ASSESSMENT REPORT

GEOLOGICAL SETTING

OF THE

SARA CLAIM - ROCK CANDY CREEK

N.T.S. 82E/1W & 2E

60°13'30"N Latitude 118°30'20"W Longitude

GREENWOOD MINING DIVISION

GEOLOGICAL BRANCH
ASSESSMENT REPORT

16,214

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Consulting for Kettle River Resources Ltd
and
Noranda Exploration Company, Limited (no personal liability)

Date: June 18, 1987
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1. **INTRODUCTION**

The purpose of this study is to assess the geological potential of the Sara claim for two types of gold mineralization:

a) massive sulphides similar to those on the HEK property 4 kilometers to the southeast;

b) epithermal veins comparable to the spectacular fluorite deposit at the Rock Candy Mine 5 kilometers to the north.

The results of a reconnaissance geological survey made in late May and early June 1987 are shown on Figure 2 and the general geology is described in the following notes.

It is concluded that the Sara claim does not contain any of the older metavolcanic rocks which are host to the massive sulphides on the HEK. Although no mineralization comparable to the Rock Candy vein was seen, fracture systems are present which merit further prospecting. Stream sediment sampling of the streams crossing the claim is recommended.

The area mapped in Figure 2, called the map area, contains the units described in the legend. The relative ages of the units are deduced from field observations and conform to relationships established by previous workers (Little 1957 and 1983) and by extensive company and other work in the Greenwood area to the south. The area is within a swarm of Tertiary dykes which are not shown on Figure 2. Rocks older than the dyke swarm include metamorphosed cherts and greenstones of the upper part of the Knob Hill Group cut by granodiorite probably belonging to the Nelson Intrusions both of which are intruded by coarse grained syenite along the southern margin of the Coryell Batholith. Little (1983) gives petrographic descriptions of the dyke swarm (p.28), and Coryell syenite (p.28) and the Nelson intrusions (P.23) which conform to the field observations reported herein and they are not repeated.

2. **LOCATION AND ACCESS**

The Sara claim, located some 21 km north of Grand Forks, B.C. is centered on longitude 118°30'20"W and latitude 49°13'30"N. The claim lies within the Greenwood Mining Division on Mapsheets N.T.S. 82E/1W & 82E/2E.

The claim can be accessed quite easily by following Pass Creek logging road for some 3 km west from the paved Granby River Road. Then turn right (north) and follow the Rock Candy Creek logging road for approximately 4 km.
3. **CLAIM INFORMATION**

Sara claim, Record #4605, is owned in part by Kettle River Resources Ltd. of Greenwood, B.C. and Noranda Exploration Company, Limited (no personal liability) of Vancouver, B.C.

The 20 unit claim was recorded June 17, 1987.

4. **GEOLOGY**

4a. **Dyke Swarm**

The entire map area is within a swarm of Tertiary dykes of buff to tan -weathering pinkish and grey feldspar porphyry and fine grained syenite. These rocks are not shown on Figure 2 although they form the main area of outcrop and in the western part are more than 60% of the exposed rock. Patterns of size and shape for these dykes are difficult to establish even though they are well exposed. They are irregular in detail ranging from a metre to more than 100 metres across. Many contacts trend north (340 to 030) and dip steeply either east or west. The thicker dykes, however, appear to have a low dip to the north and west. This attitude is reflected by lines of cliffs seen on air photos and in distant views and by observations at the base of some cliffs where older rocks are exposed.

The dyke swarm appears to have been emplaced passively during Tertiary extension, filling fractures between blocks of older rocks. Several small scale examples in which the unrotated blocks can be imagined to "fit back together" are exposed. The dyke swarm is important for exploration as it interrupts unpredictably the continuity of older mineralized units and forms the host for the Rock Candy vein.

4b. **Knob Hill Group**

Figure 2 shows the general distribution of rock units older than the dyke swarm with the oldest rocks, the Knob Hill Group, in the southeast corner. These rocks are well exposed in the cliffs west of the Granby River south of Pass Creek and can be seen in road cuts north of Brown Creek. They consist of massive, aphanitic, locally calcareous greenstones with layers and lenses of meta chert or quartzite a few metres to tens of metres thick. They trend east and dip at moderate angles to the north forming a succession more than 2 kilometres thick. The lithologies and attitudes are very similar to rocks in the upper part of the Knob Hill Group on the south and north sides of Eholt Creek and the eastern slopes of Mt. Pelly (see Assessment Report 11845 and Young George Group).

These rocks are truncated on the west and north by an irregular body of granodiorite and quartz diorite of the Nelson Intrusions. Toward the plutonic rocks the greenstones become fine grained amphibolite and the meta cherts are quartzite and locally quartz-feldspar-biotite gneiss. The contact zone is quite irregular with septa and inclusions of wall rocks extending hundreds of metres into the granodiorite. Though irregular, these
protrusions and lines of inclusions tend to trend east and dip to the north, an attitude probably inherited from the grain of the Knob Hill Group.

The HEK mineralization is within this contact zone. In addition to the sulphides, the special characteristics of the mineralized area are local presence of calcareous greenstones and grey pyritic metasiltstones in the Knob Hill Group. Structurally the mineralized area is at a place where the intrusive contact is concordant with the trends of the Knob Hill rocks.

4c. Nelson Intrusions

In this area the Nelson Intrusions are medium grained granodiorite and quartz diorite with chlorite and epidote alteration of the mafic minerals which are subhedral hornblende and fuzzy clusters of biotite. Locally, inclusions of gneiss grading into gneissic diorite are present, particularly in contact zones. A poor gneissic structure of oriented hornblendes can be seen in the cleanest outcrops.

These rocks occur as remnants between dykes around the margin of the irregular body of Coryell syenite which forms the central and western part of the area. The shape and extent of this granitic mass is not known.

4d. Coryell Batholith

Rocks of the Coryell Batholith in this area are medium to coarse grained light grey syenite and quartz syenite. These rocks commonly have a deformed, locally crushed appearance. Ragged clusters of biotite occur between coarse light coloured grains of feldspar. In contact zones interstitial quartz is visible in hand specimens. Contact zones are irregular. On the Sara claim the northwest trending contact with the Nelson granodiorite is fairly well defined and to the southeast it is poorly defined over a width of almost a kilometre. Within the contact zone dykes and irregular masses of coarse syenite and quartz syenite are found within the wall rocks, of granodiorite, gneiss or metamorphosed Knob Hill. Locally dykes with diffuse margins and zones of potash feldspar alteration are present and at places poikilitic potash feldspar occurs in the wall rocks. These features suggest emplacement of the Coryell syenite was at least partly by replacement of the wall rocks.

These rocks are referred to as the Coryell Batholith because regional maps (Little 1983) show extensive areas of Coryell syenite to the west and north. The dyke swarm of feldspar porphyry and pink fine grained syenite which Little also refers to as Coryell clearly cuts and is somewhat later than the Coryell Batholith, though both are Tertiary.

4e. Structural Features

Possible attitudes of the dykes in the dyke swarm and the shapes and attitudes of the earlier rock masses are referred to in the foregoing parts of these notes. Regionally the area lies above a probably low west dipping listric normal fault which follows the valley of the Granby River offsetting rocks of the Brooklyn Formation from near the mouth of Brown Creek to the northern slopes of Volcanic Mountain. Very few faults have been recognized in the map area, although I suspect there are many small faults and possibly
Several cliffs expose crushed fault zones 1 to 3 metres thick with well defined hanging walls which can be traced for 100 metres or more. They are later than the dykes of the dyke swarm as well as rare basalt dykes which cut the dyke swarm. Several faults with low west to northwest dips and others with low eastward dips were seen. Typically the east dipping faults are offset by the west and northwest dipping faults. Air photos show many lineaments trending between north and north 30 degrees east, some of these are dyke margins and no offsets have been identified to prove faulting, but almost certainly several of the lineaments including dyke margins mark fault zones. These observations fit the regional pattern of faulting established in the Greenwood area where epithermal mineralization is associated with the late north to northeast trending set.

5. CONCLUSIONS

Reconnaissance mapping of the Sara-HEK area indicates that mineralization of the type found on the HEK property does not occur on the Sara claim.

Although none are yet known, fracture systems containing epithermal mineralization may exist particularly in covered areas along the north trending lineaments. It is recommended that this possibility be tested by careful stream sediment sampling.
REFERENCES

Little, H.W. 1957 G.S.C. Map 6-1957
G.S.C. Paper 79-29

B.C. Dept of Mines GEM 1966 p.196 and Assessment Reports No.6130 (1975),
Assessment Report 11845 – Eholt Area.
APPENDIX A

STATEMENT OF COSTS
NORANDA EXPLORATION COMPANY, LIMITED

STATEMENT OF COSTS

PROJECT: SARA CLAIM

TYPE OF REPORT: GEOLOGICAL

DATE: June 17, 1987

a) Wages:
   No. of Days
   Rate per Day $ 
   Dates From:
   Total Wages x $

b) Food & Accomodations:
   No. of Days
   Rate per Day $ 
   Dates From:
   Total Costs x $

c) Transportation:
   No. of Days
   Rate per Day $ 
   Dates From:
   Total Costs x $

d) Instrument Rental:
   Type of Instrument
   No. of Days
   Rate per Day $ 
   Dates From:
   Total Costs x $

   Type of Instrument
   No. of Days
   Rate per Day $ 
   Dates From:
   Total Costs x $
e) Analysis:
   (See attached schedule)

f) Cost of preparation of Report
   Author:
   Drafting: $150.00
   Typing: $75.00

h) Unit costs for
   No. of Days
   No. of Units
   Unit costs /
   Total Cost x

Total Cost $3,978.36

g) Other:
   Contractor
   James T. Pyles
   $3,753.36
APPENDIX B

STATEMENT OF QUALIFICATIONS
STATEMENT OF QUALIFICATIONS

I, James T. Fyles, of 1720 Kingsberry Crescent, Victoria, B.C. hereby certify that:

1) I am a consulting geologist and Director of Kettle River Resources Ltd.

2) I have practiced my profession in British Columbia since 1948.

3) I am a graduate of the University of British Columbia (BASc'47, MASc'49) and of Columbia University (PhD'54).

4) I am a registered Professional Engineer in British Columbia (#2563), a Fellow of the Geological Association of Canada, a Fellow of the Society of Economic Geologists and a Member of the Canadian Institute of Mining and Metallurgy.

5) This report is based on field work done by me in the area shown in the included map.

Victoria, B. C.

James T. Fyles