APOLLO AND J.M. CLAIM GROUPS

JUBILEE MOUNTAIN, YUKON TERRITORY

G E O L O G I C A L R E P O R T

a n d

S U M M A R Y O F P R O G R E S S 1 9 6 8

This report has been examined by the Geological Evaluation Unit. Approved as to technical worth by:

RESIDENT GEOLOGIST

Approved as to cost in the amount of: $3200.00

RESIDENT MINING ENGINEER

Accepted as representation work under Section 53(4) Yukon Quartz Mining Act.

COMMISSIONER OF YUKON

3200

by John M. McMullin
December 1968

TABLE OF CONTENTS

INTRODUCTION

1. Location

The Jubilee Mountain copper property, comprising the mineral claims JM 1-4 and Apollo 1-37, covers an area approximately 1 1/2 miles square at an elevation of between 4500 and 6000 feet. It is located in the Whitehorse Mining District, Yukon Territory and is situated 48 miles southeast of Whitehorse at the south end of Marsh Lake between Little Atlin Lake and Tagish Lake. It is 14 miles north of the Yukon-British Columbia border at 60° 12' N, 134° 07' W and is covered by geological and topographic maps 105-D (1: 250,000), topographic map 105-D/1 east half (1: 50,000), claim map 105-D-1 and G.S.C. Memoir 312 (Whitehorse Map Area).

2. Access

Jubilee Mountain may most conveniently be reached by helicopter from Whitehorse, where two firms specializing in helicopter charters operate.

A six mile road owned and maintained by Canadian National Telecommunications leads south from the Carcross-Jakes Corner Highway at a point about two miles east of the settlement of Tagish to their shortwave repeater station on Tagish Hill, which is about five miles north of the property. Permission to use the road, and the key to the barrier at the bottom of the hill, must be obtained from the CNT office in Whitehorse. During the summer months the Forestry Service man,a firewatch tower at the summit of Tagish Hill (4205 ft.) at which there is a helicopter pad. The road stops at the fire watchtower, the intervening four miles between the tower and the campsite on Jubilee Mountain consisting of uneven ground cut by several glacial drainage channels and covered

by bush and small timber. The CNT access road is reached from Whitehorse either via the Alaska Highway and Jakes Corner (60 Miles) or via Carcross and Tagish, both routes being good highways open all the year round.

Jubilee Mountain is 48 air miles from Whitehorse in a general Southeasterly direction.

The campsite and area of mineralization are at an elevation of 5020 feet and are located one mile northeast of the summit of Jubilee Mountain whose summit has an elevation of 5952 feet in the southwest corner of the Apollo group.

The nearest railway is the "White Pass and Yukon Route" (Skagway, Alaska to Whitehorse) at Carcross, approximately 30 miles by road from the top of the CNT road.

The nearest town where all service facilities may by obtained is Whitehorse (population 6,000), the capital of the Yukon Territory. Other small communities nearby are Carcross and Atlin, B.C., whose populations number a few hundred; and Tagish, whose population is probably less than 100.

3. Climate and Season

In the southern Yukon winters are harsh but summers are pleasant with long hours of daylight. Generally speaking rivers are open from early May until late October or November. Ice remains in the larger lakes until the first week in June and in the smaller lakes at higher elevations until late June or early July. Slack water freezes over after the middle of October. Rainfall is variable over the southern Yukon, depending on proximity to the Pacific Coast and to Mountain ranges but

showers, thunderstorms and periods of prolonged rain are fairly frequent in all areas. In Whitehorse the July daily mean temperature averages 56°F and the December daily mean averages 3°F.

Jubilee Mountain being some 3,000 feet above the general elevetion of the Yukon Plateau suffers from considerably poorer climate and shorter summers than Whitehorse and nearby settlements. Thick cloud often extends well below the elevation of the campsite with more or less continuous heavy rainfall for up to two days of rainfall at a time, effectively suspending helicopter communications and survey work.

Frost may be experienced several times before the end of August, although on fine days the temperature can reach 70°. Freeze-up at the elevation of the campsite occurs about the middle of September and the winter's snow is largely melted, apart from drifts by the first or second week in June.

4. Topography and Vegetation

Jubilee Mountain is a rugged mass rising to 5,952 ft. OD, 2,800 ft. above the surrounding lakes. On the north side below the summit, glaciation has gouged out a cirque resulting in extremely steep slopes for more than 1,000 ft. above the head of Pennycook Creek, which flows away to Tagish Lake in the northwest. Two other small creeks rise on the property- Mosquito Creek on the east side flows east and then north into Little Atlin Lake and a small unnamed creek rises not far to the east of the campsite and flows away to the northeast.

..... 4

Four small ponds occur in the vicinity of the campsite, one of which is used for a water supply for the camp. The largest pond is only 400 feet by 150 feet and 2 - 3 feet deep.

The treeline is below the camp site and mineralized area varying between 4,500 feet and 5,000 feet, below which vegetation consists of thick scrub and stunted pines with steep and rough ground covered by light but extensive overburden. Above the treeline lichens, moss and grass are the only vegetation and overburden is thin and restricted to level and gently sloping ground, the remainder being rock talus and outcrop. Over most of the property the topography is very rugged and some is precipitous.

In the area of mineralization outcrop averages about 20%. Frost shattering and weathering is extensive and large slopes of rock talus are common.

Wild life on the mountain consists of numerous gophers and ptarmigan with scarce caribou and occasional moose, bears and porcupines.

5. History of development

The copper showings on Jubilee Mountain have been known since the days of the Klondyke Gold Rush when stampeders and latecomers prospected the hills surrounding the Chilkoot-Lake Bennett-Lake Tagish-Marsh Lake-Yukon River route to the Klondyke. Most of the early prospecting and mining activity died out in the 1920's.

Some of the Jubilee showings were opened up by trenching many years ago as shown by the very heavy

weathering on the surface of the broken rock and the advanced state of decay of the abandoned tools.

The showings have a long history of continual staking since then and are now held by International Mine Services Ltd. by option agreement with the owner, under Mineral Claims J.M. 1-4 and Apollo 1-37.

J.M.	1-4	Y18878 - Y18881	Staked June 17, 1967 Recorded June 29, 1967
Apollo	1-34	Y23983 - Y24016	Staked Feb. 11, 1968 Recorded Mar. 4,1968
Apollo	35-37	Y25862 - Y25864	Staked Aug. 20, 1968 Recorded Sept. 3, 1968

6. Current Development

A field crew of four experienced university students and a cook set up camp on the 23rd of July 1968 to cut line for a picket grid system. The 4,400 ft. long north-south base line and all of the east-west oriented working lines (at 200 or 400 ft. intervals) were turned off and run accurately by transit and all pickets were located at 100 ft. intervals by chaining. This work, involving seventy-nine thousand feet (15 miles approx.) of line, was completed by the 12th of August.

Considerable time was spent locating and tagging the claim posts and then on completion of the line cutting an accurate transit survey of the grid and the claims in relation to physical features and the showings was carried out. An altimeter survey of the area covered by the grid was attempted but rapid pressure fluctuations and other factors made this impracticable.

..... 6

Prospecting for new showings and detailed examination of the mineralized area was followed by rock drilling in many of the showings using an Atlas Copco gasoline plugger and blasting with Forcite and safety fuse. Mucking and trenching followed and chip samples were collected from some of the trenches for assaying. Several rock specimens were also taken from the trenches for thin section analysis by the Company's consultant in Toronto to establish the nature of the alteration and mineralization.

Eagle Geophysics Ltd. carried out a ground magnetometer survey using a Sharpe M.F.1 Fluxgate magnetometer, and a ground electromagnetic survey using a Crone Electromagnetic unit of the whole of the grid and a more detailed ground electromagnetic survey was undertaken over a limited area using a Ronka E.M.16 electromagnetic unit. These surveys were performed between 23rd and 31st of August 1968.

7. Personnel

David Waugh, the Company's manager in the Yukon, supervised the whole project. John McMullin, geologist, undertook the prospecting and mapping, the location and tagging of claim posts and assisted the surveyor in establishment of the survey stations, and, as holder of a Blasters Permit, supervised the drilling and performed the blasting.

Mike Braet was responsible for establishing the grid system and later carried out the survey of the property.

Ivan Menard, Tony Cloutier and Ian McRae assisted with all aspects of the program. The cook was Bob MacDonald.

John Lloyd and Vic Pashniak carried out the magnetometer and E.M. surveys for Eagle Geophysics Ltd.

A Klonkyke Helicopters Ltd. Jet Ranger helicopter was used for transportation and the CNT radiotelephone service was used for communications.

GEOLOGY

8. Previous Mapping and Regional Geology

As far as is known Jubilee Mountain has only been Mapped before by officers of the Geological Survey of Canada in whose report ("Whitehorse Map Area" by J.O. Wheeler, Memoir 312) it is mentioned four times, with reference to the metamorphic series of the Taku Group (p.29-30), to the ultramafic-intrusives (p.88), to the granitic intrusive (p.99) and on page 142 one of the mineral showings is briefly described.

These three sharply contrasting rock-types -- the granite, several ultramafic intrusives described as seatised serpentinised periodtite and dunite and a series of highly altered rocks of somewhat obscure origin, constitute the bulk of the mountain. The latter type, shown on the map as "metamorphosed volcanic rocks containing numerous serpentine bodies" with small outcrops of limestone and limestone breccia belong to the Taku Group of Pennsylvanian - Permian age and contain all the mineral showings. Actually the "metamorphosed volcanic rocks" contain a substantial quantity of interbedded metamorphosed sediments.

This metamorphic series, together with more extensive limestone and some greenstone and pyroclastic rocks, forms practically all the outcrop over a wide area (320 sq.miles) in the southeast corner of the map area; which is boarded by Montana Mountain and Carcross in the west and the Carcross-Tagish-Jakes Corner road in the north. Jubilee Mountain is the only locality in this area where much intrusive activity occurred.

..... 9

The mineralization appears intermittently over an area of 3,000 feet maximum diameter, between the large ultramafic body at the north end of Jubilee Mountain and the granite intrusion on the east side.

Similar ultramafic intrusions are known to occur 25 miles to the north and others occur to the northeast in an area on the west side of the Teslin valley.

9. Structure and Age Relation

The general trend of the strikes in the metamorphic series is rather variable between the northwest and southeast quadrants. Dips are also variable but tend to be between vertical and 45° southwest. No major structure such as a synclinal or articlinal axis or series of parallel fold axes has been deciphered.

The granite is a stock or boss-like intrusion and the largest and most massive ultramafic intrusion to the north of the grid area has a similar form. One of the ultramafic intrusions is in the form of a sill striking northwest and dipping 35° southwest, whose prominently jointed northeasterly facing scarp slope forms precipitous cliffs 1,500 feet east of the camp. The various other ultramafic intrusives have no well defined forms.

The tectonic history of this part of the Yukon is still not well known but most of the deformation is thought to have occurred in the Cretaceous Period, more or less contemporaniously with the intrusion of granite which was probably between the late Lower Cretaceous and the early Upper Cretaceous.

The age of the ultramafic intrusives cannot be dated

conclusively. "The sheared and deformed character of most of the smaller bodies and much of the larger masses, suggests either that they were involved in the folding of the rocks they intrude, possibly having been moved from their original position of emplacement prior to the folding, or that they were intruded during the period of mid-Cretaceous folding. The diversity of opinion as to the time of intrusion of ultramafic rocks in the same general part of northwestern British Columbia and southern Yukon can best be reconciled if the ultramafic rocks are assumed to have been originally emplaced during the Permian, but to have later been squeezed, as solid intrusions or in small fault slices into the younger rocks at the time of the mid-Cretaceous deformation."

10. Detailed Geology

a. Metamorphic Series (Taku Group) Many questions remain unanswered concerning the exact nature and origins of these rocks. They are heterogeneous in both texture and composition. While differences among them are readily recognized, contacts are elusive.

The most 'normal' types occurring are a slaty siltstone and considerable thicknesses of chert, whereas the more complex types are unrecognisable in the field as either volcanic or sedimentary rocks. Some of them are certainly fragmental and could have either origin and are termed greestone by Wheeler (p.30): - "In general, greenstone in the altered volcanic

..... 11

rocks is of two types: 1. a massive, non-fragmental rock composed of partly or wholly uralitised clinopyroxere phenocrysts in a ground moss either mainly of chlorite and some untwinned calcic plagioclase, or of an aggregate of clinozoisite, actinolite and some anomalous blue bireforngent zoisite and ; 2. a fragmental rock in which somewhat rounded, cracked and broken fragments of clinopyroxene, altered sodic plagioclase, and volcanic rocks composed of saussuritised felspar and quartz lie in a chloritic groundmass. The latter type north of Jubilee Mountain is associated with breccias characterised by variously oriented lenticulas and angular fragments of chert and disrupted bodies of ribbon chert in a sheared matrix. These bodies appear to be along zones of disruption. Prehnite, quartz, epidote and carbonate veinlets that traverse both types of greenstone seem to be most prevalent in the disrupted zones."

All the pyrrhotite-chalcopyrite showings occur within these greenstones.

Two small bodies of limestone present something of a problem. One which outcrops south of the camp but whose contact is obscurred by talus and overburden consists of a unaltered breccia with semi-rounded and aligned fragments of limestone up to five inches in length with a limestone matrix. No recrystallisation or mineralisation has been observed with this limestone body. There are no intrusive rocks close.

The other outcrop is nearly 2,000 feet east of the camp close to the cliffs of the ultramafic sill, and consists

..... 12

of a lens-shaped mass of recrystallised limestone about 200 ft. in length. No original structure remains and many vertical veins of calcite several inches in width paralled the north-west trending strike. A greenstone skarn zone occurs along the contact with patches of chalcopyrite, pyrrhotite, blackjack sphalerite and malachite. Small brown garnets occur in one place within the calcite.

There are several possible explanations for these limestones. The unaltered limestone breccia is completely isolated from any other limestone, is surrounded by metamorphosed volcanic and sedimentary rocks and yet shows little evidence of alteration itself. From the form of the breccia fragments it is apparent that the brecciation is of a sedimentary origin or at least occurred prior to lithification. The lack of recrystallisation is remarkable considering that the limestone is surrounded by volcanic rocks that have been metamorphosed. This presents the possibility that this limestone lens, along with others on Jubilee Mountain, has been faulted in from surrounding areas, where linestone is common.

The second limestone lens, which has been recrystallised throughout, is in a similar geological environment except that it is close to a large ultramafic intrusion which may, if intruded hot, have been responsible for its recrystallisation and for the mineralisation along the contact. The size of the lens is again remarkable and must have been formed in special localised conditions or have been emplaced by faulting.

A third limestone pod, also completely recrystallised, occurs on the southeast ridge of the mountain. It is surrounded by the metamorphic series and lies close to an ultramafic body. The contact of the limestone is sharp and irregular such that the limestone appears as a huge xenolith. Contact alteration is minor and no sulphide mineralisation occurs.

Wheeler comments on the sedimentary and tectonic environment prevailing at the time of the formation of these rocks of the Taku Group (p.32) to say that the material accumulated in shallow seas some distance from terrigerous source areas, with volcanic eruptions occurring from time to time, although the region was tectonically stable. He suggests that chert might be precipitated rhythmically in such an environment.

b. Ultramafic Intrusives These vary in color, texture and form but most characteristically they are medium orange to reddish brown, medium grained and very rough to the touch. They weather to large flat sided blocks due to the pattern of jointing, but remain hard and fresh. Internally they are pale green to black and have a prominent foliation. Rare disseminated pyrrhotite occurs throughout. Minor serpentine, talc and low quality asbestos have been observed in the main intrusion at the north end of the mountain.

Wheeler describes them on page 88, where he says they are restricted to zones of tight folding, and intense shearing in Mesozoic and older rocks. "Numerous bodies of rusty reddish-brown or greenish-brown weathering serpentinite

and serpentinised peridotite and dunite occur in the altered and sheared volcanic rocks that probably belong to the Taku Group, north and northeast of the Jubilee Mountain. The ultramafic intrusions appear as elongate lenses and dykes ranging from 25 to several hundred feet in width. They are generally in contact with thoroughly sheared volcanic rocks. Some of the smaller bodies are massive, coarsely jointed, slightly sheared rocks; others, particularly the more serpentinised ones and the largest mass north of Jubilee Mountain are abundantly sheared and slickensided."

"The study of thin sections of specimens of these intrusions reveals them to be steatised serpentinised peridotite and dunite. Most of the rock comprises bladed serpentine altered to a felt of talc, and remnant anhedral crystals of olivine and orthopyroxene showing no signs of granulation and only vague undulose extinction. Accessory minerals are chromite, dark brown spinel and magnetite."

c. Granite intrusion This is a pink and white coarse grained porphyritic biotite granite, that has little or no mineralisation within the intrusion. The contact between granite and country rock (metamorphic series of Taku group) is mostly obscured by overburden but is probably sharp.

The metamorphic effect of the granite intrusion appears to have been minor -- in the ultramafic intrusions there has been an "increase in steatization" while within a few hundred feet of the contact they are converted to rocks containing abundant tremolite that commonly occurs in rosettes of radiating crystals.

11. Mineralisation

Local lithological and tectonic conditions have combined to cause a favourable environment for mineralisation in the vicinity of Jubilee Mountain with the result that numerous bodies of pyrrhotite-chalcopyrite mineralisation occur over an area 3,000 ft. by 2,500 ft. on the north side of the mountain.

The main mineral in these bodies is massive silver-grey pyrrhotite with which is generally associated stringers, blebs and disseminations of chalcopyrite. Locally these showings are highly garnetiferous and all of them have a 'host' mineral matrix of chloritic and other green related minerals, including large subhedral crystals of a dark green amphibole. The relative proportions of these constituent minerals varies greatly, pyrrhotite and chloritic minerals being ubiquitous; whereas the other minerals are less constant. Chalcopyrite is only occasionally absent and ranges up to about 3%. Garnets are always present with the chalcopyrite and in some localities forms over 75% of the rock, the remainder bing made up of pyrrhotite, chalcopyrite and chloritic matrix.

Patches of weak mineralisation in the metamorphic series are shown outwardly by surface rusting, and on a fresh surface by small blebs of green chlorite or amphibole which contain small crystals of pyrrhotite and occasionally incipient red garnets.

..... 16

Rusting is common throughout that part of the metamorphic series containing the mineral showings and is probably due to traces of disseminated pyrite.

The ultramafic intrusives enclose a few small blocks of rocks belonging to the metamorphic series and in these light mineralisation has also occurred with small quantities of pyrrhotite anc chalcopyrite and considerable rusting.

Chloritisation, light rusting and traces of pyrrhotite are common throughout the mineralised zone but the occurrences of heavy mineralisation are readily recognised by thier strong purple-brown weathering colour and their great hardness. Also a few days of warm sun causes a white powder to form on their surfaces and a smell of sulphur to pervade the air. These showings are well fractured but otherwise show poorly defined forms. However, they appear to be more or less parallel with the strike and dip of the metamorphic series around them. They consist of massive fine grained, bright silver-grey pyrrhotite which is only very weakly magnetic and non-nickeliferous and which forms as much as 75% of the rock in some showings, usually with abundant garnets up to half an inch in diameter which themselves can form up to 75% of the rock and locally up to 90%, together with yellow and sometimes greenish yellow chalcopyrite in quarter inch blebs, disseminated grains and very thin but extensive sheet-like stringers generally between 1/16 and 1/8 inch in width. A dark green matrix of undertermined orgin occurs in variable proportions which tends to be concentrated towards the contacts where it forms up to 30% of the rock. It has been observed to

.....17

form columnar or bladed crystals more than two inches in length and is thought to be either an amphibole or a member of the chlorite family. Blackjack, the iron-rich variety of sphalerite occurs in two localities. It was first observed in the contact sharn around the recrystallised limestone pod at 88, 19E ; which is described in Wheeler's memoir on p. 142:- "a lens of limestone in greenstone lies next to a body of serpentinised dunite. The contact is concealed by vegetation and talus, but for about 30 feet between the limestone and the talus there is exposed a dark green rock composed of actinolite, epidote and garnet. Along its contact with the limestone, this rock carries disseminated bornite, chalcopyrite, specularite and hematite". This account does not mention the sphalerite, nor does it mention the malachite which occurs in small quantities along the contact. Blackjack sphalerite also occurs in the pyrrhotite, chalcopyrite showing at 0+70 S. 3+20 W.

It appears from observations made of the contact of the heavily mineralised showings and of the nature of the weak mineralisation in surrounding rocks that these showings are due to replacement of certain localised horizons in the metamorphic series by solutions emanating from or associated with the ultramafic intrusive bodies during their emplacement or alteration.

Intrusion has been postulated as a mechanism for their emplacement but is discounted for several reasons. First there is no known magma with the composition of these bodies; secondly their contacts although often sharp are sometimes extremely gradational especially along strike, and third their distribution in space seems to be too random for any normal

.....18

intrusive activity.

The control of their location appears to be a combination of lithology and structure.

JOHN M. McMULLIN

12. Summary And Conclusions

During the 1968 field season a geological and geophysical program was carried out on the 40 claims comprising the Apollo-JM Claim Group. Detailed geological mapping, prospecting,trenching, sampling and a combined electromagnetic and magnetic survey was carried out over the property.

Results of the geological investigations show the copper mineralization to be confined almost entirely to the heavily pyrrhotite mineralized pods in the metamorphic series. The pod or lense shaped mineral occurences were found to be isolated and discontinuous bodies of limited dimensions, seldom exceeding more than 50 feet in length and most often much less. The percentage of copper is generally less than 1%.

Thin section and polished section studies of both mineralized and unmineralized specimens by the Company's consultant, R.W.Hutchison, concludes that all the rock types examined are believed to be of the same origin and to be metamorphosed in a similar manner. Mineral composition and textural features indicate that the section consisted originally of impure limey argillites and that much of the sulfides in the specimens may be largely if not wholly of primary origin in the rocks, No metavolcanic rocks were found to occur in the sections.

The magnetic survey failed to indicate any magnetic trends that could be correlated with the known surface showings. No significant patterns in the magnetic results were found to suggest any major structural control of the mineralized zones.

The Crone electromagnetic survey located no significant anomalies. The E.M. 16 survey located four fairly strong to

weak conductors. These conductors do not correlate well with the surface showings.

Based on the combined results of the geological, geophysical and thin section study, thegeological environment of the property does not offer very good possibilities for the discovery of an economic base metal sulfide deposit.

D.H.Waugh, geologist.

Peter E. Walcott

PETER E. WALCOTT P.Eng.

APPENDIX A

Summary of Costs (1968)

Wages	$7,800.00
Supplies (groceries, lumber, pickets, explosives, etc.)	1,700.00
Transportation (Service flights, Klondike Helicopters Ltd., Jet Ranger charters)	5,090.00
Geophysics (Eagle Geophysics Ltd.).....	2,328.00
Rental Equipment	250.00
Total	$17168.00

Breakdown of Wages

J.McMullin, Geologist (July21-August 31 & Nov.15-Dec.15, 1968)	$1,975.00
J.Braet, assistant(July 21-August31, 1968)	980.00
A.Cloutier, helper (July 21- Aug. 31, 1968)	920.00
I.Menard, helper (July 21- Aug. 31, 1968)	920.00
I.McRae , helper (July 21- Aug. 31 & Sept. 1-9, 1968)	1080.00
R.MacDonald, cook (July 21-Aug. 26, 1968)	800.00
D.Waugh, GEO., project manager (July 15- Sept. 15 & Dec. 1-7, 1968)	1,125.00
Total Wages $	7,800.00

APPENDIX B

INTERNATIONAL MINE SERVICES LTD.

PERSONNEL LIST

APOLLO ☆ J.M. FIELD PROGRAM,1968

J.M.McMullin, P.O. Box 1052, Whitehorse, Y.T., Geologist.

J.M.Braet, 2456 West 20th Street, Vancouver, B.C., student assistant.

A.Cloutier, 2605 de Bratagne, Ste. Foy, Quebec., student helper.

I.Menard, 1700 Gomin Street, Quebec City, Quebec, student helper.

I.McRae, 800 Albert Street, Fredericton, New Brunswick, student helper.

R.MacDonald, Haney, British Columbia, cook.

D.H.Waugh, P.O. Box 1052, Whitehorse, Y.T., project manager.

APPENDIX C

Property And Ownership

The 41 contiguous mineral claims discussed in this report comprise the Apollo-J.M. Claim Group. The claims Apollo 1-34 and J.M. 1-4 are registered in the name of R.G.Hilker and the Apollo 35-37 held by International Mine Services Ltd. for the interests of Lion Nickel Mines of Canada Ltd.

Particulars on the claims are as follows :

Apollo 1-37 and J.M. 1-4: those mineral claims located in the Whitehorse Map Area of the Yukon Territory, claim sheet No. 105-D-1, in the Whitehorse Mining Division, being in the Jubilee Mountain area, Tagish District approximately 9 miles southeast of Tagish and being more particularly described as follows:

Claim Name	Record Number	Expiry Date
Apollo 1,2,3,4	Y23983, Y23984 & Y23986, Y23985	March 4, 1969
Apollo [redacted] 5,7	Y23985, Y23989	March 4, 1971
Apollo 6,8- 34	Y23988 - Y24016	March 4, 1969
Apollo 35 - 37	Y25862 - Y25864	Sept. 3, 1971
J.M. 1 - 4	Y 18878 - Y18881	Sept. 29, 1970

ROCK SAMPLES AND ASSAY RESULTS - APOLLO-J.M. CLAIMS
(Taken July - August, 1968)

Assayed At Whitehorse Assay Office, 1968

Sample No.	Grid Location	% Cu.	% Zn	% Pb	Oz.Au	Oz.Ag
J-1 Chip	200'N, 200'W	0.55	0.02	-	Tr	0.26
J-2 "	0'N, 930'W	1.47	0.02	-	Tr	0.56
J-3 "	20'S, 150'W	0.72	0.06	-	Tr	0.44
J-4 "	75'N, 290'E	1.29	0.10	-	Tr	0.96
J-5 "	composite J1-4 & J-7	0.36	0.04	-	Tr	0.08
J-6 "	composite J1-4 & J-7	0.70	0.03	-	TR	0.32
J-7 "	700'N, 100'E	0.27	0.03	-	Tr	2.08
J-8 "	730'S, 1960'E	0.08	4.80	-	-	Tr
J-9 "	400'S, 1300'E	0.95	0.02	-	-	Tr
J-10 "	700'N, 100'E	1.50	0.03	-	-	1.12
J-11 "	70'S, 320'W	0.15	1.00	-	-	0.28
J-12 "	700'N, 120'E	(Spectrographic Analysis)				
J-13 "	265'N, 85'E	0.12	0.04	-	-	0.04
J-14 "	200'N, 200'W	0.95	0.02	-	-	0.12

Sample No.	Grid Location	Width	% Cu	% MO	Oz. Ag
3627 Chip	700'N, 100'E	4'	0.75	0.05	0.18
3628 "	700'N, 100'E	6'	0.40	0.03	0.20
3629 "	0'N, 300'E	5'	0.65	0.02	0.12

A-1

INTERNATIONAL MINE SERVICES LTD.

MAP NO. 1

LOCATION & REGIONAL GEOLOGY

APOLLO – JM CLAIM GROUP

JUBILEE MOUNTAIN—TAGISH AREA
YUKON TERRITORY

LEGEND

- Loose surface, all weather, 2 lane road
- Building
- Swamp or marsh
- Stream, intermittent
- + 5952 Spot elevation (in feet)
- 2500 Contour, elevation (contour interval 500')

GEOLOGY

COAST INTRUSION

4 Leucocratic granite, biotite granite

HUTSHI GROUP

3 Peridotite, serpentinized peridotite, dunite

LABERGE GROUP

2 Graywacke, arkose, quartzite, conglomerate, siltstone, argillite, hornfels

TAKU GROUP

1 Ia, limestone, limestone breccia; Ib, metamorphosed volcanic rocks; Ibs, metamorphosed volcanic rocks containing numerous serpentine bodies

- Zone, alteration moderate, minor to fair mineralization
- Zone, alteration intense, fair disseminated to massive sulfide mineralization
- Fault, assumed
- Bedding, horizontal, inclined, vertical, overturned
- Scistosity, gneissocity
- Slaty cleavage

true north / 31° / mag. north

SCALE

1 1/2 0 1

1.25" = 1 mi.

D.H.W. 1968

MARSH LAKE

TAGISH LAKE

LITTLE ATLIN LAKE

Alaska Hwy.

Jakes Corner 12 mi.

Carcross 18 mi.

TAGISH

narrows

Private Road (CNT)

Carcross - Tagish Road

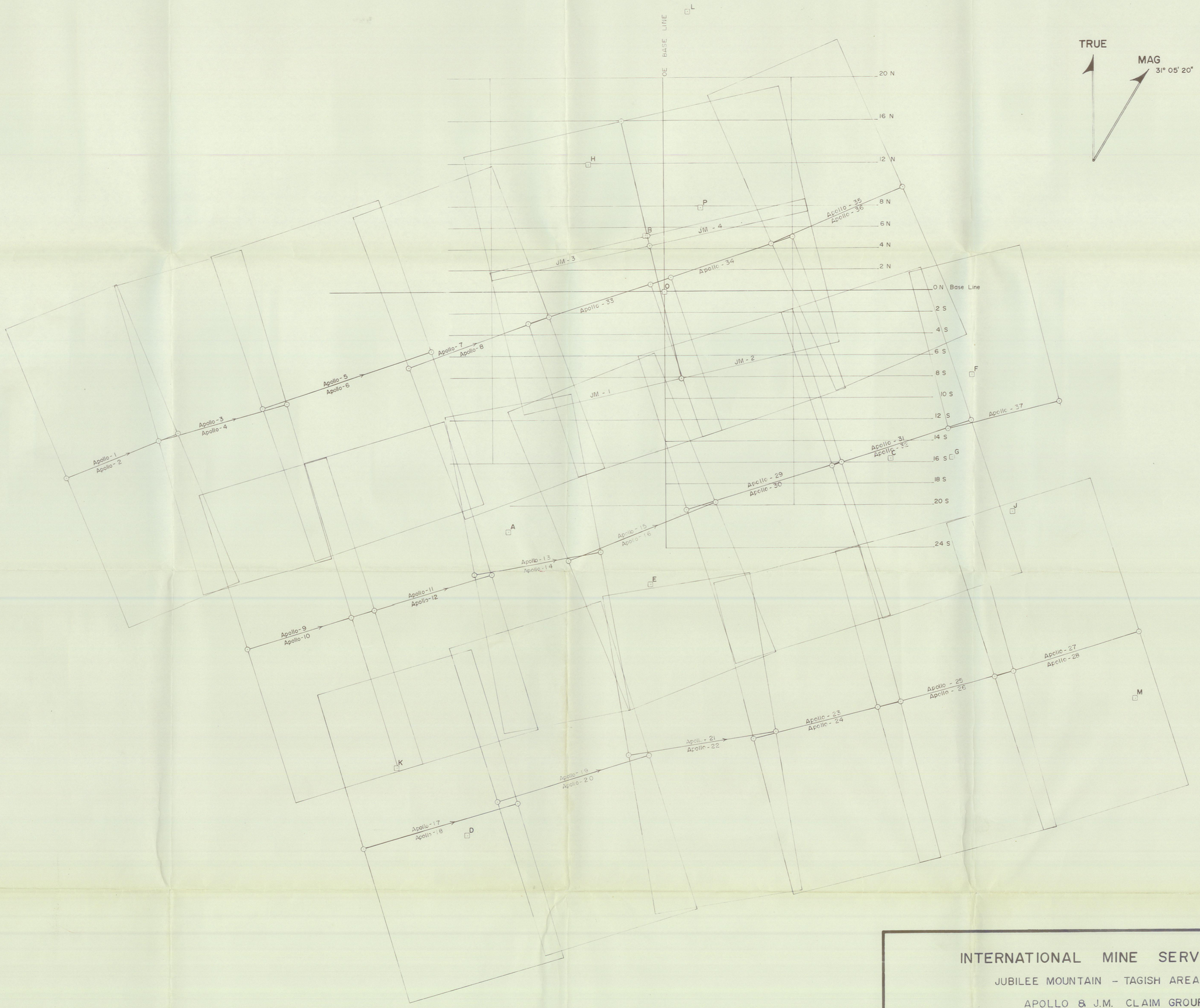
CNT Tower

Forestry Tower 4205

APOLLO-JM GROUP

JUBILEE + 5952 MOUNTAIN

018627



INTERNATIONAL MINE SERVICES LTD.

JUBILEE MOUNTAIN - TAGISH AREA Y.T.

APOLLO & J.M. CLAIM GROUPS

CLAIM MAP 105-D-1

LOCATION MAP: CLAIM BOUNDARIES & GRID SYSTEM

SCALE 1": 400' DATE AUG. 1968

SURVEYED BY J.M. BRAET

DRAWN BY J.M. BRAET

LEGEND

CLAIM POSTS O

CLAIM LINES ⟶

SURVEY STATIONS □

A-1

WEST 00 EAST

NORTH / SOUTH

MANY ULTRAMAFIC BOULDERS
(ultramafic intrusive outcrops to the north)

outcrops of 2a

MOSTLY OVERBURDEN

HEAVY OVERBURDEN

JM-1

JM-2

JM-3

JM-4

CAMPSITE

POND

Apollo-5 / Apollo-6

Apollo-7 / Apollo-8

Apollo-11 / Apollo-12

Apollo-13 / Apollo-14

Apollo-15 / Apollo-16

Apollo-29 / Apollo-30

Apollo-31 / Apollo-32

Apollo-33

Apollo-34

Apollo-35 / Apollo-36

LEGEND

- GEOLOGICAL CONTACTS
- OUTCROP BOUNDARY
- APPROXIMATE OUTLINE OF MINERALISED ZONE
- SCARPS, CLIFFS
- FAULTS (inferred)
- MINERAL SHOWINGS
- GRID
- BEDDING
- FOLIATION
- LINEATION
- ROCK TALUS
- 1 Metamorphic Series
- 1a " " — sedimentary origin
- 1b " " — limestone pods
- 2 Serpentinised peridotite and dunite
- 2a Amphibolite ?

INTERNATIONAL MINE SERVICES LIMITED

JUBILEE MOUNTAIN

Tagish, Yukon Territory

GEOLOGY, GRID and MINERAL LOCATION MAP

SCALE: 1: 2400 0 200 400 feet

TRUE NORTH
MAGNETIC
31°

MAPPED AND DRAWN BY JOHN MCMULLIN 1968

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