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AMOCO MINERALS AUSTRALIA COMPANY

DISC 194
PART PROJECT A-80-82

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	DEPT. OF MINES			
REF. No.	5215/85			

COMBINED FINAL REPORT

AND PROGRESS REPORT

TWELVE MONTHS TO JULY 1985

EXPLORATION LICENCE 32/82

WELDBOROUGH, TASMANIA

J SUPPREE

APRIL 1985

REPORT 436

DISTRIBUTION

- o Denver
- Mines Department
- o Sydney
- o Field
- o Spare
- o Trade

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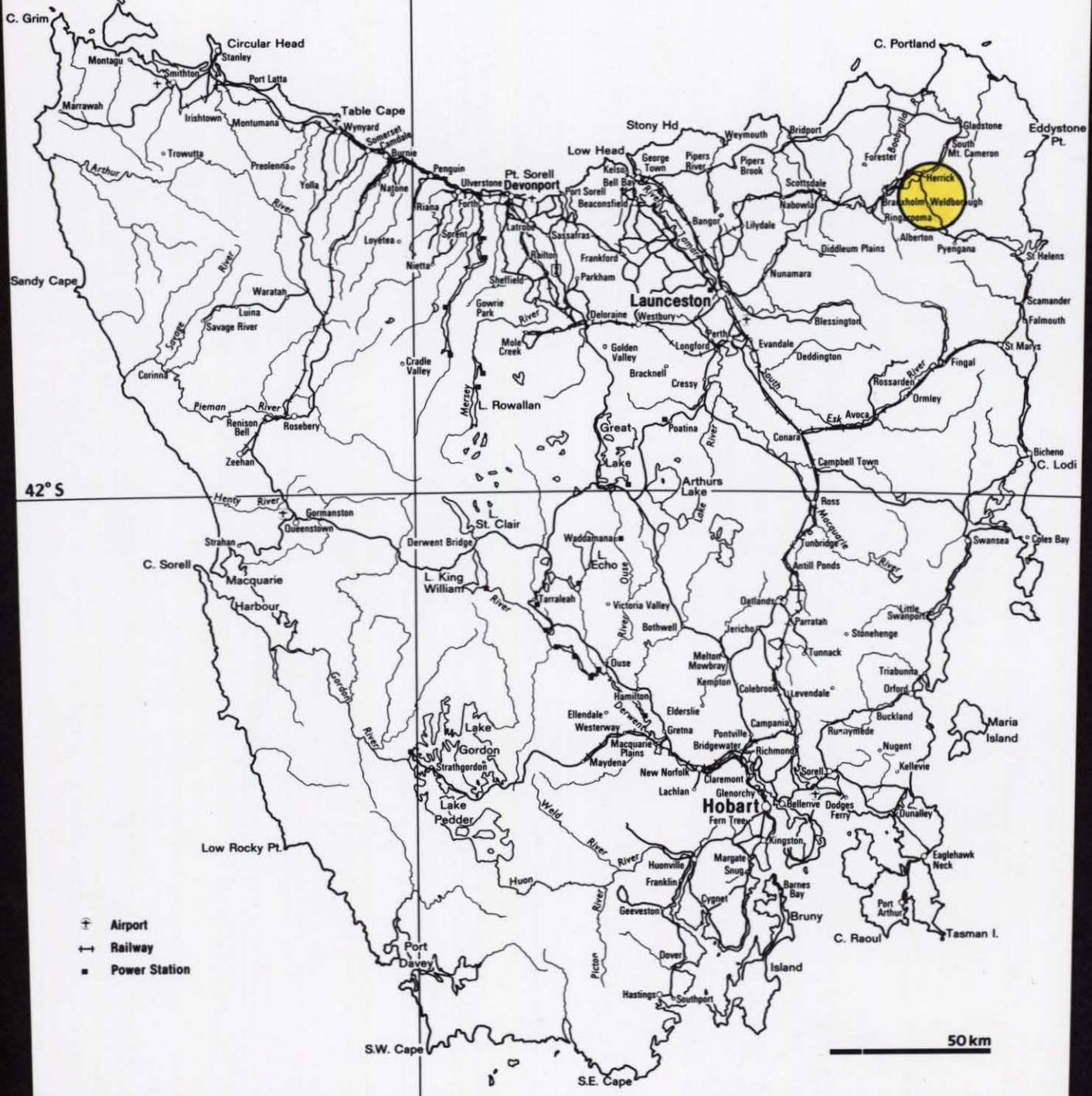


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TASMANIA

BASS STRAIT

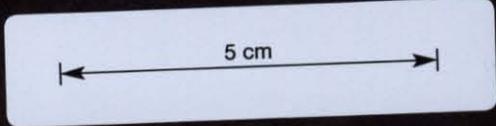


42° S

146° E

- ✈ Airport
- 🚊 Railway
- Power Station

50 km



Project Location

SUMMARY AND CONCLUSIONS

Exploration Licence 32/82 was granted to Amoco for a period of 12 months from July 15, 1983. The target was for large tonnage low grade (0.2 - 0.4% tin) sheeted tin greisens within the Blue Tier Batholith.

Intensive surface prospecting and limited exploration has been conducted from 1874 to the present outlining numerous rich alluvial deposits and small tonnage vein greisens. Recent work at the nearby Anchor deposit has established potential for a large greisen hosted tin orebody. The Anchor deposit is understood to be a near surface blind greisen sheet formed by the intrusion of a tin rich leucocratic granite into a pre-existent granite.

006

Two areas, Schroeders and Tallewang Creeks, were selected for detailed work on the basis of previously defined anomalous stream geochemistry. Soil sampling on 100 meter centers, rockchip sampling and geologic mapping were conducted. Although high concentrations of tin were panned in the creeks soil geochemistry failed to define anomalies within the granite.

The Spinks prospect was located and sampled producing a spot bedrock geochemical high of 0.12% tin on Traverse 12.

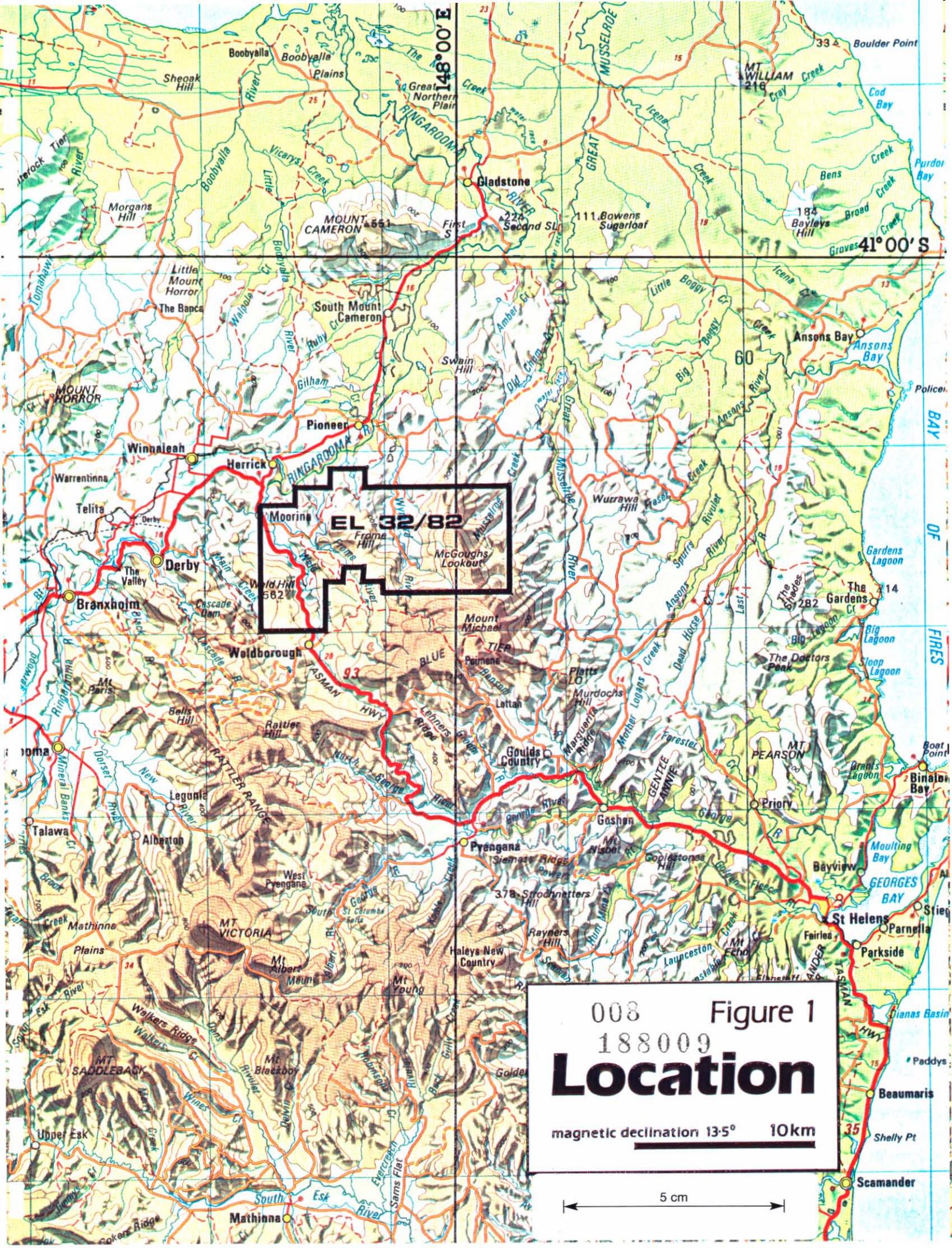
Sampling of the Musselroe Creek drainage system was completed with negative results.

Nine rock samples from the tenement were despatched to Central Mineralogical Services for petrological description.

Work conducted during the last 12 months has failed to locate any significant tin mineralized greisen sheets. It is proposed to relinquish EL 32/82.

LOCATION AND ACCESS

Exploration Licence 32/82 is located immediately northeast of the town of Weldborough, in northeastern Tasmania (Figure 1). Access within the tenement is poor due to rugged terrain and thick vegetation, however the licence is serviced by a major sealed highway (Tasman Highway) connecting the area with St Helens 40 kilometers to the southeast. Access in the region is by foot and four-wheel drive utilizing existing forest and mine tracks. Most of the old tracks are in poor condition.



EL 32/82

008 Figure 1
188009
Location
magnetic declination 13.5° 10km

5 cm

DESCRIPTION OF THE PROPERTY AND OWNERSHIP

Exploration Licence 32/82 of approximately 86 square kilometers in area was granted to Amoco Minerals for the period of 12 months from July 15, 1983.

A number of pre-existing mining leases (alluvial) and water easements lie within the tenement (Enclosure 3). Full details are given in Amoco Report 399.

HISTORY AND EXPLORATION TO DATE

Tin was first discovered in the Blue Tier Batholith from alluvials in the vicinity of Ruby Valley near George Bay in 1874. Subsequent intensive prospecting found rich alluvial deposits near Weldborough and a number of sluicing ventures on veined greisens were undertaken. The more notable of these deposits are: Southern Cross, Lottah, Kent, Haleys, Marie, Planet, Rising Sun, Crystal Hill, Spinks, Cream Creek, Nichols (F-B), Australia and Anchor. Alluvial flats were also successfully worked in several creeks. The combined production from these mines is estimated to have been 5,000 tons of tin ore. In addition 2,680 tons of tin concentrates were recovered from the primary deposit of the Anchor Mine until closure by the original company in 1914. A further 1,500 tons are estimated to have been produced from other greisen deposits although invariably these mines were unsuccessful.

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The Mount Lyell and Railway Company carried out extensive surface prospecting (17,160 meters of trenches) and diamond drilling (49 holes totalling 1950 meters) surveys during the period 1906 to 1907. Much of Mt Lyells work was confined to vein greisens of narrow width and limited strike as evidenced by their best intercept at the Moon Mine - Bore 18 from 6 - 9.75 meters assaying 0.51% tin.

Limited surveys have been conducted by the Mines Department over the years 1927 to 1943. Surveys included surface sampling (trenching perpendicular to greisen veins) and drilling (both churn drilling and diamond drilling) with generally disappointing results.

The Aberfoyle Tin Development Partnership conducted detailed surveys over the Anchor Mine area located approximately 18 kilometers south-southeast of EL 32/82 during the early to mid 1960's. Diamond drilling outlined a zone of tin mineralized greisenized boitite - muscovite granite totalling 1.2 million tons of 0.37% tin lying beneath a barren porphyritic biotite granite. Drilling failed to close off the mineralization. Subsequently Renison Limited obtained title to the ground through a joint venture with Hellyer Mining and Exploration in 1976 and increased the reserves of the Anchor Mine to +3 millions tons of 0.25% to 0.3% tin.

Geophoto Resources in 1974 conducted exploration surveys centered on the area from Cross Creek to Cream Creek workings. Geophoto concluded the exposed greisen vein mineralization at Cream Creek was sub-economic.

In 1978 Aberfoyle pegged an exploration licence to the north of the Anchor Mine looking for repeat deposits of the Anchor type: tin mineralized greisen sheets occurring beneath a roof of older and barren granite. Limited areas were mapped on a reconnaissance basis (approximate 10 square kilometers) at a

012

scale of 1:15 840. Detailed surveys at a scale of 1:600 were implemented on the Cream Creek workings culminating in a proposed six hole percussion drill program. The program was terminated prematurely at the completion of two holes due to the unsuitability of the drill rig. Both holes were stopped short of their planned depths due to heavy water inflows. Hole 1 failed to intersect the prospective horizon and hole 2 intersected a narrow greisenous zone containing low tin values before passing into fresh barren host granite.

Large tracts of the Aberfoyle exploration licence remained unexplored and as no systematic exploration had been conducted by previous workers Amoco staked the ground when it became available late in 1982.

Previous work by Amoco on the current EL 32/82 has been submitted to the Mines Department in Amoco Reports 383 and 399.

84-2092

84-2178

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REGIONAL GEOLOGY

Upper Devonian granitic rocks of northeast Tasmania crop out over an area of more than 2,500 square kilometers, the largest mass being the Blue Tier Batholith.

The granitic rocks have been emplaced into the Mathinna Beds which are the only exposed Paleozoic sedimentary sequence in the area. They are unconformably overlain by Permian and minor Triassic sedimentary sequences. These have been intruded by Jurassic dolerite sills. An extensive cover of Tertiary sedimentary rocks and basaltic lavas exists particularly in the north and northeastern parts of the area.

The Blue Tier Batholith is a composite body varying from early mafic granodiorites to leucocratic granites (Grover 1977). The plutons have sharp discordant contacts, narrow zones of contact

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metamorphism and appear to be high level magmatic intrusions that were generally passively emplaced with minor marginal deformation.

Small bodies of muscovite-biotite granite of sheet-like character with associated feeder dikes are the youngest intrusion in the batholith. They are confined to the upper levels of the batholith and tin mineralization shows a marked association with them. Greisenized granites and greisens are generally confined to irregularities in the upper contact of the muscovite-biotite granite sheets where essentially unaltered granite is typified by higher lithium and tin at lower potassium rubidium and magnesium lithium ratios than granite from lower contacts.

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LOCAL GEOLOGY

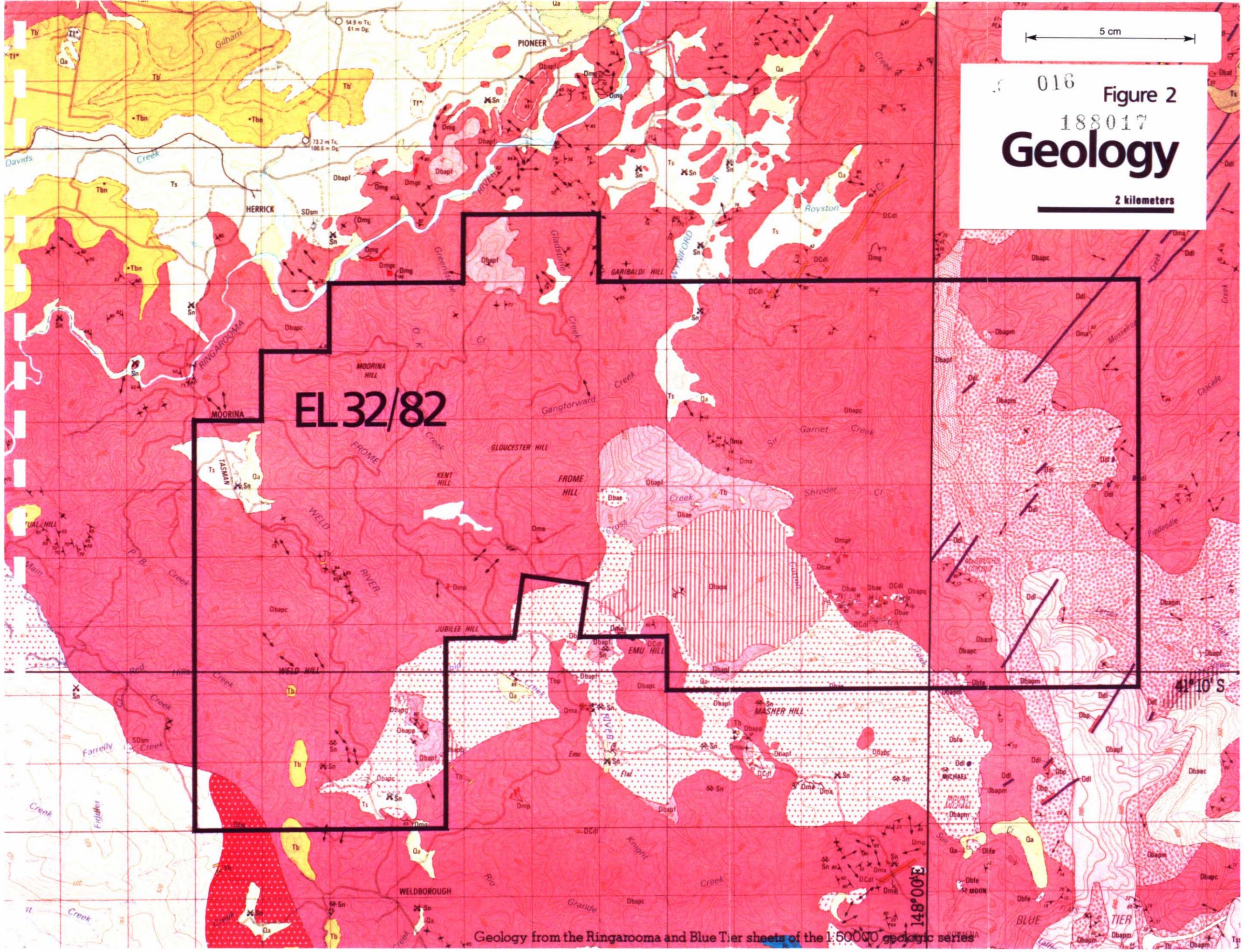
Regional mapping by Groves et al in 1977 shows the licence is underlain by upper Devonian porphyritic and coarse grained biotite granite/adamellite, the Poimena Pluton (Figure 2). The pluton is the largest in the Batholith occupying about 45% of its surface area and considering its size is remarkably homogeneous. The normal granite/adamellite consists of large K-feldspar phenocrysts generally about five centimeters in length in a medium grained groundmass.

Late stage leucocratic tin granites - Lottah Sheets intrude the older granites in the vicinity of the Cream Creek workings and in an area encompassing both Schroaders and Cotton Creeks. The Lottah sheets are composed of equigranular fine grained muscovite-biotite granites, granite porphyries, leucogranites, aplites, pegmatites and greisens. The greisens typically consist

5 cm

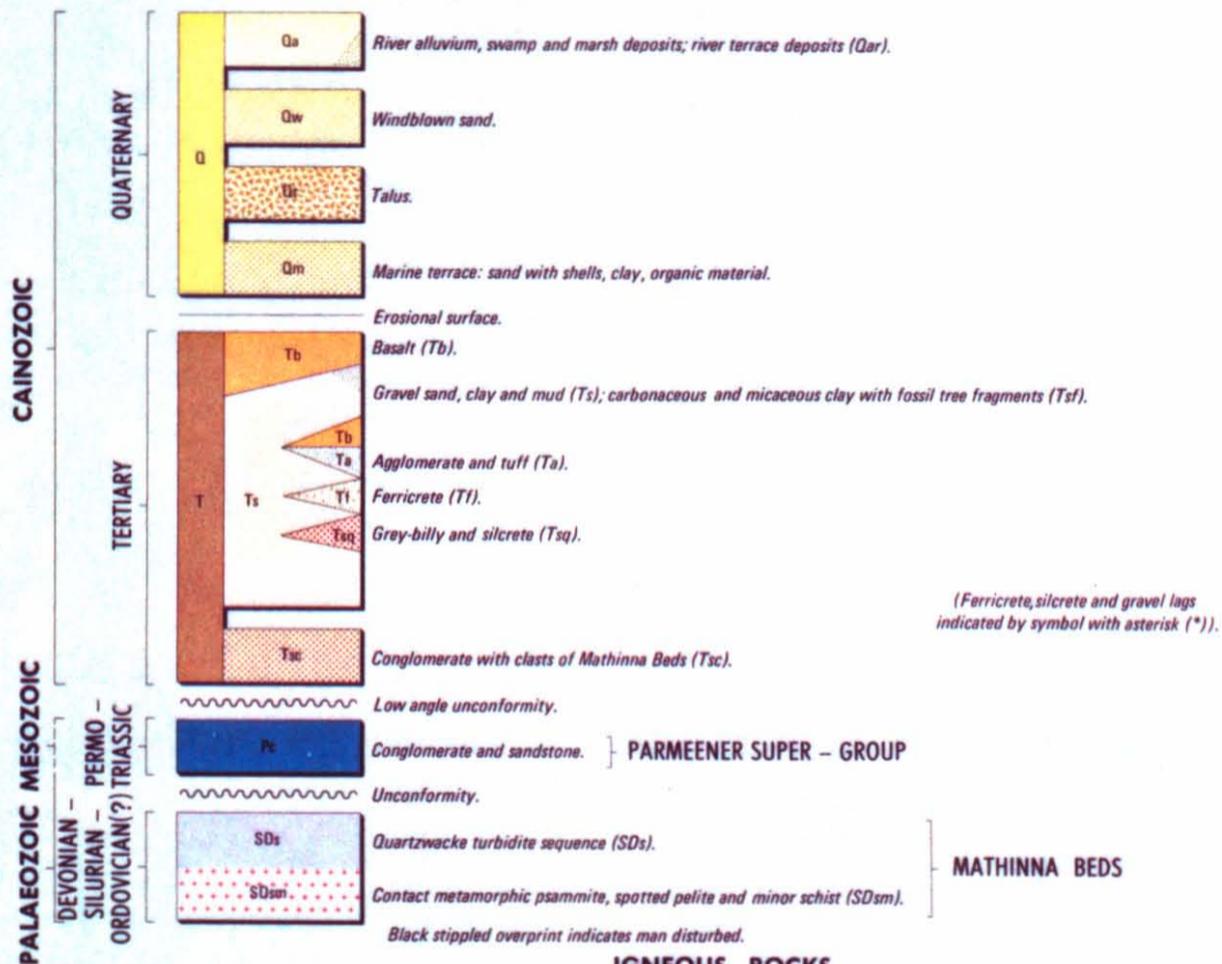
016 Figure 2
188017
Geology
2 kilometers

EL 32/82



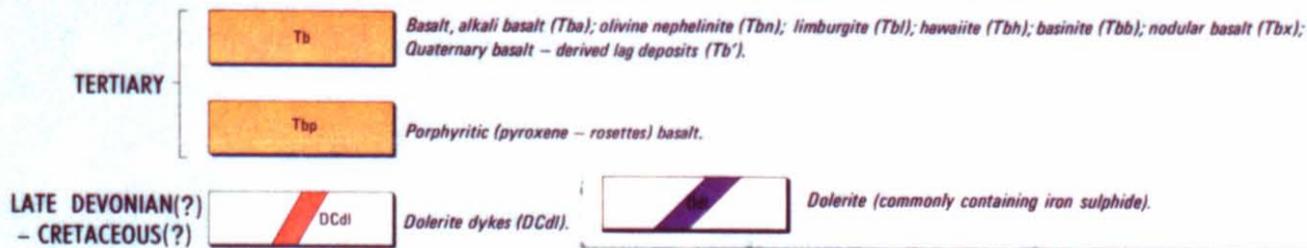
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REFERENCE

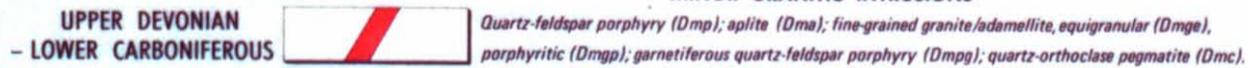


IGNEOUS ROCKS

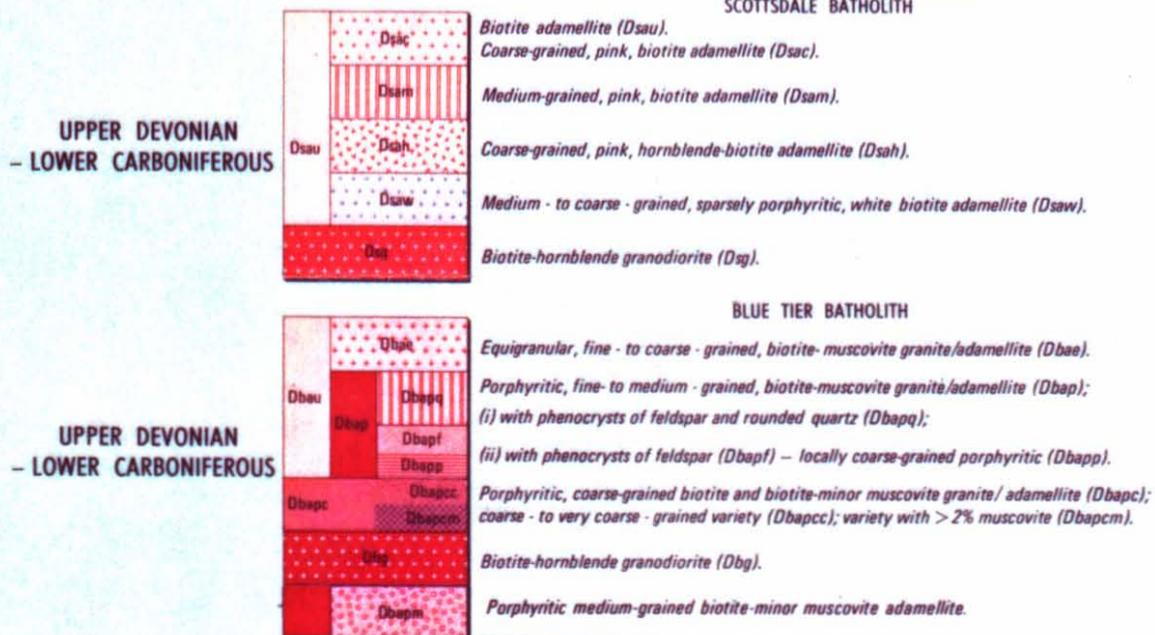
(Very coarse grain > 30 mm; coarse grain 5 - 30 mm; medium grain 1 - 5 mm; fine grain < 1 mm).



MINOR GRANITIC INTRUSIONS



MAJOR GRANITIC INTRUSIONS



188018

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of aggregates of quartz and muscovite with minor albite. They are coarser grained (up to four millimeters average grain size) than the greisenized granites and almost invariably contain abundant coarse grained fractured cassiterite crystals. Pale green biotite and carbonate are present in some greisens and topaz is more common than muscovite. Minor chalcopyrite, bornite, molybdenite and fluorite may be present.

There are a large number of small dike-like bodies of acid and basic composition that intrude the major granitic rocks within the licence.

Extensive Tertiary and Quaternary deposits blanket much of the licence area many of which have been actively explored and worked by small concerns.

A major lineament is observed trending northwest from the Anchor Mine to the Weld River which Renison Limited have named the Crystal Hill Lineament. A number of major workings lie along or in close proximity to this basement structure.

MINERALIZATION

Tin mineralization within the Blue Tier Area occurs as three distinct types:

- 1 Steeply dipping greisen veins or pipes in tin bearing granite
- 2 Flat lying greisen sheets in tin bearing granite
- 3 Quartz and quartz greisen veins in porphyritic adamellites

Of these mineralization styles the capped greisen sheets have the greatest tonnage/grade potential to be economically attractive. The flat lying greisen sheets (greisenized granite and greisen) occur sub-parallel to the roof contact of fine grained muscovite - biotite tin granites (Lottah Sheets - Grove 1977) with the overlying porphyritic biotite granite/adamellite (Poimena Pluton-

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Grove 1977). The contact of the two granites is sharp and is usually marked by a barren zone of pegmatite. Significant tin mineralization (coarse grained cassiterite) roughly overlaps the limit of greisenization and is associated with minor molybdenite, chalcopyrite and fluorite. The major deposit of this type is at the Anchor Mine and other smaller bodies include the Crystal Hill, Liberator, North Liberator, Don, Australia, Summit, Mount Michael, New Moon and Ken Deposits.

The greisen sheet deposits appear to be local enrichments controlled by structural irregularities (Crystal Creek Lineament-Renison) in the roof of the tin granite sheets. Greisenization is attributed to the development through extensive fractionation of a water saturated melt in which tin, fluorine and other incompatible elements are concentrated.

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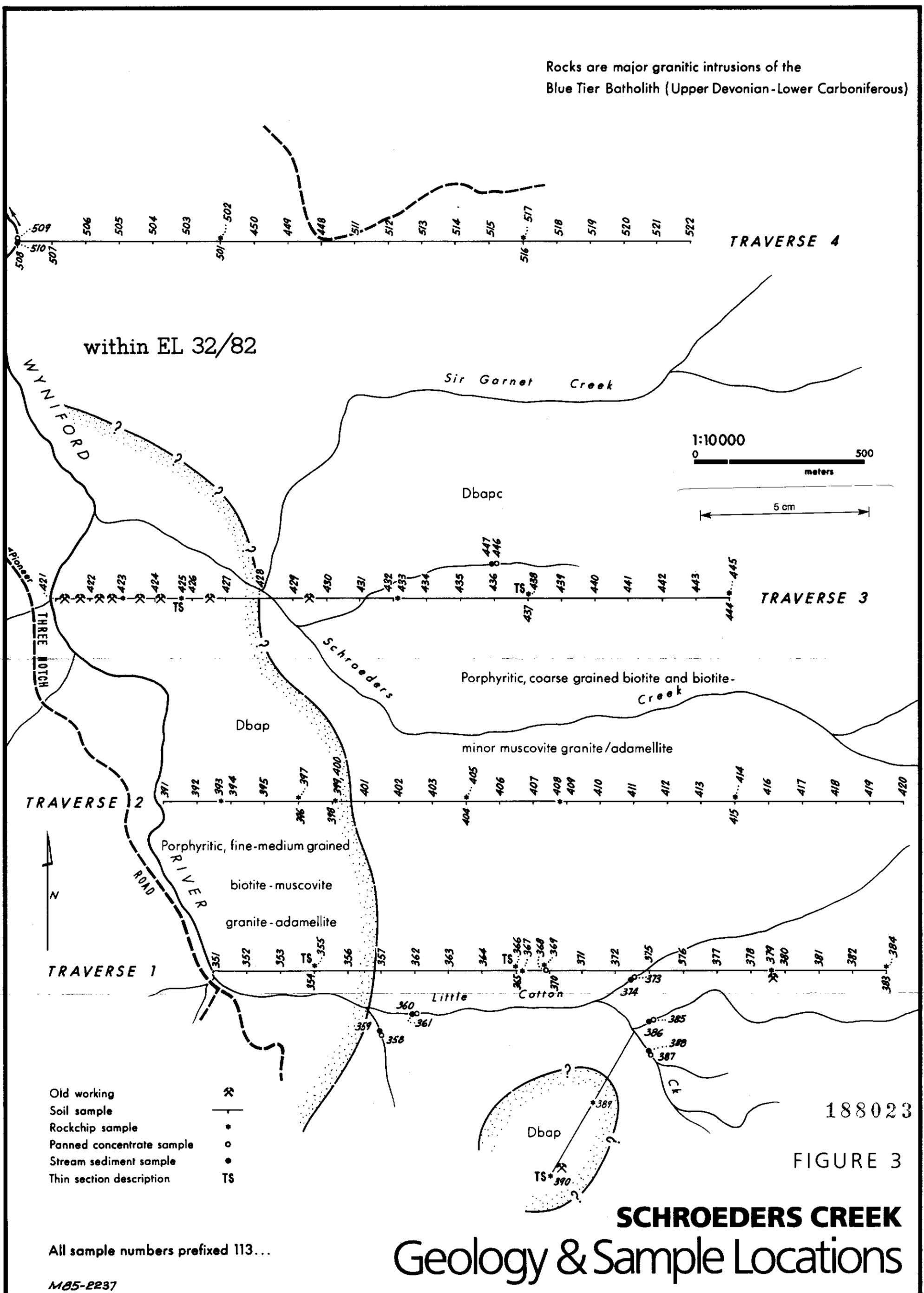
WORK CONDUCTED BY AMOCO

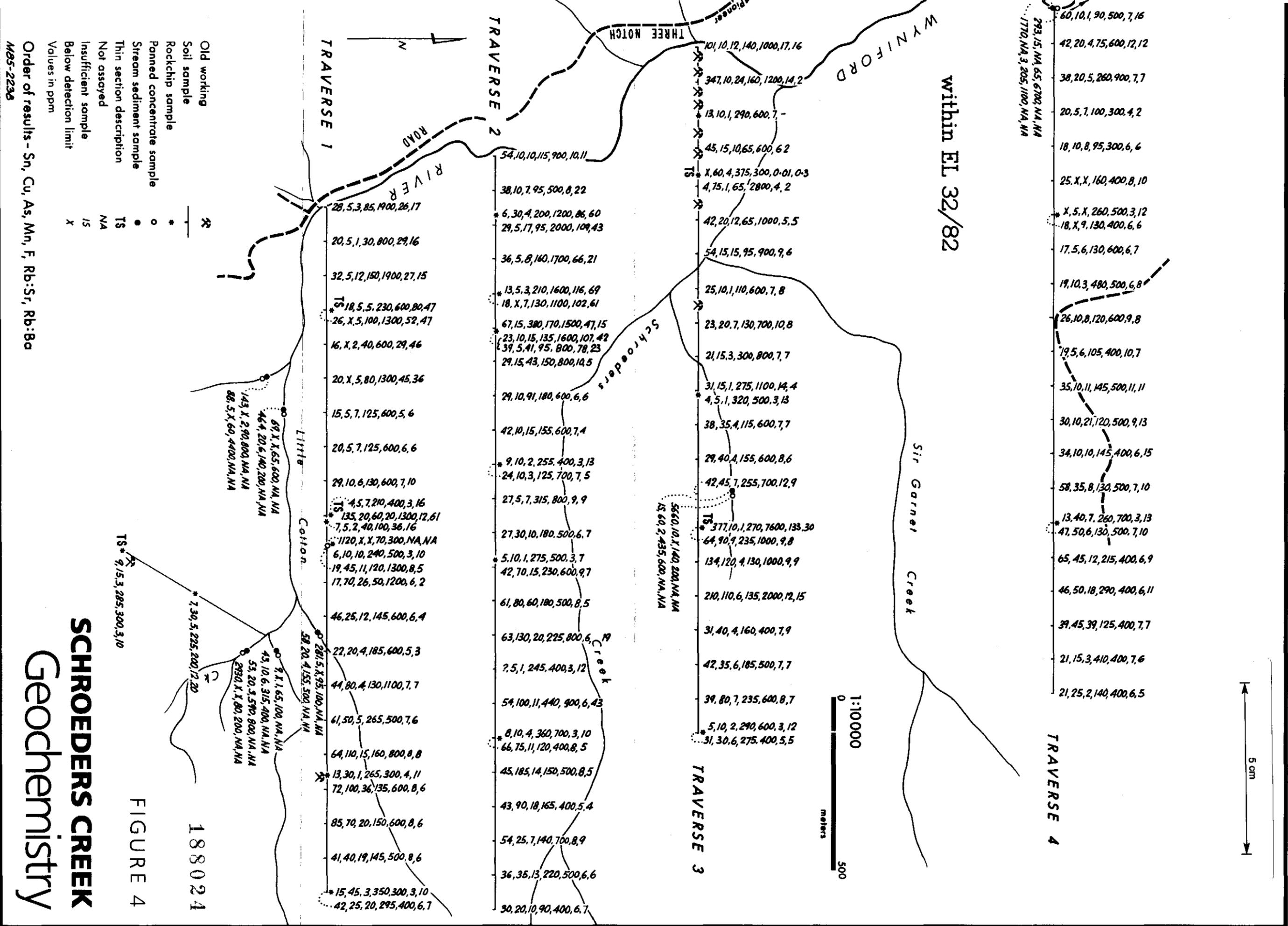
Work conducted during the period July 1984 to July 1985 was confined to four areas as summarized below. Enclosures 1 and 2 show traverse lines, stream sediment and rockchip geochemistry conducted in EL 32/82. Figures 3 to 7 show detailed geology and geochemistry of the Schroeders Creek, Tallewang Creek and Spinks Area. Petrographic descriptions are included as Appendix 1 and analytical result sheets as Appendix 2.

Schroeders Creek

Traverse lines 1 to 4 were established to locate the source of previously defined tin stream sediment geochemistry (maximum value 0.60% tin). Bedrock sampling on 100 meter centers, geologic mapping, rockchip and additional stream geochemical sampling were conducted and presented at 1:10,000 scale (Figures 3 and 4).

Rocks are major granitic intrusions of the Blue Tier Batholith (Upper Devonian-Lower Carboniferous)





TRAVERSE 4

1770, NA, 3, 205, 1100, NA, NA

293, 15, NA, 65, 6700, NA, NA

60, 10, 1, 90, 500, 7, 16

42, 20, 4, 75, 600, 12, 12

38, 20, 5, 260, 900, 7, 7

20, 5, 7, 100, 300, 4, 2

18, 10, 8, 95, 300, 6, 6

25, X, X, 160, 400, 8, 10

X, 5, X, 260, 500, 3, 12

18, X, 9, 130, 400, 6, 6

17, 5, 6, 130, 600, 6, 7

19, 10, 3, 480, 500, 6, 8

26, 10, 8, 120, 600, 9, 8

19, 5, 6, 105, 400, 10, 7

35, 10, 11, 145, 500, 11, 11

30, 10, 21, 120, 500, 9, 13

34, 10, 10, 145, 400, 6, 15

58, 35, 8, 130, 500, 7, 10

13, 40, 7, 260, 700, 3, 13

47, 50, 6, 130, 500, 7, 10

65, 45, 12, 215, 400, 6, 9

46, 50, 18, 290, 400, 6, 11

39, 45, 39, 125, 400, 7, 7

21, 15, 3, 410, 400, 7, 6

21, 25, 2, 140, 400, 6, 5

560, 10, X, 140, 200, NA, NA

15, 60, 2, 435, 600, NA, NA

69, X, X, 65, 600, NA, NA

46, 4, 20, 6, 140, 200, NA, NA

143, X, 2, 90, 800, NA, NA

88, 5, X, 60, 4400, NA, NA

9, X, 1, 65, 100, NA, NA

43, 10, 6, 315, 400, NA, NA

53, 20, 3, 570, 800, NA, NA

2930, X, X, 80, 200, NA, NA

TRAVERSE 1

28, 5, 3, 85, 1900, 26, 17

20, 5, 1, 30, 800, 29, 16

32, 5, 12, 150, 1900, 27, 15

18, 5, 5, 230, 600, 80, 47

26, X, 5, 100, 1300, 52, 47

16, X, 2, 40, 600, 29, 46

20, X, 5, 80, 1300, 45, 36

15, 5, 7, 125, 600, 5, 6

20, 5, 7, 125, 600, 6, 6

29, 10, 6, 130, 600, 7, 10

4, 5, 7, 210, 400, 3, 16

135, 20, 60, 20, 1300, 12, 61

7, 5, 2, 40, 100, 36, 16

1120, X, X, 70, 300, NA, NA

6, 10, 10, 240, 500, 3, 10

19, 45, 11, 120, 1300, 8, 5

17, 70, 26, 50, 1200, 6, 2

46, 25, 12, 145, 600, 6, 4

58, 20, 4, 155, 500, NA, NA

281, 5, X, 95, 100, NA, NA

44, 80, 4, 130, 1100, 7, 7

61, 50, 5, 265, 500, 7, 6

64, 110, 15, 160, 800, 8, 8

13, 30, 1, 265, 300, 4, 11

72, 100, 36, 135, 600, 8, 6

85, 70, 20, 150, 600, 8, 6

41, 40, 19, 145, 500, 8, 6

15, 45, 3, 350, 300, 3, 10

42, 25, 20, 295, 400, 6, 7

TRAVERSE 2

54, 10, 10, 115, 900, 10, 11

38, 10, 7, 95, 500, 8, 22

6, 30, 4, 200, 1200, 86, 60

29, 5, 17, 95, 2000, 109, 43

36, 5, 8, 160, 1700, 66, 21

13, 5, 3, 210, 1600, 116, 69

18, X, 7, 130, 1100, 102, 61

67, 15, 380, 170, 1500, 47, 15

23, 10, 15, 135, 1600, 107, 42

39, 5, 41, 95, 800, 78, 23

29, 15, 43, 150, 800, 10, 5

29, 10, 91, 180, 600, 6, 6

42, 10, 15, 155, 600, 7, 4

9, 10, 2, 255, 400, 3, 13

24, 10, 3, 125, 700, 7, 5

27, 5, 7, 315, 800, 9, 9

27, 30, 10, 180, 500, 6, 7

5, 10, 1, 275, 500, 3, 7

42, 70, 15, 230, 600, 9, 7

61, 80, 60, 180, 500, 8, 5

63, 130, 20, 225, 800, 6, 19

7, 5, 1, 245, 400, 3, 12

54, 100, 11, 440, 900, 6, 43

8, 10, 4, 360, 700, 3, 10

66, 75, 11, 120, 400, 8, 5

45, 185, 14, 150, 500, 8, 5

43, 90, 18, 165, 400, 5, 4

54, 25, 7, 140, 700, 8, 9

36, 35, 13, 220, 500, 6, 6

30, 20, 10, 90, 400, 6, 7

TRAVERSE 3

10, 10, 12, 140, 1000, 17, 16

347, 10, 24, 160, 1200, 14, 2

13, 10, 1, 290, 600, 7, -

45, 15, 10, 65, 600, 6, 2

X, 60, 4, 375, 300, 0, 01, 0, 3

4, 75, 1, 65, 2800, 4, 2

42, 20, 12, 65, 1000, 5, 5

54, 15, 15, 95, 900, 9, 6

25, 10, 1, 110, 600, 7, 8

23, 20, 7, 130, 700, 10, 8

21, 15, 3, 300, 800, 7, 7

31, 15, 1, 275, 1100, 14, 4

4, 5, 1, 320, 500, 3, 13

38, 35, 4, 115, 600, 7, 7

29, 40, 4, 155, 600, 8, 6

42, 45, 7, 255, 700, 12, 9

377, 10, 1, 270, 7600, 133, 30

64, 90, 9, 235, 1000, 9, 8

134, 120, 4, 130, 1000, 9, 9

210, 110, 6, 135, 2000, 12, 15

31, 40, 4, 160, 400, 7, 9

42, 35, 6, 185, 500, 7, 7

39, 80, 7, 235, 600, 8, 7

5, 10, 2, 290, 600, 3, 12

31, 30, 6, 275, 400, 5, 5

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Tin bedrock geochemistry was disappointingly low considering the amount of visible tin in the panned concentrates. Possible elemental associations (rubidium/strontium, rubidium/barium and fluorite) were assayed for, however none proved definite in mirroring possible anomalous tin zones.

Five rocks were despatched for petrographic description (Samples 113425, 113355, 113366, 113390 and 113438). The report is included as Appendix 1.

Rocks were predominantly porphyritic, fine to coarse grained biotite granites and adamellites. Minor greisenization was observed (Sample 113438), however this was localized float material.

Tallewang Creek

Traverse lines 5 to 8 were established to follow-up percentile tin values panned in February 1984. Although panned concentrate values remained high (Sample 113541 - 9.18% tin), this was not reflected in the bedrock geochemistry (maximum 210 ppm tin). There is some correlation between copper, tin and arsenic highs, but magnitudes are low (Figure 6). Mapping in this area defined both porphyritic, coarse biotite granites and equigranular fine to coarse grained biotite granite (Figure 5).

The latter rock type ('A' type granite) appears devoid of tin mineralization other than minor narrow greisen veins found cross cutting the unit.

These rocks were sent for thin section petrology (Samples 113535, 113547 and 113461) and descriptions are included in Appendix 1.

Spinks Area

Two broad spaced traverse lines were designed to cover the old Spinks Prospect north of Cream Creek (Figure 7). This area contains mildly sericitized aplitic Dbae ('A' type tin granite -

025

5 cm

within EL 32/82

- Old working 
- Soil sample 
- Rockchip sample 
- Panned concentrate sample 
- Stream sediment sample 
- Thin section description 

Old water race 

All sample numbers prefixed 113...

TASMAN HIGHWAY

Rocks are Igneous
Blue Tier Batholith (Upper Devonian-Lower Carboniferous)

485 486 487 488 489 490 533 532 551 499 498 497 496 495 494 493 492 491 TRVERSE 8

472 471 470 469 468 467 473 484 483 482 481 480 479 478 477 476 475 474 TRVERSE 7

Porphyritic, coarse grained biotite
and biotite-minor muscovite granite/adamellite

539/540 538 537 536 535 534 533 532 524 525 526 527 528 529 TRVERSE 6

Equigranular, fine-coarse grained,
biotite muscovite /adamellite

457 456 455 454 453 452 451 550 549 548 547 546 545 544 543 542 459 461 460 462 463 464 465 466 TRVERSE 5

Tertiary

Basalt

Tb

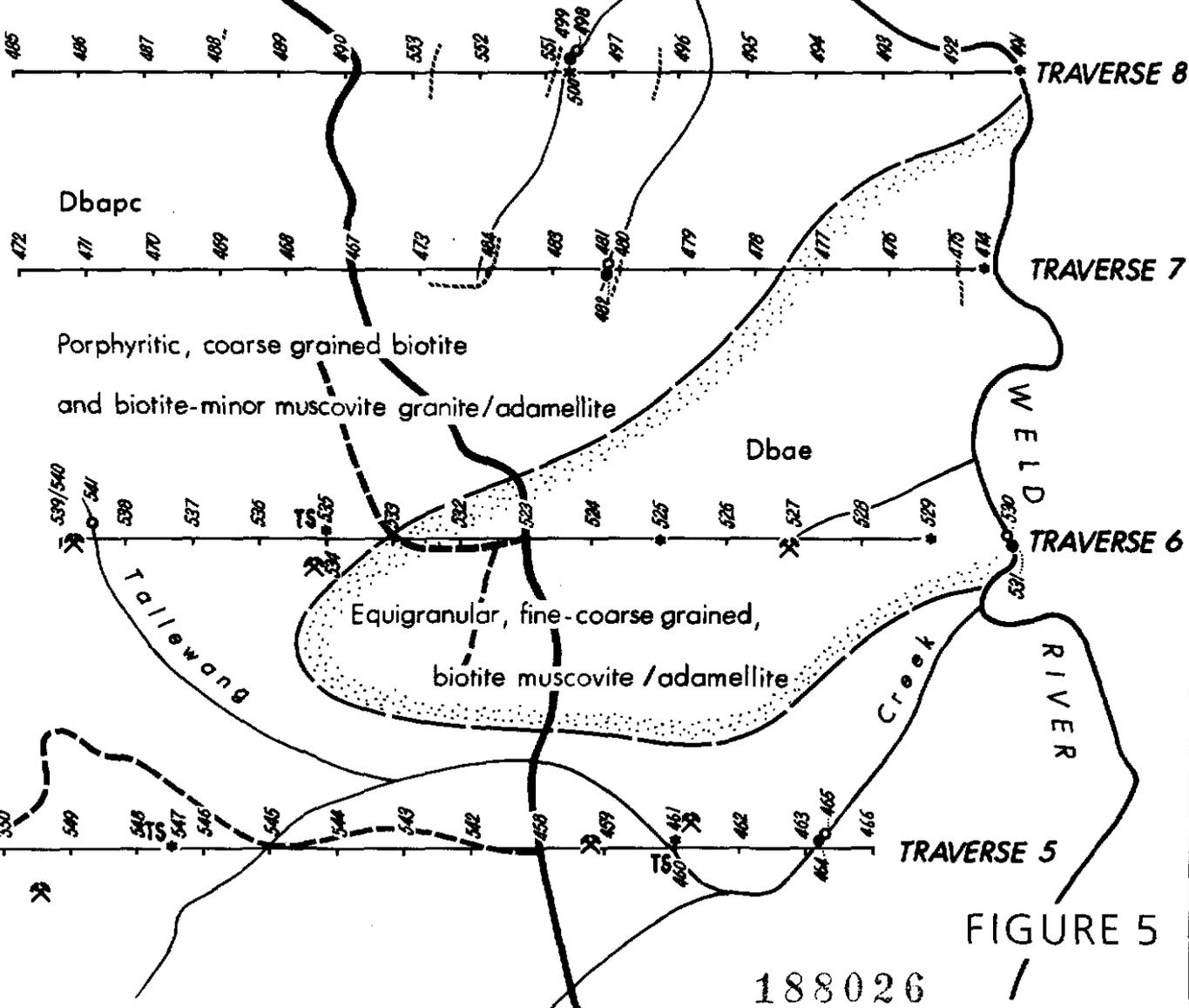
Geology & Sample Locations

188026 /
TALLEWANG CREEK

FIGURE 5

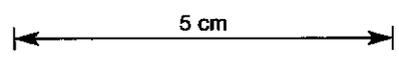
1:10 000

0 500
meters



025

within EL 32/82



- Old working X
 - Soil sample —
 - Rockchip sample •
 - Panned concentrate sample ○
 - Stream sediment sample ●
 - Thin section description TS
 - Not assayed NA
 - Insufficient sample IS
 - Below detection limit X
 - Old water race - - - -
- Values in ppm
- Order of results - Sn, Cu, As, Mn, F, Rb: Sr, Rb: Ba

1.5, 4.65, 9.50, 3.67, 3.46



TRAVERSE 5

FIGURE 6

TALLEWANG CREEK Geochemistry



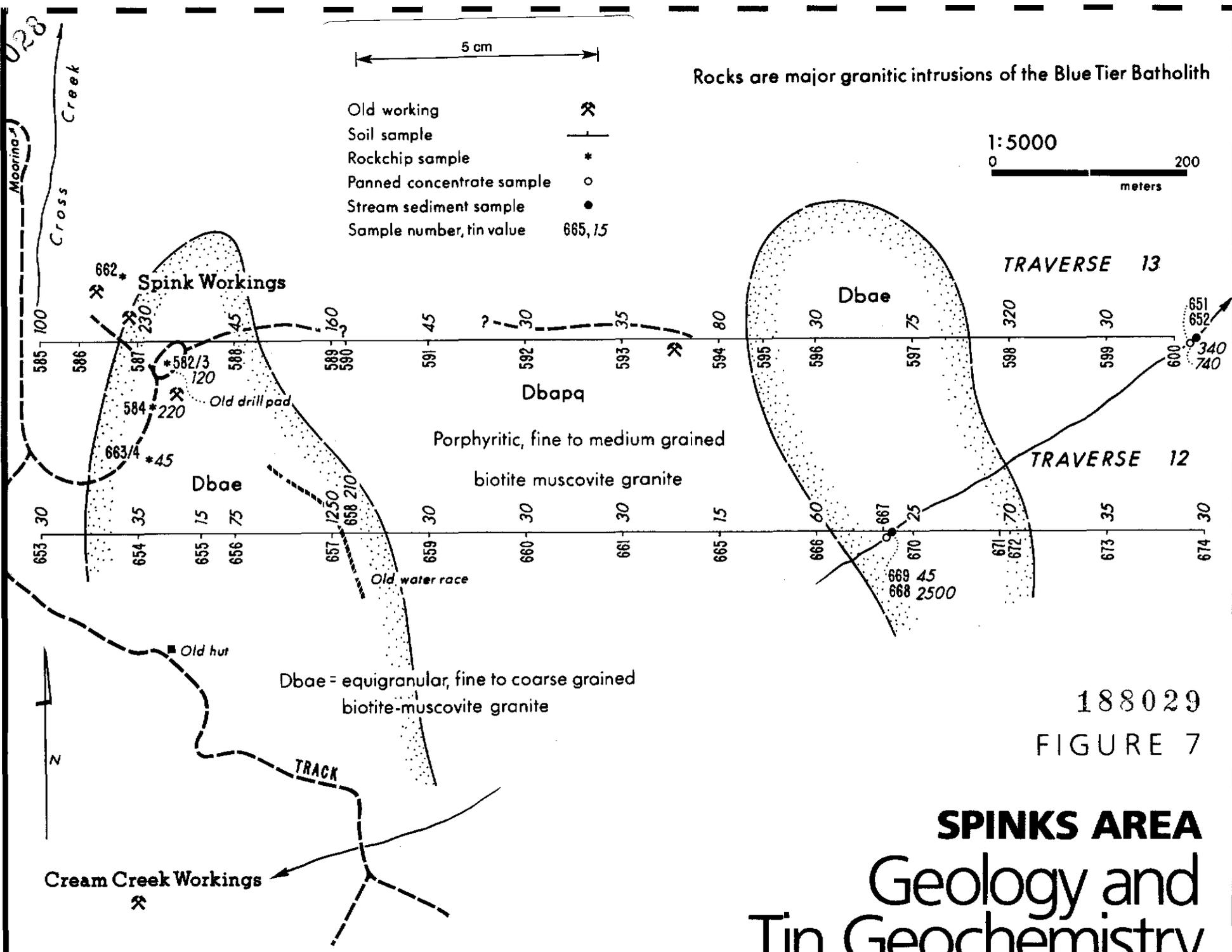
188027

027

see reference, Figure 2). A sluiced area (the Spinks Workings) over 50 meters wide and 200 meters in strike was delineated and minor vein greisen located. Bedrock geochemistry was generally low except for spot highs of up to 0.12% tin (Sample 113657).

Musselroe Creek

Stream geochemistry was conducted over this previously inaccessible area in the northeast corner of the tenement (Enclosure 2). All panned concentrate and stream sediment values were below 100 ppm tin. Minor outcropping porphyritic biotite granite was observed (Sample 113566).



188029
FIGURE 7

SPINKS AREA Geology and Tin Geochemistry

All sample numbers prefixed 113... Tin values in ppm

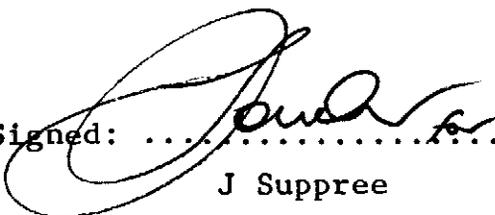
EXPLORATION POTENTIAL

The majority of the Weldborough licence is underlain by the Poimena Pluton, however minor zones of leucocratic tin granites - Lottah Sheets crop out as windows beneath the barren overlying pluton. Further tin mineralized sheets may exist at depth similar to those discovered at the Anchor mine especially in the geochemically highly anomalous area between Schroeders and Cotton Creeks.

J30

PROPOSED PROGRAM

On this basis of the disappointing results of work completed to date, it is proposed that EL 32/82 be relinquished.

Signed:

J Suppree

AMOCO MINERALS AUSTRALIA COMPANY

19

EXPENDITURE TO 31 MARCH 1985

EXPLORATION LICENCE NO. EL 32/82

	1-7-84 to <u>31-3-85</u>	<u>TOTAL TO DATE</u>
SALARIES and WAGES	6,656.54	10,101.48
SUPPLIES	317.91	371.01
SUPPLIES- maps	-	65.58
COOKERY	1,735.58	1,740.28
FIELD OFFICE RENT	133.00	154.57
FIELD SUPPLIES	69.25	180.57
FREIGHT	111.49	150.44
AIRCRAFT CHARTER	-	-
TRAVEL	30.00	247.10
COMMUNICATIONS	163.17	168.17
GEOPHYSICS	-	-
CONSULTANTS/CONTRACTORS	815.00	6,902.44
DRILLING	-	-
ASSAYS	5,467.52	10,441.73
LEGAL FEES	-	-
EQUIPMENT RENTAL	55.60	99.64
EQUIPMENT OPERATION & RENTAL	643.21	1,012.20
PROPERTY PAYMENTS	-	486.48
OUTSIDE SERVICES	332.01	726.05
	<hr/>	<hr/>
	16,530.28	32,847.74
OVERHEAD	3,832.84	7,442.43
	<hr/>	<hr/>
	<u>20,363.12</u>	<u>40,290.17</u>


 T. J. CONQUEST
 ACCOUNTANT

APPENDIX 1

PETROLOGICAL REPORT

by Central Mineralogical Services

033

188034

Central Mineralogical Services



39 Beulah Road
Norwood, S.A. 5067
Telephone 42 5659

Mr. P.A. Jones
Project Geologist
Amoco Minerals Aust. Co.
61, Counsel Street
ZEEHAN / TAS. 7469

30th November, 1984

REPORT CMS 84/11/43

WELBOROUGH

YOUR REFERENCE:	Order No. E 13340
DATE RECEIVED:	27th November, 1984
SAMPLE NOS.:	12 Samples
SUBMITTED BY:	P.A. Jones
WORK REQUESTED:	Petrology

H.W. Forder, M. Sc.

REPORT CMS 84/11/43

Twelve rock chip samples from the Weldborough licence area in N.E. Tasmania were received for urgent petrological examination. Representative thin-sections were prepared and examined together with their respective offcuts. Attached tabulated descriptions summarise the microscopic data and include interpretative comments.

Summary

This suite comprises variably altered granitic rocks and associated segregations, supplemented by a single altered basic intrusive (uralitised microgabbro, or "dolerite", sample No. 113425).

Following Hatch & Wells, granitic rocks may be classified as variously biotite adamellitic or granitic, with the latter group representing (strictly) sodi-potassic alkaline types. Both groups bear analogy with the Blue Tier/Anchor Mine situation to which a similar, essentially two-phase classification has been applied in the past.

Field distinction of these two lithologies may be problematical in that both carry near-equant proportions of plagioclase and K-feldspar (microperthitic orthoclase). Adamellites carry relatively conspicuous dark biotite. In contrast, granites are relatively biotite-deficient and may include a little primary white mica.

These characteristics provide an unreliable guide, however, in that granites are poorly resolvable against mildly greisened (white micaceous) adamellites on the basis of mesoscopic characteristics.

Characteristics bearing analogy to the Blue Tier situation and relating largely to the granites, may be summarised:

1. Variable, but generally coarse-grained fabrics with an absence of miarolitic, vuggy, and strictly aplitic types.

Variations include minor micrographic and pegmatitic facies consistent with a relatively deep level intrusive complex. In this context, these rocks (and similarly Blue Tier) may be compared with the Pilbara tin granites and contrasted with the relatively high-level types typical of N.W. Tasmania.

2. The tendency to muscovite + topaz, tourmaline and garnet assemblages as primary accessory phases.
3. Presence of pneumatolytic greisen-type assemblages as alteration facies and as primary (late- to early post-magmatic) segregations.
4. Primary white micas developing in granites and as a major constituent of greisen segregations are "rose muscovites", faintly pink pleochroic and apparently manganiferous. These may be contrasted with replacive white micas which are typically colourless to pale green (then hydromuscovite in part).
5. Minor development of colour-zoned and/or muscovite-overgrown (as distinct from muscovitised) biotite.

Certain contrasts with the Blue Tier situation are evident. These may reflect sampling and may further represent potential "ore zone" indicators.

- A) A general paucity of sulphides in micaceous (replacement and segregation-type) greisens. There is a general positive correlation between cassiterite and sulphides in greisen tin situations.
- B) Absence of leucogranitic rocks. Blue Tier leucogranites are compositionally intermediate between granites and the micaceous segregation greisens. Typical assemblages are quartz-alkali feldspar (largely albite)-white mica. Biotite, if present, is usually green (stanniferous in part) and colour-zoned. Accessories include topaz, tourmaline, sulphides and cassiterite.

Disseminated sulphide-bearing white micaceous rocks of both pneumatolytic replacement and segregation-type origin represent the potential tin mineralised zones. Manganese stainings may provide a field guide to mica granite, leucogranite and segregation-type greisens in relatively weathered areas.

The Bell's Hill mineralisation is hosted by intensely silicified and topazised granite with, apparently, associated quartz-topaz segregations or veins. This situation may be compared with the topazised porphyries representing hosts to cassiterite and disseminated sulphide mineralisation at Mt. Bischoff.

D. Cowan, B. Sc.

References:

For general references on the Blue Tier greisen-type tin situation see:

Econ. Geol. Vol. 67, p. 445 ff.

Inst. Mining and Metallurgy Trans. Vol. 82, Sectn. B, p. B135 ff.

The Mount Bischoff topazised porphyries are briefly described in Vol 1, Metals, Economic Geology of Aust. & P.N.G. (Aust. I.M.M. Monograph Series 5) p. 591.

Sample No.	Classification - Composition	Fabric	Accessories	CENTRAL MINERALOGICAL SERVICES Comments
113355 (T.S. 52124) Schroeder Creek	Mica-Topaz Granite. Orthoclase-microperthite, quartz and incipiently sericitised albite in near-equant proportions with disseminated weakly chloritised biotite and thinly disseminated weakly muscovitised topaz.	Quartz-porphyrific, granitic (mean 1 mm); homogeneous, unstressed.	Traces of primary muscovite, monazite. Sporadic microscale films of secondary muscovite, rare fluorite.	Mildly greisenized granite porphyry. Primary biotite incipiently colour-zoned/muscovite-overgrown, topaz mildly muscovitised.
113366 Schroeder Creek	Biotite Adamellite. Orthoclase-microperthite, quartz and slightly subordinate weakly sericitised oligoclase. Disseminated flakes, clusters of biotite. Minor discontinuous sericitic microfractures.	Relatively coarse-, uneven-grained, trend feldspar-porphyrific, granitic.	Rare primary apatite, zircon, monazite. Rare sericitic clots of secondary topaz.	Reflects incipient, partly microfracture-controlled sericite-topaz alteration; patchy weathering-kaolinisation of feldspar.
113390 Schroeder Creek	Biotite Micro-Adamellite. Quartz, orthoclase-microperthite, weakly/pervasively sericitic oligoclase in near-equant proportions, with conspicuous fine flakes, clusters of variably chloritised biotite.	Weakly quartz-orthoclase-porphyrific, medium-grained, granitic; unstressed.	Minor traces of primary apatite, magnetite, zircon. Sporadic clots, films of fine secondary muscovite.	Porphyritic/medium-grained, with close compositional affinities to 113366. Slightly relatively "greisenized" (muscovite-sericite-altered); similar to weathered-kaolinitic.
113425 Schroeder Creek	Uralitised Microgabbro. Actinolite-pseudomorphed pyroxene and incipiently actinolite-stained labradorite (near bytownite) with conspicuous relict primary magnetite.	Labradorite-porphyrific, weakly flow-structured, ophitic.	Traces of ultrafine-grained pyrrhotite in uraltic actinolite. Traces of secondary biotite.	Exhibits marked selective uraltic alteration of pyroxene; labradorite essentially fresh. Minor/marginal intrusive. Very incipiently hornfelsic.
113438 Schroeder Creek	Greisenized "Granite". Quartz and vaguely feldspar-pseudomorphous fine-grained, weakly Fe-stained muscovite (+ quartz) aggregates with thinly disseminated muscovite-pseudomorphed biotite flakes.	Relict coarse, even-grained, granitic. Unstressed.	Rare relict primary zircon and biotite (micro-inclusions in quartz).	Thoroughly pneumatolytically greisenized (muscovitised/silicified) granitoid; probably a granite (as against adamellite) on basis of relict features.
113461 Newbery Creek	Greisenized Granite. Quartz, variably semi-sericitic muscovite-veined/replaced orthoclase-microperthite and similarly/relatively altered albite with thinly disseminated semi-sericitic muscovite-pseudomorphed biotite.	Coarse, even-grained, granitic. Moderately microfractured/mildly stressed.	Traces of sericite-pseudomorphed topaz. Semi-pervasive muscovite-minor quartz-sericite veinlets.	Moderately greisenized/muscovitised granite. Exhibits textural/relict compositional affinities (e.g. low altered biotite content) with 113438.
113535 Newbery Creek	Tourmaline-Garnet Microgranite. Quartz and weakly degraded/kaolinitic orthoclase, slightly subordinate similarly weathered albite. Conspicuously disseminated dark green schorl, subordinate garnet (almandine).	Medium, even-grained, granitic. Gradational contact with coarse-grained (pegmatite) segregation.	Rare clots of muscovite in pegmatite vein.	Tourmaline-garnet microgranite with similarly composed (relatively K-feldspathic) pegmatite. Unaltered apart from weathering effects.
113547 Newbery Creek	"Greisen". Quartz and incipiently pink-pleochroic ("rose") muscovite with interspersed quartz, intergranular anhedral, ultrafinely perthitic sanidine (weakly kaolinitic-degraded).	Medium-coarse, granular to euhedral quartz, medium-grained clusters of muscovite. Unstressed.	Minor secondary Fe-stainings.	Greisen-type, pneumatolytic vein or segregation in contrast to the greisenized granite paragenesis reflected in 113438.

037

CENTRAL MINERALOGICAL SERVICES

Sample No.	Classification - Composition	Fabric	Accessories	Comments
113566 Russell Creek	Biotite Micro-Adamellite. Quartz, orthoclase-microperthite and weakly sericitic oligoclase in near-equant proportions with conspicuous fine, extensively chloritised biotite; minor clots, films of secondary muscovite.	Feldspar- and weakly quartz-porphyritic, medium-grained, granitic. Unstressed.	Minor traces of primary apatite, magnetite.	Mildly greisenized porphyritic micro-adamellite. Orthoclase phenocrysts weakly post-magmatically overgrown. This rock is locally weakly micro-graphic.
113575 Lot EL32/82	Quartz-Topaz Rock. Quartz with interspersed fine-grained aggregates, sporadic coarser grains and clusters of topaz.	Medium-coarse, granular to subhedral, partly overgrown "granitic" quartz.	Minor sericite films, fine biotite and rare muscovite flakes (inclusions in quartz). Traces ultrafine	Topazised/silicified, medium-grained granitic paragenesis on vague relict textural grounds. No detectable cassiterite. dark rutile.
113577 Lot EL32/82	Topazised Granite. Quartz and feldspar-pseudomorphous quartz-topaz aggregates with evenly disseminated arsenopyrite euhedra, minor fine-grained chalcopyrite, thinly disseminated cassiterite.	Relict coarse-grained, granitic.	Traces of muscovite, sporadic Fe-stained clots of sericite. Secondary Cu-sulphide and partly degraded scorodite.	Close affinities with 113575. Cassiterite as red to colour-variable <100µ to 300x800µ grains intergranular to quartz, partial inclusions in arsenopyrite.
113579 (T.S. 52135) Box L32/82	Quartz-Topaz-Schorl Rock. Quartz with interspersed clusters, aggregates of topaz, locally conspicuous to thinly disseminated green schorl, thinly disseminated arsenopyrite, chalcopyrite, cassiterite.	Analogous to 113575, but coarser-grained, less distinctly altered granitic.	Traces Cu-sulphide (after chalcopyrite), limonite and scorodite (arsenopyrite), minor sericite clots, stainings.	Poorly diagnostic in terms of altered granite or vein-type paragenesis. Reflects weak late sericitic alteration of tourmaline, topaz. Cassiterite analogous to 113577.

188038

APPENDIX 2

ANALYTICAL RESULT SHEETS

Most of the stream sediment samples are not reported,
in particular nos. 102801-102837, 113464, 113481, 113498, 113530,
113541, 113554-56-58-60-62-64-67-69-70-71, 113573.

Results (for Sn only) for these samples are on map.

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70.44

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52 Murray Road, Welshpool, W.A. 6106

Telex AA92560

ANALYTICAL REPORT No. 4.5 08 2780

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

Amoco Minerals Australia Coy
PO Box 949
North Sydney
N.S.W. 2060

ORDER No.	PROJECT
13336	A84-1110 WELD
DATE RECEIVED	RESULTS REQUIRED
16.11.84	ASAP

STATE OF SAMPLES	No. OF PAGES OF RESULTS	DATE REPORTED	PRE-TREATMENT						TOTAL No. OF SAMPLES	ANALYSIS			
			DRY	CRUSH	SPLIT	PUL-VERISE	SIEVE	OTHER SEE REMARKS		NONE	REFER TO ANALYSIS SECTION	PREPARATION	METHOD
PU						3			40	1	Cu Pb Zn Ag Mn Mo As Au Ba Sb Sn W Rb Sr F		101 101 114 329 120 402 401 129

RESULTS TO

Amoco Minerals
61 Counsel St
Zeehan
ATTN. G. Kary

RESULTS TO

REMARKS

Despatch No. 4930

STATE OF SAMPLES	ANALYSIS — PREPARATION	ANALYSIS — METHOD
whole core	perchloric acid A1	atomic absorption AA5
split core	hydrochloric acid A2	X-ray fluorescence XRF
cuttings	nitric acid A3	specific sulphide SS
rock	aque regia A4	other mixed acids Ma
soil	nitric-perchloric A5	alkaline attack AA
slip	HF mixture A6	volatilization VO
water	HF under pressure A7	ignition IG
sludge	fusion A8	pressed powder (XRF) PP
stream sediment		glass fusion (XRF) GF
heavy mineral		
		atomic absorption AA5
		X-ray fluorescence XRF
		specific sulphide SS
		other mixed acids Ma
		alkaline attack AA
		volatilization VO
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		pressed powder (XRF) PP
		glass fusion (XRF) GF
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		other mixed acids Ma

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ANALYTICAL DATA

SAMPLE PREFIX

REPORT NUMBER

REPORT DATE

CLIENT ORDER No.

PAGE

		4.5 08 2780			22.11.84		13336			1 OF 6	
TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Mn	Mo	As	Sa		
1	113355	5	5	35	X	230	X	5	10		
2	113366	5	10	50	X	210	X	7	20		
3	113367	5	15	15	X	40	X	2	20		
4	113369	10	5	55	X	240	X	10	30		
5	113379	30	25	80	X	265	X	1	30		
6	113384	45	20	70	X	350	X	3	30		
7	113389	30	20	30	X	225	X	5	20		
8	113390	15	20	60	X	285	X	3	35		
9	113393	30	5	45	X	200	X	4	10		
10	113397	5	10	30	X	210	X	3	10		
11	113399	10	15	20	X	135	X	15	15		
12	113400	15	75	25	1.0	95	X	41	20		
13	113405	10	20	50	X	255	X	2	25		
14	113408	10	20	55	X	275	X	1	30		
15	113412	5	15	55	1.0	245	X	1	25		
16	113414	10	15	90	X	360	X	4	35		
17	113423	10	30	75	X	290	X	1	30		
18	113425	60	35	55	X	375	X	4	60		
19	113433	5	20	55	X	320	X	1	25		
20	113438	10	5	40	X	270	X	1	90		
21	113445	10	10	60	X	290	X	2	25		
22	113461	15	5	10	X	40	X	6	20		
23	113474	5	10	25	X	120	X	5	15		
24	113491	15	10	35	X	190	X	3	10		
25	113500	5	10	65	X	370	X	2	45		

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 *R. J. Smith*

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R.C.

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SAMPLE PREFIX

REPORT NUMBER

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PAGE

		4.5 08 2780			22.11.84		13336		2 of 6	
TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Mn	Mo	As	Ba	
1	113502	5	10	50	X	260	X	X	25	
2	113517	40	10	65	X	260	X	7	25	
3	113525	10	15	50	X	335	X	1	20	
4	113529	15	15	30	X	150	X	17	10	
5	113535	10	15	X	X	140	X	4	10	
6	113540	10	5	15	X	90	X	2	20	
7	113547	10	X	125	X	525	X	9	50	
8	113566	5	10	55	X	245	X	6	20	
9	113575	430	30	5	1.5	20	X	5400	20	
10	113576	95	15	10	X	40	X	350	10	
11	113577	2750	60	50	31*	10	X	1.20%	30	
12	113578	15	10	5	0.5	45	X	50	30	
13	113579	1800	20	95	0.0	15	X	1000	35	
14	113580	3250	10	15	64*	10	X	19.0%	X	
15	113581	20	15	10	0.5	20	X	130	10	
17										
18		Note * Assayed by method 104								
19										
20										
21										
22										
23										
24										
25										

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

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188043

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A division of MacDonald Hamilton & Co. Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX

REPORT NUMBER

REPORT DATE

CLIENT ORDER No.

PAGE

		4.5 08 2780			22.11.84		13336		3 OF 6	
TUBE No.	SAMPLE No.	Cu	Pb	Zn	Pg	Mn	Mo	As	Ba	
1	STD 3036/ISS2	170	600	245	1.5	780	X	630	170	
2	RPT 113355	10	5	35	X	235	X	6	10	
3	RPT 11343E	10	5	50	X	270	X	X	85	
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23	DETECTION	5	5	5	0.5	5	10	1	5	
24	DIGESTION									
25	METHOD	101	101	101	101	101	101	114	120	

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

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043

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ANALYTICAL DATA

SAMPLE PREFIX

REPORT NUMBER

REPORT DATE

CLIENT ORDER No.

PAGE

		4.5 08 2700			22.11.84		13336		4 OF 6	
TUBE No.	SAMPLE No.		Au							
1	113355		X							
2	113366		X							
3	113367		X							
4	113369		X							
5	113379		X							
6	113384		X							
7	113389		X							
8	113390		X							
9	113393		X							
10	113397		X							
11	113399		X							
12	113400		X							
13	113405		X							
14	113408		X							
15	113412		X							
	113414		X							
17	113423		X							
18	113425		X							
19	113433		X							
20	113438		0.01							
21	113445		X							
22	113461		X							
23	113474		X							
24	113491		0.01							
25	113500		X							

Results in ppm unless otherwise specified
 I = element present; but concentration too low to measure
 X = element concentration is below detection limit
 0 = element not determined

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A division of MacDonald Hamilton & Co. Pty. Ltd.

188045

ANALYTICAL DATA

SAMPLE PREFIX

REPORT NUMBER

REPORT DATE

CLIENT ORDER No.

PAGE

4.5 08 2780

22.11.84

13336

5 OF 6

TUBE No.	SAMPLE No.	RU							
1	113502	X							
2	113517	X							
3	113525	X							
4	113529	X							
5	113535	X							
6	113540	X							
7	113547	X							
8	113566	X							
9	113575	X							
10	113576	X							
11	113577	X							
12	113578	X							
13	113579	X							
14	113580	X							
15	113581	X							
17									
18									
19									
20									
21									
22									
23									
24									
25									

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

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188046

ANALYTICAL DATA

SAMPLE PREFIX

REPORT NUMBER

REPORT DATE

CLIENT ORDER No.

PAGE

			4.5 08 2780	22.11.84	13336	6 OF 6		
TUBE No.	SAMPLE No.		Flu					
1	STD 3036/ISS2		-					
2	RPT 113355		-					
3	RPT 113438		-					
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23	DETECTION		0.012					
24	DIGESTION							
25	METHOD		329					

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

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188047

Phone (09) 458 7999

A division of MacDonald Hamilton & Co. Pty. Ltd.
52 Murray Road, Welshpool, W.A. 6106

Telex AA92560

ANALYTICAL REPORT No. 4.5 08 2776

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

Amoco Minerals Australia Coy
PO Box 949
North Sydney
N.S.W. 2060

ORDER No.	PROJECT
13335	WELDBOROUGH
DATE RECEIVED	RESULTS REQUIRED
14.11.84	RSAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
		3	191

STATE OF SAMPLES	SAMPLE NUMBERS	PRE-TREATMENT							ANALYSIS		
		DRY	CRUSH	SPLIT	PULVERISE	SIEVE	OTHER SEE REMARKS	NONE	REFERS TO ANALYSIS SECTION	PREPARATION	METHOD
SO	113351-113553	1				2			Cu Ag Zn Mn Mo As Ba Sn W Rb Sr F		101 114 120 402 401 129
PC	113558-113573	1			3		2		Cu Ag Zn Mn Mo As Ba Sn W F		101 114 120 402 401 129

Au REMARKS 329

RESULTS

[Redacted Results]

2. Weigh

RESULTS

J. Suppree
61 Counsel St.
Zeehan
Tasmania 7469

STATE OF SAMPLES	ANALYSIS - PREPARATION	ANALYSIS - METHOD
whole core WC	perchloric acid A1	atomic absorption AAS
split core SC	hydrochloric acid A2	x-ray fluorescence XRF
cutting CU	nitric acid A3	spectrophotometry SPEC
rock RO	aqua regia A4	colorimetry COL
soil SO	nitric-perchloric A5	chromatography CHR
pulp PU	HF mixture A6	titration ITN
water WA	HF under pressure A7	other chemical means CHEM
leaves LI	fusion A8	miscellaneous MISC
stream sediment SS		fluorescence FLUOR
heavy mineral HM		inductively coupled plasma ICP

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Phone (09) 458 7999

A division of MacDonald Hamilton & Co. Pty. Ltd.
52 Murray Road, Welshpool, W.A. 6106

Telex AA92560

ANALYTICAL REPORT No. 4.5 08 2776

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

Amoco Minerals Australia Coy PO Box 949 North Sydney N.S.W. 2060	ORDER No. 13335	PROJECT
	DATE RECEIVED 14.11.84	RESULTS REQUIRED ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES											
3			191											
STATE OF SAMPLES	REFER BELOW	SAMPLE NUMBERS	PRE-TREATMENT						ANALYSIS					
			DRY	CRUSH	SPLIT	PUL-VERISE	SIEVE	OTHER SEE REMARKS	NONE	REFER TO ANALYSIS SECTION	PREPARATION	METHOD		
SS		113359-113574	1					2				Cu Ag Zn Mn Mo		101
												As		114
												Ba		120
												W		401
												Sn		402
												F		129
												Au		329

<p>RESULTS TO</p> <div style="border: 1px solid black; padding: 5px; margin: 5px 0;"> J. Suppree 61 Counsel St. Zeehan Tasmania 7469 </div> <p>RESULTS TO</p> <div style="border: 1px solid black; height: 80px; margin: 5px 0;"></div>	<p style="text-align: center;">REMARKS</p>
--	--

STATE OF SAMPLES	ANALYSIS — PREPARATION			ANALYSIS — METHOD			
whole core	WC	perchloric acid	A1	cold acid	CA	atomic absorption	AAS
split core	SC	hydrochloric acid	A2	specific sulphide	SS	x-ray fluorescence	XRF
cutting	CU	nitric acid	A3	other mixed acids	Ma	spectrophotometry	SPEC
rock	Ro	equo-regia	A4	alkaline attack	AA	colorimetry	COL
soil	SO	nitric-perchloric	A5	volatilization	VO	chromatography	CHR
pulp	PU	HF mixture	A6	ignition	IG	titration	TTN
water	WA	HF under pressure	A7	pressed powder (XRF)	PP	other chemical means	CHEM
fluvial	FL	fusion	A8	glass fusion (XRF)	GF	miscellaneous	MISC
stream sediment	SE					fluorescence	FLUOR
heavy mineral	HM					inductively coupled plasma	ICP

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048

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188049

ANALYTICAL DATA

SAMPLE PREFIX

REPORT NUMBER

REPORT DATE

CLIENT ORDER No.

PAGE

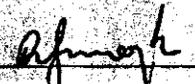
SAMPLE PREFIX		REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE					
		4.5 88 2776	3.12.84	13335	1 OF 7					
TUBE No.	SAMPLE No.		Cu	Zn	Mn	Mo	Pb	Ba	Rg	F
1	113351		5	40	85	X	3	20	X	1900
2	113352		5	20	30	X	1	20	1.0	800
3	113353		5	90	150	X	12	25	X	1900
4	113354		X	50	100	X	5	10	0.5	1300
5	113356		X	25	40	X	2	10	1.0	600
6	113357		X	40	80	X	5	15	X	1300
7	113362		5	55	125	X	7	35	X	600
8	113363		5	60	125	X	7	40	X	600
9	113364		10	60	130	X	6	25	X	600
10	113365		20	35	20	X	60	5	X	1300
11	113370		45	100	120	X	11	45	X	1300
12	113371		70	95	50	X	26	60	X	1200
13	113372		25	90	145	X	12	60	X	600
14	113375		20	85	185	X	4	85	X	600
15	113376		80	80	130	X	4	50	X	1100
16	113377		50	95	265	X	5	50	X	500
17	113378		110	155	160	X	15	40	X	800
18	113380		100	135	135	X	36	45	X	600
19	113381		70	130	150	X	20	50	X	600
20	113382		40	115	145	X	19	40	X	500
21	113383		25	90	295	X	20	30	X	400
22	113391		10	70	115	X	10	30	X	900
23	113392		10	60	95	X	7	15	1.0	500
24	113394		5	35	95	X	17	15	X	2000
25	113395		5	60	160	X	8	25	X	1700

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

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188050

ANALYTICAL DATA

SAMPLE PREFIX

REPORT NUMBER

REPORT DATE

CLIENT ORDER No.

PAGE

			4.5 08 2776			3.12.84		13335		2 of 7	
TUBE No.	SAMPLE No.	DATA TYPE No.	Cu	Zn	Mn	Mo	As	Ba	Ag	F	
1	113396		X	45	130	X	7	10	X	1100	
2	113398		15	65	170	X	380	25	X	1500	
3	113401		15	75	150	X	43	40	X	800	
4	113402		10	90	180	X	91	40	X	600	
5	113403		10	90	155	X	15	55	X	600	
6	113404		10	60	125	X	3	50	X	700	
7	113406		5	105	315	X	7	40	X	800	
8	113407		30	75	180	X	10	35	X	500	
9	113409		70	115	230	X	15	30	X	600	
10	113410		80	135	180	X	60	55	X	500	
11	113411		130	190	225	X	20	15	X	800	
12	113413		100	160	440	X	11	5	X	900	
13	113415		75	80	120	X	11	40	X	400	
14	113416		185	195	150	X	14	40	X	500	
15	113417		90	120	165	X	18	50	0.5	400	
16	113418		25	90	140	X	7	35	X	700	
17	113419		35	115	220	X	13	40	X	500	
18	113420		20	55	90	X	10	35	X	400	
19	113421		10	75	140	X	12	30	X	1000	
20	113422		10	110	160	X	24	145	X	1200	
21	113424	7/86	15	70	65	X	10	75	0.5	600	
22	113426		75	180	65	X	1	75	X	2800	
23	113427		20	60	65	X	12	40	X	1000	
24	113428		15	65	95	X	15	25	X	900	
25	113429		10	55	110	X	1	30	X	600	

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

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R. J. ...

050

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188051

ANALYTICAL DATA

SAMPLE PREFIX

REPORT NUMBER

REPORT DATE

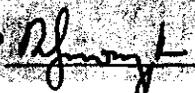
CLIENT ORDER No.

PAGE

		4.5 08 2776				3.12.84		13335		3 OF 7	
TUBE No.	SAMPLE No.		Cu	Zn	Mn	Mo	As	Ba	Pb	F	
1	113430		20	65	130	X	7	30	X	700	
2	113431		15	80	300	X	3	40	X	800	
3	113432		15	110	275	X	1	135	3.0	1100	
4	113434		35	70	115	X	4	30	X	600	
5	113435		40	75	155	X	4	35	X	600	
6	113436		45	125	255	X	7	40	X	700	
7	113437		90	200	235	X	9	40	X	1000	
8	113439		120	130	130	X	4	35	X	1000	
9	113440		110	245	135	X	6	25	X	2000	
10	113441		40	60	160	X	4	35	X	400	
11	113442		35	100	185	X	6	35	1.0	500	
12	113443		80	230	235	X	7	30	1.5	600	
13	113444		30	80	275	X	6	35	X	400	
14	113448		10	50	120	10	8	25	0.5	600	
15	113449		10	55	480	X	3 y	35	X	500	
16	113450		5	45	130	X	6	30	X	600	
17	113451		45	305	2500	X	4	55	X	900	
18	113452		85	155	740	X	5	120	X	700	
19	113453		120	115	3400	X	3	55	0.5	500	
20	113454		50	130	435	X	5	50	2.0	1000	
21	113455		25	150	445	X	1	55	2.0	2600	
22	113456		50	105	190	10	7	45	X	1100	
23	113457		40	90	485	10	5	35	X	950	
24	113458		20	100	265	20	19	40	X	2800	
25	113459		90	80	70	X	20	60	X	1200	

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

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188052

ANALYTICAL DATA

SAMPLE PREFIX

REPORT NUMBER

REPORT DATE

CLIENT ORDER No.

PAGE

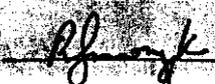
		4.5 08 2776				3.12.84		13335		4 of 7	
TUBE No.	SAMPLE No.		Cu	Zn	Mn	Mo	Pb	Ba	Pg	F	
1	113460		15	70	160	10	2	35	1.5	2100	
2	113462		5	40	130	X	3	15	X	2600	
3	113463		5	70	170	X	4	15	0.5	1900	
4	113466		10	75	165	10	16	60	X	1700	
5	113467		65	135	265	X	6	25	X	900	
6	113468		20	90	195	X	8	20	X	700	
7	113469		45	115	225	X	7	40	X	800	
8	113470		25	105	245	X	6	60	X	950	
9	113471		30	155	370	X	3	50	X	1100	
10	113472		105	115	225	X	4	35	0.5	800	
11	113473		10	70	185	Xx	X	40	X	900	
12	113475		X	34	140	X	1	10	X	1700	
13	113476		5	55	70	X	4	20	0.5	100	
14	113477		10	60	85	10	5	25	0.5	900	
15	113478		10	70	140	X	3	30	X	1100	
5	113479		5	60	150	X	5	25	0.5	1800	
17	113480		15	85	140	X	3	35	1.0	160	
18	113483		5	75	195	X	4	30	X	2300	
19	113484		10	85	155	X	6	50	1.5	1000	
20	113485		20	155	265	X	2	90	0.5	1700	
21	113486		35	95	165	X	3	50	0.5	600	
22	113487		20	100	255	X	5	45	X	900	
23	113488		25	75	150	X	3	35	0.5	600	
24	113489		20	85	305	X	3	50	1.5	600	
25	113490		15	100	145	X	2	35	1.0	500	

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

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188053

ANALYTICAL DATA

SAMPLE PREFIX

REPORT NUMBER

REPORT DATE

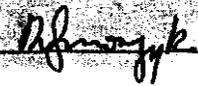
CLIENT ORDER No.

PAGE

		4.5 08 2776				3.12.84		13335		5 OF 7	
TUBE No.	SAMPLE No.		Cu	Zn	Mn	Mo	As	Ba	Ag	F	
1	113492		5	60	185	X	1	25	X	800	
2	113493		5	80	310	X	X	15	0.5	3050	
3	113494		5	20	40	X	1	15	X	800	
4	113495		5	60	155	X	1	20	X	2000	
5	113496		5	50	85	X	2	30	X	1200	
6	113497		5	60	190	X	2	40	1.0	2300	
7	113501		X	40	130	X	9	35	X	400	
8	113503		X	45	160	X	X	30	0.5	400	
9	113504		10	45	95	X	8	30	1.0	300	
10	113505		5	35	100	X	7	30	0.5	300	
11	113506		20	70	260	X	5	50	0.5	900	
12	113507		20	45	75	X	4	25	0.5	600	
13	113508		10	35	90	X	1	25	1.0	500	
14	113511		5	45	105	X	6	25	X	400	
15	113512		10	55	145	X	11	25	X	500	
16	113513		10	70	120	X	21	15	X	500	
17	113514		10	50	145	X	10	15	0.5	400	
18	113515		35	65	130	X	8	25	X	500	
19	113516		50	60	130	X	6	25	0.5	500	
20	113518		45	80	215	X	12	25	X	400	
21	113519		50	110	290	10	18	20	X	400	
22	113520		45	100	125	X	39	30	0.5	400	
23	113521		15	100	410	X	3	40	0.5	400	
24	113522		25	75	140	X	2	35	X	400	
25	113523		5	35	110	10	X	25	0.5	1500	

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

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053

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A division of MacDonald Hamilton & Co. Pty. Ltd.

188054

ANALYTICAL DATA

SAMPLE PREFIX

REPORT NUMBER

REPORT DATE

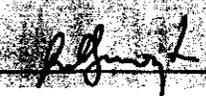
CLIENT ORDER No.

PAGE

SAMPLE PREFIX			REPORT NUMBER			REPORT DATE		CLIENT ORDER No.		PAGE	
			4.5 08 2776			3.12.84		13335		6 OF 7	
TUBE No.	SAMPLE No.		Cu	Zn	Mn	Mo	Pb	Ba	Pg	F	
1	113524		X	35	105	X	5	15	X	100	
2	113526		X	30	135	X	1	20	X	1500	
3	113527		X	30	40	X	X	15	X	3900	
4	113528		X	40	60	X	X	15	X	2600	
5	113532		15	80	215	X	8	40	X	2100	
6	113533		10	75	245	X	6	30	X	700	
7	113534		35	130	380	X	3	85	0.5	2000	
8	113536		35	130	385	X	8	30	0.5	1400	
9	113537		65	95	195	X	6	50	0.5	1100	
10	113538		25	105	245	X	2	30	0.5	1900	
11	113539		25	130	2450	X	13	95	1.0	2100	
12	113542		10	60	155	X	3	30	0.5	1300	
13	113543		25	85	185	X	3	50	0.5	1700	
14	113544		60	90	290	20	54	30	0.5	1200	
15	113545		70	120	285	10	3	60	0.5	3900	
6	113546		10	40	150	X	4	30	0.5	900	
17	113548		5	15	25	X	X	20	X	600	
18	113549		75	110	275	X	5	60	1.0	1200	
19	113550		30	120	300	X	1	70	X	2700	
20	113551		10	105	270	X	1	65	X	1300	
21	113552		140	70	135	X	X	45	X	700	
22	113553		15	60	135	X	3	55	X	900	
23											
24											
25											

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

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188055

ANALYTICAL DATA

SAMPLE PREFIX

REPORT NUMBER

REPORT DATE

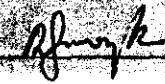
CLIENT ORDER No.

PAGE

SAMPLE PREFIX		REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE					
		4.5 08 2776	3.12.84	13335	7 OF 7					
TUBE No.	SAMPLE No.	Cu	Zn	Mn	Mo	Pb	Ba	Ag	F	
1	STD/ISS2	175	265	830	X	610	245	2.5	-	
2	RPT 113351	5	40	80	X	3	20	X	-	
3	RPT 113382	40	110	150	X	19	40	X	-	
4	STD 3036/ISS2	175	260	835	10	610	275	2.0	-	
5	RPT 113418	25	90	140	X	8	35	X	-	
6	RPT 113441	40	60	165	X	3	35	X	-	
7	STD 3036/ISS2	160	245	785	X	610	250	2.0	-	
8	RPT 113469	50	115	220	X	9	40	X	-	
9	RPT 113492	5	55	175	X	2	20	X	-	
10	STD 3036/ISS2	160	245	790	10	620	280	1.5	-	
11	RPT 113515	20	60	115	X	5	30	X	-	
12	RPT 113542	10	55	150	X	4	35	X	-	
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23	DETECTION	5	5	5	10	1	5	0.5	100	
24	DIGESTION									
25	METHOD	101	101	101	101	114	120	101	129	

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

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188056

ANALYTICAL DATA

SAMPLE PREFIX

REPORT NUMBER

REPORT DATE

CLIENT ORDER No.

PAGE

SAMPLE PREFIX		REPORT NUMBER				REPORT DATE	CLIENT ORDER No.			PAGE	
PAN CONC.		4.5 08 2776E				3.12.84	13335			1 OF 2	
TUBE No.	SAMPLE No.	Sn	W	Weight	F						
1	113389	293	X	454.3	6700						
2	113358	88	X	354.2	4400						
3	113360	69	X	392.9	200						
4	113368	1120	X	365.6	300						
5	113373	281	X	318.3	100						
6	113385	9	X	420.5	100						
7	113387	2930	60	294.5	200						
8	113446	5660	47	491.3	200						
9	113464	69	X	291.6	400						
10	113481	90	11	690.0	6500						
11	113498	1300	35	368.1	1000						
12	113530	4770	23	611.6	300						
13	113541	9.18%*	190	805.5	400						
14	113554	44	X	662.0	1400						
15	113556	27	X	476.3	X						
16	113558	12	X	569.8	X						
17	113560	4	X	587.9	X						
18	113562	25	X	463.2	X						
19	113564	10	10	498.9	100						
20	113567	17	X	474.6	100						
21	113569	71	12	530.8	100						
22	113571	11	X	511.4	X						
23	113573	93	14	515.6	100						
24											
25											

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

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ANALYTICAL DATA

SAMPLE PREFIX

REPORT NUMBER

REPORT DATE

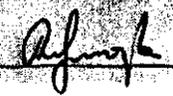
CLIENT ORDER No.

PAGE

PAN CONC.		4.5 08 2776E				3.12.84		13335		2 OF 2	
TUBE No.	SAMPLE No.	Sn	W	Weight	F						
1	DETECTION	3	10		100						
2	DIGESTION										
3	METHOD	402	401	gms	129						
4											
5											
6											
7											
8											
9											
10	NOTE #	ASSAYED BY 404									
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											
21											
22											
23											
24											
25											

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

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188058

ANALYTICAL DATA

SAMPLE PREFIX

REPORT NUMBER

REPORT DATE

CLIENT ORDER No.

PAGE

PAN CONC.		4.5 08 2776B			22.11.64		13335		1 OF 2	
TUBE No.	SAMPLE No.	Cu	Pg	Zn	Mn	Mo	Rs	Sa	Pu	
1	113309 (113579)	X	0.5	15	65	X	X	20	X	
2	113358	5	X	15	60	X	X	15	0.03	
3	113360	X	X	15	65	X	X	25	0.01	
4	113368	X	X	20	70	X	X	25	0.02	
5	113373	5	X	20	95	X	X	20	X	
6	113385	X	0.5	15	65	X	1	20	X	
7	113387	X	X	10	80	X	X	20	X	
8	113446	10	X	40	140	X	X	25	X	
9	113464	5	X	25	260	X	X	30	X	
10	113481	5	1.0	10	50	X	X	20	X	
11	113498	X	0.5	30	185	X	X	25	X	
12	113530	5	2.0	30	165	X	X	20	X	
13	113541	15	1.5	75	610	X	X	30	X	
14	113554	X	1.0	5	30	X	X	20	X	
15	113556	X	X	10	65	X	X	15	X	
16	113558	X	0.5	15	75	X	2	35	X	
17	113560	X	X	15	195	X	1	35	X	
18	113562	X	X	10	100	X	1	30	X	
19	113564	X	X	15	130	X	1	30	X	
20	113567	X	1.0	15	95	X	1	35	X	
21	113569	X	1.5	15	120	X	1	35	X	
22	113571	X	X	10	95	X	X	30	X	
23	113573	X	0.5	10	120	X	X	25	X	
24										
25										

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

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188059

ANALYTICAL DATA

SAMPLE PREFIX

REPORT NUMBER

REPORT DATE

CLIENT ORDER No.

PAGE

SAMPLE PREFIX		REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE				
FRN CONC.		4.5 08 2776B	22.11.84	13335	2 OF 2				
TUBE No.	SAMPLE No.	Cu	Pg	Zn	Mn	Mo	As	Ba	Ru
1	STD 3036/ISS2	175	2.5	255	790	X	600	260	-
2	RPT 113558	10	0.5	15	70	X	2	30	-
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									
23	DETECTION	5	0.5	5	5	10	1	5	0.012
24	DIGESTION								
25	METHOD	101	101	101	101	101	114	120	329

Results in ppm unless otherwise specified
 I = element present; but concentration too low to measure
 X = element concentration is below detection limit
 - = element not determined

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R. J. ...

059

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188060

ANALYTICAL DATA

SAMPLE PREFIX

REPORT NUMBER

REPORT DATE

CLIENT ORDER No.

PAGE

STREAM SED.		4.5 00 2776F			3.12.84		13335		1 OF 1	
TUBE No.	SAMPLE No.	Sn	W	F		DATA BASE NO				
1	113359	143	16	800		7980				
2	113360	464	10	600		7981				
3	113374	58	X	500		7982				
4	113386	43	X	400		7983				
5	113388	53	X	800		7984				
6	113447	I.S	I.S	600						
7	113465	111	15	1300						
8	113482	10	X	1300						
9	113499	48	12	1100						
10	113510	1770	16	1100		7985				
11	113531	1140	13	1000						
12	113555	3	X	300						
13	113557	4	X	200						
14	113559	7	X	200						
15	113561	X	X	100						
16	113563	7	X	100						
17	113565	13	13	200						
18	113568	11	X	200						
19	113570	6 X	X	100						
20	113572	5	X	200						
21	113574	X	X	200						
22										
23	DETECTION	3	10	100						
24	DIGESTION									
25	METHOD	402	401	129						

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

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060

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188061 *

ANALYTICAL DATA

STREAM?

SAMPLE PREFIX

REPORT NUMBER

REPORT DATE

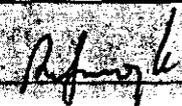
CLIENT ORDER No.

PAGE

SOIL SED.			4.5 08 2776C			22.11.84		13335		1 OF 2	
TUBE No.	SAMPLE No.	DATA PAGE NO	Cu	Pg	Zn	Mn	Mo	Rs	Ba	Pu	
1	113359	7980	X	1.0	40	90	X	2	25	X	
2	113361	7981	20	0.5	60	140	X	6	35	T.F	
3	113374	7982	20	1.0	60	155	X	4	45	X	
4	113386	7983	10	0.5	60	315	X	6	60	T.F	
5	113388	7984	20	X	80	590	X	3	55	0.01	
6	113447		60	0.5	125	435	X	2	60	T.F	
7	113465		45	0.5	150	765	X	5	100	X	
8	113482		10	1.0	70	140	X	2	55	T.F	
9	113499		10	0.5	125	570	X	1	80	X	
10	113510	7985	15	X	65	205	X	3	45	T.F	
11	113531		50	0.5	155	810	X	4	85	X	
12	113556		5	X	85	290	X	1	100	T.F	
13	113557		5	0.5	50	135	X	7	50	X	
14	113559		5	1.0	50	280	X	2	45	T.F	
15	113561		5	0.5	55	365	X	X	60	T.F	
16	113563		10	1.0	50	330	X	6	60	T.F	
17	113565		20	1.0	60	120	X	5	35	X	
18	113568		10	1.0	55	315	X	2	45	T.F	
19	113570		5	X	40	145	X	X	35	T.F	
20	113572		5	X	55	380	X	3	50	T.F	
21	113574		10	0.5	60	205	X	X	70	T.F	
22											
23											
24											
25											

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

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188062

ANALYTICAL DATA

SAMPLE PREFIX

REPORT NUMBER

REPORT DATE

CLIENT ORDER No.

PAGE

SOIL SED.		4.5 08 27760			22.11.84		13335		2 OF 2	
TUBE No.	SAMPLE No.	Cu	Pb	Zn	Mn	Mo	As	Sa	Ru	
1	STD 3036/ISS2	175	2.5	255	790	X	600	260	-	
2	RPT 113556	10	0.5	80	290	X	1	105	-	
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23	DETECTION	5	0.5	5	5	10	1	5	0.012	
24	DIGESTION									
25	METHOD	101	101	101	101	101	114	120	329	

Results in ppm unless otherwise specified
 E = element present; but concentration too low to measure
 X = element concentration is below detection limit
 - = element not determined

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562

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ANALYTICAL DATA

SAMPLE PREFIX

REPORT NUMBER

REPORT DATE

CLIENT ORDER No.

PAGE

		4.5 08 2776D				22.11.84		13335		1 OF 6	
TUBE No.	SAMPLE No.	Sn	Rb	Sr	W	Rb/Sr		Rb/Ba			
1	113351	28	336	13	X	25.85		16.80			
2	113352	20	315	11	X	28.64		15.75			
3	113353	32	374	14	X	26.71		14.96			
4	113354	26	469	9	X	52.11		46.90			
5	113356	16	459	16	X	28.69		45.90			
6	113357	20	541	12	11	45.08		36.07			
	113362	15	225	43	X	5.23		6.43			
8	113363	20	252	44	X	5.73		6.30			
9	113364	29	247	37	X	6.68		9.88			
10	113365	135	304	25	X	12.16		60.80			
11	113370	19	208	25	X	8.32		4.62			
12	113371	17	138	22	X	6.27		2.30			
13	113372	46	267	42	X	6.36		4.45			
14	113375	22	286	55	13	5.20		3.36			
15	113376	44	362	51	X	7.10		7.24			
16	113377	61	289	39	X	7.41		5.78			
17	113378	64	309	41	X	7.54		7.73			
18	113380	72	256	34	19	7.53		5.69			
19	113381	85	287	37	X	7.76		5.74			
20	113382	41	240	32	X	7.50		6.00			
21	113383	42	278	44	13	6.32		7.27			
22	113391	54	331	34	X	9.74		11.03			
23	113392	38	326	39	X	8.36		21.73			
24	113394	29	651	6	17	109.50		43.43			
25	113395	36	524	8	13	65.50		20.96			

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

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063

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188064

ANALYTICAL DATA

SAMPLE PREFIX

REPORT NUMBER

REPORT DATE

CLIENT ORDER No.

PAGE

			4.5 08 2776D	22.11.84	13335	2 OF 6		
TUBE No.	SAMPLE No.	DATA	Sn	Rb	Sr	W	Rb/Sr	Rb/Ba
1	113396		18	613 /	6	X	102.17	61.30
2	113398		67	377 /	8	30	47.13	15.08
3	113401		29	182 /	18	X	10.11	4.55
4	113402		29	248 /	39	X	6.36	6.20
5	113403		42	198 /	30	X	6.60	3.60
6	113404		24	274 /	42	X	6.52	5.48
7	113406		27	369 /	42	X	8.79	9.23
8	113407		27	262 /	41	X	6.39	7.49
9	113409		42	200 /	22	X	9.09	6.67
10	113410		61	272 /	35	X	7.77	4.95
11	113411		63	292 /	50	X	5.84	19.47
12	113413		54	214 /	35	X	6.11	42.80
13	113415		66	196 /	26	X	7.54	4.90
14	113416		45	204 /	27	X	7.56	5.10
15	113417		43	215 /	45	X	4.78	4.30
16	113418		54	317 /	38	30	8.34	9.06
17	113419		36	224 /	37	X	6.05	5.60
18	113420		30	239 /	42	X	5.69	6.83
19	113421		101	489 /	29	X	16.86	16.30
20	113422		347	246 /	17	X	14.47	1.70
21	113424	*	45	174 /	30	X	5.80	2.32
22	113426		4	128 /	29	11	4.41	1.71
23	113427		42	207 /	40	13	5.18	5.18
24	113428		54	147 /	17	X	8.65	5.88
25	113429		25	227 /	31	X	7.32	7.57

Results in ppm unless otherwise specified
 T = element present; but concentration too low to measure
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 - = element not determined

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188065

ANALYTICAL DATA

SAMPLE PREFIX

REPORT NUMBER

REPORT DATE

CLIENT ORDER No.

PAGE

		4.5 08 27760				22.11.84		13335		3 OF 6	
TUBE No.	SAMPLE No.	Sn	Rb	Sr	W	Rb/Sr		Rb/Ba.			
1	113430	23	243 /	24	X	10.13		8.10			
2	113431	21	279 /	38	X	7.34		6.98			
3	113432	31	477 /	34	X	14.03		3.53			
4	113434	38	223 /	30	X	7.43		7.43			
5	113435	29	208 /	26	X	8.00		5.94			
6	113436	42	350 /	30	X	11.67		8.75			
7	113437	64	311 /	33	X	9.42		7.78			
8	113439	134	325 /	35	X	9.29		9.29			
9	113440	210	374 /	31	X	12.06		14.96			
10	113441	31	318 /	47	X	6.77		9.09			
11	113442	42	239 /	35	X	6.83		6.83			
12	113443	59	201 /	26	X	7.73		6.70			
13	113444	31	186 /	38	X	4.89		5.31			
14	113448	26	212 /	24	X	8.83		8.48			
15	113449	19	281 /	44	X	6.39		8.03			
16	113450	17	214 /	38	X	5.63		7.13			
17	113451	75	101 /	62	27	1.63		1.84			
18	113452	X	24 /	35	X	0.69		0.20			
19	113453	X	9 /	14	X	0.64		0.16			
20	113454	7	27 /	97	X	0.28		0.54			
21	113455	35	295 /	54	113	5.46		5.36			
22	113456	16	138 /	34	18	4.06		3.07			
23	113457	29	121 /	33	X	3.67		3.46			
24	113458	26	561 /	15	X	37.40		14.03			
25	113459	51	76 /	10	X	7.60		1.27			

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

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065

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188066

ANALYTICAL DATA

SAMPLE PREFIX

REPORT NUMBER

REPORT DATE

CLIENT ORDER No.

PAGE

			4.5 08 2776D			22.11.84		13335		4 OF 6	
TUBE No.	SAMPLE No.		Sn	Rb	Sr	W	Rb/Sr		Rb/Ba		
1	113460		149	419 /	24	10	17.46		11.97		
2	113462		49	495 /	14	X	35.36		33.00		
3	113463		31	370 /	14	X	26.43		24.67		
4	113466		21	153 /	20	X	7.65		2.55		
5	113467		80	324 /	15	X	21.60		12.96		
6	113468		20	122 /	30	X	4.07		6.10		
	113469		51	142 /	29	X	4.90		3.55		
8	113470		36	214 /	26	X	8.23		3.57		
9	113471		36	122 /	22	X	5.55		2.44		
10	113472		70	190 /	35	X	5.43		5.43		
11	113473		40	300 /	38	10	7.89		7.50		
12	113475		26	634 /	9	X	70.44		63.40		
13	113476		31	263 /	15	X	17.53		13.15		
14	113477		26	231 /	19	X	12.16		9.24		
15	113478		51	345 /	14	X	24.64		11.50		
16	113479		34	329 /	17	X	19.35		13.16		
17	113480		33	318 /	21	12	15.14		9.09		
18	113483		42	471 /	14	X	33.64		15.70.		
19	113484		33	203 /	29	X	7.00		4.06		
20	113485		64	271 /	29	11	9.34		3.01		
21	113486		29	143 /	29	X	4.93		2.86		
22	113487		30	242 /	26	X	9.31		5.38		
23	113488		28	136 /	26	X	5.23		3.89		
24	113489		24	216 /	30	X	7.20		4.32		
25	113490		25	159 /	29	X	5.48		4.54.		

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

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066

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A division of MacDonald Hamilton & Co. Pty. Ltd.

188067

ANALYTICAL DATA

SAMPLE PREFIX

REPORT NUMBER

REPORT DATE

CLIENT ORDER No.

PAGE

		4.5 08 27760				22.11.84		13335		5 OF 6	
TUBE No.	SAMPLE No.	Sn	Rb	Sr	W	Rb/Sr		Rb/Ba.			
1	113492	29	442 /	10	X	44.20		17.68			
2	113493	32	649 /	5	10	129.80		43.27			
3	113494	25	152 /	10	X	15.20		10.13			
4	113495	28	442 /	12	X	36.83		22.10			
5	113496	30	244 /	18	11	13.56		8.13			
6	113497	48	586 /	24	X	24.42		14.65			
	113501	18	197 /	35	X	5.63		5.63			
8	113503	25	286 /	36	X	7.94		9.53			
9	113504	18	190 /	30	X	6.33		6.33			
10	113505	20	66 /	15	X	4.40		2.20			
11	113506	38	347 /	48	X	7.23		6.94			
12	113507	42	291 /	25	X	11.54		11.64			
13	113508	60	389 /	53	X	7.34		15.56			
14	113511	19	186 /	19	X	9.79		7.04			
15	113512	35	285 /	27	X	10.56		11.40			
16	113513	30	191 /	22	X	8.68		12.73			
17	113514	34	230 /	38	X	6.05		15.33			
18	113515	58	248 /	34	X	7.29		7.92			
19	113516	47	242 /	34	X	7.12		9.68			
20	113518	65	231 /	38	X	6.08		9.24			
21	113519	46	212 /	35	X	6.06		10.60			
22	113520	39	197 /	29	X	6.79		6.57			
23	113521	21	232 /	35	X	6.63		5.80			
24	113522	21	187 /	32	25	5.84		5.34			
25	113523	38	364 /	18	X	20.22		14.56			

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

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188068

ANALYTICAL DATA

SAMPLE PREFIX

REPORT NUMBER

REPORT DATE

CLIENT ORDER No.

PAGE

		4.5 08 2776D			22.11.84		13335		6 OF 6	
TUBE No.	SAMPLE No.	Sn	Rb	Sr	W	Rb/Sr		Rb/Ba		
1	113524	5	279 ✓	8	X	34.88		18.60		
2	113526	35	554 ✓	15	15	36.93		27.70		
3	113527	30	535 ✓	7	X	76.43		35.67		
4	113528	39	627 ✓	10	X	62.70		41.80		
5	113532	39	174 ✓	25	X	6.96		4.35		
6	113533	22	180 ✓	38	X	4.74		6.00		
	113534	51	199 ✓	20	X	9.95		2.34		
8	113536	39	218 ✓	49	X	4.45		7.27		
9	113537	122	284 ✓	22	X	9.27		4.08		
10	113538	36	173 ✓	57	X	3.04		5.77		
11	113539	40	314 ✓	44	X	7.14		3.69		
12	113542	37	359 ✓	21	X	17.10		11.97		
13	113543	134	264 ✓	28	12	9.43		5.28		
14	113544	25	134 ✓	21	X	6.38		4.47		
15	113545	210	460 ✓	70	17	6.57		7.67		
16	113546	35	199 ✓	22	X	9.05		6.63		
17	113548	17	553 ✓	61	X	9.07		27.65		
18	113549	31	157 ✓	51	X	3.08		2.62		
19	113550	34	235 ✓	27	X	8.70		3.36		
20	113551	38	319 ✓	45	X	7.09		4.91		
21	113552	39	238 ✓	42	12	5.67		5.79		
22	113553	39	83 ✓	16	X	5.19		1.51		
23	DETECTION	3	3	5	10					
24	DIGESTION									
25	METHOD	402	401	401	401					

Results in ppm unless otherwise specified
 T = element present; but concentration too low to measure
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 — = element not determined

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068

188069

R.C.

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A division of MacDonald Hamilton & Co. Pty. Ltd. WELDBOROUGH

ANALYTICAL DATA

SAMPLE PREFIX
REPORT NUMBER
REPORT DATE
CLIENT ORDER No.
PAGE

TUBE No.	SAMPLE No.	Sn	Sb	W	Rb	Sr	Sn%	F	Rb/Sr	Rb/Ba	
		4.5 08 2780B				26.11.84		13336		1 OF 2	
✓ 1	113355	18	15	X	477	6	-	600	79.5	47.7	
✓ 2	113366	4	3	X	329	117	-	400	2.81	16.45	
✓ 3	113367	7	4	X	322	9	-	100	35.77	16.1	
✓ 4	113369	6	3	X	298	98	-	500	3.0	9.93	
✓ 5	113379	13	23	X	339	82	-	300	4.13	11.3	
✓ 6	113384	15	5	X	309	102	-	300	3.02	10.3	
✓ 7	113389	7	6	X	399	34	-	200	11.73	19.95	
✓ 8	113390	9	X	X	347	114	-	300	3.04	9.91	
✓ 9	113393	6	4	X	605	7	-	1200	86.42	60.5	
✓ 10	113397	13	3	14	694	6	-	1600	115.66	69.4	
✓ 11	113399	23	5	X	639	6	-	1600	106.5	42.6	
✓ 12	113400	39	X	X	470	6	-	800	78.33	23.5	
✓ 13	113405	9	6	X	324	97	-	400	3.34	12.96	
✓ 14	113408	5	3	X	289	103	-	500	2.80	9.63	
✓ 15	113412	5	4	X	292	103	-	400	2.83	11.68	
✓ 16	113414	8	X	X	339	108	-	700	3.13	9.68	
✓ 17	113423	13	3	X	385	57	-	600	6.75	12.83	
✓ 18	113425	X	3	X	23	310	-	300	0.07	0.38	
✓ 19	113433	4	5	X	317	108	-	500	2.93	12.68	
✓ 20	113438	377	4	22	2660	20	-	7600	133	29.55	
✓ 21	113445	5	4	X	299	106	-	600	2.82	11.96	
✓ 22	113461	13	4	X	587	16	-	500	36.68	29.35	
✓ 23	113474	10	X	X	720	7	-	1700	102.85	48.0	
✓ 24	113491	13	5	16	608	6	-	1200	101.33	60.8	
✓ 25	113500	14	5	X	284	86	-	600	3.30	6.31	

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

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069

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R.C.

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ANALYTICAL DATA

SAMPLE PREFIX

REPORT NUMBER

REPORT DATE

CLIENT ORDER No.

PAGE

		4.5 08 2780B				26.11.84		13336		2 OF 2	
TUBE No.	SAMPLE No.	Sn	Sb	W	Rb	Sr	Sn%	F	Rb/Sr	Rb/Ba	
1	113502	X	3	X	300	115	-	500	2.60	12	
2	113517	13	X	X	321	100	-	700	3.21	12.84	
3	113525	20	3	X	952	4	-	1800	238	47.6	
4	113529	5	5	X	600	7	-	1700	85.71	60	
5	113535	18	7	X	614	17	-	200	36.11	61.4	
6	113540	X	8	X	16	44	-	100	0.36	0.8	
7	113547	168	6	X	1390	14	-	2700	99.28	27.8	
8	113566	3	4	X	292	94	-	100	3.10	14.6	
9	113575	1020	11	X	16	28	-	6500	0.57	0.8	
10	113576	1.84%	4	27	161	4	1.98	9600	40.25	16.1	
11	113577	5170	7	X	52	6	-	7500	8.66	1.73	
12	113578	3611	4	14	199	11	-	5700	18.09	6.63	
13	113579	791	4	X	101	6	-	7300	16.83	2.88	
14	113580	2020	525	X	116	X	-	300	X	X	
15	113581	1.29%	X	19	26	6	1.50	2.17%	4.33	2.6	
17											
18											
19											
20											
21											
22											
23	DETECTION	3	3	10	2	4	0.1	100			
24	DIGESTION										
25	METHOD	402	402	401	401	401	404	129			

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

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070

ANALABS

188071

Plotted

Phone (09) 458 7999

A division of MacDonald Hamilton & Co. Pty. Ltd.
52 Murray Road, Welshpool, W.A. 6106

Telex AA92560

ANALYTICAL REPORT No. 4.5 08 2983

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

Amoco Minerals Australia Coy
PO Box 949
North Sydney
N.S.W. 2060

ORDER No.	PROJECT
E 14787	AB4-1110
DATE RECEIVED	RESULTS REQUIRED
11.3.85	

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
		3	33

STATE OF SAMPLES	REFER BELOW	SAMPLE NUMBERS	PRE-TREATMENT						ANALYSIS			
			DRY	CRUSH	SPLIT	PULVERISE	SIEVE	OTHER SEE REMARKS	NONE	REFER TO ANALYSIS SECTION	PREPARATION	METHOD
	RO	113583, 84, 96, 97, 99, 113658, 113663	1	2	4	3				Sn		402
	SO	113585, 87, 88, 89, 91-94, 98, 653, 54, 56, 57, 59, 61, 65, 66, 70, 72, 73, 74	1			2				Sn		402
	SS	113651, 113669					1			Sn		402
	PC	113652, 113668	1			2				Sn		402

RESULTS

TO

As Above
Att. B. Roxburgh

RESULTS

TO

Att. Jonathon Supprey
61 Counsel Street
Zeehan Tas 7470

Invoice to Zeehan

REMARKS

Despatch No. 4946

STATE OF SAMPLES	ANALYSIS - PREPARATION	ANALYSIS - METHOD
whole core WC	perchloric acid A1	atomic absorption AAS
split core SC	hydrochloric acid A2	x-ray fluorescence XRF
clay CU	nitric acid A3	spectrophotometry SPEC
rock Ro	aqua regia A4	colorimetry COL
soil SO	nitric-perchloric A5	chromatography CHR
pulp PU	HF mixture A6	titration TIT
water WA	HF under pressure A7	other chemical means CHEM
flotation FL	fusion A8	miscellaneous MISC
stream sediment SS		fluorescence FLUOR
heavy mineral MN		inductively coupled plasma ICP

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071

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188072

A division of MacDonald Hamilton & Co. Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX

REPORT NUMBER

REPORT DATE

CLIENT ORDER No.

PAGE

SAMPLE PREFIX			REPORT NUMBER			REPORT DATE		CLIENT ORDER No.		PAGE	
			4.5 08 2983			21.3.85		E 14787		1 OF 2	
TUBE No.	SAMPLE No.	Sn									
1	113583	120 /	Gresen	Spikes	Area						
2	113584	220 /	Spink								
3	113585	100 /	Trav 13	00E							
4	113587	230 /	"	100E							
5	113588	45 /	"	200E							
6	113589	160 /	"	300E							
7	113591	45 /	"	400E							
8	113592	30 /	"	500E							
9	113593	35 /	"	600E							
10	113594	80 /	"	700E							
11	113596	30 /	"	800E							
12	113597	25 /	"	900E							
13	113598	320 /	"	1000E							
14	113599	30 /	"	1100E							
15	113651	340 /	Trav 13	1700E	S/D						
16	113652	740 /	"	"	P/CONC				P/CONC		
17	113653	30 /	Trav 12	00E							
18	113654	35 /	"	100E							
19	113656	75 /	"	200E							
20	113657	1250 /	"	300E					Soil	Tr. 12	300G
21	113658	210 /	"	308E							
22	113659	30 /	"	400E							
23	113660	30 /	"	500E							
24	113661	30 /	"	600E							
25	113663	45 /		Spikes							

Results in ppm unless otherwise specified
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072

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A division of MacDonal Hamilton & Co. Pty. Ltd.

188073

ANALYTICAL DATA

SAMPLE PREFIX

REPORT NUMBER

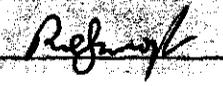
REPORT DATE

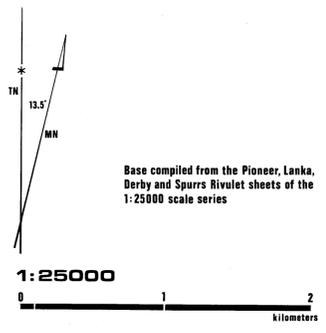
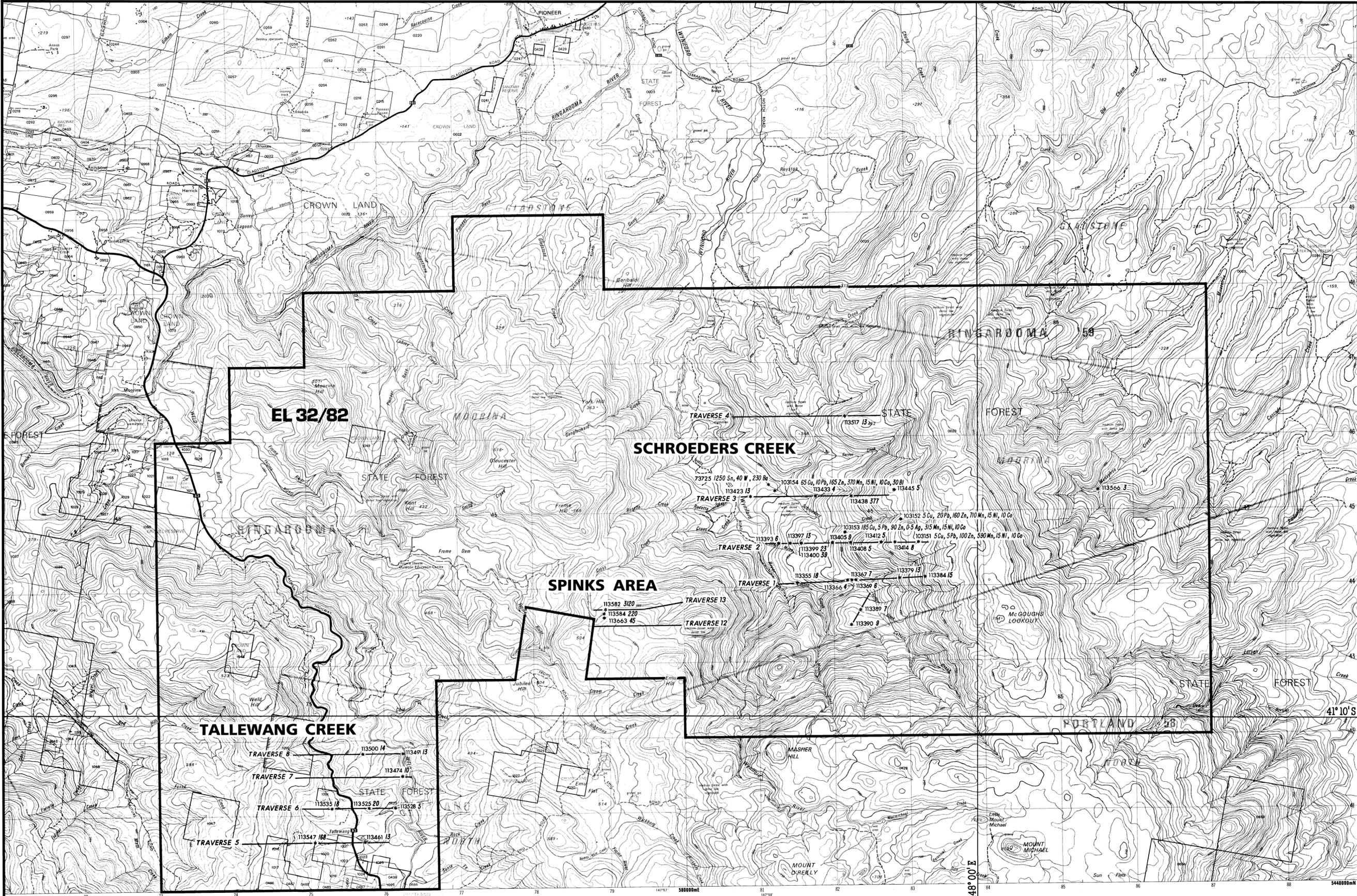
CLIENT ORDER No.

PAGE

			4.5 08 2983		21.3.85		E 14707		2 OF 2	
TUBE No.	SAMPLE No.	Sn								
1	113665	15 /	Fav 12	700E						
2	113666	60 /	"	800E						
3	113668	2500	"	864E	P/AN		P/Case			
4	113669	45 /	"	864E	S/SED					
5	113670	25 /	"	900E						
6	113672	70 /	"	1000E						
7	113673	35 /	"	1000E						
8	113674	30	"	1200E						
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23	DETECTION	3								
24	DIGESTION									
25	METHOD	402								

Results in ppm unless otherwise specified
 T = element present; but concentration too low to measure
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Notes

Traverse line

Rockchip sample location and number ... * 113582 3120 Sn with tin assay in ppm

(103... - 73725 indicates 1983 survey)

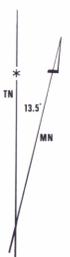
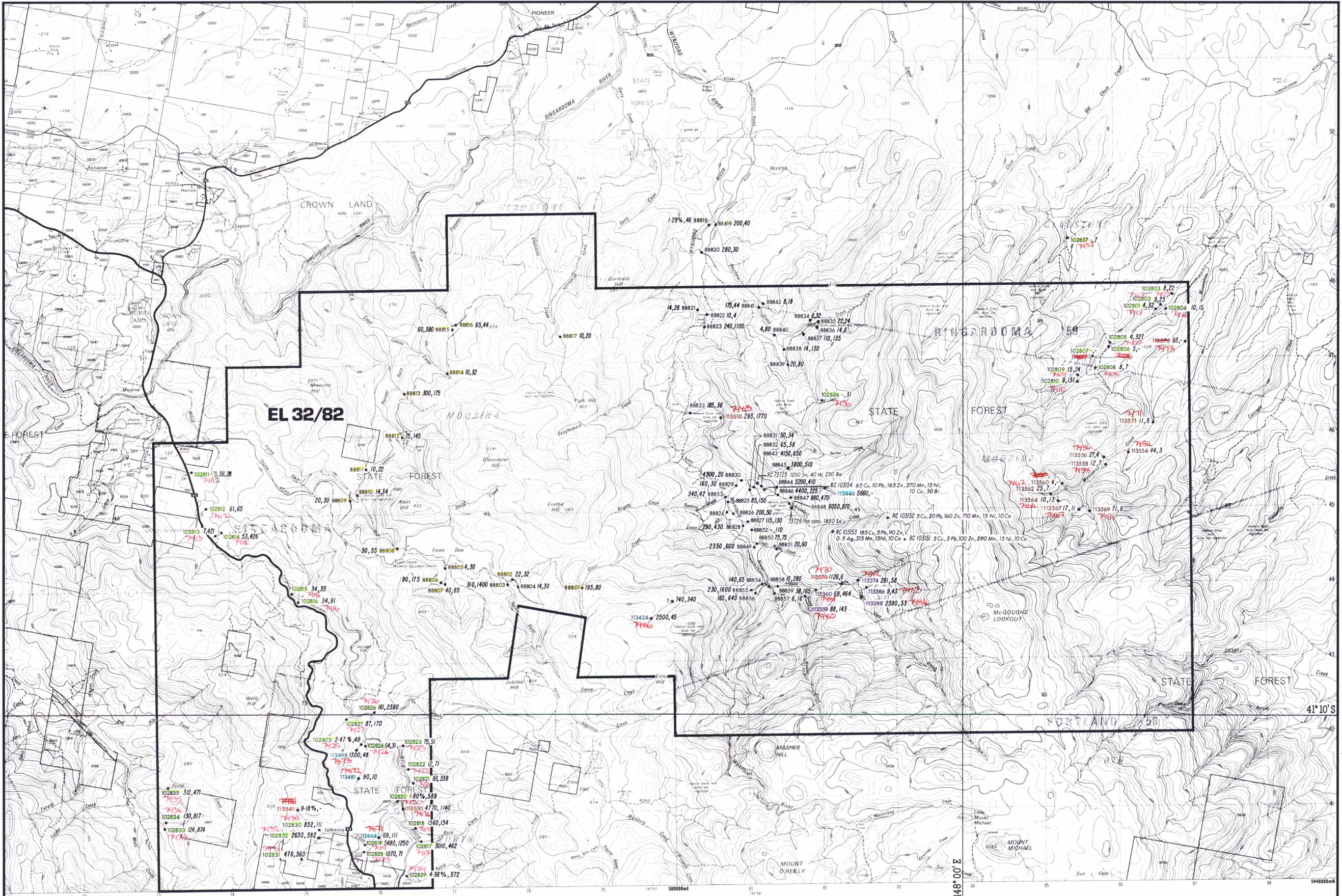
188074

5 cm

Amoco Minerals Australia Company

Project	WELDBOROUGH N° A-84-1110		
Project Partner	EL 32/82 Weldborough		
ROCKCHIP GEOCHEMISTRY AND TRAVERSE LOCATIONS			
Map Ref. ANG	K-55-4	Latitude	41° 10' S Longitude 148° 00' E
Surveyed	Amoco	Date	1984 Scale 1:25000
Drawn	R. S-K., S. E.	Date	1985 Drawing N° M85-2242
Report	436		

85-2378



Base compiled from the Pioneer, Lanka, Derby and Spurs Rivulet sheets of the 1:25000 scale series



Notes

Sample location and number with tin assay in ppm

- stream sediment assay
- 88806 90,175 panned concentrate assay
- RC 103152 65 Cu, rock chip assay

Sample numbers prefixed by 113... indicate 1984/85 geochemistry

Data base numbers (stream sediment) in red. See also Report 84-2042

05-2378

188075



Amoco Minerals Australia Company

Project **WELDBOROUGH** N° **A-84-111**

Project Partner

EL 32/82 Weldborough

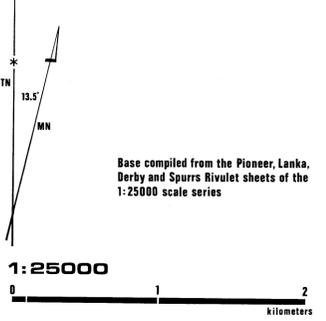
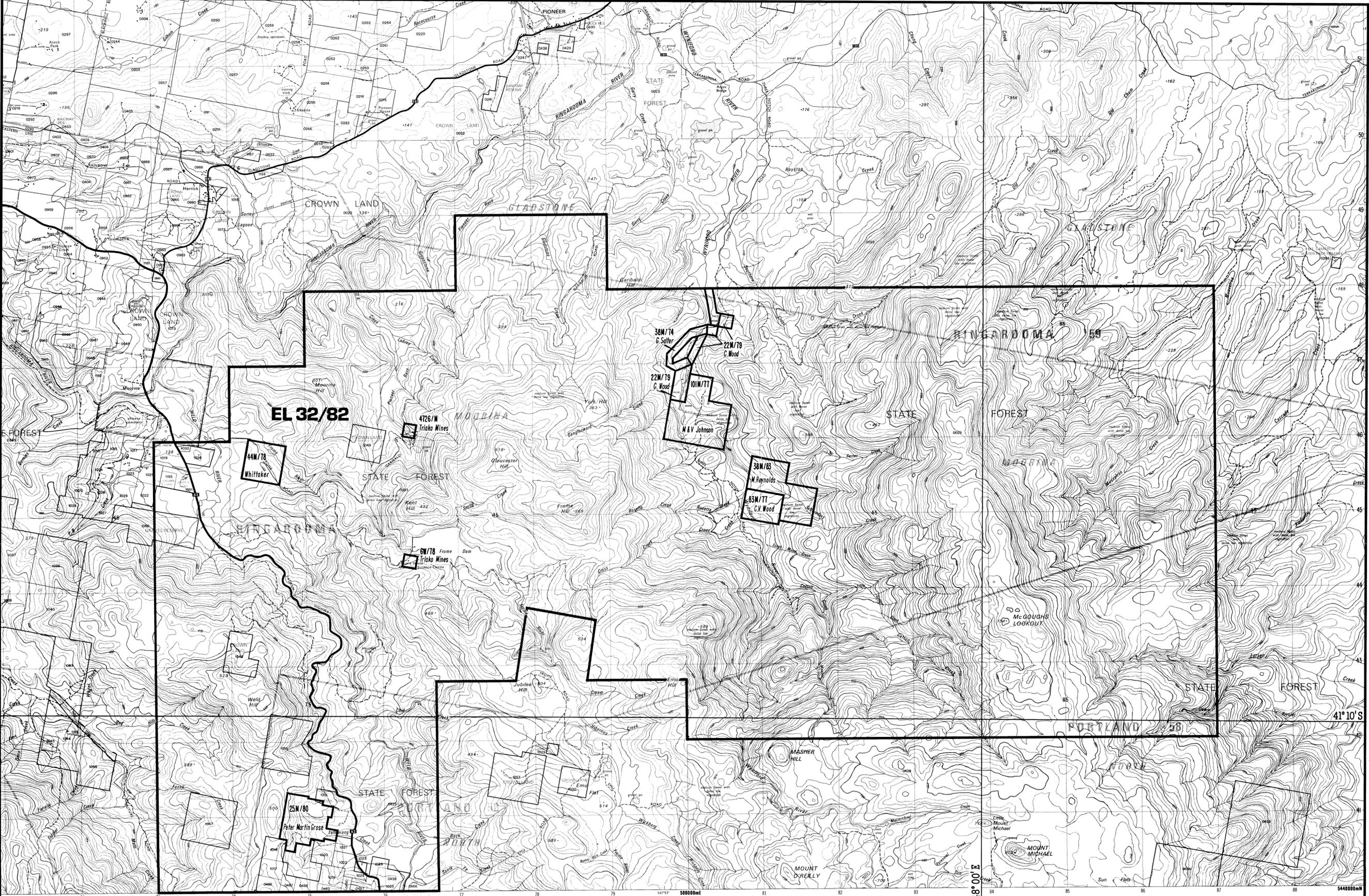
STREAM SEDIMENT GEOCHEMISTRY LOCATIONS & TIN

Map Ref. ANG K-55-4 Latitude 41° 10' S Longitude 148° 00' E

Surveyed Amoco Date 1983+84 Scale 1:25000

Drawn R. S-K, S.F. Date 1984 Drawing N° M84-2245

Report 436



Base compiled from the Pioneer, Lanka, Derby and Spurr Rivulet sheets of the 1:25000 scale series

Note
Description of mining leases listed in Report 399



Amoco Minerals Australia Company 188076

Project	WELDBOROUGH N° A-84-111		
Project Partner	EL 32/82 Weldborough		
MINING LEASE STATUS			
Map Ref. ANG	K-55-4	Latitude	41° 10' S Longitude 148° 00' E
Surveyed	Amoco	Date	1983+84 Scale 1:25000
Drawn	R. S.-K., S. F.	Date	1985 Drawing N°M84-2246
Report 436			

85-2378