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

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NAT JOINT VENTURE

GEOLOGICAL AND GEOCHEMICAL REPORT

NITRO 1-24 CLAIMS
(YA60232-YA60255)

DECEMBER, 1982

Claim Sheets 115I/5 and 6

Latitude 62°23'N; Longitude 137°30'W

W.D. Eaton, B.A., B.Sc.

Work done between June 26 and August 25, 1982

091438

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

(403) 667-4415

This report has been examined by the Mineral Evaluation Unit under Section 53 (4) Yukon Quartz Mining Act and is allowed as representation for work in the amount of $ 9,600—.

P. Watson

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

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INTRODUCTION

The Nitro 1-24 claims were staked in May, 1981 to cover anomalous gold, silver and lead values obtained by reanalysis of samples from a gossan known as the Klazan showing, which had previously been explored for its porphyry Cu-Mo potential. Limited soil and rock sampling traverses by NAT in 1981 returned values up to 810 ppb Au and 28.0 ppm Ag in soil and 476 ppb Au and 31 ppm Ag in rocks. NAT also relogged and resampled core from five 1970 Atlas Exploration Ltd. diamond drill holes.

The 1982 program included grid soil sampling of the entire property, reconnaissance chip sampling along old bulldozer roads crossing the gossan, and geological mapping. A small reconnaissance soil sample grid was also done 1 km west of the property in an area where Atlas had reported anomalous lead soil values.

PROPERTY, LOCATION AND ACCESS

The Nitro property consists of 24 contiguous mineral claims registered in the name of Archer, Cathro & Associates (1981) Limited in the Whitehorse Mining District as follows:

Claim Name	Grant Numbers	Expiry Date
Nitro 1-24	YA60232-YA60255	March 1, 1985

The claims are located at latitude 62°23'N and longitude 137°30'W on NTS claim sheets 115I/5 and 6, some 71 km northwest of Carmacks.

Access in 1982 was by helicopter from NAT camps on the Nucleus and Lilypad properties. An airstrip constructed in 1970 by Atlas EL lies 1 km north of the property and is suitable for small aircraft use. The closest road access is the Freegold-Revenue road system which ends at Mechanic Creek, some 8 km east of the property. A cat trail linking the property to the road parallels Big Creek but is impassable to wheeled vehicles.

PREVIOUS WORK

This property was discovered in 1965 during a reconnaissance geochemical program and staked as the Klazan claims in July, 1966 by Coranex Joint Venture (Frobex Limited, International Nickel Co. of Canada Ltd., Dome Explorations Ltd., Denison Mines Ltd., and MacIntyre Porcupine Mines Ltd.), which explored with a geochemical survey and mapping in 1966 and bulldozer trenching in 1968. The claims were staked to cover geochemical anomalies in Mo, Cu, Pb, Zn, Ag, Au and As associated with a small but prominent gossan. It was optioned in 1970 by a joint venture between Atlas Explorations Ltd. and Caltor Syndicate (Rayrock Mining Ltd., Canadian Industrial Gas & Oil Ltd. and Ashland Oil Canada Ltd.), which conducted grid soil sampling, a magnetometer survey, bulldozer trenching and 967 m (3171') of diamond drilling in 5 holes later that year before dropping the option. The best intersections reported from the drilling are 15 m of 0.17% Cu and 3 m of 0.16% Cu and 0.68% MoS_2. Klotassin Joint Venture (Newconex Canada Exploration Ltd., Marietta Resources International Ltd. and Molybdenum Corp. of America) tied on the Roc and Jen claims in 1974 and Skunk claims in 1975 to the northwest and southeast and performed mapping, geochemical surveys and a magnetometer survey in 1975-76.

PHYSIOGRAPHY AND GEOMORPHOLOGY

The property lies in the northeastern part of the Dawson Range and borders on Big Creek. The valley of Burgis Creek, which bisects the property, is remarkably straight and trends north-northeast at right angles to the Big Creek Lineament, as shown on Figure K1 in the pocket and may follow a minor tear-fault or fracture associated with the Big Creek Lineament.

Outcrops are rare and much of the property, particularly north-facing slopes, is covered by a thick layer of moss over frozen organics mixed with volcanic ash. The volcanic ash is patchy and shows its greatest thickness along Burgis Creek where it exceeds 1 m in places and could not be penetrated by hand sampling. Along ridges, ash is often absent. Like all of the Dawson Range, this area was not glaciated during the Pleistocene and surface weathering is intense. The property is lightly treed with poplar and spruce on south- and east-facing hillsides and stunted black spruce on north- and west-facing slopes.

GEOLOGY

Figure K1 in the pocket illustrates property geology as mapped from float in soil, scattered outcrops and pre-existing road cuts and trenches. Most of the property is underlain by rhyolite tuff-breccia and associated felsic intrusive rocks approximately 100 Ma in age (D.J. Tempelman-Kluit, pers. comm). These rocks occur in a roughly elliptical area about 4.0 m long in a west-northwest direction and 1.5 km across. Contacts between the tuff breccia and surrounding pre-Cretaceous syenite are steep but do not appear to be faults, suggesting that the property overlies a caldera.

Pre-Cretaceous Units

Syenite (My) - This is a coarse-grained, commonly porphyritic syenite consisting of euhedral pink orthoclase phenocrysts (up to 3 cm long) and elongate euhedral hornblende (up to 2 cm long) in a coarse matrix of orthoclase, hornblende, biotite and plagioclase with traces of quartz. The unit is characteristically inhomogeneous and varies from porphyritic to equigranular over short distances.

It ranges from unfoliated to strongly foliated and shows alignment and locally compositional banding of orthoclase and hornblende phenocrysts. Small screens of metamorphic rocks are enclosed in syenite in places. This syenite body is texturally identical to a suite of syenites in the Dawson Range which give 140 to 166 Ma hornblende K-Ar dates (D.J. Tempelman-Kluit, pers. comm).

Porphyritic Quartz Monzonite (Mqm) - A few small outcrops west of Burgis Creek within the syenite unit consist of porphyritic quartz monzonite, which contains 50 to 70 percent euhedral hornblende, orthoclase, biotite and quartz phenocrysts in a light green fine-grained matrix. The euhedral hornblende and orthoclase phenocrysts in it suggest a textural link to the syenite; however, this unit, unlike the syenite, is unfoliated. It may be a Cretaceous dyke with abundant xenocrysts derived from the syenite which surrounds it.

Cretaceous Extrusive and Intrusive Units

Rhyolite Tuff-Breccia (Krtx) - This unit underlies most of the property. It is somewhat heterogeneous and shows a distinctly fragmental character throughout. Euhedral to broken, 1 to 3 cm in diameter quartz and orthoclase phenocrysts constitute 10 to 20 percent of the rock and occur in a cream-coloured, aphanitic to punky fragmental matrix. Lithic clasts occur in great abundance near the southern claim boundary west of Burgis Creek, where they form 50 percent of the tuff-breccia and reach diameters of more than 10 cm. They are all rhyolite porphyries, but they vary somewhat in texture and colour. Some appear to be more altered than the enclosing matrix. Ash fragments are also common towards the southern claim boundary. There they show a pronounced parallel flattening and are moderately welded, thus forming a mappable subunit of the tuff-breccia unit (Krtx[w]). Northward, lithic clast

content and degree of welding decrease abruptly. Most exposures show few clasts, commonly one or two per float cobble. However, the presence of broken phenocrysts and the disordered character of the matrix persist and show that the tuff-breccia unit is not a rhyolite flow. The tuff-breccia seems to pass gradationally into rhyolite intrusive breccia, part of the felsic intrusive complex described below.

Rhyolite Plug Dome (Krf) - The ridge 1000 m west of the property is occupied in part by a porphyritic rhyolite body which consists of quartz eyes and euhedral orthoclase phenocrysts, averaging 2 mm in diameter, in a dense, vitreous, white to pale green matrix that contains no fragmental material. On the basis of texture, the unit is designated a rhyolite flow; however, it is circular in plan with a steeply-dipping southern contact against tuff-breccia. It is interpreted as a plug dome, a very shallow intrusion which probably reached the paleosurface. Clasts identical to this unit occur in the tuff-breccia nearby.

Felsic Intrusive Complex (Kfi) - This unit centres on the gossan area west of Burgis Creek, but has an overall surface extent of 1.0 sq km. It comprises a number of different lithologies which are noted but not separately mapped on Figure K1. These subunits are described below.

Rhyolite Intrusive Breccia (Kri) occurs along the road which crosses the main gossan, and consists of clay-altered feldspar and quartz. It is characteristically fragmental and is distinguished from the tuff-breccia (Krtx) by its pervasive argillic alteration, quartz stockworks, and strongly silicified clasts. One granite clast was observed in core from Hole KL70-4, which is shown on Figure K1, and explored below the gossan.

Feldspar Porphyry (Kfp) includes up to 20 m wide dykes of medium green feldspar porphyry cutting the intrusive breccia (Kri). They contain 1 to 2 mm feldspar phenocrysts and are commonly pyritic (up to 10 percent).

Rhyolite Dykes (Krd_1, Krd_2, Krd_3) were mapped at several locations on and immediately south of the property. Three types of dykes have been recognized and are described below.

Krd_1 - A set of three dykes, the most prominent of which is 1 km long, cut the syenite parallel to the southern boundary of the Cretaceous rhyolite package. They are phenocryst-dense and consist of quartz eyes (up to 2 mm across), euhedral orthoclase crystals (up to 1.5 cm across), and hornblende crystals (up to 1 cm long) in a tan aphanitic groundmass. These hornblendes are probably xenocrysts scavenged from the syenite as they resemble hornblendes within it while being highly anomalous within the generally mafic-poor rhyolite.

Krd_2 - This type of dyke is represented by a few rock fragments in a soil-covered saddle on the ridge east of Burgis Creek. It also cuts syenite south of the area of rhyolite exposure, but differs from the Krd_1 in that it is finer grained and highly altered.

Krd_3 - A suite of dykes occupies part of the ridge west of Burgis Creek. The following lithologies were observed in these intrusions: quartz-feldspar porphyry, feldspar porphyry, and quartz-feldspar-biotite porphyry. All have a microcrystalline, vitreous matrix ranging from green to brown to cream coloured.

Alteration

Most of the extrusive rhyolite on the Nitro property is slightly argillic-altered with clay replacing some of the vitreous matrix and ash fragments. A trench on the lower part of the ridge east of Burgis Creek exposes whitish tuff-breccia with greasy-green sericite-altered clasts. The plug dome west of the

property (Krf) contains a few swarms of chalcedony veinlets and, in one instance, draped chalcedony on cobbles which strongly resembles a sinter deposit.

The strongest alteration is a 200 by 700 m quartz stockwork zone associated with the felsic intrusive complex in the area of the main gossan. Breccia cobbles in this unit are invariably chalk white due to intense argillic alteration. Quartz veinlets average 1 mm thick and are most abundant (greater than 50 per metre) along the upper road which cuts across the gossan. In some cases, quartz veinlets cut clasts within the breccia but do not extend beyond the clast boundaries. These early veins are often cut by later veins which cross both the matrix and clasts, suggesting multiple events of silica flooding and brecciation.

MINERALIZATION

Sulphides are not common at surface and are largely restricted to dykes and siliceous rocks in the main gossan area. Pyrite is the most abundant sulphide comprising up to 10 percent of some feldspar porphyry dykes, while traces of molybdenite, galena and sphalerite were also noted. Red-brown limonite coats the pyritic dyke which forms the core of the main gossan, while jarosite is common in pits and along fractures in the surrounding siliceous stockwork zone. No precious metal mineralization has been seen, although Burgis Creek contains placer gold.

Drilling conducted by Atlas in 1970 was directed toward the main gossan area and returned assays up to 0.17% Cu over 15 m and 0.16% Cu with 0.68% MoS_2 over 3 m. NAT relogged and resampled the Atlas core in 1981. Gold values were consistently high with 669 m of 967 m drilled returning greater than 100 ppb Au, including values up to 787 ppb Au over 15 m in Hole KL-4. Silver, lead and arsenic values were more erratic and less anomalous, but included values up to >1000 ppm As over 55 m in Hole KL-1, and 13 ppm Ag with 3150 ppm Pb over 12 m, also in Hole KL-1.

GEOCHEMISTRY

General

The results of grid soil sampling for gold, silver and lead are shown in Figures K2, K3 and K4, respectively (in the pocket). A 3.5 km long baseline was cut along the claim lines (azimuth 130°). Two tie lines and a second reference line at 8+00N were also chained. The grid extends west of the property to the vicinity of the rhyolite plug dome (Krf), where anomalous Pb up to 300 ppm was shown in soil grid results from Atlas EL (1970). In June, preliminary sampling was done at 50 m intervals on lines spaced 100 m apart over most of the property and in August, sample spacing was tightened to 50 by 50 m in the areas returning the highest gold results. Baseline stations were marked with 1 m pickets and sample stations with 0.5 m pickets. Grid coordinates and sample markers were recorded on all pickets.

Reconnaissance chip sampling was done on 50 m intervals along all bulldozer cuts on the property. The samples each weighed 10 to 15 kg and consisted of chips from outcrops, sub-outcrops and rock fragments in C horizon soil. The start and end of each sample interval was marked with 0.5 m lath pickets bearing the sample number.

All samples were sent to Chemex Labs Ltd., North Vancouver, B.C. and were analyzed for gold by fire assay and a NAA finish. In addition, most soils were analyzed for silver and lead. Analytical techniques used are described in Appendix III.

Results

The 1982 soil sampling has outlined a 700 by 200 m area of anomalous gold values (up to 721 ppb), which generally coincides with the quartz stockwork zone. Most of the anomalous values lie northeast of the main gossan zone in a heavily vegetated area which was not tested by the 1970 Atlas drilling.

The highest gold values from reconnaissance chip samples (up to 212 ppb) were obtained from outcrops and sub-outcrops exposed in road cuts crossing the main gossan itself. Six samples taken from two parallel road cuts in a 150 by 150 m area of gossans returned an average of 144 ppb Au, compared to an average of 23 ppb Au from soils in the immediate vicinity, suggesting that gold has been leached from the soil. However, reconnaissance chip sample values taken from rock fragments in C horizon soils across the centre of the main gold soil anomaly north of the gossan averaged only 65 ppb Au compared to 145 ppb Au in the adjacent soils. There is no obvious explanation for this discrepancy.

The highest silver values (up to 10.7 ppm) are clustered in the immedate area of the main gossan and only partially coincide with the anomalous gold soil values. Other, weaker, soil values (1.0 to 3.1 ppm Ag) occur in the northeastern corner of the property along the caldera margin and 1 km north of the property over the plug dome. All three areas of anomalous silver values are supported by anomalous lead values in the 100 to 595 ppm range, but the two outlying areas lack gold support.

One feature which is not immediately evident on the geochemical maps is that the areas of interest are often defined by geomorphological boundaries rather than geochemical or geological ones. Although Atlas Holes KL-1, 2 and 5 were drilled away from the geochemical anomalies, they produced long intervals

(up to 212 m) assaying greater than 100 ppb Au with silver, lead and arsenic support. Obviously the deep overburden, volcanic ash and frozen organic soils, which cover about 50 percent of the property, mask geochemical anomalies and the full extent of the area of interest has not been outlined.

DISCUSSION AND CONCLUSIONS

The Nitro property is underlain by a caldera filled with felsic volcaniclastics that are intruded by numerous, approximately coeval dykes and plugs. The most interesting area discovered to date is a 700 by 200 m quartz stockwork zone accompanied by intense argillic alteration which extends under deep overburden on the floor of Burgis Creek. The highest gold values in soils and rocks are associated with this zone and only its margins have been tested by drilling. Anomalous silver-lead soil values occur on the periphery of the anomalous gold values and in part coincide with them. Slightly weaker but similar silver-lead values, which lack gold support, were obtained in two other areas, one along the caldera margin and the other over a suspected plug dome.

Figure K5 on the following page is a schematic cross-section illustrating the general geological setting and the location of known and possible mineralization within it. Several types of precious-metal deposits are possible in this type of environment including: (1) porphyry Cu-Mo-Au such as that in the main gossan area; (2) epithermal Pb-Ag-Au veins developed peripheral to the porphyry, above a porphyry (possibly in the plug dome area), along the edge of the caldera, or in post-intrusive shear zones (such as the linear in Burgis Creek); and, (3) epithermal Pb-Ag-Au in porous horizons within volcaniclastic strata filling the caldera. The first and third possibilities offer the greatest tonnage potential, however the latter would be difficult to explore as only a limited section of the volcaniclastic strata is exposed.

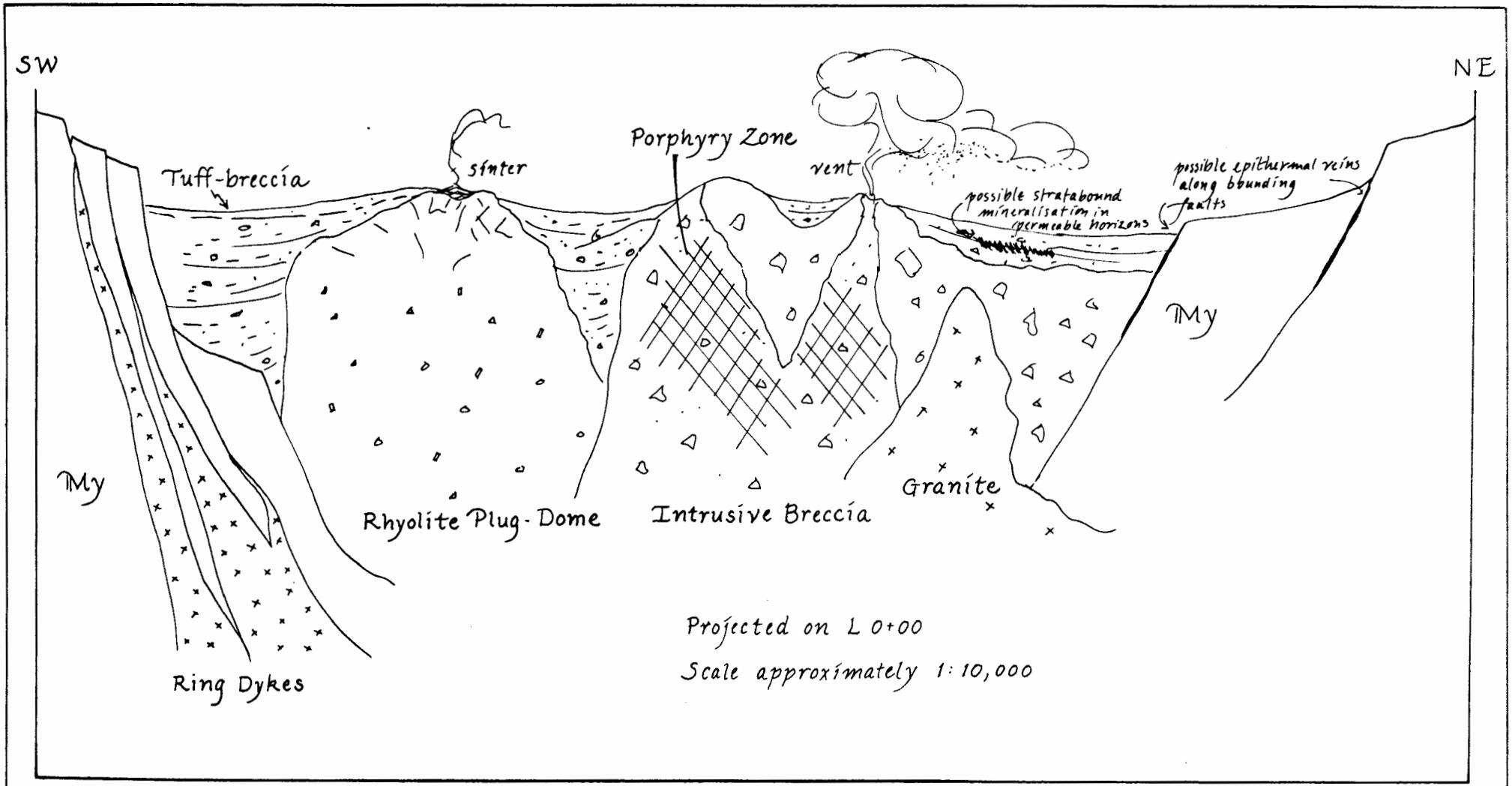
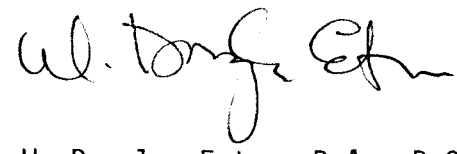


Figure K5

Schematic cross section of Nitro property in Cretaceous time

Respectfully submitted,

ARCHER, CATHRO & ASSOCIATES (1981) LIMITED



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W. Douglas Eaton, B.A., B.Sc.

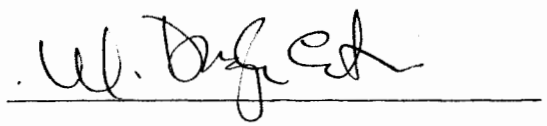
APPENDICES

APPENDIX I - STATEMENT OF QUALIFICATIONS

STATEMENT OF QUALIFICATIONS

I, W. Douglas Eaton, geologist, with business addresses in Whitehorse, Yukon Territory and Vancouver, British Columbia, and residential address in Burnaby, British Columbia, do hereby declare:

1. I graduated from the University of British Columbia in 1980 with a B.Sc. and am currently enrolled in a M.Sc. majoring in Geological Sciences.
2. From 1971 to the present, I have been actively engaged in mineral exploration in British Columbia and Yukon Territory and on June 1, 1981, became a partner in Archer, Cathro & Associates (1981) Limited.
3. I have personally participated in or supervised the field work reported herein and have interpreted all data resulting from this work.



W. Douglas Eaton, B.A., B.Sc.

APPENDIX II - PERSONNEL

NAME	ADDRESS	POSITION
J. Nelson	2980 West 8th, Vancouver, B.C.	Geologist
D. Eaton	6108 Burns Street, Burnaby, B.C.	Geologist
L. Cymbalisty	1602 #5 Morey Road, Nanaimo, B.C.	Student assistant
A. Reid	151 Goulburn Road, Ottawa, Ontario	Student assistant
D. Lister	c/o 106A 93 Lewes Blvd. Whitehorse, Y.T.	Student assistant
D. Staniforth	81C - 1321 Sherbrooke St. West, Montreal, Quebec	Student assistant
B. Sinclair	314 - 10229 - 149th Street, Surrey, B.C.	Student assistant

APPENDIX III - ANALYTICAL TECHNIQUES

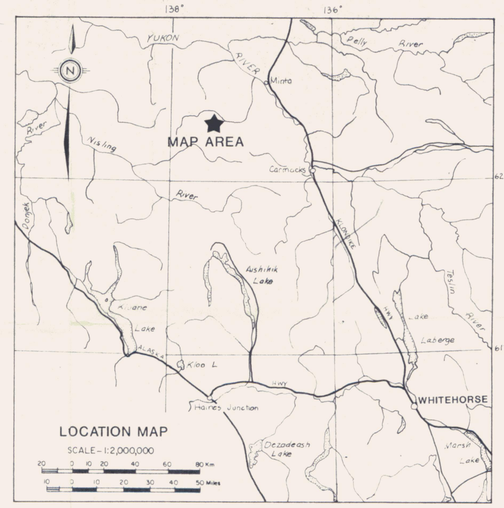
PREPARATION

All soil samples were dried and sieved through an ASTM 35 mesh screen (0.50 mm). The minus 35 mesh fraction was then pulverized and homogenized in a ring grinder to approximately minus 100 mesh (0.15 mm). For drill core and grab and chip rock samples, the entire sample was crushed and split. A sub-sample was then pulverized in a ring grinder to approximately minus 100 mesh.

ANALYTICAL TECHNIQUES

Gold was analyzed by a "combo technique" consisting of a fire assay followed by neutron activation, while silver, copper, arsenic, zinc, and lead were all analyzed using a perchloric-nitric acid extraction followed by atomic absorption spectrometry, except arsenic which used a flameless atomic absorption finish.

Antimony analysis involves a hot HCI bath followed by reduction of iron and antimony complexing with I-. The complex was extracted with TOPO-MIBK and the analysis completed by atomic absorption.



LEGEND

CRETACEOUS

- Krd_1 — Porphyritic rhyolite ring dike
- Krd_2 — Aphanitic rhyolite ring dike (?)
- Krd_3 — Dike complex, includes quartz-feldspar porphyry (Kqfp), feldspar porphyry (Kfp), feldspar-quartz-biotite-porphyry (Kfqbp)
- Kfi — Felsic intrusive complex, includes rhyolite intrusive breccia (Kri), feldspar porphyry (Kfp), minor hornblende porphyry (Khbp), and granite (Kgr)
- Kfp — Rhyolite flow or plug dome
- Krf — Rhyolite tuff-breccia and welded tuff (Ktrxw)

JURASSIC - TRIASSIC

- My — Coarse grained syenite (My) and minor porphyritic granodiorite (Mgdp)

- Geological contact (known, approximate, inferred)
- Limit of outcrop or subcrop
- Strong argillic alteration and quartz stockworks
- Road
- DDH KL-1 — Diamond Drill Hole (Atlas Res. Ltd 1970)

FIGURE K1

ARCHER, CATHRO &ASSOCIATES (1981) LIMITED

GEOLOGY

NITRO PROPERTY

NAT JOINT VENTURE

SCALE - 1:10,000

200 100 0 100 200 300 400 500 600 Metres

200 100 0 100 200 400 600 Yards

To accompany report dated Dec. '82

091138

137°30'

62°23'

BL

Krf

Kfi

Krtx

My

Krd2

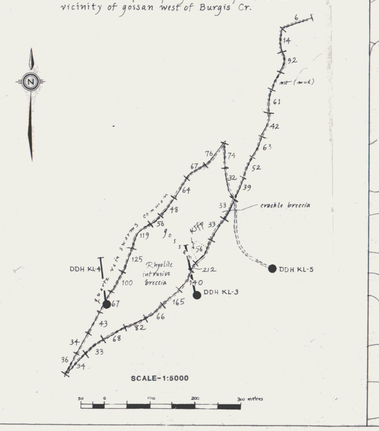
Buryis

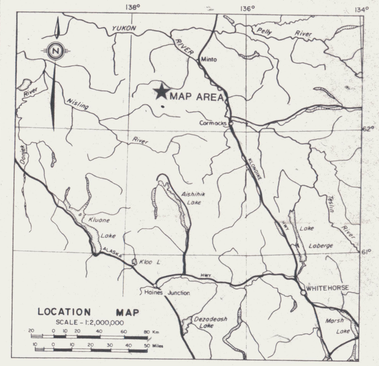
NITRO CLAIMS
1-24

DDH KL-1
DDH KL-2
DDH KL-3
DDH KL-5

50

Reconnaissance chip sampling results from roads in vicinity of gossan west of Buryis Cr.





LEGEND

CRETACEOUS

- Krd — Rhyolite dykes
- Kfi — Felsic intrusive complex
- Krf — Rhyolite flow or plug dome
- Krtx — Rhyolite tuff breccia

JURASSIC - TRIASSIC

- My — Syenite
- Geological contact
- Road
- Claim post
- Diamond drillhole location
- * 78 — Sample location with Au values in ppb
- Chip sample location

Figure K2

ARCHER, CATHRO & ASSOCIATES (1981) LIMITED

GOLD GEOCHEMISTRY

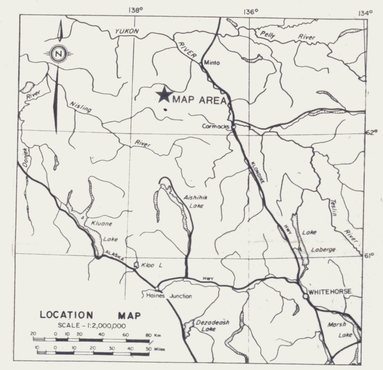
NITRO DETAIL

NAT JOINT VENTURE

SCALE - 1:5,000

091438

To accompany report dated Dec/82



LEGEND

CRETACEOUS

- Krd — Rhyolite dykes
- Kfi — Felsic intrusive complex.
- Krf — Rhyolite flow or plug dome.
- Krtx — Rhyolite tuff breccia.

JURASSIC - TRIASSIC

- My — Syenite.
- Geological contact.
- Road
- Claim post.
- Diamond drillhole location.
- • 1.5 — Sample location with Ag values in ppm

Figure K3

ARCHER, CATHRO & ASSOCIATES (1981) LIMITED

SILVER GEOCHEMISTRY

NITRO DETAIL

NAT JOINT VENTURE

SCALE - 1:5,000

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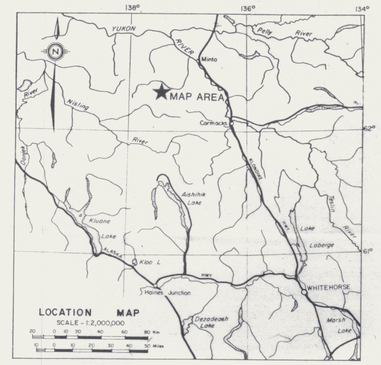
To accompany report dated Dec/82



LEGEND

CRETACEOUS

- Krd — Rhyolite dykes
- Kfi — Felsic intrusive complex.
- Krf — Rhyolite flow or plug dome.
- Krtx — Rhyolite tuff breccia

JURASSIC - TRIASSIC

- My — Syenite
- Geological contact
- Road
- Claim post.
- Diamond drillhole location.
- • 324 — Sample location with Pb values in ppm

Figure K4

ARCHER, CATHRO & ASSOCIATES (1981) LIMITED

LEAD GEOCHEMISTRY

NITRO DETAIL

NAT JOINT VENTURE

SCALE — 1:5,000

091438

To accompany report dated Dec/82