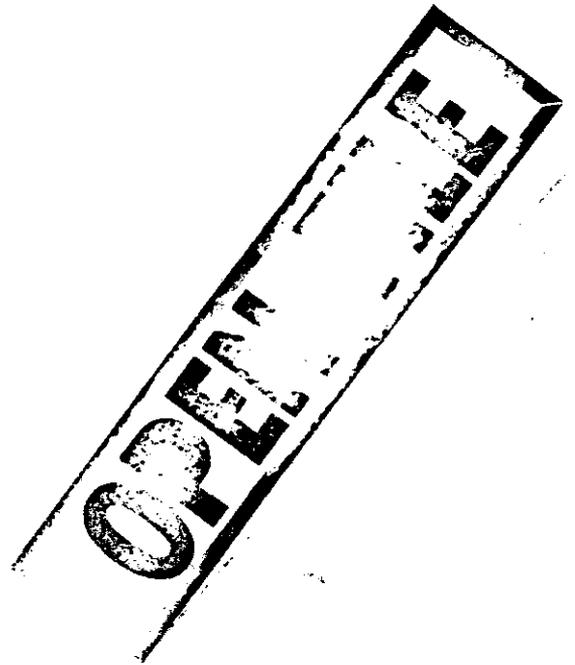


ANNUAL REPORT 88/89
E14/86 - HUSKISSON RIVER

89-2998



604001

88-2998	
File Ref.	EL14/86
28 JUL 1989	
Doc. Ref.	
Action Officer	Initials
LETTER	
24.6.89	
REFERS	
Resubmit to	Date

ANNUAL REPORT 88/89
H14/86 - HUSKISSON RIVER

Stream sediment samples forwarded during 1988 (shown on the 87/88 stream sediment survey sheet figure 3) were further processed to define the mineralogical suite. Priority was initially given to samples arising from the high level gravels (previously examined by Renison) in the north east corner of the lease.

Huskisson River tributaries in this region (designated tributaries 4 and 5 on the sample schedule) have previously been described in Renison reports as being "tin free". Samples from these streams were reported by the prospector to contain ruby tin (Annual Report 1987/88). This was confirmed by laboratory examination of the reconstituted samples which involved:

- 1 Dry Screening to remove plus 2mm oversize
- 2 Wet Tabling to remove low SG components and produce a gravity concentrate
- 3 Magnetic separation via a lift disc magnet to remove magnetite in the first pass and most of the chromite in the second treatment of the gravity concentrate
- 4 Non magnetics from this separation were subjected to sink/float processing in tetra bromo ethane (of SG 2.90). The light (float) fraction was discarded
- 5 Microscopic examination of the sink-non magnetic fraction.

The mineralogical data is detailed in the attached reports from Dr. R. Townend of Analabs, Perth, WA - Appendices A & B.

Chemical Analysis of the chromite rich (second magnetic) product is detailed in appendix C.

It was noted that in the suite submitted for examination in report 1000.007.602 of 10th November 1988 (appendix B) showed that cassiterite was also dominant for the non magnetics sample H3SS23 which was located on the eastern Chromite Creek, side

of the Huskisson.

Mineralogical examination (using the above procedure) was therefore conducted on the Chromite Creek stream sediment.

For these samples examination of the non magnetics-sink products was initially done by binocular microscope (using reflected light) to identify platinoids and gold. This was followed by "tinning" - using dilute hydrochloric and a zinc block, to coat the cassiterite grains with metallic tin to aid identification. The attached tabulation details the findings.

Cassiterite was commonly identified in the samples as was chromite

Sample	Location	Precious Metals	Other
CHRSS	1	1 fine gold	cassiterite
CHRSS	2	15 fine gold, (all flattened)	cassiterite
CHRSS	3	2 osmiridium, 24 fine gold	cassiterite
CHRSS	4	6 fine gold	cassiterite
CHRSS	5	6 osmiridium, 1 fine gold	cassiterite
CHRSS	8	no p.m.'s observed	cassiterite
CHRSS	10	1 coarse gold	cassiterite
CHRSS	14	1 fine gold	cassiterite
CHRSS	15	2 fine gold	cassiterite
CHRSS	16	6 fine gold	cassiterite
CHRSS	17	1 fine gold	cassiterite
CHRSS	18	1 fine gold	abundant chromite
CHRSS	19	no p.m.'s observed	cassiterite
CHRSS	20	1 osmiridium, 10 fine gold	cassiterite
CHRSS	21	19 fine gold	cassiterite
CHRSS	22	no p.m.'s observed	cassiterite plus sulphide (cubic pyrite present)

<u>Sample</u>	<u>Location</u>	<u>Precious Metals</u>	<u>Other</u>
H4SS	1	1 coarse, 3 fine gold	cassiterite
H4SS	2	2 coarse, 1 fine gold	cassiterite
H4SS	3	1 coarse gold	cassiterite
H4SS	6	no p.m.'s observed	cassiterite
H4SS	7	1 coarse gold	cassiterite
H4SS	8	no p.m.'s observed	cassiterite
H4SS	9	1 coarse gold	cassiterite
H3SS	24	1 fine gold	cassiterite
H5SS	1	1 fine gold	cassiterite
SSSS	2	2 fine gold	nil
SSSS	4-10	no p.m.'s observed	nil
inclusive (7)			
McASS	1-8	no p.m.'s observed	nil
inclusive (8)			
McAT1-McA3		no p.m.'s observed	nil
6 samples			

These observations suggest that the high level gravels in the north east corner of the lease together with those (commented on by McIntosh Reid) in the Chromite Creek catchment are the possible source of cassiterite and gold together with chromite and osmiridium.

Careful examination of Tasmanian Lands Department aerial colour photographs for the lease and adjacent areas showed that the north east sequence of high level gravels lies predominantly within the lease. For the Chromite Creek area, photo interpretation shows that gravels may also occur in the adjacent eastern lease - E18/86. Figure 1 outlines these features.

Follow up investigations, to define the size and grade of these mineralised gravels is planned for the next field season.

Examination of a selection of the remaining stream sediment samples is given in Appendix D herewith. None of these is considered significant and follow up work is not planned for areas outside those mentioned above.

Examination of stream sediments from streams in south east corner of the lease - King, Bealey and Barnes Creeks showed minor levels of gold in samples BCSS1, 5, 6A, 6B, 8, 9 and 10, KISS 1B, 2, 3, and 4, K2SS1 and BLYSS1. Cassiterite was not significant in this area and continued exploration of the alluvials in the south east corner of the lease is not warranted.



R F Blanks

Consulting Metallurgist for Black Horse Mining N.L.

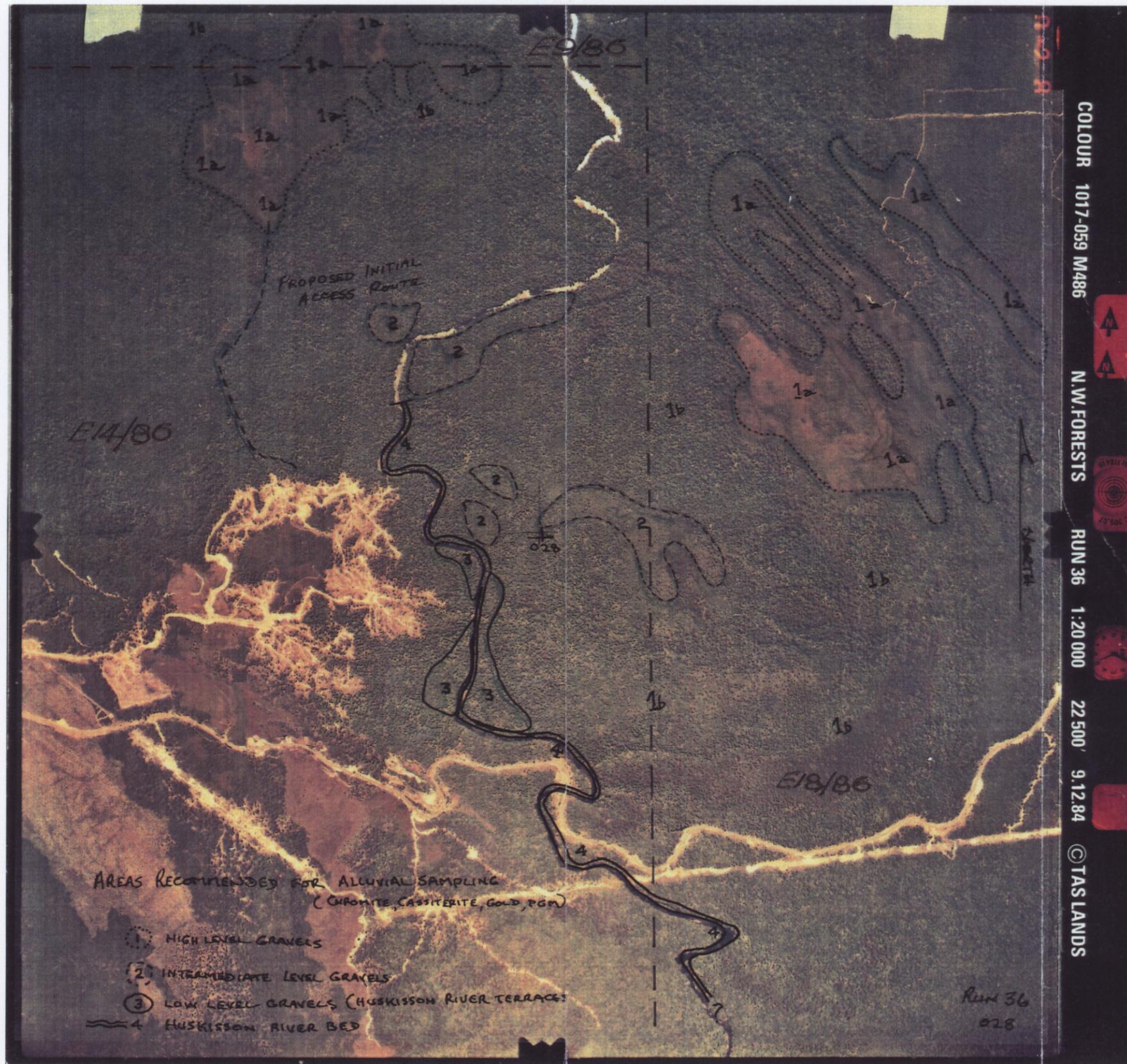


FIGURE 1

604006

Appendix A

Dr R Blanks,
Metskill,
203 The esplanade,
Mt Pleasant

2-11-88

1000 0 07 590

o/n 29732

Preparation of 6 polished sections and
Mineragraphic examinations of 6 non mags. (Wilson
River).

R Townend



Sample 23 N Mags.

*Buttergrass Plain**Hole 23**Batch 1 Concentrate*

Polished section

Non Mag. (Minus 1.4 mm)

Chromite	major
Pyrite	major
Arsenopyrite	accessory
Marcasite	accessory
Chalcopyrite	accessory
Goethite	accessory
Galena	trace
Martite	trace
Leucoxene	trace
Sphalerite	trace
Pyrrhotite	trace
Cassiterite	trace
Bismuth.	trace

The section is dominantly composed of discrete Chromite and Pyrite. A little chromite also occurs in limonite. The chromites are fresh, subhedral, non porous and widely sized. Pyrite is fresh, single crystals and aggregates and uncommonly can be rounded.

Sphalerite, chalcopyrite and galena are inclusions in pyrite. Pyrrhotite and arsenopyrite are discrete and fresh, the latter to 0.4mm. Native Bi was included in the arsenic species. One cassiterite grain was confirmed by SEM.

Sample 24 N mags.

*Buttergrass Plain Hole 24
 Hatched 1 Concentrate
 Non Mags (minus 14mm)*

Polished section

Pyrite	major
Chromite	major
Limonite	minor
Marcasite	accessory
Sphalerite	accessory
Chalcopyrite	accessory
Leucoxene	rare
Galena	rare
Arsenopyrite	rare
Pyrrhotite	rare
Ilmenite	rare

The sample is about 80% opaques. These are mainly chromite and pyrite. The chromite is mainly single discrete fresh non porous grains, rarely it is included in limonite/goethite. The fresh pyrite is either a single crystal or aggregates. Galena, pyrrhotite, and sphalerite can be inclusions in pyrite. Sphalerite also occurs composite with chalcopyrite, to 0.4mm. Chalcopyrite can be a discrete mass to 0.5mm.

Arsenopyrite may be a rhomb within gangue, and marcasite are separate aggregates.

Sample 25 N.Mags.

*Buttergrass Plain - Hole 25
Hutch 3 Concentrate
Non Mags (Minus 1.4mm)*

Polished section

Chromite major
Pyrite major
Leucoxene accessory
Arsenopyrite accessory
Sphalerite accessory
Chalcopyrite trace
Limonite accessory
Galena trace

The ores are about 90% of the section. They are dominated by chromite almost always present as fresh single non porous crystals. Pyrite is also fresh and discrete. Sphalerite and chalcopyrite may be inclusions in pyrite, while the zinc mineral is also composite to 0.4mm with galena. Arsenopyrite is fresh in aggregates:

Sample H 4554

*Hudson River Tributary 4
Stream Sediment Sample 4
(Refer Hudson River Report)*

Polished section

Cassiterite	dominant
Leucoxene	accessory

The sample is about 90% ores of which the bulk appear to be Cassiterite. This occurs mostly as twinned crystals that are from 0.25 to 1mm sizes. Rare concentric "wood" tin is visible. Microcrystalline leucoxene is the main contaminant? There are some inclusions in the cassiterite, not identified, but possibly not tantalite columbite.

Sample H 4555

Huskisson River Tributary 4

Polished section

*Stream Sediment Sample 5**Ref. Huskisson River Report*

Cassiterite	major
Chromite	major
Magnetite	trace
Rutile	trace
Leucoxene	trace

This sample is a concentrate of cassiterite and chromite. Both are essentially discrete. The cassiterite may be twinned, and crystal size is quite variable. The chromite is fresh non porous and as single crystals.

Sample H 5552

Huskisson River Tributary 5

Polished section

*Stream Sediment Sample 2**Ref. Huskisson River Report*

Chromite	major
Cassiterite	major
Leucoxene	accessory

This is similar to sample H 4555, ie consists essentially of discrete cassiterite and chromite. The cassiterite varies in size and texture, some is possibly of a microcrystalline nature, rather like leucoxene? A few inclusions in cassiterite were not identified but may be iron oxide rather than tantalite gp.

PHOTO 1 23 N MAGS . BISMUTH INCLUSIONS IN ARSENOPYRITE.
NIC UNC. FIELD WIDTH 0.54MM

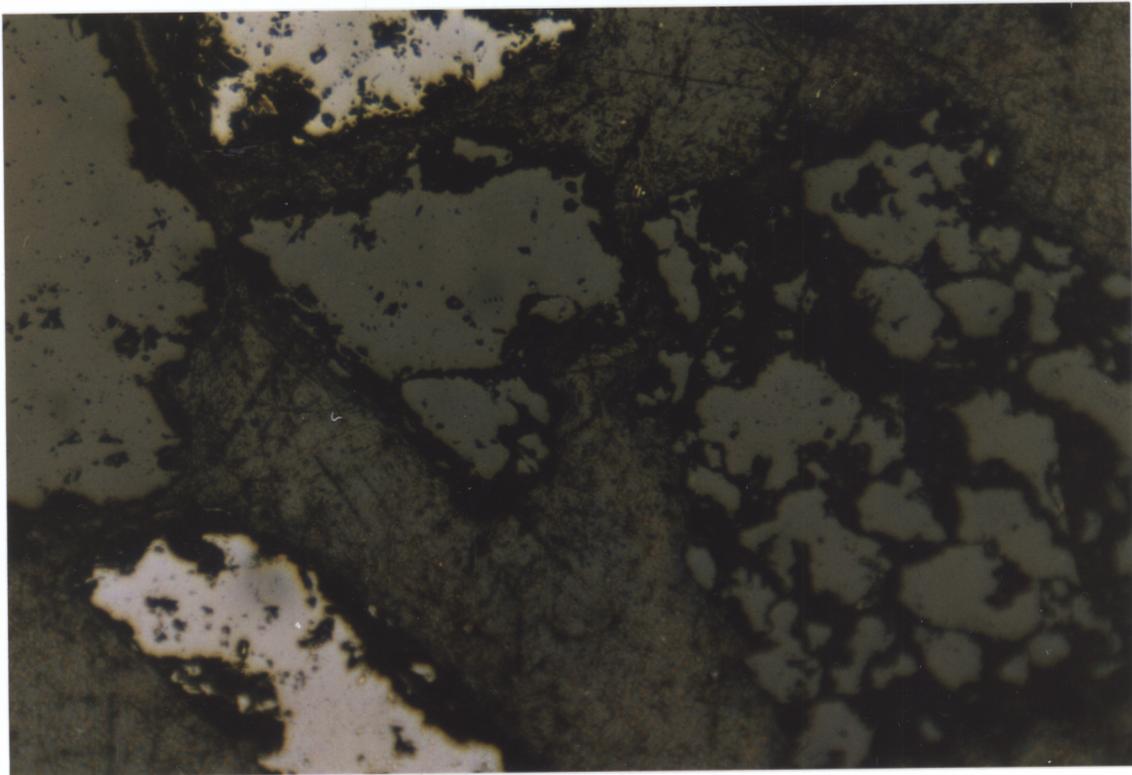
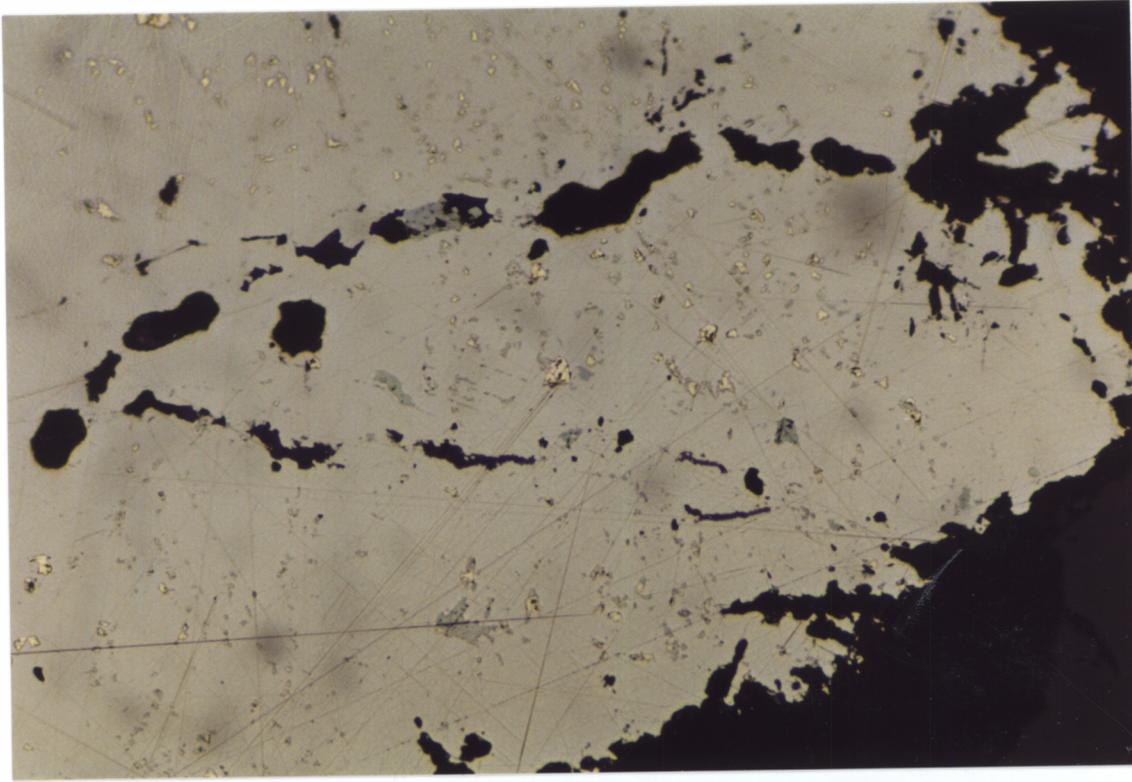


PHOTO 2 H 4555 CASSITERITE CHROMITE CONCENTRATE.
NIC UNC. FIELD WIDTH 1MM

604013

Appendix B

Dr R Blanks,
Metskill,
203 The Esplanade,
Mt Pleasant,
WA

10-11-88

1000 0 07 602

Preparation of 9 polished sections and
mineragraphic examination of 9 concs.

R Townend

Note Non Magnetic Products prepared from
H3-H5 tributaries of the Hurkison River stream
sediment samples. Most of the chromite has
been removed by magnetic separation and the
resulting leaves concentrated by T.B.E. separation
to remove quartz and other light minerals

R.B.
18.11.88

SUMMARY

All samples contain discrete cassiterite as the dominant constituent. Discrete chromite is the main associate. The cassiterite is mainly present as single/double crystals, but there is also a microcrystalline variety that grades into a "wood tin" type. Inclusions within the tin oxide are rare, and appear to be either iron or Ti oxide.

The other gangue include rutile/leucoxene, and rare iron oxides. Non opaque gangue appears to be rare.

SAMPLE H 4551

Polished section

Cassiterite	dominant ✓
Chromite	minor
Limonite	accessory
Leucoxene	accessory
Rutile	accessory
Hematite	trace

The cassiterite is dominant as medium to coarse grains. There are a number of types. Most are single crystals, some being simple twins. There are also aggregates and microcrystalline types. Several of the latter have concentric patterns, ie are Wood Tin. Inclusions appear rare, and may be hematite or rutile.

The chromite is discrete, as fresh non porous crystals, typically 0.2-0.5mm. The other minerals are also discrete and probably finer than the cassiterite on average.

SAMPLE H 4552

Polished section

Cassiterite	dominant ✓
Chromite	accessory
Rutile	accessory
Goethite	accessory

The sample is a cassiterite concentrate with more than 90% of the mineral as medium to coarse grains, similar to H 4551. Rarely there are inclusions of rutile, with exceptionally one equal composite.

The chromite is equally coarse and discrete.

SAMPLE H4553

Polished section

Cassiterite	dominant ✓
Chromite	accessory
Rutile	accessory
Goethite	accessory
Pyrite	trace

This sample is very similar to H4552

SAMPLE H4556

Polished section

Cassiterite	dominant ✓
Chromite	accessory
Rutile	accessory
Leucoxene	accessory

This sample is very similar to H 4553, except that rutile is more abundant.

SAMPLE H4557

Polished section

Cassiterite	dominant ✓
Chromite	accessory to minor
Rutile	accessory
Leucoxene	trace

The cassiterite dominant sample has more chromite than H4556, while rutile is less. Composite grains are again negligible.

SAMPLE H4558

Polished section

Cassiterite	dominant ✓
Chromite	accessory
Rutile	accessory
Leucoxene	trace

Similar to H4557.

SAMPLE H 4559

Polished section

Cassiterite	dominant ✓
Chromite	accessory
Rutile	trace

This sample is particularly rich in cassiterite, with the various varieties as above. A few grains have inclusions of rutile.

SAMPLE H 5551

Polished section

Cassiterite	dominant ✓
Chromite	minor to accessory
Rutile	accessory
Limonite	trace

This has rather more chromite than some of the previous samples. There are rare composites of cassiterite and rutile.

SAMPLE 35524 — *H35524 This is from Chromite Creek side of the Hudson.*

Polished section

Cassiterite	dominant ✓
Chromite	accessory
Rutile	accessory
Leucoxene	trace
Pyrite	trace
Limonite	trace
Ilmenite	trace

The cassiterite can have inclusions of rutile and rarely ilmenite. There was an instance of sulphide included also. Pyrite was also discrete.

PHOTO 1 (LEFT) - ZIRCONIUM DE-AC "WOOD-TIN"
NIO UNCL. FIELD WIDTH = 0.5 MM

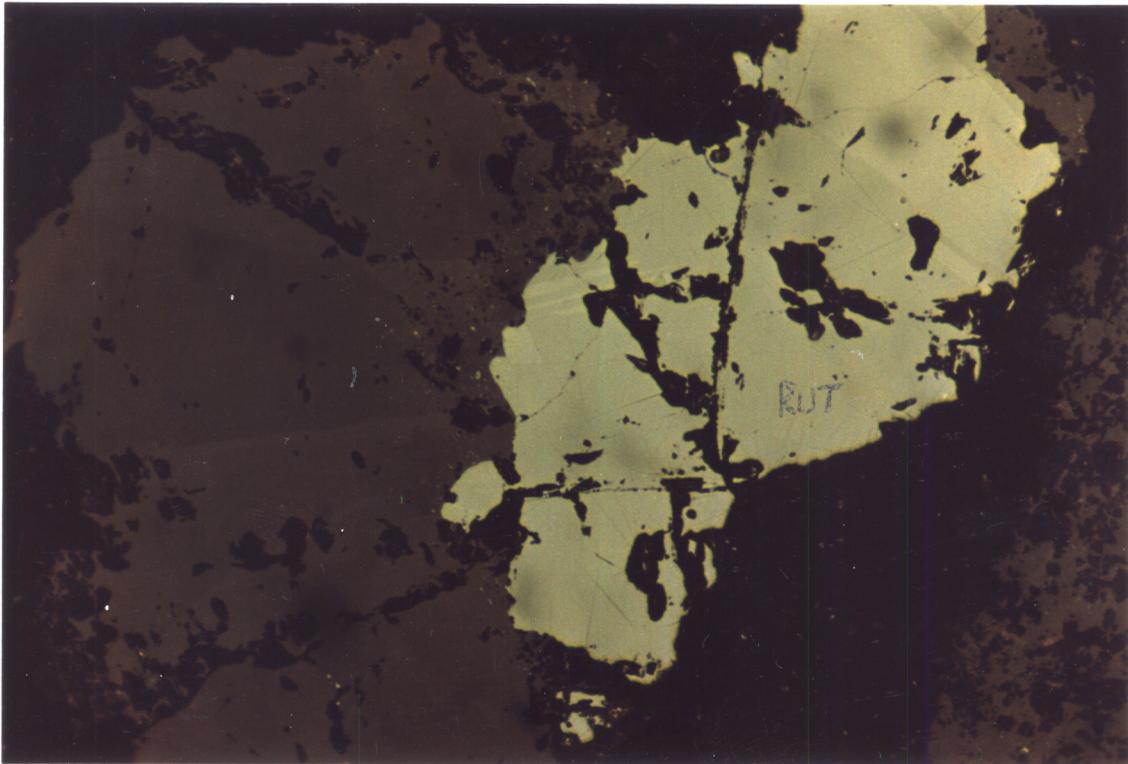
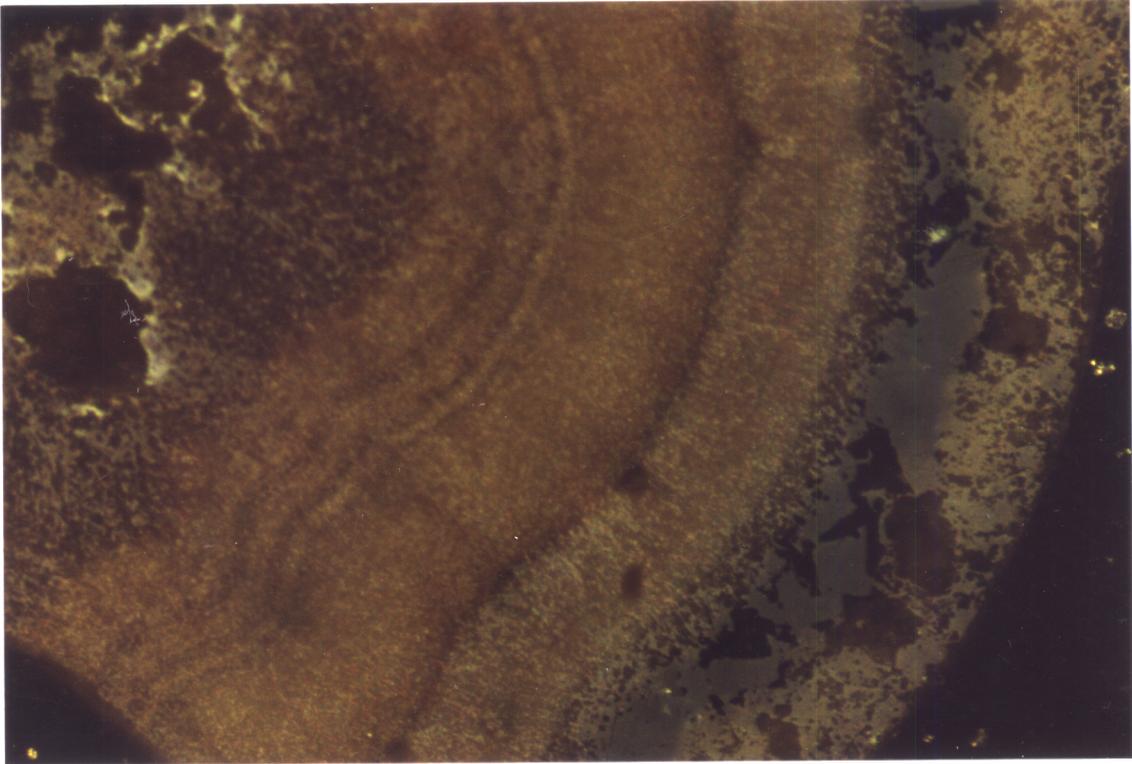


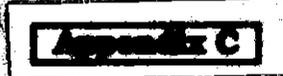
PHOTO 2 (LEFT) - CASSITERITE-RUTILE COMPOSITE - NIO UNCL.
FIELD WIDTH = 0.5MM

604020



ANALABS

A Division of Incharge Inspection and Testing Services Australia Pty Ltd



Phone (09) 4587999

52 Murray Road, Weishpool, W.A. 6106

Fax (09) 4582922

ANALYTICAL REPORT No.

198.0.01.62982

THIS REPORT MUST BE READ IN CONJUNCTION WITH THE ACCOMPANYING ANALYTICAL DATA

INVOICE TO:

METSKILL
203 THE ESPLANADE

MT PLEASANT WA 6153

ORDER No.

PROJECT

29730

Husk River

DATE RECEIVED

RESULTS REQUIRED

21/10/88

ASAP

No. OF PAGES OF RESULTS

DATE REPORTED

No. OF COPIES

TOTAL No. OF SAMPLES

1

24/11/88

1

5

SAMPLE NUMBERS	SAMPLE DESCRIPTION	ELEMENT/METHOD
1202/5, 1205/6, 1209	Prep : 016	Cr 203, Al 203, Si 02, Ti 02/406
1202/3, 1205/6, 1209	Prep :	Fe 203/406
1202/3, 1205/6, 1209	Prep : 5 off - 1 AMP MAGNETICS PRODUCTS	MgO/104
1202 1203 1205 1206 1209	PIT 22 WILSON RIVER H4SS4 HUSKISSON RIVER H5SS2 HUSKISSON RIVER H4SS5 HUSKISSON RIVER TRIBUTARY CREEK	

REMARKS

RESULTS

METSKILL
203 THE ESPLANADE

TO

MT PLEASANT WA 6153

RESULTS

TO

RESULTS

TO

AUTHORISED OFFICER

604021

ANALABS

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ANALYTICAL DATA

SAMPLE PREFIX

REPORT NUMBER

REPORT DATE

CLIENT ORDER No

PAGE

198.0.01.60982

24/11/88

29730

1 OF 1

TUBE No	SAMPLE No	Cr2O3	Al2O3	TiO2	SiO2	Fe2O3	MgO			
1	1202	58.9	8.86	0.16	0.3	22.0	9.75			
2	1203	63.4	5.14	0.08	0.4	20.7	8.51			
3	1205	62.3	4.72	0.20	0.5	21.8	8.57			
4	1206	51.6	5.29	0.21	0.6	23.0	8.67			
5	1209	54.9	9.07	0.56	0.5	26.4	9.07			
6										
7										
8										
9										
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11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23	DETECTION	0.1	0.05	0.01	0.01	0.1	0.05			
24	UNITS	%	%	%	%	%	%			
25	METHOD	406	406	406	199	406	408			

Results in ppm unless otherwise specified

T = element present, but concentration too low to measure

X = element concentration is below detection limit

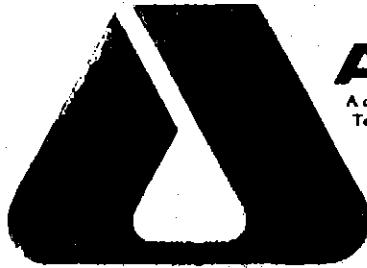
-- = element not determined

AUTHORISED
OFFICER

J. Sims

604022

Appendix D



ANALABS

A division of Inchcape Inspection and
Testing Services, Australia, Pty. Ltd.

Perth Head Office:

52 Murray Road, Welshpool, Western Australia 6106.

Tel: (09) 458 7999. Telex: AA92560. Fax: (09) 458 2922.

P.O. Box 210 Bentley, W.A. 6102.

Our ref: RGT001/kb

13 January 1989

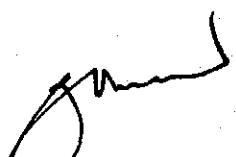
Metskill
203 The Esplanade
MT. PLEASANT WA 6153

Dear Sir,

Re: 1000.0.07.651
O/N 30651

Attached please find Mineralogical Examination of 18 Non-magnetic
Sand Concs.

Yours faithfully,
ANALABS - A division of
Inchcape Inspection and Testing
Services Australia Pty Ltd


ROGER TOWNEND



604023

Appendix D

INTRODUCTION

The concs. were completely examined by binocular microscope. A number of grains were checked by SEM/EDS.

TOBINI PAN CON

MAJOR: Zircon (v. fine)
Rutile

ACCESSORIES: Cassiterite
Quartz
Leucoxene
Bronzite
Chromite

RARE: Spinel

TC-SS-3

MAJORS: Rutile black
Chromite
Hematite
Limonite not so common

MINOR: Cassiterite

ACCESSORIES: Topaz
Amphibole
Kyanite
Leucoxene
Zircon
Tourmaline
Almandine/grossular
Bronzite
Monazite
Cu mineral

RARE: Epidote
Hornblende
Spinel

TC-TI-SS-4

MAJOR: Chromite
Cassiterite

MINOR: Monazite
Zircon
Quartz

ACCESSORIES: Rutile
Leucoxene
Tourmaline

TRACES: Kyanite
Almandine/grossular
Anatase
Tremolite
Zn spinel (plus 2 Mg Fe Al) ∞
Bronzite

RARE: Gold flakes (2 grains)
Topaz
Sulphide (FeS₂)

BLU-SS-3

MAJOR: Cassiterite

MINOR: Chromite

ACCESSORIES: Leucoxene
Zircon
Bronzite
Kyanite
Rutile
Th monazite
Sillimanite

TRACE: Anatase
Chlorite

TC-TI-SS-5 NON MAGNETIC

MAJOR: Cassiterite

MINOR: Opaques - Chromite
- Limonite
- Hematite
Topaz

ACCESSORIES: Zircon
Monazite and Th monazite
Rutile
Tourmaline
Leucoxene
Quartz (Fine)

TRACES: Bronzite
Anthophyllite?
Altered biotite
Xenotime

RARE: Gold (two grains, rounded, flat)
Zn spinel

TC-SS-8

MAJOR: Opaques - Chromite

MINOR: Cassiterite

ACCESSORIES: Leucoxene
Zircon
Tourmaline
Bronzite
Rutile
Almandine/grossular
Monazite
Kyanite
Topaz

RARE: Gold (two massive grains)
Epidote
Ru bearing Osmiridium (one grain)

BCK-SS-3

MAJOR: Chromite

MINOR: Cassiterite
Bronzite

ACCESSORIES: Zircon
Rutile
Topaz
Th monazite
Leucoxene
Tourmaline

TRACES: Anatase

RARE: Gold (2 grains)

TC-SS-7

MAJOR: Cassiterite
Chromite
Quartz

ACCESSORIES: Topaz
Zircon
Kyanite
Rutile
Leucoxene

TRACES: Hornblende
Almandine/grossular
Epidote

BLY-SS-1

MAJOR: Topaz
Quartz
Chromite

MINOR: Cassiterite

ACCESSORIES: Rutile
Leucoxene
Zircon
Th monazite
Bronzite
Sapphire
Kyanite
Almandine/grossular
Tourmaline
Tremolite

TRACES: Anatase
Gold (3 grains flat) (2 v.v. small grains)
Uvarovite

PS-LW-3

MAJOR: Bronzite

MINOR: Cassiterite
Chromite

ACCESSORIES: Tourmaline
Almandine/grossular
Uvarovite
Cu mineral?
Topaz
Rutile
Zircon

BLU-SS-4

MAJOR: Opaques - Chromite

MINOR: Cassiterite
Topaz

ACCESSORIES: Leucoxene
Rutile
Zircon (some have Hf)
Monazite
Bronzite

The Chromite analysed were poor in Mg but very rich in Cr (6-7) to (1 Fe).

BCK-SS-1

MAJOR: Cassiterite

MINOR: Topaz

ACCESSORIES: Chromite
Zircon
Rutile
Leucoxene
Hornblende
Monazite
Tourmaline
Altered bostite ?

TRACES: Bronzite
Garnet
Anatase

RARE: Gold flake (1 grain)
Gold massive (1 grain)

TC-SS-6

MAJOR: Chromite

MINOR: Cassiterite
Topaz

ACCESSORIES: Leucoxene
Rutile
Tourmaline
Bronzite
Zircon
Kyanite
Garnet

RARE: Epidote
Ru bearing Osmiridium x
Mica

BC-SS-4

(Barnes C - SS - 4)

MAJOR: Cassiterite

MINOR: Monazite and Th monazite
Topaz
Opagues - Chromite
- Hematite?

ACCESSORIES: Zircon
Rutile
Garnet
Bronzite
Leucoxene

RARE: Gold (flat)
Corundum (sapphire?)

BC-SS-2

MAJOR: Chromite
Cassiterite

MINOR: Bronzite
Monazite

ACCESSORIES: Zircon
Tourmaline
Leucoxene
Rutile
Hornblende
Zn > Fe spinel x
Garnet
Andalusite
Topaz

TRACES: Kyanite

CHR-SS-7

MAJOR: Quartz

MINOR: Andalusite/Topaz
Cassiterite
Leucoxene
Chromite (octahedra, rounded and anhedral)

VERY MINOR: Zircon

ACCESSORIES: Bronzite

TRACES: Anatase
Magnetite

TC-SS-1

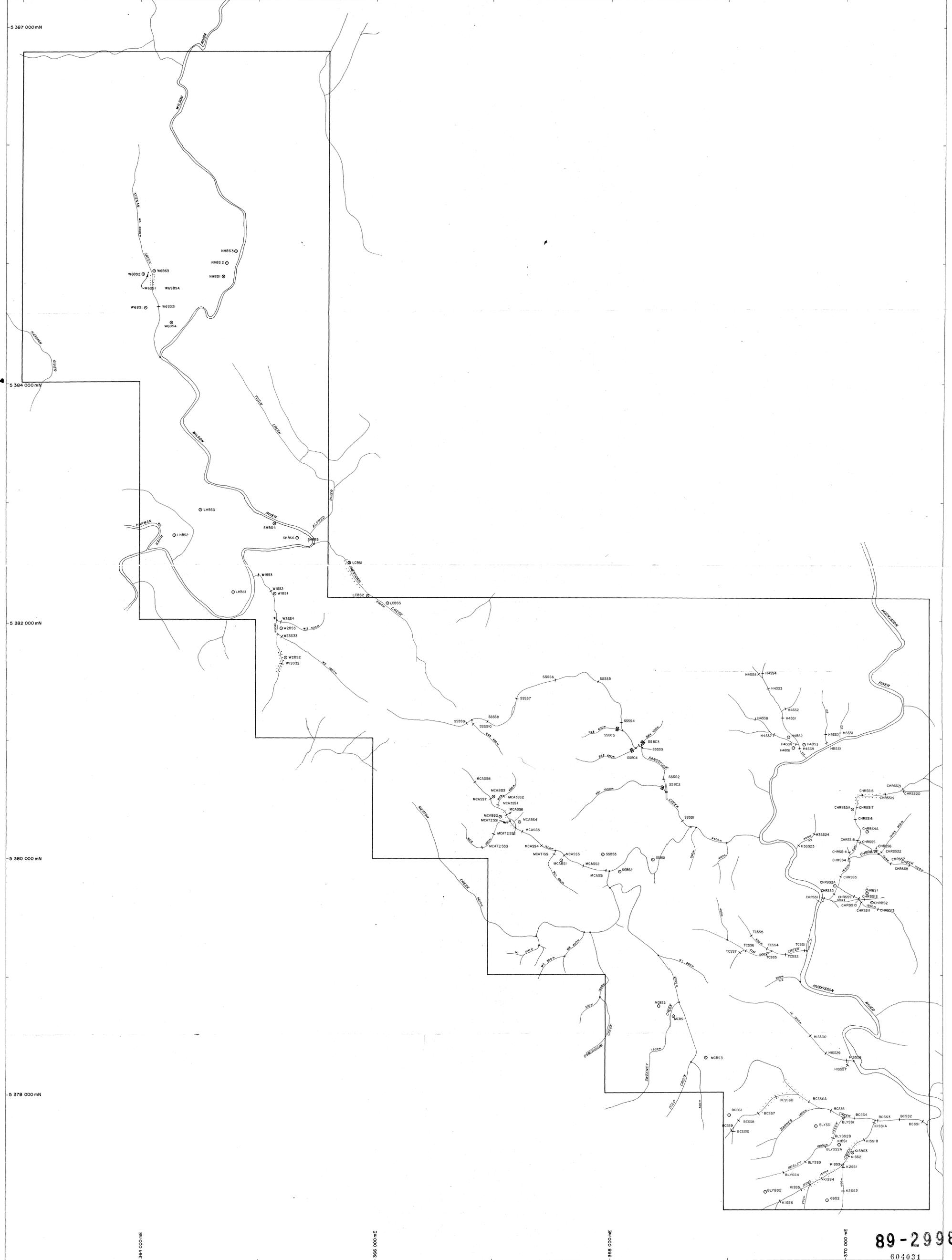
MAJOR: Quartz

MODERATE: Chromite

V. V. MINOR: Zircon
Hematite
Cassiterite

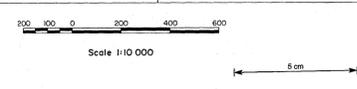
ACCESSORIES: Martite
Monazite
Andalusite

TRACES: Tourmaline
Bronzite
Garnet
Leucoxene
Tremolite
Muscovite
Anatase



5 387 000 mN
5 384 000 mN
5 382 000 mN
5 380 000 mN
5 378 000 mN

364 000 mE
366 000 mE
368 000 mE
370 000 mE



STREAM SEDIMENT SURVEY

1987/88

- LEGEND**
- Bulk Soil Sample
 - ✕ Stream Sediment Sample
 - Bulk Cyanide Sample
 - △ Alluvial Workings
 - Tributary Junction (distance measure point)
100m distance between measure points (metres)

89-2998
604031

BLACK HORSE MINING N.L.
HUSKISSON RIVER TASMANIA
E 14/86

Date	July, 1988	Compiled	Timon Mining
Drawn	Carto-graphix	Figure no.	3

