PROSPECTUS
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#29 LOGSAM

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REPORT

on the

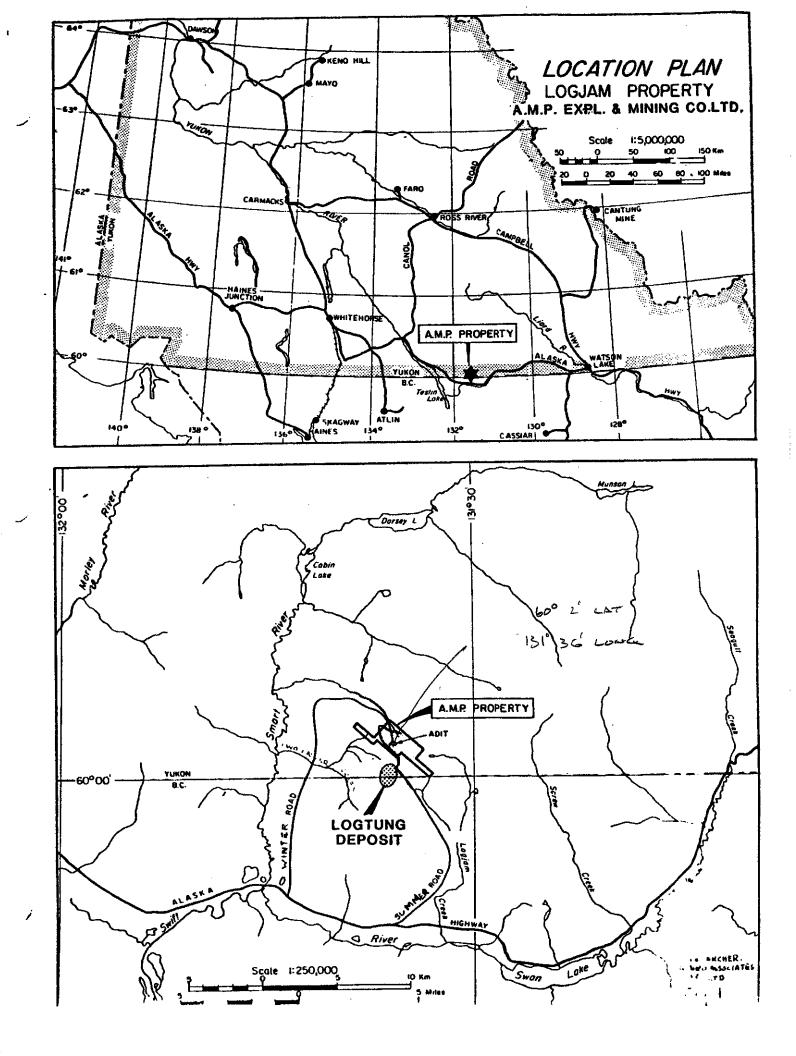
LOGJAM SILVER PROPERTY,
WATSON LAKE MINING DIVISION
YUKON TERRITORY

for

A.M.P. EXPLORATION AND MINING CO., LTD.

by

R.W. PHENDLER, P. ENG.



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#### PART "A"

#### SUMMARY AND CONCLUSIONS

The Logjam silver property was been worked intermittently for a number of years and although only a few of the ten known veins have been developed underground, reserves are estimated to be 77,320 tons which average 11.44 oz Ag, 0.088 oz Au. Estimated grade (not calculated) is believed to be 2.0% Pb and 3.0% Zn.

The property is well located about 12 kilometers north of the Alaska Highway between Whitehorse and Watson Lake in south central Yukon Territory and is accessible by road.

The ten known silver-bearing vein structures strike northeasterly across a northwesterly trending elongate diorite intrusive that is about 450 meters in thickness.

Although inadequate surface mapping and sampling has been done to date, it is felt that the highest priority should be placed in underground development with the purpose of substantially increasing reserves. This work should primarily be confined to the 5150 level where two veins have been drifted on and where at least three more have been intersected within a few hundred feet of present workings.

Additional levels could easily be driven at lower depths below the 5150 level.

The possibility of developing numerous hundreds of thousands of tons of reserves is good. Potential of the property is thought to be in the million ton range.

#### RECOMMENDATIONS

#### Phase I

1) Underground diamond drilling should be carried out on the 5150 level to prove continuity of the No. 6 vein above and below the level and to check for the presence of the No. 1, 2, 3, 5 and 7 veins.

#### Phase II

- 1) Underground development (drifting, crosscutting) should be carried out on the NO. 4 vein and the No. 6 vein.
- Phase III dependent upon favourable results from Phases I and II.

  Underground development, underground diamond drilling, metallurgical testing and a preliminary feasability study should be carried out.

#### COST ESTIMATE

#### Phase I

1)	Diamond drilling - 500 meters @ \$90/meter	\$45,000
2)	Compressor rental - 3 months @ \$3,000/month	9,000
3)	Mobilization and demobilization	6,000
4)	Engineering, Geology, Assays, Supervision	10,000
	Total, Phase I	\$70,000

#### Phase II

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1) t	inderground	development	-	400	feet	@	\$200/foot		\$80,000	)
------	-------------	-------------	---	-----	------	---	------------	--	----------	---

Engineering, Geology, Assays 11,000

> Total -\$91,000

10% Contingencies -9,100

Total - Phase II -\$100,100

Phase III - dependent upon favourable results from Phases I and II.

1) Additional underground development and diamond drilling, metallurgical testing and preliminary feasability study -

> Total - \$1,000,000

The sum of \$ 70,000 should be made available at this time to carry out Phase I of the above program. Phase II should be carried out as soon as possible, when funds are available. It is not dependent on favourable results from Phase I.

Respectfully submitted,

#### INTRODUCTION

At the request of the Board of Directors of A.M.P. Exploration & Mining Co., Ltd., the writer examined the Logjam property between July 5 - 8th, 1983, accompanied and guided by Mr. A. Arsenault, President of the Company.

During the examination, underground workings were visited and eight chip samples were taken to verify earlier systematic sample assay plans provided the writer. Results were such that the earlier results can be relied upon. The recent samples were assayed at Acme Analytical Laboratories, Vancouver.

During the examination, mine equipment, surface equipment, camp buildings and access was checked and water use, land use, health permits and mining permit procedures were investigated. The writer is quite familiar with the property, having carried out reserve calculations based upon underground development. These reserves totalled 77,320 tons, are classified as Probable and methods of calculation, etc., were included in a report by the writer dated December, 1979.

#### LOCATION AND ACCESS

The Logjam property is located at an elevation of 1,270 - 1,900 meters, about 200 kilometers east southeast of Whitehorse in south central Yukon Territory. It is situated about 12 kilometers north of the Alaska Highway, which is within British Columbia in this area.

Road access from the Alaska Highway is north from kilometer

1216 on an all weather road for 18 kilometers past the camp of Amax Potash Ltd., which services the nearby tungsten - molybdenum deposit (Logtung) to the Logjam property. The last few kilometers are somewhat precipitous and require a four-wheel drive vehicle. An alternate road (winter use only) leaves the Alaska Highway at kilometer 1224 and follows up the east side of Smart River past Two Ladder Creek, thence easterly up an unnamed creek to the property. This road is presently in disrepair but should be rehabilitated and upgraded because of its much lower elevation (below 1200 meters) as compared to the present road which rises to 1,700 meters in an area of heavy snow in winter.

Ample water is available in the vicinity to provide for exploration and mining purposes and for camp use. No usable timber is available in the mine area but the valleys have considerable amounts.

A fully equipped 20 man trailer camp with modern kitchen exists on the property.

Topography is extremely rugged on the northwesterly - striking ridge across which the northeasterly striking Logjam veins are located.

#### PROPERTY AND OWNERSHIP

The Logjam property consists of 46 claims (1,500' x 1,500') and claim fractions as follows:

Claim Name & Grant Number	Expiry Date	No.
Barb 1-2; Y72102-103	Oct. 8, 1988	2
Barb 9-16; Y72110-117	" " 1986	8
Barb 3-8; Y72104-109	<b>"</b> ", 1988	6

Barb 17-24; YA21405-412	Oct. 8, 1986	8
Log 20,22; YAl1229, 231	44	2
Log 24,26; YAll233, 235	9	2
Log 45,53; YAll378, 386	45	2
Log 55; Yall388	19	1
Log 90-92; YAll423,425		2
Log 133; YAl1466	89	1
100F-103F; YA55782-785	**	4
Barb 29,30; YA68731-732	tt	2
Barl 1Fr-6Fr; YA68725-730		6_
	Total -	46

The recorded owner of all claims is A.M.P. Exploration and Mining Co. Ltd.

#### HISTORY

The first discovery of silver-bearing structures on the property was made in 1943 by Mr. W. McKinnon and R. Puls, while working for Hudson Bay Mining and Smelting Co., Ltd. Staking of claims (KP) followed in 1944 and in 1945 prospecting, mapping trenching and diamond drilling totalling 1,256.7 meters in nine holes was carried out. Results were disappointing and the claims were allowed to lapse.

In June, 1958 McKinnon restaked the ground and it was optioned to Kootenay Base Metals Ltd. in 1961, who carried out some trenching.

In 1965 Macassa Gold Mines, Ltd. optioned the ground and a subsidiary company, Logjam Silver Mines, Ltd. carried out 206 meters of crosscutting and 795 meters of underground diamond drilling in six holes. The objective was not reached with this work and the option was dropped.

Nilset Explorations Ltd. and Pure Silver Mines, Ltd. held an option on the ground in 1966 and 1967 and they carried out 273 meters of additional crosscutting and drifting on the original lower level (5150) and 220 meters in a higher, second level (5600).

Pure Silver had staked additional claims and when these expired in 1973 the property was re-staked by McKinnon, A. Arsenault and P. Versluce and the claims were transferred to their Company - A.M.P. Explorations and Mining Co. Ltd.

Between 1974 and 1977 Darva Resources and Development Ltd. optioned the ground and carried out some minor road work.

In 1976 the Bath - Uranium Partnership discovered interesting tungsten-molybdenum mineralization one kilometer south of the Logjam property. Logtung Resources Ltd. was formed from this group and in 1977 the property was optioned to Amax Potash Ltd. A new road was built to the property and extensive exploration was carried out. The property is presently inactive awaiting results of a feasability study.

In 1979 the Logjam property was optioned to Rebel Developments Ltd. and the Logtung road was extended four kilometers to the Logjam camp. At this point the property was optioned to a newly-formed Vancouver company (Pure Silver Mines, Ltd.) Pure Silver planned to carry out extensive underground work but got little farther than installing a camp, carrying out a preliminary metallurgical test, repairing roads and some surveying. After about 15 meters of drifting on the No. 4 vein on the 5,150 level, all work stopped and Pure Silver lost their rights to the option.

#### GEOLOGY AND MINERALIZATION

The area in which the Logjam property is located is underlain by a metamorphosed sedimentary sequence of Devonian - Mississippian Age intruded by a northwesterly -striking band of diorite of Jura - Cretaceous Age.

The sedimentary rocks are composed of cherts, argillites, hornfels, slate, phyllite, quartzite and minor limestone - all folded and faulted but with a general northwesterly strike and with dips to northeast between 20° and 50°.

Intruding these sediments is an elongate band of fine to medium grained diorite, which is one of a number of plugs, etc., known as the Plate Creek Stock of Jurassic - Cretaceous Age. The Logjam intrusive is relatively consistent in width, ranging between four and five hundred meters, forming the backbone of the 1,800 meter high ridge between the Logjam property on the northeast and the Logtung property on the southwest.

The sediments are altered to hornfels, skarns and marble at the contact with the diorite, but not extensively so.

Mineralization on the Logjam property consists of at least ten northeasterly - striking mineralized fracture zones, rather than clear cut massive quartz veins, as has been suggested in the past. These zones contain varying amounts of galena, sphalerite, pyrite, pyrrhotite and arsenopyrite in a gangue of grey - white to white quartz and iron curbonates. It is the fracture zones and associated gouge and brecciation rather than the amount of quartz that is most noticeable on the veins.

All veins dip very steeply and are traceable intermittently on surface over the ridge within the diorite. The veins range up to 1.5 meters in thickness and probably average somewhat less than one meter wide. Numerous silver-bearing fracture zones measuring a few centimeters in width have been located in the mine workings which could develop into commercially - viable mineral zones - depending upon host rocks encountered. The veins are understandably stronger in the more competent diorite but should not be written off completely within the sediments.

During the underground development stage, samples were taken systematically at 1.5 meter intervals. These are well documented and show significant lengths of mineral bearing structures that average around 11 oz Ag, 0.10 oz Au, 2% Pb and 3.0% Zn. These results have been interpreted by the writer into mineral reserves (see following section) but it was felt that chip samples should be taken during the recent examination to attempt to verify this earlier work.

Results suggest that all earlier samples can be relied upon as they are within range of samples recently taken from the property by the writer as follows:

Sample No.	Width	oz Ag	oz Au	용 Pb	Location	
67323	2.0	1.03	.001	0.63	5150 Lv1,	6 Vn W. face - HW
67324	2.0'	1.89	.006	1.40	tı 11	" - vein
67325	2.0'	2.06	.050	1.09	44 41	" - FW
67326	2.0'	21.60	.630	5.64	er H	- 6 vein
67327	2.3'	11.36	.328	8.56	10 01	- 6 vein
67328	0.3'	0.96	.007	-	10 00	No. 5 Vern :
7329	2.0'	5.92	.032	3.36	11 60	No. 4 vein W.face
67330	0.2'	0.22	.001	~	B B	in XC t 😘 .: vein

All samples are shown on figure 3.

Although the No. 4 vein on the 5,150 level is within sediments (considered to be unfavourable by earlier operators) the 52.5' length developed earlier averaged 7.46 oz Ag & 0.029 oz Au across 4.4 feet. The 47 feet of advance carried out in 1982 averaged 5.37 oz Ag, 0.03 oz Au and 1.67% Pb across an average width of 3.0'. About 200 feet (60 meters) is lacking before this vein enters the more favourable diorite host rock.

#### RESERVES & POSSIBILITIES

The writer is confident that the earlier sample results can be relied upon and have been used in these calculations.

The writer reaveraged the underground assays, working from the original assay plans, while the surface sampling averages were accepted from Cathro's report of September 5, 1979.

The following procedures were followed during calculations:

- 1) No erratic highs were cut in the averaging as none exist.

  The highest assay used was 48.9 oz Ag per ton.
- 2) Low grade silver assays (under 3.0 oz per ton) were included in drift averaging if better grade samples adjoined. In most cases the low grade existed over only a few feet of drift length.
- 3) As all veins are steep (around 70 85°) a minimum mining width of 3.0' was used. However, in all cases a minimum overbreak of 0.5' on either side of veins was accepted, bringing, for example, an average sample width of 3.5' up to a diluted mining width of 4.5'.
- 4) Overbreak material (dilution) was considered to have zero grade.

- 5) For this calculation grades of silver and gold only were considered.
- 6) A factor of ten cubic feet per ton was used.
- 7) Blocks were considered to have a height of one half the strike length, as per accepted engineering practice.
- 8) No dollar values were applied because of the rapidly fluctuating prices at this time.
- 9) Surface blocks are based on relatively few samples while underground blocks are based on samples taken on 5' intervals.
- 10) All blocks are considered to be Probable (delimited on two sides surface and underground or two levels) as per the British Columbia Securities Commission's guide for engineers and geologists.

Following is a summary of Reserves: UNDERGROUND

BLOCK	LOC	ATIC	<u>on</u>	VEIN	TONS	oz Au/Ton	oz Ag/Ton
1	above 5	150	level	4	560	0.029	7.46
2	below 5	150	level	4	560	0.029	7.46
3	above 5	150	level	6	14600	0.086	9.04
4	below 5	150	level	6	14600	0.086	9.04
5	above 5	600	level	6	500	0.039	7.39
6	below 5	600	level	6	500	0.039	7.39
7	above 5	600	level	5	8000	0.070	7.45
8	below 5	600	level	5	8000	0.070	7.45
		:		TOTAL	- 47320	0.078	8.43

#### SURFACE

These blocks are based on relatively few samples, 8 on block 9 and 6 on block 10.

BLOCK	LOCATION	VEIN	TONS	oz Au/Ton	oz Ag/ton
9	above 5600 level	5	11140	0.139	17.70
10	above 5600 level	6	18860	0.083	15.30
		TOTAL -	30000	0.104	16.19

#### TOTAL RESERVES

LOCATION	TONS		oz Au/ton	oz Ag/ton
Surface	30,000	•	0.104	16.19
Underground	47,320		0.078	8.43
GRAND TOTAL	77,320		0.088	11.44

All blocks are shown on the accompanying plans or longitudinal sections.

It is felt that an additional 77,000 tons of Possible Reserves may exist on the No. 5 and 6 veins in the vicinity of the 5150 level and the 5600 level in the areas already explored. Possible Reserves are defined as material believed to exist beyond the known portion of a vein or deposit.

These reserves are on veins 4, 5 and 6 and cover only a small part of the entire panel (see longitudinal sections).

Assuming that the veins within the diorite are of commercial grade (and width) for 50% of the panel area, each vein would have about 100,000 tons above the 5150 level. It is not beyond the realm of possibility that this is so and that a million tons exists above that level. Depth possibilities are unknown but there are no changes anticipated in rock types or vein behavior. They should project to depth.

#### UNDERGROUND DEVELOPMENT

The property is developed by two levels, the 5150 (feet above sea level) and the 5600 level as follows:

5150 level - This level is accessible by road and consists of 1,150 feet of crosscutting, 300 feet of drifting on the No. 6 vein and 120 feet of drifting on the No. 4 vein. The No. 5, No. 7 and No. 8 veins have been intersected in diamond drilling and warrant crosscutting for further investigation.

5600 level - This level cannot be reached by road and is serviced by a surface rail line, inclined at about 40° from the 5150 level dump. It consists of a 130 foot long crosscut, 400 feet of drifting on the No. 5 Vein and 200 feet of drifting on the No. 6 Vein.

Both levels are fully tracked with air and water lines throughout.

New levels could easily be established close to bedrock on the 4950 and 4750 level horizons in line with the presently established portals and close to the existing access road from the camp to the 5150 level portal.

#### METALLURGICAL TEST

In 1980 metallurgical testing was carried out by Lakefield Research of Canada, Ltd., Lakefield, Ontario for Pure Silver Mines, Ltd. It appears odd that recoveries for silver and gold were not determined, it being primarily a silver property but the report showed that satisfactory lead and zinc concentrates were prepared by flotation.

The metallurgical test investigated the recovery of lead, zinc, silver and gold by flotation at the request of Derry,

Michener and Booth, consultants for Pure Silver in 1980. Samples submitted averaged 3.6 oz Ag, 0.12 oz Au, 1.66% Pb and 3.3% Zn. More work was recommended.

#### COMMENT

with the encouragement received from the underground development, it appears that the Logjam property has good possibilities of having several hundreds of thousands of tons of mineable reserves in the range of 11c2 Ag, 0.10 oz Au, 2% Pb and 3% Zn.

Some tungsten is also present as a sample taken in 1982 at the face of the No. 4 level on the 5150 level assayed 0.132%W. However, this sample also assayed 4.59% As (arsenic) and this may require roasting prior to conventional cyanidation.

Future work should be concentrated in underground development with the purpose of increasing reserves as fast as possible and is recommended at this time.

Ŕ.W.

Respectfully submitted,

#### EQUIPMENT ON THE PROPERTY

- 2 Eimco 12-B mucking machines
- 1 1200 cfm Joy air compressor
- 1 BBU2 diamond drill (underground) with accessories
- 1 Eimco air locomotive
- 1 Diamond drill (surface) Longyear 34 with accessories
- 1 8 wheel drive Argo surface vehicle
- 1 stoper
- 2 jacklegs
- 1 15 KVA generator deisel
- 1 radio telephone
- 1 Black & Decker rotary saw
- 1 4 kw Homelite generator
- 1 welding unit
- 1 rifle, 308 semi-automatic
- 1 propane deep freeze
- 10 Coleman oil heaters
- 1 disc sander
- 6 utility pumps
- 1 pressure pump for mine water
- 1 propane refrigerator
- 1 electric deep freeze
- 1 fully equipped kitchen-trailer
- 1 office; fully equipped trailer
- 1 20 man sleeper trailer with common room
- 6 mine lamps with charger
- l single drum air tugger
- 1 D6C caterpillar tractor
- 3,000° 20 pound mine rail
- 3,000' 3" L.D. victaulic pipe
- 1,500' 1" steel pipe
- 6 1 ton mine cars

### CERTIFICATION

- I, R.W. PHENDLER, of 7360 Decourcy Crescent, in the Municipality of Richmond, in the Province of British Columbia, hereby certify as follows:
- 1) THAT I am a registered member of the Association of Professional Engineers of British Columbia No. 4421 1963.
- 2) THAT I am a graduate of McGill University, Montreal, with a Bachelor of Science degree in geology.
- 3) THAT I have practiced my profession continually as mine, exploration and consultant geologist for the past 29 years in all parts of Canada, the U.S.A., Mexico, Peru, Colombia and Chile.
- 4) THAT I have no interest directly or indirectly in the Logjam property nor do I own directly or indirectly, any shares of AMP Exploration and Mining Co. Ltd.
- 5) THAT the information contained in this report was compiled as a result of my examination of the claims referred to above on July 5 8th, 1983 and a study of all exploration data.
- itled "Report on the Logjam Silver Property, Watson Lake
  Mining Division, Yukon", dated Sept 20, 1984 in a prospectus
  or a statement of material facts.

.W. PHENDLER, P. Eng

#### **BIBLIOGRAPHY**

- 1) TAGGART, L.P., P. Eng. "The Logjam Property A Case Study" June 24, 1983.
- 2) YEN, W.T. (Lakefield Research of Canada, Ltd.) "An Investigation of the Recovery of Lead, Zinc, Gold and Silver from a sample submitted by Derry, Michener and Booth" Dec. 12, 1980.
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- 4) MICHENER, C.E., P. Eng. "Pure Silver Mines, Ltd. Yukon, Canada" October 29, 1980.
- 5) MICHENER, C.E. "Darva Silver Gold Mines, Ltd. Yukon, Canada" - March 7, 1975.
- 6) PHENDLER, R.W., P. Eng. "Barb Log Claim Group Reserves" December 17, 1979.



To: Mr. Roy Phendler 7360 Decourcy Cres., Richmond, B.C. V7C 4E9

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Assaying & Trace Analysis

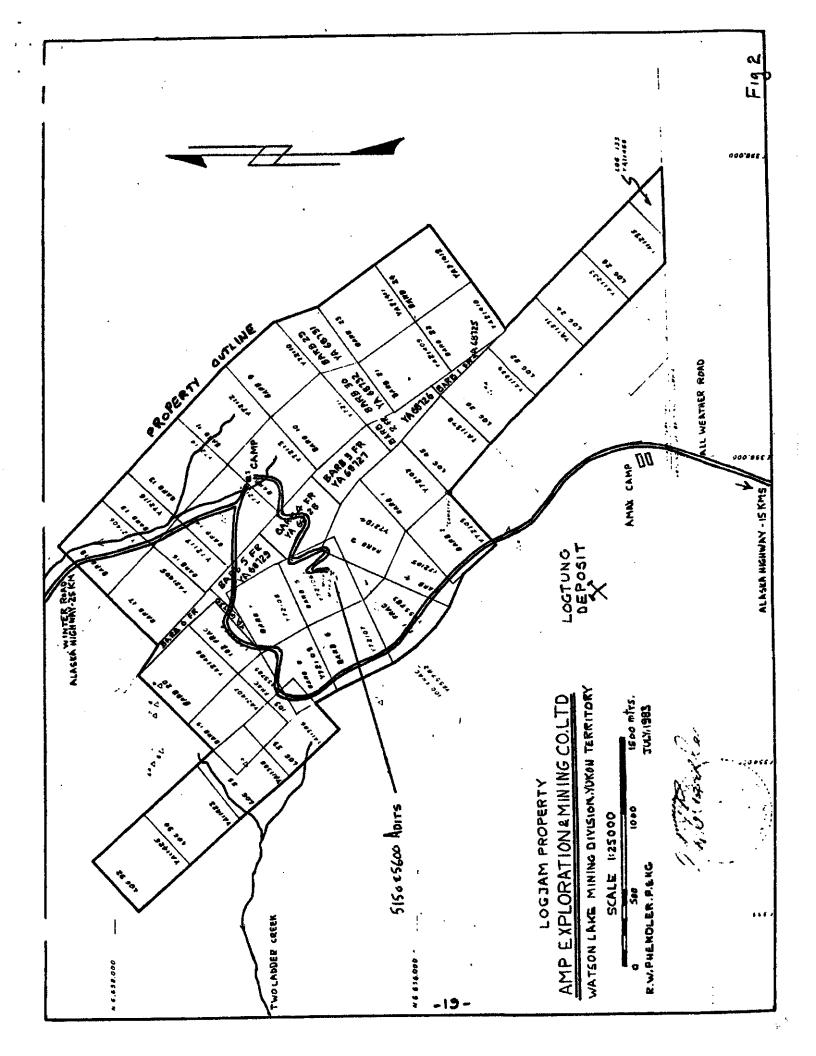
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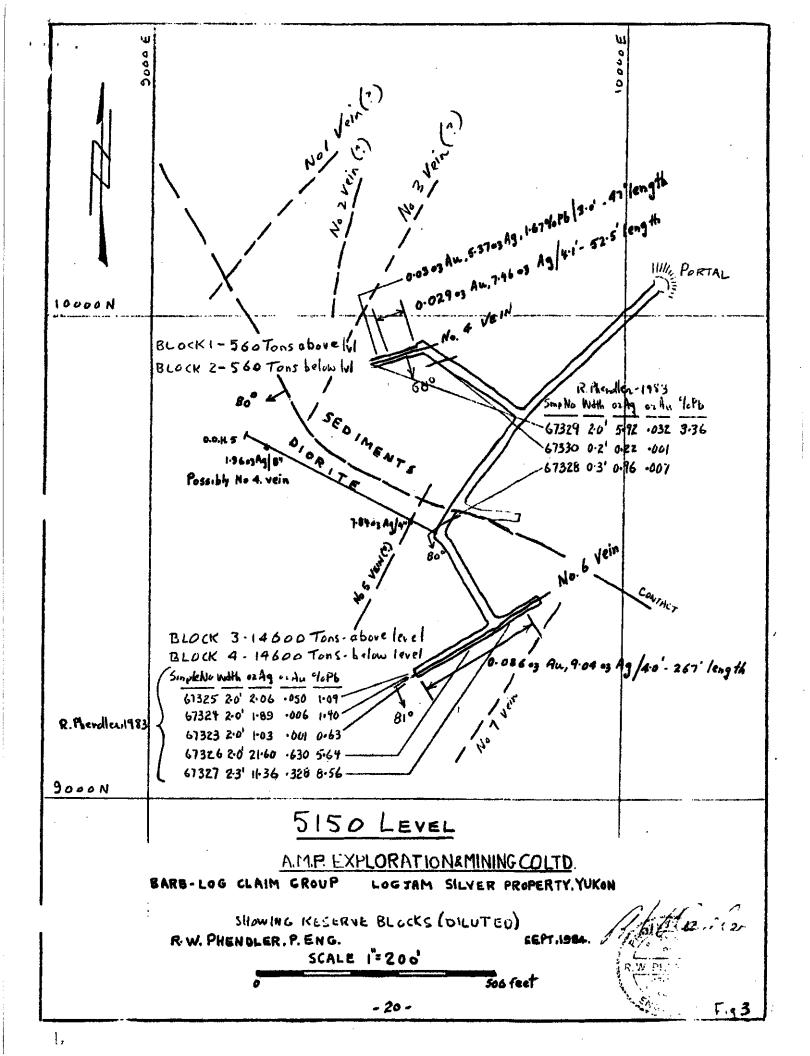
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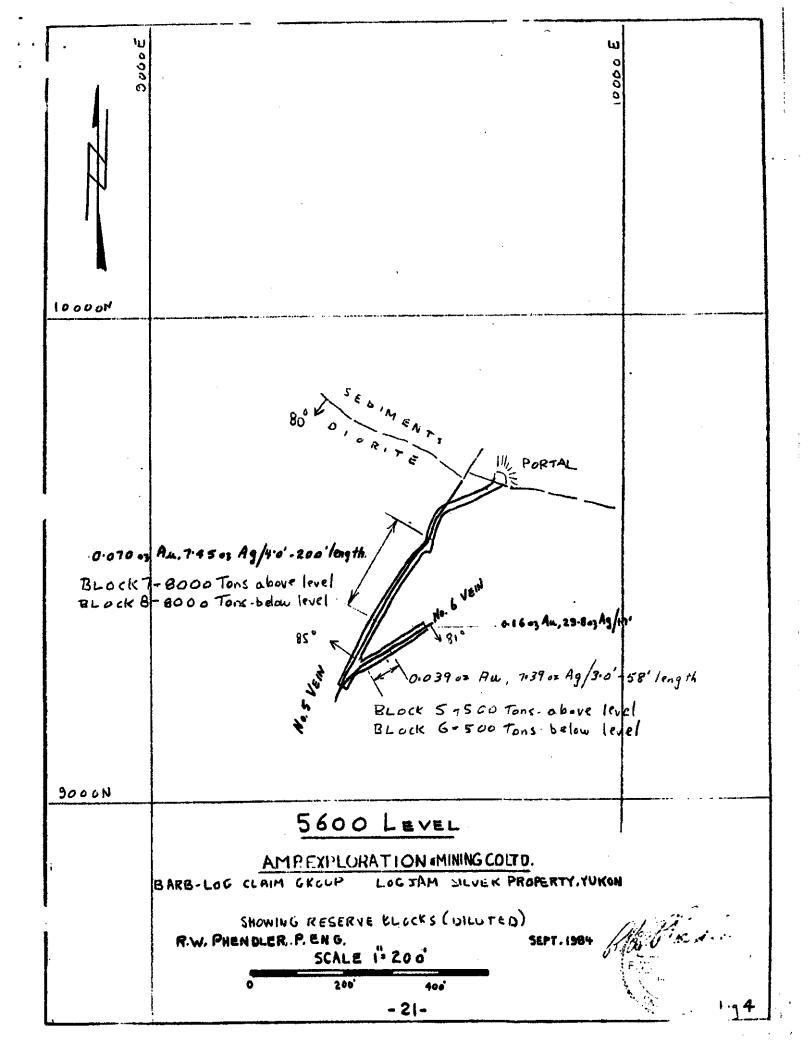
# **ASSAY CERTIFICATE**

Project: Logjam Property Au Αġ Pb% No. Sample No. oz/ton oz/ton 1 1 67323 .63 1.03 .001 2 2 67324 1.40 1.89 .006 3 3 67325 1.09 2.06 .050 4 4 67326 5.64 21,60 .630 5 5 67327 8.56 11.36 . 328 6 6 67328 .007 96 7 7 67329 3.36 5.92 .032 8 8 .22 .001 67330 9 10 10 11 11 12 12 13 13 14 14 15 15 16 16 17 17 18 18 19 19

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Surface sampling . 6 samples over 460' length - 0-1107 Au, 20-2 03 Ag/3-1' 18.860 Tons 0.08303 Au 18.303 Aq Width-4-1 500 Tons 0.03903 Au, 7.3903 Aq Width 3.0', Longth 58' 5600 LVL PURTAL No S Jew Diく! ぐて 180 NW of section 500 Tens 0.0300, Au, 739 og Aq Width 3.0; Longth 58 DIORITE SEDIMENTS 1460 a Tons 0.084 oz Au, 9.04oz Ág width to least 267' 5150 LVL PORTAL 0-086 oz Au, 904oz Ac 430 Nov. 1 1 ton Width 40, Longth 267

# LONGITUDINAL SECTION- No 6 VEIN

- A.M.P. EXPLORATIONS MINING COLTD
BARB LOG CLAIM GROUP LOGIAM SILVER PROPERTY. YUKON

SHOWING RESERVE BLOCKS (DILUTED)

R.W. PHENDLER .P. ENG.

SCALE 1"- 200

SEPT.1984

984

