophysics recommended by WGM Inc.

References:

Dillon, J.T., Brosge, W.P., and Dutro, J.T., Jr., 1986, Generalized geologic map of the Wiseman quadrangle, Alaska: U.S. Geological Survey Open-File Report 86-219, 1 sheet, scale 1:250,000.

WGM Inc., 1976, 1975 Annual progress report, western Alaska project, Part III Wiseman quadrangle, Part IV Healy-Fairbanks area: unpublished report, p. 60-62 [available from Doyon Ltd., Fairbanks, Alaska]

Property Summary

Name(s): Colorado Creek
Mettenpherg Creek

Map No: W11
MAS No: 0020300060

Deposit Type: Placer

Commodities: Au

Location:
Quadrangle: Wiseman B-6
NE¼ sec. 32, T. 30 N., R. 23 W.
Meridian: Fairbanks
Elevation: 1,500 feet
Latitude: 67° 22.905' N.
Longitude: 152° 43.837' W.
Geographic: Southeast tributary to Mettenpherg Creek, 6.5 miles east of Ernie Lake.

History:

1913 - Mining reported on Mecklenberg? (Mettenpherg) Creek, into which Colorado Creek drains (Smith, 1913).
1937 - Ernest Johnson and Axel Johnson booming and shoveling in from a small cut on Colorado Creek (Reed, 1938).
1939 - Ernest Johnson mining on Colorado Creek (U.S. Bureau of Mines PIMR, 1939).

Production: (oz Au)

1937 - 1
1939 - 7
Total: 8 (Production records incomplete.)

Workings and Facilities:

Lower Colorado Creek has been extensively mined mainly by hand methods and some suction dredging. This is evidenced by hand-stacked rocks which occur intermittently for 0.3 mile upstream from the creek mouth. Most of the piles are concentrated in the stream narrows where it cuts a 50-foot-wide gorge through a 900-foot-long exposure of schist and marble. A suction dredge is stored in a cache near the creek mouth and more dredge parts are located on the south side of the stream near the upper end of the gorge. Old pole riffle sluice boxes are stacked on the north side 1,150 feet above the creek mouth. From the air, BLM geologists observed the remains of an old cabin farther upstream.

Geologic Setting:

Bedrock consists of Middle Devonian Skajit Limestone, quartz-mica schist, chloritic quartzite and phyllite This resistant rock has formed a large natural riffle in the Colorado Creek gorge, which probably concentrates the placer gold. Cretaceous granitic rocks occur just west of Colorado Creek (Brosge and Reiser, 1971).

Bureau Investigation:

A series of test pans were taken from material under boulders and in bedrock fractures. A partial pan off bedrock with 12 coarse and 12 very fine colors (11553, table I-1) contains 377.5 ppm gold. In addition the sample contains 210 ppm lead, 117 ppm zinc, 250 ppm arsenic, and 749 ppm barium. Two samples of pyrite-bearing bedrock (11554, 11555) are not anomalous in any metals. A pan concentrate sample (12285) collected near the upper end of the mined area contains 1.2 ppm gold and is anomalous in lead, zinc, arsenic, and tungsten. A pan concentrate sample (12098) taken on Mettenpherg Creek, 0.7 mile below the mouth of Colorado Creek, is slightly anomalous in copper and zinc. A pan concentrate sample (11556) taken on Mettenpherg Creek just above Colorado Creek is anomalous in arsenic.

Resource Estimate:

It would appear that the shallow, gold-bearing gravels on Colorado Creek have been extensively mined with little resource remaining.

Mineral Development Potential:

Low mineral development potential for placer gold. Potential exists for placer gold on bedrock underlying an unknown thickness of gravel.

Recommendations:

Dig test pits in and above the gorge area to test gravels on and near bedrock. Use of mechanized equipment above the gorge area may allow for the mining of gravels near bedrock not reached by hand methods. Anomalous amounts of base metals in pan concentrates indicate the potential for lode deposits in the Colorado Creek drainage basin.

References:

Bliss, J.D., Brosge, W.P., Dillon, J.T., Cathrall, J.B., and Dutro, J.T., Jr., 1988, Maps and descriptions of lode deposits, prospects, and occurrences in the Wiseman 1° by 3° quadrangle, Alaska: U. S. Geological Survey Open-File Report 88-293, p. 3.

Brosge, W.P., and Reiser, H.N., 1971, Preliminary geologic map, Wiseman, and eastern Survey Pass quadrangles, Alaska: U.S. Geological Survey Open-File Report 71-56, 1 sheet, scale 1:250,000.

Reed, I.M., 1938, Upper Koyukuk region, Alaska: Alaska Territorial Department of Mines Miscellaneous Report 194-7, p. 143.

Smith, P.S., 1913, The Noatak-Kobuk region, Alaska: U.S. Geological Survey Bulletin 536, p. 143-144.

U.S. Bureau of Mines, 1939, Permanent Individual Mine Records (PIMR) for placer mines in Alaska: U.S. Bureau of Mines unpublished reports.

Property Summary

Name(s): Zirc

Map No: W12
MAS No: 0020300104
Alaska Kardex 030-139

Deposit Type: Unknown lode

Commodities: Unknown

Location:

Quadrangle: Wiseman B-6
NE¼ sec. 28, T. 30 N., R. 23 W.
Meridian: Fairbanks
Elevation: 4,000 feet
Latitude: 67° 23.667' N.
Longitude: 152° 41.333' W.
Geographic: On an unnamed tributary to Pass Creek, 2 miles north of Colorado Creek.

History:

1975 - B. Purdy of BP Alaska Exploration staked 106 lode claims in area (Kardex).

Production: None.

Workings and Facilities: None observed.

Geologic Setting:

Bedrock in the area consists of Proterozoic(?) granite gneiss, Proterozoic(?) banded schist, and Devonian Skajit Limestone. The banded schist is composed of interlayered coarse quartz-mica schist, quartzite, calcareous schist, marble, graphitic phyillite, and metabasite (Dillon and others, 1986).

Bureau Investigation:

A contact between the overlying Skajit Limestone and underlying quartz-sericite schist was investigated near the Zirc site. Blocks of limonite-stained schist contained up to 2% fluorite and 10% disseminated and stringer pyrite. The sulfides are found in a 50- by 100-foot area, hosted in the quartz-sericite schist. A select sample of the schist (11560, table I-1) contains 67 ppb gold and 131 ppm arsenic.

Resource Estimate: None.

Mineral Development Potential: Low mineral development potential due to lack of metals in samples.

Recommendations: None.

References:

Dillon, J.T., Brosge, W.P., and Dutro, J.T., Jr., 1986, Generalized geologic map of the Wiseman quadrangle, Alaska: U.S. Geological Survey Open-File Report 86-219, 1 sheet, scale 1:250,000.

Property Summary

Name(s): Abo Prospect

Map No: W13
MAS No: 0020300094
Alaska Kardex 030-131

Deposit Type: Carbonate-hosted(?)

Commodities: Zn, Pb

Location:

Quadrangle: Wiseman B-6 — SW¼ sec. 4, T. 30 N., R. 23 W.
Meridian: Fairbanks — Elevation: 4,100 feet
Latitude: 67° 27.119' N. — Longitude: 152° 42.843' W.
Geographic: Prospect is on a southern tributary to upper Sixtymile Creek.

History:

1974 - Zinc-lead mineralization discovered at site of the Abo prospect (WGM Inc., 1977).

1976 - Mapping, geophysics, trenching, and sampling done. A total of 2,004 feet of core drilling in six holes (WGM Inc., 1977).

1977 - No work accomplished and claims allowed to lapse (WGM Inc., 1978).

Production: None.

Workings and Facilities: Trenching and drill hole collars.

Geologic Setting:

The Abo prospect is adjacent to a faulted contact between Middle Devonian Skajit Limestone and overlying Upper Devonian Hunt Fork Shale (figure I-3). The Skajit consisits mainly of massive dolomite and marble with minor greenstone(?)-greenschist(?) and sheared schist concentrated in the upper portion of the formation. The Hunt Fork is composed of phyllite and fine-grained schist that are often pyritic. The regional trend of the rocks is east-west to northwest with dips to the north. This trend is complicated by strong folding and faulting, including thrusts. Cretaceous granitic rocks occur 2.0 miles to the southwest (Brosge and Reiser, 1971; WGM Inc., 1977)

Sulfide-bearing rocks are concentrated mostly in the upper part of the Skajit in a carbonate unit known as the "Abo limestone." Thin stratabound beds of sphalerite and galena occur intermittently in float and outcrop along a northwest-trending zone that is at least 5,000 feet long. These are up to 2.5 feet thick and have exposure lengths of up to 175 feet. Chip samples contain up to 16.4% zinc, 12.4% lead, and 2.4 oz/ton silver. Sphalerite and galena also occur as disseminations, pods, and stringers in siliceous/dolomitic beds in massive marble just beneath the Abo limestone contact. Siliceous pods up to 150 feet in length have been located. Chip samples contain up to 3.15% lead, 13.2% zinc, and 0.35 oz/ton silver (WGM Inc., 1977).

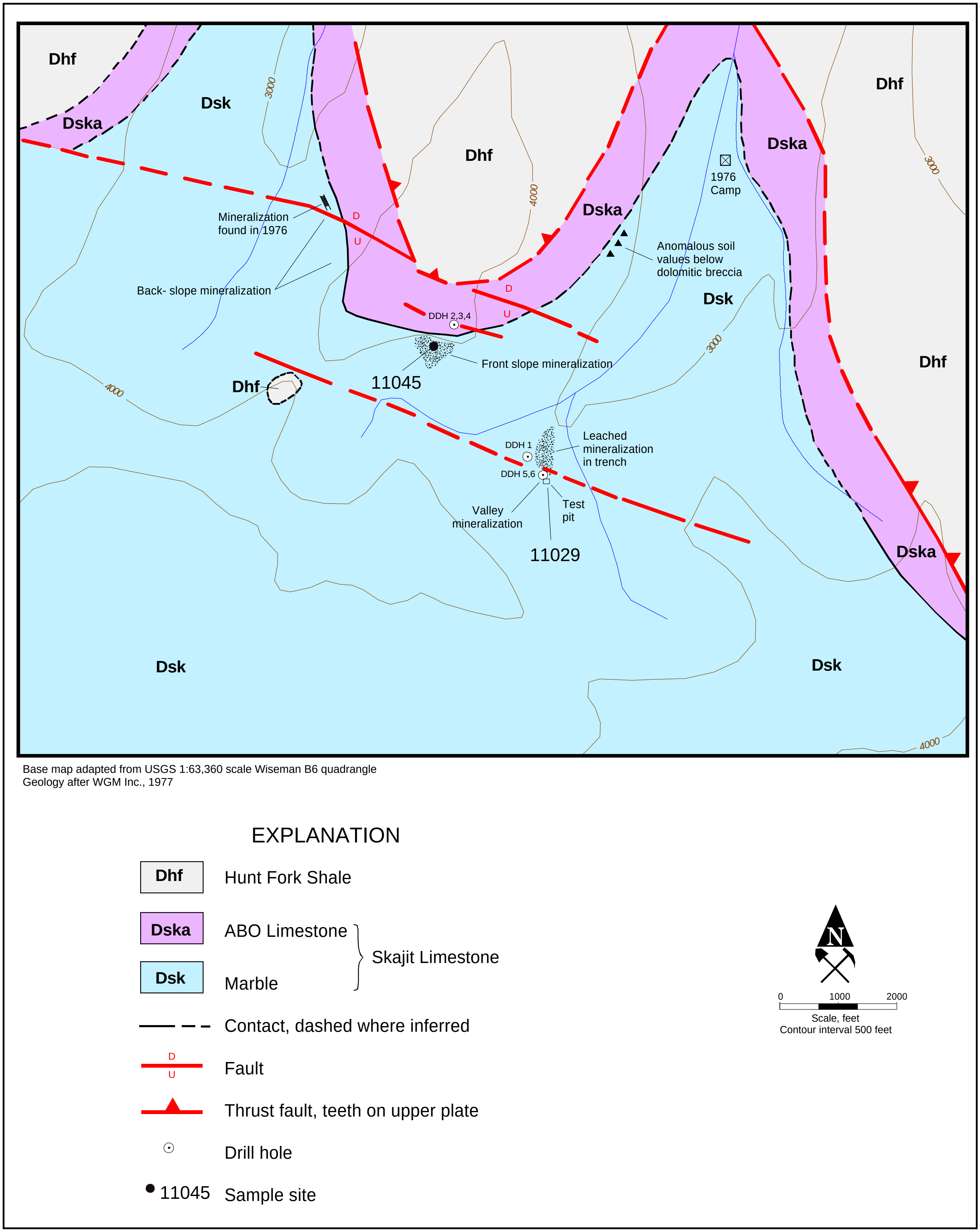


Figure I-3. Geology and sample location map of the Abo Prospect.

Four of the six holes drilled on the property intersected zinc-lead mineralization. The best results were from DDH-5 which intercepted 15.5 feet of 0.96% lead and 9.47% zinc. This hole tested the down-dip extension of sulfides exposed in a trench. Sulfides were intersected from 9 to 24.5 feet below the surface (WGM Inc., 1977).

On a regional scale, there seems to be an association between copper geochemical anomalies and the uppermost part of the Skajit Limestone. Two possible explanations are that (1) the top of the Skajit is an old erosion surface where karstification took place and solution cavities were later mineralized or (2) the relatively impermeable overlying Hunt Fork Shale acted as a cap to trap mineralizing fluids (WGM Inc., 1977). Abo appears to be a metamorphosed stratiform/replacement occurrence that has been metamorphosed. This resulted in remobilization of sulfides into fracture fillings and drag fold noses (Jones, 1977, p. 18-19).

Bureau Investigation:

Mineralized showings and drill hole sites were examined. A 1.2-foot-wide continuous chip sample (11029, table I-1) was collected from quartz-veinlet-bearing dolomite that contains massive and disseminated sulfides in a trench at the southeast end of the property. The sample contains 12.92% zinc and 0.34% lead. This was the exposure tested by DDH-5. This is one of two vein-like bodies that occur in the area. A sample of mineralized dolomite float 2,800 feet to the northwest (11045) contains 22.41% zinc, 1.80% lead, and 77 ppb gold. After the examination of drill hole data, geochemistry, and geophysics (WGM Inc., 1977), investigators found little evidence that indicates large sulfide bodies occur in the area.

Resource Estimate: None.

Mineral Development Potential:

Low mineral development potential for carbonate-hosted zinc and lead due to lack of continuity between mineralized beds and pods. Remoteness of site would require an extremely large and rich orebody in order to be economic.

Recommendations:

"Any drill programs carried out on the Abo property should test out the potential for mineralized pods plunging down the brecciated crestal zones of drag folds. If such pods exist, they could represent a considerable tonnage of ore" (Jones, 1977, p. 45).

References:

Brosge, W.P., and Reiser, H.N., 1971, Preliminary geologic map, Wiseman, and eastern Survey Pass quadrangles, Alaska: U.S. Geological Survey Open-File Report 71-56, 1 sheet, scale 1:250,000.

Grybeck, D., 1977, Known mineral deposits of the Brooks Range, Alaska: U.S. Geological Survey Open-File Report 77-166C, 45 p.

Jones, D., 1977, The Abo lead-zinc property, Brooks Range, Alaska: WGM Inc. unpublished report, 49 p. [available from BLM Anchorage, Alaska]

WGM Inc., 1977, Annual progress report, 1976, Abo and Frog properties, Alaska, WAK-1 project: unpublished report, 25 p. [available from BLM Anchorage, Alaska]

____1978, 1977 Annual progress report, Wiseman area, WAK-1 project: unpublished report, 51 p. [available from BLM Anchorage, Alaska]

Property Summary

Name(s): Sixtymile Creek Lode
Ace 1-22
Pillar Mountain Lode
Sixtymile claims

Map No: W14
MAS No: 0020300071
Alaska Kardex 030-100

Deposit Type: Unknown lode

Commodities: Au, PGE(?)

Location:

Quadrangle: Wiseman B-6
SE¼ sec. 8, T. 30 N., R. 22 W.
Meridian: Fairbanks
Elevation: 1,500 feet
Latitude: 67° 26.667' N.
Longitude: 152° 30.250' W.
Geographic: Located on the north side of Sixtymile Creek, approximately 3 miles upstream of its confluence with Organ Creek.

History:

1969 - King Resource Company staked 22 lode claims in area (Kardex).

Production: None.

Workings and Facilities: None.

Geologic Setting:

Bedrock primarily consists of Devonian Skajit Limestone and Hunt Fork Shale. An unnamed tributary of Sixtymile Creek flows along a north-south-trending fault. To the east of the fault, Proterozoic(?) biotite granitic orthogneiss and metabasite intrude the Skajit Limestone (Dillon and others, 1986).

Bureau Investigation:

Due to the vague location of the historic claims, the site was briefly investigated. An area of limonite-stained soil was observed 1 mile south-southeast of peak 1138 (meters). Steep terrane made the area inaccessible. The tributary draining the stained area was investigated near the creek mouth. A pan concentrate sample collected from the upstream portion of a gravel bar (11535, table I-1) contains 114 ppb platinum and 127 ppb palladium. These results are extremely anomalous: they are the highest platinum and palladium results in any pan sample collected in the Koyukuk Mining District. No ultramafic rocks were observed in float nearby. A pan concentrate sample collected from a gravel bar a quarter of a mile downstream on Sixtymile River (11538) contains 28 ppb palladium and no detectable platinum.

Resource Estimate: None.

Mineral Development Potential: Unknown.

Recommendations:

Investigate Sixtymile Creek tributary for lode or placer occurrence of platinum group elements (PGE).

References:

Dillon, J.T., Brosge, W.P., and Dutro, J.T., Jr., 1986, Generalized geologic map of the Wiseman quadrangle, Alaska: U.S. Geological Survey Open-File Report 86-219, 1 sheet, scale 1:250,000.

Property Summary

Name(s): Tana Prospect

Map No: W15
MAS No: 0020300142

Deposit Type: Carbonate-hosted

Commodities: Zn, Pb, Ag, Au

Location:

Quadrangle: Wiseman B-6
SE¼ sec. 17, T. 29 N., R. 22 W.
Meridian: Fairbanks
Elevation: 3,200 feet
Latitude: 67° 20.000' N.
Longitude: 152° 30.333' W.
Geographic: Tributary to Malamute Fork of the John River.

History:

1977 - Mineralization was discovered during follow-up of geochemical anomaly. Claims staked (WGM Inc., 1979).
1978 - Soil sampling, trenching, and geologic mapping done. Work not completed due to early demobilization of project. No further work done on property (WGM Inc., 1979).

Production: None.

Workings and Facilities: Trenching.

Geologic Setting:

The geology of the prospect appears similar to that of the Frog prospect , which is located 10.5 miles to the west (map no. W9). Mineralization occurs within a thrust-faulted slice(?) of Middle Devonian Skajit Limestone (figure I-4). The limestone is recrystallized and contained within beds of schist and phyllite. Rocks generally dip to the northeast. A few algal mounds occur within the upper part of the carbonate unit. The depositional environment is that of a carbonate shelf (WGM Inc., 1979).

A north-northwest-trending reverse fault displaces the schist-marble contact on the southern edge of the property. A distinctive gray, tan, and pink blotchy-weathering massive limestone unit interbedded with the other carbonates is commonly associated with the mineralization (WGM Inc., 1979).

The most extensive mineralization occurs in two northwest-trending horizons of gossan and sulfide-bearing talus. The gossan and talus form a linear trend parallel to the strike of underlying rocks, which suggests that it may be stratabound. Additionally some of the mineralization can be traced along the reverse fault, indicating possible structural control. This would also indicate that at least some of the mineralization comes from remobilization of originally stratabound sulfides. Mineralization occurs as massive to semi-massive sulfides and sulfides as matrix in dolomitic breccia. The most common sulfide is sphalerite, followed by equal amounts of galena and pyrite, along with minor chalcopyrite. The sulfides show a crude banding and are sometimes segregated into pyritic and nonpyritic layers. Gossan and talus float can be traced for 1,300 feet along one of the horizons. Grab samples of float collected by WGM Inc. contain up to 20% combined zinc-lead and over 10 oz/ton silver. Trenching through the float zones did not reveal any mineralized bedrock. Thus no grade or width has been determined for the mineralization. Soil sampling produced anomalies coincident with the mineralized horizons (WGM Inc., 1979).

According to WGM Inc. (1979, p. 53). The work done was insufficient to recommend the property for drilling. Grades, strike length, and down-dip continuity were encouraging. However, the largest mineralized talus block found is only 18 inches thick.

Bureau Investigation: Unevaluated.

Resource Estimate: None.

Mineral Development Potential:

The Tana Prospect has low potential, but the ground is untested by drilling. However, drilling at Frog (map no. W9) and Abo (map no. W13) prospects, which have similar geology, showed mineralized horizons to lack continuity.

Recommendations: Visit property and sample mineralized zones.

References:

Brosge, W.P., and Reiser, H.N., 1971, Preliminary geologic map, Wiseman, and eastern Survey Pass quadrangles, Alaska: U.S. Geological Survey Open-File Report 71-56, 1 sheet, scale 1:250,000.

WGM Inc., 1978, 1977 Annual progress report, Wiseman area, WAK-1 project: unpublished report, 35 p. [available from BLM Anchorage, Alaska]

____1979, 1978 Annual progress report, western Alaska project, Wiseman (WAR-1) and Alaskan Range (WAR-7): unpublished report, 53 p. [available from BLM Anchorage, Alaska]

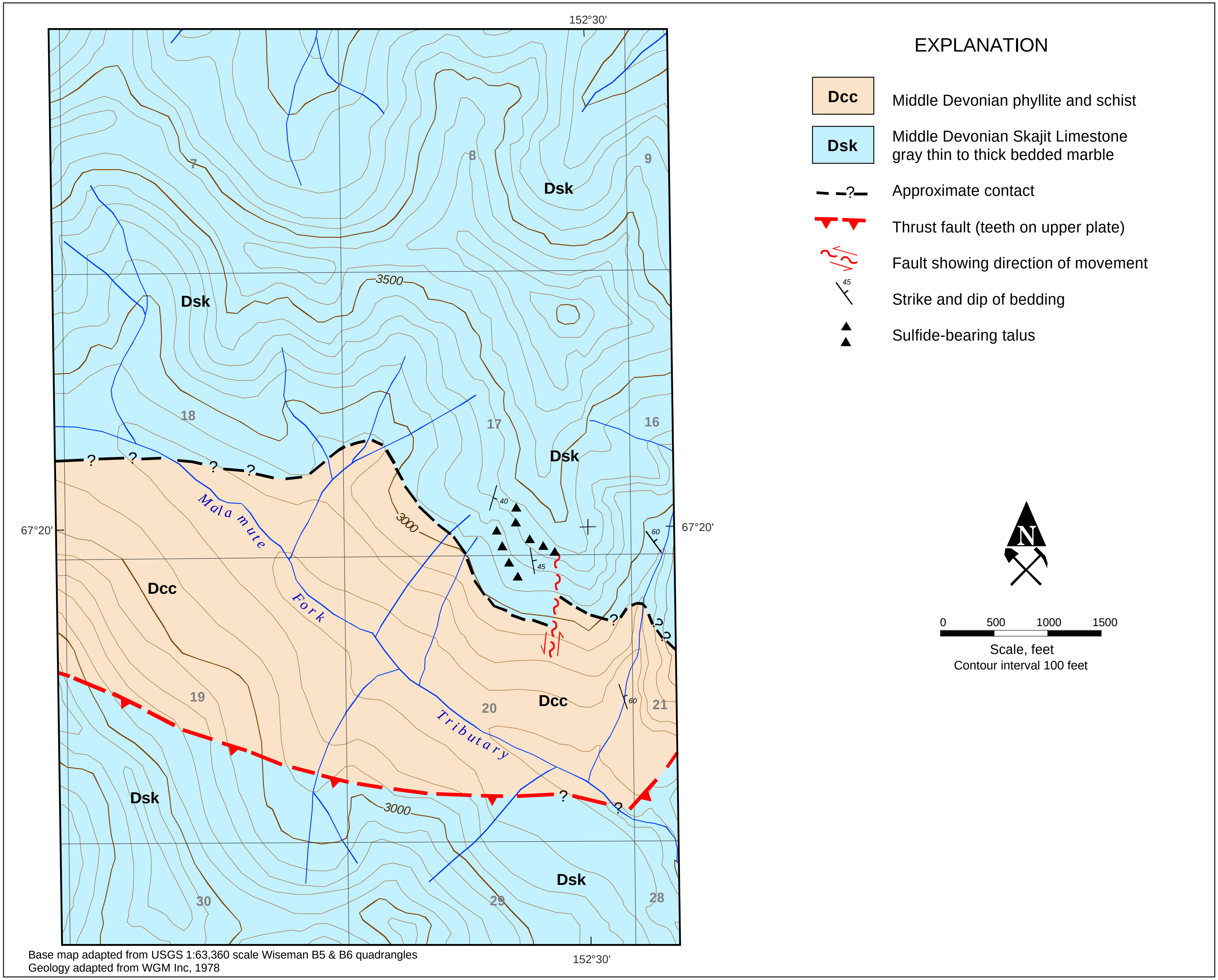


Figure I-4. Geology and sample location map of the Tana prospect.

Property Summary

Name(s): Midas Creek
HCT Association

Map No: W16
MAS No: 0020300024
Alaska Kardex 030-035
Alaska Kardex 030-049
Alaska Kardex 030-220

Deposit Type: Placer

Commodities: Au

Location:

Quadrangle: Wiseman B-5
NW¼ sec. 34, T. 29 N., R. 21 W.
Meridian: Fairbanks
Elevation: 1,500 feet
Latitude: 67° 18.177' N.
Longitude: 152° 14.025' W.
Geographic: Midas Creek is a north-flowing tributary of Sixtymile Creek, 5 miles upstream from the confluence with the John River. Access is via a winter trail from the John River.

History:

1905 - Placer gold was reportedly found by prospectors; however, discovery did not lead to further development (Maddren, 1910).

1959 - Three placer claims owned by the HCT Association (Kardex).

1979-83 - Placer claim near mouth of Midas Creek owned by J. Brossia (Kardex).

Production: No recorded production.

Workings and Facilities:

Cabin remnants are located at the left limit tributaries 3 miles and 4.5 miles above the creek mouth. Old placer mining equipment is cached at the first site. About 5 miles above the mouth, on the left limit, there is an old airstrip with remains of wooden pallets.

Geologic Setting:

The bedrock at Midas Creek is predominantly Devonian Skajit Limestone, marble, and dolomite interbedded with chloritic phyllite and calcareous schist. Devonian metavolcanic rocks and metabasite also outcrop locally and are correlative with the Ambler sequence to the west. All units contact one another along a northeast trend. A northeast-trending thrust fault cuts through the middle of the Midas Creek drainage (Dillon and others 1986).

Bureau Investigation:

Several miles of the Midas Creek drainage were investigated. Fine gold was panned from an old placer mining site about 3 miles above the mouth of Midas Creek. There is a thin (less than 1 foot) veneer of gravel overlying biotite-chlorite schist bedrock. Very small amounts of fine gold, abundant magnetite, and trace pyrite were observed in pan concentrate samples collected the site (11438, 12085, table I-1).

The two samples average 776 ppb gold. Other pan concentrate samples were collected at the creek mouth (12071), 2 miles upstream of the mouth (11439), and a tributary 4.5 miles upstream of the mouth (12088). These samples are not anomalous in gold.

A meta-intrusive dyke with 10% magnetite and 1% pyrite (12086) was sampled near the mapped thrust fault, but is not anomalous in any precious metals. The dyke exposure was approximately 40 feet by 30 feet, crosscutting the creek.

Resource Estimate: None.

Mineral Development Potential:

Low mineral development potential due to very limited amounts of fine gold found in the present channel.

Recommendations: None.

References:

Brooks, A.H., and others, 1905, Mineral resources of Alaska, report on progress of investigations in 1904: U.S. Geological Survey Bulletin 259, p. 31.

Cobb, E.H., 1972, Metallic mineral resources map of the Wiseman quadrangle, Alaska: U.S. Geological Survey Miscellaneous Field Studies Map MF-469, 1 sheet, scale 1:250,000.

____1973, Placer deposits of Alaska: U.S. Geological Survey Bulletin 1374, 213 p. 156.

____1976, Summary of references to mineral occurrences (other than mineral fuels and construction materials) in the Chandalar and Wiseman quadrangles, Alaska: U.S. Geological Survey Open-File Report 76-340, p. 137.

Dillon, J.T., Brosge, W.P., and Dutro, J.T., Jr., 1986, Generalized geologic map of the Wiseman quadrangle, Alaska: U.S. Geological Survey Open-File Report 86-219, 1 sheet, scale 1:250,000.

Heiner, L.E., and Wolff, E.N., 1968, Final report, mineral resources of northern Alaska: Mineral Industry Research Laboratory, University of Alaska, Report 16, p. 135.

Maddren, A.G., 1910, The Koyukuk-Chandalar gold region *in* Brooks, A.E., Mineral resources of Alaska, report on progress of investigations in 1909: U.S. Geological Survey Bulletin 442, p. 284-315.

____1913, The Koyukuk-Chandalar region, Alaska: U.S. Geological Survey Bulletin 532, p. 110.

Marshall, R., 1934, Reconnaissance of the northern Koyukuk valley, *in* Smith, P. and others, Mineral resources of Alaska: report on progress of investigation in 1931, Alaska: U.S. Geological Survey Bulletin 844E, p. 39.

Schrader, F.C., 1904, A reconnaissance in northern Alaska across the Rocky Mountains, along the Koyukuk, John, Anaktuvuk, and Colville Rivers and the Arctic coast to Cape Lisburne, in 1901: U.S. Geological Survey Professional Paper 20, p. 104.

Smith, P.S., 1933, Mineral industry of Alaska in 1930, *in* Smith, P.S. and others, Mineral resources of Alaska, report on progress of investigations in 1930: U.S. Geological Survey Bulletin 836, p. 39-40.

Smith, P.S., and Mertie, J.B., Jr., 1930, Geology and mineral resources of northwestern Alaska: U.S. Geological Survey Bulletin 815, p. 334.

Property Summary

Name(s): Sixtymile Creek
Fool Creek

Map No: W17
MAS No: 0020300097
Alaska Kardex 030-020
Alaska Kardex 030-049
Alaska Kardex 030-050

Deposit Type: Placer

Commodities: Au

Location:
Quadrangle: Wiseman B-5
SW¼ sec. 9, T. 29 N., R. 21 W.
Meridian: Fairbanks
Elevation: 1,100 feet
Latitude: 67° 20.833' N.
Longitude: 152° 16.000' W.
Geographic: Sixtymile Creek is a major east-flowing tributary of the John River. The reference point is on Sixtymile Creek, about 1 mile west of the confluence with Midas Creek.

History:

1922 - B. Sirr reported coarse gold on a bench of Sixtymile Creek (Wimmler, 1922).
1960s - Claims staked in area (Kardex).

Production: (oz Au) (U.S. Bureau of Mines PIMRs, 1920-1922)

1920 - 37
1922 - 37
1923 - 10
Total: 84 (Data does not specify exact location of gold production on Sixtymile Creek.)

Workings and Facilities: None observed.

Geologic Setting:

Sixtymile Creek does not cut bedrock near the stated placer location. The bedrock on the bluffs is primarily composed of Devonian Skajit Limestone with lessor amounts of Proterozoic(?) granite gneiss and banded schist. The schistose units include quartz-mica schist, quartzite, and calcareous schist (Dillon and others, 1986).

Bureau Investigation:

BLM geologists sampled two south-flowing tributaries near the Sixtymile Creek placer occurrence. The first site was 1 mile upstream of the confluence of Midas Creek. A stream sediment and a pan concentrate sample (10878-10879, table I-1) were collected below the contact between muscovite schist and limestone. The second site is approximately a quarter of a mile upstream. The bedrock appears to be a highly metamorphosed intrusive. A stream sediment and a pan concentrate sample (10901-10902) were collected. No visible gold was observed in the pans. None of the sample results are considered anomalous.

Resource Estimate: None.

Mineral Development Potential:

The location of the placer occurrence at Sixtymile Creek is extremely vague; the reported bench containing coarse gold was not located. The creek has low mineral development potential due to lack of gold in samples.

Recommendations: None.

References:

Brooks, A.H., and Capps, S.R., 1924, The Alaska mining industry in 1922. Chapter in Mineral Resources of Alaska, Report on Progress of Investigations in 1922: U.S. Geological Survey Bulletin 755, p. 45-46.

Dillon, J.T., Brosge, W.P., and Dutro, J.T., Jr., 1986, Generalized geologic map of the Wiseman quadrangle, Alaska: U.S. Geological Survey Open-File Report 86-219, 1 sheet, scale 1:250,000.

Heiner, L.E., and Wolff, E.N., 1968, Final report, Mineral resources of northern Alaska: University of Alaska Mineral Industry Research Lab, Report 16, 299 p.

Maddren, A.G., 1913, The Koyukuk-Chandalar region, Alaska: U.S. Geological Survey Bulletin 532, p. 110.

Smith, P.S., 1913, The Noatak-Kobuk region, Alaska: U.S. Geological Survey Bulletin 536, p. 144.

Smith, P.S., and Mertie, J.B., Jr., 1930, Geology and mineral resources of northwestern Alaska: U.S. Geological Survey Bulletin 815, p. 332.

Wimmler, N.L., 1922, Placer mining in Alaska in 1922: Alaska Territorial Department of Mines Miscellaneous Report MR-195-6, p. 38.

Property Summary

Name(s): Rock Creek - Sixtymile tributary

Map No: W18
MAS No: 0020300096
Alaska Kardex 030-018
Alaska Kardex 030-043

Deposit Type: Placer

Commodities: Au

Location:

Quadrangle: Wiseman B-5
NW¼ sec. 12, T. 29 N., R. 21 W.
Meridian: Fairbanks
Elevation: 2,020 feet
Latitude: 67° 22.479' N.
Longitude: 152° 12.181' W.
Geographic: Rock Creek is a southeast-flowing tributary of Sixtymile Creek, located 3 miles west of the Crevice Creek airstrip.

History:

1957 - R. Tecter, P. Bates, and R. Geffrey staked placer claims (Kardex).

Production: None.

Workings and Facilities: None.

Geologic Setting:

Bedrock in the Rock Creek basin is composed of Devonian chloritic phyllite, calcareous meta-sandstone, marble, and Skajit Limestone. A northwest-trending thrust fault is mapped on the ridge between Rock Creek and McKinley Creek (map no. W19) (Dillon and others, 1986).

Bureau Investigation:

The limestone includes a basal conglomerate, which outcrops at several locations within the drainage. The bedrock is shallow and contains numerous plunge pools filled with gravel. Four samples (10841-10844, table I-1) were collected along the creek. The stream sediment sample (10841) and pan concentrate samples (10842-10843) do not contain anomalous results. Also, a select sample of greenschist/greenstone float with abundant euhedral magnetite (10843) contains no anomalous results.

Resource Estimate: None.

Mineral Development Potential:

There is low mineral development potential for placer gold.

Recommendations: Suction dredge bedrock pools at low water.

References:

Dillon, J.T., Brosge, W.P., and Dutro, J.T., Jr., 1986, Generalized geologic map of the Wiseman quadrangle, Alaska: U.S. Geological Survey Open-File Report 86-219, 1 sheet, scale 1:250,000.

Property Summary

Name(s): McKinley Creek
Bryan Creek

Map No: W19
MAS No: 0020300093
Alaska Kardex 030-034
ADL 408636

Deposit Type: Placer

Commodities: Au, Ag(?), Pb(?)

Location:

Quadrangle: Wiseman B-5
NE¼ sec. 10, T. 30 N., R. 21 W.
Meridian: Fairbanks
Elevation: 1,400 feet
Latitude: 67° 26.516' N.
Longitude: 152° 12.916' W.
Geographic: An east-flowing tributary of the John River. The occurrence is midway between head and mouth of McKinley Creek, near a tributary locally named Bryan Creek.

History:

1900 - Schrader (1900) reported that "approximately 50 men are working a considerable pay streak." The location may be inaccurate. The report may refer to Midas or Crevice Creeks (Cobb, 1976).

1970s - A. Forte said to have mined on McKinley Creek, although no claims were staked (W. Fickus, personal communication, 2000).

1982-87 - D. Wilson staked placer claim near the mouth of McKinley Creek (Kardex).

Production: None recorded.

Workings and Facilities: None observed.

Geologic Setting:

The bedrock at McKinley Creek is predominantly Devonian Skajit Limestone. Also, a Proterozoic(?) banded schist and metabasite outcrops about halfway between the mouth and the headwaters. Several east-west-trending thrust faults are mapped in the drainage (Dillon and others, 1986; Henning, 1982).

Bureau Investigation:

Two coarse gold flakes were observed in a pan concentrate sample collected off bedrock (10837, table I-1); however, the results were only 625 ppb gold. Another pan sample (10839) collected a quarter of a mile upstream from a 100-foot-long exposure of chlorite schist outcrop did not contain visible gold. The two samples are both slightly anomalous in silver, lead, and arsenic, averaging 0.95 ppm, 291 ppm, and 108.5 ppm respectively.

Resource Estimate: None.

Mineral Development Potential:

The presence of coarse gold at one sample location and anomalous values of silver and arsenic, which are indicators of lode gold potential, suggest more exploration is required. However, current data suggest low mineral development potential for placer gold.

Recommendations: More panning or suction dredging of fractured bedrock at low water.

References:

Cobb, E.H., 1976, Summary of references to mineral occurrences (other than mineral fuels and construction materials) in the Chandalar and Wiseman quadrangles, Alaska: U.S. Geological Survey Open-File Report 76-340, 205 p.

Dillon, J.T., Brosge, W.P., and Dutro, J.T., Jr., 1986, Generalized geologic map of the Wiseman quadrangle, Alaska: U.S. Geological Survey Open-File Report 86-219, 1 sheet, scale 1:250,000.

Heiner, L.E., and Wolff, E.N., 1968, Final report, mineral resources of northern Alaska: Mineral Industry Research Laboratory, University of Alaska, Report 16, 299 p.

Henning, M.W., 1982, Reconnaissance geology and stratigraphy of the Skajit Formation, Wiseman B-5 quadrangle: Alaska Division of Geological and Geophysical Surveys Open-File Report 147, 1 sheet, scale 1:63,360.

Schrader, F.C., 1900, Preliminary report on a reconnaissance along the Chandalar and Koyukuk Rivers, Alaska in 1899: Twenty-first annual report of the U.S. Geological Survey Part 2, p. 584.

Property Summary

Name(s): VABM Pink

Map No. W20
MAS No: 0020300004

Deposit Type: Polymetallic vein

Commodities: Pb, Sb, Cu

Location:

Quadrangle: Wiseman C-5 NW¼ sec.17, T. 31 N., R. 21 W.
Meridian: Fairbanks Elevation: 4,000 feet
Latitude: 67° 30.854' N. Longitude: 152° 18.042' W.
Geographic: On the west side of the John River, 0.3 mile northeast of VABM Pink.

History:

Mid-1970s - At least four companies performed reconnaissance geochemical sampling and prospecting in the area, including Bear Creek Mining Company, General Crude Oil Company, New Jersey Zinc Company, Alrenco Inc., and BP Alaska (WGM Inc., 1976, 1978).

Production: None.

Workings and Facilities:

Litter remains at the site from an old exploration camp located in the saddle northeast of the occurrence.

Geologic Setting:

The predominant rock type in the area is marble of the Middle Devonian Skajit Limestone. This unit is in faulted contact with calcareous schist and mudstone of the Upper Devonian Hunt Fork Shale. The schist and mudstone contain quartz lenses and veinlets, which contain mostly pyrite and minor amounts of galena, malachite, tetrahedrite(?), and stibnite(?). The mudstone is locally reddish-stained, which is probably due to the presence of finely disseminated pyrite. This occurrence lies at the south end of a northeast-trending series of similar occurrences associated with the Skajit Limestone (map nos. W21-W22) (WGM Inc., 1976, 1978; Dillon and others, 1986; Bliss and others, 1988).

These small occurrences may be the result of remobilization of mineralized fluids from larger, concealed concentrations of metals. The metal-bearing fluids could have moved along the thrust fault contacts and precipitated copper and other metals in the adjacent rocks when chemical conditions were right. Carbonate rocks such as the Skajit Limestone may have provided the host rock environment that is favorable for the precipitation of sulfides.

An analysis of thrust-fault-related copper occurrences in the area may lead to targets for concealed sediment-hosted stratiform deposits. These may have formed in sedimentary basins that were deformed by thrust faulting. Some of the fluid remobilization could be related to an orogenic event such as the Jurassic through Cretaceous Brooks Range orogeny. The area has been explored for base metals by several companies without success. This includes stream sediment sampling, which did not provide encouraging results (WGM Inc., 1976, 1978).

Bureau Investigation:

BLM geologists followed the faulted contact between the Skajit Limestone and calcareous schist. The calcareous schist contains pyritic quartz veinlets. Pieces of quartz float contain minor amounts of tetrahedrite(?) with malachite rims and galena. A sample of quartz float (10883, table I-1) contains 1,744 ppm lead, 921 ppm antimony, and 585 ppm copper. No other evidence of mineralization was located.

Resource Estimate: Unknown.

Mineral Development Potential:

Because only trace amounts of mineralization were found, VABM Pink has low mineral development potential. There is, however, the possibility that these occurrences may be the result of remobilization of metals from large, concealed stratiform-type sulfide deposits.

Recommendations:

The faulted contact has been previously prospected by several companies. A new approach would be to reconstruct the pre-orogenic geologic environment and drill any dismembered basins that may be outlined.

References:

Berg, H.C., and Cobb, E.H., 1967, Metalliferous lode deposits of Alaska: U.S. Geological Survey Bulletin 1246, p. 234.

Bliss, J.D., Brosge, W.P., Dillon, J.T., Cathrall, J.B., and Dutro, J.T., Jr., 1988, Maps and descriptions of lode deposits, prospects, and occurrences in the Wiseman 1° by 3° Quadrangle, Alaska: U. S. Geological Survey Open-file Report 88-293, 52 p. plus two plates.

Dillon, J.T., Brosge, W.P., and Dutro, J.T., Jr., 1986, Generalized geologic map of the Wiseman quadrangle, Alaska: U.S. Geological Survey Open-File Report 86-219, 1 sheet, scale 1:250,000.

Grybeck, D., 1977, Known mineral deposits of the Brooks Range, Alaska: U.S. Geological Survey Open-file Report 77-166C, p. 26-27.

WGM Inc., 1976, 1975 Annual progress report, western Alaska project, Part III Wiseman quadrangle, Part IV Healy-Fairbanks area: unpublished report, p. 68-69. [available from Doyon Ltd., Fairbanks, Alaska]

____1978, Mineral studies of the western Brooks Range, Alaska: U.S. Bureau of Mines Open-File Report 103-78, p. 470-477.

Property Summary

Name(s): VABM Allen

Map No: W21
MAS No: 0020300005

Deposit Type: Polymetallic vein

Commodities: Cu, As

Location:

Quadrangle: Wiseman C-5
NE¼ sec. 5, T. 31 N., R. 20 W.
Meridian: Fairbanks
Elevation: 4,400 feet
Latitude: 67° 32.901' N.
Longitude: 152° 03.795' W.
Geographic: East side of the John River on ridge between Sheep and Tangleblue Creeks, and 0.8 mile northeast of peak 4736 (VABM Allen). Adjacent to Gates of the Arctic National Park.

History:

Mid-1970s - At least four companies performed reconnaissance geochemical sampling and prospecting in the area, including Bear Creek Mining Company, General Crude Oil Company, New Jersey Zinc Company, Alrenco Inc., and BP Alaska (WGM Inc., 1976, 1978).

Production: None.

Workings and Facilities: None.

Geologic Setting:

Near the headwaters of Sheep Creek, Middle Devonian Skajit Limestone has been thrust over shale, phyllite, and chloritic schist of the Upper Devonian Hunt Fork shale. Underlying the Hunt Fork is lower Upper Devonian phyllite, siltstone, minor conglomerate, shaley limestone, and chlorite schist (Dillon and others, 1986; Bliss and others, 1988).

The Skajit Limestone often forms cliffs along the ridge tops, while schistose rocks are mostly exposed as talus at the base of the cliffs. Copper mineralization is associated with metamorphic quartz in chlorite schist at the thrust fault contact. Similar copper occurrences are spread along a 5-mile length of the northeast-trending thrust fault contact (see map nos. 20, 22) (Brosge and Reiser, 1960; WGM Inc., 1978).

These small occurrences may be the result of remobilization of mineralized fluids from larger, concealed concentrations of metals. The metal-bearing fluids could have moved along the thrust fault contacts and precipitated copper and other metals in the adjacent rocks when chemical conditions were right. Carbonate rocks such as the Skajit Limestone may have provided the host rock environment favorable for the precipitation of sulfides.

Bureau Investigation:

Trace amounts of chalcopyrite and black copper sulfides (tetrahedrite-tennanite) along with associated malachite-azurite stain were found between quartz partings in chlorite quartz schist. A select sample from a 1- by 4-foot exposure of schist with black metallic specks (chalcocite?) (10884, table I-1) contains 1,664 ppm copper and 286 ppm arsenic. Nearby quartz lenses in the schist contain trace amounts of pyrite and siderite, but no copper minerals.

Resource Estimate: Unknown.

Mineral Development Potential:

Low development potential due to the low grades and discontinuous nature of the mineralization.

Recommendations:

An analysis of thrust-fault-related copper occurrences in the area may lead to targets for concealed sediment-hosted stratiform deposits. These may have formed in sedimentary basins that were deformed by thrust faulting. Some of the fluid remobilization could be related to an orogenic event such as the Jurassic through Cretaceous Brooks Range orogeny. The area has been explored for base metals by several companies without success. This includes stream sediment sampling, which did not provide encouraging results (WGM Inc., 1976, 1978).

A new approach would be to reconstruct the pre-orogenic geologic environment and drill any dismembered basins that may be outlined.

References:

Berg, H.C., and Cobb, E.H., 1967, Metalliferous lode deposits of Alaska: U.S. Geological Survey Bulletin 1246, p. 232-234.

Brosge, W.P., and Reiser, H.N., 1960, Progress map of the geology of the Wiseman quadrangle, Alaska: U.S. Geological Survey Open-File Report 60-19, 2 sheets, scale 1:250,000.

Bliss, J.D., Brosge, W.P., Dillon, J.T., Cathrall, J.B., and Dutro, J.T., Jr., 1988, Maps and descriptions of lode deposits, prospects, and occurrences in the Wiseman 1° by 3° Quadrangle, Alaska: U. S. Geological Survey Open-file Report 88-293, 52 p. plus two plates.

Dillon, J.T., Brosge, W.P., and Dutro, J.T., Jr., 1986, Generalized geologic map of the Wiseman quadrangle, Alaska: U.S. Geological Survey Open-File Report 86-219, 1 sheet, scale 1:250,000.

Grybeck, D., 1977, Known mineral deposits of the Brooks Range, Alaska: U.S. Geological Survey Open-file Report 77-166C, p. 26-27.

WGM Inc., 1976, 1975 Annual progress report, western Alaska project, Part III Wiseman quadrangle, Part IV Healy-Fairbanks area: unpublished report, p. 68-69. [available from Doyon Ltd., Fairbanks, Alaska]

____1978, Mineral studies of the western Brooks Range, Alaska: U.S. Bureau of Mines Open-File Report 103-78, p. 470-477.

Property Summary

Name(s): Sheep Creek Lode

Map No: W22
MAS No: 0020300006

Deposit Type: Polymetallic vein

Commodities: Cu, Ag

Location:

Quadrangle: Wiseman C-4
NW¼ sec. 24, T. 32 N., R. 20 W.
Meridian: Fairbanks
Elevation: 3,900 feet
Latitude: 67° 35.049' N.
Longitude: 151° 55.604' W.
Geographic: About 2 miles northeast of the headwaters of Sheep Creek and 2.5 miles south of Pet Lake, at the headwaters of an unnamed eastern tributary to the John River. Site is within Gates of the Arctic National Park.

History:

Mid-1970s - At least four companies performed reconnaissance geochemical sampling and prospecting in the area, including Bear Creek Mining Company, General Crude Oil Company, New Jersey Zinc Company, Alrenco Inc., and BP Alaska (WGM Inc., 1976, 1978).

.

Production: None.

Workings and Facilities: None.

Geologic Setting:

Near the headwaters of Sheep Creek, Middle Devonian Skajit Limestone has been thrust over shale, phyllite, and chloritic schist of the Upper Devonian Hunt Fork shale. Underlying the Hunt Fork is lower Upper Devonian phyllite, siltstone, minor conglomerate, shaley limestone, and chlorite schist (Brosge and Reiser, 1971).

The Skajit Limestone is a cliff former, making up the ridge tops, while shistose rocks are mostly exposed as talus at the base of the cliffs. Copper mineralization is genetically and/or spatially related to the thrust fault contact. Sulfides were observed intermittently along a 1.1-mile length of the this contact. Chalcopyrite and bornite(?) occur as fracture fillings and stringers in the limestone, schist, and quartz lenses. Sulfides both follow and cut across limestone strata in bands up to 0.5 inche wide. Up to 2- by 4-foot patches of malachite-azurite stain were observed on some limestone cliffs. Mineralized pods up to 5 feet in diameter also occur in the limestone. Disseminated copper mineralization occurs along the planes of schistosity (WGM Inc., 1978).

The sulfide concentrations are poddy in nature with exposures being up to 20 feet long and only a few feet thick. Similar copper occurrences are spread along a 5-mile length of the northeast-trending thrust fault contact (map nos. 20-21) (Brosge and Reiser, 1971; WGM Inc., 1978).

These small occurrences may be the result of remobilization of mineralized fluids from larger, concealed concentrations of metals. The metal-bearing fluids could have moved along the thrust fault contacts and precipitated copper and other metals in the adjacent rocks when chemical conditions were right. Carbonate rocks such as the Skajit Limestone may have provided the host rock environment favorable for the precipitation of sulfides.

Bureau Investigation:

Bedrock exposures of mineralized rock were located 0.75 mile southwest of peak 4816 at the base of the cliffs on the east side of the ridge. A select sample from a 3- by 15-inch, sulfide-bearing quartz lense in schist adjacent to the thrust fault contact (10805, table I-1) contains 16.5% copper and 78.6 ppm silver. At a point 0.2 mile to the southwest along the contact, a sample of sulfide-bearing quartz float (10784) contains 13.4% copper, 6.6 ppm silver, and is anomalous in arsenic. This indicates that one of the copper-bearing sulfosalts such as enargite or tennantite may be present. A float sample of micaceous schist (10806), collected 0.15 mile northeast of peak 4816 and adjacent to the thrust fault, contains 11.0% copper and 68.9 ppm silver.

Resource Estimate:

The grade of the observed mineralization is up to 5,700 ppm copper, and no more than a few tons are indicated (WGM Inc., 1978)

Mineral Development Potential:

Low development potential due to the poddy nature of the mineralization.

Recommendations:

An analysis of thrust-fault-related copper occurrences in the area may lead to targets for concealed sediment-hosted stratiform deposits. These may have formed in sedimentary basins that were deformed by thrust faulting. Some of the fluid remobilization could be related to an orogenic event such as the Jurassic through Cretaceous Brooks Range orogeny. The area has been explored for base metals by several companies without success. This includes stream sediment sampling, which did not provide encouraging results (WGM Inc., 1976, 1978).

A different approach would be to reconstruct the pre-orogenic geologic environment and drill any dismembered basins that may be outlined.

References:

Bliss, J.D., Brosge, W.P., Dillon, J.T., Cathrall, J.B., and Dutro, J.T., Jr., 1988, Maps and descriptions of lode deposits, prospects, and occurrences in the Wiseman 1° by 3° Quadrangle, Alaska: U. S. Geological Survey Open-file Report 88-293, 52 p. plus two plates.

Brosge, W.P., and Reiser, H.N., 1971, Preliminary geologic map, Wiseman, and eastern Survey Pass quadrangles, Alaska: U.S. Geological Survey Open-File Report 71-56, 1 sheet, scale 1:250,000.

Dillon, J.T., Brosge, W.P., and Dutro, J.T., Jr., 1986, Generalized geologic map of the Wiseman quadrangle, Alaska: U.S. Geological Survey Open-File Report 86-219, 1 sheet, scale 1:250,000.

Grybeck, D., 1977, Known mineral deposits of the Brooks Range, Alaska: U.S. Geological Survey Open-file Report 77-166C, p. 26-27.

WGM Inc., 1976, 1975 Annual progress report, western Alaska project, Part III Wiseman quadrangle, Part IV Healy-Fairbanks area: unpublished report, p. 68-69. [available from Doyon Ltd., Fairbanks, Alaska]

____1978, Mineral studies of the western Brooks Range, Alaska: U.S. Bureau of Mines Open-File Report 103-78, p. 470-477.

Property Summary

Name(s): Tobin Creek
Chuck Creek

Map No: W23
MAS No: 0020300063
Alaska Kardex 030-009

Deposit Type: Placer

Commodities: Au

Location:

Quadrangle: Wiseman C-4
N½ sec. 23, T. 32 N., R. 18 W.
Meridian: Fairbanks
Elevation: 1,500 feet
Latitude: 67° 35.400' N.
Longitude: 151° 30.747' W.
Geographic: A northern tributary of Wild Lake. Chuck Creek may be a tributary or a pseudonym for Tobin Creek.

History:

1954 - A placer claim is staked near the mouth of Tobin Creek (Kardex).

Production: No recorded production.

Workings and Facilities:

Approximately 4 miles upstream from the mouth, on the west side of the creek, there is a cache with a pump, hoses, and a sluice box. The cache appears to be relatively recent–within the last 3 years. There is also a 10- by 3-foot area of stacked rocks.

Geologic Setting:

The bedrock in the Tobin Creek basin is Cambrian to Silurian phyllite and meta-siltstone, with minor quartzite, graywacke, limestone, and dolomite. Paleozoic meta-wacke and calcareous meta-tuff are also mapped at the headwaters (Dillon and others, 1986).

Bureau Investigation:

Tobin Creek meanders through a broad glacial valley filled with Quaternary glacial deposits. Minor bedrock exposures of pyritiferous phyllite occur about 4 miles upstream. Stream sediment and pan concentrate samples were collected at two sites along the creek. A pan concentrate (12059) taken from the first site, a gravel bar about 1 mile upstream from the mouth creek, contains 685 ppb gold. The second location is a placer mining site with about 150 square feet of exposed phyllite bedrock. Two pan concentrate samples (12061-12062) were collected from the site. Although 1 fine piece of gold was though to have been observed in one of the pans (12061), neither of the samples is anomalous in gold.

Resource Estimate: None.

Mineral Development Potential:

The anomalous results and recent placer mining activity indicate more investigation is warranted. However, current data suggest low mineral development potential for placer gold.

Recommendations: None.

References:

Dillon, J.T., Brosge, W.P., and Dutro, J.T., Jr., 1986, Generalized geologic map of the Wiseman quadrangle, Alaska: U.S. Geological Survey Open-File Report 86-219, 1 sheet, scale 1:250,000.

Property Summary

Name(s): Sirr Mountain

Map No: W24
MAS No: 002300158

Deposit Type: Quartz veins

Commodities: Cu, Pb

Location:

Quadrangle: Wiseman C-4
NW¼ sec. 04, T. 31 N., R. 18 W.
Meridian: Fairbanks
Elevation: 3,500 feet
Latitude: 67° 32.700 N.
Longitude: 151° 35.083' W.
Geographic: On ridge top due west of Wild Lake and 2.7 miles southeast of the summit of Sirr Mountain.

History:

1972 - Alaska State Geological Survey reported mineralized quartz veins in area (Chipp, 1972).

Production: None.

Workings and Facilities: None observed.

Geologic Setting:

The south side of Sirr Mountain is underlain by Middle to lower Upper Devonian albite schist, sericite schist, chlorite schist, calcareous schist, and phyllite. These rocks contain large quartz lenses parallel to schistosity and smaller quartz veins that cut across schistosity. The quartz locally contains carbonate and trace amounts of metallic minerals (Chipp, 1972; Dillon and others, 1986).

Samples of sulfide-bearing altered calcareous schist that were taken 3.5 miles southeast of the summit of Sirr Mountain are reported to contain up to 1.0% copper, 1.0% antimony, 0.24% lead, and 31.0 ppm silver (Chipp, 1972; Bliss and others, 1988). Stream sediment samples collected on the north side of Sirr Mountain are reported to be weakly anomalous in copper and zinc, but no base-metal mineralization has been located. The high copper and zinc values may be associated with black shale (WGM Inc., 1976).

Bureau Investigation:

The ridge on the east side of Sirr Creek contains numerous quartz lenses and veins in chlorite and sericite schist. Most are barren, but some contain carbonate (ankerite?) and rarely trace amounts of tetrahedrite(?) and chalcopyrite. Most of the veins trend between N. 60° to 70° W. and the schistosity varies from N. 70° to 80° E. At one site, a 200- by 300-foot zone of quartz float contains trace amounts of tetrahedrite(?) rimmed by malachite. Grains measure up to 3 to 4 mm. The quartz is intensely fractured and locally contains carbonate. A select float sample of the quartz (10642, table I-1) contains 401 ppm copper and 220 ppm lead. The copper-bearing calcareous schist described by Bliss (1988) was not located. The anomalies on the north side of Sirr Mountain that were reported by WGM Inc. were not investigated.

Resource Estimate: None.

Mineral Development Potential:

Low development potential due to spotty occurrence of metals in the quartz lenses.

Recommendations: None.

References:

Bliss, J.D., Brosge, W.P., Dillon, J.T., Cathrall, J.B., and Dutro, J.T., Jr., 1988, Maps and descriptions of lode deposits, prospects, and occurrences in the Wiseman 1° by 3° quadrangle, Alaska: U. S. Geological Survey Open-File Report 88-293, p. 48.

Chipp, E.R., 1972, Analyses of rock and stream sediment samples, Wild Lake area, Wiseman quadrangle, Arctic Alaska: Alaska Division of Geological and Geophysical Surveys Geochemical Report 25, 2 sheets, scale 1:48,000.

Dillon, J.T., Brosge, W.P., and Dutro, J.T., Jr., 1986, Generalized geologic map of the Wiseman quadrangle, Alaska: U.S. Geological Survey Open-File Report 86-219, 1 sheet, scale 1:250,000.

Dillon, J.T., Moorman, M.A., and Lueck, L.L., 1981, Geochemical reconnaissance of the southwest Wiseman quadrangle: summary of data on rock samples: Alaska Division of Geological and Geophysical Surveys Open-File Report 133B, 164 p

WGM Inc., 1976, 1975 Annual progress report, western Alaska project, Part III Wiseman quadrangle, Part IV Healy-Fairbanks area: unpublished report, p. 69. [available from Doyon Ltd., Fairbanks, Alaska]

Property Summary

Name(s): Sirr Creek

Map No: W25
MAS No: 0020300027
Alaska Kardex 030-171

Deposit Type: Placer

Commodities: Au

Location:

Quadrangle: Wiseman C-4
NE¼ sec. 18, T. 31 N., R. 18 W.
Meridian: Fairbanks
Elevation: 1,400 feet
Latitude: 67° 30.773' N.
Longitude: 151° 38.571' W.
Geographic: A northern tributary of Seward Creek, 1 mile west of Wild Lake.

History:

1930s - Sirr Creek prospected extensively. Ben Sirr mined until his death (Reed, 1938).
1969 - E.R. Chipp (1972) mapped geology and collected geochemical samples in the Wild Lake area.
1977 - G. Rivers and E. Armstrong staked 19 placer claims along Sirr Creek (Kardex).

Production: None recorded.

Workings and Facilities: None observed.

Geologic Setting:

The bedrock at Sirr Creek is predominantly Devonian schist and phyllite. Chipp (1972) described the bedrock as light gray, brown, or green quartz-chlorite-sericite schist to quartz-carbonate-muscovite-albite schist. Phyllite beds are dark gray or gray-green with quartz, chlorite, sericite, and magnetite locally. Minor areas of dolomitic and pyritic calcareous schist are also found in the Sirr Creek basin.

Bureau Investigation:

Sirr Creek cuts bedrock intermittently. A pan concentrate sample (10772, table I-1) was collected from schistose bedrock. No gold was observed in the pan sample or test pans collected nearby.

Resource Estimate: None.

Mineral Development Potential: Low mineral development potential due to lack of gold in samples.

Recommendations: None.

References:

Bliss, J.D., Brosge, W.P., Dillon, J.T., Cathrall, J.B., and Dutro, J.T., Jr., 1988, Maps and descriptions of lode deposits, prospects, and occurrences in the Wiseman 1° by 3° quadrangle, Alaska: U. S. Geological Survey Open-File Report 88-293, p. 4-5.

Chipp, E.R., 1972, Analyses of rock and stream sediment samples, Wild Lake area, Wiseman quadrangle, Arctic Alaska: Alaska Division of Geological and Geophysical Surveys Geochemical Report 25, 2 sheets, scale 1:48,000.

Cobb, E.H., 1972, Metallic mineral resources map of the Wiseman quadrangle, Alaska: U.S. Geological Survey Miscellaneous Field Studies Map MF-469, 1 sheet, scale 1:250,000.

____1976, Summary of references to mineral occurrences (other than mineral fuels and construction materials) in the Chandalar and Wiseman quadrangles, Alaska: U.S. Geological Survey Open-File Report 76-340, p. 152.

Dillon, J.T., Brosge, W.P., and Dutro, J.T., Jr., 1986, Generalized geologic map of the Wiseman quadrangle, Alaska: U.S. Geological Survey Open-File Report 86-219, 1 sheet, scale 1:250,000.

Reed, I.M., 1938, Upper Koyukuk region, Alaska: Alaska Territorial Department of Mines Miscellaneous Report 194-7, p. 122.

Property Summary

Name(s): Seward Creek

Map No: W26
MAS No: 0020300153
Alaska Kardex 030-177

Deposit Type: Placer

Commodities: Au

Location:

Quadrangle: Wiseman C-4
SW¼ sec. 18, T. 31 N., R. 18 W.
Meridian: Fairbanks
Elevation: 1,450 feet
Latitude: 67° 30.451' N.
Longitude: 151° 38.802' W.
Geographic: Seward Creek is a western tributary of Wild Lake, south of Sirr Mountain.

History:

1930s - Both Sirr and Seward Creeks were prospected extensively. Some shafts were sunk about 3 miles upstream from Wild Lake. It is reported that the findings were encouraging, but no records are available (Reed, 1938).

1977 - G. Rivers and E. Armstrong staked 19 placer claims (Kardex).

Production: None recorded.

Workings and Facilities:

A dilapidated cabin is located approximately one quarter of a mile upstream from the confluence with Sirr Creek, on the south side of the creek. Stacked rocks were also observed nearby.

Geologic Setting:

The bedrock at Seward Creek is predominantly Devonian chlorite schist and phyllite. Chipp (1972) describes the bedrock as light gray, brown, or green quartz-chlorite-sericite schist to quartz-carbonate-muscovite-albite schist. Phyllite beds are dark gray or gray-green with quartz, chlorite, sericite, and magnetite locally. Minor areas of dolomitic and pyritic calcareous schist are also found in the Sirr Creek basin.

Bureau Investigation:

Seward Creek does not cut bedrock near the confluence with Sirr Creek. A stream sediment and a pan concentrate sample (10769-10770, table I-1) were collected from a gravel bar. Trace magnetite was observed in the pan, but no gold. The stream sediment sample contains 54 ppb gold; however, the pan concentrate sample is not anomalous.

Resource Estimate: None.

Mineral Development Potential:

Low mineral development potential due to lack of visible gold in samples.

Recommendations: None.

References:

Chipp, E.R., 1972, Analyses of rock and stream sediment samples, Wild Lake area, Wiseman quadrangle, Arctic Alaska: Alaska Division of Geological and Geophysical Surveys Geochemical Report 25, 2 sheets, scale 1:48,000.

Dillon, J.T., Brosge, W.P., and Dutro, J.T., Jr., 1986, Generalized geologic map of the Wiseman quadrangle, Alaska: U.S. Geological Survey Open-File Report 86-219, 1 sheet, scale 1:250,000.

Reed, I.M., 1938, Upper Koyukuk region, Alaska: Alaska Territorial Department of Mines Miscellaneous Report 194-7, p. 122-123.

Property Summary

Name(s): Luke Creek Lode
Mary's Creek (tributary)

Map No: W27
MAS No: 0020300157

Deposit Type: Unknown lode

Commodities: Cu

Location:

Quadrangle: Wiseman B-4
E½ sec. 25, T. 31 N., R. 19 W.
Meridian: Fairbanks
Elevation: 3,900 feet
Latitude: 67° 29.000' N.
Longitude: 151° 41.000' W.
Geographic: Located on a ridge, east of Wild Lake and Trout Lake.

History:

1930s - Reed (1938) reported "good prospects were found" on Luke Creek and Mary's Creek, but neither creek has been mined.
1972 - Alaska State Geological Survey reported mineralized quartz veins in area (Chipp, 1972).

Production: None.

Workings and Facilities: None.

Geologic Setting:

The contact between the overlying Devonian Skajit Limestone formation and the underlying Devonian quartz-chlorite-muscovite-albite schist lies at 4,100 feet elevation. A select grab sample of vein quartz with sulfides and malachite collected nearby contains 2,100 ppm copper (Chipp, 1972).

Bureau Investigation:

A north-trending contact of micaceous schist underlying limestone was investigated. The upper 150 feet of schist has sporadically spaced, iron-stained pods with 3-5% pyrite and trace pyrrhotite. Two samples of pyritiferous green chlorite schist (10915-10916, table I-1) were collected, but neither sample contains anomalous results. The copper mineralization reported by Chipp (1972) was not located.

Resource Estimate: None.

Mineral Development Potential: Low mineral development potential due to lack of anomalous results.

Recommendations: None.

References:

Chipp, E.R., 1972, Analyses of rock and stream sediment samples, Wild Lake area, Wiseman quadrangle, Arctic Alaska: Alaska Division of Geological and Geophysical Surveys Geochemical Report 25, 2 sheets, scale 1:48,000.

Dillon, J.T., Brosge, W.P., and Dutro, J.T., Jr., 1986, Generalized geologic map of the Wiseman quadrangle, Alaska: U.S. Geological Survey Open-File Report 86-219, 1 sheet, scale 1:250,000.

Reed, I.M., 1938, Upper Koyukuk region, Alaska: Alaska Territorial Department of Mines Miscellaneous Report 194-7, p. 126.

Property Summary

Name(s): Trout Lake Discovery
Thunder Gulch

Map No: W28
MAS No: 0020300087
Alaska Kardex 030-122

Deposit Type: Placer

Commodities: Au

Location:

Quadrangle: Wiseman B-4
S½ sec. 5, T. 30 N., R. 18 W.
Meridian: Fairbanks
Elevation: 2,000 feet
Latitude: 67° 27.025' N.
Longitude: 151° 38.288' W.
Geographic: A 2-mile-long, east-flowing tributary of Trout Lake.

History:

1930s - Reed (1938) reported that no prospects have been found on this creek.
1974 - F. Hall staked two placer claims (Kardex).

Production: None reported.

Workings and Facilities: None observed.

Geologic Setting:

Thunder Gulch is a steep, narrow canyon. Chipp (1972) identified a thrust fault parallel (and adjacent) to the gulch. Devonian Skajit Limestone underlies the creek bottom and is thrust over a Devonian quartz-chlorite-muscovite-albite schist, which lies to the north. Also, a narrow patch of Mesozoic or Paleozoic greenstone (metabasite) outcrops south of the gulch.

Bureau Investigation:

Two pan concentrate samples (10912-10913, table I-1) were collected off marble bedrock. A representative chip sample of greenstone (10914) was also collected. No anomalies were noted in any of the samples.

Resource Estimate: None.

Mineral Development Potential:

Low mineral development potential due to lack of anomalous sample results.

Recommendations: None.

References:

Chipp, E.R., 1972, Analyses of rock and stream sediment samples, Wild Lake area, Wiseman quadrangle, Arctic Alaska: Alaska Division of Geological and Geophysical Surveys Geochemical Report 25, 2 sheets, scale 1:48,000.

Dillon, J.T., Brosge, W.P., and Dutro, J.T., Jr., 1986, Generalized geologic map of the Wiseman quadrangle, Alaska: U.S. Geological Survey Open-File Report 86-219, 1 sheet, scale 1:250,000.

Reed, I.M., 1938, Upper Koyukuk region, Alaska: Alaska Territorial Department of Mines Miscellaneous Report 194-7, p. 126-127.

Property Summary

Name(s): Seward Creek Lode
Unnamed Occurrence

Map No: W29
MAS No: 0020300011

Deposit Type: Unknown lode

Commodities: Cu

Location:

Quadrangle: Wiseman C-4
NE¼ sec. 15, T. 31 N., R. 19 W.
Meridian: Fairbanks
Elevation: 3,000 feet
Latitude: 67° 30.879' N.
Longitude: 151° 46.490' W.
Geographic: Near the headwaters of Seward Creek, between Wild Lake and the Allen River.

History:

1960 - Brosge and Reiser (1960) reported copper sulfides and malachite staining on Devonian phyllite and siltstone bedrock.

Production: None.

Workings and Facilities: None.

Geologic Setting:

The bedrock in Seward Creek is predominantly Devonian schist and phyllite. The schist is light gray, brown, or green quartz-chlorite-sericite schist to quartz-carbonate-muscovite-albite schist. Phyllite beds are dark gray or gray-green containing quartz, chlorite, and sericite with local magnetite. Minor areas of dolomitic and pyritic calcareous schist are also found in the Seward Creek basin (Chipp, 1972).

Brosge and Reiser (1960) report copper sulfide minerals and malachite staining on Devonian phyllite and siltstone.

Bureau Investigation:

A 2-mile length of a schist-limestone-dolomite contact was investigated, but the reported copper mineralization was not observed. An outcrop sample of dolomite with 1% pyrite (11442, table I-1) was sampled, but contains no anomalies.

There are several reported occurrences of copper in the Wild Lake area (Brosge and Reiser, 1960; Chipp, 1972). In most cases, minor amounts of copper minerals (chalcopyrite, tetrahedrite, and/or malachite) are found either: (1) in discontinuous quartz veins crosscutting the schist host or (2) within schist underlying marble or limestone. The copper mineralization is usually less than 10 feet along strike of the fault or vein.

Resource Estimate: None.

Mineral Development Potential:

Low mineral development potential for copper because no copper mineralization was observed.

Recommendations: None.

References:

Berg, H.C., and Cobb, E.H., 1967, Metalliferous lode deposits of Alaska: U.S. Geological Survey Bulletin 1246, p. 232-234.

Bliss, J.D., Brosge, W.P., Dillon, J.T., Cathrall, J.B., and Dutro, J.T., Jr., 1988, Maps and descriptions of lode deposits, prospects, and occurrences in the Wiseman 1° by 3° quadrangle, Alaska: U. S. Geological Survey Open-File Report 88-293, p. 47.

Brosge, W.P., and Reiser, H.N., 1960, Progress map of the geology of the Wiseman quadrangle, Alaska: U.S. Geological Survey Open-File Report 60-19, 2 sheets, scale 1:250,000.

Chipp, E.R., 1972, Analyses of rock and stream sediment samples, Wild Lake area, Wiseman quadrangle, Arctic Alaska: Alaska Division of Geological and Geophysical Surveys Geochemical Report 25, 2 sheets, scale 1:48,000.

Cobb, E.H., 1972, Metallic mineral resources map of the Wiseman quadrangle, Alaska: U.S. Geological Survey Miscellaneous Field Studies Map MF-469, location 12, 1 sheet, scale 1:250,000.

____1976, Summary of references to mineral occurrences (other than mineral fuels and construction materials) in the Chandalar and Wiseman quadrangles, Alaska: U.S. Geological Survey Open-File Report 76-340, p. 179.

Dillon, J.T., Brosge, W.P., and Dutro, J.T., Jr., 1986, Generalized geologic map of the Wiseman quadrangle, Alaska: U.S. Geological Survey Open-File Report 86-219, 1 sheet, scale 1:250,000.

Property Summary

Name(s): Allen River Lode North

Map No: W30
MAS No: 0020300010

Deposit Type: Unknown lode

Commodities: Cu

Location:

Quadrangle: Wiseman C-4
SE¼ sec. 13, T. 31 N., R. 20 W.
Meridian: Fairbanks
Elevation: 2,800 feet
Latitude: 67° 30.450' N.
Longitude: 151° 54.350' W.
Geographic: On an eastern tributary of Allen River, near Sheep Creek Lode (map no. W22).

History:

1960 - Brosge and Reiser (1960) reported copper staining in area.

Production: None.

Workings and Facilities: None observed.

Geologic Setting:

Bedrock in the area is prominently Devonian Skajit Limestone, which is composed of marble, dolomite, carbonate conglomerate, and minor quartzite and graphitic calcareous schist. The Skajit Formation is in thrust fault contact with Devonian phyllite, siltsone, and chlorite schist. Copper staining reportedly occurs along the northwest-trending thrust fault (Brosge and Reiser, 1960; Dillon and others, 1986).

Bureau Investigation:

BLM geologists examined approximately 1.5 miles of the site. A schist-quartzite contacts marble along a variable strike. A 7-foot-wide, east-west-trending shear zone contains abundant iron-oxide staining; however, no copper staining was observed. Two rubblecrop samples of limestone with 5% to 10% pyrite (8015, 11546, table I-1) were collected. Neither sample contains anomalous metals results.

Resource Estimate: None.

Mineral Development Potential:

Low mineral development potential for copper lode due to low metal values.

Recommendations: None.

References:

Berg, H.C., and Cobb, E.H., 1967, Metalliferous lode deposits of Alaska: U.S. Geological Survey Bulletin 1246, p. 232-234.

Brosge, W.P., and Reiser, H.N., 1960, Progress map of the geology of the Wiseman quadrangle, Alaska: U.S. Geological Survey Open-File Report 60-19, 2 sheets, scale 1:250,000.

Cobb, E.H., 1972, Metallic mineral resources map of the Wiseman quadrangle, Alaska: U.S. Geological Survey Miscellaneous Field Studies Map MF-469, 1 sheet, scale 1:250,000.

Dillon, J.T., Brosge, W.P., and Dutro, J.T., Jr., 1986, Generalized geologic map of the Wiseman quadrangle, Alaska: U.S. Geological Survey Open-File Report 86-219, 1 sheet, scale 1:250,000.

Property Summary

Name(s): Allen River Lode South
Matt No. 1
Matt 2 & 3
Allen River nos. 5 & 6

Map No: W31
MAS No: 0020300088
Alaska Kardex 030-096

Deposit Type: Unknown lode

Commodities: Au

Location:

Quadrangle: Wiseman B-4
Meridian: Fairbanks
Latitude: 67° 26.900' N.
SE¼ sec. 2, T. 30 N., R. 20 W.
Elevation: 3,600 feet
Longitude: 151° 57.500' W.
Geographic: Located on a ridge 3 miles southeast of Gunsight mountain.

History:

1969-77 - Lode claims staked in area by T. Tomsich (Kardex).

Production: No recorded production.

Workings and Facilities: None observed.

Geologic Setting:

Bedrock in the area is Devonian Skajit Limestone, which is composed of marble, dolomite, carbonate conglomerate, and minor quartzite and graphitic calcareous schist. To the south, the Skajit Limestone contacts an overturned syncline unit of Devonian Hunt Fork Shale along an east-west-trending fault (Dillon and others, 1986).

Bureau Investigation:

BLM geologists examined approximately 2 miles of the site. Skajit Limestone and an adjacent zone of calcareous sericite schist were observed in outcrop. A select rubblecrop sample of a quartz vein with chalcopyrite (8016, table I-1), collected approximately one quarter of a mile southwest of the referenced location, contains 117 ppm antimony. A select float sample of marble with very fine pyrite stringers (11544) and a select rubblecrop sample of marble with pyrrhotite aggregates and euhedral pyrite (11545) average 111 ppm arsenic. None of the samples are anomalous in gold.

Resource Estimate: None.

Mineral Development Potential: Low mineral development potential for lode gold.

Recommendations: None.

References:

Berg, H.C., and Cobb, E.H., 1967, Metalliferous lode deposits of Alaska: U.S. Geological Survey Bulletin 1246, p. 232-234.

Brosge, W.P., and Reiser, H.N., 1971, Preliminary geologic map, Wiseman, and eastern Survey Pass quadrangles, Alaska: U.S. Geological Survey Open-File Report 71-56, 1 sheet, scale 1:250,000.

Dillon, J.T., Brosge, W.P., and Dutro, J.T., Jr., 1986, Generalized geologic map of the Wiseman quadrangle, Alaska: U.S. Geological Survey Open-File Report 86-219, 1 sheet, scale 1:250,000.

Property Summary

Name(s): Allen River

Map No: W32
MAS No: 0020300098
Alaska Kardex 030-044
Alaska Kardex 030-049

Deposit Type: Placer

Commodities: Au

Location:

Quadrangle: Wiseman B-4
NW¼ sec. 24, T. 30 N., R. 20 W.
Meridian: Fairbanks
Elevation: 1,050 feet
Latitude: 67° 24.411' N.
Longitude: 151° 56.339' W.
Geographic: Approximately 3 miles upstream of the confluence of John River and Allen River.

History:

1957 - Placer claims staked at mouth of Allen River by E. Guffey (Kardex).

Production: None.

Workings and Facilities: None observed.

Geologic Setting:

Bedrock in the Allen River basin is predominantly Devonian Skajit Limestone and Hunt Fork Schist. These units consist of marble, dolomite, calcareous conglomerate, mica schist, quartz-mica schist, and phyllite (Dillon and others, 1986).

Bureau Investigation:

The Allen River flows through a canyon with exposed bedrock about 3 miles upstream from the creek mouth. A pan concentrate sample collected from quartz-mica schist bedrock (11542, table I-1) is not anomalous in gold. Test pans collected nearby did not contain visible gold. A sample of greenstone float (11543) collected near the same location is not anomalous in metals.

Resource Estimate: None.

Mineral Development Potential: Low mineral development potential for placer gold.

Recommendations: None.

References:

Dillon, J.T., Brosge, W.P., and Dutro, J.T., Jr., 1986, Generalized geologic map of the Wiseman quadrangle, Alaska: U.S. Geological Survey Open-File Report 86-219, 1 sheet, scale 1:250,000.

Property Summary

Name(s): Moose Trail
Birch 1-6

Map No: W33
MAS No: 0020300107
Alaska Kardex 030-143

Deposit Type: Unknown lode

Commodities: Au, Cu

Location:

Quadrangle: Wiseman B-5
NW¼ sec. 27, T. 30 N., R. 20 W.
Meridian: Fairbanks
Elevation: 1,400 feet
Latitude: 67° 23.725' N.
Longitude: 152° 00.412' W.
Geographic: Located about 2 miles northeast of the confluence of Allen and John Rivers.

History:

1960 - Brosge and Reiser (1960) reported copper anomaly in area.
1970 - C. Kowall staked 6 lode claims (Birch 1-6) in area (Kardex).
1975-77 - BP Exploration Inc. staked 28 lode claims in area, and conducted brief drilling program.

Production: None recorded.

Workings and Facilities:

Trenching was conducted along the mountain just north of the confluence of John and Allen Rivers (Bill Fickus, personal communication, 2001).

Geologic Setting:

The bedrock in the area consists primarily of Devonian chloritic and carbonate rocks, including phyllite, dolomite, chloritic calcareous metasandstone, marble, and carbonate-clast conglomerate. Devonian Skajit Limestone overlies the units (Dillon and others, 1986).

Bureau Investigation:

Remnants of the core samples are stored in a cabin near the airstrip at lower Crevice Creek. The samples did not exhibit copper mineralization (Bill Fickus, personal communication, 2001). The claims were dropped after the drilling program. Samples of pyritiferous schist and marble collected in the area (11539-11540, table I-1) are not anomalous in precious metals.

Resource Estimate: None.

Mineral Development Potential:

Low mineral development potential due to lack of anomalous results in past drilling and sampling programs.

Recommendations: None.

References:

Berg, H.C., and Cobb, E.H., 1967, Metalliferous lode deposits of Alaska: U.S. Geological Survey Bulletin 1246, p. 232-234.

Cobb, E.H., 1972, Metallic mineral resources map of the Wiseman quadrangle, Alaska: U.S. Geological Survey Miscellaneous Field Studies Map MF-469, 1 sheet, scale 1:250,000.

Dillon, J.T., Brosge, W.P., and Dutro, J.T., Jr., 1986, Generalized geologic map of the Wiseman quadrangle, Alaska: U.S. Geological Survey Open-File Report 86-219, 1 sheet, scale 1:250,000.

Property Summary

Name(s): McCamant Creek
McCamant 1-14
McCamant Ck. Assoc. 1-6

Map No: W34
MAS No: 0020300089
Alaska Kardex 030-042
ADL 328947-951
ADL 328953-961

Deposit Type: Placer

Commodities: Au

Location:
Quadrangle: Wiseman B-4
NW¼ sec. 31, T. 30 N., R. 19 W.
Meridian: Fairbanks
Elevation: 1,450 feet
Latitude: 67° 23.173' N.
Longitude: 151° 53.371' W.
Geographic: A 10-mile-long tributary of Allen River, near its confluence with the John River.

History:

1957 - Jerry Fording staked claims on McCamant Creek Kardex).

Production: Unknown.

Workings and Facilities:

Test pits, campsites, cabin remains, and a rough airstrip are located along the creek. Most of these are concentrated above the narrows, in the upper 5 miles of the drainage. The remains of suction dredging equipment, a winter airstrip, a tent frame, and a shaft dump were located 5.5 miles upstream from the Allen River.

Geologic Setting:

The majority of the bedrock in McCamanat Creek is composed of Upper Devonian Hunt Fork Shale, which includes two parts: the upper is composed of slate, phyllite, and minor limestone and the basal contains conglomerate and sandstone (Dillon and others, 1986).

Bureau Investigation:

McCamant Creek contains a conspicuous bedrock narrows about 1.2 miles above its mouth. Three sections of McCamant Creek were investigated: a 0.5-mile length just below the narrows, a 1.0-mile length just above the narrows, and a 0.5-mile length 3.3 miles above the narrows.

The lower section contained evidence of test pits, but test pans from the pits contained no visible gold. Pans taken on quartz-chlorite schist bedrock contained no visible gold. A pan concentrate (10846, table I-1) collected at the site contains no gold, but does contain 131 ppm zinc. A sample of pyrrhotite-bearing quartz veinlets (10847) is not anomalous in any metals.

Above the narrows, test pans taken of fines from fractures in quartz-muscovite schist bedrock contained very fine gold. A pan concentrate (11562) contains 2,603 ppb gold and 103 ppm zinc.

At the site farthest upstream, test pans (12106) did not contain gold.

Resource Estimate: Unknown.

Mineral Development Potential:

Low development potential for placer gold. Test pits excavated by mechanized equipment must not have been encouraging because there is little evidence of mechanized mining on the creek.

Recommendations: None.

References:

Dillon, J.T., Brosge, W.P., and Dutro, J.T., Jr., 1986, Generalized geologic map of the Wiseman quadrangle, Alaska: U.S. Geological Survey Open-File Report 86-219, 1 sheet, scale 1:250,000.

Property Summary

Name(s): Crevice Creek
Crevice Creek Assoc. 1-15

Map No: W35
MAS No: 0020300025
Alaska Kardex 030-002
Alaska Kardex 030-049

Deposit Type: Placer

Commodities: Au

Location:

Quadrangle: Wiseman B-4
S½ sec. 1, T. 29 N., R. 20 W.
Meridian: Fairbanks
Elevation: 1,225 feet
Latitude: 67° 21.648' N.
Longitude: 151° 54.660' W.
Geographic: A 10-mile-long, eastern tributary of the John River. The workings are accessible via a private airstrip near the mouth of Crevice Creek.

History:

1904 - Placer mining reported on Crevice Creek (Maddren, 1913).
1908-10 - Drifting and opencut mining done by M.P. Galvin (U.S. Bureau of Mines, 1910).
1912 - Small scale mining done by M.P. Galvin (U.S. Bureau of Mines, 1912).
1914 - Bench gravels mined by M.P. Galvin (U.S. Bureau of Mines, 1914).
1951-53 - Mining by Andy Swasdahl (A and S Mining Co.) (Fairbanks Daily News-Miner, 1954).
1959 - Placer mining begun by Bill Fickus (Bill Fickus, personal communication, 1997).
1994 - Last year large wash plant and dozer used on creek (Bill Fickus, personal communication, 1997).
1998 - Minor suction dredging on lower creek (Bill Fickus, personal communication, 1997).

Production: (oz Au)

1904 - 87
1908 - 10
1909 - 2
1912 - 4
1914 - 34
1948 - 105
1980-98 - 2,200
2000 - 14
Total: 2,456 Records incomplete. Mining is known to have taken place from about 1959 through 1994.
Gold fineness: 865 (Metz and Hawkins, 1981)

Workings and Facilities:

A section of Crevice Creek nearly 3.5 miles long has been worked for placer gold. A trommel-type washing plant is located about halfway up the creek.

Geologic Setting:

Bedrock in Crevice Creek consists mainly of Devonian Skajit Limestone, which is composed of marble and dolomite with minor quartzite and graphitic and calcareous schist. The Skajit has been folded and faulted into a series of north-vergant thrust sheets. Schistose rocks locally contain pyrite. Metabasite and phyllite occur near the creek headwaters (Dillon and others, 1986).

Differential weathering related to bedrock schistosity results in the formation of excellent natural riffles with gravel-filled cracks between - thus the name Crevice Creek. Gold concentrates in these cracks to depths of several feet. Abundant magnetite associated with the placers often packed sluice boxes and made gold recovery difficult. Native silver nuggets are reported to occasionally occur with the gold, and stibnite is reported to occur with the placer concentrates. The largest recorded nugget found weighed 4.0 oz (Bill Fickus, personal communication, 1997).

Bureau Investigation:

Mining on Crevice Creek has been extensive, beginning about 2.0 miles upstream from the John River and extending upstream for about 1.5 miles. Above that point, mining has been mostly confined to working potholes and crevices with suction dredges. Portions of the creek were prospected and numerous test pans taken. A 3-pan composite sample (10547, table I-1) contained abundant magnetite crystals and a very coarse gold flake. Test pans taken from cracks and crevices were most apt to contain gold. Pan concentrate samples were collected at the major fork in Crevice Creek, 5.5 miles upstream from the John River. The north fork is not anomalous; a sample collected from the south fork (12093) contains 1,006 ppb gold.

Resource Estimate:

The creek has been mined extensively and little resource remains.

Mineral Development Potential:

Low potential for large deposits of gold-bearing gravels. Numerous gravel-filled cracks, crevices, and plunge pools have potential to contain placer gold.

Recommendations:

Searching bedrock fractures with a metal detector may locate nuggets missed by conventional placer mining techniques. Use of a suction dredge in pools and gravel-filled fractures may result in the discovery of nuggets. The south fork of Crevice Creek should be prospected for placer gold.

References:

Bliss, J.D., Brosge, W.P., Dillon, J.T., Cathrall, J.B., and Dutro, J.T., Jr., 1988, Maps and descriptions of lode deposits, prospects, and occurrences in the Wiseman 1° by 3° quadrangle, Alaska: U. S. Geological Survey Open-file Report 88-293, p.3.

Dillon, J.T., Brosge, W.P., and Dutro, J.T., Jr., 1986, Generalized geologic map of the Wiseman quadrangle, Alaska: U.S. Geological Survey Open-File Report 86-219, 1 sheet, scale 1:250,000.

Fairbanks Daily News-Miner newspaper, Fairbanks, Alaska, March 13, 1954.

Maddren, A.G., 1910, The Koyukuk-Chandalar gold region *in* Brooks, A.E., Mineral resources of Alaska, report on progress of investigations in 1909: U.S. Geological Survey Bulletin 442, p. 314.

____1913, The Koyukuk-Chandalar region, Alaska: U.S. Geological Survey Bulletin 532, p. 110.

Reed, J.C., 1938, Upper Koyukuk region, Alaska: Alaska Territorial Department of Mines Miscellaneous Report 194-7, p. 143.

U.S. Bureau of Mines, 1908-1945, Permanent Individual Mine Records (PIMR) for placer mines in Alaska: U.S. Bureau of Mines unpublished reports. [available from BLM Anchorage, Alaska]

Property Summary

Name(s): Crevice Creek Lode

Map No: W36
MAS No: 0020300009

Deposit Type: Greenstone copper

Commodities: Cu, Pb

Location:

Quadrangle: Wiseman B-4
NE¼ sec. 13, T. 29 N., R. 20 W.
Meridian: Fairbanks
Elevation: 2,840 feet
Latitude: 67° 20.585' N.
Longitude: 151° 55.109' W.
Geographic: Ridge on the south side of Crevice Creek, 0.7 mile southeast of peak 3365.

History: Unknown.

Production: None.

Workings and Facilities: None.

Geologic Setting:

Bedrock on the south side of Crevice Creek is predominantly marble and dolomite of the Middle to Upper Devonian Skajit Limestone. The base of the Skajit locally contains lenses of greenschist (greenstone) of volcanic(?) origin. The carbonate rocks are in thrust fault(?) contact with an underlying unit of Middle to Upper Devonian muscovite schist and phyllite. Galena and copper sulfides reportedly occur in the Skajit marble (Brosge and Reiser,1960, 1971; Dillon and others, 1986).

Bureau Investigation:

BLM geologists walked a 0.3-mile length of the marble-schist contact in an easterly direction, starting at the ridgetop. Downslope from the contact, minor greenschist float was found containing trace chalcopyrite and malachite stain. A sample (12089, table I-1) contains 353 ppm copper. Euhedral magnetite crystals were also noted in the greenschist. Sulfide-bearing rocks were not found in place, but may be exposed in cliff faces above the contact.

Resource Estimate: Unknown.

Mineral Development Potential:

Low development potential due to restricted nature of sulfides and low copper grades.

Recommendations: Continue to prospect marble-schist contact.

References:

Berg, H.C., and E.H. Cobb, E.H., 1967, Metalliferous lode deposits of Alaska: U.S. Geological Survey Bulletin 1246, p. 231-234.

Brosge, W.P., and Reiser, H.N., 1960, Progress map of the geology of the Wiseman quadrangle, Alaska: U.S. Geological Survey Open-File Report 60-19, 2 sheets, scale 1:250,000.

____1971, Preliminary geologic map, Wiseman, and eastern Survey Pass quadrangles, Alaska: U.S. Geological Survey Open-File Report 71-56, 1 sheet, scale 1:250,000.

Dillon, J.T., Brosge, W.P., and Dutro, J.T., Jr., 1986, Generalized geologic map of the Wiseman quadrangle, Alaska: U.S. Geological Survey Open-File Report 86-219, 1 sheet, scale 1:250,000.

Grybeck, D., 1977, Known mineral deposits of the Brooks Range, Alaska: U.S. Geological Survey Open-File Report 77-166C, p. 28.

Henning, M.W., 1982, Reconnaissance geology and stratigraphy of the Skajit Formation, Wiseman B-5 quadrangle: Alaska Division of Geological and Geophysical Surveys Open-File Report 147, 1 sheet, scale 1:63,360.

Property Summary

Name(s): Bullrun Creek Placer

Map No: W37
MAS No: 0020300090
Alaska Kardex 030-041
Alaska Kardex 030-112
Alaska Kardex 030-141

Deposit Type: Placer

Commodities: Au

Location:

Quadrangle: Wiseman B-5
E¼ sec. 24, T. 29 N., R. 20 W.
Meridian: Fairbanks
Elevation: 1,380 feet
Latitude: 67° 19.700' N.
Longitude: 151° 54.433' W.
Geographic: A 5.5 mile-long eastern tributary of the John River, south of Crevice Creek.

History:

1957 - Placer claims staked by C. Fligel and W. Fickus (Kardex).
1972 - Placer claim staked by W. Mattas (Kardex).
1975 - D. Schmite staked a lode claim (Kardex).

Production: Unknown.

Workings and Facilities:

A cabin and cache were observed near where Bullrun Creek exits mountainous terrain. No signs of mining activity were noted at this site.

Geologic Setting:

The majority of the bedrock underlying Bullrun Creek is composed of Middle Devonian(?) phyllite, calcareous metasandstone, marble and conglomerate. These rocks are overlain by a south-dipping sequence of Middle or Upper Devonian(?) Beaucoup Formation(?). A north-south-trending fault crosses Bull Run Creek where the drainage takes an abrupt turn to the south (Dillon and others, 1986).

Bureau Investigation:

A pan concentrate sample taken from the first southern tributary upstream from the mouth of Bullrun Creek (10904, table I-1) contains 131 ppb gold. A pan concentrate sample off of the second northern tributary upstream from the mouth (10906) contains >10,000 ppb gold, which is highly anomalous. A total of 9 more pan concentrate and stream sediment samples were collected on Bullrun Creek (10903-05, 11406-11412). None are anomalous in gold.

Resource Estimate: None.

Mineral Development Potential:

Low development potential for placers because no visible gold was observed.

Recommendations:

Prospecting recommended on anomalous northern tributary of Bullrun Creek that drains a small lake.

References:

Brosge, W.P., and Reiser, H.N., 1960, Progress map of the geology of the Wiseman quadrangle, Alaska: U.S. Geological Survey Open-File Report 60-19, 2 sheets, scale 1:250,000.

____1971, Preliminary geologic map, Wiseman, and eastern Survey Pass quadrangles, Alaska: U.S. Geological Survey Open-File Report 71-56, 1 sheet, scale 1:250,000.

Dillon, J.T., Brosge, W.P., and Dutro, J.T., Jr., 1986, Generalized geologic map of the Wiseman quadrangle, Alaska: U.S. Geological Survey Open-File Report 86-219, 1 sheet, scale 1:250,000.

Property Summary

Name(s): Bullrun Creek Prospect
Bullrun Creek no. 1
D&L no. 1
Black Bear

Map No: W38
MAS No: 0020300091
Alaska Kardex 030-113

Deposit Type: Metamorphic quartz

Commodities: Crystalline quartz

Location:

Quadrangle: Wiseman B-4
NW¼ sec. 25, T. 29 N., R. 20 W.
Meridian: Fairbanks
Elevation: 2,000 feet
Latitude: 67° 19.029' N.
Longitude: 151° 55.958' W.
Geographic: On a ridgetop south of Bullrun Creek and 1.8 miles northwest of peak 3838.

History:

1972 - Lode claim staked by W. Mattas (Kardex).

Production: Unknown.

Workings and Facilities: A 30-foot-long trench with wheelbarrow nearby.

Geologic Setting:

The majority of the bedrock underlying Bullrun Creek is composed of Middle Devonian(?) chlorite schist, phyllite, calcareous metasandstone, marble and conglomerate. These rocks are overlain by a south-dipping sequence of Middle or Upper Devonian(?) Beaucoup Formation(?). A north-south-trending fault has been mapped just west of the occurrence (Dillon and others, 1986). The schist locally contains pods of metamorphic quartz. Most of the quartz is opaque, but some is clear and contains rutile needles.

Bureau Investigation:

Clear, rutilated quartz has been reported in the area. A trench on the ridge top was reportedly dug to expose quartz crystals that occur in a pod or vug in the schist. Some of the quartz was of gem quality (W. Fickus, personal communication, 2000). Investigation of the site yielded only a few pieces of rutilated quartz. No sulfides were noted and sample 12105 (table I-1) is not anomalous in precious metals. The clear quartz appears to have been mined out. No bedrock was exposed in the area of the prospect.

Resource Estimate: None.

Mineral Development Potential:

Low mineral development potential for gem quality quartz because the resource is exhausted.

Recommendations: Prospect the surrounding area for similar vugs.

References:

Brosge, W.P., and Reiser, H.N., 1960, Progress map of the geology of the Wiseman quadrangle, Alaska: U.S. Geological Survey Open-File Report 60-19, 2 sheets, scale 1:250,000.

____1971, Preliminary geologic map, Wiseman, and eastern Survey Pass quadrangles, Alaska: U.S. Geological Survey Open-File Report 71-56, 1 sheet, scale 1:250,000.

Dillon, J.T., Brosge, W.P., and Dutro, J.T., Jr., 1986, Generalized geologic map of the Wiseman quadrangle, Alaska: U.S. Geological Survey Open-File Report 86-219, 1 sheet, scale 1:250,000.

Property Summary

Name(s): Suckik Creek
Sickik Creek
Big Charlie

Map No: W39
MAS No: 0020300026
Alaska Kardex 030-146
ADL 312454-312461
ADL 325164-325168

Deposit Type: Placer

Commodities: Au

Location:

Quadrangle: Wiseman A-4
SE¼ sec. 27, T. 27 N., R. 19 W.
Meridian: Fairbanks
Elevation: 1,120 feet
Latitude: 67° 13.259' N.
Longitude: 151° 42.221' W.
Geographic: Suckik Creek is a 8.5-mile-long, southwest-flowing tributary of Timber Creek. The creek is named after a long-time resident of the area, Charles Suckik. The name is misprinted on the U.S. Geological Survey 1:63,360 topographic map, as "Sickik" Creek.

History:

1917 - Small strike reportedly made on Timber Creek (Fairbanks Daily News-Miner, 1917).
1948 - F. Bishop and F. Theisen prospected Suckik Creek (Alaska Department of Mines, 1949).
1979-86 - S. Alleman staked placer claims approximately 3.5 miles upstream from the creek mouth (Kardex, ADL).

Production: Unknown.

Workings and Facilities:

Evidence of suction dredge mining (circa 1980s?) was found about 3.5 miles upstream from the mouth. A cabin and an old airstrip are located at the confluence of Suckik and Timber Creeks.

Geologic Setting:

The bedrock in the Suckik Creek drainage is predominantly Proterozoic or Lower Paleozoic coarse mica schist and paragneiss with lesser amounts of calcareous schist and marble. At the confluence of the upper forks, Devonian mafic and felsic metavolcanic rocks outcrop locally. Two east-northeast trending thrust faults are also mapped in the drainage (Dillon and others, 1986).

Bureau Investigation:

Suckik Creek was investigated at forks 2.5 miles and 5 miles upstream of the creek mouth. The creek and its tributaries cut bedrock in numerous locations. The east-flowing tributary 5 miles upstream drains Twoday Mountain and contains abundant (surficial) iron-oxide staining. Pan samples collected from the upper forks (11433-11435, table I-1) average 37.5 ppb gold, which is slightly anomalous. Pan samples collected 2.5 miles upstream, near the mining claims (12076-12077, 12079), do not contain gold. No gold was observed in any pans collected in the Suckik Creek drainage.

The suspected metavolcanic rocks are mafic and aphantic and do not contain sulfides. A float sample of black marble with 2-3% disseminated pyrrhotite (11436) contains >2,000 ppm strontium. This result is considered anomalous.

Resource Estimate: None.

Mineral Development Potential:

Low mineral development potential exists at Suckik Creek due to lack of visible gold in samples.

Recommendations: None.

References:

Alaska Department of Mines, 1949, Report of the Commissioner of Mines, biennium ended Dec. 31, 1948: Alaska Department of Mines, p. 37.

Cobb, E.H., 1972, Metallic mineral resources map of the Wiseman quadrangle, Alaska: U.S. Geological Survey Miscellaneous Field Studies Map MF-469, 1 sheet, scale 1:250,000.

Dillon, J.T., Brosge, W.P., and Dutro, J.T., Jr., 1986, Generalized geologic map of the Wiseman quadrangle, Alaska: U.S. Geological Survey Open-File Report 86-219, 1 sheet, scale 1:250,000.

Fairbanks Daily News-Miner newspaper, Fairbanks, Alaska, April 27, 1917.

Property Summary

Name(s): Chicken Creek

Map No: W40
MAS No: 0020300166

Deposit Type: Placer

Commodities: Au

Location:
Quadrangle: Wiseman A-3
NE¼ sec. 10, T. 27 N., R. 17 W.
Meridian: Fairbanks
Elevation: 1,380 feet
Latitude: 67° 11.267' N.
Longitude: 151° 15.643' W.
Geographic: A 13-mile-long tributary of Wild River, flowing south then west into Wild River.

History: Unknown.

Production: Unknown.

Workings and Facilities:

A large blue tarp was seen near the creek mouth. There was no indiction the site was used for mining.

Geologic Setting:

A majority of the Chicken Creek basin is composed of Proterozoic to lower Paleozoic coarse mica schist and paragneiss with minor calcareous schist. An east-west-trending thrust fault bisects Chicken Creek approximately 6 miles above the mouth. Devonian felsic metavolcanic rocks and metamorphosed bimodal igneous rocks are also mapped in the basin (Dillon and others, 1986).

Bureau Investigation:

Chicken Creek was briefly investigated 1 mile southeast of VABM Wild. The creek does not run over bedrock in the immediate area; however, it may farther upstream. Pan concentrate samples collected from gravel bars (12009-12010, table I-1) contained a total of 1 coarse, 2 fine, and 1 very fine gold pieces. The samples average 11.67 ppm gold. A stream sediment sample (12008) contains 188 ppm zinc, which is anomalous.

The western ridge, near VABM Wild, was also briefly investigated. A sample of mica schist with trace pyrite (12015) was collected; however, it contains no anomalous results.

Resource Estimate: None.

Mineral Development Potential:

Moderate mineral development potential due to presence of small amounts of placer gold in creek.

Recommendations:

Recommend more reconnaissance pan concentrate sampling, specifically at the bedrock exposures near the headwaters of Chicken Creek.

References:

Dillon, J.T., Brosge, W.P., and Dutro, J.T., Jr., 1986, Generalized geologic map of the Wiseman quadrangle, Alaska: U.S. Geological Survey Open-File Report 86-219, 1 sheet, scale 1:250,000.

Property Summary

Name(s): Bourbon Creek

Map No: W41
MAS No: 0020300036

Deposit Type: Placer

Commodities: Au

Location:

Quadrangle: Wiseman B-3 — SW¼ sec. 6, T. 28 N., R. 16 W.
Meridian: Fairbanks — Elevation: 1,550 feet
Latitude: 67° 16.458' N. — Longitude: 151° 09.864' W.
Geographic: Local name for a north-flowing tributary of Fall Creek. Bourbon Creek has two main tributaries - an east and west fork.

History:

Mined extensively in the early days (circa 1900); mined out by 1937 (Reed, 1938).

Production: Unknown.

Workings and Facilities:

A cabin and placer workings are located on the western fork of Bourbon Creek, on the right limit, about 1 mile upstream of the mouth. There are stacked rocks, a small trench, and remnants of a dam within 150 feet of cabin ruins.

Geologic Setting:

Bedrock on lower Bourbon Creek is a calcareous mica schist in contact with a limestone (marble) unit. Disseminated chalcopyrite, pyrite, and pyrrhotite were observed in the schist near the contact.

Bureau Investigation:

Stream sediment and pan concentrate samples were collected near the mouth (10917-10918, table I-1) and at the old placer mining site (12129-12130). What was thought to be visible gold was observed in a pan concentrate sample collected near the creek mouth (10918). Analysis showed the sample to contain only 62 ppb gold. No gold was observed in the test pans or the one pan concentrate sample (12130) collected at the mining site.

An exposure of gossanous schist breccia was also sampled near the headwaters of the east fork. The gossan is exposed intermittently along 1,650 feet, with the best exposure being the farthest upstream. Two samples of the gossan were collected (12126, 12145) as well as two samples of meta-intrusive float (12128, 12144). However, no anomalies were found in any of the rock samples.

Resource Estimate: None.

Mineral Development Potential:

Low mineral development potential for placer gold because only trace amounts of placer gold were found at the site.

Recommendations: None.

References:

Bliss, J.D., Brosge, W.P., Dillon, J.T., Cathrall, J.B., and Dutro, J.T., Jr., 1988, Maps and descriptions of lode deposits, prospects, and occurrences in the Wiseman 1° by 3° quadrangle, Alaska: U. S. Geological Survey Open-File Report 88-293, p. 11.

Cobb, E.H., 1972, Metallic mineral resources map of the Wiseman quadrangle, Alaska: U.S. Geological Survey Miscellaneous Field Studies Map MF-469, 1 sheet, scale 1:250,000.

Dillon, J.T., Brosge, W.P., and Dutro, J.T., Jr., 1986, Generalized geologic map of the Wiseman quadrangle, Alaska: U.S. Geological Survey Open-File Report 86-219, 1 sheet, scale 1:250,000.

Fechner, S.A., 1995, Mine hazards report-inactive mines, Bourbon Creek, Alaska: U.S. Bureau of Mines unpublished report, 11 p. [available from BLM Anchorage, Alaska]

Grybeck, D., 1977, Known mineral deposits of the Brooks Range, Alaska: U.S. Geological Survey Open-File Report 77-166C, 45 p.

Reed, I.M., 1938, Upper Koyukuk region, Alaska: Alaska Territorial Department of Mines Miscellaneous Report 194-7, p. 141.

Property Summary

Name(s): Fall Creek

Map No: W42
MAS No: 0020300117
Alaska Kardex 030-161

Deposit Type: Placer

Commodities: Au

Location:

Quadrangle: Wiseman B-3
SE¼ sec. 33, T. 29 N., R. 16 W.
Meridian: Fairbanks
Elevation: 1,700 feet
Latitude: 67° 17.367' N.
Longitude: 151° 7.000' W.
Geographic: On Fall Creek, 3 miles upstream of its confluence with Michigan Creek.

History:

Early 1900s - Very good prospects were reported in the “early days” (Reed, 1938).
1976-82 - Maple Leaf Gold Company staked claims in the area (Kardex).

Production: Unknown.

Workings and Facilities: None observed.

Geologic Setting:

Bedrock in the Fall Creek vicinity is composed of Proterozoic or Lower Paleozoic calcareous schist interbedded with quartz-mica schist and marble. Small outcrops of Devonian felsic metavolcanic rocks have been mapped along the north-facing slopes of Fall Creek, but these were not located (Dillon and others, 1986).

Bureau Investigation:

Hornfels (10920, 10943, table I-1) and vein quartz (10944) float with pyrrhotite and pyrite were sampled near the confluence with Bourbon Creek. A steam sediment and pan concentrate were also collected (10969-10970); however, no anomalies were noted in any of the samples.

Resource Estimate: None.

Mineral Development Potential: Low mineral development potential due to lack of gold in samples.

Recommendations: None.

References:

Dillon, J.T., Brosge, W.P., and Dutro, J.T., Jr., 1986, Generalized geologic map of the Wiseman quadrangle, Alaska: U.S. Geological Survey Open-File Report 86-219, 1 sheet, scale 1:250,000.

Reed, I.M., 1938, Upper Koyukuk region, Alaska: Alaska Territorial Department of Mines Miscellaneous Report 194-7, p. 141.

Property Summary

Name(s): Michigan Creek Lode

Map No: W43
MAS No: 20300167

Deposit Type: Polymetallic vein

Commodities: Cu, Au

Location:
Quadrangle: Wiseman B-3
SE¼ sec. 25, T. 29 N., R. 17 W.
Meridian: Fairbanks
Elevation: 1,250 feet
Latitude: 67° 18.244' N.
Longitude: 151° 13.994' W.
Geographic: At the upper end of the Michigan Creek gorge, 0.1 mile upstream from Falls Creek.

History:

1981- Samples collected by Alaska Division of Geological and Geophysical Surveys are anomalous in copper, and arsenic (Dillon and others, 1981).

Production: None.

Workings and Facilities: None.

Geologic Setting:

Sulfides are reported to occur in Middle Devonian actinolite-biotite felsite with interlayers of marble and garnet-quartz-muscovite schist. Samples are reported to contain up to 1,365 ppm copper and 6,500 ppm arsenic (Dillon and others, 1981, site no. 467; Bliss and others, 1988, site nos. 50-51). The contacts between rock units trend N. 10° E. and dip 45° E.

Felsic flows associated with the Ambler schist belt reportedly occur in the area (Dillon and others, 1986).

Bureau Investigation:

The site described by Dillon and others (1981) was investigated. A limonite-stained outcrop of felsite, averaging 7-8 feet thick, was located in a bluff on the west side of the Michigan Creek gorge. Wallrocks consist of calcareous schist. The felsite contains 2-5% pyrite, chalcopyrite(?), and arsenopyrite(?) in lenses and stringers. An outcrop sample (13025, table I-1) contains 111 ppm copper and 296 ppb gold. These values are considerably less than those reported by Dillon (1981) for samples collected in the same area. Similar exposures were noted downstream on the same side of the creek, but these were not investigated. At the time, it could not be determined whether the felsic rocks were flows, dikes, or sills.

Resource Estimate: None.

Mineral Development Potential:

Low potential for polymetallic vein deposits due to low gold metal values.

Recommendations: Prospect similar exposures downstream and on the same side of Michigan Creek.

References:

Bliss, J.D., Brosge, W.P., Dillon, J.T., Cathrall, J.B., and Dutro, J.T., Jr., 1988, Maps and descriptions of lode deposits, prospects, and occurrences in the Wiseman 1° by 3° quadrangle, Alaska: U. S. Geological Survey Open-File Report 88-293, p. 45.

Dillon, J.T., Brosge, W.P., and Dutro, J.T., Jr., 1986, Generalized geologic map of the Wiseman quadrangle, Alaska: U.S. Geological Survey Open-File Report 86-219, 1 sheet, scale 1:250,000.

Dillon, J.T., Moorman, M.A., and Lueck, L.L., 1981, Geochemical reconnaissance of the southwest Wiseman quadrangle: summary of data on rock samples: Alaska Division of Geological and Geophysical Surveys Open-File Report 133B, p. 43-44, 98.

Property Summary

Name(s): Michigan Creek Placer
Michigan Creek, 1-5 Below
VIC Creek 1-16 Above

Map No: W44
MAS No: 0020300116
Alaska Kardex 030-175

Deposit Type: Placer

Commodities: Au

Location:
Quadrangle: Wiseman B-3
SE¼ sec. 35, T. 29 N., R. 17 W.
Meridian: Fairbanks
Elevation: 1,150 feet
Latitude: 67° 17.350' N.
Longitude: 151° 16.083' W.
Geographic: A 19-mile-long northeastern tributary of Wild River, 13 miles south of Wild Lake.

History:

1977 - Placer claims staked in area by Guy Rivers (Kardex).

Production: No history of production.

Workings and Facilities: None located.

Geologic Setting:

Bedrock on lower Michigan Creek consists of Middle Devonian calcareous schist interbedded with quartz-mica schist and marble. The schist composition ranges from a calcareous schist to a chlorite-quartz schist. Stratigraphically overlying this unit are metabasites and mafic and felsic volcanic rocks of the Ambler Metavolcanic sequence (Dillon and others, 1986). The schists are locally deformed into broad, open folds and locally contain galena-bearing quartz veins at the Silver King prospect (map no. W45).

Bureau Investigation:

Pan concentrate samples were collected at two sites on bedrock near the upper end of the Michigan Creek gorge (figure I-6). One sample (11635, table I-1) contained one visible fine gold flake. Analysis showed the sample contains 10.90 ppm gold and 402 ppm arsenic. The sample consisted of material taken from cracks in chlorite-quartz schist bedrock.

Resource Estimate: None.

Mineral Development Potential:

Moderate development potential for placer gold due to high gold values in samples and no indications of previous mining.

Recommendations:

The presence of visible gold in test pans is encouraging. More test panning would be required, followed by test pits, to determine whether an economic resource exists. The fact that there are no signs of previous mining is not encouraging. Also the gorge area would be subject to periodic flooding, which would seriously affect any placer operation. Suction dredging of fractured bedrock at low water may prove profitable.

References:

Cobb, E.H., 1976, Summary of references to mineral occurrences (other than mineral fuels and construction materials) in the Chandalar and Wiseman quadrangles, Alaska: U.S. Geological Survey Open-File Report 76-340, p. 136.

Dillon, J.T., Brosge, W.P., and Dutro, J.T., Jr., 1986, Generalized geologic map of the Wiseman quadrangle, Alaska: U.S. Geological Survey Open-File Report 86-219, 1 sheet, scale 1:250,000.

Reed, I.M., 1938, Upper Koyukuk region, Alaska: Alaska Territorial Department of Mines Miscellaneous Report 194-7, p. 139-141.

Property Summary

Name(s): Silver King Prospect
Big Reed 1-10

Map No: W45
MAS No: 0020300014
Alaska Kardex 030-056
Alaska Kardex 030-091
Alaska Kardex 030-093

Deposit Type: Quartz veins

Commodities: Ag, Pb

Location:

Quadrangle: Wiseman B-3
SW¼ sec. 34, T. 29 N., R. 17 W.
Meridian: Fairbanks
Elevation: 1,220 feet
Latitude: 67° 17.083' N.
Longitude: 151° 19.414' W.
Geographic: The prospect is on the north side of Michigan Creek, 2.2 miles upstream from the Wild River.

History:

Pre-1904 - Galena and chalcopyrite are found associated with felsic schist and crosscutting pyrite veins (Schrader, 1904).
1904 - Schrader (1904) reported, but did not examine, a galena occurrence on the Wild River.
1912 - Silver King property owned by Tony Nordale and associate (Fairbanks Daily News-Miner, January 7, 1943).
1915 - F. Smith made an assessment of the Silver King property (Fairbanks Daily News-Miner, October 23, 1915).
1937 - Silver King prospect on lower Michigan Creek examined by Reed (1938).

Production: No known production.

Workings and Facilities:

Reed (1938) reported a 75-foot-long adit and a trench located on the north side, 1.5 miles above the mouth of Michigan Creek. The remains of a log tent frame are located near the stream bank 80 feet southeast of the adit.

Geologic Setting:

Bedrock on lower Michigan Creek consists of Middle Devonian calcareous schist interbedded with quartz-mica schist and marble. The schist composition ranges from a calcareous schist to a chlorite-quartz schist. Stratigraphically overlying this unit are metabasites and mafic and felsic volcanic rocks of the Ambler metavolcanic sequence (Dillon and others, 1986). The schists are locally deformed into broad, open folds.

The schist is crosscut by numerous quartz and quartz-carbonate veins that range in width from 0.5 to 7.0 feet and can be traced for up to 80 feet along strike. The veins contain isolated clots and stringers of galena with minor amounts of pyrrhotite and chalcopyrite. Vein trends range from northwest to northeast.

Bureau Investigation:

The north side of Michigan Creek in the vicinity of the Silver King prospect is densely vegetated with few bedrock exposures. The adit reported by Reed (1938) is now caved (figure I-5). Reed reported that the adit did not intersect any quartz veins, and no quartz was found on the adit dump during this study. A 20-foot-long trench was located 100 feet north of the adit. The north end of the trench exposes a 5-foot-wide mass of vein quartz, which may not be in place. A select sample of galena-bearing quartz float in the trench (11413, table I-1) contains 121.9 ppm silver and 5.78% lead. Several debris slides northeast of the trench expose quartz float as well as quartz-carbonate veins. Intermittent exposures indicate steeply dipping vein(s) with a general N. 25° E. trend along a strike distance of nearly 400 feet. A select outcrop sample from a 7-foot-wide vein that is exposed for 80 feet along strike (11415) contains 64.5 ppm silver, 5.34% lead, and 2,000 ppm antimony.

The quartz-carbonate ratio in the veins is quite variable, ranging from nearly solid quartz to mostly carbonate with quartz stringers. The galena is spotty and appears to concentrate within the carbonate adjacent to the quartz. Wallrocks consist of chlorite schist and calcareous schist. It is not clear whether the limited observed exposures represent one continuous vein or a series of subparallel veins.

Numerous limonite-stained quartz boulders in Michigan Creek are the result of weathering of these veins. Locally the boulders contain up to fist-sized clots of coarsely crystalline galena with minor pyrrhotite and trace chalcopyrite. A select float sample (11416) contains 583 ppm silver and 168 ppb gold.

Upstream from the Silver King prospect, Michigan Creek runs through a 0.5-mile-long gorge with steep walls mostly composed of calcareous schist. At least five quartz veins, ranging from 0.5 to 10 feet wide, are exposed on the canyon walls in the lower part of the gorge (figure I-6). Vein strikes average about N. 10° W. and cut across schistosity. A continuous chip sample taken across a 0.5-foot-wide vein (11632) contains 650 ppm silver. A sample of pyrite-bearing selvage on the margins of a 10-foot-wide vein (11629) contains no precious metals. Several more quartz veins are exposed on the canyon walls, but were inaccessible due to the steep terrain.

A single piece of mafic volcanic (greenstone) float containing pyrrhotite and chalcopyrite was found in the stream bottom near the upper end of the gorge (11633). Analysis showed it contains 1,158 ppm copper, 828 ppm lead, and 3,189 ppm arsenic. The source of this float was not located.

Resource Estimate:

The limited exposure and spotty mineralization of the veins does not allow for a resource estimate.

Mineral Development Potential:

There is low development potential for the galena-bearing veins. They are too small and lack the silver grades needed to be economic.

Recommendations:

No further exploration on the galena-bearing veins is recommended. They have only spotty silver values and are discontinuous. Follow-up is recommended to locate the source of the base-metal bearing greenstone found in the Michigan Creek narrows. Search upstream for more float and examine mafic volcanic rocks mapped in the area. Some of these have been correlated with the Ambler volcanic belt to the west, which contains volcanogenic massive sulfide deposits (Dillon and others, 1986). A Kuroko-type deposit reportedly occurs on the ridge west of Michigan Creek (Nokleberg and others, 1987, p. 14). The float may be related to it. Additional traverses along the ridges that surround Michigan Creek are recommended.

References:

Berg, H.C., and Cobb, E.H., 1967, Metalliferous lode deposits of Alaska: U.S. Geological Survey Bulletin 1246, p. 231-34.

Brooks, A.H., and others, 1923, Mineral resources of Alaska, report on progress of investigations in 1921: U.S. Geological Survey Bulletin 739, p. 41-42.

Brosge, W.P., and Reiser, H.N., 1960, Progress map of the geology of the Wiseman quadrangle, Alaska: U.S. Geological Survey Open-File Report 60-19, 2 sheets, scale 1:250,000.

Cobb, E.H., 1972, Metallic mineral resources map of the Wiseman quadrangle, Alaska: U.S. Geological Survey Miscellaneous Field Studies Map MF-469, 1 sheet, scale 1:250,000.

____1976, Summary of references to mineral occurrences (other than mineral fuels and construction materials) in the Chandalar and Wiseman quadrangles, Alaska: U.S. Geological Survey Open-File Report 76-340, p 136.

Dillon, J.T., Brosge, W.P., and Dutro, J.T., Jr., 1986, Generalized geologic map of the Wiseman quadrangle, Alaska: U.S. Geological Survey Open-File Report 86-219, 1 sheet, scale 1:250,000.

Fairbanks Daily News-Miner newspaper, Fairbanks, Alaska, 1916-1966.

Grybeck, D., 1977a, Known mineral deposits of the Brooks Range, Alaska: U.S. Geological Survey Open-File Report 77-166C, p. 28.

____1977b, Map showing geochemical anomalies in the Brooks Range, Alaska: U.S. Geological Survey Open-File Report 77-166D, 1 sheet, scale 1:1,000,000.

Heiner, L.E., and Wolff, E.N., 1968, Final report, mineral resources of northern Alaska: Mineral Industry Research Laboratory, University of Alaska, Report 16, p. 135.

Nokleberg, W.J., Bundtzen, T.K., Berg, H.C., Brew, D.A., Grybeck, D., Robinson, M.S., Smith, T.E., and Yeend, W., 1987, Significant metalliferous lode deposits and placer districts in Alaska: U.S. Geological Survey Bulletin 1786, p. 14.

Reed, I.M., 1938, Upper Koyukuk region, Alaska: Alaska Territorial Department of Mines Miscellaneous Report 194-7, p. 139-141.

Schrader, F.C, 1904, A reconnaissance in northern Alaska across the Rocky Mountains, along the Koyukuk, John, Anaktuvuk, and Colville Rivers and the Arctic coast to Cape Lisburne, in 1901: U.S. Geological Survey Professional Paper 20, p. 105.

Smith, P.S., and Mertie, J.B., Jr., 1930, Geology and mineral resources of northwestern Alaska: U.S. Geological Survey Bulletin 815, p. 343.

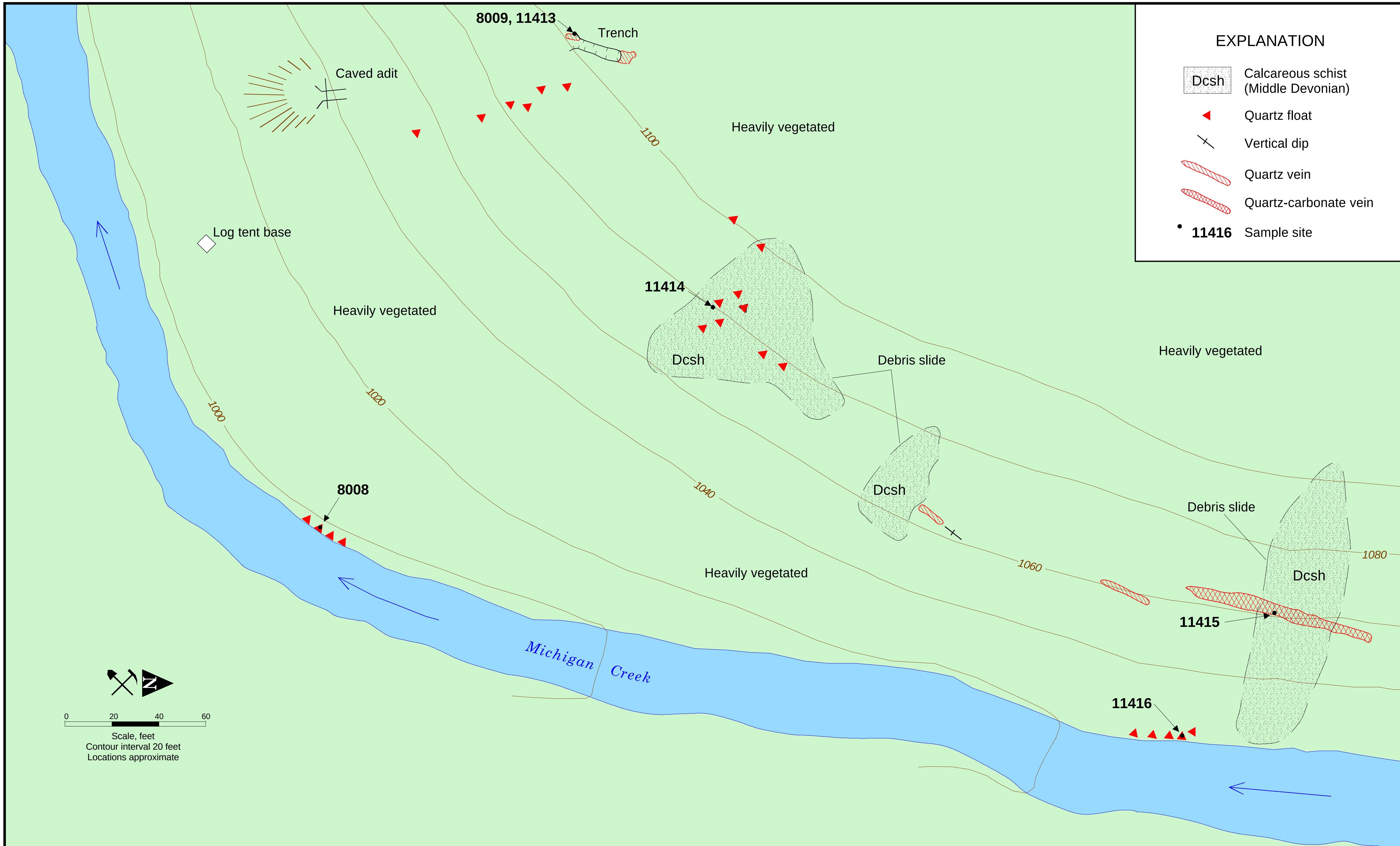


Figure I-5. Geology and sample location map of the Silver King Prospect.

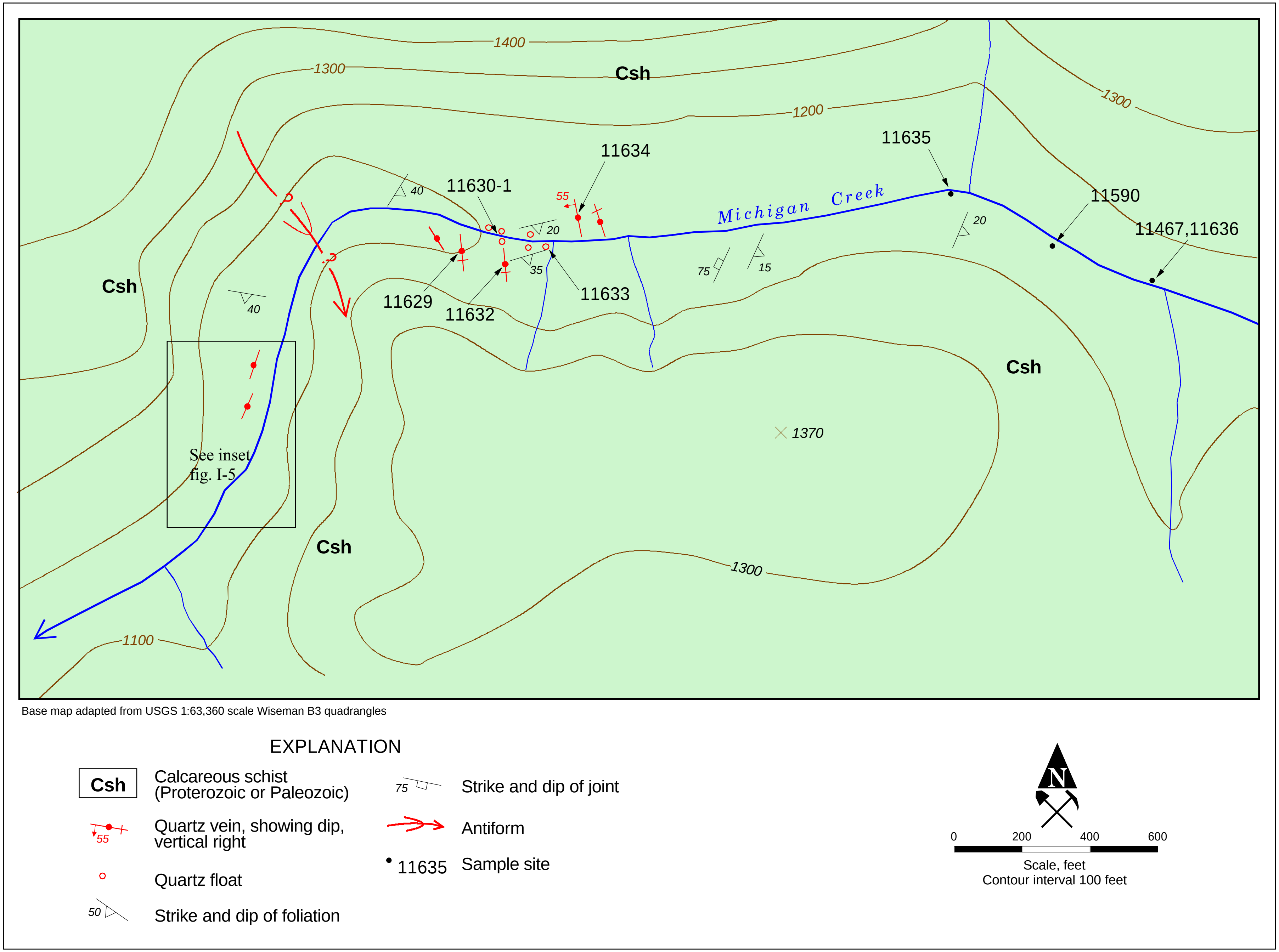


Figure I-6. Geology and sample location map of the Michigan Creek Gorge.

Property Summary

Name(s): Galena Creek

Map No: W46
MAS No: 0020300035

Deposit Type: Quartz veins

Commodities: Ag

Location:

Quadrangle: Wiseman B-3
SW¼ sec. 29, T. 29 N., R. 17 W.
Meridian: Fairbanks
Elevation: 1,100 feet
Latitude: 67° 18.282' N.
Longitude: 151° 22.418' W.
Geographic: A local name for an eastern tributary of Wild River, one mile north of Michigan Creek.

History:

1938 - Reed (1938) defined the area as favorable for lode prospecting.

Production: None.

Workings and Facilities: None observed.

Geologic Setting:

Bedrock on Galena Creek consists of northeast-trending Middle Devonian calcareous schist interbedded with quartz-mica schist and marble. The schist composition ranges from a calcareous schist to a chlorite-quartz schist. Quartz monzonite gneiss of the Wild River pluton occurs on the ridge north of the creek (Dillon and others, 1986).

Reed (1938) states that the creek has a very steep gradient which gives it the appearance of not being very favorable for prospecting. He further mentions that Galena Creek was named for a large piece of galena found there by prospectors.

Bureau Investigation:

Float in the stream bed of lower Galena Creek includes chlorite schist with numerous quartz veinlets, granitic gneiss, rusty quartz, and minor greenstone. One piece of quartz float with clots of galena, chalcopyrite, pyrrhotite, and minor arsenopyrite (10936, table I-1) contains 10.4 ppm silver, 1 ppb gold, and 1,545 ppm lead. A pan concentrate with abundant garnet collected nearby (10938) contains 11 ppb gold. A stream sediment sample (10937) contains 165 ppm zinc. BLM geologists traversed a portion of the ridge north of Galena Creek. Lenses of metamorphic quartz were observed, but none contained sulfides. A contact between granite gneiss and quartz-chlorite-muscovite schist was followed, but no sulfide-bearing rocks were found.

Resource Estimate: Unknown.

Mineral Development Potential: Lode potential unknown.

Recommendations: Prospect the ridge on the south side of Galena Creek for quartz veins.

References:

Dillon, J.T., Brosge, W.P., and Dutro, J.T., Jr., 1986, Generalized geologic map of the Wiseman quadrangle, Alaska: U.S. Geological Survey Open-File Report 86-219, 1 sheet, scale 1:250,000.

Reed, I.M., 1938, Upper Koyukuk region, Alaska: Alaska Territorial Department of Mines Miscellaneous Report 194-7, p. 138-139.

Property Summary

Name(s): Scofield Creek
EPI 1-6

Map No: W47
MAS No: 0020300102
Alaska Kardex 030-137

Deposit Type: Unknown lode

Commodities: Unknown

Location:

Quadrangle: Wiseman B-3
NE¼ sec. 21, T. 29 N., R. 17 W.
Meridian: Fairbanks
Elevation: 4,100 feet
Latitude: 67° 19.250' N.
Longitude: 151° 20.333' W.
Geographic: On Scofield Creek, an eastern tributary to Wild River.

History:

1975 - EPI 1-6 lode claims staked by Canevex Inc (Kardex).

Production: None.

Workings and Facilities: None observed.

Geologic Setting:

The main rock type underlying Scofield Creek consists of Middle Devonian calcareous schist interbedded with quartz-mica schist and marble. This unit grades downward into underlying chlorite schist, greenschist, and chloritic quartzite with thin beds of marble and dolomite. The chloritic schists are in turn underlain by Skajit Limestone. The Skajit is thrust over a basalt, andesite, and greenstone unit. The calcareous schist is in contact with gneissic granite. All contacts strike northeast (Brosge and Reiser, 1971).

According to Bliss and others (1988), replacement layers or veins of sphalerite and pyrite up to 8 cm thick are hosted in orange, coarse-grained dolomite layers within gray marble.

Bureau Investigation:

The reported site of the claim block was investigated by walking the ridge on the south side of Scofield creek. Lenses of metamorphic quartz were located, but they contain no sulfides. A contact between granite gneiss and quartz-chlorite-muscovite schist was followed, but no sulfide-bearing rocks were found. The mineral showings reported by Bliss and others (1988) were not located. Stream sediment and pan concentrate samples were collected near outcrops of muscovite schist where Scofield Creek exits mountainous terrain and flows into the Wild River valley. The pan concentrate (10789, table I-1) contains abundant magnetite, 127 ppm lead, and 12 ppb gold.

About one mile northeast of the EPI 1-6 claims site, Dillon and others (1981, p. 43, 89) report a gossan zone that is anomalous in lead, zinc, and arsenic. A sample of limonite-stained muscovite schist float collected in the vicinity by the BLM contains 129 ppm lead and 391 ppm arsenic (11466). A sample of quartz-muscovite schist with quartz veinlets, taken 0.5 mile south of the previous site (11625), contains 544 ppm zinc. Several samples were collected from the stream valley draining the east side of the ridge containing the sites mentioned above. A stream sediment sample (11618) contains 155 ppm zinc and a float sample of quartz-muscovite schist (11622) contains 707 ppm copper.

Resource Estimate: None.

Mineral Development Potential: Unknown.

Recommendations:

Explore slopes on south side of Scofield Creek to find the reported sulfides in marble. Walk length of drainage on east side of ridge where float samples are anomalous in copper.

References:

Bliss, J.D., Brosge, W.P., Dillon, J.T., Cathrall, J.B., and Dutro, J.T., Jr., 1988, Maps and descriptions of lode deposits, prospects, and occurrences in the Wiseman 1° by 3° quadrangle, Alaska: U. S. Geological Survey Open-file Report 88-293, p. 46.

Brosge, W.P., and Reiser, H.N., 1971, Preliminary geologic map, Wiseman, and eastern Survey Pass quadrangles, Alaska: U.S. Geological Survey Open-File Report 71-56, 1 sheet, scale 1:250,000.

Dillon, J.T., Moorman, M.A., and Lueck, L.L., 1981, Geochemical reconnaissance of the southwest Wiseman quadrangle: summary of data on rock samples: Alaska Division of Geological and Geophysical Surveys Open-File Report 133B, 164 p.

Nokleberg, W.J., Bundtzen, T.K., Berg, H.C., Brew, D.A., Grybeck, D., Robinson, M.S., Smith, T.E., and Yeend, W., 1987, Significant metalliferous lode deposits and placer districts in Alaska: U.S. Geological Survey Bulletin 1786, p. 44, 99.

Property Summary

Name(s): Pat Creek
Pat Creek Discovery
Pat Creek 1-7 Above

Map No: W48
MAS No: 0020300152
Alaska Kardex 030-176

Deposit Type: Placer

Commodities: Au

Location:
Quadrangle: Wiseman B-3 — sec. 30, T. 29 N., R. 16 W.
Meridian: Fairbanks — Elevation: 1,400 feet
Latitude: 67° 18.987' N. — Longitude: 151° 13.670' W.
Geographic: An eastern tributary to Michigan Creek, one mile above Fall Creek.

History:

1977 - G. Rivers staked claims (Kardex).

Production: None.

Workings and Facilities: None.

Geologic Setting:

Bedrock in Pat Creek mainly consists of calcareous schist interbedded with quartz-mica schist and marble (Brosge and Reiser, 1971). Float in lower Pat Creek consists of chlorite schist and marble.

Bureau Investigation:

A pan concentrate (11418) collected on lower Pat Creek contains abundant euhedral magnetite, but was not anomalous in gold (table I-1). No bedrock was located in the stream bottom.

Resource Estimate: None.

Mineral Development Potential:

Low potential for placer gold as samples were not anomalous in gold.

Recommendations: Find bedrock in the creek bed and sample by test panning.

References:

Brosge, W.P., and Reiser, H.N., 1971, Preliminary geologic map, Wiseman, and eastern Survey Pass quadrangles, Alaska: U.S. Geological Survey Open-File Report 71-56, 1 sheet, scale 1:250,000.

Dillon, J.T., Brosge, W.P., and Dutro, J.T., Jr., 1986, Generalized geologic map of the Wiseman quadrangle, Alaska: U.S. Geological Survey Open-File Report 86-219, 1 sheet, scale 1:250,000.

Property Summary

Name(s): East Creek
East Creek 1-16 Above
East Creek 1-7 Below
Maple Leaf Gold Claims

Map No: W49
MAS No: 0020300163
Alaska Kardex 30-160

Deposit Type: Placer

Commodities: Au

Location:
Quadrangle: Wiseman B-3
NE¼ sec. 9, T. 29 N., R. 16 W.
Meridian: Fairbanks
Elevation: 1,550 feet
Latitude: 67° 22.436' N.
Longitude: 151° 11.102' W.
Geographic: On East Creek, which drains Ipnek Mountain east of Michigan Creek.

History:

1938 - Reed (1938) described creeks in the area as promising for placer gold.

Production: Unknown.

Workings and Facilities: None found.

Geologic Setting:

The lower portion of East Creek lies just south and parallel to a contact between two units: Devonian(?) mica schist, quartz-mica schist, and quartzite to the south and Mesozoic or Paleozoic mafic greenschist to the north. The greenschist is in contact with Devonian Skajit Limestone near the creek mouth and has been correlated with rocks of the Ambler volcanic belt (Brosge and Reiser, 1971; Dillon and others, 1986).

Additional metavolcanic rocks in the drainage include Devonian Ambler metavolcanics, felsic metavolcanics, and metabasite. The mouth of East Creek also contains Devonian Skajit Limestone.

Bureau Investigation:

Test pans contained abundant euhedral magnetite, but no gold. A pan concentrate sample (10940, table I-1) was not anomalous in precious metals. Hornfels and calc-silicate rocks were found in the float on lower East Creek, which indicates that contact metamorphism has occurred in the area. This may be related to intrusion of metadiorites(?) also found in float. The hornfels contains disseminated pyrite and/or pyrrhotite. A select float sample (10942) is not anomalous in any metals.

Resource Estimate: Unknown.

Mineral Development Potential:

Low potential for placer gold and contact metamorphic deposits due to discouraging sample results.

Recommendations: Prospect East and Bourbon Creeks to find source of hornfelsed rocks.

References:

Brosge, W.P., and Reiser, H.N., 1971, Preliminary geologic map, Wiseman, and eastern Survey Pass quadrangles, Alaska: U.S. Geological Survey Open-File Report 71-56, 1 sheet, scale 1:250,000.

Dillon, J.T., Brosge, W.P., and Dutro, J.T., Jr., 1986, Generalized geologic map of the Wiseman quadrangle, Alaska: U.S. Geological Survey Open-File Report 86-219, 1 sheet, scale 1:250,000.

Reed, I.M., 1938, Upper Koyukuk region, Alaska: Alaska Territorial Department of Mines Miscellaneous Report 194-7, p. 141.

Property Summary

Name(s): Kay Creek

Map No: W50
MAS No: 0020300034

Deposit Type: Placer

Commodities: Au

Location:

Quadrangle: Wiseman B-3
S½ sec. 17, T. 30 N., R. 16 W.
Meridian: Fairbanks
Elevation: 1,600 feet
Latitude: 67° 23.146' N.
Longitude: 151° 11.249' W.
Geographic: Western tributary, 12 miles above mouth of Michigan Creek. The site is within Gates of the Arctic National Park.

History:

Early 1900s - Kay Creek was extensively prospected and some mining done (Reed, 1938).

Production: Unknown.

Workings and Facilities:

Remnants of a cabin are visible on the north side of creek, at an elevation of 1,850 feet. Test pits along the nearby stream are overgrown.

Geologic Setting:

Bedrock in Kay Creek is Middle or Upper Devonian(?) phyllite, dolomite, chloritic and calcareous metasandstone, and marble with carbonate-clast conglomerate (Dillon and others, 1986). Bedrock in the immediate area of the occurrence consists of chlorite schist.

Bureau Investigation:

Though Reed (1938) reported mining activity in the area, he did not actually visit Kay Creek. BLM geologists observed cabin remains from the air and then investigated the immediate area along the creek on foot. Upstream from the cabin site, the creek runs across chlorite schist bedrock. Stream float consists of chlorite schist with quartz segregations along with minor massive quartz and meta-intrusive rocks. A pan concentrate collected from natural bedrock riffles (12112, table I-1) contained 1 coarse gold flake and pyrite cubes.

Resource Estimate: None.

Mineral Development Potential:

Low to moderate potential for placer gold due to visible gold in test pans.

Recommendations: Prospect bedrock in the creek with a suction dredge.

References:

Bliss, J.D., Brosge, W.P., Dillon, J.T., Cathrall, J.B., and Dutro, J.T., Jr., 1988, Maps and descriptions of lode deposits, prospects, and occurrences in the Wiseman 1° by 3° quadrangle, Alaska: U. S. Geological Survey Open-file Report 88-293, 52 p.

Dillon, J.T., Brosge, W.P., and Dutro, J.T., Jr., 1986, Generalized geologic map of the Wiseman quadrangle, Alaska: U.S. Geological Survey Open-File Report 86-219, 1 sheet, scale 1:250,000.

Reed, I.M., 1938, Upper Koyukuk region, Alaska: Alaska Territorial Department of Mines Miscellaneous Report 194-7, p. 136-137.

Property Summary

Name(s): Rye Creek
Jay Creek
Lucky Creek
Kirkman Construction Inc.
Castle Creek Mines

Map No: W51
MAS No: 0020300033

Deposit Type: Placer

Commodities: Au, Cu, Pb, W, Re, Th, Ag

Location:

Quadrangle: Wiseman B-3
Meridian: Fairbanks
Latitude: 67° 24.247' N.
SW½ sec. 21, T. 30 N., R. 17 W.
Elevation: 1,600 feet
Longitude: 151° 20.259' W.
Geographic: An eastern tributary, 2.4 miles upstream from the mouth of Flat Creek. At 2.1 miles up Rye Creek is Jay Creek, a northern tributary. Upstream from Jay Creek, Rye Creek has been given the local name of Lucky Creek (Reed, 1938).

History:

1904 - Gold discovered on Jay Creek by Louis Rue (Reed, 1938).
1912 - Joe Matthews started mining and prospecting on Jay Creek (Reed, 1938).
1915 - Placer prospects found on Rye Creek (Reed, 1938).
1916 - Some new placers opened on Rye Creek, but value still undetermined (Reed, 1938).
1933-35 - Ben Sirr drift mined in deep channel on right limit, 1,200 feet below the mouth of Jay Creek; production was roughly 59 oz (Reed, 1938).
1935 - H. Leichman boomed out an opencut on claim no. 4 above discovery (Reed, 1938).
1936 - H. Leichman continued drift mining in deep channel (Reed, 1938).
1937 - Production to date from Rye Creek was roughly 1,976 oz (Reed, 1938).
Late 1960s - Fred Hall and Mick Manns placer mined (M. Manns, personal communication, 1998).
1980 - Northern Lights Mining acquired claims (B. Batty, personal communication, 1998).
1983-99 - Northern Lights Mining was active on Rye and Jay Creeks (B. Batty, personal communication, 1998).
1998 - Heavy spring runoff damaged access roads to workings (B. Batty, personal communication, 1998).
2000 - Little activity reported on creek (B. Batty, personal communication, 1998).

Production: (oz Au)

1938 - 17
1939 - 84
Total: 101 (Records incomplete.) Actual production could be as much as 3,537 oz.
Median gold fineness is 977 (Bliss and others, 1988).

Workings and Facilities:

There is an active camp and airstrip near the mouth of Rye Creek. In the early days, the present channel of Rye Creek was worked sporadically from where the creek forms a large alluvial fan upon entering the Flat Creek valley up to the mouth of Jay Creek. Drifting was reportedly done in the lower part of the creek and onto the alluvial fan (Reed, 1938). More recently, this area was mined extensively with mechanized equipment. There are the remains of several shafts and cabins in the Flat Creek valley, upstream from Rye Creek. The shafts are probably the result of attempts to reach bedrock in that area. The remains of a cabin and sluice boxes are situated 1.7 miles up Jay Creek, and the remains of another cabin and boom dam(?) are located on Rye Creek, 2.0 miles upstream from Jay Creek.

In 1998-1999 an excavator-sluice operation was working the present channel about three quarters of a mile up Jay Creek. At this point, the stream is only about 30 feet wide, which leaves little room to pile waste. The excavator was used to strip off 1 to 5 feet of overburden. Miners then used a metal detector to check the exposed bedrock for large nuggets prior to running the material through a wash plant. Nuggets weighing up to 2.7 oz have been found with this method. A dozer trail has been extended for at least another 1.7 miles up Jay Creek. Numerous test pits have been dug with an excavator along this section. Gold was reportedly not been found in paying quantities on Rye Creek, above the mouth of Jay Creek (Reed, 1938).

The average gradient from the mouth of Rye Creek to the mouth of Jay Creek is about 3.5%. The discharge of Rye creek at its mouth averages 1.2 miners inches (120 cubic feet/minute) (Reed, 1938).

Geologic Setting:

The lower portion of Rye Creek follows a faulted contact between Middle Devonian Skajit Limestone (marble) and Upper Devonian Hunt Fork Shale. What appears to be an erosional window cut by the upper portion of the creek exposes Middle Devonian chlorite, mica, and calcareous schist along with greenschist, and chloritic quartzite containing thin beds of marble (Brosge and Reiser, 1971).

Rye Creek has three levels of placer concentration, consisting of high, present, and deep. A 300-foot-length of the modern channel below the mouth of Jay Creek produced about 1,209 oz in the early days, making the value of the ground roughly 0.16 oz/ bedrock foot (Reed, 1938).

A high channel on the north side of the lower stream valley, at an elevation of 1,835 feet, has been explored by shafts and in the late 1990s by dozer cuts. The results were reported to be satisfactory. The overburden on the benches reportedly ranges from 12 to 20 feet. On the same side of the stream, at an elevation of 1,610 feet, a shaft was sunk 85 feet to bedrock in the deep channel. It is said that approximately 4.5 oz gold was taken from the bottom of this shaft (Reed, 1938).

A section of the deep channel was drift mined a short distance above where Rye Creek opens out into the valley of Flat Creek. A shaft sunk to 180 feet in the Flat Creek valley, upstream from Rye Creek, did not hit gravel or bedrock. A 50-foot portion of the shaft was reported to be in pure ice. A 350-foot drill hole sunk nearby encountered only frozen muck and ice (Reed, 1938).

Rye Creek gravel is very coarse and angular. Boulders are numerous, but not large. Miners indicate that the gold occurs mostly in small pockets, as opposed to continuous paystreaks (B. Batty, personal communication, 1998). These may be natural traps or "potholes" formed by undulations in the bedrock. It would seem that past hand mining concentrated on these shallow, high-grade pockets, and recent mechanized operations are working the areas with thicker overburden.

The gold seems to occur in three size distributions with average diameters of 4 cm, 1 cm, and 3 mm. A 7.5-oz nugget was reportedly recovered from lower Jay creek (B. Batty and M. Manns, personal communication, 1998). Miners showed BLM geologists a stibnite nugget reported to have come from

Jay Creek. Placer concentrates reportedly contain monazite, pyrite, chalcopyrite, galena, and scheelite (White, 1952).

Bureau Investigation:

Rye Creek and lower Jay Creek have been extensively mined. A sample of sluice concentrates (10782, table I-1) from the Jay Creek mining operation was not anomalous in thorium or tungsten as were the concentrates collected by White (1952). Test pans taken off bedrock in a trench in the high channel on the north side of Rye Creek, 0.75 mile below the junction with Jay Creek, contained no visible gold. A pan concentrate sample (10889) collected on Jay Creek, just above this junction and a short distance below an active mining operation, contains 182 ppb gold. Fine placer gold was panned off bedrock at a site on the creek, 0.7 mile upstream from Rye Creek. Test pans taken above this point did not contain gold and pan concentrate samples are not anomalous in gold.

Samples of greenschist (10850) and greenstone (10857) were collected in the Jay Creek drainage, but no significant anomalies were noted. A representative chip sample of a quartz vein with pyrite and chalcopyrite (10851) contains 21 ppb gold and 82 ppm arsenic. Pan concentrates collected near the headwaters of Jay Creek do not contain significant gold (10853-10854).

Fine gold was noted in a pan concentrate taken on upper Rye creek (local name Lucky Creek) just above the junction with Jay Creek (10887). This prompted an aerial reconnaissance of the upper part of the creek, which revealed the remains of at least one cabin on the northwest side of the stream about 2.0 miles above Jay Creek. The remains of what may have been a boom dam were located nearby. Test pans from the creek in this area did not contain gold. Neither did pan concentrates collected from southern tributaries between the cabin and Jay Creek.

Two pan concentrates collected from broken, slabby bedrock, 0.7 mile upstream from Jay Creek (12119, 12154) average 5,021 ppb gold. One of the samples contained a 0.02 oz piece of gold. BLM geologists investigated and took test pans from Rye Creek between this site and the mouth of Jay Creek. No more gold was noted, but pans contained abundant euhedral magnetite. The bedrock on much of this length of Rye Creek contains several large potholes. Float samples of calc-silicate rock and calcareous schist were collected along the creek. One sample (12527) contains 113 ppm copper. A sample of reddish-stained quartz float collected from the creek (12122) contains 54 ppm arsenic. None of the samples contain significant precious metal values.

BLM geologists also examined the ridges on the east and west sides of upper Rye Creek. A sample of greenschist (12116) contains 360 ppm copper and 308 ppm nickel. None of the other samples are anomalous.

Resource Estimate:

Resources of unknown size may exist on the benches and in the deep bedrock channels of lower Rye Creek. Unknown portions of this deep channel have been previously mined by drifting. Jay Creek appears to be mostly mined out in the spots where the creek is wide enough to allow the use of mechanized equipment. Gravel resources of unknown dimensions exist in bedrock potholes on upper Rye Creek.

Mineral Development Potential:

Moderate potential for placer gold on benches on the north side of Rye Creek and in the deep buried channel underlying it. There is also moderate potential for placer gold in potholes and bedrock fractures in the canyon of upper Rye Creek. Jay Creek has low potential for placer gold because the upper portion is very narrow and the potential resource would be small. A small-scale operation may still be able to recover small concentrations of gold in low spots in the bedrock. The results of minimal sampling by the BLM did not indicate potential for lode precious metal deposits in the Rye and Jay Creek basins.

Recommendations:

Test bedrock potholes on upper Rye Creek with a suction dredge. Perform seismic and/or ground penetrating radar surveys of the deep channel on Rye Creek to determine overburden thickness and channel configuration.

References:

Bliss, J.D., Brosge, W.P., Dillion, J.T., Cathrall, J.B., and Dutro, J.T., Jr., 1988, Maps and descriptions of lode and placer deposits, prospects, and occurrences in the Wiseman 1° by 3° Quadrangle, Alaska: U. S. Geological Survey Open-file Report 88-293, p. 11.

Brooks, A.H., and others, 1916, Mineral resources of Alaska, report on progress of investigations in 1916: U.S. Geological Survey Bulletin 662, p. 59.

Brosge, W.P., and Reiser, H.N., 1971, Preliminary geologic map, Wiseman, and eastern Survey Pass quadrangles, Alaska: U.S. Geological Survey Open-File Report 71-56, 1 sheet, scale 1:250,000.

Overstreet, W.C., 1967, The geologic occurrence monazite: U.S. Geological Survey Professional Paper 530, p. 110.

Reed, J.C., 1938, Upper Koyukuk region, Alaska: Alaska Territorial Department of Mines Miscellaneous Report 194-7, p. 132-134.

White, M.G., 1952, Radioactivity of selected rocks and placer concentrates from northeastern Alaska: U.S. Geological Survey Circulation 195, p. 8.

Property Summary

Name(s): Birch Creek

Map No: W52
MAS No: 0020300084
Alaska Kardex 030-054
Alaska Kardex 030-173

Deposit Type: Placer

Commodities: Au, Ag

Location:

Quadrangle: Wiseman B-3
SE¼ sec. 4, T. 30 N., R. 17 W.
Meridian: Fairbanks
Elevation: 1,375 feet
Latitude: 67° 26.797' N.
Longitude: 151° 19.676' W.
Geographic: An eastern tributary, 7 miles above the mouth of Flat Creek.

History:

1904 - Louis Rue discovered gold in Birch Creek and mined about $1,800 (98 oz) from the creek in 1905 (Reed, 1938).
1905-06 - About $10,000 (544 oz) of gold were mined from Birch Creek (Maddren, 1913).
1912 - Birch Creek abandoned when Joe Mathews and others begin prospecting and mining on Rye Creek (Reed, 1938).
1929-33 - Ben Sirr drift mined and sluiced on Birch Creek (Reed, 1938).
1987-present - Mining done by Mick Manns who holds about 160 placer and lode claims in the area. His most recent activity consists of an operation that caters to recreational miners (M. Manns, personal communication, 1998).

Production: (oz Au)

1905-06 - 642
1915 - 30
1916 - 98
1925 - 494
1926 - 140
1932 - 36
Total: 1,440 (Records incomplete.)

Gold fineness: 889 (Metz and Hawkins, 1981)

Workings and Facilities:

A camp and airstrip are located on the alluvial fan near the mouth of Birch Creek. Mining methods have included shaft, drift, and sluice operations. Evidence of this activity has been mostly obscured by more recent operations. Tailings piles on the pronounced alluvial fan indicate that shafts were sunk (to unknown depths) and drift mining was attempted. Nothing is known about the results (Reed, 1938).

Mechanized mining took place on the lower 1.5 miles of Birch creek. Above that point only hand mining has been done. Recent activity has concentrated near Rue Creek, a northern tributary 1.3 miles above the mouth of Birch Creek. The overburden was stripped, and the lower few feet of gravel plus up to two feet of bedrock were mined. Boulders up to six feet in diameter litter the stream valley. A 15-foot-high waterfall is located at about 1.8 miles upstream. Here the canyon narrows to about 30 feet and is mostly bedrock.

Recreational mining efforts are concentrated on Birch in the vicinity of Rue Creek. A dozer strips the overlying gravel, and paying customers, using mostly metal detectors, search the bedrock surface for nuggets.

Geologic Setting:

The valley of Birch Creek closely parallels a faulted contact between Upper Devonian Hunt Fork Shale and Middle Devonian chlorite schist, gray mica schist, and chloritic quartzite with thin beds of marble and dolomite (Brosge and Reiser, 1971). Bedrock in the lower two miles of the creek consists of dark gray chlorite schist with quartz veinlets that both parallel and crosscut schistosity. Depth to bedrock is reportedly from 0-20 feet. Active stream and bench placers have been mined, and nuggets weighing up to 10.8 oz have been recovered (M. Manns, personal communication, 1998). The gold is concentrated mostly on bedrock, though it occasionally occurs in gravel lenses above. At about 1.8 miles upstream from the mouth of Birch Creek, the stream valley narrows to about 30 feet, is cut in bedrock, and has a steep gradient. Bedrock in the creek bottom is a gray chlorite schist with some small crosscutting quartz veinlets. Magnetite-bearing greenschist occurs on the ridge south of Birch Creek.

Bureau Investigation:

Very fine gold colors were panned from bedrock 1.5 miles upstream from the mouth of Birch Creek. A pan concentrate (10860, table I-1) contains 262.98 ppm gold, and included two coarse flakes. Traverses were made of the ridges north and south of Birch Creek. A sample of limonite-stained quartz-mica schist from the north ridge (10909) contains 1,767 ppm arsenic, 294 ppm lead, and 35 ppb gold. Magnetite-bearing greenschist on the south ridge (10907) was sampled, but it is not anomalous in base or precious metals.

Resource Estimate:

The best placer gold values on Birch Creek seem to be concentrated in the area of Rue Creek where bedrock is from 4 to 12 feet deep. Much of this resource appears to have been mined out.

Mineral Development Potential:

Moderate potential for placer gold in the vicinity of Birch and Rue Creeks. Low potential for lode deposits in the Birch Creek basin.

Recommendations:

Conduct seismic and/or ground penetrating radar surveys, which could be used to determine overburden thickness and deep channel configuration.

References:

Bliss, J.D., Brosge, W.P., Dillon, J.T., Cathrall, J.B., and Dutro, J.T., Jr., 1988, Maps and descriptions of lode deposits, prospects, and occurrences in the Wiseman 1º by 3º Quadrangle, Alaska: U. S. Geological Survey Open-file Report 88-293, p. 9-10, plus two plates.

Brooks, A.H., and others, 1916, Mineral resources of Alaska, report on progress of investigations in 1916: U.S. Geological Survey Bulletin 662, p. 59.

Brosge, W.P., and Reiser, H.N., 1971, Preliminary geologic map, Wiseman, and eastern Survey Pass quadrangles, Alaska: U.S. Geological Survey Open-File Report 71-56, 1 sheet, scale 1:250,000.

Brooks, A.H., and G.C. Martin, 1921, The Alaska mining industry in 1919, *in* Mineral resources of Alaska, report on progress of investigations in 1919: U.S. Geological Survey Bulletin 714, p. 90.

Maddren, A.G., 1910, The Koyukuk-Chandalar gold region *in* Brooks, A.E., Mineral resources of Alaska, report on progress of investigations in 1909: U.S. Geological Survey Bulletin 442, p. 292-293.

____1913, The Koyukuk-Chandalar region, Alaska: U.S. Geological Survey Bulletin 532, p. 109.

Metz, P.A., and Hawkins, D.B., 1981, A summary of gold fineness values from Alaska placer deposits: Mineral Industry Research Laboratory, University of Alaska, Report 45, p. 36-37.

Reed, I.M., 1938, Upper Koyukuk region, Alaska: Alaska Territorial Department of Mines Miscellaneous Report 194-7, p. 131-132.

Property Summary

Name(s): Agnes Creek

Map No: W53
MAS No: 0020300138
Alaska Kardex 030-174

Deposit Type: Placer

Commodities: Au

Location:

Quadrangle: Wiseman B-3 — NW¼ sec. 26, T. 31 N., R. 17 W.
Meridian: Fairbanks — Elevation: 1,800 feet
Latitude: 67° 29.300' N. — Longitude: 151° 16.870' W.
Geographic: An eastern tributary of Flat Creek, 3 miles north of Birch Creek.

History:

1900s - Reed (1938) reported that prospecting and mining was conducted in the early days.
1970s-present - Claims owned intermittently by Paradise Valley Inc. (M. Manns, personal communication, 1998).

Production: Unknown.

Workings and Facilities:

A cabin is located on the north side of the creek, about 1.5 miles above the confluence with Flat Creek. No tailings piles or mining equipment were observed.

Geologic Setting:

Bedrock at Agnes Creek is primarily composed of Devonian slate, phyllite, and limestone of the Hunt Fork Shale Formation. Several north-northeast-trending thrust faults are mapped in the area (Dillon and others, 1986).

Bureau Investigation:

Much of Agnes Creek flows over graphitic schist bedrock with euhedral pyrite crystals (up to 0.5 cm). Reconnaissance stream sediment and pan concentrate samples were collected on Agnes Creek (10922-10923, table I-1) and a principal tributary (10925-10926). The pan samples contained abundant pyrite, but no visible gold. A representative chip sample of the graphitic schist (10924) was also collected. No anomalies were noted in any of the samples.

Resource Estimate: None.

Mineral Development Potential:

Low development potential due to lack of anomalous sample results.

Recommendations: None.

References:

Bliss, J.D., Brosge, W.P., Dillon, J.T., Cathrall, J.B., and Dutro, J.T., Jr., 1988, Maps and descriptions of lode deposits, prospects, and occurrences in the Wiseman 1^{o} by 3^{o} Quadrangle, Alaska: U. S. Geological Survey Open-file Report 88-293, p. 8-9, plus two plates.

Cobb, E.H., 1976, Summary of references to mineral occurrences (other than mineral fuels and construction materials) in the Chandalar and Wiseman quadrangles, Alaska: U.S. Geological Survey Open-File Report 76-340, p. 84.

Dillon, J.T., Brosge, W.P., and Dutro, J.T., Jr., 1986, Generalized geologic map of the Wiseman quadrangle, Alaska: U.S. Geological Survey Open-File Report 86-219, 1 sheet, scale 1:250,000.

Reed, I.M., 1938, Upper Koyukuk region, Alaska: Alaska Territorial Department of Mines Miscellaneous Report 194-7, p. 130.

Property Summary

Name(s): Oregon Creek

Map No: W54
MAS No: 0020300031

Deposit Type: Placer

Commodities: Au

Location:

Quadrangle: Wiseman B-3
SE¼ sec. 30, T. 31 N., R. 17 W.
Meridian: Fairbanks
Elevation: 1,900 feet
Latitude: 67° 28.964' N.
Longitude: 151° 25.542' W.
Geographic: Local name for a 2.5-mile-long, southeast-flowing tributary of Flat Creek. Its mouth is about 1.5 miles north of the confluence of Birch and Flat Creeks.

History:

1900s - Reed (1938) reported good prospects on Oregon Creek, but no mining has occurred.
1970s-present - Claims owned intermittently by Paradise Valley Inc. (M. Manns, personal communication, 1998)

Production: None.

Workings and Facilities: None observed.

Geologic Setting:

The bedrock in upper Oregon Creek is Middle(?) Devonian siliceous clastic rocks, which include partly calcareous, chloritic siliceous metasiltstone, sandstone, grit and conglomerate, and felsic volcaniclastic rocks. A southeast-trending thrust(?) fault is mapped in the lower creek. Upper Devonian Hunt Fork Shale mapped downstream of the fault (Dillon and others, 1986).

Bureau Investigation:

The upper 1.5 miles of Oregon Creek were investigated. In this area, the creek flows over quartz-mica schist bedrock. Stream sediment and pan concentrate samples were collected at Oregon Creek (10929-10930, table I-1) and a tributary (10927-10928). The pan samples were collected from bedrock, but did not contain visible gold. The samples from Oregon Creek proper are slightly anomalous in gold: the sediment sample contains 160 ppb and the pan sample contains 134 ppb.

Resource Estimate: None.

Mineral Development Potential:

Low mineral development potential due to lack of visible gold in pans.

Recommendations: None.

References:

Cobb, E.H., 1972, Metallic mineral resources map of the Wiseman quadrangle, Alaska: U.S. Geological Survey Miscellaneous Field Studies Map MF-469, 1 sheet, scale 1:250,000.

____1976, Summary of references to mineral occurrences (other than mineral fuels and construction materials) in the Chandalar and Wiseman quadrangles, Alaska: U.S. Geological Survey Open-File Report 76-340, p. 144.

Dillon, J.T., Brosge, W.P., and Dutro, J.T., Jr., 1986, Generalized geologic map of the Wiseman quadrangle, Alaska: U.S. Geological Survey Open-File Report 86-219, 1 sheet, scale 1:250,000.

Reed, I.M., 1938, Upper Koyukuk region, Alaska: Alaska Territorial Department of Mines Miscellaneous Report 194-7, p. 131.

Property Summary

Name(s): Mathews Dome

Map No: W55
MAS No: 0020300156

Deposit Type: Polymetallic vein

Commodities: Cu

Location:
Quadrangle: Wiseman B-3
NW¼ sec. 36, T. 31 N., R. 18 W.
Meridian: Fairbanks
Elevation: 4,100 feet
Latitude: 67° 28.286' N.
Longitude: 151° 28.845' W.
Geographic: Located east of Wild Lake and along the northern ridge of Mathews Dome.

History:

1969 - Copper mineralization was noted in quartz vein and schist samples at Matthews Dome (Chipp, 1972).

Production: None.

Workings and Facilities: None.

Geologic Setting:

The bedrock on Matthews Dome is predominantly Devonian quartz-chlorite-muscovite-albite schist, with lesser amounts of calcareous schist and lenticular limestone and dolomite. A northwest-trending fault was mapped on the northern ridge. In the same area, select samples of vein quartz and schist contain up to 2.1% copper (Chipp, 1972).

Bureau Investigation:

A 3-foot-long continuous chip sample of calcareous schist, collected immediately north of Matthews Dome along a schistose razorback ridge (11017, table I-1), contains 8,631 ppm copper. A 6-inch-wide, crosscutting quartz vein at the same location (11016) contains 4,003 ppm copper. The quartz vein strikes N. 85° W. with a vertical dip. Both the quartz vein and calcareous schist are overlain by a green chlorite schist (greenschist) that has sparse tetrahedrite, bornite(?), and malachite. The copper mineralization along the ridge has extremely limited, discontinuous exposure (approximately a quarter of a mile or less).

There are several reported occurrences of copper in the Wild Lake area (Brosge and Reiser, 1960; Chipp, 1972). In most cases, minor amounts of copper minerals (chalcopyrite, tetrahedrite, and/or malachite) are found in (1) discontinuous quartz veins crosscutting the schist host or (2) within schist underlying marble or limestone. The copper mineralization is usually less than 10 feet along strike of the fault or vein.

Resource Estimate: None.

Mineral Development Potential:

Low mineral development potential for polymetallic veins due to lack of precious metals.

Recommendations: None.

References:

Chipp, E.R., 1972, Analyses of rock and stream sediment samples, Wild Lake area, Wiseman quadrangle, Arctic Alaska: Alaska Division of Geological and Geophysical Surveys Geochemical Report 25, 2 sheets, scale 1:48,000.

Dillon, J.T., Brosge, W.P., and Dutro, J.T., Jr., 1986, Generalized geologic map of the Wiseman quadrangle, Alaska: U.S. Geological Survey Open-File Report 86-219, 1 sheet, scale 1:250,000.

Property Summary

Name(s): Sentinel Rock

Map No: W56
MAS No: 0020300168

Deposit Type: Metavolcanic(?)

Commodities: Au

Location:

Quadrangle: Wiseman B-4
NE¼ sec. 4, T. 30 N., R. 18 W.
Meridian: Fairbanks
Elevation: 1,250 feet
Latitude: 67° 27.367' N.
Longitude: 151° 34.560' W.
Geographic: Sentinel Rock is at the southeastern end of Wild Lake.

History:

1969 - E.R. Chipp (1972) mapped geology and collected geochemical samples in Wild Lake area.

Production: None.

Workings and Facilities: None.

Geologic Setting:

Sentinel Rock is a prominent east-west-trending thrust fault. Mesozoic or Paleozoic greenschist sills and dikes underlie Devonian Skajit Limestone. The greenschist is dark green with chlorite, albite, calcite, and biotite and locally abundant magnetite. The unit may represent a metatuff or metavolcanic (Chipp, 1972).

Bureau Investigation:

The suspected metavolcanic greenschist at Sentinel Rock was specifically targeted for investigation. Two samples of chlorite schist (11614, 12084, table I-1) and one of Skajit Limestone (11615) were collected. Two of the samples (11614-11615) contained fine-grained disseminated magnetite; however, the assay results are not anomalous in precious metals.

Samples were collected on creeks that drain the north (10910-10911, 12082-12083) and south sides (12063-12065) of Sentinel Rock. Two out of three pan concentrate samples collected from the northern creek (10911, 12082) are very anomalous in gold, averaging 6.14 ppm gold. No gold was seen in any of the pans collected at the site. The creek is ephemeral and does not cut bedrock.

Resource Estimate: None.

Mineral Development Potential:

Low mineral development potential for lode gold. No gold was detected in rocks collected at the site. Although assay results from pan concentrate samples on the northern creek contained gold, the creek does not contain water throughout the summer and does not cut bedrock. The placer gold potential for the creek is also low.

Recommendations:

The gold anomalies in pan samples remain unexplained: more pan concentrate samples from the creek and more rock samples of the greenschist are needed.

References:

Chipp, E.R., 1972, Analyses of rock and stream sediment samples, Wild Lake area, Wiseman quadrangle, Arctic Alaska: Alaska Division of Geological and Geophysical Surveys Geochemical Report 25, 2 sheets, scale 1:48,000.

Dillon, J.T., Brosge, W.P., and Dutro, J.T., Jr., 1986, Generalized geologic map of the Wiseman quadrangle, Alaska: U.S. Geological Survey Open-File Report 86-219, 1 sheet, scale 1:250,000.

Property Summary

Name(s): Lake Creek - Wild Lake
Eureka claim
Bonnie nos. 1-11 claims
Wally's one claim

Map No: W57
MAS No: 20300086
Alaska Kardex 030-003
Alaska Kardex 030-037
Alaska Kardex 030-094
Alaska Kardex 030-095
Alaska Kardex 030-172
Alaska Kardex 030-184
ADL 302619-302622

Deposit Type: Placer

Commodities: Au, Ag
Minor W, Bi, Cu, Sb, As

Location:
Quadrangle: Wiseman B-4
NE¼ sec. 33, T. 31 N., R. 18 W.
Meridian: Fairbanks
Elevation: 1,800 feet
Latitude: 67° 28.550' N.
Longitude: 151° 34.017' W.
Geographic: A 3-mile-long eastern tributary, 0.7 mile north of the Wild Lake outlet.

History:

1903-04 - Gold was discovered on Lake Creek by Emil Holmgren. About $2,000 (105 oz) mined from claim on headwater gulch. Gold was course with some nuggets that range from $90 (4.4 oz) to $150 (7.3 oz) (Reed, 1938).

1905-08 - Holmgren produced about $14,000 (677 oz) gold.

1913 - Lars and Jensen drift mined about one mile from the mouth of the creek. Depth to bedrock is 60 feet. About $1,000 (48 oz) were produced (Reed, 1938).

1916 - John Butrovich, Fred Merrill, Jim Chepot, and a man named White, produced about $900 (44 oz) from the lower discovery claim (Reed, 1938).

1917-18 - Jim O'Brien, Joe Healy, and Charles Dennison boomed out a 15- by 250-foot opencut. Said to have taken out about $7,000 (339 oz) (Reed, 1938).

1919-20 - Fred Swift and Frank Smith drift mined in a small area on creek, producing about 25 oz (Reed, 1938).

1925 - Swift and Smith continued drift mining same area. Including this year, produced about $511 (25 oz) (Reed, 1938).

1932 - Flooding in mid season swept away sluice boxes and other equipment (Reed, 1938).

1933 - Frank Smith attempted to put a shaft down, but was drowned out (Reed, 1938).

1936-37 - James Murphy sank a 9-foot shaft 10,160 feet from the lake and 30 feet north of the creek. Good prospects reportedly found (Reed, 1938).

1938 - Mining reported on Lake Creek (Reed, 1938).

1980-82 - Wallace Gordon (Brexco) began mining on Lake creek. Sank shafts along north channel of creek (W. Gordon, personal communication, 1994).

1994 - Gordon mined in narrows at upper end of alluvial fan. Reportedly found gold in old channel covered by colluvium (W. Gordon, personal communication, 1994).

1995 - A 22-oz nugget found by Gordon (W. Gordon, personal communication, 1994).

1996 - Gordon leaves and Brexco partners took over mining operation. A 24.25-oz nugget was found (H. Shoenke, personal communication, 1999)

1997-98 - No mining activity reported.

1999-2001 - Mining done by DCE/Geosearch Inc. of Anchorage, Alaska (D. Cloyd and R. Blakestad, personal communications, 2001).

Production: (oz Au)

1903-04 -	105
1905 -	677
1913 -	48
1916 -	44
1917-18 -	339
1925 -	25
1931 -	57
1932 -	74
1934 -	68
1948 -	61
1955 -	1,126
1994 -	?
1995 -	22
1996 -	278
1999 -	349
2000 -	65
2001 -	600

Total: 3,938 oz (Records incomplete).

Extensive workings indicate that total could be much higher. Average fineness: 920 (Metz and Hawkins, 1981).

Workings and Facilities:

Indications of placer mining, including boom dams, cabin remains, and stacked rocks, are concentrated in two areas along Lake Creek: the alluvial fan and adjacent central basin extending from the lake shore 0.6 miles up to the canyon narrows and a 0.5-mile-length on the north fork running upstream above the 2,000-foot level. The upper canyon was mined mostly with hand methods. The old workings are about 12 feet wide. The lower portion was mined by ground sluicing and drifting and most recently with mechanized equipment. Gravel underlying the alluvial fan is locally thawed. The average stream gradient is about 11.3 % (Reed, 1938).

Beginning in 1999, a large track-mounted wash plant, along with a dozer and excavator, were used for mining in the south channel near the upper end of the alluvial fan. The plant could process 70-80 cy of gravel per hour. A modern camp and short airstrip are located near the lake.

Geologic Setting:

Bedrock exposures are poor along the canyon of Lake Creek due to extensive tundra cover. However, bedrock is exposed periodically along the creek bottom. According to Chipp (1972), the upper portion of the Lake Creek drainage is underlain by early Upper Devonian(?) quartz-chlorite-muscovite-albite schist and rare calcareous schist; phyllite contains sericite-quartz-chlorite to sericite-chlorite-calcite-quartz. The portion below the forks consists of quartz-chlorite-sericite schist. Phyllite beds included in this unit contain quartz, chlorite, sericite, and local magnetite. Minor areas of dolomitic and pyritic calcareous schist and quartz-chloritoid-muscovite-chlorite schist occur. The ridge north of the creek contains a unit composed of carbonaceous-quartz-muscovite-chlorite-calcite schist to phyllite with elongate nodules of limestone and schist that measure up to five inches. A northeast-trending fault roughly parallels the north fork of the creek. Lenticular beds of thickly bedded limestone and dolomite occur just west of Mathews Dome.

Reed (1938) reported the north fork is underlain by quartz-stringer-bearing reddish schist, micaceous schist, and graphitic schist. He mentioned a 300-foot-wide greenstone schist dike that crosses the creek about 200 feet above the old placer workings, 2 miles upstream from the lake.

The lower 0.3 mile of Lake Creek runs across an alluvial fan which appears to lie on a bedrock shelf extending into Wild Lake. The fan is crossed by two stream channels: a natural southern and an artificial, northern channel created by ground sluicing. Near the head of the alluvial fan, the two channels are separated by a bedrock knob. Above this point they coalesce into one channel. The north channel was apparently created to uncover a buried, pre-glacial channel. When exposed this channel was reported to be filled with blue glacial clay containing bright unoxidized pyrite cubes (Blakestad, 2000). Values in this channel were found to be about $1.86(0.10 oz)/bedrock foot (Reed, 1938). A shaft sunk through the alluvial fan near the mouth of the north channel, hit bedrock at 39 feet. The total length, including drifting, was 92 feet. Gold is reported to have been found in it at this point (Gordon, 1984). A series of shafts were sunk at the head of the fan, reaching bedrock at depths from 60 to 95 feet.

Above the alluvial fan, the creek runs through a 0.24-mile-long intermontane basin up to 150 feet wide. Depth to bedrock along this stretch is reportedly about 15 feet and recent mining activity has concentrated here (Blakestad, 2000). At the upper end of the basin, an old stream channel was found buried under slide material on the right limit. This channel was uncovered and reportedly mined with success (W. Gordon, personal communication, 1994). For 0.3 mile above the basin, the stream is confined to a narrow canyon 10 to 20 feet wide with intermittent bedrock exposures. The creek forks at one mile above the lake. The north fork has been extensively mined, mostly by hand methods, including booming. Gold-bearing gravel on this fork, at a point 1.8 miles above the lake, was reported to pay $2.50(0.13 oz)/bedrock foot. The gravel is coarse and waterworn with many large boulders. The gold was also reported to be coarse and waterworn with a second run of very fine flour gold (Reed, 1938). Blakestad (2000) stated that gold nuggets weighing up to 24.25 oz have been recovered from the creek.

Three depositional environments on Lake Creek are reported to have potential to contain economic concentrations of placer gold: (1) modern stream deposits in the narrow canyon portions of the creek, (2) alluvial sediments in a central basin below the canyon, but above the alluvial fan, and (3) the alluvial fan which makes up a thick wedge of coarse sediments between the central basin and the lake. Blakestad (2000) indicated that the highest gold values are contained within a 14- to 25-foot-thick drab gray conglomerate unit, especially in the lowest section near the underlying bedrock. Bench gravels reportedly occur on the north and south sides of the central basin. A third, or bench, channel with 12 to

15 feet of cover is thought to exist on the south side of the creek, near the head of the alluvial fan (Blakestad, 2000).

DCE Inc. excavated a series of pits to test the various placer environments at Lake Creek for placer gold. The testing resulted in the discovery of a subsurface ridge that separates the north and south channels. This ridge may be an easterly extension of the bedrock knob exposed near the head of the fan. The bottom of the north channel was not reached. The south channel is better defined and appears to be associated with ore-grade concentrations of placer gold. Recent mining has focused on the south channel between the canyon narrows and the alluvial fan. Mining in 2000 resulted in an overall grade of 0.006 oz raw gold per bedrock foot. In 2001 mining again focused on the south channel, which was followed upstream. Depth to bedrock ranges from 16 to 24 feet (Blakestad, 2000).

Smith and Mertie (1930) reported that concentrates from Lake Creek showed a considerable amount of scheelite. They believed that the gold in the quartz veins had been derived from the nearby schist, but that the origin of the veins was unknown because no granitic igneous rocks have been recognized in the area. Joesting (1943) reported that the placer concentrates from Lake Creek contained pieces of stibnite, native bismuth, native copper, and scheelite.

Bureau Investigation:

BLM geologists examined both the north and south (Murphy's) fork of Lake Creek and the ridges on the east and north sides of the drainage basin. As with Spring Creek (map no. W59) to the north, it appears that placer gold is concentrated in low spots along the undulating bedrock surface in the creek bed. Pan concentrate samples collected along 1.3 miles of the north fork are anomalous: the highest contains 3,043 ppb gold (10514, table I-1). However, no gold was observed in any of the pans. Very fine gold was noted in test pans taken off bedrock where the creek narrows above the central basin (12080). A pan concentrate sample (10524) from the south fork of Lake Creek is weakly anomalous in gold. Two rock samples (12103, 12104) were collected from what Reed describes as a greenstone schist dike. The results are not considered significant. Exposures of greenschist on Mathews Dome were also examined (map no. W55).

Numerous quartz lenses and veinlets that cut the schist on Lake Creek, appear to be of three types: (1) lenses of metamorphic quartz that lie parallel to cleavage, (2) narrow quartz veinlets that run parallel to schistosity, (3) quartz-carbonate veinlets that crosscut the other two types. Samples from quartz veins in the Lake Creek basin contain up to 8,631 ppm copper (11017) and 62 ppb gold (11016). A black, metallic mineral associated malachite stain in the quartz may be tetrahedrite. The first type are lenticular, discontinuous, and probably metamorphic in origin. Blakestad (2000) reported that disseminated galena occurs in at least one quartz vein exposed in a placer cut below the canyon.

Samples of placer concentrates from mining on the lower creek (8055, 10762, 11627-11628) contain up to 976 ppm tungsten, 4,400 ppm bismuth, 1,750 ppm arsenic, and 249 ppm antimony. In addition, miners showed BLM geologists bismuthinite nuggets reported to have come from Lake Creek placer concentrates. A placer concentrate sample submitted by H. Shoenke (10781) contains 5.9 ppm platinum. Sluice concentrates collected by the BLM at the mine site are not anomalous in platinum.

Resource Estimate:

Indicated resource in the central basin portion of the creek: 10,087 cy at 0.084 oz/cy (Blakestad, 2000).

Mineral Development Potential:

Moderate potential for placer gold in the central basin portion of Lake Creek between the alluvial fan and the canyon narrows. The north channel has not been fully evaluated. Previous drift mining indicates that bedrock in the north channel is up to 90 feet deep. The thawed nature of the gravel in the fan and channel may make mining difficult. The bench deposits to the south of the central basin have yet to be evaluated. The upper portions of Lake Creek appear to have been mostly mined out. Some resources may still exist on bedrock rims covered by colluvium.

The Lake Creek basin has yet to be fully evaluated as a potential source of lode gold. The abundance of fine gold on the north fork of Lake Creek, the presence of bismuthinite and scheelite in placer concentrates, and igneous rocks in the area all indicate the possibility of a plutonic source for the gold. Blakestad (2000) suggests that a northeast-trending structure on the north flank of the Lake Creek basin may host the roots of a quartz vein system that is a possible source of the gold in the placers downstream.

Recommendations:

Blakestad (2000) recommends a reverse-circulation drilling program on the benches south of the alluvial fan and in the lower canyon area at the head of the alluvial fan in Lake Creek. Lode sources should be further investigated with a detailed geochemical sampling program in the Lake Creek, Spring Creek, and Surprise Creek basins. This includes pan concentrates and soil samples as stream silt samples alone do not indicate the presence of gold. Old stream meanders covered by colluvium in the canyon narrows should be investigated. However, excessive overburden thickness may make mining uneconomic.

References:

Blakestad, J.D., 2000, Lake Creek gold placer operations, unpublished report prepared for DCE Inc., 26 p.

Bliss, J.D., Brosge, W.P., Dillion, J.T., Cathrall, J.B., and Dutro, J.T., Jr., 1988, Maps and descriptions of lode deposits, prospects, and occurrences in the Wiseman 1° by 3° Quadrangle, Alaska: U. S. Geological Survey Open-file Report 88-293, p. 7-8.

Chipp, E.R., 1972, Analyses of rock and stream sediment samples, Wild Lake area, Wiseman quadrangle, Arctic Alaska: Alaska Division of Geological and Geophysical Surveys Geochemical Report 25, 2 sheets, scale 1:48,000.

Cobb, E.H., 1981, Summary of data on and lists of references to metallic and selected nonmetallic mineral occurrences in the Wiseman quadrangle, Alaska, supplement to Open-File Report 76-340: U.S. Geological Survey Open-File Report 81-732B, p. B9.

Gordon, Wallace, 1984, Drift mining in Alaska: Alaskan Prospectors and Miner's News, Spring Edition, p. 8.

Joesting, H.R., 1942, Strategic mineral occurrences in interior Alaska: Alaska Department of Mines Pamphlet no. 1, p. 39.

____1943, Supplement to Pamphlet No. 1-Strategic mineral occurrences in interior Alaska: Alaska Department of Mines Pamphlet no. 2, p. 17, 20.

Maddren, A.G., 1910, The Koyukuk-Chandalar gold region *in* Brooks, A.E., Mineral resources of Alaska, report on progress of investigations in 1909: U.S. Geological Survey Bulletin 442, p. 292, 314.

____1913, The Koyukuk-Chandalar region, Alaska: U.S. Geological Survey Bulletin 532, p. 70, 109.

Metz, P.A., and Hawkins, D.B., 1981, A summary of gold fineness values from Alaska placer deposits: Mineral Industry Research Laboratory, University of Alaska, Report 45, p. 18, 36.

Reed, I.M., 1938, Upper Koyukuk region, Alaska: Alaska Territorial Department of Mines Miscellaneous Report 194-7, p. 123-126.

Smith, P.S., 1934, Mineral resources of Alaska, report on progress of investigations in 1932: U.S. Geological Survey Bulletin 857A, p. 36

____1936, Mineral industry of Alaska in 1934, *in* Mineral resources of Alaska, report on progress of investigations in 1934: U.S. Geological Survey Bulletin 868A, p. 42.

____1939, Mineral resources of Alaska, report on progress of investigations in 1938: U.S. Geological Survey Bulletin 917A, p. 55

Thorne, R.L., Muir, N.M., Erickson, A.W., Thomas, B.I., Heide, H.E., and Wright, W.S., 1948, Tungsten deposits in Alaska: U.S. Bureau of Mines Report of Investigation 4174, p. 28.

Property Summary

Name(s): Wild Lake

Map No: W58
MAS No: 0020300012

Deposit Type: Polymetallic veins

Commodities: Cu

Location:
Quadrangle: Wiseman B-4
SE¼ sec. 22, T. 31 N., R. 18 W.
Meridian: Fairbanks
Elevation: 3,100 feet
Latitude: 67° 29.274' N.
Longitude: 151° 32.382' W.
Geographic: Located east of Wild Lake, on a ridge between Spring and Lake Creeks.

History:

1960 - Brosge and Reiser (1960) reported copper anomaly between Spring and Lake Creeks.

1969 - E.R. Chipp (1972) mapped geology and collected geochemical samples in Wild Lake area.

Production: None.

Workings and Facilities: There are placer gold workings on Spring and Lake Creeks.

Geologic Setting:

In the eastern Wild Lake area rock exposures are poor due to extensive tundra cover. Solifluction movement on canyon walls is common. Bedrock is exposed periodically in creek bottoms. Reed (1938) reported that the pass between Lake Creek (map no. W57) and Spring Creek (map no. W59) is underlain by quartz-stringer-bearing reddish schist. Reed also noted graphitic schist, greenschist, and a dike of schistose altered diorite in both creeks.

The ridge between Spring and Lake Creeks is carbonaceous quartz-muscovite-chlorite-calcite schist to phyllite with elongate nodules of limestone and schist measure up to 5 inches. A northeast-trending fault roughly parallels the north fork of Lake Creek. Vein quartz with tetrahedrite and limonite is reported to occur in the pass between the two creeks. A sample collected by Chipp (1972) contained 2,400 ppm.

Bureau Investigation:

The ridge between Spring and Lake Creeks was briefly investigated. No copper mineralization was observed. Samples of quartz vein float with limonite staining (10659, 10660, table I-1) do not contain anomalous copper values. Limonite staining was also observed in calcareous schist float (11616) and soil (11617) along the ridge.

On upper Lake Creek, at 2,500 feet elevation, a select piece of vein quartz with trace chalcopyrite and tetrahedrite (10516) contains 247 ppm copper. However, the only copper mineralization found in place within the Lake Creek drainage basin was near Mathews Dome (map no. W55).

There are several reported occurrences of copper in the Wild Lake area (Brosge and Reiser, 1960; Chipp, 1972). In most cases, minor amounts of copper minerals (chalcopyrite, tetrahedrite, and/or malachite) are found in (1) discontinuous quartz veins crosscutting the schist host or (2) within schist underlying marble or limestone. The copper mineralization is usually less than 10 feet along strike of the fault or vein.

Resource Estimate: None.

Mineral Development Potential: Low mineral development potential for polymetallic veins.

Recommendations: None.

References:

Brosge, W.P., and Reiser, H.N., 1960, Progress map of the geology of the Wiseman quadrangle, Alaska: U.S. Geological Survey Open-File Report 60-19, 2 sheets, scale 1:250,000.

Berg, H.C., and Cobb, E.H., 1967, Metalliferous lode deposits of Alaska: U.S. Geological Survey Bulletin 1246, p. 232-234.

Chipp, E.R., 1972, Analyses of rock and stream sediment samples, Wild Lake area, Wiseman quadrangle, Arctic Alaska: Alaska Division of Geological and Geophysical Surveys Geochemical Report 25, 2 sheets, scale 1:48,000.

Cobb, E.H., 1972, Metallic mineral resources map of the Wiseman quadrangle, Alaska: U.S. Geological Survey Miscellaneous Field Studies Map MF-469, 1 sheet, scale 1:250,000, location 13.

Property Summary

Name(s): Spring Creek Forks claim Homebrew Association Larimore claim My Lou U.S. Association	**Map No:** W59 **MAS No:** 0020300029 Alaska Kardex 030-038 Alaska Kardex 030-095

Deposit Type: Placer

Commodities: Au, Ag

Location:

Quadrangle: Wiseman C-4
N½ sec. 15, T. 31 N., R. 18 W.
Meridian: Fairbanks
Elevation: 1,300 feet
Latitude: 67° 30.737' N.
Longitude: 151° 31.968' W.
Geographic: A west-flowing tributary of Wild Lake, approximately 3.5 miles long.

History:

1903 - Gold discovered in fall of year by Joe Mathews and Joe Perry (Reed, 1938).
1904 - Claims first worked. Ed Marsand and Joe Penny took out $6,000 in gold (Reed, 1938).
1904-12 - Joe Mathews mined out $22,500 in gold (Reed, 1938).
1907 - A claim located about one mile from Wild Lake made a good yield (Maddren, 1913).
1908 - Not enough water available for advantageous work (Maddren, 1913).
1926 - Frank Smith began booming out a cut, about 3,650 feet upstream of the mouth (Reed, 1938).
1927-32 - Ben Sirr mined $7,000 in gold (Reed, 1938).
1936-37 - Joe Smith sank shaft 25 feet to bedrock, at the forks of Spring Creek (Reed, 1938).
1937 - Joe Smith was owner of the Forks claim. Sammy Hope was owner of Larimore claim (Reed, 1938).
1938 - Mining reported on Spring Creek (Smith, 1939).
1960 - Brosge and Reiser (1960) reported recent placer mining.
1969-73 - Placer claim owned by E. Meader and W. Wigen (Kardex).

Production: (oz Au)

1904 - 290
1907 - 242
1908 - 48
1909 - 48
1921 - 9
1922 - 9
1926 - 85
1927 - 57
1928 - 188
1929 - 73
1930 - 157
1931 - 119
1932 - 107
1933 - 57
1934 - 48
1935 - 53
1936 - 30
1937 - 58
1938 - 4
1939 - 34
1941 - 20
1948 - 186
Total: 1,922
Average Fineness: 961 (Metz and Hawkins, 1981), 934 (Mosier and Lewis, 1986), 920 (Reed, 1938)

Workings and Facilities:

Both opencut and drift mining have been done on the creek. Much of the work has concentrated around the “forks” area about 1.7 miles east of Wild Lake. Shafts up to 50 feet deep were sunk and drifts up to 50 feet long made. Opencuts up to 50 feet wide and 1,200 feet long were excavated using automatic dams (Reed, 1938). Cabin remains lie about a quarter of a mile upstream of the creek mouth on the north side of the creek. Stacked rocks up to 15 feet high line the creek banks for almost 1.5 miles.

Geologic Setting:

In the Spring Creek area, rock exposures are poor due to extensive tundra cover. Evidence of solifluction movement on valley slopes is common. The bedrock in Spring Creek consists of graphitic schist, red quartzite schist, and greenstone schist. A dike of schistose-altered diorite reportedly occurs below the “forks” area. The stream gradient is between 6% and 8% (Reed, 1938).

Mining has occurred on the present channel and deep channel of Spring Creek. The depth to bedrock in the opencuts ranges from 5 to 10 feet. Many conglomerate glacial erratics and schist boulders are reported. The gold lies in the lower 3 feet of gravel and the top 1 foot of bedrock. Gold values in opencuts ranged from 18 to 70 cents per bedrock foot. The shafts were 25 to 50 feet deep. The deep channel is frozen; thawing was done with wood fires. From the bottom of one shaft, a 6- to 10-foot-wide drift was extended 50 feet east (upstream). The value of this ground was 90 cents per bedrock foot. The gold is reported to be very coarse and not water worn (Reed, 1938).

According to Chipp (1972) Spring Creek is predominantly underlain by Middle Devonian(?) micaceous schist and phyllite. The schist consists of quartz-chlorite-sericite schist to quartz-carbonate-muscovite-albite schist. Phyllite beds included in this unit contain quartz, chlorite, sercite, and local magnetite. Minor areas of dolomitic and pyritic calcareous schist and quartz chloritoid muscovite chlorite schist also occur. Outcrops of carbonaceous quartz-muscovite-chlorite-calcite schist to phyllite are mapped at the headwaters. Two northeast-trending faults cross the upper part of the stream valley.

Bureau Investigation:

Spring Creek was investigated up to the forks at elevation 2,000 feet, and the southeastern fork was investigated up to an elevation of 3,200 feet. Evidence of placer workings were noted from the lake shore to near the forks. Coarse, angular gold was found approximately ¾ mile upstream from the mouth, where the creek banks are pinched to 10 feet across. A pan concentrate sample collected off red chlorite-quartz schist (12052, table I-1) measures 223.97 ppm gold and a specimen pan sample (12053) contained 1 very coarse, 1 coarse, and 6 very fine gold pieces. Visible gold was not found at any other locations; however, the other 7 pan samples from the creek are all anomalous, ranging from 592 ppb to 105 ppm gold.

Green chlorite schist was found in outcrop at several locations; however, the reported dike of schistose-altered diorite was not located. An outcrop sample of reddish-tan mica schist with trace pyrite collected half a mile from the creek mouth (10696) contains 309 ppm arsenic, and 23 ppb gold. This result is slightly anomalous.

Resource Estimate: None.

Mineral Development Potential:

Low potential for placer gold due to extensive past mining activity and lack of gravel resources. However, coarse gold can be panned in limited amounts. Also, the consistently anomalous gold values in Spring Creek indicate the presence of very fine grained gold which could possibly come from a bedrock source in the area.

Recommendations: Prospect the limited bedrock exposures.

References:

Bliss, J.D., Brosge, W.P., Dillion, J.T., Cathrall, J.B., and Dutro, J.T., Jr., 1988, Maps and descriptions of lode deposits, prospects, and occurrences in the Wiseman 1° by 3° Quadrangle, Alaska: U. S. Geological Survey Open-file Report 88-293, p.7-8.

Chipp, E.R., 1972, Analyses of rock and stream sediment samples, Wild Lake area, Wiseman quadrangle, Arctic Alaska: Alaska Division of Geological and Geophysical Surveys Geochemical Report 25, 2 sheets, scale 1:48,000.

Cobb, E.H., 1981, Summary of data on and lists of references to metallic and selected nonmetallic mineral occurrences in the Wiseman quadrangle, Alaska, supplement to Open-File Report 76-340: U.S. Geological Survey Open-File Report 81-732B.

Heiner, L.E., and Wolff, E.N., 1968, Final report, mineral resources of northern Alaska: Mineral Industry Research Laboratory, University of Alaska, Report 16, 299 p.

Maddren, A.G., 1910, The Koyukuk-Chandalar gold region *in* Brooks, A.E., Mineral resources of Alaska, report on progress of investigations in 1909: U.S. Geological Survey Bulletin 442, p. 292, 314.

Metz, P.A., and Hawkins, D.B., 1981, A summary of gold fineness values from Alaska placer deposits: Mineral Industry Research Laboratory, University of Alaska, Report 45, p. 36-37.

Mosier, E.L., and Lewis, J.S., 1986, Analytical results, geochemical signatures, and sample locality map of load gold, placer gold, and heavy-mineral concentrates from the Koyukuk-Chandalar mining district, Alaska: U. S. Geological Survey Open-file Report 86-345, p. 94.

Reed, I.M.,1938, Upper Koyukuk region, Alaska: Alaska Territorial Department of Mines Miscellaneous Report 194-7, p. 119-121.

Property Summary

Name(s): Surprise Creek
Summit Creek

Map No: W60
MAS No: 0020300028
Alaska Kardex 030-051
Alaska Kardex 030-053
Alaska Kardex 030-132

Deposit Type: Placer

Commodities: Au, Ag

Location:

Quadrangle: Wiseman C-3
NE¼ sec. 15, T. 31 N., R. 18 W.
Meridian: Fairbanks
Elevation: 1,300 feet
Latitude: 67° 31.114' N.
Longitude: 151° 31.475' W.
Geographic: An eastern tributary 3.5 miles north of the south end of Wild Lake.

History:

1904 - Discovered by Jack Lamont, made $6 (0.32 oz) a day by shoveling in (Reed, 1938).
1904-37 - Small-scale, intermittent mining reported (Reed, 1938).
1927 - R.H. Creecy staked entire creek (Reed, 1938).
1929 - Small boulder of float quartz found with visible gold (Reed, 1938).
1933 - R.H. Creecy sold out to Volney B. Wakefield (Reed, 1938).
1938 - Placer claims staked by Joe Tauber (Kardex).
1972 - Visited and sampled by Chipp (1972).

Production: (oz Au)

1931 - 5
1932 - 7
1933 - 13
1937 - 16
Total: 41 (Records incomplete)
Average fineness: 920

Workings and Facilities:

The "booming" method of mining was used often on Surprise Creek. This consisted of building a small dam across the drainage and letting water back up behind it. When released, the rush of water would wash off the fine material in the creek bed, leaving behind any large rocks. These would then be stacked on the creek bank. The washes would be repeated until the lower 3 feet of pay gravel, lying on bedrock, was exposed. This material was then washed through a sluice box and any gold recovered. A dam could produce about 3 splashes per hour when sufficient water was available. As a boomed cut progressed upstream, pay gravel was protected by a carefully laid pavement of schist slabs. After sufficient gravel was uncovered for a seasons work, the slabs were pulled up and the gravel washed (Reed, 1938). The remains of these dams plus stacked rocks, and cabin remains are located along the lower 2 miles of the creek.

Geologic Setting:

According to Chipp (1972), the bedrock on Surprise creek is composed of schist and phyllite. The schist ranges from light-gray, brown or green quartz-chlorite-sericite schist to quartz-carbonate-muscovite-albite schist. Quartz veinlets locally cut the schist. The phyllite is dark gray or green-gray with quartz, chlorite, sericite, and local magnetite. There are minor areas of dolomitic and pyrite calc-schist, and quartz-chloritoid-muscovite-chlorite schist.

According to Reed (1938) the bedrock first seen about 0.5 mile from the mouth is a reddish yellow quartzite schist. Three hundred feet further up the stream, the schist is replaced by a greenstone schist strip about 100 feet wide. The greenstone schist contains numerous quartz lodes and stringers. Successive layers of black graphitic schist and green-schist continue up the creek for several hundred feet. Overlaying the graphitic schist is a micaceous schist.

Surprise Creek contains several narrow V-shaped sections alternating broader basin-like stretches. In the narrow stretches, the width of the valley ranges from 10 to 30 feet. It is thought that the true width of the channel from rim to rim is 75 to 100 feet, much of which is covered by colluvium. The depth to bedrock ranges from 12 to 14 feet. Enormous slabs of schist and erratic boulders of conglomerate and black chert lie on the gravel and slide down from the hillside on the right limit. The deposit is all thawed. The gold is both coarse and nuggety mixed with very fine flour gold. The gold lies in the lower 3 feet of gravel and on top of bedrock. The bedrock foot value of the pay on Surprise Creek is unknown (Reed, 1938).

In 1929 a small boulder of quartz float, "liberally spangled with gold", was found on Surprise Creek (Smith, 1930, p. 38).

Bureau Investigation:

Numerous pan concentrates collected off bedrock contained no visible gold. However, laboratory analysis showed several samples are anomalous in gold (table I-1). The highest value obtained is 3,889 ppb gold from fine gravel on bedrock, 0.6 mile upstream from Wild Lake (10788). A sample of limonite-stained quartz-carbonate float from the stream bed (11042) contains 163 ppb gold. Also, a piece of malachite-stained chlorite-quartz schist from an unnamed eastern tributary, 1.5 miles upstream from Wild Lake (11036), contains 861 ppm copper and 1.4 ppm silver.

Resource Estimate:

It appears that the gold on Spring Creek was confined to short sections of bedrock and has been mostly mined out.

Mineral Development Potential:

Low potential for placer gold due to extensive past mining on the creek and lack of visible gold in pans. Geochemical gold values in several pan concentrates and a rock sample may be indicative of a lode source somewhere in the Spring Creek basin.

Recommendations:

The anomalous gold values in some samples warrant further investigation for lode gold in Surprise Creek and in the surrounding area.

References:

Bliss, J.D., Brosge, W.P., Dillion, J.T., Cathrall, J.B., and Dutro, J.T., Jr., 1988, Maps and descriptions of lode deposits, prospects, and occurrences in the Wiseman 1° by 3° Quadrangle, Alaska: U. S. Geological Survey Open-file Report 88-293, 52 p.

Chipp, E.R., 1972, Analyses of rock and stream sediment samples, Wild Lake area, Wiseman quadrangle, Arctic Alaska: Alaska Division of Geological and Geophysical Surveys Geochemical Report 25, 2 sheets, scale 1:48,000.

Cobb, E.H., 1972, Metallic mineral resources map of the Wiseman quadrangle, Alaska: U.S. Geological Survey Miscellaneous Field Studies Map MF-469, 1 sheet, scale 1:250,000.

Reed, I.M., 1938, Upper Koyukuk region, Alaska: Alaska Territorial Department of Mines Miscellaneous Report 194-7, p. 116-118.

Smith, P.S., 1932, Mineral resources of Alaska, report on progress of investigations in 1929: U.S. Geological Survey Bulletin 824A, p. 38-40.

____1933, Mineral industry of Alaska in 1930, *in* Smith, P.S. and others, Mineral resources of Alaska, report on progress of investigations in 1930: U.S. Geological Survey Bulletin 836, p. 39-40.

Property Summary

Name(s): Spring Creek Lode
Skytop
Fortune Cookie 1-6

Map No: W61
MAS No: 0020300065
Alaska Kardex 030-090
Alaska Kardex 030-135

Deposit Type: Polymetallic veins(?)

Commodities: Au

Location:

Quadrangle: Wiseman C-3
SW¼ sec. 7, T. 31 N., R. 17 W.
Meridian: Fairbanks
Elevation: 3,400 feet
Latitude: 67° 31.217' N.
Longitude: 151° 26.750' W.
Geographic: Located near peak 3410, between Spring and Surprise Creeks.

History:

1929 - A small boulder of quartz "liberally spangled with gold" was reported in float along Surprise Creek (Smith, 1930).

1966-78 - Several lode claims staked in area (Kardex).

Production:

There has been no lode production; however, placer gold was recovered from Spring and Surprise Creeks.

Workings and Facilities: None.

Geologic Setting:

In the Spring Creek area, rock exposures are poor due to extensive tundra cover. Evidence of solifluction movement on valley slopes is common. According to Reed (1938), the bedrock in Spring Creek consists of graphitic schist, red quartzite schist, and greenstone schist. A dike of schistose-altered diorite occurs below the "forks" area. However, many of the exposures in mining cuts observed by Reed have been subsequently covered by alluvium.

According to Chipp (1972) the ridge is underlain by Middle Devonian(?) carbonaceous quartz-muscovite-chlorite-calcite schist to phyllite with elongate nodules of limestone and schist that measure up to 5 inches. Two northeast-trending faults cross the area immediately east of the occurrence.

Bureau Investigation:

The lode potential is difficult to define, due to poor outcrop exposure along the ridges. No meta-intrusive rocks or sulfide-bearing quartz veins were observed on a brief traverse of the ridge. However, samples of float found in Spring and Surprise Creeks are slightly anomalous in gold. One sample of pyrite-bearing quartz-mica schist bedrock collected on Spring Creek (10696, table I-1) contains 309 ppm arsenic, but only 23 ppb gold. A piece of limonite-stained quartz carbonate float from Surprise Creek (11042) contains 163 ppb gold. Schist float in Surprise Creek (map no. W60) is anomalous in copper and silver.

Resource Estimate: None.

Mineral Development Potential:

Low potential for lode gold due to low gold values in samples. The presence of placer gold in nearby Spring and Surprise Creeks and anomalous gold in a float sample have not been traced to a lode source.

Recommendations:

Prospect Surprise and Spring Creeks for sulfide-bearing quartz float and trace to potential lode sources.

References:

Chipp, E.R., 1972, Analyses of rock and stream sediment samples, Wild Lake area, Wiseman quadrangle, Arctic Alaska: Alaska Division of Geological and Geophysical Surveys Geochemical Report 25, 2 sheets, scale 1:48,000.

Reed, I.M.,1938, Upper Koyukuk region, Alaska: Alaska Territorial Department of Mines Miscellaneous Report 194-7, p. 119-121.

Smith, P.S., 1930, Mineral resources of Alaska, report on progress of investigations in 1929: U.S. Geological Survey Bulletin 824A, p. 38-39.

Property Summary

Name(s): Surprise Creek Lode
Summit Creek

Map No: W62
MAS No: 0020300013

Deposit Type: Polymetallic vein

Commodities: Cu

Location:
Quadrangle: Wiseman C-3
NW¼ sec. 1, T. 31 N., R. 18 W.
Meridian: Fairbanks
Elevation: 3,750 feet
Latitude: 67° 32.417' N.
Longitude: 151° 27.333' W.
Geographic: At the headwaters of Surprise Creek, which drains to Wild Lake.

History:

1969 - E.R. Chipp (1972) mapped geology and collected geochemical samples in Wild Lake area.

Production: None.

Workings and Facilities: None.

Geology:

The bedrock in the Surprise Creek basin is composed of Devonian schist and phyllite. The schist ranges from quartz-chlorite-sericite schist to quartz-carbonate-muscovite-albite schist. The phyllite is dark gray or green-gray with quartz chlorite sericite and local magnetite. There are minor areas of dolomitic and pyritic calcareous schist and quartz-chloritoid-muscovite-chlorite schist (Chipp, 1972).

Copper sulfides and malachite staining have been observed in the schist and vein quartz. A sample of vein quartz with bornite contained 2,700 ppm copper, 0.14 ppm gold, and 3.1 ppm silver (Brosge and Reiser, 1960; Chip, 1972).

Bureau Investigation:

Minor amounts of covellite(?), tetrahedrite(?), and malachite were observed on Surprise Creek. Two samples (10786, 11036, table I-1) average 514 ppm copper.

There are several reported occurrences of copper in the Wild Lake area (Brosge and Reiser, 1960; Chipp, 1972). In most cases, minor amounts of copper minerals (chalcopyrite, tetrahedrite, and/or malachite) are found (1) in discontinuous quartz veins crosscutting the schist host or (2) within schist that underlies marble or limestone. The copper mineralization is usually less than 10 feet along strike of the fault or vein.

Resource Estimate: None.

Mineral Development Potential: Low mineral development potential polymetallic veins.

Recommendations: None.

References:

Bliss, J.D., Brosge, W.P., Dillion, J.T., Cathrall, J.B., and Dutro, J.T., Jr., 1988, Maps and descriptions of lode deposits, prospects, and occurrences in the Wiseman 1° by 3° Quadrangle, Alaska: U. S. Geological Survey Open-file Report 88-293, p. 48, plus two plates.

Chipp, E.R., 1972, Analyses of rock and stream sediment samples, Wild Lake area, Wiseman quadrangle, Arctic Alaska: Alaska Division of Geological and Geophysical Surveys Geochemical Report 25, 2 sheets, scale 1:48,000, samples 116 and 117.

Cobb, E.H., 1972, Metallic mineral resources map of the Wiseman quadrangle, Alaska: U.S. Geological Survey Miscellaneous Field Studies Map MF-469, 1 sheet, scale 1:250,000.

____1976, Summary of references to mineral occurrences (other than mineral fuels and construction materials) in the Chandalar and Wiseman quadrangles, Alaska: U.S. Geological Survey Open-File Report 76-340, p. 182-183.

Reed, I.M., 1938, Upper Koyukuk region, Alaska: Alaska Territorial Department of Mines Miscellaneous Report 194-7, p. 116-119.

Property Summary

Name(s): Pass Creek
White Moss 1&2

Map No: W63
MAS No: 0020300066
Alaska Kardex 030-125
Alaska Kardex 030-127

Deposit Type: Placer

Commodities: Au

Location:

Quadrangle: Wiseman C-3
SE¼ sec. 16, T. 32 N., R. 16 W.
Meridian: Fairbanks
Elevation: 1,275 feet
Latitude: 67° 38.894' N.
Longitude: 151° 07.519' W.
Geographic: A tributary of Tinayguk River, immediately west of Eroded Mountain, within Gates of the Arctic National Park.

History:

1974-77 - Placer claims staked by D. Rodey and D. Reiner (Kardex).

Production: None recorded.

Workings and Facilities: None observed.

Geologic Setting:

Pass Creek has very little bedrock exposure. Near the headwaters, the bedrock is Cambrian to Silurian siltstone and phyllite that has been thrust over Devonian(?) siliceous clastic rocks (Dillon and others, 1986).

Bureau Investigation:

No gold was observed in test pans taken along Pass Creek. A stream sediment and a pan concentrate sample (10865-10866, table I-1) were collected near the headwaters. The sediment sample is slightly anomalous in zinc (146 ppm); however, this anomaly may reflect background levels of local bedrock.

Resource Estimate: None.

Mineral Development Potential: Low mineral development potential for placer gold.

Recommendations: None.

References:

Dillon, J.T., Brosge, W.P., and Dutro, J.T., Jr., 1986, Generalized geologic map of the Wiseman quadrangle, Alaska: U.S. Geological Survey Open-File Report 86-219, 1 sheet, scale 1:250,000.

Property Summary

Name(s): Tinayguk River
Gary
Poplar Island

Map No: W64
MAS No: 0020300154
Alaska Kardex 030-128
Alaska Kardex 030-180

Deposit Type: Placer

Commodities: Au

Location:

Quadrangle: Wiseman C-3
SW¼ sec. 23, T. 32 N., R. 16 W.
Meridian: Fairbanks
Elevation: 1,110 feet
Latitude: 67° 34.809' N.
Longitude: 151° 04.609' W.
Geographic: Tinayguk River is a tributary of the North Fork Koyukuk River. The placer site is south of Eroded Mountain, within the Gates of the Arctic National Park.

History:

1974, 1977 - D. Reiner staked placer claims on Tinayguk River (Kardex).

Production: None.

Workings and Facilities: None observed.

Geologic Setting:

The Tinayguk River runs for approximately 35 miles in the Wiseman quadrangle. The Tinayguk River has very little bedrock exposure. It is flanked by reworked Quaternary surficial deposits, including glacial, alluvial, and colluvial materials. The bedrock near Eroded Mountain is Upper Devonian slate and phyllite and Middle Devonian(?) siliceous clastic rocks (Dillon and others, 1986).

Bureau Investigation:

Gravel bars near the staked placer claims on the Tinayguk River were briefly investigated. No gold was observed in test pans. A stream sediment and a pan concentrate sample (10821-10822, table I-1) were collected off a gravel bar. The sediment sample is slightly anomalous in zinc (124 ppm); however, this anomaly may reflect background levels of local bedrock.

Resource Estimate: None.

Mineral Development Potential:

Low mineral development potential for placer gold due to lack of gold in samples.

Recommendations: None.

References:

Dillon, J.T., Brosge, W.P., and Dutro, J.T., Jr., 1986, Generalized geologic map of the Wiseman quadrangle, Alaska: U.S. Geological Survey Open-File Report 86-219, 1 sheet, scale 1:250,000.

Property Summary

Name(s): Bonanza Creek

Map No: W65
MAS No: 0020300111
Alaska Kardex 030-159
Alaska Kardex 030-209

Deposit Type: Placer

Commodities: Au

Location:

Quadrangle: Wiseman C-2
SW¼ sec. 10, T. 31 N., R. 15 W.
Meridian: Fairbanks
Elevation: 1,400 feet
Latitude: 67° 31.143' N.
Longitude: 150° 52.816' W.
Geographic: Bonanza Creek is a northeastern tributary to the North Fork Koyukuk River. Occurrence is located within the Gates of the Arctic National Park.

History:

1976-85 - Maple Leaf Gold Company staked claims on Bonanza, Conglomerate, and Washington Creeks. They may have only done testing at Bonanza Creek.

Production: None recorded.

Workings and Facilities: Cut trees were observed near samples 10800-10801.

Geologic Setting:

Bedrock consists of Cambrian to Silurian black phyllite and meta-siltstone, minor quartzite graywacke, chert, siliceous metatuff, and thin dolomite and limestone beds. Abundant unmapped mafic sills are also associated with the unit. Near the mouth, this unit contacts the Devonian Skajit Limestone (Dillon and others, 1986).

Bureau Investigation:

Several test pans collected on Bonanza Creek contained trace magnetite and no visible gold. A stream sediment and a pan concentrate sample (10800-10801, table I-1) were collected below the confluence of two major forks of Bonanza Creek. Neither sample contains anomalous results.

Resource Estimate: None.

Mineral Development Potential: Low mineral development potential due lack of anomalous results.

Recommendations: None.

References:

Dillon, J.T., Brosge, W.P., and Dutro, J.T., Jr., 1986, Generalized geologic map of the Wiseman quadrangle, Alaska: U.S. Geological Survey Open-File Report 86-219, 1 sheet, scale 1:250,000.

Property Summary

Name(s): Bonanza Creek Lode
Unnamed Occurrence

Map No: W66
MAS No: 0020300015

Deposit Type: Quartz veins

Commodities: Pb

Location:

Quadrangle: Wiseman C-2
Meridian: Fairbanks
Latitude: 67° 33.522' N.

NW¼ sec. 36, T. 32 N., R. 15 W.
Elevation: 2,840 feet
Longitude: 150° 48.765' W.

Geographic: Occurrence is located along an unnamed eastern drainage of Bonanza Creek, within the Gates of the Arctic National Park.

History:

1960 - Brosge and Reiser (1960) reported a lead anomaly in the area.

Production: None.

Workings and Facilities: None observed.

Geologic Setting:

The bedrock in upper Bonanza Creek is mapped as Devonian calcareous, chloritic wacke (Dillon and others, 1986).

Bureau Investigation:

A resistant ridge of intensely fractured dolomite(?) with numerous quartz veinlets and occasional veins outcrops along a west-facing ridge overlooking Bonanza Creek. The rust-colored exposure is approximately 150 feet by 35 feet. The quartz veinlets occur at several orientations, but the dominant set appears to strike N. 40° W. No sulfides were found in outcrop, but minor galena and sphalerite was found in float. One select sample of quartz veinlets within dolomite (10881) contains 3,438 ppm lead, 3,510 ppm zinc, and 3,772 ppm arsenic. One quartz vein is 1.9 feet wide and is exposed for 30 feet along a N. 80° W. strike. A chip sample (10880, table I-1) of the vein does not contain anomalous results. This outcrop is probably a portion of a northwest-trending shear zone of unknown extent.

Resource Estimate: None.

Mineral Development Potential:

Low development potential due to low metal values in samples.

Recommendations: None.

References:

Berg, H.C., and Cobb, E.H., 1967, Metalliferous lode deposits of Alaska: U.S. Geological Survey Bulletin 1246, 254 p. 232-234.

Brosge, W.P., and Reiser, H.N., 1960, Progress map of the geology of the Wiseman quadrangle, Alaska: U.S. Geological Survey Open-File Report 60-19, 2 sheets, scale 1:250,000.

Cobb, E.H., 1972, Metallic mineral resources map of the Wiseman quadrangle, Alaska: U.S. Geological Survey Miscellaneous Field Studies Map MF-469, 1 sheet, scale 1:250,000.

Dillon, J.T., Brosge, W.P., and Dutro, J.T., Jr., 1986, Generalized geologic map of the Wiseman quadrangle, Alaska: U.S. Geological Survey Open-File Report 86-219, 1 sheet, scale 1:250,000.

Property Summary

Name(s): Swede Creek Lode

Map No: W67
MAS No: 20300169

Deposit Type: Massive sulfides

Commodities: Zn

Location:

Quadrangle: Wiseman C-2
W½ sec. 17, T. 32 N., R. 14 W.
Meridian: Fairbanks
Elevation: 2,060 feet
Latitude: 67° 35.992' N.
Longitude: 150° 30.757' W.
Geographic: Northern tributary to Swede Creek, 4.5 miles upstream from the Glacier River.

History:

1975 - Stream sediment sample collected on Swede Creek tributary found to be anomalous in zinc (WGM Inc., 1978).

1977 - Zinc-bearing float sample found during follow-up (WGM Inc., 1978).

Production: None.

Workings and Facilities: None.

Geologic Setting:

Bedrock consists of black slate, phyllite, and limestone of the Devonian or older(?) Beaucoup Formation(?) These rocks lie on the south limb of a large northeast-southwest-trending syncline. The lower part of the creek is cut by several thrust faults that parallel the synclinal axis. A float sample picked up on the tributary contained 1.4% zinc (Dillon and others, 1986; WGM Inc., 1978).

Bureau Investigation:

The lower portion of the tributary was prospected. A sample of calcareous greenstone(?) float with 1% pyrrhotite and/or pyrite (12451, table I-1) is not anomalous in zinc. A stream sediment sample (12449) collected at the same site, contains 259 ppm zinc. A pan concentrate sample (12445) taken from schist bedrock on Swede Creek, 3.2 miles upstream from this tributary, contains 194 ppb gold. Numerous barren quartz-carbonate veins, parallel to schistosity, cut across the creek in this area. No other samples taken on the creek are anomalous in gold.

Resource Estimate: None.

Mineral Development Potential:

Low potential for massive sulfide deposits. The reported zinc-bearing float and associated geochemical anomaly may be indicative of concealed massive sulfide deposits.

Recommendations:

Investigate the headwaters of both Swede Creek and the tributary for placer and lode gold.

References:

Dillon, J.T., Brosge, W.P., and Dutro, J.T., Jr., 1986, Generalized geologic map of the Wiseman quadrangle, Alaska: U.S. Geological Survey Open-File Report 86-219, 1 sheet, scale 1:250,000.

WGM Inc., 1978, 1977 Annual progress report, Doyon Ltd. project, v. III, west Wiseman Block 5: unpublished report 78-06 for Doyon Ltd., 13 p. [available from Doyon Ltd., Fairbanks, Alaska]

Property Summary

Name(s): Zinc Float Creek Lode

Map No: W68
MAS No: 20300170

Deposit Type: Unknown lode

Commodities: Zn

Location:

Quadrangle: Wiseman C-1
E½ sec.10, T. 32 N., R. 13 W.
Meridian: Fairbanks
Elevation: 2,000 feet
Latitude: 67° 36.442' N.
Longitude: 150° 25.097' W.
Geographic: Western tributary to the Glacier River 3.0 miles north of Swede Creek. Unofficially named "zinc float creek".

History:

1975 - Stream sediment sample collected from "zinc float creek" found to be anomalous in zinc (WGM Inc., 1978).
1976 - Float rock sample collected on creek is anomalous in zinc (WGM Inc., 1978).

Production: None.

Workings and Facilities: None.

Geologic Setting:

Bedrock in "zinc float creek" consists of black slate, phyllite, and limestone of the Devonian or older(?) Beaucoup Formation(?). These rocks lie on the south limb of a large, northeast-southwest-trending syncline. The lower part of the creek is cut by several thrust faults that parallel the synclinal axis.
A sphalerite-bearing cobble found on the creek contained 16.9% zinc (Dillon and others, 1986; WGM Inc., 1978).

Bureau Investigation:

Fluvial material on the lower portion of the creek is coated with conspicuous iron-oxide staining. The red-stained rocks were followed upstream to an elevation of about 2,000 feet, just downstream of east-west-trending bed of siliceous mudstone. The mudstone is about 45 feet thick, contains 2-5% pyrite/marcasite(?), and dips about 45° to the north. It would appear that there are two possible sources for the staining: (1) sulfides in the mudstone are weathering or (2) the mudstone is providing a resistant layer over which iron-rich groundwater is migrating to the surface. A sample of the mudstone (11901, table I-1) is not anomalous in any metals. A stream sediment sample (11902) collected 300 feet downstream from the mudstone contains 615 ppm zinc.

Resource Estimate: None.

Mineral Development Potential:

Low development potential for zinc as no zinc-bearing metals were found. However, stream sediment samples from the creek are anomalous in zinc, which indicates a potential lode source in the area.

Recommendations: Prospect the creek to locate source of the zinc float.

References:

Dillon, J.T., Brosge, W.P., and Dutro, J.T., Jr., 1986, Generalized geologic map of the Wiseman quadrangle, Alaska: U.S. Geological Survey Open-File Report 86-219, 1 sheet, scale 1:250,000.

WGM Inc., 1978, 1977 Annual progress report, Doyon Ltd. project, v. III, west Wiseman Block 5: unpublished report 78-06 for Doyon Ltd., 13 p. [available from Doyon Ltd., Fairbanks, Alaska]

Property Summary

Name(s): Little Swede Creek

Map No: W69
MAS No: 20300171

Deposit Type: Placer

Commodities: Au

Location:

Quadrangle: Wiseman C-1
N½ sec. 10, T. 31 N., R. 13 W.
Meridian: Fairbanks
Elevation: 1,540 feet
Latitude: 67° 31.849' N.
Longitude: 150° 25.391' W.
Geographic: Swede Creek is a 2-mile-long western tributary of the Glacier River. The site is on Doyon Ltd. lands.

History: Unknown.

Production: None.

Workings and Facilities: None.

Geologic Setting:

Bedrock in Little Swede Creek consists of sandstone, conglomerate, limestone, and phyllite of the Middle to Upper Devonian(?) Beaucoup Formation. These rocks make up the south limb of an anticline (Dillon and others, 1986).

Bureau Investigation:

The lower half a mile of Little Swede Creek was walked without locating bedrock in the creek bottom. One of two test pans taken from behind rocks in the creek contained a very fine flattened gold flake (12462, table I-1). The sample contained a moderate amount of pyrite and no magnetite.

Resource Estimate: Unknown.

Mineral Development Potential:

The area has low to moderate potential for placer gold due to visible gold observed in a pan. No signs of mining were noted.

Recommendations:

Prospect upper portions of creek for placer and lode gold deposits.

References:

Dillon, J.T., Brosge, W.P., and Dutro, J.T., Jr., 1986, Generalized geologic map of the Wiseman quadrangle, Alaska: U.S. Geological Survey Open-File Report 86-219, 1 sheet, scale 1:250,000.

Property Summary

Name(s): Mascot Creek

Map No: W70
MAS No: 0020300037
Alaska Kardex 030-014
Alaska Kardex 030-084

Deposit Type: Placer

Commodities: Au

Location:

Quadrangle: Wiseman B-2
SE¼ sec. 19, T. 31 N., R. 13 W.
Meridian: Fairbanks
Elevation: 1,500 feet
Latitude: 67° 29.481' N.
Longitude: 150° 32.001' W.
Geographic: An 8.5-mile-long northern tributary of the Glacier River. Doyon Ltd. owns the land along the creek, which is directly adjacent to Gates of the Arctic National Park. Access is via a 10-mile-long winter trail from Nolan that crosses National Park lands.

History: (Maddren,1913; Reed, 1938; Schrader, 1904; E. Armstrong, personal communication, 2001)

1902 - Gold discovered on Mascot Creek (Schrader, 1904).
1903 - Nearly $100,000 in gold produced (Maddren, 1913).
1910 - Mining began in bench gravels (Maddren, 1913).
1934 - V. Knorr staked 17 lode claims (Reed, 1938).
1937 - V. Knorr, N. Ikovich, and A. Duffy mined on creek (Reed, 1938).
1954 - A. and S. Mining Company worked on creek (Kardex).
1958 - A. Schwaesdall staked 12 placer claims (Kardex).
1976 - Maple Leaf Gold Inc. initiated mechanized operation (Western Mining News, 1977).
1977 - Last year of Maple Leaf operation (Western Mining News, 1977).
1984 - Cinco Mining active on creek (Kardex).
1984 - Mining on creek ceased due to Mining in the Parks Act (Keill and Teseneer, 1996).
1997 - Land title transferred to Doyon Ltd.
2000 - M. Raible and T. Barton suction dredging on creek.

Production: (oz Au)

1903 -	5,082	1937 -	4
1904 -	1,270	1938 -	36
1905 -	1,016	1940 -	15
1910 -	95	1941 -	4
1912 -	86	1954 -	131
1918 -	86	1955 -	219
1921 -	137	1976 -	211
1934 -	1	1977 -	300
1936 -	5	1984 -	2,500
		Total:	11,198 (Records incomplete.)

Average gold fineness: 960 (Bliss and others, 1988, p. 13)

Workings and Facilities:

Mascot Creek proved to be one of the most profitable placer streams in the Koyukuk. The gold lays on bedrock with only a thin cover of overburden, which ranges from a few inches to 3 feet thick. In addition, the placers contain few large boulders and little black sand. These factors made gold recovery relatively easy, and as a result the creek has been extensively mined (Maddren, 1913; Reed, 1938). Activity has concentrated along a 3.0-mile-length, below a major fork, 6.0 miles above the mouth (figure I-7). Extensive tailings, abandoned mining equipment, and cabin remains are scattered throughout this stretch of creek. The only cabins left standing on the creek are located just downstream from an eastern tributary (Knorr Creek). Mascot Creek was last mined on a large scale in the early 1980s. In recent years shoveling in and suction dredging methods have been used to mine remnants of pay gravel left by earlier operations. The creek flows through a long, steep-walled valley and is subject to periodic flooding during times of heavy rain.

A rough airstrip has been dozed along the Glacier River near the mouth of Mascot Creek, and a winter-only airstrip has been constructed on the ridgetop just north of the creek.

Geologic Setting:

Bedrock underlying Mascot Creek is reported to be included within the Middle and Upper Devonian Beaucoup Formation (figure I-7). The upper part consists of calcareous wacke, and the lower part is composed of interbedded calcareous sandstone, conglomerate, limestone, and phyllite. In both stratigraphic and faulted contact with these units are Cambrian to Silurian siltstone and phyllite. Faulted and stratigraphic contacts trend in an east-west direction, paralleling an anticlinal axis that cuts across Mascot Creek (Dillon and others, 1986). Bedrock observed by the BLM includes quartz-mica schist, graphitic schist, phyllite, siliceous mudstone, schistose quartzite, and metamorphic vein quartz. The same rock units have been mapped as underlying Nolan Creek, 10 miles to the east (map no. W96) (Dillon and others, 1986). However, bedrock there is cut by stibnite-gold veins.

Boulders of greenstone agglomerate(?) and granitic rock were observed by the BLM in the stream bed. No igneous rocks other than quartz veins were noted in Mascot Creek, which indicates that the boulders were probably brought in by glacial ice. This ice may have been an offshoot of the ice that filled the valleys connecting Wiseman Creek and the Glacier River during the late Pleistocene. The boulders were found as high as the 2,000-foot level, which indicates that the ice lobe advanced at least 5.0 miles up the drainage. Similar glacial events probably affected the Nolan Creek drainage.

The majority of the gold recovered on Mascot Creek comes from the modern stream and to a limited extent the bench gravels. Samples from the length of creek between the Ikovich cabin site to O'Neil Creek contain values ranging from \$3.70 (0.10 oz) to \$6.94 (0.21 oz) per bedrock foot. The depth to bedrock is about 3 feet, with a strip from 15 to 50 feet wide mined out by shoveling in. The gold was fairly coarse, well worn, and lying on bedrock. Downstream from No. 4 Pup pay average 0.04 oz per bedrock foot and depth to bedrock was from 0.5 to 3.0 feet. The gold is typically 90% coarse and 10% fine. The gravel is mostly fine with few large boulders (Reed, 1938, p. 82-87; Keill and Teseneer 1996).

The remnants of gold-producing high channels are concentrated on the west side of Mascot Creek. A 10- by 100-foot remnant of high channel just below No. 4 Pup average \$1.80 (0.05 oz) per bedrock foot. Opposite Discovery Pup, a remnant high channel was reported to occur 30 feet above the modern stream. Both of these benches have apparently been mined out. Just below Preacher Creek, Mascot Creek flows around a small knob. The saddle just east of this knob may be a remnant high channel. This channel is at least 100 feet above the modern steam and has not been sampled with mechanized equipment (Reed, 1938, p. 82-87). Small, high-grade pockets of pay gravel occur on benches from 10 to 15 feet above the modern stream channel.

A deep channel has never been substantiated on Mascot Creek. However, in the area of No. 4 Pup, a deep hole 150 feet long was encountered in the bedrock. The channel was at least 10-15 feet wide and reported to carry good pay (Reed, 1938, p. 86). It is not known if this channel has been mined out, but a mechanized operation in the 1980s encountered rich ground in this same area. Overall, the placers contain few large boulders, and there is little associated black sand.

Bureau Investigation:

In 1996, the BLM conducted a validity exam on 21 abandoned and void mining claims on Mascot Creek. The purpose of the examination was to determine the final property ownership of the lands once encompassed by the claims (Keill and Teseneer, 1996). The examination was not related to the present study. A total of 44 placer samples were collected from bedrock and overlying gravel. The samples averaged 0.008 oz/cy gold with individual samples containing up to 0.09 oz/cy gold. It was determined that the gold values in the gravels could not support a mining operation. Title to the land was subsequently transferred to Doyon Ltd.

Examinations related to the present study indicate that there are still a few small, though high-grade, pockets of pay gravel left along the creek. These pockets occur on the outside rims of bench gravels from 5 to 10 feet above the modern stream channel. The channels are mostly buried under colluvium resulting from the numerous slumps that have occurred along the steep unstable canyon walls. In 1997, a recent hand-dug trench on the west side of the creek between Discovery and No. 1 Pups was examined. Miners had exposed muscovite schist bedrock through 5- to 6 feet of colluvium. A placer sample (10668, table I-1) taken from a 6-inch-thick layer of clay-rich colluvium and underlying tan-weathering muscovite schist in the bottom of the cut contains 1.08 oz/cy gold. The gold is both rounded and angular and some pieces had limonite or manganese oxide coatings. The site contained only a few yards of this rich material. On a return visit in 1998, BLM geologists found the trench had sloughed in and covered the bedrock.

Considerable prospecting with hand tools for similar occurrences has taken place along both sides of Mascot Creek. Most of this prospecting is concentrated along the half-mile stretch between Knorr and O'Neil Creeks. These sites do not contain enough pay to interest a large operator, but could be profitable for mining on a small scale using mostly hand methods. In most cases, a minimum of 5 to10 feet of overburden has to be removed to get to the pay zone. In recent years, some miners reportedly recovered 40 oz of gold during a single mining season, using hand methods (Keill and Teseneer, 1996).

About half a mile downstream from Knorr Creek, the main creek flows through a narrow 0.25-mile-long canyon, only 20 feet wide in places that contains numerous bedrock exposures. The upper 100 feet of the canyon has been suction dredged (Raible, personal communication, 2000). Very fine gold flakes were found in test pans taken from bedrock in the lower portion of the canyon. In 2000 miners were suction dredging potholes in bedrock near the top of the canyon. Nuggets weighing up to 0.7 oz were recovered. A sample of the sluice concentrates from that operation (12458) contains 4,895 ppm lead and 26 ppm bismuth. The high lead values may be from contamination.

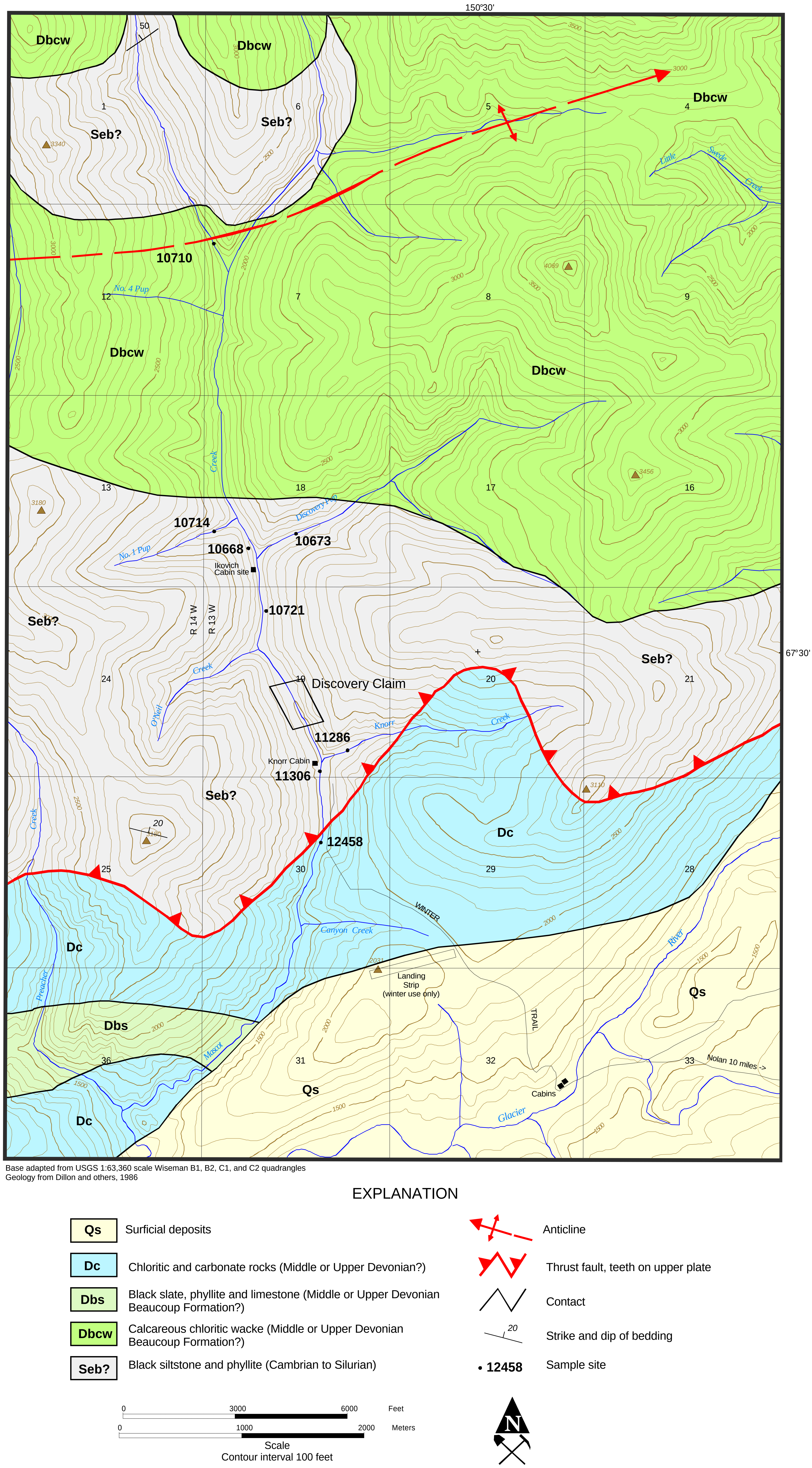


Figure I-7. Geology and sample location map of the Mascot Creek area.

BLM geologists walked the lower 6.5 miles of the Mascot Creek and collected pan concentrate and stream sediment samples from major side tributaries. The highest pan concentrate value (425 ppm gold) was obtained from No. 1 Pup (10714). Sample 10710, obtained from a western tributary near the stream's headwaters, contains 7,364 ppb gold. A pan sample from Knorr Creek (11286) contains 3,831 ppb gold.

Geologists observed minor galena in a medium-grained granitic stream cobble 0.2 mile downstream from Discovery Pup. A select sample (10721) contains 2,315 ppm lead. Minor galena was also found in quartz fillings in brecciated mudstone float at the mouth of Discovery Pup. A select sample (10673) contains 363 ppm lead and 1.3 ppm silver. Near Knorr Creek, iron-oxide-stained, micaceous quartzite float contains thin bands of pyrite and arsenopyrite up to 4 mm thick. Select samples contain up to 3,130 ppm arsenic and 32 ppb gold (11306). A bedrock source for these samples could not be located. It is highly probable that the float was transported into the drainage by glacial ice. None of the samples collected from veins or float contain significant precious metal values.

Resource Estimate:

Indicated resource of 12,102 cy averaging 0.026 oz/cy gold (Keill and others, 1996)

Mineral Development Potential:

Low development potential exists for a large mechanized mining operation. However, there is moderate potential for small mechanized and/or suction dredge operations on the bench rims and in bedrock potholes in the canyon of Mascot Creek.

Recommendations: Prospect rims on outside edge of benches where covered by colluvium

References:

Bliss, J.D., Brosge, W.P., Dillon, J.T., Cathrall, J.B., and Dutro, J.T., Jr., 1988, Maps and descriptions of lode deposits, prospects, and occurrences in the Wiseman 1° by 3° quadrangle, Alaska: U.S. Geological Survey Open-File Report 88-293, 52 p. plus two plates.

Dillon, J.T., Brosge, W.P., and Dutro, J.T., Jr., 1986, Generalized geologic map of the Wiseman quadrangle, Alaska: U.S. Geological Survey Open-File Report 86-219, 1 sheet, scale 1:250,000.

Heiner, L.E., and Wolff, E.N., 1968, Final report, mineral resources of northern Alaska: Mineral Industry Research Laboratory, University of Alaska, Report 16, p. 134-135.

Keill, D., and Teseneer, R., 1996, Validity examination of twenty-one abandoned and void placer mining claims on Mascot Creek, Gates of the Arctic National Park and Preserve: U.S. Bureau of Land Management, Fairbanks, Alaska, 31 p.

Maddren, A.G., 1910, The Koyukuk-Chandalar gold region *in* Brooks, A.E., Mineral resources of Alaska, report on progress of investigations in 1909: U.S. Geological Survey Bulletin 442, p. 290-292.

____1913, The Koyukuk-Chandalar region, Alaska: U.S. Geological Survey Bulletin 532, p. 108-109.

Reed, I.M., 1938, Upper Koyukuk region, Alaska: Alaska Territorial Department of Mines Miscellaneous Report 194-7, p. 82-87.

Schrader, F.C., 1904, A reconnaissance in northern Alaska across the Rocky Mountains, along the Koyukuk, John, Anaktuvuk, and Colville Rivers and the Arctic coast to Cape Lisburne, in 1901: U.S. Geological Survey Professional Paper 20, p. 100.

Smith, P.S., 1933, Mineral industry of Alaska in 1930, *in* Smith, P.S. and others, Mineral resources of Alaska, report on progress of investigations in 1930: U.S. Geological Survey Bulletin 836, p. 39.

____1936, Mineral industry of Alaska in 1934, *in* Mineral resources of Alaska, report on progress of investigations in 1934: U.S. Geological Survey Bulletin 868A, p. 42-43.

Western Mining News, 1977, Maple Leaf Gold resumes operations on two Alaska placer mines: Spokane, Washington, vol. 9, no. 32, p. 1.

Property Summary

Name(s): Glacier River
Seattle River
Rose 1-2 claims
Springwell 1-5 claims
Alice 1-7 claims
Golden Lady 1-2 claims
Tracie Lynn 1-9 claims
Aras 1-3 claims

Map No: W71
MAS No: 0020300118
Alaska Kardex 030-167
Alaska Kardex 030-168
Alaska Kardex 030-169
Alaska Kardex 030-182
Alaska Kardex 030-183

Deposit Type: Placer

Commodities: Au

Location:

Quadrangle: Wiseman B-1
NW¼ sec. 33, T. 31 N., R. 13 W.
Meridian: Fairbanks
Elevation: 1,420 feet
Latitude: 67° 28.432' N.
Longitude: 150° 28.299' W.
Geographic: The Glacier River (old name Seattle River) is a 35-mile-long eastern tributary to the North Fork Koyukuk River. The site is between Mascot and Yankee Creeks. The Glacier River flows through Gates of the Arctic National Park and land owned by Doyon Ltd. Access is via a 7-mile-long winter trail that runs west from Nolan Creek.

History:

1938 - Shafts reportedly sunk in the "early days" (Reed, 1938).
1977-85 - L. Aras, R. Delaney, B. Easton, R. Kocurek, and H. Rickets held placer claims on the Glacier River (Kardex).

Production: Unknown.

Workings and Facilities:

At least three shafts and associated cabin remains are located along the Glacier River, between Mascot and Yankee Creeks.

Geologic Setting:

Bedrock between Mascot and Yankee Creeks consists predominantly of phyllite, pellitic schist, slate, metasiltstone, and quartzite of the Middle to Upper Devonian Beaucoup Formation (Dillon and others, 1986). According to Reed (1938), bedrock on dumps is reported to be mostly graphitic schist

The Glacier River is reported to contain three phases of stream concentration: modern, deep, and high channels. No values were found in the modern stream channel. At a point half a mile downstream from Mascot Creek, a shaft was sunk to 250 feet, but records do not indicate if it hot bedrock. At the mouth of Mascot Creek, a shaft was sunk to 250 feet, but it is not known if bedrock was hit. At a point 2.5 miles upstream from Mascot Creek, a shaft sunk into the deep channel hit bedrock at 168 feet. This is the only shaft on the Glacier River that reportedly showed enough gold values to warrant further prospecting. The values obtained were too low to be profitable. At a point 3.2 miles upstream from Mascot Creek, shafts hit bedrock in the deep channel at 258 feet. There are three high channels reported on the left limit of the Glacier River and 2-3 traceable on the right limit. None of these channels were reportedly gold-bearing. It is possible that these channels are actually lateral moraines (Reed, 1938).

Bureau Investigation:

Test pans taken from shaft dumps along the bottom of Glacier River did not contain any visible gold. Test pans from a shaft dump in the high channel, on the east side of the river 3.2 miles upstream from Mascot Creek, did not contain gold. A sample from a malachite-stained large boulder of quartz-chlorite schist in the Glacier River bottom, near the shaft, contained 3,215 ppm copper and 117 ppm zinc (12465, table I-1).

Resource Estimate: None.

Mineral Development Potential:

Low development potential for placer gold due to poor results from shaft sinking.

Recommendations: Prospect for the source of the copper-bearing schist.

References:

Dillon, J.T., Brosge, W.P., and Dutro, J.T., Jr., 1986, Generalized geologic map of the Wiseman quadrangle, Alaska: U.S. Geological Survey Open-File Report 86-219, 1 sheet, scale 1:250,000.

Reed, I.M.,1938, Upper Koyukuk region, Alaska: Alaska Territorial Department of Mines Miscellaneous Report 194-7, p. 79-81.

Property Summary

Name(s): Ipnek Creek
Ice Worm 1-3

Map No: W72
MAS No: 0020300080
Alaska Kardex 030-121

Deposit Type: Placer

Commodities: Au

Location:
Quadrangle: Wiseman B-2
NW¼ sec. 28, T. 30 N., R. 15 W.
Meridian: Fairbanks
Elevation: 1,500 feet
Latitude: 67° 23.975'N.
Longitude: 150° 55.366' W.
Geographic: A northeast-flowing tributary of the North Fork Koyukuk River, within the Gates of the Arctic National Park.

History:

1974-82 - Maple Leaf Gold Company staked 87 placer claims along Ipnek Creek (Kardex).

Production: None.

Workings and Facilities: None observed.

Geologic Setting:

Bedrock mostly consists of Devonian chloritic and carbonate rocks, which includes phyllite, dolomite, chloritic to calcareous metasandstone and marble, and carbonate clast conglomerate. Devonian to Jurassic(?) metabasite is mapped near the headwaters, above 2,800 feet elevation (Dillon and others, 1986).

Bureau Investigation:

Reconnaissance stream sediment and pan concentrate samples were collected from a bluff exposure of frozen gravels at Ipnek Creek (10796-10797, table I-1). No gold was observed, but there was abundant magnetite in the samples. The analytical results are not anomalous.

Resource Estimate: None.

Mineral Development Potential:

Low mineral development potential due to lack of anomalous sample results.

Recommendations: None.

References:

Dillon, J.T., Brosge, W.P., and Dutro, J.T., Jr., 1986, Generalized geologic map of the Wiseman quadrangle, Alaska: U.S. Geological Survey Open-File Report 86-219, 1 sheet, scale 1:250,000.

Property Summary

Name(s): Ruby Creek
Ruby claims

Map No: W73
MAS No: 0020300137
Alaska Kardex 030-155

Deposit Type: Unknown lode

Commodities: Cu

Location:

Quadrangle: Wiseman B-2
NW¼ sec. 2, T. 29 N., R. 15 W.
Meridian: Fairbanks
Elevation: 2,500 feet
Latitude: 67° 22.367' N.
Longitude: 150° 50.667' W.
Geographic: A western tributary of the North Fork Koyukuk River, 3 miles north of the Glacier River, within the Gates of the Arctic National Park.

History:

1976 - Resource Associates staked 37 claims on Ruby Creek (WGM Inc., 1976).
1978 - Activity on Ruby claims ceased (Kardex).

Production: None.

Workings and Facilities: None.

Geologic Setting:

The bedrock underlying Ruby Creek is composed of Devonian(?) mica schist, quartz-mica schist, and phyllite. On the north side of the creek, a narrow east-west-trending band is composed primarily of lower Upper Devonian slate, phyllite, and siltstone. Mafic greenschist occurs on the ridge that divides Ruby Creek from Ipnek Creek (map no. W72) (Brosge and Reiser, 1971).

WGM Inc (1976) briefly investigated the area. A stream sediment sample collected midway up Ruby Creek contained 200 ppm copper. A stream sediment sample from the headwaters of Ipnek Creek contained 405 ppm copper. No source for the anomalies was located. On lower Ruby Creek quartzite float contains up to 3% chalcopyrite.

Bureau Investigation:

The BLM investigated the stream gravels near the mouth of Ruby Creek. Bedrock was not located along the modern channel, but a pan concentrate sample from beneath a boulder (10799, table I-1) contains 42 ppb gold which is slightly anomalous. The chalcopyrite-bearing float previously reported was not located. The area where claims were staked on the ridge north of the creek, was not investigated.

Resource Estimate: None.

Mineral Development Potential:

Low development potential due to weak geochemical values and lack of mineralization in bedrock.

Recommendations: None.

References:

Brosge, W.P., and Reiser, H.N., 1971, Preliminary geologic map, Wiseman, and eastern Survey Pass quadrangles, Alaska: U.S. Geological Survey Open-File Report 71-56, 1 sheet, scale 1:250,000.

WGM Inc., 1976, 1975 Annual progress report, western Alaska project, Part III Wiseman quadrangle, Part IV Healy-Fairbanks area: unpublished report, p. 74-75. [available from Doyon Ltd., Fairbanks, Alaska]

Property Summary

Name(s): Lode and Behold
Glacier River

Map No: W74
MAS No: 0020300119
Alaska Kardex 030-186

Deposit Type: Placer

Commodities: Au

Location:

Quadrangle: Wiseman B-2
SE¼ sec. 22, T. 30 N., R. 14 W.
Meridian: Fairbanks
Elevation: 2,000 feet
Latitude: 67° 24.633' N.
Longitude: 150° 39.583' W.
Geographic: Located at midpoint of Glacier River, between the North Fork Koyukuk River and Mascot Creek, within the Gates of the Arctic National Park.

History:

1977 - R. Kocurek staked one claim on Glacier River (Kardex).

Production: None.

Workings and Facilities: None observed.

Geologic Setting:

There is no exposed bedrock along Glacier River near the reported occurrence. The gravels are (re)worked Quaternary surficial deposits–glacial, alluvial, and colluvial material. The bedrock on the adjacent ridges consists of Devonian black slate, phyllite, and limestone with lesser amounts of Devonian to Jurassic(?) metabasite outcropping to the west of the occurrence (Dillon and others, 1986).

Bureau Investigation:

A stream sediment and a pan concentrate sample (10812-10813, table I-1) were collected off a gravel bar on the left limit of Glacier River. A piece of phyllite with disseminated pyrite and limonite (10814) was also collected. No anomalous results were noted in any of the samples.

Resource Estimate: None.

Mineral Development Potential: Low mineral development potential due to lack of anomalous results.

Recommendations: None.

References:

Dillon, J.T., Brosge, W.P., and Dutro, J.T., Jr., 1986, Generalized geologic map of the Wiseman quadrangle, Alaska: U.S. Geological Survey Open-File Report 86-219, 1 sheet, scale 1:250,000.

Property Summary

Name(s): La Salle Creek
Meyer 1-3 claims
Hansen 1-3 claims

Map No: W75
MAS No: 0020300134
Alaska Kardex 030-165
Alaska Kardex 030-166

Deposit Type: Placer

Commodities: Au

Location:
Quadrangle: Wiseman B-2
Center sec. 35, T. 30 N., R. 14 W.
Meridian: Fairbanks
Elevation: 1,260 feet
Latitude: 67° 23.017' N.
Longitude: 150° 36.501' W.
Geographic: An eastern tributary of the Glacier River, 4.0 miles upstream from the North Fork Koyukuk River, within the Gates of the Arctic National Park.

History:

1977, 1985 - Meyers 1-3 and Hansen 1-3 claims staked.

Production: None.

Workings and Facilities: None.

Geologic Setting:

An east-west-trending thrust fault runs parallel to lower La Salle Creek. The upper plate on the south side of the creek is made up of Devonian(?) quartz-mica schist and quartzite. Lower plate rocks on the south side of the creek are composed of Devonian(?) mica schist and phyllite (Brosge and Reiser, 1971).

Bureau Investigation:

Test pans were taken of gravels adjacent to phyllite bedrock as well as from clay-lined bedrock fractures. No gold was found, but the pans contained abundant magnetite, some of which was euhedral (10792, table I-1). Some rust-weathering, garnet-bearing micaceous quartzite with disseminated pyrite was found as float in the creek bottom. A select sample (10793) contains 157 ppm copper. On the northeast portion of La Salle Creek basin, Bluecloud Mountain (map no. W80) has been investigated for base metal lode potential.

Resource Estimate: None.

Mineral Development Potential: Low potential due to lack of placer gold in test pans.

Recommendations: None.

References:

Brosge, W.P., and Reiser, H.N., 1971, Preliminary geologic map, Wiseman, and eastern Survey Pass quadrangles, Alaska: U.S. Geological Survey Open-File Report 71-56, 1 sheet, scale 1:250,000.

Property Summary

Name(s): Horse Creek
Carol Ann no. 1

Map No: W76
MAS No:0020300136
Alaska Kardex 030-187

Deposit Type: Placer

Commodities: Au

Location:

Quadrangle: Wiseman B-2
NW¼ sec. 21, T. 29 N., R. 14 W.
Meridian: Fairbanks
Elevation: 1,000 feet
Latitude: 67° 19.817' N.
Longitude: 150° 41.000' W.
Geographic: An eastern tributary of the Glacier River, just upstream from the North Fork Koyukuk River, within the Gates of the Arctic National Park.

History:

1977 - Carol Ann no.1 claim staked by W. Moss (Kardex).
1977-80 - Claim active (Kardex).

Production: Unknown.

Workings and Facilities: None.

Geologic Setting:

The bedrock in the Horse Creek area is composed of Devonian(?) mica schist, quartz-mica schist, phyllite, and quartzite. A band of middle(?) Devonian calcareous schist, quartz-mica schist, and marble lies parallel to a thrust fault contact that runs up the creek (Brosge and Reiser, 1971).

Bureau Investigation:

An aerial search, made in the vicinity of the reported location, revealed no sites where the creek flows on bedrock. Test pans taken from a point bar, 1.3 miles upstream from the Glacier River, contained no gold and only minor magnetite (10795, table I-1). A stream sediment sample from the same site (10794) contains 141 ppm zinc.

Resource Estimate: Unknown.

Mineral Development Potential:

Low development potential due to lack of bedrock and gold on the lower creek.

Recommendations: None.

References:

Brosge, W.P., and Reiser, H.N., 1971, Preliminary geologic map, Wiseman, and eastern Survey Pass quadrangles, Alaska: U.S. Geological Survey Open-File Report 71-56, 1 sheet, scale 1:250,000.

Property Summary

Name(s): Larowe Creek

Map No: W77
MAS No: 0020300150
Alaska Kardex 030-212
Alaska Kardex 030-213

Deposit Type: Placer

Commodities: Au

Location:

Quadrangle: Wiseman B-2
SW¼ sec. 20, T. 29 N., R. 14 W.
Meridian: Fairbanks
Elevation: 1,000 feet
Latitude: 67° 19.417' N.
Longitude: 150° 43.833' W.
Geographic: A western tributary of the North Fork Koyukuk River, unnamed on USGS maps. Located within the Gates of the Arctic National Park.

History:

1978-80 - A total of eight placer claims staked by L. Mead, J. Rowe, and W Hasleiet (Kardex).

Production: None.

Workings and Facilities: None observed.

Geologic Setting:

The bedrock at Larowe Creek is Proterozoic or Lower Paleozoic coarse mica schist, paragneiss with graphitic schist and muscovite quartzite, and calcareous schist. The present creek follows an east-west thrust fault. Another major thrust fault along the ridge to the north divides the largely Devonian metasedimentary rocks of the north from the older metasedimentary units to the south (Dillon and others, 1986).

Bureau Investigation:

A stream sediment and two pan concentrate samples were collected (10823-10825, table I-1) from gravel overlying mica-quartz schist bedrock. The bedrock contains crosscutting quartz veinlets with trace pyrrhotite and hematite(?) (10826). No anomalous results are noted in any of the samples.

Resource Estimate: None.

Mineral Development Potential: Low mineral development potential due to lack of gold in samples.

Recommendations: None.

References:

Dillon, J.T., Brosge, W.P., and Dutro, J.T., Jr., 1986, Generalized geologic map of the Wiseman quadrangle, Alaska: U.S. Geological Survey Open-File Report 86-219, 1 sheet, scale 1:250,000.

Property Summary

Name(s): Rock Creek - North Fork tributary
Garvins Gold
Hard Rokuk

Map No: W78
MAS No: 0020300135
Alaska Kardex 030-170
Alaska Kardex 030-181

Deposit Type: Placer

Commodities: Au

Location:

Quadrangle: Wiseman B-2
SE¼ sec. 19, T. 29 N., R. 13 W.
Meridian: Fairbanks
Elevation: 2,500 feet
Latitude: 67° 19.606' N.
Longitude: 150° 30.975' W.
Geographic: Occurrence is a southwestern-flowing tributary to the North Fork Koyukuk River, within the Gates of the Arctic National Park.

History:

1977 - Placer claims staked by M. Garvin and R. Mathews (Kardex).

Production: None.

Workings and Facilities: None observed.

Geologic Setting:

Bedrock at Rock Creek is Proterozoic or Lower Paleozoic coarse mica schist, paragneiss with graphitic schist and muscovite quartzite, and calcareous schist. The present creek follows a northeast-trending thrust fault. Another parallel thrust fault along the ridge to the north divides the largely Devonian metasedimentary rocks of the north from the older metasedimentary units to the south (Dillon and others, 1986).

Bureau Investigation:

A stream sediment and a pan concentrate sample (11489-11490, table I-1) were collected off quartz-mica schist bedrock. Two rock samples were also collected: a quartz-mica schist with 3% disseminated and stringer pyrrhotite (11491) and a greenstone (11492). No anomalies are noted in the samples.

Resource Estimate: None.

Mineral Development Potential:

Low mineral development potential for placers due to lack of gold in samples.

Recommendations: None.

References:

Dillon, J.T., Brosge, W.P., and Dutro, J.T., Jr., 1986, Generalized geologic map of the Wiseman quadrangle, Alaska: U.S. Geological Survey Open-File Report 86-219, 1 sheet, scale 1:250,000.

Property Summary

Name(s): Emma Dome

Map No: W79
MAS No: 0020300016

Deposit Type: Unknown Lode

Commodities: Au, Ag, Cu

Location:

Quadrangle: Wiseman B-1
NE¼ sec. 22, T. 29 N., R. 13 W.
Meridian: Fairbanks
Elevation: 4,250 feet
Latitude: 67° 19.501' N.
Longitude: 150° 24.568' W.
Geographic: Near peak 4465 at the headwaters of Emma Creek, 5.5 miles northwest of Coldfoot. This site is within Gates of the Arctic National Park.

History:

1950s - Anomalous copper sample collected by the USGS (Brosge and Reiser, 1960).
1970s - USGS reported tourmalinized rocks on the west flank of Emma Dome (Brosge and Reiser, 1972).

Production: None

Workings and Facilities: There is no record of any claims staked in the area.

Geologic Setting:

Rocks at the headwaters of Rock Creek consist of two units (bottom to top): Lower Paleozoic(?) to Proterozoic calcareous schist with marble interbeds and coarse, mica schist with lenses of graphitic schist. The older rocks are exposed within the eroded crest of the southwest-plunging Emma Dome antiform (Dillon and others, 1986). Heavily tourmalinized vein quartz is reported to occur on the west flank of Emma Dome and silicated limestone is reported to occur at the base of the east flank of Emma Dome (Brosge and Reiser, 1972, p. 8).

Bureau Investigation:

BLM geologists investigated the area. A sample of vein quartz float with hematite, siderite, and, tourmaline(?) (10882, table I-1) is not anomalous in titanium or any other metal. The reported site of the tourmalinized rocks is approximately 3 miles to the north, but was not visited at the time (Brosge and Reiser, 1972, p. 8).

Resource Estimate: None.

Mineral Development Potential: Unknown.

Recommendations: None.

References:

Brosge, W.P., and Reiser, H.N., 1972, Geochemical reconnaissance in the Wiseman and Chandalar districts and adjacent region, southern Brooks Range, Alaska: U.S. Geological Survey Professional Paper 709, p. 8.

Brosge, W.P., and Reiser, H.N., 1960, Progress map of the geology of the Wiseman quadrangle, Alaska: U.S. Geological Survey Open-File Report 60-19, 2 sheets, scale 1:250,000.

Dillon, J.T., Brosge, W.P., and Dutro, J.T., Jr., 1986, Generalized geologic map of the Wiseman quadrangle, Alaska: U.S. Geological Survey Open-File Report 86-219, 1 sheet, scale 1:250,000.

Property Summary

Name(s): Bluecloud Mountain
Poorman 1-4

Map No: W80
MAS No: 0020300077
Alaska Kardex 030-111

Deposit Type: Metamorphosed sulfide

Commodities: Au, Cu, Pb, Zn

Location:

Quadrangle: Wiseman B-1
NW¼ sec. 27, T. 30 N., R. 13 W.
Meridian: Fairbanks
Elevation: 4,500 feet
Latitude: 67° 23.933' N.
Longitude: 150° 25.943' W.
Geographic: Located along the southern flank of Bluecloud Mountain, about 10 miles due west of Wiseman, Alaska. Doyon Ltd. owns most of the land near Bluecloud Mountain, which is directly adjacent to Gates of the Arctic National Park.

History:

1971 - Geotechnical Exploration Assoc. staked four lode claims on western side of Bluecloud Mountain (WGM Inc., 1976).
1975 - WGM Inc. (1976) noted copper, lead, and zinc anomalies during regional geochemical sampling program.
1976 - Follow-up work by WGM Inc. included mapping and sampling (WGM Inc., 1978).
1977 - WGM Inc. (1978) geophysics investigation included electromagnetic (EM) and magnetic surveys.
1978 - WGM Inc. (1979) drilled an area with a strong EM anomaly.
1983 - Site was re-visited by WGM Inc. (Nicol, 1983).
1992 - ASA Inc. (1992) reviewed data and collected samples, concluding no further work was needed.

Production: None.

Workings and Facilities: None observed.

Geologic Setting:

Bluecloud Mountain is bisected by the Wiseman thrust fault, a regional fault system that trends roughly east-northeast. It juxtaposes Proterozoic(?) or Paleozoic(?) interbanded quartzite and graphitic schist over Devonian metasediment units, which include pelitic schist, calcareous schist, phyllite, chloritic sandstone, and conglomerate. The pelitic schist contains quartz, white mica, chlorite, albite, and garnet. It also locally contains biotite, which weathers to a rusty red color. The pelitic schists are correlative to the Devonian Hunt Fork Shale units to the north (WGM Inc., 1978, 1979; Dillon and Reifenstuhl, 1990).

WGM Inc. (1976, 1978) reported copper, lead, and zinc anomalies in stream sediment samples collected at Bluecloud Mountain. Further investigation indicated that the lead anomalies were associated with fault controlled, weakly disseminated galena on the north side of the mountain. Also, a strong EM conductor was estimated to be approximately 50 to 75 feet deep along the south-facing slope of Bluecloud Mountain. The site was core drilled by WGM Inc. to a depth of 150 feet. Graphitic schist and disseminated pryrrhotite and pyrite occurring along shear zones were noted in the drill core. WGM Inc.

(1979) concluded that the schist and disseminated sulfides were accountable for the EM anomaly.

ASA Inc. (1992) continued the investigation of gold anomalies in stream sediment samples collected by WGM Inc. at Bluecloud Mountain. They concluded that the gold and polymetallic anomalies found in stream sediment samples were likely the results of high background metal content in the schist units, and not reflective of economically significant gold mineralization.

Bureau Investigation:

BLM geologists investigated the south side of Bluecloud Mountain. Calcareous schist and hornfels(?) were found to contain disseminated pyrite and pyrrhotite(?). Three rock samples (11888, 11889, 11892, table I-1) were collected; however, the assay results are not considered anomalous. A pan concentrate sample collected from bedrock on upper La Salle Creek (11891) contains only 6 ppb gold, although a very fine gold piece was thought to have been observed in the pan. La Salle Creek has also been investigated for placer gold potential (map no. W75).

Resource Estimate: None.

Mineral Development Potential:

Low mineral development potential for lode metal deposits due to low metal values in samples and drill core collected from the area.

Recommendations: None.

References:

ASA, Inc., 1992, 1992 Annual report, reconnaissance program Doyon Ltd. option lands, v. I: unpublished report 92-168A for Doyon Ltd., p. 95-110. [available from Doyon Ltd., Fairbanks, Alaska]

Dillon, J.T., and Reifenstuhl, R.R., 1990, Geologic map of the Wiseman B-1 quadrangle southcentral Brooks Range, Alaska: Alaska Division of Geological and Geophysical Surveys, Professional Report 101, 1 sheet, scale 1:63,360.

Nicol, D L., 1983, Evaluation of the mineral potential of Doyon Ltd.'s Blocks 5 and 22: unpublished report 83-04, 78 p. [available from Doyon Ltd., Fairbanks, Alaska]

WGM Inc., 1976, 1975 Annual progress report, Doyon Ltd. project, v. I: unpublished report 76-05 for Doyon Ltd., p. 39-59. [available from Doyon Ltd., Fairbanks, Alaska]

____1978, 1977 Annual progress report, Doyon Ltd. project, v. III, west Wiseman Block 5: unpublished report 78-06 for Doyon Ltd., 13 p. [available from Doyon Ltd., Fairbanks, Alaska]

____1979, 1978 Doyon Ltd. annual progress report, Block 5 general, southern Block 5, and Bluecloud base-metal anomalies: unpublished report 79-17 for Doyon Ltd., 5 p. [available from Doyon Ltd., Fairbanks, Alaska]

Property Summary

Name(s): Pasco Creek

Map No: W81
MAS No: 0020300072
Alaska Kardex 030-080

Deposit Type: Placer

Commodities: Au

Location:

Quadrangle: Wiseman B-1
SE¼ sec. 31, T. 31 N., R. 12 W.
Meridian: Fairbanks
Elevation: 1,680 feet
Latitude: 67° 27.783' N.
Longitude: 150° 18.083' W.
Geographic: Located on an east-flowing tributary of Wiseman Creek, 1 mile west of Nolan Creek Lake, within the Gates of the Arctic National Park.

History:

1899 - Schrader (1900) reported that gold is being prospected near Pasco Creek. Claims were staked in the area.

Production: None recorded.

Workings and Facilities: None observed.

Geologic Setting:

The bedrock at Pasco Creek is predominantly Cambrian or Silurian(?) slate, phyllite, and siltstone. In the northern portion of the drainage, Devonian chloritic and carbonate rocks (schist, phyllite, and marble) contact the Silurian unit along an east-west-trending thrust(?) fault (Brosge and Reiser, 1972; Dillon and others, 1986).

Bureau Investigation:

Stream sediment and pan concentrate samples (11770-11773, table I-1) were collected on Wiseman Creek, above and below the confluence with Pasco Creek. Very fine gold was observed in a pan concentrate sample collected above the confluence (11771), although the analytical results are only 9 ppb gold. No other anomalies are noted in the samples collected near Pasco Creek.

An antimony anomaly was reported on Pasco Creek (Brosge and Reiser, 1972, p. 12). Sampling by the BLM did not substantiate the anomaly.

Resource Estimate: None.

Mineral Development Potential: Unevaluated.

Recommendations: None.

References:

Brosge, W.P., and Reiser, H.N. 1972, Geochemical reconnaissance in the Wiseman and Chandalar districts and adjacent region, southern Brooks Range, Alaska: U.S. Geological Survey Professional Paper 709, p. 12.

Cobb, E.H., 1976, Summary of references to mineral occurrences (other than mineral fuels and construction materials) in the Chandalar and Wiseman quadrangles, Alaska: U.S. Geological Survey Open-File Report 76-340, p. 145.

Dillon, J.T., Brosge, W.P., and Dutro, J.T., Jr., 1986, Generalized geologic map of the Wiseman quadrangle, Alaska: U.S. Geological Survey Open-File Report 86-219, 1 sheet, scale 1:250,000.

Dillon, J.T., and Reifenstuhl, R.R., 1990, Geologic map of the Wiseman B-1 quadrangle southcentral Brooks Range, Alaska: Alaska Division of Geological and Geophysical Surveys, Professional Report 101, 1 sheet, scale 1:63,360.

Heiner, L.E., and Wolff, E.N., 1968, Final report, mineral resources of northern Alaska: Mineral Industry Research Laboratory, University of Alaska, Report 16, p. 135.

Schrader, F.C., 1900, Preliminary report on a reconnaissance along the Chandalar and Koyukuk Rivers, Alaska in 1899: Twenty-first annual report of the U.S. Geological Survey Part 2, p. 485.

Property Summary

Name(s): Pasco Pass
Pasco no. 1 claim

Map No: W82
MAS No: 0020300076
Alaska Kardex 30-105

Deposit Type: Unknown lode

Commodities: Au

Location:
Quadrangle: Wiseman B-1
NW¼ sec. 36, T. 31 N., R. 13 W.
Meridian: Fairbanks
Elevation: 2,400 feet
Latitude: 67° 28.133' N.
Longitude: 150° 21.500' W.
Geographic: A northwestern tributary of Wiseman Creek, 2.6 miles northwest of Nolan Creek Lake. The site is on Doyon Ltd. lands.

History:

1900 - Gold reported to occur on Pasco Creek (Schrader, 1900).
1970, 1982 - Lode claims staked by J. Morang and S. Jensen (Kardex).

Production: None.

Workings and Facilities: Collapsed cabin near site.

Geologic Setting:

Pasco Pass is underlain by an east-west-trending fault that separates Middle or Upper Devonian phyllite with minor metasandstone and carbonate rocks on the north from Cambrian to Silurian siltstone and phyllite on the south (Dillon and others, 1986).

Bureau Investigation:

An aerial and ground search was made of the pass area and the outcrops to the north. The only indication of work was the discovery of a collapsed cabin in a stand of trees about 500 feet north of the pass. No mining tools were found at the cabin site. There are no outcrops and no indication of excavations nearby. The cabin, which is the only proof of work in the area, may have been constructed for use by woodcutters and travelers going between Nolan Creek and the Glacier River.

Resource Estimate: None.

Mineral Development Potential: Unknown.

Recommendations:

Search outcrops on the north side of the pass for signs of lode prospecting.

References:

Dillon, J.T., Brosge, W.P., and Dutro, J.T., Jr., 1986, Generalized geologic map of the Wiseman quadrangle, Alaska: U.S. Geological Survey Open-File Report 86-219, 1 sheet, scale 1:250,000.

Schrader, F.C., 1900, Preliminary report on a reconnaissance along the Chandalar and Koyukuk Rivers, Alaska in 1899: Twenty-first annual report of the U.S. Geological Survey Part 2, p. 485.

Property Summary

Name(s): Snowshoe Creek
Snowshoe 1-5 claims

Map No: W83
MAS No: 0020300113
Alaska Kardex 030-204

Deposit Type: Placer

Commodities: Au

Location:

Quadrangle: Wiseman B-1
S½ sec. 3, T. 31 N., R. 12 W.
Meridian: Fairbanks
Elevation: 1,840 feet
Latitude: 67° 28.919' N.
Longitude: 150° 18.862' W.
Geographic: Northern tributary to Wiseman Creek, approximately 1.5 miles northwest of Nolan Creek Lake.

History:

1978 - Five placer claims staked by L. Cobb (Kardex).

Production: None.

Workings and Facilities:

Test pits are visible along the creek, and the remains of a small boom dam lie on a northern tributary. There is an old trail leading up the creek, which was probably used for wood gathering.

Geologic Setting:

Snowshoe Creek basin is underlain by Cambrian to Silurian siltstone and phyllite. The phyllite is locally calcareous. The foliation is northeast-trending. This unit has been overthrust on the west side of the basin by Middle or Upper Devonian(?) phyllite and dolomite (Dillon and others, 1986).

Bureau Investigation:

BLM geologists investigated the upper portion of the Snowshoe Creek basin and sampled side tributaries. Hand-dug test pits and a small boom dam were observed, indicating that the creek has been prospected. Stream sediment and pan concentrate samples were collected at the various steam tributaries. One pan concentrate sample (11761, table I-1) collected from a northern tributary 0.8 mile upstream from Wiseman Creek, contains 9 ppb gold, which is slightly anomalous. This was the only sample taken off bedrock on the creek. What appeared to be very fine gold flakes were observed in a pan concentrate (11763) taken near the remains of a boom dam on a northern tributary of Snowshoe Creek, 1.5 miles upstream from Wiseman Creek. The analytical results showed the sample contains 9 ppb gold, which is only slightly above the detection limit.

Resource Estimate: None.

Mineral Development Potential:

Low mineral development potential due to low gold values in creek and lack of previous mining. It appears that Snowshoe Creek is not underlain by enough shallow bedrock to concentrate placer gold in significant quantities.

Recommendations: None.

References:

Dillon, J.T., Brosge, W.P., and Dutro, J.T., Jr., 1986, Generalized geologic map of the Wiseman quadrangle, Alaska: U.S. Geological Survey Open-File Report 86-219, 1 sheet, scale 1:250,000.

Property Summary

Name(s): Vermont Dome
Ivy claims nos. 1- 2
Malarin claims nos. 1-2

Map No: W84
MAS No: 0020300023

Deposit Type: Quartz veins

Commodities: Cu, Crystalline quartz

Location:
Quadrangle: Wiseman C-1
SE¼ sec. 9, T. 31 N., R. 12 W.
Meridian: Fairbanks
Elevation: 3,370 feet
Latitude: 67° 31.083' N.
Longitude: 150° 13. 750' W.
Geographic: At the headwaters of Vermont Creek, 0.5 mile south of Vermont Dome.

History:

1960 - U.S. Geological Survey reported copper minerals in area (Brosge and Reiser, 1960).
1997-present - J and G. Taylor own active claims on the site.

Production: An unknown amount of crystalline quartz has been mined.

Workings and Facilities: Several small prospect pits.

Geologic Setting:

Bedrock consists of phyllite and muscovite schist of the Upper Devonian Beaucoup Formation. Locally gemstone quality quartz occurs as float in a broad gully at the headwaters of Vermont Creek on the east side of the ridge that runs south from Vermont Dome. The crystals are apparently weathering out of quartz-rich vugs in the schist, which are not exposed at the surface. Much of the quartz is quite clear, and some crystals contain inclusions of black needle-like crystals of rutile. Other crystals are milky and/or iron stained. The site lies along the projection of an east-west-trending fault that follows the Vermont Creek valley (Eden, 2000).

Most of the crystals average 1.0 inch in diameter, but fragments up to 6.0 inches in diameter were found. No quartz crystals were found in place, nor were sulfides associated with the quartz. The soil in the area of the vugs has a high clay content. This may be a weathering product resulting from a high concentration of mica in the schist. Some long trenches have been excavated along a N. 70° E. trend to locate quartz crystals buried in the clayey soil. This work has been limited to a 50- by 300-foot area.

Bliss and others (1988) report finding copper and zinc staining on quartz vein float, some vein quartz with sparse iron sulfide, and fragments of large quartz crystals in schist talus.

Bureau Investigation:

Ten rock samples were collected in the area. Samples of quartz float contain up to 262 ppm copper (11346, table I-1) and 355 ppm lead (11344). A sample of pyrite-bearing chloritic phyllite (11176) contains 107 ppm zinc. No copper minerals were identified and none of the samples are anomalous in precious metals.

Resource Estimate:

Faceted quartz from this site is being sold for $30/carat in Fairbanks. The crystals on the surface have been mostly picked up, but trenching and probing will no doubt locate more.

Mineral Development Potential:

Moderate potential for crystalline quartz. Low potential for precious metals.

Recommendations:

Trenching and probing of soil cover in area of vugs. (The site is currently covered by active mining claims.)

References:

Bliss, J.D., Brosge, W.P., Dillon, J.T., Cathrall, J.B., and Dutro, J.T., Jr., 1988, Maps and descriptions of lode deposits, prospects, and occurrences in the Wiseman 1° by 3° quadrangle, Alaska: U.S. Geological Survey Open-File Report 88-293, 52 p. plus two plates.

Brosge, W.P., and Reiser, H.N., 1960, Progress map of the geology of the Wiseman quadrangle, Alaska: U.S. Geological Survey Open-File Report 60-19, 2 sheets, scale 1:250,000.

Cobb, E.H., 1976, Summary of references to mineral occurrences (other than mineral fuels and construction materials) in the Chandalar and Wiseman quadrangles, Alaska: U.S. Geological Survey Open-File Report 76-340, p. 167.

Eden, K., 2000, Geology and gold mineralization of the Nolan area in the Brooks Range, Alaska: U.S. Bureau of Land Management Open-File Report 78, 140 p.

Property Summary

Name(s): Washington Creek

Map No: W85
MAS No: 0020300038
Alaska Kardex 030-063
Alaska Kardex 030-118

Deposit Type: Placer

Commodities: Au

Location:

Quadrangle: Wiseman C-1
NW¼ sec. 7, T. 31 N., R. 12 W.
Meridian: Fairbanks
Elevation: 1,700 feet
Latitude: 67° 31.812' N.
Longitude: 150° 18.935' W.
Geographic: Located at the prominent forks of Washington Creek, a 7-mile-long, west-flowing tributary of Glacier River. The site is within the Gates of the Arctic National Park.

History:

1902 - Placer gold discovered in August. It was the first discovery in North Fork Koyukuk River area (Schrader, 1904).
1900s - A man named Candle prospected high benches (Reed, 1938).
1980s - Washington Creek prospected by Maple Leaf Gold Company (Kardex).

Production: (oz Au) (Maddren, 1910)

1903 - 97
1904 - 97
1905 - 48
Total: 242. Estimate is suspected to be high. Both Maddren (1910, 1912) and Reed (1938) reported that although gold was found in the creek, recovery was insufficient for "serious" mining.

Workings and Facilities:

Small-scale mining was reported in the present channel near the prominent forks. Prospecting was also reportedly conducted on a high bench along the right limit, below the confluence of the forks (Reed, 1938). BLM found a dilapidated cabin and various supplies, but no direct evidence of mining or prospecting.

Geologic Setting:

The bedrock in upper Washington Creek (and Vermont Dome) is Devonian calcareous chloritic wacke. Below approximately 1900 feet elevation, the bedrock is Cambrian to Silurian black siltstone and phyllite (Dillon and others, 1986). The average stream gradient is 3.4% (Bliss and others, 1988).

Reed (1938) reported both the present channel and high channel were prospected. An open cut 1 mile above the forks was boomed, but the returns were said to be unsatisfactory. More prospecting occurred 2 miles downstream, but the results were not known. A high bench is reported along the right limit (north side), extending 3 miles downstream from the confluence of the main forks. A high bench on the left limit (south side) extends for approximately 1 mile downstream. The right limit benches were prospected, but the results are unknown.

Bureau Investigation:

A total of eight samples were collected on Washington Creek and its tributaries; however, none of the samples were anomalous in gold (table I-1). Additional test pans collected from the confluence of the forks did not contain visible gold.

Resource Estimate: None.

Mineral Development Potential:

Low mineral development potential for placers due to lack of gold in samples.

Recommendations: None.

References:

Bliss, J.D., Brosge, W.P., Dillon, J.T., Cathrall, J.B., and Dutro, J.T., Jr., 1988, Maps and descriptions of lode deposits, prospects, and occurrences in the Wiseman 1° by 3° Quadrangle, Alaska: U. S. Geological Survey Open-file Report 88-293, p. 14-15, plus two plates.

Brosge, W.P., and Reiser, H.N. 1972, Geochemical reconnaissance in the Wiseman and Chandalar districts and adjacent region, southern Brooks Range, Alaska: U.S. Geological Survey Professional Paper 709, p. 12.

Cobb, E.H., 1976, Summary of references to mineral occurrences (other than mineral fuels and construction materials) in the Chandalar and Wiseman quadrangles, Alaska: U.S. Geological Survey Open-File Report 76-340, p. 169.

Dillon, J.T., Brosge, W.P., and Dutro, J.T., Jr., 1986, Generalized geologic map of the Wiseman quadrangle, Alaska: U.S. Geological Survey Open-File Report 86-219, 1 sheet, scale 1:250,000.

Heiner, L.E., and Wolff, E.N., 1968, Final report, mineral resources of northern Alaska: Mineral Industry Research Laboratory, University of Alaska, Report 16, p. 137.

Maddren, A.G., 1910, The Koyukuk-Chandalar gold region *in* Brooks, A.E., Mineral resources of Alaska, report on progress of investigations in 1909: U.S. Geological Survey Bulletin 442, p. 292-313.

____1913, The Koyukuk-Chandalar region, Alaska: U.S. Geological Survey Bulletin 532, p. 70, 108.

Reed, I.M., 1938, Upper Koyukuk region, Alaska: Alaska Territorial Department of Mines Miscellaneous Report 194-7, p. 81-82.

Schrader, F.C., 1904, A reconnaissance in northern Alaska across the Rocky Mountains, along the Koyukuk, John, Anaktuvuk, and Colville Rivers and the Arctic coast to Cape Lisburne, in 1901: U.S. Geological Survey Professional Paper 20, p. 100.

Property Summary

Name(s): Grotto Mountain
Grotto Mountain claims nos. 1-6

Map No: W86
MAS No: 0020300070
Alaska Kardex 030-104

Deposit Type: Bedded vanadium

Commodities: V

Location:
Quadrangle: Wiseman C-1
NW¼ sec. 24, T. 32 N., R. 12 W.
Meridian: Fairbanks
Elevation: 5,000 feet
Latitude: 67° 35.400' N.
Longitude: 150° 08.250' W.
Geographic: On south flank of Grotto Mountain near headwaters of a western tributary of Grotto Creek. The site is within Gates of the Arctic National Park.

History:

1970 - H. Ross and J. Morang stake six lode claims (Kardex).

Production: None.

Workings and Facilities: None.

Geologic Setting:

The summit area of Grotto Mountain (5,161 feet) is composed of (Devonian or older?) Beaucoup Formation consisting of black slate, phyllite, and limestone. This unit has been thrust over Middle to Upper Devonian Beaucoup Formation consisting of calcareous chloritic wacke overlying interbedded calcareous, limonitic quartz sandstone and conglomerate, limestone, and gray and red phyllite (Dillon and others, 1986).

Bureau Investigation:

BLM geologists searched the north and south sides for black slate reported to occur in the Beaucoup Formation (Dillon and others, 1986). Considering the area's geology, this rock type would be the most likely host for bedded-type vanadium deposits. No slate was located on the north side, but a sample was collected from a 100-foot-wide zone of chlorite schist with metamorphic quartz (8021, table I-1). A sample was also collected from carbonaceous slate at 4,000 feet elevation on the south side of the mountain (8022). Unfortunately neither sample was analyzed for vanadium, and the sample pulps have since been lost.

Anomalous vanadium results for the region have been defined as approximately >200 ppm for stream sediment samples and >700 ppm for rock samples (Marsh and others, 1978; Dillon and others, 1981). Using this criteria, none of the samples collected during the Koyukuk Mining District study qualify as anomalous in vanadium.

Resource Estimate: None.

Mineral Development Potential: Unevaluated.

Recommendations: Search for and resample black slates on the south side of Grotto Mountain.

References:

Dillon, J.T., Brosge, W.P., and Dutro, J.T., Jr., 1986, Generalized geologic map of the Wiseman quadrangle, Alaska: U.S. Geological Survey Open-File Report 86-219, 1 sheet, scale 1:250,000.

Dillon, J.T., Moorman, M.A., and Lueck, L.L., 1981, Geochemical reconnaissance of the southwest Wiseman quadrangle: summary of data on rock samples: Alaska Division of Geological and Geophysical Surveys Open-File Report 133B, 164 p.

Fechner, S.A., Burleigh, R.E., Foley, J.F., and Lear, K.G., 1993, Results of the 1991-92 site specific mineral investigations project in Alaska: U.S. Bureau of Mines Open-File Report 100-93, 127 p.

Marsh, S.P., Petra, D.E., and Smith, S.C., 1978, Geochemical and generalized geologic map showing distribution and abundance of barium, arsenic, boron, and vanadium in stream sediments in the Chandalar quadrangle, Alaska: U.S. Geological Survey Miscellaneous Field Studies Map MF-878G, 1 sheet, scale 1:250,000.

Property Summary

Name(s): Canyon Creek
Denver No. 1

Map No: W87
MAS No: 0020300099
Alaska Kardex 030-066

Deposit Type: Placer

Commodities: Au

Location:

Quadrangle: Wiseman C-1
SE¼ sec. 1, T. 31 N., R. 12 W.
Meridian: Fairbanks
Elevation: 1,500 feet
Latitude: 67° 31.881' N.
Longitude: 150° 06.937' W.
Geographic: Canyon Creek is an 8-mile-long western tributary to the Hammond River. Most of the creek is within the Gates of the Arctic National Park.

History:

1975-81 - One placer claim staked near the confluence of Canyon Creek and Hammond River (Kardex).

Production: None.

Workings and Facilities: None observed.

Geologic Setting:

Canyon Creek is a southeast-flowing river draining the southwest flanks of Grotto Mountain. The lower portion of the creek has cut a narrow canyon, with walls up to 120 feet high. Bedrock in the lower creek is Cambrian to Silurian siltstone and phyllite with thin dolomite and marble interbeds. An east-west trending thrust fault is located above the canyon. The bedrock in the upper portion of the creek includes Devonian calcareous chloritic wacke, interbedded limonitic quartz sandstone and conglomerate, limestone, and phyllite (Dillon and others, 1986).

Mulligan (1974) reported that traces of gold were found in lower Canyon Creek, and that the upper valley also appears favorable for gold.

Bureau Investigation:

A stream sediment and a pan concentrate sample (12300-12301, table I-1) were collected in the lower part of the canyon, off phyllite bedrock with nearly horizontal schistosity. The samples contain no anomalous results.

Resource Estimate: None.

Mineral Development Potential:

Low mineral development potential for placers due to lack of gold in samples.

Recommendations: None.

References:

Dillon, J.T., Brosge, W.P., and Dutro, J.T., Jr., 1986, Generalized geologic map of the Wiseman quadrangle, Alaska: U.S. Geological Survey Open-File Report 86-219, 1 sheet, scale 1:250,000.

Cobb, E.H., 1976, Summary of references to mineral occurrences (other than mineral fuels and construction materials) in the Chandalar and Wiseman quadrangles, Alaska: U.S. Geological Survey Open-File Report 76-340, p. 92.

Mulligan, J.J., 1974, Mineral resources of the Trans-Alaska Pipeline corridor: U.S. Bureau of Mines Information Circular 8626, p. 7.

Property Summary

Name(s): Upper Hammond River

Map No: W88
MAS No: 20300109

Deposit Type: Placer

Commodities: Au

Location:

Quadrangle: Wiseman C-1
SW¼ sec. 7, T. 31 N., R. 12 W.
Meridian: Fairbanks
Elevation: 1,800 feet
Latitude: 67° 31.427' N.
Longitude: 150° 05.911' W.
Geographic: Benches on the east side of the Hammond River, 0.8 mile upstream from Vermont Creek.

History: Unknown.

Production: Unknown.

Workings and Facilities: Signs of ground sluicing ditches on east side of benches.

Geologic Setting:

Bedrock underlying the benches is composed of phyllite and pelitic mica schist of the Upper Devonian Beaucoup Formation (Eden, 2000). During the late Pliestocene, ice damming of the Hammond River near Jennie Creek Lake created an outwash plain downstream to just below Vermont Creek. Gold-bearing gravels were deposited on bedrock terraces cut by the ancestral Hammond River as it meandered across the plain. Ice retreat and subsequent downcutting by the Hammond River left these terraces perched 400 feet above the modern river level (Hamilton, 1979).

Bureau Investigation:

Bench gravels were investigated on the east and west sides of the Hammond River between Vermont and Canyon Creeks. The best exposures of gravel and underlying bedrock were found in a short gulch on the east side of the river, 0.7 mile upstream from Vermont Creek. Here bench gravels up to 150 feet thick rest on a sloping phyllite bedrock. Lack of a nearby water source made evaluation of the bench gravels difficult. Where access allowed, gravel was flown by helicopter down to the Hammond River for processing through a sluice. A 0.01 cy composite placer sample taken at regular intervals across a 150-foot thickness of gravel overlying bedrock contains 0.0008 oz/cy gold (11277, table I-1). A 0.1 cy placer sample (11279) taken on bedrock underlying the bench gravels contains 0.006 oz/cy gold. The bench sampled had dimensions of approximately 300 by 1,600 feet. Larger benches occur to the north, but these were not investigated. Lack of helicopter access precluded evaluation of large samples from the benches on the west side of the river. A pan concentrate taken from the next gulch south of Canyon Creek contains (12265) 18 ppb gold.

Resource Estimate:

There are potentially large, low-grade resources on benches on both sides of the Hammond River.

Inferred resources of 360,000 cubic yards at 0.007 oz/cy.

Mineral Development Potential:

Low potential for placer gold due to low gold values in bench gravels. Lack of proximity to a water source for sluicing could make mining operations difficult.

Recommendations: Bulk sampling and drilling of bench deposits.

References:

Eden, K., 2000, Geology and gold mineralization of the Nolan area in the Brooks Range, Alaska: U.S. Bureau of Land Management Open-File Report 78, 140 p.

Hamilton, T.D., 1979, Surficial geologic map of the Wiseman quadrangle, Alaska: U.S. Geological Survey Miscellaneous Field Studies Map MF-1122, 1 sheet, scale 1:250,000.

Property Summary

Name(s): Vermont Creek
Brandon claim
Mucho Oro claim
Nugget Bowl claim

Map No: W89
MAS No: 0020300039
Alaska Kardex 030-001
Alaska Kardex 030-004

Deposit Type: Placer

Commodities: Au, Ag

Location:

Quadrangle: Wiseman C-1 — N½ sec. 13, T. 31 N., R. 12 W.
Meridian: Fairbanks — Elevation: 1,475 feet
Latitude: 67° 30.857' N. — Longitude: 150° 07.560' W.
Geographic: A 3.5-mile-long western tributary of the Hammond River, 5 miles upstream from the Middle Fork Koyukuk River.

History:

1901 - Placer gold discovered on Vermont Creek on August 25th (Maddren, 1913).
1909 - F.A. Swift mining on creek (Maddren, 1913).
1937 - No mining on creek (Reed, 1938).
1950s - Earling Nessland mined on creek (D. Stacey, personal communication, 2001).
1981-83 - Alminco prospected and mined on creek (D. Stacey, personal communication, 2001).

Production: (oz Au)

1901 - 242	1914 - 94	1929 - 21	1956 - 32
1902 - 1,451	1916 - 328	1930 - 13	1957 - 18
1903 - 1,209	1917 - 177	1935 - 3	1958 - 25
1904 - 1,064	1918 - 98	1949 - 118	1959 - 44
1905 - 968	1919 - 43	1950 - 151	1960 - 76
1906 - 968	1921 - 16	1951 - 36	1961 - 142
1907 - 968	1922 - 40	1952 - 150	1965 - 18
1908 - 484	1923 - 21	1953 - 48	1982 - 500
1909 - 968	1924 - 86	1954 - 26	1983 - 500
1913 - 16	1925 - 24	1955 - 44	
			Total: 11,230

Median gold fineness: 928 (Bliss and others, 1988, p. 15)

Workings and Facilities:

Early hand mining concentrated on shallow bedrock 0.75 mile downstream and 0.5 mile upstream of the forks in Vermont Creek. Hydraulic methods were used to remove overburden. This was followed by drift mining along a deep channel about 0.4 mile upstream from the Hammond River. Recent mining efforts have concentrated in the same area and used a 30-foot Hector-type box to recover gold. A modern camp is located near the mouth of the creek, and a rough airstrip has been dozed on the Hammond River downstream from Vermont Creek.

Geologic Setting:

Bedrock underlying Vermont Creek is composed of carbonaceous phyllite, mica schist, slate, and quartzite of the Upper Devonian Beaucoup Formation. Some of the mica schist is carbonaceous and contains up to 5% euhedral pyrite. The pyrite is reportedly a possible of placer gold in the area (Maddren, 1913, p. 82). A right-lateral strike slip fault has been inferred to underlie the lower creek bottom. On the Right (east fork) Fork of Vermont Creek the phyllite is cut by a series of northwest-trending gold-bearing quartz veinlets (map no. W90) (Eden, 2000).

On Vermont Creek, placer gold was concentrated in shallow modern stream and deep channel placers. Shallow deposits extended for 0.75 mile below and 0.5 mile up the Right (east) Fork. The gold-bearing gravel resource on the Right Fork is small because the stream gully is very narrow. Attempts to prospect this fork with mechanized equipment were hampered by frozen ground. Little gold has been found on the west fork. Below the forks, the gravel width increases to about 400 feet. Gravel thickness range from about 3 feet near the forks to 90 feet near the mouth of the creek. Much of the shallow gold-bearing gravel had been worked out by 1909. These placers were reported to average 0.003 oz/bedrock foot (Maddren, 1913, p. 97-98; Reed, 1938, p. 55).

The lower half a mile of the creek runs on gravel that is probably related to the bench deposits that occur along the sides of the Hammond River. A shaft put down in this area cut through a false bedrock clay layer up to 20 feet thick. This clay may represent a lacustrine deposit that formed when ice damming caused a lake to form in the Hammond River valley. The shaft hit bedrock at 90 feet, and drifts were run 200 upstream in the direction of the present stream channel as well as 100 feet across the channel. Values reportedly ran as high as 0.02 oz/bedrock foot. It is possible that the second drift may have been following an old meander of the Hammond River which flowed through what is now a low saddle on the north side of Vermont Creek about half a mile upstream from the present Hammond. It is unknown whether the gold-bearing channel extends under the saddle. Surface mining in the saddle area would probably not be economic due to thick overburden. Some evidence of old shafts has been found in the area of the saddle. Modern attempts to locate the deep channel under modern Vermont Creek with mechanized equipment have failed (Maddren, 1910, p. 306; Maddren, 1913, p. 97-98; D. Stacey, personal communication, 2001).

Modern miners on the lower creek found pay concentrated in the lower 8 feet of frozen gravel. They took up to 2 feet of the underlying bedrock. Grades averaged 0.025 oz/cy gold, with the best pay found on the left limit of the creek. A 3-oz nugget was found during this mining effort. A 13-oz nugget is reported to have come from the creek. The gold was about 50% plus-10-mesh. Many ¾- to 1-oz nuggets were recovered, some of which contained impressions of crystalline quartz and ankerite (D. Stacey personal communication, 2001). The source of most of the gold is probably the numerous gold-bearing quartz veinlets exposed in the upper part of the creek.

Bureau Investigation:

Placer sampling was not done on Vermont Creek because the area has been extensively mined. There is some evidence that pyrite-bearing carbonaceous phyllite and schist is the chief source of placer gold in the Koyukuk district (Maddren, 1913). Similar rocks containing up to 5% euhedral and stringer pyrite were sampled in outcrop along Vermont Creek. The highest value obtained is 73 ppb gold (11175, table I-1), which is anomalous. The sample was collected on bedrock exposed by placer mining, and the possibility of contamination by placer gold exists.

Resource Estimate: Unknown.

Mineral Development Potential:

Low potential for shallow placers in modern stream valley. Moderate potential for gold-bearing gravel in deep channel associated with ancestral Hammond River.

Recommendations:

Drill a string of east-west trending holes to test for a buried gold-bearing channel that potentially underlies a saddle on the north side of Vermont creek about half a mile upstream from the Hammond River. The extent of drift mining into this channel is unknown.

References:

Brooks, A.H., and others, 1908, Mineral resources of Alaska, report on progress of investigations in 1907: U.S. Geological Survey Bulletin 345, p. 45.

____1915, Mineral resources of Alaska, report on progress of investigations in 1914: U.S. Geological Survey Bulletin 622, p. 59.

____1916, Mineral resources of Alaska, report on progress of investigations in 1916: U.S. Geological Survey Bulletin 662, p. 59.

Maddren, A.G., 1910, The Koyukuk-Chandalar gold region *in* Brooks, A.E., Mineral resources of Alaska, report on progress of investigations in 1909: U.S. Geological Survey Bulletin 442, p. 305-306.

____1913, The Koyukuk-Chandalar region, Alaska: U.S. Geological Survey Bulletin 532, p. 83, 97-98.

Reed, I.M., 1938, Upper Koyukuk region, Alaska: Alaska Territorial Department of Mines Miscellaneous Report 194-7, p. 55-56.

Schrader, F.C., 1904, A reconnaissance in northern Alaska across the Rocky Mountains, along the Koyukuk, John, Anaktuvuk, and Colville Rivers and the Arctic coast to Cape Lisburne, in 1901: U.S. Geological Survey Professional Paper 20, p. 100.

Smith, P.S., 1930, Mineral industry of Alaska in 1927, *in* Smith, P.S. and others, Mineral resources of Alaska, report on progress of investigations in 1927: U.S. Geological Survey Bulletin 810, p. 27.

____1932, Mineral resources of Alaska, report on progress of investigations in 1929: U.S. Geological Survey Bulletin 824A, p. 38

____1933, Mineral industry of Alaska in 1930, *in* Smith, P.S. and others, Mineral resources of Alaska, report on progress of investigations in 1930: U.S. Geological Survey Bulletin 836, p. 39.

____1937, Mineral resources of Alaska, report on progress of investigations in 1935: U.S. Geological Survey Bulletin 880A, p. 45-46.

____1938, Mineral resources of Alaska, report on progress of investigations in 1936: U.S. Geological Survey Bulletin 897A, p. 54.

Property Summary

Name(s): Right Fork Vermont Creek
V.L. claims

Map No: W90
MAS No: 0020300172

Deposit Type: Sheeted quartz veinlets

Commodities: Au

Location:

Quadrangle: Wiseman C-1
SE¼ sec. 14, T. 31 N., R. 12 W.
Meridian: Fairbanks
Elevation: 1,880 feet
Latitude: 67° 30.454' N.
Longitude: 150° 08.967' W.
Geographic: A concentration of sheeted quartz veinlets on the southwest side of Friday the 13th Pup (local name); a western tributary half a mile above the mouth of the Right Fork of Vermont Creek.

History:

1909 - Visible gold observed in quartz veinlets by U.S. Geological Survey on Vermont Creek (Maddren,1913, p. 97).

Production: None

Workings and Facilities:

The faint outline of a ground-sluicing ditch exists near the top of Friday the 13th Pup.

Geologic Setting:

Bedrock on the Right Fork of Vermont Creek consists of interbedded phyllite and mica schist of the Upper Devonian Beaucoup Formation. Schistosity strikes northwest with dips about 20° E. These rocks lie on the south flank of a broad, northeast-trending anticline (Dillon, 1989). Regional dips indicate that a broad anticlinal structure may underlie the area with limbs dipping 15-30° and plunging at a low angle to the northeast. A northeast-trending fault has been projected down the bed of the Right Fork (Eden, 2000). The schistosity is cut by a series of parallel (sheeted) quartz veinlets with a general orientation of N. 60° W. and an average dip of 75° SW. The veinlets probably fill tension fractures that formed during the folding event which created the anticline to the north. The veinlets are locally gold bearing.

The hydrothermal activity that formed the quartz veinlets may be the result of heat generated during regional metamorphism or associated with an unexposed underlying intrusive body. Mafic intrusive rocks occur near Lofty Gulch, 2 miles to the southeast (map no. W103).

Bureau Investigation:

BLM geologists investigated the veinlets both the west and east sides of the Right Fork. Gangue minerals consist of calcite, ankerite, dolomite, and white, coarse quartz. The veinlets average 0.5 inch in width and are best exposed along a 100-foot-wide cliff face just southwest of Friday the 13th Pup. A 100-foot-wide exposure of phyllite contained 18 quartz veinlets with an average spacing of about 6 feet.

Samples contain up to 63.6 ppm gold (10730, table I-1), and visible gold was observed in one veinlet (11266). A composite sample from three adjacent veinlets (10727) contains 1.8 ppm gold. In addition, the veinlets contain 1-2% pyrite, which is concentrated mostly on veinlet margins. Trace amounts of chalcopyrite, arsenopyrite, and stibnite were also observed (Eden, 2000, p. 22-24). A pan concentrate from nearby Friday the 13th Pup (11268) contains 1,750 ppb gold. A pan concentrate sample from the west fork of Vermont Creek (10736) contains 398 ppb gold. A pan concentrate sample from upper Nolan Creek (11088), above Montana Gulch, contains 14.9 ppm gold. All these samples are highly anomalous and were taken from streams that surround hill 3008 on three sides. The rocks underlying this hill may contain a concentration of gold-bearing veinlets.

The phyllite on both sides of the Right Fork, from Friday the 13th Pup down to the forks, is cut by similar quartz veinlets. Samples were collected from outcrops along both walls of the stream valley. These contain up to 815 ppb gold (12487), 1,137 ppm copper, and 1,065 ppm arsenic (12501) (Klieforth and others, 2001, p. 22).

Resource Estimate: None.

Mineral Development Potential:

Low development potential for gold-bearing, low-sulfide quartz veins. The veinlets are quite narrow (averaging 0.5 inches), and the spacing is wide (averaging 5.5 feet). Due to these factors, the deposit would have to be bulk mined. This would results in large amounts of wallrock being mined along with the quartz. The resulting dilution would be excessive, probably making the operation uneconomic.

Recommendations:

Conduct a soil geochemical survey followed by drilling in the hill 3008 area to determine whether a high concentration of gold-bearing quartz veinlets exists.

References:

Dillon, J.T., Brosge, W.P., and Dutro, J.T., Jr., 1986, Generalized geologic map of the Wiseman quadrangle, Alaska: U.S. Geological Survey Open-File Report 86-219, 1 sheet, scale 1:250,000.

____1989, Structure and Stratigraphy of the southern Brooks Range and Northern Koyukuk basin near the Dalton Highway *in* Mull, C.G., and Adams, K.E., eds., Dalton Highway, Yukon River to Prudhoe Bay, Alaska, Bedrock geology of eastern Koyukuk basin, central Brooks Range, and eastcentral Arctic Slope: Alaska Division of Geological and Geophysical Surveys Guidebook 7, v. 2, p. 157-187.

Eden, K., 2000, Geology and gold mineralization of the Nolan area in the Brooks Range, Alaska: U.S. Bureau of Land Management Open-File Report 78, p. 22-24.

Maddren, A.. G., 1913, The Koyukuk-Chandalar region, Alaska: U.S. Geological Survey Bulletin 532, p. 97

Property Summary

Name(s): Webster Gulch
Webster Gulch Discovery claim

Map No: W91
MAS No: 0020300074
Alaska Kardex 030-021
Alaska Kardex 030-047

Deposit Type: Placer

Commodities: Au

Location:

Quadrangle: Wiseman B-1
NE¼ sec. 22, T. 31 N., R. 12 W.
Meridian: Fairbanks
Elevation: 2,040 feet
Latitude: 67° 29.946' N.
Longitude: 150° 11.658' W.
Geographic: A short eastern tributary of Nolan Creek, 0.7 mile upstream from Fay Creek.

History:

1937 - No mining or prospecting on gulch (Reed, 1938).
1942 - Hydraulic mining in gulch (U.S. Bureau of Mines PIMR, 1942).
1979 - Claim staked by Gold Rim Assoc. (Kardex).

Production:

1942 - 4 oz Au

Workings and Facilities:

The gulch is probably named after Daniel Webster, commissioner and postmaster at Nolan Creek. There are remains of a shaft collar near the mouth of the gulch and evidence of placer cuts above. Coal lying near the shaft was probably used by prospectors to fire a boiler for permafrost thawing.

Geologic Setting:

Bedrock underlying Webster Gulch consists of interlayered phyllite, mica schist, metasiltstone, and quartzite of the Upper Devonian Beaucoup Formation. Bedding strikes northwest and dips to the northeast (Eden, 2000). Old reports mention that the gulch carried a little gold (Reed, 1938).

Bureau Investigation:

No gold was observed in test pans taken on the gulch. A pan concentrate taken near the mouth of the gulch (11121, table I-1) contains 26 ppb gold, which is slightly anomalous.

Resource Estimate: None

Mineral Development Potential:

Low potential for placer gold due to steep gradient of stream, lack of gold in test pans, and potentially small gravel resource. Historic production is minimal.

Recommendations: None.

References:

Eden, K., 2000, Geology and gold mineralization of the Nolan area in the Brooks Range, Alaska: U.S. Bureau of Land Management Open-File Report 78, 140 p.

Reed, I.M., 1938, Upper Koyukuk region, Alaska: Alaska Territorial Department of Mines Miscellaneous Report 194-7, p. 78.

U.S. Bureau of Mines, 1942, Permanent Individual Mine Records (PIMR) for placer mines in Alaska: U.S. Bureau of Mines unpublished reports. [available from BLM Anchorage, Alaska]

Property Summary

Name(s): Thompson Pup
Silverado Mines Inc.

Map No: W92
MAS No: 0020300073
Alaska Kardex 030-145

Deposit Type: Placer

Commodities: Au

Location:
Quadrangle: Wiseman B-1
NE¼ sec. 27, T. 31 N., R. 12 W.
Meridian: Fairbanks
Elevation: 2,250 feet
Latitude: 67° 29.500' N.
Longitude: 150° 11.000' W.
Geographic: A northern tributary of Fay Creek, 1 mile northwest of Smith Creek Dome.

History:

1929 - About 1,000 feet upstream from and 275 feet in elevation above the mouth of Fay Creek, R. McIntyre opened up a section of a high channel that could have been in Thompson Pup (Reed, 1938).

1930s-60s - O. Chappell mined on Thompson Pup, producing $40,000 in gold (Saunders, 1954).

1970s-80s - P. Pasqualli mined on Thompson Pup (Kardex).

1993-94 - Silverado Mines Inc. carried out extensive drilling program followed by mining of Thompson Pup gravels (E. Armstrong, personal communication, 2001).

Production: (oz Au)

1938 - 37
1939 - 59
1940 - 76
1941 - 120
1943 - 35
1993 - 285
1994 - 14
Total: 626 (Records incomplete.) Production could be as high as 1,300 oz (Saunders, 1954).
Average median gold fineness: 867 (Bliss and others, 1988)

Workings and Facilities:

A road, now washed out, accessed Thompson Pup via Nolan and Fay Creeks. A miner's cabin is on a bench on the south side of the creek at 2,200 feet elevation. Old hydraulic cuts remain along the nearby creek. That portion of the creek above the cabin contains reclaimed tailings from the Silverado Mines Inc. operation.

Geologic Setting:

Bedrock in Thompson Pup consists of interlayered phyllite, pelitic schist, slate, chlorite and micaceous schist, metasiltstone, and phyllite with thin beds of pyrite. Schistosity strikes northwest and dips to the north (Eden, 2000). Samples from a thin quartz vein located by USGS geologists near the head of Thompson Pup average 3.4 ppm gold (Brosge and Reiser, 1972). The lower 500 feet of the gulch has a steep gradient with occasional waterfalls. Above the cabin the gradient lessens. At the elevation of the cabin and above, bedrock is reportedly 35 to 40 feet deep (Reed, 1938).

Bureau Investigation:

Test pans off bedrock on the lower gulch contained visible gold. Bedrock has been well exposed by recent placer mining in upper Thompson Pup. The BLM investigation focused on the quartz veinlets cutting the phyllite and schist host rocks.

A series of eight samples from outcropping quartz veins average 56 ppb gold with individual samples (10647, table I-1) containing up to 182 ppb gold. The average vein orientation is N. 70° W. The veins, ranging in widths of less than 0.5 inches to 2 feet, contain trace amounts of chalcopyrite, arsenopyrite, and stibnite.

A sample of pyrite-bearing chlorite schist from Thompson Pup (11214) contains 65 ppb gold, which is slightly anomalous. Sluice concentrates from Thompson Pup contain a high concentration of large (up to 1 cm) arsenopyrite crystals. A sample of the crystals (10676), after cleaning, contains 1,964 ppb gold, which is highly anomalous. The gold could be occurring within the crystalline structure of the arsenopyrite. It is also possible that this high value is due to contamination by placer gold. The source of the large crystals was not located, although some of the vein samples are slightly anomalous in arsenic.

Resource Estimate:

Measured reserve of 1,000 oz gold in upper portion of Thompson Pup (E. Armstrong, personal communication, 2001).

Mineral Development Potential:

Low development potential for lode gold due to low gold values in both wallrocks and quartz veins. Moderate development potential for placer gold in upper portion of pup because reserves have been drilled out there. Moderate development potential for placer gold in plunge pools and on the rims of the lower pup. However, the resource is small.

Recommendations: Suction dredging in plunge pools on lower gulch.

References:

Bliss, J.D., Brosge, W.P., Dillon, J.T., Cathrall, J.B., and Dutro, J.T., Jr., 1988, Maps and descriptions of lode deposits, prospects, and occurrences in the Wiseman 1° by 3° Quadrangle, Alaska: U. S. Geological Survey Open-file Report 88-293, p. 20.

Brosge, W.P., and Reiser, H.N., 1972, Geochemical reconnaissance in the Wiseman and Chandalar districts and adjacent region, southern Brooks Range, Alaska: U.S. Geological Survey Professional Paper 709, p.8.

Reed, I.M., 1938, Upper Koyukuk region, Alaska: Alaska Territorial Department of Mines Miscellaneous Report 194-7, p. 77.

Saunders, R.H., 1954, Koyukuk district operations (Wiseman, Chandalar): Alaska Territorial Department of Mines Miscellaneous Report MR-194-16, p. 5.

Property Summary

Name(s): Fay Creek
Silverado Mines Inc.

Map No: W93
MAS No: 20300173

Deposit Type: Placer

Commodities: Au

Location:

Quadrangle: Wiseman B-1
NE¼ sec. 27, T. 31 N., R. 12 W.
Meridian: Fairbanks
Elevation: 1,900 feet
Latitude: 67° 29.364' N.
Longitude: 150° 11.643' W.
Geographic: Eastern tributary to Nolan Creek, 2.4 miles upstream from Wiseman Creek.

History:

1901 - Gold discovered on Fay Creek. The modern channel was mined out in the early days (Maddren, 1913).
1903 - First year gold produced (Maddren, 1913).
1909 - N. Cashman and P. Dow mining (U.S. Bureau of Mines PIMR, 1909).
1910 - E. Peverall mining (U.S. Bureau of Mines PIMR, 1910).
1911 - Dow and McIntyre mining (U.S. Bureau of Mines PIMR, 1911).
1923 - R. McIntyre mining (U.S. Bureau of Mines PIMR, 1923).
1987 - Eclipse Mining worked present channel from the mouth of Fay to above Thompson Pup (E. Armstrong, personal communication).

Production: (oz Au)

1903 -	172	1912 -	63
1904 -	1,149	1916 -	39
1906 -	172	1917 -	52
1908 -	9	1918 -	18
1909 -	122	1919 -	20
1910 -	184	1920 -	42
1911 -	136	1923 -	16
		1987 -	1,101
		Total:	3,295

Median fineness: 842

Workings and Facilities:

The mouth of Fay Creek is the site of the first gold discovery in the Nolan drainage. It was the first creek to be mined and has been reworked many times since. Mining took place in both the modern and deep channels, and the remains of tailings lie along much of the creek length. In the early days, a ditch was constructed to take water from upper Fay for mining in Thompson Pup. A road, much of which is now washed out, goes up the bottom of Fay Creek and into upper Thompson Pup (map no. W92) (Maddren, 1913).

Geologic Setting:

Bedrock in Fay Creek consists mostly of chlorite and quartz-mica schist, metasiltstone, and phyllite of the Upper Devonian Beaucoup Formation. Two northeast-trending faults cross the creek. Bedding in the metasiltstone frequently exhibits drag folding (Eden, 2000).

The bedrock contains numerous quartz veinlets and veins that crosscut schistosity. Fay Creek contained gold in both the modern and deep channel. Bedrock in the deep channel is about 20 feet below the surface. Both resources were mostly mined out in the early days. Reed (1938) mentions mining of a high channel on the north side of Fay Creek and 275 feet in elevation above it. Nuggets have been found using metal detectors in the roadcuts along that portion of Fay Creek (E. Armstrong, personal communication, 2001).

Bureau Investigation:

Gold-bearing gravels in Fay Creek are mostly mined out. Bedrock exposed by mining on the lower portion of the creek is cut by quartz veins. The veins were mostly northwest trending and locally contain pyrite, pyrrhotite, and arsenopyrite, chalcopyrite, and stibnite(?). Sulfides are mostly concentrated on vein margins. Samples contain up to 167 ppb gold (11371, table I-1). The veins locally contain needle-like crystals of a metallic gray mineral that could be either boulangerite or jamesonite. Anomalous amounts of lead in some samples (11211) supports this conclusion.

Resource Estimate: None.

Mineral Development Potential:

Low potential for placer gold in the main stream proper due to extensive mining of the modern stream and deep channel gravels. Moderate potential for suction dredging of bedrock potholes where gold may be renewed during annual runoffs. However, the resource is small. The ridge on the north side of Fay Pup below Thompson Pup may contain concentrations of placer gold in small gullies and rivulets. Low potential for lode gold in the area due to low gold values in veins.

Recommendations: Suction dredge bedrock potholes in creek.

References:

Brooks, A.H., 1908, Mineral resources of Alaska, report on progress of investigations in 1907: U.S. Geological Survey Bulletin 345, p. 45.

Brosge, W.P., and Reiser, H.N. 1972, Geochemical reconnaissance in the Wiseman and Chandalar districts and adjacent region, southern Brooks Range, Alaska: U.S. Geological Survey Professional Paper 709, p. 8.

Eden, K., 2000, Geology and gold mineralization of the Nolan area in the Brooks Range, Alaska: U.S. Bureau of Land Management Open-File Report 78, 140 p.

Maddren, A.G., 1910, The Koyukuk-Chandalar gold region *in* Brooks, A.E., Mineral resources of Alaska, report on progress of investigations in 1909: U.S. Geological Survey Bulletin 442, p. 301-303.

____1913, The Koyukuk-Chandalar region, Alaska: U.S. Geological Survey Bulletin 532, p. 92-94.

Reed, I.M., 1938, Upper Koyukuk region, Alaska: Alaska Territorial Department of Mines Miscellaneous Report 194-7, p. 77.

U.S. Bureau of Mines, 1909-1923, Permanent Individual Mine Records (PIMR) for placer mines in Alaska: U.S. Bureau of Mines unpublished reports. [available from BLM Anchorage, Alaska]

Property Summary

Name(s): Archibald Creek
Silverado Mines Inc.

Map No: W94
MAS No: 0020300174

Deposit Type: Placer

Commodities: Au

Location:

Quadrangle: Wiseman B-1
S½ sec. 27, T. 31 N., R. 12 W.
Meridian: Fairbanks
Elevation: 1,850 feet
Latitude: 67° 28.949' N.
Longitude: 150° 12.913' W.
Geographic: An eastern tributary to Nolan Creek, 1.7 miles upstream from Wiseman Creek.

History:

1903 - First mining on Archibald Creek
1908 - G. Marry opencut mined on creek.
1917 - P. Dow drift mined on creek (U.S. Bureau of Mines PIMR, 1917).
1922 - A. Miller drift mined on creek (U.S. Bureau of Mines PIMR, 1922).
1925 - Alaska Gold Nugget Mining Co. worked on creek (U.S. Bureau of Mines PIMR, 1925).
1927 - Koyukuk Gold Mining Co. worked creek (U.S. Bureau of Mines PIMR, 1927).
1932-35 - P. Dow drift mined on creek (U.S. Bureau of Mines PIMR, 1932-1935).
1937-39 - P. Dow, O. Chappelle, and D. O'Keefe drift and opencut mined on creek (U.S. Bureau of Mines PIMR, 1937-1939).
1998 - Silverado Mines Inc. processed 6,600 cy of gravel from modern steam channel on lower creek (E. Armstrong, personal communication, 2001).

Production: (oz Au)

1904 - 107
1905 - 107
1908 - 44
1917 - 70
1918 - 262
1919 - 255
1920 - 611
1922 - 36
1925 - 69
1926 - 198
1927 - 1,462
1932 - 202
1933 - 238
1934 - 208
1935 - 284
1937 - 97
1938 - 138
1939 - 136
1941 - 59
1957 - 18
1958 - 25
1961 - 11
1979 - 14
1980 - 3
1981 - 694
1984 - 289
1987 - 753
1998 - 187

Total: 6,577
Median fineness: 903 (Bliss and others, 1988)

Workings and Facilities:

The creek has been mined extensively both by opencut and drifting, and tailings piles of various ages abound. Early mining took place near the mouth of the creek. Shaft collars were reported up to an elevation of 1,920 feet (Reed, 1938).

Geologic Setting:

Bedrock underlying Archibald Creek consists of pyrite-bearing schist and phyllite of the Upper Devonian Beaucoup Formation. A northeast-trending fault crosses the head of the creek. A stibnite deposit (vein?) is reported to have been discovered in the creek by drift miners. Another vein is reported to have been found on the spur between Archibald and Smith Creeks to the south (Ebbly and Wright, 1948).

Archibald Creek is a steep, 0.7-mile-long stream with modern and deep channel placer deposits that have been mostly mined out. Bedrock midway up the stream is from 8 to 15 feet deep. In the upper portion of the creek, the depth to bedrock is about 25 feet. Gravel is coarse and subangular with many boulders. Where opened, the deep channel ranged from 5 to 14 feet wide. In the modern stream, the gold occurred all through the gravel and averaged $0.44 (0.014 oz) per bedrock foot. In the deep channel, the ground ran about $2.11 (0.077 oz) per bedrock foot. There are two runs of gold in both types of placers: flat and worn smooth, and coarse, rough, and porous. In 1938 chances for further drift mining in the upper portion of the creek were considered doubtful (Reed, 1938).

Bureau Investigation:

Little was done with the placers because the creek has been mostly mined out. Traverses were made along bedrock and samples of quartz veins taken, but the highest value obtained was only 27 ppb gold (11168, table I-1). No indications of the reported stibnite-bearing quartz veins were found, and a pan concentrate sample was not anomalous in antimony (11069).

Accounts by miners indicate that gold can be panned from soils on the slopes of Smith Creek Dome. To substantiate this, a 0.025 cy sample of soil (11247) mixed with weathering bedrock was collected at the 3,000-foot level, near the headwaters of Archibald Creek on the west flank of Smith Creek Dome. No visible gold or black sands were observed in the concentrate, but analysis showed the sample contains 2.3 ppm gold, which is highly anomalous for soil. Whether the source of the gold is from weathering quartz veins, pyrite-bearing schist and phyllite, or extremely high level bench placers is still unresolved.

Resource Estimate: Unknown.

Mineral Development Potential:

Low potential for gold in the modern and deep channels due to extensive mining. Moderate potential for gold in the high channel placer deposits on canyon walls.

Recommendations:

Test high channels by drilling and trenching. Resample soils near the head of Archibald Creek to substantiate previous results.

References:

Bliss, J.D., Brosge, W.P., Dillon, J.T., Cathrall, J.B., and Dutro, J.T., Jr., 1988, Maps and descriptions of lode deposits, prospects, and occurrences in the Wiseman 1° by 3° Quadrangle, Alaska: U. S. Geological Survey Open-file Report 88-293, p. 16-17.

____1976, Summary of references to mineral occurrences (other than mineral fuels and construction materials) in the Chandalar and Wiseman quadrangles, Alaska: U.S. Geological Survey Open-File Report 76-340, p.86-87.

Ebbley, N., Jr., and Wright, W.S., 1948, Antimony deposits in Alaska: U.S. Bureau of Mines Report of Investigation 4173, p. 38.

Eden, K., 2000, Geology and gold mineralization of the Nolan area in the Brooks Range, Alaska: U.S. Bureau of Land Management Open-File Report 78, 140 p.

Maddren, A.G., 1910, The Koyukuk-Chandalar gold region *in* Brooks, A.E., Mineral resources of Alaska, report on progress of investigations in 1909: U.S. Geological Survey Bulletin 442, p. 301-302.

____1913, The Koyukuk-Chandalar region, Alaska: U.S. Geological Survey Bulletin 532, p. 92-93.

Reed, I.M., 1938, Upper Koyukuk region, Alaska: Alaska Territorial Department of Mines Miscellaneous Report 194-7, p. 75-77.

Smith, P.S., 1930, Mineral industry of Alaska in 1927, *in* Smith, P.S. and others, Mineral resources of Alaska, report on progress of investigations in 1927: U.S. Geological Survey Bulletin 810, p. 27.

____1934, Mineral industry of Alaska in 1933, *in* Mineral resources of Alaska, report on progress of investigations in 1933: U.S. Geological Survey Bulletin 864A, p. 40-41.

____1936, Mineral industry of Alaska in 1934, *in* Mineral resources of Alaska, report on progress of investigations in 1934: U.S. Geological Survey Bulletin 868A, p. 42.

____1938, Mineral resources of Alaska, report on progress of investigations in 1936: U.S. Geological Survey Bulletin 897A, p. 54

____1939a, Mineral resources of Alaska, report on progress of investigations in 1937: U.S. Geological Survey Bulletin 910A, p. 56.

____1939b, Mineral resources of Alaska, report on progress of investigations in 1938: U.S. Geological Survey Bulletin 917A, p. 55.

____1941, Mineral resources of Alaska, report on progress of investigations in 1939: U.S. Geological Survey Bulletin 926A, p. 52.

U.S. Bureau of Mines, 1917-1939, Permanent Individual Mine Records (PIMR) for placer mines in Alaska: U.S. Bureau of Mines unpublished reports. [available from BLM Anchorage, Alaska]

Property Summary

Name(s): Acme Creek
Merry Association
Lucky claims

Map No: W95
MAS No: 0020300115
Alaska Kardex 030-216

Deposit Type: Placer

Commodities: Au

Location:

Quadrangle: Wiseman B-1
SE¼ sec. 28, T. 31 N., R. 12 W.
Meridian: Fairbanks
Elevation: 1,700 feet
Latitude: 67° 28.833' N.
Longitude: 150° 13.583' W.
Geographic: At the confluence of Acme and Nolan Creeks.

History: The history of mining on Acme Creek is tied closely to that of Nolan Creek (map no. W96)

1906 - Boilers and thawing equipment brought in and first successful prospect shaft sunk 135 feet to bedrock, near the mouth of Acme Creek. Discovery made by the "Three Lucky Swedes": J. and L. Olson, and J. Anderson, along with G. Sederly (Fairbanks Daily Times, July 30, 1908).
1930s - Reed (1938) reported "a little money" was recovered from a deep channel beneath the junction of Acme and Nolan Creeks. The channel did not extend for more than a few hundred feet from the confluence.
1979 - Placer claims staked near the mouth of Acme Creek (Kardex).
1989-90 - Attempt to mine deep channel with decline from mouth of Acme Creek (E. Armstrong, personal communication, 2001).
1990s - F. Lance staked claims near confluence of Acme and Nolan Creeks.

Production: None recorded for Acme Creek specifically.

Workings and Facilities:

The importing of boilers and other steam thawing equipment to Nolan led to the discovery of rich, deep frozen placers on bedrock about 130 feet beneath the modern stream bed. The initial discovery was made on Nolan Creek just downstream from Acme Creek. The deep frozen placers proved to be the richest in the drainage as well as the entire Koyukuk district. Drift mining under the main channel of Nolan Creek continued into the 1940s. In the 1980s a decline was begun near the mouth of Acme Creek to access the deep channel. It is reported that it did not reach the bottom of the deep channel (E. Armstrong, personal communication, 2001).

Geologic Setting:

Bedrock underlying Acme and Nolan Creeks, in order of abundance, consists of phyllite, pellitic schist, and black slate, metasiltstone, and quartzite of the Middle to Upper Devonian Beaucoup Formation. These units occur within the Hammond and Coldfoot subterranes of the Arctic Alaska terrane. During the late Jurassic to Early Cretaceous Brooks Range orogeny, rocks of the Coldfoot terrane were thrust northward onto the Hammond terrane, which resulted in regional metamorphism. Thrusting also caused north-vergent folding of the rocks. A second tectonic event consisting of post-Early Cretaceous strike-slip faulting displaced the thrust faults (Eden, 2000).

Lower Acme Creek contains deep channel gravels. The south side of the Brooks Range has been affected by four stages of glaciation, that range in age from Tertiary(?) through Quaternary. Prior to or during inter-glacial periods, tectonic uplift of the Brooks Range resulted in the downcutting of ancestral the nearby creeks to depths of nearly 200 feet beneath the modern stream channel. Gold weathering from numerous quartz-stibnite-gold veins in the valley formed rich placer deposits on the channel bottom. Subsequent glacial advance down the Koyukuk River filled the Wiseman Creek valley, as well as the lower portion of Nolan Creek, with ice related to the mid-Pliestocene Sagavanirktok River Glaciation (Hamilton, 1989). Drift deposits related to the ice advance and lacustrine deposits related to ice damming of the Wiseman Creek valley buried the deep channel deposits.

The deep channel makes up the largest and most productive of the placer deposits. Efforts to mine the deep channel have been focused on the confluence of Acme and Nolan Creeks. Depth to bedrock is about 150 feet. Pay zone widths vary from 20 to 100 feet. The bedrock in the deep channel contained several dropoffs, probably representing ancient waterfalls. The gold in the deep channel was coarse, rounded, and water worn, but contained no large nuggets. The gold lay directly on bedrock, with values ranging from 0.04 to as high as 0.5 oz/bedrock foot. The fineness of the gold is about 850. In 1938 the deep channel was considered to be mined out. However, drilling by Silverado Gold Mines Ltd. indicates that significant gold values occur on the margins of the mined areas as well as buried high channels and in pillars left by earlier operations (Maddren, 1913; Reed, 1938; E. Armstrong, personal communication, 1997).

Bureau Investigation:

A stream sediment and a pan concentrate sample (11090, 11091, table I-1) were collected approximately three quarters of a mile upstream of the mouth of Acme Creek. Also an outcrop sample of metamorphic quartz (11378) was sampled about 1 mile farther upstream. None of the samples results were considered anomalous.

Due to extensive work by the private sector, the BLM did not make an attempt to evaluate the potential placer resources of the Nolan area. However, the need for a good geologic map of the area was evident. Through an agreement with Silverado Gold Mines Ltd., support was given to a graduate student who mapped the geology of a 42-square-mile area between Nolan Creek and the Hammond River at a scale of 1:21,000. The student also evaluated the potential lode sources of the Nolan placers (Eden, 2000).

Resource Estimate: None.

Mineral Development Potential:

There is low potential for gold in deep channel placers at Acme Creek. High mining costs related to development of the deep channel deposits could make an operation uneconomic.

Recommendations: None.

References:

Eden, K., 2000, Geology and gold mineralization of the Nolan area in the Brooks Range, Alaska: U.S. Bureau of Land Management Open-File Report 78, 140 p.

Maddren, A.G., 1910, The Koyukuk-Chandalar gold region *in* Brooks, A.E., Mineral resources of Alaska, report on progress of investigations in 1909: U.S. Geological Survey Bulletin 442, p. 301-303.

____1913, The Koyukuk-Chandalar region, Alaska: U.S. Geological Survey Bulletin 532, p. 69, 92-94.

Reed, I.M., 1938, Upper Koyukuk region, Alaska: Alaska Territorial Department of Mines Miscellaneous Report 194-7, p. 72-75.

Property Summary

Name(s): Nolan Creek
Silverado Gold Mines Ltd
Discovery
1-7 Below Discovery
Bench claims

Map No: W96
MAS No: 0020300040
Alaska Kardex 030-022
Alaska Kardex 030-031
Alaska Kardex 030-039
Alaska Kardex 030-045
Alaska Kardex 030-048
Alaska Kardex 030-068
Alaska Kardex 030-069
Alaska Kardex 030-145
Alaska Kardex 030-153

Deposit Type: Placer

Commodities: Au, Ag

Location:
Quadrangle: Wiseman B-1
SE¼ sec. 28, T. 30 N., R. 12 W.
Meridian: Fairbanks
Elevation: 1,800 feet
Latitude: 67° 28.667' N.
Longitude: 150° 13.657' W.
Geographic: A 5.5-mile-long northern tributary of Wiseman Creek.

History:

1901 - Placer gold discovered on Nolan Creek by John Nolan, just below confluence with Fay Creek. Active mining begun by shoveling in on modern channel (Fairbanks Daily Times, August 1, 1908; Reed, 1938).
1904 - First recorded production from creek (Maddren, 1913).
1905-06 - Deep frozen gravels demonstrated to be rich in gold (Maddren, 1913).
1906 - Boilers and thawing equipment brought in and first successful prospect shaft sunk 135 feet to bedrock, near the mouth of Acme Creek. Discovery made by the "Three Lucky Swedes": J. and L. Olson, and J. Anderson, along with G. Sederly (Fairbanks Daily Times, July 30, 1908).
1908 - Major production increase due to development of extremely rich, buried channels. About 100 men reportedly working on the creek and $100,000 in gold was produced (Fairbanks Daily Times, July 30, 1908).
1916 - Wooll high channel opened by J. Wooll (Reed, 1938).
1926 - Detroit Gold Mining Company brings in equipment for large scale mining on Nolan Creek and Hammond River. Drilling done on Nolan Creek. First outside capital to arrive in district Fairbanks Daily News-Miner, May 15, 1926).
1928 - Captain Rowden takes over interests of the Detroit Gold Mining Company and opens a big cut in the Williams high channel on Nolan Creek Fairbanks Daily News-Miner, September, 13, 1929).
1928-29 - P. Dow sank a shaft 1,400 feet above the mouth of Fay Creek (Reed, 1938).
1929 - Williams high channel mined by E. Rowden (Reed, 1938).
1931 - S. Stanich and J. Ulen mined Williams high channel (Reed, 1938) .
1934 - Placer claims staked by Jones, White, O'Leary, and Chappell (Kardex).
1936 - H. Pingel, R. Jones, and J. Wooll began mining Jones high channel (Reed, 1938).
1936-37 - Drift mining by J. Wooll and W. Welch at the mouth of Archibald Creek (Reed, 1938).
1938 - Placer claims staked by E. Pingel and M. Guthrie (Kardex).

1938 - Deep channel on Nolan Creek considered to be mined out (Reed, 1938).
1948 - One lode claim staked by H. Wortman and 103 placer claims staked by P. Dow (Kardex).
1949 - Placer claims staked by S. Wanamaker (Kardex).
1980 - Silverado Gold Mines Ltd. did some drift mining on Archibald Creek (E. Armstrong, personal communication, 1997).
1989-90 - Attempt to mine deep channel with decline from mouth of Acme Creek (E. Armstrong, personal communication, 1997).
1991-92 - Underground drifting on Nolan Bench by Inside Out Mining (E. Armstrong, personal communication, 1997).
1993 - Silverado purchased bench claims from P. Dionne and began mining bench gravels on Nolan Creek and upper Thompson Pup (E. Armstrong, personal communication, 1997).
1994 - Peak of Silverado production; 4th largest gold mine in Alaska (Swainbank and others, 1995).
1996 - Nolan intermediate deep channel mined using decline by Silverado Gold Mines Ltd (Swainbank and others, 1998).
1998-99 - Silverado drift mined Swede channel on Mary's bench and mined on Archibald Creek (E. Armstrong, personal communication, 1997).
1999-2000 - Silverado mined on Archibald Creek and Workman bench (E. Armstrong, personal communication, 1997).
2001 - No mining reported on Nolan creek (E. Armstrong, personal communication, 1997).

Production: (oz Au)

1904 - 731	1921 - 1,706	1938 - 172	1962 - 17
1905 - 2,088	1922 - 2,099	1939 - 93	1963 - 57
1906 - 4,697	1923 - 282	1940 - 160	1981 - 728
1907 - 6,524	1924 - 120	1941 - 105	1984 - 314
1908 - 52,414	1925 - 48	1942 - 101	1988 - 13
1909 - 41,209	1926 - 116	1948 - 36	1989 - 20
1910 - 1,309	1927 - 190	1949 - 53	1990 - 112
1911 - 1,822	1928 - 9	1951 - 7	1991 - 225
1912 - 17	1929 - 67	1953 - 18	1992 - 420
1914 - 2,799	1930 - 1,467	1954 - 42	1994 - 8,430
1915 - 628	1931 - 240	1955 - 12	1995 - 4,720
1916 - 2,857	1932 - 329	1957 - 30	1996 - 347
1917 - 723	1933 - 431	1958 - 32	1998 - 344
1918 - 1,142	1934 - 218	1959 - 17	1999 - 701
1919 - 978	1935 - 647	1960 - 28	2000 - 190
1920 - 1,239	1937 - 317	1961 - 38	

Total: 147,045 (Records incomplete)

Average gold fineness: 927 (Bliss and others, 1988)

Workings and Facilities:

Nolan Creek has proven to be the richest drainage in the Koyukuk district, having been mined almost continuously since the discovery of gold in 1903. The discovery of placer gold on Fay Creek, an eastern tributary to Nolan Creek, led to the investigation of the latter stream and the discovery of gold just downstream from Fay Creek (figure I-8). Initial mining, consisting of shoveling in, focused on the modern the stream placers. Using wood fires and other crude means, miners were able to thaw and mine frozen gravels 15 to 25 deep (Maddren, 1913).

The importing of boilers and other steam thawing equipment into Nolan Creek led to the discovery of rich, deep, frozen placers on bedrock about 130 feet beneath the modern stream bed, just downstream from Acme Creek (map no. W95) (Maddren, 1913). The deep frozen placers proved to be the richest in the drainage as well as the entire Koyukuk district. This discovery renewed interest in Nolan Creek, and resulted in about 100 men working at drift mining in the area. In 1908 over $1,000,000 worth of gold was produced. Mining efforts also brought about an increased demand for timber to crib shafts and fuel steam boilers. Thus by 1908 the Nolan valley had been nearly striped of trees (Maddren, 1913). Drift mining under the main channel of Nolan Creek was continued into the 1940s (U.S. Bureau of Mines PIMRs). In the 1980s some mining was done in the deep channel near the mouth of Acme Creek. Drift mining was most recently done on the Swede channel on Mary's bench in 1998-1999 (E. Armstrong, personal communication, 1997).

Bench placers occurring from 50 to 200 feet above the modern stream channel have been mined by hydraulic means to wash away overburden. Ditches tapping water in the upper reaches of side streams provided the hydraulic head needed to run monitors. This water source has at times proven inadequate, making mining of these deposits difficult. Only the lower 1.5 miles of Nolan Creek have yielded gold in paying quantities. The remoteness of the area and high mining costs did not attract large mining interests in the early years; though some development of this type has been done. The Detroit Gold Mining Company did some drilling and mined in the Williams high channel in 1929 (Reed, 1938). Beginning in 1993 Silverado Gold Mines Ltd. evaluated the bench placers on Nolan Creek and neighboring Hammond River with over 600 rotary drill holes. Mining followed on upper Thompson Pup (map no. W92) and on Mary's and Workman Benches. Due to low gold prices and lack of capital, Silverado did no mining in 2001 (E. Armstrong, personal communication, 1997). .

The camp of Nolan, boasting a commissioner and post office, sprang out of the tundra as a result of the mining efforts. The village of Wiseman grew up on the banks of the Middle Fork Koyukuk River 6 miles away as a supply base for both the Nolan and Hammond River mines. The lower portion of the creek is accessible via a 6-mile-long privately maintained road from Wiseman. Silverado Gold Mines Ltd. maintains a 14-person camp and shop facilities on the property. Other cabins and mining equipment are scattered about the area. A 1,700-foot airstrip has been built near the mouth of the canyon. At present Nolan has one permanent resident (Maddren, 1913; Reed, 1938; Silverado Gold Mines Ltd., 2002; Fairbanks Daily Times, 1906-1916; Fairbanks Daily News Miner, 1916-1966).

Geologic Setting:

Bedrock underlying Nolan Creek, in order of abundance, consists of phyllite, pellitic schist, and black slate, metasiltstone, and quartzite of the Middle to Upper Devonian Beaucoup Formation (figure I-9). These units occur within the Hammond and Coldfoot subterranes of the Arctic Alaska terrane. During the late Jurassic to Early Cretaceous Brooks Range orogeny, rocks of the Coldfoot terrane were thrust northward onto the Hammond terrane, which resulted in regional metamorphism. Thrusting also caused north-vergent folding of the rocks. A second tectonic event consisting of post-Early Cretaceous strike-slip faulting displaced the thrust faults. Northeast-trending quartz-stibnite-gold veins, from 1 to 3.5 inches wide, occur in tension fractures that crosscut the foliation (map no. W97). The fractures may be second order features related to the strike slip faulting (Eden, 2000).

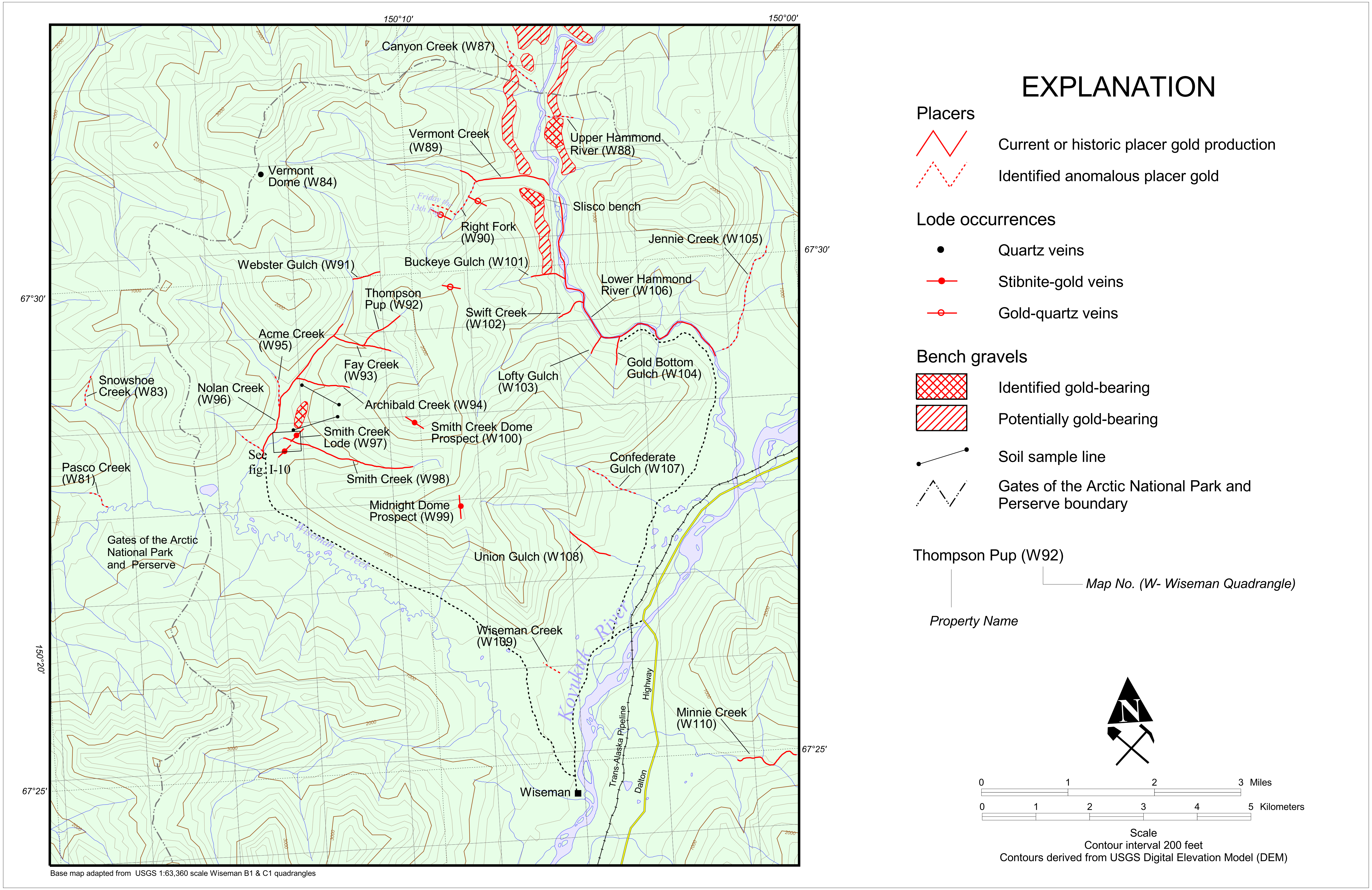
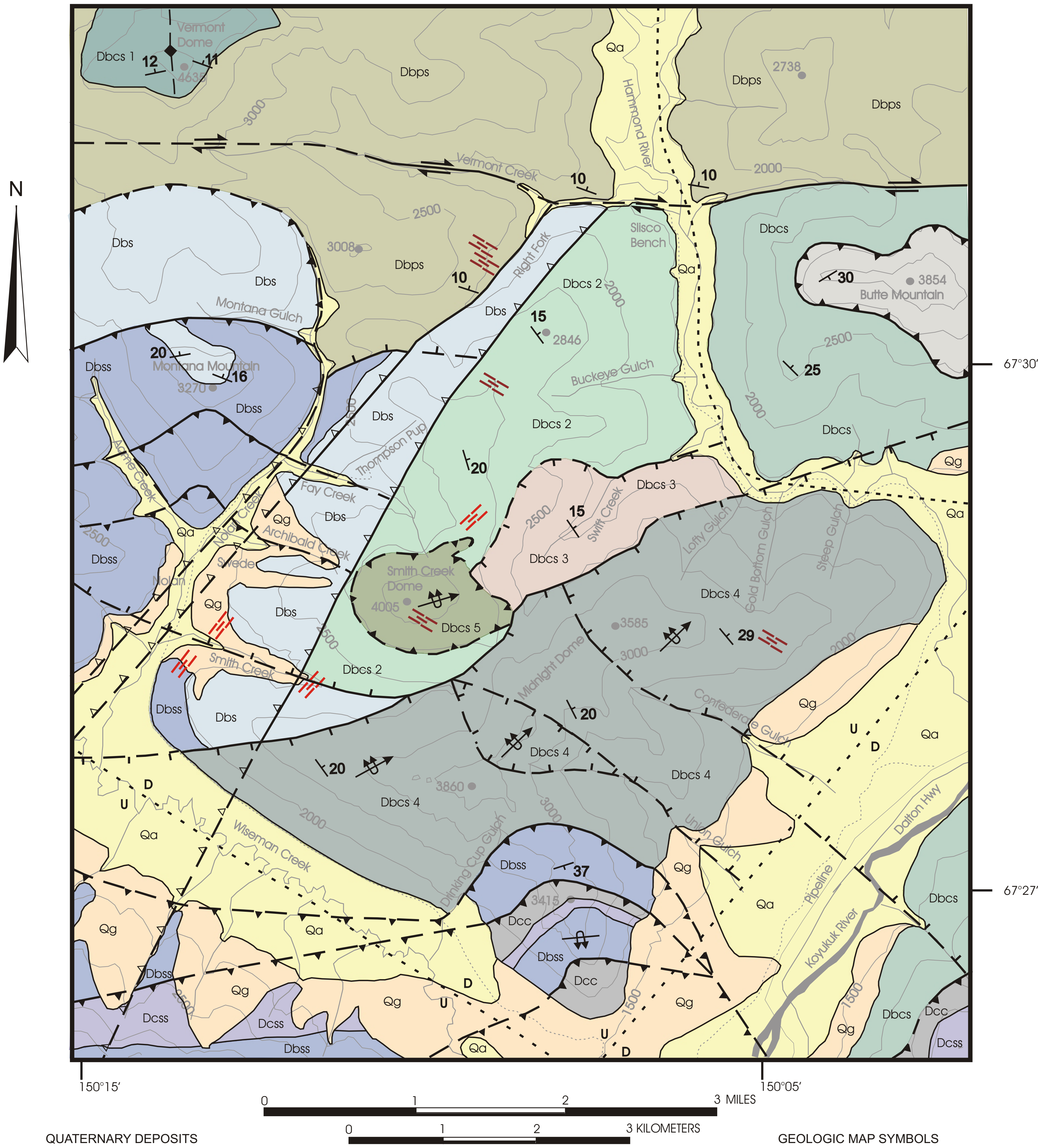


Figure I-8. Mines, prospects, and occurrences in the Nolan-Hammond River area.



QUATERNARY DEPOSITS

Qa	ALLUVIAL DEPOSITS, UNDIFFERENTIATED
Qg	GLACIAL DEPOSITS, UNDIFFERENTIATED

TWICE METAMORPHOSED DEVONIAN SEDIMENTARY ROCKS

Dbcs	UNDIFFERENTIATED, CHLORITIC QUARTZITE AND COARSE GRAINED QUARTZ-MICA SCHIST, WITH INTERLAYERS OF PHYLLITE, SCHIST, AND CHLORITIC METASILTSTONE; BEAUCOUP FORMATION; UPPER DEVONIAN
Dbcs 5	BANDED QUARTZITE, WITH INTERLAYERS OF CHLORITIC QUARTZITE AND QUARTZ MICA SCHIST; SMITH CREEK DOME SUBUNIT, BEAUCOUP FORMATION; UPPER DEVONIAN
Dbcs 4	CHLORITIC QUARTZITE, WITH INTERLAYERS OF QUARTZ-MICA SCHIST AND PHYLLITE; MIDNIGHT DOME SUBUNIT, BEAUCOUP FORMATION; UPPER DEVONIAN
Dbcs 3	GRAY-BROWN QUARTZ-MICA SCHIST; SWIFT CREEK SUBUNIT, BEAUCOUP FORMATION; UPPER DEVONIAN
Dbcs 2	BANDED QUARTZ-MICA SCHIST, WITH INTERLAYERS OF QUARTZITE AND PHYLLITE; NOLAN-HAMMOND SUBUNIT, BEAUCOUP FORMATION; UPPER DEVONIAN
Dbcs 1	CHLORITIC QUARTZITE AND CHLORITE SCHIST; VERMONT DOME SUBUNIT, BEAUCOUP FORMATION; UPPER DEVONIAN
Dbps	BROWN-GRAY PHYLLITE AND PELITIC MICA SCHIST; BEAUCOUP FORMATION; UPPER DEVONIAN
Dbs	PHYLLITE, PELITIC SCHIST AND BLACK SLATE, UNDIFFERENTIATED; BEAUCOUP FORMATION; UPPER DEVONIAN
Butte	BLACK SLATE AND BLACK METASILTSTONE; BEAUCOUP FORMATION?; MIDDLE TO UPPER DEVONIAN
Dbss	BLACK METASILTSTONE WITH INTERLAYERS OF PHYLLITE AND FINE GRAINED BLACK QUARTZITE; BEAUCOUP FORMATION?; MIDDLE TO UPPER DEVONIAN
Dcss	CHLORITIC SANDSTONE AND CONGLOMERATE; MIDDLE DEVONIAN
Dcc	CHLORITIC AND CARBONATE METASEDIMENTARY ROCKS; MIDDLE DEVONIAN

LODE VEINS

Au-Sb-Qtz VEIN SYSTEM, STRIKING NE

Au-Qtz VEIN SYSTEM, STRIKING NW

GEOLOGIC MAP SYMBOLS

GEOLOGIC CONTACT - SOLID WHERE LOCATED, DASHED WHERE APPROXIMATELY LOCATED

U D CONCEALED FAULT; U = UPTHROWN SIDE, D = DOWNTHROWN SIDE

STRIKE-SLIP FAULT - SOLID WHERE LOCATED, DASHED WHERE APPROXIMATELY LOCATED

NORMAL FAULT - SOLID WHERE LOCATED, DASHED WHERE APPROXIMATELY LOCATED

REVERSE FAULT - SAWTEETH ON UPPER PLATE; SOLID WHERE LOCATED, DASHED WHERE APPROXIMATELY LOCATED

THRUST FAULT - SAWTEETH ON UPPER PLATE; SOLID WHERE LOCATED, DASHED WHERE APPROXIMATELY LOCATED

OVERTURNED ANTICLINE - SHOWING DIRECTION OF DIP OF LIMBS AND PLUNGE OF AXIS

OVERTURNED ANTICLINE - SHOWING DIRECTION OF DIP OF LIMBS

AXIS OF ANTIFORM

37 STRIKE AND DIP OF BEDDING

Figure I-9. Geologic map of the Nolan area, southern Brooks Range, Alaska (Karsten Eden, 1999).

Exposures of phyllite and schist on upper Nolan Creek are locally coated with a white powdery encrustation. X-ray diffraction analysis indicates the coating is either rozenite or starkeyite, which are hydrated iron and magnesium sulfates respectively (R. Wendlan, written communication, 1999).

Nolan Creek contains deep channel gravels, bench gravels, and modern stream gravels, typical of many gold placers in the area. The south side of the Brooks Range has been affected by four stages of glaciation, that range in age from Tertiary(?) through Quaternary (Hamilton, 1989). Prior to or during inter-glacial periods, tectonic uplift of the Brooks Range resulted in the downcutting of ancestral Nolan Creek to depths of nearly 200 feet beneath the modern stream channel. Gold weathering from numerous quartz-stibnite-gold veins in the Nolan valley formed rich placer deposits on the channel bottom. Subsequent glacial advance down the Koyukuk River filled the Wiseman Creek valley, as well as the lower portion of Nolan Creek, with ice related to the mid-Pliestocene Sagavanirktok River Glaciation. Drift deposits related to the ice advance and lacustrine deposits related to ice damming of the Wiseman Creek valley buried the deep channel deposits.

The deep channel makes up the largest and most productive of the placer deposits. Efforts to mine this channel have focused on the portion of Nolan Creek that extends from Fay Creek downstream to about three quarters of a mile below Smith Creek. Depth to bedrock ranges from about 25 feet on the upper end to 210 feet on the lower. Pay zone widths vary from 20 to 100 feet. The bedrock in the deep channel contained several dropoffs, probably representing ancient waterfalls. The gold in the deep channel was coarse, rounded, and water worn. Nuggets weighing up to 40 oz have been recovered. The gold lay directly on bedrock with values ranging from 0.04 to as high as 0.5 oz/bedrock foot. The fineness of the gold is about 850. The gold recovered below Smith Creek at that depth was not enough to make the operation economic. It is possible that the deep channel placers downstream from Smith Creek may have been dispersed by glacial activity in the Wiseman Creek valley. In 1938 the deep channel was considered to be mined out. However, drilling by Silverado Gold Mines Ltd. indicates that significant gold values occur on the margins of the mined areas as well as buried, high channels and in pillars left by earlier operations (Maddren, 1913; Reed, 1938; Armstrong, personal communication, 1997).

The bench (high channel) deposits were probably formed by ice margin streams or meanders that developed due to elevated base levels resulting from ice filling the Wiseman and lower Nolan Creek valleys. These streams cut bedrock channels on the margins of the Nolan valley and deposited placer gold in the process. Ice retreat resulted in rapid downcutting, which left these deposits perched at levels up to 200 feet above the modern stream valley. Gold placers in the modern stream probably have their source in part from reworking of these deposits. Many of the bench deposits contain resistant greenstone boulders, which historically have been used as indicators of gold-bearing gravel. Greenstone does not occur in place in the Nolan valley, which indicates that the boulders were probably transported into the area by glacial ice. Greenstone boulders were encountered in shafts sunk to bedrock on Nolan Creek, 0.3 mile upstream from Fay Creek, indicating that glacial ice advanced at least that far upstream. The boulders were probably concentrated along the ice margins by the same streams that concentrated the placer gold (Maddren, 1913; Reed, 1938).

The bench deposits that proved to be economic lie on 1.5 miles of the east side of Nolan Creek, from just north of Archibald Creek to 0.5 mile south of Smith Creek. Heights range from 20 to 200 feet above the modern stream channel. Widths vary from 50 to 200 feet and lengths from 300 to 1,000 feet. They are typically covered by 40 to 100 feet of frozen overburden (figure I-8). The names of the channels are taken from the miners who first worked them. From north to south they are: Wooll Bench, Swede channel, Mary's bench, Pingel bench, and Workman bench (E. Armstrong, personal communication, 1997). The fineness of the gold in the high channels averages 927. Some gold with vein quartz attached and nuggets containing the impressions of quartz crystals have been recovered from these placers (Eden, 2000, p. 62, 81).

Early mining on Workman bench returned values of up to 0.21 oz/bedrock foot. Recent opencut mining by Silverado Gold Mines Ltd. averaged 0.025 oz/cy. Silverado conducted two underground drift operations along the Swede channel and surface mining on Mary's bench. A 42-oz nugget (tenth largest in Alaska at the time) was recovered during the Mary's Bench operation, and a 14-oz nugget from the underground drifting. The Swede channel is reported to have been mined for about one-third its total length (Maddren, 1913; Reed, 1938; E. Armstrong, personal communication, 1997).

The modern stream placers are confined to the narrow, steep-sided portions of the active stream bed, just downstream from Fay Creek. Most of the gold is coming from that drainage. Stream widths range from 20 to 75 feet. The edges are covered by overburden that has sloughed off the neighboring hillsides due to solifluction. Gold does occur upstream from Fay Creek, but not in payable quantities. The deposits were small and mined out within a short time (Reed, 1938; E. Armstrong, personal communication, 1997).

Bureau Investigation:

Due to extensive work by the private sector, the BLM did not make an attempt to evaluate the potential placer resources of the Nolan area. However, the need for a good geologic map of the area was evident. Through an agreement with Silverado Gold Mines Ltd., support was given to a graduate student who mapped the geology of a 42-square-mile area between Nolan Creek and the Hammond River at a scale of 1:21,000. The student also evaluated the potential lode sources of the Nolan placers (Eden, 2000).

A sample of sluice concentrates from Workman bench (12510, table I-1) contains 2,924 ppm lead, 2,828 ppm arsenic, 326 ppm antimony, 143 ppm copper, and 131 ppm zinc. The high lead value is probably due to contamination by mining. The high antimony and arsenic values are probably indicative of the numerous quartz-stibnite-gold veins in the Nolan basin, which also contain arsenopyrite.

Personal accounts by miners indicate that gold can be panned from soils on the hillside between Nolan Creek and Smith Creek Dome (W. Fickus, personal communication, 1998). Several bulk samples of soil and weathered bedrock were collected from this area and processed through a sluice box. The concentrates are anomalous in gold (map no. W94).

The quartz-stibnite-gold veins mapped on lower Smith Creek (map no. W97) are thought by some to occur within tension fractures related to a north-south-trending shear zone that may underlie the tundra between Nolan Creek and Smith Dome (E. Armstrong, personal communication, 1997; Eden, 2000). Two soil lines were run across the projected extension of the zone: a 2,700-foot line just south of Archibald Creek and a 3,100-foot line north of Smith Creek (figure I-8). Samples were collected every 100 feet with fill-in samples in anomalous areas taken at 50-foot intervals. Analysis of samples from the southern line revealed a 300-foot-wide gold-arsenic-antimony anomaly. Samples from the northern line contain gold values up to 20 ppb gold (11933), but overall, these were more irregular than samples along the southern line. Samples from the northern line also contain up to 173 ppb arsenic (12466) and 66 ppm antimony (12474). The high arsenic and antimony values do not coincide with high gold values.

A ground penetrating radar survey was conducted on the Workman bench to determine bedrock profiles and overburden thickness. For survey results refer to (Kurtak and others, 1999, p. 134-139).

Resource Estimate: (Silverado Gold Mines Ltd., 2001)

Bench placers: Measured resources of 2,500 oz.

Deep channel placers: inferred/indicated resource of 114,760 oz.

Mineral Development Potential:

Moderate potential for gold in bench and deep channel placers. The deep channels will require mining methods that can develop them in an economic manner.

Recommendations: Evaluation of existing drill data on placers.

References:

Bliss, J.D., Brosge, W.P., Dillon, J.T., Cathrall, J.B., and Dutro, J.T., Jr., 1988, Maps and descriptions of lode deposits, prospects, and occurrences in the Wiseman 1° by 3° Quadrangle, Alaska: U. S. Geological Survey Open-file Report 88-293, p. 16, plus two plates.

Brooks, A.H., and others, 1908, Mineral resources of Alaska, report on progress of investigations in 1907: U.S. Geological Survey Bulletin 345, p. 45.

____1909, Mineral resources of Alaska, report on progress of investigations in 1908: U.S. Geological Survey Bulletin 379, p. 57.

____1911, Mineral resources of Alaska, report on progress of investigations in 1910: U.S. Geological Survey Bulletin 480, p. 39.

____1912, Mineral resources of Alaska, report on progress of investigations in 1911: U.S. Geological Survey Bulletin 520, p. 38.

____1913, Mineral resources of Alaska, report on progress of investigations in 1912: U.S. Geological Survey Bulletin 542, p. 45.

____1915, Mineral resources of Alaska, report on progress of investigations in 1914: U.S. Geological Survey Bulletin 622, p. 59-60.

____1916a, Mineral resources of Alaska, report on progress of investigations in 1915: U.S. Geological Survey Bulletin 642, p. 64.

____1916b, Mineral resources of Alaska, report on progress of investigations in 1916: U.S. Geological Survey Bulletin 662, p. 59.

____1922, Mineral resources of Alaska, report on progress of investigations in 1920: U.S. Geological Survey Bulletin 722, p. 59.

____1923, Mineral resources of Alaska, report on progress of investigations in 1921: U.S. Geological Survey Bulletin 739, p. 42.

Brooks, A.H., and Capps, S.R., 1924, The Alaska mining industry in 1922. Chapter in Mineral Resources of Alaska, Report on Progress of Investigations in 1922: U.S. Geological Survey Bulletin 755, p. 46.

Brooks, A.H., and G.C. Martin, 1921, The Alaska mining industry in 1919, *in* Mineral resources of Alaska, report on progress of investigations in 1919: U.S. Geological Survey Bulletin 714, p. 90.

Brosge, W.P., and Reiser, H.N., 1971, Preliminary geologic map, Wiseman, and eastern Survey Pass quadrangles, Alaska: U.S. Geological Survey Open-File Report 71-56, 1 sheet, scale 1:250,000.

____1972, Geochemical reconnaissance in the Wiseman and Chandalar districts and adjacent region, southern Brooks Range, Alaska: U.S. Geological Survey Professional Paper 709, 21 p.

Brown, W.E., 1988, Gaunt beauty...tenuous life: U.S. National Park Service Historic Resources Study for Gates of the Arctic National Park and Preserve, 354 p.

Bundzten, T.K., Swainbank, R.E., Clough, A.H., Henning, M.W., and Hansen, E.W., 1994, Alaska's mineral industry 1993: Alaska Division of Geological and Geophysical Surveys Special Report 48, p. 15, 22, 23.

Bundzten, T.K., Swainbank, R.E., Clough, A.H., Henning, M.W., and Charlie, K.M., 1996, Alaska's mineral industry 1995: Alaska Division of Geological and Geophysical Surveys Special Report 50, p. 7, 23, 27.

Carnes, R.D., 1976, Active Alaskan placer operations, 1975: U.S. Bureau of Mines Open-File Report 98-76, p. 90-91.

Cobb, E.H., 1973, Placer deposits of Alaska: U.S. Geological Survey Bulletin 1374, p. 158-159.

____1981, Summary of data on and lists of references to metallic and selected nonmetallic mineral occurrences in the Wiseman quadrangle, Alaska, supplement to Open-File Report 76-340: U.S. Geological Survey Open-File Report 81-732B, p. B12-B13.

Dillon, J.T., 1982, Source of lode and placer gold deposits of the Chandalar and upper Koyukuk districts, Alaska: Alaska Division of Geological and Geophysical Surveys Open-File Report 158, 22 p.

Dillon, J.T., and Reifenstuhl, R.R., 1990, Geologic map of the Wiseman B-1 quadrangle southcentral Brooks Range, Alaska: Alaska Division of Geological and Geophysical Surveys, Professional Report 101, 1 sheet, scale 1:63,360.

Eden, K., 2000, Geology and gold mineralization of the Nolan area in the Brooks Range, Alaska: U.S. Bureau of Land Management Open-File Report 78, 140 p.

Fairbanks Daily News-Miner newspaper, Fairbanks, Alaska, 1916-1966.

Fairbanks Daily Times Newspaper, Fairbanks, Alaska, 1906-1916.

Hamilton, T.D., 1979, Surficial geologic map of the Wiseman quadrangle, Alaska: U.S. Geological Survey Miscellaneous Field Studies Map MF-1122, 1 sheet, scale 1:250,000.

____1989, Glacial Geology of the Brooks Range, *in* Dalton Highway, Yukon River to Prudhoe Bay, Alaska, Bedrock geology of the eastern Koyukuk basin, central Brooks Range, and eastcentral Arctic Slope: Alaska Division of Geological and Geophysical Surveys Guidebook 7, v. 1, p. 23-26.

Hill G.M., 1909, The Koyukuk: One of the richest districts in the far north: Alaska-Yukon Magazine, v.8, p. 210-213.

Kurtak, J.M., Klieforth, R.F., Clark, J.M., and Williams, E.M., 1999, Mineral investigations of the Koyukuk Mining District, northern Alaska, a progress report: U.S. Bureau of Land Management Open-File Report 74, p. 135-140.

Maddren, A.G., 1910, The Koyukuk-Chandalar gold region *in* Brooks, A.E., Mineral resources of Alaska, report on progress of investigations in 1909: U.S. Geological Survey Bulletin 442, p. 290, 292, 301-304.

____1913, The Koyukuk-Chandalar region, Alaska: U.S. Geological Survey Bulletin 532, p. 92-94.

Marshall, R., 1933, Arctic village: The Literary Guild, New York, p. 29-44.

Mulligan, J.J., 1974, Mineral resources of the Trans-Alaska Pipeline corridor: U.S. Bureau of Mines Information Circular 8626, p. 8.

Pringel, H., 1921, A short history of mining on the Koyukuk: The Pathfinder, v. 2, no. 5, p. 14-15.

Reed, I.M., 1938, Upper Koyukuk region, Alaska: Alaska Territorial Department of Mines Miscellaneous Report 194-7, p. 62-72.

Schrader, F.C., 1904, A reconnaissance in northern Alaska across the Rocky Mountains, along the Koyukuk, John, Anaktuvuk, and Colville Rivers and the Arctic coast to Cape Lisburne, in 1901: U.S. Geological Survey Professional Paper 20, p. 100.

Silverado Gold Mines Ltd., 2001, Property information and news releases: internet webpage http://www.silverado.com/s/Home.asp

Smith, P.S., 1929, Mineral industry of Alaska in 1926, *in* Smith, P.S. and others, Mineral resources of Alaska, report on progress of investigations in 1926: U.S. Geological Survey Bulletin 797, p. 21.

____1930a, Mineral industry of Alaska in 1927, *in* Smith, P.S. and others, Mineral resources of Alaska, report on progress of investigations in 1927: U.S. Geological Survey Bulletin 810, p. 27-28.

____1930b, Mineral industry of Alaska in 1928, *in* Smith, P.S. and others, Mineral resources of Alaska, report on progress of investigations in 1928: U.S. Geological Survey Bulletin 813, p. 33.

____1932, Mineral resources of Alaska, report on progress of investigations in 1929: U.S. Geological Survey Bulletin 824A, p. 38.

____1933, Mineral industry of Alaska in 1930, *in* Smith, P.S. and others, Mineral resources of Alaska, report on progress of investigations in 1930: U.S. Geological Survey Bulletin 836, p. 39.

____1934, Mineral resources of Alaska, report on progress of investigations in 1932: U.S. Geological Survey Bulletin 857A, p. 36.

____1934, Mineral industry of Alaska in 1933, *in* Mineral resources of Alaska, report on progress of investigations in 1933: U.S. Geological Survey Bulletin 864A, p. 40-41.

____1936, Mineral industry of Alaska in 1934, *in* Mineral resources of Alaska, report on progress of investigations in 1934: U.S. Geological Survey Bulletin 868A, p. 42-43.

____1937, Mineral resources of Alaska, report on progress of investigations in 1935: U.S. Geological Survey Bulletin 880A, p. 45.

Property Summary

Name(s): Smith Creek Lode	**Map No:** W97
Silverado Gold Mines Ltd.	**MAS No:** 0020300020
Smith Creek 1-4	Alaska Kardex 030-069
Neversweat	Alaska Kardex 030-070
Callion Fraction	Alaska Kardex 030-088
Jones and Boyle	Alaska Kardex 030-097
Wanamaker and Wortman	Alaska Kardex 030-106
Bear paw 1-5 claims	
Hillside	

Deposit Type: Quartz-stibnite veins

Commodities: Sb, Au

Location:

Quadrangle: Wiseman B-1 — NE¼ sec. 33, T. 31 N., R. 12 W.
Meridian: Fairbanks — Elevation: 1,930 feet
Latitude: 67° 28.458' N. — Longitude: 150° 13.260' W.
Geographic: An eastern tributary of Nolan Creek, 1 mile upstream from Wiseman Creek.

History:

1942 - Antimony ore hand-cobbed from hydraulic cut on Smith Creek by Almanco Inc (Joesting, 1943; Saunders, 1954).
1948 - Shoreline Investment and Development Co. staked claims (Kardex).
1965 - Black bear claims staked (Kardex).
1969 - Hillside claims staked (Kardex).
1970 - Smith Creek 1-4 claims staked (Kardex).
1980s - Hand-cobbed ore stockpiled on site (E. Armstrong, personal communication, 1997).
1994- Drilling of veins by Silverado Gold Mines Ltd. (E. Armstrong, personal communication, 1997).

Production:

1942 - Five tons mined, averaging slightly less than 50% antimony. The ore was hauled to the Wiseman airstrip, but never shipped due to a sharp decline in the price of antimony (Joesting, 1943; Saunders, 1954, p. 6).

1980s - About 35 drums of ore were hand-cobbed and stored on site. It is rumored that the ore was shipped to Texas, but this has not been substantiated (E. Armstrong, personal communication, 1999). About five drums remain on site.

Workings and Facilities:

The veins and veinlets are exposed in old hydraulic cuts on the north and south sides of Smith Creek, just upstream from the creek mouth. Five drums of hand-sorted ore are located on the north side of Smith Creek in an old hydraulic cut. Silverado Gold Mines Ltd. drilled four rotary holes into the exposed veins on the south side of the creek (figure I-8).

Geologic Setting:

Bedrock underlying lower Smith Creek consists of metasiltstone with interlayers of phyllite and quartzite of the Middle to Upper Devonian Beaucoup Formation. The rocks have undergone intense deformation as a result of the Jurassic through Cretaceous Brooks Range orogeny. Bedding has been mostly obliterated by a pervasive cleavage, the orientation of which varies considerably over the area (Eden, 2000).

A set of hydrothermal quartz-stibnite veins and veinlets with an average trend of N. 45° E. crosscuts the cleavage. These range in width from less than 1.0 inch to 3.5 inches, with near-vertical dips, and can be traced for up to 300 feet along strike. Veins up to 6 inches wide have been reported (Berg and Cobb, 1967, p. 234). The veins contain a core of quartz mixed with stibnite and minor amounts of ankerite, calcite, dolomite, and arsenopyrite, concentrated mostly on the vein margins. Kermesite, a red antimony oxide, will occasionally be found coating the stibnite. Gold is rarely visible, but occurs mostly in the quartz. The veins do not have alteration envelopes. They are locally cut by thin, barren quartz-carbonate veinlets (Eden, 2000, p. 25).

When broken out of the phyllite wallrock, the vein margins exhibit a curious hackly surface. This is probably an impression resulting from quartz infilling between closely-spaced cleavage planes in the metasediment wallrocks during vein emplacement. The veinlets are exposed in old placer cuts and gullies on both sides of Smith Creek, with most exposed on the north. This is probably due to the fact that a large amount of bedrock has been exposed there by placer mining.

The veins are concentrated within a 300 by 1,600 foot area, the long direction of which parallels strike. There is a high probability that more veins exist under the vegetative cover. Four rotary angle holes were drilled into a zone of veins exposed in a placer cut (Workman bench) on the south side of Smith Creek; the longest hole was 300 feet. Three of the holes intercepted what appears to be a series of subparallel veins of unknown thickness. Samples for assay were collected at 5-foot intervals. The best intercept was in hole (94-WKM-3) where a 5-foot interval contained 0.086 oz/ton gold. The intercept is approximately 135 feet beneath the surface along the downdip projection of the mineralized zone. Another 5-foot interval in the same hole contained 11.2% antimony (E. Armstrong, personal communication, 1998).

Bureau Investigation:

A geologic map was made of the area showing the location of documented veins and veinlets (figure I-10). A total of 18 samples were collected from the veins. These average 3.2 ppm gold. The highest value is 15.3 ppm (11705, table I-1). The samples average 33% antimony, but individual samples contain up to 61.7 % antimony (11705). The vein system is intermittently exposed for approximately 1,600 feet along strike. A 3,100-foot-long soil sample line was run up the ridge to the north of Smith Creek in an area of no outcrop and across the northerly strike extension of the vein zone. Soil samples were collected at 100-foot intervals along the line. Sample analysis revealed a 300-foot-long gold-arsenic-antimony anomaly on this line. Samples contain values of up to 18 ppb gold (11801), 175 ppm antimony, and 212 ppm arsenic. The anomaly lies 1,400 feet to the northeast and roughly coincides with the northerly strike extension of the vein system.

To confirm the anomaly, fill-in samples at 50-foot intervals were taken within the anomalous zone and the line was extended another 1,000 feet to the northeast. The results of these samples were on the average 3 to 4 times greater in magnitude than the previous results, which makes comparisons difficult.

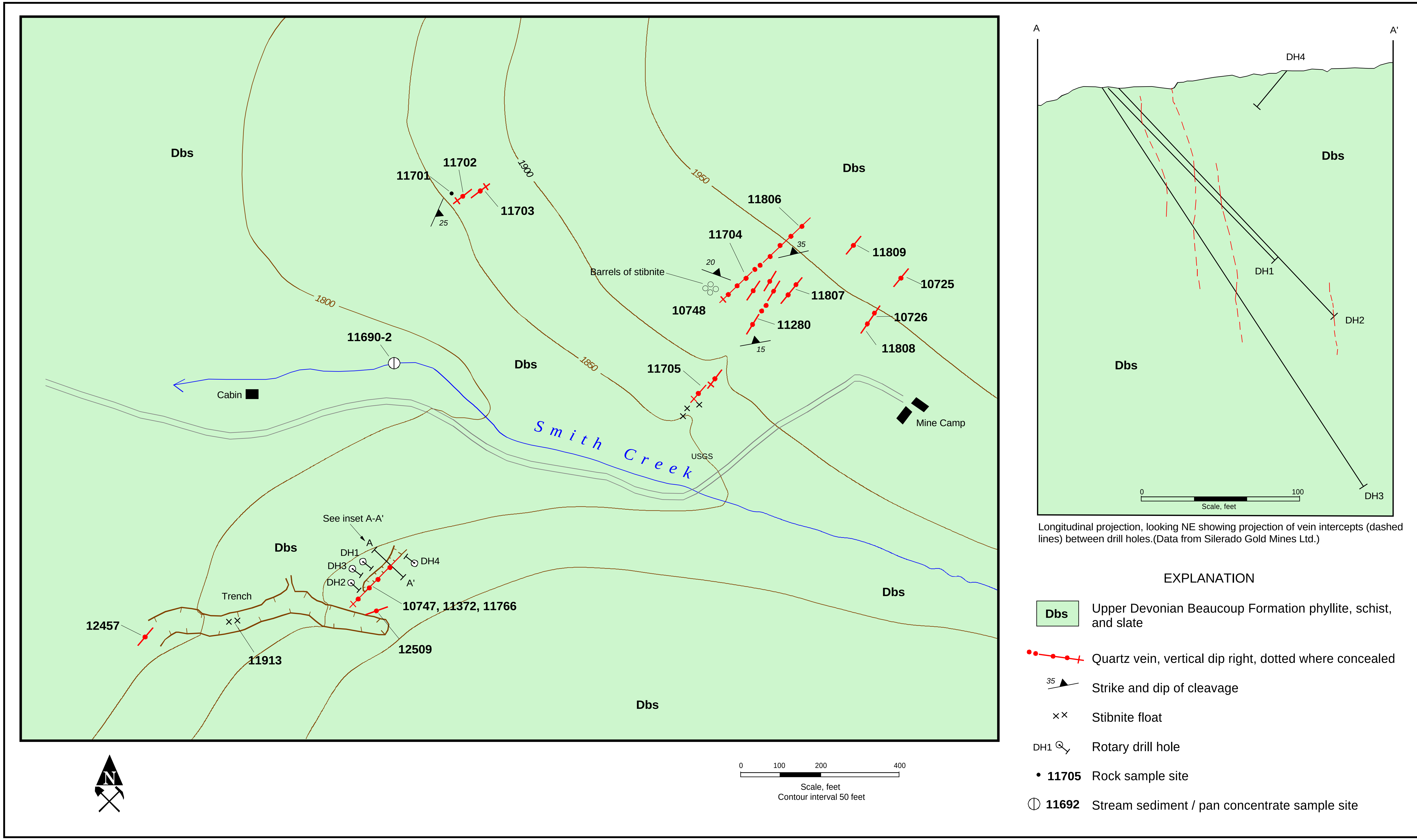


Figure I-10. Geology and sample location map of lower Smith Creek.

The highest value in the second set is 125 ppb gold (12358). This sample site does fall within the anomalous zone previously described. The same company was used to perform both sets of analyses. Smith Creek has also been investigated for placer deposits (map no. W98).

Resource Estimate:

Drilling by Silverado Gold Mines Ltd. indicates that mineralization is spread across a zone up to 40 feet wide that contains quartz-stibnite veins. Individual vein thicknesses cannot be determined, but it appears that the drill holes intersected a series of at least three subparallel veins across a 40-foot-wide zone, rather than one large single vein. Only one vein is exposed at the surface. Samples were collected at 5-foot intervals. No drill logs are available, so individual vein thicknesses could not be determined. For this reason and the fact that the known veins are all less than 6-inches thick, a reserve/resource size could not be determined. According to Silverado Gold Mines Ltd. (2001) an inferred resource ranging from 0.3 to 1.0 million oz of gold exists.

Mineral Development Potential:

Low development potential as a source of gold with byproduct antimony. The veins are too narrow and widely spaced to allow for profitable surface or underground mining. No mineralization occurs in the wallrocks between veins, which makes large scale open pit mining uneconomic.

Recommendations:

Core drill the area on the north side of Smith Creek where the highest concentration of exposed veins are located. This may reveal concentrations of veins that could prove to be economic.

References:

Berg, H.C., and Cobb, E.H., 1967, Metalliferous lode deposits of Alaska: U.S. Geological Survey Bulletin 1246, p. 234.

Brosge, W.P., and Reiser, H.N., 1972, Geochemical reconnaissance in the Wiseman and Chandalar districts and adjacent region, southern Brooks Range, Alaska: U.S. Geological Survey Professional Paper 709, p. 8-13.

Ebbley, N., Jr., and Wright, W.S., 1948, Antimony deposits in Alaska: U.S. Bureau of Mines Report of Investigation 4173, p. 37-38.

Eden, K., 2000, Geology and gold mineralization of the Nolan area in the Brooks Range, Alaska: U.S. Bureau of Land Management Open-File Report 78, 140 p.

Joesting, H.R., 1943, Supplement to Pamphlet No. 1-Strategic mineral occurrences in interior Alaska: Alaska Department of Mines Pamphlet no. 2, p. 16-17.

Killeen, P.L., 1942, Antimony deposits near Wiseman, Alaska: U.S. Geological Survey unpublished report 3 p.

Mulligan, J.J., 1974, Mineral resources of the Trans-Alaska Pipeline corridor: U.S. Bureau of Mines Information Circular 8626, p. 19-20.

Saunders, R.H., 1954, Koyukuk district operations (Wiseman, Chandalar): Alaska Territorial Department of Mines Miscellaneous Report MR-194-16, p. 6.

Silverado Gold Mines Ltd., 2001, Property information and news releases: internet webpage http://www.silverado.com/s/Home.asp

Property Summary

Name(s): Smith Creek
Silverado Gold Mines Ltd.
Smith Creek 1-4 claims
Neversweat
Callion Fraction

Map No: W98
MAS No: 0020300032
Alaska Kardex 030-005
Alaska Kardex 030-033

Deposit Type: Placer

Commodities: Au

Location:

Quadrangle: Wiseman B-1
SW¼ sec: 35, T. 31 N., R. 12 W.
Meridian: Fairbanks
Elevation: 1,800-2,600 feet
Latitude: 67° 28.386' N.
Longitude: 150° 13.639' W.
Geographic: A 2.3-mile-long eastern tributary of Nolan Creek, 0.9 mile upstream from Wiseman Creek.

History:

1903 - First mining reported on Smith Creek (Maddren, 1913).
1907 - Deep channel placers discovered (Maddren, 1913).
1915 - P. Haslem and partners reportedly reached good pay while drifting on creek (Fairbanks Daily Times, December 21, 1915).
1917 - A 40-oz nugget found on lower creek (Fairbanks Daily News-Miner, July 31, 1917).
1918 - H. Boyle began mining high channel on the north side of the creek (Reed, 1938).
1924 - Miller and Rafferty uncovered ground on lower creek that ran 0.05 oz/cy (Reed, 1938).
1929 - H. Wanamaker and J. Hurley began mining shallow gravels on upper creek (E. Armstrong, personal communication, 2001). Antimony ore mined (Joesting, 1943).
1979 - J. Lytle mined on creek.
1984-87 - P. Pasqualli mined on upper creek (E. Armstrong, personal communication, 2001).
1985 - R. Phillpott began mining El Dorado Bench on north side creek (E. Armstrong, personal communication, 2001).
1994 - Silverado Gold Mines Ltd. purchased claims on Smith Creek and subsequently did drilling, bulk sampling, magnetic and ground penetrating radar (GPR) surveys (E. Armstrong, personal communication, 2001).

Production: (oz Au)

1903 - 1,263	1913 - 122	1922 - 298	1932 - 71
1904 - 1,515	1914 - 220	1923 - 122	1933 - 115
1905 - 2,525	1915 - 253	1924 - 293	1935 - 151
1906 - 505	1916 - 179	1925 - 468	1936 - 119
1907 - 2,881	1917 - 437	1926 - 535	1937 - 104
1908 - 481	1918 - 955	1927 - 110	1938 - 224
1909 - 678	1919 - 150	1929 - 51	1941 - 153
1911 - 552	1920 - 591	1930 - 1	1948 - 28
1912 - 1,548	1921 - 68	1931 - 45	

Total: 17,811

Records do not include production after 1948. Average median fineness: 958 (Bliss and others, 1988).

In 1942 approximately 5 tons of stibnite float containing slightly less than 50% antimony was recovered during sluicing operations on lower Smith Creek (Joesting, 1943).

Workings and Facilities:

Smith Creek is a major gold-producing tributary of Nolan Creek and has been extensively mined over the years. Most efforts, consisting of hydraulicking, drifting, and sluicing were concentrated in the lower 2 miles of the creek. A small, abandoned boiler at an elevation of 2,300 feet indicates that attempts may have been made at drifting along that section of creek.

The lower portion of the drainage is easily accessed from Nolan Creek. The middle portion consists of a steep narrow gulch where the creek runs mostly on bedrock. Workings on the upper portion are accessed by a 4-wheel-drive road that runs up the north side of the creek. At an elevation of 2,400 feet, a dozer and sluicing equipment, which had been used to mine a 400-foot-long section of creek, still remain. A cabin is nearby, on a knob on the south side of the creek. Evidence of hand mining can be found up to an elevation of 2,600 feet.

Geologic Setting:

A faulted contact between Upper Devonian Beaucoup Formation phyllite, slate, schist, metasiltstone, and quartzite runs up the bottom of Smith Creek. Postmetamorphic deformation includes faulting, folding, and several stages of Quaternary glaciation. A northeast-trending set of hydrothermal stibnite and gold-bearing quartz veinlets locally crosscut the phyllite (Eden, 2000).

Smith Creek placers are a miniature version of the Nolan Creek occurrences. Gold occurs in the shallow modern channel, deep channel, and in high benches. The gold from the upper part of the creek was reported to be rough and angular and appeared to be near its bedrock source. Depths to bedrock range from 6 to 20 feet. Farther downstream, the gold was found in more rounded, heavier pieces. Also the gold near the head of the gulch had a white coating, reported as possibly lime (Maddren, 1913). Reed (1938) reported two runs of gold in the upper portion of the creek: one is coarse, rough, and pitted; another is coarse, but smooth and rounded. He postulated that these runs could be from two different bedrock sources. The value of the ground was reportedly about 0.015 oz/bedrock foot.

At the mouth of Smith Creek, depth to bedrock is about 135 feet. In 1938 the deep channel in that area was considered to have been mined out by the methods available at the time. From the creek mouth, the deep channel gradually rises to coincide with the modern channel in the upper portion of the creek. The high channel appears to be concentrated on the north side of the creek. At a point approximately midway up the valley, the high channel has been mined with hydraulic methods at levels of 150 to 200 feet above the stream bed. Water for hydraulicking was brought in via a 0.5-mile-long ditch from upper Smith Creek. The bench gravels are poorly sorted, contain no large boulders, and are greater than 50 feet thick. Gold reportedly lies all through the gravel, but is concentrated mostly in the lower few feet. Values ranged from 0.091-0.014 oz/bedrock foot (Reed, 1938). The most recent mining in Smith Creek was done on El Dorado bench, 0.2 mile upstream and on the north side of the canyon mouth. The bench gravels average 7 feet thick, and the bedrock surface is reported to be very irregular (R. Philpott, personal communication, 1997).

The source of the placer deposits is believed to be quartz-stibnite-gold veins, which occur in the area (map no. W97) (Eden, 2000).

Bureau Investigation:

The length of Smith Creek was walked and areas of past extensive mining activity observed. Pan concentrate samples taken off bedrock contain up to 11.8 ppm gold (11708, table I-1). This section of the creek is very narrow and mostly bedrock. A composite sample from three northeast-trending 0.5-inch-wide quartz veinlets that cross the creek bottom contains 1,563 ppb gold (11706). A sample of another veinlet contains 1,958 ppb gold (11166). Stibnite-bearing quartz veins reportedly exposed in placer cuts on the north side and 0.7 mile up Smith Creek were not located (E. Armstrong, personal communication, 1997).

Resource Estimate:

Inferred/indicated resource: 7,571 oz (Silverado Gold Mines Ltd., 2001)

Mineral Development Potential:

Low potential for economic deposits of placer gold due to extensive surface and drift mining. Moderate potential for areas of gold-bearing gravel in bedrock narrows portion of creek. However, the resource is small.

Recommendations: Suction dredging of bedrock potholes.

References:

Brooks, A.H., and others, 1913, Mineral resources of Alaska, report on progress of investigations in 1912: U.S. Geological Survey Bulletin 542, p. 45.

____1915, Mineral resources of Alaska, report on progress of investigations in 1914: U.S. Geological Survey Bulletin 622, p. 59.

____1916, Mineral resources of Alaska, report on progress of investigations in 1915: U.S. Geological Survey Bulletin 642, p. 65.

____1922, Mineral resources of Alaska, report on progress of investigations in 1920: U.S. Geological Survey Bulletin 722, p. 59.

Joesting, H.R., 1943, Supplement to Pamphlet No. 1-Strategic mineral occurrences in interior Alaska: Alaska Department of Mines Pamphlet no. 2, p. 16-17.

Maddren, A.G., 1910, The Koyukuk-Chandalar gold region *in* Brooks, A.E., Mineral resources of Alaska, report on progress of investigations in 1909: U.S. Geological Survey Bulletin 442, p. 301-303.

____1913, The Koyukuk-Chandalar region, Alaska: U.S. Geological Survey Bulletin 532, p. 69, 92-94.

Mulligan, J.J., 1974, Mineral resources of the Trans-Alaska Pipeline corridor: U.S. Bureau of Mines Information Circular 8626, p. 8.

Reed, I.M., 1938, Upper Koyukuk region, Alaska: Alaska Territorial Department of Mines Miscellaneous Report 194-7, p. 72-75.

Silverado Gold Mines Ltd., 2001, Property information and news releases: internet webpage http://www.silverado.com/s/Home.asp

Smith, P.S., 1930a, Mineral industry of Alaska in 1927, *in* Smith, P.S. and others, Mineral resources of Alaska, report on progress of investigations in 1927: U.S. Geological Survey Bulletin 810, p. 27.

____1930b, Mineral industry of Alaska in 1928, *in* Smith, P.S. and others, Mineral resources of Alaska, report on progress of investigations in 1928: U.S. Geological Survey Bulletin 813, p. 33.

____1932, Mineral resources of Alaska, report on progress of investigations in 1929: U.S. Geological Survey Bulletin 824A, p. 38.

____1933, Mineral industry of Alaska in 1930, *in* Smith, P.S. and others, Mineral resources of Alaska, report on progress of investigations in 1930: U.S. Geological Survey Bulletin 836, p. 39.

____1936, Mineral industry of Alaska in 1934, *in* Mineral resources of Alaska, report on progress of investigations in 1934: U.S. Geological Survey Bulletin 868A, p. 42-43.

____1937, Mineral resources of Alaska, report on progress of investigations in 1935: U.S. Geological Survey Bulletin 880A, p. 45-46.

____1938, Mineral resources of Alaska, report on progress of investigations in 1936: U.S. Geological Survey Bulletin 897A, p. 54.

Smith, P.S., and Mertie, J.B., Jr., 1930, Geology and mineral resources of northwestern Alaska: U.S. Geological Survey Bulletin 815, p. 333.

Property Summary

Name(s): Midnight Dome Prospect
Ferguson Prospect
Tasker Midnight

Map No: W99
MAS No: 0020300019
Alaska Kardex 030-075
Alaska Kardex 030-110

Deposit Type: Stibnite-quartz vein

Commodities: Sb, Au

Location:

Quadrangle: Wiseman B-1
SE¼ sec. 35, T. 31 N., R. 12 W.
Meridian: Fairbanks
Elevation: 3,500 feet
Latitude: 67° 27.665' N.
Longitude: 150° 09.113' W.
Geographic: Located at the pass between Smith Creek and Union Gulch.

History:

1938-51 - Alamco, Inc. mined antimony from placer workings and veins near Smith Creek.
1971 - E. Tasker staked four lode claims immediately north of Midnight Dome (Kardex).
1972 - Brosge and Reiser (1972) reported that quartz-stibnite veins sampled from Midnight Dome contain detectable gold.

Production: None.

Workings and Facilities:

A pair of trenches were excavated on the pass between Smith Creek and Union Gulch. The two trenches north of Midnight Dome are approximately 12 feet long, 3.5 feet wide, and 4 feet deep. They were excavated along a northeasterly trend and are about 30 feet apart.

Geologic Setting:

The bedrock at Midnight Dome consists mostly of Middle to Upper Devonian chloritic siltstone, banded quartz siltstone, and phyllite with chlorite along foliation planes. Chloritic quartzite, sandstone, conglomerate, and limestone-marble interlayers also outcrop locally. The units are all described as twice metamorphosed middle to upper greenschist facies (Dillon and Reifenstuhl, 1990).

Several high-angle, normal faults cut through Midnight Dome along a southeast trend. The parallel trends of Wiseman Creek, Union Gulch, and Confederate Gulch are possibly caused by these normal faults, which resulted from late-stage extensional uplift. Also, numerous parallel thrust faults are located on the ridge immediately south of Midnight Dome. These faults are reported to be a part of the Wiseman thrust fault system that trends east-northeast and juxtaposes Proterozoic(?) and lower Paleozoic(?) calcareous schist over Devonian metasediments (Dillon and Reifenstuhl, 1990; Eden, 2000, p. 36).

The trenches contain stibnite in quartz veins, with abundant yellow antimony oxide (stibiconite) also present. Ebbley and Wright (1948) reported one of the trenches exposed a 6-inch stibnite vein outcrop that strikes north and dips 30° to the east. Three quartz-stibnite vein samples collected near the site assayed between 30 to 40 ppb gold and >1% antimony. A sample of the bedrock contained 50 ppb gold and 0.03% antimony (Brosge and Reiser, 1972).

Bureau Investigation:

Several square miles surrounding Midnight Dome were investigated. A select sample of stibnite from one of the trenches (10703, table I-1) assayed at 14 ppb gold and 33.13% antimony.

A quarter of a mile southwest of the trenches, quartz veins are hosted in pyrite-bearing chlorite schist. The quartz veins are parallel to and crosscutting the schist. A sample of vein quartz float (10708) contains 179 ppb gold, 1,469 ppm copper, and 230 ppm antimony. A sample of quartz vein outcrop collected nearby (11358) contains 532 ppb gold and only 29 ppm antimony.

About a quarter of a mile south of the trenches, two quartz vein samples (11173, 12302) were collected. They average 321 ppb gold, 373 ppm lead, 365 ppm arsenic, and 317 ppm antimony. The veins were hosted in a chlorite schist with an averaged strike of N. 7° E. and dip of 69° W.

Resource Estimate: None.

Mineral Development Potential:

Low mineral development potential exists for lode gold. The quartz veins contain gold and accessary arsenic and antimony; however, they are limited in extent.

Recommendations: None.

References:

Berg, H.C., and Cobb, E.H., 1967, Metalliferous lode deposits of Alaska: U.S. Geological Survey Bulletin 1246, p. 232-234.

Bliss, J.D., Brosge, W.P., Dillon, J.T., Cathrall, J.B., and Dutro, J.T., Jr., 1988, Maps and descriptions of lode deposits, prospects, and occurrences in the Wiseman 1° by 3° quadrangle, Alaska: U. S. Geological Survey Open-File Report 88-293, p. 50-51, plus two plates.

Brosge, W.P., and Reiser, H.N. 1972, Geochemical reconnaissance in the Wiseman and Chandalar districts and adjacent region, southern Brooks Range, Alaska: U.S. Geological Survey Professional Paper 709, p. 9-12.

Cobb, E.H., 1972, Metallic mineral resources map of the Wiseman quadrangle, Alaska: U.S. Geological Survey Miscellaneous Field Studies Map MF-469, 1 sheet, scale 1:250,000.

____1976, Summary of references to mineral occurrences (other than mineral fuels and construction materials) in the Chandalar and Wiseman quadrangles, Alaska: U.S. Geological Survey Open-File Report 76-340, p. 107.

Dillon, J.T., Brosge, W.P., and Dutro, J.T., Jr., 1986, Generalized geologic map of the Wiseman quadrangle, Alaska: U.S. Geological Survey Open-File Report 86-219, 1 sheet, scale 1:250,000.

Dillon, J.T., and Reifenstuhl, R.R., 1990, Geologic map of the Wiseman B-1 quadrangle southcentral Brooks Range, Alaska: Alaska Division of Geological and Geophysical Surveys, Professional Report 101, 1 sheet, scale 1:63,360.

Ebbley, N., Jr., and Wright, W.S., 1948, Antimony deposits in Alaska: U.S. Bureau of Mines Report of Investigation 4173, p. 37-38.

Eden, K., 2000, Geology and gold mineralization of the Nolan area in the Brooks Range, Alaska: U.S. Bureau of Land Management Open-File Report 78, 140 p.

Grybeck, D., 1977, Known mineral deposits of the Brooks Range, Alaska: U.S. Geological Survey Open-File Report 77-166C, p. 29.

Mulligan, J.J., 1974, Mineral resources of the Trans-Alaska Pipeline corridor: U.S. Bureau of Mines Information Circular 8626, p. 8.

Saunders, R.H., 1954, Koyukuk district operations (Wiseman, Chandalar): Alaska Territorial Department of Mines Miscellaneous Report MR-194-16, p. 6.

Property Summary

Name(s): Smith Creek Dome Prospect

Map No: W100
MAS No: 0020300021

Deposit Type: Quartz-stibnite veins

Commodities: Ag, Au, Sb

Location:

Quadrangle: Wiseman B-1
NW¼ sec. 35, T. 31 N., R. 12 W.
Meridian: Fairbanks
Elevation: 3,700 feet
Latitude: 67° 28.501' N.
Longitude: 150° 10.149' W.
Geographic: Located approximately 1.5 miles due east of Nolan Creek camp.

History:

1942 - The U.S. Geological Survey (USGS) "re-opened a caved prospect" in the saddle at the head of Fay Gulch (Ebbley and Wright, 1948).

1972 - Brosge and Reiser (1972) documented gold-antimony-arsenic anomalies in rock samples collected north of Smith Creek Dome.

Production: None.

Workings and Facilities:

Two trenches were excavated half a mile north Smith Creek Dome. There are two elliptically shaped trenches striking N. 40° E. The largest trench is 6 feet long, 3 feet wide, and 3.5 feet deep. The smaller trench is located 3 feet southwest of the first and is about half the size.

Geologic Setting:

The bedrock on top of Smith Creek Dome consists mostly of Upper Devonian banded quartzite interbedded with chloritic quartzite and quartz-mica schist. This unit is in thrust fault contact with underlying micaceous schist, phyllite, and quartz-mica schist. The thrust fault is nearly flat lying and follows the 3,000-foot elevation contour. Also several northeast-trending normal faults are mapped adjacent to the dome near Fay Creek and Midnight Dome (Eden, 2000).

The USGS reported a 6-inch-wide quartz-stibnite vein striking N. 5° E. and dipping 50° E. at a "caved prospect" at the head of Fay Gulch, north of Smith Dome (Ebbley and Wright, 1948). Brosge and Reiser (1972) collected three rock samples in the same area. A wallrock sample did not contain detectable gold; however, it did contain 1,200 ppm arsenic and 5,000 ppm antimony. The two quartz-stibnite vein samples were anomalous: assaying up to 9.2 ppm gold, 5,000 ppm arsenic, and >10,000 ppm antimony.

Bureau Investigation:

Eight outcrop samples of quartz veinlets and wallrock were collected immediately south of the Smith Creek Dome summit. Seven of the eight rock samples contain detectable gold: resaults range from 9 ppb to 5,095 ppb (table I-1). Two of the samples (10720, 12478) were exceptionally anomalous. The quartz veinlets average ⅛ inch to 1 inch wide with an average strike of N. 55° W. and a dip of 83° S. The veins are exposed for a maximum of 10 feet along strike. The assay results average 3,665 ppb gold, 5.1 ppm silver, 2,931 ppm lead, 103 ppm arsenic, and 126 ppm antimony.

The two trenches north of the summit were also investigated. A select piece of quartz-stibnite vein (10666) contains 436 ppb gold, 297 ppm arsenic, and 28.1% antimony. It was not possible to obtain the orientation of the veins. No signs of an adit were observed.

Resource Estimate: None.

Mineral Development Potential:

Moderate mineral development potential exists at Smith Creek Dome. The quartz-antimony veinlets contain gold anomalies; however, the spatial extent of the veinlets is limited.

Recommendations:

A soil sampling grid or ground penetrating radar (GPR) survey between the anomalous quartz veinlets and upper Smith Creek might provide information on bench placer prospects.

References:

Berg, H.C., and Cobb, E.H., 1967, Metalliferous lode deposits of Alaska: U.S. Geological Survey Bulletin 1246, p. 232-234.

Brosge, W.P., and Reiser, H.N. 1972, Geochemical reconnaissance in the Wiseman and Chandalar districts and adjacent region, southern Brooks Range, Alaska: U.S. Geological Survey Professional Paper 709, p. 9-12.

Dillon, J.T., Brosge, W.P., and Dutro, J.T., Jr., 1986, Generalized geologic map of the Wiseman quadrangle, Alaska: U.S. Geological Survey Open-File Report 86-219, 1 sheet, scale 1:250,000.

Dillon, J.T., and Reifenstuhl, R.R., 1990, Geologic map of the Wiseman B-1 quadrangle southcentral Brooks Range, Alaska: Alaska Division of Geological and Geophysical Surveys, Professional Report 101, 1 sheet, scale 1:63,360.

Ebbley, N., Jr., and Wright, W.S., 1948, Antimony deposits in Alaska: U.S. Bureau of Mines Report of Investigation 4173, p. 37.

Eden, K., 2000, Geology and gold mineralization of the Nolan area in the Brooks Range, Alaska: U.S. Bureau of Land Management Open-File Report 78, 140 p.

Property Summary

Name(s): Buckeye Gulch
Eldorado Assoc. no. 16 claims
Sourdough Assoc. no. 17 claims

Map No: W101
MAS No: 20300175

Deposit Type: Placer

Commodities: Au

Location:
Quadrangle: Wiseman B-1
NE¼ sec. 24, T. 31 N., R. 12 W.
Meridian: Fairbanks
Elevation: 1,420 feet
Latitude: 67° 29.890' N.
Longitude: 150° 06.533' W.
Geographic: A 1-mile-long western tributary of the Hammond River, 4 miles upstream from the Middle Fork Koyukuk River.

History:

1904 - First recorded production from creek (Maddren, 1913).
1907 - Craig and Sutherland drift mined on creek (U.S. Bureau of Mines PIMR, 1907).
1913 - Gold had been mined from near the creek mouth (Maddren, 1913).
1935 - M. Angelich sluiced bench gravels from an opencut on the creek (U.S. Bureau of Mines PIMR, 1935).

Production: (oz Au)

1904 - 54
1905 - 11
1907 - 612
1935 - 8
Total: 685 No record of gold fineness.

Workings and Facilities:

There are stacked rocks along the stream bank, half a mile upstream from the Hammond River.

Geologic Setting:

Bedrock underlying Buckeye Gulch consists of chloritic quartzite with interlayers of quartz-mica schist and phyllite of the Upper Devonian Beaucoup Formation. The lower part of the creek has a steep gradient that flattens out about half a mile above the mouth. Occasional mining near the mouth of the creek produced from 0.32 to 0.54 oz per day to the man (Maddren, 1913). Where the gradient flattens, some gravel has accumulated on what may be a high bench. Reed (1938) reported that a high channel of the Hammond River was being explored on Buckeye Creek. The stacked rocks along the creek may be the result of this effort. The bench may be a southern extension of the Slisco (Eldorado) bench.

Bureau Investigation:

Test pans were taken from bedrock near the mouth of Buckeye Gulch, but no gold was observed. A pan concentrate contains 28 ppb gold (11309, table I-1). A sample of marcasite concretions leftover from mining on lower Buckeye Gulch contains 259 ppb gold and 207 ppm arsenic (10765). The high gold value could come from gold occurring within the crystalline structure of the marcasite. Alternatively it could be due to contamination arising from contact with placer gold during the concentrating process.

Resource Estimate: Unknown.

Mineral Development Potential:

Low potential for placer gold. The gold on the lower part of the creek has probably been mined out.

Recommendations:

The bench gravels on the upper part of the creek warrant investigation. These may be a southern extension of the Slisco Bench gravels that are known to contain gold. The bedrock may be too deeply buried to evaluate without drilling.

References:

Eden, K., 2000, Geology and gold mineralization of the Nolan area in the Brooks Range, Alaska: U.S. Bureau of Land Management Open-File Report 78, 140 p.

Maddren, A.G., 1913, The Koyukuk-Chandalar region, Alaska: U.S. Geological Survey Bulletin 532, p. 97.

Proffett, J.M., 1982, Preliminary report on the geology of the Hammond River - Vermont Creek gold placer area, Wiseman district, Alaska: unpublished report to Alaska Mining Company, p. 13 [available from BLM Anchorage, Alaska]

Reed, I.M., 1938, Upper Koyukuk region, Alaska: Alaska Territorial Department of Mines Miscellaneous Report 194-7, p. 56.

U.S. Bureau of Mines, 1907-1935, Permanent Individual Mine Records (PIMR) for placer mines in Alaska: U.S. Bureau of Mines unpublished reports. [available from BLM Anchorage, Alaska]

Property Summary

Name(s): Swift Creek
Sourdough Association nos. 11-16 claims
BJ nos. 1-6 claims
Gold Rim nos. 1-2 claims

Map No: W102
MAS No: 0020300114
Alaska Kardex 030-215

Deposit Type: Placer

Commodities: Au

Location:

Quadrangle: Wiseman B-1
SW¼ sec. 19, T. 31 N., R. 11 W.
Meridian: Fairbanks
Elevation: 1,400 feet
Latitude: 67° 29.506' N.
Longitude: 150° 06.286' W.
Geographic: A 2-mile-long southwest tributary of the Hammond River.

History:

1901 - Swift Creek reported to be producing gold (Schrader, 1904).
1936 - M. Angelich mined high channel near creek mouth (U.S. Bureau of Mines PIMR, 1936).
1979 - Gold Rim claims staked by D. Solaki and A. Cook (Kardex).
1980 - Sourdough claims staked by S. and O. Cook (Kardex).
1996 - BJ claims staked by R. Johnston (R. Johnson, written communication, 1996).

Production: (oz Au)

1902 - 159
1903 - 106
1904 - 53
1907 - 20
1908 - 5
1909 - 68
1910 - 58
1911 - 69
1912 - 71
1913 - 5
1914 - 40
1916 - 212
1917 - 71
1922 - 198
1923 - 106
1926 - 16
1935 - 31
1936 - 50
1938 - 7
1941 - 51

Total: 1,396 (Records incomplete)
Average fineness: 913 (Bliss and others, 1988)

Workings and Facilities:

Initial mining on modern stream was followed by drifting in the buried channel and hydraulicking of the high channel (Reed, 1938).

Geologic Setting:

Bedrock in Swift Creek is underlain by Upper Devonian Beaucoup Formation consisting of chlorite and quartz-mica schist, and phyllite. These units strike northwest and dip to the northeast (Eden, 2000).
On lower Swift Creek, placers are associated with the modern stream, a deep channel, a high channel that

formerly coalesced with an eroded high channel of the Hammond River. Some of the gold from this gulch was reportedly coated with white mineral(?) matter similar to that found in Smith Creek, which heads to the west and opposite Swift Creek (Maddren, 1913; Reed, 1938).

Bureau Investigation:

A traverse was made of the the length of Swift Creek and a series of samples were collected along the way. A pan concentrate (11054, table I-1) collected off bedrock 0.7 mile upstream from the Hammond River contains 25 ppb gold, which is slightly anomalous. A sample of a sulfide-bearing quartz vein (11170) from the same site contains 300 ppm lead, but no gold. A sample from a sulfide-bearing quartz vein (11057) 0.47 mile upstream from the Hammond River contains 874 ppm arsenic and 29 ppb gold. A test pan (11058) collected on bedrock, 0.2 mile upstream from the Hammond River, contained 1 very fine gold flake and 5,896 ppb gold.

Resource Estimate: Unknown.

Mineral Development Potential:

Low development potential due to extensive underground drift and surface mining.

Recommendations: None.

References:

Bliss, J.D., Brosge, W.P., Dillon, J.T., Cathrall, J.B., and Dutro, J.T., Jr., 1988, Maps and descriptions of lode deposits, prospects, and occurrences in the Wiseman 1^{o} by 3^{o} Quadrangle, Alaska: U. S. Geological Survey Open-file Report 88-293, p. 19-20.

Eden, K., 2000, Geology and gold mineralization of the Nolan area in the Brooks Range, Alaska: U.S. Bureau of Land Management Open-File Report 78, 140 p.

Maddren, A.G. 1913, The Koyukuk-Chandalar region, Alaska: U.S. Geological Survey Bulletin 532, p. 69, 97.

Reed, I.M., 1938, Upper Koyukuk region, Alaska: Alaska Territorial Department of Mines Miscellaneous Report 194-7, p. 56-57.

Schrader, F.C., 1904, A reconnaissance in northern Alaska across the Rocky Mountains, along the Koyukuk, John, Anaktuvuk, and Colville Rivers and the Arctic coast to Cape Lisburne, in 1901: U.S. Geological Survey Professional Paper 20, p. 100.

U.S. Bureau of Mines, 1908-1945, Permanent Individual Mine Records (PIMR) for placer mines in Alaska: U.S. Bureau of Mines unpublished reports. [available from BLM Anchorage, Alaska]

Property Summary

Name(s): Lofty Gulch
Sourdough nos. 6-8 claims

Map No: W103
MAS No: 0020300022

Deposit Type: Placer

Commodities: Au

Location:
Quadrangle: Wiseman B-1
W½ sec. 30, T. 31 N., R. 11 W.
Meridian: Fairbanks
Elevation: 1,390 feet
Latitude: 67° 29.126' N.
Longitude: 150° 05.314' W.
Geographic: A steep, 1-mile-long gulch that is a southwestern tributary to the Hammond River.

History:

1938 - Creek reported as being mined out in the early days (Reed, 1938).
1980 - S. and O. Cook staked Sourdough Association nos. 6-8 (S. Cook, written communication, 1980).

Production: Unknown.

Workings and Facilities: None.

Geologic Setting:

Lofty Gulch is underlain by two Upper Devonian units: (1) quartz-mica schist interlayered with chlorite schist and phyllite and (2) chloritic quartzite interlayered with banded quartzite, siltstone, and phyllite. These rocks are included within a northeast-trending antiformal structure, overturned to the east (Eden, 2000, Plate I).

Bureau Investigation:

Three samples were collected from Lofty Gulch. A pan concentrate (11330, table I-1) was taken from a 15-foot-high gravel cutbank on the east side of the creek, 150 feet upstream from the Hammond River. Visible gold was observed in the sample, and analysis showed it contains 13.33 ppm gold and 176 ppm arsenic. A sample of greenstone float (10351) was collected from Lofty Gulch. The greenstone contains pyrrhotite stringers, but is not anomalous in any metals (11351). Test pans from Lofty Gulch contain abundant euhedral magnetite, which may be weathering out of the greenstone.

A small exposure of greenstone-type rocks occurs on the south side of the Hammond River about midway between Lofty and Gold Bottom Gulches. An approximate 150- by 300-foot area of rubblecrop and talus runs up the hillside from river level. The rock ranges in composition from porphyritic greenstone to greenschist and contains minor disseminated pyrite. It appears to be a dike-like body that intrudes schist and phyllite wallrocks. A sample of the greenstone (11352) contains 79 ppm copper. The schist wallrock locally contains malachite stain, but none was observed in the greenstone. A float sample of the stained rock (12280) contains 7,440 ppm copper. This may be the source of the greenstone float occurring in Lofty Gulch. An Upper Devonian to Jurassic(?) greenstone dike has been mapped near the mouth of Steep Gulch. The two exposures are probably genetically related and belong to the same dike system (Eden, 2000).

Resource Estimate: Unknown.

Mineral Development Potential:

Low potential for gold-bearing placer. The resource appears to be small and the stream gradient steep.

Recommendations:

Further sampling of the gold-bearing gravel cutbanks on the lower creek.

References:

Dillon, J.T., Brosge, W.P., and Dutro, J.T., Jr., 1986, Generalized geologic map of the Wiseman quadrangle, Alaska: U.S. Geological Survey Open-File Report 86-219, 1 sheet, scale 1:250,000.

Eden, K., 2000, Geology and gold mineralization of the Nolan area in the Brooks Range, Alaska: U.S. Bureau of Land Management Open-File Report 78, p. 19-20.

Reed, I.M., 1938, Upper Koyukuk region, Alaska: Alaska Territorial Department of Mines Miscellaneous Report 194-7, p. 57.

Property Summary

Name(s): Gold Bottom Gulch
Sourdough Association claims

Map No: W104
MAS No: 0020300082

Deposit Type: Placer

Commodities: Au

Location:

Quadrangle: Wiseman B-1
E½ sec. 30, T. 31 N., R. 11 W.
Meridian: Fairbanks
Elevation: 1,420 feet
Latitude: 67° 29.144' N.
Longitude: 150° 04.917' W.
Geographic: A steep, 1-mile-long gulch that is a southern tributary to the Hammond River.

History:

1902 - First recorded production (Maddren, 1913).
1904 - 21.2 oz nugget recovered (Maddren, 1913).
1937 - A. Ness and E. Marsand mining on creek (Reed, 1938).
1978-present - J. Jiles prospecting and mining on creek (J. Jiles, personal communication, 2000).

Production: (oz Au)

1902 - 318
1903 - 106
1904 - 106
Total: 530 (Records incomplete)
Gold fineness: 912

Workings and Facilities:

Extensive placer workings along the lower 600 feet of creek. The present operation is using a bulldozer-excavator combination to load a washing plant and a loader to remove tailings. This operation has concentrated on the deep channel and bench gravels on the right limit near the mouth of the creek. Operators reported uncovering old drift workings in the deep channel (Jiles, personal communication, 1999).

Geologic Setting:

Gold Bottom Gulch follows the contact between two Upper Devonian units: (1) quartz-mica schist interlayered with chlorite schist and phyllite and (2) chloritic quartzite interlayered with banded quartzite, siltstone, and phyllite. These rocks are included within a northeast-trending antiformal structure, overturned to the east (figure I-9) (Eden, 2000, Plate I).

The lower portion of the creek contains modern, deep, and high channels. The modern channel was mined by ground sluicing and shoveling in, and the deep channel was mined by drifting in the early days. In 1937 the high channel was about 50 feet above a cut in the modern channel. The gold, which was scattered through about 9 feet of gravel, was of two types: very fine flaky gold and coarse, rounded gold that resembled the finer gold in the Hammond River deep channel (Maddren, 1913; Reed, 1938). A 10-

oz nugget has been recovered from the creek (Jiles, personal communication, 1998)

Bureau Investigation:

A series of test pans were taken in a recent cut on the left limit about 600 feet upstream from the Hammond River. Three pans taken from gravel on bedrock produced 4 coarse, 3 fine, and 10 very fine gold flakes. The largest flake was flat and 3.5 mm across. A pan concentrate sample (11354, table I-1) contains 408 ppm gold. Test pans taken from gravel on the right limit contained no gold. The bedrock has been cut into about 6 feet with a excavator. A test pan of broken bedrock contained no gold. A select sample from a quartz veinlet crosscutting micaceous quartzite (11382) contains 61 ppb gold, 506 ppm copper, and 338 ppm antimony.

Resource Estimate: Unknown.

Mineral Development Potential:

Moderate potential for placer gold in high channel gravel on both sides of lower Gold Bottom Creek. The resource appears to be small.

Recommendations: Continue testing of high channel gravel for gold.

References:

Eden, K., 2000, Geology and gold mineralization of the Nolan area in the Brooks Range, Alaska: U.S. Bureau of Land Management Open-File Report 78, 140 p.

Maddren, A.G., 1910, The Koyukuk-Chandalar gold region *in* Brooks, A.E., Mineral resources of Alaska, report on progress of investigations in 1909: U.S. Geological Survey Bulletin 442, p. 284-315.

____1913, The Koyukuk-Chandalar region, Alaska: U.S. Geological Survey Bulletin 532, p. 69, 97.

Reed, I.M., 1938, Upper Koyukuk region, Alaska: Alaska Territorial Department of Mines Miscellaneous Report 194-7, p. 57-58.

Property Summary

Name(s): Jennie Creek
Arctic Gate nos. 1-2 claims
North Star nos. 1-3 claims
South Slope nos. 1-2 claims

Map No: W105
MAS No: 0020300140
Alaska Kardex 030-179
Alaska Kardex 030-214

Deposit Type: Placer

Commodities: Au

Location:
Quadrangle: Wiseman B-1
NW¼ sec. 28, T. 31 N., R. 11 W.
Meridian: Fairbanks
Elevation: 1,650 feet
Latitude: 67° 29.879' N.
Longitude: 150° 01.331' W.
Geographic: A 3-mile-long northern tributary of the Hammond River.

History:

Early 1900s - Some drilling done at the mouth of the creek by James Kelly, but no pay was found (Reed, 1938).
2000 - J. Jackson was planning to drift mine on lower creek (J. Jackson, personal communication, 2000).
2001 - No activity on creek.

Production: Unknown.

Workings and Facilities:

Numerous test pits, evidence of booming, and ruins of several small cabins are scattered along the creek, though most are concentrated along the lower section below the canyon. A small placer cut and associated tailings piles lie on the south side of the creek, 250 feet upstream from the Hammond River. Cabin ruins and the remains of a shaft are located on a colluvial slope about 3,500 feet northeast of the mouth of Jennie Creek. A steam-powered placer drill is located in the trees about 500 feet downstream from the mouth of Jennie Creek and about 200 feet back from the east bank of the Hammond River. A gasoline-powered placer drill is located another 2,000(?) feet downstream on the same side of the river. The drills were probably used to evaluate potential placer ground that underlies the alluvial fan created by the Hammond River.

Geologic Setting:

Bedrock in the creek headwaters is predominantly Middle Devonian siltstone and phyllite. The lower part of the creek is underlain by lower Upper Devonian slate, phyllite, and chloritic laminated siltstone. Locally the phyllite contains metamorphic quartz veinlets that run parallel to schistosity (Eden, 2000). The lower 0.5 mile of the creek runs across an alluvial fan. At 0.8 mile above the mouth, the creek enters into a steep-walled canyon, running on bedrock in some locations. Above the canyon the creek opens into a large basin.

Bureau Investigation:

Nearly the entire creek was walked and numerous test pans taken. No gold was observed. A pan concentrate collected near the mouth of the creek (12282, table I-1) contains 45 ppb gold, which is slightly anomalous. Sample 11743, taken off bedrock, contains 112 ppm zinc, which is slightly anomalous.

Resource Estimate: Unknown.

Mineral Development Potential:

Low potential for placer deposits due to low gold values in stream and little sign of work beyond the prospecting stage.

Recommendations: None.

References:

Brosge, W.P., and Reiser, H.N., 1971, Preliminary geologic map, Wiseman, and eastern Survey Pass quadrangles, Alaska: U.S. Geological Survey Open-File Report 71-56, 1 sheet, scale 1:250,000.

Dillon, J.T., Brosge, W.P., and Dutro, J.T., Jr., 1986, Generalized geologic map of the Wiseman quadrangle, Alaska: U.S. Geological Survey Open-File Report 86-219, 1 sheet, scale 1:250,000.

Reed, I.M., 1938, Upper Koyukuk region, Alaska: Alaska Territorial Department of Mines Miscellaneous Report 194-7, p. 58.

Property Summary

Name(s): Lower Hammond River
Governor's Gound claim
Potato Patch 1-3 claims
Slisco (Eldorado) Bench Assoc. claims
Thor's Hammer
Sourdough 1-30 claims
Swift 1-4 claims
BJ 1-6 cl
The Griffth
2x Bench
Nos. 1-2 below discovery

Map No: W106
MAS No: 0020300110
Alaska Kardex 030-214
Alaska Kardex 030-004

Deposit Type: Placer

Commodities: Au, Ag

Location:

Quadrangle: Wiseman B-1
NE¼ sec. 29, T. 31 N., R. 11 W.
Meridian: Fairbanks
Elevation: 1,350 feet
Latitude: 67° 29.166' N.
Longitude: 150° 02.598' W.
Geographic: A 3.5-mile section of the Hammond River between Vermont and Jennie Creeks.

History:

1900 - P. Dow and others discovered coarse nugget gold on the Hammond River (Maddren, 1913; Fairbanks, Daily News-Miner, September 11, 1926).
1901 - Mining reported on Hammond River (Schrader, 1904).
1911 - Profitable mining of deep channel began (Maddren, 1913).
1914 - A 138.8-oz nugget found in mud-filled crack near Gold Bottom Gulch (Engineering and Mining Journal, June 12, 1915).
1926 - Detroit Mining Company, reportedly with British backing, began evaluating Nolan Creek and Hammond River with placer drills. W. Rowden was in charge. Subsequent work focused on Hammond River (Fairbanks Daily News-Miner, January 12, 1926).
1928 - Minor production from Nolan and Hammond by Detroit Mining Company. Drilling unable to reach bedrock due to high water pressure.
1929 - Shaft sunk by E.G. (Captain) Rowden on discovery claim after taking over interests of Detroit Mining Company.
1931 - J. Kelly and P. Davey began prospecting on claim no. 6 above the discovery (Reed, 1938).
1936 - K. Harvey, W. Stanton, and D. Stanton mining in the deep channel (Reed, 1938).
1937 - M. Angelich mined high channel of Hammond River near Swift Creek. Angelich and M. Slisco prospected Slisco bench (Reed, 1938).
1980 - D. Stacey and P. Jackson mined on Hammond River near mouth of Vermont Creek (D. Stacey, personal communication, 1998).
1985-87 - Mascot Mining Co. mined shallow ground below Swift Creek (D. Stacey, personal communication, 1998).
1983 - Mining on Slisco bench on the west side of the river and south of Vermont Creek by D. Stacey.
1992-94 - Mining on Slisco bench by R. Hamm (D. Stacey, personal communication, 1998).

1992-95 - T. Bryant drilled and attempted to the mine the deep channel between Vermont and Swift Creeks (D. Stacey, personal communication, 1998).
1995 - Silverado Gold Mines Ltd. drilled 65 holes to evaluate Slisco bench placer (E. Armstrong, personal communication, 1998).
1997-98 - D. Wiggers mined on Lower Hammond just upstream from Jennie Creek.
1998 - Suction dredging on river below mouth of Gold Bottom Gulch by S. Barnett.
2000 - L Weiz prospected on lower Hammond River, just upstream from Jennie Creek.
2001 - Mining by L. Weiz and Ralph Hamm on lower Hammond River.

Production: (oz Au)

1900 - 107	1918 - 29	1933 - 292
1901 - 107	1922 - 257	1935 - 24
1902 - 536	1923 - 38	1936 - 56
1903 - 107	1924 - 268	1937 - 2
1904 - 107	1925 - 123	1938 - 105
1905 - 107	1926 - 48	1940 - 7
1913 - 5,364	1930 - 55	1941 - 247
1914 - 4,559	1931 - 357	1942 - 443
1915 - 2,766	1932 - 294	1943 - 87
1916 - 2,696		
		Total: 19,128

Production records are incomplete. Production including side streams has been reported at 31,746 oz, but could be as much as 47,620 oz (Bliss and others, 1988).

Average gold fineness: 902 (Bliss and others, 1988)

Workings and Facilities:

Historically the Hammond River is one of the largest gold producers in the Koyukuk district. Gold was discovered on the Hammond River, just above the lower canyon mouth, about 2 miles upstream from the Koyukuk River. In the early years, attempts were made to mine the modern stream gravels between Swift and Vermont Creeks. A wing dam was built to divert the water for mining, but numerous cobbles and small boulders made the venture unprofitable. Later, shafts sunk 66 feet to bedrock at the discovery site were reported to show the presence of gold in paying quantities. The majority of the gold production on the Hammond came out of the deep channel. Placer workings, campsites, and mining equipment are scattered along a 3-mile-length of the Hammond River, from Vermont Creek to Jennie Creek. By 1937 the deep channel had been mostly worked out. Attempts to mine gravels on Slisco used water ditched from Buckeye Gulch. Beginning in 1992, an attempt was made to mine the deep channel between Swift and Vermont Creeks. The results are unknown (Maddren, 1913, p. 95-96; Reed, 1938, p. 49-55; D. Stacey, personal communication, 2001). The Hammond River is nearly 40 miles long and subject to flooding during periods of high rainfall.

A steam-powered placer drill is located in the spruce forest about 500 feet downstream from the mouth of Jennie Creek and about 200 feet back from the east bank of the Hammond River. A gasoline-powered placer drill is another 2,000(?) feet downstream on the same side of the river. Records indicate that the steam drill was used as early as 1912 to evaluate potential placers in the deep channel on the Hammond River as well as Jennie Creek. Two 60-horsepower boilers presently setting along the Hammond River road near Jennie Creek were used by E.G. Rowden in 1929 to run a hoist for a shaft sunk to prospect the ground on the discovery claim nearby (Fairbanks Weekly Times, 1912; Wimmler, 1929, p. 229).

In recent years, mining and prospecting activity has concentrated on the lower Hammond River between Gold Bottom Gulch and Jennie Creek (figure I-8). An 8-inch suction dredge operated 0.1 mile downstream from Gold Bottom Gulch. Bench gravels on the Potato Patch claims, 0.2 mile upstream from Jennie Creek and on the Governor's Ground claims opposite Jennie Creek were mined. Attempts have been made to mine the high channels on the west side of the Hammond River downstream of Vermont Creek. Getting water to these sites has proven difficult (D. Stacey, personal communication, 1998).

Geologic Setting:

Bedrock underlying the Hammond River canyon consists of Upper Devonian quartzite, quartz-mica schist and phyllite. These rocks are included within one of a series of panels, bounded by east-west oriented and north-vergent thrust faults. As a result, these units have undergone regional metamorphism and some folding. Pods and lenses of metamorphic quartz lying parallel to schistosity occur locally within the rock units. These quartz bodies are generally barren. Two other sets of quartz veins that cut across schistosity are anomalous in gold and antimony. These veins are probably the source of most of the placer gold in the Hammond River (Eden, 2000).

As with many streams on the Koyukuk, the formation of placers on the Hammond River has been influenced by glacial activity. The Hammond, as well as the Middle Fork Koyukuk River, has been affected by two stages of Late Pliestocene glacial advance. During the last stage of advance (Itkillik II) lobes of ice moving in from the Middle Fork dammed the upper Hammond River above Canyon Creek, and covered the Hammond River below Jennie Creek. That section of the Hammond River between the creeks was ice free. This allowed for rich placer deposits to form along that stretch of river, free from the dispersing action of glacial ice (Hamilton, 1979).

The Hammond River contains deep channel, bench, and modern stream placers. The deep channel has produced the majority of the gold taken from the creek. This channel may have formed by rapid downcutting by the ancestral Hammond River during a pre- or inter-glacial period. Subsequent glacial advances resulted in a filling in of the deep channel as the river raised its base level. The latest advance dammed the upper canyon, creating flood plain deposits in the lower canyon. These continued to fill in the deep channel and created the bench placers on the valley margins. The latest ice retreat resulted rapid downcutting of the Hammond River to its present level, leaving bench placers perched up to 400 feet above the modern stream channel (J. Hamilton, personal communication, 1998). The source of the gold in the deep channel may be gold-bearing quartz veinlets in upper Vermont Creek (map no. 90).

The deep channel has been extensively explored for nearly 3 miles, from just below Vermont Creek to Jennie Creek. The channel is said to have gotten progressively richer downstream to Jennie Creek. At a point 0.4 miles upstream from Jennie Creek, the depth to bedrock was reported to be 115 feet with pay gravel making up the bottom 8-10 feet. The gravel consisted of small boulders and large cobbles with a small amount of fine sand in between. The gold was very coarse, water-worn, and rounded with values averaging 0.04 oz/bedrock foot. At the same site, bedrock benches, ranging from 40 to 60 feet above the bottom of the deep channel, were reported to occur on the right limit. At the south end of the discovery claim about 0.2 mile above Jennie Creek, the deep channel is reported to be about 114 feet beneath the surface. Below that the channel was reported to be too deep and wet to work. The channel shallows upstream, being 35 feet deep above Swift Creek. A deep pothole is reported to occur in the bedrock at the mouth of Buckeye Gulch (Maddren, 1913; Reed, 1938; D. Stacey, personal communication, 1998).

Above Buckeye Gulch (map no. W101) no pay was found in the deep channel. An attempt was made to mine the deep channel between Swift and Vermont Creeks in the early 1990s. The river channel was diverted to the east side of the river and a dragline and dump trucks were used to uncover the deep channel. Before the deep channel was reached, major flooding in 1994 filled the workings with silt, ending the attempt. The width of the deep channel averages about 30 feet (Maddren, 1913; Reed, 1938).

Early mining on the Hammond River concentrated on shallow gravels of the modern channel. These deposits formed where river meanders stream cut into bedrock in the discovery claim area, 0.4 mile upstream from Jennie Creek and along the side of Butte Mountain as far upstream as Buckeye Gulch (Maddren, 1913; Reed, 1938).

Gold-bearing bench gravels occur on the west side of the Hammond River, downstream of Vermont Creek. These have seen little development as the benches are up to 400 feet above the modern stream channel and distant from reliable water sources. Drilling on Slisco (Eldorado) bench by Silverado Gold Mines Ltd. has encountered values of up to 0.3 oz/cy in a bedrock channel that is covered by up to 80 feet of overburden. This may extend as far south as Buckeye Gulch (E. Armstrong, personal communication, 1998).

Much of the Hammond River gold is of the coarse nugget variety. Several nuggets weighing from 45 to 59 oz were found in the early days. In 1914 a 138.8 oz nugget (third largest in Alaska) was found in a mud-filled crack on bedrock near Gold Bottom Gulch (Engineering and Mining Journal, 1915, p. 1021; T. Bundzten, personal communication, 1999).

Bureau Investigation:

The Hammond River was walked and the various active mining operations visited. A sample from a 1.5-inch-wide quartz veinlet (11376, table I-1) exposed in outcrop on the west bank of the river between Swift Creek and Lofty Gulch contained 2,127 arsenic and 23 ppb gold. A placer concentrate (10763) collected from an active operation 0.2 mile upstream from Jennie Creek, contained 597 ppm arsenic, 47 ppm tungsten, and 7 ppm bismuth.

Claim owner Dan Wiggers (now deceased) believed that he had found indications of diamonds in sluice concentrates from his operation near Jennie Creek. A split of the concentrate was submitted to Kennecott Canada's laboratory in Vancouver, British Columbia. Kennecott Canada has been involved in the recent diamond discoveries in the Northwest Territories of Canada and has considerable expertise in diamond identification. No indications of diamonds were found by Kennecott personnel in the concentrate (Ian Graham, personal communication, 1997).

The Bureau conducted a ground penetrating radar (GPR) survey across Slisco bench, but overburden thickness was too great to obtain a bedrock profile (Kurtak and others, 1999).

Investigations were made of bench gravels occurring on the east side of the Hammond River, 0.8 miles upstream from Vermont Creek (map no. W88).

Resource Estimate: (Silverado Gold Mines Ltd, 2002; Bundzten and others, 1996, p. 7).

<u>Slisco bench</u>

Measured resource: 31,099 oz. with grades of up to 0.3 oz/cy. Inferred resource: 50,000 to 150,000 oz

Mineral Development Potential:

Moderate potential for placer gold on Slisco bench. Overburden thickness and distance from water sources could make operations difficult. Moderate development potential for placer in high rims and bottom of the deep channel. That stretch of the Hammond River between Swift and Vermont Creeks was reportedly not thoroughly mined due to flooding as the pay was being reached. Below Jennie Creek excessive water kept drift miners out (D. Stacey, personal communication, 1998).

Recommendations: Drilling of the deep channel below Jennie Creek.

References:

Bliss, J.D., Brosge, W.P., Dillon, J.T., Cathrall, J.B., and Dutro, J.T., Jr., 1988, Maps and descriptions of lode deposits, prospects, and occurrences in the Wiseman 1° by 3° Quadrangle, Alaska: U. S. Geological Survey Open-file Report 88-293, 52 p. plus two plates.

Brooks, A.H., and others, 1912, Mineral resources of Alaska, report on progress of investigations in 1911: U.S. Geological Survey Bulletin 520, p. 38.

____1913, Mineral resources of Alaska, report on progress of investigations in 1912: U.S. Geological Survey Bulletin 542, p. 45.

____1914, Mineral resources of Alaska, report on progress of investigations in 1913: U.S. Geological Survey Bulletin 592, p. 69.

____1915, Mineral resources of Alaska, report on progress of investigations in 1914: U.S. Geological Survey Bulletin 622, p. 58-60.

____1916a, Mineral resources of Alaska, report on progress of investigations in 1915: U.S. Geological Survey Bulletin 642, p. 64.

Brooks, A.H., and Capps, S.R., 1924, The Alaska mining industry in 1922, *in* Mineral Resources of Alaska, Report on Progress of Investigations in 1922: U.S. Geological Survey Bulletin 755, p. 46.

Brosge, W. P., and Reiser, H.N., 1971, Preliminary geologic map, Wiseman, and eastern Survey Pass quadrangles, Alaska: U.S. Geological Survey Open-File Report 71-56, 1 sheet, scale 1:250,000.

____1972, Geochemical reconnaissance in the Wiseman and Chandalar districts and adjacent region, southern Brooks Range, Alaska: U.S. Geological Survey Professional Paper 709, 21 p.

Bundzten, T.K., Swainbank, R.E., Clough, A.H., Henning, M.W., and Charlie, K.M., 1996, Alaska's mineral industry 1995: Alaska Division of Geological and Geophysical Surveys Special Report 50, p. 7.

Cobb, E.H., 1976, Summary of references to mineral occurrences (other than mineral fuels and construction materials) in the Chandalar and Wiseman quadrangles, Alaska: U.S. Geological Survey Open-File Report 76-340, p. 114-115.

Dillon, J.T., Brosge, W.P., and Dutro, J.T., Jr., 1986, Generalized geologic map of the Wiseman quadrangle, Alaska: U.S. Geological Survey Open-File Report 86-219, 1 sheet, scale 1:250,000.

Eden, K., 2000, Geology and gold mineralization of the Nolan area in the Brooks Range, Alaska: U.S. Bureau of Land Management Open-File Report 78, 140 p.

Engineering and Mining Journal, June 12, 1915, v. 99, no. 24, p. 1021-1022.

Fairbanks Daily Times newspaper, Fairbanks, Alaska, November 25, 1912

Hamilton, T.D., 1979, Surficial geologic map of the Wiseman quadrangle, Alaska: U.S. Geological Survey Miscellaneous Field Studies Map MF-1122, 1 sheet, scale 1:250,000.

Maddren, A.G., 1910, The Koyukuk-Chandalar gold region *in* Brooks, A.E., Mineral resources of Alaska, report on progress of investigations in 1909: U.S. Geological Survey Bulletin 442, p. 292, 304-305.

____1913, The Koyukuk-Chandalar region, Alaska: U.S. Geological Survey Bulletin 532, p. 69, 95-97.

Moffit, F.H., and others, 1927, Mineral resources of Alaska, report on progress of investigations in 1925: U.S. Geological Survey Bulletin 792, p. 14.

Proffett, J.M., 1982, Preliminary report on the geology of the Hammond River - Vermont Creek gold placer area, Wiseman district, Alaska: unpublished report to Alaska Mining Company, 15 p. [available from BLM Anchorage, Alaska]

Reed, I.M., 1938, Upper Koyukuk region, Alaska: Alaska Territorial Department of Mines Miscellaneous Report 194-7, p. 49-58.

Schrader, F.C., 1904, A reconnaissance in northern Alaska across the Rocky Mountains, along the Koyukuk, John, Anaktuvuk, and Colville Rivers and the Arctic coast to Cape Lisburne, in 1901: U.S. Geological Survey Professional Paper 20, p. 100-102.

Silverado Gold Mines Ltd., 2002, Property information and news releases: internet webpage http://www.silverado.com/s/Home.asp

Smith, P.S., 1929, Mineral industry of Alaska in 1926, *in* Smith, P.S. and others, Mineral resources of Alaska, report on progress of investigations in 1926: U.S. Geological Survey Bulletin 797, p. 21-22.

____1930a, Mineral industry of Alaska in 1927, *in* Smith, P.S. and others, Mineral resources of Alaska, report on progress of investigations in 1927: U.S. Geological Survey Bulletin 810, p. 27-28.

____1930b, Mineral industry of Alaska in 1928, *in* Smith, P.S. and others, Mineral resources of Alaska, report on progress of investigations in 1928: U.S. Geological Survey Bulletin 813, p. 33.

____1934a, Mineral industry of Alaska in 1931, *in* Smith, P.S. and others, Mineral resources of Alaska, report of progress of investigations in 1931: U.S. Geological Survey Bulletin 844, p. 39.

____1934b, Mineral resources of Alaska, report on progress of investigations in 1932: U.S. Geological Survey Bulletin 857A, p. 36.

____1934c, Mineral industry of Alaska in 1933, *in* Mineral resources of Alaska, report on progress of investigations in 1933: U.S. Geological Survey Bulletin 864A, p. 40-41.

____1936, Mineral industry of Alaska in 1934, *in* Mineral resources of Alaska, report on progress of investigations in 1934: U.S. Geological Survey Bulletin 868A, p. 42-43.

____1937, Mineral resources of Alaska, report on progress of investigations in 1935: U.S. Geological Survey Bulletin 880A, p. 45-46.

____1938, Mineral resources of Alaska, report on progress of investigations in 1936: U.S. Geological Survey Bulletin 897A, p. 54.

____1941, Mineral resources of Alaska, report on progress of investigations in 1939: U.S. Geological Survey Bulletin 926A, p. 52.

____1942a, Mineral resources of Alaska, report on progress of investigations in 1940: U.S. Geological Survey Bulletin, 933A, p. 47.

Wimmler, N.L., 1929, Placer mining in Alaska in 1925: Alaska Territorial Department of Mines Miscellaneous Report MR-195-1, p. 229.

Property Summary

Name(s): Confederate Gulch
Stars and Bars

Map No: W107
MAS No: 0020300043
Alaska Kardex 030-004
Alaska Kardex 030-077

Deposit Type: Placer

Commodities: Au

Location:

Quadrangle: Wiseman B-1
NE¼ sec. 31, T. 31 N., R. 11 W.
Meridian: Fairbanks
Elevation: 1,500 feet
Latitude: 67° 27.800' N.
Longitude: 150° 5.333' W.
Geographic: An eastward-flowing tributary of Middle Fork Koyukuk River, north of Wiseman.

History:

1900s - Prospecting was reported, but returns did not warrant placer mining activity (Maddren, 1913).
1937 - No pay reported (Reed, 1938).
1980-90s - Claims owned in area by several parties (Kardex).

Production: None recorded.

Workings and Facilities: None observed.

Geologic Setting:

The bedrock in the Confederate Gulch drainage consists mostly of Middle to Upper Devonian chloritic siltstone, banded quartz siltstone, and phyllite with chlorite along foliation planes. Chloritic quartzite, sandstone, conglomerate, and limestone-marble interlayers also outcrop locally. The units are all described as twice metamorphosed middle to upper greenschist facies (Dillon and Reifenstuhl, 1990).

Also, there are numerous high-angle, normal faults near Midnight Dome. The parallel, northwest-southeast trends of Wiseman Creek, Union Gulch, and Confederate Gulch (figure I-9) are possibly caused by these normal faults, which formed during late-stage extensional uplift (Eden, 2000, p. 36).

Bureau Investigation:

Approximately three quarters of a mile of Confederate Gulch were investigated. Test pans and a pan concentrate sample (11829, table I-1) collected on the creek did not contain visible gold. Samples of quartz veinlets collected in the creek bed (11383-11386) average 56 ppm arsenic and 12 ppb gold. These results are considered slightly anomalous. Quartz veinlets (less than 1 inch wide) were also sampled on the ridge between Confederate and Union Gulches (11387-11391). Two samples with pyrite and limonite staining (11387, 11389) are anomalous in arsenic, averaging 346 ppm.

Resource Estimate: None.

Mineral Development Potential:

Low mineral development potential for placers due to lack of visible gold in samples.

Recommendations: None.

References:

Cobb, E.H., 1972, Metallic mineral resources map of the Wiseman quadrangle, Alaska: U.S. Geological Survey Miscellaneous Field Studies Map MF-469, 1 sheet, scale 1:250,000.

____1976, Summary of references to mineral occurrences (other than mineral fuels and construction materials) in the Chandalar and Wiseman quadrangles, Alaska: U.S. Geological Survey Open-File Report 76-340, p. 96.

Eden, K., 2000, Geology and gold mineralization of the Nolan area in the Brooks Range, Alaska: U.S. Bureau of Land Management Open-File Report 78, 140 p.

Heiner, L.E., and Wolff, E.N., 1968, Final report, mineral resources of northern Alaska: Mineral Industry Research Laboratory, University of Alaska, Report 16, 299 p.

Maddren, A.G., 1913, The Koyukuk-Chandalar region, Alaska: U.S. Geological Survey Bulletin 532, p. 95.

Mulligan, J.J., 1974, Mineral resources of the Trans-Alaska Pipeline corridor: U.S. Bureau of Mines Information Circular 8626, 24 p.

Reed, I.M., 1938, Upper Koyukuk region, Alaska: Alaska Territorial Department of Mines Miscellaneous Report 194-7, p. 58-59.

Property Summary

Name(s): Union Gulch
Union Creek

Map No: W108
MAS No: 0020300042
Alaska Kardex 030-010

Deposit Type: Placer

Commodities: Au

Location:

Quadrangle: Wiseman B-1
NW¼ sec. 6, T. 30 N., R. 11 W.
Meridian: Fairbanks
Elevation: 1,500 feet
Latitude: 67° 27.217' N.
Longitude: 150° 06.167' W.
Geographic: Located about 3 miles north of Wiseman. It is a 3-mile-long, southeast-flowing tributary of the Middle Fork Koyukuk River.

History:

1901 - Gold was discovered on Union Gulch. Production included a nugget valued at $660 (35 oz), which was the largest nugget in the district for the year (Schrader, 1904).

1908 - Pay was located, but lack of water prevents production (Fairbanks Daily Times, 1908).

1925 - M. Christensen operated on Union Gulch (Fairbanks Daily News-Miner, 1925).

1930s - V. Watts mined by booming and shoveling methods (Smith, 1936; Reed, 1938).

1980s - H. Leonard conducted placer mining operations.

1990s-present - J. Lounsbury placer mining bench gravels at lower Union Gulch.

Production: (oz Au)

1901 - 73
1902 - 1,451
1909 - 97
1922 - 9
1935 - 3
Total: 1,633 (Records incomplete.)
Gold fineness: 906.7 (Mosier and Lewis, 1986)

Workings and Facilities:

Mining by booming, shoveling, and sluicing has been conducted intermittently since 1901. The tailings and current placer operation cover about 1 acre on lower Union Gulch. Equipment includes a 6-foot-long trommel, 28-foot-long sluice box, and a suction dredge.

Geologic Setting:

The bedrock in the Union Gulch drainage consists mostly of Middle to Upper Devonian chloritic siltstone, banded quartz siltstone, and phyllite with chlorite along foliation planes. Chloritic quartzite, sandstone, conglomerate, and limestone-marble interlayers also outcrop locally. The units are all described as twice metamorphosed middle to upper greenschist facies (Dillon and Reifenstuhl, 1990).

Several parallel thrust faults are located on the ridge southwest of Union Gulch. These faults are reported to be a part of the Wiseman thrust fault system that trends east-northeast and juxtaposes Proterozoic(?) and lower Paleozoic(?) calcareous schist over Devonian metasediments (Dillon and Reifenstuhl, 1990).

Also, there are numerous high-angle, normal faults near Midnight Dome. The parallel, northwest-southeast trends of Wiseman Creek, Union Gulch, and Confederate Gulch are possibly caused by these normal faults, which formed during late-stage extensional uplift (Eden, 2000, p. 36).

Union Gulch has been mined in the present channel only; however, bench placers near the mouth have been prospected. The average gradient from 1,800 feet to 2,500 feet elevation is 10%. The placer gold is reported to be coarse and shallow (Reed, 1938; Heiner and Wolff, 1968; Bliss and others, 1988; J. Lounsbury, personal communication, 1999).

A stibnite-gold-quartz vein prospect is located at the headwaters of Union Gulch, at Midnight Dome (map no. W99).

Bureau Investigation:

Numerous samples were collected from the Union Creek drainage (table I-1). Three pan concentrate samples (11139-11141) were collected from gravel bars and bedrock above the placer tailings. The samples average 6.76 ppm gold and 136 ppm arsenic. No antimony was detected in the pan samples. The present channel exposes phyllite and schistose bedrock at numerous locations. The depth to bedrock is less than 3 feet for much of the creek length (J. Lounsbury, personal communication, 1999). A ground penetrating radar (GPR) survey was conducted by the BLM near the bench placer workings on lower Union Gulch. Results from the investigation were inconclusive.

Quartz samples collected in the Union Gulch drainage have elevated concentrations of both arsenic and antimony. A float sample of quartz vein (11137) found on the creek bottom contains 1,023 ppm arsenic. Also, two quartz vein samples collected from outcrops on the ridge between Union and Drinking Cup Gulches (11173, 12302) average 321 ppb gold, 373 ppm lead, 365 ppm arsenic, and 317 ppm antimony. The veins are hosted in a chlorite schist with an average strike of N. 7° E. and dip of 69° W.

Resource Estimate: Unknown.

Mineral Development Potential:

Low to moderate mineral potential exists due to anomalous sample results above the current placer operations at Union Gulch.

Recommendations: None.

References:

Bliss, J.D., Brosge, W.P., Dillon, J.T., Cathrall, J.B., and Dutro, J.T., Jr., 1988, Maps and descriptions of lode deposits, prospects, and occurrences in the Wiseman 1° by 3° quadrangle, Alaska: U. S. Geological Survey Open-File Report 88-293, p. 21-22, 50-51, plus two plates.

Brosge, W.P., and Reiser, H.N. 1972, Geochemical reconnaissance in the Wiseman and Chandalar districts and adjacent region, southern Brooks Range, Alaska: U.S. Geological Survey Professional Paper 709, p. 9-12.

Bundzten, T.K., Swainbank, R.E., Clough, A.H., Henning, M.W., and Hansen, E.W., 1994, Alaska's mineral industry 1993: Alaska Division of Geological and Geophysical Surveys Special Report 48, p. 5.

Cobb, E.H., 1972, Metallic mineral resources map of the Wiseman quadrangle, Alaska: U.S. Geological Survey Miscellaneous Field Studies Map MF-469, 1 sheet, scale 1:250,000.

Dillon, J.T., and Reifenstuhl, R.R., 1990, Geologic map of the Wiseman B-1 quadrangle southcentral Brooks Range, Alaska: Alaska Division of Geological and Geophysical Surveys, Professional Report 101, 1 sheet, scale 1:63,360.

Eden, K., 2000, Geology and gold mineralization of the Nolan area in the Brooks Range, Alaska: U.S. Bureau of Land Management Open-File Report 78, 140 p.

Ebbley, N., Jr., and Wright, W.S., 1948, Antimony deposits in Alaska: U.S. Bureau of Mines Report of Investigation 4173, 41 p.

Fairbanks Daily News-Miner newspaper, Fairbanks, Alaska, January 25, 1925.

Fairbanks Daily Times newspaper, Fairbanks, Alaska, October 8, 1908.

Heiner, L.E., and Wolff, E.N., 1968, Final report, Mineral resources of northern Alaska: University of Alaska Mineral Industry Research Lab, Report 16, p. 137.

Maddren, A.G., 1910, The Koyukuk-Chandalar gold region *in* Brooks, A.E., Mineral resources of Alaska, report on progress of investigations in 1909: U.S. Geological Survey Bulletin 442, p. 292, 304.

____1913, The Koyukuk-Chandalar region, Alaska: U.S. Geological Survey Bulletin 532, p. 69, 95.

Mosier, E.L., and Lewis, J.S., 1986, Analytical results, geochemical signatures, and sample locality map of load gold, placer gold, and heavy-mineral concentrates from the Koyukuk-Chandalar mining district, Alaska: U. S. Geological Survey Open-File Report 86-345, p. 85.

Reed, I.M., 1938, Upper Koyukuk region, Alaska: Alaska Territorial Department of Mines Miscellaneous Report 194-7, p. 59.

Schrader, F.C., 1904, A reconnaissance in northern Alaska across the Rocky Mountains, along the Koyukuk, John, Anaktuvuk, and Colville Rivers and the Arctic coast to Cape Lisburne, in 1901: U.S. Geological Survey Professional Paper 20, p. 99-102.

Smith, P.S., 1936, Mineral industry of Alaska in 1934, *in* Mineral resources of Alaska, report on progress of investigations in 1934: U.S. Geological Survey Bulletin 868A, p. 42-43.

Swainbank, R.C., Clautice, K.H., and Nauman, J.L., 1998, Alaska’s mineral industry 1997: Alaska Division of Geological and Geophysical Surveys Special Report 52, p. 17.

Szumigala, D.J., and Swainbank, R.C., 1999, Alaska's mineral industry 1998, Division of Geological and Geophysical Surveys Special Report 53, p. 22-23.

Property Summary

Name(s): Wiseman Creek
P&S 1-18

Map No: W109
MAS No: 0020300041
Alaska Kardex 030-067
Alaska Kardex 030-150

Deposit Type: Placer

Commodities: Au

Location:

Quadrangle: Wiseman B-1
SW¼ sec. 19, T. 30 N., R. 11 W.
Meridian: Fairbanks
Elevation: 1,150 feet
Latitude: 67° 24.517' N.
Longitude: 150° 06.167' W.
Geographic: Wiseman Creek is a 14-mile-long, west-side tributary of the Middle Fork Koyukuk River. Access is provided by an unpaved road to Nolan along the north side of the valley.

History:

1900 - Schrader (1900) reported gold discovered on Wiseman Creek.

1908 - A shaft was sunk 260 feet. Some colors were found in gravels from 220 to 250 feet below ground surface (Maddren, 1910).

1909- Another shaft was sunk: a depth of 335 feet was attained, and a pipe driven 30 feet farther without reaching bedrock (Maddren, 1910).

1924-29 - American Koyukuk Gold Mining owned 28 claims, named P&S 1-18. They cut two ditches Wiseman Creek, but the pay was minimal (Reed, 1938).

1976 - Sally McWhirter staked one placer claim (Kardex).

Production:

One of American Koyukuk Gold Mining Company's ditches ran 6 to 10 cents per yard. Mostly flour gold was recovered; the largest "nugget" was worth 10 cents (Reed, 1938).

Workings and Facilities:

American Koyukuk Gold Mining Company cut two ditches along the north side of the creek valley, about 1.5 miles from Wiseman (figure I-8). One ditch was 800 feet long, 40 feet wide, and 6 feet deep. The other cut was 400 feet by 30 feet by 10 feet. At least two shafts were also sunk below the confluence of Nolan and Wiseman Creeks (Reed, 1938).

Geologic Setting:

Upper Wiseman Creek flows north. The bedrock consists of Devonian and older(?) silstone, slate, and phylite units thrust over one another in a roughly east-west orientation. About 1 mile north of the confluence with Pasco Creek, Wiseman Creek enters a broad, U-shaped valley with at least 350 feet of

Quaternary lacustrine, glacial, and alluvial sediments. These sediments are the result of Tertiary(?) through Quaternary glacial advances that moved down the Koyukuk River valley and dammed the Wiseman Creek valley (Hamilton, 1989; Dillon and Reifenstuhl, 1990).

There have been several attempts to mine deep channels beneath the glacial and alluvial sediments. The deepest was located 2 miles below the confluence with Nolan Creek, and totaled 365 feet without reaching bedrock. Another shaft located 1 mile below the confluence was 260 feet deep. Fine gold was reported in 30 feet of stream-washed gravels overlying slatey bedrock. The returns did not warrant drift mining from the shaft. Also, the American Koyukuk Gold Mining cut two ditches along the north side of the creek valley, about 1.5 miles from Wiseman. It is reported that only fine flour gold was found in the ditches, and the values ran from 6 to 10 cents per cubic yard (Maddren, 1910; Reed, 1938).

Bureau Investigation:

The present stream channel of Wiseman Creek was investigated in several locations. Two pan samples (11893-11894, table I-1) were collected near the headwaters. A stream sediment and 3 pan samples (11770-11773) were collected below the confluence with Pasco Creek. Finally, a stream sediment and pan concentrate sample (10735-10736) were also collected in the Wiseman Canyon. None of the sample results were anomalous.

Resource Estimate: None.

Mineral Development Potential:

Low mineral development potential. It appears unlikely that placer gold would be transported through the long, flat, meandering Wiseman Creek valley. Also, attempts to reach a deep channel were not successful.

Recommendations: None.

References:

Brooks, A.H., and others, 1905, Mineral resources of Alaska, report on progress of investigations in 1904: U.S. Geological Survey Bulletin 259, p. 30-31.

Dillon, J.T., and Reifenstuhl, R.R., 1990, Geologic map of the Wiseman B-1 quadrangle southcentral Brooks Range, Alaska: Alaska Division of Geological and Geophysical Surveys, Professional Report 101, 1 sheet, scale 1:63,360.

Heiner, L.E., and Wolff, E.N., 1968, Final report, mineral resources of northern Alaska: Mineral Industry Research Laboratory, University of Alaska, Report 16, p. 137.

Maddren, A.G., 1913, The Koyukuk-Chandalar region, Alaska: U.S. Geological Survey Bulletin 532, p. 91-92.

Reed, I.M., 1938, Upper Koyukuk region, Alaska: Alaska Territorial Department of Mines Miscellaneous Report 194-7, p. 60-62.

Schrader, F.C., 1900, Preliminary report on a reconnaissance along the Chandalar and Koyukuk Rivers, Alaska in 1899: Twenty-first annual report of the U.S. Geological Survey Part 2, p. 485.

Smith, P.S., 1932, Mineral resources of Alaska, report on progress of investigations in 1929: U.S. Geological Survey Bulletin 824A, p. 38.

____1933, Mineral industry of Alaska in 1930, *in* Smith, P.S. and others, Mineral resources of Alaska, report on progress of investigations in 1930: U.S. Geological Survey Bulletin 836, p. 39.

____1939, Mineral resources of Alaska, report on progress of investigations in 1938: U.S. Geological Survey Bulletin 917A, p. 55.

____1941, Mineral resources of Alaska, report on progress of investigations in 1939: U.S. Geological Survey Bulletin 926A, p. 52.

Property Summary

Name(s): Minnie Creek
Big Minnie

Map No: W110
MAS No: 0020300044
Alaska Kardex 030-060
Alaska Kardex 030-078
Alaska Kardex 030-098
Alaska Kardex 030-102
Alaska Kardex 031-093
Alaska Kardex 031-128
Alaska Kardex 031-153
ARDF CH033

Deposit Type: Placer

Commodities: Au, Ag

Location:

Quadrangle: Wiseman B-1
NE¼ sec. 20, T. 30 N., R. 11 W.
Meridian: Fairbanks
Elevation: 1,370 feet
Latitude: 67° 24.964' N.
Longitude: 150° 02.655' W.
Geographic: A 9-mile-long, west-flowing tributary of Middle Fork Koyukuk River; the creek mouth is located 1 mile north of Wiseman.

History:

1904 - First shaft to bedrock produced $500 (24 oz) of heavy shot gold (Maddren, 1913).
1905 - Minor prospecting conducted.
1906 - Approximately $400 (19 oz) of gold mined by two prospectors (Maddren, 1913).
1907 - C. Benzick reported to have drift mined (U.S. Bureau of Mines PIMR, 1916).
1912 - Reported active (Brooks and others, 1913).
1916 - Youngberg, Stromdahl, and Gladium drift mined (U.S. Bureau of Mines PIMR, 1916).
1930s - Several miners attempted to recover gold from the deep channel (Reed, 1938).
1970s - H. Ross, R Cole, and A. Zucchini staked 11 placer claims near mouth of Minnie Creek (Kardex).
1977 - J. Dattoli and P. Heppe staked 13 placer claims between the confluence of Howard Creek and the Minnie Creek Lake outlet (Kardex).
1978 - R. and K. Morgan staked 4 placer claims upstream of the Minnie Creek Lake outlet (Kardex).
1979-81 - V. Severns staked a placer claim about 4 miles upstream of the Minnie Creek Lake outlet (Kardex).
1985 - Dillon (1987) reported active claims along several miles of Minnie Creek.
1990s - R. Fox staked claims near confluence of Minnie and Howard Creeks.

Production: (oz Au) (Maddren, 1913; U.S. Bureau of Mines PIMRs, 1907, 1913)

1904 - 24
1906 - 19
1907 - 24
1916 - 65
Total: 132 (Records incomplete. Recorded production is from drift mining only.)
Bliss and others (1988) reported total production as high as 1,500 oz gold.

Workings and Facilities:

Remnants of old cabins, boom dams, and ditches are located near the mouth of Minnie Creek on the south side of the creek.

Geologic Setting:

The Wiseman thrust fault runs roughly parallel to Minnie Creek, from the creek mouth to Minnie Creek Lake where it breaks off to the northeast. North of the fault, the bedrock is predominantly a Devonian metasediments (chloritic siltstone) associated with the Beaucoup Formation. South of the fault, the bedrock is lower Paleozoic or Proterozoic interbanded quartzite, graphitic quartz schist with minor gneissic interlayers, and calcareous schist with marble interlayers (Dillon and others, 1986; Dillon and Reifenstuhl, 1990, 1995).

There have been attempts to mine the deep channel; however, the location of the channel is not stated in any references. In 1904, 24 oz of heavy "shot" gold was taken from a short drift that reached bedrock, but then flooded. Several other attempts to reach the deep channel by drift mining and by sinking shafts have resulted in only limited success due to flooding. Some gold has been taken out at higher levels, above the deep channel. The upper end of the deep channel may be high enough that groundsluicing could be used to remove the overburden. The present channel and high channels of Minnie Creek were prospected, but no mining was attempted (Maddren, 1913; Reed, 1938).

Minnie Creek has an average gradient of 2.3% between elevation 1,200 feet and 1,400 feet above sea level (Bliss and others, 1988).

Bureau Investigation:

Several miles of Minnie Creek were traversed. Visible gold was panned from three locations: near the confluence of Larson Creek (11838, table I-1), three quarters of a mile upstream (11952-11953), and approximately 10 miles upstream (11292). The four pan concentrate samples average 24.36 ppm gold and 1.6 ppm silver. Depth to bedrock at most locations is shallow, less than 3 feet.

Two pan concentrate samples (11954-11955) were also collected from the bottom of the bluff between the Dalton Highway and the confluence with the Middle Fork Koyukuk River. The samples are not anomalous in precious metals.

Resource Estimate: None.

Mineral Development Potential:

Moderate mineral development potential for placer gold due to the presence of fine gold in several samples.

Recommendations: Test ground further by collecting large volume gravel samples on bedrock.

References:

Bliss, J.D., Brosge, W.P., Dillon, J.T., Cathrall, J.B., and Dutro, J.T., Jr., 1988, Maps and descriptions of lode deposits, prospects, and occurrences in the Wiseman 1° by 3° quadrangle, Alaska: U. S. Geological Survey Open-File Report 88-293, p. 22.

Brooks, A.H., and others, 1913, Mineral resources of Alaska, report on progress of investigations in 1912: U.S. Geological Survey Bulletin 542, p. 45.

____1916, Mineral resources of Alaska, report on progress of investigations in 1916: U.S. Geological Survey Bulletin 662, p. 59.

Dillon, J.T., 1987, Upper Koyukuk district land and mining claim status current to 1985: Alaska Division of Geological and Geophysical Surveys Public Data File 87-11, 25 p., 1 sheet, scale 1:125,000.

Dillon, J.T., Brosge, W.P., and Dutro, J.T., Jr., 1986, Generalized geologic map of the Wiseman quadrangle, Alaska: U.S. Geological Survey Open-File Report 86-219, 1 sheet, scale 1:250,000.

Dillon, J.T., and Reifenstuhl, R.R., 1990, Geologic map of the Wiseman B-1 quadrangle southcentral Brooks Range, Alaska: Alaska Division of Geological and Geophysical Surveys, Professional Report 101, 1 sheet, scale 1:63,360.

____1995, Geologic map of the Chandalar B-6 quadrangle southeastern Brooks Range, Alaska: Alaska Division of Geological and Geophysical Surveys Professional Report 103, 1 sheet, scale 1:63,360.

Heiner, L.E., and Wolff, E.N., 1968, Final report, mineral resources of northern Alaska: Mineral Industry Research Laboratory, University of Alaska, Report 16, p. 135.

Maddren, A.G., 1910, The Koyukuk-Chandalar gold region *in* Brooks, A.E., Mineral resources of Alaska, report on progress of investigations in 1909: U.S. Geological Survey Bulletin 442, p. 292.

____1913, The Koyukuk-Chandalar region, Alaska: U.S. Geological Survey Bulletin 532, p. 69, 94-95.

Reed, I.M., 1938, Upper Koyukuk region, Alaska: Alaska Territorial Department of Mines Miscellaneous Report 194-7, p. 59-60.

Smith, P.S., 1933, Mineral industry of Alaska in 1930, *in* Smith, P.S. and others, Mineral resources of Alaska, report on progress of investigations in 1930: U.S. Geological Survey Bulletin 836, p. 39.

Property Summary

Name(s): Cow Creek Lode

Map No: W111
MAS No: 0020300017

Deposit Type: Unknown lode

Commodities: Cu

Location:

Quadrangle: Wiseman B-1
NW¼ sec. 26, T. 30 N., R. 12 W.
Meridian: Fairbanks
Elevation: 1,400 feet
Latitude: 67° 23.500' N.
Longitude: 150° 09.167' W.
Geographic: A western tributary of the Middle Fork Koyukuk River, 2 miles south of Wiseman.

History:

1937 - No mining or prospecting activity on Cow Creek (Reed, 1938).
1960 - Brosge and Reiser (1960) reported copper sulfides and malachite stains on quartz veins cutting Devonian(?) schist and marble bedrock.

Production: None.

Workings and Facilities: None observed.

Geologic Setting:

The bedrock in the Cow Creek area consists of Lower Paleozoic or Proterozoic calcareous schist with interlayers of quartz-mica schist, graphitic schist, and/or marble. A southwest to northeast-trending thrust fault is roughly parallel with the 3,700-foot elevation contour line. On the ridgetop, east of the fault, there is a large outcrop of Devonian metabasite with lesser amounts of felsic metavolcanic rocks on the outcrop margin (Dillon and others, 1986; Dillon and Reifenstuhl, 1990).

Bureau Investigation:

BLM geologists walked approximately 1 mile of the creek. A stream sediment and a pan concentrate sample (11818-11819, table I-1) collected on Cow Creek do not contain anomalous results for copper or any other elements. Although rusty sulfides were abundant in the schistose rocks at Cow Creek, no copper mineralization was observed.

Resource Estimate: None.

Mineral Development Potential:

Low mineral development potential because no copper sulfides were found.

Recommendations: None.

References:

Berg, H.C., and Cobb, E.H., 1967, Metalliferous lode deposits of Alaska: U.S. Geological Survey Bulletin 1246, 254 p.

Bliss, J.D., Brosge, W.P., Dillon, J.T., Cathrall, J.B., and Dutro, J.T., Jr., 1988, Maps and descriptions of lode deposits, prospects, and occurrences in the Wiseman 1° by 3° Quadrangle, Alaska: U. S. Geological Survey Open-file Report 88-293, p. 51, plus two plates.

Cobb, E.H., 1972, Metallic mineral resources map of the Wiseman quadrangle, Alaska: U.S. Geological Survey Miscellaneous Field Studies Map MF-469, 1 sheet, scale 1:250,000.

____1976, Summary of references to mineral occurrences (other than mineral fuels and construction materials) in the Chandalar and Wiseman quadrangles, Alaska: U.S. Geological Survey Open-File Report 76-340, p. 98.

Dillon, J.T., Brosge, W.P., and Dutro, J.T., Jr., 1986, Generalized geologic map of the Wiseman quadrangle, Alaska: U.S. Geological Survey Open-File Report 86-219, 1 sheet, scale 1:250,000.

Dillon, J.T., and Reifenstuhl, R.R., 1990, Geologic map of the Wiseman B-1 quadrangle southcentral Brooks Range, Alaska: Alaska Division of Geological and Geophysical Surveys, Professional Report 101, 1 sheet, scale 1:63,360.

Grybeck, D., 1977, Known mineral deposits of the Brooks Range, Alaska: U.S. Geological Survey Open-file Report 77-166C, p. 29.

Property Summary

Name(s): Moose Creek

Map No: W112
MAS No: 0020300141
Alaska Kardex 030-178

Deposit Type: Placer

Commodities: Au

Location:

Quadrangle: Wiseman B-1 — SW¼ sec. 35, T. 30 N., R. 12 W.
Meridian: Fairbanks — Elevation: 1,420 feet
Latitude: 67° 22.490' N. — Longitude: 150° 09.337' W.
Geographic: A western tributary of the Middle Fork Koyukuk River, 3 miles south of Wiseman.

History: (Maddren, 1913; Reed, 1938).

1909 - Moose Creek reported to contain prospects of gold
1938 - Creek reported to have been abandoned for many years.
1977 - Six placer claims staked by P. Rosecky

Production: Unknown.

Workings and Facilities: Creek reportedly contains prospects for gold, but no workings were observed.

Geologic Setting:

Bedrock in the area consists of lower Paleozoic(?) or Porterozoic graphitic, quartzose calcareous schist with thin marble layers. A small mass of greenschist and amphibolite is exposed in the creek bottom, 1.1 miles upstream from the Koyukuk River (Dillon and others, 1989). The creek was reported to contain gold, but it was full of large boulders and not worked (Maddren, 1913).

Bureau Investigation:

An aerial reconnaissance of the upper portion of the stream found no indications of past mining. High water prevented access to the upper canyon. Four test pans taken from beneath the numerous greenstone boulders in the creek contained no visible gold. A pan concentrate (11845, table I-1) contains 12 ppb gold, which is not anomalous.

Resource Estimate: Unknown.

Mineral Development Potential:

Low development potential due to the lack of both visible and geochemical gold, the lack of shallow bedrock in the lower creek, and the presence of numerous large boulders. Also if there was significant gold-bearing gravel in the creek, there should be evidence of mining due to the relative ease of access.

Recommendations: Prospect that portion of the creek in the upper canyon during times of low water.

References:

Heiner, L.E., and Wolff, E.N., 1968, Final report, mineral resources of northern Alaska: Mineral Industry Research Laboratory, University of Alaska, Report 16, p. 135.

Maddren, A.G., 1913, The Koyukuk-Chandalar region, Alaska: U.S. Geological Survey Bulletin 532, p. 91.

Dillon, J.T., Solie, D.N., Decker, J.E., Murphy, J.M., Bakke, A.A., and Huber, J.A., 1989, Road log from South Fork Koyukuk River (mile 156.2) to Chandalar Shelf (mile 237.1) *in* Mull, C.G., and Adams, K.E., eds., Dalton Highway, Yukon River to Prudhoe Bay, Alaska, Bedrock geology of eastern Koyukuk basin, central Brooks Range, and eastcentral Arctic Slope: Alaska Division of Geological and Geophysical Surveys Guidebook 7, v. 1, p. 83.

Reed, I.M., 1938, Upper Koyukuk region, Alaska: Alaska Territorial Department of Mines Miscellaneous Report 194-7, p. 88.

Property Summary

Name(s): Sawyer Creek

Map No: W113
MAS No: 0020300045
Alaska Kardex 030-073

Deposit Type: Placer

Commodities: Au

Location:

Quadrangle: Wiseman B-1 — SW¼ sec. 11, T. 29 N., R. 12 W.
Meridian: Fairbanks — Elevation: 1,550 feet
Latitude: 67° 20.933' N. — Longitude: 150° 12.117' W.
Geographic: A 3.5-mile-long, western tributary to the Middle Fork Koyukuk River, 5 miles south of Wiseman.

History:

1909 - Sawyer Creek reported to contain prospects for gold (Maddren, 1913).
1936 - Prospected by A. Wilcox and F. Miller (Reed, 1938).
1981-83 - Mined by M. Mead and P. Schimmel (M. Mead, personal communication, 2000).
1995 - J. Hunt prospected with backhoe (M. Mead, personal communication, 2000).

Production:

Mining in the 1980s produced approximately 25 oz of gold. Largest nugget: 1.5 oz (Marie Mead. personal communication, 2000). Median gold fineness: 897 (Bliss and others, 1988, p. 23).

Workings and Facilities:

Stacked rocks, suction dredge holes, and numerous backhoe test pits in the creek narrows. The test pits are intermittent along a quarter mile of the creek. A rough dozer trail follows the creek for about 1.2 miles upstream from the Koyukuk River. A small cabin is beside the trail near the river.

Geologic Setting:

The lower portion of the Sawyer Creek cuts through a narrow belt of muscovite-biotite granite orthogneiss. This unit outcrops as a series of north-south-trending resistant ridges and knobs that are surrounded by vegetative cover. The orthogneiss is exposed in the creek about 0.6 mile upstream from the river. A north-south-trending, 25° east-dipping unit of Lower Paleozoic(?) to Proterozoic marble and calcareous schist crosses the creek about 1.1 miles upstream from the river. It has an apparent width of about 150 feet and is resistant, creating a narrows where it crosses the stream. The schist forms a natural riffle in the creek that concentrates placer gold as indicated by the placer workings nearby. This unit is separated by a north-south trending high angle fault from a Lower Paleozoic(?) or Proterozoic graphitic, quartzose, calcareous schist with thin marble interbeds (Dillon and others, 1989, p. 83). The placer gold is reported to be mostly coarse nuggets with little fine gold (Marie Mead, personal communication, 2000). The creek has a steep gradient (7.5%) and contains numerous large boulders. A test run by J. Hunt of 500 cubic yards of gravel from test pits along a quarter mile of the creek, above and below the bedrock riffle produced 0.25 oz of gold (0.0005 oz/cy) (Marie Mead, personal communication, 2000).

Bureau Investigation:

A dozen test pans were taken along the creek, mostly upstream from the narrows. No visible gold was found in any of the pans. However, a pan concentrate sample (10738, table I-1) yielded 1,632 ppb gold which is highly anomalous. A float sample of pyrite-bearing chlorite-quartz schist from the creek bed (10739) contained 123 ppm copper.

Resource Estimate: Unknown.

Mineral Development Potential:

Low mineral development potential. Both past mining and recent sampling indicate that the shallow placer gold in Sawyer Creek is concentrated on a natural bedrock riffle in the canyon narrows. This resource appears to have been mostly mined out. Backhoe sampling of gravel above and below the riffle was not encouraging.

Recommendations: None.

References:

Bliss, J.D., Brosge, W.P., Dillon, J.T., Cathrall, J.B., and Dutro, J.T., Jr., 1988, Maps and descriptions of lode deposits, prospects, and occurrences in the Wiseman 1° by 3° Quadrangle, Alaska: U. S. Geological Survey Open-file Report 88-293, p. 22-23.

Dillon, J.T., Solie, D.N., Decker, J.E., Murphy, J.M., Bakke, A.A., and Huber, J.A., 1989, Road log from South Fork Koyukuk River (mile 156.2) to Chandalar Shelf (mile 237.1) *in* Mull, C.G., and Adams, K.E., eds., Dalton Highway, Yukon River to Prudhoe Bay, Alaska, Bedrock geology of eastern Koyukuk basin, central Brooks Range, and eastcentral Arctic Slope: Alaska Division of Geological and Geophysical Surveys Guidebook 7, v. 1, p. 83.

Maddren, A.G., 1913, The Koyukuk-Chandalar region, Alaska: U.S. Geological Survey Bulletin 532, p. 91.

Reed, I. M., 1938, Upper Koyukuk region, Alaska: Alaska Territorial Department of Mines Miscellaneous Report 194-7, p. 88.

Property Summary

Name(s): Emma Creek
Canyon claim
Eldorado claim
Kokomo
Lucky claim
Monogram claim
Oro Grande claim

Map No: W114
MAS No:0020300046
Alaska Kardex 030-007
Alaska Kardex 030-123

Deposit Type: Placer

Commodities: Au, Ag

Location:

Quadrangle: Wiseman B-1
SW¼ sec. 22, T. 29 N., R. 12 W.
Meridian: Fairbanks
Elevation: 1,320 feet
Latitude: 67° 19.320' N.
Longitude: 150° 13.428' W.
Geographic: A 6-mile-long western tributary of the Middle Fork Koyukuk River, 6.5 miles north of Coldfoot. Frisbie Creek is a southern tributary to Emma Creek, 1.5 miles upstream from the Koyukuk River.

History:

1900 - First record of mining on Emma Creek (Maddren, 1913).
1900-09 - Production reported to be $14,000 (7,484 oz) (Maddren, 1913).
1929-30 - High channel mined by J. Wilson.
1929 - J. Laane prospected the creek (Reed, 1938).
1938 - R. Jones staked two placer claims (Kardex).
1957-62 - Uotila, Rivers, and McIntosh did extensive mechanized mining on the creek U.S. Bureau of Mines PIMRs, 1957-1962).
1964-present - W. Nordeen mining on creek (W. Nordeen, personal communication, 2000).

Production: (oz Au)

1900 - 1,443	1908 - 267
1901 - 2,138	1909 - 267
1902 - 695	1911 - 118
1903 - 802	1912 - 30
1904 - 535	1913 - 14
1905 - 802	1915 - 87
1906 - 267	1921 - 88
1907 - 267	1923 - 23
	1928 - 18
	Total: 7,861

(Records incomplete: doesn't include production after 1928.)

Production could be as high as 9,000 oz (Cobb, 1976).
Nuggets weighing up to 8 oz have been found on the creek (W. Nordeen, personal communication, 2000).
Median gold fineness: 905 (Bliss and others, 1988).

Workings and Facilities:

The modern channel of Emma Creek has been mined for 0.3 mile, starting at a point 0.6 mile upstream from the Koyukuk River. Most of this work has concentrated on the canyon portion of the creek where bedrock is shallow. The stream was first worked by hand methods followed by dozer/sluice plate, underground drift, and suction dredging methods. Numerous large boulders made pick and shovel work difficult. In recent years, a 7.5-inch hydrostatic dredge was used for suction dredging, eliminating the need for a pump. Bedrock potholes up to 24 feet deep were cleaned out with a suction dredge (W. Nordeen, personal communication, 2000).

Drift mining was done in the alluvial fan below the canyon and in high channels within the canyon itself. Water for washing gravel on the high channel was brought in via a 0.5-mile ditch from Emma Creek, near the mouth of Frisbie Creek (Reed, 1938). In recent years, drifting has been done in the high channels of the canyon on both sides of the creek. A camp and airstrip are located on the south side of Emma Creek, 0.2 mile upstream from the Koyukuk River. The average stream gradient in the mined area is 5% (Maddren, 1913, p. 90-91; W. Nordeen, personal communication, 2000).

Geologic Setting:

Emma Creek has been described as a dissected hanging valley (Reed, 1938). The upper end of the creek has many tributaries running in narrow V-shaped valleys. A north-south striking unit of Lower Paleozoic(?) to Proterozoic marble underlies the narrow, steep-walled canyon of Emma Creek. The marble is in faulted contact with calcareous schist of similar age. Emma Creek breaches the south flank of and runs parallel to the axis of the southwest-plunging Emma Dome antiform. Due to faulting, the marble is exposed again in the upper canyon of Emma Creek (Dillon and others, 1989).

The southern end of a resistant belt of Devonian muscovite-biotite granite orthogneiss terminates 0.5 mile north of Emma Creek. Tremolite skarn and hornfels are associated with this belt. Galena-bearing quartz veins are reported to occur where the stream divides into three forks, 2.5 miles upstream from the Koyukuk River (Dillon and others, 1989; W. Nordeen, personal communication, 2000).

The marble and calcareous schist unit that makes up the Emma Creek canyon acts as a large natural riffle, collecting gold on the shallow bedrock. Thus most of the placer gold from Emma Creek has been taken from the canyon as well as from gravels immediately above and below it. The same rock unit and process goes on in Sawyer Creek, the next canyon to the north. The richest ground was reportedly at the mouth of the canyon, where the creek exits onto an alluvial plain. Placer deposits consist of modern and high channel deposits. The best recovery was from faults and fractures in the bedrock (W. Nordeen, personal communication, 2000).

A high channel (Discovery Bench) on the south side of the creek, below Frisbie Creek, about 30 feet above the modern stream and 150 feet wide was worked by drifting and booming in the late 1920s. Another attempt was made at drifting in the 1990s at the 50-foot level above the creek, but progress was slowed due to large boulders. Depth to bedrock in the high channel varies from 5 to 90 feet. The recovered gold was coarse, consisting mostly of 0.01- to 0.05-oz nuggets. This high channel is said to have produced 640 oz of gold by 1928 (Reed, 1938). Recent prospecting and mining indicate that there are at least four separate benches on the right limit (W. Nordeen, personal communication, 2000). A high channel on the north side of the creek and 50 feet above the modern stream was being prospected by a 30-foot adit in 2000. Above the left limit high channel, the canyon narrows to 20 to 30 feet in places.

Four different forms of gold have been found: (1) rounded and well-worn slugs, (2) ragged with mainly calcite and some quartz attached, (3) sheet gold, and (4) crystalline gold in rectangular shapes (W. Nordeen, personal communication, 2000). The gold recovered from the benches has a higher fineness than that from the modern stream. Placer concentrates contain abundant amounts of galena and stibnite.

Bureau Investigation:

A sample of sluice concentrates from the high channel on the north side of Emma Creek (12484, table I-1) contains >10,000 ppm lead, >200 ppm silver, 169 ppm arsenic, 1,397 ppm antimony, and 400 ppm tungsten. A sample of sluice concentrates from the modern stream channel(12485) contains >10,000 ppm lead, >200 ppm silver, 828 ppm arsenic, 111 ppm bismuth, and 361 ppm tungsten. The high lead and antimony contents are either from mining contamination or are indicative of the galena and stibnite-bearing quartz veins reported in the upper canyon of Emma Creek.

A search for reported galena-bearing quartz veins was made in the forks area of Emma Creek. What looked like a large quartz vein on the north fork from the air, turned out to be barren, calcite-rich sedimentary beds. Iron-stained brecciated marble in fault(?) zones was sampled with negative results (12541). Some barren quartz veinlets were observed cutting marble bedrock in the canyon bottom. Evidence of recent hand mining was found at the mouth of the north fork, and very fine gold flakes were found in test pans taken from bedrock fractures just below the forks. A pan concentrate sample (12543) contained pyrite, 120 ppm copper, and 11 ppb gold.

Resource Estimate: None.

Mineral Development Potential:

Moderate potential for placer gold in high bench gravels. Large boulders could prove a difficulty in mining these deposits underground.

The modern stream channel has moderate potential for suction dredging from Frisbie Creek upstream to the major forks. Moderate potential also exists for large-scale shovel/wash plant operations on the lower mile of the creek (Nordeen, written communication, 2002).

Low potential for silver-bearing quartz veins in the upper canyon.

Recommendations:

Drill bench gravels and/or conduct seismic or ground penetrating radar surveys to determine gold content and channel configuration. These techniques could prove helpful in pinpointing gold-bearing channels.

References:

Brooks, A.H., and others, 1908, Mineral resources of Alaska, report on progress of investigations in 1907: U.S. Geological Survey Bulletin 345, p. 45.

____1913, Mineral resources of Alaska, report on progress of investigations in 1912: U.S. Geological Survey Bulletin 542, p. 45.

____1915, Mineral resources of Alaska, report on progress of investigations in 1914: U.S. Geological Survey Bulletin 622, p. 59.

____1916, Mineral resources of Alaska, report on progress of investigations in 1916: U.S. Geological Survey Bulletin 662, p. 59.

Cobb, E.H., 1976, Summary of references to mineral occurrences (other than mineral fuels and construction materials) in the Chandalar and Wiseman quadrangles, Alaska: U.S. Geological Survey Open-File Report 76-340, p. 103.

Dillon, J.T., Solie, D.N., Decker, J.E., Murphy, J.M., Bakke, A.A., and Huber, J.A., 1989, Road log from South Fork Koyukuk River (mile 156.2) to Chandalar Shelf (mile 237.1) *in* Mull, C.G., and Adams, K.E., eds., Dalton Highway, Yukon River to Prudhoe Bay, Alaska, Bedrock geology of eastern Koyukuk basin, central Brooks Range, and eastcentral Arctic Slope: Alaska Division of Geological and Geophysical Surveys Guidebook 7, v. 1, p. 81.

Maddren, A..G., 1913, The Koyukuk-Chandalar region, Alaska: U.S. Geological Survey Bulletin 532, p. 292, 300.

Mulligan, J.J., 1974, Mineral resources of the Trans-Alaska Pipeline corridor: U.S. Bureau of Mines Information Circular 8626, p. 9.

Reed, I.M., 1938, Upper Koyukuk region, Alaska: Alaska Territorial Department of Mines Miscellaneous Report 194-7, p. 88-90.

Schrader, F.C., 1900, Preliminary report on a reconnaissance along the Chandalar and Koyukuk Rivers, Alaska in 1899: Twenty-first annual report of the U.S. Geological Survey Part 2, p. 486.

____1904, A reconnaissance in northern Alaska across the Rocky Mountains, along the Koyukuk, John, Anaktuvuk, and Colville Rivers and the Arctic coast to Cape Lisburne, in 1901: U.S. Geological Survey Professional Paper 20, p. 99, 102.

Property Summary

Name(s): Marion Creek
Marion Discovery
Sunset claims

Map No: W115
MAS No: 0020300079
Alaska Kardex 030-058
Alaska Kardex 030-098
Alaska Kardex 030-198
Alaska Kardex 030-210
Alaska Kardex 030-211
Alaska Kardex 030-221
Alaska Kardex 031-058
Alaska Kardex 031-140
ARDF CH035

Deposit Type: Placer

Commodities: Au

Location:

Quadrangle: Wiseman B-1
SE¼ sec. 20, T. 29 N., R. 11 W.
Meridian: Fairbanks
Elevation: 1,450 feet
Latitude: 67° 19.394' N.
Longitude: 150° 2.903' W.
Geographic: The 16-mile-long, west-flowing tributary of the Middle Fork Koyukuk River flows through the Wiseman and Chandalar quadrangles. The creek mouth is directly opposite Emma Creek. The headwaters, above the forks, are within Doyon Ltd. lands.

History:

1900-01 - Winter attempt to sink a shaft to bedrock proved unsuccessful (Maddren, 1913).
1908-09 - Another shaft was attempted, 6 to 7 miles upstream of the mouth (Maddren, 1913).
1938 - B. Baecker staked six placer claims (Kardex).
1970s - Nearly 100 claims staked by several different parties (Kardex).
1990s - Central Alaska Gold Company (1992) conducted geochemical sampling in the area.
1993 - R. Kirby sold his Sunset claims, which cover most of Marion Creek, to J. Nesbit and R. Hamm.

Production: 1900-09 - 48 oz Au (Maddren 1910)

Workings and Facilities:

Near a prominent tributary, 2.5 miles upstream from the Middle Fork Koyukuk River, Marion Creek cuts across a 0.25-mile-stretch of bedrock with numerous plunge pools. Some diving equipment was found nearby, indicating that suction dredge mining probably took place here. Approximately 4.5 miles upstream from the mouth, below a small gorge, there was flagging that seemed to indicate recent survey/ prospecting.

Geologic Setting:

Marion Creek lies within the schist belt of the Arctic Alaska terrane. Bedrock on the creek consists of lower Paleozoic to Proterozoic banded quartzite and graphitic albite-chlorite-muscovite-quartz schist. The bands probably represent metamorphically differentiated relicts of quartzose and pelitic sediments.

Greenschist of similar age also outcrops south of Marion Creek in a few locations (Dillon and Reifenstuhl, 1995).

Maddren (1913) reported the present channel gravels contain “colors” of gold; however, depth to bedrock prohibited mining by hand methods. A shaft was sunk about 6.5 miles upstream from the creek mouth. Good pay was reportedly found.

Central Alaska Gold Company (1992) reported three anomalous stream sediment samples in the area, measuring up to 65 ppb gold and 1.4 ppm silver. The follow-up investigation included soil, rock, and stream sediment sampling. Company personnel speculated that low-level gold and silver anomalies were due to scattered mineralization in brittle faults and quartz veins. They concluded that Marion Creek did not contain significant gold mineralization.

Bureau Investigation:

Several miles of Marion Creek and its tributaries were investigated. Visible gold was found in 7 of 10 pans submitted for analysis (table I-1). The gold was most often found on schistose bedrock with less than 1 foot of gravel overburden. The most consistent gold was panned just downstream of the gorge, which is located 4.5 miles upstream from the creek mouth. Two pan concentrate samples (12323-12324) collected from this location average 213.9 ppm gold and 9.9 ppm silver. Three pan samples (12320-21322) were also collected within 1 mile upstream of the gorge and average 68.3 ppm gold and 6.3 ppm silver.

A left limit (southern) tributary about 2.5 miles upstream from the mouth was also investigated. The tributary has conspicuous iron-stained water up to elevation 2,700 feet. Cobbles of gossanous schist breccia were observed on the tributary; however, the unit does not outcrop on the surface. A select sample of gossanous rock (12329) contains 85 ppb gold and 1421 ppm antimony. A pan sample (12328) collected off bedrock contains 1,087 ppb gold.

Mica-quartz schist bedrock is exposed on Marion Creek below the tributary for a quarter of a mile. The bedrock contains many plunge pools, which have most likely been suction dredged. The bedrock is much less friable than the bedrock upstream. Five test pans collected from the surface did not contain visible gold; one pan concentrate sample (12325) collected at the same site contained 28 ppb gold and no detectable silver.

Samples were collected on Marion Creek and a northern tributary approximately 9 miles upstream of the mouth. Visible gold was found in pan concentrate samples (11336, 11339) on both Marion Creek and the northern tributary; these measure 3,739 ppb and 81.80 ppm respectively. A placer sample (11340) was collected on the tributary and contains 0.006 oz/cy gold, 4.1 ppm silver, and 601 ppm arsenic.

Resource Estimate: None.

Mineral Development Potential:

Moderate mineral potential exists at Marion Creek. There is placer gold at several locations on the creek; however, water levels must be relatively low in order to expose the bedrock. Also, access for mechanized equipment could prove difficult due to the narrowness of the lower canyon.

Recommendations:

The gorge location on Marion Creek contains a friable schistose bedrock that is an amenable trap for small amounts of fine gold. Also recommend suction dredging of the bedrock pools on lower Marion Creek at times of low water.

References:

Central Alaska Gold Company, 1992, 1991 Annual report, Alaska field operations- Doyon Ltd. option, v. I: unpublished report 92-70 for Doyon Ltd, 39 p. [available from Doyon Ltd., Fairbanks, Alaska]

Cobb, E.H., 1972, Metallic mineral resources map of the Chandalar quadrangle, Alaska: U.S. Geological Survey Miscellaneous Field Studies Map MF-457, 1sheet, scale 1:250,000.

____1976, Summary of references to mineral occurrences (other than mineral fuels and construction materials) in the Chandalar and Wiseman quadrangles, Alaska: U.S. Geological Survey Open-File Report 76-340, p. 46.

DeYoung, 1978, Mineral resources of the Chandalar quadrangle, Alaska: U.S. Geological Survey Miscellaneous Field Investigation Map MF-878B, 2 sheets, scale 1:250,000.

Dillon, J.T., Brosge, W.P., and Dutro, J.T., Jr., 1986, Generalized geologic map of the Wiseman quadrangle, Alaska: U.S. Geological Survey Open-File Report 86-219, 1 sheet, scale 1:250,000.

Dillon, J.T., and Reifenstuhl, R.R., 1990, Geologic map of the Wiseman B-1 quadrangle southcentral Brooks Range, Alaska: Alaska Division of Geological and Geophysical Surveys, Professional Report 101, 1 sheet, scale 1:63,360.

____1995, Geologic map of the Chandalar B-6 quadrangle southeastern Brooks Range, Alaska: Alaska Division of Geological and Geophysical Surveys Professional Report 103, 1 sheet, scale 1:63,360.

Heiner, L.E., and Wolff, E.N., 1968, Final report, mineral resources of northern Alaska: Mineral Industry Research Laboratory, University of Alaska, Report 16, p. 49, 135.

Maddren, A.G., 1910, The Koyukuk-Chandalar gold region *in* Brooks, A.E., Mineral resources of Alaska, report on progress of investigations in 1909: U.S. Geological Survey Bulletin 442, p. 292.

____1913, The Koyukuk-Chandalar region, Alaska: U.S. Geological Survey Bulletin 532, p. 69, 90.

Reed, I.M., 1938, Upper Koyukuk region, Alaska: Alaska Territorial Department of Mines Miscellaneous Report 194-7, p. 90.

Schrader, F.C., 1900, Preliminary Report on a Reconnaissance along the Chandalar and Koyukuk Rivers, Alaska in 1899: Twenty-first annual report of the U.S. Geological Survey part 2, p. 485.

Property Summary

Name(s): Kelly Gulch
Kelly's Mistake
April 1-3

Map No: W116
MAS No: 0020300047
Alaska Kardex 030-012

Deposit Type: Placer

Commodities: Au

Location:

Quadrangle: Wiseman B-1
NW¼ sec: 34, T. 29 N., R. 12 W.
Meridian: Fairbanks
Elevation: 1,150 feet
Latitude: 67° 17.813' N.
Longitude: 150° 11.912' W.
Geographic: A steep western tributary of the Middle Fork Koyukuk River, 2 miles south of Emma Creek.

History:

1901 - About $500 worth of gold was mined in the fall of 1901 (Maddren, 1910).
1937 - R.H. Creecy started an opencut, but results of the effort are not known (Reed, 1938).

Production:

1901 - 24 oz Au (Records incomplete.)

Workings and Facilities:

Stacked rocks located near the creek mouth extend for several hundred feet.

Geologic Setting:

Dillon and Reifenstuhl (1990) classify the bedrock at Kelley Creek as Lower Paleozoic(?) or Proterozoic(?) interbanded quartzite and graphitic schist, marble, and calcareous schist. Also, thin units of greenschist and metamorphosed gabbro and diabase (of the same age) outcrop near the headwaters.

The creek is steep and narrow, with heavy vegetation along the banks. The average gradient is 13% (Bliss and others, 1988).

Bureau Investigation:

Stream sediment and pan concentrate samples (11319-11320, table I-1) were collected from a gravel bar below the stacked rocks, near the mouth of the creek. Analysis detected gold in each sample (27 and 73 ppb, respectively); however, no visible gold was observed. The sample results are slightly anomalous.

Resource Estimate: None.

Mineral Development Potential: Low mineral development potential due to lack of visible gold in pans.

Recommendations: None.

References:

Bliss, J.D., Brosge, W.P., Dillon, J.T., Cathrall, J.B., and Dutro, J.T., Jr., 1988, Maps and descriptions of lode deposits, prospects, and occurrences in the Wiseman 1° by 3° Quadrangle, Alaska: U. S. Geological Survey Open-file Report 88-293, p. 24-25, plus two plates.

Dillon, J.T., and Reifenstuhl, R.R., 1990, Geologic map of the Wiseman B-1 quadrangle southcentral Brooks Range, Alaska: Alaska Division of Geological and Geophysical Surveys, Professional Report 101, 1 sheet, scale 1:63,360.

Heiner, L.E., and Wolff, E.N., 1968, Final report, mineral resources of northern Alaska: Mineral Industry Research Laboratory, University of Alaska, Report 16, 299 p.

Maddren, A.G., 1910, The Koyukuk-Chandalar gold region *in* Brooks, A.E., Mineral resources of Alaska, report on progress of investigations in 1909: U.S. Geological Survey Bulletin 442, p. 292.

____1913, The Koyukuk-Chandalar region, Alaska: U.S. Geological Survey Bulletin 532, p. 69, 89.

Reed, I.M., 1938, Upper Koyukuk region, Alaska: Alaska Territorial Department of Mines Miscellaneous Report 194-7, 169 p.

Property Summary

Name(s): Clara Creek
Star Light claims

Map No: W117
MAS No: 0020300048
Alaska Kardex 030-025
Alaska Kardex 030-098

Deposit Type: Placer

Commodities: Au, Ag

Location:

Quadrangle: Wiseman B-1
Meridian: Fairbanks
Latitude: 67° 16.743' N.
SW¼ sec. 1, T. 28 N., R. 12 W.
Elevation: 1,400 feet
Longitude: 150° 06.579' W.
Geographic: A 5-mile-long, west-flowing tributary of the Middle Fork Koyukuk River, 1 mile north of Coldfoot. Access is via an unpaved road off the Dalton Highway.

History:

1900-01 - Discovery led to $3,000 (155 oz) worth of production by six men during the summers of 1900 and 1901. Production included an 18-oz nugget, valued at $350 (Maddren, 1910, 1913; Schrader, 1900, 1904).
1934 - K. Harvey mined an opencut; however, the results are not known (Smith, 1936).
1953 - S. and O. Stanich purchased placer claims and began prospecting, sinking shafts, and mining.
1959 - Winter shafts and summer prospecting continued. New mining lease established between A. Miscovich and the Stanich brothers.
1960s - Prospecting, trenching, and shaft work continued.
1968 - A. and V. Miscovich purchased the placer claims from the Stanich brothers.
1970s - Prospecting, trenching, and shaft work continued.
1984-92 - R. Kirby conducted placer operations on the Star Light claims of Clara Creek.
1993 - J. Nesbit and R. Hamm purchased some of the Star Light claims.
1999 - Nesbit and Hamm sold the Star Light claims to D. and D. Korte, who conducted suction dredge mining near the lower tributary.

Production: (oz Au) (Maddren, 1910)

1900 - 48
1901 - 97
Total: 155 (Recent production is unknown.) Mosier and Lewis (1986) reported the average fineness of plus 35-mesh gold is 919.9 and minus 35-mesh gold is 870.7.

Workings and Facilities:

Stacked rocks (up to 10 feet high) are intermittent along 1 mile of Clara Creek, beginning at 1,400 feet elevation. An abandoned shaft and tailings are located at 1,550 feet elevation, east of the main left limit (southern) tributary. Tailings for another possible shaft are located along the northeastern fork at 2,000 feet elevation.

Geologic Setting:

The bedrock at Clara Creek is mapped as Lower Paleozoic(?) or Proterozoic(?) interbanded quartzite and graphitic schist. About 0.2 mile north of Clara Creek, at 1,600 feet elevation, there is a conspicuous exposure of eclogite with reddish, almandine-rich garnets and green clinopyroxene (Dillon and Reifenstuhl, 1990; Gottschalk, 1987). The average gradient between 2,000 feet and 1,200 feet elevation is 6.8% (Bliss and others, 1988).

Bureau Investigation:

Clara Creek has significant amounts of bedrock exposure above 1,300 feet elevation. These exposures form plunge pools approximately 6 to 10 feet wide. A stream sediment and pan concentrate sample (11317-11318) were collected at the prominent left limit tributary, where the orientation of the schistose bedrock forms natural riffles. The pan concentrate contained one coarse gold flake, measuring 199 ppm gold and 13.5 ppm silver. Another stream sediment and pan concentrate (12333-12334) were collected off bedrock on the main creek. No visible gold was found, but the sample assayed at 1,633 ppb gold.

The eclogite outcrop to the north of Clara Creek was also investigated. Two samples were collected: a select sample with <1% chalcopyrite and trace malachite (12330) and a random chip sample (12331). The samples average 407 ppm copper and 35.5 ppm antimony.

Resource Estimate: None.

Mineral Development Potential:

Low to moderate mineral development potential for placer gold, as gold was found in pans from the Clara Creek and a tributary.

Recommendations: None.

References:

Bliss, J.D., Brosge, W.P., Dillon, J.T., Cathrall, J.B., and Dutro, J.T., Jr., 1988, Maps and descriptions of lode deposits, prospects, and occurrences in the Wiseman 1° by 3° Quadrangle, Alaska: U. S. Geological Survey Open-file Report 88-293, p. 34, plus two plates.

Dillon, J.T., and Reifenstuhl, R.R., 1990, Geologic map of the Wiseman B-1 quadrangle southcentral Brooks Range, Alaska: Alaska Division of Geological and Geophysical Surveys, Professional Report 101, 1 sheet, scale 1:63,360.

Gottschalk, R.R., Jr., 1987, Structural and petrologic evolution of the southern Brooks Range near Wiseman, Alaska: Rice University, Houston, Texas Ph.D. dissertation, 263 p.

Heiner, L.E., and Wolff, E.N., 1968, Final report, mineral resources of northern Alaska: Mineral Industry Research Laboratory, University of Alaska, Report 16, 299 p.

Maddren, A.G., 1910, The Koyukuk-Chandalar gold region *in* Brooks, A.E., Mineral resources of Alaska, report on progress of investigations in 1909: U.S. Geological Survey Bulletin 442, p. 292.

____1913, The Koyukuk-Chandalar region, Alaska: U.S. Geological Survey Bulletin 532, p. 69, 89.

Mosier, E.L., and Lewis, J.S., 1986, Analytical results, geochemical signatures, and sample locality map of load gold, placer gold, and heavy-mineral concentrates from the Koyukuk-Chandalar mining district, Alaska: U. S. Geological Survey Open-file Report 86-345, p. 98-99.

Reed, I.M., 1938, Upper Koyukuk region, Alaska: Alaska Territorial Department of Mines Miscellaneous Report 194-7, p. 91.

Schrader, F.C., 1900, Preliminary report on a reconnaissance along the Chandalar and Koyukuk Rivers, Alaska in 1899: Twenty-first annual report of the U.S. Geological Survey Part 2, 584 p.

____1904, A reconnaissance in northern Alaska across the Rocky Mountains, along the Koyukuk, John, Anaktuvuk, and Colville Rivers and the Arctic coast to Cape Lisburne, in 1901: U.S. Geological Survey Professional Paper 20, p. 99-101.

Smith, P.S., 1936, Mineral industry of Alaska in 1934, *in* Mineral resources of Alaska, report on progress of investigations in 1934: U.S. Geological Survey Bulletin 868A, p. 43.

Property Summary

Name(s): Porcupine Creek

Map No: W118
MAS No: 0020300050

Deposit Type: Placer

Commodities: Au, Ag

Location:

Quadrangle: Wiseman A-1, B-1
SE¼ sec. 13, T. 28 N., R. 13 W.
Meridian: Fairbanks
Elevation: 1220 feet
Latitude: 67° 14.353' N.
Longitude: 150° 17.673' W.
Geographic: Porcupine Creek is a 5.5-mile-long western tributary to the Middle Fork Koyukuk River, 3 miles south of Coldfoot. Quartz Creek is a northwest tributary to Porcupine, joining 1.5 miles upstream from the creek mouth.

History: (Maddren, 1913; Reed, 1938)

1900 - First recorded production. Mining continued consistently for the next 30+ years (Maddren, 1913).
1901 - Four men working on creek. Production reported to average 1.7 oz/day (Maddren, 1913).
1916 - O. Stannich and S. Stannich began working present stream channel (Reed, 1938).
1922 - The Stannich brothers started a drain to tap water in the deep channel (Reed, 1938).
1923-24 - Stannich brothers started drift mining in deep channel (Reed, 1938).
1927 - Mining activity reported (Smith, 1930).
1930 - Mining activity reported (Smith, 1933).
1934 - V. Neck staked 51 placer claims on creek and opencut mined. Drift mining by Stannich brothers (Kardex, U.S. Bureau of Mines PIMR, 1934).
1935 - Mining activity reported (Smith, 1937).
1936-37 - D. O'Keefe groundsluiced and shoveled in (Reed, 1938).
1937 - N. Pendleton groundsluiced and shoveled in 3 miles upstream from junction with Quartz Creek (Reed, 1938).
1947 - Total production from Quartz Creek: 7 oz (U.S. Bureau of Mines PIMR, 1934).
1960-80 - A. Miscovich mined on creek (A. Miscovich, personal communication, 2000).
1997-2000 - R. Hamm (Slisco Inc.) mined on creek (R. Hamm, personal communication, 1999).
2001 - No activity.

Production: (oz Au)

1900 - 27	1927 - 16	1938 - 36	1954 - 26
1901 - 54	1928 - 70	1939 - 11	1955 - 18
1908 - 204	1929 - 43	1940 - 14	1956 - 26
1909 - 1,616	1930 - 43	1941 - 13	1957 - 17
1910 - 3,187	1931 - 45	1942 - 18	1958 - 26
1911 - 1,771	1932 - 39	1943 - 29	1959 - 52
1921 - 179	1933 - 21	1951 - 44	1963 - 39
1926 - 43	1934 - 18	1952 - 29	

Total: 7,774

Reported total: 8,670 (Records incomplete)
Median fineness: 894
Quartz Creek production: 80 oz

Workings and Facilities:

Early mining methods included drifting, shoveling in, and hydraulicking (Reed, 1938). Recent operators used a D9G Caterpillar® dozer to strip overburden. A Hitachi® 1.5 cy backhoe excavated the pay gravel, which was then transported via dump truck to the sluice box wash plant. A Derocker® grizzly separated the numerous large boulders from the pay gravel before it was run through the plant. A small jig was used to test the sluice tails for gold. Approximately 8-10% of the gold recovered was in the >¼-inch fraction. The wash plant could process up to 70 cy/hour. An Atco-type trailer camp and landing strip are located downstream from the mining area.

There has been extensive mining of both deep channel and modern stream gravels along 4,500 feet of the creek downstream from Quartz Creek. The pay gravel is unfrozen and considerable groundwater runs on top of bedrock in the deep channel. In the early mining days, a 1,350 foot-long drainage ditch was excavated to deal with this water (Reed, 1938). In 2000, a 6-inch pump running 24 hours a day was required to keep cuts in the deep channel from flooding. The lower portion of the creek has been mined to a 300-foot width with cuts up to 70 feet deep in an attempt to intersect the bottom of the deep channel. Recent mining efforts have been hampered by thickening overburden and excessive water as operations moved downstream. By the end of the 2000 mining season, the operators felt that these factors were making the operation uneconomic. This operation uncovered boulders with drill holes, which indicated that at one time the ground had been tested with a placer(?) drill (R. Hamm, personal communication, 2000).

Geologic Setting:

The bedrock underlying Porcupine and Quartz Creeks consists of Proterozoic or Lower Paleozoic quartz-mica schist and paragneiss with lenses and bands of black graphitic schist. In addition there is muscovite quartzite and quartzo-feldspathic schist and a few layers of marble and calcareous schist. Schistosity trends generally east-west. An east-west-trending fault crosses the creek near its headwaters (Dillon and others, 1986). A band of pyrite-bearing schist crosses Porcupine Creek just above Quartz Creek. The schist locally contains narrow bands (up to 0.5 feet) that contain up to 10% euhedral pyrite. The oxidation of the pyrite has resulted in abundant limonite stain on the rocks downstream.

Both modern stream and deep channel placers have been mined on Porcupine Creek. About 600 feet downstream from the confluence of Quartz Creek with Porcupine, the depth to bedrock under the creek is about 6 feet and increases to 30 feet towards the bench on the left limit. The gravel was composed of flat pieces of schist, mixed with coarse sand. Numerous large boulders (up to 6 feet) occur in the gravel. Most of the gold was concentrated in the lower 3-6 feet of gravel, with very little occurring on top of the bedrock. This deposit was permanently frozen. The value of the ground was reportedly $0.59 (0.02 oz) per bedrock foot. The gold was reported to be mostly fine with an occasional nugget.

In the early years, a minimum 450-foot-long section of the deep channel was mined by drifting. The channel was 20 to 25 feet wide and about 30 feet below the surface. The upper 15 feet of gravel was frozen (Reed, 1938). Bedrock drops off rapidly as Porcupine Creek exits mountainous terrain and intersects the main valley of the Koyukuk River. At the downstream end of the mining operation, bedrock depths reach 80 feet. In the early days, miners prospected for gold-bearing, high channels without success. Recent mining efforts have focused on the deep channel. Pay is concentrated in the lower 20 feet of gravel and as much bedrock as can be removed with a backhoe. In 1999 pay gravel was averaging 0.05 oz/cy (R. Hamm, personal communication, 2000).

Quartz Creek runs through a narrow valley, starting at about 0.3 mile upstream from Porcupine Creek. Bedrock is reported to be about 3 feet deep. Shoveling in on the creek was reported to produce about 80 oz of gold (Reed, 1938, p. 104). After 1937, no ground rich enough to mine was found on the creek (Saunders, 1954).

Bureau Investigation:

A pan concentrate collected from bedrock on Porcupine Creek just upstream of Quartz Creek (11324, table I-1) contained 26.82 ppm gold. At the same site, a select outcrop sample of quartz-mica schist with 10% euhedral pyrite contained 33 ppb gold (11322). A sample of placer concentrates from Porcupine Creek (11321) contained abundant magnetite, pyrite cubes, 7,896 ppm lead, 427 ppm zinc, 418 ppm tungsten, 170 ppm nickel, 16 ppb platinum, and 14 ppm bismuth. The high lead and zinc values may be due to contamination related to mining. A sample of the pyrite cubes (11907) contained 603 ppb gold. It is not definite whether the gold is actually intergrown with the pyrite or very fine placer gold particles that have attached to the cube surfaces.

A pan concentrate from a gravel bar below the canyon of Quartz Creek (11326) contained 135 ppb gold, which is anomalous. A stream sediment sample from the same site (11325) contained 132 ppm zinc, which is slightly anomalous. No evidence of mining was observed on the creek. This anomalous value may be due to contamination by placer gold. A pan concentrate off bedrock at the same site (11324) contained 26.8 ppm gold, which is highly anomalous.

Resource Estimate: None.

Mineral Development Potential:

Low mineral development potential. The section of stream below Quartz Creek has been extrensively mined and economic gold-bearing gravels have been mostly removed. Though previously mined by hand methods, the section upstream from Quartz Creek has been tested with backhoe and found to be uneconomic for a mechanized operation (Ralph Hamm, personal communication, 1998). There could be gold-bearing gravels in the deep channel downstream from the area mined during 2000. However, overburden in the area is at least 80 feet thick, which may preclude mining with surface methods. Since the gravel is mostly thawed, any mining attempts will have to deal with excessive water.

Recommendations: None

References:

Brooks, A.H., and others, 1916, Mineral resources of Alaska, report on progress of investigations in 1916: U.S. Geological Survey Bulletin 662, p. 59.

Bliss, J.D., Brosge, W.P., Dillon, J.T., Cathrall, J.B., and Dutro, J.T., Jr., 1988, Maps and descriptions of lode deposits, prospects, and occurrences in the Wiseman 1° by 3° quadrangle, Alaska: U. S. Geological Survey Open-file Report 88-293, 52, p. 26-27.

Carnes, R.D., 1976, Active Alaskan placer operations, 1975: U.S. Bureau of Mines Open-File Report 98-76, 86 p.

Cobb, E.H., 1981, Summary of data on and lists of references to metallic and selected nonmetallic mineral occurrences in the Wiseman quadrangle, Alaska, supplement to Open-File Report 76-340: U.S. Geological Survey Open-File Report 81-732B, 21 p.

Maddren, A.G., 1910, The Koyukuk-Chandalar gold region *in* Brooks, A.E., Mineral resources of Alaska, report on progress of investigations in 1909: U.S. Geological Survey Bulletin 442, p. 292.

____1913, The Koyukuk-Chandalar region, Alaska: U.S. Geological Survey Bulletin 532, p. 69, 86.

Mosier, E.L., and Lewis, J.S., 1986, Analytical results, geochemical signatures, and sample locality map of lode gold, placer gold, and heavy-mineral concentrates from the Koyukuk-Chandalar mining district, Alaska: U. S. Geological Survey Open-file Report 86-345, p. 115-118.

Mulligan, J.J., 1974, Mineral resources of the Trans-Alaska Pipeline corridor: U.S. Bureau of Mines Information Circular 8626, 24 p.

Orris, G.J., and Bliss, J.D., 1985, Geologic and grade-volume data on 330 gold placer deposits: U.S. Geological Survey Open-File Report 85-213, p. 45-46.

Reed, I.M., 1938, Upper Koyukuk region, Alaska: Alaska Territorial Department of Mines Miscellaneous Report 194-7, p. 101-104.

Saunders, R.H., 1954, Koyukuk district operations (Wiseman, Chandalar): Alaska Territorial Department of Mines Miscellaneous Report MR-194-16, p. 4-5.

Schrader, F.C., 1900, Preliminary report on a reconnaissance along the Chandalar and Koyukuk Rivers, Alaska in 1899: Twenty-first annual report of the U.S. Geological Survey Part 2, p. 485.

____1904, A reconnaissance in northern Alaska across the Rocky Mountains, along the Koyukuk, John, Anaktuvuk, and Colville Rivers and the Arctic coast to Cape Lisburne, in 1901: U.S. Geological Survey Professional Paper 20, p.102.

Smith, P.S., 1930, Mineral industry of Alaska in 1927, *in* Smith, P.S. and others, Mineral resources of Alaska, report on progress of investigations in 1927: U.S. Geological Survey Bulletin 810, p. 28.

____1932, Mineral resources of Alaska, report on progress of investigations in 1929: U.S. Geological Survey Bulletin 824A, p. 38-40.

____1933, Mineral industry of Alaska in 1930, *in* Smith, P.S. and others, Mineral resources of Alaska, report on progress of investigations in 1930: U.S. Geological Survey Bulletin 836, p. 39-40.

____1936, Mineral industry of Alaska in 1934, *in* Mineral resources of Alaska, report on progress of investigations in 1934: U.S. Geological Survey Bulletin 868A, p. 43.

____1937, Mineral resources of Alaska, report on progress of investigations in 1935: U.S. Geological Survey Bulletin 880A, p. 46.

____1938, Mineral resources of Alaska, report on progress of investigations in 1936: U.S. Geological Survey Bulletin 897A, p. 1-107.

Property Summary

Name(s): Rosie Creek
Rose Creek
Lake Creek
Bam's Bonanza
J & J Jackpot

Map No: W119
MAS No: 0020300051
Alaska Kardex 030-071
Alaska Kardex 030-195

Deposit Type: Placer

Commodities: Au, Ag

Location:

Quadrangle: Wiseman A-1
SW¼ sec. 4, T. 27 N., R. 12 W.
Meridian: Fairbanks
Elevation: 1,200 feet
Latitude: 67° 11.717' N.
Longitude: 150° 11.333' W.
Geographic: A west-flowing tributary of the Middle Fork Koyukuk River, draining Cathedral Mountain. The principal south-flowing tributary is (informally) named Lake Creek. Access is via a winter trail from Coldfoot.

History: (Maddren, 1913; Reed, 1938)

~1906 - Discovery claim was 2 miles above the mouth of Rosie Creek.
1906-38 - Six shafts were sunk between the discovery claim and the head of Lake Creek.
1977 - J. Henry and J. Mitchell staked 3 placer claims on Rosie Creek, near the confluence with Lake Creek.

Production: Unknown.

Workings and Facilities:

Six shafts were sunk prior to 1938. Most of the shafts were sunk near the confluence of Rosie Creek and its northern tributary, Lake Creek (Maddren, 1913; Reed, 1938).

Geologic Setting:

Rosie Creek lies within the east-trending Angayucham thrust fault system. North of the fault lies the Arctic Alaska terrane, which is composed of Devonian metasediments. South of the fault lies the oceanic Angayucham terrane. Several gold-producing creeks lie within this fault system, including Boulder Creek (map no. C68), Slate Creek (map no. C69), Myrtle Creek (map no. C70), and the South Fork Koyukuk River (map nos. W128-W133).

To the south of the Rosie Creek basin, the bedrock is predominantly Upper Paleozoic to Mesozoic pillow basalt with intrusions of diabasic greenstone and interlayers of limestone and chert. Near the confluence of Rosie and Lake Creeks, the bedrock is Upper Paleozoic to Mesozoic graywacke, siltsone, and phyllite with minor mafic dykes. To the north, at the headwaters of Lake Creek, the bedrock is Devonian slate, phyllite, calcareous schist with minor metabasite (metamorphosed dykes of diabase, gabbro, and diorite) (Dillon and others, 1989).

Fine gold was reported on the present channel at the discovery claim; however, bedrock was said to be 130 feet deep. Six shafts were sunk near the confluence of Rosie and Lake Creeks. They averaged 110 feet to bedrock. One shaft, below the larger lake on Lake Creek, was 275 feet deep. The gravel from the shafts was reported to be mostly slatey, shingle-sized gravel with about 20 feet of blue clay, overlying a thin layer of gravel that rested on bedrock. Fine flour gold was recovered from the lower, thin layer of gravel (Maddren, 1913; Reed, 1938).

Bureau Investigation:

Rosie Creek has an extremely gentle gradient and does not cut bedrock. A pan concentrate collected from a gravel bar near the discovery claim (11315, table I-1) contains 1 fine, angular flake of gold. Analysis shows the sample to contain 2,668 ppb gold. However, no visible gold was observed in three test pans collected nearby.

Lake Creek was also investigated. The remains of a cabin and a shaft are located 1 mile upstream from the creek mouth. A second shaft site is 2 miles upstream of the mouth, at the southern end of the headwaters lakes. The creek does not have gravel channels. A stream sediment sample (12479) collected from Lake Creek was not anomalous in metals.

Resource Estimate: None.

Mineral Development Potential:

Low mineral development potential for placers due to lack of visible gold in samples.

Recommendations: None.

References:

Cobb, E.H., 1972, Metallic mineral resources map of the Wiseman quadrangle, Alaska: U.S. Geological Survey Miscellaneous Field Studies Map MF-469, 1 sheet, scale 1:250,000.

Dillon, J.T., Brosge, W.P., and Dutro, J.T., Jr., 1986, Generalized geologic map of the Wiseman quadrangle, Alaska: U.S. Geological Survey Open-File Report 86-219, 1 sheet, scale 1:250,000.

Dillon, J.T., Reifenstuhl, R.R., Bakke, A.A., and Adams, D.D., 1989, Geologic map of the Wiseman A-1 quadrangle, southcentral Brooks Range, Alaska: Alaska Division of Geological and Geophysical Surveys Professional Report 98, 2 sheets, scale 1:63,360.

Heiner, L.E., and Wolff, E.N., 1968, Final report, mineral resources of northern Alaska: Mineral Industry Research Laboratory, University of Alaska, Report 16, 299 p.

Maddren, A.G., 1913, The Koyukuk-Chandalar region, Alaska: U.S. Geological Survey Bulletin 532, p. 104

Reed, I.M., 1938, Upper Koyukuk region, Alaska: Alaska Territorial Department of Mines Miscellaneous Report 194-7, p. 104.

Property Summary

Name(s): Twelvemile Creek	**Map No:** W120
Coldfoot Mining Co.	**MAS No:** 0020300052
Dodie's Dream Association.	Alaska Kardex 030-013
Elmer's Tune	Alaska Kardex 030-023 through 25
Gold Fork Association	Alaska Kardex 030-027
Good Hope Association	Alaska Kardex 030-028
Sandra Lee	Alaska Kardex 030-085
Twelvemile Creek, south fork	Alaska Kardex 030-245

Deposit Type: Placer

Commodities: Au, Ag

Location:

Quadrangles: Wiseman A-1, A-2
SE¼ sec. 5, T. 27 N., R. 13 W.
Meridian: Fairbanks
Elevation: 1,200 feet
Latitude: 67° 11.240' N.
Longitude: 150° 26.806' W.
Geographic: A western tributary to the Middle Fork Koyukuk River, 3.2 miles northeast of Twelvemile Mountain. The discovery claim is near the junction of the South Fork with the main Twelvemile Creek, 3 miles upstream from the Koyukuk River.

History:

1899 - Gold reported on Twelvemile Creek (Schrader, 1900).
1900 - First year of production (Maddren, 1913).
1909 - Twelvemile Creek worked only occasionally and with little reward (Maddren, 1913).
1934 - Extensive tracks on creek to be examined by a competent mining engineer. Forty holes drilled and gold distribution found to be so irregular that further drilling was given up (Reed, 1938).
1937 - Hydraulicking on upper end of claim no.1 below discovery by Issac Spinks and Mrs. E.R. Marsan (Reed, 1938).
1938 - A total of 162 oz gold and 14 oz silver were reportedly produced as of this year. Mcintosh and Weldon staked 34 placer claims. Claims also staked by Stannish, Sam, and O'Brien (Kardex).
1940 - Koyukuk Gold Placers, Inc. (Jim Priest) developed a hydraulic and bulldozer operation on Twelvemile Creek (Fairbanks Daily News-Miner, July 26, 1940).
1953 - Claims staked by A. Schwaesdall. Two placer claims staked by Stullenberg, Tauber, and Lurloe.
1958 - Ten placer claims staked by A. Schwaesdall (Kardex).
1980 - Eleven placer claims staked by Walter and Dorris Kopp (Kardex).
1983 - Andy and Verda Miscovich (Coldfoot Mining Co.) mined on creek (A Miscovich, personal communication, 2000).
1997 - Dodie's Dream (four claims) held by Walter and Dorris Kopp.

Production: (oz Au)

1900 - 48
1901 - 73
1922 - 45
1925 - 61
1927 - 17
1936 - 30
1940 - 4
1942 - 3
Total: 281 (Records incomplete.)

Reported total ranges from 1,002-7,500 oz, but could be as much as 11,500 oz (Orris and Bliss, 1985). Gold fineness: 914.

Workings and Facilities:

Twelvemile Creek is over 9 miles long and drains a large, broad basin, rimmed by mountainous terrain. The creek has both a lower and an upper canyon, which are separated by a section where the floodplain widens. Hand and mechanized mining efforts have been concentrated along this middle section, starting at a point 2.2 miles above the Koyukuk River and running upstream approximately 0.8 mile to a small falls just below the mouth of the upper canyon. This is evidenced by the remains of wash plants, sluice boxes, trailers, and other mining equipment lying along the creek. Mining has also taken place approximately 1.1 miles up the Lower Fork, a northern tributary, 1.8 miles upstream from the Koyukuk River. What appears to be a water ditch can be traced along the hillside on the north side of the South Fork of Twelvemile Creek. In 2000 there were no signs of recent mining activity.

Geologic Setting:

The main rock types underlying upper Twelvemile Creek consist of Paleozoic and Precambrian(?) schist and subordinate quartzite. This unit contains bands of Triassic(?), Jurassic(?), and Permian pillow basalt, diabase, and gabbro. The mafic rocks are largely altered to "greenstone" and locally foliated. The lower portion of the creek is underlain by upper Paleozoic or Devonian phyllite with abundant white quartz veins and graywacke. Twelvemile Mountain, immediately south of the creek, is composed of Jurassic volcanic rocks (pyroxene andesite, basalt, diorite, and diabase) as well as argillites and chert (Patton and Miller, 1973). The few exposures in the stream bed are composed of graphitic schist, graywacke, and phyllite, which locally contains numerous quartz veinlets parallel to schistosity. The schistosity trends northeast, cutting across the stream channel and forming excellent natural riffles to trap placer gold.

Twelvemile Creek valley is reported to contain three levels of placer concentration: the modern stream channel, at least two high channels, and a deep channel. Mining has concentrated on the modern stream and high channels. The modern channel has been mined extensively from roughly between the South Fork and the mouth of the upper canyon. There the floodplain is about 400 feet wide and depth to bedrock is reportedly about 5 feet. Hand mining was hampered by water in the gravels (Reed, 1938).

A secondary high channel is about 20 feet above the creek bed and about 60 feet wide. The main high channel is about 125 feet higher than the secondary channel and is about 600 feet wide. Values in the main high channel are said to have been 0.02 oz/cy, and the secondary high channel produced 0.01 oz/bedrock foot. Several shafts that were sunk into the main high channel reportedly reached bedrock at 30 feet. The deep channel has been explored on the main Twelvemile drainage. A shaft that was sunk just downstream from the Lower Fork hit bedrock 60 feet below the present stream channel, but encountered no gold. At the upper end of the discovery claim, several shafts were sunk to bedrock, in a deep channel about 2 feet lower than the modern channel. In 1934 drill holes were put into the modern stream channel and the main high channel. Gold was found in the drill holes, but the distribution was so irregular that further drilling was given up (Reed, 1938).

Along the lower 2.5 miles of the main fork of the creek, the gravel is relatively fine, but in the upper canyon, the stream narrows to 25 feet, has steep walls, and contains many large boulders. This section of creek contains placer gold, but mining has been minimal. This is probably due to the confined nature of the stream channel, numerous boulders, and the possibility of flooding during times of high water.

Bureau Investigation:

A series of test pans were taken just above the upstream limit of mining on the Lower Fork, 1.1 miles upstream from the main fork of Twelvemile Creek. One pan sample (11513, table I-1) contained 1 fine and 1 very fine flat gold flakes and a moderate amount of pyrite cubes. The sample was collected from beneath a boulder as bedrock was not exposed. A sample of pyrite-bearing iron-stained quartz float (11514) contains 125 ppm zinc.

Numerous test pans taken from soft phyllite bedrock between the South Fork and the upper canyon contained gold. At this site, a creek forms a small falls as it runs over bedrock. Four test pans of broken bedrock at this site produced 7 coarse, 12 fine, and 20 very fine flat, worn gold flakes. A placer sample (11493) taken off bedrock in this same area contained 0.007 oz/cy gold. A pan taken off bedrock on the South Fork, just upstream from the main fork (11978) contained 1 coarse, 1 fine, and 6 very fine gold flakes. Above this point, the South Fork is a low-gradient, meandering stream. No bedrock exposures were observed and no indications of mining were visible from the air.

On the Middle Fork above the falls, the creek enters a steep-walled canyon. The number of boulders in the creek increases dramatically above this point. A total of five test pans taken off bedrock about 800 feet upstream from the falls (12495) produced 4 coarse, 10 fine, and 20 very fine gold flakes. This site is about 300 feet upstream from the remains of an old cabin on the north side of the creek. At the time of the BLM's visit to this site, the stream was running high and bedrock was difficult to access.

The Middle Fork was examined at a point 5.0 miles upstream from the South Fork. A pan taken from behind boulders in the creek (12496) contained no visible gold, but analysis showed the sample contains 370 ppb gold.

Resource Estimate: Unknown.

Mineral Development Potential:

Low development potential for placer gold. Mining has been extensive in areas of shallow bedrock in the modern stream and on benches. Where tested, the deep channel did not contain gold. The gravels of the upper canyon have moderate potential for placer gold. However, mining could prove difficult due to the confined nature of the stream channel, numerous boulders, and the possibility of flooding during times of high water.

Recommendations: Mining with suction dredge in the upper canyon during times of low water.

References:

Bliss, J.D., Brosge, W.P., Dillon, J.T., Cathrall, J.B., and Dutro, J.T., Jr., 1988, Maps and descriptions of lode deposits, prospects, and occurrences in the Wiseman 1° by 3° quadrangle, Alaska: U. S. Geological Survey Open-file Report 88-293, p. 26-27.

Maddren, A.G., 1910, The Koyukuk-Chandalar gold region *in* Brooks, A.E., Mineral resources of Alaska, report on progress of investigations in 1909: U.S. Geological Survey Bulletin 442, p. 292.

____1913, The Koyukuk-Chandalar region, Alaska: U.S. Geological Survey Bulletin 532, p. 69, 85.

Mosier, E.L., and Lewis, J.S., 1986, Analytical results, geochemical signatures, and sample locality map of lode gold, placer gold, and heavy-mineral concentrates from the Koyukuk-Chandalar mining district, Alaska: U. S. Geological Survey Open-file Report 86-345, p. 115-118.

Orris, G.J., and Bliss, J.D., 1985, Geologic and grade-volume data on 330 gold placer deposits: U.S. Geological Survey Open-File Report 85-213, p. 45-46.

Patton, W.W., Jr., and Miller, T.P., 1973, Bedrock geologic map of the Bettles and southern part of the Wiseman quadrangles, Alaska: U.S. Geological Survey Miscellaneous Field Studies Map MF-492, 1 sheet, scale 1:250,000.

Reed, I.M., 1938, Upper Koyukuk region, Alaska: Alaska Territorial Department of Mines Miscellaneous Report 194-7, p. 105-110.

Schrader, F.C., 1900, Preliminary report on a reconnaissance along the Chandalar and Koyukuk Rivers, Alaska in 1899: Twenty-first annual report of the U.S. Geological Survey Part 2, p. 485.

____1904, A reconnaissance in northern Alaska across the Rocky Mountains, along the Koyukuk, John, Anaktuvuk, and Colville Rivers and the Arctic coast to Cape Lisburne, in 1901: U.S. Geological Survey Professional Paper 20, p. 102.

Smith,P.S., 1936, Mineral industry of Alaska in 1934, *in* Mineral resources of Alaska, report on progress of investigations in 1934: U.S. Geological Survey Bulletin 868A, p. 43.

____1937, Mineral resources of Alaska, report on progress of investigations in 1935: U.S. Geological Survey Bulletin 880A, p. 46.

Property Summary

Name(s): Alder Creek

Map No: W121
MAS No: 0020300083
Alaska Kardex 030-116

Deposit Type: Placer

Commodities: Au

Location:

Quadrangle: Wiseman A-2
NE¼ sec. 3, T. 27 N., R. 14 W.
Meridian: Fairbanks
Elevation: 1,600 feet
Latitude 67° 11.759' N.
Longitude: 150° 35.967' W.
Geographic: Alder Creek is an eastern tributary to the North Fork Koyukuk River. The site is on the creek, 1.0 mile northeast of peak 2945.

History:

1937 - Jim Rogers was reported prospecting on Alder Creek, but he had found nothing rich enough to warrant mining (Reed, 1938).
1972 - Two placer claims staked (Kardex).
1985 - Assessment work completed (Kardex).
1994 - Mine Hazards Evaluation done by U.S. Bureau of Mines (Fechner, 1995).

Production: Unknown.

Workings and Facilities:

A 6-foot by 4-foot test pit is located adjacent to the creek, and remains of a small cabin and cache are approximately 300 feet to the west.

Geologic Setting:

The main rock types underlying upper Alder Creek consist of Paleozoic and Precambrian(?) schist and subordinate quartzite. This unit contains bands of Triassic(?), Jurassic(?), and Permian pillow basalt, diabase, and gabbro. The mafic rocks are largely altered to "greenstone" and locally foliated. The lower portion of the creek is underlain by upper Paleozoic or Devonian phyllite with abundant white quartz veins and graywacke (Patton and Miller, 1973).

Bureau Investigation:

The area near the cabin and test pit was examined. Schist bedrock exposed on the east side of the creek could not be accessed due to high water. A series of test pans were taken from behind numerous large boulders on a gravel bar near the test pit, but no gold or magnetite were found. Stream sediment and pan concentrate samples are not anomalous in gold, but are slightly anomalous in zinc (11510-10511, table I-1). In 1994 the U.S. Bureau of Mines examined that site for mine hazards and found none (Fechner, 1995).

Resource Estimate: Unknown.

Mineral Development Potential:

Low development potential as no gold was found in the creek. Apparently previous efforts did not go beyond the prospecting stage, which indicates that nothing was found that warranted mining.

Recommendations: None.

References:

Brosge, W.P., and Reiser, H.N. 1971, Preliminary geologic map, Wiseman, and eastern Survey Pass quadrangles, Alaska: U.S. Geological Survey Open-File Report 71-56, 1 sheet, scale 1:250,000.

Fechner, S.A., 1995, Mine hazards report-inactive mines, Alder Creek, Alaska, U.S. Bureau of Mines unpublished report, 11 p. [available from BLM Anchorage, Alaska]

Patton, W.W., Jr., and Miller, T.P., 1973, Bedrock geologic map of the Bettles and southern part of the Wiseman quadrangles, Alaska: U.S. Geological Survey Miscellaneous Field Studies Map MF-492, 1 sheet, scale 1:250,000.

Reed, I.M.,1938, Upper Koyukuk region, Alaska: Alaska Territorial Department of Mines Miscellaneous Report 194-7, p. 111.

Property Summary

Name(s): Tramway Bar Coal

Map No: W122
MAS No: 0020300068

Deposit Type: Lode

Commodities: Bituminous Coal

Location:

Quadrangle: Wiseman A-1
SE¼ sec. 32, T. 27 N., R. 13 W.
Meridian: Fairbanks
Elevation: 890 feet
Latitude: 67° 06.933' N.
Longitude: 150° 27.183' W.
Geographic: Two exposures are located on the Middle Fork Koyukuk River, 1.7 miles and 2.4 miles upstream from Tramway Bar.

History:

1899 - Schrader (1899) reported coal exposure near Tramway Bar. Local gold miners periodically used the coal.

Production: Unknown

Workings and Facilities: None observed.

Geologic Setting:

Upper Cretaceous sediments in the upper portion of the Koyukuk basin contain beds of bituminous coal. These are exposed at a few sites in bluffs along the Middle Fork Koyukuk River. The coal was historically used on a limited basis by local miners for blacksmithing purposes. Analysis of a sample from a 13-foot-thick bed showed the coal contains 6.38% moisture, 35.79% ash, 24.29% volatiles, 42.72% fixed carbon, 0.14% sulfur, and 7263 Btu/lb (Schrader, 1900; Collier, 1903; Rao, 1980; by Rao and Wolff, 1981).

Bureau Investigation:

Two exposures in the bluffs on the west bank of the Middle Fork Koyukuk River were examined. At a site 1.7 miles above Tramway Bar, two vertical coal-bearing beds 6.0 and 10.8 feet thick, separated by 3.5 feet of clay, were sampled (10549-10550). The average "as received" analysis* of the two samples is: 10.0% moisture content, 27.99% ash, 27.57% volatiles, 34.45% fixed carbon, 0.23% sulfur, and 7,823 Btu/lb.

At a site 2.3 miles upstream from Tramway Bar, an 11.2-foot-thick coal-bearing section is interbedded with sandstone. It is exposed for about 500 feet along the river bluff and dips 30° west. The lower 7 feet of the section is lignitic coal. The upper 4 feet is bituminous, but contains clay partings up to 0.3 feet thick. The bituminous portion of the bed was sampled (10640) and analyzed. The "as received" analysis gave a 7.11% moisture content, 26.86% ash, 30.02% volatiles, 36.01% fixed carbon, 0.21% sulfur, and 8,460 Btu/lb.

When averaged, the analytical results from the two sites indicate an “apparent” ranking of 11,570. According to the American Society for Testing and Materials specification (ASTM-D-388-66), the Tramway Bar coal is bituminous in quality. The low sulfur content is typical of Alaskan coals, but the high ash content (27.43%) places it in the unclean category (G. Stricker, personal communication, 1999).

*Analysis by Commercial Testing and Engineering Co., Lombard, Illinois.

Resource Estimate: Inferred resource of 18,000 tons coal.

Mineral Development Potential:

Low development potential as the site is remote and the ash content high.

Recommendations:

The upper Koyukuk basin should be evaluated as a potential resource of coal bed methane.

References:

Barnes, F.F., 1967, Coal resources of Alaska: U.S. Geological Survey Bulletin 1242-B.

Collier, A.J., 1903, The coal resources of the Yukon, Alaska: U.S. Geological Survey Bulletin 218, 71 p.

Dillon, J.T., Moorman, M.A., and Lueck, L.L., 1981, Geochemical reconnaissance of the southwest Wiseman quadrangle: summary of data on rock samples: Alaska Division of Geological and Geophysical Surveys Open-File Report 133B, 164 p.

Eakins, G.R., Bundtzen, T.K., Lueck, L.L., Green, C.B., Gallagher, J.L., and Robinson, M.S., 1985, Alaska's mineral industry 1984: Alaska Division of Geological and Geophysical Surveys Special Report 38, 57 p.

Fieldner, A.C., Selvig, W.A., and Paul, J.W., 1922, Analyses of mine and car samples of coal collected in the fiscal years of 1916-19: U.S. Bureau of Mines Bulletin 193, 391 p.

Goff, K.M., 1985, Report on coal resources on or proximal to Doyon Ltd. and village selected lands: unpublished report, 58 p. [available from Doyon Ltd., Fairbanks, Alaska]

Holzheimer, F.W., 1926, Coal on the Yukon River, Alaska: Alaska Territorial Department of Mines Miscellaneous Report MR-194-1, 10 p.

Marker, D.F., Jr., 1983, Alaska coal mined land inventory: Plangraphics, Inc., Frankfort, KY, unpublished report prepared for Alaska Department of Natural Resources Division of Minerals and Energy Management, p. 76-7.

Merritt, R.D., 1985, Alaska's coal data base: explanation guide to accompany maps of Alaska's coal resources: Alaska Division of Geological and Geophysical Surveys Public Data File 85-22, p. 5.

Meyer, M.P., 1990, Selected coal deposits in Alaska: U.S. Bureau of Mines Open-File Report 33-90, p. 90.

Payne, T. G., and others, 1952, Geology of the Arctic Slope of Alaska: USGS Oil and Gas Investigation Map 126, 3 sheets.

Rao, P.D., and Wolff, E.N., 1980, Characterization and evaluation of washability of Alaskan coals: Mineral Industry Research Laboratory, University of Alaska, Report 42, p. 10.

____1981, Petrographic, mineralogical, and chemical characterization of certain Alaskan coals and washability products: Mineral Industry Research Laboratory, University of Alaska, Report 50, p. 196, 199, 220, 222, 225-7.

Schrader, F.C., 1900, Preliminary report on a reconnaissance along the Chandalar and Koyukuk Rivers, Alaska in 1899: Twenty-first annual report of the U.S. Geological Survey Part 2, p. 485.

Selvig, W.A., and Fieldner, A.C., 1922, Fusibility of ash from coals of the United States: U.S. Bureau of Mines Bulletin 209, 119 p.

Smith, P.S., and Mertie, J.B., Jr., 1930, Geology and mineral resources of northwestern Alaska: U.S. Geological Survey Bulletin 815, p. 316.

Triplehorn, J.H., 1982, Alaska coal-a bibliography: Mineral Industry Research Laboratory, University of Alaska, Report 51, 298 p.

U.S. Bureau of Mines, 1946, Analyses of Alaskan coals: Technical Progress Report 682, p. 2.

Property Summary

Name(s): Mailbox Creek
Mailbox 1-12 claims
V&S 18-19 claims

Map No: W123
MAS No: 0020300053
Alaska Kardex 030-074

Deposit Type: Placer

Commodities: Au

Location:

Quadrangle: Wiseman A-1
SE¼ sec. 6, T. 26 N., R. 13 W.
Meridian: Fairbanks
Elevation: 900 feet
Latitude: 67° 06.397' N.
Longitude: 150° 28.971' W.
Geographic: Northern tributary to the Middle Fork Koyukuk River, 2.7 miles upstream from Tramway Bar.

History:

1930s - Ottawa Mining and Minerals reportedly staked lode claims in the area (Kardex).
1935 - Activity reported on Mailbox Creek (Smith, 1937).
1937 - Thomas Kovich and George Stores opened a cut by groundsluicing and shoveling in (Reed, 1938).
1938 - Twelve placer claims staked by T. Kovich (Kardex).

Production: Unknown.

Average gold fineness: 898 (Reed, 1938).

Workings and Facilities:

Remains of a boom dam and dozer cuts are visible on the creek, but it appears that only a small amount of mining has been done. That took place in a cut about 2,000 feet upstream from the Koyukuk River. At this point, the canyon bottom is about 400 feet wide. The creek reportedly runs about 80 miners inches of water (Reed, 1938). In recent years there has been some prospecting done by dozer.

Geologic Setting:

Bedrock underlying Mailbox Creek is composed of Upper Cretaceous quartz-pebble conglomerate. Well-rounded clasts in the conglomerate consist of white quartz, graywacke, chert, schist, and mafic volcanic and intrusive rocks. The unit dips to the north and contains abundant plant fossils of Late Cretaceous age (Patton and Miller, 1973). At the site of previous mining, the bedrock was reported to consist of a fire clay with coal occurring in it, interbedded with fine-grained conglomerate. The stream gravel is rather fine, derived mostly from the conglomerate, and contains many erratic boulders. The gold in the creek is of two types: a flakey type that occurs throughout the gravel and a rough and thick type that occurs in a reddish gravel layer near bedrock. The ground was reported to run 0.02 oz/bedrock foot (Reed, 1938).

Bureau Investigation:

The lower 0.6 mile of the creek was examined. Two pans taken at a narrows formed by conglomerate bedrock produced 1 very fine gold flake (11665, table I-1). A pan concentrate sample (11666) collected on bedrock in a bulldozer cut on the west side 0.6 mile above the mouth of the creek contained 1 very coarse and 3 fine gold flakes. Five additional pans in the same area produced 2 very coarse and 11 fine flakey gold pieces. At this site bedrock appears to be weathered conglomerate bedrock. A sample of pyrrhotite-bearing altered mafic intrusive rock (diorite?) float (11667) is not anomalous in any metals.

Resource Estimate: Unknown.

Mineral Development Potential:

There is moderate mineral development potential for placer gold on Mailbox Creek. Test pans of weathered conglomerate bedrock are encouraging and access is moderately good. Low water flow and a low stream gradient may make mining difficult.

Recommendations:

Bulk test sample conglomerate bedrock exposed in dozer cuts near stream. The use of a pump to obtain water is recommended. Prospecting is recommended in areas of conglomerate bedrock, upstream from the bulldozer cuts.

References:

Bliss, J.D., Brosge, W.P., Dillon, J.T., Cathrall, J.B., and Dutro, J.T., Jr., 1988, Maps and descriptions of lode deposits, prospects, and occurrences in the Wiseman 1° by 3° quadrangle, Alaska: U. S. Geological Survey Open-file Report 88-293, 52 p., plus two plates.

Cobb, E.H., 1981, Summary of data on and lists of references to metallic and selected nonmetallic mineral occurrences in the Wiseman quadrangle, Alaska, supplement to Open-File Report 76-340: U.S. Geological Survey Open-File Report 81-732B, 21 p.

Patton, W.W., Jr., and Miller, T.P., 1973, Bedrock geologic map of the Bettles and southern part of the Wiseman quadrangles, Alaska: U.S. Geological Survey Miscellaneous Field Studies Map MF-492, 1 sheet, scale 1:250,000.

Reed, I.M., 1938, Upper Koyukuk region, Alaska: Alaska Territorial Department of Mines Miscellaneous Report 194-7, p. 148-149.

Smith, P.S., 1937, Mineral resources of Alaska, report on progress of investigations in 1935: U.S. Geological Survey Bulletin 880A, p. 45.

Property Summary

Name(s): Chapman Creek
Chapman Creek Assoc.
V&S 6-13

Map No: W124
MAS No: 0020300054
Alaska Kardex 030-061

Deposit Type: Placer

Commodities: Au

Location:

Quadrangle: Wiseman A-1
W½ sec. 8, T. 26 N., R. 13 W.
Meridian: Fairbanks
Elevation: 920 feet
Latitude: 67° 05.707' N.
Longitude: 150° 28.413' W.
Geographic: Tributary to the Middle Fork Koyukuk River, 0.5 mile upstream from Tramway Bar and 14 miles southwest of Coldfoot. A rough road connects the site with the Dalton Highway, 3.7 miles to the east.

History:

1908-09 - Prospectors sink 13 or 14 holes from 9 to 14 feet deep a quarter of a mile above mouth of Chapman Creek (Reed, 1938).
1938- Claims staked by Issac Spikes (Kardex).
1984 - Chapman Creek Assoc. claims 1-8 staked (Kardex).
1984-89 - G. Bouton prospected and mined on creek (Kardex).
1991 - Road built to connect site with Dalton Highway and prospecting done by unknown Canadian company. Holes drilled 40-55 feet deep and test pits dug (D. Keill, personal communication, 2000).
2000 - V&S 6-13 claims on Chapman Creek owned by G. Bouton (Western Gold) (K. Woodworth, personal communication, 2000).

Production: Unknown. Possibly combined with Tramway Bar.

Workings and Facilities:

The area has been heavily mined, evidenced by abundant tailings. Mining equipment consisting of dump trucks, shovels, and washing plants along with Atco-type trailers are still on the property.

Geologic Setting:

The bedrock underlying Chapman Creek is composed of Cretaceous conglomerate that has been subdivided into two units. The upper unit is a quartz-pebble conglomerate containing clasts of quartz, schist, sandstone, coal, and other fossiliferous plant material. The lower unit is an igneous-pebble-cobble conglomerate consisting of poorly-sorted clasts of mafic volcanic and intrusive rocks, chert, and graywacke. The conglomerate is well exposed along the narrows of Chapman Creek, 0.5 mile upstream from the Koyukuk River (Patton and Miller, 1973).

The conglomerate is believed to be an ancestral flood plain, deposited by streams flowing off the south side of the Brooks Range at a higher level than the modern Koyukuk River. It lies near the eastern edge of the Koyukuk Basin which is filled with Cretaceous continentally derived sediments. The Chapman

Creek and nearby Tramway Bar placers were apparently formed when gold-bearing gravel was deposited in channels cut into this conglomerate outwash deposit by ancestral streams. These channels were later eroded by the modern Koyukuk River, exposing the underlying conglomerate and redistributing the gold. The Chapman deposits may also lie on benches cut laterally by meandering of the ancestral Koyukuk River.

The shafts dug ¼ to 1 mile upstream from the mouth of Chapman Creek passed through a layer of barren sand and reddish gravel into a gold-bearing bed of blueschist gravel resting on clay. Pans from the schist-clay layer averaged 0.001 oz/cy. About 2 miles upstream, some bench deposits from 20-30 feet above the stream average 0.004 oz/cy gold. It is claimed that the mouth of the creek is thawed and that bedrock is deep. Chapman Creek may be the source of the gold deposited downstream at the Tramway Bar placer (map no. W125) (Maddren, 1913; Reed, 1938).

The main channel of the Middle Fork has been prospected with shafts from 12 to 22 feet deep. Gravel on bedrock reportedly contains 0.01 oz/cy. Pans on bedrock average 0.001 oz/cy (Maddren, 1913)

Bureau Investigation:

Three test pans taken from gravel at the base of a falls on bedrock contained a total of 6 fine and 9 very fine gold flakes. Three other pans taken above the falls, produced a total of 1 fine gold flake. A pan concentrate from the same site (11669, table I-1) contained 11.38 ppm gold. A four-foot-long continuous chip sample of the conglomerate (11669) was not anomalous in gold. A sample of greenstone (11671) contained 119 ppm copper.

Resource Estimate: Unknown.

Mineral Development Potential:

Low mineral development potential due to previous mining and reported low gold values (average 0.003 oz/cy). Also getting water up to gold-bearing benches could be difficult.

Recommendations:

Suction dredging of plunge pools along that portion of the creek, which cuts into bedrock could produce gold that was missed by previous operations.

References:

Maddren, A.G., 1913, The Koyukuk-Chandalar region, Alaska: U.S. Geological Survey Bulletin 532, p. 84-85.

Patton, W.W., and Miller, T.P., 1973, Bedrock geologic map of the Bettles and southern part of the Wiseman quadrangles, Alaska: U.S. Geological Survey Miscellaneous Field Studies Map MF-492, 1 sheet, scale 1:250,000.

Reed, I.M., 1938, Upper Koyukuk region, Alaska: Alaska Territorial Department of Mines Miscellaneous Report 194-7, p. 145-151.

Property Summary

Name(s): Tramway Bar
V&S 1-6 claims
Monument Assn
Boulder Assn
Easy Money Bench
Rabbit Patch
River End
Little Boulder

Map No: W125
MAS No: 0020300055
Alaska Kardex 030-059
Alaska Kardex 030-086
Alaska Kardex 030-109
Alaska Kardex 030-117

Deposit Type: Placer

Commodities: Au

Location:
Quadrangle: Wiseman A-1, A-2
S½ sec: 7, T. 26 N., R. 13 W.
Meridian: Fairbanks
Elevation: 850 feet
Latitude: 67° 5.170' N.
Longitude: 150° 29.956' W.
Geographic: On the west side of the Middle Fork Koyukuk River, 14 miles southwest of Coldfoot. A rough 5-mile-long road from the Dalton highway ends on the opposite side of the river.

History:

1885-90 - Gold discovered at Tramway Bar. Mining done with rockers (Maddren, 1913).
1899 - Sluice box mining method introduced (Maddren, 1913).
1908 - Water brought to Tramway Bar by ditch from Mailbox Creek (Maddren, 1913).
1909 - Mining reported to have not yielded satisfactory returns (Maddren, 1913).
1925 - Nine claims staked by C. Suckik (Kardex).
1935 - C. Suckik began ground sluicing and shoveling in upstream from previous workings (Reed, 1938).
1937 - Ground-sluicing and shoveling in by Charles Suckik (Reed, 1938).
1939 - Mining activity (Smith, 1941).
1940 - Mining activity (Smith, 1942).
1959 - Placer claims staked by E. Nesland (Kardex).
1970 - 129 claims staked by G. Bouton (Kardex).
1972-82 - Mining by G. Bouton (D. Keill, personal communication, 2001).
2001 - Claims owned by G. Bouton, Bouton Enterprises (K. Woodworth, personal communication, 2001).

Production: (oz Au) (Maddren,1913; Reed, 1938)

1900 - 274
1908 - 16
1909 - 438
Total: 728 (Records incomplete.) Combined production with Chapman Creek is reported to be 2,315 oz (Bliss and others, 1988).
Average gold fineness: 883 (Reed, 1938)
Largest reported nugget: 2.3 oz (Reed, 1938)

Workings and Facilities:

Tramway Bar is one of the earliest known sites for placer gold mining on the Koyukuk River (Schrader, 1900). Mining has concentrated on a 0.5-mile-long bench on the west side of the river. The bench has been mined up to 600 feet back from the river bluffs. Remains of old mining equipment, cabins, and an airstrip occupy the site. It would appear that mining efforts beginning in the 1970s may have mined out the entire width of the bench deposits.

Geologic Setting:

The bedrock at Tramway Bar is composed of Cretaceous conglomerate, which has been subdivided into two units. The upper unit is a quartz-pebble conglomerate containing clasts of quartz, schist, sandstone, coal, and other fossiliferous plant material. The lower unit is an igneous-pebble-cobble conglomerate consisting of poorly sorted clasts of mafic volcanic and intrusive rocks, chert, and graywacke. Bedding is well exposed in bluffs along the west side of the Koyukuk River. Bedding strikes northeast with dips ranging from north to south (Patton and Miller, 1973).

The conglomerate is believed to be an ancestral flood plain, deposited by streams flowing off the south side of the Brooks Range at a higher level than the modern Koyukuk River. It lies near the eastern edge of the Koyukuk Basin, which is filled with Cretaceous continentally derived sediments. The Tramway Bar and nearby Chapman Creek placers were apparently formed when gold-bearing gravel was deposited in channels cut into this outwash deposit by ancestral streams. These channels were later downcut by the modern Koyukuk River, exposing the underlying conglomerate. This left the gold-bearing gravels exposed as bench deposits, resting on river bluffs composed of conglomerate. These benches are 80-100 feet above the modern river level. The bench deposits vary in composition from coarse gravel to layers of fine sand and silt and contain numerous boulders (Maddren, 1913; Reed, 1938). Glacial erratics reportedly occur in the gold-bearing gravel (Brosge and Reiser, 1972).

It appears that the gold is concentrated mostly within the gravel layers. The gold is possibly derived from some nearby gold-bearing stream such as Chapman Creek, which flows into the Koyukuk just upstream from Tramway Bar. In the early workings, depth to bedrock varied from 4 to 7 feet, and the benches were mined for about 50 feet back from the river. Gold values in one cut were reported to average 0.01oz/bedrock foot (Maddren, 1913; Reed, 1938).

According to Reed (1938) there are two runs of gold at Tramway Bar: coarse gold concentrated in the coarse gravel of the bench deposits and fine gold derived from erosion of the conglomerate bedrock. The fine fraction was concentrated on top of the decomposed conglomerate. Maddren (1913) did not believe that any of the gold was derived from the underlying conglomerate.

Bureau Investigation:

Due to the extent of mechanized mining at the site, no testing was done on the bench gravels. A sluice concentrate sample (11589, table I-1) contains 1,241 ppb platinum, which is highly anomalous. In addition the concentrate contains 23 ppm uranium and 50 ppm thorium. The platinum may have a source in a belt of mafic volanic and intrusive rocks that outcrop to the north in the Twelvemile Mountain area.

An effort was made to determine whether the conglomerate might be the source of some of the gold at Tramway Bar as proposed by Reed. One random and five continuous chip samples were collected from conglomerate exposed in the bluffs along the river (11587-11588, 11660-11663). Sample lengths were up to 7.5 feet long and cut across bedding. None of the samples were anomalous in gold.

At a site 1.6 miles upriver from Tramway Bar, about 8 pounds of the conglomerate was crushed and panned down to a 0.7-oz concentrate (10551). Analysis showed the sample contains 2,494 ppb gold, which is anomalous. This is the only conglomerate sample from the area that was anomalous in gold. It is difficult to determine whether the gold is actually interstitial in the conglomerate or just fine flood gold deposited on the rock surface by the present Koyukuk River.

Resource Estimate: Unknown.

Mineral Development Potential:

It appears that shallow gold-bearing gravel has been extensively mined and little resource remains. Also recorded gold values were low.

Recommendations: None.

References:

Bliss, J.D., Brosge, W.P., Dillon, J.T., Cathrall, J.B., and Dutro, J.T., Jr., 1988, Maps and descriptions of lode deposits, prospects, and occurrences in the Wiseman 1° by 3° quadrangle, Alaska: U. S. Geological Survey Open-file Report 88-293, p. 29-30.

Brosge, W.P., Reiser, H.N., 1972, Geochemical reconnaissance in the Wiseman and Chandalar districts and adjacent region, southern Brooks Range, Alaska: U.S. Geological Survey Professional Paper 709, p. 3.

Maddren, A.G., 1910, The Koyukuk-Chandalar gold region *in* Brooks, A.E., Mineral resources of Alaska, report on progress of investigations in 1909: U.S. Geological Survey Bulletin 442, p. 291-292.

____1913, The Koyukuk-Chandalar region, Alaska: U.S. Geological Survey Bulletin 532, p. 84-85.

Reed, I.M., 1938, Upper Koyukuk region, Alaska: Alaska Territorial Department of Mines Miscellaneous Report 194-7, p. 145-148.

Schrader, F.C., 1900, Preliminary report on a reconnaissance along the Chandalar and Koyukuk Rivers, Alaska in 1899: Twenty-first annual report of the U.S. Geological Survey Part 2, p. 478-479, 483.

____1904, A reconnaissance in northern Alaska across the Rocky Mountains, along the Koyukuk, John, Anaktuvuk, and Colville Rivers and the Arctic coast to Cape Lisburne, in 1901: U.S. Geological Survey Professional Paper 20, p. 100.

Smith, P.S., 1941, Mineral resources of Alaska, report on progress of investigations in 1939: U.S. Geological Survey Bulletin 926A, p.52.

____1942, Mineral resources of Alaska, report on progress of investigations in 1940: U.S. Geological Survey Bulletin, 933A, p. 47.

Property Summary

Name(s): Eagle Cliff
American Eagle Association

Map No: W126
MAS No: 0020300059
Alaska Kardex 030-072

Deposit Type: High Bench Placer

Commodities: Au

Location:

Quadrangle: Wiseman A-1
SE¼ sec. 30, T. 26 N., R. 11 W.
Meridian: Fairbanks
Elevation: 1,200 feet
Latitude: 67° 02.784' N.
Longitude: 150° 02.501' W.
Geographic: On the South Fork Koyukuk River, 1.5 miles east-northeast of Hidden Creek.

History:

1900s - Prospected and mined (Maddren, 1910).
1938 - W. Glenn planned to work this claim in summer (Reed, 1938).
1980s - Claims staked by S. Greene (Kardex).

Production: (oz Au) (Maddren, 1910, 1913)

1900 - 24
<u>1902-09 - 24</u>
Total: 48 (Records incomplete.)
Total production is reported as high as 120 oz (Bliss and others, 1988).

Workings and Facilities: None observed.

Geologic Setting:

The bluffs at Eagle Cliff are composed of upper Paleozoic to Mesozoic(?) pillow basalt that is unconformably overlain by Cretaceous quartz-pebble conglomerate and sandstone. The site lies along the South Fork fault, which trends east-northeast. The fault is one of several Late Cretaceous to early Tertiary east-west-trending, high-angle fault zones that have many miles of lateral offset. It is characterized by gouge that separates equivalent portions of the Angayucham terrane and marks the northern limit of Cretaceous granites in Alaska (Dillon and others, 1989).

Reed (1938) reported that a high bench exists approximately 120 feet above the present South Fork Koyukuk River between Mosquito Fork and the mouth of Jim River. At Eagle cliff the high bench is on the south side of the river.

Small amounts of fine flood gold are frequently found on gravel bars of the South Fork Koyukuk River between Eagle Cliff (W126) and Gold Bench (map no. B5). These 28 miles of the South Fork Koyukuk River include 12 placer sites (map nos W126-W133, B2-B5). The origin of the gold is unknown. Some believe that it could have been washed in from Tramway Bar through an ancestral channel that crossed between the two forks of the Koyukuk River. Others believe that the source lies in the hills between the

South Fork Koyukuk River and the Jim River (Maddren, 1913). It is also possible that the gold is reworked from glacial deposits (Cobb, 1973).

Bureau Investigation:

Three pan concentrate samples (11602-11604, table I-1) collected from gravel bars below Eagle Cliff all contained very fine to fine visible gold. The samples range from 403 ppb to 10.37 ppm gold.

Fine flood gold was panned at numerous locations along the South Fork Koyukuk River between Eagle Cliff and Gold Bench. Fifteen pan concentrate samples collected from gravel bars and bluffs average 6,532 ppb gold.

Resource Estimate: None.

Mineral Development Potential:

Low mineral development potential for placer gold in the present channel due to low gold values. Much of the gold is extremely fine, and recovery could be difficult. The high benches remain unevaluated.

Recommendations: None.

References:

Bliss, J.D., Brosge, W.P., Dillon, J.T., Cathrall, J.B., and Dutro, J.T., Jr., 1988, Maps and descriptions of lode deposits, prospects, and occurrences in the Wiseman 1° by 3° quadrangle, Alaska: U. S. Geological Survey Open-file Report 88-293, p. 31-32, plus two plates.

Cobb, E.H., 1972, Metallic mineral resources map of the Wiseman quadrangle, Alaska: U.S. Geological Survey Miscellaneous Field Studies Map MF-469, 1 sheet, scale 1:250,000.

_____1973, Placer deposits of Alaska: U.S. Geological Survey Bulletin 1374, p.159.

Dillon, J.T., Reifenstuhl, R.R., Bakke, A.A., and Adams, D.D., 1989, Geologic map of the Wiseman A-1 quadrangle, southcentral Brooks Range, Alaska: Alaska Division of Geological and Geophysical Surveys Professional Report 98, 2 sheets, scale 1:63,360.

Dillon, J.T., Solie, D.N., Murphy, J.T. J. M., Bakke, A.A., and Huber, J.A., 1989, Road Log from South Fork Koyukuk River (mile 156.2) to Chandalar Shelf (mile 237.1). In Mull, C.G., and K.E. Adams, eds., Dalton Highway, Yukon River to Prudhoe Bay, Alaska: Geology of eastern Koyukuk Basin, Central Brooks Range, and East-central Arctic Slope: Alaska Division of Geological and Geophysical Surveys Guidebook 7, v. 1, p. 74-100.

Heiner, L.E., and Wolff, E.N., 1968, Final report, mineral resources of northern Alaska: Mineral Industry Research Laboratory, University of Alaska, Report 16, 299 p.

Maddren, A.G., 1910, The Koyukuk-Chandalar gold region *in* Brooks, A.E., Mineral resources of Alaska, report on progress of investigations in 1909: U.S. Geological Survey Bulletin 442, p. 292, 312.

____1913, The Koyukuk-Chandalar region, Alaska: U.S. Geological Survey Bulletin 532, p. 70, 107.

Reed, I.M., 1938, Upper Koyukuk region, Alaska: Alaska Territorial Department of Mines Miscellaneous Report 194-7, p. 156-157.

Schrader, F.C., 1904, A reconnaissance in northern Alaska across the Rocky Mountains, along the Koyukuk, John, Anaktuvuk, and Colville Rivers and the Arctic coast to Cape Lisburne, in 1901: U.S. Geological Survey Professional Paper 20, p. 102.

Property Summary

Name(s): Hidden Creek
Daniella
Second slough no.1
Bryans no.1
Robbys no.1
June bug no.2

Map No: W127
MAS No: 0020300112
Alaska Kardex 030-206
Alaska Kardex 030-207
Alaska Kardex 030-200
Alaska Kardex 030-219

Deposit Type: Placer

Commodities: Au

Location:
Quadrangle: Wiseman A-1
N½ sec. 1, T. 25 N., R. 12 W.
Meridian: Fairbanks
Elevation: 1,600 feet
Latitude: 67° 01.296' N.
Longitude: 150 05.434' W.
Geographic: A 5.3-mile-long southern tributary of the South Fork Koyukuk River, 0.5 mile west of Eagle Cliff.

History:

1978-82 - Placer claims staked by several parties (Kardex).

Production: Unknown.

Workings and Facilities:

A bulldozer trail follows the creek upstream for 2 miles. Signs of test pits observed near the end of the trail.

Geologic Setting:

The upper part of Hidden Creek cuts the contact between quartz monzonite of the Cretaceous Jim River pluton to the south and Triassic to Jurassic greenstone on the north (Dillon and others, 1986).

Bureau Investigation:

Four test pans collected around boulders produced 1 fine and 1 very fine gold flake. Very fine grained feather-like flakes of an undetermined mineral were also noted a pan concentrate sample (11910, table I-1) that contains 28.2 ppm gold. Float in the creek consists of numerous granitic and greenstone boulders. Some of the greenstone is hornfelsed and contains garnet, epidote, and fine-grained sulfides. A sample (11908) is not anomalous in any metals. The Jim River drains off the south side of the Jim River Pluton. A pan concentrate sample collected on this drainage, 5.7 miles south of Hidden Creek, is anomalous in gold (map no. B11).

Resource Estimate: None.

Mineral Development Potential: Low mineral development potential due to lack of bedrock.

Recommendations:

Prospect bedrock on the creek, upstream from this site. Prospect the Jim River pluton for lode gold.

References:

Blum, J.D., Dillon, J.T., and Blum, A.E., 1989, Regional significance of the Jim River and Hodzana plutons *in* Mull, C.G., and Adams, K.E., eds., Dalton Highway, Yukon River to Prudhoe Bay, Alaska, Bedrock geology of eastern Koyukuk basin, central Brooks Range, and eastcentral Arctic Slope: Alaska Division of Geological and Geophysical Surveys Guidebook 7, v. 2, p. 189-190.

Dillon, J.T., Brosge, W.P., and Dutro, J.T., Jr., 1986, Generalized geologic map of the Wiseman quadrangle, Alaska: U.S. Geological Survey Open-File Report 86-219, 1 sheet, scale 1:250,000.

Property Summary

Name(s): South Fork Koyukuk River

Map No: W128
MAS No: 0020300145
Alaska Kardex 030-152

Deposit Type: Placer

Commodities: Au

Location:

Quadrangle: Wiseman A-1
Center sec. 19, T. 26 N., R. 11 W.
Meridian: Fairbanks
Elevation: 1,150 feet
Latitude: 67° 03.746' N.
Longitude: 150° 03.504' W.
Geographic: Located 0.5 mile northwest of Eagle Cliff (map no. W126), on the South Fork Koyukuk River.

History:

1900s - Gold discovered on the South Fork Koyukuk River (Maddren, 1913).
1930s - Activity reported (Smith, 1937, 1938).
1976, 79 - W. Worrall, J. Sheets, and P. Sheets staked one claim (Kardex).

Production: (oz Au) (U.S. Bureau of Mines PIMRs, 1910-1941)

1910 - 34	1935 - 57
1911 - 15	1936 - 45
1915 - 63	1937 - 114
1921 - 10	1938 - 11
1922 - 7	1939 - 13
1923 - 10	1940 - 33
1932 - 24	1941 - 2
1933 - 20	Total: 458 (Records incomplete. Locations are vague.)

Gold fineness: 914 (Metz and Hawkins, 1981)

Workings and Facilities: None observed.

Geologic Setting:

Bedrock near the South Fork Koyukuk River site is mapped as Quaternary drift deposits, Tertiary(?) gravel deposits, and nonmarine Cretaceous quartz-pebble conglomerate. About 1 mile south of Wilson Creek (map no. W129) lies the South Fork fault, which trends east-northeast. The fault is one of several Late Cretaceous to early Tertiary east-west-trending, high-angle fault zones that have many miles of right slip. It is characterized by gouge that separates equivalent portions of the Angayucham terrane and marks the northern limit of Cretaceous granites in Alaska (Dillon and others, 1989).

Small amounts of fine flood gold are frequently found on gravel bars of the South Fork Koyukuk River between Eagle Cliff (W126) and Gold Bench (map no. B5). These 28 miles of the South Fork Koyukuk

River include 12 placer sites (map nos W126-W133, B2-B5). The origin of the gold is unknown. Some believe that it could have been washed in from Tramway Bar through an ancestral channel that crossed between the two forks of the Koyukuk River. Others believe that the source lies in the hills between the South Fork Koyukuk River and the Jim River (Maddren, 1913). It is also possible that the gold is reworked from glacial deposits (Cobb, 1973).

Bureau Investigation:

Pan concentrate samples were collected from the northern tributary (11599, table I-1) and a gravel bar on the right limit of the South Fork Koyukuk River (11600). The sample off the gravel bar contained two very fine gold pieces and abundant magnetite, measuring 869 ppb gold. Fine flood gold was panned at numerous locations along the South Fork Koyukuk River between Eagle Cliff and Gold Bench. Fifteen pan concentrate samples collected from gravel bars and bluffs average 6,532 ppb gold.

Resource Estimate: None.

Mineral Development Potential:

Low mineral development potential due to low gold values. Much of the gold is extremely fine and recovery could be difficult.

Recommendations: None.

References:

Cobb, E.H., 1973, Placer deposits of Alaska: U.S. Geological Survey Bulletin 1374, p.159.

____1981, Summary of data on and lists of references to metallic and selected nonmetallic mineral occurrences in the Wiseman quadrangle, Alaska, supplement to Open-File Report 76-340: U.S. Geological Survey Open-File Report 81-732B, 21 p.

Dillon, J.T., Reifenstuhl, R.R., Bakke, A.A., and Adams, D.D., 1989, Geologic map of the Wiseman A-1 quadrangle, southcentral Brooks Range, Alaska: Alaska Division of Geological and Geophysical Surveys Professional Report 98, 2 sheets, scale 1:63,360.

Dillon, J.T., Solie, D.N., Decker, J.E., Murphy, J.M., Bakke, A.A., and Huber, J.A., 1989, Road log from South Fork Koyukuk River (mile 156.2) to Chandalar Shelf (mile 237.1) *in* Mull, C.G., and Adams, K.E., eds., Dalton Highway, Yukon River to Prudhoe Bay, Alaska, Bedrock geology of eastern Koyukuk basin, central Brooks Range, and eastcentral Arctic Slope: Alaska Division of Geological and Geophysical Surveys Guidebook 7, v. 1, p. 74-100.

Maddren, A.G., 1913, The Koyukuk-Chandalar region, Alaska: U.S. Geological Survey Bulletin 532, p. 107.

Metz, P.A., and Hawkins, D.B., 1981, A summary of gold fineness values from Alaska placer deposits: Mineral Industry Research Laboratory, University of Alaska, Report 45, p. 18, 36.

Smith, P.S., 1933, Mineral industry of Alaska in 1930, *in* Smith, P.S. and others, Mineral resources of Alaska, report on progress of investigations in 1930: U.S. Geological Survey Bulletin 836, p. 39-40.

____1937, Mineral resources of Alaska, report on progress of investigations in 1935: U.S. Geological Survey Bulletin 880A, p. 46.

____1938, Mineral resources of Alaska, report on progress of investigations in 1936: U.S. Geological Survey Bulletin 897A, p. 54.

U.S. Bureau of Mines, 1910-1941, Permanent Individual Mine Records (PIMR) for placer mines in Alaska: U.S. Bureau of Mines unpublished reports.

Property Summary

Name(s): Wilson Creek

Map No: W129
MAS No: 0020300081
Alaska Kardex 030-203
Alaska Kardex 030-199
Alaska Kardex 030-208
Alaska Kardex 030-222

Deposit Type: Placer

Commodities: Au

Location:

Quadrangle: Wiseman A-1
NE¼ sec. 22, T. 26 N., R. 12 W.
Meridian: Fairbanks
Elevation: 1,100 feet
Latitude: 67° 03.936' N.
Longitude: 150° 10.595' W.
Geographic: A tributary of South Fork Koyukuk River, 6 miles south of Cathedral Mountain.

History:

1900s - Prospecting occurred along South Fork Koyukuk, including Wilson Creek (Maddren, 1910).
1978 - Numerous placer claims owned on the South Fork Koyukuk River and Wilson Creek (Kardex).

Production: None.

Workings and Facilities: Minor plywood materials seen in area. No direct evidence of mining.

Geologic Setting:

The bedrock in the Wilson Creek area is mapped as Tertiary(?) gravel deposits. A Tertiary or Cretaceous(?) conglomerate bedrock is also present. About 1 mile south of Wilson Creek (map no. W129) lies the South Fork fault, which trends east-northeast. The fault is one of several Late Cretaceous to early Tertiary east-west-trending, high-angle fault zones that have many miles of right slip. It is characterized by gouge that separates equivalent portions of the Angayucham terrane and marks the northern limit of Cretaceous granites in Alaska (Dillon and others, 1989).

Bureau Investigation:

A pan concentrate sample (11597, table I-1) and a random chip sample of conglomerate bedrock (11598) were collected near the mouth of Wilson Creek. Neither sample contains anomalous results.

Resource Estimate: None.

Mineral Development Potential: Low mineral development potential due to lack of gold in samples.

Recommendations: None.

References:

Dillon, J.T., Reifenstuhl, R.R., Bakke, A.A., and Adams, D.D., 1989, Geologic map of the Wiseman A-1 quadrangle, southcentral Brooks Range, Alaska: Alaska Division of Geological and Geophysical Surveys Professional Report 98, 2 sheets, scale 1:63,360.

Dillon, J.T., Solie, D.N., Decker, J.E., Murphy, J.M., Bakke, A.A., and Huber, J.A., 1989, Road log from South Fork Koyukuk River (mile 156.2) to Chandalar Shelf (mile 237.1) *in* Mull, C.G., and Adams, K.E., eds., Dalton Highway, Yukon River to Prudhoe Bay, Alaska, Bedrock geology of eastern Koyukuk basin, central Brooks Range, and eastcentral Arctic Slope: Alaska Division of Geological and Geophysical Surveys Guidebook 7, v. 1, p. 74-100.

Heiner, L.E., and Wolff, E.N., 1968, Final report, mineral resources of northern Alaska: Mineral Industry Research Laboratory, University of Alaska, Report 16, p. 137.

Maddren, A.G., 1913, The Koyukuk-Chandalar region, Alaska: U.S. Geological Survey Bulletin 532, p. 106.

Reed, I.M., 1938, Upper Koyukuk region, Alaska: Alaska Territorial Department of Mines Miscellaneous Report 194-7, p. 162.

Property Summary

Name(s): Minie

Map No: W130
MAS No: 0020300164
Alaska Kardex 030-191
Alaska Kardex 030-192

Deposit Type: Placer

Commodities: Au

Location:
Quadrangle: Wiseman A-1
NE¼ sec. 29, T. 26 N., R. 12 W.
Meridian: Fairbanks
Elevation: 1,070 feet
Latitude: 67° 03.442' N.
Longitude: 150° 13.225' W.
Geographic: Located on the South Fork Koyukuk River, about 1.5 miles downstream of Wilson Creek (map no. W129).

History:

1980s-90s - Placer claims staked in area by numerous miners (Kardex).

Production: Unknown.

Workings and Facilities: None observed.

Geologic Setting:

The Minie site is just north of the South Fork fault, which trends east-northeast. The fault is one of several Late Cretaceous to early Tertiary east-west-trending, high-angle fault zones that have many miles of right slip. It is characterized by gouge that separates equivalent portions of the Angayucham terrane and marks the northern limit of Cretaceous granites in Alaska (Dillon and others, 1989).

Small amounts of fine flood gold are frequently found on gravel bars of the South Fork Koyukuk River between Eagle Cliff (W126) and Gold Bench (map no. B5). These 28 miles of the South Fork Koyukuk River include 12 placer sites (map nos W126-W133, B2-B5). The origin of the gold is unknown. Some believe that it could have been washed in from Tramway Bar through an ancestral channel that crossed between the two forks of the Koyukuk River. Others believe that the source lies in the hills between the South Fork Koyukuk River and the Jim River (Maddren, 1913). It is also possible that the gold is reworked from glacial deposits (Cobb, 1973).

Bureau Investigation:

A pan concentrate sample (11596, table I-1) was collected off the Minie gravel bar. The sample contained one very fine gold flake, assaying at 311 ppm. Fine flood gold was panned at numerous locations along the South Fork Koyukuk River between Eagle Cliff and Gold Bench. Fifteen pan concentrate samples collected from gravel bars and bluffs average 6,532 ppb gold.

Resource Estimate: None.

Mineral Development Potential:

Low mineral development potential due to low gold values. Much of the gold is extremely fine, and recovery could be difficult.

Recommendations: None.

References:

Cobb, E.H., 1973, Placer deposits of Alaska: U.S. Geological Survey Bulletin 1374, p.159.

Dillon, J.T., Reifenstuhl, R.R., Bakke, A.A., and Adams, D.D., 1989, Geologic map of the Wiseman A-1 quadrangle, southcentral Brooks Range, Alaska: Alaska Division of Geological and Geophysical Surveys Professional Report 98, 2 sheets, scale 1:63,360.

Dillon, J.T., Solie, D.N., Decker, J.E., Murphy, J.M., Bakke, A.A., and Huber, J.A., 1989, Road log from South Fork Koyukuk River (mile 156.2) to Chandalar Shelf (mile 237.1) *in* Mull, C.G., and Adams, K.E., eds., Dalton Highway, Yukon River to Prudhoe Bay, Alaska, Bedrock geology of eastern Koyukuk basin, central Brooks Range, and eastcentral Arctic Slope: Alaska Division of Geological and Geophysical Surveys Guidebook 7, v. 1, p. 74-100.

Maddren, A.G., 1913, The Koyukuk-Chandalar region, Alaska: U.S. Geological Survey Bulletin 532, p. 107.

Property Summary

Name(s): Grubstake Bar
Frisbee Creek

Map No: W131
MAS No: 0020300058

Deposit Type: Bench placer

Commodities: Au

Location:

Quadrangle: Wiseman A-1
Meridian: Fairbanks
Latitude: 67° 00.501' N.
W½ sec. 9, T. 25 N., R. 13 W.
Elevation: 1000 feet
Longitude: 150° 24.153' W.
Geographic: Located on the right limit of the South Fork Koyukuk River, near Frisbee Creek.

History:

1900-01 - Two men mined a low bench at Grubstake Bar with sluice boxes (Maddren, 1913).
1930s - William Glenn had placer claims at Grubstake Bar and Eagle Cliff (Kardex).
mid 1990s - Claims owned by several owners (APMA).
1999-2000 - Claims owned by Joe and Cindy Coup (APMA).

Production: (oz Au)

1900-01 - 97
<u>1902-10 - 97</u>
Total: 194 (Records are incomplete: production data for 1990s is unavailable.)
Reed (1938) reported that fineness at nearby Hanshaw Bar was 907.

Workings and Facilities:

A trailer is located at the confluence of Frisbee Creek (unofficial name) and the South Fork Koyukuk River. Mechanized placer mining occurred on the gravel bars to the east, covering an area of approximately 300 by 1,300 feet. Tailings piles are up to 20 feet high.

Geologic Setting:

Grubstake Bar is on the South Fork fault, which trends east-northeast. The fault is one of several Late Cretaceous to early Tertiary east-west-trending, high-angle fault zones that have many miles of right slip. It is characterized by gouge that separates equivalent portions of the Angayucham terrane and marks the northern limit of Cretaceous granites in Alaska (Dillon and others, 1989).

The bedrock north of the South Fork Koyukuk River is Cretaceous igneous pebble-cobble conglomerate. South of the river, bedrock consists of Upper Paleozoic to Mesozoic Angayucham terrane units, which include (from bottom to top) (1) Paleozoic pelitic schists with subordinate quartzite; (2) Jurassic mafic volcanic and intrusive rocks including pillow basalt, diabase, and gabbro with subordinate volcaniclastic rocks and cherty units; (3) coeval ultramafic rocks (serpentized peridotite and dunite); and (4) Cretaceous quartz-pebble conglomerates (Patton and Miller, 1973).

Grubstake Bar is on a high-water bar in the river channel of the South Fork Koyukuk River. The gold is in fine to very fine flakes. It can deposit on layers of clay that act as false bedrock. It is also subject to re-deposition during high-water events (Reed, 1938).

Small amounts of fine flood gold are frequently found on gravel bars of the South Fork Koyukuk River between Eagle Cliff (W126) and Gold Bench (map no. B5). These 28 miles of the South Fork Koyukuk River include 12 placer sites (map nos W126-W133, B2-B5). The origin of the gold is unknown. Some believe that it could have been washed in from Tramway Bar through an ancestral channel that crossed between the two forks of the Koyukuk River. Others believe that the source lies in the hills between the South Fork Koyukuk River and the Jim River (Maddren, 1913). It is also possible that the gold is reworked from glacial deposits (Cobb, 1973).

Bureau Investigation:

Fine gold was found at several locations within the Grubstake Bar site. Several test pan concentrates from the tailings east of Frisbee Creek held fine gold. A pan concentrate sample from the tailings (11975, table I-1) contains 8.86 ppm gold. Another pan sample (11976) collected from unmined gravel immediately east of the tailings contains 27.27 ppm gold.

Fine flood gold was panned at numerous locations along the South Fork Koyukuk River between Eagle Cliff and Gold Bench. Fifteen pan concentrate samples collected from gravel bars and bluffs average 6,532 ppb gold.

Resource Estimate: None.

Mineral Development Potential:

Low mineral development potential exists at Grubstake Bar. The unworked gravel resources are limited.

Recommendations: None.

References:

Bliss, J.D., Brosge, W.P., Dillon, J.T., Cathrall, J.B., and Dutro, J.T., Jr., 1988, Maps and descriptions of lode deposits, prospects, and occurrences in the Wiseman 1° by 3° quadrangle, Alaska: U. S. Geological Survey Open-file Report 88-293, p. 31, plus two plates.

Cobb, E.H., 1972, Metallic mineral resources map of the Wiseman quadrangle, Alaska: U.S. Geological Survey Miscellaneous Field Studies Map MF-469, 1 sheet, scale 1:250,000.

____1973, Placer deposits of Alaska: U.S. Geological Survey Bulletin 1374, p.159.

____1976, Summary of references to mineral occurrences (other than mineral fuels and construction materials) in the Chandalar and Wiseman quadrangles, Alaska: U.S. Geological Survey Open-File Report 76-340, 205 p.

Dillon, J.T., Brosge, W.P., and Dutro, J.T., Jr., 1986, Generalized geologic map of the Wiseman quadrangle, Alaska: U.S. Geological Survey Open-File Report 86-219, 1 sheet, scale 1:250,000.

Heiner, L.E., and Wolff, E.N., 1968, Final report, mineral resources of northern Alaska: Mineral Industry Research Laboratory, University of Alaska, Report 16, p. 133.

Maddren, A.G., 1910, The Koyukuk-Chandalar gold region *in* Brooks, A.E., Mineral resources of Alaska, report on progress of investigations in 1909: U.S. Geological Survey Bulletin 442, p. 292, 312.

____1913, The Koyukuk-Chandalar region, Alaska: U.S. Geological Survey Bulletin 532, p. 70, 107

Reed, I.M., 1938, Upper Koyukuk region, Alaska: Alaska Territorial Department of Mines Miscellaneous Report 194-7, p. 155.

Property Summary

Name(s): Bear Creek

Map No: W132
MAS No: 0020300139
Alaska Kardex 030-188

Deposit Type: Placer

Commodities: Au, Pt(?)

Location:

Quadrangle: Wiseman A-1 — SW¼ sec. 9, T. 25 N., R. 13 W.
Meridian: Fairbanks — Elevation: 1,000 feet
Latitude: 67° 00.238' N. — Longitude: 150° 25.828' W.
Geographic: A 2.5-mile-long southern tributary to the South Fork Koyukuk River about four miles west of the Dalton Highway bridge crossing.

History:

1970s-80s - Up to 33 placer claims by seven owners (Kardex).
1988 - R Kakovich prospected Bear and Eagle Creeks for 18 days (Green and others, 1989).

Production: Unknown.

Workings and Facilities:

Parts to an old bulldozer, mining equipment, and stacked rocks are located along the left limit of Bear Creek approximately 0.5 mile from the mouth. Mine tailings are piled along both banks of the creek directly upstream of the stacked rocks.

Geologic Setting:

Bear Creek is on the South Fork fault, which trends east-northeast. The fault is one of several Late Cretaceous to early Tertiary east-west-trending, high-angle fault zones that have many miles of right slip. It is characterized by gouge that separates equivalent portions of the Angayucham terrane and marks the northern limit of Cretaceous granites in Alaska (Dillon and others, 1989).

The bedrock north of the South Fork Koyukuk River is Cretaceous igneous pebble-cobble conglomerate. South of the river, bedrock consists of Upper Paleozoic to Mesozoic Angayucham terrane units, which include (from bottom to top) (1) Paleozoic pelitic schists with subordinate quartzite; (2) Jurassic mafic volcanic and intrusive rocks including pillow basalt, diabase, and gabbro with subordinate volcaniclastic rocks and cherty units; (3) coeval ultramafic rocks (serpentized peridotite and dunite); and (4) Cretaceous quartz-pebble conglomerates (Patton and Miller, 1973).

Small amounts of fine flood gold are frequently found on gravel bars of the South Fork Koyukuk River between Eagle Cliff (W126) and Gold Bench (map no. B5). These 28 miles of the South Fork Koyukuk River include 12 placer sites (map nos W126-W133, B2-B5). The origin of the gold is unknown. Some believe that it could have been washed in from Tramway Bar through an ancestral channel that crossed between the two forks of the Koyukuk River. Others believe that the source lies in the hills between the South Fork Koyukuk River and the Jim River (Maddren, 1913). It is also possible that the gold is reworked from glacial deposits (Cobb, 1973).

Bureau Investigation:

Nine samples were collected on Bear Creek (table I-1). Three pan concentrate samples (11611, 11971, 11973) average 52.16 ppm gold. Sample 11973 was collected about 1.25 miles upstream of the confluence. A placer sample (11613) contains 0.026 oz/cy gold and 1,414 ppb platinum. The platinum anomaly was not seen in any of the pan concentrate samples; however, similar platinum values were noted in sluice concentrates from Tramway Bar (map no. W125). Bear Creek drains a belt of rocks including perdotite and dunite which could be the source of platinum.

A pan concentrate sample from the Bear Creek gravel bar, on the South Fork Koyukuk River, (11612) contains 4,576 ppb gold. Fine flood gold was panned at numerous locations along the South Fork Koyukuk River between Eagle Cliff and Gold Bench. Fifteen pan concentrate samples collected from gravel bars and bluffs average 6,532 ppb gold.

One mile south, Davis Creek (map no. W132) also contains placer gold. The two creeks may cut an ancestral meander of the Koyukuk River that is the source of gold in the present channel.

Resource Estimate: Unknown.

Mineral Development Potential:

There is moderate development potential for this creek. Although there are limited gravel reserves, a small-scale operation could potentially recover gold cost effectively.

Recommendations: Collect placer and rock samples and analyze for platinum group elements (PGE).

References:

Cobb, E.H., 1973, Placer deposits of Alaska: U.S. Geological Survey Bulletin 1374, p.159.

Dillon, J.T., Solie, D.N., Decker, J.E., Murphy, J.M., Bakke, A.A., and Huber, J.A., 1989, Road log from South Fork Koyukuk River (mile 156.2) to Chandalar Shelf (mile 237.1) *in* Mull, C.G., and Adams, K.E., eds., Dalton Highway, Yukon River to Prudhoe Bay, Alaska: Geology of eastern Koyukuk basin, central Brooks Range, and east-central Arctic Slope: Alaska Division of Geological and Geophysical Surveys Guidebook 7, v. 1, p. 74-100.

Green, C.B., Bundtzen, T.K., Peterson, R.J., Seward, A.F., Deagen, J.R., and Burton, J.E., 1989, Alaska's mineral industry 1988: Alaska Division of Geological and Geophysical Surveys Special Report 43, p. 5.

Maddren, A.G., 1913, The Koyukuk-Chandalar region, Alaska: U.S. Geological Survey Bulletin 532, p. 107.

Patton, W.W., Jr., and Miller, T.P., 1973, Bedrock geologic map of the Bettles and southern part of the Wiseman quadrangles, Alaska: U.S. Geological Survey Miscellaneous Field Studies Map MF-492, 1 sheet, scale 1:250,000.

Property Summary

Name(s): Hanshaw Bar

Map No: W133
MAS No: 0020300057

Deposit Type: Placer

Commodities: Au

Location:

Quadrangle: Wiseman A-1
Center sec. 8, T. 25 N., R. 13 W.
Meridian: Fairbanks
Elevation: 1,000 feet
Latitude: 67° 00.274' N.
Longitude: 150° 27.663' W.
Geographic: On the south side of the South Fork Koyukuk River, approximately 1 mile downstream of Bear Creek (map no. W132).

History:

1937 - W. Glenn and F. Clark processed gravel from this bar through a sluice, using a gasoline pump for water supply (Reed, 1938).

1970s-80s - Grubstake and/or Hanshaw reported to be active (Bliss and others, 1988).

Production: Unknown.

Workings and Facilities: None.

Geologic Setting:

Hanshaw Bar is on the South Fork fault, which trends east-northeast. The fault is one of several Late Cretaceous to early Tertiary east-west-trending, high-angle fault zones that have many miles of right slip. It is characterized by gouge that separates equivalent portions of the Angayucham terrane and marks the northern limit of Cretaceous granites in Alaska (Dillon and others, 1989).

The bedrock north of the South Fork Koyukuk River is Cretaceous igneous pebble-cobble conglomerate. South of the river, bedrock consists of Upper Paleozoic to Mesozoic Angayucham terrane units, which include (from bottom to top) (1) Paleozoic pelitic schists with subordinate quartzite; (2) Jurassic mafic volcanic and intrusive rocks including pillow basalt, diabase, and gabbro with subordinate volcaniclastic rocks and cherty units; (3) coeval ultramafic rocks (serpentized peridotite and dunite); and (4) Cretaceous quartz-pebble conglomerates (Patton and Miller, 1973).

The placer gold is on a high-water bar in the present river channel of the South Fork Koyukuk River. It is a superficial deposit lying on a false bedrock of clayey sand. The gold is in fine, flat flakes and is distributed throughout the gravel. The ground averaged $0.23 (0.007 oz) per bedrock foot and the fineness averaged 907 (Reed, 1938).

Small amounts of fine flood gold are frequently found on gravel bars of the South Fork Koyukuk River between Eagle Cliff (W126) and Gold Bench (map no. B5). These 28 miles of the South Fork Koyukuk River include 12 placer sites (map nos W126-W133, B2-B5). The origin of the gold is unknown. Some believe that it could have been washed in from Tramway Bar through an ancestral channel that crossed between the two forks of the Koyukuk River. Others believe that the source lies in the hills between the South Fork Koyukuk River and the Jim River (Maddren, 1913). It is also possible that the gold is reworked from glacial deposits (Cobb, 1973).

Bureau Investigation:

Two out of three test pans collected at Hanshaw Bar held fine gold. A pan concentrate sample (12006, table I-1) submitted for analysis contained 5 very fine gold pieces, measuring 5,986 ppb gold. The sample does not contain anomalous amounts of other metals. Fine flood gold was panned at numerous locations along the South Fork Koyukuk River between Eagle Cliff and Gold Bench. Fifteen pan concentrate samples collected from gravel bars and bluffs average 6,532 ppb gold.

Resource Estimate: None.

Mineral Development Potential:

Low mineral development potential due to low gold values. Much of the gold is extremely fine, and recovery could be difficult.

Recommendations: None.

References:

Bliss, J.D., Brosge, W.P., Dillon, J.T., Cathrall, J.B., and Dutro, J.T., Jr., 1988, Maps and descriptions of lode deposits, prospects, and occurrences in the Wiseman 1° by 3° quadrangle, Alaska: U. S. Geological Survey Open-file Report 88-293, p. 31, plus two plates.

Cobb, E.H., 1972, Metallic mineral resources map of the Wiseman quadrangle, Alaska: U.S. Geological Survey Miscellaneous Field Studies Map MF-469, 1 sheet, scale 1:250,000.

____1973, Placer deposits of Alaska: U.S. Geological Survey Bulletin 1374, p.159.

____1976, Summary of references to mineral occurrences (other than mineral fuels and construction materials) in the Chandalar and Wiseman quadrangles, Alaska: U.S. Geological Survey Open-File Report 76-340, p. 117.

____1981, Summary of data on and lists of references to metallic and selected nonmetallic mineral occurrences in the Wiseman quadrangle, Alaska, supplement to Open-File Report 76-340: U.S. Geological Survey Open-File Report 81-732B, 21 p.

Dillon, J.T., Solie, D.N., Decker, J.E., Murphy, J.M., Bakke, A.A., and Huber, J.A., 1989, Road log from South Fork Koyukuk River (mile 156.2) to Chandalar Shelf (mile 237.1) *in* Mull, C.G., and Adams, K.E., eds., Dalton Highway, Yukon River to Prudhoe Bay, Alaska, Bedrock geology of eastern Koyukuk basin, central Brooks Range, and eastcentral Arctic Slope: Alaska Division of Geological and Geophysical Surveys Guidebook 7, v. 1, p. 74-100.

Maddren, A.G., 1913, The Koyukuk-Chandalar region, Alaska: U.S. Geological Survey Bulletin 532, p. 107.

Reed, I.M., 1938, Upper Koyukuk region, Alaska: Alaska Territorial Department of Mines Miscellaneous Report 194-7, p. 155.

Property Summary

Name(s): Smalley Creek
Smally Creek
Canary Creek

Map No: W134
MAS No: 0020300056
Alaska Kardex 030-082

Deposit Type: Placer

Commodities: Au, Ag

Location:

Quadrangle: Wiseman A-2
SE¼ sec. 36, T. 26 N., R. 14 W.
Meridian: Fairbanks
Elevation: 1,450 feet
Latitude: 67° 01.791' N.
Longitude: 150° 30.684' W.
Geographic: Smalley Creek is a west-flowing tributary of John R Creek, about 5 miles northeast of Gold Bench. Reed (1938) reported that "Smalley Creek" was the tributary immediately north of the creek currently named "Smally Creek" on U.S. Geological Survey maps. This unnamed creek to the north has a rich mining history, and is referred to as Smalley Creek in this report.

History:

1900s - Prospects discovered by a man named Smalley (Reed, 1938).
1930s - E. Hansen and E. Erickson mined above the confluence of the forks (Reed, 1938).
1956 - E. Nesland staked four placer claims (Kardex).
1980s - C. Dunlap owns placer claims (Bliss and others, 1988).
1998-2001 - D. and S. Kirkvold hold placer claims and conduct suction dredging operation.

Production: (oz Au) (U.S. Bureau of Mines PIMRs, 1908-1945)

1936 - 15
1938 - 44
1941 - 16
Total: 75 (Records incomplete. There may have been production in the early 1900s.)

Mosier and Lewis (1986) reported a median fineness of 895. Reed (1938) reported a fineness of 907 and an average value of $0.59 (0.019 oz) per bedrock foot.

Workings and Facilities:

Several cabins and trailers are near the confluence of the "east" and "south" forks. Tailings extend about a quarter of a mile up the south fork from the confluence.

Geologic Setting:

The bedrock at Smalley Creek is composed of Cretaceous igneous-pebble-cobble conglomerate consisting of poorly-sorted clasts of mafic volcanic and intrusive rocks, chert, and graywacke (Patton and Miller, 1973). The conglomerate is believed to be an ancestral flood plain, deposited by streams flowing off the south side of the Brooks Range at a higher level than the modern Koyukuk River. It lies near the eastern edge of the Koyukuk Basin which is filled with Cretaceous continentally derived sediments. It was thought that the conglomerate was a fossil placer deposit that was re-concentrated in the present stream channel. Reed (1938) reported that an occasional pan concentrate shoveled from the top of the decomposed bedrock contains a few colors. The origin of the gold is unknown. Some believe that it could have been washed in from Tramway Bar through an ancestral channel that crossed between the two forks of the Koyukuk River. Others believe that the source lies in the hills between the South Fork Koyukuk River and the Jim River (Maddren, 1913). It is also possible that the gold is reworked from glacial deposits (Cobb, 1973).

The depth to bedrock is about 17 feet. The grade near the confluence of the two forks is 4.5% and the southern fork discharges about 80 miners inches of water (Reed, 1938).

Bureau Investigation:

A stream sediment and a pan concentrate sample (11567-11568) were collected from a gravel bar, above the tailings on the south fork. The pan sample did not contain visible gold, but the assay was 1,309 ppb gold. This is considered an anomalous result.

A select sample of pebble conglomerate float (11569) collected from Smalley Creek was not anomalous in gold. The unit is reportedly a potential source for placer gold in the area (Reed, 1938). One random and five continuous chip samples were collected from conglomerate exposed in the bluffs about 2 miles north at Tramway Bar (map no. W125). None of the samples are anomalous in gold. At a site 1.6 miles upriver from Tramway Bar, approximately 8 pounds of the conglomerate was crushed and panned down to a 0.7-oz concentrate (10551). The sample contains 2,494 ppb gold, which is anomalous. This is the only conglomerate sample from the area that is anomalous in gold. It is difficult to determine whether the gold is actually interstitial in the conglomerate or just fine flood gold deposited on the bedrock surface by the present Koyukuk River.

Resource Estimate: None.

Mineral Development Potential: Low to moderate mineral development potential for fine placer gold.

Recommendations: None.

References:

Bliss, J.D., Brosge, W.P., Dillon, J.T., Cathrall, J.B., and Dutro, J.T., Jr., 1988, Maps and descriptions of lode deposits, prospects, and occurrences in the Wiseman 1° by 3° quadrangle, Alaska: U. S. Geological Survey Open-File Report 88-293, p. 30-31, plus two plates.

Cobb, E.H., 1972, Metallic mineral resources map of the Wiseman quadrangle, Alaska: U.S. Geological Survey Miscellaneous Field Studies Map MF-469, 1 sheet, scale 1:250,000.

____1973, Placer deposits of Alaska: U.S. Geological Survey Bulletin 1374, p.159.

____1976, Summary of references to mineral occurrences (other than mineral fuels and construction materials) in the Chandalar and Wiseman quadrangles, Alaska: U.S. Geological Survey Open-File Report 76-340, p. 154.

____1981, Summary of data on and lists of references to metallic and selected nonmetallic mineral occurrences in the Wiseman quadrangle, Alaska, supplement to Open-File Report 76-340: U.S. Geological Survey Open-File Report 81-732B, p. B14.

Maddren, A.G., 1913, The Koyukuk-Chandalar region, Alaska: U.S. Geological Survey Bulletin 532, p. 107.

Mosier, E.L., and Lewis, J.S., 1986, Analytical results, geochemical signatures, and sample locality map of load gold, placer gold, and heavy-mineral concentrates from the Koyukuk-Chandalar mining district, Alaska: U. S. Geological Survey Open-File Report 86-345, p. 120.

Patton, W.W., Jr., and Miller, T.P., 1973, Bedrock geologic map of the Bettles and southern part of the Wiseman quadrangles, Alaska: U.S. Geological Survey Miscellaneous Field Studies Map MF-492, 1 sheet, scale 1:250,000.

Reed, I.M., 1938, Upper Koyukuk region, Alaska: Alaska Territorial Department of Mines Miscellaneous Report 194-7, p. 147, 158-160.

U.S. Bureau of Mines, 1908-1945, Permanent Individual Mine Records (PIMR) for placer mines in Alaska: U.S. Bureau of Mines unpublished reports.

Property Summary

Name(s): Wild River
Wild Creek

Map No: W135
MAS No: 0020300085
Alaska Kardex 030-052

Deposit Type: Placer

Commodities: Au

Location:

Quadrangle: Wiseman B-4
SE¼ sec. 33, T. 31 N., R. 18 W.
Meridian: Fairbanks
Elevation: 1,150 feet
Latitude: 67° 00.299' N.
Longitude: 151° 29.885' W.
Geographic: Wild River is a 40-mile-long, south-flowing tributary of the Koyukuk River.

History:

1920-30s - Claims owned by several men in the vicinity of Wild River (Kardex; Wimmler, 1922).

Production: None recorded for Wild River specifically.

Workings and Facilities: None observed.

Geologic Setting:

Wild River bisects the Malemute fault system. The fault system separates the continentally derived Arctic Alaska terrane in the north from the oceanic Angayucham terrane to the south. The Arctic Alaska terrane in the Wild River basin consists of primarily of Preoterozoic schist underlying Devonian marble, schist, and phyllite. The Angayucham terrane is exposed in the lower 15 miles of Wild River and has minor outcrops of Cretaceous conglomerate, volcanic graywacke, and mudstone.

Bureau Investigation:

Virtually all of the referenced material describes Wild Lake as a transportation corridor to gold-producing tributaries. However, one bedrock riffle on Wild River, about 6 miles above the mouth, was investigated. All three pan concentrates collected off the volcanic graywacke bedrock contain small amounts of fine gold. The pan concentrate submitted for analysis (12056, table I-1) contained 1 coarse, 50 fine, and 50 very fine gold pieces, measuring 492 ppm. The bedrock was exposed across two-thirds of the stream channel. It contains numerous vertical fractures normal to the flow direction, which form excellent natural riffles.

A placer sample (12057) consisting of 0.1 cy of unconsolidated gravel and broken volcanic conglomerate bedrock was collected about 400 feet upstream of the pan sample. The sample contains 0.016 oz/cy gold.

The fine gold is found primarily in the bedrock fractures, not in the overlying unconsolidated gravel. The bedrock is exposed only at relatively low water stages.

Resource Estimate: None.

Mineral Development Potential:

Moderate mineral development potential for small, shallow pockets of gravel overlying fractured bedrock.

Recommendations: Prospect shallow bedrock with suction dredge.

References:

Brooks, A.H., and others, 1911, Mineral resources of Alaska, report on progress of investigations in 1904: U.S. Geological Survey Bulletin 259, p. 30-31.

____1915, Mineral resources of Alaska, report on progress of investigations in 1914: U.S. Geological Survey Bulletin 622, p. 59.

Reed, I.M., 1938, Upper Koyukuk region, Alaska: Alaska Territorial Department of Mines Miscellaneous Report 194-7, p. 111-116.

Smith, P.S., 1932, Mineral resources of Alaska, report on progress of investigations in 1929: U.S. Geological Survey Bulletin 824A, p. 38.

____1933, Mineral industry of Alaska in 1930, *in* Smith, P.S. and others, Mineral resources of Alaska, report on progress of investigations in 1930: U.S. Geological Survey Bulletin 836, p. 39-40.

____1934a, Mineral resources of Alaska, report on progress of investigations in 1932: U.S. Geological Survey Bulletin 857A, p. 36.

____1934b, Mineral industry of Alaska in 1933, *in* Mineral resources of Alaska, report on progress of investigations in 1933: U.S. Geological Survey Bulletin 864A, p. 41.

____1937, Mineral resources of Alaska, report on progress of investigations in 1935: U.S. Geological Survey Bulletin 880A, p. 46.

____1938, Mineral resources of Alaska, report on progress of investigations in 1936: U.S. Geological Survey Bulletin 897A, p. 54.

____1941, Mineral resources of Alaska, report on progress of investigations in 1939: U.S. Geological Survey Bulletin 926A, p. 52.

____1942, Mineral resources of Alaska, report on progress of investigations in 1940: U.S. Geological Survey Bulletin, 933A, p. 47.

Wimmler, N.L., 1922, Placer mining in Alaska in 1922: Alaska Territorial Department of Mines Miscellaneous Report MR-195-6, p. 38.

Property Summary

Name(s): Jones Creek
Fish 1-4 claims
Bog claims

Map No: W136
MAS No: 0020300143
Alaska Kardex 030-138
Alaska Kardex 030-147

Deposit Type: Placer

Commodities: Au

Location:
Quadrangle: Wiseman A-6
SW¼ sec. 26, T. 27 N., R. 23 W.
Meridian: Fairbanks
Elevation: 980 feet
Latitude: 67° 08.075' N.
Longitude: 152° 33.351' W.
Geographic: Approximately 4.5 miles north of Deadman Mountain.

History:

1976 - Placer claims staked on Jones Creek (Kardex).

Production: Unknown.

Workings and Facilities: None.

Geologic Setting:

Bedrock in the area consists of Devonian(?) quartz-mica schist, phyllite, quartzite, calcareous schist, and marble (Brosge and Reiser, 1971). Marble and schist bedrock were observed on the creek. Additionally stream float contained greenstone and minor coarse-grained granitic rock.

Bureau Investigation:

The lower part of Jones Creek was examined at two sites, 1.5 and 2.6 miles upstream from the Malemute Fork of the Alatna River. Test pans taken from bedrock and beneath boulders at the upper site contained up to 1 coarse, 1 fine, and 4 very fine flat gold flakes (11500, table I-1). The creek contains numerous large boulders. A select sample of the schist bedrock with 1-2% disseminated pyrite (11526) contains 101 ppm zinc.

Test pans taken from the upstream end of a point bar at the lower site contained up to 2 very fine gold flakes. In addition pans contained abundant magnetite and red garnet (11516). A select sample of magnetite-bearing greenstone float is not anomalous in base metals (11517).

Resource Estimate: Unknown.

Mineral Development Potential:

Moderate potential as gold can be panned off bedrock. Abundant large boulders in creek would make mining difficult.

Recommendations: Test pits on bedrock.

References:

Brosge, W.P. and Reiser, H.N., 1971, Preliminary geologic map, Wiseman, and eastern Survey Pass quadrangles, Alaska: U.S. Geological Survey Open-File Report 71-56, 1 sheet, scale 1:250,000.

Property Summary

Name(s): Jones Creek Lode
JO 91 claims
PJ?

Map No: W137
MAS No: 0020300146
Alaska Kardex 030-156
ADL 79201-216

Deposit Type: Kuroko massive sulfide(?)

Commodities: Unknown

Location:

Quadrangle: Wiseman A-6
NE¼ sec. 22, T. 27 N., R. 23 W.
Meridian: Fairbanks
Elevation: 1,200 feet
Latitude: 67° 09.233' N.
Longitude: 152° 35.500' W.
Geographic: Approximately 3.5 miles north of Deadman Mountain.

History:

1977 - A minimum of two holes drilled in the area by Resource Assoc. of Alaska (Marrs, 1979).

Production: None.

Workings and Facilities: A single unmarked claim post.

Geologic Setting:

Bedrock in the area consists of Middle(?) Devonian calcareous schist interbedded with quartz-mica schist and marble (Brosge and Reiser, 1971). Interest in the area was probably focused on a carbonate/calcareous schist terrain, thought to be an eastern extension of the massive-sulfide-bearing Ambler schist belt. In 1975 the Anaconda Company had staked claims over a soil lead geochemical anomaly in the same type of rocks on Roosevelt Creek, 8 miles to the west (map no. W139). Subsequent drilling intercepted only thin horizons of sulfides (Marrs, 1978, p. 8, 1979).

Bureau Investigation:

A traverse was made of the reported site. Outcrops of quartz-muscovite schist, marble, and greenstone were observed during a traverse of the area. An unmarked claim post was found 1,300 feet east of hill 3440. No signs of mineralization were located and no samples collected.

Resource Estimate: Unknown.

Mineral Development Potential:

The fact that activity by RAA stopped after the drilling suggests low potential for massive sulfides. Drilling of what appears to be the same schist horizon at Roosevelt Creek, intercepted only thin sulfide zones.

Recommendations: None.

References:

Brosge, W.P., and Reiser, H.N., 1971, Preliminary geologic map, Wiseman, and eastern Survey Pass quadrangles, Alaska: U.S. Geological Survey Open-File Report 71-56, 1 sheet, scale 1:250,000.

Marrs, C.D., 1978, Exploration program, RO-SKROO claim group, Wiseman quadrangle, central Brooks Range: Anaconda Company unpublished report, 31 p. [available from BLM Anchorage, Alaska]

____1979, RO Project, progress report: Anaconda Company unpublished report, 11 p. [available from BLM Anchorage, Alaska]

Property Summary

Name(s): Red
Red 1-8 claims

Map No: W138
MAS No: 0020300101
Alaska Kardex 030-136
Alaska Kardex 030-154

Deposit Type: Kuroko massive sulfide

Commodities: Cu, Pb, Zn

Location:

Quadrangle: Wiseman A-6
Center sec. 10, T. 27 N., R. 24 W.
Meridian: Fairbanks
Elevation: 3,800 feet
Latitude: 67° 10.846' N.
Longitude: 152° 47.991' W.
Geographic: On the ridgetop between Roosevelt and Mettenpherg Creeks, near peak 4080.

History:

1975 - Canavex Inc. (Falconbridge Copper) staked Red 1-8 claims. BP Exploration staked the J-Bug claim group nearby (Marrs, 1978, 1979).
1979 - Anaconda Minerals prospects area (Marrs, 1978, 1979).
1980 - Claims abandoned?

Production: None.

Workings and Facilities: None.

Geologic Setting:

Bedrock in the area is composed primarily of Middle(?) Devonian calcareous schist interbedded with quartz-mica schist and marble (Brosge and Reiser, 1971). A significant package of rhyolite, felsic schist, and associated calcareous schist and metacarbonate occurs in the peak 4080 area. There is over 1,600 feet of exposed felsic section, which includes several horizons of porphyritic rhyolite. Midway through the sections are reported to be several minor, thin-bedded gossans and associated siliceous exhalite units. No extensive areas of mineralization were discovered (Marrs, 1979). BP Minerals apparently ran a soil geochemistry grid and geophysics over this area with unknown results (Marrs, 1979). This package of rocks is similar to that which contains weak massive sulfide mineralization at Roosevelt Creek, 3.8 miles to the southwest (map no. W139)

Bureau Investigation:

No color anomalies or other indicators of mineralization were observed from the air. A sample of pyritic biotite-muscovite schist (11531, table I-1) collected on the ridge 1.0 mile southeast of peak 4080 contains 376 ppm barium. During a short traverse of the area around peak 4080, muscovite schist was found to contain pyritic bands up to 3 inches thick. A sample (13024) is not anomalous in copper, lead, or zinc.

Resource Estimate: Unknown.

Mineral Development Potential:

Low potential for Kuroko-type massive sulfide deposits as samples were not anomalous in any base metals.

Recommendations: None.

References:

Brosge, W.P., and Reiser, H.N., 1971, Preliminary geologic map, Wiseman, and eastern Survey Pass quadrangles, Alaska: U.S. Geological Survey Open-File Report 71-56, 1 sheet, scale 1:250,000.

Marrs, C.D., 1978, Exploration program, RO-SKROO claim group, Wiseman quadrangle, central Brooks Range: Anaconda Company unpublished report, 31 p. [available from BLM Anchorage, Alaska]

____1979, RO Project, progress report: Anaconda Company unpublished report, 11 p. [available from BLM Anchorage, Alaska]

Property Summary

Name(s): Roosevelt Creek Lode
RO claims
SKROO claims
War-Jo claims
BOG/J-Bug claims

Map No: W139
MAS No: 0020300100
Alaska Kardex 030-134
Alaska Kardex 030-148
Alaska Kardex 030-185

Deposit Type: Kuroko massive sulfide

Commodities: Cu, Zn, Pb, Ag, Au

Location:

Quadrangle: Wiseman A-6
NE¼ sec. 29, T. 27 N., R. 24 W.
Meridian: Fairbanks
Elevation: 860 feet
Latitude: 67° 08.391' N.
Longitude: 152° 53.540' W.
Geographic: In gorge on Roosevelt Creek, 1.4 miles upstream from the Malamute Fork of the Alatna River.

History:

1975 - RO and SKROO claims staked by the Anaconda Company over site of soil sample anomalous in lead (Marrs, 1978, 1979).
1976 - Airborne electromagnetic anomalies detected (Marrs, 1978, 1979).
1977 - Ground electromagnetic anomalies detected (Marrs, 1978, 1979).
1978 - One of two core holes drilled on property intersects massive sulfide mineralization. Geophysical, and soil surveys done (Marrs, 1978, 1979).
1979 - A total of four core holes intersected zones of massive or semi-massive sulfides (Marrs, 1978, 1979).

Production: None.

Workings and Facilities: No signs of human activity in area.

Geologic Setting:

The canyon of lower Roosevelt Creek is underlain by a Devonian(?) low-grade greenschist facies metamorphic terrain grossly similar to massive sulfide-bearing rocks of the Ambler district, 100 miles to the west. The sequence contains two belts of metarhyolite and associated felsic schists. The belts are parallel, with the dominate trend N. 85° W. and dip 40-60° SW. The sequence contains numerous tight isoclinal folds. The volcanic sequence appears to interfinger with quartz-chlorite-muscovite schist west of the canyon, and little or no rhyolite is exposed (Marrs, 1979, p. 9-17; Brosge and Reiser, 1971).

The southerly belt has been traced for 3.0 miles along strike and contains a 150-foot-thick section of the felsic rocks named the RO felsic package. This package hosts semi-massive to massive sulfide mineralization. Massive sulfide mineralization cuts through an interlayered sequence of muscovite schist, graphitic schist, and metarhyolite. The sequence trends roughly east-west and dips approximately 55° S. Narrow zones of massive and semi-massive sulfides consisting of pyrite, sphalerite, galena, and chalcopyrite are associated with both the schist and rhyolite. No gossan or surface exposures of sulfides have been recognized in the canyon itself. The Anaconda Company drilled six core holes (RO-1-6) in the lower Roosevelt Creek canyon area. Hole RO-1 intersected a 12.5-foot-thick massive sulfide zone containing 0.76% copper, 2.87% lead, 7.29% zinc, 2.96 oz/ton silver, and 0.016 oz/ton gold. Hole RO-6 intercepted numerous thin beds (0.5-1.0 feet) of semi-massive sulfides over an 11-foot section of core. Four other holes intercepted higher grades of mineralization, but the thicknesses were much less (Marrs, 1978, 1979). This occurrence appears to lie in the same felsic package as the Red site (map no. W138).

Bureau Investigation:

The Roosevelt Creek gorge provides the best bedrock exposures in the area. Pyrite-bearing muscovite schist was located in the creek bottom, but no base metal sulfides were observed. Two grab samples of the schist (11529-11530, table I-1) did not contain significant base metal values. A stream sediment sample collected on the creek downstream from where drill holes intercepted mineralization contain 106 ppm zinc (11527). No base-metal sulfides were found exposed at the surface. Review of the Anaconda data shows the sulfide-bearing horizons are thin and lack continuity between drill holes.

Resource Estimate: Unknown.

Mineral Development Potential:

Low potential for base-metal sulfides due to narrow sulfide intercepts in drill holes.

Recommendations:

Anaconda geologists recommended the drilling of two core holes to test the east and west extensions of the mineralized horizon intercepted in hole RO-6 (Marrs, 1979).

References:

Brosge, W.P. and Reiser, H.N., 1971, Preliminary geologic map, Wiseman, and eastern Survey Pass quadrangles, Alaska: U.S. Geological Survey Open-File Report 71-56, 1 sheet, scale 1:250,000.

Marrs, C.D., 1978, Exploration program, RO-SKROO claim group, Wiseman quadrangle, central Brooks Range: Anaconda Company unpublished report, 31 p. [available from BLM Anchorage, Alaska]

____1979, RO Project, progress report: Anaconda Company unpublished report, 11 p. [available from BLM Anchorage, Alaska]

Nokleberg, W.J., Bundtzen, T.K., Berg, H.C., Brew, D.A., Grybeck, D., Robinson, M.S., Smith, T.E., and Yeend, W., 1987, Significant metalliferous lode deposits and placer districts in Alaska: U.S. Geological Survey Bulletin 1786, 104 p.

Table I-1. Selected results from samples collected at Wiseman sites.

Explanation

Sample site

core	drill core
drum	55 gallon drum
dump	mine dump
flt	float
otc	outcrop
rub	rubblecrop
tail	mine tailings
trn	trench

Sample type

cont	continuous chip
grab	grab sample
pan	pan concentrate
plac	placer concentrate
rand	random chip
rep	representative chip
sed	sediment sample
sel	select
slu	sluice concentrate
soil	soil sample
spac	spaced chip

Sample description

abu	abundant
alt	altered, alteration
amph	amphibole
ank	ankerite
apy	arsenopyrite
az	azurite
ba	barite
bio	biotite
blk	black
bn	bornite
box	boxwork texture
brn	brown
ca	calcite
calc	calcareous
carb	carbonate
cc	chalcocite
cgl	conglomerate
ch	chlorite
chm	chromite
comp	composite
cpy	chalcopyrite
cst	cassiterite
cv	covellite
diss	disseminated
ep	epidote
feld	feldspar
ft	foot (12 inches)
fuch	fuchsite
gar	garnet
gd	granodiorite
gn	galena
gwy	graywacke
hbl	hornblende
hem	hematite
hfls	hornfels
hydro	hydrothermal
in	inch
intr	intrusive
lim	limonite
ls	limestone
mag	magnetite

Sample description

mal	malachite
mar	marcasite
mdst	mudstone
meta	metamorphic
MnO	manganese oxide
mod	moderate
monz	monzonite
musc	muscovite
oz/cyd	ounces per cubic yard
oz/t	ounces per ton
pct	percent
po	pyrrhotite
porph	porphyry
ppb	parts per billion
ppm	parts per million
psuedo	psuedomorph
py	pyrite
qtz	quartzite
qz	quartz
sch	scheelite
sco	scorodite
ser	sericite
serp	serpentinized
sid	siderite
silic	siliceous
sl	sphalerite
slts	siltstone
ss	sandstone
stb	stibnite
tet	tetrahedrite
tm	tourmaline
tr	trace
v	very
val	valentinite
vis	visible
vlets	veinlets
volc	volcanic
w/	with
xcut	crosscutting
xln	crystalline
xls	crystals

Elements

Ag	silver
Al	aluminum
As	arsenic
Au	gold
Ba	barium
Bi	bismuth
Ca	calcium
Cd	cadmium
Co	cobalt
Cr	chromium
Cu	copper
Fe	iron
Ga	gallium
Hg	mercury
K	potassium
La	lanthanum
Li	lithium
Mg	magnesium
Mn	manganese
Mo	molybdenum
Na	sodium
Nb	niobium
Ni	nickel
Pb	lead
Pd	palladium
Pt	platinum
Sb	antimony
Sc	scandium
Sn	tin
Sr	strontium
Ta	tantalum
Te	tellurium
Th	thorium
Ti	titanium
U	uranium
V	vanadium
W	tungsten
Y	yttrium
Zn	zinc
Zr	zirconium

Placer gold: size classification

v. fine	< 0.5 mm
fine	0.5 - 1.0 mm
coarse	1 -2 mm
v. coarse	> 2 mm

Abbreviations:

Ck	creek
confl	confluence
Mtn	mountain
R	river

Footnotes:

Bold numbers indicate multiple erratic results, which were averaged.

Results for Au are reported in ppb unless other units are stated.

Table I-1. Selected results from samples collected in the Wiseman quadrangle.

Map no.	Field no.	Location	Sample Site	Sample Type	Sample Description	Au ppb	Pt ppb	Pd ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm	As ppm	Sb ppm	Sn ppm	W ppm
W 1	11464	Union Ck		sed		<5			<0.2	47	16	100	8	<5	<20	<20
W 1	11465	Union Ck		pan	no mag, no vis Au	<5	<5	2	<0.2	50	18	105	7	<5	<20	<20
W 1	11488	Union Ck	flt	sel	vein qz w/ <1% diss py, ca, lim	<5			<0.2	17	54	167	8	<5	<20	<20
W 2	11501	Amawk Ck	otc	sel	1-ft-wide qz-carb vein w/ gn, ank	<5			<0.2	7	55	15	<5	<5	<20	<20
W 2	11502	Amawk Ck	flt	sel	qz w/ tr gn, cpy(?), ank	<5			<0.2	32	62	26	<5	<5	<20	<20
W 2	11503	Amawk Ck	flt	sel	greenstone(?) w/ cpy, mal, az	<5			0.4	824	9	130	17	<5	<20	<20
W 2	11504	Amawk Ck	otc	sel	bedded mdst w/ py stringers, lim	<5			0.3	219	6	139	10	<5	<20	<20
W 2	11505	Amawk Ck	flt	sel	bedded mdst w/ py stringers	8			0.3	216	8	75	11	<5	<20	<20
W 2	11506	Amawk Ck		sed		<5			0.2	115	40	422	31	9	<20	<20
W 2	11507	Amawk Ck		pan	no mag	<5	<5	<1	<0.2	65	17	244	12	<5	<20	<20
W 3	10808	Allen R headwaters		sed		<5			<0.2	47	29	130	7	<5	<20	<20
W 3	10809	Allen R headwaters		pan	no mag	18	<5	<1	<0.2	65	48	137	9	<5	<20	<20
W 3	10810	Allen R headwaters		pan		24	<5	<1	<0.2	120	49	127	8	<5	<20	<20
W 3	10811	Allen R headwaters		pan		18	<5	<1	<0.2	70	28	132	7	<5	<20	<20
W 4	10779	Hunt Fork R	flt	sel	phyllite w/ tr cpy	<5			<0.2	26	16	26	<5	<5	<20	<20
W 5	10776	John R trib		sed		8			<0.2	52	16	143	7	<5	<20	<20
W 5	10777	John R trib		pan	tr py, no mag, no vis Au	18	<5	<1	<0.2	85	44	184	9	<5	<20	<20
W 5	10778	John R trib	flt	sel	massive qz w/ tr gn and cpy	<5			<0.2	19	59	34	<5	<5	<20	<20
W 6	11440	Kevuk Ck lode	flt	sel	qz-schist breccia w/ 1-2% py	<5			<0.2	50	10	110	57	<5	<20	<20
W 6	11441	Kevuk Ck lode	flt	sel	mica shist w/ 2% py, lim	<5			<0.2	228	10	226	79	<5	<20	<20
W 7	11043	Buzz Prospect	otc	cont	marble w/ massive sulfide knot	2337			5.73 oz/t	1509	7.23%	22.69%	6480	531	<20	<20
W 7	11044	Buzz Prospect	trn	rep	massive sulfide w/ 25% gn & sl	2435			2.20 oz/t	1451	3.93%	4.70%	>10000	>2000	<20	<20
W 8	11020	Ann	otc	cont	gn and sl lense at schist contact	2478			2.64 oz/t	250	3.34%	4.31%	>10000	1238	<20	<20
W 8	11028	Ann	otc	sel	pelitic schist w/ gn, sl, py, cpy	1438			8.23 oz/t	773	11.24%	6.11%	>10000	>2000	<20	<20
W 9	11532	Frog Prospect	otc	rand	silic rock w/ ~20% diss py	179			22.3	18	641	159	556	35	<20	<20
W 9	13032	Frog Prospect	flt	sel	qz-carb rock w/ massive sl, minor gn	18			32.8	150	4.44%	34.65%	92	46	17	642
W 9	13033	Frog Prospect	flt	sel	qz vein w/ massive cpy, az, mal	368			14.6	17.11%	86	786	6	15	21	21
W 10	13004	Mettenpherg West	flt	sel	greenstone w/ 10% mag	<5			<0.2	<1	<2	173	<5	8	<4	<4
W 10	13005	Mettenpherg West	flt	sel	blk silic rock w/ py, cpy, gn, sl(?)	40			80.7	11	2.02%	3467	<5	39	<4	<4
W 11	11533	Mettenpherg Ck		sed		<5			0.3	9	12	44	21	<5	<20	<20
W 11	11551	Mettenpherg Ck		pan	abu mag, no vis Au	9	<5	8	<0.2	13	11	49	14	<5	<20	<20
W 11	11552	Mettenpherg Ck	flt	sel	mica qtz w/ 10% diss & xln py	7			<0.2	12	2	10	15	<5	<20	<20
W 11	11553	Colorado Ck		pan	12 v fine, 2 coarse Au	376.51 ppm	<5	10	15.6	34	210	117	251	<5	<20	83
W 11	11554	Colorado Ck	flt	sel	qz-graphite schist w/ 2-5% py	8			<0.2	54	84	79	<5	<5	<20	<20
W 11	11555	Colorado Ck	flt	sel	mica qtz w/ 2-5% banded py	<5			0.7	12	70	5	<5	<5	<20	<20
W 11	11556	Mettenpherg Ck, N trib		sed		<5			0.7	12	12	33	26	<5	<20	<20
W 11	11557	Mettenpherg Ck, N trib		pan	mod coarse mag	13	<5	9	<0.2	19	17	35	17	6	<20	<20

Table I-1. Selected results from samples collected in the Wiseman quadrangle.

Map no.	Field no.	Location	Sample Site	Sample Type	Sample Description	Au ppb	Pt ppb	Pd ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm	As ppm	Sb ppm	Sn ppm	W ppm
W 11	11558	Colorado Ck		sed		<5			<0.2	23	22	75	144	<5	<20	<20
W 11	11559	Mettenpherg Ck, N trib	flt	sel	greenstone-schist w/ 1-2% py, po	<5			<0.2	152	<2	349	10	<5	<20	<20
W 11	12098	Mettenpherg Ck, N trib		pan	mod mag, tr py	14	<5	<1	0.9	66	55	94	156	<5	<20	<20
W 11	12099	Mettenpherg Ck, N trib		sed		<5			0.7	18	10	46	53	<5	<20	<20
W 11	12108	Mettenpherg Ck, N trib	flt	sel	qz-rich augen gneiss w/ 2-5% py	18			<0.2	76	99	88	152	45	<20	<20
W 11	12284	Colorado Ck		sed		13			<0.2	32	31	90	181	7	<20	<20
W 11	12285	Colorado Ck		pan	tr mag, unidentified blk mineral	1176	<5	4	0.2	46	113	139	881	<5	<20	146
W 12	11560	Zirc	flt	sel	qz ser schist w/ 10% py, 2% fl	67			0.5	11	25	32	131	19	<20	<20
W 13	11029	Abo Prospect	otc	cont	silic rock w/ abu sl	19			2.7	39	0.34%	12.92%	128	47	<20	<20
W 13	11045	Abo Prospect	flt	sel	dolomitized ls w/ sl, tr py, gn	77			0.34 oz/t	56	1.80%	22.41%	123	84	<20	<20
W 14	11534	Sixtymile Ck trib		sed		<5			<0.2	33	10	82	11	<5	<20	<20
W 14	11535	Sixtymile Ck trib		pan	no mag, no vis Au	10	114	127	0.5	80	63	111	11	17	<20	<20
W 14	11536	Sixtymile Ck trib	flt	sel	qz mica schist w/ euhedral py	8			<0.2	36	43	64	7	<5	<20	<20
W 14	11537	Sixtymile Ck		sed		<5			<0.2	33	12	84	14	<5	<20	<20
W 14	11538	Sixtymile Ck		pan	no mag, no vis Au	10	<5	28	<0.2	50	14	112	11	<5	<20	<20
W 16	11437	Midas Ck		sed		<5			<0.2	26	10	65	8	<5	<20	<20
W 16	11438	Midas Ck		pan	abu fine to coarse mag, tr sulfides	1439	<5	2	<0.2	29	10	53	<5	<5	<20	<20
W 16	11439	Midas Ck		pan	mod mag, no vis Au	8	<5	5	<0.2	35	9	64	7	<5	<20	<20
W 16	11518	Peak 4557, Midas Ck	flt	sel	mica qz schist w/ 5% diss mag	7			<0.2	6	<2	119	<5	<5	<20	<20
W 16	12071	Midas Ck mouth		pan	abu fine and coarse mag, tr py	<5	<5	<1	<0.2	27	9	80	8	<5	<20	<20
W 16	12085	Midas Ck		pan	1 fine Au, v abu mag	112	<5	<1	<0.2	30	4	92	9	<5	<20	<20
W 16	12086	Midas Ck	rub	grab	meta igneous w/ 10% mag, tr py	6			<0.2	87	8	166	<5	<5	<20	<20
W 16	12087	Midas Ck trib		sed		<5			<0.2	33	11	76	19	<5	<20	<20
W 16	12088	Midas Ck trib		pan	v abu mag	6	<5	<1	<0.2	55	4	92	11	<5	<20	<20
W 17	10878	Sixtymile Ck trib		sed		4			0.2	16	13	49	33	<5	<20	<20
W 17	10879	Sixtymile Ck trib		pan	tr mag	44	<5	<1	0.9	8	12	39	13	<5	<20	<20
W 17	10901	Sixtymile Ck trib		sed		5			0.2	14	12	58	16	<5	<20	<20
W 17	10902	Sixtymile Ck trib		pan	mod mag, no vis Au	12	<5	<1	0.5	9	8	34	9	<5	<20	<20
W 17	11537	Sixtymile Ck		sed		<5			<0.2	33	12	84	14	<5	<20	<20
W 17	11538	Sixtymile Ck		pan	no mag, no vis Au	10	<5	28	<0.2	50	14	112	11	<5	<20	<20
W 18	10841	Rock Ck		sed		6			<0.2	7	4	20	9	<5	<20	<20
W 18	10842	Rock Ck		pan	abu mag (fine and coarse)	54	<5	<1	<0.2	15	8	44	14	<5	<20	<20
W 18	10843	Rock Ck	flt	sel	greenschist w/ abu mag	7			<0.2	71	<2	130	<5	<5	<20	<20
W 18	10844	Rock Ck		pan			<5	<1	<0.2	13	9	24	15	<5	<20	<20
W 19	10836	McKinley Ck		sed		<5			<0.2	13	10	39	15	<5	<20	<20
W 19	10837	McKinley Ck		pan	2 coarse Au, abu mag & py	625	<5	<1	1	37	296	70	77	9	<20	<20
W 19	10838	McKinley Ck trib		pan	mod mag & sulfides	6	<5	<1	<0.2	20	9	28	26	<5	<20	<20

Table I-1. Selected results from samples collected in the Wiseman quadrangle.

Map no.	Field no.	Location	Sample Site	Sample Type	Sample Description	Au ppb	Pt ppb	Pd ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm	As ppm	Sb ppm	Sn ppm	W ppm
W 19	10839	McKinley Ck		pan	2 pan comp, minor mag		<5	<1	0.9	158	286	102	140	11	<20	<20
W 19	10840	McKinley Ck	otc	rep	ch schist w/ rusty sulfides	<5			<0.2	14	20	24	<5	<5	<20	<20
W 20	10883	VABM Pink	flt	sel	brecciated ls w/ <1% cc, mal	6			0.2	585	1744	17	46	921	<20	<20
W 21	10884	VABM Allen	otc	sel	ch-qz schist w/ cc, mal, az	23			4.8	1664	19	40	286	67	<20	<20
W 22	10783	Sheep Ck, upper	flt	sel	ls w/ 10% cpy, tr mal	14			1.5	9.00%	28	145	11	<5	<20	<20
W 22	10784	Sheep Ck, upper	flt	sel	qz w/ 20% cpy, mal, tr az	46			6.6	13.40%	52	212	362	87	<20	<20
W 22	10785	Sheep Ck, upper	flt	sel	qz-ch schist w/ mal, fuch	<5			0.3	872	27	21	<5	<5	<20	<20
W 22	10802	Sheep Ck, upper	flt	sel	vein qz w/ minor mal and az	<5			0.4	1551	<2	73	348	415	<20	<20
W 22	10803	Sheep Ck, upper	flt	sel	vein qz w/ mal & bn(?)	23			3.8	3597	4	45	<5	<5	<20	<20
W 22	10804	Sheep Ck, upper	otc	sel	qz vein w/ 5% cpy & po, mal	15			5.9	4.70%	21	190	<5	<5	<20	<20
W 22	10805	Peak 4816	otc	sel	qz vein w/ bn, cpy, po, mal, az	26			78.6	16.53%	150	212	151	6	<20	<20
W 22	10806	Peak 4816	flt	sel	micaceous schist w/ bn, mal	17			68.9	11.00%	37	146	<5	<5	<20	<20
W 22	10831	Peak 4816	flt	sel	qz-ch schist w/ 5% bn, mal	6			2.7	3527	8	51	<5	<5	<20	<20
W 23	12058	Tobin Ck		sed		<5			<0.2	40	5	145	11	<5	<20	<20
W 23	12059	Tobin Ck		pan	no mag, no vis Au	685	<5	2	<0.2	38	7	139	8	<5	<20	<20
W 23	12060	Tobin Ck		sed		<5			<0.2	60	7	178	14	<5	<20	<20
W 23	12061	Tobin Ck		pan	1 fine Au, abu coarse & fine py	39	<5	<1	<0.2	51	9	157	30	<5	<20	<20
W 23	12062	Tobin Ck		pan	abu coarse & fine py	9	<5	1	0.3	56	11	175	17	<5	<20	<20
W 24	10641	Sirr Mtn	otc	rand	ch schist w/ qz-carb lenses	<5			<0.2	84	6	125	<5	<5	<20	<20
W 24	10642	Sirr Mtn	flt	sel	vein qz w/ tet, cpy, mal	<5			2.1	401	220	1	<5	<5	<20	<20
W 24	10643	Sirr Mtn	flt	rand	qz lenses in schist w/ lim	<5			<0.2	14	27	38	17	<5	<20	<20
W 24	10644	Sirr Mtn	otc	rand	dark gray phyllite	<5			<0.2	52	3	81	<5	<5	<20	<20
W 24	10645	Sirr Mtn	flt	sel	vein qz w/ tr py, gn, lim	<5			0.3	10	60	25	6	<5	<20	<20
W 25	10771	Sirr Ck		sed		<5			<0.2	28	6	68	9	<5	<20	<20
W 25	10772	Sirr Ck		pan	tr mag, no vis Au	<5	<5	<1	<0.2	40	13	88	14	<5	<20	<20
W 26	10769	Seward Ck		sed		54			<0.2	20	5	58	6	<5	<20	<20
W 26	10770	Seward Ck		pan	tr mag, no vis Au	6	<5	<1	<0.2	26	15	99	9	<5	<20	<20
W 27	10915	Luke Ck	rub	sel	green ch schist w/ cpy, po	<1			<0.2	64	<2	91	<5	<5	<20	<20
W 27	10916	Luke Ck	rub	sel	green ch schist w/ 3% py	2			<0.2	47	10	35	33	<5	<20	<20
W 28	10912	Trout Lake area		pan	mod mag	17	<5	<1	0.2	18	5	62	8	<5	<20	<20
W 28	10913	Trout Lake area		pan	abu mag, no vis Au	7	<5	<1	0.5	14	9	53	11	<5	<20	<20
W 28	10914	Trout Lake area	flt	rep	greenstone w/ 1% py	<1			<0.2	47	<2	86	<5	<5	<20	<20
W 29	11442	Seward Ck lode	otc	sel	dolomite w/ qz vlets, 1% py	<5			<0.2	70	7	65	28	<5	<20	<20
W 30	8015	Bar Ck	rub	sel	ls w/ 5-10% py, rusty qz	<5			<5			<200	2	1.0	<200	<2
W 30	11546	Unnamed Occurrence	rub	sel	marble w/ 5-10% py, lim	<5			0.6	3	5	64	<5	<5	<20	<20
W 31	8016	Allen R lode	rub	sel	qz vein w/ <1% cpy	<5			<5			<200	73	117.0	<200	<2
W 31	11544	Allen R lode	flt	sel	marble w/ 5-7% fine py, lim	8			<0.2	5	15	151	115	7	<20	<20

Table I-1. Selected results from samples collected in the Wiseman quadrangle.

Map no.	Field no.	Location	Sample Site	Sample Type	Sample Description	Au ppb	Pt ppb	Pd ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm	As ppm	Sb ppm	Sn ppm	W ppm
W 31	11545	Allen R lode	rub	sel	marble w/ <5% po, 2% py	9			<0.2	7	14	148	107	6	<20	<20
W 32	11541	Allen R		sed		<5			<0.2	37	11	79	8	<5	<20	<20
W 32	11542	Allen R		pan	no mag, no vis Au	8	<5	8	<0.2	28	21	76	9	<5	<20	<20
W 32	11543	Allen R	flt	sel	greenstone w/ euhedral mag	<5			<0.2	80	<2	116	<5	<5	<20	<20
W 33	11539	Moose Trail	flt	sel	mica schist w/ 3% euhdral py	7			<0.2	33	15	107	8	<5	<20	<20
W 33	11540	Moose Trail	flt	sel	marble w/ euhedral py (~5mm)	<5			1.7	7	13	13	94	<5	<20	<20
W 34	10845	McCamant Ck		sed		2			<0.2	30	9	59	10	<5	<20	<20
W 34	10846	McCamant Ck		pan		3	<5	<1	<0.2	64	20	131	9	<5	<20	<20
W 34	10847	McCamant Ck	otc	sel	qz vlets w/ minor po, tr cpy	3			<0.2	92	8	78	6	<5	<20	<20
W 34	11561	McCamant Ck		sed		<5			<0.2	45	12	75	15	<5	<20	<20
W 34	11562	McCamant Ck		pan	3 v fine Au	2603	<5	10	<0.2	42	15	103	17	<5	<20	<20
W 34	12106	McCamant Ck		pan	mod ag	<5	<5	<1	<0.2	39	15	129	24	<5	<20	<20
W 34	12107	McCamant Ck		sed		<5			<0.2	29	7	70	18	<5	<20	<20
W 35	8014	Crevice Ck		slu			<5	<1	<5			<200	15	3.4	<200	2
W 35	10547	Crevice Ck		pan	3 pan comp w/ 2 coarse Au	282.31 ppm			11.6	40	56	64	44	10	<20	<20
W 35	10548	Crevice Ck		pan	abu mag xls	27.12 ppm			1.3	47	61	69	15	<5	<20	<20
W 35	10646	Crevice Ck	flt	sel	heavy iron-rich cobble	44			0.3	203	23	21	14	14	<20	35
W 35	12090	Crevice Ck		pan	1 fine, 1 v fine Au; abu xln mag	39.61 ppm	<5	<1	4.7	44	23	82	10	<5	<20	<20
W 35	12091	Crevice Ck		sed		<5			<0.2	34	10	74	13	<5	<20	<20
W 35	12092	Crevice Ck, East trib		sed		<5			<0.2	22	10	66	7	<5	<20	<20
W 35	12093	Crevice Ck, East trib		pan	no vis Au, abu mag	1006	<5	<1	0.3	43	24	93	14	<5	<20	<20
W 35	12094	Crevice Ck, North trib		sed		<5			<0.2	34	8	65	8	<5	<20	<20
W 35	12095	Crevice Ck, North trib		pan	1 v fine Au, mod mag	9	<5	<1	<0.2	68	12	88	<5	<5	<20	<20
W 35	12096	Crevice Ck	otc	sel	meta qz w/ ca, rutile(?)	7			<0.2	8	29	13	<5	<5	<20	<20
W 35	12097	Crevice Ck	flt	sel	bio sch w/ qz & 2% po	7			<0.2	51	10	67	<5	<5	<20	<20
W 36	12089	Crevice Ck, ridge	flt	sel	ch sch	7			0.2	353	7	57	<5	<5	<20	<20
W 37	10903	Bullrun Ck trib		sed		4			<0.2	19	8	56	7	<5	<20	<20
W 37	10904	Bullrun Ck trib		pan		131	<5	<1	<0.2	22	9	56	7	<5	<20	<20
W 37	10905	Bullrun Ck trib		sed		3			<0.2	37	17	88	12	<5	<20	<20
W 37	10906	Bullrun Ck trib		pan	tr mag, no vis Au	>10000	5	2	<0.2	19	10	76	9	<5	<20	<20
W 37	11406	Bullrun Ck trib		sed		<5			<0.2	52	10	79	17	<5	<20	<20
W 37	11407	Bullrun Ck trib		pan	no mag, no vis Au	58	<5	<1	<0.2	39	9	82	11	<5	<20	<20
W 37	11408	Bullrun Ck		sed		<5			<0.2	34	6	50	7	<5	<20	<20
W 37	11409	Bullrun Ck		pan	abu fine mag, 1 gar, tr sulfides	22	<5	2	<0.2	56	8	62	13	<5	<20	<20
W 37	11410	Bullrun Ck trib		sed		<5			<0.2	35	10	60	16	<5	<20	<20
W 37	11411	Bullrun Ck trib		pan	tr fine mag	8	<5	<1	<0.2	49	14	84	47	<5	<20	<20
W 37	11412	Bullrun Ck	flt	sel	phyllite w/ 2% qz-sulfide stringers	14			0.3	14	8	18	27	<5	<20	<20

Table I-1. Selected results from samples collected in the Wiseman quadrangle.

Map no.	Field no.	Location	Sample Site	Sample Type	Sample Description	Au ppb	Pt ppb	Pd ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm	As ppm	Sb ppm	Sn ppm	W ppm
W 38	12105	Bullrun Ck rutile site	trn	sel	milky to clear qz w/ tr rutlile(?)	<5			<0.2	4	4	6	<5	<5	<20	<20
W 39	11432	Suckik Ck		sed		<5			<0.2	54	17	158	19	<5	<20	<20
W 39	11433	Suckik Ck		pan	tr mag, no vis Au	33	<5	3	<0.2	114	21	114	22	<5	<20	<20
W 39	11434	Suckik Ck		sed		<5			<0.2	43	10	110	9	<5	<20	<20
W 39	11435	Suckik Ck		pan		42	<5	2	<0.2	111	14	105	19	<5	<20	<20
W 39	11436	Suckik Ck	flt	sel	blk marble w/ 2-3% diss po, qz	<5			<0.2	4	28	93	<5	<5	<20	<20
W 39	12076	Suckik Ck		pan		<5	<5	<1	<0.2	51	14	136	13	<5	<20	<20
W 39	12077	Suckik Ck		pan		<5	<5	1	<0.2	81	20	160	28	<5	<20	<20
W 39	12078	Suckik Ck		sed		<5			<0.2	45	12	134	15	<5	<20	<20
W 39	12079	Suckik Ck		pan	tr mag	<5	<5	<1	<0.2	38	13	140	8	<5	<20	<20
W 39	12125	Suckik Ck	flt	sel	qz mica sch w/ 3% py in qz	6			<0.2	12	13	63	<5	<5	<20	<20
W 40	12008	Chicken Ck		sed		<5			<0.2	50	18	188	14	<5	<20	<20
W 40	12009	Chicken Ck		pan	2 fine Au, tr rusty py	8304	<5	2	0.4	42	16	148	11	<5	<20	<20
W 40	12010	Chicken Ck		pan	1 coarse, 1 v fine Au; tr py	15.03 ppm	<5	3	<0.2	41	13	142	10	<5	<20	<20
W 40	12015	Chicken Ck	rub	sel	mica sch w/ qz lenses, 1% py	<5			<0.2	26	14	75	6	<5	<20	<20
W 41	10917	Bourbon Ck		sed		12			<0.2	53	14	107	15	<5	<20	<20
W 41	10918	Bourbon Ck		pan	tr v fine Au, no mag	62	<5	<1	0.3	42	8	70	7	<5	<20	<20
W 41	10919	Bourbon Ck	otc	rep	calc-mica schist w/ po, py, cpy	<1			0.3	48	5	80	17	<5	<20	<20
W 41	12126	Bourbon Ck	otc	cont	gossanous sch breccia	6			<0.2	52	12	85	<5	<5	<20	<20
W 41	12127	Bourbon Ck		pan		9	<5	1	<0.2	51	10	126	9	<5	<20	<20
W 41	12128	Bourbon Ck	flt	sel	greenschist w/ 2% box, abu lim	7			<0.2	97	2	64	12	<5	<20	<20
W 41	12129	Bourbon Ck		sed		<5			<0.2	48	11	112	22	<5	<20	<20
W 41	12130	Bourbon Ck		pan		<5	<5	<1	0.3	42	90	141	13	<5	<20	<20
W 41	12144	Bourbon Ck	flt	sel	ch-rich meta intr w/ 2% gar, tr py	<5			<0.2	137	<2	78	9	<5	<20	<20
W 41	12145	Bourbon Ck	otc	cont	gossanous sch breccia	8			<0.2	65	<2	44	<5	<5	<20	<20
W 42	10920	Fall Ck	flt	sel	hfls(?) w/ po bands	3			0.8	84	13	87	<5	<5	<20	<20
W 42	10943	Fall Ck	flt	sel	hfls w/ 2% po	<1			0.4	40	2	33	<5	<5	<20	<20
W 42	10944	Fall Ck	flt	sel	rusty qz vein w/ apy(?)	11			<0.2	9	21	19	<5	<5	<20	<20
W 42	10969	Fall Ck		sed		5			<0.2	38	11	78	10	<5	<20	<20
W 42	10970	Fall Ck		pan	no mag, no vis Au	3	<5	<1	0.4	33	7	81	13	<5	<20	<20
W 43	13025	Michigan Ck	otc		felsic meta-volc w/ py, apy, tr cpy	296			0.4	111	10	16	30	29	<4	7
W 44	11467	Michigan Ck		pan		6	<5	<1	<0.2	21	6	69	9	<5	<20	<20
W 44	11618	Michigan Ck trib		sed		<5			<0.2	37	25	155	22	<5	<20	<20
W 44	11619	Michigan Ck trib		pan	minor mag, gar, tr sulfides	49	<5	27	<0.2	23	13	100	16	<5	<20	<20
W 44	11635	Michigan Ck		pan	1 fine Au, mod mag	10.90 ppm	<5	9	<0.2	29	7	79	402	<5	<20	<20
W 44	11636	Michigan Ck		sed		<5			<0.2	23	7	72	12	<5	<20	<20
W 45	8008	Michigan Ck	flt	sel	vein qz w/ gn, ank, sid(?), lim	9			0.84 oz/t		2.13%	<200	20	42.7	<200	<2

Table I-1. Selected results from samples collected in the Wiseman quadrangle.

Map no.		Field no.	Location	Sample Site	Sample Type	Sample Description	Au ppb	Pt ppb	Pd ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm	As ppm	Sb ppm	Sn ppm	W ppm
W	45	8009	Michigan Ck	flt	sel	vein qz w/ gn, ank, sid(?)	<5			2.63 oz/t		4.35%	<200	35	118.0	<200	<2
W	45	11413	Michigan Ck	trn	sel	vein qz w/ gn stringers (0.5" x 3")	12			121.9	8	5.78%	5	82	138	<20	<20
W	45	11414	Michigan Ck	flt	sel	vein qz exposed in landslide	6			25.9	12	1.42%	50	7	31	<20	<20
W	45	11415	Michigan Ck	otc	sel	massive ca w/ qz, gn, po, tr cpy	94			64.5	536	5.34%	87	39	0.38%	<20	<20
W	45	11416	Michigan Ck	flt	sel	qz, ca rock w/ gn, minor po	168			583.0	126	36.22%	435	131	710	<20	<20
W	45	11590	Michigan Ck	flt	sel	volc(?) greenstone w/ 3% sulfides	283			0.3	617	6	12	6	<5	<20	<20
W	45	11620	Michigan Ck trib	flt	sel	meta bio granite w/ cpy, py(?)	<5			0.6	2	105	135	<5	<5	<20	<20
W	45	11621	Michigan Ck trib	flt	sel	greenstone w/ 10% mag	<5			<0.2	2	<2	55	<5	<5	<20	<20
W	45	11622	Michigan Ck trib	flt	sel	qz mica schist w/ 2% cpy & py	29			0.9	707	2	103	<5	<5	<20	<20
W	45	11623	Michigan Ck trib	flt	sel	calc-silicate w/ ~15% cpy & py	19			0.2	119	<2	17	17	<5	<20	<20
W	45	11629	Michigan Ck	otc	rand	qz vein w/ minor sulfides	<5			<0.2	22	13	14	66	<5	<20	<20
W	45	11630	Michigan Ck	rub	rand	0.5-ft-wide qz vein w/ gn, py	392			<0.2	52	28	13	592	<5	<20	<20
W	45	11631	Michigan Ck	flt	sel	vein qz w/ 10% gn, tr cpy, py	40			320	23	23.67%	4	<5	478	<20	<20
W	45	11632	Michigan Ck	otc	cont	0.5-ft-wide qz vein w/ <10% gn	18			650.3	41	32.94%	13	23	771	<20	<20
W	45	11634	Michigan Ck	otc	cont	0.5-ft-wide qz vein w/ mod gn	39			10.8	5	4.62%	6	173	13	<20	<20
W	45	11637	Michigan Ck	flt	sel	vein qz w/ tr gn, Sb(?), 2% py	225			1.3	4	214	<1	90	18	<20	<20
W	45	11638	Michigan Ck	flt	sel	greenstone w/ py, po, cpy(?)	129			<0.2	54	15	1	<5	<5	<20	<20
W	45	11659	Michigan Ck	flt	sel	massive po w/ <1% cpy	75			0.4	34	16	7	9	<5	<20	<20
W	46	10936	Galena Ck	flt	sel	vein qz w/ gn, cpy, po, apy	1			10.4	140	1545	670	68	23	<20	<20
W	46	10937	Galena Ck		sed		8			<0.2	48	24	165	28	<5	<20	<20
W	46	10938	Galena Ck		pan	no mag, mod gar (<3 mm)	11	<5	<1	<0.2	32	14	122	25	<5	<20	<20
W	47	10789	Scofield Ck		sed		<5			<0.2	41	19	77	9	<5	<20	<20
W	47	10790	Scofield Ck		pan	abu euhedral mag	12	<5	<1	<0.2	57	127	61	26	<5	<20	<20
W	47	11466	Peak 3145	flt	sel	musc-qz schist w/ 1% py/apy	26			1.5	17	129	30	391	<5	<20	<20
W	47	11624	Peak 4310	otc	sel	meta qz vein w/ diss sulfides	<5			0.3	6	4	7	318	<5	<20	<20
W	47	11625	Peak 3145	otc	cont	qz mica schist w/ hem psuedo	<5			0.4	12	3	544	12	<5	<20	<20
W	48	11417	Pat Ck		sed		9			<0.2	54	13	89	20	<5	<20	<20
W	48	11418	Pat Ck		pan	abu xln mag	16	<5	1	<0.2	62	10	87	35	<5	<20	<20
W	49	10939	East Ck	flt	sel	qz-rich rock w/ 1% sulfides	<1			1.2	21	22	40	5	<5	<20	<20
W	49	10940	East Ck		pan	abu mag	7	<5	5	<0.2	32	4	50	5	<5	<20	<20
W	49	10941	East Ck		sed		3			<0.2	31	6	55	9	<5	<20	<20
W	49	10942	East Ck	flt	sel	fine grained hfls w/ 1% diss po	<1			<0.2	12	3	20	11	<5	<20	<20
W	49	12131	East Ck, Peak 5150	otc	sel	metabasite w/ 2% py, po, mag	<5			<0.2	471	<2	69	<5	<5	<20	<20
W	49	12132	East Ck, Peak 5150	otc	sel	metabasite w/ 5-7% py, cpy, mag	45			0.4	867	4	83	30	<5	<20	<20
W	49	12133	East Ck, Peak 5150	otc	sel	metabasite w/ 10% mag	8			<0.2	73	<2	68	<5	<5	<20	<20
W	50	10766	Kay Ck		sed		<5			<0.2	21	7	47	8	<5	<20	<20
W	50	10767	Kay Ck		pan	abu mag, no vis Au	12	<5	<1	<0.2	48	13	53	19	<5	<20	<20

Table I-1. Selected results from samples collected in the Wiseman quadrangle.

Map no.		Field no.	Location	Sample Site	Sample Type	Sample Description	Au ppb	Pt ppb	Pd ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm	As ppm	Sb ppm	Sn ppm	W ppm
W	50	10768	Kay Ck	flt	sel	qz-mica schist w/ 10% po	<5			<0.2	4	<2	61	<5	<5	<20	<20
W	50	12109	Kay Ck		pan	minor py, tr po (?)	<5	<5	<1	<0.2	41	10	120	12	<5	<20	<20
W	50	12110	Kay Ck		sed		<5			<0.2	36	7	93	15	<5	<20	<20
W	50	12111	Kay Ck	flt	sel	marble w/ 2% py, tr po	13			0.4	15	44	57	<5	<5	<20	<20
W	50	12112	Kay Ck		pan	1 coarse, nuggety Au, mod py	222.52 ppm	<5	<1	2.7	16	6	56	7	<5	<20	<20
W	51	10782	Jay Ck		slu	abu mag		<70	<70	0.5	31	299	51	<5	<5	<20	<20
W	51	10848	Jay Ck	otc	rep	qz vein w/ tr sulfides	<1			<0.2	13	29	12	<5	<5	<20	<20
W	51	10849	Jay Ck	flt	sel	qtz w/ red stain (glassy texture)	<1			<0.2	8	18	30	<5	<5	<20	<20
W	51	10850	Jay Ck	otc	sel	greenschist w/ 3 % py, cpy(?)	<1			<0.2	41	6	75	<5	<5	<20	<20
W	51	10851	Jay Ck	otc	rep	qz vein w/ py, cpy	21			<0.2	32	4	18	82	<5	<20	<20
W	51	10852	Jay Ck		sed		15			<0.2	55	16	144	11	<5	<20	<20
W	51	10853	Jay Ck		pan	mod mag	9	<5	3	0.4	158	50	110	45	<5	<20	<20
W	51	10854	Jay Ck		pan		6	7	1	<0.2	38	18	99	16	<5	<20	<20
W	51	10855	Jay Ck		pan	mod mag, 1 py cube (1 mm)	2	<5	<1	<0.2	30	10	108	7	<5	<20	<20
W	51	10856	Jay Ck		pan	mod mag, no vis Au	1	8	<1	<0.2	54	20	106	7	<5	<20	<20
W	51	10857	Jay Ck	flt	sel	greenstone w/ 3% py	3			<0.2	125	<2	43	6	<5	<20	<20
W	51	10886	Rye Ck		sed		2			<0.2	17	10	47	6	<5	<20	<20
W	51	10887	Rye Ck		pan	1fine Au, abu mag, minor py	>10000	<5	<1	0.4	35	64	52	15	<5	<20	<20
W	51	10888	Jay Ck		sed		3			<0.2	36	12	56	<5	<5	<20	<20
W	51	10889	Jay Ck		pan		182	<5	<1	<0.2	42	15	73	6	<5	<20	<20
W	51	10890	Eagle Gulch		sed		4			<0.2	30	14	86	8	<5	<20	<20
W	51	10891	Eagle Gulch		pan	no mag	19	<5	<1	<0.2	36	13	116	10	<5	<20	<20
W	51	10892	Jay Ck		sed		2			<0.2	34	12	50	6	<5	<20	<20
W	51	10893	Jay Ck	flt	sel	marble w/ 1% py	1			1.0	2	9	11	<5	<5	<20	<20
W	51	10907	Birch Ck, Peak 4130	rub	sel	greenschist w/ cpy, diss mag	<1			<0.2	6	<2	41	<5	<5	<20	<20
W	51	10908	Birch Ck, Peak 4130	otc	sel	qz-ch schist w/ py cubes, lim	1			<0.2	3	<2	108	<5	<5	<20	<20
W	51	10921	Birch Ck, Peak 4130	otc	spac	greenschist w/ 5% mag	<1			<0.2	27	<2	80	6	<5	<20	<20
W	51	12102	Rye Ck		slu	1 coarse, 6 fine, 12 v fine Au		<5	2	3.3	41	2033	101	298	<5	274	<20
W	51	12113	Michigan Ck, Peak 3810	rub	sel	metabasite w/ 1-2% po, cpy, lim	<5			<0.2	202	3	45	<5	<5	<20	<20
W	51	12114	Michigan Ck, Peak 3810	rub	rand	metabasite w/ tr po	<5			<0.2	160	<2	37	<5	<5	<20	<20
W	51	12115	Michigan Ck, Peak 3795	otc	sel	marble xcut by qz w/ tr cpy, mal	11			0.3	129	66	51	<5	33	<20	<20
W	51	12116	Michigan Ck, Peak 3795	otc	rand	greenschist w/ ch, qz	<5			<0.2	360	5	88	<5	<5	<20	<20
W	51	12117	Jay Ck	flt	sel	friable sandstone w/ fine apy(?)	<5			<0.2	16	11	4	<5	<5	<20	<20
W	51	12118	Jay Ck		sed		<5			<0.2	22	9	56	10	<5	<20	<20
W	51	12119	Jay Ck		pan	mod mag, tr py	3469	6	<1	0.4	25	7	67	7	<5	<20	<20
W	51	12120	Jay Ck		pan	mod mag, py	38	<5	<1	0.3	23	13	83	8	<5	<20	<20
W	51	12121	Jay Ck		sed		<5			<0.2	22	7	49	9	<5	<20	<20

Table I-1. Selected results from samples collected in the Wiseman quadrangle.

Map no.	Field no.	Location	Sample Site	Sample Type	Sample Description	Au ppb	Pt ppb	Pd ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm	As ppm	Sb ppm	Sn ppm	W ppm
W 51	12122	Jay Ck	flt	sel	rusty qz w/ po, py, lim	<5			<0.2	46	4	4	54	9	<20	<20
W 51	12153	Rye Ck	otc	rand	calc ch sch w/ <1% py	<5			<0.2	6	15	19	<5	<5	<20	<20
W 51	12154	Rye Ck		pan	1 v fine Au, mod mag	6572	<5	<1	<0.2	20	8	59	<5	<5	<20	<20
W 51	12155	Rye Ck	flt	sel	greenstone w/ <1% py	<5			<0.2	103	<2	71	5	<5	<20	<20
W 51	12503	Rye Ck trib		sed		<5			<0.2	5	5	28	<5	<5	<20	<20
W 51	12504	Rye Ck trib		pan	no vis Au, abu fine & coarse mag	<5	<5	<1	0.5	25	21	56	9	<5	<20	<20
W 51	12505	Rye Ck trib		sed		<5			0.4	21	9	45	11	<5	<20	<20
W 51	12506	Rye Ck trib		pan	no vis Au, abu mag, tr py	<5	<5	<1	0.7	12	7	50	<5	<5	<20	<20
W 51	12507	Rye Ck		pan	no vis Au, abu mag, tr py	<5	<5	<1	<0.2	27	8	97	6	<5	<20	<20
W 51	12508	Rye Ck trib		pan	no vis Au, mod mag, tr py	<5	<5	<1	0.5	16	11	59	5	<5	<20	<20
W 51	12526	Rye Ck	flt	sel	calc-silicate w/ il(?), ca, ep, qz	<5			<0.2	2	2	62	<5	<5	<20	<20
W 51	12527	Rye Ck	flt	sel	calc-silicate w/ py, mag, cpy	10			<0.2	113	6	94	5	<5	<20	<20
W 52	10858	Rue Ck		sed		2			<0.2	23	9	81	7	<5	<20	<20
W 52	10859	Rue Ck		pan	taken from cutbank	<1	<5	<1	<0.2	42	14	114	16	<5	<20	<20
W 52	10860	Birch Ck		pan	2 coarse Au	262.98 ppm	<5	<1	7.3	53	10	155	27	<5	<20	<20
W 52	10894	Birch Ck	flt	sel	rusty qz vlets	4			1.3	26	163	32	96	<5	<20	<20
W 52	10895	Birch Ck	flt	sel	rusty qz vlets w/ 1% py	6			<0.2	80	45	107	13	<5	<20	<20
W 52	10896	Birch Ck		sed		4			<0.2	39	14	103	14	<5	<20	<20
W 52	10897	Birch Ck		slu			<70	<70	4.4	105	847	102	581	<5	<20	<20
W 52	10909	Peak 3995	rub	sel	qz-mica schist w/ py, cpy(?)	35			2.6	88	294	125	1767	<5	<20	<20
W 53	10922	Agnes Ck		sed		3			<0.2	24	11	92	10	<5	<20	<20
W 53	10923	Agnes Ck		pan	mod sulfides, no vis Au	15	<5	<1	0.6	63	15	118	20	<5	<20	<20
W 53	10924	Agnes Ck	otc	rep	graphitic schist w/ py, cpy(?)	<1			<0.2	20	31	47	<5	<5	<20	<20
W 53	10925	Agnes Ck		sed		3			<0.2	40	10	88	10	<5	<20	<20
W 53	10926	Agnes Ck		pan	abu py, no vis Au, no mag	28	<5	<1	<0.2	38	22	115	44	<5	<20	<20
W 54	10927	Oregon Ck trib		sed		5			<0.2	13	5	58	5	<5	<20	<20
W 54	10928	Oregon Ck trib		pan	tr mag, no vis Au	7	5	<1	<0.2	29	3	90	<5	<5	<20	<20
W 54	10929	Oregon Ck		sed		160			<0.2	15	5	57	6	<5	<20	<20
W 54	10930	Oregon Ck		pan	tr mag, no vis Au	134	<5	<1	<0.2	67	4	98	6	<5	<20	<20
W 55	10552	Mathews Dome	flt	sel	ch schist w/ py cubes and lim	<5			<0.2	127	<2	75	16	<5	<20	<20
W 55	10553	Mathews Dome	flt	sel	ch schist w/ qz, small py cubes	<5			<0.2	50	24	65	12	<5	<20	<20
W 55	10658	Mathews Dome	otc	sel	qz veins w/ tet, mal	9			4.1	5188	5	43	<5	<5	<20	<20
W 55	11016	Mathews Dome	otc	sel	qz vein w/ tet, mal, bn (?)	62			5.1	4003	16	29	<5	<5	<20	<20
W 55	11017	Mathews Dome	otc	chip	calc schist w/ tet, mal	14			8.1	8631	31	39	<5	<5	<20	<20
W 55	11018	Mathews Dome	rub	sel	qz-calc schist w/ 0.5 cm py	18			<0.2	36	17	121	46	<5	<20	<20
W 55	11070	Mathews Dome	rub	sel	ch schist w/ qz, py, lim	<1			<0.2	25	19	74	6	<5	<20	<20
W 56	11614	Sentinel Rock	otc	sel	ch greenschist w/ 4% diss mag	<5			<0.2	27	<2	35	<5	<5	<20	<20

Table I-1. Selected results from samples collected in the Wiseman quadrangle.

Map no.	Field no.	Location	Sample Site	Sample Type	Sample Description	Au ppb	Pt ppb	Pd ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm	As ppm	Sb ppm	Sn ppm	W ppm
W 56	11615	Sentinel Rock	flt	sel	marble w/ xcut qz, minor mag	14			0.5	8	8	29	<5	<5	<20	<20
W 56	12084	Sentinel Rock	otc	grab	ch sch	9			<0.2	75	<2	36	<5	<5	<20	<20
W 56	10910	Sentinel Rock north trib		sed		2			<0.2	34	8	72	18	<5	<20	<20
W 56	10911	Sentinel Rock north trib		pan	no vis Au	4267	<5	<1	<0.2	15	3	82	9	<5	<20	<20
W 56	12082	Sentinel Rock north trib		pan	mod fine mag	8.01 ppm	<5	<1	<0.2	25	4	86	11	<5	<20	<20
W 56	12083	Sentinel Rock north trib		pan	mod fine mag	17	<5	<1	<0.2	17	3	91	10	<5	<20	<20
W 56	12063	Sentinel Rock south trib		sed		<5			<0.2	32	11	85	22	<5	<20	<20
W 56	12064	Sentinel Rock south trib		pan	mod mag, minor sulfides, no vis Au	<5	<5	<1	<0.2	36	10	88	14	<5	<20	<20
W 56	12065	Sentinel Rock south trib	flt	sel	marble w/ 10% py	7			<0.2	127	23	80	14	<5	<20	<20
W 57	8010	Lake Ck		slu	concentrate w/ nonmag fraction		<5	<1	86			<200	6	16.0	<200	19
W 57	8011	Lake Ck	flt	grab	vein qz w/ tet, mal, sid	<5			<5			<200	2	2.0	<200	<2
W 57	8055	Lake Ck		slu					>300			<2300	1930	67.1	<18000	976
W 57	8056	Lake Ck		slu	Au fineness: 953.7											
W 57	10512	Lake Ck	otc	rand	calc-musc schist w/ qz lenses	<5			<0.2	21	5	37	14	<5	<20	<20
W 57	10513	Lake Ck		sed		72			<0.2	11	6	51	<5	<5	<20	<20
W 57	10514	Lake Ck		pan	tr mag	3043	<5	12	<0.2	23	34	62	16	<5	<20	<20
W 57	10515	Lake Ck	trn	sel	massive qz w/ tr cpy, mal	<5			<0.2	67	20	10	<5	<5	<20	<20
W 57	10516	Lake Ck	flt	sel	vein qz w/ tr cpy & tet	15			0.3	247	20	103	49	102	<20	<20
W 57	10517	Lake Ck		pan		401	<5	18	<0.2	19	75	76	12	<5	<20	<20
W 57	10518	Lake Ck		sed		18			<0.2	21	4	65	7	<5	<20	<20
W 57	10519	Lake Ck	otc	rand	ch schist w/ qz lenses	<5			<0.2	13	3	83	<5	<5	<20	<20
W 57	10520	Lake Ck	otc	rand	qz calcite pebble meta cgl	<5			<0.2	16	8	25	<5	<5	<20	<20
W 57	10521	Lake Ck		pan		372	<5	11	<0.2	34	11	90	15	<5	<20	<20
W 57	10522	Lake Ck		sed		10			<0.2	23	5	61	6	<5	<20	<20
W 57	10523	Lake Ck	otc	rand	ch schist w/ qz lenses	<5			<0.2	9	4	72	<5	<5	<20	<20
W 57	10524	Lake Ck		pan		142	<5	8	<0.2	19	11	92	7	<5	<20	<20
W 57	10525	Lake Ck		sed		<5			<0.2	25	6	70	<5	<5	<20	<20
W 57	10526	Lake Ck		slu			<5	2	116.8	572	3.31%	52	914	28	<20	242
W 57	10762	Lake Ck		slu					1835.5	2366	41.11%	441	1750	249	512	719
W 57	10781	Lake Ck		slu			5930	<70	137.0	540	>10000	101	720	51	64	150
W 57	11019	Lake Ck trib		pan		6	<5	<1	<0.2	16	8	87	11	<5	<20	<20
W 57	11071	Lake Ck trib		sed		1			<0.2	19	4	59	9	<5	<20	<20
W 57	11072	Lake Ck trib		pan	minor blk sands (not mag)	1	<5	<1	<0.2	15	<2	84	11	<5	<20	<20
W 57	11626	Lake Ck		slu	blk sands from concentrate		<5	5	<0.2	230	244	51	68	<5	<20	74
W 57	11627	Lake Ck		slu	-10 mesh sluice concentrate		<5	3	<0.2	41	62	121	30	<5	<20	<20
W 57	11628	Lake Ck		slu	+10 mesh sluice concentrate		<5	4	17.3	696	8477	250	243	72	<20	131
W 57	12080	Lake Ck		pan	2 fine, 1 v fine Au	1726	<5	2	<0.2	40	11	101	72	10	<20	<20

Table I-1. Selected results from samples collected in the Wiseman quadrangle.

Map no.		Field no.	Location	Sample Site	Sample Type	Sample Description	Au ppb	Pt ppb	Pd ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm	As ppm	Sb ppm	Sn ppm	W ppm
W	57	12081	Lake Ck	flt	sel	fine-grained meta intr w/ 1% py	6			0.3	31	4	79	8	6	<20	<20
W	57	12103	Lake Ck	otc	rand	ch-musc-qz-sch w/ qz-carb veins	<5			<0.2	29	9	62	13	<5	<20	<20
W	57	12104	Lake Ck	otc	rand	qz-ch-sch	<5			<0.2	6	7	88	<5	<5	<20	<20
W	58	10516	Lake Ck	flt	sel	vein qz w/ tr cpy & tet	15			0.3	247	20	103	49	102	<20	<20
W	58	10659	Lake Ck ridge	flt	sel	vein qz w/ unknown mineral	<5			<0.2	12	3	8	<5	<5	<20	<20
W	58	10660	Lake Ck ridge	flt	sel	vein qz w/ lim in schist	<5			<0.2	9	43	6	16	<5	<20	<20
W	58	11616	Spring Ck ridge	flt	sel	calc-schist w/ xcut qz, abu lim	6			0.6	17	10	56	37	20	<20	<20
W	58	11617	Spring Ck ridge		soil	lim-stained soil	8			<0.2	36	4	67	27	7	<20	<20
W	59	10684	Spring Ck trib		pan	minor mag	1689			<0.2	47	6	65	61	8	<20	<20
W	59	10685	Spring Ck trib		sed		30			<0.2	26	5	65	13	<5	<20	<20
W	59	10686	Spring Ck trib	otc	rep	qz-mica schist	<5			<0.2	23	4	43	6	9	<20	<20
W	59	10687	Spring Ck trib		pan		1697			<0.2	28	6	88	24	6	<20	<20
W	59	10688	Spring Ck trib		sed		14			<0.2	22	5	73	11	<5	<20	<20
W	59	10689	Spring Ck		pan		1704			<0.2	16	9	120	11	<5	<20	<20
W	59	10690	Spring Ck		sed		48			<0.2	30	10	107	22	<5	<20	<20
W	59	10691	Spring Ck		pan		592			<0.2	25	24	104	22	14	<20	<20
W	59	10692	Spring Ck		sed		20			<0.2	18	6	77	7	<5	<20	<20
W	59	10693	Spring Ck	trn	sel	vein qz w/ lim, ank(?)	6			<0.2	9	22	19	33	<5	<20	<20
W	59	10694	Spring Ck		pan		617			<0.2	32	11	96	58	11	<20	<20
W	59	10695	Spring Ck		sed		56			<0.2	33	7	80	55	7	<20	<20
W	58	10696	Spring Ck	otc	sel	qz-mica schist w/ tr py	23			<0.2	24	<2	55	309	14	<20	<20
W	59	12050	Spring Ck		pan	tr mag, no vis Au	105.33 ppm	<5	4	2.3	24	6	61	22	<5	<20	<20
W	59	12051	Spring Ck		pan	no vis Au	513	<5	2	6.9	76	188	60	42	21	<20	<20
W	59	12052	Spring Ck		pan	2 coarse, 3 fine Au; tr mag	223.97 ppm	<5	2	<0.2	32	6	52	197	6	<20	<20
W	60	10786	Surprise Ck	flt	sel	musc-qz schist w/ mal, fuch(?)	<5			<0.2	167	3	24	6	<5	<20	<20
W	60	10787	Surprise Ck		sed		6			<0.2	31	10	83	12	<5	<20	<20
W	60	10788	Surprise Ck		pan	no mag, no vis Au	3889	<5	<1	<0.2	46	14	105	21	<5	<20	<20
W	60	11034	Surprise Ck		sed		4			<0.2	18	6	66	6	<5	<20	<20
W	60	11035	Surprise Ck		pan	no mag	<1	<5	<1	<0.2	24	7	83	13	<5	<20	<20
W	60	11036	Surprise Ck	flt	sel	ch-qz schist w/ cv or tet(?), mal	12			1.4	861	8	28	<5	<5	<20	<20
W	60	11037	Surprise Ck		sed		3			<0.2	20	6	56	13	<5	<20	<20
W	60	11038	Surprise Ck		pan	no mag, no vis Au	64	82	<1	<0.2	153	5	89	16	<5	<20	<20
W	60	11039	Surprise Ck		sed		2			<0.2	20	5	59	9	<5	<20	<20
W	60	11040	Surprise Ck		pan	no mag	3	<5	<1	<0.2	19	4	93	13	<5	<20	<20
W	60	11041	Surprise Ck	flt	sel	cgl w/ sulfides(?)	3			<0.2	15	8	26	<5	<5	<20	<20
W	61	11042	Surprise Ck	flt	sel	qz cobble w/ 1% euhedral py	163			0.8	8	10	77	16	<5	<20	<20

Table I-1. Selected results from samples collected in the Wiseman quadrangle.

Map no.	Field no.	Location	Sample Site	Sample Type	Sample Description	Au ppb	Pt ppb	Pd ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm	As ppm	Sb ppm	Sn ppm	W ppm
W 62	10931	Peak 3915	otc	ran	qz vein w/ apy, tr py, lim	63			0.5	10	7	35	162	6	<20	<20
W 62	10932	Peak 3915	flt	sel	calc schist w/ qz, py, lim, fuch(?)	<1			0.5	12	7	32	14	<5	<20	<20
W 62	10933	Raven Mtn	rub	sel	qz vein w/ ch partings	2			0.6	19	53	11	<5	<5	<20	<20
W 62	10955	Raven Mtn	otc	ran	qz-musc-calc schist w/ mal, fuch	3			0.5	20	4	33	<5	7	<20	<20
W 62	10956	Raven Mtn	flt	sel	qz vlets w/ cal, ank(?)	<1			0.4	4	5	34	15	6	<20	<20
W 63	10865	Pass Ck		sed		6			0.2	36	13	146	11	<5	<20	<20
W 63	10866	Pass Ck		pan	no mag, no vis Au	11	<5	<1	<0.2	31	6	96	8	<5	<20	<20
W 64	10821	Tinayguk Ck		sed		<5			<0.2	29	12	124	8	<5	<20	<20
W 64	10822	Tinayguk Ck		pan	no mag, no vis Au	8	<5	<1	<0.2	14	8	66	<5	<5	<20	<20
W 65	10800	Bonanza Ck		sed		<5			<0.2	26	13	87	8	<5	<20	<20
W 65	10801	Bonanza Ck		pan	tr mag	24	<5	<1	<0.2	41	15	100	12	<5	<20	<20
W 66	10880	Bonanza Ck ridge	otc	cont	qz vein w/ sid(?)	<5			<0.2	10	<2	104	20	<5	<20	<20
W 66	10881	Bonanza Ck ridge	flt	sel	qz vlets w/ tr gn, sl, sid, ank	10			9.7	284	3438	3510	3772	<5	<20	<20
W 67	12443	Swede Ck		sed		<5			0.8	38	9	106	17	<5	<20	<20
W 67	12444	Swede Ck		pan	no vis Au, abu fine py, no mag	9	<5	2	0.6	66	26	156	33	5	<20	<20
W 67	12445	Swede Ck		pan		194	<5	2	0.9	58	20	143	23	<5	<20	<20
W 67	12449	Swede Ck trib		sed		7			0.9	53	8	259	50	6	<20	<20
W 67	12450	Swede Ck trib		pan	no vis Au, abu fine sulfides	8	<5	2	0.9	65	18	219	73	8	<20	<20
W 67	12451	Swede Ck trib	flt	sel	volc(?) greenstone w/ tr py, po	<5			<0.2	73	9	78	<5	9	<20	<20
W 67	12452	Swede Ck trib		sed		<5			0.7	47	8	156	13	<5	<20	<20
W 67	12453	Swede Ck trib		pan	no vis Au, minor sulfides	24	<5	1	0.8	32	8	105	11	<5	<20	<20
W 67	12460	Swede Ck		sed		<5			1.0	44	10	107	15	<5	<20	<20
W 68	11901	Zinc Float Ck	otc	rand	silic meta-mdst w/ py, mar(?)	<5			0.5	16	23	28	27	17	<20	<20
W 68	11902	Zinc Float Ck		sed		<5			<0.2	82	12	615	31	<5	<20	<20
W 68	11903	Zinc Float Ck		pan	minor py, 1 mar nodule	17	<5	6	0.5	55	27	319	29	<5	<20	<20
W 69	12461	Little Swede Ck		sed		<5			<0.2	24	6	72	6	<5	<20	<20
W 69	12462	Little Swede Ck		pan	1 v fine Au, mod py, no mag	2035	<5	<1	<0.2	26	9	115	6	<5	<20	<20
W 70	8017	Mascot Ck	flt	grab	qz-carb vein w/ cpy, py, ba, ank	<5			<5			<200	3	2.9	<200	<2
W 70	8018	Mascot Ck	flt	grab	vein qtz w/ py/po, apy bands	32			<5			<200	3130	4.1	<450	<2
W 70	8019	Mascot Ck		pan	cupola buttons, Hg(?), blk sands	>10000			>300			<2200	<39	314.0		<59
W 70	10655	Mascot Ck		sed		<5			0.4	33	16	92	33	<5	<20	<20
W 70	10656	Mascot Ck	otc	rand	meta mdst w/ 1-2 % diss py	<5			0.3	121	28	11	24	20	<20	<20
W 70	10657	Mascot Ck	otc	rand	schistose qtz w/ <1 % diss py	6			<0.2	95	21	15	30	17	<20	<20
W 70	10667	Mascot Ck	otc	sel	silic mdst w/ 3-5 % py	<5			<0.2	43	28	18	24	10	<20	<20
W 70	10668	Mascot Ck		plac	abu coarse Au, abu sulfides	1.08 oz/cyd			1.7	166	52	89	306	6	<20	24
W 70	10669	Discovery Pup		pan		10			<0.2	44	33	109	21	<5	<20	<20
W 70	10670	Discovery Pup		sed		<5			0.2	39	13	83	19	<5	<20	<20

Table I-1. Selected results from samples collected in the Wiseman quadrangle.

Map no.	Field no.	Location	Sample Site	Sample Type	Sample Description	Au ppb	Pt ppb	Pd ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm	As ppm	Sb ppm	Sn ppm	W ppm
W 70	10672	Discovery Pup	flt	sel	massive qz w/ <1 % py, po, tr gn	<5			1.4	31	256	8	6	96	<20	<20
W 70	10673	Discovery Pup	flt	sel	brecciated mdst w/ qz, py, gn	<5			1.3	1	363	28	10	7	<20	<20
W 70	10677	Mascot Ck		pan	1 fine Au (?), 1 fine Ag (?)	10			0.3	93	42	125	54	<5	<20	<20
W 70	10678	Mascot Ck		sed		<5			0.2	38	16	93	21	<5	<20	<20
W 70	10679	Mascot Ck	flt	sel	qz vlets xcut schist w/ gn(?)	<5			1.2	<1	39	19	221	7	<20	<20
W 70	10680	Mascot Ck		pan	minor blk sand, nonmagnetic	36			0.2	25	16	119	<5	<5	<20	<20
W 70	10681	Mascot Ck		sed		<5			0.2	28	14	103	<5	<5	<20	<20
W 70	10682	Mascot Ck	otc	rand	mdst w/ <1 % py, lim	<5			<0.2	47	45	8	315	7	<20	<20
W 70	10683	Mascot Ck		pan	3 mm py cubes, no mag	253			<0.2	66	14	87	31	<5	<20	<20
W 70	10710	Mascot Ck		pan	no mag	**7364**			1.2	65	55	96	36	<5	<20	21
W 70	10711	Mascot Ck		sed		<5			0.2	48	17	89	9	<5	<20	<20
W 70	10712	Mascot Ck	otc	sel	phyllite w/ py concretions	7			0.4	89	38	61	14	8	<20	<20
W 70	10713	Mascot Ck	otc	sel	graphitic schist w/ py cubes	<5			<0.2	48	15	109	22	6	<20	<20
W 70	10714	No. 1 Pup		pan	no mag, 1 py cube (3mm)	424.57 ppm			50.6	40	105	122	51	<5	<20	<20
W 70	10715	No. 1 Pup		sed		<5			0.2	29	14	103	11	<5	<20	<20
W 70	10716	Mascot Ck		pan		1145			0.7	110	65	93	54	<5	<20	<20
W 70	10717	Mascot Ck		sed		<5			0.3	40	14	79	19	<5	<20	<20
W 70	10721	Mascot Ck	flt	sel	granitic, intr rock w/ gn, py	<5			4.2	4	2315	138	<5	7	<20	<20
W 70	10722	O'Neil Ck		pan	no mag	312			<0.2	36	12	75	12	<5	<20	<20
W 70	10723	O'Neil Ck		sed		<5			<0.2	29	10	53	8	<5	<20	<20
W 70	10724	Mascot Ck	flt	sel	porphyritic andesite w/ <1% po	<5			0.3	68	21	56	<5	<5	<20	<20
W 70	11285	Knorr Ck		sed		<5			<0.2	30	10	61	10	<5	<20	<20
W 70	11286	Knorr Ck		pan	1 v fine nuggety Au	3831	7	8	0.9	57	7	88	11	<5	<20	<20
W 70	11301	Knorr Ck	flt	sel	blk phyllite w/ 5% py stringers	11			0.8	48	18	15	75	<5	<20	<20
W 70	11302	Knorr Ck	flt	sel	green tuff w/ sulfides, amph, feld	<5			0.2	67	<2	50	<5	<5	<20	<20
W 70	11303	Mascot Ck	otc	sel	mica-qz schist w/ 1% py	<5			0.3	33	19	31	6	<5	<20	<20
W 70	11304	Mascot Ck	otc	sel	graphitic schist w/ 2% py	23			0.9	34	44	32	21	<5	<20	<20
W 70	11305	Mascot Ck		slu	py crystals from concentrate	0.27 ppm	<70	<70	<0.2	45	24	28	15	<5	<20	<20
W 70	11306	Mascot Ck	flt	sel	qtz cobbles w/ 1% apy, 4% py	10			<0.2	7	4	3	2527	<5	<20	<20
W 70	11870	Discovery Pup	flt	sel	vein qz w/ 2% py, lim	22			<0.2	24	41	20	37	41	<20	<20
W 70	11871	Discovery Pup	flt	sel	vein qz w/ <1% po, tr cpy, py	<5			<0.2	45	8	95	<5	25	<20	<20
W 70	11872	Discovery Pup		sed		<5			<0.2	36	9	70	7	<5	<20	<20
W 70	11873	Discovery Pup		pan	no mag, no vis Au	15	<5	4	<0.2	55	58	123	9	<5	<20	<20
W 70	11874	Discovery Pup trib		sed		<5			<0.2	19	8	59	6	<5	<20	<20
W 70	11875	Discovery Pup trib		pan	no mag, no vis Au	73	8	6	<0.2	44	25	105	7	<5	<20	<20
W 70	12458	Mascot Ck		slu	abu coarse py, tr mag		<5	3	17.3	152	4895	98	25	7	<20	<20
W 70	12459	Mascot Ck	otc	sel	phyllite xcut by qz vlet w/ 1% py	8			<0.2	32	4	20	13	28	<20	<20

Table I-1. Selected results from samples collected in the Wiseman quadrangle.

Map no.		Field no.	Location	Sample Site	Sample Type	Sample Description	Au ppb	Pt ppb	Pd ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm	As ppm	Sb ppm	Sn ppm	W ppm
W	70	12464	Preacher Ck		pan	no vis Au, minor mag & sulfides	49	5	<1	<0.2	30	10	90	9	<5	<20	<20
W	71	12465	Glacier R	flt	sel	qz ch sch w/ cc(?), tr po, mal	32			2.1	3215	4	117	5	<5	<20	<20
W	72	10796	Ipnek Ck		sed		<5			<0.2	28	14	69	7	<5	<20	<20
W	72	10797	Ipnek Ck		pan		9	<5	<1	<0.2	37	31	75	10	<5	<20	<20
W	73	10798	Ruby Ck		sed		6			<0.2	46	6	65	11	<5	<20	<20
W	73	10799	Ruby Ck		pan		42	<5	<1	<0.2	44	11	66	19	<5	<20	<20
W	74	10812	Glacier R		sed		<5			<0.2	28	9	70	9	<5	<20	<20
W	74	10813	Glacier R		pan	no mag, no vis Au	18	<5	<1	<0.2	28	9	77	8	<5	<20	<20
W	74	10814	Glacier R	flt	sel	phyllite w/ diss py, lim	12			0.6	294	11	22	59	11	<20	<20
W	75	10791	LaSalle Ck		sed		10			<0.2	62	13	141	20	<5	<20	<20
W	75	10792	LaSalle Ck		pan	abu mag, minor py and cpy	18	<5	<1	<0.2	47	20	90	36	<5	<20	<20
W	75	10793	LaSalle Ck	flt	sel	micaceous qtz w/ 5% py, gar	<5			<0.2	157	3	33	15	<5	<20	<20
W	76	10794	Horse Ck		sed		<5			<0.2	44	10	141	22	<5	<20	<20
W	76	10795	Horse Ck		pan	minor mag, no vis Au	12	<5	<1	<0.2	48	44	108	31	<5	<20	<20
W	77	10823	LaRowe Ck		sed		<5			<0.2	32	9	77	8	<5	<20	<20
W	77	10824	LaRowe Ck		pan	no mag, no vis Au	<5	<5	<1	<0.2	28	9	74	15	<5	<20	<20
W	77	10825	LaRowe Ck		pan	no mag, no vis Au	<5	<5	<1	<0.2	23	5	81	6	<5	<20	<20
W	77	10826	LaRowe Ck	otc	sel	qz-mica schist w/ 2% po, hem	5			0.3	160	37	47	<5	<5	<20	<20
W	78	11489	Rock Ck		sed		<5			<0.2	67	12	114	14	<5	<20	<20
W	78	11490	Rock Ck		pan	tr blk sands (not mag)	<5	<5	1	<0.2	49	9	96	11	<5	<20	<20
W	78	11491	Rock Ck	flt	sel	qz mica schist w/ 3% po	<5			0.2	105	2	138	<5	<5	<20	<20
W	78	11492	Rock Ck	flt	sel	greenstone	<5			<0.2	35	<2	49	<5	<5	<20	<20
W	79	10882	Emma Dome	rub	sel	vein qz w/ tm, hem, sid	<5			<0.2	11	4	13	17	<5	<20	<20
W	80	11888	Bluecloud Mtn	rub	grab	1% finely diss sulfides	<5			<0.2	42	3	53	7	12	<20	<20
W	80	11889	Bluecloud Mtn	flt	rand	qz-bio schist	<5			<0.2	44	9	79	<5	<5	<20	<20
W	80	11890	Bluecloud Mtn		sed		<5			<0.2	53	11	141	14	<5	<20	<20
W	80	11891	Bluecloud Mtn		pan	1 v fine Au, no mag	6	<5	5	<0.2	37	9	132	14	<5	<20	<20
W	80	11892	Bluecloud Mtn	flt	sel	calc-hfls w/ 1-2% diss sulfides	<5			0.5	32	4	44	<5	5	<20	<20
W	81	11770	Wiseman Ck		sed		<5			<0.2	35	10	91	13	<5	<20	<20
W	81	11771	Wiseman Ck		pan	1 v fine Au(?)	9	<5	5	<0.2	38	10	100	15	<5	<20	<20
W	81	11772	Wiseman Ck		pan	no mag, no vis Au	4	<5	5	<0.2	34	8	111	11	<5	<20	<20
W	81	11773	Wiseman Ck		pan	mod mag, no vis Au	4	5	4	<0.2	35	11	90	14	<5	<20	<20
W	83	11758	Snowshoe Ck		sed		<5			<0.2	35	11	50	9	<5	<20	<20
W	83	11759	Snowshoe Ck		pan	minor mag	5	<5	4	<0.2	41	13	84	8	<5	<20	<20
W	83	11760	Snowshoe Ck, E trib		sed		<5			<0.2	30	9	53	10	<5	<20	<20
W	83	11761	Snowshoe Ck, E trib		pan		9	<5	5	<0.2	64	20	89	25	<5	<20	<20
W	83	11762	Snowshoe Ck, N trib		sed		<5			<0.2	29	17	62	7	<5	<20	<20

Table I-1. Selected results from samples collected in the Wiseman quadrangle.

Map no.	Field no.	Location	Sample Site	Sample Type	Sample Description	Au ppb	Pt ppb	Pd ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm	As ppm	Sb ppm	Sn ppm	W ppm
W 83	11764	Snowshoe Ck, W trib		sed		<5			<0.2	27	7	47	6	<5	<20	<20
W 83	11765	Snowshoe Ck, W trib		pan		6	<5	5	<0.2	35	7	82	7	<5	<20	<20
W 84	11176	Vermont Dome	otc	sel	ch phyllite w/ py	6			<0.2	33	16	107	<5	<5	<20	<20
W 84	11177	Vermont Dome	otc	sel	meta qz	<5			0.7	5	15	9	<5	<5	<20	<20
W 84	11178	Vermont Dome	otc	sel	meta qz w/ py-hem psuedo	<5			0.2	19	62	19	<5	<5	<20	<20
W 84	11179	Vermont Dome	otc	sel	qz vein w/ sid	<5			0.4	20	52	9	<5	6	<20	<20
W 84	11344	Vermont Dome	flt	sel	qz float	<5			0.9	25	355	11	<5	<5	<20	<20
W 84	11345	Vermont Dome	flt	rand	vein qz	<5			<0.2	41	16	4	<5	<5	<20	<20
W 84	11346	Vermont Dome	flt	rand	vein qz	<5			0.4	262	116	24	<5	<5	<20	<20
W 84	11347	Vermont Dome	flt	rand	vein qz	<5			<0.2	15	<2	6	<5	<5	<20	<20
W 85	10867	Washington Ck		sed		<5			<0.2	31	10	76	11	<5	<20	<20
W 85	10868	Washington Ck		pan	tr py, no vis Au	<5	<5	<1	<0.2	37	6	93	12	<5	<20	<20
W 85	10869	Washington Ck		sed		<5			<0.2	28	10	85	6	<5	<20	<20
W 85	10870	Washington Ck		pan	no vis Au	12	<5	<1	<0.2	34	8	90	8	<5	<20	<20
W 85	10871	Washington Ck		sed		<5			<0.2	34	7	77	6	<5	<20	<20
W 85	10872	Washington Ck		pan	tr mag, no vis Au	12	<5	<1	<0.2	34	7	102	6	<5	<20	<20
W 85	10873	Washington Ck		sed		<5			<0.2	32	10	88	17	<5	<20	<20
W 85	10874	Washington Ck		pan	tr py, no vis Au	<5	<5	<1	<0.2	36	8	91	16	<5	<20	<20
W 86	8021	Grotto Mtn	flt	grab	vein qz w/ schist breccia, ank	<5			<5			<200	4	13.0	<200	<2
W 86	8022	Grotto Mtn	otc	grab	carbonaceous slate	<5			<5			<200	21	30.7	<200	<2
W 87	12300	Canyon Ck		sed		8			<0.2	39	9	83	9	<5	<20	<20
W 87	12301	Canyon Ck		pan	no mag, no vis Au	<5	<5	1	<0.2	36	10	103	7	<5	<20	<20
W 88	11275	Hammond R bench		sed		7			<0.2	30	7	55	81	<5	<20	<20
W 88	11276	Hammond R bench		pan	1 fine, 2 v fine Au	95.28 ppm	<70	<70	4.5	23	9	83	633	<5	<20	<20
W 88	11277	Hammond R bench		plac	3 fine, 5 v fine Au	0.0008 oz/cyd	<70	<70	<0.2	31	12	82	17	<5	<20	<20
W 88	11278	Hammond R bench		plac	2 v fine Au, tr mag	0.07 ppm	<70	<70	<0.2	40	12	73	13	<5	<20	<20
W 88	11279	Hammond R bench		plac	3 coarse, 4 fine, 6 v fine Au	0.006 oz/cyd	<70	<70	1.9	38	16	78	678	<5	<20	<20
W 89	10653	Vermont Ck	otc	rand	phyllite w/ silic nodules, lim	<5			<0.2	13	14	83	15	18	<20	<20
W 89	10654	Vermont Ck	flt	sel	massive qz w/ lim	<5			<0.2	14	31	14	8	36	<20	<20
W 89	10735	Vermont Ck		sed		<5			0.2	35	12	66	10	<5	<20	<20
W 89	10736	Vermont Ck		pan		398			<0.2	56	11	79	23	<5	<20	<20
W 89	10734	Vermont Ck, Right Fork	otc	rand	phyllite w/ py	29			<0.2	77	8	84	51	14	<20	<20
W 89	11175	Vermont Ck, Right Fork	otc	sel	micaceous schist w/ euhedral py	73			<0.2	87	5	86	799	8	<20	<20
W 89	11307	Vermont Ck	otc	sel	mica-qz schist w/ <5% py	<5			<0.2	81	11	11	31	<5	<20	<20
W 89	11396	Vermont Ck	otc	sel	qz vein w/ carbonate, lim	17			<0.2	4	3	27	103	11	<20	<20
W 89	11397	Vermont Ck	otc	rand	qz vlets w/ sid, hem(?), py	78			0.3	10	13	41	55	9	<20	<20
W 89	12397	Vermont Ck		sed		<5			<0.2	33	7	80	9	<5	<20	<20

Table I-1. Selected results from samples collected in the Wiseman quadrangle.

Map no.	Field no.	Location	Sample Site	Sample Type	Sample Description	Au ppb	Pt ppb	Pd ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm	As ppm	Sb ppm	Sn ppm	W ppm
W 89	12398	Vermont Ck		pan	no vis Au, no mag	<5	<5	<1	<0.2	26	12	102	7	<5	<20	<20
W 89	12399	Vermont Ck		sed		<5			<0.2	38	8	92	9	<5	<20	<20
W 89	12400	Vermont Ck		pan	no vis Au, no mag	858	<5	<1	<0.2	30	6	91	5	<5	<20	<20
W 89	12411	Vermont Ck trib		pan	no vis Au, no blk sands	20	<5	<1	<0.2	18	10	83	14	<5	<20	<20
W 89	12412	Vermont Ck	flt	sel	4-mm-wide vein qz w/ py	9			<0.2	66	15	63	50	100	<20	<20
W 89	12441	Vermont Ck		sed		<5			<0.2	35	7	71	7	<5	<20	<20
W 89	12442	Vermont Ck		pan	no vis Au, minor fine sulfides	9	<5	<1	<0.2	31	19	96	8	<5	<20	<20
W 89	12448	Vermont Dome	flt	sel	vein qz w/ tr cpy, py, po, ep, gar	<5			0.3	439	38	35	<5	13	<20	<20
W 90	10727	Friday the 13th Pup	otc	grab	qz vlets w/ py, po, lim	**1790**			0.2	22	29	32	412	748	<20	<20
W 90	10728	Friday the 13th Pup	otc	grab	qz vlet w/ py, po(?), apy(?)	521			<0.2	11	22	77	368	46	<20	<20
W 90	10729	Friday the 13th Pup	otc	sel	qz lense in phyllite w/ stb	6			1.3	<1	1657	269	15	61	<20	<20
W 90	10730	Friday the 13th Pup	otc	grab	qz vlet	63.56 ppm			3.9	6	114	23	183	62	<20	<20
W 90	10731	Friday the 13th Pup	flt	grab	phyllite w/ py	38			0.3	33	18	63	149	20	<20	<20
W 90	10732	Right Fork		pan		5993			0.3	81	23	84	369	11	<20	<20
W 90	10733	Right Fork		sed		14			<0.2	36	13	66	54	<5	<20	<20
W 90	11259	Right Fork		sed		<5			<0.2	18	10	53	24	<5	<20	<20
W 90	11260	Right Fork		pan	abu euhedral mag	40	6	7	<0.2	50	13	78	51	<5	<20	<20
W 90	11261	Right Fork		sed		<5			<0.2	37	14	82	16	<5	<20	<20
W 90	11262	Right Fork		pan	tr mag, tr py	43	6	7	<0.2	40	13	155	24	<5	<20	<20
W 90	11263	Right Fork	otc	sel	qz vlet w/ minor hem and py	9			<0.2	59	23	52	54	10	<20	<20
W 90	11264	Right Fork	otc	ran	qz vlet	2948			0.9	56	34	29	181	20	<20	<20
W 90	11265	Right Fork	otc	ran	qz vlet w/ 5% py	415			<0.2	12	112	14	3802	33	<20	<20
W 90	11266	Right Fork	otc	ran	qz vlet w/ 1% py, vis Au	**17.82 ppm**			4.4	16	24	32	289	7	<20	<20
W 90	11267	Friday the 13th Pup		sed		<5			<0.2	25	9	52	24	<5	<20	<20
W 90	11268	Friday the 13th Pup		pan	minor py and mag	1750	9	7	<0.2	63	20	88	199	<5	<20	<20
W 90	11281	Right Fork	otc	sel	qz vlets w/ 50% ca	6			0.5	28	44	43	17	161	<20	<20
W 90	11282	Right Fork	flt	sel	phyllite w/ 2% euhedral py	10			0.3	38	8	65	47	16	<20	<20
W 90	11283	Friday the 13th Pup	flt	sel	phyllite w/ 2% euhedral py	13			<0.2	29	4	75	70	7	<20	<20
W 90	11284	Friday the 13th Pup	otc	ran	qz vlet	**26.07 ppm**			<0.2	7	154	31	126	80	<20	<20
W 90	12486	Friday the 13th Pup	otc	sel	0.75-inch-wide qz vlet w/ py	13.06 ppm			0.3	6	241	37	136	76	<20	<20
W 90	12487	Friday the 13th Pup	otc	sel	7-mm-wide qz vlet w/ tr py	815			0.4	47	53	72	39	12	<20	<20
W 90	12488	Right Fork	otc	sel	4 qz vlets w/ tr po	<5			<0.2	12	3	12	13	<5	<20	<20
W 90	12489	Right Fork	otc	sel	3 qz vlets up to 1-inch-thick	110			<0.2	49	33	50	280	15	<20	<20
W 90	12501	Right Fork	otc	sel	5-mm-wide qz vlets w/ cpy, apy	726			0.6	1137	202	846	1065	98	<20	<20
W 90	12502	Right Fork	otc	sel	2-13-mm-wide qz vlets w/ ank	18			<0.2	15	10	20	89	8	<20	<20
W 91	11121	Webster Gulch		pan	no mag	26	<5	<1	<0.2	30	<2	106	42	<5	<20	<20
W 91	11122	Webster Gulch		sed		4			<0.2	27	7	72	59	<5	<20	<20

Table I-1. Selected results from samples collected in the Wiseman quadrangle.

Map no.	Field no.	Location	Sample Site	Sample Type	Sample Description	Au ppb	Pt ppb	Pd ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm	As ppm	Sb ppm	Sn ppm	W ppm
W 91	12454	Webster Gulch		pan	1 fine Au (?)	887	<5	<1	<0.2	22	29	115	42	<5	<20	<20
W 91	12455	Webster Gulch		pan		417	<5	<1	<0.2	14	6	79	27	<5	<20	<20
W 92	10647	Thompson Pup	otc	rand	qz vlets in phyllite w/ lim	186			0.4	55	13	22	73	0.35%	<20	<20
W 92	10648	Thompson Pup	otc	rand	qz vlet in phyllite w/ lim	122			<0.2	78	20	142	294	204	<20	<20
W 92	10649	Thompson Pup	flt	sel	massive qz w/ py, po	<5			<0.2	6	<2	10	23	372	<20	<20
W 92	10676	Thompson Pup		slu	apy xls from concentrate	**1964**			99.9	35	>10000	4	>10000	830	<20	<20
W 92	11060	Thompson Pup	flt	sel	multiple phase alt qz w/ lim	4			0.4	2	31	50	7	<5	<20	<20
W 92	11061	Thompson Pup	flt	sel	qtz cobble w/ 3% py, cpy, lim	25			<0.2	3059	20	88	46	<5	<20	<20
W 92	11062	Thompson Pup		sed		82			<0.2	33	7	45	65	<5	<20	<20
W 92	11063	Thompson Pup		pan	4 v fine Au, minor mag	15.80 ppm	7	3	3.2	108	25	262	374	104	<20	<20
W 92	11064	Thompson Pup	otc	rep	multiple phase qz vein	9			0.7	3	<2	37	94	<5	<20	<20
W 92	11065	Thompson Pup		pan	apy concentrate				0.3	42	17	141	>10000	777	<20	<20
W 92	11207	Thompson Pup	otc	cont	qz vlet w/ apy	152			<0.2	23	<2	49	434	5	<20	<20
W 92	11208	Thompson Pup	flt	sel	vein qz (?) w/ tr cpy (?)	12			<0.2	3062	11	79	191	<5	<20	<20
W 92	11213	Thompson Pup	flt	sel	silic schist w/ py, po, sid	11			<0.2	4768	8	108	28	<5	<20	<20
W 92	11214	Thompson Pup	flt	sel	ch schist w/ 5% py, po	65			<0.2	60	31	44	683	19	<20	<20
W 92	11215	Thompson Pup	otc	sel	4.0-ft-wide qz vein w/ py, po, ch	30			0.4	116	12	76	765	16	<20	<20
W 92	11360	Thompson Pup	otc	sel	qz vein	<5			<0.2	17	26	21	61	20	<20	<20
W 92	11361	Thompson Pup	otc	sel	qz vein w/ py, lim	<5			<0.2	13	<2	12	<5	<5	<20	<20
W 92	11362	Thompson Pup	otc	sel	qz vein	6			<0.2	10	<2	11	52	5	<20	<20
W 92	11363	Thompson Pup	otc	rand	qz vein	<5			<0.2	13	8	26	36	5	<20	<20
W 92	11364	Thompson Pup	otc	sel	qz vein	13			<0.2	12	<2	35	113	8	<20	<20
W 92	11365	Thompson Pup	otc	rand	qz vein w/ py, apy	17			<0.2	11	4	20	51	9	<20	<20
W 92	11366	Thompson Pup	otc	rand	qz vein w/ py, lim	8			<0.2	20	12	26	36	14	<20	<20
W 92	11367	Thompson Pup	otc	rand	qz vein	83			<0.2	24	45	74	41	56	<20	<20
W 92	11368	Thompson Pup	otc	sel	meta qz	38			<0.2	14	<2	<1	18	<5	<20	<20
W 92	11395	Thompson Pup	flt	sel	vein qz w/ sid, py	9			<0.2	7	7	21	16	<5	<20	<20
W 92	12318	Thompson Pup		pan	no blk sands	7	<5	2	<0.2	65	9	104	18	<5	<20	<20
W 93	11066	Fay Ck		sed		4			<0.2	29	7	43	30	8	<20	<20
W 93	11067	Fay Ck		pan	1 fine Au, from bedrock	1120	<5	3	<0.2	49	5	130	100	35	<20	<20
W 93	11132	Fay Ck		sed		8			<0.2	20	6	40	29	10	<20	<20
W 93	11133	Fay Ck		pan	minor mag	28	<5	2	<0.2	113	13	219	84	23	<20	<20
W 93	11155	Fay Ck	otc	sel	phyllite w/ euhedral py	4			<0.2	43	8	50	15	<5	<20	<20
W 93	11156	Fay Ck	otc	sel	folded qtz w/ abu py	7			<0.2	83	22	52	32	<5	<20	<20
W 93	11157	Fay Ck	otc	sel	meta qz w/ sulfides	40			0.2	18	16	23	90	<5	<20	<20
W 93	11209	Fay Ck	otc	ran	qz vlet w/ 10% sid, tr cpy, sl, stb	7			<0.2	43	213	49	19	95	<20	<20
W 93	11210	Fay Ck	otc	sel	1.1-ft-wide qz vein w/ stb, gn, py	16			0.3	117	59	25	25	<5	<20	<20

Table I-1. Selected results from samples collected in the Wiseman quadrangle.

Map no.		Field no.	Location	Sample Site	Sample Type	Sample Description	Au ppb	Pt ppb	Pd ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm	As ppm	Sb ppm	Sn ppm	W ppm
W	93	11211	Fay Ck	otc	sel	qz vein w/ py, po, tr stb, cpy	60			1	170	1033	23	163	589	<20	<20
W	93	11212	Fay Ck	otc	sel	phyllite w/ 5% po	26			0.2	102	60	53	35	<5	<20	<20
W	93	11369	Fay Ck	otc	sel	qz vein w/ py, lim	44			<0.2	18	45	64	35	23	<20	<20
W	93	11370	Fay Ck	otc	sel	qz vein	<5			<0.2	14	31	69	59	21	<20	<20
W	93	11371	Fay Ck	otc	sel	qz vein w/ lim	167			<0.2	45	29	39	21	15	<20	<20
W	94	10764	Smith Ck Dome bench		soil	probable contamination	387.62 ppm			83.7	161	>10000	73	737	199	38	37
W	94	11068	Archibald Ck		sed		5			<0.2	32	7	53	21	18	<20	<20
W	94	11069	Archibald Ck		pan	tr mag, no vis Au	14	<5	3	<0.2	107	7	223	34	45	<20	<20
W	94	11144	Swede Channel		pan	1 coarse, 1 fine Au; mod py	217.63 ppm	<5	3	6.1	58	10	161	58	25	<20	<20
W	94	11168	Archibald Ck	otc	sel	qz vlet within blk py schist	27			0.3	14	5	15	37	150	<20	<20
W	94	11247	Smith Ck Dome bench		soil	0.025 cubic yards, schistose soil	2.33 ppm	<70	<70	<0.2	41	14	92	111	96	<20	<20
W	94	11924	Archibald Ck soil survey		soil		15			0.3	43	17	85	24	17	<20	<20
W	94	11925	Archibald Ck soil survey		soil		8			<0.2	50	13	83	37	13	<20	<20
W	94	11926	Archibald Ck soil survey		soil		<5			<0.2	14	10	52	21	<5	<20	<20
W	94	11927	Archibald Ck soil survey		soil		<5			<0.2	28	10	55	37	8	<20	<20
W	94	11928	Archibald Ck soil survey		soil		<5			<0.2	38	11	62	32	11	<20	<20
W	94	11929	Archibald Ck soil survey		soil		<5			<0.2	47	4	75	23	<5	<20	<20
W	94	11930	Archibald Ck soil survey		soil		<5			<0.2	17	10	55	27	7	<20	<20
W	94	11931	Archibald Ck soil survey		soil		<5			<0.2	35	13	65	18	38	<20	<20
W	94	11932	Archibald Ck soil survey		soil		6			<0.2	24	18	57	30	58	<20	<20
W	94	11933	Archibald Ck soil survey		soil		20			<0.2	18	23	46	46	20	<20	<20
W	94	11934	Archibald Ck soil survey		soil		<5			<0.2	50	11	54	21	<5	<20	<20
W	94	11935	Archibald Ck soil survey		soil		<5			<0.2	56	10	70	20	<5	<20	<20
W	94	11936	Archibald Ck soil survey		soil		13			0.3	101	18	67	47	19	<20	<20
W	94	11937	Archibald Ck soil survey		soil		<5			<0.2	23	12	51	29	10	<20	<20
W	94	11938	Archibald Ck soil survey		soil		<5			<0.2	34	12	61	25	12	<20	<20
W	94	11939	Archibald Ck soil survey		soil		<5			<0.2	28	13	69	33	18	<20	<20
W	94	11940	Archibald Ck soil survey		soil		<5			<0.2	28	11	76	52	28	<20	<20
W	94	12466	Archibald Ck soil survey		soil		10			<0.2	45	10	89	173	28	<20	<20
W	94	12467	Archibald Ck soil survey		soil		13			<0.2	43	13	94	84	24	<20	<20
W	94	12468	Archibald Ck soil survey		soil		9			<0.2	23	10	87	104	19	<20	<20
W	94	12469	Archibald Ck soil survey		soil		11			<0.2	39	12	95	82	29	<20	<20
W	94	12470	Archibald Ck soil survey		soil		13			<0.2	23	11	84	57	64	<20	<20
W	94	12471	Archibald Ck soil survey		soil		12			<0.2	35	12	81	84	50	<20	<20
W	94	12472	Archibald Ck soil survey		soil		<5			<0.2	10	8	78	25	25	<20	<20
W	94	12473	Archibald Ck soil survey		soil		9			<0.2	27	10	83	78	40	<20	<20
W	94	12474	Archibald Ck soil survey		soil		8			<0.2	31	12	84	71	66	<20	<20

Table I-1. Selected results from samples collected in the Wiseman quadrangle.

Map no.	Field no.	Location	Sample Site	Sample Type	Sample Description	Au ppb	Pt ppb	Pd ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm	As ppm	Sb ppm	Sn ppm	W ppm
W 94	12475	Archibald Ck soil survey		soil		10			<0.2	41	12	85	81	78	<20	<20
W 94	12490	Archibald Ck soil survey		soil		8			<0.2	30	12	88	94	55	<20	<20
W 94	12491	Archibald Ck soil survey		soil		<5			<0.2	17	11	82	50	40	<20	<20
W 95	11090	Acme Ck		sed		4			<0.2	30	10	57	7	<5	<20	<20
W 95	11091	Acme Ck		pan	tr mag, no vis Au	25	<5	3	<0.2	47	<2	139	9	<5	<20	<20
W 95	11378	Acme Ck	otc	sel	meta qz	6			0.4	25	85	17	<5	62	<20	<20
W 96	11704	Smith Ck lode	otc	sel	3.5-in-wide qz vein w/ <50% stb	5230			0.7	33	3	22	564	30.47%	<20	<20
W 96	11705	Smith Ck lode	flt	sel	massive stb	15.34 ppm			0.7	29	24	6	399	61.71%	<20	29
W 96	11707	Smith Ck	otc	sel	0.5-in-wide qz-carb vlet w/ tr stb	87			<0.2	25	106	7	180	>2000	<20	<20
W 96	11766	Smith Ck	otc	rand	stb-qz vein w/ <50% stb	1985			0.6	340	174	340	95	48.88%	<20	36
W 96	11806	Smith Ck lode	rub	sel	stb-qz vein w/ ~30% stb	908			0.3	36	12	22	347	30.22%	<20	28
W 96	11807	Smith Ck lode	rub	sel	qz-stb vein w/ <10% stb	634			<0.2	24	11	32	617	8.50%	<20	<20
W 96	11808	Smith Ck lode	flt	sel	stb-qz vein w/ ~30% stb	407			0.3	25	13	18	76	28.44%	<20	22
W 96	11809	Smith Ck lode	rub	sel	stb-qz vein w/ >30% stb	89			1.1	25	<2	12	12	49.97%	<20	37
W 96	11780	Mary Soil Survey		soil		<5			<0.2	46	14	82	15	<5	<20	<20
W 96	11781	Mary Soil Survey		soil		<5			<0.2	45	12	85	15	<5	<20	<20
W 96	11782	Mary Soil Survey		soil		<5			<0.2	42	11	72	29	13	<20	<20
W 96	11783	Mary Soil Survey		soil		<5			<0.2	43	12	74	32	14	<20	<20
W 96	11784	Mary Soil Survey		soil		<5			<0.2	42	13	75	29	13	<20	<20
W 96	11785	Mary Soil Survey		soil		<5			<0.2	34	13	71	39	14	<20	<20
W 96	11786	Mary Soil Survey		soil		<5			<0.2	45	13	81	41	19	<20	<20
W 96	11787	Mary Soil Survey		soil		<5			<0.2	34	13	69	33	17	<20	<20
W 96	11788	Mary Soil Survey		soil		<5			<0.2	41	13	78	37	19	<20	<20
W 96	11789	Mary Soil Survey		soil		<5			<0.2	39	12	76	35	23	<20	<20
W 96	11790	Mary Soil Survey		soil		<5			<0.2	39	12	70	37	20	<20	<20
W 96	11791	Mary Soil Survey		soil		7			<0.2	38	13	64	33	20	<20	<20
W 96	11792	Mary Soil Survey		soil		12			0.3	87	12	58	37	25	<20	<20
W 96	11793	Mary Soil Survey		soil		<5			<0.2	43	13	70	36	28	<20	<20
W 96	11794	Mary Soil Survey		soil		6			<0.2	37	10	64	39	34	<20	<20
W 96	11795	Mary Soil Survey		soil		8			<0.2	39	11	61	50	48	<20	<20
W 96	11796	Mary Soil Survey		soil		7			<0.2	41	12	64	44	45	<20	<20
W 96	11797	Mary Soil Survey		soil		7			<0.2	35	10	60	41	36	<20	<20
W 96	11798	Mary Soil Survey		soil		10			<0.2	32	15	60	69	74	<20	<20
W 96	11799	Mary Soil Survey		soil		13			<0.2	41	16	66	120	123	<20	<20
W 96	11800	Mary Soil Survey		soil		16			<0.2	33	16	58	150	161	<20	<20
W 96	11801	Mary Soil Survey		soil		18			<0.2	45	17	61	212	175	<20	<20
W 96	12351	Mary Soil Survey		soil		52			<0.2	36	9	69	33	21	<20	<20

Table I-1. Selected results from samples collected in the Wiseman quadrangle.

Map no.		Field no.	Location	Sample Site	Sample Type	Sample Description	Au ppb	Pt ppb	Pd ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm	As ppm	Sb ppm	Sn ppm	W ppm
W	96	12352	Mary Soil Survey		soil		39			<0.2	30	9	67	39	28	<20	<20
W	96	12353	Mary Soil Survey		soil		35			<0.2	29	7	71	34	28	<20	<20
W	96	12354	Mary Soil Survey		soil		29			<0.2	31	8	66	42	35	<20	<20
W	96	12355	Mary Soil Survey		soil		40			<0.2	34	9	62	54	54	<20	<20
W	96	12356	Mary Soil Survey		soil		49			<0.2	55	7	64	29	23	<20	<20
W	96	12357	Mary Soil Survey		soil		74			0.3	33	18	63	68	58	<20	<20
W	96	12358	Mary Soil Survey		soil		125			<0.2	30	12	60	75	74	<20	<20
W	96	12359	Mary Soil Survey		soil		34			<0.2	17	12	51	155	110	<20	<20
W	96	12360	Mary Soil Survey		soil		46			<0.2	15	9	47	65	74	<20	<20
W	96	12361	Mary Soil Survey		soil		32			<0.2	28	11	68	164	107	<20	<20
W	96	12362	Mary Soil Survey		soil		51			<0.2	24	9	66	138	110	<20	<20
W	96	12363	Mary Soil Survey		soil		39			<0.2	37	12	67	125	122	<20	<20
W	96	12364	Mary Soil Survey		soil		33			<0.2	35	13	67	125	146	<20	<20
W	96	12365	Mary Soil Survey		soil		116			<0.2	41	7	51	28	42	<20	<20
W	96	12366	Mary Soil Survey		soil		73			<0.2	34	13	64	117	113	<20	<20
W	96	12367	Mary Soil Survey		soil		74			<0.2	36	8	102	88	111	<20	<20
W	96	12368	Mary Soil Survey		soil		87			<0.2	20	9	82	87	110	<20	<20
W	96	12369	Mary Soil Survey		soil		59			<0.2	25	10	82	92	45	<20	<20
W	96	12370	Mary Soil Survey		soil		85			<0.2	22	10	78	78	34	<20	<20
W	97	10744	Smith Ck		pan	minor mag, no vis Au	22			<0.2	45	14	63	57	15	<20	<20
W	97	10745	Smith Ck		sed		<5			<0.2	23	11	57	15	10	<20	<20
W	97	11163	Smith Ck	otc	sel	blk schist w/ euhedral py	13			<0.2	72	22	58	23	9	<20	<20
W	97	11164	Smith Ck	otc	sel	qz vein	463			<0.2	6	3	67	1028	>2000	<20	<20
W	97	11165	Smith Ck	otc	ran	qz veins w/ sulfides, Sb	1532			<0.2	30	43	41	5772	>2000	<20	<20
W	97	11166	Smith Ck	otc	ran	qz veins w/ sulfides, Sb	1958			<0.2	23	29	25	3933	>2000	<20	<20
W	97	11167	Smith Ck	otc	sel	meta qtz w/ euhedral py	14			1.3	22	359	4004	54	48	<20	<20
W	97	11690	Smith Ck		sed		15			<0.2	26	6	52	73	66	<20	<20
W	97	11691	Smith Ck		pan	abu mag, coarse py	112	<5	2	<0.2	79	128	88	119	>2000	<20	<20
W	97	11692	Smith Ck		pan	6 v fine Au, abu mag, minor py	2812	<5	3	0.3	70	54	83	101	>2000	<20	<20
W	97	11706	Smith Ck	otc	sel	qz-stb vein w/ <10% stb	1563			<0.2	58	53	38	6923	>2000	<20	<20
W	97	11708	Smith Ck		pan	1 fine, 3 v fine Au, abu mag	11.8 ppm	<5	3	0.4	78	20	79	64	21	<20	<20
W	98	11372	Smith Ck	otc	sel	qz vein w/ stb	1804			<0.2	16	<2	34	1365	2000	<20	<20
W	98	11402	Smith Ck	otc	sel	qz-carb vein w/ stb	1716			<0.2	4	3	21	1207	>2000	<20	<20
W	98	11403	Smith Ck	otc	rand	qz-carb vlets w/ stb	393			0.3	7	7	35	441	169	<20	<20
W	98	11404	Smith Ck	otc	sel	qz-carb vein w/ stb	501			0.4	10	<2	30	51	>2000	<20	32
W	98	8035	Nolan Ck		slu					31			<390	100	196.0	<2000	445
W	98	10674	Nolan Ck		slu					0.2	38	59	5	99	19	<20	<20

Table I-1. Selected results from samples collected in the Wiseman quadrangle.

Map no.		Field no.	Location	Sample Site	Sample Type	Sample Description	Au ppb	Pt ppb	Pd ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm	As ppm	Sb ppm	Sn ppm	W ppm
W	98	10675	Nolan Ck		slu	py concretions from concentrate	79			5.0	137	136	23	294	91	<20	<20
W	98	10725	Smith Ck	pit	sel	1.5-in-wide stb vein w/ val	1115			<0.2	40	<2	44	16	41.28%	<20	28
W	98	10726	Smith Ck	otc	sel	qz vlet w/ ank margins	151			0.6	26	8	32	702	483	<20	<20
W	98	10747	Smith Ck	trn	sel	stb vein in schist	12.20 ppm			<0.2	22	<2	33	295	15.83%	<20	<20
W	98	10748	Smith Ck	drum	sel	massive stb w/ yellow alt mineral	577			0.6	13	<2	3	15	66.41%	40	56
W	98	10749	Smith Ck	otc	rep	qz-musc schist w/ tr py, lim	8			<0.2	64	15	75	40	30	<20	<20
W	98	11087	Nolan Ck		sed		3			<0.2	29	3	59	8	<5	<20	<20
W	98	11088	Nolan Ck		pan		14.99 ppm	<5	2	0.8	39	15	112	13	<5	<20	<20
W	98	11116	Nolan Ck	otc	ran	qz vlets xcut phyllite	4			0.2	93	36	51	26	6	<20	<20
W	98	11117	Nolan Ck		pan	1 fine and 12 v fine Au, no mag	11740	<5	1	5.1	43	32	115	38	11	<20	<20
W	98	11118	Nolan Ck		sed		2			<0.2	25	4	55	15	<5	<20	<20
W	98	11119	Nolan Ck	flt	grab	diorite w/ tr po	3			0.2	89	<2	39	<5	<5	<20	<20
W	98	11120	Nolan Ck	flt	grab	diorite w/ <1% fine py, lim	2			<0.2	126	<2	58	<5	<5	<20	<20
W	98	11159	Nolan Ck	otc	ran	folded meta qz	<5			<0.2	13	34	10	<5	<5	<20	<20
W	98	11160	Nolan Ck	otc	ran	meta qz	<5			0.3	11	19	21	<5	<5	<20	<20
W	98	11280	Smith Ck	otc	sel	qz vlets w/ 50% Sb, 10% sid	9836			<0.2	69	<2	51	924	42.42%	<20	<20
W	98	11379	Nolan Ck	otc	rand	qz vlets in graphitic schist	37			0.3	17	10	13	14	27	<20	<20
W	98	11913	Workman Bench	flt	sel	vein qz-stb w/ kermisite	1073			0.4	17	<2	7	229	39.26%	<20	39
W	98	12457	Workman Bench	otc	sel	6-mm-wide qz vlet	450			<0.2	39	11	69	1011	87	<20	<20
W	98	12509	Workman Bench	otc	sel	0.5-inch-wide qz vlet w/ ank	1256			<0.2	16	<2	73	2613	96	<20	<20
W	98	12510	Workman Bench		slu	2 coarse, 2 fine, subangular Au		<5	7	6.6	143	2924	131	2828	326	<20	<20
W	99	10702	Midnight Dome	otc	sel	qtz lense w/ tr py	11			0.6	152	29	76	25	7	<20	<20
W	99	10703	Midnight Dome	trn	sel	massive stb w/ stibiconite	14			<0.2	25	<2	24	<5	33.13%	<20	29
W	99	10704	Midnight Dome	rub	sel	qz vlet w/ <1% py, lim	37			<0.2	50	61	53	46	25	<20	<20
W	99	10705	Midnight Dome	flt	sel	vein qz w/ unknown metallic, lim	<5			<0.2	62	6	25	23	7	<20	<20
W	99	10706	Midnight Dome	otc	sel	qz-mica schist w/ 5% py	<5			<0.2	67	36	66	15	<5	<20	<20
W	99	10707	Midnight Dome	otc	rand	carb-qz lense w/in schist	<5			0.3	17	13	23	8	<5	<20	<20
W	99	10708	Midnight Dome	flt	sel	vein qz w/ py, mal, lim	179			0.6	1469	35	34	16	230	<20	<20
W	99	10709	Midnight Dome	rub	sel	schistose qtz w/ py, lim	<5			<0.2	27	82	15	15	31	<20	<20
W	99	11059	Midnight Dome	otc	sel	qz vein w/ euhedral py, lim	62			<0.2	19	4	51	70	8	<20	<20
W	99	11161	Midnight Dome	otc	ran	meta qz w/ sulfides	<5			<0.2	16	<2	20	6	<5	<20	<20
W	99	11171	Midnight Dome	otc	sel	3-in-wide qz vein	11			<0.2	3	<2	4	9	21	<20	<20
W	99	11172	Midnight Dome	otc	sel	qz vlets w/ py-hem psuedo	37			<0.2	4	6	30	26	6	<20	<20
W	99	11173	Midnight Dome	otc	sel	qz vein w/ py voids	291			<0.2	8	87	21	317	30	<20	<20
W	99	11174	Midnight Dome	flt	grab	vein qz w/ sid, py	18			0.2	30	64	14	15	45	<20	<20
W	99	11349	Midnight Dome	otc	sel	qz vein	<5			<0.2	7	<2	37	19	8	<20	<20
W	99	11350	Midnight Dome	flt	rand	vein qz	<5			0.3	34	99	4	<5	<5	<20	<20

Table I-1. Selected results from samples collected in the Wiseman quadrangle.

Map no.	Field no.	Location	Sample Site	Sample Type	Sample Description	Au ppb	Pt ppb	Pd ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm	As ppm	Sb ppm	Sn ppm	W ppm
W 99	11358	Midnight Dome	otc	rand	qz vein w/ py, lim	**532**			<0.2	67	7	33	44	29	<20	<20
W 99	11359	Midnight Dome	otc	sel	qz vein w/ py, lim	6			<0.2	12	<2	50	50	19	<20	<20
W 99	11373	Peak 3415	flt	rand	vein qz w/ sid	<5			<0.2	4	<2	19	<5	158	<20	<20
W 99	11374	Peak 3415	otc	sel	meta qz	<5			<0.2	13	<2	2	<5	28	<20	<20
W 99	11375	Peak 3415	otc	sel	qz vein w/ py, sid, hem, lim	19			<0.2	12	<2	16	88	1101	<20	<20
W 99	12302	Midnight Dome	otc	sel	qz vein w/ box, ank, mod lim	350			1.5	30	658	13	413	603	<20	<20
W 99	12303	Midnight Dome	flt	sel	mica sch w/ 5% py, box, lim	7			<0.2	139	62	87	143	62	<20	<20
W 100	10665	Smith Ck Dome - north	flt	sel	vein qz w/ apy, lim	93			<0.2	12	<2	4	226	23	<20	<20
W 100	10666	Smith Ck Dome - north	trn	sel	vein qz w/ stb, yellow alt mineral	436			<0.2	36	<2	13	297	28.09%	<20	26
W 100	10701	Smith Ck Dome - north	otc	sel	qz vlets in qz-mica schist w/ lim	11			<0.2	175	18	468	37	7	<20	<20
W 100	10719	Smith Ck Dome - north	flt	sel	qz-musc schist w/ qz vein	70			<0.2	27	7	34	56	13	<20	<20
W 100	11400	Smith Ck Dome - north	otc	sel	qz vlet w/ lim	<5			<0.2	6	11	11	<5	25	<20	<20
W 100	11401	Smith Ck Dome - north	otc	sel	qz vlet w/ lim	8			<0.2	63	<2	35	20	24	<20	<20
W 100	10718	Smith Ck Dome - south	otc	sel	schistose qtz w/ tr py, lim	<5			<0.2	27	178	65	81	9	<20	<20
W 100	10720	Smith Ck Dome - south	otc	sel	qz vlets in qz-musc schist w/ py, lim	2234			7.2	171	3500	95	123	156	<20	<20
W 100	10741	Smith Ck Dome - south	otc	sel	qz vein cutting qz-mica schist	46			<0.2	47	23	39	47	31	<20	<20
W 100	10742	Smith Ck Dome - south	otc	sel	schistose qtz w/ py, mal(?)	9			<0.2	62	17	17	153	46	<20	<20
W 100	11158	Smith Ck Dome - south	otc	sel	meta qz w/ py	11			<0.2	10	<2	33	12	<5	<20	<20
W 100	12476	Smith Ck Dome - south	otc	cont	qz vein w/ lim	41			<0.2	34	4	37	18	13	<20	<20
W 100	12477	Smith Ck Dome - south	otc	rand	qz vein w/ sid, ank	47			<0.2	94	7	44	27	39	<20	<20
W 100	12478	Smith Ck Dome - south	otc	rand	qz vlet w/ hem psuedos, tr py	5095			3.0	187	2361	80	82	95	<20	<20
W 100	10743	Smith Ck	otc	rep	qz vein xcut qz-mica schist	<5			0.4	34	6	65	89	42	<20	<20
W 100	10746	Smith Ck	otc	rep	qz-musc schist w/ lim	7			<0.2	54	21	60	64	22	<20	<20
W 101	10765	Buckeye Gulch		slu	py concretions from concentrate	259			1.0	303	21	20	207	10	<20	<20
W 101	11308	Buckeye Gulch		sed		<5			<0.2	52	11	65	27	9	<20	<20
W 101	11309	Buckeye Gulch		pan		28	10	8	<0.2	72	7	93	25	7	<20	<20
W 101	11393	Buckeye Gulch	otc	sel	qz vein	<5			<0.2	35	55	20	7	<5	<20	<20
W 101	11394	Buckeye Gulch	otc	sel	meta qz	<5			<0.2	13	6	15	<5	<5	<20	<20
W 102	11050	Swift Ck	otc	sel	schist w/ blk nodules	10			<0.2	165	140	40	14	<5	<20	<20
W 102	11051	Swift Ck		sed		5			<0.2	33	8	51	28	<5	<20	<20
W 102	11052	Swift Ck		pan	no mag, no vis Au	5	<5	1	<0.2	54	8	92	73	143	<20	<20
W 102	11053	Swift Ck		sed		4			<0.2	23	6	44	27	<5	<20	<20
W 102	11054	Swift Ck		pan	tr mag, from bedrock	25	11	3	<0.2	72	5	139	344	168	<20	<20
W 102	11055	Swift Ck	otc	rand	blk qz-mica schist w/ py(?)	3			0.2	24	4	99	31	<5	<20	<20
W 102	11056	Swift Ck	flt	sel	qtz cobble w/ 1% diss py, cpy(?)	5			<0.2	76	123	24	10	<5	<20	<20
W 102	11057	Swift Ck	otc	rep	blk qz-mica schist w/ py	29			0.3	51	19	53	874	11	<20	<20
W 102	11058	Swift Ck		pan	1 v fine Au	5869	5	2	<0.2	75	6	159	520	55	<20	<20

Table I-1. Selected results from samples collected in the Wiseman quadrangle.

Map no.	Field no.	Location	Sample Site	Sample Type	Sample Description	Au ppb	Pt ppb	Pd ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm	As ppm	Sb ppm	Sn ppm	W ppm
W 102	11169	Swift Ck	otc	sel	qz vein w/ lim	18			<0.2	28	131	20	99	66	<20	<20
W 102	11170	Swift Ck	otc	sel	qz vein	<5			<0.2	11	301	39	18	148	<20	<20
W 103	11329	Lofty Gulch		sed		<5			<0.2	28	11	57	38	<5	<20	<20
W 103	11330	Lofty Gulch		pan	1 v fine Au, abu mag	13.33 ppm	16	14	0.8	62	12	74	176	<5	<20	<20
W 103	11351	Lofty Gulch	flt	sel	greenstone w/ fine, euhedral py	<5			<0.2	44	19	58	45	<5	<20	<20
W 104	11162	Gold Bottom Gulch	otc	sel	qz vein w/ py-hem psuedo	810			<0.2	55	6	24	28	22	<20	<20
W 104	11352	Hammond R	rub	rand	greenstone-schist w/ py, po	<5			<0.2	79	<2	44	23	<5	<20	<20
W 104	11353	Gold Bottom Gulch		sed		<5			<0.2	35	12	58	35	<5	<20	<20
W 104	11354	Gold Bottom Gulch		pan	2 coarse, 3 fine, 3 v fine Au	407.59 ppm	9	14	27.0	53	11	66	154	<5	<20	<20
W 104	11380	Gold Bottom Gulch	otc	sel	qtz schist w/ py	<5			<0.2	48	3	57	<5	<5	<20	<20
W 104	11381	Gold Bottom Gulch	otc	sel	banded graphitic schist w/ qz	33			<0.2	91	4	44	37	52	<20	<20
W 104	11382	Gold Bottom Gulch	otc	sel	qz vlet	61			0.6	506	9	101	19	338	<20	<20
W 104	11980	Hammond R	rub	rand	greenstone w/ 1-2% py	<5			<0.2	57	<2	43	44	<5	<20	<20
W 104	12280	Hammond R	flt	sel	musc qz sch w/ mal, azur	8			0.8	7440	16	27	5	5	<20	<20
W 105	11741	Jennie Ck		sed		<5			<0.2	34	9	87	14	<5	<20	<20
W 105	11742	Jennie Ck		pan	mod coarse mag, no vis Au	5	<5	1	<0.2	50	10	101	28	<5	<20	<20
W 105	11743	Jennie Ck		pan	tr mag, no vis Au	5	<5	<1	<0.2	39	112	86	65	<5	<20	<20
W 105	12281	Jennie Ck		sed		13			<0.2	39	9	71	13	<5	<20	<20
W 105	12282	Jennie Ck		pan	no mag, no vis Au	45	6	2	<0.2	41	9	84	22	<5	<20	<20
W 106	10652	Slisco Bench	flt	sel	meta qz cobbles w/ lim	<5			0.5	4	7	8	6	27	<20	<20
W 106	10763	Hammond R		slu					27.7	70	473	165	597	<5	<20	47
W 106	11348	Hammond R	otc	sel	qz vein w/ py & other sulfides	93			<0.2	155	96	45	161	24	<20	<20
W 106	11357	Hammond R	flt	sel	phyllite w/ mag properties(?)	<5			<0.2	4	3	2	<5	<5	<20	<20
W 106	11376	Hammond R	otc	sel	qz vein	23			<0.2	5	18	1	2127	18	<20	<20
W 106	12263	Unnamed Ck		sed		6			<0.2	37	9	70	11	<5	<20	<20
W 106	12264	Unnamed Ck		pan	no mag, no vis Au	6	<5	44	<0.2	35	8	90	11	<5	<20	<20
W 106	12265	Unnamed Ck		pan	no mag, no vis Au	18	5	8	<0.2	44	7	96	10	<5	<20	<20
W 106	12276	Hammond R		pan	minor py, no mag, no vis Au	18	<5	2	<0.2	40	7	104	14	<5	<20	<20
W 106	12277	Hammond R	otc	rand	qz vlet w/minor py, tr mal(?)	11			<0.2	55	11	22	6	131	<20	<20
W 106	12278	Hammond R		pan	minor py, no mag, no vis Au	6	5	2	<0.2	61	19	68	30	<5	<20	<20
W 106	12279	Hammond R		sed		6			<0.2	51	9	73	21	<5	<20	<20
W 106	12413	Spots Pup		pan	no vis Au, no mag	<5	<5	<1	<0.2	17	8	68	7	<5	<20	<20
W 106	12539	Governer's Claim		slu	abu py cubes, abu mag		<5	<1	33.3	233	7685	61	8954	22	<20	40
W 106	12540	Governer's Claim		slu	mar nuggets		<5	4	3.2	223	113	37	553	78	<20	<20
W 107	11383	Confederate Gulch	otc	rand	qz vlets	27			0.5	6	37	43	88	7	<20	<20
W 107	11384	Confederate Gulch	otc	sel	qz vein w/ sid, lim	11			0.2	21	3	37	49	6	<20	<20
W 107	11385	Confederate Gulch	flt	sel	vein qz w/ lim	<5			0.3	25	5	53	55	13	<20	<20

Table I-1. Selected results from samples collected in the Wiseman quadrangle.

Map no.	Field no.	Location	Sample Site	Sample Type	Sample Description	Au ppb	Pt ppb	Pd ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm	As ppm	Sb ppm	Sn ppm	W ppm
W 107	11386	Confederate Gulch	otc	sel	qz vein	11			<0.2	11	7	48	30	6	<20	<20
W 107	11387	Confederate-Union ridge	otc	sel	qz w/ lim after py	9			<0.2	6	<2	24	591	<5	<20	<20
W 107	11388	Confederate-Union ridge	otc	sel	meta qz	33			<0.2	8	9	21	5	<5	<20	<20
W 107	11389	Confederate-Union ridge	otc	sel	qz vein	13			<0.2	48	13	29	101	28	<20	<20
W 107	11390	Confederate-Union ridge	otc	rand	qz vein w/ sid, lim after py	<5			<0.2	37	<2	29	47	6	<20	<20
W 107	11391	Confederate-Union ridge	otc	rand	qz vein w/ sid	<5			0.9	<1	9	13	19	<5	<20	<20
W 107	11828	Confederate Gulch		sed		<5			<0.2	21	9	51	10	<5	<20	<20
W 107	11829	Confederate Gulch		pan	minor coarse mag, no vis Au				<0.2	34	8	77	24	<5	<20	<20
W 108	11137	Union Gulch	flt	sel	vein qz w/ tr py, lim	13			<0.2	20	5	13	1023	12	<20	<20
W 108	11138	Union Gulch		sed		6			<0.2	23	7	54	36	5	<20	<20
W 108	11139	Union Gulch		pan	1 v fine Au, 1 py cube, abu mag	1471	<5	3	<0.2	98	8	188	72	<5	<20	<20
W 108	11140	Union Gulch		pan	abu mag	17.24 ppm	<5	2	0.7	84	8	159	209	<5	<20	<20
W 108	11141	Union Gulch		pan	mod sulfides, abu mag	1559	9	5	<0.2	79	11	346	128	<5	<20	<20
W 108	11142	Union Gulch		sed		2			<0.2	24	6	57	43	<5	<20	<20
W 108	11143	Union Gulch	otc	grab	blk mica schist w/ 3 % py	5			<0.2	31	7	89	10	<5	<20	<20
W 109	11735	Wiseman Ck		sed		<5			<0.2	27	8	67	18	<5	<20	<20
W 109	11736	Wiseman Ck		pan	tr mag, no vis Au	2	<5	<1	<0.2	30	14	69	23	<5	<20	<20
W 109	11770	Wiseman Ck		sed		<5			<0.2	35	10	91	13	<5	<20	<20
W 109	11771	Wiseman Ck		pan	1 v fine Au(?)	9	<5	5	<0.2	38	10	100	15	<5	<20	<20
W 109	11772	Wiseman Ck		pan	no mag, no vis Au	4	<5	5	<0.2	34	8	111	11	<5	<20	<20
W 109	11773	Wiseman Ck		pan	mod mag, no vis Au	4	5	4	<0.2	35	11	90	14	<5	<20	<20
W 110	11291	Minnie Ck		sed		7			<0.2	66	13	125	25	<5	<20	<20
W 110	11292	Minnie Ck		pan	1 v fine Au, minor sulfides	6899	9	6	0.6	65	12	138	27	<5	<20	<20
W 110	11296	Minnie Ck trib		sed		60			<0.2	37	10	103	31	<5	<20	<20
W 110	11297	Minnie Ck trib		pan	no vis Au	36	7	6	<0.2	17	9	71	11	<5	<20	<20
W 110	11298	Minnie Ck trib		sed		<5			<0.2	62	11	135	15	<5	<20	<20
W 110	11299	Minnie Ck trib		pan	minor v fine py and po	19	7	7	<0.2	43	9	140	30	<5	<20	<20
W 110	11300	Minnie Ck trib	flt	sel	marble xcut by qz w/ py, po(?)	<5			1.1	3	9	15	<5	<5	<20	<20
W 110	11331	Minnie Ck trib	otc	ran	qz-mica schist w/ 1% py	<5			0.2	24	9	40	10	<5	<20	<20
W 110	11332	Minnie Ck trib		sed		18			<0.2	108	16	161	13	<5	<20	<20
W 110	11333	Minnie Ck trib		pan	minor sulfides	44	8	5	<0.2	61	12	125	10	<5	<20	<20
W 110	11334	Minnie Ck trib	flt	sel	blk mica schist w/ 1% py	<5			<0.2	66	3	120	15	<5	<20	<20
W 110	11343	Minnie Ck	flt	sel	orthogneiss, meta granite w/ po	<5			<0.2	20	4	92	7	<5	<20	<20
W 110	11837	Minnie Ck		sed		<5			<0.2	36	11	79	11	<5	<20	<20
W 110	11838	Minnie Ck		pan	4 v fine, 1 fine Au, minor mag	14.03 ppm	8	5	0.5	29	11	109	14	<5	<20	<20
W 110	11952	Minnie Ck		pan	1 coarse, 3 fine Au; no mag	**51.99 ppm**	<5	<1	3.8	31	11	126	12	<5	<20	<20
W 110	11953	Minnie Ck		pan	4 fine Au, no mag, 1 gar	**24.53 ppm**	<5	<1	1.5	36	1314	118	19	<5	<20	<20

Table I-1. Selected results from samples collected in the Wiseman quadrangle.

Map no.		Field no.	Location	Sample Site	Sample Type	Sample Description	Au ppb	Pt ppb	Pd ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm	As ppm	Sb ppm	Sn ppm	W ppm
W	110	11955	Minnie Ck Bluff		pan	no mag, no vis Au	25	<5	1	<0.2	25	10	48	10	<5	<20	<20
W	111	11818	Cow Ck		sed		<5			<0.2	75	11	119	12	<5	<20	<20
W	111	11819	Cow Ck		pan	minor sulfides, no mag, no vis Au				<0.2	49	7	110	12	<5	<20	<20
W	112	11845	Moose Ck		sed		<5			<0.2	40	11	65	7	<5	<20	<20
W	112	11846	Moose Ck		pan	tr mag, no vis Au	12	<5	6	<0.2	44	20	96	14	<5	<20	<20
W	113	10737	Sawyer Ck		sed		<5			0.2	36	29	100	29	<5	<20	<20
W	113	10738	Sawyer Ck		pan	no mag	1632			0.5	64	36	114	51	<5	<20	<20
W	113	10739	Sawyer Ck	flt	sel	ch-qz schist w/ py, lim	<5			<0.2	123	5	60	<5	10	<20	<20
W	114	12484	Emma Ck		slu	vis Au, gn, Sb		<5	4	623.5	87	>10000	89	169	1397	<20	400
W	114	12485	Emma Ck		slu	vis Au, gn, sl, Sb		<5	5	2756.0	227	>10000	145	828	0.25%	70	361
W	114	12541	Emma Ck, north fork	flt	sel	marble breccia w/ hem, py(?)	8			<0.2	25	<2	12	23	<5	<4	<4
W	114	12542	Emma Ck, north fork		sed		<5			<0.2	33	11	66	16	<5	<20	<20
W	114	12543	Emma Ck, north fork		pan	mod py	11	<5	17	0.3	120	32	119	32	6	<20	<20
W	114	12554	Emma Ck, south fork	otc	rand	marble w/ ca vlets, 1% py	<5			<0.2	14	3	17	6	<5	<4	5
W	114	12555	Emma Ck, south fork		pan	tr fine py	8	<5	4	0.2	59	18	108	25	<5	<20	<20
W	115	11335	Marion Ck		sed		<5			<0.2	44	13	109	14	<5	<20	<20
W	115	11336	Marion Ck		pan	1 fine Au	3739	10	7	<0.2	44	11	103	15	<5	<20	<20
W	115	11337	Marion Ck	flt	sel	dark gray qtz w/ 1% po	<5			<0.2	8	5	72	12	<5	<20	<20
W	115	11338	Marion Ck trib		sed		<5			<0.2	35	12	107	24	<5	<20	<20
W	115	11339	Marion Ck trib		pan	1 coarse, 6 fine, 2 v fine Au	81.80 ppm	9	7	7.2	65	17	147	60	<5	<20	<20
W	115	11340	Marion Ck trib		plac	4 fine, 24 v fine Au	0.006 oz/cyd	<70	<70	4.1	69	90	137	601	<5	<20	49
W	115	12311	Marion Ck ridge	rub	sel	ch sch w/ gar(?)	<5			<0.2	47	<2	48	5	29	<20	<20
W	115	12320	Marion Ck		pan	1 coarse, 6 fine, 2 v fine Au	85.35 ppm	<5	2	10.8	29	8	79	19	<5	<20	<20
W	115	12321	Marion Ck		pan	2 coarse, 2 fine, 4 v fine Au	119.65 ppm	6	8	8.1	41	14	99	30	<5	<20	<20
W	115	12322	Marion Ck		pan	1 fine Au	21	<5	4	<0.2	39	9	129	19	<5	<20	<20
W	115	12323	Marion Ck		pan	1 fine, 14 v fine Au	83.52 ppm	<5	3	7.0	35	10	111	28	<5	<20	<20
W	115	12324	Marion Ck		pan	1 coarse, 12 fine, 16 v fine Au	344.34 ppm	<5	<1	12.7	26	6	85	19	<5	<20	<20
W	115	12325	Marion Ck		pan	tr rusty py, no vis Au	28	<5	4	<0.2	39	10	131	33	<5	<20	<20
W	115	12326	Marion Ck	flt	sel	gossanous sch breccia	10			<0.2	124	<2	88	191	392	<20	<20
W	115	12327	Marion Ck trib		pan	no mag, no vis Au, tr gar(?)	7	<5	5	<0.2	47	9	93	16	<5	<20	<20
W	115	12328	Marion Ck trib		pan	no vis Au, minor rusty py	1087	<5	6	<0.2	64	8	101	27	<5	<20	<20
W	115	12329	Marion Ck trib	flt	sel	gossanous rock	85			0.4	385	8	371	15	1421	<20	<20
W	116	11319	Kelly Gulch		sed		27			<0.2	28	13	64	11	<5	<20	<20
W	116	11320	Kelly Gulch		pan	no mag, from gravel bar	73	6	6	0.2	51	22	103	19	<5	<20	<20
W	117	11317	Clara Ck trib		sed		21			<0.2	63	17	88	12	<5	<20	<20
W	117	11318	Clara Ck trib		pan	1 coarse, subround Au	198.93 ppm	8	7	13.5	50	15	146	9	<5	<20	<20
W	117	12330	Clara Ck	otc	sel	eclogite w/ 1% cpy, tr mal	31			1.0	673	<2	40	<5	45	<20	<20

Table I-1. Selected results from samples collected in the Wiseman quadrangle.

Map no.	Field no.	Location	Sample Site	Sample Type	Sample Description	Au ppb	Pt ppb	Pd ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm	As ppm	Sb ppm	Sn ppm	W ppm
W 117	12331	Clara Ck	otc	rand	eclogite	<5			0.3	141	<2	36	12	26	<20	<20
W 117	12332	Clara Ck	flt	sel	sch breccia (?) w/ minor FeO	<5			<0.2	21	<2	114	<5	75	<20	<20
W 117	12333	Clara Ck		sed		11			<0.2	62	14	182	14	<5	<20	<20
W 117	12334	Clara Ck		pan	no vis Au	1633	<5	4	<0.2	48	10	135	11	<5	<20	<20
W 118	11321	Porcupine Ck		slu	from 3,000 cubic yards of gravel		16	5	15.2	168	7896	427	69	13	<20	418
W 118	11322	Porcupine Ck	otc	sel	qz-mica schist w/ <10% py	33			0.5	97	30	98	97	<5	<20	<20
W 118	11323	Porcupine Ck		sed		<5			<0.2	52	13	88	13	<5	<20	<20
W 118	11324	Porcupine Ck		pan	from bedrock	26.82 ppm	<5	5	5.2	86	27	152	18	<5	<20	<20
W 118	11325	Quartz Ck		sed		<5			<0.2	56	14	132	13	<5	<20	<20
W 118	11326	Quartz Ck		pan	from gravel bar	135	6	5	<0.2	48	11	109	10	<5	<20	<20
W 118	11907	Porcupine Ck	slu		py from concentrate	603	10	2	2.2	141	406	3049	242	<5	<20	<20
W 119	11314	Rosie Ck		sed		<5			<0.2	35	12	114	10	<5	<20	<20
W 119	11315	Rosie Ck		pan	1 fine, angular Au	2668	7	8	<0.2	38	9	103	10	<5	<20	<20
W 119	11316	Rosie Ck	flt	sel	meta qtz w/ 2% euhedral py	30			<0.2	45	12	65	12	<5	<20	<20
W 119	12479	Rosie Ck trib		sed		<5			<0.2	28	14	101	6	<5	<20	<20
W 120	11327	Twelvemile Ck		sed		<5			<0.2	14	9	74	6	<5	<20	<20
W 120	11328	Twelvemile Ck		pan	6 fine, flat Au	170.61 ppm	5	6	11.0	33	9	110	8	<5	<20	<20
W 120	11493	Twelvemile Ck		plac	1 v coarse, 2 coarse, 6 v fine Au	0.007 oz/cyd	<5	3	<0.2	127	51	254	28	<5	<20	<20
W 120	11512	Lower Fork		sed		6			<0.2	37	14	99	9	<5	<20	<20
W 120	11513	Lower Fork		pan	1 fine, 1 v fine Au; mod py	22.1 ppm	<5	1	1.8	48	19	125	31	<5	<20	<20
W 120	11514	Lower Fork	flt	sel	qtz w/ 1% py, ch partings, lim	<5			<0.2	44	18	47	<5	<5	<20	<20
W 120	11977	Twelvemile Ck trib		sed		<5			<0.2	14	6	73	6	<5	<20	<20
W 120	11978	Twelvemile Ck trib		pan	1 coarse, 1 fine, 6 v fine Au	**156.69 ppm**	<5	<1	10.9	30	16	113	30	<5	<20	<20
W 120	11979	Twelvemile Ck trib	otc	rand	ch schist w/ qz vlets, 1% py	<5			<0.2	30	93	142	99	10	<20	<20
W 120	12495	Twelvemile Ck		pan	6 v fine Au, minor mag	8659	<5	<1	2.1	34	12	114	11	<5	<20	<20
W 120	12496	Twelvemile Ck		pan	no vis Au, tr mag	370	<5	2	<0.2	44	11	126	11	<5	<20	<20
W 120	12497	Twelvemile Mtn	otc	rand	basaltic greenstone w/chert layers	<5			<0.2	225	<2	104	<5	<5	<20	<20
W 121	11510	Alder Ck		sed		<5			<0.2	34	10	101	9	<5	<20	<20
W 121	11511	Alder Ck		pan	no mag	<5	<5	2	<0.2	44	12	119	19	<5	<20	<20
W 123	11664	Mailbox Ck		sed		<5			<0.2	16	5	67	5	<5	<20	<20
W 123	11665	Mailbox Ck		pan	1 v fine Au	23	<5	6	<0.2	20	11	64	14	<5	<20	<20
W 123	11666	Mailbox Ck		pan	3 fine, 1 v coarse Au	>10000	<5	9	10.8	17	6	46	<5	<5	<20	<20
W 123	11667	Mailbox Ck	flt	sel	alt mafic intr, diorite w/ 3% po	<5			<0.2	36	<2	3	<5	<5	<20	<20
W 124	11668	Chapman Ck		sed		<5			<0.2	17	8	66	10	<5	<20	<20
W 124	11669	Chapman Ck		pan	6 v fine, 1 fine Au; mod mag	11.83 ppm	<5	12	1.3	27	7	63	6	<5	<20	<20
W 124	11670	Chapman Ck	otc	cont	4-ft-wide qz-pebble cgl	<5			<0.2	49	9	60	<5	<5	<20	<20
W 124	11671	Chapman Ck	flt	sel	greenstone w/ minor po	<5			0.3	119	18	46	<5	<5	<20	<20

Table I-1. Selected results from samples collected in the Wiseman quadrangle.

Map no.		Field no.	Location	Sample Site	Sample Type	Sample Description	Au ppb	Pt ppb	Pd ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm	As ppm	Sb ppm	Sn ppm	W ppm
W	125	11587	Tramway Bar	otc	ran	igneous pebble cgl	<5			<0.2	87	2	94	5	<5	<20	<20
W	125	11588	Tramway Bar	otc	ran	igneous pebble cgl	<5			<0.2	49	6	92	<5	<5	<20	<20
W	125	11589	Tramway Bar		slu	1 fine Au, Hg beads, abu mag		1241	11	7.8	126	1554	59	10	<5	<20	222
W	125	11660	Tramway Bar	otc	cont	2.4-ft-wide cgl	<5			<0.2	4	<2	7	<5	<5	<20	<20
W	125	11661	Tramway Bar	otc	cont	3.0-ft-wide cgl	<5			<0.2	4	<2	7	<5	<5	<20	<20
W	125	11662	Tramway Bar	otc	cont	3.0-ft-wide qz cgl	<5			<0.2	4	<2	5	<5	<5	<20	<20
W	125	11663	Tramway Bar	otc	cont	7.5-ft-wide qz pebble cgl	<5			<0.2	3	<2	5	<5	<5	<20	<20
W	126	11602	Eagle Cliff		pan	2 v fine Au, mod fine mag	403	<5	26	<0.2	22	9	55	8	<5	<20	<20
W	126	11603	Eagle Cliff		pan	4 v fine Au, abu fine mag	969	<5	11	<0.2	26	11	60	8	<5	<20	<20
W	126	11604	Eagle Cliff		pan	6 v fine, 3 fine Au; mod mag	10.97 ppm	6	10	<0.2	27	8	59	12	<5	<20	<20
W	127	11908	Hidden Ck	flt	sel	greenstone w/ amph, tr cpy	<5			<0.2	83	<2	34	11	28	<20	<20
W	127	11909	Hidden Ck		sed		7			<0.2	87	4	72	<5	<5	<20	<20
W	127	11910	Hidden Ck		pan	1 fine Au, mod mag	**12.18 ppm**	<5	2	<0.2	76	5	61	<5	<5	<20	<20
W	128	11592	South Fork Koyukuk R		pan	mod v fine mag	6	<5	13	<0.2	30	7	55	8	<5	<20	<20
W	128	11593	South Fork Koyukuk R		pan	mod mag, no vis Au	177	<5	12	<0.2	28	10	56	9	<5	<20	<20
W	128	11594	South Fork Koyukuk R	otc	ran	volc pebble cgl	6			<0.2	29	8	93	<5	<5	<20	<20
W	128	11595	South Fork Koyukuk R		pan	1 v fine Au, mod fine mag	297	<5	11	<0.2	30	6	54	8	<5	<20	<20
W	128	11599	South Fork Koyukuk R		pan	no mag, no vis Au	162	<5	11	<0.2	33	6	57	9	<5	<20	<20
W	128	11600	South Fork Koyukuk R		pan	2 v fine Au, abu fine mag	869	<5	10	<0.2	31	7	58	9	<5	<20	<20
W	128	11601	South Fork Koyukuk R	flt	sel	ultramafic rock, greenstone(?)	<5			<0.2	103	<2	90	<5	<5	<20	<20
W	128	12002	South Fork Koyukuk R	flt	sel	ch sch w/ lim, qz lenses	<5			<0.2	31	5	55	7	<5	<20	<20
W	128	12003	South Fork Koyukuk R	otc	rand	meta mafic igneous rock	16			<0.2	289	<2	100	5	<5	<20	<20
W	128	12005	South Fork Koyukuk R		pan	2 fine, 3 v fine Au; abu mag	7969	<5	3	<0.2	24	6	44	8	<5	<20	<20
W	128	12020	South Fork Koyukuk R	rub	grab	meta qz w/ ch partings, lim	9			<0.2	9	5	18	<5	<5	<20	<20
W	129	11597	Wilson Ck		pan	minor fine mag, no vis Au	<5	<5	11	<0.2	41	5	81	9	<5	<20	<20
W	129	11598	Wilson Ck	otc	ran	alluvial cgl	<5			<0.2	91	<2	98	<5	<5	<20	<20
W	130	11596	South Fork Koyukuk R		pan	1 v fine Au, abu fine mag	311	<5	12	<0.2	32	7	56	8	<5	<20	<20
W	131	11633	Grubstake Bar	flt	sel	greenstone w/ 15% po, 1-2% cpy	98			2.5	1158	828	78	3189	6	<20	<20
W	131	11975	Grubstake Bar		pan	2 fine Au, mod mag	**8.86 ppm**	12	5	<0.2	35	7	50	10	<5	<20	<20
W	131	11976	Grubstake Bar		pan	1 coarse, 6 v fine Au, mod mag	27.27 ppm	7	6	2.4	50	7	53	9	<5	<20	<20
W	132	11610	Bear Ck		sed		<5			<0.2	18	6	62	8	<5	<20	<20
W	132	11611	Bear Ck		pan	1 coarse, 5 fine Au; minor mag	77.81 ppm	7	34	5.7	26	7	57	7	<5	<20	82
W	132	11612	Bear Ck, mouth		pan	1 very fine Au, abu fine mag	4576	6	10	<0.2	23	7	56	7	<5	<20	<20
W	132	11613	Bear Ck		plac	4 coarse, abu v fine Au; sch	0.026 oz/cyd	1414	12	0.5	24	6	54	9	<5	<20	320
W	132	11969	Bear Ck	rub	rand	serp peridotite w/ 5% fine mag	8			<0.2	18	<2	79	<5	<5	<20	<20
W	132	11970	Bear Ck		sed		8			<0.2	17	5	76	8	<5	<20	<20
W	132	11971	Bear Ck		pan	2 fine, 6 v fine, no mag	**15.17 ppm**	<5	3	6.9	16	4	40	8	<5	<20	165

Table I-1. Selected results from samples collected in the Wiseman quadrangle.

Map no.		Field no.	Location	Sample Site	Sample Type	Sample Description	Au ppb	Pt ppb	Pd ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm	As ppm	Sb ppm	Sn ppm	W ppm
W	132	11973	Bear Ck		pan	1 coarse, 3 fine, 5 v fine Au	**63.5 ppm**	<5	4	2.2	24	6	51	9	<5	<20	39
W	132	11974	Bear Ck	otc	grab	serp peridotite w/ 5% fine mag	<5			<0.2	10	<2	74	<5	<5	<20	<20
W	133	12006	Hanshaw Bar		pan	5 v fine Au, mod mag	5986	7	5	0.7	32	6	53	10	<5	<20	<20
W	134	11567	Smalley Ck		sed		<5			<0.2	18	12	80	<5	<5	<20	<20
W	134	11568	Smalley Ck		pan		1309	<5	11	1.9	37	5	54	5	<5	<20	<20
W	134	11569	Smalley Ck	flt	sel	pebble cgl	<5			<0.2	53	8	107	9	<5	<20	<20
W	134	11570	"Smally Ck"		sed		<5			<0.2	19	10	79	6	<5	<20	<20
W	135	12056	Wild R, lower		pan	1 coarse, 50 fine, 50 v fine Au	492 ppm	<5	<1	28.6	28	7	83	14	<5	<20	<20
W	135	12057	Wild R, lower		plac	1 coarse, 10 fine, 75 v fine Au	0.016 oz/cyd	<5	3	<0.2	21	9	74	10	<5	<20	<20
W	136	11515	Jones Ck		sed		<5			<0.2	19	8	61	9	<5	<20	<20
W	136	11516	Jones Ck		pan	abu mag, mod gar, 2 v fine Au	971	<5	9	<0.2	22	9	75	9	<5	<20	<20
W	136	11517	Jones Ck	flt	sel	greenstone w/ 3-5% mag	7			<0.2	52	<2	88	<5	<5	<20	<20
W	136	11500	Jones Ck		sed		69			<0.2	35	8	99	12	<5	<20	<20
W	136	11524	Jones Ck		pan	2 v fine, 1 coarse Au; mag, gar	13.3 ppm	<5	10	0.2	37	10	78	18	<5	<20	<20
W	137	11525	Jones Ck	flt	sel	ser schist w/ banded po (<3mm)	6			<0.2	54	11	6	<5	6	<20	<20
W	137	11526	Jones Ck	flt	sel	blk bio mica schist w/ 1-2% py	<5			<0.2	56	14	101	6	<5	<20	<20
W	138	11531	Red	rub	sel	bio-qz-musc schist w/ 1-2% py	9			<0.2	7	20	9	91	<5	<20	<20
W	138	13024	Red	otc	sel	meta-volc w/ 1-3% py, sl(?)	<5			0.2	84	5	64	24	<5	<4	<4
W	139	11527	Roosevelt Ck		sed		<5			<0.2	44	11	106	10	<5	<20	<20
W	139	11528	Roosevelt Ck		pan	abu mag, mod gar	55	<5	10	<0.2	46	59	81	11	<5	<20	<20
W	139	11529	Roosevelt Ck	flt	sel	felsic-ser schist w/ 2-5% py	6			<0.2	8	128	71	14	<5	<20	<20
W	139	11530	Roosevelt Ck	flt	sel	felsic schist w/ 2-5% py	<5			<0.2	4	6	4	111	<5	<20	<20

Appendix J

Index of mines, prospects, and mineral occurrences in the Koyukuk Mining District (listed by map number)

Appendix J - Index of Mines, Prospects, and Mineral Occurrences in the Koyukuk Mining District (listed by map number, see plate 1)

Map No.	MAS Name	Page No.	Deposit Type	Commodity	Recorded Production (oz gold)	Resource Estimate	Mineral Development Potential
B1	Blahuta Creek	B-1	Placer	Au			Low
B2	Davis Creek	B-3	Placer	Au, W, Bi	242	Inferred: 23,000 cy at 0.016 oz/cy Au	Moderate
B3	Rock Creek - South Fork Tributary	B-7	Placer	Au	39		Low
B4	Ironside Bench	B-9	Placer	Au	243	Inferred: 50,000 cy at 0.107 oz/cy Au	High
B5	Gold Bench	B-12	Placer	Au, Ag, W, Pb, U, Bi	8,788	Inferred: 160,000 cy at 0.005 oz/cy Au	Low
B6	Eldorado Creek	B-17	Placer	Au			Low
B7	Bettles Bars	B-19	Placer	Au		Inferred: 25 cy of 0.02 oz/cy Au	Low
B8	Ranger	B-22	Placer	Au			Low
B9	Jim River Canyon	B-24	Placer	Au			Moderate
B10	Jim River Confluence	B-26	Placer	Au			Low
B11	Upper Jim River	B-28	Placer	Au			Low
B12	Douglas Creek	B-31	Placer	Au			Low
B13	Prospect Creek	B-33	Placer	Au			Moderate
B14	Prospect Creek Lode	B-36	Felsic dikes	Zn, Pb, Cu, Au			Low
B15	North Fork Bonanza Creek	B-38	Placer	Au			Low
B16	South Fork Bonanza Creek	B-40	Placer	Au			Low
B17	Bonanza Prospect	B-42	Skarn	W, Zn, Mo			Low
B18	Old Man Creek Lode	B-45	Epithermal veins	Pb, Zn, Ag, Cu			Low
B19	Old Man Creek	B-47	Placer	Au			Low
B20	Caribou Mountain	B-49	Podiform chromite	Cr, Co, Ni, PGE		Inferred: 2,000 - 2,400 tons chromite	Low
B21	Upper Kanuti River Lode	B-52	Podiform chromite	Cr, Ni			Low
B22	Hot Springs Pluton Placer	B-55	Placer	Sn			Low
B23	Hot Springs Pluton Lode	B-57	Pluton-related veins	U, Th			Low
B24	Lower Kanuti River Lode	B-59	Podiform chromite	Cr, Co, PGE		Inferred: 700 - 800 tons chromite	Low
B25	Dome Creek	B-62	Placer	Au			Low
B26	East Fork Kanuti River	B-64	Placer	Au, Ag			Low
B27	Sithylemenkat Lake	B-67	Podiform chromite	Cr, Co, Cu			Low
B28	East Fork Kanuti Kilolitna River	B-70	Placer	Sn		Indicated: 3.5 million cy of 0.67 lb/cy Sn	Low
B29	Sithylemenkat Pluton Prospect	B-73	Greisen	Sn, Zn, Pb, Ag, Cu, U, Th			Low
C1	Kuyuktuvuk Creek	C-1	Placer	Au			Low
C2	Trembley Creek	C-3	Placer	Au			Low
C3	Nutirwik Creek	C-5	Placer	Au			Low

Appendix J - Index of Mines, Prospects, and Mineral Occurrences in the Koyukuk Mining District (listed by map number, see plate 1)

Map No.	MAS Name	Page No.	Deposit Type	Commodity	Recorded Production (oz gold)	Resource Estimate	Mineral Development Potential
C4	Big Jim Creek Lode	C-7	Polymetallic veins	Cu, Pb			Low
C5	Snowden Creek Lode	C-9	Polymetallic veins	Cu, Li(?)			Low
C6	Mathews River	C-12	Placer	Au			Low
C7	Kalhabuk Creek	C-14	Placer	Au			Low
C8	Vi Creek Lode	C-15	Polymetallic veins	Cu			Low
C9	Brockman Creek	C-17	Placer	Au			Low
C10	Mathews River Lode	C-19	Polymetallic veins	Pb			Low
C11	Eva	C-21	Skarn	Cu			Low
C12	Victor	C-26	Skarn	Cu, Ag, Au		Eva+Victor: 50,000 tons of 2% Cu	Moderate
C13	Venus Prospect	C-30	Porphyry	Cu, Mo		Inferred: 300,000 tons of 0.3% Cu	Low
C14	Evelyn Lee Prospect	C-36	Skarn	Cu, Au		Inferred: 1.1 million tons of 5% Cu	Moderate
C15	Sheep Creek - Robert Tributary	C-42	Placer	Au			Low
C16	Horace Mountain	C-44	Meta-intrusive	Au, Cu, Ag, Pb, Zn			Moderate
C17	Ginger	C-47	Skarn	Au, Cu			Low
C18	Deimos	C-50	Skarn	Au, Cu, Ag			Low
C19	Huricane-Diane	C-53	Skarn	Au, Cu			Moderate
C20	Luna Prospect	C-56	Skarn, volcanogenic(?)	Zn, Cu, Pb, Au		<1.8 million tons of variable Cu, Zn, Ag	Moderate
C21	Mike	C-62	Skarn	Cu			Low
C22	Pilgrim	C-64	Skarn	Cu, Ag			Low
C23	Cindy	C-66	Skarn	Au, Ag, Cu, Pb, Zn			Moderate
C24	Arsine	C-68	Porphyry	Cu, Mo, As			Low
C25	Geroe Creek Lode	C-70	Porphyry	Cu, Mo			Low
C26	Upper Willow Creek Lode	C-73	Contact metasomatic	Zn			Low
C27	Lower Willow Creek Lode	C-76	Metamorphosed sulfide	Zn, Cu			Low
C28	Willow Creek	C-78	Placer	Au			Moderate
C29	Big Jim (Suklak) Creek	C-80	Placer	Cu, Au			Low
C30	Phoebe Creek	C-82	Placer	Au			Low
C31	Robert Creek	C-85	Placer	Au			Low
C32	Big Spruce Creek	C-88	Placer	Au			Low
C33	Shady Creek	C-91	Placer	Au, Ag, Sb			Low
C34	Mule Creek	C-93	Placer	Au	50		Low
C35	Limestone Creek Lode	C-96	Carbonate-hosted	Cu, Zn			Low
C36	Limestone Creek	C-98	Placer	Au			Low

Appendix J - Index of Mines, Prospects, and Mineral Occurrences in the Koyukuk Mining District (listed by map number, see plate 1)

Map No.	MAS Name	Page No.	Deposit Type	Commodity	Recorded Production (oz gold)	Resource Estimate	Mineral Development Potential
C37	Eightmile Creek	C-100	Placer	Au, Hg(?)	68		Low
C38	Garnet Creek	C-103	Placer	Au	118		Low
C39	Bettles River	C-106	Placer	Au			Low
C40	Ready Bullion Creek	C-109	Placer	Au			Low
C41	Emery Creek	C-111	Placer	Au	524		Low
C42	Sukakpak Mountain Prospect	C-113	Stibnite-quartz veins	Au, Sb		Inferred: 31,000 tons of 1.22 oz/ton Au	Moderate
C43	Discovery Creek - Sukapak Mtn	C-119	Placer	Au			Low
C44	Vi Creek	C-121	Placer	Au			Low
C45	Linda Creek	C-123	Placer	Au, Ag	2,069	Inferred: 2.4 million cy	Moderate
C46	Sheep Creek - Middle Fork Tributary	C-130	Placer	Au	780		Moderate
C47	Wolf Pup	C-134	Placer	Au			Low
C48	Nugget Creek	C-136	Placer	Au			Moderate
C49	Magnet Creek	C-138	Placer	Au			Moderate
C50	Gold Creek	C-140	Placer	Au, Sb	14,349		Moderate
C51	Canyon Creek	C-145	Placer	Au			Low
C52	Last Chance Creek	C-147	Placer	Au			Low
C53	Glacier Creek Tributary	C-149	Placer	Au			Low
C54	Bore Creek	C-151	Placer	Au			Low
C55	California Creek	C-154	Placer	Au	102		Low
C56	Jim Pup Creek	C-158	Placer	Au	735		Moderate
C57	Wakeup Creek	C-161	Placer	Au	1,795		Low
C58	Lake Creek - Bob Johnson Lake	C-164	Placer	Au	807		Moderate
C59	Billy Glen Creek	C-168	Placer	Au			Low
C60	Holy Moses Creek	C-170	Placer	Au			Low
C61	Shamrock Creek	C-172	Placer	Au			Low
C62	Wolf Creek	C-174	Placer	Au			Low
C63	Horse Creek Lode	C-176	Unknown lode	Cu			Low
C64	Sawlog Creek	C-178	Placer	Au			Low
C65	Wizard	C-180	Quartz veins	Au, quartz crystal			Low
C66	Denny's Gulch	C-183	Placer	Au			Low
C67	Howard Creek	C-186	Polymetallic veins	Cu, Ni			Low
C68	Boulder Creek	C-188	Placer	Au			Moderate
C69	Slate Creek	C-190	Placer	Au	480		Moderate

Appendix J - Index of Mines, Prospects, and Mineral Occurrences in the Koyukuk Mining District (listed by map number, see plate 1)

Map No.	MAS Name	Page No.	Deposit Type	Commodity	Recorded Production (oz gold)	Resource Estimate	Mineral Development Potential
C70	Myrtle Creek	C-195	Placer	Au	16,952		Low
C71	South Fork Koyukuk Tributary Lode	C-201	Meta-intrusive	Cu			Low
C72	Hill 3816	C-203	Unknown lode	Cu, Ni			Low
C73	Siwash Creek Lode	C-205	Quartz veins(?)	Cu			Low
C74	Mosquito Fork	C-207	Placer	Au			Low
C75	Granite Creek	C-209	Placer	Au			Low
CL1	Grizzly Creek Lode	D-1	Quartz veins	Pb, Zn, Cu, Ag			Low
H1	Helpmejack Hills	E-1	Unknown lode	Mn			Unknown
H2	Helpmejack Creek	E-3	Placer	Au			Low
H3	Lost Pipe	E-5	Placer	Au			Low
H4	Rockybottom Creek	E-7	Placer	Au			Low
H5	Discovery Creek - Niltitkoktalog Mtn	E-9	Placer	Au			Low
H6	Red Mountain	E-10	Hypabyssal porphyry	Au			Low
H7	Red Mountain Placer	E-12	Placer	Au			Low
H8	Black Creek	E-14	Placer	Au, W	1,352	Inferred: 445 cy at 0.38 oz/cy Au	High
H9	Black Creek Lode	E-19	Pluton-related gold	Au, Cu			Moderate
H10	Upper Indian River Lode	E-25	Porphyry	Mo, W			Low
H11	Indian River	E-27	Placer	Au, Ag	26,353		Low
H12	Pocahontas Creek	E-31	Placer	Au			Low
H13	Lower Indian River Lode	E-33	Epithermal vein	Au			Moderate
H14	Hill 1342	E-35	Epithermal vein	Au, Ag, Cu			Moderate
H15	Gen Creek	E-37	Placer	Au			Low
M1	Utopia Creek	F-1	Placer	Au	8,854		Low
M2	Indian River Trend	F-4	Epithermal vein	Au			Low
SP1	Pingaluk River	G-1	Placer	Au			Low
SP2	Lucky Six Creek Lode	G-3	Polymetallic veins	Au			Low
SP3	Lucky Six Creek	G-6	Placer	Au			Unknown
SP4	Arrigetch Peaks	G-8	Skarn	Cu, Zn, Sn			Low
SP5	Alatna River	G-11	Placer	Au			Low

Appendix J - Index of Mines, Prospects, and Mineral Occurrences in the Koyukuk Mining District (listed by map number, see plate 1)

Map No.	MAS Name	Page No.	Deposit Type	Commodity	Recorded Production (oz gold)	Resource Estimate	Mineral Development Potential
T1	Kanuti Kilolitna River Lode	H-1	Podiform chromite	Cr, Ni			Low
T2	Holanada Creek Lode	H-5	Podiform chromite	Cr, Ni		Inferred: 14,500-28,000 tons chromite	Low
T3	Kanuti Kilolitna River	H-8	Placer	Au, Sn, W			Low
W1	Union Creek	I-1	Placer	Au			Low
W2	Lucky Boy	I-3	Unknown lode	Cu, Au, Ag, PGE			Low
W3	VABM Kukluk	I-5	Unknown lode	Au			Low
W4	Hunt Fork Lode	I-7	Unknown lode	Pb			Low
W5	John River Lode	I-9	Unknown lode	Sb			Low
W6	Kevuk Creek Lode	I-11	Unknown lode	Cu			Low
W7	Buzz Prospect	I-13	Metamorphosed sulfide	Pb, Zn, Ag			Low
W8	Ann Prospect	I-16	Metamorphosed sulfide	Pb, Zn			Low
W9	Frog Prospect	I-18	Carbonate-hosted(?)	Pb, Zn, Ag, Cu			Low
W10	Mettenpherg West	I-21	Metamorphosed sulfide(?)	Pb, Zn, Ag			Low
W11	Colorado Creek	I-23	Placer	Au	8		Low
W12	Zirc	I-25	Unknown lode	Unknown			Low
W13	Abo Prospect	I-26	Carbonate-hosted(?)	Pb, Zn			Low
W14	Sixtymile Creek Lode	I-30	Unknown lode	Au, PGE(?)			Unknown
W15	Tana Prospect	I-32	Carbonate-hosted	Zn, Pb, Ag, Au			Low
W16	Midas Creek	I-35	Placer	Au			Low
W17	Sixtymile Creek	I-38	Placer	Au	84		Low
W18	Rock Creek - Sixtymile Tributary	I-40	Placer	Au			Low
W19	McKinley Creek	I-42	Placer	Au, Ag(?), Pb(?)			Low
W20	VABM Pink	I-44	Polymetallic vein	Pb, Sb, Cu			Low
W21	VABM Allen	I-46	Polymetallic vein	Cu, As			Low
W22	Sheep Creek Lode	I-48	Polymetallic vein	Cu, Ag			Low
W23	Tobin Creek	I-51	Placer	Au			Low
W24	Sirr Mountain	I-53	Quartz veins	Cu, Pb			Low
W25	Sirr Creek	I-55	Placer	Au			Low
W26	Seward Creek	I-57	Placer	Au			Low
W27	Luke Creek	I-59	Unknown lode	Cu			Low
W28	Trout Lake Discovery	I-61	Placer	Au			Low
W29	Seward Creek Lode	I-63	Unknown lode	Cu			Low

Appendix J - Index of Mines, Prospects, and Mineral Occurrences in the Koyukuk Mining District (listed by map number, see plate 1)

Map No.	MAS Name	Page No.	Deposit Type	Commodity	Recorded Production (oz gold)	Resource Estimate	Mineral Development Potential
W30	Allen River Lode North	I-65	Unknown lode	Cu			Low
W31	Allen River Lode South	I-67	Unknown lode	Au			Low
W32	Allen River	I-69	Placer	Au			Low
W33	Moose Trail	I-70	Unknown lode	Cu, Au			Low
W34	McCamant Creek	I-72	Placer	Au			Low
W35	Crevice Creek	I-74	Placer	Au	2,456		Low
W36	Crevice Creek Lode	I-77	Greenstone copper	Cu, Pb			Low
W37	Bullrun Creek	I-79	Placer	Au			Low
W38	Bullrun Creek Lode	I-81	Metamorphic quartz	Crystalline quartz			Low
W39	Suckik Creek	I-83	Placer	Au			Low
W40	Chicken Creek	I-85	Placer	Au			Moderate
W41	Bourbon Creek	I-87	Placer	Au			Low
W42	Fall Creek	I-89	Placer	Au			Low
W43	Michigan Creek Lode	I-91	Polymetallic vein	Au, Cu			Low
W44	Michigan Creek	I-93	Placer	Au			Moderate
W45	Silver King Prospect	I-95	Quartz veins	Ag, Pb			Low
W46	Galena Creek	I-102	Quartz veins	Ag			Unknown
W47	Scofield Creek	I-104	Unknown lode	Unknown			Unknown
W48	Pat Creek	I-106	Placer	Au			Low
W49	East Creek	I-107	Placer	Au			Low
W50	Kay Creek	I-109	Placer	Au			Moderate
W51	Rye Creek	I-111	Placer	Au, Cu, Pb, W, Th, Ag, Re	101		Moderate
W52	Birch Creek	I-115	Placer	Au, Ag	1,440		Moderate
W53	Agnes Creek	I-118	Placer	Au			Low
W54	Oregon Creek	I-120	Placer	Au			Low
W55	Matthews Dome	I-122	Polymetallic vein	Cu			Low
W56	Sentinel Rock	I-124	Metavolcanic(?)	Au			Low
W57	Lake Creek - Wild Lake	I-126	Placer	Au, W, Sb, Bi, Cu, Ag, As	3,938	Indicated: 10,087 cy at 0.084 oz/cy Au	Moderate
W58	Wild Lake	I-132	Polymetallic vein	Cu			Low
W59	Spring Creek	I-134	Placer	Au, Ag	1,922		Low
W60	Surprise Creek	I-137	Placer	Au, Ag	41		Low
W61	Spring Creek Lode	I-140	Polymetallic vein	Au			Low
W62	Surprise Creek Lode	I-142	Polymetallic vein	Cu			Low

Appendix J - Index of Mines, Prospects, and Mineral Occurrences in the Koyukuk Mining District (listed by map number, see plate 1)

Map No.	MAS Name	Page No.	Deposit Type	Commodity	Recorded Production (oz gold)	Resource Estimate	Mineral Development Potential
W63	Pass Creek	I-144	Placer	Au			Low
W64	Tinayguk River	I-145	Placer	Au			Low
W65	Bonanza Creek	I-147	Placer	Au			Low
W66	Bonanza Creek Lode	I-149	Quartz veins	Pb			Low
W67	Swede Creek Lode	I-151	Massive sulfide	Zn			Low
W68	Zinc Float Creek Lode	I-153	Unknown lode	Zn			Low
W69	Little Swede Creek	I-155	Placer	Au			Moderate
W70	Mascot Creek	I-156	Placer	Au	11,198	Indicated: 12,102 cy of 0.026 oz/cy Au	Moderate
W71	Glacier River	I-163	Placer	Au			Low
W72	Ipnek Creek	I-165	Placer	Au			Low
W73	Ruby Creek	I-166	Unknown lode	Cu			Low
W74	Lode and Behold	I-168	Placer	Au			Low
W75	Lasalle Creek	I-169	Placer	Au			Low
W76	Horse Creek	I-171	Placer	Au			Low
W77	Larowe Creek	I-173	Placer	Au			Low
W78	Rock Creek - North Fork Tributary	I-174	Placer	Au			Low
W79	Emma Dome	I-176	Unknown lode	Au, Ag, Cu			Unknown
W80	Bluecloud Mountain	I-178	Metamorphosed sulfide	Au, Zn, Pb, Cu			Low
W81	Pasco Creek	I-180	Placer	Au			Unevaluated
W82	Pasco Pass	I-182	Unknown lode	Au			Unknown
W83	Snowshoe Creek	I-184	Placer	Au			Low
W84	Vermont Dome	I-186	Quartz veins	Cu, Crystaline quartz			Moderate
W85	Washington Creek	I-188	Placer	Au	242		Low
W86	Grotto Mountain	I-190	Bedded vanadium	V			Unknown
W87	Canyon Creek	I-192	Placer	Au			Low
W88	Upper Hammond River	I-194	Placer	Au		Inferred: 360,000 cy at 0.007 oz/cy Au	Low
W89	Vermont Creek	I-196	Placer	Au, Ag	11,230		Moderate
W90	Right Fork Vermont Creek Lode	I-200	Sheeted quartz veins	Au			Low
W91	Webster Gulch	I-202	Placer	Au	4		Low
W92	Thompson Pup	I-204	Placer	Au	626	Measured: 1000 oz Au	Moderate
W93	Fay Creek	I-207	Placer	Au	3,295		Moderate
W94	Archibald Creek	I-210	Placer	Au	6,577		Low
W95	Acme Creek	I-213	Placer	Au			Low

Appendix J - Index of Mines, Prospects, and Mineral Occurrences in the Koyukuk Mining District (listed by map number, see plate 1)

Map No.	MAS Name	Page No.	Deposit Type	Commodity	Recorded Production (oz gold)	Resource Estimate	Mineral Development Potential
W96	Nolan Creek	I-216	Placer	Au, Ag	147,045	Measured: 2,500 oz Au	Moderate
W97	Smith Creek Lode	I-229	Stibnite-quartz vein	Sb, Au		Inferred: 0.3 to 1.0 million oz Au	Low
W98	Smith Creek	I-235	Placer	Au	17,811	Inferred/Indicated: 7,571 oz Au	Moderate
W99	Midnight Dome Prospect	I-239	Stibnite-quartz vein	Sb, Au			Low
W100	Smith Creek Dome Prospect	I-242	Stibnite-quartz vein	Ag, Au, Sb			Moderate
W101	Buckeye Gulch	I-244	Placer	Au	685		Low
W102	Swift Creek	I-246	Placer	Au	1,396		Low
W103	Lofty Gulch	I-248	Placer	Au			Low
W104	Gold Bottom Gulch	I-250	Placer	Au	530		Moderate
W105	Jennie Creek	I-252	Placer	Au			Low
W106	Lower Hammond River	I-254	Placer	Au	19,128	Measured: 31,099 oz Au (Slisco bench)	Moderate
W107	Confederate Gulch	I-261	Placer	Au			Low
W108	Union Gulch	I-263	Placer	Au	1,633		Moderate
W109	Wiseman Creek	I-267	Placer	Au			Low
W110	Minnie Creek	I-270	Placer	Au, Ag	132		Moderate
W111	Cow Creek	I-273	Unknown lode	Cu			Low
W112	Moose Creek	I-275	Placer	Au			Low
W113	Sawyer Creek	I-277	Placer	Au	25		Low
W114	Emma Creek	I-279	Placer	Au, Ag	7,861		Moderate
W115	Marion Creek	I-283	Placer	Au	48		Moderate
W116	Kelly Gulch	I-286	Placer	Au	24		Low
W117	Clara Creek	I-288	Placer	Au, Ag	155		Moderate
W118	Porcupine Creek	I-291	Placer	Au, Ag	7,774		Low
W119	Rosie Creek	I-296	Placer	Au, Ag			Low
W120	Twelvemile Creek	I-298	Placer	Au, Ag	281		Moderate
W121	Alder Creek	I-302	Placer	Au			Low
W122	Tramway Bar Coal	I-304	Lode	Coal, Bituminous		Inferred: 18,000 tons bituminous coal	Low
W123	Mailbox Creek	I-307	Placer	Au			Moderate
W124	Chapman Creek	I-309	Placer	Au			Low
W125	Tramway Bar	I-311	Placer	Au	728		Low
W126	Eagle Cliff	I-315	Placer	Au	48		Low
W127	Hidden Creek	I-318	Placer	Au			Low
W128	South Fork Koyukuk River	I-320	Placer	Au	458		Low

Appendix J - Index of Mines, Prospects, and Mineral Occurrences in the Koyukuk Mining District (listed by map number, see plate 1)

Map No.	MAS Name	Page No.	Deposit Type	Commodity	Recorded Production (oz gold)	Resource Estimate	Mineral Development Potential
W129	Wilson Creek	I-323	Placer	Au			Low
W130	Minie	I-325	Placer	Au			Low
W131	Grubstake Bar	I-327	Placer	Au	194		Low
W132	Bear Creek	I-330	Placer	Au			Moderate
W133	Hanshaw Bar	I-332	Placer	Au			Low
W134	Smalley Creek	I-335	Placer	Au, Ag	75		Moderate
W135	Wild River	I-338	Placer	Au			Moderate
W136	Jones Creek	I-340	Placer	Au			Moderate
W137	Jones Creek Lode	I-342	Kuroko massive sulfide(?)	Unknown			Low
W138	Red	I-344	Kuroko massive sulfide	Cu, Pb, Zn			Low
W139	Roosevelt Creek Lode	I-346	Kuroko massive sulfide	Cu, Zn, Pb, Ag, Au			Low
				Total:	333,893		

Appendix K

Alphabetical listing of mines, prospects, and mineral occurrences in the Koyukuk Mining District

Appendix K - Alphabetical Listing of Mines, Prospects, and Mineral Occurrences in the Koyukuk

MAS Name	Map No.	Page No.	Deposit Type
Abo Prospect	W13	I-26	Carbonate-hosted(?)
Acme Creek	W95	I-213	Placer
Agnes Creek	W53	I-118	Placer
Alatna River	SP5	G-11	Placer
Alder Creek	W121	I-302	Placer
Allen River	W32	I-69	Placer
Allen River Lode North	W30	I-65	Unknown lode
Allen River Lode South	W31	I-67	Unknown lode
Ann Prospect	W8	I-16	Metamorphosed sulfide
Archibald Creek	W94	I-210	Placer
Arrigetch Peaks	SP4	G-8	Skarn
Arsine	C24	C-68	Porphyry
Bear Creek	W132	I-330	Placer
Bettles Bars	B7	B-19	Placer
Bettles River	C39	C-106	Placer
Big Jim (Suklak) Creek	C29	C-80	Placer
Big Jim Creek Lode	C4	C-7	Polymetallic veins
Big Spruce Creek	C32	C-88	Placer
Billy Glen Creek	C59	C-168	Placer
Birch Creek	W52	I-115	Placer
Black Creek	H8	E-14	Placer
Black Creek Lode	H9	E-19	Pluton-related gold
Blahuta Creek	B1	B-1	Placer
Bluecloud Mountain	W80	I-178	Metamorphosed sulfide
Bonanza Creek	W65	I-147	Placer
Bonanza Creek, North Fork	B15	B-38	Placer
Bonanza Creek, South Fork	B16	B-40	Placer
Bonanza Creek Lode	W66	I-149	Quartz veins
Bonanza Prospect	B17	B-42	Skarn
Bore Creek	C54	C-151	Placer
Boulder Creek	C68	C-188	Placer
Bourbon Creek	W41	I-87	Placer
Brockman Creek	C9	C-17	Placer
Buckeye Gulch	W101	I-244	Placer
Bullrun Creek	W37	I-79	Placer
Bullrun Creek Lode	W38	I-81	Metamorphic quartz
Buzz Prospect	W7	I-13	Metamorphosed sulfide
California Creek	C55	C-154	Placer
Canyon Creek	C51	C-145	Placer
Canyon Creek	W87	I-192	Placer
Caribou Mountain	B20	B-49	Podiform chromite
Chapman Creek	W124	I-309	Placer
Chicken Creek	W40	I-85	Placer
Cindy	C23	C-66	Skarn
Clara Creek	W117	I-288	Placer
Colorado Creek	W11	I-23	Placer
Confederate Gulch	W107	I-261	Placer
Cow Creek	W111	I-273	Unknown lode

Appendix K - Alphabetical Listing of Mines, Prospects, and Mineral Occurrences in the Koyukuk

MAS Name	Map No.	Page No.	Deposit Type
Crevice Creek	W35	I-74	Placer
Crevice Creek Lode	W36	I-77	Greenstone copper
Davis Creek	B2	B-3	Placer
Deimos	C18	C-50	Skarn
Denny's Gulch	C66	C-183	Placer
Discovery Creek - Niltitkoktalog Mtn	H5	E-9	Placer
Discovery Creek - Sukapak Mtn	C43	C-119	Placer
Dome Creek	B25	B-62	Placer
Douglas Creek	B12	B-31	Placer
Eagle Cliff	W126	I-315	Placer
East Creek	W49	I-107	Placer
Eightmile Creek	C37	C-100	Placer
Eldorado Creek	B6	B-17	Placer
Emery Creek	C41	C-111	Placer
Emma Creek	W114	I-279	Placer
Emma Dome	W79	I-176	Unknown lode
Eva	C11	C-21	Skarn
Evelyn Lee Prospect	C14	C-36	Skarn
Fall Creek	W42	I-89	Placer
Fay Creek	W93	I-207	Placer
Frog Prospect	W9	I-18	Carbonate-hosted(?)
Galena Creek	W46	I-102	Quartz veins
Garnet Creek	C38	C-103	Placer
Gen Creek	H15	E-37	Placer
Geroe Creek Lode	C25	C-70	Porphyry
Ginger	C17	C-47	Skarn
Glacier Creek Tributary	C53	C-149	Placer
Glacier River	W71	I-163	Placer
Gold Bench	B5	B-12	Placer
Gold Bottom Gulch	W104	I-250	Placer
Gold Creek	C50	C-140	Placer
Granite Creek	C75	C-209	Placer
Grizzly Creek Lode	CL1	D-1	Quartz veins
Grotto Mountain	W86	I-190	Bedded vanadium
Grubstake Bar	W131	I-327	Placer
Hammond River, Lower	W106	I-254	Placer
Hammond River, Upper	W88	I-194	Placer
Hanshaw Bar	W133	I-332	Placer
Helpmejack Creek	H2	E-3	Placer
Helpmejack Hills	H1	E-1	Unknown lode
Hidden Creek	W127	I-318	Placer
Hill 1342	H14	E-35	Epithermal vein
Hill 3816	C72	C-203	Unknown lode
Holanada Creek Lode	T2	H-5	Podiform chromite
Holy Moses Creek	C60	C-170	Placer
Horace Mountain	C16	C-44	Meta-intrusive
Horse Creek	W76	I-171	Placer
Horse Creek Lode	C63	C-176	Unknown lode

Appendix K - Alphabetical Listing of Mines, Prospects, and Mineral Occurrences in the Koyukuk

MAS Name	Map No.	Page No.	Deposit Type
Hot Springs Pluton Lode	B23	B-57	Pluton-related veins
Hot Springs Pluton Placer	B22	B-55	Placer
Howard Creek	C67	C-186	Polymetallic veins
Hunt Fork Lode	W4	I-7	Unknown lode
Huricane-Diane	C19	C-53	Skarn
Indian River	H11	E-27	Placer
Indian River Lode, Lower	H13	E-33	Epithermal vein
Indian River Lode, Upper	H10	E-25	Porphyry
Indian River Trend	M2	F-4	Epithermal vein
Ipnek Creek	W72	I-165	Placer
Ironside Bench	B4	B-9	Placer
Jennie Creek	W105	I-252	Placer
Jim Pup Creek	C56	C-158	Placer
Jim River Canyon	B9	B-24	Placer
Jim River Confluence	B10	B-26	Placer
Jim River, Upper	B11	B-28	Placer
John River Lode	W5	I-9	Unknown lode
Jones Creek	W136	I-340	Placer
Jones Creek Lode	W137	I-342	Kuroko massive sulfide(?)
Kalhabuk Creek	C7	C-14	Placer
Kanuti Kilolitna River	T3	H-8	Placer
Kanuti Kilolitna River Lode	T1	H-1	Podiform chromite
Kanuti Kilolitna River, East Fork	B28	B-70	Placer
Kanuti River, East Fork	B26	B-64	Placer
Kanuti River Lode, Lower	B24	B-59	Podiform chromite
Kanuti River Lode, Upper	B21	B-52	Podiform chromite
Kay Creek	W50	I-109	Placer
Kelly Gulch	W116	I-286	Placer
Kevuk Creek Lode	W6	I-11	Unknown lode
Koyukuk River, South Fork	W128	I-320	Placer
Koyukuk Tributary Lode, South Fork	C71	C-201	Meta-intrusive
Kuyuktuvuk Creek	C1	C-1	Placer
Lake Creek - Bob Johnson Lake	C58	C-164	Placer
Lake Creek - Wild Lake	W57	I-126	Placer
Larowe Creek	W77	I-173	Placer
Lasalle Creek	W75	I-169	Placer
Last Chance Creek	C52	C-147	Placer
Limestone Creek	C36	C-98	Placer
Limestone Creek Lode	C35	C-96	Carbonate-hosted
Linda Creek	C45	C-123	Placer
Little Swede Creek	W69	I-155	Placer
Lode and Behold	W74	I-168	Placer
Lofty Gulch	W103	I-248	Placer
Lost Pipe	H3	E-5	Placer
Lucky Boy	W2	I-3	Unknown lode
Lucky Six Creek	SP3	G-6	Placer
Lucky Six Creek Lode	SP2	G-3	Polymetallic veins
Luke Creek	W27	I-59	Unknown lode

Appendix K - Alphabetical Listing of Mines, Prospects, and Mineral Occurrences in the Koyukuk

MAS Name	Map No.	Page No.	Deposit Type
Luna Prospect	C20	C-56	Skarn, volcanogenic(?)
Magnet Creek	C49	C-138	Placer
Mailbox Creek	W123	I-307	Placer
Marion Creek	W115	I-283	Placer
Mascot Creek	W70	I-156	Placer
Mathews River	C6	C-12	Placer
Mathews River Lode	C10	C-19	Polymetallic veins
Matthews Dome	W55	I-122	Polymetallic vein
McCamant Creek	W34	I-72	Placer
McKinley Creek	W19	I-42	Placer
Mettenpherg West	W10	I-21	Metamorphosed sulfide(?)
Michigan Creek	W44	I-93	Placer
Michigan Creek Lode	W43	I-91	Polymetallic vein
Midas Creek	W16	I-35	Placer
Midnight Dome Prospect	W99	I-239	Stibnite-quartz vein
Mike	C21	C-62	Skarn
Minie	W130	I-325	Placer
Minnie Creek	W110	I-270	Placer
Moose Creek	W112	I-275	Placer
Moose Trail	W33	I-70	Unknown lode
Mosquito Fork	C74	C-207	Placer
Mule Creek	C34	C-93	Placer
Myrtle Creek	C70	C-195	Placer
Nolan Creek	W96	I-216	Placer
Nugget Creek	C48	C-136	Placer
Nutirwik Creek	C3	C-5	Placer
Old Man Creek	B19	B-47	Placer
Old Man Creek Lode	B18	B-45	Epithermal veins
Oregon Creek	W54	I-120	Placer
Pasco Creek	W81	I-180	Placer
Pasco Pass	W82	I-182	Unknown lode
Pass Creek	W63	I-144	Placer
Pat Creek	W48	I-106	Placer
Phoebe Creek	C30	C-82	Placer
Pilgrim	C22	C-64	Skarn
Pingaluk River	SP1	G-1	Placer
Pocahontas Creek	H12	E-31	Placer
Porcupine Creek	W118	I-291	Placer
Prospect Creek	B13	B-33	Placer
Prospect Creek Lode	B14	B-36	Felsic dikes
Ranger	B8	B-22	Placer
Ready Bullion Creek	C40	C-109	Placer
Red	W138	I-344	Kuroko massive sulfide
Red Mountain	H6	E-10	Hypabyssal porphyry
Red Mountain Placer	H7	E-12	Placer
Robert Creek	C31	C-85	Placer
Rock Creek - North Fork Tributary	W78	I-174	Placer
Rock Creek - Sixtymile Tributary	W18	I-40	Placer

Appendix K - Alphabetical Listing of Mines, Prospects, and Mineral Occurrences in the Koyukuk

MAS Name	Map No.	Page No.	Deposit Type
Rock Creek - South Fork Tributary	B3	B-7	Placer
Rockybottom Creek	H4	E-7	Placer
Roosevelt Creek Lode	W139	I-346	Kuroko massive sulfide
Rosie Creek	W119	I-296	Placer
Ruby Creek	W73	I-166	Unknown lode
Rye Creek	W51	I-111	Placer
Sawlog Creek	C64	C-178	Placer
Sawyer Creek	W113	I-277	Placer
Scofield Creek	W47	I-104	Unknown lode
Sentinel Rock	W56	I-124	Metavolcanic(?)
Seward Creek	W26	I-57	Placer
Seward Creek Lode	W29	I-63	Unknown lode
Shady Creek	C33	C-91	Placer
Shamrock Creek	C61	C-172	Placer
Sheep Creek - Middle Fork Tributary	C46	C-130	Placer
Sheep Creek - Robert Tributary	C15	C-42	Placer
Sheep Creek Lode	W22	I-48	Polymetallic vein
Silver King Prospect	W45	I-95	Quartz veins
Sirr Creek	W25	I-55	Placer
Sirr Mountain	W24	I-53	Quartz veins
Sithylemenkat Lake	B27	B-67	Podiform chromite
Sithylemenkat Pluton Prospect	B29	B-73	Greisen
Siwash Creek Lode	C73	C-205	Quartz veins(?)
Sixtymile Creek	W17	I-38	Placer
Sixtymile Creek Lode	W14	I-30	Unknown lode
Slate Creek	C69	C-190	Placer
Smalley Creek	W134	I-335	Placer
Smith Creek	W98	I-235	Placer
Smith Creek Dome Prospect	W100	I-242	Stibnite-quartz vein
Smith Creek Lode	W97	I-229	Stibnite-quartz vein
Snowden Creek Lode	C5	C-9	Polymetallic veins
Snowshoe Creek	W83	I-184	Placer
Spring Creek	W59	I-134	Placer
Spring Creek Lode	W61	I-140	Polymetallic vein
Suckik Creek	W39	I-83	Placer
Sukakpak Mountain Prospect	C42	C-113	Stibnite-quartz veins
Surprise Creek	W60	I-137	Placer
Surprise Creek Lode	W62	I-142	Polymetallic vein
Swede Creek Lode	W67	I-151	Massive sulfide
Swift Creek	W102	I-246	Placer
Tana Prospect	W15	I-32	Carbonate-hosted
Thompson Pup	W92	I-204	Placer
Tinayguk River	W64	I-145	Placer
Tobin Creek	W23	I-51	Placer
Tramway Bar	W125	I-311	Placer
Tramway Bar Coal	W122	I-304	Lode
Trembley Creek	C2	C-3	Placer
Trout Lake Discovery	W28	I-61	Placer

Appendix K - Alphabetical Listing of Mines, Prospects, and Mineral Occurrences in the Koyukuk

MAS Name	Map No.	Page No.	Deposit Type
Twelvemile Creek	W120	I-298	Placer
Union Creek	W1	I-1	Placer
Union Gulch	W108	I-263	Placer
Utopia Creek	M1	F-1	Placer
VABM Allen	W21	I-46	Polymetallic vein
VABM Kukluk	W3	I-5	Unknown lode
VABM Pink	W20	I-44	Polymetallic vein
Venus Prospect	C13	C-30	Porphyry
Vermont Creek	W89	I-196	Placer
Vermont Creek (Right Fork) Lode	W90	I-200	Sheeted quartz veins
Vermont Dome	W84	I-186	Quartz veins
Vi Creek	C44	C-121	Placer
Vi Creek Lode	C8	C-15	Polymetallic veins
Victor	C12	C-26	Skarn
Wakeup Creek	C57	C-161	Placer
Washington Creek	W85	I-188	Placer
Webster Gulch	W91	I-202	Placer
Wild Lake	W58	I-132	Polymetallic vein
Wild River	W135	I-338	Placer
Willow Creek	C28	C-78	Placer
Willow Creek Lode, Lower	C27	C-76	Metamorphosed sulfide
Willow Creek Lode, Upper	C26	C-73	Contact metasomatic
Wilson Creek	W129	I-323	Placer
Wiseman Creek	W109	I-267	Placer
Wizard	C65	C-180	Quartz veins
Wolf Creek	C62	C-174	Placer
Wolf Pup	C47	C-134	Placer
Zinc Float Creek Lode	W68	I-153	Unknown lode
Zirc	W12	I-25	Unknown lode

Photos (clockwise, from upper left corner):

1) The Nolan Creek mining camp in 1909. The Nolan drainage has produced at least 147,000 oz of placer gold (map no. W96). U.S. Geological Survey photo.

2) The results of placer mining by Silverado Gold Mines Ltd. at Nolan Creek in 1994. The largest nugget weighs 7 oz.

3) BLM volunteer Mark Johnson collecting a placer sample at Black Creek (map no. H8).

4) BLM field crew with Nolan Creek miners and their dog during the 2000 field season.

5) Gold nugget weighing 41.35 oz (unofficially the 10th largest in Alaska) recovered by Silverado Gold Mines Ltd. at Nolan Creek.

6) BLM geologist Robert Klieforth examines mafic volcanic rocks with Heart Mountain as a backdrop.

7) BLM volunteer Dan Kurtak on Twelvemile Mountain along the Middle Fork Koyukuk River.