ARIS SUMMARY SHEET

District Geologist, Smithers   Off Confidential: 92.09.09

ASSESSMENT REPORT 21901   MINING DIVISION: Liard

PROPERTY: Rok
LOCATION: LAT 57 46 00 LONG 129 55 00
UTM 09 6402890 445463
NTS 104H13W
CLAIM(S): Rok,Eddon 1,Eddon 4,Eddon 6,Coyote 1-2
OPERATOR(S): Cons. Carina Res.
AUTHOR(S): Mehner, D.T.;Peatfield, G.R.
REPORT YEAR: 1991, 363 Pages
COMMODITIES
SEARCHED FOR: Copper,Gold
KEYWORDS: Triasssic,Andesites,Basalts,Breccias,Tuffs,Argillites,Siltstones
Greywackes,Chalcopyrite,Pyrite,Magnetite,Stockworks
WORK
DONE: Drilling,Geochemical,Geophysical,Physical,Geological
DIAD 716.0 m 5 hole(s)
EMGR 11.3 km;VLF
GEOL 1950.0 ha
Map(s) - 11; Scale(s) - 1:500,1:10 000,1:2000
IPOL 11.3 km
Map(s) - 4; Scale(s) - 1:10 000
LINE 25.4 km
MAGG 12.4 km
SAMP 788 sample(s) ;ME
SILT 23 sample(s) ;ME
SOIL 1026 sample(s) ;ME
Map(s) - 15; Scale(s) - 1:500,1:2000
TREN 1184.0 m 18 trench(es)
MINFILE: 104H 012

ASSESSMENT REPORT

ON EXPLORATION PROGRAMS ON THE

ROK PROPERTY

Ealue Lake Area
Liard Mining Division, British Columbia
NTS 104H/13W
Latitude: 57° 43'N
Longitude: 129° 52'W

Prepared for

MANCHESTER RESOURCES CORPORATION
Edmonton, Alberta
and
CONSOLIDATED CARINA RESOURCES LTD.
Saskatoon, Saskatchewan

Prepared by

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December 4, 1991

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1.0 SUMMARY

The ROK porphyry copper-gold prospect, located in the Stikine region of northwestern British Columbia, has been explored intermittently since the late 1960's. It is one of several similar prospects in the region, of which two (Falconbridge et al.'s Red-Chris and Integrated Resources' Gnat Lakes deposits) have well-defined resources. Other prospects are at earlier stages of exploration.

The 189 claim-unit property is located near the small village of Iskut, at the north end of Eddontenajon Lake. Access to the region is good, via the all-weather "Stewart-Cassiar Highway" (Highway 37), and there are rudimentary services available locally. The property covers most of a small massif; locally the terrain is mountainous, with a total relief of about 1,000 metres on the property.

The ROK prospect is one of a large number of porphyry copper-gold prospects contained within or adjacent to alkalic or sub-alkalic sub-volcanic intrusive complexes in coeval volcanic and sedimentary rocks of late Triassic and early Jurassic age. This is the setting for several major copper-gold deposits and prospects in the Quesnel and Stikine Terranes throughout the length of British Columbia, from Copper Mountain in the south to Stikine Copper (Galore Creek) and Kerr in the northwest. While the deposits and occurrences in Stikine-Kinaskan Lake area have some significant differences from other deposits of the "alkaline porphyry" clan, they are clearly part of the family.

Work on the property over the years has included widespread geological mapping and geochemical surveys, grid-based geophysics (magnetics, IP and VLF-EM), extensive surface trenching in 1991 (a total of 1,184 metres in 18 trenches) and a total of 1,534 metres of diamond drilling in 17 holes, completed in campaigns in 1976, 1990 and 1991. The trenching and diamond drilling have for the most part tested two relatively restricted zones of quartz-chalcopyrite stockwork mineralization. Although several short intervals of impressive grade were obtained in these trenching and drilling programs, no significant body of copper-gold mineralization has yet been outlined.

A compilation of all exploration data suggests that there is potential for discovery of an as yet un-tested zone of stockwork mineralization below the area lying between and to the east of the presently known "Main" and "South" Zones, or of one or more somewhat restricted bodies of skarn mineralization at depth to the north and east of the Main Zone. The postulated skarns would be related to the contact of the dioritic intrusive rocks with the westward dipping limey and argillaceous sedimentary strata.

2.0 INTRODUCTION

2.1 Location, Access and Infrastructure

The ROK property is located in the Stikine region of northwestern British Columbia, approximately 195 km north of Stewart (see Figure 1). The claims are centred about 8 km southeast of Iskut Village and 5 km east of Eddontenajon Lake, at 57°47'N latitude and 129°52'W longitude, on NTS map sheet 104H/13W (see Figure 2). The southern portion of the property extends to the north shore of Ealue Lake.

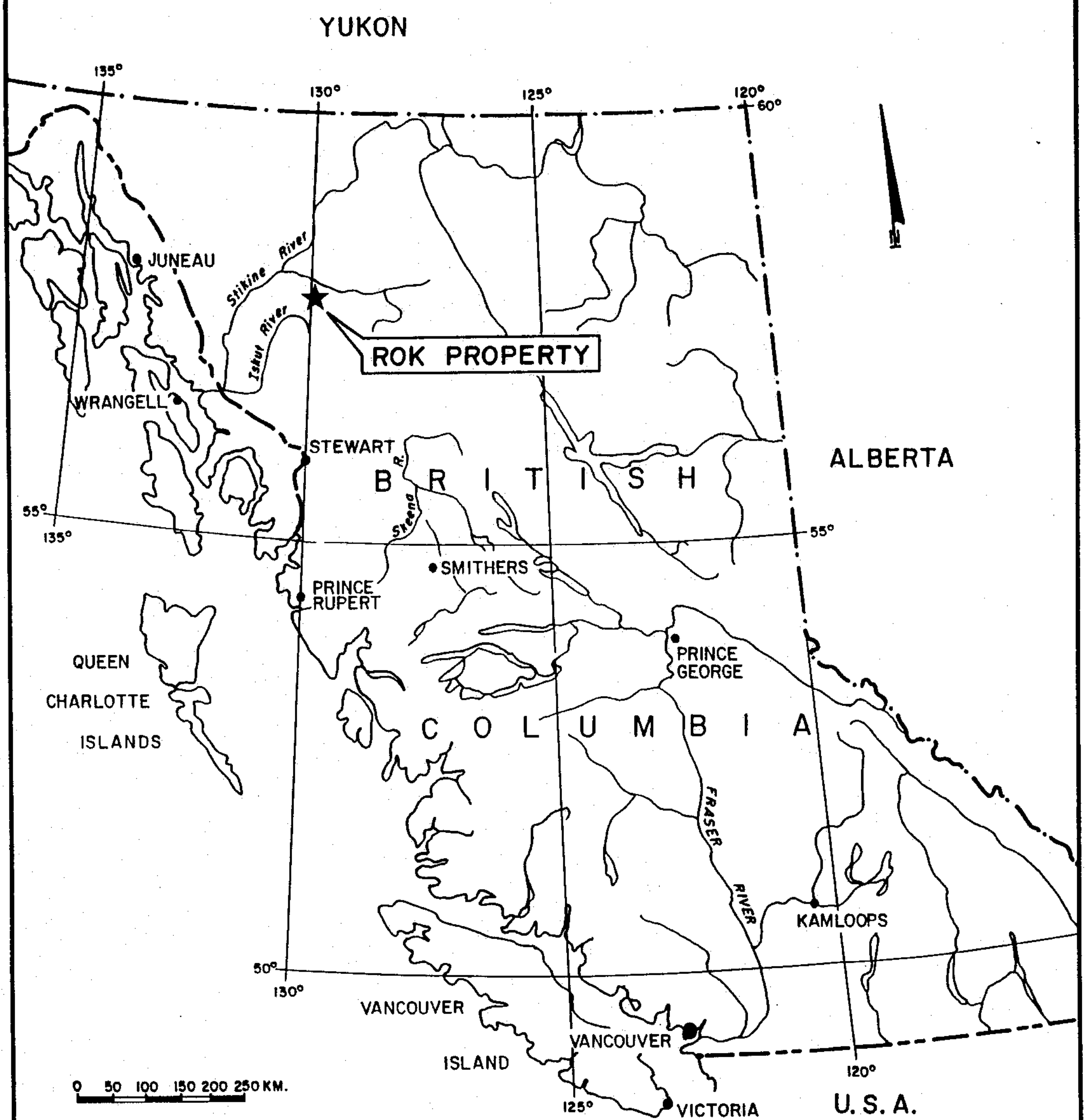
The property can be reached via the Stewart-Cassiar Highway (Highway 37) and a poorly maintained gravel road along the north shore of Ealue Lake (the "Keene Access Road"), used during construction of the B.C. Rail grade. Access to the work area is, at present, by helicopter, or foot traverses.

Rudimentary services such as food, accommodation, fuel and communication services are available at Iskut and Eddontenajon, with more comprehensive facilities at Dease Lake, about 70 km to the north, and at the deep-water port of Stewart, 195 km to the south. Scheduled air service is available between Smithers and Iskut during the summer months.

2.2 Terrain, Vegetation and Climate

The ROK property covers much of Ehahcezetle Mountain, which forms a small triangular massif between Ealue and Eddontenajon Lakes. Elevations vary between 885 metres above sea level at Ealue Lake to 1,915 metres at the high point on the ROK claim. The northern portion of the property covers a rolling upland surface with gentle north and east facing slopes, cut by deeply incised creek valleys. The south-central portion of the claim block covers an area of rugged south-facing cliffs and scree slopes, with a lower, more subdued area in the southwest corner of the property.

Vegetation is typical of this part of northern British Columbia, with relatively dense spruce forest at lower elevations, grading upward through poplars and scrub conifers to tree line at

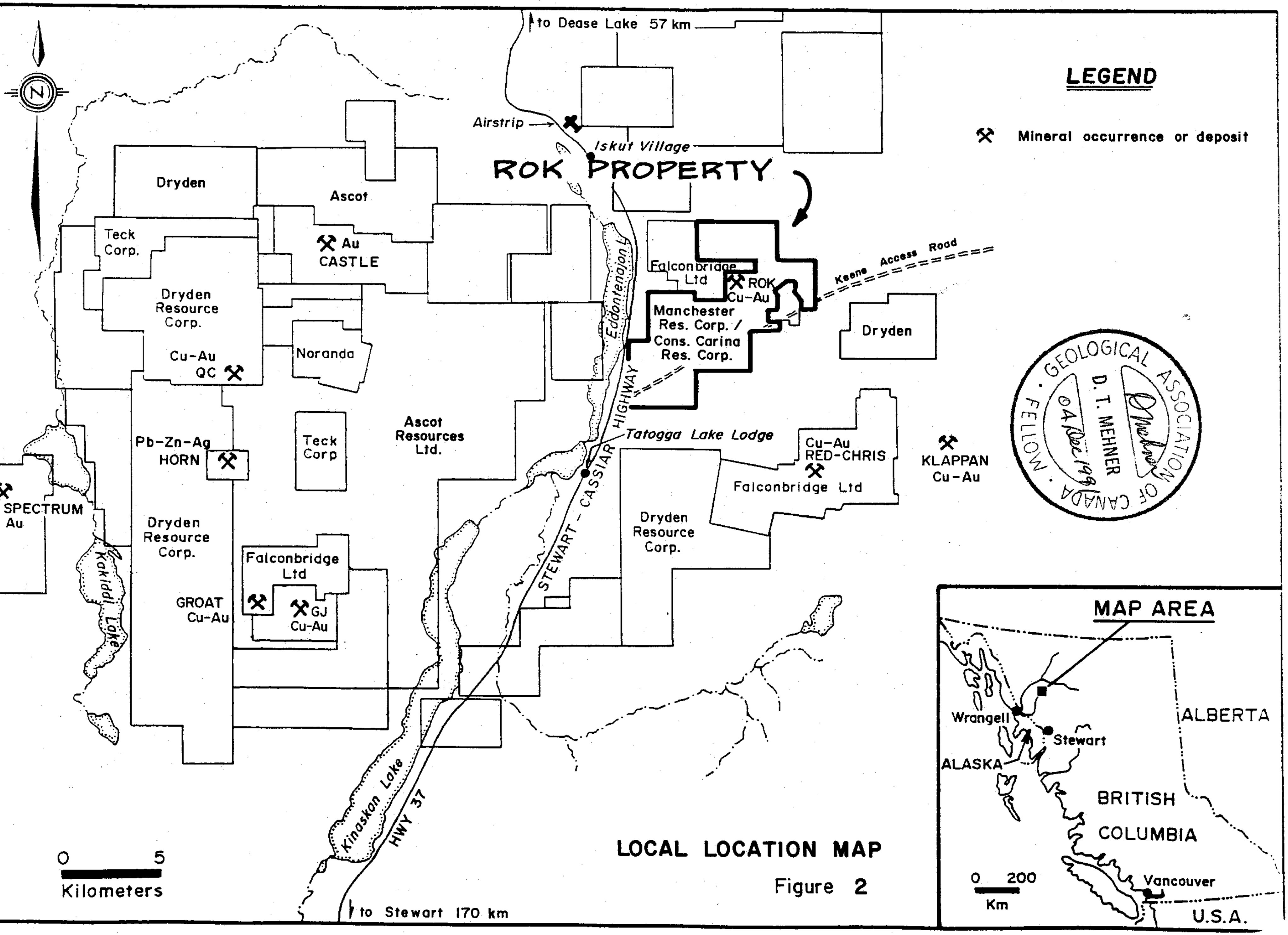


GEOLOGICAL ASSOCIATION OF CANADA · FELLOW · D. T. MEHNER 04 Dec 1991

PROPERTY LOCATION MAP
ROK PROPERTY

Figure 1

KEEWATIN ENGINEERING INC.



LOCAL LOCATION MAP

Figure 2

about 1,370 metres. The upper reaches of the property are covered by grasses and "buck brush".

Small lakes and streams provide ample water for camps and drilling operations. Precipitation in the region is moderate, averaging about 100 cm (rain equivalent) per year. Snow is heavy on the uplands during winter; geological work is generally limited to the period of late June to early October at the latest.

2.3 Property and Ownership

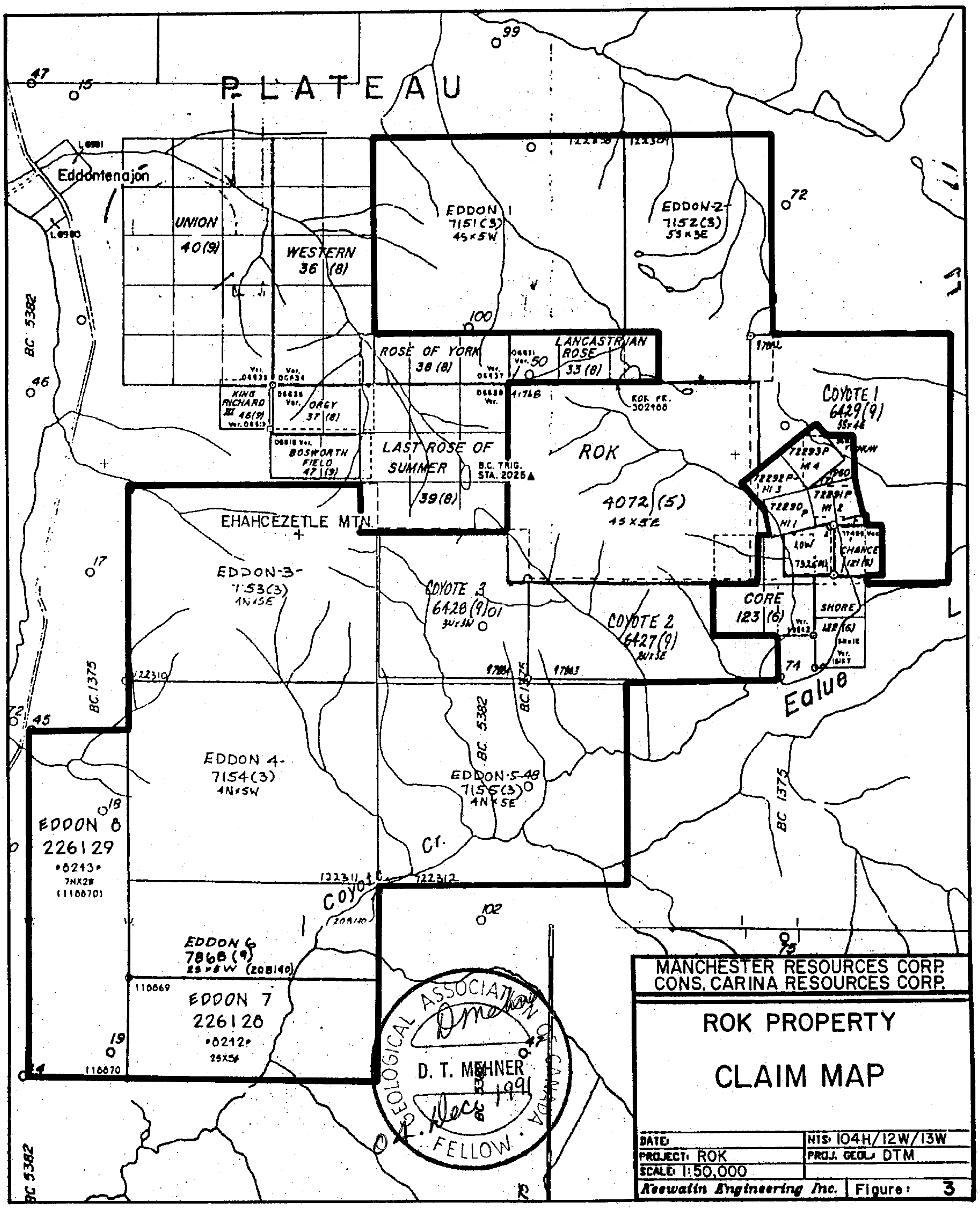
The ROK property consists of 12 Modified Grid System (MGS) claims and 1 MGS fractional claim totalling 189 claim units in the Liard Mining Division (see Figure 3). Claim data are as follows:

TABLE 1 - ROK Property - Claim Status Summary

Claim Name	Record No.	No. of Units	Record Date	Expiry Date *
ROK	222717	20	May 11, 1987	May 11, 2001
Coyote 1	224359	20	Sep. 21, 1989	Sep. 21, 2001
Coyote 2	224357	10	Sep. 21, 1989	Sep. 21, 2001
Coyote 3	224358	9	Sep. 21, 1989	Sep. 21, 2001
Eddon 1	225065	20	Mar. 23, 1990	Mar. 23, 2001
Eddon 2	225066	15	Mar. 23, 1990	Mar. 23, 2001
Eddon 3	225067	20	Mar. 23, 1990	Mar. 23, 2001
Eddon 4	225068	20	Mar. 23, 1990	Mar. 23, 2001
Eddon 5	225069	20	Mar. 23, 1990	Mar. 23, 2001
Eddon 6	225769	10	Sep. 09, 1990	Sep. 09, 2001
Eddon 7	226128	10	May 17, 1991	May 17, 2001
Eddon 8	226129	14	May 23, 1991	May 23, 2001
ROK Fr.	302488	1	Jul. 11, 1991	Jul. 11, 2001

* Expiry date after filing 1991 work.

The claims are owned 100% by Manchester Resources Corporation, with offices at Suite 3, 12415 Stoneyplain Road, Edmonton, Alberta, T5N 3N3, subject only to a 2% Net Smelter Return royalty payable to Falconbridge Limited.


PLATEAU
Eddontenajon
UNION 40(9)
WESTERN 36 (8)
EDDON 1 7151(3) 45×5W
EDDON-2 7152(3) 5S×3E
72
99
100
ROSE OF YORK 38 (8)
LANCASTRIAN ROSE 33 (8)
KING RICHARD III 46(9)
ORGY 37 (8)
BOSWORTH FIELD 47 (9)
LAST ROSE OF SUMMER 39(8)
B.C. TRIG. STA. 2025
ROK 4072 (5) 45×5E
COYOTE 1 6429(9)
H1 4
H1 3
H1 2
H1 1
LOW
CHANCE 121 (6)
CORE 123 (6)
SHORE 122 (6)
EHAHCEZETLE MTN.
EDDON-3- 7153(3) 4N×5E
COYOTE 3 6428(9)
COYOTE 2 6427(9)
Ealue
BC 5382
BC 1375
EDDON 4- 7154(3) 4N×5W
EDDON-5 7155(3) 4N×5E
EDDON 8 226129
Cr.
Coyote
EDDON 6 7868 (9)
EDDON 7 226128
MANCHESTER RESOURCES CORP.
CONS. CARINA RESOURCES CORP.
ROK PROPERTY
CLAIM MAP
DATE:
NTS: 104H/12W/13W
PROJECT: ROK
PROJ. GEOL.: DTM
SCALE: 1:50,000
Keewatin Engineering Inc.
Figure: 3
GEOLOGICAL ASSOCIATION OF CANADA
D. T. MEHNER
FELLOW
4 Dec 1991

The property has been optioned to Consolidated Carina Resources Ltd., with offices at 320 - 128 Fourth Avenue South, Saskatoon, Saskatchewan, S7M 1M8. Consolidated Carina can earned a 50% working interest in the property by funding $400,000 in exploration expenditures before December 31, 1991. Manchester has become the operator following Carina's earn-in period, and has contracted with Keewatin Engineering Inc. to manage the field program.

2.4 History of Exploration

The first record of work in this general area is for 1929, when eight claims were staked to cover the "Klapan-Rose" copper showing above the north shore of Ealue Lake. Several pits were dug, and a short adit driven in a high grade skarn showing. The claims were subsequently allowed to lapse. These showings were restaked in the 1960's and 1970's. (Historical details up to 1980 are derived from Enns (1982), and personal diaries of G.R. Peatfield).

In the late 1960's, Yukonadian Mineral Explorations Ltd. staked a large block of claims (essentially in the area of the present ROK claim), and conducted surface exploration. In 1970, Granduc Mines Ltd. examined this ground; results of their mapping and geochemical work showed complex volcanic and sedimentary rock packages and highly anomalous stream silt values for copper in streams draining the northwest portion of the claim block (near the present Main Zone). They did not discover the high-grade outcropping mineralization. In this same time period, Silver Standard Mines Ltd. staked and explored a small showing of high-grade chalcopyrite mineralization below the large stain zone northwest of the ROK claim on the present Falconbridge property. (This was subsequently shown to be a large boulder, the source of which was never found.)

By 1974, many of the claims in the area had been allowed to lapse, with the exception of a small block on the original "Klapan-Rose" showing and some of the Yukonadian property. Texasgulf Inc. examined the area as part of a regional reconnaissance program undertaken following initial encouragement on their Red (now Red-Chris) property south of Ealue Lake. Texasgulf staked the core of their "Rose" property early in the 1975 field season, after the

Yukonadian claims had lapsed, and added to their holdings during a preliminary program of geological sampling and prospecting. By mid-July the float copper mineralization north of the present Main Zone had been found, but the source was not discovered until 1976.

During 1976, Texasgulf did extensive surveys on the Rose property, including geological mapping, soil geochemistry, geophysics (ground magnetics and I.P.) and a limited amount of hand trenching. Good grade copper mineralization in quartz vein stockworks (the present Main Zone) was found in early July, and that year a total of 444 metres of BQ drilling in nine holes was completed at the Main Zone and immediately to the north. The first two holes intersected short, well-mineralized sections near the surface in the vicinity of the best surface showings. Drill hole collars, trenches, claim posts and other features were located accurately during a property survey by McElhanney Surveying and Engineering Ltd.

Earlier, in 1975, Texasgulf had done a small amount of exploration work on the Coyote property, south of the Rose claims. The principal showings lie between the Keene Access Road and Coyote Creek, about 1,000 metres west of the western end of Ealue Lake. These showings are covered by the present Eddon 6 mineral claim. Work included geological mapping, ground magnetics, I.P., soil sampling and percussion drilling of five holes totalling 293 metres to test occurrences of chalcopyrite and molybdenite in narrow quartz veinlets in a monzonite host rock. Results were not encouraging.

In the period 1977 to 1980, Texasgulf did modest amounts of mapping, geophysics, trenching and geochemistry, mostly to the northwest of the present ROK property. Utah Mines Ltd. examined the Rose property in 1979, at which time they completed a limited amount of deep-penetration I.P. They did not choose to acquire an interest in the property. In 1980, Texasgulf drilled 258 metres in one BQ diamond drill hole in the "Edon Stain Zone", on the present Falconbridge property northwest of ROK.

Texasgulf's work on the Rose project was part of a major effort in the general region, which also involved work on the Red-Chris, Groat Creek ("Goat") and Klappan ("Bonanza") porphyry copper-gold systems, as well as extensive reconnaissance programs.

By 1987, Texasgulf Inc. (in Canada) had become Kidd Creek Mines Ltd., which had subsequently been acquired by Falconbridge Ltd. Several of the claims in the original Rose property had been allowed to lapse, including the Rose of Klappan claim, which covered the Main Zone showing area. In 1987, Manchester Resources Corp. staked the ROK claim and carried out geological mapping, ground magnetics and soil geochemistry. In return for releasing information on earlier work, Falconbridge was granted a 2% net smelter return royalty interest in any claims staked in the immediate project area.

In 1989 and 1990, Manchester added several claims and in 1990 entered into an option agreement with Consolidated Carina Resources Ltd. whereby Carina could earn a 50% interest in the property by expending $400,000 by December 31, 1991. During the 1990 field season, Keewatin Engineering Inc., under contract to Carina (and after Carina's earn-in to Manchester), supervised a program of geology, geochemistry, geophysics and diamond drilling. Three BGM diamond drill holes totalling 373.7 metres were completed in the Main Zone (Mehner, 1990).

Between 1961 and the present time, there have been a number of small programs undertaken on property held on and around the original Klapan-Rose showings, southeast of ROK, including three diamond drill holes totalling 182 metres in 1976 (McTaggart, 1961; Cukor, 1981; Ven Huizen, 1991). While numerous small occurrences of high-grade copper mineralization have been found, some with significant gold contents, no substantial bodies of mineralization have been outlined.

3.0 GEOLOGY

3.1 Regional Setting

The ROK property lies near the northern end of an elongate zone which stretches for most of the length of British Columbia (see Figure 4). This belt of rocks falls within the so-called Quesnel and Stikine Terranes, and contains a diverse assemblage of volcanic and sedimentary rocks of early to middle Mesozoic age, with co-eval subvolcanic intrusive complexes. Most of these volcanic and related intrusive rocks are alkaline and subalkaline, submarine to locally subaerial, and range in age from late Triassic to early Jurassic. This elongate Mesozoic belt is of great importance because volcanic complexes within it host a large number of significant copper-gold porphyry mines, deposits and prospects (see Figure 4). Table 2 lists pertinent data for the more important deposits within these Terranes.

The ROK property covers one of a number of sub-volcanic intrusive complexes with associated copper-gold mineralization in the immediate Eddontenajon area (see Figure 5). Others of note are: Red-Chris, Klappan, GJ-Groat Creek, QC (Quash Creek), JO, Gnat Lakes and, possibly, Ball Creek.

These prospects form a sub-category of the so-called "alkalic" or copper-gold porphyries of the Quesnel and Stikine Terranes. They are characterized by the following features:

1) They contain copper and gold, with subordinate to usually almost non-existent molybdenum.

2) Unlike most deposits of this clan elsewhere in the Province, these have strong to intense quartz veining directly associated with the copper-gold mineralization.

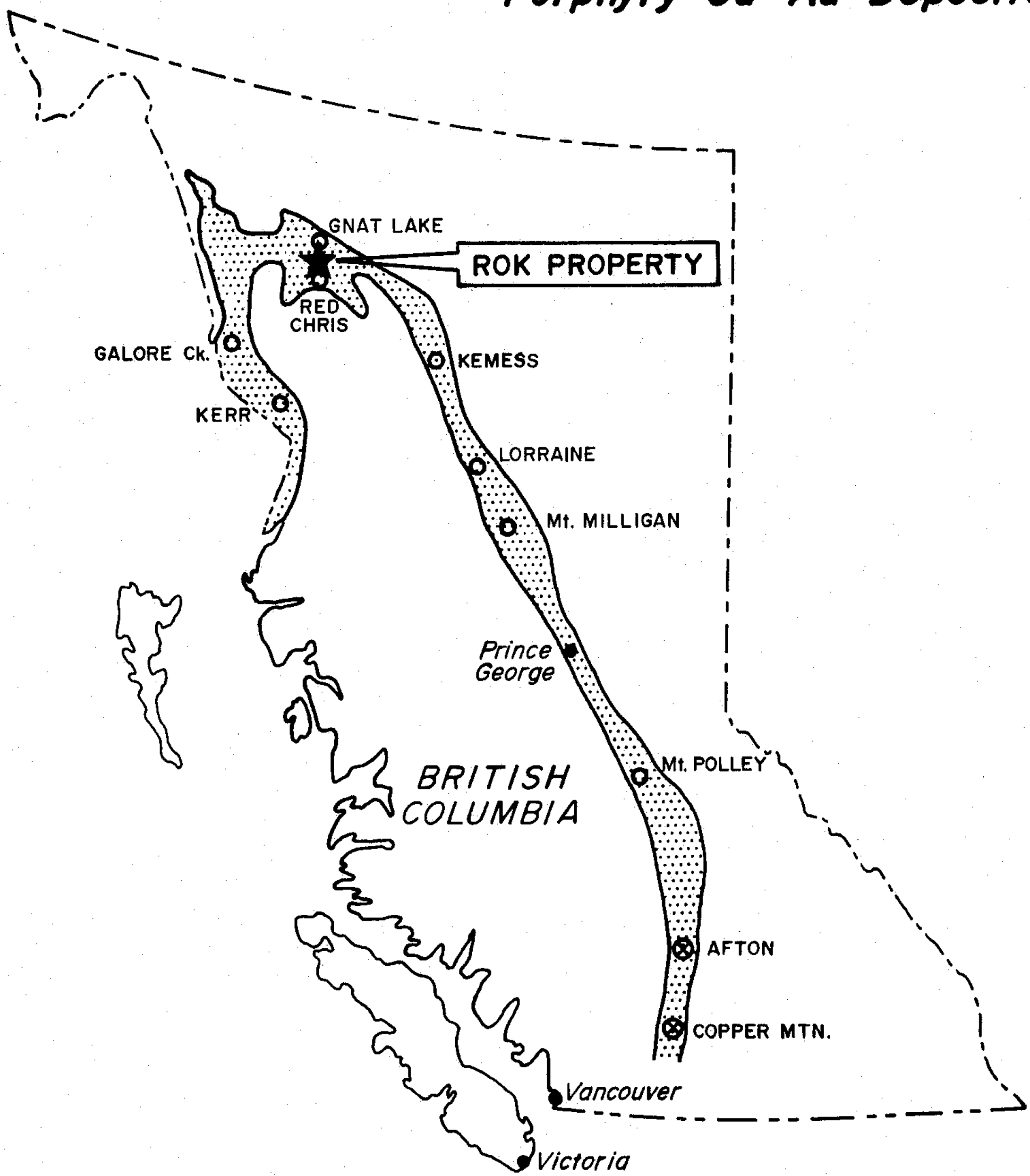
3) Significant mineralization occurs in sub-volcanic intrusive rocks and in the co-eval volcanic and sedimentary rocks hosting the intrusives.

4) Although most of these deposits have very low molybdenum contents, most have some apparently associated molybdenite showings, generally peripheral to or perhaps superimposed on the copper-gold zones. This relationship has been documented at Red-Chris, GJ-Groat, Ball Creek and ROK.

5) The deposits have a peripheral "propylitic" alteration, in most cases also superimposed on the deposit itself as a late stage event. This alteration differs depending on the host rock; in the case of volcanic flows and tuffs a typical epidote-chlorite-calcite assemblage is present, in the case of carbonate-rich clastic sedimentary rocks, the assemblage is dominantly iron-rich carbonate (i.e. ankerite or related minerals).

QUESNEL and STIKINE TERRANE

Porphyry Cu-Au Deposits



CONS. CARINA RESOURCES CORP. /
MANCHESTER RESOURCES CORP.

ROK PROPERTY

G. R. Peatfield
04 Dec 1991

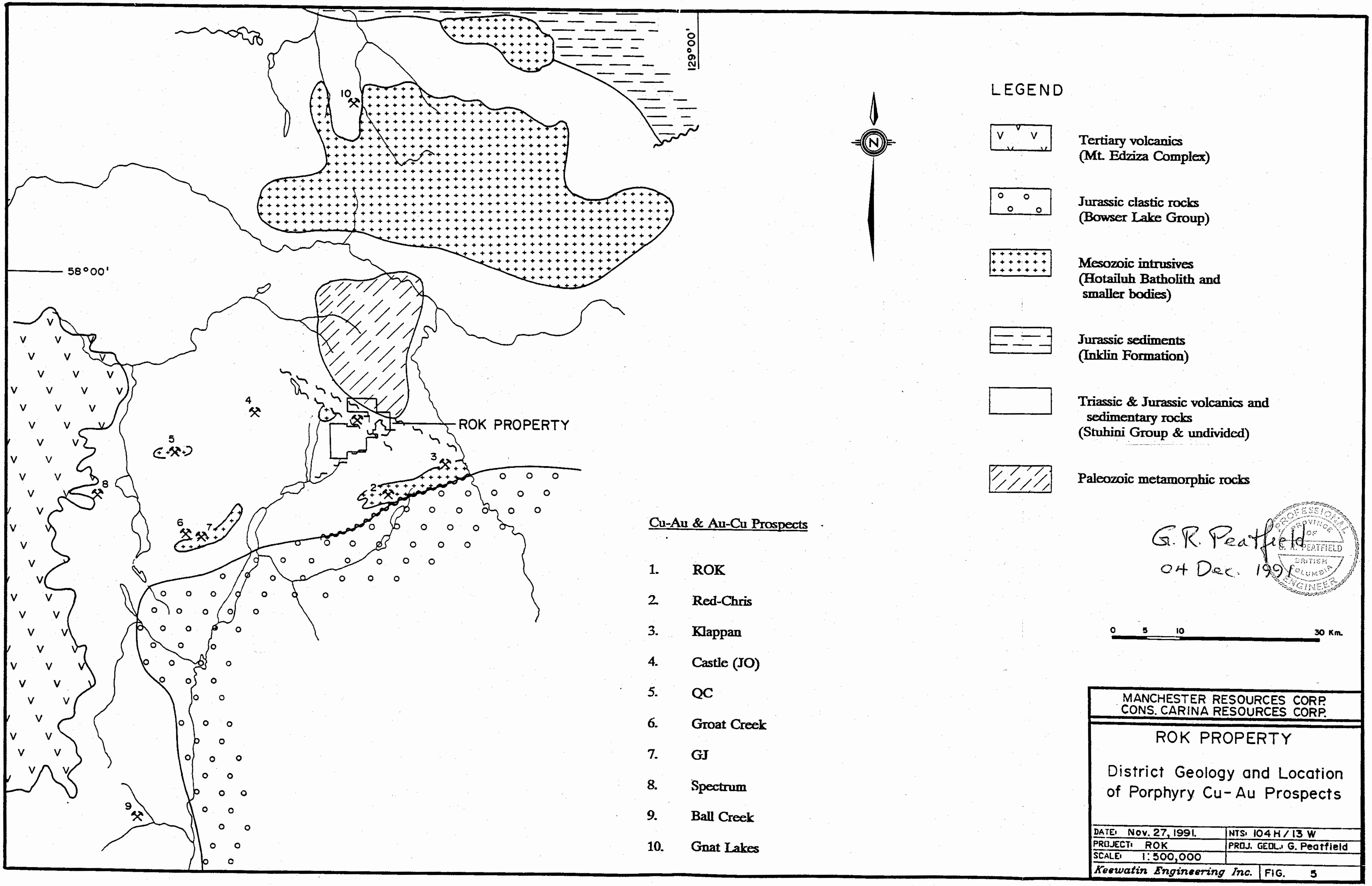
PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
G. R. PEATFIELD

FIG. 4

TABLE 2 - SELECTED MESOZOIC PORPHYRY COPPER-GOLD DEPOSITS OF BRITISH COLUMBIA

Name	Location	Status	Production	Recovery Grade	Reserves	Grade
Copper Mtn. Ingerbelle	Princeton	Producer	c. 150 m.t.	0.47% Cu 0.004 o/t Au	?	?
Afton/Ajax	Kamloops	Producer	c. 30 m.t.	0.75% Cu 0.014 o/t Au	c. 26 m.t.	0.46% Cu 0.011 o/t Au
Mt. Polley	Likely	Development (?)	--	--	c. 55 m.t.	0.44% Cu 0.017 o/t Au
Mt. Milligan	Ft. St. James	Development (?)	--	--	c. 350 m.t.	0.20% Cu 0.015 o/t Au
Lorraine	Omineca R.	Prospect	--	--	c. 10 m.t.	0.67% Cu 0.006 o/t Au
Kemess	Toodoggone	Prospect (drilling)	--	--	+100 m.t.	0.19% Cu 0.013 o/t Au
Red-Chris	Eddontenajon	Prospect	--	--	c. 45 m.t.	0.56% Cu 0.01 o/t Au
Stikine Copper	Stikine area	Prospect	--	--	+125 m.t.	1.06% Cu 0.014 o/t Au
Kerr	Unuk River	Prospect	--	--	+135 m.t.	0.90% Cu 0.01 o/t Au

m.t. = million short tons


129°00'
58°00'
ROK PROPERTY
1
2
3
4
5
6
7
8
9
10
LEGEND
Tertiary volcanics (Mt. Edziza Complex)
Jurassic clastic rocks (Bowser Lake Group)
Mesozoic intrusives (Hotailuh Batholith and smaller bodies)
Jurassic sediments (Inklin Formation)
Triassic & Jurassic volcanics and sedimentary rocks (Stuhini Group & undivided)
Paleozoic metamorphic rocks
Cu-Au & Au-Cu Prospects
1. ROK
2. Red-Chris
3. Klappan
4. Castle (JO)
5. QC
6. Groat Creek
7. GJ
8. Spectrum
9. Ball Creek
10. Gnat Lakes
G. R. Peatfield
04 Dec. 1991
PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
G. R. PEATFIELD
0 5 10 30 Km.
MANCHESTER RESOURCES CORP.
CONS. CARINA RESOURCES CORP.
ROK PROPERTY
District Geology and Location of Porphyry Cu-Au Prospects
DATE: Nov. 27, 1991.
NTS: 104 H / 13 W
PROJECT: ROK
PROJ. GEOL.: G. Peatfield
SCALE: 1:500,000
Keewatin Engineering Inc.
FIG. 5

6) Alteration assemblages within the copper bearing zones are variable; in some cases, potash feldspar is well developed, in others, the potassium is contained in sericite. Quartz is common in the better grade sections of the deposits.

7) Most of the better documented examples show a distinct antipathetic relationship between pyrite (peripheral) and chalcopyrite (central).

3.2 Property Geology

The ROK property and the adjacent ground controlled by Falconbridge Ltd. (to the northwest) and by Kylite Ventures Inc. and Senn D'Or Inc. (to the southeast) cover most of a volcanic complex of late Triassic or early Jurassic age.

Gabrielse and Tipper (1984) included the entire property area in their middle and/or upper Triassic unit of "porphyritic augite andesite and basalt flows, breccia and tuff". Read (1984) showed much more detail, basing much of his compilation on the work of Texasgulf (unpublished) and Cooper (1978). Map 1 portrays the geology of the ROK property and its immediate environs.

The basic geological setting of the ROK and adjacent properties is a complex pile of "grey - green and green, aphyric to porphyritic (plagioclase and locally augite) breccia, tuff and flows" with lesser amounts of "maroon and grey, aphyric and porphyritic (plagioclase) breccia, tuff and flows" (Read, 1984). Read did not assign the green rocks to the Stuhini Group, indicating only that they "may well be part of the Stuhini Group, but because they cannot be excluded from the Lower Jurassic 'Toodoggone volcanics', they are placed in unnamed Upper Triassic and/or Lower Jurassic rock units". This appears to be a reasonable assignment, based on stratigraphic evidence and on radiometric dating of a hornfels unit at the margin of a stock (the "Edon Stock") which intruded the succession (Cooper, 1978). Some of the green succession may well be part of the Stuhini Group but most of the package, and the apparently younger red volcanic rocks, should be placed above the formally defined Stuhini Group.

Lying within and apparently conformable with the volcanic rocks is a relatively thin succession of "tuffaceous argillite, siltstone and wacke" with interbedded "light grey limestone" (Read, 1984). Cooper (1978) assigned these rocks to the upper Norian (latest Triassic) stage on the basis of the pelecypod Monotis subcircularis, and mapped a distinct limestone conglomerate unit at the southeast end of the belt. Read (1984) noted Permian conodonts within a limestone unit in this package, and theorized that "a possible interpretation is that the limestone represents an Upper Triassic olistostrome composed of Early Permian limestone blocks ranging from tens to hundreds of metres in length. Early Permian limestone blocks, up to tens of metres in length, lie within Upper Triassic volcanic breccia that outcrops 25 km east of the map area. The sedimentary succession [at ROK] is part of the Stuhini Group".

A dip reversal has been mapped in the sedimentary rocks, from southwesterly in the northwest and central portions of the belt to generally northeasterly at the southeast end. The reasons for this reversal are not well understood, but is more likely related to fault disruptions and intrusion-related doming than to regional folding.

Overlying the presumed Stuhini and younger Triassic rocks with apparent unconformity is a succession of "interbedded grey-green and maroon plagioclase porphyry flows, breccia, tuff" which Read (1984) assigned to the lower Jurassic "Toodoggone Volcanics". This division is somewhat different from that made by Cooper (1978) in that it places the base of the Toodoggone slightly lower in the succession, but it is in fact more logical and in better accord with the observed geological relationships and has been followed in the current mapping programs. Locally, at the base of the Toodoggone strata there is a thin unit of dark shaley rock, which in a few spots to the west on the Falconbridge property has occurrences of secondary copper sulphide minerals (chalcocite and others) in streaks and on fractures.

Intrusive into the older (Stuhini?) succession are a number of irregular stocks, plugs and small bodies of alkalic to sub-alkalic (Cooper, 1978) rocks which have been variously described as "syenite and monzonite" (Texasgulf), "syenite, porphyritic monzodiorite and quartz monzonite" (Cooper, 1978) and "porphyritic (plagioclase, hornblende) monzodiorite and hornblende quartz monzonite" (Read, 1984). Some radiometric work has been done on the "Edon Stock" to the northwest on the Falconbridge property; whole-rock K-Ar dates on altered rocks from the stock range from 163.6 Ma to 170.4 Ma. The most meaningful date is probably a K-Ar whole-rock age for hornfels at the margin of the "Edon Stock", at 198.5 Ma. This suggests that the intrusive bodies post-date the sedimentary package, as can be observed in the field, but are contemporaneous and co-eval with the upper portion of the pre-Toodoggone volcanic pile; in fact, that they are classic sub-volcanic intrusives. This concept is reinforced by the observation of intrusive clasts in some of the volcanic breccias, and by the fact that the chemistries of volcanic and intrusive rocks are very similar.

More details of the geology of the central portion of the ROK property and of the areas immediately surrounding the Main and South Zones are shown on Maps 6, 10 and 15, at scales of 1:2,000 and 1:500.

3.2.1 Alteration

The most comprehensive work done on the overall alteration patterns of the ROK and adjacent properties was by Cooper (1978). McLeod (1991) studied a limited number of samples from a high-grade copper intersection in the Main Zone. Alteration types were mapped during the 1991 program, especially during the trench mapping (see Maps 10 and 15).

The alteration patterns related to post-intrusive (and therefore post hornfels and skarn development) hydrothermal activity are best developed on the Falconbridge property, around the "Edon Stock". Here, Cooper (1978) mapped a potassic (orthoclase-albite-biotite) core flanked outward and upward by a restricted quartz-sericite-pyrite zone and a broad zone, extending well outside the stock, of propylitic (albite-epidote-chlorite-pyrite) alteration. To the east, on the present ROK property and roughly centred on the Main Zone, Cooper's alteration pattern was "irregular to crudely zoned", from a central area of orthoclase-albite-chlorite-magnetite outward to a zone of sericite-calcite-chlorite-magnetite, through a zone of sericite-quartz-pyrite to a classic propylitic assemblage of epidote-calcite-chlorite. The irregular nature of the alteration patterns in this area is probably a reflection of complex faulting.

McLeod (1991) studied six specimens from a drill hole which cut the high-grade copper core of the Main Zone. He concluded that the rocks are "not extensively altered, except that amphiboles are converted to Fe-Ti oxides, chlorite and carbonate and some rocks have more sericite and clay alteration of plagioclase than others". He implied that the potash feldspar is an original groundmass constituent.

These alteration patterns are broadly similar to those at the Red-Chris deposit, about 12 km to the southeast. There, Schink (1977) described an early core zone alteration consisting of orthoclase-albite-biotite with a surrounding zone of albite-chlorite-calcite. This early stage alteration was overprinted by a complex core zone alteration consisting of quartz-ankerite-kaolinite-sericite surrounded by a zone of quartz-sericite-pyrite. This entire package is enveloped by a regionally extensive propylitic zone dominated by ankeritic carbonate in sedimentary rocks or by epidote, calcite and chlorite in volcanic rocks.

These alteration styles seem to be common to many of the copper-gold porphyry prospects in the region. They differ from those at such deposits elsewhere, especially in the Quesnel Terrane to the south, in that they have abundant free quartz in the form of veins and floodings which often host copper minerals. It is likely that the quartz and sericite are derived from the alteration of pre-existing potash feldspar, which may be an original constituent of the intrusive rocks or a result of an early stage of alteration.

3.2.2 Structures

Folding does not seem to have been important in the geological development of the ROK and adjacent properties. Local dip variations are more likely a result of intrusive doming, fault disruptions (Cooper, 1978) and in some cases, original dips on a volcanic edifice. The Toodoggone volcanic rocks appear to form a broad open syncline about a northwest trending axis, but this pattern shows some considerable disruption by later faulting, and in some areas the relationships are by no means clear. The overall picture, with some complications, is of a southwesterly dipping homoclinal sequence younging upward.

A major fault, striking northwest through the southwest corner of the ROK claim and defined by deep creek valleys appears to have essentially dissected the volcanic centre. Movement on the fault can only be inferred, but it was probably right-lateral, with 2 to 4 kilometres displacement, and normal, with as much as 1,000 metres downthrow to the northeast. These conjectural movements are based on apparent offsets of gross alteration packages and on the trace of the basal Toodoggone units. It is possible to infer a parallel fault to the northeast, defined by topographic linears, which would bisect the strike length of the sedimentary package and help explain the above-mentioned dip reversal.

The second important set of faults, shown most clearly on Maps 6 and 10, strikes roughly northeasterly and shows evidence of normal movement downward to the southeast. These faults strike exactly parallel to Ealue Lake, and to the "South Boundary Fault" at the Red-Chris property to the south. At Red-Chris, this northeast striking fault is also normal with the southeast side down-dropped, bringing middle to upper Jurassic Bowser Lake Group strata in contact with the older mineralized rock; parallel faults "down-step" individual mineralized blocks within the deposit. These faults on both properties clearly represent (in their latest manifestation) a post-Jurassic tensional tectonic event along the northwest edge of the Bowser Basin, parallel to the "Stikine Arch".

Other less important faults and shears are shown on various plans. These have had the effect of locally disrupting mineralized units, but have not had a major effect on the geology of the property. The important "sheeted quartz" veining, especially in the Main Zone, shows a wide range of strike and dip. No dominant, coherent zone such as the well-mineralized "East Zone" at Red-Chris has yet been intersected.

3.2.3 Mineralization

Several types of copper mineralization are present on the property and on the immediately adjacent ground. Of these, two are of potential economic interest; others serve to emphasize the size and possible zonations in the system or systems.

The most important style of mineralization is that exposed in trenches and cut by drilling in the Main Zone. Chalcopyrite, with lesser amounts of pyrite and magnetite, occurs on fractures and in shears, veinlets and narrow (up to 2 cm) quartz veinlets which in many places form intense stockworks.

McLeod (1991) completed a polished section examination of six samples from the high-grade copper zone in diamond drill hole 90-R-03. He identified dominant chalcopyrite, lesser amounts of magnetite and hematite, very sparse pyrite and traces of bornite and gold. He reported sphalerite in one section, but zinc geochemical values throughout the sampled interval are low (to a maximum of 503 ppm), and this may be a very local occurrence.

Most sulphide minerals seem to be related to quartz veining. Pyrite appears to be an early sulphide, later replaced by chalcopyrite, which has a variable grain size ranging from 20 microns to 0.5 mm, with most in the 0.1 - 0.2 mm range. Bornite forms tiny inclusions in chalcopyrite. Gold, in grains ranging from 1 to 35 microns (observed), occurs within or in contact with chalcopyrite suggesting that it should be recovered in a copper concentrate.

A second potentially important type of mineralization is that typified by occurrences near the northern edge of the ROK claim and especially at the old "Klapan Rose" showing, where limy sedimentary rocks have been converted to skarns, with abundant specular hematite and some chalcopyrite. A characteristic of this type of mineralization is the extremely erratic nature of the gold values with respect to copper, unlike the first mineralization style where correlations between gold and copper are generally very good.

Other types of mineralization which have little economic potential but which help to define the overall system include small "gash" veinlets of quartz and calcite locally carrying chalcopyrite or bornite, local occurrences of chalcocite, bornite and rare secondary copper sulphides in siltstones at the base of the overlying volcanic cap (mostly on the present Falconbridge ground), widespread occurrences of malachite, scattered occurrences of disseminated chalcopyrite with malachite in the south-central part of the ROK claim, and common fracture controlled and disseminated pyrite. A few specks of molybdenite were found in the "Edon Stock" alteration zone; lead and zinc minerals are conspicuous by their absence.

The copper bearing quartz stockwork mineralization is very similar to that found at the Red-Chris, GJ/Groat Creek and other similar properties in the region.

4.0 1991 EXPLORATION PROGRAM

4.1 Grid Establishment and Surveying

In 1991, a new grid was established over most of the ROK claim. This grid was oriented essentially parallel to the Texasgulf grid but has different co-ordinates. The 1.8 km long baseline is oriented at 120° and originates at a government survey cairn; 24 line-kilometres of cross-lines were established at 120 m intervals. Stations are spaced 20 m apart and marked with pickets and flagging. Many of the old and new grid stations, as well as trenches, drill collars and topographic/hydrographic features were surveyed in 1991.

4.2 Geochemistry

4.2.1 Introduction

Over the years there have been numerous geochemical programs on and surrounding the present ROK property. These can conveniently be divided into "regional" and detailed (grid-controlled) surveys. The regional work has included silt and contour-traverse soil sampling with some rock sampling; grid work has consisted of soil sampling and some non-systematic rock sampling undertaken during geological mapping. Sample descriptions and results for all 1991 geochemical work are included in Appendices V to X.

4.2.2 Silt Sampling

The original interest shown in the "Rose" area by Texasgulf Inc. was prompted in part by the results of silt sampling by Granduc Mines Ltd. on the old Yukonadian property. This sampling showed highly anomalous stream sediment copper values "draining the northwest portion of the claim block" (Enns, 1982). These values were derived from the general area of the subsequently discovered Main Zone.

As part of the 1990 and 1991 campaigns, a very limited amount of silt geochemistry was completed on several drainages peripheral to the principal zone of interest, and on the major creek which, with its tributaries, drains the Main Zone area. Samples from 1990 and 1991 have been differentiated by the use of differing location symbols on all maps. The total number of silt samples taken in 1990 was 66 and in 1991 was 23. Samples were collected from active silt where possible, placed in kraft paper envelopes, dried and shipped for analysis. The sample locations and identifiers are plotted on Map 2 and the analytical results for copper, gold, lead and zinc are shown on Maps 3 and 4.

4.2.3 Regional Contour Soil Sampling

During both the 1990 and 1991 programs, several contour soil traverses were completed, generally in outlying areas to the north, south and east of the zone of principal interest. Samples from different campaigns have been distinguished by varied symbols on the appropriate maps. The total number of samples taken in 1990 was 158 and in 1991 was 172. An additional 10 non-grid samples were collected in the area of the Main Zone trenches; two size fractions of these samples (-40 +80 mesh and -80 mesh) were analyzed.

Samples were collected by mattock from the B-horizon (where present), although in many cases only A-horizon was available to depths down to 40 cm, and placed in kraft paper envelopes, dried and shipped for analysis. The sample locations and identifiers are plotted on Map 2 and the analytical results for copper, gold, lead and zinc are shown on Maps 3 and 4.

4.2.4 Rock Sampling

A relatively small number of rock samples from locations throughout the property were collected during 1987, 1990 and 1991. The total number of samples collected in 1987 was 23, in 1990 was 44 and in 1991 was 145.

Of the 145 samples taken in 1991, a total of 49 were continuous chips in several areas of interest in the central part of the ROK claim; 5 were grabs of float material in test geochemical pits north of the Main Zone; and 91 were various chip, grab and float samples from a number of localities around the property. Sample locations and identifiers are shown on Maps 2, 7, 11 and 16. Results of the sampling are shown on Maps 3, 4, 8 and 9, for copper, gold, lead and zinc.

4.2.5 Test Pits

As part of the 1991 soil sampling program, two sets of test pits were dug and sampled to determine soil development and to test metal variations with depth. Five of the pits are located north of the Main Zone and seven are situated near the southwest corner of the property close to the Keene Access Road.

In the southwest area, pits ranged from 20 to 120 cm in depth. Two or three samples were taken from each pit, ideally A, B and C-horizon material where possible. North of the Main Zone, the pits ranged between 90 and 120 cm deep; in most cases the lower samples were classified as B-horizon, but one pit was still in A-horizon at 90 cm.

Pit locations and sample numbers are shown on Maps 2 and 7, values for copper, gold, and in the case of the northern pits for lead and zinc are plotted on Maps 3, 4, 8 and 9. Details of depths, sample type, and analytical results are discussed in section 4.2.8.

4.2.6 Grid Soil Sampling

Four separate soil geochemical programs have been completed on two grids in the area of the ROK claim. Results of the original survey by Texasgulf Inc. in 1976 are not available in detail, but outlines of their copper anomalies are shown on a compilation map (see Map 5). In 1979, Texasgulf re-analyzed a large number of soil samples, originally analyzed for copper, for lead, silver and gold. Results of this work showed that copper appeared to be the best pathfinder, but that some discrete gold anomalies were present (Enns, 1982).

In 1987, a total of 904 soil samples were collected (DuPré, 1988a, 1988b), on parts of the original Texasgulf grid and extensions to the east. Samples were taken at 20 metre intervals on lines spaced 60 metres apart. Mattocks were used to collect B-horizon material wherever possible, although at many sites only A-horizon soil was available down to reasonable sampling depths. Samples were placed in kraft paper sample bags, dried and shipped for analysis. Sampling procedures were similar for the 1990 and 1991 programs.

In 1990, an additional 137 soil samples were collected on an extension of the grid east of the Main Zone area. Sampling was at 20 metre intervals on lines spaced 60 metres apart.

In 1991, a new grid was established and a further 660 soil samples were collected to expand, confirm and further detail soil geochemical anomalies. Again, sampling was at 20 metre intervals on lines spaced 60 or 120 metres apart.

Sample locations for the 1987, 1990 and 1991 programs are shown on Map 7, with the last year's samples distinguished by different symbols. Results are shown on Maps 8 and 9, for copper, gold, lead and zinc.

4.2.7 Analytical Procedures

Soil samples collected in 1987 were analyzed for copper (by atomic absorption spectrophotometry) and for gold (by fire assay extraction/AA), by Barringer Magenta Laboratories (Alberta) Ltd. in Calgary.

The 1990 silt, soil and rock samples were analyzed geochemically for gold, silver, copper, lead, zinc, arsenic, antimony, molybdenum and mercury. Procedures in 1991 were broadly similar, except that geochemical analyses were not done for mercury. All analytical work in 1990 and 1991 was undertaken by Min-En Laboratories Ltd. of North Vancouver (see Appendix IV for details of analytical techniques). The minus 80 mesh fraction of silt and soil samples was analyzed.

Details of earlier analytical work, for Texasgulf Inc., are not readily available.

4.2.8 Results and Interpretation

As can be seen from Map 3, silt sampling has produced significant copper anomalies only in the creek draining the Main Zone area, and in its tributaries. This is essentially a repeat of the pattern reported by Granduc in the early 1970's. There have been no other important silt anomalies outlined in the 1990 and 1991 work; a few scattered high values in copper and gold are erratically distributed and do not point to obvious mineralized areas. Lead and zinc values in silts are nearly all below threshold (see Map 4).

The "regional" and contour soil sampling has outlined only one area of substantial copper anomalies (see Map 3). On the southern face of the massif, southeast of the Main Zone area, several lines show long stretches of copper values above an arbitrary threshold of 150 ppm, and a few scattered gold values above 35 ppb. This area seems to be the outer edge of the mineralized system; lines further down the hill have lower values, perhaps as a result of differing overburden conditions. There are some local copper anomalies, without gold, just to the east of the property, immediately above Ealue Lake. These are likely related to formational causes such as weak copper mineralization in intraflow sedimentary rocks. Local copper and scattered gold anomalies on traverses on the northern claims are of little interest; no obvious centres of mineralization have been revealed by mapping. A very limited amount of follow-up work could be justified.

Contour soil sampling shows widespread weakly anomalous values for zinc, with no particular area of concentration. Anomalous lead values are essentially restricted to the area southeast of the grid (see Map 4), in essentially the same area as the above described copper anomalies. This tends to strengthen the contention that one is viewing the edge of a mineralized system.

On a property-wide basis, the results of the rock sampling are not particularly exciting. There are a few scattered high copper values but no important concentrations. Most of the strongly anomalous samples were collected on the southeast end of the upland surface, just southeast of the grid. This is near the above mentioned soil highs, and lends support to the concept of this being near the edge of a large mineralized system. Just northeast of the Main Zone, in the area of the previously described skarn copper showings, several grab samples yielded strong copper anomalies, and gold values of several hundred up to 1,800 ppb. Unfortunately, these values seem to be relatively restricted, but some follow up work is justified. There are also scattered very strongly anomalous float samples northwest of the Main Zone, which are interpreted as down-ice from and derived from the outcropping mineralization.

Within the grid area there are several lines of continuous chip samples taken across altered outcrops. In almost all cases, these samples returned low values for all metals. This suggests that while the alteration system crops out in this area, and there are some scattered evidences of copper mineralization, there is no major zone of significant grade copper mineralization exposed at surface.

Lead and zinc values are very low in most rock samples except one float sample collected northwest of the Main Zone and a few from just south and east of the grid (see Map 4). This is in keeping with the general paucity of lead or zinc showings, and suggests that these metals do not form a well-developed halo around the zone of interest.

As part of the grid soil sampling program, 10 samples were collected in the Main Zone area, and two size fractions analyzed. Table 3 shows a comparison of the analytical results, including the percentage change in values from coarse to fine fraction. Disregarding apparent erratics, there seems to be a very slight tendency to increased gold, copper and arsenic in fines, and a decrease in silver, lead and zinc. However, the differences are not systematic and may not be statistically significant.

TABLE 3 - COMPARISON OF GEOCHEMICAL VALUES IN DIFFERENT SOIL SIZE FRACTIONS																		
Sample No.	Au (ppb)			Ag (ppm)			Cu (ppm)			Pb (ppm)			Zn (ppm)			As (ppm)		
	c.f.	f.f.	%	c.f.	f.f.	%	c.f.	f.f.	%	c.f.	f.f.	%	c.f.	f.f.	%	c.f.	f.f.	%
Trench 3																		
1	6	1	-83	0.7	0.5	-29	61	88	+44	24	26	+8	51	41	-20	11	5	-55
2	3	2	-33	0.8	0.9	+13	124	123	-1	25	25	-	116	77	-34	4	5	+25
3	22	19	-14	0.1	0.2	+100	775	603	-22	24	19	-20	79	64	-19	7	7	-
4	15	23	+53	0.6	0.8	+33	399	448	+12	22	22	-	73	59	-19	5	7	+40
5	21	13	-38	0.9	0.7	-22	272	280	+3	25	20	-20	75	62	-17	11	8	-27
Trench 2																		
6	17	22	+29	0.2	0.1	-50	217	230	+6	32	31	-3	89	74	-17	12	17	+42
7	20	18	-15	1.3	1.2	-8	401	536	+34	21	18	-14	80	64	-20	2	10	+400*
8	15	53	+253*	0.5	0.5	-	131	154	+18	34	29	-14	107	82	-23	13	12	-8
9	34	55	+62	1.8	1.4	-22	3747	3824	+2	27	21	-22	72	66	-8	7	6	-14
10	39	56	+44	0.7	0.4	-43	1364	1781	+31	34	35	+3	128	102	-20	42	35	-17

Samples taken for orientation purposes in the area of the Main Zone trenches

c.f. - coarse fraction (-40 +80 mesh)
f.f. - fine fraction (-80 mesh)
% - % change from coarse to fine fraction
* - erratic variation

The two sets of test pits were designed to see if there are systematic variation in metal content with depth and soil horizon. Tables 4 and 5 summarize the results; the situation in the northern set of pits is probably complicated by steep topography. There are few sensible variations; in particular, this limited work seems to suggest that in many cases there is little difference between values for copper and gold in A-horizon or B-horizon soil. Other pits show that the B-horizon material yields higher values for these metals; it seems best to attempt to sample the lower horizon wherever possible. In two cases, arsenic values in near-surface material are erratically very high, emphasizing that caution should be employed in using this metal to outline patterns unless extreme care is used in regard to noting the horizon sampled.

Results for gold, copper, lead and zinc for soil samples taken on the grids during 1987, 1990 and 1991 are shown on Maps 8 and 9, and in more detail in the trench areas on Maps 12, 13, 17 and 18. These results have been manually contoured, employing arbitrary threshold and contour values as shown on the maps. Strong copper anomalies are developed immediately around the Main and South Zone trench areas; gold anomalies are very local in these areas. Extensive copper anomalies have been outlined to the south and southeast of the Main Zone, but these have very little gold backup. This reinforces the observation that significant gold values are associated only with stronger copper mineralization, presumably toward the core of a system. One elongate, relatively narrow and discontinuous gold anomaly northeast of the Main Zone is at least in part spatially related to skarn copper-gold mineralization within the sedimentary succession.

There are essentially no lead and zinc analyses available in the area of the Main Zone. Extensive lead and zinc anomalies to the southeast are for the most part coincident with copper anomalies. There seems to be a tendency toward less lead and more zinc to the northwest, toward the Main Zone, which might be considered consistent with a zoning pattern about this area. The lack of geochemical response in the area underlain by Toodoggone volcanics strengthens the supposition that these rocks are post-mineralization.

TABLE 4 - TEST PIT SAMPLING, NORTH ZONE								
Trench No.	Depth (cm)	Horizon	Au (ppb)	Ag (ppm)	Cu (ppm)	Pb (ppm)	Zn (ppm)	As (ppm)
1	30	A	2	1.1	79	59	266	596
	60	A	5	1.1	161	22	96	42
	90	B	1	1.2	114	29	115	81
2	40	A	2	0.8	51	28	149	15
	80	A	6	0.8	98	19	115	24
	120	B	3	0.7	105	27	98	27
3	30	A	146	0.3	710	28	72	28
	60	A	106	0.2	741	26	92	8
	90	A	210	0.2	655	24	92	11
	100	B	97	0.2	877	19	103	42
4	30	A	175	1.5	637	15	77	9
	60	A	33	1.3	386	15	82	9
	90	A	201	1.0	467	19	98	6
5	30	A	120	0.2	182	61	371	165
	60	A	1	0.4	94	51	234	58
	90	A/B	3	0.7	212	39	380	48
	105	B	41	0.4	296	40	404	80
	125	B	3	0.6	211	59	356	83

TABLE 5 - TEST PIT SAMPLING, SOUTHWEST AREA								
Trench No.	Depth (cm)	Horizon	Au (ppb)	Ag (ppm)	Cu (ppm)	Pb (ppm)	Zn (ppm)	As (ppm)
1	10	A	15	1.3	48	25	293	11
	20	B	7	1.2	59	25	182	1
2	15	A	2	1.0	26	26	229	1
	35	B	5	0.8	21	21	101	5
	75	C	3	0.7	36	36	65	1
3	15	A	3	0.9	35	18	130	1
	50	B	2	0.9	26	16	134	10
	120	C	1	0.7	38	11	54	3
4	20	A	7	1.1	44	18	111	10
	80	B	21	0.9	77	9	178	26
	110	C	23	0.6	106	14	113	39
5	10	A	1	0.6	28	14	50	1
	30	B	15	0.4	65	2	46	1
	110	B	37	0.5	73	1	39	1
6	20	A	10	0.9	17	18	120	1
	60	B	43	0.9	84	14	107	1
	110	C	142	0.9	114	7	91	1
7	15	A	12	12	32	20	97	3
	40	B	3	3	50	16	141	8
	70	C	21	21	70	13	69	5
		Subcrop	16		49			

4.3 Geophysics

4.3.1 Introduction

Over the years since the discovery of copper mineralization on the present ROK claim there have been several geophysical programs, but these have been essentially restricted to ground magnetics and to induced polarization (IP) of several types over the same basic area. A simplified chronology of this work is as follows:

1976 - Texasgulf completed ground magnetics and gradient array IP surveys on a large grid covering about the northwest one-third of the present ROK claim and extending north and west onto the present Falconbridge property. Magnetic responses were somewhat subdued, but three areas showed significant IP responses. The first was in the area of the present Main Zone, the second about 700 metres south and slightly east of the Main Zone, and the third extended northwesterly about 500 metres from the present South Zone.

1977 - Texasgulf did IP and ground magnetics on the "Cirque" grid, on the east flank of the Edon Stain Zone. This work was wholly within the boundaries of the present Falconbridge property.

1979 - As part of an examination of the property for a possible option deal, Utah Mines conducted two lines of pole-dipole array time domain IP with a relatively wide spacing (a = 152 metres). The two lines totalled 3.66 kilometres and were oriented east-northeast through the Main and South Zones, extending to the west off the ROK property (Vyselaar, 1979).

1987 - Taiga Consultants Ltd. on behalf of Manchester Resources Corp (DuPré, 1988a), completed about 12.5 line-kilometres of ground magnetics on a grid extending north and east from the Main Zone showings. These data were reinterpreted by Jenson (1990).

1990 - Scott Geophysics Ltd. (Scott, 1990) completed a very short program of IP, consisting of three lines of pole-dipole array totalling 2.5 kilometres in the vicinity of the Main Zone.

1991 - Scott Geophysics Ltd. completed about 10 kilometres of ground magnetics, VLF-EM and "deep penetration" pole-dipole array IP work covering the Main and South Zones and the intervening ground (Scott, 1991 - see Appendix X).

4.3.2 Ground Magnetics

Various ground magnetic surveys have shown that there are several weak, local responses, generally of the order of less than a thousand nanoteslas (gammas) in the general areas of the Main and South Zones (see geophysical report in Appendix X and compilation Maps 14 and 19). Elsewhere on the surveyed grids, there are a few higher positive anomalies which seem to be associated with local skarn zones.

The magnetic anomaly at the South Zone probably dies out to the east, but is open to the west onto the Falconbridge property. It is most likely related to sub-volcanic intrusive rocks, although these are not exposed at surface.

The somewhat restricted positive magnetic anomaly at the Main Zone is related to the core of the dioritic intrusive body which hosts the copper mineralization. Comparison of the magnetic and geology maps suggest that it may be localized between two inferred northeast trending faults.

North and east of the Main Zone, three magnetically anomalous areas were outlined during the 1987 program. The largest of these, while not totally defined, appears to be some 200 metres wide by at least 1,200 metres long trending generally southeasterly. It seems to be associated with a group of syenitic bodies intrusive into "green volcanics" and possibly limestone. Two anomalies to the east are both open but appear to be smaller; they are in "green volcanic" areas and show no obvious relationship to intrusive rocks.

The post-mineralization cap-rocks appear to have a weak positive magnetic signature which probably serves to mask magnetic trends in the underlying rocks.

There is a distinct magnetic low between the Main Zone area and eastern extension of the South Zone magnetic high. One possible explanation of this feature is destruction of magnetite by more intensive alteration in the core of a larger porphyry system.

4.3.3 Induced Polarization

Induced polarization (IP) surveys in 1976 (Enns, 1982), 1979 (Vyselaar, 1979) and 1990 (Scott, 1990) all suggested two anomalous areas near the present Main and South Zones, with some suggestion that the responsive zones might be connected at depth.

In 1991, Scott Geophysics (see report in Appendix X) undertook a more comprehensive "deep penetration" survey, over essentially the same area as that covered by previous work. The survey employed a pole-dipole array, with an "a" spacing of 50 metres and "n" separations ranging from 1 to 10. The results are presented on pseudosections (see Appendix XIII). The survey data were also reprocessed and interpreted by Hansen (1991), whose report is included as Appendix XIV.

A compilation of the chargeability pseudosections shows clearly that on the central lines there are two areas of high chargeability separated by a zone of lower response, for the upper four or five separations. At depth, this pattern is much less distinct, with some suggestion of a possible connection of chargeability zones on the greater separation levels. The alternate hypothesis is that this apparent coalescence simply represents the spreading effect with depth of the chargeability caused by two discrete zones. Scott (1991) favours the former hypothesis.

On the central lines the "chargeability gap" between the two major anomalies corresponds with the surface trace of the overlying post-mineralization volcanic rocks, tentatively correlated with the Toodoggone volcanics, which appear to cap the mineralized system between the Main and South Zones (see Map 5). The "gap" is much less pronounced to the southeast, beyond the surface trace of the younger rocks.

Further examination of the IP data, in the form of resistivity pseudosections, shows that there are three apparently different IP "regimes". The first is a regime where chargeability is high and resistivity generally low; areas with this characteristic correspond well to zones of known stockwork mineralization. The second is a regime where both chargeability and resistivity are relatively high; this pattern characterizes the southeast portion of the geophysical grid. The third is a regime with low resistivity and very low chargeability in the upper separations; this pattern characterizes the zone underlain by the later volcanic cap, and is most likely related to these younger rocks. This third regime relationship is shown especially well by superimposing the geology map (Map 6) on the resistivity contour map for n = 2 (Appendix XIII). The correspondence of the area underlain by post-mineral volcanics and the resistivity low is essentially one-to-one.

About 350 metres to the east of the Main Zone there is a coincident magnetic and chargeability low. This is clearly not related to the presence of an overlying cap of post-mineralization rocks, because older volcanics with pyrite and showings of copper sulphides are exposed throughout the area in question.

A point of some concern is that the IP surveys to date have not been extensive enough to totally bracket the sulphide system. However, a caution here is that economic copper mineralization need not necessarily be coincident with chargeability anomalies; indeed, on many properties ore zones lie on the flanks of IP chargeability highs, as for example at Afton and Mt. Polley.

4.3.4 VLF-EM

The VLF-EM survey completed in 1991 covered the same area as the ground magnetics, i.e. over and between the Main and South Zones, to the east of the South Zone and to the north of the Main Zone.

A Fraser-filtered plot of the VLF-EM results (see Appendix XIII) shows that there are no particularly strong responses in the vicinity of either the Main or the South Zones. Several elongate anomalies have been interpreted, nearly normal to the grid lines. In some cases, these appear to be parallel to geological strike and may represent formational conductors most likely related to sedimentary units in the stratigraphy. One strong anomaly in the northern area is coincident with a creek gully and probably represents a fault or shear zone parallel to a sedimentary rock unit. Other anomalies have no obvious geological controls.

Hansen (1991, p. 2) remarked that "it can be assumed that the present VLF survey has not been effective in outlining targets or mapping structure. The readings are abnormally erratic which may mean that the signal was weak".

4.4 Trenching

4.4.1 Introduction

Texasgulf in 1976 and 1977 performed a limited amount of surface trenching on several of the more important mineral showings located on the present ROK claim. During the 1991 field season, Keewatin Engineering Inc. (on behalf of Carina and Manchester) supervised an extensive mechanical trenching program. This work was concentrated in the Main Zone area and to a lesser extent in the South Zone and North Zone areas (see Map 6). Details of the trenching completed in 1991 are as follows:

TABLE 6
1991 TRENCHING PROGRAM

Zone	Number of Trenches	Total Length (metres)	Length Sampled (metres)
North	2	133.0	108.0
Main	10	858.0	767.0
South	6	193.0	177.0
Total	**18**	**1,184.0**	**1,052.0**

The purpose of the trenching programs was to expose mineralized rock in order to gain some understanding of the geometry of various zones and to establish the copper and gold contents of near surface but relatively fresh, unweathered rock.

Texasgulf's work totalled about 163 metres of trenching in three areas. Carina/Manchester's much more extensive work comprised 18 trenches aggregating 1,184 lineal metres of which 1,052 metres reached bedrock, which was systematically sampled.

4.4.2 Methodology

Texasgulf's trenching was performed by hand and involved drilling and blasting with subsequent hand-mucking of the trenches. Bedrock was then sampled in a continuous fashion, generally in 2 or 3 metre intervals.

The much more extensive 1991 trenching employed a small dozer (John Deere 450) with a back-hoe attachment. The machine was broken down for mobilization and demobilization and transported by helicopter, to minimize ground disturbance.

Bedrock exposed in the 1991 trenches was sampled continuously, generally in 1.5 or 3.0 metre intervals. All trench bedrock was mapped in detail to recover information on structure, lithologies, alteration and mineralization. The mapping was at a scale of 1:250; results of the mapping and sampling of the trenches are shown on Maps 25 to 31.

Following sampling and mapping, all 1991 trenches with the exception of Number 1 (see Maps 10 and 15) were backfilled, re-contoured, seeded and fertilized. Trench 1 was left open as it exposed well mineralized rock which should be available for inspection.

4.4.3 Analytical Procedures

The 1991 trench samples were analyzed geochemically for gold, silver, copper, lead, zinc, arsenic, antimony and molybdenum. Most samples which returned values greater than 1,000 parts per million (ppm) copper (0.1 percent) were analyzed by formal assay methods for gold and copper. All analytical work was undertaken by Min-En Laboratories Ltd. of North Vancouver (see Appendix IV for details of analytical techniques).

4.4.4 Results and Interpretation

The 1991 trenching program was concentrated in three areas; the North Zone (two trenches), Main Zone and extensions (ten trenches) and South Zone (six trenches).

Significant assay results for the 1991 trenches are as follows:

TABLE 7
SIGNIFICANT RESULTS FROM 1991 TRENCHING PROGRAM

Zone	Trench	Length (m)	Cu (%)	Au (oz/ton)
Main	1	114.0	0.449	0.011
	2a	36.0	0.530	0.018
	2b	24.0	0.207	0.006
	3	30.0	0.255	0.006
	4a	6.0	0.176	0.005
	4b	18.0	0.203	0.005
South	11	22.5	0.240	0.004
	12	25.5	0.166	0.003
	13	27.0	0.325	0.006

The trenches in the central part of the Main Zone (numbers 1, 2, 3, 4, and 6) are essentially all in "micro-diorite", which in this area shows four distinct and mappable phases. The better grade material is generally in one specific unit (micro-diorite "D"), and higher copper values in most cases correlate well with increased amounts of quartz veining, potash feldspar, sericite and magnetite. There are several strong fault zones, mostly north-south or northeast-southwest oriented. Fracture directions do not produce any obvious coherent patterns.

Trenches in the outlying parts of the Main Zone area (numbers 5A, 5B, 7, 8 and 16) are in mixed andesite, lapilli tuff, agglomerate and some micro-diorite (phase "A", "B" and "C"). Copper values are uniformly very low. These trenches show modest amounts of sericite and pyrite, but essentially no quartz veining or potash feldspar development.

Two trenches in the North Zone (numbers 9 and 10) exposed andesitic tuffs, some micro-diorite and calc-silicate altered volcaniclastic rocks or "skarns". Copper and gold values in these trenches are uniformly low, despite the fact that strongly anomalous grab samples were collected nearby, from "skarny" rocks with chalcopyrite, and the fact that soil geochemistry in the area showed significant copper and gold anomalies.

The South Zone trenches (numbers 11, 12, 13, 14, 15 and 17) exposed andesitic lapilli tuffs, siltstones, and in one case maroon volcanic rocks of the overlying Toodoggone volcanics. In the central trenches there are some moderate (0.1 - 0.3% Cu) copper assay values, with low golds, associated with quartz veinlets and potash feldspar. The trenches expose the contact with the overlying Toodoggone package; a siltstone unit at this contact is locally well mineralized and may represent part of the older package. The Toodoggone rocks are not mineralized. Alteration assemblages in the outer trenches typically consist of a classic propylitic assemblage of epidote, chlorite and calcite.

The trenching has shown some of the details of basic geological structure, distribution of alteration assemblages in restricted areas, and some of the apparent controls on mineralization. The overall impression is of fault-bounded blocks of good grade copper-bearing stockwork within larger volumes of less altered and essentially unmineralized rock. Solution of the fault movements would be critical for continued exploration efforts.

4.5 Diamond Drilling

4.5.1 Introduction

In 1976, Texasgulf diamond drilled a total of 444.4 metres in nine BQ holes. Of these, five holes totalling 300.3 metres tested the Main Zone mineralization. The remaining four holes were designed to test below the float mineralization north of the Main Zone; three of these were abandoned in bad ground far short of their target depths and the last did not intersect significant copper mineralization.

During the 1990 field season, Carina completed three BGM size diamond drill holes totalling 373.7 metres in the Main Zone area. These holes were drilled on a single section which also contains the collars of Texasgulf's first four holes, although these had been drilled normal to the 1990 drill section. Of the 1990 holes, only 90-R-03, collared at essentially the same location as RK-76-1 and 2, intersected significant mineralization.

4.5.2 Methodology

The 1976 Texasgulf drilling program employed a Boyles BBS1 diamond drill under contract from D.W. Coates Enterprises, producing BQ sized core. Drill sites were prepared by hand; drill moves employed a Company leased and operated Bell 206B helicopter. Core was transported to a base camp on the Keene Access Road where it was logged, split and sampled. All core with significant amounts of copper mineralization was sampled, generally in 3.0 metre intervals, and assayed for copper and gold. In the case of weaker mineralization, gold assays were on five sample (15 metre) composites. This core is no longer available for inspection.

The 1990 and 1991 Carina/Manchester programs employed a "Falcon 1000" diamond drill under contract from Falcon Drilling of Prince George; drill moves were by Hughes 500D helicopter. Hole inclination deviations were measured by acid dip tests. Core (BGM size) was transported to a base camp where it was logged, split and sampled. In 1990, all core was sampled, generally in 1.5 or 3.0 metre intervals; in 1991 sampling methods were similar, except that in less mineralized zones only selected (representative) intervals were sampled. All core from the 1990 and 1991 campaigns is stored near the Keene Access Road at a point about 10 kilometres from the Stewart-Cassiar Highway.

The core from the 1990 and 1991 drilling was logged in detail, with emphasis on lithologies, styles and intensities of alteration, veining, sulphide and oxide mineralization and structural data. Drill logs and RQD (rock quality data) listings for the 1991 drilling are included as Appendices XV and XVI. For details of the 1990 drilling refer to Mehner (1991).

4.5.3 Analytical Procedures

The 1990 core samples were analyzed geochemically for gold, silver, copper, lead, zinc, arsenic, antimony, molybdenum and mercury. Samples from the better (copper) mineralized zone in hole R-90-03 were subsequently assayed for copper and, for about half the interval, for gold. Procedures in 1991 were broadly similar, except that geochemical analyses were for copper, gold and silver only. Samples from selected portions of three holes were subsequently assayed for copper and gold. All analytical work was undertaken by Min-En Laboratories of North Vancouver (see Appendix IV for details of analytical techniques).

Details of earlier analytical work, for Texasgulf Inc., are not readily available.

4.5.4 Results and Interpretation

The results of the diamond drilling area shown graphically on Maps 20-24 inclusive, and analytical data for the 1991 drilling are presented in Appendices XIII and XVI. The more significant intersections obtained in 1991 are shown in the following table:

TABLE 8
SUMMARY OF SIGNIFICANT 1991 DRILLING RESULTS

Drill Hole No.	Significant Interval (m)	Length (m)	Cu (%)	Au (oz/ton)
RO-01-91	33.0 - 47.5 64.5 - 106.5 114.0 - 127.0	14.5 42.0 13.0	0.201 0.312 1,168 ppm*	0.005 0.007 57 ppb*
RO-02-91	1.52 - 39.0 includes 1.52 - 15.0	37.48 13.48	0.154 0.203	0.002 0.002
RO-04-91	39.0 - 93.88 (end of hole) includes 45.0 - 51.0	54.88 6.0	855 ppm* 0.180	70 ppb* 0.007
RO-05-91	63.0 - 84.73 (end of hole) includes 63.0 - 66.0	21.73 3.0	780 ppm* 1,350 ppm*	31 ppb* 50 ppb*

* Cu values (reported in ppm) and Au (in ppb) are geochemical analyses.

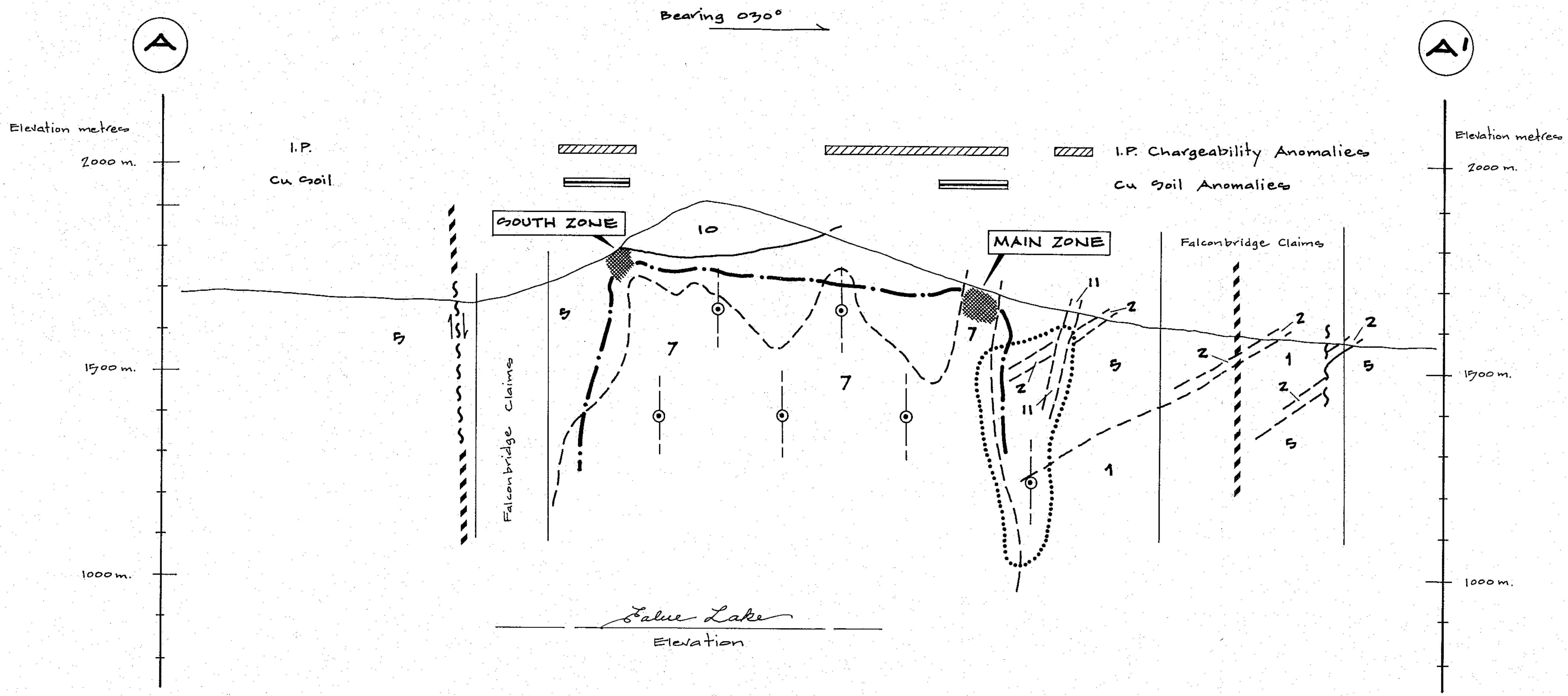
As can be seen from the cross-sections (Maps 20-22 and 24), the drilling in the Main Zone area cut several short intercepts of moderate to high grade copper-gold mineralization, but these do not seem to represent a coherent body. There is considerable evidence for post-mineral faulting, which appears to have badly disrupted what might originally have been a more coherent zone. Several geometrical alternatives have been suggested to the shape of this zone; none of these is wholly satisfactory. What does seem clear is that the original stockwork zone must have been relatively restricted, and that there is little in the way of low grade, widely dispersed mineralization. The pattern would seem to suggest an original structural (i.e. faulting) control on the mineralization.

The South Zone is less extensively tested, and little can be said about the controls and distribution of mineralization there. It is clear that the situation is not simple; a relatively extensive stockwork zone, albeit with modest copper-gold grades, is exposed in surface trenches but only one very short section is cut by one of the two holes drilled to converge under the trenches. Clearly, the geometry is more complex than was originally thought.

5.0 OVERALL INTERPRETATION

Map 5 and Figure 6 are an overall compilation map for the ROK property and an interpretive section through the Main and South Zones. These show the positions of the known zones of copper-gold bearing quartz stockwork relative to the various geological, geochemical and geophysical patterns outlined to date. The "cartoon" section shows the position of a (hypothetical) more extensive body of such mineralization postulated to lie beneath the central ridge, as well as an area of skarn potential along the northeast flank of the dioritic intrusive body.

The ROK property covers a setting and contains mineral occurrences typical of those at many of the copper-gold porphyry deposits and prospects in British Columbia. The presently known stockwork zones are reminiscent of several similar zones of higher grade peripheral to the main zones at other deposits. The "East Zone" at Red-Chris is perhaps the best example of this, but others have been described.



0 100 200 300 400m

EXPLANATION

11	Quartz - feldspar porphyry
10	Toodoggone volcanics
7	Diorite
5	Andesites, tuffs, etc.
2	Limestone
1	Siltstone

Area of potential for stockwork mineralization

Area of potential for skarn

Apparent limit of hydrothermal system

Pierce point of proposed hole

PROFESSIONAL
PROVINCE OF
G. R. PEATFIELD
BRITISH COLUMBIA

G. R. Peatfield
04 Dec.'91

MANCHESTER RESOURCES CORP./
CONS. CARINA RESOURCES CORP.

ROK PROPERTY

INTERPRETIVE CROSS SECTION A-A'

LOOKING NORTHWEST

DATE: DEC, 1991	NTS: 104 H /13 W, 12W.
PROJECT: ROK	PROJ. GEOL.:
SCALE: 1:10000	
Keewatin Engineering Inc.	MAP No. 6

6.0 CONCLUSIONS

1) The ROK mineral property covers a significant occurrence of porphyry copper-gold mineralization, resembling in many aspects several prospects in the general region. The property is well located as regards local infrastructure, although the terrain is locally mountainous.

2) The geological setting of the property is typical for this type of porphyry deposit, involving a Mesozoic sub-volcanic sub-alkalic intrusive complex with a mixed coeval volcanic and sedimentary host succession.

3) Although the ROK and other copper-gold porphyry prospects in the region exhibit some unique characteristics, they clearly represent northern members of a family of such deposits and prospects which is distributed throughout the length of British Columbia, from Copper Mountain in the south to Stikine Copper and Kerr in the northwest.

4) The exposed and interpreted patterns of alteration, mineralization, geochemistry and geophysics suggest the former presence of a single large system, which has been offset horizontally and vertically by a major northwest striking fault.

5) Of the various styles of mineralization discovered to date, the most significant is quartz vein stockworking carrying chalcopyrite and subordinate pyrite, with significant gold values essentially proportional to the copper content. Skarn copper-gold mineralization is of less immediate interest.

6) Diamond drilling to date has not intersected a major body of copper-gold stockwork mineralization, although several good grade (albeit short) intercepts have been recorded. The presently known stockwork zones are apparently too small and discontinuous (or disrupted) to be of real interest in themselves.

7) The physical setting of the better grade stockwork zones and their distribution with respect to the observed geophysical, geochemical and geological patterns suggest that these occurrences may be peripheral to or above more coherent and extensive stockwork zones.

8) The best potential for discovery of a large coherent body of good grade copper-gold bearing quartz stockwork mineralization lies beneath the ridge between the Main and South Zones, and to the east. There is room for discovery of a large body of mineralization.

9) Only limited amounts of additional surface exploration could be justified, notably extended induced polarization (IP) coverage to more fully define the overall extent of the sulphide system.

7.0 RECOMMENDATIONS

1) The IP coverage should be extended to the southeast as much as possible, and the present survey lines lengthened, in order to more fully define the total sulphide system. The IP survey should be specifically designed to be deep penetrating.

2) Diamond drilling should be undertaken, in a series of relatively long (600 m ±) holes in the general area between the South and Main Zones, and to the east, to test for a large coherent mass of stockwork mineralization. The holes should be widely spaced (say 300 m centres) and should preferably be inclined to the northeast. A minimum of eight holes would be required to provide a preliminary test of the zone of interest.

Respectfully submitted,

KEEWATIN ENGINEERING INC.

04 Dec 1991

David T. Mehner, M.Sc., FGAC

04 Dec 1991

Giles R. Peatfield, Ph.D., P.Eng.

8.0 REFERENCES

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APPENDIX I

Statements of Qualifications

STATEMENT OF QUALIFICATIONS

I, DAVID T. MEHNER, of 333 Scenic Drive, in the Municipality of Coldstream, in the Province of British Columbia, do hereby certify that:

1. I am a Consulting Geologist with Keewatin Engineering Inc., with offices at 800 - 900 West Hastings Street, Vancouver, B.C. V6C 1E5.

2. I am a graduate of the University of Manitoba, B.Sc. Honours, 1976, M.Sc. Geology, 1982.

3. I have practised my profession continuously since 1979.

4. I am a Fellow of the Geological Association of Canada.

5. During the period of June to September, 1991, I managed and supervised the exploration program on the ROK property near Kinaskan Lake on behalf of Consolidated Carina Resources Ltd. and Manchester Resources Corporation.

6. I do not expect to receive any interest (direct, indirect or contingent) in the properties described herein, nor in the securities of Consolidated Carina Resources Ltd. or Manchester Resources Corporation in respect of services rendered in the preparation of this report.

7. I am a co-author of the report entitled "Assessment Report on Exploration Programs on the ROK Property, Ealue Lake Area, Liard Mining Division, B.C." dated December 4, 1991.

Dated at Vancouver, British Columbia, this 4th day of December, A.D. 1991.

Respectfully submitted,

GEOLOGICAL ASSOCIATION OF CANADA
D. T. MEHNER
FELLOW

David T. Mehner, M.Sc., FGAC

STATEMENT OF QUALIFICATIONS

I, GILES R. PEATFIELD, do hereby certify that:

1. I am a consulting Geological Engineer with an office at 104 - 325 Howe Street, Vancouver, B.C., V6C 1Z7 and an Associate of Keewatin Engineering Inc., 800 - 900 West Hastings Street, Vancouver, B.C., V6C 1E5.

2. I am a graduate of the University of British Columbia (B.A.Sc., Geological Engineering, 1966) and of Queen's University at Kingston (Ph.D., 1978).

3. I am a Fellow of the Geological Association of Canada, and a Member of the Canadian Institute of Mining and Metallurgy, of the Mineralogical Association of Canada, of the Association of Exploration Geochemists, and of the Association of Professional Engineers and Geoscientists of British Columbia.

4. I have practised my profession as an exploration geologist for more than twenty years, and as a consulting Geological Engineer for the last five years.

5. In August, 1991, I visited the ROK project in company with Messrs. D.T. Mehner and D.G. DuPre, to review field operations. Subsequently, I worked with Mr. Mehner on data compilation and reporting in the offices of Keewatin Engineering Inc. My previous involvement with the property dates back to the period 1974 to 1980, during which time I supervised various projects on the property on behalf of Texasgulf Inc.

6. I have no interest, direct or indirect, not do I expect to receive any interest in the ROK mineral property or in the securities of Manchester Resources Corporation or Consolidated Carina Resources Ltd.

Dated at Vancouver, British Columbia this 4th day of December, 1991.

Respectfully submitted,

PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA G. R. PEATFIELD

G. R. Peatfield

Giles R. Peatfield, Ph.D., P.Eng.

APPENDIX II

Summary of Personnel

SUMMARY OF PERSONNEL

Name	Position	Sampler Code	Dates Worked
Ken Carter	Consultant		Sept. (2¼ days)
Giles Peatfield	Consultant		3 days; 121 hours
Ron Nichols	Supervisor		July (1.5 days); Aug. (2.0 days); Sept. (1.5 days)
Dave DuPre	Supervisor		May (0.75 days); June (3.0 days); July (9.0 days); August (3.5 days); October (3.5 days); November (1.0 days)
David Mehner	Senior Geologist	DM	April (½ day); June 6, 7, 12, 20, 21 (½ day), 22, 24, 25 (½ day), 26, 28-30; July 1-14, 17, 30; August 1, 3-14, 15 (½ day), 16 (½ day), 17-18, 19 (½ day), 20-31; September 1-9, 11 (½ day), 16-20, 23 (½ day), 24-28, 29 (¼ day) 30; Oct. 1, 2 (½ day),3, 17-18, 19 (½ day), 23-25, 26 (¼ day), 27 (¼ day), 28-29, 30 (¼ day), 31 (¼ day); November 1 (¼ day), 4 (¼ day), 6 (¼ day), 7, 14 (½ day), 26, 29 (½ day)
Marty Morrice	Senior Geologist	MM	September (1 day)
Jason Miller	Geologist	JM	June 25, 30; July 1-15, 17, 19-21, 26, 28-30, 31 (½ day); August 1-15, 17-18
Sandy Gibson	Geologist	AG	July 9, 10, 11; August 24, 25 (½ day), 26
Rob van Egmond	Geologist	RV	August 27-31; September 1-4, 8
Frank Ferguson	Surveyor		June 12, 15; July 4-9, 10 (½ day), 11, 17, 18
Don Coolidge	Prospector	DC	June 15, 21; August 4, 20-22, 25
Steve Creelman	Prospector	SC	July 9, 10, 11
Grant Nagy	Sampler	GN	June 5, 6, 20-22, 24, 26-30; July 1-3, 17, 19, 25-26, 28, 30; August 9, 12-14, 16 (½ day), 21-22, 24-25, 27, 29-31; September 1-2, 14, 15 (½ day), 16, 17
Bruce Richardson	Sampler	BR	June 6, 8, 9, 20-25, 27-30; July 1, 2 (½ day), 3-17, 19; August 4-10, 12-14, 16-19, 21-23, 27-31; September 1-6

Colin Anderson	Sampler	CA	May 30 (½ day); June 2, 4, 5, 11, 15, 20; September 6, 7, 9, 10, 11
Mike Brown	Sampler	MB	August 4
Cam Thompson	Sampler	CT	June 14, 21-29; August 6-9, 12, 19
Trevor Shepard	Sampler	TS	June 10, 20-21, 26
Francois Depey	Sampler	FD	July 26
Patti Wankling	Sampler	PW	June 24, 26-30; July 1-19, 25, 30, 31 (½ day); August 4-10, 12-15, 16 (½ day)
Casey Louis	Sampler	CL	July 6, 7
James Tashoots	Sampler	JT	June 25-29
Verna Jordan	Cook/First Aid		June 14 (½ day), 15, 21, 25, 28; July 1, 4, 6, 8, 9, 12, 14, 17, 19, 31; August 3, 6, 8, 10, 12, 21, 26, 29; September 1, 4, 7, 10
Bonnie Whelan	Administrator		August (2 days); September (1 day); October (3 days)

GEOLOGICAL ASSOCIATION OF CANADA
D. T. MEHNER
FELLOW

04 Dec 1991

APPENDIX III

Statement of Expenditures

STATEMENT OF EXPENDITURES

Pre-Field			
Project logistics, permit application, map preparation, crew assembly, etc.			**$ 2,323.66**
Field Program			
Personnel		$125,625.45	
Camp Support			
Food & Accommodation	$29,880.00		
Equipment Rental	11,610.00		
Communications	1,578.38		
Disposable Supplies and Fuel	6,163.11		
Expediting and Freight	3,326.36		
Travel & Accommodation	11,039.63	63,587.48	
Transportation			
Mobilization/Demobilization	$ 2,130.81		
Helicopter (30 & 10 hours @ $730/hour)	25,944.60	28,075.41	
Geochemical Analyses		34,209.38	
Trenching		42,094.72	
Geophysics		19,239.33	
Diamond Drilling		60,753.23	
Miscellaneous		11,915.75	**$385,500.75**
Post-Field			
Data compilation, report writing, etc.			**$ 36,395.17**
TOTAL EXPENDITURES:			**$421,895.82**

GEOLOGICAL ASSOCIATION OF CA[illegible]
D. T. MEHNER
04 Dec 1991
FELLOW