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AND ASSOCIATES LTD.
CONSULTING GEOLOGICAL ENGINEERS

BOX 4127, WHITEHORSE, Y.T. Y1A 3S9 667-4415 STANDARD BUILDING, VANCOUVER, B.C 688-25[illegible]

1016 STANDARD BUILDING
510 WEST HASTINGS STREET
VANCOUVER, B.C
V6B 1L8

Property

SUMMARY REPORT

ON

BARB-LOG CLAIM GROUP

A.M.P. EXPLORATIONS & MINING CO. LTD.
(LOGJAM SILVER PROPERTY)
LAT 60°01'N; LONG 136°36'W; NTS-105B/4
WATSON LAKE MINING DISTRICT, Y.T.

FOR

REBEL DEVELOPMENTS LTD.

R.J. CATHRO, B.A.Sc., P.Eng.

SEPTEMBER 5, 1979

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SUMMARY

Approximately $750,000 was spent between 1965 and 1967 on underground exploration of gold and silver bearing quartz veins that cut a Jura-Cretaceous diorite body near Logjam Creek, Y.T. This work was initially financed by Macassa Gold Mines Ltd. and later by Pure Silver Mines Ltd. The deposit is now staked as the Barb-Log claim group of A.M.P. Explorations and Mining Co. Ltd.

At least eight veins are partially exposed on a steep and dangerous cliff where they cannot be adequately sampled. Two of these veins (5 Vein and 6 Vein) have been explored underground, where a number of mineralized sections were located that averaged about 15 oz/ton silver, 0.14 oz/ton gold and 6 per cent combined lead and zinc across a vein thickness of 0.3 to 1.0 m. The mineralized sections range from 12 to 35 m in length and represent from 12 to 57 per cent of the total length of vein drifted in each heading within the favourable diorite.

The underground development has indicated that the veins have steep dips and can be mined without timbering and with only minor dilution. It has also proven that the mineralization extends through a vertical range of almost 250 m with no significant change in mineralogy or grade. Adit development is feasible for at least another 200 m vertically lower.

In 1976, an important tungsten-molybdenum deposit was discovered by Logtung Resources Ltd. immediately south of the A.M.P. property and was subsequently explored by Amax Potash Ltd. Amax recently calculated drill indicated reserves at 163 million tons averaging 0.12% WO_3 and 0.052% MoS_2. The existence of this deposit has resulted in improved access to the A.M.P. property.

CONCLUSIONS

Most of the initial expenditure on this vein deposit was directed toward expensive preliminary work such as roadbuilding, collaring two adits on a steep cliff and connecting them with a surface tramway, and driving 420 m of barren crosscut. As a result, only a small portion was actually expended on drifting and sampling within the deposit and it remains relatively unexplored. Six of the eight veins on the property have not yet been sampled underground.

This deposit has the advantages of excellent ground conditions and topographic relief for underground mining, and a favourable location close to the Alaska Highway. However, the mineralized sections outlined to date are only marginally commercial unless a large tonnage and higher grade portion can be proven. Metallurigcal testing of the mineralization should be an early priority because low recoveries of silver and gold would make this low-grade material unworthy of further exploration.

Unfortunately, the A.M.P. property has fallen into a state of disrepair in the twelve years it has lain idle and a large part of the next stage of exploration will have to be spent on rebuilding or replacing some of the original facilities.

With the recent discovery of a stockwork-type porphyry tungsten-molydbenum deposit adjacent to the south boundary of the A.M.P. property, future access can best be gained from that side. This will permit the previously unmapped and unsampled southwest slope of the ridge to be explored with bulldozer trenching. During this work, prospecting should also be conducted for tungsten and molydbenum mineralization and the boundary between the A.M.P. and Logtung properties should be roughly marked out on the ground.

RECOMMENDATIONS

An expenditure of $150,000 is recommended on the A.M.P. property as the initial step in the continuing exploration of the vein system. This budget will finance road construction and repair, bulldozer trenching and surface diamond drilling, camp construction, equipment overhaul, adit rehabilitation and other work required to prepare the property for a resumption of underground exploration. Planning and budgeting for that more expensive second stage must await the results of the initial phase.

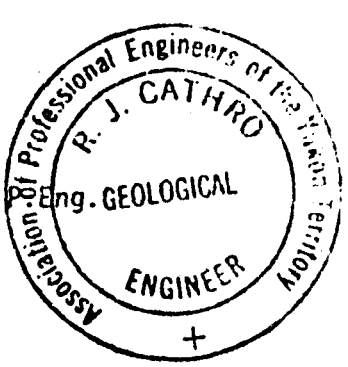
Road Construction and Trenching	
400 hours @ $65.00 ----------	$ 26,000
Diamond Drilling	
3000 feet @ $30.00 ----------	90,000
Camp Construction, Adit & Equipment Rehabilitation ------	25,000
Engineering and Assaying ----------	9,000
TOTAL	$150,000

Respectfully submitted,

ARCHER, CATHRO & ASSOCIATES LTD.,

/mc

R.J. Cathro, B.A.Sc., P.Eng.
September 5, 1979



INTRODUCTION

This report was prepared at the request of A.J. Arsenault, President of Rebel Developments Ltd. as well as one of the owners of the Barb-Log claim group. It is based on the writer's familiarity with the property, obtained while he was engaged in a supervisory and consulting capacity for Pure Silver Mines Ltd. during the previous underground development program on this property in 1966-67, and his continuous experience in Yukon and Northern B.C. mineral exploration and development since 1963. In addition, he has had access to all exploration data on the property prior to 1966.

LOCATION, ACCESS AND TOPOGRAPHY

The property is situated 2.5 km north of the B.C.-Yukon boundary at latitude 60°01'N and 131°36'W, within NTS Map-area 105B/4, as illustrated on Figure 1 on the following page. It lies about 13 km north of the Alaska Highway at a point approximately 260 km by road east of Whitehorse, Y.T. and 240 km by road west of Watson Lake, Y.T.

Access was provided during the 1966-67 program by a 22 km tote trail along Smart River that is now impassible. During 1977, a new 15 km road was constructed along Logjam Creek to the south edge of the Barb-Log group by Amax Potash Ltd. and Logtung Resources Ltd. Future access can best be gained by extending the 1977 road by arrangement with the owners.

The Barb-Log claims follow a rugged northwest-trending ridge with local relief ranging from about 1200 m to 1830 m above sea level. On the northeast side of the ridge, where the workings are located, the veins are partially

Fig 1

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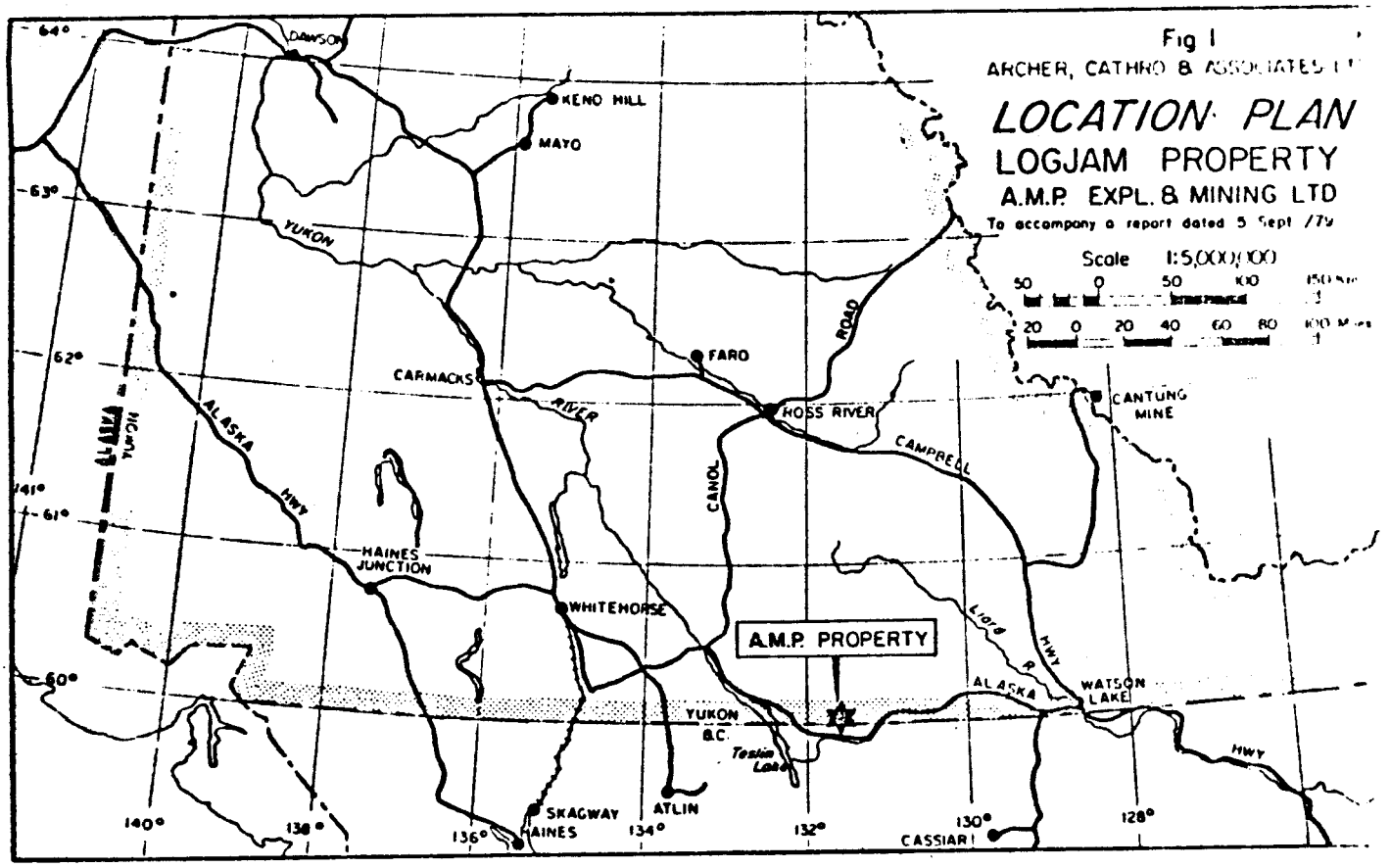
LOCATION PLAN

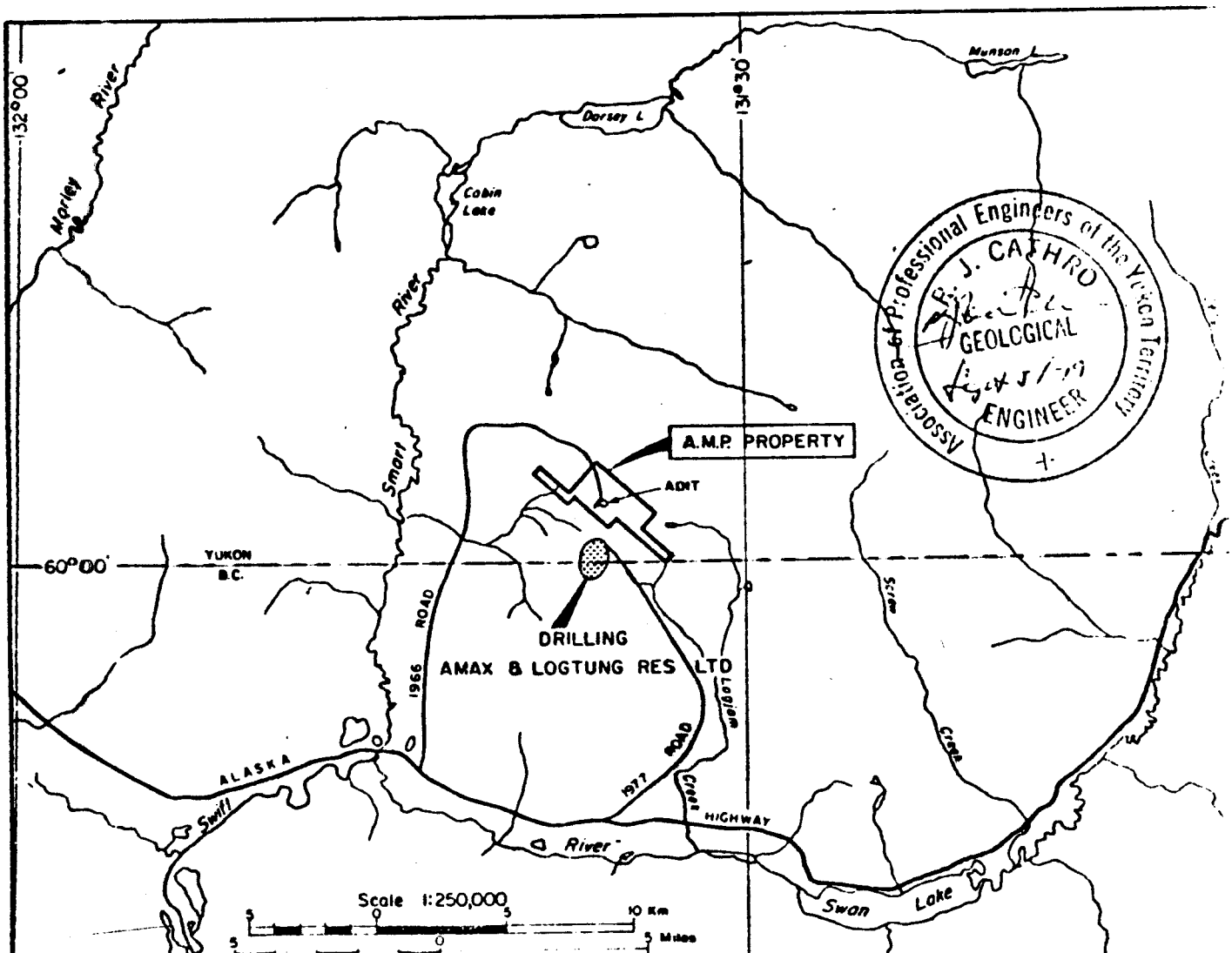
LOGJAM PROPERTY

A.M.P. EXPL. & MINING LTD

To accompany a report dated 5 Sept /79

Scale 1:5,000,000





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F. J. CATHRO
GEOLOGICAL ENGINEER

exposed in a near-vertical cliff face above extensive talus slides. The southwest side, on the other hand, is only moderately steep but is covered by felsenmeer, moss and low bushes and is difficult to explore without a bulldozer. There is virtually no useable timber on the Barb-Log property, although it is available in all directions below an elevation of about 1500 m. There are no camp facilities or equipment on the property, other than some ore cars and a mucking machine which were left underground and require repair before they can be used.

CLAIMS

The property consists of 34 Yukon mineral claims, which comprise a single elongated but irregular contiguous block. These claims are registered at the Mining Recorders office in Watson Lake, Y.T. as follows:

CLAIM NAMES	TAG NUMBERS	EXPIRY DATE
Barb 1-16	Y72102-17	11 July/80
17-24	YA21405-12	22 July/80
Log 20	YA11229	24 Sept/80
22	YA11231	24 Sept/80
24	YA11233	24 Sept/80
36	YA11235	24 Sept/80
45	YA11378	8 Oct/80
53	YA11386	8 Oct/80
55	YA11388	8 Oct/80
90	YA11423	8 Oct/80
92	YA11425	8 Oct/80
133	YA11466	8 Oct/80

No field inspection has been made by the writer to determine the accuracy or quality of the claim staking.

The Barb-Log claims are adjoined on the southwest and northwest sides by the Log and Top claims owned by Logtung Resources Ltd. and Amax Potash Ltd. The area to the south, in British Columbia, was staked by the same two companies as the Jam claims. Logtung Resources Ltd. entered into an agreement with Darva Resources and Development Ltd. on February 4, 1977 involving the transfer of certain claims between each other. Some Barb claims that were transferred to Logtung under that agreement were later abandoned and restaked as part of its Log group. The agreement also protected certain mineral rights for A.M.P. on the claims that were traded but the details are not available to the writer.

HISTORY

The surface showings on the Barb claims were discovered in 1943 by Wilf McKinnon and R. Puls while prospecting for Hudson Bay Mining and Smelting Co. Ltd. and were staked as the KP claims in July, 1944. Hudson Bay explored with prospecting, mapping, sampling, hand trenching and nine diamond drill holes, aggregating 1256.7 m, in 1945. Because of terrain and drilling problems, only three holes could be sited to intersect the veins within the favourable host rocks and the claims were allowed to lapse because of disappointing assays.

McKinnon restaked the showing as the MEL group in June, 1958. Following a minor surface trenching program in 1961 by Kootenay Base Metals Ltd. under an option, he was able to interest Macassa Gold Mines Ltd. in an underground development program in 1965, through a subsidiary company, Logjam Silver Mines

Ltd. Macassa completed 205.7 m of cross-cutting and 794.6 m of underground drilling in six holes but dropped its option before the adit had reached the veins within the favourable diorite.

Development continued in 1966 and 1967 through the efforts of A.J. Anderson and W.H. Gross, initially through a private company, Nilset Exploration Ltd., and later through a new public company, Pure Silver Mines Ltd. The work completed by Nilset and Pure Silver consisted of road building, an additional 272.8 m of drifting and cross-cutting in the original adit (5150 level) and 219.5 m in a second adit (5600 level). When the Pure Silver claims expired in January, 1973, McKinnon and his associates, A. Arsenault and P. Versluce, restaked the property as the Barb claims and transferred them to a private company, A.M.P. Explorations and Mining Ltd. Darva Resources and Development Ltd. optioned the property from A.M.P. between 1974 and 1977 but was unable to arrange financing for the next stage of work and accomplished little property work other than some road repair. The property has thus been virtually idle since 1967. Total exploration expenditure to date on the A.M.P. property has exceeded $750,000.

During the summer of 1976, an important tungsten-molybdenum deposit was found immediately south, on the Yukon-B.C. boundary, by an exploration crew working for the Bath-1976 Uranium Partnership. It was staked as 120 Yukon mineral claims and 6 B.C. claims (100 units) and explored with mapping and prospecting before it was transferred to a new company, Logtung Resources Ltd., in early 1977 and optioned to Amax Potash Ltd. Amax built a new road to the drill camp from the Alaska Highway and explored the Yukon portion with mapping, geochemical and IP surveys and 29 drill holes (6541 m) in 1977 and 1978.

GEOLOGY

Regional Setting

The Logjam Creek district lies on the southwest flank of the Cassiar Batholith and consists of at least four distinct Jura-Cretaceous intrusive phases cutting a sedimentary sequence of Devono-Mississippian age. The local geology, shown on Figure 2, has been largely copied from GSC Maps 10-1960 and 18-1968 but contains some modification derived from the results of recent mineral exploration.

The oldest rocks in the area belong to the sedimentary sequence, which includes mappable but as yet undivided chert, argillite, quartzite and minor limestone units. These rocks have been extensively faulted and folded during the emplacement of the intrusions and are altered to hornfels and skarn at the margins of the plutons.

The intrusive complex has been subdivided into ultramafite, diorite, quartz monzonite and granite porphyry phases. The several areas of diorite are collectively named the Plate Creek Stock, while the quartz monzonite is referred to as the Logjam Stock. Although age relationships are somewhat uncertain, the ultramafics are thought to be older than the diorite, which in turn is apparently older than quartz monzonite. Granite porphyry appears to be the youngest intrusive rock in the district and to be spatially and genetically related to all of the mineralization. The silver-gold mineralization on the Barb claims occurs in quartz veins that cut massive diorite and dense, light grey hornfels. The original composition of the hornfels is difficult to determine due to the high degree of alteration but was probably shale.

Fig.2

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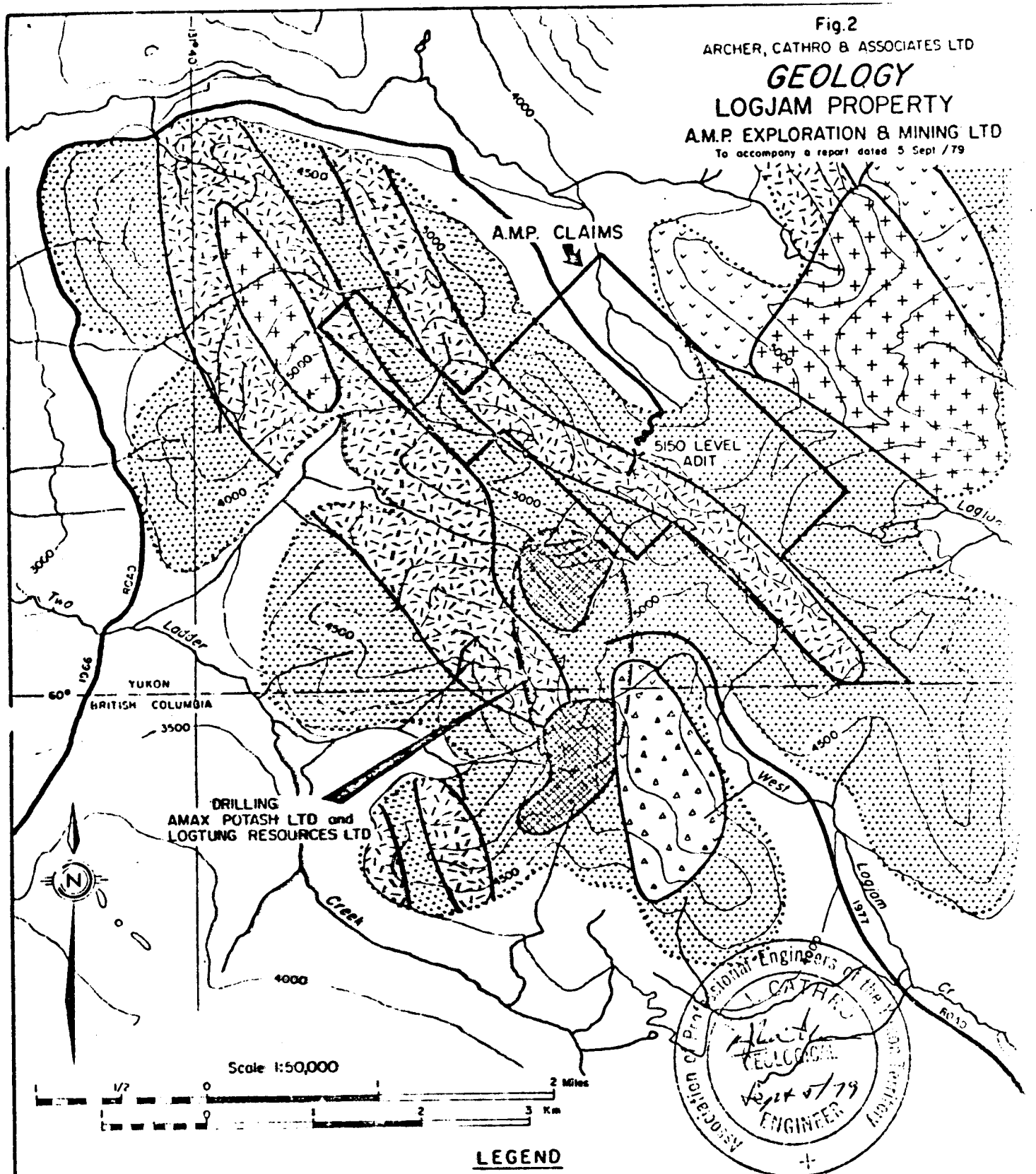
GEOLOGY

LOGJAM PROPERTY

A.M.P. EXPLORATION & MINING LTD

To accompany a report dated 5 Sept / 79



LEGEND

- ALTERATION ZONE – skarnified metasediments, pervasive quartz stockwork with tungsten/molybdenum mineralization
- CRETACEOUS (?) – biotite granite porphyry
- JURA-CRETACEOUS – Logjam Stock, biotite hornblende quartz monzonite
- JURA-CRETACEOUS – Plate Creek Stock, diorite
- JURA-CRETACEOUS – ultramafic rocks
- DEVONO-MISSISSIPPIAN – cherts, argillites, quartzites and minor limestones, in part hornfelzed

(Modified from GSC Maps 10-1960 and 18-1968)

Association of Professional Engineers of the Province of British Columbia
L. CATHRO
GEOLOGICAL
5 Sept 79
ENGINEER

Mineralization

Two distinctly different types of mineralization have been discovered in the Logjam Creek Area: (a) Silver and gold-bearing quartz veins on the Barb-Log claims of A.M.P. Explorations and Mining Co. Ltd.,; (b) A stockwork-type tungsten-molybdenum porphyry deposit on the Amax Potash Ltd.-Logtung Resources Ltd. property.

(a) Silver-Gold Veins

This type consists of base metal sulphide lenses and veinlets within a set of steeply dipping veins and is of economic interest primarily for its silver and gold content. The mineralization is comprised of a mixture of arsenopyrite, pyrite, pyrrhotite, galena and sphalerite and a trace of lead-antimony sulpho-salts in a gangue of quartz with lesser amounts of siderite. The mode of occurrence of silver and gold within the sulphides has not been investigated.

At least eight veins occur on the property, although they are only sporadically exposed in rusty lineaments on the steep cliff face, where they are difficult to sample or study, and are hidden by frost-heaved talus on the gentler southwest slope. The eight veins occur within a zone about 450 m wide that trends north-east across the northwest strike of a diorite dike, as shown on Figures 2 and 3. The dike has a width of 350 to 500 m and dips steeply to the southwest. The veins range from 0.3 to 1.0 m in thickness within the more brittle diorite but pinch quickly and are only weakly mineralized in the enclosing sediments. They dip almost vertically and form two distinct sets, one striking N60E and dipping southeast (4,6 and 8 veins) and the other striking N30E and dipping northwest (1,5 and 7 veins).

Hudson Bay Mining reported the following assays from surface sampling in 1944-45:

TABLE 1 - SURFACE CHIP SAMPLING

Vein	No. Samples	Slope Length (m)	Average Thickness (m)	Au(o/t)	Ag(o/t)	Pb(%)	Zn(%)
5	8	176.8	0.71	0.20	25.4	3.7	5.5
6	6	140.?	0.94	0.11	20.2	2.7	1.0

These assays were confirmed in August, 1958 by Canex geologist C.W. Ball, who collected eleven chip samples from the 5 and 6 veins. These were assayed by G.S. Eldridge & Co. Ltd., Vancouver to give an average grade of 0.13 oz/ton Au, 28.5 oz/ton Ag, 3.6% Pb and 3.1% Zn across an average thickness of 0.75 m.

Surface drilling by Hudson Bay in 1945 gave the following mineralized intersections:

TABLE II - SURFACE DRILL CORE INTERSECTIONS

Intersections Hole	Vein	Elev.(ft)	Core Length (m)	Au(oz/t)	Ag(o/t)	Pb(%)	Zn(%)
1	5	4870	0.40	0.18	74.7	22.1	4.7
3	5(?)	4840	0.34	0.04	12.6	4.0	2.0
5	4	5020	0.91	0.03	10.8	3.6	2.3

Underground development in 1966-67 showed that a significantly high proportion of the veins are mineralized, although grade was somewhat lower in the drifts than was obtained on surface. The two tables below are calculated from chip channel and muck samples collected in 1966-67 by Archer, Cathro and Associates Ltd. and assayed at the Whitehorse Assay Office.

TABLE III - PERCENTAGE OF VEIN DRIFTED THAT WAS MINERALIZED

Level	Vein	Advance on Vein (m)	Mineralization (m)	Per cent
5150	6	82.3	47.3	57
	4	21.3	Nil*	
5600	5	125.0	41.1	33
	6	51.8	6.1	12

* all in hornfels - heading has not reached diorite dike.

Chip sampling of the draft backs at intervals of 1.52 m within the mineralized shoots returned the following assays:

TABLE IV - AVERAGE GRADES OF DRIFTED MINERALIZATION

Level	Vein	Length (m)	Width (m)	Au(o/t)	Ag(o/t)	Pb(%)	Zn(%)
5150	6	12.2	0.73	0.16	21.9	2.5	3.1
		35.1	0.85	0.13	15.4	4.8	3.4
5600	5	13.7	0.94	0.14	17.8	2.5	3.5
		15.2	0.88	0.11	8.1	1.4	4.8
		12.2	0.71	0.12	12.0	1.2	2.1
	6	3.0	0.76	0.09	16.5	2.7	1.3
		3.0	0.76	0.09	17.0	1.9	0.3

(b) Tungsten-Molybdenum Porphyry Stockwork

The deposit discovered on the adjoining Logjam Resources Ltd.-Amax Potash Ltd. property in 1976-77 consists of scheelite and molybdenite in a quartz stockwork cutting metasediments and granite porphyry, as well as disseminated within garnet-diopside skarn horizons in cherty banded argillite and quartzite. Three mineralized zones, called the BC, Central and Yukon have been investigated. The latter two are adjacent and form an area about 900 m by 600 m. Sixteen holes within this zone have outlined drill indicated reserves of 163 million tons averaging 0.12% WO_3 and 0.052% MoS_2, including 55 million tons grading

0.16% WO_3 and 0.062% MoS_2 and local areas that grade up to 0.3% WO_3 and/or 0.1% MoS_2. The drilling has indicated a concentric mineral zoning within the deposit, ranging from a central molybdenite-scheelite core through an intermediate scheelite zone to an outer scheelite-sphalerite halo. Wolframite, fluorite, tourmaline, cosalite and beryl are also reported to be present in minor amounts. According to the owners, this deposit lies at least 750 m from the Barb-Log boundary. Neither scheelite or molybdenite has ever been reported from the veins on the Barb-Log claims.

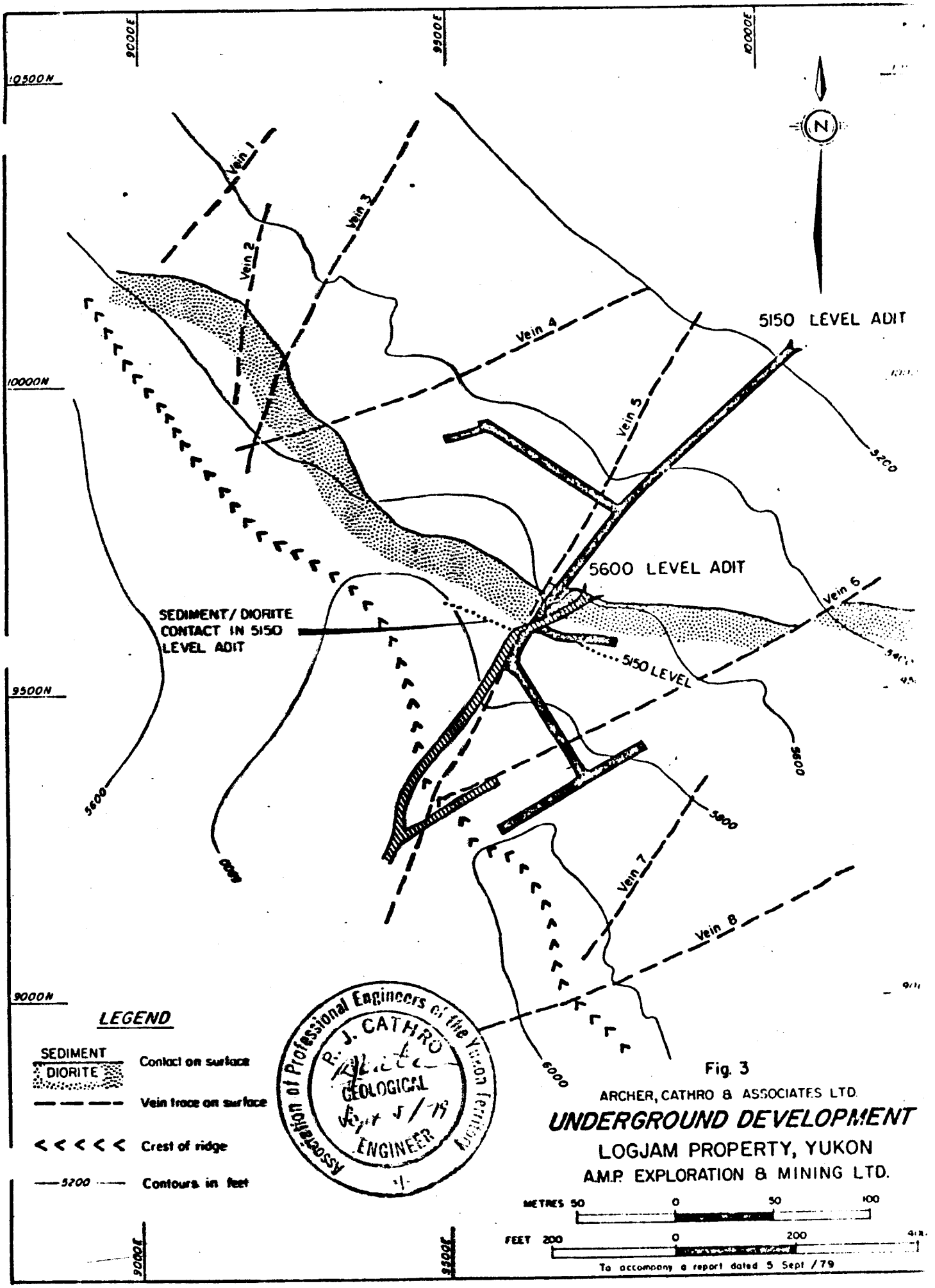
UNDERGROUND DEVELOPMENT

As mentioned previously, two adits are present on the Barb-Log claims, called the 5150 and 5600 Levels after their approximate collar elevations above sea level. The lower adit (5150 Level), has been driven 478.5 m while the upper adit (5600 Level) is only 219.5 m long. Only 260.1 m of this advance has been on vein within the diorite dike (see Figure 3 on the following page).

This drifting has shown that the veins can be mined over narrow widths without timbering. On Vein 6 on 5150 Level, for example, mineralization occurs in a silicified zone 0.3 to 1.5 m wide replacing the hanging wall of a vein-fault that is only 0.1 to 0.3 m wide. Crushed diorite and gangue are tightly cemented between well-defined walls of the vein fault. The diorite forming both walls of the mineralization is massive and very hard.

The 5150 Level is almost 250 m vertically lower than the crest of the ridge and mineralization is present without significant change through this interval, although vertical continuity within individual mineralized zones remains to be tested. Only two of the eight known veins have been explored and only one

vein junction has been seen, between the 5 and 6 veins on 5600 Level, which was unmineralized. The rugged terrain that was such a major obstacle to initial exploration will permit the veins to be explored with short adits through a total vertical range of 450 m.


9000E
9500E
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Vein 1
Vein 2
Vein 3
Vein 4
Vein 5
Vein 6
Vein 7
Vein 8
5150 LEVEL ADIT
5600 LEVEL ADIT
5150 LEVEL
SEDIMENT/ DIORITE CONTACT IN 5150 LEVEL ADIT
5200
5400
5600
5800
6000
LEGEND
SEDIMENT
DIORITE
Contact on surface
Vein trace on surface
Crest of ridge
5200
Contours in feet
Association of Professional Engineers of the Yukon Territory
P. J. CATHRO
GEOLOGICAL
ENGINEER
Fig. 3
ARCHER, CATHRO & ASSOCIATES LTD.
UNDERGROUND DEVELOPMENT
LOGJAM PROPERTY, YUKON
A.M.P. EXPLORATION & MINING LTD.
METRES 50 0 50 100
FEET 200 0 200
To accompany a report dated 5 Sept /79

ARCHER, CATHRO
AND ASSOCIATES LTD.
CONSULTING GEOLOGICAL ENGINEERS

BOX 4127, WHITEHORSE, Y.T. Y1A 3S9 667-4415

STANDARD BUILDING, VANCOUVER, B.C. 688-2566

1018 STANDARD BUILDING
510 WEST HASTINGS STREET
VANCOUVER, B.C.
V6B 1L8

September 5, 1979.

CERTIFICATE

I, Robert J. Cathro, with business addresses in Whitehorse, Yukon Territory, and Vancouver, British Columbia, and residential address in West Vancouver, British Columbia, do hereby declare that:

1. I am a 1959 graduate of the University of British Columbia in geological engineering.

2. I am registered as a professional engineer in both British Columbia and Yukon Territory.

3. I have been engaged in mineral exploration and evaluation in the Northern Cordillera since 1963, initially for United Keno Hill Mines Ltd. and since January, 1966 as a partner in Archer, Cathro and Associates Ltd.

4. I have had full access to previous data on the A.M.P. property and directed the most recent work there in 1966-67.

5. I have not received, nor do I expect to receive, any direct or indirect interest in the properties, securities, or companies referred to in this report.

Respectfully submitted,

R.J. Cathro, B.A.Sc., P.Eng.