A GEOLOGICAL REPORT

ON THE

INVINCIBLE CLAIM

INVINCIBLE TUNGSTEN MINE

Nelson Mining Division, British Columbia
NTS 82F/3E
Latitude 49°06'50"N
Longitude 117°13'25"W

by

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3741 St. Andrews Avenue
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V7N 2A6

December 11, 1990

TABLE OF CONTENTS

LIST OF FIGURES

INTRODUCTION

The Invincible Crown Granted Claim was purchased by A.J. Boronowski in order to obtain the underlying Invincible Mine and tungsten reserves remaining within the mine.

The Invincible Mine produced 287,318 tonnes of ore averaging 0.65% WO_3 between early 1971 and September 1973.

The Invincible Mine contains reserves of 75,128 tons averaging 0.62% WO_3, which represents 46,359 Units of WO_3. This figure includes the Probable, Possible, and Marginal Ore Reserves of all categories (Appendix 2).

An exploration program consisting of surface geological mapping was conducted between October 30 and November 2, 1990 by A.J. Boronowski. As well, the portal entrance which was barricaded by Canex Ltd. in 1973 was examined. The access remains blocked. The access was flagged out-of-bounds and a large notice was posted on one of the portal timbers warning the public of the dangers within old mine workings.

Location and Access

The Invincible property is located in southeastern British Columbia, approximately 9.5 kilometres south southeast of Salmo (Figure 1). The claim is situated within N.T.S. map sheet 82 F/3E and are centred about 49°06'50" North latitude and 117°13'25" West longitude.

Access to the property is via Highway 6 to Sheep Creek and then from the south side of Sheep Creek a well maintained gravel road heads eastward up to the abandoned Jersey-Feeney-Emerald-Dodger-Invincible Mine. The first road to the left past the pad-locked gate leads to the Invincible portal. The portal of the Invincible decline is located beneath the Emerald pit (Figure 3).

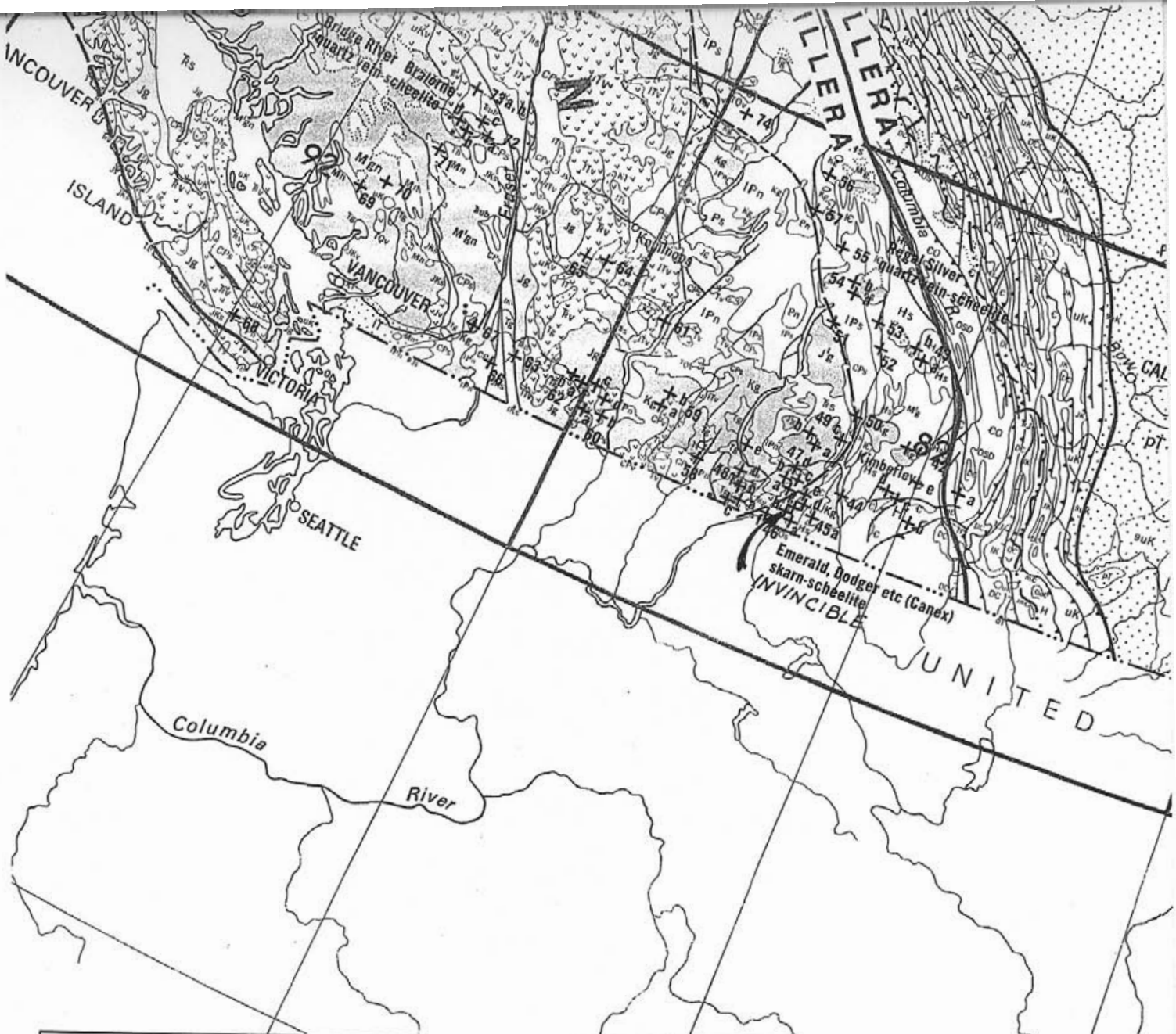


Figure 1.

GEOLOGICAL SURVEY OF CANADA

COMMISSION GÉOLOGIQUE DU CANADA

DEPARTMENT OF ENERGY, MINES AND RESOURCES

MINISTÈRE DE L'ÉNERGIE, DES MINES ET DES RESSOURCES

MAP 1556A

MINERAL DEPOSITS MAP

TUNGSTEN IN CANADA

Scale 1:5 000 000

Kilometres 100 0 100 200 300 400 Kilometres

Miles 100 0 100 200 Miles

LAMBERT CONFORMAL CONIC PROJECTION, STANDARD PARALLELS 49°N. AND 77°N.; MODIFIED POLYCONIC PROJECTION NORTH OF LATITUDE 80°

The Invincible tungsten ore zone is 3,100 feet northeast of the old Emerald tungsten mine and 250 feet northwest of the north end of the old Jersey lead-zinc mine, on Iron Mountain (Figure 3).

Property Status and Ownership

The Invincible property comprises one mineral claim located within the Nelson Mining Division (Figure 2).

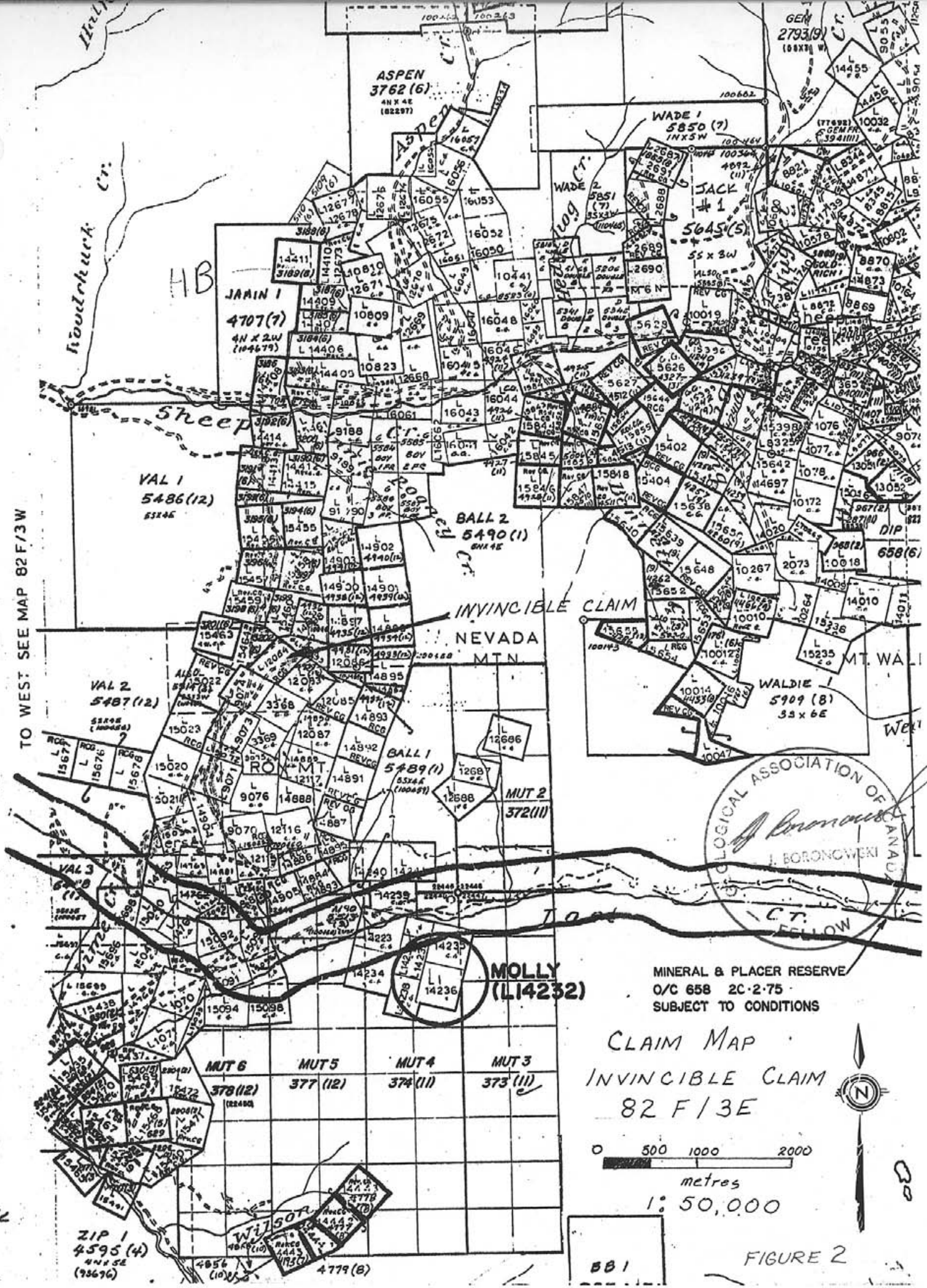
Claim Name	Record No.	Units	Date of Record	Expiry Year	Owner
Invincible R. C. G. 12084	6080	1	March 15, 1990	1991	A. Boronowski

Old, rotten claim posts were located in the field at approximately the location where the southeast Corner Post of the Invincible claim should exist. The faces of the posts remain squared but no tags were affixed to the post and no writing is legible.

Physiography and Climate

The physiography of the area is comprised of rugged Selkirk Mountain topography and a wet climate. Elevations on the property range from 4,000 feet (1,219 metres) to 4,550 feet (1,387 metres). Slopes range from moderate to steep.

The climate is unusually wet with large winter snowfalls.


ASPEN
3762 (6)
4N X 4E
(82297)
WADE 1
5850 (7)
1N X 5W
WADE 2
5851 (7)
3S X 1W
JACK
#1
5645 (5)
5S x 3W
JAMIN 1
4707 (7)
4N X 2W
(104679)
VAL 1
5486 (12)
5S X 4E
BALL 2
5490 (1)
6N X 4E
INVINCIBLE CLAIM
NEVADA
MTN
VAL 2
5487 (12)
5S X 5E
(104684)
BALL 1
5489 (1)
5S X 4E
(104681)
MUT 2
372 (11)
VAL 3
6S X 5E
(104685)
MOLLY
(L14232)
MUT 6
378 (12)
(82450)
MUT 5
377 (12)
MUT 4
374 (11)
MUT 3
373 (11)
WALDIE 1
5909 (8)
3S x 6E
ZIP 1
4595 (4)
4N X 5E
(93696)
4856
(10)
4779 (8)
BB 1
TO WEST SEE MAP 82 F/3 W
MINERAL & PLACER RESERVE
O/C 658 2C·2·75
SUBJECT TO CONDITIONS
CLAIM MAP
INVINCIBLE CLAIM
82 F/13E
0 500 1000 2000
metres
1: 50,000
N
FIGURE 2
GEOLOGICAL ASSOCIATION OF CANADA
J. BORONOWSKI
F.G.A.C.
FELLOW

Previous Exploration

The following section has been compiled from information contained in various unpublished Canadian Exploration Ltd. reports.

The Emerald, Feeney, Dodger, and Invincible tungsten mines of the Salmo area of the West Kootenay District were worked intermittently between 1943 and 1973. During that period total production of tungsten from the mines was 1,401,345 tonnes of ore which yield 8,065,010 kilograms of WO_3 (1,544,702 tons averaging 0.56% WO_3). The concentrates are remarkably free from deleterious impurities and consequently became in great demand and caused the mines to be the first major Canadian producers. Interest in tungsten in the area occurred in 1942 after specimens of skarn from the Emerald lead-zinc mine were submitted for molybdenum assay and found to contain tungsten. The Emerald and Dodger Mines were developed to extract the tungsten by Wartime Metals Corporation, a Crown company. Construction of a 300 ton concentrator commenced in September, 1942 and the operation was closed down in October 1943 when the demand for tungsten eased.

In 1947, Canadian Exploration Limited purchased the property and conducted an exploration program for tungsten. As a result the Feeney tungsten ore zone and the Jersey lead-zinc ore bodies were discovered. Approximately, 60,000 tons of lead-zinc ore was outlined in the Jersey deposit. In view of the favourable base metal prices and the smaller margin of profit being made on the tungsten, it was decided to close down the Emerald Tungsten mine and convert the mill to a lead-zinc operation. The tungsten mine was phased out in December 1948 and the lead-zinc production commenced in March 1949 and remained in production until 1970.

In 1951 the Canadian Government purchased two blocks of ground from Canadian Exploration Limited, covering the Emerald tungsten ore and the partly developed Dodger tungsten ore zone, to the east of the Jersey lead-zinc mine.

In 1952, Canadian Exploration bought back the two ore blocks

from the government and operated the tungsten mine until August 1958. The Feeney Mine, which had been discovered earlier was in production between 1951 and 1955. The Feeney Mine which is located 300 feet north of the Emerald mine contributed 60,000 tons of ore grading 0.92% WO_3.

Underground exploration in the Dodger area, which was discovered by the Canadian government in 1943, proved up two tungsten ore zones. The Dodger 4400 was operated from 1952 to 1957 and produced 137,000 tons averaging 0.56% WO_3, and the Dodger 4200 operated from 1954 until 1957 and produced 158,000 tons averaging 0.60% WO_3.

In 1953 and 1954, the proposed northward extension of the geological trough hosting the Emerald and Feeney mines was drill tested. The first hole to hit target intersected 10 feet grading 0.75% WO_3. By 1956, the Invincible orebody had been drill indicated and a shaft was collared in 1957 near the present Invincible portal. However, the shaft pilot hole intersected 26 feet of tungsten ore, so a new shaft site was located. Owing to rapidly falling tungsten prices the project was postponed.

In 1969, after a total of 34,462 feet of diamond drilling, another feasibility study was completed and the green light was given for development of the Invincible ore zone. The ore zone was developed by driving a 6,000 feet long, 16 feet by 19 feet drift to facilitate the trackless mining method. The old Emerald mill was rehabilitated and utilized machinery from the Jersey mill. In 1970, mill construction was completed and production came from the rehabilitated Dodger workings, since the Invincible ore zone had not yet been reached by the decline.

Between early 1971 and September 1973, the Invincible mine produced 287,318 tonnes of ore grading 0.65% WO_3.

Summary of Work Completed in 1990

Geological mapping at a scale of 1 inch = 200 feet was conducted. A total of three rock samples were collected from the property.

The samples were sent to Acme Analytical Laboratories Ltd. (Acme Lab.) for analysis.

The prepared samples were analyzed for a 30 element I.C.P. package and gold utilizing the following procedures. Refer to Appendix 1 - Analytical Results for detail.

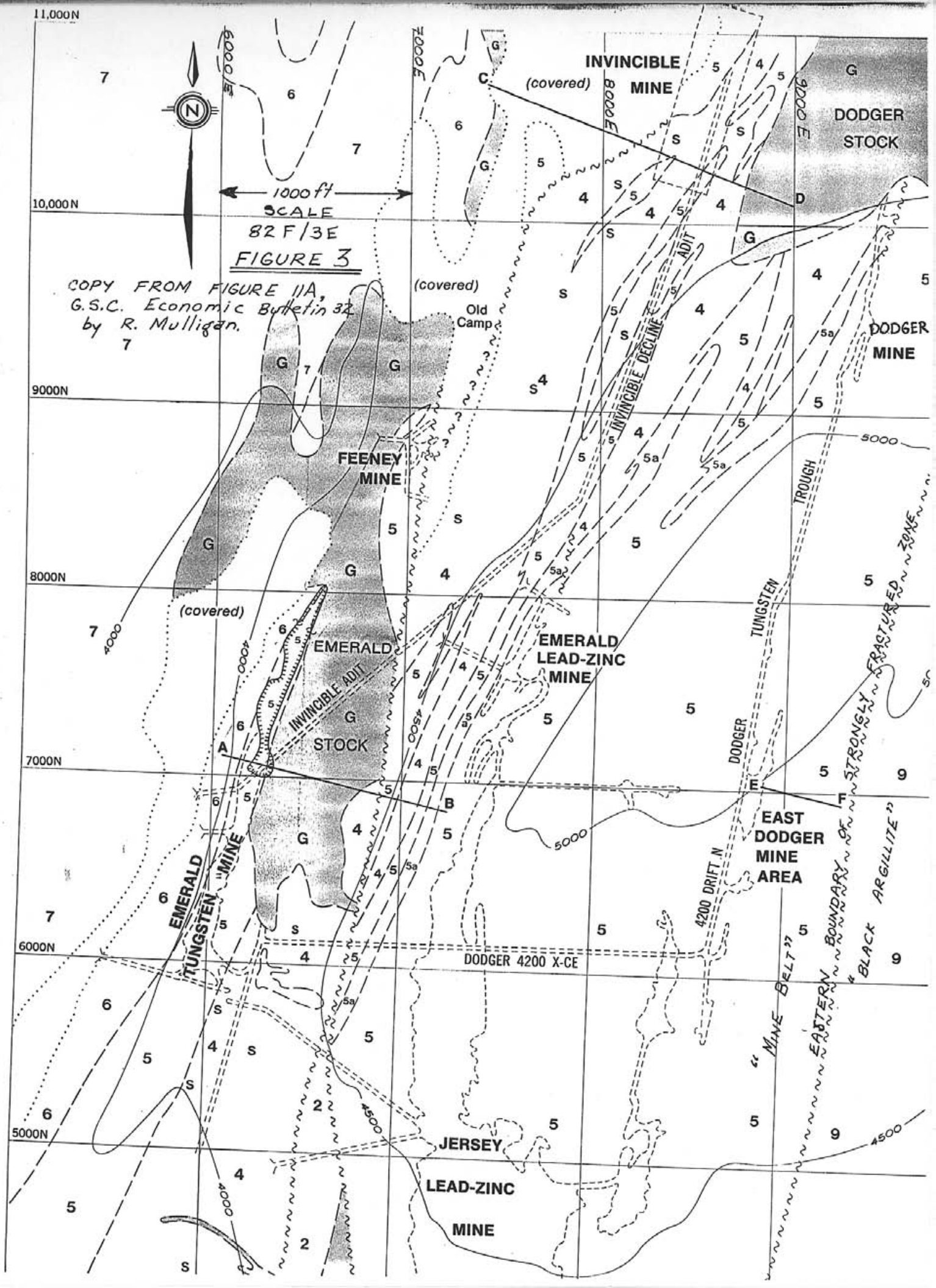
Gold: MIBK acid leach extraction of a 10 gram sample followed by an AA analysis yielded a lower detection limit of 1 ppb.

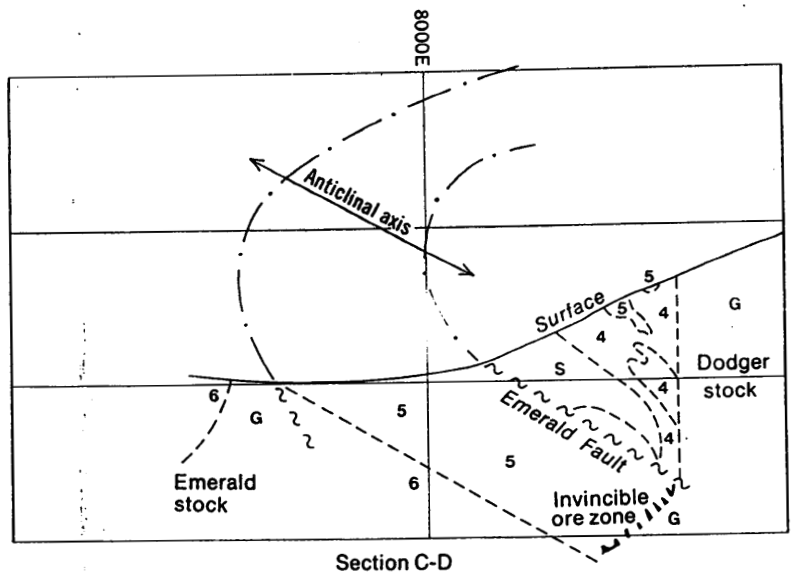
A 30 element I.C.P. package:

Hot HNO3-HCl extraction of 0.500 gram sample followed by an Induction Coupled Plasm analysis of a 10 ml. diluted sample. The leach is partial for Mn, Fe, Sr, Ca, P, La, Cr, Mg, Ba, Ti, B, W, and limited for Na, K, and Al.

REGIONAL GEOLOGY

The following section is excerpt from Mulligan (1984). The Emerald, Feeney, Invincible, Dodger, and Jersey mines are contained within the limbs of overturned, faulted Jersey anticline the axis of which strikes about 015° and plunges northward and southward from about the midsection of the mine area.(Figure 3). The eastern upright limb of the anticline contains the Dodger and Jersey orebodies, while the Emerald, Feeney and Invincible are in the western overturned limb.


11,000N
10,000N
9000N
8000N
7000N
6000N
5000N
1000 ft
SCALE
82 F/3E
FIGURE 3
COPY FROM FIGURE IIA,
G.S.C. Economic Bulletin 32
by R. Mulligan.
INVINCIBLE MINE
(covered)
DODGER STOCK
DODGER MINE
Old Camp
FEENEY MINE
INVINCIBLE DECLINE
INVINCIBLE ADIT
TROUGH
TUNGSTEN
FRACTURED ZONE
STRONGLY
EMERALD
EMERALD LEAD-ZINC MINE
EMERALD TUNGSTEN "MINE"
DODGER
EAST DODGER MINE AREA
4200 DRIFT N
DODGER 4200 X-CE
"MINE BELT"
EASTERN BOUNDARY OF "BLACK ARGILLITE"
JERSEY LEAD-ZINC MINE
A
B
C
D
E
F
G
S
5000
4500
4000



Section C-D
INVINCIBLE ORE ZONE

CRETACEOUS

G — *Granite*

ORDOVICIAN

9 — *Active formation; black argillite*

LOWER CAMBRIAN
LAIB FORMATION

7 — *Upper Laib: green, grey, and brown phyllite*

6 — *Emerald Member: black argillite*

5 — *Reeves Member: limestone,* 5a*: dolomite*

4 — *Truman Member: argillite, siliceous or skarny, skarn, limestone*

S — *Mainly skarn*

RENO FORMATION

3 — *Brown micaceous and grey blocky quartzite*

LOWER CAMBRIAN OR PROTEROZOIC
QUARTZITE RANGE FORMATION

2 — *Nevada Member; Upper: white quartzite; Lower: brown micaceous quartzite, minor white beds*

Geological contact
Limit of exposure
Fault
Contour (in feet) 4000
Underground workings
Open pit
Tungsten ore (in sections only)

Surface geology and cross-sections modified after Fyles and Hewlett (1959)

Metres
0 — 300
0 — 1000
Feet

Geology compiled by R. Mulligan, 1977

To accompany GSC Economic Geology Report No. 32 by R. Mulligan

Geological cartography by the Geological Survey of Canada

LEGEND and CROSS-SECTION
To Accompany
FIGURE 3

In the regional setting of the deposits, two structural factors are especially relevant:

1. they are within the zone of maximum curvature of the 'bulge' structure of the Kootenay Arc; and
2. they are in a strongly fractured zone just east of the trace of the eastward-dipping Waneta Fault, along which the Proterozoic and lower Paleozoic sediments are thrust over a Jurassic volcanic-sedimentary assemblage.

This fault forms the boundary between the East and West tungsten zones and the western boundary of the strongly fractured zone. The strongly fractured zone which hosts the lead-zinc and tungsten deposits is described as the "Mine Belt" (Fyles and Hewlett, 1959). The eastern boundary of the strongly fractured zone occurs approximately 100 metres east of the East Dodger and Dodger Mines along the fault contact between the Active Formation (Black Argillite Belt) and the Laib Formation (Figure 3).

The stratigraphy in the mine area is listed in accompanying Figure 3.

This stratigraphy has been intruded by the Emerald, Dodger, and Townsite granite stocks of Cretaceous age. Numerous lamprophyre dykes, probably related to a nearby Tertiary monzonite plug, locally cut the ore.

The ore zones are normally contained within skarns of the Laib Formation along the contact of a Cretaceous stock or a trough-like structures in the granite surfaces.

Skarns with minor scheelite forms numerous bands up to 15 metres wide, especially in the Truman and Reeves members. Dolomite of the Reeves limestone is the host rock of the Jersey and old Emerald lead-zinc deposits. They are at a slightly higher horizon than the adjacent tungsten deposits, which are in predominantly calcareous beds. Silicate or sulphide skarn is the host rock of most scheelite mineralization but 'greisen ore' extends as much as 12 metres into the granite at the Emerald.

The typical skarn is a green and brown granular rock composed

chiefly of pyroxene, garnet and locally amphibole, with various amounts of pyrrhotite, calcite and quartz. Vesuvianite is a common minor constituent at the Dodger. Other silicate minerals reported in varying minor amounts are tremolite-actinolite, epidote, biotite, muscovite, and chlorite, and augite has been reported. Small amounts of apatite are common. Tourmaline was reported to be relatively abundant in quartz veins at granite contacts at the Emerald and Feeney. Fluorite in fracture zones at the Emerald, Feeney and Dodger was mentioned by Ball (1954).

Pyrrhotite is the predominant sulphide mineral and is especially abundant in the Invincible ore and in some Emerald ore. Some pyrite has been reported. Chalcopyrite in small amounts is apparently the only base-metal sulphide. Molybdenite and molybdian scheelite are relatively abundant at the Dodger. A little wolframite has been reported.

DETAILED TECHNICAL DATA AND INTERPRETATION

Property Geology

The Invincible Mine occurs along the western contact of the Dodger stock and is hosted within the eastward dipping Reeves limestone (Figure 3, Cross-Section). The following description is from Thompson (1973) but excerpt from Mulligan (1984).

The Invincible orebody is in the overturned limb of the Jersey anticline and is bounded above and below by skarn and argillite of the Truman and Emerald Members of the Laib Formation respectively (Figure 3). Most of the tungsten ore (scheelite) occurs in lenticular zones which extend at a high angle from the granitic stock, more or less conformable with layering of the marble. In cross section the ore appears as irregular jagged zones to which the descriptive term 'ore flame' was applied by the mine geologists. In longitudinal section the flames are discontinuous and

irregular. Ore zones extend up to 80 feet from the stock, and may be more than 10 feet thick, but most ore does not extend beyond 20 feet from the stock and is typically less than 8 feet thick. Continuity of ore along strike seldom exceeds a few tens of feet. Ore grades as high as 7.6% WO_3 (across 1.6 feet) were encountered. However, 0.75 to 1.50% WO_3 are more typical of ore-grade material.

Some of the ore zones comprise aggregates of angular rock fragments enclosed in secondary coarse crystalline quartz; the scheelite is contained within the fragments which consist of diopside and garnet-rich material.

Pastoor's (1970) description is as follows:

The Invincible ore-zone is divided into two zones separated by a 650 foot long area containing granite cross-dykes.

The south zone is approximately 800 feet long and is lying nearly flat in a troughlike structure formed by west-dipping Dodger granite and east-dipping Emerald granite. The Emerald granite underlies a fault surface and dips approximately 35° east. The trough is terminated at both ends by areas of "high granite" and cross-dykes. The north zone is approximately 1100 feet long and has a gentle plunge to the south. The trough structure is formed by west-dipping Dodger granite and the east-dipping contact between Emerald black argillite and limestone. This contact dips about 40° east, and the granite dips about 35° west.

In both zones, tungsten ore occurs where the limestone is in contact with the Dodger granite. The ore is contained in quartz-sulphide replacement of limestone. It is localized in general by fracturing, faulting, and brecciation of the limestone, and in detail by minor fracturing and bedding of the limestone.

The surface mapping indicated that the property is underlain by Lower Cambrian age rocks of the Laib Formation. The Truman and Reeves members of the Laib Formation have been intruded by granite

of the Dodger Stock.

The property geology is presented in Figure 4 and a brief description of lithologies follows:

Lower Cambrian

Unit 4: Truman Formation: The predominant rock type is a dark grey weathering, fine to coarse grained siltstone to greywacke which contains thinly laminated (5 mm), alternating light and dark bands of biotite and quartz. Grain size appears to be controlled by metamorphic grade. Occasional recessive weathering, vuggy, calcareous bands and pyritic bands occur within this member. Calcareous content appears to increase towards the limestone units.

Unit 5: Reeves Member: The predominant rock type is a light greyish white weathering limestone. Resistant weathering silica filled fractures and bedding planes occur on weathered surfaces. The beds are generally less than 5 metres thick. The beds contain thin interbeds of argillite and siltstone. Possibly the limestone represents an exhalative chemical precipitate within a moderate to deep basin environment.

Cretaceous

Unit 10: Granite: The Dodger granite comprises a rusty to pinkish weathering, medium to coarse grained, biotite granite. Pegmatitic phases containing large, euhedral quartz and muscovite crystal occur occasionally.

Structure

The units strike north northeast and dip moderately to the east. Foliation is parallel to bedding. A fault contact parallel to the bedding occurs within the portal entrance. An east-west

trending fault is inferred to the north of the portal. White angular quartz gauge often occurs along fault planes. The regional structural setting is described in the Regional Geology section.

Alteration

The Laib Formation has been silicified and the calcareous members are altered to skarn. A description of the skarns is contained in the Regional Geology section.

Economic Geology

The Invincible Mine produced 287,318 tonnes of ore averaging 0.65% WO_3 between early 1971 and September 1973.

The Invincible Mine contains reserves of 75,128 tons averaging 0.62% WO_3, which represents 46,359 Units of WO_3. This figure includes the Probable, Possible, and Marginal Ore Reserves of all categories (Appendix 2).

Rock sample IN 90-1 represents a dirty, silicified siltstone which was heavily iron stained. As well, some yellowish-green stain occurring on the outcrop may be a molybdenum stain.

Rock sample IN 90-2 represents the quartz-pyrite stockwork (greisen) adjacent to the granite within the Emerald pit. The granite is cut by a stockwork of molybdenum bearing quartz veins. The sample was collected to determine the potential for gold mineralization. The sample assayed 19 ppm Mo, 184 ppm As, 60 ppm W, and 48 ppb gold.

Rock sample IN 90-3 represents an alternating light and dark banded limestone. The sample contained some unusual florescent

yellow and light blue material. The sample contains 7 ppm U. and 135 ppm Strontium.

Additional economic geology information is contained within the Regional and Property Geology sections.

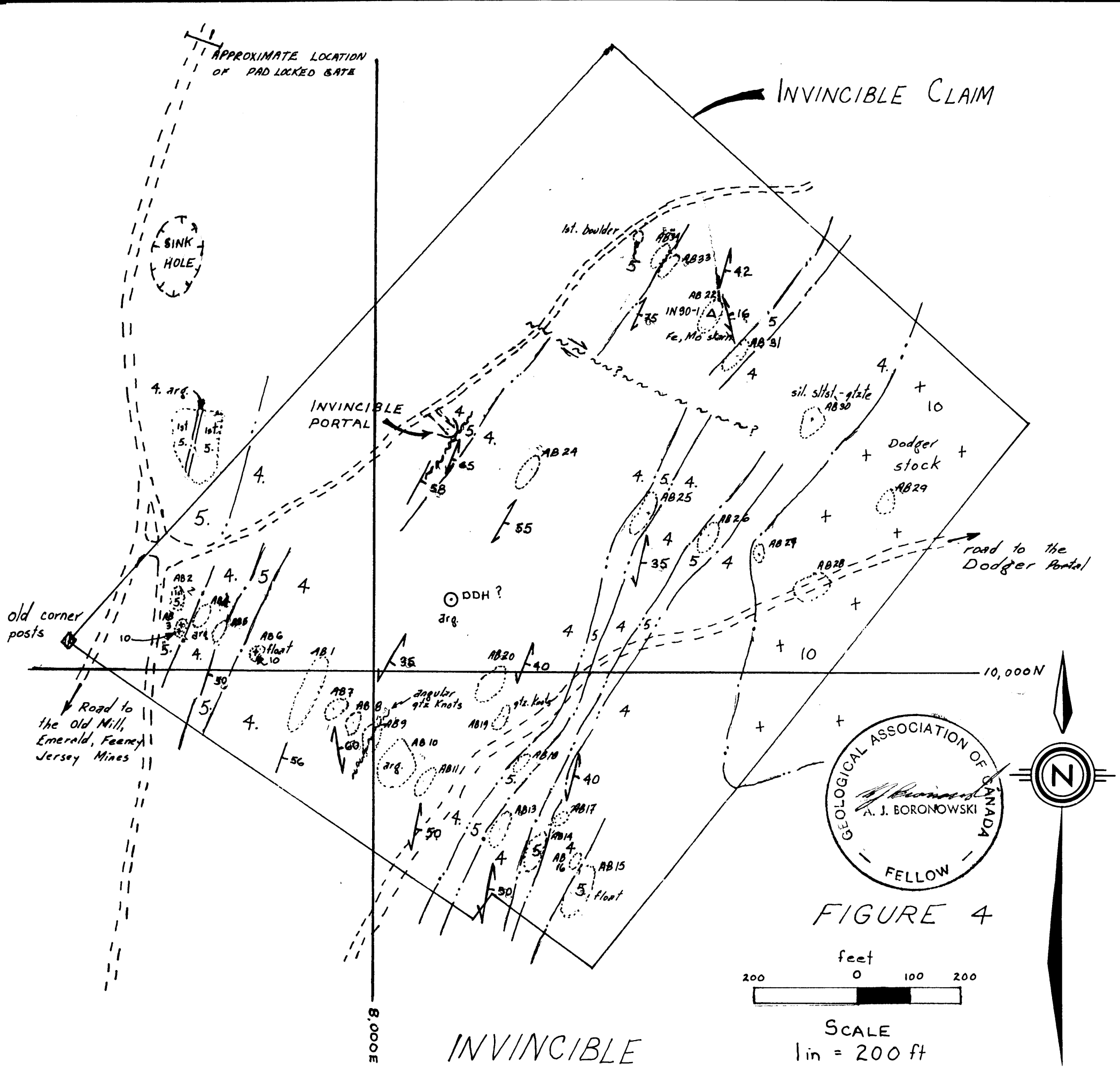
CONCLUSIONS AND RECOMMENDATIONS

The Invincible Mine produced 287,318 tonnes of ore averaging 0.65% WO_3 between early 1971 and September 1973.

The Invincible Mine contains reserves of 75,128 tons averaging 0.62% WO_3, which represents 46,359 Units of WO_3. This figure includes the Probable, Possible, and Marginal Ore Reserves of all categories (Appendix 2).

The Invincible Mine was closed due to poor metal prices. The mine not only contains mineable reserves but has the potential for additional reserves along strike.

The spatial relationship between the Emerald and Jersey lead-zinc mines with the Invincible, Dodger, Feeney, and Emerald tungsten mines and the source of the mineralization has not been determined. If the mineralization represents mobilized synsedimentary exhalative deposits, then the potential of the mines and the area for hosting other economic deposits is probably good.



INVINCIBLE GEOLOGY

FIGURE 4

82 F/3E

A.J. BORONOWSKI

20781

LEGEND

CRETACEOUS

+10 GRANITE

LOWER CAMBRIAN

LAIB FORMATION

4 Truman Member: argillite, greywacke, siltstone, skarn?

5 Reeves Member: limestone,

~~ ~~~ fault (inferred, known)

_..._.._ contact (inferred, known)

50 bedding

50 foliation

⊙ diamond drill hole

road

IN 90-1 rock sample

AB 7 outcrop, station number

ITEMIZED COST STATEMENT

Personnel

Alex Boronowski - Geologist	
October 30 - November 2, 1990	
4 days @ $400/day	$1,600.00

Field Equipment - rental

4 man days @ $15/man day	$ 60.00

Room and Board

4 man days @ $60/man day	$ 240.00

Truck - rental

October 30, 1990 - November 2, 1990	
4 days @ $50/day	$ 200.00
795 km. @ $0.15/km.	$ 119.25

Analytical Cost

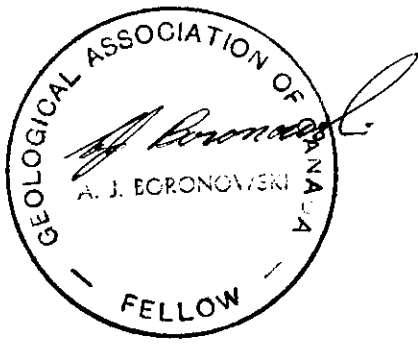
3 rocks @ $10.75/sample	$ 32.25
analysis for Au + 30 element I.C.P.	
Mo, Cu, Pb, Zn, Ag, Ni, Co, Mn, Fe, As, U, Au, Th, Sr, Cd, Sb,	
Bi, V, Ca, P, La, Cr, Mg, Ba, Ti, B, Al, Na, K, W.	

Travel Expenses

Travel and Miscellaneous costs	$ 193.13

Report Writing

Map drafting & prefield preparations	$ 800.00
Report Writing & Map drafting (4 days)	$1,600.00
TOTAL:	**$4,844.63**



STATEMENT OF QUALIFICATIONS

I, ALEXANDER J. BORONOWSKI, of NORTH VANCOUVER, in the Province of British Columbia, do hereby certify that:

1) I am a graduate of the Faculty of Science, University of British Columbia 1970, with a B. Sc. degree in Geology.

2) I have been a practising geologist in North America, Mexico, and Europe since 1970.

3) I am a Fellow of the Geological Association of Canada and a member of the Canadian Institute of Mining and Metallurgy.

Dated at Vancouver, B. C. this 11th day of December, 1990.

Respectfully submitted,

A. J. Boronowski, B. Sc., F. G. A. C

GEOLOGICAL ASSOCIATION OF CANADA
A. J. BORONOWSKI
FELLOW

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APPENDIX 1

Invincible Property - Analytical Results

ACME ANAL :CAL LABORATORIES LTD. 852 E. HASTINGS ST. VA)UVER B.C. V6A 1R6 PHONE(604)253-3158 FAX(6 253-1716

GEOCHEMICAL ANALYSIS CERTIFICATE

Imperial Metals Corporation PROJECT 0003 File # 90-5881

800 - 601 W. Hastings St., Vancouver BC V6B 5A6 Submitted by: ALEX BORONOWSKI

SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Au* ppb
QR90-1	1	192	6	83	.4	42	28	818	6.51	8	5	ND	1	60	.3	2	2	159	.61	.021	2	48	2.59	27	.16	2	3.17	.07	.02	1	4
QR90-2	1	10	5	65	.3	63	30	827	5.03	13	5	ND	1	72	.3	2	2	105	.74	.011	2	91	3.34	26	.16	2	3.26	.02	.02	1	1
QR90-3	1	37	11	65	.1	40	14	1075	3.27	2	5	ND	2	23	.2	2	2	44	.14	.051	15	37	.62	79	.04	2	1.40	.02	.11	1	1
QR90-4	1	268	7	90	.3	76	38	886	6.32	10	5	ND	1	31	.7	4	2	131	.51	.014	2	148	3.80	30	.21	2	3.46	.02	.02	1	5
QR90-5	1	35	2	49	.3	22	6	868	1.72	2	5	ND	1	319	.6	2	2	38	19.54	.035	6	24	.75	239	.03	2	1.01	.01	.28	1	12
QR90-6	1	10	5	51	.1	22	9	958	2.59	6	5	ND	1	162	.4	2	2	72	10.57	.056	8	28	1.02	188	.04	2	1.38	.04	.34	1	18
QR90-7	4	8675	8	48	11.7	52	13	382	26.31	73	5	4	3	13	1.4	14	2	38	.48	.086	4	11	.06	18	.03	8	.35	.01	.02	92	4720
QR90-8	6	71308 ✓	205	443	21.0	49	16	2154	20.55	298	5	2	2	79	7.5	9	15	71	1.72	.278	12	21	.28	31	.06	8	.73	.01	.06	51	2050
QR90-9	1	164	3	92	1.1	5	3	1020	.75	12	5	ND	1	460	7.5	2	2	7	39.43	.022	2	2	.16	6	.01	6	.10	.01	.01	1	11
QR90-10	1	18327 ✓	1035	939	19.7	17	13	1378	5.50	19	5	ND	2	60	4.6	4	20	19	4.91	.047	2	43	.39	14	.07	2	.99	.01	.02	7	48
QR90-11	9	5744	50	94	27.9	13	11	341	6.62	32	5	ND	1	53	1.8	2	2	19	.88	.104	7	54	.49	17	.12	3	.49	.01	.01	2	160
QR90-12	4	10914 ✓	197	206	6.2	20	20	3230	8.95	60	5	ND	1	94	2.5	5	17	23	5.77	.080	2	17	.12	45	.03	9	.26	.01	.01	29	26
QR90-13	1	36	18	105	.2	11	10	617	2.52	24	5	ND	3	88	.6	2	2	37	2.15	.044	21	8	.64	69	.01	5	1.52	.06	.19	1	6
QR90-14	1	157 ✓	11	112	.2	107	31	3382	6.30	15	5	ND	6	298	.9	2	2	123	4.39	.249	50	227	4.22	111	.12	2	3.43	.09	.15	1	6
QR90-15	5	28468 ✓	90	204	14.2	24	19	4619	7.94	123	5	ND	2	109	2.9	3	38	57	2.54	.124	10	24	.26	38	.05	8	.42	.01	.03	42	69
QR90-16	5	2806	98	91	8.8	12	14	2182	5.72	20	5	ND	1	79	1.2	3	9	16	3.78	.084	4	23	.21	39	.06	2	.28	.01	.01	21	45
QR90-17	9	5695	138	141	3.7	18	19	2486	12.11	59	7	ND	2	83	3.3	2	23	13	8.46	.044	2	6	.11	23	.01	3	.18	.01	.03	42	6
IN90-1	3	58	6	39	.2	33	11	170	2.44	7	5	ND	15	80	.2	2	2	29	1.65	.057	25	48	.62	37	.09	2	3.84	.20	.15	1	1
IN90-2	19	43	49	7	1.4	19	7	217	6.77	184	5	ND	6	31	.2	4	2	7	1.07	.472	14	18	.18	20	.01	9	.41	.03	.12	60	48
IN90-3	1	10	3	3	.2	1	1	47	.04	3	7	ND	1	135	.2	2	2	1	33.99	.004	2	1	.89	30	.01	2	.10	.01	.02	1	1
STANDARD C/AU-R	18	58	40	131	6.9	73	31	1055	3.97	41	21	7	39	55	19.9	14	18	57	.45	.096	38	60	.90	182	.07	32	1.90	.06	.14	13	540

ICP - .500 GRAM SAMPLE IS DIGESTED WITH 3ML 3-1-2 HCL-HNO3-H2O AT 95 DEG. C FOR ONE HOUR AND IS DILUTED TO 10 ML WITH WATER.
THIS LEACH IS PARTIAL FOR MN FE SR CA P LA CR MG BA TI B W AND LIMITED FOR NA K AND AL. AU DETECTION LIMIT BY ICP IS 3 PPM.
- SAMPLE TYPE: ROCK AU* ANALYSIS BY ACID LEACH/AA FROM 10 GM SAMPLE.

DATE RECEIVED: NOV 14 1990 **DATE REPORT MAILED:** Nov 16/90. **SIGNED BY:** D.TOYE, C.LEONG, J.WANG; CERTIFIED B.C. ASSAYERS

✓ ASSAY RECOMMENDED

APPENDIX 2

Invincible Property - Ore Reserve Calculations

Invincible Tungsten Deposit
NTS 82F/3W
* A past producing Mine

INVINCIBLE ORE RESERVES (ACCESSIBLE)
CALCULATED BY CANEX - AUGUST 31, 1973
SOURCE - DEADFILE 73-08-V101-2B-0116 PLAN 1 INCH = 20 FEET

SECTION	PROBABLE			POSSIBLE			MARGINAL		
	SHORT TONS	GRADE	WT.FACTOR	SHORT TONS	GRADE	WT.FACTOR	SHORT TONS	GRADE	WT.FACTOR
9200N-9300N	130.00	0.50	65.00	120.00	0.50	60.00			0.00
9300N-9400N			0.00			0.00	180.00	0.45	81.00
			0.00			0.00	180.00	0.45	81.00
9400N-9500N	320.00	0.60	192.00			0.00			0.00
	759.00	0.70	531.30			0.00			0.00
	130.00	0.60	78.00			0.00			0.00
9500N-9600N	580.00	0.50	290.00	450.00	0.50	225.00	100.00	0.35	35.00
	500.00	0.60	300.00	490.00	0.40	196.00			0.00
	420.00	0.50	210.00	1120.00	0.55	616.00			0.00
	1300.00	0.65	845.00	620.00	0.50	310.00			0.00
			0.00	1180.00	0.50	590.00			0.00
9600N-9700N	500.00	0.80	400.00	550.00	0.55	302.50	640.00	0.35	224.00
	440.00	0.60	264.00	480.00	0.55	264.00			0.00
	570.00	0.70	399.00	270.00	0.60	162.00			0.00
	2530.00	0.60	1518.00	640.00	0.60	384.00			0.00
	280.00	0.70	196.00	760.00	0.50	380.00			0.00
	500.00	0.70	350.00			0.00			0.00
	1140.00	0.50	570.00			0.00			0.00
9700N-9800N	2100.00	1.20	2520.00	240.00	0.60	144.00	360.00	0.25	90.00
	1000.00	0.70	700.00	400.00	0.60	240.00			0.00
	140.00	1.00	140.00	860.00	0.60	516.00			0.00
	330.00	0.80	264.00			0.00			0.00
	780.00	0.60	468.00			0.00			0.00
	1030.00	0.65	669.50			0.00			0.00
	550.00	0.80	440.00			0.00			0.00
	50.00	0.60	30.00			0.00			0.00
9800N-9900N	380.00	0.60	228.00	1300.00	0.75	975.00			0.00
	3740.00	0.75	2805.00	380.00	0.50	190.00			0.00
9900N-10000N	200.00	0.65	130.00			0.00			0.00
	160.00	0.70	112.00			0.00			0.00
	280.00	0.75	210.00			0.00			0.00
10000N-10100N	800.00	0.75	600.00			0.00			0.00
	440.00	0.55	242.00			0.00			0.00
	440.00	0.60	264.00			0.00			0.00
	1100.00	0.60	660.00			0.00			0.00
10100N-10200N			0.00			0.00			0.00
10200N-10300N	110.00	0.50	55.00	850.00	0.50	425.00	100.00	0.40	40.00
	100.00	0.50	50.00			0.00	70.00	0.35	24.50
	290.00	0.60	174.00			0.00			0.00
	640.00	0.50	320.00			0.00			0.00
	470.00	0.55	258.50			0.00			0.00
	1090.00	0.60	654.00			0.00			0.00
10300N-10400N	100.00	0.60	60.00			0.00	720.00	0.40	288.00
	610.00	0.60	366.00			0.00			0.00
	100.00	0.50	50.00			0.00			0.00
10400N-10500N	180.00	0.70	126.00			0.00	180.00	0.45	81.00
	150.00	0.70	105.00			0.00			0.00

	330.00	0.70	231.00			0.00			0.00
	580.00	0.60	348.00			0.00			0.00
	160.00	0.60	96.00			0.00			0.00
	340.00	0.50	170.00			0.00			0.00
	75.00	0.60	45.00			0.00			0.00
	700.00	0.80	560.00			0.00			0.00
10500N-10600N	220.00	0.50	110.00			0.00	940.00	0.30	282.00
	210.00	0.80	168.00			0.00			0.00
	590.00	0.70	413.00			0.00			0.00
	100.00	0.50	50.00			0.00			0.00
	75.00	0.55	41.25			0.00			0.00
	1400.00	0.55	770.00			0.00			0.00
10600N-10700N	460.00	0.50	230.00	360.00	0.85	306.00	360.00	0.40	144.00
	120.00	0.70	84.00			0.00	1060.00	0.45	477.00
	350.00	0.55	192.50			0.00			0.00
	300.00	0.90	270.00			0.00			0.00
	300.00	0.90	270.00			0.00			0.00
	130.00	0.90	117.00			0.00			0.00
	400.00	1.00	400.00			0.00			0.00
	610.00	0.90	549.00			0.00			0.00
	870.00	0.85	739.50			0.00			0.00
	330.00	0.60	198.00			0.00			0.00
	980.00	0.60	588.00			0.00			0.00
	980.00	0.50	490.00			0.00			0.00
	620.00	0.90	558.00			0.00			0.00
	290.00	0.85	246.50			0.00			0.00
10700N-10800N	250.00	0.90	225.00	900.00	0.60	540.00	1150.00	0.30	345.00
	1820.00	0.65	1183.00	850.00	0.70	595.00			0.00
	2100.00	0.65	1365.00			0.00			0.00
	160.00	0.55	88.00			0.00			0.00
	170.00	0.50	85.00			0.00			0.00
10800N-10900N	120.00	0.70	84.00			0.00			0.00
	300.00	0.60	180.00			0.00			0.00
	500.00	0.65	325.00			0.00			0.00
10900N-11000N	210.00	0.50	105.00			0.00	210.00	0.35	73.50
	300.00	0.60	180.00			0.00			0.00
	420.00	0.50	210.00			0.00			0.00
11000N-11100N	400.00	0.50	200.00			0.00			0.00
	240.00	0.50	120.00			0.00			0.00
11100N-11200N			0.00			0.00			0.00
11200N-11300N			0.00			0.00			0.00
TOTALS	45969.00		31194.05	12820.00		7420.50	6250.00		2266.00

SUMMARY

PROBABLE RESERVES
45,969 TONS AVERAGING 0.68% WO3
ie., 31,194 UNITS

POSSIBLE RESERVES
12,820 TONS AVERAGING 0.58% WO3
ie., 7,420.5 UNITS

MARGINAL RESERVES
6,250 TONS AVERAGING 0.36% WO3
ie., 2,266 UNITS

These reserves are accessible from the underground workings

GEOLOGICAL ASSOCIATION OF CANADA
FELLOW

Invincible Tungsten Mine
NTS 82 F/3W

INVINCIBLE ORE RESERVES (INACCESSIBLE)
CALCULATED BY CANEX - AUGUST 31, 1973
SOURCE - DEADFILE 73-08-V101-2B-0116 PLAN 1 INCH = 20 FEET

SECTION	PROBABLE ✱ SHORT TONS	GRADE	WT.FACTOR	POSSIBLE △ SHORT TONS	GRADE	WT.FACTOR	MARGINAL ▽ SHORT TONS	GRADE	WT.FACTOR
9100N-9200N	280.00	0.70	196.00	130.00	0.50	65.00			0.00
	780.00	1.15	897.00	350.00	0.70	245.00			0.00
	480.00	0.50	240.00	350.00	0.70	245.00			0.00
			0.00	220.00	0.45	99.00			0.00
			0.00	220.00	0.45	99.00			0.00
9200N-9300N	320.00	0.50	160.00	150.00	0.50	75.00			0.00
			0.00	150.00	0.50	75.00			0.00
9400N-9500N	210.00	0.55	115.50	117.00	0.50	58.50	1280.00	0.40	512.00
			0.00	270.00	0.30	81.00			0.00
			0.00	540.00	0.30	162.00			0.00
10600N-10700N	390.00	0.60	234.00			0.00			0.00
10700N-10800N	700.00	0.80	560.00			0.00			0.00
	200.00	0.50	100.00			0.00			0.00
10900N-11000N			0.00	680.00	0.40	272.00	642.00	0.45	288.90
11000N-11100N			0.00	1360.00	0.40	544.00			0.00
11200N-11300N	120.00	0.60	72.00			0.00			0.00
	150.00	0.55	82.50			0.00			0.00
TOTALS	3630.00		2657.00	4537.00		2020.50	1922.00		800.90

SUMMARY

✱ PROBABLE RESERVES (PRESENTLY INNACCESSIBLE)
3,630 TONS AVERAGING 0.73% WO3
ie., 2,657 UNITS

△ POSSIBLE RESERVES (PRESENTLY INACCESSIBLE)
4,537 TONS AVERAGING 0.45% WO3
ie., 2,0205 UNITS

▽ MARGINAL RESERVES (PRESENTLY INACCESSIBLE)
1,922 TONS AVERAGING 0.42% WO3
ie., 801 UNITS

These reserves are presently inaccessible from the underground workings.

GEOLOGICAL ASSOCIATION OF CANADA
A. J. BORONOWSKI
FELLOW