GEOLOGICAL-GEOPHYSICAL REPORT ON THE EAST GROUP-IZMAN CREEK CLAIMS

LOCATED: 12 miles North of Lytton, B.C.
(49° 27' N; 121° 37' W)

92I/5E

BY: G.A. Noel, P. Eng. Geologist
EL PASO MINING AND MILLING COMPANY

SEPTEMBER 23 - NOVEMBER 13, 1972

GEOLOGICAL - GEOPHYSICAL REPORT

ON THE

EAST GROUP - IZMAN CREEK CLAIMS

LOCATED: 12 Miles North of Lytton, B.C.
(49° 27' N; 121° 37' W)

KAMLOOPS MINING DIVISION

4119

BY

G. A. NOEL, (P. Eng.) Geologist

EL PASO MINING AND MILLING COMPANY

SEPTEMBER 23 - NOVEMBER 3, 1972

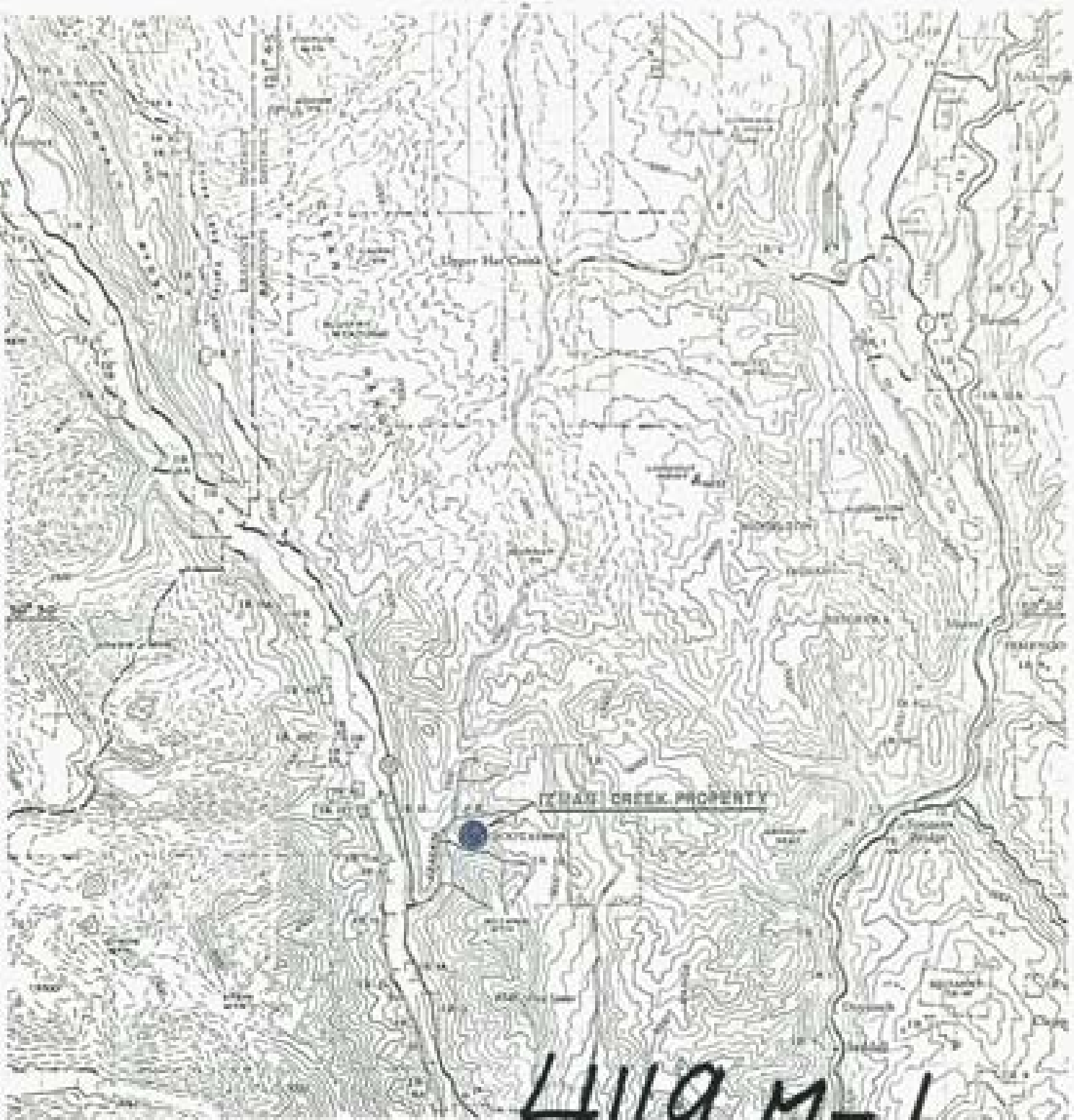
TABLE OF CONTENTS

MAPS AND ILLUSTRATIONS

SUMMARY

Between September 23rd and November 3, 1972 geological mapping and a magnetometer survey were conducted on the East Group of the Izman Creek Claims, about 12 miles north of Lytton, B.C. The East Group is owned by Santana International Resources Ltd., and was optioned to El Paso Mining and Milling Company on August 1, 1972.

The claims are underlain by diorite and granodiorite of the Mt. Lytton batholith with included pendants of Cache Creek Group rocks. Chalcopyrite occurs irregularly through narrow quartz stringers, which are best developed in the skarn-altered limestone. The copper mineralization is generally quite low grade and the skarn zones are small and generally quite scattered. The ground magnetic survey outlined four small magnetic anomalies on the East group. These anomalies are due to magnetite associated with skarn, diorite and amphibolite.



4119 M-1

EL PASO MINING AND MILLING COMPANY

DEL NORTE MINING GROUP

FIGURE 1

LOCATION MAP

IZMAN CREEK PROPERTY

LYTTON AREA, B.C.

DRAWN BY: K.S.A.	DATE: NOV. 1978	SCALE: 1 inch = 4 Miles	
TRACED BY:	DATE:		
REVISED DATE	REVISED DATE	DRAWING No.	

Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 4119 MAP #1111

EL PASO MINING AND MILLING COMPANY
DEL NORTE MINING GROUP

FIGURE 2
CLAIM MAP
IZMAN CREEK PROPERTY
LYTTON AREA, B.C.

DRAWN BY	R.L.A.	DATE	NOV. 1972
TRACED BY		DATE	1" = 2640'
REVISED	DATE	REVISED	DATE
R.L.A.	JAN. 1973		

INTRODUCTION

Between September 23rd and November 3, 1972 a crew of three men conducted geoogical mapping and a ground magnetometer survey on the East Group of the Izman Creek Claims. The East Group consists of 40 claims as follows: Spot 1 and 2; Cop 1 and 2 and 25-30; Alpine 1-16; Bonny 13 and 14; Ken 2; Kent 1 and 2; Nip 2; and Pam 1-8. (See Figure 2)

These claims are owned by Santana International Resources Ltd. of Vancouver, B.C., and were optioned to El Paso Mining and Milling Company under an agreement dated August 1, 1972.

The property is 12 miles north of Lytton, B.C., and three miles east of the Fraser River at elevations ranging from 3000 feet to 5500 feet. Access to the property is via Highway 12 north of Lytton, B.C., for 14 miles; then via Izman Creek Forest Access road for three miles.

FIELDWORK

The geochemical soil grid completed between August 24th and October 10th, 1972 (Jones, H.M., 1972) was used as control for both the geological mapping and the ground magnetometer survey.

The geology was mapped at a scale of one inch to 200 feet by C.A. Aird (P. Eng.), consulting geologist, and the geology map and report were completed on November 15th, 1972

The ground magnetic survey was done by T.S. Samoil, using a McPhar M-700 flux-gate magnetometer. This instrument reads from 0 to 250,000

gammas in five ranges with either positive or negative polarity. The baseline was run back and forth over a short time interval to establish control values for each traverse line. The magnetometer readings were corrected after traverse closure, using a time - correction plot. The corrected readings were plotted on the one inch to 200 foot base map, contoured at 1000 - gamma intervals below 10,000 gammas, and 5000-gamma intervals above 10,000 gammas, and then color coded.

GEOLOGY

A. Regional

The property is largely underlain by the Mount Lytton batholith of lower Cretaceous and Jurassic age. This batholith includes granodiorite, quartz diorite, diorite and gabbro and intrudes metasediments and metavolcanics of the Cache Creek Group of Permian or earlier age. Several remnants of the Spences Bridge Group, which includes tuffs, breccias, agglomerates, conglomerate and greywacke are in erosional or fault contact with the batholith.

To the east of the property, the Botanie Creek fault, which may be part of the Fraser River fault system, extends northwesterly across the area. East of this fault, Cache Creek rocks are well exposed but west of the fault the terrain is largely granitic.

B. Detailed

C.A. Aird (1972) has described the geology of the map area as follows:

TABLE OF ROCK UNITS

Post Lower Cretaceous		Hornblende andesite dikes.
Lower Cretaceous or Earlier	Mount Lytton batholith:	1. Quartz monzonite, granodiorite.
"	"	2. Quartz hornblende diorite quartz diorite gneiss.
"	"	3. Diorite, diorite gneiss.
Permian or Earlier(?)	Cache Creek (?)	Andesite, metasediments and metavolcanics.

CACHE CREEK GROUP

The metasediments include amphibolite schist and crystalline limestone. The amphibolite schist is a dark green hornblende-rich rock grading in places, with increase of plagioclase feldspar, into diorite. This rock generally shows an overprinted northwest foliation.

The limestone is a crystalline white rock with faint banding (relict bedding ?). The limestone is skarn-altered in places with development of brown garnet, epidote, calcite, hematite and a little rhodonite.

The metavolcanics appear to underlie the limestone but, where mapped, are virtually enclosed by diorite. The rock is a mottled black and grey magnetic variety with diffuse anhedral grains of plagioclase and irregular masses of dark amorphous material which includes shard-like fragments in places rimmed with calcite.

The andesite member is extremely variable from a dark green chloritic and dioritic andesite to a bleached grey siliceous rock which contains up to

five percent pyrite. In some placed blue quartz "eyes" are developed in the andesite and this is believed to indicate proximity to the quartz monzonite.

MOUNT LYTTON BATHOLITH

The diorite and diorite gneiss include all dioritic rocks from dark green andesite porphyry to coarse grained sericitic diorite with pink feldspar phenocrysts. The diorite gneiss is metamorphosed diorite and shows partial recrystallization of hornblende and biotite.

The quartz hornblende diorite and quartz diorite gneiss are believed derived from the diorite by the addition of quartz as they show concordant contacts with the diorite. These rocks commonly contain quartz "eyes" of blue color attributed to abundant needles of included rutile.

The quartz monzonite-granodiorite unit includes a leucocratic phase, with abundant creamy buff feldspar termed "quartz monzonite" in the field and also a darker phase, designated granodiorite. Compositionally, both are granodiorites. The blue quartz "eyes" are sometimes present in the darker unit, seldom in the lighter one. Most of the feldspar in these rocks is zoned sodic plagioclase, commonly sericitized. Biotite shows chlorite alteration with peripheral epidote.

C. Structure

Bedding attitudes in the limestone are northwesterly with opposing dips suggesting folding about a northwest axis prior to the intrusive event. Foliation in the amphibolite schist and diorite gneiss is also northwesterly and steeply dipping, suggesting post-diorite stresses not evident in the younger quartz monzonite.

A plot of poles to 187 quartz veins indicates that the major attitudes are northwesterly with subsidiary north, northeast and west-northwest directions. The hornblende andesite dikes are apparently not affected by this northwesterly stress alignment.

D. Mineralization

Chalcopyrite, with a little bornite, occurs as blebs in narrow quartz veins in skarn-altered sections of the limestone. These mineralized quartz veins usually very from one half to two inches in width but in places reach 18 inches in width. The veins are found every few feet in the main skarn showing which is about 600 feet long (WNW) by 200 feet wide. Samples taken over short intervals on this zone, assay 0.2 to 1.4% copper. Up to five percent pyrite by volume is present in the silicified altered andesite in the northeast part of the map area. Magnetite occurs as disseminations and small masses, mainly in the amphibolite but also in places in the skarn alteration. The magnetite is, however, seldom in massive form.

GEOPHYSICAL RESULTS

Four small magnetic anomalies are outlined on the magnetic contour map (92 I5-A 13). The anomaly centered at 12,300 N; 10,350 E is apparently due to magnetite mineralization in the main mass of skarn alteration. The anomaly centered at 10,400 N; 10,750 E is underlain by amphibolite with considerable associated magnetite. The two magnetic anomalies centered at 11,200 N; 10,000 E and 10,850 N; 10,750 E are probably due to accessory disseminated magnetite in diorite or amphibolite.

CONCLUSIONS

The copper mineralization is confined to skarn remnants and the grade is quite variable. The skarn remnants are too small to warrant development.

G. A. Noel

Vancouver, B.C.

February 20, 1973

REFERENCES

1. Aird, C.A. - 1972, Geology of the Izman Creek Property of Santana International Resources Ltd., Lytton Area, B.C., November 15, 1972 (El Paso Mining and Milling Company private report).

2. Jones, H.M.- 1972, Geochemical Report on the CB-1-9 and Reb 1-4 claims, part of the West Group, Izman Creek Area, August 24th - October 5th, 1972; November 3rd, 1972. (B.C. Department of Mines Assessment Report).

A P P E N D I X A

STATEMENT OF QUALIFACTIONS

STATEMENT OF QUALIFICATIONS

The fieldwork for this report was done under the supervision of G. A. Noel, whose qualifications are outlined below:

G. A. NOEL: P. Eng. (Geol. Eng.), Manager of Canadian Exploration for El Paso Mining and Milling Company, Vancouver, B.C.

Completed B.A. Sc. (Geology) at University of B.C. in 1950 and M.A. Sc. (Geology) at University of Toronto in 1951; employed by Kennco Explorations (Canada) Ltd. from May 1951 through March 1956 as a field geologist in B.C. and Yukon Territory under the supervision of J. S. Scott; employed by Utah Construction and Mining Co. from March 1956 through September 1969 in B. C. and Alaska mineral exploration as a project geologist, acting district geologist and senior project geologist under L. C. Clark, W. Bourret, H. G. Peacock and E. S. Rugg; employed by El Paso Mining and Milling Company in Vancouver, B.C. since October 1970.

A P P E N D I X B

STATEMENT OF COSTS

STATEMENT OF COSTS

GEOLOGICAL - GEOPHYSICAL SURVEYS

EAST GROUP - IZMAN CREEK PROPERTY

(50% of Total Costs)

FEES PAID TO C. A. AIRD		TOTAL $	50% $
FIELDWORK - (Sept. 23,24,30; Oct. 1-4 & 6 - 18; Nov. 1 - 3)			
23 days @ $125.00/day =		2,875.00	1,437.50
REPORT PREPARATION -			
10 days @ $50.00/day =		500.00	250.00
EXPENSES IN FIELD		572.39	286.19
- 4 wheel drive - 10 days @ $15/day	$ 150.00		
- Gas	61.85		
- Thin Sections	26.25		
- Copying	2.12		
- Lodging	200.55		
- Groceries	5.12		
- Meals	126.50		
	$ 572.39		
T.S. Samoil - 19 days Fieldwork @ $900/month	-	570.00	285.00
P. Brandley - 6 days fieldwork @ $600/month	-	120.00	60.00
Room & Board - 25 man days @ $15/man day	-	375.00	187.50
Map Preparation-T.S. Samoil - 12 days @ $900/month	-	360.00	180.00
Vehicle Rental - 19 days @ $150/month	-	95.00	47.50
		$ 5,467.39	$ 2,733.69

Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 419 MAP

DEPARTMENT OF MINES
AND PETROLEUM RESOURCES

MINERAL ACT
(Section 51)
FORM B

SUB-MINING RECORDER
RECEIVED
DEC 22 1972
M.R. # $
VANCOUVER, B. C.

Affidavit on Application for Certificate of Work

1. I, G. A. Noel (Name) Agent for Santana International Resources Ltd(NPL) (Name)
500 - 885 Dunsmuir Street, (Address) 510 West Hastings Street, (Address)
Vancouver 1, B.C. Vancouver 2, B.C.

Free miner's Certificate No. 109253 Free Miner's Certificate No. 117805

Date issued May 2, 1972 Date issued July 5, 1972

make oath and say:

2. I have done, or caused to be done, work on the Alpine 9-16, Bonny 13-14, Pam 1-8, Spot 1, Spot 2 and Nip 2 (part of the East Group) Mineral Claim(s)
Record No.(s) 89510-89517, 90099-90100, 89429-89436, 92299, 94000 and 90121
situate at Izman Creek in the Kamloops Mining Division,
to the value of at least 21 Hundred dollars. Work was done from the 23 day
of September 19 72, to the 3 day of November 19 72.

3. The following is a detailed statement of such work done in the twelve months in which such work is required to be done.

(COMPLETE APPROPRIATE SECTION(S) A, B, C, BELOW)

A. PHYSICAL (Trenching, drilling, tunnelling, and overburden removal.)
(State dimensions of trenching, open pits, etc., footage drilled, and diameter of hole for drilling.)

	COST
TOTAL	

I wish to apply $ ..... of this work to the claims listed below.
(State number of years to be applied to each claim.)

(For B and C Sections please turn over)

B. ROAD or TRAIL WORK (G ngth and average width of road or trail.)

	COST
TOTAL	

I wish to apply $ ..... of this work to the claims listed below.
(One year only to each claim and within the first three years of its life.) (Sec. 51 (3) M.A.)

.....

.....

.....

.....

C. GEOLOGICAL, GEOCHEMICAL, GEOPHYSICAL (Includes line cutting)
(State type of work)

	COST
Fees - geological consultant	$ 1,973.69
Wages	345.00
Room & Board	187.50
Map Preparation	180.00
Vehicle Rental	47.50
Geological - Geophysical Report to follow in three weeks.	
TOTAL	$ 2,733.69

I wish to apply $ 2100 of this work to the claims listed below.
(State number of years to be applied to each claim.)

Alpine	9 - 16	1 year each	8 Certificates
Bonny	13 - 14	1 year each	2 Certificates
Pam	1 - 8	1 year each	8 Certificates
Spot	1 - 2	1 year each	2 Certificates
Nip	2	1 year each	1 Certificate
		TOTAL 21	"

NOTE—Dollar value of work done under A, B, or C sections, totalling $100, may be applied to a certificate of work.

Make a sketch of claims showing location of work declared in A or B above
(if insufficient space, attach a sketch).

4. That I have not and will not use the work declared herein in any way for the purposes of obtaining tax exemption on a Crown-granted mineral claim under the terms of the *Taxation Act*.

SWORN and subscribed to at Vancouver, B.C.

this ..... day of December

19 72, before me—

*.....

.....

G. A. Noel

* This affidavit may be taken by a person empowered to take affidavits by the *Evidence Act* of British Columbia.

EL PASO MINING AND MILLING COMPANY
DEL NORTE MINING GROUP

MAGNETOMETER SURVEY

IZMAN CREEK PROPERTY, EAST GROUP
SANTANA INTERNATIONAL RESOUCES LTD. (N.P.L.)
LYTTON AREA, KAMLOOPS M.D., B.C.

TO ACCOMPANY A GEOLOGICAL - GEOPHYSICAL REPORT BY G.A. NOEL, P.Eng. ON THE IZMAN CREEK PROPERTY, ON IZMAN CREEK, KAMLOOPS MINING DIVISION, DATED FEBRUARY 20th 1973

DRAWN BY T.S.S. DATE NOV. 1972 SCALE 1" = 200'
TRACED BY DATE
REVISED DATE REVISED DATE
DRAWING No. 92 I 5 - A13

LEGEND

- < 0 GAMMAS
- +1000 TO +5000 GAMMAS
- > +5000 GAMMAS
- SURVEY STATION WITH MAGNETOMETER VALUE IN GAMMAS
- CONTOUR INTERVAL 1000 GAMMAS BELOW 10,000 GAMMAS; CONTOUR INTERVAL 5000 GAMMAS ABOVE 10,000 GAMMAS
- MAGNETIC DEPRESSION

L 7400 E, L 8000 E, L 8400 E, L 8800 E, L 9200 E, L 9600 E, XL 9600 E, L 10000 E, L 10400 E, L 10800 E, L 11200 E, L 11600 E, L 12000 E, L 12400 E, L 12800 E, L 13200 E, L 13600 E, L 14000 E, L 14400 E, L 14800 E

16,000 N, 15,000 N, 14,000 N, 13,000 N, 12,000 N, 11,000 N, 10,000 N, 9,000 N

ALPINE 6, ALPINE 1, ALPINE 2, ALPINE 7, ALPINE 9, ALPINE 8, ALPINE 10, ALPINE 15, ALPINE 13, BONNIE 13, BONNIE 14, COP 25, COP 27, COP 29, COP 26, COP 28, COP 30, COP 2, COP 1, NIP 2, SPOT, SPOT 2, PAM 8, PAM 7, IZMAN CREEK

4119 M-4

EL PASO MINING AND MILLING COMPANY
DEL NORTE MINING GROUP

GEOLOGY

IZMAN CREEK PROPERTY, EAST GROUP
SANTANA INTERNATIONAL RESOUCES LTD. (N.P.L.)
LYTTON AREA, KAMLOOPS M.D., B.C.

DRAWN BY	C.A.A.	DATE	NOV. 1972
TRACED BY		DATE	
REVISED	DATE	REVISED	DATE

SCALE 1" = 200'
DRAWING No. 92 I 5 - A12

TO ACCOMPANY A GEOLOGICAL - GEOPHYSICAL REPORT BY R.A.NOEL, P.Eng. ON THE IZMAN CREEK PROPERTY, ON IZMAN CREEK, KAMLOOPS MINING DIVISION, DATED FEBRUARY 20th 1973

LEGEND

Post Lower Cretaceous
- 10 HORNBLENDE ANDESITE

Lower Cretaceous
- SPENCES BRIDGE GROUP(?)
- 9 ANDESITE TUFF; AGGLOMERATE

Lower Cretaceous or Earlier
- MOUNT LYTTON BATHOLITH
- 8 QUARTZ MONZONITE; GRANODIORITE
- 7 QUARTZ HORNBLENDE DIORITE, QUARTZ DIORITE GNEISS
- 6 DIORITE; DIORITE GNEISS

Permian or Earlier(?)
- CACHE CREEK GROUP (?)
- 5 ALTERED, SILICIFIED ANDESITE
- 4 CRYSTALLINE LIMESTONE; SKARN
- 3 META VOLCANICS
- 2 AMPHIBOLITE SCHIST

- 1 QUARTZ ± APLITE; SILICIFICATION
- GEOLOGIC CONTACT; DEFINED - INFERRED
- STRIKE & DIP OF QUARTZ VEINS
- STRIKE & DIP OF DYKES
- STRIKE & DIP OF FAULTS
- STRIKE & DIP OF BEDDING
- STRIKE & DIP OF FOLIATION
- STRIKE & DIP OF SHEARING
- GLACIAL STRIAE
- LINEATION
- COLLECTED SPECIMEN
- OPEN CUT; DUMP
- ADIT
- SULPHIDE MINERALIZATION (Cpy, Py)

ALPINE 6
BONNIE 13
BONNIE 14
COP 25
COP 27
COP 29
COP 26
COP 28
COP 30
COP 2
COP 1
ALPINE 1
ALPINE 2
ALPINE 7
ALPINE 9
ALPINE 8
ALPINE 10
ALPINE 15
ALPINE 13
NIP 2
SPOT 1
SPOT 2
PAM 8
PAM 7
IZMAN CREEK
TALUS

4119 M-3