

# ASSESSMENT REPORTS

Dawson M.D.

**MAP No.** 115 0 15 **TYPE OF WORK:** GEOLOGICAL, GEOCHEMICAL

091562

<b>REPORT FILED UNDER</b>	Archer, Cathro and Associates (1981) Ltd.	
<b>DATE PERFORMED</b>	June , 1984	<b>DATE FILED:</b> June 27, 1984
<b>LOCATION -</b>	<b>LAT.</b>	63°50'N
	<b>LONG.</b>	138°52'W
<b>CLAIM Nos.</b>	Dominion-Sulphur Creek, Yukon	
	KLOYD 1-4	YA65791-794
	KLOYD 9-10	YA65799-800
	KLOYD 11-16	YA79001-006
<b>WORK DONE BY</b>	J.K. Mortensen	
<b>WORK DONE FOR</b>	Archer, Cathro and Associates (1981) Ltd.	
<b>REMARKS</b>		

091562

Thirty-seven soil samples from the property, collected by Archer, Cathro & Associates (1981) Ltd. and adjacent areas gave a few, very scattered anomalies (eight gold anomalies and one arsenic anomaly) which have not been correlated with known vein mineralization.

Rock samples collected by Debicki in 1983-84 contained 0.35 to 1.7 g/t Au and low silver.

# ARCHER, CATIRO

& ASSOCIATES (1981) LIMITED

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Assessment Report

on

Kloyd 1-16 Claims

Dawson Mining District

NTS 1150/15

by

J.K. Mortensen, Ph.D.

Archer, Cathro & Associates (1981) Limited

June 13, 1984

091562

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## Introduction

The Kloyd 1-16 claims were staked in June, 1983 to cover the old Lloyd gold occurrence. Geological mapping and geochemical sampling of the property was carried out during 1983. Four of the claims (Kloyd 5-8) were subsequently abandoned.

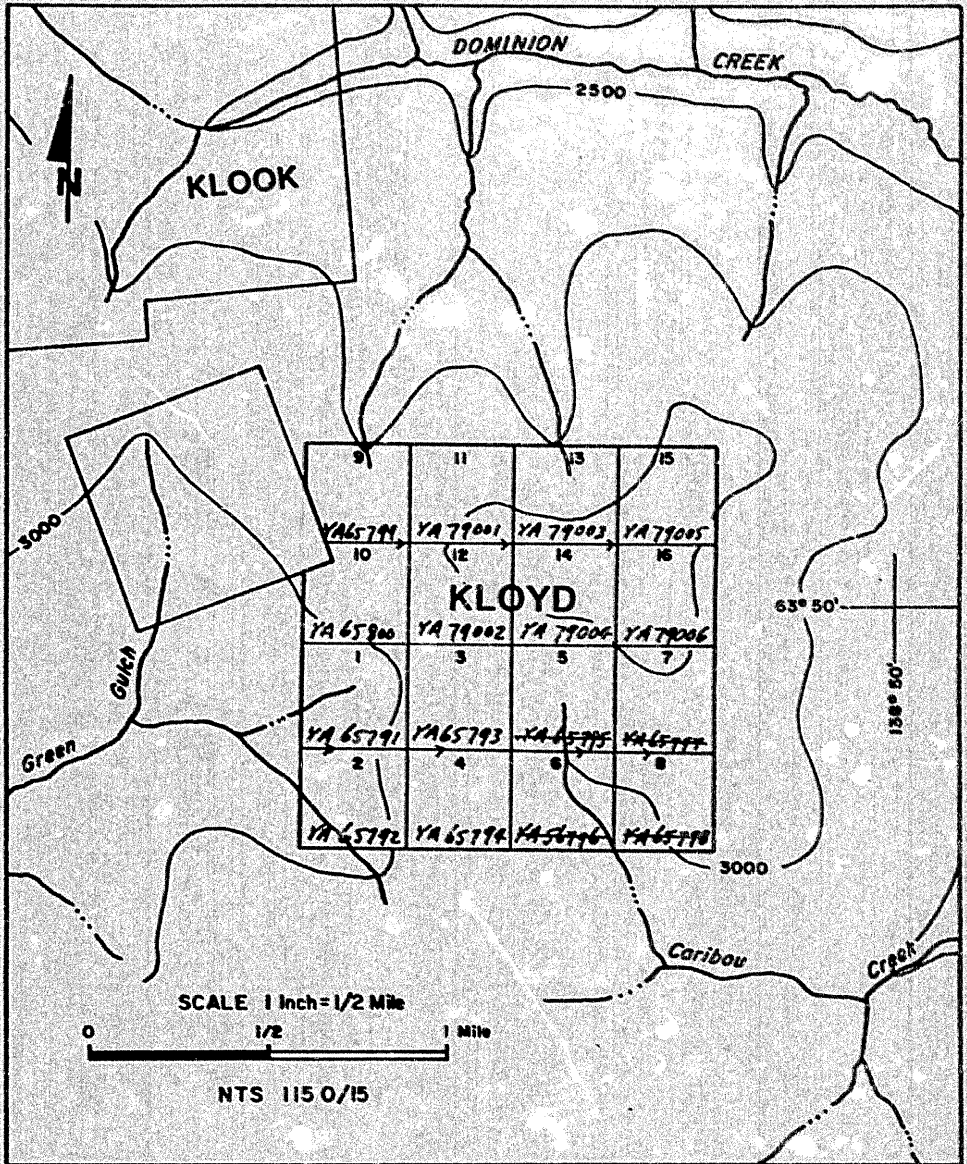
## Location, Access and Vegetation

The property straddles the divide between Upper Dominion Creek and Upper Sulphur Creek (Figure 1), between the headwaters of Green Gulch, Caribou Creek and Discovery Pup on Dominion Creek. The ridge road from King Solomon Dome to Dominion Mountain passes through the centre of the claims.

Virtually the entire Klondike District, with the exception of the summit of King Solomon Dome, lies below treeline. Vegetation on south- and southwest-facing slopes consists of stands of aspen or mixed aspen and birch, with varying amounts of underbrush, which generally becomes denser at higher elevations. Permafrost is commonly absent on south-facing slopes, but is much more widespread on north-facing slopes. Such north-facing slopes are characterized by scattered scrub spruce or mixed spruce and aspen, with varying amounts of underbrush. The ground is commonly covered by very thick moss, which passes downward into frozen peat-like material and then into frozen soil.

## History and Previous Work

This area was extensively staked about 1904 and was intensely prospected with trenches and shallow shafts between 1905 and 1909. The two main properties were staked as the Cousin, Jack etc. claims (6975), staked in August, 1904 by J. Lloyd, and the Green Gulch group staked by Jane S. Orrell. Other active prospectors included M.R. Knorr, S. Thurber and Agnes J. Kinsey. Lloyd sank



**Figure 1**  
**ARCHER, CATHRO & ASSOCIATES (1981) LIMITED**  
**LOCATION MAP**  
**KLOYD CLAIMS**  
**KLONDIKE PROJECT**

10 shafts averaging 30 ft deep and drove a 70 ft crosscut prior to 1912. The Green Gulch group, to the northwest, was explored with a 50 ft shaft on the Tiger claim and a 25 ft open cut and 75 ft crosscut on the Yellow Jacket claim.

A limited amount of recent bulldozer trenching has also been done near the two main shafts on the Cousin, Jack claims.

### Regional Geology

The Klondike District lies within the unglaciated portion of the Northern Cordillera, and experienced strong surface weathering during the early and mid-Tertiary. As a result, bedrock exposure is extremely limited (considerably less than one percent), and surface weathering locally extends to depths of 80 m or more. The scarcity of outcrop necessitates a regional approach to understanding the geology of individual properties (many properties in the Klondike have only one or two outcrops on them). In the following report, the property geology is discussed and interpreted in the light of regional mapping carried out by the writer during the 1983 field season. The bedrock geology of the property and adjacent areas is based on data collected from available bedrock and subcrop (which is usually confined to road cuts, placer workings, and ridge crests), as well as the distribution of various lithologies as rock chips in the overburden. Since solifluction and downslope creep are the only processes operating to transport the rock chips, the latter technique can be used (with caution) to approximately locate lithological contacts in overburden-covered areas.

The Klondike District is underlain by a series of thrust sheets that are separated by regional-scale thrust faults. Discontinuous lenses of altered ultrabasic rocks occur along the thrust faults. The rock units that make up

the various thrust sheets are described briefly in Table I.

An early pre-thrusting, metamorphic foliation that parallels compositional layering is pervasive in all rock units except the ultrabasic rocks and the younger intrusions and volcanic rocks (units KTqfp, KTVs and Mzd). The thrust faults are deformed by at least three younger phases of deformation. The second phase event ( $F_2$ ) produced west- to northwest-trending folds that are developed to varying degrees throughout the district. The third phase ( $F_3$ ) includes northwest-trending folds and is only recognized in the northeastern portion of the district. Late, small-scale warping ( $F_4$ ) is noted locally. Little evidence was seen for large-scale steep faulting in the area, although abundant topographic linears suggest that small-scale steep faults may be common.

Two distinct generations of quartz veins are recognized regionally in the Klondike District. The most abundant is an early generation of metamorphic quartz veins (referred to as "foliaform quartz") that comprise narrow lenses and pods parallel to the  $F_1$  foliation. Minor amounts of ferroan carbonate, pyrite and white to pale pink feldspar occur locally in the foliaform quartz. A younger set of quartz veins (referred to as "discordant quartz") form tabular veins that crosscut compositional layering in the schists as well as the  $F_1$  and  $F_2$  foliations. These veins reach 2.5 m in thickness in parts of the Klondike District. Pyrite is commonly present, usually as narrow selvages. Other sulphides, notably galena, sphalerite, tetrahedrite, stibnite, chalcopyrite and arsenopyrite, and free gold occur in trace elements in the discordant veins. Manganese staining is common on weathered samples of vein material. Sampling of veins from throughout the Klondike has shown that gold is confined almost exclusively to the discordant veins.

TABLE I  
LITHOLOGIC UNITS IN THE KLONDIKE DISTRICT

<u>Unit</u>	<u>Map Symbol</u>	<u>Description</u>
15	KTqfp	- unfoliated quartz-feldspar porphyry
14	KTvs	- interbedded immature clastic rocks and intermediate to mafic volcanic rocks
13	Mzd	- unfoliated hornblende diorite and quartz diorite
12a	Pzub	- variably altered ultrabasic rocks (serpentinite, talc-carbonate rock, and silica-carbonate rock)
12b	Pzgr	- massive to weakly foliated greenstone
11	Pzm	- schistose impure marble
10	Pzmq	- muscovitic quartzite
9	Pzqs	- carbonaceous quartz-muscovite phyllite and schist (locally includes minor 6 undifferentiated)
8	Pzmcq	- fine-grained muscovitic and chloritic quartzite
7	Pzqms	- tan to rusty weathering quartz-muscovite, muscovite-quartz, and muscovite schist
6	Pzcs	- chlorite and chlorite-quartz-muscovite schist (includes minor amphibolite)
5	Pzqe	- "quartz-eye schist" (quartz-muscovite schist with abundant clear to bluish quartz [ $\pm$ feldspar] augen)
4	Pzqd	- weakly to moderately foliated, medium-grained, quartz dioritic orthogneiss
3	Pzmg	- weakly to strongly foliated metagabbro
2	Pzmd	- weakly to strongly foliated metadiorite
1	Pzog	- strongly foliated granitic to quartz monzonitic orthogneiss

## Property Geology

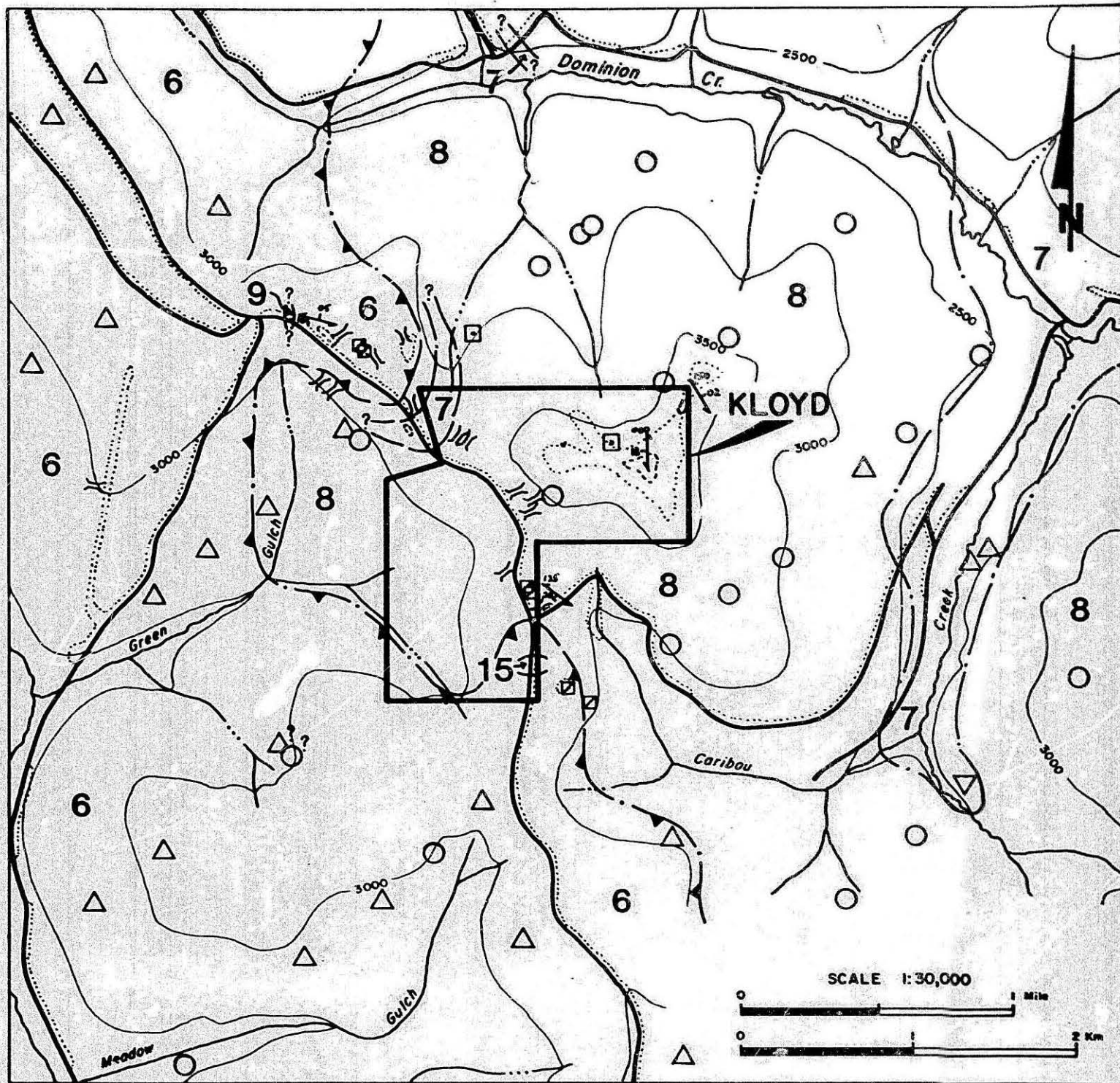
The Kloyd claims are underlain by two main units that are separated by a regional scale thrust fault (Figure 2). Above the thrust surface are medium to dark green chlorite and chlorite-quartz ( $\pm$ biotite) schists with abundant narrow lenses of foliaform quartz. The rocks under the thrust are mainly tan to medium brown or grey-brown weathering, muscovitic quartzites and feldspathic quartzites. Narrow bands of tan to rusty yellow weathering quartz-muscovite schist are present with the quartzite on the ridge crest in the northeast and northwest portion of the claim group. A small body of unfoliated quartz-feldspar porphyry intrudes the chlorite schist of the upper thrust package near the southern edge of the property.

The scarcity of outcrop precludes a detailed structural analysis of the property. Compositional layering in the quartzites, however, appears to be flat-lying or to dip gently to the west or southwest over much of the area. The thrust surface itself also dips gently to the west-southwest.















Rocks from the immediate vicinity of the thrust fault are seen in the waste dump beside a caved shaft just off the southern edge of the property. The rocks are strongly fractured, sheared and brecciated and a considerable amount of hematite and minor ferroan carbonate have been intruded along the fractures.

## Mineralization

Mineralization discovered to date on the Kloyd property consists of a single quartz vein that strikes about  $120^\circ$  and dips steeply to the northeast. The vein can be traced continuously in shafts and bulldozer trenches for at least 250 m. Over this interval, it varies in thickness from about 0.8 to



### LEGEND

-  thrust fault (defined, inferred)
-  lithological contact (defined, inferred)
-  outcrop and disrupted outcrop
-  subcrop and local float in overburden
-  lithological identification of rock chips in soil  
(Units 3, 5, 6, 7, 8, 9, 15 respectively)
-  trench or hand pit
-  edit
-  shaft
-  F<sub>1</sub> foliation, parallels compositional layering (strike, dip)
-  F<sub>2</sub> foliation (strike, dip)
-  F<sub>2</sub> crenulation lineation (trend, plunge)
-  soil sample location (As content in ppm by ICP, Au content in ppb, NAA)
-  silt sample location ( " " " )
-  geochemical sample of fines in waste dumps ( " " " )

**Figure 2**  
 ARCHER, CATHRO & ASSOCIATES (1981) LIMITED  
**BEDROCK GEOLOGY**  
**KLOYD PROPERTY AND VICINITY**  
**KLONDIKE DISTRICT, YUKON**  
**KLONDIKE PROJECT**

1.5 m. The vein consists mainly of white quartz, commonly with small vuggy cavities. Pyrite is present throughout the quartz as cubes and grain aggregates to 2 cm in diameter. The pyrite locally makes up as much as 2% of the vein material, but is usually much less abundant. MacLean (1914) reported that traces of galena and free gold are also present. Angular fragments of wallrock are abundant within the vein and narrow zones of brecciated and sheared quartz are also locally present.

Similar mineralization is also present in the dump from a shallow shaft about 500 m south-southeast of the junction of the Caribou Creek road and ridge road. This shaft is well south of the projected trace of the vein described above, and must be from a separate vein. Gold-bearing quartz veins are also present in caved shafts and trenches on the old Yellow Jacket and Tiger claims northwest of the Kloyd claims (presently included in the DOC group). This mineralization consists of quartz veins with scattered pyrite and traces of chalcopyrite, galena and free gold. MacLean reported that of six samples from these veins, all but one contained gold, with the highest assay being 0.61 oz/ton Au and 0.2 oz/ton Ag from a 1.5 ft channel sample across a vein on the Yellow Jacket claim. The one vein that is exposed on the Tiger claim strikes 136° and dips steeply to the southwest.

The mineralization on the DOC group is generally on strike with the main vein on the Kloyd property and is about 2 km from it. This suggests that the potential exists for a semi-continuous vein system at least 2.5 km in length and of an unknown width.

### Geochemistry

Several regional soil sample lines pass through or adjacent to the Kloyd

These sample locations and the associated Au and Ag contents are plotted on Figure 3. Also plotted are the Au and Ag content of 11 samples of fines taken from the waste dumps of shafts and trenches.

The Au and Ag content of most of the soil samples is at or below regional background levels (5 ppb and 15 ppm, respectively). Only 8 of the 37 samples analyzed contain anomalous values of gold and these values are only moderately anomalous and do not correspond to known gold-bearing veins. Only one sample contains anomalous values of arsenic.

### Summary and Conclusions

The Kloyd property covers a portion of one of the major thrust faults in the Klondike that appear to control the gold mineralization. Gold on the property occurs in northwest-trending quartz veins along with pyrite and traces of galena. One such vein ranges in thickness from 0.8 to 1.5 m and is continuous over at least 250 m. This vein may be part of a larger northwest-trending vein system that includes mineralization on the DOC claim group about 2 km to the northwest.

Geochemical sampling of the property and adjacent areas results in relatively few, very scattered, isolated anomalies in Au and Ag. These anomalous samples cannot yet be correlated with known vein mineralization.

Respectfully submitted,

ARCHER, CATHRO & ASSOCIATES (1981) LIMITED



J.K. Mortensen, Ph.D.



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## APPENDIX I

### CERTIFICATE

I, James K. Mortensen, with residential address in Vancouver, British Columbia, do hereby declare

1. I am a geologist in the employ of Archer, Cathro & Associates (1981) Limited, 1016-510 West Hastings Street, Vancouver, B.C. V6B 1L8.
2. I am a graduate in geological engineering of the University of British Columbia (B.A.Sc., 1977, M.A.Sc., 1979) and graduate in geology of The University of California, Santa Barbara (PhD., 1983).
3. I am a member of the Geological Association of Canada and the Geological Society of America.
4. I am a registered Engineer-in-Training in the Association of Professional Engineers of British Columbia.
5. I have practised my profession as a geologist for the past eleven years.
6. I have supervised the work described in this report.

Respectfully submitted,

  
J.K. Mortensen, PhD.

/mc

## APPENDIX II

### REFERENCES

Cairnes, D.D., 1912, Quartz Mining in the Klondike District, Geological Survey of Canada, Summary Report for 1911, pp. 17-40

MacLean, T.A., 1914, Lode Mining in Yukon, Mines Branch Publication 222, 205 p.

Northern Cordillera Mineral Inventory, NTS 1150/15, Occurrence 66, Archer, Cathro & Associates (1981) Limited, private publication

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## APPENDIX III

April 17, 1984

Mining Recorder,  
Dawson Mining District,  
Box 249,  
Dawson, Y.T.  
Y0B 1G0

Dear Sir:

Re: Application of Regional Mapping Costs in  
Klondike District to Property Assessment

Part of the assessment work for 1983-84 filed on quartz claims in the Klondike area held by Dawson Eldorado Gold Explorations Ltd. or jointly by Dawson Eldorado and Archer, Cathro & Associates (1981) Limited consists of geological mapping outside of the individual properties for which the work was filed. We believe that this is justified because of the extreme scarcity of outcrop in the area and the lack of a detailed geological map of the Klondike which makes it impossible to interpret the geology of a particular property based solely on the very few bedrock exposures within the claim boundaries. In order to understand the bedrock geology of a claim group, it is therefore necessary to carry out more reconnaissance scale mapping in the general area of the property and extrapolate the regional geology onto the property.

Yours truly,

ARCHER, CATHRO & ASSOCIATES (1981) LIMITED

/mc

J.K. Mortensen.