

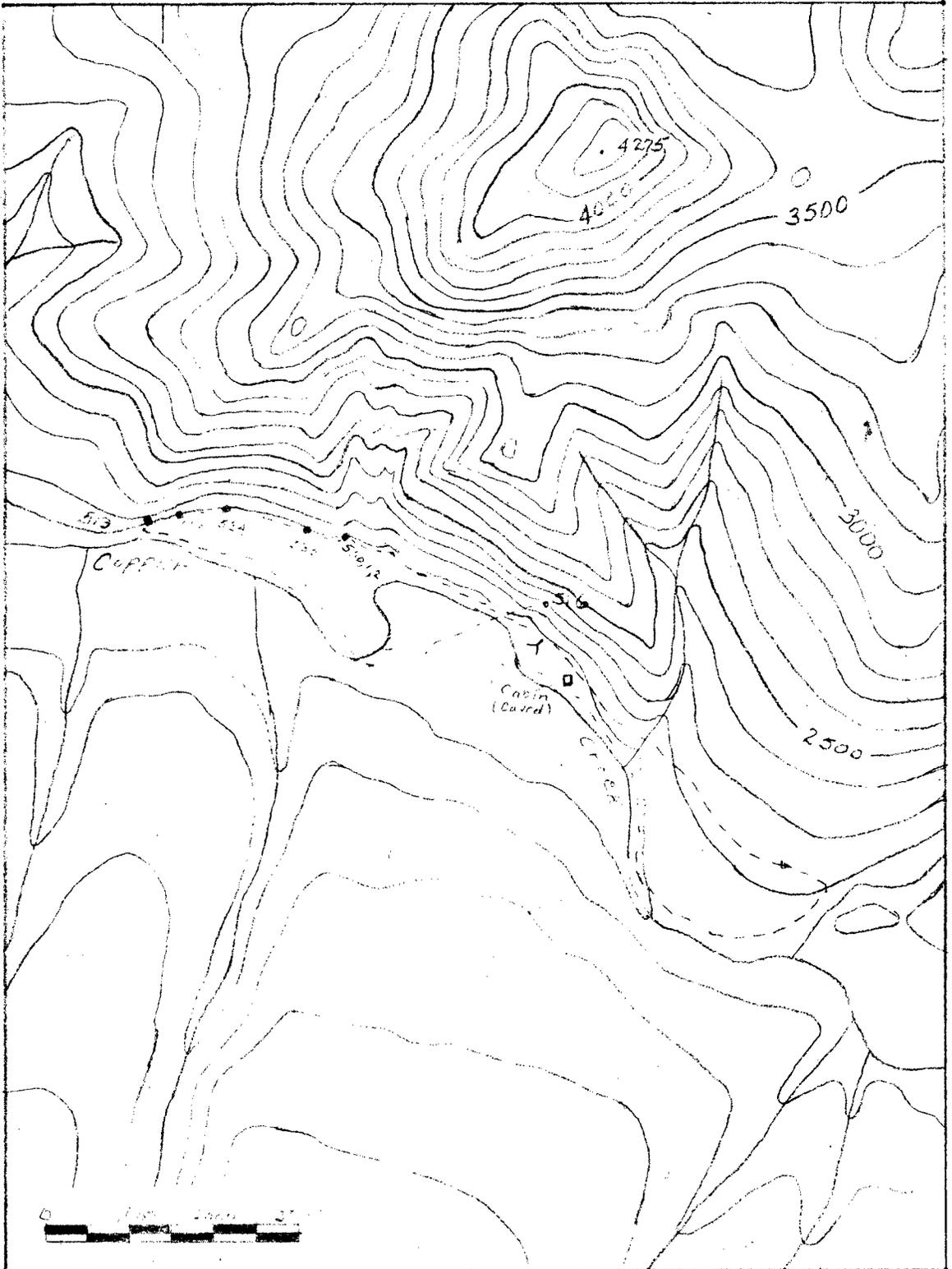
Copper Creek Cu-W-Bi Occurrence  
Charley River Quadrangle

by R.V. Berryhill

Nov. 1963

Field Report

dupl



## Conclusions

Sanders reports another pendant in area. Fred Purdy, personal communication 1963, said he had knowledge of a fairly persistent rumor that a 30-foot vein of lead had been found in a pendant (no knowledge of location or deposit attitude); the lead apparently was reported to assay virtually no silver and no further work. Some fairly good deposits have been found in deposits of this size and no reason to believe this deposit would not be large, i.e. Anyox (plus deposit Jerry and Bob worked on in Washington across lake).

Little additional can be done without geophysical work and physical situation renders geophysical exploration difficult, i.e. 200 feet vertically above and 200 feet in from best cliff showings before can get footing for mapping and geophysical survey and then would not be over the deposit. No idea what EM geophysical along creek bed might reveal but feel creek probably developed along major fault.

Further work in area should include photogeologic interpretation to determine outline of roof pendants and stream sediment and H<sub>2</sub>O sampling around the pendants.

An AFMAG aerial survey flying the contacts of the pendants might reveal a larger deposit. The topography or relief in the area is pronounced, i.e. some fairly high hills but the relief is not sharp; an AFMAG survey should not be ruled out.

Should anybody be in area with EM and have access solved by availability of a helicopter the deposit area should be surveyed with an EM.

Berry Hill  
Rough Summary  
Copper Creek  
Developed from  
rough draft

## General Geology

1. Description of region in 872
2. Mineralization in region associated with Mesozoic and Tertiary intrusives  
Mesozoic to east; Tertiary to west
3. Bedded rocks pre-Cambrian schists and quartzite and highly altered gneiss which thought to be altered basic lava
4. Most Sn in region found to date associated with Mesozoic intrusives
5. Roof pendant schists, slaty schists, some (?) with magnetic mineral endemic in rock at prospect
6. Another pendant mentioned by Sanders at pass to Alder Creek.
7. Granite specimens varies, granite to quartz monzonite
8. Have Al planimeter map for square miles  $\approx$  1920 or  $\pm$  1900
9. Feel Copper Creek may have developed along major fault, can trace on map to SE towards Chicken along general alignment of the range to the southeast.

Pg 242 Fairbairns Dist - perhaps  
the ores from Mesozoic  
mineralization

But he also says that the  
occurrence of amorphous in the 40  
mile district suggests that  
tertiary mineralization may  
have been active

Metric (B-872 P. 236) Feb Most

of the tin, character of the Y-T  
highlands associated with the 2<sup>nd</sup>

period of Au mineralization which  
was tertiary time. Particularly  
those with that springs area

whereas the Chalky River  
Batholith was intruded sometime

in the Mesozoic era

western area | Eastern area is  
primarily tertiary  
granite

Mesozoic <sup>or</sup> also produced holes in  
Fair Creek, 70 mi, 40 mi, Tenbyton  
other western part of region

IV - F - 1580  
Thorne

(folders) 60  
Eagle Quad

-----  
Area VIII

November 18, 1963

Memorandum

To: R. L. Thorne, Project Coordinator, Area VIII Mineral Resource Office

From: Project Leader, Area VIII Mineral Resource Office

Subject: Copper Creek Copper Deposit

Enclosed is form 6-803, Summary Report of Minerals Examination for the Copper Creek (Charley River) copper deposit. My general impression is that the deposit is small.

The Copper Creek deposit is in the center of the Yukon-Tanana uplands on the bank of Copper Creek at the headwaters of the Charley River. The nearest landing field is 35 to 40 miles by trail, and the closest road is 63 airline miles. Inaccessibility has been the chief reason for little or no work on the prospect since its discoverers drove 110 feet of adit in the early 1900's. Field work consisted of opening the caved portal of the adit, surveying, and sampling the surface and underground mineralization.

Copper mineralization is exposed for about 50 feet vertically on the face of an altered limestone cliff and across a 40- to 50-foot zone at the base of the cliff. The best mineralization which contains approximately 2 percent copper occurs in a section 6 feet wide in the center of the zone and pinches out 30 feet up the cliff face. The adit was driven through this section into rock barren of mineralization. Sulfides were observed for about the first 25 feet of the adit with the mineralization decreasing in grade irregularly from the portal. No definite structure was observed but the pattern of limestone alteration suggests that the deposit is cylindrically shaped with the long axis steeply pitching and/or vertical.

USGS Circular 335 reports that the Copper Creek deposit occurs in a small roof pendant of metasediments in the Charley River batholith. Granite is exposed 300 feet upstream from the deposit and intermittent granite outcrops occur with overburden for the next two miles. Metasediments, primarily altered slate, were observed for a mile downstream from the deposit; the downstream contact between the pendant and granite was not reached. A trace of copper mineralization was found about three-fourths of a mile downstream or northwest from the deposit.

The only location notice found on the property was dated 1946. No recent work was evident. An examination report containing field and laboratory data will follow.

R. V. Berryhill

Enclosure

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF MINES

SUMMARY REPORT OF MINERALS EXAMINATION

State Alaska County Fairbanks Recording Dist. Mineral Products Copper

Name of property or deposit Copper Lode Mining claim known locally as the Charley River  
or Copper Creek Copper deposit

Date examined 9/7-9/9/63 Engineer R. V. Berryhill Date of this report 10/30/63

Reason for examination Examine copper deposit

Engineer accompanied by J. A. Cummings Address Juneau, Alaska

Extent of property 1 lode claim

Owner Howard Sparks Address Fairbanks, Alaska

Leased or optioned to ----- Address -----

Location of property (be specific) 143°08' W 64°51'15" N on right limit of Copper Creek  
about 6 miles above its confluence with Charley River, Eagle D-5 Quadrangle, Alaska

Type of deposit and mineralogy (brief description) Chalcopyrite, bornite, scheelite, and  
lime silicate minerals in an altered limestone segment of a small roof pendant in the  
Charley River Batholith

Known dimensions of the deposit 30 ft. vertical  
Length exposure Width ----- Depth -----

Attitude of the deposit (strike, dip, etc.) Appears to be cylindrical in shape with long  
axis plunging almost vertical. The deposit outcrops on the face of a steep slope.

Possible extensions; correlation of known showings The metallic minerals occur as replace-  
ments in limestone surrounded by a zone of lime silicate minerals which in turn grades into  
recrystallized limestone and amphibotite. A short adit cross cut the best copper and the  
zone of lime silicate alteration.

Mine workings (brief description or attach map or sketch) (indicate whether accessible) -----  
103 feet of adit was Brunton surveyed to tie in surface with underground samples

Mining and milling equipment on property..... None

Past production (if any)..... None

Present rate of production (if any)..... None

Sampling (describe briefly, or attach sketch) Continuous chip samples and selected specimen samples were taken for laboratory analyses

Tentative Estimate of Reserves

(Subject to revision when assays are received or after engineering calculations)

Measurable.....	None	tons	Grade
Indicated.....	None	tons	Grade
Inferred.....	150	tons	Grade 1 to 2 percent

Mining method (actual or suggested)..... None

Milling or processing method (actual or suggested)..... None

Processing tests suggested..... None

Tentative conclusion and decision. No surface or underground observations to indicate the better grade copper (+2%) has any extension horizontally. Assay analyses will reveal the tenor of the mineralization.

To be accompanied by brief letter giving examining engineer's general impression of the deposit, his impression of the owner, and any other confidential information he may care to submit. Refer to any known prior examinations and reports. May be executed in pencil. Should be mailed within 24 hours after examination is completed.

Send original and one copy to Washington Office.

check 3965 circ. 33547  
uranium report.  
Berryhill's data??

## Copper Creek Prospect

$64^{\circ} 51' N$ ,  $143^{\circ} 20' W$

The copper Creek prospect is located on the north side of Copper Creek, tributary to the Charley River, about six miles from the mouth of the creek. It is in the south central portion of section 3, T. 5., R. 22 E. in the Eagle (D-5) Quadrangle (Figure —).

Access to the prospect was by helicopter. Earlier prospectors used a pack horse trail from Eagle, a distance of approximately 100 miles. Others have reached the prospect by hiking overland forty miles from an airstrip on Alder Creek, a tributary to the Seventymile River. The present condition of the airstrip is unknown.

The prospect was originally staked in the early 1900's. At that time 110 feet of adit were

Driven to explore the deposit

- restated in 1946

- currently active ??

KX 60-61

Eskil Anderson ~~of~~ ~~the~~ ~~U.S.~~ ~~Bureau~~ ~~of~~ ~~Mines~~ in 1946,

The property was examined <sup>and by</sup> the U.S. Geological

Survey in 1949 (Wedlow and Tolbert, 1949) It was again

examined by Robert H. Saunders, Territorial Department

of Mines, in 1955. In 1963, R. V. Berryhill, U.S.

Bureau of Mines, reopened the portal that had  
closed and mapped and sampled the adit.

The prospect was visited very briefly while ~~working~~

~~at the prospect~~ working nearby during

the current study. ~~The prospect~~

~~is now being~~ by tables.

The ~~deposit~~ following description of the  
mineralogy is from U.S. Geological Survey Circular

935:

The deposit outcrops on the face of a steep slope  
and the ~~copper~~ <sup>malachite</sup> stain is visible from the air for a  
considerable distance. Mineralization extends over  
approximately forty feet at the base of the cliff  
and is exposed for about fifty feet vertically. The  
best zone is about six feet wide. and it is  
into this that the adit was driven. Berryhill

reports that mineralization ~~was~~ occurs over the first 25 feet within the adit, decreasing in grade irregularly from the portal.

Chip Sample

Analyses indicate ~~a grade~~ (Berryfield) ~~to be~~  
(TABLE — )

Assays of select hand specimens range  
(Table — )

Stream sediment samples taken in the area  
show (Table — , Figure — )

Engr Copy

PETROGRAPHIC SERVICE REQUEST - JUNEAU

DATE:

12/4/63

PROJECT:

14.42809

SAMPLE IDENTIFICATION (Name and Number):

EX-63

B24 through 529-

TYPE OF ORE:

Chip specimens

NAME AND LOCATION OF PROPERTY:

Copper Creek

TYPE OF EXAMINATION DESIRED (major mineral constituents; major and minor mineral constituents; liberation of ore minerals etc.)

Classification w/ major summer length cuts.

REMARKS:

Specimens taken while working down cliff onto the deposit. Material grading from amphibolite to fault gouge to time-silicate

Submitted by:

G. V. Berryhill

Engr copy

PETROGRAPHIC SERVICE REQUEST - JUNEAU

DATE: 12/4/63

PROJECT: 14.4280.9

SAMPLE IDENTIFICATION (Name and Number): 517, 518, 521, 530  
Through 535-RBX-1963

TYPE OF ORE: Select chip specimens

NAME AND LOCATION OF PROPERTY: Bedrock specimens from Area of Copper Creek  
CU

TYPE OF EXAMINATION DESIRED (major mineral constituents; major and minor mineral constituents; liberation of ore minerals etc.)

Classification w/ major mineral constituents

REMARKS: Suggest microscopic examination of specimens before crushing

- #517- (confirm Permian?) at junction of 2 fractures
- 521- " Chalcopyrite?
- 530 " Galena?
- 533 " Magnetite(?) Rock type
- 535 " Azurite
- 518, 531-2, 536 - WO<sub>3</sub>?

Submitted by:

R. V. Bently

Engr copy

PETROGRAPHIC SERVICE REQUEST - JUNEAU

DATE:

12/4/63

PROJECT:

14. 4280.9

SAMPLE IDENTIFICATION (Name and Number): 502, 503, 504, 505  
506, 507, 512, 515, 516-RBX-63

TYPE OF ORE:

Charley River copper specimen samples

NAME AND LOCATION OF PROPERTY:

Copper Creek

TYPE OF EXAMINATION DESIRED (major mineral constituents; major and minor mineral constituents; liberation of ore minerals etc.)

Classification and major & minor constituents

REMARKS:

samples from "ore" underground and  
at surface plus wall rock specimens  
and gouge material

Submitted by:

R. V. Berryhill





*dupl*

PETROGRAPHIC REPORT  
Bureau of Mines  
Area VIII

Proj: \_\_\_\_\_

Petro No. 4-19

*91/2*

Report to: R. L. Thorne  
Sample source: Copper Creek  
Sample numbers: 502 sporadically 516-503-63  
Date received: 12 - 13 - 63  
Submitted by: R. V. Berryhill

Reported by: Walter L. Gnagy  
Date reported: 1 - 17 - 64  
Request: Rock type; minerals major minor

Spectroscopic:	SAMPLES									
	502	502A	503	504	505	506	507	512	515	516
Ag, Pb	-	-	-	-	-	-	-	-	-	-
Bi	-	-	-	-	T	-	-	T	-	-
Cu	X	T	T	T	-	-	-	N	T	T
Ca	-	T	-	-	-	T	T	T	T	T
Zn	T	-	-	-	T	-	-	-	-	-
Ba	R*	-	-	-	T*	-	-	-	-	-
Zn	-	T	T	T	T	T	-	T	-	-
Chemical:										
Ba	X									
Rocks:										
biotite schist										C
gneiss				C						
quartz diorite									C	
quartz monzonite							C			
quartzite						C				
slam	C	C	C		C			C		
vein calcite					C					

Remarks: \* Mineral association of Ba could not be determined.

Radioactivity was not detected.

- Legend:
- P - Predominant Over 50 percent
  - A - Abundant 10 - 50 percent
  - S - Subordinate 2 - 10 percent
  - M - Minor .5 - 2 percent
  - F - Few .1 - .5 percent
  - T - Trace Less than .1 percent
  - X - Detected in sample
  - Sought but not detected
- Numerals Percent
  - H - Highly magnetic
  - W - Weakly magnetic
  - f - Fluorescent
  - R - Radioactive
  - C - Rock classification
  - N - Notable amounts less than .1 percent



October 14, 1946

MEMORANDUM TO: Lowell B. Moon, Washington, D.C.  
FROM : Robert S. Sanford, Juneau, Alaska  
SUBJECT : Warravine Mine

Enclosed are 2 copies of the Statement of Facts as to the Location and Nature of Mineral Deposits; 2 copies of a memorandum on the property by Eskil Anderson, mining engineer; and 2 copies of the Assay Sheet and also report on examination of the sample submitted.

These data refer to the Copper Deposit that I endeavored to examine late in August but the airplane was not able to land in a small lake. Next spring we will either have to go in with pack horse from Circle Hot Springs or else fly to the closest landing field and hike in for an approximate distance of forty miles.

Enclosures

R.S.SANFORD

cc: Sanford  
Wright  
Files

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF MINES

WASHINGTON 25, D. C.

STATEMENT OF FACTS AS TO THE LOCATION AND NATURE  
OF MINERAL DEPOSITS

(County) (Township) (Section)

In its program of exploration of mineral deposits, the Bureau of Mines has as its primary objective the more effective utilization of our national mineral resources to the end that they make the greatest possible contribution to our national security and economy. The Bureau believes that the rights of individual discoverers of mineral deposits should be protected and that individuals should be protected and that individuals should be encouraged to exploit their discoveries. The Bureau considers its function in the exploratory field to be that of pointing the way toward the more effective utilization of our mineral resources by private enterprise.

In selecting deposits for exploration, one of the following criteria must apply:

1.) Geologic, geophysical, or engineering evidence must indicate, in the judgment of the engineers of the Bureau, that the project has a possibility of making a substantial contribution to the national economy. The project must present special technical problems, the solution of which would advance to a considerable degree the effective utilization of the Nation's mineral resources;

2.) The project must show promise of making a direct contribution to the national security, such as the possibility of producing material for a government stockpile;

3.) The project must have been specifically authorized and directed by the Congress.

No application for preliminary examination of properties is necessary, but the Bureau of Mines welcomes statements of facts as to the location and nature of properties anyone deems worthy of investigation, as this will aid in determining whether they are of sufficient promise to warrant their examination. Information especially desired by the Bureau in regard to such properties may be listed below. Extend remarks on a supplementary sheet as necessary.

STATEMENT

Made by Edward C. Sparks Address Box 301, Fairbanks, Alaska Date August 10, 1946

Name of Property Silver, gold, Copper, Tungsten

Leased or optioned to None Address None



Memorandum: Wolverine Copper Prospect, Charley River District, Alaska

Owner: Howard Sparks, Fairbanks

Location: Copper Creek, tributary of Charley River — on right limit bluff of Copper Creek about 6 miles above its mouth. Charley River is a tributary entering the Yukon River from the south about midway between Eagle and Circle.

Nature of deposit: Probably replacement of calcareous roof pendant. Most common minerals in ore body are garnet, calcite, bornite, chalcopyrite, quartz, pyrrhotite, amphiboles or pyroxenes, galena, scheelite, and covellite with a number of other replacement minerals.

General Rock Formation: Fine-grained granitic bedrock on at least two sides of deposit. Ore body apparently is replacement of limestone or calcareous sedimentary rock. Deposit lies near center of Charley River granite batholith.

Development: About 150 foot tunnel striking N. 10° E., veering to east about 20 feet from portal and then turning westerly. Tunnel driven in low-grade replacement type of copper ore for about 20 feet — farther in tunnel appears to have left ore body and is driven in rock almost barren of metallic mineralization. Tunnel was driven by hand about 1903.

Surface outcroppings: Mineralized zone about 30 feet to 40 feet wide (on cliff face) is exposed on steep NE-SW bluff for about 50 feet vertically — then arches toward the NE and disappears under over-burden about 100 feet vertically above the portal, and perhaps 150 feet horizontally to the NE of the tunnel entrance. Tunnel enters base of cliff a few feet above the level of Copper Creek and is driven northward.

Tunnel was begun on six foot wide vertical zone of green, garnet-malachite ore which continues vertically up cliff for a short distance then becomes disseminated through a 30 feet to 50 foot wide predominantly iron-stained mineralized zone. Copper stained zones are scattered through this iron-stained zone. Not much copper staining can be seen where mineralized zone disappears under over-burden at top of bluff. Green malachite stained zone rising from portal is visible from airplane at a considerable distance.

Representative channel samples were not taken. It is estimated from assay of hand specimens that six foot zone at tunnel mouth, above tunnel, would average somewhat less than 2.5% copper, 3 oz. silver and 0.02 oz. in gold per ton. The 30 to 40 foot zone including this six foot band would average considerably less in all of these metals.

Scheelite was present in a number of hand samples taken from widely separated points on the mineralized zone. The mineral was not recognized until the ores were examined under a fluorescent lamp in Fairbanks. It is possible that scheelite may be a fairly common ore mineral in the deposit. In hand specimens taken without knowledge of the presence of scheelite, that mineral seemed more abundant in the wider mineralized zone than in the highest copper bearing zone which was about six feet wide where exposed. A brief examination with a fluorescent lamp would reveal the general scheelite content of the deposit as in most places on the bluff fresh ore is at or very near the surface.

Timber, water, and perhaps water power are available in the area.

Q O P X 10/14/46

TERRITORY OF ALASKA  
DEPARTMENT OF MINES

COPI August 21, 1946

ASSAY OFFICE

COLLEGE, ALASKA July 11, 1946 19 46

REPORT OF ASSAY

On samples received from . . . Anderson and Sparks . . . . .

Address ----- College, Alaska -----

Assay No.	Mark on Sample	OUNCES PER TON			PERCENTAGE OF	
		Gold	Silver	Value Per Ton	Copper	Nickel (Qual)
14288	A46 - 93B	0.01	2.59	\$ 2.19	3.28	
14289	A46 - 94C	0.02	3.10	2.90	2.11	
14290	A46 - 94D	0.01	1.70	1.56	1.15	
14291	A46 - 95A	Trace	Trace	- -	0.27	Nil

The scheelite content of 94D is estimated at less than 0.05%  
" " " " 95A " " " " 0.10%

Gold @ \$ 35.00 per oz.  
Silver @ 71¢ per oz.

Value of Copper not calculated

/s/ A. E. Glover -----

ASSAYER

RRR 10/24/46

TERRITORY OF ALASKA  
DEPARTMENT OF MINES

COPY August 21, 1946

July 11, 1946

Assay Office  
COLLEGE, ALASKA

Anderson and Sparks  
College, Alaska

I 5119 - 5121

Gentlemen:

After examination of your samples we report as follows:

A46 - 94A is massive andradite. Bornite and covellite were the only sulfides recognized.

A46 - 94B. The light colored, green mineral is andradite, although an occasional grain of what may be diopside or vesuvianite was also noted. The white mineral is chiefly calcite with veinlets of quartz.

A46 - 95A. The only sulfide recognized was pyrrhotite. Qualitative test for nickel was negative.

Yours very truly,

/s/ A. E. Glover  
Art Glover  
Assayer-in-charge

I 5119 - 5121

TERRITORY OF ALASKA  
DEPARTMENT OF MINES

REPORT ON THE EXAMINATION OF THE COPPER CREEK COPPER *Rx 60-61*  
PROSPECT, EAGLE QUADRANGLE ( )

by

Robert H. Saunders  
Associate Mining Engineer

January 1956

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## ABSTRACT

The Copper Creek copper prospect is in the northwestern part of the Eagle Quadrangle at  $64^{\circ} 51'$  N latitude and  $143^{\circ} 20'$  W longitude. The distance from the prospect to the nearest airstrip is about 40 miles; to the nearest road, about 100 miles. At the prospect a mineralized zone, 4 to 5 feet wide and tabular in shape, outcrops in the face of a steep cliff. Two samples from the outcrop of the mineralized zone contained 5.26 and 2.50 per cent copper respectively.

## INTRODUCTION

The Copper Creek copper prospect has been known to prospectors in interior Alaska for many years, but it was not mentioned in any publication until 1949. In that year it was examined by a U. S. Geological Survey party, and the results of that examination were published in U. S. Geological Survey Circular 335, RECONNAISSANCE FOR RADIOACTIVE DEPOSITS IN EAST-CENTRAL ALASKA, 1949, by Helmuth Wedow, Jr. and G. E. Tolbert. The report in Circular 335 describes the geology and mineralogy of the deposit, gives the results of a radiometric survey, and lists the equivalent-uranium content of seven samples; but it does not give the percentage of other valuable metals in the deposit.

The prospect was examined on July 11, 1955, by Robert H. Saunders, Associate Mining Engineer of the Territorial Department of Mines, to obtain information for the Department of Mines in regard to the potential value of the deposit and particularly to obtain samples that would give an indication of the value of all marketable minerals in the deposit.

## LOCATION AND ACCESSIBILITY

The prospect is located at  $64^{\circ} 51'$  N latitude and  $143^{\circ} 20'$  W longitude in the northwestern part of the Eagle Quadrangle. It is on the right limit side of Copper Creek, tributary to the Charley River, about six miles from the mouth of the creek.

There is no easy route of access to the prospect. Although the lower part of the Charley River is navigable for small river boats,

the river is not navigable for many miles below the mouth of Copper Creek. During the early 1900's when work was being done on the prospect, materials and supplies were brought from Eagle by pack horse train. The distance over the old pack horse trail from Eagle to the prospect would have been about 100 miles.

The U. S. Geological Survey party that examined the prospect in 1949 went in by helicopter. Access to the prospect for the 1955 examination was gained by traveling on foot from a small airstrip on the east side of Alder Creek, tributary to the Seventymile River. Over most of the route from Alder Creek to the prospect, it is possible to stay on ridges above timberline. The distance to be covered is about forty miles one way, and the trip requires about six days total travel time from Alder Creek to the prospect and return.

Some of the residents of Eagle are optimistic about the possibility of a road being constructed in the near future between Eagle and a dredging operation on Woodchopper Creek, tributary to the Yukon River; this road probably would come within 30 miles of the prospect. In other parts of the Fourth Division, however, there has been no serious talk of constructing this road, and so many other roads have been widely discussed that it seems likely that road construction between Eagle and Woodchopper Creek will be far off in the future.

#### HISTORY AND OWNERSHIP

The Hudson brothers, who later mined at Livengood, staked claims on the Copper Creek prospect in the early 1900's and drove an adit

to explore the deposit. The prospect was restaked in 1948 by Howard Sparks of Fairbanks, and he owned it at the time of the examination by the U. S. Geological Survey in 1949; since then it apparently has reverted to the public domain, so that it is now again open to location.

#### GENERAL GEOLOGY

The geology of the area around the prospect has been described in U. S. Geological Survey Bulletin 872, THE YUKON-TANANA REGION, ALASKA by J. B. Mertie, Jr., 1937, and in U. S. Geological Survey Bulletin 538, A GEOLOGICAL RECONNAISSANCE OF THE CIRCLE QUADRANGLE, ALASKA by L. M. Prindle, 1913. The maps that accompany both bulletins show the bedrock underlying the Charley River drainage basin to be a granitic intrusion of Mesozoic age. This mass of intrusive rock has been called the Charley River batholith. On the divide between Copper Creek and the Seventymile River drainage, there are numerous outcrops of metamorphic rocks of sedimentary origin. These apparently are roof pendants, erosional remnants of the rocks that formerly overlaid the batholith. The Copper Creek prospect is in one of these masses of metamorphic rock.

#### MINERAL DEPOSITS

The deposit outcrops in the face of a steep cliff near a bend in Copper Creek. It disappears at the bottom of the cliff under a talus slope and at the top of the cliff under soil and vegetation. It is 4 to 5 feet wide at the outcrop and dips about vertically. The face of the cliff is too steep to show the strike of the deposit.

The presence of small amounts of uranium in samples from the deposit is reported in U. S. Geological Survey Circular 335; the uranium is thought to be an impurity in malachite and azurite.

The following description of the mineralogy is from U. S. Geological Survey Circular 335:

"Tentative identifications show a lime-silicate rock and an amphibolite as the two main lithologic types at the prospect. The bulk of the metallic minerals is in the lime-silicate rock, mainly along a contact with the amphibolite, with minor amounts of the metallic minerals disseminated through both rock types but in diminishing amounts away from the contact. Chalcopyrite, malachite, and azurite are the chief metallic minerals at the prospect. Minor amounts of galena are present and traces of gold, silver, and tungsten have been reported in assays."

#### WORKINGS

An adit, which was driven by the Hudson brothers, is the only underground opening on the prospect. The portal to the adit is 10 to 15 feet above Copper Creek in the face of the steep cliff where the deposit outcrops. The portal is now caved, but the adit was accessible when the U. S. Geological Survey party examined the prospect in 1949. According to U. S. Geological Circular 335, the adit is 114 feet long; it leaves the mineralized zone about 40 feet in from the portal, and the inner part of it is in barren rock. The miners failed to follow the mineralized zone apparently because they did not understand the structure of the deposit.

There is a log building near the portal that probably served as a messhall and bunkhouse; the roof has caved in and the building has deteriorated beyond use.

### SAMPLES AND ASSAYS

Two samples were taken during this examination, and they were assayed at the Territorial Department of Mines Assay Office at College. The results were as follows:

Sample No.	Ounces per Ton		Per Cent		
	Gold	Silver	Copper	Zinc	Others
3	Tr	0.80	5.26	0.3*	None*
4	Nil	1.16	2.50	0.3*	Bismuth 1 to 5 per cent.*

Neither lead nor tungsten were detected by the spectroscopic examination of the samples, but small amounts of both metals have been reported in other samples from the deposit. Bismuth has not been reported previously from this prospect, and its presence in Sample Number 4 was wholly unexpected. The amount of uranium in samples taken from the deposit during the U. S. Geological Survey examination in 1949 was too small to be of economic importance except possibly as a by-product of the mining of other valuable minerals.

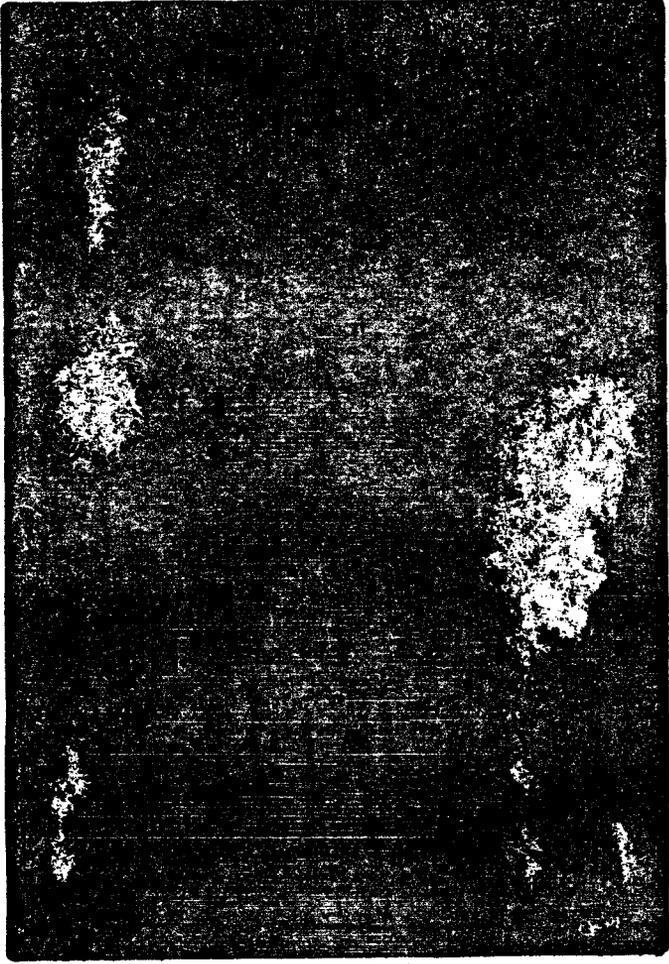
### SUMMARY

The samples taken during this examination indicate that the deposit at Copper Creek is too low-grade to compensate for the remote location of the prospect.

The presence of roof pendants on the divide between Copper Creek

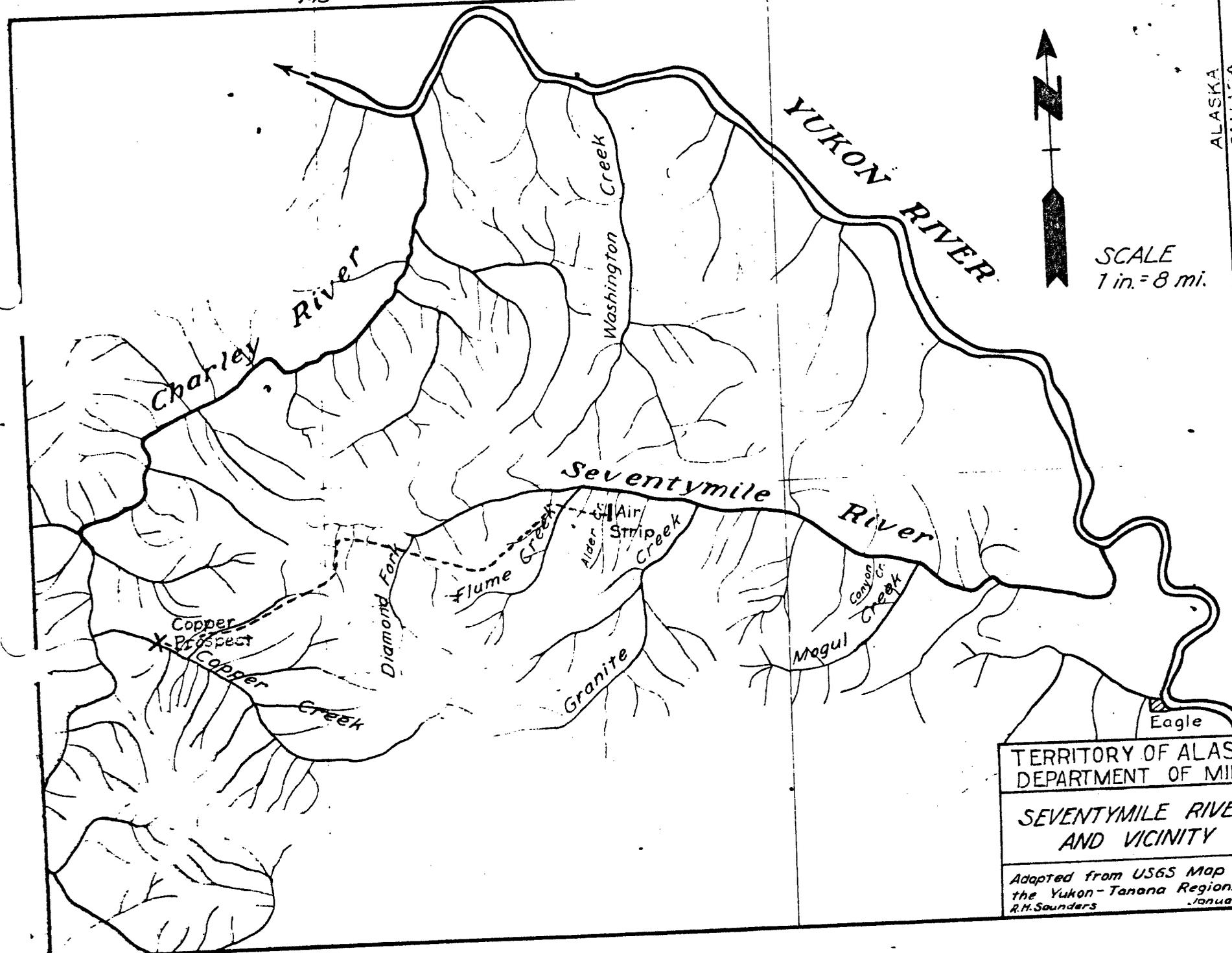
\*By spectroscopic examination.

Outcrop and caved portal. Mineralized zone is green and white.



and the Seventymile River drainage makes that area more favorable for prospecting than it would be if the bedrock were all granite as shown on the geologic maps of the region. Root pendants have been reported to be numerous throughout the entire area drained by the Charley River.

143°



ALASKA  
CANADA



SCALE  
1 in. = 8 mi.

TERRITORY OF ALASKA  
DEPARTMENT OF MINES

SEVENTYMILE RIVER  
AND VICINITY

Adapted from USGS Map of  
the Yukon-Tanana Region.  
R.H. Saunders January

See file of

RFA claims

dupl

14,488.9

PETROGRAPHIC REPORT  
Bureau of Mines  
Area VIII

Proj: Rampart

Petro No. 4-20

01/2

Report to: R. L. Thorne  
Sample source: Copper Creek  
Sample numbers: 517 approximately 535-545-63  
Date received: 12 - 13 - 63  
Submitted by: E. V. Barryhill

Reported by: Walter L. Gnagy  
Date reported: 1 - 17 - 1964  
Request: Rock type; minerals major minor

Chip specimens

Spectroscopic:	SAMPLES								
	517	518	521	530	531	532	533	534	535
As Bi In Sn	-	-	-	-	-	-	-	-	-
Cu	-	f	f	-	-	-	f	-	R
Co	f	f	f	-	-	-	-	-	f
Pb	-	-	-	-	-	-	-	-	f
Zn	-	-	-	-	-	-	-	f	-
Chemical:									
As		f		f					
F		-							
V		-			-	-			
Rocks:									
basalt							C		
biotite schist		C							
epidote									C
garnet			C						
quartzite	C								
glimmer								C	
hornblende					C				
hornblende quartz				C		C			
Radioactivity	-	-	-	-	-	-	-	-	-

Remarks

Legend: P - Predominant Over 50 percent  
 A - Abundant 10 - 50 percent  
 S - Subordinate 2 - 10 percent  
 M - Minor .5 - 2 percent  
 F - Few .1 - .5 percent  
 T - Trace Less than .1 percent  
 X - Detected in sample  
 - Sought but not detected

Numerals Percent  
 H - Highly magnetic  
 W - Weakly magnetic  
 f - Fluorescent  
 R - Radioactive  
 C - Rock classification  
 N - Notable amounts less than .1 percent

PETROGRAPHIC REPORT

Proj: \_\_\_\_\_

Bureau of Mines

Petro No. 4-20

Area VIII

02/2

Report to: R. L. Thorne  
 Sample source Copper Creek  
 Sample numbers 317 serially 333-338-63  
 Date received 12 - 13 - 63  
 Submitted by R. V. Derryhill

Reported by: Walter L. Gnagy  
 Date reported: 1 - 17 - 64  
 Request: Rock type; minerals major minor

Minerals:	SAMPLES									
	317	318	321	330	331	332	333	334	335	
albite-oligoclase	N	-	S	A		S				
andalusite		S								
andesine			A							N
arsenopyrite				T						
axinite							A			
axinite										-
biotite	A	A	A							
hornblende	-									
calcite		T			A			S		
chalcopyrite			F				T			N
chlorite			S	A				N		T
chrysoberyl										T
claystone										N
epidote										F
garnet										
garnet								F		
garnet-ilmenite			S	F			F	F		S
K-feldspar	T	A	S	S						
labradorite							A			
magnetite			T							
pyrite			F				F			-
pyrrhotite			T							
quartz	A	N	A	A		F	A			
schistosity-pseudite ?	-	-	-	-	-	-	-	-	-	-
sericite-muscovite	A									
sericite (luminescent)					F					

Remarks: **Iridescent dark brown biotite may give the appearance of hornblende. Cu was not detected in the sample. Trace amounts of copper in the sample must therefore be less than 0.001% or 10 ppm.**  
**\*\* The magnetic mineral was determined as pyrrhotite rather than magnetite by means of polished cross sections of mineral grains.**

Legend:	P - Predominant	Over 50 percent	Numerals Percent
	A - Abundant	10 - 50 percent	H - Highly magnetic
	S - Subordinate	2 - 10 percent	W - Weakly magnetic
	M - Minor	.5 - 2 percent	f - Fluorescent
	F - Few	.1 - .5 percent	R - Radioactive
	T - Trace	Less than .1 percent	C - Rock classification
	X - Detected in sample		N - Notable amounts less than .1 percent
	- Sought but not detected		



## PETROGRAPHIC REPORT Proj: \_\_\_\_\_

Bureau of Mines

Area VIII

Petro No. 4-6  
also see PR 4-26  
and PR 4-27 SReport to: R. L. Thorne  
Sample source Copper Creek  
Sample numbers 568-513-RB-63  
Date received 1 - 28 - 64  
Submitted by R. V. BerryhillReported by: Walter L. Gnagy  
Date reported: 1 - 28 - 64  
Request: Rock type; minerals major minor

		SAMPLES						
	Eng. No.	513						
	Lab. No	63-1297						continued from
Rock:								PR-4-27S
akaro		C						Sample
								508-RB-63
Minerals:								Lab No 63-1294
bornite		-						grain size
calcite		M						mesh microns
chalcopyrite		T						chalcopyrite
garnet		F						95% < 32 500
magnetite		S						Ave. 150 104
pyroxene	*	P						90 > 800 19
quartz		A						bornite
								95% < 35 420
								Ave. 150 104
								90 > 800 19
								unknown copper mineral
								95% < 80 177
								Ave. 600 28
								90% > 800 19

Remarks \* high iron.

Legend:	P - Predominant	Over 50 percent	Numerals Percent
	A - Abundant	10 - 50 percent	H - Highly magnetic
	S - Subordinate	2 - 10 percent	W - Weakly magnetic
	M - Minor	.5 - 2 percent	f - Fluorescent
	F - Few	.1 - .5 percent	R - Radioactive
	T - Trace	Less than .1 percent	C - Rock classification
	X - Detected in sample		N - Notable amounts less than
	- Sought but not detected		.1 percent

## PETROGRAPHIC REPORT Proj: \_\_\_\_\_

Bureau of Mines

Petro No. 4-21

Area VIII

Report to: R. L. Thorne  
 Sample source Copper Creek  
 Sample numbers 524 to 529 - RBX-63  
 Date received 12 - 13 - 63  
 Submitted by R. V. Berryhill

Reported by: Walter L. Gnagy  
 Date reported: 1 - 28 - 64  
 Request: Rock type; minerals major minor

## Chip Specimens

Spectroscopic:	SAMPLES						
	524	525	526	527	528	529	
Ag	-	T	-	-	T	-	
Cu	-	X	T	T	X	T	
Bi	N	X	-	N	T	T	
In, Sn	-	-	-	T	T?	T	
Pb	-	-	-	-	-	-	
Zn	T	T	-	T	T	T	
Chemical:							
As		T		T	X		
P		-		-	T		
Co Ni		-*					
Bi Cu		X					
Rocks: skarn	C	C		C	C	C	
quartzite			C				
Minerals: bismuthinite		F					
biotite - chlorite			S				
bornite				H	S		
calcite		T				T	
chalcopyrite		F		T	T		
chlorite		M					
covellite				T	T		
diopside	P	P		P	A	P	
epidote		S		F	F	F	
garnet				A	P	A	
goethite-limonite		T		T	F	F	
malachite				F			
pyrite		T					
quartz	-	-	P	-	-	T	
sericite	S						
sphene	T						
unknown				T**	N**		

Remarks \* Cu, Te, and Se not detected with Bi minerals  
 \*\* May be lautite a Cu-As-sulphide or emplectite a Cu-Bi-sulphide. Insufficient data in text - references available. 95% of unknown less than 600 mesh (26 microns) Average grain size of unknown 1600 mesh (10 microns). Etch tests on lautite in Short not present. The pinkish mineral is harder than bornite with reflectivity between 30 & 40%. Radioactivity and fluorescence were not detected.

Legend: P - Predominant Over 50 percent Numerals Percent  
 A - Abundant 10 - 50 percent H - Highly magnetic  
 S - Subordinate 2 - 10 percent W - Weakly magnetic  
 M - Minor .5 - 2 percent f - Fluorescent  
 F - Few .1 - .5 percent R - Radioactive  
 T - Trace Less than .1 percent C - Rock classification  
 X - Detected in sample N - Notable amounts less than  
 - Sought but not detected .1 percent

