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REPORT

on the

# JACK PROPERTY

WATSON LAKE MINING DISTRICT

YUKON TERRITORY

for

**PAK-MAN RESOURCES INC.**

26th Floor, 1177 West Hastings Street,
Vancouver, B.C.
V6E 2K3.

Latitude: $60^0$12'N

Longitude: $130^0$25'W

N.T.S. 105 B/1

by

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&

F. MARSHALL SMITH, P.Eng.

September 25, 1987

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SUMMARY

The JACK property, in southeastern Yukon Territory, is 16 miles southeast of the highgrade silver mineralization on the CMC claims (Hart Property) of Silver Hart Mines Ltd.

The Rancheria area is currently undergoing extensive exploration activity subsequent to a series of new discoveries of silver mineralization. Most notably at the CMC and Meister properties which are within 30 kilometres to the northwest and north of the JACK. The DK and Zulu Lady claims are 2 & 10 kilometres to the southwest, and the Butler Mountain property 18 kilometres to the south. Regional Resources Midway project is 35 kilometres to the south, and Keno Hill's Freer Creek property is 20 kilometres to the southwest. All these properties show similar styles of lead zinc mineralization with zones of high grade silver and form what is known as the Rancheria Silver Belt.

The veins of this new silver district appear to represent a portion of a family of veins throughout Yukon, that are all of the same age and similar character. The vein/faults form significant mineralization in competent rocks and close in softer sediments.

The veins on the Jack Group are not recent discoveries as there were many old trenches and pits along some of the most southerly of the structures. The veins fill a series of parallel faults with a N60°E strike and steep northerly dip. The veins usually are only a few inches wide along the majority of their strike, but rotate to large openings when the foot-wall fault moves to a more easterly strike at the southwest end of a shoot, and rotates back to the more northeasterly strike to the northeast. The strike and dip slip of the fault forces an opening now filled by weathered sulphides. The new zones recommended for further testing are new discoveries along one of the many narrow vein/faults crossing the East ridge. There are probably many more of these shoots along strike and on parallel structures.

All veins found to date have been located by prospecting for manganese stained wallrocks. Each of the known veins in the Rancheria Silver District has a manganese halo in the wallrock. The halo is very wide along strike above a major silver zone. Many of the wide veins on the Jack Group had a very narrow band of manganese stained carbonate wallrock along the trace of the vein.

The East Ridge veins are significant for their thickness of opening and the large number of "shoots" that appear to have formed in the southeastern portion of the ridge. All of the veins are severely weathered to at least 25 feet (7.62 metres) below the original surface and there is little sulphides left in the shears. The only sulphides consist of grains of coarse to curled crystal galena with assays to 90.4 ounces silver per ton (3051 grams per tonne) from grab samples.

A programme of diamond drilling to locate the extension of the veins in the unweathered zones is recommended, along with underground drifting, to determine grade and character of the deposits. Diamond drilling in the district has consistently understated the grade and thickness of the mineralized zones. Underground work on one of the veins in the district has substantially increased the grade of the drilled zone. Underground sampling will be the only true measure of the grade of the deposit.

## INTRODUCTION

Mr. G. Anders, President of Pak-Man Resources Inc., requested the writers prepare this report to summarize the 1987 summer exploration programme on the JACK and adjacent STR claims.

The report details the trenching of galena veins, and associated epithermal style alteration on these properties, with a summary of the geological features of the mineralization. The primary exploration focused on prospecting for areas of manganese and iron alteration in the sediments, then a follow-up phase of access development, prospecting along access tracks, and then bulldozer trenching along mineralized zones and alteration systems.

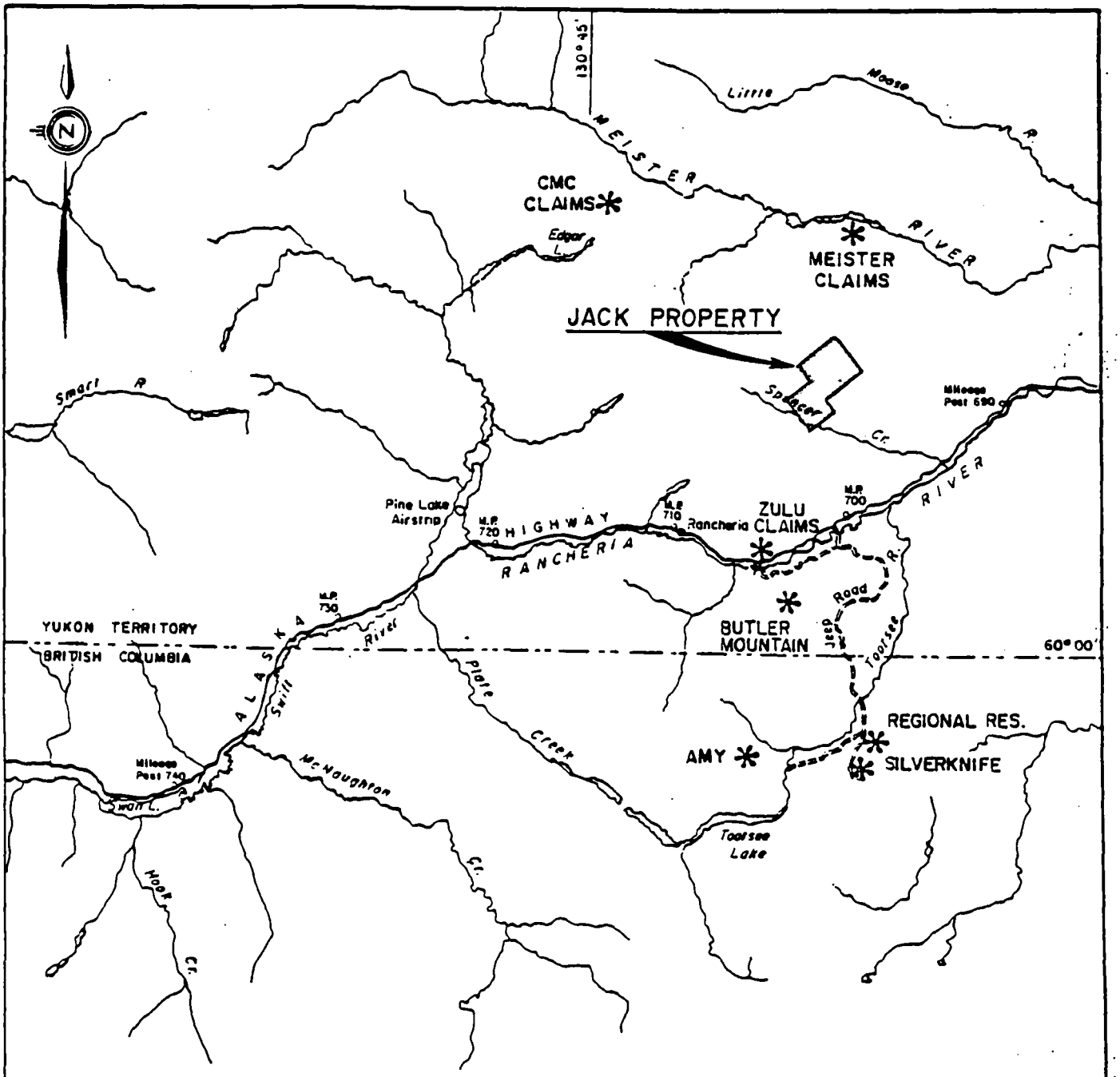
A large number of vein systems were recognized on the property, mainly because of the contrast of the dark manganese oxide mineralization, and yellow-red clay alteration zones with the predominant host rock, a white or grey limestone. Not all of the zones were trenched, as work became concentrated along zones which showed galena mineralization at surface.

This report partially utilizes the trenching data collected by Mr. Alan Frew, geologist for Claymore Resources during the 1986 field season, and notes by Mr. Marshall Smith, taken during his inspections. The areas of activity in this earlier report were somewhat removed from the present study, but are included to allow the overall geological picture to be presented.

## LOCATION AND ACCESS

The JACK-STR property of Pak-Man Resources Inc is located within the Watson Lake Mining District of Southeastern Yukon to the west side of the headwaters of Spencer Creek, but straddles the headwaters of a tributary of the Meister River, Figure 1. The centre of the property is situated at 60°12' North latitude and 130°25' West longitude of Map Sheet 105B/1.

The property is approximately 27 km (16 miles) by means of a gravel bush road from mile 692 of the Alaska Highway (Jack Trace road). The access road follows a general northwesterly direction to the north side of Spencer Creek, with the southern edge of the property commencing where this road breaks above treeline.

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# JACK GROUP

WATSON LAKE MINING DIVISION, YUKON TERRITORY

# LOCATION MAP

SEARCHLIGHT RESOURCES INC.

| SCALE: | DATE: | FIGURE No. |
|---|---|---|
| 1:500,000 | OCTOBER, 1987 | 1 |

The nearest settlement, Rancheria, has lodging accommodations and restaurant service available on a 24 hour basis. There is also a service station, which besides the routine supplies, offers limited mechanical repair. Rancheria is at mile 710 on the Alaska Highway approximately 160 km (100 miles) west of Watson Lake.

The towns of Watson Lake and Whitehorse (300km northeast) are the service centers of the district. Whitehorse is served on a regular basis by Canadian Pacific Airlines and Pacific Western Airlines.

## HISTORY

Prospecting in the area began in the 1870's with the discovery of placer gold on Liard River and its tributaries, Rainbow, Scurvey, Sayyea and Cabin Creeks. In subsequent years, the area was largely neglected, except during the 1930's when bush flying came into practice. With construction of the Alaska Highway in 1942, prospecting was renewed but was generally restricted to the country adjacent to the Highway (Poole et al, 1960). During the 1950's and 1960's, interest was again regenerated in the district with the discovery of silver-lead-zinc mineralization and tungsten mineralization in several localities.

One of the tungsten prospects, the Fiddler, is located immediately southwest of the JACK property. It consists of a series of wolframite and cassiterite bearing quartz veins in Lower Cambrian sediments. In the 1950's, extensive underground development was undertaken and a small mill built, the mill was later destroyed when a forest fire swept the area in the late 1950's.

Lead, zinc and silver mineralization was discovered on the property around 1966. The original owners constructed a bush road to the property, and hand and bulldozer trenched the showings on the western ridge, (Kodiak Showings). Minimal hand-mining of silver bearing galena is purported to have occurred at this time.

The property was allowed to lapse, and in 1977 was restaked by Mr. Jack Trace of Whitehorse. He subsequently upgraded the bush road to 4-wheel drive standard. He also carried out some drilling, blasting, and bulldozing of trenches, and in one area hand mined approximately 3 tons of mineralized material.

In the early 1980's the property was optioned to Hardy International Developments Inc., and in 1983, following minimal surface activity, a diamond drilling programme was carried out with a total of 7 holes drilled between September 15 and 21, 1983. These holes, spotted on the Dane claims, consisted of a total of 304.1 metres of NQ core. (See report by F. Marshall Smith, July 1984) The results were not sufficiently encouraging, with core recovery too low to determine the grade of the narrow veins cut in the drilling, and Hardy consequently dropped the option.

In this same decade CanadianOxy explored to the west on the Goat claims, Getty to the north on the Meister, and Regional Resources discovered their massive sulphide deposit to the south. Most noteworthy in relation to the property's mineralization however has been the definition of extensive high grade silver mineralization in vein systems 20 km to the north by Silver Hart Mines (Hart property). This latter association lead to Claymore Resources acquiring an option to the property in June of 1985.

Claymore conducted a programme of soil and stream geochemical sampling, with limited follow up trenching later in 1985. The results of this operation (Frew, 1986) indicated a number of areas with manganese mineralization in the sediments and associated elevated silver values in the soils. The only significant silver mineralization found was at the "Discovery Zone" on the western ridge of the property, where lenses of argentiferous galena were found along strike of the Jack trace workings. In 1986 Pak-Man Resources Inc. and 2001 Resource Industries Ltd. each optioned 25% of the JACK property from Claymore.

The STR property has no previous development history, but was staked by Watson Lake prospector Hardy Hibbing in 1986 and optioned to Pak-Man/2001 in 1987. This ground is considered highly prospective by Hibbing, as it is along strike of the mineralized fault systems of the Jack Group.

## PHYSIOGRAPHY AND VEGETATION

The lower slopes, as well as the valleys are tree covered. The vegetation consists of sparse alpine balsam spruce to more thickly forested with scrub conifers, alder and ground birch on hillsides. Alpine tundra is dominant above 1400 metres.

Most of the property has a thin to moderate covering of glacial overburden, however this thickens considerably in the central valley areas.

The STR property is to the northeast of the JACK Group, and covers a large, northerly facing treed valley, and two northwesterly trending ridges.

## PROPERTY

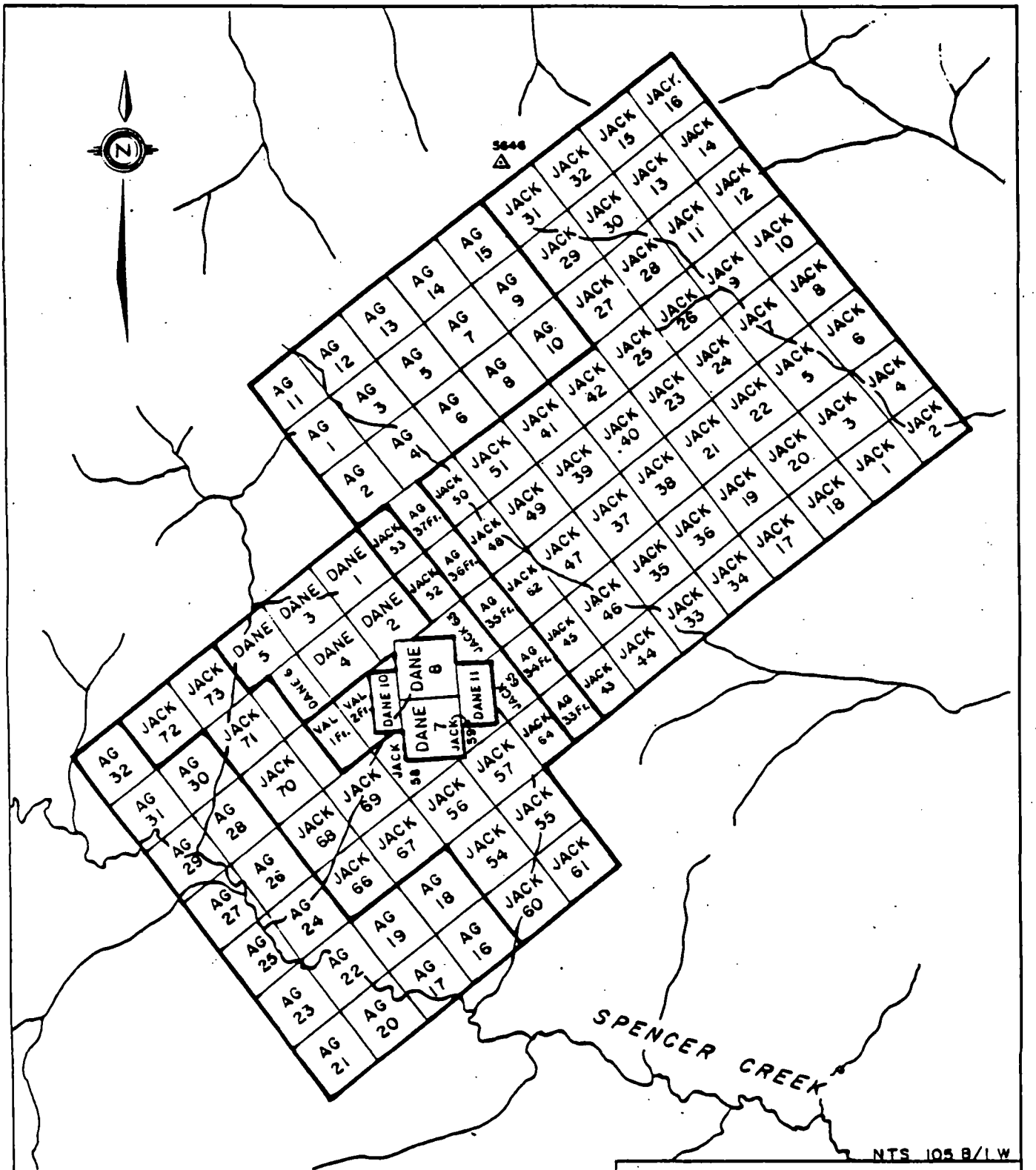
The property referred to as the Jack Group consists of 152 full and 7 fractional contiguous Yukon Quartz claims, all of which are in Watson Lake Mining District, on Map Sheet 105B/1. Assessment work was applied to the STR claims in August 1987, and certificates of work have been received. They property claims are now recorded as follows:

| CLAIMS | RECORD NO. | CLAIM EXPIRY |
|---|---|---|
| STR 1-14 | YA99438-99451 | 1 Oct 1989 |
| STR 15-22 | YA99429-99436 | 29 Sept 1989 |
| STR 25-30 | YA99455-99457 | 1 OCT 1989 |
| STR 31* | YA99458 | 1 OCT 1989 |
| STR 32* | YA99454 | 1 OCT 1989 |
| STR 31-35 | YB00211-00215 | 30 April 1990 |

NB STR 31 & 32 have been used twice, with different grant numbers, expiry dates as per DIAND certificates. There are no claims 23 & 24.

| | | |
|---|---|---|
| Jack 1-61 | YA69999-70059 | 20 Dec 1992 |
| Jack 62-73 | YA70255-70266 | 20 Dec 1992 |
| Jack 78-79 | YA70269-70270 | 20 Dec 1992 |
| AG 1-32 | YA70579-70610 | 20 Dec 1992 |
| AG 33-37 (Fr.) | YA70611-70615 | 20 Dec 1992 |
| Val 1-2 (Fr.) | YA70202-70203 | 20 Dec 1991 |
| Dane 1-6 | YA34956-34961 | 20 Dec 1992 |
| Dane 7 | YA44267 | 20 Dec 1993 |
| Dane 8 | YA44268 | 20 Dec 1992 |

NB the TONY 1-5 claims were part of the Jack Group, but lapsed in 1986. This ground is now part of the STR claims. Expiry dates provided by Watson Mining Recorder.

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JACK GROUP

WATSON LAKE MINING DIVISION, YUKON TERRITORY

# CLAIM MAP

SEARCHLIGHT RESOURCES INC.

| SCALE: | DATE: | FIGURE No. |
|---|---|---|
| As Shown | OCTOBER, 1987 | 2 |

## REGIONAL GEOLOGY

The regional geology is described in the Geological Survey of Canada publication Map10-1960, Wolf Lake, Yukon Territory, Sheet 105B[1]. The rocks underlying the area in the vicinity of the JACK Group belong to a Lower Cambrian age limestone, dolomite, slate and phyllite sequence (Unit 3, figure 3). The mineralization revealed by trenching and by diamond drilling on the property, occurs in this unit.

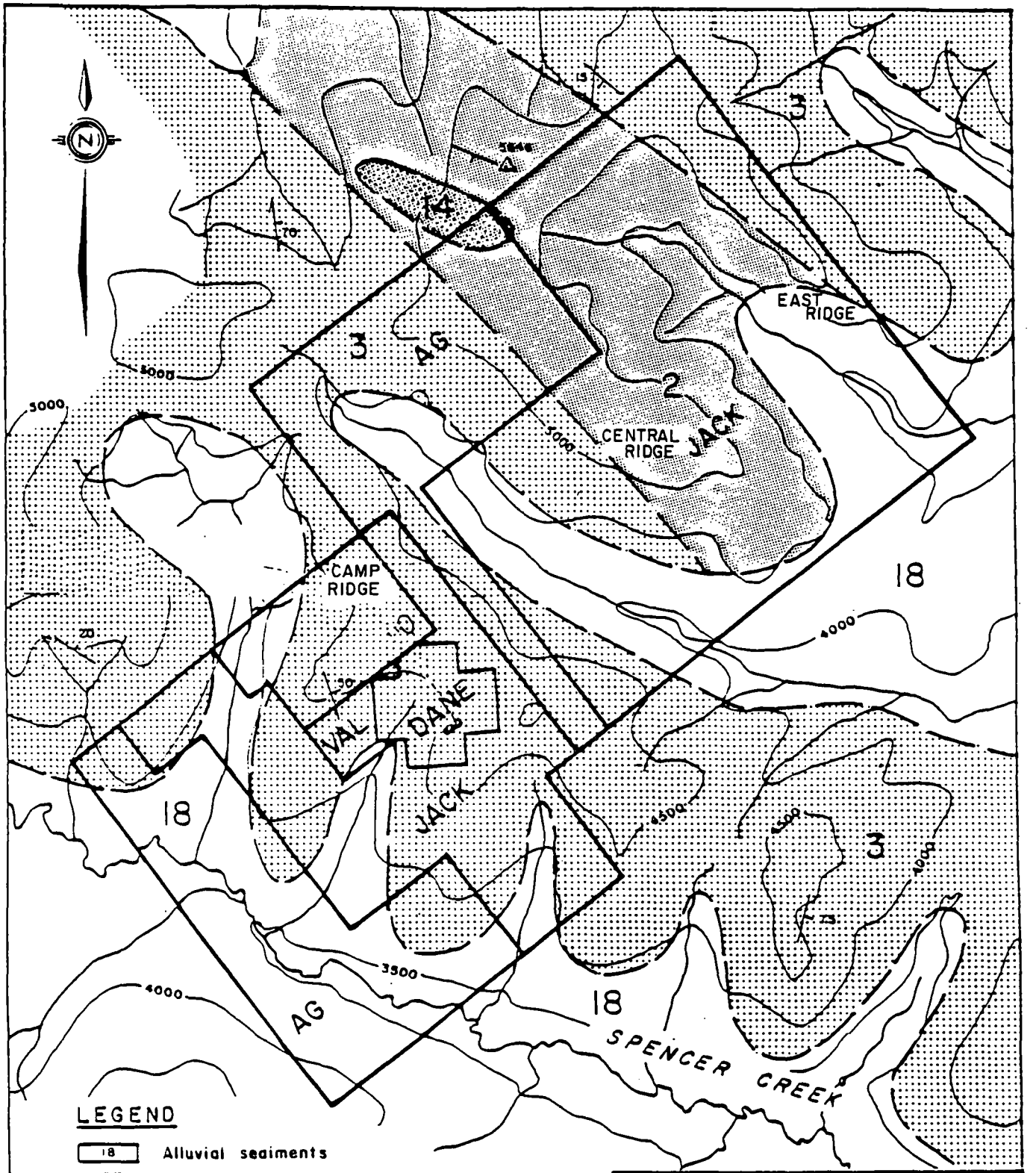
A small diorite stock possibly related the Cassiar batholith outcrops to the north of the claims on the JACK-SR property boundary. To the east on the STR claims, Hibbing has reported a second similar small intrusive stock. The eastern edge of the batholith is less than one kilometre from the west of the claim block.

The regional structures show major transcurrent faults oriented generally in a northwest-southeast direction with nearly isoclinal folds and numerous shears systems. Silver mineralization on surrounding properties tends to follow the north-east trending conjugate shear patterns related to this major fault system.

Mineralization at the Hart property lies within the Cassiar Batholith and Unit 1 (metamorphosed phyllites and limy sediments of figure 3) adjacent to the Batholith. Unit 1 according to the Geological Survey mapping is probably the equivalent of Unit 2. Detail mapping on the Hart and the Oro properties indicates that the mineralized sedimentary units are the same lithology with limestone hosting replacement zinc sulphides on both properties. This pattern is repeated on the JACK group.

The silver mineralization in the district occurs in shears and quartz veins cutting silicified schistose country rock, or sometimes the batholith itself. Massive to banded (rapid precipitation) galena is often present and associated with limonite, manganiferous wad, and goethite in tear faults and quartz veins up to 1 metre wide. Oxide material with boxwork textures after massive galena are abundant and smithsonite is also common in the oxidized rubble outcroppings and in drill core.

Replacement mineralization occurs in limy horizons in all ages of sedimentary rocks with dark sphalerite common and with lesser coarse galena containing low silver values (<2.5 opt silver).

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WATSON LAKE MINING DIVISION, YUKON TERRITORY

# PROPERTY GEOLOGY

Geology from G.S.C. Map 10-1960 and Frew, 1986

SEARCHLIGHT RESOURCES INC.

| SCALE: | DATE: | FIGURE No. |
|---|---|---|
| As Shown | OCTOBER, 1987 | 3 |

The map shown in figure 3 was completed by the Geological Survey as a very broad reconnaissance project but is basically correct. Recent investigations show that the minor volcanic components within the sedimentary rocks were unrecognized by this early mapping.

Recent age dating and geochemical investigations indicate that Unit 1 (sedimentary suite) has anomalous values in lead, zinc, and silver. The margins of the Cretaceous age batholiths and outliers often contain sphalerite and galena replacement and/or skarn zones with low silver values. The north easterly striking conjugate faults host Eocene age dykes of andesite or aplite. Alteration around, and some of the lead ages within, the veins usually give Eocene ages. The best grade of silver occurs in vein/faults near the contact of the Cretaceous age granite, either within the granite or within the adjacent sedimentary rocks.

The following description of the regional lithology and structural geology is condensed from a report by Lowey and Lowey, 1986.

## LITHOLOGY

The region around the property can be divided generally into three belts of diverse rock types: Paleozoic sedimentary rocks of the Cassiar Platform underlie the property and the area to the east; metamorphosed Carboniferous volcanic and sedimentary rocks of the Yukon Cataclastic Terrane underlie the area several kilometres to the west; and Cretaceous plutonic rocks of the Cassiar Batholith underlie the area between these two belts.

Paleozoic strata includes: Cambrian quartzite, phyllite, interbedded limestone and phyllite, limestone and dolostone (Atan Group); Cambro-Ordovician phyllite and hornfels (Kechika Group); Siluro-Devonian dolostone, siltstone, quartzite and limestone (Sandpile Group); Devonian limestone (McDame Group); and Devono-Mississippian quartzite, metaconglomerate and phyllite (Earn Group). These sediments were deposited in a shallow, marginal marine basin on the western edge of North America.

Metamorphosed Carboniferous strata includes Mississippian andesite and intercalated chert (Sylvester Group) and Mississippian-Pennsylvanian mylonite, quartzite and dolostone (unnamed unit). These rocks were thrust over the Paleozoic strata in late Jurassic - Early Cretaceous time.

The Cassiar Batholith, consisting mostly of granite and granodiorite, intruded both the Paleozoic and Carboniferous strata in early Cretaceous time.

Large scale movement on several right-lateral transcurrent faults (i.e. Tintina, Kechika and Cassiar) occurred during Late Cretaceous - Early Tertiary time and was followed by widespread emplacement of Tertiary dykes and veins.

## STRUCTURE

The regional structural trend in the area of the JACK property is northwest, similar to that throughout most of the Cordillera. Poole et al (1960) recognized that the dominant structures are an anticlinal area occupied by the Cassiar Batholith that is flanked on either side by major northwest trending synclines. Lower Paleozoic strata to the southeast of the property were suggested by Poole et al (1960) to be isoclinally folded, but the repetitive nature of the strata (i.e. alternating bands of quartzite and limestone) together with the absence of certain stratigraphic units (i.e. phyllite, interbedded limestone and phyllite and dolostone), indicates that northeasterly directed imbricate thrust faulting may have occurred.

Three distinct phases of structures are recognized in the Rancheria area. The first phase (F1) includes bedding and slaty cleavage. The second phase (F2) trends northwest and includes crenulation cleavage and associated lineations and folds. The third phase (F3) is at approximately 900 to the second phase and trends easterly to northeasterly. It includes jointing and associated lineations and folds.

It has been suggested by Abbott (1984) after Gabrielse (1985) that the second and third phase structures are both related to the lateral transcurrent fault movement along the Kechika, Cassiar and Tintina fault zones. It is hypothesized that the stress field generated by these major faults could produce northwest trending "synthetic shears" (F2) and easterly to northeasterly trending "antithetic shears" (F3) as well as northerly trending extensional faults.

## MINERALIZATION

Several different types of mineral occurrences lie within the Rancheria district. These include quartz and carbonate veins containing galena, sphalerite, freibergite, tetrahedrite, pyrite and minor chalcopyrite in granite of the Cassiar Batholith and in Lower Cambrian sediments; replacement-type galena-sphalerite deposits with minor silver in the Lower Cambrian sediments; wolframite-cassiterite-bearing quartz veins in Lower Cambrian sediments; galena-sphalerite-bearing quartz veins in Carboniferous mylonite and quartzite; and tungsten-bearing skarns in roof pendants within the Cassiar Batholith.

Most of the silver-rich mineral occurrences in the district exhibit similar characteristics which suggest a common genesis. The presence of silver-lead-zinc mineralization in quartz and carbonate veins appears to be controlled by three parameters:

(1) the presence of a group of rocks with relatively high background values in silver, lead and zinc (i.e. the Lower Cambrian sediments),

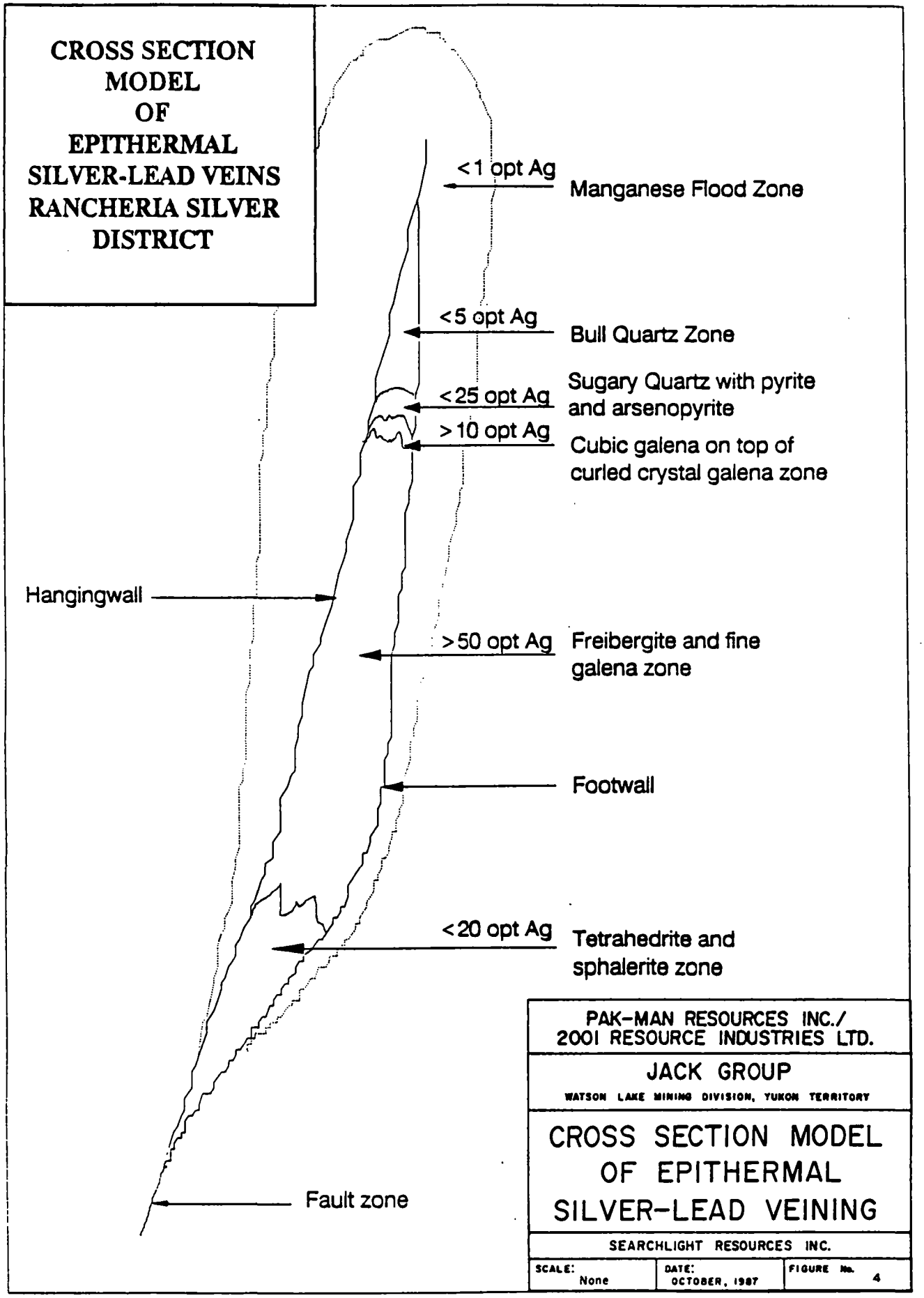
(2) close proximity to the margin of the Cassiar Batholith,

(3) northeast to east trending (F3) jointing and faulting accompanied by injection of hydrothermal solutions of approximately 50 Ma age.

A proposed genetic model for silver mineralization is as follows (after Boyle, 1965 and Lowey and Lowey, 1986):

(a) Early Cretaceous intrusion of the Cassiar Batholith into the Lower Cambrian sediments which concentrates silver, lead and zinc along its margins (replacement-type deposits),

(b) Late Cretaceous-Early Tertiary dextral movement on large transcurrent faults such as Tintina, Kechika and Cassiar Faults results in the development of an northeast to east trending fracture system,


CROSS SECTION MODEL OF EPITHERMAL SILVER-LEAD VEINS RANCHERIA SILVER DISTRICT
<1 opt Ag
Manganese Flood Zone
<5 opt Ag
Bull Quartz Zone
Sugary Quartz with pyrite and arsenopyrite
<25 opt Ag
>10 opt Ag
Cubic galena on top of curled crystal galena zone
Hangingwall
>50 opt Ag
Freibergite and fine galena zone
Footwall
<20 opt Ag
Tetrahedrite and sphalerite zone
Fault zone
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WATSON LAKE MINING DIVISION, YUKON TERRITORY
CROSS SECTION MODEL OF EPITHERMAL SILVER-LEAD VEINING
SEARCHLIGHT RESOURCES INC.
SCALE: None
DATE: OCTOBER, 1987
FIGURE No. 4

(c) Early Tertiary (50 Ma) volcanism and dyke emplacement related to transcurrent fault movement resulting in a rise of the geothermal gradient and convective heat flow,

(d) Hydrothermal solutions migrate along the northeast to east trending fractures in the now enriched granites and Lower Cambrian sediments and minerals precipitate in dilatant zones. Several phases of injection take place temporally related to the fracturing event and dyke emplacement.

Vein mineralogy typically consists of galena, sphalerite, pyrite and chalcopyrite with lesser amounts of arsenopyrite, freibergite, tetrahedrite and pyrrhotite. The galena is bladed or very fine grained, and commonly dendritic and occurs in parallel to oscillating bands of sulphide and gangue. Zinc is in bands only with tetrahedrite, giving a common association of freibergite with galena and tetrahedrite with sphalerite. The most common gangue minerals are quartz and siderite.

The vein-wallrock contact is generally sharp, indicating that the veins are fissure fillings. Alteration envelopes surrounding the veins range from nonexistent up to 30 metres wide and are of the carbonate rich "epithermal" type. Veins are sometimes intimately associated with a dark green andesitic dyke which appears to have intruded along the fractures before, during and possibly after the mineralized solutions. Weathered surfaces are almost always intensely manganese oxide stained, and retain only low silver values.

The replacement-type galena-sphalerite deposits with minor silver, the wolframite-cassiterite-bearing quartz veins, the galena-sphalerite-bearing quartz veins and the tungsten-bearing skarns in roof pendants all appear to be temporally associated with the intrusion of the Early Cretaceous Cassiar Batholith and contain much less silver than the Early Tertiary veining event. The galena in these deposits has simple cubic structure, and forms coarse crystals. The zinc generally forms massive replacement pods with or without galena.

## PROPERTY GEOLOGY

The property was partially mapped in 1987 this information is also shown on figure 3, with detail in figures 5-7. The reconnaissance mapping/prospecting performed in 1985 and 1986 consisted of attempting to locate further zones of mineralization similar to the Jack Trace showings where the previous trenching had been attempted.

The property is underlain by a series of calcareous phyllites, limestones and slates of Lower Cambrian age. Quartzite is present on the central ridge, as the eastern limb of a regional syncline. Younger, probably Eocene age, basic and felsic volcanic dykes intrude this sequence of rocks, usually in the Northeasterly set of faults.

Polyphase deformation occurs throughout the general area with major faulting of varying ages and orientations occupying a dominant northeast-southwest trend.

Narrow quartz veins are seen at widely spaced locations throughout the property. Most are barren, white, massive bull-quartz, yet a few are coarsely crystalline milky quartz containing coarse grained galena which assays to ten ounces per ton silver. These appear to be related to Cretaceous age intrusions, but are generally along the NE fault systems.

The dominant attitude of the sedimentary rocks is from 150° to 170° Azimuth with low dips to the east; steeper dips are present close to crests of folds. The attitude of the faults and dykes ranges between 040° and 070° Azimuth and are dipping steeply to vertical. Vertical drag folding along vein zones is evident on adjacent properties, and on the eastern side of the claim group there is evidence of block uplift controlled by the 050° faulting.

## MINERALIZATION

The mineralization on the property is virtually identical to that at the CMC claims. The association of the manganiferous alteration of the carbonates proximal to the vein, with the sulphide replacement zones along faults and the dark green dykes filling faults in the area of the mineralization appears to be linked to the development of silver bearing sulphide rich veins in the district.

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# JACK GROUP

WATSON LAKE MINING DIVISION, YUKON TERRITORY

## SKETCH OF TRENCH LOCATIONS EAST AND CENTRAL RIDGES

SEARCHLIGHT RESOURCES INC.

| SCALE: | DATE: | FIGURE No. |
|---|---|---|
| 1: 10,000 | OCTOBER, 1987 | 5 |

KILOMETERS
0 1 2 3 4

LEGEND
- Trench
- Road
- Trail
- Creek

SADDLE ZONE
RED ZONE
DWS ZONE
COMPANY ZONE
STRING ZONE
BASELINE
10+00SE
0+00
△ 5646'
4500
5000
5500

The surface outcrop and trenches show massive sulphide mineralization in the limestone. There is evidence of replacement textures in the sphalerite mineralization indicating the sulphides are after the limestone and related to the manganiferous alteration of the limestone. This view was previously proposed by Mr. Grant Abbott of the Department of Indian Affairs and Northern Development when he visited the Jack Group claims[2].

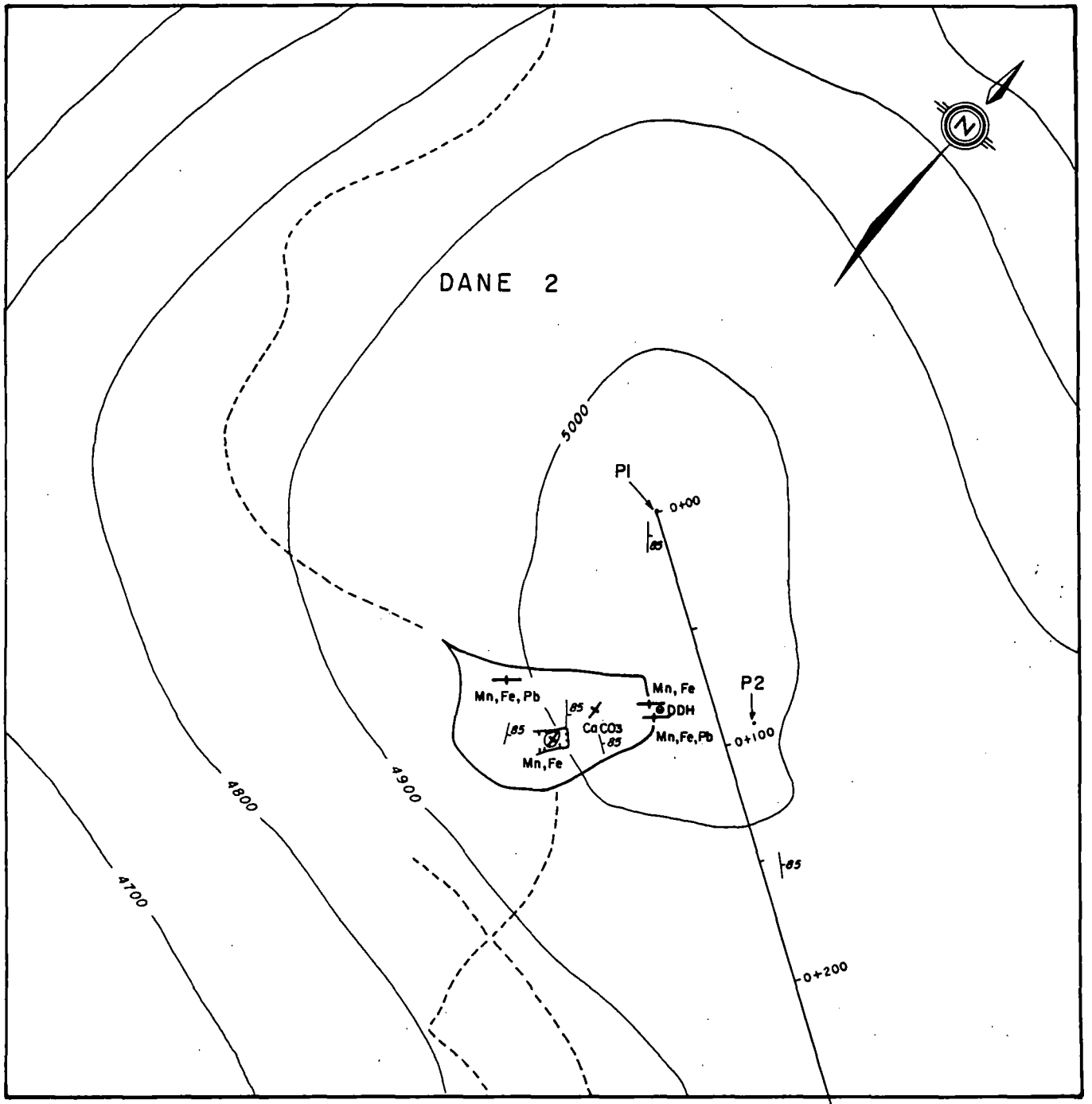
The principal silver-bearing sulphide is freibergite and the associated sulphide is galena. This is invariably fine grained in the best silver grading areas and curved-cubic in the middle grading portions of the vein filling. Freibergite and the fine grained galena are very soluble in the alkaline solutions produced by the weathering of the wallrock. The silver from the freibergite is very easily soluble in alkaline solutions and remains in the water phase so long as it does not increase in acid content.

Veins set in granite or non-carbonate bearing quartzite do not weather and galena with freibergite is found near the current surface. Veins in carbonate appear to be weathered at least 35 feet (10.7 metres) from the current surface.

The veins fill with quartz (coarse grained to amorphous) at the top, followed below by fine grained quartz, usually with some arsenopyrite and pyrite. The next lower phase of deposition consists of curled crystal galena, carrying greater than 10 ounces per ton (343 grams per tonne) silver as silver sulfo-salts. The primary silver zone, is deposited under the curled galena filling, and consists of banded freibergite and fine grained galena. The economically significant silver zone is closed by a change to the deposition of coarse "blackjack" sphalerite with tetrahedrite with low silver values. The location of sphalerite along a vein is considered an indication of the lack of merit for this structure. Fine quartz or curled crystal galena is considered a good indication for location of a significant zone on a structure.

## CAMP RIDGE MINERALIZATION

On the western ridge, in the 'camp' zone, calcareous phyllite and interbedded limestone of probable Lower Cambrian age host several small (<2 cm) galena bearing veins and stratabound lenses of sphalerite with galena and manganiferous siderite. Steeply dipping fractures and faults striking Az $35^0$-$75^0$ host veins throughout the area. The largest replacement zones and the widest veins are restricted to a 1000 $m^2$ area around the open cut developed by Jack Trace.




LEGEND

| | |
|---|---|
| | Vein locations and orientations |
| Mn, Fe, Pb, CaCO3 | Manganese, iron, lead, calcium carbonate occuring in veins |
| ● DDH | Diamond drill hole |
| | Pit |
| ---------- | Access roads |
| | Bedding orientation |
| . P1 | Claim post locations<br>P1: JACK 76 No. 1 and YA 70056 No. 2<br>P2: Y19041 No. 2, Y19042 No. 2, Y19043 No. 1 |

0 50 100

PAK-MAN RESOURCES INC./
2001 RESOURCE INDUSTRIES LTD.

# JACK GROUP

WATSON LAKE MINING DIVISION, YUKON TERRITORY

# CAMP RIDGE
# 1987 TRENCHING

SEARCHLIGHT RESOURCES INC.

| SCALE: | DATE: | FIGURE No. |
|---|---|---|
| 1: 2500 | OCTOBER, 1987 | 8 |

The host rock in the area of the mineralization is cut by mafic dykes (about 1 m wide) striking approximately $20^0$Az. These dykes may represent the 'heat engine' for the mineralization.

The 1987 field work in this area was aimed at exposing the strike extension of the known mineralization, and to check the extent of splays off the veins. The discovery zone provided the most interest, as the mineralization within the main pod (.25metre X 2 metre) could be followed downslope to the Jack Trace pit. This mineralization was however only along stringers less than 2cm wide, with one small zone of patchy stratabound replacement above the main pit.

To the south of the camp some excavation of topsoil was carried out to follow the extension of the Kodiak shows, but these also withered within a metre or so of the original showings.

Further work within this area was curtailed because of the rapid dissipation of the veins within the schist host.

## CENTRAL RIDGE MINERALIZATION

The mineralization shown by the 1985 trenching was further developed in this years work. A track was established along the ridge to connect all the previous trenches, and in one area (figure 5) a large clayed zone was excavated in the limy quartzite. The weathered vein zone is similar to that already noted at the east ridge area, and appears to be along the continuation of one of the 070 degree fault zones.

Further to the west along the strike of this alteration prospecting had earlier found extensive manganese-iron gossan at the quartzite-limestone boundary. Here this mineralization was associated with a sharp topographic depression, but exploration was not carried further because of the problems of accessing the slope.

The manganese mineralization on this ridge appears as intensive as that found on the East ridge, and will require further exploration.

## EAST RIDGE MINERALIZATION

The East Ridge is underlain by structurally deformed interbedded limestone and phyllite with minor quartzite, all of Lower Cambrian age. These rocks are both fine grained and foliated and locally host iron-manganese oxide (+/-lead-silver) mineralization along steeply dipping +/-060$_o$ jointing set up by movement along regional northwest faults during the Tertiary Period. Elsewhere in the district, similar mineralized trends represent the oxidized portion of lead-silver rich veins at depth.

To date, three significant zones (*DWS, Company and String*) hosting numerous mineralized trends have been exposed near the southeast end of the ridge (figure 5). These trends are all similar in that they are structurally controlled and comprise a gougey mixture of iron and manganese oxides varying in color from bright red to sooty black. They are generally less than three metres in width and have been exposed discontinuously for up to 200 metres along strike. The wider trends appear to have developed within limestone, which locally appears to have been skarned adjacent to and/or remobilized into the structures which host the iron/manganese oxide mineralization. In several locations, discontinuous variably altered dark green dykes also are found along these structures. Their relationship to the mineralization has yet to be determined, however one sample of unaltered dyke rock contained 1.10 ounces per ton silver.

In the *DWS* Zone, at least two sub-parallel trends have been exposed by trenching. The most significant of these, the *LW* alteration trend, has been traced continuously on the surface for approximately 160 metres. Over this distance, it trends toward 053o and varies up to 35 metres in width. To date, only the oxidized portion of this system has been exposed, as permafrost was encountered within a few metres of surface. Few, if any, primary minerals appear to have been unaffected by surface oxidation. The widening of the trend near the baseline is thought to represent a dilatant zone created by movement along the structure. This zone represents a primary exploration target as surface indications and weathered vein traces suggest the close proximity of a major vein(s) at depth.

The second zone of oxide mineralization trends approximately 080o and converges with the *LW* trend to the east. It varies up to two metres in width and comprises typical iron and manganese oxides. The trend is presently exposed over 125 metres and appears to wane west of the baseline.

Trenching to the northeast encountered extensions of both these trends on the hillside near the Lee claim boundary. Here they are separated by only a few metres, and could eventually coalesce. Blast trenching on each trend successfully penetrated the permafrost layer encountered just beneath surface, but did not expose unoxidized veining. At this depth, only scattered coarse disseminations of remnant argentiferous galena were observed with goethite, hematite and wad (amorphous manganese oxide) in fractured carbonate. The best assay returned from samples of this material were 32.3 ounces per ton silver and 32.64% lead. If typical of the district, more massive vein mineralization can be expected at depth on these trends.

Additional silver-lead veining was exposed in a trench just west of the blast trenches. This veining was thin and discontinuous but some of the better material returned 42.3 ounces per ton silver and 53.37% lead. A representative sample across 1.6 metres also assayed 17.4 ounces per ton silver.

The majority of the trenching in the *Company Zone* was carried out along a single trend which was exposed discontinuously for approximately 300 metres along strike (+/-027o). The width of the oxide mineralization seldom exceeds two metres and is similar in nature to that in the *DWS* Zone, except that it is hosted in limy phyllite. Movement along the host structure is evidenced by drag folds in the phyllites in the northeast trench. Float galena mineralization was observed in this trench, but its source was not located.

At the southwest end of this trend four, approximately two metre wide, veins of wad with minor goethite and limonite have been exposed by trenching. These veins sub-parallel the main trend, but it is not known for certain which one(s) represent its strike extension. Assay results from samples taken along this trend indicate only slightly elevated silver values.

Preliminary trenching in the *String* Zone was hampered by extensive permafrost, especially where mineralized structures were encountered. At least one such trend coinciding with a major northeast structural lineament defined by air photos was exposed in two cross-trenches. This trend comprises a +90 metre wide zone of intensely altered (clayed) limonitic material forming part of the permafrost layer beneath the surface cover. As the frozen ground could not be effectively trenched, additional work will have to be undertaken next season. This alteration zone shows indications of hosting mineralization equal to, or greater than, the DWS zone.

The surface sampling indicated a range of silver values indicative of weathering of tetrahedrite/freibergite from the outcrop. The following list of samples were collected from surface alteration zones in the main trenches during the 1987 programme. These samples are shown on figures 6 & 7 A full list of assays for the whole property is in the appendix of this report along with the assay sheets and descriptions.:

| Sample No. | Sample Width | Ag oz./ton | Pb. % | Zn. % |
|---|---|---|---|---|
| 47476 | grab, vein | .64 | .24 | .07 |
| 47477 | grab, float | 90.4 | 82.7 | .02 |
| 47478 | grab, vein | .39 | .18 | .01 |
| 47479 | grab, limestone | .49 | - | - |
| 47480 | grab, qtz vein | 10.7 | 3.88 | - |
| 47481 | grab, float | 86.7 | 85.5 | .01 |
| 47484 | dyke, grab | .16 | 35 | .02 |
| " " | | | | (-.002 Au) |
| 47485 | grab, vein | 37.0 | | (.002 Au) |
| 38351 | 3.0m, clay | 0.42 | - | - |
| 38352 | 4.7m, clay | 0.18 | - | - |
| 38353 | 0.70m, clay | 0.66 | - | - |
| 38354 | 1.70m, clay | 0.24 | - | - |
| 38355 | 0.9m, clay | 3.83 | 5.84 | - |
| 38356 | grab, vein | 32.3 | 32.64 | - |
| 38357 | grab, vein | 42.3 | 53.37 | - |
| 38358 | 0.25m, vein | 4.34 | 7.78 | - |
| 38359 | 0.45m, vein | 3.56 | 7.10 | - |
| 38360 | 1.60m, vein | 17.4 | - | - |

| Cont | Sample No. | Sample Width | Ag oz./ton | Pb. % | Zn. % |
|---|---|---|---|---|---|
| | 38361 | 1.70m, clay | 2.48 | - | - |
| | 38362 | 3.20m, clay | 0.16 | - | - |
| | 38363 | grab, vein | 1.41 | - | - |
| | 38364 | grab, calcite | 0.25 | - | - |
| | 38365 | grab, dyke | 1.10 | - | - |

## STR CLAIMS MINERALIZATION

Limited exploration was completed on this block, save for prospecting along the ridges. The access road to the area was cleaned out, and a track was made down the most Eastern ridge, where there was ample evidence of shear zones and recrystallized limestone.

Adjacent to the NE corner of the Jack claims traces of manganese alteration were found near to where Hibbing reported a small body of intrusive rock. These manganese zones appeared to follow both northerly, and northeast strike orientations. Further prospecting and mapping is required.

## CONCLUSIONS

The Jack property has excellent potential for being developed into a significant silver deposit for several reasons.

1.0 The property is in a favourable geological environment. It is underlain by extensively sheared Lower Cambrian sediments along the eastern margin of the Cassiar Batholith. These shear zones form excellent pathways for the movement and deposition of silver-rich solutions.

2.0 The silver mineralization discovered on the Jack property conforms to the style of other properties in the Rancheria Silver Belt such as Silver Hart's CMC claims and Yukon Mineral Corporation's ORO property.

3.0 Significant silver mineralization (up to 90.4 ounce/ton silver) is present with the carbonate hosted East ridge of the property at the DWS zone. Two other areas showing very significant alteration zones are to be found at the "Company " zone, and the area adjacent to the "String" zone. The silver mineralization is found filling swarms of dilatant shear zones, and as trace values in the clay zones associated with the larger pods of alteration.

4.0 Further large zones of manganese and yellow clay alteration exist along western strike extension of the East ridge mineralization, but to date have only had cursory examination.

5.0 Access to the property is excellent, with the Alaska Highway 16 kilometres to the southeast along an easily upgraded gravel road.

The gossanous weathered vein materials discovered in the East ridge area of the Jack Group are the target for further work, for the following reasons:

a. they fill a curled structure like the TM and KL zone at Silver Hart Mines (CMC), and,

b. they are banded with various colours identical to the pattern and appearance at the HV property (Ross River area) of Yukon Minerals, the weathered surface at the TM and KL (CMC), and,

c. the gossanous zones contain small residual pieces of galena as was noted at the HV property and KL vein at the HART property, and,

d. the strike of the veins are identical to the main silver bearing veins at the HART property to the northwest.

## RECOMMENDATIONS

1.0 The optimum method of following the known veins is with cat trenches and/or backhoe made outcrop along the favourable structures. New zones should be located by prospecting and reconnaissance geology for the dykes, manganese alteration and the replacement sphalerite/galena zones in carbonate rocks.

2.0 The next stage of evaluation for the East ridge mineralization is to substantiate that the veins contain significant silver values across mineable widths. This stage of work must consist of two related and supportive phases.

3.0 The first phase of work is to drill test the depth extensions of the veins in an effort to substantiate that they are filled with galena and freibergite.

4.0 Phase Two should consist of driving an adit on a level below the weathered horizon to determine the grade and character (dilution, variation of thickness and grade along strike, mining method etc.) of the zones of interest. This phase of work will only be initiated if the drilling indicates that there is galena in the vein in the area to be explored.

5.0 The "LW" alteration zone is the best defined target at this stage, and should be drill tested from the northern hanging-wall side, first with a series of short holes near the centre of the structure. These holes will determine the rake of the veining, and hence the orientation of the deeper drilling, which should attempt to intersect the zone at the -30 and -70 metre levels.

COMMENT

The problem with drilling these types of veins is that recovery of the mineralized portion is particularly difficult and normally not adequate, to determine the grade of the mineralization. The freibergite in particular is too soft to core at all and tends to be washed out of the drill sample. The fine grained galena is too soft to core well and tends to be poorly returned in the core. The cubic and curled crystal galena fillings usually core better and are recovered to about 80% of the interval. The sphalerite and quartz zones core very well and report +95% to the core.

This problem is well known by United Keno Hill Mines, to the north at Elsa, Yukon, where they seldom get more than three holes of ten drilled in an ore shoot to indicate the ore zone, and each of the three holes severely understate the average grade of the shoot.

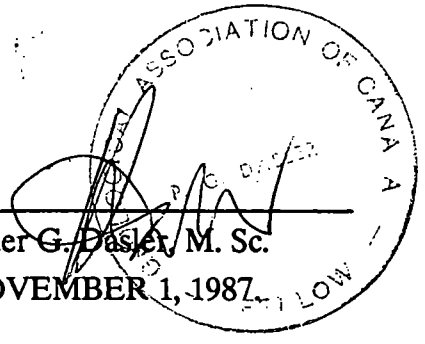
At the HART property one of the drill holes showed galena, had 60% core recovery, carried 23 ounces per ton silver (789 grams per tonne) over 8 feet (2.4 metres), and was 25 feet (7.6 metres) from a raise which graded 195 ounces per ton (6686 grams per tonne) silver.

Thus drilling must be carried out in an effort to locate a galena rich filling zone assuming that core recovery will understate the grade.

BUDGET

The following budget is proposed for a six week continuation of the surface prospecting on the Middle ridge, East ridge and STR claims areas of the Jack Property. The evaluation of the currently defined areas of mineralization are the subject of reports by F.M.Smith, P. Eng, A. Burton, P.Eng. and A. McCutcheon, P. Eng., and are subject to their budget proposals.

| | |
|---|---|
| Salaries and wages | $35,000 |
| Geology, camp, support | $20,000 |
| Excavator, bulldozer | $45,000 |
| Mob/Demob | $5,000 |
| Equipment Rental | $4,000 |
| Transport | $4,500 |
| Assays | $2,500 |
| Report & office | $5,000 |
| **Total** | **$121,000** |



Peter G. Dasler, M. Sc.
NOVEMBER 1, 1987.

CERTIFICATE

I, F. Marshall Smith, do hereby certify that:

1. I am a consulting geologist and geochemist with offices at 6580 Mayflower Drive Richmond, British Columbia.

2. I am a graduate at the University of Toronto with a degree of B.Sc., Honors Geology.

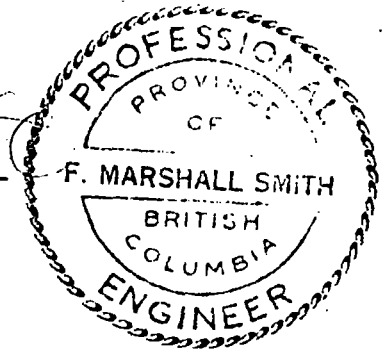
3. I am a member in good standing of the Association of Professional Engineers of the Province of British Columbia.

4. I have practiced my profession continuously since 1967.

5. This report is based on reports by Professional Engineers and others working for the present and past owners and operators of the property, and personal examinations of the claims in 1986 and 1987.

6. I am a shareholder of Pak-Man Resources Inc.

F. Marshall Smith, P.Eng.
November 1, 1987.



CERTIFICATE

I, Peter G. Dasler, do hereby certify that:

1. I am a geologist for Searchlight Resources Inc. with offices at 218-744 West Hastings Street, Vancouver, British Columbia.

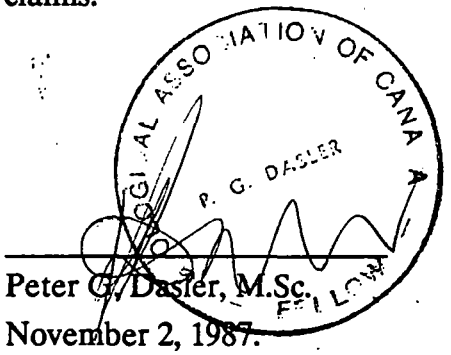
2. I am a graduate at the University of Canterbury, Christchurch, New Zealand with a degree of M.Sc., Geology.

3. I am an Associate Member in good standing of the Australasian Institute of Mining and Metallurgy, and a Member of the Geological Society of New Zealand.

4. I have practiced my profession continuously since 1975.

5. This report is based on information received from field surveys and drill reports by Claymore Resources Inc. geologists, and the authors field observations during 1987 and reports by Professional Engineers and others working for the previous owners and operators of the property.

6. I have no interest in the property or shares of Pac Man Resources Inc. or 2001 Resource Industries Ltd, nor in any of the companies with contiguous property to the JACK Project claims.




Peter G. Dasler, M.Sc.
November 2, 1987.

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1 Poole, W.H.; Roddick, J.A.; and Green, L.H., 1951-59, Map 10-1960, Geological Survey of Canada, Wolf Lake, 105B.

2 Abbott, G. as 1 above.

3 Personal communication, 1983, Getty Mines Ltd., Meister property.

4 Smith, F.M., 1978, examination of silver mineralization, B. Poulan claims, Rancheria, B.C.

APPENDIX 1

# SAMPLE RESULTS AND ASSAY SHEETS

| SAMPLE NO. | LOCATION | LENGTH | ASSAYS Ag oz/t. | Pb % | Zn % | | Au opt. | | REMARKS |
|---|---|---|---|---|---|---|---|---|---|
| 38351 | EAST RIDGE | 3·0m. | ·42 | | | | | | Alt. vein. Blue-Yellow clay. |
| 38352 | " " | 3·7. | ·18 | | | | | | Alt vein - Blue Yellow clay |
| 38353 | " " | 0·50m | ·66 | | | | | | Blue-Yellow clay |
| 38354 | " | 1·60m | ·24 | | | | | | Black-Yellow zone adj. to Limestone. |
| 38355 | " | 0·90m | 3·56 | | | | | | Wall rx galena vein black/yellow |
| 38356 | E. RIDGE | grab | 32·30 | 32·64 | | | | | Grab galena |
| 38357 | " | grab | 42·3 | 53·37 | | | <0·002 | | Grab galena |
| 38358 | " | 0·25m | 4·34 | 7·78 | | | | | Vein + wall rock. |
| 38359 | " | 0·45m. | 3·56 | 7·10 | | | | | Vein + wall rock. |
| 38360 | " | 1·60 | 17·4 | - | | | | | Vein + wall rock. |
| 38361 | " | 1·70 | 2·48 | | | | | | Yellow clay + wall rock. |
| 38362 | | 3·20 | 0·16 | | | | | | clay + calcite veinlets. |
| 38363 | | grab. | 1·41 | | | | | | Galena in vein in calcite |
| 38364 | | grab. | 0·25 | | | | | | Calcite crystals adj to vein. |
| 38365 | | grab | 1·10 | | | | | | Fresh dyke. |
| 47476 | Saddle Zone. | grab | 0·64 | 0·24 | 0·07 | | | | Mn. vein. |
| 47477 | DWS Zone. | float | 90·4 | 82·7 | 0·02 | | | | Uncovered in road (Galena) |
| 47478 | Saddle Zone. | grab | 0·39 | 0·18 | 0·01 | | | | Carbonate vein w. Mn. + Hematite. |

| SAMPLE NO. | LOCATION | LENGTH | ASSAYS Ag oz/t | Pb % | Zn % | | Au oz/t. | | REMARKS |
|---|---|---|---|---|---|---|---|---|---|
| 47479 | String Zone. | grab. | 0·49 | | | | | | Spotted Limestone from pits. |
| 47480 | Saddle Zone. | grab. | 10·70 | 3·88 | | | | | Qtz vein w. galena. |
| 47481 | DWS Zone | grab | 86·7 | 85·5 | ·01 | | | | Galena w. carbonate. |
| 47482 | S2 Zone | grab | ·36 | ·21 | | | | | Galena in dyke S2 |
| 47483 | Dane Shaft | grab | 43·0 | 74·4 | 2·40 | | ·002 | | Fine Blue galena below Mn on rid |
| 47484 | DWS | grab | 37·0 | | | | ·002 | | Med grain galena (er Schellenber |
| 47485 | Trench S-2 zone | grab. | ·16 | ·35 | ·02 | | <·002 | | Green breccia dyke |
| 47486 | - N/A. | | | | | | | | 486, 487 - Not assayed. |
| 47488 | COMPANY Z. EASTRIDGE | 1·50 m. | 0·06 | | | | | | Blue clay + rusty limestone |
| 47489 | " | 0·70 | 0·42 | | | | | | " " |
| 47490 | " | 1·0 | 0·54 | | | | | | Black-Blue - rusty clay with vein |
| 47491 | Eastridge. | 1·0 | 0·71 | | | | | | Cherty + rusty. |
| 47492 | " | 1·0 | 0·50 | | | | | | Limonitic - black + Blue. alt. |
| 47493 | " | 1·0 | 0·51 | | | | | | Mn vein 1·0 m wide. |
| 47494 | " | 2·0 | 0·67 | | | | | | Mn vein + wall rock. |
| 47495 | " | 1·0 | 0·89 | | | | | | Mn vein + iron oxide. |
| 47496 | " | 2·0 | 0·69 | | | | | | Mn vein + wall rock |
| 47497 | " | 1·0 | 0·02 | | | | | | Mn vein. |

| SAMPLE NO. | LOCATION | LENGTH | ASSAYS Ag oz/T | Pb% | Zn% | | Au% | | REMARKS |
|---|---|---|---|---|---|---|---|---|---|
| 47498 | East Ridge. | 1·70m | 0·05 | | | | | | Mn vein wall rock. |
| 47499 | " (Lwzone) | 3·0m. | 0·06 | | | | | | Black-Yellow clay. |
| 47500 | Lw Zone | 3·0m | 0·05 | | | | | | Blue-yellow clay. |

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# Certificate of Analysis

TO Searchlight Resources

Proj. JACK

REPORT NO. 47-4962

DATE July 21, 1987

I hereby certify that the following are the results of analyses made by us upon the herein described rock samples

| MARKED | oz/ton Ag | % Pb | % Zn | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 47476 | 0.64 | 0.24 | 0.07 | | | | | | | |
| 47477 | 90.4 | 82.7 | 0.02 | | | | | | | |
| 47478 | 0.39 | 0.18 | 0.01 | | | | | | | |
| 47479 | 0.49 | | | | | | | | | |
| 47480 | 10.7 | 3.88 | | | | | | | | |
| 47481 | 86.7 | 85.5 | 0.01 | | | | | | | |

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J. R.

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# Certificate of Analysis

TO Searchlight Resources

Proj. JACK/LENA

REPORT NO. 47-4992

DATE July 28, 1987

I hereby certify that the following are the results of analyses made by us upon the herein described rock samples

| MARKED | Ag/Pb | oz/ton Ag | % Pb | % Zn | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 35101 | | 0.06 | | | | | | | | | |
| 47483 | .6 | 43.0 | 74.4 | 2.40 | ⟷ | Here 2 may be mixed up as 484 was of galena | | | | | |
| 47484 | .5 | 0.16 | 0.35 | 0.02 | | | | | | | |
| 47485 | | 37.0 | | | | | | | | 485 also silicon Barium. | |

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# Certificate of Analysis



TO Searchlight Resources

Proj. JACK / 412

REPORT NO. 47-7333

DATE Sept 15, 1987

I hereby certify that the following are the results of analyses made by us upon the herein described rock samples

| MARKED | oz/ton Ag | Width |
|---|---|---|
| 38351 | 0.42 | 30m |
| 38352 | 0.18 | 4.7m |
| 38353 | 0.66 | 0.5m |
| 38354 | 0.24 | 1.7m |
| 38355 | 3.83 | 0.9 |
| 38356 | 32.3 | grab |
| 38357 | 42.3 | grab |
| 38358 | 4.34 | 0.25m |
| 38359 | 3.56 | 0.45m |
| 38360 | 17.4 | 1.60m # |
| 38361 | 2.48 | 1.70m |
| 38362 | 0.16 | 3.2m |
| 38363 | 1.41 | grab |
| 38364 | 0.25 | calc-silicate |
| 38365 | 1.10 | dyke |
| | | / 412 |
| 47488 | 0.06 | blue clay 15m |
| 47489 | 0.42 | brown clay 0.10m |

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# Certificate of Analysis

TO Searchlight Resources

REPORT NO. 47-7333 Pg. 2

DATE Sept 15, 1987



I hereby certify that the following are the results of analyses made by us upon the herein described rock samples

| MARKED | oz/ton Ag | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 47490 | 0.54 | 1.0m | | | | | | | | |
| 47491 | 0.71 | 1.0m | | | | | | | | |
| 47492 | 0.50 | 1.0m | | | | | | | | |
| 47493 | 0.51 | 1.0m | | | | | | | | |
| 47494 | 0.67 | 2.0m | | | | | | | | |
| 47495 | 0.89 | 1.0m | | | | | | | | |
| 47496 | 0.69 | 2.0m | | | | | | | | |
| 47497 | 0.02 | 1.0m | | | | | | | | |
| 47498 | 0.05 | 1.75m | | | | | | | | |
| 47499 | 0.06 | 3.0m | | | | | | | | |
| 47500 | 0.05 | 3.0m | | | | | | | | |

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Telex: 04-352667

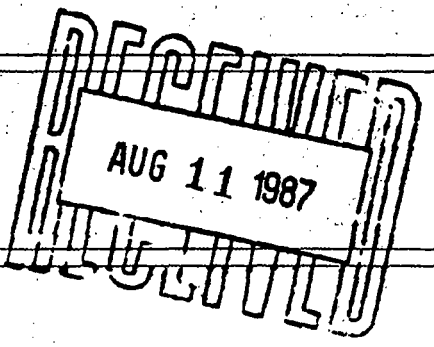
BONDAR-CLEGG

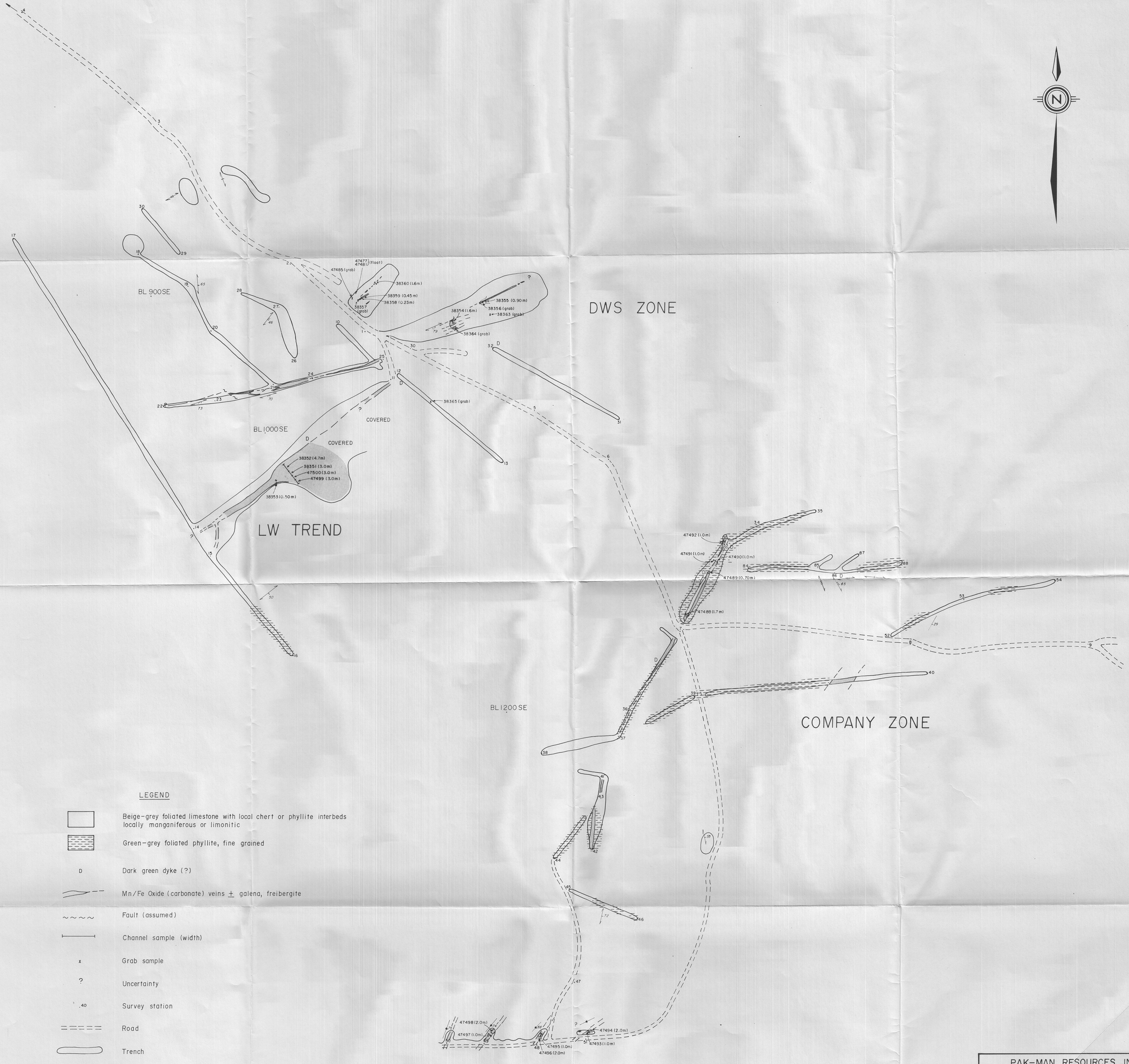
# Certificate of Analysis

REPORT: 427-4992

PROJECT: JACK-LENA PAGE 1

| SAMPLE NUMBER | ELEMENT UNITS | Au OPT |
|---|---|---|
| R2 35101 | | 0.002 |
| R2 47483 | | 0.002 |
| R2 47484 | | <0.002 |
| R2 47485 | | 0.002 |






LEGEND

- Beige–grey foliated limestone with local chert or phyllite interbeds locally manganiferous or limonitic
- Green–grey foliated phyllite, fine grained
- D — Dark green dyke (?)
- Mn/Fe Oxide (carbonate) veins ± galena, freibergite
- Fault (assumed)
- Channel sample (width)
- x — Grab sample
- ? — Uncertainty
- .40 — Survey station
- Road
- Trench
- Bedding ($S_0$) – vertical, inclined
- Foliation ($S_1$) – vertical, inclined
- Jointing ($S_3$) – vertical, inclined
- Vein – vertical, inclined

PAK–MAN RESOURCES INC./
2001 RESOURCE INDUSTRIES LTD.

JACK GROUP

WATSON LAKE MINING DIVISION, YUKON TERRITORY

# EAST RIDGE
# TRENCH PLAN
## DWS AND COMPANY ZONES

SEARCHLIGHT RESOURCES INC.

| SCALE: | DATE: | FIGURE No. |
|---|---|---|
| 1: 1000 | SEPTEMBER, 1987 | 6 |

N

9

55

79

52

Limonitic Stringers

56

71

78

47479 (grab)

77

32

57

58

?

59

79

60

61

?

62

63

?

?

73

76

45

Limonitic Stringers

75

64

74

72

?

Limonitic Stringers

Limonitic Stringers

65

71

70

66

69

67

68

## LEGEND

- Grey fine-grained foliated limestone, locally interbedded with phyllite / argillite.
- Green-grey foliated phyllite, fine grained
- White to buff foliated fine grained quartzite locally interbedded with limonitic phyllite
- Zone of intensely altered limonitic material (?) usually as permafrost
- ? Uncertainty
- .9 Survey station
- Road
- Trench
- Foliation ($S_1$) — vertical, inclined

METRES

0 20 40 60 80

PAK-MAN RESOURCES INC./
2001 RESOURCE INDUSTRIES LTD.

# JACK GROUP

WATSON LAKE MINING DIVISION, YUKON TERRITORY

## EAST RIDGE
## TRENCH PLAN
## STRING ZONE

SEARCHLIGHT RESOURCES INC.

| SCALE: | DATE: | FIGURE No. |
|---|---|---|
| 1:1000 | SEPTEMBER, 1987 | 7 |

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# REPORT

on the

# PROPOSED WORK PLAN

# JACK PROPERTY

WATSON LAKE MINING DISTRICT

YUKON TERRITORY

Latitude: 60°12'N

Longitude: 130°25'W

N.T.S. 105 B/1

for

**PAK-MAN RESOURCES INC.**

and

**2001 RESOURCE INDUSTRIES LTD.**

26th Floor, 1177 West Hastings Street,
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by

F. MARSHALL SMITH, P.Eng.

November 5, 1987

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## SUMMARY

The Jack property, in southeastern Yukon Territory, is one of a series of newly discovered highgrade silver veins around and near the Cassiar Batholith. The veins of this new silver district (Rancheria or McCrory) appear to represent a portion of a family of veins throughout Yukon, that are all of the same age and similar character. The vein/faults form significant mineralization in competent rocks and close in softer sediments.

The veins on the Jack Group are not recent discoveries as there were many old trenches and pits along some of the most southerly of the structures. The veins fill a series of parallel faults with a N60°E strike and steep northerly dip. The veins are usually only a few inches wide along the majority of their strike, but rotate to large openings when the footwall fault moves to a more easterly strike at the southwest end of a shoot, and rotates back to the more northeasterly strike to the northeast. The strike and dip slip of the fault forces an opening now filled by weathered sulphides. The new zones recommended for further testing are new discoveries along one of the many narrow vein/faults crossing the East ridge. There are probably many more of these shoots along strike and on parallel structures.

The wallrock in the East Ridge of the Jack Group, consists of massive medium grained crystalline limestone to dolostone. These carbonate rich rocks form the wallrocks for the veins described in this report. The carbonates weather producing an alkaline solution that has a detrimental affect on the weathering of the vein sulphides.

The principal silver-bearing sulphide is freibergite and the associated sulphide is galena which is invariably fine grained in the best silver grading areas and curved-cubic in the middle grading portions of the filling. Freibergite and the fine grained galena are very soluble in the alkaline solutions produced by the weathering of the wallrock. The silver from the freibergite is very easily soluble in alkaline solutions and remains in the water phase so long as it does not increase in acid content.

Veins set in granite or non-carbonate bearing quartzite do not weather; galena and freibergite are found near the current surface. Veins in carbonate appear to be weathered at least 35 feet (10.7 metres) from the current surface.

The veins fill with quartz (coarse grained to amorphous) at the top, followed below by fine grained quartz, usually with some arsenopyrite and pyrite. The next lower phase of deposition consists of curled crystal galena, carrying greater than 10 ounces per ton (343 grams per tonne) silver as silver sulfo-salts. The primary silver zone, is deposited under the curled galena filling, and consists of banded freibergite and fine grained galena. The economically significant silver zone is closed by a change to the deposition of coarse "blackjack" sphalerite with tetrahedrite with low silver values. The location of sphalerite along a vein is considered an indication of the lack of merit for this structure. Fine quartz or curled crystal galena is considered a good indication for location of a significant zone on a structure.

All veins found to date have been located by prospecting for manganese stained wallrocks. Each of the known veins in the Rancheria Silver District has a manganese halo in the wallrock. The halo is very wide along strike, from or above, a major silver zone. Many of the wide veins on the Jack Group had a very narrow band of manganese stained carbonate wallrock along the trace of the vein.

The East Ridge veins are significant for their thickness of opening and the large number of "shoots" that appear to have formed in the southeastern portion of the ridge. All of the veins are severely weathered to at least 25 feet (7.62 metres) below the original surface and there are few sulphides left in the shears. The only sulphides consist of grains of coarse to curled crystal galena with assays to 89 ounces silver per ton (3051 grams per tonne) from grab samples.

A programme of diamond drilling to locate the extension of the veins in the unweathered zones is recommended, along with underground drifting, to determine grade and character of the deposits. Diamond drilling in the district has consistently understated the grade and thickness of the mineralized zones. Underground work on one of the veins in the district has substantially increased the grade of the drilled zone. Underground sampling will be the only true measure of the grade of the deposit.

A detail programme to carry out the recommendations in this report is in preparation by Mr. Alex Burton, P.Eng., and Mr. Archie McCutcheon, P.Eng.

## INTRODUCTION

This report was prepared at the request of Pak-Man Resources Inc. and 2001 Resource Industries Ltd. to explain the many discussions and recommendations for proceeding with the exploration of the Jack Group property. The reader must be aware that the writer was a Director of both companies and remains a shareholder as of the date of this report.

The writer first examined the Jack Group for Hardy International Ltd. in August 1983, with a view to drilling the veins on surface of the west ridge. At the time, the newly discovered Regional deposit, about 30 miles to the south, was receiving considerable attention. The drilling of the west ridge for Hardy International was unsuccessful.

Claymore Resources Ltd. optioned the property in the spring of 1985 and requested the writer to recommend a work programme. The recommended programme was not carried out, and considerable effort was expended on geochemical surveys, geophysical grids and geological work. Prospecting was not used aggressively until the end of the season and in particular not until the discovery of several new veins on the adjoining ORO property of Yukon Minerals Corporation.

Also, during the period from the fall of 1985 to the winter of 1986, Silver Hart Mines Ltd., was attempting to develop a mineral reserve on their Hart property to the northwest. The veins in this area are virtually identical to the Jack Group. During the 1987 field season, Silver Hart changed their exploration methods to those used with greater success on the East ridge of the Jack Group; Silver Hart estimates that they have located more than 50 major veins, with at least one carrying 250 ounces per ton silver (8571 grams per tonne) from outcrop in granite, near their proposed millsite.

At the start of the season there was only one significant patch of showings known on the Jack Group. Within this patch of veins on the West ridge, none opened to any significant widths along the known strike extensions. Within 2 weeks of prospecting, geology, and trenching on the property, over 20 new vein/faults had been located and two major openings along parallel structures were defined. With diligent effort a rotation opening up to 45 feet (13.7 metres) wide was located along one of the veins. This success led to a focus of effort to attempt to locate sulphides in the structures that appeared to have the best potential for highgrade silver mineralization.

During the 1986 field season, Silver Hart Mines Ltd., had located a new structure near their original vein (TM), which was called the KL zone. This vein was considered unusual in that it had sedimentary rocks for walls and was very badly weathered in comparison to the TM, which was set in granite. The KL zone weathering was followed in trenching to nearly fresh sulphides. This process showed a link between the colour of the weathered sulphides and the resultant mineralization at depth.

During the 1987 season, Yukon Minerals Corporation explored an area near Ross River, Yukon, that had been worked on for many years. These veins are set in the same suite of rocks as the East ridge and have many features of the Rancheria District. The veins are badly weathered at surface, and within 40 feet (12.2 metres) of surface, the gossanous materials that appear to define the vein, give way to galena and silver sulphides. The colours of the weathered veins are virtually identical to those at the KL and East ridge sites in the Rancheria District.

## LOCATION AND ACCESS

The JACK-STR property is located within the Watson Lake Mining District of Southeastern Yukon to the west side of the headwaters of Spencer Creek, but straddles the headwaters of a tributary of the Meister River, to the north. The centre of the property is situated at 60° 12' North latitude and 130° 25' West longitude of Map Sheet 105B/1. The property is approximately 27 kilometres (16 miles) by means of a gravel topped tote trail, called the Jack Trace road, from mile 692 of the Alaska Highway.

The nearest settlement, Rancheria, is at mile 710 on the Alaska Highway approximately 160 kilometres (100 miles) west of Watson Lake and has accommodations and services to support some field work.

The towns of Watson Lake and Whitehorse (300 kilometres northeast) are the service centres of the district. Whitehorse is served on a regular basis by Canadian Airlines.

## HISTORY

Prospecting in the area began in the 1870's with the discovery of placer gold on Liard River and its tributaries, Rainbow, Scurvey, Sayyea and Cabin Creeks to the northeast of the Jack Group. In subsequent years, the area was largely neglected, except during the 1930's when bush flying came into practice. With construction of the Alaska Highway in 1942, prospecting was renewed, but was generally restricted to the country adjacent to the Highway. During the 1950's and 1960's, interest was again regenerated in the district with the discovery of silver-lead-zinc mineralization and tungsten mineralization in several localities.

One of the tungsten prospects, the Fiddler, is located immediately southwest of the Jack Group. It consists of a series of wolframite and cassiterite-bearing quartz veins in Lower Cambrian sediments. In the 1950's, extensive underground development was undertaken and a small mill built, the mill was later destroyed when a forest fire swept the area in the late 1950's.

The discovery of silver/lead mineralization on the property probably dates to the 1930's based on hearsay evidence from an old prospector, Mr. Barry O'Neal,as told to Mr. Terry McCrory, one of the vendors of the property. This story related the discovery of silver bearing veins from the "headwaters of Spencer Creek" in the late 1930's. The mineralization was supposed to grade more than 1000 ounces silver per ton (34285 grams per tonne) and was hauled out by horses to the Liard river (head of navigation) near Watson Lake.

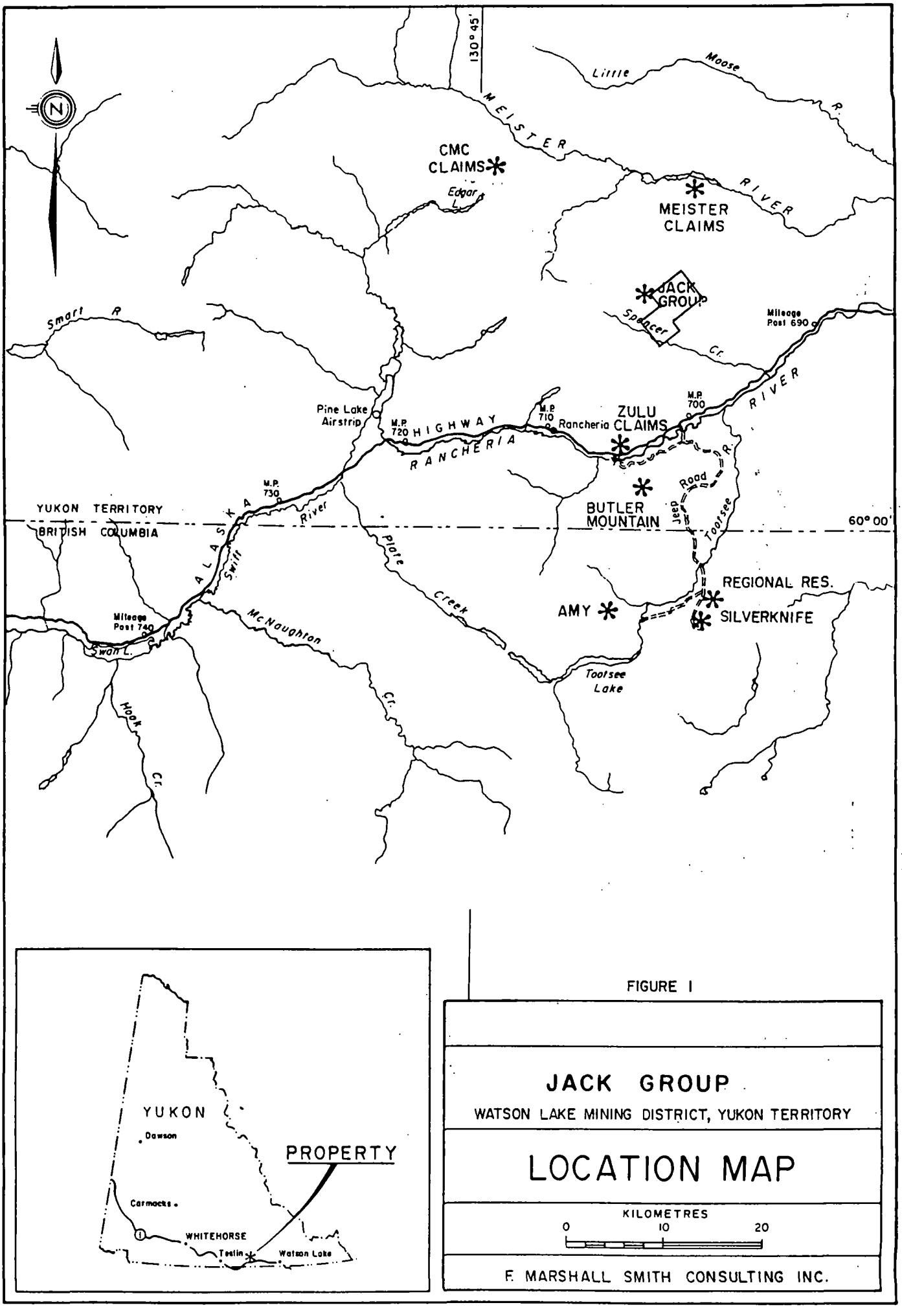


FIGURE 1

# JACK GROUP

WATSON LAKE MINING DISTRICT, YUKON TERRITORY

## LOCATION MAP

KILOMETRES

0 10 20

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Lead, zinc and silver mineralization was rediscovered on the property around 1966. The original owners constructed a bush road to the property, and hand and bulldozer trenched the showings on the western ridge, (Kodiak Showings). Minimal hand-mining of silver-bearing galena is purported to have occurred at this time.

The property was allowed to lapse, and in 1977 was restaked by Mr. Jack Trace of Whitehorse. He subsequently upgraded the bush road to 4-wheel drive standard. He also carried out some drilling, blasting, and bulldozing of trenches, and in one area hand mined approximately 3 tons of mineralized material.

In 1983, the property was optioned to Hardy International and a diamond drilling programme was carried out with a total of 7 holes drilled between September 15 and 21, 1983. These holes, spotted on the Dane claims, consisted of a total of 304.1 metres of NQ core. The results were not sufficiently encouraging, with core recovery too low to determine the grade of the narrow veins cut in the drilling, and Hardy consequently dropped the option.

Noteworthy in relation to the property's mineralization has been the definition of extensive high grade silver mineralization in vein systems 20 kilometres to the north by Silver Hart Mines (Hart property). This discovery lead to Claymore Resources acquiring an option to the Jack property in June of 1985.

Claymore conducted a programme of soil and stream geochemical sampling, with limited follow up trenching later in 1985. The results of this operation (Frew, 1986) indicated a number of areas with manganese mineralization in the sediments and associated elevated silver values in the soils. The only significant silver mineralization found was at the "Discovery Zone" on the western ridge of the property, where lenses of argentiferous galena were found along strike of the Jack Trace workings. In 1986, Pak-Man Resources Inc., and 2001 Resource Industries Ltd. each optioned 25% of the Jack property from Claymore.

## PHYSIOGRAPHY AND VEGETATION

The lower slopes and valleys are tree covered. The vegetation consists of sparse alpine, balsam and spruce to more thickly forested with scrub conifers, alder, and ground birch on hillsides. Alpine tundra is dominant above 1400 metres.

Most of the property has a thin to moderate covering of glacial overburden; however, this thickens considerably in the central valley areas.

The STR property is to the northeast of the Jack Group, and covers a large, northerly facing treed valley, and two northwesterly trending ridges.

PROPERTY

The property referred to as the Jack Group consists of 152 full and 7 fractional contiguous Yukon Quartz claims, all of which are in Watson Lake Mining District, on Map Sheet 105B/1. They are recorded as follows:

| CLAIMS | RECORD No. | RECORD DATE |
|---|---|---|
| STR 1-14 | YA99438-99451 | 1 Oct 1986 |
| STR 15-22 | YA99429-99436 | 29 Sept 1986 |
| STR 25-32 | YA99452-99459 | 1 Oct 1986 |
| STR 31-35 | YB00211-00215 | 30 April 1986 |

NB STR 31 & 32 have been used twice, with different grant numbers

| | | |
|---|---|---|
| Jack 1-61 | YA69999-70059 | 20 Dec 1984 |
| Jack 62-73 | YA70255-70266 | 20 Dec 1984 |
| Jack 78-79 | YA70269-70270 | 20 Dec 1984 |
| AG 1-32 | YA70579-70610 | 20 Dec 1984 |
| AG 33-37 Fr. | YA70611-70615 | 20 Dec 1984 |
| Val 1-2 Fr. | YA70202-70203 | 20 Dec 1984 |
| Dane 1-6 | YA34956-34961 | 20 Dec 1977 |
| Dane 7-8 | YA44267-44268 | 20 Dec 1977 |

## REGIONAL GEOLOGY

The regional geology is described in the Geological Survey of Canada publication Map 10-1960, Wolf Lake, Yukon Territory, Sheet 105B. The rocks underlying the area, in the vicinity of the Jack Group, belong to a Lower Cambrian age limestone, dolomite, slate and phyllite sequence (Unit 3, Figure 3). The mineralization, on the property, revealed by trenching and diamond drilling, occurs in this unit.

A small diorite stock possibly related to the Cassiar batholith outcrops to the north of the claims on the JACK-SR property boundary. To the east on the STR claims, Hibbing has reported a second similar small intrusive stock. The eastern edge of the batholith is less than one kilometre from the west of the claim block.

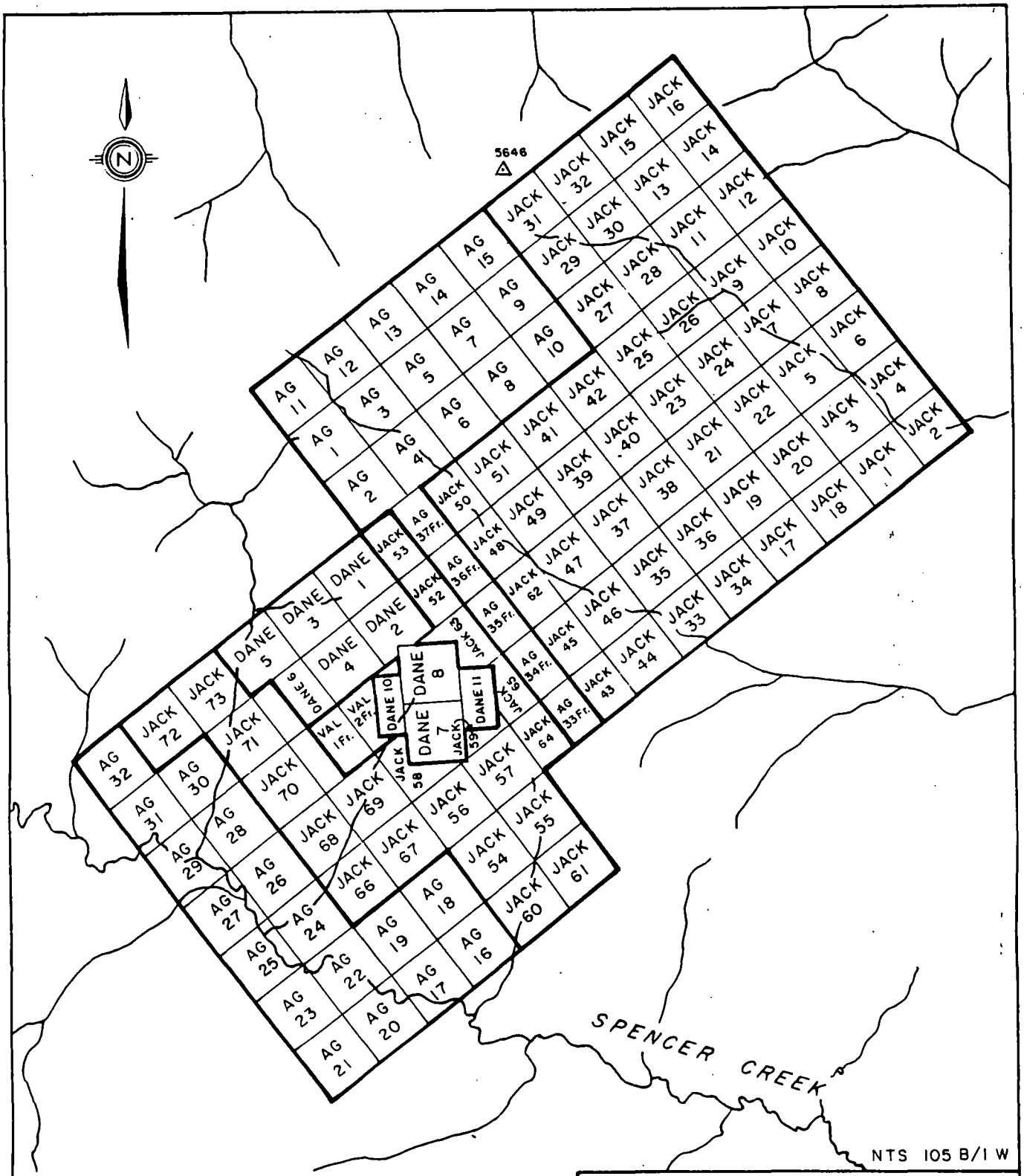
The regional structures show major transcurrent faults generally oriented in a northwest-southeast direction, with nearly isoclinal folds and numerous shears systems. Silver mineralization on surrounding properties tends to follow the northeast trending conjugate shear patterns related to this major fault system.

Mineralization at the Hart property lies within the Cassiar Batholith and Unit 1 (metamorphosed phyllites and limy sediments of Figure 3) adjacent to the Batholith. Unit 1, according to the Geological Survey mapping, is probably the equivalent of Unit 2. Detail mapping on the Hart and Oro properties indicates that the mineralized sedimentary units are the same lithology, with limestone hosting replacement zinc sulphides on both properties. This pattern is repeated on the Jack group.

The silver mineralization in the district occurs in shears and quartz veins cutting silicified schistose country rock, or sometimes the batholith itself. Massive to banded (rapid precipitation) galena is often present and associated with limonite and goethite in tear faults, and quartz veins up to 1 metre wide. Oxide material with boxwork textures after massive galena are abundant, and smithsonite is also common in the oxidized rubble outcroppings and in drill core.

Replacement mineralization occurs in limy horizons in all ages of sedimentary rocks, with dark sphalerite common and with lesser coarse galena containing low silver values (<2.5 ounces per ton or 86 grams per tonne silver).

The map shown in Figure 3 was completed by the Geological Survey as a very broad reconnaissance project and many changes of dates (ages of formations) have been proposed by recent investigations. Also the minor volcanic components within the sedimentary rocks were unrecognized by this early mapping.




NTS 105 B/1 W

# JACK GROUP

## CLAIM MAP

JACK 1-73, 78 & 79; DANE 1-11
AG 1-37; VAL Fr1 & VAL Fr. 2

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| Scale: As shown | Fig. No. 2 |
|---|---|
| Date: 25 10 1987 | |

Recent age dating and geochemical investigations indicate that Unit 1 (sedimentary suite) has anomalous values in lead, zinc, and silver. The margins of the Cretaceous age batholiths and outliers often contain sphalerite and galena replacement and/or skarn zones with low silver values. The north easterly striking conjugate faults host Eocene age dykes of andesite or aplite. Potassium-Argon dates from alteration around, and lead dates within veins usually give Eocene ages. The best grade of silver occurs in vein/faults near the contact of the Cretaceous age granite, either within the granite or within the adjacent sedimentary rocks.

The following description of the regional lithology and structural geology is condensed from a report by Lowey and Lowey, 1986.

## LITHOLOGY

The region around the property can be divided generally into three belts of diverse rock types:

1. Paleozoic sedimentary rocks of the Cassiar Platform underlie the property and the area to the east;

2. metamorphosed Carboniferous volcanic and sedimentary rocks of the Yukon Cataclastic Terrane underlie the area several kilometres to the west;

3. and Cretaceous plutonic rocks of the Cassiar Batholith underlie the area between these two belts.

Paleozoic strata includes:

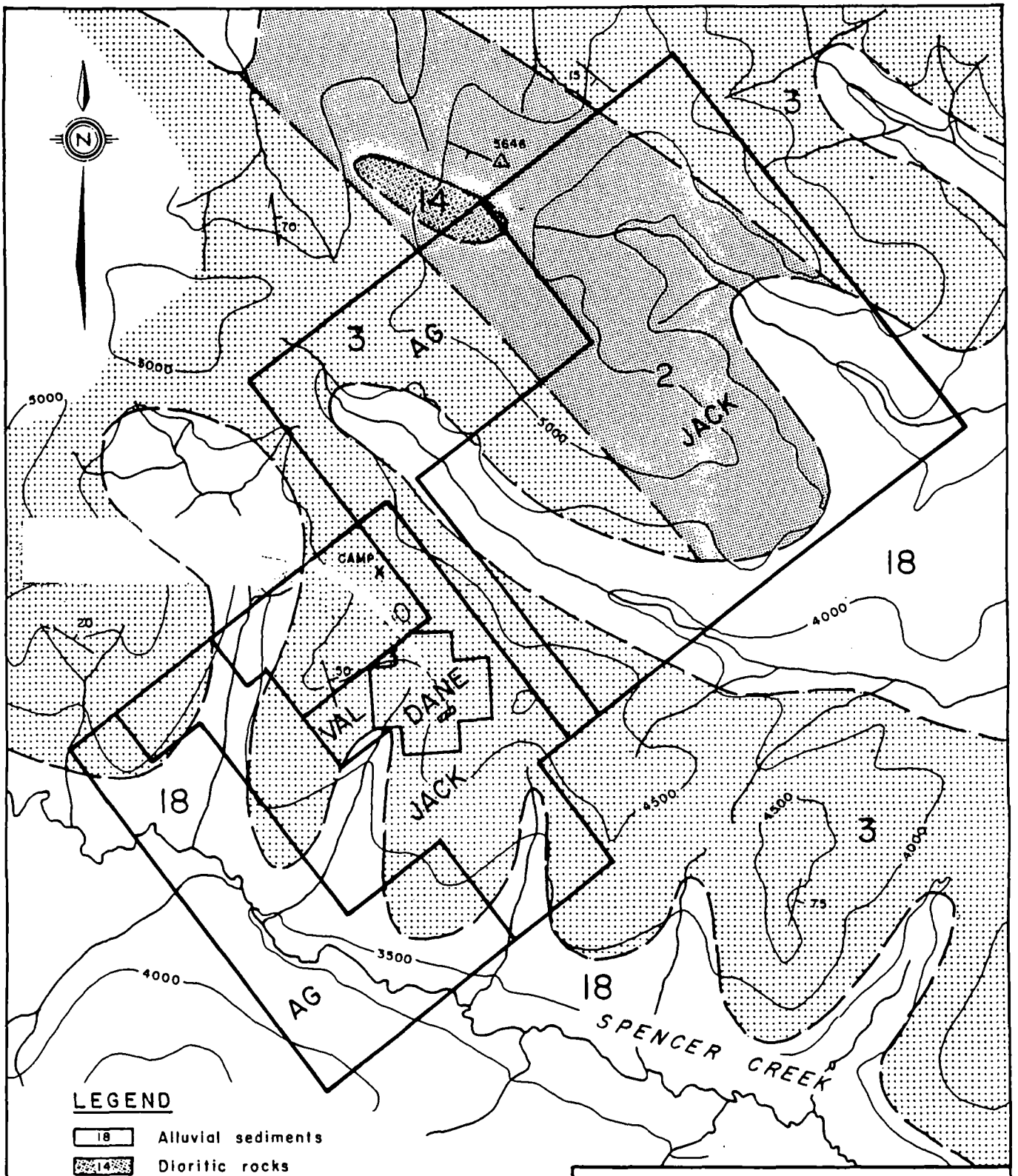
a) Cambrian quartzite, phyllite, interbedded limestone and phyllite, limestone and dolostone (Atan Group);

b) Cambro-Ordovician phyllite and hornfels (Kechika Group);

c) Siluro-Devonian dolostone, siltstone, quartzite and limestone (Sandpile Group);

d) Devonian limestone (McDame Group);

e) and Devono-Mississippian quartzite, metaconglomerate and phyllite (Earn Group).




# JACK GROUP

# PROPERTY GEOLOGY

Geology from G.S.C. Map 10 - 1960

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Scale: As shown

Fig. No. 3

Date: 25 10 1987

These sediments were deposited in a shallow, marginal marine basin on the western edge of North America.

Metamorphosed Carboniferous strata includes;

a) Mississippian andesite and intercalated chert (Sylvester Group)

b) and Mississippian-Pennsylvanian mylonite, quartzite and dolostone (unnamed unit).

These rocks were thrust over the Paleozoic strata in late Jurassic - Early Cretaceous time.

The Cassiar Batholith, consisting predominantly of granite and granodiorite, intruded both the Paleozoic and Carboniferous strata in early Cretaceous time.

Large scale movement on several right-lateral transcurrent faults (*i.e.* Tintina, Kechika and Cassiar) occurred during Late Cretaceous - Early Tertiary time and was followed by widespread emplacement of Tertiary dykes and veins.

## STRUCTURE

The regional structural trend in the area of the Jack property is northwest; similar to that throughout most of the Cordillera. Poole, et al (1960), recognized that the dominant structures are an anticlinal area occupied by the Cassiar Batholith that is flanked on either side by major northwest trending synclines. Lower Paleozoic strata to the southeast of the property were suggested by Poole, to be isoclinally folded, but the repetitive nature of the strata (i.e. alternating bands of quartzite and limestone), together with the absence of certain stratigraphic units, (i.e. phyllite, interbedded limestone and phyllite and dolostone), indicates that northeasterly directed imbricate thrust faulting may have occurred.

Three distinct phases of structures are recognized in the Rancheria area. The first phase (F1) includes bedding and slaty cleavage. The second phase (F2) trends northwest and includes crenulation cleavage and associated lineations and folds. The third phase (F3) is at approximately 90° to the second phase and trends easterly to northeasterly. It includes jointing and associated lineations and folds.

It has been suggested by Abbott (1984), after Gabrielse (1985), that the second and third phase structures are both related to the lateral transcurrent fault movement along the Kechika, Cassiar and Tintina fault zones. It is hypothesized that the stress field generated by these major faults could produce northwest trending "synthetic shears" (F2) and easterly to northeasterly trending "antithetic shears" (F3) as well as northerly trending extensional faults.

## REGIONAL MINERALIZATION

Several different types of mineral occurrences lie within the Rancheria district. These include quartz and carbonate veins containing galena, sphalerite, freibergite, tetrahedrite, pyrite and minor chalcopyrite in granite of the Cassiar Batholith, and in Lower Cambrian sediments; replacement type galena-sphalerite deposits with minor silver in the Lower Cambrian sediments; wolframite-cassiterite-bearing quartz veins in Lower Cambrian sediments; galena-sphalerite-bearing quartz veins in Carboniferous mylonite and quartzite; and tungsten-bearing skarns in roof pendants within the Cassiar Batholith.

Most of the silver-rich mineral occurrences in the district exhibit similar characteristics which suggest a common genesis. The presence of silver-lead-zinc mineralization in quartz and carbonate veins appears to be controlled by three parameters:

1. the presence of a group of rocks with relatively high background values in silver, lead and zinc (i.e. the Lower Cambrian sediments),

2. close proximity to the margin of the Cassiar Batholith,

3. northeast to east trending (F3) jointing and faulting accompanied by injection of hydrothermal solutions of approximately 50 Ma age.

A proposed genetic model for silver mineralization is as follows (after Boyle, 1965 and Lowey and Lowey, 1986):

a. Early Cretaceous intrusion of the Cassiar Batholith into the Lower Cambrian sediments which concentrates silver, lead and zinc along its margins (replacement-type deposits),

b. Late Cretaceous-Early Tertiary dextral movement on large transcurrent faults such as Tintina, Kechika and Cassiar Faults results in the development of a northeast to east trending fracture system,

c. Early Tertiary (50 Ma) volcanism and dyke emplacement related to transcurrent fault movement resulting in a rise of the geothermal gradient and convective heat flow,

d. Hydrothermal solutions migrate along the northeast to east trending fractures in the now enriched granites, and Lower Cambrian sediments and minerals precipitate in dilatant zones. Several phases of injection take place temporally related to the fracturing event and dyke emplacement.

Vein mineralogy typically consists of galena, sphalerite, and pyrite with lesser amounts of arsenopyrite, freibergite, tetrahedrite and chalcopyrite. The galena is bladed or very fine grained, and commonly dendritic, and occurs in parallel to oscillating bands of sulphide and gangue. Zinc is in bands only, with tetrahedrite; giving a common association of freibergite with galena, and tetrahedrite with sphalerite. The most common gangue minerals are quartz and siderite.

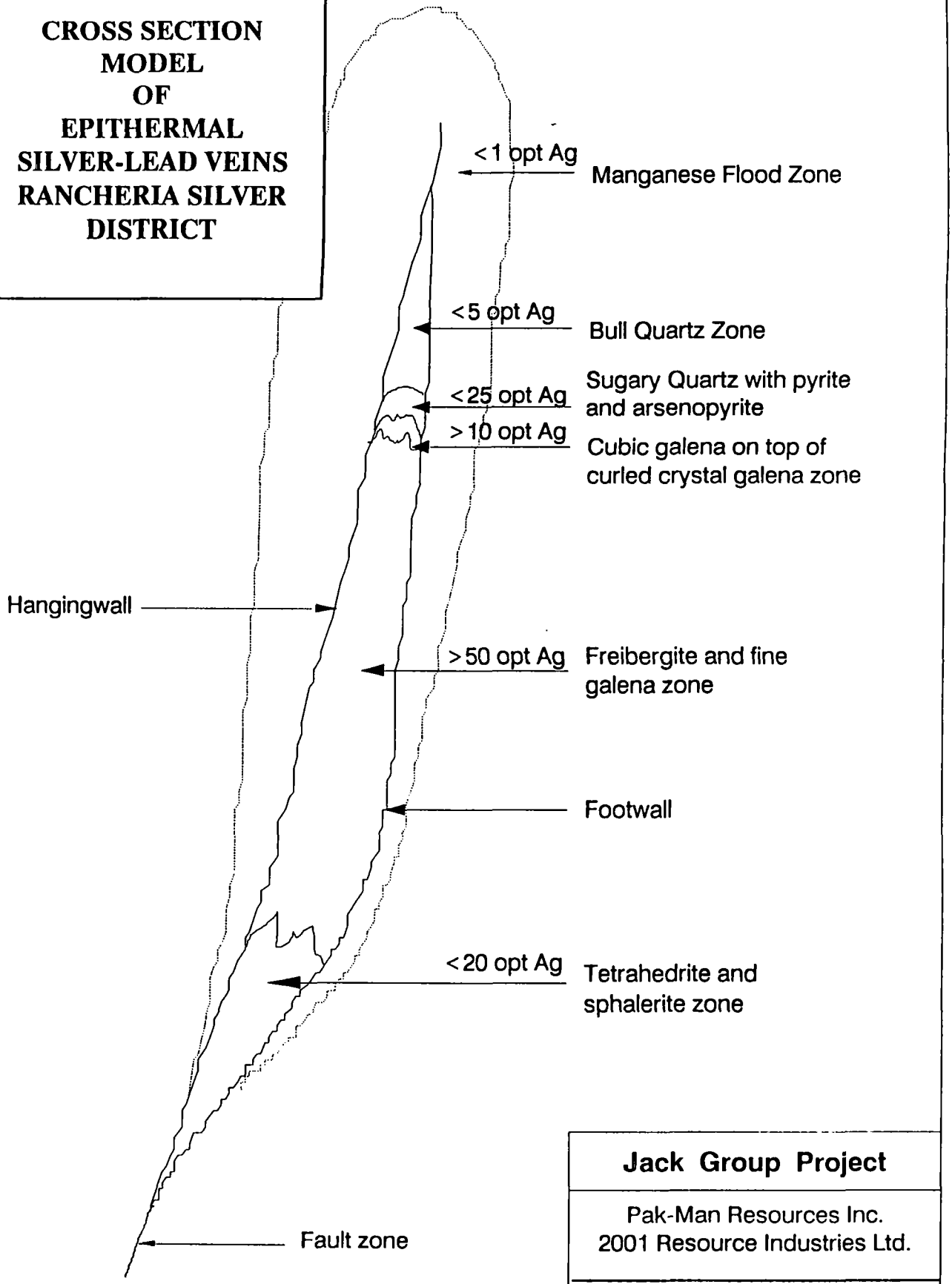
The vein-wallrock contact is generally sharp, indicating that the veins are fissure fillings. Alteration envelopes surrounding the veins range from nonexistent, to 30 metres wide, and are of the carbonate rich "epithermal" type. Veins are sometimes intimately associated with a dark green "andesitic" dyke which appears to have intruded along the fractures before, during and possibly after, the mineralized solutions. Weathered surfaces are almost always intensely manganese oxide stained, and retain only low silver values.

There is a clear vertical zonation to the known mineralization in the area and the veins on the Jack Group exhibit some of these characteristics. The upper portion of many veins consists of white to yellow-white massive quartz with ankerite in the set of fractures. Often these veins have extensive manganese alteration zones in the area if the wallrocks are carbonate rich. There is no distinctive weathering pattern except the quartz weathers to float and the vein carbonate and sheared wallrock weather to a draw or cut.

Appearing below the massive quartz are a series of fillings that do not all appear in each vein. The upper, and most common, is an horizon of fine to sugary quartz, usually stained brown, with some silver values, and containing pyrite, chalcopyrite and arsenic sulphide minerals. The arsenic sulphides weather to mimetite (apple green coloured) or scorodite (lemon-yellow coloured). This zone may be underlain by a zone rich in arsenopyrite or pyrite. The quartz zone usually grades 20 to 30 ounces per ton (686 to 1029 grams per tonne) silver but can grade as low as 5 ounces per ton (171 grams per tonne) in some veins. None of this material is well preserved by weathering. The arsenopyrite/pyrite zones tend to be well preserved in areas of carbonate wallrock.

Imposed below and intertongued with the above is an horizon of relatively cubic galena with coarse pyrite. This material also tends to be injected into the wallrock, both on thin veinlets and as masses of replacement zones. Associated with the replacement material, but uncommon in the vein, is fine grained black sphalerite (blackjack). This vein and replacement material seldom grades better than 10 ounces silver per ton (343 grams per tonne). This material almost always produces a dark chocolate brown weathered zone that yields coarse cubic galena shards. Weathering of this material is significantly less than the other galena zones.

# CROSS SECTION MODEL OF EPITHERMAL SILVER-LEAD VEINS RANCHERIA SILVER DISTRICT




**Jack Group Project**

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2001 Resource Industries Ltd.

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The next stage of filling consists of a distinctive zone of "curled crystal" galena. Galena tends to be coarse grained, but always has a curl to the lattice structure and a banding to the face of the coarse crystals. This material is usually only associated with quartz and carbonate and invariably grades better than 50 ounces per ton silver (1714 grams per tonne). This material weathers relatively easily to a red brown soil, but does not weather as deeply as the fine grained galena.

The main silver zone consists of layers or bands parallel to the footwall with the bands consisting of fine grained galena and/or freibergite (silver-rich antimony sulphide). The galena grains usually do not exceed 0.3 centimetres and the freibergite consists of a soft fine grey black sulphide. The bands may have brown quartz or ankerite bands between zones of sulphides. This material consistently grades better than 200 ounces silver per ton (6857 grams per tonne).

The main silver-bearing zone consistently weathers to a mixed banded yellow-orange (freibergite) and bright orange-brown (mixed fine grained galena and freibergite) with bands of chocolate brown and dark red-brown for the cubic and curled crystal galena on the footwall. These soil colours have been noted in all the silver-bearing veins in the Rancheria and Ketza (Ross River) districts.

Under the galena/freibergite zone is a filling of black sphalerite (blackjack) and tetrahedrite with minor chalcopyrite. This filling has a virtual "knife" edge contact with the galena/freibergite in the underground at the TM vein on the Hart property. The sphalerite rich zone seldom grades better than 20 ounces per ton silver (686 grams per tonne). This zone is difficult to recognize in the weathered material as it tends to weather the same as the cubic galena filling type. The coarse grained nature of the sphalerite does tend to preserve a few crystals in the weathered material. In deep trenching the cubic galena zone can be differentiated from the sphalerite zone.

To date, the discovery of sphalerite in excess of 3% of the vein filling or assays carrying +5% zinc, in fresh material, has meant the termination of the silver zone in the vein sampled and no further effort appears warranted in this structure near surface.

## PROPERTY GEOLOGY

The reconnaissance mapping/prospecting performed in 1985 through 1987 attempted to locate further zones of mineralization similar to the Jack Trace showings where the previous trenching had been tried.

The property is underlain by a series of calcareous phyllites, limestones and slates of Lower Cambrian age. Quartzite is present on the central ridge, as the eastern limb of a regional syncline. Younger, probably Eocene age, basic and felsic volcanic dykes intrude this sequence of rocks, usually in the northeasterly set of faults.

Polyphase deformation occurs throughout the general area with major faulting of varying ages and orientations occupying a dominant northeast-southwest trend.

Narrow quartz veins are seen at widely spaced locations throughout the property. Most are barren, white, massive bull-quartz, yet a few are coarsely crystalline milky quartz containing coarse grained galena which assays to ten ounces per ton silver (343 grams per tonne). These will probably be recommended for deeper drilling at a later date.

The dominant attitude of the sedimentary rocks is from 150° to 170° Azimuth with low dips to the east; steeper dips are present close to crests of folds. The attitude of the faults and dykes ranges between 040° and 070° Azimuth and are dipping steeply to vertical. Vertical drag folding along vein zones is evident on adjacent properties, and on the eastern side of the claim group there is evidence of block uplift controlled by the 050° faulting.

On the western ridge, in the 'camp' zone, calcareous phyllite and interbedded limestone of probable Lower Cambrian age, host several small (<2 centimetres) galena-bearing veins and stratabound lenses of sphalerite with galena and manganiferous siderite. Steeply dipping fractures and faults striking azimuth 35°-75° host veins throughout the area. The largest replacement zones and the widest veins are restricted to a 1000 square metre area around the open cut developed by Jack Trace.

The host rock in the area of the mineralization is cut by mafic dykes (about 1 metre wide) striking approximately 20° azimuth. These dykes may represent the 'heat engine' for the mineralization as they have been noted in the district both in the sedimentary rocks and in the Cassiar Batholith proximal to highgrade silver mineralization.

## MINERALIZATION

The mineralization in the area of trenching and drilling is virtually identical to that at the Hart Property, as reported by various engineers. The association of common features of the manganiferous alteration of the carbonates proximal to the vein, the sulphide replacement zones along faults, and the dark green dykes filling faults in the area of the mineralization, appears to be linked to the development of silver-bearing sulphide rich veins in the district.

The surface outcrop and trenches show massive sulphide mineralization in the limestone. There is some evidence of replacement textures in the sphalerite mineralization, indicating that the sulphides are after the limestone and related to the manganiferous alteration of the limestone. This view was proposed by Mr. Grant Abbott of the Department of Indian Affairs and Northern Development when he visited the Jack Group claims.

The oxidized zones related to the silver mineralization on the East ridge have been stripped, and range in width from 0.51 metres to 30 metres. They consist of iron and manganese oxides, intermixed with manganiferous silicified limestone and phyllite fragments, vuggy quartz veins and quartz fragments, varying sized fragments of altered dyke material, massive argentiferous galena nodules, galena veins and vein remnants and lead oxidation products.

Three galena mineralized veins are apparent. The most northerly vein has intermittent outcrop of coarse galena for 3 metres along the vein structure. The vein to the south shows scattered galena remnants to 25 centimetres wide in a gossanous orange to yellow-orange zone with evidence of weathered out stringers of galena mineralization in the permafrost filled clay.

Along the vein zones the iron oxides of goethite, limonite and hematite produce colours of various shades of brown, orange-yellow and black. The manganese oxides are mostly black sooty material and finely crystalline black and steel grey pyrolusite and psilomelane. Dendritic coatings on fracture surfaces are common. The galena is dominantly medium grained galena arcuate crystals with silver, probably as associated freibergite.

The oxidized zone is most often bounded by basic and felsic dykes. The dykes strike between 040° and 070° and occupy pre-existing sutures which have been reopened by later faulting. The later faults are either parallel or are cutting the dykes at low angles.

On fresh surfaces, the dykes are medium grey-green to dark green, medium to fine grained (almost aphanitic groundmass) containing phenocrysts of black-rimmed white feldspar, dark green to black pyroxene (or hornblende) and widely spaced 2 millimetre diameter quartz-eyes. Finely disseminated pyrite occurs in varying concentrations throughout most of the dykes.

Where fractured, faulted, or sheared, the dykes have been intensely altered. They have been extensively kaolinized, carbonitized, and leached. Sericitization is strong, but not in all dykes. Colours range from buff to orange-brown. Fracture surfaces are coated with dendritic manganese minerals and along the margins of the dykes, the limestone has been silicified and replaced by manganese.

## CONCLUSIONS

The Jack property has excellent potential for being developed into a significant silver deposit for several reasons.

1. The property is in a favourable geological environment. It is underlain by Lower Cambrian sediments along the eastern margin of the Cassiar Batholith which have undergone extensive shearing. These shear zones form excellent pathways for the movement and deposition of silver-rich solutions.

2. Significant silver mineralization (up to 89 ounce/ton silver) is present on the property filling dilatant shear zones.

3. The silver mineralization discovered on the Jack property conforms to the style of other properties in the Rancheria Silver Belt such as Silver Hart's CMC claims and Yukon Mineral Corporation's ORO property.

4. Access to the property is excellent, with the Alaska Highway 16 kilometres to the southeast along an easily upgraded gravel road.

The gossanous weathered vein materials discovered in the East ridge area of the Jack Group are the target for the proposed work plan, for the following reasons:

a. they fill a curled structure like the TM and KL zone at Silver Hart;

b. they are banded with various colours identical to the pattern and appearance at the HV property (Ross River area) of Yukon Minerals, the weathered surface at the TM and KL;

c. the gossanous zones contain small residual pieces of galena as was noted at the HV property and KL vein at the Hart property;

d. the strike of the vein is identical to the main silver-bearing veins at the Hart property to the northwest.

## RECOMMENDATIONS

The next stage of evaluation is to substantiate that the veins contain significant silver values across mineable widths. This stage of work must consist of two related and supportive phases.

The first phase of work is to drill test the depth extensions of the vein in an effort to substantiate that the vein is filled with galena and freibergite. The problem with drilling these types of veins is that recovery of the mineralized portion is particularly difficult and normally not adequate, to determine the grade of the mineralization. The freibergite in particular is too soft to core at all and tends to be washed out of the drill sample. The fine grained galena is too soft to core well and tends to be poorly returned in the core. The cubic and curled crystal galena fillings usually core better and are recovered to about 80% of the interval. The sphalerite and quartz zones core very well and report +95% to the core.

This problem is well known by United Keno Hill Mines, to the north at Elsa, Yukon, where they seldom get more than three holes of ten drilled in an ore shoot to indicate the ore zone, and each of the three holes severely understate the average grade of the shoot.

At the Hart property one of the drill holes showed galena, had 60% core recovery, carried 23 ounces per ton silver (789 grams per tonne) over 8 feet (2.4 metres), and was 25 feet (7.6 metres) from a raise which graded 195 ounces per ton (6686 grams per tonne) silver.

Thus drilling must be carried out in an effort to locate a galena rich filling zone assuming that core recovery will understate the grade. This will create significant problems for the companies if the grade is not determined by underground sampling.

Thus, Phase Two should consist of driving an adit on a level below the weathered horizon to determine the grade and character (dilution, variation of thickness and grade along strike, mining method etc.) of the zones of interest. This phase of work will only be initiated if the drilling indicates that there is galena in the vein in the area to be explored.

## BUDGET

A budget and detail work plan are being prepared by Mr. Alex Burton, P.Eng. (geology) and Mr. Archie McCutcheon, P.Eng. (mining). Due to the writer's interest in the companies a recommendation with respect to budget and detail programme would not be appropriate.

# CERTIFICATE

I, F. Marshall Smith, do hereby certify that:

1. I am a consulting geologist and geochemist with offices at 6580 Mayflower Drive Richmond, British Columbia.

2. I am a graduate at the University of Toronto with a degree of B.Sc., Honors Geology.

3. I am a member in good standing of the Association of Professional Engineers of the Province of British Columbia.

4. I have practiced my profession continuously since 1967.

5. This report is based on reports by Professional Engineers and others working for the present and past owners and operators of the property, and personal examinations of the claims in 1983, 1984, 1985, 1986, and 1987. I have recommended and in part supervised most of the work performed on the property during the last 5 years.

6. I have been a director (to August 1987, of both Companies) and retain a small share position (escrow) in both Pak-Man Resources Inc. and 2001 Resource Industries Ltd.

F. Marshall Smith, P.Eng.
November 5, 1987

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FIRST YUKON SILVER RESOURCES

EIP88-022

**REPORT**

on the

**SWIFT RIVER PROPERTY**
Watson Lake Mining District, Rancheria Area,
Yukon Territory

Latitude 60° 08'N
Longitude 131° 02'W
N.T.S. 105B/3

for

**FIRST YUKON SILVER RESOURCES INC.,**
26th floor - 1177 West Hastings Street,
Vancouver, B.C. V6E 2K3

by

**ALEX BURTON, P. ENG.,**
**BURTON CONSULTING INC.,**
901 - 626 West Pender Street,
Vancouver, B.C. V6B 1V9

With results of 1988 work
conducted by
Douglas Schellenberg, B.Sc., Geologist

**JANUARY 10, 1989**

**BURTON CONSULTING INC.**

**TABLE OF CONTENTS**

## INTRODUCTION

The Swift River Property was explored extensively during the 1960 and 1970's primarily by Boswell River Mines Ltd. At that time most of the exploration on this property was based on the concept of finding another Faro-type base metal deposit. There are massive and disseminated deposits of magnetite plus pyrite with associated sphalerite, chalcopyrite and traces of galena. Sphalerite rich, massive to disseminated pyrrhotite beds or bands occur primarily along the northern boundary of the claim block and are the closest to a Faro-type. Other areas have a higher galena content with silver ratios ranging from 1/2 - one - two.

There have been at least two sets of airborne geophysics flown on the property as well as some ground geophysics. There were about 1/2 dozen grids cut over each individual section of the property. Geochemistry in the form of stream silt and soil grid samples were completed. There was considerable bulldozer trenching and several diamond drill holes.

There is the potential for large low-grade zinc deposits, for zinc, lead and copper deposits, and maybe for silver-lead-zinc deposits as a result of the previous exploration work. There were few if any assays for gold, and the potential for significant gold values at todays price of gold has never been explored.

The previous work has been reviewed at the request of First Yukon Silver Resources Inc. who staked the property. Mr. Tim Liverton, Geologist for First Yukon Silver Resources Inc. has visited the property several times and has seen the drill site and the drill core. Mr. Alex Burton, P. Eng. has reviewed all the previous exploration data and had discussions regarding the property with Mr. Liverton and geologist, Mr. Douglas Schellenberg, who has been on the property several times and did the 1988 exploration program. A program of exploration for precious and base metals has been recommended and a budget prepared.

## PROPERTY

The property originally consisted of four contiguous claim blocks, transferred on January 21, 1988 to First Yukon Silver Resources Inc. The Dan 1 - 64 and Dan 65 - 122 were staked during the 1988 exploration program to cover interesting exposed mineralization.

| NAME | CLAIM TAG NOS. |
|---|---|
| KEY 1 - 30 | YB09486 - YB09515 |
| PARK 1 - 64 | YB09516 - YB98579 |
| LAKE 1 - 52 | YB09580 - YB09631 |
| PINE 1 - 36 | YB09632 - YB09667 |
| DAN 1 - 64 | YB14428 - YB14491 |
| DAN 65 - 122 | YB14494 - YB14551 |

## LOCATION AND ACCESS

The property is in the Watson Lake Mining District, Rancheria Area, Yukon Territory. Latitude is 60° 08'N and longitude 131° 02'W with N.T.S. 105B/3.

The property is about 130 km. (80 miles) west of Watson Lake, Yukon Territory. Access is by the gravel Pine Lake Road which starts at Mile Post 722 on the Alaska Highway. About 6 km. north on the Pine Lake Road, there is a turnoff to the west along the Crescent Lake Valley Road for about 15 km. to the camp. There is a net work of bulldozer access roads on the property, and a series of cut baselines and crosslines.

## HISTORY

Prospectors working for Hudson Bay Mining & Smelting Company discovered the original massive sulphide showings in 1946. By 1952 some drilling had been done and in 1964 some trenching. The Geological Survey of Canada mapped the geology and flew that map sheet with airborne magnetics between 1951 and 1961. In 1966 Boswell River Mines Ltd. staked the original showings and by 1968 had staked more claims to cover additional occurrences. On and off other companies and individual prospectors have staked adjacent claims, but the major explorer of the area was Boswell River Mines Ltd.

They cut baselines, mapped, prospected, did stream and soil geochemistry and then some bulldozer road and trenching work. In March, 1968 they had Waterton Aeronautics and Explorations Ltd. use a fixed wing aircraft to fly the property for magnetics, radiation and electromagnetic surveys. In 1968 they mounted a major exploration program and produced a geochemical, geophysical and physical report on the Burnt Hill, Dan, Central Valley, Drumlin Valley, Crescent Valley, Mod, Rusty Valley and Rex areas.

Work on all these areas totalled 49,000 feet of road, 310,500 feet of line cutting, 28 trenches, 136 geochemical stream silt samples, 556 geochemical soil samples, 77,300 feet of I.P. geophysics, 47,650 feet of EM-16 geophysics, 7 Winkie diamond drill holes totalling 283 feet and 12 diamond drill holes of AQ size totalling 3,983 feet.

During 1970 MacDonald Consultants Ltd. supervised the exploration work on the property, which consisted of line cutting, ground magnetometer surveys, trenching, diamond drilling, and a helicopter-borne electromagnetic and magnetometer survey. Early in 1971 a ground Turam electromagnetic survey was completed. With changing market conditions interest waned, the claims lapsed, and eventually were restaked by First Yukon Silver Resources Inc.

## GEOLOGY

The Geological Survey of Canada Map 10-1960 covers the Wolf Lake Map Sheet Area. Open File 1986-1 produced by Indian and Northern Affairs Canada, Yukon Region has mapped the Daughney Lake (105B/2) Area. The Daughney Lake Map is just east of the property.

The Cassiar Fault which is a major regional tectonic structure passes just north of the property and forms the southern boundary of the Cretaceous Cassiar Batholith.

South of the fault there is a band of Cambrian and Ordovician sediments that trend in a NNW direction. These Cambrian and Ordovician sediments are succeeded to the south by Mississippian and Pennsylvanian sediments separated by a thrust fault.

The Cambrian sediments consist of carbonates interbedded limestone and phyllite, limestone, dolostone, marble and minor schist. The next band of sediments to the south consists of Cambrian and Ordovician, phyllite, hornfels and minor limestone. South of the thrust fault the Mississippian and Pennsylvanian sediments consist of unsubdivided mylonite, breccia, quartzite and dolostone. Two prominent stocks of diorite are reported on the property.

**MINERALIZATION - General Description**

Massive to disseminated apparently strata bound bands of pyrrhotite with pyrite, magnetite, sphalerite, plus minor galena and silver are the most common type of mineralization. On the northern portion of the property the sphalerite content of the sulphide bands becomes significant. This represents a resource that might in the future become economic reserves for a low grade large tonnage zinc deposit. In the main body of the property in slightly different rock types and structural conditions which include folding, more galena and silver are found in the massive sulphide bands. Some of these areas have been explored by diamond drilling and it has been established that the silver to lead ratio is about one to one.

There is no record of any attempt to systematically sample for gold content in any of the mineralization styles. The Carlick Property to the south was staked for placer gold. It lies along the Cassiar fault, a possible source of the gold. Placer gold is also known at Rudy Lake to the north. There are many quartz veins on the claims, anomalous amounts of copper and arsenic in the soils, and remobilization of the Sylvester greenstone rocks. The government geochemical drainage survey shows a high background for gold. All these features are suggestive for gold mineralization on the property.

**MINERALIZATION - Detailed Description**

**CRESCENT LAKE AREA** (Grid 2)

At the northwest end of the grid mineralization has been discovered close to a diorite contact. Skarn type mineralogy has been reported, but it could be metamorphosed stratiform mineralization.

At the eastern end of the grid in the Gossan Lake Zone, copper-zinc soil anomalies were discovered downslope from float of gossan carrying pyrrhotite and sphalerite. Half a kilometre to the east of this gossan sphalerite and chalcopyrite were found in float and are presumed to be roughly in the same stratigraphic position.

1988 TRENCHING CRESCENT LAKE AREA

Trenches #4 and #5: (Crescent Lake trenches, 1988)

Reference Map 2 (Description by Douglas Schellenberg)

Pyrrhotite magnetite mineralization was first discovered at this site when a road was cut by Boswell River Mines in 1970. The showing was extensively trenched by First Yukon Silver in August, 1988. The lower trench crossed approximately 200 feet of massive and disseminated magnetite in green argillite. Pyrrhotite occurred as fine grained massive lenses three to four feet wide. Ten 20 foot chip samples were taken from east to west across the zone. The highest zinc assay was 1.54% zinc in sample #2. The second trench, parallel to the first, approximately 100 feet

upslope, encountered similar mineralization. The zone remains open in all directions.

**DAN GRID** (Grid O)

A zinc-lead soil anomaly was discovered at the extreme southwest end of the grid. A further strong zinc-lead anomalous zone was defined at the centre of the grid with a weak copper zone to the east. Hydromorphic sediment copper (240 ppm) anomalies were found in the main creek to the north of the grid. Trenching was carried out on this grid and assay results of 0.07% Cu, 3.9% Zn over 15 feet, and 0.1% Cu with 17.1% Zn over 8 feet were reported.

1988 TRENCHING RESULTS, DAN GRID

Trenches 1, 2 and 3 (Described by Douglas Schellenberg)

The old trenches were re-examined by the author (Douglas Schellenberg) and two feet of zinc pyrrhotite mineralization was observed at Sevensma's sample site #8083. No other outcrop was exposed in trenches to the northwest. These trenches predate Boswell's work in the area and were done by either Hudson Bay Mining in the late 1940's or by W. McKinnon in 1964.

Further trenching at the 2' outcrop (sample site #8083) showed the mineralization to be much wider than originally assumed by Sevensma. A massive sulphide sphalerite pyrrhotite lens with a true width of 10' and grading 13.2%

zinc was exposed. The exposed outcrop was a smooth glacially scoured surface with a typical orange-brown zinc oxide veneer. Ten one foot chip samples were taken from north to south (Sample #S1-S10) across the zone. Samples S1-S8 were chipped with difficulty from the smooth oxidized surface. A large open fracture crosscutting the lens for the final two feet allowed for fresh material in Samples S9 and S10. Sample S9 assayed 26.25% zinc and S10 assayed 28.80% zinc, suggesting that the overall grade of this zone maybe much higher than 13.2% zinc. Sample #8084 (Sevensma, 1966) taken approximately 200 feet N.W. and on strike, assayed 10.0% zinc across 7 feet. This area is important and will require considerable trenching and blasting to get fresh rock for sampling.

**BURNT HILLS AREA** (South of Dan Grid)

A broad zone of stream zinc anomalies (streams 4 and 5) occurs in an area of glacial cover. The positioning of anomalies is suggestive of the along strike extension of the same stratigraphic horizon.

Trench #6 (Park #64 - on banks of Swift River

(Described by Douglas Schellenberg)

The area excavated lies directly east of the Teslin suture in a sheered zone of predominately carbonate sediments of the Cassiar platform. The sheer zone is vertical and strikes north 10° east, producing a prominent depression to

the north. The 80 foot wide excavated zone displayed a number of phases of quartz calcite flooding. Mineralization consisted of pyrite and marcasite with the highest concentration in the calcite. Samples from this zone will be assayed for gold during the 1989 program.

ROADWORK: 1988 - (Location #9) Reference Map 2

(Described by Douglas Schellenberg)

Road reconstruction was required at this location to allow access by semi-trailer truck to enable the setting up of camp.

**GEOPHYSICS**

On a property scale the geophysics accurately reflects the basement geology. Within each rock division electromagnetic geophysics generally reflects the more conductive bands which are primarily the graphitic horizons and the sulphide horizons. There is considerable difficulty in ascribing an anomaly to sulphide mineralization alone. Nonetheless, there are several electromagnetic anomalies that have significant sulphide signatures and are worth following up.

Magnetics reflect the magnetite and pyrrhotite rich sulphide bands.

There are coincident magnetic and electromagnetic anomalies over geochemical anomalous zones on the Dan Grid.

North of the Swift River and well to the east of the Burnt Hills area in the northeastern corner of the claims there are some geophysical anomalies. There is a strong magnetic airborne anomaly that shows up on the government geophysics. Fominoff and Baird report nine Turam ground electromagnetic anomalies, some with ground magnetic correlation. It appears that there was no follow-up on this survey. Although Boswell might have drilled two or three holes in this area as one of their last activities in 1971.

## CONCLUSIONS

Gossan float and mineralized outcrops plus geochemical anomalies occur along a 20,000 foot stratigraphic succession. There is one zinc rich stratigraphic zone on the north and a double, or even triple, zone to the south. The stream geochemical anomalies extend the zone another 10,000 feet.

Historical assays range from trace to 28.8% zinc with some copper and lead. As far as known, no assays were run for gold, although there were some for silver. The gold content remains undetermined. This type of stratabound massive sulphide horizon is permissive for gold as well as base metal mineralization and should be tested with an exploration program.

Assays from 1966 in the Dan Trenching had a high of 10% zinc. The 1988 extension of the trench had a wider zone of mineralization and up to 28.8% zinc in fresher rock.

**RECOMMENDATIONS**

1. Existing lines on the Crescent Lake and Dan grids should be re-cut, and new lines cut between them, to reduce the spacing to 200 feet.

2. A complete and more detailed stream drainage geochemical program should be completed, both for silts and a heavy element sampling program for gold.

3. Soil samples should be taken at 100 foot intervals along the new grid lines.

4. A magnetometer survey is required on the new grid.

5. Geological mapping will be required for control during all the phases.

6. Trenching.

   (a) As soon as convenient trenching can be continued on Trenches No. 1, No. 4, and No. 5, as well as Locations No. 7 and No. 8.

   (b) Further trenching will be required in areas indicated by the combination of magnetics, geochemistry, and geology.

   (c) Drilling and blasting will be required in Trenches showing bedrock mineralization to obtain true grades.

7. Diamond drilling will be required to test the mineralized zones at depth and along strike.

8. A further extensive drilling program will be required to complete the drilling along the exceptionally long strike lengths of the mineralized bands.

**BUDGET**

NOTE: An exploration program was conducted during 1988 by First Yukon Silver Resources Inc. on the property. Total expenditures for this program were $40,752.25.

| | | |
|---|---|---|
| Stages 1 - 6 as described in the recommendations | | $ 75,000.00 |
| Stage 7 - as described in the recommendations | | 50,000.00 |
| | Total | $125,000.00 |
| Stage 8 - as described in the recommendations | | |
| Stage 8 will require a recommendation by a Professional Engineer before proceeding | | |
| Diamond drilling | | $375,000.00 |

ALEX BURTON, P. Eng.
Consulting Geologist

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## CERTIFICATE

I, ALEX BURTON, P. Eng., Consulting Geologist, with offices at 901 - 626 West Pender Street, Vancouver, B.C., V6B 1V9, am a graduate geologist from the University of British Columbia.

I am a registered Professional Engineer #6262 with the Association of Professional Engineers of B.C. I am a geochemist and a member of the Association of Exploration Geochemists. I am a Fellow of the Geological Association of Canada. I am also a member of the C.I.M.M., B.C. & Y.T. Chamber of Mines and A.G.I.D.

I have practiced my profession for many years in senior positions with major mining companies and as an independent consultant.

I have not visited the Swift River Property, but am familiar with the District and have reviewed all the data with Tim Liverton and Doug Schellenberg who have worked on the property.

I have no personal interst in the property of FIRST YUKON SILVER RESOURCES INC. nor do I expect to receive directly or indirectly any interest in such property or securities. I consent to the use of this report or any part thereof, or any summary thereof by FIRST YUKON SILVER RESOURCES INC. in a prospectus or Statement of Material Facts as required by the regulatory authorities provided, however, that no portion may be used out of context in such manner as to convey a meaning differing from that set out in the whole.

Dated this 10th day of January, 1989 in Vancouver, B.C.

ALEX BURTON, P. Eng.
Consulting Geologist

## STATEMENT OF QUALIFICATIONS

I, TIMOTHY LIVERTON, graduated from the University of Sydney with a B.Sc. Degree in Geology and Geophysics in 1965. Between 1965 and 1980 I was employed by several consulting, Mineral exploration and Mining Companies as a geologist and worked on a wide variety of projects in Australia, Canada, the U.S.A., Brazil, Norway, Portugal and the United Kingdom.

Since 1980, I have been self-employed, carrying out geological, geophysical and surveying work on mineral properties in the Yukon, Northern B.C. and the N.W.T.

The Rancheria area is familiar to me and I have worked on several properties in the area. The Swift River and Spencer Creek Properties held by First Yukon Silver Resources Inc. have been examined by me on many occasions between 1977 and October, 1987.

I do not hold any shares in FIRST YUKON SILVER RESOURCES INC., neither do I expect to receive any interest in the Company. This report and my name as co-author may be used in a prospectus of FIRST YUKON SILVER RESOURCES INC.

Dated this 26th day of December, 1988 in Vancouver, B.C.

TIMOTHY LIVERTON, Geologist
Tarmachan Exploration Services Ltd.
Box 529, Watson Lake, Yukon

**STATEMENT OF QUALIFICATIONS**

I, Douglas Schellenberg, with a business address of Suite 2601 - 1177 West Hastings Street, Vancouver, B.C., do hereby certify that:

1) I am a consulting geologist;

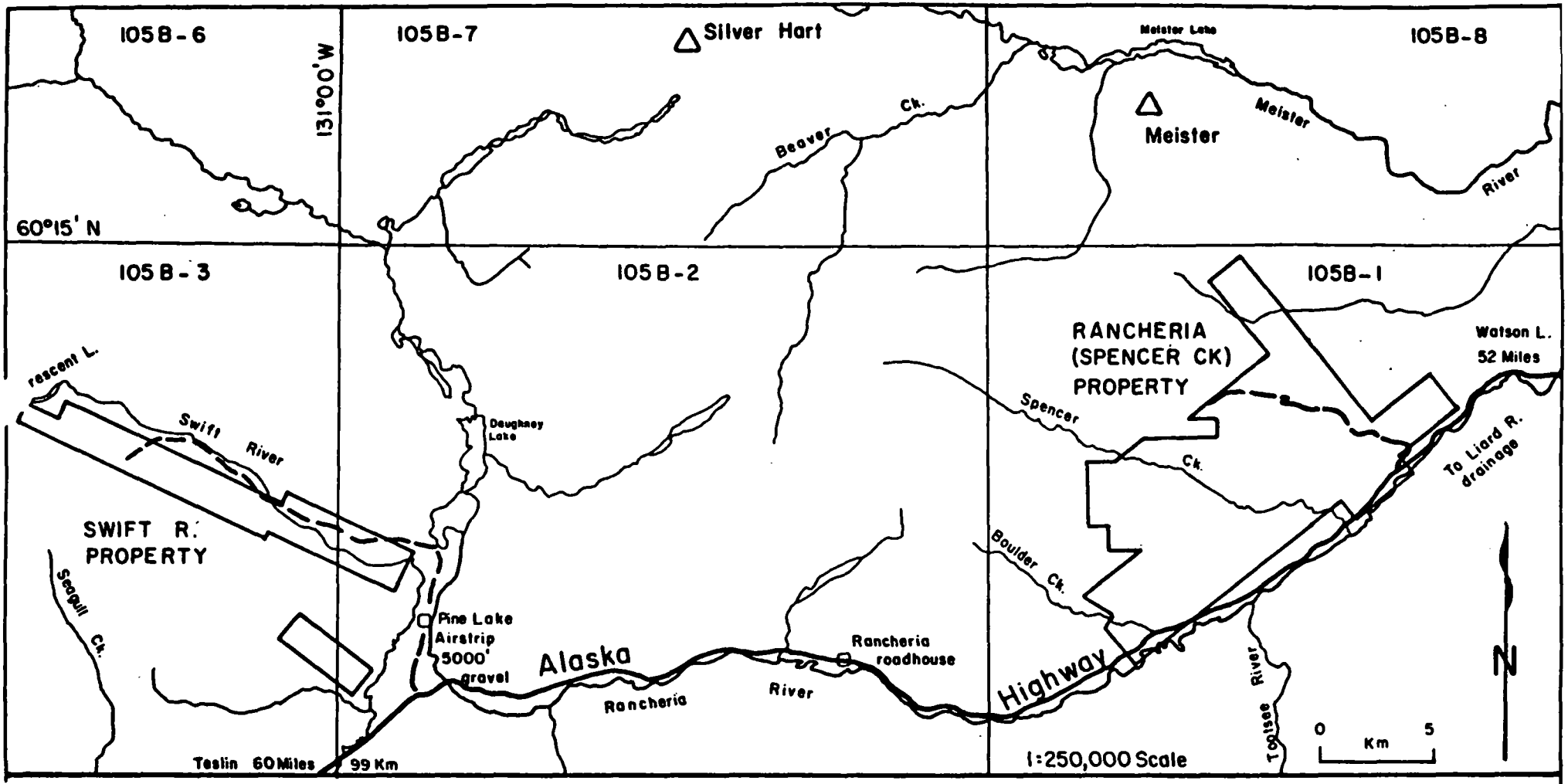
2) I am a graduate of the Colorado School of Mines and obtained a Bachelor of Science degree in Geological Engineering in 1973;

3) I have supervised the sampling for the 1988 exploration program on the Swift River Property for First Yukon Silver Resources Inc.;

4) I am the President, Director and a shareholder of First Yukon Silver Resources Inc.

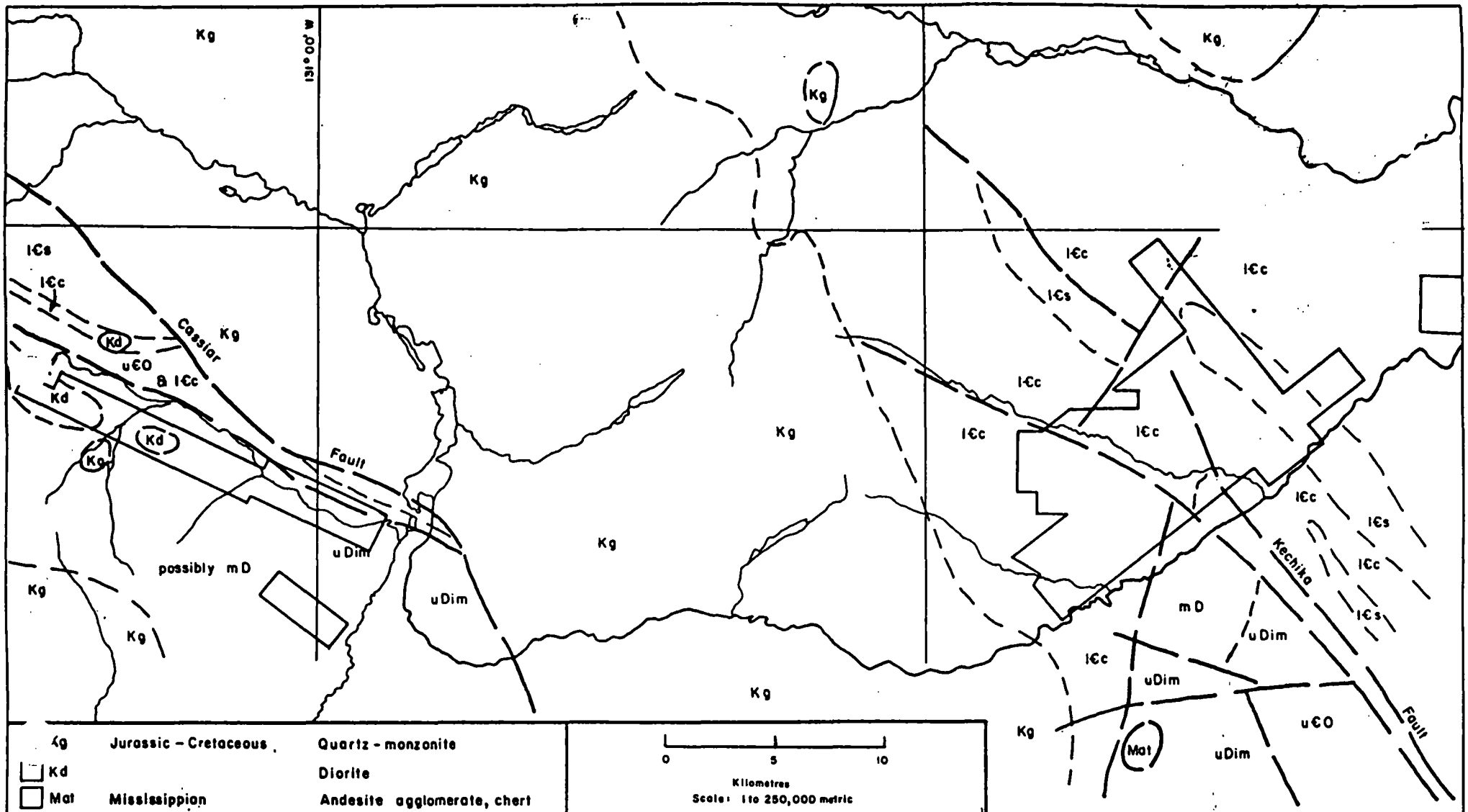
Respectfully submitted,

D. Schellenberg, B.Sc.
November 20, 1988




First Yukon Silver Resources Inc.

# SWIFT RIVER AND RANCHERIA PROSPECTS, YUKON
## LOCATION AND ACCESS FROM ALASKA HIGHWAY




| | | |
|---|---|---|
| Kg | Jurassic – Cretaceous | Quartz - monzonite |
| Kd | | Diorite |
| Mat | Mississippian | Andesite agglomerate, chert |
| uDim | Devonian - Mississippian | Quartzite, phyllite |
| mD | Devonian | Limestone |
| uCO | Cambrian - Ordovician | Phyllite, hornfels |
| lCc | Cambrian | Dolostone, limestone |
| lCs | " | Siliciastics: phyllite, quartzite |

Geology from Roddick & Green (1959), Lowey & Lowey (1986)

0 5 10

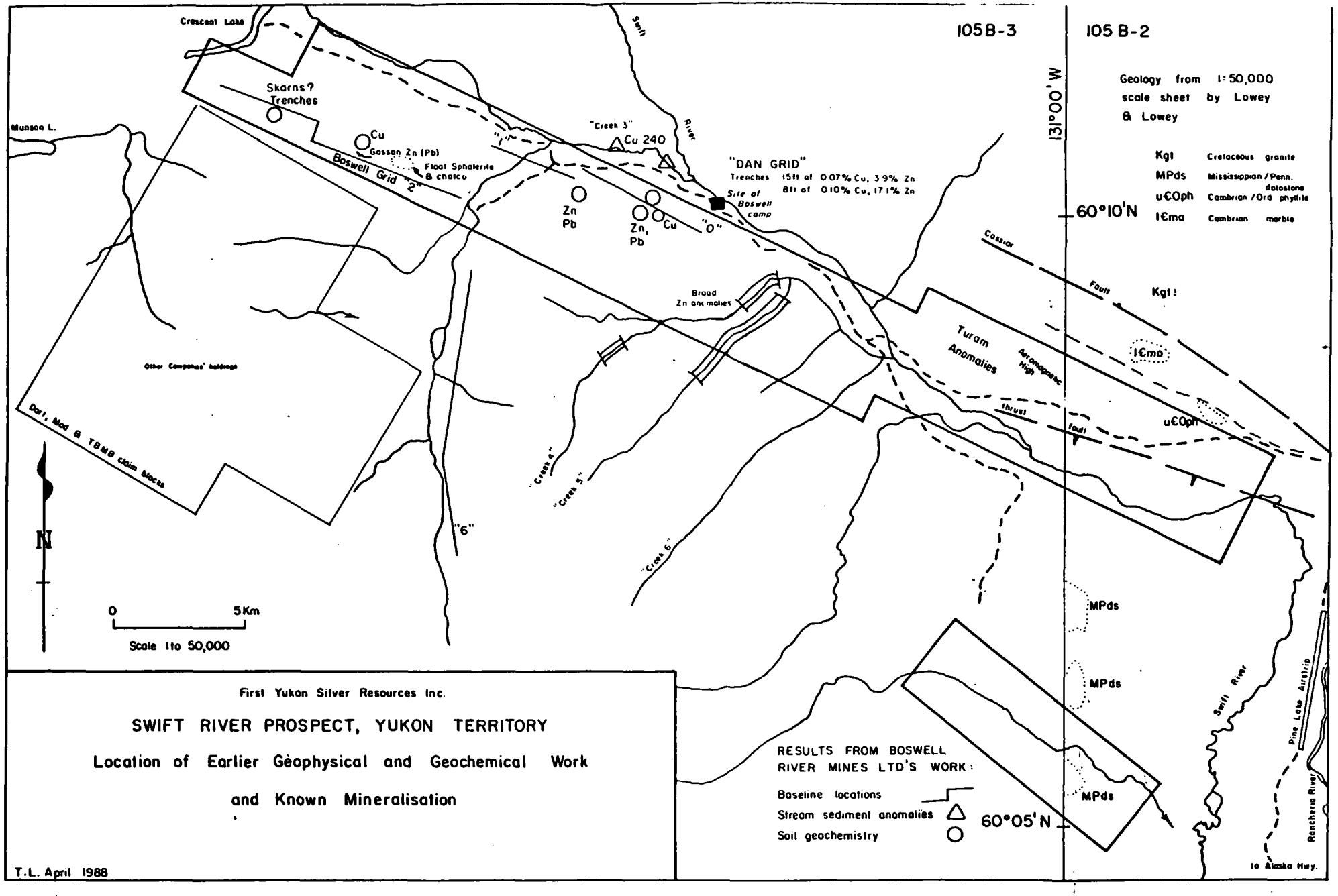
Kilometres

Scale: 1 to 250,000 metric

First Yukon Silver Resources Inc.

# SWIFT RIVER AND RANCHERIA PROSPECTS, YUKON
## REGIONAL GEOLOGY AND LOCATION

T.L. April 1988

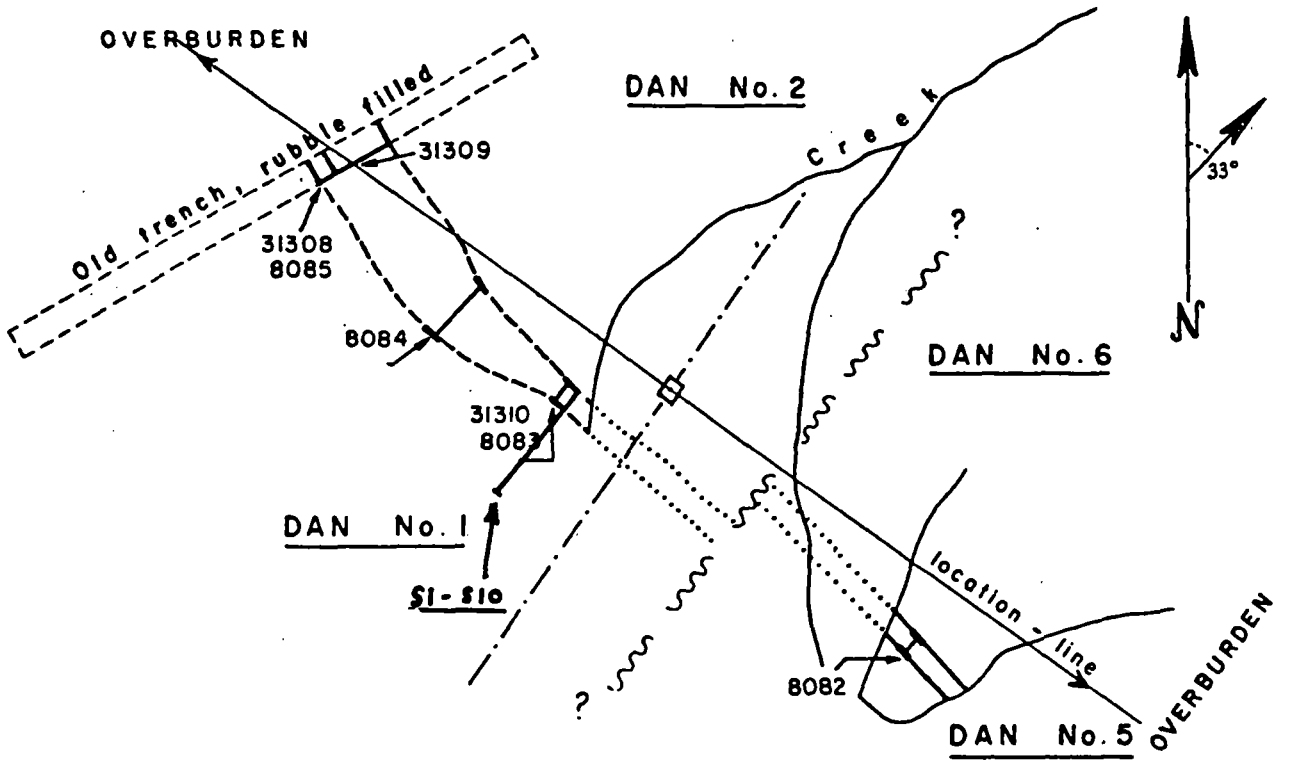



First Yukon Silver Resources Inc.

# SWIFT RIVER PROSPECT, YUKON TERRITORY

## Location of Earlier Geophysical and Geochemical Work and Known Mineralisation

T.L. April 1988




| | | Width | Ag | Pb | Zn | Cu | |
|---|---|---|---|---|---|---|---|
| 8082 | Main showing | 2' | Tr. | Tr. | Tr. | Tr. | |
| 8083 | | 2' | Tr. | Tr. | 8.8 | Tr. | |
| 31310 | | 20" | .12 | nil | 3.0 | nil | |
| 8084 | | 7' | .20 | Tr. | 10.0 | Tr. | |
| 8085 | | 2' | Tr. | Tr. | 6.1 | Tr. | |
| 31308 | | 2' | .08 | nil | 1.6 | nil | |
| 31309 | | 6' | .54 | nil | 6.1 | nil | |
| 8086 | Trench 4 | Float? | Tr. | Tr. | 3.6 | Tr. | |
| 31311 | | Float? | 1.50 | 0.5 | 2.8 | nil | |

* Trench 4 is about 700' due East from the Main showing.

31308 - 311 Samples taken JUNE 24, 1962
8082 - 8086 " " JULY 22, 1966

## *LOCATION OF SAMPLES S1-S10 - 1988 PROGRAM*

for

**FIRST YUKON SILVER RESOURCES INC.**

December 1988

By:
*Douglas Schellenberg*

Based on a map made for:
*Boswell River Mines Ltd.*

BOSWELL RIVER MINES LTD.

DAN GROUP of CLAIMS.

105-B-3 WATSON LAKE M.D. Y.T.

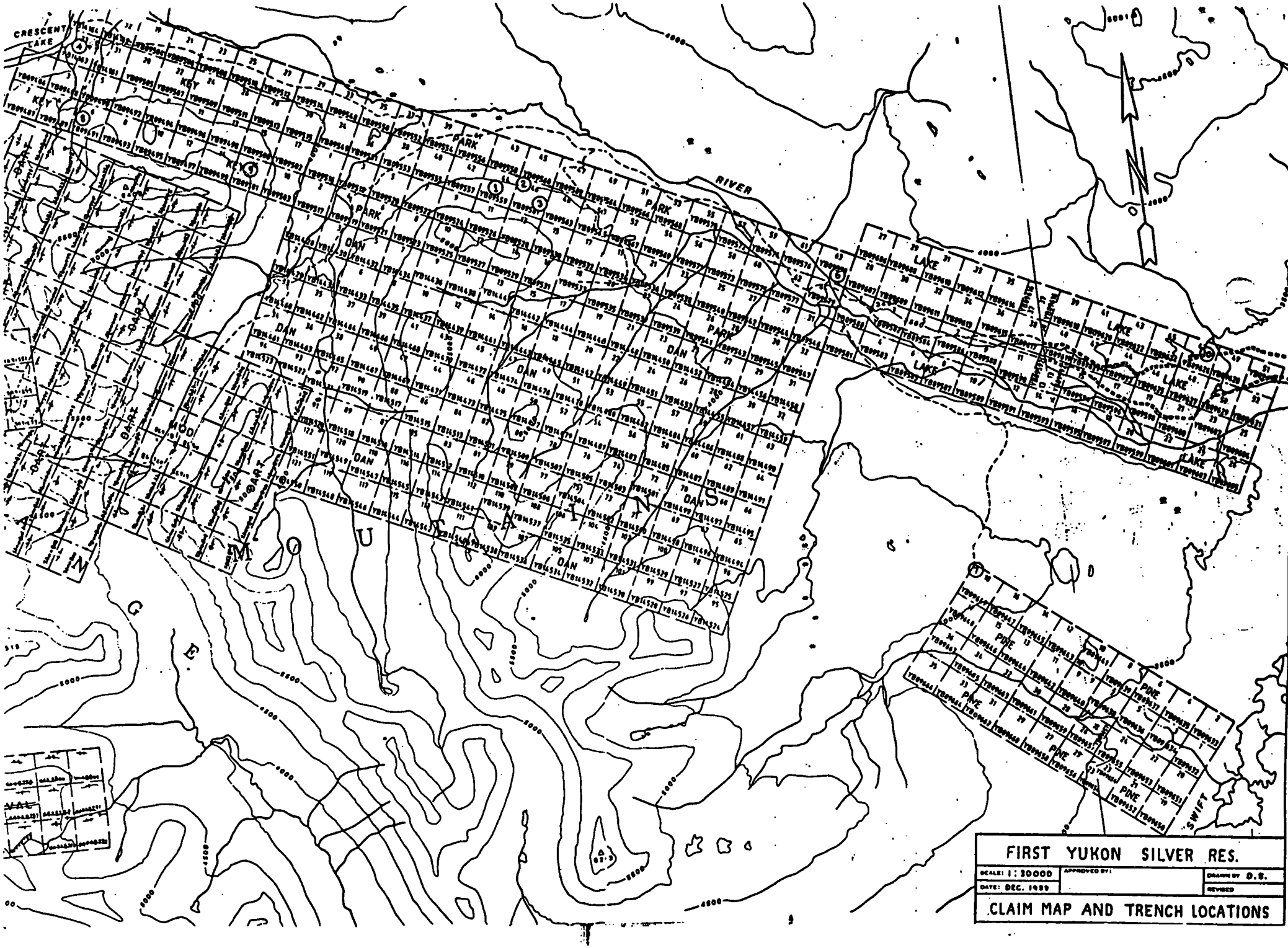
LOCATION OF SAMPLES TAKEN BY P.H.SEVENSMA

JUNE 24, 1962 and JULY 22, 1966

1" = 20' June 1967

P.H. SEVENSMA ——— CONSULTANTS LTD. ——— VANCOUVER, B.C.

FIG. 4


CRESCENT LAKE
KEY
PARK
OWL
DAN
LAKE
PINE
SWIFT
RIVER
MOUNTAINS
FIRST YUKON SILVER RES.
SCALE: 1:20000
APPROVED BY:
DRAWN BY D.B.
DATE: DEC. 1989
REVISED
CLAIM MAP AND TRENCH LOCATIONS

MIN
•EN
LABORATORIES LTD.

SPECIALISTS IN MINERAL ENVIRONMENTS
CHEMISTS • ASSAYERS • ANALYSTS • GEOCHEMISTS

VANCOUVER OFFICE:
6 WEST 15TH STREET
VANCOUVER, B.C. CANADA V7M 1T2
TELEPHONE (604) 980-5814 OR (604) 988-4524
TELEX VIA U.S.A. 7601067 • FAX (604) 980-9621

TIMMINS OFFICE:
33 EAST IROQUOIS ROAD
P.O. BOX 867
TIMMINS, ONTARIO CANADA P4N 7G7
TELEPHONE: (705) 264-9696

SWIFT RIVER • FROG CLAIMS

# Analytical Report

Company:FIRST YUKON SILVER
Project:
Attention:D.SCHELLENBERG

File:8-1678
Date:SEPT 30/88
Type:ROCK ASSAY

Date Samples Received :SEPT 28/88
Samples Submitted by :D.SCHELLENBERG

Report on ..... Geochem Samples
.....
.....22 ROCKS..... Assay Samples
.....

Copies sent to:
1. D.SCHELLENBERG, WATSON LAKE, Y.T.
2. FIRST YUKON SILVER, VANCOUVER, B.C.
3.

Samples: Sieved to mesh ..... Ground to mesh .....-150....

Prepared samples stored:.....X.... discarded:.....
rejects stored:..... discarded:.....X.....

Methods of analysis:

AU FIRE ASSAY
ZN,CU,AG ACID DIGESTION CHEMICAL ANALYSIS
31 ELEMENT TRACE ICP

Remarks

SAMPLES ( 61 - 510 TRENCH 1

# Certificate of ASSAY

Company: FIRST YUKON SILVER File: 8-1678/P1
Project: Date: SEPT 30/88
Attention: D. SCHELLENBERG Type: ROCK ASSAY

He hereby certify the following results for samples submitted.

| Sample Number | AU G/TONNE | AU OZ/TON | ZN % | CU % | AG G/TONNE | AG OZ/TON |
|---|---|---|---|---|---|---|
| S 01 | .01 | 0.001 | 12.15 | | | |
| S 02 | .01 | 0.001 | 14.15 | | | |
| S 03 | .01 | 0.001 | 15.00 | | | |
| S 04 | .01 | 0.001 | 13.10 | | | |
| S 05 | .02 | 0.001 | 7.60 | | | |
| S 06 | .04 | 0.001 | 11.40 | | | |
| S 07 | .01 | 0.001 | 1.83 | | | |
| S 08 | .01 | 0.001 | 2.33 | | | |
| S 09 | .01 | 0.001 | 26.25 | | | |
| S 10 | .10 | 0.003 | 28.80 | | | |

| (VALUES IN PPM ) | AG | AL | AS | B | BA | BE | BI | CA | CD | CO | CU | FE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S01 | 3.2 | 8740 | 19 | 201 | 14 | .2 | 1 | 48570 | 1070.4 | 122 | 443 | 96380 |
| S02 | 2.8 | 9990 | 24 | 1144 | 11 | .5 | 1 | 55600 | 1180.0 | 134 | 276 | 119090 |
| S03 | 5.7 | 6430 | 16 | 1461 | 7 | 1.1 | 5 | 41950 | 1186.8 | 185 | 568 | 164260 |
| S04 | 7.7 | 8870 | 29 | 295 | 9 | 1.6 | 6 | 28250 | 1092.5 | 245 | 1084 | 174640 |
| S05 | 6.5 | 6920 | 7 | 72 | 14 | .8 | 8 | 16580 | 609.0 | 389 | 1571 | 252350 |
| S06 | 5.3 | 6940 | 5 | 55 | 14 | 1.1 | 3 | 18440 | 963.8 | 352 | 1136 | 215420 |
| S07 | 3.4 | 15790 | 30 | 1285 | 30 | .3 | 1 | 51610 | 185.0 | 70 | 236 | 81060 |
| S08 | 2.2 | 17050 | 27 | 216 | 31 | .3 | 1 | 51900 | 214.3 | 45 | 157 | 67810 |
| S09 | 5.4 | 1390 | 29 | 125 | 15 | 1.3 | 3 | 2740 | 2221.8 | 305 | 660 | 178250 |
| S10 | 4.6 | 1270 | 24 | 181 | 8 | 1.7 | 2 | 3610 | 2579.6 | 377 | 612 | 172760 |

| (VALUES IN PPM ) | K | LI | MG | MN | MO | NA | NI | P | PB | SB | SR | TH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S01 | 500 | 6 | 4090 | 2409 | 3 | 60 | 1 | 570 | 101 | 1 | 4 | 1 |
| S02 | 380 | 7 | 4270 | 2762 | 4 | 60 | 4 | 560 | 97 | 1 | 2 | 1 |
| S03 | 350 | 6 | 3510 | 2618 | 4 | 50 | 6 | 480 | 173 | 1 | 4 | 1 |
| S04 | 370 | 5 | 3700 | 2696 | 2 | 60 | 1 | 580 | 293 | 5 | 3 | 1 |
| S05 | 450 | 5 | 2160 | 1656 | 1 | 70 | 6 | 380 | 223 | 5 | 1 | 1 |
| S06 | 400 | 4 | 1740 | 2087 | 4 | 60 | 3 | 470 | 139 | 9 | 4 | 1 |
| S07 | 550 | 6 | 3580 | 2107 | 4 | 80 | 4 | 630 | 96 | 4 | 2 | 1 |
| S08 | 580 | 5 | 2580 | 2058 | 1 | 80 | 3 | 550 | 64 | 1 | 3 | 1 |
| S09 | 400 | 4 | 850 | 3024 | 1 | 60 | 5 | 550 | 127 | 7 | 22 | 1 |
| S10 | 300 | 4 | 1040 | 3008 | 1 | 60 | 4 | 530 | 98 | 4 | 24 | 1 |

| (VALUES IN PPM ) | U | V | ZN | GA | SN | W | CR |
|---|---|---|---|---|---|---|---|
| S01 | 1 | 30.3 | 108122 | 1 | 1 | 3 | 75 |
| S02 | 1 | 32.4 | 124163 | 1 | 2 | 1 | 73 |
| S03 | 1 | 22.4 | 125106 | 1 | 4 | 2 | 52 |
| S04 | 1 | 34.8 | 125111 | 1 | 1 | 6 | 70 |
| S05 | 1 | 25.2 | 70964 | 1 | 1 | 1 | 48 |
| S06 | 1 | 27.2 | 111094 | 1 | 2 | 3 | 60 |
| S07 | 1 | 52.9 | 17708 | 1 | 1 | 1 | 105 |
| S08 | 1 | 54.6 | 20553 | 1 | 1 | 1 | 131 |
| S09 | 1 | 8.2 | 246961 | 1 | 1 | 1 | 35 |
| S10 | 1 | 6.6 | 246577 | 1 | 1 | 2 | 30 |

COMPANY: FIRST YUKON SILVER — MIN-EN LABS ICP REPORT — (ACT:F31) PAGE 1 OF 3

PROJECT NO: — 705 W 7TH ST., NORTH VANCOUVER, B.C. V7M 1T2 — FILE NO: 8-1678/P1

ATTENTION: D.SCHELLENBERG — (604)980-5814 OR (604)988-4524 # TYPE ROCK GEOCHEM # — DATE:SEPTEMBER 30, 1988

| (VALUES IN PPM ) | AG | AL | AS | B | BA | BE | BI | CA | CD | CO | CU | FE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S01 | 3.2 | 8740 | 19 | 201 | 14 | .2 | 1 | 48570 | 1070.4 | 122 | 443 | 96380 |
| S02 | 2.8 | 9990 | 24 | 1144 | 11 | .5 | 1 | 55600 | 1180.0 | 134 | 276 | 119090 |
| S03 | 5.7 | 6430 | 16 | 1461 | 7 | 1.1 | 5 | 41950 | 1186.8 | 185 | 568 | 164260 |
| S04 | 7.7 | 8870 | 29 | 295 | 9 | 1.6 | 6 | 28250 | 1092.5 | 245 | 1084 | 174640 |
| S05 | 6.5 | 6920 | 7 | 72 | 14 | .8 | 8 | 16580 | 609.0 | 389 | 1571 | 252350 |
| S06 | 5.3 | 6940 | 5 | 55 | 14 | 1.1 | 3 | 18440 | 963.8 | 352 | 1136 | 215420 |
| S07 | 3.4 | 15790 | 30 | 1285 | 30 | .3 | 1 | 51610 | 185.0 | 70 | 236 | 81060 |
| S08 | 2.2 | 17060 | 27 | 218 | 31 | .3 | 1 | 51900 | 214.3 | 45 | 157 | 67810 |
| S09 | 5.4 | 1390 | 29 | 125 | 15 | 1.3 | 3 | 2740 | 2221.8 | 305 | 660 | 178250 |
| S10 | 4.6 | 1270 | 24 | 181 | 8 | 1.7 | 2 | 3610 | 2579.6 | 377 | 612 | 172760 |
| F01 | 93.3 | 1550 | 1 | 15 | 32 | .4 | 105 | 440 | 43.2 | 19 | 98907 | 99040 |
| F02 | 53.5 | 4820 | 1 | 7 | 47 | .7 | 14 | 790 | 27.6 | 15 | 46651 | 25530 |
| F03 | 303.4 | 850 | 67 | 12 | 12 | .7 | 1316 | 240 | 28.8 | 20 | 162831 | 74840 |
| F04 | 80.5 | 16490 | 24 | 4 | 129 | 1.1 | 86 | 6670 | 9.3 | 23 | 61975 | 40520 |
| F05 | 112.2 | 3930 | 41 | 7 | 37 | .5 | 132 | 1720 | 5.8 | 13 | 116010 | 74440 |
| F06 | 64.1 | 4630 | 36 | 4 | 50 | .8 | 84 | 3670 | 6.0 | 10 | 58296 | 21230 |
| F07 | 139.2 | 24930 | 64 | 7 | 245 | 2.0 | 182 | 3420 | 12.9 | 44 | 152894 | 90230 |
| F08 | 73.1 | 6540 | 45 | 6 | 25 | 1.1 | 277 | 5280 | 8.3 | 15 | 131917 | 40190 |
| F09 | 71.3 | 4480 | 30 | 2 | 77 | .6 | 194 | 760 | 4.5 | 7 | 38560 | 20650 |
| F10 | 1.6 | 4630 | 22 | 1 | 67 | .5 | 24 | 2440 | 3.0 | 6 | 15904 | 5140 |
| F11 | 11.3 | 1830 | 90 | 18 | 14 | .8 | 8 | 4430 | 4.9 | 13 | 16261 | 522250 |
| F12 | 122.3 | 6520 | 26 | 3 | 76 | .8 | 142 | 2060 | 9.0 | 14 | 68750 | 26010 |

COMPANY: FIRST YUKON SILVER — MIN-EN LABS ICP REPORT — (ACT:F31) PAGE 2 OF 3

PROJECT NO: — 705 - 5TH ST., NORTH VANCOUVER, B.C. V7M 1T2 — FILE NO: 8-1678/P1

ATTENTION: D.SCHELLENBERG — (604)980-5814 OR (604)988-4524 # TYPE ROCK GEOCHEM # — DATE:SEPTEMBER 30, 1988

| (VALUES IN PPM ) | K | LI | MG | MN | MO | NA | NI | P | PB | SB | SR | TH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S01 | 500 | 6 | 4090 | 2409 | 3 | 60 | 1 | 570 | 101 | 1 | 4 | 1 |
| S02 | 380 | 7 | 4270 | 2762 | 4 | 60 | 4 | 560 | 97 | 1 | 2 | 1 |
| S03 | 350 | 6 | 3510 | 2618 | 4 | 50 | 6 | 480 | 173 | 1 | 4 | 1 |
| S04 | 370 | 5 | 3700 | 2696 | 2 | 60 | 1 | 580 | 293 | 5 | 3 | 1 |
| S05 | 450 | 5 | 2160 | 1656 | 1 | 70 | 6 | 380 | 223 | 5 | 1 | 1 |
| S06 | 400 | 4 | 1740 | 2087 | 4 | 60 | 3 | 470 | 139 | 9 | 4 | 1 |
| S07 | 550 | 6 | 3580 | 2107 | 4 | 80 | 4 | 630 | 96 | 4 | 2 | 1 |
| S08 | 580 | 5 | 2580 | 2058 | 1 | 80 | 3 | 550 | 64 | 1 | 3 | 1 |
| S09 | 400 | 4 | 850 | 3024 | 1 | 60 | 5 | 550 | 127 | 7 | 22 | 1 |
| S10 | 300 | 4 | 1040 | 3008 | 1 | 60 | 4 | 530 | 98 | 4 | 24 | 1 |
| F01 | 530 | 5 | 580 | 138 | 4 | 230 | 5 | 2950 | 206 | 2 | 11 | 1 |
| F02 | 1610 | 12 | 3070 | 220 | 6 | 180 | 16 | 1380 | 109 | 1 | 14 | 1 |
| F03 | 400 | 4 | 530 | 19 | 20 | 70 | 26 | 9580 | 687 | 14 | 23 | 1 |
| F04 | 10160 | 38 | 11500 | 610 | 6 | 810 | 17 | 3290 | 161 | 1 | 60 | 1 |
| F05 | 1530 | 11 | 2670 | 167 | 10 | 170 | 8 | 3870 | 239 | 10 | 17 | 1 |
| F06 | 1110 | 9 | 1900 | 327 | 7 | 160 | 12 | 1820 | 124 | 4 | 32 | 1 |
| F07 | 14920 | 70 | 19720 | 1507 | 11 | 220 | 28 | 5140 | 372 | 5 | 39 | 2 |
| F08 | 960 | 7 | 1460 | 178 | 22 | 120 | 19 | 4400 | 275 | 16 | 153 | 1 |
| F09 | 2300 | 6 | 1010 | 47 | 7 | 300 | 8 | 1490 | 117 | 1 | 22 | 1 |
| F10 | 2110 | 4 | 660 | 55 | 5 | 340 | 9 | 1130 | 39 | 1 | 20 | 1 |
| F11 | 1570 | 9 | 1180 | 599 | 1 | 80 | 1 | 120 | 21 | 1 | 4 | 2 |
| F12 | 2420 | 13 | 3620 | 224 | 7 | 590 | 13 | 2610 | 141 | 2 | 20 | 1 |

| (VALUES IN PPM ) | U | V | ZN | GA | SN | W | CR |
|---|---|---|---|---|---|---|---|
| S01 | 1 | 30.3 | 108122 | 1 | 1 | 3 | 75 |
| S02 | 1 | 32.4 | 124163 | 1 | 2 | 1 | 73 |
| S03 | 1 | 22.4 | 125106 | 1 | 4 | 2 | 52 |
| S04 | 1 | 34.8 | 125111 | 1 | 1 | 6 | 70 |
| S05 | 1 | 25.2 | 70964 | 1 | 1 | 1 | 48 |
| S06 | 1 | 27.2 | 111094 | 1 | 2 | 3 | 60 |
| S07 | 1 | 52.9 | 17708 | 1 | 1 | 1 | 105 |
| S08 | 1 | 54.6 | 20553 | 1 | 1 | 1 | 131 |
| S09 | 1 | 8.2 | 246961 | 1 | 1 | 1 | 35 |
| S10 | 1 | 6.6 | 246577 | 1 | 1 | 2 | 30 |
| F01 | 1 | 175.3 | 4192 | 1 | 2 | 1 | 176 |
| F02 | 1 | 147.5 | 2475 | 1 | 2 | 1 | 288 |
| F03 | 1 | 27.3 | 720 | 1 | 14 | 1 | 52 |
| F04 | 1 | 196.7 | 238 | 1 | 6 | 1 | 103 |
| F05 | 1 | 88.9 | 93 | 1 | 5 | 1 | 174 |
| F06 | 2 | 118.1 | 88 | 1 | 3 | 1 | 207 |
| F07 | 1 | 321.4 | 221 | 3 | 13 | 1 | 61 |
| F08 | 1 | 96.5 | 134 | 1 | 7 | 1 | 136 |
| F09 | 4 | 26.6 | 138 | 1 | 2 | 1 | 143 |
| F10 | 3 | 12.5 | 77 | 1 | 1 | 1 | 93 |
| F11 | 1 | 706.6 | 480 | 10 | 3 | 1 | 34 |
| F12 | 1 | 49.8 | 589 | 1 | 4 | 1 | 96 |

# SAMPLES 1 10 TRENCH 4.

COMPANY: FIRST YUKON SILVER — MIN-EN LABS ICP REPORT — (ACT:F31) PAGE 1 OF
PROJECT NO: — 705 WEST 15TH ST., NORTH VANCOUVER, B.C. V7M 1T2 — FILE NO: 8-1393/
ATTENTION: D.SCHELLENBERG — (604)980-5814 OR (604)988-4524 — # TYPE ROCK GEOCHEM # — DATE:AUGUST 31, 19

| ( PPM ) | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | NONUMBER |
|---|---|---|---|---|---|---|---|---|---|---|---|
| AG | 1.3 | 2.8 | 2.5 | 2.5 | .4 | .3 | .6 | .1 | 1.2 | .3 | 73.7 |
| AL | 9820 | 11460 | 9620 | 14290 | 10300 | 12860 | 7660 | 10670 | 5400 | 4330 | 6650 |
| AS | 10 | 29 | 40 | 19 | 17 | 21 | 9 | 24 | 7 | 35 | 7 |
| B | 5 | 13 | 16 | 10 | 6 | 7 | 7 | 9 | 8 | 13 | 4 |
| BA | 25 | 8 | 8 | 13 | 22 | 12 | 17 | 9 | 12 | 5 | 8 |
| BE | .5 | 1.8 | 1.4 | 1.7 | .2 | .4 | .1 | 1.7 | 1.5 | 1.7 | .3 |
| BI | 8 | 2 | 6 | 4 | 3 | 4 | 2 | 1 | 4 | 5 | 77 |
| CA | 26900 | 34400 | 35250 | 51910 | 32410 | 35530 | 19970 | 34150 | 15960 | 11760 | 880 |
| CD | 3.4 | 54.9 | 6.9 | 4.2 | 3.2 | 9.2 | 1.5 | 2.1 | .1 | 2.6 | 11.6 |
| CO | 18 | 45 | 93 | 35 | 36 | 24 | 50 | 21 | 25 | 31 | 14 |
| CU | 72 | 586 | 1079 | 594 | 165 | 8 | 251 | 149 | 129 | 278 | 315 |
| FE | 95980 | 169150 | 254460 | 148350 | 112760 | 114600 | 132950 | 164280 | 155680 | 257640 | 71040 |
| K | 1520 | 1290 | 1150 | 1210 | 1130 | 1170 | 1280 | 1120 | 1170 | 1040 | 1170 |
| LI | 52 | 48 | 45 | 48 | 49 | 48 | 51 | 48 | 49 | 46 | 57 |
| MG | 3350 | 2120 | 1790 | 2890 | 3560 | 3730 | 4660 | 2610 | 2430 | 1660 | 4680 |
| MN | 1090 | 1316 | 1354 | 2195 | 2005 | 2765 | 1816 | 1644 | 895 | 598 | 484 |
| MO | 10 | 3 | 3 | 3 | 4 | 4 | 4 | 2 | 3 | 2 | 6 |
| NA | 760 | 600 | 450 | 450 | 430 | 540 | 450 | 430 | 500 | 410 | 420 |
| NI | 1 | 2 | 23 | 2 | 6 | 5 | 1 | 3 | 3 | 7 | 1 |
| P | 650 | 460 | 290 | 340 | 440 | 550 | 410 | 360 | 440 | 460 | 270 |
| PB | 25 | 8 | 14 | 18 | 24 | 51 | 27 | 16 | 9 | 13 | 9377 |
| SB | 4 | 9 | 7 | 4 | 1 | 3 | 5 | 4 | 1 | 1 | 1 |
| SR | 3 | 1 | 2 | 1 | 2 | 2 | 5 | 2 | 3 | 2 | 9 |
| TH | 2 | 2 | 4 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| U | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 |
| V | 58.8 | 41.5 | 33.9 | 43.0 | 35.8 | 41.4 | 28.2 | 30.5 | 21.9 | 21.6 | 23.0 |
| ZN | 716 | 11400 | 2647 | 1099 | 808 | 1567 | 135 | 112 | 60 | 77 | 2017 |
| GA | 6 | 7 | 10 | 1 | 1 | 1 | 6 | 4 | 8 | 9 | 1 |
| SN | 8 | 1 | 1 | 4 | 4 | 5 | 3 | 4 | 3 | 1 | 5 |
| W | 2 | 2 | 2 | 2 | 1 | 2 | 1 | 1 | 1 | 2 | 2 |
| CR | 72 | 71 | 57 | 84 | 74 | 71 | 51 | 65 | 47 | 38 | 117 |

| Sample Number | CU % | ZN % | AG G/TONNE | AG OZ/TON | AU G/TONNE | AU OZ/TON |
|---|---|---|---|---|---|---|
| #1 | .018 | .09 | 0.7 | 0.02 | .02 | 0.001 |
| #2 | .072 | 1.54 | 4.0 | 0.12 | .16 | 0.005 |
| #3 | .128 | .38 | 3.6 | 0.11 | .03 | 0.001 |
| #4 | .071 | .15 | 3.7 | 0.11 | .01 | 0.001 |
| #5 | .026 | .10 | 1.0 | 0.03 | .02 | 0.001 |
| #6 | .005 | .23 | 1.2 | 0.04 | .01 | 0.001 |
| #7 | .036 | .01 | 2.0 | 0.06 | .04 | 0.001 |
| #8 | .030 | .01 | 1.2 | 0.04 | .03 | 0.001 |
| #9 | .028 | .01 | 0.8 | 0.02 | .02 | 0.001 |
| #10 | .048 | .02 | 0.2 | 0.01 | .02 | 0.001 |

Report On

# Total Heavy Metals Geochemical Survey

Watson Lake Mining District, 105 B-1

On Behalf of

**First Yukon Silver Resources Inc.**

SPENCER CREEK

by

D. Schellenberg, B.Sc.

November 20, 1988

## Claims

Name:

Lee 1-56
Add 1-42
Red 1-34
Odie 1-36
Hi 1-36
Jim 1-28
Ed 1-14

Location:

60 10' North, 130 15' West

Dates:

June 1 to August 10, 1988

## Table of Contents



## List of Illustrations
(in pocket)

## List of Claims

| Name | Tag Number |
|---|---|
| Lee 1-28 | YA99401 - YA99428 |
| Lee 29-56 | YB00881 - YB00922 |
| Red 1-12 | YB00540 - YB00551 |
| Red 13-20 | YB00576 - YB00583 |
| Red 21-34 | YB01846 - YB01859 |
| Odie 1-36 | YB00590 - YB00625 |
| Hi 1 | YB00499 |
| Hi 3-28 | YB00500 - YB00525 |
| Jim 1-6 | YB00584 - YB00589 |
| Jim 7-28 | YB00839 - YB00858 |
| Ed 1-14 | YB00526 - YB00539 |

Owner: First Yukon Silver Resources Inc.
#2601 - 1177 West Hastings Street
Vancouver, British Columbia V6E 2K3

Work Performed For: First Yukon Silver Resources Inc.

## Introduction

The areas to the north and west of the survey are noteworthy for the large number of Pb, Zn and Ag veins discovered by prospectors in the well-exposed ground above tree line. The purpose of this survey was to test the potential of the poorly exposed areas below tree line which have seen little or no prospecting.

## Geology

The survey area is underlain by Lower Palaeozoic sediments of the Cassiar Platform with Cambrian carbonates predominate in outcrop. The Cretaceous Cassiar Batholith borders the survey area to the west and a small stock outcrops near the northern boundary.

Current theories on mineralization in the area suggest that the numberous Pb, Zn and Ag occurances are related to late Cretaceous and/or Early Tertiary movement on large scale transcurrent faults and associated secondary faulting.

## Method

### Field Method

Samples were collected every 150 feet following claims lines at a spacing of 750 feet. The sampling depth was approximately 6 inches.

### Method of Analysis

1. Scoop 0.2 gm of sample into a test tube.
2. Add 5 ml. of zinc buffer solution.
3. Add 2 ml. of dithizone test solution (0.001%)
4. Cap the tube and shake for 1 minute. Allow the dithizone layer to separate.
5. A colour in the upper layer will be developed between green and purple.

| ***Colour*** | ***Zinc content of Sample*** |
|---|---|
| Green | nil |
| Blue-Green | weak |
| Blue | weak |
| Pink | weak |
| Red | moderate |
| Purple | strong |

## Interpretation (Map 8)

**Lee claims:**

*Area 1* Many small veins are exposed in the upslope N.W. corner of this anomaly.

*Area 2* The shape of this anomaly suggest a relationship to the N.E. striking faults hosting many of the veins in the area.

*Area 3* This anomaly corresponds well to the strike extension of a vein exposed on the Jack claims.

*Area 4* This very strong anomaly corresponds to an area where disseminated galena and sphalerite in limestone were found in outcrop and float.

**Add Claims:**

*Area 1* A moderate strength anomaly possibly related to a N.E. trending structure.

**Red Claims:**

*Area 1* This is the largest anomalous area within the survey area. Topography suggests that this is two anomalies joined by downslope migration from the north and south.

**Odie Claims:**

*Area 1* Topography here again suggests more than one source. The eastern boundary parallels a drainage suggesting a structural N.E. control.

## Recommendations

1. Anomalous samples from this survey should be assayed, preferably with a 30 element I.C.P. analysis.

2. Anomalous Pb and Zn samples should be plotted to give a better definition of possible Pb, Zn and Ag veins.

3. Areas with high Pb and Ag values should be covered with a closely spaced geochemical grid.

4. Resulting anomalies should be prospected and trenched.

## Conclusions

The current survey was successful in outlining several areas of high zinc concentration in soils. Further work will depend on the results of quantitative assays of anomalous samples.

## Cost Statement

| | | |
|---|---|---|
| Transportation: | | |
| | Truck, 4x4 rental and fuel for 70 days | $ 9178.79 |
| | A.T.V. rental | 500.00 |
| Wages: | ***Samplers*** | |
| | George Frank | 4518.00 |
| | Pat Ball | 1300.00 |
| | Skip Melanchuk | 2580.00 |
| | Jean Legare | 2400.00 |
| | ***Line Cutting*** | |
| | George Frank | 850.00 |
| | Pat Ball | 1500.00 |
| | Fred McMillan | 3352.00 |
| | ***T.H.M. Analysis*** | |
| | Hardy Hibbing | 5460.00 |
| Camp Mobilization and Demob: | | 1564.00 |
| Camp Operating Expenses: | | 1224.49 |
| Food and Accomodation: | | 4490.78 |
| Report Preparation: | | 1500.00 |
| | TOTAL | $40,418.06 |

# REPORT

on the

# Spencer Creek Property

Rancheria Area, Watson Lake Mining District
Yukon Territory

N.T.S. 105 B 1
Latitude 60 degrees 10' N
Longitude 130 degrees 20' W

for

FIRST YUKON SILVER RESOURCES INC.,
26 Floor - 1177 West Hastings Street,
Vancouver, B.C. V6E 2K3

by

Alex Burton, P.Eng,
Burton Consulting Inc.,
810 - 626 West Pender Street,
Vancouver, B. C. V6B 1V9

and

Tim Liverton, Geologist,
Tarmachan Exploration Services Ltd.,
Box 529,
Watson Lake ,Yukon, Y0A 1C0

APRIL, 1988

**BURTON CONSULTING INC.**

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## INTRODUCTION

The claim block covers the middle unexplored portion of ground between the Midway camp and the rich silver veins of the Silver Hart-Jack camp. The claims are at lower elevations in the trees below the bare alpine slopes.

They are surrounded on the west and north with neighbouring properties. To the east there is heavy timber in lower ground and to the south is the Alaska Highway and the Rancheria River Valley.

The majority of the claims are underlain by Lower Cambrian carbonate sediments and are cut by major NW and NE faults. This is the preferred environment for mineralization on the neighbouring properties. The claims have the features that are permissive for epithermal high grade silver lead veins, for massive sulphide zinc, lead, silver deposits, and base metal manto and breccia deposits.

There is a known gossan zone that has not been sampled yet, and also a system of quartz veins that has been identified, but not explored or sampled.

An exploration program to look for these kinds of mineralization is recommended and a budget has been prepared.

## LOCATION AND ACCESS

The property is in the Watson Lake Mining District, Rancheria Area, Yukon Territory. It is at latitude 60 degrees 10'N and longitude 130 degrees 20'W, N.T.S. 105 B1. The property is 52 miles west of Watson Lake where the access road turns of the Alaska Highway up the Jack Trace Access Road, which cuts the claim block diagonally. The southern boundary of the claims parallel the Alaska Highway. Most of the property is below timberline and is covered with evergreens, mainly black spruce.

## HISTORY

There are no known showings or any history of previous work on the claims. Exploration work in 1987 during the staking discovered a gossan zone and a system of quartz veins.

GEOLOGY

Cambrian, Cambrian-Ordovician and Devonian carbonate sediments separated into fault blocks underlie the property. The major fault systems run NW SE and it is postulated that the northwestern extension of the Kechika Fault passes through the middle portion of the claims. Sub parallel NE trending faults which are hosts for mineralization on adjacent properties pass through the claims.

The Cambrian unsubdivided carbonates, includes interbedded limestone and phyllite, limestone, dolostone, marble and minor schist. These rocks cover the majority of the property.

A more siliceous band of these Cambrian sediments runs NW through the eastern end of the property and may be sinistrally offset by one of the NE faults.

Cambrian and Ordovician unsubdivided phyllite, hornfels and minor limestone occur within the postulated Kechika Fault and extend at least into the claims.

Devonian unsubdivided limestone and minor dolostone occurs as a fault block along the southern edge of the property.

Igneous rocks of the Cassiar Batholith are about 5 km. west of the property.

Mineralized northeast faults in the camp have wall-rock alteration typical of epithermal systems.

ADJACENT SHOWINGS

The adjacent showings are discussed in clockwise order from the Alaska Highway.

STERLING (Zulu Lady)

The main showing consists of regular plods of coarse grain, galena, sphalerite and pyrite, associated with a north trending dolostone-limestone breccia. One of the showings trends north 65 degrees east.

A & B (Luck)

Silver, lead, zinc replacement pods occur in the highly deformed Cambrian carbonates, appearing to follow fault axes. It has been postulated that such stratabound mineralization was redistributed and formed replacement bodies along the northeast trending faults in this camp.

FIDDLER

Northeast striking quartz veins contain silver, lead, zinc mineralization as well as wolframite, scheelite, fluorite, cassiterite and minor amounts of stanite, sphalerite, chalcopyrite and pyrite. A breccia also strikes N60E.

DK

The DK is reported to contain silver in lead-zinc veins along NE trending structures.

HARDTACK (Oro)

Gossans occur along a contact of a N75E striking mafic dyke. Below the black iron ozide and possibly manganese gossans, galena and sphalerite assays rich in silver.

KODIAK

Galena bearing carbonate veins strike NE to east, contain galena and sphalerite which assays high in silver and weathers to a black or rust coloured wad. Mafic dykes occur locally and trend northeasterly to east.

COR

The Cor is north of the Jack and is presumed to be similar.

JACK

The Jack Property is directly north and was explored extensively in 1987. Northeast trending sets of faults with epithermal alteration contain silver, lead, zinc veins. Surface trenching in 1987 showed that the number of veins increases proportionately to the amount of trenching done to explore for them. In addition, the widths and size of the alteration zones imply substantial mineralization below.

CANAMAX (Head)

At least two linear (NE) soil geochemical anomalies which have not been followed up constitute the property. Fault breccia and galena are reported on the property.

BUTLER MOUNTAIN (YP)

Mineralization in the carbonate sediments is related to a north trending zone of steeply dipping felsic dykes and breccias. Drill intersections of 15.26 g/t Au over 3.4 M and 337.37 g/t Ag over 2.2 M have been reported. Mineralization is in massive sulphide lenses and quartz veins.

EXPLORATION POSSIBILITIES

Most of the exploration in this camp has taken place above the timberline and explains why so little prospecting has been done on the claims which are below the treeline. With recent work the controls on mineralization are now understood and this can be applied to the claims with the expectation of some success.

Factors to be taken into consideration include the following. Major control is the northeast fault systems, which almost universally contain mineralization. These northeast fault systems show up extremely well on the geomorphology of the land forms and can be seen on airphotos and direct field observations. Andesitic to lamprophyre dykes, mainly pre-mineralizaion, occur along the northeast faults and may be related to the epithermal mineralization.

Gossans in the form of blue-black manganese wad as well as limonite goethite types can occur over mineralized shoots along the faults. They sometimes are well exposed on the surface, but even when leached away some manganese stain is still visible.

Quartz float with sulphides is often seen on the surface when the main sulphide lense is leached away.

Stream drainages on the property should be sampled with standard silt samples and heavy sediment suction dredge sampling to test for gold, lead and tungsten resistates.

Soil sampling using the qualitative dithizone cold extraction method which gives immediate results in the field, is the best system in this environment. In addition, reference soil samples will be collected for later analysis. The existing claims lines form an obvious control grid for the soil sampling program as proposed originally by Douglas Schellenberg.

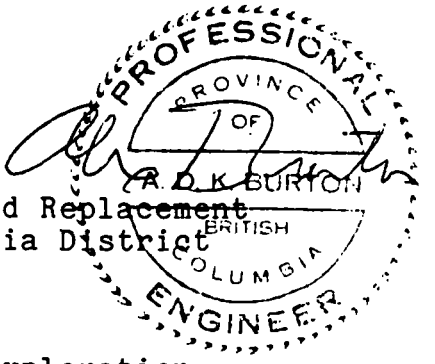
Geological mapping at a scale of 1:15,000 with the aid of stereoscopic airphotos should be completed early in the program.

Any zones of mineralization, gossans or geochemical anomalies that are discovered should be evaluated and then explored by excavator trenching. The budget for trenching is not included in this report.

## BUDGET

Estimated budget for

| | |
|---|---|
| the geochemistry and geology | $20,000.00 |

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RODDICK & GREEN 1959 G.S.C. Wolf Lake Sheet

# C E R T I F I C A T E

I, ALEX BURTON, P. Eng., Consulting Geologist, with offices at 810 - 626 West Pender Street, Vancouver, B.C. V6B 1V9, am a graduate geologist from the University of British Columbia.

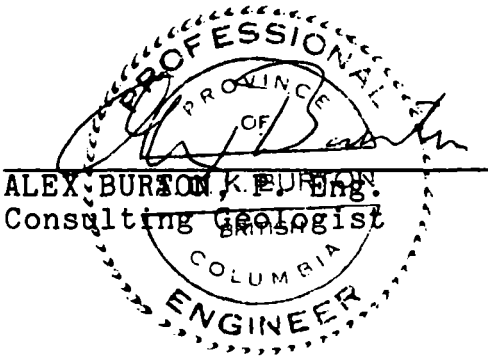
I am a registered Professional Engineer #6262 with the Association of Professional Engineers of B.C. I am a geochemist and a member of the Asssociation of Exploration Geochemists. I am a Fellow of the Geological Association of Canada. I am also a member of the C.I.M.M., B.C. & Y.T. Chamber of Mines and A.G.I.D.

I have practiced my profession for many years in senior positions with major mining companies and as an independent consultant.

I have visited the Spencer Creek Property.

I have no personal interest in the property or FIRST YUKON SILVER RESOURCES INC. nor do I expect to receive directly or indirectly any interest in such property or securities. I consent to the use of this report by FIRST YUKON SILVER RESOURCES INC. in a prospectus or Statement of Material Facts.

Dated this 26th day of April, 1988 in Vancouver, B.C.




ALEX BURTON, P. Eng.
Consulting Geologist

## STATEMENT OF QUALIFICATIONS

I, TIMOTHY LIVERTON, graduated from the University of Sydney with a BSc. degree in Geology and Geophysics in 1965. Between 1965 and 1980 I was employed by several consulting, Mineral exploration and Mining Companies as a geologist and worked on a wide variety of projects in Australia, Canada, the U.S.A., Brazil, Norway, Portugal and the United Kingdom.

Since 1980 I have been self-employed, carrying out geological, geophysical and surveying work on mineral properties in the Yukon, Northern B.C. and the N.W.T.

The Rancheria area is familiar to me and I have worked on several properties in the area. The Swift River and Spencer Creek Properties held by First Yukon Silver Resources Inc. have been examined by me on many occassions between 1977 and October, 1987.

I do not hold any shares in FIRST YUKON SILVER RESOURCES INC., neither do I expect to receive any interest in the Company. This report and my name as co-author may be used in a prospectus of First Yukon Silver Resources Inc.

Dated this 26th day of April, 1988 in Vancouver, B.C.

Timothy Liverton

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