MAP No.

115 J 10

ASSESSMENT REPORT [X]
PROSPECTUS [ ]
CONFIDENTIAL [X]
OPEN FILE [ ]

DOCUMENT NO.: 091703
MINING DISTRICT: WHITEHORSE
TYPE OF WORK: GEOCHEMICAL

REPORT FILED UNDER: Archer, Cathro and Associates (1981) Ltd.

DATE PERFORMED: June 29, 30, 1986 DATE FILED: May 1, 1987

| LOCATION | | AREA: |
|---|---|---|
| LAT. | 62°43'N | |
| LONG. | 138°60'W | |

CLAIM NAME & NO.

ANA 1-58 YA86735-YA86790

VALUE $ 4,200.00

WORK DONE BY: R.C. Carne

WORK DONE FOR: Archer, Cathro and Associates (1981) Ltd.

DATE TO GOOD STANDING

REMARKS: ~~ANA~~ CASINO # 12

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ARCHER, CATHRO
& ASSOCIATES (1981) LIMITED
CONSULTING GEOLOGICAL ENGINEERS

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

(604) 688-2568

091703


# REPORT ON
# GEOCHEMICAL SURVEY
# ANA PROPERTY
# CASINO, YUKON

ANA 1-56 YA86735-YA86790

Latitude 62°43'N; Longitude 138°60'W; NTS 115J/10

NORDAC MINING CORPORATION

R.C. Carne, M.Sc.

March, 1987

Work Done on June 29 and 30, 1986

BOX 4127, 3125 THIRD AVENUE, WHITEHORSE, Y. T. Y1A 3S9

(403) 667-4415

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 $4200.00.

D D Emond

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

091703

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## SUMMARY AND RECOMMENDATIONS

The ANA property is situated in the Dawson Range, 145 km by air from Carmacks, Y.T. It covers at least one breccia pipe of Upper Cretaceous Casino volcanics intruding Mesozoic intrusive rocks and older Paleozoic(?) gneisses and schists. The Casino copper-gold porphyry deposit, which is also associated with a breccia body, lies 3 km to the east and the Canadian Creek placer gold deposit lies downstream of the east half of the property.

The only previous exploration on the ANA property occurred during the period 1967 to 1973, when it was explored for its copper-molybdenum potential as part of the Casino property . A bulldozer trenching program over the Casino deposit in 1985 to test the gold content of the deposit outlined geological reserves (to 70 m depth, 0.35 g/t Au cutoff) of 24,900,000 tonnes grading 0.59 g/t Au at a waste/ore ratio of 0.4/1. Gold content is 14,700 kg (472,600 oz). The Casino deposit, as well as the ANA property, has not been glaciated and the surface has been weathered to depths up to 170 m, rendering the gold in the leached cap amenable to heap leach extraction techniques.

The 1986 gold geochemical survey on the ANA property located several anomalous zones trending north-northeast. These anomalies are similar to extensive gold geochemical anomalies on the Casino property which are related to bedrock gold mineralization. The ANA anomalies extend off the 1986 grid onto parts of the property that are unexplored. Bedrock geology is poorly understood due to very limited exposure and because there has been little study.

Additional grid gold geochemical sampling, together with prospecting and mapping, is warranted on the part of the ANA property which is still unexplored.

The known anomalies, as well as any found by additional sampling, should be bulldozer trenched and the following budget is recommended.

Phase One - Soil Sampling

| | |
|---|---|
| 1,000 soil samples @ 100 m by 50 m spacing ..... | $ 50,000 |

Phase Two - Bulldozer Trenching

| | |
|---|---|
| 200 hours D7E bulldozer (including support costs, assays and supervision) ..... | 150,000 |
| TOTAL - | $200,000 |

Respectfully submitted,

ARCHER, CATHRO & ASSOCIATES (1981) LIMITED

/mc

R.C. Carne.

## INTRODUCTION

The ANA property was staked by Nordac Mining Corporation in May, 1985 because it has a similar geologic setting to the adjacent Casino Silver Mines porphyry copper-gold property. The Casino deposit was explored with 95 core and percussion drill holes (18,003 m) during the period 1969 to 1973.

In 1985, Nordac (in joint venture with Permian Resources Ltd.) explored the Casino property and a small part of the ANA property by soil geochemical surveys.

The Nordac/Permian option on the Casino property has been allowed to lapse. The 1986 geochemical program on the ANA property extended the 1985 grid but most of the ANA property still remains unsampled and none of the anomalies located has been tested further.

The 1986 work program cost about $5,000 and was performed by Archer, Cathro & Associates (1981) Limited. Field personnel included B. Wengzynowski and K. Sax. The program was supervised by R.C. Carne.

## PROPERTY, LOCATION AND ACCESS

The ANA claims form a contiguous block registered in the Whitehorse Mining District as follows:

| Claim Name | Grant Number | NTS | Expiry Date* |
|---|---|---|---|
| ANA 1-56 | YA86735-YA86790 | 115J/10 | May 17, 1991 |

*excluding 1986 work

The ANA property is located in the Dawson Range, Y.T. at latitude 62°43'N and longitude 138°60'W on NTS claim sheet 115J/10 (see Figure 1 on following page). There is no present road access although the Casino Trail, proposed to be completed within the next several years, will reach the Casino property about 3 km to the east. Present access is by helicopter from the Casino airstrip located 4 km to the east (suitable for Caribou or DC3 aircraft) or from Carmacks, 145 km to the southwest.

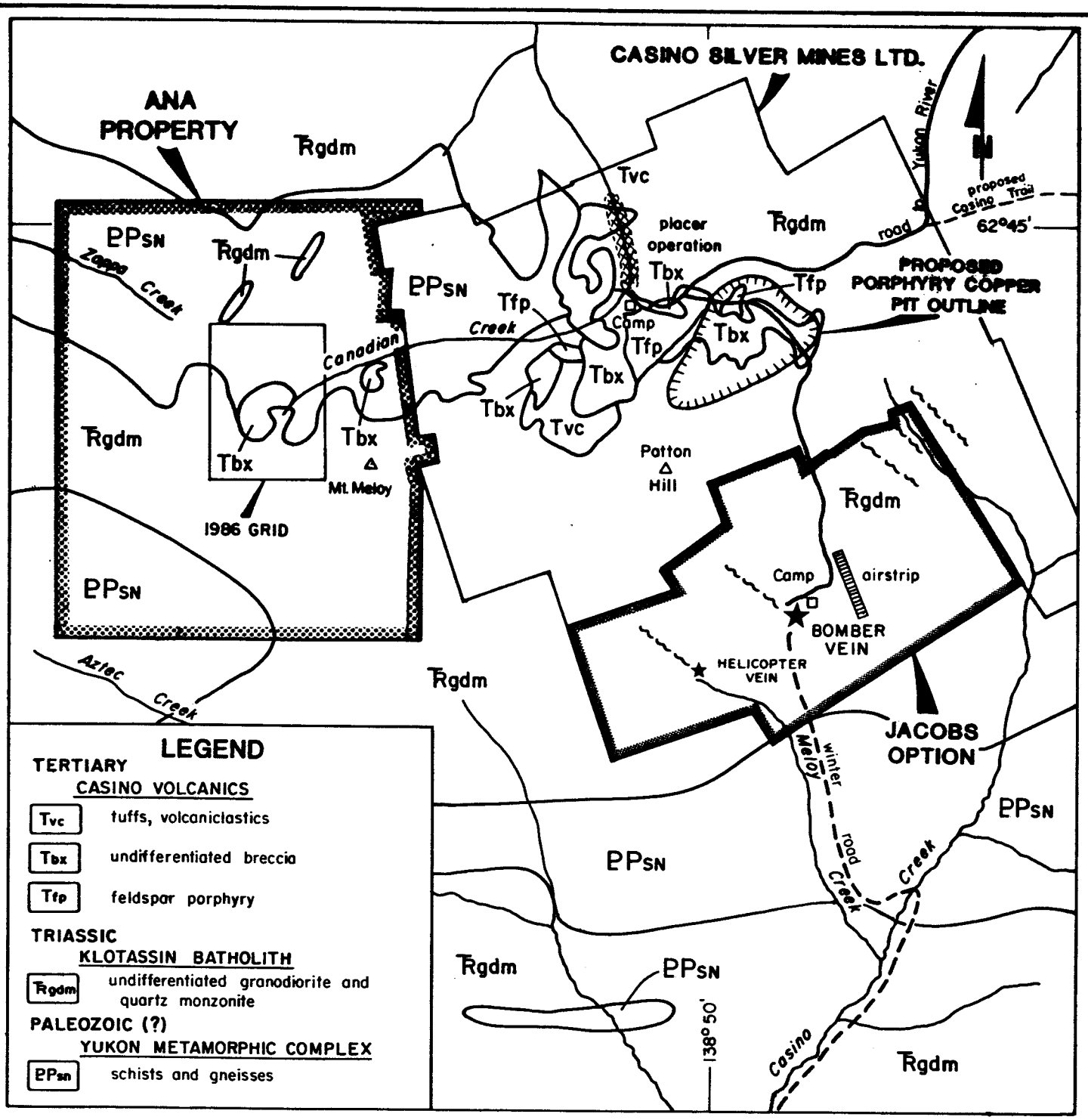



Figure 1

ARCHER, CATHRO & ASSOCIATES (1981) LIMITED

# GEOLOGY

## ANA PROPERTY

NORDAC MINING CORPORATION

SCALE 1:50,000

0 1000 2000 3000m

To accompany report dated March, 1987

## GEOLOGY

The regional geology was mapped by D.J. Tempelman-Kluit in 1970 to 1973 and 1979 and published in GSC Papers 73-41 and 80-1A. In addition, C.I. Godwin studied the Casino property as part of his Ph.D. Thesis (U.B.C., 1975).

The geology of the ANA property is similar to the adjacent Casino property which is underlain by Paleozoic(?) schists and gneisses of the Yukon Metamorphic Complex that are intruded by the Triassic or Cretaceous Klotassin granodiorite batholith. Heterolithic to homolithic breccia pipes and coeval quartz feldspar porphyry bodies of the Upper Cretaceous Casino volcanics intrude older units. The Casino volcanics have been entirely affected by hydrothermal alteration to some degree and distinction between intrusive and extrusive phases is difficult.

### Yukon Metamorphic Complex (PPsn)

The oldest rocks in the region are metasedimentary rocks that belong to the Yukon Metamorphic Complex (PPsn). Most exposures occur away from the Casino deposit and they have been poorly studied. This unit is generally composed of quartz-biotite-muscovite schist, orthoclase-biotite gneiss, quartzite and rare marble.

### Klotassin Batholith (Ŧ qdm)

In the Casino area, Godwin recognizes eight phases of the Klotassin Batholith from which he has obtained Cretaceous dates, possibly due to the emplacement of the Casino volcanics. On the ANA property, the Klotassin Batholith is generally a grey medium-grained, commonly foliated granodiorite.

Hornblende is the principal mafic although biotite occurs locally. Phenocrysts of coarse-grained orthoclase are common. Tempelman-Kluit has dated parts of the Klotassin Batholith away from Casino and obtained Triassic ages.

Casino Volcanics (Tfp, Tvc, Tbx)

Godwin recognizes a number of separate units within the Casino volcanic complex. For simplification, on Figure 1 these have been grouped into three main categories. Feldspar porphyry (Tfp), called "Patton Property" at Casino, consists of plagioclase phenocrysts in a microcrystalline quartz biotite matrix. It occurs in irregular dykes and plugs found peripheral to the Casino breccia pipe. Casino tuffs(?) (Tvc) are probably a fine-grained variety of breccia but they have been hydrothermally altered and their provenance is uncertain. These rocks could be volcaniclastic material discharged away from the breccia complex. Casino breccias (Tbx) occur as a number of variably coarse homoclastic to heterolithic breccias, mainly situated in pipelike diatremes.

Mapping on the ANA claims is still very cursory due to the limited amount of outcrop but at least one unit of Casino volcanics, a body of tourmaline-bearing heterolithic breccia (Tbx) is recognized at the head of Canadian Creek.

## MINERALIZATION

No mineralization is presently known on the ANA claims. However, since the geological setting and gold geochemical response resemble that of the adjoining Casino property, that deposit is summarized below.

### Casino Copper-Gold Deposit

The Casino breccia-hosted copper-gold deposit has "porphyry-style" concentrically zoned hydrothermal alteration and base metal mineralization. The centre of the breccia pipe exhibits intense potassic alteration surrounded in succession by a phyllic zone, which hosts chalcopyrite and lesser molybdenite, an argillic zone and finally a distal propylitic zone. Superimposed on this zonation is a well developed weathering profile which has developed a leached (oxidized) cap extending to depths of 170 m overlying a supergene zone containing most of the base metals that have been leached from the cap. Quartz veinlets are not common but all rocks are heavily fractured with limonite coatings. Thin quartz selvages are occasionally present on fracture faces.

The entire Casino volcanic complex contains an evenly distributed low grade gold content. Little is known about the nature of the gold mineralization although leachability tests suggest that the gold is in the native form and is present on fractures and veinlets. Geological study of the Casino deposit in 1985 was unsuccessful in determining any consistent geological control to gold mineralization. The location of the better grade portions of the gold deposit was determined entirely from trench assays.

Mineral inventory of the gold content of the deposit, based on 1985 trench assays, is as follows (calculated to depth of 70 m):

| Cutoff Grade (g/t Au) | Tonnes | Grade (g/t Au) | gm Au | W/O Ratio |
|---|---|---|---|---|
| .35 | 24,904,000 | 0.59 | 14,700,000 (472,600 oz) | 0.4/1 |

With no minimum cutoff grade, the mineral inventory increases to about 77 million tonnes grading 0.38 g/t containing 29,000,000 gm (932,300 oz) gold.

The Casino deposit exhibits an anomalous (+50 ppb Au) gold soil geochemical pattern which roughly coincides with the area known to have widespread, low grade gold mineralization. A number of other areas with gold geochemical anomalies lie peripheral to the Casino complex (see Figure 2 on the following page). These have not been tested and the nature of the mineralized source of these anomalies is unknown. A more linear nature and a higher anomaly/background contrast suggest that these peripheral anomalies are caused by vein mineralization as opposed to the porphyry-style deposit already tested.

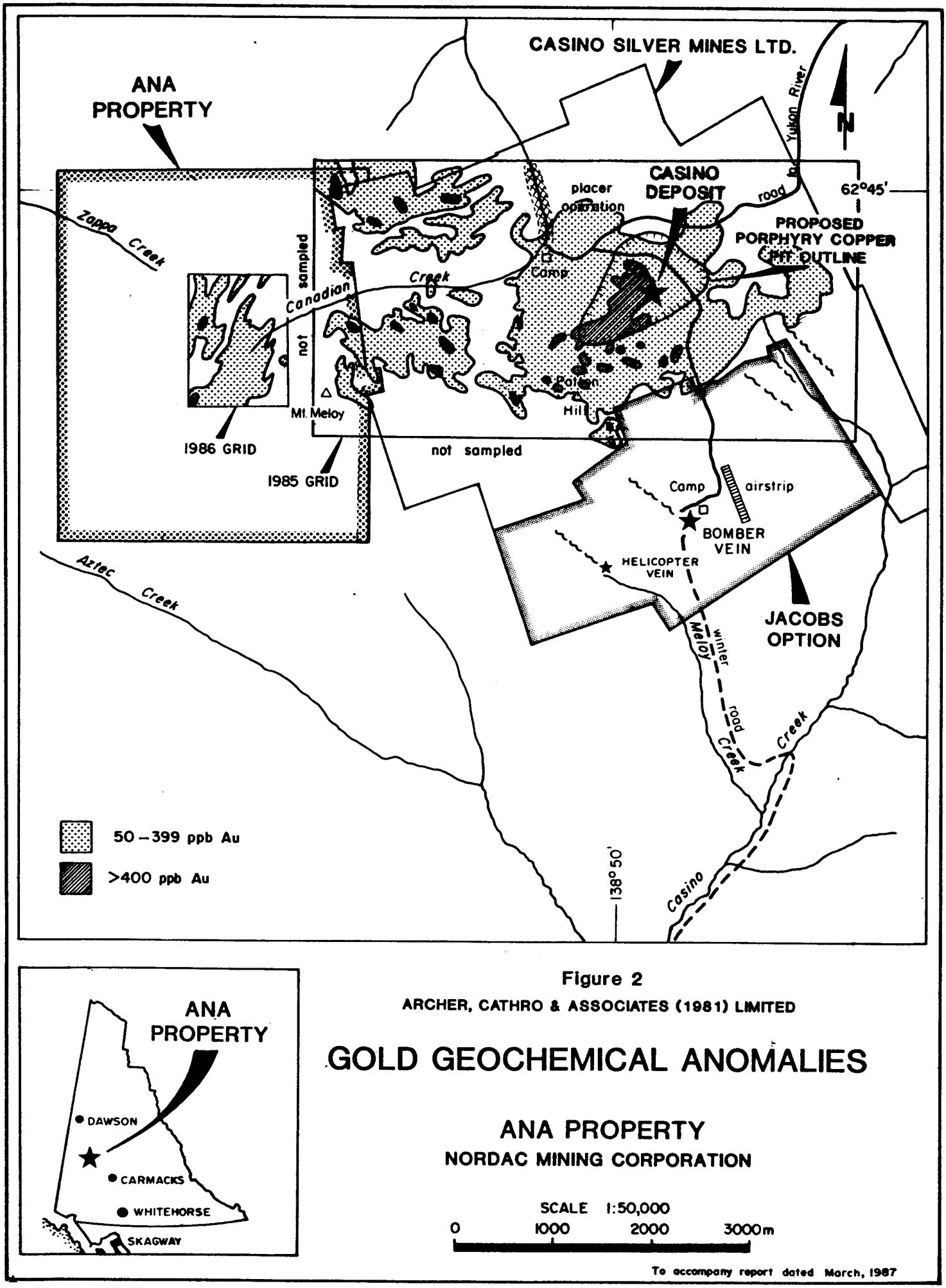



Figure 2

ARCHER, CATHRO & ASSOCIATES (1981) LIMITED

# GOLD GEOCHEMICAL ANOMALIES

## ANA PROPERTY

NORDAC MINING CORPORATION

SCALE 1:50,000

0 1000 2000 3000m

To accompany report dated March, 1987

## 1986 PROGRAM

Four mandays were spent establishing and geochemically sampling a grid, which covers about 30% of the ANA property (see Figure 1). Samples were generally collected at 50 m intervals located by hip chain and compass along grid lines 100 m apart. Two hundred and fifty geochemical samples were taken from a brown clay B horizon soil, generally at depths of about 20 cm. These samples were sent by air to Chemex Labs where they were dried and the -35 mesh sieved portion was pulverized to -100 mesh. This prepared material was preconcentrated by fire assay and analyzed for gold by neutron activation. The results of the gold analyses are shown on Figure 3 on the following page.

The background gold content of soils on the ANA property is about 30 ppb Au, similar to that on the Casino property. A number of zones exceed the highly anomalous 150 ppb Au level and require further investigation. The present data suggests that mineralization has a north-northeast strike, apparently parallel to several granitic dykes and airphoto linears.

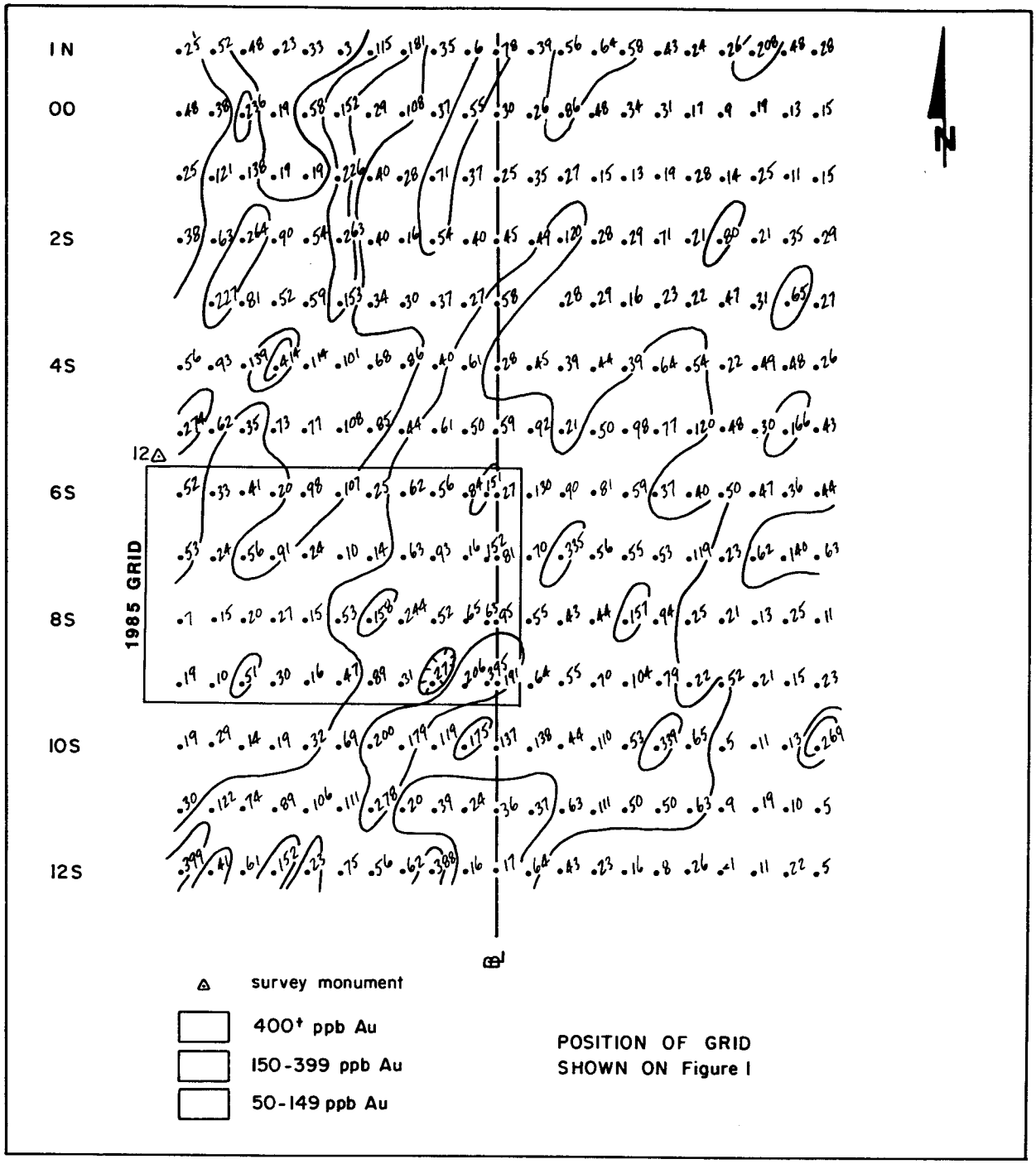



Figure 3

ARCHER, CATHRO & ASSOCIATES (1981) LIMITED

# GOLD GEOCHEMICAL DATA

## 1986 GRID

## ANA PROPERTY

NORDAC MINING CORPORATION

SCALE 1:10,000

0 100 200 300 400 500 m

To accompany report dated March, 1987

# APPENDIX I

# STATEMENT OF QUALIFICATIONS

## STATEMENT OF QUALIFICATIONS

I, Robert C. Carne, geologist, with business addresses in Whitehorse, Yukon Territory and Vancouver, British Columbia and residential address in Burnaby, British Columbia, hereby certify that:

1. I graduated from the University of British Columbia in 1974 with a B.Sc. and in 1979 with an M.Sc. majoring in Geological Sciences.
2. I am a member of the Geological Association of Canada.
3. From 1974 to the present, I have been actively engaged as a geologist in mineral exploration in British Columbia and Yukon Territory and on June 1, 1981 became a partner of Archer, Cathro & Associates (1981) Limited.
4. I have personally participated in or supervised the field work reported herein and have interpreted all data resulting from this work.

Robert C. Carne, B.Sc., M.Sc.

091703


# ARCHER, CATHRO
& ASSOCIATES LIMITED

CONSULTING GEOLOGICAL ENGINEERS

VANCOUVER, B.C. (604) 688-2568

BOX 4127, WHITEHORSE, Y.T. Y1A 3S9 (403) 667-4415

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


## AFFIDAVIT

I, Joan Mariacher, of Vancouver, B.C. make oath and say:

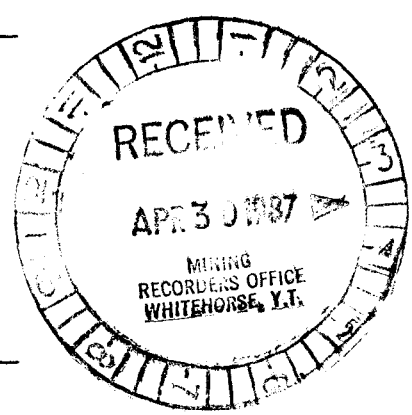
That to the best of my knowledge the attached Statement of Expenditures for exploration work on the ANA 1-56 mineral claims on Claim Sheet 115J/10 & 15 is accurate.

Joan Mariacher

Sworn before me at Vancouver, B.C.

this 27th day of

April, 1987




Notary, Yukon Territory

091703

Statement of Expenditures
ANA 1 - 56 Mineral Claims
April 24, 1987

| | | |
|---|---|---|
| **Labour** | | |
| R.J. Cathro (geologist) - 1 hour at $50/hr | $ 50.00 | |
| R. Carne (geologist) - June 30 - 1 day at $270/day | 270.00 | |
| B. Wengzynowski - June 29,30 - 2 days at $110/day | 220.00 | |
| K. Sax - June 30 - 1 day at $119/day | 119.00 | |
| J. Mariacher - 1/2 hour at $35/hr | 17.50 | |
| C. Main - Feb. 23, March 24 - report - 2 days at $270/day | 540.00 | $1,216.50 |
| **Expenses** | | |
| Field room and board - 4 mandays at $60/day | 240.00 | |
| CP Air - freight | 71.28 | |
| Office - drafting and printing | 122.57 | |
| Chemex Labs - 150 samples for Au | 1,984.50 | |
| Helicopter - Trans North 1.065 hours plus fuel | 741.71 | 3,160.06 |
| | | $4,376.56 |