MAGNETIC AND ELECTROMAGNETIC GEOPHYSICAL 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

ATLAS EXPLORATIONS LIMITED

July 26 - August 27, 1966

MAGNETIC AND ELECTROMAGNETIC
GEOPHYSICAL SURVEYS

TAK MINERAL CLAIMS

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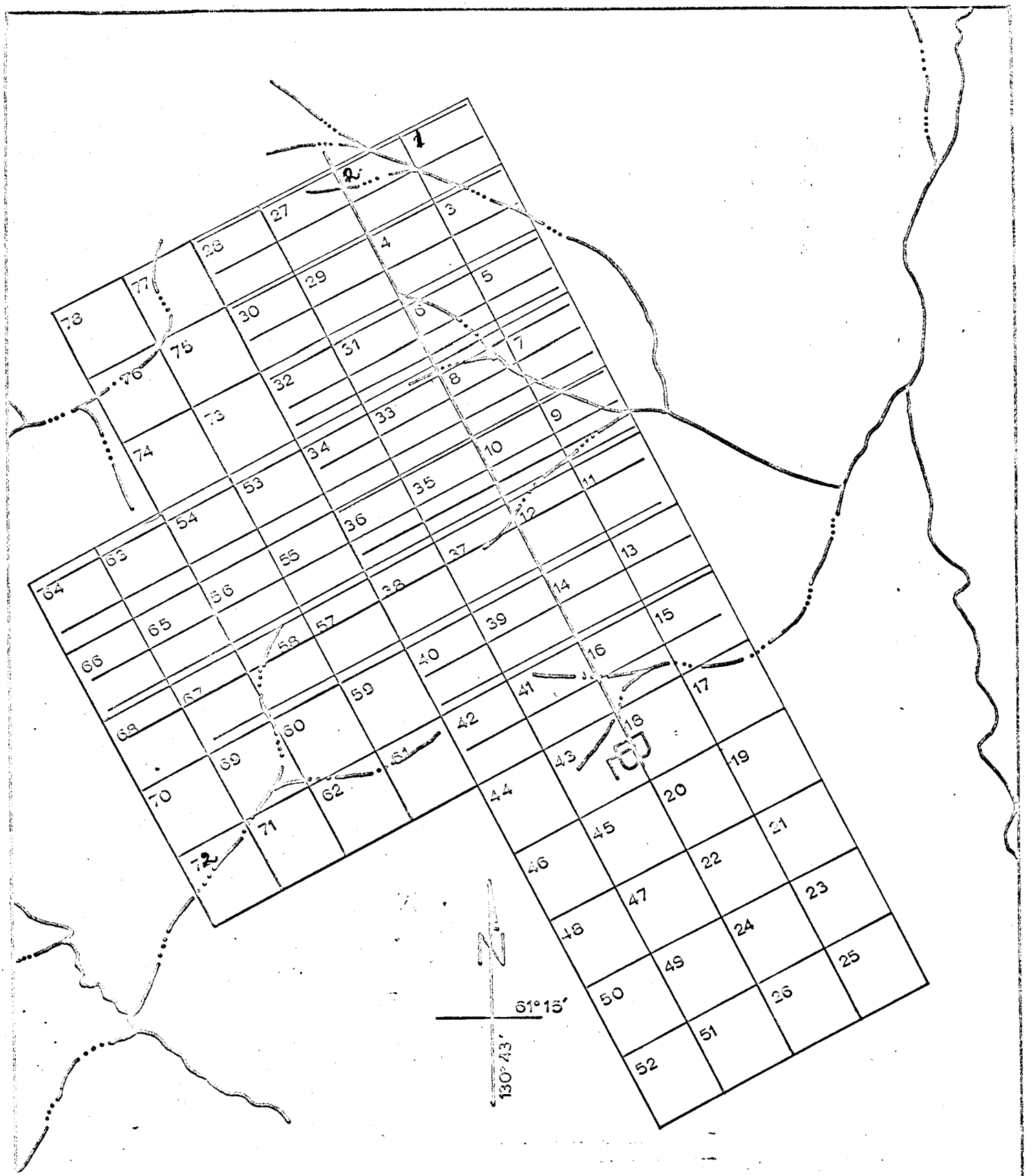

KEY MAP FYRE LAKE AREA

Grid Location TAK Mineral Claims

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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 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° 20' north and longitude 130° 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 above sea level.

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 characteristic of typical Yukon sub-alpine regions with some sparse stands of spruce and dwarf bush 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 property. 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.

METHOD OF SURVEY

Instruments Used

For the magnetometer survey, a Jalander 46 - 65 magnetometer was used, the instrument is hand-held and measures the vertical magnetic component by use of an oil-dampened fluxgate which automatically levels itself in the direction of the vertical field. The range of this instrument is 10 to 250,000 gammas over five sensitivity ranges, the lowest being 10 gammas per scale division. The magnetometer is of light weight and readings can be obtained quickly, a conversion factor is necessary before gamma values can be determined.

The electromagnetic survey was carried out with a Crone JEM dual frequency unit. The Crone is of the inductive type and may be either used as a horizontal or vertical loop apparatus. Measurements are made of the resultant dip angle

of the field and the width of null or out of phase component. It is designed to be operated with a maximum coil spread of 300 feet on frequencies of 480 and 1800 cycles per second with no interconnecting cables. The effective depth penetration is 300 feet for a horizontal conductor with maximum coil spread (no skin effect allowance) and 100 feet for a vertical conductor. The effective lateral coverage is a direct function of the spread under ideal conditions. The equipment was chosen in order to give reliable information on the attitude and configuration of a conductor, the physical properties of the host rock, dimensions of the conductor and results free from error due to topographic relief.

Survey Method, Linecutting

All grids designed for ground geophysical and geochemical surveys were laid out using eight hundred foot line spacing with one hundred foot station intervals. Over areas of interest, four hundred foot spacing was used and two hundred foot spacing over areas requiring detailed information. Central base lines were used for survey control, all cross lines were surveyed by picket and chain methods. Linecutters were hired from the native settlement of Ross River; survey control was checked by the party chief.

Magnetometer Survey

Prior to the actual magnetometer survey, readings

were taken along the central base line at cross line intersection points. These stations were looped and re-read every hour as a means of controlling drift and diurnal variations. With base stations of an established value serving as a means of controlling drift and diurnal variations, a rapid and precise check was kept on magnetic variations and the entire survey was thus kept on a relative basis during day to day operation. Each cross line was read with re-checks at the base station within every hour, this method provided an internal control for detecting diurnal and drift variations. The survey was done by one operator using the same intrusment.

Electromagnetic Survey

All surveys were run with horizontal loop configuration and 300 foot coil spacing in order that highest response could be obtained from flat lying sulphide bodies. Both 1800 and 480 cps readings were taken at each station. The coil configuration was not adaptable to conditions of conductive overburden and maximum response from such was expected. All traverses were made by the "in line method" and done over the same grid as used for the magnetometer surveys. In some cases shorter spacing was adopted for better resolution of shallow conductors, for the same reason line spacing was reduced to 300 feet over areas of interest. The two man EM crew did all their ground work in coincidence with the magnetometer and soil sampling crew.

Treatment of Data

Magnetic Results

Magnetic results were corrected for diurnal and drift each night by the field operator. The final gamma values were then plotted on a grid plan using scale of 400 feet to 1 inch. This data was presented to the party chief who profiled and contoured the data on overlay material in order that he could remain familiar with day to day results and progress of the survey, direct its course and have results available for comparison with electromagnetic and geological-geochemical data. Field plots of this information were forwarded to the base office at Ross River at the end of the survey for final plotting and examination on a scale of 1 inch to 400 feet. Magnetic data is presented in this report on such maps showing gamma value profiles and contoured results. (See Appendix). All maps show major topographic features and locations of mineral claim posts.

Electromagnetic Results

All results as derived in the field were plotted each night by the EM operators on a grid plan using a scale of 1 inch to 400 feet. High and low frequency results were presented to the party chief for inspection and profiling in order that this data be compared with the other surveys and the course of the electromagnetic survey be directed on a daily basis. Plots of readings and profiles were sent to Ross River base at the end of the survey for final plotting and

compilation on grid plans similar to those used for the magnetic maps. Electromagnetic data is presented in this report showing values-profiles (1800 and 480 cps, a contour map of high frequency dip angles.)

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. At Fyre Lake the staked schist band is about 6 miles in width, lying between sizable stocks of intrusive granodiorite both 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 at Vangorda-Dynasty, with airborne anomalies occurring within the favoured schist formation, adjacent to intrusive granodiorite bodies.

The airborne geophysical survey of the Fyre Lake claim 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]

GEOPHYSICAL RESULTS

The airborne EM outlines a conductor 7500 feet in length by approximately 2000 feet in width and striking in an easterly direction. Several other smaller in phase responses of 2 ppm total intensity and low ratios (less than 2) are scattered throughout the claim group but show no uniformity in pattern. The main conductive zone has a peak ratio of about 4.

The aeromag is fairly complex, two areas of high magnetic response, over 4200 gammas total intensity are delineated. Both strike in an easterly direction. The most northerly flanks the conductor and a magnetic low is coincident with the EM. The claim group was staked because of reported sulphide mineralization in the vicinity of the high magnetics with maximum intensity of 4900 gammas.

Ground EM surveys delineated the conductor as defined by the airborne surveys, it is represented by a long negative dip angle anomaly striking northwest for 7500 feet which is

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

open at its most northwesterly extremity. The conductive zone has been outlined by the -10° contour and contains a number of irregular negative angle peaks up to values of -38° resultant dip. Other smaller conductive zones occur at:

Lines 80S to 104S Stations 16W
80 Station 64 W (single line value)
72S Station 88 W (single line values)
40S Station 84W (open at north end)

These conductors are all bounded by the -10° contour and have peak values of 16 to 26° negative dips. Results below -10° were not contoured due to their apparent irregularity.

The strongest magnetic expression as shown by the airborne magnetometer survey is repeated on the ground by the follow-up survey. The anomaly is 3000 feet in length and strikes in an easterly direction between lines 8 and 32S at station 12E. The closure is 1000 gammas and a peak intensity of 5000 gammas is reached. Several other closures occur within areas of magnetic complexity, however, they cannot be correlated with electromagnetic and geochemical results and are thought to be structural in cause.

INTERPRETATION

When matched with geologic and geochemical data, the geophysical results appear to be due to graphitic horizons and greenstone intrusives. Some sulphide mineralization was

found in the area but could not be directly correlated with geophysical data.

CONCLUSIONS AND RECOMMENDATIONS

It is recommended that no further geophysical work be done on the Tak group until such a time as geochemical anomalies (see Tak Geochemical Surveys report) can be evaluated in more detail. Geophysical results obtained would appear to be due to geologic horizons of magnetic and electromagnetic characteristics.

Respectfully submitted,

John S. Brock.

MAGNETIC AND ELECTROMAGNETIC

GEOPHYSICAL SURVEYS

TAK MINERAL CLAIM GROUP

A P P E N D I C E S

APPENDIX I

FYRE LAKE AREA PROJECT

TAK MINERAL CLAIM GROUP
MAGNETIC AND ELECTROMAGNETIC GROUND
GEOPHYSICAL SURVEYS

SUMMARY OF COSTS

A. Linecutting	a)	total footage cut	180,800 ft.	
	b)	overall cost/1000'	$10.00	$ 1,808.00
B. Magnetometer Survey	a)	total line miles	30.0	
	b)	overall cost/line mile	$50.00	1,500.00
C. Electromagnetic Survey	a)	total line miles	30.0	
	b)	overall cost/line mile	$110.00	3,300.00
D. Aircraft Support	a)	Helicopter Charges G3B1, 4 return trips from Ross River		1,600.00
	b)	Fixed wing charges Beaver, 2 return trips from Ross River		240.00
TOTAL COST, Geophysical Surveys, TAK Group				$8,448.00

APPENDIX II

A F F I D A V I T

Supporting Summary of Costs

I, E. O. Chisholm, Exploration Manager, Atlas Explorations Limited, of Vancouver, B. C., do hereby state that to the best of my knowledge and belief the statement of costs as presented in Appendix III of this report "Magnetic and Electromagnetic Geopnysical Surveys, Tak Mineral Claim Group" is both true and correct.

DATED at the City of Vancouver in the province of British Columbia this 9th day of May A.D. 1967.

SWORN BEFORE ME in the City of Vancouver, in the Province of British Columbia, this 9th day of May, A.D. 1967

A Commissioner for taking Affidavits in the Yukon Territory

E. O. Chisholm

APPENDIX III

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.

112S 104S 96S 88S 80S 72S 68S 64S 60S 56S 52S 48S 44S 40S 32S 24S 16S 8S 0

92W 88W 84W 80W 76W 72W 68W 64W 60W 56W 52W 48W 44W 40W 36W 32W 28W 24W 20W 16W 12W 8W 4W 0 4E 8E 12E 16E 20E 24E 28E

Tak 72 Tak 70 68 Tak 66 64 Tak 65 63 56 54 Tak 71 62 Tak 69 67 60 58 Tak 61 42 Tak 59 57 40 38 Tak 55 53 36 34 Tak 32 30 Tak 28 Tak 39 37 14 12 Tak 35 33 18 16 Tak 31 29 6 4 Tak 27 2 Base line Tak 15 Tak 13 11 Tak 7 5 Tak 3 Tak 1

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ROSS RIVER, YUKON

FYRE LAKE AREA
TAK MINERAL CLAIMS

GROUND MAGNETOMETER SURVEY
GAMMA VALUES-PROFILES

Scale: 1"=400'
Instrument: Jalander
Profile scale: 1/10" = 50 gammas
Surveyed by: W. Barclay
Party chief: P. Nielson
Date: Aug., 1966
Drawn by: [illegible]

Claim posts Tak 31 29 / 6 4

112S 104S 96S 88S 80S 72S 68S 64S 60S 56S 52S 48S 44S 40S 32S 24S 16S 8S 0

92W 88W 84W 80W 76W 72W 68W 64W 60W 56W 52W 48W 44W 40W 36W 32W 28W 24W 20W 16W 12W 8W 4W 0 4E 8E 12E 16E 20E 24E 28E

TAK 72 | TAK 70 68 | TAK 66 64 | TAK 71 62 | TAK 69 60 58 | TAK 65 63 56 54 | TAK 61 42 | TAK 59 57 40 38 | TAK 55 53 36 34 | TAK 41 6 | TAK 39 37 14 12 | TAK 35 33 10 8 | TAK 31 29 6 4 | TAK 27 2 | TAK 32 30 | TAK 28 0 | TAK 10 | TAK 13 11 | TAK 7 9 | TAK 1

BASE LINE

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FYRE LAKE AREA
TAK MINERAL CLAIMS

GROUND MAGNETOMETER SURVEY CONTOUR MAP

Scale: 1" = 400'
Instrument: Jalander
Contour interval: 100 gammas
Surveyed by: W. Barclay
Party chief: P. Nielson
Date: Aug., 1966
Drawn by:

Claim post Tak 31 29 / 6 4

112S 104S 96S 88S 80S 72S 68S 64S 60S 56S 52S 48S 44S 40S 32S 24S 16S 8S 0

88W 84W 80W 76W 72W 68W 64W 60W 56W 52W 48W 44W 40W 36W 32W 28W 24W 20W 16W 12W 8W 4W 0 4E 8E 12E 16E 20E 24E 28E

Tak 72 Tak 70 68 Tak 66 64 Tak 65 63 56 54 Tak 71 62 Tak 69 67 60 58 Tak 61 42 Tak 59 57 40 38 Tak 55 53 34 Tak 32 30 Tak 28 Tak 41 16 Tak 39 37 14 12 Tak 35 33 10a 8 Tak 31 29 6 4 Tak 7 Tak 15 Tak 13 11 Tak 9 7 Tak 5 3 Tak 1

N

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FYRE LAKE AREA
TAK MINERAL CLAIMS

GROUND ELECTROMAGNETIC SURVEY
JEM HORIZONTAL LOOP

Profile scale: 1/10" = 2° resultant dip angle +ve -ve
Scale: 1" = 400'
Instrument: Crone
Coil spacing: 300'
Operators: T. Lightfoot & M. Simpson
Party chief: P. Nielson
Date: Aug., 1966
Drawn by: A. Peters

1800 c.p.s.
480 c.p.s.

claim posts Tak 31 29 / 6 4

112S 104S 96S 88S 80S 72S 68S 64S 60S 56S 52S 48S 44S 40S 32S 24S 16S 8S 0

88W 84W 80W 76W 72W 68W 64W 60W 56W 52W 48W 44W 40W 36W 32W 28W 24W 20W 16W 12W 8W 4W 0 4E 8E 12E 16E 20E 24E 28E

Tak 72 | Tak 70 | 68 | Tak 66 | 64 | Tak 71 | 62 | Tak 69 | 67 | 60 | 58 | Tak 65 | 63 | 56 | 54 | Tak 61 | 42 | Tak 59 | 57 | 40 | 38 | Tak 55 | 53 | 36 | 34 | Tak 32 | 30 | Tak 28 | Tak 41 | 16 | Tak 39 | 37 | 14 | 12 | Tak 35 | 33 | 10 | 8 | Tak 31 | 29 | 6 | 4 | Tak 7 | 2 | BASE LINE | Tak 15 | Tak 13 | 11 | Tak 7 | 9 | Tak 5 | 3 | Tak 1

ATLAS EXPLORATIONS LTD.
ROSS RIVER, YUKON

FYRE LAKE AREA
TAK MINERAL CLAIMS

GROUND ELECTROMAGNETIC SURVEY CONTOUR MAP

Contour interval: 2° resultant dip angle, 1800 cps
Scale: 1" = 400'
Instrument: Crone
Coil spacing: 300'
Operators: T. Lightfoot & M. Simpson
Party chief: P. Nielson
Date: Aug., 1966
Drawn by:

claim post Tak 31 | 29 / 6 | 4

FYRE LAKE AREA

YUKON TERRITORY

TAK MINERAL CLAIMS

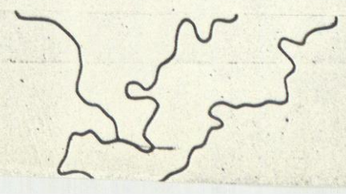
SCALE

1000 0 1000 2000 3000 4000 5000

FEET FEET

1 Inch to 1320 Feet

AEROMAGNETIC MAP



FYRE LAKE AREA

YUKON TERRITORY

TAK MINERAL CLAIMS

SCALE

1000 FEET 0 1000 2000 3000 4000 5000 FEET

1 Inch to 1320 Feet

ELECTROMAGNETIC MAP