PATHFINDER RESOURCES LTD.

1994 GEOLOGICAL AND GEOCHEMICAL REPORT ON THE RDN 1-6 MINERAL CLAIMS

Located in the Eskay Creek Area

Liard Mining Division

NTS 104B/15E, 104G/2E

56° 59′ North Latitude

130° 38′ West Longitude

-prepared for-

PATHFINDER RESOURCES LTD.

-prepared by-

Henry J. Awmack, P.Eng.

January, 1995

SUMMARY

The RDN 1-6 claims cover 67 units (approximately 1,650 hectares) of mountainous terrain in northwestern British Columbia, located approximately 120 kilometres northwest of Stewart. Current access to the property is by helicopter from the Bob Quinn airstrip, which lies 24 kilometres to the east on the Stewart-Cassiar Highway. The claims are held under option by Pathfinder Resources Ltd..

The RDN 1-4 claims were staked in 1987 to cover a prominent gossan. Noranda Exploration optioned and explored the RDN property jointly with their wholly-owned GOZ claims from 1989 through 1991. They carried out extensive geochemical and geophysical surveys over the two properties, focused on narrow gold-rich veins, and drilled three holes totalling 345 metres on the RDN 2 claim. The option was dropped in 1991. Some of the GOZ claims were allowed to lapse and were restaked as the RDN 5 and 6 claims in May 1994. Sixteen mandays of prospecting, sampling and mapping by Pathfinder Resources in September 1994 were directed at the property's potential for Eskay Creek-style mineralization.

The RDN property is largely underlain by Jurassic Hazelton Group stratigraphy similar in age, lithologies, alteration and mineralization to that which hosts the Eskay Creek gold-rich volcanogenic massive sulphide deposit 40 kilometres to the south-southeast. Like Eskay Creek, subvolcanic felsic porphyries intrude a felsic package which is overlain by fine-grained marine clastics and andesitic flows. The felsic intrusives and extrusives are extensively altered, pyritized and geochemically anomalous in lead, zinc, arsenic and antimony.

A broad northeasterly trending anticline has been dislocated by two north-northwesterly trending faults into three fault blocks. Five stratigraphic felsic/sediment contacts (four on the RDN claims) have been mapped or inferred within the three fault blocks, lying on the northwestern and southeastern limbs of the anticline. No massive sulphide mineralization has yet been discovered, but altered felsics beneath the Marcasite Gossan felsic/sediment contact assayed up to 141 g/tonne silver. Felsic float thought to be derived from another segment of the felsic/sediment contact, four kilometres to the north, assayed 11.6 g/tonne gold with anomalous silver, lead, zinc, copper, arsenic, antimony, mercury and bismuth.

1994 GEOLOGICAL AND GEOCHEMICAL REPORT ON THE RDN 1-6 MINERAL CLAIMS

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1.0 INTRODUCTION

The RDN 1-4 mineral claims were staked in October 1987 over a prominent gossan in the Iskut River-Eskay Creek area of northwestern British Columbia (Figure 1). The claims were staked and optioned to Noranda prior to the discovery of the gold-rich Eskay Creek volcanogenic massive sulphide (VMS) deposit located forty kilometres to the south-southeast. Noranda carried out exploration on the RDN claims and their wholly-owned, adjoining GOZ claims from 1989 to 1991. Although stratigraphy equivalent to that which hosts the Eskay Creek deposit underlies most of the RDN property, very little exploration had been directed at its stratabound gold potential prior to 1994.

A limited exploration program, targeted at the felsic/sediment contacts on the RDN property, was carried out by Pathfinder Resources Ltd. in September 1994, under the author's direction. Equity Engineering Ltd. has been retained to report on the results of this program.

2.0 LIST OF CLAIMS

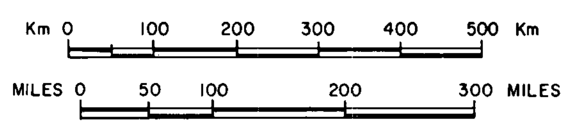
The RDN property (Figure 2) consists of six contiguous mineral claims totalling 67 units in the Liard Mining Division of British Columbia, as summarized in Table 2.0.1. Records of the British Columbia Ministry of Energy, Mines and Petroleum Resources indicate that the RDN 1-6 claims are owned by Pathfinder Resources Ltd.. Separate documents indicate that Pathfinder has been granted an option to acquire 100% of the RDN 1-6 claims from Neil Debock, Rockie Saliken and Equity Engineering Ltd., subject to certain terms and conditions.

TABLE 2.0.1
CLAIM DATA

Claim Name	Tenure Number	No. of Units	Record Date	Expiry Year
RDN 1	222843	10	November 9, 1987	1997*
RDN 2	222844	10	November 9, 1987	1997*
RDN 3	222845	10	November 9, 1987	1996*
RDN 4	222846	10	November 9, 1987	1996*
RDN 5	325559	12	May 24, 1994	1997*
RDN 6	325560	15	May 24, 1994	1997*
		67		

* Subject to approval of assessment work covered by this report

The RDN 1-4 and GOZ 1-4 legal corner posts were located in the field by the author; the RDN 5-6 legal corner post was located in the field by Equity Engineering Ltd. personnel.



PATHFINDER RESOURCES LTD.

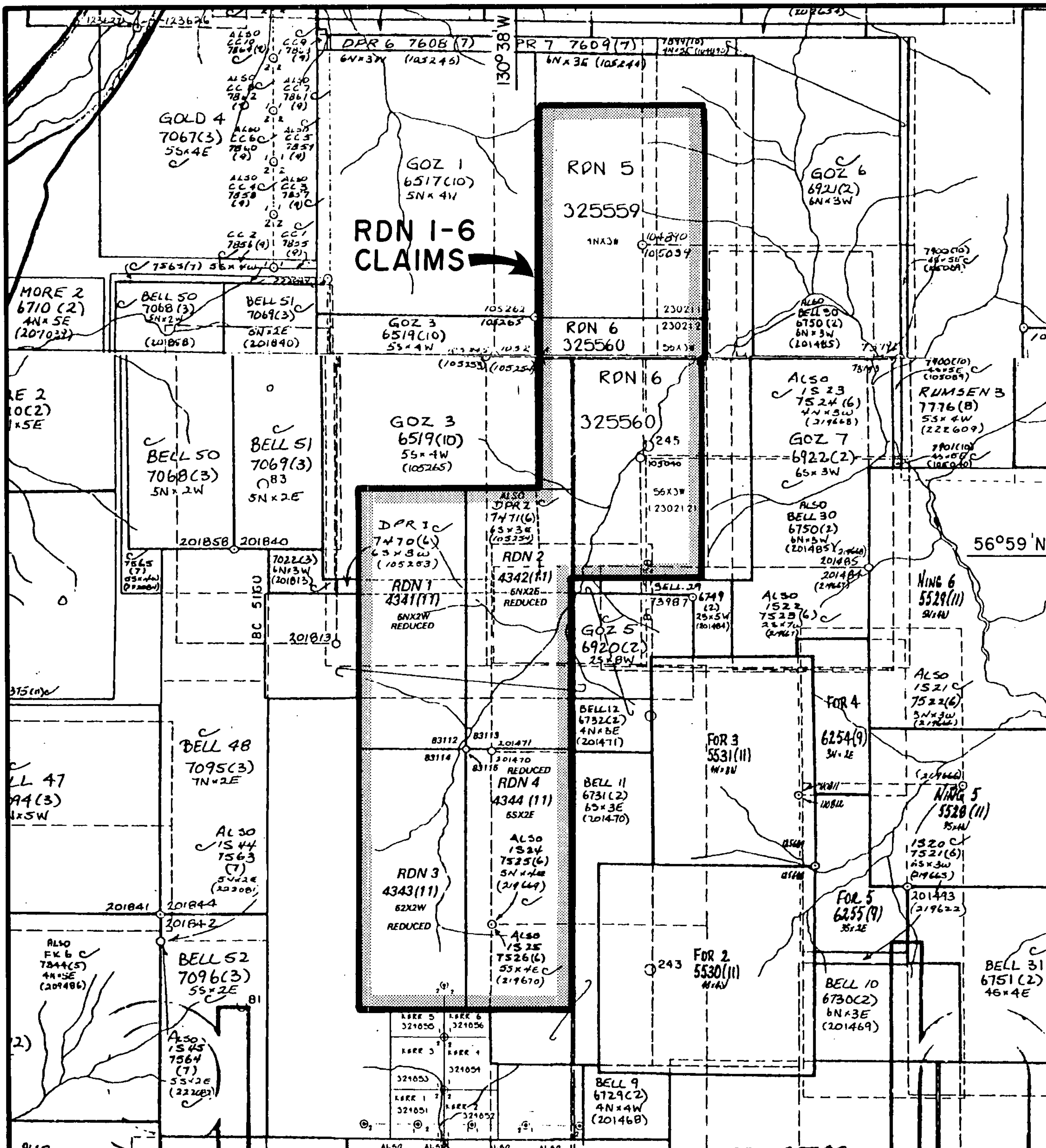
RDN 1-6 CLAIMS

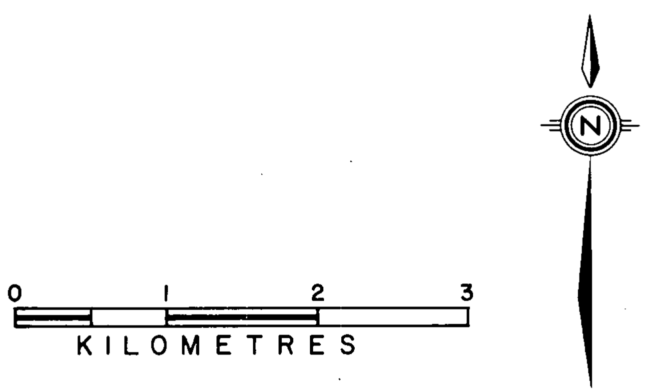
LOCATION MAP

BRITISH COLUMBIA

EQUITY ENGINEERING LTD.

DRAWN: J.W./H.A.	MINING DIV.: LIARD	FIGURE
N.T.S.: 104B/15E	SCALE: AS SHOWN	1
DATE: DEC. 1994	REVISED:	





PATHFINDER RESOURCES LTD.			
RDN 1-6 CLAIMS			
CLAIM MAP			
BRITISH COLUMBIA			
EQUITY ENGINEERING LTD.			
DRAWN: J.W./H.A.	MINING DIV.: LIARD	FIGURE	
N.T.S.: 104G/2E	SCALE: 1:50000	2	
DATE: DEC. 1994	REVISED:		

3.0 LOCATION, ACCESS AND GEOGRAPHY

The RDN mineral claims lie at the headwaters of a tributary of the Iskut River in the Coast Range Mountains, approximately 120 kilometres northwest of Stewart, British Columbia and 120 kilometres east of Wrangell, Alaska (Figure 1). The property lies within the Liard Mining Division, centered at 56° 59′ north latitude and 130° 38′ west longitude.

The best access to the property is by helicopter from Bob Quinn airstrip, 24 kilometres to the east, which lies on the Stewart-Cassiar highway. Bob Quinn airstrip is suitable for fixed-wing aircraft of any size. The Eskay Creek access road passes within fifteen kilometres to the south of the RDN property.

The RDN group covers the headwaters of "Downpour Creek", a broad northerly-trending tributary of the Iskut River. Topography is rugged, typical of mountainous and glaciated terrain, with elevations ranging from 930 metres above sea level on Downpour Creek to over 2000 metres on an unnamed peak on the RDN 4 claim. Outcrop exposure is limited to ridges, cirque faces and creeks, with valley sides covered by thin talus and poorly-developed, slumping soils which thicken downslope. Alluvium, till and outwash fill the bottom of Downpour Creek valley.

Much of the property lies above treeline, covered by open alpine vegetation. Tag alder and alpine fir are common below treeline, which averages 1400 metres in elevation. Both summer and winter temperatures are moderate although annual rainfall may exceed 200 centimetres and several metres of snow commonly fall at higher elevations. The property can be worked from the middle of May until mid-September.

4.0 PROPERTY MINING HISTORY

4.1 Previous Work

The RDN 1-4 claims were staked in November 1987 to cover a small but intense gossan on which no work had previously been reported. At the time, the Iskut River district was receiving intensive exploration for gold-bearing quartz-sulphide veins similar to those which were later developed into the Skyline and Snip mines. The following September, Neil Debock carried out three days of prospecting on the claims, taking ten silt samples and 27 rock samples. Two rock samples exceeded 50 g/tonne silver, with the best assaying 207.6 g/tonne (6.1 oz/ton) silver (DeBock, 1989).

Noranda Exploration Company staked their GOZ claims immediately north of the RDN property in October 1989 and optioned the RDN property. That year, Noranda collected two heavy mineral concentrates, 13 silt samples, 10 talus fine samples and 23 rock samples from the RDN 1-4 claims. Gold and silver values were generally low in rock and talus fine samples, but rock samples from two gossans contained anomalous arsenic and antimony, with up to 1196 ppm Sb and 831 ppm As. A heavy mineral concentrate from Downpour Creek returned 2410 ppb gold and a silt sample taken upstream from one of its tributaries contained 164 ppb gold (Savell, 1990).

In 1990, Noranda and High Frontier Resources Ltd. carried out a joint exploration program over the RDN and GOZ claims, taking 32 heavy mineral concentrates, 91 silt samples, 1384 soil samples and 464 reconnaissance rock samples (Savell, 1990). They laid out sixty kilometres of grid over the gossanous felsic tuffs, with a baseline oriented at 010° and crosslines every 100 metres. North of line 8700N, soil samples were taken at 25 metre intervals from baselines and crosslines, with most analyzed geochemically for gold and by ICP for 30 additional elements. The samples from the eastern ends of lines 9500N-10200N were analyzed geochemically for just copper, zinc, silver and gold. They carried out 20 line-kilometres of ground magnetic and 14.9 line-kilometres of HLEM and VLF-EM surveys, detailing anomalies reported from an airborne magnetic and electromagnetic survey (Savell, 1991). Prospecting resulted in the discovery of several gold-bearing showings, mainly consisting of quartz-sulphide veins within the felsic tuffs on the GOZ claims. Fifteen holes totalling 1546 metres of BGM core were drilled on the GOZ claims. With two exceptions, all holes were drilled on the GOZ 1 and 3 claims within the felsic tuffs and their subvolcanic intrusives. Holes RG90-12 and -13, the two exceptions, were targeted at the overlying marine sediments on the present RDN 6 claim but had to be abandoned in overburden (Savell, 1990).

In 1991, Noranda and High Frontier continued exploration on the RDN and GOZ properties (Savell and Grill, 1991). A new grid was established, almost entirely within the felsic tuffs and subvolcanic porphyries, which straddled the northern boundary of the RDN 2 claim. Its baseline was oriented at 155°; five crosslines were run at 065° from it, spaced 200 metre apart. All lines were surveyed with HLEM and two were surveyed with induced polarization techniques. Fifteen holes, totalling 2087 metres of BGM core, were drilled on the GOZ and RDN properties. Of this, 345.3 metres were drilled in three holes from two sites on the RDN 2 claim. Two of these holes, RG91-26 and -27, were drilled within sediments but failed to reach the felsic/sediment contact. The third hole, RG91-19, was drilled entirely within altered, pyritic feldspar porphyry, with no significant assays. A fourth hole, RG91-18, was collared on the western boundary of the current RDN 6 claim and intersected 9.9 metres grading 0.43% Zn, 0.18% Cu and 0.14% Pb within the subvolcanic porphyry.

Following the 1991 program, Noranda terminated their option on the RDN claims and has not recorded further work on their GOZ claims. Their GOZ 2 and 4 claims were allowed to lapse in October 1993 and were partially re-staked as the RDN 5 and 6 claims in May 1994.

4.2 1994 Exploration Program

During September 1994, Pathfinder Resources Ltd. carried out a reconnaissance exploration program on the RDN 1-6 claims, designed to evaluate the property's potential to host Eskay Creek-style stratabound gold-silver-lead-zinc mineralization. The program was executed using daily helicopter setouts from Vancouver Island Helicopter's Bob Quinn base, a 12 minute flight one-way from the property. A total of 67 rock samples, 6 silt samples and 3 soil samples were taken during sixteen man-days. All samples were analyzed geochemically for gold and by ICP for 32 elements, using an aqua regia digestion, at Chemex Labs in North Vancouver, British Columbia. Analytical certificates form Appendix E.

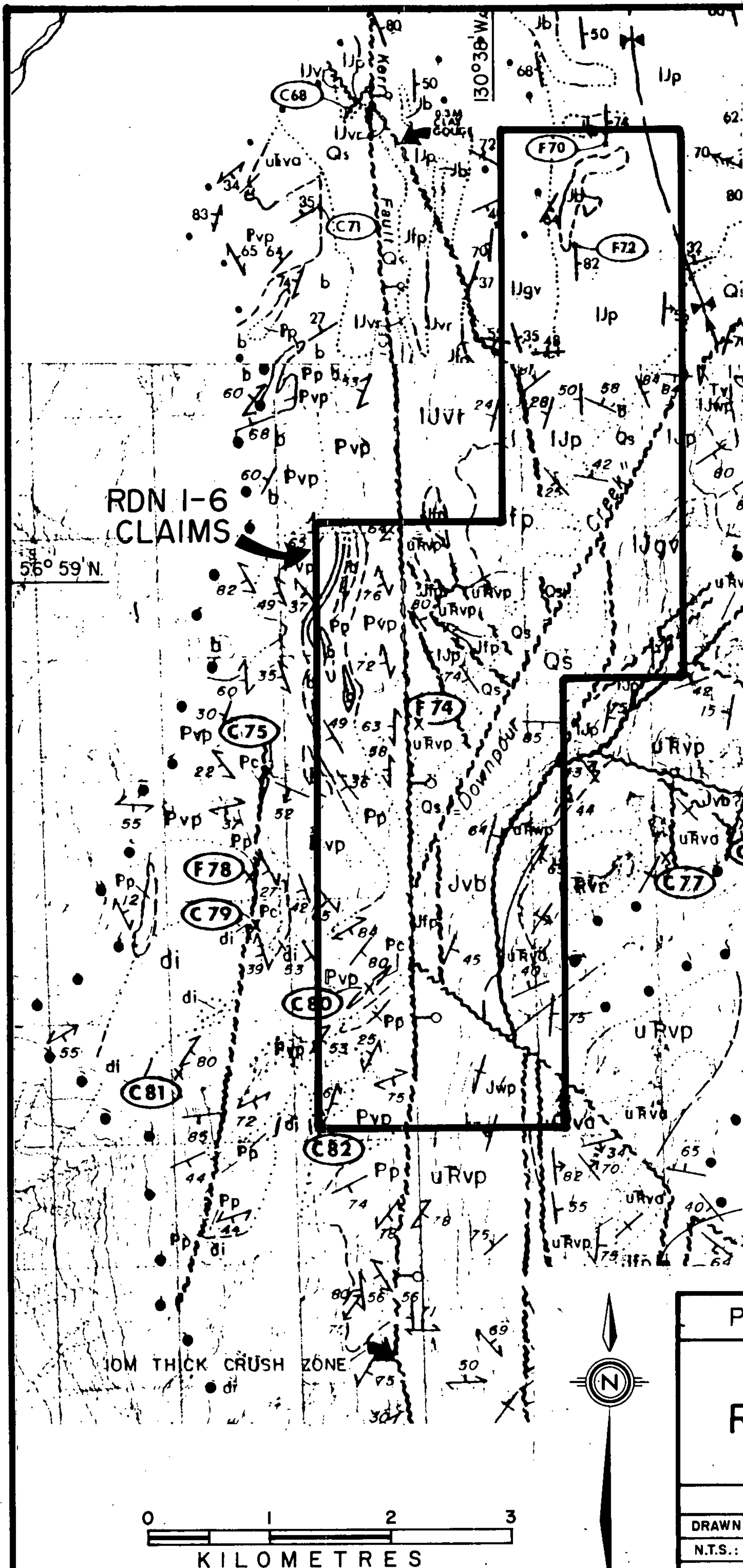
Geological mapping and prospecting were focused along six kilometres of felsic/sediment contact, in an effort to determine contact relationships and search for evidence of syngenetic mineralization. Whole rock analysis of 24 rock samples, representative of different felsic lithologies and alteration types, mainly in the vicinity of the felsic/sediment contact, was carried out using XRF techniques. Altered or mineralized float and outcrop encountered during mapping and prospecting were also sampled. Noranda's drill core, stored at their former camp at the junction of More Creek and Carcass Creek, was examined and three of the whole rock samples were collected from core. Rock samples were marked in the field by pink and blue flagging and an aluminum tag; all are described in Appendix C. Dr. John Payne of Vancouver Petrographics Ltd. studied thin sections for six specimens which represent different subvolcanic porphyry intrusives and different alterations of the felsic lapilli tuff. His report forms Appendix D.

Three soil samples were taken during the course of prospecting and mapping, wherever possible from the red-brown "B" horizon. Two were taken in the vicinity of one of Noranda's reported geochemical anomalies and a third from along the felsic/sediment contact. Six silt samples were taken from creeks previously reported as anomalous by Noranda.

5.0 REGIONAL GEOLOGY

The area around the RDN claims is underlain by mid-Paleozoic and Mesozoic island arc successions which are overlapped to the east by clastic sediments of the Bowser Basin. Regional mapping has been carried out at a scale of 1:50,000 by Logan, Koyanagi and Drobe (1990a,b) of the BCGS and by Read et al (1989) of the GSC (Figure 3).

The Paleozoic Stikine Assemblage in the vicinity of the RDN claims comprises foliated mafic to intermediate metavolcanics (**Unit Pvp**), fine clastic metasediments (**Unit Pp**) and massive Permian limestone (**Unit Pc**).



LEGEND

QUATERNARY

Qs Till, alluvium

TERTIARY

Tv Light grey, porphyritic andesite

MIDDLE JURASSIC

HAZELTON GROUP

Jwp Grey-green siltstone, tuffaceous wacke and conglomerate

Jvb Basic pillow lava and breccia

Jb Uralitized augite gabbro

LOWER AND MIDDLE JURASSIC

lJp Dark grey siltstone, shale; rare limestone, sandstone

lJgv Grey-green tuff and volcanic breccia

LOWER JURASSIC

lJvr Rhyolite crystal-vitric tuff and pale green sparsely porphyritic rhyolite

Jfp Quartz-feldspar porphyry and felsite intrusions

lJwp Green aphanitic tuff; minor conglomerate with granitic clasts, grey siltstone; rare limestone

lJc Grey, silty limestone

UPPER TRIASSIC

STUHINI GROUP

uTRvp Porphyritic plagioclase andesite breccia and minor flows

uTRva Green aphanitic tuff and breccia; locally with augite and plagioclase phenocrysts

uTRwp Green tuffaceous wacke and grey argillite; minor grey limestone

PERMIAN TO DEVONIAN AND(?) OLDER

Pp Pale green to light grey phyllite, siliceous siltstone, minor chert and ribbon chert

Pc Limestone

Pvp Foliated grey-green plagioclase porphyry, phyllitic and tuffaceous siltstone and wacke

INTRUSIONS

MESOZOIC OR(?) PALEOZOIC

b Massive dark green meta-gabbro

di Massive hornblende diorite

Geology adapted from Read et al (1989).

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RDN 1-6 CLAIMS
REGIONAL GEOLOGY
BRITISH COLUMBIA

EQUITY ENGINEERING LTD.

DRAWN: J.W./H.A.	MINING DIV.: LIARD	FIGURE
N.T.S.: 104B/15E, G/2E	SCALE: 1:50000	3
DATE: DEC. 1994	REVISED:	

The Stikine Assemblage is unconformably overlain by island arc volcanics and sediments of the Upper Triassic Stuhini Group. At the base of the Stuhini Group is a thick package of fine-grained volcaniclastics and sediments, dominated by volcanic wackes, arenites and interbedded siltstone and argillite (**Unit uTRwp**). These units interfinger with overlying massive green tuff (**Unit uTRva**). East of Downpour Creek, a few thousand metres of green and minor maroon plagioclase-phyric breccia and flows (**Unit uTRvp**) interfinger with, and overlie, Unit uTRva.

The Early to Middle Jurassic Hazelton Group unconformably overlies the Stuhini Group, comprising four formations: Unuk River, Betty Creek, Mount Dilworth and Salmon River (from oldest to youngest). The Unuk River Formation is a thick sequence of Hettangian andesitic pyroclastics and flows with tuffaceous turbidite, wacke and conglomerate interbeds. The Betty Creek Formation, of Upper Pliensbachian age, consists of andesitic to dacitic tuffs and flows interbedded with volcaniclastic sediments and columnar-jointed dacites. The Mount Dilworth Formation (**Unit lJvr**) is a thin but regionally extensive felsic unit which disconformably overlies the Betty Creek Formation. It is overlain by the Salmon River Formation, a thick sequence of Toarcian to Bajocian siltstones, fine sandstones and pillow basalt with minor conglomeratic, tuffaceous or volcanic interbeds.

In the vicinity of the RDN property, the Salmon River Formation can be divided into three members: a lower fine clastic member (**Unit lJp**), a middle pillow basalt member (**Unit Jvb**) and an upper tuff/wacke member (**Unit Jwp**) with conglomerate interbeds. On the RDN 5 and 6 claims, Logan et al (1990a,b) mapped "at least 1000 metres of interbedded shale and siltstone [**Units lJp** and **Jwp**]...the shales are fissile; siltstones and thin sandstone beds contain abundant carbonaceous wood fragments...Fossils from interbedded limestone horizons located north of the map area indicate an Early Jurassic (late Toarcian) age". These are interbedded with pillow and flow breccia basalts (**Units Jvb** and **lJgv**) and their associated dioritic to gabbroic feeder sills and dykes (**Unit Jb**). Silicious siltstones, pyritic cherts, conglomerates and tuffs of Units Jw and Jwcg overlie and interfinger with the pillow basalts. Anderson and Thorkelson (1990) divided the Salmon River Formation into three facies, with both Eskay Creek and the RDN property lying within their medial Eskay Creek Facies. Middle Jurassic Bowser Lake Group sediments conformably overlie the Salmon River Formation.

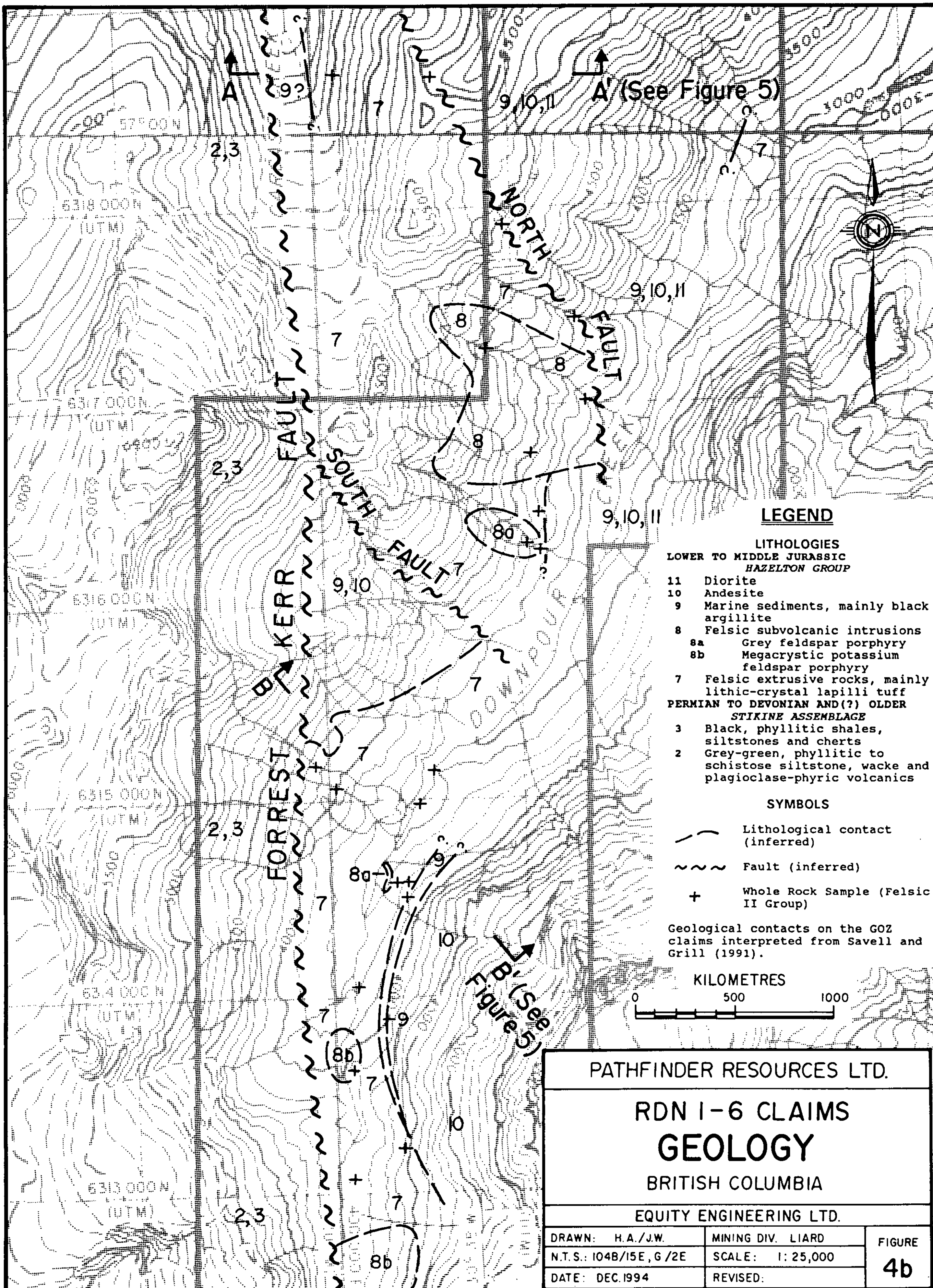
Read et al (1989) mapped several small feldspar±quartz porphyry plugs and dykes (**Unit Jfp**) near the Forrest Kerr Fault. Souther (1972) had previously assigned these plugs a Late Cretaceous to Early Tertiary age, but Read noted cobbles of this unit in basal conglomerates of the Middle to Upper Jurassic Bowser Lake Group. He postulated that the felsic plugs and dykes were actually subvolcanic feeders to the Early to Middle Jurassic Hazelton Group felsic volcanics. Bartsch (1993a,b) showed that similar feldspar porphyry intrusives at Eskay Creek form part of a dacitic to rhyolitic flow dome complex in the Mount Dilworth Formation and at the base of the Salmon River Formation; they would be Early Jurassic (Toarcian?) in age.

The first phase of structural deformation in the area is marked by widespread phyllite and foliated greenstone in Lower Permian and older rocks, unaccompanied by macroscopic folding (Read et al, 1989). A second, post-Jurassic, phase of folding produced northerly-trending upright folds. Bowser Lake Group rocks are affected by a third phase of deformation, with folding about northwesterly trending axial planes. Fault trends are complex, with a northerly trending set and an anastomosing east-northeast set. The subvertical Forrest Kerr Fault, which passes through the RDN claims, is a major northerly-trending fault which can be traced for more than 40 kilometres. Read et al (1989) estimate a left-lateral horizontal displacement of 2.5 kilometres and a minimum vertical displacement of 2 kilometres (east-side down) for it. Britton et al (1989) suggest that to the south, the Forrest Kerr Fault steps eastward and continues south for another 20 kilometres as the Harrymel Creek Fault. This fault, which truncates Hazelton Group stratigraphy immediately west of the Eskay Creek deposit, is "a zone of recent faulting that may represent a long-lived crustal break" (Britton et al, 1990). This "crustal break" may have localized Jurassic felsic volcanic centres such as Eskay Creek and RDN.

5.1 Eskay Creek Deposit

The Eskay Creek deposit is a gold- and silver-rich volcanogenic massive sulphide (VMS) deposit which occurs near the base of the Salmon River Formation, approximately forty kilometres south of the RDN property. Bartsch (1993b) believes the deposit to have formed within a deep marine sub-basin during the waning stages of rhyolitic volcanism near the top of the Hazelton Group. Geological reserves are 4.3 million tonnes grading 28.8 g/tonne gold and 1027 g/tonne silver. Mineable reserves within the 21B Zone are 1.08 million tonnes grading 65.5 g/tonne gold, 2930 g/tonne silver, 5.7% zinc, 0.77% copper and 2.89% lead (Bartsch, 1993b).

At Eskay Creek, the Betty Creek Formation has been divided into two informal members (Rye et al, 1993). The lower East Ridge Member comprises andesite-derived conglomerates, tuffs, lithic wackes and debris flow breccias. The upper Eskay Creek Member consists of coarse intermediate epiclastic rocks with minor mudstone, limestone and conglomerate. The overlying Mount Dilworth Formation at Eskay Creek forms a sequence of dacitic pyroclastic flows, tuffs, vesicular dacite fragmentals and flows ("Footwall Dacite"). These are overlain by three low-Ti rhyolitic flow dome complexes emplaced within a five-kilometre long belt ("Eskay Rhyolite"). Within the flow dome complexes, pyroclastic eruptions were followed by extrusion of viscous lavas, massive or flow-banded near the core, and autobrecciated outwards. A "black matrix breccia" forms a thin (<10 metres) carapace to the flow domes at their contact with overlying siltstone and basalt. At the base of the black matrix breccia, angular rhyolite clasts form a mosaic



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RDN 1-6 CLAIMS

GEOLOGY

BRITISH COLUMBIA

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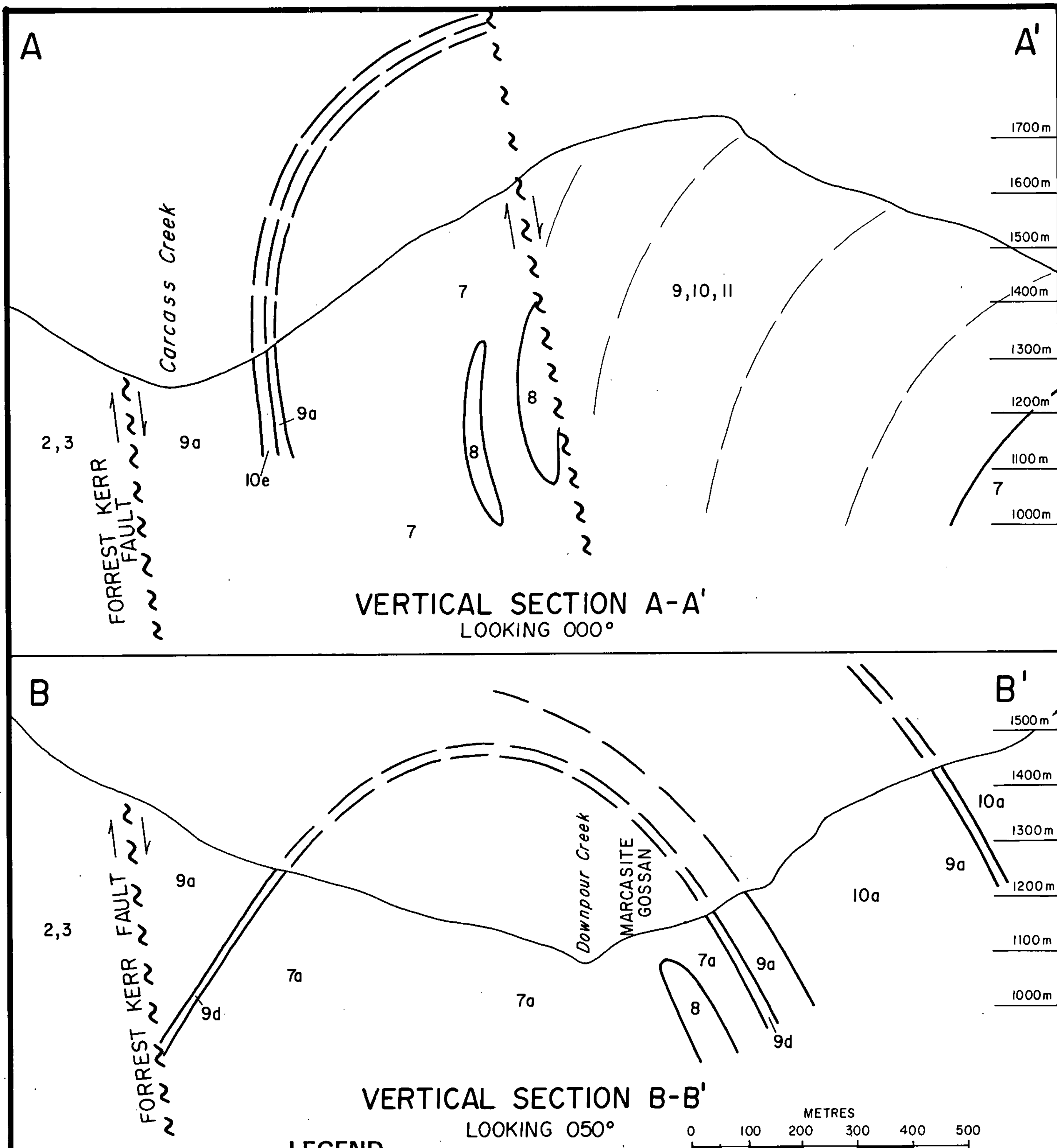
DRAWN: H.A./J.W.	MINING DIV. LIARD	FIGURE 4b
N.T.S.: 104B/15E, G/2E	SCALE: 1:25,000	
DATE: DEC. 1994	REVISED:	



LEGEND

LITHOLOGIES

LOWER TO MIDDLE JURASSIC
HAZELTON GROUP

10 Andesite
- **10a** Pillowed flows, locally amygdaloidal
- **10e** Maroon agglomerate

9 Marine sediments
- **9a** Dark grey to black argillite and siltstone
- **9d** Basal conglomerate

8 Felsic subvolcanic intrusions

7 Felsic extrusive rocks
- **7a** Lithic-crystal lapilli tuff

PERMIAN TO DEVONIAN AND(?) OLDER
STIKINE ASSEMBLAGE

3 Black, phyllitic shales, siltstones and cherts

2 Grey-green metasediments and metavolcanics

PATHFINDER RESOURCES LTD.

RDN 1-6 CLAIMS

SECTIONS A-A' & B-B'

BRITISH COLUMBIA

EQUITY ENGINEERING LTD.

DRAWN: J.W./H.A.	MINING DIV.: LIARD	FIGURE
N.T.S.: 104B/15E, G/2E	SCALE: 1:10,000	5
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separated by black chert. Up-section, the matrix becomes siltier and rounded clasts with chilled margins are present. Narrow "black matrix breccia" zones locally cut flow-banded rhyolite below the black matrix carapace (Bartsch, 1993b).

Feldspar porphyry intrusives (the "Eskay Porphyry"), chemically equivalent to the Footwall Dacite (Bartsch, 1993b) and thought to be comagmatic, crosscut stratigraphy and reach their highest level directly beneath the 21A and 21B Zone deposits (Rye et al, 1993). Locally, potassium feldspar forms euhedral megacrysts up to 1.2 centimetres long. The felsic intrusives are pervasively altered to a quartz-sericite-potassium feldspar-chlorite-pyrite assemblage and form conspicuous gossanous ridges. Feeder dykes to the rhyolitic flow domes are mineralogically similar to the Eskay porphyry (Bartsch, 1993b).

Submarine massive and pillowed basalt flows ("Hanging Wall Basalt") directly overlie the rhyolitic flow domes, or are separated by <1 metre black chert or 2-10 metre thick argillite beds. Bartsch (1993b) proposes a "21 Zone Sub-basin", bounded by syndepositional faults and filled by up to 20 metres of carbonaceous shale, finely laminated siltstone, minor lithic wacke and calcareous mudstone. The 21 Zone Sub-basin lies above the 21 Zone felsic dome and hosts the 21A and 21B Zone stratiform orebodies. The Hanging Wall Basalt exceeds 150 metres in thickness, contains thin intercalated argillite beds, and is overlain by a thick sequence of thin-bedded siltstone, shale and fine sandstone.

The bulk of economic mineralization at Eskay Creek is hosted within the 21 Zone Sub-basin as stratiform, synsedimentary fragmental-hosted semi-massive ore and as clastic sediments formed from sulphide-sulphosalt detritus. Mineralogy within the 21B Zone consists of sphalerite, tetrahedrite, boulangerite and bournonite with lesser pyrite and galena; the 21A Zone consists of stibnite, realgar, arsenopyrite and cinnabar. The immediate footwall to each zone is intensely fractured, altered to a chlorite-potassic feldspar-sericite assemblage and contains both vein and disseminated mineralization. Portions of the immediate footwall are included in the ore reserves. Deeper in the system, the Footwall Dacite, the Eskay Porphyry and the Eskay Rhyolite are silicified, sericitized and pyritized and contain scattered gold-silver-lead-zinc veins and disseminations. These footwall veins, occurring within prominent gossans, were the focus of exploration from 1932 to 1988 before the discovery of stratabound VMS mineralization.

The 21A Zone is 280 metres long, up to 100 metres wide and averages about 10 metres thick. It is separated by 140 metres of weak mineralization from the 21B Zone, which is about 900 metres long, 60-200 metres wide (Britton et al, 1990) and averages 5-6 metres thick (Northern Miner, March 8/93).

6.0 GEOLOGY AND MINERALIZATION

Reconnaissance geological mapping at a scale of 1:10,000 has previously been carried out over the RDN property by Savell (1990a,b); grid-based mapping at 1:2,500 was done over portions of the RDN 1, 2, 5 and 6 claims by Savell and Grill (1991). During the 1994 program, the author mapped in the vicinity of the felsic/sediment contacts at a scale of 1:10,000. Figure 4a combines 1994 outcrop mapping with generalized geology compiled from previous work; Figure 4b is a simplified version of the same.

The RDN property is divided by the Forrest Kerr Fault, a northerly-trending, steeply-dipping normal fault of regional extent (Figure 4). The western quarter of the property is underlain by Paleozoic metamorphic rocks of the Stikine Assemblage which strike north-south and dip moderately to steeply to the west. A metavolcanic package (Unit 2) comprises foliated grey-green plagioclase porphyry and phyllitic to schistose, tuffaceous siltstone and wacke. It alternates with a metasediment package (Unit 3) of black, phyllitic shale, siltstone and chert. Both are intruded by a foliated, medium-grained, dark green to black, hornblende quartz diorite (Unit 1).

Mesozoic rocks of the Stuhini and Hazelton Groups lie east of the Forrest Kerr Fault. A fault-bounded wedge of Upper Triassic Stuhini Group has been mapped by Savell (1990b) over the east-central portion of the RDN 4 claim. "Undivided Stuhini Group lithologies on the property include massive green tuff, well-bedded green tuffaceous wacke, grey argillite and minor limestone". These strata were not examined by the author.

6.1 Hazelton Group Lithologies and Stratigraphy

Hazelton Group lithologies mapped in 1994 can be divided into four packages: felsic volcanics (Unit 7), felsic subvolcanic porphyries (Unit 8), marine clastic sediments (Unit 9) and intermediate volcanics (Unit 10). Petrographic descriptions are attached in Appendix D for six thin sections prepared from Unit 7 and 8 specimens. Dr. Payne labels the felsic rocks as latites and trachytes; these labels may be due to potassium feldspar alteration as well as high initial potassium feldspar content. Names for the remaining lithologies (especially "andesite" and "diorite") are field terms only, unsubstantiated by petrographic work. Table 6.1.1 is a descriptive legend for the Hazelton Group lithologies encountered on the RDN claims, from youngest to oldest.

TABLE 6.1.1
HAZELTON GROUP STRATIGRAPHIC COLUMN

11 Diorite: Dark green to brown, equigranular, medium-grained. Commonly carbonate-altered with local mariposite.

10 Andesite: Dark green to brown, generally fine-grained and massive. Weakly chlorite-, calcite- or ankerite-altered.

10a Andesitic flows, locally amygdaloidal. Pillows noted near base of section, east of Marcasite Gossan.

10b Breccia: mapped by Savell and Grill (1991); not encountered by author.

10c Feldspar crystal tuff: 40% broken feldspar crystals and rare felsic fragments in brown tuffaceous andesitic matrix.

10d Andesitic dykes.

10e Maroon agglomerate: Subrounded, heterolithic, grey to maroon andesitic clasts in maroon tuffaceous matrix. Andesitic clasts are fine-grained massive to feldspar-phyric; carbonate veining in clasts precedes deposition. Subaerial lahar? Observed only in drill hole RG91-28.

9 Marine sediments

9a Argillite and siltstone: Black, locally graphitic and/or pyritic, poorly-bedded argillite. Pyrite occurs in disseminations, as irregular pyrite±calcite veinlets and as rare massive pyrite clasts. Argillite is locally interbedded with lesser grey siltstone, commonly pyritic. Tends to deform easily, especially along its contact with felsic volcanics, and hence is commonly sheared.

9b Limestone: mapped by Savell and Grill (1991); not identified by author.

9c Sandstone: mapped by Savell and Grill (1991); not identified by author.

9d Basal conglomerate: Subrounded 1-25 centimetre felsic clasts in black argillitic matrix; includes silica-"graphite" altered clasts (Unit 7GR). Unsorted, but long axes of clasts are aligned with bedding.

8 Felsic subvolcanic intrusions

8a Feldspar porphyry: Grey matrix with 5-20%, 4-6mm, feldspar phenocrysts and rare quartz phenocrysts. All exposures are highly altered, predominantly by sericite, clay minerals, potassium feldspar and silica, with 5-20% pyrite. See petrographic description for samples 626860 and RG91-19 @ 93.2m.

8b Megacrystic orthoclase porphyry: Dark grey to brown matrix with 5-20%, 4-6mm, plagioclase phenocrysts and sparse euhedral 10-30mm potassium feldspar phenocrysts. Variably altered. See petrographic description for sample 626885.

7 Felsic extrusive rocks

7a Lithic-crystal lapilli tuff: Grey to brown tuffaceous matrix containing subrounded, 2-10mm, felsic lapilli and broken feldspar crystals. Proportions of lapilli and crystals variable. Silicified felsic clast noted at 231m in hole RG91-28. Fragments unsorted and randomly oriented. Variably altered, with Fe-carbonate alteration most common. See petrographic descriptions for samples 10269, 626897 and RG91-28 @ 173.6m.

7b Feldspar-phyric rhyolite: mapped by Savell and Grill (1991); not identified by author.

7c Felsic tuff-breccia: Randomly oriented, subangular 2-30mm felsic clasts in felsic ash matrix. Includes clasts of Unit 8a.

7d Felsic conglomerate: Lenses of close-packed, rounded, felsic pebbles aligned with bedding in pebbly arkose. Occurs as interbed within felsic volcanics.

7GR "Graphite"-altered felsics: Dark grey to black from abundant irregular carbonaceous(?) fractures. Strongly silicified; locally calcareous or baritic. Original lithologies uncertain.

Felsic volcanics are well exposed along the upper part of Downpour Creek on the RDN 1-4 claims (Figures 4a, 4b and 5). They were all mapped as felsic lapilli tuff although lapilli and crystals are difficult to discern in many outcrops. A section of felsic volcanics, at least 100 metres thick, is well exposed in a stream 800 metres north of the RDN 1-4 legal corner post. At its base, the lithic-crystal tuff (Unit 7a) contains 10% 6-10mm felsic lapilli and 25% feldspar fragments. Lithic fragments become fewer and smaller up-section, to a maximum of 2mm. This unit is stratigraphically overlain by a 17 metre thick basal conglomerate (Unit 9d), whose upper portions are interbedded with the lowest black argillite (Unit 9a) beds. The presence of Unit 7GR clasts in this basal conglomerate indicates that the "graphite"-silica±barite alteration occurred prior to the onset of marine sedimentation.

The only other conformable felsic/sediment contact examined on the RDN property lies 1300 metres further northeast. Felsic lapilli tuff is overlain by a few metres of black argillite, then by a 50 centimetre bed of argillite containing 10% subrounded clasts of: mudstone; very fine-grained massive pyrite; and altered felsics. Similar beds are present in drill hole RG91-26, 250 metres further north, which did not penetrate down to the felsic contact.

The distribution of the feldspar porphyries (Units 8a,b) relative to the felsic volcanics (Unit 7) shows them to be cross-cutting and intrusive into the felsic pile. A fragment of Unit 8a was noted within float of the felsic tuff-breccia (Unit 7c) in Gossan Creek, indicating that the feldspar porphyries were subvolcanic feeders to the felsic extrusives. Only two outcrops of coarse felsic fragmentals (Unit 7c) were mapped, one in the creek north of Gossan Creek and one adjacent to the felsic/sediment contact south of Gossan Creek. The coarse pyroclastics and large areal extent of subvolcanic intrusions indicate that this area may have been the centre of felsic volcanism.

Salmon River Formation marine sedimentation (Unit 9) was accompanied by intercalated andesitic volcanism (Unit 10). Relative amounts of the two vary widely, with no andesite present in the 168 metre long sedimentary package in hole RG91-26. The thickest package of andesite mapped was above the Marcasite Gossan, where over 400 metres are exposed, with pillows near its base. Only 15 metres of black argillite is present within this andesite section, although a prominent gully between the top of the Marcasite Gossan felsic tuffs and the base of the andesitic cliffs could be due to erosion of recessive argillite. Argillite outcrops in this stratigraphic interval 1,300 metres to the south. Unit 11 diorite sills and dykes are present throughout the sedimentary/andesitic package, probably representing feeders for the andesitic volcanism.

Stratigraphy on the RDN property exhibits a marked similarity to that hosting the Eskay Creek deposit, as described by Britton et al (1990), Bartsch (1992), Ettlinger (1992), Bartsch (1993a,b), Roth (1993a,b) and Rye et al (1993). Table 6.1.2 compares stratigraphy on the RDN property with that at Eskay Creek.

TABLE 6.1.2
STRATIGRAPHIC COMPARISON: ESKAY CREEK AND RDN

Eskay Creek	RDN Property
Upper Sedimentary Unit: Thick sequence of thin-bedded, turbiditic, siltstone, shale and fine sandstone	**Unit 9:** Thick sequence of siltstone and argillite, with minor sandstone, limestone and conglomerate
Hanging Wall Basalt Unit: >150 metres of basaltic pillow breccia with subordinate flows, dykes and sills	**Units 10 and 11:** >400 metres of andesitic pillows, flows, crystal tuffs and breccias with diorite sills and dykes
21 Zone Subbasin: <20 metres carbonaceous shale and siltstone; hosts 21 Zone massive sulphide-sulphosalt deposits	**Unit 9:** Locally pyritic and graphitic argillite and siltstone (intercalated with Units 10 and 11) **Unit 9d:** 0.5-17 metres of black argillite containing variably altered felsic clasts
Black Matrix Breccia: Discontinuous, 0-10m thick black-matrix mosaic breccia, formed by network of coalescing black silica fractures cutting rhyolite	**Unit 7GR:** Felsics cut by numerous "graphite"±silica ±barite fractures, locally forming black-matrix mosaic breccia
Eskay Rhyolite: 150m thick rhyolitic flow dome complex **Footwall Dacite:** >100 metres of dacitic flows and tuffs	**Unit 7:** Felsic lithic-crystal lapilli tuff, with minor felsic tuff-breccia (may include other undifferentiated felsic rocks)
Felsic Subvolcanic Intrusions	
Eskay Porphyry and flow dome feeder dykes: Pervasively altered feldspar porphyry with rare potassium feldspar megacrysts	**Unit 8:** Variably altered feldspar porphyry with local potassium feldspar megacrysts

6.2 Structure

The subvertical Forrest Kerr Fault trends northerly through the RDN 1 and 3 claims (Figures 4a, 4b and 5), separating Paleozoic metamorphic rocks to the west from Jurassic Hazelton Group volcanosedimentary rocks to the east. Essentially all 1994 reconnaissance mapping was carried out east of the Forrest Kerr

Fault.

A major north-northwesterly trending fault (the "North Fault") is inferred on the RDN 6 claim, separating the marine sediment/andesite/diorite package to the northeast from older felsic tuffs and porphyries to the southwest. Beddings within the argillites and siltstones immediately northeast of the inferred fault strike northwest to northeast and dip moderately to steeply west. If this were a stratigraphic contact, then the sedimentary package would have to be overturned and tight local folding would be necessary to explain bedding which trends toward the contact. In fact, this sort of contorted bedding is well exposed on the RDN 1 claim. However, the fault hypothesis is simpler and appears more plausible. The surface trace of the inferred fault indicates that it dips steeply to the northeast.

A second north-northwesterly trending fault (the "South Fault") was mapped by Savell and Grill (1991) 1,500 metres to the southwest on the RDN 1 claim. This was not examined by the author, but would explain the distribution of lithologies. The northeast side of this inferred fault would be uplifted relative to the southwest; the felsics to the northeast form a horst block.

The southern part of Downpour Creek, including the Marcasite and South Gossans, form the core of a northeasterly-trending anticline (Section B-B'; Figure 5). Bedding within the overlying argillite to the northwest dips moderately westerly; strata on the cliffs east of the Marcasite Gossan dip moderately to the east or southeast. A minor fold axis, plunging 45° towards 230°, may mimic the orientation of the anticline.

On the Gossan Creek horst block between the South and North Faults, the marine sediment package lies east of the felsic volcanics near Downpour Creek, with the contact dipping steeply to the east. Presumably, this corresponds to the eastern limb of the anticline. Hole RG91-28, on the GOZ 3 claim in Carcass Creek, was collared in argillite which appears very similar to Unit 9a and passed conformably eastward into intensely altered felsic lapilli tuffs. It seems likely that this marks the western limb of the anticline (Section A-A'; Figure 5).

Bedding orientations within the downdropped fault block north of the North Fault dip moderately to steeply to the west. Presumably, this area also lies on the western limb of the anticline; the felsic/sediment contact should lie down-section to the east at depth (Section A-A'; Figure 5). Float sample 10269, with 11.6 g/tonne gold and elevated lead, zinc, copper, arsenic, mercury and antimony, was taken from a felsic boulder in Downpour Creek, in the vicinity of this proposed felsic/sediment contact.

6.3 Alteration and Mineralization

Rock samples were taken from altered and mineralized float and outcrop during the course of mapping and prospecting. They are described in Appendix C and plotted on Figure 6.

The most prominent alteration on the RDN property is exhibited by the feldspar porphyry intrusives in the vicinity of Gossan Creek. These are pervasively sericitized, argillized, pyritized and silicified and form prominent gossans. Pervasive potassium feldspar alteration is very prominent on stained specimens, but is almost unrecognizable without staining, so its areal extent is unknown. In the Gossan Creek area, the intrusive contact is very marked between gossanous feldspar porphyry and the brown-weathering, carbonate-altered felsic lithic-crystal lapilli tuff which it intrudes. Drill hole RG91-19, drilled entirely within strongly altered feldspar porphyry with 10-20% pyrite, returned only background values for gold, silver and all base metals.

Felsic rocks are locally cut by abundant irregular, black, at least partially carbonaceous, fractures, accompanied by silica, barite, pyrite and/or calcite (Unit 7GR). Where most intensely developed, this alteration results in a rock which appears to be a felsic mosaic breccia, with subrounded to angular felsic fragments in a black matrix. Unit 7GR is erratically distributed and discontinuous, but is most common near felsic/sediment contacts, both fault and stratigraphic. Carbon analyses for 24 whole rock samples shows that the estimated percentages of "graphite" for individual samples was grossly exaggerated (Appendix C). In part, this is because of the tendency for rocks to break along the carbonaceous fractures, but there may also be other black, sooty minerals which were misidentified.

The Marcasite Gossan consists of quartz-veined, silicified, potassium feldspar-altered and carbonate-altered felsic tuffs surrounding a plug of sericite-potassium feldspar-marcasite altered feldspar porphyry. Rare veinlets of pyrobitumen were noted within silicified felsic tuffs. Sample 626859 was taken from several large, frost-heaved, boulders of vein quartz with 10% coarse pyrite (and unrecognized tetrahedrite?). It contained 134 g/tonne Ag, 2480 ppm Zn, 654 ppm Cu, 352 ppm Sb and 360 ppm As. A few hundred metres downstream from the Marcasite Gossan in Downpour Creek, sample 626894 was taken from three felsic float boulders, cut by black silica stringers to form angular mosaic breccias and mineralized with galena, tetrahedrite, sphalerite, pyrite and chalcopyrite. It assayed 141 g/tonne silver with elevated lead, copper, antimony and arsenic. Several Marcasite Gossan samples had previously reported anomalous arsenic and antimony with up to 208 ppm silver (DeBock, 1989). Significant results are summarized in Table 6.3.1.

TABLE 6.3.1
MARCASITE GOSSAN MINERALIZATION

Sample Number	Sample Width	Au (ppb)	Ag (ppm)	As (ppm)	Ba (ppm)	Cu (ppm)	Pb (ppm)	Sb (ppm)	Zn (ppm)
626859	Float	<5	134g/t	360	820	654	338	352	2480
626894	Float	5	141g/t	232	1030	1690	3080	550	910

TABLE 6.3.1 (continued)
MARCASITE GOSSAN MINERALIZATION

Sample Number	Sample Width	Au (ppb)	Ag (ppm)	As (ppm)	Ba (ppm)	Cu (ppm)	Pb (ppm)	Sb (ppm)	Zn (ppm)
NDR-11*	Float	25	59.5	188	234	47	391	91	776
NDR-12*	Float	30	207.6	238	365	196	722	320	66

* Sample reported by DeBock (1989)

Float sample 10269, taken below the lowest argillite outcrop near the legal corner post for the RDN 5 and 6 claims, is very similar in appearance to Marcasite Gossan felsic-hosted mineralization, both in hand specimen and thin section. Petrographic analysis shows it to be a porphyritic "trachyte", with 60-65% potassium feldspar in the matrix, and strong quartz-sericite alteration. It assayed 11.6 g/tonne gold, along with 42 ppm Ag, 9310 ppm Pb, 5480 ppm Zn, 1745 ppm Cu and elevated arsenic, bismuth, mercury and antimony. Although mixed with glacial float, the source of this float is uncertain; it may be relatively local or could be transported from further up Downpour Creek. The total absence of elevated gold values in any of the Marcasite Gossan samples suggests that it is not derived from the Marcasite Gossan, and similar mineralization has not been recognized elsewhere on the property. If the structural interpretation shown in Figure 5 (Section A-A') is correct, then felsic rocks would be expected downsection from the marine sediments in the vicinity of this sample location. If so, then sample 10269's high gold content will make this felsic/sediment contact extremely interesting.

Several weakly anomalous samples were taken from felsic tuffs just below their sedimentary contact with overlying argillite. Sample 626863, taken five metres from the argillite contact in the creek south of Gossan Creek, contained 1070 ppm zinc. Sample 626881 was taken from felsic volcanics at their contact with overlying andesite southeast of the South Gossan; it contained 3000 ppm zinc. The lowest outcrop on Gossan Creek is feldspar porphyry cut by abundant black, calcareous, carbonaceous fractures (Unit 7GR). It lies within a few metres of the contact with argillite, although it is not clear whether this is a fault or sedimentary contact. Sample 626875 was taken from this outcrop, returning 1280 ppm zinc. Two samples were taken 700 metres northwest of the Marcasite Gossan from strongly silicified felsic rocks about 100 metres below the overlying argillite. Samples 626897 and 626898 each contained more than 1% barium in coarse clots of barite and quartz-barite veins, along with slightly elevated arsenic (16-72 ppm) and antimony (8-34 ppm).

A few samples with galena and sphalerite were taken from moderately silica-carbonate altered felsic rocks in the Gossan Creek area. Results for these are summarized in Table 6.3.2 below, along with sample 10255, which was taken from strongly silicified, chalcopyrite-bearing feldspar porphyry float. Similar mineralization may be responsible for widespread arsenic-lead-zinc soil geochemistry over the felsic rocks in this area.

TABLE 6.3.2
FELSIC-HOSTED MINERALIZATION: GOSSAN CREEK AREA

Sample Number	Sample Width	Au (ppb)	Ag (ppm)	As (ppm)	Ba (ppm)	Cu (ppm)	Pb (ppm)	Sb (ppm)	Zn (ppm)
10254	Float	<5	40.0	272	2230	85	2310	52	6610
10255	Float	<5	1.0	16	340	7200	18	12	42
10263	Float	<5	73.0	496	1240	1710	1.23%	28	1.54%
10264	Float	<5	1.0	8	5320	2	1735	<2	1585
10267	Float	195	81.0	536	800	1885	5050	30	4.67%
10268	Float	25	137g/t	400	4130	2860	234	18	1750
626892	Float	<5	1.0	8	690	18	2040	2	378
626893	Float	<5	5.0	192	1160	510	878	42	1570

Float samples were taken from several boulders of quartz±carbonate veining, generally less than 15 centimetres in width. With the exception of sample 10257, all of these veins appear to be hosted by argillite. Metal contents are quite variable between these samples; results are summarized in Table 6.3.3. In general, however, barium and antimony values are much lower in the quartz±carbonate veining than in the felsic-hosted mineralization. Upsection and above the Marcasite Gossan to the east, a 15 metre bed of black argillite lies between pillow andesites. Grab sample 626857, taken across 30 centimetres near the top of this bed, returned 544 ppm arsenic, associated with ankerite veining but without visible sulphides. None of the quartz±carbonate vein samples are considered significant, due to their likely narrow width.

TABLE 6.3.3
QUARTZ±CARBONATE VEINS

Sample Number	Sample Width	Au (ppb)	Ag (ppm)	As (ppm)	Ba (ppm)	Cu (ppm)	Pb (ppm)	Sb (ppm)	Zn (ppm)
10256	Float	115	<1.0	64	80	106	114	<2	1790
10257	Float	<5	10.0	48	1090	199	2720	<2	1.83%
10258	Float	<5	1.0	8	30	155	1440	<2	1895
10271	Float	525	1.0	304	190	<1	26	56	22
626857	30cm	<5	<1.0	544	60	63	4	2	44

Two anomalous float samples were taken from altered diorite dykes on the RDN 5 and 6 claims. Results for these samples are summarized in Table 6.3.4 below. Their significance is not known, but it should be noted that sample 10270 was taken within 200 metres uphill from gold-bearing felsic sample 10269, described above.

TABLE 6.3.4
DIORITE-HOSTED MINERALIZATION

Sample Number	Sample Width	Au (ppb)	Ag (ppm)	As (ppm)	Ba (ppm)	Cu (ppm)	Pb (ppm)	Sb (ppm)	Zn (ppm)
10270	Float	260	<1.0	1800	>10000	63	186	18	130
626873	Float	<5	1.0	504	100	13	4	4	22

Several large boulders of jasper and rhodonite were noted in glacial till north of the Marcasite Gossan. Heavily manganese-stained boulders are composed of light pink to orange-pink rhodonite cut by abundant one millimetre colourless quartz stringers. Jasper boulders are also cut by numerous colourless quartz stringers and locally coated by heavy manganese stain; rhodonite may also be present in them. Given the variety of rock types in nearby boulders, the jasper and rhodonite are not likely derived locally, but probably come from further south towards the headwaters of Downpour Creek.

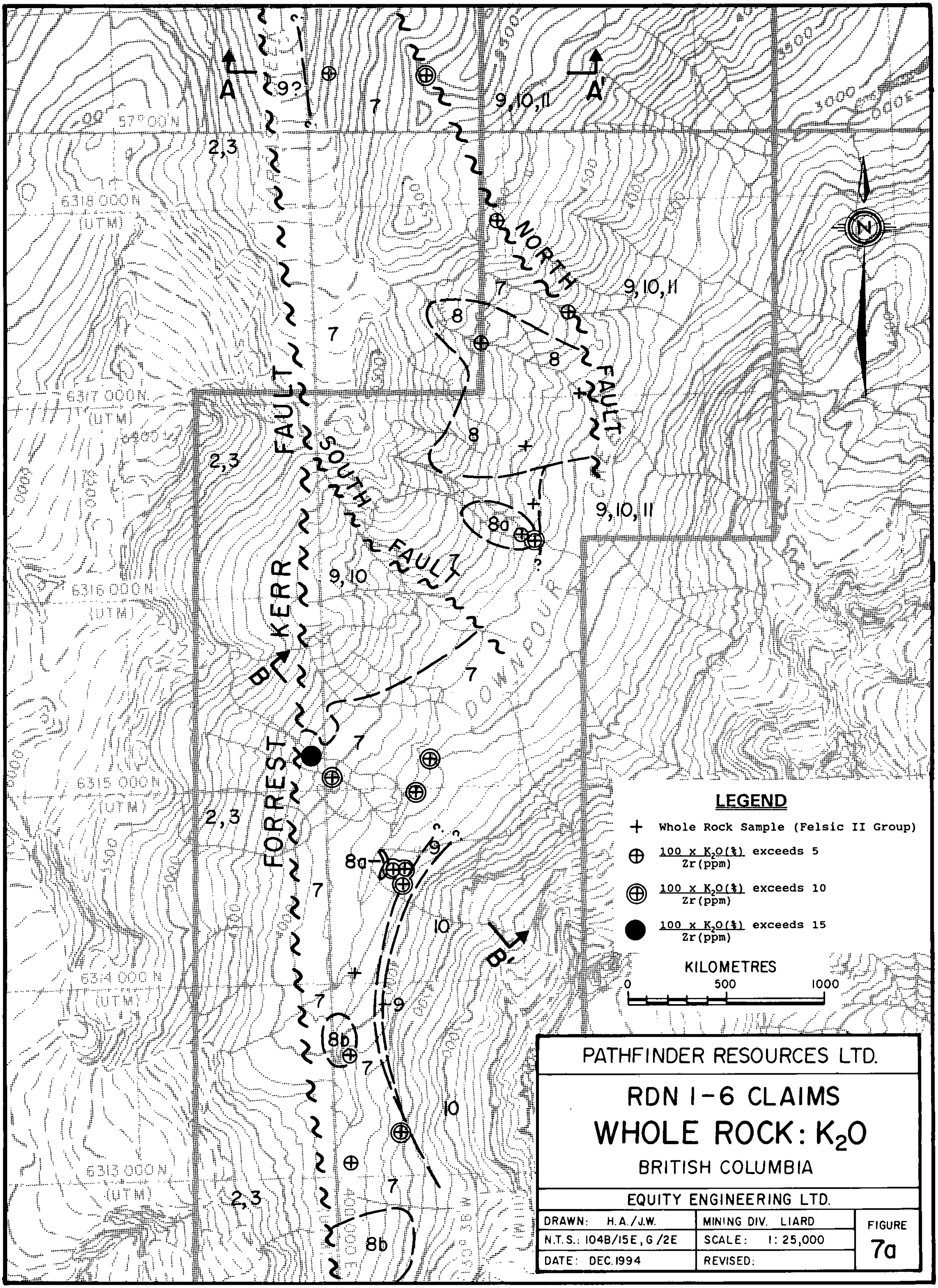
6.4 Whole Rock Geochemistry

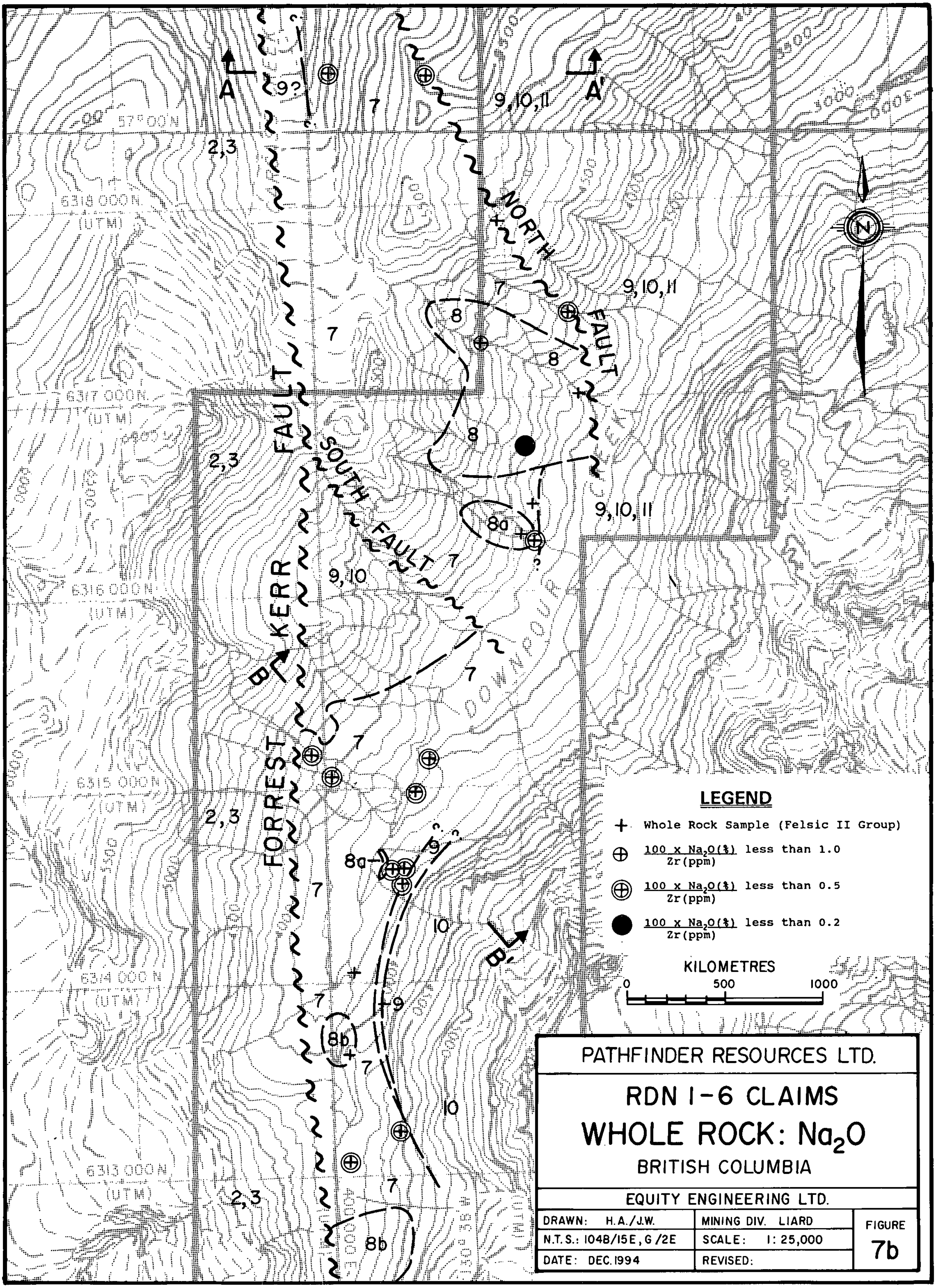
Whole rock analysis was performed on 24 property-wide felsic rock samples in order to determine original rock types and patterns of major element depletion and enrichment. Twenty-one samples were taken from outcrops of felsic volcanics and subvolcanic porphyries during the course of mapping (Figure 6). Three more were taken from felsic rocks in drill holes RG91-18, -19, and -28. All were treated by XRF whole rock analysis for the major rock-forming elements, "inorganic" carbon (present as carbonates), total carbon (including graphite, pyrobitumen and organics as well as carbonates) and a suite of immobile trace elements (Appendix E).

With one exception, all analyzed samples contain between 0.24% and 0.59% TiO_2. By comparison with average chemical compositions of major rock types (eg. Best, 1982, Appendix D), these would correspond to rhyolitic or dacitic rocks. All of these rocks were described in the field as felsic lithic crystal tuffs (Unit 7a), "graphite"-altered felsic (Unit 7GR) and feldspar porphyries (Units 8a and 8b). The exception, sample 626861 (1.37% TiO_2), was taken from an outcrop of feldspar crystal tuff (Unit 10c) within the marine sedimentary package. The high titanium content indicates that this rock is more likely andesitic to basaltic in composition; it has been included with the Unit 10 andesites.

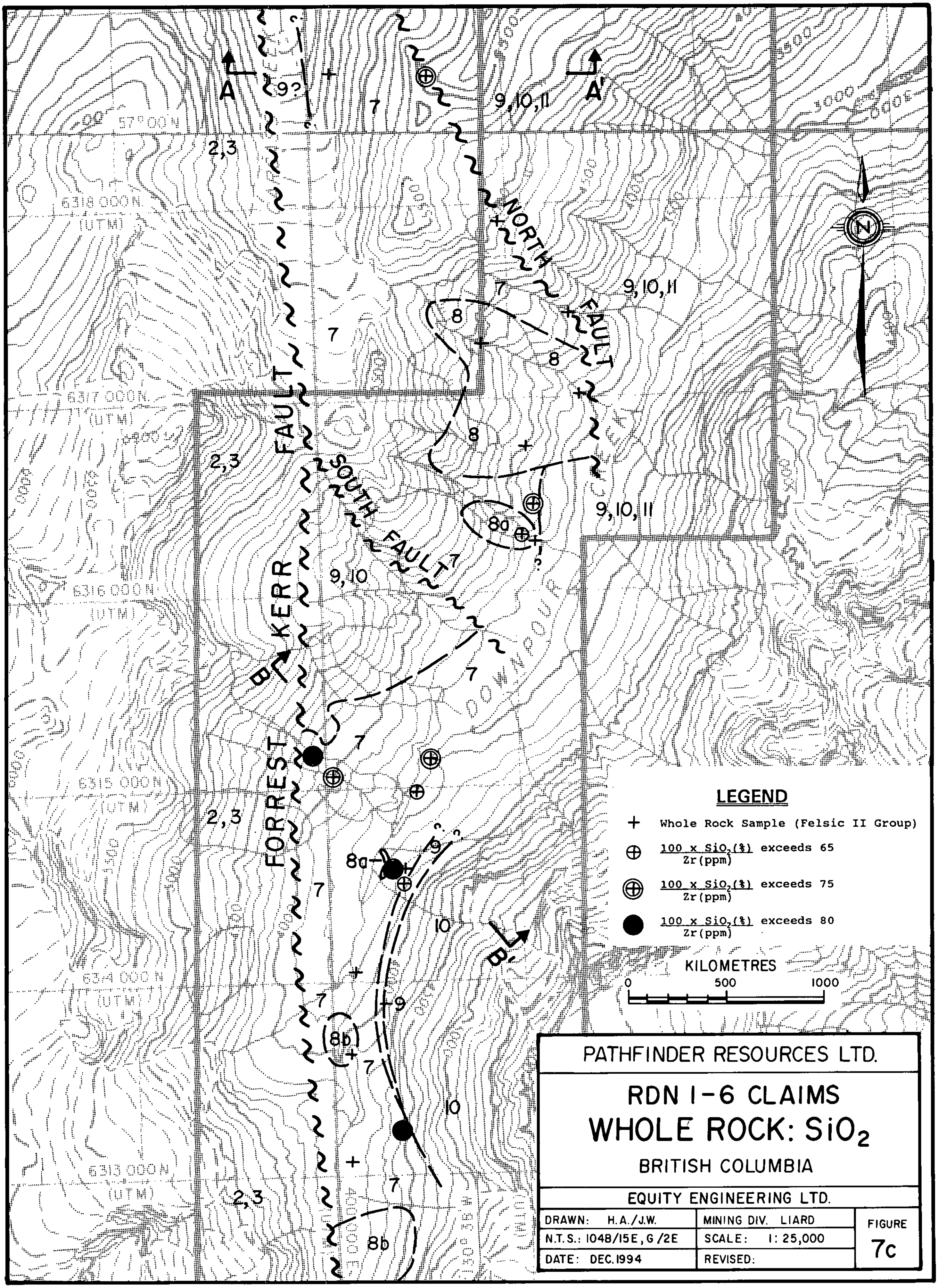
Scatter plots of potentially conserved elements (Al_2O_3, TiO_2, Zr and Y) show that the felsic rocks themselves are derived from two distinct magmas (Appendix F). The Felsic I group is composed of just two feldspar porphyry samples (626865 and 626871) taken from outcrops south of Gossan Creek. All remaining felsic samples (Felsic II group), including those taken from felsic tuffs, potassium feldspar megacrystic porphyries and feldspar porphyries, are shown to be cogenetic by their constant ratios of conserved elements. Therefore, both feldspar porphyry units of the Felsic II group are subvolcanic to the felsic tuffs.

Although the felsics contain feldspar phenocrysts, these have not been removed from the melt and there has been no fractionation. This is shown by scatter plots for Al_2O_3, which maintains a constant ratio with other conserved elements. If crystal fractionation were to occur, its ratio would decrease as feldspar, biotite and hornblende crystals were removed. Since there has been no removal of feldspar, biotite or hornblende from the melt, and there are no


A
A'
B
B'
9?
9,10,11
57°00'N
2,3
6318 000 N
(UTM)
6317 000 N
(UTM)
6316 000 N
(UTM)
6315 000 N
(UTM)
6314 000 N
(UTM)
6313 000 N
(UTM)
NORTH FAULT
SOUTH FAULT
KERR FAULT
FORREST
DOWNPOUR
7
8
8a
8b
9,10
9
10
LEGEND
Whole Rock Sample (Felsic II Group)
100 x K2O(%) / Zr(ppm) exceeds 5
100 x K2O(%) / Zr(ppm) exceeds 10
100 x K2O(%) / Zr(ppm) exceeds 15
KILOMETRES
0
500
1000
PATHFINDER RESOURCES LTD.
RDN 1-6 CLAIMS
WHOLE ROCK: K2O
BRITISH COLUMBIA
EQUITY ENGINEERING LTD.
DRAWN: H.A./J.W.
MINING DIV. LIARD
FIGURE
7a
N.T.S.: 104B/15E, G/2E
SCALE: 1:25,000
DATE: DEC.1994
REVISED:



A
A'
B
B'
57° 00'N
6318 000 N (UTM)
6317 000 N (UTM)
6316 000 N (UTM)
6315 000 N (UTM)
6314 000 N (UTM)
6313 000 N (UTM)
NORTH FAULT
SOUTH FAULT
FORREST KERR FAULT
2,3
7
8
8a
8b
9
9?
9,10
9,10,11
10
N
LEGEND
+ Whole Rock Sample (Felsic II Group)
100 x Na2O(%) / Zr(ppm) less than 1.0
100 x Na2O(%) / Zr(ppm) less than 0.5
100 x Na2O(%) / Zr(ppm) less than 0.2
KILOMETRES
0
500
1000
PATHFINDER RESOURCES LTD.
RDN 1-6 CLAIMS
WHOLE ROCK: Na2O
BRITISH COLUMBIA
EQUITY ENGINEERING LTD.
DRAWN: H.A./J.W.
MINING DIV. LIARD
FIGURE 7b
N.T.S.: 104B/15E, G/2E
SCALE: 1: 25,000
DATE: DEC. 1994
REVISED:



A
A'
B
B'
57°00'N
6318 000 N (UTM)
6317 000 N (UTM)
6316 000 N (UTM)
6315 000 N (UTM)
6314 000 N (UTM)
6313 000 N (UTM)
NORTH FAULT
SOUTH FAULT
FORREST KERR FAULT
DOWNPOUR
2,3
7
8
8a
8b
9
9?
9,10
9,10,11
10
N
LEGEND
Whole Rock Sample (Felsic II Group)
100 x SiO2(%) / Zr(ppm) exceeds 65
100 x SiO2(%) / Zr(ppm) exceeds 75
100 x SiO2(%) / Zr(ppm) exceeds 80
KILOMETRES
0 500 1000
PATHFINDER RESOURCES LTD.
RDN 1-6 CLAIMS
WHOLE ROCK: SiO2
BRITISH COLUMBIA
EQUITY ENGINEERING LTD.
DRAWN: H.A./J.W.
MINING DIV. LIARD
N.T.S.: 104B/15E, G/2E
SCALE: 1: 25,000
DATE: DEC. 1994
REVISED:
FIGURE 7c

other magmatic minerals containing significant amounts of Ca, Na and K, it can be assumed that any variation of these elements is due to alteration processes.

Major element percentages for samples on Figures 7a-c have been divided by their Zr concentration, on the assumption that Zr contents would have been equal for all samples prior to mass changes associated with alteration. This assumption is based on the lack of crystal fractionation shown by Al_2O_3 scatter plots. Only the 21 samples corresponding to the Felsic II group of cogenetic rocks are shown on Figures 7a-c and discussed below; comparison with the Felsic I and Andesite group rocks would be meaningless, since initial magma compositions have been shown to be different.

Analyses for K_2O are high for most samples, with six exceeding 10%. This could be due to a felsic pile which was originally rich in potassium or to extensive potassium enrichment. Although high potassium values are scattered throughout the property, the most anomalous area is the Marcasite Gossan area, where all seven samples contain at least 8.4% K_2O (Figure 7a). Petrographic analysis (Appendix D) of two specimens from this area show both late magmatic potassium feldspar deposition, as overgrowths on plagioclase phenocrysts, and potassium metasomatism, as sericite and potassium feldspar replacement of plagioclase and hornblende phenocrysts. At Eskay Creek, Bartsch (1993b, p. 93) emphasizes the importance of "K-silicate alteration" (potassium feldspar, albite and quartz) in the footwall felsic rocks and its relation to base and precious metal mineralization. He describes a "distinctive element suite (K, Th, U, Ti, P, Ba, Ce) involved in early K-silicate alteration associated with precious and base metal mineralization: where potassium in particular is pervasively added during alteration of the 21 Zone deposits' footwall stratigraphy" (Bartsch, 1993b, p. 116). In light of the inclusion of barium in Bartsch's K-silicate element suite from Eskay Creek, two samples from the Marcasite Gossan area exceeded 10,000 ppm Ba.

Na_2O values are less regularly distributed across the property (Figure 7b). They are also more difficult to interpret. At Eskay Creek, albite forms part of Bartsch's "K-silicate alteration", which is most closely associated with footwall mineralization, and would be accompanied by sodium enrichment. However, at many volcanogenic massive sulphide deposits, footwall alteration is characterized by sodium depletion. For instance, at the Fukazawa and Kosaka Kuroko deposits in Japan, the <0.36% Na_2O contour in footwall dacites effectively outlines the limits of volcanogenic massive sulphide mineralization (Hashiguchi et al, 1983). The Marcasite Gossan area is somewhat depleted in sodium, with all seven samples in the range of 0.22% - 0.39% Na_2O.

Silicification is most pronounced in the area around the Marcasite Gossan (Figure 7c). Sample 626897, which lies within 100 metres below the felsic/sediment contact, has the highest SiO_2/Zr ratio, along with the highest K_2O/Zr ratio and highest Ba concentration. As noted above, all three of these elements are important in Bartsch's "K-silicate alteration" at Eskay Creek.

7.0 GEOCHEMISTRY

7.1 Stream Sediment Geochemistry

Six silt samples were taken from Gossan Creek and the creek immediately north of it on the RDN 6 claim (Figure 6). These samples contained only slightly elevated arsenic and lead levels and background values for the remaining precious metals and pathfinder elements. Noranda had previously taken a heavy mineral concentrate sample with anomalously high gold (1320 ppb) and lead (250 ppm) from Gossan Creek near its mouth, and a silt sample with 45 ppm lead from the creek to the north (Savell, 1990a, b). The discrepancies may be due to erratic metal distribution in the sediments or different sampling techniques.

7.2 Soil Geochemistry

Three soil samples were taken near the western boundary of the RDN 5 claim (Figure 6). One sample, HA94-31, was taken from black talus fines along the fault contact between black argillite and felsic tuff. It returned anomalous zinc (614 ppm) and arsenic (122 ppm), pointing to possible mineralization along this contact.

Two samples, ten metres apart, were taken in the vicinity of Noranda's soil sample 11400N 9550E, which reported 60 ppb Au. The two samples confirmed the anomalous gold content with 50 and 70 ppb. Sample 11400N 9560E also contained elevated arsenic (74 ppm) and antimony (8 ppm). No mineralization was found to explain this anomaly, which lies within the marine sediment/andesite/diorite package.

8.0 DISCUSSION

The RDN 1-6 claims lie 40 kilometres north of the Eskay Creek gold-rich volcanogenic massive sulphide (VMS) deposit in northwestern British Columbia. The majority of the RDN property is underlain by felsic volcanics, felsic subvolcanic intrusives and fine clastic sediments of the Early to Middle Jurassic Hazelton Group. Lithologies and stratigraphy are very similar at Eskay Creek and on the RDN property. At Eskay Creek, stratiform mineralization is hosted within an argillite sub-basin overlying altered felsic volcanics and overlain by pillow basalts. On the RDN property, altered felsics are overlain by a package of argillite and andesite which is locally pillowed. Fossils within argillite on the RDN 6 claim are Toarcian in age; Anderson and Thorkelson (1990) correlate this unit with that which hosts the Eskay Creek deposit.

The upper contact of the felsic volcanics at Eskay Creek is marked by up to ten metres of "black matrix breccia", a mosaic of felsic fragments separated by a network of black silica veinlets. Unit 7GR is an alteration style within RDN felsics comprising abundant black "graphite"±silica veinlets; it locally forms a mosaic breccia similar to that described for Eskay Creek. A clast of Unit 7GR felsic was noted within the conglomerate which forms the base of the argillite package northwest of the Marcasite Gossan; this indicates that the Unit 7GR alteration formed prior to commencement of marine sedimentation. Further north on the RDN property, this basal conglomerate contains pebbles composed entirely of very fine-grained pyrite, possibly indicating syngenetic sulphide accumulation elsewhere in the basin.

At Eskay Creek, the footwall felsics can be divided into dacitic and rhyolitic units, each of which are intruded by highly altered subvolcanic feldspar porphyries of similar composition. On the RDN property, the felsic rocks have been derived from two magmas. All whole rock samples taken from extrusive felsics and the majority of those taken from the subvolcanic feldspar porphyries form one cogenetic suite; two feldspar porphyry samples represent a second cogenetic suite. At both Eskay Creek and RDN, the feldspar porphyries include phases with potassium feldspar megacrysts.

The felsic rocks at Eskay Creek are pervasively altered, with K-silicate, sericitic, silicic and propylitic alteration suites recognized by Bartsch (1993b). His "K-silicate" (potassium feldspar, albite and quartz) alteration is most closely associated with base and precious metal mineralization at Eskay Creek: pervasively; as selvages to base metal veins within the footwall felsics; and as potassium feldspar gangue within the stratiform 21A sulphide lens. Potassium enrichment is particularly important, associated with the footwall stratigraphy beneath the 21 Zone VMS deposits. Potassium feldspar alteration is pronounced in felsic rocks from the RDN property. A cluster of whole rock samples around the Marcasite Gossan exhibit pronounced potassium enrichment, with up to 13% K_2O. Magnesium chlorite alteration is intense in the immediate footwall of 21A Zone massive sulphide mineralization (Roth, 1993b); no similar alteration has yet been recognized on the RDN property.

The 1994 exploration program has clearly demonstrated that the geological setting and alteration of the RDN property are permissive for hosting an Eskay Creek-style VMS deposit. Stratigraphy on the two properties is correlative and alteration styles are similar. Intense alteration of the felsic rocks on each occurred prior to deposition of overlying marine sediments. The same suite of base and precious metals accompanies footwall alteration on each. Five segments of stratigraphic felsic/sediment contact have been identified, situated within three fault blocks on the east and west limbs of a northerly-trending anticline. These are: (1) east of the Marcasite Gossan, poorly exposed and inferred along at least 1,600 metres [east limb, southern fault block]; 2) northwest of the Marcasite Gossan, exposed for 1,100 metres between the Forrest Kerr Fault and the South Fault [west limb, southern fault block]; 3) just west of Downpour Creek, inferred for at least 900 metres between the North and South Faults [east limb, central fault block]; 4) inferred from drill core on the GOZ claims, just east of Carcass Creek [west limb, central fault block]; and 5) inferred from float sample 10269 near the RDN 5 and 6 legal corner post on Downpour Creek [west limb, northern fault block]. Each of the four segments that lie on the RDN property will require further investigation and will present special problems:

1) <u>East of the Marcasite Gossan:</u> The enriched potassium, presence of pyrobitumen stringers and elevated levels of silver, arsenic and antimony within felsic rocks of the Marcasite Gossan are all similar to footwall rocks beneath the Eskay Creek deposits. No gold mineralization has yet been found to explain Noranda's highest gold value (2410 ppb) in heavy sediment samples, taken 300 metres downstream from the Marcasite Gossan (Savell, 1990b). A talus-filled gully separates the uppermost felsic outcrop from the lowermost pillow basalt outcrop above the Marcasite Gossan. Approximately 1,300 metres along strike to the south, a bed of argillite lies along this contact. Because of the extensive talus, soil geochemistry would be unlikely to indicate VMS mineralization along this contact in the vicinity of the Marcasite Gossan. With the possible exception of induced polarization and magnetics, geophysical techniques were not successful at Eskay Creek. Outcrop below the pillow basalts is sparse, but further mapping, prospecting and whole rock sampling may define a drill target.

2) <u>West of the Marcasite Gossan:</u> The enriched potassium, silica and barium in felsic rocks beneath this contact are all favourable, but other trace elements are not anomalous. Where exposed, the basal conglomerate contains altered felsic clasts. Each of the small streams in this area exposes outcrop; further mapping and prospecting will be very useful. Much of the contact area is grass-covered with variable amounts of glacial till. Soil sampling may reveal mineralization in areas of thin till cover, although thicker till will mask soil geochemical response.

3) <u>Central fault block, west of Downpour Creek:</u> The felsic/sedimentary contact is marked by a 50 centimetre basal conglomerate with a few clasts of altered felsic and of very fine-grained massive pyrite. Whole rock analysis for this area shows less favourable major element patterns than for the Marcasite Gossan area. Holes RG91-26 and -27 were drilled entirely within the sediment/andesite/diorite package without reaching the felsic/sediment contact. Soil sampling for Au, Ag, Cu and Zn was carried out over the northern portion of this contact with negative results; no soil sampling has tested the southern part of this contact. Overburden is sufficiently thin that soil geochemistry would be quite effective along much of this contact.

5) <u>Northern fault block, near Downpour Creek on the RDN 5 and 6 claims:</u> This contact is inferred from structural interpretations

and the presence of float sample 10269, an altered felsic rock with 11.6 g/tonne gold and anomalous silver, lead, zinc, copper, arsenic, antimony, mercury and bismuth. This sample's lithological and geochemical similarities to Marcasite Gossan "footwall" mineralization are very encouraging; its high gold grade suggests that any associated VMS mineralization may also be gold-enriched. Very little exploration has been carried out in this area, but Savell (1990b) reported 530 ppb gold from a heavy sediment sample taken from a small drainage entering Downpour Creek 200 metres south of sample 10269. Geological mapping, prospecting and soil geochemistry will all likely be effective in this area, although the extent of glacial cover is not known.

The Eskay Creek deposit is a very high-grade precious metal-enriched volcanogenic massive sulphide deposit containing over four million ounces of gold, mainly hosted within stratiform mineralization deposited along a felsic/sedimentary contact. The RDN property covers at least 3,600 metres strike length of stratigraphic felsic/sediment contact within identical stratigraphy forty kilometres to the north. Footwall alteration and mineralization are very similar between the two properties. Although no volcanogenic massive sulphide mineralization has yet been found on the RDN property, its similarities to Eskay Creek and the extraordinary grade of the deposit target clearly justify further exploration.

Respectfully submitted,

Henry J. Awmack, P.Eng.
EQUITY ENGINEERING LTD.

PROFESSIONAL PROVINCE OF H. J. AWMACK BRITISH COLUMBIA ENGINEER

Vancouver, British Columbia
January, 1995

APPENDIX A

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BIBLIOGRAPHY

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APPENDIX B

STATEMENT OF EXPENDITURES

STATEMENT OF EXPENDITURES
RDN 1-6 CLAIMS
September 2-16, 1994

PROFESSIONAL FEES AND WAGES:		
Henry J. Awmack, P. Eng.		
12.50 days @ $400 day	$ 5,000.00	
Pat Suratt, Prospector		
9.5 days @ $275/day	2,612.50	$ 7,612.50
CHEMICAL ANALYSES:		
Silt samples		
6 @ $12.84	$ 77.04	
Soil samples		
3 @ $12.84	38.52	
Rock geochemical samples		
67 @ $16.44	1,101.48	
Assays (Au, Pb, Zn or Ag)		
8 @ $7.20	57.60	
Whole rock analyses		
24 @ $37.20	892.80	$ 2,167.40
EXPENSES:		
Camp Food	$ 241.68	
Equipment Rental (radios)	96.30	
Materials and Supplies	280.93	
Maps and Publications	20.76	
Printing and Reproductions	102.99	
Meals	88.03	
Accommodation	447.30	
Truck Rental	400.00	
Automotive Fuel	214.82	
Helicopter Charters	4,172.38	
Petrographic Descriptions	581.50	
Telephone Distance Charges	17.94	
Courier and Telefax	88.09	$ 6,752.72
REPORT (estimated):		$ 5,000.00
MANAGEMENT FEES:		
15% on expenses and analyses		1,338.02
SUBTOTAL:		$ 22,870.64
GST:		
7% on subtotal		1,600.94
		$ 24,471.58

APPENDIX C

ROCK SAMPLE DESCRIPTIONS

MINERALS AND ALTERATION TYPES

AZ	azurite	BA	barite	BI	biotite
BO	bornite	CA	calcite	CB	Fe-carbonate
CC	chalcocite	CL	chlorite	CP	chalcopyrite
CU	native copper	CV	covellite	CY	clay
EP	epidote	FM	ferromolybdite	FP	feldspar
GA	garnet	GE	goethite	GL	galena
GR	graphite	HE	earthy hematite		
HS	specularite	JA	jarosite	KF	K-feldspar
MC	malachite	MG	magnetite	MN	Mn-oxides
MO	molybdenite	MR	mariposite	MS	sericite
MT	marcasite	MU	muscovite	NE	neotocite
PX	pyroxene	PY	pyrite	QZ	quartz veining
SI	silica	SP	sphalerite	TA	talc
TO	tourmaline	TT	tetrahedrite		

ALTERATION INTENSITIES

m	medium	s	strong	tr	trace
vs	very strong	w	weak		

EQUITY ENGINEERING LTD. ROCK SAMPLE DESCRIPTIONS

Property : RDN 1-6 Claims NTS : 104B/15E, 104G/2E Date : September 4-11, 1994

Sample No.	UTM :	6314 650 N	Type : Float	Alteration : None	Au	Ag	As	Cu	Pb	Zn
		400 830 E	Strike Length Exp. : m	Metallics : 1-2%PY	(ppb)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
10251	Elevation:	4200 ft	Sample Width : 8 cm	Secondaries: None	<5	<1.0	4.	91.	2.	132.
	Orientation:	/	True Width : m	Host : Fine bedded argillite						

Comments : Pyrite appears to be on bedding plane.

Sample No.	UTM :	6314 630 N	Type : Float	Alteration : sCB	Au	Ag	As	Cu	Pb	Zn
		400 880 E	Strike Length Exp. : m	Metallics : 5%PY	(ppb)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
10252	Elevation:	4300 ft	Sample Width : m	Secondaries: None	<5	<1.0	4.	101.	6.	64.
	Orientation:	/	True Width : m	Host : Unknown						

Comments : Medium-coarse pyrite cubes.

Sample No.	UTM :	6316 380 N	Type : Float	Alteration : sSI	Au	Ag	As	Cu	Pb	Zn
		401 280 E	Strike Length Exp. : m	Metallics : None	(ppb)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
10253	Elevation:	3700 ft	Sample Width : m	Secondaries: None	<5	<1.0	4.	2.	<2	6.
	Orientation:	/	True Width : m	Host : Unknown felsic						

Comments : Angular float, no visible sulphides.

Sample No.	UTM :	6316 390 N	Type : Float	Alteration : sSI	Au	Ag	As	Cu	Pb	Zn
		400 630 E	Strike Length Exp. : m	Metallics :	(ppb)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
10254	Elevation:	4700 ft	Sample Width : m	Secondaries: sMN	<5	40.0	272.	85.	2310.	6610.
	Orientation:	/	True Width : m	Host : Rhyolite?						

Comments : Fine-grained quartz fragments in glassy quartz matrix and black platey mineral. Also contains 52 ppm Sb.

Sample No.	UTM :	6317 030 N	Type : Float	Alteration : sSI	Au	Ag	As	Cu	Pb	Zn
		401 380 E	Strike Length Exp. : m	Metallics : 1%CP, 5-10%PY	(ppb)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
10255	Elevation:	3600 ft	Sample Width : m	Secondaries: None	<5	1.0	16.	7200.	18.	42.
	Orientation:	/	True Width : m	Host : Feldspar porphyry						

Comments : Many chunks of float in blue-grey clay bank. Slickenside surfaces. Also contains 24 ppb Bi, 33 ppm Mo and 12 ppm Sb.

Sample No.	UTM :	6317 000 N	Type : Float	Alteration : QZ	Au	Ag	As	Cu	Pb	Zn
		401 400 E	Strike Length Exp. : m	Metallics : 1-2%PY	(ppb)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
10256	Elevation:	3600 ft	Sample Width : m	Secondaries: None	115.	<1.0	64.	106.	114.	1790.
	Orientation:	/	True Width : m	Host : Carbonaceous sediment						

Comments : Mashed sediment, coarse pyrite cubes in blebs. Quartz veining does not form a true stockwork. Large boulder.

Property : RDN 1-6 Claims NTS : 104B/15E, 104G/2E Date : September 4-11, 1994

Sample No.	UTM		Type		Alteration		Au (ppb)	Ag (ppm)	As (ppm)	Cu (ppm)	Pb (ppm)	Zn (ppm)
10257	UTM :	6317 173 N / 401 178 E	Type :	Float	Alteration :	QZ, sSI	<5	10.0	48.	199.	2720.	1.83%
	Elevation:	4050 ft	Strike Length Exp. :	m	Metallics :	0.5%GL, 2%SP						
	Orientation:	/	Sample Width :	m	Secondaries:	mGE, NE?						
			True Width :	m	Host :	Quartz-sulphide vein						

Comments : Quartz vein with seams of fine-grained sphalerite and galena and angular silicified wall-rock fragments. Orange plumbojarosite. Also contains 15 ppm Hg.

Sample No.	UTM		Type		Alteration		Au (ppb)	Ag (ppm)	As (ppm)	Cu (ppm)	Pb (ppm)	Zn (ppm)
10258	UTM :	6317 470 N / 401 660 E	Type :	Float	Alteration :	CA	<5	1.0	8.	155.	1440.	1895.
	Elevation:	3400 ft	Strike Length Exp. :	m	Metallics :	trCP, <1%GL, 1%PY?						
	Orientation:	/	Sample Width :	m	Secondaries:	wGE						
			True Width :	m	Host :	Argillite						

Comments : Calcite vein in black mudstone. Also contains 18 ppb Bi.

Sample No.	UTM		Type		Alteration		Au (ppb)	Ag (ppm)	As (ppm)	Cu (ppm)	Pb (ppm)	Zn (ppm)
10259	UTM :	6314 085 N / 399 665 E	Type :	Grab	Alteration :	CB	<5	<1.0	4.	8.	<2	38.
	Elevation:	4100 ft	Strike Length Exp. :	1 m	Metallics :	1%PY						
	Veining :	020 / 90	Sample Width :	m	Secondaries:	mGE						
			True Width :	m	Host :	Paleozoic sediment						

Comments : Faulted in every direction.

Sample No.	UTM		Type		Alteration		Au (ppb)	Ag (ppm)	As (ppm)	Cu (ppm)	Pb (ppm)	Zn (ppm)
10260	UTM :	6313 745 N / 399 425 E	Type :	Float	Alteration :	CB, CL	<5	<1.0	4.	6.	2.	36.
	Elevation:	4350 ft	Strike Length Exp. :	m	Metallics :	None						
	Orientation:	/	Sample Width :	m	Secondaries:	mGE						
			True Width :	m	Host :	Sediment						

Comments : Quartz-carbonate vein in sediments.

Sample No.	UTM		Type		Alteration		Au (ppb)	Ag (ppm)	As (ppm)	Cu (ppm)	Pb (ppm)	Zn (ppm)
10261	UTM :	6313 560 N / 399 458 E	Type :	Float	Alteration :	mCA, m-sCL	<5	<1.0	4.	806.	<2	60.
	Elevation:	4250 ft	Strike Length Exp. :	m	Metallics :	<1%CP						
	Orientation:	/	Sample Width :	m	Secondaries:	None						
			True Width :	m	Host :	Vein in sediment(?)						

Comments : Several pieces - probably haven't come far.

Sample No.	UTM		Type		Alteration		Au (ppb)	Ag (ppm)	As (ppm)	Cu (ppm)	Pb (ppm)	Zn (ppm)
10262	UTM :	6318 134 N / 400 875 E	Type :	Float	Alteration :		<5	<1.0	4.	10.	14.	26.
	Elevation:	5200 ft	Strike Length Exp. :	m	Metallics :	<1%PY						
	Orientation:	/	Sample Width :	10 cm	Secondaries:	None						
			True Width :	m	Host :	Quartz-carbonate vein in andesitic lapilli tuff						

Comments : Fragments in quartz-carbonate vein of fine-grained massive pyrite.

Sample No. 10263
UTM : 6318 130 N, 400 648 E
Elevation: 5350 ft
Orientation: /
Type : Float
Strike Length Exp. : m
Sample Width : m
True Width : m
Alteration : wCB, wQZ
Metallics : 2%GL
Secondaries: wGE, wMC
Host : Feldspar porphyry?

Au (ppb)	Ag (ppm)	As (ppm)	Cu (ppm)	Pb (ppm)	Zn (ppm)
<5	73.0	496.	1710.	1.23%	1.54%

Comments : 10,825N/9525E on Noranda grid. Disseminated sulphides in light grey crystalline rock. Also contains 14 ppm Bi, 86 ppm Mo and 28 ppm Sb.

Sample No. 10264
UTM : 6318 045 N, 400 650 E
Elevation: 5400 ft
Orientation: /
Type : Float
Strike Length Exp. : m
Sample Width : m
True Width : m
Alteration : wCB, sSI
Metallics : <1%GL
Secondaries: None
Host : Felsic tuff?

Au (ppb)	Ag (ppm)	As (ppm)	Cu (ppm)	Pb (ppm)	Zn (ppm)
<56	1.0	8.	2.	1735.	1585.

Comments : 10,750N/9550E. A few specks of galena and seams of sphalerite in silicified cream-coloured rock. Also contains 5320 ppm Ba.

Sample No. 10265
UTM : 6317 245 N, 401 490 E
Elevation: 3800 ft
Orientation: /
Type : Float
Strike Length Exp. : m
Sample Width : m
True Width : m
Alteration : mCA, wCL
Metallics : <1%PY
Secondaries: wGE
Host : Sediment? - not mudstone - bleached

Au (ppb)	Ag (ppm)	As (ppm)	Cu (ppm)	Pb (ppm)	Zn (ppm)
<5	<1.0	16.	2.	24.	114.

Comments : Calcite/chlorite/pyrite. Mostly confined to fractures - not very juicy.

Sample No. 10266
UTM : 6317 545 N, 400 820 E
Elevation: 4650 ft
Orientation: /
Type : Float
Strike Length Exp. : m
Sample Width : m
True Width : m
Alteration : BA, CB, wCL
Metallics : <1%PY
Secondaries: mGE
Host : Dark green feldspar porphyry intrusive

Au (ppb)	Ag (ppm)	As (ppm)	Cu (ppm)	Pb (ppm)	Zn (ppm)
<5	<1.0	4.	2.	4.	54.

Comments : Carbonate/barite veins plus pyrite - weathered. Also contains 6210 ppm Ba.

Sample No. 10267
UTM : 6317 605 N, 400 400 E
Elevation: 4750 ft
Orientation: /
Type : Float
Strike Length Exp. : m
Sample Width : m
True Width : m
Alteration : mSI
Metallics : 1%GL, 2%SP
Secondaries: mAZ, mMC
Host : Felsic tuff

Au (ppb)	Ag (ppm)	As (ppm)	Cu (ppm)	Pb (ppm)	Zn (ppm)
195.	81.0	536.	1885.	5050.	4.67%

Comments : Many pieces of more silicified andesite(?). Not very rusty. Also contains 62 ppm Bi, 17 ppm Hg and 30 ppm Sb.

Sample No. 10268
UTM : 6317 605 N, 400 400 E
Elevation: 4750 ft
Orientation: /
Type : Float
Strike Length Exp. : m
Sample Width : m
True Width : m
Alteration : wSI
Metallics : <1%CP, trGL, 1%SP
Secondaries: mAZ
Host : Felsic tuff

Au (ppb)	Ag (ppm)	As (ppm)	Cu (ppm)	Pb (ppm)	Zn (ppm)
25.	137g/t	400.	2860.	234.	1750.

Comments : Lots of azurite when broken - nothing on the outside. Also contains 4130 ppm Ba, 18 ppm Bi and 18 ppm Sb.

Property : RDN 1-6 Claims NTS : 104B/15E, 104G/2E Date : September 4-11, 1994

Sample No.	UTM		Type / Width		Alteration / Metallics / Secondaries / Host		Au (ppb)	Ag (ppm)	As (ppm)	Cu (ppm)	Pb (ppm)	Zn (ppm)
10269	UTM :	6318 295 N / 402 343 E	Type :	Float	Alteration :	wCA, wCB, sKF, sSI	11.6gt	42.0	440.	1745.	9310.	5480.
			Strike Length Exp. :	m	Metallics :	1%GL, <1%SP						
	Elevation:	3050 ft	Sample Width :	m	Secondaries:	sGE, wMC						
	Orientation:	/	True Width :	m	Host :	Felsic volcanic						

Comments : Medium grey, mottled, suggesting silicification of granular rock. SP and GL in clusters and seams. Clots coarse CA, seams of CB. Bright orange plumbojarosite on internal fractures; grey outside. Also contains 44 ppm Bi, 5 ppm Hg and 36 ppm Sb.

Sample No.	UTM		Type / Width		Alteration / Metallics / Secondaries / Host		Au (ppb)	Ag (ppm)	As (ppm)	Cu (ppm)	Pb (ppm)	Zn (ppm)
10270	UTM :	6318 496 N / 402 160 E	Type :	Float	Alteration :	m-sCB, 5%MR, mMS	260.	<1.0	1800.	63.	186.	130.
			Strike Length Exp. :	m	Metallics :	None						
	Elevation:	3350 ft	Sample Width :	m	Secondaries:	None						
	Orientation:	/	True Width :	m	Host :	Diorite						

Comments : Sampled because of Au association with mariposite. Also contains >10,000 ppm Ba and 18 ppm Sb.

Sample No.	UTM		Type / Width		Alteration / Metallics / Secondaries / Host		Au (ppb)	Ag (ppm)	As (ppm)	Cu (ppm)	Pb (ppm)	Zn (ppm)
10271	UTM :	6318 860 N / 401 680 E	Type :	Float	Alteration :	QZ, sSI	525.	1.0	304.	<1	26.	22.
			Strike Length Exp. :	m	Metallics :	5-10%PY						
	Elevation:	4850 ft	Sample Width :	20 cm	Secondaries:	None						
	Orientation:	/	True Width :	m	Host :	Quartz-pyrite vein						

Comments : Much of pyrite is weathered out. White quartz brecciating silicified dark grey fine-grained sediment. Also contains 56 ppm Sb.

Sample No.	UTM		Type / Width		Alteration / Metallics / Secondaries / Host		Au (ppb)	Ag (ppm)	As (ppm)	Cu (ppm)	Pb (ppm)	Zn (ppm)
626855	UTM :	6314 600 N / 400 380 E	Type :	Grab	Alteration :	wCB, sSI	<5	1.0	8.	14.	26.	62.
			Strike Length Exp. :	20 m	Metallics :	trPY						
	Elevation:	1172 m	Sample Width :	10 m	Secondaries:	wMN						
	Orientation:	/	True Width :	10 m	Host :	Felsic lapilli tuff?						

Comments : Marcasite Gossan. Grey to black (from very-fine grained chlorite? pyrobitumen?) siliceous rock. Not rusty. 1-3mm FP phenos(?) largely altered to iron carbonate. Also contains 14 ppm Sb. Whole rock sample.

Sample No.	UTM		Type / Width		Alteration / Metallics / Secondaries / Host		Au (ppb)	Ag (ppm)	As (ppm)	Cu (ppm)	Pb (ppm)	Zn (ppm)
626856	UTM :	6314 250 N / 400 920 E	Type :	Grab	Alteration :	wCA, wCB, wCL, wSI, trGR	<5	<1.0	4.	25.	10.	74.
			Strike Length Exp. :	30 m	Metallics :	trCP						
	Elevation:	1503 m	Sample Width :	5 m	Secondaries:	trGE						
	Orientation:	/	True Width :	5 m	Host :	Breccia						

Comments : 2-10mm subrounded heterolithic clasts (framework-supported) in green chloritic matrix. Majority of clasts are white, siliceous fine-grained felsic (rarely FP-phyric). Lesser black mudstone fragments. Looks like sediment breccia, but unsorted, ungraded.

Sample No.	UTM		Type / Width		Alteration / Metallics / Secondaries / Host		Au (ppb)	Ag (ppm)	As (ppm)	Cu (ppm)	Pb (ppm)	Zn (ppm)
626857	UTM :	6314 290 N / 400 760 E	Type :	Grab	Alteration :	10%CB, sGR	<5	<1.0	544.	63.	4.	44.
			Strike Length Exp. :	2 m	Metallics :	None						
	Elevation:	1428 m	Sample Width :	30 cm	Secondaries:	wMC						
	Bedding? :	180 / 40 E	True Width :	30 cm	Host :	Graphitic mudstone						

Comments : Near top of >15m outcrop of sheared graphitic mudstone with variable CB stringers and veinlets. Orientation of bedding very ambiguous. Also contains 433 ppm Ni.

Sample No.	UTM :	6314 530 N	Type : Grab	Alteration : wCB, mSI	Au	Ag	As	Cu	Pb	Zn
		400 380 E	Strike Length Exp. : 5 m	Metallics : None	(ppb)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
626858	Elevation:	1195 m	Sample Width : 3 m	Secondaries: None	<5	3.0	32.	11.	108.	394.
	Orientation:	/	True Width : 3 m	Host : Felsic volcanic (?)						

Comments : Whole rock sample 82m S of 626855, near SE edge of felsic exposure. Dark grey from very fine-grained graphite? Pyrobitumen? Fine-grained, massive. Weathers white. Also contains 12 ppm Sb.

Sample No.	UTM :	6314 010 N	Type : Float	Alteration : 10%GR?, 80%QZ	Au	Ag	As	Cu	Pb	Zn
		400 350 E	Strike Length Exp. : m	Metallics : 10%PY	(ppb)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
626859	Elevation:	1172 m	Sample Width : 1.2 m	Secondaries: sGE, sHE	<5	134g/t	360.	654.	338.	2480.
	Orientation:	/	True Width : m	Host : Quartz vein						

Comments : Marcasite Gossan. Several large boulders, near source. Brecciated white quartz with silica-GR-PY (marcasite?) filling fractures and between quartz fragments. Coarse pyrite. Also contains 352 ppm Sb.

Sample No.	UTM :	6314 590 N	Type : Grab	Alteration : wMS, mSI	Au	Ag	As	Cu	Pb	Zn
		400 340 E	Strike Length Exp. : 50 m	Metallics : 10%MT	(ppb)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
626860	Elevation:	1155 m	Sample Width : 10 m	Secondaries: mGE, sJA	<5	1.0	96.	16.	16.	40.
	Jointing	: 035 / 75 SE	True Width : 10 m	Host : FP-phyric rhyolite (?)						

Comments : Dark grey to black. 1-3mm FP ghosts still visible. Marcasite (MT) disseminated and in 1-4cm veinlets. Whole rock sample taken at RDN 1-4 LCP. Also contains 32 ppm Sb.

Sample No.	UTM :	6316 440 N	Type : Grab	Alteration : wCL, wMS, wSI	Au	Ag	As	Cu	Pb	Zn
		401 310 E	Strike Length Exp. : 10 m	Metallics : 1%PY	(ppb)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
626861	Elevation:	1068 m	Sample Width : 2 m	Secondaries: None	<5	<1.0	8.	50.	6.	88.
	Jointing	: 125 / 70 SW	True Width : 2 m	Host : Crystal lapilli tuff						

Comments : 40% broken to subrounded 2mm feldspar crystals, very rare quartz crystals (seen in float only), rare lithic fragments. Unsorted, ungraded, crystals randomly oriented. Crystals wMS, locally wSI. Matrix wMS, mCL (black). Whole rock sample.

Sample No.	UTM :	6316 260 N	Type : Grad	Alteration : mCB, 2%QZ, sGR	Au	Ag	As	Cu	Pb	Zn
		401 130 E	Strike Length Exp. : 5 m	Metallics : 1%PY	(ppb)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
626862	Elevation:	1102 m	Sample Width : 50 cm	Secondaries: None	<5	<1.0	4.	56.	6.	82.
	Foliation	: 180 / 70 E	True Width : 50 cm	Host : Black mudstone						

Comments : Black mudstone with 10% subrounded fragments (3-15mm) of: 1) mudstone; 2) vfg. massive PY; 3) sSI, wCB fg. FP-phyric felsic. Mudstone foliated around fragments, QZ-CB stringers and veinlets along foliations & in tension gashes. Also contains 392 ppm Ni.

Sample No.	UTM :	6316 260 N	Type : Grab	Alteration : mMS, wSI	Au	Ag	As	Cu	Pb	Zn
		401 110 E	Strike Length Exp. : 15 m	Metallics : 2%PY	(ppb)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
626863	Elevation:	1110 m	Sample Width : 7 m	Secondaries: wGE, wMN	<5	2.0	4.	27.	48.	1070.
	Orientation:	/	True Width : 7 m	Host : Felsic lapilli tuff						

Comments : Medium grey, with darker subrounded fragments in variably sericitized or silicified matrix. 2% fine-grained disseminated pyrite. 5m above contact with mudstone. Whole rock sample.

Sample No.	UTM : 6316 300 N 401 040 E	Type : Grab	Alteration : wCY, sMS, wSI	Au (ppb)	Ag (ppm)	As (ppm)	Cu (ppm)	Pb (ppm)	Zn (ppm)
626864	Elevation: 1130 m	Strike Length Exp. : 20 m	Metallics : 5%PY	<5	<1.0	4.	22.	6.	84.
	Orientation: /	Sample Width : 7 m	Secondaries: None						
		True Width : 7 m	Host : Feldspar porphyry intrusive						

Comments : Whole rock sample taken 40m above 626863 in creek. Light grey sericitized matrix with 25% 4-8mm subhedral to subrounded, argillized FP phenocrysts. 5% fine-grained disseminated pyrite cubes. Graphitic fractures.

Sample No.	UTM : 6316 620 N 400 700 E	Type : Grab	Alteration : sSI, wTA(?)	Au (ppb)	Ag (ppm)	As (ppm)	Cu (ppm)	Pb (ppm)	Zn (ppm)
626865	Elevation: 1369 m	Strike Length Exp. : 100 m	Metallics : 1%PY	<5	<1.0	8.	<1	14.	2.
	Orientation: /	Sample Width : 10 m	Secondaries: sGE, mJA						
		True Width : 10 m	Host : Coarse feldspar porphyry (?)						

Comments : Medium grey, intensely silicified. Only ghosts or mottling left of FP phenos. Intense gossan, but little pyrite. Waxy, soft, pale green talc(?) locally in 1-5cm seams. Whole rock sample.

Sample No.	UTM : 6316 970 N 401 480 E	Type : Float	Alteration : wCY, 25%GR?	Au (ppb)	Ag (ppm)	As (ppm)	Cu (ppm)	Pb (ppm)	Zn (ppm)
626866	Elevation: 1039 m	Strike Length Exp. : m	Metallics : sPY	<5	<1.0	4.	19.	36.	24.
	Orientation: /	Sample Width : 15 cm	Secondaries: wGE, sJA						
		True Width : m	Host : Felsic breccia						

Comments : Weakly argillized white rhyolite (<1mm FP phenos?) criss-crossed by hairline black pyritic fractures until it resembles fragments supported by graphite-pyrite matrix. Jarosite on internal fractures. Gossan Creek, 20m above silt sample PS-51.

Sample No.	UTM : 6316 980 N 401 440 E	Type : Float	Alteration : vsSI, 15%GR?	Au (ppb)	Ag (ppm)	As (ppm)	Cu (ppm)	Pb (ppm)	Zn (ppm)
626867	Elevation: 1034 m	Strike Length Exp. : m	Metallics : 10%PY	<5	<1.0	4.	7.	14.	<2
	Orientation: /	Sample Width : 30 cm	Secondaries: None						
		True Width : m	Host : Rhyolite						

Comments : Two boulders in Gossan Creek. Silicified light grey rhyolite, cut by innumerable hairline black pyrite-silica fractures. Soft white coating on irregular late fractures. Also contains 31 ppm Mo.

Sample No.	UTM : 6317 030 N 401 360 E	Type : Grab	Alteration : sSI, 10%GR?	Au (ppb)	Ag (ppm)	As (ppm)	Cu (ppm)	Pb (ppm)	Zn (ppm)
626868	Elevation: 1097 m	Strike Length Exp. : 5 m	Metallics : 10%PY	<5	<1.0	4.	27.	16.	62.
	Orientation: /	Sample Width : 3 m	Secondaries: wGE						
		True Width : 3 m	Host : Coarse FP porphyry intrusive						

Comments : Dark grey, mottled from ghosts of 6mm FP phenos. Pyrite in innumerable black hairline fracture fillings. 3m away is outcrop of same FP porphyry with 15% fine-grained disseminated pyrite, no graphite. Lowest outcrop on Gossan Creek. Whole rock sample.

Sample No.	UTM : 6316 970 N 401 460 E	Type : Float	Alteration : sCY	Au (ppb)	Ag (ppm)	As (ppm)	Cu (ppm)	Pb (ppm)	Zn (ppm)
626869	Elevation: 1130 m	Strike Length Exp. : m	Metallics : 10%PY	<5	<1.0	4.	120.	38.	216.
	Orientation: /	Sample Width : 15 cm	Secondaries: mGE						
		True Width : m	Host : Coarse rhyolite fragmental (pyroclastic)						

Comments : Angular, tabular and teardrop-shaped white rhyolite fragments (argillized) in soft, dark grey pyritic matrix. Weak stratification defined by long axis of fragments. Rounded boulder in Gossan Creek.

Sample No.	UTM : 6316 460 N 401 110 E	Type : Grab	Alteration : trCL, wCY, mSI	Au (ppb)	Ag (ppm)	As (ppm)	Cu (ppm)	Pb (ppm)	Zn (ppm)
626870	Elevation: 1165 m Orientation: /	Strike Length Exp. : 5 m Sample Width : 5 m True Width : 5 m	Metallics : None Secondaries: wGE, mMN Host : Felsic (?) lapilli tuff	<5	<1.0	8.	14.	16.	80.

Comments : Medium grey. Subrounded rhyolitic fragments, generally 1-4mm but rarely up to 2cm, in dark grey siliceous matrix. Abundant MN on fractures. Whole rock sample.

Sample No.	UTM : 6316 980 N 401 180 E	Type : Grab	Alteration : sCY, mKF?, mSI	Au (ppb)	Ag (ppm)	As (ppm)	Cu (ppm)	Pb (ppm)	Zn (ppm)
626871	Elevation: 1180 m Orientation: /	Strike Length Exp. : 1.0 m Sample Width : 1.5 m True Width : 1.5 m	Metallics : 5%PY Secondaries: wGE Host : Coarse FP porphyry intrusive	<5	<1.0	4.	1.	12.	2.

Comments : Medium grey to buff (KF alteration of matrix?) with argillized 8mm FP phenos. Local black fractures (with KF-SI envelopes). All surrounding float is white sCY/sMS altered, pyritic, slightly schistose rhyolite(?). Whole rock sample.

Sample No.	UTM : 6317 445 N 401 625 E	Type : Float	Alteration : sCB, 5%MR, trGR?	Au (ppb)	Ag (ppm)	As (ppm)	Cu (ppm)	Pb (ppm)	Zn (ppm)
626872	Elevation: 1055 m Orientation: /	Strike Length Exp. : m Sample Width : 80 cm True Width : m	Metallics : trPY Secondaries: sGE Host : Andesite? Diorite?	<5	<1.0	16.	38.	2.	38.

Comments : Float boulder 80x80x80cm. Buff pervasive Fe-CB alteration of mottled rock. 4mm patches mariposite throughout. 2% salmon-pink mica(?) in 3mm patches throughout. Trace graphite(?) on fractures. <1% coarse CB blebs and stringers.

Sample No.	UTM : 6317 435 N 401 527 E	Type : Float	Alteration : wSI, 2%GR?	Au (ppb)	Ag (ppm)	As (ppm)	Cu (ppm)	Pb (ppm)	Zn (ppm)
626873	Elevation: 1090 m Orientation: /	Strike Length Exp. : m Sample Width : 35 cm True Width : m	Metallics : trAS, 1%PY Secondaries: mGE Host : Diorite?	<5	1.0	504.	13.	4.	22.

Comments : 35x50x80cm boulder. Light blue-grey with 5% dark green remnant PX(?). Platy graphite(?) on fractures. 1% fine-grained pyrite disseminated and on hairline fractures. Rare bright silvery metallic needles <1mm long: AS?

Sample No.	UTM : 6317 430 N 401 370 E	Type : Float	Alteration : sMS, 5%GR?	Au (ppb)	Ag (ppm)	As (ppm)	Cu (ppm)	Pb (ppm)	Zn (ppm)
626874	Elevation: 1172 m Orientation: /	Strike Length Exp. : m Sample Width : 15 cm True Width : m	Metallics : 1%PY Secondaries: vsJA Host : Rhyolite (?)	25.	3.0	72.	85.	94.	196.

Comments : 15cm rounded boulder below felsic/sediment contact. Pale green, intensely sericitized massive rock, cut by hairline graphite(?) stringers. Thick jarosite on internal fractures.

Sample No.	UTM : 6317 445 N 401 315 E	Type : Grab	Alteration : sCA, wMS, wSI, 15%GR?	Au (ppb)	Ag (ppm)	As (ppm)	Cu (ppm)	Pb (ppm)	Zn (ppm)
626875	Elevation: 1202 m Orientation: /	Strike Length Exp. : 1 m Sample Width : 1 m True Width : 1 m	Metallics : None Secondaries: None Host : Rhyolite(?)	<5	2.0	8.	66.	186.	1280.

Comments : Light grey rhyolite (?) brecciated by innumerable hairline graphite(?) stringers. First outcrop above felsic/sediment contact. Whole rock sample.

Sample No. UTM : 6317 490 N Type : Grab Alteration : None
401 208 E Strike Length Exp. : 9 m Metallics : None
626876 Elevation: 1263 m Sample Width : 60 cm Secondaries: sGE
Bedding : 000 / 50 W True Width : 60 cm Host : Laminated pebbly arkose

Au (ppb)	Ag (ppm)	As (ppm)	Cu (ppm)	Pb (ppm)	Zn (ppm)
<5	1.0	4.	87.	258.	546.

Comments : Brown, laminated, poorly sorted arkose. Felsic pebbles aligned with lamina. Contorted around (unsampled) teardrop shaped lenses of pebble conglomerate (clast-supported, mMS, wCL, 1%PY).

Sample No. UTM : 6317 520 N Type : Grab Alteration : mMS
401 160 E Strike Length Exp. : 3 m Metallics : 5%PY
626877 Elevation: 1300 m Sample Width : 2 m Secondaries: wGE
Jointing : 095 / 60 N True Width : 2 m Host : Felsic lithic crystal tuff

Au (ppb)	Ag (ppm)	As (ppm)	Cu (ppm)	Pb (ppm)	Zn (ppm)
<5	1.0	64.	77.	46.	256.

Comments : Dark grey-green. 20% 1-3mm subrounded felsic lapilli and 15% 1mm broken FP crystals in pyritic matrix. Lapilli are heterolithic - different shades of buff, white, etc. Rare 1mm quartz eyes.

Sample No. UTM : 6317 670 N Type : Float Alteration : mSI, sGR(?)
401 265 E Strike Length Exp. : m Metallics : 5%PY
626878 Elevation: 1298 m Sample Width : 70 cm Secondaries: None
Orientation: / True Width : m Host : Rhyolite mudstone breccia

Au (ppb)	Ag (ppm)	As (ppm)	Cu (ppm)	Pb (ppm)	Zn (ppm)
<5	<1.0	4.	22.	<2	118.

Comments : Light grey angular altered (sSI, 10%PY), 4-20mm felsic clasts in black weakly siliceous mudstone matrix. Taken from 4 float boulders, up to 70x70x120cm. Fragments randomly oriented, slightly different colours.

Sample No. UTM : 6317 930 N Type : Grab Alteration : wCL, sSI
400 940 E Strike Length Exp. : 5 m Metallics : None
626879 Elevation: 1525 m Sample Width : 5 m Secondaries: None
Orientation: / True Width : 5 m Host : Felsic lithic crystal tuff

Au (ppb)	Ag (ppm)	As (ppm)	Cu (ppm)	Pb (ppm)	Zn (ppm)
<5	<1.0	8.	27.	42.	270.

Comments : Siliceous, but maybe not silicified. 10% subrounded felsic fragments to 1cm long. 30% 2mm FP crystals, 5% 2-4mm quartz eyes. Medium grey, weathers white. Within 100m above contact. Whole rock sample.

Sample No. UTM : 6313 078 N Type : Grab Alteration : sCB, trCL
400 085 E Strike Length Exp. : 15 m Metallics : None
626880 Elevation: 1275 m Sample Width : 8 m Secondaries: wGE
Jointing : 175 / 75 E True Width : 8 m Host : Felsic lapilli tuff

Au (ppb)	Ag (ppm)	As (ppm)	Cu (ppm)	Pb (ppm)	Zn (ppm)
<5	<1.0	4.	9.	<2	92.

Comments : Reddish to grey from earthy hematite in matrix (subaerial?). Red-brown to grey to pale green subrounded FP+/-QZ phyric rhyolitic fragments from 2-20mm. Unoriented, unsorted. Whole rock sample.

Sample No. UTM : 6313 180 N Type : Grab Alteration : sCB, sSI
400 375 E Strike Length Exp. : 10 m Metallics : None
626881 Elevation: 1390 m Sample Width : 6 m Secondaries: wGE
Jointing : 020 / 75 W True Width : 6 m Host : Felsic lapilli tuff(?)

Au (ppb)	Ag (ppm)	As (ppm)	Cu (ppm)	Pb (ppm)	Zn (ppm)
<5	18.0	16.	162.	3000.	444.

Comments : Light grey, mottled. Original lithology unclear. Silicification could be fault related - at contact (trends approx. 135o) with andesite. Also contains 74 ppm Sb.

Sample No. 626882
UTM : 6313 220 N, 400 355 E
Elevation: 1367 m
Bedding : 155 / 80 NE
Type : Grab
Strike Length Exp. : 3 m
Sample Width : 60 cm
True Width : 60 cm
Alteration : 1%CB, wMS, sGR
Metallics : 5%PY
Secondaries: None
Host : Black graphitic mudstone

Au (ppb)	Ag (ppm)	As (ppm)	Cu (ppm)	Pb (ppm)	Zn (ppm)
<5	1.0	8.	51.	14.	598.

Comments : Along contact between felsics and hanging wall andesite. Strongly foliated mudstone with fine-grained 5-10mm pyrite seams and pyritic (20% PY) sericitic 5cm siltstone lenses. Surrounded by talus.

Sample No. 626883
UTM : 6313 240 N, 400 345 E
Elevation: 1367 m
Orientation: /
Type : Grab
Strike Length Exp. : 20 m
Sample Width : 12 m
True Width : 12 m
Alteration : sSI
Metallics : trMT, 5%PY
Secondaries: sGE, mJA
Host : Felsic lapilli tuff

Au (ppb)	Ag (ppm)	As (ppm)	Cu (ppm)	Pb (ppm)	Zn (ppm)
<5	1.0	4.	38.	78.	98.

Comments : 25m north of 626882. Light grey, intensely silicified rhyolite with rare ghosts of 1cm lapilli. 5% fine-grained disseminated pyrite and rare patches of very fine-grained massive pyrite. Note one rosette of marcasite. Whole rock sample. Also 4940 ppm Ba.

Sample No. 626884
UTM : 6313 334 N, 400 345 E
Elevation: 1340 m
Bedding : 018 / 74 E
Type : Select
Strike Length Exp. : 5 m
Sample Width : 15 m
True Width : m
Alteration : None
Metallics : 5%PY
Secondaries: sGE
Host : Pyritic siltstone interbeds in black mudstone

Au (ppb)	Ag (ppm)	As (ppm)	Cu (ppm)	Pb (ppm)	Zn (ppm)
<5	<1.0	24.	55.	20.	154.

Comments : 2-15cm pyritic siltstone interbeds (9 sampled in 15m of mudstone). Light grey with very fine-grained pyrite. Mudstone in 10-25cm beds. Lower contact disappears under snow and talus.

Sample No. 626885
UTM : 6313 655 N, 400 090 E
Elevation: 1281 m
Jointing : 060 / 65 NW
Type : Grab
Strike Length Exp. : 20 m
Sample Width : 8 m
True Width : 8 m
Alteration : sCB, wMS
Metallics : 5%PY
Secondaries: mGE
Host : Coarse feldspar-orthoclase (megacrystic) porphyry

Au (ppb)	Ag (ppm)	As (ppm)	Cu (ppm)	Pb (ppm)	Zn (ppm)
<5	<1.0	4.	9.	16.	72.

Comments : South Gossan. 5% euhedral 8-30 mm orthoclase phenos + 20% 5mm subhedral plagioclase(?) phenos in light grey matrix. Whole rock samples.

Sample No. 626886
UTM : 6314 075 N, 400 122 E
Elevation: 1185 m
Orientation: /
Type : Grab
Strike Length Exp. : 20 m
Sample Width : 6 m
True Width : 6 m
Alteration : wCB, sSI
Metallics : None
Secondaries: wGE
Host : Felsic crystal lithic tuff

Au (ppb)	Ag (ppm)	As (ppm)	Cu (ppm)	Pb (ppm)	Zn (ppm)
<5	<1.0	8.	3.	4.	70.

Comments : Brown. 20% 1-2mm broken FP crystals + rare 2-3mm lapilli in siliceous red-brown (subaerial?) matrix. Midway between Marcasite and South Gossan. Whole rock sample.

Sample No. 626887
UTM : 6316 750 N, 401 070 E
Elevation:
Orientation: /
Type : Core
Strike Length Exp. : m
Sample Width : 35.6 m
True Width : m
Alteration : w-sCY, mMS
Metallics : 15%PY
Secondaries: None
Host : Coarse FP porphyry intrusive

Au (ppb)	Ag (ppm)	As (ppm)	Cu (ppm)	Pb (ppm)	Zn (ppm)
<5	<1.0	4.	87.	14.	2.

Comments : Whole rock sample taken from RG91-19 (81.3-116.9m) with a chip from every second 1.5m run. Locally sheared (generally in areas of CY alteration replacing MS) with slickensides, stretched FP phenos, black fractures.

Sample No. 626888
UTM : 6318 684 N / 400 100 E
Elevation:
Orientation: /
Type : Core
Strike Length Exp. : m
Sample Width : 29.2 m
True Width : m
Alteration : sMS, mSI, mTA?
Metallics : None
Secondaries: None
Host : Felsic lapilli tuff

Au (ppb)	Ag (ppm)	As (ppm)	Cu (ppm)	Pb (ppm)	Zn (ppm)
<5	<1.0	16.	13.	230.	954.

Comments : Whole rock sample taken from RG91-28 (204.0-233.2). Apple green colour from sericite +/- apple green waxy mineral (talc?). Heterolithic subrounded felsic fragments to 2cm (including some previously silicified). Take chip from every 5' run.

Sample No. 626889
UTM : 6317 300 N / 400 860 E
Elevation:
Orientation: /
Type : Core
Strike Length Exp. : m
Sample Width : 9.9 m
True Width : m
Alteration : trCA, mMS
Metallics : trCP, trGL, 7%PY, trSP
Secondaries: None
Host : Coarse FP porphyry intrusive

Au (ppb)	Ag (ppm)	As (ppm)	Cu (ppm)	Pb (ppm)	Zn (ppm)
15.	1.0	8.	41.	582.	1580.

Comments : Whole rock sample from RG91-18 (103.4-113.2m). Medium-grained SP, GL, CP +/- CA in lenses and stringers, 2-10mm wide. Random chips taken from each 1.5m run.

Sample No. 626890
UTM : 6318 676 N / 400 600 E
Elevation: 1679 m
Orientation: /
Type : Grab
Strike Length Exp. : 30 m
Sample Width : 5 m
True Width : 5 m
Alteration : wMS, trBA
Metallics : None
Secondaries: wGE, wMN
Host : Felsic lapilli tuff

Au (ppb)	Ag (ppm)	As (ppm)	Cu (ppm)	Pb (ppm)	Zn (ppm)
<5	2.0	16.	27.	10.	858.

Comments : Medium grey. Textures not obvious. Rare BA stringers. Within 20m of apparent contact with mudstone (black soil/talus with black mudstone flakes). Whole rock sample.

Sample No. 626891
UTM : 6318 460 N / 400 880 E
Elevation: 1678 m
Trends : 170 /
Type : Grab
Strike Length Exp. : 30 m
Sample Width : 1.5 m
True Width : 1.5 m
Alteration : mCB, mSI
Metallics : trHS, 2%PY
Secondaries: wGE
Host : Andesite dyke (?)

Au (ppb)	Ag (ppm)	As (ppm)	Cu (ppm)	Pb (ppm)	Zn (ppm)
290.	<1.0	48.	66.	214.	452.

Comments : Light grey to buff - locally appears volcanic, locally fragmental. Pervasive silica and Fe-carbonate and stringers Fe-CB. Disseminated PY and small patches HS. 3m downslope from Noranda soil sample 11300N/9700E (410ppb Au).

Sample No. 626892
UTM : 6316 920 N / 400 677 E
Elevation: 1420 m
Orientation: /
Type : Float
Strike Length Exp. : m
Sample Width : 30 cm
True Width : m
Alteration : mCB, wMS, wSI
Metallics : trGL
Secondaries: wGE
Host : Felsic lapilli tuff

Au (ppb)	Ag (ppm)	As (ppm)	Cu (ppm)	Pb (ppm)	Zn (ppm)
<5	1.0	8.	18.	2040.	378.

Comments : Dark brown. GL in 0.5mm CB stringers and in disseminations. Taken at Noranda soil sample 9800N/9850E (330ppb Au in talus fines).

Sample No. 626893
UTM : 6316 893 N / 400 765 E
Elevation: 1387 m
Orientation: /
Type : Float
Strike Length Exp. : m
Sample Width : 50 cm
True Width : m
Alteration : wCB, wMS, wSI
Metallics : trSP
Secondaries: wAZ, wGE, wMC, wNE
Host : Felsic lapilli tuff

Au (ppb)	Ag (ppm)	As (ppm)	Cu (ppm)	Pb (ppm)	Zn (ppm)
<5	5.0	192.	510.	878.	1570.

Comments : Greenish. SP in 1mm CB stringers. MC/AZ on internal fractures. 50x70x70cm float boulder. Also contains 42 ppm Sb.

Sample No.	UTM :	6315 199 N	Type : Float	Alteration : 10%QZ, sSI, 5%GR?	Au	Ag	As	Cu	Pb	Zn
		400 570 E	Strike Length Exp. : m	Metallics : trCP,trGL,2%PY,trSP,1%TT	(ppb)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
626894	Elevation:	1097 m	Sample Width : 40 cm	Secondaries: sGE, wMC, wMN	5.	141g/t	232.	1690.	3080.	910.
	Orientation:	/	True Width : m	Host : Felsic volcanic						

Comments : 3 angular, friable boulders in gravel bar. Light grey felsic (locally black from abdt graphite(?) on hairline fractures. TT, SP, CP in fg separate clusters on fractures. MC on internal fractures. Fg PY in seams in one boulder. Also contains 550 ppm Sb.

Sample No.	UTM :	6315 156 N	Type : Grab	Alteration : sSI, 2%GR?	Au	Ag	As	Cu	Pb	Zn
		400 540 E	Strike Length Exp. : 5 m	Metallics : None	(ppb)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
626895	Elevation:	1097 m	Sample Width : 5 m	Secondaries: None	<5	2.0	8.	44.	384.	96.
	Orientation:	/	True Width : 5 m	Host : Felsic lapilli tuff						

Comments : Light grey pervasively silicified felsic, locally cut by black hairline fractures. Ghosts of 0.5cm lapilli locally apparent. Whole rock sample. Also contains 12 ppm Sb.

Sample No.	UTM :	6315 448 N	Type : Grab	Alteration : wCY, sGR	Au	Ag	As	Cu	Pb	Zn
		400 127 E	Strike Length Exp. : 15 m	Metallics : 5%PY	(ppb)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
626896	Elevation:	1273 m	Sample Width : 6.0 m	Secondaries: sGE, wJA	<5	<1.0	40.	51.	72.	646.
	Bedding	: 073 / 68 NW	True Width : 5.0 m	Host : Rhyolite pebble conglomerate						

Comments : Bed has total true width of 17m. Sample taken from base, which is more pyritic. Subangular fragments of FP porphyry, fg silicified felsic, etc. aligned parallel to mudstone bedding above. Matrix is black to dark green, graphitic & pyritic. 22 ppm Sb.

Sample No.	UTM :	6315 190 N	Type : Grab	Alteration : sSI, wGR?, 1%BA	Au	Ag	As	Cu	Pb	Zn
		399 930 E	Strike Length Exp. : 2 m	Metallics : 2%PY	(ppb)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
626897	Elevation:	1260 m	Sample Width : 2 m	Secondaries: mGE, wJA	<5	5.0	72.	35.	94.	168.
	Orientation:	/	True Width : 2 m	Host : Felsic (lapilli tuff?)						

Comments : Light to dark grey. Clot of coarse barite. 2% fine-grained disseminated pyrite. Graphite(?) on irregular slips. Jarosite on internal fractures. Whole rock sample. Also contains 10200 ppm Ba and 34 ppm Sb.

Sample No.	UTM :	6315 162 N	Type : Float	Alteration : sSI, sGR?	Au	Ag	As	Cu	Pb	Zn
		400 005 E	Strike Length Exp. : m	Metallics : None	(ppb)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
626898	Elevation:	1235 m	Sample Width : 40 cm	Secondaries: sGE	<5	<1.0	16.	8.	6.	26.
	Orientation:	/	True Width : m	Host : Felsic (lapilli tuff?)						

Comments : Cream-coloured pervasively silicified felsic. Cut by innumerable graphite(?)-silica fractures, giving rock appearance of fragmental in graphite-silica matrix. Also contains >10,000 ppm Ba.

Sample No.	UTM :	6314 983 N	Type : Grab	Alteration : wMS, 5%GR?	Au	Ag	As	Cu	Pb	Zn
		400 459 E	Strike Length Exp. : 1 m	Metallics : 5%PY	(ppb)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
626899	Elevation:	1142 m	Sample Width : 4 m	Secondaries: wGE	<5	2.0	72.	30.	44.	190.
	Orientation:	/	True Width : 4 m	Host : Felsic (lapilli tuff?)						

Comments : Light grey felsic (no textures left) cut by hairline graphite(?) fractures. Pyrite disseminated. Whole rock sample. Also contains 26 ppm Sb.

Sample No. 626900

UTM : 6315 074 N, 400 042 E
Elevation: 1220 m
Orientation: /

Type : Grab
Strike Length Exp. : 1 m
Sample Width : 2 m
True Width : 2 m

Alteration : sSI
Metallics : 5%PY
Secondaries: wGE
Host : Felsic lapilli tuff

Au (ppb)	Ag (ppm)	As (ppm)	Cu (ppm)	Pb (ppm)	Zn (ppm)
<5	<1.0	4.	29.	6.	58.

Comments : Light grey to dark grey (from up to 10% pyrite). Whole rock sample.

APPENDIX D

PETROGRAPHIC DESCRIPTIONS

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Report # 940584 for:

Henry Awmack,
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207 - 675 West Hastings Street,
VANCOUVER, B.C., V6B 1N2

November, 1994

Project: PTH94-01 (RDN)

Samples: RG-91-28 173.6 m, RG-91-19 93.2 m, 626860, 626885, 626897

Summary:

The samples are latite to trachyte tuffs and flows. Many contain K-feldspar phenocrysts as well as ones of plagioclase, hornblende, biotite, and apatite. Some plagioclase phenocrysts have magmatic overgrowths of K-feldspar. Moderate variation in the nature of phenocrysts and textures of groundmass suggest that the rocks represent a few different units, some of which may be from the same or similar magma.

The similarities in phenocrysts and groundmass in Samples 626860 and 626897 suggest a close genetic relationship. Sample RG-91-28 173.6 m may be of similar origin, but lacks hornblende phenocrysts and K-feldspar rims on plagioclase phenocrysts.

Sample 626885 contains much more abundant plagioclase phenocrysts than K-feldspar (only as scattered megacrysts), and has a distinctly different groundmass texture that Samples 626860 and 626897. This suggests that it is from a different magma. The high phenocryst content suggests that it is a final crystallization product of a magma.

Sample RG-91-19 93.2 m is too strongly altered to determine if it is of similar origin to the other samples or not.

Sample RG-91-19 93.2 m is an altered latite/dacite tuff containing phenocrysts(?) of plagioclase (replaced by kaolinite) in a groundmass dominated by extremely fine grained quartz with moderately abundant disseminated pyrite and minor patches of sericite. Some patches of slightly coarser grained quartz were formed by replacement or recrystallization.

The rock contains replacement patches and seams of kaolinite with a preferred orientation which defines a moderate foliation to the rock. Minor minerals in these lenses are epidote and sericite/illite. Pyrite is moderately abundant in some lenses.

Sample RG-91-28 173.6 m is a porphyritic trachyte crystal-(lithic) tuff containing phenocrysts of K-feldspar, plagioclase, and minor quartz, apatite, and biotite, and a few fragments of latite in a groundmass dominated by K-feldspar, sericite, and ankerite. The irregular shapes of many phenocrysts, the presence of exotic lithic fragments, and the cryptocrystalline nature of much of the groundmass indicate that the rock is of tuffaceous origin. Quartz forms minor replacement patches. Pyrite forms a few replacement patches. Wispy seams and veinlets are of sericite and of calcite. A vein is of quartz-calcite.

Sample 626860 is a porphyritic trachyte containing phenocrysts of K-feldspar and minor ones of plagioclase, hornblende(?), and biotite in a groundmass containing prismatic plagioclase grains and cryptocrystalline K-feldspar. A few phenocrysts are of plagioclase surrounded by rims of K-feldspar. Plagioclase is altered completely to sericite (and K-feldspar). Disseminated opaque (pyrite and carbonaceous opaque/Mn-oxide) is abundant. A few replacement patches are of quartz-pyrite. Numerous, mainly subparallel veins and veinlets are of quartz.

Sample 626885 is a porphyritic latite containing phenocrysts of plagioclase, hornblende and biotite and scattered megacrysts of K-feldspar in a groundmass of cryptocrystalline to extremely fine grained plagioclase, K-feldspar, and sericite. Abundant replacement patches are of ankerite. A discontinuous vein up to 1.5 mm wide is of calcite bordered by patches and lenses of ankerite-sericite. Smaller veinlets have narrow cores of calcite and broad outer zones of ankerite.

Sample 626897 is a porphyritic trachyte containing phenocrysts of plagioclase, hornblende, K-feldspar, and biotite in a groundmass containing lathy plagioclase and cryptocrystalline K-feldspar. Many plagioclase phenocrysts are rimmed by K-feldspar; plagioclase is replaced moderately to strongly by sericite. Hornblende is replaced by quartz, in part chalcedonic, and biotite is replaced by muscovite. Veinlets, veins and replacement patches are dominated by quartz. Some replacement patches contain pyrite. Some veins and veinlets contain cores of barite. A few late replacement patches and braided veinlets are of limonite/hematite.

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Sample RG-91-19 93.2 m Altered Latite/Dacite Tuff: Quartz-Pyrite Alteration; Secondary Kaolinite Lenses, Veinlets

Phenocrysts(?) of plagioclase (replaced by kaolinite) are set in a groundmass dominated by extremely fine grained quartz with moderately abundant disseminated pyrite and minor patches of sericite. Some patches of slightly coarser grained quartz were formed by replacement or recrystallization.

The rock contains replacement patches and seams of kaolinite with a preferred orientation which defines a moderate foliation to the rock. Minor minerals in these lenses are epidote and sericite/illite. Pyrite is moderately abundant in some lenses.

phenocrysts(?)	
plagioclase	3- 4
hornblende	0.3
biotite(?)	0.3
groundmass	
quartz	
extremely fine	50-55%
very fine	10-12
pyrite	5- 7
sericite	1
Ti-oxide	0.3
replacement patches, veinlets	
kaolinite	20-25
pyrite	1- 2
epidote	minor
sericite/illite	trace

Angular patches averaging 0.1-0.2 mm in size and locally up to 1 mm across of kaolinite enclosed in groundmass quartz probably represent original plagioclase phenocrysts. In these, kaolinite grains show no preferred orientation.

A few patches up to 0.6 mm long may be secondary after subhedral to euhedral mafic phenocrysts. They commonly are outlined by a zone rich in cryptocrystalline Ti-oxide. Many contain moderately abundant Ti-oxide and pyrite in their cores, which were replaced to quartz and/or kaolinite.

Several patches averaging 0.3-0.5 mm across contains abundant Ti-oxide grains in hexagonal crystallographic directions, probably of original biotite(?) grains. Most of these have an opaque-rich rim.

The groundmass is dominated by unoriented quartz grains averaging 0.005-0.1 mm in grains size. These contain moderately abundant dusty opaque grains which in thin section give the patches a light brown color. Irregular, coarser grained patches averaging 0.2-0.7 mm in size are of quartz grains averaging 0.02-0.03 mm in size which are free of dusty inclusions. These patches may have formed by recrystallization or replacement of finer grained quartz. A few irregular patches are of interlocking quartz grains averaging 0.07-0.1 mm in size.

(continued)

Pyrite forms disseminated grains averaging 0.01-0.05 mm in size, and is concentrated in patches and lenses averaging 0.3-0.8 mm in size of similar to moderately coarser grains.

Sericite is concentrated in patches averaging 0.2-0.5 mm in size of extremely fine grains, commonly in parallel orientation, and a few lenses up to 1 mm long.

Ti-oxide forms patches up to 0.7 mm in size of cryptocrystalline aggregates.

Irregular lenses and seams up to several mm long and 2.5 mm wide are of extremely fine grained kaolinite with locally abundant pyrite and minor epidote. Kaolinite flakes commonly are oriented parallel to the length of the lenses and have a broadly curved structure within lenses. Some lenses contain moderately abundant trains of pyrite grains as in the host rock. A few coarser grained patches in cores of lenses contain minor disseminated flakes of sericite/illite. Epidote forms anhedral grains averaging 0.02-0.05 mm in size.

Sample RG-91-28 173.6 m **Porphyritic Trachyte Crystal-(Lithic) Tuff; Sericite-Ankerite Alteration; Seams and Veinlets of Sericite and Calcite; Vein of Quartz-Calcite**

Phenocrysts of K-feldspar, plagioclase, and minor quartz, apatite, and biotite, and a few fragments of latite are set in a groundmass dominated by K-feldspar, sericite, and ankerite. The irregular shapes of many phenocrysts, the presence of exotic lithic fragments, and the cryptocrystalline nature of much of the groundmass suggest that the rock is of tuffaceous origin. Quartz forms minor replacement patches. Pyrite forms a few replacement patches. Wispy seams and veinlets are of sericite and of calcite. A vein is of quartz-calcite.

phenocrysts	
K-feldspar	8-10%
plagioclase	7- 8
quartz	0.3
biotite	0.2
apatite	0.1
groundmass	
K-feldspar	30-35
sericite	25-30
ankerite	10-12
pyrite	2- 3
quartz	2- 3
leucoxene	0.3
seams, veinlets	
sericite	3- 4
calcite	2- 3
quartz-calcite	0.5

K-feldspar forms subhedral phenocrysts and angular fragments of phenocrysts averaging 0.5-1 mm in size and locally up to 1.5 mm across. Alteration is slight to patches of calcite and to dusty hematite inclusions.

Plagioclase forms subhedral phenocrysts averaging 0.3-0.7 mm in size and a few up to 1 mm across. Alteration is moderate to strong to sericite with locally moderately abundant patches of ankerite. Some sericite patches also may be secondary after plagioclase phenocrysts.

Quartz forms anhedral phenocrysts averaging 0.3-0.5 mm in size.

Apatite forms a euhedral prismatic phenocryst 1 mm long and a few equant to prismatic ones from 0.15-0.25 mm in size. The large grain is fractured strongly and replaced along a few fractures by sericite.

Biotite forms a few subhedral phenocrysts averaging 0.2-0.3 mm in size. Alteration is complete to pseudomorphic muscovite.

(continued)

In the groundmass, K-feldspar forms cryptocrystalline grains. Its presence and high abundance relative to plagioclase are indicated by the bright yellow color of the stained offcut block.

Sericite forms dense patches of extremely fine grains. In places it is difficult to determine if some of these represent altered groundmass or completely replaced plagioclase phenocrysts. These patches grade texturally into sericite seams.

Ankerite forms clusters of subhedral to euhedral, rhombic grains averaging 0.03-0.07 mm in size. Its abundance varies moderately.

Pyrite is concentrated in a few proximal patches up to 3 mm in size. Textures suggest the patches are of extremely fine grained aggregates.

Leucoxene is concentrated in a few patches averaging 0.3-0.4 mm in size, probably after sphene; in these patches it is intergrown with extremely fine grained sericite. One patch 1.7 mm in size contains moderately abundant leucoxene intergrown with sericite; however, the patch does not appear to pseudomorph an original sphene or other Ti-bearing phase.

Quartz forms irregular replacement patches up to 1 mm in size of very fine grains intergrown partly with sericite and ankerite.

Two fragments, one elongate and 1.1 mm long and the other equant and 1.7 mm across are of extremely fine grained feldspar.

One fragment 2 mm across contains abundant lathy plagioclase grains from 0.07-0.1 mm in size with a few phenocrysts of apatite up to 0.15 mm in size in an extremely fine grained groundmass dominated by feldspars. Feldspars are altered moderately to sericite.

One vein 0.4 mm wide is of very fine grained quartz and calcite. Some quartz grains are subhedral prismatic grains against anhedral calcite. A few veinlets up to 0.15 mm wide are of very fine grained calcite; some of these are prominent where they cut K-feldspar phenocrysts.

Sample 626860 **Porphyritic Trachyte; Sericite-Quartz-K-feldspar Alteration; Quartz Veinlets**

Phenocrysts of K-feldspar and minor ones of plagioclase, hornblende(?), and biotite are set in a groundmass containing prismatic plagioclase grains and cryptocrystalline K-feldspar. A few phenocrysts are of plagioclase surrounded by rims of K-feldspar. Plagioclase is altered completely to sericite (and K-feldspar). Disseminated opaque (pyrite and carbonaceous opaque/Mn-oxide) is abundant. A few replacement patches are of quartz-pyrite. Numerous, mainly subparallel veins and veinlets are of quartz.

phenocrysts	
K-feldspar	8-10%
plagioclase	2- 3
hornblende	1- 2
biotite	1- 2
apatite	minor
groundmass	
plagioclase	20-25
K-feldspar	40-45
opaque (pyrite/oxide)	3- 4
opaque (carbonaceous/Mn-oxide)	3- 4
sericite	0.3
zircon	trace
replacement patches	
quartz-pyrite	2- 3
veins, veinlets	
quartz-(sericite)	5- 7%

K-feldspar forms subhedral to euhedral phenocrysts averaging 0.5-1 mm in size and a few up to 1.7 m long. Many have simple Carlsbad twins. Some contain moderately abundant dusty brown inclusions. Some are altered slightly to moderately to sericite. A few are replaced slightly to moderately by chalcedonic quartz, in part with a radiating texture.

Plagioclase forms subhedral phenocrysts averaging 0.3-0.5 mm in size. Most are altered moderately to strongly to sericite, and some may have been replaced strongly by K-feldspar and sericite. One euhedral plagioclase phenocryst is 1.7 mm long was replaced strongly by K-feldspar with moderately abundant patches of sericite (mainly towards the border) and minor quartz and dendritic opaque (mainly in the core). A few euhedral phenocrysts have a broad core altered completely to sericite and a overgrowth rim averaging 0.1 mm wide of K-feldspar.

Hornblende(?) forms subhedral, prismatic phenocrysts averaging 0.5-0.8 mm long. Alteration is complete to very fine grained quartz, some of which has an extremely fine radiating texture typical of chalcedony, and elongate grains up to 0.15 mm long of K-feldspar.

Biotite forms a few phenocrysts from 0.3-0.8 mm in size. Alteration is complete to pseudomorphic muscovite and abundant opaque along original biotite cleavage planes. A few phenocrysts are replaced almost entirely by opaque.

Apatite forms a few subhedral phenocrysts averaging 0.15-0.2 mm in size. They contain dusty brown or grey inclusions oriented parallel to the c-axis.

(continued)

In the groundmass, plagioclase forms prismatic grains averaging 0.04-0.07 mm long and a few up to 0.1 mm long; these are concentrated moderately in certain parts of the section. Interstitial to these is cryptocrystalline to extremely fine grained K-feldspar.

Sericite forms irregular patches and seams up to 0.5 mm in size of extremely fine grains.

Opaque forms disseminated grains in two size ranges, the first averaging 0.01-0.02 mm in size and the second from 0.05-0.07 mm in size. The coarser ones probably are of pyrite, the finer ones are of uncertain composition. One elongate patch 1.7 mm long is dominated by very fine grained opaque intergrown with minor silicates.

Opaque (carbonaceous opaque or Mn-oxide) forms moderately abundant dendritic to irregular patches of cryptocrystalline grains interstitial to feldspars in the groundmass.

Zircon forms an anhedral prismatic grain 0.2 mm long.

Irregular replacement patches up to 2 mm in size are of extremely fine to very fine grained quartz and opaque.

Veins and veinlets from 0.05-0.5 mm wide are of extremely fine to very fine grained quartz. Some larger veins contain a few subhedral to euhedral grains in their cores. One veinlet 0.05 mm wide contains a patch 0.8 mm long of very fine grained sericite flakes.

Sample 626885 **Porphyritic Latite; Ankerite-Sericite Alteration; Calcite-Ankerite-(Sericite) Veins**

Phenocrysts of plagioclase, hornblende and biotite and scattered megacrysts of K-feldspar are set in a groundmass of cryptocrystalline to extremely fine grained plagioclase, K-feldspar, and sericite. Abundant replacement patches are of ankerite. A discontinuous vein up to 1.5 mm wide is of calcite bordered by patches and lenses of ankerite-sericite. Smaller veinlets have narrow cores of calcite and broad outer zones of ankerite.

phenocrysts		
plagioclase	30-35%	
hornblende	4- 5	
K-feldspar	2- 3	(megacryst in hand sample)
biotite	2- 3	
quartz	0.2	
apatite	0.2	
groundmass		
feldspars	35-40	
ankerite	8-10	
sericite	3- 4	
opaque	0.3	
apatite	0.1	
veins, veinlets		
calcite	5- 7	
ankerite	2- 3	
sericite	0.3	

Plagioclase forms euhedral to subhedral phenocrysts averaging 0.3-1 mm in size and a few up to 2 mm long. It is concentrated in a few clusters up to 2.5 mm in size, in part with hornblende phenocrysts. One cluster 2.5 mm across is of subhedral to euhedral plagioclase grains averaging 0.5-0.8 mm in size, with interstitial patches of finer grained plagioclase and moderately abundant apatite grains averaging 0.05-0.1 mm in size. Alteration of plagioclase is slight to moderate to patches of cryptocrystalline sericite and very fine grained ankerite.

Hornblende forms prismatic phenocrysts averaging 0.5-1 mm in size and a few up to 2.5 mm long. Alteration is complete to a variety of assemblages. Some grains are replaced completely by calcite and/or ankerite. Many of those replaced by calcite have an irregular rim of ankerite. Others are replaced by aggregates of extremely fine grained sericite and minor quartz with scattered patches of ankerite; many of these have a thin rim of opaque.

A megacryst 8 mm long in the hand sample is of K-feldspar.

Biotite forms subhedral phenocrysts averaging 0.2-0.3 mm in size and a few up to 0.5 mm long. Alteration is to extremely fine grained aggregates of sericite/muscovite oriented parallel to original biotite to flakes.

Quartz forms a few anhedral phenocrysts averaging 0.3-0.5 mm in size.

Apatite forms euhedral prismatic grains averaging 0.1-0.2 mm in size, and a few subhedral grains up to 0.3 mm long.

(continued)

The groundmass is cryptocrystalline to locally extremely fine grained feldspars (probably about equal amounts of K-feldspar and plagioclase. Sericite forms disseminated cryptocrystalline grains. Ankerite forms ragged replacement patches up to 0.7 mm in size of very fine to fine grains. Opaque forms disseminated patches averaging 0.05-0.07 mm in size. Apatite forms moderately abundant prismatic grains averaging 0.03-0.05 mm long. Zircon forms a subhedral prismatic grain 0.1 mm long.

A discontinuous vein up to 1.5 mm wide is dominated by fine to medium grained calcite. It is bordered by a thin, discontinuous rim containing abundant very fine grained ankerite and extremely fine grained, disseminated opaque. A lens up to 0.7 mm wide along one side of the vein is of extremely fine grained ankerite (stained light orange by limonite) and less abundant sericite. Smaller veinlets subparallel to the main vein have broad outer zones of ankerite and narrow cores of calcite.

A late veinlet 0.02 mm wide is of calcite.

Sample 626897 **Porphyritic Trachyte; Replacement Patches of Quartz-(Pyrite); Veins and Veinlets of Quartz and Quartz-Barite; Late Patches and Veinlets of Limonite/Hematite**

Phenocrysts of plagioclase, K-feldspar, hornblende, and biotite are set in a groundmass containing lathy plagioclase and cryptocrystalline K-feldspar. Many plagioclase phenocrysts are rimmed by K-feldspar; plagioclase is replaced moderately to strongly by sericite. Hornblende is replaced by quartz, in part chalcedonic, and biotite is replaced by muscovite. Veinlets, veins and replacement patches are dominated by quartz. Some replacement patches contain pyrite. Some veins and veinlets contain cores of barite. A few late replacement patches and braided veinlets are of limonite/hematite.

phenocrysts	
plagioclase	5- 7%
K-feldspar	4- 5
hornblende	2- 3
biotite	1
groundmass	
plagioclase	20-25
K-feldspar	50-55
opaque	0.3
replacement patches	
quartz	5- 7
pyrite	0.3
veins, veinlets	
quartz	3- 4
barite	0.3
late replacement, veinlets	
limonite/hematite	1- 2

Plagioclase forms subhedral to euhedral phenocrysts averaging 0.5-0.8 mm in size and a few up to 1.7 mm in length. Many grains have moderately to well developed rims of K-feldspar. Alteration is moderate to strong to extremely fine grained sericite.

K-feldspar forms subhedral to euhedral phenocrysts averaging 0.5-0.8 mm in size and a few up to 1 mm long. Carlsbad twinning is common.

Hornblende forms subhedral to euhedral prismatic phenocrysts averaging 0.5-1 mm long and a few up to 1.7 mm long. Alteration is complete to interlocking, extremely fine grains of quartz, in part with moderately abundant euhedral pyrite grains averaging 0.02-0.05 mm in size.

Biotite forms euhedral phenocrysts averaging 0.1-0.4 mm in size and a few up to 0.8 mm across. Alteration is complete to pseudomorphic muscovite with disseminated brains of Ti-oxide.

Apatite forms a few euhedral prismatic phenocrysts up to 0.3 mm long. It contains abundant dusty brown inclusions.

(continued)

In the groundmass, plagioclase forms lathy grains averaging 0.05-0.1 mm in length. These are set in a cryptocrystalline groundmass dominated by K-feldspar with much less plagioclase. Opaque forms disseminated grains averaging 0.01-0.02 mm in size and a few from 0.1-0.3 mm across.

Irregular interstitial and replacement patches up to 1.5 mm in size are of extremely fine to very fine grained quartz. Pyrite forms disseminated patches up to 0.5 mm in size, commonly associated with quartz. These are probably of similar origin to the veins and veinlets.

A few veins and veinlets averaging 0.1-0.2 mm in width are of extremely fine to very fine grained quartz. A few veins up to 0.5 mm in width also contain barite, which is concentrated in the cores of veins and veinlets as grains up to 1 mm in size.

A zone up to 1 mm wide along the edge of the sample contains braided veinlets up to 0.1 mm wide of limonite/hematite. A few late replacement patches are of very fine to extremely fine patches of orange-red limonite/hematite. One lensy zone up to 0.7 mm in size is a slightly brecciated zone with a matrix of limonite/hematite.

Vancouver Petrographics Ltd.

8080 GLOVER ROAD, LANGLEY, B.C. V3A 4P9
PHONE (604) 888-1323 • FAX (604) 888-3642

Report # 940584 for:

Henry Awmack,
Equity Engineering Ltd.,
207 - 675 West Hastings Street,
VANCOUVER, B.C., V6B 1N2

November, 1994

Project: PTH 94-01 (RDN)

Sample: 10269

Summary:

Sample 10269 is a porphyritic trachyte containing phenocrysts of K-feldspar and much less abundant ones of plagioclase, biotite and apatite in an extremely fine grained groundmass dominated by K-feldspar. Plagioclase phenocrysts are replaced completely by sericite, and K-feldspar phenocrysts are replaced slightly to moderately by patches of sericite. The rock was brecciated strongly and fragments healed by quartz, sericite and sulfides (now replaced mainly by hematite/limonite and carbonate). A related fracture-filling veinlet is of quartz and hematite.

The sample is lithologically moderately similar to Sample RG-91-28 173.6 m from the previous study (VP 940585).

The brecciated texture of the rock, quartz-sulfide(original) matrix, and the geochemical analysis suggest that the origin of the sulfides was as an epithermal hydrothermal system. The rock was fractured moderately to strongly and hydrothermal solutions were introduced along fractures. Later weathering has replaced original Fe-sulfides by hematite and limonite, and has replaced galena and smithsonite by cerrusite and smithsonite, respectively.

John G. Payne, PhD.,
Tel: (604)-986-2928
Fax: (604)-983-3318

Sample 10269 **Brecciated Porphyritic Trachyte; Quartz-Hematite/Limonite-Sericite Matrix and Veinlets**

Phenocrysts of K-feldspar and much less abundant ones of plagioclase, biotite and apatite are set in an extremely fine grained groundmass dominated by K-feldspar. Plagioclase phenocrysts are replaced completely by sericite, and K-feldspar phenocrysts are replaced slightly to moderately by patches of sericite. The rock was brecciated strongly and fragments healed by quartz, sericite and sulfides (now replaced mainly by hematite/limonite and carbonate). A related fracture-filling veinlet is of quartz and hematite.

phenocrysts	
K-feldspar	4- 5%
plagioclase	1- 2
biotite	1
apatite	0.2
groundmass	
K-feldspar	60-65
quartz	2- 3
Ti-oxide	0.1
breccia matrix, veinlets, seams	
quartz	10-12
sericite	8-10
hematite	3- 4
limonite	3- 4
carbonate	0.7
pyrite	trace
tetrahedrite(?)	trace
galena	trace

Plagioclase forms subhedral to euhedral phenocrysts averaging 0.2-0.3 mm in size and a few up to 0.5 mm across. Alteration is complete to extremely fine grained sericite.

K-feldspar forms subhedral to euhedral phenocrysts averaging 0.3-0.7 mm in size, and a few up to 1 mm long. Alteration is slight to moderate to patches of sericite.

Biotite forms euhedral phenocrysts averaging 0.15-0.3 mm in size. Alteration is complete to pseudomorphic muscovite and minor to moderately abundant patches of Ti-oxide.

Apatite forms subhedral to euhedral prismatic phenocrysts averaging 0.1-0.2 mm long.

The groundmass is dominated by feathery, interlocking grains of K-feldspar averaging 0.005-0.01 mm in size. It generally is colorless, but in a few patches up to 1.5 mm in size has a light to medium brown color. Quartz forms irregular, interstitial patches averaging 0.05-0.1 mm in size. Apatite forms euhedral, slender, prismatic grains averaging 0.03 mm long.

Ti-oxide forms disseminated grains averaging 0.02-0.05 mm in size, mainly associated with patches of limonite/hematite.

The rock was crackled moderately to strongly. Fragments are healed by interstitial patches of quartz-hematite-limonite and seams and patches of extremely fine grained sericite and veinlets of hematite.

Sulfides are mainly replaced by secondary minerals, the most abundant of which are hematite and limonite. Some patches of limonite are pseudomorphs after subhedral to euhedral ankerite or siderite. Disseminated patches of equant grains up to 0.15 mm in size are of high-relief carbonate, probably cerussite and/or smithsonite after original galena and sphalerite.

Hematite forms ragged patches averaging 0.05-0.1 mm in size and a few up to 0.6 mm long. It is opaque with low reflectivity. Associated with it are patches of similar size of orange-brown limonite.

One patch 0.5 mm in size consists of very fine grained pyrite altered moderately to hematite. An adjacent grain of tetrahedrite (?) 0.05 mm contains a core of galena 0.02 mm in size.

One veinlet up to 0.7 mm wide is partly bordered by euhedrally terminated quartz grains averaging 0.1-0.2 mm in size, with a core of orange-brown limonite.

APPENDIX E

ANALYTICAL CERTIFICATES

Chemex Labs Ltd.

Analytical Chemists • Geochemists • Registered Assayers
212 Brooksbank Ave., North Vancouver
British Columbia, Canada V7J 2C1
PHONE: 604-984-0221

To: EQUITY ENGINEERING LTD.

207 - 675 W. HASTINGS ST.
VANCOUVER, BC
V6B 1N2

Project : RDN
Comments: ATTN: HENRY AWMACK

Certificate Date: 29-SEP-94
Invoice No. : I9426517
P.O. Number : PTH94-01
Account : EIA

CERTIFICATE OF ANALYSIS A9426517

SAMPLE	PREP CODE		Au ppb FA+AA	Ag ppm	Al %	As ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Co ppm	Cr ppm	Cu ppm	Fe %	Ga ppm	Hg ppm	K %	La ppm	Mg %	Mn ppm
PS-51	201	202	< 5	< 0.2	0.82	22	420	< 0.5	< 2	0.15	< 0.5	3	1	15	2.36	< 10	1	0.14	10	0.41	520
PS-52	201	202	< 5	< 0.2	0.35	26	300	< 0.5	2	0.06	< 0.5	3	1	18	2.65	< 10	< 1	0.10	< 10	0.08	320
PS-53	201	202	< 5	< 0.2	1.02	28	270	< 0.5	< 2	0.15	< 0.5	4	1	16	3.07	< 10	< 1	0.22	10	0.40	565
PS-54	201	202	< 5	< 0.2	0.59	12	370	< 0.5	< 2	0.29	0.5	9	< 1	28	3.28	< 10	< 1	0.23	10	0.11	1460
PS-55	201	202	< 5	0.2	1.45	26	540	< 0.5	< 2	0.64	1.0	16	15	45	4.03	< 10	< 1	0.29	10	0.56	1210
PS-56	201	202	< 5	< 0.2	1.99	24	390	< 0.5	< 2	0.51	0.5	21	19	66	5.38	< 10	< 1	0.20	10	0.70	1235
11400N 9550E	201	202	70	< 0.2	1.63	40	390	< 0.5	< 2	0.10	< 0.5	10	13	35	4.17	< 10	< 1	0.20	10	0.19	765
11400N 9560E	201	202	50	0.2	1.09	74	400	< 0.5	< 2	0.10	< 0.5	8	4	31	3.47	< 10	< 1	0.21	20	0.08	750
94HA-31	201	202	< 5	0.6	0.78	122	320	< 0.5	< 2	0.17	8.0	16	4	52	5.35	< 10	< 1	0.19	< 10	0.04	1720

CERTIFICATION: Hart Bichler

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SAMPLE	PREP CODE		Mo ppm	Na %	Ni ppm	P ppm	Pb ppm	Sb ppm	Sc ppm	Sr ppm	Ti %	Tl ppm	U ppm	V ppm	W ppm	Zn ppm
PS-51	201	202	1	< 0.01	1	1120	20	< 2	2	123	< 0.01	< 10	< 10	20	< 10	56
PS-52	201	202	2	< 0.01	1	340	20	4	1	26	< 0.01	< 10	< 10	14	< 10	60
PS-53	201	202	2	0.01	1	1160	28	< 2	2	113	< 0.01	< 10	< 10	25	< 10	50
PS-54	201	202	< 1	0.01	1	1100	26	< 2	3	59	< 0.01	< 10	< 10	15	< 10	98
PS-55	201	202	6	< 0.01	26	1080	30	< 2	6	45	< 0.01	< 10	< 10	41	< 10	210
PS-56	201	202	3	0.01	25	1140	26	6	7	41	< 0.01	< 10	< 10	48	< 10	168
11400N 9550E	201	202	4	< 0.01	16	1080	22	2	2	11	< 0.01	< 10	< 10	37	< 10	118
11400N 9560E	201	202	4	< 0.01	10	890	30	8	2	9	< 0.01	< 10	< 10	11	< 10	100
94HA-31	201	202	37	< 0.01	70	1040	18	4	12	38	< 0.01	< 10	< 10	32	10	614

CERTIFICATION: ____________

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Certificate Date: 10-OCT-94
Invoice No. : I9426518
P.O. Number : PTH94-01
Account : EIA

CERTIFICATE OF ANALYSIS A9426518

SAMPLE	PREP CODE		Au ppb FA+AA	Au FA g/t	Ag ppm	Al %	As ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Co ppm	Cr ppm	Cu ppm	Fe %	Ga ppm	Hg ppm	K %	La ppm	Mg %
10251	205	226	< 5	-----	< 1.0	3.00	4	70	< 0.5	< 2	3.65	1.0	23	47	91	5.37	< 10	< 1	0.09	20	2.22
10252	205	226	< 5	-----	< 1.0	2.46	4	170	< 0.5	2	9.21	0.5	30	18	101	5.83	< 10	1	0.13	20	2.31
10253	205	226	< 5	-----	< 1.0	0.14	4	150	< 0.5	< 2	0.08	< 0.5	< 1	69	2	0.22	< 10	1	0.05	< 10	0.02
10254	205	226	< 5	-----	40.0	0.20	272	2230	< 0.5	4	0.10	12.0	14	57	85	1.58	< 10	2	0.15	< 10	0.09
10255	205	226	< 5	-----	1.0	0.06	16	340	< 0.5	24	0.06	0.5	13	95	7200	2.98	< 10	2	0.01	< 10	0.01
10256	205	226	115	-----	< 1.0	0.96	64	80	< 0.5	6	3.53	8.5	10	22	106	3.53	< 10	< 1	0.20	20	0.79
10257	205	226	< 5	-----	10.0	0.11	48	1090	< 0.5	8	0.47	>100.0	6	88	199	0.97	< 10	15	0.06	10	0.27
10258	205	226	< 5	-----	1.0	0.30	8	30	< 0.5	18	>15.00	7.0	43	2	155	7.06	< 10	< 1	0.06	< 10	0.19
10259	205	226	< 5	-----	< 1.0	0.13	4	40	< 0.5	< 2	7.83	< 0.5	6	66	8	3.91	< 10	< 1	0.06	20	3.12
10260	205	226	< 5	-----	< 1.0	0.45	4	190	< 0.5	2	0.36	< 0.5	4	51	6	1.65	< 10	< 1	0.34	20	0.07
10261	205	226	< 5	-----	< 1.0	2.26	4	2030	< 0.5	< 2	8.33	< 0.5	23	17	806	3.93	< 10	2	0.08	20	2.10
10262	205	226	< 5	-----	< 1.0	0.27	4	1080	< 0.5	2	4.55	< 0.5	2	84	10	0.78	< 10	< 1	0.16	20	0.05
10263	205	226	< 5	-----	73.0	0.61	496	1240	< 0.5	14	0.83	>100.0	16	25	1710	3.05	< 10	< 1	0.48	20	0.43
10264	205	226	< 5	-----	1.0	0.37	8	5320	< 0.5	4	1.24	27.0	7	31	2	2.31	< 10	< 1	0.33	20	0.04
10265	205	226	< 5	-----	< 1.0	2.72	16	200	< 0.5	< 2	5.13	1.5	25	131	2	4.75	< 10	< 1	0.16	30	3.04
10266	205	226	< 5	-----	< 1.0	2.48	4	6210	< 0.5	6	1.31	< 0.5	16	10	2	3.12	< 10	< 1	0.21	30	1.69
10267	205	226	195	-----	81.0	0.42	536	800	< 0.5	62	0.41	>100.0	17	100	1885	6.09	< 10	17	0.21	10	0.56
10268	205	226	25	-----	144.0	0.19	400	4130	< 0.5	18	0.11	10.5	12	88	2860	4.45	< 10	< 1	0.09	< 10	0.30
10269	205	226	>10000	11.6	42.0	0.62	440	1420	< 0.5	44	0.33	34.5	11	58	1745	4.01	< 10	5	0.41	10	0.14
10270	205	226	260	-----	< 1.0	0.59	1800	>10000	< 0.5	< 2	13.25	2.0	22	59	63	5.46	< 10	< 1	0.28	10	3.86
10271	205	226	525	-----	1.0	0.27	304	190	< 0.5	2	0.07	0.5	2	155	< 1	1.01	< 10	< 1	0.15	20	0.02
626855	205	226	< 5	-----	1.0	0.33	8	120	< 0.5	8	0.62	< 0.5	8	44	14	4.46	< 10	< 1	0.28	20	0.28
626856	205	226	< 5	-----	< 1.0	1.89	4	110	< 0.5	4	1.37	< 0.5	13	51	25	3.81	< 10	< 1	0.22	20	0.73
626857	205	226	< 5	-----	< 1.0	1.35	544	60	< 0.5	< 2	11.65	< 0.5	40	581	63	5.08	< 10	< 1	0.03	20	5.51
626858	205	226	< 5	-----	3.0	0.47	32	190	< 0.5	8	0.31	< 0.5	8	63	11	2.60	< 10	< 1	0.32	10	0.10
626859	205	226	< 5	-----	141.0	0.33	360	820	< 0.5	12	0.98	4.5	11	200	654	3.88	< 10	3	0.18	10	0.21
626860	205	226	< 5	-----	1.0	0.39	96	160	< 0.5	8	0.17	< 0.5	6	76	16	10.25	< 10	< 1	0.24	10	0.03
626861	205	226	< 5	-----	< 1.0	3.19	8	80	< 0.5	< 2	5.48	0.5	40	83	50	7.01	< 10	< 1	0.06	20	2.53
626862	205	226	< 5	-----	< 1.0	1.48	4	570	< 0.5	< 2	7.19	< 0.5	45	549	56	5.43	< 10	< 1	0.14	20	6.02
626863	205	226	< 5	-----	2.0	0.36	4	920	< 0.5	8	4.66	0.5	11	30	27	5.90	< 10	< 1	0.25	30	1.37
626864	205	226	< 5	-----	< 1.0	0.51	4	100	< 0.5	6	3.70	< 0.5	15	25	22	4.08	< 10	< 1	0.30	30	0.50
626865	205	226	< 5	-----	< 1.0	0.49	8	530	< 0.5	2	0.02	< 0.5	1	45	< 1	0.59	< 10	< 1	0.06	< 10	0.01
626866	205	226	< 5	-----	< 1.0	0.99	4	1190	< 0.5	8	0.11	< 0.5	8	37	19	3.64	< 10	1	0.46	10	0.16
626867	205	226	< 5	-----	< 1.0	0.17	4	690	< 0.5	12	0.01	< 0.5	3	111	7	1.37	< 10	< 1	0.06	< 10	0.01
626868	205	226	< 5	-----	< 1.0	2.04	4	60	< 0.5	6	0.97	< 0.5	16	33	27	4.57	< 10	< 1	0.50	30	1.40
626869	205	226	< 5	-----	< 1.0	1.85	4	210	< 0.5	10	0.06	0.5	13	20	120	4.54	< 10	1	0.44	20	0.47
626870	205	226	< 5	-----	< 1.0	0.58	8	570	< 0.5	10	0.12	0.5	3	61	14	1.80	< 10	1	0.37	20	0.05
626871	205	226	< 5	-----	< 1.0	0.43	4	310	< 0.5	12	0.01	< 0.5	4	82	1	1.16	< 10	1	0.19	< 10	0.01
626872	205	226	< 5	-----	< 1.0	1.16	16	470	< 0.5	< 2	8.63	< 0.5	23	46	38	4.59	< 10	< 1	0.42	20	2.39
626873	205	226	< 5	-----	1.0	0.44	504	100	< 0.5	2	3.63	0.5	10	45	13	2.79	< 10	1	0.29	30	0.94

CERTIFICATION: Hart Bichler

Chemex Labs Ltd.
Analytical Chemists * Geochemists * Registered Assayers
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PHONE: 604-984-0221

To: EQUITY ENGINEERING LTD.

207 - 675 W. HASTINGS ST.
VANCOUVER, BC
V6B 1N2

Project : RDN
Comments: ATTN: HENRY AWMACK

Certificate Date: 10-OCT-94
Invoice No. : I9426518
P.O. Number : PTH94-01
Account : EIA

CERTIFICATE OF ANALYSIS A9426518

SAMPLE	PREP CODE		Mn ppm	Mo ppm	Na %	Ni ppm	P ppm	Pb ppm	Sb ppm	Sc ppm	Sr ppm	Ti %	Tl ppm	U ppm	V ppm	W ppm	Zn ppm
10251	205	226	990	< 1	0.20	39	1370	2	< 2	17	80	0.40	< 10	< 10	218	< 10	132
10252	205	226	1360	< 1	0.02	14	530	6	4	18	170	< 0.01	< 10	< 10	135	10	64
10253	205	226	30	15	< 0.01	< 1	60	< 2	< 2	< 1	5	< 0.01	< 10	< 10	1	< 10	6
10254	205	226	1550	5	< 0.01	2	290	2310	52	2	39	< 0.01	< 10	< 10	22	< 10	6610
10255	205	226	50	33	< 0.01	2	70	18	12	< 1	38	< 0.01	< 10	< 10	< 1	< 10	42
10256	205	226	725	1	< 0.01	1	280	114	< 2	2	96	< 0.01	< 10	< 10	6	< 10	1790
10257	205	226	930	< 1	< 0.01	< 1	160	2720	< 2	1	57	< 0.01	< 10	< 10	8	< 10	>10000
10258	205	226	3880	< 1	< 0.01	7	100	1440	< 2	2	548	< 0.01	< 10	< 10	2	10	1895
10259	205	226	725	< 1	0.01	8	840	< 2	< 2	4	201	< 0.01	10	< 10	10	< 10	38
10260	205	226	655	< 1	0.02	2	320	2	< 2	4	27	< 0.01	< 10	< 10	2	< 10	36
10261	205	226	995	< 1	0.05	15	760	< 2	< 2	14	215	< 0.01	< 10	< 10	130	< 10	60
10262	205	226	430	< 1	0.01	< 1	120	14	< 2	1	314	< 0.01	< 10	< 10	1	< 10	26
10263	205	226	3340	86	< 0.01	1	1160	>10000	28	7	81	< 0.01	< 10	< 10	39	< 10	>10000
10264	205	226	2670	2	< 0.01	< 1	970	1735	< 2	2	99	< 0.01	10	< 10	15	< 10	1585
10265	205	226	1370	< 1	0.03	72	700	24	4	18	124	< 0.01	< 10	< 10	132	< 10	114
10266	205	226	635	< 1	0.03	< 1	1680	4	< 2	4	664	< 0.01	< 10	< 10	54	< 10	54
10267	205	226	6580	< 1	0.01	< 1	180	5050	30	5	21	< 0.01	< 10	< 10	54	< 10	>10000
10268	205	226	5180	< 1	< 0.01	2	80	234	18	4	69	< 0.01	< 10	< 10	55	10	1750
10269	205	226	6080	10	0.01	2	880	9310	36	6	34	< 0.01	< 10	< 10	30	< 10	5480
10270	205	226	1735	< 1	0.02	43	150	186	18	12	1065	< 0.01	< 10	< 10	25	< 10	130
10271	205	226	40	< 1	0.02	2	110	26	56	< 1	7	< 0.01	< 10	< 10	6	< 10	22
626855	205	226	4190	< 1	0.01	3	1330	26	14	7	42	< 0.01	< 10	< 10	56	< 10	62
626856	205	226	830	< 1	0.09	8	920	10	2	4	44	< 0.01	< 10	< 10	77	< 10	74
626857	205	226	1005	< 1	0.02	433	1130	4	2	17	194	< 0.01	< 10	< 10	125	< 10	44
626858	205	226	3010	1	0.01	12	850	108	12	6	31	< 0.01	< 10	< 10	46	< 10	394
626859	205	226	735	8	0.01	7	450	338	352	3	73	< 0.01	< 10	< 10	134	10	2480
626860	205	226	115	8	0.01	5	460	16	32	3	28	< 0.01	< 10	< 10	12	10	40
626861	205	226	1110	< 1	0.08	32	790	6	2	21	76	0.03	< 10	< 10	216	10	88
626862	205	226	1185	< 1	0.03	392	1000	6	4	20	382	< 0.01	< 10	< 10	129	10	82
626863	205	226	9650	< 1	0.01	4	630	48	2	4	117	< 0.01	< 10	< 10	15	10	1070
626864	205	226	1205	< 1	0.03	3	1170	6	2	4	85	< 0.01	< 10	< 10	16	< 10	84
626865	205	226	15	3	< 0.01	3	40	14	< 2	< 1	30	< 0.01	30	< 10	3	< 10	2
626866	205	226	95	< 1	0.07	2	950	36	< 2	4	74	< 0.01	10	< 10	37	< 10	24
626867	205	226	10	31	< 0.01	3	20	14	< 2	< 1	52	< 0.01	< 10	< 10	2	< 10	< 2
626868	205	226	900	1	0.07	2	1440	16	< 2	5	29	< 0.01	< 10	< 10	85	< 10	62
626869	205	226	75	4	0.01	4	580	38	< 2	8	8	< 0.01	< 10	< 10	27	< 10	216
626870	205	226	845	2	0.03	2	420	16	< 2	2	17	< 0.01	10	< 10	10	< 10	80
626871	205	226	15	2	< 0.01	2	40	12	< 2	< 1	41	< 0.01	20	< 10	7	< 10	2
626872	205	226	945	< 1	0.02	81	600	2	2	17	331	< 0.01	< 10	< 10	37	10	38
626873	205	226	1025	< 1	0.03	6	610	4	4	5	235	< 0.01	< 10	< 10	12	< 10	22

CERTIFICATION:

Chemex Labs Ltd.

Analytical Chemists • Geochemists • Registered Assayers
212 Brooksbank Ave., North Vancouver
British Columbia, Canada V7J 2C1
PHONE: 604-984-0221

To: EQUITY ENGINEERING LTD.

207 - 675 W. HASTINGS ST.
VANCOUVER, BC
V6B 1N2

Project : RDN
Comments: ATTN: HENRY AWMACK

Certificate Date: 10-OCT-94
Invoice No. : I9426518
P.O. Number : PTH94-01
Account : EIA

CERTIFICATE OF ANALYSIS A9426518

SAMPLE	PREP CODE		Au ppb FA+AA	Au FA g/t	Ag ppm	Al %	As ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Co ppm	Cr ppm	Cu ppm	Fe %	Ga ppm	Hg ppm	K %	La ppm	Mg %
626874	205	226	25	-----	3.0	1.25	72	90	< 0.5	8	0.11	1.0	7	6	85	2.54	< 10	< 1	0.71	20	0.10
626875	205	226	< 5	-----	2.0	0.69	8	630	< 0.5	< 2	8.49	2.0	9	10	66	4.05	< 10	< 1	0.37	30	2.37
626876	205	226	< 5	-----	1.0	1.04	4	390	< 0.5	8	0.30	4.5	10	19	87	3.32	< 10	< 1	0.57	20	0.12
626877	205	226	< 5	-----	1.0	0.82	64	700	< 0.5	6	0.69	1.0	12	14	77	3.38	< 10	< 1	0.48	20	0.41
626878	205	226	< 5	-----	< 1.0	3.11	4	150	< 0.5	4	4.21	< 0.5	20	28	22	6.37	< 10	< 1	0.22	30	1.32
626879	205	226	< 5	-----	< 1.0	0.44	8	950	< 0.5	8	0.68	3.0	8	29	27	2.64	< 10	< 1	0.31	30	0.30
626880	205	226	< 5	-----	< 1.0	0.60	4	550	< 0.5	8	4.46	< 0.5	12	8	9	3.30	< 10	< 1	0.45	40	0.78
626881	205	226	< 5	-----	18.0	0.32	16	1920	< 0.5	6	1.31	12.5	8	92	162	1.44	< 10	< 1	0.23	10	0.18
626882	205	226	< 5	-----	1.0	1.41	8	310	< 0.5	6	3.41	5.5	11	11	51	3.75	< 10	< 1	0.64	20	0.30
626883	205	226	< 5	-----	1.0	0.58	4	2150	< 0.5	8	0.32	0.5	3	44	38	1.31	< 10	< 1	0.43	20	0.04
626884	205	226	< 5	-----	< 1.0	2.44	24	410	< 0.5	< 2	0.66	< 0.5	16	4	55	4.44	< 10	< 1	1.01	20	0.33
626885	205	226	< 5	-----	< 1.0	0.79	4	130	< 0.5	4	3.12	< 0.5	7	19	9	3.24	< 10	< 1	0.46	30	0.53
626886	205	226	< 5	-----	< 1.0	0.68	8	150	< 0.5	8	2.04	< 0.5	10	18	3	3.91	< 10	< 1	0.31	30	1.07
626887	205	226	< 5	-----	< 1.0	0.83	4	690	< 0.5	26	0.03	< 0.5	27	24	87	4.81	< 10	< 1	0.14	< 10	0.01
626888	205	226	< 5	-----	< 1.0	0.49	16	1720	< 0.5	6	0.73	11.5	3	21	13	1.15	< 10	< 1	0.43	20	0.25
626889	205	226	15	-----	1.0	0.85	8	640	< 0.5	4	3.44	7.5	11	7	41	4.10	< 10	< 1	0.37	30	0.37
626890	205	226	< 5	-----	2.0	0.57	16	780	< 0.5	6	0.47	< 0.5	7	28	27	2.88	< 10	< 1	0.36	10	0.14
626891	205	226	290	-----	< 1.0	1.43	48	180	< 0.5	8	3.16	0.5	21	43	66	5.09	< 10	< 1	0.22	30	1.42
626892	205	226	< 5	-----	1.0	0.81	8	690	< 0.5	6	1.19	5.5	5	26	18	1.31	< 10	< 1	0.54	20	0.20
626893	205	226	< 5	-----	5.0	0.78	192	1160	< 0.5	< 2	7.06	34.0	13	18	510	4.07	< 10	< 1	0.48	20	2.62
626894	205	226	5	-----	148.0	0.13	232	1030	0.5	< 2	3.95	6.5	4	81	1690	2.62	< 10	< 1	0.08	20	0.66
626895	205	226	< 5	-----	2.0	0.30	8	170	0.5	< 2	2.44	< 0.5	8	51	44	2.63	< 10	< 1	0.29	20	0.27
626896	205	226	< 5	-----	< 1.0	0.81	40	840	1.5	< 2	1.59	0.5	14	21	51	4.15	< 10	< 1	0.48	20	0.47
626897	205	226	< 5	-----	5.0	0.51	72	2530	0.5	< 2	0.47	< 0.5	13	53	35	2.21	< 10	< 1	0.36	10	0.11
626898	205	226	< 5	-----	< 1.0	0.27	16	>10000	0.5	2	0.13	< 0.5	6	56	8	1.00	< 10	< 1	0.26	< 10	< 0.01
626899	205	226	< 5	-----	2.0	0.81	72	700	0.5	< 2	1.48	< 0.5	8	39	30	4.25	< 10	< 1	0.51	10	0.46
626900	205	226	< 5	-----	< 1.0	0.35	4	210	0.5	< 2	1.24	< 0.5	9	57	29	3.13	< 10	< 1	0.30	20	0.09

CERTIFICATION: HartBichler

Chemex Labs Ltd.

Analytical Chemists * Geochemists * Registered Assayers
212 Brooksbank Ave., North Vancouver
British Columbia, Canada V7J 2C1
PHONE: 604-984-0221

To: EQUITY ENGINEERING LTD.

207 - 675 W. HASTINGS ST.
VANCOUVER, BC
V6B 1N2

Project : RDN
Comments: ATTN: HENRY AWMACK

Certificate Date: 10-OCT-94
Invoice No. : I9426518
P.O. Number :PTH94-01
Account :EIA

CERTIFICATE OF ANALYSIS A9426518

SAMPLE	PREP CODE		Mn ppm	Mo ppm	Na %	Ni ppm	P ppm	Pb ppm	Sb ppm	Sc ppm	Sr ppm	Ti %	Tl ppm	U ppm	V ppm	W ppm	Zn ppm
626874	205	226	175	2	0.01	2	1050	94	2	3	21	< 0.01	< 10	< 10	18	< 10	196
626875	205	226	6180	1	0.01	2	790	186	6	7	182	< 0.01	< 10	< 10	23	< 10	1280
626876	205	226	3210	2	0.02	2	940	258	< 2	3	22	< 0.01	< 10	< 10	19	< 10	546
626877	205	226	1340	1	0.02	1	1020	46	< 2	4	61	< 0.01	< 10	< 10	20	< 10	256
626878	205	226	1005	< 1	0.04	6	1090	< 2	< 2	17	80	< 0.01	< 10	< 10	133	10	118
626879	205	226	2170	< 1	0.01	< 1	890	42	4	4	59	< 0.01	< 10	< 10	18	< 10	270
626880	205	226	2740	< 1	0.01	1	1300	< 2	< 2	9	114	0.02	< 10	< 10	102	< 10	92
626881	205	226	2300	2	< 0.01	3	740	3000	74	2	70	< 0.01	< 10	< 10	85	< 10	444
626882	205	226	580	39	0.02	57	1020	14	< 2	9	193	< 0.01	< 10	< 10	73	< 10	598
626883	205	226	115	1	< 0.01	< 1	1200	78	2	4	45	< 0.01	< 10	< 10	44	< 10	98
626884	205	226	135	17	0.02	12	1450	20	< 2	9	53	< 0.01	< 10	< 10	32	< 10	154
626885	205	226	855	1	0.03	2	1070	16	4	5	116	< 0.01	< 10	< 10	21	< 10	72
626886	205	226	1300	< 1	0.07	< 1	1170	4	< 2	6	122	0.01	< 10	< 10	51	< 10	70
626887	205	226	20	1	0.01	3	40	14	< 2	1	40	< 0.01	10	< 10	14	< 10	2
626888	205	226	1155	1	0.03	1	240	230	< 2	1	58	< 0.01	< 10	< 10	4	< 10	954
626889	205	226	1165	1	0.12	2	1260	582	< 2	3	304	< 0.01	< 10	< 10	12	< 10	1580
626890	205	226	2420	< 1	< 0.01	< 1	700	10	< 2	3	27	< 0.01	< 10	< 10	21	< 10	858
626891	205	226	915	< 1	0.05	12	950	214	< 2	15	110	< 0.01	< 10	< 10	144	< 10	452
626892	205	226	2240	< 1	< 0.01	1	290	2040	2	2	38	< 0.01	< 10	< 10	10	< 10	378
626893	205	226	5630	< 1	0.01	2	730	878	42	4	294	< 0.01	< 10	< 10	55	< 10	1570
626894	205	226	3660	1	< 0.01	1	80	3080	550	2	107	< 0.01	10	< 10	138	< 10	910
626895	205	226	3560	< 1	< 0.01	4	1030	384	12	11	100	< 0.01	20	< 10	24	< 10	96
626896	205	226	565	25	0.01	8	1710	72	22	9	79	< 0.01	< 10	< 10	32	< 10	646
626897	205	226	450	1	< 0.01	3	720	94	34	8	192	< 0.01	< 10	< 10	23	< 10	168
626898	205	226	205	< 1	< 0.01	3	730	6	8	3	144	< 0.01	< 10	< 10	11	< 10	26
626899	205	226	1960	< 1	< 0.01	2	860	44	26	6	63	< 0.01	< 10	< 10	40	< 10	190
626900	205	226	2580	1	< 0.01	4	930	6	10	7	67	< 0.01	< 10	< 10	31	< 10	58

CERTIFICATION: Hart Bichler

Chemex Labs Ltd.
Analytical Chemists * Geochemists * Registered Assayers
212 Brooksbank Ave., North Vancouver
British Columbia, Canada V7J 2C1
PHONE: 604-984-0221

To: EQUITY ENGINEERING LTD.

207 - 675 W. HASTINGS ST.
VANCOUVER, BC
V6B 1N2

A9426518

Comments: ATTN: HENRY AWMACK

CERTIFICATE A9426518

(EIA) - EQUITY ENGINEERING LTD.

Project: RDN
P.O. # : PTH94-01

Samples submitted to our lab in Vancouver, BC.
This report was printed on 10-OCT-94.

SAMPLE PREPARATION

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION
205	67	Geochem ring to approx 150 mesh
226	67	0-5 lb crush and split
233	67	Assay AQ ICP digestion charge
* NOTE	1:	

The 32 element ICP package is suitable for trace metals in soil and rock samples. Elements for which the nitric-aqua regia digestion is possibly incomplete are: Al, Ba, Be, Ca, Cr, Ga, K, La, Mg, Na, Sr, Ti, Tl, W.

ANALYTICAL PROCEDURES

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION	METHOD	DETECTION LIMIT	UPPER LIMIT
100	67	Au ppb: Fuse 10 g sample	FA-AAS	5	10000
397	1	Au g/t: 1/2 assay ton grav.	FA-GRAVIMETRIC	0.1	500.0
2118	67	Ag ppm: 32 element, soil & rock	ICP-AES	0.2	200
2119	67	Al %: 32 element, soil & rock	ICP-AES	0.01	15.00
2120	67	As ppm: 32 element, soil & rock	ICP-AES	2	10000
2121	67	Ba ppm: 32 element, soil & rock	ICP-AES	10	10000
2122	67	Be ppm: 32 element, soil & rock	ICP-AES	0.5	100.0
2123	67	Bi ppm: 32 element, soil & rock	ICP-AES	2	10000
2124	67	Ca %: 32 element, soil & rock	ICP-AES	0.01	15.00
2125	67	Cd ppm: 32 element, soil & rock	ICP-AES	0.5	100.0
2126	67	Co ppm: 32 element, soil & rock	ICP-AES	1	10000
2127	67	Cr ppm: 32 element, soil & rock	ICP-AES	1	10000
2128	67	Cu ppm: 32 element, soil & rock	ICP-AES	1	10000
2150	67	Fe %: 32 element, soil & rock	ICP-AES	0.01	15.00
2130	67	Ga ppm: 32 element, soil & rock	ICP-AES	10	10000
2131	67	Hg ppm: 32 element, soil & rock	ICP-AES	1	10000
2132	67	K %: 32 element, soil & rock	ICP-AES	0.01	10.00
2151	67	La ppm: 32 element, soil & rock	ICP-AES	10	10000
2134	67	Mg %: 32 element, soil & rock	ICP-AES	0.01	15.00
2135	67	Mn ppm: 32 element, soil & rock	ICP-AES	5	10000
2136	67	Mo ppm: 32 element, soil & rock	ICP-AES	1	10000
2137	67	Na %: 32 element, soil & rock	ICP-AES	0.01	5.00
2138	67	Ni ppm: 32 element, soil & rock	ICP-AES	1	10000
2139	67	P ppm: 32 element, soil & rock	ICP-AES	10	10000
2140	67	Pb ppm: 32 element, soil & rock	ICP-AES	2	10000
2141	67	Sb ppm: 32 element, soil & rock	ICP-AES	2	10000
2142	67	Sc ppm: 32 elements, soil & rock	ICP-AES	1	10000
2143	67	Sr ppm: 32 element, soil & rock	ICP-AES	1	10000
2144	67	Ti %: 32 element, soil & rock	ICP-AES	0.01	5.00
2145	67	Tl ppm: 32 element, soil & rock	ICP-AES	10	10000
2146	67	U ppm: 32 element, soil & rock	ICP-AES	10	10000
2147	67	V ppm: 32 element, soil & rock	ICP-AES	1	10000
2148	67	W ppm: 32 element, soil & rock	ICP-AES	10	10000
2149	67	Zn ppm: 32 element, soil & rock	ICP-AES	2	10000

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To: EQUITY ENGINEERING LTD.

207 - 675 W. HASTINGS ST.
VANCOUVER, BC
V6B 1N2

Comments: ATTN: HENRY AWMACK

CERTIFICATE A9426519

(EIA) - EQUITY ENGINEERING LTD.

Project: RDN
P.O. # : PTH94-01

Samples submitted to our lab in Vancouver, BC.
This report was printed on 23-OCT-94.

SAMPLE PREPARATION

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION
299	24	Pulp; prepped on other workorder

ANALYTICAL PROCEDURES

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION	METHOD	DETECTION LIMIT	UPPER LIMIT
902	24	Al2O3 %: XRF	XRF	0.01	100.00
906	24	CaO %: XRF	XRF	0.01	100.00
2590	24	Cr2O3 %: XRF	XRF	0.01	100.00
903	24	Fe2O3 %: XRF	XRF	0.01	100.00
908	24	K2O %: XRF	XRF	0.01	100.00
905	24	MgO %: XRF	XRF	0.01	100.00
1989	24	MnO %: XRF	XRF	0.01	100.00
907	24	Na2O %: XRF	XRF	0.01	100.00
909	24	P2O5 %: XRF	XRF	0.01	100.00
901	24	SiO2 %: XRF	XRF	0.01	100.00
904	24	TiO2 %: XRF	XRF	0.01	100.00
910	24	LOI %: XRF	XRF	0.01	100.00
2540	24	Total %	CALCULATION	0.01	105.00
2891	24	Ba ppm: XRF	XRF	2	10000
2067	24	Rb ppm: XRF	XRF	2	10000
2898	24	Sr ppm: XRF	XRF	2	10000
2973	24	Nb ppm: XRF	XRF	2	10000
2978	24	Zr ppm: XRF	XRF	3	10000
2974	24	Y ppm: XRF	XRF	2	10000
1381	24	C %: Inorganic	LECO-GASOMETRIC	0.01	100.0

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Project : RDN
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Certificate Date: 23-OCT-94
Invoice No. : I9426519
P.O. Number : PTH94-01
Account : EIA

CERTIFICATE OF ANALYSIS A9426519

SAMPLE	PREP CODE		Al2O3 % XRF	CaO % XRF	Cr2O3 % XRF	Fe2O3 % XRF	K2O % XRF	MgO % XRF	MnO % XRF	Na2O % XRF	P2O5 % XRF	SiO2 % XRF
626855	299	--	13.99	0.85	0.01	5.88	13.05	0.55	0.57	0.31	0.27	59.69
626858	299	--	13.29	0.37	0.01	3.31	11.83	0.23	0.38	0.22	0.18	66.80
626860	299	--	10.47	0.21	0.01	12.90	9.20	0.17	< 0.01	0.25	0.10	56.71
626861	299	--	14.50	7.74	0.01	9.43	0.36	3.92	0.13	5.59	0.18	47.37
626863	299	--	11.26	6.73	< 0.01	8.26	8.52	2.33	1.37	0.38	0.13	49.84
626864	299	--	15.26	5.36	< 0.01	5.77	4.38	1.44	0.16	2.82	0.26	54.20
626865	299	--	13.22	0.05	0.01	0.80	0.19	0.09	< 0.01	0.07	0.22	78.81
626868	299	--	16.43	2.10	< 0.01	6.19	2.11	2.67	0.11	4.64	0.32	59.06
626870	299	--	11.70	0.17	< 0.01	2.70	4.08	0.38	0.10	2.74	0.10	73.90
626871	299	--	11.43	0.03	0.01	1.57	2.16	0.14	< 0.01	0.11	0.20	79.08
626875	299	--	11.90	11.99	< 0.01	5.82	5.62	4.12	0.90	0.29	0.18	43.32
626879	299	--	15.30	0.93	< 0.01	3.61	9.31	0.73	0.28	2.09	0.19	62.63
626880	299	--	14.78	6.15	< 0.01	5.38	11.37	1.65	0.39	0.36	0.28	50.61
626883	299	--	13.81	0.42	0.01	1.93	10.22	0.31	0.01	0.28	0.25	67.27
626885	299	--	14.85	4.32	0.01	4.52	5.55	1.13	0.11	2.97	0.24	57.29
626886	299	--	16.06	2.97	0.01	5.39	2.85	1.84	0.16	6.90	0.26	55.91
626887	299	--	16.05	0.11	< 0.01	6.22	1.31	0.17	< 0.01	0.16	0.29	64.92
626888	299	--	14.47	0.98	< 0.01	2.01	7.70	0.76	0.14	0.31	0.07	68.10
626889	299	--	15.81	4.61	< 0.01	5.74	4.77	1.33	0.15	0.72	0.27	55.84
626890	299	--	13.16	0.65	< 0.01	3.96	10.46	0.40	0.32	0.26	0.15	66.36
626895	299	--	11.90	3.41	< 0.01	3.68	9.80	0.57	0.49	0.39	0.23	63.98
626897	299	--	11.31	0.67	0.01	3.10	8.41	0.40	0.06	0.27	0.17	70.06
626899	299	--	13.10	2.02	0.01	5.91	9.69	0.99	0.26	0.25	0.20	59.73
626900	299	--	11.75	1.70	0.01	4.32	10.02	0.26	0.34	0.28	0.21	66.73

CERTIFICATION: ____________

Chemex Labs Ltd.

Analytical Chemists * Geochemists * Registered Assayers
212 Brooksbank Ave., North Vancouver
British Columbia, Canada V7J 2C1
PHONE: 604-984-0221

To: EQUITY ENGINEERING LTD.

207 - 675 W. HASTINGS ST.
VANCOUVER, BC
V6B 1N2

Project : RDN
Comments: ATTN: HENRY AWMACK

Certificate Date: 23-OCT-94
Invoice No. : I9426519
P.O. Number : PTH94-01
Account : EIA

CERTIFICATE OF ANALYSIS A9426519

SAMPLE	PREP CODE		TiO2 % XRF	LOI % XRF	TOTAL %	Ba ppm	Rb ppm	Sr ppm	Nb ppm	Zr ppm	Y ppm	C % inorg
626855	299	--	0.44	3.89	99.50	1810	289	120	7	92	21	0.85
626858	299	--	0.40	1.88	98.90	2290	275	123	9	91	18	0.10
626860	299	--	0.36	7.79	98.17	2940	220	60	3	64	8	0.05
626861	299	--	1.37	8.11	98.71	329	14	297	5	125	34	1.45
626863	299	--	0.26	10.77	99.85	1680	177	176	5	77	14	2.90
626864	299	--	0.51	9.59	99.75	615	138	289	9	82	17	1.35
626865	299	--	0.59	5.58	99.63	573	5	2150	10	164	3	< 0.05
626868	299	--	0.48	6.18	100.29	335	68	511	8	98	17	0.15
626870	299	--	0.24	2.13	98.24	994	124	99	8	93	9	< 0.05
626871	299	--	0.52	3.94	99.19	389	45	1720	8	131	3	< 0.05
626875	299	--	0.37	16.38	100.89	999	156	228	6	89	14	4.10
626879	299	--	0.36	3.28	98.71	1730	260	131	7	102	12	0.25
626880	299	--	0.52	8.12	99.61	1410	346	588	8	118	18	1.70
626883	299	--	0.49	2.64	97.64	4940	248	148	5	80	18	0.05
626885	299	--	0.42	7.28	98.69	1410	136	372	8	109	20	1.25
626886	299	--	0.48	6.16	98.99	1110	74	579	7	137	27	1.45
626887	299	--	0.51	10.25	99.99	1010	23	1750	8	126	28	< 0.05
626888	299	--	0.23	3.48	98.25	1730	214	151	9	108	15	0.35
626889	299	--	0.46	8.46	98.16	1160	124	329	8	92	16	0.85
626890	299	--	0.29	2.61	98.62	2150	257	123	8	87	19	0.10
626895	299	--	0.40	4.78	99.63	1640	236	149	5	80	12	1.15
626897	299	--	0.41	3.06	97.93	10200	230	370	6	54	12	0.15
626899	299	--	0.39	5.93	98.48	1370	226	126	7	89	13	1.15
626900	299	--	0.39	3.17	99.18	1230	231	119	7	86	16	0.40

CERTIFICATION:

Chemex Labs Ltd.
Analytical Chemists * Geochemists * Registered Assayers
212 Brooksbank Ave., North Vancouver
British Columbia, Canada V7J 2C1
PHONE: 604-984-0221

To: EQUITY ENGINEERING LTD.

207 - 675 W. HASTINGS ST.
VANCOUVER, BC
V6B 1N2

Comments: ATTN: HENRY AWMACK

CERTIFICATE A9429760

(EIA) - EQUITY ENGINEERING LTD.

Project: RDN
P.O. # : PTH94-01

Samples submitted to our lab in Vancouver, BC.
This report was printed on 31-OCT-94.

SAMPLE PREPARATION

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION
244	24	Pulp; prev. prepared at Chemex

ANALYTICAL PROCEDURES

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION	METHOD	DETECTION LIMIT	UPPER LIMIT
367	24	C %: Leco induction furnace	LECO-IR DETECTOR	0.01	100.0

Chemex Labs Ltd.
Analytical Chemists * Geochemists * Registered Assayers
212 Brooksbank Ave., North Vancouver
British Columbia, Canada V7J 2C1
PHONE: 604-984-0221

To: EQUITY ENGINEERING LTD.

207 - 675 W. HASTINGS ST.
VANCOUVER, BC
V6B 1N2

Project : RDN
Comments: ATTN: HENRY AWMACK

Page Number : 1
Total Pages : 1
Certificate Date: 31-OCT-94
Invoice No. : I9429760
P.O. Number : PTH94-01
Account : EIA

CERTIFICATE OF ANALYSIS A9429760

SAMPLE	PREP CODE		C %
626855	244	--	0.99
626858	244	--	0.28
626860	244	--	0.26
626861	244	--	1.71
626863	244	--	3.33
626864	244	--	1.38
626865	244	--	0.09
626868	244	--	0.24
626870	244	--	0.16
626871	244	--	0.05
626875	244	--	4.83
626879	244	--	0.70
626880	244	--	1.82
626883	244	--	0.33
626885	244	--	1.47
626886	244	--	1.61
626887	244	--	0.05
626888	244	--	0.55
626889	244	--	0.81
626890	244	--	0.28
626895	244	--	1.52
626897	244	--	0.23
626899	244	--	1.75
626900	244	--	0.58

CERTIFICATION: [signature]

Chemex Labs Ltd.
Analytical Chemists * Geochemists * Registered Assayers
212 Brooksbank Ave., North Vancouver
British Columbia, Canada V7J 2C1
PHONE: 604-984-0221

To: EQUITY ENGINEERING LTD.

207 - 675 W. HASTINGS ST.
VANCOUVER, BC
V6B 1N2

A9428862

Comments: ATTN: HENRY AWMACK

CERTIFICATE A9428862

(EIA) - EQUITY ENGINEERING LTD.

Project: RDN
P.O. # : PTH94-01

Samples submitted to our lab in Vancouver, BC.
This report was printed on 21-OCT-94.

SAMPLE PREPARATION

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION
244	6	Pulp; prev. prepared at Chemex

ANALYTICAL PROCEDURES

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION	METHOD	DETECTION LIMIT	UPPER LIMIT
383	3	Ag oz/T	FA-GRAVIMETRIC	0.1	20.0
312	1	Pb %: Reverse Aqua-Regia digest	AAS	0.01	100.0
316	3	Zn %: Reverse Aqua-Regia digest	AAS	0.01	100.0

Chemex Labs Ltd.

Analytical Chemists * Geochemists * Registered Assayers
212 Brooksbank Ave., North Vancouver
British Columbia, Canada V7J 2C1
PHONE: 604-984-0221

To: EQUITY ENGINEERING LTD.
207 - 675 W. HASTINGS ST.
VANCOUVER, BC
V6B 1N2

Project : RDN
Comments: ATTN: HENRY AWMACK

Certificate Date: 21-OCT-94
Invoice No. : I9428862
P.O. Number : PTH94-01
Account : EIA

CERTIFICATE OF ANALYSIS A9428862

SAMPLE	PREP CODE		Ag FA oz/T	Pb %	Zn %
10257	244	--	------	------	1.83
10263	244	--	------	1.23	1.54
10267	244	--	------	------	4.67
10268	244	--	4.0	------	------
626859	244	--	3.9	------	------
626894	244	--	4.1	------	------

CERTIFICATION: [signature]

APPENDIX F

WHOLE ROCK ANALYSIS PLOTS

LEGEND

- ○ Feldspar porphyry (Unit 8a)
- □ Potassium feldspar megacryst porphyry (Unit 8b)
- ▲ Felsic lithic-crystal lapilli tuff (Unit 7a)
- ▽ "Graphite"-altered felsic (Unit 7GR)
- ◇ Andesitic crystal tuff (Unit 10c)

WHOLE ROCK ANALYSIS
(Stanley and Madeisky, 1993)

Conserved elements are those which remain unaffected by fractionation (incompatible) and alteration (immobile). Zr, Y, Nb, Ti, Th and P are commonly incompatible; Zr, Ti, Al, Nb, Y, Th and Hf are commonly immobile. For cogenetic rocks, a pair of conserved elements will have a constant ratio and their sample points will lie on a straight line through the origin on an X-Y scatter plot. Rocks which are not derived from the same initial magma will have different ratios of conserved elements; their samples lie on different lines on a scatter plot.

Scatter plots of potentially conserved elements on the RDN property show (Figures A1-6):

a) the andesitic crystal tuff (sample 626861) has much higher TiO_2 and Y than all other rock types and lies on separate lines from the felsic rocks on several diagrams. As suggested by field evidence, it is not comagmatic with the felsic rocks.

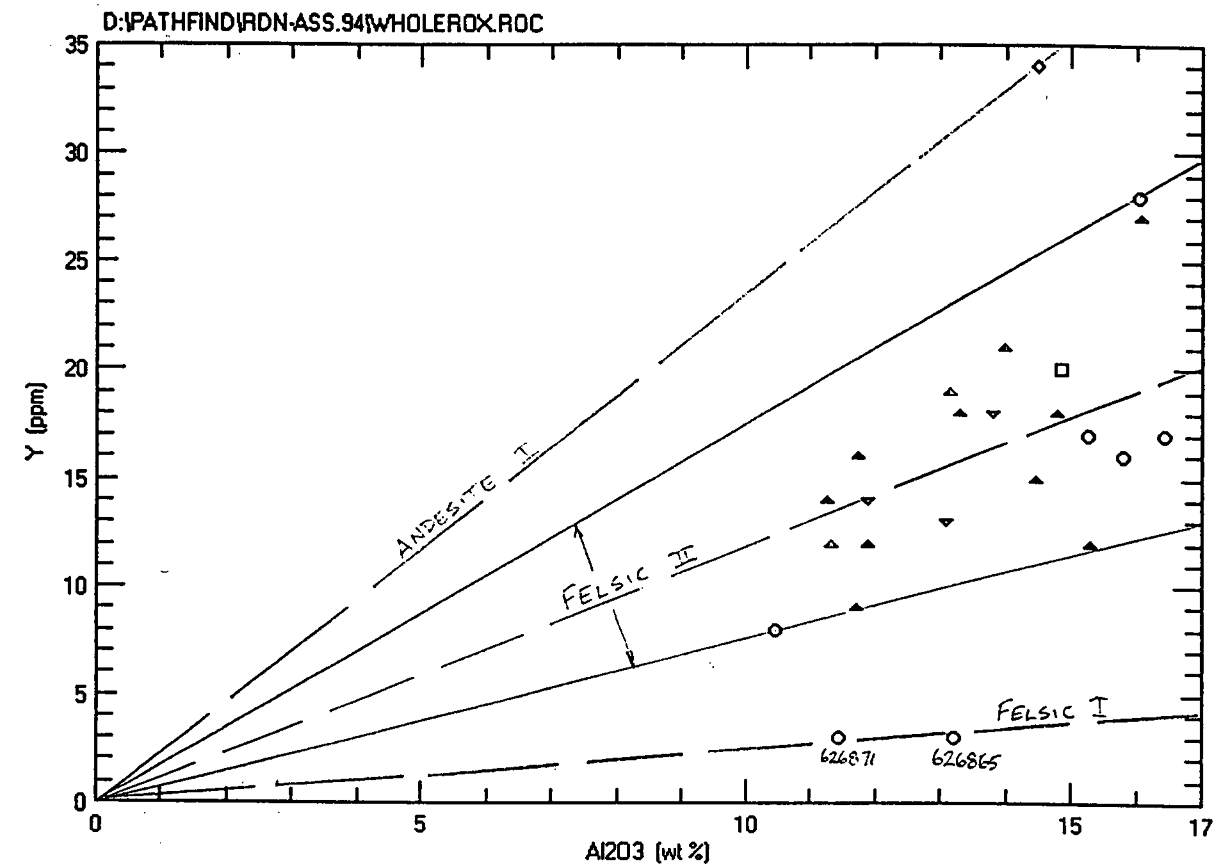
b) the felsic rocks can be split into two groups with different Y:Zr, TiO_2:Y, Zr:Al_2O_3, Y:Al_2O_3 and Al_2O_3:TiO_2 ratios. These two groups must be derived from different original magma compositions. The Felsic I group contains only two samples (626865 and 626871), both of which were taken from feldspar porphyry outcrops south of Gossan Creek.

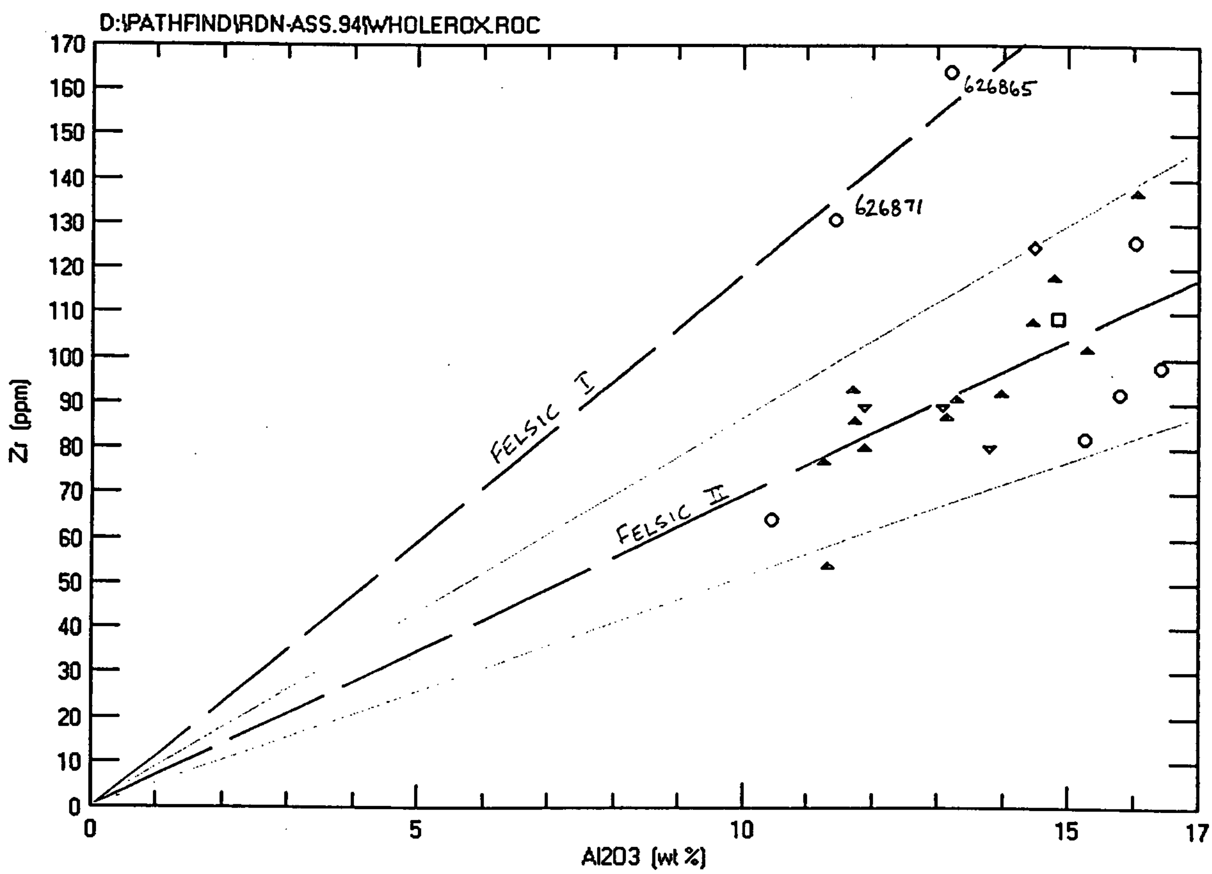
c) all remaining felsic samples form the Felsic II group, demonstrating that the felsic tuffs are comagmatic with the potassium feldspar megacrystic porphyry and some of the feldspar porphyries.

d) the following elements appear to be conserved: Zr, Y, TiO_2 and Al_2O_3. Of these, Zr shows the least scatter from a line on the X-Y scatter plots and is most apt for normalizing.

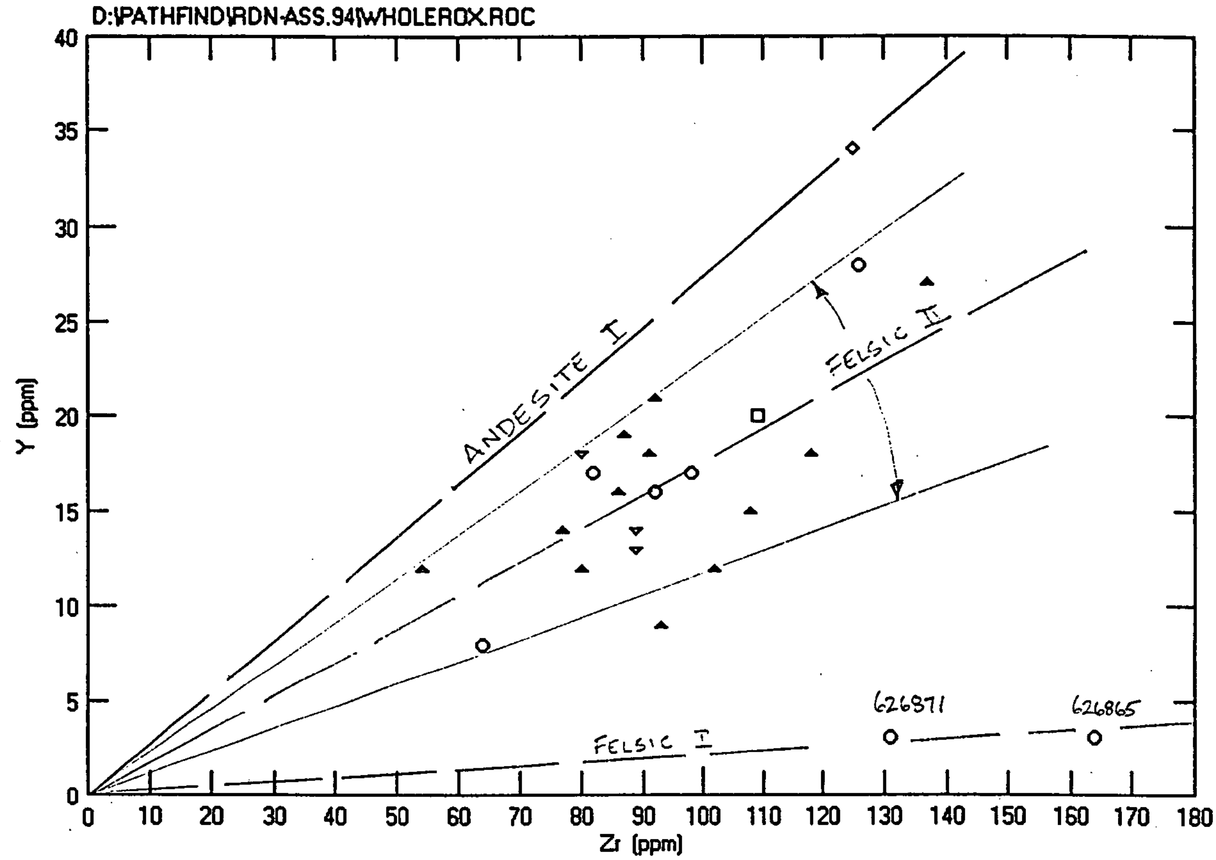
Given petrographic descriptions, the most important phases which could be involved in crystal fractionation of the felsics would be potassium feldspar, plagioclase and quartz. However, Al_2O_3 is conserved (is not affected by crystal fractionation). This implies that feldspar crystals are not being removed from the melt, and variations in Ca, Na and K within the two felsic groups must be due to alteration rather than fractionation (cf Stanley and Madeisky, 1993, p. 167). It is therefore appropriate to plot Ca, Na and K values directly, rather than plotting residual values (derived from the difference between measured values and the fractionation line). Values on Figures 7a-c are normalized against Zr, to cancel out any mass transfer effects during alteration.

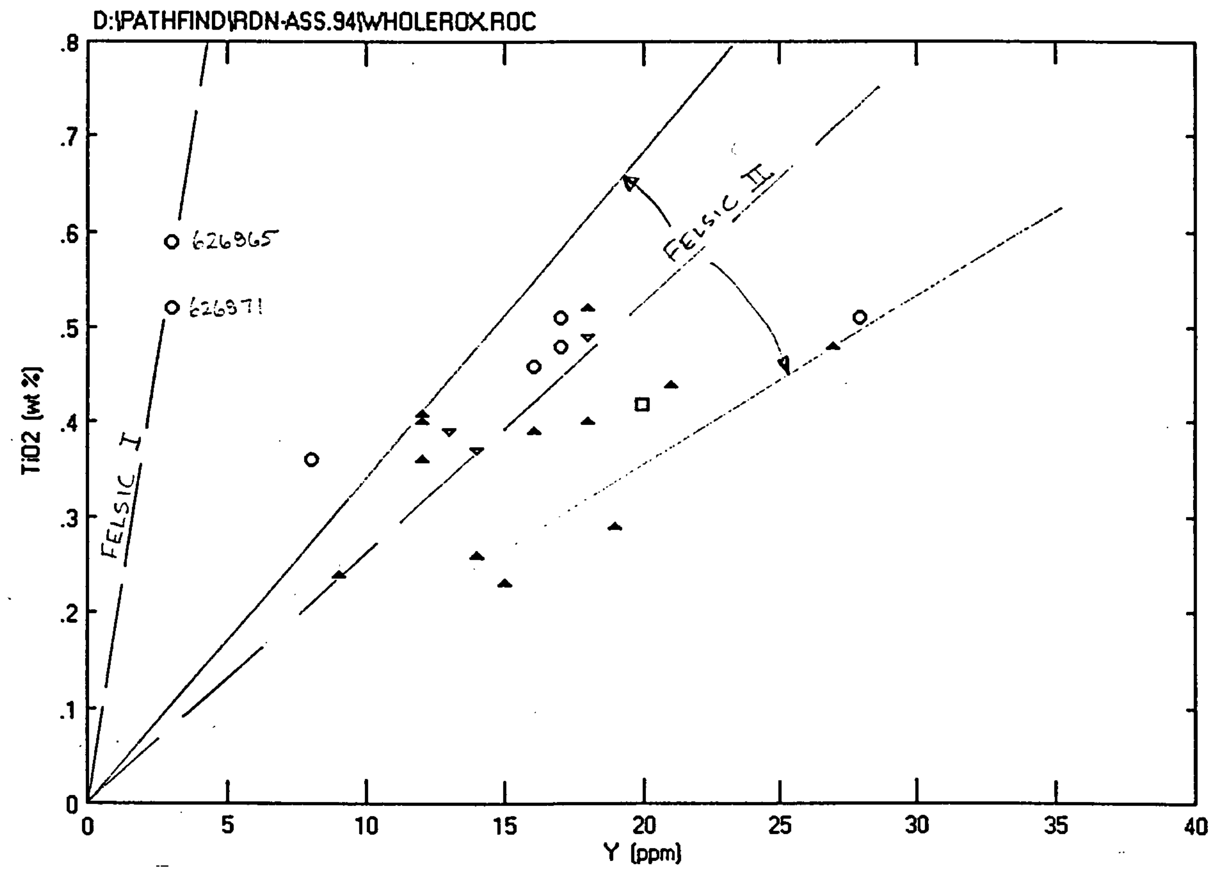
WHOLE ROCK ANALYSIS



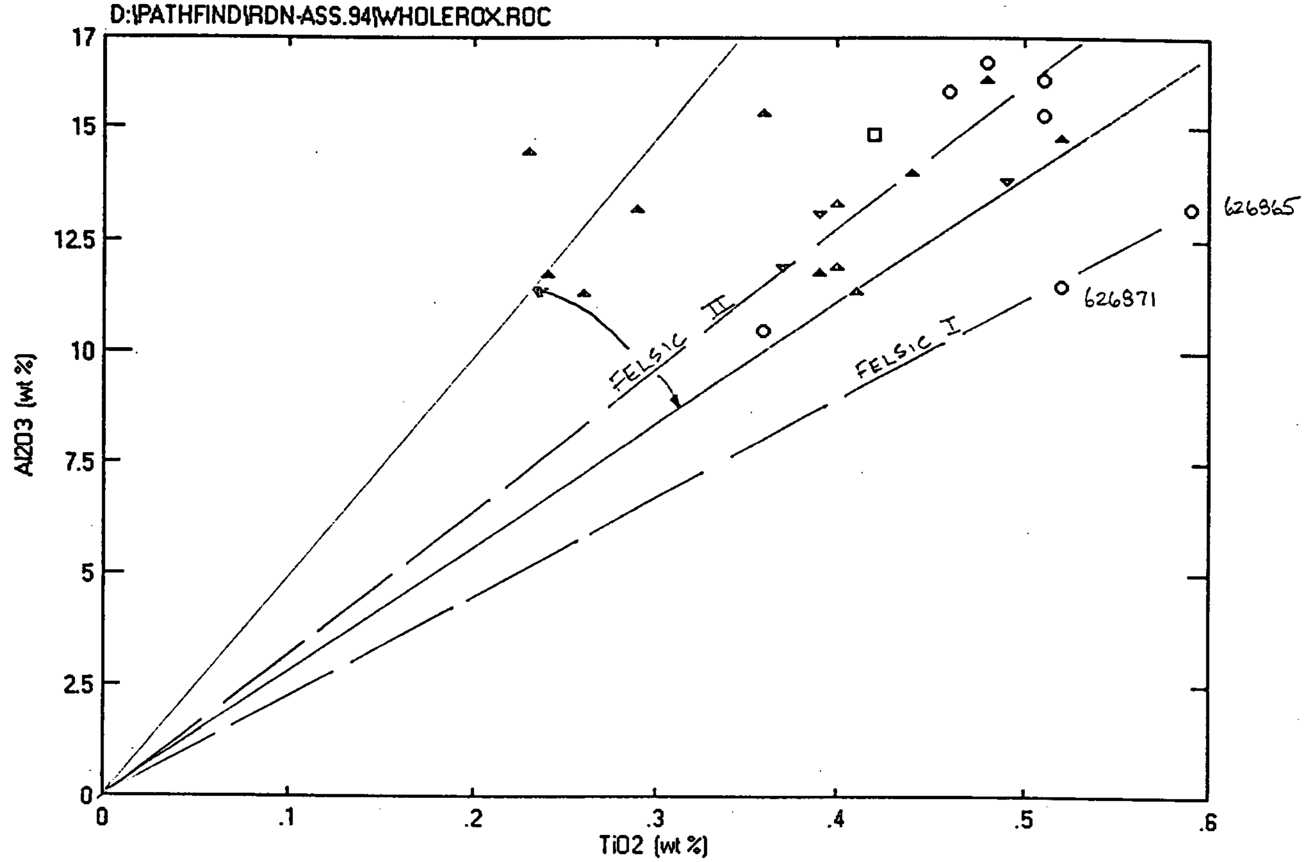


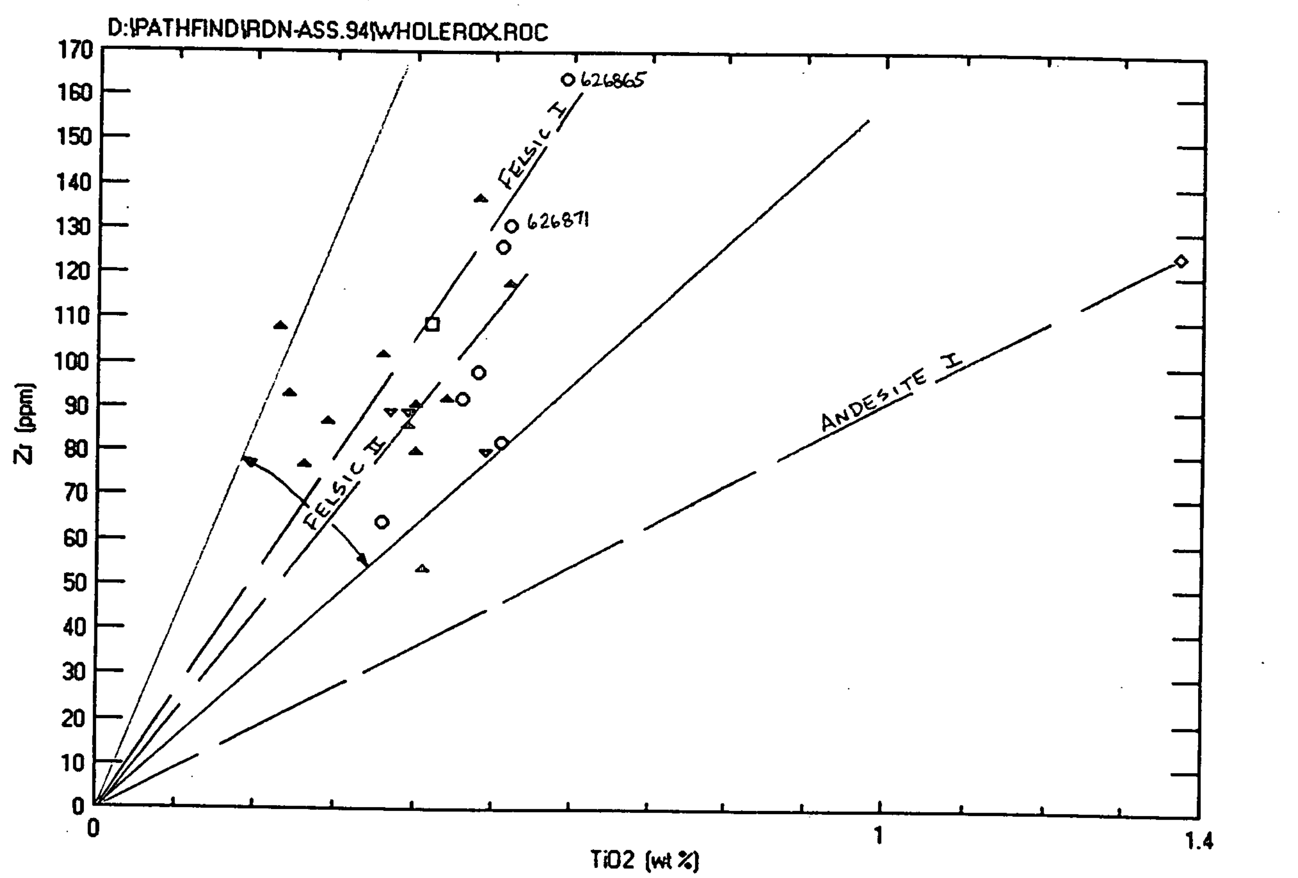
WHOLE ROCK ANALYSIS





WHOLE ROCK ANALYSIS





APPENDIX G

ENGINEER'S CERTIFICATE

ENGINEER'S CERTIFICATE

I, HENRY J. AWMACK, of 12-1348 Nelson Street, Vancouver, in the Province of British Columbia, DO HEREBY CERTIFY:

1. THAT I am a Consulting Geological Engineer with offices at Suite 207, 675 West Hastings Street, Vancouver, British Columbia.

2. THAT I am a graduate of the University of British Columbia with an honours degree in Geological Engineering.

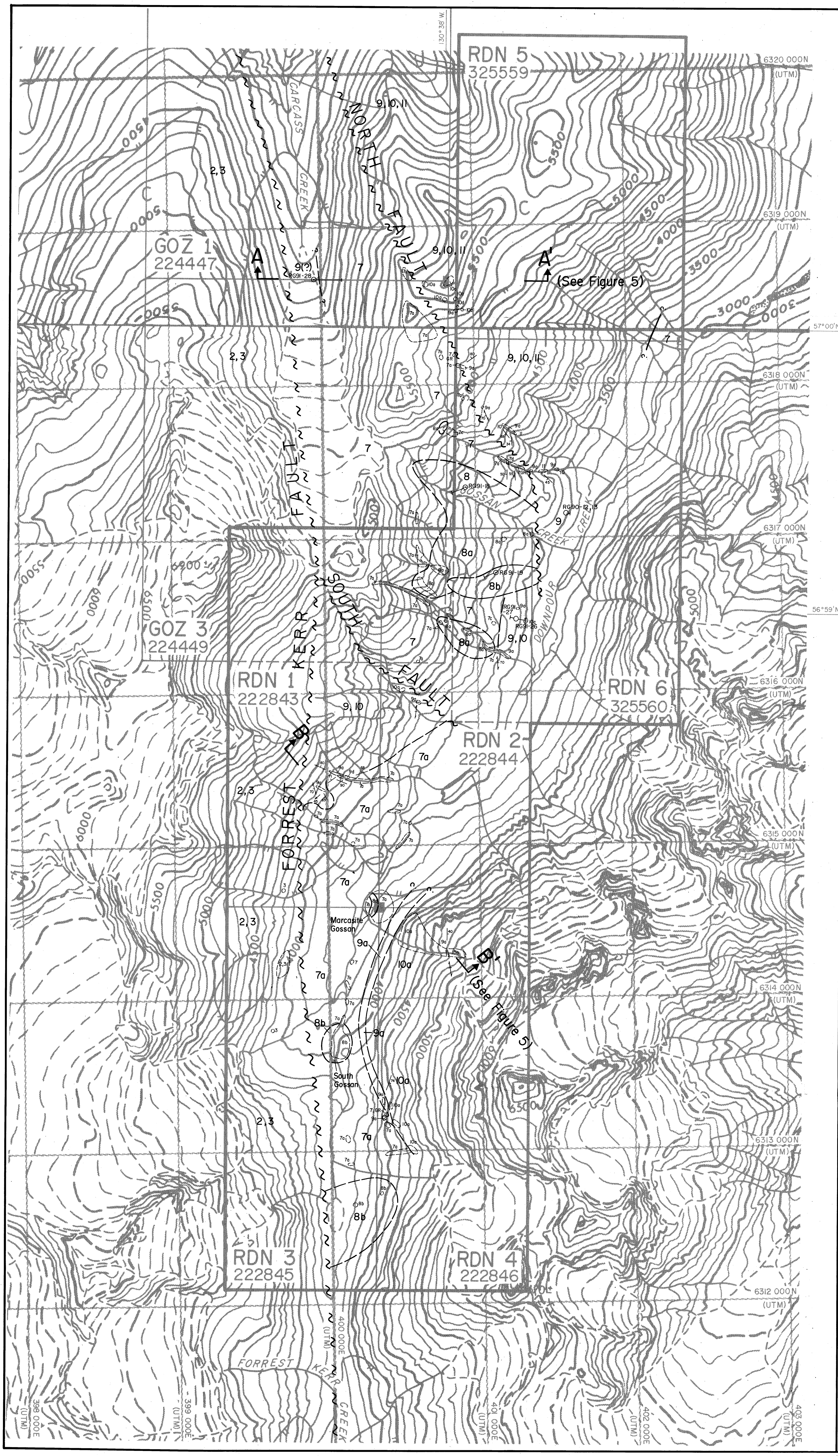
3. THAT I am a member in good standing of the Association of Professional Engineers and Geoscientists of British Columbia.

4. THAT this report is based on fieldwork carried out by me or under my direction during September 1994, and on publicly-available reports. I have examined the property in the field.

DATED at Vancouver, British Columbia, this 16th day of January, ~~1994.~~ 1995

Henry J. Awmack, P.Eng.

PROFESSIONAL
PROVINCE OF
H. J. AWMACK
BRITISH COLUMBIA
ENGINEER



LEGEND

LITHOLOGIES

LOWER TO MIDDLE JURASSIC

HAZELTON GROUP

- **11** Dark green to brown, equigranular, medium-grained diorite
- **10** Dark green to brown andesite
  - **10a** Pillowed flows, locally amygdaloidal
  - **10c** Feldspar crystal tuff
  - **10d** Andesitic dykes
  - **10e** Maroon agglomerate
- **9** Marine sediments
  - **9a** Dark grey to black siltstone and argillite
  - **9b** Limestone
  - **9c** Sandstone
  - **9d** Basal conglomerate: rounded felsic clasts in black argillitic matrix
- **8** Felsic subvolcanic intrusions
  - **8a** Grey feldspar porphyry
  - **8b** Megacrystic potassium feldspar porphyry
- **7** Felsic extrusive rocks
  - **7a** Grey and brown felsic lithic-crystal lapilli tuff
  - **7c** Felsic tuff-breccia: unoriented, subangular 2-30mm felsic clasts in felsic ash matrix
  - **7d** Felsic conglomerate: lenses of close-packed felsic pebbles aligned with bedding in pebbly arkose
  - **7GR** Graphitic-altered felsic: dark grey to black from abundant irregular graphitic(?) fractures

PERMIAN TO DEVONIAN AND(?) OLDER

STIKINE ASSEMBLAGE

- **3** Black, phyllitic shales, siltstones and cherts
- **2** Grey-green, phyllitic to schistose siltstone, wacke and plagioclase-phyric volcanics

SYMBOLS

- Outcrop examined in 1994
- Bedding (with dip)
- Foliation (with dip)
- Jointing (with dip)
- Minor fold axis
- Lithological contact (inferred)
- Fault (inferred)
- Diamond drill hole
- Legal corner post (located, approximate)

Geological contacts on the GOZ claims interpreted from Savell and Grill (1991).

GEOLOGICAL BRANCH
ASSESSMENT REPORT

23,734

METRES 0 200 400 600 800 1000

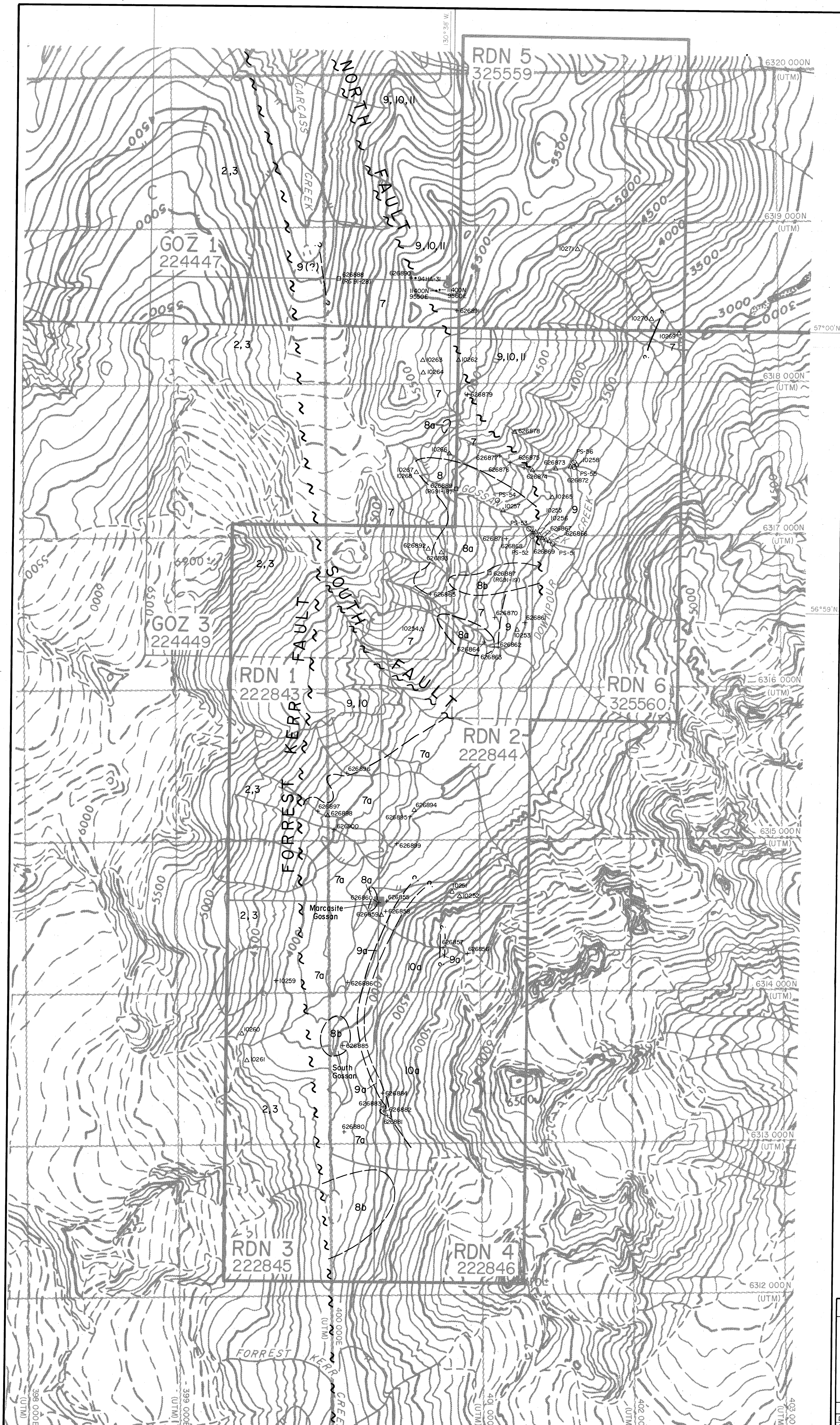
PATHFINDER RESOURCES LTD.

RDN 1-6 CLAIMS
PROPERTY GEOLOGY

BRITISH COLUMBIA

EQUITY ENGINEERING LTD.

DRAWN:	J.W./H.A.	MINING DIV.:	LIARD	FIGURE
N.T.S.:	104 B/15E, G/2E	SCALE:	1:10,000	4a
DATE:	DEC. 1994	REVISED:		



LEGEND

SYMBOLS

- ○ 1994 stream sediment sample
- ● 1994 soil sample
- △ + □ 1994 rock sample (float, outcrop, drill core)
- ∾∾ ∾ Fault (inferred)
- Lithological contact (inferred)
- 8 Lithology: units defined on Figure 4
- Legal corner post (located, approximate)

1994 STREAM SEDIMENT SAMPLE ANALYSES

Sample Number	Au (ppb)	Ag (ppm)	As (ppm)	Ba (ppm)	Cu (ppm)	Pb (ppm)	Sb (ppm)	Zn (ppm)
PS-51	<5	<0.2	22	420	15	20	<2	56
PS-52	<5	<0.2	26	300	18	20	4	60
PS-53	<5	<0.2	28	270	16	28	<2	50
PS-54	<5	<0.2	12	370	28	26	<2	98
PS-55	<5	0.2	26	540	45	30	<2	210
PS-56	<5	<0.2	24	390	66	26	6	168

1994 SOIL SAMPLE ANALYSES

Sample Number	Au (ppb)	Ag (ppm)	As (ppm)	Ba (ppm)	Cu (ppm)	Pb (ppm)	Sb (ppm)	Zn (ppm)
11400N/9550E	70	<0.2	40	390	35	22	2	118
11400N/9560E	50	0.2	74	400	31	30	8	100
HA94-31	<5	0.6	122	320	52	18	4	614

1994 ROCK SAMPLE ANALYSES

Sample Number	Au (ppb)	Ag (ppm)	As (ppm)	Ba (ppm)	Cu (ppm)	Pb (ppm)	Sb (ppm)	Zn (ppm)
10251	<5	<1.0	4	70	91	2	<2	132
10252	<5	<1.0	4	170	101	6	4	64
10253	<5	<1.0	4	150	2	<2	<2	6
10254	<5	40.0	272	2230	85	2310	52	6610
10255	<5	1.0	16	340	7200	18	12	42
10256	115	<1.0	64	80	106	114	<2	1790
10257	<5	10.0	48	1090	199	2720	<2	1.83%
10258	<5	1.0	8	30	155	1440	<2	1895
10259	<5	<1.0	4	40	8	<2	<2	38
10260	<5	<1.0	4	190	6	2	<2	36
10261	<5	<1.0	4	2030	806	<2	<2	60
10262	<5	<1.0	4	1080	10	14	<2	26
10263	<5	73.0	496	1240	1710	1.23%	28	1.54%
10264	<5	1.0	8	5320	2	1735	<2	1585
10265	<5	<1.0	16	200	2	24	4	114
10266	<5	<1.0	4	6210	2	4	<2	54
10267	195	81.0	536	800	1885	5050	30	4.67%
10268	25	137g/t	400	4130	2860	234	18	1750
10269	11.6g/t	42.0	440	1420	1745	9310	36	5480
10270	260	<1.0	1800	>10000	63	186	18	130
10271	525	1.0	304	190	<1	26	56	22
626855*	<5	1.0	8	1810*	14	26	14	62
626856	<5	<1.0	4	110	25	10	2	74
626857	<5	<1.0	544	60	63	4	2	44
626858*	<5	3.0	32	2290*	11	108	12	394
626859	<5	134g/t	360	820	654	338	352	2480
626860*	<5	1.0	96	2940*	16	16	32	40
626861*	<5	<1.0	8	329*	50	6	2	88
626862	<5	<1.0	4	570	56	6	4	82
626863*	<5	2.0	4	1680*	27	48	2	1070
626864*	<5	<1.0	4	615*	22	6	2	84
626865*	<5	<1.0	8	573*	<1	14	<2	2
626866	<5	<1.0	4	1190	19	36	<2	24
626867	<5	<1.0	4	690	7	14	<2	<2
626868*	<5	<1.0	4	335*	27	16	<2	62
626869	<5	<1.0	4	210	120	38	<2	216
626870*	<5	<1.0	8	994*	14	16	<2	80
626871*	<5	<1.0	4	389*	1	12	<2	2
626872	<5	<1.0	16	470	38	2	2	38
626873	<5	1.0	504	100	13	4	4	22
626874	25	3.0	72	90	85	94	2	196
626875*	<5	2.0	8	999*	66	186	6	1280
626876	<5	1.0	4	390	87	258	<2	546
626877	<5	1.0	64	700	77	46	<2	256
626878	<5	<1.0	4	150	22	<2	<2	118
626879*	<5	<1.0	8	1730*	27	42	4	270
626880*	<5	<1.0	4	1410*	9	<2	<2	92
626881	<5	18.0	16	1920	162	3000	74	444
626882	<5	1.0	8	310	51	14	<2	598
626883*	<5	1.0	4	4940*	38	78	2	98
626884	<5	<1.0	24	410	55	20	<2	154
626885*	<5	<1.0	4	1410*	9	16	4	72
626886*	<5	<1.0	8	1110*	3	4	<2	70
626887*	<5	<1.0	4	1010*	87	14	<2	2
626888*	<5	<1.0	16	1730*	13	230	<2	954
626889*	15	1.0	8	1160*	41	582	<2	1580
626890*	<5	2.0	16	2150*	27	10	<2	858
626891	290	<1.0	48	180	66	214	<2	452
626892	<5	1.0	8	690	18	2040	2	378
626893	<5	5.0	192	1160	510	878	42	1570
626894	5	141g/t	232	1030	1690	3080	550	910
626895*	<5	2.0	8	1640*	44	384	12	96
626896	<5	<1.0	40	840	51	72	22	646
626897*	<5	5.0	72	10200*	35	94	34	168
626898	<5	<1.0	16	>10000	8	6	8	26
626899*	<5	2.0	72	1370*	30	44	26	190
626900*	<5	<1.0	4	1230*	29	6	10	58

* Whole Rock Analysis Sample

GEOLOGICAL BRANCH
ASSESSMENT REPORT

23,734

METRES

0 200 400 600 800 1000

PATHFINDER RESOURCES LTD.

RDN 1-6 CLAIMS

GEOCHEMISTRY

BRITISH COLUMBIA

EQUITY ENGINEERING LTD.

DRAWN:	J.W./H.A.	MINING DIV.:	LIARD	FIGURE
N.T.S.:	104B/15E, G/2E	SCALE:	1:10,000	6
DATE:	DEC. 1994	REVISED:		