Border Property

Geological, Prospecting, and Geochemical Report on the Border Property

BORDER 1 to 4 Mineral Claims
Skeena Mining Division
N.T.S. 104-B/7E
Latitude 56°21′ North
Longitude 130°38′ West
British Columbia

November 6, 1989

on behalf of
GOLDEN ZONE RESOURCES INC.
Campbell, California

by

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ABSTRACT

The Border property consists of four contiguous modified-grid claims totalling 80 units located approximately 80 km northwest of Stewart, British Columbia. Access to the property is by fixed-wing aircraft from Terrace, Stewart, or Smithers to various airstrips in the area and then via helicopter to the property.

The property lies within the Intermontaine Tectono-Stratigraphic Belt and occurs near the contact between the Stikine Terrane and the unmetamorphosed sediments of the Bowser Basin. Diorites of the Coast Plutonic Complex underlie the southern property area, with the northern part underlain by the Lower Jurassic Unuk River Formation consisting of andesitic volcanics with lesser sediments, intruded by a number of dioritic to granodioritic dykes or sills.

The area has an exploration history dating back to the turn of the century when prospectors passed through the region on their way to the interior. In the 1970's, the porphyry copper boom again brought prospectors and companies into the area. The current gold exploration rush began in 1980 with the option of the Sulphurets property by Esso Minerals Canada and the acquisition of the Johnny Mountain claims by Skyline Exploration Ltd. which was brought into production in mid-1988. The adjacent SNIP property is slated for production in 1990.

At this time, the Eskay Creek prospect, located 35 km northeast of the Border property and currently being explored by Calpine and Consolidated Stikine, is the most significant showing in the area. The prospect comprises at least eight mineralized zones occurring over a strike length of 1800 m within a sequence of felsic volcanics. The mineralization is associated with disseminated sulphides in felsic volcanic breccias and graphitic argillites in contact with overlying intermediate volcanic rocks.

A review of all available information indicates that the entire Unuk River area was subjected to reconnaissance geological mapping and prospecting by

Newmont Mines Ltd. in 1959-1962 which led to the discovery of three showings within or adjacent to the property boundaries.

The Gold Run occurrence, which is reportedly located in the southeast portion of the BORDER 4 mineral claim adjacent to Boulder Creek, is described as a narrow gold-bearing quartz vein with pyrite, galena, and sphalerite mineralization.

The McQuillan Ridge showing occurs adjacent to the northeast corner of the property and is portrayed as mid-Jurassic diorite dykes containing minor copper mineralization.

The Jim-Flory occurrence, located on the BORDER 4 mineral claim, is described as a zone of sporadic alteration within a tuff and skarn alteration noted in some sedimentary units with magnetite, pyrite, and chalcopyrite occurring in the altered zone. In 1911, gold values of about 64 grams/tonne were reported from this area. Exploration work completed over this showing in 1969 by Granduc Mines Ltd. located a sporadic zone of alteration within a tuff, which is probably restricted to one horizon within the tuff greenstone sequence. The alteration consists mainly of epidotization with associated skarn-type minerals and with magnetite, pyrite, and chalcopyrite occurring within the alteration zone.

The 1989 exploration program consisted of helicopter-supported reconnaissance prospecting, geological mapping, and geochemical sampling with the objective of evaluating the property's potential for hosting economic precious metals deposits and for the purpose of fulfilling the assessment requirements.

A limited amount of reconnaissance prospecting combined with geological mapping and lithogeochemical sampling was completed over selected portions of the property. This work was concentrated in the areas of reported mineralization and gossans noted within the property.

Rhyolitic volcanics were located in the northeastern portion of the property and in the south-central part of the BORDER 4 claim. A grab sample

yielded a weakly elevated gold value of 172 ppb. Reconnaissance prospecting completed over the reported location of the Jim-Flory occurrence located a number of quartz veins within a gossanous zone. Specific evidence of this occurrence was not found. Quartz veins were also located in the northwest part of the property and along Boulder Creek. Lithogeochemical sampling in these areas did not yield any anomalous precious or base metals values.

A heavy mineral stream sediment sampling survey was completed over the property as part of the 1989 exploration program. One sample was collected from a creek draining the eastern portion of the BORDER 4 claim, near the reported location of the Gold Run occurrence. The sample yielded an anomalous gold value of 2786 ppb, which may be delineating the mineralization of the Gold Run occurrence or additional as yet undiscovered mineralization.

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INTRODUCTION

Golden Zone Resources Inc. of Campbell, California, commissioned Keewatin Engineering Inc. to conduct a field exploration program on the Border property located in the Unuk River area of northern British Columbia. Exploration was directed by Keewatin Engineering Inc. with geological support and field supervision provided by Taiga Consultants Ltd. as a sub-contractor to augment the Keewatin crew.

The objective of this program was to evaluate the property's potential for hosting economic precious metals deposits and for the purpose of fulfilling the assessment requirements. Exploration consisted of prospecting, geological mapping, and geochemical sampling. Geochemistry consisted of lithogeochemical, stream silt, and heavy mineral sampling.

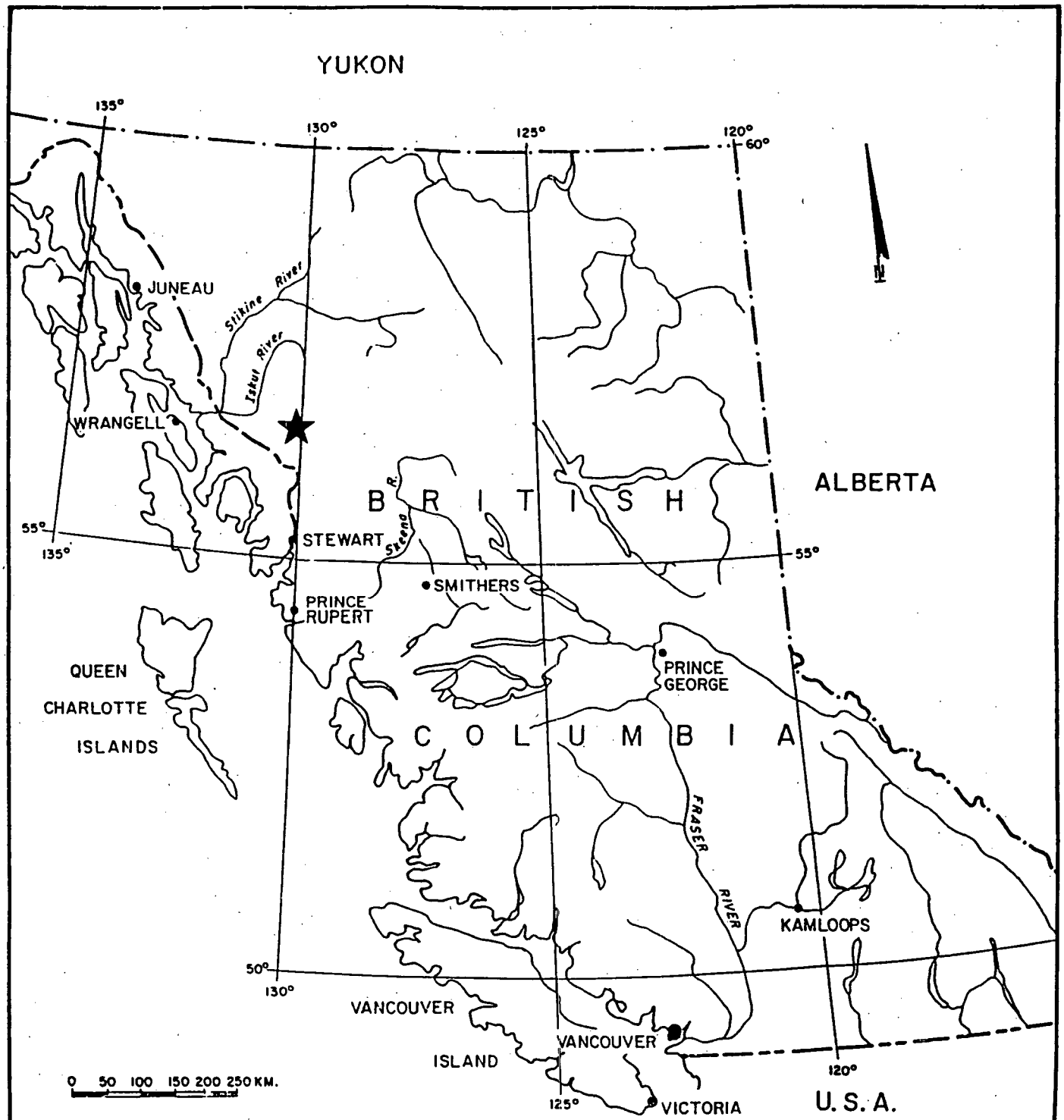
Location and Access

The Border property is located in northwestern British Columbia, approximately 80 km northwest of Stewart (Figure 1). The claims are situated within N.T.S. map-sheet 104-B/7E and centered about 56°21′ North latitude and 130°38′ West longitude. Access to the property is by fixed-wing aircraft from Terrace, Stewart, or Smithers to various airstrips in the area and then via helicopter to the property. The claims can also be directly accessed by helicopter from Stewart.

At some future date, road access to the area from the Stewart-Cassiar Highway could be obtained via the Upper Unuk River and Tiegen Creek valleys.

Property Status and Ownership

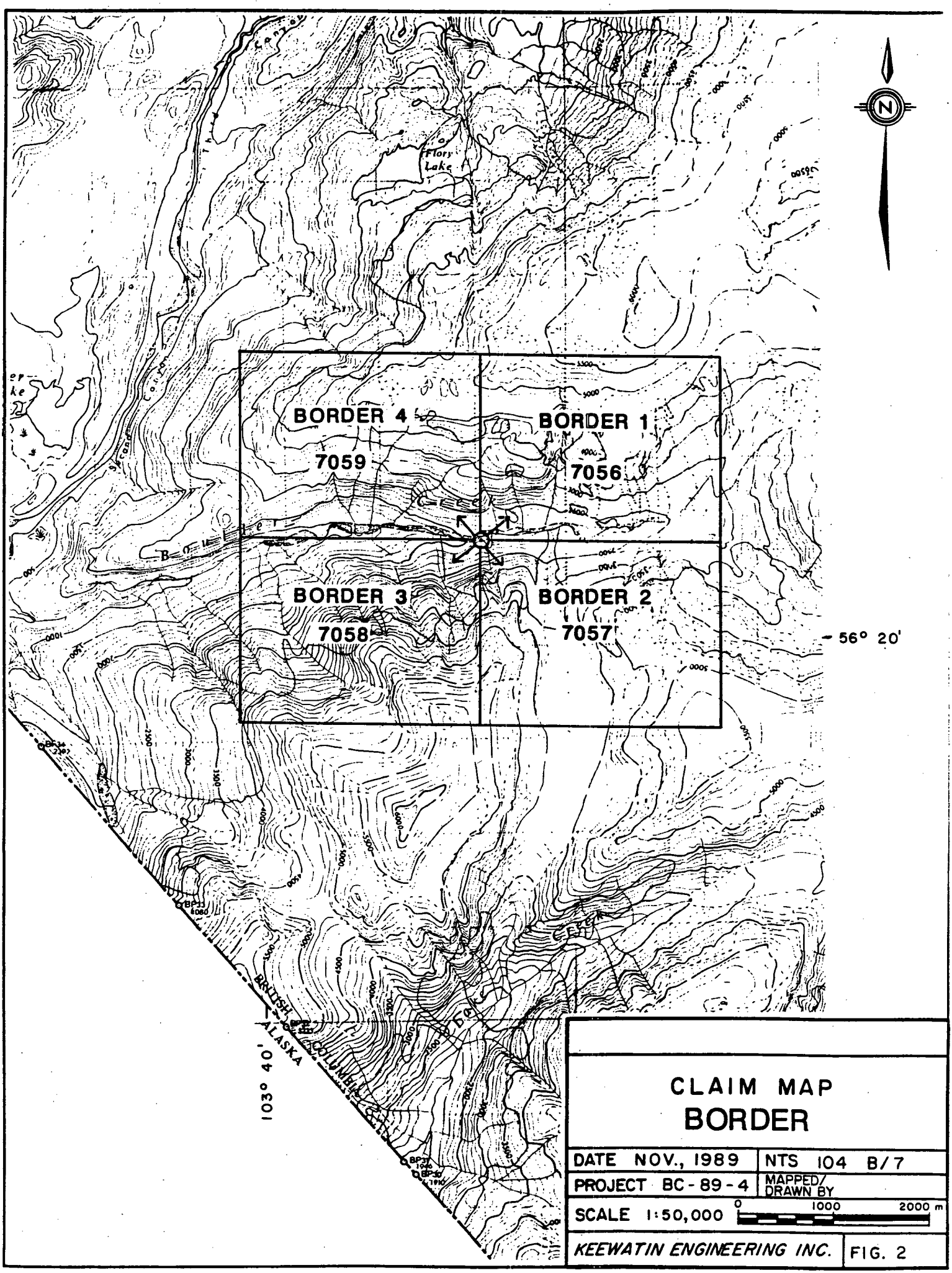
The Border property (Figure 2) consists of four modified-grid claims totalling 80 units, located within the Skeena Mining Division. Relevant claims data are tabulated below:



★ PROPERTY LOCATION MAP

Figure I

KEEWATIN ENGINEERING INC.



CLAIM MAP
BORDER

DATE NOV., 1989	NTS 104 B/7
PROJECT BC-89-4	MAPPED/ DRAWN BY
SCALE 1:50,000	0 1000 2000 m
KEEWATIN ENGINEERING INC.	FIG. 2

Claim Name	Record Number	No.of Units	Date of Record	Expiry Date
BORDER 1	7056	20	Dec.21/88	1989
BORDER 2	7057	20	Dec.21/88	1989
BORDER 3	7058	20	Dec.21/88	1989
BORDER 4	7059	20	Dec.21/88	1989

These claims are apparently the subject of an agreement between the claim holder (K. S. Gourley) and Ross Resources Ltd., who recently optioned the property to Golden Zone Resources Inc.

Physiography and Climate

The Border property is situated within the Coast Range Physiographic Division and is characterized by northern rain forests and sub-alpine plateaux. Valleys are steep-sided and U- to V-shaped. Elevations (see Figure 2) range from 365 m in the valley of Boulder Creek to 1705 m.

A transitional treeline, characterized by dense sub-alpine scrub, meanders through the property at approximately the 915 m elevation. Terrain above treeline is typified by intermontane alpine flora. Permanent glacial ice is found intermittently above the 1065 to 1370 m elevations. Conifers up to 30 m tall are common below treeline, especially in stream valleys. Water for camp and drilling purposes is generally in good supply from the numerous creeks draining the claim area.

Precipitation is heavy, exceeding 200 cm per annum, with short mild summers but very wet spring and fall periods. Thick accumulations of snow are common during winter. It is seldom possible to begin surface geological work before July and difficult to continue past September.

PREVIOUS EXPLORATION

The area drained by the upper reaches of the Stikine, Iskut, Unuk, Craig, and Bell-Irving Rivers has been explored for gold since the late 1800's when prospectors passed through the region on their way to the interior. In the 1970's, the porphyry copper boom again brought prospectors and companies into the area. The current gold exploration rush began in 1980 with the option of the Sulphurets property by Esso Minerals Canada and the acquisition of the Johnny Mountain claims by Skyline Explorations Ltd. The Johnny Mountain deposit was brought into production in mid-1988, and the adjacent SNIP property is slated for production in 1990.

The mineralization at Eskay Creek was discovered in 1932, and active prospecting has continued sporadically since then. Two adits are the result of limited mining activity on this prospect. In 1988, Calpine Resources Incorporated discovered high-grade gold and silver mineralization on the '21 Zone' (*Northern Miner* - November 7, 1988). A number of excellent diamond drill intersections have been obtained to date, including drill hole CA-88-06 which encountered 96 feet of 0.752 oz/ton gold and 1.13 oz/ton silver. Based on the results of 70 drill holes completed to June 1, 1989, a preliminary geological ore reserve of 2.8 million tons grading 0.23 oz/ton gold and 3.3 oz/ton silver has been calculated for the '21 Zone' (Consolidated Stikine Silver Ltd. - 1989 Annual Report).

The Unuk River area was covered by regional geological mapping in 1988 as part of the Iskut-Sulphurets project carried out by B.C. Ministry of Energy, Mines and Petroleum Resources (Britton, et al.,1989). The whole of N.T.S. 104-B is currently being mapped by R. G. Anderson of the Geological Survey of Canada (Anderson, 1989).

The results of a regional stream sediment sampling program conducted over this area were released in July 1988 (National Geochemical Reconnaissance, 1988). Britton (et al.) report that almost every known precious metal prospect in the Unuk River area is associated with high stream sediment gold values. Known gold deposits are also associated with high but variable values for such

pathfinder elements as silver, arsenic, antimony, and barium. Three stream silt samples were collected from streams draining the Border property. Two of these (#873295, #873296) exhibit anomalous gold values (120 ppb, 95 ppb).

A review of the material in the B.C. Ministry of Energy, Mines and Petroleum Resources assessment report archives indicates that the entire Unuk River area was subjected to reconnaissance geological mapping and prospecting by Newmont Mines Ltd. during the period 1959 to 1962. This work led to the discovery of three showings within or adjacent to the property boundaries.

The Gold Run occurrence (Minfile #017) is reportedly located in the south-east portion of the BORDER 4 mineral claim adjacent to Boulder Creek. This showing is described as a narrow gold-bearing quartz vein hosted by granitic rocks. The vein contains pyrite, galena, and sphalerite mineralization. This showing was originally staked in 1934 by J. McQuillan, and underwent a limited amount of prospecting during the mid-1930's.

The McQuillan Ridge showing (Minfile #220) occurs adjacent to the north-east corner of the property. It is portrayed as mid-Jurassic diorite dykes which contain minor copper mineralization.

The Jim-Flory occurrence (Minfile #219), located on the BORDER 4 mineral claim, is described as a zone of sporadic alteration within a tuff and skarn alteration noted in some sedimentary units. Magnetite, pyrite, and chalcopyrite occur within the altered zone. In 1911, gold values of about 64 grams/tonne were reported from this area.

In 1968, Granduc Mines Ltd. conducted an airborne electromagnetic and magnetic survey over McQuillan Ridge. A portion of this survey encompassed most of the Border property.

In 1969, Granduc Mines Ltd. completed geological and geophysical surveys on their JIM 1 to 22 mineral claims. This work covered the Jim-Flory copper showing, and located a sporadic zone of alteration within a tuff, which is probably restricted to one horizon within the tuff greenstone sequence. The

alteration consists mainly of epidotization with associated skarn-type minerals including garnet, and minor amounts of oxides. Magnetite, pyrite, and chalcopyrite occur within the alteration zone.

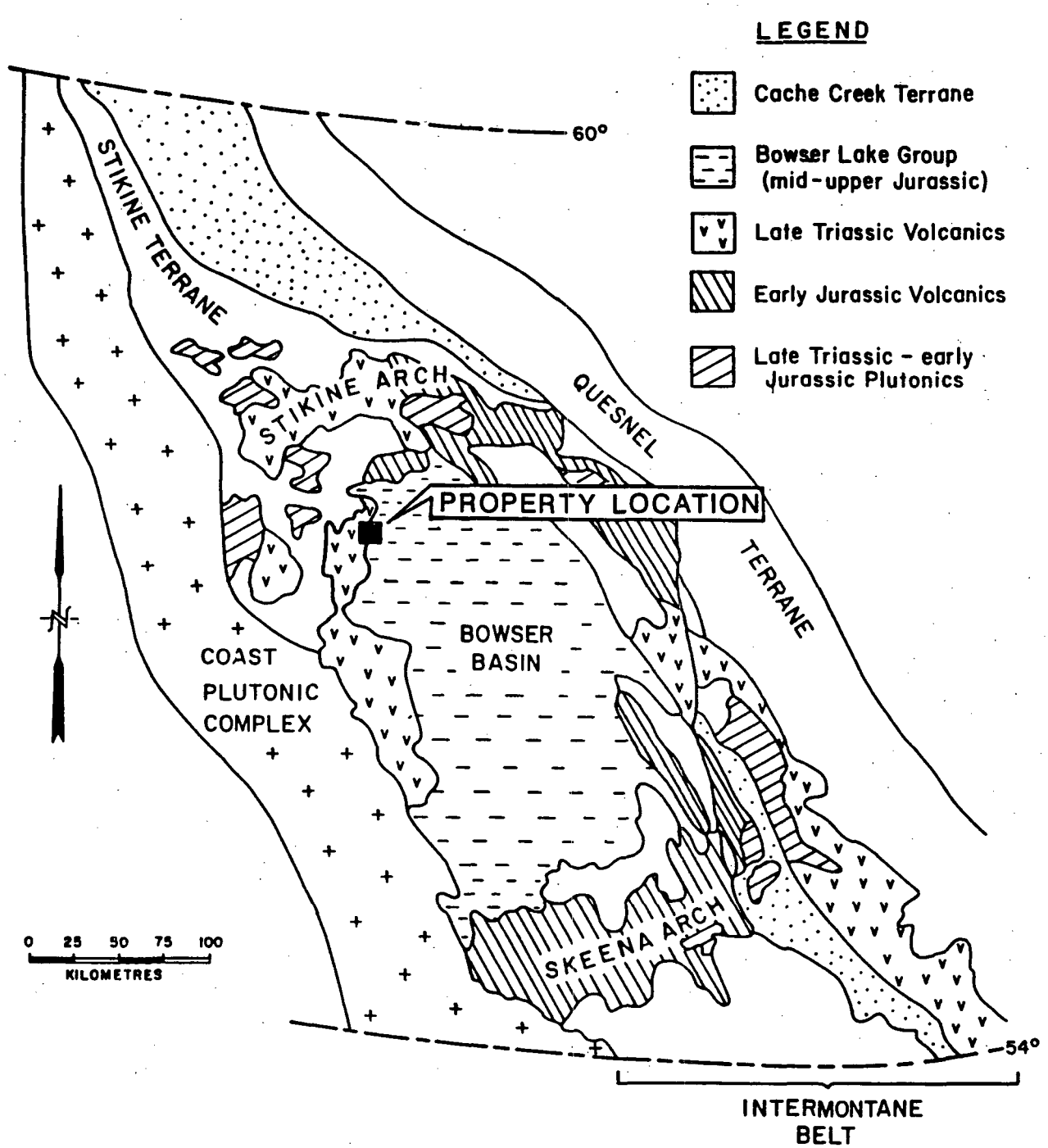
The assessment records (Korenic, 1982) indicate that Duval Corp. undertook a regional heavy mineral survey in the Unuk River area in 1981.

REGIONAL GEOLOGY

The property lies within the Intermontane Tectono-Stratigraphic Belt, one of five parallel northwest-southeast trending belts which comprise the Canadian Cordillera (Figure 3). The Border property occurs near the contact between the Stikine Terrane, which makes up most of the western part of the Intermontane Belt, and the unmetamorphosed sediments of the Bowser Basin.

The Unuk River area (Figure 4) is underlain by a thick succession of Upper Triassic to Lower Jurassic volcano-sedimentary arc complex lithologies capped by Middle Jurassic marine basin lithologies. This package has been intruded by a variety of plutons representing at least four intrusive episodes spanning late Triassic to Tertiary time. These include synvolcanic plugs, small stocks, dyke swarms, isolated dykes and sills, as well as batholiths belonging to the Coast Plutonic Complex.

The stratigraphic sequence has been folded, faulted, and weakly metamorphosed during Cretaceous time, but some Triassic strata are polydeformed and may record an earlier deformational event. Remnants of Pleistocene to Recent basaltic flows and tephra are preserved locally.

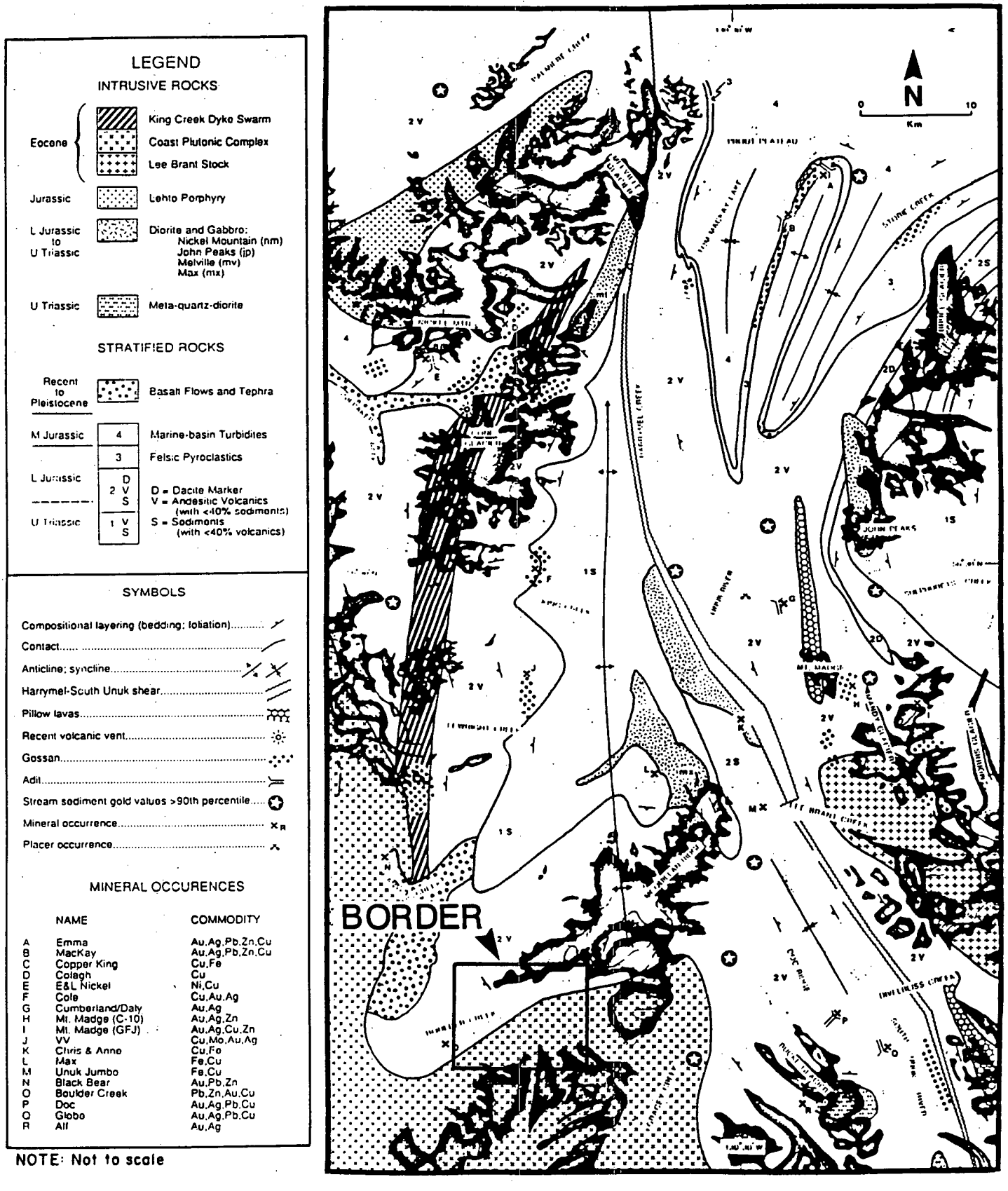


REGIONAL GEOLOGY
BOWSER BASIN
NW BRITISH COLUMBIA

(Outline of terrane boundaries and major rock groups of the Jurassic and Triassic – modified from Thomson, 1985).

Figure 3

KEEWATIN ENGINEERING INC.



Geology and mineral deposits, Unuk map area.

Modified after Britton et. al. (1989)

PROPERTY GEOLOGY

Figure 4

PROPERTY GEOLOGY

Regional geological mapping by Britton et al.(1989) shows that the southern property area is underlain by diorite of the Coast Plutonic Complex (Figure 5). The northern property area is underlain by the Lower Jurassic Unuk River Formation. A number of Eocene to Lower Jurassic dioritic to granodioritic dykes or sills intrude the Unuk River Formation.

Upper Triassic to Lower Jurassic Unuk River Formation (Unit 2)

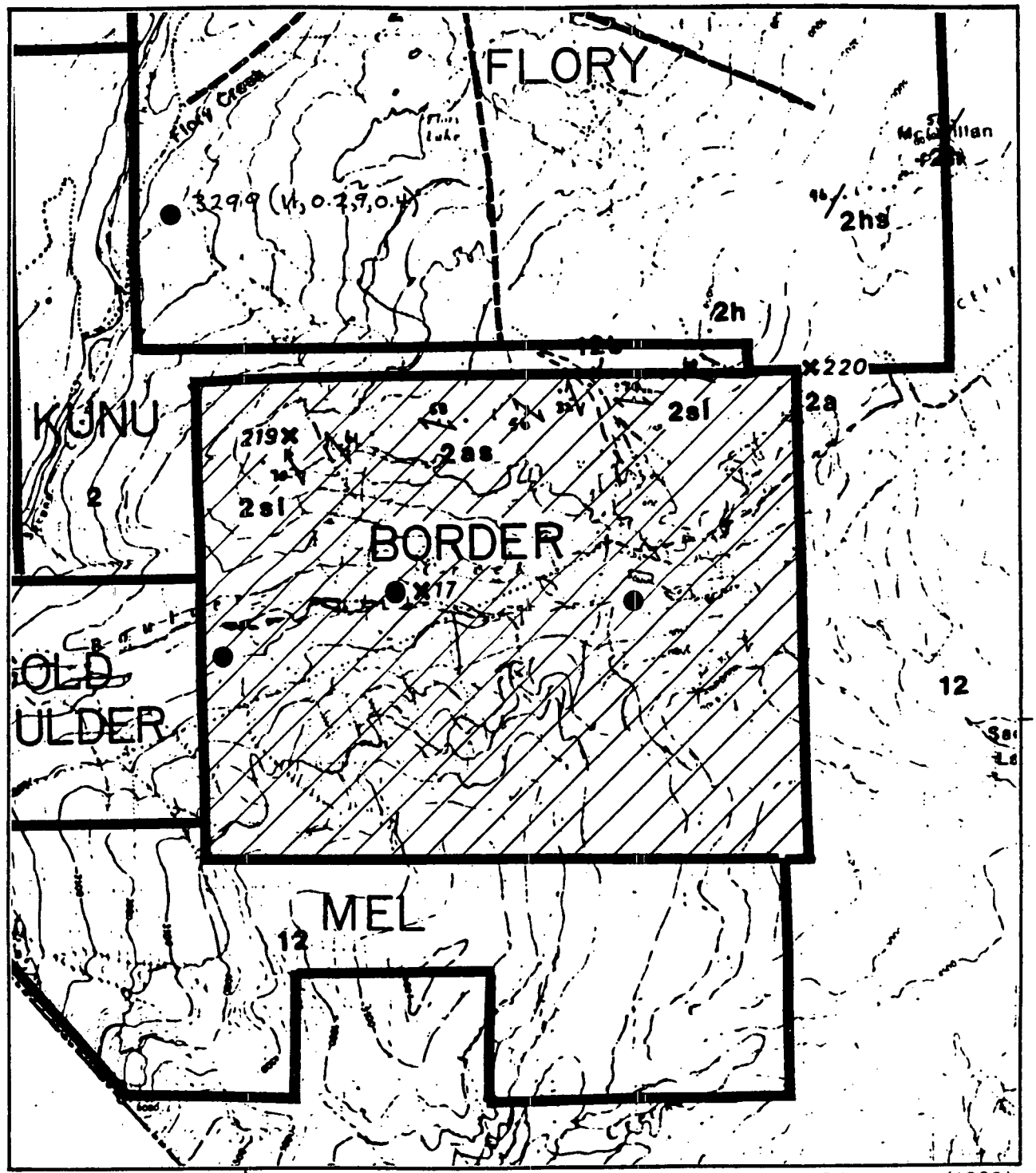
These Norian to Sinemurian age rocks of the Unuk River Formation constitute the lowermost unit of the Hazelton Group. Britton et al.(1989) described this sequence as green and grey intermediate to mafic volcaniclastics and flows with locally thick interbeds of fine-grained immature sediments. The volcanics are reported to be dominantly massive to poorly bedded plagioclase (± hornblende) porphyritic andesite. The sediments are predominantly grey, brown, and green thinly bedded tuffaceous siltstone and fine-grained wacke. The basal contact with Triassic strata appears to lie near the top of a thick sequence of clastic sedimentary rocks. Neither an angular unconformity nor a widespread conglomerate marks the lower contact. Government regional geological mapping and mapping completed during the 1989 property exploration program indicate this unit underlies the northern portion of the property.

Eocene and possibly Jurassic Coast Plutonic Complex (Unit 12)

Britton et al.(1989) described the intrusions as ranging in composition from biotite granite to biotite-hornblende quartz diorite. Numerous discrete stocks are probably present. The country rock contacts are reported to be sharp, discordant, and thermally metamorphosed. The age of these intrusives is Eocene, but the complex may include remnants of Jurassic granitoids.

Structure

Actual fault surfaces or zones are rarely seen in the Unuk River area, but they are probably quite common and may have developed concurrently with regional folding. Britton et al.(1989) mapped several assumed faults to the north and east of the property boundary, and a number of faults are proposed by the author within the property boundaries. These are assumed to be normal faults and are described as megascopic structures with relatively little offset.



BORDER

PROPERTY GEOLOGY

Figure 5

LEGEND

INTRUSIVE ROCKS

TERTIARY

13 *POST-TECTONIC DIKES*

- 13a *Lamprophyre, andesite, diabase (Plateau not shown)*
- 13b *King Cross Dyke Swarm: feldspar porphyry dacite, andesite, diabase, quartz diorite*
- 13c *Hawkeye monzonite: fine-grained biotite-monzonite*

12 *COAST PLUTONIC COMPLEX*

- 12a *Biotite granite*
- 12b *Hornblende-biotite quartz diorite*
- 12c *Lee Brent Stock: K-feldspar porphyry, hornblende-biotite quartz monzonite*

JURASSIC

11 *NICKEL MOUNTAIN GABBRO: metagabbro; olivine-pyroxene gabbro*

10 *SYN TO POST-VOLCANIC INTRUSIONS: Porphyritic to phaneritic textured; possibly hypabyssal equivalents of extrusive rocks*

- 10a *Lotto Porphyry: K-feldspar-plagioclase-hornblende porphyry granodiorite to syenite*
- 10b *Bald Lake Dyke: fine- to medium-grained hornblende diorite*
- 10c *Andesite-Diorite Complex: melanocratic, fine- to medium-grained diorite with abundant xenoliths of dark green meta-andesite; (possibly Triassic)*

9 *UNUK RIVER DIORITE SUITE: medium- to coarse-grained, mafic to intermediate stocks*

- 9a *John Peaks metamorphic hornblende diorite*
- 9b *Mac biotite-hornblende diorite; quartz diorite*
- 9c *Melville hornblende-biotite diorite to quartz diorite*
- 9d *Dan Ridge biotite monzodiorite*

TRIASSIC

8 *SUCKE GLACIER STOCK: light grey, gneissic to foliated, medium-grained hornblende-biotite quartz diorite*

METAMORPHIC ROCKS

A - F *METAMORPHIC EQUIVALENTS OF UNITS 1, 2 OR 3*

- A *Metapelite: dark grey, carbonaceous quartz-feldspar-sericite phyllite*
- B *Felsic metavolcanics: light green,quartz-albite-chlorite-sericite phyllite; locally with deformed lapilli*
- C *Mafic to intermediate metavolcanics: dark green, plagioclase-chlorite phyllite*
- D *Hornblende-plagioclase mylonite; mylonitic meta-tuff*
- E *Hornblende-plagioclase gneiss; agmatitic migmatite*
- F *Strongly sheared rocks within the Unuk-Harrymel fault zone*

GOSSANOUS ALTERATION ZONES

Pyrite ± quartz ± sericite ± carbonate ± clay; locally faulted to schistose

Disseminated pyrite in felsic volcanics

VOLCANIC AND SEDIMENTARY ROCKS

(Note: No stratigraphic order is implied within sequences.)

QUATERNARY

RECENT

17 *UNCONSOLIDATED SEDIMENTS*

- 7a *Alluvium, glaciofluvial deposits, landslide debris, moraine*
- 7b *Alluvium overlain by Pleistocene to Recent basalt*

PLEISTOCENE TO RECENT

6 *BASALT FLOWS AND TEPHRA*

- 6a *Dark grey to black, basalt flows and tephra; minor pillow lavas*
- 6b *Basalt tephra*

TRIASSIC TO JURASSIC

HAZELTON GROUP

MIDDLE JURASSIC (TOARCIAN TO BAJOCIAN)

5 *SILTSTONE SEQUENCE (Salmon River Formation): Dark grey, well-bedded siltstone with minor sandstone and conglomerate.*

- 5c *Chert pebble conglomerate and arenite*
- 5f *Rhythmically bedded siltstone and shale (turbidite)*
- 5w *Thinly bedded wacke*
- 5p *Andesite pillow lavas and pillow breccias with minor siltstone interbeds*

LOWER JURASSIC (TOARCIAN)

4 *FELSIC VOLCANIC SEQUENCE (Mount Dilworth Formation): Light weathering, intermediate to felsic pyroclastic rocks, including dust, ash, crystal and lithic tuffs, lapilli tuff. Locally pyritiferous (3 to 15%) and gossanous. Minor chalcedonic quartz veins locally.*

- 4a *Variably bedded airfall tuffs*
- 4f *Massive felsic tuff*
- 4r *Black and white, carbonaceous felsic volcanics; locally flow banded and autobrecciated*

LOWER JURASSIC (PLIENSBACHIAN TO TOARCIAN)

3 *PYROCLASTIC-EPICLASTIC SEQUENCE (Betty Creek Formation): Heterogeneous, grey, green, locally purple or maroon, massive to bedded pyroclastic and sedimentary rocks; pillow lava*

- 3a *Green and grey, massive to poorly bedded andesite*
- 3d *Grey, green and purple dacitic tuff, lapilli tuff, crystal and lithic tuff; massive to well bedded; feldspar phyric*
- 3f *White weathering, felsic tuffs and breccias with quartz stringers*
- 3l *Andesitic lapilli tuff with pink siliceous clasts*
- 3p *Andesitic pillow lavas and pillow breccias with minor siltstone interbeds*
- 3f *Black, thinly bedded siltstone, shale and argillite (turbidite)*

UPPER TRIASSIC TO LOWER JURASSIC (NORIAN TO SINEMURIAN)

2 *ANDESITE SEQUENCE (Unuk River Formation): Green and grey, intermediate to mafic volcaniclastics and flows with locally thick interbeds of fine-grained limestone sediments; minor conglomerate and limestone*

- 2a *Grey and green, plagioclase ± hornblende porphyritic andesite; massive to poorly bedded*
- 2b *Grey and green, hornblende-(± pyroxene)-feldspar porphyritic andesitic lapilli and ash tuff*
- 2c *Grey, brown and green, thinly bedded, tuffaceous siltstone and fine grained wacke*
- 2f *Black, thinly laminated siltstone (turbidite); shale; argillite*
- 2g *Dark grey, matrix-supported conglomerate with granite cobbles*
- 2l *Grey, variably bedded limestone (completely recrystallized along South Unuk valley)*

TRIASSIC

STUHINI GROUP

UPPER TRIASSIC (CARNIAN TO NORIAN)

1 *LOWER VOLCANICSEDIMENTARY SEQUENCE: Brown, black and grey, mixed sedimentary rocks interbedded with medium to dark green, mafic to intermediate volcanic and volcaniclastic rocks*

- 1f *Grey to black, thinly bedded siltstone, shale, argillite (turbidite)*
- 1w *Brown and grey, fine grained tuffaceous wacke; minor siltstone or conglomerate*
- 1l *Grey, impure, silty, sandy limestone*
- 1a *Green, fine-grained, andesitic ash tuff; feldspar and hornblende phyric*
- 1b *Dark green basalt*
- 1p *Grey and green, andesite breccia with augite-hornblende-plagioclase clasts and augite-rich matrix*

SYMBOLS

Geological boundary (defined, approximate, assumed)

Bedding, tops known (horizontal, inclined, vertical, overturned)

Bedding, tops unknown (horizontal, inclined, vertical)

Bedding, estimated dip (gentle, moderate, steep)

Stratigraphic tops in pillow volcanics

Compositional layering in metamorphosed rocks; foliation (inclined, vertical)

Trend line

Regional antiform; synform

Antiform; synform (normal, overturned)

Minor fold axis with M, Z or S symmetry; with plunge

Fault (defined, assumed; D = downthrown side)

Thrust fault (defined, assumed; teeth on upper plate)

Air photo lineament

Fossil locality (F)

Plumme (I)

Area with more than 40% Tertiary dykes

Limit of major phyllite zone

Volcanic vent (observed, assumed)

Geologic station

National geochemical reconnaissance sample site — 871365 (0.8,48,3.8,11)

Sample No. (Ag ppm, As ppm, Sb ppm, Au ppb)

Potassium-argon isotope age use: H = hornblende; age in millions of years before present

Mineral occurrence; MINFILE number — X83

ADR

AGE	GROUPS	FORMATIONS	MEMBERS	LITHOLOGIES
Bathonian	Bowser Lake	Ashman	Main Sequence	Turbidites, wackes, intraformational conglomerates
			Basal Conglomerate	Chert pebble conglomerates
Bajocian to Toarcian	Spatsizi(?)	Salmon River	Pyjama Beds	Thin bedded, alternating siltstones and mudstones
			Basal Limestone	Gritty, fossiliferous limestone
Toarcian	Hazelton	Mount Dilworth	Upper Lapilli Tuff	Dacitic lapilli tuff with flow-bandedd clasts
			Middle Welded Tuff	Dacitic welded ash flow and lappilli tuff
			Lower Dust Tuff	Dacitic dust tuff
Pliensbachian		Betty Creek	Sedimentary Members	Hematitic volcaniclastic sediments, and turbidites
			Volcanic Members	Andesitic to dacitic tuffs and flows
Sinemurian to Hettangian(?)		Unuk River	Premier Porphyry	Two feldspar + hornblende porphyritic tuffs
			Upper Andesite	Massive tuffs with local volcaniclastic sediments
			Upper Siltstone	Turbidites, minor limestones
			Middle Andesite	Massive tuffs and minor volcaniclastic sediments
			Lower Siltstone	Turbidites
			Lower Andesite	Massive to bedded ash tuffs
Norian to Carnian	Stuhini		Volcanic Members	Pyroxene porphyry flows and tuffs
			Sedimentary Members	Turbidites, limestones, conglomerates

TABLE 1. Table of Formations Unuk River Area

ECONOMIC GEOLOGY

Britton et al.(1989) list 55 mineral occurrences in the Unuk map-sheet. These showings are predominantly gold/silver occurrences and are hosted by a number of various lithologies. Most can be classified into one of four categories: stratabound, vein, skarn, and disseminations. Grove (1986) has determined that the age of the mineralizing events is variable and, notably, can be post-Triassic.

Stratabound mineralization consists almost exclusively of pyritic zones and lenses contained within a particular stratum or a restricted set of strata. The best example is the Eskay Creek prospect, currently being explored by Calpine Resources Incorporated and Consolidated Stikine Silver Ltd. Intrusive-contact (skarn) deposits show a close spatial and temporal relationship with igneous intrusions. Three deposits in this category are the E & L nickel/copper deposit (Minfile #006), the Max copper/iron skarn (Minfile #013), and the Chris-Anne copper/iron skarn (Minfile #125). Britton et al.(1989) stated:

> Mineralization at the E & L occurs within two medium- to coarse-grained, olivine-pyroxene gabbro bodies. These roughly triangular plugs are each approximately 1300 square metres in area and are probably connected. They intruded a sequence of argillites, tuffaceous siltstones, and grey dacitic ash tuffs that strike northwest with moderate to steep southwesterly dips. Mineralization consists of pyrrhotite, pentlandite, and chalcopyrite, with lesser amounts of pyrite and magnetite. In the northwestern gabbro, mineralization extends up to the contact with the sediments, whereas in the southeastern gabbro, mineralization is confined to the pluton. Diamond drilling has delineated pipelike pods and disseminations of sulphides to a depth of 120 metres. Drill-indicated reserves are 2.8 million tonnes of 0.7% Ni and 0.6% Cu (Sharp, 1965).
>
> The Max prospect lies on the northwest side of McQuillan Ridge, between the Unuk and South Unuk Rivers, at elevations between 455 and 1500 metres. Massive magnetite with lesser pyrrhotite and chalcopyrite occur in skarn-altered sedimentary rocks adjacent to a diorite stock. Garnet, epidote, actinolite, and diopside characterize the skarn assemblage. Drilling has indicated a reserve of 11 million tonnes at 45% iron (Canadian Mines Handbook 1973-1974, page 432).
>
> The Chris-Anne prospect lies approximately 3 kilometres east of the Max. Skarn mineralization is reported in limestone beds which are up to 10 metres thick and that are interbedded with volcaniclastics. Magnetite and pyrrhotite-rich layers, from 0.5 to 7 metres

thick, with minor chalcopyrite, extend over a distance of 1 km. There are minor intrusive bodies reported on the property. Grades range from 0.1% to 0.4% copper (Allan and MacQuarrie, 1981).

The gold potential of these skarn deposits does not appear to have been tested. Based on recent skarn studies (Ettlinger and Ray, 1988), this area has many features that are associated with gold-enriched skarns elsewhere in the province: sequences of calcareous and tuffaceous host rocks; structural deformation; intrusion by dioritic I-type granitoids; and contact metamorphism and recrystallization. Some auriferous skarns are enriched in cobalt, an element that may be a useful pathfinder.

High-grade precious metal quartz veins are the target of exploration programs at Mount Madge (Minfile #240 and #233) by Bighorn Development Corporation, and at the Doc prospect (Minfile #014) by Echo Bay Mines Limited. Britton et al.(1989) reported:

The Mount Madge prospects are located south of Sulphurets Creek near its confluence with Unuk River, on the east and west sides of Mandy Glacier. Two different targets are being evaluated (Kruchkowski and Sinden, 1988). On the west, the C-10 prospect (Minfile #240) is a stockwork of thin quartz veinlets, locally with thicker quartz lenses, in intensely altered, fine-grained tuffaceous andesite or dacite. Quartz veinlets locally form up to 30% of the rock. The alteration assemblage consists of quartz and sericite with up to 10% pyrite. Chalcopyrite and traces of sphalerite are also present. The rocks are strongly foliated to schistose and are very similar to the broad alteration zones seen at Brucejack Plateau 12 kilometres to the northeast (Britton and Alldrick, 1988). Soil samples locally return analyses in excess of 1 ppm gold.

Two kilometres to the east, Ken Konkin discovered a massive pyrite-siderite float boulder with visible gold. Prospecting uphill led to the discovery of the GFJ veins (Minfile #233), apparently flat-lying, zoned siderite-quartz-sulphide veins that returned assays up to 121 grams per tonne gold (Kruchkowski and Sinden, 1988). The veins are poorly exposed. Float blocks seen this year display symmetrical zoning from margin to core across vein widths of 10 to 15 centimetres. Vein margins are 1 to 2 centimetres of thin white quartz layers separated by hairline accumulations of very fine-grained tin-white sulphide, probably arsenopyrite. The core is a very coarse-grained intergrowth of siderite, milky quartz, and cubes and clusters of pyrite, with lesser amounts of sphalerite and chalcopyrite as crystals and irregular masses. Rare tetrahedrite and visible gold have been observed (K.Konkin, personal communication, 1988). The veins cut variably foliated andesitic ash tuffs with thin interbeds of foliated to schistose siltstones.

The Doc prospect (Minfile #014) is located at treeline on a ridge overlooking the South Unuk River, opposite the mouth of Divelbliss Creek. The prospect consists of several west-northwest trending quartz veins up to 2 metres wide that have surface strike lengths of up to 275 metres (Gewargis, 1986). The main veins (Q17, Q22) are massive white quartz with sparse sulphide mineralization (5% to 10%) consisting of galena, pyrite, chalcopyrite, and sphalerite, with associated specular hematite and magnetite. Precious metal values are mostly confined to the sheared edges of veins and immediately adjacent wallrock. Shear zones with very little quartz may also return good values. Seraphim (1948) observed that gold was associated with either specular hematite or with galena and pyrite, but not with chalcopyrite and pyrite assemblages. The veins are a true fissure type, crosscutting folded and metamorphosed andesitic tuffs and thin-bedded sediments, including marble, that have been intruded by irregular dioritic dykes or sills and small monzodioritic plugs. The veins are different from any others seen in the Sulphurets or Unuk map areas. They have very restricted wallrock alteration aureoles, no apparent zoning, and appear to be limited to a few large fluid pathways. In this, they display characteristics of mesothermal veins. Structural control of the vein sets has not been determined but may be due to fractures related to folds in the host rocks. Total mineral inventory of the Q17 and other veins is given as 426,000 tonnes with 9.26 grams per tonne gold and 44.91 grams per tonne silver (*Northern Miner*, November 7, 1988).

Porphyry-type disseminated pyrite, chalcopyrite, and molybdenite mineralization occurs immediately north and south of King Creek, west of Harrymel Creek. Two properties have been worked: the VV to the south and the Cole to the north.

The VV property (Minfile #079) is the site of a heavily weathered monzonitic intrusive body in fault contact, on the east and west, with layered andesitic lapilli tuffs and tuff breccias with minor siltstone and calcareous sandstone interbeds. The stock is 250 metres wide, at least 6 kilometres long, strikes northerly, and dips steeply to the west, parallel to the country rocks. Chalcopyrite occurs in quartz stockworks and as fine disseminations within the monzonite. Molybdenite, sphalerite, malachite, and azurite have also been reported (Winter and McInnis, 1975; Mawer et al.,1977). Representative assays give 0.34% copper, 0.003% molybdenum, 2.1 grams per tonne silver, and 0.8 gram per tonne gold. Maximum gold and silver values obtained were 8.65 grams per tonne gold and 19.54 grams per tonne silver (Mawer et al.,1977).

The Cole prospect (Minfile #209) is situated approximately 4 kilometres north of the VV claims; it appears to be on strike with the same fault system and has similar intrusive and country rocks. Mineralization consists of up to 10% pyrite as disseminations and fracture fillings. Minor chalcopyrite and malachite have been reported but the bedrock source of the gold/silver soil anomalies has not been located (Korenic, 1982; Gareau, 1983). Reported assays range up to 0.43% copper, 7.12 grams per tonne gold, and 13.03 grams

per tonne silver. Gold and copper values show a positive correlation on both properties.

At this time, the Eskay Creek prospect, located 35 km northeast of the Border property, is the most significant showing in the area. This prospect comprises at least eight mineralized zones occurring over a strike length of 1800 m within a sequence of felsic volcanics (Mount Dilworth Formation). This property is currently being explored by Calpine and Consolidated Stikine Silver. Preliminary drilling on the '21 Zone' intersected 96 feet assaying 0.752 oz/ton gold and 1.13 oz/ton silver including 52.5 feet grading 1.330 oz/ton gold and 1.99 oz/ton silver (*Northern Miner*, November 7, 1988).

The drilling results obtained to date indicate that the '21 Zone' extends over 335 m and is open along strike and at depth. Based on the results of 70 drill holes completed to June 1, 1989, a preliminary geological reserve of 2.8 million tons grading 0.23 oz/ton gold and 3.3 oz/ton silver was calculated for the '21 Zone' (Consolidated Stikine Silver, 1989 Annual Report). These deposits have been variously described as silicified shear zones (Harris, 1985) or as volcanogenic deposits (Donnelly, 1976). The mineralization is associated with disseminated sulphides in felsic volcanic breccias and graphitic argillites in contact with overlying intermediate volcanic rocks.

Two known mineral showings occur within the property boundaries. The Gold Run occurrence (Minfile #017) is described as a narrow gold-bearing quartz vein hosted by granitic rocks. The vein contains pyrite, galena, and sphalerite mineralization. The Jim-Flory showing (Minfile #219) is described as a zone of sporadic alteration within a tuff, and skarn alteration noted in some sedimentary units. Magnetite, pyrite, and chalcopyrite occur within the altered zone. Gold values of about 64 grams/tonne were reported from this area in 1911.

The McQuillan Ridge showing (Minfile #220) occurs near the northeast corner of the property. It is portrayed as mid-Jurassic diorite dykes which contain minor copper mineralization and crosscut altered and limonitic schists.

1989 EXPLORATION PROGRAM

The 1989 property exploration program, completed between September 9 and October 16, consisted of helicopter-supported reconnaissance prospecting, geological mapping, and geochemistry (lithogeochemical, stream silt, and heavy mineral sampling). Areas of known mineralization and gossans noted within the area were investigated and sampled.

A total of 21 rock, 1 stream silt, and 13 heavy mineral samples were forwarded to Bondar-Clegg & Company in Vancouver for multi-element analyses; Au by fire assay-AA and the remaining 29 elements by I.C.P. (results are presented in the Appendix, along with rock sample descriptions).

The accompanying map depicts the property geology (modified after Britton et al.,1989), with 1989 prospecting traverses, sample locations, and Au/Ag/As/Sb analytical results. Descriptions of the exploration completed and the results follow.

ROCK GEOCHEMICAL SAMPLING

Reconnaissance prospecting and geochemical sampling were completed over selected parts of the property. This work was concentrated in the areas of reported mineralization and gossans noted within the property.

Reconnaissance prospecting was completed along Boulder Creek in conjunction with the heavy mineral sampling program. Numerous quartz veins up to 60 cm wide were located. Grab samples did not yield any anomalous geochemical results. A 10 cm quartz vein located near the reported location of the Gold Run showing yielded a weakly elevated silver value (1.7 ppm). Specific evidence of this showing was not found.

A grab sample from a weakly laminated rhyolite containing trace to minor chalcopyrite, pyrite, and pyrrhotite near the south-central part of the BORDER 4 claim yielded an elevated gold value of 172 ppb.

Aerial reconnaissance of the property located a large iron-stained area in the centre of the BORDER 1 claim. Investigation of the stained area found it to be underlain by diorite with up to 1% disseminated pyrite. Rusty weathering rhyolite containing stringers and up to 1% disseminated pyrite was located directly east of this area. Lithogeochemical samples did not yield any elevated geochemical results for any of the elements.

Additional prospecting over the northeast part of the BORDER 1 claim found the remaining areas to be underlain by andesite and minor amounts of sedimentary rocks. A number of quartz-carbonate stringers and veins up to 1 m wide were located. Lithogeochemical samples did not yield any anomalous values.

A reconnaissance prospecting traverse across the ridge parallel to the northern property boundary located no mineralization. A gossanous area was found near the reported location of the Jim-Flory showing. Quartz veins up to 50 cm wide, traceable for up to 20 m, were also located in this area. Lithogeochemical samples yielded very weakly elevated values (up to 64 ppb Au and 1.1 ppm Ag). Specific evidence of the occurrence was not located. Nevertheless, this is probably the site or very near the site of this showing. Additional exploration should be completed in this area.

STREAM SILT SAMPLING

Only one stream silt geochemical sample was collected on the property during the current exploration program. The designation of anomalous values is based on regional G.S.C. survey results in Open File 1645 combined with a visual observation of data obtained during the 1989 exploration on a number of claim groups in the Unuk River area. Based on these criteria, no anomalous values were detected for any of the elements.

HEAVY MINERAL SAMPLING

A heavy mineral stream sediment sampling survey was conducted on the property as part of the current exploration program. Heavy mineral samples were collected in parts of a creek where there is a sudden transition from high to low energy, if present, moss mat was used. Samples were sieved to -20 mesh and a 3 to 5 kg sample of sieved material was collected.

The samples were forwarded to Bondar-Clegg and Company in Vancouver for multi-element analyses: Au by fire assay-AA and the remaining 29 elements by I.C.P. The heavy mineral separation consists of floating off the light (<3.3) minerals using methylene-iodine followed by magnetic separation. A sample weight of 0.5 grams is taken for the I.C.P. and the remainder used for fire assay.

The heavy mineral sampling survey was conducted by Mr. M. Waskett-Myers of Keewatin Engineering Inc. which company has done a considerable amount of work in the Unuk River area, and in the process, has assembled a fairly substantial data base. These data were used to assess the values obtained on the property.

Heavy mineral sampling is a good first-pass tool and should be considered as a micro-prospecting approach to evaluating an area.

A total of 13 heavy mineral samples were collected from creeks draining the property. Samples collected from creeks draining the southern portion of the property, underlain by diorites of the coast Plutonic Complex, yielded low values for most of the elements. Samples collected from creeks draining areas underlain by the Unuk River Formation yielded a higher gold value, generally between 95 and 282 ppb.

Only one sample (XWH-8) yielded a significant gold value (2786 ppb). This sample was collected from a creek draining the eastern portion of the BORDER 4 claim. A stream silt sample collected from this creek in 1987, as part of a regional stream sediment sampling program, yielded an anomalous value of 120

ppb Au. The Gold Run occurrence, which is described as a narrow gold-bearing quartz vein, is reportedly located in this area.

The elevated gold values obtained from this creek may be delineating the Gold Run mineralization, or possibly new mineralization. Additional exploration is required in the drainage area of this creek to determine the significance of these gold values.

SUMMARY AND RECOMMENDATIONS

The 1989 exploration program consisted of helicopter-supported reconnaissance prospecting, geological mapping, and geochemical sampling, with the objective of evaluating the property's potential for hosting economic precious metals deposits and for the purpose of fulfilling the assessment requirements.

A limited amount of reconnaissance prospecting combined with geological mapping and lithogeochemical sampling was completed over selected parts of the property. Diorites of the Coast Plutonic Complex underlie the southern property area, with the northern part underlain by the Lower Jurassic Unuk River Formation, consisting of andesitic volcanics with lesser sediments, intruded by a number of dioritic to granodioritic dykes or sills. Rhyolitic volcanics were located in the northeastern portion of the property and in the south-central part of the BORDER 4 claim. A grab sample of this material yielded a weakly elevated gold value of 172 ppb.

Reconnaissance prospecting completed in the reported location of the Jim-Flory occurrence located a number of quartz veins within a gossanous zone. Lithogeochemical sampling yielded values of 64 ppb Au and 1.1 ppm Ag. Specific evidence of this occurrence was not found.

Quartz veins were also located in the northeast part of the property and along Boulder Creek; however, lithogeochemical samples did not yield any anomalous values.

A heavy mineral sampling program was completed over the property. Sample XWH-8 yielded a gold value of 2786 ppb. This sample was collected from a creek draining the eastern portion of the BORDER 4 claim. The Gold Run occurrence, which is described as a narrow gold-bearing quartz vein, is reportedly located in this area. The elevated gold value obtained from this creek may be delineating this mineralization, or possibly previously undiscovered mineralization.

Considering the limited amount of exploration completed on the claims, additional work is required in order to fully evaluate the property's mineral potential. This work should consist of extensive reconnaissance prospecting combined with geological mapping, lithogeochemical sampling, and stream silt sampling. Additional exploration should be completed in the drainage area of the creek from which a heavy mineral sample yielded an elevated gold value, and over the area of the reported location of the Gold Run and the Jim-Flory occurrences. All limonite-stained outcrops and those areas known to be underlain by rhyolitic volcanics should be extensively prospected, and if warranted, sampled. Stream silt samples should be collected at regular intervals along all the creeks draining the property.

CERTIFICATE - C. H. Aussant

I, Claude Henry Aussant, of 31 Templebow Way N.E. in the City of Calgary in the Province of Alberta, do hereby certify that:

1. I am a Consulting Geologist with the firm of Taiga Consultants Ltd. with offices at Suite 400, 534 - 17th Avenue S.W., Calgary, Alberta.

2. I am a graduate of the University of Calgary, B.Sc.Geology (1976), and I have practised my profession continuously since graduation.

3. I am a member in good standing of the Association of Professional Engineers, Geologists and Geophysicists of Alberta; and I am a Fellow of the Geological Association of Canada.

4. I am the author of the report entitled "Geological, Prospecting, and Geochemical Report on the **Border Property**, BORDER 1 to 4 Mineral Claims, Skeena Mining Division, British Columbia", dated November 6, 1989. I personally worked on the property during the program described herein.

5. I do not own or expect to receive any interest (direct, indirect, or contingent) in the property described herein nor in the securities of **Golden Zone Resources Inc.**, in respect of services rendered in the preparation of this report.

DATED at Calgary, Alberta, this 6th day of November, A.D. 1989.

PERMIT TO PRACTICE
TAIGA CONSULTANTS LTD.
Signature
Date January 18, 1990
PERMIT NUMBER: P 2999
The Association of Professional Engineers, Geologists and Geophysicists of Alberta

Respectfully submitted,

C. H. Aussant, B.Sc., P.Geol., F.GAC

PROFESSIONAL GEOLOGIST ALBERTA
CLAUDE H. AUSSANT

GEOLOGICAL ASSOCIATION OF CANADA
C. H. AUSSANT
FELLOW

CERTIFICATE

I, DAVID GEORGE DuPRE, of 56 Parkgrove Crescent in the Municipality of Delta in the Province of British Columbia, do hereby certify that:

1) I am a graduate of the University of Calgary, B.Sc. Geology (1969), and have practised my profession continuously since graduation.

2) I am a member in good standing of the Association of Professional Engineers, Geologists and Geophysicists of Alberta; and I am a Fellow of the Geological Association of Canada.

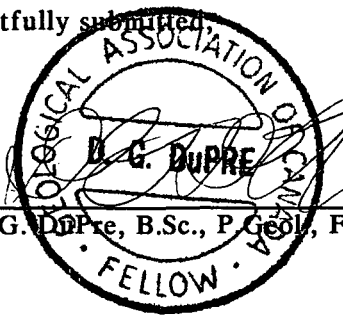
3) I am a consulting geologist with the firm of Keewatin Engineering Inc. with offices at Suite 800 - 900 West Hastings Street, Vancouver, British Columbia.

4) I am the co-author of the report entitled "Geological, Prospecting, and Geochemical Report on the **Border Property**, BORDER 1 to 4 Mineral Claims, Skeena Mining Division, British Columbia", dated November 6, 1989. I personally supervised the work on the property and visited the site on two occasions between September 6 and October 15, 1989.

5) I do not own or expect to receive any interest (direct, indirect or contingent) in the property described herein nor in the securities of **Golden Zone Resources Inc.**, in respect of services rendered in the preparation of this report.

Dated at Vancouver, British Columbia this 6th day of November, A.D. 1989.

Respectfully submitted,



David G. DuPre, B.Sc., P.Geol., FGAC

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Northern Miner: - Nov.7, 1989

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A P P E N D I X

Summary of Personnel
Rock Sample Descriptions
Certificates of Analysis
Analytical Techniques

* *

SUMMARY OF PERSONNEL

Name / Address	Position	Dates	Man Days
C. H. Aussant Calgary, Alberta	Project Geologist	Sep.9-Oct.16	1.00
B. C. Beattie Calgary, Alberta	Assistant Geologist	Sep.9-Oct.16	1.00
M. Waskett-Myers Vancouver, B,C.	Geochemist	Sep.9-Oct.16	2.00
B. McIntyre Vancouver, B.C.	Senior Prospector	Sep.9-Oct.16	2.00
S. Hardlotte LaRonge, Sask.	Senior Prospector	Sep.9-Oct.16	1.00
Don McLeod LaRonge, Sask.	Senior Prospector	Sep.9-Oct.16	1.00
Dennis McLeod Stanley Mission, Sask.	Junior Prospector	Sep.9-Oct.16	1.00
Irvine Roberts Stanley Mission, Sask.	Junior Prospector	Sep.9-Oct.16	1.00
C. Oevermann Smithers, B.C.	Cook	Sep.9-Oct.16	1.00
		TOTAL	11.00

ROCK SAMPLE DESCRIPTIONS

	Au ppb	
XYR-01	7	grab o/c; quartz-rich phase of granodiorite, all quartz with <1% disseminated pyrite, 5-20 cm wide, extends 6-8 m
XYR-02	20	grab o/c; quartz-carbonate veinlets parallel to laminations, in very fine-grained siltstone, trace chalcopyrite, minor pyrite
XYR-03	<5	grab o/c; dark green tuff, small feldspar phenocrysts, 30 cm wide dyke in granodiorite
XYR-04	172	grab o/c; pale grey rhyolite, weakly laminated, trace chalcopyrite, minor pyrite, trace pyrrhotite
KYR-06	7	grab o/c; sucrosic quartz vein 60 cm wide, in dark grey sediments; weakly laminated, minor pockets of magnetite
KYR-07	16	grab o/c; quartz vein 10 cm wide, minor disseminated pyrrhotite/pyrite, occ narrow sulphide concentrations pyrrhotite/pyrite
KER-058	15	grab o/c; rhyolite, occ stringers of quartz and pyrite, 3-5% disseminated pyrite; 160°/E
KER-059	<5	grab o/c; rhyolite tuff, weakly laminated, minor stringers of quartz and pyrite, disseminated pyrrhotite/pyrite
KER-060	18	grab o/c; rhyolite tuff, pyrite as stringers and 1% diss
KER-062	10	grab o/c; quartz-carbonate vein 1 m wide strike 070°, <1% disseminated pyrite
KER-063	18	grab o/c; mauve to grey andesite tuff, minor diss pyrite
KZR-059	60	grab o/c; grey quartz 50 cm wide, 3-7% diss pyrite
KZR-060	64	grab o/c; quartz-carbonate vein in gossaned andesite, pockets of pyrite, quartz with 3% diss pyrite, andesite with pyrite stringers (same quartz vein as KZR-059)
KZR-061	40	grab o/c; quartz vein traced for 20 m, with clusters of Py crystals and scattered pyrite stringers, sections with 10% pyrite
KOR-053	23	grab o/c; quartz flooding with minor diss pyrite in grey andesite with 1-3% diss pyrrhotite
KPR-060	16	grab o/c; quartz-albite vein with 5-7% diss pyrite, strike 105°, rusty weathered

	Au ppb	
KPR-061	19	grab o/c; black argillite, pyrrhotite stringers, minor quartz stringers, rusty weathered, strike 100°
KPR-062	17	grab o/c; rhyodacite, weakly laminated, rusty weathered, 1% pyrite stringers and pockets, strike 100°/vertical
KPR-063	<5	grab o/c; mauve rhyodacite tuff, weakly laminated, minor Po stringers and disseminations, 110°/vertical
KPR-064	6	grab o/c; dark grey andesite tuff, weakly laminated, zone 3 m wide, strike 104°/vertical, 5% diss very fine pyrite
KPR-065	10	grab o/c; quartz stringers and veinlets (stockwork) with minor pyrrhotite, in a mauve andesite tuff

KEEWATIN ENGINEERING INC.

STREAM SEDIMENTS

Project: BORDER

Area (Grid): _____

Collectors: _____

Results Plotted By: _____

Map: _____ N.T.S.: _____

Date: _____

Sample Number	NOTES	SEDIMENT DATA					STREAM DATA					SPRING	DRY GULLY				
		Gravel	Sand	Silt	Clay	Organic	Bank	Active	Width	Depth	Velocity						
KEL-061	at end of Creek			✓					2.0	0.1							

Bondar Clegg & Company Ltd.
130 Pemberton Ave.
North Vancouver, B.C.
V7P 2R5
(604) 985-0681 Telex 04-352667

BONDAR-CLEGG

Geochemical Lab Report

A DIVISION OF INCHCAPE INSPECTION & TESTING SERVICES

DATE PRINTED: 13-OCT-89

REPORT: V89-06886.0

PROJECT: NONE GIVEN

SAMPLE NUMBER	ELEMENT UNITS	Au PPB	Ag PPM	As PPM	Ba PPM	Be PPM	Bi PPM	Cd PPM	Ce PPM	Co PPM	Cr PPM	Cu PPM
R2 89XY-R01	BOULDER	7	0.3	<5	39	<0.5	<2	<1	5	8	111	82
R2 89XY-R02		20	2.3	11	52	<0.5	<2	<1	8	46	127	495
R2 89XY-R03		<5	<0.2	<5	71	<0.5	<2	<1	30	15	26	27
R2 89XY-R04	BOULDER	172	0.9	<5	64	<0.5	19	<1	<5	3	197	508

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REPORT: V89-06886.0

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SAMPLE NUMBER	ELEMENT UNITS	Ga PPM	Ta PPM	Ti PPM	Mo PPM	Nb PPM	Ni PPM	Pb PPM	Rb PPM	Sb PPM	Sc PPM	Sn PPM
R2 89XY-R01		<2	2	<1	<1	3	4	5	52	<5	<1	<20
R2 89XY-R02		7	5	5	16	3	67	13	106	<5	2	<20
R2 89XY-R03		17	17	15	<1	7	31	<2	50	<5	5	<20
R2 89XY-R04		7	<1	3	1	3	7	<2	21	<5	2	<20

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BONDAR-CLEGG

Geochemical Lab Report

A DIVISION OF INCHCAPE INSPECTION & TESTING SERVICES

REPORT: V89-06886.0

DATE PRINTED: 13-OCT-89

PROJECT: NONE GIVEN

SAMPLE NUMBER	ELEMENT UNITS	Sr PPM	Ta PPM	Te PPM	U PPM	W PPM	Y PPM	Zn PPM	Zr PPM
R2 89XY-R01		11	<10	<10	4	<10	12	3	<1
R2 89XY-R02		122	<10	<10	43	<10	7	23	<1
R2 89XY-R03		163	<10	<10	100	<10	7	78	21
R2 89XY-R04		61	<10	<10	23	<10	7	18	2

Bondar-Clegg & Company Ltd.
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BONDAR-CLEGG

A DIVISION OF INCHCAPE INSPECTION & TESTING SERVICES

Geochemical Lab Report

DATE PRINTED: 20-OCT-89

REPORT: V89-06964.0

PROJECT: UNUK

SAMPLE NUMBER	ELEMENT UNITS	Au PPB	Ag PPM	As PPM	Ba PPM	Be PPM	Bi PPM	Cd PPM	Ce PPM	Co PPM	Cr PPM	Cu PPM
R2 89KE-R058	BORDER	15	<0.2	<5	65	<0.5	<2	1	<5	13	72	13
R2 89KE-R059		<5	0.2	<5	66	<0.5	<2	1	7	19	53	104
R2 89KE-R060		18	0.3	<5	54	<0.5	<2	<1	<5	19	78	60
R2 89KE-R062		10	<0.2	<5	428	<0.5	<2	<1	12	30	66	11
R2 89KE-R063	B	18	<0.2	<5	299	<0.5	3	<1	10	21	50	52
R2 89KO-R053	BORDER	23	0.7	<5	20	<0.5	<2	2	<5	6	160	21
R2 89KZ-R059	BORDER	60	0.7	10	32	<0.5	4	<1	<5	<1	165	20
R2 89KZ-R060		64	1.1	<5	135	<0.5	6	<1	<5	13	37	88
R2 89KZ-R061	BORDER	40	0.8	15	11	<0.5	5	2	<5	34	303	337

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Geochemical Lab Report

A DIVISION OF INCHCAPE INSPECTION & TESTING SERVICES

DATE PRINTED: 20-OCT-89

REPORT: V89-06964.0 | PROJECT: UNUK | PAGE 1B

SAMPLE NUMBER	ELEMENT UNITS	Ga PPM	La PPM	Li PPM	Mo PPM	Nb PPM	Ni PPM	Pb PPM	Rb PPM	Sb PPM	Sc PPM	Sn PPM
R2 89KE-R058		10	<1	54	3	2	76	<2	<20	<5	15	<20
R2 89KE-R059		16	4	30	3	7	101	<2	<20	6	3	<20
R2 89KE-R060		8	<1	68	3	3	122	<2	23	<5	16	<20
R2 89KE-R062		3	7	4	<1	2	4	<2	<20	<5	2	<20
R2 89KE-R063		12	5	14	8	2	16	<2	<20	<5	19	<20
R2 89KO-R053		5	<1	5	<1	2	39	<2	<20	<5	3	<20
R2 89KZ-R059		<2	<1	1	2	<1	6	12	<20	<5	<1	<20
R2 89KZ-R060		4	<1	4	4	<1	16	52	27	9	7	<20
R2 89KZ-R061		2	<1	2	2	<1	62	<2	<20	10	4	<20

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Geochemical Lab Report

DATE PRINTED: 20-OCT-89

REPORT: V89-00964.0

PROJECT: UNUK

SAMPLE NUMBER	ELEMENT UNITS	Sr PPM	Ta PPM	Te PPM	V PPM	W PPM	Y PPM	Zn PPM	Zr PPM
R2 89KE-R058		34	<10	<10	83	<10	3	9	<1
R2 89KE-R059		192	<10	<10	40	<10	8	19	1
R2 89KE-R060		26	<10	<10	78	<10	5	38	1
R2 89KE-R062		22	<10	<10	13	<10	7	12	<1
R2 89KE-R063		44	<10	<10	139	<10	7	68	<1
R2 89KO-R053		25	<10	<10	28	<10	3	69	<1
R2 89KZ-R059		2	<10	<10	7	<10	<1	<1	<1
R2 89KZ-R060		12	<10	<10	70	<10	3	12	<1
R2 89KZ-R061		1	<10	<10	25	<10	2	11	<1

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DATE PRINTED: 23-OCT-89

REPORT: V89-06968.0

PROJECT: FLORY

SAMPLE NUMBER	ELEMENT UNITS	Au PPB	Ag PPM	As PPM	Ba PPM	Be PPM	Bi PPM	Cd PPM	Ce PPM	Co PPM	Cr PPM	Cu PPM
R2 KYR06 BORDER		7	<0.2	<5	6	<0.5	<2	<1	7	<1	125	33
R2 KYR07 BORDER		16	1.7	13	47	<0.5	5	1	<5	23	131	364

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Geochemical Lab Report

DATE PRINTED: 23-OCT-89

REPORT: V89-06968.0 | PROJECT: FLORY | PAGE 1B

SAMPLE NUMBER	ELEMENT UNITS	Ga PPM	La PPM	Li PPM	Mo PPM	Nb PPM	Ni PPM	Pb PPM	Rb PPM	Sb PPM	Sc PPM	Sn PPM
R2 KYR06		4	2	3	<1	3	2	38	70	<5	1	<20
R2 KYR07		10	<1	6	11	3	31	17	99	9	1	<20

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PROJECT: FLORY

SAMPLE NUMBER	ELEMENT UNITS	Sr PPM	Ta PPM	Te PPM	V PPM	W PPM	Y PPM	Zn PPM	Zr PPM
R2 KYR06		2	<10	<10	2	<10	4	19	<1
R2 KYR07		46	<10	<10	41	22	2	36	<1

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Geochemical Lab Report

DATE PRINTED: 20-OCT-89

REPORT: V89-01696.0

PROJECT: UNUK

SAMPLE NUMBER	ELEMENT UNITS	Au PPB	Ag PPM	As PPM	Ba PPM	Be PPM	Bi PPM	Cd PPM	Ce PPM	Co PPM	Cr PPM	Cu PPM
T1 89KEL061	Border	13	0.2	<5	136	5.6	6	<1	10	24	37	109

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A DIVISION OF INSTRUMENTATION & TESTING SERVICES

DATE PRINTED: 20-OCT-89

REPORT: V89-06960.0

PROJECT: UNUK

SAMPLE NUMBER	ELEMENT UNITS	Ga PPM	La PPM	Li PPM	Mo PPM	Nb PPM	Ni PPM	Pb PPM	Rb PPM	Sb PPM	Sc PPM	Sn PPM
T1 89KEL061		19	1	18	3	9	31	<2	<20	5	9	<20

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Geochemical Lab Report

DATE PRINTED: 20-OCT-89

REPORT: V89-06960.0 | PROJECT: UNUK | PAGE 1C

SAMPLE NUMBER	ELEMENT UNITS	Sr PPM	Ta PPM	Te PPM	V PPM	W PPM	Y PPM	Zn PPM	Zr PPM
TI 89KEL061		73	<10	<10	122	<10	8	93	7

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DATE PRINTED: 20-OCT-89

REPORT: V89-06961.0

PROJECT: UNUK

SAMPLE NUMBER	ELEMENT UNITS	Au PPB	Ag PPM	As PPM	Ba PPM	Be PPM	Bi PPM	Cd PPM	Ce PPM	Co PPM	Cr PPM	Cu PPM
R2 89KP-R060	BORDER	16	<0.2	<5	28	<0.5	<2	<1	28	11	33	4
R2 89KP-R061		19	0.8	<5	64	<0.5	<2	1	7	32	89	126
R2 89KP-R062		17	<0.2	<5	39	<0.5	4	1	<5	41	80	76
R2 89KP-R063		<5	<0.2	<5	408	<0.5	<2	1	<5	18	39	110
R2 89KP-R064		6	0.2	<5	479	<0.5	35	<1	<5	18	21	131
R2 89KP-R065	BORDER	10	<0.2	<5	565	<0.5	<2	1	<5	15	62	71

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SAMPLE NUMBER	ELEMENT UNITS	Ga PPM	La PPM	Li PPM	Mo PPM	Nb PPM	Ni PPM	Pb PPM	Rb PPM	Sb PPM	Sc PPM	Sn PPM
R2 89KP-R060		8	17	14	6	13	6	4	<20	5	<1	<20
R2 89KP-R061		12	10	7	61	8	198	<2	<20	<5	<1	<20
R2 89KP-R062		12	4	66	6	6	154	<2	<20	<5	3	<20
R2 89KP-R063		11	6	20	3	2	18	<2	<20	<5	22	<20
R2 89KP-R064		44	4	37	<1	26	9	19	<20	27	24	29
R2 89KP-R065		17	6	13	3	6	16	<2	41	9	18	<20

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SAMPLE NUMBER	ELEMENT UNITS	Sr PPM	Ta PPM	Te PPM	V PPM	W PPM	Y PPM	Zn PPM	Zr PPM
R2 89KP-R060		34	<10	<10	2	<10	7	7	4
R2 89KP-R061		223	<10	<10	54	<10	9	28	2
R2 89KP-R062		100	<10	<10	31	<10	3	42	1
R2 89KP-R063		3	17	<10	172	<10	4	91	<1
R2 89KP-R064		38	<10	<10	177	<10	2	119	<1
R2 89KP-R065		73	14	<10	129	<10	4	138	<1

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Geochemical Lab Report

REPORT: V89-06781.0 (COMPLETE)

REFERENCE INFO:

CLIENT: KEEWATIN ENGINEERING INC.
PROJECT: PARADIGM

SUBMITTED BY: TERRAMIN RES. LAB
DATE PRINTED: 4-OCT-89

ORDER		ELEMENT	NUMBER OF ANALYSES	LOWER DETECTION LIMIT	EXTRACTION	METHOD
1	Au	Gold Fire Assay	93	5 PPB	FIRE ASSAY	Fire Assay AA
2	Ag	Silver	93	0.2 PPM	HNO3-HCL HOT EXTR	Ind. Coupled Plasma
3	As	Arsenic	93	5 PPM	HNO3-HCL HOT EXTR	Ind. Coupled Plasma
4	Ba	Barium	93	1 PPM	HNO3-HCL HOT EXTR	Ind. Coupled Plasma
5	Be	Beryllium	93	0.5 PPM	HNO3-HCL HOT EXTR	Ind. Coupled Plasma
6	Bi	Bismuth	93	2 PPM	HNO3-HCL HOT EXTR	Ind. Coupled Plasma
7	Cd	Cadmium	93	1 PPM	HNO3-HCL HOT EXTR	Ind. Coupled Plasma
8	Ce	Cerium	93	5 PPM	HNO3-HCL HOT EXTR	Ind. Coupled Plasma
9	Co	Cobalt	93	1 PPM	HNO3-HCL HOT EXTR	Ind. Coupled Plasma
10	Cr	Chromium	93	1 PPM	HNO3-HCL HOT EXTR	Ind. Coupled Plasma
11	Cu	Copper	93	1 PPM	HNO3-HCL HOT EXTR	Ind. Coupled Plasma
12	Ga	Gallium	93	2 PPM	HNO3-HCL HOT EXTR	Ind. Coupled Plasma
13	La	Lanthanum	93	1 PPM	HNO3-HCL HOT EXTR	Ind. Coupled Plasma
14	Li	Lithium	93	1 PPM	HNO3-HCL HOT EXTR	Ind. Coupled Plasma
15	Mo	Molybdenum	93	1 PPM	HNO3-HCL HOT EXTR	Ind. Coupled Plasma
16	Nb	Niobium	93	1 PPM	HNO3-HCL HOT EXTR	Ind. Coupled Plasma
17	Ni	Nickel	93	1 PPM	HNO3-HCL HOT EXTR	Ind. Coupled Plasma
18	Pb	Lead	93	2 PPM	HNO3-HCL HOT EXTR	Ind. Coupled Plasma
19	Rb	Rubidium	93	20 PPM	HNO3-HCL HOT EXTR	Ind. Coupled Plasma
20	Sb	Antimony	93	5 PPM	HNO3-HCL HOT EXTR	Ind. Coupled Plasma
21	Sc	Scandium	93	1 PPM	HNO3-HCL HOT EXTR	Ind. Coupled Plasma
22	Sn	Tin	93	20 PPM	HNO3-HCL HOT EXTR	Ind. Coupled Plasma
23	Sr	Strontium	93	1 PPM	HNO3-HCL HOT EXTR	Ind. Coupled Plasma
24	Ta	Tantalum	93	10 PPM	HNO3-HCL HOT EXTR	Ind. Coupled Plasma
25	Te	Tellurium	93	10 PPM	HNO3-HCL HOT EXTR	Ind. Coupled Plasma
26	V	Vanadium	93	1 PPM	HNO3-HCL HOT EXTR	Ind. Coupled Plasma
27	W	Tungsten	93	10 PPM	HNO3-HCL HOT EXTR	Ind. Coupled Plasma
28	Y	Yttrium	93	1 PPM	HNO3-HCL HOT EXTR	Ind. Coupled Plasma
29	Zn	Zinc	93	1 PPM	HNO3-HCL HOT EXTR	Ind. Coupled Plasma
30	Zr	Zirconium	93	1 PPM	HNO3-HCL HOT EXTR	Ind. Coupled Plasma

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SAMPLE TYPES	NUMBER	SIZE FRACTIONS	NUMBER	SAMPLE PREPARATIONS	NUMBER
T STREAM SEDIMENT,SILT	41	1 -80	41	DRY, SIEVE -80	41
R ROCK OR BED ROCK	52	2 -150	52	CRUSH,PULVERIZE -150	52

REPORT COPIES TO: KEEWATIN ENGINEERING INC.
TAIGA CONSULTANTS LTD.

INVOICE TO: KEEWATIN ENGINEERING INC.

BORDER PROPERTY

HEAVY MINERAL RESULTS

LAB NUMBER	FIELD NUMBER	LOCATI	Au(30g (ppb)	Ag (ppm)	As (ppm)	Ba (ppm)	Be (ppm)	Bi (ppm)	Cd (ppm)	Ce (ppm)	Co (ppm)	Cr (ppm)	Cu (ppm)	Ga (ppm)	La (ppm)	Li (ppm)	Mo (ppm)	Nb (ppm)	Ni (ppm)	Pb (ppm)	Rb (ppm)	Sb (ppm)	Sc (ppm)	Sn (ppm)	Sr (ppm)	Ta (ppm)	Te (ppm)	V (ppm)	W (ppm)	Y (ppm)	Zn (ppm)	Zr (ppm)
68850022	89 X WH 1	BOR	39	0.3	81	81	-0.5	3	-1	86	23	83	70	7	34	6	6	8	12	-2	89	15	4	-20	87	-10	-10	493	-10	14	67	4
68850023	89 X WH 2	BOR	-5	-0.2	68	499	-0.5	2	-1	155	18	86	22	9	78	20	5	7	9	-2	62	14	5	-20	40	-10	-10	387	-10	20	114	1
68850024	89 X WH 3	BOR	198	0.9	57	115	-0.5	4	-1	7	29	124	137	7	-1	9	5	5	83	13	24	-5	5	-20	59	-10	-10	103	-10	7	88	4
68850026	89 X WH 4	BOR	95	0.3	67	69	-0.5	3	-1	90	18	103	57	7	40	8	4	8	32	-2	80	15	5	-20	70	-10	-10	373	-10	15	66	5
68850027	89 X WH 5	BOR	-5	0.3	78	64	-0.5	3	-1	136	19	104	59	5	63	7	6	7	21	-2	60	17	4	-20	49	-10	-10	500	-10	17	75	3
68850028	89 X WH 6	BOR	109	-0.2	74	52	-0.5	-2	-1	158	18	107	41	7	77	7	7	9	14	-2	47	16	5	-20	66	-10	-10	530	-10	21	73	4
68850029	89 X WH 7	BOR	6	0.5	48	96	-0.5	5	-1	38	27	85	126	13	17	12	9	7	39	3	69	10	7	-20	131	-10	-10	171	-10	11	84	6
68850030	89 X WH 8	BOR	2786	0.6	46	257	-0.5	2	-1	9	25	92	93	7	-1	7	3	6	49	-2	29	-5	6	-20	80	-10	-10	126	-10	7	68	5
68850031	89 X WH 9	BOR	96	0.2	60	93	-0.5	4	-1	117	18	91	55	8	58	9	4	8	16	-2	87	12	5	-20	81	-10	-10	340	-10	17	73	4
69690012	89 K WH11	BOR	-5	0.3	59	425	-0.5	-2	-1	203	21	106	50	8	114	20	7	10	7	-2	97	11	8	-20	65	-10	-10	371	-10	31	125	3
69690013	89 K WH12	BOR	140	0.4	50	147	-0.5	-2	-1	184	18	109	67	2	106	9	6	8	10	-2	91	10	5	-20	40	-10	-10	362	-10	21	75	3
69690014	89 K WH13	BOR	282	0.6	36	164	-0.5	6	-1	121	23	68	94	7	67	10	6	8	21	-2	80	7	9	-20	54	-10	-10	230	54	21	80	5
69690017	89 K WH16	BOR	-5	0.3	49	203	-0.5	3	-1	104	20	115	52	8	57	10	5	9	23	-2	104	10	5	-20	87	-10	-10	346	10	16	77	4

SUMMARY OF EXPENDITURES

Border 1-4

Personnel and Crew		$ 4,498.57
Transportation - helicopter/fixed wing/fuel		3,604.60
Camp - food/accommodation		800.63
Assay/Report/Drafting/Secretarial		2,469.37
	TOTAL EXPENDITURES:	**$11,373.17**

BORDER 4

BORDER 1

BORDER 3

BORDER 2

Boulder Creek

King Creek

0.5 Otzvein
KZR 61(40,0.8,15,10)
KZR 59(60,0.7,10,5)
KZR 60(64,1.1,5,9)
KQR 63(25,0.7,<5,<5)
KYR 04(172,0.9,<5,<5)
KYR 2(20,2.3,
KYR 1(7,0.3,<5,<5)
XWH8(270,0.6,60,15)
XWH9(96,0.2,60,12)
873295(120,0.1,5,0.2)
KYR 7(
KWH 11(
KYR 6(7,<0.2,<5,<5)
KWH 13(282,0.6,36,7)
KWH 12(140,0.4,50,10)
873296(95,0.1,0.2)
KYR 3(<5,<0.2,<5,<5)
KPR 65(10,<0.2,<5,9)
KER 62(10,<0.2,<5,<5)
KER 63(18,<0.2,<5,<5)
KPR 64(6,0.2,<5,27)
KPR 63(<5,<0.2,<5,<5)
KEL 61(13,0.2,<5,5)
KPR 62(17,0.2,<5,<5)
KER 60(18,0.3,<5,<5)
KER 58(15,<0.2,<5,<5)
KER 59(<5,0.2,<5,6)
Quartz vein
KPR 60(16,<0.2,<5,5)
KPR 61(19,0.8,<5,<5)
XWH 7(6,0.5,48,10)
XWH 6(109,0.2,74,18)
XWH 4(95,0.3,67,15)
XWH 5(5,0.3,78,17)
XWH 3(198,0.9,57,<5)
KWH 16(<5,0.3,49,10)
873284(5.0,1.4,0.2)
XWH 1(39,0.3,81,20)
XWH 2(<5,0.2,68,14)

130°40'

56°20'

220

60

79

5000

4500

4000

3500

3000

2500

4080

5500

500

LEGEND

Volcanic Sedimentary Rocks

Pleistocene to Recent

1 — Basalt flows and tephra: dark brown to black, minor pillow lavas

Lower Jurassic (Pleinsbachian to Toarcian)

2 — Betty Creek Formation: pyroclastic-epiclastic sequence, heterogeneous, grey-green, massive to bedded, pyroclastics and sedimentary rocks (black, thinly bedded siltstone, shale, and argillite)

Upper Triassic to Lower Jurassic (Norian to Sinemurian)

3 — Unuk River Formation: andesite sequence, green and grey, intermediate to mafic volcaniclastics and flows, with locally thick interbeds of fine-grained immature sediments, minor conglomerate, and limestone

Upper Triassic (Carnian to Norian)

4 — Stuhini Group: brown, black, grey; mixed sedimentary rocks (siltstone, shale, argillite, limestone, chert), with minor mafic to intermediate volcanics and volcaniclastic rocks

Intrusive Rocks

Tertiary

5 — King Creek Dyke Swarm: feldspar porphyry dacite, andesite, diabase, and hornblende to quartz diorite; limits of the unit shown indicate where the dykes exceed 50% of the exposed bedrock

9 — Hawilson Monzonite: fine-grained monzonite

6 — Coast Plutonic Complex: hornblende-biotite-quartz diorite to granodiorite

Jurassic

7 — Unuk River Diorite Suite:
a) Max: biotite-hornblende diorite, quartz diorite, granodiorite
b) Melville: hornblende-biotite diorite, quartz diorite

Metamorphic Rocks

8 — Metamorphic equivalents of Units 1, 2, or 3
a) hornblende, mylonite gneiss, mylonite
b) Unuk-Harrymel Fault Zone, strongly sheared rock within fault zone

1989 Prospecting Coverage

SYMBOLS

- Geological contact (observed, assumed)
- Bedding with dip
- Foliation
- Regional anticline
- Fault (defined, assumed)
- Airphoto lineament
- ◇ Regional stream silt sample site (Au ppb, Ag ppm, As ppm, Sb ppm)
- ✱ Minfile mineral occurrence (Cu ppm, Pb ppm, Zn ppm, Au ppb, Ag ppm)
- x Rock sample - outcrop (Au ppb, Ag ppm, As ppm, Sb ppm)
- ▲ Rock sample - float (Au ppb, Ag ppm, As ppm, Sb ppm)
- ● Stream silt sample (Au ppb, Ag ppm, As ppm, Sb ppm)
- ■ Heavy mineral sample (Au ppb, Ag ppm, As ppm, Sb ppm)
- Trench

GEOLOGICAL ASSOCIATION OF CANADA
D. G. DuPRE

GOLDEN ZONE RESOURCES INC.

BORDER PROJECT

GEOLOGY & 1989 EXPLORATION SAMPLE LOCATIONS & RESULTS

DATE: NOV. 1989 | NTS: 104B/7

PROJECT: BORDER

SCALE 1:10,000 — 0 100 200 300 400 500 METRES

KEEWATIN ENGINEERING INC. | MAP No. 1

GEOLOGICAL BRANCH
ASSESSMENT REPORT

19,661