

**NATION RIVER RESOURCES LTD.**

**WIT PROJECT**

**SKOOK - MOUN CLAIMS**

93N 1W, 2E JUNE 12, 1996 SCALE 1 : 50,000

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Job 950116

March 2nd, 1995

## SAMPLES:

16 rock samples for sectioning and petrographic examination were submitted by Colin J. Campbell. The samples, and preparation types requested, are as follows:

1. TR 94-149E	Polished thin section
2. W 95-01 124.0	Polished thin section
3. W 95-01 131.5	Polished thin section
4. W 95-03 49.8	Polished thin section
5. W 95-03 112.2	Polished thin section
6. W 95-05 74.2	Polished thin section
7. W 95-02 108.2	Polished thin section
8. W 95-02 132.0	Polished thin section
9. W 95-01 114.0	Thin section
10. W 95-01 135.0	Thin section
11. W 95-01 159.0	Thin section
12. W 95-01 46.0	Thin section
13. W 95-04 62.5	Thin section
14. W 95-04 88.0	Thin section
15. W 95-04 11.0	Thin section
16. W 95-05 33.5	Thin section

## SUMMARY:

This suite consists predominantly of normal volcanics and tuffs of intermediate-mafic composition, plus some heterogeneous, more or less sulfide-rich rocks of probable exhalative origin.

### A. Normal volcanics:

Sample W 95-01 159 is a porphyritic diabase of minor intrusive textural aspect. It contains phenocrysts of fresh pyroxene and partially altered olivine. Plagioclase phenocrysts are strongly argillized.

Samples W 95-01 114, 95-01 46, 95-04 62.5 and 95-04 88 are porphyritic andesites, most likely of extrusive origin. The fourth

of these samples is a notably leucocratic variant. Plagioclase shows mild sericitization. Mafics are altered to chlorite and carbonate.

Samples W 95-01 124 and 135 are andesites of generally similar type to the previous four, but show fragmental features and micro-brecciation - infilled by quartz - which suggests that they are flow breccias.

Samples W 95-05 11 and 95-05 33.5 are coarse pyroclastics composed of clasts of vari-textured andesites. The first is an agglomerate, and the second a lapilli tuff. The clasts occur close-packed, without any matrix or introduced cementing phase.

#### **B. Cemented breccias:**

Samples W 95-03 112.2 and 95-02 108.2 consist of coarsely brecciated andesite cemented by quartz or, in the second of the two samples, quartz with carbonate and abundant disseminated sulfides (pyrite and sphalerite). The cementing phase in these rocks has features in common with the exhalite group, and these samples may be transitional in character.

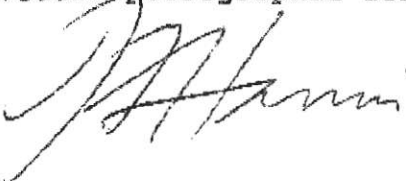
#### **C. Possible exhalites:**

Samples TR 94-149E and W 95-02 132 are distinctive for their substantial content of barite. In the first, compact barite acts as a matrix to andesitic and chloritic clasts and abundant grains and clumps of low-Fe sphalerite and galena. The second is crudely banded, with laminae of compact chlorite and aggregated pyrite grains in a matrix of intergrown barite and quartz. Pyrite is the dominant sulfide, with sphalerite a minor accessory.

Samples W 95-01 131.5 and 95-05 74.2 may be bedded sequences disrupted by slumping. They both include a component of the compact chloritic material seen in the previous two samples. This possibly represents Fe-rich neogene clay of exhalative origin. Other components are quartz and, in the second of the two samples, carbonate. The first of the two samples includes major proportions of compact, low-Fe sphalerite and associated galena, unaccompanied by pyrite. The second contains only minor disseminated sulfides (sphalerite and pyrite).

Sample W 95-03 49.8 is a breccia in which the clasts are principally of carbonate (dolomite or ankerite), with a proportion of unidentified, colourless isotropic material (glass?) and a little chlorite. It contains minor disseminated pyrite. Its origin is uncertain, but it most likely represents a facies of the exhalative group.

Individual petrographic descriptions are attached.

 J.F. Harris Ph.D. (929-5867)

## NATION RIVER RESOURCES 1996 PROSPECTING PROGRAM

Nation River owns a 100 percent interest in 20 Skook and Anom claims covering 8025 hectares North of Chuchi Lake (Figure 1). The Skook claims host the WIT and Skook prospects and are accessed by an all weather logging road 87 kilometers north of Fort St. James B.C.

The Skook claims are contiguous with Digger Resources' Chuchi porphyry copper-gold property to the north and are 13 miles west of Placer Dome's Mt. Milligan copper-gold deposit which contains 6 million ounces of gold and 750 thousand tons of copper

The main Skook property has significant gold, copper, arsenic, barium, lead, and zinc soil geochemical anomalies and when drilled as a porphyry copper-gold prospect returned up to 40 meters of .32% copper, and other quartz sulphide veins contained up to 12.5% copper, 19.3 gpt gold, and 69 gpt silver over 0.3 meters.

### **WIT PROSPECT- Volcanogenic Massive Sulphide (VMS) Deposit**

Petrographic examination of drill core conducted by Jeff Harris Ph.D. during 1995, prompted him to suggest an exhalitive volcanogenic massive sulphides (VMS) model for the WIT mineralization. Further, my attendance in January of 1996 at a short course presentation on New Mineral Deposit Models of the Cordillera has led me to believe the mineralization on the WIT is an example of this new deposit type. Namely, "Shallow Submarine Hot Spring Deposit" (Fig 4), as defined by Mark Hannington, Geological Survey of Canada. These deposits are Au-Ag  $\pm$  Barite-rich with exceptional VMS grades of Ag together with high As, Sb, Hg and gold. They are represented in B.C. by the **Eskay Creek** and **Samatsum** deposits.

These Shallow Submarine Hot Spring VMS deposits are often associated with felsic centers on andesitic strato-volcanoes. Prospecting and hand trenching of a soil geochemical anomaly revealed three outcrops of rhyolite southwest of the main WIT mineralization. Dr. J. Harris (April 1996) describes sample WT 136, taken from one of these outcrops, as "rhyolite extrusive of strongly potassic (67% K-feldspar) composition." He adds, "The presence of small cores of barite in a few of the quartz amygdules, and a grain of low Fe sphalerite in one of them, are interesting features in light of the occurrence of these same minerals as components of possible volcanic exhalitive mineralization at the property."

The presence of rhyolite confirms a felsic center, as suggested by Robert Shives GSC geophysicist display (Fig 4) from the 1996 Cordilleran Round Up. In addition, the second anomaly (to the west) could well be the source of the high grade boulder described below.

A recent assay from an eighty-four pound boulder (Figure 3) found in glacial till near trench 147 + 00 East, on the WIT, returned an assay of **84% Pb-Zn and 1027.6 gm/t silver** for a gross metal value of greater than **\$1000 per ton**. Results from earlier trenching and the 1995 winter drill program on the WIT include:

**Hole WT95-1 which averaged 11.4% zinc, 3.84% lead, 23.3 gpt silver, 1.28 gpt gold, over a true thickness of 2.5 meters**

**Trench 149+50 East which averaged 6.28% zinc, 5.86% lead, 34.8 gpt silver, 0.68 gpt gold and 18% barite across 5 meters**

For 1996 Nation River will conduct a detailed I.P. geophysical survey and take soil samples to find the source of the high grade boulder and better define drill targets on the main WIT zone. Geochemical anomalies will be prospected and trenched with an excavator. Sections of drill core from the 1995 program will be re-logged. Cost estimates for the program are attached.

A block of four claims (80 units) will be staked, to cover prospective ground between the Skook and Anom claims, at a cost of \$10 000.00.

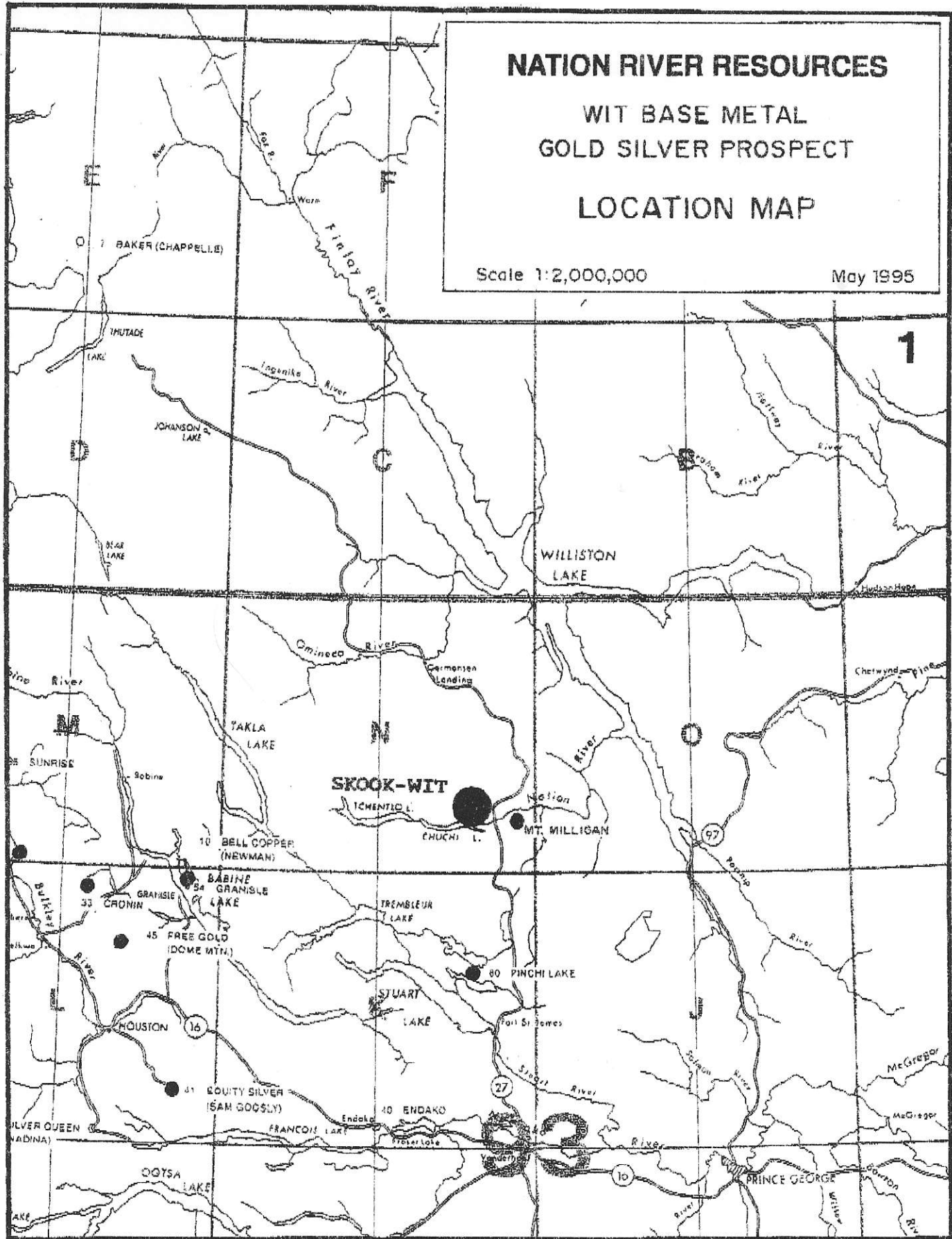
# NATION RIVER RESOURCES

## WIT BASE METAL GOLD SILVER PROSPECT

### LOCATION MAP

Scale 1:2,000,000

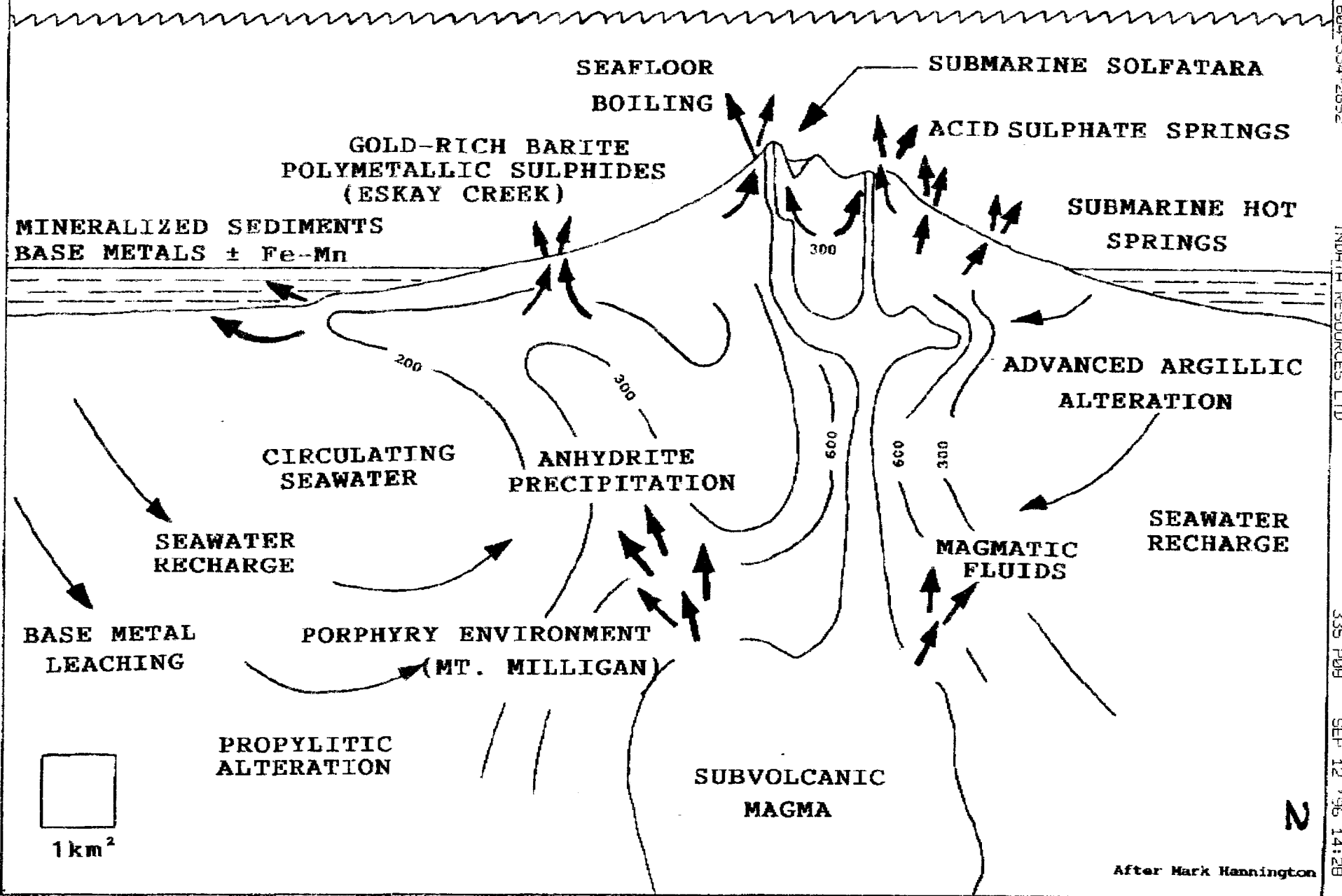
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# SHALLOW SUBMARINE HYDROTHERMAL SYSTEM



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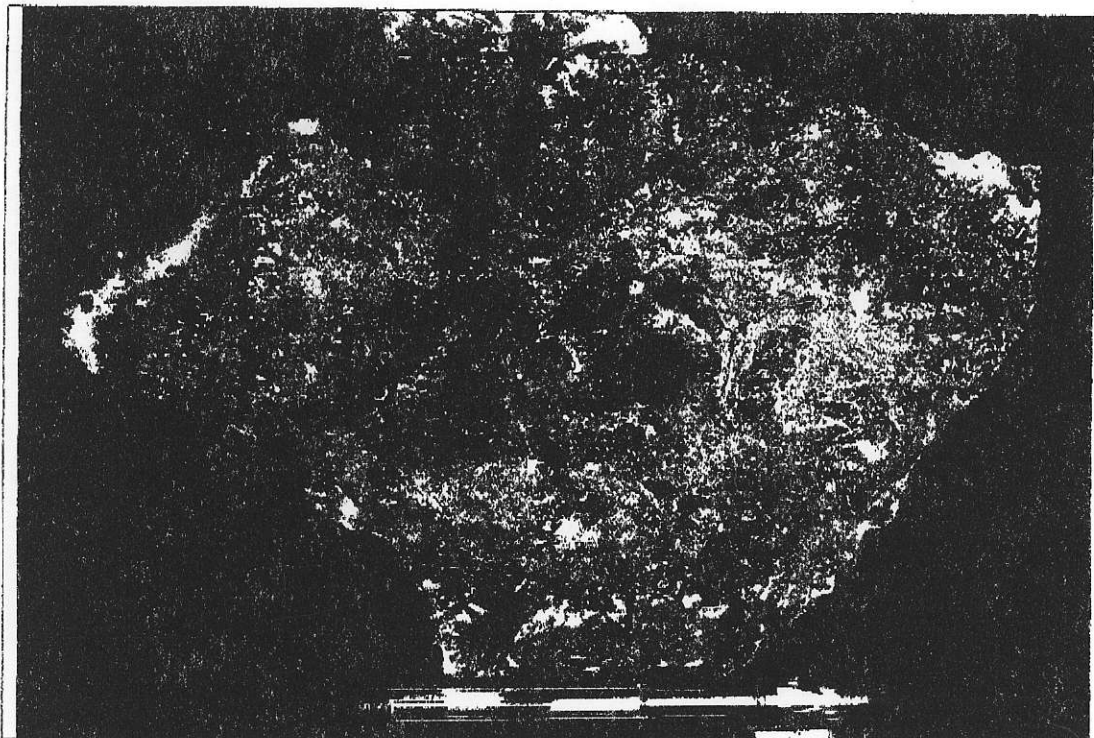


Fig 2. Colloform banded quartz, barite, galena, sphalerite and chloritic fragments from TR 149+50 (6.28% zinc, 5.86% lead, 34.8gpt silver, 0.68 gpt gold, and 18% barite across five meters).



Fig 3. Eighty-four pound boulder of massive sulphide found in the till above trench 147+00 East that returned 84% Pb + Zn and 1027.6 gpt silver for a gross metal value of greater than \$1000 US per ton.



# Wit/Chic

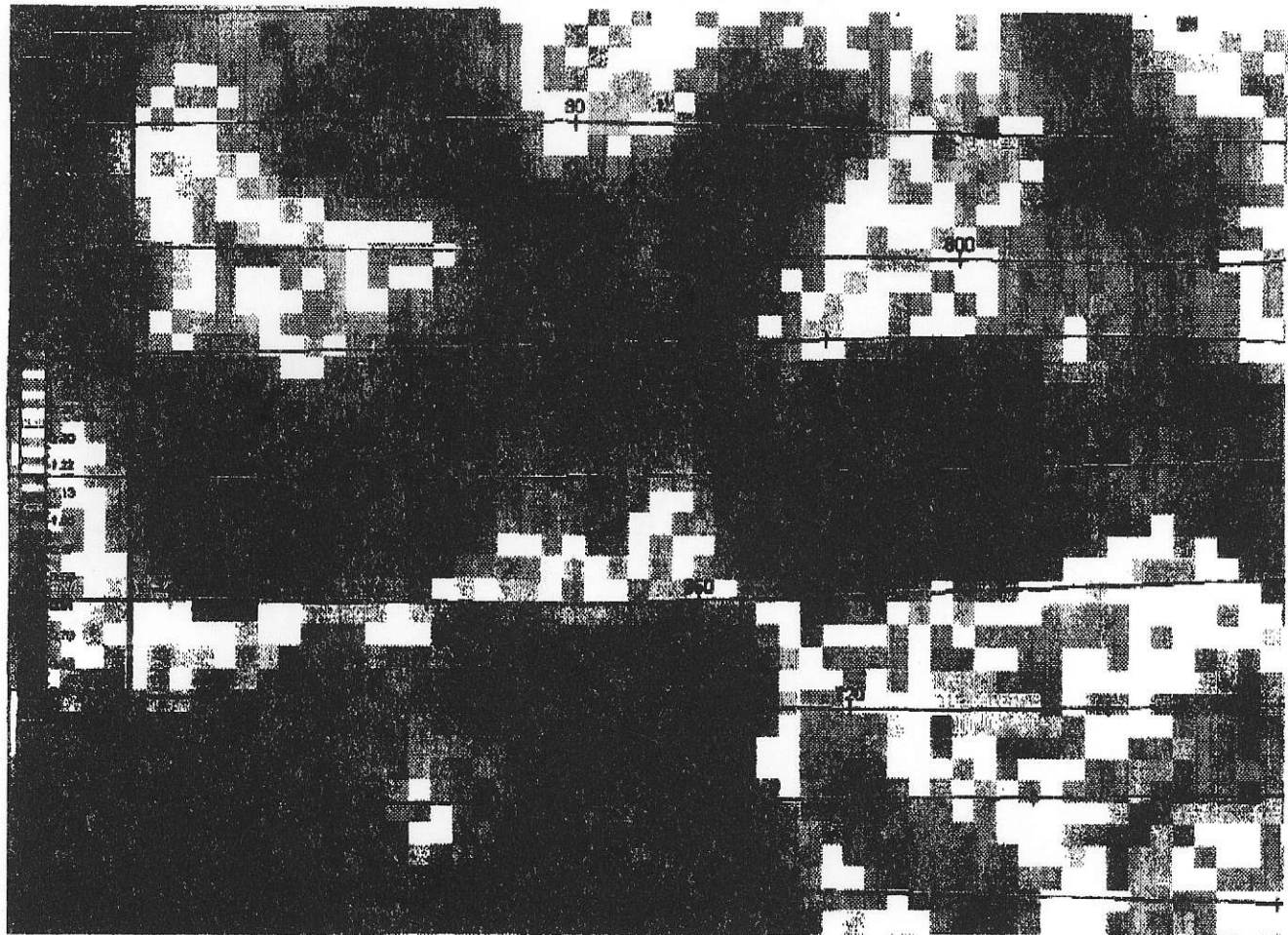


Fig 4. Potassium anomalies North of Chuchi Lake after Rob Shives G.S.C. Display at Cordilleran Round-Up January 1996, flight lines approximately 500 meters apart.

SAMPLE WT 136 (Slide 96-217X)

RHYOLITE

## Estimated mode

K-feldspar	67
Plagioclase	10
Sericite	5
Quartz	15
Chlorite	2
Barite	trace
Sphalerite	trace
Pyrite	1

Macroscopic examination of the stained off-cut of this sample shows it to be a sparsely micro-porphyritic rock of strongly potassic composition. It contains sporadic rounded clumps of quartz which mostly have the aspect of amygdules.

In thin section the matrix is found to consist essentially of a decussate to sub-trachytic aggregate of microlitic K-feldspar, with a possible minor interstitial component of quartz. Scattered, slightly larger, stumper prismatic grains, 0.2 - 0.5 mm in size (rarely to 1.0 mm), show more or less strong pervasive sericitization. These appear to be mainly plagioclase.

The larger rounded masses of quartz show interlocking anhedral mosaic texture, on a scale of 30 - 300 microns, and are almost certainly amygdules. Rare, smaller amygdules filled by chlorite are also seen.

A proportion of the smaller quartz segregations show prismatic outlines, and include components of intergrown chlorite and opaques. These have the aspect of pseudomorphs - probably of sparse, early-formed, mafic phenocrysts.

The presence of small cores of barite in a few of the quartz amygdules, and a grain of low-Fe sphalerite in one of them, are interesting features in light of the occurrence of these same minerals as components of possible volcanic exhalative mineralization at the property.

The rock contains a little fine-grained pyrite, concentrated in apparent hairline microfractures. Pyrite also occurs in and around some of the quartz amygdules, and as a component of the possible silicified mafic pseudomorphs.

This sample has the petrographic features of a rhyolite extrusive.

**SAMPLE TR 94-149E****BARITE-SPHALERITE-GALENA WITH VOLCANIC INCLUSIONS**

## Estimated mode

Lithic clasts	18
Barite	40
Sphalerite	27
Galena	15
Pyrite	trace

Macroscopic examination of the thin section suggests that this rock is a breccia of rock and sulfide fragments cemented by a colourless matrix phase.

The latter is found, from petrographic examination, to consist of monomineralic barite. This takes the form of a meshwork sub-parallel to interlocking, bladed, prismatic grains, 0.3 - 3.0mm in size, in a microgranular matrix/interstitial phase of what is probably the same material, but of grain size 10 - 50 microns. Observations are hampered by the slide being considerably too thick over much of its area.

The sectioned portion includes two silicate lithic clasts. The larger (15mm in size) is a volcanic rock consisting of a felsitic plagioclase groundmass with altered phenocrysts of compact green chlorite. There are also scattered clumps of what is probably microgranular barite, which may be amygdules, or possibly replacements of original phenocrysts.

The smaller lithic clast (4x7mm) consists of monomineralic compact chlorite, incorporating apparent ghost forms of phenocrysts. There is also another much smaller clast of the same material.

The sulfides consist of pale, often colour-zoned sphalerite, and galena. These occur separately or intergrown, on a scale of 0.1 - 1.0mm or more.

The textural features of the sulfides, as seen in thin section, suggest that their apparent occurrence as clasts (comparable to the silicate clasts) may be illusory. To a large extent the sphalerite occurs as discrete, subhedral to euhedral grains, or clumps thereof. Sometimes these occur encrusting cores of galena. One occurrence consists of a meshwork of elongate blades of galena (pseudomorphing barite?) encrusted by fine-grained sphalerite. The galena and/or sphalerite clumps often incorporate interstitial barite.

Perhaps most indicative of the fact that the sulfides are concomittent with the barite cement is the fact that all three of the silicate clasts are clearly fringed by overgrowths of sphalerite, or sphalerite/barite intergrowths.

The virtual absence of pyrite or other sulfides is a notable feature.