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GEOLOGICAL AND GEOCHEMICAL REPORT

on the

AR 1-61 MINERAL CLAIMS
Whitehorse Mining District
NTS 115 G-5, G 12
UTM 571500E/6820500N

for

Auterra Ventures Inc.
501-905 West Pender Street.
Vancouver, BC.
V6C 1L6

By

M.T. Vanwermeskerken, P.Geo.

January 8, 2001

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SUMMARY

Auterra Ventures Inc. and Cabin Creek Resources Management Inc. conducted a Joint Venture exploration project on the Arch Creek property during the 2000 field season. The property was acquired to test the area for platinum group elements (PGE), similar to known PGE deposits in the area.

Exploration in the area, since the early 1950's, has located deposits such as the Airways showing on the Neighboring ground (up to 41 metres, grading 0.15 % Cu,, 0.29% Ni, 0.41 g/t Pt and 0.45 g/t Pd, including 10.8 metres grading 0.28% Cu, 0.35% Ni, 0.7 g/t Pt and 0.8 g/t Pd in drill holes).

Results reported in 1997 from Inco Ltd.'s Klu property returned values from grab samples up to 3.1% Ni, 10.4 % Cu, 0.19% Co, 75.8 g/t Pt, 20.6 % Pd and 7.0 g/t Au.

The Wellgreen property, owned by Northern Platinum Ltd., has a geological resource of 50.03 million tonnes, grading 0.35% Cu, 0.36% Ni, 0.54 g/t Pt and 0.34 g/t Pd (Yukon Mineral Update 2000). A preliminary feasibility study was finished in 1989 for a proposed open pit mine at 10,000 tonnes per day.

A total of 73 mandays were spent on the claims during the 2000 field program. Work was focussed in the areas of two known mineralized zones; the Teck (historically the Musketeer) showing, and the Conwest showing. Work done consisted of predominantly blast trenching and systematic chip sampling the area of these two showings to evaluate the economic potential of the zones. A total of 2 soil and 57 rock chip samples were collected, returning values up to 0.11 g/t Pt and 0.11 g/t Pd in the Teck showing and up to 2015 ppm Ni, 5448 ppm Cu and 154 ppb Au in the Conwest showing.

The Arch property is located on the same trend as the Wellgreen and Airways zone. This structurally important location and encouraging results from the 2000 program, indicate the potential of high grade PGE zones on the claims.

A follow up program of IP geophysical surveys, blast trenching, reconnaissance drilling with a semi portable drill and further chip sampling has been recommended.

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INTRODUCTION

The Arch Property was staked in September 1999 by Cabin Creek Resources Management Inc. Auterra Ventures Inc. entered into an option agreement with Cabin Creek in October 2000, for the acquisition of a 70% interest in the property, in which Auterra must make cash payments totalling $185,000 over 5 years, issue 100,000 shares and spend $250,000 on exploration over 5 years, $40,000 of which to be spent before March 1, 2001.

The author of this report was commissioned on Behalf of both Auterra and Cabin Creek, for a primary evaluation of PGE mineral potential of the subject property.

The field program has been partially financed by the federal government through a Mining Incentives Program.

LOCATION AND ACCESS

The Arch property is located on the Eastern slopes of the Kluane Range, in Southwestern Yukon, 320 km Northwest of Whitehorse at Latitude 60°27' N and longitude 139°25' W on NTS map 115G/5 and 115G/12 in the Whitehorse Mining Division (figure 1). The centre of the property is at UTM coordinates: 571500E/6820500N.

The property can be accessed by road in 4 hours from Whitehorse, by driving the year round Alaska Highway Northwest, and then turning West at mile post 1118 onto the Quill Creek gravel road past the Wellgreen mine site for 18 km to the Arch Creek camp. A four wheel drive vehicle is recommended for this gravel road.

Alternatively, helicopter charters are available at both Whitehorse and Haines Junction.

PROPERTY DESCRIPTION

The property occupies part of the Southwestern slopes of the main ridge dividing the Donjek River and the Shakwak Trench (Kluane River Valley). Elevations range from 1070 metres at Arch Creek to 2050 metres on the ridge crest. Topography is moderate to steep, with outcrops best developed on North facing slopes, ridge crests and creek cuts. The area in the Arch Creek vicinity is covered by a thick succession of glacio-fluvial gravels up to 40 metres thick. This hampers proper mapping or trenching of the lower (Teck) showing and related peridotite dykes.

Soil development is poor, and vegetation is limited to black spruce and poplar at lower elevations. The higher slopes are overgrown with alder, buckbrush and moss.

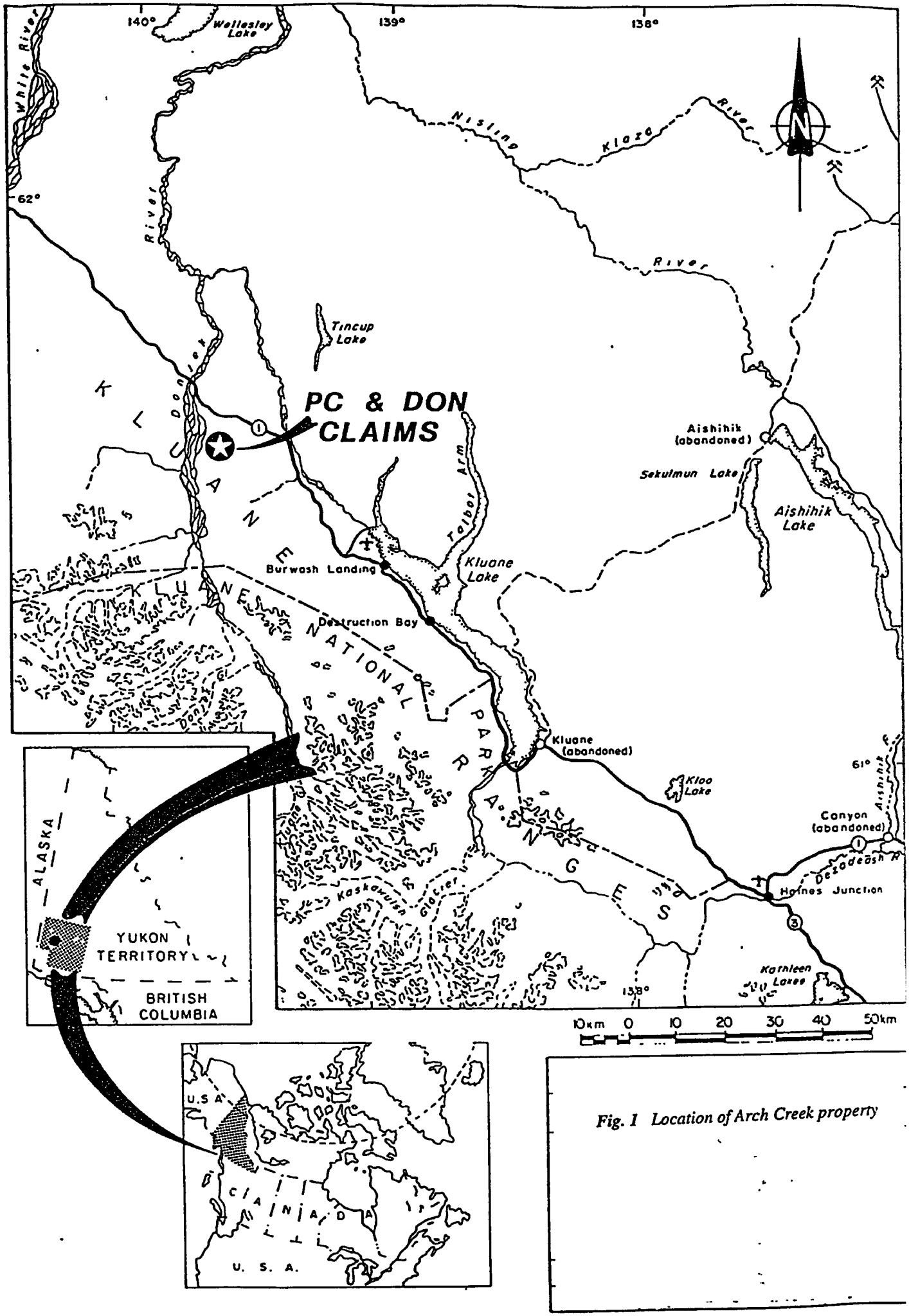


Fig. 1 Location of Arch Creek property

The climate is sub-arctic, with temperatures ranging from 20°C in summer to -70°C in winter. The property is covered with snow between October and June. Road access is limited to the snow-free months only.

Claim Status

The Arch Creek property (fig 2) consists of 61 contiguous claims (AR 1-61) with the following status:

Claim name	Grant #	Claim sheet #	Owned by	Expiry date
AR 1-16	YC18359-YC18374	115G05	Cabin Creek R.M.I.	14-02-2001
AR17-58	YC18375-YC18416	115G12	Cabin Creek R.M.I	14-02-2001
AR59-60	YC18417-YC18418	115G05	Cabin Creek R.M.I	14-02-2001
AR61	YC18892	115G05	Cabin Creek R.M.I	20-09-2001

Current claim maps are included in the back pouch of this report.

WORK HISTORY

The area of the current Arch Creek property was staked at the time of the discovery of the nearby Wellgreen deposit in 1952, by the Yukon Mining Corporation. This deposit was optioned to Hudson Bay Mining and Smelting Ltd. After extensive drifting and underground drilling the property was transferred to Hudson Bay Mining. From May 1972 to July 1973, 171,652 tonnes of ore were treated, producing 33,853 tonnes of concentrate grading 7.4 % nickel and 6.6% copper.

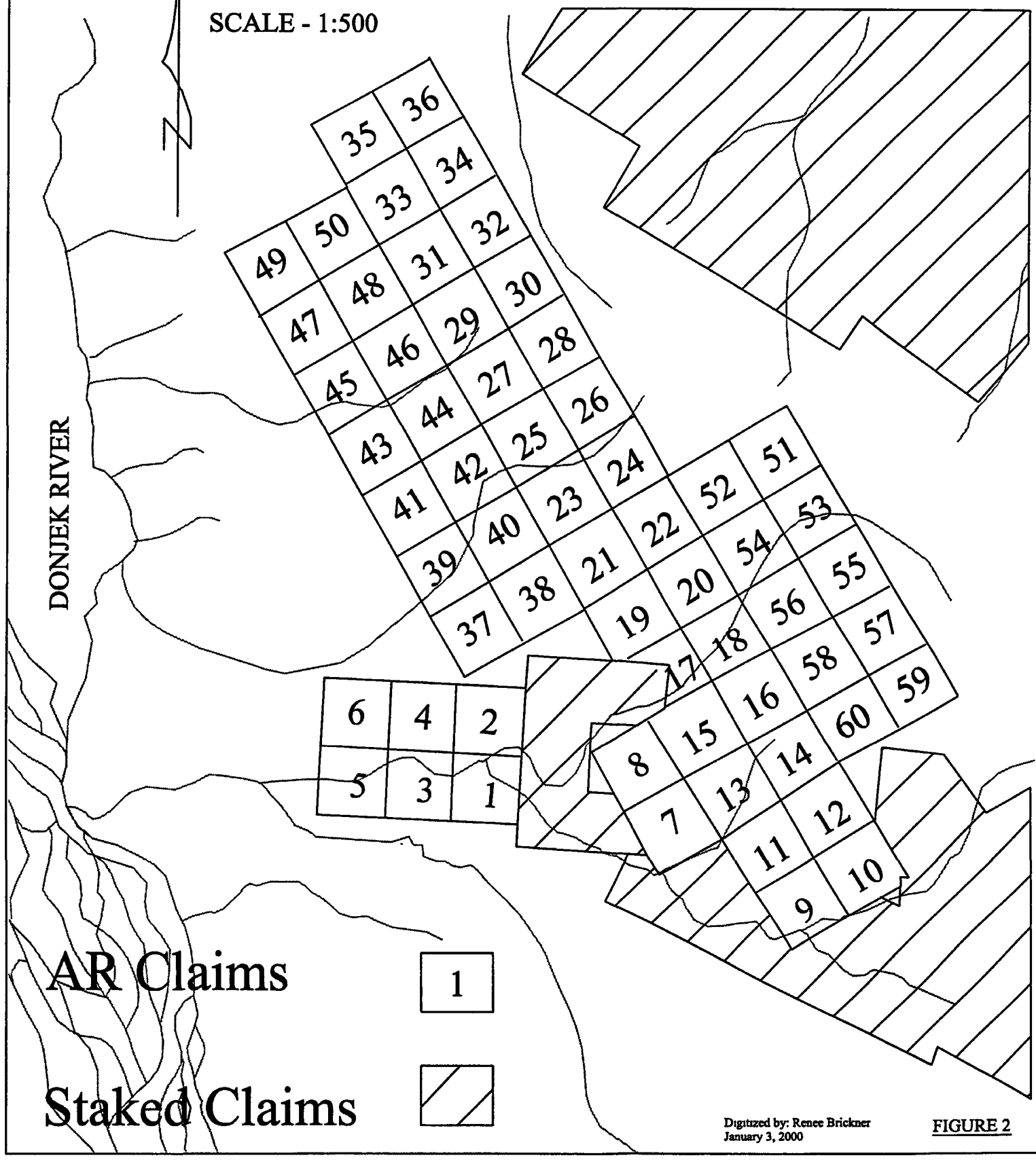
The area of the Musketeer and Conwest showings were originally staked in 1952 as the Musketeer claims by Teck Exploratin Company Ltd. and the Donjek claims by Conwest Exploration Ltd. Both companies performed mapping and prospecting in 1953. Teck continued exploration in 1955 with magnetic, EM and resistivity surveys.

The area was restaked as the Legacy and Sue claims in 1967-1968 by P. Versluce and C. Gibbons, who carried out road building and trenching in 1968. This property was explored by the Nickel syndicate (Canadian Superior Exploration Ltd., Aquitane Co. Canada Ltd., Home Oil Ltd. And Getty Mines Ltd.), in 1972 in conjunction with the neighboring Airways showing, conducting mapping, geochemical surveys and trenching.

In June 1986, Kluane JV (All North Res. Ltd. And Chevron Minerals Ltd.) restaked the area, carrying out geochemical surveys. The claim block was then expanded towards the North (ORO claims) by E. Parmentier in October 1986, which was sold to Fred Minerals Ltd. In 1987. Other adjoining staking included the 'Missy' and SF claims to the Southwest in June 1987 by Harjay ECL and the 'JEK' claims by Kluane JV. To the West, Silverquest Resources Ltd. And Pak Man Resources Inc. staked more ground in 1987, and performed mapping and geochemical sampling later in the year. Towards the South, S. Ridgeway staked the PC claims in May 1987.

CLAIM MAP

Arch Creek, Yukon Territory



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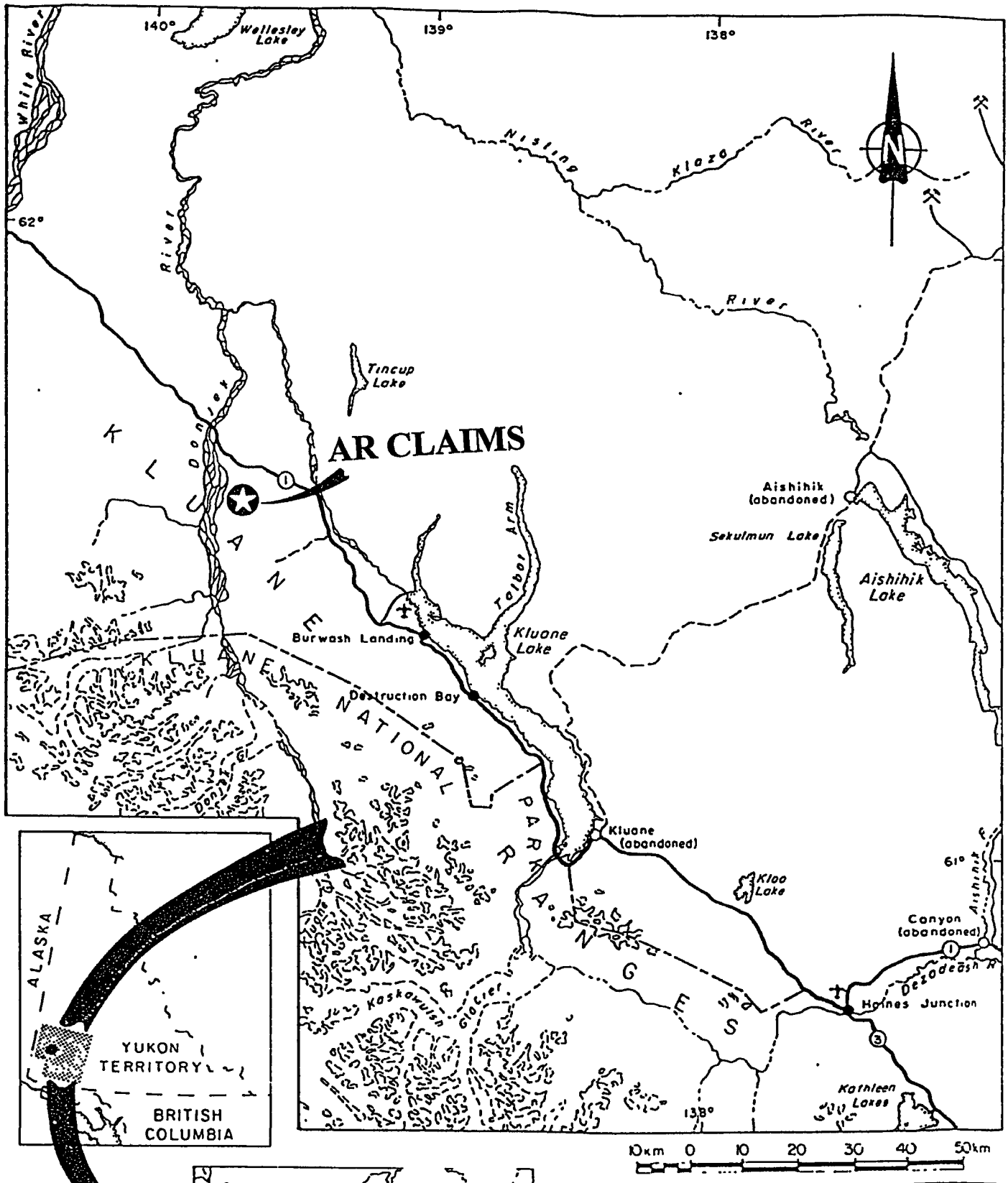
January 3, 2000

FIGURE 2



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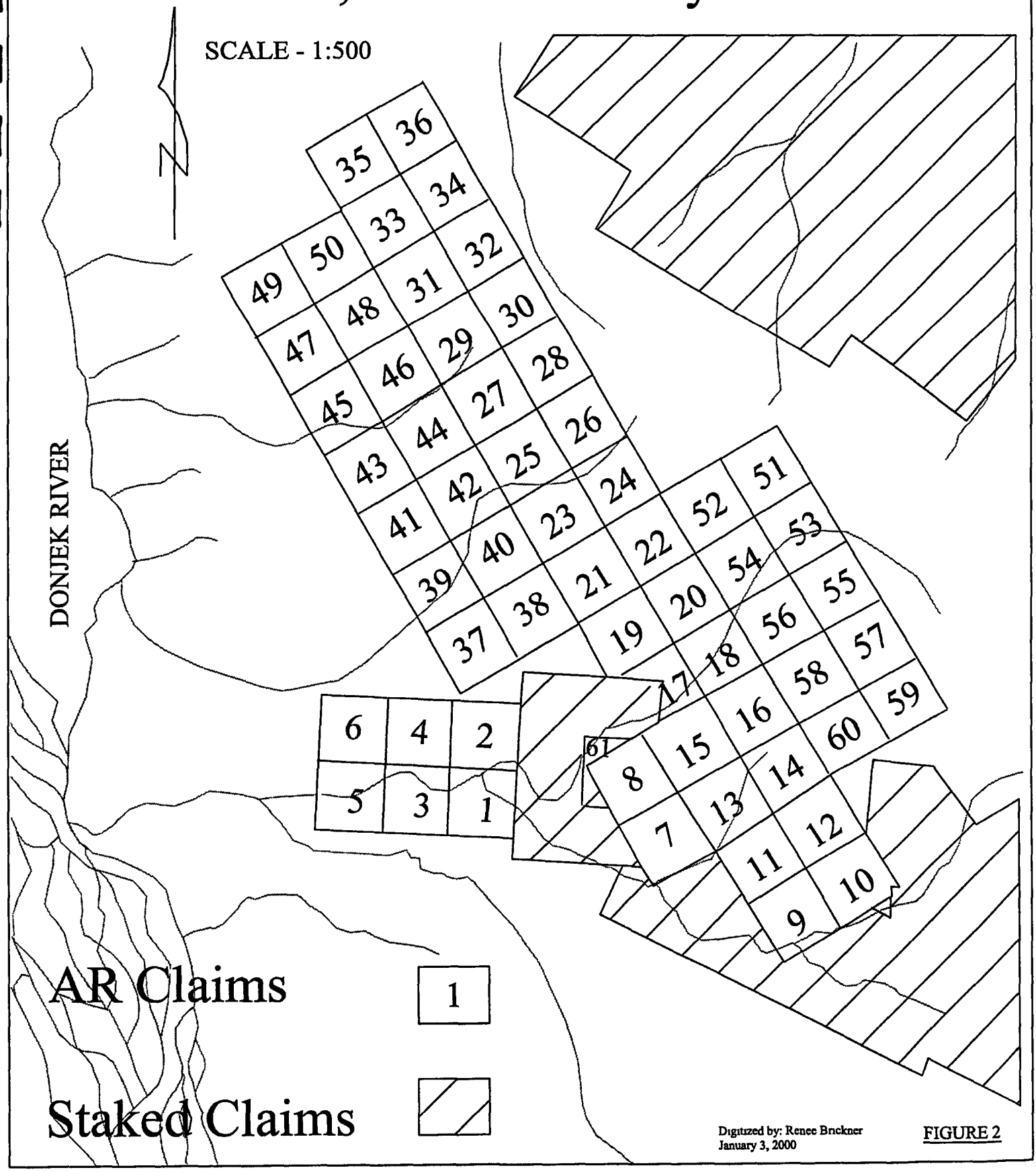
Arch Creek, Yukon Territory



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January 3, 2000

FIGURE 2

In 1987 the Kluane JV claims were optioned by Rockridge Mining Corp and Pak Man Resources Inc., which explored with mapping, geochemical sampling anfd magnetometer- VLF-EM surveys later that year. The PC claims were transferred to Gold City Resources Inc. in June 1988 and a 50% interest in the Oro claims was transferred to A-X Minerals in October 1988. Harjay explored the SF and Missy claims with magnetic and soil geochemical surveys in June 1988 and June 1989. The claim area did not see any further work until the claims were allowed to lapse and got re-staked as the AR 1-61 claims by Cabin Creek Resources Management Inc.

REGIONAL GEOLOGY

The claim area is located near the eastern margin of the Wrangellia accreted Terrane (Fig 3b), which runs along the Western coastal areas from Alaska to Southern Vancouver Island, BC. Rocks are comprised of Permian to Triassic volcanic and volcaniclastic rocks, intruded by Triassic diabase and gabbro dykes, presumed to be feeder dykes to the Nikolai Basalts. The stratigraphy of the region is summarized by W.D. Eaton (1988) as follows:

Oldest exposed bedrock is Pennsylvanian to Permian Skolai Group andesitic volcanic and Volcaniclastic rocks (Station Creek Formation), grading upward to clastic sedimantary rocks and limestone (Hasen Creek Fm.). These rocks are unconformably overlain by Upper Triassic Nikolai Group basalt and Limestone, with infrequent gypsum horizons.

Two types of mafic and Ultramafic intrusions are present:

1) The White River, Quill Creek and Tatamagouche Creek Ultramafic complexes are differentiated Lower Triassic sills which intrude Station Creek and Hason Creek Fm. sedimentary and volcaniclastic rocks. They typically consist of strongly serpentinized dunite, peridotite and lesser marginal facies of gabbro and/or clinopyroxinite. These complexes are folded and dismembered by faults, reaching maximum thicknesses of approximately 250 metres and up to 25 km strikelength. Mineral constituents in this ultramafic complex are olivine, clinopyroxene, orthopyroxene, biotite, plagioclase and amphibole, with minor magnetite and sulphides. The gabbro phases consist of clinopyroxene and plagioclase with minor olivine and amphibole and trace amounts of magnetite and sulphides. Cumulate textures are common in the dunite and peridotite, while gabbro and clinopyroxinite phases are generally compact and massive. Most Ni-Cu-PGE occurrences in the Kluane Belt are spatially associated with the marginal facies of the intrusions. Chemically, the mafic-ultrmafic sills have high TiO2:MgO ratios, low Fe/Mg ratios and anomalously high MgO, Ni, Cr and PGE backgrounds.

2) Dykes and small stocks of medium grained diabasic Maple Creek Gabbro occur throughout the Station Creek Formation, Hasen Creek Fm. and the Nikolai group. These consist of augite and plagioclase with minor orthopyroxene, hornblende and magnetite. Field evidence supports an Uppet Triassic age for the gabbros as remnants of feeder systems for the Nikolai Group basaltic flows. No known nickel or PGE mineralization is associated with the younger gabbros, but they do host numerous small copper occurrences.

TERRANES, MAJOR FAULTS, COVER ROCKS, PLUTONIC ROCKS, AND MORPHOGEOLOGICAL BELTS (INSET MAP), SAINT ELIAS MOUNTAINS AND ADJOINING AREAS
(modified from Wheeler and McFeely, 1987)

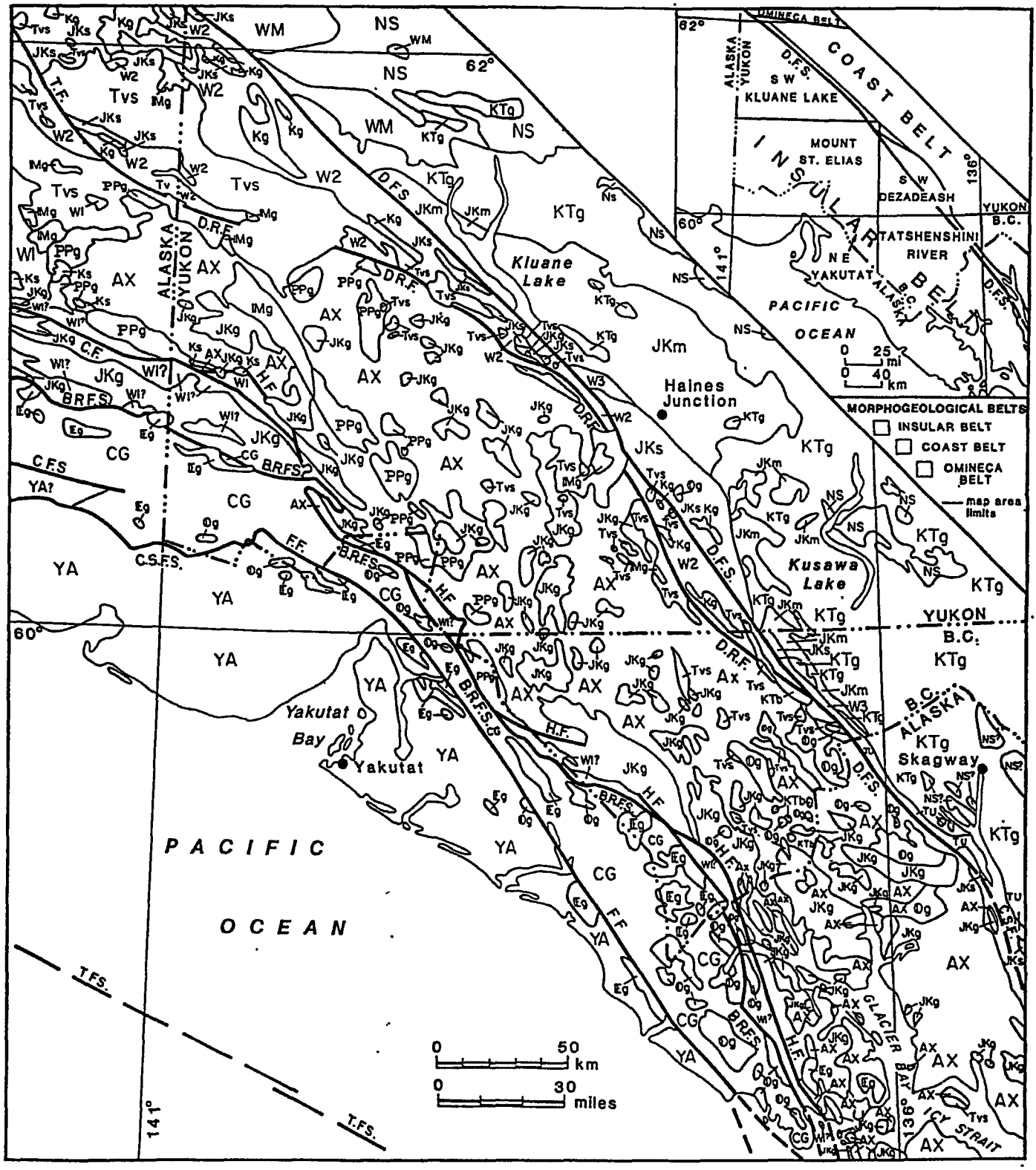


FIG. 3a

LEGEND

COVER ROCKS

Tertiary

Tvs	nonmarine volcanics and sediments (mostly Wrangell Lava).

Cretaceous

Ks	shallow marine sediments.

Upper Jurassic-Lower Cretaceous

JKs	flysch, local volcanics (Gravina-Nutzotin).
JKm	metasediments ("Kluane schist", and older rocks).

PLUTONIC ROCKS

Tertiary

Mg	Wrangell suite (6-16 Ma): subvolcanics and granitoids.
Og	Tkope suite & others (23-33 Ma): granitoids and subvolcanics.
Eg	Seward suite (41-52 Ma).

Cretaceous-Tertiary

KTg	Coast Plutonic Complex (undivided).
KTb	gabbro-diabase plutons.

Late Early Cretaceous

Kg	Kluane Ranges suite (106-121 Ma), & Alaskan-type mafic-ultramafics.

Late Jurassic-earliest Cretaceous.

JKg	Saint Elias suite (130-160 Ma).

Late Pennsylvanian-Early Permian

PPg	Icefield Ranges suite (270-290 Ma).

TERRANES

YA	YAKUTAT (local Prince William).
CG	CHUGACH.
W1,W2	WRANGELLIA (W1, W2).
W3,TU	WRANGELLIA (W3), TAKU.
W1?	WRANGELLIA (W1)?
WM	WINDY-MCKINLEY.
NS	NISLING (local undivided rocks).
AX	ALEXANDER.

MAJOR FAULTS

T.F.S.	-	Transition Fault System.
C.F.S.	-	Contact Fault System.
C.S.F.S.	-	Chugach-St. Elias fault system.
F.F.	-	Fairweather Fault.
B.R.F.S.	-	Border Ranges Fault System.
C.F.	-	Chitina Fault.
H.F.	-	Hubbard Fault.
D.R.F.	-	Duke River Fault.
T.F.	-	Totschunda Fault.
D.F.S.	-	Denali Fault System.
C.S.F.	-	Chatham Strait Fault.

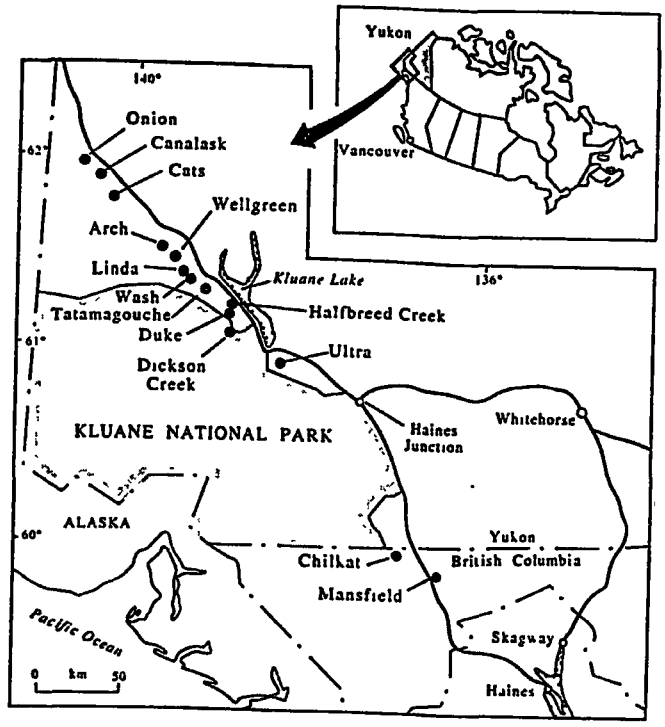


Figure 3b Map showing the location of some of the better known mafic-ultramafic intrusive complexes in the Yukon and northern British Columbia.

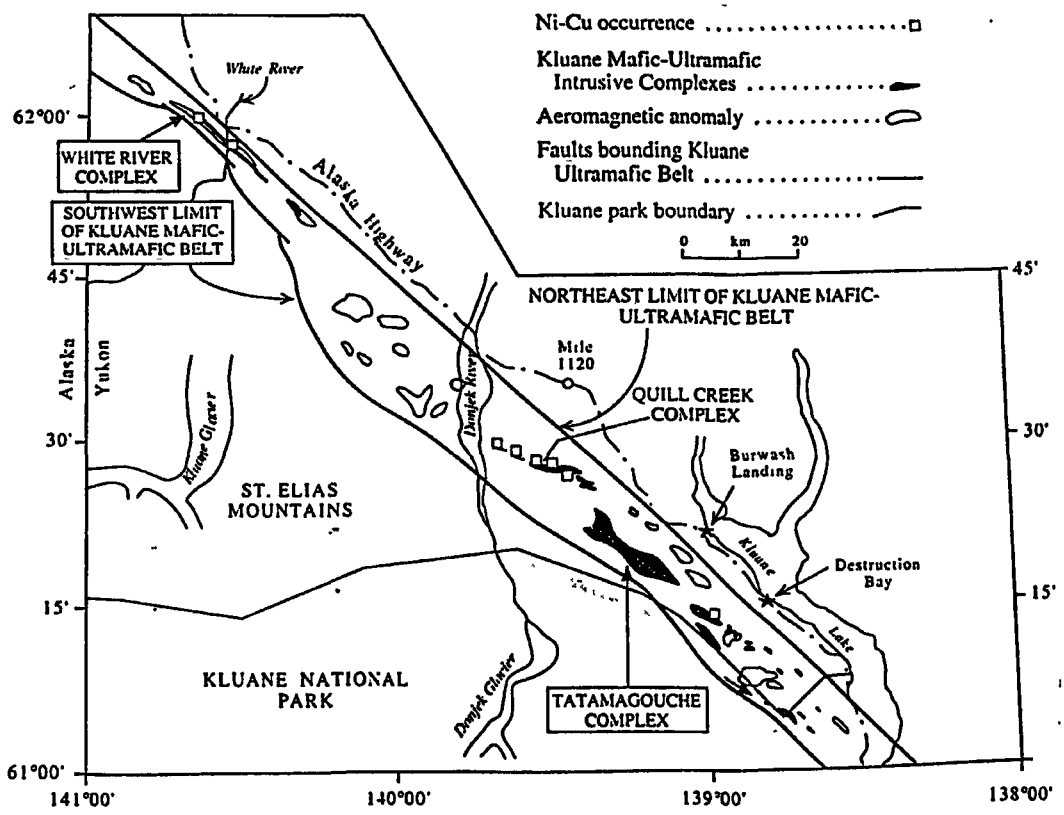


Figure 3c Map showing the distribution and size of known Triassic intrusions, and the outlines of similar bodies inferred from aeromagnetic anomalies, within the Kluane Mafic-Ultramafic Belt in the central and northern portion of the Kluane Ranges, Yukon.

All abovementioned units are locally intruded by Cretaceous granodiorite plutons and oligocene porphyritic latite to trachyte dykes and small stocks.

The Denali Fault forms the Eastern margin of the Wrangellia terrane. The Eastern part of this terrane, with the Station Creek- Hasen Creek formations and Nikolai group basalts, and related intrusions, has been identified as a Ni-Cu-PGE Metallogenic Terrane which can be traced for more than 600 kilometres, and is referred to as the Kluane Mafic-Ultramafic Belt.

The Kluane Ni-Cu-PGE belt is bounded on the Northeast by the Shakwak Fault, a major terrane boundary with latest movement in a right lateral sense. The Southeast boundary of the terrane is formed by the sinusoidal trace of a series of interconnected faults, which roughly parallels the Shakwak fault. All known ultramafic bodies in the Kluane Range lie within this 10 – 17 km wide belt. See fig 3a,b.

ECONOMIC MINERALIZATION/ DEPOSIT MODEL

Mineral deposits of economic interest in the area, are mostly Ni-Cu-PGE prospects and mines, located within the above mentioned Kluane Ni-Cu-PGE belt, both Northwest and Southeast of the Arch Creek claims.

On a North American scale, this (Ni-Cu-PGE) belt is second only, in size, to the nickeliferous Circum Superior Belt (CSB) of Canada, and has many similar features with respect to lithological zonation, silicate mineralogy, distribution of ores and Ni-Cu-PGE grades. The Kluane Belt intrusive complexes are clearly younger in age, tholeiitic in origin and generally much larger than deposits found in the Circum Superior Belt.

Mining of the Wellgreen deposit has demonstrated that basal accumulations of massive sulphides are generally up to 60 metres in length, less than 20 metres in thickness, and have average mill feed grades as follows: 2.23% Ni, 1.39% Cu, 1300 ppb Pt, 920 ppb Pd, 171 ppb Au, 400 ppb Rh, 420 ppb Ru, 250 ppb Ir, 200 ppb Os and 200 ppb Re.

These zoned bodies are sills, lens-like in form and are believed to represent subvolcanic magma chambers that fed overlying Triassic Nikolai Basalts. On a regional scale, these bodies preferentially intrude the Pennsylvanian to Permian country rock sequence at or near the contact between the Station Creek and Hasen Creek Formations. This level marks an important litho-stratigraphic break from the from predominantly volcanic and volcaniclastic rocks, argillite, chert and carbonate strata. Field relationships, geochemical and isotopic studies also suggest that the volatile, sulphur and barium-rich Permian strata acted as an important source of magma contamination that initiated sulphide immiscibility with sucessive incursions of olivine charged magma.

The best mineralization appears to be concentrated as a result of riffling of sulphide bearing magmas flowing over irregularities at the base of the intrusion. Other styles of mineralization such as the Ni-rich "offset" occur well within the footwall strata of the White River Complex, skarn

ores juxtaposed the Permian Carbonates at the Quill Creek complex, disseminated sulphides within or above the gabbro-ultramafic zone contact in most intrusions and PGE +/- Au rich zones associated with hydrothermal (metasomatic) quartz-carbonate alteration that envelope the extremities of many intrusions, are also important reserves. The ultramafic zones of the Kluane intrusions should be re-examined for it is only now appreciated that sizeable Ni-Cu-PGE massive sulphide concentrations can be contained within this belt. (L.Hulbert and Carne, 1996)

Results from other similar targets in the immediate vicinity include those of the Klu property, the Wellgreen property and the Airways deposit, adjacent to the Arch Creek property.

Results reported in 1997 from Inco Ltd.'s Klu property returned values from grab samples up to 3.1% Ni, 10.4 % Cu, 0.19% Co, 75.8 g/t Pt, 20.6 % Pd and 7.0 g/t Au (Yukon Expl. And Geol. 1999)

The Wellgreen property, owned by Northern Platinum Ltd., has a geological resource of 50.03 million tonnes, grading 0.35% Cu, 0.36% Ni, 0.54 g/t Pt and 0.34 g/t Pd (Yukon Mineral Update 2000). A preliminary feasibility study was finished in 1989 for a proposed open pit mine at 10,000 tonnes per day.

Drilling on the adjacent Airways property in 1988 by Pak-Man Resources, intersected disseminated sulphides. They got returns of 41 metres, grading 0.15 % Cu,, 0.29% Ni, 0.41 g/t Pt and 0.45 g/t Pd, including 10.8 metres grading 0.28% Cu, 0.35% Ni, 0.7 g/t Pt and 0.8 g/t Pd. A Gabbroic chilled margin to a peridotite sill, containing disseminated sulphides, returned 0.75% Cu, 1.44% Ni, 0.65 g/t Pt and 1.6 g/t Pd over 2.6 metres (Yukon Expl. 1988).

2000 WORK PROGRAM

Exploration carried out by Auterra, consisted of a brief program of sampling, road rehabilitation, blast trenching and additional staking. A crew of two to four men spent a total of 73 mandays on the claims. Sampling and mapping was focused in the areas of the Conwest and Teck showings. A total of 2 soil and 57 rock chip samples were collected during the program. Contiguous chip sampling was performed in three perpendicular directions across a peridotite dyke (sill?), to test for possible PGE rich Merenski Reef-type cumulate layers within the fine grained peridotite intrusion (see fig 6b). A total of 18 metres of blast trenching was done to expose bedrock directly North of the Teck showing, delineating the Southern contact of the peridotite intrusion. Contiguous chip samples were taken on two metre intervals. An additional 25 metres of trenching, contiguous with the first, failed to expose bedrock.

All samples were sent to Northern Analytical Laboratories in Whitehorse to be assayed for a 30 element package including Au, Pt, Pd, Rh, Cu and Ni. Samples from the original sampling program were assayed by standard ICP geochemical procedures. Samples from the trenching program were also assyed by standard ICP geochemical methods, except Pt, Pd and Au, which were fire assayed with atomic absorption spectophotometry.

PROPERTY GEOLOGY

The claims are underlain by a Northwesterly trending sequence of Pennsylvanian to Upper Triassic sedimentary and intermediate volcanic rocks (Fig 4). The upper slopes are almost exclusively intermediate to mafic volcanic flows and volcaniclastics. Sedimentary layers were only observed at lower elevations near Arch Creek. These sedimentary rocks consist of argillite and siltstone, with minor fine grained quartzite. Eaton (1988) states that:

The main sill dips steeply to moderately Southwest and appears to have intruded a conformable contact between the Station Creek and Hason Creek Formations. On the Neighboring [Airways and] Wellgreen property, the ultramafic sills usually exhibit steep North or South dips and appear to be sub-vertical bodies with occasional rolls or gentle folds. Stratigraphic evidence suggests that the Southwest dip on the Arch property represents a right side up sequence with enclosing strata becoming younger in a downhill direction. The host rocks in the footwall of the sill are Hason Creek Formation siliceous sedimentary rocks, which include argillite, mudstone and quartzite. The argillite displays alternating grey and black layers of variable thickness, while the mudstone ois finely layered with a light green-brown colour on fresh broken surfaces. Quartzite tends to be dark green to light brown and is often tuffaceous. Station Creek Fm rocks comprise the hangingwall of the main sill and consist of andesite and agglomerate. The andesite varies from light to dark green and is composed of a chloritized matrix with chlorite pseudomorphs after hornblende. The agglomerate is also green and is made up of subangular to subrounded chert fragments in a laminated volcanic matrix.

The Station Creek and Hason Creek rocks have been intruded by a series of fairly conformable mafic and ultramafic sills. These sills form the western end of the 16 km. Long Quill Creek Ultramafic complex. These sills appear to trend East-West along the Southern part of the claim group. An East-West trending Conductor/EM anomaly indicated by geophysical surveys by Teck Explorations, Pak Man Resources and Kluane JV verify this trend.

Magnetometer and EM geophysical surveys, performed by Teck Exploration has been used to delineate the extent of the ultramafic sills, which are mostly buried under dozens of metres of glacio-fluvial gravels. The magnetic anomaly has been used to define the extent of this sill, although this should be interpreted only as a generalization, as rare outcrop areas within the mag anomaly are often intermediate to basic volcanics.

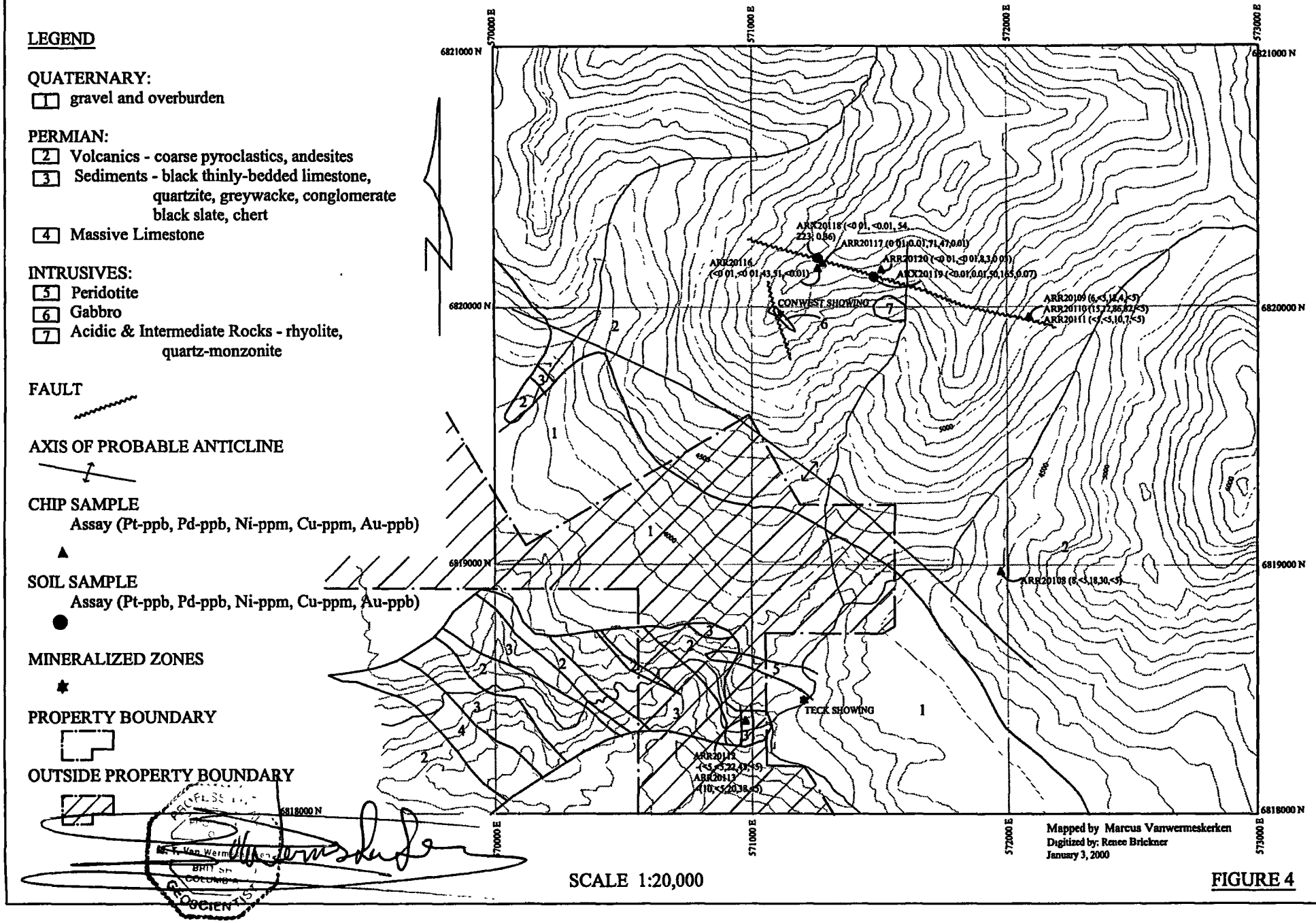
The sills are predominantly composed of strong magnetic, dark greenish black, medium to fine grained locally serpentinized, feldspathic peridotite. These rocks weather dark green, greasy (serpentinite) with limonite and calcite. Slickensides are common on weathered and fracture surfaces.

Olivine-gabbro occurs as a chilled phase of these sills, and has been observed only at the Conwest showing. The gabbro is very limonitic when weathered, and is mineralized with disseminated and interstitial pyrite, chalcopyrite, pyrrhotite and pentlandite.

The main peridotite sill is situated in the Southwesterly limb of a Northwesterly trending anticline, indicating that the footwall of the sill is the yet unexposed Northeasterly contact.

ARCH CREEK PROPERTY MAP

(Modified from Woodcock, 1953)



SCALE 1:20,000

FIGURE 4

Geophysical surveys (Mag-EM) by Pak-Man Resources and Kluane JV in 1981 over the area of the current AR claims, as well as part of the adjacent Airways property, indicated a Northwesterly trending magnetic anomaly more than 2 kilometres in length and up to 500 metres wide. This trend includes one of the Airways drill targets as well as the known peridotite exposures on the AR claims and the Musketeer showing. Numerous parallel VLF conductors are located within and to the North of this magnetic anomaly. Two VLF conductors, each approximately 500 metres by 50 metres straddle the magnetic anomaly over the area of the Musketeer (Teck) showing. This 1981 survey did not include the area of the Conwest showing.

A significant East-West trending lineament, occurs high up above and Northeast of the Conwest showing. This lineament is associated with intense fracturing, carbonate alteration zones, quartz-calcite stringer stockwork zones, minor gouge zones, orange soil gossans and minor pyrite mineralization.

A series of subvertical faults trend northwesterly across the property, and cut all units. Although the Conwest showing is situated along the Northeastern side of one of these faults, these faults are still believed to be post Ni-Cu-PGE mineralization. Some of these are reported to host minor copper mineralization. These faults typically result in linear gullies, with carbonate alteration zones and minor calcite +/- quartz stringer zones.

All units have locally been overlain with pleistocene glacio-fluvial gravels ranging in thickness to 40 metres or more in the vicinity of Arch Creek.

MINERALIZATION AND ALTERATION

Observed mineralization on the property consists two types:

1) Disseminated pyrite / pyrrhotite
Mineralization of this type occurs in isolated areas of carbonate alteration, usually in the vicinity of fault zones. Pyrite and/ or pyrrhotite in these zones range to 3% as disseminations, interstitially, or as small 'blebs' up to 5 mm. These zones commonly result as weak gossans in soil or weathered outcrop areas.

2) Disseminated Py/Po/Cpy +/- pentlandite
Mineralization of this type is common in the ultramafic intrusions. Disseminated and interstitial sulphides (up to 3% pyrite, 2% chalcopyrite, 2% pyrrhotite and minor pentlandite) have been noted throughout the pyroxenite intrusion and within the gabbro of the Conwest showing. The Conwest showing mineralization is associated with several quartz/calcite veins up to 30 cm wide and stockwork veins. Mineralization in these intrusions does not appear to extend outside into the host rocks.

Significant alteration on the claims consists of serpentinization of the ultramafic intrusions, and carbonate alteration zones near faults. Weak chloritic (and propylitic) alteration is prevalent throughout much of the andesitic volcanics.

Teck showing

The Teck showing (Fig. 5, 6a) consists of a small exposure of a 1 metre wide fault zone, trending approximately 140/71 NE mineralized with pyrite. This fault is located within a felsic to intermediate feldspathic porphyry, a few metres South of a peridotite sill. The rocks on each side of the fault are variably calcareous, with calcite stringers +/- ankerite. The fault zone itself contains no carbonates, and is mineralized with (quartz-) pyrite 'balls' up to 5 cm, consisting of approximately 70% pyrite and 30% quartz. These 'balls' are typically leached, resulting in brittle, porous grey pods. Oxide minerals include limonite, jarosite and melanterite (?).

Trenching by Auterra has exposed the hangingwall porphyry of this fault, as well as the Southern contact of the Peridotite sill. The peridotite is shattered, with many calcite stringers, locally serpentinized, and variably mineralized with fine disseminated pyrite, magnetite and pyrrhotite. These rocks are highly magnetic. The peridotite unit can now be traced for more than 120 metres towards the North, where it continues under overburden. A strong carbonate alteration zone, more than 15 metres in extent, is located 15 metres Northeast of the fault.

Conwest Showing

The area of the Conwest showing (Fig. 7) consists of 90 metres of oxidized, medium grained Gabbro, immediately East, and subparallel to a fault trending approximately 160 degrees. This gabbroic intrusion occurs as two separate bodies 15 metres wide or more. The fault is not exposed at the gabbro intrusion, so the structural relationship between the intrusion and the fault is unknown at this time. The intrusion trends Southeast under overburden.

The gabbro is flanked by parallel quartz +/- calcite stringer stockwork zones within the andesitic to basaltic host rocks. Both the gabbro, and the stockwork zones are mineralized with up to 3% cpy, 3% py, trace of chalcocite (?) and stained with malachite and limonite. Massive pyrite 'blebs', up to 2 cm in size, have been noted locally within the gabbro.

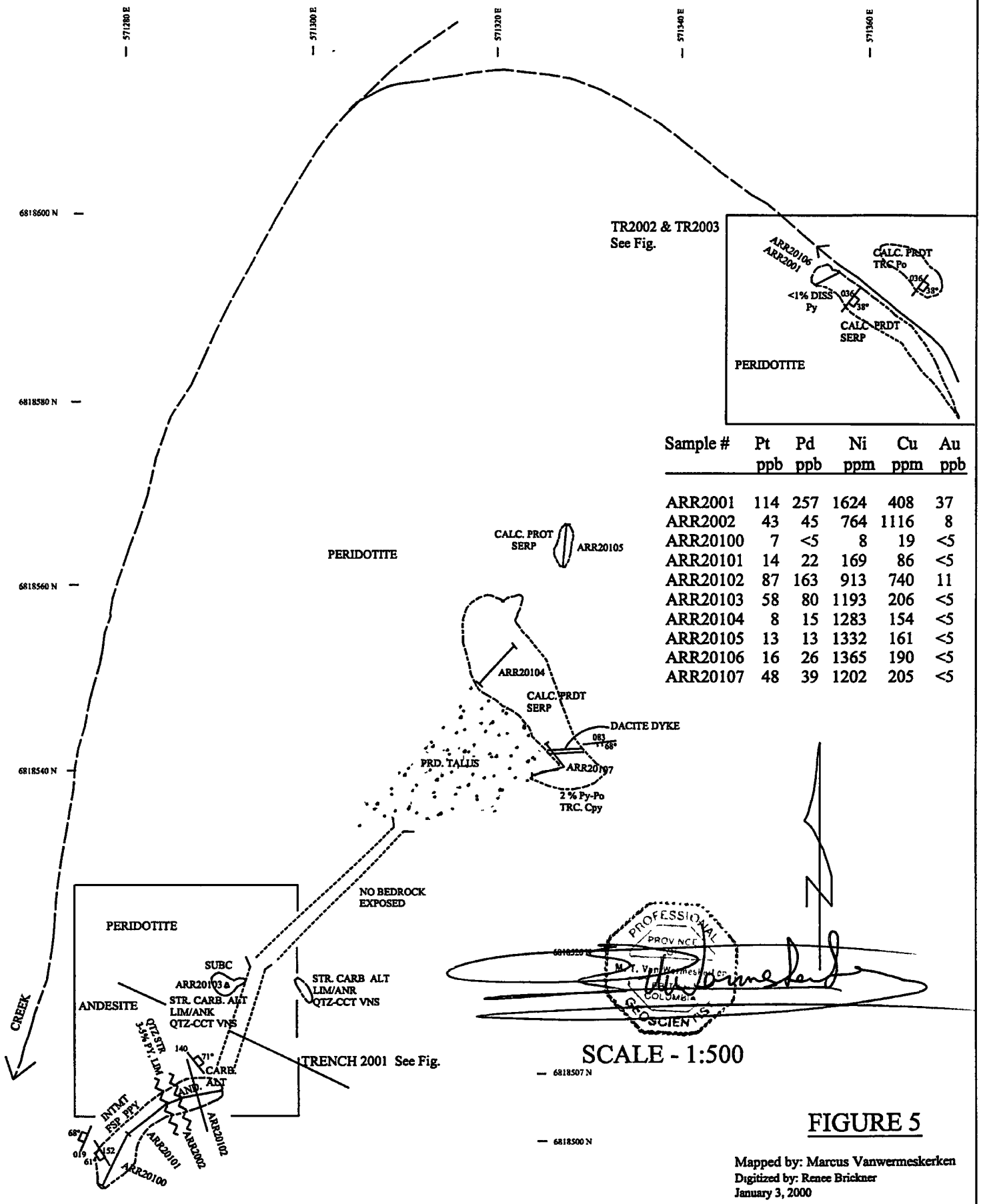
GEOCHEMISTRY

Geochemical results from the program did not return economic levels, but they do indicate the potential of encountering high grade Ni-Cu-PGE mineralization like that at the neighboring Airways and Wellgreen properties.

Results for the accessory elements besides Pt, Pd, Cu, Ni and Au were generally inconclusive. Therefore the above mentioned 5 elements only will be discussed below:

As sampling was focussed on the Conwest and Teck showing areas, most significant geochemical results were returned for those showings. Property wide reconnaissance sampling, including the prominent lineament Northeast of the Conwest showing did not return significant results.

TECK SHOWING AND PERIDOTITE SILL AREA



Sample #	Pt ppb	Pd ppb	Ni ppm	Cu ppm	Au ppb
ARR2001	114	257	1624	408	37
ARR2002	43	45	764	1116	8
ARR20100	7	<5	8	19	<5
ARR20101	14	22	169	86	<5
ARR20102	87	163	913	740	11
ARR20103	58	80	1193	206	<5
ARR20104	8	15	1283	154	<5
ARR20105	13	13	1332	161	<5
ARR20106	16	26	1365	190	<5
ARR20107	48	39	1202	205	<5

SCALE - 1:500

FIGURE 5

Mapped by: Marcus Vanwermeskerken
Digitized by: Renee Brickner
January 3, 2000

TRENCH MAPS & GEOCHEMISTRY (Pt, Pd, Ni, Cu, Au)

Limit of Bedrock

-127 Chip Sample with Assay (g/t Pt, g/t Pd, ppm Ni, ppm Cu, g/t Au)
Prefix ARR20 on all Samples
*Pt, Pd, Au in ppb

Fault

Breccia

Stockwork Zone

Overburden

Vein Attitude

Joint Attitude

Foliation Attitude

Contact

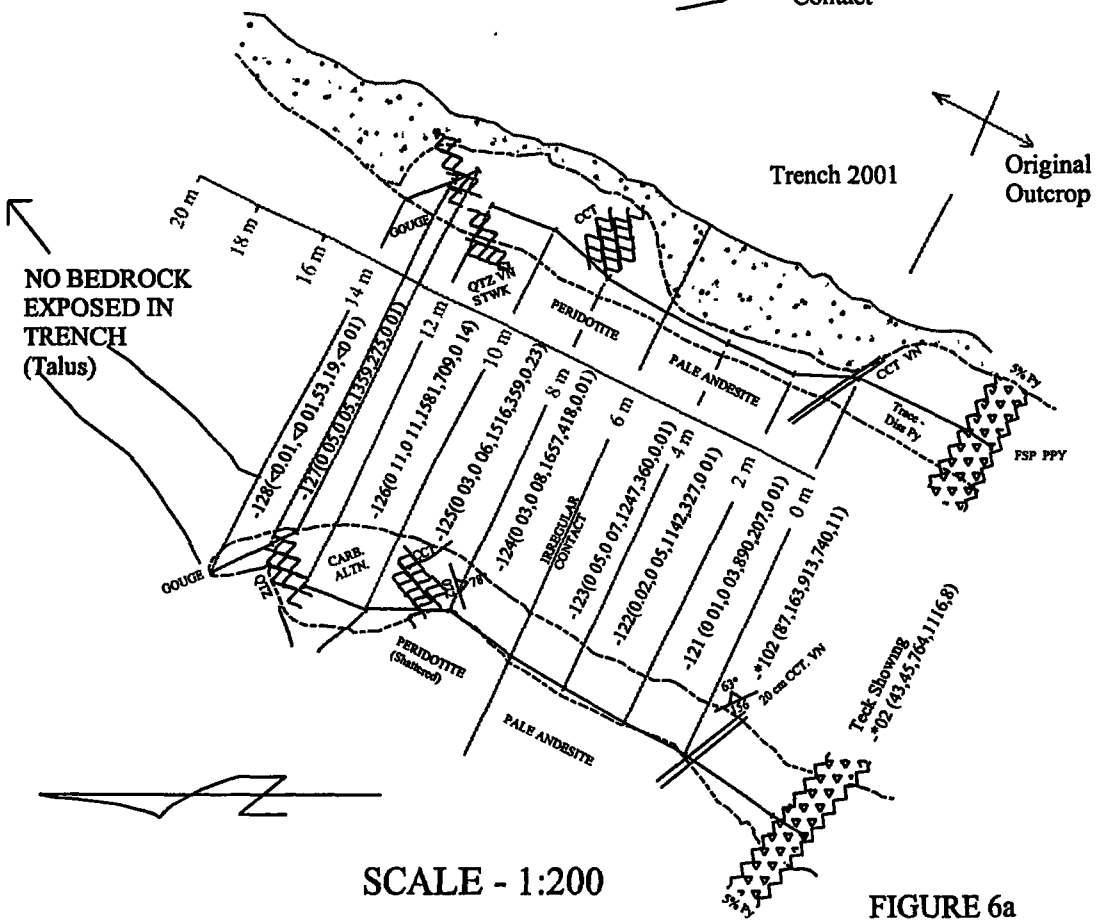


FIGURE 6a

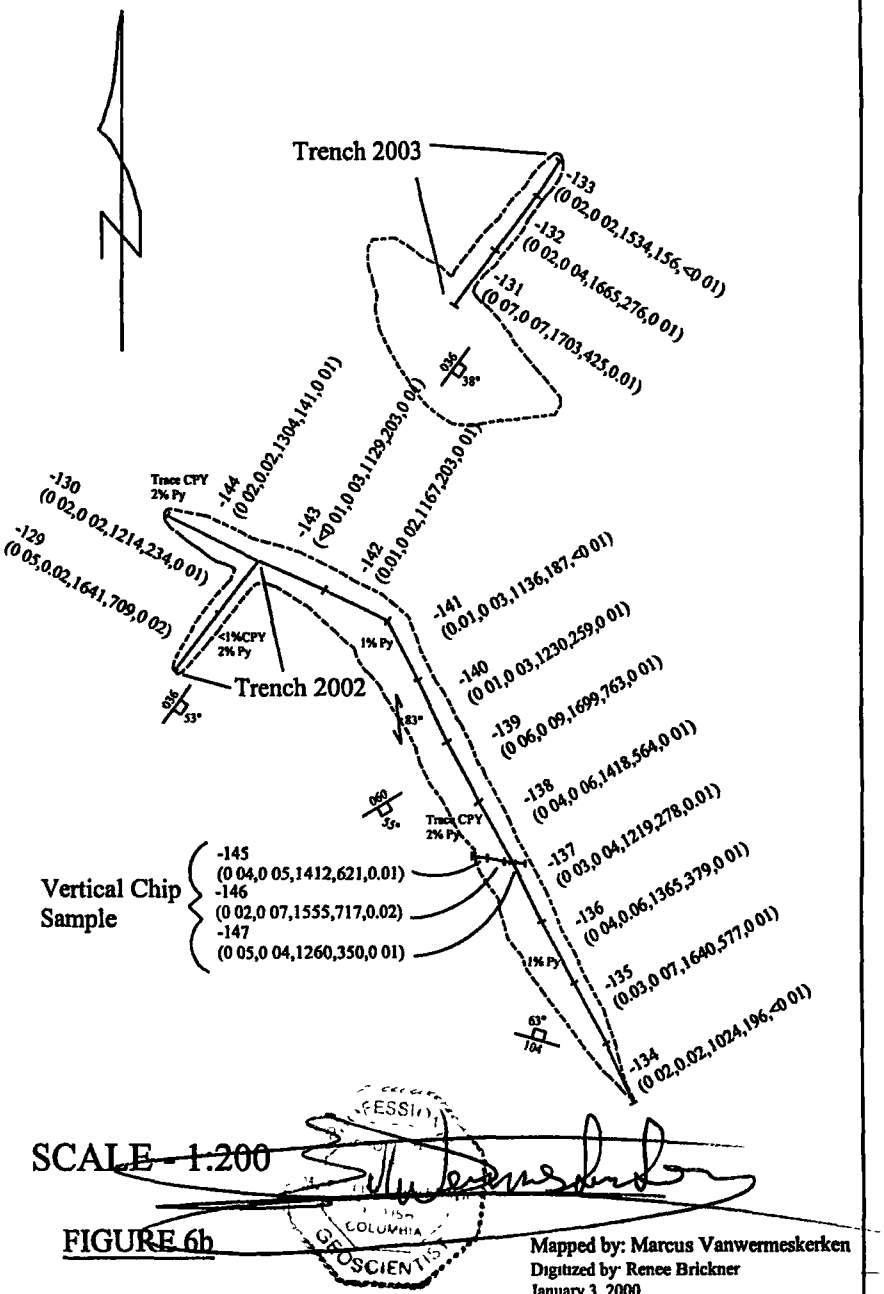
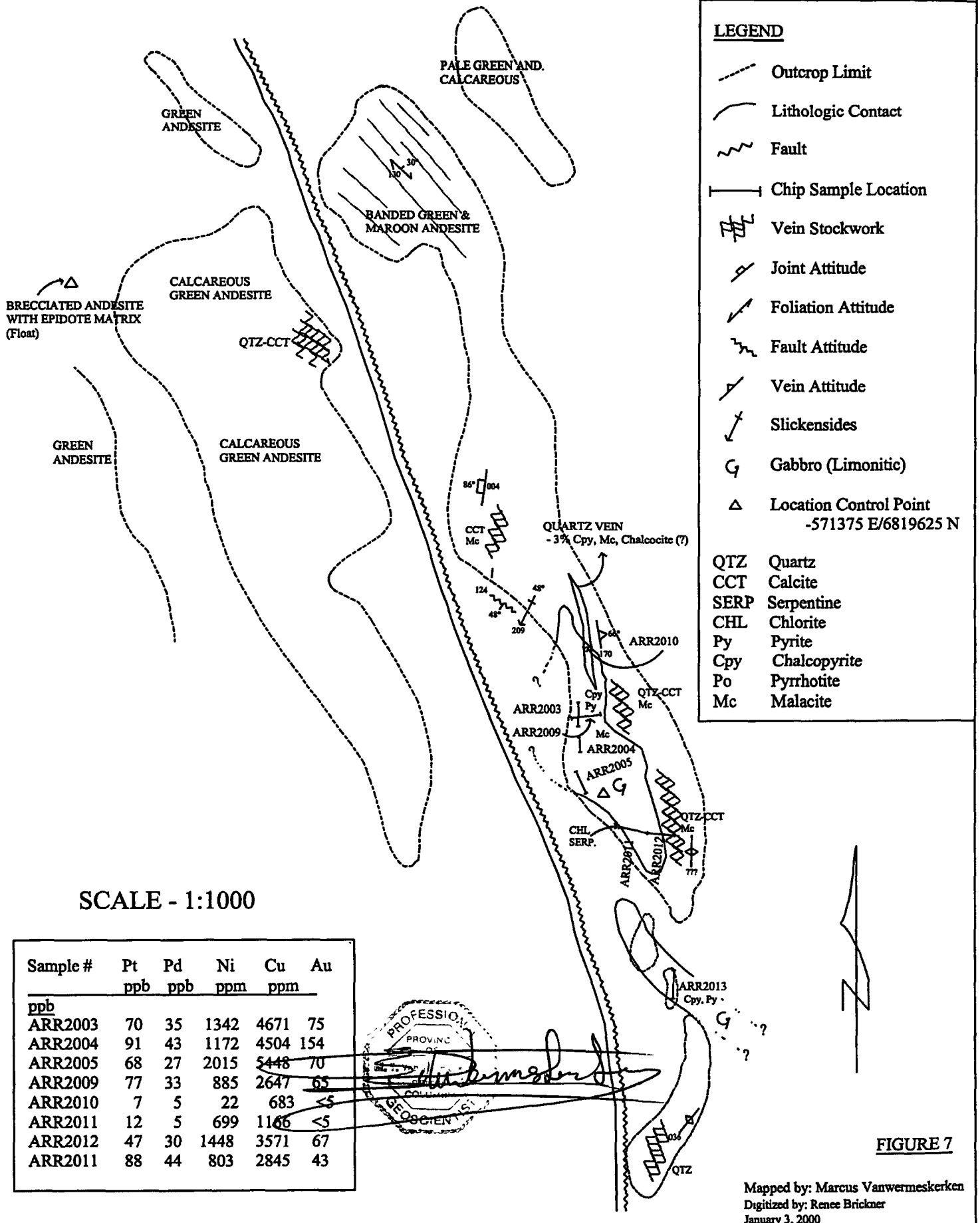


FIGURE 6b

Mapped by: Marcus Vanwermeskerken
Digitized by: Renee Brickner
January 3, 2000

CONWEST SHOWING



SCALE - 1:1000

Sample #	Pt ppb	Pd ppb	Ni ppm	Cu ppm	Au ppb
ARR2003	70	35	1342	4671	75
ARR2004	91	43	1172	4504	154
ARR2005	68	27	2015	5448	70
ARR2009	77	33	885	2647	65
ARR2010	7	5	22	683	<5
ARR2011	12	5	699	1166	<5
ARR2012	47	30	1448	3571	67
ARR2011	88	44	803	2845	43

FIGURE 7

Mapped by: Marcus Vanwermeskerken
Digitized by: Renee Brickner
January 3, 2000

A generally strong correlation exists between the Pt, Pd, Ni and Cu assays, with a moderate correlation between Au and the above mentioned elements. Significant results for the Teck and Conwest showings are as follows:

Teck showing

Sampling at the Teck showing (Fig 4 a,b) returned anomalous Pt-Pd-Cu and Ni values, but generally low Au values. The best assay came from a 2.0 metre chip sample (#AR20126) in TR2001 (0.11 g/t Pt, 0.11 g/t Pd, 1581 ppm Ni, 709 ppm Cu and 0.14g/t Au). This sample was collected from a carbonate altered section of intermediate to mafic rock (peridotite?). Assays in the remainder of the peridotite sill were lower, except 1699 ppm Ni and 763 ppm Cu in sample AR20139 (over 2.0 metres). Sample #AR2001 returned 114 ppb Pt, 257 ppb Pd, 1624 ppm Ni, 408 ppm Cu and 37 ppb Au over 5.0 metres. This sample was collected from an area of disseminated py, po, cpy and pentlandite (?) within the peridotite sill.

It appears that grades within the peridotite increase in areas of carbonate alteration and disseminated/ interstitial sulphides, and grades decrease in areas of stockwork quartz veining.

Conwest showing

Assays from the Gabbro at this showing (Fig. 5) returned highly anomalous Ni and Cu values, with moderately anomalous Au, Pt and Pd. Assays ranged to 5448 ppm Cu and 2015 ppm Ni over 5.0 metres (AR2005), 91 ppb Pt and 154 ppb Au over 3.0 metres (AR2004) and 44 ppb Pd over 6.5 metres (AR2013). Anomalous results are associated with the interstitial and disseminated py-cpy +/- pentlandite mineralization within the gabbro unit. Neither quartz-calcite vein stockwork zones, nor a mineralized quartz vein with abundant malachite staining returned significant assays.

DISCUSSION OF RESULTS

Geochemical results from sampling in the two known mineralized zones on the claims returned sub economic results. However levels of Pt, Pd, Cu, Ni and Au were encouraging for locating a potential high grade PGE zone. The peridotite in the area of the Teck showing has only been exposed towards the Southern contact. This sill is situated on the Southern limb of a mapped (Woodcock, 1953) anticline, indicating that the Northern contact is the footwall contact. This footwall contact is the target horizon for the high grade mineralization.

Furthermore, the geophysical surveys (ArcherCathro,1981) indicated distinct VLF conductors straddling the Teck (Musketeer) showing. One of these conductors, 300 metres in strikelength and up to 70 metres wide, is located near the Northern (Footwall) contact of the peridotite sill in this area. This will make a good exploration target for the following program. No obvious geochemical zonation has been detected through sampling in all 3 dimensions across the peridotite.

The Conwest showing Gabbro unit, although not spatially related to any notable peridotite, contains significant mineralization. This sill is truncated by a fault towards the West, and trends under overburden towards the Southeast. A strong East-Southeasterly trending magnetic anomaly

indicates a possible peridotite under overburden. This potential peridotite sill could be related with other buried marginal gabbros with or without high grade PGE horizons, and will make another exploration target.

CONCLUSIONS AND RECOMMENDATIONS

Auterra Ventures and Cabin Creek Resources Management conducted a Joint Venture exploration project on the Arch Creek (AR1-61) claim block, investigating it for PGE potential. The program, outlined two main exploration targets for the following season.

Trenching and chip sampling in the Teck (Musketeer) showing peridotite, returned encouraging geochemical assays for Pt, Pd, Ni, Cu and Au. The target footwall contact has not yet been exposed, and correlates with Mag-VLF conductors from previous geophysical surveys. This Footwall contact zone is buried under several tens of metres of glacio-fluvial gravels, and should be either exposed by trenching (where possible) or tested by drilling (X-ray, Winky or other portable drill equipment) to locate the Footwall trend. A 300 metre by 70 metre VLF conductor in the area of the projected contact is a recommended drill target. The trend should be further investigated by IP (resistivity-chargeability) surveys to help outline a drill target for follow-up work.

Mapping and sampling of the Conwest showing, as well as a mapped Magnetometer anomaly indicate the potential of peridotite sills and possible related marginal gabbros and high grade PGE zones towards the Southeast. This trend should be blast trenched along the projected strike of the zone.

The prominent lineament Northeast of the Conwest showing did not return significant assays. However, sampling was done while most of the zone was buried under snow. Further sampling, and prospecting along strike is recommended for the following season.

Two bright orange gossans were observed approximately 1 kilometre West-Northwest of the Conwest showing, but were not visited during the 2000 field program. These zones, as well as the remainder of the claims should be prospected and reconnaissance sampled.

Projected costs for the recommended program are as follows:

Linecutting: 5 km @ $250/km	$ 1,250.00
IP survey (50 metre stations): 5 km @ $1700/km	$ 8,500.00
Geologist: 20 days @ $325/day	$ 6,500.00
Field technologists and prospectors: 3 persons @ $200/ day, 20 days	$ 12,000.00
Assays: 300 @ $30.00 ea.	$ 9,000.00
Helicopter: 6 hours @ $900.00/hr	$ 5,400.00
Equipment rentals: compressor, cat, backhoe	$ 8,000.00
Camp costs: $40 per manday 100 mandays (incl. IP crew)	$ 4,000.00
Mob/Demob (Incl airfare): $4,000	$ 4,000.00
Report preparation (Incl geologist): $5,000	$ 5,000.00
Subtotal	$ 63,650.00
Contingency: 10%	$ 6,365.00
Total	**$ 70,015.00**

REFERENCES

Aurum Geological Consultants Inc., 1988: Geological Report on the PC and DON claims, YT.

Davidson, G.S., 1988: Assessment Report on the Missy 1-28 Mineral Claims for Lodestar Explorations Inc.

Eaton, W.D., 1988: Summary Report on 1988 Exploration, Arch Property (Barny, MUS, AMP and Eugene Claims) Pak-Man Resourcees Inc. Rockridge Mining Corporation and Kluane Joint Venture

Department of Mines and Technical Surveys, GSC, 1967: Map 4287G – Donjek – Yukon Territory (1:63,360); Geoph. Paper 4287 sheet 115G/12

Dodds, D.J. and Campbell, R.B., 1992: Overview, legend and Mineral Deposit Tabulations for: Geological Survey of Canada.

Hulbert, L.J., 1997: Geology and metallogeny of the Kluane Mafic-Ultramafic Belt, Yukon Territory, Canada: Eastern Wrangellia-a new Ni-Cu-PGE metallogenic Terrane; GSC Bull. 506

Hulbert et al., 1988: Geological Environments of the Platinum Group Elements; GSC open file 1440

Hulbert, L.J. et al., 1996: Wrangellia- a new Ni-Cu-PGE Metallogenic Terrane, notes for the short course on New Mineral Deposit Models of the Cordillera (MDRU and GSC)

MDRU, 2000: Yukon Mineral Property Update

Woodcock, J.R., 1953: Report on Donjek Group, Arch Creek, Y.T.

Yukon Exploration, 1988, pp. 163-171.

Yukon Exploration, 1989, pp. 103-108.

Yukon Exploration and Geology, 1999, p.5

STATEMENT OF QUALIFICATIONS

I, **Marcus T. Vanwermeskerken,** of Saltspring Island, British Columbia, hereby certify that:

I am a graduate of the University of British Columbia with a Bachelor of Science degree (1987) in geology.

I have practiced my profession as a geologist in Canada, Central and South America for 11 years since graduation.

I am a consulting geologist with offices at 128 Saltair Lane, Saltspring Island, British Columbia.

I am a registered member in good standing of the Association of Professional Engineers and Geoscientists of British Columbia (reg # 19385).

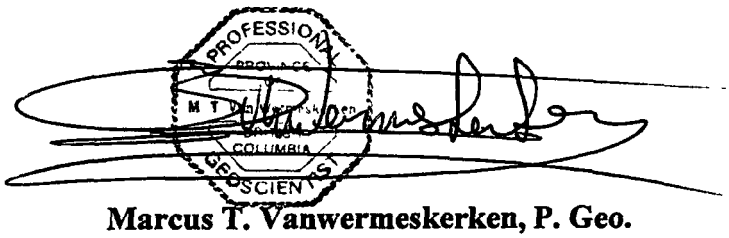
The information in this report is based on a review of reports on the area and on information obtained in the field.

I personally supervised the work undertaken on the Arch Creek claims during the 2000 field program.

I have no interest, direct or indirect, in the subject property, or any surrounding ground.

I consent to, and authorize the use of this report in any prospectus, state of material facts, or other public document.

DATED, in Vancouver, British Columbia, this 8th day of January, 2001.



Marcus T. Vanwermeskerken, P. Geo.

APPENDIX A

Rock sample descriptions

sample #	width(m)	location(E/N)	description
ARR2001	5.0	TR 2002/3 area	Peridotite with disseminated sulphides (Py, Po, Cpy)
ARR2002	1.1	Teck showing	chip across leached out, brecciated, limonitic feldspar porphyry (?) with abundant quartz-pyrite 'balls' <5 cm (70% py, 30% qtz). Boxwork with grey sulphide remnants. Lack of carbonate. Locally siliceous with 2-5% fine disseminated pyrite. Jarosite and melanterite (?) coated surfaces.
ARR2003	5.0	Conwest showing	Oxidized gabbro with disseminated py and cpy
ARR2004	3.0	Conwest showing	Oxidized gabbro with disseminated py and cpy
ARR2005	5.0	Conwest showing	Same as ARR2004
ARR2006	Grab	TR 2001 area	Oxidized, carbonate altered intrusive rock with calcite (qtz) veins.
ARR2007	10.0	TR 2001 area	Composite of serpentinized, fractured peridotite.
ARR2009	9.0	Conwest showing	chip across medium-fine grained gabbro. Oxidized and leached. 1% chalcopyrite, 2-3% pyrite, fine disseminated. Abundant limonite and malachite.
ARR2010	0.4	Conwest showing	chip across quartz vein trending 170/66E. with various amounts up to 3% chalcopyrite, and <1% chalcocite (?), abundant malachite at gabbro-andesite contact
ARR2011	6.3	Conwest showing	chip across medium grained gabbro with minor limonite along fractures. Minor chlorite and serpentinite alteration
ARR2012	4.5	Conwest showing	chip across very oxidized gabbro with quartz-calcite vein stockwork <5 cm trending 000/90 with < 1% chalcopyrite, trace of chalcocite (?), malachite. Also 5% pyrite, disseminated and as 'blebs' < 2 cm.
ARR2013	6.5	Conwest showing	4.5 m true across limonitic gabbro with 2% disseminated py and 1%chalcopyrite
ARR20100	5.0	Teck showing	chip across intermediate, medium grained feldspar porphyry, locally weak siliceous
ARR20101	5.0	Teck showing	Same as -100
ARR20102	3.0	Teck showing	Same as -100
ARR20103	grab	TR2001	Carbonate altered andesite (?), brecciated(crackle breccia) with multiphase carbonate (calcite-ankerite) veins. No sulphides.
ARR20104	5.0	571320/6818550	Chip across fine grained, moderately calcareous peridotite. Magnetic, with trace of fine disseminated pyrite. Weak serpentinization.
ARR20105	4.0	571325/6818565	Same as -104. No sulphides. Calcite stringers.
ARR20106	3.0	TR2002/3 area	Same as -104. Highly magnetic. 1-2% pyrrhotite, <1% pyrite. Calcite stringers.

sample #	width(m)	location(E/N)	description
ARR20107	5.0	571330/6818540	Same as -104. 2% pyrite. Includes 25 cm wide dacitic dyke, trending 083/68S
ARR20108	grab	572001/6818950	Calcareous andesite (feldspar porphyry) with abundant calcite stringers, predominantly @ 153/60 SW. 2% pyrite, disseminated and in fractures.
ARR20109	grab	572001/6819863	15 cm wide quartz-calcite vein with pale blue coating
ARR20110	2.0	572162/6819863	chloritic calcareous fine grained andesite with quartz-calcite-epidote vein stockwork <15 cm.
ARR20111	2.5	572162/6819863	same as -110 with chlorite and minor hematite in veins. Minor shearing with slickensides.
ARR20112	1.5		Banded argillite and fine grained quartzite, trending 171/85W, with abundant pyrite as pods and as lenses <5 cm in parting of beds.
ARR20113	4.2		Same as -112 with less pyrite. Contiguous with -112.
ARR20116	3.0	571260/6820160	Chip across green, calcareous andesite with quartz-epidote-calcite vein stockwork < 10 cm. Veins mostly @ 035/65 NW and 128/61 NE. Slickensides@ 30 towards 215.
ARR20117	15.0	571280/6820170	Composite of carbonate alteration zone, very fractured andesite. Abundant calcite +/- quart zveins with FeOx. No sulphides.
ARX20118	soil	571260/6820180	Orange soil gossan (carbonate alteredshear (?)
ARX20119	soil	571480/6820120	Orange soil gossan (carbonate altered shear(?)
ARR20120	2.0	571500/6820140	Chip across quartz-chlorite vein stockwork <2 cm @ 033/90 within green andesite. Weak epidote-hematite altered. No sulphides.
ARR20121	2.0	TR2001	Pale green, sheared andesite (?) with abundant fracture-filling calcite. Includes 20 cm wide calcite vein, trending 156/63E at contact with -102.
ARR20122	2.0	TR2001	Same as, and contiguous with -121, but less calcite stringers.
ARR20123	1.8	TR2001	Same as -121, less calcite stringers. Brecciated towards-124.
ARR20124	2.2	TR2001	Shattered peridotite, serpentinized, with calcitestringers in fractures. Magnetic. No sulphides.
ARR20125	2.0	TR2001	Same as -124. Increasing calcite stringers (predominantly @ 072/78S) and limonite towards -126.Cleavage @ 078/51N, subparallel to contact.
ARR20126	2.4	TR2001	Strong, carbonate altered andesite with abundant fine calcite stringers with FeOx. Contact with peridotite @approx. 078/51N. Approx. 20% quartz stringer stockwork <3 mm towards -127.
ARR20127	0.7	TR2001	Quartz vein stockwork <5 mm in carbonate alteration zone at contact with -128. Discontinuous veins (lenses) approx. 20% vol.

sample #	width(m)	location(E/N)	description
ARR20128	1.8	TR2001	Pale green gouge, sub perpendicular to contact, sheared (serpentinized) peridotite.
ARR20129	2.0	TR2002	Fine grained, magnetic peridotite with 2% combined interstitial pyrite and chalcopyrite +/- trace pentlandite (?)
ARR20130	2.0	Contig. w. -129	Same as-129. <1% py.
ARR20131	2.0	TR2003	Chip across shattered fine grained peridotite, serpentinized, magnetic. Calcite stringers.
ARR20132	2.0	TR2003	Same as -131.
ARR20133	1.3	TR2003	Same as -131.
ARR20134	2.0	TR2002/3 area	Same as -131.
ARR20135	2.0	TR2002/3 area	Same as -131.
ARR20136	2.0	TR2002/3 area	Same as -131,1% pyrite
ARR20137	2.0	TR2002/3 area	Same as -131,1% pyrite.
ARR20138	2.0	TR2002/3 area	Same as -131.
ARR20139	2.0	TR2002/3 area	Same as -131.
ARR20140	2.0	TR2002/3 area	Same as -131.
ARR20141	2.0	TR2002/3 area	Same as -131. Minor pyrite.
ARR20142	2.0	TR2002/3 area	Same as -131.
ARR20143	2.0	TR2002/3 area	Same as -131.
ARR20144	2.0	TR2002/3 area	Same as -131. Minor pyrite.
ARR20145	2.0	TR2002/3 area	Same as -131.2% pyrite +/- chalcopyrite. Strong serpentinization. Cleavage @ 176/62W
ARR20146	2.0	TR2002/3 area	Same as -145. <1% pyrite. Foliation @ 004/28W.
ARR20147	1.5	TR2002/3 area	Same as -145. Trace of pyrite.

APPENDIX B

Assay Results

Northern Analytical Laboratories ltd.

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Y
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Fax: (867) 66
E-mail: NAL@hypertec

04/10/2000

Certificate of Analysis

Pa

Tom Morgan

WO# 00147

Certified by

Sample #	Au 30g ppb	Pt 30g ppb	Pd 30g ppb	Cu ppm	Ni ppm	Co ppm
r ARR2001	37	114	257	408	1624	94
r ARR2002	8	43	45	1116	764	45
r ARR2003	75	70	35	4671	1342	78
r ARR2004	154	91	43	4504	1172	111
r ARR2005	70	68	27	5448	2015	130
r ARR2006	13	63	62	374	1637	79
r ARR2007	6	25	19	377	1512	90
r ARR2008	<5	6	<5	355	63	17

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18/12/2000 Certificate of Analysis

Tom Morgan WO#00157

Certified by

	Sample #	Au 30g ppb	Pt 30g ppb	Pd 30g ppb
r	ARR2009	65	77	33
r	ARR2010	<5	7	5
r	ARR2011	<5	12	5
r	ARR2012	67	47	30
r	ARR2013	43	88	44
r	ARR20100	<5	7	<5
r	ARR20101	<5	14	22
r	ARR20102	11	87	163
r	ARR20103	<5	58	60
r	ARR20104	<5	8	15
r	ARR20105	<5	13	13
r	ARR20106	<5	16	26
r	ARR20107	<5	48	39
r	ARR20108	<5	8	<5
r	ARR20109	<5	6	<5
r	ARR20110	<5	15	12
r	ARR20111	<5	<5	<5
r	ARR20112	<5	<5	<5
r	ARR20113	<5	10	<5
ss	ARS20114	6	14	<5
ss	ARS20115	6	<5	<5

INTERNATIONAL PLASMA LABORATORY LTD.
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Phone (604) 879-7878
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Email ipl@direct.ca

CERTIFICATE OF ANALYSIS
iPL 00J1394

Client : Northern Analytical Laboratories
Project: W.O. 00157

21 Samples
21=Pulp

[139417:17:52:00102500]

Out: Oct 25. 2000
In : Oct 16. 2000

Sample Name	Ag ppm	Cu ppm	Pb ppm	Zn ppm	As ppm	Sb ppm	Hg ppm	Mo ppm	Tl ppm	Bi ppm	Cd ppm	Co ppm	Ni ppm	Ba ppm	W ppm	Cr ppm	V ppm	Mn ppm	La ppm	Sr ppm	Zr ppm	Sc ppm	Ti %	Al %	Ca %	Fe %	Mg %	K %	Na %	P %
ARR2009	P 4.1	2647	26	55	<	<	<	4	<	<	<	56	885	19	<	374	85	320	<	7	6	3	0.13	2.09	0.28	11%	2.22	0.02	0.02	0.03
ARR2010	P 0.4	683	12	7	<	<	<	<	<	<	0.3	5	22	9	<	146	7	103	<	6	<	1	<	0.12	0.37	0.56	0.07	0.04	0.01	0.01
ARR2011	P 0.6	1166	13	59	<	<	<	4	<	<	<	73	699	16	<	388	46	545	2	10	2	2	0.07	3.01	0.41	4.46	4.59	0.03	0.02	0.03
ARR2012	P 2.9	3571	22	70	<	<	<	3	<	<	1.2	117	1448	7	<	366	78	581	<	15	4	4	0.11	2.96	1.03	6.62	3.47	0.03	0.02	0.02
ARR2013	P 4.0	2845	23	60	<	<	<	4	<	<	<	61	803	7	<	431	82	351	<	21	4	5	0.12	3.16	0.69	6.64	3.35	0.03	0.02	0.02
ARR20100	P <	19	3	27	<	<	<	<	<	<	0.4	2	8	198	<	38	4	253	3	57	1	1	<	0.56	1.62	0.82	0.17	0.18	0.03	0.02
ARR20101	P <	86	12	43	5	<	<	2	<	<	0.7	17	169	375	<	203	43	459	4	73	1	5	<	1.57	2.70	2.54	1.79	0.15	0.03	0.03
ARR20102	P 1.3	740	14	64	5	6	<	6	<	<	<	75	913	115	<	649	129	946	4	88	2	14	0.01	3.44	4.70	6.82	6.30	0.04	0.02	0.04
ARR20103	P 0.6	206	17	31	<	<	<	4	<	<	<	85	1193	42	<	579	46	988	2	262	2	9	<	1.37	12%	5.13	6.01	0.01	0.01	0.01
ARR20104	P 0.5	154	8	51	<	<	<	6	<	<	1.2	108	1283	43	<	355	27	964	<	40	2	6	0.03	1.29	1.01	5.78	14%	0.04	0.02	0.02
ARR20105	P 0.6	161	11	56	<	<	<	5	<	<	0.7	118	1332	35	<	376	26	1042	2	40	3	7	0.03	1.43	1.23	6.14	15%	0.04	0.02	0.02
ARR20106	P 0.5	190	8	55	<	<	<	5	<	<	1.0	118	1365	47	<	293	19	938	<	22	2	6	0.02	1.28	0.66	5.92	14%	0.04	0.02	0.02
ARR20107	P 0.5	205	6	51	<	<	<	5	<	<	1.0	106	1202	33	<	339	27	972	2	88	2	6	0.03	1.32	1.51	5.49	14%	0.04	0.01	0.02
ARR20108	P <	30	6	51	<	<	<	2	<	<	0.7	20	18	18	<	29	103	815	4	53	7	7	0.17	2.59	1.59	4.08	1.98	0.04	0.04	0.07
ARR20109	P <	4	<	19	<	<	<	1	<	<	0.4	7	12	28	<	83	9	284	<	15	1	<	0.01	0.59	1.32	0.79	0.60	0.01	0.01	<
ARR20110	P <	82	11	74	<	<	<	3	<	<	0.8	28	86	19	<	182	67	756	2	24	2	4	0.10	2.61	2.29	2.87	2.87	0.02	0.02	0.04
ARR20111	P <	7	4	50	<	<	<	2	<	<	0.4	16	10	21	<	55	24	581	5	64	2	2	0.08	1.76	1.38	2.53	1.11	0.08	0.01	0.06
ARR20112	P 0.4	43	18	218	<	<	<	5	<	<	1.6	13	22	50	<	46	95	919	10	18	1	6	<	2.22	2.24	4.44	1.19	0.08	0.03	0.11
ARR20113	P 0.1	38	20	72	<	<	<	4	<	<	1.0	14	20	40	<	36	85	881	6	20	1	5	<	2.20	2.28	4.13	1.07	0.11	0.02	0.06
ARR20114	P <	91	10	76	<	<	<	4	<	<	0.9	27	75	36	<	130	103	716	5	36	4	7	0.10	2.48	1.63	4.24	2.33	0.04	0.02	0.08
ARR20115	P 0.1	85	14	82	<	<	<	5	<	<	1.1	30	81	50	6	140	112	735	6	41	5	7	0.14	2.49	1.68	4.28	2.36	0.04	0.02	0.07
Min Limit	0.1	1	2	1	5	5	3	1	10	2	0.1	1	1	2	5	1	2	1	2	1	1	1	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Max Reported*	99.9	20000	20000	20000	9999	999	9999	999	999	9999	99.9	9999	9999	9999	999	9999	9999	9999	9999	9999	9999	9999	1.00	9.99	9.99	9.99	9.99	9.99	5.00	5.00
Method	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP

—=No Test Ins=Insufficient Sample Del=Delay Max=No Estimate Rec=ReCheck m=x1000 %=Estimate % NS=No SampleP=Pulp

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CERTIFICATE OF ANALYSIS
iPL 00K1521

Client : Northern Analytical Laboratories
Project: WO#00163

32 Samples
32=Pulp

[152112:18:56:00111500]

Out: Nov 15, 2000
In : Nov 08, 2000

Sample Name	Type	Au g/mt	Pt g/mt	Pd g/mt	Rh g/mt	Ag ppm	Cu ppm	Pb ppm	Zn ppm	As ppm	Sb ppm	Hg ppm	Mo ppm	Tl ppm	Bi ppm	Cd ppm	Co ppm	Mn ppm	Ba ppm
ARR20116	Pulp	<0.01	<0.01	<0.01	<0.01	<0.1	51	6	77	<5	<5	<3	2	<10	<2	2.1	28	43	211
ARR20117	Pulp	0.01	0.01	0.01	<0.01	<0.1	47	8	84	<5	<5	<3	3	<10	<2	1.0	37	71	8
ARR20118	Pulp	0.36	<0.01	<0.01	<0.01	0.5	223	19	62	23	<5	<3	8	<10	<2	2.3	31	54	49
ARR20119	Pulp	0.07	<0.01	0.01	<0.01	0.4	165	26	107	12	<5	<3	8	<10	<2	2.4	36	50	111
ARR20120	Pulp	0.03	<0.01	<0.01	<0.01	<0.1	3	4	32	<5	<5	<3	1	<10	<2	0.7	11	8	41
ARR20121	Pulp	0.01	0.01	0.03	<0.01	0.1	207	10	40	<5	<5	<3	4	<10	<2	2.0	72	890	148
ARR20122	Pulp	0.01	0.02	0.05	<0.01	0.2	327	16	61	<5	<5	<3	4	<10	<2	3.4	96	1142	25
ARR20123	Pulp	0.01	0.05	0.07	<0.01	0.2	360	9	52	<5	5	<3	3	<10	<2	3.4	88	1247	133
ARR20124	Pulp	0.01	0.03	0.08	<0.01	0.5	418	6	61	<5	<5	<3	3	<10	<2	2.6	119	1657	11
ARR20125	Pulp	0.23	0.03	0.06	<0.01	0.4	359	6	54	<5	<5	<3	3	<10	<2	3.2	109	1516	13
ARR20126	Pulp	0.14	0.11	0.11	<0.01	1.0	709	2	38	<5	<5	<3	3	<10	<2	1.2	101	1581	62
ARR20127	Pulp	0.01	0.05	0.06	<0.01	0.3	275	11	31	<5	<5	<3	3	<10	<2	2.0	88	1359	772
ARR20128	Pulp	<0.01	<0.01	<0.01	<0.01	<0.1	19	2	20	<5	<5	<3	1	<10	<2	0.8	6	53	388
ARR20129	Pulp	0.02	0.05	0.08	<0.01	0.3	709	5	65	<5	<5	<3	2	<10	<2	2.7	135	1641	23
ARR20130	Pulp	0.01	0.02	0.02	<0.01	0.1	239	<2	54	<5	<5	<3	4	<10	<2	2.6	117	1214	37
ARR20131	Pulp	0.01	0.07	0.07	<0.01	0.3	425	13	60	<5	<5	<3	3	<10	<2	2.6	117	1703	28
ARR20132	Pulp	0.01	0.02	0.04	<0.01	0.2	276	7	41	<5	<5	<3	2	<10	<2	2.2	110	1665	36
ARR20133	Pulp	<0.01	0.02	0.02	<0.01	<0.1	156	5	50	<5	<5	<3	3	<10	<2	2.5	109	1534	37
ARR20134	Pulp	<0.01	0.02	0.02	<0.01	0.1	196	11	58	<5	<5	<3	3	<10	<2	2.4	120	1024	19
ARR20135	Pulp	0.01	0.03	0.07	<0.01	0.3	577	5	62	<5	<5	<3	3	<10	<2	2.6	135	1640	11
ARR20136	Pulp	0.01	0.04	0.06	<0.01	0.3	379	7	57	<5	<5	<3	3	<10	<2	2.6	124	1365	11
ARR20137	Pulp	0.01	0.03	0.04	<0.01	0.2	278	7	60	<5	<5	<3	4	<10	<2	2.2	124	1219	12
ARR20138	Pulp	0.01	0.04	0.06	<0.01	0.3	564	6	69	<5	<5	<3	2	<10	<2	2.6	131	1418	11
ARR20139	Pulp	0.01	0.06	0.09	<0.01	0.5	763	5	68	<5	<5	<3	4	<10	<2	2.5	137	1699	15
ARR20140	Pulp	0.01	0.01	0.03	<0.01	0.2	259	8	61	<5	<5	<3	3	<10	<2	3.0	125	1230	18
ARR20141	Pulp	<0.01	0.01	0.03	<0.01	<0.1	187	5	55	<5	<5	<3	4	<10	<2	2.7	118	1136	17
ARR20142	Pulp	0.01	0.01	0.02	<0.01	0.1	203	8	54	<5	<5	<3	4	<10	<2	2.3	120	1167	28
ARR20143	Pulp	0.01	<0.01	0.03	<0.01	0.1	203	8	54	<5	<5	<3	5	<10	<2	2.7	120	1129	27
ARR20144	Pulp	0.01	0.02	0.02	<0.01	0.1	141	7	52	<5	<5	<3	4	<10	<2	2.7	119	1304	23
ARR20145	Pulp	0.01	0.04	0.05	<0.01	0.5	621	6	58	<5	<5	<3	3	<10	<2	2.8	126	1412	16
ARR20146	Pulp	0.02	0.02	0.07	<0.01	0.6	717	7	64	<5	<5	<3	5	<10	<2	2.6	132	1555	11
ARR20147	Pulp	0.01	0.05	0.04	<0.01	0.2	350	7	66	<5	<5	<3	4	<10	<2	2.7	124	1260	15
Minimum Detection		0.01	0.01	0.01	0.01	0.1	1	2	1	5	5	3	1	10	2	0.1	1	1	2
Maximum Detection		9999.00	99999.00	9999.00	9999.00	100.0	20000	20000	20000	10000	1000	10000	1000	1000	10000	100.0	10000	10000	10000
Method		FA/AAS	FA/AAS	FA/AAS	FA/AAS	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP

-N- Test Ins=Insufficient Sample Del=Delay Max=No Estimate Rec=ReCheck m=x1000 %=Estimate % NS=No Sample

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CERTIFICATE OF ANALYSIS
iPL 00K1521

Client : Northern Analytical Laboratories
Project: WO#00163

32 Samples
32=Pulp

[152112:18:56:00111500]

Out: Nov 15, 2000
In : Nov 08, 2000

Sample Name	W ppm	Cr ppm	V ppm	Mn ppm	La ppm	Sr ppm	Zr ppm	Sc ppm	Ti %	Al %	Ca %	Fe %	Mg %	K %	Na %	P %
ARR20116	<5	61	76	751	3	54	3	3	0.10	2.72	2.21	4.10	2.18	0.04	0.03	0.09
ARR20117	5	143	147	1248	3	63	1	18	<0.01	3.98	7.21	5.37	3.58	0.03	0.02	0.04
ARR20118	<5	27	29	1179	5	32	2	11	<0.01	0.83	2.98	4.58	0.51	0.05	0.02	0.06
ARR20119	<5	48	100	1040	4	150	2	17	<0.01	1.42	5.79	5.89	1.01	0.04	0.01	0.06
ARR20120	<5	67	20	564	4	124	3	2	0.06	1.12	0.99	1.31	0.71	0.06	0.02	0.06
ARR20121	<5	561	52	1346	2	160	2	9	0.01	2.22	9.57	4.64	8.64	0.01	0.01	0.02
ARR20122	<5	796	69	1027	3	112	3	13	0.04	2.71	4.04	5.66	11%	0.04	0.02	0.03
ARR20123	<5	563	57	1044	3	81	3	12	0.03	2.53	3.94	5.60	13%	0.03	0.01	0.04
ARR20124	<5	658	32	1015	<2	33	2	11	0.01	1.26	1.29	5.25	12%	0.03	0.01	0.01
ARR20125	<5	658	36	1003	<2	65	2	11	0.01	1.40	3.44	5.42	12%	0.01	0.01	0.01
ARR20126	<5	501	47	1040	<2	183	2	8	0.01	1.35	12%	5.27	7.16	0.01	0.01	0.01
ARR20127	<5	658	41	1480	<2	313	1	10	<0.01	1.61	11%	4.76	8.67	<0.01	0.01	<0.01
ARR20128	<5	26	7	100	<2	16	1	1	<0.01	2.22	0.54	1.22	1.84	0.17	0.02	0.02
ARR20129	<5	287	17	985	<2	14	2	6	0.01	0.93	0.78	5.23	13%	0.02	0.01	0.02
ARR20130	<5	264	17	949	<2	24	2	6	0.02	1.28	0.83	5.71	13%	0.03	0.02	0.02
ARR20131	<5	302	21	924	2	13	3	6	0.02	1.29	1.27	5.21	13%	0.02	0.01	0.03
ARR20132	<5	252	16	982	<2	14	2	5	0.01	1.15	1.44	4.86	12%	0.03	0.01	0.02
ARR20133	<5	267	17	1006	<2	14	2	5	0.01	1.03	1.18	4.68	12%	0.03	0.01	0.02
ARR20134	<5	367	22	917	<2	18	2	7	0.01	1.14	1.42	5.16	13%	0.02	0.01	0.01
ARR20135	<5	405	25	933	<2	16	2	7	0.02	1.07	1.07	5.46	14%	0.01	0.01	0.02
ARR20136	<5	315	18	876	<2	8	2	6	0.01	0.87	0.59	4.80	12%	0.02	0.01	0.02
ARR20137	<5	326	20	880	2	10	2	6	0.01	0.96	0.76	4.89	13%	0.02	0.01	0.02
ARR20138	<5	359	22	935	<2	9	2	7	0.02	1.04	0.69	5.36	13%	0.02	0.01	0.01
ARR20139	6	362	21	914	<2	20	2	7	0.01	1.02	0.71	5.46	13%	0.02	0.01	0.02
ARR20140	<5	372	23	961	<2	37	2	7	0.02	1.26	1.21	5.56	14%	0.02	0.01	0.02
ARR20141	<5	328	20	926	<2	15	2	6	0.02	1.19	0.87	5.36	13%	0.02	0.01	0.02
ARR20142	<5	299	19	926	<2	21	2	6	0.01	1.21	0.65	5.45	13%	0.03	0.02	0.01
ARR20143	<5	299	18	911	<2	18	2	6	0.01	1.20	0.75	5.42	13%	0.03	0.02	0.02
ARR20144	<5	308	19	909	<2	15	2	6	0.01	1.17	0.79	5.36	13%	0.03	0.01	0.02
ARR20145	<5	296	19	901	<2	18	2	6	0.01	1.00	0.98	5.24	13%	0.02	0.01	0.01
ARR20146	<5	349	22	955	<2	10	2	7	0.02	1.07	0.66	5.57	14%	0.02	0.01	0.02
ARR20147	<5	376	23	978	<2	10	2	7	0.02	1.08	0.82	5.43	14%	0.02	0.01	0.02
Minimum Detection	5	1	2	1	2	1	1	1	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Maximum Detection	1000	10000	10000	10000	10000	10000	10000	10000	1.00	10.00	10.00	10.00	10.00	10.00	5.00	5.00
Method	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP

—No Test Insufficient Sample Del=Delay Max=No Estimate Rec=ReCheck m=x1000 %=Estimate % NS=No Sample