

REPORT ON FYRE LAKE FOLLOW-UP WORK

N.T.S. 105-G-1

September, 1969

by

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ATLAS EXPLORATIONS LIMITED

December, 1969

*Concerns preliminary followup work  
done by Pearse on AREA (72)-1, parts a, b, c, & d.*

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# ATLAS EXPLORATIONS LIMITED

330 MARINE BUILDING  
355 BURRARD STREET  
VANCOUVER 1, B.C.

## REPORT ON FYRE LAKE FOLLOW-UP WORK 105-G-1 SEPTEMBER 1969 - G. PEARSE

### INTRODUCTION

Three areas of interest which were outlined by geochemical sampling in the course of the 1969 summer field season were chosen for immediate follow-up in September. The work included detailed geologic mapping and prospecting by the writer, prospecting by Ted Skonseng and contour soil sampling by John Ollie and Harry Atkinson.

The crew, equipment and supplies were transported on September 8, 1969, from Ross River to Area-1 (see Fig.1) by a TNTA B-1 helicopter piloted by I. Vandebos, with support by truck to Frances Lake on the Watson Lake road. The camp was moved to Area-2 and supplied by B-1 from Ross River on September 16. Only one day's work was possible in Area-2 due to bad weather and the camp and crew were removed to Ross River by TNTA Jet Ranger from Whitehorse, with truck support from Frances Lake on September 20.

### SUMMARY

Two secondary drainages of Area-1 were geologically mapped in detail by the writer. Float and outcrops along the creeks were prospected and contour soil samples were collected at 500 foot spacings along two lines in the north-western drainage and three lines in the eastern drainage; the lines spaced from 500 to 1000 feet apart. A third tributary to the south was prospected by Ted Skonseng.

Mapping and prospecting along the main anomalous drainage in Area-2 was terminated by the weather. Two soil lines separated by 500 to 1,000 feet with samples spacing at 500 feet along both walls of the valley were completed. A secondary anomalous drainage was not examined. Further follow-up work is indicated in both areas on the basis of good geochemical results and favourable geology.

### CONCLUSIONS AND RECOMMENDATIONS

Copper and molybdenum anomalies, granitic intrusives, widespread pyritization in schists and quartzites, and minor galena veins occur in both Area-1 and Area-2. The areas warrant additional work paying particular attention to intrusive rocks as possible porphyry hosts.

Two other areas in the vicinity which were outlined during the summer should also be examined in detail. The follow-up program should include systematic age-dating of intrusives.

#### LOCATION AND ACCESS

The first priority anomalies lie within an area of 120 square miles bounded by latitudes  $61^{\circ} 09'N$  and  $61^{\circ} 18'N$  and longitudes  $130^{\circ} 07'W$  and  $130^{\circ} 23'W$ , centered about 10 miles east of Fyre Lake campsite, in 105-G-1 and 105-G-8. The area lies 24 air miles southwest of the Government campsite at Frances Lake on the Watson Lake road, and 90 air miles southeast of Ross River.

#### HISTORY

Several small massive sulphide showings were located in the Fyre Lake - Grass Lakes - North Lakes area - over the last 10 years by Atlas and others. Work done on the properties included airborne and ground geophysical work, soil sampling, geologic mapping and diamond drilling. The area was selected therefore for an intensive regional silt sampling and geological mapping program which was carried out in the summer of 1969, northeast of the Tintina trench in sheets 105-G-1,-2,-6,-7 and -8, as part of the Tintina project.

Detailed information on previous work done is available in the following reports in our files:

1. Geochemical Soil Sampling Surveys.

Tak Mineral Claim Group.

by J.S. Brock and J.N. Boateng

105-G-2 and -7.

2. Magnetic and Electromagnetic Geophysical Survey.

Tak Mineral Claim Group.

105-G-2 and -7.

3. Geological Report.

Dub Claims 1-167 and Zot Claims 11 & 12.

by T.L. Sadlier-Brown

105-G-1 and -2.

4. A Geological Report on the Ash Claim from 1-36, Inclusive.

by T.L. Sadlier-Brown

105-G-2

5. Magnetic and Electromagnetic Geophysical Surveys.

Dub and Zot Mineral Claim Groups.

by J.S. Brock

105-G-1 and -2.

6. Information Obtained from Cassiar Asbestos.

105-G-2

7. Report from North Lake Mines.
8. Various Drilling Reports - 105-G-1 and -2.

### GENERAL GEOLOGY

The area of interest is underlain predominantly by sericite-quartz-schist and micaceous quartzite, Unit A (GSC), possibly Proterozoic, which is intruded by coarse-grained hornblende granitic rocks and associated hornblende diorite, Unit 9 (GSC), believed to be Mesozoic. Limestone, fine-grained amphibolite, gneissic granite, feldspar augen gneiss and minor conglomeratic quartzite also occur in the area.

#### Feldspar Augen Gneiss (1)

This unit was observed only in Area-2 and is medium grey in colour with pink feldspar augens up to  $\frac{1}{2}$  inch. The matrix is highly schistose, chloritized and epidotized. Minor chlorite schist layers with no porphyroblasts are intercalated with the augen gneiss.

#### Quartz-sericite-schist, Sericite-quartz-schist, Phyllite (2)

This unit is the most dominant rock type in the area. It varies in composition from phyllitic to sericite-quartz-schist. Pyrite is present almost everywhere in this unit and weathering has imparted a yellow to orange colour to outcrop surfaces.

Limestone (2a)

Compact grey limestone having well defined bedding occurs in contact with coarse-grained hornblende granite (7) in the western part of Area-1. Except at one locality where a minor shear is impregnated with granite, and probably right at the contact which was not observed, the limestone is remarkably unaltered and probably not of economic interest. Another belt of limestone, which was not visited by the writer, occurs on the divide just southeast of Area-1.

Black Cherty Quartzite and Grey Laminated Quartzite (3)

This unit occurs as a layer in the sericite-quartz and quartz-sericite-schist, and undoubtedly represents a more siliceous facies of the schist. Black cherty quartzite is compact and fine-grained. Grey laminated quartzite is composed of quartzite layers averaging 1/16 inch separated by folia of sericite.

Fine and Coarse-Grained Amphibolite (4)

The rock is medium to dark green or grey on fresh surface and predominately fine-grained with coarser-grained dioritic phases. The former are largely sheet-like bodies, possibly sills or flows of andesitic composition with some narrow dykes. The latter are dyke rocks which occur on the ridge in the extreme northwest part of the map area. A small

plug of fine-grained amphibolite outcrops in Area-2.

Some of the rock mapped in this unit may be calc-silicate metasediment.

#### Conglomeratic Quartzite (5)

This rock is composed of pea-sized quartz pebbles in a schistose chlorite-sericite-quartz groundmass. It caps the ridge above the cirque in the northwest part of the map area. A second probable occurrence to the north was seen only from a distance and inferred by photogeology.

#### Gneissic Granite and Granodiorite (6)

This unit outcrops in a cirque in the middle of the map area. It was not visited by the writer but a hand sample of gneissic biotite granite brought from there was examined and the body is tentatively assumed to be an old granitic intrusion.

#### Coarse-Grained Hornblende-quartz Monzonite (7)

Coarse-grained hornblende-quartz monzonite with less than 15% hornblende, 15-20% quartz, and approximately 35% each of pink feldspar and white feldspar with a greenish alteration intrudes the meta sediments in the northwest corner of the map in Area-1. A gneissic granodiorite intrusion in the southern extremity of the mapped area has light pink feldspar, coarse quartz eyes and chloritized mafics. Only the contact area

was examined and whether the gneissosity persists throughout the body is unknown. It may not be of the same age as the quartz monzonite but it has been included in this unit because of similar economic possibilities.

#### Medium-Grained Hornblende Diorite (7a)

The unit is a border phase of the quartz monzonite. The rock is composed of white feldspar up to 30% and hornblende about 70%. The dykes to the east, which have been mapped as amphibolite, may be related to this rock.

#### STRUCTURAL GEOLOGY

The most dominant regional structure is that of the Tintina fault - a northwest-trending linear feature with markedly different geology and topography on either side. The fault lies about 15 miles southwest of the area examined. Subsidiary sub-parallel faults have been postulated for the valley containing Fyre Lake.

Dips in the schistose rocks northeast of the Tintina fault are generally shallow and folding has been interpreted to be broad and gentle undulations. Detailed mapping in the North Lakes area, however, suggests that the gentle warping is superimposed on large scale recumbent folds or nappe structures, the cores of which are feldspar augen gneisses

enclosed in lower grade schists with axes trending roughly  $80^{\circ}$ .

In the follow-up area, dips are gentle with a shallow easterly-plunging syncline in the western part of Area-1, and a north-plunging anticline-syncline pair in Area-2 to the south.

A minor shear trends eastward and cuts limestone at its contact with quartz monzonite. Granitic material has been injected into the shear. An easterly-trending fault has been assumed to underlie a strong linear in the eastern part of Area-1.

#### ECONOMIC GEOLOGY

Follow-up work was carried out to investigate high geochemical anomalies, particularly those of copper in the Fyre Lake area, in view of the numerous interesting replacement-type copper properties in the Fyre Lake-Grass Lakes-North Lakes area. Geological mapping and prospecting was concentrated in the areas underlain by metasedimentary rocks

with special attention directed to the area immediately east of the quartz monzonite stock in Area-1, with which the Fyre Lake property appears to be associated on the western side.

A few flecks of molybdenite in quartz were observed near a granite intrusion some 25 miles south of the follow-up area during the course of the summer work. For this reason, geochemical samples were run for molybdenum as well as copper, lead and zinc in the follow-up area.

The molybdenum assays are encouraging and, in view of the pervasive pyritization of the schists and gneisses, both disseminated and in veinlets, the presence of minor galena veins at both localities and the occurrence of minor malachite in quartz monzonite in Area-1 the granitic intrusives warrant close inspection for porphyry copper-molybdenum potential.

An extensive gossan, probably more than 15 feet thick,  
occupies part of the floor of the cirque in Area-2,

extending northward from the north contact of the granite.

A barite layer in the schists in the eastern half of Area-1 was observed in several localities over a distance of 1500 feet and is estimated to contain about one million tons. The barite is compact, very fine-grained and very light grey in colour. A second smaller occurrence is located in the western half of Area-1 about  $\frac{1}{2}$  mile upstream and on the north side of the creek which drains the contact area of the quartz monzonite.

Chalcopyrite and nickeliferous pyrrhotite occur in minor amounts in the amphibolitic rock.

#### GEOCHEMISTRY

Due to confusion at Chemex Labs., between samples from Fyre Lake and the Dawson Range, some samples were run for readily available metals and some for total extraction.

Minimum anomalous values for copper, lead, zinc and molybdenum were taken as 80, 60, 300 and 4, respectively.

In the western drainage of Area-1, most of the anomalies occur within a roughly circular area  $\frac{1}{2}$  mile in diameter centered between the creek and the ridge to the north, about 3,000 feet upstream from the mouth and about 6,000 feet from the granite contact to the west. Chalcopyrite was observed in the amphibolite and dykes of this unit which are exposed on the ridge, and may be present beneath the talus slopes. These might in part have supplied the copper. Molybdenum anomalies, which average about 10 ppm with one exception of 115 ppm, presumably require a granitic or quartz vein source. No granitic rocks or mineralized quartzite veins were observed in the anomalous area but exposures are poor on the valley slopes.

No granitic rocks were observed in the eastern half of Area-1. Anomalies are sparse only in the headwaters area of this drainage and elsewhere are abundant. Most of the copper anomalies are attributable to fine-grained amphibolite units. The majority of anomalous molybdenum sites appear to be in metasediments downstream from the amphibolite unit. The highest is 58 and the average is about 15 ppm. Outcrops are non-existent along the lower two-thirds of the creek and in the main valley. An exposure of granite has been recorded about  $1\frac{1}{2}$  miles downstream from the mouth of this tributary

however, and other small stocks or the continuation of this one may underlie the valley. It is significant that the limits of sampling in both western and eastern tributary valleys were still in anomalous ground and therefore a source of mineralization may exist in the valley. The southern drainage has three copper and two molybdenum anomalies in the vicinity of a slide in rusty quartz-sericite-schist.

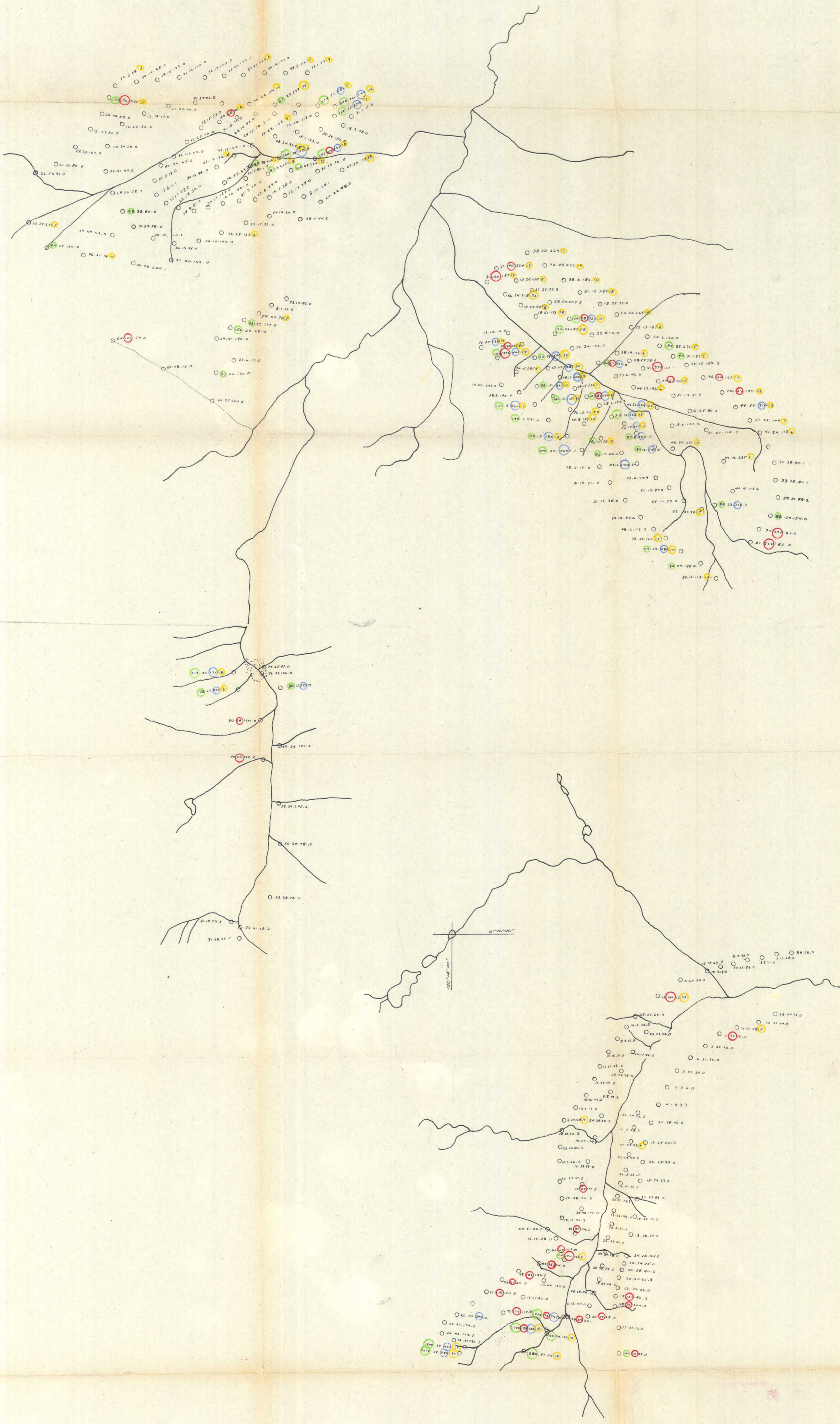
In Area-2 to the south, copper and copper-molybdenum anomalies are confined to feldspar augen gneiss and quartz-sericite-schist bordering the north contact of this granitic intrusion. North of the belt of copper-molybdenum anomalies, lead anomalies occur giving a zonal pattern. The geochemical results here are therefore directly attributable to the granitic intrusion.

Respectfully submitted,

G. Pearse.

December, 1969.





ATLAS EXPLORATIONS LTD.  
 ROSS RIVER, YUKON  
 FYRE LAKE FOLLOW-UP PROGRAM  
**GEOCHEMICAL SURVEY VALUES**  
 NTS. 105 - G/1  
 SCALE: 1" = 1/4 mile

DATE OF SURVEY: Sept 69	PARTY CHIEF: G. Pearce
DATE DRAFTED: Dec. 12, 1969	DRAFTED BY: G. Pearson
DATE REVISED:	REVISED BY:
CHECKED BY: G. Pearce	FIGURE NO. 2

