Office of the Regional Manager Mineral Resources
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Yukon Territory

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ASSESSMENT REPORT

LEAF 1-39 CLAIMS

(YA76992 - YA77030)

MAYO MINING DISTRICT

091532

GEOLOGICAL MAPPING AND GEOCHEMICAL SAMPLING

JUNE 27 - AUGUST 12, 1983

NTS 105-O-6

LATITUDE: 63°16'N

LONGITUDE: 131°23'W

By: R. Robertson

This report has been examined by the Geological Evaluation Unit under Section 53 (4) Yukon Quartz Mining Act and is allowed as representation work in the amount of $ 14,130.61.

K. Grapes

for Regional Manager, Exploration and Geological Services for Commissioner of Yukon Territory.

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1. INTRODUCTION

1.1 General Statement

This report describes the exploration program completed by AGIP Canada Ltd. in 1983 on the LEAF 1-39 Quartz Claims. The claims were recorded on June 27, 1983 (YA76992-YA77030). The exploration program included geological mapping, prospecting, grid establishment and rock and soil geochemistry.

1.2 Location and Access

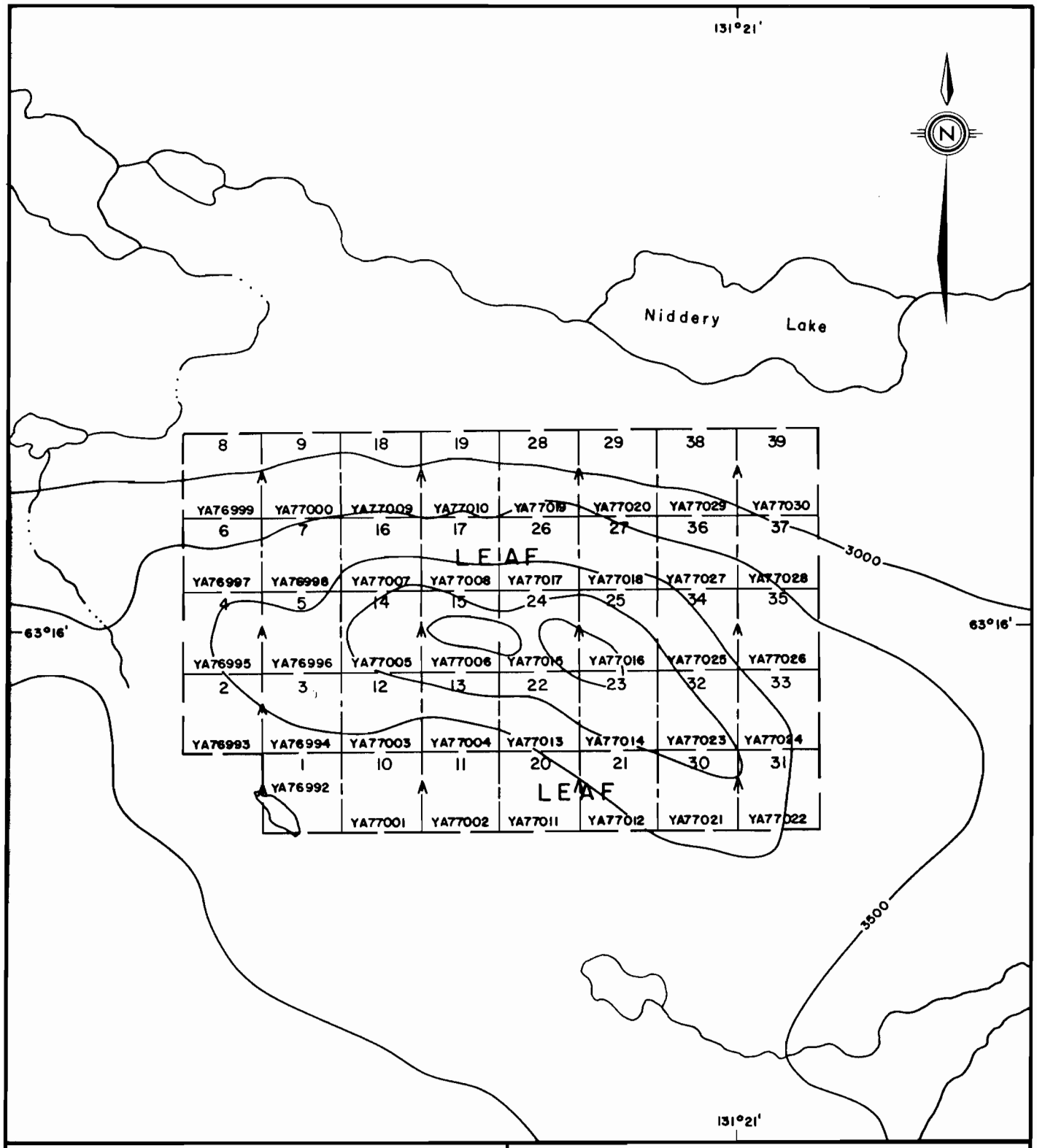
The project area is located immediately south of Niddery Lake, approximately 170 kilometers northeast of Ross River and 60 kilometers west of the MacMillan Pass airstrip (Figure 400350-1). Property exploration was conducted from a base camp on Niddery Lake in late June and early July; a brief follow-up work program was carried out in mid-August.

The claims are centered around a small rounded mountain with a maximum elevation of 1589 meters. Most of the work area is above treeline with typical alpine vegetation and blocky talus slopes.

1.3 Regional Geology

The MacMillan Pass area lies on the eastern margin of the Selwyn Basin, a site of marine sedimentation from the Cambrian to Triassic. The basin is underlain by clastic sediments derived from the western edge of the North American craton.

During Devonian time, faulting and uplift of the central part of the basin formed a series of grabens and horsts. The grabens were infilled with clastic sediments derived by erosion of the uplifted portions.



Agip Canada Ltd.

LEAF 1-39 CLAIMS

LOCATON MAP

YUKON

SCALE:	AUTHOR:	DATE:	FIGURE:
1:31,680	ADM	MARCH, 1984	400350-1

A major period of regional folding and faulting during the Cretaceous caused east-west shortening of the sedimentary package. This regional crustal thickening caused partial melting and intrusion of acid to intermediate igneous rocks such as the Niddery Lake intrusion, present on the property.

Major deposits in the MacMillan Pass area include the MacTung tungsten deposit, the Tom and Jason lead-zinc-silver deposits, and the Tea barite deposit.

2. CLAIM GROUP EXPLORATION

2.1 Introduction

The LEAF claims were staked to acquire an area of anomalous gold values located during regional reconnaissannce exploration in 1982. Exploration work in 1983 emphasized mapping, prospecting and geochemical sampling to locate the source of these gold values and identify rock units or structures which might host significant mineralization.

The main work area is located around the east-west ridge in the central part of the claim group. A grid was established here to provide control for detailed sampling and mapping; the grid is almost entirely enclosed in claims LEAF 14 (YA77005), LEAF 15 (YA77006) and LEAF 24 (YA77015). The baseline is 350 meters long, trends north-south and was established by compass and tape with slope corrections. East-west cross lines were turned off the baseline at 50 meter intervals and established by compass and hip-chain. All stations (50 meter intervals) are marked with lath pickets. The grid totals approximately 6.0 line kilometers.

2.2 Geology

The LEAF 1-39 claims are underlain by Ordovician to Silurian sedimentary rocks belonging to the Road River 'Group', intruded by the Cretaceous Niddery Lake pluton (Fig-

ures 400350-2 and 3). Black shale and green mudstone are the predominant lithologies present with minor chert, siltstone and limestone. Sedimentary strike is east-west with mainly northerly dips.

The sediments are moderately fractured with quartz and limonite coatings along fracture planes. Locally fractures in the green mudstone have a pearly lustre.

The intrusion is a medium-grained, slightly porphyritic hornblende biotite quartz monzonite. Near the margins flow banding structures and wallrock xenoliths and pendants are common. At least three quartz feldspar porphyry dykes cut the sediments near and parallel to the western contact of the intrusion. The largest is approximately 225 meters long with a maximum width of 25 meters.

A one kilometer wide hornfels zone has been developed around the main intrusion. The zone is marked by recrystallization, disseminated pyrite and pyrrhotite, and locally gneissic banding. The hornfels rocks have a distinctive rusty weathering colour because of the higher sulphide content.

Alteration of the main intrusion is minimal; restricted to minor secondary iron minerals and clay along fractures. The dyke rocks have locally undergone silicification or weak clay alteration with some iron staining. Occasionally biotite has been altered to muscovite. Around the larger dykes the wallrock has been altered to a soft pale green rock.

A number of northwest and northeast trending lineaments have been interpreted from an airphoto study of the area. Some of these are believed to be boundary faults related to the emplacement of the intrusion. A prominent 120° striking fault is present near the contact of the black shales and the green mudstones. This fault has been the focus of a large amount of quartz veining in the adjacent wallrock.

Numerous quartz veins are present on the grid area, mainly along the 120° fault and the green mudstones to the south. The largest vein is forty meters long and two meters wide but most are considerably smaller with very anastomosing features. Quartz stockworks or veinlets are often present in the adjacent wallrock.

Individual veins commonly strike north-south, northwest-southeast and northeast-southwest.

The veins are composed largely of quartz with minor pyrite and rare fluorite. Silicified wallrock fragments are common. The veins are generally fractured with some limonite and hematite staining. Wallrock alteration consists of intense silicification but rarely extending more than one meter from the vein.

Other veins located on the property include two thin arsenopyrite-quartz veins cutting a porphyry dyke.

2.3 Geochemistry

2.3.1 Introduction

Geochemical sampling was carried out to define the extent of anomalous gold values in soil and to locate a bedrock source for the gold mineralization. Soil sampling was completed along grid winglines at 25 meter stations. Quartz veins and stockworks, fault zones, porphyry dykes and altered sediments were chip sampled. Most samples were analysed only for gold and arsenic. A few were also analysed for silver.

Rock sample locations and analyses are shown on Figures 400350-2 and 4; soil sample locations and results are presented in Figure 400350-5.

2.3.2 Soil Geochemistry

Gold and arsenic results show a strong association with porphyry dykes and a weak but erratic association with the

quartz veins. Using 100 ppb gold and 400 ppm arsenic as threshold values, a series of northwest trending anomalous zones are outlined east of the baseline and a large, more northerly striking anomaly straddling the baseline. The former group of anomalies are coincident with the porphyry dykes previously described. Maximum results obtained here are 355 ppb gold and >1,000 ppm arsenic. Although not presented in the figures, the contoured arsenic data shows a closer spatial relationship to the dykes than is indicated by the gold values.

The anomalous zone along the baseline is less clear. However, the largest number of quartz veins with perhaps slightly higher gold contents are found in this area.

In all cases downslope movement appears to have broadened the anomalous zones, especially to the south.

2.3.3 Rock Geochemistry

The results of the rock sampling indicate that the quartz veins are only slightly enriched in gold and arsenic. The maximum gold value is only 300 ppb. Generally the veins themselves carry lower gold values than the adjacent narrow zones of wallrock with quartz stockworks.

Elsewhere a few grab samples of fault breccia returned anomalous results, up to 540 ppb gold, 2.9 ppm silver, and 900 ppm arsenic. A one meter chip sample over an altered porphyry dyke adjacent to green mudstone with thin quartz veins returned 515 ppb gold and 180 ppm arsenic. Gold content of the mudstone was only 20 ppb. Sampling of the porphyry dykes with the soil anomalies returned only low order gold and arsenic values.

As to be expected, the arsenopyrite veins to the north carried gold; 8340 ppb gold from a grab sample.

2.4 Discussion

There are no significant indications of gold mineralization occurring on the property. Potential host rocks for contact metasomatic mineralization were not located other than the few small limestone beds which do not carry anomalous precious metal values. Skarn potential is substantially downgraded since the silty limestone, the upper member of the Road River 'Group', was not observed on the property.

Although quartz veins are very common on the claims, geochemical analyses returned only weakly anomalous to background concentrations of gold. Gold is present in the arsenopyrite veins but these are too small to be significant.

The anomalous gold and arsenic results in the soils likely reflect very weak mineralization associated with the intrusion of the porphyry dykes. Since none of the dykes are enriched in gold, their importance may only be as conduits or heat sources for mineralizing activities. A leakage halo phenomenon is possible but not likely since the presumably more porous fault zones outlined on the grid cannot be related to consistently high geochemical results other than with the quartz veining.

future work will focus on defining the substantial for silicate hosted gold deposits, as previous work does not address this potential.

APPENDIX A

ANALYTICAL METHODS

Soil samples are dried and sieved to minus 80 mesh. Rock chip samples are pulverized and a split of the minus 100 mesh fraction is analysed.

Silver analyses: the sample is dissolved in hot aqua regia and analysed by atomic absorption spectrophotometry. Silver analyses require a correction for background.

Arsenic analyses are by perchloric-nitric acid digestion and colorimetric determination.

Gold analyses are by fire assay techniques but, after preparation of the bead, the bead is dissolved in acid and the gold content determined by atomic absorption spectrophotometry.

Mercury analyses are by flameless atomic absorption spectrophotometry after sample digestion.

APPENDIX B
STATEMENT OF EXPENDITURES

Surface exploration carried out from June 28th - July 2nd, August 2nd, 3rd and 12th, 1983.

Labour

A.D. McLaughlin	Project Geologist	8 days @ $152.68/day	$ 1,221.44
M.P. Mudry	Geologist	1 day @ $141.76/day	141.76
L. Lalonde	Senior Assistant	5 days @ $105.69/day	528.45
J. Page	Senior Assistant	3 days @ $106.58/day	319.74
J. Haase	Senior Assistant	1 day @ $106.11/day	106.11
S. Seto	Assistant	2 days @ $100.00/day	200.00
J. O'Connor	Assistant	1 day @ $98.49/day	98.49
S. Corden	Assistant	5 days @ $96.11/day	480.55
C. Evert	Assistant	1 day @ $95.44/day	95.44
P. Sarjeant	Assistant	2 days @ $91.61/day	183.22
S. Eldridge	Assistant	4 days @ $84.50/day	338.00
M. Chisholm	Cook	6 days @ $86.69/day	520.14
		39 man days	$ 4,233.34

Camp and Field Costs

Food Costs estimated at $20 per man day	$ 780.00
Camp and field equipment costs estimated at $10 per man day	390.00
	$ 1,170.00

Helicopter

Hughes 500-D helicopter on contract from ALC Airlift Corp., Pitt Meadows, B.C.

3.0 hours @ $400.00 per hour	$ 1,200.00
Fuel at 25 gal/hour and $2.70/gal on site	202.50

Bell 206-B helicopter on charter from Northern Mountain Helicopters base at MacMillan Pass.

4.8 hours @ $500.00 per hour	2,400.00
Fuel at 23 gal/hour and $4.00/gal	441.60
	$ 4,244.10

Geochemistry

Sample preparation and analyses by Bondar-Clegg Ltd., North Vancouver.
Freight and expediting charges omitted.

Sample Preparation

129 rock samples at $3.10	$ 399.90
218 soil samples at $1.00	218.00

Analyses

1 gold assay at $7.00	7.00
347 gold analyses at $6.00	2,082.00
21 silver analyses at $1.62	34.02
338 arsenic analyses at $2.93	988.65
1 mercury analysis at $3.60	3.60
	$ 3,733.17

Report Preparation

Estimated costs of drafting, typing, map reproduction	$ 750.00
Total expenditures submitted for assessment credit	$ 14,130.61

APPENDIX C
STATEMENT OF QUALIFICATIONS

I, RONALD CHARLES RAMSAY ROBERTSON, of the City of Calgary, in the Province of Alberta, hereby certify:

That I am a Senior Geologist employed by AGIP Canada Ltd. and that I caused to be performed, and supervised, the work described in this report.

That I obtained a Bachelor of Science degree with First Class Honours in Geology from the University of Aberdeen, Scotland in 1970 and subsequently carried out graduate studies at McMaster University, Hamilton, Ontario, and at Queen's University, Kingston, Ontario.

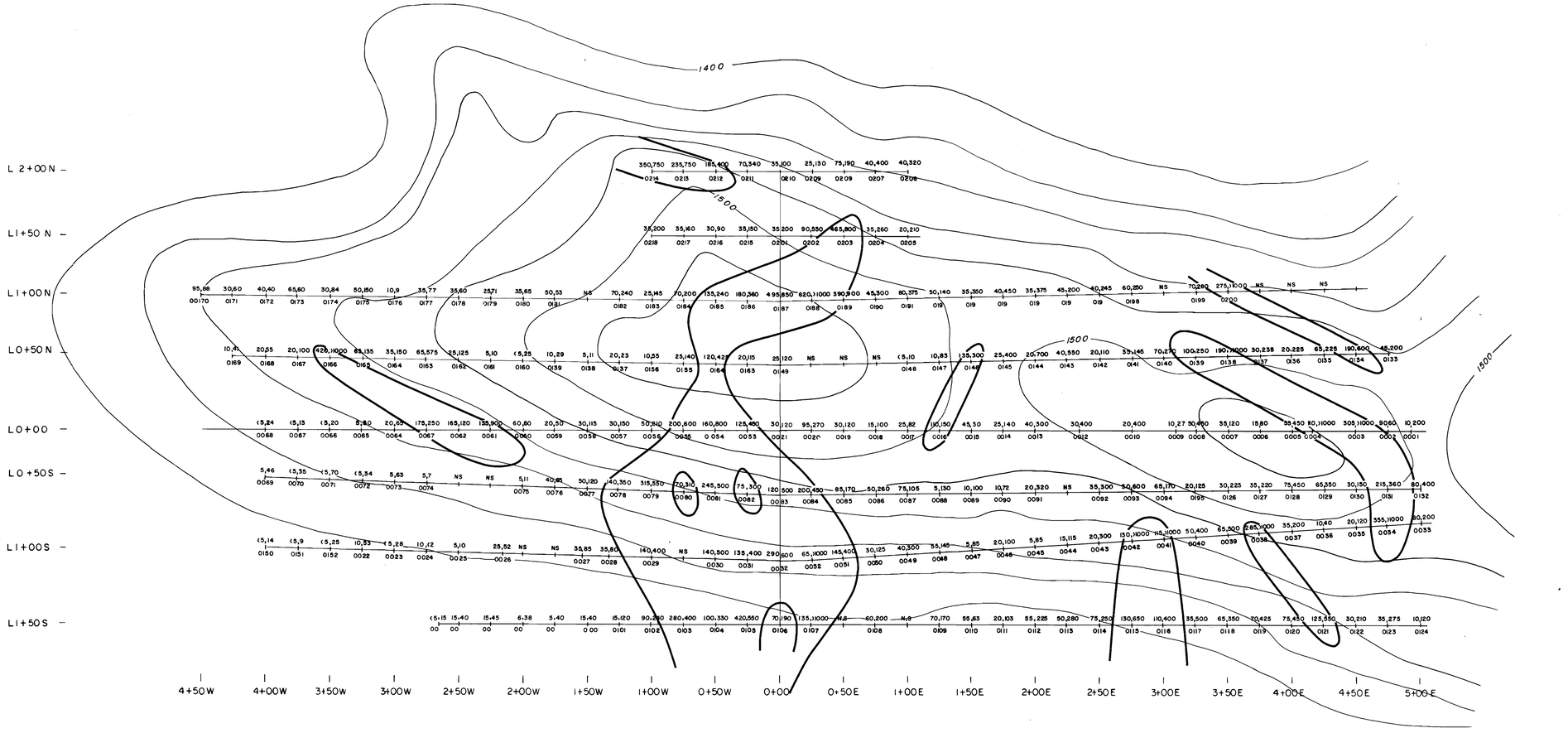
That I have been engaged in mineral exploration on a full-time and part-time basis for fourteen years of which six have been on mineral exploration programs in the Yukon Territory and Alaska.

That I am a member of the Canadian Institute of Mining and Metallurgy, and the Prospectors and Developers Association.

Signed at Calgary, Alberta this 2nd day of April, A.D., 1984.

Ronald C.R. Robertson

RONALD C.R. ROBERTSON



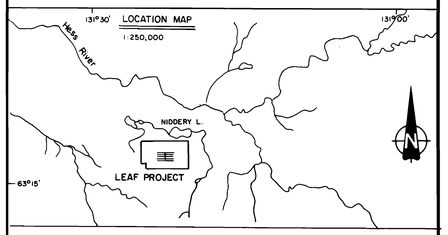
LEGEND

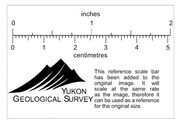
100 | 250 — Au ppb | As ppm

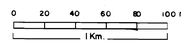
2130139 — Sample #

Contour line)100 ppb Au

1500 — Topographic contour (meters) 20m interval







AGIP CANADA LTD.

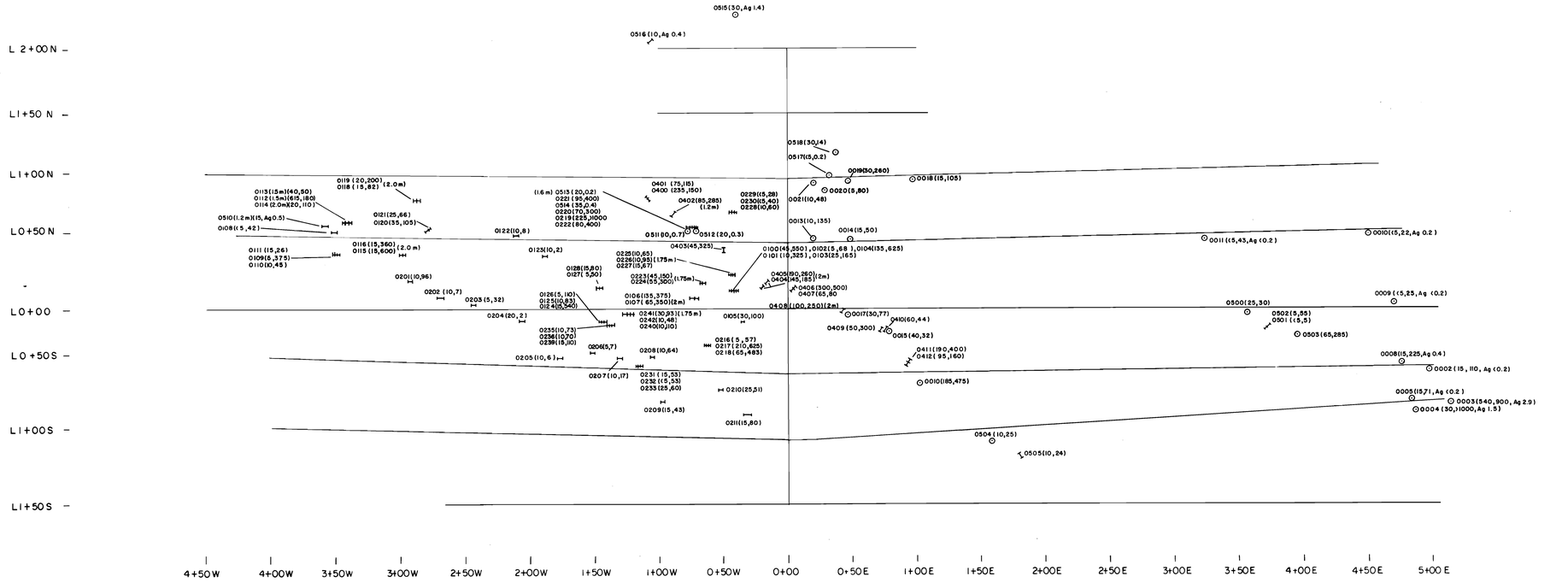
LEAF PROJECT

GRID SOIL GEOCHEMISTRY

YUKON

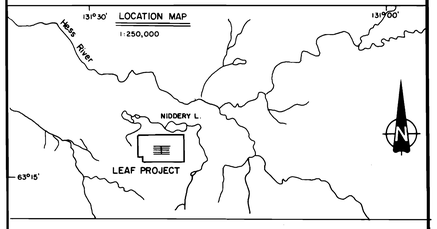
SCALE: 1:2,000	AUTHOR: D. McL.	DATE: Dec. ,1983
DRAWN BY: GTSz/J.B.	N.T.S: 105-O-6	FIGURE: 400350-5

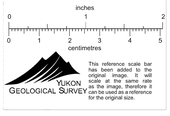
091532



LEGEND

- Chip sample (1 meter unless indicated)
- Grab sample
- 2140104 (40,100) Sample number (Au ppb, As ppm)





0 20 40 60 80 100 m.
1 Km.

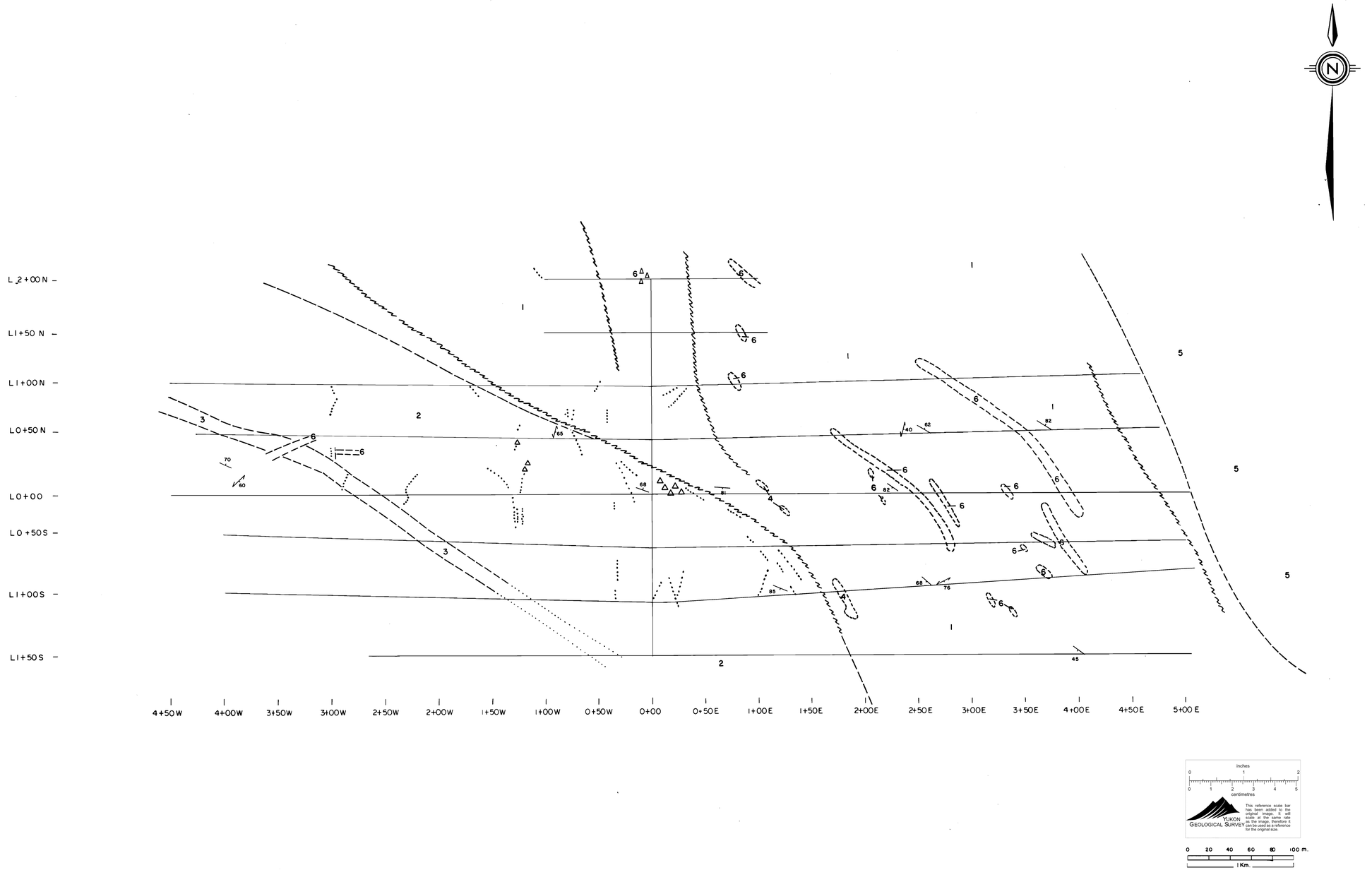
AGIP CANADA LTD.

LEAF PROJECT

GRID ROCK GEOCHEMISTRY

YUKON 091532

SCALE: 1:2,000	AUTHOR: D. McL.	DATE: Dec. ,1983
DRAWN BY: GTSz /J.B	N.T.S: 105-O-6	FIGURE: 400350-4



LEGEND

CRETACEOUS

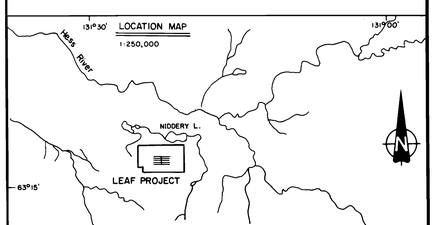
- 6 Quartz Porphyry Dyke
- 5 Biotite Quartz Monzonite

SILURIAN–ORDOVICIAN

Road River "Group"

- 4 Quartzite
- 3 Blue Shale
- 2 Green Mudstone
- 1 Black Shale

- Quartz Vein
- Δ Quartz Float
- Fault
- Bedding, Cleavage
- Geological Contact



AGIP CANADA LTD.

LEAF PROJECT

GRID GEOLOGY

YUKON 091532

SCALE: 1:2,000	AUTHOR: D.McL., LL	DATE: Dec, 1983
DRAWN BY: GTSz / J.B.	N.T.S.: 105-O-6	FIGURE: 400350-3

YUKON GEOLOGICAL SURVEY

This reference scale bar has been added to the original image. It will scale at the same rate as the image, therefore it can be used as a reference for the original size.

0 20 40 60 80 100 m.

1 Km.

NIDDERY LAKE

900
1000
1100
1200
1300
1400
1500

63°17'

131°20'

0001 0006 0244-0246 0243(2.3g/t) 0506 0507 0508 0509 0spy

1 5 6 2

LEGEND

CRETACEOUS

6 Quartz Feldspar Porphyry Dyke/Sill

5 Biotite Quartz Monzonite

SILURIAN–ORDOVICIAN

3 Blue Shale

2 Green Wispy Mudstone — Road River "Group"

1 Black Shale

SYMBOLS

Vein

Fault

Bedding, Cleavage

Geological Contact (assumed)

Topographic Contact (100 m interval)

Rock Sample (Grab, Chip 1 m interval unless noted)

Mineral Occurences

aspy arsenopyrite

q quartz

c calcite

Claim Boundary

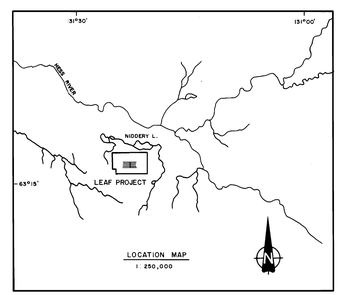
Stream

inches 0 1 2 centimetres 0 1 2 3 4 5

YUKON GEOLOGICAL SURVEY — Scale of this bar has been added to the original figure. The scale of the same has been reduced and can be used as a reference for the original size.

ROCK GEOCHEMISTRY

SAMPLE #	Au ppb	Ag ppm	As ppm	Hg ppb
2140001	175	2.6	4	55
0006	<5	<0.2	71	
0007	10	0.3	360	
0243	315		>1,000	
0244	20		52	
0245	<5		22	
0246	10		8	
0506	10		41	
0507	15		53	
0508	10		155	
0509	8340		>1,000	



0 100 200 300 400 500
METERS

Agip Canada Ltd.

TITLE: GEOLOGY AND ROCK GEOCHEMISTRY

PROJECT: LEAF PROJECT

YUKON

PROJECT NO: 400350

SCALE: 1: 10,000

N.T.S: 105-O-6

SURVEYED BY: ADM, L.L.

DRAWN BY: J.B.

DATE: Dec/1983

FIGURE: 400350-2

091532