

800457

SUMMARY

ON

ADONIS MINES LIMITED (N.P.L.)

SUMMERS CREEK

SIMILKAMEEN MINING DIVISION

BRITISH COLUMBIA

BY

D.C. MALCOLM, P. Eng.,
Consulting Geologist

Vancouver , B.C.

November 27, 1973

C O N T E N T S

	Page
SUMMARY.	1
LOCATION & ACCESS.	2
CLAIMS	3
CLIMATE.	4
TOPOGRAPHY	4
GENERAL GEOLOGY.	5
CLAIM GEOLOGY.	6
MINERAL DEPOSITS	9
SOUTH ZONE	9
MID ZONE	10
ADIT ZONE.	12
NORTH ZONE	13
WEST ZONE.	13
GEOCHEMICAL SURVEYS.	14
GEOPHYSICAL SURVEYS.	15
WORK DONE	16
TRENCHING.	17
DRILLING	18
GENERAL.	20
CONCLUSIONS.	22
RECOMMENDATIONS.	23
REFERENCES	24
APPENDIX	
MAPS	

ADONIS MINES LIMITED (N.P.L.)

SUMMERS CREEK

SIMILKAMEEN MINING DIVISION

BRITISH COLUMBIA

SUMMARY

The Adonis Mines Limited's Summers Creek property is a very large copper-pyrite deposit in an ideal location.

The rocks are fragmented and can be very cheaply mined on the steep Summers Creek valley walls. Crushing costs and as a result milling costs should also be low due to the fractured nature of the deposit.

Unfortunately, due to the rubble-like rocks, diamond, rotary and percussion holes do not properly sample the deposits and the following copper grades are low due to core losses.

South Zone: 87,500,000 tons of 0.34% copper with an internal strip ratio of 1.6 tons of .14% to 1 ton 0.34% copper. The outer part of the South Zone over its 3,000 foot length over a 500 foot width contains pyrite and up to 0.10% copper.

Mid Zone: 3,600,000 tons of 0.53% copper with a ratio of 1.76 tons of 0.19% copper to 1 ton of 0.53% copper.

Adit Zone: 16,000,000 tons of 0.56% copper with a ratio of 2 tons 0.08% copper to 1 ton 0.56% copper.

West Zone: 11,500,000 tons of 0.35% copper with a strip ratio of 2.21 tons of 0.11% copper to 1 ton 0.35% copper.

The economics of the property appear good and bulk sampling is recommended to determine the grades of the Zones.

LOCATION & ACCESS

92 H 10

Latitude: 49°39' North
 Longitude: 120°30' West
 Elevation: 3,000 to 5,000 Feet

The claims are in the Similkameen Mining Division of British Columbia. They are between Allison Creek and Stinson Creek 12 miles north of Princeton.

The property is reached either from a dirt road off the Princeton-Merritt highway at McKenzie Lake going to the east or off a road up Summers Creek then west to the property. Both these dirt roads are steep but are accessible at all times. A gas pipeline and a power line with service roads cross the claims. The area is approximately 200 miles by road east of Vancouver, B.C.

Altonis

CLAIMS

	<u>Name of Claim</u>	<u>Record Number</u>	<u>Due Dates</u>
86	Axe 1 - 46 incl.	19719 - 19764 incl.	March 29, 1978
	Axe 47 - 86 incl.	19940 - 19979 "	April 10, 1978
6	Axe 1A Fraction to		
	Axe 6A Fraction	22886 - 22891 incl.	July 12, 1978
8	Bud 1 - 8 incl.	22208 - 22215	April 23, 1978
1	Bud 9 Fraction	22216	" " "
1	Bud 11 Fraction	22831	July 12, 1978
3	Bol 1 - 3 incl.	22893 - 22895 incl.	July 12, 1978
4	Bol 1 - 4 Fractions	22928 - 22931 "	" " "
4	Bol 20 - 23 incl.	22912 - 22915	" " "
1	Bol 25	22917	" " "
1	Bol 27	22919	" " "
16	Lox 1 - 16 incl.	23062 - 23077	August 12, 1978
2	Lox 1 & 2 Fractions	23060 - 23061	" " "
1	Rum 17	26908	March 23, 1978
1	Rum 19	26910	" " "
1	Rum 21	26912	" " "
6	Rum 53 - 58 incl.	26944 - 26949 incl.	March 23, 1977
6	Rum 61 - 66 "	26952 - 26957 "	" " "
8	Rum 69 - 76 "	26960 - 26967 "	" " "
1	Rum 128	27065	March 23, 1978
1	Rum 130	27067	" " "
4	Rum 137 - 140 incl.	27024 - 27027 incl.	" " "
1	Rum 248	27137	March 25, 1978
1	Rum 250	27139	" " "
1	Rum 252	27141	" " "
4	Rum 343 - 346 incl.	27232 - 27235	" " "
1	Rum 348	27237	" " "
1	Rum 350	27239	" " "
8	Rum 355 - 362 incl.	27244 - 27251 incl.	" " "
8	Rum 409 - 416 "	27294 - 27301 "	" " "
10	Rum 421 - 430 "	27304 - 27313 "	" " "
2	Rum 431 - 432 Fracts.	27314 - 27315	" " "
18	Fan 7 - 24 incl.	34664 - 34681 incl.	April 10, 1974 ²⁸
4	Fan 71 - 74 incl.	35290 - 35293 "	November 29, 1974 ⁵

221 Axe Numbers 71 to 74 inclusive and Axe Numbers 61 to 64 inclusive were staked in contravention to TV Numbers 11 to 20 and TV Numbers 37 to 40.

Fan Numbers 21 to 24 inclusive and Fan Numbers 71 to 74 inclusive cover the same area.



CLAIMS

Scale 1" = 1/2 mile

CLIMATE

The area is east of the Coast Range Mountains in the dry belt of British Columbia.

The temperatures vary from 0 to 20° below in the winter and from 60 to 90 degrees in the summer.

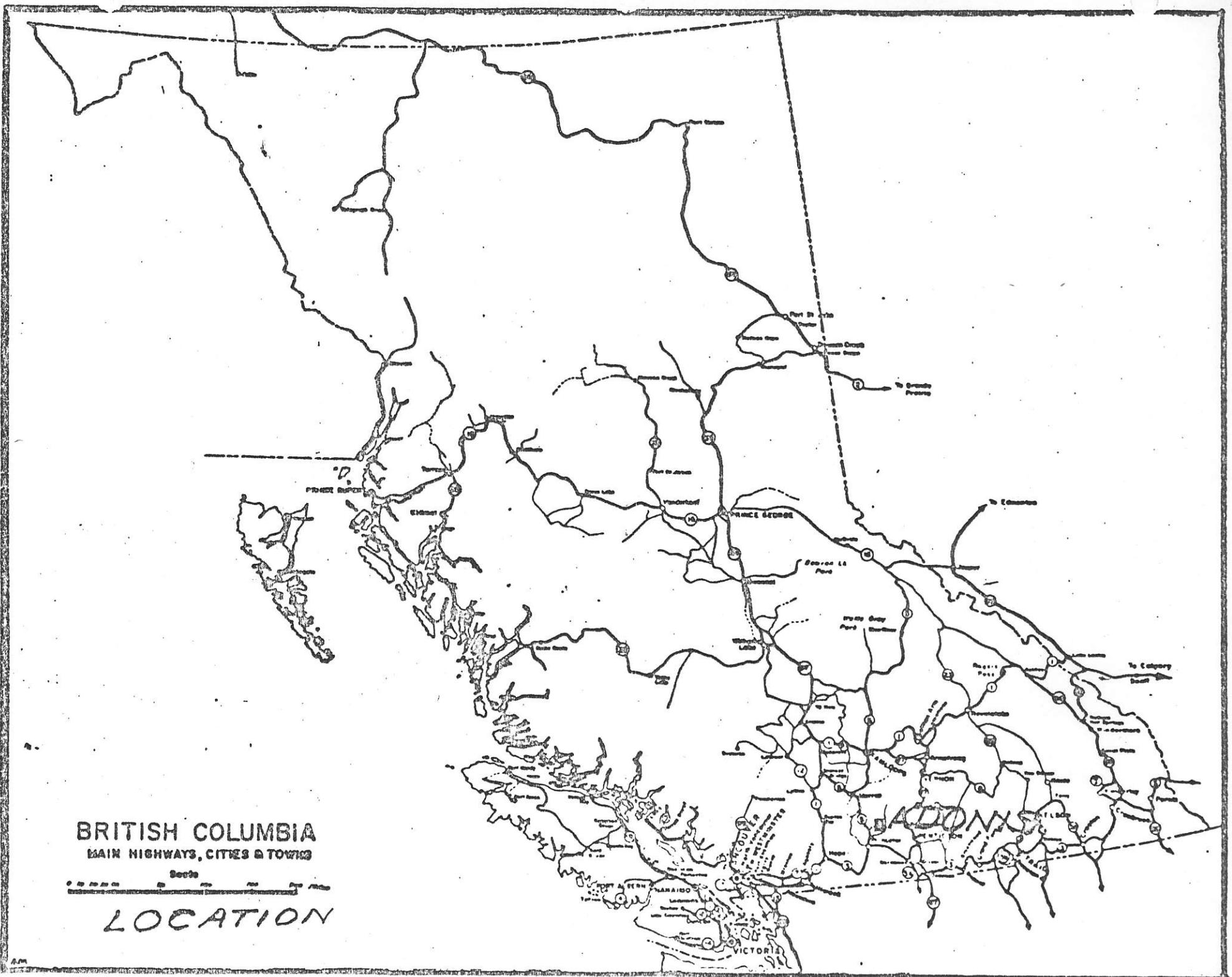
The rainfall is approximately 20 inches per year with 2 to 5 feet of snowfall between October and May.

In general the climate is pleasant with no protracted periods of cold or hot weather and short periods of snowfall.

TOPOGRAPHY

The claims cover an elevated plateau 4,000 to 5,000 feet in elevation. It is drained by Allison Creek and its tributaries to the west and by Summers and Stinson Creeks to the east and south at elevations of 3,000 feet. These creeks are in wide canyons with steep slopes to the plateau.

Adonis West Zone is on the plateau proper in a relatively flat swampy area drained by the headwaters of Stinson Creek. The ground is park-like with quite large pine and fir trees.



BRITISH COLUMBIA
MAIN HIGHWAYS, CITIES & TOWNS



LOCATION

The South Zone is on a ridge which is relatively flat on top at elevation 4,400 feet. The ridge drops gently to elevation 4,300 feet at Stinson Creek 1,500 feet to the west. It drops 100 feet in 3,000 feet to the south along the ridge and to the east it drops to Summers Creek at elevation 3,000 feet from elevation 4,400 feet in 3,000 feet horizontally with an overall 26 degree slope.

The Adit Zone is on the steep slope to Summers Creek between elevations 3,500 and 4,100 feet in a horizontal distance of 1,000 feet or a slope of 30 degrees. The slope above the adit rises 500 feet in 1,500 feet horizontally to the flat part of the plateau.

The North Pyritic Zone is on a similar steep slope to Summers Creek.

GENERAL GEOLOGY

The Adonis property is in the Princeton-Aspen Grove copper belt. The area is in a trough or down-faulted block of Nicola Group volcanics and sediments which flanks the Coast Range batholyths of British Columbia. The Okanagan batholyth lies east of the belt and numerous irregular dikes from this intrusive cut the Nicola rocks in the belt. Younger granitic intrusives, both acid and basic, intrude the volcanics.

The major structures in the block or trough are faults. These are closely spaced. They strike and dip in many directions although the north and northwest faults bordering the block are most prominent. These have been called the Allison fault, the Summers Creek fault and the Otter Creek fault by the Geological Survey of Canada.

The copper deposits are varied but the Similkameen Mining and Adonis deposits are pyritic copper zones in intensely faulted Nicola volcanics and sediments and in diorite intrusives. A pyrite belt extends from north of Princeton to and beyond Allison Lake and it contains a number of altered zones containing similar copper mineralization.

In summary the Adonis Zones are part of an extensive copper-pyrite belt in an extensively faulted trough of Nicola rocks which flanks the Coast Range.

CLAIM GEOLOGY

The geology of the Adonis Summers Creek property is complex and the detailed geology is not known. Much of the claim area is covered by dirt or glacial till. The area west of the South Zone is overlain by up to 200 feet of gray glacial till. The area south and east of the West Zone is underlain by up to 100 feet of clay and gravel.

In general Nicola volcanics; andesite, basalt, hornblend andesite porphyry, tuffs, agglomerates, limestone and hematitic tuffs and flow rocks, underlay the claim area.

These rocks are intruded by irregular granodiorite or quartz monzonite intrusives. These are north or northwest striking dikes joined irregularly.

A swarm of separate dikes or sills trend northwest and contain a dark diorite, a separate light colored diorite, some microdiorite and dikes of quartz feldspar porphyry. Younger andesite dikes trending northeast cut the diorites and volcanics.

Faulting, shearing and brecciation are the most noticeable structural feature of the area. Major faults follow the Allison Creek and Summers Creek valleys trending north to northwest. The movements along these breaks could involve thousands of feet horizontal and vertical. Smaller breaks strike northeast, east, north and horizontally. These are spaced as close as inches apart over areas of hundreds of square feet. The walls of some trenches in rock are so fractured that the rock will break under gravity and flow to the angle of repose of 44 degrees. Fracture density studies show a confusing mass of planes. These effectively prevent the tracing of rock types except in a very general way.

The mineral deposits in the South and West Zones are a pyrite band 2,000 to 3,000 feet wide which follows the granodiorite contact. This pyrite fills fractures in the rock. Some outcrops contain up to 25% pyrite. Chalcopyrite mineralization increases as the granodiorite contact is approached and is occasionally accompanied by bornite and metallic chalcocite. It occurs both as fracture fillings and as disseminations in the rock.

Rock alteration is widespread with potash feldspar introduced in the granodiorite and pegmatite like dikes intruding the Nicola rocks near the contact. The contact rocks show high temperature metamorphism with epidote. Areas of hydrothermal alteration with sericite, kaolin, gypsum or anhydrite, biotite, quartz and chlorite occur throughout the Zones.

The South and Adit Zones are a continuous pyrite zone with variable amounts of copper in hydrothermal and contact metamorphic zones in intensely fractured rocks along a granodiorite contact.

MINERAL DEPOSITS

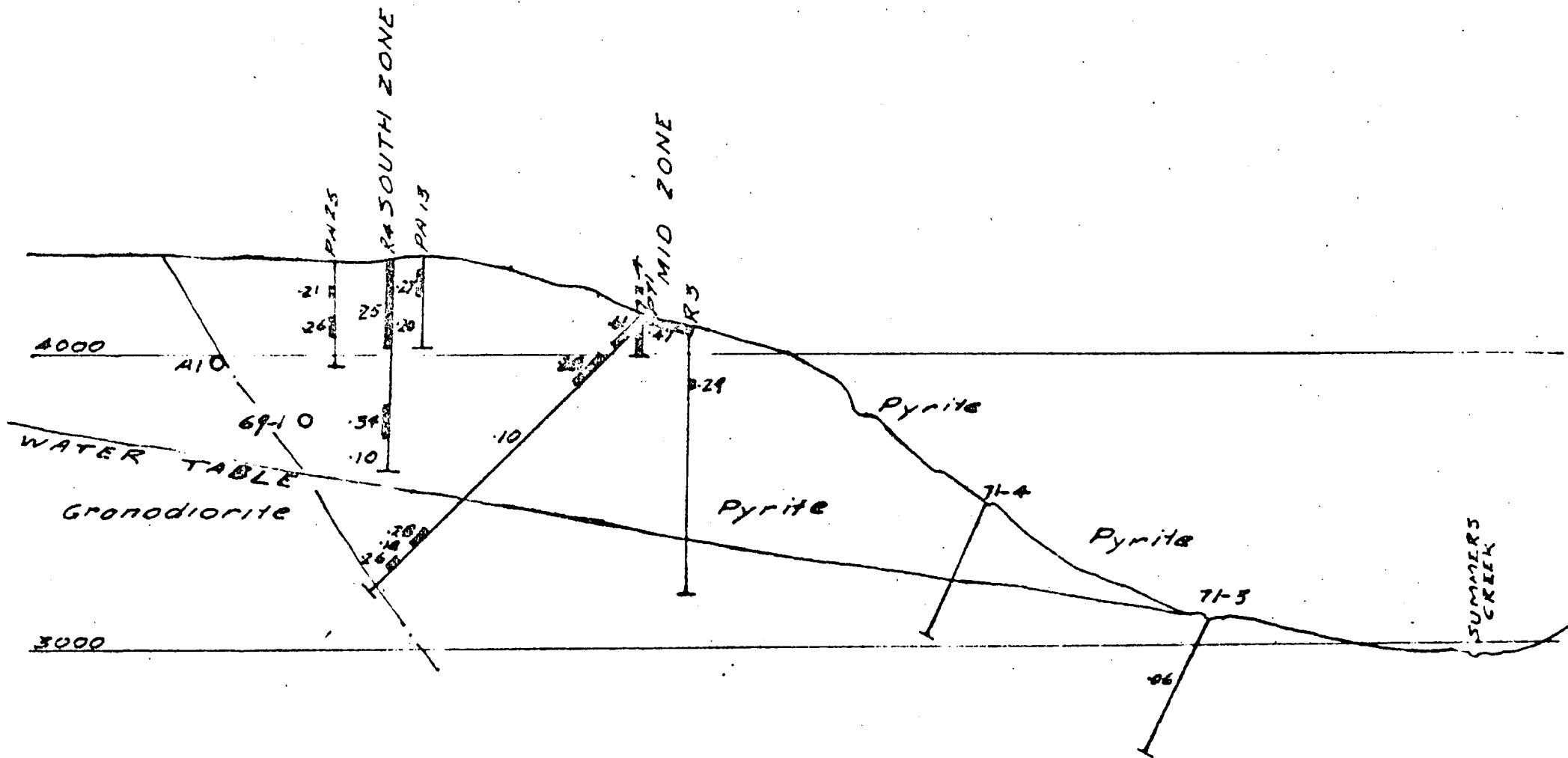
The copper deposits are part of a pyrite zone which follows a granodiorite contact for a length of 3 miles over widths of 2,000 to 3,000 feet. It follows the steep west wall of the Summers Creek valley between elevations 3,000 and 4,400 feet. The zone contains a gradational copper-pyrite ratio with higher copper near the granodiorite contact and higher pyrite away from it. The fracturing is more intense near the contact and the highest copper values are in crushed areas a short distance from the contact. The alteration, silicification and red feldspar, are more intense at the contact and kaolinization with sericitization are more extensive in the crushed copper bearing zones in diorite, microdiorite and quartz feldspar porphyry. Propylite, epidote and biotite increase with the pyrite content.

The South, Mid, Adit and North Zones are partly explored copper deposits within the overall zone.

The West Zone is a separate deposit in sediments, tuffs and agglomerates intruded by diorite and extensively faulted.

SOUTH ZONE

The South Zone is along the flat top of a ridge between Stinson and Summers Creeks. It extends down the



SECTION ALONG 72-4
MID ZONE & SOUTH ZONE

ADONIS MINES LTD
Scale 1"=500'

steep slopes to Summers Creek in several areas. The Zone has been explored over a length of 3,000 feet over widths of 250 to 600 feet and, on the surface, between elevations of 3,700 and 4,400 feet. One drill hole intersected it 1,000 feet vertically below the outcrop. It has been explored by 15 diamond drill holes, one rotary hole and 9 percussion holes. This number of holes over the size of the deposit is not enough to determine its tonnage.

None of the holes gave uniform samples with high enough core recovery to be dependable for a proper ore reserve estimate.

With these reservations in mind the minimum possibilities are 87,500,000 tons averaging 0.34% copper with no external strip ratio but an internal strip ratio of 1.6 tons of 0.14% copper with a higher pyrite content to 1 ton of 0.34% copper.

The west side of the deposit is granodiorite with pyrite but only minor copper. The east wall has a 500 foot relatively unexplored body of pyritic volcanics averaging 0.1% copper. Beyond this pyrite increases to 0.04%.

MID ZONE

The Mid Zone is a mixed sulphide oxide zone north east of the South Zone and south of the Adit Zone.

It is in the same structures in microdiorites and volcanics. The rocks are completely fractured or crushed over a surface area 600 feet from north to south and for 300 feet from east to west.

It has been explored by 3 diamond drill holes and 8 percussion holes to depths of 200 to 300 feet.

Four percussion and one rotary hole, together with trenching, has partly closed the extensions to the east and north. The west extension becomes part of the South Zone and the south extension is unexplored. Hole 71 - 9 intersected copper mineralization, which may be an extension of the Mid Zone, 700 feet to the south of it. The downward extension is unexplored.

To sum up the deposit is known to be 600 feet by 300 feet by 200 feet or 3.6 million tons of crushed diorite and volcanics.

The drilling, both percussion and diamond, is completely unsatisfactory. Recoveries are poor and many holes were lost through caving even after cementing.

With unrepresentative samples 645 feet of intersections averaged 0.53% copper and 1,135 feet averaged 0.19% copper or in a ratio of 1 to 1.76. The overall grade is 0.29% copper.

ADIT ZONE

The Adit Zone is 3,000 feet north of the South Zone along the east contact of the granodiorite dike which lies east of both Zones. The mineralization, a mixture of copper oxides and sulphides in fragmented diorite, quartz feldspar porphyry, microdiorite and basic andesites. The rocks are sericitized and show kaolinized areas. A ring of siliceous pyrite rock surrounds the copper bearing areas and contain pods of copper mineralization.

The Zone is explored for 900 feet in an east to west direction between elevations 3,500 and 4,100 feet and for 600 feet in a north to south direction. Some possibilities exist for extensions in all directions but the south and west extensions are heavily overburden covered. The depth extensions are open.

The Zone has been tested by thirty-five percussion drill holes, eleven diamond drill holes and one rotary hole. Very few of these holes were completed but stopped in rubble with copper values. One adit tunnel, 96 feet long, in this material stands well but trenches on the surface form talus slopes quickly.

The Zone is 250 feet deep and contains 16,000,000 tons and using surface samples and drill intersections there were 2,031 feet of intersections averaging 0.56% copper and 4,080 feet averaging 0.08% copper, a ratio of one to two respectively.

NORTH ZONE

The North Zone is a northward extension of the Adit Zone as a very large pyrite gossan zone. Some copper staining is visible in it along the Summers Creek valley slopes and in bulldozer trenches but ten percussion holes showed only low copper values.

WEST ZONE

The West Zone is in a flat area drained by Stinson Creek 3,500 feet west of the Adit Zone. The area is underlain by Nicola andesites, agglomerates, tuffs and limestone intruded by irregular diorite intrusions which is the dominant rock type.

The area is 1,600 feet from north to south and 200 to 600 feet wide.

It has been explored by 8 diamond drill and 11 percussion drill holes to depths of 200 to 350 feet.

There may be extensions in all directions and the deposit requires closer spaced diamond drill holes to determine the tonnage and grade. It contains approximately 11.5 million tons with 1,715 feet averaging 0.35% copper and 3,781 feet averaging 0.11% copper or a ratio of 1 to 2.21.

GEOCHEMICAL SURVEYS

Geochemical surveys were made by Meridian Mines Limited over the South Zone. Amax Exploration Incorporated sampled the entire property for copper, molybdenum and zinc.

Both surveys gave excellent results and indicated a number of anomalous areas. The West Zone was found in part by geochemical work.

The pyrite belt between Summers Creek, the South, Adit and North Zones showed large areas of metal rich soil over the pyrite rich areas.

In general, the method of surveying was successful in finding deposits.

GEOPHYSICAL SURVEYS

1. Magnetometer Surveys

Both Meridian and Amax made ground magnetometer surveys over the South Zone and Amax surveyed the claim area by an Airborn magnetometer survey. Ground magnetometer surveys were made over the anomalous soil areas and the southern part of the property.

These magnetometer surveys worked well. They show anomalous results over most zones and a strong high over the West Zone.

2. Induced Polarization

Meridian and Amax surveyed the southern part of the property with good results. The method showed anomalies over the pyrite rich zone. Sophisticated interpretation failed to differentiate pyrite and chalcopyrite rich areas. The surveys indicate metal contents of 5% in the South Zone.

3. Electromagnetic and Self Potential Surveys

These surveys were made by Meridian over the South Zone. These methods were not successful in aiding the exploration of the claims.



ANOMALIES

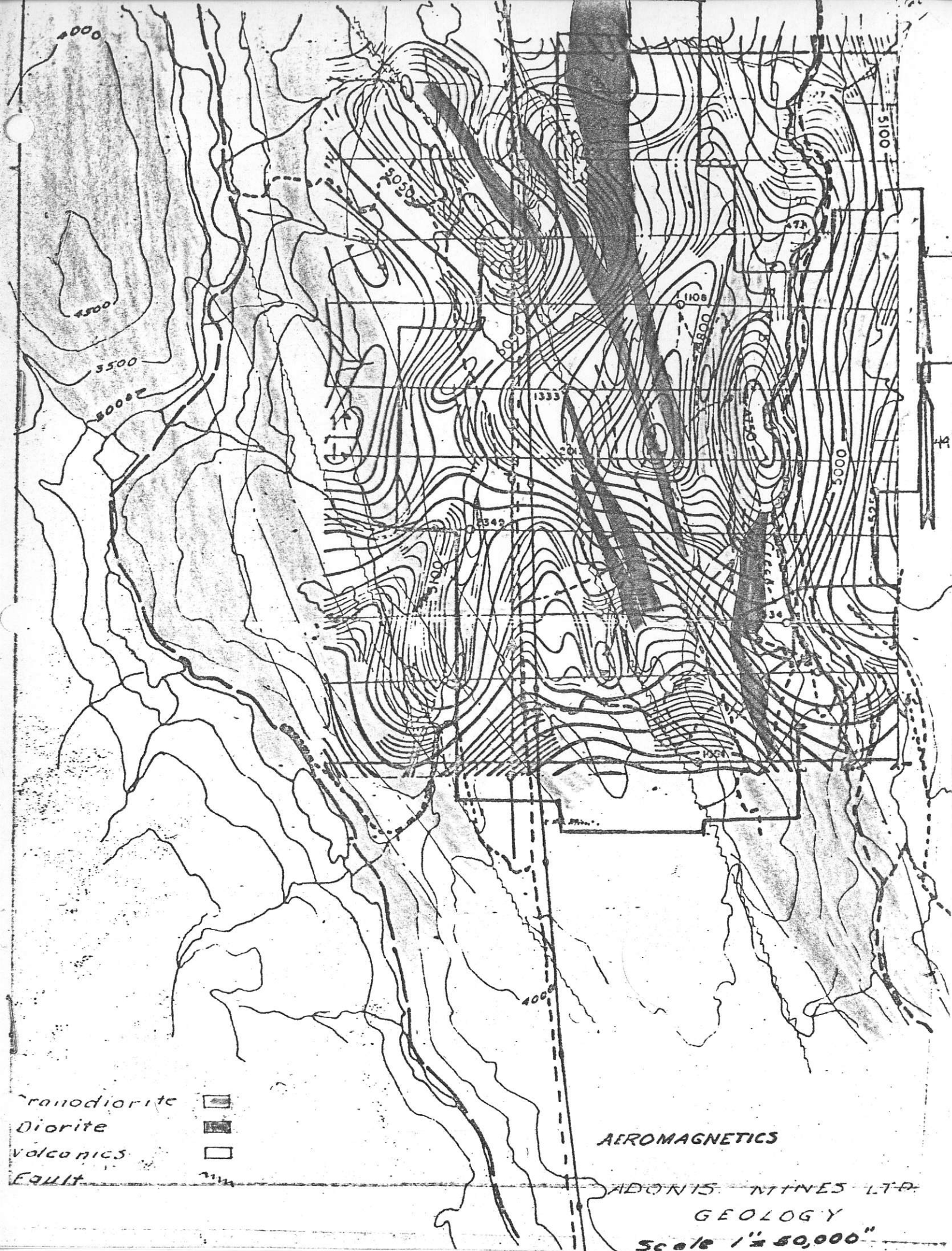
1000 PROF FACTOR OVER

FRACTURES

ABANIS MINES LTD

GEOCHEMICAL

Scale 1/2 1/2 Mile



- Granodiorite
- Diorite
- Volcanics
- Fault

AEROMAGNETICS

ADONIS NTNES LTD.

GEOLOGY

Scale 1" = 50,000"

WORK DONE

The Summers Creek claims have had a number of work programs done on them as follows:-

1. Prior to 1965 a 96 foot tunnel was driven across the Adit Zone.

2. Prior to 1967 a road was built from Summers Creek to the South Zone and 985 linear feet of rock trenches were excavated on the Zone in 8 trenches.

3. In 1967 Meridian Mines Limited cut 11,700 feet of lines on a grid and made Magnetometer, Electromagnetic, Self Potential, Induced Polarization and Geochemical Surveys over this grid. They did some bulldozing and drilled seven BQ Wireline diamond drill holes, Numbers M - 1 to M - 7 inclusive, totalling 2,139 feet.

Some claims were abandoned and new claims were staked.

4. In 1968 Quintana Minerals Limited did extensive bulldozer trenching, sampling and geological mapping. They drilled four rotary holes, Numbers R - 1 to R - 4 inclusive, totalling 3,303 feet. Additional claims were staked.

5. In 1969 Mr. Stinson did bulldozer trenching and diamond drilled two holes A - 1 and A - 3, totalling 898 feet.

6. In 1969, 1970 and 1971 Amax Explorations Inc., made an Airborn Magnetometer Survey of the claims. They cut 25 miles of lines in a grid covering the south east part of the claim group and did ground magnetometer, electromagnetic, geochemical, geological and Induced Polarization surveys over it.

Additional claims were staked to the north and east of the Axe Claims.

Bulldozer trenching was done, 51 percussion holes totalling 11,169 feet, and 15 diamond drill totalling 9,101 feet were drilled.

7. In 1972 and 1973 Adonis Mines Limited did bulldozer trenching, 10,447 feet of diamond drilling in 22 holes and 8,504 feet of percussion drilling in 70 holes.

TRENCHING

The Adonis deposits have been well exposed by bulldozer trenching.

The West Zone is on flat swampy ground but some trenches have exposed chalcopryrite and pyrite in diorite and chalcocite in limy agglomerates.

The North Zone shows extensive pyrite gossans and some mineralization was exposed by drill access roads but no trenching has been done there.

Trenching on the South Zone exposed mineralization on the steep side hills and on the hill top. The south east extension was covered with over 50 feet of sand and clay and bed rock was not reached. In general the exposures on the surface trenching was leached. The Mid Zone, however, showed secondary chalcocite deposit on the surface.

The Adit Zone showed secondary chalcocite in some trenches and leached sulphides in other areas. In the west and south sections of this deposit deep overburden prevented bedrock trenching.

In general bulldozer trenching is the best surface exploration method and trenches in rock can be readily cut. The fragmented nature of the rock prevents the maintenance of these trenches as the rock forms talus slopes once the work is completed.

DRILLING

The Adonis deposits present a very difficult problem in their exploration by diamond drilling or by

other types of drilling. This is because the rocks are crushed or very extensively fractured and faulted.

The results may be assessed as follows:

The Meridian diamond drilling, holes M - 1 to M - 7, can be discounted. The work was done with small diameter core under contract and the recoveries were poor.

The Quintana rotary drilling was done with large diameter holes and double tubing with the sample collected from the inner tube. This method gave large samples and should be representative. The four holes drilled gave low copper values on the Axe claims and on several other deposits which were ore bodies. This could have been caused by the method used or by the hole location in relation to the Zones.

Amax diamond drilling was done under a footage contract with mostly small cores. Some of their holes gave good recoveries but much of the core recovery was poor. The results and samples are undependable.

Adonis diamond drilling was carefully done using large core sizes under a contract which emphasized core recovery. Despite this the recovery in many places was unsatisfactory. In many of the best mineralized sections drill water was lost every few feet despite the cementing and grouting of the holes.

Percussion drilling, both by Amax and Adonis, was known to be unsatisfactory for sampling, before it was used. Tests were made between vertical diamond drill holes and percussion holes at the same location. The results were not comparable. Some Engineers on these holes, applied a factor to upgrade the percussion holes in their calculations.

In general drilling has not been satisfactory in determining the grade of the deposits due to their nature and fragmentation.

The work has partly outlined the shape and size of the deposits and their general geology.

GENERAL

In December, 1970, D.W. Pringle, P. Eng., checked the values obtained from closely spaced diamond drill holes and percussion drill holes and found that the percussion values can vary from 25 to 100% less than the diamond drill values. He emphasized that the diamond drill cores could not be considered the true value unless the core recovery was 100%. In his estimates he applied a factor of 50% to adjust the percussion hole assays.

In November 22, 1971, Mr. P.E. Fox, P. Eng., made detailed tonnage and grade calculations using a factor of plus 16% on the South Zone percussion holes and a factor of 180% in the percussion drill holes in the West Zone.

The present calculations are unfactored realizing that, due to drilling conditions, neither the diamond nor the percussion drill holes are representative. Core recovery figures for drill holes are not complete but, in general, they are not good. As an example, Hole 72 - 15, a diamond drill hole in the Mid Zone, showed a core recovery of 43.9%.

The hole was drilled using NQ wireline equipment with bentonite mud.

The Meridian holes were drilled using small core and the results are very poor.

Many of the Amax holes showed poor core recovery.

The 1972 and 1973 diamond drilling using wireline, mud and NQ core are more reliable.

The Rotary holes had poor sample recovery and sampling methods are unreliable.

} !!

CONCLUSIONS

The Adonis Mines Limited's Summers Creek property is a probable open pit mine with poor engineering data on tonnage and grade. The copper grades are based on misleading or unreliable sampling and the averaged copper values are believed to be low.

The property is within easy driving distance of the mining community of Princeton and within 200 miles of Vancouver. A B.C. Hydro power line and a gas pipe line cross the property.

The South, Mid and Adit Zones are along the steep Summers Creek valley slope in dry fragmented rocks well above the water table.

The pyrite content of the rock increases with a decrease in copper content and it is believed that the copper can be leached from the low grade copper sections. The Mid and Adit Zones have been oxidized in place to form oxide deposits on their surface in the fragmented rocks.

These conditions all point to very low mining costs. No metallurgical testing has been done but crushing costs of the soft fragmented rock should be low.

With these favorable factors and with projected and present favorable copper prices a thorough feasibility study on the present information on tonnage and grade should show a profitable operation.

Bulk sampling and underground diamond drilling should increase the estimated copper grades in the presently outlined Zones and could enlarge these Zones to depth and in the lower grade extensions.

RECOMMENDATIONS

Drifting and underground bulk sampling together with underground drilling should be done to determine the copper content of the Adit and South Zones.

Some preliminary surface drilling is necessary on the Adit Zone to properly locate a tunnel.

Summary by

D.C. Malcolm
D.C. MALCOLM, P. Eng.,
Consulting Geologist

Vancouver, B.C.
November 27, 1973

REFERENCES

H.M.A. Rice: G.S.C. Memoir 243

Princeton Area, 1947

P.E. Fox and J.E. Christoffersen: April, 1971

Axe Copper Molybdenum Property

Amax Explorations Incorporated

D.W. Pringle, P. Eng: December 2, 1970

P.E. Fox, P. Eng: November 22, 1971