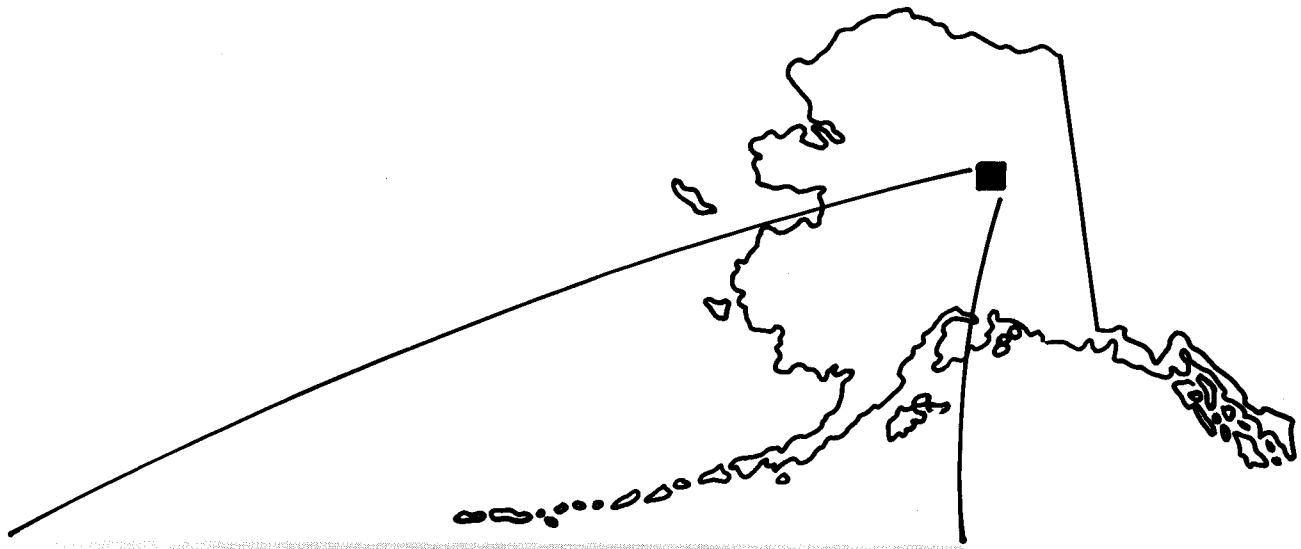
Results of 1987 Bureau of Mines Placer Investigations of the White Mountains Study Area, Alaska

By Steven A. Fechner and Michael D. Balen



UNITED STATES DEPARTMENT OF THE INTERIOR
Donald P. Hodel, Secretary

BUREAU OF MINES
David S. Brown, Acting Director

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UNIT OF MEASURE ABBREVIATIONS USED IN THIS REPORT

ft	foot
gpm	gallon per minute
hp	horsepower
in	inch
lb	pound
mi	mile
my	million year
oz	troy ounce
ppm	part per million
%	percent
st	short ton
yd^3	cubic yard

RESULTS OF 1987 BUREAU OF MINES PLACER INVESTIGATIONS OF THE WHITE MOUNTAINS AREA, ALASKA

By Steven A. Fechner[1/] and Michael D. Balen[2/]

ABSTRACT

In 1986-87, the Bureau of Mines conducted a literature search and a reconnaissance and site specific placer sampling program of drainages in the White Mountains Study Area. This work was performed as part of a mineral resource assessment study conducted jointly by the Bureau, the Alaska Division of Geological and Geophysical Surveys, and U.S. Geological Survey. The literature search identified fifteen placer mineral properties which were subsequently evaluated during this study. Two hundred sixty-five samples were taken from the drainages in the area during the sampling program. Physically separable quantities of gold were found in 49 samples collected from Beaver, Roy, Mascot, Nome, O'Brien, and Ophir Creeks, and a tributary of American Creek. The majority of these samples and the highest gold values were taken from Nome Creek and the upper portions of Beaver Creek. Nome and Beaver Creeks were consequently rated as having high mineral development potentials for small size (100 to 500 yd^3/day) placer mining operations. The other drainages in the area have low placer mineral development potentials. Placer sample concentrates with anomalous geochemical values have also been identified.

INTRODUCTION

The Bureau of Mines conducted a placer mineral resource assessment of the White Moutains Study Area in 1986-87. This study was designed to supplement the mineral resource assessment of the area conducted jointly by the Alaska Division of Geological and Geophysical Surveys (ADGGS) and U. S. Geological Survey (USGS). The assessment was needed to update the minerals information included in the Bureau of Land Management's (BLM) "Resource Management Plan/Final Environmental Impact Statement for the White Mountains National Recreation Area and the Steese National Conservation Area (91-92)[3/].

Field work conducted in 1987 included both reconnaissance and site specific placer mineral investigations and sampling. The area has produced placer gold and was known to contain placer tin occurrences (96-97).

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3/Underlined numbers in parentheses refer to items listed in the references preceding the appendix.

This report summarizes: 1) the data obtained from the literature search and the Bureau sampling program; and (2) the mineral development potential of placer mineral deposits in the White Mountains Study Area. A mining feasibility study for the placer deposits of the area will be published (8).

ACKNOWLEDGMENTS

The authors would like to thank Charles Herbert, Robert Emerson (Bear Creek miner), and Richard Bacca, Dennis Wilfer, Jim Tungate, and M. A. Pavey (Nome Creek miners) for the information they supplied the Bureau. The work done by the following Bureau personnel from WFOC, Spokane: Peter Gabby, Geologist, Steven Iverson, Mining Engineer, Terry Neumann, Geologist, and Andrew Lescykowski, Physical Scientist; and from AFOC, Anchorage: Steven McGroarty, Physical Scientist Technician and Nathan Rathbun, Warehouseman, is also acknowledged.

STUDY AREA

The White Mountains Study Area is located in east-central Alaska, approximately 35 mi northeast of Fairbanks (fig. 1). The study area is comprised of the White Mountains Recreation Area, which includes the Beaver Creek Wild and Scenic River; and the western portion of the Steese National Conservation Area, which includes the Pinnell Mountain Trail. The Bureau's study was restricted to an area from Wickersham Dome on the southwest corner, to Mt. Prindle on the southeast corner and to Mt. Schwatka on the north. The study area boundary encompasses approximately 1 million acres (fig. 2). The Pinnell Mountain Trail was not examined by the Bureau because the ridge on which it is located has rock outcrops and therefore has no placer mineral potential.

Access to the southern and western portions of the area is along the Steese and Elliott Highways. The entry point from the Steese Highway is along the US Creek road, and from the Elliott Highway entry is along the White Mountains Trail. Portions of the study area are accessible in the summer with off-road vehicles; however, access to most of the area is only by helicopter or on foot.

The entire area consists of federal land managed by the BLM and includes the Beaver Creek Wild River corridor, and primitive, semi-primitive motorized, and research natural areas (fig. 3). The entire study area is currently closed to mineral entry.

PREVIOUS STUDIES

USGS authors began publishing reports concerning the geology and mineral deposits of the White Mountains Study Area in 1906. Brooks, Prindle and Ellsworth (15-16, 42-44, 69-71) published reports concerning mining in the area from 1906-12. Prindle and Katz (72) described the geology of the Fairbanks district in 1913. Martin (56) mentioned the area in the description of the mining industry in Alaska in 1918. Smith (76-86) reported on the mining activity in the area in the mineral industry of Alaska reports for 1926-32, 1935, 1937, 1939, and 1941-42. Joesting (53) of the Territory of Alaska Department of Mines reported on the strategic minerals in the area in 1942. Wedow

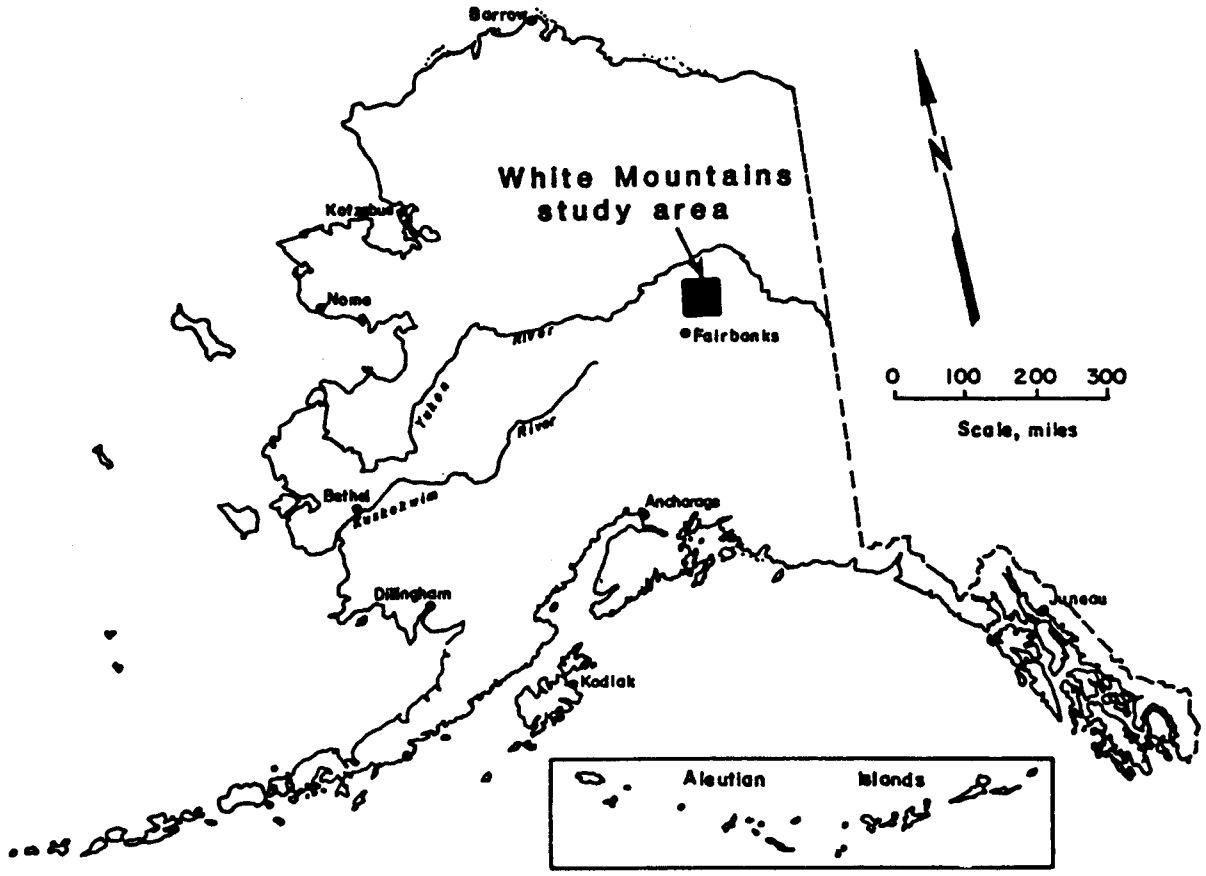


FIGURE 1.-- Location map of the White Mountains Study Area, Alaska.

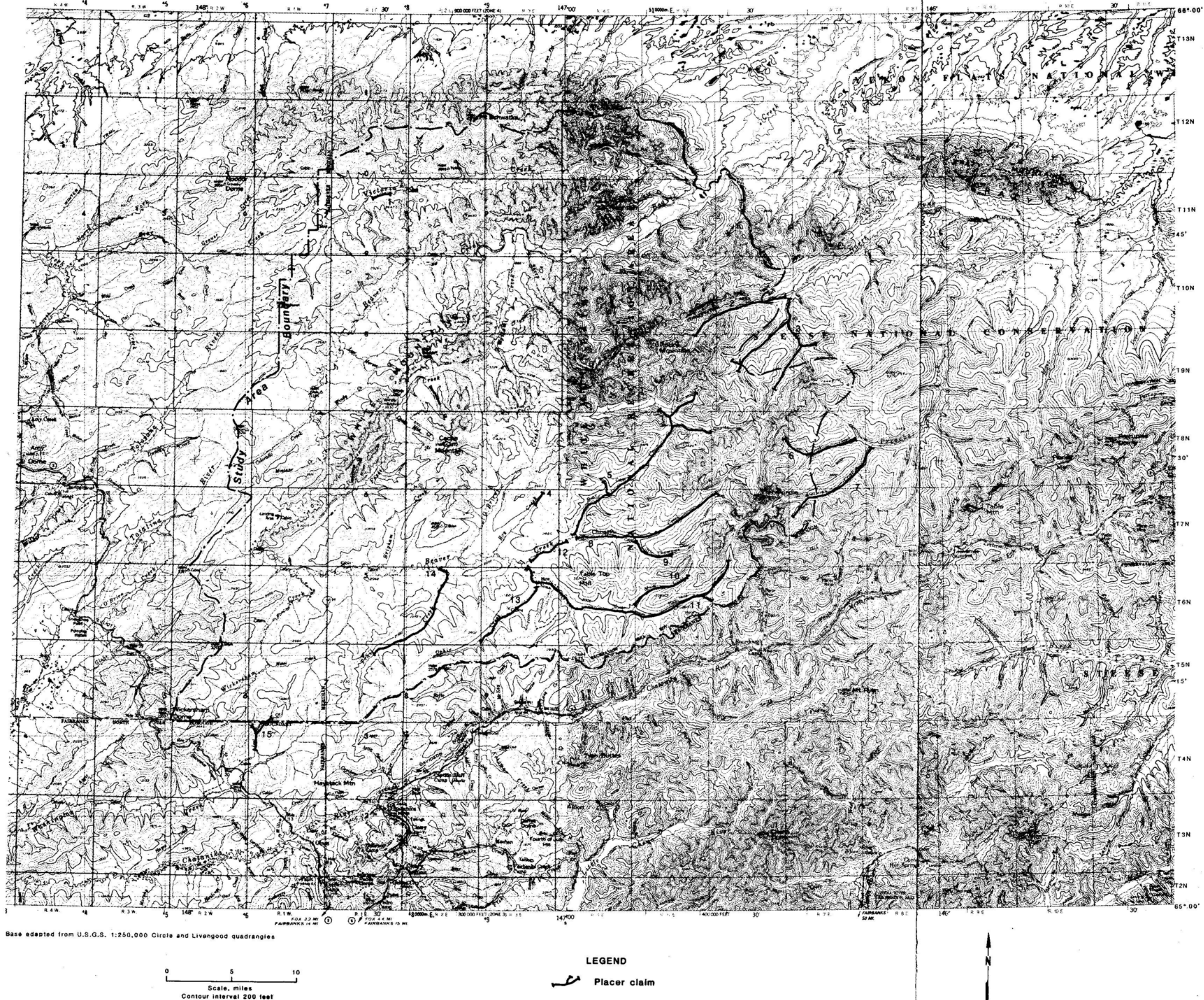
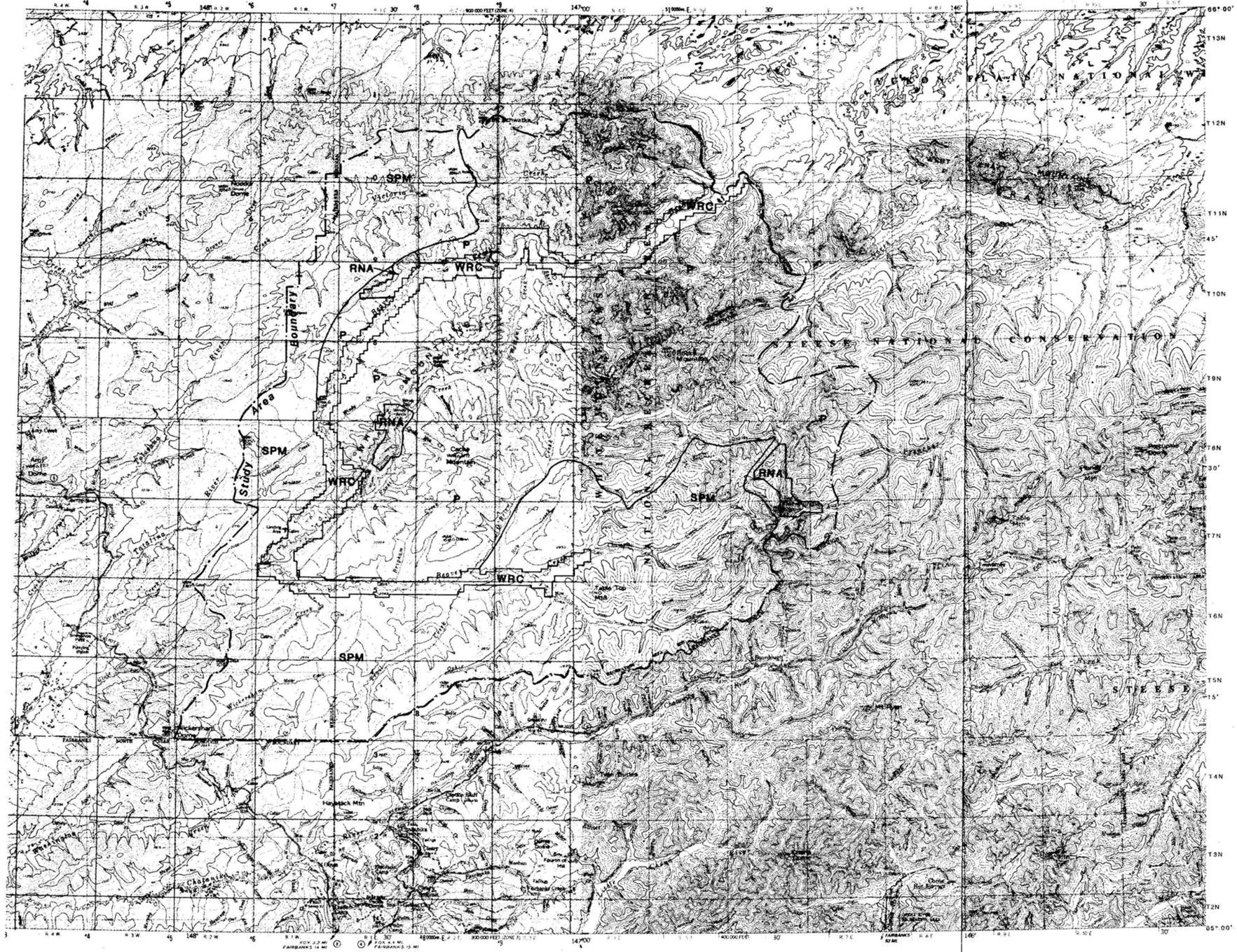


Figure 2. - Placer claim location map for the White Mountains Study Area, Alaska.



Land status adapted from BLM-AK-PT-86-017-1610-028 Report

Figure 3. – Proposed land status map of the White Mountains Study Area, Alaska

and Nelson (63, 100) reported on the radioactive deposits in the area. Cobb and Eberlein (29-37, 40-41) have listed and summarized the mineral deposits of the area in various reports. Chapman (26-27) published a preliminary geology map and geochemical analyses of the Livengood Quadrangle.

The USGS has completed the Alaska Mineral Resource Assessment Program (AMRAP) in the Circle quadrangle and portions of the Livengood quadrangle (23-24, 38, 45-46, 57, 74, 88-90,). Reports on the geochemistry of the rocks of the area have been written by various authors (7, 19, 47, 49, 51, 54, 58-59, 62, 65, 67-68). Graduate school theses by Burack (18), Burton (21), Church and Durfee (28), and Holm (52) have been written on selected areas.

Barker (9-14), Burton (22), and Warner (96-97) have written Bureau reports on the tin and radioactive deposit potential of the area.

The ADGGS and USGS have conducted the lode mineral assessment of the study area for the BLM and have unpublished data available (4-5, 20, 94-95).

MINING HISTORY

Gold was discovered in the Beaver Creek basin in 1910, which led to a minor gold rush. Claims were subsequently staked on Nome, Ophir, Trail, and Victoria Creeks. From 1911 to 1926, only a minor amount of mining was recorded in Ophir and Nome Creeks. Nome Creek Dredging Co. built a dredge on Nome Creek in 1926. The dredge operated continuously until it burned in 1932. A new dredge was brought onto the property from Deadwood Creek in 1937. The dredge operated until the late 1940's, and was subsequently sold to the U.S. Tin Corp. and moved to the Seward Peninsula. Since then only small scale mining has occurred in the White Mountains Study Area.

PRODUCTION

Nome Creek and its tributaries have been the only gold producing creeks in the White Mountains Study Area. Records indicate that 28,957 oz of gold were produced from Nome Creek between 1921 and 1948 (table 1). Gold has been mined from Nome Creek since 1960; however, there are no records to indicate the amount of production. Sumner and Ophir Creeks have produced an additional 952 oz (table 1).

TABLE 1. - Gold production from White Mountains Study Area, Alaska

Creek	Years	Ounces of gold produced (93)
Nome Creek (11) 1/...	1921-1948	28,957
Sumner Creek (11) 1/.	1947-1951	919
Ophir Creek (13) 1/..	1918?	33
Total.....		29,909

1/ Refers to numbers located on figure 2.

GEOLOGY

The geology of the White Mountains Study Area is complex and has been described by various ADGGS and USGS authors (4, 27, 45, 48, 50, 60-61, 69-72, 87, 94, 98-99). T. E. Smith (87) has presented the most complete description of the geology of the area. The metamorphosed stratigraphic sequence underlying the area includes from oldest to youngest: The Fairbanks Schist(?), the Cleary Sequence(?), a thick "Grit-Metagrit" sequence, a tightly folded upper grit sequence, and a belt of platy limestone, mafic volcanic rocks, and pyrite-rich black chert and slate (87). The bedrock units have been intruded by granite bodies. The rock units are overlain by unconsolidated Quaternary deposits.

The Fairbanks Schist is Proterozoic in age, and is dominantly pelitic schist with minor calcschist. This unit is exposed in an anticline in the southernmost part of the area (87).

The Cleary Sequence is also Proterozoic in age and is a north-dipping belt of graphitic schist, graphite-bearing pelitic schist, white felsic schist, and white laminated or banded metaquartzites (87). The sequence occurs along the southern border of the area. Creeks that drain this sequence usually contain placer gold.

The Precambrian-Paleozoic "Grit-Metagrit" sequence forms the bedrock in most of the area and includes broad lenses of quartz-granule conglomerate; sheetlike beds of pure to impure orthoquartzite, which are interbedded with abundant pelitic rocks; and minor interbeds of chloritic greenschist, marble, calcschist, and metagraywacke (87).

A similar, tightly folded, upper grit sequence is exposed north of Rocky Mountain (Lime Peak) and includes relatively abundant interbedded maroon and green slate or phyllite, and minor marble and intermediate volcanics (87).

A belt of Ordovician-Silurian platy limestone, mafic volcanic rocks, and pyrite-rich black chert and slate is exposed south of Beaver Creek. The rocks are juxtaposed against the maroon and green slate or phyllite sequence along a simple high-angle fault or a faulted unconformity (87).

A Jurassic-Cretaceous unit of conglomerate, graywacke, and shale is present along much of Beaver Creek north of the White Mountains. North of Beaver Creek are Paleozoic-Precambrian grit, quartzite, and argillite; Paleozoic ultramafic rocks; Ordovician-Silurian sedimentary and volcanic rocks; and Cambrian slate, quartzite, and limestone. The Silurian-Devonian Tolovana Limestone makes up the White Mountains.

The metamorphic rocks have been intruded by five large, multiphase granite bodies: the Rocky Mountain (Lime Peak), Quartz Creek, Mt. Prindle, Victoria Mountain, and Cache Mountain intrusive systems. These intrusives have been dated at about 58-65 my by potassium/argon methods (87, 94). The Rocky Mountain (Lime Peak), Quartz Creek, and Mt. Prindle intrusive systems are differentiated composite intrusions with an early coarse-grained seriate or seriate/porphyritic textured phase and a later fine-grained equigranular-to-equigranular/porphyritic phase which

crosscuts the early phase (87). Creeks draining these intrusives usually contain placer gold and tin. Rhyolite porphyry dikes and breccia dikes compose the latest magmatic event in the differentiated systems.

In addition to the large intrusive systems, numerous small dikes, sills, and plugs are present across the study area. The compositions of these small bodies range from rhyolite through andesite, hornblende granite to granodiorite, and lamprophyre to basalt and diabase (87).

UNCONSOLIDATED QUATERNARY DEPOSITS

The most prominent unconsolidated Quaternary deposits in the study area consist of colluvial, glacial, and fluvial deposits.

Colluvial Deposits

Colluvial deposits are located at the headwaters and along the valley sides of most of the drainages in the area. The deposits are formed by mass wasting of the surrounding slopes. The deposits are generally shallow (between 1- and 3-ft-thick), consist of poorly sorted material (rocks and clay), and sometimes contain minor free gold and/or cassiterite.

Glacial Deposits

The upper portions of the creeks that drain the mountainous eastern portion of the study have been glaciated. Cirques are present at the higher elevations of some of the peaks in the area. Till and terminal moraines have been mapped by Weber and Hamilton (98) and the ADGGS (5) in the proximal valleys to the cirques. Depths to bedrock in the stream beds increase downstream of terminal moraines. In Nome Creek, the depths to bedrock increase from 3 ft upstream to 15 ft downstream from the terminal moraine. Increases in gold and tin values have been noted downstream from terminal moraines in Nome and Livvy Creeks.

Fluvial Deposits

Unconsolidated fluvial gravel deposits occur in the streams and as bench deposits along the streams of the area. Most of the gold produced in the district has come from alluvial gravels in Nome Creek, with minor production occurring from the benches along lower Nome Creek. Gold-bearing gravel benches have also been reported along Trail and Ophir Creeks.

Gravel deposits on the gold producing streams in the area are up to 600 ft wide and from 9- to 15-ft-thick. Bench deposits may be up to 1,300 ft wide, are traceable over a mile distance, and are up to 12-ft-thick. The fluvial gravels are poorly sorted. Heavy mineral concentrations range from 0.1 to 3.0 lb/yd^3. The heavy minerals are mainly of magnetite, ilmenite, and garnet, with minor amounts of gold, cassiterite, scheelite, monazite, zircon, xenotime, topaz, tourmaline, pyrite, rutile, chalcopyrite, galena, and cinnabar.

BUREAU OF MINES INVESTIGATION

The Bureau conducted a placer minerals assessment of the White Mountains Study Area by doing a literature search in 1986 and field investigations in June 1987.

LITERATURE SEARCH

Data compilation on geology, production, and mining history included the review of USGS bulletins, Alaska Territorial Department of Mines reports, ADGGS reports, university theses, company data, claim maps (1-3), and Minerals Availability System (93) locations. Fifteen placer properties were identified by the search (fig. 2). Letters requesting information and permission to visit mining claims in the area were sent out to all claimants of record.

FIELD INVESTIGATIONS

Field investigations consisted of placer sampling and magnetometer surveys. BLM stipulated that backhoe sampling could only be conducted on road-accessible federal claims; and that no power tools, except hand-held portable tools could be used for sampling in any other area. The BLM further restricted sampling in Nome Creek to areas in which BLM was not going to perform mining claim validity examinations. The Bureau therefore restricted backhoe placer sampling to the road accessible portions of Nome Creek and performed reconnaissance placer sampling in areas without road access.

The Bureau collected 265 samples, which consisted of 234 reconnaissance placer, 20 backhoe placer, 4 site specific bulk placer, and 7 rock samples. The creeks having placer properties identified during the literature search were sampled.

The procedure for reconnaissance placer sampling consisted of hand-digging a pit and processing 0.1 yd^3 of unconsolidated material through a portable mini sluice box or gold pan. The sluice box measured 34 in long by 10 in wide and had 0.38-in-high transverse riffles resting on expanded metal on indoor-outdoor carpeting. The portable sluice box was used to process material adjacent to stream channels. Wherever possible, channel samples of unconsolidated material were taken from the surface to bedrock. Creeks with mining claims were sampled at maximum one mile intervals. The rest of the drainages in the area were sampled at greater intervals.

A backhoe with a 0.15 yd^3 capacity bucket was used to take placer samples in Nome Creek, which was the only drainage with road access to its federal claims. A hole was dug to bedrock, where possible, and the lower 2 ft of gravel and bedrock were processed through a hydraulic concentrator. Between 0.1 and 0.2 yd^3 of material was processed, with the average size being 0.15 yd^3. The hydraulic concentrator consisted of a small grizzly attached to an aluminum mini sluice similar to the one described above. Water was pumped to the concentrating unit by a 150-gpm-

rated pump coupled to a 5-hp engine. Sampling was attempted at one-half mile intervals and in areas which had been noted as anomalous during the magnetometer survey.

Site specific bulk placer samples were taken to characterize the size of the gravels and the gold from specific locations. The procedures used for bulk sampling were to dry screen 437 to 1,121 lb of gravel, using 1-, 2- and 4-mesh screens. The plus 1-, 2-, and 4-mesh size fractions were weighed, washed through a hydraulic concentrator, and discarded. The minus 4-mesh size fraction was then dried and screened to +6-, +10-, +14-, +20-, +30-, +40-, +50-, +60-, +70-, +80-, +100-, +200-, and -200-mesh sizes. Gold was separated from the +100-mesh and greater size fractions by using a hydraulic concentrator and gold pan. The +200- and -200-mesh size fractions were split and sent in for chemical analyses.

The sluice box concentrates from the reconnaissance and backhoe placer sampling were saved. Forty-nine concentrates were processed in Anchorage to separate the gold by using gravity separation techniques. The rest of the concentrates did not contain enough visible gold (less than 0.0001 grams) for physical separation; therefore, they were sent directly to a commercial laboratory for fire assay, and inductively coupled plasma (ICP) chemical analyses. The separated gold particles were measured, counted, described, weighed, and sent to a commercial laboratory for fineness determinations for the gold.

Magnetometer surveys were conducted in Nome Creek by a geological consulting firm (66). The surveys were conducted in areas which had the highest percentages of unmined gravel on the creek. Two EDA OMNI IV magnetometer/gradiometers were used. Grid lines were approximately one-tenth mile apart, in north-south orientations across the creek. Readings were taken at 25 ft intervals along the lines. Magnetometer survey grids, totalled 29,560 linear ft long.

MINERAL DEVELOPMENT POTENTIAL AND RESOURCE ESTIMATES

Sample results and site specific mineral examinations of the properties were used to give each property in the study area a mineral development potential rating: "high", "moderate", "low", "unevaluated", and "unknown". These ratings are estimates based on an evaluation of grades and extent of mineralized material. A deposit with a high mineral development potential would have both high grades and probable continuity of mineralized material. In the case of a placer gold or tin deposit, grades must exceed 0.01 oz/yd^3 gold and 1 lb/yd^3 tin or approximately 50% tin in the chemical analysis of the average placer concentrate. A deposit with moderate mineral development potential would have either a high metal content or continuous mineralized material identified, but not both. A deposit with low mineral development potential would contain uneconomic grades and/or show little evidence of continuity of mineralized material. Unevaluated mineral development potential ratings were assigned to deposits not located or visited in the field. Unknown mineral development potential ratings were assigned to properties having insufficient work to properly evaluate.

Resource estimates were made for the properties that had sufficient geologic information to calculate average grade and yardage.

RESULTS

Detailed descriptions of the 15 placer properties in the White Mountains Study Area are in appendix A. All but one property (Livvy Creek, no. 2, fig. 2) is a placer gold property. Livvy Creek contains placer tin. The mineral development potential ratings for the properties in the district are summarized in table 2. Only Nome Creek and the upper portion of Beaver Creek have high mineral development potentials.

Sample site locations are plotted on figures 4-5 and sample results are tabulated in appendix B. Fineness values are listed in table 3. The placer samples contained from less than the detection limit (0.002 oz/st gold for the concentrates using fire assay techniques or 0.0001 oz/yd^3 gold for the samples that contained physically separable gold) to 0.0318 oz/yd^3 gold. The highest gold values were found in Nome and Beaver Creeks. Fineness values ranged from 779 to 958. Tin values ranged from trace to 5%.

Nome and Upper Beaver Creeks will be discussed in more detail because of their high mineral development potential ratings. Anomalous geochemical values found in the placer samples will also be discussed.

NOME CREEK

Nome Creek is located along the southeastern edge of the study area (no. 11, fig. 2). It drains the south side of Mt. Prindle and flows west into Beaver Creek. Nome Creek is divided for ease of discussion into upper Nome Creek, upstream from the confluence of Moose Creek (figs. 5-6); and lower Nome Creek, downstream from the confluence of Moose Creek to Beaver Creek.

Upper Nome Creek

Nome Creek originates near Mt. Prindle, where a small felsic stock is in contact with schist. The elevation at the headwaters is approximately 4,000 ft with a fall of 2,100 vertical feet to Moose Creek over a 12 mi distance. The gravel of Nome Creek is from 2- to 3-ft-thick in the upper 5 mi of the creek. A terminal moraine has been mapped 5 mi downstream from the headwaters. Downstream from the moraine, gravel thicknesses range from 6 to 15 ft, with an average of 10 ft. Gold is concentrated in the lower 2 to 3 ft of the gravel and in and on bedrock. The gravel is poorly sorted.

History and Production

Gold was discovered in Nome Creek in 1910 with mining starting in 1911. The creek has been mined over an approximate 6 mi distance from Moose Creek to approximately 1 mi upstream from

TABLE 2. - Mineral development potential ratings for properties in the White Mountains Study Area

Property name	Mineral development potential
Victoria Creek (1)[1/]	Low
Livvy Creek (2)	Low
Snow Creek (3)	Low
Roy Creek (4)	Low
Bear Creek (5)	Low
Convert Creek (6)	Low
American Creek (7)	Low
Champion Creek (8)	Low
Little Champion Creek (9)	Low
Moose Creek (10)	Low
Nome Creek (11)	High
Beaver Creek (12)	High
Ophir Creek (13)	Low
Trail Creek (14)	Low
Lost Horses Creek (15)	Unknown

1/Number in paranteses refers to the property location number on figure 2 and in appendix A.

TABLE 3. - Fineness values for samples taken in the White Mountains Study Area

Map no.	Sample no.	Location	Fineness
20	243	Mascot Creek	790
22	247	Beaver Creek	804
26	16	..do	878
111	110	American Creek Trib.	880
111	120	..do	930
138	150	Champion Creek	941
144	192	Beaver Creek	779
145	209	Beaver Creek Trib.	958
146	193	Beaver Creek	949
146	207	..do	934
146	206	..do	868
151	87	Roy Creek	891
153	210	..do	895
154	82	O'Brien Creek	917
187	224	Ophir Creek	901
193	235	Nome Creek	918
193	93	..do	900
194	94	..do	895
195	78	..do	899
197	77	..do	888
198	76	..do	901
199	69	..do	878
201	67	..do	855
205	57	..do	865
207	55	..do	860
211	220	..do	902
212	221	..do	902
213	218	..do	909
214	219	..do	919
215	216	..do	904
216	217	..do	906
217	213	..do	919
218	212	..do	911
220	75	..do	933
221	71	..do	873
222	211	..do	902
223	200	..do	924
226	149	..do	920
227	196	..do	892
227	197	..do	910
228	199	..do	913
229	198	..do	940
230	205	..do	867
231	204	..do	909
232	203	..do	929
233	194	..do	917
234	202	..do	905
236	2	..do	875

Sumner Creek (figs. 5-6). Hand mining occurred until the Nome Creek Dredging Co. built a dredge on the creek in 1926. Dredging was conducted from 1926 until 1932 when the dredge burned. Production was recorded at approximately 5,055 oz of gold during this time period (93). The grade averaged 0.012 oz/yd^3 gold. Only minor amounts of mining occurred from 1932 to 1937 when the Deadwood Mining Co. (renamed the Nome Creek Mining Co.) brought in a dredge. The creek was dredged until 1947, with a respite during World War II. During this time, approximately 18,000 oz of gold were recovered. Average recovered grade during this time period fell from 0.0191 oz/yd^3 gold in 1937 (93) to 0.0021 oz/yd^3 gold in 1947 (64). Nome Creek was dredged from approximately 0.5 mi upstream of Sumner Creek to Moose Creek. Mining with heavy equipment occurred in Sumner Creek, upstream of the dredge tailings, and at the confluence of Moose Creek from the early 1960's to 1986. The Bureau calculated that approximately 2.2 million yd^3 of gravel was mined in Nome Creek as represented in figure 5.

The lower 2 mi of Nome Creek, above Moose Creek, was drilled and subsequently dredged by the Nome Creek Mining Co. Figure 6 shows the location of the drill holes. Gold values in the drill holes ranged from a trace to 0.018 oz/yd^3 (64). The dredge attempted to mine the areas that had the highest gold values. From this portion of the creek, the dredge mined 716,750 yd^3 of gravel with an average grade of 0.004 oz/yd^3 gold (64).

Bureau Sampling

The Bureau sampled Nome Creek (excluding claimed areas undergoing BLM validity examinations) from the headwaters to approximately 2 mi above Moose Creek. Forty-one samples, which include 16 placer, 20 backhoe placer, 2 rock, and 3 site specific bulk samples were taken from 28 sample sites (nos. 124-125, 211-236, B2-4, figs. 4-5, appendix B). Most of the sampling was attempted from unmined ground. Sample values ranged from a trace to 0.0318 oz/yd^3 gold, with the highest values found in the Sumner Creek area. Fineness values for 22 gold samples from upper Nome Creek ranged from 867 to 940, with an average of 908 (table 3).

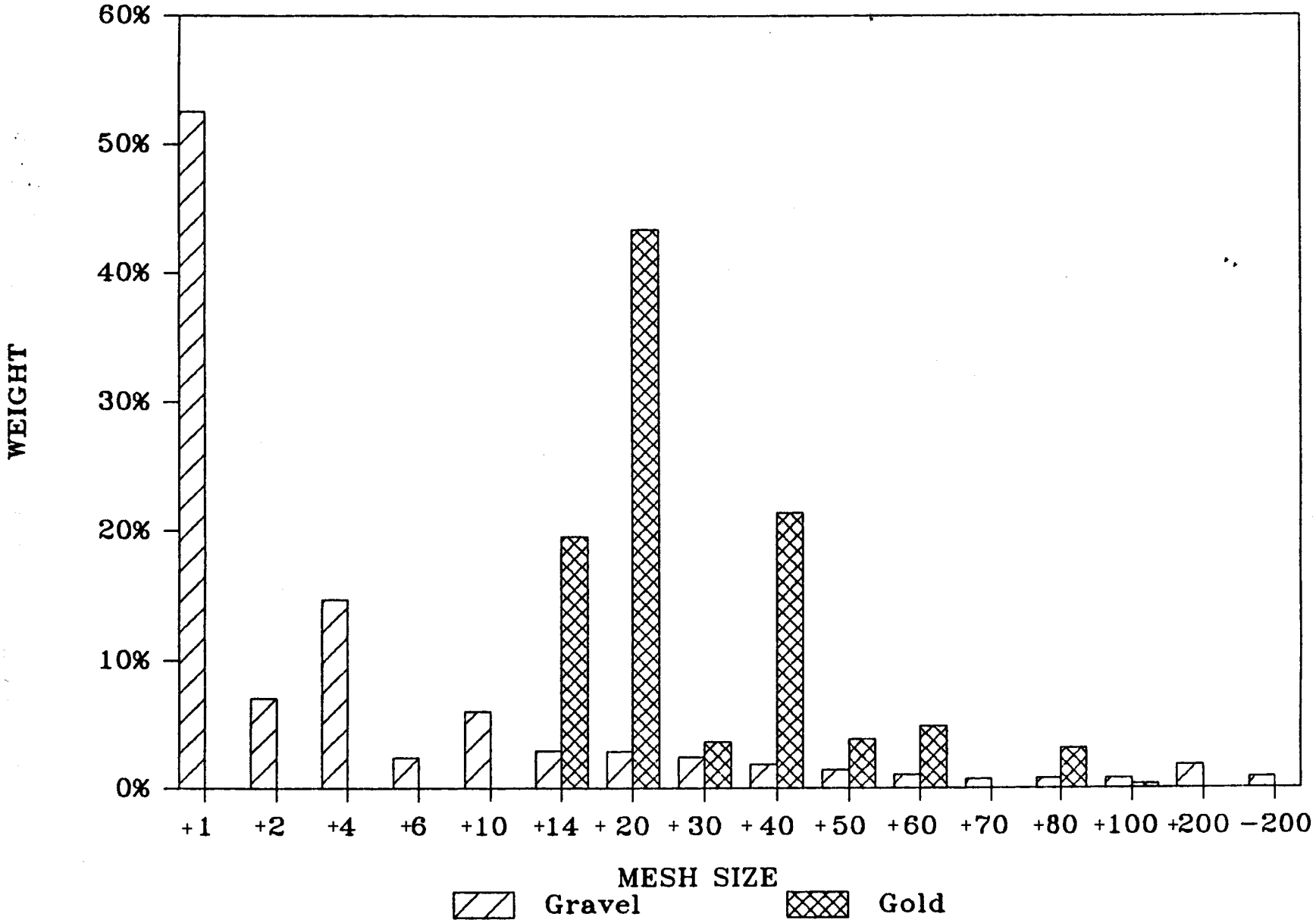
Three site specific bulk placer samples (nos. B2-4, fig. 5) were collected from previously unworked gravel on Nome Creek for the purpose of analyzing gravel and gold particle sizes. Because most placer gold within a gravel deposit is disseminated, the gold from the bulk samples taken at the site specific sample locations was also sieved and weighed. The weights of the gold recovered from these samples were added to the weights recovered from the site specific samples to reflect a larger sampling volume and the percentages are listed in table 4.

Sample B-2 was taken approximately 2 mi upstream from the confluence of Moose Creek by using a backhoe (fig. 5). Two backhoe bucketsful were taken: one from the gravel/bedrock interface, and one from the overlying gravel section. The gravel section was 10-ft-thick. The sample weighed 1,121 lb. Figure 7

TABLE 4.- Results of site specific bulk placer sampling in the White Mountains study area

Sieve size (mesh)	Beaver Creek (B1)			Nome Creek (B2)			Nome Creek (B3)			Nome Creek (B4)		
	Gravel weight (lbs)	Gravel (%)	Gold (%)	Gravel weight (lbs)	Gravel (%)	Gold (%)	Gravel weight (lbs)	Gravel (%)	Gold (%)	Gravel weight (lbs)	Gravel (%)	Gold (%)
+1.....	377	51.52	0.00	589	52.53	0.00	246	56.30	0.00	279	30.88	0.00
+2.....	60	8.20	0.00	79	7.05	0.00	30	6.87	0.00	89	9.85	0.00
+4.....	156	21.32	0.00	165	14.72	0.00	62	14.19	0.00	192	21.25	0.00
+6.....	7.45	1.02	0.00	26.5	2.36	0.00	9.4	2.15	0.00	27.75	3.07	0.00
+10.....	43.4	5.93	54.38	68	6.06	0.00	26	5.95	0.00	96.55	10.69	0.00
+14.....	19.45	2.66	0.00	32.5	2.90	19.55	12.81	2.93	0.00	40.55	4.49	6.09
+20.....	16.6	2.27	20.19	31.65	2.82	43.38	11.75	2.69	9.12	38.2	4.23	16.96
+30.....	13.6	1.86	7.71	27.35	2.44	3.59	9.8	2.24	27.03	32.25	3.57	30.51
+40.....	9	1.23	15.94	20.85	1.86	21.37	8.15	1.87	24.10	26.35	2.92	38.14
+50.....	6	0.82	1.02	16	1.43	3.80	6.2	1.42	0.00	21.4	2.37	6.04
+60.....	2.75	0.38	0.33	11.55	1.03	4.84	2.75	0.63	34.98	9.5	1.05	1.46
+70.....	1.85	0.25	0.09	8.05	0.72	0.00	1.9	0.43	0.68	7	0.77	0.11
+80.....	1.5	0.20	0.34	8.5	0.76	3.14	1.4	0.32	3.42	7.25	0.80	0.32
+100.....	1.35	0.18	0.00	8.2	0.73	0.33	1.65	0.38	0.68	6.5	0.72	0.37
+200.....	4.25	0.58	0.00	19.85	1.77	0.00	3.05	0.70	0.00	16	1.77	0.00
-200.....	11.6	1.59	0.00	9.3	0.83	0.00	4.05	0.93	0.00	14.25	1.58	0.00
Total..	731.8	100.00	100.00	1121.3	100.00	100.00	436.91	100.00	100.00	903.55	100.00	100.00

FIGURE 7.- Histogram of Sample B-2,



is a histogram showing the size distributions of the gravel and gold from the sample. Over 50% of the gravel was larger than +1-mesh. The gold sizes were approximately 19.5% -10/+14-mesh, 43% -14/+20-mesh, 3.5% -20/+30-mesh, 21% -30/+40-mesh, 4% -40/+50-mesh, 5% -50/+60-mesh, 3% -70/+80-mesh, and 0.3% -80/+100-mesh (fig. 7).

Sample B-3 was taken from a gravel section on the north side of Nome Creek near the end of the US Creek road (fig. 5). A channel was cut from the surface to a depth of 5 ft. The sample weighed 437 lb. Over 75% of the gravel was larger than +4-mesh (fig. 8). The recovered gold sizes were approximately 9% -14/+20-mesh, 27% -20/+30-mesh, 24% -30/+40-mesh, 35% -50/+60-mesh, 0.7% -60/+70-mesh, 3.4% -70/+80-mesh, and 0.68% -80/+100-mesh (fig. 8).

Sample B-4 was taken downstream from the mouth of Sumner Creek (fig. 5). Two backhoe bucketsful were taken from the site: one from the bedrock/gravel interface and one from the overlying gravel section. The sample weighed 903 lb and was taken from a 12-ft-thick section of unmined gravel. This gravel section contained more fine grained material than the other bulk samples taken from Nome Creek. Only 31% of the gravel was larger than +1-mesh (fig. 9). The gold size distribution was approximately 6% -10/+14-mesh, 17% -14/+20-mesh, 30.5% -20/+30-mesh, 38% -30/+40-mesh, 6% -40/+50-mesh, 1.5% -50/+60-mesh, and less than 1% -60-mesh (fig. 9).

A cumulative histogram of the bulk samples taken from Nome Creek indicates that over 45% of the gravel is +1-mesh and over 95% of the gold is between -10- and +60-mesh, with the greatest percentage of gold in the -30/+40-mesh size fraction (fig. 10).

Magnetometer Surveys

A 25,100 ft long magnetic survey was conducted on Nome Creek from the vicinity of the US Creek road to 0.8 mi below Sumner Creek (66), (fig. 5). A 1,100 ft long survey was conducted above Sumner Creek on the south side of Nome Creek (66) (fig. 5). The surveys identified magnetic highs over the tailings in much of the creek (66) (fig. 5). These highs are unexplained; however, good targets for placer mineral concentrations were identified by magnetic highs in unmined sections of the creek (66) (fig. 5).

The Bureau sampled near identified magnetic highs (nos. 218, 219-220, 226-229, and 234, fig. 5). The Bureau sampling and geophysical surveys were not extensive enough to enable correlation between gold values and heavy mineral concentrations in the samples and geophysical signatures. The magnetic highs, however, are recommended as targets for future sampling.

Identified Resources

Identified resources for the area in upper Nome Creek depicted in figure 5 were calculated by determining the area between the break in slope and the tailings on aerial photographs, and

FIGURE 8.- Histogram of Sample B-3,

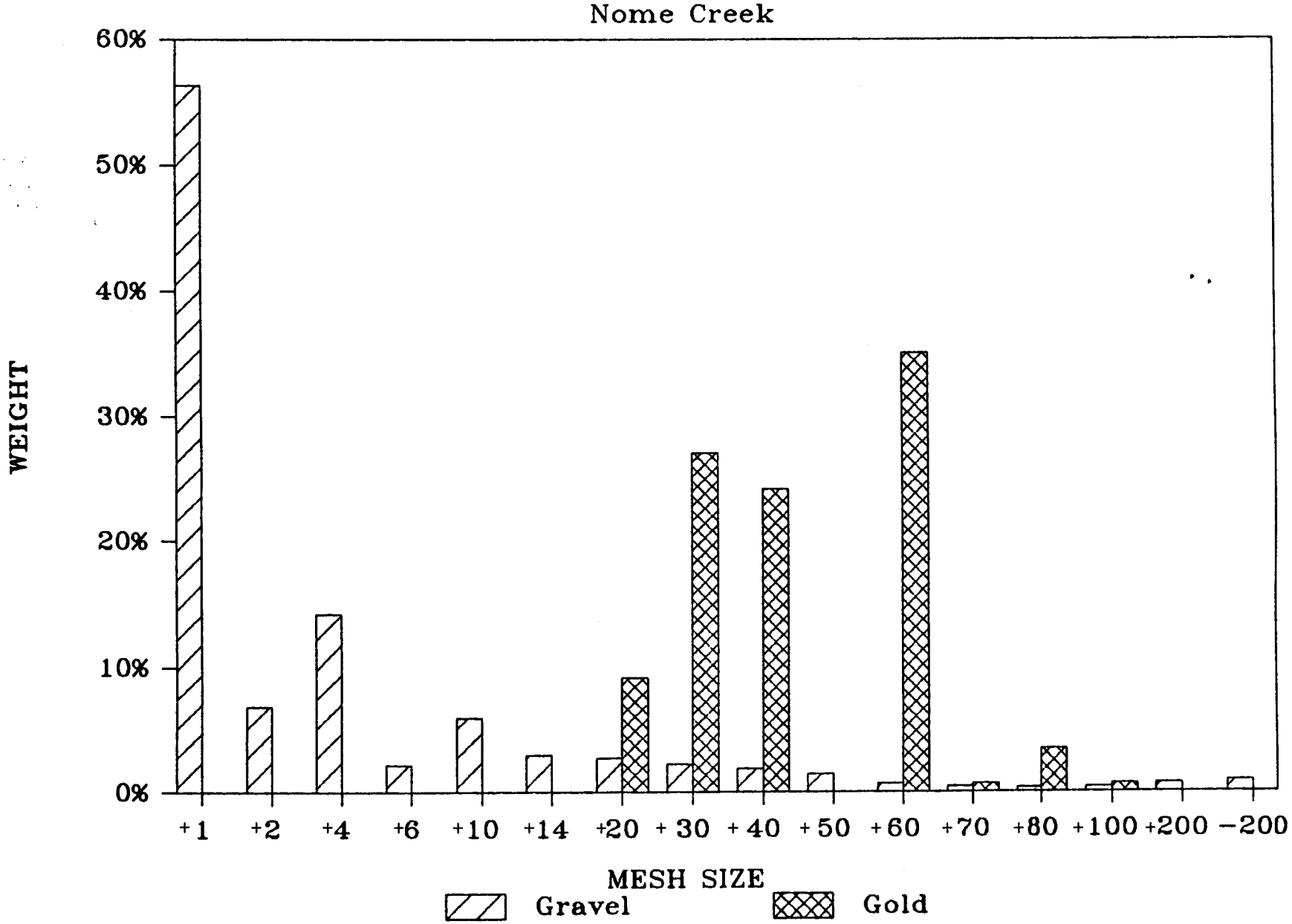


FIGURE 9.– Histogram of Sample B–4,

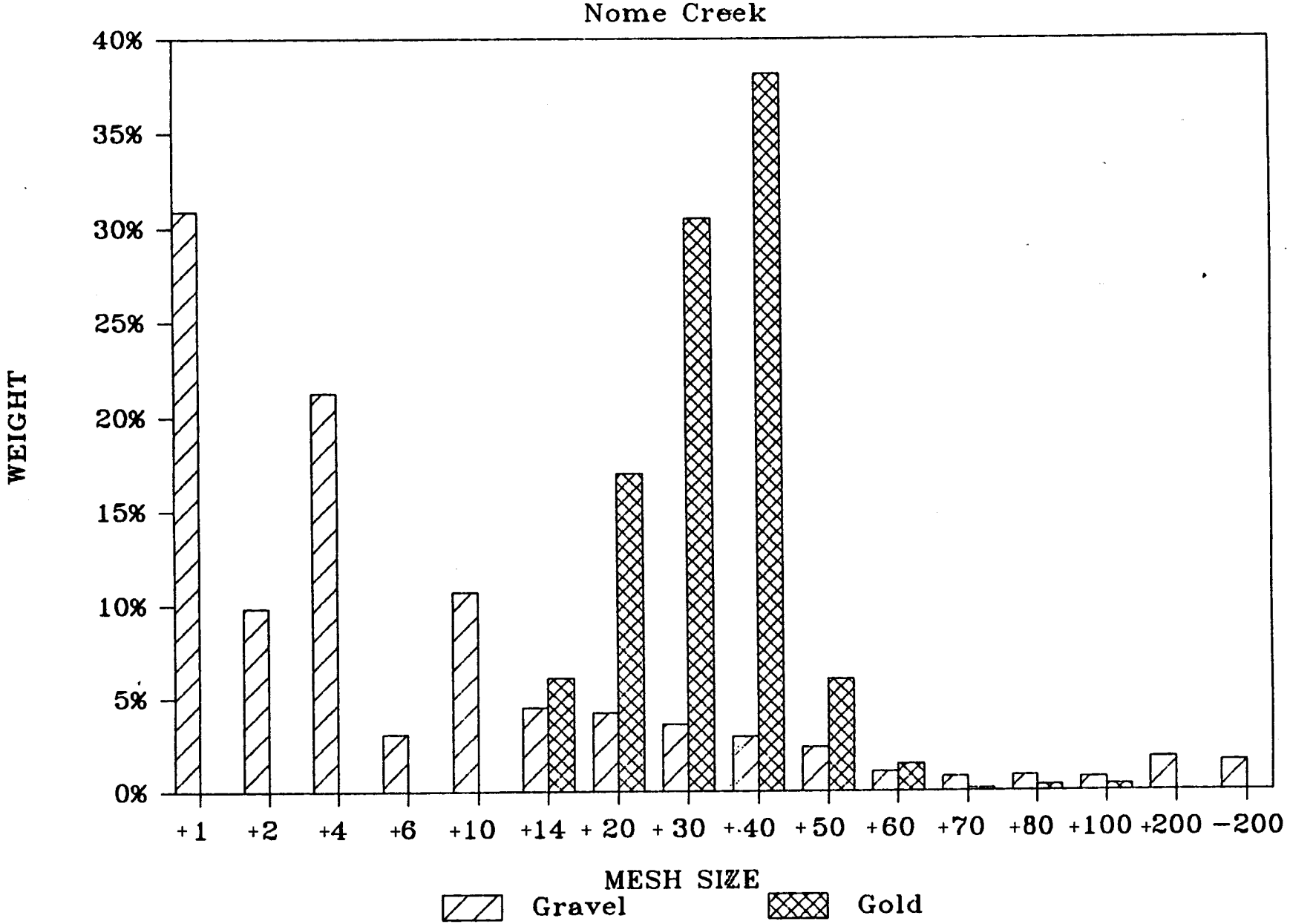
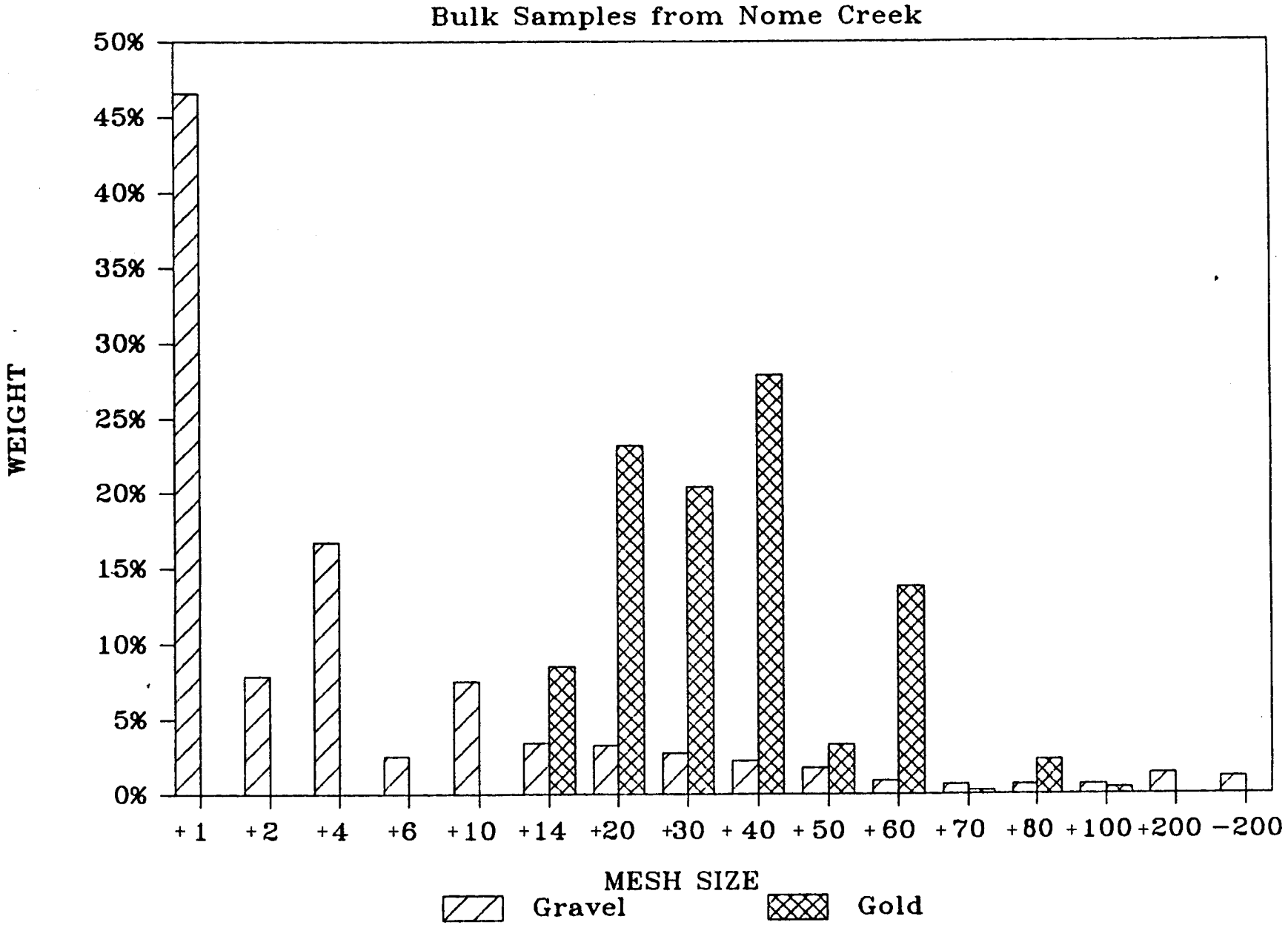


FIGURE 10.– Cumulative Histogram of



multiplying by an average depth. The drill hole data were used to determine the identified resources for the area depicted in figure 6. The inferred resource in figure 5 is approximately 3.75 million yd^3 of gravel. A median grade for this resource was calculated using the cumulative graph of gold values recovered from 128 placer samples taken from upper Nome Creek (fig. 11). The gold values are from Bureau, company drill hole, and BLM sampling in Nome Creek. The graph indicates that values range from 0 to greater than 0.035 oz/yd^3 gold, with the median sample value (50%) being 0.0026 oz/yd^3 gold.

Identified resources for the section of Nome Creek depicted in figure 6 were calculated from drill hole data (64) using the mean area method (101). Measured resources are 900,000 yd^3 of gravel that average 0.0023 oz/yd^3 gold.

The median grade for the unmined resources in Nome Creek is low; however, Bureau sampling indicates that selective unmined areas of Nome Creek (e.g. in the vicinity of Sumner Creek and between the US Creek road and Sumner Creek), may have sufficient grades (nos. 226, 233-234, fig. 5) and quantities of resource to support small placer mining operations (100 to 500 yd^3/day).

Lower Nome Creek

Nome Creek from the confluence of Moose Creek to the confluence of Beaver Creek is approximately 8 air miles in length with an average gradient of approximately 35 ft/mi. Bench gravel outcrops on the north side of the creek approximately 1 mi upstream from the confluence of Ophir Creek. The gravel is up to 12-ft-thick and has been traced for a distance of 1 mile.

History and Production

The only recorded mining from lower Nome Creek was from the bench gravel deposit. The bench gravel was mined in the early 1900's and the 1960's; however, no production data are available. The gold from the bench gravel in the area was reported to be coarse (42). The gravel was mined in two cuts: approximately 15,000 yd^3 of material were mined from the workings shown in figure 12; and approximately 5,000 yd^3 of material were mined from the workings located approximately 0.25 mi downstream from the workings in figure 12.

The alluvial gravel in Nome Creek upstream of the mined bench deposits (fig. 12) was drilled by the Nome Creek Dredging Co. Drill hole data indicated that the gravel is 10 to 15 ft deep and contains up to 0.0195 oz/yd^3 gold (64).

Bureau Sampling

The Bureau collected 18 reconnaissance placer samples from 16 sample sites (nos. 149, 193-207, fig. 4) in lower Nome Creek. Samples taken along the creek contained from a trace to 0.005 oz/yd^3 gold. Two of the 18 samples (nos. 195-196, fig. 4) were taken from bench gravel. Very little gold was noted in these two samples.

FIGURE 11. – Cumulative graph of gold

values from sampling in Nome Creek.

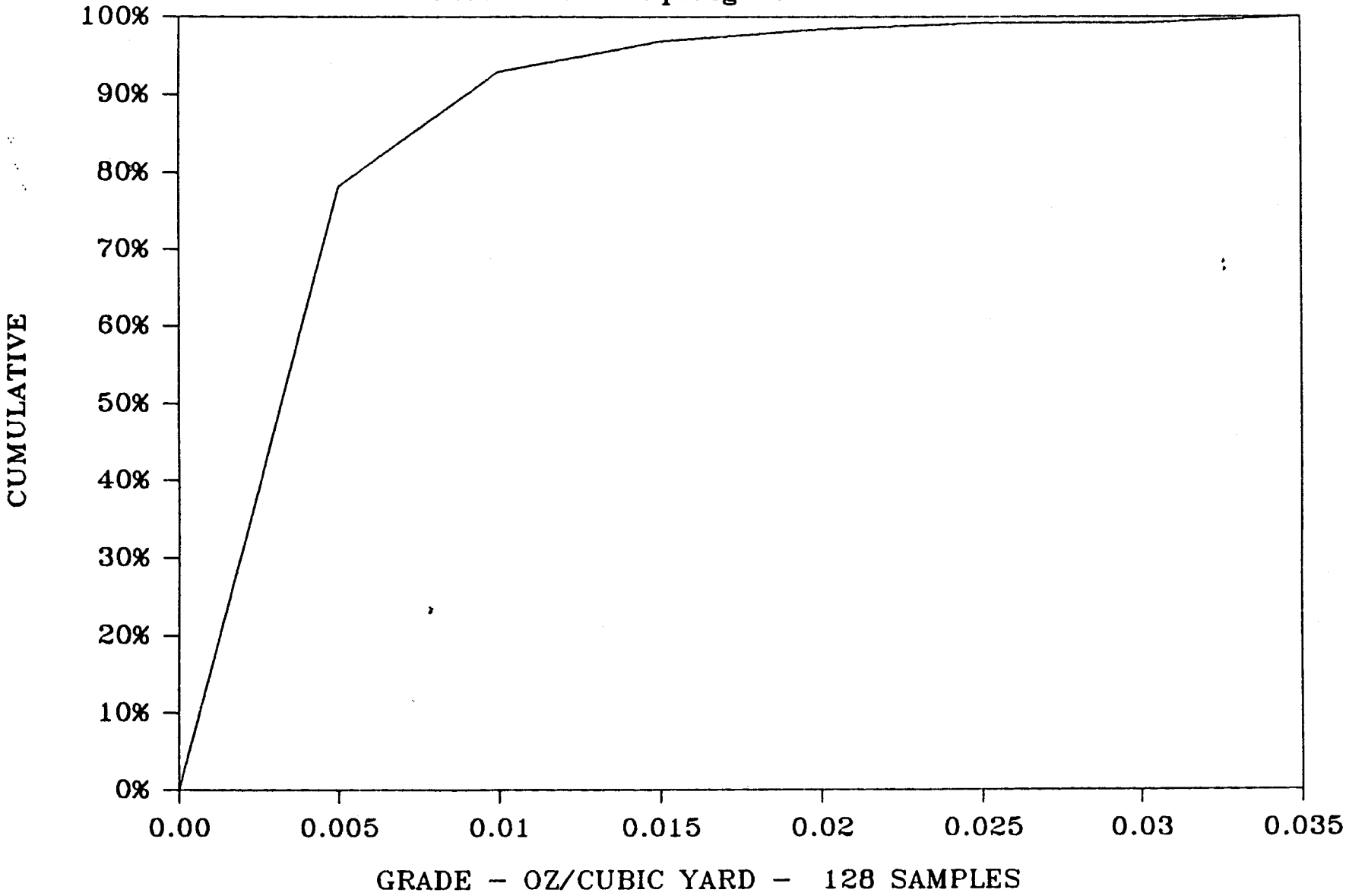


Figure 12 is an area approximately 1 mi upstream from the confluence of Ophir Creek. The figure depicts the results of historic drill hole sampling and a magnetometer survey, which was conducted for the Bureau during this study. Magnetic anomalies were located across the north side of the creek (66). Some of the anomalies correlate well with anomalous gold values in drill holes. The anomalies possibly depict magnetic mineral concentrations along gravel bars in a meandering stream system.

Identified Resources

Identified resources were calculated for lower Nome Creek in the vicinity of the drill holes using the mean area method (101) and the drill hole data (64). An indicated resource of 120,000 yd^3 of gravel, which average 0.005 oz/yd^3 gold was identified; however, the magnetometer survey suggests the presence of a larger resource than was identified by the drilling. Lower Nome Creek has an unknown potential for gold-bearing bench gravel and alluvial gravel along other parts of the creek.

UPPER BEAVER CREEK

Upper Beaver Creek encompasses the drainage from the confluence of Bear and Champion Creeks downstream to the confluence of Nome and Beaver Creeks (no. 12, fig. 2). The creek is meandering, approximately 4 air miles long, and has an average gradient of approximately 25 ft/mi. Placer claims have been staked along the creek; however, there is no data in the literature concerning the extent and tenor of the placer deposit.

Bureau Sampling

The Bureau found a gold-bearing gravel bench on the northwest side of the creek immediately downstream from the intersection of Bear and Champion Creeks. The bench crops out for approximately 0.5 mi and averages 8-ft-thick. Bedrock consists of a chlorite schist overlain by 2 ft of bouldery gravel, which is overlain by 6 ft of finer grained gravel. The gravel is poorly sorted.

Five reconnaissance placer samples were taken from 3 sample sites (nos. 144-146, fig. 4, appendix B) and contained from 0.0013 to 0.0206 oz/yd^3 gold. Fineness values ranged from 779 to 958, with an average value of 898 (table 3). Up to 227 ppm mercury were found in one sample (no. 144, fig. 4, appendix B). A site specific bulk placer sample (no. 31, fig. 4, table 4) was taken from a channel cut from the surface of the bench to bedrock. The sample weighed 732 lb. Over 50% of the gravel was larger than +1-mesh, with approximately 20% of the gravel being -2/+4-mesh (fig. 13). Approximately 54% of the gold was -6/+10-mesh, 20% -14/+20-mesh, 8% -20/+30-mesh, 16% -30/+40-mesh, 1% -40/+50-mesh, and less than 1% -50-mesh in size (fig. 13).

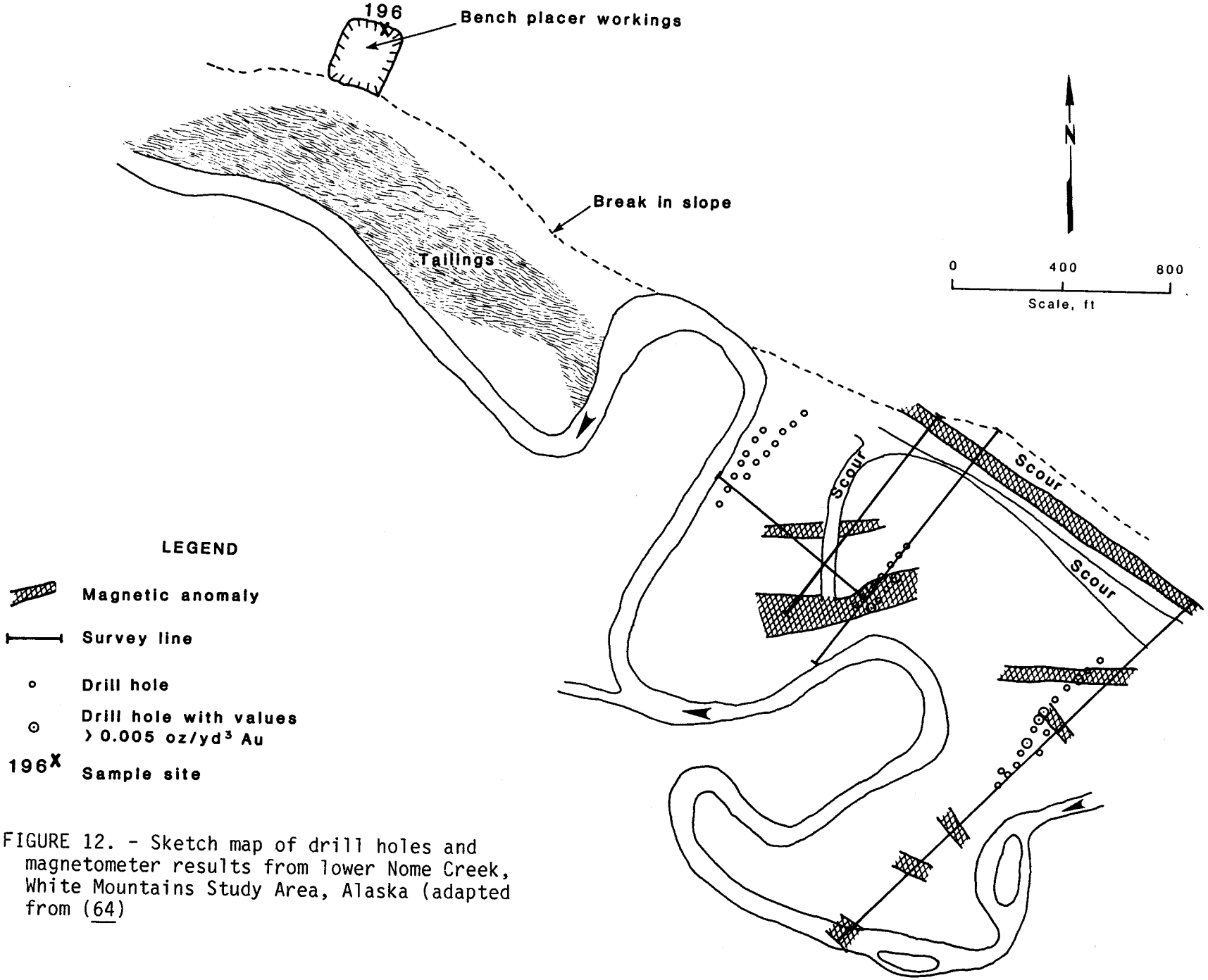
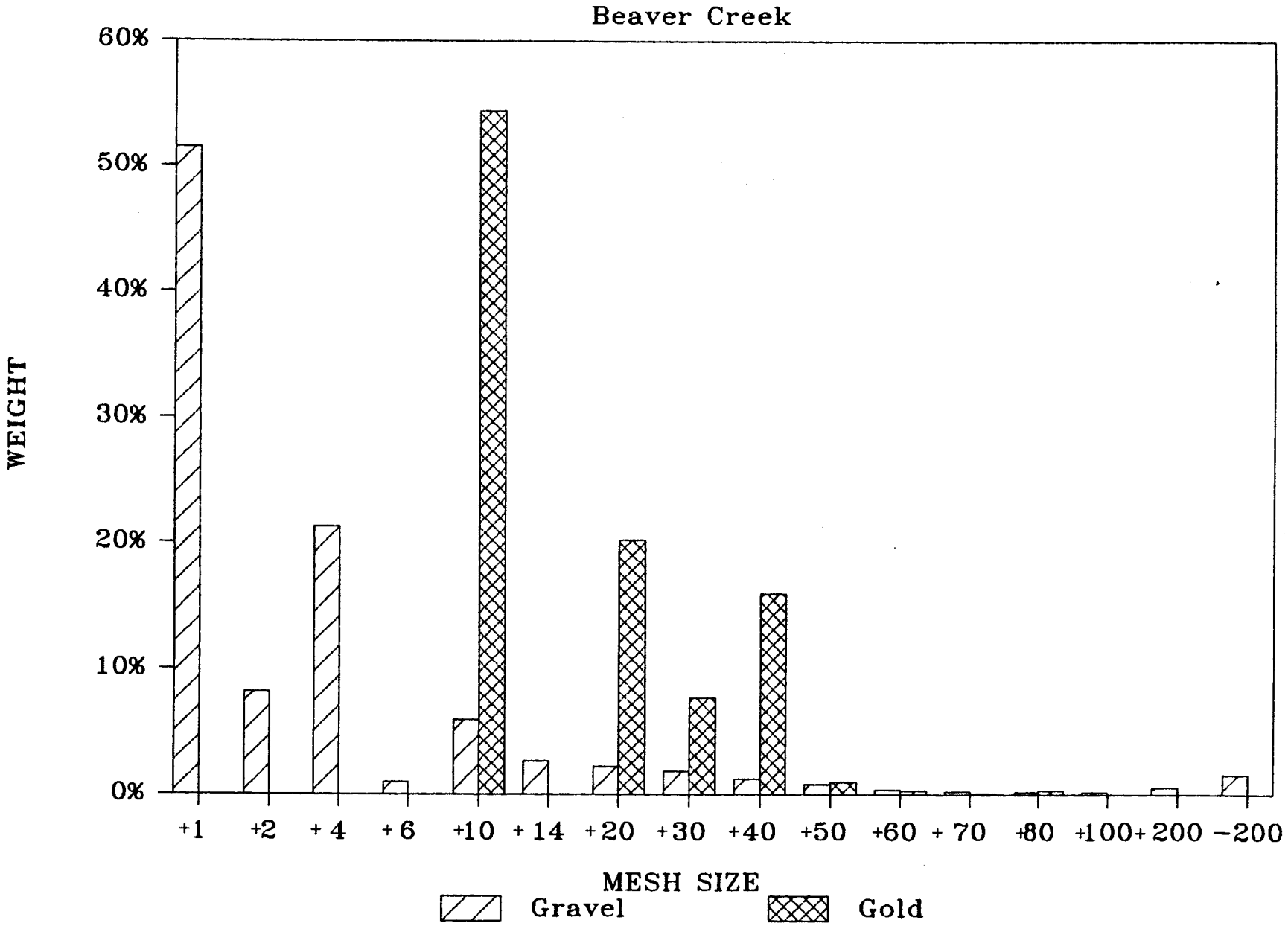


FIGURE 12. - Sketch map of drill holes and magnetometer results from lower Nome Creek, White Mountains Study Area, Alaska (adapted from (64)

FIGURE 13.– Histogram of Sample B–1,



Identified Resource

An identified resource estimate for the bench deposit was made using an average thickness of 8 ft, an exposed length of 2,640 ft, and an exposed width of 660 ft. The deposit has an inferred resource of approximately 500,000 yd^3 of gravel. The grade of the deposit is highly variable. The average grade of the deposit, calculated by using the sample results is 0.0093 oz/yd^3 gold; however, more sampling is needed to verify this grade.

The presence of coarse grained gold in the bench indicates that the alluvial gravel and bedrock interface in Beaver Creek, adjacent and downstream from the bench, would be a good location for further exploration.

GEOCHEMICAL RESULTS

Bureau samples were analyzed for 34 elements. Statistical analysis of the chemical values has not been conducted; however, the samples with the most obviously anomalous values have been identified.

The analyses indicated that anomalous, but uneconomic gold values are present in creeks that have not been staked in the past. Physically separable quantities of placer gold were recovered from samples collected in: Lower Beaver Creek from the White Mountains to Victoria Creek (nos. 22, 26-27, fig. 4, appendix B); Mascot Creek (no. 20, fig. 4, appendix B); a tributary of American Creek (no. 111, fig.4, appendix B); and O'Brien Creek (no. 154, fig. 4, appendix B).

Cassiterite (SnO_2) was found in most of the placer concentrates, with the highest values recorded in Livvy Creek (no. 2, fig. 2) and Little Champion Creek (no. 9, fig. 2; no. 123, fig. 4, appendix B). No creek however, contained economic quantities (i.e. greater than 1 lb/yd^3 tin) of cassiterite.

High concentrations of scheelite were noted in the concentrates from Snow Creek (no. 3, fig. 2; nos. 36-42, fig. 4, appendix B). Tungsten values from placer concentrates in the creek were up to 2.2% WO_3. Anomalous tungsten values were also noted in American, Bear, Cache Mountain, Champion, Fossil, Little Champion, Mascot, Quartz, and Victoria Creeks.

The following creeks also contained anomalous geochemical signatures: (1) various samples taken from the Victoria Creek drainage contain anomalous antimony, arsenic, beryllium, bismuth, copper, gallium, manganese, nickel, selenium, and zinc values; (2) Moose Creek contains anomalous antimony, bismuth, gold, mercury, molybdenum, and silver values (no. 18, fig. 4, appendix B); (3) Mascot Creek contains anomalous beryllium, bismuth, gallium, lanthanum, mercury, molybdenum, and thallium values (no. 32, fig. 4, appendix B); (4) Snow Creek has anomalous arsenic, bismuth, lead, molybdenum, selenium, and silver values (no. 41, fig. 4, appendix B); (5) two tributaries of Bear Creek contain anomalous beryllium, bismuth, gallium, lanthanum, lead, manganese, molybdenum, phosphorus, selenium, silver, thallium, and zinc values (no. 47, 51, fig. 4, appendix B); (6) a tributary of

Beaver Creek contained anomalous antimony, barium, mercury, and molybdenum values (no. 66, fig. 4, appendix B); (7) Quartz Creek has anomalous bismuth and gallium values (nos. 90-91, fig. 4, appendix B); (8) Convert Creek has anomalous arsenic values (no. 100, fig. 4, appendix B); (9) a tributary of American Creek is anomalous in arsenic, bismuth, and uranium (no. 111, fig. 4, appendix B); (10) O'Brien Creek has anomalous lead, selenium, and zinc values (no. 154, fig. 4, appendix B); (11) various samples from the Fossil Creek drainage contain anomalous barium, beryllium, gallium, lead, mercury, molybdenum, nickel, selenium, and silver values; (12) various samples from Trail Creek have anomalous lead, manganese, molybdenum, nickel, and silver values; and (13) various samples from Ophir Creek have anomalous gallium, mercury, molybdenum, and thallium values.

These anomalous geochemical values may indicate the presence of lode mineralization in the drainages.

SUMMARY

The Bureau conducted a literature search, and a reconnaissance and site specific bulk placer sampling program of the drainages of the White Mountains Study Area during 1986-87. Fifteen placer mineral properties in the area were identified during the literature search. Only two properties (three individual creeks) had any recorded gold production. Nome Creek produced approximately 28,000 oz of gold from 1921-1948; Sumner Creek, a tributary to Nome Creek produced 919 oz of gold from 1947-1951; and Ophir Creek produced 33 oz of gold in 1918. The Bureau took reconnaissance placer, backhoe placer, site specific bulk placer, and rock samples during the 1987 field season. Bureau sample results indicated that although placer gold and tin are present in many of the drainages of the area, the only quantities of gold that may be economically recoverable were found in Nome and Beaver Creeks. No economic quantities of tin were found. No reserve estimates were made for the gravel deposits in the study area; however, resource estimates of up to 3.75 million yd^3, were identified in Nome and Beaver Creeks. Results indicate that select areas of Nome Creek and possible portions of a bench in upper Beaver Creek could be mined with small (100 to 500 yd^3/day) placer operations.

Geochemically anomalous values of antimony, arsenic, barium, beryllium, bismuth, copper, gallium, gold, lanthanum, lead, manganese, mercury, molybdenum, nickel, phosphorus, selenium, silver, thallium, tin, tungsten, uranium, and zinc were identified in some of the placer concentrates taken in drainages of the area. The presence of anomalous values in the placer concentrates may indicate the presence of lode rather than a placer mineralization in a drainage.

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APPENDIX A. -- Mineral Property Summaries
for the White Moutains Study Area, Alaska

Explanation

Name	- Refers to name of property, creek, or claims found in the literature, Minfile Reference System (1), or MAS files (93).
Map Location No.	- Location number of the property shown on figure 2.
Kardex No.	- Location number of property in Minfile Reference System (1).
MAS No.	- Number assigned to Bureau Mineral Availability System mineral property files (93)
Location	- Description of deposit type and location type of the property.
History	- History and production of the property taken from published and unpublished reports, the Minfile Reference System (1), and MAS files (93).
Workings and Facilities	- Refers to mine workings and facilities as reported in the literature or as noted during the Bureau examination of the property.
Geologic Setting	- Geology of the property taken from the literature.
Bureau Investigation	- Historic and current results of Bureau investigation of the property.
Resource Estimate	- Identified resources or reserves as found in the literature or calculated by the Bureau.
Mineral Development Potential	- Mineral development potential ascertained using the available information.
References	- Numbers refer to items listed in the references preceding the appendix.

NAME: Victoria Creek

Map Location No. 1
KX No. 512
MAS No. None

LOCATION: Steese/White Mountains.
Mining District: Tolovana.
Recording Distict: Fairbanks.
Quadrangle: Livengood D1. Sec 11 T11N R1E. Meridian: Fairbanks.
Geographic: Large drainage on the northern boundary of the study area.
Elevation: 1,600 ft.
Access: Helicopter or boat.

Deposit Type: Placer.
Commodities: Gold.

HISTORY:
1905 - Gold discovered and a small stampede occurred, but insufficient gold was found to make mining profitable (70).
1979 - 2 claims staked by Richard Jones and Rex Lantz (1).

Production: Not reported.

WORKINGS AND FACILITIES: None.

GEOLOGIC SETTING: Victoria Creek is approximately 30 mi long, with an average gradient of 40 ft/mi. In the upper 10 mi of the drainage, the creek is slow moving, deep, meandering, and has sand bars. The creek is better developed in the middle 12 mi. Over this distance, the stream is shallower, wider, and has gravel bars. The lower 8 mi of the creek is in a canyon consisting predominantly of a Precambrian-Paleozoic argillite, grit, and quartzite unit.

BUREAU INVESTIGATION: In 1987, the Bureau took 16 0.1 yd^3 placer samples (nos. 1-16, fig. 4, appendix B) in Victoria Creek and its tributaries. Very few samples were taken in the upper portions of the creek because of the slow moving and deep nature of the stream, and the presence of sand sized or smaller particles on the bars in the creek. Minor amounts of gold, but no recoverable quantities were found in the samples. Some concentrates from samples taken in the drainage contained anomalous antimony, arsenic, beryllium, bismuth, copper, gallium, manganese, nickel, selenium, and zinc values.

RESOURCE ESTIMATE: No indications of economic quantities of placer minerals were found in the drainage; therefore, a resource estimate was not made.

MINERAL DEVELOPMENT POTENTIAL: Because of the lack of economic minerals found during the Bureau sampling, this creek has a low mineral development potential.

RECOMMENDATIONS: Drilling is needed to properly evaluate the drainage.

REFERENCES: 1, 70.

NAME(S): Livvy Creek
LV 1-18

Map Location No. 2
KX No. 425
MAS No. 348

LOCATION: Steese/White Mountains.
Mining District: Circle.
Recording District: Fairbanks.
Quadrangle: Circle C5 & C6. T9 & 10N R5 & 6E Meridian: Fairbanks.
Geographic: Livvy Creek is a local name for a creek that comprises the headwaters of North Fork of Preacher Creek. The creek heads against Rocky Mountain (Lime Peak).
Elevation: 2,000 to 3,000 ft.
Access: Overland access is limited predominantly to helicopter in the summer and snow machine in the winter.

Deposit Type: Placer.
Commodities: Tin.

HISTORY:
1978 - Bureau of Mines found anomalous Sn, Nb, Pb, W, Zn, U, and Yt values (11).
18 claims staked by John Barksdale (1).

Production: Unknown.

WORKINGS AND FACILITIES: None.

GEOLOGIC SETTING: The headwaters of the creek are 2 mi southeast of Rocky Mountain (Lime Peak). The creek cuts a tin-bearing greisen in its headwaters. The creek is approximately 10 mi long with an average gradient of 100 ft/mi; however, in the lower section of the creek the gradient is from 10 to 40 ft/mi. The upper portion of the creek has broad braided sections, and occupies a U-shaped valley. The lower 5 mi of the drainage consists of a shallow meandering stream surrounded by a broad alluvial plain containing abundant oxbow lakes.

Warner (97) reported that the drainage has experienced at least two periods of glaciation. The older glacier extended at least 5 mi downstream to a down-valley limit approximately coincidental to the northeastern contact between the Rocky Mountain (Lime Peak) pluton and neighboring metasedimentary rocks. A terminal and lateral moraine have been mapped in the drainage. Outwash gravel extends from the terminus of the older glacier at least 5 mi down the creek. This gravel is overlain by 10 to 15 ft of organic material and alluvial fans. The outwash gravel is poorly sorted and crudely stratified with rounded clasts that are less that 0.5 ft in diameter within a clayey matrix.

The second period of glaciation caused the development of outwash gravel near the headwaters of the creek above the terminus of the older glacier. This gravel is loosely packed and grus-rich to dense and clay-rich. Boulders are subangular and are about 0.4 ft in diameter.

BUREAU INVESTIGATION: The Bureau mapped and sampled the drainage in 1977, 1983, and 1985 (20, 97). Fifty-four stream, pan concentrate, and 0.1 to 1 yd^3 placer samples were collected by the Bureau in 1977, 1983 and 1985. Cassiterite, magnetite, zircon, monazite, xenotime, topaz, tourmaline, scheelite, garnet, pyrite, columbium-bearing rutile, and chalcopyrite were identified in the concentrates (97). Cassiterite generally occurs as subrounded to subangular, light to dark brown anhedral crystals. The bulk placer samples contained from 2,100 ppm to 7.25% tin, with grades ranging from 0.002 to 0.04 lb/yd^3 tin (97). Tin grades decrease downstream.

The Bureau took only one sample (no. 34, fig. 4, appendix B) from the creek in 1987 because of the intensive study that was conducted in the past. The sample contained 0.25% tin, 4 particles of gold, and minor scheelite.

RESOURCE ESTIMATE: No economic concentrations of placer minerals have been identified in the drainage; therefore, no resource estimate was made for this property.

MINERAL DEVELOPMENT POTENTIAL: The creek has a low mineral development potential because of the low tin values that have been found by surface sampling.

RECOMMENDATIONS: The surface gravel of Livvy Creek has been thoroughly sampled by the Bureau in the past. The gravel needs to be evaluated by drilling or bulk sampling techniques that are able to sample bedrock.

REFERENCES: 1-2, 11, 20, 34, 57-59, 93, 97.

NAME(S): Snow Creek
SW No.s 1-12, J No.s 1-12,
YK No.s 1-2, RL No.s 1-4,
SC No.s 1-10

Map Location No. 3
KX No. 426
MAS No. 349
BLM No. _____

LOCATION: Steese/White Mountains.
Mining District: Circle.
Recording District: Fairbanks.
Quadrangle: Circle C5 & C6. T9 & 10N R6E. Meridian: Fairbanks.
Geographic: Snow Creek is a north flowing tributary to the North Fork of Preacher Creek.
Elevation: 2,000 to 3,000 ft.
Access: Overland access is limited. Snow Creek is a tributary to North Fork Preacher Creek.

Deposit Type: Placer.
Commodities: Gold? tungsten

HISTORY:
1978 - 40 claims staked by John Barksdale (1).

Production: None.

WORKINGS AND FACILITIES: None noted.

GEOLOGIC SETTING: Snow Creek is approximately 10 mi long and has an average gradient of 100 ft/mi. The creek is located approximately 8-10 miles east-northeast of Rocky Mountain (Lime Peak). The creek drains Precambrian-Paleozoic quartzite, quartzitic schist, grit, and argillite. A Cretaceous-Tertiary granitic pluton is present at the headwaters of the creek. Only the headwaters of the creek are in the study area. Unconsolidated material consists of Quaternary alluvium and colluvium.

BUREAU INVESTIGATION: The Bureau took 13 0.1 yd^3 placer samples from 12 sites (nos. 35-46, fig.4, appendix B) in the creek. The concentrates from the samples contained up to 2 grains of gold per sample and scheelite. Analyses of the concentrates indicated from trace to 2.2% tungsten, and anomalous concentrations of arsenic, bismuth, lead, molybdenum, selenium, and silver.

RESOURCE ESTIMATE: No economic quantities of placer minerals were found in the drainage; therefore, a resource estimate was not made.

MINERAL DEVELOPMENT POTENTIAL: The creek has a low mineral development potential for placer minerals. The samples do indicate lode mineral potential in the drainage.

RECOMMENDATIONS: Prospecting for a lode source would be valuable.

REFERENCES: 1-2, 93.

NAME: Roy Creek

Map Location No.4
KX No. 478
MAS No. None

LOCATION: Steese/White Mountains.
Mining District: Tolovana.
Recording Distict: Fairbanks.
Quadrangle: Livengood B1. Sec 02 T7N R3E Meridian: Fairbanks.
Geographic: Roy Creek is a tributary of Beaver Creek.
Elevation: 2,000 ft.
Access: Helicopter or trail from Nome and/or Champion Creeks.

Deposit Type: Placer.
Commodities: Gold.

HISTORY:
1977 - 1 claim staked by Harold E. Woods (1).
1979 - Assessment work done (1).
1981 - Assessment work done (1).

Production: Minor.

WORKINGS AND FACILITIES: Dilapidated cabins; two piles of gravel: one of overburden and one of tailings on the east side of the creek. Creek has been mined to bedrock for approximately 200 ft long by 20 ft wide by 3 ft deep.

GEOLOGIC SETTING: Roy Creek is approximately 8 mi long with an average gradient of 175 ft/mi. The creek drains a Cambrian grit, slate, quartzite, argillite unit. The creek is small, with alluvium in the center of the drainage. Gravel thicknesses are up to 6 ft at the placer workings. Boulders up to 3 ft in diameter are present on bedrock.

BUREAU INVESTIGATION: The Bureau took 4 0.1 yd^3 placer samples from 3 sample sites (nos. 151-153, fig. 4, appendix B) on Roy Creek. Two samples were taken from the placer workings at sample site no. 153 (fig. 4). The samples contained 0.0006 and 0.0025 oz/yd^3 gold. The other samples contained only minor amounts of gold.

RESOURCE ESTIMATE: No indications of economic concentrations of placer minerals was noted during this investigation; therefore, a resource estimate was not made.

MINERAL DEVELOPMENT POTENTIAL: The sampling in Roy Creek indicates only minor quantities of gold; therefore, the creek has a low mineral development potential.

RECOMMENDATIONS: Drilling or bulk sampling to bedrock is needed to properly evaluate the property.

REFERENCES: 1.

NAME(S): Bear Creek, Quartz Creek

Map Location No. 5
KX No. 212
348, 354
MAS No. 298,
299, 300

LOCATION: Steese/White Mountains.
Mining District: Tolovana.
Recording District: Fairbanks.
Quadrangle: Circle B6 & C6. T7, 8, & 9N R4 & 5E. Meridian: Fairbanks.
Geographic: Bear Creek comprises the upper reaches of Beaver Creek and drains Rocky Mountain (Lime Peak) to the south.
Elevation: 1,500 to 2,200 ft.
Access: Access via ATV over dirt road. Road leaves north side of Steese Highway at mile 43, crosses a divide between Ophir Creek and Chatanika River, and follows ridge between Ophir Creek and unnamed tributary to Nome Creek down to the confluence of Ophir Creek and Nome Creek. Proceed down Nome Creek to Beaver Creek, then upstream on Beaver Creek to Bear Creek (right limit tributary).

Deposit Type: Placer.
Commodities: Gold.

HISTORY:
1974 - 2 claims staked (1).
1976 - 4 claims staked (1).
1974-79 - Assessment work filed (1).
1979-82 - Activity recorded (1).
1982 - Robert Emerson applied for a mining license (93).

Production: Minor.

WORKINGS AND FACILITIES: None noted.

GEOLOGIC SETTING: Bear Creek, from the confluence with Champion Creek to Quartz Creek, trends northeast, and is approximately 12 mi long with an average gradient of 20 ft/mi. At the confluence of Quartz Creek the drainage splits, with Bear Creek trending for approximately 6 mi west, and Quartz Creek trending for approximately 6 mi east. Each have gradients of approximately 130 ft/mi.

Bedrock in the drainage consists of a Precambrian-Paleozoic quartzite and quartzitic schist unit which is located on the south side; and a Precambrian-Paleozoic grit, quartzite, and argillite unit that is located on the north side of the creek. The Cretaceous-Tertiary granitic pluton that comprises Rocky Mountain is located at the headwaters of the Bear Creek drainage, while there is another pluton of the same age at the head of the Quartz Creek drainage.

Bear Creek is a shallow meandering stream with well developed gravel bars. Alluvial gravel is present in the valley bottom. Bench gravel deposits are located in the lower 5 mi of the creek. Weathered granite that contained 0.04 oz/st gold was reported near the head of the creek (70).

Quartz Creek is narrower with less amount of alluvium than Bear Creek.

BUREAU INVESTIGATION: Robert Emerson (the present claimant) reported that he recovers rough gold from the full length of the creek. He also reported that the depth to bedrock is 15 ft.

The Bureau took 30 0.1 yd^3 reconnaissance placer samples (nos. 47-54, 76-93, 139-142, fig. 4, appendix B) from Bear and Quartz Creeks. No gold was noted in any sample except at sample site no. 140, which was taken from bench deposit gravel on the north side of Bear Creek. The placer concentrate from sample site no. 47 contained anomalous bismuth, gallium, lanthanum, lead, manganese, molybdenum, selenium, silver, tungsten, and zinc values. The placer concentrates from sample site no. 51 contained anomalous beryllium, bismuth, gallium, lanthanum, lead, manganese, molybdenum, phosphorus, selenium, thallium, tin, and tungsten values. Concentrates from sample site nos. 90 and 91 in Quartz Creek contained anomalous bismuth and gallium values.

RESOURCE ESTIMATE: Bureau sampling results did not indicate economic concentrations of placer minerals; therefore, a resource estimate was not made.

MINERAL DEVELOPMENT POTENTIAL: The Bureau sampling indicates that this creek has a low mineral development potential.

RECOMMENDATIONS: Although the Bureau took approximately 1 sample per mile over the entire lengths of Bear and Quartz Creeks without finding any indications of economic quantities of gold or other minerals, drilling or bulk sampling to bedrock is needed to properly evaluate the drainage. Lode deposits may be located at the headwaters of the creeks sampled by sample sites nos. 47, 51, 91, and 93.

REFERENCES: 1-2, 57, 70, 93.

NAME(S): Convert Creek
T&B 13, 13A-E
Einar Erickson
Gardand Achman, United 321-341

Map Location No. 6
KX No. 258
391
MAS No. 344

LOCATION: Steese/White Mountains.
Mining District: Circle.
Recording District: Fairbanks.
Quadrangle: Circle B5 & C5. T8N R7E
Meridian: Fairbanks.
Geographic: Convert Creek is a tributary of Preacher Creek and drains the east side of Mt. Prindle.
Elevation: 2,000 to 3,000 ft.
Access: Overland access is limited to foot, helicopter, or snow machine. Convert Creek is a headwater tributary to Preacher Creek.

Deposit Type: Placer.
Commodities: Gold.

HISTORY:
1974 - 6 claims staked (1).
1977 - 21 claims staked (1).

Production: Unknown.

WORKINGS AND FACILITIES: None.

GEOLOGIC SETTING: The creek is approximately 6 mi long with an average gradient of 166 ft/mi. Bedrock in the creek consists of Precambrian-Paleozoic quartzite and quartzitic schists. A Cretaceous-Tertiary granitic pluton is located at the head of the drainage. The creek is small, with alluvium limited to the valley bottom.

BUREAU INVESTIGATION: Only the headwaters of Convert Creek are located in the study area. The Bureau took 8 0.1 yd^3 reconnaissance placer samples (nos. 99-106, fig. 4, appendix B) from the portion of the creek in the study area in 1987. The concentrates contained minor amounts of gold, scheelite, and cassiterite. The concentrate from sample site no. 100 contained an anomalous arsenic value.

RESOURCE ESTIMATE: Unknown.

MINERAL DEVELOPMENT POTENTIAL: The portion of Convert Creek in the study area has a low mineral development potential because of the low values found during the Bureau's sampling program.

RECOMMENDATIONS: None.

REFERENCES: 1-3, 57, 93.

NAME(S): American Creek

Map Location No. 7
KX No. 265
266, 313
MAS No. 280
345, 346

LOCATION: Steese/White Mountains.
Mining District: Circle.
Recording District: Fairbanks.
Quadrangle: Circle B5. T7 & 8N R7E. Meridian: Fairbanks.
Geographic: American Creek is a tributary to Preacher Creek and drains the east side of Mt. Prindle.
Elevation: 2,000 to 4,000 ft.
Access: There is a trail from Faith Creek.

Deposit Type: Placer.
Commodities: Gold.

HISTORY:
1954 - Activity recorded (57).
1974 - Claims staked.
1985 - Assessment work filed.

Production: Unknown.

WORKINGS AND FACILITIES: None.

GEOLOGIC SETTING: The upper 6 mi of American Creek is in the study area. This section of the creek has an average gradient of 250 ft/mi. Most of the creek drains the Mt. Prindle Cretaceous-Tertiary granitic intrusive. The last 2 mi of the creek cuts a glacial moraine and the Precambrian-Paleozoic quartzite and quartzitic schist unit.

The creek is small, with alluvium restricted to the bottom of the valley. The main southern tributary to the upper portion of American Creek contains colluvium.

BUREAU INVESTIGATION: The Bureau took 8 0.1 yd^3 reconnaissance placer samples from 7 sample sites (nos. 107-113, fig. 4, appendix B) on American Creek and its tributary. A pan sample and two rock samples were also taken from two sites (nos. 110-111, fig. 4). No gold was noted above the main southern tributary. A sample (no. 111, fig. 4, appendix B) from the main southern tributary contained 0.0016 oz/yd^3 gold, plus cassiterite, and minor scheelite. Minor gold was noted from samples taken below the main southern tributary. Sample site no. 111 contained anomalous arsenic, bismuth, and uranium values.

RESOURCE ESTIMATE: No indications of economic quantities of placer minerals were found; therefore, a resource estimate was not made.

MINERAL DEVELOPMENT POTENTIAL: American Creek in the study area has a low placer mineral development potential because of the low values found during the Bureau's sampling program.

RECOMMENDATIONS: The presence of free gold and cassiterite in the southern tributary of American Creek suggests that the area this tributary drains should be investigated for its lode gold and tin potential.

REFERENCES: 1-2, 57, 63, 93.

NAME(S): Champion Creek

Map Location No. 8
KX No. 268A
377
MAS No. 309,
311,

LOCATION: Steese/White Mountains.
Mining District: Tolovana.
Recording District: Fairbanks.
Quadrangle: Circle B6. T7N R4E Meridian: Fairbanks.
Geographic: Champion Creek is located at the headwaters of Beaver Creek. Champion combines with Bear Creek to form Beaver Creek.
Elevation: 1,600 to 4,000 ft.
Access: Access is over a dirt road at US Creek on the Steese Highway The road ascends to the divide between Nome Creek and Chatanika River, then along the divide and then down to Nome Creek along a left limit unnamed tributary to Nome Creek. From Nome Creek an ATV trail extends north over a low divide into the Moose Creek (tributary to Nome Creek) drainage. The trail then proceeds up Moose Creek to the divide between Moose Creek and Little Champion Creek, over the divide and down into the Champion Creek drainage.

Deposit Type: Placer.
Commodities: Gold.

HISTORY:
1975 - 5 claims staked by Bardett Durfee (1).
1977 - 42 claims staked (1).

Production: Minor.

WORKINGS AND FACILITIES: Two cabins, one at the confluence of Little Champion Creek and one at the head of the creek. Minor workings at the upper cabin.

GEOLOGIC SETTING: Champion Creek is approximately 15 mi long with an average gradient of 150 ft/mi. Bedrock along the creek is predominantly Precambrian-Paleozoic quartzite and quartzitic schist. A Cretaceous-Tertiary granitic pluton is present at the head of the creek.

Champion Creek is a large, meandering creek. Quaternary alluvium is present in the lower half with alluvium-colluvium in the upper half. The creek parallels Nome Creek and probably has similar thicknesses of gravel.

BUREAU INVESTIGATION: The Bureau took 15 0.1 yd^3 reconnaissance placer samples from fourteen sample sites (nos. 114-120, 133-138, 143, fig. 4, appendix B). Only minor amounts of gold were noted in the samples, with the highest value being 0.0007 oz/yd^3 gold at sample site 138. Anomalous tungsten values were noted in some samples from the creek.

RESOURCE ESTIMATE: No indications of economic concentrations of placer minerals were noted during this study; therefore, a resource estimate was not made.

MINERAL DEVELOPMENT POTENTIAL: Champion Creek has a low mineral development potential because of the low values noted in the samples.

RECOMMENDATIONS: Sampling to bedrock using a drill or a backhoe is needed to properly evaluate the creek.

REFERENCES: 1-2, 14, 57, 63, 93.

NAME(S): Little Champion Creek

Map Location No. 9
KX No. 268
378, 405
406
MAS No. 305,
306, 308
310

LOCATION: Steese/White Mountains.
Mining District: Tolovana.
Recording District: Fairbanks.
Quadrangle: Circle B6. T7N R5E
Meridian: Fairbanks.
Geographic: Little Champion Creek is a tributary to Champion Creek and drains the west side of Mt. Prindle.
Elevation: 1,800 to 3,500 ft.
Access: Access is over dirt road at US Creek on the Steese Highway. Road ascends to the divide between Nome Creek and Chatanika River, then along the divide and then down to Nome Creek along a left limit unnamed tributary to Nome Creek. From Nome Creek an ATV trail extends north over a low divide into the Moose Creek (tributary to Nome Creek) drainage. The trail then proceeds up Moose Creek to the divide between Moose Creek and Little Champion Creek, over the divide and down into the Little Champion Creek drainage.

Deposit Type: Placer.
Commodities: Gold.

HISTORY:
1975 - 5 claims staked by Bardett Durfee (1).
1977 - 30 claims staked by Tom Cornwall, 3 claims staked by Joe Watson and Moose Binder, and 2 claims staked by Donald Davis and Dara Witt (1).

Production: Minor.

WORKINGS AND FACILITIES: One cabin and a few exploration pits.

GEOLOGIC SETTING: Little Champion Creek is approximately 8 mi long and has an average gradient of 200 ft/mi. Bedrock in the drainage consists of Precambrian-Paleozoic quartzite and quartzitic schist, with the Mt. Prindle Cretaceous-Tertiary granitic pluton outcropping at the headwaters.

The creek is shallow and meandering. The alluvium is approximately 500 ft wide in the creek. A terminal moraine is located approximately 4.5 mi upstream from the confluence of Champion Creek. Stream sediments in the area were found to contain up to 400 ppm uranium (14).

BUREAU INVESTIGATION: The Bureau took 9 0.1 yd^3 reconnaissance placer samples (nos. 121-123, 127-132, fig. 4, appendix B) from Little Champion Creek in 1987. Minor quantities of gold were noted in the samples. The concentrates also contained cassiterite (up to 5.9% tin) and minor scheelite.

RESOURCE ESTIMATE: No indications of economic quantities of placer minerals were found in Little Champion Creek; therefore a resource estimate was not made.

MINERAL DEVELOPMENT POTENTIAL: Little Champion Creek has a low mineral development potential because of the results of the sampling conducted during the study.

RECOMMENDATIONS: Sampling to bedrock using a drill and/or backhoe is needed to properly evaluate this creek

REFERENCES: 1-2, 14, 40, 57, 93.

NAME(S): Moose Creek

Map Location No. 10
KX No. 277
303, 319
MAS No. 294
295, 296

LOCATION: Steese/White Mountains.
Mining District: Tolovana.
Recording District: Fairbanks.
Quadrangle: Circle B6. T6N R5 & 6E Meridian: Fairbanks.
Geographic: Moose Creek is a northerly tribuary to Nome Creek.
Elevation: 1,800 to 3,000 ft.
Access: Access is over a dirt road at U.S. Creek. The road ascends to the divide between Nome Creek and Chatanika River, then along the divide and then down to Nome Creek along a left limit unnamed tributary to Nome Creek. A road goes downstream on Nome Creek to the mouth of Moose Creek.

Deposit Type: Placer.
Commodities: Gold.

HISTORY:
1975 - 12 claims staked by James Van Dien, and 1 claim staked by Dean Anderson (1).

Production: Minor.

WORKINGS AND FACILITIES: Moose Creek has been mined at the intersection of Nome Creek.

GEOLOGIC SETTING: Moose Creek is approximately 6 mi long with an average gradient of 200 ft/mi. Bedrock consists of Precambrian-Paleozoic quartzite and quartzitic schist that have been intruded by small Cretaceous-Tertiary granitic bodies.

The creek is small, meandering and deeply incised in muck.

BUREAU INVESTIGATION: The Bureau took 4 0.1 yd^3 placer samples (nos. 126, 208-210, fig. 4, appendix B) from Moose Creek in 1987. The samples contained only minor heavy minerals and little to no recoverable gold.

RESOURCE ESTIMATE: No indications of economic quantities of placer minerals were found in the creek; therefore, a resource estimate was not calculated.

MINERAL DEVELOPMENT POTENTIAL: The results of the sampling indicate a low mineral development potential for Moose Creek.

RECOMMENDATIONS: Sampling to bedrock using a drill is needed to properly evaluate the creek.

REFERENCES: 1-2, 57, 93.

NAME(S): Nome Creek, Sumner Creek

Map Location No. 11
KX No. 36
MAS No. 0001

LOCATION: Steese/White Mountains.
Mining District: Tolovana.
Recording District: Fairbanks.
Quadrangle: Livengood B1 & Circle B6. T6N R3, 4, 5, 6E. Meridian:Fairbanks.
Geographic: Nome Creek is an east-west trending drainage. It drains the west side of Mt. Prindle. This creek is the southeasternmost drainage in the study area.
Elevation: 1,600 to 4,000 ft.
Access: Access via dirt road at US Creek on the Steese Highway.

Deposit Type: Placer.
Commodities: gold, silver, tin.

HISTORY:

	Production: Au(oz)	Ag(oz)
1910 - Gold discovered (44).		
1911 - Bedrock drains established (72).		
1912 - Holes sunk to bedrock near Ophir Creek. Two men sluiced in upper Nome Creek (43).		
1921 - 100 yd^3 processed (93).	6.72	
1922 - 1500+ yd^3 processed (93).	103.86	
1923 - 2210 yd^3 processed (93).	69.70	
1924 - Mining occurred (93).	11.75	
1925 - Mining occurred (93).	175.07	
1926 - Nome Creek Dredging Co. built a dredge (76, 93).	1548.18	140
1927 - 150 days of dredging accomplished (77).		
1928 - Dredge operated (78)		
1929 - Dredge operated by Sam Godfrey of the Nome Creek Dredging Co. (79).		
1930 - Dredge operated (80).		
1931 - Dredge operated by the Beaver Dredging Co., 286,743 yd^3 processed (93).	3507.49	
1932 - Dredge burned (82).	9.14	
1933 - Mining occurred (93).	3.48	
1934 - Mining occurred (93).	7.10	
1935 - Extensive drilling below site of old dredge. Minor mining (93).	3.67	
1936 - Mining occurred (93).	3.57	
1937 - Dredge replaced, 350,000 yd^3 of material processed (93).	5464.37	1227
1939 - Deadwood Mining Co. dredged (85, 93).	3081.11	429
1940 - Dredging occurred (86).		
1941 - Dredging occurred (93).	3174.54	275.06
1942 - Mining occurred (93).	27.74	2.15
1946 - 467,000 yd^3 of material mined with a dredge (93).	3193	246
1947 - Dredging occurred (93).	2848	323
Total (Nome Creek)	23238.49	2642.21

HISTORY (continued)

	Production:	Au(oz)	Ag(oz)
1947 - 70,000 yd^3 of material were mined in Sumner Creek (93).		735	60
1948 - Mining occurred on Sumner Creek (93).		78	6
1951 - The dredge, which belonged to the Morrison-Knudson Co. was reported to have been sold to the U.S. Tin Corp., and was moved to the Seward Peninsula to mine tin (102). Tury Anderson mined on Sumner Creek (102). Mining occurred on Sumner Creek (93).		106	9
	Total (Sumner Creek)	919	75
1960 - 2 claims staked on Sumner Creek.			
1968 - Small-scale mining occurred on Nome Creek(40).			
1970 - 7 claims staked by Harold Woods and Jack Figlenski (1).			
1974 - 2 claims staked by R. P. Maddox (1).			
1975 - Limited activity (25).			
1981 - 7 claims staked by Bruce Jeffers, and 9 claims staked by Richard Sumner (1).			
1982 - Marion Pavey applied for a mining license.			
1983 - Gregory Vincent Jones and Karl Thumma applied for mining licenses.			
1985 - Marion Pavey applied for a mining license.			

MAS has production prior to 1948 as 28,957 oz Au and 2,711 oz Ag (93). In recent years mining occurred using dozer-backhoe-sluicebox systems. Most of the ground that has been mined with these methods have been in the upper reaches of the drainage and in ground that the dredge missed.

WORKINGS AND FACILITIES: Old cabins are scattered along the creek, as well as old parts of mining equipment. The creek has been dredged from approximately 0.5 mi upstream of Sumner Creek to Moose Creek (fig. 5-6). The area from 0.5 to 1 mi above Sumner Creek; and Sumner Creek 0.5 mi above the confluence with Nome Creek, have been mined using heavy equipment. It is calculated that approximately 3 million yd^3 of material has been mined. A bench deposit, located approximately 1 mi upstream of the confluence of Ophir Creek has been mined in two cuts. One cut mined approximately 15,000 yd^3 of material (fig. 12) and another 5,000 yd^3.

GEOLOGIC SETTING: Alluvial gravel consists of unconsolidated Pleistocene alluvium and colluvium overlying Precambrian-Paleozoic quartzite and quartzitic schist. Nome Creek originates near Mt. Prindle where a small Cretaceous-Tertiary felsic intrusive stock is in contact with schist. The elevation at the headwaters is approximately 4,000 ft with a fall of 2,400 vertical ft to Beaver Creek over a 20 mi distance. The gravel of Nome Creek is from 2-to 3-ft-thick in the upper 5 mi of the creek. A terminal

moraine has been mapped 5 mi downstream of the headwaters and below that gravel thicknesses range from 6 to 15 ft, with an average of 10 ft. The gravel is poorly sorted. Concentrates contain cassiterite, monazite, topaz, and tourmaline. Also reported is up to 0.012% eU (40).

Bench gravel outcrops on the north side of the creek approximately 1 mi upstream from the confluence of Ophir Creek. The gravel is up to 12-ft-thick and has been traced for at least 1 mi. The gold from the bench gravel in the area was reported to have a coarse grain size (42).

The alluvial gravel in Nome Creek, upstream of the mined bench deposit (fig. 12) was drilled by the Nome Creek Dredging Co. Drill hole data indicates that the gravels are 10-to 15-ft-deep and contain up to 0.234 oz/yd^3 gold (64).

BUREAU INVESTIGATION: In 1987, the Bureau sampled Nome Creek from its headwaters to its confluence with Beaver Creek. Forty-one samples, which include 16 placer, 20 backhoe placer, 2 rock, and 3 site specific bulk placer samples were taken from 28 sample sites (nos. 124-125, 211-236, B2-4, figs. 4-5, appendix B) between an area 2 mi upstream of the confluence of Moose Creek and the headwaters of Nome Creek. Most of the samples were collected from unmined ground. Sample values ranged from trace to 0.0318 oz/yd^3 gold, with the highest values found in the Sumner Creek area. Fineness values for 22 gold samples from upper Nome Creek ranged from 867 to 940, with an average of 908 (table 3).

Three site specific bulk placer samples (nos. B2-4, fig. 5) were collected from previously unworked gravel on Nome Creek for purposes of analyzing gravel and gold particle sizes. Because of the disseminated nature of most placer gold within a gravel deposit, the gold from the bulk samples taken at the site specific sample locations was also sieved and weighed. The weights of the gold recovered from the samples were added to the weights recovered from the site specific samples to reflect a larger sampling volume and these percentages are listed in table 4.

Sample B-2 was taken approximately 2 mi upstream of the confluence of Moose and Nome Creeks using a backhoe (fig. 5). Two backhoe bucketsful were taken: one from the gravel/bedrock interface, and one from the overlying 10-ft-thick gravel section. The sample weighed 1,121 lb. Figure 7 is a histogram showing the size distributions of the gravel and gold from the sample. Over 50% of the gravel was greater than +1-mesh in size. The gold sizes were approximately 19.5% -10/+14-mesh, 43% -14/+20-mesh, 3.5% -20/+30-mesh, 21% -30/+40-mesh, 4% -40/+50-,mesh, 5% -50/+60-mesh, 3% -70/+80-mesh, and 0.3% -80/+100-mesh (fig. 7).

Sample B-3 was taken from a gravel section on the north side of Nome Creek near the end of the US Creek road (fig. 5). A channel was cut from the surface to a depth of 5 ft. The sample weighed 437 lb. Over 75% of the gravel was greater than +4-mesh in size (fig. 8). The recovered gold sizes were approximately 9% -14/+20-mesh, 27% -20/+30-mesh, 24% -30/+40-mesh, 35% -50/+60-mesh, 0.7% -60/+70-mesh, 3.4% -70/+80-mesh, and 0.68% -80/+100-mesh (fig. 8).

Sample B-4 was taken downstream of the mouth of Sumner Creek (fig. 5). Two backhoe bucketsful were taken from the site: one from the bedrock/gravel interface and one from the overlying gravel section. The sample weighed 903 lb and was taken from a 12-ft-thick section of unmined gravel. The gravel section contained more fine grained material, which is depicted in the histogram in figure 9. Only 31% of the gravel was greater than +1-mesh in size. The gold size distributions were approximately 6% -10/+14-mesh, 17% -14/+20-mesh, 30.5% -20/+30-mesh, 38% -30/+40-mesh, 6% -40/+50-mesh, 1.5% -50/+60-mesh, and less than 1% -60-mesh (fig. 9).

A cumulative histogram of the bulk samples taken from Nome Creek indicates that over 45% of the gravel is +1-mesh in size and over 95% of the gold is between -10- and +60-mesh in size, with the greatest percentage in the -30/+40-mesh size fraction (fig. 10).

Lines of magnetic survey totalling 25,100 ft long were conducted on Nome Creek from the vicinity of the US Creek road to 0.8 mi below Sumner Creek (fig. 5). An approximate 1,100-ft-long survey was conducted above Sumner Creek on the south side of Nome Creek (fig. 5). The surveys were conducted in these areas because the areas had the highest percentages of unmined ground along the portion of the creek that had been mined. The surveys identified magnetic highs over the tailings in much of the creek (fig. 5). These highs are unexplained; however, good targets for placer mineral concentrations were identified by magnetic highs in unmined sections of the creek (fig. 5).

The Bureau collected 18 reconnaissance placer samples from 16 sample sites (nos. 149, 193-207, fig. 4, appendix B) from lower Nome Creek. Samples taken along the creek contained from trace to 0.005 oz/yd^3 gold. Two of the samples (nos. 195-196, fig. 4) were taken from the bench deposits. Very little gold was noted in these samples.

Figure 12 depicts the results of historic drill hole sampling and a magnetometer survey, which was conducted for the Bureau during the field season in lower Nome Creek near the upper placer workings. A series of magnetic anomalies was located across the north side of the creek. Some of the anomalies correlate well with anomalous gold values in drill holes. The anomalies possibly depict magnetic mineral concentrations along gravel bars in a meandering stream system.

RESOURCE ESTIMATE: Identified resources:

Upper Nome Creek....	Inferred:	3.75 million yd^3,
	average :	0.0026 oz/yd^3 gold.
	Measured:	900,000 yd^3,
	average :	0.0023 oz/yd^3 gold.
Lower Nome Creek....	Indicated:	120,000 yd^3,
	average :	0.005 oz/yd^3 gold.

Note: Resources for upper Nome Creek were calculated using the amount of unmined ground between the break in slope and the tailings on figure 5, and the drill hole data represented on figure 6. The inferred resource in figure 5 is approximately 3.75 million yd^3 of gravel. The average grade was taken from the cumulative graph of 128 placer sample results taken from upper Nome Creek (fig. 11). This includes Bureau, company drill hole, and BLM sampling in Nome Creek. The graph indicates that values range from 0 to greater than 0.035 oz/yd^3 gold, with the median value (50%) of 0.0026 oz/yd^3.

The measured resources for Nome Creek are in the area depicted in figure 6. The resources were calculated using the mean area method (101).

Identified resources were calculated for lower Nome Creek in the vicinity of the drill holes using the mean area method (101).

MINERAL DEVELOPMENT POTENTIAL: Although the average grade of the unmined resources is low, the presence of large unmined and some high sample values indicate that this property has a high mineral development potential for small mining operations in selected areas of the drainage.

RECOMMENDATIONS: More geophysical surveys should be conducted as well as sampling to further define mineable units.

REFERENCES: 1-2, 17, 25-26, 29-37, 39-40, 42-44, 53, 55, 57, 60, 63-64, 66-67, 72-73, 75-86, 93, 100, 102.

Additional Kardex No's (all have the prefix 049-): 036, 054, 067, 068, 172, 277, 307, 378, 455, 470, 599. The numbers with prefix 050 are 45, 83, 138, 175, 203, 227-228, 278, 279, 390, 404, 441, 443, 448, 449, 450, 451, 469, 470, 670, 673, 681.

Additional MAS No's: 93, 307, 315, 316, 317, 318, 9025, 9026, 9027, 9069, 9070.

NAME: Beaver Creek

Map Location No. 12
KX No. 428
MAS No. None

LOCATION: Steese/White Mountains.
Mining District: Tolovana.
Recording Distict: Fairbanks.
Quadrangle: Livengood B1. T7N R3 & 4E. Meridian: Fairbanks.
Geographic: Property is located upstream of confluence with Nome Creek.
Elevation: 1,650 to 2,300 ft.
Access: Overland via trail from the Steese Highway.

Deposit Type: Placer.
Commodities: Gold.

HISTORY:
1919 - Gold found in the Beaver Creek Basin (16).
1973 - 2 claims were staked by Ed L. Smith, and Douglas Russell (1).
1974 - Assessment work filed (1).

Production: None.

WORKINGS AND FACILITIES: None.

GEOLOGIC SETTING: Beaver Creek between the confluences of Champion and Bear Creeks and Nome Creek is approximately 4 mi long, with an average gradient of 25 ft/mi. A Cambrian grit, quartzite, slate, and argillite unit is exposed on the north side; and a Precambrian-Paleozoic quartzite and quartzitic schist unit is exposed on the south side of the creek. A gravel bench is present for 0.5 mi below the intersection of Champion and Bear Creeks. The bench is approximately 8 ft thick and has an exposed length of 0.5 mi and width of 660 ft.

BUREAU INVESTIGATION: In 1987, the Bureau took 5 reconnaissance placer samples from 3 sample sites (nos. 144-146, fig. 4, appendix B). The samples contained from 0.0013 to 0.0206 oz/yd^3 gold. A site specific bulk placer sample (no. B2, fig. 4) was taken from a channel cut from the surface of the bench to bedrock. The sample weighed 732 lb. Over 50% of the gravel was greater than +1-mesh in size, with approximately 20% of the gravel +4/+6-mesh in size (fig. 13). Approximately 54% of the gold was -6/+10-mesh, 20% -14/+20-mesh, 7.7% -20/+30-mesh, 16% -30/+40-mesh, 1% -40/+50-mesh, and less than 1% -50-mesh in size. (fig. 13).

RESOURCE ESTIMATE: Inferred resource: 500,000 yd^3 of material, which
Average : 0.0093 oz/yd^3 gold.

Note: This estimate was based on an average thickness of 8 ft, 2640 ft strike length, and 660 ft of width. The average grade was the average of the Bureau's sample results.

MINERAL DEVELOPMENT POTENTIAL: The Bureau sampling indicated that this property has a high mineral development potential.

RECOMMENDATIONS: The alluvial gravel and the bedrock interface adjacent and downstream from the gravel bench in Beaver Creek would be good locations to explore. The alluvial gravel along Beaver Creek, adjacent and downstream from the benches needs to be sampled by drilling or by trenching.

REFERENCES: 1, 16, 35, 36-37, 93.

NAME(S): Ophir Creek

Map Location No. 13
KX No. 8, 21, 25, 307, 448, 444
MAS No. 9028

LOCATION: Steese/White Mountains.
Mining District: Tolovana.
Recording District: Fairbanks.
Quadrangle: Livengood B1. T5 & 6N R1, 2, & 3E. Meridian: Fairbanks.
Geographic: Ophir Creek flows northeast and drains the divide between the Chatanika River and Beaver Creek. It is a tributary to Nome Creek.
Elevation: 1,700 to 2,500 ft.
Access: Access via ATV over dirt road from Steese Highway. Road ascends to the divide between Beaver Creek and Chatanika River and then passes along a ridge dividing Ophir Creek to the west and an unnamed tributary to Nome Creek to the east. Road meets Ophir Creek at the confluence of Ophir and Nome Creeks.

Deposit Type: Placer.
Commodities: Gold.

HISTORY:

Production: 33 oz Au, 4 oz Ag (93).

1910 - Gold discovered and claims staked. 50-ft crosscut was run on Discovery Claim (44).
1912 - Three or four men working a windlass on Discovery Claim (43).
1918 - Discovery of pay gravel in shallow bench deposits (56).
1953 - 17 claims staked by Blanche Cascadan, C.L. Haydon, Orea Haydon, D. Lee Haydon Dan Boddy, and Peter Schmidt (1).
1956 - 48 claims were staked by C.L. Haydon, R.L. Corbin, and Wade Reese (1).
1964 - 12 claims staked by Tury Anderson, and Ed Larrell (1).
1974 - 1 claim staked by R.W. Hughes (1).
1975 - 1 claim staked by M.W. Discloux, and William Burnanauskas (1).
1983 - Assessment work filed every year up to this year.

WORKINGS AND FACILITIES: Shafts, tailings piles, and sluices found at 1950 ft elevation. Cabins are also present along the creek.

GEOLOGIC SETTING: Ophir Creek is approximately 14 mi long with an average gradient of 30 ft/mi. The creek drains a Precambrian-Paleozoic quartzite and quartzitic schist unit. The USGS (55) hypothesized that the Cleary sequence is present at the head of the creek.

The creek is a slow moving, meandering stream that is deeply incised in muck. The material along the stream is poorly sorted colluvium. Ellsworth (44) reported that the gold from Discovery Claim had 820 fineness and the gravels ran from 0.073 to 0.103 oz/ft^2 gold. The largest nugget was 0.25 oz in weight (44). Bench deposits supposedly contain gold.

BUREAU INVESTIGATION: The Bureau took 8 0.1 yd^3 reconnaissance placer samples (nos. 181-182, 187-192, fig. 4, appendix B) along Ophir Creek in 1987. Material piled up beside a shaft was also sampled (nos. 188, fig. 4, appendix B). Only minor amounts of gold were noted in the samples. The highest value was from sample 187 which contained 0.0005 oz/yd^3 gold. The gold fineness was 901 (table 3).

RESOURCE ESTIMATE: No indications of economic concentrations of placer minerals were noted; therefore, a resource estimate was not made.

MINERAL DEVELOPMENT POTENTIAL: The results of Bureau sampling indicate a low placer mineral development potential for Ophir Creek.

RECOMMENDATIONS: The creek needs to be drilled to properly evaluate the drainage.

REFERENCES: 1, 30-33, 35-37, 42-44, 55-56, 72, 93.

NAME(S): Trail Creek

Map Location No. 14
KX No. 192
MAS No. None

LOCATION: Steese/White Mountains.
Mining District: Tolovana.
Recording District: Fairbanks.
Quadrangle: Livengood A2, B1 & B2. T5 & 6N R1 & 2E. Meridian: Fairbanks.
Geographic: Trail Creek is a southern tributary of Beaver Creek, which drains the divide between Beaver Creek and the Chatanika River.
Elevation: 1,600 and 2,000 ft.
Access: The headwaters of Trail Creek are accessible by trail from Poker Creek off the Steese Highway. The creek can also be accessed via helicopter and boat.

Deposit Type: Placer.
Commodities: Gold.

HISTORY:
1910 - Claims staked (44).
1912 - Assessment work filed (1).
1978-79 - Assessment work filed (1).

Production: Unknown.

WORKINGS AND FACILITIES: None.

GEOLOGIC SETTING: The creek is approximately 12 mi long with an average gradient of 50 ft/mi. Bedrock consists of Precambrian-Paleozoic quartzite and quartzitic schist. The USGS (55) has hypothesized that the Cleary Sequence is present in the headwaters of the creek.

The creek is a small, meandering stream whose channel is deeply incised in muck. Material found along the creek is poorly sorted colluvium.

BUREAU INVESTIGATION: The Bureau took 9 0.1 yd^3 reconnaissance placer samples (nos. 175-180, 183-184, 186, fig. 4, appendix B) from Trail Creek in 1987. No recoverable quantities of gold were noted in any of the samples, but some did contain anomalous lead, manganese, molybdenum, nickel, and silver values.

RESOURCE ESTIMATE: No economic quantities of placer minerals were identified in the drainage; therefore, a resource estimate was not made.

MINERAL DEVELOPMENT POTENTIAL: Results of the Bureau's sampling indicates that the creek has a low mineral development potential.

RECOMMENDATIONS: Drilling is needed to properly evaluate the drainage.

REFERENCES: 1, 35-37, 41, 44, 55, 72.

NAME: Lost Horse Creek

Map Location No. 15
KX No. 441, 516
MAS No. _____

LOCATION: Steese/White Mountains.
Mining District: Tolovana.
Recording Distict: Fairbanks.
Quadrangle: Livengood A2. T4 & 5N R1W. Meridian: Fairbanks.
Geographic: The creek is a tributary of Washington Creek and flows south from the White Mountains Study Area.
Elevation: 1,000 to 2,000 ft.
Access: Trail from Milepost 20 of the Elliott Highway.

Deposit Type: Placer.
Commodities: Gold.

HISTORY:

Production: Unknown.

1979 - 4 claims staken by T.F. Anderson and W. Anderson (1).
1980 - Assessment work filed (1).
1984 - 18 claims staked by Tury F. Anderson (1).

WORKINGS AND FACILITIES: None.

GEOLOGIC SETTING: Lost Horse Creek is a tributary of Washington Creek. It is approximately 5 mi long, with an average gradient of 200 ft/mi. Bedrock consists of Precambrian-Paleozoic quartzite and quartzitic schist.

The creek is small, meandering, and deeply incised in muck.

BUREAU INVESTIGATION: The waterflow of the portion of the creek that is in the study area is too little to take a placer sample; therefore, it was not sampled by the Bureau during this study.

RESOURCE ESTIMATE: None.

MINERAL DEVELOPMENT POTENTIAL: The creek has an unknown mineral development potential because the creek was not sampled.

RECOMMENDATIONS: None.

REFERENCES: 1.

APPENDIX B.--SAMPLE RESULTS OF THE WHITE MOUNTAINS STUDY AREA.

Explanation

Map No/Sample No/Yr : Refers to map and field sample numbers and the year sample was taken. Sample locations are shown on figures 4 and 5.

Material Type : Refers to type of material collected at the sampling site. The following material types were collected.

Hornfels
Placer - Concentrates from 0.1 to 0.2 yd^3 of placer material.
Placer (tailings) - Concentrates from 0.1 to 0.2 yd^3 of placer material.
Quartz
Quartzite
Schist
Slate

Rock Type : Refers to rock types in the area of sampling as shown on the 1:250,000 scale geologic map (27, 45). The rock types are:

Fel Int	- Felsic intrusive rocks
Meta	- Metamorphic rocks
Qac	- Alluvium and colluvium
Qa	- Alluvium
Ql	- Loess
Qm	- Morainal deposits, undifferentiated
Qsu	- silt undifferentiated and organic material (muck)
Sed	- Sedimentary rocks

Rock Age : Refers to the geologic age of the underlying rock groups as shown on the 1:250,000 scale geologic maps (27, 45). The rock ages are:

Cambrian
MzPz - Mesozoic-Paleozoic
OCam - Ordovician-Cambrian
Ordovician
Quaternary
PzPcam - Paleozoic-Precambrian
TK - Tertiary-Cretaceous

Quad 4 mile/1 mile : Refers to the 1:250,000 and 1:63,360 scale USGS quadrangle maps covering the area.

Sec/T/R/Mer : Refers to section, township, range, and meridian in which the samples were taken. All samples were taken in the Fairbanks Meridian.

Location/Property : Refers to the geographic location of the sampling site and/or the name of the mine, prospect, or occurrence.

KX/MAS : Refers to the Kardex (Minfile Reference System) (1), and Minerals Availability System (93) number for the mine, prospect, or occurrence.

Sample type : Refers to the type of sample taken. The following sample types were taken.

Backhoe Placer - A 0.1 to 0.2 yd^3 sample taken from material excavated by a backhoe.

Grab - A collection of mineral and rock fragments taken at random from an outcrop or float.

Pan - A sample taken from surficial material, which is concentrated using a 16 in diameter gold pan.

Placer - A 0.1 yd^3 sample taken from surficial material which is concentrated in a sluicebox or gold pan.

ICP : Refers to induced coupled plasma technique analysis. Given in ppm unless noted otherwise.

Assay : Refers to fire assaying technique analysis. Given in ounces per short ton.

Oz/yd^3 : Refers to amount of gold recovered from a placer sample by sluicing or panning.

G : Refers to analyses greater than the detection limits.
Copper - 10,000 ppm
Iron - 15%
Lead - 1,000 ppm
Tin - 1,000 ppm

L : Refers to analyses less than the detection limits.

Detection limits for ICP, Assay and Oz/yd^3 analyses are shown in the following table B1 (values are in ppm unless otherwise indicated):

TABLE B1 - Lower detection limits for chemical analyses

Element	ICP	Assay	oz/yd^3
Aluminum	0.01%		
Antimony	5		
Arsenic	5		
Barium	10		
Beryllium	0.5		
Bismuth	2		
Cadmium	0.5		
Calcium	0.01%		
Chromium	1		
Cobalt	1		
Copper	1		
Gallium	10		
Gold		0.002 oz/st	0.0001
Iron	0.01%		
Lanthanum	10		
Lead	2		
Manganese	1		
Magnesium	0.01%		
Mercury	1		
Molybdenum	1		
Nickel	1		
Palladium			
Phosphorus	10		
Platinum			
Potassium	0.01%		
Selenium	10		
Silver	0.2	0.01 oz/st	
Sodium	0.01%		
Strontium	1		
Thallium	10		
Tin	2		
Titanium	0.01%		
Tungsten	2		
Uranium	10		
Vanadium	1		
Zinc	1		

NOTE : For placer and pan type samples: ICP and Assay analyses were conducted on material weighing between 0.01 and 3 pounds, which had been concentrated from sluicing or panning between 20 and 600 pounds of unconsolidated material (approximate weights of 1 pan and 0.2 yd^3, respectively).

If results are listed under the Oz/yd^3 column for a given sample: ICP Assay analyses were conducted on concentrates from which the visible gold was previously separated. The results under the Oz/yd^3 column refer to the weight of the physically separated gold recalculated into an oz/yd^3 measure.

If there are only ICP and Assay analyses listed, then the results are for analyses conducted on concentrates from which no gold was previously separated. The assayed samples had been previously concentrated by a factor of 150 to 200 times.

Oz/yd^3 values can be calculated for the ocncentrates taken from a 0.1 yd^3 placer sample using the following equation:

(0.000011)(weight of concentrate in grams)(troy oz/st precious metal value from analysis) = Oz/yd^3.

$Pound/yd^3$ can be calculated for the concentrates taken from a 0.1 yd^3 placer sample using the following equation:

(0.022)(weight of concentrate in grams)(% concentration from analysis) = $Pound/yd^3$.

The exact weights of all of the placer concentrates is unknown; however, the average weight of each sample was 75 grams.

Map No/Sample No/Yr	:1/104/87	:2/102/87	:3/103/87
Material Type	:Placer	:Placer	:Placer
Rock Type	:Qa	:Qa	:Qsu
Rock Age	:Quaternary	:Quaternary	:Quaternary
Quad 4 mile/1 mile	:Livengood/D-2	:Livengood/D-1	:Livengood/D-1
Sec/T/R/Mer	:30/11N/1E	:6/11N/2E	:36/12N/1E
Location/Property	:Victoria Creek Trib.	:Victoria Creek	:Bull creek
Map No./KX/MAS	:None	:None	:None
Sample Type	:Placer	:Placer	:Placer
	:	:	:

Element	ICP	Assay	ICP	Assay	ICP	Assay
: Aluminum	:1.71%		:1.41%		:0.82%	
: Antimony	:5		:5		:5	
: Arsenic	:25		:20		:10	
: Barium	:180		:320		:490	
: Beryllium	:L		:L		:L	
: Bismuth	:L		:L		:L	
: Cadmium	:L		:L		:L	
: Calcium	:0.19%		:0.56%		:0.32%	
: Chromium	:74		:141		:105	
: Cobalt	:18		:20		:21	
: Copper	:29		:24		:59	
: Gallium	:L		:L		:L	
: Gold	:	L	:	L	:	L
: Iron	:4.91%		:4.94%		:6.16%	
: Lanthanum	:30		:30		:20	
: Lead	:6		:22		:52	
: Manganese	:809		:805		:765	
: Magnesium	:0.70%		:0.82%		:0.42%	
: Mercury	:L		:L		:L	
: Molybdenum	:L		:L		:L	
: Nickel	:35		:52		:50	
: Phosphorus	:L		:L		:L	
: Potassium	:0.14%		:0.10%		:0.19%	
: Selenium	:L		:10		:L	
: Silver	:L		:L		:L	
: Sodium	:0.01%		:0.01%		:L	
: Strontium	:17		:44		:56	
: Thallium	:20		:10		:10	
: Tin	:2		:4		:4	
: Titanium	:0.02%		:0.14%		:0.05%	
: Tungsten	:5		:L		:5	
: Uranium	:L		:L		:L	
: Vanadium	:28		:51		:40	
: Zinc	:102		:114		:108	

Map No/Sample No/Yr	:4/101/87	:5/80/87	:6/29/87
Material Type	:Placer	:Placer	:Placer
Rock Type	:Qa	:Qa	:Qa
Rock Age	:Quaternary	:Quaternary	:Quaternary
Quad 4 mile/1 mile	:Livengood/D-1	:Livengood/D-1	:Livengood/D-1
Sec/T/R/Mer	:2/11N/2E	:31/12N/3E	:33/12N/3E
Location/Property	:Victoria Creek	:Victoria Creek	:Victoria Creek
Map No./KX/MAS	:None	:None	:None
Sample Type	:Placer	:Placer	:Placer
	:	:	:

Element	ICP	Assay	ICP	Assay	ICP	Assay
: Aluminum	:1.20%		:1.21%		:1.52%	
: Antimony	:5		:10		:L	
: Arsenic	:20		:L		:L	
: Barium	:1280		:1400		:1420	
: Beryllium	:L		:L		:2	
: Bismuth	:L		:L		:4	
: Cadmium	:L		:0.5		:L	
: Calcium	:0.61%		:1.45%		:0.63%	
: Chromium	:111		:228		:59	
: Cobalt	:21		:21		:17	
: Copper	:35		:38		:38	
: Gallium	:L		:L		:L	
: Gold	:	L	:	0.022:		L
: Iron	:6.40%		:9.47%		:4.71%	
: Lanthanum	:30		:40		:30	
: Lead	:30		:40		:18	
: Manganese	:833		:637		:734	
: Magnesium	:0.64%		:0.64%		:0.74%	
: Mercury	:L		:L		:L	
: Molybdenum	:L		:L		:L	
: Nickel	:55		:57		:40	
: Phosphorus	:10		:L		:690	
: Potassium	:0.12%		:0.12%		:0.21%	
: Selenium	:L		:10		:L	
: Silver	:L		:L		:0.2	0.06
: Sodium	:0.01%		:0.01%		:0.02%	
: Strontium	:36		:53		:47	
: Thallium	:20		:20		:L	
: Tin	:6		:5		:3	
: Titanium	:0.23%		:0.86%		:0.24%	
: Tungsten	:L		:25		:2	
: Uranium	:L		:L		:L	
: Vanadium	:56		:114		:59	
: Zinc	:137		:141		:116	

Map No/Sample No/Yr	:7/12/87		:8/37/87		:9/30/87	
Material Type	:Placer		:Placer		:Placer	
Rock Type	:Qa		:Qa		:Qa	
Rock Age	:Quaternary		:Quaternary		:Quaternary	
Quad 4 mile/1 mile	:Livengood/D-1		:Livengood/D-1		:Circle/D-6	
Sec/T/R/Mer	:34/12N/3E		:36/12N/3E		:31/12N/4E	
Location/Property	:Victoria Creek		:Victoria Creek		:Victoria Creek	
Map No./KX/MAS	:None		:None		:None	
Sample Type	:Placer		:Placer		:Placer	
	:		:		:	
Element	ICP	Assay	ICP	Assay	ICP	Assay
: Aluminum	:1.9%		:1.54%		:1.03%	
: Antimony	:10		:L		:5	
: Arsenic	:5		:5		:L	
: Barium	:2520		:1810		:570	
: Beryllium	:2		:2.5		:4.5	
: Bismuth	:L		:12		:84	
: Cadmium	:0.5		:0.5		: 0.5	
: Calcium	:1.25%		:1.0%		:1.03%	
: Chromium	:108		:81		:127	
: Cobalt	:24		:27		:24	
: Copper	:43		:59		:34	
: Gallium	:L		:10		:40	
: Gold	:	0.006	:	0.026	:	0.032
: Iron	:6.57%		:7.93%		:G	
: Lanthanum	:40		:30		:840	
: Lead	:26		:38		:18	
: Manganese	:822		:1410		:1015	
: Magnesium	:0.67%		:0.69%		:0.40%	
: Mercury	:L		:L		:L	
: Molybdenum	:1		:L		:L	
: Nickel	:54		:55		:29	
: Phosphorus	:770		:790		:1440	
: Potassium	:0.41%		:0.25%		:0.21%	
: Selenium	:L		:20		:L	
: Silver	:0.2	0.01	:0.2	0.01	:0.2	0.03
: Sodium	:0.03%		:0.02%		:0.04%	
: Strontium	:64		:61		:31	
: Thallium	:L		:L		:L	
: Tin	:2		:2		:2	
: Titanium	:0.63%		:0.48%		:0.35%	
: Tungsten	:6		:1		:125	
: Uranium	:L		:L		:L	
: Vanadium	:91		:74		:904	
: Zinc	:162		:188		:96	

Map No/Sample No/Yr	:10/11/87		:11/36/87		:12/10/87	
Material Type	:Placer		:Placer		:Placer	
Rock Type	:Sed		:Sed		:Sed	
Rock Age	:PzPcam		:PzPcam		:PzPcam	
Quad 4 mile/1 mile	:Circle/D-6		:Circle/D-6		:Circle/D-6	
Sec/T/R/Mer	:28/12N/4E		:21/12N/4E		:23/12N/5E	
Location/Property	:Victoria Creek Trib.		:Victoria Creek		:Victoria Creek Trib.	
Map No./KX/MAS	:None		:None		:None	
Sample Type	:Placer		:Placer		:Placer	
	:		:		:	
Element	ICP	Assay	ICP	Assay	ICP	Assay
: Aluminum	:2.03%		:1.80%		:1.66%	
: Antimony	:5		:L		:L	
: Arsenic	:L		:15		:50	
: Barium	:1490		:350		:1380	
: Beryllium	:3		:1.5		:3	
: Bismuth	:6		:4		:6	
: Cadmium	:1		:L		:L	
: Calcium	:1.33%		:0.49%		:0.95%	
: Chromium	:84		:31		:79	
: Cobalt	:32		:18		:29	
: Copper	:72		:54		:83	
: Gallium	:L		:L		:10	
: Gold	:	L	:	0.004	:	0.018
: Iron	:9.38%		:3.76%		:11.65%	
: Lanthanum	:140		:30		:340	
: Lead	:26		:22		:12	
: Manganese	:1680		:496		:1565	
: Magnesium	:0.76%		:0.95%		:0.84%	
: Mercury	:L		:L		:L	
: Molybdenum	:L		:L		:2	
: Nickel	:61		:40		:59	
: Phosphorus	:900		:490		:1220	
: Potassium	:0.44%		:0.39%		:0.47%	
: Selenium	:10		:30		:L	
: Silver	:0.2	0.02	:0.2	0.04	:0.2	0.12
: Sodium	:0.04%		:0.02%		:0.03%	
: Strontium	:72		:24		:52	
: Thallium	:L		:L		:L	
: Tin	:2		:3		:2	
: Titanium	:0.65%		:L		:0.33%	
: Tungsten	:6		:1		:125	
: Uranium	:L		:L		:L	
: Vanadium	:148		:29		:286	
: Zinc	:201		:114		:112	

Map No/Sample No/Yr	:13/31/87		:14/9/87		:15/34/87	
Material Type	:Placer		:Placer		:Placer	
Rock Type	:Qa		:Qa		:Qa	
Rock Age	:Quaternary		:Quaternary		:Quaternary	
Quad 4 mile/1 mile	:Circle/D-6		:Circle/D-6		:Circle/D-6	
Sec/T/R/Mer	:24/12N/4E		:29/12N/5E		:34/12N/5E	
Location/Property	:Victoria Creek		:Squaw Creek		:Victoria Creek	
Map No./KX/MAS	:None		:None		:None	
Sample Type	:Placer		:Placer		:Placer	
	:		:		:	
Element	ICP	Assay	ICP	Assay	ICP	Assay
: Aluminum	:1.71%		:1.77%		:1.36%	
: Antimony	:L		:L		:5	
: Arsenic	:15		:25		:35	
: Barium	:1130		:600		:840	
: Beryllium	:3.5		:2		:3.5	
: Bismuth	:12		:2		:6	
: Cadmium	:0.5		:1		:0.5	
: Calcium	:0.78%		:0.92%		:1.09%	
: Chromium	:90		:105		:414	
: Cobalt	:28		:16		:38	
: Copper	:81		:48		:106	
: Gallium	:10		:10		:10	
: Gold	:	0.14	:	L	:	L
: Iron	:9.41%		:7.87%		:11.25%	
: Lanthanum	:180		:230		:100	
: Lead	:50		:28		:50	
: Manganese	:1290		:1025		:1660	
: Magnesium	:0.65%		:0.99%		:1.26%	
: Mercury	:L		:L		:L	
: Molybdenum	:L		:L		:L	
: Nickel	:50		:72		:109	
: Phosphorus	:900		:1050		:790	
: Potassium	:0.44%		:0.44%		:0.19%	
: Selenium	:10		:L		:L	
: Silver	:0.2	0.06	:0.2	0.02	:0.2	0.06
: Sodium	:0.03%		:0.04%		:0.02%	
: Strontium	:46		:47		:47	
: Thallium	:L		:L		:L	
: Tin	:3		:3		:20	
: Titanium	:0.40%		:0.38%		:0.36%	
: Tungsten	:45		:45		:27	
: Uranium	:L		:L		:L	
: Vanadium	:147		:168		:117	
: Zinc	:127		:234		:240	

Map No/Sample No/Yr	:15/35/87	:16/8/87	:17/241/87
Material Type	:Placer	:Placer	:Placer
Rock Type	:Qa	:Qa	:Qa
Rock Age	:Quaternary	:Quaternary	:Quaternary
Quad 4 mile/1 mile	:Circle/D-6	:Circle/D-6	:Circle/D-6
Sec/T/R/Mer	:34/12N/5E	:2/11N/5E	:31/12N/6E
Location/Property	:Victoria Creek	:Victoria Creek	:Beaver Creek
Map No./KX/MAS	:None	:None	:None
Sample Type	:8 Pans	:Placer	:Placer
	:	:Insufficient sample	:
	:	:for complete analysis	:

Element	ICP	Assay	ICP	Assay	ICP	Assay
: Aluminum	:1.63%		:		:1.18%	
: Antimony	:L		:		:5	
: Arsenic	:35		:		:30	
: Barium	:870		:		:1550	
: Beryllium	:2		:		:0.5	
: Bismuth	:6		:		:L	
: Cadmium	:1.5		:		:L	
: Calcium	:0.65%		:		:0.68%	
: Chromium	:102		:		:165	
: Cobalt	:18		:		:13	
: Copper	:67		:		:42	
: Gallium	:L		:		:L	
: Gold	:	0.014	:	L	:	0.002
: Iron	:6.32%		:		:4.75%	
: Lanthanum	:50		:		:30	
: Lead	:18		:		:L	
: Manganese	:874		:		:939	
: Magnesium	:0.77%		:		:0.73%	
: Mercury	:L		:		:1	
: Molybdenum	:L		:		:L	
: Nickel	:52		:		:45	
: Phosphorus	:850		:		:670	
: Potassium	:0.28%		:		:0.11%	
: Selenium	:20		:		:L	
: Silver	:0.8	0.13	:	0.01	:L	
: Sodium	:0.02%		:		:0.02%	
: Strontium	:36		:		:34	
: Thallium	:L		:		:L	
: Tin	:36		:		:55	
: Titanium	:0.21%		:		:0.16%	
: Tungsten	:125		:		:10	
: Uranium	:L		:		:L	
: Vanadium	:70		:		:70	
: Zinc	:279		:		:122	

Map No/Sample No/Yr	:18/240/87	:19/242/87	:20/243/87
Material Type	:Placer	:Placer	:Placer
Rock Type	:Qa	:Qa	:Qa
Rock Age	:Quaternary	:Quaternary	:Quaternary
Quad 4 mile/1 mile	:Circle/D-6	:Circle/D-6	:Circle/C-6
Sec/T/R/Mer	:16/11N/6E	:19/11N/5E	:34/11N/4E
Location/Property	:Moose Creek	:Beaver Creek	:Mascot Creek
Map No./KX/MAS	:None	:None	:None
Sample Type	:Placer	:Placer	:Placer
	:	:	:

Element	ICP	Assay	ICP	Assay	ICP	Assay	Oz/yd^3
: Aluminum	:0.91%		:0.73%		:1.43%		
: Antimony	:20		:10		:L		
: Arsenic	:25		:40		:20		
: Barium	:2590		:3210		:2640		
: Beryllium	:0.5		:0.5		:2.5		
: Bismuth	:34		:L		:4		
: Cadmium	:0.5		:1.5		:0.5		
: Calcium	:0.28%		:0.36%		:0.37%		
: Chromium	:93		:66		:102		
: Cobalt	:14		:18		:15		
: Copper	:59		:58		:34		
: Gallium	:L		:20		:10		
: Gold	:	0.018	:	L	:	0.008	0.0003
: Iron	:7.8%		:9.96%		:4.68%		
: Lanthanum	:50		:310		:140		
: Lead	:L		:54		:34		
: Manganese	:965		:1525		:1025		
: Magnesium	:0.26%		:0.31%		:0.67%		
: Mercury	:2		:1		:1		
: Molybdenum	:1		:L		:L		
: Nickel	:42		:46		:41		
: Phosphorus	:560		:760		:570		
: Potassium	:0.22%		:0.13%		:0.22%		
: Selenium	:L		:L		:L		
: Silver	:4.6		:0.2		:0.4		
: Sodium	:0.02%		:0.03%		:0.02%		
: Strontium	:44		:29		:33		
: Thallium	:10		:40		:40		
: Tin	:940		:15		:620		
: Titanium	:0.02%		:0.12%		:0.07%		
: Tungsten	:85		:235		:50		
: Uranium	:L		:L		:L		
: Vanadium	:42		:209		:42		
: Zinc	:142		:358		:139		

Map No/Sample No/Yr	:21/246/87	:22/247/87	:23/248/87
Material Type	:Placer	:Placer	:Placer
Rock Type	:Qa	:Qa	:Qa
Rock Age	:Quaternary	:Quaternary	:Quaternary
Quad 4 mile/1 mile	:Circle/C-6	:Livengood/C-1	:Livengood/D-1
Sec/T/R/Mer	:5/10N/6E	:1/10N/3E	:28/11N/3E
Location/Property	:Beaver Creek Trib.	:Beaver Creek	:Willow Creek
Map No./KX/MAS	:None	:None	:None
Sample Type	:Placer	:Placer	:Placer
	:	:	:

Element	ICP	Assay	ICP	Assay	Oz/yd^3	ICP	Assay
: Aluminum	:1.16%		:1.58%			:1.77%	
: Antimony	:10		:5			:L	
: Arsenic	:L		:20			:5	
: Barium	:4000		:360			:590	
: Beryllium	:1		:L			:L	
: Bismuth	:L		:32			:L	
: Cadmium	:2		:0.5			:1	
: Calcium	:0.52%		:1.35%			:0.67%	
: Chromium	:141		:180			:102	
: Cobalt	:15		:15			:19	
: Copper	:53		:132			:58	
: Gallium	:L		:L			:L	
: Gold	:	L	:	0.004	0.0013	:	0.004
: Iron	:5.90%		:7.27%			:5.13%	
: Lanthanum	:30		:20			:30	
: Lead	:4		:2			:14	
: Manganese	:516		:1385			:955	
: Magnesium	:0.74%		:0.85%			:1.11%	
: Mercury	:1		:1			:1	
: Molybdenum	:L		:L			:L	
: Nickel	:98		:56			:50	
: Phosphorus	:680		:710			:1020	
: Potassium	:0.11%		:0.09%			:0.20%	
: Selenium	:L		:L			:L	
: Silver	:L		:L			:L	
: Sodium	:0.01%		:0.02%			:0.02%	
: Strontium	:49		:57			:45	
: Thallium	:L		:L			:L	
: Tin	:42		:800			:24	
: Titanium	:0.12%		:0.30%			:0.23%	
: Tungsten	:20		:80			:15	
: Uranium	:L		:L			:L	
: Vanadium	:56		:115			:75	
: Zinc	:540		:107			:163	

Map No/Sample No/Yr	:24/38/87		:25/28/87		:26/16/87		
Material Type	:Placer		:Placer		:Placer		
Rock Type	:Qa		:Qa		:Qa		
Rock Age	:Quaternary		:Quaternary		:Quaternary		
Quad 4 mile/1 mile	:Livengood/C-1		:Livengood/C-1		:Livengood/C-1		
Sec/T/R/Mer	:3/10N/2E		:1/10N/1E		:14/10N/1E		
Location/Property	:Beaver Creek		:Beaver Creek		:Beaver Creek		
Map No./KX/MAS	:		:		:		
Sample Type	:Placer		:Placer		:Placer		
	:		:		:		
Element	ICP	Assay	ICP	Assay	ICP	Assay	Oz/yd^3
: Aluminum	:1.83%		:1.81%		:1.50%		
: Antimony	:L		:5		:5		
: Arsenic	:L		:L		:L		
: Barium	:1160		:530		:4070		
: Beryllium	:2.5		:2		:2.5		
: Bismuth	:4		:6		:2		
: Cadmium	:L		:0.5		:L		
: Calcium	:1.61%		:1.4%		:1.49%		
: Chromium	:760		:143		:809		
: Cobalt	:19		:16		:22		
: Copper	:50		:37		:49		
: Gallium	:L		:L		:L		
: Gold	:	0.132	:	0.024	:	0.003	0.0002
: Iron	:8.06%		:4.64%		:10.6%		
: Lanthanum	:30		:20		:20		
: Lead	:12		:2		:10		
: Manganese	:842		:637		:874		
: Magnesium	:0.83%		:0.86%		:0.71%		
: Mercury	:6		:L		:L		
: Molybdenum	:L		:2		:L		
: Nickel	:69		:42		:85		
: Phosphorus	:460		:580		:510		
: Potassium	:0.09%		:0.13%		:0.06%		
: Selenium	:10		:L		:L		
: Silver	:1	0.03	:0.2	0.06	:0.2	0.01	
: Sodium	:0.03%		:0.03%		:0.02%		
: Strontium	:102		:57		:140		
: Thallium	:L		:L		:L		
: Tin	:300		:100		:120		
: Titanium	:0.34%		:0.32%		:0.34%		
: Tungsten	:12		:8		:13		
: Uranium	:L		:L		:L		
: Vanadium	:152		:100		:160		
: Zinc	:98		:67		:68		

Map No/Sample No/Yr	:27/39/87	:28/251/87	:29/249/87
Material Type	:Placer	:Placer	:Placer
Rock Type	:Qa	:Qa	:Qa
Rock Age	:Quaternary	:Quaternary	:Quaternary
Quad 4 mile/1 mile	:Livengood/C-2	:Livengood/C-1	:Livengood/C-1
Sec/T/R/Mer	:22/10N/1E	:29/10N/3E	:16/10N/3E
Location/Property	:Beaver Creek	:Willow Creek	:Willow Creek Trib.
Map No./KX/MAS	:None	:None	:None
Sample Type	:Placer	:Placer	:Placer
	:	:	:

Element	ICP	Assay	Oz/yd^3	ICP	Assay	ICP	Assay
: Aluminum	:1.43%			:2.16%		:1.60%	
: Antimony	:L			:5		:L	
: Arsenic	:L			:L		:25	
: Barium	:170			:650		:1110	
: Beryllium	:2.5			:1		:0.5	
: Bismuth	:4			:L		:L	
: Cadmium	:0.5			:1		:L	
: Calcium	:1.2%			:0.80%		:0.41%	
: Chromium	:524			:207		:171	
: Cobalt	:14			:18		:14	
: Copper	:50			:39		:36	
: Gallium	:10			:L		:L	
: Gold	:	0.094	L	:	L	:	L
: Iron	:8.32%			:4.72%		:4.21%	
: Lanthanum	:50			:30		:30	
: Lead	:L			:18		:6	
: Manganese	:772			:684		:754	
: Magnesium	:0.67%			:1.39%		:0.82%	
: Mercury	:L			:1		:L	
: Molybdenum	:1			:L		:L	
: Nickel	:50			:52		:37	
: Phosphorus	:440			:1030		:690	
: Potassium	:0.07%			:0.26%		:0.23%	
: Selenium	:20			:L		:L	
: Silver	:0.6	0.01		:L		:L	
: Sodium	:0.02%			:0.03%		:0.02%	
: Strontium	:71			:52		:39	
: Thallium	:L			:L		:10	
: Tin	:600			:30		:120	
: Titanium	:0.32%			:0.30%		:0.15%	
: Tungsten	:22			:20		:10	
: Uranium	:L			:L		:L	
: Vanadium	:142			:102		:50	
: Zinc	:68			:155		:133	

Map No/Sample No/Yr	:30/245/87	:31/244/87	:32/250/87
Material Type	:Placer	:Placer	:Placer
Rock Type	:Qa	:Sed	:Sed
Rock Age	:Quaternary	:MzPz	:PzPcam
Quad 4 mile/1 mile	:Circle/C-6	:Circle/C-6	:Circle/C-6
Sec/T/R/Mer	:10/10N/4E	:10/10N/4E	:27/10N/4E
Location/Property	:Mascot Creek	:Warren Creek	:Mascot Creek
Map No./KX/MAS	:None	:None	:None
Sample Type	:Placer	:Placer	:Placer
	:	:	:

Element	ICP	Assay	ICP	Assay	ICP	Assay
: Aluminum	:1.20%		:1.62%		:1.19%	
: Antimony	:L		:5		:L	
: Arsenic	:L		:15		:L	
: Barium	:980		:2880		:160	
: Beryllium	:5.5		:1		:4.5	
: Bismuth	:4		:L		:46	
: Cadmium	:0.5		:1		:0.5	
: Calcium	:0.24%		:0.45%		:0.15%	
: Chromium	:131		:137		:162	
: Cobalt	:10		:20		:8	
: Copper	:33		:45		:23	
: Gallium	:20		:10		:50	
: Gold	:	L	:	0.004	:	L
: Iron	:3.56%		:6.02%		:2.57%	
: Lanthanum	:270		:100		:500	
: Lead	:48		:26		:48	
: Manganese	:902		:1270		:626	
: Magnesium	:0.41%		:1.01%		:0.25%	
: Mercury	:1		:1		:1	
: Molybdenum	:L		:L		:1	
: Nickel	:26		:49		:11	
: Phosphorus	:420		:590		:510	
: Potassium	:0.25%		:0.24%		:0.35%	
: Selenium	:L		:L		:L	
: Silver	:0.2		:L		:0.2	
: Sodium	:0.02%		:0.01%		:0.03%	
: Strontium	:23		:34		:13	
: Thallium	:100		:30		:210	
: Tin	:G		:150		:G	
: Titanium	:0.05%		:0.13%		:0.03%	
: Tungsten	:150		:20		:775	
: Uranium	:L		:L		:L	
: Vanadium	:26		:55		:17	
: Zinc	:111		:194		:103	

Map No/Sample No/Yr	:33/239/87	:34/258/87	:35/187/87
Material Type	:Placer	:Placer	:Placer
Rock Type	:Sed	:Qa	:Q1
Rock Age	:MzPz	:Quaternary	:Quaternary
Quad 4 mile/1 mile	:Circle/C-6	:Circle/C-6	:Circle/C-5
Sec/T/R/Mer	:5/10N/6E	:21/10N/6E	:6/10N/7E
Location/Property	:Moose Creek	:North Fork Preacher Cr	:North Fork Preacher Cr
Map No./KX/MAS	:None	:2/425/348	:3/426/349
Sample Type	:Placer	:Placer	:Placer
	:	:	:

Element	ICP	Assay	ICP	Assay	ICP	Assay
: Aluminum	:1.16%		:1.29%		:1.54%	
: Antimony	:L		:L		:L	
: Arsenic	:10		:L		:10	
: Barium	:3050		:2680		:150	
: Beryllium	:1.5		:2		:1	
: Bismuth	:L		:2		:L	
: Cadmium	:0.5		:0.5		:L	
: Calcium	:0.80%		:0.16%		:0.25%	
: Chromium	:162		:88		:217	
: Cobalt	:11		:11		:15	
: Copper	:44		:31		:37	
: Gallium	:L		:L		:L	
: Gold	:	L	:	0.016:		0.002
: Iron	:8.55%		:4.78%		:4.38%	
: Lanthanum	:30		:40		:20	
: Lead	:12		:30		:12	
: Manganese	:1410		:1615		:982	
: Magnesium	:0.45%		:0.47%		:0.76%	
: Mercury	:L		:L		:L	
: Molybdenum	:L		:L		:L	
: Nickel	:43		:31		:35	
: Phosphorus	:470		:300		:460	
: Potassium	:0.19%		:0.20%		:0.22%	
: Selenium	:L		:L		:L	
: Silver	:L		:L		:0.2	
: Sodium	:0.01%		:0.01%		:0.01%	
: Strontium	:31		:20		:24	
: Thallium	:L		:20		:L	
: Tin	:250		:0.25%		:39	
: Titanium	:0.02%		:0.02%		:0.05%	
: Tungsten	:55		:45		:L	
: Uranium	:L		:L		:L	
: Vanadium	:33		:22		:43	
: Zinc	:171		:139		:59	

Map No/Sample No/Yr	:36/186/87	:37/185/87	:38/184/87
Material Type	:Placer	:Placer	:Placer
Rock Type	:Qac	:Qac	:Qac
Rock Age	:Quaternary	:Quaternary	:Quaternary
Quad 4 mile/1 mile	:Circle/C-5	:Circle/C-5	:Circle/C-5
Sec/T/R/Mer	:7/9N/7E	:12/9N/6E	:13/9N/6E
Location/Property	:North Fork Preacher Cr	:North Fork Preacher Cr	:North Fork Preacher Cr
Map No./KX/MAS	:3/426/349	:3/426/349	:3/426/349
Sample Type	:Placer	:Placer	:Placer
	:	:	:

Element	ICP	Assay	ICP	Assay	ICP	Assay
: Aluminum	:1.37%		:1.18%		:1.11%	
: Antimony	:L		:L		:L	
: Arsenic	:15		:15		:10	
: Barium	:90		:60		:60	
: Beryllium	:0.5		:0.5		:1	
: Bismuth	:4		:16		:32	
: Cadmium	:L		:L		:0.5	
: Calcium	:0.15%		:0.20%		:0.19%	
: Chromium	:151		:165		:204	
: Cobalt	:15		:14		:13	
: Copper	:27		:21		:15	
: Gallium	:L		:L		:L	
: Gold	:	0.002	:	0.05	:	L
: Iron	:3.69%		:5.18%		:6.58%	
: Lanthanum	:30		:30		:40	
: Lead	:30		:10		:22	
: Manganese	:696		:610		:469	
: Magnesium	:0.57%		:0.61%		:0.52%	
: Mercury	:L		:L		:L	
: Molybdenum	:L		:L		:L	
: Nickel	:28		:31		:28	
: Phosphorus	:360		:500		:510	
: Potassium	:0.22%		:0.17%		:0.17%	
: Selenium	:L		:L		:L	
: Silver	:0.2		:0.2		:0.2	
: Sodium	:0.01%		:0.02%		:0.02%	
: Strontium	:19		:18		:18	
: Thallium	:L		:L		:L	
: Tin	:46		:600		:740	
: Titanium	:0.06%		:0.04%		:0.03%	
: Tungsten	:40		:470		:885	
: Uranium	:L		:L		:L	
: Vanadium	:24		:52		:103	
: Zinc	:63		:54		:51	

Map No/Sample No/Yr	:39/175/87		:40/174/87		:41/172/87	
Material Type	:Placer		:Placer		:Placer	
Rock Type	:Qac		:Qac		:Qac	
Rock Age	:Quaternary		:Quaternary		:Quaternary	
Quad 4 mile/1 mile	:Circle/C-5		:Circle/C-5		:Circle/C-5	
Sec/T/R/Mer	:13/9N/6E		:23/9N/6E		:26/9N/6E	
Location/Property	:North Fork Preacher Cr		:North Fork Preacher Cr		:North Fork Preacher Cr	
Map No./KX/MAS	:3/426/349		:3/426/349		:3/426/349	
Sample Type	:Placer		:Placer		:Placer	
	:		:		:	
Element	ICP	Assay	ICP	Assay	ICP	Assay
: Aluminum	:0.92%		:0.78%		:0.80%	
: Antimony	:L		:L		:L	
: Arsenic	:115		:30		:250	
: Barium	:70		:40		:50	
: Beryllium	:0.5		:L		:1	
: Bismuth	:210		:582		:884	
: Cadmium	:L		:1		:L	
: Calcium	:0.23%		:0.22%		:0.19%	
: Chromium	:149		:113		:106	
: Cobalt	:6		:16		:7	
: Copper	:14		:29		:12	
: Gallium	:L		:10		:L	
: Gold	:	L	:	0.018	:	0.002
: Iron	:3.34%		:14.95%		:2.46%	
: Lanthanum	:30		:110		:80	
: Lead	:42		:52		:78	
: Manganese	:1115		:948		:936	
: Magnesium	:0.30%		:0.29%		:0.20%	
: Mercury	:L		:L		:L	
: Molybdenum	:3		:L		:17	
: Nickel	:16		:37		:8	
: Phosphorus	:290		:510		:520	
: Potassium	:0.21%		:0.15%		:0.22%	
: Selenium	:L		:L		:10	
: Silver	:2.0		:2.4		:10.4	
: Sodium	:0.01%		:0.02%		:0.03%	
: Strontium	:12		:14		:8	
: Thallium	:L		:L		:L	
: Tin	:G		:G		:750	
: Titanium	:0.01%		:0.04%		:0.03%	
: Tungsten	:650	2.2%	:860	1.38%	:855	1.63%
: Uranium	:L		:L		:L	
: Vanadium	:19		:136		:13	
: Zinc	:51		:53		:78	

Map No/Sample No/Yr	:41/173/87		:42/171/87		:43/162/87	
Material Type	:Placer		:Placer		:Placer	
Rock Type	:Qac		:Meta		:Qac	
Rock Age	:Quaternary		:PzPcam		:Quaternary	
Quad 4 mile/1 mile	:Circle/C-5		:Circle/C-5		:Circle/C-5	
Sec/T/R/Mer	:26/9N/6E		:34/9N/6E		:33/9N/6E	
Location/Property	:North Fork Preacher Cr		:North Fork Preacher Cr		:North Fork Preacher Cr	
Map No./KX/MAS	:3/426/349		:3/426/349		:3/426/349	
Sample Type	:Placer		:Placer		:Placer	
	:		:		:	
Element	ICP	Assay	ICP	Assay	ICP	Assay
: Aluminum	:0.96%		:1.10%		:1.57%	
: Antimony	:L		:L		:5	
: Arsenic	:35		:40		:20	
: Barium	:60		:60		:110	
: Beryllium	:1		:1		:L	
: Bismuth	:92		:54		:L	
: Cadmium	:L		:0.5		:1.5	
: Calcium	:0.18%		:0.19%		:0.26%	
: Chromium	:96		:85		:138	
: Cobalt	:7		:6		:31	
: Copper	:9		:14		:31	
: Gallium	:L		:L		:10	
: Gold	:	L	:	0.004:		0.002
: Iron	:2.16%		:2.54%		:G	
: Lanthanum	:90		:160		:30	
: Lead	:26		:42		:12	
: Manganese	:489		:586		:969	
: Magnesium	:0.26%		:0.34%		:0.56%	
: Mercury	:L		:L		:L	
: Molybdenum	:L		:L		:L	
: Nickel	:10		:14		:53	
: Phosphorus	:510		:490		:460	
: Potassium	:0.21%		:0.20%		:0.35%	
: Selenium	:10		:10		:L	
: Silver	:0.2		:0.2		:0.2	
: Sodium	:0.02%		:0.02%		:0.02%	
: Strontium	:11		:11		:30	
: Thallium	:L		:L		:L	
: Tin	:150		:650		:7	
: Titanium	:0.04%		:0.07%		:0.09%	
: Tungsten	:900	0.19%:	630	0.16%:	L	
: Uranium	:L		:L		:L	
: Vanadium	:16		:17		:219	
: Zinc	:59		:76		:71	

Map No/Sample No/Yr	:44/163/87	:45/176/87	:46/177/87
Material Type	:Placer	:Placer	:Placer
Rock Type	:Qac	:Qac	:Qac
Rock Age	:Quaternary	:Quaternary	:Quaternary
Quad 4 mile/1 mile	:Circle/C-6	:Circle/C-6	:Circle/C-6
Sec/T/R/Mer	:28/9N/6E	:21/9N/6E	:17/9N/6E
Location/Property	:North Fork Preacher Cr	:North Fork Preacher Cr	:North Fork Preacher Cr
Map No./KX/MAS	:3/426/349	:3/426/349	:3/426/349
Sample Type	:Placer	:Placer	:Placer
	:	:	:

Element	ICP	Assay	ICP	Assay	ICP	Assay
: Aluminum	:1.90%		:1.73%		:1.33%	
: Antimony	:L		:L		:L	
: Arsenic	:L		:L		:5	
: Barium	:110		:90		:90	
: Beryllium	:0.5		:0.5		:0.5	
: Bismuth	:L		:2		:4	
: Cadmium	:1		:0.5		:L	
: Calcium	:0.17%		:0.31%		:0.10%	
: Chromium	:109		:228		:95	
: Cobalt	:20		:21		:12	
: Copper	:22		:24		:20	
: Gallium	:L		:L		:L	
: Gold	:	0.002:		0.002:		L
: Iron	:5.93%		:6.57%		:3.10%	
: Lanthanum	:40		:30		:30	
: Lead	:12		:14		:12	
: Manganese	:718		:966		:486	
: Magnesium	:0.83%		:0.76%		:0.51%	
: Mercury	:L		:L		:L	
: Molybdenum	:L		:L		:L	
: Nickel	:37		:37		:23	
: Phosphorus	:500		:710		:360	
: Potassium	:0.30%		:0.25%		:0.27%	
: Selenium	:L		:L		:L	
: Silver	:0.2		:0.2		:0.2	
: Sodium	:0.02%		:0.01%		:L	
: Strontium	:26		:36		:18	
: Thallium	:L		:L		:L	
: Tin	:4		:20		:34	
: Titanium	:0.04%		:0.05%		:0.01%	
: Tungsten	:L		:50		:115	
: Uranium	:L		:L		:L	
: Vanadium	:83		:69		:18	
: Zinc	:85		:80		:78	

Map No/Sample No/Yr	:47/153/87	:48/154/87	:49/152/87
Material Type	:Placer	:Placer	:Placer
Rock Type	:Qa	:Qa	:Qa
Rock Age	:Quaternary	:Quaternary	:Quaternary
Quad 4 mile/1 mile	:Circle/C-6	:Circle/C-6	:Circle/C-6
Sec/T/R/Mer	:32/9N/5E	:32/9N/5E	:31/9N/5E
Location/Property	:Bear Creek Trib.	:Bear Creek	:Bear Creek
Map No./KX/MAS	:5/Appendix A	:5/Appendix A	:5/Appendix A
Sample Type	:Placer	:Placer	:Placer
	:	:	:

Element	ICP	Assay	ICP	Assay	ICP	Assay
: Aluminum	:1.20%		:1.39%		:1.21%	
: Antimony	:L		:L		:L	
: Arsenic	:L		:5		:L	
: Barium	:90		:80		:70	
: Beryllium	:2.5		:2.5		:2	
: Bismuth	:12		:L		:L	
: Cadmium	:1.5		:0.5		:L	
: Calcium	:0.06%		:0.06%		:0.05%	
: Chromium	:241		:159		:160	
: Cobalt	:8		:7		:7	
: Copper	:21		:16		:12	
: Gallium	:10		:L		:L	
: Gold	:	0.002	:	L	:	0.002
: Iron	:2.32%		:2.59%		:2.09%	
: Lanthanum	:340		:150		:140	
: Lead	:254		:56		:22	
: Manganese	:3600		:834		:460	
: Magnesium	:0.17%		:0.34%		:0.25%	
: Mercury	:L		:L		:L	
: Molybdenum	:3		:L		:L	
: Nickel	:11		:17		:13	
: Phosphorus	:380		:290		:230	
: Potassium	:0.28%		:0.29%		:0.28%	
: Selenium	:10		:L		:L	
: Silver	:2.2		:0.4		:0.2	
: Sodium	:0.03%		:0.02%		:0.02%	
: Strontium	:14		:10		:8	
: Thallium	:L		:L		:L	
: Tin	:G		:530		:300	
: Titanium	:0.01%		:0.02%		:0.03%	
: Tungsten	:510		:75		:40	
: Uranium	:L		:L		:L	
: Vanadium	:10		:16		:12	
: Zinc	:257		:190		:113	

Map No/Sample No/Yr	:50/151/87	:51/125/87	:52/124/87
Material Type	:Placer	:Placer	:Placer
Rock Type	:Qa	:Qa	:Qa
Rock Age	:Quaternary	:Quaternary	:Quaternary
Quad 4 mile/1 mile	:Circle/C-6	:Circle/C-6	:Circle/C-6
Sec/T/R/Mer	:36/9N/4E	:36/9N/4E	:35/9N/4E
Location/Property	:Bear Creek	:Bear Creek Trib.	:Bear Creek
Map No./KX/MAS	:5/Appendix A	:5/Appendix A	:5/Appendix A
Sample Type	:Placer	:Placer	:Placer
	:	:	:

Element	ICP	Assay	ICP	Assay	ICP	Assay
: Aluminum	:1.26%		:1.02%		:1.89%	
: Antimony	:L		:L		:L	
: Arsenic	:L		:L		:25	
: Barium	:70		:70		:110	
: Beryllium	:1.5		:7.5		:4	
: Bismuth	:L		:82		:L	
: Cadmium	:0.5		:0.5		:0.5	
: Calcium	:0.05%		:0.09%		:0.09%	
: Chromium	:145		:249		:150	
: Cobalt	:7		:18		:13	
: Copper	:14		:18		:31	
: Gallium	:L		:250		:L	
: Gold	:	L	:	L	:	L
: Iron	:2.35%		:2.44%		:4.04%	
: Lanthanum	:70		:2310		:60	
: Lead	:20		:344		:30	
: Manganese	:569		:1490		:1025	
: Magnesium	:0.30%		:0.12%		:0.50%	
: Mercury	:L		:L		:L	
: Molybdenum	:L		:3		:L	
: Nickel	:15		:7		:28	
: Phosphorus	:210		:2310		:300	
: Potassium	:0.30%		:0.25%		:0.34%	
: Selenium	:L		:40		:L	
: Silver	:0.2		:0.2		:0.2	
: Sodium	:0.02%		:0.02%		:0.03%	
: Strontium	:9		:8		:16	
: Thallium	:L		:1090		:10	
: Tin	:76		:G		:640	
: Titanium	:0.03%		:0.01%		:0.03%	
: Tungsten	:L		:2370		:50	
: Uranium	:L		:L		:L	
: Vanadium	:13		:15		:23	
: Zinc	:112		:135		:224	

Map No/Sample No/Yr	:53/123/87	:54/122/87	:55/252/87
Material Type	:Placer	:Placer	:Placer
Rock Type	:Qa	:Qac	:Meta
Rock Age	:Quaternary	:Quaternary	:Ocam
Quad 4 mile/1 mile	:Circle/C-6	:Circle/C-6	:Livengood/C-1
Sec/T/R/Mer	:3/8N/4E	:4/8N/4E	:7/9N/3E
Location/Property	:Bear Creek	:Bear Creek	:Willow Creek
Map No./KX/MAS	:5/Appendix A	:5/Appendix A	:None
Sample Type	:Placer	:Placer	:Placer
	:	:	:

Element	ICP	Assay	ICP	Assay	ICP	Assay
: Aluminum	:1.97%		:1.81%		:1.52%	
: Antimony	:5		:L		:L	
: Arsenic	:L		:L		:L	
: Barium	:110		:80		:430	
: Beryllium	:2		:2		:L	
: Bismuth	:L		:L		:L	
: Cadmium	:L		:0.5		:1	
: Calcium	:0.05%		:0.08%		:0.23%	
: Chromium	:171		:65		:133	
: Cobalt	:10		:11		:13	
: Copper	:20		:38		:33	
: Gallium	:L		:L		:L	
: Gold	:	L	:	L	:	L
: Iron	:3.88%		:4.38%		:3.54%	
: Lanthanum	:40		:40		:20	
: Lead	:18		:40		:10	
: Manganese	:583		:691		:553	
: Magnesium	:0.62%		:0.55%		:0.71%	
: Mercury	:L		:L		:L	
: Molybdenum	:L		:L		:L	
: Nickel	:31		:31		:42	
: Phosphorus	:310		:340		:410	
: Potassium	:0.25%		:0.20%		:0.22%	
: Selenium	:L		:L		:L	
: Silver	:0.2		:0.2		:L	
: Sodium	:0.01%		:0.01%		:0.02%	
: Strontium	:20		:19		:29	
: Thallium	:L		:10		:L	
: Tin	:85		:90		:28	
: Titanium	:0.02%		:0.02%		:0.05%	
: Tungsten	:5		:10		:10	
: Uranium	:L		:L		:L	
: Vanadium	:25		:22		:32	
: Zinc	:134		:193		:132	

Map No/Sample No/Yr	:56/25/87		:57/53/87		:58/54/87	
Material Type	:Placer		:Placer		:Placer	
Rock Type	:Qa		:Qa		:Meta	
Rock Age	:Quaternary		:Quaternary		:OCam	
Quad 4 mile/1 mile	:Livengood/C-1		:Livengood/C-1		:Livengood/C-1	
Sec/T/R/Mer	:36/9N/2E		:16/9N/2E		:21/9N/2E	
Location/Property	:Fossil Creek		:Fossil Creek		:Fossil Creek Trib.	
Map No./KX/MAS	:None		:None		:None	
Sample Type	:Placer		:Placer		:Placer	
	:		:		:	
Element	ICP	Assay	ICP	Assay	ICP	Assay
: Aluminum	:3.39%		:1.72%		:1.57%	
: Antimony	:L		:L		:L	
: Arsenic	:5		:5		:L	
: Barium	:430		:1930		:450	
: Beryllium	:3		:2.5		:1.0	
: Bismuth	:4		:4		:L	
: Cadmium	:0.5		:0.5		:L	
: Calcium	:0.12%		:0.61%		:0.37%	
: Chromium	:47		:215		:163	
: Cobalt	:15		:28		:20	
: Copper	:33		:40		:23	
: Gallium	:L		:10		:10	
: Gold	:	L	:	0.19	:	0.036
: Iron	:4.05%		:7.55%		:4.38%	
: Lanthanum	:30		:30		:30	
: Lead	:34		:18		:20	
: Manganese	:671		:1005		:754	
: Magnesium	:0.52%		:1.24%		:0.62%	
: Mercury	:L		:2		:1	
: Molybdenum	:L		:L		:8	
: Nickel	:29		:91		:92	
: Phosphorus	:300		:600		:640	
: Potassium	:1.10%		:0.3%		:0.3%	
: Selenium	:L		:L		:L	
: Silver	:0.2	0.04	:2	0.03	:0.4	0.01
: Sodium	:0.06%		:0.03%		:0.02%	
: Strontium	:29		:44		:47	
: Thallium	:L		:L		:L	
: Tin	:1000		:0.04%		:250	
: Titanium	:0.03%		:0.17%		:0.1%	
: Tungsten	:35		:175		:11	
: Uranium	:L		:L		:L	
: Vanadium	:35		:66		:48	
: Zinc	:116		:121		:107	

Map No/Sample No/Yr	:59/259/87		:60/24/87		:61/41/87	
Material Type	:Placer		:Placer		:Placer	
Rock Type	:Meta		:Qa		:Qa	
Rock Age	:Cam		:Quaternary		:Quaternary	
Quad 4 mile/1 mile	:Livengood/C-1		:Livengood/C-1		:Livengood/C-1	
Sec/T/R/Mer	:33/9N/6E		:19/9N/2E		:30/9N/2E	
Location/Property	:Fossil Creek Trib.		:Fossil Creek		:Fossil Creek	
Map No./KX/MAS	:None		:None		:None	
Sample Type	:Placer		:Placer		:Placer	
	:		:		:	
Element	ICP	Assay	ICP	Assay	ICP	Assay
: Aluminum	:1.31%		:1.95%		:2.44%	
: Antimony	:L		:L		:L	
: Arsenic	:L		:L		:L	
: Barium	:220		:3060		:360	
: Beryllium	:3		:4		:1.5	
: Bismuth	:L		:4		:L	
: Cadmium	:0.5		:0.5		:L	
: Calcium	:0.18%		:0.87%		:0.65%	
: Chromium	:78		:112		:73	
: Cobalt	:14		:21		:17	
: Copper	:24		:56		:24	
: Gallium	:L		:L		:L	
: Gold	:	L	:	L	:	0.004
: Iron	:3.49%		:6.69%		:4.51%	
: Lanthanum	:30		:30		:30	
: Lead	:12		:30		:L	
: Manganese	:639		:973		:533	
: Magnesium	:0.52%		:1.21%		:0.78%	
: Mercury	:L		:L		:L	
: Molybdenum	:L		:1		:L	
: Nickel	:35		:70		:32	
: Phosphorus	:420		:620		:670	
: Potassium	:0.21%		:0.24%		:0.63%	
: Selenium	:L		:20		:10	
: Silver	:L		:0.2	0.08	:0.2	0.06
: Sodium	:0.02%		:0.03%		:0.04%	
: Strontium	:29		:54		:81	
: Thallium	:L		:L		:2	
: Tin	:200		:800		:2	
: Titanium	:0.02%		:0.35%		:0.17%	
: Tungsten	:15		:21		:1	
: Uranium	:L		:L		:L	
: Vanadium	:24		:119		:88	
: Zinc	:94		:118		:72	

Map No/Sample No/Yr	:62/17/87		:63/27/87		:64/40/87	
Material Type	:Placer		:Placer		:Placer	
Rock Type	:Meta		:Qa		:Qa	
Rock Age	:Ordovician		:Quaternary		:Quaternary	
Quad 4 mile/1 mile	:Livengood/C-2		:Livengood/C-2		:Livengood/C-2	
Sec/T/R/Mer	:10/9N/1E		:6/9N/1E		:13/9N/1W	
Location/Property	:Lost Horizon Creek		:Beaver Creek		:Beaver Creek	
Map No./KX/MAS	:None		:None		:None	
Sample Type	:Placer		:Placer		:Placer	
	:		:		:	
Element	ICP	Assay	ICP	Assay	ICP	Assay
: Aluminum	:3.18%		:1.51%		:1.26%	
: Antimony	:L		:L		:L	
: Arsenic	:L		:L		:L	
: Barium	:1360		:110		:90	
: Beryllium	:3.5		:1.5		:1.5	
: Bismuth	:2		:L		:2	
: Cadmium	:0.5		:L		:L	
: Calcium	:2.68%		:1.06%		:0.87%	
: Chromium	:124		:60		:67	
: Cobalt	:32		:13		:12	
: Copper	:34		:30		:39	
: Gallium	:L		:L		:L	
: Gold	:	L	:	0.026	:	0.018
: Iron	:14.2%		:3.55%		:3.91%	
: Lanthanum	:20		:20		:30	
: Lead	:6		:8		:10	
: Manganese	:985		:457		:520	
: Magnesium	:1.83%		:0.63%		:0.54%	
: Mercury	:L		:L		:L	
: Molybdenum	:L		:1		:2	
: Nickel	:57		:30		:29	
: Phosphorus	:570		:510		:470	
: Potassium	:0.3%		:0.12%		:0.10%	
: Selenium	:L		:L		:L	
: Silver	:0.2	0.01	:0.2	0.01	:0.2	0.06
: Sodium	:0.07%		:0.03%		:0.02%	
: Strontium	:252		:58		:50	
: Thallium	:L		:L		:L	
: Tin	:5		:65		:87	
: Titanium	:0.75%		:0.23%		:0.23%	
: Tungsten	:1		:3		:3	
: Uranium	:L		:L		:L	
: Vanadium	:357		:73		:68	
: Zinc	:114		:48		:48	

Map No/Sample No/Yr	:65/26/87		:66/18/87		:67/19/87	
Material Type	:Placer		:Placer		:Placer	
Rock Type	:Qa		:Qa		:Qa	
Rock Age	:Quaternary		:Quaternary		:Quaternary	
Quad 4 mile/1 mile	:Livengood/C-2		:Livengood/C-2		:Livengood/B-2	
Sec/T/R/Mer	:2/8N/1W		:13/8N/1W		:30/8N/1E	
Location/Property	:Beaver Creek		:Beaver Creek Trib.		:Beaver Creek	
Map No./KX/MAS	:None		:None		:None	
Sample Type	:Placer		:Placer		:Placer	
	:		:		:	
Element	ICP	Assay	ICP	Assay	ICP	Assay
: Aluminum	:1.72%		:2.1%		:1.27%	
: Antimony	:5		:160		:5	
: Arsenic	:5		:L		:15	
: Barium	:160		:3930		:290	
: Beryllium	:1.5		:2		:1.5	
: Bismuth	:L		:2		:4	
: Cadmium	:L		:1		:L	
: Calcium	:1.01%		:1.79%		:0.63%	
: Chromium	:44		:84		:74	
: Cobalt	:12		:13		:14	
: Copper	:30		:46		:35	
: Gallium	:L		:L		:L	
: Gold	:	L	:	0.348	:	0.036
: Iron	:3.39%		:8.74%		:5.01%	
: Lanthanum	:20		:30		:80	
: Lead	:12		:50		:18	
: Manganese	:468		:738		:748	
: Magnesium	:0.64%		:0.93%		:0.41%	
: Mercury	:L		:309		:L	
: Molybdenum	:L		:1		:L	
: Nickel	:25		:50		:32	
: Phosphorus	:550		:550		:410	
: Potassium	:0.23%		:0.21%		:0.19%	
: Selenium	:10		:L		:L	
: Silver	:0.2	0.02	:0.2	0.01	:0.4	0.01
: Sodium	:0.04%		:0.02%		:0.02%	
: Strontium	:55		:147		:40	
: Thallium	:L		:L		:L	
: Tin	:32		:52		:310	
: Titanium	:0.23%		:0.45%		:0.21%	
: Tungsten	:1		:32		:21	
: Uranium	:L		:L		:L	
: Vanadium	:67		:168		:77	
: Zinc	:49		:103		:56	

Map No/Sample No/Yr	:68/262/87	:69/261/87	:70/23/87
Material Type	:Placer	:Placer	:Placer
Rock Type	:Meta	:Qa	:Qa
Rock Age	:Cambrian	:Quaternary	:Quaternary
Quad 4 mile/1 mile	:Livengood/B-1	:Livengood/C-1	:Livengood/C-1
Sec/T/R/Mer	:35/7N/1E	:14/8N/1E	:2/8N/1E
Location/Property	:Fossil Creek Trib.	:Fossil Creek	:Fossil Creek
Map No./KX/MAS	:None	:None	:None
Sample Type	:Placer	:Placer	:Placer
	:	:	:

Element	ICP	Assay	ICP	Assay	ICP	Assay
: Aluminum	:1.14%		:1.64%		:1.74%	
: Antimony	:L		:L		:L	
: Arsenic	:L		:L		:L	
: Barium	:90		:250		:830	
: Beryllium	:1		:1		:3.5	
: Bismuth	:2		:L		:4	
: Cadmium	:0.5		:0.5		:0.5	
: Calcium	:0.07%		:0.86%		:1.13%	
: Chromium	:187		:100		:193	
: Cobalt	:9		:15		:14	
: Copper	:15		:28		:41	
: Gallium	:L		:L		:L	
: Gold	:	L	:	L	:	L
: Iron	:2.57%		:4.29%		:7.3%	
: Lanthanum	:30		:30		:40	
: Lead	:18		:2		:14	
: Manganese	:727		:760		:767	
: Magnesium	:0.30%		:0.88%		:0.93%	
: Mercury	:2		:2		:L	
: Molybdenum	:L		:L		:L	
: Nickel	:21		:44		:58	
: Phosphorus	:240		:750		:720	
: Potassium	:0.22%		:0.19%		:0.28%	
: Selenium	:L		:L		:L	
: Silver	:L		:L		:0.2	0.02
: Sodium	:0.02%		:0.02%		:0.03%	
: Strontium	:15		:45		:86	
: Thallium	:10		:L		:L	
: Tin	:370		:150		:140	
: Titanium	:0.02%		:0.24%		:0.48%	
: Tungsten	:35		:15		:11	
: Uranium	:L		:L		:L	
: Vanadium	:16		:89		:187	
: Zinc	:106		:99		:97	

Map No/Sample No/Yr	:71/260/87	:72/86/87	:73/85/87
Material Type	:Placer	:Placer	:Placer
Rock Type	:Qa	:Qa	:Qa
Rock Age	:Quaternary	:Quaternary	:Quaternary
Quad 4 mile/1 mile	:Livengood/C-1	:Livengood/B-1	:Livengood/B-1
Sec/T/R/Mer	:2/8N/1E	:32/8N/3E	:32/8N/3E
Location/Property	:Cache Mountain Creek	:O'Brien Creek	:O'Brien Creek
Map No./KX/MAS	:None	:None	:None
Sample Type	:Placer	:Placer	:Placer
	:	:	:

Element	ICP	Assay	ICP	Assay	ICP	Assay
: Aluminum	:0.91%		:1.52%		:1.52%	
: Antimony	:L		:5		:L	
: Arsenic	:5		:L		:5	
: Barium	:90		:90		:90	
: Beryllium	:1		:L		:L	
: Bismuth	:4		:18		:L	
: Cadmium	:0.5		:1.0		:L	
: Calcium	:0.08%		:0.08%		:0.17%	
: Chromium	:192		:81		:126	
: Cobalt	:7		:14		:17	
: Copper	:17		:43		:32	
: Gallium	:L		:L		:L	
: Gold	:	0.004	:	L	:	0.16
: Iron	:2.46%		:5.73%		:7.73%	
: Lanthanum	:20		:80		:40	
: Lead	:178		:70		:44	
: Manganese	:883		:1200		:753	
: Magnesium	:0.26%		:0.48%		:0.53%	
: Mercury	:L		:L		:3	
: Molybdenum	:L		:L		:L	
: Nickel	:19		:27		:29	
: Phosphorus	:240		:L		:L	
: Potassium	:0.18%		:0.20%		:0.18%	
: Selenium	:L		:L		:10	
: Silver	:L		:0.4		:L	
: Sodium	:0.01%		:0.01%		:0.01%	
: Strontium	:11		:15		:53	
: Thallium	:L		:30		:20	
: Tin	:G		:G		:100	
: Titanium	:0.03%		:0.02%		:0.12%	
: Tungsten	:180		:80		:5	
: Uranium	:L		:L		:L	
: Vanadium	:19		:19		:224	
: Zinc	:128		:155		:132	

Map No/Sample No/Yr	:74/84/87	:75/83/87	:76/231/87
Material Type	:Placer	:Placer	:Placer
Rock Type	:Qa	:Qa	:Qa
Rock Age	:Quaternary	:Quaternary	:Quaternary
Quad 4 mile/1 mile	:Livengood/C-1	:Livengood/C-1	:Circle/B-6
Sec/T/R/Mer	:22/8N/3E	:22/8N/3E	:35/8N/4E
Location/Property	:O'Brien Creek	:O'Brien Creek	:Bear Creek
Map No./KX/MAS	:None	:None	:5/Appendix A
Sample Type	:Placer	:Placer	:Placer
	:	:	:

Element	ICP	Assay	ICP	Assay	ICP	Assay
: Aluminum	:1.78%		:1.67%		:1.07%	
: Antimony	:L		:L		:L	
: Arsenic	:L		:L		:5	
: Barium	:80		:70		:60	
: Beryllium	:L		:L		:1	
: Bismuth	:2		:4		:L	
: Cadmium	:0.5		:L		:L	
: Calcium	:0.05%		:0.05%		:0.15%	
: Chromium	:75		:61		:131	
: Cobalt	:13		:15		:7	
: Copper	:41		:31		:19	
: Gallium	:L		:L		:L	
: Gold	:	L	:	L	:	L
: Iron	:4.35%		:4.06%		:2.82%	
: Lanthanum	:40		:30		:50	
: Lead	:40		:28		:L	
: Manganese	:460		:517		:398	
: Magnesium	:0.53%		:0.57%		:0.41%	
: Mercury	:L		:L		:L	
: Molybdenum	:L		:L		:L	
: Nickel	:32		:33		:20	
: Phosphorus	:L		:L		:300	
: Potassium	:0.19%		:0.15%		:0.19%	
: Selenium	:L		:L		:L	
: Silver	:L		:L		:L	
: Sodium	:0.01%		:0.01%		:0.01%	
: Strontium	:16		:15		:12	
: Thallium	:20		:10		:10	
: Tin	:400		:80		:110	
: Titanium	:0.01%		:L		:0.03%	
: Tungsten	:L		:L		:15	
: Uranium	:L		:L		:L	
: Vanadium	:18		:17		:22	
: Zinc	:136		:104		:83	

Map No/Sample No/Yr	:77/230/87	:78/183/87	:79/182/87
Material Type	:Placer	:Placer	:Placer
Rock Type	:Qa	:Qa	:Qa
Rock Age	:Quaternary	:Quaternary	:Quaternary
Quad 4 mile/1 mile	:Circle/B-6	:Circle/B-6	:Circle/B-6
Sec/T/R/Mer	:36/8N/4E	:36/8N/4E	:30/8N/5E
Location/Property	:Bear Creek	:Bear Creek	:Bear Creek
Map No./KX/MAS	:5/Appendix A	:5/Appendix A	:5/Appendix A
Sample Type	:Placer	:Placer	:Placer
	:	:	:

Element	ICP	Assay	ICP	Assay	ICP	Assay
: Aluminum	:1.17%		:1.14%		:0.96%	
: Antimony	:L		:L		:L	
: Arsenic	:5		:5		:5	
: Barium	:60		:60		:50	
: Beryllium	:0.5		:0.5		:1	
: Bismuth	:L		:L		:L	
: Cadmium	:0.5		:L		:L	
: Calcium	:0.24%		:0.23%		:0.16%	
: Chromium	:135		:110		:181	
: Cobalt	:9		:6		:10	
: Copper	:24		:18		:18	
: Gallium	:L		:L		:L	
: Gold	:	L	:	0.002	:	0.008
: Iron	:4.13%		:2.91%		:3.66%	
: Lanthanum	:50		:70		:90	
: Lead	:22		:18		:26	
: Manganese	:662		:404		:506	
: Magnesium	:0.44%		:0.43%		:0.34%	
: Mercury	:L		:L		:L	
: Molybdenum	:L		:L		:L	
: Nickel	:25		:20		:22	
: Phosphorus	:310		:340		:310	
: Potassium	:0.19%		:0.18%		:0.16%	
: Selenium	:L		:L		:L	
: Silver	:L		:0.2		:0.2	
: Sodium	:0.01%		:0.01%		:0.01%	
: Strontium	:13		:15		:12	
: Thallium	:10		:L		:L	
: Tin	:170		:90		:390	
: Titanium	:0.04%		:0.04%		:0.04%	
: Tungsten	:20		:10		:45	
: Uranium	:L		:L		:L	
: Vanadium	:31		:21		:26	
: Zinc	:92		:86		:82	

Map No/Sample No/Yr	:80/181/87	:81/180/87	:82/179/87
Material Type	:Placer	:Placer	:Placer
Rock Type	:Qa	:Qa	:Qa
Rock Age	:Quaternary	:Quaternary	:Quaternary
Quad 4 mile/1 mile	:Circle/B-6	:Circle/C-6	:Circle/C-6
Sec/T/R/Mer	:29/8N/5E	:20/8N/5E	:16/8N/5E
Location/Property	:Bear Creek	:Bear Creek	:Bear Creek
Map No./KX/MAS	:5/Appendix A	:5/Appendix A	:5/Appendix A
Sample Type	:Placer	:Placer	:Placer
	:	:	:

Element	ICP	Assay	ICP	Assay	ICP	Assay
: Aluminum	:1.13%		:0.81%		:1.19%	
: Antimony	:L		:L		:L	
: Arsenic	:10		:5		:15	
: Barium	:90		:60		:70	
: Beryllium	:1		:1.5		:1.5	
: Bismuth	:L		:L		:L	
: Cadmium	:0.5		:1.5		:0.5	
: Calcium	:0.26%		:0.19%		:0.12%	
: Chromium	:77		:135		:84	
: Cobalt	:14		:21		:14	
: Copper	:27		:23		:28	
: Gallium	:L		:10		:L	
: Gold	:	0.008:		0.02 :		0.002
: Iron	:5.52%		:14.8%		:5.92%	
: Lanthanum	:60		:210		:90	
: Lead	:82		:92		:88	
: Manganese	:2100		:1365		:1310	
: Magnesium	:0.41%		:0.29%		:0.46%	
: Mercury	:L		:L		:L	
: Molybdenum	:L		:L		:L	
: Nickel	:29		:42		:30	
: Phosphorus	:340		:400		:390	
: Potassium	:0.19%		:0.14%		:0.18%	
: Selenium	:L		:L		:L	
: Silver	:0.2		:0.2		:0.2	
: Sodium	:0.01%		:L		:0.01%	
: Strontium	:19		:12		:16	
: Thallium	:L		:L		:L	
: Tin	:550		:G		:440	
: Titanium	:0.04%		:0.04%		:0.04%	
: Tungsten	:25		:305		:15	
: Uranium	:L		:L		:L	
: Vanadium	:35		:121		:42	
: Zinc	:117		:93		:118	

Map No/Sample No/Yr	:83/178/87	:84/165/87	:85/155/87
Material Type	:Placer	:Placer	:Placer
Rock Type	:Qa	:Qa	:Qa
Rock Age	:Quaternary	:Quaternary	:Quaternary
Quad 4 mile/1 mile	:Circle/C-6	:Circle/C-6	:Circle/C-6
Sec/T/R/Mer	:9/8N/5E	:9/8N/5E	:32/9N/5E
Location/Property	:Bear Creek	:Bear Creek	:Bear Creek
Map No./KX/MAS	:5/Appendix A	:5/Appendix A	:5/Appendix A
Sample Type	:Placer	:Placer	:Placer
	:	:	:

Element	ICP	Assay	ICP	Assay	ICP	Assay
: Aluminum	:1.22%		:1.45%		:1.62%	
: Antimony	:L		:L		:L	
: Arsenic	:10		:15		:5	
: Barium	:90		:140		:100	
: Beryllium	:1		:3		:2	
: Bismuth	:2		:2		:L	
: Cadmium	:1.5		:2		:0.5	
: Calcium	:0.15%		:0.06%		:0.05%	
: Chromium	:152		:140		:228	
: Cobalt	:19		:18		:11	
: Copper	:32		:44		:22	
: Gallium	:10		:10		:10	
: Gold	:	0.006	:	L	:	L
: Iron	:9.23%		:7.17%		:2.97%	
: Lanthanum	:90		:240		:220	
: Lead	:190		:480		:150	
: Manganese	:2830		:4540		:1385	
: Magnesium	:0.46%		:0.34%		:0.36%	
: Mercury	:L		:L		:L	
: Molybdenum	:L		:1		:L	
: Nickel	:36		:32		:18	
: Phosphorus	:400		:400		:360	
: Potassium	:0.19%		:0.36%		:0.39%	
: Selenium	:L		:L		:L	
: Silver	:0.2		:0.2		:0.2	
: Sodium	:0.01%		:0.02%		:0.03%	
: Strontium	:22		:19		:10	
: Thallium	:L		:L		:L	
: Tin	:920		:G		:540	
: Titanium	:0.05%		:0.02%		:0.02%	
: Tungsten	:15		:110		:55	
: Uranium	:L		:L		:L	
: Vanadium	:68		:50		:17	
: Zinc	:150		:216		:186	

Map No/Sample No/Yr	:86/164/87	:87/158/87	:88/157/87
Material Type	:Placer	:Placer	:Placer
Rock Type	:Qa	:Qa	:Meta
Rock Age	:Quaternary	:Quaternary	:PzPcam
Quad 4 mile/1 mile	:Circle/C-6	:Circle/C-6	:Circle/C-6
Sec/T/R/Mer	:4/8N/5E	:10/8N/5E	:11/8N/5E
Location/Property	:Bear Creek Trib.	:Quartz Creek	:Quartz Creek
Map No./KX/MAS	:5/Appendix A	:5/Appendix A	:5/Appendix A
Sample Type	:Placer	:Placer	:Placer
	:	:	:

Element	ICP	Assay	ICP	Assay	ICP	Assay
: Aluminum	:1.35%		:1.24%		:1.30%	
: Antimony	:L		:L		:L	
: Arsenic	:L		:10		:10	
: Barium	:110		:70		:70	
: Beryllium	:0.5		:L		:L	
: Bismuth	:L		:L		:L	
: Cadmium	:L		:0.5		:0.5	
: Calcium	:0.05%		:0.23%		:0.25%	
: Chromium	:102		:142		:128	
: Cobalt	:12		:18		:18	
: Copper	:23		:21		:20	
: Gallium	:L		:L		:L	
: Gold	:	L	:	L	:	L
: Iron	:2.96%		:7.04%		:5.87%	
: Lanthanum	:40		:70		:40	
: Lead	:16		:32		:16	
: Manganese	:563		:801		:561	
: Magnesium	:0.42%		:0.53%		:0.61%	
: Mercury	:L		:L		:L	
: Molybdenum	:L		:L		:L	
: Nickel	:22		:35		:31	
: Phosphorus	:290		:510		:490	
: Potassium	:0.37%		:0.23%		:0.21%	
: Selenium	:L		:L		:L	
: Silver	:0.2		:0.2		:0.2	
: Sodium	:0.01%		:0.02%		:0.02%	
: Strontium	:13		:25		:26	
: Thallium	:L		:L		:L	
: Tin	:27		:85		:7	
: Titanium	:L		:0.11%		:0.10%	
: Tungsten	:L		:5		:5	
: Uranium	:L		:L		:L	
: Vanadium	:17		:64		:53	
: Zinc	:77		:68		:65	

Map No/Sample No/Yr	:89/156/87	:90/141/87	:91/140/87
Material Type	:Placer	:Placer	:Placer
Rock Type	:Meta	:Meta	:Meta
Rock Age	:PzPcam	:PzPcam	:PzPcam
Quad 4 mile/1 mile	:Circle/C-6	:Circle/C-6	:Circle/C-6
Sec/T/R/Mer	:12/8N/5E	:7/8N/6E	:7/8N/6E
Location/Property	:Quartz Creek	:Quartz Creek	:Quartz Creek
Map No./KX/MAS	:5/Appendix A	:5/Appendix A	:5/Appendix A
Sample Type	:Placer	:Placer	:Placer
	:	:	:

Element	ICP	Assay	ICP	Assay	ICP	Assay
: Aluminum	:1.23%		:0.94%		:1.09%	
: Antimony	:L		:L		:L	
: Arsenic	:15		:10		:15	
: Barium	:70		:60		:80	
: Beryllium	:0.5		:L		:L	
: Bismuth	:L		:8		:40	
: Cadmium	:0.5		:1.5		:1	
: Calcium	:0.27%		:0.20%		:0.17%	
: Chromium	:151		:156		:162	
: Cobalt	:18		:24		:21	
: Copper	:18		:19		:20	
: Gallium	:L		:10		:10	
: Gold	:	0.008	:	0.008	:	0.008
: Iron	:8.34%		:G		:12.2%	
: Lanthanum	:50		:150		:110	
: Lead	:10		:20		:24	
: Manganese	:514		:518		:737	
: Magnesium	:0.52%		:0.39%		:0.38%	
: Mercury	:L		:L		:L	
: Molybdenum	:L		:L		:L	
: Nickel	:34		:50		:38	
: Phosphorus	:750		:490		:490	
: Potassium	:0.24%		:0.18%		:0.20%	
: Selenium	:L		:L		:L	
: Silver	:0.2		:0.2		:0.2	
: Sodium	:0.03%		:0.02%		:0.02%	
: Strontium	:24		:19		:19	
: Thallium	:L		:L		:L	
: Tin	:14		:75		:180	
: Titanium	:0.08%		:0.08%		:0.06%	
: Tungsten	:10		:155		:165	
: Uranium	:L		:L		:L	
: Vanadium	:72		:187		:96	
: Zinc	:64		:54		:55	

Map No/Sample No/Yr	:92/139/87	:93/138/87	:94/134/87
Material Type	:Placer	:Placer	:Placer
Rock Type	:Meta	:Meta	:Meta
Rock Age	:PzPcam	:PzPcam	:PzPcam
Quad 4 mile/1 mile	:Circle/C-6	:Circle/C-5	:Circle/B-5
Sec/T/R/Mer	:9/8N/6E	:3/8N/6E	:6/8N/7E
Location/Property	:Quartz Creek	:Quartz Creek	:Preacher Creek
Map No./KX/MAS	:5/Appendix A	:5/Appendix A	:6/258, 391/344
Sample Type	:Placer	:Placer	:Placer
	:	:	:

Element	ICP	Assay	ICP	Assay	ICP	Assay
: Aluminum	:1.26%		:1.34%		:1.40%	
: Antimony	:L		:L		:L	
: Arsenic	:5		:20		:10	
: Barium	:70		:80		:100	
: Beryllium	:L		:L		:L	
: Bismuth	:2		:12		:L	
: Cadmium	:L		:L		:0.5	
: Calcium	:0.12%		:0.13%		:0.10%	
: Chromium	:115		:184		:161	
: Cobalt	:13		:11		:13	
: Copper	:16		:17		:25	
: Gallium	:L		:L		:L	
: Gold	:	0.004	:	0.008	:	0.006
: Iron	:3.64%		:3.54%		:6.29%	
: Lanthanum	:30		:60		:30	
: Lead	:10		:18		:14	
: Manganese	:568		:554		:441	
: Magnesium	:0.48%		:0.46%		:0.44%	
: Mercury	:L		:L		:L	
: Molybdenum	:L		:L		:L	
: Nickel	:23		:22		:31	
: Phosphorus	:350		:590		:390	
: Potassium	:0.21%		:0.22%		:0.27%	
: Selenium	:L		:L		:L	
: Silver	:0.2		:0.2		:0.2	
: Sodium	:0.02%		:0.02%		:0.03%	
: Strontium	:15		:16		:18	
: Thallium	:L		:L		:L	
: Tin	:18		:90		:3	
: Titanium	:0.05%		:0.07%		:0.05%	
: Tungsten	:20		:55		:L	
: Uranium	:L		:L		:L	
: Vanadium	:23		:13		:36	
: Zinc	:60		:65		:68	

Map No/Sample No/Yr	:95/135/87	:96/136/87	:97/257/87
Material Type	:Placer	:Placer	:Placer
Rock Type	:Meta	:Meta	:Qac
Rock Age	:PzPcam	:PzPcam	:Quaternary
Quad 4 mile/1 mile	:Circle/B-5	:Circle/C-5	:Circle/C-5
Sec/T/R/Mer	:5/8N/7E	:4/8N/7E	:33/9N/7E
Location/Property	:Preacher Creek	:Preacher Creek	:Preacher Creek Trib.
Map No./KX/MAS	:6/258, 391/344	:6/258, 391/344	:None
Sample Type	:Placer	:Placer	:Placer
	:	:	:

Element	ICP	Assay	ICP	Assay	ICP	Assay
: Aluminum	:1.34%		:1.41%		:1.11%	
: Antimony	:L		:L		:L	
: Arsenic	:10		:20		:50	
: Barium	:80		:90		:120	
: Beryllium	:L		:L		:0.5	
: Bismuth	:L		:L		:L	
: Cadmium	:L		:L		:0.5	
: Calcium	:0.08%		:0.09%		:0.11%	
: Chromium	:134		:122		:203	
: Cobalt	:12		:13		:13	
: Copper	:18		:25		:25	
: Gallium	:L		:L		:L	
: Gold	:	0.008:		0.006:		L
: Iron	:3.91%		:5.92%		:3.4%	
: Lanthanum	:20		:30		:30	
: Lead	:8		:18		:34	
: Manganese	:408		:686		:566	
: Magnesium	:0.48%		:0.50%		:0.36%	
: Mercury	:L		:L		:1	
: Molybdenum	:L		:L		:L	
: Nickel	:25		:33		:24	
: Phosphorus	:280		:330		:270	
: Potassium	:0.21%		:0.23%		:0.24%	
: Selenium	:L		:L		:L	
: Silver	:0.2		:0.2		:L	
: Sodium	:0.02%		:0.02%		:0.02%	
: Strontium	:13		:16		:14	
: Thallium	:L		:L		:L	
: Tin	:6		:34		:800	
: Titanium	:0.03%		:0.09%		:0.03%	
: Tungsten	:L		:L		:125	
: Uranium	:L		:L		:L	
: Vanadium	:17		:29		:15	
: Zinc	:65		:91		:72	

Map No/Sample No/Yr	:98/137/87	:99/170/87	:100/169/87
Material Type	:Placer	:Placer	:Placer
Rock Type	:Qac	:Meta	:Meta
Rock Age	:Quaternary	:PzPcam	:PzPcam
Quad 4 mile/1 mile	:Circle/C-5	:Circle/C-5	:Circle/C-5
Sec/T/R/Mer	:3/8N/7E	:20/8N/7E	:18/8N/7E
Location/Property	:Preacher Creek	:Convert Creek Trib.	:Convert Creek Trib.
Map No./KX/MAS	:6/258, 391/344	:None	:None
Sample Type	:Placer	:Placer	:Placer
	:	:	:

Element	ICP	Assay	ICP	Assay	ICP	Assay
: Aluminum	:1.31%		:2.32%		:1.14%	
: Antimony	:L		:5		:10	
: Arsenic	:10		:15		:100	
: Barium	:100		:210		:110	
: Beryllium	:L		:L		:L	
: Bismuth	:L		:L		:L	
: Cadmium	:0.5		:0.5		:1	
: Calcium	:0.11%		:0.15%		:0.09%	
: Chromium	:301		:166		:107	
: Cobalt	:15		:16		:18	
: Copper	:22		:38		:31	
: Gallium	:L		:L		:L	
: Gold	:	0.014:		0.116:		0.086
: Iron	:6.7%		:9.01%		:14.6%	
: Lanthanum	:30		:30		:20	
: Lead	:4		:28		:32	
: Manganese	:597		:719		:988	
: Magnesium	:0.41%		:0.46%		:0.34%	
: Mercury	:L		:L		:L	
: Molybdenum	:L		:L		:L	
: Nickel	:31		:41		:43	
: Phosphorus	:300		:580		:320	
: Potassium	:0.29%		:0.69%		:0.23%	
: Selenium	:L		:L		:L	
: Silver	:0.2		:0.2		:0.2	
: Sodium	:0.03%		:0.08%		:0.02%	
: Strontium	:20		:38		:20	
: Thallium	:L		:L		:L	
: Tin	:750		:38		:200	
: Titanium	:0.19%		:0.27%		:0.11%	
: Tungsten	:20		:L		:L	
: Uranium	:L		:L		:L	
: Vanadium	:41		:57		:94	
: Zinc	:68		:83		:77	

Map No/Sample No/Yr	:101/168/87	:102/167/87	:103/166/87
Material Type	:Placer	:Placer	:Placer
Rock Type	:Meta	:Meta	:Meta
Rock Age	:PzPcam	:PzPcam	:PzPcam
Quad 4 mile/1 mile	:Circle/C-5	:Circle/C-5	:Circle/C-5
Sec/T/R/Mer	:18/8N/7E	:24/8N/6E	:23/8N/6E
Location/Property	:Convert Creek Trib.	:Convert Creek Trib.	:Convert Creek Trib.
Map No./KX/MAS	:None	:None	:None
Sample Type	:Placer	:Placer	:Placer
	:	:	:

Element	ICP	Assay	ICP	Assay	ICP	Assay
: Aluminum	:1.59%		:1.79%		:2.01%	
: Antimony	:5		:L		:L	
: Arsenic	:20		:5		:L	
: Barium	:90		:150		:140	
: Beryllium	:L		:L		:0.5	
: Bismuth	:L		:L		:L	
: Cadmium	:0.5		:1		:L	
: Calcium	:0.09%		:0.13%		:0.14%	
: Chromium	:77		:176		:165	
: Cobalt	:14		:16		:12	
: Copper	:31		:28		:15	
: Gallium	:L		:L		:L	
: Gold	:	0.014	:	0.002	:	0.002
: Iron	:4.79%		:8.76%		:3.31%	
: Lanthanum	:30		:40		:30	
: Lead	:26		:22		:12	
: Manganese	:609		:561		:514	
: Magnesium	:0.55%		:0.43%		:0.56%	
: Mercury	:L		:L		:L	
: Molybdenum	:L		:L		:L	
: Nickel	:32		:39		:22	
: Phosphorus	:360		:530		:550	
: Potassium	:0.26%		:0.46%		:0.44%	
: Selenium	:L		:L		:L	
: Silver	:0.2		:0.2		:0.2	
: Sodium	:0.02%		:0.05%		:0.05%	
: Strontium	:17		:28		:30	
: Thallium	:L		:L		:L	
: Tin	:75		:32		:10	
: Titanium	:0.09%		:0.13%		:0.05%	
: Tungsten	:L		:L		:L	
: Uranium	:L		:L		:L	
: Vanadium	:19		:57		:18	
: Zinc	:92		:78		:76	

Map No/Sample No/Yr	:104/161/87	:105/160/87	:106/159/87
Material Type	:Placer	:Placer	:Placer
Rock Type	:Meta	:Meta	:Meta
Rock Age	:PzPcam	:PzPcam	:PzPcam
Quad 4 mile/1 mile	:Circle/C-5	:Circle/B-5	:Circle/B-5
Sec/T/R/Mer	:30/8N/7E	:26/8N/6E	:35/8N/6E
Location/Property	:Convert Creek	:Convert Creek	:Convert Creek
Map No./KX/MAS	:None	:None	:None
Sample Type	:Placer	:Placer	:Placer
	:	:	:

Element	ICP	Assay	ICP	Assay	ICP	Assay
: Aluminum	:1.61%		:1.87%		:2.33%	
: Antimony	:L		:L		:L	
: Arsenic	:15		:L		:85	
: Barium	:110		:140		:140	
: Beryllium	:0.5		:0.5		:1.5	
: Bismuth	:L		:L		:L	
: Cadmium	:0.5		:0.5		:L	
: Calcium	:0.10%		:0.05%		:0.10%	
: Chromium	:101		:147		:96	
: Cobalt	:12		:11		:14	
: Copper	:22		:28		:51	
: Gallium	:L		:L		:L	
: Gold	:	0.022	:	0.002	:	0.026
: Iron	:6.22%		:3.25%		:4.23%	
: Lanthanum	:30		:40		:50	
: Lead	:12		:16		:10	
: Manganese	:615		:574		:573	
: Magnesium	:0.61%		:0.51%		:0.64%	
: Mercury	:L		:L		:L	
: Molybdenum	:L		:L		:L	
: Nickel	:30		:23		:34	
: Phosphorus	:340		:300		:440	
: Potassium	:0.33%		:0.42%		:0.64%	
: Selenium	:L		:L		:L	
: Silver	:0.2		:0.2		:0.2	
: Sodium	:0.03%		:0.03%		:0.04%	
: Strontium	:21		:20		:18	
: Thallium	:L		:L		:L	
: Tin	:0.18%		:110		:G	
: Titanium	:0.10%		:0.14%		:0.13%	
: Tungsten	:15		:L		:65	
: Uranium	:L		:L		:L	
: Vanadium	:41		:20		:24	
: Zinc	:79		:80		:110	

Map No/Sample No/Yr	:107/108/87	:108/109/87	:109/121/87
Material Type	:Placer	:Placer	:Placer
Rock Type	:Qac	:Qm	:Meta
Rock Age	:Quaternary	:Quaternary	:PzPcam
Quad 4 mile/1 mile	:Circle/B-5	:Circle/B-5	:Circle/B-5
Sec/T/R/Mer	:6/7N/7E	:6/7N/7E	:5/7N/7E
Location/Property	:American Creek	:American Creek	:American Creek
Map No./KX/MAS	:None	:None	:7/Appendix A
Sample Type	:Placer	:Placer	:Placer
	:	:	:

Element	ICP	Assay	ICP	Assay	ICP	Assay
: Aluminum	:0.98%		:1.24%		:1.20%	
: Antimony	:5		:L		:L	
: Arsenic	:15		:10		:10	
: Barium	:40		:50		:70	
: Beryllium	:0.5		:0.5		:1.5	
: Bismuth	:8		:6		:4	
: Cadmium	:0.5		:L		:L	
: Calcium	:0.10%		:0.13%		:0.07%	
: Chromium	:77		:117		:167	
: Cobalt	:7		:7		:5	
: Copper	:18		:15		:17	
: Gallium	:L		:L		:L	
: Gold	:	L	:	L	:	0.002
: Iron	:2.65%		:2.70%		:2.23%	
: Lanthanum	:20		:30		:20	
: Lead	:8		:6		:4	
: Manganese	:844		:543		:482	
: Magnesium	:0.28%		:0.31%		:0.30%	
: Mercury	:L		:L		:L	
: Molybdenum	:L		:L		:L	
: Nickel	:13		:16		:15	
: Phosphorus	:L		:L		:300	
: Potassium	:0.25%		:0.27%		:0.31%	
: Selenium	:L		:L		:L	
: Silver	:0.2		:0.2		:0.2	
: Sodium	:0.01%		:0.02%		:0.02%	
: Strontium	:8		:10		:8	
: Thallium	:20		:10		:L	
: Tin	:G		:G		:G	
: Titanium	:0.04%		:0.04%		:0.03%	
: Tungsten	:70		:70		:85	
: Uranium	:20		:L		:L	
: Vanadium	:12		:13		:15	
: Zinc	:65		:75		:64	

Map No/Sample No/Yr	:TTO/254/87	:TTO/255/87	:TTO/256/87
Material Type	:Placer	:Placer	:Qtz
Rock Type	:Qac	:Qac	:Meta
Rock Age	:Quaternary	:Quaternary	:PzPcam
Quad 4 mile/1 mile	:Circle/B-5	:Circle/B-5	:Circle/B-5
Sec/T/R/Mer	:4/7N/7E	:4/7N/7E	:4/7N/7E
Location/Property	:American Creek	:American Creek	:American Creek
Map No./KX/MAS	:7/Appendix A	:7/Appendix A	:7/Appendix A
Sample Type	:Placer	:Placer	:Grab
	:	:	:

Element	ICP	Assay	ICP	Assay	ICP	Assay
: Aluminum	:0.93%		:0.89%		:0.52%	
: Antimony	:L		:5		:20	
: Arsenic	:L		:10		:10	
: Barium	:50		:50		:130	
: Beryllium	:0.5		:0.5		:L	
: Bismuth	:2		:L		:L	
: Cadmium	:L		:L		:L	
: Calcium	:0.05%		:0.05%		:0.04%	
: Chromium	:107		:80		:62	
: Cobalt	:5		:5		:L	
: Copper	:13		:12		:325	
: Gallium	:L		:L		:L	
: Gold	:	0.028	:	0.002	:	0.032
: Iron	:1.93%		:1.76%		:3.24%	
: Lanthanum	:20		:20		:L	
: Lead	:4		:2		:8	
: Manganese	:550		:487		:100	
: Magnesium	:0.24%		:0.24%		:0.02%	
: Mercury	:L		:L		:L	
: Molybdenum	:L		:L		:L	
: Nickel	:14		:14		:2	
: Phosphorus	:240		:220		:50	
: Potassium	:0.26%		:0.24%		:0.15%	
: Selenium	:L		:L		:L	
: Silver	:L		:L		:L	
: Sodium	:0.02%		:0.02%		:L	
: Strontium	:6		:6		:9	
: Thallium	:L		:L		:L	
: Tin	:G		:390		:5	
: Titanium	:0.02%		:0.02%		:L	
: Tungsten	:55		:15		:5	
: Uranium	:L		:L		:L	
: Vanadium	:11		:10		:2	
: Zinc	:56		:51		:18	

Map No/Sample No/Yr	:111/110/87	:111/119/87	:111/120/87
Material Type	:Placer	:Hornfels	:Hornfels
Rock Type	:Fel Int	:Meta	:Meta
Rock Age	:TK	:PzPcam	:PzPcam
Quad 4 mile/1 mile	:Circle/B-5	:Circle/B-5	:Circle/B-5
Sec/T/R/Mer	:5/7N/7E	:5/7N/7E	:5/7N/7E
Location/Property	:American Creek Trib.	:American Creek Trib.	:American Creek Trib.
Map No./KX/MAS	:7/Appendix A	:7/Appendix A	:7/Appendix A
Sample Type	:Placer	:Grab	:2 pans
	:	:	:

Element	ICP	Assay Oz/yd^3	ICP	Assay	ICP	Assay
: Aluminum	:1.20%		:1.84%		:1.79%	
: Antimony	:L		:L		:L	
: Arsenic	:90		:L		:L	
: Barium	:60		:90		:90	
: Beryllium	:0.5		:2		:3	
: Bismuth	:50		:L		:20	
: Cadmium	:L		:L		:0.5	
: Calcium	:0.09%		:0.05%		:0.06%	
: Chromium	:89		:75		:128	
: Cobalt	:8		:17		:15	
: Copper	:22		:56		:28	
: Gallium	:L		:L		:L	
: Gold	:	0.012 0.0016	:	L	:	L
: Iron	:2.42%		:2.92%		:4.08%	
: Lanthanum	:40		:30		:30	
: Lead	:14		:10		:8	
: Manganese	:551		:178		:772	
: Magnesium	:0.32%		:0.75%		:0.51%	
: Mercury	:L		:L		:L	
: Molybdenum	:L		:L		:L	
: Nickel	:18		:31		:15	
: Phosphorus	:L		:230		:290	
: Potassium	:0.27%		:0.43%		:0.47%	
: Selenium	:L		:L		:L	
: Silver	:0.2		:0.2		:0.2	
: Sodium	:0.01%		:0.01%		:0.02%	
: Strontium	:8		:8		:9	
: Thallium	:20		:10		:L	
: Tin	:G		:1		:G	
: Titanium	:0.01%		:L		:0.01%	
: Tungsten	:475		:10		:205	
: Uranium	:50		:L		:10	
: Vanadium	:13		:25		:20	
: Zinc	:75		:65		:70	

Map No/Sample No/Yr	:112/253/87	:113/100/87	:114/128/87
Material Type	:Placer	:Placer	:Placer
Rock Type	:Fel Int	:Qac	:Qac
Rock Age	:TK	:Quaternary	:Quaternary
Quad 4 mile/1 mile	:Circle/B-5	:Circle/B-5	:Circle/B-6
Sec/T/R/Mer	:7/7N/7E	:11/7N/6E	:32/8N/6E
Location/Property	:American Creek Trib.	:American Creek	:Champion Creek
Map No./KX/MAS	:7/Appendix A	:None	:8/Appendix A
Sample Type	:Placer	:Placer	:Placer
	:	:	:

Element	ICP	Assay	ICP	Assay	ICP	Assay
: Aluminum	:1.25%		:0.53%		:1.08%	
: Antimony	:L		:L		:L	
: Arsenic	:10		:20		:L	
: Barium	:70		:20		:60	
: Beryllium	:1		:L		:1	
: Bismuth	:10		:6		:L	
: Cadmium	:L		:L		:0.5	
: Calcium	:0.06%		:0.08%		:0.04%	
: Chromium	:115		:94		:131	
: Cobalt	:6		:2		:5	
: Copper	:21		:11		:107	
: Gallium	:L		:L		:L	
: Gold	:	0.078	:	L	:	0.028
: Iron	:2.3%		:0.83%		:3.43%	
: Lanthanum	:20		:20		:20	
: Lead	:L		:50		:68	
: Manganese	:455		:926		:327	
: Magnesium	:0.34%		:0.04%		:0.39%	
: Mercury	:1		:L		:L	
: Molybdenum	:L		:1		:L	
: Nickel	:18		:1		:16	
: Phosphorus	:250		:L		:210	
: Potassium	:0.29%		:0.20%		:0.22%	
: Selenium	:L		:L		:L	
: Silver	:0.2		:L		:0.2	
: Sodium	:0.01%		:0.02%		:0.01%	
: Strontium	:8		:5		:8	
: Thallium	:L		:10		:L	
: Tin	:G		:G		:750	
: Titanium	:0.03%		:0.01%		:0.06%	
: Tungsten	:45		:270		:30	
: Uranium	:L		:L		:L	
: Vanadium	:17		:3		:19	
: Zinc	:82		:40		:58	

Map No/Sample No/Yr	:115/129/87	:116/131/87	:117/130/87
Material Type	:Placer	:Placer	:Placer
Rock Type	:Qac	:Qac	:Qac
Rock Age	:Quaternary	:Quaternary	:Quaternary
Quad 4 mile/1 mile	:Circle/B-6	:Circle/B-6	:Circle/B-6
Sec/T/R/Mer	:31/8N/6E	:6/7N/6E	:12/7N/5E
Location/Property	:Champion Creek	:Champion Creek	:Champion Creek
Map No./KX/MAS	:8/Appendix A	:8/Appendix A	:8/Appendix A
Sample Type	:Placer	:Placer	:Placer
	:	:	:

Element	ICP	Assay	ICP	Assay	ICP	Assay
: Aluminum	:1.26%		:1.10%		:1.14%	
: Antimony	:L		:L		:L	
: Arsenic	:L		:25		:30	
: Barium	:90		:80		:70	
: Beryllium	:2.5		:L		:L	
: Bismuth	:16		:L		:L	
: Cadmium	:1		:1		:0.5	
: Calcium	:0.09%		:0.13%		:0.13%	
: Chromium	:190		:158		:129	
: Cobalt	:10		:13		:10	
: Copper	:22		:20		:40	
: Gallium	:L		:L		:L	
: Gold	:	0.002:		0.008:		0.008
: Iron	:7.02%		:10.9%		:8.57%	
: Lanthanum	:60		:50		:60	
: Lead	:10		:18		:14	
: Manganese	:669		:567		:525	
: Magnesium	:0.39%		:0.35%		:0.38%	
: Mercury	:L		:L		:L	
: Molybdenum	:L		:L		:L	
: Nickel	:27		:31		:28	
: Phosphorus	:420		:410		:480	
: Potassium	:0.27%		:0.24%		:0.24%	
: Selenium	:L		:L		:L	
: Silver	:0.2		:0.2		:0.2	
: Sodium	:0.02%		:0.02%		:0.02%	
: Strontium	:13		:15		:14	
: Thallium	:10		:L		:L	
: Tin	:G		:G		:G	
: Titanium	:0.03%		:0.04%		:0.04%	
: Tungsten	:550		:275		:80	
: Uranium	:L		:L		:L	
: Vanadium	:46		:65		:47	
: Zinc	:63		:60		:69	

Map No/Sample No/Yr	:118/142/87	:119/143/87	:120/144/87
Material Type	:Placer	:Placer	:Placer
Rock Type	:Qac	:Qac	:Qa
Rock Age	:Quaternary	:Quaternary	:Quaternary
Quad 4 mile/1 mile	:Circle/B-6	:Circle/B-6	:Circle/B-6
Sec/T/R/Mer	:11/7N/5E	:15/7N/5E	:20/7N/5E
Location/Property	:Champion Creek	:Champion Creek	:Champion Creek
Map No./KX/MAS	:8/Appendix A	:8/Appendix A	:8/Appendix A
Sample Type	:Placer	:Placer	:Placer
	:	:	:

Element	ICP	Assay	ICP	Assay	ICP	Assay
: Aluminum	:1.12%		:1.18%		:1.12%	
: Antimony	:L		:L		:L	
: Arsenic	:20		:5		:10	
: Barium	:70		:80		:80	
: Beryllium	:L		:L		:L	
: Bismuth	:2		:L		:L	
: Cadmium	:L		:0.5		:L	
: Calcium	:0.10%		:0.10%		:0.12%	
: Chromium	:132		:186		:132	
: Cobalt	:11		:11		:12	
: Copper	:18		:13		:14	
: Gallium	:L		:L		:L	
: Gold	:	0.067	:	0.002	:	L
: Iron	:5.92%		:3.45%		:4.49%	
: Lanthanum	:90		:70		:60	
: Lead	:18		:12		:8	
: Manganese	:476		:482		:571	
: Magnesium	:0.36%		:0.37%		:0.37%	
: Mercury	:L		:L		:L	
: Molybdenum	:L		:L		:L	
: Nickel	:23		:18		:23	
: Phosphorus	:370		:340		:390	
: Potassium	:0.25%		:0.26%		:0.25%	
: Selenium	:L		:L		:L	
: Silver	:0.2		:0.2		:0.2	
: Sodium	:0.02%		:0.03%		:0.02%	
: Strontium	:12		:13		:13	
: Thallium	:L		:L		:L	
: Tin	:G		:390		:710	
: Titanium	:0.07%		:0.11%		:0.10%	
: Tungsten	:80		:25		:25	
: Uranium	:L		:L		:L	
: Vanadium	:32		:19		:21	
: Zinc	:62		:59		:58	

Map No/Sample No/Yr	:121/226/87	:122/228/87	:123/227/87
Material Type	:Placer	:Placer	:Placer
Rock Type	:Meta	:Meta	:Meta
Rock Age	:PzPcam	:PzPcam	:PzPcam
Quad 4 mile/1 mile	:Circle/B-6	:Circle/B-6	:Circle/B-6
Sec/T/R/Mer	:23/7N/5E	:13/7N/5E	:13/7N/5E
Location/Property	:Little Champion Creek	:Little Champion Creek	:Little Champion Creek
Map No./KX/MAS	:9/Appendix A	:9/Appendix A	:9/Appendix A
Sample Type	:Placer	:Placer	:Placer
	:	:	:

Element	ICP	Assay	ICP	Assay	ICP	Assay
: Aluminum	:0.98%		:0.90%		:1.01%	
: Antimony	:L		:L		:L	
: Arsenic	:15		:25		:5	
: Barium	:70		:50		:50	
: Beryllium	:L		:1		:1	
: Bismuth	:L		:8		:110	
: Cadmium	:L		:L		:L	
: Calcium	:0.09%		:0.05%		:0.05%	
: Chromium	:275		:197		:132	
: Cobalt	:6		:4		:3	
: Copper	:24		:19		:21	
: Gallium	:L		:L		:L	
: Gold	:	0.002:	L	:		L
: Iron	:3.78%		:2.30%		:1.99%	
: Lanthanum	:40		:20		:20	
: Lead	:8		:10		:10	
: Manganese	:630		:420		:417	
: Magnesium	:0.23%		:0.17%		:0.15%	
: Mercury	:1		:L		:1	
: Molybdenum	:L		:L		:L	
: Nickel	:17		:15		:11	
: Phosphorus	:270		:180		:210	
: Potassium	:0.26%		:0.25%		:0.30%	
: Selenium	:L		:L		:L	
: Silver	:L		:L		:L	
: Sodium	:0.02%		:0.02%		:0.02%	
: Strontium	:12		:7		:5	
: Thallium	:10		:L		:L	
: Tin	:G		:G		:5.9%	
: Titanium	:0.06%		:0.03%		:0.03%	
: Tungsten	:145		:265		:645	
: Uranium	:L		:L		:L	
: Vanadium	:19		:13		:11	
: Zinc	:56		:54		:55	

Map No/Sample No/Yr	:124/1/87	:125/70/87	:126/13/87
Material Type	:Placer	:Placer	:Placer
Rock Type	:Qac	:Qac	:Meta
Rock Age	:Quaternary	:Quaternary	:PzPcam
Quad 4 mile/1 mile	:Circle/B-6	:Circle/B-6	:Circle/B-6
Sec/T/R/Mer	:29/7N/6E	:32/7N/6E	:36/7N/5E
Location/Property	:Nome Creek	:Nome Creek Trib.	:Moose Creek
Map No./KX/MAS	:11/Appendix A	:11/Appendix A	:10/Appendix A
Sample Type	:Placer	:Placer	:Placer
	:Insufficient Material	:	:
	:for complete analysis	:	:

Element	ICP	Assay	ICP	Assay	ICP	Assay
: Aluminum	:		:1.00%		:2.00%	
: Antimony	:		:5		:L	
: Arsenic	:		:5		:15	
: Barium	:		:60		:120	
: Beryllium	:		:L		:1	
: Bismuth	:		:L		:L	
: Cadmium	:		:L		:L	
: Calcium	:		:0.07%		:0.04%	
: Chromium	:		:27		:28	
: Cobalt	:		:12		:2	
: Copper	:		:15		:17	
: Gallium	:		:L		:L	
: Gold	:	0.014	:	0.148	:	0.004
: Iron	:		:4.09%		:3.33%	
: Lanthanum	:		:30		:20	
: Lead	:		:16		:8	
: Manganese	:		:564		:414	
: Magnesium	:		:0.41%		:0.56%	
: Mercury	:		:L		:L	
: Molybdenum	:		:L		:1	
: Nickel	:		:23		:19	
: Phosphorus	:		:210		:190	
: Potassium	:		:0.14%		:0.37%	
: Selenium	:		:L		:10	
: Silver	:	0.01	:1.8	0.23	:0.2	0.02
: Sodium	:		:0.01%		:0.04%	
: Strontium	:		:10		:15	
: Thallium	:		:L		:L	
: Tin	:	0.36%	:500		:4	
: Titanium	:		:0.18%		:0.06%	
: Tungsten	:	175	:22		:9	
: Uranium	:		:L		:L	
: Vanadium	:		:22		:29	
: Zinc	:		:56		:59	

Map No/Sample No/Yr	:127/225/87	:128/223/87	:129/45/87
Material Type	:Placer	:Placer	:Placer
Rock Type	:Meta	:Qac	:Qac
Rock Age	:PzPcam	:Quaternary	:Quaternary
Quad 4 mile/1 mile	:Circle/B-6	:Circle/B-6	:Circle/B-6
Sec/T/R/Mer	:26/7N/5E	:33/7N/5E	:32/7N/5E
Location/Property	:Little Champion Creek	:Little Champion Creek	:Little Champion Creek
Map No./KX/MAS	:9/Appendix A	:9/Appendix A	:9/Appendix A
Sample Type	:Placer	:Placer	:Placer
	:	:	:

Element	ICP	Assay	ICP	Assay	ICP	Assay
: Aluminum	:0.99%		:1.13%		:0.81%	
: Antimony	:L		:L		:L	
: Arsenic	:L		:30		:20	
: Barium	:50		:70		:60	
: Beryllium	:0.5		:0.5		:2	
: Bismuth	:4		:L		:14	
: Cadmium	:0.5		:0.5		:L	
: Calcium	:0.08%		:0.10%		:0.12%	
: Chromium	:178		:171		:20	
: Cobalt	:5		:9		:16	
: Copper	:25		:31		:27	
: Gallium	:L		:L		:L	
: Gold	:	0.018	:	0.02	:	0.29
: Iron	:4.22%		:6.52%		:8.07%	
: Lanthanum	:20		:30		:30	
: Lead	:6		:16		:12	
: Manganese	:484		:707		:680	
: Magnesium	:0.22%		:0.29%		:0.2%	
: Mercury	:1		:2		:L	
: Molybdenum	:L		:L		:L	
: Nickel	:19		:29		:24	
: Phosphorus	:230		:280		:250	
: Potassium	:0.12%		:0.29%		:0.17%	
: Selenium	:L		:L		:L	
: Silver	:L		:L		:1.6	0.01
: Sodium	:0.02%		:0.02%		:0.01%	
: Strontium	:9		:12		:10	
: Thallium	:L		:L		:L	
: Tin	:G		:G		:1.84%	
: Titanium	:0.06%		:0.09%		:0.09%	
: Tungsten	:165		:85		:475	
: Uranium	:L		:L		:L	
: Vanadium	:21		:26		:33	
: Zinc	:59		:70		:56	

Map No/Sample No/Yr	:130/44/87		:131/43/87		:132/42/87	
Material Type	:Placer		:Placer		:Placer	
Rock Type	:Qac		:Qac		:Qa	
Rock Age	:Quaternary		:Quaternary		:Quaternary	
Quad 4 mile/1 mile	:Circle/B-6		:Circle/B-6		:Circle/B-6	
Sec/T/R/Mer	:30/7N/5E		:30/7N/5E		:19/7N/5E	
Location/Property	:Little Champion Creek		:Little Champion Creek		:Little Champion Creek	
Map No./KX/MAS	:9/Appendix A		:9/Appendix A		:9/Appendix A	
Sample Type	:Placer		:Placer		:Placer	
	:		:		:	
Element	ICP	Assay	ICP	Assay	ICP	Assay
: Aluminum	:1.03%		:1.01%		:1.12%	
: Antimony	:L		:L		:L	
: Arsenic	:5		:15		:L	
: Barium	:140		:70		:80	
: Beryllium	:1.5		:2.5		:1.5	
: Bismuth	:4		:4		:2	
: Cadmium	:L		:L		:L	
: Calcium	:0.09%		:0.15%		:0.11%	
: Chromium	:20		:20		:18	
: Cobalt	:10		:15		:11	
: Copper	:16		:22		:16	
: Gallium	:L		:L		:L	
: Gold	:	0.048	:	0.274	:	0.062
: Iron	:4.7%		:6.93%		:4.17%	
: Lanthanum	:30		:40		:30	
: Lead	:4		:10		:4	
: Manganese	:629		:753		:576	
: Magnesium	:0.25%		:0.25%		:0.28%	
: Mercury	:L		:L		:L	
: Molybdenum	:L		:L		:L	
: Nickel	:18		:23		:18	
: Phosphorus	:220		:390		:230	
: Potassium	:0.24%		:0.23%		:0.26%	
: Selenium	:L		:L		:20	
: Silver	:0.2	0.01	:0.2	0.09	:0.6	0.06
: Sodium	:0.02%		:0.02%		:0.03%	
: Strontium	:12		:14		:13	
: Thallium	:L		:L		:L	
: Tin	:0.38%		:0.54%		:0.14%	
: Titanium	:0.09%		:0.12%		:0.10%	
: Tungsten	:125		:175		:60	
: Uranium	:L		:L		:L	
: Vanadium	:20		:25		:18	
: Zinc	:57		:67		:55	

Map No/Sample No/Yr	T33/T45/87		T34/22/87		T35/T46/87	
Material Type	Placer		Placer		Placer	
Rock Type	Qa		Qa		Qa	
Rock Age	Quaternary		Quaternary		Quaternary	
Quad 4 mile/1 mile	Circle/B-6		Circle/B-6		Circle/B-6	
Sec/T/R/Mer	19/7N/5E		24/7N/4E		24/7N/4E	
Location/Property	Champion Creek		Champion Creek		Champion Creek	
Map No./KX/MAS	8/Appendix A		8/Appendix A		8/Appendix A	
Sample Type	Placer		Placer		Placer	
Element	ICP	Assay	ICP	Assay	ICP	Assay
Aluminum	1.13%		0.93%		1.05%	
Antimony	L		L		L	
Arsenic	15		25		5	
Barium	70		90		80	
Beryllium	L		3		L	
Bismuth	L		10		L	
Cadmium	L		L		0.5	
Calcium	0.10%		0.13%		0.13%	
Chromium	201		41		214	
Cobalt	10		16		15	
Copper	16		26		23	
Gallium	L		10		10	
Gold		0.017		0.406		0.045
Iron	4.12%		12.8%		8.90%	
Lanthanum	70		230		170	
Lead	16		10		18	
Manganese	612		604		699	
Magnesium	0.36%		0.25%		0.30%	
Mercury	L		L		L	
Molybdenum	L		L		L	
Nickel	19		43		27	
Phosphorus	310		400		490	
Potassium	0.25%		0.21%		0.25%	
Selenium	L		L		L	
Silver	0.2		1.8	0.05	0.2	
Sodium	0.02%		0.02%		0.02%	
Strontium	14		14		16	
Thallium	L		L		L	
Tin	430			0.96%	G	
Titanium	0.18%		0.01%		0.22%	
Tungsten	10		185	250	55	
Uranium	L		L		L	
Vanadium	23		93		49	
Zinc	60		48		64	

Map No/Sample No/Yr	:136/147/87	:137/148/87	:138/150/87
Material Type	:Placer	:Placer	:Placer
Rock Type	:Qa	:Qa	:Qa
Rock Age	:Quaternary	:Quaternary	:Quaternary
Quad 4 mile/1 mile	:Circle/B-6	:Circle/B-6	:Circle/B-6
Sec/T/R/Mer	:23/7N/4E	:22/7N/4E	:21/7N/4E
Location/Property	:Champion Creek	:Champion Creek	:Champion Creek
Map No./KX/MAS	:8/Appendix A	:8/Appendix A	:8/Appendix A
Sample Type	:Placer	:Placer	:Placer
	:	:	:

Element	ICP	Assay	ICP	Assay	ICP	Assay	Oz/yd^3
: Aluminum	:0.94%		:1.12%		:0.95%		
: Antimony	:5		:L		: 5		
: Arsenic	:10		:10		:20		
: Barium	:70		:80		:50		
: Beryllium	:L		:L		:L		
: Bismuth	:L		:L		:L		
: Cadmium	:0.5		:0.5		:1		
: Calcium	:0.11%		:0.14%		:0.11%		
: Chromium	:216		:214		:123		
: Cobalt	:14		:17		:27		
: Copper	:24		:25		:33		
: Gallium	:L		:10		:L		
: Gold	:	0.023	:	0.019	:	0.012	0.0007
: Iron	:8.29%		:9.04%		:11.6%		
: Lanthanum	:110		:130		:40		
: Lead	:20		:26		:30		
: Manganese	:797		:839		:552		
: Magnesium	:0.26%		:0.32%		:0.37%		
: Mercury	:L		:L		:L		
: Molybdenum	:L		:L		:L		
: Nickel	:29		:30		:15		
: Phosphorus	:330		:420		:340		
: Potassium	:0.22%		:0.26%		:0.16%		
: Selenium	:L		:L		:L		
: Silver	:0.2		:0.2		:0.2		
: Sodium	:0.02%		:0.02%		:0.01%		
: Strontium	:13		:16		:12		
: Thallium	:L		:L		:L		
: Tin	:G		:G		:790		
: Titanium	:0.21%		:0.22%		:0.11%		
: Tungsten	:25		:15		:50		
: Uranium	:L		:L		:L		
: Vanadium	:44		:52		:66		
: Zinc	:65		:74		:70		

Map No/Sample No/Yr	:139/232/87	:140/233/87	:141/234/87
Material Type	:Placer	:Placer	:Placer
Rock Type	:Qa	:Qa	:Qa
Rock Age	:Quaternary	:Quaternary	:Quaternary
Quad 4 mile/1 mile	:Circle/B-6	:Circle/B-6	:Circle/B-6
Sec/T/R/Mer	:4/7N/4E	:9/7N/4E	:9/7N/4E
Location/Property	:Bear Creek	:Bear Creek	:Bear Creek
Map No./KX/MAS	:5/Appendix A	:5/Appendix A	:5/Appendix A
Sample Type	:Placer	:Placer	:Placer
	:	:	:

Element	ICP	Assay	ICP	Assay	ICP	Assay
: Aluminum	:0.94%		:1.18%		:1.52%	
: Antimony	:L		:10		:5	
: Arsenic	:L		:40		:L	
: Barium	:60		:60		:70	
: Beryllium	:L		:L		:0.5	
: Bismuth	:L		:L		:L	
: Cadmium	:0.5		:0.5		:0.5	
: Calcium	:0.21%		:0.44%		:0.38%	
: Chromium	:284		:176		:275	
: Cobalt	:10		:27		:16	
: Copper	:16		:83		:44	
: Gallium	:L		:L		:10	
: Gold	:	0.022:		0.196:		0.02
: Iron	:5.58%		:G		:6.46%	
: Lanthanum	:60		:90		:160	
: Lead	:L		:18		:12	
: Manganese	:374		:817		:930	
: Magnesium	:0.39%		:0.32%		:0.66%	
: Mercury	:1		:2		:1	
: Molybdenum	:L		:L		:L	
: Nickel	:26		:85		:36	
: Phosphorus	:370		:450		:460	
: Potassium	:0.12%		:0.16%		:0.20%	
: Selenium	:L		:L		:L	
: Silver	:L		:0.2		:0.4	
: Sodium	:0.01%		:0.01%		:0.01%	
: Strontium	:16		:19		:18	
: Thallium	:10		:30		:60	
: Tin	:90		:G		:350	
: Titanium	:0.08%		:0.08%		:0.12%	
: Tungsten	:20		:75		:50	
: Uranium	:L		:L		:L	
: Vanadium	:63		:57		:62	
: Zinc	:49		:119		:77	

Map No/Sample No/Yr	:142/61/87		:143/21/87		:143/191/87	
Material Type	:Placer		:Placer		:Placer	
Rock Type	:Qa		:Qa		:Qa	
Rock Age	:Quaternary		:Quaternary		:Quaternary	
Quad 4 mile/1 mile	:Circle/B-6		:Circle/B-6		:Circle/B-6	
Sec/T/R/Mer	:20/7N/4E		:20/7N/4E		:20/7N/4E	
Location/Property	:Bear Creek		:Champion Creek		:Champion Creek	
Map No./KX/MAS	:5/Appendix A		:8/Appendix A		:8/Appendix A	
Sample Type	:Placer		:Placer		:Placer	
	:		:		:	
Element	ICP	Assay	ICP	Assay	ICP	Assay
: Aluminum	:1.11%		:0.74%		:1.06%	
: Antimony	:L		:5		:L	
: Arsenic	:10		:30		:5	
: Barium	:70		:110		:110	
: Beryllium	:1		:3		:1	
: Bismuth	:L		:18		:L	
: Cadmium	:L		:L		:0.5	
: Calcium	:0.23%		:0.17%		:0.22%	
: Chromium	:32		:69		:158	
: Cobalt	:15		:17		:12	
: Copper	:26		:24		:23	
: Gallium	:10		:10		:L	
: Gold	:	0.03	:	0.699	:	0.166
: Iron	:4.69%		:G		:6.68%	
: Lanthanum	:60		:280		:100	
: Lead	:26		:26		:16	
: Manganese	:550		:702		:645	
: Magnesium	:0.47%		:0.19%		:0.39%	
: Mercury	:L		:L		:L	
: Molybdenum	:L		:L		:L	
: Nickel	:30		:49		:29	
: Phosphorus	:460		:410		:500	
: Potassium	:0.16%		:0.17%		:0.20%	
: Selenium	:L		:L		:L	
: Silver	:0.2	0.03	:1.8	0.03	:0.2	
: Sodium	:0.01%		:0.01%		:0.02%	
: Strontium	:17		:17		:20	
: Thallium	:20		:L		:L	
: Tin	:130		:0.76%		:G	
: Titanium	:0.07%		:0.15%		:0.19%	
: Tungsten	:60		:175		:15	
: Uranium	:L		:L		:L	
: Vanadium	:31		:175		:46	
: Zinc	:70		:41		:62	

Map No/Sample No/Yr	:144/192/87	:145/209/87	:146/193/87
Material Type	:Placer	:Placer	:Placer
Rock Type	:Qa	:Meta	:Qa
Rock Age	:Quaternary	:Cambrian	:Quaternary
Quad 4 mile/1 mile	:Circle/B-6	:Livengood/B-1	:Livengood/B-1
Sec/T/R/Mer	:19/7N/4E	:19/7N/4E	:19/7N/4E
Location/Property	:Beaver Creek	:Beaver Creek Trib.	:Beaver Creek
Map No./KX/MAS	:12/428/	:12/428/	:12/428/
Sample Type	:Placer	:Placer	:Placer
	:	:	:

Element	ICP Assay Oz/yd^3	ICP Assay Oz/yd^3	ICP Assay Oz/yd^3
: Aluminum	:1.03%	:1.18%	:1.27%
: Antimony	:L	:L	:L
: Arsenic	:10	:15	:25
: Barium	:70	:60	:80
: Beryllium	:0.5	:L	:1.5
: Bismuth	:L	:L	:L
: Cadmium	:0.5	:L	:0.5
: Calcium	:0.31%	:0.08%	:0.40%
: Chromium	:278	:96	:147
: Cobalt	:20	:10	:19
: Copper	:30	:17	:41
: Gallium	:10	:L	:L
: Gold	: 0.03 0.0522:	0.002 0.0042:	0.002 0.0642
: Iron	:9.07%	:2.93%	:6.42%
: Lanthanum	:120	:30	:90
: Lead	:24	:L	:44
: Manganese	:505	:494	:742
: Magnesium	:0.35%	:0.50%	:0.50%
: Mercury	:227	:2	:L
: Molybdenum	:L	:L	:L
: Nickel	:39	:20	:35
: Phosphorus	:500	:280	:620
: Potassium	:0.19%	:0.14%	:0.22%
: Selenium	:L	:L	:L
: Silver	:0.2	:L	:0.2
: Sodium	:0.01%	:0.01%	:0.01%
: Strontium	:18	:10	:25
: Thallium	:L	:10	:L
: Tin	:G	:17	:G
: Titanium	:0.09%	:0.02%	:0.12%
: Tungsten	:L	:5	:25
: Uranium	:L	:L	:L
: Vanadium	:66	:21	:51
: Zinc	:74	:56	:85

Map No/Sample No/Yr	:146/206/87	:146/207/87	:147/208/87
Material Type	:Placer	:Placer	:Placer
Rock Type	:Qa	:Qa	:Qa
Rock Age	:Quaternary	:Quaternary	:Quaternary
Quad 4 mile/1 mile	:Livengood/B-1	:Livengood/B-1	:Livengood/B-1
Sec/T/R/Mer	:19/7N/3E	:19/7N/3E	:19/7N/3E
Location/Property	:Beaver Creek	:Beaver Creek	:Beaver Creek
Map No./KX/MAS	:12/428/	:12/428/	:12/428/
Sample Type	:Placer	:Placer	:Placer
	:	:	:

Element	ICP	Assay Oz/yd^3	ICP	Assay Oz/yd^3	ICP	Assay
: Aluminum	:1.38%		:1.81%		:1.23%	
: Antimony	:L		:5		:L	
: Arsenic	:30		:L		:5	
: Barium	:60		:50		:70	
: Beryllium	:1		:L		:L	
: Bismuth	:L		:L		:L	
: Cadmium	:L		:L		:L	
: Calcium	:0.56%		:1.04%		:0.26%	
: Chromium	:140		:93		:173	
: Cobalt	:12		:14		:12	
: Copper	:26		:42		:28	
: Gallium	:L		:L		:L	
: Gold	: L	0.0138:	L	0.0126:		0.032
: Iron	:4.33%		:4.40%		:4.72%	
: Lanthanum	:50		:40		:50	
: Lead	:18		:L		:20	
: Manganese	:511		:587		:800	
: Magnesium	:0.61%		:0.93%		:0.48%	
: Mercury	:L		:2		:1	
: Molybdenum	:L		:L		:L	
: Nickel	:24		:30		:27	
: Phosphorus	:530		:970		:370	
: Potassium	:0.17%		:0.12%		:0.18%	
: Selenium	:L		:L		:L	
: Silver	:0.2		:L		:L	
: Sodium	:0.01%		:0.02%		:0.01%	
: Strontium	:57		:79		:17	
: Thallium	:L		:L		:L	
: Tin	:350		:330		:190	
: Titanium	:0.23%		:0.40%		:0.07%	
: Tungsten	:5		:25		:15	
: Uranium	:L		:L		:L	
: Vanadium	:47		:76		:35	
: Zinc	:65		:66		:84	

Map No/Sample No/Yr	:148/62/87	:149/95/87	:150/63/87
Material Type	:Placer	:Placer	:Placer
Rock Type	:Qa	:Qa	:Qa
Rock Age	:Quaternary	:Quaternary	:Quaternary
Quad 4 mile/1 mile	:Livengood/B-1	:Livengood/B-7	:Livengood/B-1
Sec/T/R/Mer	:26/7N/3E	:33/7N/3E	:32/7N/3E
Location/Property	:Beaver Creek	:Nome Creek	:Beaver Creek
Map No./KX/MAS	:12/428/	:11/Appendix A	:None
Sample Type	:Placer	:Placer	:Placer
	:	:	:

Element	ICP	Assay	ICP	Assay	ICP	Assay
: Aluminum	:1.30%		:1.13%		:1.19%	
: Antimony	:L		:10		:L	
: Arsenic	:10		:L		:10	
: Barium	:80		:70		:60	
: Beryllium	:L		:L		:L	
: Bismuth	:6		:L		:6	
: Cadmium	:L		:0.5		:L	
: Calcium	:0.26%		:0.32%		:0.33%	
: Chromium	:31		:212		:36	
: Cobalt	:16		:15		:15	
: Copper	:22		:29		:18	
: Gallium	:L		:L		:L	
: Gold	:	0.012	:	0.104	:	0.024
: Iron	:5.21%		:5.25%		:5.24%	
: Lanthanum	:50		:70		:100	
: Lead	:22		:70		:20	
: Manganese	:774		:817		:758	
: Magnesium	:0.44%		:0.36%		:0.36%	
: Mercury	:L		:L		:L	
: Molybdenum	:L		:L		:L	
: Nickel	:30		:32		:29	
: Phosphorus	:340		:L		:410	
: Potassium	:0.23%		:0.19%		:0.19%	
: Selenium	:L		:L		:L	
: Silver	:0.2	0.05	:L		:0.2	0.01
: Sodium	:0.02%		:0.02%		:0.02%	
: Strontium	:20		:19		:18	
: Thallium	:L		:30		:L	
: Tin	:200		:240		:190	
: Titanium	:0.10%		:0.14%		:0.17%	
: Tungsten	:20		:5		:26	
: Uranium	:L		:L		:L	
: Vanadium	:38		:36		:36	
: Zinc	:72		:69		:62	

Map No/Sample No/Yr	:151/87/87	:152/88/87	:153/89/87
Material Type	:Placer	:Placer	:Placer
Rock Type	:Qa	:Qa	:Qa
Rock Age	:Quaternary	:Quaternary	:Quaternary
Quad 4 mile/1 mile	:Livengood/B-1	:Livengood/B-1	:Livengood/B-1
Sec/T/R/Mer	:29/7N/3E	:15/7N/3E	:2/7N/3E
Location/Property	:Roy Creek	:Roy Creek	:Roy Creek
Map No./KX/MAS	:None	:None	:4/478/
Sample Type	:Placer	:Placer	:Placer
	:	:	:

Element	ICP	Assay Oz/yd^3	ICP	Assay	ICP	Assay
: Aluminum	:1.25%		:1.08%		:1.07%	
: Antimony	:10		:5		:L	
: Arsenic	:15		:45		:25	
: Barium	:80		:60		:70	
: Beryllium	:L		:L		:L	
: Bismuth	:L		:4		:6	
: Cadmium	:L		:L		:L	
: Calcium	:0.10%		:0.06%		:0.16%	
: Chromium	:192		:115		:94	
: Cobalt	:12		:10		:6	
: Copper	:17		:13		:11	
: Gallium	:L		:L		:L	
: Gold	:	0.107 0.0006	:	0.118	:	0.008
: Iron	:4.45%		:2.97%		:1.88%	
: Lanthanum	:60		:30		:60	
: Lead	:20		:22		:16	
: Manganese	:454		:389		:124	
: Magnesium	:0.39%		:0.37%		:0.34%	
: Mercury	:L		:L		:L	
: Molybdenum	:L		:L		:L	
: Nickel	:20		:14		:15	
: Phosphorus	:L		:L		:L	
: Potassium	:0.20%		:0.14%		:0.16%	
: Selenium	:L		:L		:L	
: Silver	:0.4		:L		:0.2	
: Sodium	:0.02%		:0.01%		:0.01%	
: Strontium	:18		:15		:34	
: Thallium	:30		:10		:20	
: Tin	:9		:7		:2	
: Titanium	:0.06%		:0.02%		:0.08%	
: Tungsten	:L		:5		:L	
: Uranium	:L		:L		:L	
: Vanadium	:68		:23		:21	
: Zinc	:68		:55		:48	

Map No/Sample No/Yr	:153/210/87	:154/82/87	:155/81/87
Material Type	:Placer	:Placer	:Placer
Rock Type	:Qa	:Qa	:Qa
Rock Age	:Quaternary	:Quaternary	:Quaternary
Quad 4 mile/1 mile	:Livengood/B-1	:Livengood/B-1	:Livengood/B-1
Sec/T/R/Mer	:2/7N/3E	:5/7N/3E	:18/8N/3E
Location/Property	:Roy Creek	:O'Brien Creek	:O'Brien Creek
Map No./KX/MAS	:4/478/	:None	:None
Sample Type	:Placer	:Placer	:Placer
	:	:	:

Element	ICP	Assay	Oz/yd^3	ICP	Assay	Oz/yd^3	ICP	Assay
: Aluminum	:1.23%			:1.34%			:1.50%	
: Antimony	:L			:L			:L	
: Arsenic	:20			:L			:10	
: Barium	:80			:80			:70	
: Beryllium	:L			:L			:L	
: Bismuth	:L			:L			:L	
: Cadmium	:L			:0.5			:L	
: Calcium	:0.10%			:0.12%			:0.08%	
: Chromium	:109			:101			:74	
: Cobalt	:8			:21			:13	
: Copper	:16			:34			:26	
: Gallium	:L			:L			:L	
: Gold	:	0.002	0.0025	:	0.046	0.0005	:	0.046
: Iron	:3.16%			:9.98%			:4.22%	
: Lanthanum	:50			:50			:30	
: Lead	:2			:50			:24	
: Manganese	:202			:879			:558	
: Magnesium	:0.39%			:0.46%			:0.52%	
: Mercury	:6			:L			:L	
: Molybdenum	:L			:L			:L	
: Nickel	:21			:23			:22	
: Phosphorus	:270			:L			:L	
: Potassium	:0.24%			:0.16%			:0.18%	
: Selenium	:L			:10			:10	
: Silver	:L			:0.4			:L	
: Sodium	:0.01%			:0.01%			:0.01%	
: Strontium	:23			:35			:21	
: Thallium	:20			:30			:10	
: Tin	:6			:G			:380	
: Titanium	:0.04%			:0.11%			:0.02%	
: Tungsten	:45			:70			:L	
: Uranium	:L			:L			:L	
: Vanadium	:51			:300			:33	
: Zinc	:59			:168			:103	

Map No/Sample No/Yr	:155/116/87	:156/66/87	:156/114/87
Material Type	:Quartz	:Placer	:Schist
Rock Type	:Qa	:Qa	:Meta
Rock Age	:Quaternary	:Quaternary	:Cambrian
Quad 4 mile/1 mile	:Livengood/B-1	:Livengood/B-1	:Livengood/B-1
Sec/T/R/Mer	:18/8N/3E	:26/7N/2E	:26/7N/2E
Location/Property	:O'Brien Creek	:O'Brien Creek	:O'Brien Creek
Map No./KX/MAS	:None	:None	:None
Sample Type	:Grab	:Placer	:Grab
	:	:	:

Element	ICP	Assay	ICP	Assay	ICP	Assay
: Aluminum	:0.15%		:1.78%		:2.19%	
: Antimony	:L		:L		:L	
: Arsenic	:20		:30		:L	
: Barium	:L		:110		:60	
: Beryllium	:L		:L		:L	
: Bismuth	:L		:6		:2	
: Cadmium	:L		:L		:0.5	
: Calcium	:0.06%		:0.10%		:0.04%	
: Chromium	:181		:29		:85	
: Cobalt	:1		:17		:8	
: Copper	:6		:20		:11	
: Gallium	:L		:L		:L	
: Gold	:	L	:	L	:	L
: Iron	:0.83%		:4.76%		:4.59%	
: Lanthanum	:L		:40		:20	
: Lead	:2		:18		:6	
: Manganese	:30		:613		:235	
: Magnesium	:0.06%		:0.52%		:1.02%	
: Mercury	:L		:L		:L	
: Molybdenum	:1		:L		:L	
: Nickel	:5		:30		:18	
: Phosphorus	:L		:290		:L	
: Potassium	:L		:0.29%		:0.18%	
: Selenium	:L		:L		:L	
: Silver	:L		:0.2	0.01	:L	
: Sodium	:L		:0.02%		:0.01%	
: Strontium	:11		:26		:9	
: Thallium	:L		:L		:10	
: Tin	:3		:290		:2	
: Titanium	:L		:0.03%		:L	
: Tungsten	:L		:6		:5	
: Uranium	:L		:L		:L	
: Vanadium	:1		:39		:12	
: Zinc	:8		:107		:88	

Map No/Sample No/Yr	:157/64/87		:158/237/87		:159/65/87	
Material Type	:Placer		:Placer		:Placer	
Rock Type	:Qa		:Qa		:Qa	
Rock Age	:Quaternary		:Quaternary		:Quaternary	
Quad 4 mile/1 mile	:Livengood/B-1		:Livengood/B-1		:Livengood/B-1	
Sec/T/R/Mer	:35/7N/2E		:25/7N/1E		:2/6N/1E	
Location/Property	:Beaver Creek		:Brigham Creek		:Beaver Creek	
Map No./KX/MAS	:None		:None		:None	
Sample Type	:Placer		:Placer		:Placer	
	:		:		:	
Element	ICP	Assay	ICP	Assay	ICP	Assay
: Aluminum	:1.98%		:0.92%		:1.19%	
: Antimony	:L		:L		:L	
: Arsenic	:5		:L		:5	
: Barium	:140		:70		:70	
: Beryllium	:L		:L		:L	
: Bismuth	:8		:L		:L	
: Cadmium	:L		:L		:L	
: Calcium	:0.47%		:0.05%		:0.17%	
: Chromium	:43		:116		:26	
: Cobalt	:16		:6		:12	
: Copper	:22		:12		:14	
: Gallium	:L		:L		:L	
: Gold	:	0.044	:	0.032	:	0.052
: Iron	:6.3%		:2.47%		:3.8%	
: Lanthanum	:100		:60		:40	
: Lead	:16		:6		:24	
: Manganese	:1115		:598		:588	
: Magnesium	:0.42%		:0.21%		:0.36%	
: Mercury	:L		:L		:L	
: Molybdenum	:1		:L		:L	
: Nickel	:33		:14		:22	
: Phosphorus	:420		:230		:300	
: Potassium	:0.44%		:0.19%		:0.22%	
: Selenium	:L		:L		:20	
: Silver	:0.2	0.02	:0.2		:0.2	0.05
: Sodium	:0.07%		:0.01%		:0.02%	
: Strontium	:32		:8		:17	
: Thallium	:L		:20		:L	
: Tin	:120		:470		:120	
: Titanium	:0.27%		:0.02%		:0.09%	
: Tungsten	:25		:20		:9	
: Uranium	:L		:L		:L	
: Vanadium	:54		:14		:31	
: Zinc	:74		:57		:62	

Map No/Sample No/Yr	:159/115/87	:160/91/87	:161/263/87
Material Type	:Slate	:Placer	:Placer
Rock Type	:Qa	:Qa	:Qa
Rock Age	:Quaternary	:Quaternary	:Quaternary
Quad 4 mile/1 mile	:Livengood/B-1	:Livengood/B-2	:Livengood/B-2
Sec/T/R/Mer	:2/6N/1E	:33/7N/1E	:5/7N/1E
Location/Property	:Beaver Creek	:Beaver Creek	:Beaver Creek Trib.
Map No./KX/MAS	:None	:None	:None
Sample Type	:Grab	:Placer	:Placer
	:	:	:

Element	ICP	Assay	ICP	Assay	ICP	Assay
: Aluminum	:4.46%		:0.90%		:0.64%	
: Antimony	:15		:L		:L	
: Arsenic	:L		:15		:L	
: Barium	:20		:50		:50	
: Beryllium	:L		:L		:L	
: Bismuth	:L		:2		:L	
: Cadmium	:L		:L		:L	
: Calcium	:3.91%		:0.13%		:0.05%	
: Chromium	:258		:124		:89	
: Cobalt	:25		:9		:1	
: Copper	:105		:15		:4	
: Gallium	:10		:L		:L	
: Gold	:	L	:	L	:	0.01
: Iron	:2.38%		:2.66%		:1.43%	
: Lanthanum	:10		:30		:10	
: Lead	:6		:12		:L	
: Manganese	:310		:445		:106	
: Magnesium	:1.17%		:0.30%		:0.21%	
: Mercury	:L		:L		:L	
: Molybdenum	:L		:L		:L	
: Nickel	:178		:13		:8	
: Phosphorus	:10		:L		:210	
: Potassium	:0.02%		:0.13%		:0.10%	
: Selenium	:L		:L		:L	
: Silver	:L		:L		:L	
: Sodium	:0.51%		:0.01%		:0.01%	
: Strontium	:649		:12		:8	
: Thallium	:10		:10		:L	
: Tin	:4		:125		:8	
: Titanium	:0.09%		:0.05%		:0.01%	
: Tungsten	:L		:L		:L	
: Uranium	:L		:L		:L	
: Vanadium	:66		:21		:11	
: Zinc	:32		:54		:29	

Map No/Sample No/Yr	:162/20/87		:163/238/87		:164/105/87	
Material Type	:Placer		:Placer		:Placer	
Rock Type	:Qa		:Qa		:Qa	
Rock Age	:Quaternary		:Quaternary		:Quaternary	
Quad 4 mile/1 mile	:Livengood/B-2		:Livengood/B-2		:Livengood/B-2	
Sec/T/R/Mer	:17/7N/1W		:10/7N/1W		:30/7N/1W	
Location/Property	:Fossil Creek		:Beaver Creek		:Beaver Creek	
Map No./KX/MAS	:None		:None		:None	
Sample Type	:Placer		:Placer		:Placer	
	:		:		:	
Element	ICP	Assay	ICP	Assay	ICP	Assay
: Aluminum	:2.13%		:0.84%		:0.71%	
: Antimony	:5		:L		:L	
: Arsenic	:15		:L		:5	
: Barium	:570		:60		:80	
: Beryllium	:4		:L		:L	
: Bismuth	:6		:L		:2	
: Cadmium	:L		:L		:L	
: Calcium	:1.75%		:0.24%		:0.10%	
: Chromium	:168		:192		:101	
: Cobalt	:14		:6		:8	
: Copper	:44		:12		:12	
: Gallium	:L		:L		:L	
: Gold	:	0.016	:	0.068	:	L
: Iron	:8.63%		:2.96%		:1.88%	
: Lanthanum	:50		:20		:10	
: Lead	:118		:L		:12	
: Manganese	:1510		:437		:382	
: Magnesium	:0.96%		:0.29%		:0.25%	
: Mercury	:L		:2		:1	
: Molybdenum	:L		:L		:L	
: Nickel	:56		:16		:14	
: Phosphorus	:790		:310		:L	
: Potassium	:0.21%		:0.12%		:0.10%	
: Selenium	:L		:L		:L	
: Silver	:0.2	0.01	:L		:L	
: Sodium	:0.04%		:0.01%		:0.01%	
: Strontium	:78		:20		:11	
: Thallium	:L		:L		:10	
: Tin	:740		:100		:35	
: Titanium	:0.45%		:0.07%		:0.02%	
: Tungsten	:26		:15		:5	
: Uranium	:L		:L		:L	
: Vanadium	:191		:33		:13	
: Zinc	:116		:49		:44	

Map No/Sample No/Yr	:165/106/87	:165/107/87	:167/117/87
Material Type	:Placer	:Placer	:Placer
Rock Type	:Qa	:Qa	:Qa
Rock Age	:Quaternary	:Quaternary	:Quaternary
Quad 4 mile/1 mile	:Livengood/B-2	:Livengood/B-2	:Livengood/B-2
Sec/T/R/Mer	:4/6N/1W	:11/6N/1W	:14/6N/1W
Location/Property	:Beaver Creek	:Wickersham Creek	:Wickersham Creek
Map No./KX/MAS	:None	:None	:None
Sample Type	:Placer	:Placer	:Placer
	:	:	:

Element	ICP	Assay	ICP	Assay	ICP	Assay
: Aluminum	:0.84%		:0.46%		:0.52%	
: Antimony	:L		:L		:L	
: Arsenic	:L		:10		:10	
: Barium	:60		:50		:50	
: Beryllium	:L		:L		:L	
: Bismuth	:L		:4		:4	
: Cadmium	:L		:L		:L	
: Calcium	:0.12%		:0.03%		:0.04%	
: Chromium	:149		:88		:173	
: Cobalt	:9		:5		:6	
: Copper	:13		:7		:7	
: Gallium	:L		:L		:L	
: Gold	:	L	:	L	:	L
: Iron	:2.35%		:1.36%		:1.70%	
: Lanthanum	:30		:10		:20	
: Lead	:12		:2		:8	
: Manganese	:413		:134		:196	
: Magnesium	:0.28%		:0.12%		:0.14%	
: Mercury	:L		:L		:L	
: Molybdenum	:1		:L		:L	
: Nickel	:17		:9		:16	
: Phosphorus	:L		:L		:L	
: Potassium	:0.13%		:0.09%		:0.08%	
: Selenium	:L		:L		:L	
: Silver	:L		:L		:L	
: Sodium	:0.01%		:L		:L	
: Strontium	:13		:6		:7	
: Thallium	:10		:10		:10	
: Tin	:80		:5		:20	
: Titanium	:0.05%		:L		:L	
: Tungsten	:L		:L		:L	
: Uranium	:L		:L		:L	
: Vanadium	:17		:7		:8	
: Zinc	:48		:27		:31	

Map No/Sample No/Yr	:168/97/87	:169/118/87	:170/98/87
Material Type	:Placer	:Placer	:Placer
Rock Type	:Qsu	:Qsu	:Qsu
Rock Age	:Quaternary	:Quaternary	:Quaternary
Quad 4 mile/1 mile	:Livengood/B-2	:Livengood/B-2	:Livengood/B-2
Sec/T/R/Mer	:29/6N/1W	:8/5N/1W	:17/5N/1W
Location/Property	:Wickersham Creek	:Wickersham Creek	:Wickersham Creek
Map No./KX/MAS	:None	:None	:None
Sample Type	:Placer	:Placer	:Placer
	:	:	:

Element	ICP	Assay	ICP	Assay	ICP	Assay
: Aluminum	:0.49%		:0.47%		:0.55%	
: Antimony	:L		:L		:5	
: Arsenic	:L		:10		:5	
: Barium	:60		:60		:70	
: Beryllium	:L		:L		:L	
: Bismuth	:L		:L		:L	
: Cadmium	:L		:L		:L	
: Calcium	:0.05%		:0.04%		:0.06%	
: Chromium	:103		:106		:85	
: Cobalt	:6		:5		:6	
: Copper	:10		:10		:9	
: Gallium	:L		:L		:L	
: Gold	:	L	:	L	:	L
: Iron	:1.89%		:1.42%		:1.51%	
: Lanthanum	:10		:10		:10	
: Lead	:6		:4		:14	
: Manganese	:144		:121		:176	
: Magnesium	:0.14%		:0.13%		:0.15%	
: Mercury	:L		:L		:L	
: Molybdenum	:L		:L		:L	
: Nickel	:13		:7		:12	
: Phosphorus	:L		:L		:L	
: Potassium	:0.10%		:0.10%		:0.12%	
: Selenium	:L		:L		:L	
: Silver	:L		:L		:L	
: Sodium	:0.01%		:L		:L	
: Strontium	:7		:6		:9	
: Thallium	:L		:L		:L	
: Tin	:4		:2		:1	
: Titanium	:L		:L		:L	
: Tungsten	:L		:L		:L	
: Uranium	:L		:L		:L	
: Vanadium	:9		:8		:10	
: Zinc	:31		:27		:36	

Map No/Sample No/Yr	:171/132/87	:172/133/87	:173/99/87
Material Type	:Placer	:Placer	:Placer
Rock Type	:Qsu	:Qsu	:Qsu
Rock Age	:Quaternary	:Quaternary	:Quaternary
Quad 4 mile/1 mile	:Livengood/B-2	:Livengood/A-2	:Livengood/A-2
Sec/T/R/Mer	:18/5N/1W	:24/5N/2W	:23/5N/2W
Location/Property	:Wickersham Creek	:Wickersham Creek	:Wickersham Creek
Map No./KX/MAS	:None	:None	:None
Sample Type	:Placer	:Placer	:Placer
	:	:	:

Element	ICP	Assay	ICP	Assay	ICP	Assay
: Aluminum	:0.76%		:0.75%		:0.58%	
: Antimony	:L		:L		:L	
: Arsenic	:5		:L		:15	
: Barium	:90		:130		:90	
: Beryllium	:L		:L		:L	
: Bismuth	:L		:L		:2	
: Cadmium	:L		:L		:L	
: Calcium	:0.05%		:0.05%		:0.06%	
: Chromium	:223		:147		:89	
: Cobalt	:8		:8		:8	
: Copper	:9		:7		:14	
: Gallium	:L		:L		:L	
: Gold	:	0.024	:	L	:	L
: Iron	:2.18%		:1.92%		:1.83%	
: Lanthanum	:30		:20		:10	
: Lead	:4		:3		:4	
: Manganese	:178		:321		:283	
: Magnesium	:0.19%		:0.20%		:0.15%	
: Mercury	:L		:L		:L	
: Molybdenum	:L		:L		:L	
: Nickel	:14		:14		:12	
: Phosphorus	:240		:180		:L	
: Potassium	:0.18%		:0.15%		:0.12%	
: Selenium	:L		:L		:L	
: Silver	:0.2		:0.2		:L	
: Sodium	:0.01%		:0.01%		:0.01%	
: Strontium	:11		:11		:13	
: Thallium	:L		:L		:10	
: Tin	:10		:9		:2	
: Titanium	:0.01%		:L		:L	
: Tungsten	:L		:L		:L	
: Uranium	:L		:L		:L	
: Vanadium	:11		:10		:11	
: Zinc	:39		:39		:36	

Map No/Sample No/Yr	:174/96/87	:175/4/87	:176/5/87
Material Type	:Placer	:Placer	:Placer
Rock Type	:Qsu	:Qsu	:Qsu
Rock Age	:Quaternary	:Quaternary	:Quaternary
Quad 4 mile/1 mile	:Livengood/A-2	:Livengood/A-2	:Livengood/B-2
Sec/T/R/Mer	:16/4N/1W	:16/5N/1E	:9/5N/1E
Location/Property	:Washington Creek Trib.	:Trail Creek	:Trail Creek
Map No./KX/MAS	:None	:14/192/	:14/192/
Sample Type	:Placer	:Placer	:Placer
	:	:	:Insufficient material
	:	:	:for complete analysis

Element	ICP	Assay	ICP	Assay	ICP	Assay
: Aluminum	:0.48%		:0.86%		:	
: Antimony	:L		:L		:	
: Arsenic	:5		:L		:	
: Barium	:70		:90		:	
: Beryllium	:L		:0.5		:	
: Bismuth	:4		:L		:	
: Cadmium	:L		:L		:	
: Calcium	:0.08%		:0.05%		:	
: Chromium	:121		:28		:	
: Cobalt	:6		:2		:	
: Copper	:14		:16		:	
: Gallium	:L		:L		:	
: Gold	:	0.024	:	0.104	:	0.01
: Iron	:1.81%		:1.49%		:	
: Lanthanum	:10		:10		:	
: Lead	:86		:10		:	
: Manganese	:272		:110		:	
: Magnesium	:0.15%		:0.15%		:	
: Mercury	:L		:L		:	
: Molybdenum	:L		:1		:	
: Nickel	:16		:15		:	
: Phosphorus	:L		:100		:	
: Potassium	:0.12%		:0.23%		:	
: Selenium	:L		:L		:	
: Silver	:L		:0.6	0.10	:	0.01
: Sodium	:L		:L		:	
: Strontium	:11		:14		:	
: Thallium	:10		:L		:	
: Tin	:2		:34		:	
: Titanium	:0.03%		:0.04%		:	
: Tungsten	:L		:2		:	
: Uranium	:L		:L		:	
: Vanadium	:12		:17		:	
: Zinc	:26		:27		:	

Map No/Sample No/Yr	:177/6/87		:178/188/87		:179/7/87	
Material Type	:Placer		:Placer		:Placer	
Rock Type	:Qsu		:Qsu		:Qsu	
Rock Age	:Quaternary		:Quaternary		:Quaternary	
Quad 4 mile/1 mile	:Livengood/B-2		:Livengood/B-1		:Livengood/B-1	
Sec/T/R/Mer	:3/5N/1E		:2/5N/1E		:2/5N/1E	
Location/Property	:Trail Creek		:Trail Creek		:Trail Creek	
Map No./KX/MAS	:14/192/		:14/192/		:14/192/	
Sample Type	:Placer		:Placer		:Placer	
	:		:		:	
Element	ICP	Assay	ICP	Assay	ICP	Assay
: Aluminum	:0.59%		:0.58%		:0.54%	
: Antimony	:L		:L		:L	
: Arsenic	:L		:5		:5	
: Barium	:70		:60		:80	
: Beryllium	:0.5		:0.5		:1.0	
: Bismuth	:L		:L		:L	
: Cadmium	:L		:L		:L	
: Calcium	:0.06%		:0.06%		:0.17%	
: Chromium	:27		:169		:25	
: Cobalt	:7		:7		:15	
: Copper	:22		:25		:29	
: Gallium	:L		:L		:L	
: Gold	:	0.146	:	0.012	:	0.09
: Iron	:2.31%		:2.13%		:4.33%	
: Lanthanum	:20		:20		:30	
: Lead	:L		:30		:12	
: Manganese	:194		:192		:231	
: Magnesium	:0.1%		:0.17%		:0.17%	
: Mercury	:L		:L		:L	
: Molybdenum	:1		:L		:2	
: Nickel	:16		:13		:30	
: Phosphorus	:220		:210		:230	
: Potassium	:0.15%		:0.14%		:0.14%	
: Selenium	:L		:L		:L	
: Silver	:0.6	0.01	:0.2		:0.2	0.01
: Sodium	:L		:0.01%		:L	
: Strontium	:12		:11		:15	
: Thallium	:L		:L		:L	
: Tin	:8		:2		:6	
: Titanium	:0.05%		:0.03%		:0.04%	
: Tungsten	:3		:L		:1	
: Uranium	:L		:L		:L	
: Vanadium	:14		:10		:14	
: Zinc	:21		:42		:31	

Map No/Sample No/Yr	:180/189/87		:181/32/87		:182/33/87	
Material Type	:Placer		:Placer		:Placer	
Rock Type	:Qsu		:Qsu		:Qsu	
Rock Age	:Quaternary		:Quaternary		:Quaternary	
Quad 4 mile/1 mile	:Livengood/B-1		:Livengood/B-1		:Livengood/B-1	
Sec/T/R/Mer	:36/6N/1E		:18/5N/2E		:18/5N/2E	
Location/Property	:Trail Creek		:Ophir Creek		:Ophir Creek	
Map No./KX/MAS	:14/192/		:13/Appendix A		:13/Appendix A	
Sample Type	:Placer		:Placer		:Placer	
	:		:		:	
Element	ICP	Assay	ICP	Assay	ICP	Assay
: Aluminum	:0.56%		:1.15%		:1.76%	
: Antimony	:L		:L		:L	
: Arsenic	:5		:L		:L	
: Barium	:60		:120		:170	
: Beryllium	:L		:1		:1	
: Bismuth	:L		:L		:4	
: Cadmium	:L		:L		:0.5	
: Calcium	:0.06%		:0.05%		:0.03%	
: Chromium	:219		:23		:21	
: Cobalt	:7		:L		:L	
: Copper	:9		:18		:18	
: Gallium	:L		:L		:L	
: Gold	:	0.002	:	L	:	0.152
: Iron	:1.79%		:1.55%		:1.80%	
: Lanthanum	:10		:20		:40	
: Lead	:16		:8		:10	
: Manganese	:176		:148		:136	
: Magnesium	:0.16%		:0.08%		:0.07%	
: Mercury	:L		:L		:1	
: Molybdenum	:L		:L		:1	
: Nickel	:10		:8		:11	
: Phosphorus	:200		:230		:190	
: Potassium	:0.13%		:0.34%		:0.54%	
: Selenium	:L		:L		:L	
: Silver	:0.2		:0.2	0.04	:0.2	0.01
: Sodium	:L		:0.06%		:0.04%	
: Strontium	:10		:20		:26	
: Thallium	:L		:L		:L	
: Tin	:3		:3		:2	
: Titanium	:0.02%		:0.04%		:0.02%	
: Tungsten	:L		:1		:1	
: Uranium	:L		:L		:L	
: Vanadium	:10		:16		:16	
: Zinc	:39		:22		:23	

Map No/Sample No/Yr	:183/190/87	:184/20/87	:185/90/87
Material Type	:Placer	:Placer	:Placer
Rock Type	:Qa	:Qa	:Qa
Rock Age	:Quaternary	:Quaternary	:Quaternary
Quad 4 mile/1 mile	:Livengood/B-1	:Livengood/B-1	:Livengood/B-1
Sec/T/R/Mer	:32/6N/2E	:29/6N/2E	:4/6N/2E
Location/Property	:Trail Creek	:Trail Creek	:Beaver Creek
Map No./KX/MAS	:14/192/	:14/192/	:None
Sample Type	:Placer	:Placer	:Placer
	:	:	:

Element	ICP	Assay	ICP	Assay	ICP	Assay
: Aluminum	:0.53%		:2.13%		:1.08%	
: Antimony	:L		:5		:L	
: Arsenic	:L		:15		:20	
: Barium	:60		:570		:60	
: Beryllium	:L		:4		:L	
: Bismuth	:L		:6		:2	
: Cadmium	:L		:L		:L	
: Calcium	:0.07%		:1.75%		:0.16%	
: Chromium	:209		:168		:179	
: Cobalt	:7		:14		:10	
: Copper	:13		:44		:20	
: Gallium	:L		:L		:L	
: Gold	:	0.024:		0.016:		L
: Iron	:2.16%		:8.63%		:2.93%	
: Lanthanum	:40		:50		:40	
: Lead	:18		:118		:26	
: Manganese	:244		:1510		:478	
: Magnesium	:0.17%		:0.96%		:0.37%	
: Mercury	:L		:L		:L	
: Molybdenum	:L		:L		:L	
: Nickel	:11		:56		:20	
: Phosphorus	:250		:790		:L	
: Potassium	:0.12%		:0.21%		:0.18%	
: Selenium	:L		:L		:L	
: Silver	:0.2		:0.2	0.01	:L	
: Sodium	:L		:0.04%		:0.01%	
: Strontium	:12		:78		:17	
: Thallium	:L		:L		:20	
: Tin	:1		:740		:45	
: Titanium	:0.03%		:0.45%		:0.07%	
: Tungsten	:L		:26		:L	
: Uranium	:L		:L		:L	
: Vanadium	:12		:191		:22	
: Zinc	:37		:116		:64	

Map No/Sample No/Yr	:186/236/87	:187/224/87	:188/229/87
Material Type	:Placer	:Placer	:Placer
Rock Type	:Qa	:Qsu	:Qsu
Rock Age	:Quaternary	:Quaternary	:Quaternary
Quad 4 mile/1 mile	:Livengood/B-1	:Livengood/B-1	:Livengood/B-1
Sec/T/R/Mer	:10/6N/2E	:2/5N/2E	:36/6N/2E
Location/Property	:Trail Creek	:Ophir Creek	:Ophir Creek
Map No./KX/MAS	:14/192/	:13/Appendix A	:13/Appendix A
Sample Type	:Placer	:Placer	:Placer
	:	:	:

Element	ICP	Assay	ICP	Assay	Oz/yd^3	ICP	Assay
: Aluminum	:0.71%		:0.41%			:0.74%	
: Antimony	:L		:L			:L	
: Arsenic	:L		:40			:L	
: Barium	:60		:60			:50	
: Beryllium	:L		:L			:L	
: Bismuth	:L		:L			:L	
: Cadmium	:L		:L			:L	
: Calcium	:0.10%		:0.05%			:0.03%	
: Chromium	:314		:261			:92	
: Cobalt	:5		:3			:6	
: Copper	:9		:9			:15	
: Gallium	:L		:L			:L	
: Gold	:	0.062	:	0.006	0.0017	:	0.006
: Iron	:2.49%		:1.78%			:2.39%	
: Lanthanum	:40		:20			:70	
: Lead	:4		:L			:4	
: Manganese	:251		:156			:154	
: Magnesium	:0.25%		:0.07%			:0.27%	
: Mercury	:L		:L			:1	
: Molybdenum	:L		:1			:L	
: Nickel	:16		:9			:12	
: Phosphorus	:330		:210			:290	
: Potassium	:0.11%		:0.12%			:0.16%	
: Selenium	:L		:L			:L	
: Silver	:L		:L			:0.2	
: Sodium	:0.01%		:0.01%			:0.01%	
: Strontium	:13		:11			:12	
: Thallium	:20		:L			:30	
: Tin	:5		:57			:190	
: Titanium	:0.04%		:0.01%			:0.01%	
: Tungsten	:L		:L			:5	
: Uranium	:L		:L			:L	
: Vanadium	:21		:9			:9	
: Zinc	:35		:23			:46	

Map No/Sample No/Yr	:189/264/87	:190/111/87	:191/112/87
Material Type	:Placer	:Placer	:Placer
Rock Type	:Qa	:Qa	:Qa
Rock Age	:Quaternary	:Quaternary	:Quaternary
Quad 4 mile/1 mile	:Livengood/B-1	:Livengood/B-1	:Livengood/B-1
Sec/T/R/Mer	:31/6N/3E	:21/6N/3E	:15/6N/3E
Location/Property	:Ophir Creek	:Ophir Creek	:Ophir Creek
Map No./KX/MAS	:13/Appendix A	:13/Appendix A	:13/Appendix A
Sample Type	:Placer	:Placer	:Placer
	:	:	:

Element	ICP	Assay	ICP	Assay	ICP	Assay
: Aluminum	:0.43%		:0.42%		:0.39%	
: Antimony	:L		:L		:L	
: Arsenic	:10		:L		:L	
: Barium	:60		:60		:40	
: Beryllium	:L		:L		:L	
: Bismuth	:L		:2		:L	
: Cadmium	:L		:L		:L	
: Calcium	:0.05%		:0.06%		:0.04%	
: Chromium	:127		:134		:35	
: Cobalt	:7		:11		:7	
: Copper	:12		:13		:11	
: Gallium	:20		:50		:L	
: Gold	:	0.032:		0.259:		L
: Iron	:2.26%		:2.51%		:1.85%	
: Lanthanum	:190		:430		:20	
: Lead	:L		:26		:12	
: Manganese	:189		:222		:282	
: Magnesium	:0.11%		:0.10%		:0.14%	
: Mercury	:4		:1		:L	
: Molybdenum	:L		:L		:L	
: Nickel	:13		:18		:12	
: Phosphorus	:470		:L		:L	
: Potassium	:0.09%		:0.09%		:0.08%	
: Selenium	:L		:L		:L	
: Silver	:0.2		:0.2		:L	
: Sodium	:0.01%		:0.01%		:L	
: Strontium	:14		:23		:8	
: Thallium	:120		:250		:20	
: Tin	:3		:29		:6	
: Titanium	:0.04%		:0.08%		:L	
: Tungsten	:10		:L		:L	
: Uranium	:L		:L		:L	
: Vanadium	:12		:11		:8	
: Zinc	:32		:34		:33	

Map No/Sample No/Yr	:192/113/87	:193/93/87	:193/235/87
Material Type	:Placer	:Placer	:Placer
Rock Type	:Qa	:Qa	:Qa
Rock Age	:Quaternary	:Quaternary	:Quaternary
Quad 4 mile/1 mile	:Livengood/B-1	:Livengood/B-1	:Livengood/B-1
Sec/T/R/Mer	:11/6N/3E	:12/6N/3E	:11/6N/3E
Location/Property	:Ophir Creek	:Nome Creek	:Nome Creek
Map No./KX/MAS	:13/Appendix A	:11/Appendix A	:11/Appendix A
Sample Type	:Placer	:Placer (contaminated)	:Placer
	:	:	:

Element	ICP	Assay	ICP	Assay	Oz/yd^3	ICP	Assay	Oz/yd^3
: Aluminum	:0.41%		:0.94%			:0.89%		
: Antimony	:L		:2790			:10		
: Arsenic	:L		:5			:15		
: Barium	:50		:40			:40		
: Beryllium	:L		:L			:L		
: Bismuth	:L		:4			:L		
: Cadmium	:L		:0.5			:L		
: Calcium	:0.05%		:0.35%			:0.22%		
: Chromium	:105		:244			:181		
: Cobalt	:5		:10			:8		
: Copper	:8		:6			:17		
: Gallium	:L		:20			:L		
: Gold	:	L	:	0.278	0.0007	:	0.052	0.0011
: Iron	:1.57%		:4.02%			:5.23%		
: Lanthanum	:30		:200			:40		
: Lead	:4		:6			:68		
: Manganese	:185		:698			:697		
: Magnesium	:0.11%		:0.14%			:0.21%		
: Mercury	:L		:L			:L		
: Molybdenum	:L		:L			:L		
: Nickel	:9		:16			:24		
: Phosphorus	:L		:10			:250		
: Potassium	:0.08%		:0.09%			:0.10%		
: Selenium	:L		:40			:L		
: Silver	:L		:7.2			:L		
: Sodium	:0.01%		:0.02%			:0.01%		
: Strontium	:9		:13			:9		
: Thallium	:10		:110			:10		
: Tin	:6		:330			:130		
: Titanium	:0.01%		:0.15%			:0.08%		
: Tungsten	:L		:L			:15		
: Uranium	:L		:L			:L		
: Vanadium	:8		:16			:16		
: Zinc	:29		:1340			:47		

Map No/Sample No/Yr	:194/94/87	:195/78/87	:195/92/87
Material Type	:Placer	:Placer	:Placer
Rock Type	:Qa	:Qa	:Qa
Rock Age	:Quaternary	:Quaternary	:Quaternary
Quad 4 mile/1 mile	:Livengood/B-1	:Livengood/B-1	:Livengood/B-1
Sec/T/R/Mer	:3/6N/3E	:12/6N/3E	:12/6N/3E
Location/Property	:Nome Creek	:Nome Creek	:Nome Creek
Map No./KX/MAS	:11/Appendix A	:11/Appendix A	:11/Appendix A
Sample Type	:Placer	:Placer	:2 pans
	:	:	:

Element	ICP	Assay	Oz/yd^3	ICP	Assay	Oz/yd^3	ICP	Assay
: Aluminum	:1.11%			:0.95%			:0.67%	
: Antimony	:10			:5			:L	
: Arsenic	:10			:15			:L	
: Barium	:40			:40			:40	
: Beryllium	:L			:L			:L	
: Bismuth	:L			:L			:L	
: Cadmium	:L			:L			:L	
: Calcium	:0.41%			:0.28%			:0.01%	
: Chromium	:269			:174			:95	
: Cobalt	:10			:10			:3	
: Copper	:22			:23			:30	
: Gallium	:L			:L			:L	
: Gold	:	L	0.0009:		0.094	0.0003:		L
: Iron	:4.52%			:3.88%			:1.69%	
: Lanthanum	:70			:50			:20	
: Lead	:190			:18			:10	
: Manganese	:880			:711			:107	
: Magnesium	:0.19%			:0.21%			:0.14%	
: Mercury	:L			:1			:L	
: Molybdenum	:L			:L			:L	
: Nickel	:21			:16			:20	
: Phosphorus	:L			:L			:L	
: Potassium	:0.09%			:0.11%			:0.12%	
: Selenium	:L			:10			:L	
: Silver	:L			:L			:L	
: Sodium	:0.01%			:0.01%			:L	
: Strontium	:10			:9			:6	
: Thallium	:30			:30			:L	
: Tin	:170			:150			:61	
: Titanium	:0.13%			:0.09%			:0.02%	
: Tungsten	:L			:L			:L	
: Uranium	:L			:L			:L	
: Vanadium	:16			:14			:4	
: Zinc	:41			:44			:39	

Map No/Sample No/Yr	:196/79/87	:197/77/87	:198/76/87
Material Type	:Placer	:Placer	:Placer
Rock Type	:Qa	:Qa	:Qa
Rock Age	:Quaternary	:Quaternary	:Quaternary
Quad 4 mile/1 mile	:Livengood/B-1	:Livengood/B-1	:Livengood/B-1
Sec/T/R/Mer	:12/6N/3E	:12/6N/3E	:18/6N/4E
Location/Property	:Nome Creek	:Nome Creek	:Nome Creek
Map No./KX/MAS	:11/Appendix A	:11/Appendix A	:11/Appendix A
Sample Type	:Placer	:Placer	:Placer
	:	:	:

Element	ICP	Assay	ICP	Assay	Oz/yd^3	ICP	Assay	Oz/yd^3
: Aluminum	:0.63%		:0.89%			:0.99%		
: Antimony	:5		:5			:L		
: Arsenic	:L		:25			:10		
: Barium	:60		:40			:50		
: Beryllium	:L		:L			:L		
: Bismuth	:L		:L			:L		
: Cadmium	:0.5		:L			:0.5		
: Calcium	:0.06%		:0.22%			:0.23%		
: Chromium	:87		:132			:156		
: Cobalt	:17		:11			:12		
: Copper	:30		:25			:27		
: Gallium	:L		:L			:L		
: Gold	:	0.023	: L	0.0011		: 0.04	0.0005	
: Iron	:6.36%		:4.77%			:3.86%		
: Lanthanum	:20		:30			:30		
: Lead	:28		:34			:20		
: Manganese	:412		:649			:739		
: Magnesium	:0.15%		:0.21%			:0.25%		
: Mercury	:L		:L			:1		
: Molybdenum	:L		:L			:L		
: Nickel	:27		:23			:21		
: Phosphorus	:L		:L			:L		
: Potassium	:0.10%		:0.11%			:0.11%		
: Selenium	:L		:10			:L		
: Silver	:L		:L			:L		
: Sodium	:0.01%		:0.01%			:0.01%		
: Strontium	:7		:9			:11		
: Thallium	:10		:20			:10		
: Tin	:76		:150			:120		
: Titanium	:0.03%		:0.09%			:0.11%		
: Tungsten	:10		:L			:L		
: Uranium	:L		:L			:L		
: Vanadium	:6		:12			:14		
: Zinc	:66		:51			:53		

Map No/Sample No/Yr	:199/69/87	:200/68/87	:201/67/87
Material Type	:Placer	:Placer	:Placer
Rock Type	:Qa	:Qa	:Qa
Rock Age	:Quaternary	:Quaternary	:Quaternary
Quad 4 mile/1 mile	:Circle/B-6	:Circle/B-6	:Circle/B-6
Sec/T/R/Mer	:17/6N/4E	:17/6N/4E	:21/6N/4E
Location/Property	:Nome Creek	:Nome Creek	:Nome Creek
Map No./KX/MAS	:11/Appendix A	:11/Appendix A	:11/Appendix A
Sample Type	:Placer	:Placer	:Placer
	:	:	:

Element	ICP	Assay	Oz/yd^3	ICP	Assay	ICP	Assay	Oz/yd^3
: Aluminum	:0.93%			:1.96%		:1.12%		
: Antimony	:L			:5		:5		
: Arsenic	:L			:20		:20		
: Barium	:40			:40		:60		
: Beryllium	:L			:L		:L		
: Bismuth	:L			:10		:6		
: Cadmium	:L			:L		:L		
: Calcium	:0.22%			:0.85%		:0.18%		
: Chromium	:29			:59		:25		
: Cobalt	:12			:14		:15		
: Copper	:11			:13		:12		
: Gallium	:L			:L		:L		
: Gold	:	0.092	0.0002	:	0.046	:	0.024	0.0001
: Iron	:4.83%			:8.03%		:4.38%		
: Lanthanum	:40			:50		:30		
: Lead	:8			:L		:8		
: Manganese	:820			:1780		:797		
: Magnesium	:0.23%			:0.21%		:0.29%		
: Mercury	:L			:L		:L		
: Molybdenum	:L			:L		:L		
: Nickel	:26			:29		:27		
: Phosphorus	:240			:260		:250		
: Potassium	:0.10%			:0.08%		:0.16%		
: Selenium	:10			:L		:20		
: Silver	:0.2	0.05		:0.2	0.01	:0.2	0.08	
: Sodium	:0.01%			:0.01%		:0.02%		
: Strontium	:9			:9		:12		
: Thallium	:L			:L		:L		
: Tin	:620			:12		:140		
: Titanium	:0.17%			:0.09%		:0.15%		
: Tungsten	:22			:3		:7		
: Uranium	:L			:L		:L		
: Vanadium	:21			:30		:18		
: Zinc	:45			:30		:56		

Map No/Sample No/Yr	:202/60/87		:203/59/87		:204/58/87	
Material Type	:Placer		:Placer		:Placer	
Rock Type	:Qa		:Qa		:Qac	
Rock Age	:Quaternary		:Quaternary		:Quaternary	
Quad 4 mile/1 mile	:Circle/B-6		:Circle/B-6		:Circle/B-6	
Sec/T/R/Mer	:21/6N/4E		:22/6N/4E		:22/6N/4E	
Location/Property	:Nome Creek		:Nome Creek		:Nome Creek Trib.	
Map No./KX/MAS	:11/Appendix A		:11/Appendix A		:11/Appendix A	
Sample Type	:Placer		:Placer		:Placer	
	:		:		:	
Element	ICP	Assay	ICP	Assay	ICP	Assay
: Aluminum	:1.04%		:0.56%		:0.61%	
: Antimony	:L		:L		:L	
: Arsenic	:10		:L		:5	
: Barium	:60		:70		:70	
: Beryllium	:1		:L		:0.5	
: Bismuth	:L		:L		:L	
: Cadmium	:L		:L		:L	
: Calcium	:0.22%		:0.06%		:0.06%	
: Chromium	:28		:18		:18	
: Cobalt	:17		:5		:7	
: Copper	:20		:7		:9	
: Gallium	:L		:L		:L	
: Gold	:	0.104	:	0.072	:	0.01
: Iron	:5.12%		:1.74%		:2.44%	
: Lanthanum	:20		:30		:40	
: Lead	:12		:12		:10	
: Manganese	:933		:178		:237	
: Magnesium	:0.29%		:0.14%		:0.10%	
: Mercury	:L		:L		:L	
: Molybdenum	:L		:L		:L	
: Nickel	:27		:13		:15	
: Phosphorus	:320		:240		:260	
: Potassium	:0.13%		:0.10%		:0.13%	
: Selenium	:L		:L		:L	
: Silver	:0.2	0.02	:0.2	0.01	:0.2	0.03
: Sodium	:0.01%		:0.01%		:0.02%	
: Strontium	:10		:10		:12	
: Thallium	:10		:10		:10	
: Tin	:160		:31		:23	
: Titanium	:0.09%		:0.02%		:0.02%	
: Tungsten	:8		:1		:1	
: Uranium	:L		:L		:L	
: Vanadium	:15		:9		:9	
: Zinc	:60		:26		:31	

Map No/Sample No/Yr	:205/57/87	:206/56/87	:207/55/87
Material Type	:Placer	:Placer	:Placer
Rock Type	:Qa	:Qa	:Qa
Rock Age	:Quaternary	:Quaternary	:Quaternary
Quad 4 mile/1 mile	:Circle/B-6	:Circle/B-6	:Circle/B-6
Sec/T/R/Mer	:23/6N/4E	:23/6N/4E	:24/6N/4E
Location/Property	:Nome Creek	:Nome Creek	:Nome Creek
Map No./KX/MAS	:II/Appendix A	:II/Appendix A	:II/Appendix A
Sample Type	:Placer	:Placer	:Placer
	:	:	:

Element	ICP	Assay	Oz/yd^3	ICP	Assay	ICP	Assay	Oz/yd^3
: Aluminum	:1.3%			:1.07%		:1.26%		
: Antimony	:L			:5		:5		
: Arsenic	:15			:10		:15		
: Barium	:60			:60		:80		
: Beryllium	:1			:0.5		:1		
: Bismuth	:L			:L		:L		
: Cadmium	:L			:L		:L		
: Calcium	:0.42%			:0.16%		:0.30%		
: Chromium	:38			:22		:33		
: Cobalt	:16			:12		:14		
: Copper	:18			:14		:17		
: Gallium	:L			:L		:L		
: Gold	:	0.122	0.003	:	0.09	:	0.048	0.0007
: Iron	:7.44%			:3.69%		:5.58%		
: Lanthanum	:20			:20		:20		
: Lead	:4			:6		:12		
: Manganese	:1195			:622		:923		
: Magnesium	:0.27%			:0.29%		:0.29%		
: Mercury	:L			:1		:L		
: Molybdenum	:L			:L		:L		
: Nickel	:28			:21		:25		
: Phosphorus	:300			:260		:270		
: Potassium	:0.14%			:0.18%		:0.19%		
: Selenium	:L			:L		:L		
: Silver	:1	0.04		:0.2	0.01	:0.4	0.05	
: Sodium	:0.02%			:0.02%		:0.02%		
: Strontium	:11			:11		:11		
: Thallium	:L			:10		:L		
: Tin	:780			:120		:420		
: Titanium	:0.22%			:0.10%		:0.17%		
: Tungsten	:20			:60		:21		
: Uranium	:L			:L		:L		
: Vanadium	:27			:12		:18		
: Zinc	:53			:48		:58		

Map No/Sample No/Yr	:208/52/87		:209/51/87		:210/50/87	
Material Type	:Placer		:Placer		:Placer	
Rock Type	:Qac		:Qac		:Meta	
Rock Age	:Quaternary		:Quaternary		:PzPcam	
Quad 4 mile/1 mile	:Circle/B-6		:Circle/B-6		:Circle/B-6	
Sec/T/R/Mer	:18/6N/5E		:8/6N/5E		:9/6N/5E	
Location/Property	:Moose Creek		:Moose Creek		:Moose Creek	
Map No./KX/MAS	:10/Appendix A		:10/Appendix A		:10/Appendix A	
Sample Type	:Placer		:Placer		:Placer	
	:		:		:	
Element	ICP	Assay	ICP	Assay	ICP	Assay
: Aluminum	:1.06%		:1.07%		:1.12%	
: Antimony	:L		:L		:L	
: Arsenic	:30		:20		:5	
: Barium	:100		:110		:100	
: Beryllium	:L		:1		:1	
: Bismuth	:L		:L		:L	
: Cadmium	:L		:L		:L	
: Calcium	:0.07%		:0.07%		:0.09%	
: Chromium	:137		:20		:17	
: Cobalt	:17		:16		:13	
: Copper	:29		:11		:9	
: Gallium	:L		:L		:L	
: Gold	:	L	:	0.486	:	0.332
: Iron	:2.84%		:2.93%		:3.06%	
: Lanthanum	:20		:20		:20	
: Lead	:4		:8		:L	
: Manganese	:1175		:1050		:625	
: Magnesium	:0.31%		:0.31%		:0.33%	
: Mercury	:L		:L		:2	
: Molybdenum	:L		:L		:L	
: Nickel	:24		:25		:21	
: Phosphorus	:L		:270		:250	
: Potassium	:0.17%		:0.16%		:0.15%	
: Selenium	:L		:L		:20	
: Silver	:L		:0.8	0.05	:12	0.05
: Sodium	:0.01%		:0.01%		:0.01%	
: Strontium	:12		:12		:14	
: Thallium	:L		:L		:L	
: Tin	:7		:18		:52	
: Titanium	:0.01%		:0.02%		:0.06%	
: Tungsten	:L		:2		:6	
: Uranium	:L		:L		:L	
: Vanadium	:13		:13		:17	
: Zinc	:63		:62		:60	

Map No/Sample No/Yr	:211/220/87	:212/221/87	:213/218/87
Material Type	:Placer	:Placer	:Placer
Rock Type	:Qa	:Qa	:Qa
Rock Age	:Quaternary	:Quaternary	:Quaternary
Quad 4 mile/1 mile	:Circle/B-6	:Circle/B-6	:Circle/B-6
Sec/T/R/Mer	:20/6N/5E	:20/6N/5E	:20/6N/5E
Location/Property	:Nome Creek	:Nome Creek	:Nome Creek
Map No./KX/MAS	:11/Appendix A	:11/Appendix A	:11/Appendix A
Sample Type	:Backhoe Placer	:Backhoe Placer	:Backhoe Placer
	:	:	:

Element	ICP Assay	Oz/yd^3	ICP Assay	Oz/yd^3	ICP Assay	Oz/yd^3
: Aluminum	:1.06%		:0.95%		:1.04%	
: Antimony	:L		:5		:L	
: Arsenic	:10		:15		:L	
: Barium	:60		:50		:60	
: Beryllium	:L		:L		:L	
: Bismuth	:L		:L		:L	
: Cadmium	:0.5		:L		:L	
: Calcium	:0.09%		:0.10%		:0.11%	
: Chromium	:261		:95		:272	
: Cobalt	:8		:8		:8	
: Copper	:16		:21		:16	
: Gallium	:L		:L		:L	
: Gold	: 0.004	0.0017	: 0.002	0.0048	: 0.018	0.0013
: Iron	:3.78%		:3.04%		:3.97%	
: Lanthanum	:20		:20		:30	
: Lead	:4		:10		:6	
: Manganese	:510		:514		:629	
: Magnesium	:0.34%		:0.34%		:0.32%	
: Mercury	:L		:L		:1	
: Molybdenum	:L		:L		:L	
: Nickel	:27		:20		:24	
: Phosphorus	:260		:310		:240	
: Potassium	:0.20%		:0.15%		:0.19%	
: Selenium	:L		:L		:L	
: Silver	:L		:L		:L	
: Sodium	:0.02%		:0.01%		:0.02%	
: Strontium	:11		:11		:13	
: Thallium	:L		:L		:L	
: Tin	:430		:370		:G	
: Titanium	:0.14%		:0.10%		:0.19%	
: Tungsten	:10		:10		:20	
: Uranium	:L		:L		:L	
: Vanadium	:16		:12		:19	
: Zinc	:53		:48		:54	

Map No/Sample No/Yr	:214/219/87	:215/216/87	:216/217/87
Material Type	:Placer	:Placer	:Placer
Rock Type	:Qa	:Qa	:Qa
Rock Age	:Quaternary	:Quaternary	:Quaternary
Quad 4 mile/1 mile	:Circle/B-6	:Circle/B-6	:Circle/B-6
Sec/T/R/Mer	:20/6N/5E	:21/6N/5E	:21/6N/5E
Location/Property	:Nome Creek	:Nome Creek	:Nome Creek
Map No./KX/MAS	:11/Appendix A	:11/Appendix A	:11/Appendix A
Sample Type	:Backhoe Placer	:Backhoe Placer	:Backhoe Placer
	:	:	:

Element	ICP	Assay	Oz/yd^3	ICP	Assay	Oz/yd^3	ICP	Assay	Oz/yd^3
: Aluminum	:0.96%			:0.94%			:0.67%		
: Antimony	:5			:5			:L		
: Arsenic	:5			:15			:L		
: Barium	:80			:70			:50		
: Beryllium	:L			:L			:L		
: Bismuth	:L			:L			:L		
: Cadmium	:L			:L			:L		
: Calcium	:0.10%			:0.32%			:0.07%		
: Chromium	:145			:107			:153		
: Cobalt	:13			:20			:2		
: Copper	:28			:38			:8		
: Gallium	:L			:L			:L		
: Gold	:	0.084	0.0066	:	0.08	0.0012	:	0.01	0.0014
: Iron	:4.18%			:5.91%			:1.44%		
: Lanthanum	:30			:20			:10		
: Lead	:6			:L			:L		
: Manganese	:524			:942			:268		
: Magnesium	:0.29%			:0.50%			:0.22%		
: Mercury	:L			:L			:1		
: Molybdenum	:L			:L			:L		
: Nickel	:30			:52			:11		
: Phosphorus	:260			:280			:170		
: Potassium	:0.22%			:0.20%			:0.12%		
: Selenium	:L			:L			:L		
: Silver	:L			:L			:L		
: Sodium	:0.02%			:0.01%			:0.01%		
: Strontium	:15			:22			:10		
: Thallium	:L			:L			:L		
: Tin	:880			:G			:320		
: Titanium	:0.15%			:0.20%			:0.11%		
: Tungsten	:20			:25			:10		
: Uranium	:L			:L			:L		
: Vanadium	:15			:17			:8		
: Zinc	:53			:71			:27		

Map No/Sample No/Yr	:217/213/87	:217/214/87	:217/215/87
Material Type	:Placer	:Quartzite	:Clay
Rock Type	:Qa	:Meta	:Qa
Rock Age	:Quaternary	:PzPcam	:Quaternary
Quad 4 mile/1 mile	:Circle/B-6	:Circle/B-6	:Circle/B-6
Sec/T/R/Mer	:21/6N/5E	:21/6N/5E	:21/6N/5E
Location/Property	:Nome Creek	:Nome Creek	:Nome Creek
Map No./KX/MAS	:11/Appendix A	:11/Appendix A	:11/Appendix A
Sample Type	:Backhoe Placer	:Grab	:Grab
	:	:	:

Element	ICP	Assay	Oz/yd^3	ICP	Assay	ICP	Assay
: Aluminum	:0.75%			:0.46%		:0.75%	
: Antimony	:15			:5		:20	
: Arsenic	:215			:10		:15	
: Barium	:40			:30		:50	
: Beryllium	:L			:L		:L	
: Bismuth	:L			:L		:L	
: Cadmium	:L			:L		:0.5	
: Calcium	:0.09%			:0.05%		:0.16%	
: Chromium	:98			:224		:83	
: Cobalt	:18			:6		:21	
: Copper	:54			:25		:37	
: Gallium	:L			:L		:L	
: Gold	:	0.014	0.0016	:	L	:	L
: Iron	:5.66%			:2.58%		:3.57%	
: Lanthanum	:10			:10		:20	
: Lead	:18			:4		:4	
: Manganese	:538			:598		:1690	
: Magnesium	:0.38%			:0.29%		:0.25%	
: Mercury	:L			:L		:1	
: Molybdenum	:L			:L		:L	
: Nickel	:38			:18		:38	
: Phosphorus	:230			:100		:250	
: Potassium	:0.15%			:0.14%		:0.19%	
: Selenium	:L			:L		:L	
: Silver	:L			:L		:L	
: Sodium	:0.01%			:0.01%		:L	
: Strontium	:11			:8		:32	
: Thallium	:L			:L		:L	
: Tin	:410			:6		:3	
: Titanium	:0.05%			:L		:L	
: Tungsten	:25			:5		:5	
: Uranium	:L			:L		:L	
: Vanadium	:13			:6		:10	
: Zinc	:93			:39		:71	

Map No/Sample No/Yr	:217/222/87	:218/212/87	:219/75/87
Material Type	:Placer	:Placer	:Placer
Rock Type	:Qa	:Qa	:Qa
Rock Age	:Quaternary	:Quaternary	:Quaternary
Quad 4 mile/1 mile	:Circle/B-6	:Circle/B-6	:Circle/B-6
Sec/T/R/Mer	:21/6N/5E	:15/6N/5E	:15/6N/5E
Location/Property	:Nome Creek	:Nome Creek	:Nome Creek
Map No./KX/MAS	:11/Appendix A	:11/Appendix A	:11/Appendix A
Sample Type	:1 pan	:Backhoe Placer	:Placer
	:	:	:

Element	ICP	Assay	ICP	Assay	Oz/yd^3	ICP	Assay	Oz/yd^3
: Aluminum	:1.07%		:0.91%			:1.36%		
: Antimony	:20		:20			:L		
: Arsenic	:105		:250			:L		
: Barium	:90		:60			:80		
: Beryllium	:L		:L			:L		
: Bismuth	:L		:L			:2		
: Cadmium	:L		:L			:L		
: Calcium	:0.11%		:0.13%			:0.09%		
: Chromium	:352		:203			:21		
: Cobalt	:19		:65			:12		
: Copper	:79		:149			:11		
: Gallium	:L		:L			:L		
: Gold	:	0.032	:	0.02	0.0013	:	0.024	0.005
: Iron	:5.09%		:8.53%			:3.96%		
: Lanthanum	:20		:20			:20		
: Lead	:36		:44			:494		
: Manganese	:656		:494			:578		
: Magnesium	:0.38%		:0.34%			:0.39%		
: Mercury	:L		:1			:L		
: Molybdenum	:L		:L			:1		
: Nickel	:54		:130			:22		
: Phosphorus	:220		:370			:180		
: Potassium	:0.28%		:0.19%			:0.28%		
: Selenium	:L		:L			:10		
: Silver	:L		:L			:0.2	0.01	
: Sodium	:0.03%		:0.02%			:0.04%		
: Strontium	:20		:13			:13		
: Thallium	:L		:L			:L		
: Tin	:16		:G			:370		
: Titanium	:0.02%		:0.19%			:0.18%		
: Tungsten	:10		:40			:16		
: Uranium	:L		:L			:L		
: Vanadium	:13		:18			:18		
: Zinc	:182		:80			:56		

Map No/Sample No/Yr	:220/71/87	:220/73/87	:221/72/87
Material Type	:Placer	:Placer	:Placer (tailings)
Rock Type	:Qa	:Qa	:Qa
Rock Age	:Quaternary	:Quaternary	:Quaternary
Quad 4 mile/1 mile	:Circle/B-6	:Circle/B-6	:Circle/B-6
Sec/T/R/Mer	:15/6N/5E	:15/6N/5E	:15/6N/5E
Location/Property	:Nome Creek	:Nome Creek	:Nome Creek
Map No./KX/MAS	:11/Appendix A	:11/Appendix A	:11/Appendix A
Sample Type	:Placer	:Placer	:Placer
	:	:	:

Element	ICP	Assay	Oz/yd^3	ICP	Assay	ICP	Assay
: Aluminum	:1.01%			:2.61%		:2.56%	
: Antimony	:L			:L		:5	
: Arsenic	:L			:L		:10	
: Barium	:50			:70		:60	
: Beryllium	:L			:L		:L	
: Bismuth	:L			:6		:2	
: Cadmium	:0.5			:L		:L	
: Calcium	:0.15%			:0.10%		:0.13%	
: Chromium	:24			:32		:35	
: Cobalt	:11			:16		:16	
: Copper	:11			:21		:25	
: Gallium	:L			:L		:L	
: Gold	:	0.02	0.0005:		0.004:		0.006
: Iron	:4.36%			:3.99%		:4.45%	
: Lanthanum	:30			:40		:40	
: Lead	:4			:28		:676	
: Manganese	:555			:577		:578	
: Magnesium	:0.36%			:0.84%		:0.91%	
: Mercury	:L			:L		:L	
: Molybdenum	:L			:L		:L	
: Nickel	:21			:36		:32	
: Phosphorus	:240			:350		:350	
: Potassium	:0.15%			:0.25%		:0.18%	
: Selenium	:L			:L		:L	
: Silver	:0.2	0.10		:0.2	0.01:	0.2	0.01
: Sodium	:0.01%			:0.09%		:0.06%	
: Strontium	:10			:21		:19	
: Thallium	:L			:L		:L	
: Tin	:900			:7		:13	
: Titanium	:0.20%			:0.03%		:0.03%	
: Tungsten	:26			:1		:1	
: Uranium	:L			:L		:L	
: Vanadium	:18			:18		:18	
: Zinc	:69			:83		:90	

Map No/Sample No/Yr	:221/74/87	:222/200/87	:223/211/87
Material Type	:Placer (tailings)	:Placer	:Placer
Rock Type	:Qa	:Qa	:Qa
Rock Age	:Quaternary	:Quaternary	:Quaternary
Quad 4 mile/1 mile	:Circle/B-6	:Circle/B-6	:Circle/B-6
Sec/T/R/Mer	:15/6N/5E	:15/6N/5E	:15/6N/5E
Location/Property	:Nome Creek	:Nome Creek	:Nome Creek
Map No./KX/MAS	:11/Appendix A	:11/Appendix A	:11/Appendix A
Sample Type	:Placer	:Backhoe Placer	:Backhoe Placer
	:Insufficient material	:	:
	:for complete analysis	:	:

Element	ICP	Assay	ICP	Assay	Oz/yd^3	ICP	Assay	Oz/yd^3
: Aluminum	:		:0.69%			:0.85%		
: Antimony	:		:L			:10		
: Arsenic	:		:L			:5		
: Barium	:		:40			:50		
: Beryllium	:		:0.5			:L		
: Bismuth	:		:L			:L		
: Cadmium	:		:L			:L		
: Calcium	:		:0.07%			:0.09%		
: Chromium	:		:201			:121		
: Cobalt	:		:5			:12		
: Copper	:		:8			:25		
: Gallium	:		:L			:L		
: Gold	:	0.574	:	0.032	0.0043	:	0.016	0.0006
: Iron	:		:1.64%			:5.85%		
: Lanthanum	:		:20			:30		
: Lead	:		:10			:8		
: Manganese	:		:255			:410		
: Magnesium	:		:0.24%			:0.28%		
: Mercury	:		:L			:L		
: Molybdenum	:		:L			:L		
: Nickel	:		:7			:29		
: Phosphorus	:		:110			:330		
: Potassium	:		:0.15%			:0.16%		
: Selenium	:		:L			:L		
: Silver	:	0.09	:0.2			:L		
: Sodium	:		:0.02%			:0.01%		
: Strontium	:		:7			:12		
: Thallium	:		:L			:L		
: Tin	:5		:1000			:G		
: Titanium	:		:0.18%			:0.14%		
: Tungsten	:3		:10			:40		
: Uranium	:		:L			:L		
: Vanadium	:		:9			:23		
: Zinc	:		:32			:57		

Map No/Sample No/Yr	:224/46/87		:224/47/87		:224/48/87	
Material Type	:Placer		:Placer		:Placer	
Rock Type	:Qa		:Qa		:Qa	
Rock Age	:Quaternary		:Quaternary		:Quaternary	
Quad 4 mile/1 mile	:Circle/B-6		:Circle/B-6		:Circle/B-6	
Sec/T/R/Mer	:15/6N/5E		:15/6N/5E		:15/6N/5E	
Location/Property	:Nome Creek		:Nome Creek		:Nome Creek	
Map No./KX/MAS	:11/Appendix A		:11/Appendix A		:11/Appendix A	
Sample Type	:Placer		:Placer		:Placer	
	:		:		:	
Element	ICP	Assay	ICP	Assay	ICP	Assay
: Aluminum	:0.94%		:0.95%		:0.78%	
: Antimony	:L		:L		:L	
: Arsenic	:L		:L		:L	
: Barium	:110		:60		:50	
: Beryllium	:1.5		:1		:1	
: Bismuth	:4		:2		:2	
: Cadmium	:L		:0.5		:L	
: Calcium	:0.14%		:0.13%		:0.14%	
: Chromium	:17		:16		:14	
: Cobalt	:13		:10		:8	
: Copper	:13		:12		:10	
: Gallium	:L		:L		:L	
: Gold	:	6.74	:	8.32	:	3.504
: Iron	:5.59%		:4.57%		:3.75%	
: Lanthanum	:30		:30		:30	
: Lead	:14		:16		:8	
: Manganese	:931		:550		:510	
: Magnesium	:0.30%		:0.33%		:0.27%	
: Mercury	:L		:L		:L	
: Molybdenum	:L		:L		:L	
: Nickel	:25		:20		:16	
: Phosphorus	:250		:220		:230	
: Potassium	:0.16%		:0.15%		:0.12%	
: Selenium	:L		:L		:L	
: Silver	:16.4	0.26	:26.4	0.49	:12	0.28
: Sodium	:0.02%		:0.01%		:0.01%	
: Strontium	:13		:10		:9	
: Thallium	:L		:L		:L	
: Tin	:0.22%		:0.18%		:0.18%	
: Titanium	:0.22%		:0.21%		:0.24%	
: Tungsten	:35		:60		:55	
: Uranium	:L		:L		:L	
: Vanadium	:25		:18		:14	
: Zinc	:58		:55		:45	

Map No/Sample No/Yr	:225/49/87	:226/149/87	:226/197/87
Material Type	:Placer	:Placer	:Placer
Rock Type	:Qa	:Qa	:Qa
Rock Age	:Quaternary	:Quaternary	:Quaternary
Quad 4 mile/1 mile	:Circle/B-6	:Circle/B-6	:Circle/B-6
Sec/T/R/Mer	:15/6N/5E	:14/6N/5E	:14/6N/5E
Location/Property	:Nome Creek	:Nome Creek	:Nome Creek
Map No./KX/MAS	:11/Appendix A	:11/Appendix A	:11/Appendix A
Sample Type	:Placer	:Placer	:Backhoe Placer
	:	:	:

Element	ICP	Assay	ICP	Assay	Oz/yd^3	ICP	Assay	Oz/yd^3
: Aluminum	:0.95%		:0.85%			:0.86%		
: Antimony	:L		:5			:10		
: Arsenic	:L		:10			:45		
: Barium	:60		:50			:70		
: Beryllium	:1		:L			:2		
: Bismuth	:6		:L			:L		
: Cadmium	:L		:0.5			:0.5		
: Calcium	:0.13%		:0.14%			:0.15%		
: Chromium	:17		:112			:118		
: Cobalt	:11		:17			:21		
: Copper	:12		:29			:39		
: Gallium	:L		:L			:L		
: Gold	:	7.98	:	0.031	0.0043	:	0.623	0.0218
: Iron	:4.23%		:9.01%			:11.5%		
: Lanthanum	:30		:40			:50		
: Lead	:8		:18			:32		
: Manganese	:530		:585			:943		
: Magnesium	:0.33%		:0.29%			:0.26%		
: Mercury	:L		:L			:L		
: Molybdenum	:L		:L			:L		
: Nickel	:22		:26			:40		
: Phosphorus	:260		:280			:480		
: Potassium	:0.15%		:0.15%			:0.18%		
: Selenium	:20		:L			:L		
: Silver	:23	0.48	:0.2			:0.8		
: Sodium	:0.01%		:0.01%			:0.01%		
: Strontium	:11		:11			:16		
: Thallium	:L		:L			:L		
: Tin	:0.16%		:G			:G		
: Titanium	:0.17%		:0.24%			:0.16%		
: Tungsten	:32		:20			:20		
: Uranium	:L		:L			:L		
: Vanadium	:18		:25			:40		
: Zinc	:55		:80			:64		

Map No/Sample No/Yr	:227/196/87	:228/199/87	:229/198/87
Material Type	:Placer	:Placer	:Placer
Rock Type	:Qa	:Qa	:Qa
Rock Age	:Quaternary	:Quaternary	:Quaternary
Quad 4 mile/1 mile	:Circle/B-6	:Circle/B-6	:Circle/B-6
Sec/T/R/Mer	:14/6N/5E	:14/6N/5E	:14/6N/5E
Location/Property	:Nome Creek	:Nome Creek	:Nome Creek
Map No./KX/MAS	:11/Appendix A	:11/Appendix A	:11/Appendix A
Sample Type	:Backhoe Placer	:Backhoe Placer	:Backhoe Placer
	:	:	:

Element	ICP Assay	Oz/yd^3	ICP Assay	Oz/yd^3	ICP Assay	Oz/yd^3
: Aluminum	:0.63%		:0.94%		:0.79%	
: Antimony	:10		:L		:10	
: Arsenic	:400		:15		:35	
: Barium	:30		:60		:60	
: Beryllium	:1.5		:0.5		:1.5	
: Bismuth	:L		:L		:L	
: Cadmium	:L		:L		:1	
: Calcium	:0.30%		:0.10%		:0.14%	
: Chromium	:83		:164		:110	
: Cobalt	:249		:12		:16	
: Copper	:124		:20		:37	
: Gallium	:L		:L		:L	
: Gold	: 0.01	0.0028	: 0.075	0.0018	: 0.049	0.0083
: Iron	:G		:3.39%		:10.85%	
: Lanthanum	:10		:20		:50	
: Lead	:262		:20		:18	
: Manganese	:1555		:295		:881	
: Magnesium	:1.55%		:0.31%		:0.24%	
: Mercury	:L		:L		:L	
: Molybdenum	:L		:L		:L	
: Nickel	:230		:23		:38	
: Phosphorus	:730		:230		:450	
: Potassium	:0.16%		:0.21%		:0.16%	
: Selenium	:L		:L		:L	
: Silver	:1		:0.6		:1.2	
: Sodium	:0.01%		:0.02%		:0.01%	
: Strontium	:23		:9		:15	
: Thallium	:L		:L		:L	
: Tin	:830		:G		:G	
: Titanium	:0.06%		:0.12%		:0.15%	
: Tungsten	:L		:45		:25	
: Uranium	:L		:L		:L	
: Vanadium	:12		:13		:38	
: Zinc	:144		:57		:62	

Map No/Sample No/Yr	:230/204/87	:231/205/87	:232/203/87
Material Type	:Placer	:Placer	:Placer
Rock Type	:Qa	:Qa	:Qa
Rock Age	:Quaternary	:Quaternary	:Quaternary
Quad 4 mile/1 mile	:Circle/B-6	:Circle/B-6	:Circle/B-6
Sec/T/R/Mer	:14/6N/5E	:14/6N/5E	:
Location/Property	:Nome Creek	:Nome Creek	:Nome Creek
Map No./KX/MAS	:11/Appendix A	:11/Appendix A	:11/Appendix A
Sample Type	:Backhoe Placer	:Backhoe Placer	:Backhoe Placer
	:	:	:

Element	ICP	Assay	Oz/yd^3	ICP	Assay	Oz/yd^3	ICP	Assay	Oz/yd^3
: Aluminum	:0.73%			:1.16%			:1.00%		
: Antimony	:85			:L			:L		
: Arsenic	:7070			:345			:10		
: Barium	:40			:80			:60		
: Beryllium	:1.5			:1			:1		
: Bismuth	:L			:L			:L		
: Cadmium	:L			:L			:L		
: Calcium	:0.16%			:0.17%			:0.09%		
: Chromium	:51			:194			:84		
: Cobalt	:20			:10			:10		
: Copper	:35			:18			:15		
: Gallium	:L			:L			:L		
: Gold	:	0.094	0.0019	:	0.026	0.0010	:	0.032	0.0078
: Iron	:6.51%			:4.59%			:3.11%		
: Lanthanum	:10			:40			:20		
: Lead	:22			:12			:10		
: Manganese	:217			:670			:686		
: Magnesium	:0.27%			:0.34%			:0.37%		
: Mercury	:L			:L			:L		
: Molybdenum	:L			:L			:L		
: Nickel	:41			:19			:19		
: Phosphorus	:260			:270			:210		
: Potassium	:0.17%			:0.29%			:0.20%		
: Selenium	:L			:L			:L		
: Silver	:0.2			:0.2			:0.4		
: Sodium	:0.01%			:0.02%			:0.02%		
: Strontium	:18			:14			:9		
: Thallium	:L			:L			:L		
: Tin	:600			:G			:G		
: Titanium	:0.02%			:0.23%			:0.13%		
: Tungsten	:L			:35			:15		
: Uranium	:L			:L			:L		
: Vanadium	:8			:19			:13		
: Zinc	:74			:58			:56		

Map No/Sample No/Yr	:233/194/87	:234/202/87	:235/3/87
Material Type	:Placer	:Placer	:Placer
Rock Type	:Qa	:Qa	:Qa
Rock Age	:Quaternary	:Quaternary	:Quaternary
Quad 4 mile/1 mile	:Circle/B-6	:Circle/B-6	:Circle/B-6
Sec/T/R/Mer	:13/6N/5E	:13/6N/5E	:12/6N/5E
Location/Property	:Nome Creek	:Nome Creek	:Nome Creek
Map No./KX/MAS	:11/Appendix A	:11/Appendix A	:11/Appendix A
Sample Type	:Backhoe Placer	:Backhoe Placer	:Backhoe Placer
	:	:	:

Element	ICP	Assay	Oz/yd^3	ICP	Assay	Oz/yd^3	ICP	Assay
: Aluminum	:1.01%			:1.02%			:1.57%	
: Antimony	:L			:5			:5	
: Arsenic	:45			:10			:40	
: Barium	:60			:60			:80	
: Beryllium	:1.5			:1			:2	
: Bismuth	:L			:L			:6	
: Cadmium	:L			:0.5			:L	
: Calcium	:0.13%			:0.11%			:0.13%	
: Chromium	:216			:173			:25	
: Cobalt	:24			:11			:25	
: Copper	:20			:26			:46	
: Gallium	:L			:L			:L	
: Gold	:	0.054	0.0318	:	0.024	0.0153	:	0.05
: Iron	:4.63%			:4.23%			:6.72%	
: Lanthanum	:20			:30			:40	
: Lead	:22			:22			:42	
: Manganese	:999			:464			:379	
: Magnesium	:0.37%			:0.35%			:0.54%	
: Mercury	:L			:L			:L	
: Molybdenum	:L			:L			:4	
: Nickel	:36			:23			:68	
: Phosphorus	:240			:340			:240	
: Potassium	:0.20%			:0.22%			:0.36%	
: Selenium	:L			:L			:10	
: Silver	:0.2			:0.2			:0.4	0.05
: Sodium	:0.02%			:0.01%			:0.02%	
: Strontium	:11			:11			:14	
: Thallium	:L			:L			:L	
: Tin	:1000			:G			:0.59%	
: Titanium	:0.14%			:0.12%			:0.14%	
: Tungsten	:5			:25			:60	
: Uranium	:L			:L			:L	
: Vanadium	:16			:15			:24	
: Zinc	:62			:59			:75	

Map No/Sample No/Yr	:235/14/87	:235/15/87	:236/2/87
Material Type	:Placer	:Placer	:Placer
Rock Type	:Qa	:Qa	:Qa
Rock Age	:Quaternary	:Quaternary	:Quaternary
Quad 4 mile/1 mile	:Circle/B-6	:Circle/B-6	:Circle/B-6
Sec/T/R/Mer	:12/6N/5E	:12/6N/5E	:7/6N/6E
Location/Property	:Nome Creek	:Nome Creek	:Nome Creek
Map No./KX/MAS	:11/Appendix A	:11/Appendix A	:11/Appendix A
Sample Type	:Placer	:Placer	:Placer
	:	:	:

Element	ICP	Assay	ICP	Assay	ICP	Assay	Oz/yd^3
: Aluminum	:1.93%		:2.45%		:1.37%		
: Antimony	:L		:L		:5		
: Arsenic	:10		:35		:5		
: Barium	:220		:100		:90		
: Beryllium	:2.5		:2.5		:1.5		
: Bismuth	:2		:L		:2		
: Cadmium	:L		:L		:L		
: Calcium	:0.21%		:0.08%		:0.13%		
: Chromium	:34		:25		:42		
: Cobalt	:10		:48		:12		
: Copper	:21		:57		:28		
: Gallium	:L		:L		:L		
: Gold	:	0.05	:	0.066	:	0.092	0.0066
: Iron	:4.75%		:7.32%		:5.11%		
: Lanthanum	:50		:30		:50		
: Lead	:4		:50		:20		
: Manganese	:587		:364		:619		
: Magnesium	:0.46%		:0.46%		:0.42%		
: Mercury	:L		:L		:L		
: Molybdenum	:1		:L		:L		
: Nickel	:23		:79		:30		
: Phosphorus	:270		:230		:230		
: Potassium	:0.59%		:0.71%		:0.35%		
: Selenium	:10		:L		:L		
: Silver	:1	0.07	:2	0.09	:1.2	0.09	
: Sodium	:0.05%		:0.05%		:0.02%		
: Strontium	:21		:25		:14		
: Thallium	:L		:L		:L		
: Tin	:0.19%		:320		:1.19%		
: Titanium	:0.28%		:0.08%		:0.22%		
: Tungsten	:70		:14		:125		
: Uranium	:L		:L		:L		
: Vanadium	:45		:24		:28		
: Zinc	:70		:72		:62		