ATLAS EXPLORATIONS LIMITED

HESS PROJECT REPORT

1968

LAFORCE LAKE - MOUNT SELOUS AREA

N.T.S. 105-J & K

By:

M. E. (Tim) COATES

Project Manager

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SUMMARY

Geological mapping in the latter part of the 1968 season was restricted to spot check work in areas of immediate economic interest. Several new quartz-monzonite intrusions were discovered and the contacts of some - previously known - were more accurately outlined.

Geochemical drainage surveys have equipped us with a regional standard for comparison and statistical evaluation of results. A large number of geochemical anomalies have been discovered, many of which merit further study. A comparative evaluation of these anomalies is included in this report.

Prospecting work has made possible the correlation of geochemical data with actual mineralization. It was also successful in discovering several showings which show promise in a new mineralized district. Descriptions of the showings examined are included in this report.

CONCLUSIONS

Reconnaissance geochemical survey coverage was not completed in the Laforce Lake - Mount Selous Area. In the areas surveyed, anomalous results have been found in proximity to intrusive rocks or regional linear features. Showings discovered in the latter part of the 1968 season merit further work. Zones with anomalous geochemical results in several cases are also worth doing follow-up work on.

RECOMMENDATIONS

The Laforce Lake camp should be re-opened as early as possible in the 1969 season and work begun in the Peak 5267 area. Geological mapping should be done in conjunction with this work which would take four (4) men approximately ten days to complete.

At the same time reconnaissance silt sampling, started in the 1968 season, could be completed and anomalous zones revealed by surveys in 1968 could be examined by geological personnel. This work should be completed by a 17 man crew in approximately twenty-one days (May 31 - June 20).

TELEPHONE 685-4331

ATLAS EXPLORATIONS LIMITED
(N.P.L.)
330 MARINE BUILDING
355 BURRARD STREET
VANCOUVER 1, B.C.

HESS PROJECT REPORT
1968
LAFORCE LAKE-MOUNT SELOUS AREA

INTRODUCTION

As a continuation to work in the Hess River Area, explorations were commenced from a base camp at Laforce Lake August 11, 1968. Work was continued until October 1, at which time snow conditions made further work impractical. In conjunction with this survey, development and extension work under the supervision of T. J. Adamson was carried out on the Lad Group (staked in the 1967 season). The Ivor Group (lapsed) was also examined by him. A summary of his work appears as Appendix I.

LOCATION AND ACCESS

The area surveyed is immediately south of 63°00' north latitude. The southern boundary is formed by a line bearing N-60°-W through Twopete Mountain and by the Canol Road. On the east and west flanks the area is bounded by meridian 131°00' and 133°50' respectively. Laforce Lake, in the central parts of the area, is 50 miles due north of Ross River, the nearest access point. Float-equipped fixed-wing and helicopter transportation is available at Ross River. Restricted road access from Ross River may be forthcoming at some time in the 1969 season if repairs on the Canol Road are completed.

TOPOGRAPHY AND GROUND CONDITIONS

The terrain in the region is mountainous with maximum relief of approximately 5000 ft. The base camp at Laforce Lake is at an elevation of approximately 3300 ft. The South Macmillan River Valley, ten miles north of Laforce Lake, has an elevation of 2400 ft., while nearby Mount Selous peaks at 7138 ft.

Tree-line in the area is at approximately 4500 ft. with the exception of areas underlain by volcanic rocks which do not sustain tree growth and consequently are barren at much lower elevations. The drift covered areas support a stunted growth of black spruce, pine, dwarf birch and mountain alder. In areas of heavy overburden, as in the South Macmillan River Valley, tall stands of spruce and the occasional poplar grove are found.

Permafrost is omnipresent and solifluction features abound (mud glaciers, slumps, etc.).

GENERAL GEOLOGY

The Laforce Lake - Mount Selous area is underlain by rocks which range from Proterozoic to Cenozoic in age. The regional strike of the Mesozoic and older rocks is northwest-southeast. Dips are variable. The Proterozoic rocks belong to the "Yukon Group" (Bostock, 1946) and form a northwest trending axis through the central parts of the area (See Fig.1). The "Yukon Group" is composed mainly of poorly sorted, medium-grained buff to grey weathering quartzite with lesser amounts of phyllite, chlorite-mica-schists and slate. Thin beds of limestone and lenses of intraformational conglomerate occur at various intervals in the sequence.

The nature of the contact between the "Yukon Group" and Lower Paleozoic rocks is not known definitely, but it appears that it is a fault contact in most cases. Proterozoic rocks are overlain unconformably by black chert and shale - reported to contain Ordovician-Silurian graptolites - and chert pebble conglomerate.

Granitic rocks of Cretaceous age (11). Composition granodiorite to quartz m nzonite comprise Mount Selous and other smaller intrusions in the district.

Limonite and calcium carbonate cemented conglomerate (13) are found at the base of mountain slopes, valley margins or on stream beds.

Several miles south of Laforce Lake volcanic flows (14), mafic to intermediate in composition, overlie the older rocks unconformably. These flow rocks are massive and strongly porphyritic.

TABLE OF FORMATIONS

CENOZOIC

Quaternary

Glacial and alluvial deposits

Tertiary

Grey and dark grey andesite, dacite and basalt; massive and porphyritic; minor pyroclastic material.

Paleocene

Limonite and calcium carbonate cemented conglomerate.

Unconformity

MESOZOIC

Cretaceous (?)

Late mafic intrusive rocks; diabase dikes

Intrusive Contact

Felsic Intrusive Rocks: Granodiorite, quartz-monzonite, diorite, syenite feldspar porphyry, aplite

Intrusive Contact

PALEOZOIC

Ordovician-Devonian (?)

Carbonaceous rocks, cherts, slates, quartzite phyllite greywacke, chert pebble conglomerate

PRECAMBRIAN

PROTEROZOIC

Quartzite, phyllite, limestone chlorite schist, serecite schist, conglomerate, varicoloured slates, etc.

STRUCTURAL GEOLOGY

The regional attitude of the rocks is northwest-southeast, dips being highly variable. Exceptions to the rule occur locally.

The most prominent structure in the Proterozoic rocks is the metamorphic foliation (schistosity) effected during the Laramide orogeny. The Precambrian rocks are poorly bedded but appear to be buckled into fairly open folds with axes plunging northwest at angles of 10 to 30 degrees. Phyllitic layers in the Yukon Group give evidence of at least three periods of deformation (opposing lineations and kink-banding). Where bedding was definitely determineable (layering or pebble concentrations) no top determinations were possible.

In the Ordovician-Devonian bedding is more readily determineable in zones of compositional layering. Greywacke beds which could yield excellent top determinations were not seen in place. Folding in these rocks appears to be more complex than in the Proterozoic; a consequence of penecontemporaneous deformation and the superposition of the regional fold pattern over local intraformational folding.

Faulting: Four major fault trends have been observed:

1. Northwest-southeast; this set is the most dominant regional trend. It parallels the Tintina rift zone and, in the Hess River area, the regional strike. In zones of minor movement which adjoin the regional fault valleys, the only evidence of movement is an unusually strong schistosity developed over narrow zones.

2. Northeast-southwest; this set, developed almost orthogonal to set (1) is paralleled by a strong joint set and has effected minor displacements in rock contacts.

3. North-south; an earlier fracture system modified by (1) and (2). Numerous rust seepages occur along faults of this trend.

4. East-west; en echelon faults of this set, in the vicinity of Fairweather Lake.

Most of the major fault zones have "buried themselves"; they are manifested by a grid-like development of linear features, regional in extent.

ECONOMIC GEOLOGY

The mineral occurrences examined in the Laforce Lake - Mount Selous area, classified according to metal and geological environment, fell within the following groups:

1. Shear zone impregnations, usually stratiform, in proximity to granodiorite or quartz-monzonite stocks of Cretaceous (?) age.

    (a) Pyrrhotite - chalcopyrite - quartz
    (b) Sphalerite - galena - chalcopyrite.

2. Cross-cutting veins

    (a) Arsenopyrite - pyrite - chalcopyrite - quartz.
    (b) Galena - quartz - calcite (variable Pb - Ag ratios).

3. Pyrrhotite - chalcopyrite fracture filling in association with quartz-monzonite to granodiorite stocks (porphyry copper type mineralization).

Brief descriptions of the various showings are given below:

105-J-11 - Occurrence No. 17

This showing which is situated on Mount Sheldon, several hundred yards east of the main north-flowing stream, was discovered by Hugo Brodell. The mineralizatization is

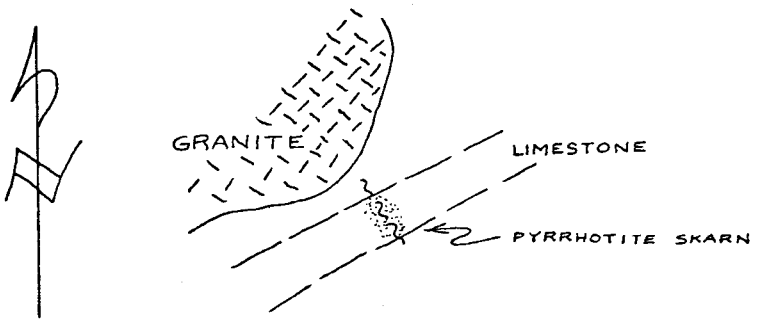
localized in a fracture zone in slates. The body is lens-shaped - approximately 12 ft. by 6 ft. - and comprised mainly of massive, coarse-grained pyrrhotite with minor chalcopyrite as fracture-fillings. This showing appears to be of no economic importance.

105-J-12 - Occurrence No. 18

This showing has been examined in the past by other companies. It was the site of the RAH Group (1954); the PAD Group (1960, Kennco Explorations) and was staked by John O'Neil of Ross River in May, 1967. Tom Adamson of Atlas Explorations spent 6 days in the area in 1967 (June 5-9), mapping the showings and executing a pilot geochemical program. His description of the showing is given below.

Two small sulphide zones were noted in the area under investigation.

Showing A, the larger of the two, is a pyrrhotite skarn zone developed around a shear in the limestone unit. This is very close (approximately 150 ft.) to the intrusive contact. The recrystallized limestone is about 60 ft. thick with an attitude of 080/90 at this point. The shear and skarn zone cut across the limestone at right angles (350/90). The skarn zone is about 10 - 15 ft. wide.



The skarn is composed of pyrrhotite, carbonate, and very minor garnet, actinolite (?) and chalcopyrite.

Showing B is mineralized shear breccia in the quartzite unit. The shear is small varying from 1 - 2 ft. wide. Sulphides present are mainly pyrrhotite and pyrite, with minor chalcopyrite.

105-J-12 - Occurrence 19

Discovered by Hugo Brodell and Robert Etzel. The mineralization consists of coarse-grained brown sphalerite with galena and traces of molybdenum. Ore minerals are localized in highly brecciated, hornfelsed argillite. The actual extent of the showings is not known at present as snow cover made an accurate assessment impossible.

An assay of a representative grab sample gave the following values:

	Ag	Pb	Zn	Mo
H-254	0.90 oz/ton	10.15	10.49	0.02
H-250	1.64 oz/ton	11.10	8.20	-

Further work is recommended in this area in the 1969 season.

105-J-13 - Occurrence No. 20

This showing was discovered by Hugo Brodell and Robert Etzel soon after the discovery of Showing 19. The ore minerals - galena and sphalerite - are localized in a shear zone in hornfelsed argillite, near the contact of a diorite dike. Snow cover made a size estimate impossible. A grab sample taken from the shear zone gave the following values:

Ag	Pb	Zn	Cu
2.78 oz/ton	18.4	19.9	.02

Further work is planned for the area in the 1969 season.

105-J-12 - Occurrence No. 21

This showing was discovered by Hugo Brodell and Robert Etzel at approximately the same time as Occurrence No. 20. It consists of fine-grained chalcopyrite disseminated in hornfelsed argillite. Snow conditions prevented the writer from making a complete examination but the mineralization seems to be confined to the crest of a minor fold. A grab sample yielded the following assay values:

Au	Ag	Pb	Zn	Cu
Tr.	1.78 oz/ton	.02	.03	4.00

Further work is recommended for the area in the 1969 season.

105-J-13 - Occurrences Nos. 22, 23, 24 & 25

The copper showings of Spearhead Mountain were located and described by Peter Dean in August, 1968. They are all of similar type and all are fairly small. The largest, No. 22, is about 300 ft. by 20 ft. and is localized in a strongly jointed segment of a quartz- monzonite stock. Chalcopyrite and pyrrhotite are the only sulphides recognized and tend to be concentrated along the closely spaced joint planes. A visual estimate of the best mineralized sections gave pyrrhotite 5% - 8% and chalcopyrite 1% - 2%. The writer recommends we visit the Showing No. 22 area in the early part of the 1969 season to examine and bulk sample it.

105-J-13 - Occurrence No. 26

This showing was discovered by Bill Waugh in the course of follow-up work on a Pb geochemical anomaly detected in samples collected by Mack Ladue. The only visible economic mineralization was a narrow veinlet of galena and sphalerite in the rusty halo surrounding a satellite plug or cupola of Spearhead Mountain. Assays of the specimens collected by Waugh yielded the following values:

	Ag	Pb	Zn	Cu	Ni
H-245	.24 oz/ton	1.70	.06	.08	.02
H-246	.48 oz/ton	.13	.07	.10	.01
H-247	Tr.	.01	.03	.01	Tr
H-248	.52 oz/ton	.48	.10	.08	Tr

The area should be examined again in conjunction with geochemical planned for the drainages to the south of Spearhead Mountain.

105-K-9 - Occurrence No. 27

This showing was discovered by MacLary Acklack in the process of geochemical sampling of a stream north of the Teddy stock. A rock-chip containing visible vein galena and minor sphalerite gave the following assay values*:

Cu	Pb	Zn
.06	3.35	11.8

* Ross River Lab: Atlas Explorations.

105-K-16

Occurrences in this area have been described in detail by T. J. Adamson, Lad Group, 1968.

GEOCHEMISTRY

In the early stages of the Hess Project (1967 season) soil sampling at or near the base-of-slope was the primary reconnaissance method utilized. Traverses were made along contours at a sample spacing of approximately 300 feet.

It was found that this method, in addition to being slow, gave results which were difficult to compare on a regional basis. As a consequence, it was decided to revert to the conventional stream-sediment sampling technique as a primary method. Stream sediment samples have been collected at intervals of approximately 1000 ft., mainly from tertiary and quaternary drainages.

These silt samples have been analyzed by Atomic Absorption Spectrometer methods and compared with an internal standard - for Cu, Pb, and Zn content, measured in parts-per-million. Using these data cumulative frequency distributions were drawn up for representative areas underlain by the various lithologic groups. In accordance with the findings of Wennervirta (1968) threshold values were set at the 80% cumulative frequency level for values of each of the elements concerned. "Significant concentrations" have been assumed to be those values which fall above the 95% cumulative frequency level.

In order to give a quantitative interpretation of the data the following system was adopted.

1. Each "significant concentration" has been assigned an arbitrary weighting factor of three (3).

2. Each concentration falling below the 95% cumulative frequency level but above the 90% level has been assigned an arbitrary weighting factor of two (2) if on the same drainage system as a "significant concentration".

3. Each concentration falling between the 80% and 90% cumulative frequency levels has been assigned an arbitrary weighting factor of two (2) if on the same drainage system as a "significant concentration".

Following the assignment of weighted values, the factors were summed for each element in every area having a "significant concentration" of copper, lead or zinc. The totals so derived have been numbered and shown on the map-faces of all geochemical sheets in this report. A tabulation of element cumulative frequency values for various N.T.S. areas is shown in Appendix III.

The following is a critical evaluation of the various geochemical anomalies and includes recommendations for further work.

105-J-11 - Anomaly 150

Not deemed to be significant in its own right. During the early part of the 1969 field season some fill in stream sediment reconnaissance work should be done in the district between the anomaly and Dragon Lake.

Anomalies 151 & 152

Thorough prospecting failed to turn up any mineralization of economic significance. Both anomalies are near the contact with a quartz-monzonite stock. No further work is planned in the area in the 1969 field season.

105-J-12 Anomaly 53

Examined by Tom Adamson in the early part of the 1968 field season. No further work planned in 1969. (See this report, Mineral Occurrence No.18).

Anomaly 154

Some work is recommended in the area to the north. The only work advised in the immediate vicinity of this anomaly is some spot-check work (silt and soil geochemistry with prospecting).

Anomalies 155 & 156

Low order anomalies arising from Paleozoic rocks. General absence of anomalous Pb values. No further work planned in the vicinity in 1969.

Anomalies 157 & 158

Isolated Pb anomalies. There are many minor drainages in the vicinity which could be sampled in a very short time. Further work confined to drainage-sediment sampling and prospecting.(Unforunately, there are very few outcroppings).

Anomalies 159 & 160

Low order anomalies with no Pb values of note. No further work recommended in 1969.

Anomalies 161 to 164

Are Cu-Pb-Zn values which appear to be associated with a mineralized district centred near Peak 5267. Pb values in anomalous zone No. 161 should be investigated by prospector and geochemical samples. Work should include minor drainage sampling and soil sampling as a follow-up in attractive prospect areas.

Near anomalies 163 and 164 bedrock is well exposed. Early snowfall in 1968 prevented prospectors from examining the area thoroughly. This examination should be completed early in the 1969 field season. (See section on Economic Geology; Mineral Occurrences 19, 20 and 21).

Anomaly 162

Has low Pb values and adjoins a volcanic flow area. This anomaly will be re-assessed when geological mapping of the area has been completed.

105-J-13 Anomalies 165 & 166

Are high Pb zones which lie in proximity to a small quartz-monzonite stock. Further minor drainage work should be done south of the anomalous areas, to the South Macmillan River. (See Economic Geology; Mineral Occurrence No. 26).

Anomalies 167 & 168

Are high Zn zones with no corresponding Pb or Cu values. No further work is planned in these areas in 1969.

Anomalies 169 to 171

Are high Cu zones corresponding to several porphyry-copper-type mineral occurrences. One of these occurrences, No. 22, should be bulk sampled during the 1969 season.

105-J-15 Anomalous results in this area have been treated separately in the Ivor Group Report by T. J. Adamson, 1968.

105-K-9 Anomalies 172 to 176

These Cu-Pb-Zn anomalies lie in close proximity to the Teddy stock. Outcrop is quite good in the vicinity and has not been thoroughly examined to date. No other work is recommended in the immediate area in 1969.

105-K-9 Anomaly 177

High Cu value should be checked, area around the sample site should be prospected and minor drainages sampled.

Anomaly 178

High Pb value should be checked and the area prospected. Sample minor drainages.

Anomaly 179

Hilltop should be prospected and minor drainages sampled to ascertain the source of anomalous Cu values in north and south flowing streams.

Anomaly 180

Probably not significant. Occurs in swampy lands near a lake shore. No further work recommended in the 1969 season.

Anomaly 181 & 182

Prospecting and sampling of minor drainages in the area between the anomalous zones is recommended.

Anomaly 183

A low order dispersed Pb anomaly. Some prospecting recommended in the immediate vicinity of the highest Pb concentrations.

Anomaly 184 & 185

Cu, Pb, Zn anomalies of dubious merit. High Cu and Pb values are in swampy terrain. Recommend minor drainage sampling along the southern slope of the hillside between the two anomalous zones.

105-K-14 Anomaly 186

Low order Cu-Pb-Zn anomaly in swampy ground. No further work recommended in the vicinity of the anomalous values.

105-K-15 Anomaly 187

May be examined in conjunction with prospecting work being done to the northwest in the vicinity of a small quartz-monzonite stock.

Anomaly 188

Low order Zn anomaly. No further work recommended in this area.

Anomaly 189

High Cu value. Check sample and do minor drainage work in the vicinity of the sample-site.

105-K-16 Anomalous zones in this area have been treated in the Lad Group Report by T. J. Adamson and will be examined in conjunction with development work on the Lad property in the 1969 field season.

APPENDIX I

PROPERTY EXAMINATIONS

The following is a brief summary of the results of the property evaluation program in the Hess area during the 1968 field season:

IVOR GROUP

The Hess Properties crew spent from June 10 to June 20, 1968, evaluating the Ivor Group. The crew consisted of a geologist, two soil samplers, two linecutters, and a cook. The purpose was to investigate an area of high zinc values obtained from reconnaissance soil and gossan sampling during the 1967 field season.

The area was geologically mapped and prospected. A grid was cut over the most promising area on the basis of the reconnaissance soil geochemistry. Soil sampling and rock geochemical sampling were carried out over this grid. Silt samples were taken from all drainages on and in the vicinity of the claim group.

The claim group is underlain by sediments of Ordovician-Devonian age, striking about 100^{o} and steeply dipping. The most abundant rock types in this section are very graphitic cherts and slates, and chert pebble conglomerate. A small intrusive plug is located about 2 miles west of the claim group. No sulphide mineralization of any description was seen in the claim group area.

A number of anomalous zones of soil and silt geochemical values were outlined in the claim group area. These anomalies occur

over graphitic shales and cherts. Although outcrop is relatively abundant in the area of interest, no sulphide mineralization that could explain the geochemical anomalies was found, either in place or as float.

It is recommended that no concrete plans for further work in this area be made until some research is undertaken to determine the significance and reliability of our geochemical methods and results in a highly graphitic geological environment such as the one we are dealing with in this area. The Ivor claims are being allowed to lapse.

LAD GROUP

Work on the Lad Group during the 1968 field season consisted of cutting a grid (approximately 90 line miles) over which geological mapping and prospecting, geochemical soil and silt sampling, magnetic and electromagnetic surveying, and some hand trenching was done. An airborne mag.-EM survey was also carried out in the Mt. Selous area.

As a result of the above work, several new zones of strong silver-lead-zinc-copper mineralization have been discovered. The mineralization occurs in vein fracture zones, as shear zone impregnations, and as skarn-type replacements in limestone units. Its strong and general lithologic and structural environment suggests attractive possibilities of defining substantial sections of economic grade.

One showing, exposed for a strike length of about 50 ft., and open on both ends, consists of two parallel, closely spaced, vein systems with skarn-type sulphide mineralization. The sulphide zones, each varying in width from about 10 ft. to 1 ft.

but averaging about 5 ft., have an average assay across each of them of about 6 oz/Ton silver, 6¢ lead, 3% zinc and 2% copper. Grab samples assay up to 37 oz/Ton silver, 18% lead, 17% zinc and 4.5% copper.

Several very interesting zones of anomalous lead and copper-zinc values in soil have been outlined and detailed in over-burden covered area by the geochemical surveys.

The results of the airborne mag.-EM survey have not yet been compiled.

A program of bulldozer trenching of showings and geochemical anomalies and follow-up diamond drilling is planned for next season.

More detailed information on the Hess area 1968 property evaluation results may be found in the separate reports written on each claim group.

APPENDIX II

TABULATION OF CUMULATIVE FREQUENCY LEVELS

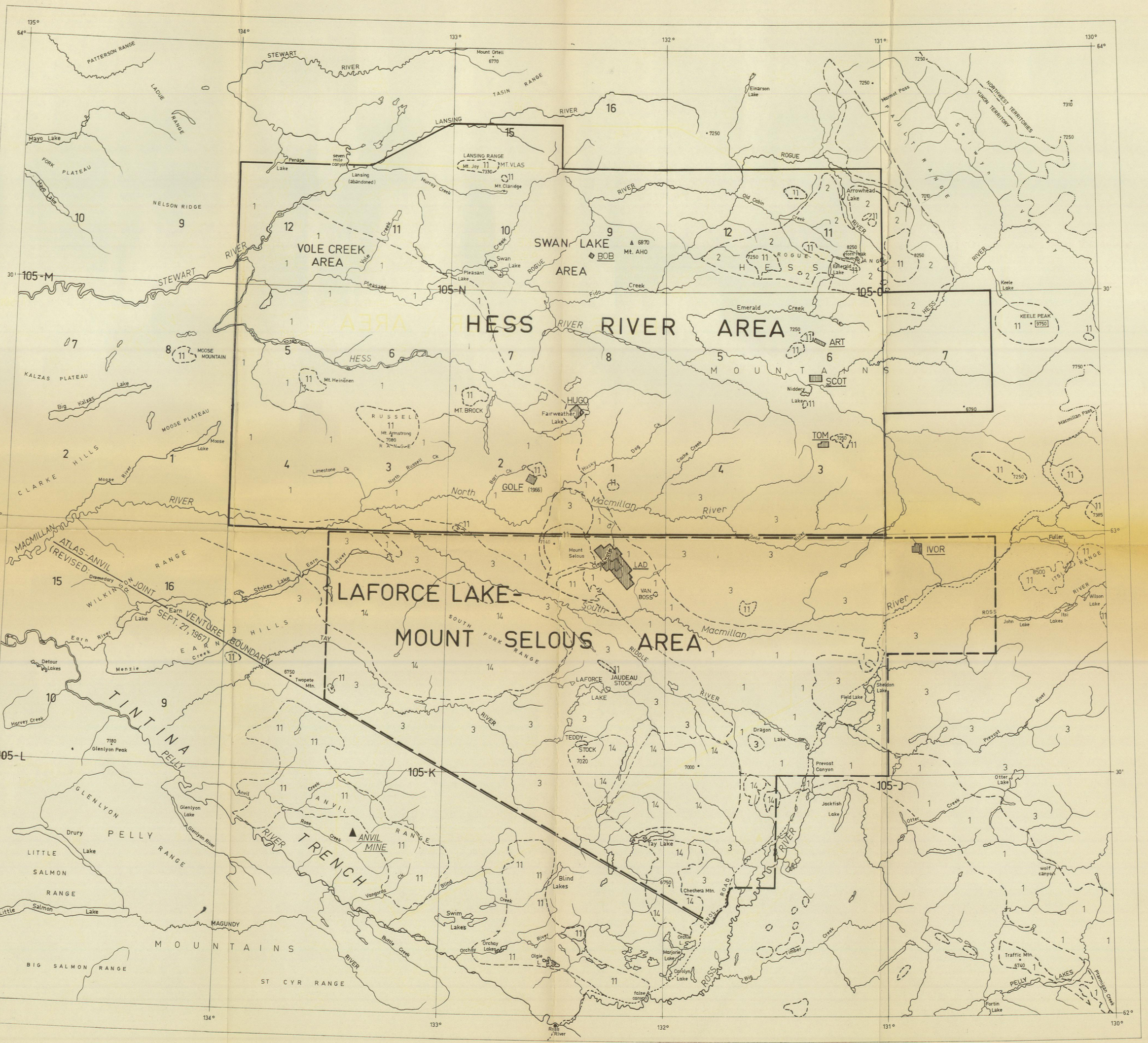
Cu, Pb, Zn

LAFORCE LAKE - MOUNT SELOUS AREA

N.T.S. Area	Cumulative Frequency Level	Element	Concentration in ppm	Age of Sub-Crop	Sample Population
105-J-13	95%	Cu	280	Ordovician-Mississippian	350
	90%	Cu	210	Ordovician-Mississippian	350
	80%	Cu	138	Ordovician-Mississippian	350
105-J-13	95%	Pb	85	Ordovician-Mississippian	350
	90%	Pb	59	Ordovician-Mississippian	350
	80%	Pb	33	Ordovician-Mississippian	350
105-J-13	95%	Zn	435	Ordovician-Mississippian	350
	90%	Zn	375	Ordovician-Mississippian	350
	80%	Zn	321	Ordovician-Mississippian	350
105-J-11,12,13	95%	Cu	49	Proterozoic	620
	90%	Cu	42	Proterozoic	620
	80%	Cu	34	Proterozoic	620
105-J-11,12,13	95%	Pb	35	Proterozoic	562
	90%	Pb	22	Proterozoic	562
	80%	Pb	16	Proterozoic	562
105-J-11,12,13	95%	Zn	160	Proterozoic	620
	90%	Zn	126	Proterozoic	620
	80%	Zn	94	Proterozoic	620
105-K-9	95%	Pb	55	Paleozoic to Cenozoic	526
	90%	Pb	38	Paleozoic to Cenozoic	526
	80%	Pb	27	Paleozoic to Cenozoic	526

FIG. 1

—HESS PROJECT—



LEGEND

14	Volcanic rocks; Porphyry (Tertiary)
11	Intrusive rocks; Granodiorite, Quartz-monzonite. (Cretaceous)
3	Graphitic Argillites, Chert, Greywacke (Devonian-Mississippian)
2	Varicolored Slates, Chert, Siltstone (Ordovician Silurian)
1	Yukon Group; Quatzite, Phyllite, Conglomerate, Limestone, Slate. (Proterozoic)
▥	Claim group
— — —	Geologic boundary (Approximate)

ATLAS EXPLORATIONS LIMITED

ROSS RIVER (Y.T.)

MAP SHOWING LOCATION AND GENERAL GEOLOGY OF HESS RIVER AND LAFORCE LAKE-MOUNT SELOUS AREAS

8 0 8 16
SCALE IN MILES

1968

P.V

TO ACCOMPANY FIG. 2 & 3 LAFORCE LAKE, MOUNT SELOUS AREA REPORT 1968

GEOLOGY

SHEETS 105 K (TAY R.), 105 J (SHELDON L.)

LEGEND

CENOZOIC

QUATERNARY

15 — 15a, modern unconsolidated alluvial deposits; 15b, unconsolidated glacial and alluvial deposits

TERTIARY

14 — Grey and dark grey andesite, dacite, and basalt, commonly massive and porphyritic; minor pyroclastic material

13 — Granodioritic quartz and feldspar porphyry, probably plutonic equivalent of 14

PALEOCENE

12 — Brown-weathering, brown, impure sandstone with plant remains, grey and brown conglomerate, and brown shale; 12a, rusty weathering conglomerate; minor sandstone and shale, may be equivalent to 12 but age not established, locally interbedded with part of 14

MESOZOIC

CRETACEOUS (?)

11 — Medium-to coarse-grained quartz monzonite and granodiorite, commonly porphyritic; minor diorite and gneiss

TRIASSIC

10 — Interbedded, dark grey to black, friable, micaceous sandstone, and shale; minor conglomerate and concretionary shale

MISSISSIPPIAN (?) AND/OR LATER (?)

9 — 9a, greenish grey quartzite, commonly thin-bedded; micaceous and silvery graphitic schists; minor dark grey siliceous slate, silty limestone, and grey micaceous quartzite; 9b, conglomerate with pebbles of chert, andesite, quartzite, chlorite schist, and limestone

8 — Altered, dark green andesite and basalt flows and tuffs, commonly schistose, rarely porphyritic; minor phyllite, dark argillite, and light grey quartzite

7 — Banded quartzose granulite, green and purplish banded skarn, quartz-sericite schist, hornfels and phyllite; chlorite schist and thin altered andesite (8) common in upper part; minor crystalline limestone

MISSISSIPPIAN

6 — Dark grey massive limestone

Ordovician-Devonian

3f — Gray Bedded Chert

3e — Alkaline Basalt

3d — Chert Pebble Conglomerate, Minor Quartzite

3c — Phyllite

3b — Dolomite, Calcareous Phyllite, Minor Limestone

3a — Black Slate-Black Bedded Chert, Argillite, Greywacke

CAMBRIAN (?)

MIDDLE AND UPPER CAMBRIAN (?)

2 — Buff-and grey-weathering, grey, green, and black shales, slates, and phyllites; silty limestone and siltstone

PROTEROZOIC

1 — 1a, light grey and whitish quartzite, banded hornfels and granulite, grey quartzite, skarn; minor chert and crystalline limestone; 1b, crystalline limestone; 1c, green and maroon shale, slate, phyllite, quartzite; minor andesite; 1d, gritty massive, quartz-pebble quartzite, medium-grained, grey quartzite, and dark slate

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A — Quartz-biotite schist, micaceous quartzite, banded, altered, sedimentary and volcanic rocks, hornfels; minor gneiss and crystalline limestone

Geological boundary (defined, approximate, assumed)

Bedding (horizontal, inclined, vertical, tops unknown)

Foliation (inclined)

Fault (defined, approximate, assumed)

Anticline (arrow indicates direction of plunge)

Fossil locality

Mineral occurrence or prospect (lead, Pb; zinc, Zn) ×Zn

Geology by J.A. Roddick, 1958, 1960, and L.H. Green, 1960

Cartography by the Geological Survey of Canada, 1961

63° 00'

132° 00'

131° 30'

62° 45'

GOLD

CREEK

SOUTH

MACMILLAN RIVER

GEOLOGICAL MAP
of
CLAIM SHEET
105-J-13

1/2 0 1/2 1

SCALE IN MILES

⊗ RUST SEEPAGE OR GOSSAN

(17) MINERAL OCCURRENCE

REVISED JAN 24/69

3d 3a 3b 3f 1d 11a

Cu (22) (23) (24) (25) (26)

Au 16923

GEOLOGY

105-J-13

105-K-9

62°45'

132°30'

132°00'

62°30'

RIDDELL

RIVER

ATLAS EXPLORATIONS LIMITED
BASE CAMP

CABIN

LAFORCE
LAKE

TEDDY
LAKE

CONNELLY
LAKE

Cu, Pb, Zn

27

7018'

11b

3a,f

1a

3d

3f

3

14

3a

1a

11

GEOLOGICAL MAP
of
CLAIM SHEET
105-K-9

SCALE IN MILES

RUST SEEPAGE OR GOSSAN

MINERAL OCCURRENCE

REVISED JAN 24/69

105-K-9

GEOLOGY

FIG. 4

105-J-11

ATLAS EXPLORATION LIMITED

ROSS RIVER (Y.T.)

GEOCHEMICAL RESULTS AND CLAIM GROUP MAP OF SHEET 105 - J - 9

SCALE IN MILES 1/2 0 1/2 1

⊗ RUST SEEPAGE OR GOSSAN

(17) MINERAL OCCURRENCE

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62° 45'

131° 30'

131° 00'

62° 30'

MOUNT RIDDEL 6101

MOUNT SHELDON 6937

152 — 11 Zn / 17 Pb / 22 Cu

(17) Po, Cpy

5 Zn / 6 Pb / 19 Cu — 151

10 Zn / 32 Pb / 2 Cu — 150

SHELDON LAKE

FIELD LAKE

LEWIS LAKE

DRAGON (RIDDELL) LAKE

CANOL ROAD

ROSS RIVER

PREVOST CANYON

105-J-11

105-J-12

Fig. 5

62°45'

132°00'

131°30'

62°30'

ATLAS EXPLORATION LIMITED

ROSS RIVER (Y.T.)

GEOCHEMICAL RESULTS AND CLAIM

GROUP MAP OF SHEET 105 - J - 12

1/2 0 1/2 1

SCALE IN MILES

⊗ RUST SEEPAGE OR GOSSAN

(17) MINERAL OCCURRENCE

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RIDDEL

RIVER

DRAGON

LAKE

Pb,Zn,Ag (20)

Pb,Zn,Mo,Ag (19)

Cpy (21)

Cpy, Po (18)

164: 31/Zn 19/Pb 10/Cu

163: 25/Zn 13/Pb 10/Cu

162: 43/Zn 8/Pb 42/Cu

161: 25/Zn 11/Pb 4/Cu

160: 0/Zn 0/Pb 3/Cu

159: 3/Zn 0/Pb 2/Cu

158: 0/Zn 3/Pb 0/Cu

157: 0/Zn 3/Pb 0/Cu

156: 27/Zn 4/Pb 0/Cu

155: 38/Zn 3/Pb 8/Cu

154: 75/Zn 16/Pb 0/Cu

153: 6/Zn 0/Pb 6/Cu

5267

7003

105-J-12

105-J-13

Fig. 6

63° 00'

132° 00'

GOLD

CREEK

SOUTH

MACMILLAN

RIVER

ATLAS EXPLORATION LIMITED

ROSS RIVER (Y.T.)

GEOCHEMICAL RESULTS AND CLAIM

GROUP MAP OF SHEET 105-J-13

1/2 0 1/2 1

SCALE IN MILES

⊗ RUST SEEPAGE OR GOSSAN

(17) MINERAL OCCURRENCE

REVISED JAN 24/69

62° 45'

131° 30'

105-J-13

105-J-15

Fig. 7

63° 00'

130°30'

IVOR GP. (DROPPED) NOV. 3 & 6 1967

AREA DEALT WITH THE REPORT OF IVOR GROUP (T.J. ADAMSON, 1968)

MACMILLAN RIVER

CANOL ROAD

SOUTH

ROSS RIVER

ATLAS EXPLORATIONS LIMITED

ROSS RIVER (Y.T.)

GEOCHEMICAL RESULTS AND CLAIM GROUP MAP OF SHEET 105-J-15

½ 0 ½ 1

SCALE IN MILES

⊗ RUST SEEPAGE OR GOSSAN

(17) MINERAL OCCURRENCE

REVISED JAN. 24/69

131° 00'

62° 45'

105-J-15

105-K-9

Fig. 8

ATLAS EXPLORATION LIMITED
ROSS RIVER (Y.T.)
GEOCHEMICAL RESULTS AND CLAIM GROUP MAP OF SHEET 105 - K - 9

1/2 0 1/2 1
SCALE IN MILES

⊗ RUST SEEPAGE OR GOSSAN
(17) MINERAL OCCURRENCE
REVISED JAN. 24/69.

62°45'
132°30'
132°00'
62°30'

RIDDELL RIVER

LAFORCE LAKE

TEDDY LAKE

CONNELLY LAKE

Stream location approx.

185: 18 Zn / 0 Pb / 6 Cu
185: 10 Zn / 2 Pb / 3 Cu
181: 3 Zn / 0 Pb / 5 Cu
182: 9 Zn / 3 Pb / 6 Cu
183: 7 Zn / 30 Pb / 1 Cu
180: 1 Zn / 2 Pb / 3 Cu
179: 7 Zn / 2 Pb / 6 Cu
177: 2 Zn / 0 Pb / 3 Cu
176: 3 Zn / 15 Pb / 6 Cu
178: 0 Zn / 6 Pb / 0 Cu
174: 0 Zn / 20 Pb / 8 Cu
175: 2 Zn / 6 Pb / 2 Cu
173: 0 Zn / 8 Pb / 0 Cu
172: 0 Zn / 2 Pb / 2 Cu

Cu, Pb, Zn (27)
620. 33,500. 118,000
IN FLOAT

7018'

105-K-9

105-K-14

63° 00'

133° 30'

SOUTH MACMILLAN RIVER

EARN RIVER

TAY RIVER

△ 5418

62° 45'

133° 00'

105-K-14

ATLAS EXPLORATIONS LIMITED

ROSS RIVER (Y.T.)

GEOCHEMICAL RESULTS AND CLAIM GROUP MAP OF SHEET 105-K-14

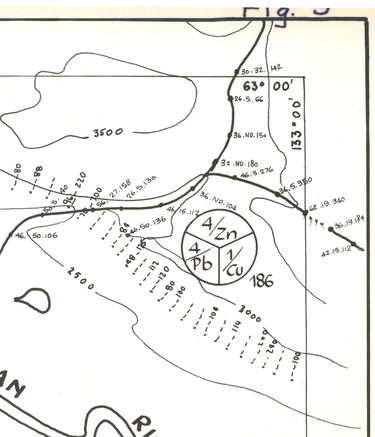
½ 0 ½ 1

SCALE IN MILES

⊗ RUST SEEPAGE OR GOSSAN

⑰ MINERAL OCCURRENCE

REVISED JAN. 24/69



105-K-15

63° 00'

133° 00'

132° 30'

62° 45'

ATLAS EXPLORATIONS LIMITED

ROSS RIVER (Y.T.)

GEOCHEMICAL RESULTS AND CLAIM GROUP MAP OF SHEET 105-K-15

SCALE IN MILES

⊗ RUST SEEPAGE OR GOSSAN

⑰ MINERAL OCCURRENCE

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187 — 5/Zn, 0/Pb, 3/Cu

188 — 5/Zn, 0/Pb, 0/Cu

189 — 1/Zn, 0/Pb, 3/Cu

SOUTH MACMILLAN RIVER

△ 7188

105-K-15

105-K-16

Fig. 11

63° 00'

132° 30'

132° 00'

62° 45'

MOUNT SELOUS

LAD GP

6609

VAN LAKE

SOUTH MACMILLAN RIVER

RIDDELL RIVER

ATLAS EXPLORATIONS LIMITED

ROSS RIVER (Y.T.)

GEOCHEMICAL RESULTS AND CLAIM GROUP MAP OF SHEET 105-K-16

½ 0 ½ 1

SCALE IN MILES

⊗ RUST SEEPAGE OR GOSSAN

⑰ MINERAL OCCURRENCE

REVISED JAN. 24/69

105-K-16

105-K-16

63° 00'

132° 30'

62° 45'

MOUNT SELOUS

7138

6609'

MOTO CREEK

CLEARWATER CREEK

HUGO CREEK

EAST CREEK

VAN LAKE

SHOWING J. CREEK

SOUTH MACMILLAN RIVER

RIDDELL RIVER

ATLAS EXPLORATIONS LIMITED

ROSS RIVER (Y.T.)

GEOCHEMICAL RESULTS AND CLAIM GROUP MAP OF SHEET 105-K-16

½ 0 ½ 1

SCALE IN MILES

105-K-16