

ARIS SUMMARY SHEET

District Geologist, Smithers

Off Confidential: 92.03.01

ASSESSMENT REPORT 21388

MINING DIVISION: Omineca

PROPERTY: Kemess South

LOCATION: LAT 57 00 18 LONG 126 44 36  
UTM 09 6319994 637060  
NTS 094E02E

CAMP: 051 Toodoggone Camp

CLAIM(S): Ron 4

OPERATOR(S): El Condor Res.

AUTHOR(S): Copeland, D.J.

REPORT YEAR: 1991, 104 Pages

COMMODITIES

SEARCHED FOR: Gold, Silver

KEYWORDS: Upper Triassic, Takla Group, Lower-Middle Jurassic  
Toodoggone Formation, Volcanics, Pyroclastics  
Late Triassic-Early Jurassic, Omineca Intrusions, Stocks, Dykes  
Silicification, Pyrite, Chalcopyrite

WORK

DONE: Drilling  
DIAD 437.4 m 3 hole(s);NQ

RELATED

REPORTS: 10161, 12485, 13027, 14575, 16852, 18208

MINFILE: 094E 094

LOG NO:	6603	RD.
ACTION:		
FILE NO:		

**ASSESSMENT REPORT**  
for  
**1990 DIAMOND DRILLING**  
on the  
**KEMESS SOUTH PROPERTY**

**OMINECA MINING DIVISION**  
**BRITISH COLUMBIA**  
**N.T.S. 94 E/2**

Latitude 57° 04' North  
Longitude 126° 44' West

Claim Name	Record No.	Units	Record Date
Ron 4	3630	20	Mar 3, 1981
Ron 10	5850	20	Oct 5, 1983
Ron 11	5851	10	Oct 5, 1983
DU	6396	20	Jul 16, 1984
Rat 1	9463	9	Jun 15, 1988
SEM 1	10851	16	Jul 18, 1989
DU 2	12423	20	Aug 2, 1990
DUE 1	12425	1	Aug 2, 1990
DUE 2	12426	1	Aug 2, 1990
DUE 3	12427	1	Aug 2, 1990
DUE 4	12428	1	Aug 3, 1990
DUE 5	12429	1	Aug 3, 1990
DUE 6	12430	1	Aug 3, 1990
DUE 7	12431	1	Aug 3, 1990
DUE 8	12432	1	Aug 3, 1990
DUE 9	12433	1	Aug 3, 1990
DUE 10	12434	1	Aug 3, 1990

- Prepared For -

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**GEOLOGICAL BRANCH**  
**ASSESSMENT REPORT**

29 May 1991

D. J. Copeland, P. Eng.

**21,388**

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## INTRODUCTION

The **KEMESS SOUTH** property is comprised of seven 4 post and ten 2 post mineral claims, totalling 125 units. It is located in the southern part of the Toodoggone mining camp in the Omineca Mining Division, northcentral British Columbia. All claims are owned by El Condor Resources Limited of Vancouver, B.C.

During the 1990 field season, El Condor Resources Ltd. employed C.E.C. Engineering Ltd. to manage and supervise diamond drilling on the property. 3 NQ size holes (DDH 90-20, 90-21 and 90-22) totalling 437.45 metres were drilled, split and sampled. 190 core samples were sent to Min-En Labs in Vancouver, B.C. for Au assay and 12 element ICP analysis. This report discusses the diamond drilling results.

### SUMMARY

The Kemess South property, comprised of seven 4 post mineral claims and ten 2 post mineral claims, is situated 7 kilometres east of Thutade Lake, or 265 kilometres north of Smithers, in northcentral British Columbia. Geographic coordinates are 57° 04' North latitude by 126° 44' West longitude(N.T.S. 94E/2). All claims are owned by El Condor Resources Limited of Vancouver, B.C.

Access is possible via the Omineca Mine road which leads north from Fort St. James and passes 5 kilometres west of the property. El Condor Resources Ltd. has constructed a 5 kilometre tote road between the Omineca road and the property.

Access is also possible by scheduled fixed-wing aircraft flights from Smithers to the Sturdee airstrip which services much of the Toodoggone area. It is approximately 265 kilometres from Smithers to the Sturdee airstrip and 26 kilometres by helicopter from the airstrip to the property.

During the 1990 field season, El Condor Resources Ltd. employed CEC Engineering Ltd. to manage and supervise diamond drilling on the claims. 3 NQ size holes(DDH 90-20, 90-21 and 90-22) totalling 437.45 metres were drilled, logged, split and sampled. 190 core samples were sent to Min-En Labs in Vancouver, B.C. for Au assay and 12 element ICP analysis.

### **Conclusions and Recommendations**

The limits of the mineralized zone are at present unknown. All of the IP anomaly as presently outlined and all extensions and new zones should be drilled to further define the lateral extent of the mineralized zone.

A mapping and sampling program should be undertaken on the entire Kemess property.

The IP and Magnetometer geophysical grid surveys done in November of 1990 should be extended to fully delineate the sulphide system.

### LOCATION AND ACCESS

The **KEMESS SOUTH** property is situated 7 kilometres east of Thutade Lake, or 265 kilometres north of Smithers, in northcentral British Columbia. Its geographic coordinates are 57° 04' North latitude by 126° 44' West longitude (N.T.S. 94 E/2).

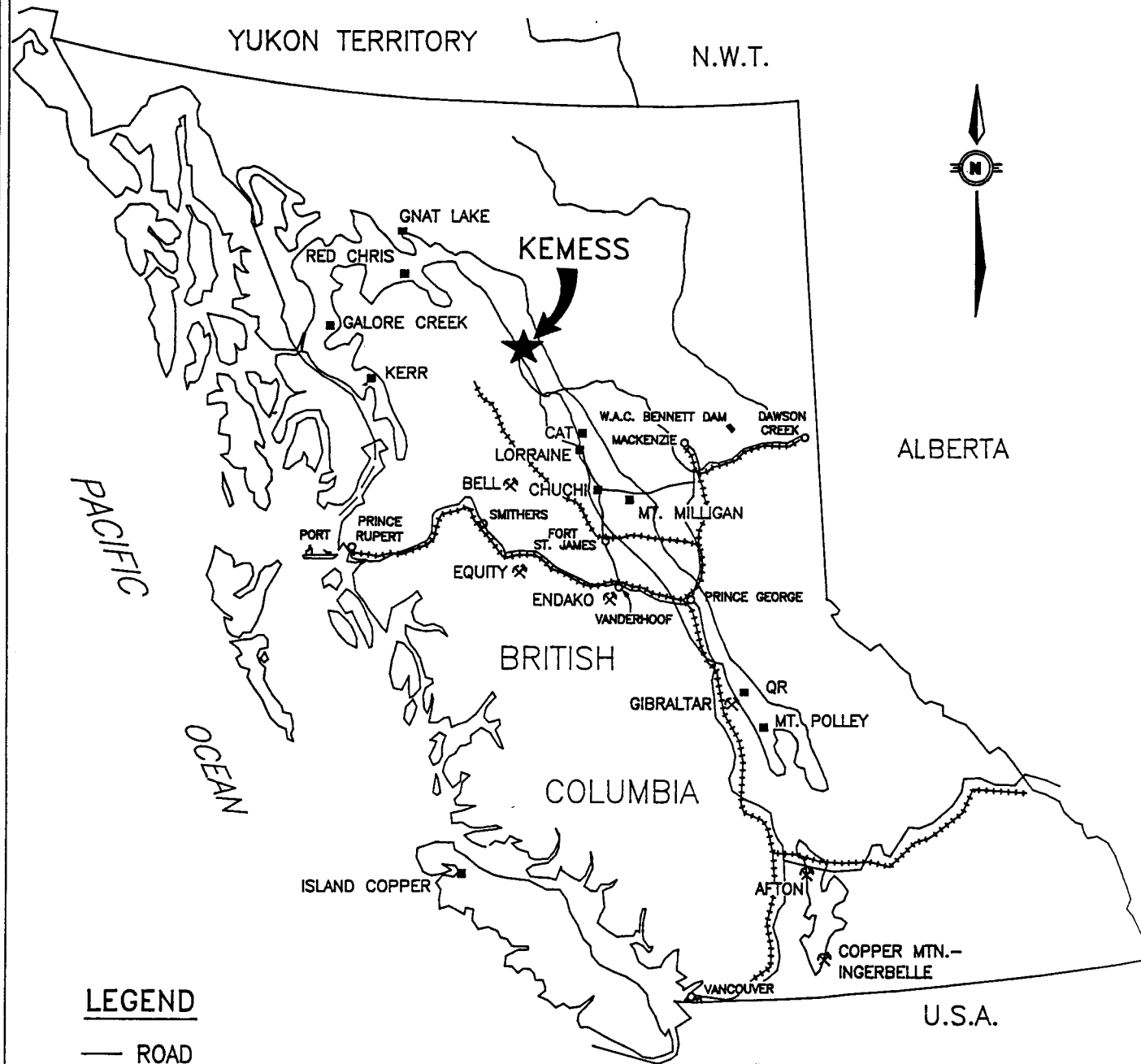
Road access is possible from Prince George, approximately 554 road km southeast, via Mackenzie, 368 road km southeast of the property. Alternate road access is possible along the Omineca Mine Road from Fort St. James. The road passes some 5 km west of the property and El Condor Resources Ltd has constructed a 5 kilometre tote road between the Omineca Mining Road and the property. This tote road is seasonally passable for four-wheel drive trucks, and all-terrain and tracked vehicles.

Access is also possible via scheduled fixed-wing aircraft flights from Smithers to the Sturdee airstrip that services much of the Toodoggone area and the Lawyers Mine. It is approximately 265 air kilometres from Smithers to the Sturdee airstrip and 26 air-kilometres by helicopter from the Sturdee airstrip to the property. In addition, the British Columbia Railway right of way passes 72 kilometres south of the property.

### CLAIM DATA and OWNERSHIP

The property is located in the Omineca Mining Division of north central British Columbia. It is comprised of seven 4 post mineral claims and ten 2 post mineral claims, totalling 125 units. A claim map is provided in Figure 2 and pertinent claim data is summarized in Table 1.





**LEGEND**

- ROAD
- ++++ RAILWAY
- QUESNEL TROUGH
- ☆ PRODUCING PORPHYRY MINES
- COPPER AND/OR GOLD DEPOSIT



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 KEMESS PROPERTY

**LOCATION MAP**

SCALE: AS SHOWN	DRAWN BY: ProComp GeoDraft Ltd.	FILE: KEMLOCA
DATE: MAY 91	REVISION:	PAGE: 1

Table 1: Claim Data

Claim Name	Record No.	Units	Record Date	Expiry Date
Ron 4	3630	20	Mar 3, 1981	Mar 3, 1995
Ron 10	5850	20	Oct 5, 1983	Oct 5, 1994
Ron 11	5851	10	Oct 5, 1983	Oct 5, 1994
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DUE 6	12430	1	Aug 3, 1990	Aug 3, 1993
DUE 7	12431	1	Aug 3, 1990	Aug 3, 1993
DUE 8	12432	1	Aug 3, 1990	Aug 3, 1993
DUE 9	12433	1	Aug 3, 1990	Aug 3, 1993
DUE 10	12434	1	Aug 3, 1990	Aug 3, 1993

TOTAL 125

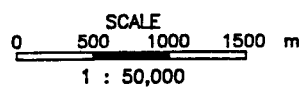
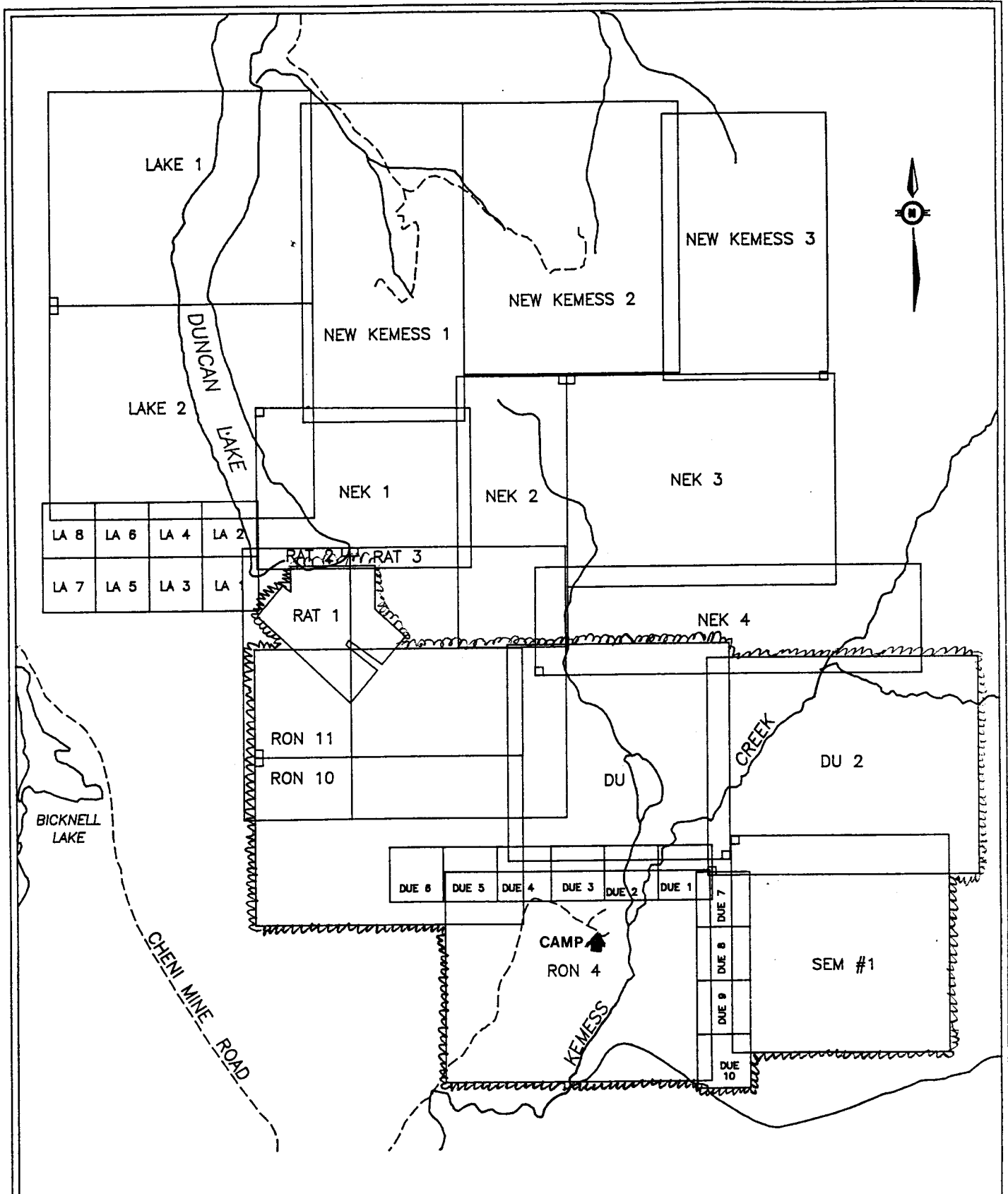
\* Pending acceptance of this assessment report.

All claims are owned by El Condor Resources Limited of Vancouver, B.C.

### PHYSIOGRAPHY

The property covers the slopes and highlands east of Duncan Lake. These highlands are part of the Omineca Mountains of the Swannell Range. Elevations range from 1,400 metres (4,593 feet) to 1,932 metres (6,339 feet) A.M.S.L.

The climate is moderate with temperatures ranging from -40° to +25° C. Precipitation is usually moderate. The snowpack commonly thaws by late June, and the field season may extend until mid to late October.



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KEMESS PROPERTY		
<h1>CLAIM MAP</h1>		
SCALE : AS SHOWN	DRAWN BY : ProComp GeoDraft Ltd.	FILE : claims
DATE : APR. 91	REVISION : MAY 17/91	PAGE : 1

The topography is moderate but there is a series of very steep east-west cirque cliffs situated centrally within the claims. The most westerly cirque contains an alpine rock glacier which appears to be still active. Most of the property is above treeline where the vegetation is scrub balsam and low juniper.

### HISTORY

Placer gold was discovered at the mouth of McConnell Creek, 30 kilometres northwest of Johansen Lake, in 1899. In 1907, a short lived gold rush occurred as a result of this discovery.

In the 1930's Cominco prospected the Thutade and Duncan Lakes area for the lode source of the placer gold found in Belle Creek. The source was not discovered but Cominco did stake four claims covering a skarn occurrence with lead-zinc mineralization, 3 kilometres west of the property (Stevenson, 1969).

In 1968, Kennco Explorations (Western) Limited discovered the Chapelle (Baker Mine) gold-silver deposit while searching for porphyry copper-molybdenum occurrences in the district. Over the next fifteen years several major mining companies explored the region for precious and base metal occurrences. Their work resulted in the discovery of significant gold and silver mineralization at Lawyers, Metsantan, Sha and Kemess properties.

The Baker (Chapelle) mine was in production until early 1984. Its initial reported reserves were 120,000 tons grading 0.8 ounces per ton gold and 15.0 ounces per ton silver. Reported reserves for this deposit are now 55,000 tons of 5.1 ounces per ton silver. The nearby Cheni (Lawyers) mine is now in production with reported mineable reserves of 1,414,000 tons of 0.205 ounces per ton gold and 7.27 ounces per ton silver (Schroeter, 1989).

In 1966, Kennco Explorations (Western) Limited carried out a regional silt geochemical survey in the vicinity of the subject property. The following year Kennco staked 100 mineral claims to cover an intense gossan zone with high base and precious metal silt geochemistry.

The Ron 4 claim was part of a property staked in 1981 while the Ron 10 and Ron 11 were staked in 1983. In 1984, soil, magnetometer, and IP surveys (13 line km) were conducted over a portion of the Ron 4 for Pacific Ridge Resources.

In the fall of 1984, the area was tested by 323 metres of diamond drilling in six holes which revealed stockwork porphyry gold-copper-molybdenum mineralization

In 1987, a detailed fill-in soil survey and VLF-EM survey conducted over the area encompassed by the 1984 cut grid revealed a large copper anomaly.

In 1988, 775 metres of diamond drilling was completed in 15 holes to test geochem and geophysical targets. Encouraging Cu-Au values over significant widths were intersected in several holes and the known extent of the porphyry mineralization was expanded. The Rat 1 was also staked during this year.

In 1989, the Sem 1 was staked.

In 1990, El Condor Resources negotiated an option agreement with St. Philips Resources Inc., Stork Ventures Ltd., and Arcanna Industries Ltd. for the claims. The Du 2 and the Due 1 to Due 10 were also staked in Aug. 1990

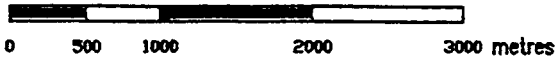
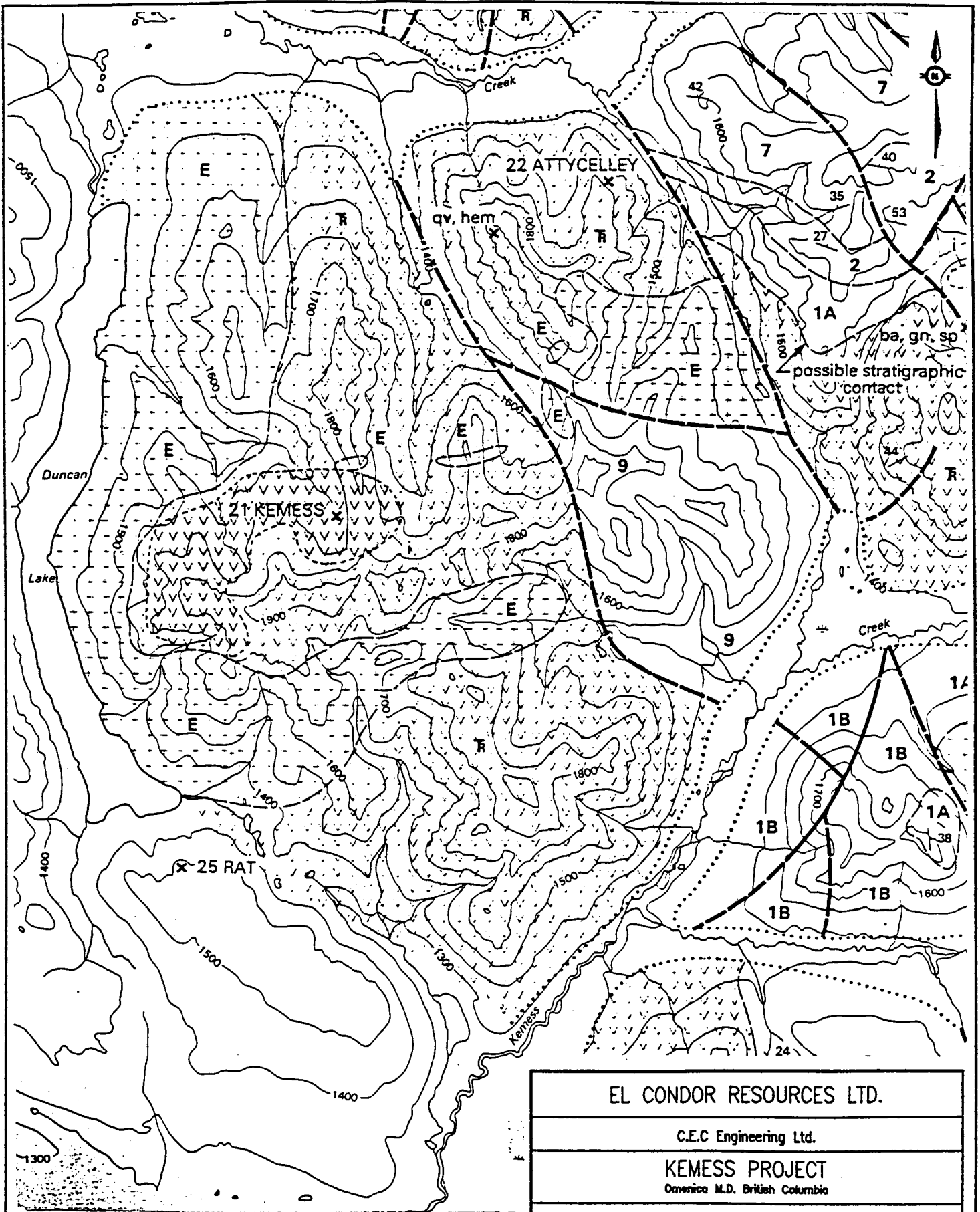
## REGIONAL GEOLOGY

(most of the discussion of regional geology is adapted and abridged from Copeland and Blanchflower, 1990).

### Lithologic Succession

The Toodoggone District lies within the eastern margin of the Intermontane Belt. It is underlain by a northwesterly trending belt of Palaeozoic to Tertiary sediments, volcanics and intrusives covering an area 90 km by 25 km (Figure 3). The supracrustal rocks are briefly described in Table 2.

Lower to Middle Jurassic Omineca Intrusions have intruded the older strata in the central and eastern parts of the region, and form the eastern margin of the Toodoggone District. Within the district, monzonitic and quartz feldspar porphyritic dykes may be feeders to the Toodoggone Volcanics. The intrusive rocks are briefly described in Table 3.



scale: 1:50,000

EL CONDOR RESOURCES LTD.		
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KEMESS PROJECT Omineca M.D. British Columbia		
REGIONAL GEOLOGY		
SCALE: 1:50,000	DRAWN BY: abbas consulting	DISK FILE: LP-GRID2
DATE: Feb. 1991	HTS: 94 E/2	FIGURE: 3

PLEISTOCENE AND RECENT

UNCONSOLIDATED GLACIAL, FLUVIOGLACIAL, ALLUVIAL, AND COLLUVIAL DEPOSITS

CRETACEOUS

UPPER CRETACEOUS

SUSTUT GROUP (TANCO CREEK FORMATION)

**K** POLYMYCTIC CONGLOMERATE, SANDSTONE, SHALE, CARBONACEOUS MUDSTONE

JURASSIC

LOWER AND (?) MIDDLE JURASSIC

"TOODOOOOGE VOLCANICS" - (?) HAZELTON GROUP

**9** UNDIVIDED, PREDOMINANTLY GREY, GREEN, PURPLE AND ORANGE-BROWN HORNBLENDE PLAGIOCLASE AND PLAGIOCLASE PHYRIC ANDESITE PORPHYRY FLOWS, TUFFS, BRECCIA, SOME LAMAR, CONGLOMERATE, GREYWACKE, SLT-STONE, RARE EPIDOTITE-PENILITE, INCLUDES SOME DYKES AND SILLS

LOWER TO MIDDLE JURASSIC

"TOODOOOOGE VOLCANICS" (CARTER, 1973)

"GREY DACITE"

**8** DARK TO PALE GREY OR GREEN QUARTZOSE BIOTITE HORNBLENDE PLAGIOCLASE ASH FLOWS OF ANDESITIC AND RARELY DACITIC COMPOSITION, VARIABLY WELDED WITH LOCALLY WELL-DEVELOPED COMPACTON LAYERING; CONTAINS ABUNDANT GREY DACITE AND RARE GRANITIC CLASTS; OUTCROPS ARE COMMONLY BLOCKY AND STRONGLY JOINTED 182 ± 8, 183 ± 9 Ma (BSC) HORNBLENDE

**8A** POLYMYCTIC CONGLOMERATE WITH ABUNDANT TAIKA AND GREY DACITE CLASTS IN A QUARTZOSE SANDSTONE MATRIX

**8B** GREYWACKE, CONGLOMERATE DERIVED ENTIRELY FROM GREY DACITE

TOODOOOOGE CRYSTAL ASH TUFFS AND FLOWS

**7** RECESSIVE, GREY, MAUVE, PURPLE QUARTZOSE PLAGIOCLASE CRYSTAL TUFF, LAPILLI TUFF, AND BRECCIA, WITH LESSER AGGLOMERATE, LAMAR, AND EPICLASTIC BEDS; INCLUDES SOME WELDED TUFFS AND PYROXENE HORNBLENDE FELDSPAR PORPHYRY FLOWS WHICH ARE LOCALLY DOMINANT; SOME MEMBERS CONTAIN NO QUARTZ. PINK WEATHERING WHERE LAURIONITE IS ABUNDANT 189 ± 4 Ma HORNBLENDE

**7A** EPICLASTIC RED BEDS - ANDESITIC SANDSTONE, SILTSTONE, CONGLOMERATE, AND SLIDE DEBRIS; CONTAINS SOME CRYSTAL TUFF

TUFF PEAK FORMATION

**6** PALE PURPLE, GREY AND GREEN BIOTITE AUGITE HORNBLENDE PLAGIOCLASE PORPHYRY FLOWS; SOME AUTOBRECCIATED FLOWS, MINOR SILLS AND PLUGS, SOME CRYSTAL AND LAPILLI TUFF 187 ± 7 Ma BIOTITE  
200 ± 7 Ma HORNBLENDE

**6A** CONGLOMERATE OR LAMAR DERIVED FROM UNITS 6 AND 6B, WITH GRADED AND CRYSTALLINATED MUDSTONE AND SANDSTONE INTERBEDS; DEBRIS FLOWS, LAPILLI AND CRYSTAL TUFFS

**6B** FLOWS SIMILAR TO UNIT 6 BUT CONTAINING SPARSE ORTHOCLASE MEGACRYSTS

McLAIN CREEK FORMATION

**5** PURPLE, LAVENDER, GREY, RARELY GREY-GREEN, "CROWDED" FINE TO MEDIUM-GRAINED PLAGIOCLASE PORPHYRY FLOWS; INCLUDES SOME LAPILLI TUFF, BRECCIA, AND MINOR EPICLASTIC BEDS

**5A** INTRUSIVE DOME WITH AUTOBRECCIATED CARAPAGE AND FLANKING BRECCIA

MAFIC FLOW AND TUFF UNIT

**4** BASALT FLOWS—THIN BEDDED, PURPLE TO DARK GREEN, COMMONLY EPIDOTIZED, FINE-GRAINED PYROXENE BASALT FLOWS AND TUFFS; INCLUDES SOME SILLS AND DYKES

**4A** PURPLE TO MAUVE, MEDIUM-GRAINED PORPHYRYTIC BASALT; LOCALLY MAUVE TO PINK, ZEOLITIZED WITH LAURIONITE, POSSIBLE INTRUSIVE (ACCOLITH)

**4B** LAPILLI, CRYSTAL, AND ASH TUFF; WELL BEDDED, INCLUDES MINOR THINLY BEDDED SANDSTONE AND RARE CALCAREOUS SLTSTONE (MARL), TOTALLY OR IN PART EQUIVALENT TO UNIT 7

**4C** PYROXENE BIOTITE HORNBLENDE PORPHYRY FLOWS WITH TRACES OF QUARTZ AND K-FELDSPAR; INTERBEDDED MINOR BRECCIA AND LAPILLI TUFF, TOTALLY OR IN PART EQUIVALENT TO UNIT 8

LOWER TO MIDDLE JURASSIC (CONTINUED)  
"TOODOOOOGE VOLCANICS" (CARTER, 1973) (CONTINUED)

LAYERS—METSANTAN QUARTZOSE ANDESITE

**3** GREEN TO GREY QUARTZOSE PYROXENE (?) BIOTITE HORNBLENDE PLAGIOCLASE PORPHYRY FLOWS AND TUFFS. QUARTZ CONTENT RANGES FROM NEGLIGIBLE TO ABOUT 3 PER CENT IN THE NORTH FLOWS PREDOMINATE WITH LOCAL FLOW BRECCIA, LAPILLI TUFF, AND RARE WELDED TUFF UNITS; TOWARD THE SOUTH ASH FLOWS ARE COMMON, INCLUDING RARE BURGE DEPOSITS. THE UNIT CONTAINS EXTENSIVE ZONES OF EPIDOTIZED, PHYRIC ROCK WITH CHARACTERISTIC SAILOR, PINK, AND ORANGE PLAGIOCLASE CRYSTALS

MOYEE CREEK VOLCANICLASTICS

**2** CONGLOMERATE WITH SOME GRANITIC CLASTS, GRADED, CROSS-BEDDED GREYWACKE, WELL-BEDDED CRYSTAL TUFF, EPICLASTIC SEDIMENTS, LOCAL LAMINATED CALCAREOUS SALT (MARL), RARE THIN LIMESTONE AND CHERT; LOCAL COARSE LAMAR-IDE DEBRIS AND LAMAR, IN PART OR TOTALLY EQUIVALENT TO UNIT 6A

**2A** CRYSTAL TUFFS IN THIN, WELL-LAYERED UNITS; SOME EPICLASTIC SANDSTONE AND MUDSTONE; RARE PLANT FRAGMENTS IN SOME BEDS; MINOR LAPILLI TUFF

ADODOGACHO CREEK FORMATION

**1** PALE REDDISH GREY TO DARK RED-BROWN QUARTZOSE BIOTITE HORNBLENDE PHYRIC ASH FLOWS; THE ROCKS CONTAIN MINOR SANDWICH AND RARE AUGITE, WELDING IS WIDESPREAD AND RANGES FROM INCIPENT TO EUTAXTIC; LOCALLY ORANGE TO BROWN VITROPHYRIC CLASTS ARE COMMON; INCLUDES LAPILLI TUFF AND BRECCIA UNITS AS WELL AS MINOR LAYERED GROUND BURGE DEPOSITS

**1A** CRYSTAL ASH TUFF, LAPILLI TUFF, AND RARE AGGLOMERATE WITH INTERSPERSED EPICLASTIC BEDS, TUFFACEOUS SEDIMENTS AND MINOR CONGLOMERATE THAT LOCALLY CONTAINS GRANITIC CLASTS; MINOR HORNBLENDE PLAGIOCLASE PHYRIC FLOWS FORMING SINGLE OR THIN COMPOSITE FLOW UNITS

**1B** QUARTZOSE PLAGIOCLASE PORPHYRY—JOINTED, DOMAL INTRUSION (?) OF HOMOGENOUS-APPEARING GREY TO GREEN, CHLORITIZED AND EPIDOTE-ALTERED ROCK CONTAINING ABUNDANT INCLUSIONS OF TAIKA VOLCANICS AND RARE METAMORPHIC ROCK CLASTS

TRIASSIC

UPPER TRIASSIC

TALKA GROUP

**T** DARK GREEN AUGITE PORPHYRY BASALT FLOWS AND BRECCIAS WITH LESSER FINE-GRAINED ANDESITE TO BASALT FLOWS AND MINOR INTERBEDDED SANDSTONE, TUFFACEOUS SEDIMENTS, AND CHERT; CONTAINS LIMESTONE LENSES THAT MAY BE PART OF THE "BITKA GROUP"

PALEOZOIC

PERMIAN

**P** BITKA GROUP?

PREDOMINANTLY LIMESTONE (INCLUDING MARBLE AND MINOR SKARN) WITH SOME ARGILLITE, BLACK SHALE, AND CHERT UNITS COMPOSED OF LIMESTONE, CHERT, ARGILLITE, AND BASALT (P.V. 2) MAY BE, IN PART, OR TOTALLY TAIKA GROUP

INTRUSIVE ROCKS

JURASSIC

LOWER JURASSIC (DYKES, SILLS, AND SMALL PLUGS)

- A** BASALT
- B** AUGITE HORNBLENDE PORPHYRY — BASALTIC STOCK, DOMAL INTRUSION (OR TAIKA INLER)
- C** BIOTITE HORNBLENDE DIORITE/GABBRO
- D** PYROXENE PLAGIOCLASE PORPHYRY

LOWER TO MIDDLE JURASSIC (DYKES AND STOCKS)

- E** QUARTZ MONZONITE, GRANODIORITE—MEGACRYSTIC IN PART; MINOR SYENITE OR QUARTZOSE SYENITE ALONG CONTACTS
- E1** GRANODIORITE, QUARTZ DIORITE — MEDIUM GRAINED, PORPHYRYTIC, FOLIATED IN PART
- F** FELDSPAR PORPHYRY; HORNBLENDE FELDSPAR PORPHYRY — DYKES AND PLUGS; RARE QUARTZ FELDSPAR PORPHYRY

SYMBOLS

- MINERAL OCCURRENCE (MINERAL INVENTORY FILE NUMBER) \_\_\_\_\_ **x 43**
- MINERAL PROSPECT (MINERAL INVENTORY FILE NUMBER) \_\_\_\_\_ **x 34**
- EXPLORATION CAMP \_\_\_\_\_ **⊙**
- PLACER WORKINGS \_\_\_\_\_ **^**
- PARK BOUNDARY \_\_\_\_\_
- ROAD \_\_\_\_\_
- MAIN OUTCROP AREAS \_\_\_\_\_ **⊙**
- FAULT (OBSERVED, INFERRED) \_\_\_\_\_
- THRUST OR REVERSE FAULT (OBSERVED, INFERRED) \_\_\_\_\_ **▲▲▲▲**

- BEDDING, LAYERING, FOLIATION (HORIZONTAL, INCLINED, VERTICAL) \_\_\_\_\_ **+ xy /**
- FOLD AXES \_\_\_\_\_ **x**
- FOSSIL LOCALITY (PLANT DEBRIS) \_\_\_\_\_ **⊕**
- RADIOMETRIC DATE SAMPLE SITE, AGE IN Ma \_\_\_\_\_ **⊕104**
- VOLCANIC VENT \_\_\_\_\_ **⊙**
- HYDROTHERMAL ALTERATION
- FERRICRETE, QUATERNARY FERRUGINOUS BRECCIA \_\_\_\_\_ **⊕**
- SILICA, CLAY MINERALS ± ALLURITE, BARITE \_\_\_\_\_ **⊕**
- CLAY MINERALS ± ALLURITE, SILICA, HEMATITE \_\_\_\_\_ **⊕**

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KEMESS PROPERTY

REGIONAL GEOLOGY  
LEGEND



Table 2: Stratigraphy

## Quaternary

## Pleistocene and Recent

unconsolidated till, fluvium, alluvium, colluvium

<< UNCONFORMITY >>

## Cretaceous

## Upper Cretaceous - Sustut Group

conglomerate, sandstone, shale, carbonaceous mudstone

<< UNCONFORMITY >>

## Jurassic

## Lower to Middle Jurassic

## Hazelton Group

andesite porphyry flows, F  
tuffs, breccia, lahars, A  
conglomerate, greywacke, U  
siltstone L  
T

<<UNCONFORMITY>>

## Toodoggone Volcanics

airfall ash tuff, ash flows,  
coarse pyroclastics,  
lava flows, epiclastic  
sedimentary rocks

<<STRUCTURALLY CONFORMABLE>>

## Triassic

## Upper Triassic - Takla Group

augite porphyry basalt flows and breccias, fine grained  
andesite to basalt flows, minor siltstone, tuffaceous  
sediments, chert, minor limestone

## Paleozoic

## Permian - Asitka Group

limestone, lesser argillite, black shale and chert

## Proterozoic - Ingenika Group

sandstone, siltstone, shale, minor  
conglomerate and limestone

**Table 3: Intrusive Rocks****Jurassic**

Lower Jurassic (dikes, sills and small plugs)

basalt

augite hornblende porphyry - basaltic stock, domal intrusion  
(or Takla inlier)

biotite hornblende diorite/gabbro

pyroxene plagioclase porphyry

Lower to Middle Jurassic (dikes and stocks)

quartz Monzonite, granodiorite; minor syenite or quartzose  
syenite along contacts

granodiorite, quartz diorite

feldspar porphyry, hornblende feldspar porphyry, rare quartz  
feldspar porphyry

Regional Structural Setting

In the McConnell Creek map area, which includes the project area, Monger (1977) described the regional structure thus:

"Faulting is the dominant deformational style. The faults may be normal, reverse or thrust and are probably of several ages. The rocks are tilted or folded into broad folds..."

The southwestern part of the Toodoggone district has been described as one of stacked thrust plates in which Toodoggone rocks dip steeply (Copeland and Blanchflower, 1990). Conversely, further north, gently dipping beds in tilted fault blocks or broad open

folds with horizontal axes are the norm (Copeland and Blanchflower, 1990).

Although the present project area is in the southwestern part of the Toodoggone district, Monger's description from McConnell Creek, or that advanced for the more northerly part of the Toodoggone district, seem more apt.

### PROPERTY GEOLOGY

In a general sense, the local geology on the Kemess South claims is very simple. Mineralization is hosted within a relatively flat lying body of quartz monzonite and extends a short distance into Takla volcanics and sediments in the footwall. A veneer of overburden from 3 metres to 24 metres thick and averaging 10 metres thick covers the quartz monzonite.

### Lithologic Units

#### **QUATERNARY - RECENT**

##### **Unconsolidated Deposits**

Unconsolidated deposits were not examined as part of the present project. They are believed to consist of glacial deposits with a veneer of colluvium. The direction of glacial movement has not been addressed.

### **Ferricrete**

Ferricrete as used here refers to material comprised of mineral grains, fragments of rock and even fragments of quartz veins in a cement of iron oxides. It is formed from unconsolidated deposits cemented by iron oxide precipitates. The cement is locally partly calcareous. Fragments vary in size and nature according to the original soil or sediment horizons. The fragments make up anywhere from 10% to 75% of the ferricrete.

### **LOWER - MIDDLE JURASSIC**

#### **Quartz Monzonite**

Quartz monzonite is used here as a general term to describe rocks which include quartz monzonite, granodiorite, quartz diorite and even some syenite.

The intrusion consists of porphyritic, felsic rocks. The dominant phenocrysts are plagioclase, ranging in size from 1 to 4 millimetres and forming between 20% and 30% of the bulk mineralogy. Quartz phenocrysts are less abundant, under 10%, and usually smaller, up to half a millimetre.

Sixty percent or more of the quartz monzonite consists of a microgranular groundmass of equant, intergrown crystals of k-feldspar, plagioclase feldspar and quartz.

Alteration, particularly an influx of quartz and potassium feldspar, makes precise classification of the protolith difficult either macroscopically or microscopically.

#### **UPPER TRIASSIC - TAKLA GROUP**

##### **Volcanics**

Most of the volcanic rocks encountered in drilling are presumed to have been flows, with compositions in the basalt to andesite range. Their fine grain size, and a strong alteration overprint, obscure their primary mineralogy.

A few crystal tuff units and lapillistones exist. They are not volumetrically significant and in most instances are associated with sedimentary units.

##### **Sediments**

Sedimentary rocks encountered in drill holes include chert, cherty tuff, argillite and graphitic argillite. At least two horizons of sediments exist, but correlation from drill hole to drill hole is difficult. The sediments are evidently interlayered with the volcanic flows.

## Geological Structure

### **Style**

Most of the deformation in rocks at South Kemess has taken the form of brittle fracturing; on a large scale as faulting and a smaller scale as jointing.

### **Faulting**

The myriad fractures, faults and breccia zones are difficult to correlate from drill hole to drill hole. The one exception to this, easily correlated because of the lithologic markers, is a fault that is consistently present at the base of the quartz monzonite.

### **Jointing**

Several generations of veins and stockworks, plus many later, unhealed joints and fractures, evidence a long history of fracturing. No oriented core is available, so the geometry of the joint sets is not known. Clearly though, structural preparation was significant in forming a plumbing system for hydrothermal fluids to penetrate throughout the lithologic assemblage.

### **Folding**

There is nothing yet to suggest that folding played a significant role in the local geological history.

### Alteration

With the possible exception of cherts and argillites in the Takla strata, all of the rocks have been altered. There is a complex overprinting of alteration assemblages and the description provided here is simplified. The alteration assemblages are listed in approximate time séquence starting with the earliest:

#### **Sericitization of Plagioclase**

Most of the quartz Monzonite contains between 20% and 30% plagioclase phenocrysts, 1 to 4 mm in largest dimension. Almost universally, this plagioclase is altered to a soft, grey-green waxy substance, an aggregate of fine grained sericite and clays.

Having once been altered, these pseudomorphs after plagioclase apparently became almost impervious to further alteration. They have survived in this form, relatively unchanged.

#### **Quartz Veinlets**

In most instances, quartz is fracture filling, forming veinlets and veins. Quartz veinlets form a stockwork that makes up anywhere from 5% to 30% of the rock over tens of metres and as much as 70% of the rock over a few metres. The most common quartz veinlets are a few millimetres to a few centimetres thick.

### **Chlorite**

Much of the fault gouge noted throughout core from Kemess South has a chloritic component.

### **Calcite Veining**

Calcite veinlets are widespread throughout, cutting many other alteration assemblages. Quartz-calcite veins are common enough, but most prove to be quartz veins, fractured and invaded by calcite. Other minerals sometimes associated with calcite are chlorite and hematite.

### **Carbonate Veining**

Carbonate veining is used here to describe veins containing a carbonate mineral that is not calcite. In most instances it is probably iron carbonate. Like the calcite veins, carbonate veins are late. Their age relation with calcite is unknown.

### **Gypsum**

Late veinlets of gypsum, though not volumetrically important, are present throughout the lithologic assemblage.

### **Zeolites**

Some of the late veinlets contain what are probably zeolite minerals. Like gypsum, they are widespread but not volumetrically important.



### Mineralization

The sulphide mineral assemblage is, superficially at least, very simple at the Kemess South. Pyrite and chalcopyrite are disseminated in both quartz veins and the altered host quartz monzonite.

### 1990 DIAMOND DRILLING

The 1990 diamond drilling was managed by C.E.C. Engineering Ltd. of Vancouver, on behalf of El Condor Resources Ltd.

The drilling, done by J.T. Thomas Diamond Drilling Ltd. of Smithers, B.C. was carried out between July 20 and Dec. 15, 1990.

The pertinent diamond drill hole data follows in Table 4.

**Table 4: Drill Hole Data**

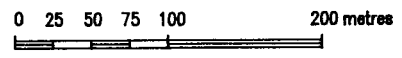
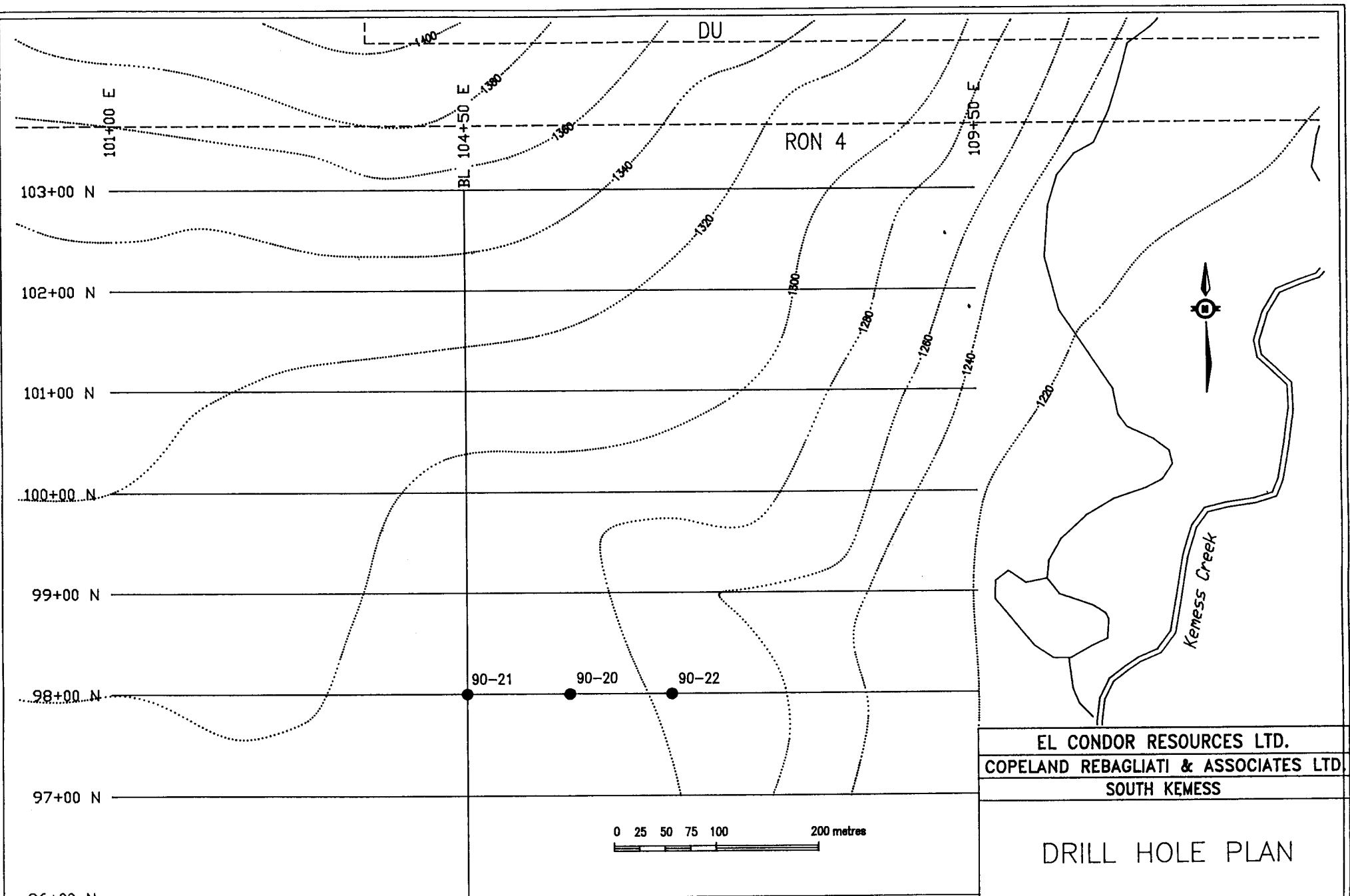
Drill Hole	Coordinates		Azimuth	Declination	Length(m)
	N.	E.			
DDH90-20	9800	10550	-	-90°	154.53
DDH90-21	9800	10450	-	-90 <sub>0</sub>	148.44
DDH90-22	9800	10650	-	-90 <sub>0</sub>	138.48

The NQ size diamond drill core was logged and sampled at 2.00 metre intervals. All of the drill core was split and one-half was shipped to Min-En Laboratories Ltd. in Smithers, B.C. for crushing, grinding and pulp preparation. The remaining split drill core was properly labelled, stacked and stored at the camp site. A total of 190 prepared pulps were later shipped to the assay facilities of Min-En Laboratories Ltd. in North Vancouver, B.C. for Au assay and 12 element ICP analysis.

The geologic logs accompany this report in Appendix I while Au assay and ICP data are given in Appendix II. The location of the drill hole collars are shown in Figure 5, and a geological cross-section has been plotted in Figure 6. The analytical procedures utilized by the assay laboratory accompany this report as Appendix III.

#### DISCUSSION OF RESULTS

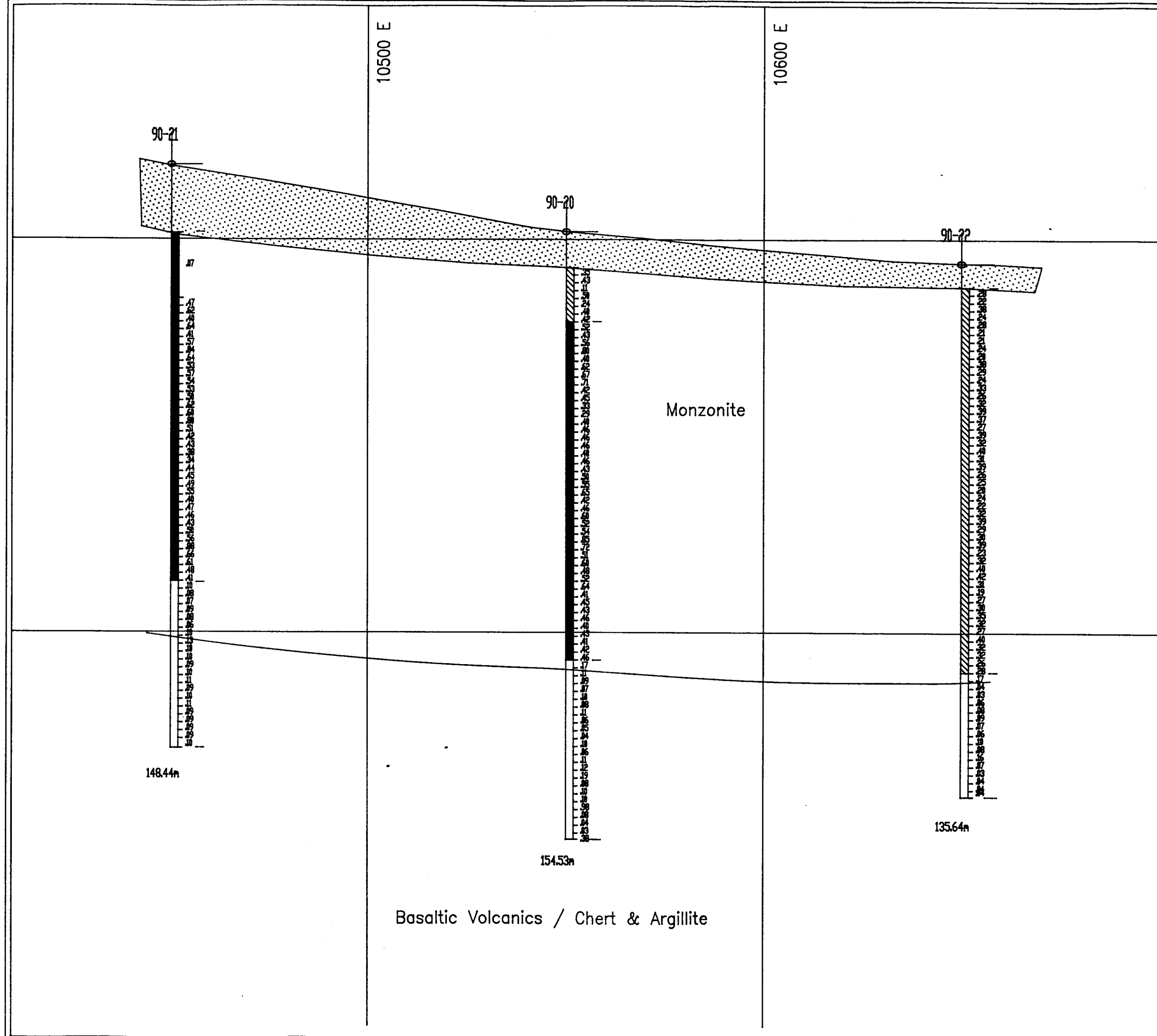
The diamond drilling tested a number of geological, geochemical and geophysical anomalies. Drill holes DDH 90-20, 90-21 and 90-22 intersected significant widths of sulphide mineralization, with alteration zones and rock type typical of a porphyry Cu-Au deposit.



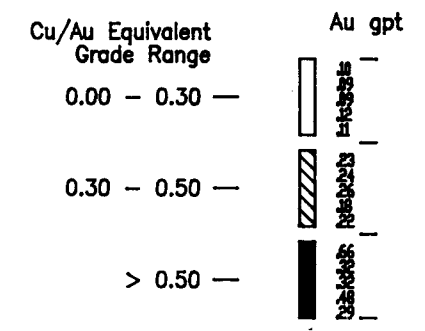
EL CONDOR RESOURCES LTD.  
 COPELAND REBAGLIATI & ASSOCIATES LTD.  
 SOUTH KEMESS

DRILL HOLE PLAN

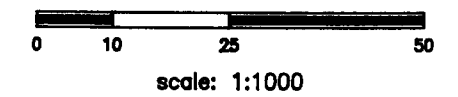
SCALE :	1 : 5,000	DRAWN BY :	ProComp GeoDraft Ltd.	FILE :	SK-PLAN
DATE :	FEB. 91	REVISED :		FIGURE :	5



1300 m elev.



1200 m elev.



EL CONDOR RESOURCES LTD.  
COPELAND REBAGLIATI & ASSOCIATES LTD.  
SOUTH KEMESS

CROSS SECTION  
9800 N  
LOOKING NORTH

SCALE: 1 : 1000	DRAWN BY: ProComp GeoDraft Ltd.	FILE: 9800n.dwg
DATE: APR. 91	REVISION:	PAGE: 6

CONCLUSIONS AND RECOMMENDATIONS

The limits of the mineralized zone are at present unknown. All of the IP anomaly as presently outlined and all extensions and new zones should be drilled to further define the lateral extent of the mineralized zone.

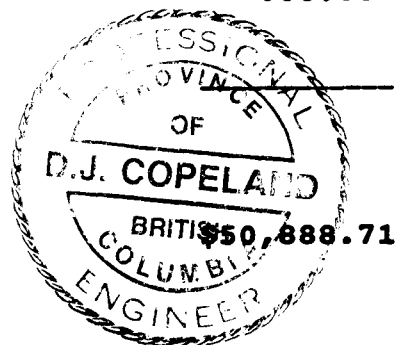
A mapping and sampling program should be undertaken on the entire Kemess property.

The IP and Magnetometer geophysical grid surveys done in November of 1990 should be extended to fully delineate the gold-copper bearing sulphide system.

STATEMENT OF COSTS

## Personnel Expenses:

Project Geologist	
12 days @ \$300.00 per day	\$ 3600.00
Sampler	
10 days @ \$125.00 per day	\$ 1250.00
J.T. Thomas Diamond Drilling Ltd.	
3 NQ drill holes totalling 437.45 metres.	
@ \$88.35 per metre	\$ 38,648.71
Drill site preparation, John Deere 550 bulldozer	340.00
Fixed wing aircraft support - Central Mtn. Air	500.00
Helicopter support	720.00
Assay and analytical expenses - Min-En Labs	
190 samples * \$17.00 per sample	3230.00
Camp Costs	2000.00
Report Preparation	600.00
<b>TOTAL COST</b>	<b>\$50,888.71</b>



Drill core log



PETER A. RONNING  
M.Sc., P.Eng.

NEW CALEDONIAN GEOLOGICAL CONSULTING

## Drill core logger

TO: Rob

FROM: Jim, S.I.B.

I, JAMES A. McCrea of 6992-1434 ST, SURREY BC  
~~1000-1053~~ Do hereby Certify that: (or G.E.C.)

1. I am a Geologist in the employ of EL CONDOR Resources LTD, with offices at 700-11774 Hastings ST.
2. I am a graduate of the University of Alberta with a Bachelor of Science (specialization) in Geology, 1986.
3. I am a member of The Association of Professional Engineers, Geologists and Geophysicists of Alberta; Geologist in Training.
4. I have practiced my profession continuously since graduation.
5. I have not directly or indirectly received nor do I expect to receive any interest, direct or indirect, in the property of EL CONDOR Resources LTD or any affiliate, or have any existing or contingent interest in any securities of EL CONDOR Resources LTD, or any affiliate.

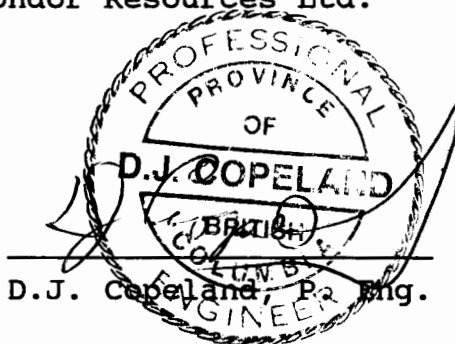
James A. McCrea B.Sc.



**STATEMENT OF QUALIFICATIONS**

I, David J. Copeland, of the City of Vancouver, Province of British Columbia, DO HEREBY CERTIFY THAT:

- 1) I am a Consulting Geological Engineer with a business office at Suite 700 - 1177 West Hastings Street, Vancouver, British Columbia; and Secretary of C.E.C. Engineering Ltd.
- 2) I am a graduate in Economic Geology with a Bachelor of Science from the University of British Columbia in 1970.
- 3) I am a registered member, in good standing, of the Association of Professional Engineers of British Columbia.
- 4) Since graduation I have been engaged in mineral exploration and mine development in Canada, United States of America, South America and Australasia.
- 5) I directed the 1990 diamond drilling program on the subject property, attended to the site, and authored this report which documents the results of the program.
- 6) I am a director and officer of **El Condor Resources Ltd.**, and I own shares in El Condor Resources Ltd.



Dated at Vancouver, British Columbia, this 17 May, 1991

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**APPENDIX I**

**Diamond Drill Geological Logs**



N C G  
CEC ENG.

DRILL CORE LOG

Drill Hole No. 90-20  
Page 2 of 17; From 0 To 10  
Project: South Keness

Logged by: \_\_\_\_\_ Date: \_\_\_\_\_  
Sampled by: \_\_\_\_\_ Date: \_\_\_\_\_

Depth	Run	Recovery		Struct	Description				Sample Number
		Units	%		Interval	Lithology	Alteration	Mineralization	
0									
01									
02									
03									
04									
05					CASING IN O.B.				
06					NO CORE RECOVERY.				
07									
08									
09	9.14				9.14-9.85	cored over burden.			9.14
10	2.13	.63	30			pebbles of Quartz, volcanics + oxidized intrusive (see below).			51919





N C G  
CEC ENG.

# DRILL CORE LOG

Drill Hole No. 90-20  
Page 5 of 17 | From 30 To 40  
Project: South Kemess

Logged by: JM Date: Sampled by: Date:

Depth	Run	Recovery		Struct	Description				Sample Number
		Units	%		Interval	Lithology	Alteration	Mineralization	
30									51929
31	3.05	2.83	93		-30.49-32.06	massive Qtzn w/ He in frac	Qtzn-70%, He-2%	None noted.	31
32									51930
33	32.61				-32.06-38.10	Oxidized & weathered intrusive w/ Qtzn.	Qtzn-4%, He-2% Clay-10%	none noted.	33
34	3.05	2.98	98						51931
35									35
36	35.66								51932
37									37
38	3.05	2.84	93						51933
39	38.71				-38.10-39.68	Weathered + oxidized section w/ Qtzn.	He-2%, Clay-10% Qtzn-1%	none noted.	39
40	3.05	2.43	96		39.68-41.60	Weathered intrusive w/ weak Qtzn + Py. He frac controlled. Al-frac related.	Qtzn-1%, Al-2% Clay-5%, He-Tr. Py-0.75%		51934



N C G  
CEC ENG.

DRILL CORE LOG

Drill Hole No. 20-20  
Page 6 of 17, From 40 To 50  
Project: South Kemess

Logged by: \_\_\_\_\_ Date: \_\_\_\_\_ Sampled by: \_\_\_\_\_ Date: \_\_\_\_\_

Depth	Run	Recovery		Struct	Description				Sample Number	
		Units	%		Interval	Lithology	Alteration	Mineralization		
40	3.05	2.93	96						51934	
41					41.60 - 42.37		Al-10%, Qtzn-3%	py-1%		41
42	41.76									51935
43	3.05	3.04	100		42.37 - 59.60		Qtzn-1-3%, Al-2-3%, py-1%, He-Tr, chl-2%	py - diss-un.		43
44					-42.37 - 46.32		Al-2%, Qtzn-1%	py-1%		51936
45	44.81									45
46	3.05	2.99	98		-46.32 - 46.78		Qtzn-4%, Al-20%	py-1%		51937
47					-46.78 - 54.16		Qtzn-2%, Al-5%	py-1%		47
48	47.85									51938
49	3.05	2.95	97							49
50					-50.18 - 58.24		Qtzn-20%, He-3%	py-4%		51939

prev albitization related to Qtzn.

Albitization locally pervasive + related to Qtzn, py - diss-un.  
He in open frac, chl - frac related.

Weak albitization associated w/ Qtzn

albitization associated w/ Qtzn.

Albitization associated w/ Qtzn

large Qtzn w/ He + py

N C G  
CEC ENG.

# DRILL CORE LOG

Drill Hole No. 90-20  
Page 7 of 17; From 50 To 60  
Project: South Kemess

Logged by: J M Date: Sampled by: Date:

Depth	Run	Recovery		Struct	Description				Sample Number	
		Units	%		Interval	Lithology	Alteration	Mineralization		
50	3.05	2.95	97						51939	
51	50.91								51	
52	3.05	2.89	95		-52.11-52.13	QTVN w/Al + chl	QTVN-10%, Al-10% chl-5%	py-2%		51940
53										53
54	53.95				-54.16-54.36	locally perv st alt'n.	ST-10%	py-1%		51941
55	3.25	3.00	98		-54.36-59.60	perv albization related to QTVN. He in frac in QTVN chl in open frac.	QTVN-3%, Al-20% He-Tr, chl-2%	py-1%		55
56										51942
57	57.00			frac						57
58	3.05	3.00	99	50	-57.78	chl in frac.	chl-10%			51943
59					-59.60	fine w/ chl	chl-10%			59
60	60.05				59.60-68.61	QTVN w/ Al, perv bi.	QTVN-3%, bi-5-15% Al-5-20%, chl-Tr.	py-1%, cp-Tr.		51944
					-59.60-61.50		py as vn + diss, cp in vn, cft as mmult bi-15%, Al-5%			

N C G  
CEC ENG.

DRILL CORE LOG

Drill Hole No. 90-20  
Page 8 of 17; From 60 To 70  
Project: South Keness

Logged by: JM Date: Sampled by: Date:

Depth	Run	Recovery		Struct	Description				Sample Number
		Units	%		Interval	Lithology	Alteration	Mineralization	
60	60.05								51944
61	3.05	3.00	98	arm	-61.50-63.63	bi secondary, diss	bi-10%, Al-5% -al Qtz related.		61
62				70	-61.97-61.99	Qtz w/ py + cp.	Qtz-20%, cp-Tr, py-3%		51945
63	63.09				-62.52-63.05	Qtz w/ bi	bi-10%, Qtz-3% py-1%		63
64	3.05	2.94	96		-63.63-64.62	Albitization associated w/ Qtz + Qtz w/ bi	Qtz-3%, Al-20% bi-10% py-1%		51946
65					-64.60-66.23	Qtz w/ al	bi-10%, Al-5% py-1%		65
66	66.14			frac 88	-66.24-66.26	chl alt frac.	chl-20% py-Tr		51947
67									67
68	3.05	3.01	99		-68.23-68.61	unit by bi + weak Qtz	bi-5%, Al-Tr. Qtz-1% py-0.5%		51948
69	69.19				68.61-69.19	peru st + chl alt, frac related.	Qtz-5%, st-20% py-1% cp-not noted.		69
70	3.05	2.83	93		69.11-90.94	Qtz w/ peru albitization + potassic alt'n (bi), chl as alt frac. He frac relate in Qtz. py diss in vn. chl after mafics (1)	Al-Tr-20%, He-Tr chl-5%		51949





N C G  
CEC ENG.

DRILL CORE LOG

Drill Hole No. 90-20  
Page 11 of 17 | From 90 To 100  
Project: South Kemess

Logged by: JM      Date:      Sampled by:      Date:

Depth	Run	Recovery		Struct	Description				Sample Number	
		Units	%		Interval	Lithology	Alteration	Mineralization		
90									51959	
91	90.53			Fault	-90.63-90.94	Qtz un w/ related Al,	Al-10% Di-5% Qtz-1% perv. bi, Py diss or un.	Py-1%		91
					90.94-91.06	chl alt fault gouge.	chl-20%	Py-Tr		
92	3.09	2.73	89		91.06-92.12	Qtz un w/ locally perv Py-diss	chl-10% ST-10% Qtz un-10% He-Tr bi-10%	Py-2% CP-NOT Noted.		51960
93					92.12-100.23	perv Albitization, bi. related to perv. around Fract. alte matrics(?). Or in un.	Al-15%, Qtz-2% chl-10% Cbt-Tr	Py-1%		93
94	93.57				-92.55-92.82	frac related perv	chl-10% chl alt'n.			51961
95	3.05	3.02	99							95
96					-95.25-95.40	large Qtz un w/ Py.	Qtz un	Py-2%		51962
97	96.62				-96.75-96.91	perv chl alt'n related	chl-10% related to a frac.	Py-1%		97
98	3.05	2.93	96		-97.48-97.50	chl alt frac.	chl-10%			51964
99				Fault	-98.46-98.50	chl alt frac.	chl-20%			99
100	99.67				-99.40-99.55	chl alt fault gouge	chl-20%	Py-Tr		51965

N C G  
CEC ENG.

DRILL CORE LOG

Drill Hole No. 90-20  
Page 2 of 17; From 100 To 110  
Project South Keness

Logged by: JM Date: Sampled by: Date:

Depth	Run	Recovery		Struct	Description				Sample Number
		Units	%		Interval	Lithology	Alteration	Mineralization	
100	3.05	2.73	89		100.23 - 101.00	frac Sagemont w/peri. chl alt'n.	chl-30%, py-Tr.		51965
101					101.00 - 109.47	The unit is brecciated(?) w/ cross cutting Qtz + weak alteration chl after matrix + frac controlled. py, dis or un. st is per and more intense near frac.	Al-5%, Qtz-4% chl-10%, st-10% py-2%		101
102	102.72								51966
103	3.05	2.97	97		-103.40 - 103.98	large Qtz w/ py	Qtz-40% py-5%		103
104									51967
105	105.77				-105.27 - 105.33	chl related to frac.	chl-20% py-Tr.		105
106									51968
107	3.05	2.96	97						107
108					-107.82 - 108.06	Qtz w/ py.	Qtz py-2%		51969
109	108.81				-108.92 - 109.20	st alt'n locally per.	st-10% py-1%		109
110	2.83	93			109.47 - 109.86	chl alt fault gouge w/ frag of Qtz, cbl vn, st alt country rock frag + Jarosite stain.	st-10% chl-30%, cbl-3% Qtz-10%, Jarosite-Tr	py-1%	51970

st  
30°















N C G  
CEC ENG.

DRILL CORE LOG

Drill Hole No. 90-21  
Page 2 of 15; From 10 To 20  
Project: South Kemess

Logged by: P.R.

Date: 02/12/90 Sampled by:

Date:

Depth	Run	Recovery		Struct	Description				Sample Number
		Units	%		Interval	Lithology	Alteration	Mineralization	
10					0-17.37	Cased in overburden			
11									
12									
13									
14									
15	15.24				17.37-34.00	Ferricrete			
16	2.13	0	0			Rock fragments, qt vein fragments + mineral grains, 10% to 50% of rock, in cement with variable proportions Fe oxide and carbonate. Actual grain size + composition variable with different soil horizons.			
17	17.37								17.37
18									↓ to 34
19	3.05	150	49						52123
20									

Note: This interval is not believed to be mineralized. As a check, the last 20 cm of each row in the core box will be split + combined into a single sample, No- 52123.











N C G  
CEC ENG.

DRILL CORE LOG

Drill Hole No. 90-21  
Page 7 of 7 From 60 To 70  
Project: South Keness

Logged by: P.R. Date: 03/12/90 Sampled by: Date:

Depth	Run	Recovery		Struct	Description				Py % 1 2 3 4	Cp % 1 2	Sample Number
		Units	%		Interval	Lithology	Alteration	Mineralization			
60	60.05				61.2-105.73	(Quartz Bearing?) Monzonite	qt vnls plag → st chl ca	10% 25% 10% 10%	py 1 1/2 % cp not noted	tr	60 52137
61											
62	3.05	2.72	89						1 1/2		62 52138
63	63.10										
64											64 52139
65	3.05	2.86	94		61.2-63.14		hm	10%		1 1/2	
66					63.14-63.20						66 52140
67					63.54-63.80						
68	3.05	2.91	95		65.43-65.46					1 1/2	68 52141
69	69.19				65.80						
70					68.23-68.40					tr	
					69.74-69.86						70



N C G  
CEC ENG.

DRILL CORE LOG

Drill Hole No. 90-21  
Page 9 of 15; From 80 To 90  
Project: South Keness

Logged by: *P.R.* Date: *03/12/96* Sampled by: \_\_\_\_\_ Date: \_\_\_\_\_

Depth	Run	Recovery		Struct	Description				R, %				Sample Number	
		Units	%		Interval	Lithology	Alteration	Mineralization	1	2	3	4		
80	3.05	3.01	99		61.2-105.73 (cont.)									80
81	81.38				81.06-81.38		qt	50% py	5% cp	1%		1/2	tr	52147
82													1	82
83	3.05	2.88	94		83.28		qt vult, 1cm, 50°	py vult	3% in mo	tr adj. veinlet		1/2	tr	52148
84	84.43													84
85														52149
86	3.05	3.00	98										tr	86
87	87.48													52150
88														88
89	3.05	2.97	97										tr	52151
90														90

*qt  
py/mo*

*Intense qt stockwork, bounded at upper end by stringer @ 40°.*



N C G  
CEC ENG.

DRILL CORE LOG

Drill Hole No. 90-2  
Page // of 15; From 100 To 110 m  
Project: South Keness

Logged by: P.R.

Date: 03/12/90

Sampled by:

Date:

Depth	Run	Recovery		Struct	Description				Py %				Cp %		Sample Number	
		Units	%		Interval	Lithology	Alteration	Mineralization	1	2	3	4	1	2		
100					61.2 - 105.73 (cont.)											100
101	3.05	2.74	90		100.98 - 102			qt stckwrk 25%	py	1 1/2%		1 1/2		1/5		52157
102					102.72 - 103.15	breccia		qt	70%	py	2%	2				102
103	102.72							st	20%	very finely						52158
104	3.05	2.97	97					cbt	5%	dissem				1/5		104
105								Siliceous breccia - at least 3 generations of fluids now forms cement; partly siliceous, partly sericitic, partly cbt. Somewhat waxy; probably late stage, low temp & pressure.				1 1/2			52159	
106	105.77				104.44											106
107	3.05	2.94	96		105.15 - 105.27			qt	40%							52160
108					105.73 - 108.49	Hybrid Breccia		ca	15%	py	2%	2	nil			108
109	108.81							bi	10%							52161
110								st	25%							110
								qt vnls	1%							
								ksp	1%							
								Contact zone breccia - hydrothermal? Fgnts andesitic volc. or monzonite, 1mm - 5 cm. (next page)								





N C G  
CEC ENG.

# DRILL CORE LOG

Drill Hole No. 90-21  
Page 13 of 15 From 120 To 130m  
Project: South Keness

Logged by: P.R.

Date: 03/12/90

Sampled by:

Date:

Depth	Run	Recovery		Struct	Description				Py %			Cp %		Sample Number	
		Units	%		Interval	Lithology	Alteration	Mineralization	1	2	3	4			
120					110.90-117.61	(cont.)									120
121	121.01				117.61-120.1	Hybrid Zone	Ca bi	20% 10%	py	2%					52167
122															122
123	3.05	2.75	90												52168
124	124.05				120.1-120.4	Fault gouge									124
125					120.4-130.27	Augite Porphyry	aug → chl (Andesite?) st ca vnls	15% 10% 2%	py	2%					52169
126	3.05	2.80	92												126
127	127.10														52170
128					121.89										128
129	3.05	2.80	92												52171
130															130

Medium brown, very calcareous. ca also occurs as vnls. No distinct textures; may be hybrid due to partial digestion of volcanic by intrusive. Origin of ca in groundmass unexplained.

Rock hard, brittle, relatively unaltered except for chloritization of mafics and some st in groundmass. Ca as 1-2 mm vnls.

Breccia textures noted locally, with similar texture + composition in clasts + matrix. Flow breccia? Locally brownish, presumably due to bi altn.

ca vn, 2cm, py 5% in vn.  
90° c-a.  
chl selvages.

N C G  
CEC ENG.

DRILL CORE LOG

Drill Hole No. 90-21  
Page 14 of 15; From 130 To 140 m  
Project: South Keness

Logged by: P.R. Date: 03/12/90 Sampled by: Date:

Depth	Run	Recovery		Struct	Description				Py %		Sample Number	
		Units	%		Interval	Lithology	Alteration	Mineralization	1 2 3 4	1 2		
130	130.15				130.27-148.44	Andesite	chl ca st	10% 10% 20%	py 3%			130
131												52172
132	3.05	2.48	81			Finely crystalline, dark green to brownish green rock. Matrix chloritized; most of groundmass indeterminate, felsic. Groundmass partly sericitized. Ca as vnls and diffused in groundmass. py dissem and in hairline veinlets.				3	nil	132
133	133.20			72 ca qt chl py								52173
134					130.27-131.28	rock brecciated; fault gouge		25%				134
135	3.05	2.81	92				vnl qt chl	ca 50% 30% 10%	py 10%			52174
136	136.25			72 75 qt ca py		early qt vnl. re-opened by ca-chl-py assemblage.		72° c.a.				136
137					134.37-134.42	fault brx. Sgnts	ca vein in gouge.			3	nil	52175
138	3.05	2.58	85				qt vn, 1 cm, 40° c.a. ca 5%, py 2% above cut by vein qt 50% ca 30% py 30%	py 2% in vn				138
139	139.29											52176
140								75° c.a.				140









# DRILL CORE LOG

Drill Hole No. 90-22  
Pagey of 15; From 20 To 30  
Project: South Kemess

N C G  
CEC ENG.

Logged by: J M

Date:

Sampled by:

Date:

Depth	Run	Recovery		Struct	Description				Sample Number	
		Units	%		Interval	Lithology	Alteration	Mineralization		
20	20.42								20	
21									52000	
22	3.05	2.77	90						22	
23					-23.55-23.80	qtzn w/ stalt margin.	qtzn, st-10%, mo-tr			52201
24					23.90-27.85	perv potassic alt'n - bi, Al related to qtzn, bi vf diss, chl+st frac controlled, py diss or in un	Al-10%, qtzn-40% bi-10%, chl-1%, st-tr py-1%			24
25	3.05	3.02	99		-24.68-24.80	frac(?) w/ stalt'n	st-5%			52202
26					-25.79-26.04	locally perv chl+st alt'n w/ large qtzn, He in qtzn	qtzn-20%, st-15% chl-5%, tr-tr py-2%, mo-tr			26
27	26.52									52203
28	3.05	2.97	97		27.85-105.86	perv Al <sub>2</sub> + perv secondary bi, st+chl frac controlled - locally perv. py diss + vn.	Al-5-30%, bi-5-20% qtzn-2-4%, st-3%, chl-2% mo-tr			28
29					-27.85-31.01	Al <sub>2</sub> related to qtzn, bi. diss + perv. st+chl w/ Al+qtzn	Al-10%, bi-15%, chl-2% qtzn-4%, st-3%			52204
30	29.57	2.83	93							30

N C G  
CEC ENG.

DRILL CORE LOG

Drill Hole No. 90-22  
Page 5 of 15; From 30 To 40  
Project: South Keness

Logged by: JM

Date:

Sampled by:

Date:

Depth	Run	Recovery		Struct	Description				Sample Number	
		Units	%		Interval	Lithology	Alteration	Mineralization		
30									30	
31	3.05	2.83	93		-31.01 - 32.32	Weak perv bi alt'n, Al locally perv related to Qtz	cbt - Tr, Qtz - 2%, bi - 5%, Al - 5%			52205
32					-32.32 - 36.57	perv potassic alt'n - bi	Qtz - 2%, py - 2%, Al - 10%, Al - 5%, Al related to Qtz.			32
33	32.61									52206
34	3.05	2.96	97		-32.61 - 34.00	locally perv stalt'n	st - 10%			34
35										52207
36	35.66									36
37	3.05	3.05	100		-36.57 - 36.90	Qtz related Al 2	Al - 20%, bi - 5%, Qtz - 2%, py - 2%			52208
38					-36.90 - 37.90	perv chl + st alt'n related to Qtz, chl after matrics (bi?) st - locally perv.	Qtz - 5%, chl - 10%, st - 10%, py - 3%, Al - 3%			38
39	38.71				-37.90 - 50.45	perv bi w/ Al related to Qtz.	Qtz - 20%, bi - 15%, Al - 5%, py - 1%, cp - Tr, MO - Tr			52209
40	3.05	3.05	100		-38.16 - 38.71	chl after matrics (?) - bi (?)	chl - 5%			40
					-39.08 - 39.58	Qtz w/ CP + MO	Qtz - 20%			





N C G  
CEC ENG.

DRILL CORE LOG

Drill Hole No. 90-22  
Page 7 of 15, From 50 To 60  
Project: South Keness

Logged by: \_\_\_\_\_ Date: \_\_\_\_\_ Sampled by: \_\_\_\_\_ Date: \_\_\_\_\_

Depth	Run	Recovery		Struct	Description				Sample Number	
		Units	%		Interval	Lithology	Alteration	Mineralization		
50	3.05	2.83	93						50	
51	50.95				-50.45-54.70		qtzn-4%, Al-20% bi-5%, chl-5%	py-1%		5215
							perv Al <sup>2</sup> related → qtzn, bi secondary, chl after matrics bi-10%			
52	3.05	3.00	98		-50.45-51.30		perv secondary bi			52
					-52.68-52.95		chl-10%	py-2%		
53							chl after matrics.			
					-52.95-54.70		Al-30%, qtzn-4%	py-2%		5216
							unit w/ orange alt (Al) related (?) to qtzn.			
54	53.45						Al-10%, bi-20%	py-1%, cp-tr		54
					-54.70-58.25		qtzn-2%, chT-tr chl-2%			
55	3.05	2.90	95				perv potassic alt'n - bi, qtzn w/ Al <sup>2</sup> margin, chl frac related + locally perv. cbt as mmults, py diss or in un, cp in qtzn.			5217
56										56
57	57.00									5218
58	3.05	2.56	84		-58.25-59.05		Al-5%, bi-10%	py-1%		58
							qtzn-2%, chT 21%			
59							perv potassic alt'n - bi, py-diss run.			5219
					-59.05-69.57		chl-10%, Al-30%	py-2%		
							qtzn-5%, bi-tr			
60	60.05						perv Al <sup>2</sup> w/ chl after matrics, py diss + vn, bi-diss phenos chl alt frac.			60





N C G  
CEC ENG.

# DRILL CORE LOG

Drill Hole No. 90-22  
Page 10 of 15; From 80 To 90  
Project: South Kames

Logged by: JM Date: Sampled by: Date:

Depth	Run	Recovery		Struct	Description				Sample Number
		Units	%		Interval	Lithology	Alteration	Mineralization	
80	3.05	3.05	100		-80.10-82.05	grvn w/ Al'2 margin, perv. secondary bi, py diss or ind.	bi-15%, Al-15% grvn-3%	py-2%	52230
81	81.38								
82	3.05	2.90	95		-82.05-84.15	perv Al'2, unit rootlax orange.	Al-30%, grvn-2% bi-5%	py-2%	52231
83									
84	84.43				-84.15-87.66	Al'2 related to grvn, perv secondary bi.	bi-10%, Al-20% grvn-3%	py-2%	52232
85									
86	3.05	3.05	100						52233
87	87.48								
88					-87.66-91.80	perv Al'2. bi as vfg secondary or as chl after mafics (bi(?))	bi-10%, Al-30% grvn-2%, chl-3%	py-1%	52234
89	3.05	100			-87.66-88.10	bi as primary clots w/chl	bi-10%, chl-2%		
					-88.10-89.00	bi vty secondary	bi-10%		
90					-89.00-91.80	bi primary	bi-10%		90

N C G  
CEC ENG.

DRILL CORE LOG

Drill Hole No. 90-22  
Page 11 of 15, From 90 To 100  
Project: South Keness

Logged by: Jm Date: Sampled by: Date:

Depth	Run	Recovery		Struct	Description				Sample Number
		Units	%		Interval	Lithology	Alteration	Mineralization	
90									90
91	90.53								52235
92	3.05	3.02	99		-91.80-95.25	per secondary bi; Al related to qvun	Al-10%, bi-10% qvun-2%	py-1%	92
93									52236
94	93.57								94
95	3.04	3.05	100		-95.25-96.88	per secondary bi - UNIT very dark (~black) w/ cross cutting vlt's of AT + py.	bi-20%, qvun-1% Al-tr, Ksp 5%	py-1%	52237
96									96
97	96.62				-96.88-100.61	UNIT Al <sup>2</sup> , bi primary (?) qvun w/ cp, py + cbt. chl after bi (?)	cbt-tr, chl-tr bi-10%, qvun-5%	py-1%, cp-tr	52238
98	3.05	2.87	94						98
99					-98.80-99.45	large qvun w/ margins brecciated + filled w/ cbt.	qvun-40%, cbt-10%	py-1%, cp-0.2%	52239
100	3.05	3.03	99						100

N C G  
CEC ENG.

DRILL CORE LOG

Drill Hole No. 20-22  
Page 12 of 15; From 100 To 110  
Project: South Kemess

Logged by: \_\_\_\_\_ Date: \_\_\_\_\_  
Sampled by: \_\_\_\_\_ Date: \_\_\_\_\_

Depth	Run	Recovery		Struct	Description				Sample Number
		Units	%		Interval	Lithology	Alteration	Mineralization	
100									100
101	3.05	3.03	99		-100.61-105.86	lower margin of unit - has original textures, masked by Al <sub>2</sub> Si, silicification + brecciation. Al related to Qtun bi primary or secondary chl after bi bi secondary, Al Qtun related	bi-10%, Qtun-3% Al-10%, chl-2% py-1%		52240
102					-100.61-104.70 -101.70-105.86	brecciated section w/ frag of Qtun, Al <sub>2</sub> country rock + chl art country rock Segments w/ original Al <sub>2</sub> intrusive texture.	bi-10%, Al-10% chl-2%, Qtun-5% py-1%		102
103	102.72								52241
104	3.05	2.97	97						104
105									52242
106	105.77				105.86-135.64	Augite porphyry flow.	chl-20%, Kspar-3% cbt-2%, Qtun-1%	py-2%	106
107	3.05	2.98	98		105.86-108.00	chl after augite (2%), chl filled amygdulosis (5%) w/ perov Kspar alt'n cbt as un, py as un or diss. Vfg chl G.M. - 72%, chl frac controlled perov chl alt'n of unit - original textures preserved.	chl-30% py-2%		52243
108									108
109	108.81								52244
110		2.41	79		104.10-125.20	Unit very broken w/ cross cutting fault + frac. frac + fault w/ perov chl alt'n. chl perv from Eric + fault + as amygdules + after Augite in unalter sections	chl-40%, cbt-2% py-1%		
					-104.10-109.60	fault w/ chl gouge.			110









**APPENDIX II**

**Min-En Labs Ltd.**

**Au assay and ICP DATA**



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FAX (604) 980-9621

**THUNDER BAY LAB.:**  
TELEPHONE (807) 622-8958  
FAX (807) 623-5931

**SMITHERS LAB.:**  
TELEPHONE/FAX (604) 847-3004

Assay Certificate

0V-1907-RA1

Company: EL CONDOR  
Project: SOUTH KEMESS 90-20  
Attn: MARK REBAGLIATI

Date: JAN-14-91  
Copy 1. EL CONDOR, VANCOUVER, B.C.

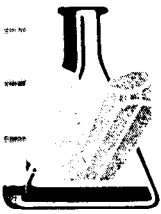
We hereby certify the following Assay of 24 DRILL CORE samples submitted DEC-31-90 by PETER RONNING.

Sample Number	*AU g/tonne
51919	.35
51920	.43
51921	.11
51922	.50
51923	.24
51924	.40
51925	.42
51926	.52
51927	.43
51928	.56
51929	.80
51930	.40
51931	.62
51932	.67
51933	.71
51934	.42
51935	.45
51936	.33
51937	.29
51938	.40
51939	.46
51941	.46
51942	.40
51943	.46

\*AU - 1 ASSAY TON.

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**SMITHERS LAB.:**  
TELEPHONE/FAX (604) 847-3004

Assay Certificate

OV-1907-RA2

Company: **EL CONDOR**  
Project: **SOUTH KEMESS**  
Attn: **MARK REBAGLIATI**

Date: **JAN-14-91**  
Copy 1. **EL CONDOR, VANCOUVER, B.C.**

We hereby certify the following Assay of 24 DRILL CORE samples submitted DEC-31-90 by PETER RONNING.

Sample Number	*AU g/tonne
51944	.43
51945	.50
51946	.55
51947	.65
51948	.42
51949	.46
51950	.60
51951	.52
51952	.54
51953	.85
51954	.72
51955	.51
51956	.60
51957	.48
51958	.52
51959	.64
51960	.41
51961	.45
51962	.43
51964	.46
51965	.40
51966	.43
51967	.41
51968	.42

\*AU - 1 ASSAY TON.

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*Assay Certificate*

OV-1907-RA3

Company: **EL CONDOR**  
Project: **SOUTH KEMESS**  
Attn: **MARK REBAGLIATI**

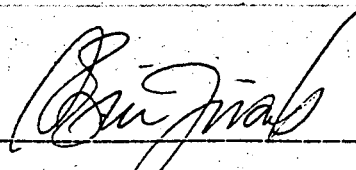
Date: **JAN-14-91**  
Copy 1. EL CONDOR, VANCOUVER, B.C.

*We hereby certify* the following Assay of 24 DRILL CORE samples submitted DEC-31-90 by PETER RONNING.

Sample Number	*AU g/tonne
51969	.46
51970	.17
51971	.11
51972	.09
51973	.07
51974	.10
51975	.08
51976	.11
51977	.06
51978	.05
51979	.04
51980	.10
51981	.06
51982	.11
51983	.12
51984	.19
51985	.08
51986	.10
51987	.10
51988	.98
51989	.08
51990	.04
51991	.03
51992	.38

\*AU - 1 ASSAY TON.

Certified by









*Assay Certificate*

OV-1826-RA1

Company: EL CONDOR  
Project: SOUTH KEMESS 90-21-  
Attn: MARK REBAGLIATI

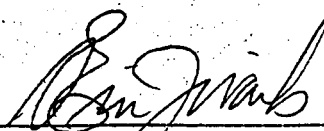
Date: DEC-31-90  
Copy 1 - EL CONDOR, VANCOUVER, B.C.

We hereby certify the following Assay of 24 CORE samples submitted DEC-17-90 by PETER RONNING.

Sample Number	*AU g/tonne
52123	.07
52124	.47
52125	.62
52126	.40
52127	.64
-----	
52128	.41
52129	.57
52130	.84
52131	.64
52132	.53
-----	
52133	.57
52134	.54
52135	.53
52136	.50
52137	.62
-----	
52138	.60
52139	.80
52140	.51
52141	.42
52142	.43
-----	
52143	.38
52144	.34
52145	.44
52146	.45

\*AU - 1 ASSAY TON.

Certified by





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FAX (807) 623-5931

**SMITHERS LAB.:**  
TELEPHONE/FAX (604) 847-3004

Assay Certificate

OV-1826-RA2

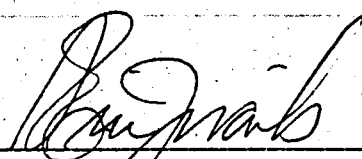
Company: **EL CONDOR**  
Project: **SOUTH KEMESS**  
Attn: **MARK REBAGLIATI**

Date: **DEC-31-90**  
Copy 1: **EL CONDOR, VANCOUVER, B.C.**

**We hereby certify** the following Assay of 24 CORE samples submitted DEC-17-90 by PETER RONNING.

Sample Number	*AU g/tonne
52147	.49
52148	.55
52149	.40
52150	.47
52151	.46
-----	
52152	.43
52153	.50
52154	.56
52155	.88
52156	.66
-----	
52157	.61
52158	.48
52159	.41
52160	.10
52161	.08
-----	
52162	.07
52163	.09
52164	.08
52165	.06
52166	.10
-----	
52167	.13
52168	.10
52169	.10
52170	.09

\*AU - 1 ASSAY TON.

Certified by 

MIN-EN LABORATORIES



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 (DIVISION OF ASSAYERS CORP.)

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 VANCOUVER, B.C. CANADA V7M 1T2  
 TELEPHONE (604) 980-5814 OR (604) 988-4524  
 FAX (604) 980-9621

**THUNDER BAY LAB.:**  
 TELEPHONE (807) 622-8958  
 FAX (807) 623-5931

**SMITHERS LAB.:**  
 TELEPHONE/FAX (604) 847-3004

Assay Certificate

OV-1826-RA3

Company: EL CONDOR  
 Project: SOUTH KEMESS  
 Attn: MARK REBAGLIATI

Date: DEC-31-90  
 Copy to: EL CONDOR, VANCOUVER, B.C.

We hereby certify the following Assay of 10 CORE samples submitted DEC-17-90 by PETER RONNING.

Sample Number	*AU g/tonne
52171	.10
52172	.11
52173	.09
52174	.10
52175	.11
52176	.09
52177	.09
52178	.09
52179	.09
52180	.10

\*AU - 1 ASSAY TON.

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**THUNDER BAY LAB.:**  
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FAX (807) 623-5931

**SMITHERS LAB.:**  
TELEPHONE/FAX (604) 847-3004

*Assay Certificate*

0V-1909-RA1

Company: **EL CONDOR**  
Project: **SOUTH KEMESS 90-72**  
Attn: **MARK REBAGLIATI**

Date: **JAN-14-91**  
Copy 1: **EL CONDOR, VANCOUVER, B.C.**

We hereby certify the following Assay of 24 DRILL CORE samples submitted DEC-31-90 by PETER RONNING.

Sample Number	*AU g/tonne
51993	.28
51994	.22
51995	.38
51996	.24
51997	.28
51998	.21
51999	.21
52000	.24
52201	.20
52202	.38
52203	.29
52204	.24
52205	.33
52206	.26
52207	.32
52208	.39
52209	.37
52210	.27
52211	.39
52212	.32
52213	.40
52214	.31
52215	.39
52216	.26

\*AU - 1 ASSAY TON.

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**THUNDER BAY LAB.:**  
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FAX (807) 623-5931

**SMITHERS LAB.:**  
TELEPHONE/FAX (604) 847-3004

*Assay Certificate*

0V-1909-RA2

Company: **EL CONDOR**  
Project: **SOUTH KEMESS**  
Attn: **MARK REBAGLIATI**

Date: **JAN-14-91**  
Copy 1: **EL CONDOR, VANCOUVER, B.C.**

We hereby certify the following Assay of 24 DRILL CORE samples  
submitted DEC-31-90 by PETER RONNING.

Sample Number	*AU g/tonne
52217	.25
52218	.20
52219	.24
52220	.22
52221	.32
52222	.39
52223	.29
52224	.30
52225	.39
52226	.23
52227	.32
52228	.40
52229	.42
52230	.31
52236	.27
52237	.40
52238	.32
52239	.32
52240	.26
52241	.28
52242	.17
52243	.04
52244	.03
52245	.06

\*AU - 1 ASSAY TON.

Certified by

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*Assay Certificate*

OV-1909-RA3

Company: **EL CONDOR**  
 Project: **SOUTH KEMESS**  
 Attn: **MARK REBAGLIATI**

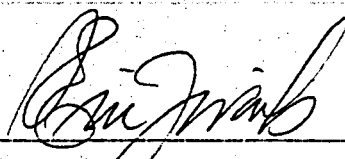
Date: **JAN-14-91**  
 Copy 1. EL CONDOR, VANCOUVER, B.C.

We hereby certify the following Assay of 12 DRILL CORE samples submitted DEC-31-90 by PETER RONNING.

Sample Number	*AU g/tonne
52246	.08
52247	.09
52248	.07
52249	.06
52250	.10
52251	.08
52252	.16
52253	.07
52254	.03
52255	.04
52256	.04
52257	.04

\*AU - 1 ASSAY TON.

Certified by







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 FAX (604) 980-9621

**THUNDER BAY LAB.:**  
 TELEPHONE (807) 622-8958  
 FAX (807) 623-5931

**SMITHERS LAB.:**  
 TELEPHONE/FAX (604) 847-3004

*Assay Certificate*

1S-0008-RA1

Company: **CEC ENGRG.**  
 Project: **KEMESS SOUTH**  
 Attn: **M.REBAGLIATI**

Date: **FEB-12-91**  
 Copy 1. **CEC ENGRG., VANCOUVER, B.C.**  
 2. **CEC ENGRG., C/O MIN-EN LABS.**

He hereby certify the following Assay of 5 CORE samples  
 submitted FEB-05-91 by J.MCCREA.

Sample Number	*AU g/tonne
52231	.19
52232	.27
52233	.30
52234	.35
52235	.32

\*AU - 1 ASSAY TON.

Certified by *Benj. [Signature]*

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**APPENDIX III**  
**Analytical Procedures**



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ANALYTICAL PROCEDURE REPORT FOR ASSESSMENT WORK:

-----  
PROCEDURE FOR TRACE ELEMENT ICP  
-----

Ag, Al, As, B, Ba, Be, Bi, Ca, Cd, Co, Cu,  
Fe, K, Li, Mg, Mn, Mo, Na, Ni, P, Pb, Sb,  
Sr, Th, U, V, Zn, Ga, Sn, W, Cr

Samples are processed by Min-En Laboratories, at 705 West 15th Street, North Vancouver, employing the following procedures.

After drying the samples at 95 C, soil and stream sediment samples are screened by 80 mesh sieve to obtain the minus 80 mesh fraction for analysis. The rock samples are crushed by a jaw crusher and pulverized on a ring mill pulverizer.

0.50 gram of the sample is digested for 2 hours with an aqua regia mixture. After cooling samples are diluted to standard volume.

The solutions are analyzed by computer operated Jarrall Ash 9000 ICAP or Jobin Yvon 70 Type II Inductively Coupled Plasma Spectrometers.



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ANALYTICAL PRECEDURE REPORT FOR ASSESSMENT WORK:

-----  
PROCEDURE FOR WET GOLD GEOCHEMICAL ANALYSIS  
-----

Samples are processed by Min-En Laboratories, at 705 West 15th Street, North Vancouver, employing the following procedures.

After drying the samples at 95 C, soil and stream sediment samples are screened by 80 mesh sieve to obtain the minus 80 mesh fraction for analysis. The rock samples are crushed by a jaw crusher and pulverized on a ring mill pulverizer.

5.00 grams of sample is weighed into porcelain crucibles and cindered @ 800 C for 3 hours. Samples are then transferred to beakers and digested using aqua regia, diluted to volume and mixed.

Further oxidation and treatment of 75% of the above solution is then extracted for gold by Methyl Iso-butyl Ketone.

The MIBK solutions are analyzed on an atomic absorption spectrometer using a suitable standard set.



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ANALYTICAL PROCEDURE REPORT FOR ASSESSMENT WORK:

-----  
PROCEDURE FOR AG, CU, PB, ZN, NI, CO OR CD GEOCHEM  
-----

Samples are processed by Min-En Laboratories at 705 West 15th Street, North Vancouver, employing the following procedures.

After drying the samples at 95 C, soil and stream sediment samples are screened by 80 mesh sieve to obtain the minus 80 mesh fraction for analysis. The rock samples are crushed by jaw crusher and pulverized on a ring mill pulverizer.

0.50 gram of the sample is digested for 2 hours with an aqua regia mixture. After cooling samples are diluted to standard volume.

The solutions are analysed on atomic absorption spectrometers using the appropriate standard sets. A background correction can be applied to Ag, Pb, and Cd if requested.





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ELEMENT	DIGESTION	METHOD	DETECTION LIMIT
Ag PPM	Aqua Regia	ICP-AES	0.1
Al PPM	Aqua Regia	ICP-AES	1
As PPM	Aqua Regia	ICP-AES	1
B PPM	Aqua Regia	ICP-AES	1
BA PPM	Aqua Regia	ICP-AES	1
Be PPM	Aqua Regia	ICP-AES	0.1
Bi PPM	Aqua Regia	ICP-AES	1
Ca PPM	Aqua Regia	ICP-AES	10
Cd PPM	Aqua Regia	ICP-AES	0.1
Co PPM	Aqua Regia	ICP-AES	1
Cu PPM	Aqua Regia	ICP-AES	1
Fe PPM	Aqua Regia	ICP-AES	10
K PPM	Aqua Regia	ICP-AES	10
Li PPM	Aqua Regia	ICP-AES	10
Mg PPM	Aqua Regia	ICP-AES	10
Mn PPM	Aqua Regia	ICP-AES	1
Mo PPM	Aqua Regia	ICP-AES	1
Na PPM	Aqua Regia	ICP-AES	10
Ni PPM	Aqua Regia	ICP-AES	1
P PPM	Aqua Regia	ICP-AES	10
Pb PPM	Aqua Regia	ICP-AES	1
Sb PPM	Aqua Regia	ICP-AES	1
Sr PPM	Aqua Regia	ICP-AES	1
Th PPM	Aqua Regia	ICP-AES	1
U PPM	Aqua Regia	ICP-AES	1
V PPM	Aqua Regia	ICP-AES	0.1
Zn PPM	Aqua Regia	ICP-AES	1
Ga PPM	Aqua Regia	ICP-AES	1
Sn PPM	Aqua Regia	ICP-AES	1
W PPM	Aqua Regia	ICP-AES	1
Cr PPM	Aqua Regia	ICP-AES	1
Au PPB	Fire Assay-Aqua Regia	AAS	1
Au PPB	Aqua Regia-MIBK	AAS	5
Hg PPB	Aqua Regia	AAS-Flameless	5
Tl PPB	Aqua Regia-MIBK	AAS	20
F PPM	Fusion	Specific Ion.	2



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ANALYTICAL PROCEDURE REPORT FOR ASSESSMENT WORK

-----  
PROCEDURE FOR AU, PT OR PD FIRE GEOCHEM  
-----

Geochemical samples for Au Pt Pd are processed by Min-En Laboratories, at 705 West 15th St., North Vancouver, B. C., laboratory employing the following procedures:

After drying the samples at 95 C, soil and stream sediment samples are screened by 80 mesh sieve to obtain the minus 80 mesh fraction for analysis. The rock samples are crushed and pulverized on a ring mill pulverizer.

A suitable sample weight; 15.00 or 30.00 grams is fire assay preconcentrated. The precious metal beads are taken into solution with aqua regia and made to volume.

For Au only, samples are aspirated on an atomic absorption spectrometer with a suitable set of standard solutions. If samples are for Au plus Pt or Pd, the sample solution is analyzed in an inductively coupled plasma spectrometer with reference to a suitable standard set.



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**GOLD ASSAY PROCEDURE:**  
-----

Samples are dried @ 95 C and when dry are crushed on a jaw crusher. The 1/4 inch output of the jaw crusher is put through a secondary roll crusher to reduce it to - 1/8 inch. The whole sample is then riffled on a Jones Riffle down to a statistically representative 300 - 400 gram sub-sample (in accordance with Gy's statistical rules). This sub-sample is then pulverized on a ring pulverizer to 95% minus 120 mesh, rolled and bagged for analysis. The remaining reject from the Jones Riffle is bagged and stored.

Samples are fire assayed using one assay ton sample weight. The samples are fluxed, a silver ingwart added and mixed. The assays are fused in batches of 24 assays along with a natural standard and a blank. This batch of 26 assays is carried through the whole procedure as a set. After cupellation the precious metal beads are transferred into new glassware, dissolved, diluted to volume and mixed.

These aqua regia solutions are analyzed on an atomic absorption spectrometer using a suitable standard set. The natural standard fused along with this set must be within 3 standard deviations of its known or the whole set is re-assayed. Likewise the blank must be less than 0.015 g/tonne.