GEOCHEMICAL SOIL SAMPLING SURVEYS

TAK MINERAL CLAIM GROUP

FYRE LAKE AREA

WATSON LAKE MINING DIVISION

YUKON TERRITORY

Long. 130° 43' west
Lat. 61° 20' north

by

John S. Brock

and

Joseph N. Boateng

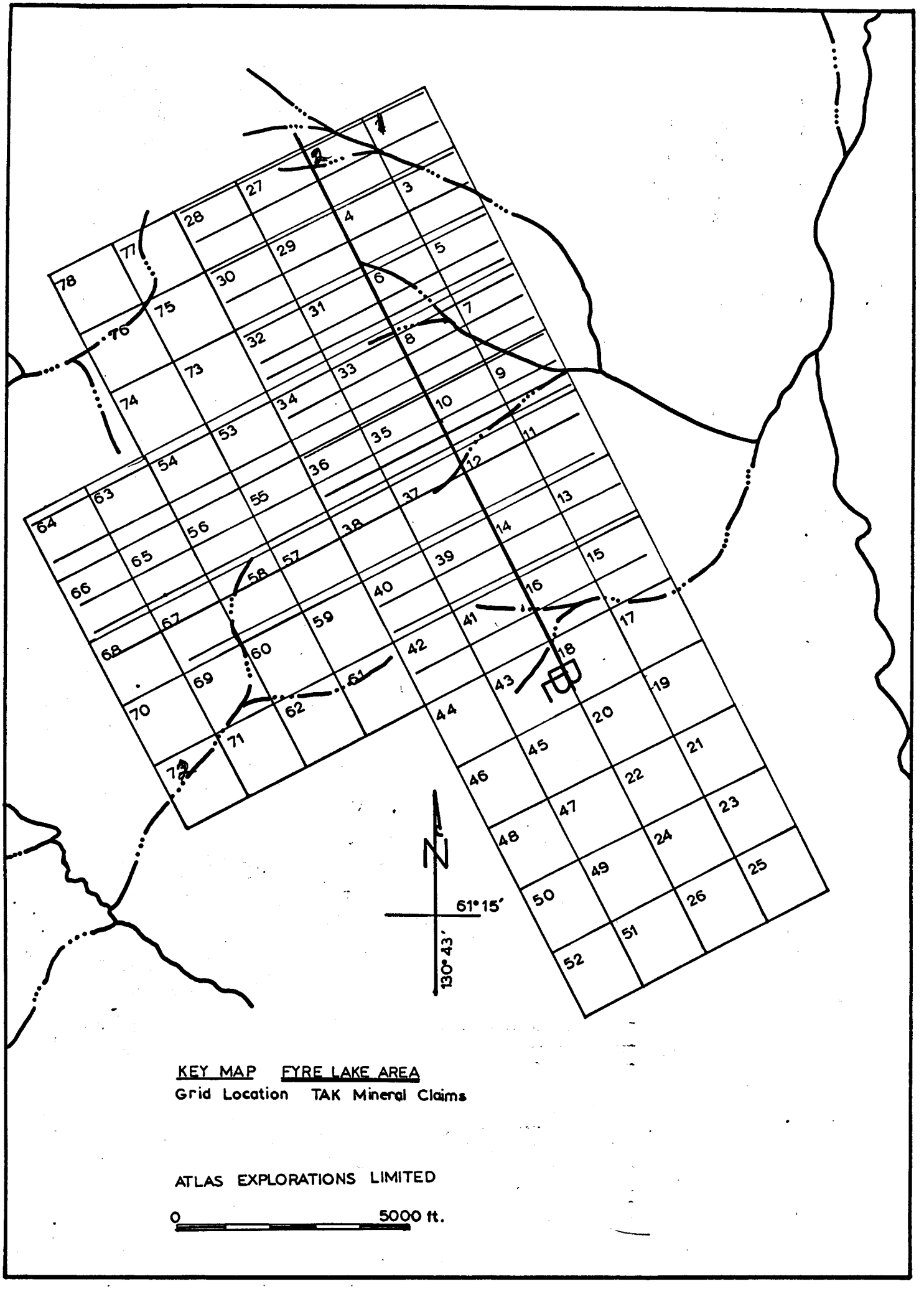
Atlas Explorations Limited

July 26 - August 27, 1966

GEOCHEMICAL SOIL SAMPLING SURVEY

TAK MINERAL CLAIM GROUPS

TABLE OF CONTENTS



KEY MAP FYRE LAKE AREA

Grid Location TAK Mineral Claims

ATLAS EXPLORATIONS LIMITED

0 5000 ft.

LIST OF CLAIMS

CLAIM NO.	GRANT NOS.	DATE RECORDED
TAK 1 - 72	Y7782 - Y7853	May 9, 1966
TAK 73 - 78	Y13676- Y13681	August 30, 1966

TELEPHONE 685-4331

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

INTRODUCTION

After the Dub mineral claims were acquired by Atlas Explorations in the Fyre Lake area, the region was flown with airborne electromagnetic and magnetic surveys. As a result of the geophysical surveys outlining anomalies in proximity to the Dub group, an area of known sulphide mineralization; the Tak group of 78 mineral claims was staked.

The claims were staked by Atlas Explorations as part of an intensive follow-up program after completion of the airborne surveys. Ground was obtained in preparation of ground geochemical, geophysical and geologic surveys that were to be employed to delineate airborne anomalies. Commencing July 26, 1966, a crew consisting of geologic, geophysical, geochemical, linecutting and camp support personnel were placed on the property to investigate the anomalous electromagnetic and magnetic airborne responses. It was hoped that possible diamond drill targets could be outlined with geochemical and geophysical techniques and

tested in conjunction with a proposed drill program on the Dub mineral claims.

LOCATION AND ACCESS

The Tak mineral claims are located at latitude $61^{\circ}20'$ north and longitude $130^{\circ}43'$ west, 8 miles north of Fyre Lake on the Finlayson Lake Map sheet. Fyre Lake is situated at the mid-point of the North River. The Tak group lies between elevations of 4000 and 5500 feet.

The Tak group is located on the height of a northerly trending ridge on the west side of the North River valley. Vegetation and topographic features are typical of Yukon sub-alpine regions with some sparse stands of spruce and dwarf birch predominating at lower elevations on the claim group.

Access to the properties was made with the aid of aircraft only. Fyre Lake is suitable for all aircraft equipped with floats and skis. A base camp was established on the claim group for examination of the Tak group. Due to its distance from Fyre Lake the camp was usually serviced by helicopter from Ross River. Work on the property was administered from Field Offices at Ross River, 82 miles northwest of Fyre Lake: constant communication was kept with the camp by means of single sideband radio. All expediting of supplies was done from Ross River.

PREVIOUS WORK

During 1960 and 1961, Cassiar Asbestos Corporation carried out geologic, geophysical and prospecting work that eventually led to some drilling of a copper property in the area of what is now the Dub mineral claim group held by Atlas Explorations. Work was abandoned after what appeared to be copper mineralization of limited extent and grade in their area of interest. Mineralized float was discovered in the area of the Tak claims. However, no known development of such was carried out.

GEOLOGY

The geology of the Fyre Lake groups is identical to that of Grass Lakes, consisting of a general sequence of quartz-biotite-chlorite schists that strike north-westward and dip gently to the northeast and southwest. It is postulated that a major fault or fracture system underlies the valley of Fyre Lake, through the middle of the claim groups, and is a branch of the Tintina system 5 miles to the southwest.

Generally speaking the geological setting at Fyre Lake is identical to that of the Vangorda-Dynasty, with airborne anomalies occurring within the favoured schist formation, adjacent to intrusive granodiorite bodies.

The airborne geophysical survey of the Fyre Lake

groups indicated more than twelve reasonably sized coincident magnetometer-EM anomalies. Two of the coincident anomalies, one on the Tak claims and one on the Dub, are precisely around known lead-zinc (copper) mineralization. A series of elongate anomalies at the south end of the Dub claims trend parallel to the regional strike and have proven to be caused by graphitic layers in ultrabasic rocks. About 8 other anomalies, 1500-5000 feet in length, have yet to be investigated.[1]

TOPOGRAPHY AND GROUND CONDITIONS

The Tak group lies on a ridge parallel to the west side of the North River valley. Elevations range from 4000 to 5500 feet above sea level and topographic and vegetation are typical of Yukon sub-alpine. Glaciation is from north to south and deposits of remnant glacial till are negligible. Soils are generally of the "B" horizon and "C" horizon where there has been little erosion or soil transport. In local depressions accumulations of organic material make sampling difficult due to a thick "A" horizon that is often frozen.

SURVEY TECHNIQUES

Linecutting

The soil sampling survey was conducted over the

1. Refer to report "Geology of the Tak Mineral Claims", by T. L. Sadlier-Brown for Atlas Explorations Limited.

same grids as used for the geophysical surveys, no extra linecutting was required other than that done for the magnetic and electromagnetic work.[1]

Soil Sampling

The soil sampling survey was carried out in conjunction with the electromagnetic and magnetic survey. One soil sampler was employed for the entire survey.

The samples were obtained by use of a prospector's grub hoe which was found adequate as a tool for cutting through heavy layers of organic material overlying the soil. Samples were taken at 100 foot stations over the same grid area as geophysical data was obtained from.

Due to the inconsistency of specific soil horizons as well as variable depths to favorable horizons, samples were taken from an average depth of approximately one and one-half feet. Soils of the upper "B" horizon were usually encountered except in areas of much glacial till and over-burden. Soils of large organic content were not sampled. In areas of immature soils, the "C" horizon was sampled. Approximately 100 grams of soil from each sample site were placed in Kraft bags which were then periodically shipped to the soil testing laboratory at Ross River.

1. See Report "Magnetic and Electromagnetic Geophysical Surveys, Tak Mineral Claim groups."

Method of Analysis

All samples were analyzed at a complete testing laboratory at Ross River. When the samples were received, each was dried while in its Kraft bag, then screened to 80 mesh, weighed out to 0.5 grams and digested in hot aqua regia. Samples were then diluted, clarified for 20 hours and then tested for copper, lead and zinc content on an atomic absorption spectrophotometer. The 'AA' unit used was a Perkins Elmer Model 290 and accuracy of the instrument ideally is 1% of the amount of metal present. Individual cathode lamps were used for each element determination, a direct readout is given of the element being tested and two determinations per minute can be made with ease.

Treatment of Data

All results of geochemical tests were returned to the field as soon as possible. Results in parts per million (ppm) were plotted on field data sheets kept by the field soil sampler. The field data sheets were kept as a record of each sample taken, noting particulars concerning drainage, topography, physiography, soil type and depth of sample. This information was compiled for use in further detailed geochemical studies.

Separate maps were prepared using a scale of

1" = 400', as was used for geophysical data, showing values obtained for copper, lead and zinc, profiles of values and contoured values. Contour intervals varied according to results obtained in parts per million. Maps for each element were compiled separately in order to aid in comparative study of geophysical, geologic and geochemical results. A development map for each area has also been prepared showing general compilation of geochemical-geophysical data.

GEOCHEMICAL RESULTS AND CONCLUSIONS

810 soil samples were taken on the Tak mineral claims in the Fyre Lake area. Due to lack of time at the end of the season, the grid lines from zero south to 40S were laid out at 800' spacing to cover the area required in the survey.

Copper and zinc values were statistically analyzed to determine the threshold (background) and anomalous values, using simple frequency against values and probability diagrams. From these diagrams, the following results were obtained:

COPPER: Background value - 36 p.p.m.
Anomalous values greater than 90 p.p.m.

ZINC: Background values - 64 p.p.m.
Anomalous values greater than 120 p.p.m.

COPPER: The range of values of the samples analyzed from the grid area is between zero p.p.m. and 428 p.p.m. The biggest anomaly has a strike length of about 2400' and an average width of 350'. It strikes northwesterly and the highest copper value within this anomaly is 166 p.p.m. occurring at 16S 17E. Its N-S limits are 16S and 40S with E-W limits at 3E and 9E. A possible extension to this anomaly, is a small anomaly with similar strike whose centre is at 48S, 13E (146 p.p.m.)

The second anomaly, 1600' long and 400' wide has a northwesterly strike and lies east of the anomaly already mentioned. The maximum copper value within this anomaly is 196 p.p.m. at 32S 19E.

The two broad anomalies described occur within the areas of 800' grid spacing and their true significance might therefore be questioned. However, if other information available, e.g. geophysics and geology are encouraging, then the areas outlined should be resampled at smaller grid intervals. Small isolated anomalous values, ranging from 120 p.p.m. to 196 p.p.m. occur on the easterly fringe of the second anomaly. The highest copper value, 428 p.p.m. at 8S 5W has no high values adjoining it and with the 800' spacing it is difficult to assess its true significance.

ZINC: The zinc values on the grid area range from zero p.p.m. to 350 p.p.m. the maximum value occurring at 48S 27W.

In general, the anomalous values of zinc are scattered all over the grid area. However, three broad anomalies are evident on the western side of the grid. The first anomaly, and perhaps more significant, strikes N-W and has a strike of 2000' with an average width of 250'. The maximum zinc value within this anomaly is 189 p.p.m. - a contrast of 3 with the background, at 38S 24W. The second anomaly has a NNW strike of length 1200' and average width of 75'. The maximum contrast within this anomaly is 6 at 44S 23W. A small anomaly of strike length 800' and average width 50' strikes NNW with a maximum value of 193 p.p.m. at 40S 14W. Two small anomalies also occur at the SW corner of the map area.

APPENDIX I

BIBLIOGRAPHY: MAGNETIC AND ELECTROMAGNETIC GEOPHYSICAL SURVEYS

TAK MINERAL CLAIM GROUP

J. O. Wheeler	Sheet 105G, Finlayson Lake Area G.S.C. Map 8 - 1960.
GABRIELSE and WHEELER	"Tectonic Framework of Southern Yukon and Northwest British Columbia (1961)."
D.D. CAMPBELL	Consultant's Report, Fyre Lake Area (1966) - A private report to Atlas Explorations Limited.
S. H. PILCHER and W. H. PLUMB	Cassiar Asbestos Corporation Ltd. ABEM Magnetometer Survey "E" Zone, Fyre Lake Area (1961) - A private report to Cassiar Asbestos Corporation Ltd.

APPENDIX II

FYRE LAKE AREA PROJECT
TAK MINERAL CLAIM GROUPS
GEOCHEMICAL SOIL SAMPLING SURVEY

SUMMARY OF COSTS

1.	Wages and Salary, July 26, 1966 to August 27, 1966 33 days at $20.00/day	$ 660.00
2.	Subsistence, room and board in the field at $12.00/man/day for 33 days	396.00
3.	Overall supervision of sampling survey at pro-rated cost of $10.00/man/day	330.00
4.	Aircraft support charges, Fixed wing service from Ross River to Fyre Lake, round trip 172 miles with Beaver aircraft @ $.75/mile, 4 trips total x $.75 x 172 miles	517.00
5.	Total cost analysis of samples for trace element content by atomic absorption photospectrometer method 810 samples at $2.50 each	2,025.00
6.	Preparation of report and presentation of data	500.00
		$ 4,428.00

TELEPHONE 685-4331

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

AFFIDAVIT SUPPORTING SUMMARY OF COSTS

I, E. O. Chisholm, Exploration Manager, Atlas Explorations Limited, of Vancouver, British Columbia, do hereby state that to the best of my knowledge and belief, the statement of costs as presented in this report "Geochemical Soil Sampling Survey - Tak Mineral Claim Groups" (Appendix II) is both correct and true.

E. O. Chisholm

May 11, 1967

Date

A Commissioner of Oaths in and
for the Yukon Territory

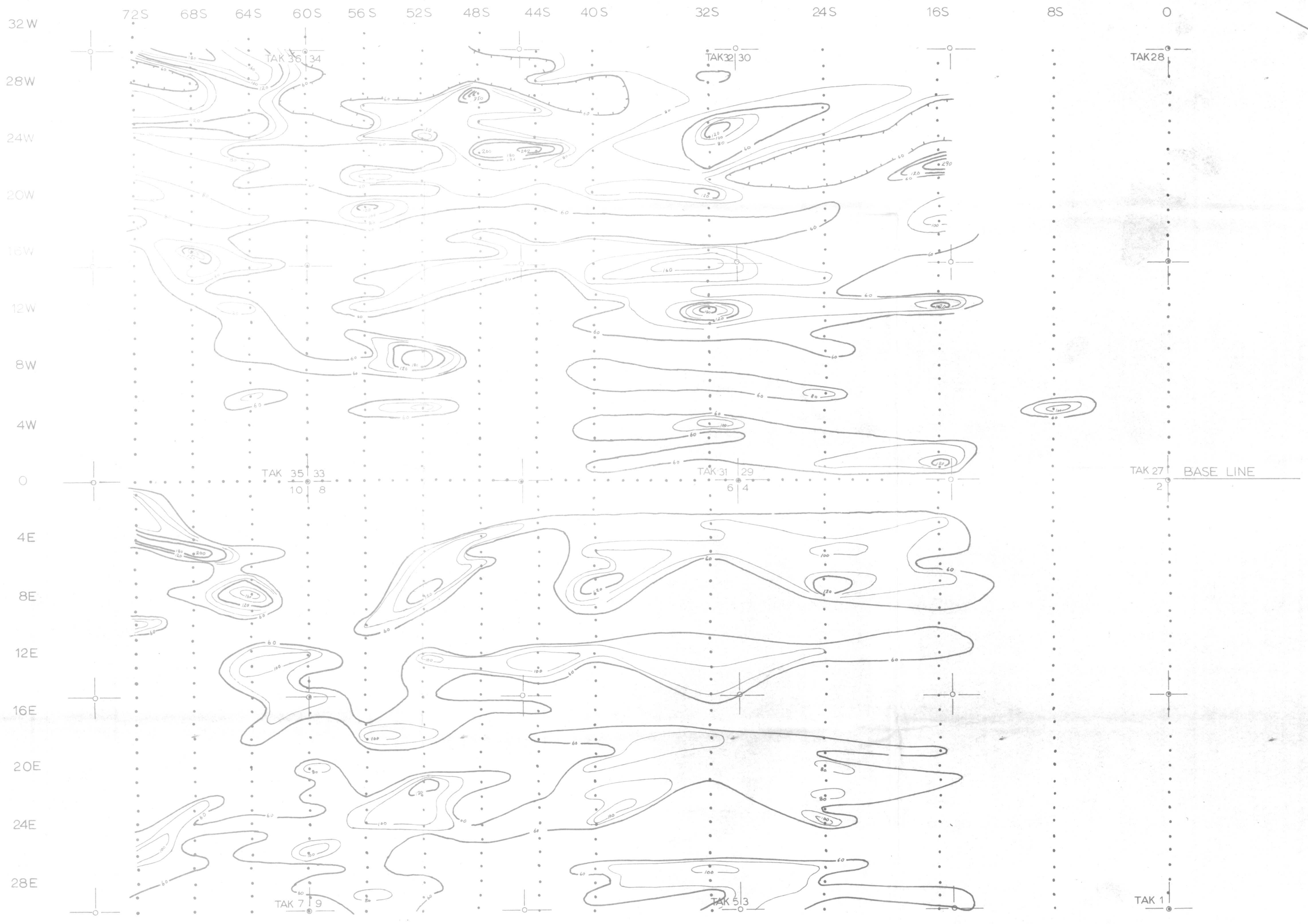
APPENDIX IV

PERSONNEL
FYRE LAKE GEOLOGICAL, GEOPHYSICAL, GEOCHEMICAL CREW

SURVEYS: TAK MINERAL CLAIMS

Phil Nielsen	Party Chief	1600 Beach Avenue, Vancouver, 5, B. C.
Peter Tegart	EM Operator	4438 W. 13th Avenue, Vancouver 8, B. C.
Murray Simpson	EM Operator	c/o General Delivery, Whitehorse, Y. T.
Ted Lightfoot	EM Operator	7081 - 232nd Street, R.R. #7, Langley, B.C.
William Barclay	Magnetometer Operator	6040 Iona Drive, Vancouver, 8, B. C.
Patrick Brownsword	Geochemical Sampler	3563 Quebec Street, Vancouver, B. C.
Timothy Sadlier-Brown	Geologist	1490 Edgecliffe Avenue, Ottawa, 3, Ontario.
Douglas Tizya	Cook	c/o General Delivery, Whitehorse, Y. T.
Joe Etzel	Linecutter	c/o General Delivery, Whitehorse, Y. T.
Sam Smarch	Linecutter	c/o General Delivery, Whitehorse, Y. T.
Mac Ladue	Linecutter	c/o General Delivery, Ross River, Y. T.
Jim Atkinson	Linecutter	c/o General Delivery, Ross River, Y. T.
George Johnny	Linecutter	c/o General Delivery, Ross River, Y. T.


ATLAS EXPLORATIONS LTD.
ROSS RIVER YUKON
FYRE LAKE AREA
TAK MINERAL CLAIMS
GEOCHEMICAL SOIL SAMPLING SURVEY
Cu & Zn RESULTS BY ATOMIC ABSORPTION
SPECTROPHOTOMETER ANALYSIS
Scale: 1" = 400'
Soil sampler: P. Brownsword
Party chief: P. Nielson
Date: June 1966
Drawn by:
COPPER • ZINC
claim post Tak 31 29 6 4
017493



ATLAS EXPLORATIONS LTD.
ROSS RIVER, YUKON

FYRE LAKE AREA
TAK MINERAL CLAIMS

GEOCHEMICAL SOIL SAMPLING SURVEY
ZINC RESULTS, CONTOUR MAP

Contour interval: 20p.p.m., contoured above: 60p.p.m.
Scale: 1" =400'
Soil sampler: P. Brownsword
Party chief: P. Nielson
Date: June 1966
Drawn by: *[signature]*

claim post Tak 31|29
6|4

017493


ATLAS EXPLORATIONS LTD.
ROSS RIVER, YUKON
FYRE LAKE AREA
TAK MINERAL CLAIMS
GEOCHEMICAL SOIL SAMPLING SURVEY
COPPER RESULTS, CONTOUR MAP
Contour interval: 20ppm., contoured above: 60ppm.
Scale: 1" =400'
Soil sampler: P. Brownsword
Party chief: P. Nielson
Date: June 1966
Drawn by:
claim post Tak 31 29 6 4
BASE LINE
72S
68S
64S
60S
56S
52S
48S
44S
40S
32S
24S
16S
8S
0
32W
28W
24W
20W
16W
12W
8W
4W
0
4E
8E
12E
16E
20E
24E
28E
TAK 36 34
TAK 32 30
TAK 28
TAK 35 33 10 8
TAK 31 29 6 4
TAK 27 2
TAK 7 9
TAK 5 3
TAK 1
inches
centimetres
017493