

FILE

822699

St. Eugene Mining Corp. Ltd.
P.N. 077-01
Moyie, British Columbia
Summary of Progress to end of 1979 and
Recommendations for 1980
January 31, 1980 L. A. Tihor
Vancouver, B. C.

ST. EUGENE MINING CORPORATION LTD.

Project 077-01
Moyie, British Columbia

SUMMARY OF PROGRESS TO END OF 1979 AND RECOMMENDATIONS
FOR 1980

LESLIE A. TIHOR
January 31, 1980

TABLE OF CONTENTS

	<u>Page</u>
1. INTRODUCTION	1
2. CONCLUSIONS	1
2.1 Geology	1
2.2 Geochemistry	2
2.3 Geophysics	2
2.4 Diamond Drilling	3
3. RECOMMENDATIONS	3
3.1 Geology	3
3.2 Geochemistry	3
3.3 Geophysics	4
3.4 Mineral Rights Acquisition	4
3.5 Diamond Drilling	4
4. COSTS	5
5. EXPECTED BENEFITS	5

LIST OF FIGURES

Figure 1. Composite geologic section of Sullivan Mine	6
Figure 2. St. Eugene Mining Corp. Ltd. Properties and other properties of interest, Moyie area	7
Figure 3. Location map showing extent of Sullivan Time Horizon and areas planned for DIGHEM II surveys . . .	8

I INTRODUCTION

The Sullivan deposit at Kimberley, B. C., belongs to a distinguished family of huge, rich strataform Pb-Zn-Ag sulphide deposits of Proterozoic age.

The purpose of the on-going Moyie project is to discover any other such deposits in southeastern B. C. that can be detected with state-of-the-art technology and a reasonable financial investment.

II CONCLUSIONS

2.1 Geology

The Sullivan deposit is found at a regionally defineable horizon (the "Sullivan Time Horizon" or STH) which marks a facies change from shallow water to deep water sedimentation (Figure 1). We have mapped this horizon in two large areas remote from the Sullivan Mine.

In one of these areas, west of Moyie, with the exception of a small property owned by Mrs. Kathleen Frost of Fort Steele, the mineral rights rest with the crown and are open to staking. In the other, near Yahk, we have acquired the mineral rights to 177 claim units by staking.

The development on the Sullivan Time Horizon of localized depressions or "mini-basins" and the occurrence of tourmaline are considered favourable indications. Both of these are found on our Yahk property.

Outcrop geologic mapping is useful, but only marginally so in the target areas. Rock exposure is minimal and subtle differences in rock units make stratigraphic decisions based on isolated outcrops unreliable.

2.2. Geochemistry

Traditional soil and silt geochem surveys have proven dissappointing. This is not surprising since overburden averages 35 metres in thickness. A method which may be useful involves analyzing for hydrogen ion (H+) and organic carbon concentrations in "A" horizon soils. This has been used successfully in New Brunswick and elsewhere to detect deep, blind sulphides.

2.3 Geophysics

Tilt-loop, horizontal-loop and almost all air geophysical methods must be considered unreliable here because of thick overburden and severe topographic relief. VLF-EM is of limited use because of repeated, moderately conductive pyritic horizons in these rocks. Methods using very large transmitter-receiver separations such as VLF and telluric techniques are dangerous to use on flat lying targets because they are blind to near horizontal conductors which dip at angles parallel to the transmitter's primary field. Turam is a good technique but it can be difficult to interpret and it offers no advantages over the newer, faster and more versatile PULSE EM.

The best combination for this project appears to be DIGHEM II in WHALETAIL configuration for reconnaissance and PULSE - EM for ground follow-up.

Mag is not very useful here for two reasons. Sullivan-type deposits may have little or no magnetic expression - particularly if the main sulphide is pyrite as at Mt. Isa and McArthur River, rather than pyrrhotite as at the Sullivan. Also, Purcell gabbroic rocks tend to produce magnetic anomalies identical to those which might be produced by flat lying pyrrhotitic deposits.

2.4 Diamond Drilling

1220 m. of diamond drilling on our Yahk property confirmed that over a 50 sq. km. area the Sullivan Time Horizon should be within reach of DIGHEM II EM. Furthermore, one hole intersected a 7 m. section of a stockwork of massive pyrite veinlets in chloritized and amphibolitized sediments roughly at the STH. The pyrite was peppered with exsolution cavities and carried small but anomalous values in Zn, Cu and Ag.

III RECOMMENDATIONS

3.1 Geology

Regional and detailed geologic mapping should be continued during 1980 to better resolve the location of the Sullivan Time Horizon and to help interpretation of geophysical and geochem anomalies. Cost - \$74,200 (includes Tihor 12 months, J. Wilson 6 months, consultant 30 days).

3.2 Geochemistry

Soil geochem for metal content should be reserved for areas of known or suspected shallow overburden. The H+ - carbon technique should be tested over the pyrite intersection

on the Yahk claim. If results are encouraging it should be used as a reconnaissance and geophysics back-up tool. Cost: \$14,500.

3.3. Geophysics

The Yahk property and the area west of Moyie should be flown by DIGHEM II, WHALETAIL configuration, as soon as possible (Figure 3). Cost: \$40,000.

This should be followed-up by ground PULSE - EM surveys. Cost: \$30,000.

3.4 Mineral Rights Acquisition

The Frost property west of Moyie should be optioned as soon as possible. This 22 unit claim group lies approximately on the STH, and, a recce soil geochem survey performed by us in 1979 produced many Pb values greater than 30 times background and Ag values 2 - 8 times background. Cost: \$3,000 plus work commitments.

Bill Johnson owns mineral rights through crown grant to 1200 acres located on the STH, adjacent to the Moyie Fault and a few hundred metres from the Cominco Vine deposit. He has an intense dislike for Cominco and refused an option agreement with them (confirmed by disgruntled Cominco geologist). I am negotiating to pick up the mineral rights if a reasonable first payment can be agreed on. Probable cost: \$5,000.

3.5 Diamond Drilling

1200 m. of diamond drilling should be planned to test the results of this program. This should be planned for spring, 1981. Cost: \$100,000.

IV SUMMARY OF COSTS

1980: Geology -	\$74,200
Geochemistry -	14,500
Geophysics -	
DIGHEM II	40,000
PULSE-EM	30,000
Mineral Rights	
Acquisition	8,000
Regional Office	
Expenses	17,000

TOTAL 1980	\$183,700
------------	-----------

1981: Diamond Drilling \$100,000

V EXPECTED BENEFITS

This program should allow us to find any Sullivan-type deposits within reach of modern technology in the two areas of interest.

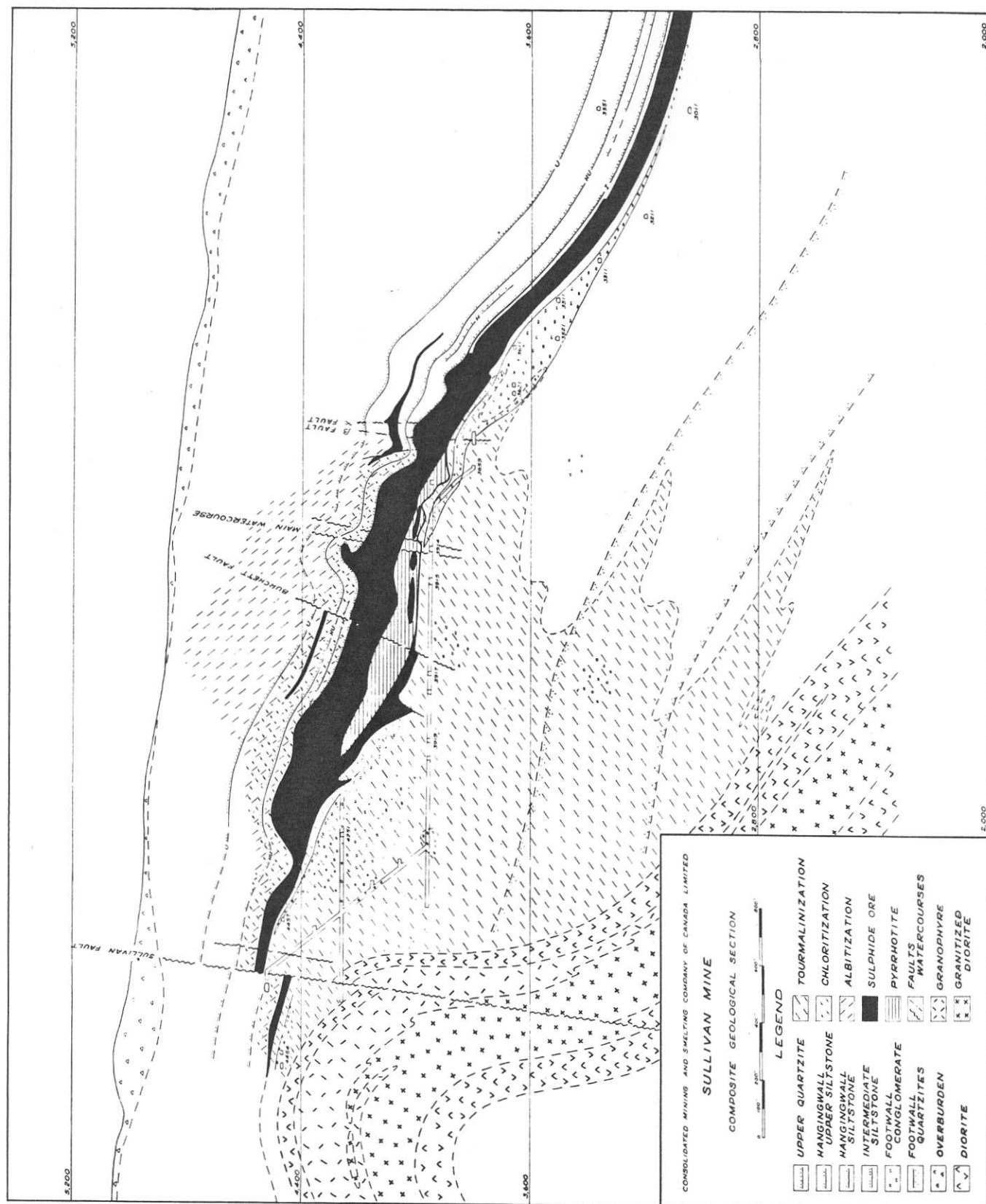


Figure 1

Freeze, A.C. (1966): On the Origin of the Sullivan orebody, Kimberley, B.C.
CIM Spec. Vol. 8, pp. 263-295.

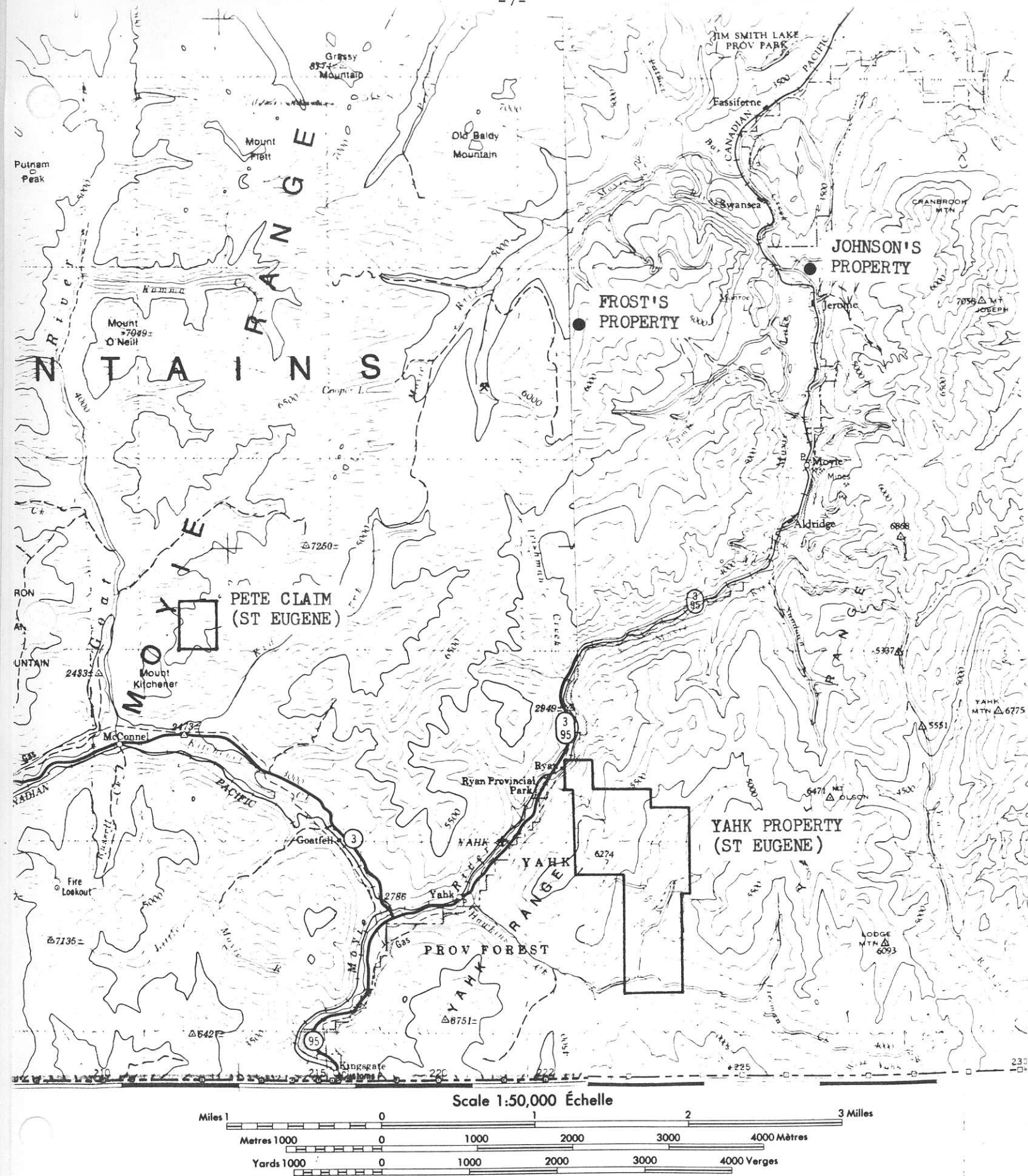


Fig.2 St Eugene Mining Corp and other properties of interest, Moyie area.

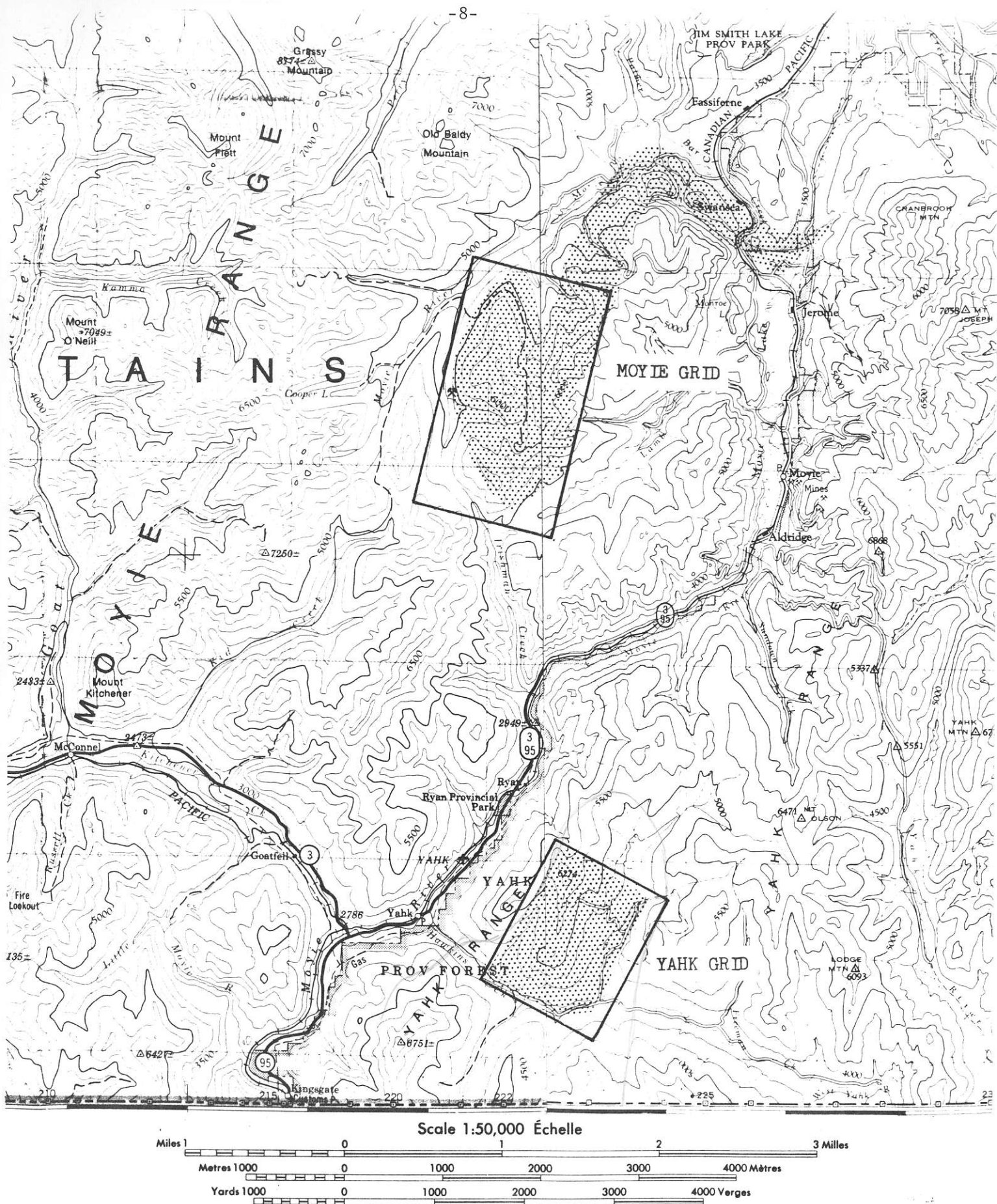


Fig. 3 Location map showing areas planned for DIGHEM II EM surveys, summer 1980. Stippled areas represent probable extent of Sullivan Time Horizon within reach of DIGHEM II.