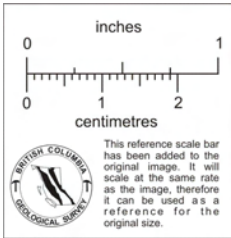
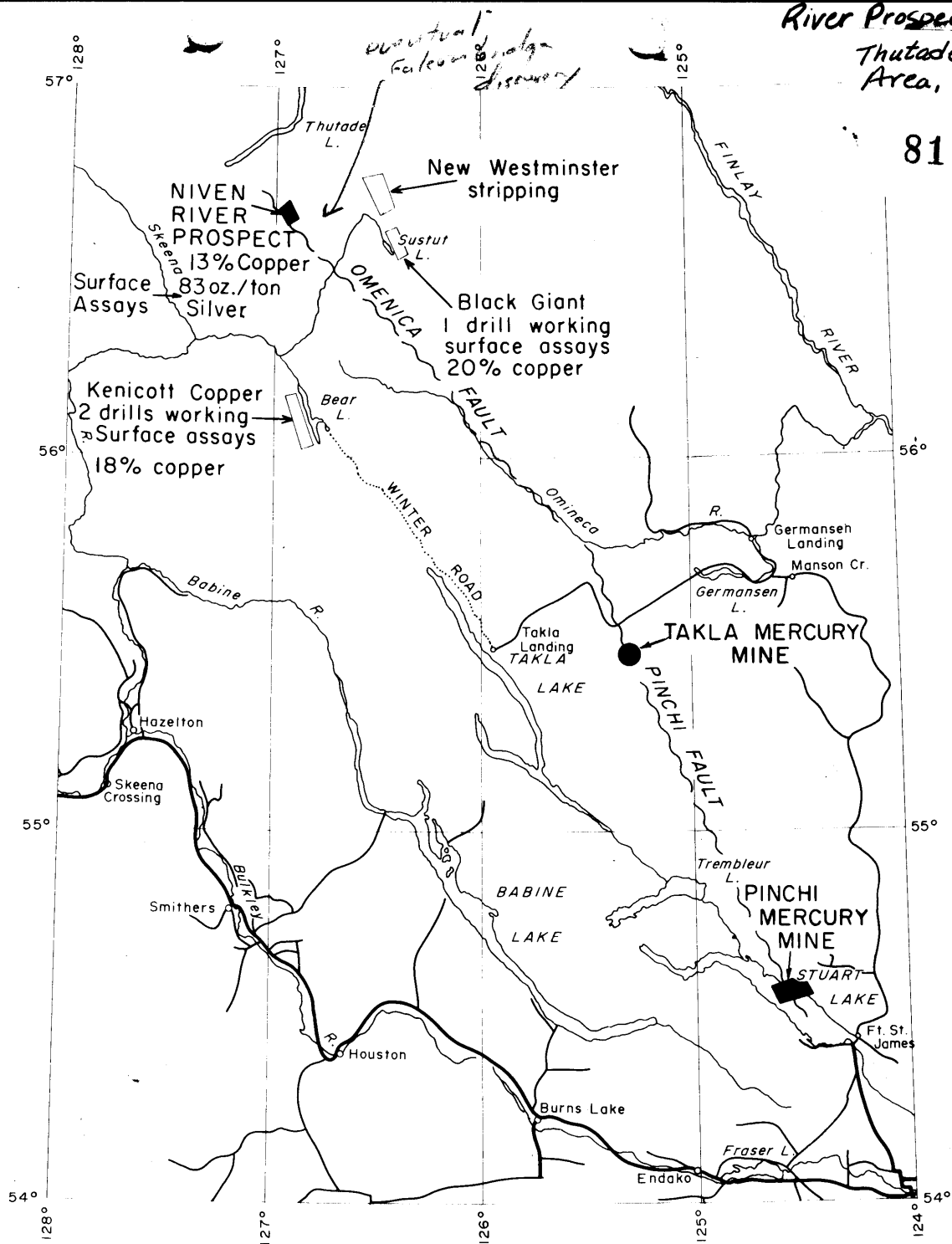


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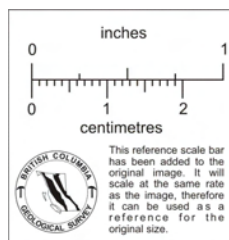
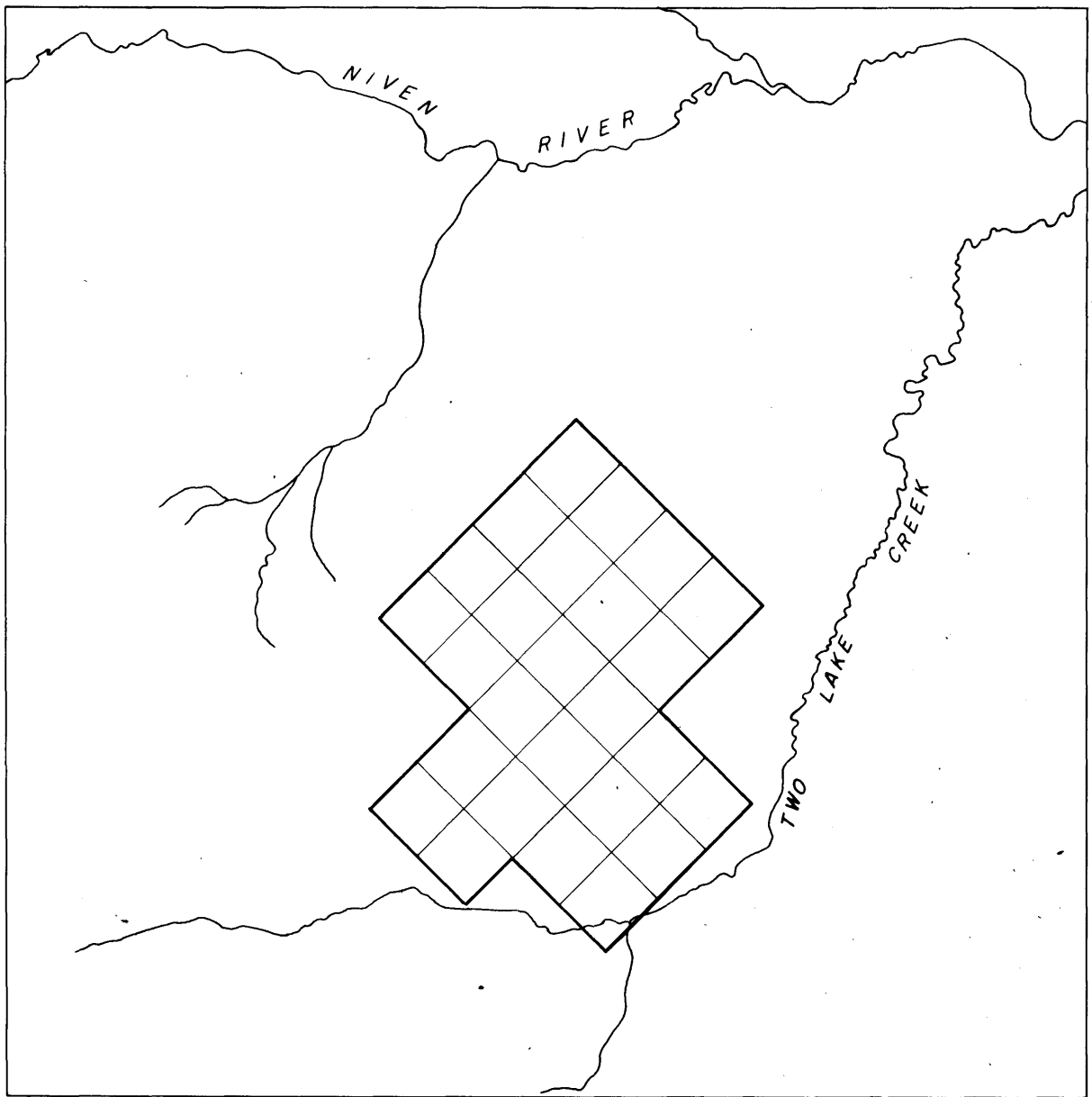


PLAT No. 2

INDEX MAP
 TO
NIVEN RIVER PROSPECT

BY W. WOŁODARSKY

DRAWN BY:	DATE:	SCALE:
CENTRAL DRAFT. SERVICES LTD.	AUGUST 18, 1966	1" = 30 MILES



PLAT No.1

NIVEN PEAK AREA
BRITISH COLUMBIA

DRAFTING BY	DATE	GEOLOGY BY
CENTRAL DRAFTING SERVICES LTD.	FEBRUARY 1967	W. WOLODARSKY

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INTRODUCTION

This report describes the Niven Prospect which is covered by the Doreen claims, numbers 1 to 28. These claims are contiguous and cover an area from South of the Niven River to the east of Two Lakes Creek.

The writer, while doing geological reconnaissance in the McConnell Creek area visited the Niven area on July 14, 1966. The traverse was accomplished on foot. A helicopter was used to reach the location and for spot checking faults, geological and lithologic contacts and other geologic data present on the Geological Survey of Canada, McConnell Creek map sheet.

The claims were staked as a result of the original visit from July 20th to the 24th. The writer was assisted by Mr. E.R. Becker on the July 14th traverse and Mr. Becker conducted staking of the above mentioned Doreen claims.

DESCRIPTION OF PROPERTIES

	<u>Claim Number</u>	<u>Serial Number</u>
Doreen	# 1	731225
	2	731224
	3	731222
	4	731223
	5	731221
	6	731220
	7	731219
	8	731218
	9	731214
	10	731215
	11	731216
	12	731217
	13	731198
	14	731199
	15	731204

	<u>Claim Number</u>	<u>Serial Number</u>
Doreen	16	731205
	17	731200
	18	731200
	19	731202
	20	731203
	21	731213
	22	731212
	23	731211
	24	731210
	25	731208
	26	731209
	27	731206
	28	731206

LOCATION AND ACCESS

The Doreen claims are located as a contiguous group of 28 claims (see enclosed Plat #1).

Geographically, the Niven Prospect lies approximately 175 air miles northwest of Fort St. James, British Columbia. It is located approximately 12 miles southeast of the southwest arm of Thutade Lake, and slightly over 20 miles northwest of Sustat Lake. Accessible gravel roads exist from Fort St. James north to Manson Creek. A poor but passable road travels east from Manson, past the Takla Mercury mine, to Takla Landing (see Plat #2). A winter road exists from Takla Landing to Bear Lake; at the sight of Kennecott Copper's claims and recent drill hole programme. The Doreen claims lie approximately 35 miles north of Bear Lake.

The closest access for pontoon equipped aircraft is Thutade or Sustat Lakes. The examination of this prospect in July of 1966 was done by establishing a base camp at Sustat Lake and employing a Black Giant Mines Ltd. helicopter, from the locale.

EXPLORATION

Historical

Underground

No underground exploration has been conducted and no underground plant or equipment is located on these claims.

Surface

This area was mapped by the Geological Survey of Canada and is published in Memoir 251, McConnell Creek Map Area, Cassiar District, British Columbia, in the years 1941, 1944 and 1945; by Dr. G.S. Lord. Dr. Lord noted a rich and significant mineral occurrence (see geological report) that contained 83 ozs. of silver per ton and 8% copper, in a small veinlet immediately adjacent to the fault. To my knowledge no claims have ever been staked on this show or anywhere in the immediate Niven area. No known drill holes, trenching, blasting or diggings have ever been performed on these properties. The showing had been cursorily examined by Black Giant Mines Ltd. in the summer of 1965 and re-examined by them after our July 1966 staking. It is believed that this area has not been visited more than half a dozen times since 1941, when Dr. Lord made a traverse to the area from his base camp on the Niven river. Black Giant's visit to the area in 1965 consisted of a one hour helicopter trip to examine the mineral occurrence. Since snow covers the prospect area until late July, observers obviously could not have viewed many of the veins. Dr. Lord's party missed seeing the Omineca intrusives and three very obvious quartz veins in the immediate area, either due to snow or poor observation.

Thus it is inferred that because of remoteness and nonaccessibility this geologically prospective mineral occurrence has been grossly overlooked.

There is no record of history of surface exploration or any substantial investigation of these claims and it is inferred that none exists.

Current

In the summer of 1966 during the month of July, some six geological crews were at work in the McConnell Creek area. Black Giant had one drill working at Sustat Lake and were fielding two geologists, with a helicopter, for exploration. Kennecot Copper had a large camp with two drills working their Bear Lake properties; they were employing a helicopter for exploratory work. The affiliation of the other four exploratory groups was not known.

GEOLOGICAL REPORT

Geologic History

Lower and Middle Permian sediments, lavas and pyroclastic rocks were laid down in a Marine basin. Upper Triassic time was a period of argillaceous sedimentation and minor vulcanism. Sharp volcanic activity prevailed during Jurassic times and most of the accumulations were probably deposited, at least partly, in marine waters. During late Upper Jurassic or Lower Cretaceous the Omenica batholith was active and the area was uplifted, folded and faulted and marine waters were absent. Pre-Cretaceous erosion was active and exposed Permian, Upper Triassic, Jurassic and parts of batholith. During the Upper Cretaceous and

Paleocene epochs the area was rapidly sinking; and thick sequences of continental rocks were deposited. An early Tertiary orogeny resulted in uplift, folding and faulting and the subsequent intrusion of the Kastberg porphyritic rocks. The area was again subject to subsequent erosion during this and Pliocene times. It was later subject to Pleistocene glaciation.

Geologic Sequence

The geologic sequence as it applies to the Niven area is as follows:

1. Recent, Pleistocene and Tertiary.
2. Kastberg intrusions: early Tertiary. Feldspar and feldspar quartz porphyries, porphyritic granodiorite and quartz diorite.
3. Sustat Group: Upper Cretaceous and Paleocene. Approximately 3000'+. Buff and grey impure sandstones, conglomerates, red and grey and green shales, some tuff and minor coal.
Distinctly bedded sedimentary sequence.
4. Omineca: Upper Jurassic or Lower Cretaceous. In the subject area dykes or stocks of brownish pink quartz porphyry occur in two localities (see map). The conspicuous feature of this rock is the 10 to 15% quartz contained in it. The quartz lies in a brownish ground mass containing varying amounts of pinkish laths of feldspar 1/16" to 1/8". The Kastberg intrusive porphyries are often lithologically similar to the Omineca and the intrusives mapped at Niven could well be Kastberg rather than Omineca in age. Mineralization is closely associated with Omineca and Kastberg intrusions.

5. Upper Takla: Jurassic in age. This unit is 23,000'+ in thickness and is primarily composed of andesitic basaltic, commonly red, purple or grey tuffs, agglomerates and lavas; in part interbedded with Jurassic sedimentary rocks. Contains deposits of copper, silver and other metals.
6. Lower Takla: Triassic and/or possibly lower Jurassic in age. It is 10,000'±, thick and composed of dark green andesitic and basaltic tuffs, agglomerates with black phenocrysts, meta basalts, greenstones, basalt, hornblende schist, gneiss, argillite and tuff. Contains deposits of gold, copper and other metals.
7. Cache Creek: Middle Permian.
8. Asitka: Lower Permian and earlier.

Faulting

The large Pinche fault zone of the Takla area (Armstrong 1946), enters the McConnell Creek area from the southeast and is in this area referred to as the Omineca Fault. The Omineca fault extends northwesterly into Niven Peak; where it marks the approximate northeastern limit of recognized major faulting (see Plat #2).

At Niven Peak Sustat sandstones lie southwest of the fault and are gently inclined except within 50' of the fault where the bedding is vertical, highly sheared, fractured, carbonized and intersected by white carbonate stringers and beds. The andesitic rocks of the Takla which adjoin the Sustat rocks, on the

northeast side of the fault, are similarly fractured and veined across a width of 150' and scattered irregular patches of rusty brown carbonized material occur in that interval.

In the subject area the relative upward movement appears to have occurred on the northeastern block of the faults. The abrupt change in attitude of the Sustat strata and the apparent loss of Upper Takla section indicate a major vertical displacement. This fault can be seen in several localities trending south easterly on air photographs. At Asetha River rocks of the Asitka Group are thrown over the younger Upper Takla from the west.

Detailed Geology

*Dr. C. S. Lord in his prospecting notes makes the following statement: "Careful attention should be paid to the fault zones and adjacent rocks, as these afforded Tertiary channelways and contain silver (near Niven River) and mercury (Takla map area) deposits. The magma from which the Kastberg intrusions were derived is the most likely known source of Tertiary mineralization solutions; therefore, formations adjacent to these intrusions, and especially volcanic members of the Takla group, should be examined". Lord also states that the possibility of important Tertiary deposits of silver, mercury, or other metals in the Niven Creek area and other Tertiary faults should not be neglected by prospectors.

* Page 67, Memoir 251, Geological Survey of Canada, McConnell Creek Area, Cassiar District, British Columbia by C. S. Lord, 1948.

He also equates the post-Paleocene fault at Niven with the Omineca and the Pinche faults and emphasises the importance these Tertiary channelways played in the mineralization of mercury in the Takla and Pinchi areas. With these very pertinent prospecting notes the Niven area looked most promising prior to embarking on a geological reconnaissance of the McConnell creek area.

The Omineca - Pinchi fault strikes northwest to southeast across the prospect area. The volcanic rocks of the Lower Takla, on the northeast block of the fault, are faulted upwards over the Upper Takla; which were faulted over the Upper Cretaceous, Sustat group. Sulphide mineralization occurs on the upthrown northeast block of Pinchi - Omineca fault zone in a series of white and grey quartz and carbonized veins which occur between the fault and outcrop of the Omineca intrusives. The veins vary in thickness from 2' to several inches in thickness and are poorly exposed because of rock scree, rock talus and snow.

The mineralization thus occurs in a Post-Paleocene fault where later Tertiary sulphide mineralization found adequate channelways to move along. The Omineca or Kastberg intrusives immediately adjacent to the fault zone undoubtedly provided the likely source of solution or magma.

Three mineral shows are recorded on the accompanying map:

1. Three whitish grey carbonized and quartzose veins 2', 1 1/4' and 2" are exposed for distances of from 2' to 6' on a steep scree slope. The strikes and dips of the following veins were as follows: 145° E of N, 74°E; 50° E of N, 76° SE; 52° E of N, 75° SE. The host rocks

were brown tuffaceous volcanics, green argillites with varying components of strike and dip. The veins were highly carbonized, rugged weathering and brown sulphide staining was evident. Mineralization showed abundant small dodecahedrons of pyrite, rare tetrahedrons of copper, native copper, malachite, chalcopyrite, bornite and azurite. Only the highly weathered and highly leached material was recovered for assays. This material showed on analysis .150% copper. Assays for other minerals are presently being run.

2. Quartz float in the vicinity of a poorly exposed vein contained chalcopyrite, malachite, azurite, calcite and a few quartz crystals. Digging in the area resulted in unearthing a 4" vein containing chalcopyrite, malachite and brown limonite. This vein was striking 200° E of N and was dipping 43° NW. Another vein 200' to the south, was 5" thick and had a similar strike and dip. Assays of the former vein exhibited maximum assays of 12.8% copper and 3.94 oz. of silver per ton along with minor values in gold.
3. This area was immediately adjacent to the fault and was snow covered. Dr. Lord, during his visit, sampled this showing. He records his findings and assay reports on Page 61 of this

report.* "A veinlet about 1/2" wide was found in sheared volcanic rocks of the Omenica fault zone 2 miles south east of longitude 127°. It contains calcopyrite, malachite, auzurite, unidentified soft grey minerals, calcite and a few quartz crystals. A picked sample contained gold, 0.205 ounces per ton; silver, 83.20 ounces per ton; and copper, 8.31%."

Sulphide mineralization in quartz and calcite veining occurs for 500' or more on the northeast block of the fault zone; in the area between the fault zone and the Omenica intrusives. Many veins were observed in the area between the fault and the intrusives. The veins varied in thickness from several inches to several feet. They were all poorly exposed due to glacial talus, scree and snow.

* Page 61, Geological Survey of Canada, McConnell Creek Map Area, Cassiar District, British Columbia, by C. S. Lord, 1948.

CONCLUSIONS

1. The prospect is favourably located on the large, prominent Pinchi-Omenica fault zone which is productive of mercury at Takla and Pinchi. A zone of veining between the fault and intrusive provides an excellent setting for locating mineralization.

2. Assays show 12.8%, 8.2% and .15% copper in three mineralized localities on the property. The Geological Survey of Canada reports a showing of 83 oz. per ton of silver on the property.

3. Because of remoteness, inaccessibility, the presence of snow till mid-July, scree and rock talus, the prospect has not been staked, or even examined thoroughly since the Geological Survey mapped it in 1941. It is concluded; that because of the apparent lack of exploration, the prospect has more potential than what is presently known about it.

4. The existence of a large zone of veining between the fault and the Omenica indicates a large area of potential mineralization, perhaps immediately below the surface.

5. The geologic conditions are most favourable for mineralization. The presence of the Post-Paleocene fault provided adequate channelways for the later Tertiary movement and mineralization. A source of Omenica intrusives lay, near enough to the fault, to supply magma or solutions for mineralization.

RECOMMENDATIONS

Since this prospect and the entire McConnell Creek area is yet in its infancy, the proposed programme is primarily exploratory in nature. It is recommended that:

1. A primary form of exploration be started on the Doreen Claims.

- (a) A complete air photograph analysis be done of the prospect area.
- (b) Detailed prospecting, mapping and additional staking along favourable geologic trends which have been delineated by photo analysis be done.
- (c) Blasting and exposure of mineralization by digging.
- (d) Use of one pack sack drill for two to three weeks of drilling, depending on results and circumstances.

This is a primary programme and covers this summer's work. Further exploration will depend on the results of the following programme.

- 2. That an exploratory programme be initiated in the McConnell Creek area, to discover and explore for favourable sources of mineralization.

COSTS

(1) Doreen Claims -

Geologist and assistant (2 weeks)	\$ 2,500
Pack sack drill operator and assistant (2 weeks wages)	2,000
Air travel: Helicopter and fixed wing	3,500
Supplies, food, equipment, expenses, travel	1,500
Air photo interpretation	1,250
Supervision, assays, contingencies	<u>1,500</u>
	\$ 12,250

(2) McConnell Creek Exploration

Geologist and assistant (3 weeks)	\$ 3,500
Air travel: Helicopter and fixed wing	5,000
Supplies, food, equipment, expenses, travel	1,500
Air photo interpretation	1,500
Supervision, assays, contingencies	<u>2,000</u>
	\$ 13,500

TOTAL \$ 25,750