MONTANA MINES LTD. (N.P.L.)

AXE AND HILL MINERAL CLAIMS

DAWSON RANGE AREA

YUKON TERRITORY

LATITUDE 62° 40' N

LONGITUDE 138° 32' W

N.T.S. DESIGNATION

115-J-10

WHITEHORSE MINING DISTRICT

GEOCHEMICAL AND GEOLOGICAL EVALUATION REPORT

-- AUGUST 25th to SEPTEMBER 25th, 1970 --

BY

B.C. FULCHER, B.Sc. (GEOL)

MONTANA MINES LTD.

Whitehorse, Y.T.

JANUARY 8, 1971

RECEIVED
18 JAN 1971
MINING
RECORDERS OFFICE
WHITEHORSE, Y.T.

This report has been examined by the Geological [illegible] and is recom-mended to the [illegible] ed as [illegible] of

[illegible]2,385.96

D.B. Craig

[illegible]

Considered as [illegible] under Section [illegible] Quartz Mining Act.

[signature]

Commissioner of Yukon Territory

TABLE OF CONTENTS

INTRODUCTION

During late 1969, a total of 30 mineral claims, the Axe and Hill claim groups, were staked by Montana Mines Ltd. in the Rude Creek area of the Dawson Range, Yukon Territory.

In a report prepared for Montana Mines Ltd., by R.G. Hilker, P. Eng., dated February 24, 1970, it is recommended that surface exploration work be done on the groups to evaluate them.

The property was visited by the representatives of several major mining companies during the early part of the summer in hopes of obtaining an option agreement. No such agreement was reached, but in the light of recent drilling on the adjoining Co group of claims, it was suggested that further prospecting would be warranted.

On August 25th, 1970, two men in the employ of Montana Mines Ltd. were mobilized to the property to conduct a reconnaissance rock and soil sampling program and to locate and tag claim posts. This program was terminated on August 31st, 1970, because of heavy snowfall and extreme weather conditions, and the crew returned to Casino Airstrip. On September 25th, 1970, the property was visited by the writer in the company of one of the original crew to view the geologic setting and to obtain additional rock samples. Snow covered almost the entire claim group at the time of this examination with only the wind swept ridges showing exposed outcrop.

.../2

This report describes the field investigations carried out and evaluates the data obtained. It is submitted for the purpose of assessment work on the Hill group of claims.

.../3

LIST OF PERSONNEL

The following is a list of firms and individuals engaged in the geological and geochemical program on the Axe 1-6 and Hill 1-24 mineral claims.

Montana Mines Ltd. (N.P.L.)
P.O. Box 302
Whitehorse, Y.T.

B.C. Fulcher, B.Sc. P.O. Box 1297 Whitehorse, Y.T.	Geologist - supervision, report preparation, drafting
D.W. Hanline P.O. Box 392 Eastend, Sask.	Sampler -
J.J. Boily P.O. Box 2783 Whitehorse, Y.T.	Sampler -
Whitehorse Assay Office P.O. Box 346 Whitehorse, Y.T.	Analytical services

.../4

LOCATION AND ACCESS

The Dawson Range is located in the west-central Yukon between latitudes 62° 00' and 63° 00' North and longitudes 137° 00' and 140° 00' West. The range trends approximately North 45° West and is about 110 miles long by 25 miles wide. It is truncated on the northwest by the White River and on the southwest by the Donjek and Nisling Rivers. Physiographically it is bounded by the Klondike Plateau to the north and by the Lewes Plateau to the southeast.

The Axe and Hill claim groups are located on the headwaters of Rude Creek at approximately 62° 40' North latitude and 138° 32' West longitude. The claim group is at an elevation of between 4,000 and 5,000 feet, with the majority of the claims above 4,500 feet, and thus almost entirely above tree line with the only vegetation being small trees and brush in the Rude Creek valley to the north. The claims are situated approximately 10 miles southeast of the Casino Airstrip on the Snag Topographic Sheet (N.T.S. 115-J & 115-K(E½)). They are located within the Whitehorse Mining District, Yukon Territory, on claim sheet 115-J-10.

All weather access is available to the group only by fixed wing aircraft to the Casino Airstrip and then by helicopter to the property or directly by helicopter from an accessible base. During the winter a truck road, which leads from a point north of

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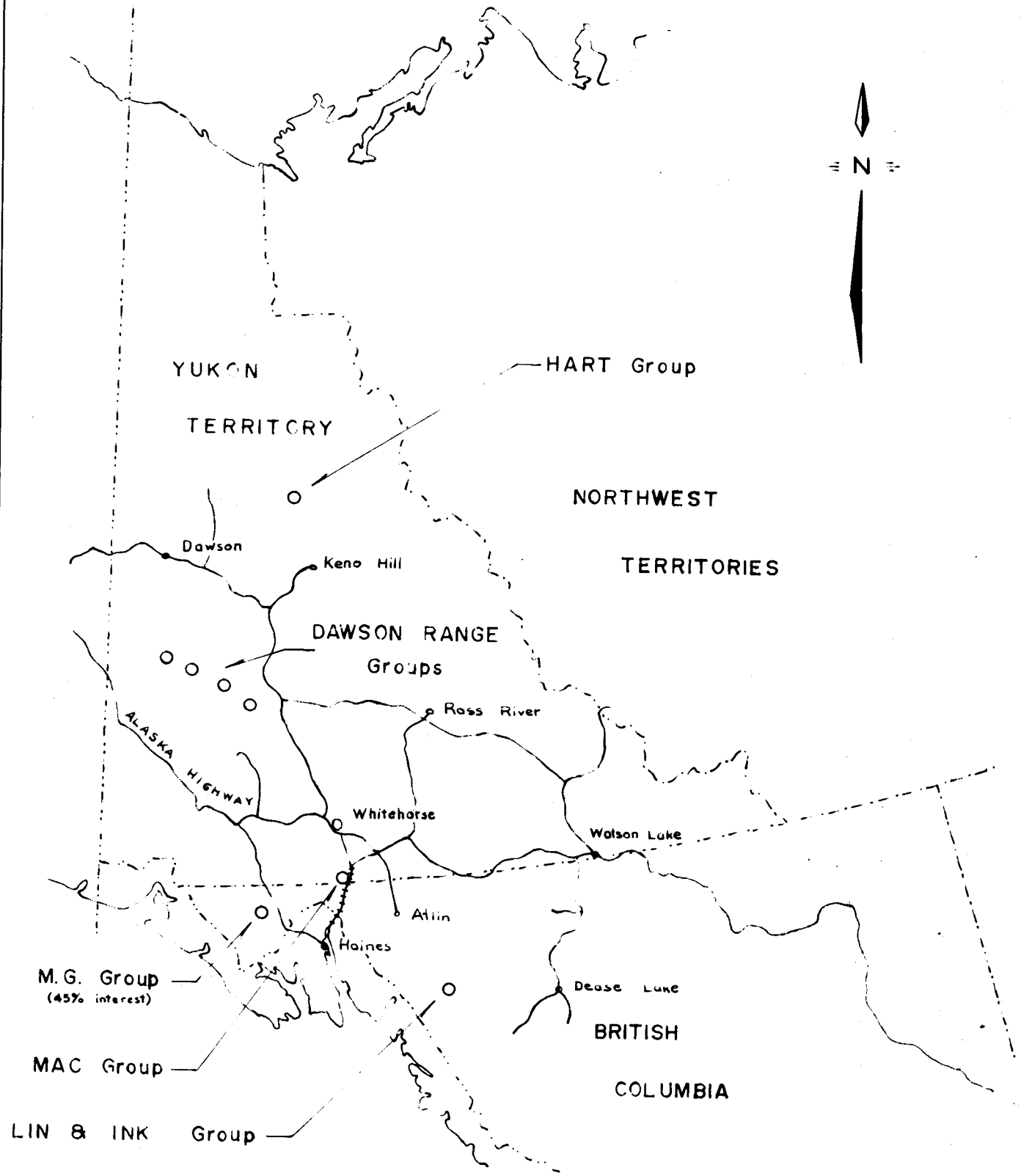
Kluane Lake on the Alaska Highway, may be used to reach the Casino Airstrip and from there a tractor trail runs through the north edge of the property.



Yukon — B.C.

MONTANA MINES LTD.

PROPERTY LOCATIONS

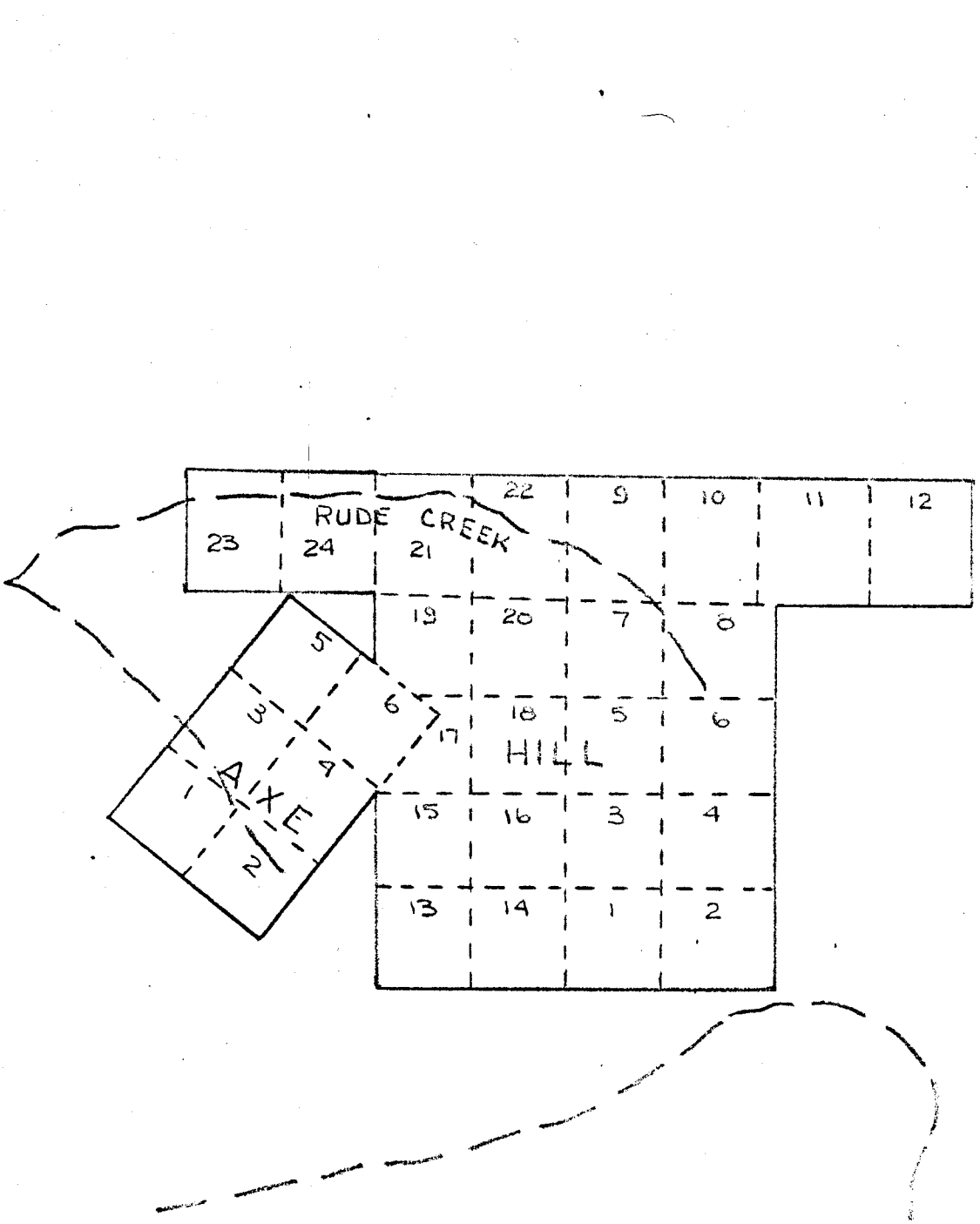
Dwg. No:	Fig:	APRIL, 1970	Scale: 1" = 120 Miles

CLAIMS

The following claims have been staked and are duly recorded in the name of Montana Mines Ltd. (N.P.L.) with the office of the Mining Recorder, Whitehorse, Yukon Territory.

Claim Name & No.	Grant No.	Anniversary Date
Axe 1-6 (inclusive)	Y38255 - Y38360	1 Oct., 1970
Hill 1-24 (inclusive)	Y47622 - Y47645	30 Dec., 1970

.../7



MONTANA MINES LTD.	
AXE & HILL GROUPS	
Scale:	1" = ½ mile
Dwg. No:	Fig: 2
JANUARY, 1971	

REGIONAL GEOLOGY - DAWSON RANGE

The Dawson Range lies entirely within the physiographic Yukon Plateau Province. It consists of a belt of isolated mountains ranging up to 6,600 feet in elevation. The undulating upland surface of the Yukon Plateau varies generally from 4,000 to 5,00 feet in height and slopes downward to the northeast and southwest. The main streams and tributaries have cut their valleys from 1,000 to 1,500 feet below this level.

Almost the entire area was left untouched by recent glaciation. As a result, outcrops are predominant only on mountain tops and ridges and are usually irregular. Exposed rocks are highly weathered and mechanically altered by frost and wind action. Slopes are usually covered by varying depths of residual soil underlain by weathered bedrock.

Lithologically the area is underlain by a basement of Precambrian/Palaeozoic metamorphics and intrusives of the Yukon Group. This is overlain by areas of Triassic (Lewes River Series), Jurassic (Laberge Series) and Jurassic/Cretaceous (Tantalus Formation) sediments and volcanics (Mount Nansen Group). These strata are cut and separated by a vast batholithic intrusion of Upper Cretaceous Coastal Intrusive granites. All of these earlier rocks are overlain in places by volcanics and sediments of Tertiary to Recent age (Selkirk and Carmacks Volcanics).

.../8

TABLE OF FORMATIONS

Late Tertiary or early Pleistocene to Recent		Alluvium, glacial drift; volcanic ash
	Selkirk volcanics	Basalt, andesite, breccia, tuff
Later Tertiary		Quartz porphyry, granite porphyry, granophyre, rhyolite
Miocene or older	Carmacks volcanics	Basalt, andesite, trachyte, dacite, breccia, tuff; some intercalated conglomerate and sandstone
Eocene (?)		Conglomerate, tuff, tuffaceous sandstone, shale
Upper Jurassic or later		Granite, granodiorite, and allied types Syenite, monzonite, and allied types Diorite, gabbro, and allied types
Late Jurassic or early Cretaceous	Mount Nansen Group	Andesite, basalt, dacite, breccia, tuff; some intercalated tuffaceous argillite, quartzite; small bodies of intrusive diorite
Jurassic or Cretaceous	Tantalus formation	Conglomerate, sansstone, shale, coal
Jurassic	Laberge series	Conglomerate, sandstonen arkose, greywacke, shale, coal
Triassic	Lewes River series	Limestone; some tuffaceous clastics
Probably Palaeozoic		Granite-gneiss, diorite-gneiss
Probably mainly Paleozoic	Yukon group	Northeast section: limestone, mica-qtz-clorite schist, qtzite; greenschist, gneiss, mica schist, qtzite, limestone

.../9

Possibly mainly Precambrian	Yukon group	Southwest section: qtz-mica schist, hornblende schist, qtzite, gneiss, limestone

Ref: Bostock - Memoir 189

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CLAIM GEOLOGY

This description of claim geology is based primarily on an interpretation of reference data from publications and geology maps. Several rock samples were collected and brought back to Whitehorse, determinations were made of these samples and correlated with the reference data. No attempt was made at mapping of contacts or structural features because of the heavy snow cover at the time of the examination.

The main rock type found on the claim area is a medium to coarse grained, leucocratic granite, presumed part of the Upper Cretaceous intrusive. Several samples examined showed porphyritic texture with large phenocrysts of orthoclase, up to 25 mm. in length. Most of the samples returned to Whitehorse showed varying amounts of pyrite and/or magnetite, both as diseminations and as fracture stringers. The rock is generally fresh and shows limonitic staining.

Several different phases of the intrusive are also present with increasing amounts of melanocratic minerals (biotite, augite, and hornblende).

A few float samples of volcanics were found on the eastern edge of the claim group and may be part of the Mount Nansen Group found on Mt. Cockfield (Ref: Selwyn river Area - Map 44-34).

No conclusions can be drawn as to the relationships

.../11

of the various rock types present until a systematic mapping of the area has been completed.

.../12

REFERENCE TO PUBLISHED GEOLOGY

The following publications and geological maps contain geological information in select areas of the Dawson Range, and reference was made to them in the preparation of this report.

1. H.S. Bostock 1936 - Memoir 189 - Carmacks District, Yukon - Geological Survey of Canada - Department of Mines and Technical Surveys.
2. H.S. Bostock 1944 - Paper 44-34 Preliminary Map, Selwyn River, Yukon - Canada Department of Mines and Technical Surveys.
3. D.D. Cairns 1916 - Klotassin, Yukon Territory, No. 1702, Geology Map, scale 1" = 2 miles. - Canada Department of Mines - Geological Survey, 1918.

.../13

GEOCHEMICAL SURVEY

FIELD METHODS

The soil sampling program carried out on the Axe and Hill group of claims was of a preliminary reconnaissance type, using topographic features for control. A lack of adequate available finances did not not allow for a systematic grid type survey to be undertaken. Samples were taken, where possible, at 400 foot intervals along predetermined traverse routes. These routes were picked so as to cover as much of the area as possible. Work was concentrated in the eastern half of the Hill group because of the recent drilling activity on adjacent ground. Much of the western area has steep slopes covered by talus which were not condusive to soil sampling. The less steep slopes on the east are covered by residual soil and were generally good for sampling.

Samples were taken from what is probably the "C" horizon, directly below the humus-rich "A" horizon, a distance of usually 8 to 12 inches below the surface. This material consists of sand to clay textured soil, somewhat reddish-brown in colour.

Sample pits were dug with a small folding trenching shovel and soil collected in numbered Kraft paper sample bags. The bags were numbered according to traverse line and position for future plotting. The sample locations were marked with flagging on the ground.

.../14

SAMPLE AND DATA TREATMENT

After collection, samples were flown to Whitehorse for analysis by the Whitehorse Assay Office.

Analysis was performed for copper, lead, zinc, and molybdenum using an Atomic Absorption unit after a hot aqua regia (HNO_3 - HCl) extraction process.

A total of 28 samples were analysed and the results are given in the appendix and are plotted on figures 3 and 4.

Geochemical data interpretation is often aided by the use of statistical analysis of the values. Because of the relatively few samples taken this method will not be used in this report since any value which is significantly anomalous will tend to affect the statistical mean (arithemetical) and standard deviation disproportionately. Ordinarily any such value would be counterbalanced by the large number of non-anomalous values and thus the mean and standard deviation would not be substantially altered. Therefore a geometric mean (mode) will be used to determine a background value and an arbitrary threshold level will be set.

.../15

INTERPRETATION

It is seen from the assay results that an anomalous area extending over approximately 800 feet length and of undefined width is located in the east central claim area. The anomalous values are in both copper and molybdenum with peak values of 384 and 10 ppm. respectively. The copper peak appears to be displaced slightly south and downslope from the molybdenum peak.

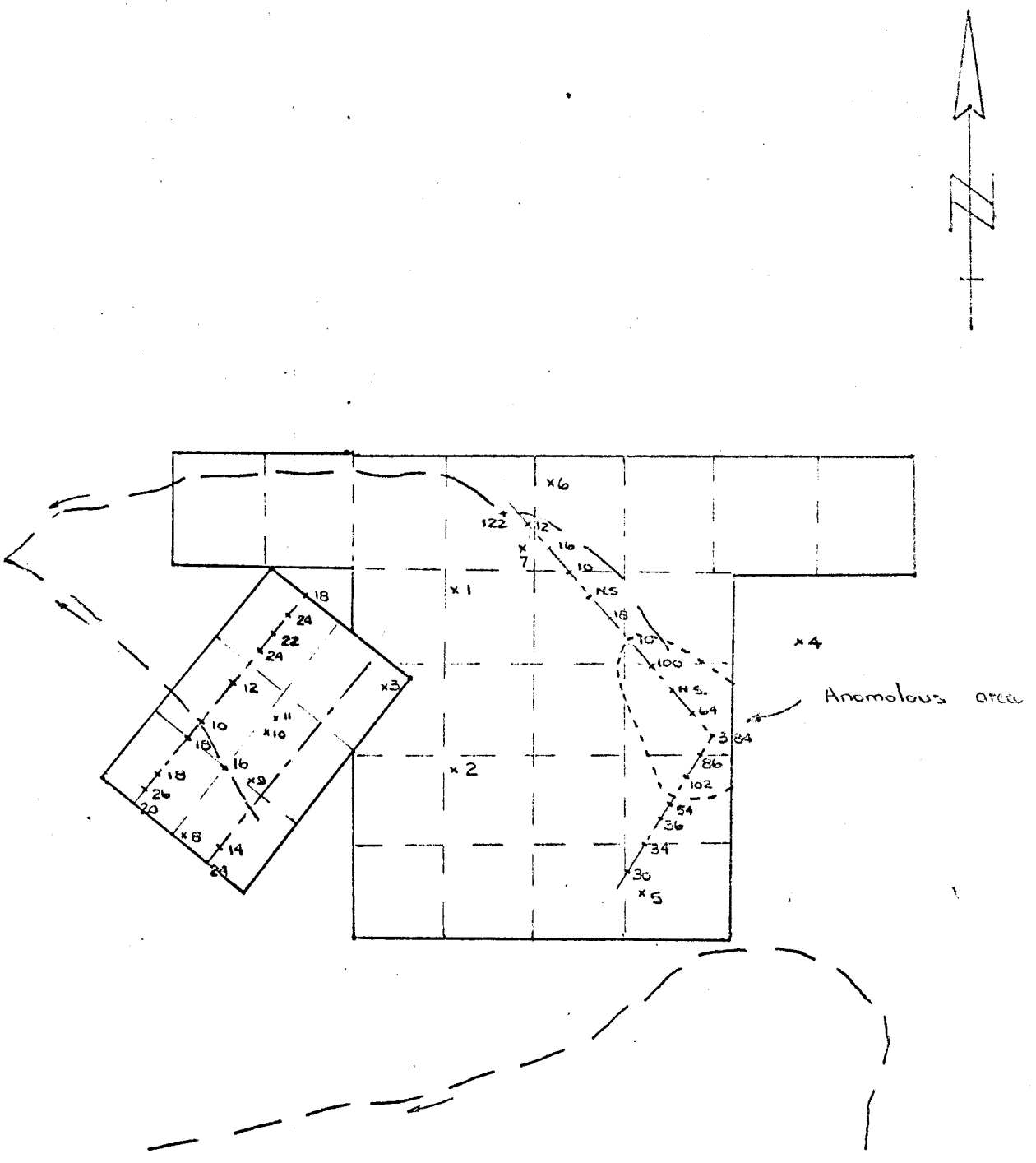
Copper would appear to have a modal background of approximately 25 ppm. and therefore and arbitrary "possibly anomalous" threshold value has been set at 50 ppm. and a "probably anomalous" at 75ppm. Molybdenum shows a background of 0 ppm. and therefore the "possibly and probably anomalous" levels would be 2 and 4 ppm. respectively. Lead and zinc were requested because of the possibility of locating a silver-lead vein, several of which have been found throughout the area. The levels obtained in both Pb. and Zn. exhibit strictly background levels with no anomalous samples noted, therefore they will be disregarded.

The nature of the copper-molybdenum anomaly is difficult to predict because of the lack of sufficient sampling information. Rocks exposed in the area are of granitic composition and show unusually high amount of pyrite in fractures and as disseminations. This type of mineralization could be indicative of a peripheral

.../16

halo which is often associated with an Arizona type porphyry deposit. It is also possible that the anomaly may be due to contact effect since an intrusive/Yukon Group contact is shown on D.D. Cairns, 1916, Klotassin, Y.T., geology map, #1702, as being close to this area. This contact has not yet been confirmed on the ground but float samples of presumed Yukon Group Metasediments were found to the north.

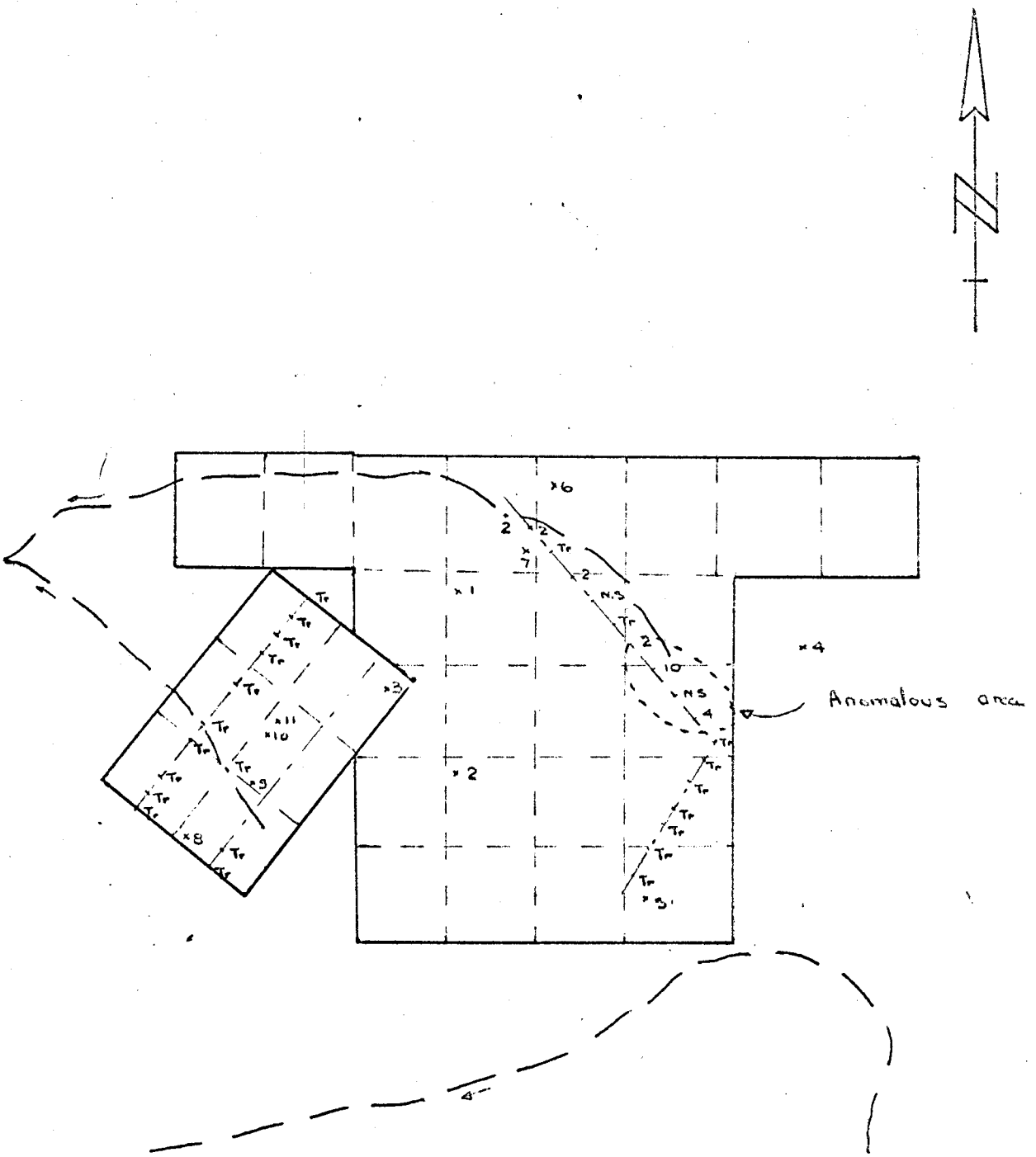
.../17



18 — 10 — Traverse line with geochem results.

x Rock samples

MONTANA MINES LTD.	
GEOCHEM RESULTS - Cu.	
Scale:	1" = 1/2 mile
Dwg. No.	Fig: 3
JANUARY, 1971	



2 - Tr - Traverse line with geochem results

x Rock samples

MONTANA MINES LTD.	
GEOCHEM RESULTS - Mo.	
Scale:	1" = 1/2 mile
Dwg: No:	Fig: 4
JANUARY, 1971	

SUMMARY AND RECOMMENDATIONS

The presence of a copper-molybdenum geochemical soil anomaly in conjunction with porphyry granite and granitic geology has been indicated by the preliminary survey. It shows enough potential to warrant further systematic work to attempt to determine whether the anomaly represents a zone of significent mineralization of either copper or molybdenum or both. Also further work should be done on the western half of the property in an attempt to outline further anomalous zones. It is therefore recommended that a program of linecutting be undertaken to establish a grid system on the property. Geochemistry, geologic mapping, and ground magnetics should be performed over this grid using 100 foot stations and 400 foot line intervals. It is recommended that the work be conducted only on the Hill group and that the Axe group (which has lapsed at the time of writing) be dropped due to unencouraging results.

Ground magnetics may help delineate a mineralized zone because of the often associated pyrite/magnetite peripheral halo. Soil acidity may also prove helpful in correlating geochemical data for this type of mineralization, hence some spot determinations would be beneficial.

If this type of program is carried out, it should provide either an anomalous zone suitable as a drill target or sufficient information to rate the property as a poor prospect unwarranted of further expenditures.

.../18

The following expenditures are recommended for the Hill 1-24 mineral claims:

Linecutting	25 miles @ $85.00	$ 2,125.00
Geologist	14 man-days @ $32.00	450.00
Assistant	14 man-days @ $30.00	420.00
Samplers	28 man-days @ $25.00	700.00
Camp costs	56 man-days @ $15.00	840.00
Assaying	1200 samples @ $2.50	3,000.00
Transportation	Fixed wing aircraft	1.000.00
	Helicopter	1,500.00
		$10,035.00
Contingencies	10%	1,003.00
TOTAL		$11,038.00

Respectfully submitted

B.C. Fulcher

B.C. Fulcher, B.Sc.

.../19

STATEMENT OF COSTS

The following is a statement of costs incurred by Montana Mines Ltd. (N.P.L.) between August 25th, 1970 and September 25th, 1970 during the geochemical survey of the Axe 1-6 and Hill 1-24 mineral claims, Whitehorse Mining District, Yukon Territory.

Wages:

2 samplers	11 man-days @ $25.00	$ 275.00
geologist	1 man-day @ $32.00	32.00
Camp costs	12 man-days @ $15.00	180.00
Assaying	28 samples @ $2.50	70.00
Transportation	fixed wing	243.10
	helicopter	585.86
TOTAL		$1,385.96

.../20

TELEPHONE 633-2295

MONTANA MINES LTD. (NPL)

P.O. BOX 302
WHITEHORSE, YUKON

CERTIFICATION OF EXPENDITURES

I, Bruce C. Fulcher, Exploration Manager, Montana Mines Ltd. (N.P.L.), do hereby certify that the statement of costs totaling $1,385.96 provided in the Axe and Hill group Geological and Geodhemical Evaluation Report, dated January 8th, 1971, is correct to the best of my belief and knowledge.

B.C. Fulcher

B.C. Fulcher
Exploration Manager
MONTANA MINES LTD. (N.P.L.)

Sworn and subscribed before
me this 13 day of January,
1971.

R. St. Hilber

A Notary Public in and for the
Yukon Territory.

.../21

CERTIFICATION

I, Bruce C. Fulcher, of Whitehorse, Yukon Territory, do hereby certify:

1. That I am a geologist, residing at #25 - 610 Main Street, in the City of Whitehorse, Yukon Territory, and that I am employed by Montana Mines Ltd. (N.P.L.) of postal address P.O. Box 302, in the City of Whitehorse, Yukon Territory.

2. That I am a graduate of the University of British Columbia, where I obtained a Bachelor of Science in Geology in 1969.

3. That I have practised my profession since that time.

4. That I am the author of this report which is based on a study of various publications as well as a field program conducted between August 25th and September 25th, 1970.

Dated this 8th day of January, 1971

B.C. Fulcher

B.C. Fulcher, B.Sc.

CERTIFICATION

I, ROBERT G. HILKER of #6 Chalet Crescent, Hillcrest, in the City of Whitehorse, in the Yukon Territory, DO HEREBY CERTIFY:

1. THAT I am a Consulting Geologist, with an office located at #8 Northern Metalic Building and postal address P.O. Box 566, in the City of Whitehorse in the Yukon Territory.

2. THAT I am a graduate of the Michigan Technological University located in Houghton, Michigan, U.S.A., where I obtained a Bachelor of Science degree in Geological Engineering (Exploration Option) in 1962.

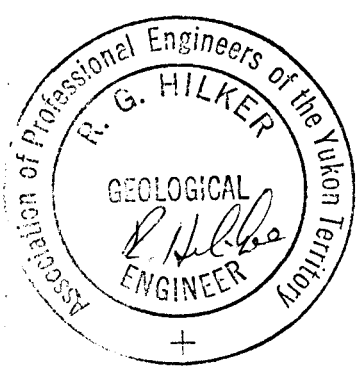
3. THAT I am a registered member in good standing of The Association of Professional Engineers of the Yukon Territory.

4. THAT I have practised my profession as an engineer and geologist for the past eight years.

5. THAT I concur with B.C. Fulcher on his supervision, interpretation and report dated January 8, 1971, prepared for Montana Mines Ltd. (N.P.L.) on the Axe and Hill Claim Groups located in the Dawson Range Area, latitude 62° 40' N and longitude 138° 32' W, Sheet 115-J-10 of the Whitehorse Mining District of the Yukon Territory, and with field work conducted between the dates of August 25th to September 25th, 1970.

6. THAT I have no direct or indirect interests in any of the mineral claims, or in any of the securities held by Montana Mines Ltd. (N.P.L.) nor do I expect to receive any.

DATED this 22nd day of January, A.D. 1971.



R.G. Hilker, P.Eng.

APPENDIX

Samples from MONTANA mines. Lot No. #A-345

	Cu	Pb	Zn	Mo
Silt sample out creek Axe G	16	12	56	tr
A2 - 8S - 8W	18	12	88	—
12S - 8W	26	10	68	tr
12S - 8E	14	12	104	tr
15S - 8W	20	10	88	tr
15S - 8E	24	10	72	tr
A4 - 4S - 8W	12	14	96	tr
12S - 8W	10	8	92	tr
15S 8W	18	8	60	tr
A6 - 0S + 8W	18	12	48	tr
4S + 8W	24	12	68	tr
8S + 8W	22	10	52	tr
12S + 8W	24	14	96	tr
H2 - 0N	30	14	56	tr
4N	34	14	56	tr
8N	36	14	56	tr
H2 - 11 + 40N	54	20	92	tr
H4 - 4N	102	24	32	tr
H4 - 8N	86	10	56	tr
H4 - 11 - 60N	384	14	68	tr
HX 1	64	18	48	4
HX 3	100	26	68	10
HX 4	70	18	56	2
HX 5	18	16	64	tr
HX7	10	12	52	2
HX8	16	12	56	tr
HX9	12	12	60	tr
HX10	122	14	52	2
KG2 - 4N	24	16	120	tr
8N	18	14	92	tr
12N	26	12	80	tr
15N	14	12	72	tr
KG4 - 4N	24	18	92	tr
12N	20	10	76	tr
KG6 4N	26	9	76	tr
KG6 - 11 + 75N	12	8	80	tr
KG8 - 4N	24	8	60	tr
8N	18	10	52	tr
12N	24	10	60	tr
16N	18	12	60	tr
KG - 10 - 4N	20	12	60	tr
12N	16	8	56	tr
16N	22	7	50	tr
20N	22	8	52	tr
KG - 12 - 4N	12	10	40	tr
8N	20	10	76	tr
12N	24	10	100	tr
KG - 16 - 4N of creek	32	12	100	tr
of creek 8N	14	10	68	tr
KG - 16 - 12 N	10	14	132	tr
16N	10	8	60	tr
20 N	14	12	76	tr
24 N	18	8	60	tr
28 N	16	8	64	tr
KG - 20 - 0S	12	6	56	tr
4S	10	10	88	tr
8S	14	10	88	tr
12S	14	10	68	tr
15S	14	10	56	tr
KG - 24 - 0S	10	8	56	2
12S	14	8	56	tr
KG - 26 - 4S	14	8	52	tr
8S	16	6	56	tr
KG - 26 - 12S	10	8	60	tr
KG - 28 - 4S	14	10	52	tr
8S	12	8	64	tr
12S	6	12	64	tr
14S	10	10	80	tr
KG - 30 - 4S	10	10	60	tr
8S	24	18	140	tr
12S	17	8	64	2
15S	10	8	88	10
KG - 32 - 4S	12	6	44	tr
8S	12	14	88	tr
12S	24	8	72	tr
15S	16	8	80	tr
KG - 34 - 4S	10	10	88	tr
8S	8	12	68	tr
12S	24	12	60	tr
15S	12	14	44	tr

Axe

Hill

King

King

Date SEPT - 21 - 70

Assayer Geo Spalding