

STOKES

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SPEC 10414

13

The Consolidated Mining and Smelting Company of Canada Limited

GEOLOGICAL REPORT ON THE SPEC CLAIMS

ATLIN MINING DIVISION

Spec No. 1      134883

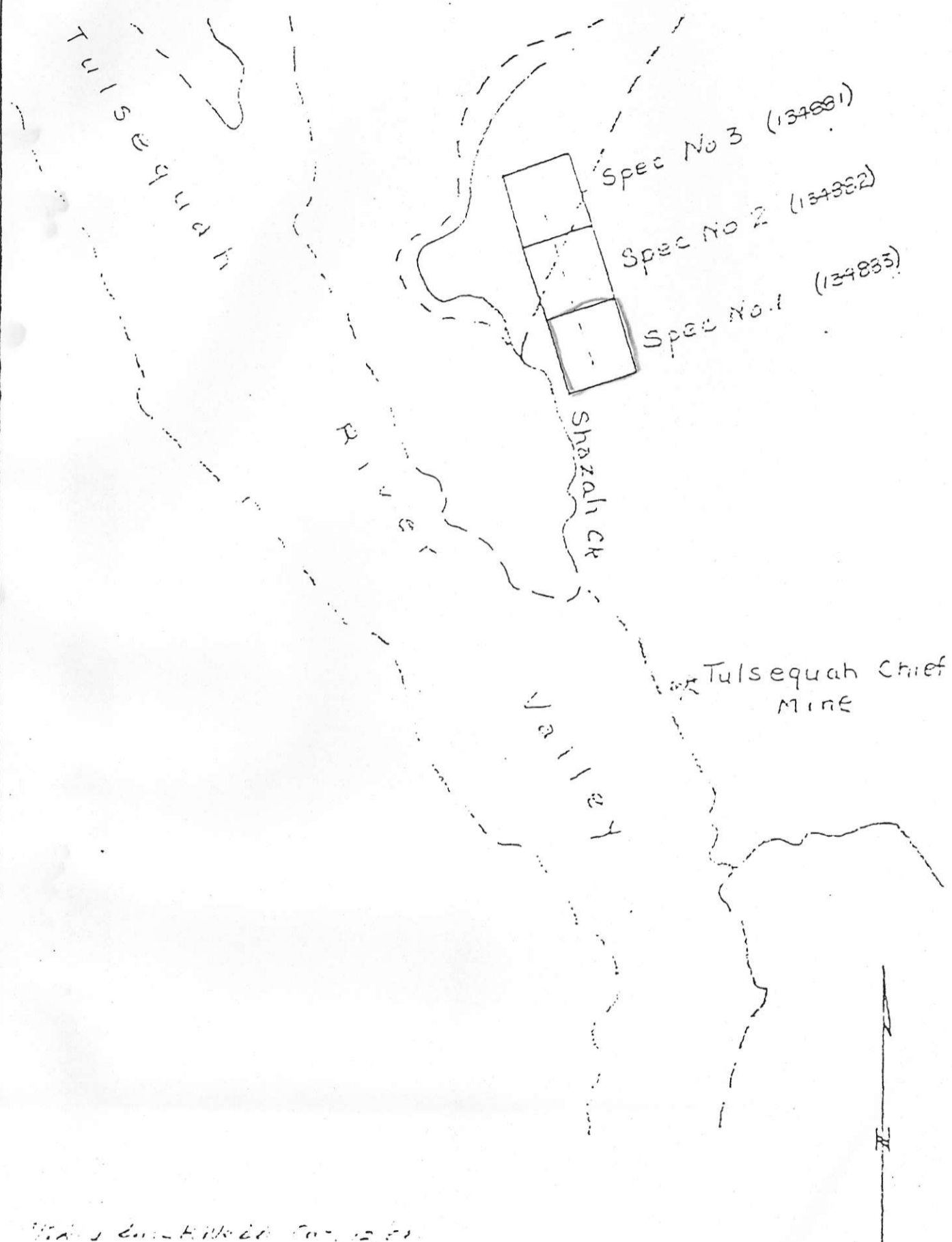
Spec No. 2      134882

These claims lie 1 1/4 miles north of the Tulsequah Chief mine,  
Lat. 58°, Long. 135°, N.W.

by

W. T. Irvine, Prof. Eng.

Work done on July 18th, July 21st to 26th inclusive, July 30th,  
Oct. 2nd, 3rd, 4th and 6th, in 1952.



Plan of Spec. No. 1, 2, 3  
 Recorded October 22, 1951  
 Ownership 100% C.M.S.C.

The Consolidated Mining and Smelting Company of Canada, Limited

Drawn by: C.M.V.	Traced by: E.L.B.
Reviewed by:	Date:

LOCATION PLAN  
 SPEC. GROUP (Spec Nos 1-2-3)  
 Tulsequah Area, Atlin M.D., B.C.

TABLE OF CONTENTS

	<u>Page</u>
Introduction	1
Summary and Conclusions	1
General Geology	1
Structural Geology	2
Rock Alteration and Mineralization	2
Recommendations	3
Geological Map of Claims	(Attached)

GEOLOGICAL REPORT ON THE SPEC CLAIMS

INTRODUCTION

A geological study and map of the Spec No. 1 and Spec No. 2 claims was made during parts of July and August, 1952. This work was done by J.K. Webb, M.A., and A.K. Christensen, B.A., under the supervision of W.T. Irvine, Prof. Eng. Tape and compass traverses were used to tie in the rock outcrops.

SUMMARY AND CONCLUSIONS

- (1) The bedrock exposed on the claims consists of Permian or Pre-Permian limestone, and banded rocks which are argillitic to tuffaceous in appearance, interspersed with greenstones. These rocks are either Pre-Permian or Triassic in age. Intermediate quartz feldspar porphyry and aplite dykes also occur.
- (2) The banded rocks display a steeply east dipping monoclinial structure, and are intersected by strong regional north striking faults and minor east striking cross faults.
- (3) A small pyrrhotite body containing low copper values occurs as a bedded replacement in limestone. This body is open at the north end, and may continue in that direction under the Shazah Creek gravels.
- (4) It is recommended that a possible northward extension of the sulphide replacement body be tested by an electromagnetic geophysical survey.

PHYSIOGRAPHY

The claims lie on the east side of Shazah Creek, a tributary of the Tulsequah river, and extend from an elevation of 500 feet above sea-level on the rocky timbered slope of the valley wall, down and partly across the gravel covered valley bottom which is about 100 feet above sea-level. Prominent and well marked draws incise the valley wall, and are the topographic expression of regional north striking faults.

GENERAL GEOLOGY

The claims are underlain by rocks which are mainly volcanic or show volcanic affinities, with only a small area of banded limestone exposed near No. 1 location post. F.A. Kerr's mapping for the Geological Survey of Canada shows a considerable area here underlain by Pre-Permian rocks which are generally classified as chloritic schist and sedimentary rocks, with some interbedded andesitic flows. On the Spec claims it was difficult to correlate rock types with the general types of Pre-Permian rocks described by Kerr. Mainly the rocks were greenstones alternating with banded tuffs, which in places were somewhat argillaceous in appearance. Similar associated types have been noted near the base of the Upper Triassic Stuhini volcanics, and this casts doubt on Kerr's identification of these rocks as being Pre-Permian. Further, as Kerr expressed it in G.S.C. Memoir 248, "it is impossible to know definitely whether these beds (volcanic and limestone) are conformable parts of the (Pre-Permian) series as infolded bits of the overlying Permian and Mesozoic formations." From the evidence at hand we would say that while Permian or Pre-Permian limestone definitely occur on the claims, the banded tuffaceous and argillaceous rocks and the volcanic flows may be either Pre-Permian or Triassic.

### DETAILS OF ROCK FORMATIONS

Felsite Dykes - Dense creamy aplitic dykes from 18 inches to two feet in width.

Quartz Feldspar Porphyry - Grey-green groundmass with abundant fine to medium grained light feldspar phenocrysts, sparse quartz phenocrysts and scattered fine grained feric minerals. Occurs in dykes up to 25 feet in width.

Volcanic Flow - Medium to coarse grained hornblende porphyrite with intermediate groundmass.

Tuffaceous Types - Fine gray green massive to banded tuff or argillite.

Limestone - Coarse sugary, massive to thin bedded.

### STRUCTURAL GEOLOGY

The banded rocks strike northerly and dip steeply east. There is nothing on the claims to suggest other than this monoclinical structure, but from Kerr's more regional mapping, it is known that the Palaeozoic rocks occupy an anticlinal area with respect to the overlying Mesozoic volcanics. However, the older rocks must have undergone one or more periods of deformation and erosion before being covered by the Triassic volcanics. The attitudes seen in the banded rocks thus probably represent these older structures, which are impossible to work out from the relatively small area of corresponding formations exposed.

Regional north striking faults occur in the Tulsequah area, and can be traced for miles by the well marked draws which are their topographic expressions. These faults are associated in places with broad shear zones in which ore bodies are known to occur, as at the Tulsequah Chief and Big Bull mines. North striking draws which traverse the Spec claims can be traced into known fault structures farther south, and undoubtedly represent faults and possibly some narrow sheared zones.

Less conspicuous east striking structures, which may represent small faults, intersect the main north striking faults in places.

### ROCK ALTERATION AND MINERALIZED OCCURRENCES

Some areas of low to medium grade felsitic alteration occur, mainly enveloping structural breaks. The most westerly break mapped shows some alteration of this type near where it intersects the creek gravel. Felsitization of a slightly sheared greenstone is here accompanied by sparse pyrite mineralization. The largest area of felsitization mapped is just east of the claim boundary and envelopes an east striking break, then spreads out along the contact between banded tuffaceous (argillaceous?) rock and porphyritic greenstone. A narrow felsitic dyke is exposed within the felsitized area, but there is no associated sulphide mineralization.

Scattered outcrops show other small felsitized areas which cannot be related to known structures.

Apart from the slightly pyritic felsitized shear described above, only one sulphide exposure occurs on the claims. This forms a pyrrhotite band six feet wide and 40 feet long in the limestone near No. 1 post. The sulphide band strikes north and dips at 50° to 75° east. It is parallel

to banding in the limestone and is thus probably a replacement along bedding planes. The mineralization tapers out at its southern extremity, but continues north until covered by the gravel of Shazah Creek valley.

Scattered chalcopyrite occurs throughout the pyrrhotite of this showing, and representative samples grade as follows:-

<u>Sample No.</u>	<u>Width</u>	<u>Au.</u>	<u>Ag.</u>	<u>Cu.</u>	<u>Pb.</u>	<u>Zn.</u>	<u>Fe.</u>
5495	4'	Tr.	Tr.	0.7	Nil	Tr.	28.0
5496	10'	Tr.	Tr.	0.3	Nil	Tr.	31.1
5497	8'	Tr.	Tr.	0.1	Nil	Tr.	20.7

Structural control over sulphide deposition other than limestone banding is not obvious, but since a north striking fault draw lies 30 feet east of the showing, and will intersect the sulphide band on dip, it can be inferred that mineralizing solutions followed the fault and spread out along a favorable horizon in the limestone.

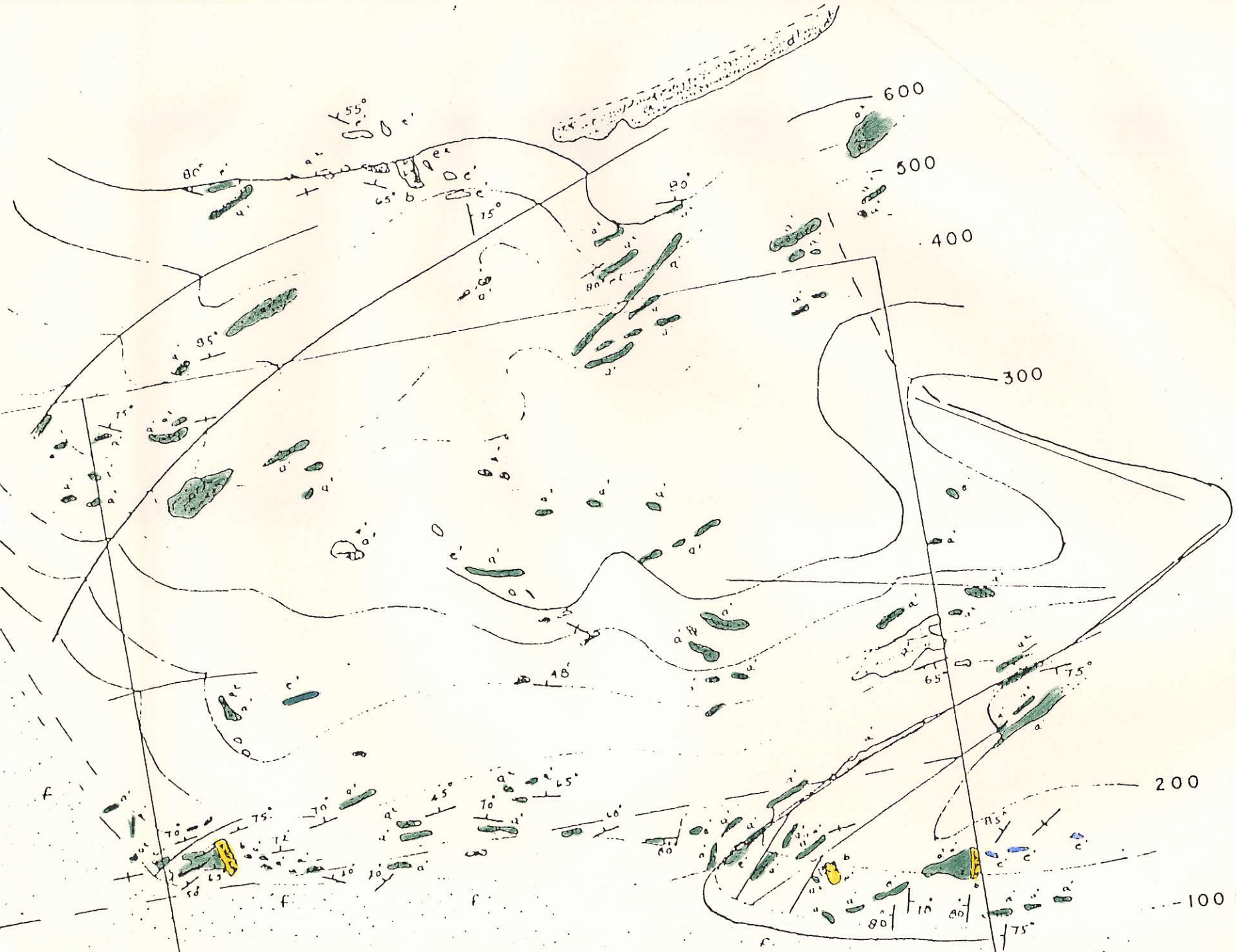
#### RECOMMENDATIONS

The low grade and apparent small size of the main sulphide showing would not ordinarily invite further interest, but due to the fact that the apparent structural control is similar to productive structures elsewhere in the area, and that the northern extent of the sulphide body under Shazah Creek gravels is unknown, some further work could be done to test for a possible higher grade area of sulphides along the strike. As a first step it is recommended that a geophysical survey be performed to test for a northward extension of the main sulphide occurrence, as well for possible blind ore bodies near potentially favorable structures. The MacPhar Clinometer, an electromagnetic device, is recommended for this work.

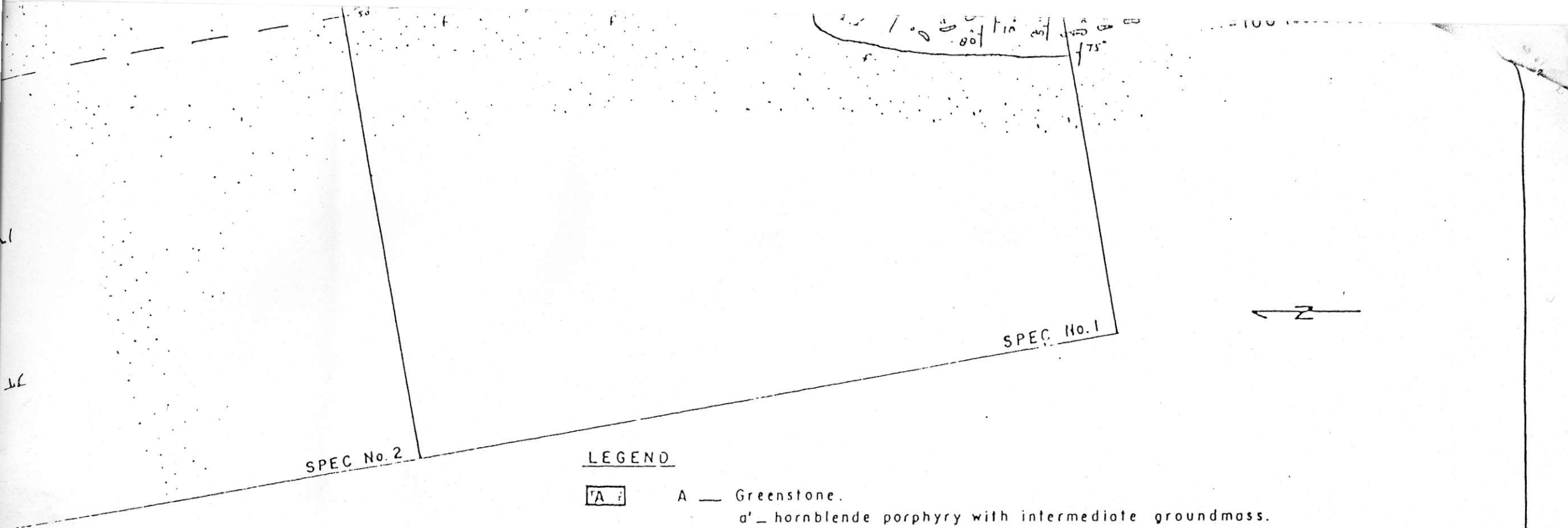
Submitted by: W. T. Irvine  
W. T. Irvine  
Senior Mine Geologist,  
Western District

WTI:il

cc: Chief Geologist ✓  
Mines Division (2)  
Legal Division (2)  
Prince Rupert Office



---100 (assumed elevation A.M.S.L.)



LEGEND

- A A — Greenstone.  
     a<sup>1</sup> — hornblende porphyry with intermediate groundmass.  
     a<sup>2</sup> — fine gray green massive to foliated tuff or argillite.
- B B — Quartz feldspar porphyry with gray green groundmass.
- C C — Limestone — massive to thinly bedded.
- D D — Sulphide replacement — chiefly pyrite and pyrrhotite.
- E E — Felsitization — e<sup>1</sup> — altered greenstone — e<sup>2</sup> — felsite dyke.
- F F — Gravel.

*H. J. Irvine P. Eng.*

DRAWN BY J.K.W.		TRACED BY		THE CONSOLIDATED MINING & SMELTING CO. OF CANADA LTD.	PROPERTY:
REVISED BY	DATE	REVISED BY	DATE		SPEC MINING CLAIMS SCALE 1" = 200'
				AREA: Allin M. D.	DATE: Oct. '52
					PLATE No.



TULSEQUAH MINES LIMITEDGEOLOGICAL REPORT ON THE HARVEY GROUP

AUGUST 9, 1955

SUMMARY & RECOMMENDATIONS

In September 1954 the Harvey Group was staked for the following reasons:-

1. Rusty mineralized volcanic float at the foot of rusty bluffs contained massive pyrrhotite with values in copper up to 1%.
2. The rusty bluffs extended to the East and West for several hundred feet.
3. The presence of liney rocks suggested the mineralization occurred near the base of the stuhini.
4. Cross breaks occur in the bluff face near the No. 1 Posts and are parallel to the Tulsequah break.

About four days reconnaissance mapping was done in June, 1955. From this work the following information was obtained:-

1. Rusty widespread mineralization occurs in volcanic rocks adjacent to granitic dykes.
2. The best assays from these rusty zones average 0.4 oz. Ag and 0.4% Cu.
3. The mineralization seems localized along jointing in massive blocky volcanics. The major jointing parallels the strike of the dykes. Little or no shearing is apparent and the weak breaks parallel to the Tulsequah Fault direction do not have any noticeable effect on the mineralization.
4. Liney rocks appear to be interbedded with banded volcanics and sediments.
5. The mineralized rock is unshered but is generally weakly silicified.

This weakly mineralized area is well exposed along the hillside. Low assay values, weak structural controls and low grade alteration combine to make this group uninteresting. It is recommended that the claim be dropped.

LOCATION AND HISTORY

The Harvey group of four claims is on the Northwest bank of Hazah Creek about 2 1/2 miles North of the Tulsequah Chief Mine. The approximate location of the center of the Group is 58° 47' N latitude and 133° 56' W longitude. The location line runs N 70 E with the Group forming a square.

Samples taken by Harvey MacDonald, Gift Boss, from the talus slides assayed up to 1% copper. The claims were staked for Cominco September 28, 1954.

Earlier stakes were noted on the claim, but these date from before World War II. The details on these earlier interests are unknown.

Continued....

TOPOGRAPHY

The Harvey Group is within the rugged Coast Range which is characterized by steep slopes and sawtooth ridges.

The best outcrops appear as a nearly continuous series of bluffs about 500 feet above the Hazah Valley floor. These bluffs extend for over one half a mile along the hillside and stand up to 75 feet above the steep talus slides. Above this, the slope is more gentle and bluffs are smaller.

At 1500 foot elevation the slope is temporarily interrupted by a series of parallel sharp draws striking about N 65 E. The slope above here is uniformly steep to the top of Mount Stapler (5000 to 6000 Feet).

GENERAL GEOLOGY

P. A. Kerr indicates that this Northwest bank is underlain by pre-permian schists and stuhini volcanics. These rocks are intruded by a granite dyke.

Some differences from Kerr's mapping was indicated by our reconnaissance. These differences are:-

1. The pre-permian rocks seem confined to the West (Tulsequah Valley) part of the map area.
2. The remaining area is largely covered with vaguely banded to massive rocks which could be part of the King Salmon Group.
3. The area is intruded by more extensive granitic rocks than is shown on Kerr's map.

ROCK DESCRIPTIONS(1) Quartz Mica Schists

These are well banded rocks consisting of quartz-feldspar and some sericite with rusty brown mica, chlorite, biotite and hornblende. These rocks are generally pale gray but may weather pinkish and locally they may resemble granite in appearance and composition. Minor pyrite may occur within the quartz giving the weathered surface a rusty coating.

These rocks are found in the West part of the mapped area and are classed by Kerr as pre-permian, the oldest rock in the area. These rocks strike Northeast and have variable dips.

(2) Volcanic & Sediments

These rocks are mostly greenish gray to pale gray fine grained rocks which frequently show vague banding. Near granitic dykes grayish siliceous rocks resemble quartzites, but are likely silicified aureoles adjacent to the intrusives. Most of these rocks contain minor disseminated pyrite. This widespread pyrite may have resulted from indigenous iron and hence be of no significance orewise.

These rocks contain limy bands. Although frequently banded, these rocks are massive, blocky and unshaped.

This banding may indicate these rocks are members of the King Salmon Group.

Continued....

(3) Dark Gray Green Volcanics

These blocky, massive dark rocks appear to be andesites. They occasionally exhibit fine feldspar phenocrysts. In the West part of the map area they appear unaltered near granitic intrusions. These are probably members of the stuhini group.

(4) Granite

Granite occurs as narrow dykes from 2-4 feet wide to massive areas over a hundred feet wide.

The granites are a pale gray to pinkish medium to fine grained quartz feldspar mixture with minor dark minerals consisting of biotite, chlorite hornblende and pyrite.

Jointing is prominent parallel to the N. Easterly strike of the dykes. A less pronounced jointing direction is just West of North.

Intruded rocks appear usually to be more siliceous adjacent to the granites. All pyrrhotite mineralization is near granite intrusions.

(5) Basic Dyke

A 10-12 foot basic dyke striking just East of North occurs in a sheared zone in the Eastern part of the map area.

This is a fine grained green andesitic rock.

STRUCTURE AND MINERALIZATION

The North East striking granitic dykes are parallel to the Chazah Creek Valley and to the "upper" draws. This Taku Fault direction is also the direction of strongest jointing.

Cross shears (Tulsequah type) are present but are weak, ill-defined and do not affect the mineralization.

Secondary jointing striking West of North is frequently noted.

This jointing as noted in the volcanics adjacent to the granitic rocks, is the locus for massive pyrrhotite mineralization. This mineralization appears as thin sheets (up to 1/4") of massive pyrrhotite in the plane of the jointing. Occasional concentrations of pyrrhotite occur at jointing intersections where the sulphide may be up to one foot thick. These concentrations are lense shaped and may be four or five feet across. Rarely chalcopyrite may be seen in the pyrrhotite. Pyrite is widespread and accounts for most of the rusty weathering. This pyrite seems unrelated to structural features, but is found near the intrusives.

An assay taken on the best sample of pyrrhotite ran 0.4 oz. Ag and 0.4% Cu.

The low values in copper on this patchy discontinuous mineralization does not seem attractive. Widespread outcrops give a comprehensive picture of this weak mineralization. On the basis of this mapping it is felt the claims should be dropped.

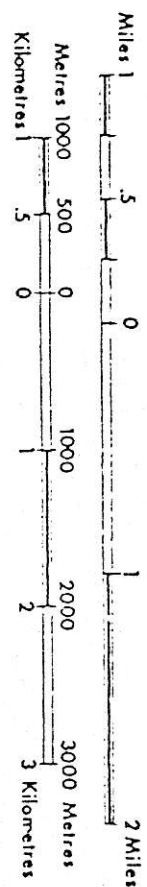
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 Tulsequah Office  
 August 29, 1955  
 cc - S. F. Irvine  
 L. Telfer  
 Mine Division (2)  
 Southwestern Exploration File  
 File

J. K. Webb

J. K. WEBB  
 GEOLOGIST

TO EAST SEE MAP 104-K-14-W

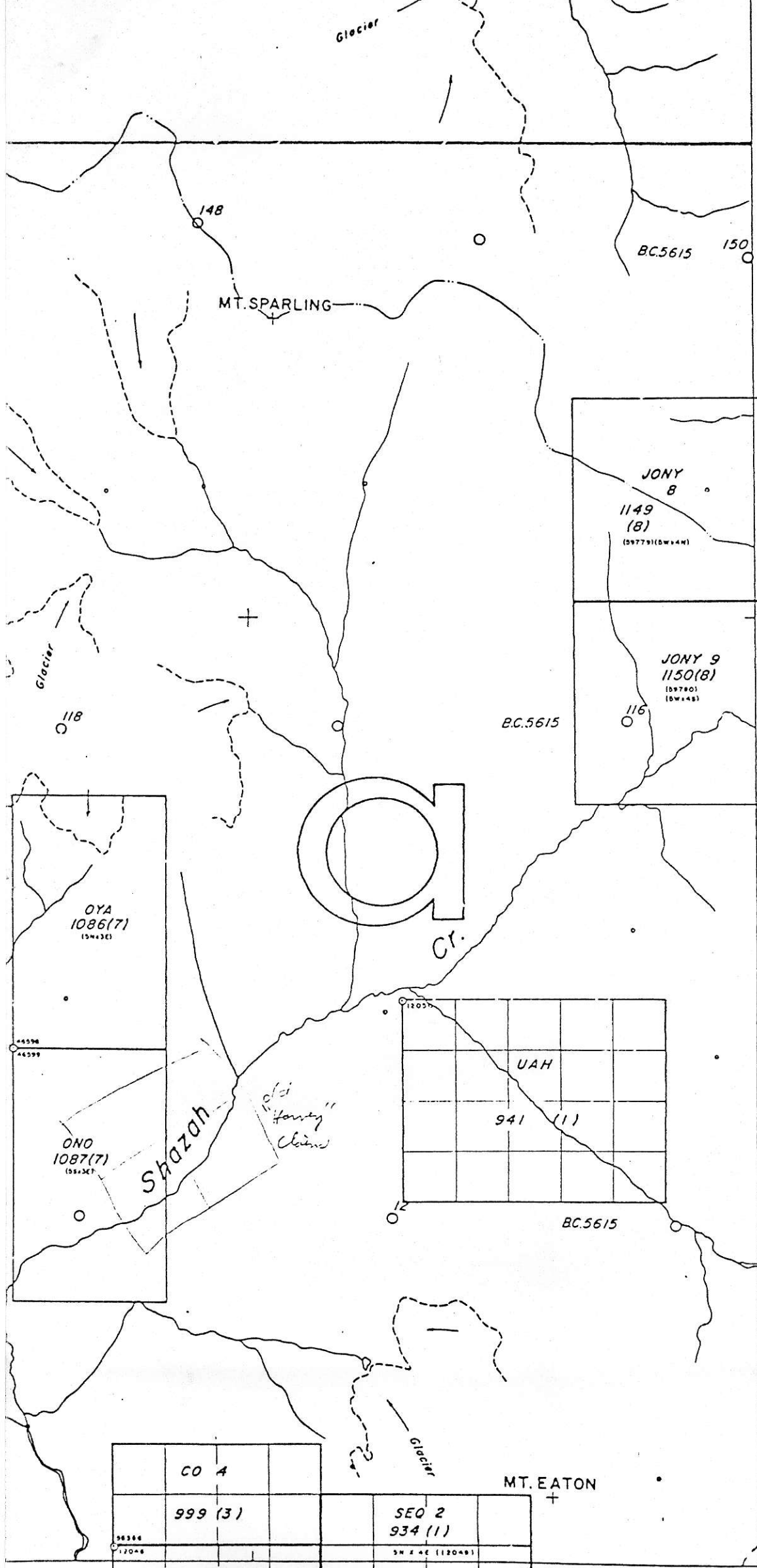
LEGEND  
 CROWN-GRANTED MINERAL CLAIM  
 REVERTED C.G. MINERAL CLAIM  
 FORFEITED MINERAL CLAIM  
 VERIFIED LEGAL CORNER POST  
 LEGAL SURVEY  
 LEGAL CORNER POST ▲ T.G. NUMBER GROUPS



Province of British Columbia  
 Ministry of Energy, Mines and Petroleum Resources



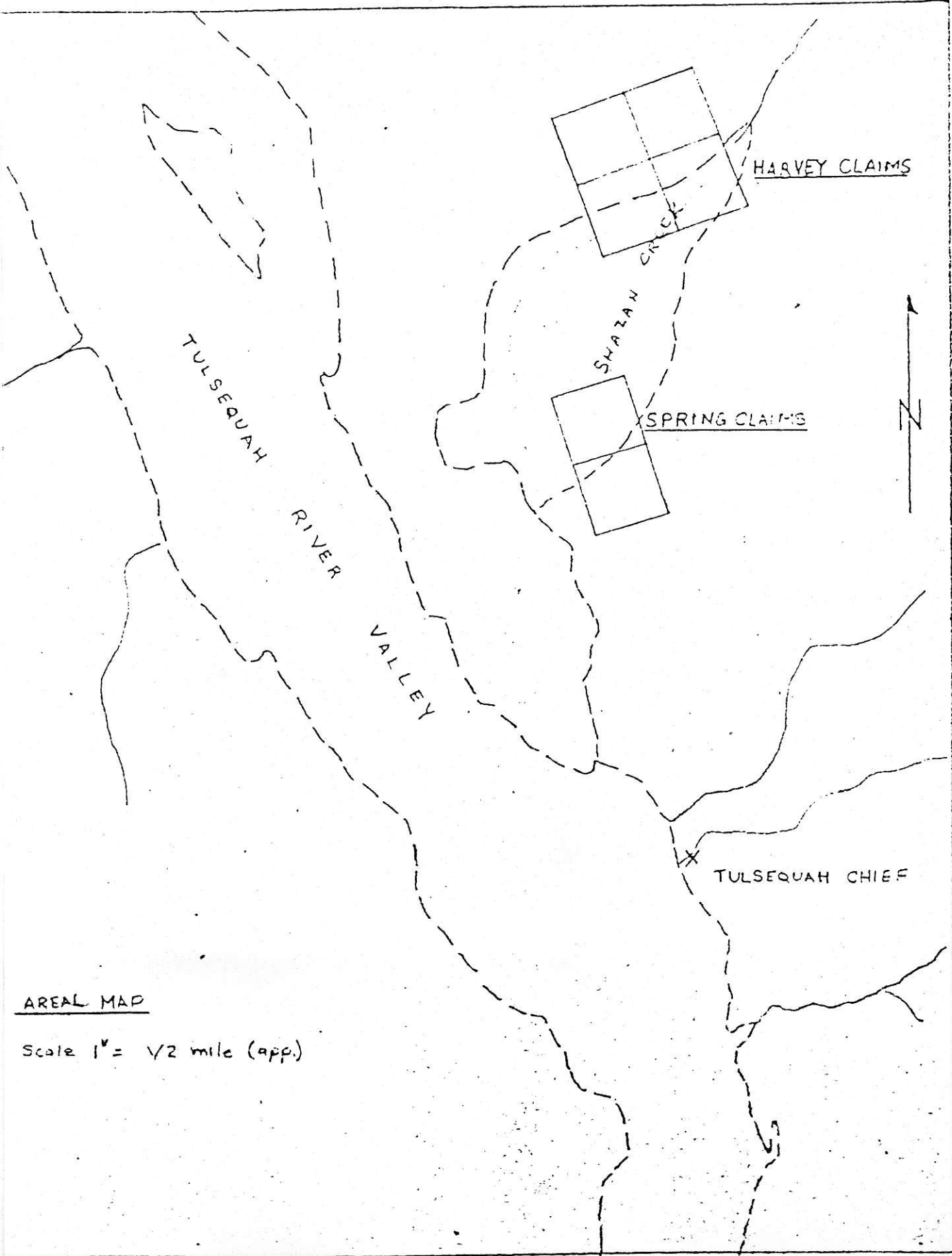
UNLESS VERIFIED ON SURVEYED, THE MAP POSITION OF A LEGAL CORNER POST IS BASED ON THE LOCATOR'S SKETCH. FOR FURTHER INFORMATION, APPLY TO THE OFFICE OF THE MINING DIVISION CONCERNED.  
 DATE OF MICROFILM: 8/10/72



MAP 104-K-12-E SEQ 1 933(1) 55 7 36 17048 58°45' 133°30'

**MINERAL TITLES REFERENCE MAP 104K/13E**  
 DEPARTMENT OF MINES AND PETROLEUM RESOURCES VICTORIA, B.C.  
 Prepared as a guide only to the location of mineral claims that have not been surveyed. Where the position of a legal corner post has been verified it is indicated with the symbol, Ver. Additional

M  
 104  
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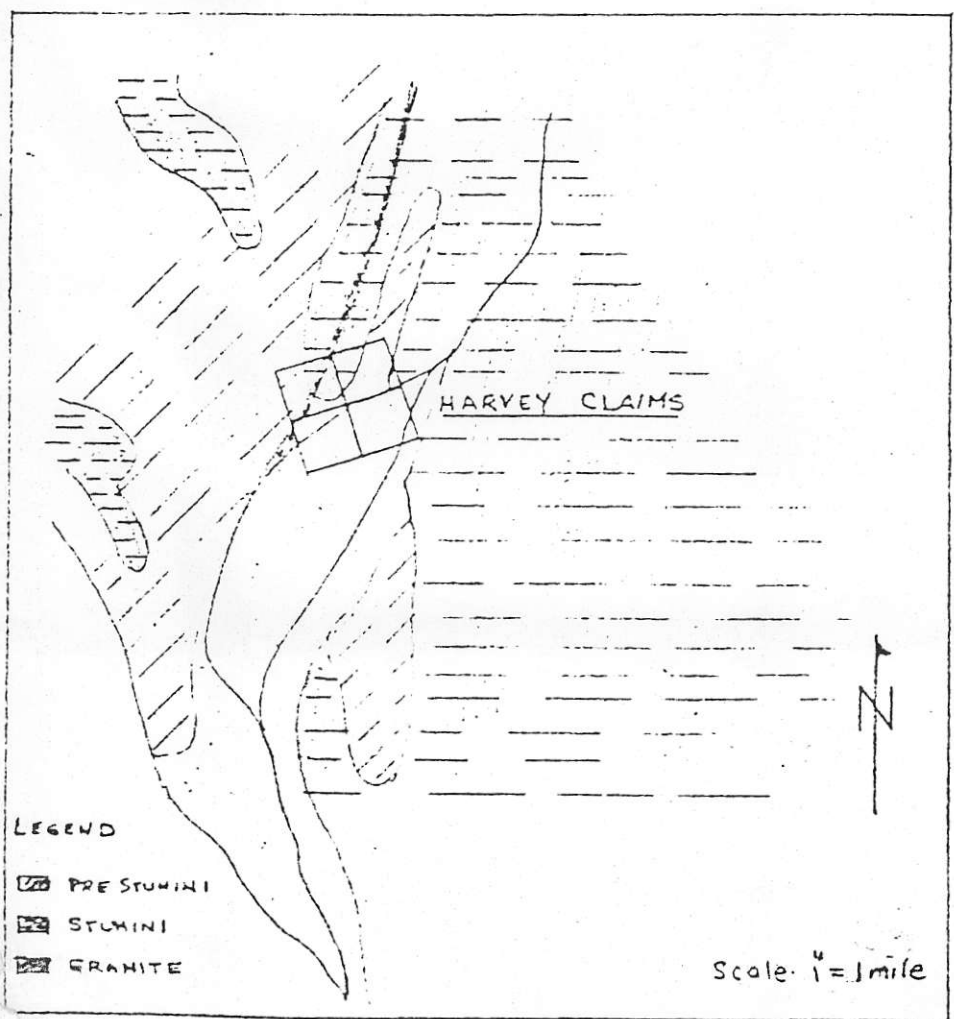
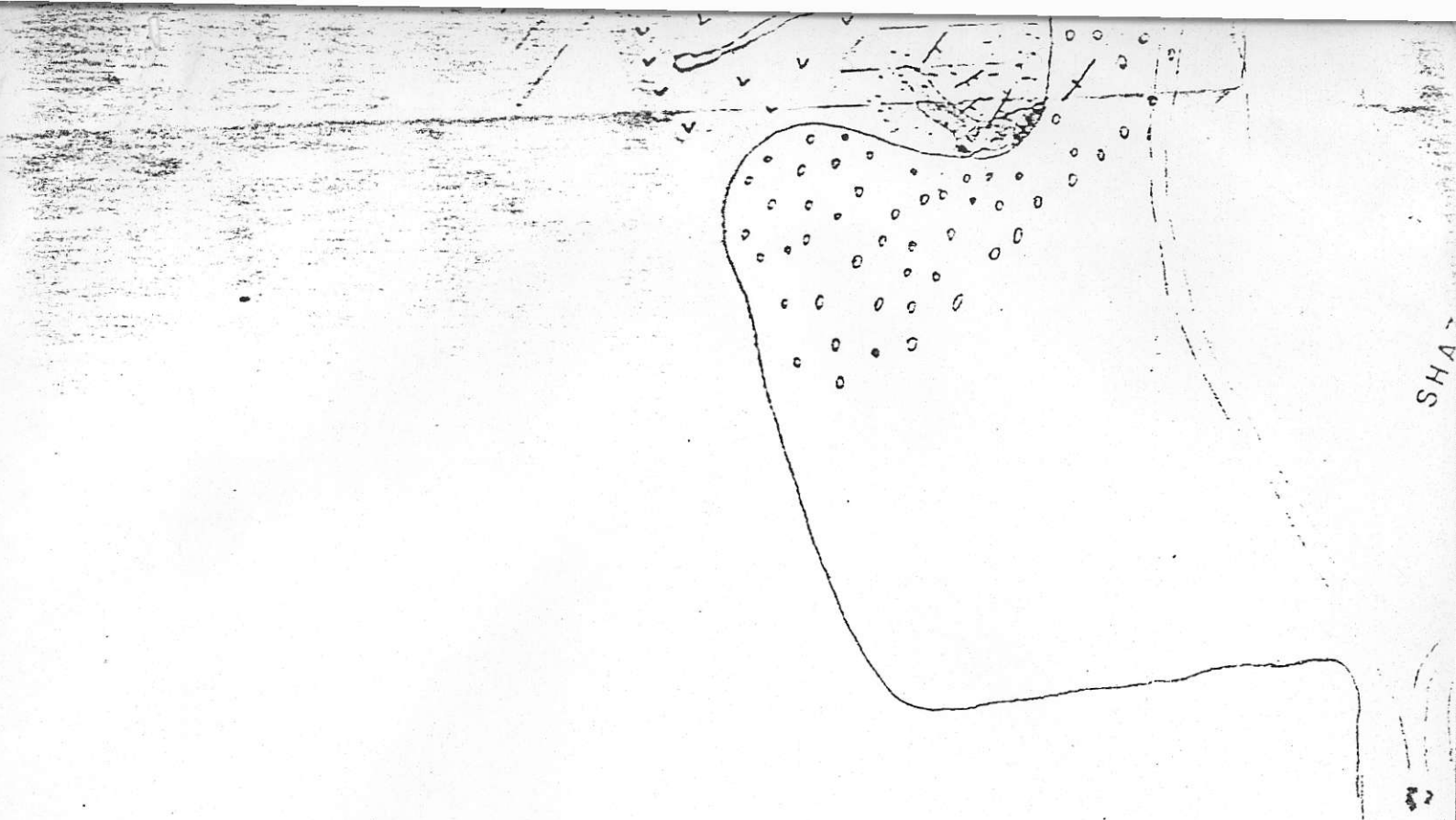


AREAL MAP












Scale 1" = 1/2 mile (app.)






EK  
VALLEY



LEGEND

-  SCHISTS .....
-  KING SALMON ....
-  STUHINI.....
-  GRANITE.....
-  GRAVEL . . . .
-  MINERALIZATION
-  BANDING
-  JOINTING
-  OBSERVED CON
-  INFERRED CON
-  SHEARS

- LEGEND
-  PRE STUHINI
  -  STUHINI
  -  GRANITE

Scale: 1/4" = 1 mile

GEOLOGICAL MAP

FROM F. A. KERR