

105001

000



# AMDEX MINING LIMITED

TRIAKO MINES N.L. BUKA MINERALS N.L.  
GIPPSLAND MINERALS N.L. KIBUKA MINES PTY LTD.  
169 Miller Street, North Sydney, Australia 2060

## TECHNICAL REPORT

**MICROFILMED**

EXPLORATION LICENCE 2/77 - SOUTH MOUNT  
CAMERON - SIX MONTHLY REPORT FOR  
THE PERIOD ENDING 8TH MARCH 1979

79-1355 Vol 1/2

**OPEN FILE**

DKSG

Author: L. McDonald

Investigations Conducted by Kibuka Mines Pty. Limited

Typed by A. Dale

Date: 31 May 1979

Distribution Department of Mines, Hobart, Tas.  
Kibuka Mines Pty. Ltd., Sydney, Tas.

PROJECT : D 137 South Mount Cameron E.L. - 2/77

**MICROFILMED**

1:250,000 Sheet Index No SK55-4

001

CONTENTS

165002

1. INTRODUCTION

- 1.1 Scope
- 1.2 Location and Geology
- 1.3 Tenement Details
- 1.4 Acknowledgements

2. CONCLUSIONS AND RECOMMENDATIONS

3. GEOLOGY

- 3.1 Regional Geology
- 3.2 Granites
- 3.3 Tertiary Alluvials
- 3.4 Sedimentation
- 3.5 Tin Occurrence and Distribution
- 3.6 Tectonic Events
- 3.7 Pioneer Mine Geology

4. EXPLORATION

- 4.1 Early Activity
- 4.2 Testing Methods
- 4.3 Grade Calculations and Sample Procedure
- 4.4 Current Exploration

5. TARGET AREAS

- 5.1 Pioneer Area
- 5.2 Poverty Point
- 5.3 Corduroy Creek Lead (Eastern Leads)
- 5.4 Endurance Lead
- 5.5 Echo Deep Lead
- 5.6 Monarch
- 5.7 Clarence
- 5.8 Ringarooma River
- 5.9 Wapole Creek/Little Boobyalla River Area
- 5.10 Small Surface Deposits

6. REFERENCES

APPENDIX 1

Comments on Geophysical Test Surveys carried out at Pioneer,  
North-east Tasmania on behalf of Amdex Mining Limited.

APPENDIX 2

Clarence Area Percussion Drill Logs C1 - C17.

APPENDIX 3

Pioneer Mine Area Percussion Drill Logs  
(K1, K19, K20-K25, K27, K28, K30-K70).

TABLES

Table 1 Reverse Circulation Drilling

FIGURES

1. Locality Map
2. E.L. 2/77 Drainage and current mining tenement status.
3. Photographs of granite basement/Tertiary sediments.
4. Photographs of coarse conglomerate/large scale cross bedding.
5. Photographs of large boulders/seams of cassiterite.
6. Photographs of the upper sequence at Pioneer.
7. Photographs of Endurance Valley/Percussion rig.
8. Pioneer Mine Cross Section
9. Pioneer Mine, Tasmania Old hole locations.
10. Pioneer tin mine - location of exploration.
11. Pioneer drilling grid - grade and basement R.L.
12. Photographs of small and large reverse circulation rigs.
13. Photographs of large scale reverse circulation system.
14. Photographs of sample shed equipment.
15. Clarence area location of exploration.
16. Blue Lake - Clifton area - Reverse circulation holes.
17. Pioneer tributary - location of exploration.
18. Distribution of shallow surface tin ahead of Pioneer Pit.
19. E.L. 2/77 Target Areas.
20. Eastern Leads - Basement contours.

004

## 1. INTRODUCTION

### 1.1 Scope

This report documents the results of testing and investigations conducted on E.L. 2/77 during the six monthly period from 8th September 1978 up until 8th March 1979. An appraisal of the regional geology has been made and the results of drilling and geophysical testing in various areas including the Pioneer Mine area are presented. Percussion drilling, alternative drilling methods and geophysical testing methods are evaluated and future proposals for exploration are presented. Some of the past work is reviewed as it relates to various proposed exploration targets and the priorities, problems and status of each of these targets are outlined. This report is presented so as to provide a detailed geological basis for future work in the area.

### 1.2 Location and Geology

Exploration Licence 2/77 of 187 square kilometres is situated in north east Tasmania adjacent to the Ringarooma River. Its position adjacent to additional Exploration Licences held by this Company is shown on the accompanying Location Plan (Figure 1).

The small hamlets of Herrick and Pioneer are located within the Licence area and the town of Gladstone is situated some 2 kilometres from the north east corner. A sealed road links these centres and there are additional unsealed roads or property tracks branching off from the main road. Most of the terrain is low-lying, undulating button grass country which remains in a water-logged state for most of the year. The granite massive of Mount Cameron is an area of high, fairly rugged relief in the north of the Licence, west of Gladstone. The high better-drained areas are well timbered while the remainder support a stunted vegetation such as button grass and tea tree. Some of this land is leased for grazing purposes and only a small proportion of plateau area in the south west of the Licence is suitable for farming.

005

### 1.3 Tenement Details

South Mount Cameron Exploration Licence 2/77 was granted to Kibuka Mines Pty. Ltd. of Post Office Box 187, Currie, King Island for a period of six months from 8th March 1977. The Licence has been renewed on successive six monthly intervals by Amdex Mining Limited of 169 Miller Street, North Sydney on behalf of Kibuka Mines.

The Exploration Licence does not cover portions of the area where pre-existing mining leases or Mines Department exempt areas occur. Such areas are portrayed on the accompanying plan. (Figure 2). Amdex Mining on behalf of Triako Mines N.L., Buka Minerals N.L. and Dusty Mac Limited have entered into an agreement with both V. Wood and B.M.I. Mining Pty. Ltd. and have obtained consolidated leases over Pioneer (V. Wood) and Endurance, Monarch and Clarence areas (B.M.I.). Other substantial areas omitted from the Licence include the Mines Department exempt areas in the vicinity of Herrick, Mining Leases to the north-east of Pioneer held in the name of Groves, and Allied Mining consolidated leases adjacent South Mount Cameron. For the purposes of this report, all exploration carried out by Amdex Mining Limited within both the E.L. and appropriate Mining Leases will be treated herein.

### 1.4 Acknowledgements

This present report was prepared by Amdex geologist L. McDonald with Mr. R. Close preparing the section on Mount Cameron granites. Most of the field work was conducted by the author under the supervision of Mr. A. Fleming. Mr. K. Morrison assisted with the field work over the summer months and the management of Amdex and Aquitaine closely monitored the programme and initiated the major decisions on exploration methods and directed the areas of effort.

## 2. CONCLUSIONS AND RECOMMENDATIONS

- 2.1 North-east Tasmania has been an area of extensive tin mining in the past. All ground would have been surface prospected and much of the deeper ground extending out from known workings would have been bored. Grades of tin in excess of  $1 \text{ lb/yd}^3$  ( $0.593 \text{ kg/m}^3$ ) would have been mined where water was available or could in any way be channelled to the workings. Very few records or reliable information are available from this period with which to assess the viable extensions to the old workings.
- 2.2 The Mines Department and many large companies including Rio Tinto of Australia, B.H.P., Utah Development Company, B.M.I. Mining Pty. Ltd. and Geophoto (Texins) have conducted systematic work in the region. Much of the work is conflicting and there is often insufficient documentation of results and methods. These companies terminated their involvement in the area when large target goals were not realised or when initiated mining ventures proved too problematical.
- 2.3 Limited and very slow testing methods are available for testing of the type of tin bearing alluvial ground occurring in north-east Tasmania. There appears to be no viable alternative to the percussion drilling rig although the results from this method are quantitatively dubious. Straight open hole rotary drilling with a mud mixture in conjunction with a cyclone is recommended as a semi-quantitative rapid scouting tool. It is considered that geophysical methods at their present stage of development offer little hope of detecting the minute amounts of cassiterite or its associated heavy mineral fraction under the geological conditions occurring. ✓
- 2.4 The following type of exploration targets are sought:
- (a) Small shallow or surface tin deposits that can be worked sequentially in a mobile plant or carted to a central sluice race. This category includes drainage

007

channels off Mount Cameron such as Bonzer Creek, Clifton Creek, etc; surface tin in Endurance/Pioneer/Eastern Leads area, any localised old surface workings; possible up-faulted gutters in the Wapole Creek area, etc.

- (b) Extensions to known or poorly tested deep leads that can be worked with a gravel pump and monitor in conjunction with a viable overburden stripping method e.g. Pioneer lead, Poverty Point lead, Eastern leads, Echo lead, and Endurance deep lead all fall into this category.
- (c) Small dredging targets of moderate yardage at shallow depth (less than 10 metres), Ringarooma River south-east of Herrick, Clarence area and possibly Monarch.
- (d) A large dredge target that can be operated with dual dredging; one to remove overburden and another to clean up. The ground ahead of Pioneer may possibly live up to these expectations with increased testing.

2.5 The mechanics of tin and alluvial sediment dispersal are interpreted as being influenced by tidal reworking within sediment filled estuaries. This may have important bearing on the distribution patterns of cassiterite towards the base of the sequence, especially in wide open valley situations such as ahead of the Pioneer Mine.

Novel!

008

### 3. GEOLOGY

#### 3.1 Regional Geology

The Tertiary tin-bearing alluvial sediments of north-east Tasmania were formed as extensive fill deposits in topographically low areas of the underlying basement rocks. Much of this alluvial material lies adjacent to the present Ringarooma and Boobyalla drainage systems and is covered by Kibuka/Amdex Mining Exploration Licences. (Figure 1) Primary lode tin formed in greisen cappings of granite cupolas or in veins intruding the basement rocks. The cassiterite grains resist chemical attack and are concentrated owing to their high specific gravity in placer deposits known as deep leads which coincide with the ancient drainage courses. Surface run-off, estuarine and coastal processes have also contributed to the distribution of the tin-bearing sediments. From the character of the sediments tidal-estuarine processes have had a widespread influence on the distribution of both the tin and the Tertiary sediments.

Within the region there are five main rock units relating to successive geological episodes. These are listed in order of decreasing age.

- (a) Lower Paleozoic Mathinna Beds;  
mainly metamorphosed slate and greywacke - these occur in the Exploration Licence only to the north of Mount Cameron but can be recognised as rounded transported cobbles within the basal section of the alluvial material in the rest of the E.L.
- (b) Lower Devonian Granite Masses;  
which intrude the Mathinna Beds - Mount Cameron mass is the most conspicuous granite pluton and occurs in the north of the E.L. Granite occurs in other areas scattered across the Licence and beneath the alluvial cover.

- 009
- (c) Tertiary Alluvial Sediments;  
which occur widely across the E.L. mostly occupying the topographically lower areas.
- (d) Tertiary Basalt;  
which crops out over a limited area toward the south-west of the E.L. is a later event covering Tertiary sediment or Devonian granite. Presumably the basalt once had a much wider extent covering all the areas of Tertiary sediments within the E.L. and resulted in deflection of the Ringarooma River to its present course east of Mount Cameron.
- (e) Quaternary Alluvial Sediments;  
river shingle, etc. mainly along the course of the Ringarooma River.

✓ Basalt may have reached Mt. Cameron or distal part of Endurance level.

### 3.2 Granites

The granitoids and host Sn-W-mineralisation of the Blue Tier Batholith in north-east Tasmania, are relatively well known following intensive field and petrological study in recent years. In general, the latest highly fractionated granitoids are progenitors and commonly hosts for Sn-W-Mo greisen or vein mineralisation. Greisens are usually located within fine-grained "chilled" and altered roof-zone envelopes to porphyritic (K-feldspar) plutons such as the Mt. Paris granite. Minor Sn-Mo mineralisation in the form of quartz vein fillings and narrow greisenized vein selvages occurs in weakly altered granites beneath greisenized zones.

Scarn and cassiterite-sulphide mineralisation typical of western Tasmania is unknown in north-east Tasmania.

Within E.L. 2/77 there are no significant lode tin prospects. Fine-grained weakly porphyritic albitized and/or partially greisenized intrusives have been mapped in the Mount Cameron and South Mount Cameron areas. These intrusives are weakly mineralized and are thought to represent the lower sections of an originally

010

much more extensively altered and mineralized roof envelope to the Mount Cameron mass. This postulated stanniferous roof zone was probably the source for many of the surrounding alluvial-colluvial tin prospects such as Monarch.

Minor areas of greisen and related tin mineralisation occur around the "Fly by night" prospect and south of the Blue Lake in the Endurance No. 1 scraping area. These areas may represent flank remnants of a much larger Mount Cameron mass or are related to lower topographic highs in the original intrusion surface. Nowhere do the greisen bodies reach the proportions of the 'sheets' known in the Weldborough - Pyengana region to the south.

In summary, potential exists only for relatively small areas of stanniferous greisen mainly on the flanks of the Mount Cameron mass.

### 3.3 Tertiary Alluvials

Tertiary sediments of north-east Tasmania consist of:

- (a) Thick beds of relatively pure clay (locally referred to as "pug") or lenticular thinner silty or sandy clay bands.
- (b) Fine to coarse unconsolidated quartzose sands, grits or coarse gravels with a clay matrix (locally referred to as "drift").
- (c) Beds of mature, very well rounded small pebble (2 to 3 cm) conglomerate (locally referred to as "birds eye wash").
- (d) Beds of coarse, pebble to cobble grade conglomerate (locally referred to as "wash") usually interbedded with silty to clayey sands. Cobbles are normally composed of rounded Mathinna metasediments with subordinate quartz cobbles.

011

- (e) Lenticular beds of muddy peat - consisting of transported plant and wood fragments admixed with clastic detritus (referred to locally as "lagoon bottom").
- (f) Beds of iron oxide cemented drift (referred to as "native cement" or "clinker").

Examples of these sediments are shown in the accompanying figures (Figures 3, 4, 5 and 6).

### 3.4 Sedimentation

The alluvial material in north-east Tasmania is interpreted as being modified by a transgressive tidal estuary situation. The alluvial material is transported and initially distributed by strong fluvial currents. The coarse conglomerates towards the base of the section exhibit inclined sub-parallel layering, typical of outward pushing aggrading fans, deposited by fluvial processes. However a significant proportion of the conglomerate material is deposited in high angle planar cross-bedded sets that could only be deposited as large transverse bars. The bedforms such as that shown in Figure 4 have heights in excess of 2 metres, signifying deposition in deep channels. Moreover the direction of flow as indicated by the cross-dipping layers, is in the up paleoslope direction. This is attributed to strong inland pushing in tidal currents which, although atypical, appear to have had the capacity to shift cobbles. Tidal currents in excess of 3 metres per second capable of such movement are known (Postma 1962).

Many of the interbedded layers between the basal conglomerates appear to be reworked lag beds of well sorted quartz gravel or well rounded mature pebbles. Thus there appears to be tidal reworking acting periodically on most of the incoming fluvial deposits. The sorting and sedimentary structures such as bi-polar cross-bedding for this section are thought to be consistent with the estuarine model rather than with an aggrading, totally fluvial system. Although the sands and gravels are well sorted they usually contain a clay

012

matrix, thus exhibiting a textured inversion which is perhaps explained by the process of percolation of fine material through the pore spacing of the larger particles. This occurs only during periods of declining discharge (Smith 1974) which must happen with every change in tide.

Quartz pebbles and cobbles are absent in the upper 20 to 30 metres of the sequence however the materials still consist of moderately high energy cross-bedded sands and gravels. These are interstratified with lenticular fairly pure clay bands. The thick clay bands need further examination but are consistent within the estuarine environment as an homogeneous clay facies is recorded within the Fundy estuary, a similar rocky coast line inlet (Klein 1967).

Some carbonaceous cemented grits in the upper sections appear to have a bituminous content and according to observations by L. Bubenicek are typical of tidal flat organic deposits. There has probably been an abundant supply of quartz granitic debris entering the system, in contrast with most present day estuaries few of which are sandy or have such an over supply of detritus. Currents rather than waves are operative in such sand filled estuaries (Postma 1962).

### 3.4 Tin Occurrence and Distribution

Cassiterite is weathered from its source rock, transported and deposited by mechanical action into placer deposits in the Tertiary sediments. Examples of greisen and vein primary source material can be observed in areas south-west of the town of Derby. The rich surficial eluvial deposits, derived from close to the source areas, were easily won in the early days of the tin field. The major valleys that were carved into the granites acted as transport avenues carrying the cassiterite into leads within the Tertiary sediments. Larger longer valleys such as those of the Cascade and Wyniford systems have given rise to richer tin concentrations within the leads, which extend as roughly linear entities into the Tertiary basin.

013

There are various figures mentioned verbally by geologists regarding the effective transport distance of cassiterite ranging from 500 metres to 20 or more kilometres. The Scotia deep lead system north of Mount Cameron bears cassiterite overlying a Mathinna slate bottom with the nearest granite source being 5 to 8 kilometres distance away. This evidence plus the high energy and channel characteristics of the Tertiary material indicates that there is a large lateral component of movement to the cassiterite as well as vertical settling within this tin province.

Economically significant tin within the north-eastern Tasmanian alluvial sediments occurs in two stratigraphically significant horizons; one at or close to the surface, the other above the granite basement towards the base of the alluvial section. The surface tin is normally finer grained and has been the target for smaller operations. The basal horizon contains richer coarser grained tin and has been the target for fairly deep open pit/gravel pump/monitor extraction. The middle section of the Tertiary column contains tin throughout although in insignificant amounts as shown in the accompanying logs.

Tin concentrations within both the surface and deep lead deposits are extremely erratic. Tin disseminated throughout the section can be recovered by panning the matrix material of coarse conglomerates such as those shown in Figure 4. However, the more obvious and by far richer concentrations of the tin occur in thin (up to 5 mm) fairly pure seams of cassiterite; (see accompanying photo Figure 5). These seams often define cross-bedded layers and are commonly associated with clayey sand layers and birds eye wash (mature pebble conglomerate) rather than coarse immature Mathinna cobble wash. Under the estuarine sedimentation model these pure concentrated seams of cassiterite and birds eye wash material are attributed to repetitive tidal action (i.e. winnowing) of the coarser conglomerate material. The seams as evidenced in the photo are discontinuous over a few metres distance. The discontinuous patches of tin can sum to give an overall linear plan to the mineralisation such as exemplified in the Endurance lead, South Mount Cameron.

014

Endurance lead is a linear trending entity occupying a V-shaped valley with well defined low sloping granite margins: (see Figure 7). According to locals in the mining of this lead it was very vital not to miss the very narrow, extremely rich basal pockets of tin. These narrow rich basal zones have compensated for the treatment of the disproportionately and large volumes of overburden removed in the V-shaped cut.

In contrast to the narrow valley situation, the Pioneer lead system expands out into a wide valley where the linear distribution pattern of cassiterite mineralisation is not as apparent. At one time the old Pioneer workings excavated on a 1600 foot (490 m) front. The cross-section ahead of Pioneer Mine shown in Figure 8 demonstrates that the basement is relatively level rather than V-shaped and that mineralisation though towards the base of the section, is not necessarily coincident with the basement hollows. A clear picture for mineral distribution in the Pioneer area is still being evolved, however it appears likely that cassiterite distribution is influenced by one, or possibly a complex series of tidal channels with the possibility of concentrated zones along still stands of the tidal zone during transgression. If such a system has controlled deposition ahead of the Pioneer Mine, the complexity but also the overall potential for tin has increased.

### 3.6 Tectonic Events

An understanding of the tectonic history affecting the Tertiary sediments of north-east Tasmania has some bearing on tin occurrences. Four conflicting models of tectonic events that affect Tertiary tin-bearing sediments have been proposed by the successive authors; Nye 1925; Rattigan 1958; Warin and Appleby 1964 and Brown 1978.

Nye (1925) is the proponent of the dendritic downhill drainage model wherein the granite basement is viewed as a rigid stable mass unaffected by any tectonic events. In this model, Tertiary tin-bearing drainage systems carved out and fill a valley system

in the basement. Nye emphasises a concept of the main Ringarooma lead in the Tertiary system which is the ultimate joining of all known leads and its ancient course is envisaged as flowing to the west of Mount Cameron. Most subsequent workers have recognised the main Ringarooma lead concept is only prospector's hearsay however all explore using downhill drainage lead concepts and most accept the open-outward flowage of the Tertiary system to the west of Mount Cameron.

Rattigan (1958) accepts most of the proposals of Nye but maintains that there is little doubt that there have been uniform earth movements uplifting the Tertiary sediments within the basins. As evidence he traces the barometric levels of the base of the basalt and takes this as indicating that no tilting, warping or differential block faulting has disrupted this contact.

Warin and Appleby (1964) for Utah Development Company criticise all previously proposed simplified models for regional tectonics. They infer drastic effects from faulting, disrupting the entire area into small segments or large horst-blocks during the Kosciusko Epoch. The drainage systems, or deep leads, are viewed as following largely independent north-easterly trending courses during the early Tertiary. As drainage systems mature, the bulk of the Tertiary system is laid down over the juvenile episode of basal tin-bearing sediments. By their model, massive block-faulting then uplifts the Mount Horror block truncating the leads and producing a complex of disrupted and tilted blocks. This uplift has rejuvenated streams promoting the upper tin horizon and planing off the surface prior to the extrusion of the late Tertiary basalts.

In support of their proposals, Warin and Appleby point out that the drainage of all the leads in the Ringarooma basin trend north-west to westerly. They note that the lineaments within the Mount Horror block are strikingly different from those in the other granite massives in the region and so interpret the entire block to have undergone a different tectonic history and to have been uplifted in the late Tertiary. They interpret basalt to have been extruded

016

subsequent to the faulting after erosive planing off to a fairly level surface. Alluvial sediment deposition and the tin horizons are explained by appeal to tectonic rejuvenation, acting on basically fluvial systems.

More recently Brown (1978) has proposed another rigid basement model however internal drainage is proposed for the alluvial sediments. Brown mapped a granite basement ridge between the Mount Cameron and Mount Horror area, blocking the supposed outlet of Nye's main Ringarooma lead.

The presently proposed model of Tertiary tectonics borrows from the previous models; however, of first priority is the observation that the overall Tertiary sequence is upward fining with coarse conglomerates and high energy bedforms at the base of the sequence. Regardless of whether the sediments are of fluvial or estuarine origin this presupposes that the depositional system was once open. The mapping by Tony Brown has been verified and a low level granite ridge is traceable over most of Nye's supposed outlet area. By the nature of the sediments, the Tertiary depositional system must have been more open than indicated by Brown's mapping and this provides indirect but conclusive evidence of Tertiary block faulting subsequent to deposition.

The degree of Tertiary faulting is probably not as extreme as that suggested by Utah but there is little conclusive evidence for, or against their overly tectonic explanation of events. However there is thought to be some credence in Nye's supposition that the ancient Ringarooma drainage course would have preferentially eroded along the Granite/Mathinna contact between Derby and Branxholm. It is also thought to be significant that Brown's area of granite south-west of Mount Cameron enclosing the basin is of low relief, unlike other granite areas suggesting that the entire block has been planed off by Tertiary processes then upfaulted to its present position. It is not known what significance the different style of lineaments in the Mount Horror block implies.

In summary, the sequence of tectonic events affecting the alluvial sediments is viewed as follows:

- (a) <sup>v</sup>Ca~~v~~ing of an outflowing open drainage system into the uplifted basement - Lower Tertiary;
- (b) Subsidence and/or rise in sea level producing deposition of alluvial materials within the drowned valley situation - Lower to Mid Tertiary;
- (c) Uplift in small magnitude (say 30 to 50 m) of block faulting terminating estuarine sedimentation with erosive removal of some sediment - Mid Tertiary?
- (d) Extrusion of the basalt resulting in the relocation of the Ringarooma River to its present position - Upper Tertiary.

### 3.5 Pioneer Mine Geology

Only general information on the historical aspects of the Mine is available. Old drill holes on plans held by V. Wood apparently show very high cassiterite values in excess of 1 lb/yd<sup>3</sup>, in agreement with total mine recoveries. It is significant that the Pioneer Mine in contrast with the narrow linear Endurance Mine, was worked on a wide front that was as broad as 1600 feet (490 metres).

From Mine records the payable ground ahead of the old Mine was tested and outlined by percussion boring in a systematic way. The extreme width and continuity of the then Pioneer lead was acknowledged and the tailing off of drill hole grades was used to forecast the end of the Mine. The effects of the granite high (beneath K 27) deflecting and channelling the lead were recorded in the old Pioneer Mine records and the deeper, narrower continuation, now the present workings, were only tested as far as the lines in Figure 9 show. Although sporadic high values were noted in these bores, this was not a profitable undertaking at that stage. The Pioneer boreholes near the present workings show that values rarely exceed ½ lb/yd<sup>3</sup>.

018

Austral-Malay drilled (in 1935) on a widely spaced grid ahead of the old workings, however two conflicting sets of data are available from the Mines Department information. The positions and grades of the holes differ from the two available plans. Grades stated approach  $\frac{1}{2}$  lb/yd<sup>3</sup> in some holes however in most cases are significantly less.

Storeys Creek Tin Mining Company in 1961 drilled fifteen holes in an attempt to extend such values of  $\frac{1}{2}$  lb/yd<sup>3</sup> ground further beyond the old workings. Two gutters were located but grade results are described as most disappointing. The highest value obtained was 0.33 lbs/yd<sup>3</sup> in one hole. Locals state that the sample washing of this drilling was below standard. The drilling ahead of the old Mine at this stage, although discouraging, was entirely insufficient to indicate the economic status.

Grade results and location of current grid drilling ahead of Pioneer Mine are shown in Figures 10 & 11. High values have been encountered in excess of 1 lb/yd<sup>3</sup> (0.593 kg/m<sup>3</sup>) in an erratic north-west trending zone. The number of holes drilled in the vicinity of previously drilled holes suggests that our drilling results are reliable and compare with the earlier information. Furthermore, our understanding of the nature of tin-bearing sediments suggests that such high values are a true reflection of the nature of this ground.

The overall Tertiary sequence in the Pioneer Mine area, like that of the general area, is upward fining from interbedded conglomerate and gravels to interbedded coarse sands, grits and gravel with interbedded clays. The basement is always a soft weathered granite which falls away gradually to the west at less than 1 m per 100 m. Locally the granite bottom is very irregular, often with 3 m changes over several metres.

Rounded granite boulders up to 3 m diameter commonly sit immediately above sediment basement contact : (see Figure 3.). They are absent in many areas and it appears that where they are present they are often crammed side by side with the intervening gaps filled with Tertiary sand and gravel. Although weathered soft, the nature of the

019

sediments indicates that at the time of deposition the granite boulders were hard, exfoliated spheroids weathered out of the immediately surrounding granite.

The basal 5 to 10 m of the sequence contains high concentrations of tin, the coarser sediments, and the high energy bedforms and exhibits rapid lateral facies changes. The basal sequence is often composed of cobble to boulder grade conglomerates : (see Figures 4 & 5), which appear to be deposited in irregular low angle fans inclined towards the general downslope direction but are often stacked as planar cross-bedded transverse bars in the opposite upslope direction. These conglomerates occur in beds of several centimetres to 2 m and are commonly interbedded with well sorted fine quartz gravels (drifts) and feldspathic grits and coarse sands that usually weather to a brown clay. The finer beds of gravel and sand are usually 30 cm or more and by the sedimentation model are interpreted to be beds reworked by tidal-estuarine processes. The basal section of this sequence frequently contains the characteristic mature small pebble or birds eye wash. Lenticular beds of muddy peat and lignitised woods also occur sporadically in this basal section. These features are shown in the accompanying Figures (3,4,5, & 6).

Tin occurs disseminated throughout the above described section but more commonly occurs in the rich layers and seams such as that shown in Figure 5. Rich concentrations are often observed in close association with mature, well-rounded small pebbles or birds eye wash material. Seams are also common in beds of clayey grit and define cross-bedded or winnowed layers. Such beds may occur closely overlying basement or slightly higher, interbedded with conglomerate. Rich concentrations can also occur on the reworked upper surface of prograding conglomerate fans where mature pebbles indicate reworking.

Within the pit there is usually a sharp transition from the basal larger amplitude cross-bedded coarser sediments to the finer better sorted

020

gravel, grit and clay beds of the upper part of the sequence. There is usually a conspicuous colour change from the orange ferruginised basal section to the whitish coloured upper section : (see Figure 4). This colouration is due to the dissolution and precipitation of iron after deposition and is most intense in the basal porous layers of well sorted drift. It frequently forms a hard pan layer which is normally discordant with the cross-bedding.

Cross-bedding is common throughout the drifts from the upper parts of the sequence. Bedforms are of lower amplitude than those from the basal section and are dominantly festoon type and are irregularly stacked and interbedded with clay layers. Some of the lenticular quartz grits and gravels on top of the sequence are poorly cemented with a dark carbonaceous material (Figure 6). The material appears to have a bituminous content and is distinct from the peat and woody material towards the base of the sequence.

Future detailed work on exposures in the Mine, mapping pit geology, quantifying sequences, sizes and tin content will be undertaken in the future.

#### 4. EXPLORATION

##### 4.1 Early Activity

Early tin mining activity within the region of the Authority was intense however most of the mining occurred in the late 1800's and early 1900's and there is little reliable documentation from this period. Nye (1925) documents all the major mine areas. Pioneer, Endurance and the Dorset Flats were the most productive areas. By far the most successful exploration method in the past has been the surface prospector. All the major leads were located in rapid succession by surface prospecting or digging and then traced by mining down dip. Percussion drilling ahead of the workings provided an indication of the direction to mine and a semi-quantitative assessment of grade. The alluvial tin mines often continued without detailed mine planning as long as the profitability continued. The mining and location of tin-

bearing ground from all accounts was undertaken in a very simple but efficient manner with the successful recovery and mining treatment of cassiterite achieved by the strong personal involvement of the old-time operators.

Apart from the locally-established mining companies numerous outside companies such as Austral-Malay, Storey's Creek, Rio Tinto, B.H.P., Utah, B.M.I., Geophoto (Texins) have conducted exploration in the region either to quantitatively assess reserves extending out from old workings or to locate additional areas of mineralisation. Details of these companies results are also poorly documented.

It would be too time-consuming to fully document their various approaches but previous exploration results will be referred to as they relate to particular target areas treated in later sections of this report. Previous companies have been unsuccessful in both exploration and mining efficiency in comparison to the old-time operators.

#### 4.2 Testing Methods

Percussion drilling: The most effective method of testing alluvial ground of any depth in north-east Tasmania is the Percussion or Churn drilling method whereby steel casing is rammed into the ground and the material forced up the middle is pumped out and sampled. One such rig, a Goldfield 33, is pictured in Figure 7. Newer versions of this rig are far more efficient. The method is painstakingly slow with penetration rates often less than 2 metres a day in coarse material towards the base of the Tertiary sequence. Normally a 40 metre hole can be completed in 5 to 7 working days. The casing should always be driven a short distance ahead of the slush pump sampler. By this action some material, particularly the coarser fraction is probably pushed aside by the casing. Wide variations in recovered volume are normally encountered and usually a volume less than the theoretical is recovered.

022

Obviously there are many short comings of this crude method of drilling and it has been subject of much criticism, however it seems that there are few if any viable alternatives. The Conrad or Bucket drill is sometimes used to sample large diameter holes in alluvial material however drilling is many times slower than the percussion method. A high powered Becker drill which combines rotation and percussion action is used in some countries. Although rapid and accurate it is extremely expensive and beyond the scope of north-east Tasmania.

Auger drilling: This method is a reliable scout method of locating depth to basement and so indicates buried basement topography for percussion drilling. An auger rig can be used for rough sampling to shallow depths above the water table. The material adhering to the auger flights is scraped off, weighed and tin content assessed.

Reverse circulation drilling; Reverse circulation drilling is an alternative to percussion drilling. It is a rapid rotary method of drilling with a dual pipe system whereby the alluvial material is transported to the surface up an inner tube.

A small Jackro reverse circulation rig was used to explore for shallow surface tin in areas of the Licence. It is pictured in Figure 12, It bored a 6 centimetre diameter hole and occasionally retrieved small pebbles. It could usually drill and sample efficiently to about 5 metres depth but could not negotiate clay. Air-water flushings were used to bring cuttings to the surface. Volume recovery was usually good. Drilling results in conjunction with mining has cast serious doubts on the reliability of results. Insubstantial amounts of cassiterite have been recovered to account for grades obtained from mining, however the method provides a relative indication of tin/non-tin bearing ground.

Larger scale reverse circulation drilling capable of drilling to 40 metres depth is something of a novelty in north-east Tasmania. In general the method can be applied successfully to small size fractions however it cannot negotiate cobbles or material capable of blocking the inner tube. A reverse circulation rig with a large

internal diameter for the inner pipe (approximately 12 centimetres) has recently been used to explore Foster's Marsh area to the north of the Kibuka Licence areas. Pictures of this rig system in operation are shown in Figures 12 and 13. The faults observed during the periods of its operation are listed in decreasing order of importance:

1. Average-sized usually flat cobbles, common towards the tin-bearing base of the Tertiary section were capable of blocking the inner return tube. When this happened, all the rods had to be removed and cleaned out.
2. A thick bentonitic mud circulated around the system and held significant amounts of tin in suspension or as composite grains with clay material. Panning has shown that some of the tin was deposited in the end mud bin or kept in the thick drilling fluid and in either case not recovered. To dispense with the mud probably would cause cave-ins of loose material when the rods were frequently raised and lowered.
3. The rig and equipment were large and cumbersome requiring a dozer and often much time to shift in boggy country.
4. The bit was of poor design and was often destroyed in a single hole and frequently became jammed because of small pebbles forced into the outer annulus.
5. The drilling was expensive requiring several personnel such as driller, off-sider, sample catcher and sample washer.
6. The riffle catching system was sometimes inadequate to cope with the large flow and throughput of material.
7. Rarely only a small fraction of the theoretical volume was recovered.
8. Rarely the top gooseneck became jammed with a continuous core of clay or the like.

Although drilling was often fairly fast (one hole per day) it is

024

thought that the problems and variables are too great to accurately determine tin grade of the sort of the material common in north-east Tasmania. Future modifications could make this method more practical however its use is not recommended.

Rotary drilling: One method that should be evaluated and possibly tried for sampling deep alluvial ground in the Licence area is normal rotary drilling. A large 6 to 8 inch diameter hole could be drilled with blades, and the top section to the base of the drifts, cased off. A mud mixture would have to be used to this depth. The basal section would probably hold up with just normal air-water drilling for most, if not all holes and so eliminate the problem of using mud. A cyclone arrangement and/or mechanical sample reducer such as a sieving arrangement may have to be specially designed to give an initial concentration, if the rapid throughput of material is too great. A limited programme to test this method could be attempted in the summer months using a Failing CFD 1, Mayhew 1000 or a similar rig with a separate compressor. Ideally, this system, if cost effective, could rapidly appraise the prospective status of ground and provide grade assessment, hopefully, of comparable accuracy to the percussion drilling method.

Prospecting: This method, although confined to the exposed layers has had the most success of any exploration method and can boast of the initial detection of probably most alluvial tin discoveries in the region. The areas of successful prospecting are now old workings and there is negligible hope of locating any undiscovered deposit in the region by this method. However prospecting is still an accurate cost-effective method of indicating viable patches of tin bearing ground within on-going mining operations and thus should not be ignored. Included in this style of testing is hand augering or backhoe digging to shallow depths of 3-4 metres. This would probably provide a reliable cost-effective substitute for shallow reverse circulation drilling.

Geophysical methods: At the present stage of advancement of the remote sensing techniques there appears to be little hope of detecting the relatively minute amounts of cassiterite or its associated heavy

025

mineral fraction within the Tertiary section. As outlined by Warin and Appleby (1965) "a number of different geophysical techniques, refraction seismic, gravity, aeromagnetic, ground magnetic and resistivity have been previously tried in search for tin leads in this area. None of these techniques has had any real measure of success, generally because there is very little physical contrast between the weathered bedrock below the channel and the Tertiary drifts and clay within the channel." Warin and Appleby go on to iterate the shortcomings of their induced polarisation testing. Initially their program attempted to detect an effect from marcasite present in the basal part of the section and assumed marcasite to coincide with the heavy mineral fraction. Any such polarisation effects were completely masked by membrane polarisation of clay minerals and the method was adapted in an attempt to differentiate between Tertiary/bedrock clay. However results were not repeatable and the method had to be abandoned.

A Program of Magnetic Induced Polarisation was initiated by Amdex Mining Limited in an attempt to perfect a regional geophysical tool. Objectives and techniques applied are discussed in a separate report Appendix 1. The results were somewhat ambiguous and not repeatable. Although many variables and modifications are possible with this method the likelihood of success appears remote owing to the nature of the geology and mineralisation. The future application of geophysical methods is not recommended unless a potentially sound theoretical method can be perceived.

#### 4.3 Grade Calculation and Sample Procedure

A three millimetre layer of cassiterite grains intersected at the base of a 30 metre drill hole is sufficient to upgrade the entire 30 metres of barren alluvium to an overall grade of approximately .35 kg/m<sup>3</sup>. Thus in sampling such minute quantities of ore errors are likely to be incurred, and so calculations are of vital importance.

026

Samples from percussion drilling are taken in increments through a 2 metre interval and transferred from the slush pump sampler to the sample drums. Drums are transferred to the panning shed where the volume is measured, and the material cradled and panned. The equipment involved is portrayed in Figure 14. The panned concentrate is forwarded to Fox Laboratory in Sydney for assay. A known amount of sized cassiterite has been mixed with barren material and recovered unknowingly by the panner with surprising accuracy.

The grade of alluvial tin is normally expressed as a weight of cassiterite contained within a set volume (i.e. lbs/cu.yd.). It is calculated using the formula;

$$\text{Grade (kg/m}^3\text{)} = \frac{\text{wt. conc. (gms)} \times 10^{-3} \times \text{Sn}\%}{70 (\% \text{Sn O}_2) \times \text{corrected vol.}}$$

The weight in grams and the percentage of the Sn metal are measured by the Laboratory. Cassiterite, Sn O<sub>2</sub> is approximately 76.8% Sn metal by weight. However the concentrate is normally washed to about 70% Sn purity, hence this value is used in the calculations.

The corrected volume used needs further comment. The recovered volumes from actual drilling are usually significantly less than the theoretical volume  $\pi R^2$  (radius of the cutting shoe) x sample interval. This is attributed to non recovery of boulders which force material away from the casing, loss of slimes etc.

Clearly it would exaggerate the tin content to use the smaller recovered volumes and depress the tin content to use the seldom attained theoretical volume in the calculations. For these reasons it is common practice in alluvial drilling to refer the tin content to an intermediate constant volume known as The Radford Factor. In other tin fields an 88% Radford Factor is usually applied (Harrison 1954). In north-east Tasmania the tin occurs with coarse wash towards the base of the hole and this greatly inhibits the recoverability of the tin so a slightly more optimistic factor of 80% is used.

027

In most cases the recovered volume is significantly less than the theoretical volume and in these cases the 80% Radford Factored theoretical volume is used. In cases where a run in of material has occurred, and an excess of material is recovered, the grade is proportioned to the volume in excess of the Radford Factor Volume as shown on the logs. A 20% reduction for the corrected over volume takes into account the expansion of the uncompacted gravel in the sample.

#### 4.4 Current Exploration

Exploration conducted on EL 2/77 for the 6 monthly period up until 8/3/79 has consisted of percussion drilling in the area ahead of the Pioneer Mine, shallow reverse circulation drilling in a number of areas, and a limited amount of shallow auger drilling ahead of the Pioneer Mine. In addition a Magnetic Induced Polarisation Survey was conducted ahead of the Pioneer and Endurance Lead areas. This is subject of a separate report included in Appendix 1.

A location plan for drilling in the Clarence area is presented (Figure 15). This drilling was conducted in the previous six monthly period. Relative hole positions were surveyed and then an approximation to AMG co-ordinates made. The method of grade calculation was revised and the logs (Appendix 2) have been amended from those presented in the previous six monthly report. Only a narrow width containing the shallow (5 to 6 metres depth) intersection of reasonable cassiterite values was encountered.

During the six monthly period 30 percussion holes K 41 to K 70, were completed for a total of 1132.5 m drilling. Their positions are shown on the accompanying plan (Figure 10). In addition the method of grade calculation (Section 4.3) made it necessary to alter and standardise all previously submitted Kibuka drill logs. These are presented in Appendix 3. Certain areas contain high grades in excess of 1 lb/cu.yd. ( $0.593 \text{ kg/m}^3$ ); for instance in hole K 53 and K 58. A consistent standard of drilling accuracy was maintained and the supervision and complexity of the programme precluded the possibility of salting or sample mistreatment. Calculation of reserves,

028

interpretation and appraisal of mineralisation trends is still incomplete but is being undertaken by Amdex and Aquitaine personnel.

During the current six monthly period 73 reverse circulation holes were drilled for a total of 216.2 m drilling. The hole positions are shown on several accompanying plans (Figures 16 and 17). The results are summarised in Table 1. The grades quoted (in  $\text{kg/m}^3$ ) were calculated using the theoretical volume only, without any provision for a Radford Factor or the inconsistent recoveries. It has since become apparent that this method of drilling may often undervalue the ground and that true grades from individual holes may be several times greater. Thus some doubt is placed on the validity of the results of this drilling method. Results of drilling adjacent to the Clifton Mine, RC holes 1 to 20, showed some encouraging results and mining is progressing towards this high grade patch. High cassiterite yields are being recovered often from areas that were suggested as being fairly low from drilling.

Many holes were planned to test for a shallow tributary north-east of Pioneer (Figure 16). Two holes RC 45 and RC 48 encountered minor amounts of cassiterite. It is suggested that they might be undervalued and part of a south-west trend of tin discussed in the target section (5.11). RC holes 41 to 44, drilled on the Pioneer grid ahead of the mine encountered lower cassiterite values than nearby percussion holes.

The remainder of the reverse circulation holes were drilled across Clifton Creek. The drilling continued beyond the six monthly period and the results are not yet complete. The old time miners did not work to a false bottom in this area and granite with barren ground, mostly tailings, occurs across the central part of Clifton Creek. Some patches of moderate cassiterite values were encountered in the general area (holes 49, 57, 58, 67 and 70). If these are undervalued they may constitute a viable small mine and would warrant further testing.

During the current exploration period 26 shallow (less than 6.5 m) auger holes were drilled for a total of 153.7 m of drilling ahead

029

of the Pioneer Mine. Material adhering to the narrow flights was scraped off, weighed, and the concentrate assayed. Grades were calculated using the assay, the weight and a measured specific gravity of 2.0 grams/cm<sup>3</sup>. The results from holes A 1 to A 20 are portrayed in Figure 18. Although an erratic rich layer of cassiterite values was encountered, it has not proved possible to mine this material during scraping operations and about two tonnes of cassiterite remain in this area of auger holes.

The area containing high concentrations of near surface tin extends further west than the grid area tested by these auger holes. Economic concentrations were highest in the percussion hole K 66. This patch of surface tin is of sufficient grade and grain size to warrant selective treatment. Holes A 21 to A 26 were drilled to depth 15 feet (4.57 m) in the vicinity of K 1 to test for extensions to encouraging surface values in that hole. However only small amounts of cassiterite were recovered and the samples were not assayed.

A Rapid Reconnaissance Magnetic Induced Polarisation Survey was conducted during the current six monthly period in an attempt to perfect a regional geophysical tool. The details of this survey are presented in a separate report (Appendix 1).

A frequency of 3HZ was selected in an attempt to detect a rapid capacitive decay associated with ilmenite which is known to give a magnetic induced polarisation response. It seemed reasonable to assume that there was correspondence between the heavy mineral ilmenite and the cassiterite. Pyrite seems to be very erratically distributed in the Tertiary sequence and not related to tin occurrences hence lower frequencies necessary to induce a slow capacitive decay response in this mineral were not employed.

The large spaced stationary electrode-grid did not achieve significant results but the shifting linear electrode/sensor array recorded impressive anomalies. The failure of this experimental array to achieve similar results over the Endurance Lead or to repeat the anomaly profile when read in reverse has cast doubt on the viability of the method as a regional tool. However the profiles A and B

030

(Appendix I) which were read from south to north in the Pioneer region both show a significant central anomaly adjacent to known mineralisation. If the responses do relate to mineralisation it appears discouraging that the method may not work regionally and peculiar that only south to north traverse detect such trends. In view of other negative or conflicting results this response might be viewed as coincidental however the additional anomalies in those lines provide a predictive test. Should the anomaly at 77000 m E - 52350 m N prove, with future drilling, to lie adjacent to a mineralised zone, the whole question of the geophysics should be revised and the theory of the method should be examined in more detail.

## 5. TARGET AREAS (see Figure 19)

### 5.1 Pioneer Area

On-going exploration ahead of Pioneer Mine is the most immediate exploration priority. Exploration on a surveyed grid as shown in Figure 10 will continue ahead of the mine with at least two full time percussion rigs drilling on 50 metre centres. Positioning of the drill holes is important so as to maximize information and locate sufficient reserves as speedily as possible. It is thought that reducing drill spacing would achieve no more useful data than the present 50 metre grid in outlining or discovering additional reserves. High grade cassiterite values from recent exploration increase the prospects of future work in this area.

By the estuarine sedimentation model various possible patterns of tin concentration can be hypothesised ahead of the mine. At worst, the cassiterite could occur in irregular patches having no overall grouping. The normally envisaged pattern is that of a linear trending lead containing discrete pockets of rich tin, however there are no obvious basement valley margins but rather an irregular low relief basement across the valley floor in the Pioneer region. (See Figure 8). This suggests that several sub-parallel lead situations could exist. This configuration of several sub-parallel channels is generally the case in tidal channel systems. Apart from the possibility of multiple linear down slope trends, the transgressive estuary situation could have remained static at some point so as to produce concentrated tidal zones similar to a strand plain zone. Then a rich belt at a certain contour level would be deposited across the assumed down slope trend of the lead; possibly widening out, in similarity to the old mined out areas of the mine, to a broad rich but deeper zone. Such a wide cross-cutting rich zone across the paleo slope could be interpreted as running through K 58 to K 62 and exploration extending sideways, testing for such an hypothesised rich zone should be planned in the normal programme.

There appears to be no exact correlation between basement lows and tin values in this wide valley situation and so auger drilling would

031

032

be of little value. The presently used Goldfields 33 percussion drilling rigs are inefficient and will encounter increasing difficulties in the deeper ground and should be replaced. It is important in choosing the sequence of drill holes to monitor progress and to explore using geological concepts. The commonsense approach followed by locals is simply to stay on established runs of tin.

The occurrence of high rich tin grades extending down depth from the present workings and the implications of widespread tidal reworking, indicate that larger areas of reserves could exist. If sufficient reserves can be established this deposit may be amenable to a deep dredging operation.

#### 5.2 Poverty Point

This is a deep lead situation immediately south of Pioneer which was worked to about 25 metres depth (see Figure 19). As there are no workings extending ahead of Greenstone Creek, south-east of Herrick, the Poverty Point lead is probably a continuation of both Greenstone and Gladstone Creeks. The junction of this Tertiary drainage system would have been removed by the present Ringarooma River coarse. The continuation of this system as a deep lead was worked by the Pioneer Company up until 1930. However the Company only worked the area during occasional excess winter rains. Only 10 to 20 tons of cassiterite were documented as being produced by the Pioneer Company but the area had already been extensively worked and it seems likely that the area produced at least 100 to 200 tons of cassiterite.

Nye (1925) emphatically states that the lead continues in a narrow linear fashion to join the Wyniford-Pioneer lead system and contains grades of  $3/4$  lb per cu. yd. Drilling of the Pioneer foot-ball field by Austral Malay in 1935 and the supposed encounter of a hole with an overall grad of  $1/2$  lb per cu. yd. has long encouraged local speculation that this is the entrance path of the Poverty Point lead. The Pioneer Company mentioned an old bore hole 70 feet deep ahead of the workings but emphasised the need for systematic drilling. No such exploration by the Pioneer Company was documented and probably

033

did not occur. The joining path of this lead with the Pioneer lead beneath the football ground is thought unlikely owing to the granite knoll at 577600 m E - 5451500 m N.

Nevertheless, this is a prospective target requiring at least 20 to 30 percussion drill holes to give a preliminary assessment of continuity and grade. A programme of auger drilling would be needed at first to help locate a programme of percussion holes.

The deposit, although small and of unknown extent could easily be worked in its own right as a lead with a gravel pump/monitor system, or perhaps on a larger dredge scale in conjunction with possible extensions ahead of Pioneer. If the concept of estuary still stand reworked zones of tin enrichment ahead of Pioneer is established, auger and percussion drilling to the appropriate basement relative level depths ahead of the Poverty point lead should be planned.

### 5.3 Corduroy Creek Lead (Eastern Leads)

This target lead situation is largely untested by sample drilling but considered to be highly prospective in terms of exploration potential; perhaps ranking in potential size behind Pioneer with the Endurance lead.

The concept of an undetected lead between Pioneer and Endurance was formulated by Utah (Warin and Appleby 1964). They did extensive auger drilling, broadly defining two basement depressions (Figure 20). They drilled several percussion holes in the southern most basement depression which only drains from a limited area but did not encounter any cassiterite towards the base of the channel. Utah unrealistically sought large rich, shallow, undected targets and did not conduct sufficient percussion drilling in this area. Results are not properly documented and certain holes supposedly drilled are not located on plans (Warin and Appleby 1965). In addition the accuracy of their results has been queried verbally by people familiar with the work.

The area was further explored by Geophoto (Mortimore 1971). Auger drilling complimented that done by Utah and an additional basement channel was detected and the channels established by Utah were extended (Figure 20). Sixteen percussion holes were drilled in the programme. The bulk of the percussion drilling was inexplicably located on the granite highs well removed from the deep valley floor with several holes testing the northern-most gutter only. The results are inadequately presented and the cutting shoe size was too large in comparison with the casing, thus casting doubt on the reliability of the percussion sampling work. Geophoto acknowledged the potential for more work but left this target because of lack of support from other targets.

Corduroy Creek Lead is possibly an extension of Chung Creek further to the east and thus drains a wide tin source in contrast to the Eastern Lead gutter tested by Utah. The shallower headwaters of the supposed lead run beneath the low-lying dredged areas of the Dorset Flat. The first Dorset dredge (1901-1910) selectively followed the rich runs of tin across the flats and was supposedly launched about where the Corduroy Creek lead gutter would run beneath the flat. A prospectus was at one time issued for this venture and may still be in existence to provide some indication of grade. The second Dorset dredge commenced in 1942 and bulk mined most of the flats area.

There is some evidence of cassiterite in this target area by virtue of the old area of selective dredging. Otherwise company testing to follow-up auger work, indicating the lead, has been totally inadequate. The over-burden is probably deep and tin content not as intrinsically rich as that at Pioneer. However at least 10 to 15 percussion holes are required to test the area of confluence of the two main leads to provide an indication of the status of the ground. If at all promising as many as 50 percussion holes will be required to assess the economic viability. The target area is adjacent to a water and a power supply and would be amenable to normal hydraulic mining.

#### 5.4 Endurance Lead

B.M.I. conducted extensive exploration ahead of the old Endurance workings along the deeper sections of this lead. They outlined 6,900,000 cu. yd. valued at 0.29 lbs per cu.yd. to the east of a cross cutting fault line and also a larger area averaging 155 feet depth valued at 0.59 lbs per cu. yd. west of the fault. No further exploration is needed in this area however their information needs to be collated and its reliability assessed.

The Endurance Lead or its tributaries were mined since the early part of this century. A lower grade middle section of the lead was worked up until the 1960's. Sluice boxes were employed in these days to treat the material and the tailings and other remains of past activities are still preserved beside the Blue Lake which today infills the old workings.

Unlike the Pioneer wide valley situation, the Endurance Lead is confined to a narrow linear trending zone. The sloping granite margins to this system are shown in Figure 7. Percussion drilling showed the general trend and grades for the lead but detailed tracing of the lead was achieved by actual mining. The lead often showed wandering curved sections. The cassiterite was contained in the bottom most section of the V-cut of the workings and care had to be taken not to miss very rich sections, often rumoured to contain 20 to 30 tons of cassiterite in small localized patches in basement hollows.

The mine could be opened up with the correct mining approach. The lead has been recorded to a depth of 180 feet. The deepest point worked was 120 feet. The unworked ground is waterlogged and swampy and thus not amenable to any mechanical over-burden removal methods. V. Wood initiated over-burden pumping activities with an aim to opening up the deeper sections of the mine. Some surface tin was sluiced from the shallow over-burden removal pit ahead of the old workings (Blue Lake) but procedures did not advance very far.

035

036

Pumping and wet removal of over-burden is considered the only viable means of removing this material so as to negotiate the deeper sections of the Endurance Lead.

Some shallower sections towards the head-waters of the Endurance Lead were not worked in the early days owing to complications of mining tenements. Ground immediately west of "Little Blue Lake" according to old plans contains a lead of about 10 to 20 metres depth. Indeed the continuation of the Little Blue Lake, a mined out section, indicates this trend. About 20 percussion holes are required to test for the existence and grade of this lead. Activities should be delayed as irregular surface patches of tin are at present being mined above this target. A separate report on the Endurance area (to be prepared) will encompass old information, ongoing activities and future targets in the Endurance area.

#### 5.5 Echo Deep Lead

The old workings of the Echo Deep Lead are located north of Morina. Only several hundreds tons of cassiterite were won from this and adjoining operations (Nye 1925). Plans, available from Mines Department boring do not show encouraging results ahead of the mine, however it appears likely that old workings are only mined on an intermediate level in the sequence, leaving the deeper ground. The area of workings occurs as an extension of a major valley from the Frome River and it is possible that a deep rich lead, not indicated by boring results, remains to be detected. There appears to be some discrepancy between the wide present day width of the Frome/Weld River system and the narrow granite confinement of the Echo Lead. The area needs to be properly mapped to clarify the situation and the old information collated before any actual drilling could be attempted. The lead is located on a rising slope thus any ore is rapidly covered by increasing over-burden. For these reasons it is considered to be a target of limited scope but worth further investigation.

037

### 5.6 Monarch

No drilling is at present warranted however data on mining activities of B.M.I. in this area needs to be evaluated in order to substantiate claims that a large proportion of tin still remains overlying the basement (Thomas 1974). If viable this ground could be worked by a small cutter suction dredge that pumps to a separate treatment plant. The barge/gravel pump arrangement could sequentially work in areas such as Clarence and possibly the Ringarooma River also.

### 5.7 Clarence

Clarence or Hasties is a low marshy area west of Mount Cameron which contains near surface (5-6 metres depth) concentrations of cassiterite. The deeper sections of the alluvium overlying the basement apparently contain little tin. Old plans show the deposit is a linear trending entity which runs south. It has probably been concentrated by surface run-off after late Tertiary faulting.

An old plan of unknown origin shows a narrow lead intersected by several linear series of holes. Reserves are quoted on the plan as 3,049,233 yards with an overall grade of 0.67 lbs per cu. yd. These figures are undoubtedly an over statement. Assuming the indicated length of 3,900 yards; a six yard depth and a 40 yard width, just under 1,000,000 cu. yds exist. Grades indicated by our percussion drilling suggest that the value is nearer to 0.3 lbs per cu. yd.

Such a limited yardage might be worth considering for drilling if considered in conjunction with supposed reserves at Monarch. The tin overlies soft sediment not granite and is thus not amenable to monitoring or mechanical removal. It is considered a low priority target.

### 5.8 Ringarooma River

Geophoto conducted a testing programme of the Ringarooma River down

038  
stream from Herrick (Mortimore 1974). An overall grade of 1.18 lbs/yd<sup>3</sup> (0.70 kg/m<sup>3</sup>) was encountered from one line of holes 400 metres up river from OK Creek. The average depth of these holes was 10 metres. The nearest line of holes to these encouraging values, is located more than one kilometre down stream where the overall grade was only 0.2 lbs/yd<sup>3</sup> (0.12 kg/m<sup>3</sup>). Additional testing further down river towards Pioneer encountered similar overall grades that were no higher than 0.33 lbs/yd<sup>3</sup> (0.20 kg/m<sup>3</sup>).

The problems of drilling caused by heavy wash in the river were acknowledged, and several holes may not have penetrated to the basement.

Mortimore estimates that there may be 1,750,000 cu. yds. down stream from the line of encouraging drill hole values and that this area would contain similar high tin values. A further 2.5 million cu. yds is estimated in the vicinity upstream from their encouraging line however this ground was held under mining leases by locals at that time. Thus in excess of 4,000,000 cu. yds could feasibly exist containing grades of approximately 1 lb per cu. yd. Minor gold values also occur.

It is thought that mining of little or no consequence has occurred along this section of the river but this needs to be investigated more fully. A feasible mining method such as a small cutter suction dredge must at least be conceived as practical for this area before initiating further test work because proper testing of this ground to 10 to 12 metres depth is problematical and expensive.

It is recommended that a fuller study of the nature of the ground, general mining viability and the past and present tenement status be undertaken initially. The area borders onto the Mines Department exempt areas. Drilling of 10 to 12 percussion holes with perhaps some Conrad or bucket drill holes should then be attempted to verify the extent of the suggested grades. Similar sorts of deposits containing less than 1,000,000 cu. yds. and having grades between 0.6 to 0.9 lbs/cu. yd. were outlined by Geophoto in the Dorset Flat and also the Swains Creek areas (Mortimore 1973). These areas are

039

outside the immediate area of tenure of EL 2/77 but could be mined with the same equipment and in sequence as additional reserves to those of the Ringarooma River. These areas appear to be held under mining lease tenure but could probably be negotiated if the Ringarooma River area proves prospective.

#### 5.9 Wapole Creek/Little Boobyalla River Area

A low relief granite ridge mapped by Brown on the 1:50,000 Ringarooma sheet towards the headwaters of the Little Boobyalla River is interpreted (Tectonic Events Section 3.6) as being an uplifted block, with most of the Tertiary alluvial material removed by erosion. The general area (see Figure 19) is considered as a prospective target for shallow uplifted gutters that would have been deposited at the base of the original Tertiary system before uplifting. Old workings at 574,600 m E - 5,459,300 m N presumably represent the upfaulting continuation of the Endurance Lead, and there are indications of old surface workings in the general area. The area is poorly supplied with water and so may not have received full attention of the old prospectors. Exploration companies have not considered it. There is discouragingly little evidence of past activities over most of the supposed uplifted block so the potential of individual areas is largely unknown. A traverse with sample drill holes across Motts Creek could be first attempted to test this concept.

#### 5.10 Small Surface Deposits

Small surface deposits are erratically distributed throughout various parts of the licence area (Figure 19) and are easily mined without complicated planning and overheads. They may be scraped and carted to a central plant or sluice race or monitored to a small gravel pump arrangement. A small but steady profit can be maintained without large risks by working a series of such deposits. Such ventures help train a local workforce and are run with a minimum of supervision.

040

Such procedures are in progress at Endurance and will be the subject of a separate report.

### Clifton Mine Area

Clifton is one such ongoing small alluvial mine. There is scope adjacent to the mine area for testing a shallow gutter which runs south-west from RC hole Nos. 8 and 11 (Figure 16). Rich tin layers which from panning contain values in excess of  $2 \text{ kg/m}^3$  apparently trend across a wide flat area adjacent to the Blue Lake. This run of tin is rumoured to link up with rich surface layers encountered at about six metres depth in the pit just ahead of the western extremity of Blue Lake. About 20 to 30 shallow percussion or auger holes should be drilled during summer to test this ground.

### Clifton Creek

Some patches of shallow (3 to 6 metres) of tin bearing ground amenable to hydraulic mining possibly exist adjacent to old workings in Clifton Creek. If sufficiently large, rich patches exist to start a small operation, additional patches of tin bearing ground from the surrounding hill slopes can be carted to this or the present Clifton Mine. The innumerable small surface workings still containing good values, extend for many hundreds of metres up the tree covered slopes of Mount Cameron in this area. Drilling of Clifton Creek is presently underway (Figure 16). Assessment of the numerous old workings is best completed by prospecting.

### Eastern Leads Surface Tin

Surface tin at the top of the Tertiary alluvial section is profitably worked on the leases of Groves (Figure 2). Grades are reputed to be as high as  $2 \text{ lbs/yd}^3$  ( $1.2 \text{ kg/m}^3$ ). This surface tin obviously extends into the western side of the Pioneer/Endurance road. Some of the richer patches here have been mined by the old timers, and tin values

041

can still be recovered in the banks of these old workings. Mechanical auger drilling of some 30 to 50 holes could best establish the extent of payable ground, however regardless of this testing a small scale sluice race, treating scraper carted material could commence viable operations, with the ground to be treated being tested by simple prospecting and hand augering as scraper operations continue.

Attainment of water rights and disposal of tailings might present an initial problem on this side of the road. This area should be inspected with these problems and objectives in mind.

#### Bonzer Creek

This target is an untested small valley filled drainage system at the western end of Mount Cameron. It collects drainage from a wide amphitheatre valley so may have channelled cassiterite in the past. Therefore the base of the small valley beneath 5 to 15 metres of alluvium requires testing, probably with a reverse circulation or with percussion drilling (10 to 15 holes). Discouragingly there are no workings in the Bonzer Creek headwaters area.

This area is removed from power but could obtain water from the nearby Monarch Dam. Should the area contain cassiterite concentrations, drainage and rapid run-off might cause problems for the mining of this area. It could only be tested in the summer months.

#### Pioneer Tributary

A small shallow (2 to 3 metre) surface channel carrying cassiterite enters the headwaters of the Pioneer lead system from the north-east. Originally it was thought that the tributary may have extended running through Rattray's property (Figure 17). Such an occurrence has been disproved by drilling however reverse circulation drilling in conjunction with mapping by K. Morrison has established a south-west trending shallow run of surface tin through hole RC 45. This ties

up with old workings at 579,100 m E - 5,452,100 m N. Furthermore this trend coincides with the shallow surface tin that was worked profitably on tribute by the old Pioneer workers. It was only partly worked out according to locals. It is covered by a thin veneer of tailings and is located in the vicinity of co-ordinates 578,300 m E - 5,451,900 m N. Several backhoe trenches or holes are required initially in the vicinity of the ground worked on tribute. The ground could be worked with a small scale monitor, with some dozing of the more distant material. Some auger drilling might be required ahead of any such ongoing operation otherwise only backhoe holes are required. This suggested trend of shallow tin is split by the road and so should be tested and mined as two separate entities. This small target is close to existing operations and can be opened with a minimum of effort.

Additional small areas of surface tin within the Pioneer region are located at co-ordinates 579,500 m E - 5,453,300 m N and 57,600 m E - 5,450,750 m N and may with investigation provide additional areas for small rich surface mines.

#### Summing Up

The targets and tin occurrences in north-east Tasmania are by nature very erratic. A local approach to both mining and detection of cassiterite is to stay on established trends with minimum deviation. The local direction of mining must in many cases be decided and pursued by the actual miners who should, if diligent, be aware, by continual inspection, of the nature of the ground being treated. There are many instances cited by locals, where, in previous dredging and sluicing operations, workers had to turn away from rich pockets of tin because of pre-ordained mine plans. It is essential to the mining in this region that many separate ventures be established with a personal involvement on the part of the workers with only a long term general mining objective.

REFERENCES

- 043
- Brown, A.V., 1978, Tertiary Lead and Basin-Winnaleah Map Sheet.  
Unpublished Report 1978/7 Department of Mines, Tasmania.
- Harrison H.L.H., 1954, Valuation of alluvial deposits: Mining  
Publications Ltd, Salisbury House London.
- Klein, G. de V., 1967, Comparison of Recent and Ancient Tidal Flat and  
Estuarine Sediments: in Lauff, G.H. (ed.) Estuaries: Amer.  
Assoc. Adv. Sci., p. 207-218.
- Mortimore I.R., 1971, Report on Percussion Drilling of the Eastern Leads  
Alluvial Tin Prospect in South Mount Cameron Area, EL. 6/68  
N.E. Tasmania: for Geophoto Minerals open file Department  
of Mines, Tasmania .
- Mortimore I.R., 1973, The Status of Prospects within the Alluvial  
Tin Programme. E.L. 6/68 North-east Tasmania: for Geophoto  
Minerals open file Department of Mines, Tasmania
- Nye, P.B., 1925, The sub-basaltic Tin Deposits of the Ringarooma Valley:  
Geol. Surv. Tas. Bull. 35.
- Postma, H., 1967, Sediment Transport and Sedimentation in the Estuarine  
Environment: in Lauff, G.H. (ed.) Estuaries: Amer. Assoc.  
Adv. Sci., p. 191-206.
- Rattigan J.H., 1958, Report on Bedrock Studies in Relation to Tin  
Prospects of the Tertiary Basin of S.P.C. 323, Ringarooma  
District Northeastern Tasmania: for Rio Tinto Australia Expl.  
Pty.Ltd. open file Department of Mines, Tasmania .
- Smith, N.D., 1974, Sedimentology and Bar Formation in the Upper Kicking  
Horse River, a Braided Outwash Stream: Journ. of Geol. V. 82,  
p. 205-223.
- Thomas A.E., 1974, Review of Operations by B.M.I. Mining P/L near South  
Mount Cameron in Tasmania: A.E. Thomas and Associates Pty  
Ltd, Consulting Mining Engineer unpublished report for B.M.I.
- Warin O.N. & Appleby W.R., 1964, Tin Resources of North Eastern Tasmania and  
Proposed Drilling Programme: for Utah Development Co. Report  
No. 130 open file Department of Mines, Tasmania .

044

Warin O.N. & Appleby W.R., 1965, Report on Progress of Investigation for  
Tin in North-east Tasmania: for Utah Development Co., Report  
No. 135 open file Department of Mines, Tasmania.

## REVERSE CIRCULATION DRILLING

045

HOLE NO.	AREA	TOTAL DEPTH (m)	OVERALL GRADE kg/m <sup>3</sup> TO DEPTH (m)	COMMENTS
RC 1	Clifton Mine (Fig. 16 )	4.5	0.35 to 3.5	
RC 2	Clifton Mine	4.0	2.08 to 3.0	
RC 3	Clifton Mine	5.0	0.03 to 4.0	
RC 4	Clifton Mine	4.0	2.43 to 4.0	
RC 5	Clifton Mine	3.0	0.92 to 3.0	
RC 6	Clifton Mine	3.0	0.01 to 3.0	
RC 7	Clifton Mine	3.0	0.07 to 3.0	
RC 8	Clifton Mine	2.0	0.04 to 2.0	
RC 9	Clifton Mine	2.0	--	Not analysed, no tin
RC 10	Clifton Mine	3.0	0.16 to 2.0	
RC 11	Clifton Mine	2.4	0.02 to 2.4	
RC 12	Clifton Mine	2.0	--	Not analysed, no tin
RC 13	Clifton Mine	2.0	trace to 2m	
RC 14	Clifton Mine	1.0	0.04 to 1	
RC 15	Clifton Mine	3.0	0.05 to 3	
RC 16	Clifton Mine	1.0	0.01 to 1	
RC 17	Clifton Mine	2.0	0.01 to 2	
RC 18	Clifton Mine	2.0	0.08 to 2	
RC 19	Clifton Mine	1.6	0.03 to 1.6	
RC 20	Clifton Mine	3.0	0.13 to 1	
RC 21	Clifton Mine	3.0	trace to 3m	
RC 22	Pioneer NE Tributary (Fig. 17 )	1.0	--	Not analysed, no tin
RC 23	Pioneer NE Tributary	1.5	--	Not analysed, no tin
RC 24	Pioneer NE Tributary	1.0	--	Not analysed, no tin

(11)  
048

## REVERSE CIRCULATION DRILLING

165047

HOLE NO.	AREA	TOTAL DEPTH (m)	OVERALL GRADE kg/m <sup>3</sup> TO DEPTH (m)	COMMENTS
RC 25	Clifton Mine	2.0	1.90 to 1	Isolated patch beside old workings.
RC 26	Clifton Mine	1.0	0.03 to 1	
RC 27	Clifton Mine	1.0	0.02 to 1	
RC 28 to RC 40	Pioneer NE Tributary	all 2.0 or less	--	Not analysed, no tin
RC 41	Pioneer Mine	6.0	trace	Not analysed 77240 mE - 52690 mN
RC 42	Pioneer Mine	6.0	0.02 to 5	77200 mE - 52670 mN
RC 43	Pioneer Mine	6.0	trace	Not analysed 77220 mE - 52690 mN
RC 44	Pioneer Mine	6.0	trace	Not analysed 77220 mE - 52670 mN
RC 45	Pioneer NE Tributary	3.1	0.15 to 3	Reasonably coarse grains of tin
RC 46	Pioneer NE Tributary	5.0	0.05 to 2	
RC 47	Pioneer NE Tributary	6	trace	Not analysed
RC 48	Pioneer NE Tributary	2.3	0.09 to 2.3	Reasonably coarse grains of tin
RC 49	Clifton Creek (Fig. 16 )	1.32	0.18 to 1.0	
RC 50	Clifton Creek	3.0	0.01 to 3	Fine tin trace only
RC 51	Clifton Creek	2.0	--	Not analysed, no tin
RC 52	Clifton Creek	3.0	0.03 to 3	Very low recovered volumes
RC 53 to RC 56	Clifton Creek	all less than 2m	--	Not analysed, no tin
RC 57	Clifton Creek	2.2	0.36 to 2.2	Recorded as blackjack by panner

## REVERSE CIRCULATION DRILLING

165048

HOLE NO.	AREA	TOTAL DEPTH (m)	OVERALL GRADE TO DEPTH (m) kg/m <sup>3</sup>	COMMENTS
RC 58	Clifton Creek	6.3	0.14 to 1.0	Trace of tin below 6 metres also
RC 59	Clifton Creek	7.0	0.09 to 7	
RC 60	Clifton Creek	4.3	--	Not analysed, no tin
RC 61	Clifton Creek	2.2	--	Not analysed, no tin
RC 62	Clifton Creek	1.0	--	Not analysed, no tin
RC 63	Clifton Creek	4.9	0.06 to 4.9	Very low recovered volumes
RC 64	Clifton Creek	4.3	0.15 to 4.3	Very low recovered volumes
RC 65	Clifton Creek	2.0	--	Not analysed trace? Low recoveries.
RC 66	Clifton Creek	3.60	--	Not analysed, no tin, low recoveries.
RC 67	Clifton Creek	2.0	0.20 to 2.0	
RC 68	Clifton Creek	1.7	--	Not analysed, no tin
RC 69	Clifton Creek	2.0	--	Not analysed, no tin
RC 70	Clifton Creek	1.0	0.39 to 1.0	Low recovery
RC 71	Clifton Creek	1.8	0.02 to 1.8	
RC 72	Clifton Creek	3.0	--	Not analysed, no tin
RC 73	Clifton Creek	2.0	--	Not analysed, no tin

048

FIGURE 3

165049



A large rounded granite boulder sitting on a thin layer of tin bearing sediment, overlying a soft granite basement; exposed at the base of the Pioneer workings. The pick is slightly over one metre in length.



A well rounded "birds eye wash" pebble layer infilling a scour surface, cut into cross bedded clayey grit - quartz gravel layers define cross bedding - ferruginous staining occurs below an irregular front, discordant with the bedding. Note clayey drift material (white) and transported clay clasts (central left).

FIGURE 4

049



Mathinna cobble conglomerate, toward the base of the Tertiary section, Pioneer mine. Tape is extended approximately 30 cm. Pebbles are roughly inclined defining stratification. The bed is probably laid down in an aggrading fluvial fan.

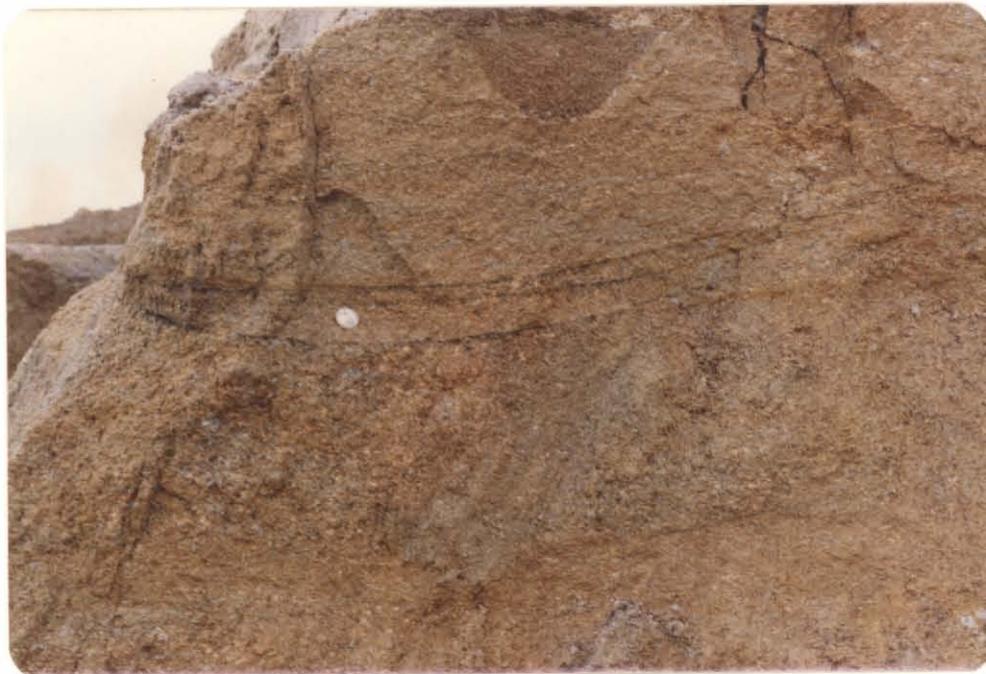


A large planar cross bedded set, with large pebbles/cobbles in inclined layers (lower half). The amplitude of the cross bed when fully exposed was greater than 2 metres, dipping in the up paleoslope direction. Note an overlying cross bedded set dipping in the opposite direction (i.e. bi-polar cross bedding). Note the irregular iron precipitate layer or 'clinker'.

050



A selection of the largest boulders from the wash at the base of Tertiary section. Longest B axes range from 24-30 cm, indicating high competence streams entering the system.



Seams of cassiterite defining winnowed cross bedded layers, within clayey gravel and grit. Weathered granite basement occurs toward the base of the exposure. The coin adjacent this rich patch of ore is an Australian 20 cent piece.

051



A thick clay layer (approximately 2 metres thick) in the upper portion of the Tertiary sequence. Clayey quartz drifts, below, show irregular cross bedding throughout.

Cross bedded grits and gravel (orange) with some cobbles toward the base of the sequence, upwards fining into sands and gravel (drifts) and clay. Note dark layers bedded between clays towards the top of the sequence. These are carbonaceous cemented sands that appear to have a bituminous content.



052



View looking east toward the old Endurance Lead workings - Mount Cameron foothills rise, to the left of the photo, with the mined out sections between this and the light contoured tailings. The granite basement rise defining the confining valley margin to the old valley system can be seen as a low profile tree covered rise to the right of the photo. The inward sloping V is then, quite low not steep sided.

A Goldfields G 33 percussion rig in the process of sampling alluvial ground ahead of the Pioneer Mine.



053

Jackro reverse circulation rig with air compressor off to the right of photo.



Large scale reverse circulation rig with dual pipe rods in the foreground. Material is extracted up the centre pipe and out the overhead gooseneck to the flexible pipe.

FIGURE 13

054



The riffle catching system to the sides' reverse circulation system. Material enters from the flexible pipe and flows over a series of riffles to the large bin (bottom left). Hence the thick bentonitic mud is recirculated down the outer annulus.



The bit to this reverse circulation system. The outside annulus frequently became blocked with small pebbles.



Sample shed with drum containing drilling sample, the measuring stick beside and the cradle used in the sample concentration.

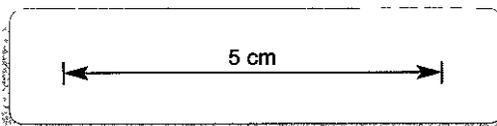
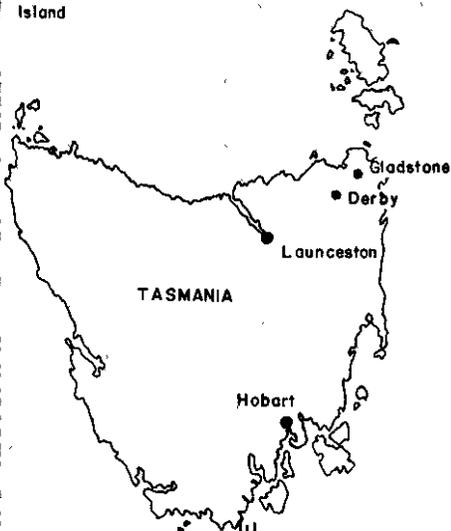


Simple apparatus, pans and sieves with the cradle system behind; used to concentrate sample before sending off for assay.

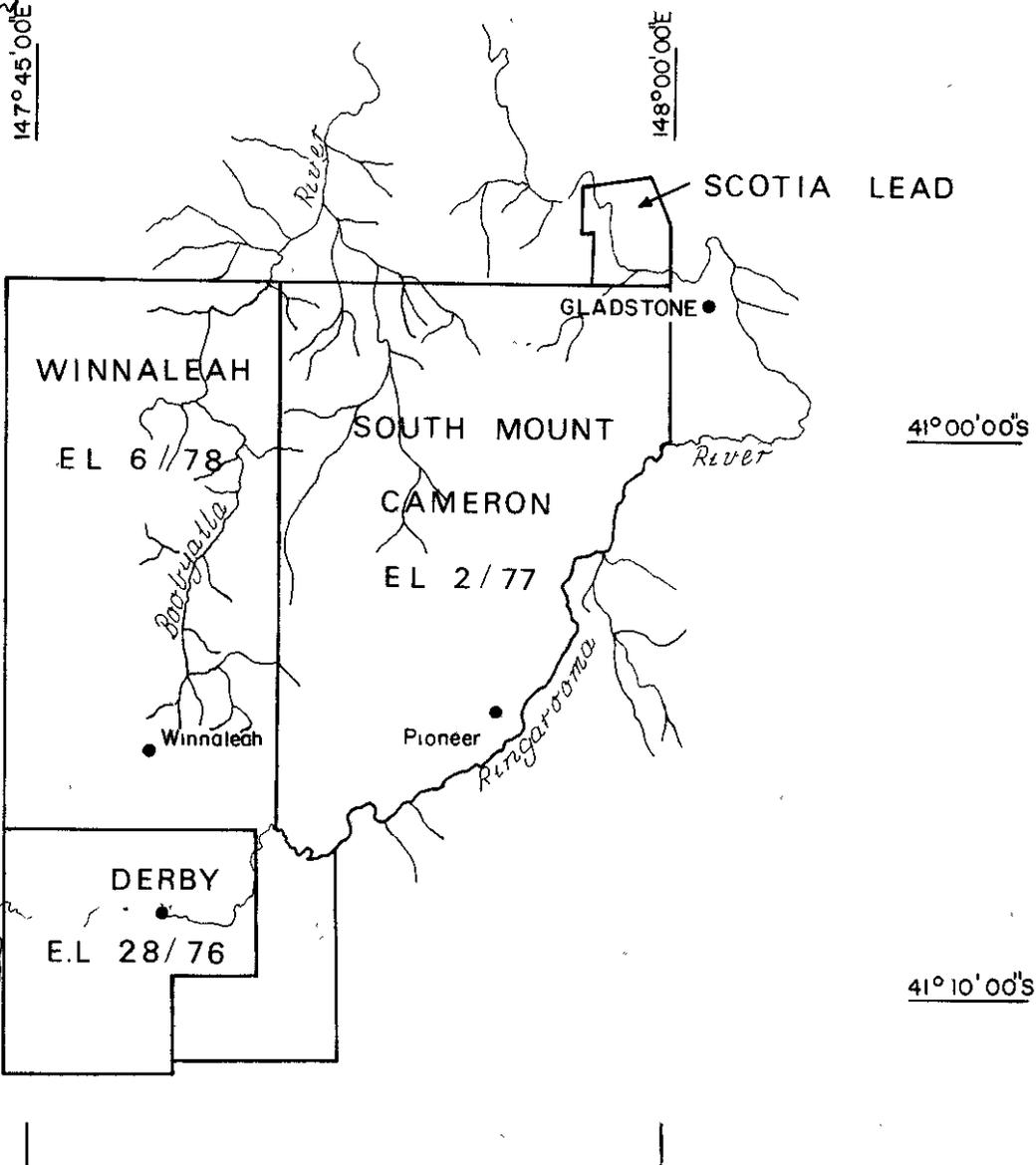
056

165057

King Island



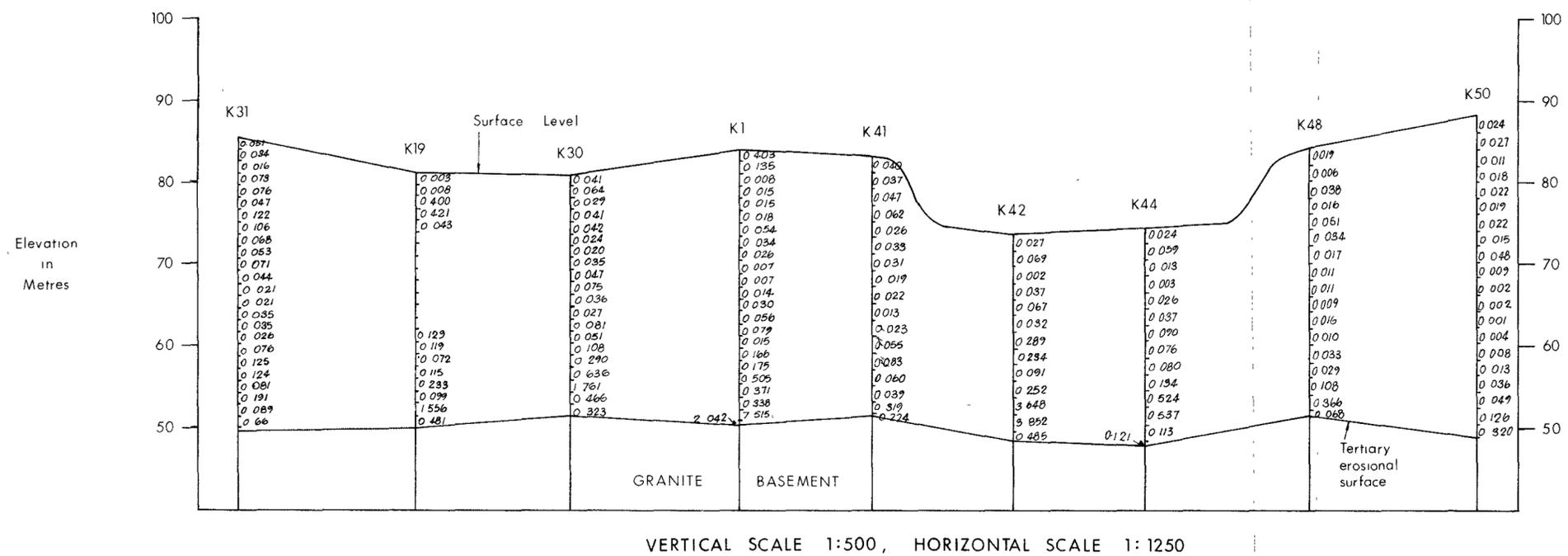
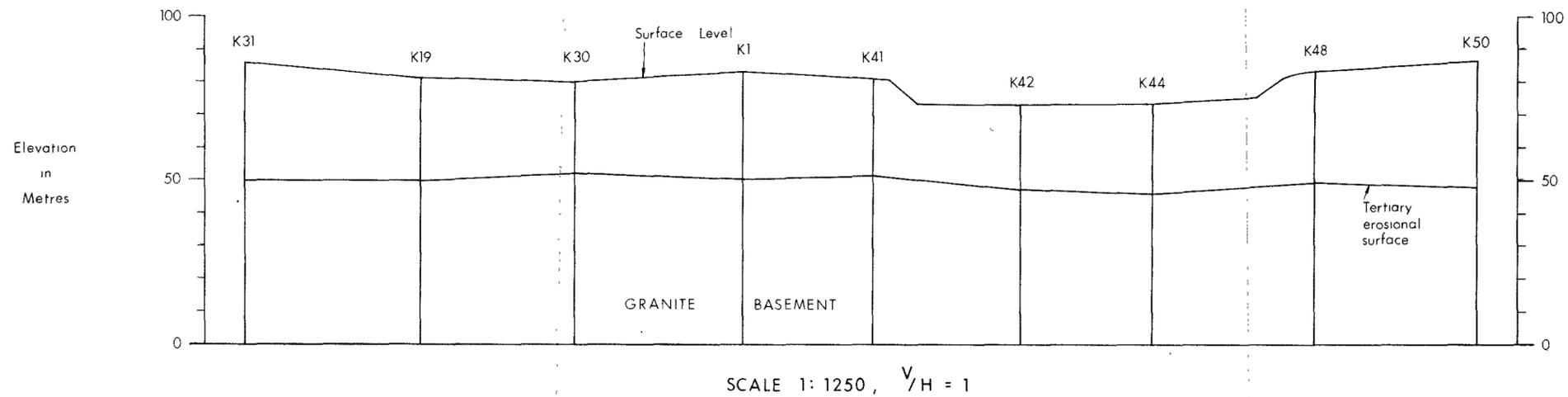
1 : 250,000



AMDEX MINING LIMITED  
 NORTH - EASTERN TASMANIA LOCATION MAP  
 SHOWING CURRENT E.L.'S

FIGURE 1





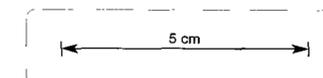
K Kibuka drilling  
 K31 Cable tool percussion drill hole, assay values in  $kg SnO_2/m^3$

165059

79-1355

AMDEX MINING LIMITED  
 PIONEER MINE  
 CROSS SECTION

FIGURE 1



Author: L McDonald	Date: November, 1978	Dwg No:
Drafted by: C C	Report No:	Base Plan:

2085

P 136/31 a

LEGEND

○ Temporary bench mark  
 Hole x Depth to basement (ft)  
 N° x Grade lbs SnO<sub>2</sub>/yd<sup>3</sup>

K Kibuka drilling 1977  
 S Storeys Ck drilling 1961  
 A Austral Malay drilling 1935  
 P Pioneer Mines drilling pre 1930

--- Top pit face  
 --- Bottom pit face  
 --- Pit face 30 6 77 after Piggott

K 29 x 120' K 21 x 130' 25 K 20 x 115' 29

A 3 x 140' 44 K 23 x 150' 44 A 2 x 130' 44 K 22 x 130' 74

K 25 x 130' 16 K 24 x 130' 10

S x 133' 1

S x 134' 14 K 26 x 150'

A 15 x 104' Tr

A 14 x 126' 03

A 13 x 136' 18

A 16 x 135'

A 17 x 143' Tr

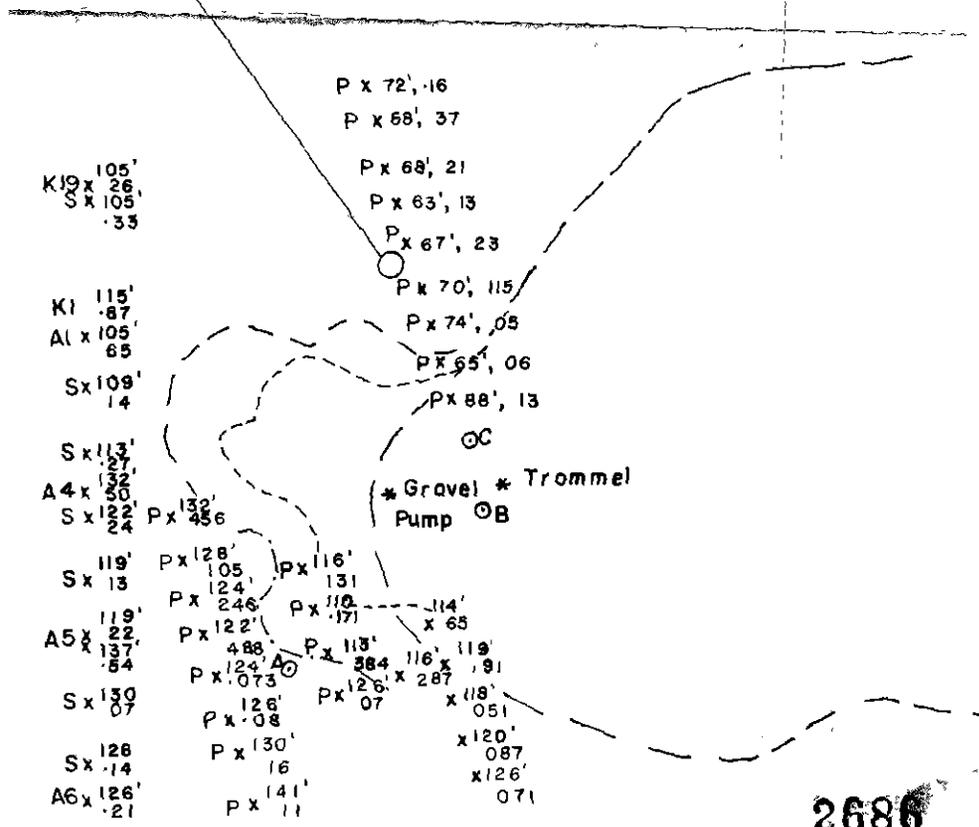
A 18 x

A 7 x 142' 06

A 8 x 146' 0-2

A 9 x 164' 28

PROPOSED HOLE C27

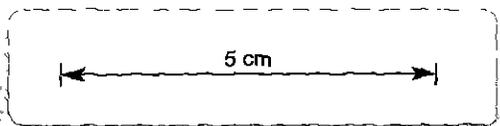


2686

165060

FIGURE 9

0 50 100 metres

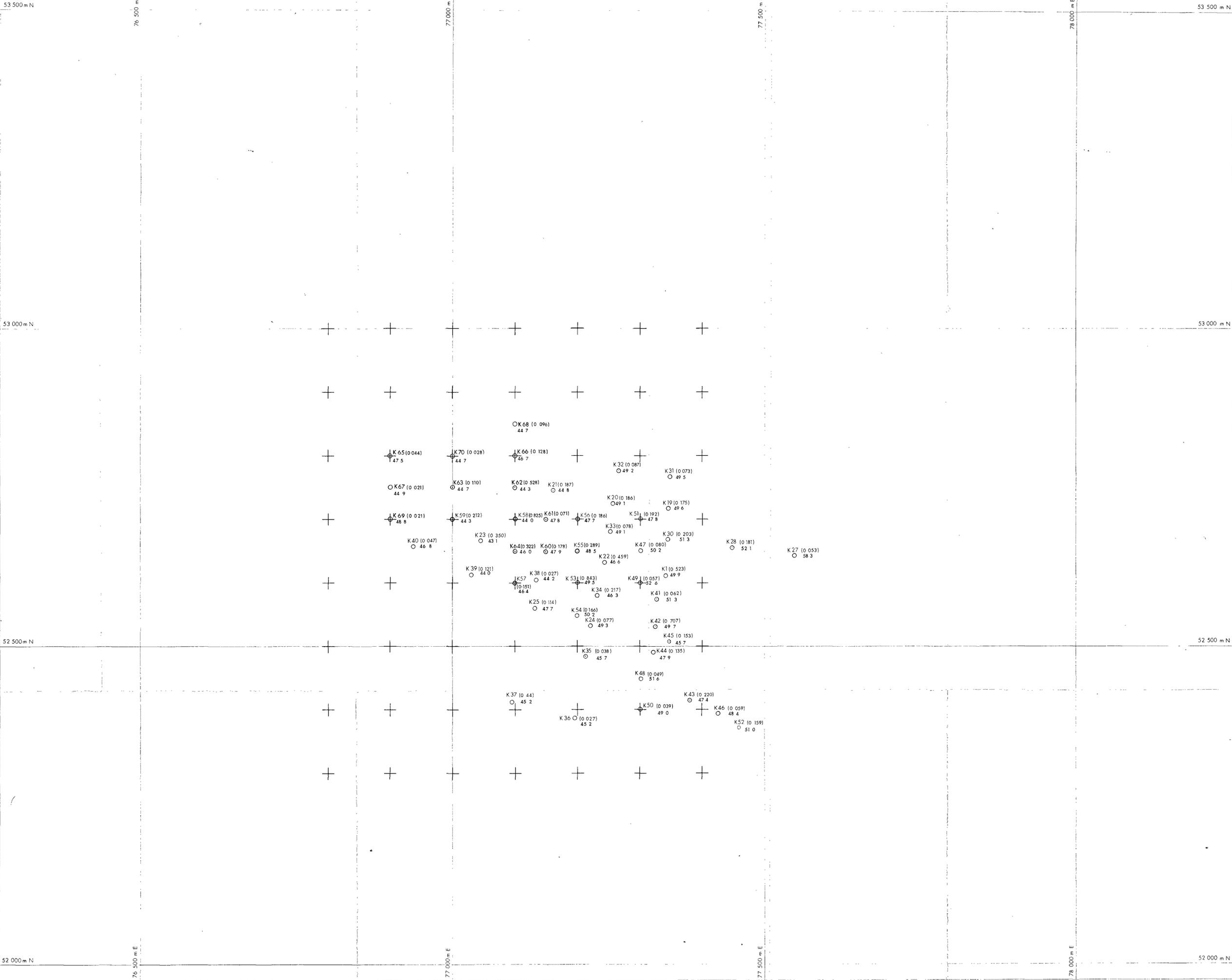


GN

AMDEX MINING LIMITED	
PIONEER MINE, TASMANIA	
PIT OUTLINE	
DRILL HOLE LOCATION	
DATA BY A Fleming	DATE 6 3 78
DRAWN BY SG	SCALE: 1:5000

79-1355





K19 (0 175) Kibuka Percussion drill hole  
 overall grade kg/m<sup>3</sup> SnO<sub>2</sub> (70% Sn)  
 46.4 Basement R L

AMDEX MINING LIMITED  
 PIONEER TIN MINE  
 79-1305

165062

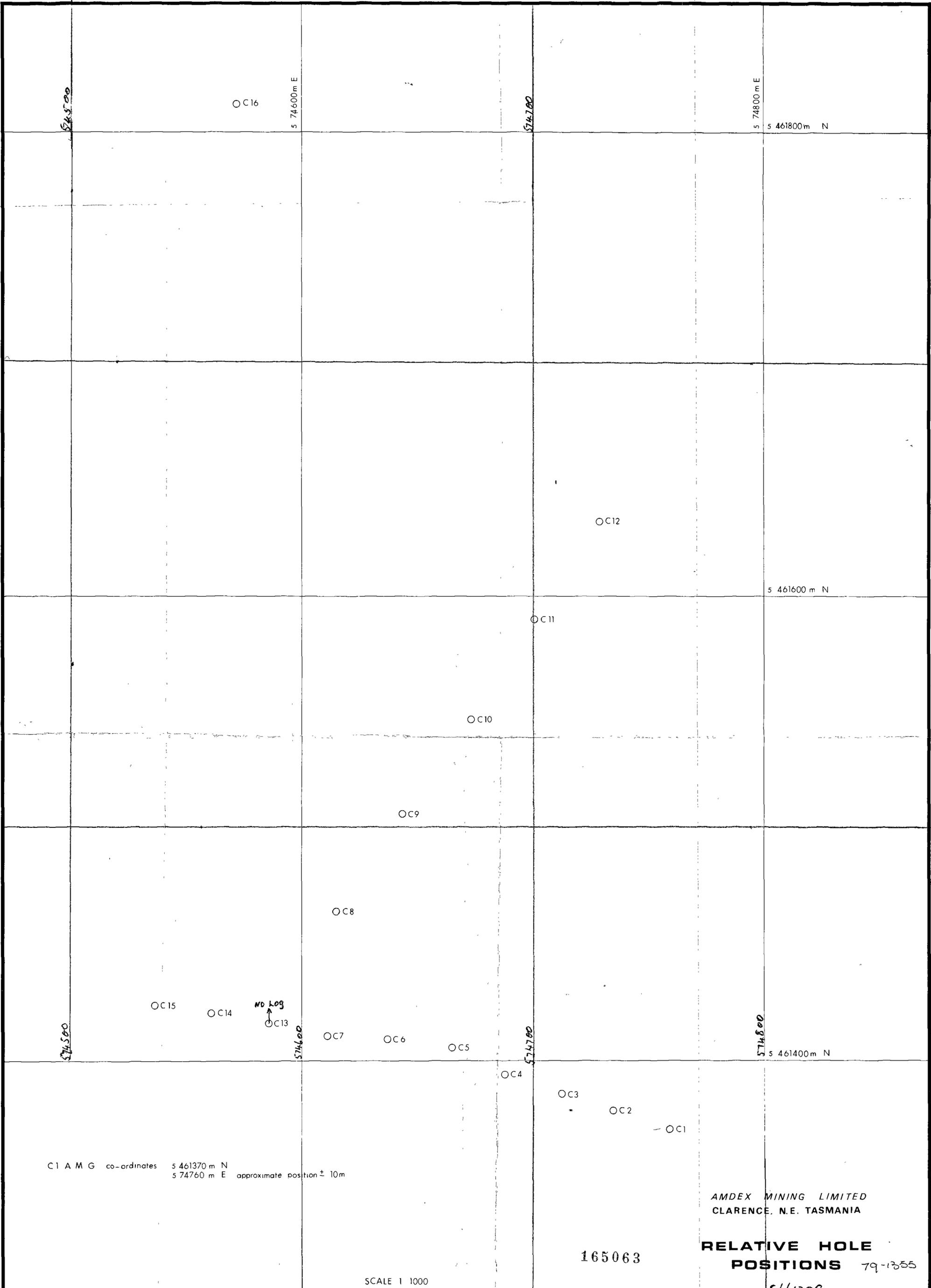
Prepared by G J WALKEM & CO  
 surveyors & planners  
 holyman house brisbane street,  
 launceston 003 312428



FIGURE 11

Author	Date
Drafting	Dwg No

2688



OC16

5 74600 m E

5 74800 m E

5 461800 m N

OC12

5 461600 m N

OC11

OC10

OC9

OC8

OC15

OC14

NO LOG  
↑  
OC13

OC7

OC6

OC5

OC4

OC3

OC2

OC1

574800

5 461400 m N

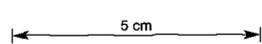
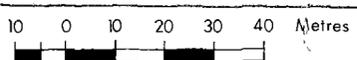
C1 A M G co-ordinates 5 461370 m N  
5 74760 m E approximate position ± 10m

AMDEX MINING LIMITED  
CLARENCE, N.E. TASMANIA

165063

RELATIVE HOLE POSITIONS 79-1355

SCALE 1 1000



574600  
FIGURE 15

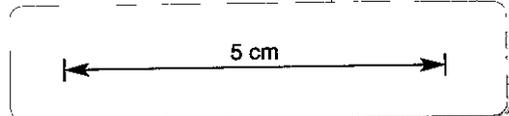
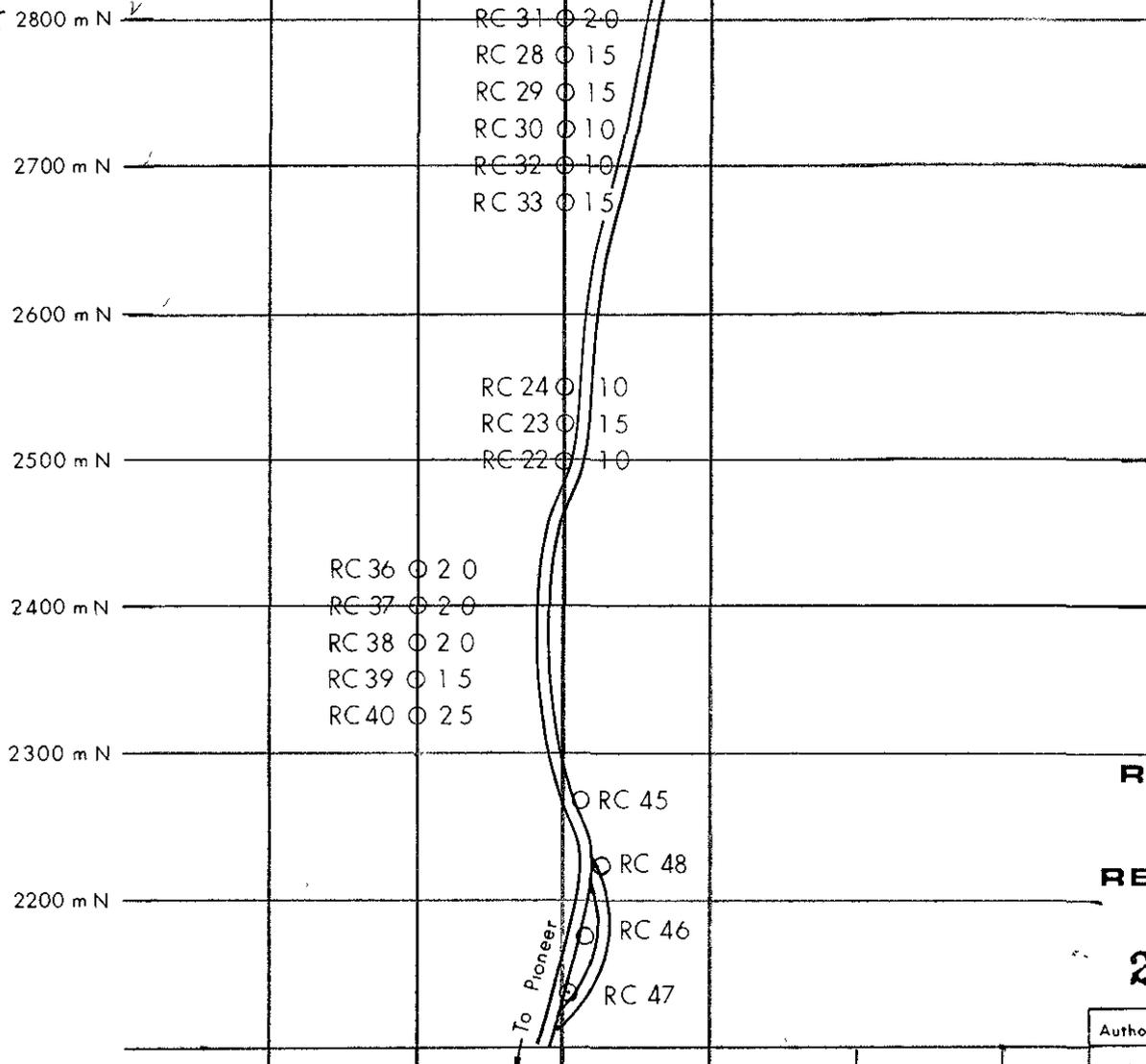
2689

Author L McDONALD	Date MARCH, 1979	Dwg No
Drafted by C C	Report No	Base Plan



165065

545 2800 m N



RC 24 ○ Reverse Circulation Drill Hole Number

○ 15 Depth to Basement in Metres

SCALE 1:5,000

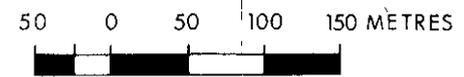
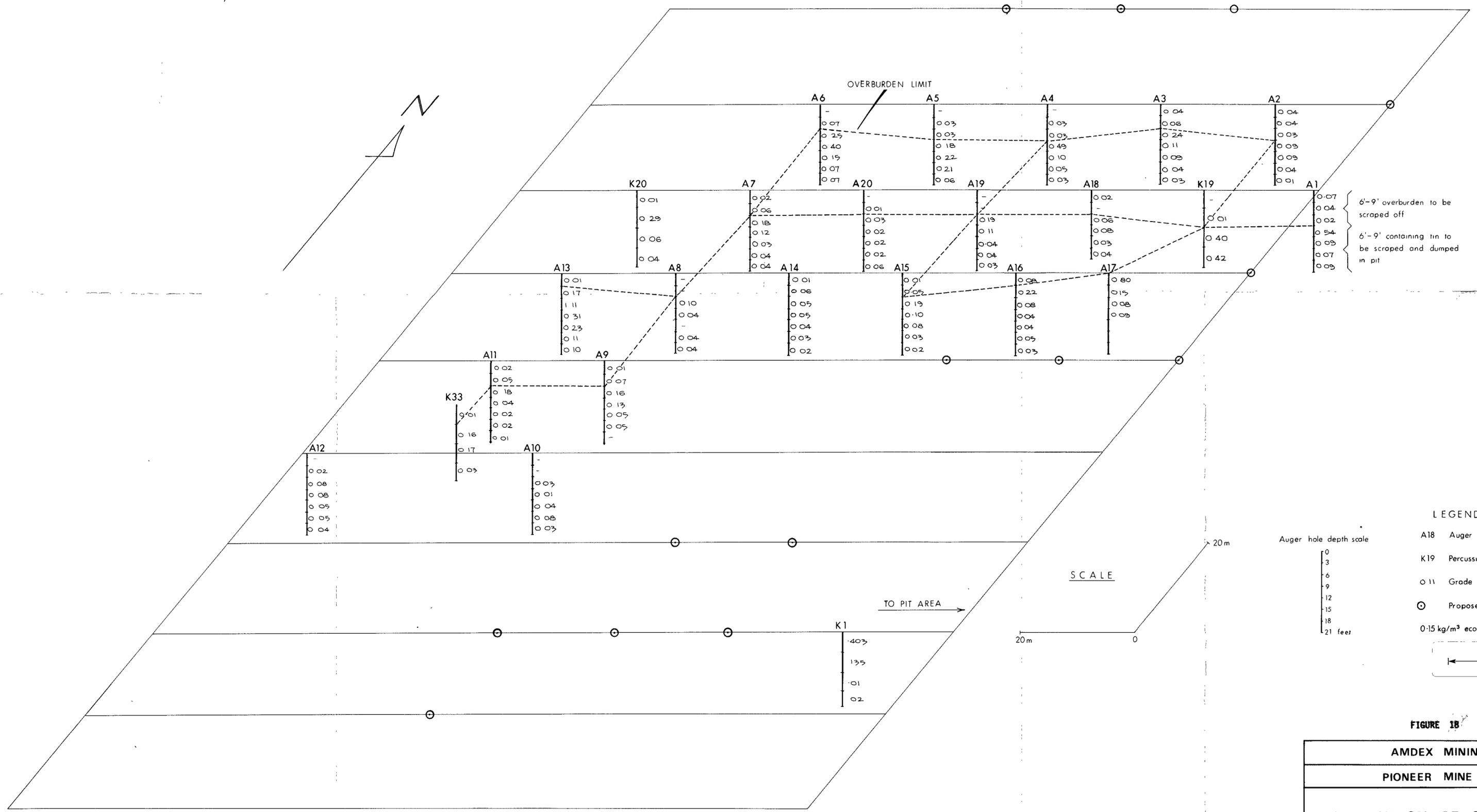


FIGURE 17

AMDEX MINING LIMITED  
PIONEER, TASMANIA

**RATTRAY'S PADDOCK  
EXPLORATION  
REVERSE CIRCULATION  
DRILL HOLE  
2691 LOCATIONS**

Author K Morrison	Date FEBRUARY, 1979	79-1355
Drafted by C C	Report No	



0-07 } 6'-9' overburden to be  
 0-04 } scraped off  
 0-02 }  
 0-54 } 6'-9' containing tin to  
 0-05 } be scraped and dumped  
 0-07 } in pit  
 0-09 }

**LEGEND**

- A18 Auger hole
- K19 Percussion hole
- Grade SnO<sub>2</sub> kg / m<sup>3</sup>
- ⊙ Proposed hole
- 0.15 kg/m<sup>3</sup> economic limit of scraping operations

Auger hole depth scale

0
3
6
9
12
15
18
21 feet

5 cm

FIGURE 18 165066

AMDEX MINING LIMITED 79-1355  
 PIONEER MINE TASMANIA  
 DISTRIBUTION OF SHALLOW SURFACE  
 TIN AHEAD OF PIONEER PIT

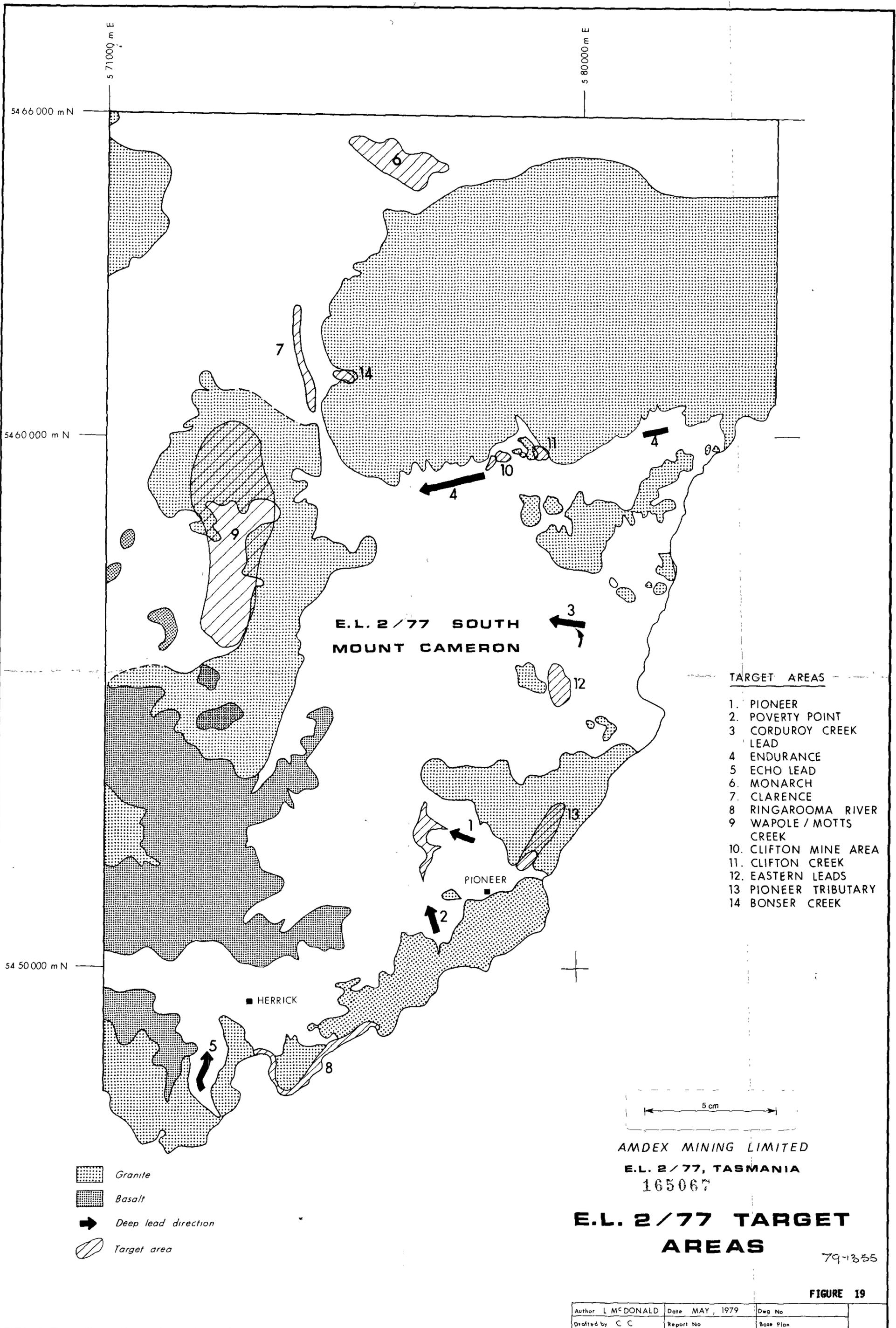
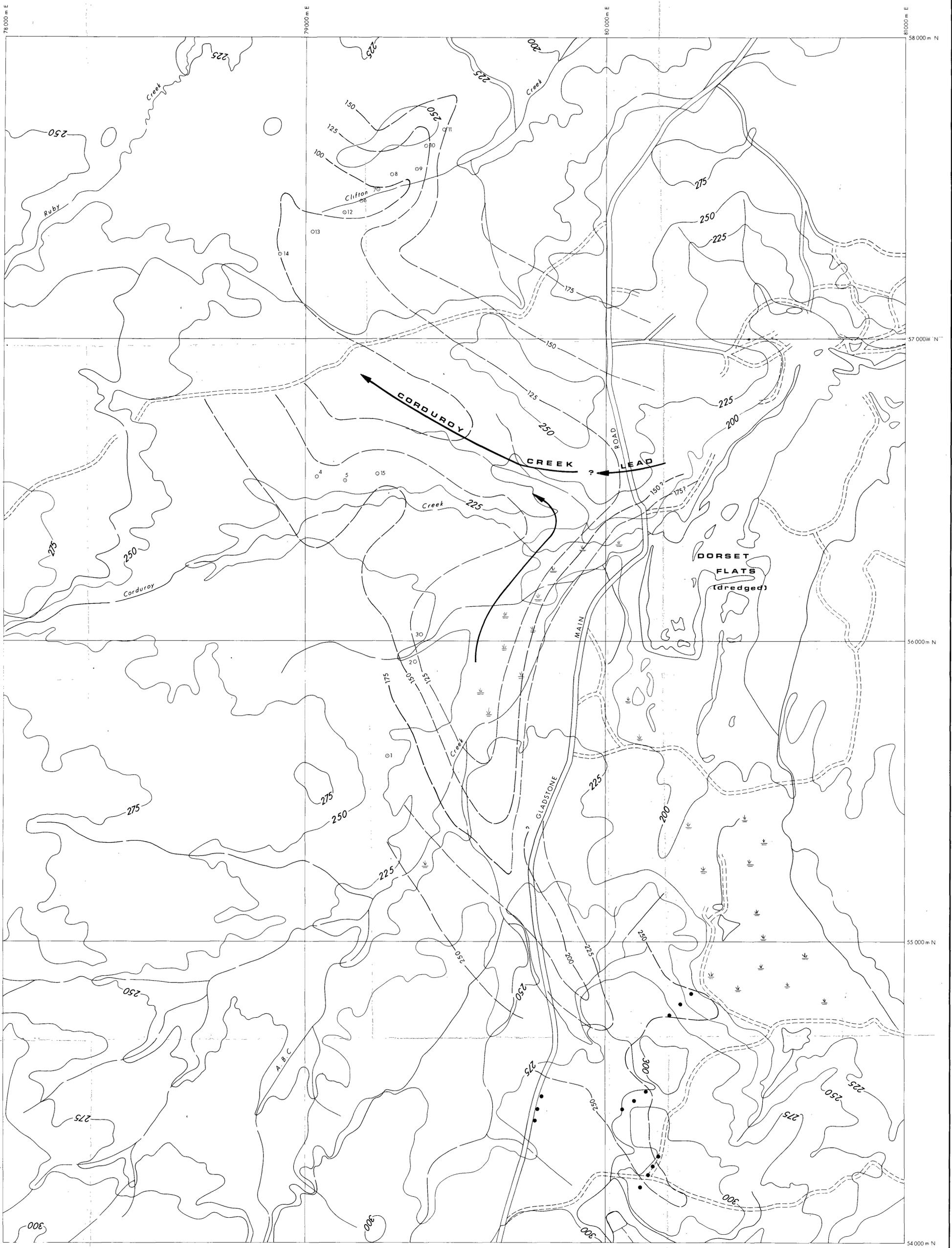
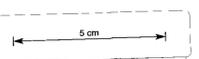
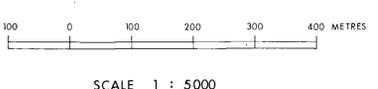


FIGURE 19



- Geophote percussion hole
- Urah sample hole
- 125— Basement contour (R.L. in feet)



165068

AMDEX MINING LIMITED  
EL. 2/77, TASMANIA

**EASTERN LEADS AREA**

**BASEMENT  
CONTOURS**

FIGURE 20 79-1355

Author L. McDONALD	Date MAY, 1979	Dwg. No.
Drafted by C. C.	Report No.	Base Plan

057

165069

EXPLORATION LICENCE 2/77 - SOUTH MOUNT  
CAMERON - SIX MONTHLY REPORT FOR  
THE PERIOD ENDING 8TH MARCH 1979

APPENDIX 1

79-1355  
vol 2/2

**MICROFILMED**

**OPEN FILE**

058

**SCINTREX**

COMMENTS ON  
GEOPHYSICAL TEST SURVEYS  
CARRIED OUT AT PIONEER, NORTH-EAST TASMANIA  
ON BEHALF OF  
AMDEX MINING LIMITED

*D. S.*

**SCINTREX**

PRIVATE AND CONFIDENTIAL

COMMENTS ON  
GEOPHYSICAL TEST SURVEYS  
CARRIED OUT AT PIONEER, NORTH-EAST TASMANIA  
ON BEHALF OF  
AMDEX MINING LIMITED

BY

A.W. HOWLAND-ROSE  
MSc, DIC, AMAusIMM, FGS,  
GEOPHYSICIST

SYDNEY, N.S.W.

MAY, 1979

TAS-067R/069

080  
**SCINTREX****CONTENTS**

Summary	
Introduction	Page 1
Method	Page 2
Discussion of Results	Page 3
Standard RRMIP	Page 4
Pole-Source Array	Page 5
Total Magnetic Field	Page 8
Conclusions	Page 9
Appendix 'MIP'	
Data Profiles - Pole-source Array	
Plate 1 - Distribution of Heavy Mineral Fraction	
Plate 2 - MMR Contour Plan	
Plate 3 - RPS Contour Plan	
Plate 4 - Total Magnetic Field Contour Plan	

067



# SCINTREX PTY. LTD.

GEOPHYSICAL CONSULTANTS AND CONTRACTORS

165073

## SUMMARY

*While the results of a standard RRMIP survey and an attempt at a moving source RRMIP survey of themselves have not been successful in identifying the known distribution of heavy minerals at Pioneer, the Author considers that it is not impossible that a moving source array could be developed which would be successful in locating such deposits. Further theoretical work will be carried out with this objective in mind.*

*The magnetic field survey was not successful in delineating the known mineralisation.*

**SCINTREX**

COMMENTS ON  
GEOPHYSICAL TEST SURVEYS  
CARRIED OUT AT PIONEER, NORTH-EAST TASMANIA  
ON BEHALF OF  
AMDEX MINING LIMITED

---

*INTRODUCTION*

A series of RRMIP and total field magnetometer surveys were carried out on the projected extensions of the Pioneer Mine, near Derby north-east Tasmania on behalf of Amdex Mining Limited. These surveys were requested by Mr. I. Shulman.

The RRMIP test surveys were carried out on two double and five single operator days between 13th and 21st December, 1978, while the magnetic field surveys were carried out on 1.5 single operator days on 1st and 2nd March, 1979.

The purpose of these test surveys was to find whether a method could be developed for the location of the cassiterite and/or the associated heavy mineral assemblage, or the 'structure' where the cassiterite was situated. Little is known about the distribution of the heavy mineral with respect to the cassiterite, but it was reasonable to assume that there may be a contact between it and the enclosing quartz sands and clays, both with respect to magnetic field and perhaps also with chargeability. It was hoped that the success with heavy mineral sands (ilmenite) may be able to be

repeated here.

The RRMIP surveys were conducted by Mr. R. Stahl assisted by Mr. A. Kamaleshwar, B.Sc. and directed by Mr. Leon McDonald of Amdex, while the magnetic field surveys were undertaken by Mr. D. Webb, B.Sc., assisted by Mr. P. List. The author visited the site on 14th and 15th December. 1978.

#### METHOD

The magnetic induced polarization method is described in Appendix 'MIP' appended to this report. The conventional method using a 1 kilometre dipole in two end-on arrays was tried and the results of this survey are displayed in Plates 2 and 3 which depict MMR and RPS respectively.

Certain lines were surveyed using a 'pole-source' array employed in this survey for the first time. While the geometry is complex, the overall aim was to sample only a small volume of material concentrated within the tin bearing overburden. No response diagrams are available for such an array, but are being prepared to assist in ascertaining the meaning of the results obtained.

Figure 1 displays the configuration of this array. It should be noted that the grid at Pioneer is exceptionally flat, and care was taken to lay out the wire in a dead straight line along the traverse for the pole-source array.

064

# SCINTREX Pole Source Array

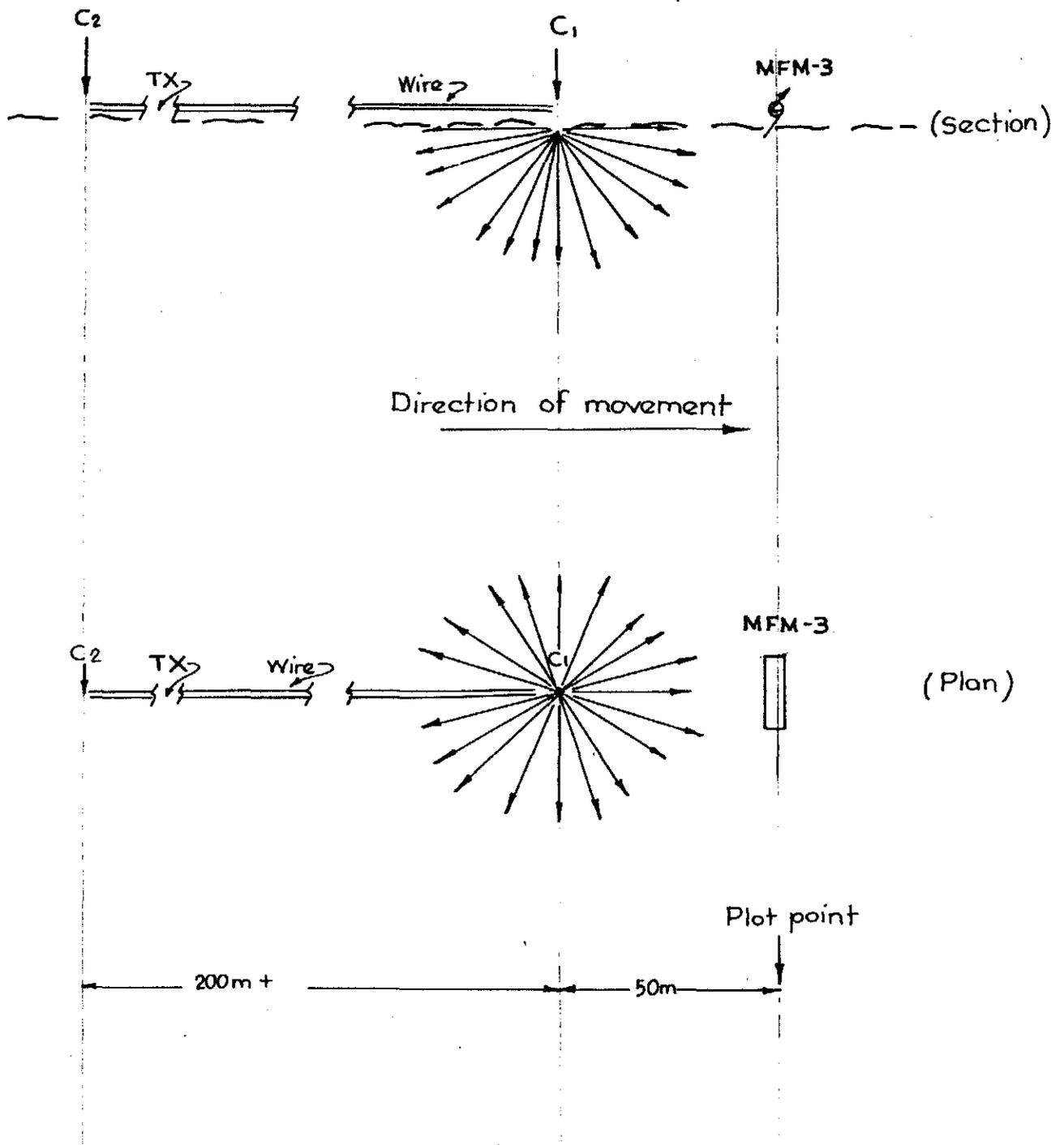


Fig. 1

*DISCUSSION OF RESULTS*

Plate 1 shows the distribution of the heavy mineral fraction from the drill holes K18 to K70 in grams per standard sample per hole. It is considered likely that the heavy mineral fraction would bear some relation *as a whole* to the accompanying tin values.

Opinions have varied over recent time as to whether the tin was deposited in leads or desposited as a result of tidal action near estuaries. Thus the relationship of sub-basement and tin is not known or understood, except in broad outline.

The target will consist of narrow black seams as shown in the accompanying photograph (As a guide to scale, the coin is an Australian 20¢ piece)



066  
**SCINTREX**

Each of the tests are discussed separately below:

*STANDARD RRMIP*

Two standard RRMIP arrays were employed to cover the area to the west of the working mine, over the drilled sections referred to on Plate 1. The MMR data shows three zones where the MMR indicates the underlying rocks to be less resistive. The most prominent is centred at about 52550N+50 metres, on all three lines. The northerly unit was centred on lines 76800E, 77000E and 77200E at 53100N, 53100N and 53175N or 53025N. The southern most 'resistivity low' is at or south of 51975N on 77200E and south of 51950N on the other two lines.

The geological meaning of these trends is not known, but may represent bulk resistivity changes in the basement rocks. It may be significant that the known extensions of the Pioneer tin deposits occur on the inflexion between the higher MMR values at 52550N+50 metres, and the lower (resistive) section at 52800N+25 metres. In this context, electrically resistive rocks are in general more resistive to weathering, thus the MMR results may indirectly reflect subcrop relief.

The chargeability data varies about the zero level, with the maximum relief being  $\pm 0.50^\circ$  from this level. A small but perhaps significant internal polarization response was recorded on line 77000E at 52700N of  $+0.45^\circ$  which is confirmed by a similar PFE and is therefore considered genuine. To the east it would appear that a much

**SCINTREX**

067

smaller response of  $+0.15^\circ$  at 52650N on line 77200E may be the correlative, while to the west this anomaly could correlate with a  $+0.25^\circ$  response at 52725N or a  $+0.15^\circ$  response at 52675N. Of all the polarization responses recorded in the standard RRMIP survey, only that at 52700N can be considered truly significant.

*POLE-SOURCE ARRAY*

The data profiles are described line by line in order of execution. The horizontal scales are 1:2500 while the vertical scales are 1 centimetre =  $0.2^\circ$  relative phase shift (chargeability) and 1 centimetre = 0.2 for HP/I (some function of resistivity of the volume sampled).

*Profile 'A' (line 77000E)* ..... pole-source array 50 metres between current pole to the north and MFM-3 in the south.

Three prominent internal polarization responses were recorded at 52337N, 52600N and 52875N. These are respectively approximately  $+2.00^\circ$ ,  $+2.70^\circ$  and  $+1.80^\circ$  above the local background. The most southerly maximum is associated with a depression in the HP/I ratio which infers a more resistive underlying host, while the central and northern sources show little material change.

The maxima do not occur in proximity to known mineralisation, as a comparison with Plate 1 shows. However, the central and northern maxima do occur on the flanks of a known zone centred at about K59.

**SCINTREX**

068

Consideration of the array geometry itself suggests that it is in fact the edges of an essentially horizontal chargeable source which the array will couple best to. The horizontal section should not respond as the horizontal current flow has no component which the horizontal fluxgate (MFM-3) can monitor. (See Appendix MIP). Thus it seems likely that the anomalies observed are due to edge effects.

*Profile 'B' (line 77200E) . . . . . pole-source array 50 metres between current pole in the south and MFM-3 (MIP sensor) in the north.*

This line shows three maxima on the RPS at approximately the same general positions on the grid as for line 77000E. A sharp single station reading at 52850N of  $+1.60^\circ$ , a similar response of  $+1.40^\circ$  at 52550N with a broader response of  $+1.80^\circ$  at 52275N and to the south, were recorded. A fourth response of the order of  $+3.00^\circ$  at 52125N was also recorded which is further to the south than surveyed on line 77000E.

The general similarity between these two lines infers a continuity across them of whatever features cause the RPS responses observed.

As with line 77000E, the chargeability maxima at 52550N and at 52850N occur either side of the position of the higher heavy mineral fraction and thus may be related to the edge of a horizontal plate of chargeability.

*Profile 'C' (line 77200E) . . . . . Pole-source array, 50 metres between*

069  
**SCINTREX**

current pole to the north and MFM-3 to the south.

The profile form one would have expected would have borne some relationship to Profile 'B' even if amplitudes and positions of RPS anomalies would have been displaced. The reason for this large divergence is not understood.

*Profile 'D' (line 77200E).....* As above, only with infinite electrode not in line with reading but 200 metres north.

This data is similar to Profile 'C' but with the positive RPS points being of slightly greater amplitude.

*Profile 'E' (line 72200E) .....* A moving gradient array was employed using a current pole separation of 50 metres, with the MFM-3 (MIP sensor) placed midway between. The section of line surveyed was 52450N to 52750N centred over some of the better heavy mineral concentrations around 52600N. No significant response was recorded.

It is now considered that this array would have no chance of coupling with horizontal sources as the current flow is horizontal and so would the discharge be also essentially horizontal. Such an array may well have potential with the sensor *vertical* instead of horizontal.

*Profile 'F' (Endurance line P132E).....* 3Hz pole-source array, electrode to the north. Distance between current pole and sensor 50

070  
**SCINTREX**

and 75 metres (plotting position over the sensor).

South of 3N higher internal RPS of  $+0.40^\circ$  to  $+0.50^\circ$  was noted while north of 2N the values were *about*  $+0.30^\circ$  higher on both spacings.

Between these sections the overall level of RPS is lower but the 50 metre spacing shows a maximum at 7.5N (+25 metres) of about  $+0.20^\circ$  and between 13N and 16N of the same amount.

*Profile 'G' (Endurance line P128)..... pole-source array, electrode to the north.*

The chargeability profile is without feature except for a response at 5N of  $+0.30^\circ$  above background. Substantial responses of  $+0.80^\circ$  and  $+2.60^\circ$  above background at 16N and 19N are considered to be related to the powerlines which were recorded as being at 18N.

HP/I shows a gentle change, with the maximum values being between 4N(+) and about 13N(+). This infers less resistive rocks beneath this section.

**TOTAL MAGNETIC FIELD**

The data is presented in contour form on Plate 4. A stationary magnetometer was read every 1 to 3 minutes and the data from the survey magnetometer corrected for drift to an accuracy of +1 gamma or better.

**SCINTREX**

As can be seen, no correlation with the known mineralisation can be seen.

*CONCLUSIONS*

- 1 - The standard RRMIP surveys over Pioneer using a 1 kilometre spread recorded only one significant anomaly defined on line 77000E at 56700N. This appears to strike approximately grid east west. In retrospect the line spacing should have been 50 metres or even 25 metres, rather than the 100 metres used. This may have allowed a far more detailed picture to have been seen.
- 2 - The pole-source array gave large RPS anomalies which may relate to the edges of horizontal polarizable sheets. Certainly these results are encouraging in that anomalies *do occur*. Lack of repeatability for a reversal of configuration is not fully understood, but is certainly due to inhomogeneity and different geometry as the chargeable sources are approached from either side.

While these surveys as such cannot be considered successful, they have given data which shows anomalism occurs, and is related to some unit within the sequence, the most likely of which is total heavy mineral distribution. While the possibility of clays cannot be ignored, the lack of information as to the true relationship of heavy mineral content and tin, and of the actual

072  
**SCINTREX**

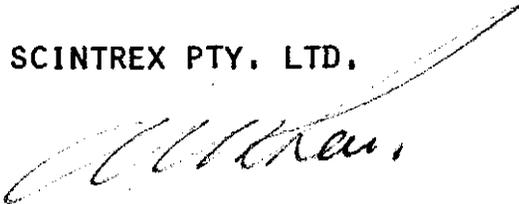
geometry of the deposits surveyed and of the nature of the chargeability thereof, makes it well worthwhile pursuing this research.

The requirement is for a moving source array which allows rapid reading, and couples to horizontal curve flow. One possibility is a *vertical* MFM-3 sensor combined with a moving gradient source. Prior to proceeding to test such a configuration, further theoretical work requires to be done.

- 3 - The accurate total magnetic field survey was not successful in locating the leads. While the artificial sources precluded a meaningful test in this area, a further survey conducted by Amdex at Endurance subsequently gave no significant anomalies over known zones.

Respectfully submitted on behalf of:

SCINTREX PTY. LTD.



A.W. HOWLAND-ROSE, MSc, DIC, AMAusIMM, FGS.

GEOPHYSICIST

**SCINTREX**

THE PRESENT APPLICATION  
OF THE MAGNETIC INDUCED POLARIZATION (MIP) METHOD  
IN THE TIME AND FREQUENCY DOMAIN

*INTRODUCTION*

Since the Magnetic Induced Polarization (MIP) method was introduced into Australia some four years ago, very considerable field experience has been gained. The purpose of these comments is to discuss the application of the method, the form of the responses observed, and how the standard anomaly forms are generated. This is a simple non-mathematical description designed to enable the geologists to visualise just how the energising and induced polarization currents flow in the ground, and how to interpret these in a qualitative sense, for it is the geologist who is far better qualified to interpret this data in a structural context. It is the author's opinion that MIP data is more often than not, simpler and more diagnostic to interpret than EIP or EM data in the conductive conditions which exist over much of Australia's land mass.

*The Uniqueness of the MIP Method .....*

It is essential to grasp the very basic differences between the magnetic mode of acquiring induced polarization data (MIP) and the more conventional electrical mode (EIP). As even geophysicists of some experience have had difficulty in appreciating the full significance of this method, it is necessary to state in simple terms some of the unique attributes of the method.

- 1 - Conventional EIP data monitors *ONLY* the current flow *AT THE SURFACE* generated by the storage of charge (IP effect) *WITHIN* the body. With MIP both the current flow *OUTSIDE*, but more importantly *INSIDE* the chargeable

**SCINTREX**

source, are *DIRECTLY MONITORED*. Thus the external (EIP) polarization from mineralisation *NEED NOT NECESSARILY COME TO THE SURFACE* for it to be monitored.

- 074
- 2 - In conventional EIP, the transfer of the induced polarization signal from the source mineralisation to the *surface* involves a considerable loss of energy by "friction" and "chemical reactions" en route, whereas for MIP, as the movements in current *at depth* are monitored *from depth* via their associated magnetic fields, very much less loss of energy is involved. Thus, the fall off in response with distance from a chargeable source is very much less as seen with MIP than that seen with EIP.
  - 3 - With conventional EIP methods, the external induced polarization effect is monitored via two potential electrodes placed some distance apart (commonly 25 to 100 metres), effectively *averaging* the response over this distance. However, as the MIP sensor is about 60 centimetres in length only, in the MIP method it is essentially a *point source* measurement which improves resolution very considerably.
  - 4 - Where conventional EIP techniques are applied to highly conductive overburden/oxidation regions, the multi-layering within this zone very considerably reduces or even eliminates the EIP signal en route to the surface. With MIP, both primary and secondary (IP) current flow within this zone has *NO MATERIAL INFLUENCE* on the data. Thus the problems of "masking" are eliminated with MIP.
  - 5 - As the EIP induced polarization signal flows from source to surface, the medium through which it passes not only reduces its amplitude (see 2 above), but also modifies the *form* of the signal. Thus the decay form observed at the surface will tend to be that of the *medium* rather than the *source*. However, as the MIP monitors the magnetic field from the decay *within* the source itself, no such distortion in the *internal* polarization decay form can be expected.
  - 6 - The EIP method is essentially a measurement of *absolute* levels of apparent resistivity and chargeability as observed at the surface. However, the MIP

# SCINTREX

method measures the *relative* properties of chargeability and resistivity, and is thus more sensitive to these differences.

- 7 - In the EIP method, the electric field is often severely distorted by local and often insignificant inhomogeneities in resistivity. However, as the primary (resistivity) and secondary (IP) magnetic field measurements are summed over a large volume of rock, they are not *distorted or masked* by local inhomogeneities.

## A Definition of Terms .....

Before going into the detailed qualitative discussion of the principles of operation, it is best to define the terms used in the description.

*Energisation:-* The process by which current is introduced into the volume of rock which is the subject of the survey. *Primary Current Flow:-* The flow of current through this medium as a result of this energisation. *Primary Magnetic Field ( $H_P$ ):-* The magnetic field generated by virtue of the primary current flow in the subsurface.

*Induced Polarization Effect:-* The "condenser like" storage of energy on an electronic/electrolytic boundary, for instance on sulphide/electrolyte boundaries.

*Internal Polarization:-* The induced polarization effect *within* the body, which is the *source* of all induced polarization phenomenon, whose discharge is always in the *OPPOSITE DIRECTION* to the primary current flow which caused it.

*External Polarization:-* The induced polarization effect which flows *outside* or *external* to the causative source which is always of the same sign as it is in the same direction as the energising primary current. *Secondary Magnetic Field ( $H_S$ ):-* This is the magnetic field caused by the flow of secondary currents within (internal) and outside (external) of the causative source.

*Decay Form ( $\Delta M$ ):-* This term describes the decay of the energy stored within the body. It may be more rapid than "normal" or slower than "normal". (A detailed description follows on Page 9).

**SCINTREX***Comparison of the Electrical and Magnetic Modes of Acquiring Induced Polarization Data .....*

By far the most meaningful way in which to visualise the nature of MIP (and indeed EIP) data, is to consider the *energy storage concept* and to look at the primary current flow pattern and the resultant equipotential field caused by this energising current, and then the consequent secondary current flow pattern and its associated secondary potential field caused by the decay of the energy stored on electronic/electrolytic contact boundaries, which is known as induced polarization. As this is most easily visualised in the time domain, this description is confined to that domain.

*Energisation Process .....* Normally current is applied to the volume to be sampled by means of two electrodes placed semi-parallel to the expected strike of the target mineralisation. In the diagram shown in Figure 1, the fine solid lines represent the current flow pattern so generated. The dashed faint lines represent the equipotential surfaces (lines in the section).

In the *electrical mode*, the two potential electrodes (see Figure 1) will measure the *resistivity* of a volume of material defined by the equipotential surfaces which are always at right angles to the current flow.

*Energy Storage Process .....* The material through which the current passes will store some portion of the energy in a way determined by the properties of the storage material. The amount of energy stored will depend on the total area of the sulphides (or graphite etc.) presented to the current, and thus, the greater this surface area with respect to the volume of material, the greater will be the energy stored. Finely disseminated material will store substantially more energy than coarse grained material.

*The Discharge of Stored Energy .....* On cessation of the energising current flow, the energy stored by the *chargeable source* will discharge *internally* within the source as shown by the solid arrows in Figure 2, and *externally* around the body in the medium surrounding the source as shown by the solid heavy lines in Figure 2. These currents are respectively known as *internal* and *external* current flow. The former is of *negative sign* as it is in the *opposite direction* to the original energising current, and the latter is of *positive sign* as it is in the *same*

SCINTREX

EIP & MIP  
ENERGIZATION

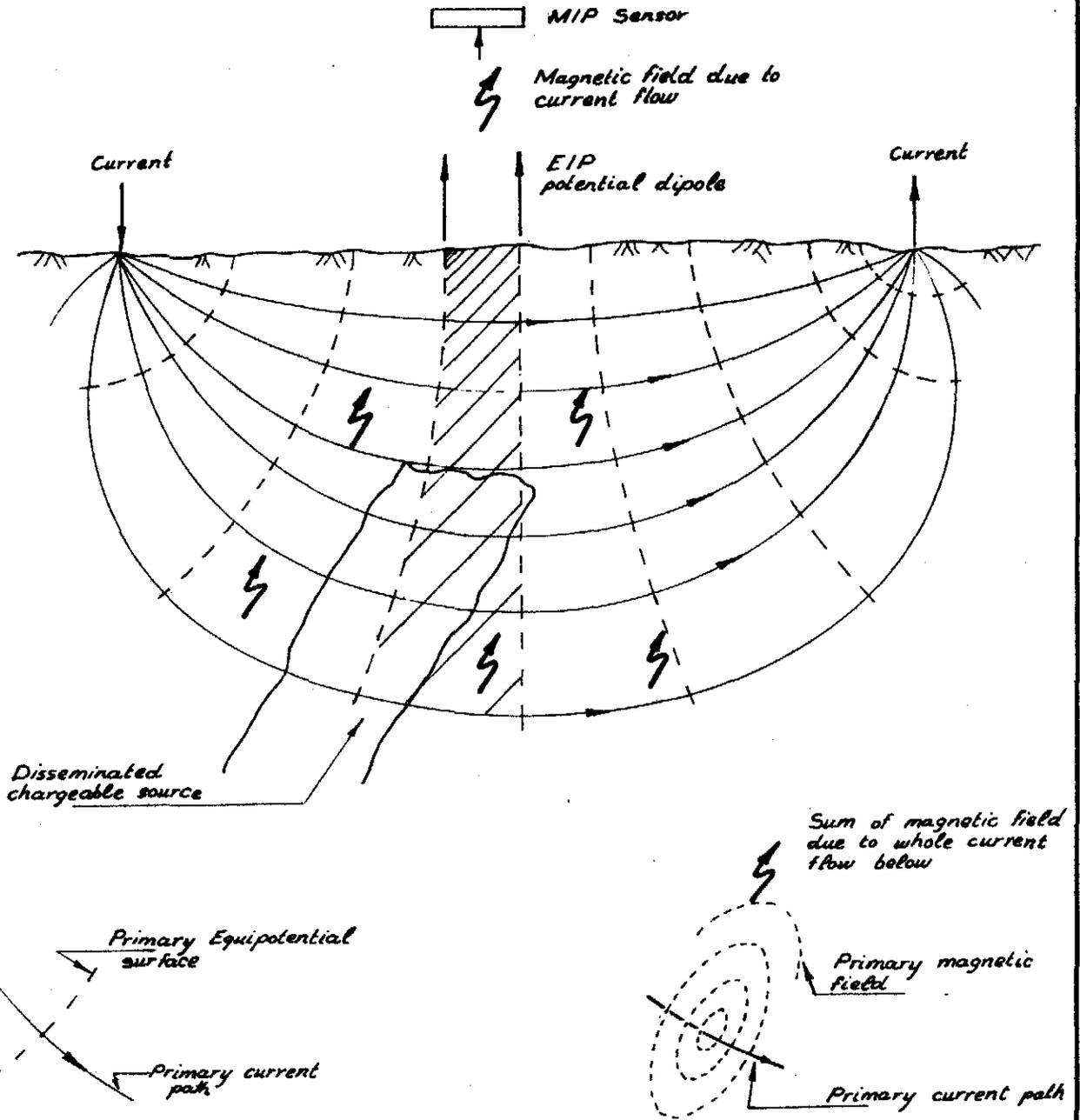


Fig. 1

078

# SCINTREX

## EIP & MIP DISCHARGE OF INDUCED POLARIZATION

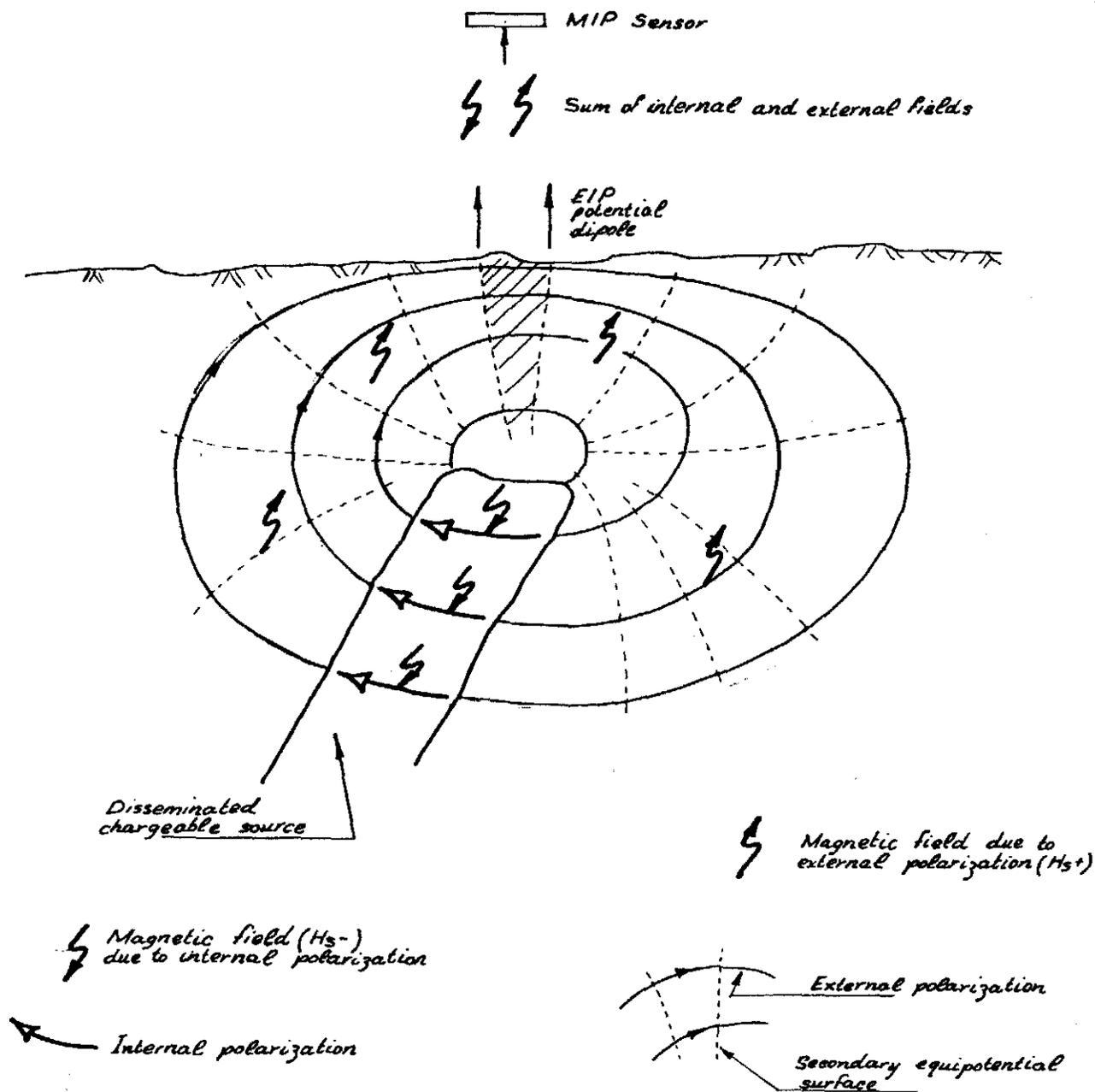


Fig 2.

**SCINTREX**

direction as the energising current.

In the electrical mode, only the discharge *external* to the body is investigated. In Figure 2 the thick solid lines show this discharge together with the *equipotential surfaces* (thick broken lines) which this current imposes. As with the charging process these surfaces must be at right angles to the current lines which impose them. The potential electrodes will therefore measure the stored energy (chargeability) as seen via the secondary equipotential field. It is important to note that (i) this is *NOT* the same volume as the resistivity measurements and (ii) it is *NOT* the original IP signal as stored by the body, but a measurement distorted and processed by the environment through which it has passed.

In the *magnetic mode* a very sensitive magnetometer (Scintrex MFM-3) is used to "sense" the horizontal component of the magnetic field due to the current flow both *inside* and *outside* of the *source material*. This is possible because each electron which flows in the ground carries with it an associated magnetic field. This magnetic field will pass *unhindered* through the environment and thus both the discharge *internally* and *externally* to the source can be monitored on the surface.

#### *The Form of MIP Anomalies .....*

In the MIP method, the energising field is normalised with respect to the energising current electrodes. Details of this procedure are given later in this paper. In the description Figures 3 to 6, the magnetic field due to the primary passage of the energising field  $H_N$ , can be regarded as "relative bulk conductivity" plotted upwards. In these figures, *internal* polarization (which is negative in sign because it flows in the opposite direction to the energising current), is plotted upwards, while *external* polarization (which flows in the same direction as the energising current and is therefore positive in sign) is plotted downwards.

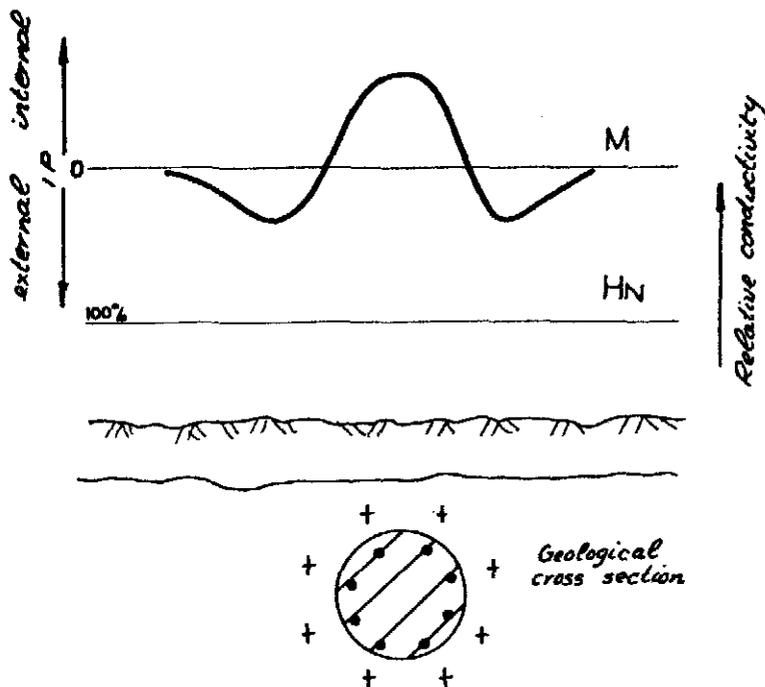
The enclosed Figure 3 demonstrates the theoretical form of an MIP anomaly from a source which has no electrical contrast with the enclosing material, but has the property of retaining charge. (In nature such anomalies are in fact observed from the ilmenite fraction within heavy mineral deposits in beach sands.)

# SCINTREX

## TYPICAL M.I.P ANOMALY FORMS

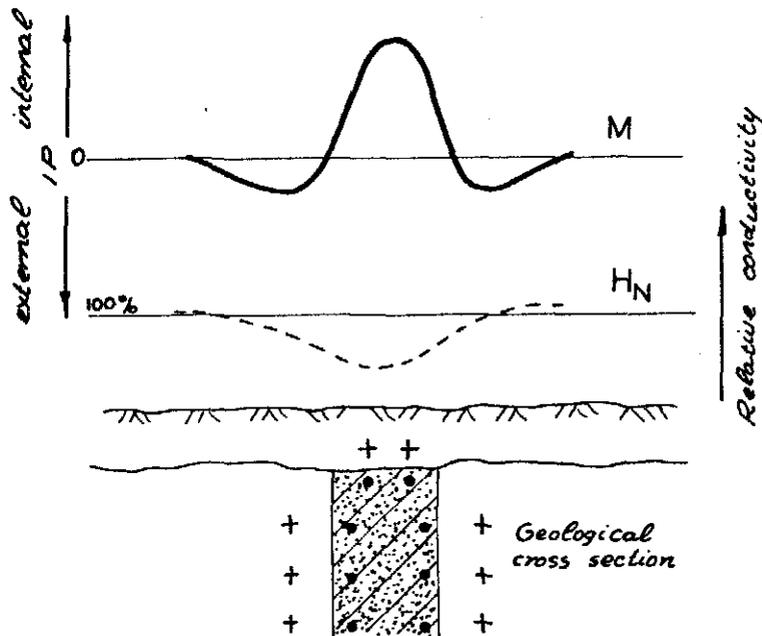
### THEORETICAL MODEL

CHARGEABLE SOURCE  
NO RESISTIVITY CONTRAST



### TYPE A

CHARGEABLE SOURCE  
RESISTIVE SOURCE



NOTE:

- + External current flow into plane of paper
- Internal current flow out of plane of paper

Fig. 3

**SCINTREX**

Energisation is along strike, into the plane of the paper. In all figures the current flow direction is represented by arrows, with dots representing current flow *out of* the plane of the paper, and crosses represent the current flow into the plane of the paper.

In Figure 3, over the source, the magnetometer will "see" a surplus of internal (negative) current flow, while on the flanks of the body, the external (positive) current flow will become predominant. The "*head and shoulders*" MIP anomaly shown is *always* seen over all sources. It is the distortions in shape, form and zero level that yield vital information as to conductivity of the source, conductivity of the environment above and about the source, the depth to the source and the nature of the mineralisation in and around the source.

*TYPE 'A'* (Figure 3) ..... shows the typical anomaly form over a chargeable source which is more resistive than the surrounding medium. In such cases the normal "*head and shoulders*" anomalies coincident with a depression in the  $H_N$  are observed. An example of such an anomaly form is chalcopyrite/pyrite in quartz veins itself within a more resistive conductive rock unit.

*TYPE 'B'* (Figure 4) ..... In this case the chargeable source has no resistive contact with the enclosing material. This example is very similar to the theoretical model. An example of such an anomaly form would be over disseminated sulphides within a homogeneous rock unit.

*TYPE 'C'* (Figure 4) ..... In this case the source of the chargeable material is itself more conductive than the enclosing rock type. When the observed  $H_N$  values are *less than* 180% - 200%, a normal "*head and shoulders*" anomaly is observed over the source. In practice, observed  $H_N$  values rarely exceed 150% of normal.

*TYPE 'D'* (Figure 5) ..... In this most important anomaly form which invariably is associated with massive sulphides which are both conductive and electrically continuous, a massive sulphide *must* be surrounded by a disseminated halo within more resistive host rocks. In this case the disseminated sulphides will naturally store the induced polarization charge *far more efficiently* than the massive electrically continuous core. Thus, on completion of the energisation process,

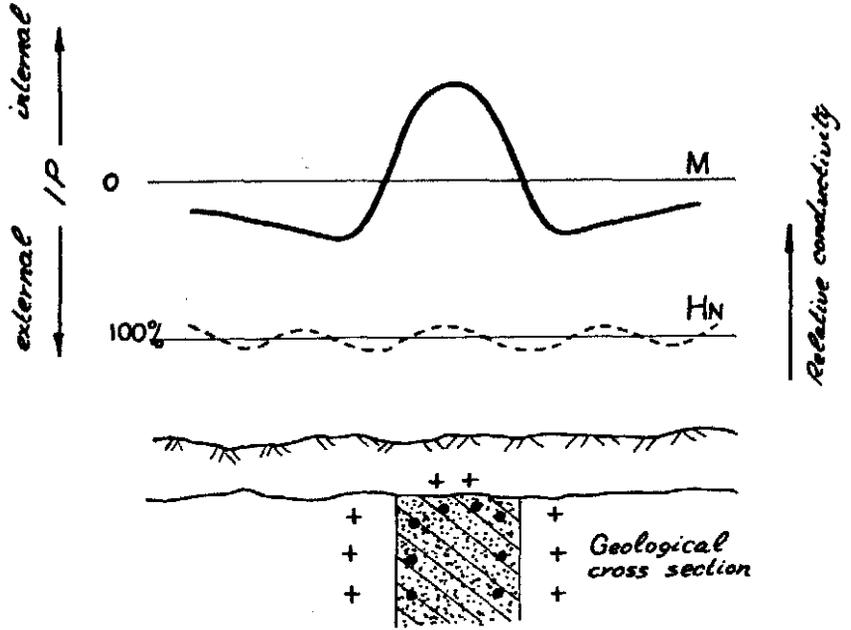
082

# TYPICAL M.I.P ANOMALY FORMS

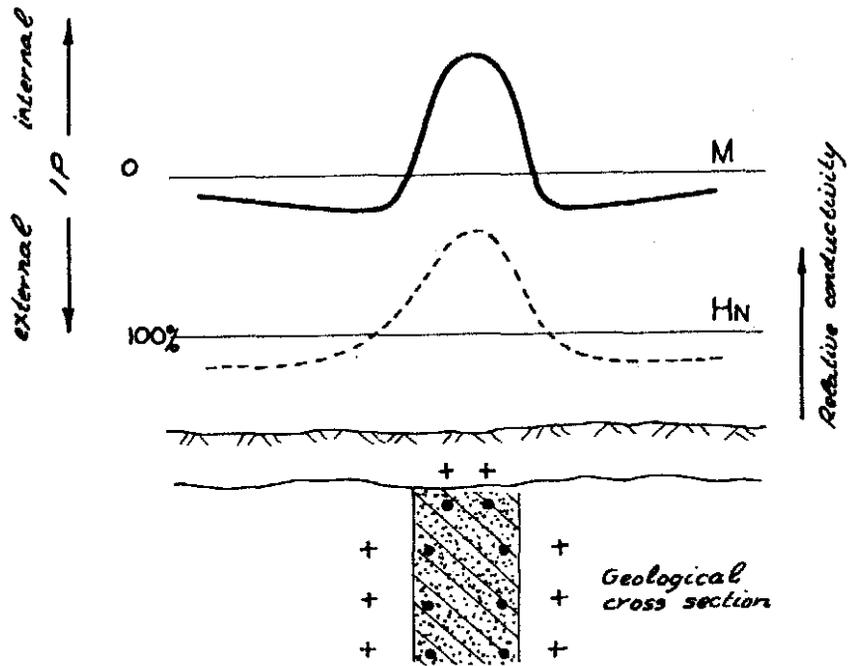
165094

## SCINTREX

**TYPE B**  
 CHARGEABLE SOURCE  
 HOMOGENEOUS



**TYPE C**  
 CHARGEABLE SOURCE  
 CONDUCTIVE



**NOTE:**

- + External current flow into plane of paper
- Internal current flow out of plane of paper

Fig. 4.

**SCINTREX**

the charge stored within the disseminated halo will preferentially discharge through the conductive massive sulphide core. This effect has *NEVER* been observed where  $H_N$  values have been less than 180% of normal. This anomaly form due to its high  $H_N$  and coincident predominantly external (positive) current flow, is diagnostic when observed. An example of such a response is the Mt. Windarra pyrrhotite/nickel /copper deposits in Western Australia.

*TYPE 'E' (Figure 5) . . . . .* A distorted MIP response curve is generated when a polarizable body is located on a contact between rocks of quite different resistivities. This is rather common in Western Australian nickel deposits. In such a case the return polarization current flow will be concentrated in the more highly conductive rock type instead of being symmetrically distributed on both sides of the body. The resultant MIP response is an asymmetric curve, with its *internal* (negative) maximum lying on the more resistive side of the body and the *external* (positive) current peak lying on the more conductive side. Sometimes the asymmetry is so large that the "crossover" is almost directly over the polarizable body. The  $H_N$  peak is shifted over the conductive rock side of the polarizable body.

*Composite Anomalies . . . . .*

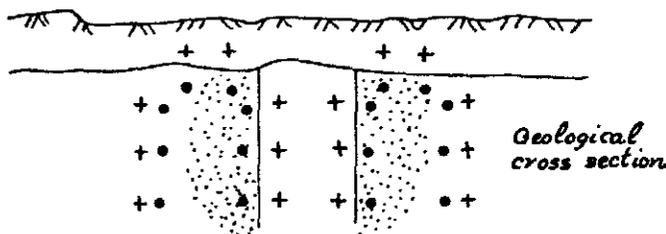
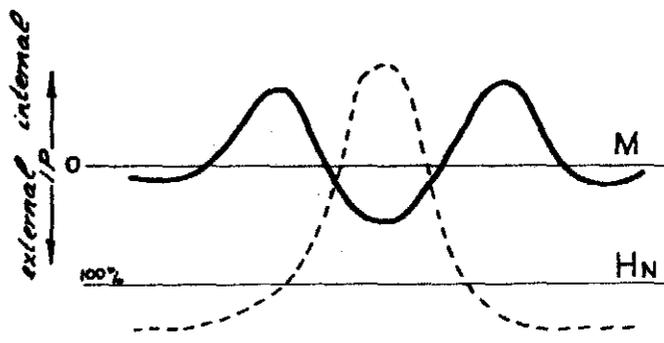
As can readily be appreciated, the above examples 'A' to 'E', represent single simple bodies. In the field, more often than not, the sources vary in composition and therefore in chargeability and resistivity *across strike, along strike and down dip*. For example, while the *form* of Type 'C' and Type 'D' anomalies are very different in appearance, the geological situation which gives rise to them requires relatively little change in conductivity to materially change their form from 'C' to 'D'.

In the interpretation of MIP therefore, the electrical characteristics of known 'Type Deposits' similar to those being sought, together with local information as to the possible range of structure in the area, is of primary importance. In other words, geological input is often of greater importance than quantitative geophysical data.

**SCINTREX** TYPICAL M.I.P ANOMALY FORMS

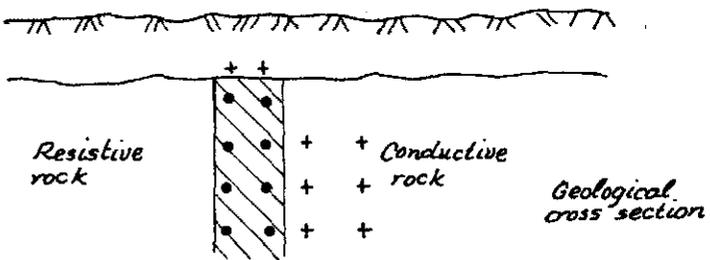
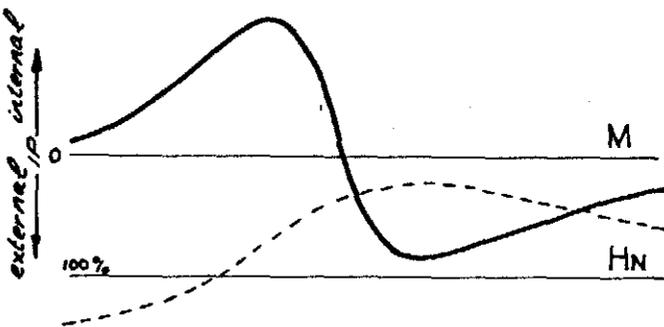
**TYPE D**

CHARGEABLE SOURCE  
VERY CONDUCTIVE WITH  
DISSEMINATED HALO



**TYPE E**

CHARGEABLE SOURCE  
ON CONTACT BETWEEN  
TWO ROCK TYPES OF  
DIFFERING RESISTANCE



NOTE :

- + External current flow into plane of paper
- Internal current flow out of plane of paper

Fig. 5.

# SCINTREX

Page - eight

## *The Alternative Way of Acquiring MIP Data .....*

The initial work in Australia was carried out in the Time Domain, and the chargeability was measured in terms of *milligamma/gamma*. In the Frequency Domain, a single operating frequency of either, 3, 1, 0.3 or 0.1 Hz with a frequency stability of better than 0.01% is transmitted. The induced polarization effect is then measured in terms of the first and third harmonic of the fundamental frequency in Relative Phase Shift (RPS) which to the first approximation is free of electromagnetic coupling effects, or as Percent Frequency Effect (PFE). It is important to note that in common with the electrical mode of measurement, the induced polarization effect will be identical regardless of the way in which the measurement is made, providing always that (i) the frequencies of energisation and (ii) the geometry of the body remain the same.

## *The Polarity of EIP and MIP Anomalies .....*

The polarity of the three ways in which the induced polarization effect can be measured varies, depending on which mode (Magnetic or Electric) or which domain (Time or Frequency) we are operating in. The table below sets out the differences in detail.

Domain	Parameter	Mode of Measurement	
		EIP	MIP
		External Polarization Dominating over Body	Internal Polarization Dominating over Body*
Time	Chargeability (M)	positive	negative
Frequency	Relative Phase Shift (RPS)	negative	positive
Frequency	Percent Frequency Effect (PFE)	positive	negative

\* For Type 'A', 'B' and 'C' anomalies only

## *"Noise" and its Influence on MIP Data .....*

The "noise" in magnetic induced polarization data is essentially relatively minor variations in the earth's magnetic field which decreases in amplitude as the equator is approached. In the Time Domain where the IP Phenomenon is summed

# SCINTREX

over a relatively long period, the influence of a "noisy" magnetic field is maximum. In the Frequency Domain, the time required to acquire a single reading is very considerably less, hence the noise component is also less. However, the *decay form* cannot be as readily acquired in the frequency domain as it can in the time domain. Therefore, where this information is required, time domain is preferable.

## *The Importance of Decay Curve Information .....*

Considering the time domain first, fine grained mineralisation absorbs the charge *rapidly*, and once the passage of the energising current is stopped, the stored charge is *rapidly* discharged. If the mineralisation is *effectively* coarse grained (i.e either coarse grained as such, or agglomerates of finer grain), the charging and consequent discharging will be much *slower*. Only with MIP is the actual decay within the source monitored, therefore major differences in decay characteristics can be observed. Figure 6 shows how this is accomplished using the IPR-8 time domain receiver. In sketch (A), EP represents the energising pulse, while the rapid decay form is due to fine grained material discharge, and the slow decay form is due to coarse grained mineralisation. You will note from the figure that the rapid decay form has a greater amplitude to start with. This is due to the fact that as the IP effect depends on the total surface area of the sulphides presented, the disseminated material per sulphide volume present will give a greater IP effect.

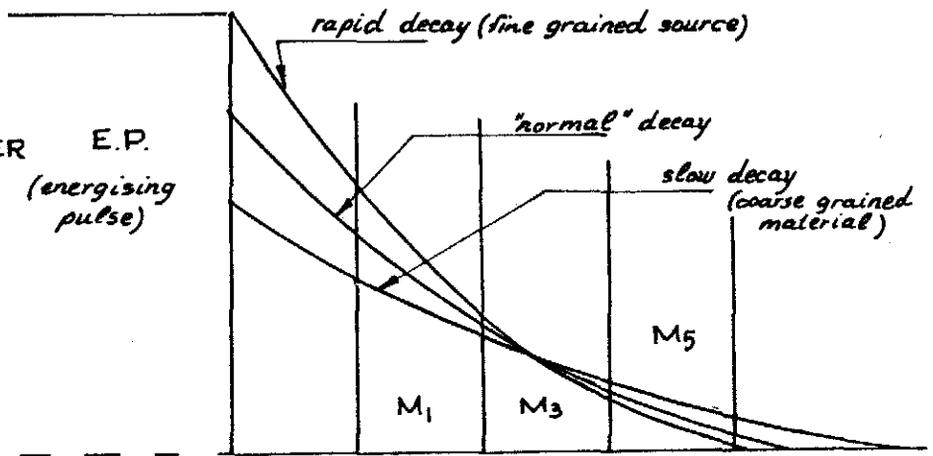
Normally three "slices" are measured which are shown in Figure 6 as  $M_1$ ,  $M_3$  and  $M_5$ . The red decay form included in Figure 6A is the 'normal' or 'average' decay form usually observed over normal rocks. The IPR-8 processes the data by dividing this normal decay into each of the slices  $M_1$ ,  $M_3$  and  $M_5$ . This is done so that any deviation from 'normal' is readily apparent. Figure 6B displays the result of this processing of data. The rapid decay form (e.g. fine grained disseminated) will result in  $M_1 > M_3 > M_5$ , while the slow decay form (e.g. coarse grained massive, but not necessarily electrically continuous) will result in  $M_1 < M_3 < M_5$ .

The  $\Delta M$  parameter is a shorthand display of the decay form:  $\Delta M = |M_5| - |M_1|$ . Thus, when this quantity is *positive* it infers *coarse* grain size, and when *negative* infers *fine* grain size for a given mineral.

087

**SCINTREX**

(A)  
 DECAY AS OBSERVED  
 BY IPR-8 MIP RECEIVER  
 PRIOR TO PROCESSING



(B)  
 DECAY AS OBSERVED  
 BY IPR-8 MIP RECEIVER  
 AFTER NORMALISATION FOR  
 A "NORMAL" DECAY FORM

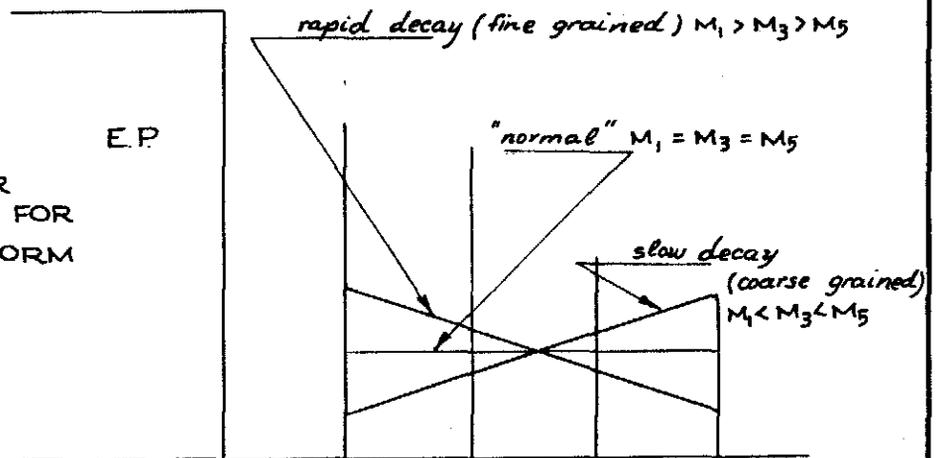


Fig 6.

# SCINTREX

Where a substantial range in chargeability is recorded in an area, it is necessary to normalise the decay factor  $\Delta M$  by the amplitude of the chargeability. This is done by dividing  $\Delta M$  by  $M_3$  and multiplying the factor by 100%.

The normalised decay form  $\Delta M_n\%$

$$= \frac{|M_5| - |M_1|}{M_3} \times 100$$

and displays the variation in decay form from 'normal' in percent.

This decay form can be seen by varying frequency domain measurements over a wide frequency. For a slow decay form, MIP data acquired at a lower frequency will be relatively larger in amplitude than that acquired at higher frequencies, while conversely for fast decay forms the MIP will be emphasised by higher energising frequencies.

### *The Influence of the Size of the Current Dipole .....*

The current dipole is normally placed parallel to the expected strike of the mineralisation. This array will couple best to lenticular bodies with depth extent and with a strike extent of about one-third the size of the current dipole or larger. *Therefore, to maximise the "focus" of the current dipole for "small" bodies, small current dipoles should be employed.*

A more important influence on the determination of the current dipole size is the depth and intensity of oxidation. The deeper and/or the more intense the oxidation, the larger the current dipole must be to get a significant proportion of the current to penetrate the freshrock target volume. The percentage current penetrating the freshrock can be estimated using the following formula, the basic information for which can be obtained from electrical soundings carried out for this purpose. Down-hole electrical logs are also valuable input into this equation where available.

$$\alpha = \frac{2 \times \rho_2 \times d}{\rho_1 \times L}$$

where:-  $\rho_1$  is resistivity of overburden/oxidation in ohm-metres

$\rho_2$  is resistivity of freshrock in ohm-metres

$d$  is depth of oxidation in metres and  $L$  is size of current dipole in metre

## SCINTREX

Where  $\alpha = 1$  approximately 50% of current will penetrate the freshrock. This rises to approximately 80% for  $\alpha = 0.2$  and falls to approximately 20% for  $\alpha = 3.0$ . The accompanying Figure 3 from *Edwards and Howell, 1976*, shows the total relationship (Note that this relationship holds for ANY current dipole of any domain in magnetic or electric mode). Thus much of the short spaced dipole-dipole work *MUST* be suspect, particularly in areas of masking where the *external* (EIP) component is often shorted out, and does not reach surface.

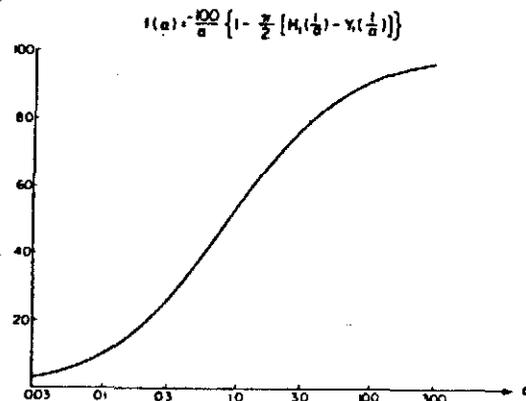


FIG. 3. The function  $f(\alpha)$  which determines the percentage of current remaining in a conductive, thin surface layer above a resistive half-space.

### *Data Processing and Presentation .....*

For large scale, large current dipole frequency domain surveys, the data is processed by computer. In so doing, the MMR together with HSP/I and HSQ/I are presented first as line printergraphs. Some of the components, normally MMR and HSQ/I are then contoured, generally at the scale of 1:2500.

In the time domain the chargeability,  $M$ , together with  $H_S$  and  $H_N$  are usually hand plotted. The generally smaller size of the current dipoles (500  $\pm$  100 metres) precludes a meaningful contour presentation in most cases. Again, a scale of about 1:2500 is favoured.

### *Units and Parameters .....*

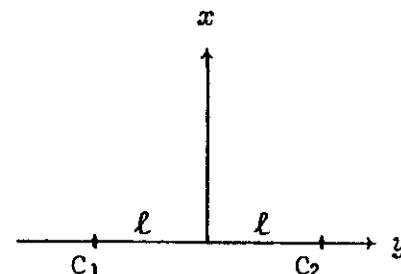
#### *A - Measurements of relative conductivity of the earth:-*

The MIP sensor senses the horizontal magnetic field due to the passage of the primary current in the ground. Unlike EIP resistivity data, it sums *all* current to depth by virtue of its magnetic field. The field at any point in the survey area ( $H_p$ ), must be adjusted for the position of the current dipole. The formula for the calculation of the normal ( $H_{Norm}$ ) field at any point is:-

# SCINTREX

$$H_{\text{Norm}} = 100I \left[ \frac{y + l}{x^2 + (y + l)^2} - \frac{y - l}{x^2 + (y - l)^2} \right]$$

where  $I$  is current in amps,  $y$  is distance from the centre line and,  $x$  is the distance from centre line joining the electrodes, and  $2l$  is distance between electrodes.



$H_N$ , the *normalised horizontal field* is given by the expression:-

$$H_N = \frac{H_P \times 100\%}{M_{\text{Norm}}}$$

$H_N$  is expressed in percent variation from normal, normally being either a homogeneous underlying resistivity or any complex horizontal layering. Normal will be 100%.

MMR, the *Magnetometric resistivity* is given by the expression:-

$$\text{MMR} = \frac{H_P - H_{\text{Norm}}}{\frac{200I}{l}} \times 100\%$$

MMR is expressed in percent variation from normal, 0 being normal. This parameter will tend to emphasise conductivities in regions of high current density.

## B - Measurements of the IP effect

In the time domain *chargeability* ( $M$ ), is measured in terms of milligamma/gamma.

In the frequency domain two independent measurements of chargeability are taken.

(i) RPS, *Relative Phase Shift* is given by the expression:-

$$\text{RPS} = 3\theta_f - \theta_{3f}$$

where  $\theta_f$  and  $\theta_{3f}$  are the phase shifts of the fundamental and third harmonic of the transmitted square wave.

# SCINTREX

(ii) PFE Percent Frequency Effect is given by the expression:-

$$\text{PFE} = \frac{A_1 - 3A_3}{3A_3} \times 100\%$$

where  $A_1$  and  $A_3$  are amplitudes of the fundamental and third harmonic of the transmitted square wave.

## C - Derived Parameters

In areas of large variations in current density due to conductivity inhomogeneities, or close to electrodes, it is more meaningful to present the secondary current magnetic fields due to polarization effects. These derived parameters will *emphasise* induced polarization effects in areas of high current density whereas the original induced polarization data in terms of M, PFE or RPS will *emphasise* induced polarization effects in areas of low current density.

It should be noted that by examining the induced polarization phenomenon in terms of chargeability (M, RPS or PFE) AND by means of the secondary magnetic field, we can observe induced polarization effects from both high and low current density areas.

In the time domain the secondary field is calculated as follows:-

$$H_{Si} = \frac{H_P}{I} \times M_i \times 100 \quad (\text{milligamma/amp})$$

where I is the current in amps, and M is the chargeability of the  $i$ th slice of the decay curve.

In the frequency domain these secondary fields are termed:-

(i) Quadrature change HSQ/I

$$\text{HSQ/I} = \frac{H_P}{I} \sin\theta \times 1000, \quad (\theta = \frac{\text{RPS}}{2})$$

(ii) In-phase change  $\Delta\text{HSP/I}$

$$\text{HSP/I} = \frac{H_P}{I} \times \frac{\text{PFE}}{100} \times 1000$$

Both HSQ/I and  $\Delta$ HSP/I are expressed in milligamma/amp of primary current strength.

*Final Comment .....*

The above remarks briefly outline the present procedures in the execution, computation and interpretation of Magnetic Induced Polarization data in the time and frequency domain. It is recommended that the reader should now study the papers listed in the "References" to obtain a more comprehensive understanding of the method.

A.W. HOWLAND-ROSE, MSc, DIC, AMAusIMM, FGS.

*Significant References:-*

Edwards, R.N. and Howell, E.L. 1976. A Field Test of the Magnetometric Resitivity (MMR) Method. Geophysics Vol. 41 P 1170-1183

Howland-Rose, A.W., 1976. The Magnetic Induced Polarization Method-A Simple Method of Interpretation of Typical Anomaly Forms. 25th International Geological Congress, P 392.

Howland-Rose, A.W., Linford, J.G., Pitcher, D.H., and Seigel, H.O. Field Experience with the Magnetic Induced Polarization (MIP) Method. Geophysics, 1978 (in publication)

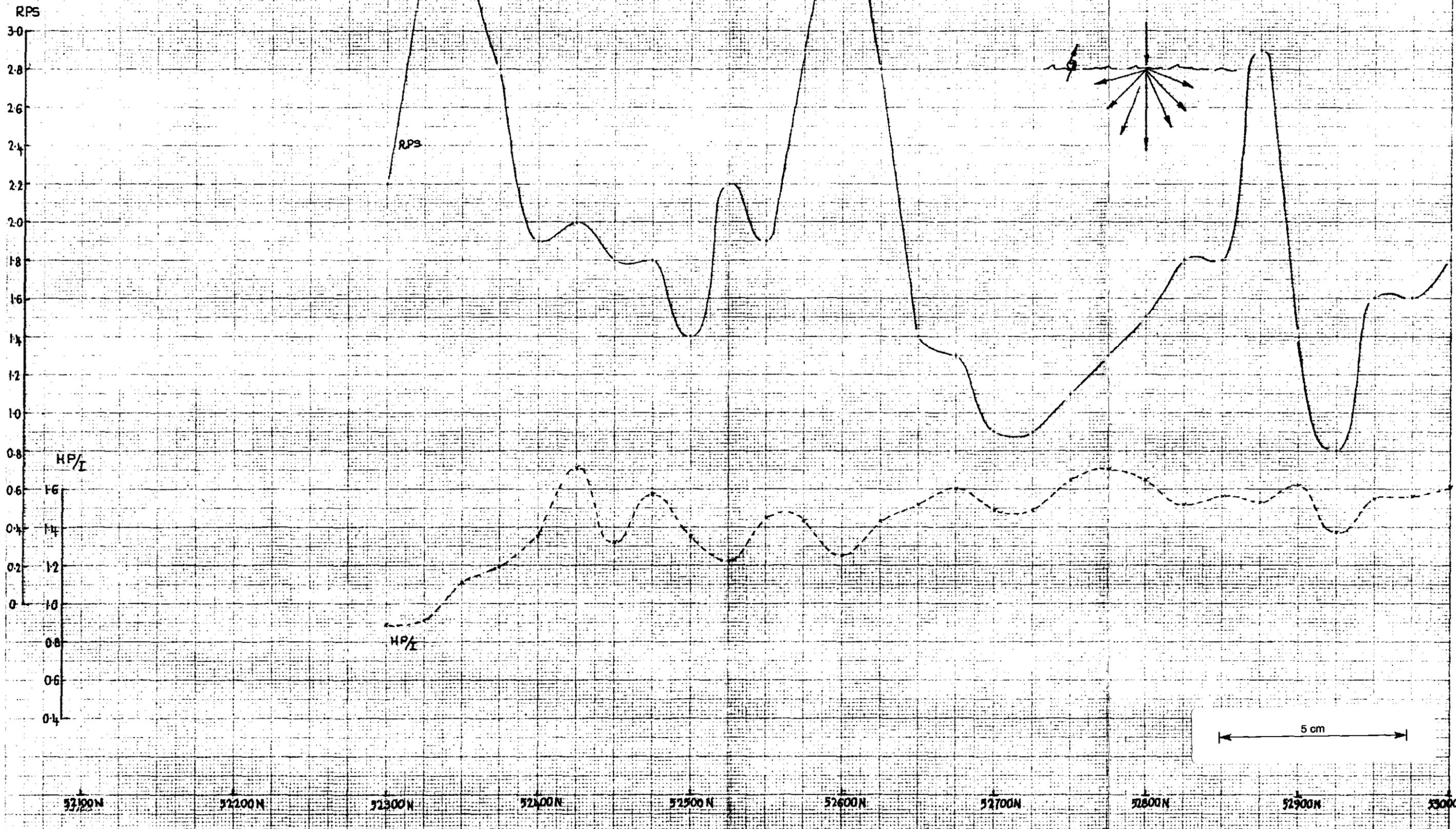
Seigel, H.O., 1959. Mathematical Formulation and Type Curves for Induced Polarization. Geophysics Vol.24, P 547-565.

Seigel, H.O., 1974. The Magnetic Induced Polarization Method. Geophysics Vol.39, P 321-339

Seigel, H.O., Brcic, I, 1976. Frequency Domain IP Measurements using Harmonically Related Components. Scintrex Applications Brief #76-1.

Scintrex Manual on IPR-8 Time Domain Receiver.

093



Profile 'B' PIONEER

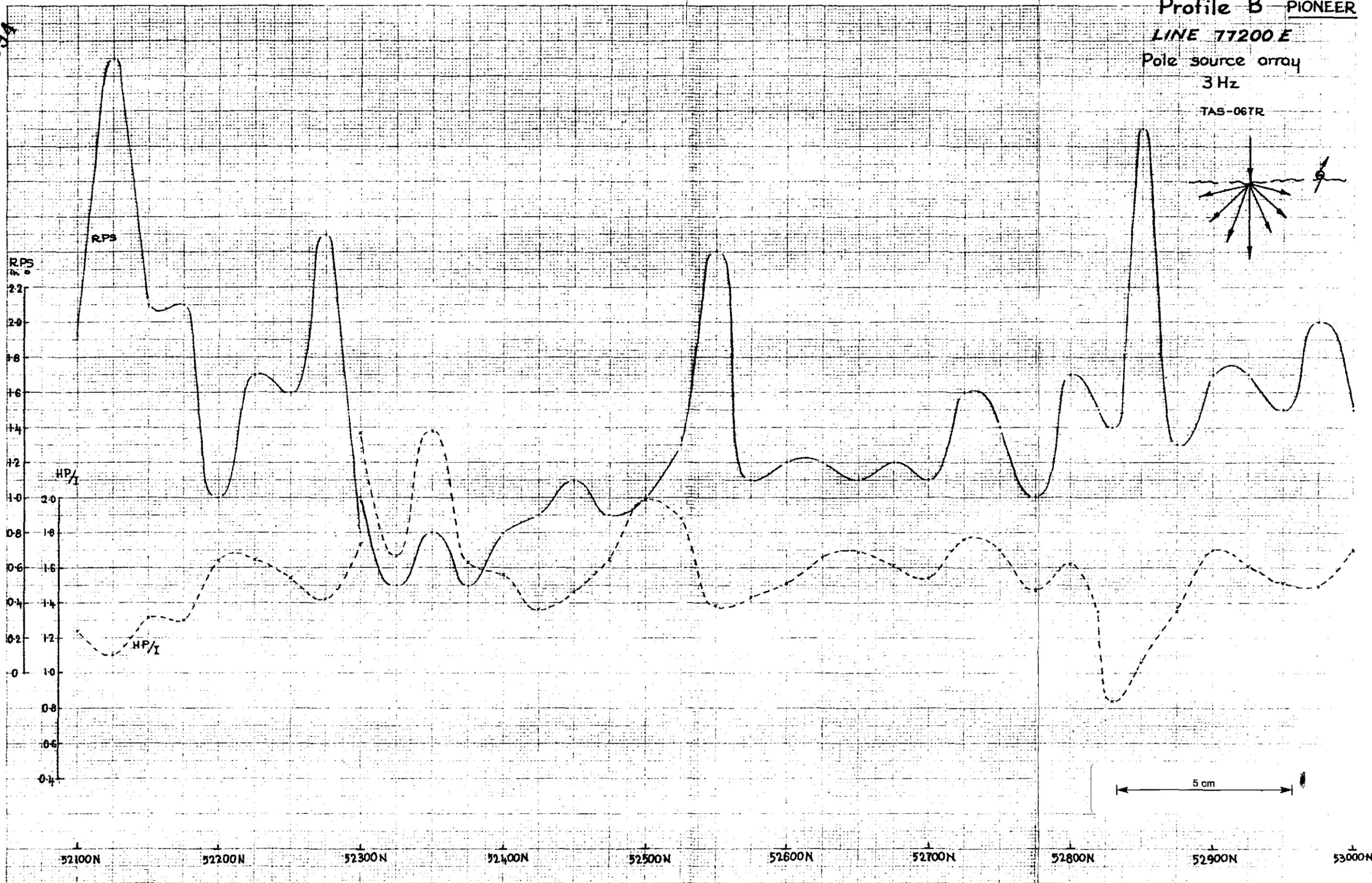
LINE 77200 E

Pole source array

3 Hz

TAS-067R

09A





165108

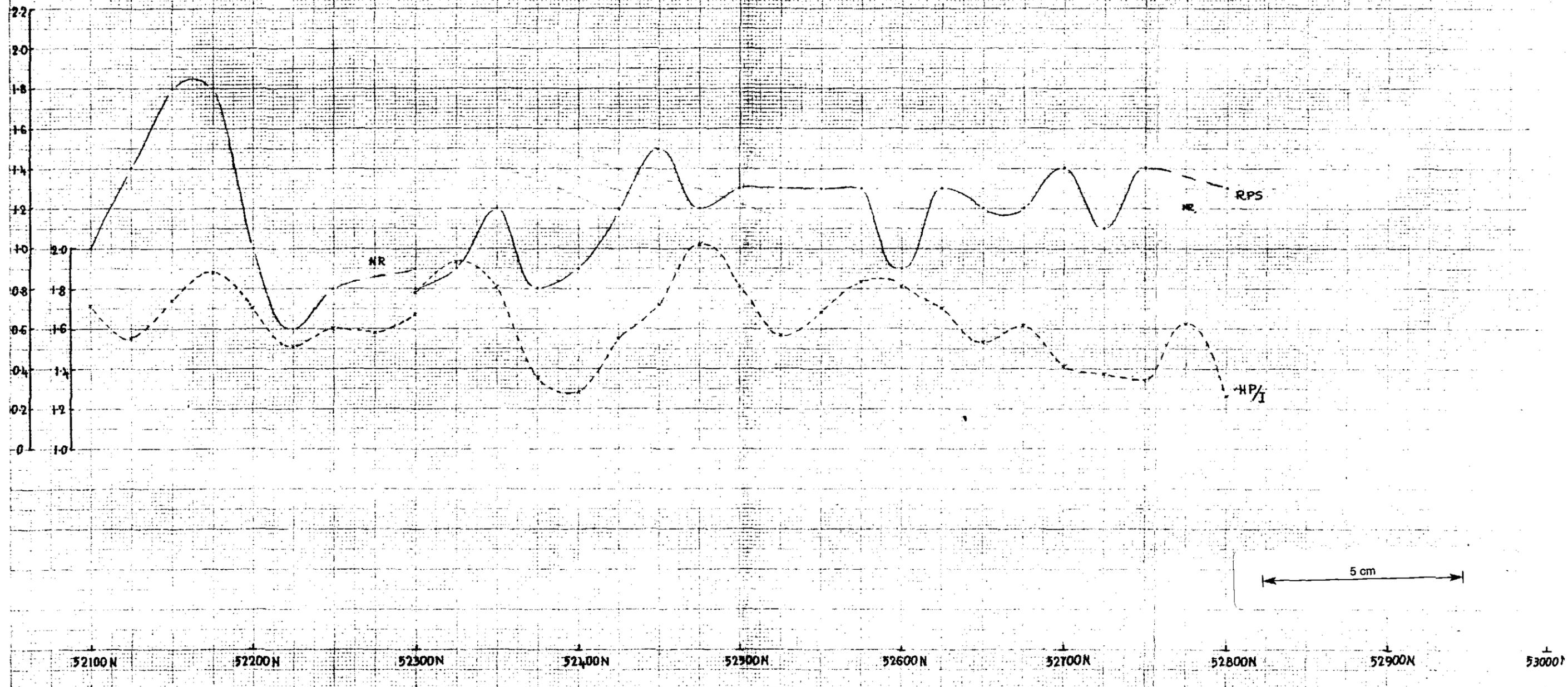
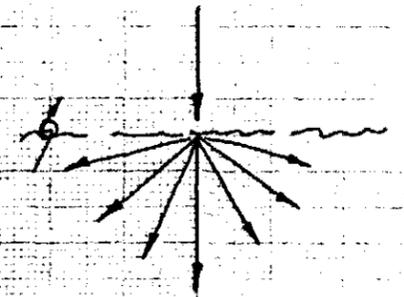
Profile 'C' PIONEER

LINE 77200 E

Pole source array

1 Hz

TAS-067 R



79-1355

165109

Profile 'D' PIONEER

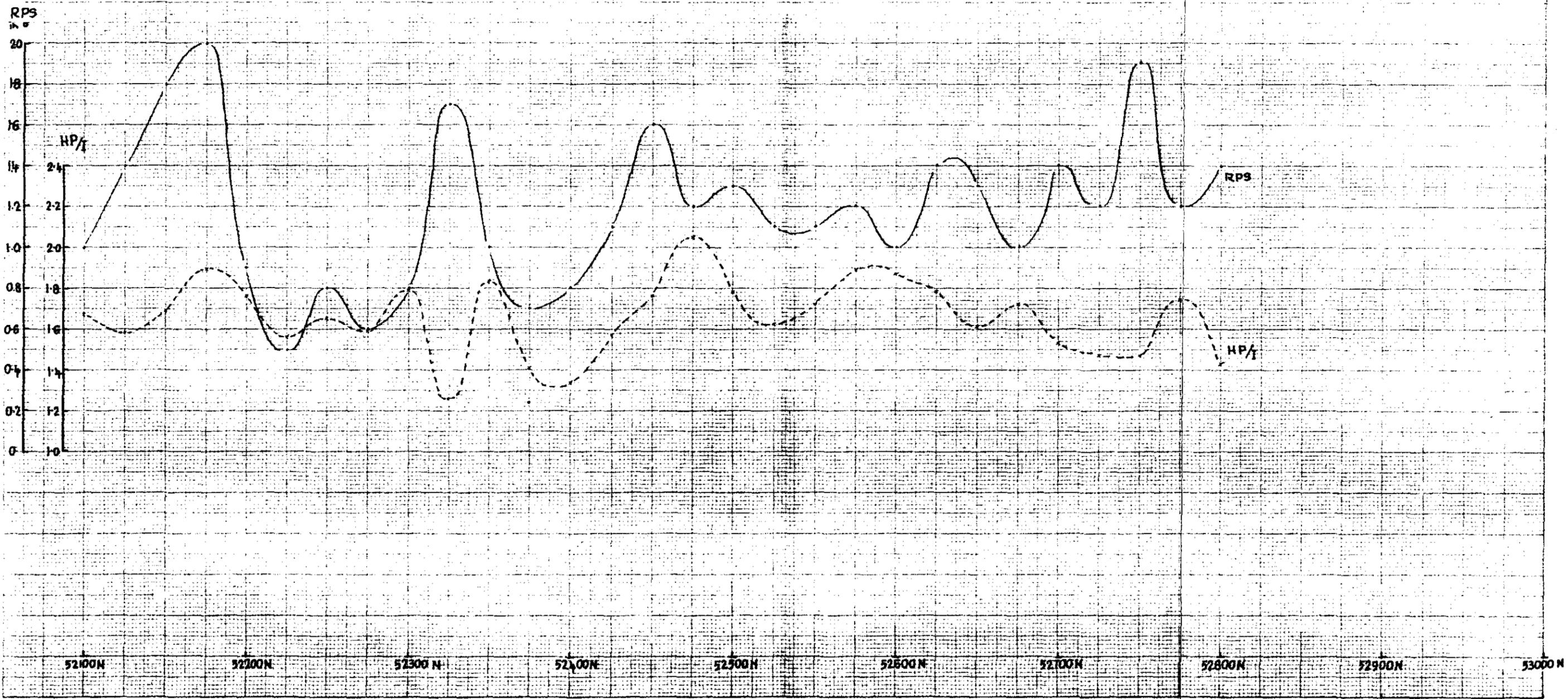
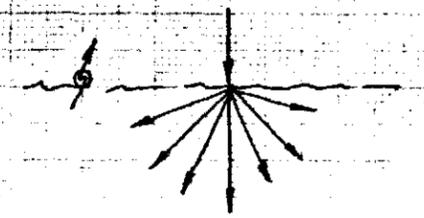
LINE 71200 E

Pole source array

3 Hz

TAS-067R

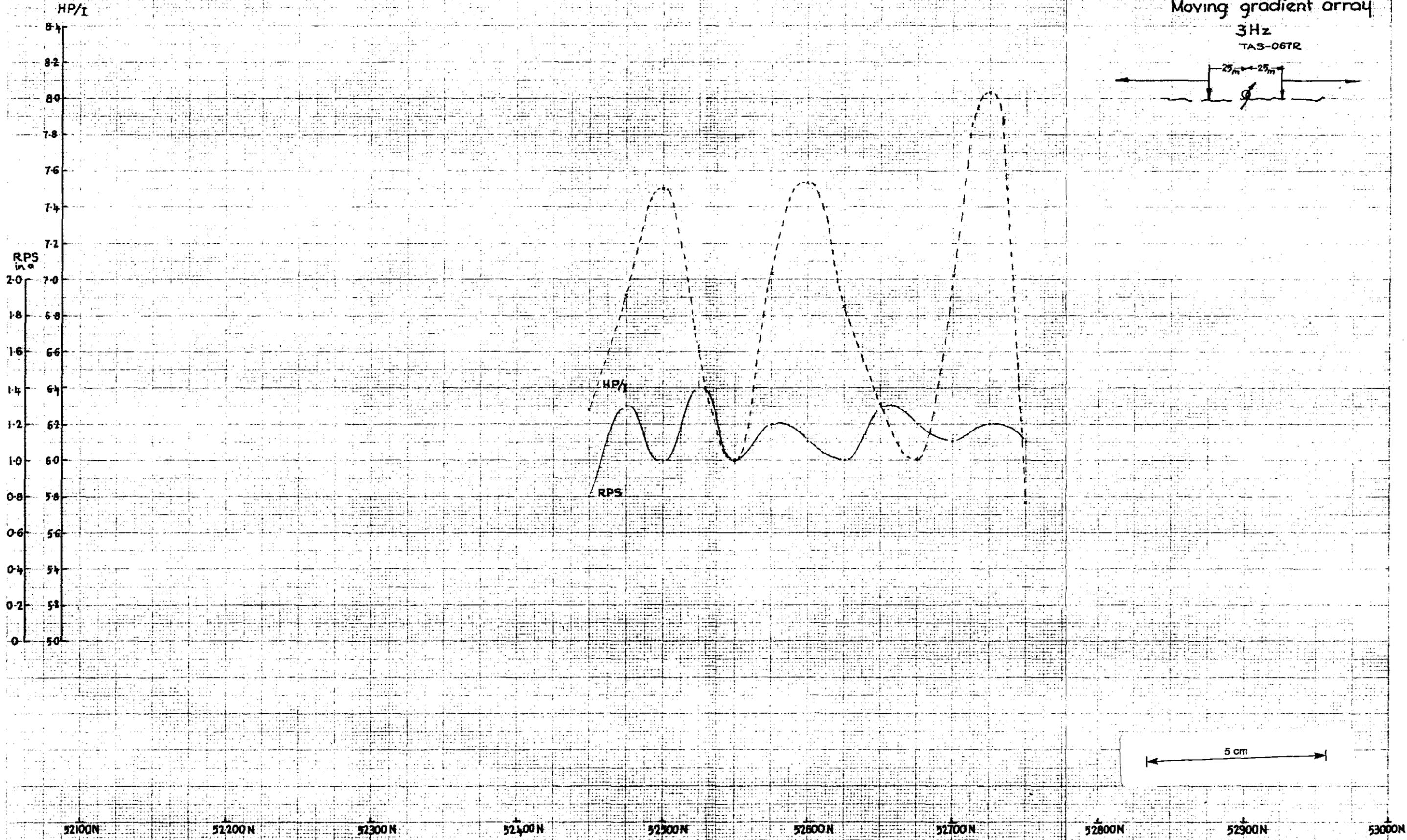
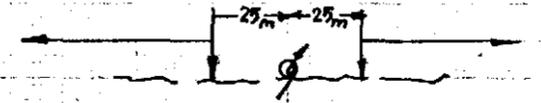
097



098

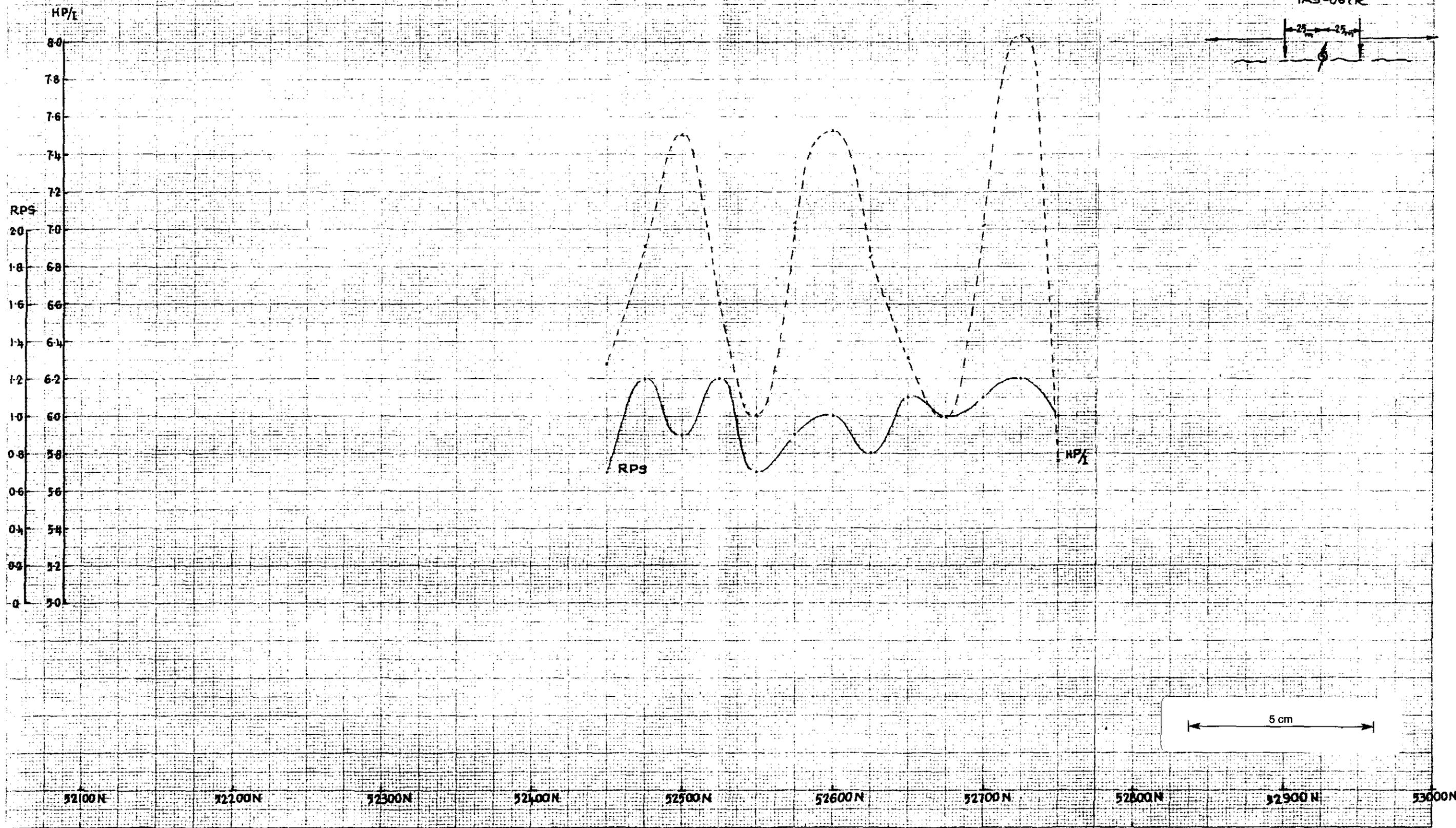
LINE 77200 E  
Moving gradient array

3 Hz  
TAS-067R



099

LINE 77200E  
Moving gradient array  
1 Hz  
TAS-067R



79-1355

165112

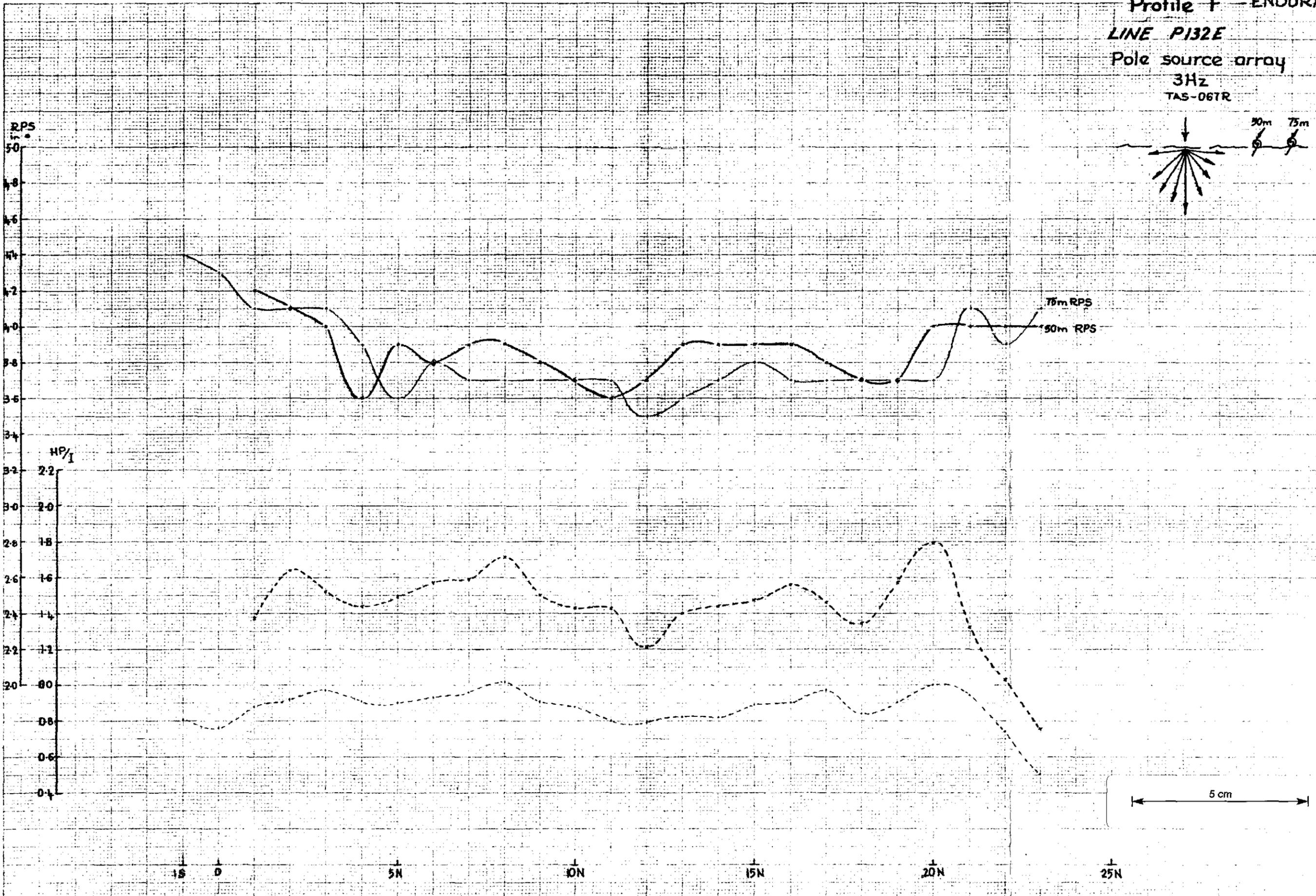
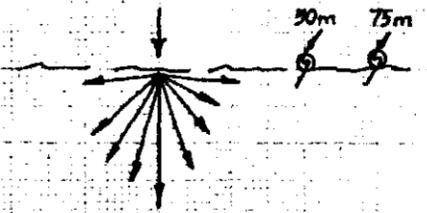
Profile 'F' - ENDURANCE

LINE P132E

Pole source array

3Hz

TAS-06TR

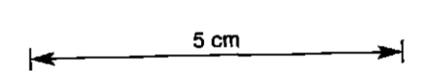
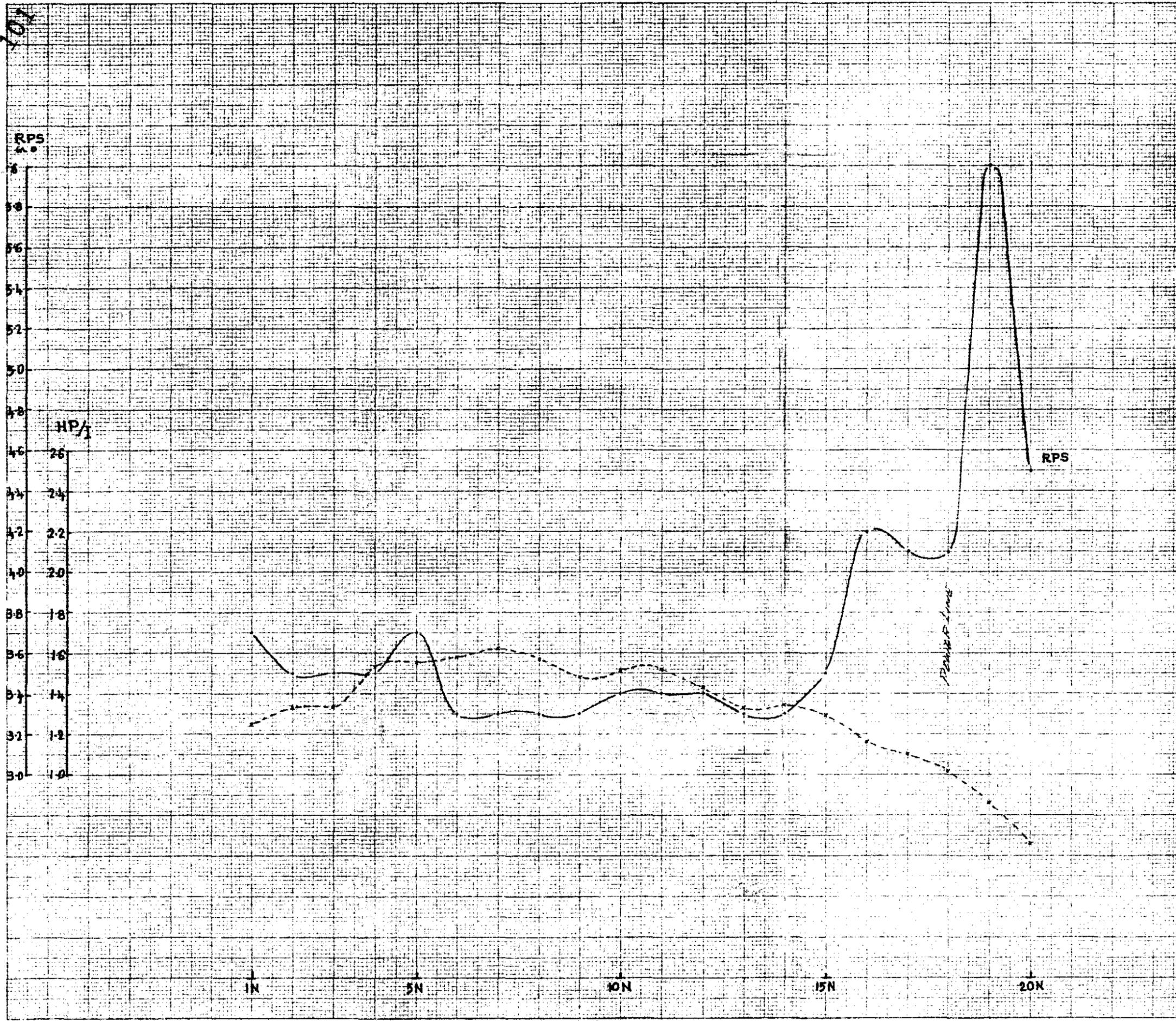
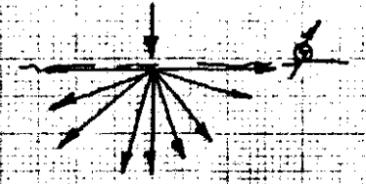


100

100

100

LINE P128  
pole source array  
3Hz TAS-067R



EXPLORATION LICENCE 2/77 - SOUTH MOUNT  
CAMERON - SIX MONTHLY REPORT FOR  
THE PERIOD ENDING 8TH MARCH 1979  
APPENDICES 2 & 3









# AMDEX MINING LIMITED - PERCUSSION DRILL LOG

107

AREA: Clarence

HOLE NO.: C5

COLLAR COORDINATES:

SURFACE R.L.:

BASEMENT R.L.:

Date: 21/2/78

Driller: J. Bartels

Assistant: H. Gregson

Sample Washer: R. Titley

Geologist: A. Fleming

Cutting shoe diameter: 6.31"  
Casing diameter: 6"

Section Feet		Sample No.	Recovered Volume (ft <sup>3</sup> )	Theoretical Volume (ft <sup>3</sup> )	Corrected Volume (ft <sup>3</sup> )	Weight Concentrate (gms)	Concentrate Assay (SnO <sub>2</sub> )	Value over Interval		Description of Sample
From	To							SnO <sub>2</sub> lbs/cu yd	kg/m <sup>3</sup>	
0	8	C1021	1.1	1.739	1.39	1.4	3.1	0.003	0.002	Soil, humus. ?
8	13	22	0.75	1.086	0.87	1.6	9.3	0.015	0.009	Wash, ?
13	18	23	0.7	1.086	0.87	3.5	42.5	0.139	0.082	Wash white qtz pebbles
18	23	24	1.1	1.086	0.88	7.7	17.4	0.130	0.077	tin seen in cradle
23	28	25	0.9	1.086	0.87	1.8	18.8	0.035	0.021	?
28	33	26	1.1	1.086	0.88	3.1	8.0	0.024	0.014	trace tin in cradle
33	38	27	1.2	1.086	0.96	1.6	6.6	0.009	0.005	White qtz pebbles, trace tin in cradle.
38	42	C1028	1.1	0.869	0.88	2.9	3.5	0.010	0.006	Weathered granite, pebbles, minor clay.

Drillers reported basement at 42 ft.

165119

Interval of tin bearing wash 13-23 ft @ 0.135 lbs/cu yd SnO<sub>2</sub> 0.080 kg/m<sup>3</sup>

Overall value from surface to 42 ft 0.047 lb SnO<sub>2</sub> /yard (cassiterite 70% Sn)



# AMDEX MINING LIMITED - PERCUSSION DRILL LOG

109

EA :CLARENCE

HOLE NO. : c7

COLLAR COORDINATES:

SURFACE R.L.:

BASEMENT R.L.:

24-2-78 Driller: A.

Assistant: H.

Sample Washer: R. Title: Geologist: A.

Cutting shoe diameter : 6.31"

Watson

Gregson

Fleming

Casing diameter : 6"

Interval Feet	Sample No.	Recovered Volume (ft <sup>3</sup> )	Theoretical Volume (ft <sup>3</sup> )	Corrected Volume (ft <sup>3</sup> )	Weight Concentration (gms)	Concentration Assay (Sn %)	Value over Interval		Description of Sample
							SnO <sub>2</sub> lbs/cu yd	kg/m <sup>3</sup>	
0 to 5	C 1034	1.0	1.086	0.87	0.8	6.9	0.005	0.003	Clay, humus.
5 to 10	35	0.8	1.086	0.87	6.5	3.9	0.025	0.015	Minor clay, fine wash, trace tin.
10 to 15	36	0.9	1.086	0.87	13.1	41.6	0.533	0.316	Wash, mainly quartz, tin.
15 to 20	37	0.65	1.086	0.87	2.4	28.6	0.067	0.040	" sparse tin in cradle.
20 to 25	38	0.5	1.086	0.87	2.5	28.4	0.069	0.041	Wash - pebbles.
25 to 30	39	0.55	1.086	0.87	7.8	10.6	0.081	0.048	"
30 to 35	40	0.85	1.086	0.87	1.5	17.9	0.026	0.016	" trace tin in cradle.
35 to 40	41	0.70	1.086	0.87	5.3	3.5	0.018	0.011	"
40 to 45	42	0.85	1.086	0.87	2.5	3.7	0.009	0.005	"
45 to 50	43	0.85	1.086	0.87	11.04	0.53	0.006	0.003	Coarse grained wash.
50 to 55	44	0.75	1.086	0.87	5.90	0.58	0.003	0.002	"
55 to 60	45	0.85	1.086	0.87	6.46	1.21	0.008	0.005	"
60 to 65	46	0.75	1.086	0.87	73.30	0.18	0.013	0.008	Coarse grained wash, pyrite.
65 to 70	47	0.65	1.086	0.87	104.86	0.13	0.013	0.008	"
70 to 75	48	1.0	1.086	0.87	27.58	0.94	0.025	0.015	"
75 to 76	C 1049	0.25	0.22	0.22					Decomposed granite, pyrite.

Drillers reported basement at 74 ft.

Interval of tin bearing wash 10-15 ft.

Small value from surface to 75 ft.

0.533 lb SnO<sub>2</sub>/yd<sup>3</sup>; 0.316 kg/m<sup>3</sup>  
 -0.036 kg/m<sup>3</sup>  
 0.060 lb SnO<sub>2</sub> /yard (cassiterite 70% Sn)

165121

# AMDEX MINING LIMITED - PERCUSSION DRILL LOG

110

AREA: CLARENCE      HOLE NO.: CB      COLLAR COORDINATES:      SURFACE R.L.:      BASEMENT R.L.:

Log No: 4-3-78    Driller: A. Watson    Assistant: T. Gregson    Sample Washer: R. Titley    Geologist: A. Fleming    Cutting shoe diameter: 6.31"    Casing diameter: 6"

Interval Feet		Sample No.	Recovered Volume (ft <sup>3</sup> )	Theoretical Volume (ft <sup>3</sup> )	Corrected Volume (ft <sup>3</sup> )	Weight Concentration (gms)	Concentrate Assay (Sn %)	Value over Interval SnO <sub>2</sub> lbs/cu yd	kg/m <sup>3</sup>	Description of Sample
	To				80% Rad. F.		% Sn			
0	5	C 1050	0.5	1.086	0.87	5.7	1.18	0.007	0.004	Clay, humus.
5	10	51	1.0	1.086	0.87	23.65	1.12	0.026	0.015	Silt, fine sand.
10	15	52	0.85	1.086	0.87	57.70	14.41	0.813	0.482	Med. sized wash, tin in grade.
15	20	53	0.55	1.086	0.87	67.00	17.57	1.115	0.661	As above.
20	25	54	0.65	1.086	0.87	14.3	16.13	0.226	0.134	Drift coarse sand, traces small wash.
25	30	55	0.65	1.086	0.87	13.05	4.07	0.052	0.031	Coarse wash, sand, trace of tin.
30	35	56	0.65	1.086	0.87	7.5	5.35	0.039	0.023	Coarse sand.
35	40	57	0.65	1.086	0.87	1.40	13.52	0.018	0.011	As above.
40	45	58	0.75	1.086	0.87	5.05	0.77	0.004	0.002	Wash, coarse sand, pyrite.
45	50	59	1.0	1.086	0.87	21.50	0.18	0.003	0.002	As above.
50	55	60	0.65	1.086	0.87	92.40	0.18	0.016	0.010	As above.
55	57	C 1061	0.20	0.434	0.35	28.50	0.16	0.011	0.006	Decomposed granite, abundant detrital pyrite; no py. in granite pebbles however.

Drillers reported basement at 53 ft.      Interval of tin bearing wash 10-25 ft.      @ 0.718 lb SnO<sub>2</sub>/yd<sup>3</sup>; 0.426 kg/m<sup>3</sup>      165122  
 Small value from surface to 57 ft.      0.204 lb SnO<sub>2</sub> /yard      0.121 kg/m<sup>3</sup> (cassiterite 70% Sn)

# AMDEX MINING LIMITED - PERCUSSION DRILL LOG

111

A : CLARENCE Tas. HOLE NO. : c9 COLLAR COORDINATES: SURFACE R.L.: BASEMENT R.L.:

6-3-78 Driller: A. Assistant H. Sample Washer: R. Geologist: A. Cutting shoe diameter : 6.31"  
 Watson Gregson Titley Fleming Casing diameter : 6"

on Foot	Sample No.	Recovered Volume (ft <sup>3</sup> )	Theoretical Volume (ft <sup>3</sup> )	Corrected Volume (ft <sup>3</sup> )	Weight Concentration (gms)	Concentration Assay (Sn % Sn)	Value over Interval SnO <sub>2</sub> lbs/cuyd	kg/m <sup>3</sup>	Description of Sample	
0	5	C 1062	0.4	1.086	0.87	3.31	0.75	0.002	0.001	Soil, humus, fine sandy clay.
5	10	63	0.6	1.086	0.87	1.59	2.36	0.004	0.002	Black silt, fine sand.
10	15	64	sample wouldn't settle		0.87	3.43	12.46	0.042	0.025	Wash Coarse sand, schist, pyrite.
15	20	65	0.7	1.086	0.87	41.70	17.65	0.720	0.427	Coarse wash & sand, tin seen.
20	25	66	0.7	1.086	0.87	6.43	14.35	0.090	0.054	" " " " trace tin & pyrite.
25	30	67	0.6	1.086	0.87	1.25	1.68	0.002	0.001	" " " "
30	35	68	0.55	1.086	0.87	5.46	1.76	0.009	0.006	" " " "
35	40	69	0.5	1.086	0.87	0.63	1.58	0.001	0.001	" " " " , pyrite.
40	45	70	0.65	1.086	0.87	4.63	0.91	0.004	0.002	" " " " , trace py.
45	50	71	0.5	1.086	0.87	20.80	0.18	0.004	0.002	" " " " , abundant pyrite.
50	55	C 1072	1.0	1.086	0.87	17.49	0.51	0.009	0.005	Wash, decomposed granite, pyrite.

ars reported basement at 53.5 ft.  
 val of tin bearing wash 15-20 ft. @ 0.720 lb SnO<sub>2</sub>/yds<sup>3</sup>; 0.427 kg/m<sup>3</sup>  
 all value from surface to 55 ft. @ 0.081 lb SnO<sub>2</sub>/yard (cassiterite 70% Sn) 0.048 kg/m<sup>3</sup>  
165123

# AMDEX MINING LIMITED - PERCUSSION DRILL LOG

112

AREA : CLARENCE      HOLE NO. : C10      COLLAR COORDINATES :      SURFACE R.L. :      BASEMENT R.L. :

Driller: A. Watson      Assistant: H. Gregson      Sample Washer: R. Titley      Geologist: A. Fleming      Cutting shoe diameter : 6.31"  
 Casing diameter : 6"

Elevation Feet		Sample No.	Recovered Volume (ft <sup>3</sup> )	Theoretical Volume (ft <sup>3</sup> )	Corrected Volume (ft <sup>3</sup> )	Weight Concentration (gms)	Concentration Assay (Sn % Sn)	Value over Interval		Description of Sample
From	To							80% Rad. F.	kg/m <sup>3</sup>	
0	5	C 1073	0.7	1.086	0.87	2.78	0.46	0.001	0.001	Sand, clay, humus, pyrite, trace of tin.
5	10	74	0.9	1.086	0.87	5.80	22.36	0.127	0.075	Coarse & fine sand, trace of tin, pyrite.
10	15	75	0.75	1.086	0.87	2.62	4.14	0.011	0.006	As above.
15	20	76	0.7	1.086	0.87	3.54	8.63	0.030	0.018	Medium wash, fine sand, pyrite, trace of tin?
20	25	77	0.6	1.086	0.87	2.74	3.82	0.008	0.005	Coarse wash, med-fine sand, pyrite, no tin.
25	30	78	0.4	1.086	0.87	2.16	1.55	0.003	0.002	Coarse to medium wash, fine sand, pyrite, no tin.
30	35	79	1.1	1.086	0.88	8.02	0.40	0.003	0.002	Medium wash, pyrite, no tin, obs.
35	40	80	0.9	1.086	0.87	7.33	0.27	0.002	0.001	Coarse sand, pyrite, no tin, obs.
40	45	81	0.8	1.086	0.87	16.72	0.37	0.006	0.004	Coarse wash stones, pyrite, no tin.
45	50	82	0.55	1.086	0.87	36.77	0.14	0.005	0.003	Coarse sand, abundant pyrite.
50	55	C 1083	0.75	1.086	0.87	21.17	0.14	0.003	0.002	Coarse sand, large wash stones, abundant pyrite, no tin.

Drillers reported basement at 55 ft.  
 Interval of tin bearing wash 5-10 ft.      0.127 lb SnO<sub>2</sub>/cuyd      0.075 kg/m<sup>3</sup>  
 Small value from surface to 55 ft.      0.018 lb SnO<sub>2</sub>/yard      0.011 kg/m<sup>3</sup>  
(cassiterite 70% Sn)      165124

# AMDEX MINING LIMITED - PERCUSSION DRILL LOG

113

EA : CLARENCE      HOLE NO. : C11      COLLAR COORDINATES :      SURFACE R.L. :      BASEMENT R.L. :

z: 11-3-78 Driller: A.      Assistant: H.      Sample Washer: R.      Geologist: A.      Cutting shoe diameter : 6 5/8"  
 Watson      Gregson      Itley      Fleming      Casing diameter : 6"

Interval Feet	Sample No.	Recovered Volume (ft <sup>3</sup> )	Theoretical Volume (ft <sup>3</sup> )	Corrected Volume (ft <sup>3</sup> )	Weight Concentration (gms)	Concentration Assay (Sn % Sn)	Value over Interval		Description of Sample
							80% Rad. F.	kg/m <sup>3</sup>	
0 to 5	C 1084	.70	1.086	0.87	6.994	0.18	0.001	0.001	Clay, humus, coarse & fine sand.
5 to 10	85	.75	1.086	0.87	10.60	5.06	0.052	0.031	Fine sand, no tin in conc.
10 to 15	86	.55	1.086	0.87	7.93	11.70	0.091	0.054	Fine sand, med. wash, trace tin.
15 to 20	87	.60	1.086	0.87	5.761	8.12	0.046	0.027	Sand & wash, trace tin.
20 to 25	88	.50	1.086	0.87	11.01	1.04	0.011	0.007	Med. wash, no tin in conc.
25 to 30	89	.60	1.086	0.87	4.24	4.55	0.019	0.011	Med. wash, trace tin, fine py.
30 to 35	90	.40	1.086	0.87	8.17	1.65	0.013	0.008	Med. wash, fine pyrite.
35 to 40	91	.70	1.086	0.87	2.19	1.65	0.004	0.002	Med. wash, trace pyrite, no tin.
40 to 45	92	.50	1.086	0.87	7.78	0.22	0.002	0.001	As above.
45 to 50	93	.65	1.086	0.87	5.79	0.24	0.001	0.001	As above.
50 to 55	94	1.00	1.086	0.87	16.94	0.22	0.004	0.002	Med. wash, abundant pyrite.
55 to 57	C 1095	0.43?	0.434	0.35	61.83	0.16	0.024	0.014	Decomposed granite, coarse wash, abundant pyrite.

Drillers reported basement at 57 ft.  
 Interval of tin bearing wash    ft.      0.013 kg/m<sup>3</sup>  
 Small value from surface to 57 ft      0.022 lb SnO<sub>2</sub> /yard      (cassiterite 70% Sn)

165125

# AMDEX MINING LIMITED - PERCUSSION DRILL LOG

EA : CLARENCE

HOLE NO. : C12

COLLAR COORDINATES :

SURFACE R.L.:

BASEMENT R.L.: 114

e16-3-78 Driller: A.  
Watson

Assistant H.  
Gregson

Sample Washer R.  
Titley

Geologist: A.  
Fleming

Cutting shoe diameter : 6.3"  
Casing diameter : 6"

Interval Feet		Sample No.	Recovered Volume (ft <sup>3</sup> )	Theoretical Volume (ft <sup>3</sup> )	Corrected Volume (ft <sup>3</sup> )	Weight Concentration (gms)	Concentration Assay (Sn % Sn)	Value over Interval		Description of Sample
From	To							80% Rad. F.	kg/m <sup>3</sup>	
0	5	C 1096	0.50	1.086	0.87	5.32	2.05	0.011	0.006	Clay, humus fine sand, fine pyrite.
5	10	97	0.80	1.086	0.87	4.55	3.16	0.014	0.008	Clay, trace tin? shist, pyrite.
10	15	98	0.75	1.086	0.87	6.09	0.29	0.002	0.001	Sand, clay, fine wash, trace tin, pyrite.
15	20	99	0.55	1.086	0.87	4.06	0.99	0.004	0.002	Medium wash, coarse sand, trace tin? pyrite.
20	25	C 1100	0.50	1.086	0.87	5.72	1.13	0.006	0.004	Medium wash, coarse sand, minor pyrite, trace tin.
25	30	C 1201	0.40	1.086	0.87	6.75	0.30	0.002	0.001	Medium wash, coarse wash, minor pyrite.
30	35	02	0.45	1.086	0.87	3.05	0.93	0.003	0.002	Large wash up to 2" diameter coarse sand, trace pyrite.
35	40	03	0.40	1.086	0.87	6.30	0.85	0.005	0.003	Large wash, coarse sand, pyrite present.
40	45	04	0.70	1.086	0.87	3.15	0.85	0.003	0.002	Medium wash, coarse sand, Trace tin ???
45	50	C 1205	0.80	1.086	0.87	19.56	0.36	0.007	0.004	Large wash, decomposed granite, coarse sand, abundant pyrite.

Drillers reported basement at 43 ft.

Interval of tin bearing wash      ft.

Overall value from surface to 50 ft 0.006 lb SnO<sub>2</sub> / yard

0.003 kg/m<sup>3</sup>

(Cassiterite 70% Sn)

165126

# AMDEX MINING LIMITED - PERCUSSION DRILL LOG

115

AREA : CLARENCE    HOLE NO. : C14    COLLAR COORDINATES :    SURFACE R.L. :    BASEMENT R.L. :

Driller: S. Watson    Assistant: G. Summers    Sample Washer: I. Summers    Geologist: No Goel. present    Cutting shoe diameter : 6.31"    Casing diameter : 6"

Interval Feet		Sample No.	Recovered Volume (ft <sup>3</sup> )	Theoretical Volume (ft <sup>3</sup> )	Corrected Volume (ft <sup>3</sup> )	Weight Concentration (gms)	Concentration Assay (Sn)	Value over Interval		Description of Sample
From	To							80% Rad. F.	kg/m <sup>3</sup>	
0	5	1223	.55	1.086	0.87	0.445	1.76	0.001	—	Mud, humus, sand, trace pyrite, no tin.
5	10	24	.35	1.086	0.87	0.48	2.06	0.001	0.001	Mud, humus sand, pyrite, trace tin.
10	15	25	.55	1.086	0.87	9.67	28.84	0.273	0.162	Coarse sand, wash, tin, trace pyrite.
15	20	26	.60	1.086	0.87	10.55	33.21	0.343	0.203	Coarse sand-wash, tin, trace pyrite.
20	25	27	.90	1.086	0.87	3.255	32.08	0.102	0.060	Coarse sand, very little wash, tin, trace pyrite.
25	30	28	.85	1.086	0.87	1.02	19.18	0.018	0.011	Coarse sand, trace tin, pyrite.
30	35	29	.90	1.086	0.87	1.53	18.12	0.027	0.016	Coarse sand, clay, wash, trace tin, pyrite.
35	40	30	.25	1.086	0.87	0.47	11.86	0.005	0.003	Coarse wash, sand, clay, trace tin - pyrite.
40	45	31	.20	1.086	0.87	0.66	8.40	0.005	0.003	Coarse wash - sand, clay, pyrite.
45	50	32	.20	1.086	0.87	1.48	4.33	0.006	0.004	Coarse wash - clay, pyrite.
50	55	33	.50	1.086	0.87	6.38	1.34	0.008	0.005	Heavy wash - clay, pyrite.
55	60	34	.20	1.086	0.87	8.58	0.71	0.006	0.004	Heavy wash, sand, clay, pyrite.
60	65	35	.50	1.086	0.87	7.51	1.24	0.009	0.005	Heavy wash, sand, pyrite.
65	70	36	.50	1.086	0.87	62.99	0.27	0.017	0.010	Heavy wash, sand, bands of sand clay, pyrite.
70	75	37	.80	1.086	0.87	71.07	0.27	0.019	0.011	Medium wash, sandy clay, pyrite.

Drillers reported basement at 86'6" ft.

Interval of tin bearing wash 10-25 ft. @ 0.239 lbs SnO<sub>2</sub>/cu.yds

Small value from surface to 86'6" ft @ 0.051 lb SnO<sub>2</sub> /yard

0.142 kg/m<sup>3</sup>  
0.030 kg/m<sup>3</sup>  
(cassiterite 70% Sn)

165127







# AMDEX MINING LIMITED - PERCUSSION DRILL LOG

119

EA : CLARENCE      HOLE NO. : C16      COLLAR COORDINATES :      SURFACE R.L. :      BASEMENT R.L. :

9-5-78 Driller: Watson Assistant: Nichols Sample Washer: Summers Geologist: No Geol. present Cutting shoe diameter : 6.31" Casing diameter : 6"

Interval Feet	Sample No.	Recovered Volume (ft <sup>3</sup> )	Theoretical Volume (ft <sup>3</sup> )	Corrected Volume (ft <sup>3</sup> )	Weight Concentration (gms)	Concentration Assay (Sn %)	Value over Interval		Description of Sample
							SnO <sub>2</sub> lbs/cuyd	kg/m <sup>3</sup>	
0 - 5	1257	.40	1.086	0.87	2.052	3.9	0.008	0.005	Mud humus sand, trace fine tin & ilmenite.
5 - 10	58	.50	1.086	0.87	2.727	1.8	0.005	0.003	Sandy clay mud, trace fine tin, ilmenite.
10 - 15	59	.30	1.086	0.87	3.506	4.1	0.014	0.008	Sand silty clay, trace fine tin, pyrite.
15 - 20	1260	.50	1.086	0.87	7.130	18.5	0.129	0.076	Wash sand, fine tin & pyrite.
20 - 25	61	.60	1.086	0.87	6.065	10.1	0.060	0.036	Wash sand, fine tin, pyrite.
25 - 30	62	.40	1.086	0.87	3.982	18.7	0.072	0.041	Wash-clay, fine tin, pyrite, ilmenite.
30 - 35	63	.80	1.086	0.87	2.000	11.4	0.022	0.013	Wash & clay mixed together, trace fine tin, pyrite, ilmenite.
35 - 40	64	.50	1.086	0.87	19.207	0.4	0.008	0.005	Wash & clay mixed together, pyrite.
40 - 45	1265	1.00	1.086	0.87	52.354	0.3	0.015	0.009	Wash & clay mixed together, pyrite.
45 - 50	66	.45	1.086	0.87	46.440	0.16	0.007	0.004	Clay, wash, decomposed granite? pyrite.
50 - 55	67	.70	1.086	0.87	89.382	0.12	0.010	0.006	Silty clay-wash, decomposed granite, pyrite.
55 - 60	68	.80	1.086	0.87	76.748	0.09	0.007	0.004	Wash coarse sand, pyrite.
60 - 65	69	.70	1.086	0.87	36.574	0.12	0.004	0.002	Wash decomposed granite, pyrite.
65 - 70	1270	.10	1.086	0.87	4.552	0.92	0.004	0.002	Decomposed granite, pyrite.

Drillers reported basement at -66 - ft.

Interval of tin bearing wash - - - ft.

Small value from surface to 70 ft 0.026 lb SnO<sub>2</sub> /yard<sup>3</sup>

0.015 kg/m<sup>3</sup>  
(cassiterite 70% Sn)

165131

# AMDEX MINING LIMITED - PERCUSSION DRILL LOG

120

EA : CLARENCE    HOLE NO. : C17    COLLAR COORDINATES :    SURFACE R.L. :    BASEMENT R.L. :

2:29-5-78 Driller: Watson    Assistant: Nichols    Sample Washer: Summers    Geologist: No Geol. present    Cutting shoe diameter : 6 5/16"    Casing diameter : 6"

Interval Feet		Sample No.	Recovered Volume (ft <sup>3</sup> )	Theoretical Volume (ft <sup>3</sup> )	Corrected Volume (ft <sup>3</sup> )	Weight Concentration (gms)	Concentration Assay (Sn)	Value over Interval		Description of Sample
From	To							80% Rad. F.	Sn <sub>2</sub> lbs/cuyd	
0	5	C 1283	.70	1.086	0.87	1.305	8.2	0.010	0.006	Fine sand, trace small wash, trace fine tin & ilmenite.
5	10	C 1284	.40	1.086	0.87	2.290	10.2	0.023	0.014	Coarse red clayey sand, trace small wash, trace fine tin & ilmenite.
10	15	C 1285	.70	1.086	0.87	1.940	4.5	0.009	0.005	Coarse & fine sand, trace of wash, trace fine tin & ilmenite & monazite.
15	20	C 1286	.60	1.086	0.87	2.656	1.28	0.003	0.002	Coarse & fine sand, trace wash, no tin, ilmenite, mon.
20	25	C 1287	.50	1.086	0.87	8.315	20.2	0.164	0.097	Coarse sand & white clay, fine tin & ilmenite.
25	30	C 1288	.70	1.086	0.87	6.494	29.5	0.187	0.111	Wash & coarse sand, tin & ilmenite.
30	35	C 1289	.70	1.086	0.87	3.000	20.4	0.060	0.039	Coarse sand & small wash & clay, tr fine tin, ilmenite.
35	40	C 1290	.80	1.086	0.87	2.272	16.8	0.037	0.022	Wash & coarse sand, trace fine tin, ilmenite, pyrite.
40	45	C 1291	.90	1.086	0.87	4.047	11.3	0.045	0.027	Coarse sand & white clay, small wash, trace very fine tin - ilmenite.
45	50	C 1292	.60	1.086	0.87	1.986	15.0	0.029	0.017	Coarse sand & clay, trace vry fine tin & ilmenite.
50	55	C 1293	.70	1.086	0.87	7.676	1.13	0.008	0.005	Coarse sand & yellow clay, pyrite, no tin visable.
55	60	C 1294	.70	1.086	0.87	3.150	0.10	0.000	0.000	Grey clay & dark brown clay, no mineralization visable.

Drillers reported basement at - 128 - ft. @ 0.176 lb SnO<sub>2</sub>/cuyd; 0.104 kg/m<sup>3</sup> 165132  
 Interval of tin bearing wash 20-30 ft @ 0.230 lb SnO<sub>2</sub>/cu.yd; 0.136 kg/m<sup>3</sup>  
 Small value from surface to - 128 - ft @ 0.040 lb SnO<sub>2</sub>/vard (cassiterite 70% Sn) 0.024 kg/m<sup>3</sup>

# AMDEX MINING LIMITED - PERCUSSION DRILL LOG

121

EA : CLARENCE      HOLE NO. : C17      COLLAR COORDINATES :      SURFACE R.L. :      BASEMENT R.L. :

2:29-5-78 Driller: Watson Assistant: Nichols Sample Washer: Summers Geologist: No Geol present Cutting shoe diameter : 6 5/16" Casing diameter : 6"

Elevation Feet		Sample No.	Recovered Volume (Ft <sup>3</sup> )	Theoretical Volume (Ft <sup>3</sup> )	Corrected Volume (Ft <sup>3</sup> )	Weight Concentrate (gms)	Concentrate Assay (Sn)	Value over Interval		Description of Sample
To								80% Rad. F.		
60	65	C 1295	.75	1.086	0.87	?	lost?	—	—	Grey clay & dark brown clay, no mineralization bisable.
65	70	C 1296	not recorded	1.086	—	14.404	0.05	0.000	0.000	Dark brown clay & wash, pyrite.
70	75	missing C 1298	1.14	1.086	0.87	13.203	0.15	0.002	0.001	Abundant wash, coarse & fine sand, pyrite.
75	80	C 1299	1.15?	1.086	0.87	10.408	3.1	0.032	0.019	Abundant wash, coarse & fine sand, pyrite, ilmenite.
80	85	C 1300	.90	1.086	0.87	8.702	1.16	0.010	0.006	Abundant wash, coarse & fine sand, pyrite.
85	90	0101	.70	1.086	0.87	8.890	0.14	0.001	0.000	As above.
90	95	102	.65	1.086	0.87	11.187	1.20	0.013	0.008	Green silty clay like decomp granite, abundant wash - pyrite.
95	100	103	.70	1.086	0.87	19.215	0.05	0.001	0.000	Green silty claylike decomp granite, pyrite.
100	105	104	.80	1.086	0.87	33.182	0.04	0.001	0.000	Wash - green silty clay, -pyrite.
105	110	105	.60	1.086	0.87	7.618	0.85	0.006	0.004	Decomposed granite, -pyrite.
110	115	106	1.30?	1.086	0.87	36.999	0.35	0.012	0.008	Semi-decomposed granite, trace of tin, iron?
115	120	107	.75	1.086	0.87	27.340	0.30	0.008	0.005	Semi-decomposed granite, trace of tin.
120	125	108	1.0	1.086	0.87	162.900	1.90	0.303	0.180	Wash & coarse sand, -trace of tin.
125	128	109	.25	0.651	0.52	83.200	0.80	0.109	0.065	Decomposed granite, bottom, trace ilmenite, monazite.

Drillers reported basement at -128 - ft.

Interval of tin bearing wash 120-128 ft. @ 0.230 lb SnO<sub>2</sub>/cu.yd

Small value from surface to 128 ft @ 0.04<sup>0</sup> lb SnO<sub>2</sub> / yard<sup>3</sup>

0.136 kg/m<sup>3</sup>  
0.024 kg/m<sup>3</sup>  
(Cassiterite 70% Sn)

165133

# AMDEX MINING LIMITED - PERCUSSION DRILL LOG

122

52610.7 mN 77340.8 mE

same casing used.

AREA: Pioneer

HOLE NO.: K 1

COLLAR COORDINATES:

SURFACE R.L.: 83.76

BASEMENT R.L.: 49.9

Date: 29-1-77

Driller: T. King

Assistant: P. Ponting

Sample Washer: G. Gibson

Geologist: T. Neal

Cutting shoe diameter: 6.31"

Date: 27-1-77

Driller: T. King

Assistant: P. Ponting

Sample Washer: G. Gibson

Geologist: T. Neal

Cutting shoe diameter: 6.31"

Casing diameter: 6"

Section Feet		Sample No.	Recovered Volume (ft <sup>3</sup> )	Theoretical Volume (ft <sup>3</sup> )	Corrected Volume (ft <sup>3</sup> )	Weight Concentration (gms)	Concentration Assay (Sn)	Value over Interval		Description of Sample
From	To						SnO <sub>2</sub> lbs/cu yd	SnO <sub>2</sub> kg/m <sup>3</sup>		
0	6	2	.567	1.303	1.042	18.5	45.0	0.680	0.403	Humus & white gritty clay.
6	10	3	.619	.869	.695	8.5	21.8	0.227	0.135	Fine clayey & coarse gritty sand.
10	15	4	.629	1.086	.87	0.6	22.2	0.013	0.008	Coarse quartz drift 2-3m quartz grit & sand.
15	20	5	.675		.87	1.1	24.0	0.025	0.015	As Above.
20	25	6	.700		.87	1.1	23.5	0.025	0.015	Coarse qtz, sand, 4mm pebbles minor clay.
25	30	7	.588		.87	1.2	26.0	0.031	0.018	Coarse qtz, sand, clay bands
30	35	8	.588		.87	2.5	37.2	0.091	0.054	Coarse drift.
35	40	9	.736		.87	1.5	38.6	0.056	0.034	Coarse drift with numerous clay bands.
40	45	10	.695		.87	2.1	21.2	0.044	0.026	coarse drift with rounded 1 cm pebbles clay & fine drift bands.
45	50	11	.634		.87	0.8	15.6	0.012	0.007	Coarse drift, clay bands pebble conglomerate.
50	55	12	.665		.87	0.6	19.1	0.011	0.007	As Above.
55	60	13 <sup>A</sup>	1.74		1.392	1.1	17.5	0.023	0.014	Clay & coarse drift.
60	65	14	1.48		1.184	2.7	26.2	0.051	0.030	Coarse drift some clay.
65	70	15	1.053		.87	2.8	34.4	0.094	0.056	Coarse & fine drift rounded pebble conglomerate.
70	75	16	1.043		.87	5.4	25.3	0.134	0.079	Coarse drift, minor clay, pebble conglomerate.

Drillers reported basement at 111 ft.

Interval of tin bearing wash 80-115 ft.

Overall value from surface to 115 ft

2.677 lbs/ cu yd SnO<sub>2</sub> 1.588 kg/m<sup>3</sup> SnO<sub>2</sub>

0.882 lb SnO<sub>2</sub> / yard (cassiterite, 70% Sn)

165134

# AMDEX MINING LIMITED - PERCUSSION DRILL LOG

123

52610.7 mN 77340.8 mE

AREA: Pioneer

HOLE NO.: K1

COLLAR COORDINATES: ,

SURFACE RL.: 83.76 BASEMENT RL.: 49.1

Date: 20-1-77  
27-1-77

Driller: T. King

Assistant: P. Ponting

Sample Washer: G. Gibson

Geologist: T. Neal

Cutting shoe diameter '6.31"  
Casing diameter '6"

Section Feet		Sample No.	Recovered Volume (ft <sup>3</sup> )	Theoretical Volume (ft <sup>3</sup> )	Corrected Volume (ft <sup>3</sup> )	Weight Concentrate (gms)	Concentration Assay (Sn)	Value over Interval		Description of Sample
From	To							Sn <sub>2</sub> lbs/cuyd	SnO <sub>2</sub> kg/m <sup>3</sup>	
75	80	17	.879	1.086	.87	4.3	6.1	0.026	0.015	Coarse drift & minor pebble conglomerate.
80	85	18	.961		.87	10.8	26.5	0.280	0.166	Coarse drift with minor pebble conglomerate towards base.
85	90	19	1.554		1.243	14.2	30.5	0.297	0.176	Clay, coarse wash fine qtz pebble conglomerate & weathered granite frags.
90	95	20	0.685		.87	28.0	31.1	0.852	0.505	V.coarse qtz & S.S.cobbli conglomerate, clay & granite fragments.
95	100	21	0.593		.87	15.7	40.7	0.625	0.371	Coarse water worn cobble conglomerate small state fragment.
100	105	22	0.992		.87	29.0	20.1	0.570	0.338	Coarse wash with large cobbles, water worn slate siltstone & SS, granite fragments.
105	110	23	0.716		.87	183.0	70.8	12.673	7.515	Very coarse wash with granite frags, quartzite pebbles.
110	115	24	?		Assumed .87	55.5	58.1	3.154	1.870	Very coarse wash large cobbles large decomposed granite fragments.
115	120	25	0.481	✓	.87	13.0	22.8	0.290	0.172	Clay & decomposed granite
110	115		summing		tin carried to 120'			3.444	2.042	

Drillers reported basement at 111 ft.

Interval of tin bearing wash 80-115 ft. 2.677 lbs/cuy yd. SnO<sub>2</sub> 1.588 kg/m<sup>3</sup> SnO<sub>2</sub>

165135

Overall value from surface to 115 ft 0.882 lb SnO<sub>2</sub> /yards. 523 (cassiterite 70% Sn)

# AMDEX MINING LIMITED - PERCUSSION DRILL LOG

124

Some material  
possibly scrapped  
off? 49.6

Approx. 52716mN 77346mE

AREA : Pioneer

HOLE NO. : K 19 COLLAR COORDINATES :

SURFACE R.L.: 81.0 BASEMENT R.L.:

Date: 15-2-77

Driller: Wayne

Assistant:

Sample Washer:

Geologist:

Cutting shoe diameter : 5"

17-2-77

Bald

Bill King

Casing diameter : 5"

Section Feet		Sample No.	Recovered Volume (ft <sup>3</sup> )	Theoretical Volume (ft <sup>3</sup> )	Corrected Volume (ft <sup>3</sup> )	Weight Concentrate (gms)	Concentrate Assay (Sn)	Value over Interval		Description of Sample
From	To							Sn <sub>2</sub> lbs/cu yd		
0	5	500	0.614	0.682	0.545	4.0	0.8	0.005	0.003	Top soil & peat, med fine grained quartz sand.
5	10	501	0.276		0.545	5.5	1.5	0.013	0.008	Fine sand with some coarse grit, qtz grains to 40
10	15	502	0.833		0.666	87.9	6.0	0.674	0.400	Coarse qtz wash.
15	20	503	0.706		0.564	74.6	6.3	0.709	0.421	As above with white clay bands.
20	25	504	0.429		0.545	13.8	3.4	0.073	0.043	As above with fine sand.
25	30									
30	35									
35	40									
40	45									
45	50									
50	55									
55	60									
60	65									Coarse qtz wash with white clay, Fe stained
65	70	505	0.429		0.545	82.0	1.7	0.218	0.129	grains, well sorted drift
70	75	506	0.450		0.545	28.0	4.6	0.201	0.119	Fe stained. Coarse wash with abundant brown, clay.

Drillers reported basement at 103 ft.

Interval of tin bearing wash 85-105 ft. 1.000 lbs/cu yd SnO<sub>2</sub> - 0.593 kg/m<sup>3</sup> SnO<sub>2</sub>

Overall value from surface to 105 ft. 0.296 lb SnO<sub>2</sub> /yard (cassiterite 70% Sn)

165136



# AMDEX MINING LIMITED - PERCUSSION DRILL LOG

126

AREA : Pioneer HOLE NO. : K 20 COLLAR COORDINATES : 52725.0 mN 77256.4 mE SURFACE R.L.: 83.25 BASEMENT R.L.: 49.

Date: 8-2-77 Driller: Assistant: Sample Washer: Geologist: Cutting shoe diameter : 6.3"  
 11-2-77 Casing diameter : 6"

Section Feet		Sample No.	Recovered Volume (ft <sup>3</sup> )	Theoretical Volume (ft <sup>3</sup> )	Corrected Volume (ft <sup>3</sup> )	Weight Concentration (gms)	Concentration Assay (Sn)	Value over Interval		Description of Sample
From	To							SnO <sub>2</sub> lbs/cu yd	SnO <sub>2</sub> kg/m <sup>3</sup>	
					80% Red F.					
0	5	53	.460	1.086	.87	6.9	1.7	0.011	0.007	Soil, quartz drift hard pan.
5	10	54	.849		.87	89.5	8.4	0.489	0.290	Hard Pan, then qtz drift with some clay.
10	15	55	.675		.87	8.8	11.0	0.095	0.056	Qtz drift fine sand & clay.
15	20	56	.828		.87	6.0	11.8	0.069	0.041	Qtz drift with frags to 3mm abundant fine sand clay.
20	25	57	.798		.87	5.0	10.5	0.051	0.030	As Above.
25	30	58	.695		.87	7.4	18.3	0.132	0.079	As Above.
30	35									Coarse qtz drift fine sand, clay & birds eye drift
35	40									Qtz drift & clay bands
40	45		NOT							Fine & Coarse drift & clay.
45	50			SAMPLED						Clay & Silty clay.
50	55									As Above.
55	60									Qtz drift with alternating layers of clay & fine sand.
60	65									Qtz pebbles with orange clay fine silt.
65	70									Orange qtz drift & rounded qtz pebbles
70	75	62	.511		.87	5.9	17.0	0.098	0.058	As Above.

Drillers reported basement at 112 ft.  
 Interval of tin bearing wash 5-10 ft. @ 0.489 lbs/cu yd - 0.290 kg/m<sup>3</sup> SnO<sub>2</sub>  
 Overall value from surface to 95-115 ft. @ 1.458 lbs/cu yd - 0.864 kg/m<sup>3</sup> SnO<sub>2</sub>  
 115 ft. @ 8.314 lb SnO<sub>2</sub> / yd (cassiterite 70% Sn)

165138

# AMDEX MINING LIMITED - PERCUSSION DRILL LOG

127

49.10

52725.0 mN 77256.4 mE

AREA : Pioneer

HOLE NO. : K 20

COLLAR COORDINATES :

SURFACE RL.: 83.25 BASEMENT R'

8-2-77

Date : Driller:

Assistant :

Sample Washer:

Geologist:

Cutting shoe diameter : 6.31"

11-2-77

Casing diameter : 6"

Section Feet		Sample No.	Recovered Volume (ft <sup>3</sup> )	Theoretical Volume (ft <sup>3</sup> )	Corrected Volume (ft <sup>3</sup> )	Weight Concentration (gms)	Concentration Assay (Sn %)	Value over Interval		Description of Sample
From	To							Sn <sub>2</sub> lbs/cu yd	SnO <sub>2</sub> kg/m <sup>3</sup>	
75	80	63	.838	1.086	.87	8.9	15.1	0.131	0.078	Orange qtz drift with rounded qtz pebble.
80	85	64	1.380		1.104	4.8	25.8	0.095	0.057	As above with angular qt drift & clay bands.
85	90	65	1.288		1.030	10.8	17.4	0.155	0.092	Angular qtz drift with thick clay bands.
90	95	66	0.869		.87	3.2	20.4	0.064	0.038	Rounded pebbles & Clay.
95	100	67	0.818		.87	13.4	16.5	0.216	0.128	Rounded pebble & cobble (4") conglomerate abund clay.
100	105	68	1.104		.88	66.8	44.0	2.842	1.686	Small cable (2 1/2") conglomerate clay.
105	110	69	.665		.87	50.8	43.5	2.162	1.282	Wash as above, clay, decomposed granite fragments.
110	115	70	.501?		.87	19.8	31.5	0.61	0.362	Minor wash fragments decomposed granite.
115	120	71	.685?		.87	8.4	22.0	0.181	0.107	Decomposed granite.

Drillers reported basement at 112 - ft.

Interval of tin bearing wash 95-115 - ft.

Overall value from surface to 115 ft

@ 0.489 lb/cu yd - 0.290 kg/m<sup>3</sup> SnO<sub>2</sub>

@ 1.458 lb/cu yd - 0.864 kg/m<sup>3</sup> SnO<sub>2</sub>

@ 0.314 lb SnO<sub>2</sub> /yard - (cassiterite 70% Sn)

165139

# AMDEX MINING LIMITED - PERCUSSION DRILL LOG

128

52746.4 mN 77160.7 mE

84.72

44.72

AREA : Pioneer

HOLE NO. : K 21 COLLAR COORDINATES :

SURFACE R.L.:

BASEMENT R.L.:

Date: 16-2-77

Driller: Tas King Assistant:

Sample Washer:

Geologist:

Cutting shoe diameter : 6.31

21-2-77

Casing diameter : 6"

Section Feet		Sample No.	Recovered Volume (ft <sup>3</sup> )	Theoretical Volume (ft <sup>3</sup> )	Corrected Volume (ft <sup>3</sup> ) 80% Rad F.	Weight Concentration (gms)	Concentration Assay (Sn)	Value over Interval		Description of Sample
From	To							Sn <sub>2</sub> lbs/cu yd	SnO <sub>2</sub> kg/m <sup>3</sup>	
0	5	72	.716	1.086	.87	19.0	1.2	0.022	0.013	Humus & qtz sand.
5	10	73	.731		.87	92.6	3.1	0.281	0.167	Qtz Sand.
10	15	74	.777		.87	33.9	6.0	0.199	0.118	Very fine sand, white clay
15	20	75	.695		.87	6.7	2.2	0.014	0.009	White clay, quartz sand.
20	25	76	.665		.87	3.9	4.6	0.017	0.010	White clay, quartz sand.
25	30									
30	35		NOT							
35	40		SAMPLED							
40	45									
45	50									
50	55									
55	60									
60	65	76A	.844		.87					
65	70	76B	.828		.87					
70	75	77	.552		.87	7.6	3.6	0.027	0.016	Brown & White clay, quartz sand.

Drillers reported basement at 131 ft.

Interval of tin bearing wash 105 - 130 ft. 1.358 lbs/cu yd SnO<sub>2</sub> 0.806 kg/m<sup>3</sup> SnO<sub>2</sub>

Overall value from surface to 130 ft.          lb SnO<sub>2</sub> /yard (cassiterite 70% Sn)

165140

# AMDEX MINING LIMITED - PERCUSSION DRILL LOG

129 <sub>44.78</sub>

52746.4 mN 77160.7 mE

AREA : Pioneer

HOLE NO. : K 21

COLLAR COORDINATES :

SURFACE R.L.:

BASEMENT R.L.:

Date: 16-2-77

Driller:

Assistant:

Sample Washer:

Geologist:

Cutting shoe diameter :

21-2-77

Tas King

R. Titley.

Casing diameter :

Section Feet		Sample No.	Recovered Volume (ft <sup>3</sup> )	Theoretical Volume (ft <sup>3</sup> )	Corrected Volume (ft <sup>3</sup> )	Weight Concentration (gms)	Concentration Assay (Sn)	Value over Interval		Description of Sample
From	To							SnO <sub>2</sub> lbs/cu yd	SnO <sub>2</sub> kg/m <sup>3</sup>	
75	80	78	.859	1.086	.87	9.7	13.1	3.124	0.074	Brown & White clay quartz sand.
80	85	79	.654		.87	1.7	13.3	0.022	0.013	White clay quartz sand.
85	90	80	1.084		.87	9.3	6.2	0.055	0.032	Coarse wash, stones (3-4cr sand white clay.
90	95	81	.777?		.87	15.2	10.7	0.159	0.094	Coarse wash white clay.
95	100	82	.890?		.87	20.5	18.0	0.361	0.214	Coarse wash red, brown, grey white clay.
100	105	83	1.058?		.87	11.8	11.0	0.127	0.075	Coarse wash, grey clay, white clay.
105	110	84	1.089?		.87	44.3	36.1	1.564	0.928	Coarse wash, red, brown, grey white clay.
110	115	85	1.191?		.95	24.4	30.2	0.721	0.427	As Above.
115	120	86	.644?		.87	39.6	18.5	0.717	0.425	Coarse wash, brown clay.
120	125	87	1.350?		1.08	66.5	40.0	2.096	1.243	Coarse wash brown clay decomposed granite.
125	130	88	1.227?		.98	55.9	34.9	1.694	1.005	Coarse wash decomposed granite fragments quartz sand.
130	135	89	1.636?		1.31	10.6	24.2	0.167	0.099	Basement.

Drillers reported basement at 131 ft.

Interval of tin bearing wash 105-130 ft. 1.358 lbs / cu yd SnO<sub>2</sub> - 0.806 kg/m<sup>3</sup> SnO<sub>2</sub>

Overall value from surface to 130 cu 0.315 lb SnO<sub>2</sub> / yard (cassiterite 70% Sn)

165141

# AMDEX MINING LIMITED - PERCUSSION DRILL LOG 130

AREA: Pioneer HOLE NO.: K 22 COLLAR COORDINATES:  $52632.0$  mN  $77243.2$  mE SURFACE R.L.: 84.97 BASEMENT R.L.: 46.5

Date: <sup>31-1-77</sup> 3-2-77 Driller: Assistant: Sample Washer: Geologist: Cutting shoe diameter: 6.31  
 Casing diameter: 6"

Section Feet		Sample No.	Recovered Volume (Ft <sup>3</sup> )	Theoretical Volume (Ft <sup>3</sup> )	Corrected Volume (Ft <sup>3</sup> )	Weight Concentrate (gms)	Concentrate Assay (Sn)	Value over Interval		Description of Sample
From	To							Sn <sub>2</sub> lbs/cu yd	SnO <sub>2</sub> kg/m <sup>3</sup>	
0	5	26	0.859	1.086	80% Rad F.	4.0	7.4	0.029	0.017	Soil 2', clay, ironstone.
5	10	27	0.736		0.87	17.4	2.7	0.045	0.027	Clay ironstone pebbles, clayey fine-med gn. drift
10	15	28	0.685		0.87	53.3	2.2	0.115	0.068	Clayey drift, coarse drift minor clay.
15	20	29	0.706		0.87	7.1	5.0	0.035	0.021	Coarse drift with rounded quartz to 4mm, small clay bands.
20	25	30	0.808		0.87	4.5	8.4	0.037	0.022	As Above.
25	30	31	0.583		0.87	10.5	6.2	0.064	0.038	As Above.
30	35	32	0.859		0.87	22.4	4.4	0.095	0.057	Coarse drift with rounded quartz 1/2" in size.
35	40	33	0.818		0.87			0.061	0.036	Coarse & fine drift.
40	45	34	0.844		0.87			0.067	0.040	Coarse drift with v fine sand.
45	50	35	0.736		0.87		Values From	0.079	0.047	Very fine drift & sand minor coarse drift.
50	55	36	0.757		0.87			0.091	0.054	Very fine drift.
55	60	37	0.920		0.87		K 22 check	0.339	0.201	Coarse & fine drift, pebbles conglomerate.
60	65	38	1.258		1.006			0.047	0.028	Coarse & fine drift, sand & minor clay.
65	70	39	0.869		0.87			0.048	0.029	Coarse sand & drift.
70	75	40	0.624	✓	0.87	4.3	7.4	0.031	0.018	As Above.

Drillers reported basement at 126 ft.

Interval of tin bearing wash 100-130 ft. 3.046 lbs/cu yd SnO<sub>2</sub> - 1.806 kg/m<sup>3</sup> SnO<sub>2</sub>

Overall value from surface to 130 ft. 0.775 lb SnO<sub>2</sub> / yard (cassiterite 70% Sn)

165142

# AMDEX MINING LIMITED - PERCUSSION DRILL LOG 131

AREA : Pioneer      HOLE NO. : K 22      COLLAR COORDINATES :  $52632.0$  mN  $77243.2$  mE      SURFACE RL. :  $84.97$       BASEMENT RL. :  $46.$

Date: 31-1-77      Driller:      Assistant:      Sample Washer:      Geologist:      Cutting shoe diameter : 6.3  
 3-2-77      Casing diameter : 6"

Section Feet		Sample No.	Recovered Volume (ft <sup>3</sup> )	Theoretical Volume (ft <sup>3</sup> )	Corrected Volume (ft <sup>3</sup> )	Weight Concentration (gms)	Concentration Assay (Sn)	Value over Interval		Description of Sample	
From	To							SnO <sub>2</sub> lbs/cu yd	SnO <sub>2</sub> kg/m <sup>3</sup>		
					80% Rad F.						
75	80	41	0.746	1.086	0.87	3.4	11.3	0.038	0.022	Coarse drift & clay ban	
80	85	42	0.501		0.87	9.6	13.5	0.127	0.075	Coarse & fine drift cla bands with coarse pebb	
85	90	43	0.542		0.87	28.5	5.3	0.148	0.088	Water worn pebbles, oran silt & clay.	
90	95	44	0.552		0.87	32.0	6.8	0.213	0.126	As Above, Fe stained cla wood, charcoal? dk clay w th mica.	
95	100	45	0.685		0.87	11.6	14.0	0.159	0.094	As above then fine silt clay, coarse rounded ctz	
100	105	46	0.583		0.87	113.9	10.9	1.214	0.720	Fine clay & medium-coar wash, pebble conglomerat	
105	110	47	0.419		0.87	114.2	48.4	5.407	3.206	Fine clay, very coarse wash (3" in cobble) some silted granite.	
110	115	48	0.419		0.87	126.8	52.7	6.536	3.876	Fine clay, granite fragm ents & large rounded cob les.	
115	120	49	0.665		0.87	77.8	46.1	3.508	2.080	Fine clay in bands, wash decomposed granite fragments.	
120	125	50	0.562		0.87	15.7	49.6	0.762	0.452	Large qtz cobbles & wash angular qtz & feldspar frags.	
125	130	51	0.726		0.87	14.5	46.5	0.660	0.391	Granite frags, wash frag clay, qtz fspar frags.	
130	135	52	0.552	✓	0.87	7.0	27.4	0.188	0.111	clay qtz fspar mica dec omposed granite.	
125	130		(summing tin carried to 135')						0.848	2.514	

Drillers reported basement at  $126$  ft.      3.046 lbs/ cu yd. SnO<sub>2</sub>      1.806 kg/m<sup>3</sup> SnO<sub>2</sub>      **16514**  
 Interval of tin bearing wash       $100=130$  ft.  
 Overall value from surface to  $130$  ft.      0.725 lb SnO<sub>2</sub> / yard      (cassiterite, 70% Sn)

# AMDEX MINING LIMITED - PERCUSSION DRILL LOG

132

NOTE SPREAD OF TIN VALUES AND PIGGOTT'S VOLUMES SUGGEST THAT DRILLER MAY HAVE BEEN PUMPING BELOW CASING

AREA: Pioneer HOLE NO.: K 23 COLLAR COORDINATES: 52666.5 mN 77044.8 mE SURFACE RL.: 86.98 BASEMENT RL.: 42.0

Date: 23-2-77 Driller: Assistant: Sample Washer: Geologist: Cutting shoe diameter: 6.3  
 28-2-77 Tas King - one day only Casing diameter: 6"

Section Feet		Sample No.	Recovered Volume (ft <sup>3</sup> )	Theoretical Volume (ft <sup>3</sup> )	Corrected Volume (ft <sup>3</sup> )	Weight Concentration (gms)	Concentration Assay (Sn)	Value over Interval		Description of Sample /m <sup>3</sup>
From	To							Sn <sub>2</sub> lbs/cuyd	SnO <sub>2</sub> kg	
					80% Rad	F.				
0	5	90	.797	1.086	.87	33.22	5.28	0.172	0.102	Humus, soil, qtz sand.
5	10	91	.675?	↑	.87	11.71	4.09	0.047	0.028	White, yellow, brown Fe stained clay & qtz sand
10	15	92	.644?	↑	.87	7.81	3.11	0.024	0.014	qtz sand with bands of white clay.
15	20	93	.746?	↑	.87	7.91	2.69	0.021	0.012	Fine qtz sand with band of white clay.
20	25	94	.767?	↑	.87	?	?			As Above.
25	30	95	.859?	↑	.87	?	?			Fine qtz sand.
30	35	↑								Fine sand with occasional
35	40	NOT								bands of white clay
40	45	SAMPLED		Volume	not recorded					As Above.
45	50			an old log	origin of					As Above.
50	55			Piggott's values	questionable					As Above.
55	60									As Above.
60	65									As Above.
65	70	↓								Hard brown clay with small amounts of qtz sand.
70	75	96	.890?	↓	.87	?	?			Very fine sand with cla

Drillers reported basement at 144 ft.

Interval of tin bearing wash . . . . ft.

Overall value from surface to 150 ft 0.500 lb SnO<sub>2</sub> / yard (cassiterite 70% Sn)

165144

# AMDEX MINING LIMITED - PERCUSSION DRILL LOG

133

NOTE: SPREAD OF TIN VALUES AND PIGGOTT'S VOLUMES SUGGEST THAT DRILLER MAY HAVE BEEN PUMPING BELOW CASING

AREA: Pioneer      HOLE NO.: K 23      COLLAR COORDINATES:      SURFACE R.L.:      BASEMENT R.L.:

Date: 23-2-77      Driller:      Assistant:      Sample Washer:      Geologist:      Cutting shoe diameter: <sup>86.98</sup> 4.3308  
 28-2-77      Tas King - one day only      Casing diameter: 6"

Section Feet		Sample No.	Recovered Volume (ft <sup>3</sup> )	Theoretical Volume (ft <sup>3</sup> )	Corrected Volume (ft <sup>3</sup> )	Weight Concentration (gms)	Concentrate Assay (Sn)	Value over Interval		Description of Sample
From	To				80% Rad F.			Sn <sub>2</sub> lbs/cuyd	SnO <sub>2</sub> kg/m <sup>3</sup>	
75	80	97	.711?	1.086	.87	?	?			Very fine sand with small 1/2 inch pebbles, white clay.
80	85	98	1.810?		1.448	?	?			Coarse wash 1/2 inch stone white & orange clay.
85	90	99	1.207?		.966	18.81	6.04	0.100	0.059	Fine sand white clay.
90	95	100	.920?		.87	37.48	1.96	0.072	0.043	Coarse wash cobbles up to 4 inches.
95	100	101	1.227?		.982	115.90	4.15	0.417	0.247	Coarse cobble to 3 inches fine gravel & white clay.
100	105	102	.961?		.87	66.0	7.28	0.470	0.279	Coarse wash red, brown, yellow, white clay.
105	110	103	2.873?	volume	2.298	152.91	15.18	0.860	0.510	Coarse wash yellow, orange clay.
110	115	104	1.892	questionable	1.514	100.38	8.06	1.042	0.618	Coarse cobbles 3" yellow & grey clay.
115	120	105	1.933?		1.546	98.57	29.15	1.582	0.938	Wash with less large cobbles, yellow, grey, white clay.
120	125	106	2.423?		1.938	117.65	36.00	1.860	1.103	Some coarse wash, white yellow clay.
125	130	107	1.820 .614		1.263?	127.29	28.50	2.444	1.450	Sand, coarse qtz wash & gravel.
130	135	108	1.820?		1.456	65.33	33.5	1.279	0.759	gravel, qtz sand small 1" wash, yellow clay.
135	140	109	2.106?		1.685	117.40	22.0	1.304	0.774	Gravel, qtz sand, small wash, clay.
140	145	110	2.076?		1.661	150.25	38.0	2.925	1.735	Gravel clay with small 1" wash stones.
145	150	111	1.830?		1.464	157.57	33.6	3.078	1.825	Basement.

Drillers reported basement at 144 ft.  
 Interval of tin bearing wash 95-150 ft. 1.569 lb/cu yd SnO<sub>2</sub> - 0.931 kg/m<sup>3</sup> SnO<sub>2</sub>      **165145**  
 Overall value from surface to 150 ft. 0.590 lb SnO<sub>2</sub> /yard - (Cassiterite 70% Sn)

# AMDEX MINING LIMITED - PERCUSSION DRILL LOG

Position approximate: **134**  
49.25°

AREA: Pioneer HOLE NO.: K 24 COLLAR COORDINATES: 52532mN 77220mE SURFACE R.L.: 87.35 BASEMENT R.L.:

Date: 19-2-77 Driller: W. Bald & Assistant: B. King Sample Washer: Geologist: Cutting shoe diameter: 5" Casing diameter: 5"

Section Feet		Sample No.	Recovered Volume (ft <sup>3</sup> )	Theoretical Volume (ft <sup>3</sup> )	Corrected Volume (ft <sup>3</sup> )	Weight Concentration (gms)	Concentration Assay (Sn)	Value over Interval		Description of Sample
From	To							Sn <sub>2</sub> lbs/cu yd	SnO <sub>2</sub> kg/m <sup>3</sup>	
0	5	514	1.299	0.682	1.039	68.57	3.4	0.191	0.113	Fine sand with some coarse qtz grains to 4mm.
5	10	515	0.521		0.545	11.2	4.7	0.082	0.049	Fine sand with some coarse sand, & white clay bearing layers.
10	15	516	0.399		0.545	6.7	2.83	0.030	0.018	Fine to coarse sand, peat layers with dk brown cl.
15	20	517	0.276		0.545	9.55	2.69	0.040	0.024	Fine to coarse sand with white clay bands.
20	25	518	0.542		0.545	14.67	4.36	0.100	0.059	Coarse sand with some fine sand & clay.
25	30	519	0.363		0.545	4.6	8.04	0.058	0.034	Coarse to fine sand with some white clay.
30	35									As Above.
35	40									" "
40	45									" "
45	50									" "
50	55									" "
55	60									" "
60	65									" "
65	70	520	0.399		0.545	6.08	3.05	0.029	0.017	Fine to medium gn. sand with white clay layers.
70	75	521	0.368		0.545	7.49	3.41	0.040	0.024	As Above.

Drillers reported basement at 1252-135ft.

Interval of tin bearing wash 105-135 ft. 0.459 lbs/cu yd SnO<sub>2</sub> 0.272 kg/m<sup>3</sup> SnO<sub>2</sub>

Overall value from surface to 130 ft 0.129 lb SnO<sub>2</sub> / yard (cassiterite 70% Sn)

165146

# AMDEX MINING LIMITED - PERCUSSION DRILL LOG

Position  
approximate **135**

AREA: Pioneer HOLE NO.: K 24 COLLAR COORDINATES: 52532 mN 77220 mE SURFACE R.L.: 87.35 BASEMENT R.L.: 49.25?

Date: 19-2-77 Driller: W. Bald Assistant: Sample Washer: Geologist: Cutting shoe diameter : 5"  
22-2-77 B. King Casing diameter : 5"

Section Feet		Sample No.	Recovered Volume (ft <sup>3</sup> )	Theoretical Volume (ft <sup>3</sup> )	Corrected Volume (ft <sup>3</sup> )	Weight Concentrate (gms)	Concentration Assay (Sn)	Value over Interval SnO <sub>2</sub> lbs/cu yd	SnO <sub>2</sub> kg/m <sup>3</sup>	Description of Sample
From	To				80% Rad. F.					
75	80	522	0.235	0.682	0.545	5.9	5.9	0.054	0.032	Med to fine gn sand som white clay.
80	85	523	0.419		0.545	2.1	4.9	0.016	0.010	Med to fine gn sand.
85	90	524	0.245		0.545	1.5	3.1	0.007	0.004	As Above with some clay
90	95	525	0.337		0.545	1.7	13.1	0.035	0.021	Med to fine sand.
95	100	526	0.389		0.545	3.0	9.0	0.042	0.025	Fine to coarse sand, bro clay, peat & pyrite.
100	105	527	0.511		0.545	5.8	0.8	0.007	0.004	Brown clay, peat & pyrit
105	110	528	0.726		0.581	21.1	24.6	0.760	0.451	Coarse sand wash pebble up to 2" fe stain brown clay.
110	115	529	0.297		0.545	17.0	16.4	0.435	0.258	Coarse wash, rounded & angular qtz pebbles, bro clay.
115	120	530	0.419		0.545	26.9	17.3	0.727	0.431	As Above.
120	125	531	0.245		0.545	9.6	15.9	0.238	0.141	Brown yellow clay wash with 2" quartz pebbles.
125	130	532	0.133		0.545	7.4	28.2	0.326	0.193	Brown white feldspar brown cilty material.
130	135	533	0.256	↓	0.545	16.4	10.4	0.266	0.158	Basement.

Drillers reported basement at 125?\_135? ft.

Interval of tin bearing wash 105-135 ft. 0.459 lbs/cu yd SnO<sub>2</sub> 0.272 kg/m<sup>3</sup> SnO<sub>2</sub>

**165147**

Overall value from surface to 130 ft 0.120 lb SnO<sub>2</sub> / yd (cassiterite 70% Sn)

# AMDEX MINING LIMITED - PERCUSSION DRILL LOG

136

AREA: Pioneer

HOLE NO.: K 25

52559.7 mN 77139.6 mE  
COLLAR COORDINATES:

SURFACE R.L.: 86.38 BASEMENT R.L.: 47.66

Date: 23-2-77

Driller:

Assistant:

Sample Washer:

Geologist:

Cutting shoe diameter: 5"

27-2-77

W. Bald & B. King

Casing diameter: 5"

Section Feet		Sample No.	Recovered Volume (ft <sup>3</sup> )	Theoretical Volume (ft <sup>3</sup> )	Corrected Volume (ft <sup>3</sup> )	Weight Concentrate (gms)	Concentrate Assay (Sn)	Value over Interval Sn <sub>2</sub> lbs/cuyd	SnO <sub>2</sub> kg/m <sup>3</sup>	Description of Sample
From	To				80% Rad F.					
0	5	534	.583?	.682	.545	5.37	6.7	0.056	0.033	Surface drift some clay.
5	10	535	.481?		.545	3.69	5.02	0.029	0.017	Surface drift one cement d hard band.
10	15	536	.373?		.545	25.28	11.33	0.447	0.265	1/4" drift firm clay.
15	20	537	.235?		.545	6.18	5.40	0.052	0.031	Firm clay with minor gravel.
20	25	538	.440?		.545	11.20	2.11	0.037	0.022	White-grey-brown clay with some 1/4" gravel.
25	30	539	.302?		.545	9.59	2.83	0.042	0.025	Yellow brown clay with 1/4 inch gravel.
30	35	540	.552?		.545	11.3	3.28	0.058	0.034	As Above.
35	40	541	.337?		.545	21.15	7.43	0.245	0.145	1/4" drift little clay some fine sand.
40	45									1/4" drift medium clay.
45	50									White sticky clay & sand clay.
50	55									As Above.
55	60									1/4" gravel drift, little clay.
60	65									As Above.
65	70									As Above.
70	75	542	.404?		.545	9.35	2.12	0.031	0.018	Fine brown clay gravel drift with clay.

Drillers reported basement at 127 - - ft.

Interval of tin bearing wash 110-130 - - - - ft. 0.80 lb/cu yd SnO<sub>2</sub> 0.475 kg/m<sup>3</sup> SnO<sub>2</sub>

165148

Overall value from surface to 130 - - - - cu 0.192 lb SnO<sub>2</sub> /yard (cassiterite 70% Sn)

# AMDEX MINING LIMITED - PERCUSSION DRILL LOG

137

AREA : Pioneer      HOLE NO. : K 25      COLLAR COORDINATES : 52559.7 mN 77130.6 mE      SURFACE RL.: 86.38      BASEMENT RL.: 47.66

Date: 23-2-77      Driller: W. Bald & Bill King      Assistant:      Sample Washer:      Geologist:      Cutting shoe diameter : 5"

27-2-77      Casing diameter : 5"

Section Feet		Sample No.	Recovered Volume (ft <sup>3</sup> )	Theoretical Volume (ft <sup>3</sup> )	Corrected Volume (ft <sup>3</sup> )	Weight Concentrate (gms)	Concentration Assay (Sn)	Value over Interval Sn <sub>2</sub> lbs/cu yd    SnO <sub>2</sub> kg/m <sup>3</sup>		Description of Sample
From	To				80% Rad. F.					
75	80	543	.205			4.53	1.35			Fine soft clay then 1/4" gravel drift.
		544	.286?	.682	.545	3.3	1.65	0.018	0.011	
80	85	545	.230?		.545	8.4	2.53	0.033	0.020	Fine gravel in clayey matrix.
85	90	546	.470?		.545	5.8	16.85	0.153	0.090	Gravel (slightly coarser) in clayey matrix.
90	95	547	.399?		.545	9.2	13.70	0.197	0.116	Compact yellow & brown clay.
95	100	548	.409?		.545	3.12	5.53	0.027	0.016	Fine sand & fine clay.
100	105	549	.542?		.545	96.59	0.42	0.063	0.038	Fine sand & peat.
105	110	550	.634?		.545	22.74	8.38	0.298	0.176	Fine sand & Clay with 1 1/2 pebbles (rounded) py.
110	115	551	.532?		.545	40.95	15.75	1.001	0.597	Clayey wash 3" large pebbles gravel matrix then finer clayey wash.
115	120	552	.368?		.545	16.33	23.04	0.587	0.348	Fine grey sand some clay
120	125	553	.460?		.545	60.5	8.00	0.756	0.448	Coarse sand some clay micaceous.
125	130	554	.562?		.545	153.79	3.57	0.857	0.508	Clay with grit some decomposed granite.
130	135	555	.266?		.545	6.79	1.30	0.013	0.008	Basement.

Drillers reported basement at 122 ft.  
 Interval of tin bearing wash 110-130 ft.      0.80 lb/cu yd SnO<sub>2</sub>      0.475 kg/m<sup>3</sup> SnO<sub>2</sub>      **165149**

Overall value from surface to 130 ft.      0.192 lb SnO<sub>2</sub> /yard      (Cassiterite 70% Sn)

# AMDEX MINING LIMITED - PERCUSSION DRILL LOG

Position approx. now being scrapped off **138**  
58.25

52643mN 77547mE

79.90

AREA : Pioneer

HOLE NO. : K -27 COLLAR COORDINATES :

SURFACE R.L. :

BASEMENT R.L. :

Date: 4-4-78 Driller: Selby Assistant: \_\_\_\_\_ Sample Washer: Summers Geologist: present I. No Geologist Cutting shoe diameter : 3.31" (101) Casing diameter : 1.5"

Section Feet		Sample No.	Recovered Volume (ft <sup>3</sup> )	Theoretical Volume (ft <sup>3</sup> )	Corrected Volume (ft <sup>3</sup> )	Weight Concentration (gms)	Concentration Assay (SnO <sub>2</sub> )	Value over Interval SnO <sub>2</sub> lbs/cu yd	SnO <sub>2</sub> kg/m <sup>3</sup>	Description of Sample
From	To		(11x0.10225)		80% Rad. F.		Sn			
	5									
5	10									
10	15	1301	.60	1.006	0.87	2.57	15.40	0.039	0.023	Trace tin, pyrite, monazite Clay sand.
15	20	2	.50		0.87	1.92	21.21	0.038	0.023	Sand, trace tin, pyrite monazite.
20	25	3	.70		0.87	3.20	26.76	0.078	0.046	Sand, trace tin, pyrite monazite.
25	30	4	.55		0.87	4.07	33.80	0.135	0.080	Sand clay, trace tin pyrite, monazite.
30	35	5	.60		0.87	4.94	18.27	0.035	0.021	Sand clay, pyrite, monazite Iron
35	40	6	.55		0.87	2.75	19.05	0.051	0.030	Sand, pyrite monazite, Iron
40	45	7	.85		0.87	16.53	16.64	0.269	0.160	Sand, trace tin, pyrite monazite
45	50	8	.65		0.87	8.435	17.44	0.144	0.085	Trace tin, pyrite, monazite
50	55	9	.65		0.87	6.07	15.51	0.092	0.055	Sand clay, pyrite, monazite, iron.
55	60	1310	.50		0.87	8.18	26.80	0.214	0.127	Clay sand, pyrite, monazite Iron.
60	65	11	.00		0.87	1.02	20.23	0.036	0.021	Clay sand, trace tin pyrite, monazite.
65	70	12	.40		0.87	5.625	23.48	0.129	0.076	Some decomposed granite sand, trace tin, pyrite, monazite
70	75	1313	.00		0.87	3.94	10.70	0.040	0.024	Decomposed granite.

Drillers reported basement at 71 ft.  
 Interval of tin bearing wash 40-60 ft. @ 0.18 lb SnO<sub>2</sub>/cu yd, 0.107 kg/m<sup>3</sup> **165150**  
40-60  
 Overall value from surface to 75 ft. 0.09 lb SnO<sub>2</sub>/yard<sup>3</sup> = 0.053 kg/m<sup>3</sup> (cassiterite 70%)

# AMDEX MINING LIMITED - PERCUSSION DRILL LOG

Position approximate  
now being scrapped off

REA: Pioneer HOLE NO.: K-28 COLLAR COORDINATES: 52655mN 77447mE

SURFACE R.L.: 77.85 BASEMENT R.L.: 139.2.1

Date: 24/4/78 Driller: Selby Assistant: Nichols Sample Washer: I. Geologist: Summers Cutting shoe diameter: 6.31"  
 Casing diameter: 6"

Section Feet		Sample No.	Recovered Volume (ft <sup>3</sup> )	Theoretical Volume (ft <sup>3</sup> )	Corrected Volume (ft <sup>3</sup> )	Weight Concentration (gms)	Concentration Assay (Sn)	Value over Interval SnO <sub>2</sub> lbs/cu.yd	SnO <sub>2</sub> kg/m <sup>3</sup>	Description of Sample
0	5	1314	.40	1.066	0.87	2.83	20.49	0.057	0.034	Sand, clay, monozite, iron
5	10	15	.55		0.87	1.96	15.10	0.028	0.016	Sand, clay, monozite, iron
10	15	16	.70		0.87	3.01	14.99	0.044	0.026	Sand, clay, monozite, iron
15	20	17	.60		0.87	5.09	16.75	0.083	0.049	Sand, clay, monozite, iron
20	25	18	.80		0.87	17.69	21.75	0.376	0.223	Sand, tin, monozite, iron.
25	30	19	.50		0.87	5.86	19.78	0.113	0.067	Sand, clay, monozite, tin, iron
30	35	1320	.30		0.87	1.63	26.29	0.042	0.025	Sand, clay, trace tin, monozite iron.
35	40	21	.50		0.87	1.99	28.61	0.056	0.033	Coarse sand, monozite, iron.
40	45	22	.30		0.87	2.89	27.20	0.077	0.046	sand, monozite, pyrite, iron.
45	50	23	.90		0.87	4.14	30.93	0.125	0.074	Coarse sand-clay, trace tin pyrite, iron.
50	55	24	.40		0.87	3.48	29.11	0.099	0.059	Coarse sand, clay, pyrite, iron
55	60	1325	.80		0.87	7.41	21.55	0.156	0.092	Coarse sand, trace tin, pyrite
60	65	26	.50		0.87	3.30	33.66	0.109	0.064	Coarse sand, trace tin, pyrite
65	70	27	.80		0.87	38.49	51.42	1.936	1.148	Wash, clay-sand, good tin sample.
70	75	28	.80		0.87	15.99	52.88	0.827	0.498	Wash, clay-sand-tin-pyrite.

Drillers reported basement at 84'6" ft.

Interval of tin bearing wash 20-25 ft. @0.376 lb SnO<sub>2</sub>/cu.yd - 0.223 SnO<sub>2</sub> kg/m<sup>3</sup>

65-85 ft. @0.958 lb SnO<sub>2</sub>/cu.yd. - 0.568 SnO<sub>2</sub> kg/m<sup>3</sup>

Overall value from surface to 85 ft. 0.306 lb SnO<sub>2</sub>/yard<sup>3</sup> (case for 70% Sn) - 0.181 SnO<sub>2</sub> kg/m<sup>3</sup>

165151



# AMDEX MINING LIMITED - PERCUSSION DRILL LOG

Some material possibly scrapped off

52668mN 77344mE

80.60

141  
51.3

2EA : Pioneer

HOLE NO. : K-30 COLLAR COORDINATES :

SURFACE R.L. :

BASEMENT R.L. :

Date: 24/4/78 Driller: Selby Assistant: Nichols Sample Washer: Summers Geologist: N.G.P. Cutting shoe diameter : 6.30" Casing diameter : 6"

Section Feet		Sample No.	Recovered Volume (Ft <sup>3</sup> )	Theoretical Volume (Ft <sup>3</sup> )	Corrected Volume (Ft <sup>3</sup> )	Weight Concentration (gms)	Concentration Assay (Sn %)	Value over Interval		Description of Sample
m	ft							Sn <sub>2</sub> lbs/cuyd	SnO <sub>2</sub> kg/m <sup>3</sup>	
0	5	1331	.35	1.086	0.87	7.66	10.12	0.070	0.041	Sand - small wash Trace tin - pyrite.
5	10	32	.50		0.87	12.13	9.23	0.110	0.064	Sand-clay-ilmenite, trace tin pyrite.
10	15	33	.60		0.87	7.68	13.47	0.048	0.029	Sand clay, trace tin fine, pyrite, ilmenite
15	20	34	.60		0.87	3.90	18.16	0.069	0.041	Sand-clay, trace tin fine, pyrite, ilmenite.
20	25	1335	.70		0.87	3.90	18.67	0.071	0.042	Sand, trace fine tin, pyrite, ilmenite.
25	30	36	.50		0.87	2.91	14.43	0.041	0.024	Sand, trace fine tin, pyrite, ilmenite.
30	35	37	.60		0.87	2.78	12.36	0.034	0.020	Coarse sand-clay, trace fine tin, pyrite, ilmenite.
35	40	38	.60		0.87	2.53	23.84	0.059	0.035	Sand, clay, trace fine tin, pyrite, ilmenite
40	45	39	.60		0.87	3.38	14.4	0.079	0.047	Coarse sand, clay, pyrite, ilmenite
45	50	1340	.70		0.87	3.55	23.27	0.126	0.075	Coarse sand-clay, trace fine tin, pyrite, ilmenite.
50	55	41	.20		0.87	1.02	15.5	0.061	0.036	Sand-clay, pyrite, ilmenite.
55	60	42	.50		0.87	3.00	14.8	0.045	0.027	Sand-clay, pyrite, ilmenite
60	65	43	.90		0.87	3.70	15.9	0.136	0.081	Fine tin, pyrite, ilmenite.
65	70	44	.70		0.87	1.69	18.7	0.086	0.051	Sand-clay, fine tin, pyrite, ilmenite.
70	75	1345	.50		0.87	1.60	21.7	0.083	0.108	Fine tin, pyrite, ilmenite

Drillers reported basement at 96 ft. zircon

Interval of tin bearing wash 75-97 ft. 1.233 lb SnO<sub>2</sub> /cu yd - 0.731 kg/m<sup>3</sup> SnO<sub>2</sub>

Overall value from surface to 97 ft. 0.342 lb SnO<sub>2</sub> /yard<sup>3</sup> (cassiterite 70% Sn)

165153



# AMDEX MINING LIMITED - PERCUSSION DRILL LOG

143

REA : Pioneer      HOLE NO. : K-31      52767mN 77348mE      COLLAR COORDINATES :      SURFACE RL. : 85.20      BASEMENT RL. : 49.5

Date: 4/5/73      Driller: Selby      Assistant: Nichols      Sample Washer: Sumner      Geologist: H.G.P.      Cutting shoe diameter : 6.31"      Casing diameter : 3"

Section Feet		Sample No.	Recovered Volume (ft <sup>3</sup> )	Theoretical Volume (ft <sup>3</sup> )	Corrected Volume (ft <sup>3</sup> )	Weight Concentration (gms)	Concentration Assay (Sn)	Value over Interval (Sn <sub>2</sub> lbs/cu yd)	Description of Sample	
0	5	1351	.60	1.086	80% Rad F. 2.87	5.43	16.2	0.087	0.051	Sand clay, trace tin, ilmenite, pyrite.
5	10	1352	.55		0.87	5.91	10.0	0.058	0.034	Sand-clay, trace fine tin, pyrite, ilmenite.
10	15	53	.20		0.87	2.93	13.9	0.028	0.016	Sand-clay, trace fine tin, pyrite, ilmenite.
15	20	54	.55		0.87	6.77	14.4	0.124	0.073	Sand, trace fine tin, pyrite, ilmenite.
20	25	1355	.55		0.87	10.10	13.0	0.128	0.076	Sand, trace fine tin, pyrite, ilmenite, pyrite.
25	30	56	.60		0.87	4.644	17.4	0.079	0.047	Sand silty-clay, trace tin, pyrite, ilmenite.
30	35	57	.35		0.87	2.237	22.7	0.205	0.122	Sand silty-clay, trace fine tin, pyrite, ilmenite.
35	40	58	.90		0.87	5.365	34.1	0.179	0.106	Sand-clay, trace fine tin, pyrite, ilmenite.
40	45	59	.50		0.87	3.810	30.8	0.115	0.068	Fine to coarse sand, white clay, trace tin, ilmenite, monazite.
45	50	1359	.70		0.87	6.742	13.5	0.889	0.053	Fine to coarse sand, white + orange clay, trace tin, ilmenite, monazite.
50	55	61	.55		0.87	9.089	13.5	0.120	0.071	Fine to coarse sand, trace tin, ilmenite, monazite.
55	60	62	.70		0.87	6.595	11.6	0.075	0.044	Fine to coarse sand, trace tin, ilmenite, monazite.
60	65	63	.40		0.87	6.602	5.4	0.035	0.021	Fine to coarse sand, white clay, pyrite, monazite, trace tin.
65	70	64	.55		0.87	6.563	5.6	0.036	0.021	Fine to coarse sand, white clay, small wash, trace tin, ilmenite, monazite.

Drillers reported basement at 117 ft.  
 Interval of tin bearing wash 15-55 ft. @ 0.130 lb SnO<sub>2</sub>/cu yd 0.077 kg/m<sup>3</sup>  
 85-117 ft. @ 0.216 lb SnO<sub>2</sub>/cu yd 0.128 kg/m<sup>3</sup> SnO<sub>2</sub>  
 Overall value from surface to 117 ft. 0.124 lb SnO<sub>2</sub> /yard<sup>3</sup> (cassiterite 70% Sn) 0.073 kg/m<sup>3</sup> SnO<sub>2</sub>

165155



# AMDEX MINING LIMITED - PERCUSSION DRILL LOG

145

52776.4 mN 77266.2 mE

AREA: Pioneer HOLE NO.: K-32 COLLAR COORDINATES: SURFACE R.L.: 81.78 BASEMENT R.L.:

Driller: Selby Assistant: Sample Washer: Summers Geologist: J. Roger Cutting shoe diameter: 4.500 Casing diameter:

Section Feet		Sample No.	Recovered Volume (ft <sup>3</sup> )	Theoretical Volume (ft <sup>3</sup> )	Corrected Volume (ft <sup>3</sup> )	Weight Concentrate (gms)	Concentrate Assay (Sn %)	Value over Interval		Description of Sample /m <sup>3</sup> .
From	To							SnO <sub>2</sub> lbs/cu yd	SnO <sub>2</sub> /kg	
					80% Rec F.					
	5	1375	.60	1.306	0.87	3.1	10.57	0.147	0.087	Fine black sand, trace fine tin, ilmenite.
	10	1376	.50		0.87	3.1	14.62	0.030	0.018	Black silty sand, trace fine tin, ilmenite.
	15	1377	.50		0.87	2.73	3.95	0.024	0.014	Fine & coarse sand, trace fine tin, ilmenite, monazite.
	20	1378	.60		0.87	5.86	15.65	0.085	0.050	Fine & coarse sand, trace fine tin, ilmenite, monazite.
	25	1379	.50		0.87	3.40	12.72	0.042	0.025	Coarse sand & white clay, trace fine tin, ilmenite, monazite, pyrite.
	30	1380	.20		0.87	3.70	10.60	0.040	0.024	Coarse sand-white clay, trace fine tin, ilmenite, monazite, pyrite.
	35	1381	.20		0.87	1.74	13.35	0.023	0.013	Coarse sand & white clay, trace fine tin, ilmenite, monazite, pyrite.
	40	1382	.60		0.87	7.00	21.89	0.170	0.101	Coarse sand & white clay, trace fine tin, ilmenite, monazite, pyrite.
	45	1383	.60		0.87	5.219	17.70	0.098	0.058	Coarse sand, white clay, trace fine tin, ilmenite, monazite, pyrite.
	50	1384	.50		0.87	3.88	10.30	0.065	0.038	Coarse sand, white clay, trace fine tin, ilmenite, monazite, pyrite.
	55	1385	.30		0.87	4.45	12.17	0.053	0.031	Coarse sand, trace fine tin, ilmenite, monazite, pyrite.
	60	1386	.50		0.87	5.87	13.1	0.110	0.065	Coarse sand, trace fine tin, ilmenite, monazite, pyrite.
	65	1387	.100		0.87	5.82	27.05	0.154	0.091	Coarse sand, some white clay, trace fine tin, ilmenite, monazite, pyrite.
	70	1388	.40		0.87	2.18	27.97	0.060	0.035	Coarse sand, trace fine tin, ilmenite, monazite, pyrite.
	75	1389	.40		0.87	6.13	12.42	0.063	0.037	Coarse sand, fine tin, ilmenite, monazite, pyrite.

Drillers reported basement at 127 ft.  
 Interval of tin bearing wash 90-110 ft. @ 0.453 lb SnO<sub>2</sub>/cu yd  
 Overall value from surface to 110 ft. @ 0.453 lb SnO<sub>2</sub>/cu yd (cassiterite 70% Sn)

165157

# AMDEX MINING LIMITED - PERCUSSION DRILL LOG

146

52776.4 mN 77266.2 mE

AREA : *Wander*

HOLE NO. : K-30

COLLAR COORDINATES :

SURFACE R.L. : 81.78 BASEMENT R.L. : *70.0*

Date: \_\_\_\_\_ Driller: *G. Selby* Assistant: \_\_\_\_\_ Sample Washer: \_\_\_\_\_ Geologist: *A. Fleming* Cutting shoe diameter : 6.31"  
*I. Summers* *J. Roger.* Casing diameter : \_\_\_\_\_

Section Feet		Sample No.	Recovered Volume (ft <sup>3</sup> )	Theoretical Volume (ft <sup>3</sup> )	Corrected Volume (ft <sup>3</sup> )	Weight Concentrate (gms)	Concentrate Assay (Sn %)	Value over Interval		Description of Sample
From	To							80% Rad F.	Sn <sub>2</sub> lbs/cu yd	
85	90	1300	.130	1.086	0.87	5.70	14.68	0.084	7.950	Coarse sand-white & orange clay, fine tin, ilm, mon.
90	95	1301	.40		0.87	4.33	13.45	0.053	0.031	Fine & coarse sand-white tin, ilm, mon.
95	97	1302	.53		0.87	3.23	27.15	0.109	0.064	Fine & orange sand-white clay, trace tin, ilm, mon.
97	98	1303	.50		0.87	6.98	43.16	0.422	0.250	Small wash, coarse sand, soil clay, tin, ilm, mon, pyrite.
98	100	1304	.40		0.87	13.13	23.73	0.284	0.169	Fine sand, grey & white clay, wash, tin, ilm, mon, pyrite.
100	105	1305	.40		0.87	17.93	53.73	0.890	0.528	Fine & coarse sand-wash, tin, ilm, mon, pyrite.
	110	1306	.50	↓	0.87	6.53	33.40	0.217	0.128	decomposed granite, trace tin, ilm, mon, pyrite.

Drillers reported basement at 107 - - ft.

Interval of tin bearing wash 90-110 ft @ 0.453 lb SnO<sub>2</sub>/cu yd. = 0.269 kg/m<sup>3</sup> SnO<sub>2</sub>

165158

Small interval of coarse sand at 90-95 ft @ 0.109 lb SnO<sub>2</sub>/cu yd. = (concentrate 70% Sn)

# AMDEX MINING LIMITED - PERCUSSION DRILL LOG

147

52679.4 mN 77251.9 mE

83.25

49.10

AREA : Pioneer

HOLE NO. : K-33

COLLAR COORDINATES :

SURFACE R.L. :

BASEMENT R.L. :

Date: 23-5-78      Driller: Selby      Assistant:      Sample Washer: I. Summers      Geologist: J. Roger      Cutting shoe diameter : 6.31"      Casing diameter : 6"

Section Feet		Sample No.	Recovered Volume (ft <sup>3</sup> )	Theoretical Volume (ft <sup>3</sup> )	Corrected Volume (ft <sup>3</sup> )	Weight Concentrate (gms)	Concentrate Assay (Sn %)	Value over Interval		Description of Sample
From	To							80% Rad F.	Sn <sub>2</sub> lbs/cuyd	
0	5	0001	.30	1.086	0.87	1.677	12.0	0.020	0.012	Silty sand, trace fine tin monazite.
5	10	002	.30		0.87	15.3426	17.6	0.264	0.157	Fine sand-silty clay, quantity of fine tin, ilm & mon
10	15	003	.10		0.87	13.7845	17.2	0.289	0.171	Fine & Coarse sand, silty clay qnty fine tin ilm&mc
15	20	004	.40		0.87	2.6649	18.6	0.048	0.028	Fine & Coarse sand, trace fine tin, ilm & mon.
20	25	005	.65		0.87	3.6834	12.5	0.045	0.027	Fine & Coarse sand, silty clay, trace tin, ilm & Mon.
25	30	006	.60		0.87	2.2432	13.2	0.029	0.017	Fine & Coarse sand, white clay, trace tin, ilm & mon.
30	35	007	.60		0.87	2.9376	16.6	0.048	0.028	Fine & Coarse sand-white clay, trace fine tin, ilm&mc
35	40	008	.60		0.87	3.5686	14.8	0.052	0.031	Fine & Coarse sand-white clay, trace fine tin, ilm&mc
40	45	009	.30		0.87	1.4164	15.9	0.022	0.013	Fine & Coarse sand-white clay, trace fine tin, ilm&mc
45	50	010	.50		0.87	1.3777	23.0	0.031	0.020	Coarse sand, white clay, ilm & mon.
50	55	011	.55		0.87	2.8846	19.6	0.055	0.033	Coarse sand-white clay, ilm & mon.
55	60	012	.70		0.87	6.0826	28.6	0.170	0.101	Fine & Coarse sand, trace fine tin, ilm & Mon.
60	65	013	.90		0.87	7.0058	25.8	0.177	0.105	Coarse sand white clay, fine tin, ilmenite & Monazite.
65	70	014	.60		0.87	3.1166	21.3	0.065	0.039	Coarse sand-white & orange clay, trace fine tin, ilm&mc
70	75	015	.30		0.87	4.6518	21.6	0.098	0.058	Coarse sand-white & Orange clay, trace of fine tin, ilm & py.

Drillers reported basement at 112 ft.

Interval of tin bearing wash 105-112 ft. @ 0.47 lb SnO<sub>2</sub>/cu yd. - 0.280 SnO<sub>2</sub> kg/m<sup>3</sup>

Overall value from surface to 112 ft 0.132 lb SnO<sub>2</sub> / yard - 0.078 kg/m<sup>3</sup> (assite 70% Sn)

165159



# AMDEX MINING LIMITED - PERCUSSION DRILL LOG

149

AREA: Pioneer HOLE NO.: K 34 COLLAR COORDINATES: 52580mN 77232mE SURFACE R.L.: 85.90 BASEMENT R.L.: 46.25

Date: 6-6-78 Driller: G. Selby Assistant: N. Stevens Sample Washer: S. Moore Geologist: J. Roger Cutting shoe diameter: 6.31" Casing diameter: 6"

Section Feet		Sample No.	Recovered Volume (ft <sup>3</sup> )	Theoretical Volume (ft <sup>3</sup> )	Corrected Volume (ft <sup>3</sup> )	Weight Concentration (gms)	Concentration Assay (Sn%)	Value over Interval		Description of Sample
From	To							SnO <sub>2</sub> lbs/cu yd	SnO <sub>2</sub> /kg/m <sup>3</sup>	
0	5	0024	.60	1.086	0.87	11.492	3.42	0.038	0.023	Sand, silt & clay, trace fine tin, black iron.
5	10	025	.30		0.87	10.901	2.16	0.023	0.014	White clay & silt, trace fine tin, ilm, monazite.
10	15	026	.30		0.87	8.284	1.59	0.009	0.005	White clay & fine sand, trace tin.
15	20	027	.30		0.87	8.166	1.13	0.009	0.005	White clay & sand, trace tin.
20	25	028	.40		0.87	8.827	2.53	0.022	0.013	Clay, gravel & fine sand, ilm monazite.
25	30	029	.25		0.87	13.504	2.52	0.033	0.020	Coarse & fine sand, some clay fine tin, ilm, monazite.
30	35	030	.70		0.87	12.251	4.26	0.051	0.031	Coarse & fine sand, some clay fine tin, ilm, monazite.
35	40	031	.70		0.87	20.986	3.01	0.062	0.037	Coarse & fine sand, some clay ilmenite, monazite.
40	45	032	.70		0.87	20.415	6.80	0.136	0.082	Coarse & fine sand, some clay fine tin, ilm, monazite.
45	50	033	.45		0.87	22.469	2.53	0.056	0.034	Coarse & fine sand, fine tin, ilm, monaz, ilmenite.
50	55	034	.60		0.87	25.832	5.40	0.136	0.082	Coarse & fine sand, some clay trace tin, ilm, monaz.
55	60	035	.30		0.87	7.717	2.30	0.017	0.010	Clay, some coarse sand, ilm, mc
60	65	036	.70		0.87	10.197	4.00	0.040	0.024	Coarse sand, some clay, monazite, & ilmenite.
65	70	037	.70		0.87	8.174	6.30	0.050	0.030	Coarse & fine sand, ilmen, mor
70	75	038	.70		0.87	6.363	6.50	0.040	0.024	Coarse & fine sand, some clay ilmenite, & monazite.

Drillers reported basement at 130 ft.  
 interval of tin bearing wash 40-55 ft. @ 0.11 lb SnO<sub>2</sub>/cu yd  
100-130 ft. @ 1.434 lb SnO<sub>2</sub>/cu yd. 0.85 kg/m<sup>3</sup>  
 Overall value from surface to 130 ft. 0.37 lb SnO<sub>2</sub>/yard<sup>3</sup> = 0.22 kg/m<sup>3</sup> (cassiterite 70% Sn)

165161

# AMDEX MINING LIMITED - PERCUSSION DRILL LOG

52580 mN 77232 mE

REA: Pioneer HOLE NO.: K 34 COLLAR COORDINATES:

SURFACE R.L.: 85.90 BASEMENT R.L.: 46.25 150

6-6-78  
 Date: 14-6-78  
 Driller: G. Selby Assistant: N. Stevens Sample Washer: S. Moore Geologist: J. Roger  
 Cutting shoe diameter: 6.31"  
 Casing diameter: 6"

Section Feet		Sample No.	Recovered Volume (ft <sup>3</sup> )	Theoretical Volume (ft <sup>3</sup> )	Corrected Volume (ft <sup>3</sup> )	Weight Concentration (gms)	Concentration Assay (Sn%)	Value over Interval		Description of Sample
From	To				80% Rad. f.		SnO <sub>2</sub> lbs/cu yd	SnO <sub>2</sub> /kg	m <sup>3</sup>	
75	80	0039	.50	1.086	0.87	9.852	4.08	0.039	0.023	Coarse & fine sand, some clay, monazite, ilmenite.
80	85	040	.55		0.87	9.735	7.00	0.066	0.040	Fine & coarse sand, mon, ilm.
85	90	041	.50		0.87	8.818	5.00	0.043	0.026	Coarse & fine sand, mon, ilm.
90	95	042	.30		0.87	4.472	5.70	0.025	0.015	Clay & fine sand, some coarse sand, monaz, ilmenite.
95	100	043	.35		0.87	5.998	3.46	0.020	0.012	Clay, silted mud, monaz, ilmen.
100	105	044	.40		0.87	32.151	11.6	0.365	0.216	Coarse sand & small wash, ilmenite, monazite.
105	110	045	.60		0.87	27.411	31.2	0.837	0.496	Coarse sand, big wash, some cl trace tin, monaz, ilm.
110	115	046	.40		0.87	14.620	26.9	0.385	0.228	Coarse sand, big wash, some clay, trace tin, monaz, ilm.
115	120	047	.50		0.87	121.100	14.8	1.753	1.040	Coarse sand, big wash, some clay, tin, monaz, ilmenite.
120	125	048	.30		0.87	189.900	22.5	4.179	2.478	Coarse sand, wash & clay, quantity of tin, monaz, ilmenit
125	130	049	.40		0.87	38.546	28.8	1.086	0.644	Granite bottom, ilm, pyrite.

Drillers reported basement at 130 ft.  
 interval of tin bearing wash 100-130 ft. @ 1.834 lb SnO<sub>2</sub>/cu yd. 0.85 kg/m<sup>3</sup> 165162  
 Overall value from surface to 130 ft. 0.37 lb SnO<sub>2</sub> /yard<sup>3</sup> (cassiterite 70% Sn)  
 = 0.22 kg/m<sup>3</sup>

# AMDEX MINING LIMITED - PERCUSSION DRILL LOG

151

52484.8 mN 77212.8 mE

68.82

45.68

AREA : Pioneer

HOLE NO. : K 35

COLLAR COORDINATES :

SURFACE R.L.

BASEMENT R.L.

Date: 23/6/78 Driller: G. Assistant: N. Sample Washer: S. Geologist: J. Roger Cutting shoe diameter : 6.31"  
 29/6/78 Selby Stevens Moore Casing diameter : 6"

Section Feet		Sample No.	Recovered Volume (ft <sup>3</sup> )	Theoretical Volume (ft <sup>3</sup> )	Corrected Volume (ft <sup>3</sup> )	Weight Concentration (gms)	Concentration Assay (Sn)	Value over Interval SnO <sub>2</sub> lbs/cu yd		Description of Sample
From	To									
0	5	C0050	.50	1.086	.87	4.72	14.36	0.066	0.039	Silty sand-iron frags & monazite
5	10	C0051	.90		.87	14.00	16.12	0.221	0.131	Silt & Fine sand, trace tin, mon, & iron py.
10	15	C0052	.50		.87	4.30	4.42	0.019	0.011	Fine & Coarse sand, mon & py
15	20	C0053	.30		.87	2.41	3.29	0.008	0.005	Clay-fine to coarse sand mor & iron frags.
20	25	C0054	.40		.87	1.86	1.38	0.003	0.001	Clay trace monazite.
25	30	C0055	.25		.87	1.64	3.13	0.005	0.003	Clay trace Monazite.
30	35	C0056	.30		.87	3.53	0.97	0.003	0.002	Coarse & Fine sand, mon, & ilmenite.
35	40	C0057	.80		.87	4.10	5.69	0.023	0.014	Fine & Coarse sand, clay, mc & ilmenite.
40	45	C0058	.20		.87	2.99	4.77	0.014	0.008	Coarse to fine sand, mon & il.
45	50	C0059	.40		.87	5.18	9.10	0.046	0.027	Coarse to fine sand, mon, ilm, spinel.
50	55	C0060	.40		.87	3.85	5.76	0.022	0.013	Coarse & Fine sand, clay, mon, ilm, & py.
55	60	C0061	.40		.87	3.51	5.50	0.019	0.011	Coarse to fine sand, clay, mor & ilm.
60	65	C0062	.60		.87	3.24	4.87	0.015	0.009	Clay, coarse & fine sand, mon, ilm.
65	70	C0063	.60		.87	5.72	2.44	0.014	0.008	Fine sand to clay, ilm, & mon.
70	75	C0064	.30		.87	3.70	4.10	0.015	0.009	Coarse & fine sand, ilm, & mor

Drillers reported basement at 141' 6" ft.

Interval of tin bearing wash 135-140 ft @ 0.443 lb SnO<sub>2</sub>/cu yd. - 0.262 kg/m<sup>3</sup> SnO<sub>2</sub>

165163

Interval of tin bearing wash 0-140 ft @ 0.254 lb SnO<sub>2</sub>/cu yd. (concentration 70% Sn)

# AMDEX MINING LIMITED - PERCUSSION DRILL LOG

152 45.68

52484.8 mN 77212.8 mE

88.82

AREA : Pioneer

HOLE NO. : K 35

COLLAR COORDINATES :

SURFACE R.L. :

BASEMENT R.L. :

Date: 23/6/78 Driller: G. Selby. Assistant: N. Stevens. Sample Washer: S. Moore. Geologist: J. Roger. Cutting shoe diameter : 6.31"  
29/6/78 Casing diameter : 6"

Section Feet		Sample No.	Recovered Volume (ft <sup>3</sup> )	Theoretical Volume (ft <sup>3</sup> )	Corrected Volume (ft <sup>3</sup> )	Weight Concentration (gms)	Concentration Assay (Sn)	Value over Interval		Description of Sample
om	To							SnO <sub>2</sub> lbs/cuyd		
75	80	C0065	.80	1.086	0.87	3.60	5.58	0.020	0.012	Coarse to fine sand, mon, ilm
80	85	C0066	.70		0.87	2.81	4.49	0.012	0.007	Coarse to fine sand, mon, & ilm
85	90	C0067	.60		0.87	3.28	3.93	0.013	0.007	Mon Coarse & fine sand, clay, ilm.
90	95	C0068	.80		0.87	2.92	5.66	0.016	0.010	Coarse & fine sand, ilmenite & monazite.
95	100	C0069	.80		0.87	2.97	8.19	0.024	0.014	Coarse to fine sand, ilm, & mon
100	105	C0070	.10		0.87	4.73	7.33	0.034	0.020	Coarse & fine sand, clay, ilm & mon.
105	110	C0071	.80		0.87	8.25	7.68	0.062	0.038	Coarse orange gravel, trace Tin, ilm, & mon.
110	115	C0072	.80		0.87	14.48	12.07	0.171	0.101	Coarse gravel, small wash, clay trace tin, mon & ilmenite.
115	120	C0073	.14		0.87	19.19	15.82	0.297	0.176	Gravel, clay, small wash, trace tin, ilm, & mon.
120	125	C0074	.12		0.87	6.77	10.94	0.072	0.043	Gravel, clay & big wash, trace tin, mon, & ilmenite.
125	130	C0075	.10		0.87	7.67	7.62	0.057	0.034	Coarse & fine sand, clay & wash trace tin, mon, ilm, py.
130	135	C0076	.90		0.87	17.08	5.3	0.089	0.053	As above No pyrite.
135	140	C0077	.60		0.87	28.46	15.9	0.443	0.262	Fine & Coarse sand, wash tin, ilmen, & monazite.
140	141'6"	C0078	.30	0.326	0.26	10.84	17.6	0.048	0.029	Decomposed granite, fine tin ilmenite.

Drillers reported basement at 141'6" ft.

Interval of tin bearing wash 135-140 ft.

0.140 @ 0.443 lb SnO<sub>2</sub>/cu yd. - 0.262 kg/m<sup>3</sup> SnO<sub>2</sub>

165164

# AMDEX MINING LIMITED - PERCUSSION DRILL LOG

153

Approx 52387 mN 77196 mE

89.75

45.2

AREA: Pioneer

HOLE NO.: K 36

COLLAR COORDINATES:

SURFACE R.L.:

BASEMENT R.L.:

Date: 10-7-78  
20-7-78

Driller:

G. Selby

Assistant:

N. Steavens

Sample Washer:

S. Moore

Geologist:

N.G.P.

Cutting shoe diameter: 6.31"

Casing diameter: 6"

Section Feet		Sample No.	Recovered Volume (ft <sup>3</sup> )	Theoretical Volume (ft <sup>3</sup> )	Corrected Volume (ft <sup>3</sup> )	Weight Concentration (gms)	Concentrate Assay (Sn)	Value over Interval		Description of Sample
om	to							Sn <sub>2</sub> lbs/cuyd	SnO <sub>2</sub> kg/m <sup>3</sup>	
0	5	C0079	.30	1.086	.87	18.585	0.65	7.012	7.007	Fine & Coarse sand, mon & ilmenite, trace fine tin.
5	10	C0080	.65		.87	8.275	0.88	0.007	7.004	Ferricrete & Clay, mon & il
10	15	C0081	.85		.87	14.513	1.70	0.021	0.012	Ferricrete cement & minor clay, mon & ilm.
15	20	C0082	.40		.87	14.550	0.49	0.007	0.004	Coarse & fine sand, some ferricrete cement, mon & ilm.
20	25	C0083	.80		.87	21.200	1.00	7.021	0.012	Fine & coarse sand, mon & il
25	30	C0084	.50		.87	8.277	2.19	7.018	0.011	As above.
30	35	C0085	.90		.87	17.943	1.31	7.023	0.014	As Above.
35	40	C0086	.30		.87	10.473	0.70	0.007	0.004	Coarse & fine sand-clay, mon & ilm.
40	45	C0087	.90		.87	18.369	0.08	7.001	0.001	As Above.
45	50	C0088	.55		.87	16.407	0.19	0.003	0.002	As Above.
50	55	C0089	.60		.87	11.783	0.47	0.005	0.003	As Above.
55	60	C0090	.65		.87	8.258	0.33	7.003	0.002	Coarse & fine sand, clay, pe mon to iron fragments.
60	65	C0091	.80		.87	11.769	0.37	0.004	0.003	Coarse to fine sand, mon & ilmenite.
65	70	C0092	.46		.87	13.156	0.59	0.008	0.005	As Above.
70	75	C0093	.100		.87	14.711	0.24	0.003	0.002	Coarse & fine sand, clay, mo & ilm.

Drillers reported basement at 146 ft. some indication at 145 ft.

Interval of tin bearing wash 135-150 ft. @ 0.313 lb SnO<sub>2</sub>/yard<sup>3</sup>. - 0.186 kg/m<sup>3</sup> SnO<sub>2</sub>

Overall value from surface to 0-150 ft. @ 0.046 lb SnO<sub>2</sub> /yard<sup>3</sup> - (Cassiterite 70% Sn)

- 0.127 kg/m<sup>3</sup> SnO<sub>2</sub>

165165

# AMDEX MINING LIMITED - PERCUSSION DRILL LOG

154

45.2

Approx 52387 mN 77196 mE

89.75

AREA : Pioneer

HOLE NO. : K 36

COLLAR COORDINATES :

SURFACE R.L. :

BASEMENT R.L. :

Date: 10-7-78  
20-7-78

Driller:

G. Selby

Assistant:

N. Steavens

Sample Washer:

S. Moore

Geologist:

Cutting shoe diameter : 6.31"

Casing diameter : 6"

Section Feet		Sample No.	Recovered Volume (ft <sup>3</sup> )	Theoretical Volume (ft <sup>3</sup> )	Corrected Volume (ft <sup>3</sup> )	Weight Concentration (gms)	Concentration Assay (Sn)	Value over Interval SnO <sub>2</sub> lbs/cuyd		Description of Sample
From	To									
75	80	C0094	.90	1.086	.87	14.4986	0.04	0.001	0.000	Clay & Silt, monazite.
80	85	C0095	.70		.87	16.7076	0.14	0.002	0.001	Clay Silt, coarse to fine sand, mon, ilm.
85	90	C0096	.65		.87	12.945	0.22	0.003	0.002	Coarse sand, clay & silt, monazite.
90	95	C0097	.70		.87	18.510	0.13	0.002	0.001	Coarse to fine sand, clay, si monazite.
95	100	C0098	.60		.87	11.840	0.25	0.003	0.002	Coarse & fine sand, clay monazite.
100	105	C0099	.85		.87	16.552	0.15	0.002	0.001	As Above.
105	110	C0100	.10		.87	10.942	1.28	0.014	0.008	As Above with ilmenite.
110	115	C0201	1.2		.96	14.113	9.90	0.124	0.073	Coarse to fine sand, clay, wash, ilmenite, & monazite.
115	120	C0202	1.2		.96	8.824	4.74	0.036	0.022	Clay, wash, sand, silt, trace of tin, ilm, & mon.
120	125	C0203	.20		.87	17.018	1.20	0.020	0.012	Sand, clay, wash, ilm, & mon.
125	130	C0204	.10		.87	11.028	2.31	0.025	0.015	Sand, silt, clay, wash, trace of fine tin, ilm, & mon.
130	135	C0205	1.2		.96	16.389	4.94	0.072	0.043	Coarse sand, white clay, & wash, trace of fine tin, ilm & mon.
135	140	C0206	1.35		1.08	33.435	9.56	0.252	0.149	Coarse orange sand, white cl wash, trace of tin, ilm & mon.
140	145	C0207	1.1		.87	24.669	19.6	0.473	0.280	As Above.
145	150	C0208	2.1	granite in	1.68	23.421	18.0	0.214	0.127	Coarse sand, silt, clay, decomposed granite, trace ti ilm, py, mona.

Drillers reported basement at <sup>volume</sup> 146 ft. some indication at 145 ft

Interval of tin bearing wash 135-150 ft @ 0.313 Lb SnO<sub>2</sub>/ yard. 0.186 kg/m<sup>3</sup> SnO<sub>2</sub>

Overall value from surface to 0-150 ft 0.046 lb SnO<sub>2</sub> /yard (cassiterite 70% Sn) 0.027 kg/m<sup>3</sup> SnO<sub>2</sub>

165166

# AMDEX MINING LIMITED - PERCUSSION DRILL LOG

155

AREA: Pioneer HOLE NO.: K 37 COLLAR COORDINATES: 52411.5 mN 77095.4 mE SURFACE R.L.: 89.72 BASEMENT R.L.: 45.21

Date: 26-7-78 Driller: G. Selby Assistant: N. Stevens Sample Washer: S. Moore Geologist: L. McDonald Cutting shoe diameter: 6.31"  
 1-8-78 Casing diameter: 6"

Section Feet		Sample No.	Recovered Volume (ft <sup>3</sup> )	Theoretical Volume (ft <sup>3</sup> )	Corrected Volume (ft <sup>3</sup> )	Weight Concentration (gms)	Concentration Assay (Sn)	Value over Interval		Description of Sample
From	To							SnO <sub>2</sub> lbs/cuyd	SnO <sub>2</sub> kg/m <sup>3</sup>	
0	5	C0209	.75	1.086	80% Rad F. 0.87	9.696	3.15	0.030	0.018	Fine & Coarse sand, trace fine tin, monazite.
5	10	C0210	.90		0.87	8.377	3.54	0.029	0.017	Coarse & fine sand, mona & ilmenite.
10	15	C0211	.50		0.87	11.775	4.70	0.054	0.032	Coarse & fine sand, some clay, mona & ilm.
15	20	C0212	.65		0.87	16.166	1.33	0.021	0.012	As Above.
20	25	C0213	.90		0.87	10.785	0.83	0.009	0.005	As Above.
25	30	C0214	.60		0.87	15.610	1.15	0.018	0.011	Coarse & fine sand, mona & ilmenite.
30	35	C0215	.90		0.87	11.321	1.35	0.015	0.009	As Above.
35	40	C0216	.10		0.87	16.003	0.75	0.011	0.007	As Above with some clay.
40	45	C0217	.65		0.87	9.747	0.95	0.009	0.005	As Above. " " "
45	50	C0218	.65		0.87	5.336	1.03	0.005	0.003	As Above " " "
50	55	C0219	.70		0.87	21.008	0.82	0.017	0.010	As Above " " "
55	60	C0220	1.1		0.87	31.858	0.97	0.030	0.018	As Above " " "
60	65	C0221	1.1		0.87	14.865	1.22	0.018	0.011	Coarse & fine sand, mona & ilmenite.
65	70	C0222	.90		0.87	11.064	0.95	0.010	0.006	Coarse & fine sand, brown clay ilm & monazite.
70	75	C0223	.70		0.87	5.567	1.14	0.006	0.004	Coarse & fine sand, clay mona & ilmenite.

Drillers reported basement at 146 ft.

Interval of tin bearing wash 125-145 ft.

Overall value from surface to 0-145 ft.

@ 0.396 Lb SnO<sub>2</sub>/yard<sup>3</sup> = 0.235 kg /m<sup>3</sup>

@ 0.07 lb SnO<sub>2</sub> /yard<sup>3</sup> (cassiterite 70% Sn) = 0.044 kg/m<sup>3</sup>

165167



# AMDEX MINING LIMITED - PERCUSSION DRILL LOG

157

52,604.5 mN 77153.0 mE

AREA: Pioneer HOLE NO.: K 38 COLLAR COORDINATES: SURFACE R.L.: 95.54 BASEMENT R.L.: 44.25

Date: 4-8-78 Driller: G. Selby Assistant: N. Stevens Sample Washer: S. Moore Geologist: L. McDonald Cutting shoe diameter: 6.31"  
 16-8-78 G. Selby N. Stevens S. Moore L. McDonald Casing diameter: 6"

Section Feet		Sample No.	Recovered Volume (ft <sup>3</sup> )	Theoretical Volume (ft <sup>3</sup> )	Corrected Volume (ft <sup>3</sup> ) 80% Rad. F.	Weight Concentration (gms)	Concentration Assay (Sn)	Value over Interval		Description of Sample
From	To							SnO <sub>2</sub> lbs/cu yd	SnO <sub>2</sub> /m <sup>3</sup>	
0	5	C0239	.50	1.086	.87	6.294	3.02	0.019	0.011	Fine sand, brown cement, mon.
5	10	C0240	.55		.87	4.183	0.76	0.003	0.002	Coarse & fine sand, clay, mon
10	15	C0241	.90		.87	2.990	0.16	0.000	0.000	White Clay, monazite.
15	20	C0242	.60		.87	4.532	0.48	0.002	0.001	Coarse & fine sand, clay, mon & ilmenite.
20	25	C0243	.65		.87	11.322	2.28	0.025	0.015	As Above.
25	30	C0244	.70		.87	15.705	4.00	0.061	0.036	As Above, small amount clay.
30	35	C0245	.60		.87	16.008	3.53	0.055	0.033	As Above.
35	40	C0246	.80		.87	25.112	2.20	0.054	0.032	Small and white clay, mon & ilm.
40	45	C0247	.50		.87	29.652	1.57	0.046	0.027	Sand & small amount of clay mon & ilm.
45	50	C0248	.30		.87	12.149	1.59	0.019	0.011	Sand & gravel, mon & ilm.
50	55	C0249	.65		.87	8.023	3.88	0.030	0.018	Coarse & fine sand, small amount clay, mon & ilm.
55	60	C0250	.40		.87	6.641	1.13	0.007	0.004	Coarse & fine sand, clay mon & ilmenite.
60	65	C0251	.75		.87	7.558	2.02	0.015	0.009	As Above with brown clay.
65	70	C0252	.45		.87	9.728	2.75	0.019	0.011	As Above with white clay.
70	75	C0253	.60	√	.87	12.658	3.05	0.038	0.023	As Above.

Drillers reported basement at -135' 6" ft.

Interval of tin bearing wash 105' - 110ft. @ 0.142 lb / cu yd, 0.084 kg / m<sup>3</sup>

165169

Small amount of tin bearing wash 0 - 135' @ .045 lb SnO<sub>2</sub> / cu yd = .027 / kg / m<sup>3</sup> (monite 70% Sn)

# AMDEX MINING LIMITED - PERCUSSION DRILL LOG

158

AREA: Pioneer HOLE NO.: K 38 COLLAR COORDINATES: 52,604.5 mN 77133.0 mE SURFACE R.L.: 85.54 BASEMENT R.L.: 44.23

Date: 8-78 Driller: G. Selby Assistant: N. Stevens Sample Washer: S. Moore Geologist: L. McDonald Cutting shoe diameter: 6.31"  
 16-8-78 G. Selby N. Stevens S. Moore L. McDonald Casing diameter: 6"

Section Feet		Sample No.	Recovered Volume (ft <sup>3</sup> )	Theoretical Volume (ft <sup>3</sup> )	Corrected Volume (ft <sup>3</sup> ) 80% Rad	Weight Concentration (gms)	Concentration Assay (Sn)	Value over Interval		Description of Sample
from	to							Sn <sub>2</sub> lbs/cu yd	SnO <sub>2</sub> kg/m <sup>3</sup>	
75	80	C0254	.55	1.086	.87	7.970	3.00	0.023	0.014	Coarse & fine sand, some cla ilmenite & monazite.
80	85	C0255	.80		.87	13.405	3.07	0.040	0.024	Coarse & Fine yellow sand ilm & Mon.
85	90	256	.60		.87	13.895	4.34	0.059	0.035	As Above.
90	95	257	.95		.87	12.332	3.60	0.043	0.026	Coarse & fine sand, wash & clay, mon & ilm, & py.
95	100	258	.70		.87	21.346	2.22	0.046	0.028	Coarse & Fine sand, wash, cla pyrite, & ilmenite.
100	105	259	.30		.87	7.949	1.76	0.014	0.008	Sand stone, fine sand & clay pyrite, ilm, & mon.
105	110	260	.40		.87	17.962	8.27	0.145	0.087	Fine sand, clay & small wash pyrite, ilmenite & mon.
110	115	261	.40		.87	37.986	4.64	0.172	0.103	Sand & brown clay, py, ilm, mo
115	120	262	.55		.87	23.806	4.95	0.115	0.069	Sand, white & grey clay, coar wash, py, ilm, & mon.
120	125	263	.60		.87	34.709	4.02	0.136	0.082	Sand grey clay, small wash, peat, py, ilm, mon.
125	130	264	.40		.87	7.964	2.80	0.022	0.013	Coarse & fine sand, grey cla py, ilmenite & monazite.
130	135	265	.90		.87	9.388	1.80	0.017	0.010	Coarse & fine sand, soft gre granite, ilm, mon, py.
135	137	266	.80	.434	.64	3.685	0.36	(0.001)	0.000	Sand, decomposed granite, py ilmenite, monazite.

Drillers reported basement at 135' 6" ft.

Interval of tin bearing wash 105' - 110' @ .142 lb/cu yd, 0.085 kg/m<sup>3</sup>

Interval of tin bearing wash 105' - 110' @ .045 lb SnO<sub>2</sub>/cu yd = .027 kg/m<sup>3</sup> (tinite 70% Sn)

165170

# AMDEX MINING LIMITED - PERCUSSION DRILL LOG

159

AREA : Pioneer      HOLE NO. : K 39      COLLAR COORDINATES : 52613.1 mN 77029.7 mE      SURFACE R.L. : 88.81      BASEMENT R.L. : 44.00

Date : 30-8-78      Driller : G. Selby      Assistant : N. Stevens      Sample Washer : S. Moore      Geologist : L. McDonald      Cutting shoe diameter : 6.31  
 30-8-78

Section Feet		Sample No.	Recovered Volume (ft <sup>3</sup> )	Theoretical Volume (ft <sup>3</sup> )	Corrected Volume (ft <sup>3</sup> )	Weight Concentration (gms)	Concentration Assay (Sn)	Value over Interval Sn <sub>2</sub> lbs/cu yd	SnO <sub>2</sub> kg/m <sup>3</sup>	Description of Sample
From	To				80% Rad F.					
0	5	C0267	.60	1.086	.87	3.524	4.09	0.014	0.008	Coarse & Fine sand, trace of v fine tin, monazite.
5	10	C0268	.80		.87	5.158	9.79	0.049	0.029	White clay, fine sand, trace of very fine tin, m
10	15	C0269	1.20		.96	6.512	3.51	0.020	0.012	White clay, monazite.
15	20	C0270	.70		.87	8.461	0.24	0.002	0.001	White clay, monazite.
20	25	C0271	.90		.87	7.221	0.10	0.001	0.000	Coarse & fine sand, white clay, mon & ilm.
25	30	C0272	.55		.87	3.215	5.45	0.017	0.010	As Above.
30	35	C0273	.65		.87	4.785	7.48	0.035	0.021	Fine & Coarse sand, some white clay, mon & ilm.
35	40	C0274	.50		.87	5.760	4.50	0.025	0.015	Fine & Coarse sand, mon & ilm.
40	45	C0275	.40		.87	4.032	2.86	0.011	0.007	As Above.
45	50	C0276	.70		.87	7.405	3.03	0.022	0.013	Coarse & fine sand, clay monazite & Ilmenite.
50	55	C0277	.60		.87	8.063	1.70	0.013	0.008	As Above with white clay
55	60	C0278	.85		.87	21.331	7.60	0.159	0.094	As Above.
60	65	C0279	.55		.87	14.111	5.76	0.080	0.047	As Above.
65	70	C0280	.70		.87	17.425	1.20	0.020	0.012	As Above with pyrite.
70	75	C0281	.70		.87	22.694	0.36	0.008	0.005	As Above.

Drillers reported basement at 147 ft.  
 Interval of tin bearing wash 115-130 ft. @ 0.420 lb/cu yd 0.249 kg/m<sup>3</sup>      **165171**  
140-150 ft. @ 1.976 lbs/cu yd.  
 Overall value from surface to 150 ft. @ 1.976 lb SnO<sub>2</sub> /yard (cassiterite 70% Sn)

# AMDEX MINING LIMITED - PERCUSSION DRILL LOG

52613.1 mN 77029.7 mE

88.81      160      44.30

AREA : Pioneer

HOLE NO. : K 39

COLLAR COORDINATES :

SURFACE R.L.:

BASEMENT R.L.:

Date: <sup>21-8-78</sup> 30-8-78      Driller: G. Selby      Assistant: N. Stevens      Sample Washer: S. Moore      Geologist: L. McDonald      Cutting shoe diameter : 6.31"      Casing diameter : 6.0"

Section Feet		Sample No.	Recovered Volume (ft <sup>3</sup> )	Theoretical Volume (ft <sup>3</sup> )	Corrected Volume (ft <sup>3</sup> )	Weight Concentrate (gms)	Concentrate Assay (Sn)	Value over Interval		Description of Sample
From	To							SnO <sub>2</sub> lbs/cu yd		
75	80	C0282	.75	1.086	.87	12.628	0.55	0.007	0.004	Coarse & Fine sand, yellow clay, small wash, mon & ilm
80	85	C0283	.60		.87	14.052	2.56	0.035	0.021	As Above.
85	90	C0284	1.10		.87	9.846	2.10	0.020	0.012	Coarse & Fine sand, silt yellow clay, mon & ilm.
90	95	C0285	1.15		.92	9.475	2.24	0.020	0.012	Coarse yellow sand, yellow clay silt ilm & Mon.
95	100	C0286	1.70		1.36	10.631	3.93	0.026	0.016	Coarse & Fine yellow sand yellow clay, wash ilm & mon
100	105	C0287	1.85		1.48	11.908	2.78	0.019	0.011	Coarse & Fine sand, big wash clay ilm & monazite.
105	110	C0288	1.20		.96	7.428	10.16	0.067	0.040	As Above.
110	115	C0289	1.30		1.04	10.286	12.75	0.107	0.064	Coarse yellow sand etc as above.
115	120	C0290	.90		.87	20.559	20.65	0.415	0.246	Sand, clay, gravel & big wash, ilm, monazite & pyrite.
120	125	C0291	.30		.87	18.747	15.22	0.279	0.166	Grey clay, wash & sand, ilm, mon & Pyrite.
125	130	C0292	.90		.87	43.071	13.44	0.566	0.336	Clay, sand, & wash, ilm, mon & Pyrite.
130	135	C0293	.90		.87	12.418	3.64	0.044	0.026	Clay sand & some wash ilm, mon & pyrite.
135	140	C0294	1.40		1.12	13.6673	7.90	0.082	0.049	Sand clay & wash, ilm, py & Monazite.
140	145	C0295	.65		.87	72.190	19.08	1.347	0.799	Coarse & fine sand, soft granite, big wash, ilm, mon, p
145	150	C0296	1.20		.96	108.100	27.20	2.606	1.546	spinel.

Drillers reported basement at 147 ft.

Interval of tin bearing wash 115-130 ft.

Overall value from surface to 150 ft.

@0.420 lbs /cu yd. 0.249 kg/m<sup>3</sup>.  
@1.976 lbs/cu yd 1.172 kg/m<sup>3</sup>

Coarse & fine sand, wash, decomposed granite, trace tin, ilm, mon.

SnO<sub>2</sub> (Monazite, 70% Sn)

1651  
165172

# AMDEX MINING LIMITED - PERCUSSION DRILL LOG

52,656.7mM  
46.83

A: Pioneer HOLE NO.: K 40 COLLAR COORDINATES: 76,936.7mE SURFACE R.L.: 90.12m BASEMENT R.L.:

4-9-78 Driller: Assistant: Sample Washer: Geologist: Cutting shoe diameter: 6.31"  
13-9-78 G. Selby N. Stevens S. Moore L. McDonald Casing diameter: 6"

on Feet	Sample No.	Recovered Volume (ft <sup>3</sup> )	Theoretical Volume (ft <sup>3</sup> )	Corrected Volume (ft <sup>3</sup> )	Weight Concentrate (gms)	Concentration Assay (Sn)	Value over Interval		Description of Sample	
							SnO <sub>2</sub> lbs/cuyd	SnO <sub>2</sub> kg/m <sup>3</sup>		
0	5	C0297	.65	1.086	.87	4.740	10.927	0.051	0.030	Trace of very fine tin, monazite Coarse & fine sand.
5	10	C0298	.90		.87	8.187	2.82	0.023	0.013	Coarse & fine sand, small amount clay, monazite.
10	15	C0299	.45		.87	10.082	0.44	0.004	0.003	Coarse & fine sand, white clay monazite.
15	20	C0300	.30		.87	5.360	2.30	0.012	0.007	As Above with ilmenite.
20	25	C1501	.80		.87	6.468	1.40	0.009	0.005	Coarse & fine sand, monazite ilmenite.
25	30	C1502	.60		.87	10.307	1.37	0.014	0.008	As Above.
30	35	C1503	.75		.87	11.276	1.76	0.019	0.012	As Above with white clay.
35	40	C1504	1.15		.92	5.695	1.04	0.005	0.003	As Above.
40	45	C1505	.25		.87	9.085	0.97	0.009	0.005	As Above.
45	50	C1506	.90		.87	15.856	3.55	0.055	0.032	As Above.
50	55	C1507	.40		.87	16.626	3.55	0.058	0.034	As Above.
55	60	C1508	.90		.87	15.345	3.63	0.054	0.032	As Above.
60	65	C1509	1.00		.87	6.794	1.61	0.011	0.006	As Above.
65	70	C1510	.35		.87	17.232	0.61	0.010	0.006	As Above.
70	75	C1511	1.00		.87	25.120	0.94	0.023	0.013	As Above with small pebbles

ars reported basement at 142 ft.

Interval of tin bearing wash 135-142 ft. @ 1.041 lb SnO<sub>2</sub>/yd<sup>3</sup> - 0.617 kg/m<sup>3</sup> SnO<sub>2</sub>

Value from surface to 142 ft @ 0.079 lb SnO<sub>2</sub> /yard (cassiterite 70% Sn)

165173

# AMDEX MINING LIMITED - PERCUSSION DRILL LOG

A : Pioneer HOLE NO. : K 40 COLLAR COORDINATES : 52,656.7 N SURFACE RL.: 90.12M BASEMENT RL.: 46.90  
 76,936.7 E

162

4-9-78 Driller: Assistant: Sample Washer: Geologist: Cutting shoe diameter : 6.31"  
 13-9-78 G. Selby N. Stevens S. Moore L. McDonald Casing diameter : 6"

on Feet	Sample No.	Recovered Volume (ft <sup>3</sup> )	Theoretical Volume (ft <sup>3</sup> )	Corrected Volume (ft <sup>3</sup> )	Weight Concentrate (gms)	Value over Interval			Description of Sample	
						Concentration Assay (Sn)	Sn <sub>2</sub> lbs/cuyd	SnO <sub>2</sub> kg/m <sup>3</sup>		
75	80	C1512	1.00	1.086	.87	23.092	1.17	0.026	0.016	Coarse & fine sand, white clay pebbles, ilmenite & monazite.
80	85	C1513	.40		.87	36.706	0.82	0.029	0.017	As Above.
85	90	C1514	.90		.87	12.600	0.65	0.010	0.006	Coarse & fine sand, orange clay conglomerate, ilmenite & monazite.
90	95	C1515	1.40		1.12	8.020	0.40	0.002	0.001	As Above.
95	100	C1516	1.25		1.00	9.700	0.50	0.004	0.002	Coarse & fine sand, yellow clay monazite & ilmenite.
100	105	C1517	1.40		1.12	21.912	1.46	0.024	0.014	Coarse yellow gravel, brown (Fe cement conglomerate ilm & mon.
105	110	C1518	.90		.87	24.522	0.35	0.008	0.005	Coarse sand brown clay, peat, mon ilmenite, pyrite.
110	115	C1519	.75		.87	100.251	BLD	-	-	Coarse & fine sand, conglomerate clay, abundant pyrite.
115	120	C1520	.80		.87	32.512	0.30	0.019	0.006	As Above with peat.
120	125	C1521	.70		.87	22.164	2.03	0.044	0.026	Coarse & fine sand, grey clay, conglomerate, pyrite.
125	130	C1522	1.20		.96	28.713	6.63	0.169	0.100	As Above with ilmenite.
130	135	C1523	1.00		.87	32.296	3.40	0.107	0.064	As Above no ilmenite.
135	140	C1524	.85		.87	52.756	21.00	1.084	0.643	Coarse & fine sand, clay wash, i. monazite, pyrite.
140	142	C1525	.65	.434	.52	23.970	23.80	.934	0.554	Coarse & fine sand, decomposed granite, ilmenite monazite, pyri

irs reported basement at 142 ft.

erval of tin bearing wash 135-142 ft. @1.041 lb SnO<sub>2</sub>/yd<sup>3</sup> = 0.617 kg/m<sup>3</sup> SnO<sub>2</sub>

all value from surface to 142 ft 0.779 lb SnO<sub>2</sub> / yard (cassiterite 70% Sn)

165174

# AMDEX MINING LIMITED - PERCUSSION DRILL LOG

52574.3 mN    77,327.2 mE    83.30 m    51.3 m <sup>163</sup>

AREA: Pioneer HOLE NO.: K 41 COLLAR COORDINATES: SURFACE R.L.: BASEMENT R.L.:

Date: 20-9-78 Driller: G. Selby Assistant: N. Stevens Sample Washer: S. Moore Geologist: L. McDonald Cutting shoe diameter: 16.03 cm  
 21-9-78 Theoretical Volume: 0.049 m<sup>3</sup> Casing diameter: 15.24 cm

Section	Metres	Sample No.	Recovered Volume %	Corrected Volume m <sup>3</sup>	Weight (gms) Concentrate	Concentrate Assay % Sn	Value over Interval		Description of Sample
							SnO <sub>2</sub> kg/m	SnO <sub>2</sub> lbs/yd <sup>3</sup>	
From	To		x 100	80% RadF.					
0	2	C1526	0.40	0.032	13.9416	6.44	0.040	0.068	Coarse & fine sand, yellow clay ilmenite & monazite.
2	4	C1527	0.47	0.032	16.9237	4.86	0.037	0.062	As Above.
4	6	C1528	0.55	0.032	16.9230	6.19	0.047	0.079	As Above.
6	8	C1529	0.77	0.032	13.2590	10.47	0.062	0.105	As Above with white clay.
8	10	C1530	0.32	0.032	13.4000	4.30	0.026	0.043	Coarse & fine sand, white clay ilmenite & monazite.
10	12	C1531	0.47	0.032	11.2047	6.63	0.033	0.056	As Above.
12	14	C1532	0.69	0.032	10.9631	6.26	0.031	0.052	As Above.
14	16	C1533	0.57	0.032	13.2456	3.14	0.019	0.031	As Above.
16	18	C1534	0.57	0.032	10.5472	4.63	0.022	0.038	As Above.
18	20	C1535	0.40	0.032	13.5150	2.18	0.013	0.022	As Above.
20	22	C1536	0.73	0.032	11.5884	4.38	0.023	0.038	As Above.
22	24	C1537	0.45	0.032	17.4440	7.05	0.055	0.093	As Above.
24	26	C1538	0.45	0.032	39.9148	4.68	0.083	0.141	As Above.
26	28	C1539	0.61	0.032	45.6060	7.96	0.060	0.102	Coarse yellow sand, brown Fe cement yellow clay, ilm & mon.
28	30	C1540	0.75	0.032	17.3430	5.08	0.039	0.066	Coarse & fine sand, conglomerate silt, clay, ilmen & mona.

Drillers reported basement at 32.0 m. Overall value from surface to 33 m. 0.062 kg SnO<sub>2</sub>/m<sup>3</sup>  
 Interval of tin bearing wash 30-33 m. 0.104 lbs SnO<sub>2</sub>/yd<sup>3</sup>  
 @0.287 kg/m<sup>3</sup>; 0.485 lb/cu yd. SnO<sub>2</sub> (cassiterite 70% Sn)

**165175**



# AMDEX MINING LIMITED - PERCUSSION DRILL LOG

165  
49.73

52531.1 mN 77,325.4 mE  
73.48m

AREA: Pioneer HOLE NO.: K 42 COLLAR COORDINATES: SURFACE R.L.: BASEMENT R.L.:

Date: 21-9-78 Driller: A. Watson Assistant: M. Moore Sample Washer: S. Moore Geologist: L. McDonald Cutting shoe diameter: 16.03 cm  
Theoretical Volume: 0.040 m<sup>3</sup> Casing diameter: 15.24 cm

Section Metres		Sample No.	Recovered Volume %	Corrected Volume m <sup>3</sup>	Weight (gms) Concentrate	Concentrate Assay % Sn	Value over Interval		Description of Sample
From	To						SnO <sub>2</sub> kg/m	SnO <sub>2</sub> lbs/yd <sup>3</sup>	
			x 100	87% Rad F.					
	2	C0601	.62	0.032	10.702	5.60	0.027	0.045	Coarse & fine sand, yellow clay ilmenite & monazite.
2	4	C0602	.67	0.032	21.360	7.21	0.069	0.116	Coarse & fine sand, white clay, monazite & ilmenite.
4	6	C0603	.50	0.032	7.172	3.51	0.002	0.003	White clay, trace, monazite.
6	8	C0604	.73	0.032	17.435	4.79	0.037	0.063	Coarse & fine sand, ilm & mon.
8	10	C0605	.61	0.032	20.762	7.22	0.067	0.113	As Above with white clay.
10	12	C0606	.73	0.032	18.638	3.90	0.032	0.055	As Above.
12	14	C0607	.72	0.032	59.493	10.88	0.289	0.487	As Above.
14	16	C0608	.88	0.032	41.417	12.64	0.234	0.394	As Above with yellow clay.
16	18	C0609	.63	0.032	53.635	3.81	0.091	0.154	Coarse yellow sand, brown (Fe) cement, clay, ilmenite & monazite
18	20	C0610	1.17	0.037	76.666	8.52	0.252	0.425	Coarse & fine yellow sand, white clay, ilmenite & monazite.
20	22	C0611	.85	0.032	157.757	53.5	3.648	6.1525	Coarse & fine sand, white clay conglomerate, ilmenite.
22	24	C0612	1.48	0.047	225.90	56.1	3.852	6.496	Coarse & fine sand, clay silt, conglomerate granite frags, ilm.
24	25	C0613	.75	0.024	26.620	30.6	0.485	0.818	Coarse & fine sand, decomposed granite, ilmenite & pyrite.

Drillers reported basement at 23.75 m. Overall value from surface to 25 m. 0.707 kg SnO<sub>2</sub>/m<sup>3</sup>  
 Interval of tin bearing wash 18-25 m. 1.192 lbs SnO<sub>2</sub>/yd<sup>3</sup>  
 @ 2.284 kg/m<sup>3</sup> 3.852 lbs/cu yd SnO<sub>2</sub> (cassiterite 70% Sn)

165177

# AMDEX MINING LIMITED - PERCUSSION DRILL LOG

166

AREA: Pioneer HOLE NO.: K 43      COLLAR COORDINATES: 52,414.2mN - 77,380.4mE      SURFACE R.L.: 80.83 m      BASEMENT R.L.: 47.4m

Date: 26-9-78      Driller: A. Watson      Assistant: M. Moore      Sample Washer: S. Moore      Geologist: L. McDonald      Cutting shoe diameter: 16.03 cm  
 27-9-78      Theoretical Volume: 0.049m<sup>3</sup>      Casing diameter: 15.24 cm

Section	Metres	Sample No.	Recovered Volume %	Corrected Volume m <sup>3</sup>	Weight (gms) Concentrate	Concentrate Assay % Sn	Value over Interval		Description of Sample
							SnO <sub>2</sub> kg/m	SnO <sub>2</sub> lbs/yd <sup>3</sup>	
From	To		x 100						
0	2	C0614	0.73	0.032	19.135	5.04	0.043	0.072	Coarse & fines sand, white clay monazite & ilmenite.
2	4	C0615	0.60	0.032	18.508	4.10	0.034	0.057	As Above.
4	6	C0616	0.64	0.032	22.956	4.23	0.043	0.073	As Above brown clay.
6	8	C0617	0.83	0.032	97.125	2.04	0.088	0.149	As Above yellow clay.
8	10	C0618	0.56	0.032	56.368	2.28	0.072	0.122	As Above.
10	12	C0619	0.75	0.032	48.015	5.10	0.109	0.184	As Above white clay.
12	14	C0620	0.65	0.032	31.430	4.05	0.057	0.096	As Above.
14	16	C0621	0.38	0.032	20.865	2.61	0.024	0.041	As Above.
16	18	C0622	0.73	0.032	39.340	2.40	0.042	0.071	As Above.
18	20	C0623	0.76	0.032	31.075	2.02	0.028	0.047	As Above.
20	22	C0624	0.62	0.032	31.118	1.52	0.021	0.036	As Above.
22	24	C0625	0.51	0.032	23.945	1.26	0.013	0.023	As Above.
24	26	C0626	0.38	0.032	32.701	2.14	0.031	0.053	As Above.
26	28	C0627	0.90	0.032	25.378	2.40	0.027	0.046	As Above.
28	30	C0628	0.89	0.032	51.413	37.6	0.863	1.455	Coarse & fine sand, white & yellow clay, pebbles, ilmenite.

Drillers reported basement at 33.5 m.      Overall value from surface to 34 m. 0.220 kg SnO<sub>2</sub>/m<sup>3</sup>  
 Interval of tin bearing wash 28-34 m.      0.372 lbs SnO<sub>2</sub>/yd<sup>3</sup>

@1.039 kg/m<sup>3</sup> ; 1.752 lb/cu yd SnO<sub>2</sub>      (cassiterite 70% Sn)

165178



# AMDEX MINING LIMITED - PERCUSSION DRILL LOG

168

52,489.8 mN 77,321.7 mE

74.39 m

47.90 m

AREA: Pioneer HOLE NO.: K 44

COLLAR COORDINATES:

SURFACE R.L.:

BASEMENT R.L.:

Date: 29-9-78 Driller: G. Selby Assistant: N. Steven Sample Washer: S. Moore Geologist: L. McDonald  
 2-10-78 Theoretical Volume: 0.047 m<sup>3</sup> Cutting shoe diameter: 16.03 cm  
 Casing diameter: 15.24 cm

Section Metres		Sample No.	Recovered Volume %	Corrected Volume m <sup>3</sup>	Weight (gms) Concentrate	Concentrate Assay % Sn	Value over Interval		Description of Sample
From	To						SnO <sub>2</sub> kg/m	SnO <sub>2</sub> lbs/yd <sup>3</sup>	
			x 100						
	2	C1543	0.62	0.032	17.403	3.08	0.024	0.040	Coarse & fine sand, white clay, ilmenite & monazite.
2	4	C1544	0.66	0.032	33.964	3.87	0.059	0.099	As Above.
4	6	C1545	0.85	0.032	15.889	1.88	0.013	0.022	White clay, small amount coarse & fine sand, ilmenite & monazite.
6	8	C1546	1.06	0.034	20.676	0.39	0.003	0.006	White clay trace of monazite.
8	10	C1547	0.81	0.032	32.614	1.76	0.026	0.043	Coarse & fine sand, white clay ilmenite & monazite.
10	12	C1548	0.65	0.032	31.594	2.60	0.037	0.062	As Above.
12	14	C1549	0.86	0.032	50.114	4.02	0.090	0.152	As Above.
14	16	C1550	1.03	0.033	46.201	3.78	0.076	0.127	As Above.
16	18	C1551	1.21	0.039	56.763	3.87	0.080	0.136	Coarse yellow sand, white clay ilmenite & monazite.
18	20	C1552	0.91	0.032	48.060	6.26	0.134	0.226	As Above with yellow clay.
20	22	C1553	1.91	0.061	84.112	26.65	0.525	0.885	Coarse yellow sand, yellow clay conglomerate, ilmenite.
22	24	C1554	1.75	0.056	139.055	15.15	0.537	0.906	Coarse & fine yellow sand, yellow clay, conglomerate, tin, ilmenite.
24	26	C1555	0.63	0.032	109.387	2.31	0.113	0.190	As Above.
26	27	C1556	0.94	0.030	115.234	2.20	0.121	0.204	Coarse & fine sand, conglomerate granite tin ilmenite

Drillers reported basement at 26.5 m. Overall value from surface to 27 m. 0.135 kgSnO<sub>2</sub>/m<sup>3</sup>  
 Interval of tin bearing wash 18-27 m. 0.227 lbsSnO<sub>2</sub>/yd<sup>3</sup>  
 @ 0.304 kg/m<sup>3</sup> ; 0.513 lbs/cu yd SnO<sub>2</sub> (cassiterite 70% Sn)

# AMDEX MINING LIMITED - PERCUSSION DRILL LOG

169  
45.7

52,508.3 mN 77,348.0 mE

73.28

AREA: Pioneer HOLE NO.: K 45 COLLAR COORDINATES: SURFACE R.L.: BASEMENT R.L.:

Date: 4-10-78 Driller: Assistant: M. Moore Sample Washer: S. Moore Geologist: L. Cutting shoe diameter: 16.03 cm  
 6-10-78 A. Watson Theoretical Volume: 0.040 m<sup>3</sup> McDonald Casing diameter: 15.24 cm

Section	Metres	Sample No.	Recovered Volume %	Corrected Volume m <sup>3</sup>	Weight (gms) Concentrate	Concentrate Assay % Sn	Value over Interval		Description of Sample
							SnO <sub>2</sub> kg/m	SnO <sub>2</sub> lbs/yd <sup>3</sup>	
From	To		x 100	80% Red F.					
0	2	C0631	0.51	0.032	20.017	4.38	0.039	0.066	Coarse & fine sand, white clay monazite & ilmenite.
2	4	C0632	0.53	0.032	26.652	3.58	0.043	0.072	As Above.
4	6	C0633	0.67	0.032	24.766	1.86	0.021	0.035	As Above.
6	8	C0634	0.66	0.032	28.966	1.74	0.023	0.038	As Above.
8	10	C0635	0.52	0.032	18.432	4.66	0.038	0.065	As Above.
10	12	C0636	0.88	0.032	37.135	5.75	0.095	0.161	As Above.
12	14	C0637	0.63	0.032	27.051	4.01	0.048	0.082	As Above.
14	16	C0638	0.46	0.032	21.565	5.42	0.052	0.088	As Above.
16	18	C0639	0.80	0.032	59.691	2.98	0.079	0.134	Coarse & fine yellow sand, yell clay, ilmenite monazite.
18	20	C0640	0.50	0.032	41.364	6.74	0.124	0.210	As Above with white clay.
20	22	C0641	0.72	0.032	93.750	11.63	0.487	0.821	As Above with conglomerate, trace tin.
22	24	C0642	0.82	0.032	71.139	14.00	0.445	0.750	Coarse & fine sand, yellow clay coarse conglomerate, tin, mon, ilm.
24	26	C0643	0.82	0.032	45.395	15.85	0.321	0.542	Coarse & fine yellow sand yellow clay, tin ilmenite monazite.
26	28	C0644	0.85	0.032	62.939	11.50	0.323	0.545	Coarse & fine sand, conglomerate granite, tin ilmenite mona pyrite

Drillers reported basement at 27.5 m. Overall value from surface to 28 m. 0.153 kg SnO<sub>2</sub>/m<sup>3</sup>  
 Interval of tin bearing wash 18-28 m. 0.258 lbs SnO<sub>2</sub>/yd<sup>3</sup>  
 @ 0.340 kg/m<sup>3</sup> ; 0.573 lbs/cu yd SnO<sub>2</sub>. (cassiterite 70% Sn)

165181

# AMDEX MINING LIMITED - PERCUSSION DRILL LOG

170  
48.38 m

52,388.0 mN    77,424.7 mE

80.38 m

AREA: Pioneer HOLE NO.: K 46    COLLAR COORDINATES:    SURFACE R.L.:    BASEMENT R.L.:

Date: 5-10-78    Driller: Assistant: N. Steve    Sample Washer: S.    Geologist: L.    Cutting shoe diameter: 16.03 cm  
 11-10-78    G. Selby    Theoretical Volume: 0.040 m<sup>3</sup>    Moore    McDonald    Casing diameter: 15.24 cm

Section	Metres	Sample No.	Recovered Volume %	Corrected Volume m <sup>3</sup>	Weight (gms) Concentrate	Concentrate Assay %Sn	Value over Interval		Description of Sample
							SnO <sub>2</sub> kg/m	SnO <sub>2</sub> lbs/yd <sup>3</sup>	
From	To		x 100	60% Red F.					
0	2	C1557	0.63	0.032	12.331	2.07	0.011	0.019	Coarse & fine sand, monazite & ilmenite.
2	4	C1558	0.47	0.032	13.283	3.72	0.022	0.037	As Above.
4	6	C1559	0.72	0.032	47.986	3.77	0.081	0.136	As Above with brown clay.
6	8	C1560	0.55	0.032	72.295	1.76	0.057	0.096	Coarse & fine sand monazite & ilmenite.
8	10	C1561	0.77	0.032	55.866	1.84	0.046	0.077	As Above.
10	12	C1562	0.61	0.032	24.101	1.38	0.015	0.025	As Above with brown clay.
12	14	C1563	0.63	0.032	23.571	3.35	0.035	0.059	Coarse & fine sand, white clay ilmenite & monazite.
14	16	C1564	0.38	0.032	35.813	1.06	0.017	0.029	As Above.
16	18	C1565	0.23	0.032	22.394	0.63	0.006	0.010	As Above.
18	20	C1566	0.90	0.032	43.772	3.84	0.075	0.127	As Above.
20	22	C1567	0.48	0.032	22.467	2.28	0.023	0.039	As Above.
22	24	C1568	0.71	0.032	34.094	7.05	0.107	0.181	As Above.
24	26	C1569	0.48	0.032	37.753	4.00	0.067	0.114	As Above.
26	28	C1570	0.87	0.032	53.999	3.93	0.095	0.160	As Above.
28	30	C1571	1.69	0.054	36.698	23.40	0.227	0.383	As Above with tin.

Drillers reported basement at 32 m.    Overall value from surface to 32 m. 0.059 kg SnO<sub>2</sub>/m<sup>3</sup>  
 Interval of tin bearing wash          m.    0.099 lbs SnO<sub>2</sub>/yd<sup>3</sup>

(cassiterite 70% Sn)  
165182



# AMDEX MINING LIMITED - PERCUSSION DRILL LOG

172

50.2m

52.650 mN 77300 mE

84.70 m

AREA: Pioneer HOLE NO.: K 47

COLLAR COORDINATES:

SURFACE R.L.:

BASEMENT R.L.:

Date: 12-10-78 Driller: G. Selby Assistant: N. Steven Sample Washer: S. Moor Geologist: L. McDonald Cutting shoe diameter: 16.03 cm  
 18-10-78 Theoretical Volume: 0.040 m<sup>3</sup> Casing diameter: 15.24 cm

Section Metres		Sample No.	Recovered Volume %	Corrected Volume m <sup>3</sup>	Weight (gms) Concentrate	Concentrate Assay % Sn	Value over Interval		Description of Sample
From	To						SnO <sub>2</sub> kg/m	SnO <sub>2</sub> lbs/yd <sup>3</sup>	
0	2	C0645	0.40	0.032	17.684	0.20	0.002	0.003	Coarse & fine sand, top soil yellow clay, trace of very fine tin, mon.
2	4	C0646	0.20	0.032	25.694	1.00	0.011	0.019	Coarse & fine sand, white clay fine tin, ilmenite & monazite.
4	6	C0647	0.68	0.032	42.937	1.48	0.028	0.048	Coarse & fine sand, white clay monazite & ilmenite.
6	8	C0648	0.73	0.032	54.814	1.17	0.029	0.048	As Above.
8	10	C0649	0.43	0.032	47.622	1.28	0.027	0.046	As Above.
10	12	C0650	0.75	0.032	34.615	1.78	0.028	0.046	As Above.
12	14	C0651	0.53	0.032	96.607	3.58	0.154	0.260	As Above.
14	16	C0652	0.71	0.032	67.326	3.26	0.098	0.165	As Above.
16	18	C0653	0.53	0.032	66.879	1.52	0.045	0.077	As Above.
18	20	C0654	0.33	0.032	35.800	1.57	0.025	0.042	As Above.
20	22	C0655	0.63	0.032	33.149	1.99	0.029	0.050	As Above.
22	24	C0656	0.59	0.032	41.159	1.95	0.036	0.060	As Above.
24	26	C0657	0.58	0.032	45.848	1.22	0.025	0.042	As Above.
26	28	C0658	0.63	0.032	38.578	4.64	0.080	0.135	Coarse & fine yellow sand then as above.
28	30	C0659	0.05	0.034	43.592	8.18	0.150	0.253	Coarse & fine yellow sand, yellow clay, pebbles ilmenite & monazite

Drillers reported basement at 34.5 m. Overall value from surface to 36 m. 0.080 kg SnO<sub>2</sub>/m<sup>3</sup>  
 Interval of tin bearing wash                      m. 0.135 lbs SnO<sub>2</sub>/yd<sup>3</sup>  
 (cassiterite 70% Sn)



# AMDEX MINING LIMITED - PERCUSSION DRILL LOG

52450 mN 77300 mE

84.05

174 51.55

AREA: Pioneer HOLE NO.: K 48

COLLAR COORDINATES:

SURFACE R.L.:

BASEMENT R.L.:

Date: 19-10-78

Driller: G. Selby Assistant: B. O'Neal Sample Washer: S. Moore Geologist: N.C.P.

Cutting shoe diameter: 16.03cm

20-10-78

Theoretical Volume: 0.049 m<sup>3</sup>

Casing diameter: 15.24cm

Section Metres		Sample No.	Recovered Volume %	Corrected Volume m <sup>3</sup>	Weight (gms) Concentrate	Concentrate Assay % Sn	Value over Interval		Description of Sample
From	To						SnO <sub>2</sub> kg/m	SnO <sub>2</sub> lbs/yd <sup>3</sup>	
			x 100	80% R <sub>0</sub> F,					
0	2	C1575	9.51	0.032	25.777	1.62	0.019	0.031	Coarse & fine sand, white & brown clay, monazite & ilmenite.
2	4	C1576	0.41	0.032	24.731	0.55	0.006	0.010	Coarse & fine sand, white clay monazite & ilmenite.
4	6	C1577	0.63	0.032	42.114	2.02	0.038	0.064	Coarse & fine sand, ilmenite & monazite.
6	8	C1578	0.45	0.032	21.433	1.65	0.016	0.027	As Above.
8	10	C1579	0.53	0.032	47.190	2.42	0.051	0.086	As Above with white clay.
10	12	C1580	0.44	0.032	35.537	2.15	0.034	0.058	As Above.
12	14	C1581	0.64	0.032	20.708	1.79	0.017	0.028	As Above.
14	16	C1582	0.73	0.032	28.376	0.89	0.011	0.019	As Above.
16	18	C1583	0.55	0.032	23.111	1.02	0.011	0.018	As Above.
18	20	C1584	0.44	0.032	22.874	0.89	0.009	0.015	Coarse & fine sand, ilmenite & monazite.
20	22	C1585	0.59	0.032	27.689	1.28	0.016	0.027	As Above.
22	24	C1586	0.59	0.032	25.301	0.91	0.010	0.017	As Above with white clay.
24	26	C1587	0.63	0.032	33.939	2.15	0.033	0.055	As Above.
26	28	C1588	0.75	0.032	40.964	1.56	0.029	0.048	As Above with yellow clay.
28	30	C1589	0.53	0.032	35.822	6.77	0.108	0.183	Coarse & fine yellow sand, yellow clay, trace of tin, ilm & mon.

Drillers reported basement at 32.5 m.

Overall value from surface to 34 m. 0.049 kg SnO<sub>2</sub>/m<sup>3</sup>

Interval of tin bearing wash ----- m.

0.083 lbs SnO<sub>2</sub>/yd<sup>3</sup>

(Cassiterite 70% Sn)



# AMDEX MINING LIMITED - PERCUSSION DRILL LOG 176

52,600 mN 77,300 m E

84.84 m

52.59

AREA: Pioneer HOLE NO.: K 49 COLLAR COORDINATES: SURFACE R.L.: BASEMENT R.L.:

Date: 20-10-78 Driller: Assistant: N. Stevens Sample Washer: S. Moore Geologist: N.G.P. Cutting shoe diameter: 16.03 cm  
 24-10-78 A. Watson Theoretical Volume: 0.040 m<sup>3</sup> Casing diameter: 15.24 cm

Section Metres		Sample No.	Recovered Volume %	Corrected Volume m <sup>3</sup>	Weight (gms) Concentrate	Concentrate Assay % Sn	Value over Interval		Description of Sample
From	To		x 100	60% Rec F.			SnO <sub>2</sub> kg/m	SnO <sub>2</sub> lbs/yd <sup>3</sup>	
0	2	C0663	0.80	0.032	15.243	2.82	0.019	0.032	Top soil coarse & fine sand brown (Fe) cement trace of very fine tin, ilmenite & monazite.
2	4	C0664	0.60	0.032	11.950	3.56	0.019	0.032	Coarse & fine sand, fine tin ilmenite mona.
4	6	C0665	0.66	0.032	51.044	1.45	0.033	0.056	Coarse & fine sand, white clay, ilmenite & monazite.
6	8	C0666	0.62	0.032	47.590	2.40	0.051	0.086	As Above.
8	10	C0667	0.42	0.032	43.765	1.82	0.036	0.060	Coarse & fine sand, ilmenite & monazite.
10	12	C0668	0.70	0.032	42.809	3.28	0.063	0.106	As Above with white clay.
12	14	C0669	0.62	0.032	26.238	3.46	0.041	0.068	As Above.
14	16	C0670	0.67	0.032	31.195	2.31	0.032	0.054	As Above.
16	18	C0671	0.43	0.032	38.577	1.14	0.020	0.033	As Above.
18	20	C0672	0.73	0.032	33.208	1.23	0.018	0.031	As Above.
20	22	C0673	0.58	0.032	46.631	1.19	0.025	0.042	As Above.
22	24	C0674	0.73	0.032	46.289	2.97	0.061	0.103	As Above.
24	26	C0675	0.59	0.032	38.013	3.31	0.056	0.095	As Above.
26	28	C0676	0.95	0.032	40.61	3.49	0.063	0.107	As Above with yellow clay.
28	30	C0677	0.72	0.032	34.774	4.18	0.065	0.109	Coarse & fine yellow sand yellow clay, conglomerate, ilm, & mon.

Drillers reported basement at 32.25 m.

Overall value from surface to 34 m. 0.057 kg SnO<sub>2</sub>/m<sup>3</sup>

Interval of tin bearing wash m.

0.097 lbs SnO<sub>2</sub>/yd<sup>3</sup>

(cassiterite 70% Sn)

105188



# AMDEX MINING LIMITED - PERCUSSION DRILL LOG

52400 mN 77,300 mE

88.24

178 49.7

AREA : Pioneer HOLE NO. : K 50 COLLAR COORDINATES : SURFACE R.L. : BASEMENT R.L. :

Date: 25-10-78 Driller: G. Selby Assistant: B. O'Neal Sample Washer: S. Moore Geologist: L. McDonald Cutting shoe diameter: 16.03 cm Theoretical Volume: 0.040 m<sup>3</sup> Casing diameter: 15.24 cm

Section Metres		Sample No.	Recovered Volume %	Corrected Volume m <sup>3</sup>	Weight (gms) Concentrate	Concentrate Assay % Sn	Value over Interval		Description of Sample
From	To						SnO <sub>2</sub> kg/m <sup>3</sup>	SnO <sub>2</sub> lbs/yd <sup>3</sup>	
			x 100	80% Red F.					
C	2	C1592	0.71	0.032	36.923	1.43	0.024	0.040	Coarse & fine sand, brown clay, monazite & ilmenite.
2	4	C1593	0.63	0.032	34.279	1.76	0.027	0.045	Coarse & fine sand, white & brown clay, monazite & ilmenite.
4	6	C1594	0.61	0.032	29.645	0.89	0.011	0.020	As Above (brown clay cemented)
6	8	C1595	0.82	0.032	35.348	1.14	0.018	0.030	Coarse & fine sand, brown clay (Fe) cement, monazite & ilmenite.
8	10	C1596	0.74	0.032	45.298	1.10	0.022	0.038	Coarse & fine sand, (Fe) cement ilmenite & monazite.
10	12	C1597	0.56	0.032	31.122	1.39	0.019	0.033	Coarse & fine sand, white clay ilmenite & monazite.
12	14	C1598	0.52	0.032	32.931	1.47	0.022	0.036	As Above.
14	16	C1599	0.70	0.032	43.166	0.76	0.015	0.025	Coarse & fine sand, brown clay ilmenite & monazite.
16	18	C1600	0.68	0.032	47.113	2.28	0.048	0.081	Coarse & fine sand, white clay, ilmenite & monazite.
16	20	C1601	0.59	0.032	41.397	0.51	0.009	0.016	As Above.
20	22	C1602	0.38	0.032	30.583	0.15	0.002	0.003	Coarse & fine sand, white clay, monazite & pyrite.
22	24	C1603	0.85	0.032	28.151	0.13	0.002	0.003	As Above with ilmenite.
24	26	C1604	1.14	0.036	21.220	0.14	0.001	0.002	As Above.
26	28	C1605	0.41	0.032	16.994	0.53	0.004	0.007	As Above no pyrite.
28	30	C1606	0.72	0.032	21.726	0.81	0.008	0.013	As Above.

Drillers reported basement at 39.25 m. Overall value from surface to 40 m. 0.039 kg SnO<sub>2</sub> / m<sup>3</sup>  
 Interval of tin bearing wash 36-40 m. 0.065 lbs SnO<sub>2</sub> / yd<sup>3</sup>

@ 0.223 kg/m<sup>3</sup> SnO<sub>2</sub>, 0.376 lbs / yd<sup>3</sup> (cassiterite 70% Sn)

165190



# AMDEX MINING LIMITED - PERCUSSION DRILL LOG

180

AREA : Pioneer HOLE NO. : K 51 COLLAR COORDINATES : 52700 mN 77300 mE SURFACE R.L. : 82.83m BASEMENT R.L. : 47.83m

Date: 26.10.78 Driller: N. Stevens Assistant: B. O'Neal Sample Washer: S. Moore Geologist: L. McDonald Cutting shoe diameter: 16.03 cm  
 7.11.78 G. Selby Theoretical Volume: 0.040 m<sup>3</sup> Casing diameter: 15.24 cm

Section Metres		Sample No.	Recovered Volume % x 100	Corrected Volume m <sup>3</sup> 80% Rad	Weight (gms) Concentrate	Concentrate Assay % Sn	Value over Interval		Description of Sample
From	To						SnO <sub>2</sub> kg/m	SnO <sub>2</sub> lbs/yd <sup>3</sup>	
0	2	C 0680	0.51	0.032	21.239	0.62	0.006	0.010	Coarse and fine sand, white clay. Fine tin, ilmenite, monazite.
2	4	C 0681	0.59	0.032	36.348	4.97	0.081	0.136	As above.
4	6	C 0682	0.66	0.032	31.988	1.93	0.028	0.046	Coarse and fine sand, white clay, ilmenite and monazite.
6	8	C 0683	0.69	0.032	42.061	1.02	0.019	0.032	Coarse and fine sand, ilmenite and monazite.
8	10	C 0684	0.59	0.032	72.441	0.99	0.032	0.054	As above with white clay.
10	12	C 0685	0.72	0.032	36.561	1.30	0.021	0.036	As above.
12	14	C 0686	0.48	0.032	39.146	3.80	0.066	0.112	As above.
14	16	C 0687	0.56	0.032	44.170	3.82	0.075	0.127	As above.
16	18	C 0688	0.64	0.032	37.971	2.22	0.038	0.063	As above.
18	20	C 0689	0.44	0.032	40.870	1.72	0.031	0.053	As above.
20	22	C 0690	0.75	0.032	22.759	3.47	0.035	0.059	Coarse and fine yellow sand then as above.
22	24	C 0691	0.82	0.032	43.430	8.02	0.155	0.262	Coarse and fine yellow sand, yellow clay, ilmenite and monazite.
24	26	C 0692	0.73	0.032	48.387	7.42	0.160	0.270	As above with yellow not white clay
26	28	C 0693	0.91	0.032	72.538	24.33	0.788	1.328	Coarse to fine sand, yellow clay, conglomerate, trace of tin, ilm., mona
28	30	C 0694	1.25	0.040	36.788	22.80	0.300	0.505	Coarse & fine yellow sand, yellow & grey clay, peat, conglomerate tin, ilm., pyrite & monazite.

Drillers reported basement at 35 m. Overall value from surface to 35 m. 0.192 kg SnO<sub>2</sub> / m<sup>3</sup>  
 Interval of tin bearing wash 26-35 m. 0.324 lbs SnO<sub>2</sub> / yd<sup>3</sup>  
 @ 0.581 kg/m<sup>3</sup> SnO<sub>2</sub> ; 0.980 lbs/cu. yd. (cassiterite 70% Sn)

# AMDEX MINING LIMITED - PERCUSSION DRILL LOG

AREA : Pioneer HOLE NO. : K 51 COLLAR COORDINATES : 52700 mN 77300 mE SURFACE R.L. : 82.83m BASEMENT R.L. : 47.83m **181**

Date: 26.10.78 Driller: N. Stevens Assistant: B. O'Neal Sample Washer: S. Moore Geologist: L. McDonald Cutting shoe diameter: 16.03cm  
 7.11.78 G. Selby Theoretical Volume: 0.040 m<sup>3</sup> Casing diameter: 15.24cm

Section Metres		Sample No.	Recovered Volume %	Corrected Volume m <sup>3</sup>	Weight (gms) Concentrate	Concentrate Assay % Sn	Value over Interval		Description of Sample
From	To						SnO <sub>2</sub> kg/m	SnO <sub>2</sub> lbs/yd <sup>3</sup>	
			x 100	80% Rad F					
30	32	C 0695	0.72	0.032	37.340	29.60	0.493	0.832	Coarse & fine yellow sand, yellow and grey clay, peat, conglomerate, tin ilmenite, pyrite
32	34	C 0696	1.53	0.049	74.128	34.02	0.735	1.240	Coarse & fine sand, yellow & grey clay, conglomerate, tin, ilm., pyr.
34	34.3	C 0697	0.28	0.009	27.758	23.6	1.040	1.753	Coarse & fine sand, decomposed granite, tin, ilmenite, pyrite
34.3	35.0	C 0698	0.61	0.020	24.3558	23.7	0.412	0.695	Coarse & fine sand, granite, small amount of tin, ilmenite
34	35		Calculated				0.600	1.012	

Drillers reported basement at 35 m. Overall value from surface to 35 m. 0.192 kg SnO<sub>2</sub>/m<sup>3</sup>  
 Interval of tin bearing wash 26.35 m. 0.324 lbs SnO<sub>2</sub>/yd<sup>3</sup>  
 @ 0.581 kg/m<sup>3</sup> SnO<sub>2</sub> ; 0.980 lbs/cu. yd. (cassiterite 70% Sn)

# AMDEX MINING LIMITED - PERCUSSION DRILL LOG

**AREA:** Pioneer    **HOLE NO.:** K 52    **COLLAR COORDINATES:** 52371 mN 77459 mE    **SURFACE R.L.:** 75.48m    **BASEMENT R.L.:** 51.0m 182

**Date:** 10.11.78 Driller: G. Selby Assistant: B. O'Neal Sample Washer: S. Moore Geologist: N.G.P.    **Cutting shoe diameter:** 16.03cm  
 13.11.78    **Theoretical Volume:** 0.040 m<sup>3</sup> --    **Casing diameter:** 15.24cm

Section Metres		Sample No.	Recovered Volume %	Corrected Volume m <sup>3</sup>	Weight (gms) Concentrate	Concentrate Assay % Sn	Value over Interval		Description of Sample
From	To						SnO <sub>2</sub> kg/m	SnO <sub>2</sub> lbs/yd <sup>3</sup>	
0	2	C 1612	0.29	0.032	28.568	6.11	0.078	0.131	Coarse & fine sand, brown clay, ilmenite, monazite
2	4	C 1613	0.65	0.032	28.397	5.98	0.076	0.128	As above
4	6	C 1614	0.31	0.032	9.038	2.08	0.008	0.014	Coarse & fine sand, white clay, ilmenite & monazite
6	8	C 1615	0.59	0.032	27.830	2.64	0.033	0.055	Coarse & fine sand, monazite and ilmenite
8	10	C 1616	0.80	0.032	19.970	2.23	0.020	0.034	As above with white clay
10	12	C 1617	0.62	0.032	16.007	3.32	0.024	0.040	As above
12	14	C 1618	0.60	0.032	19.169	3.71	0.032	0.054	As above
14	16	C 1619	0.51	0.032	21.725	8.05	0.078	0.132	As above
16	18	C 1620	0.57	0.032	54.343	6.30	0.153	0.258	As above
18	20	C 1621	0.55	0.032	35.179	4.46	0.070	0.118	As above
20	22	C 1622	0.50	0.032	45.312	31.13	0.630	1.062	As above with conglomerate wash
22	24	C 1623	0.27	0.032	49.092	28.38	0.622	1.049	Coarse & fine sand, white clay, coarse conglomerate, tin, ilmenite, pyrite
24	25.50	C 1624	0.33	0.024	19.316	36.41	0.419	0.706	Coarse & fine sand, decomposed granite tin, ilmenite & pyrite

Drillers reported basement at 24.50 m.    Overall value from surface to 25.50 m. 0.159 kg SnO<sub>2</sub>/m<sup>3</sup>  
 Interval of tin bearing wash 20 - 25.5 m.    0.269 lbs SnO<sub>2</sub>/yd<sup>3</sup>  
 @ 0.570 kg/m<sup>3</sup> SnO<sub>2</sub>; 0.960 lbs/cu. yd.    (cassiterite 70% Sn)

# AMDEX MINING LIMITED - PERCUSSION DRILL LOG

Located 1-2m off peg  
52600 mN 77200 mE

183

AREA : Pioneer HOLE NO. : K 53

COLLAR COORDINATES :

85.72m

SURFACE R.L.:

49.47m

BASEMENT R.L.:

Date: 14.11.78 Driller: G. Selby Assistant: B. O'Neal Sample Washer: S. Moore Geologist: L. McDonald Cutting shoe diameter: 16.03 cm  
17.11.78 Theoretical Volume: 0.040 m<sup>3</sup> Casing diameter: 15.24 cm

Section Metres		Sample No.	Recovered Volume % x 100	Corrected Volume m <sup>3</sup> 80% Radf	Weight (gms) Concentrate	Concentrate Assay % Sn	Value over Interval		Description of Sample
From	To						SnO <sub>2</sub> kg/m	SnO <sub>2</sub> lbs/yd <sup>3</sup>	
0	2	C 1625	0.56	0.032	35.876	12.18	0.195	0.329	Coarse & fine sand, brown (Fe) cement fine tin, ilmenite, monazite
2	4	C 1626	0.40	0.032	30.419	3.91	0.053	0.090	Coarse & fine sand, white clay, fine tin, ilmenite, monazite
4	6	C 1627	0.24	0.032	22.804	7.21	0.073	0.124	As above
6	8	C 1628	0.53	0.032	30.450	6.94	0.094	0.159	As above, only trace of fine tin
8	10	C 1629	0.68	0.032	26.706	5.84	0.070	0.117	Coarse & fine sand, white clay, ilmenite, monazite
10	12	C 1630	0.71	0.032	25.127	4.64	0.052	0.088	As above
12	14	C 1631	0.51	0.032	27.705	3.91	0.048	0.082	As above
14	16	C 1632	0.60	0.032	31.869	3.65	0.052	0.088	As above
16	18	C 1633	0.54	0.032	44.485	1.85	0.037	0.062	As above
18	20	C 1634	0.53	0.032	31.668	1.55	0.022	0.037	As above
20	22	C 1635	0.50	0.032	12.148	4.62	0.025	0.042	As above
22	24	C 1636	0.35	0.032	18.560	5.21	0.043	0.073	As above
24	26	C 1637	0.71	0.032	33.780	6.96	0.105	0.177	As above
26	28	C 1638	0.62	0.032	28.380	4.95	0.063	0.106	As above
28	30	C 1639	0.39	0.032	14.456	3.39	0.022	0.037	Coarse & fine sand, coarse conglomerate, white clay, ilm., mona.

Drillers reported basement at 36.25 m. Overall value from surface to 37 m. 0.843 kg SnO<sub>2</sub>/m<sup>3</sup>  
Interval of tin bearing wash 30.36 m. 1.422 lbs SnO<sub>2</sub>/yd<sup>3</sup>  
@ 4.818 kg/m<sup>3</sup> SnO<sub>2</sub>; 8.125 lbs/cu. yd. (Cassiterite 70% Sn)



# AMDEX MINING LIMITED - PERCUSION DRILL LOG

AREA: Pioneer HOLE NO.: K54     
 COLLAR COORDINATES: 52550mN. 77200mE     
 SURFACE R.L.: 86.7m     
 BASEMENT R.L.: 50.2m **185**

Date: 14.11.78 Driller: A. Assistant: N. Stevens Sample Washer: S. Geologist: L. Cutting shoe diameter: 16.03cm  
 20.11.78 Waston Theoretical Volume: 0.040 m<sup>3</sup> Moore McDonald Casing diameter: 15.24cm

Section Metres		Sample No.	Recovered Volume %	Corrected Volume m <sup>3</sup>	Weight (gms) Concentrate	Concentrate Assay % Sn	Value over Interval		Description of Sample
From	To						SnO <sub>2</sub> kg/m <sup>3</sup>	SnO <sub>2</sub> lbs/yd <sup>3</sup>	
0	2	C 0701	0.77	0.032	25.839	5.26	0.061	0.102	Black top soil coarse & fine sand fine tin, ilmenite & monazite.
2	4	C 0702	0.68	0.032	23.191	6.51	0.067	0.114	Coarse & fine sand, yellow clay, fine tin, ilmenite, monazite.
4	6	C 0703	0.54	0.032	11.948	2.62	0.014	0.024	Coarse & fine sand, white clay, ilmenite, monazite.
6	8	C 0704	0.64	0.032	25.065	2.25	0.025	0.042	As above.
8	10	C 0705	0.45	0.032	19.804	2.61	0.023	0.039	As above.
10	12	C 0706	0.71	0.032	42.388	3.84	0.073	0.123	As above.
12	14	C 0707	0.65	0.032	45.754	1.20	0.025	0.041	Coarse & fine sand, ilmenite & monazite.
14	16	C 0708	0.71	0.032	28.912	7.10	0.092	0.155	As above with white clay.
16	18	C 0709	0.63	0.032	47.991	3.66	0.078	0.132	As above.
18	20	C 0710	0.50	0.032	29.525	1.38	0.018	0.031	As above.
20	22	C 0711	0.66	0.032	26.174	1.74	0.020	0.034	As above.
22	24	C 0712	0.63	0.032	27.138	2.90	0.035	0.059	As above.
24	26	C 0713	0.47	0.032	20.961	1.41	0.013	0.022	As above.
26	28	C 0714	0.99	0.032	20.683	1.78	0.016	0.028	As Above.
28	30	C 0715	0.87	0.032	32.781	0.03	-	0.001	Coarse & fine sand, brown lagoon bottom, pyrite

Drillers reported basement at 36.5 m.      Overall value from surface to 38 m. 0.166 kg SnO<sub>2</sub>/m<sup>3</sup>  
 Interval of tin bearing wash 32-38 m.      0.281 lbs SnO<sub>2</sub>/yd<sup>3</sup>  
 @ 0.865 kg/m<sup>3</sup> SnO<sub>2</sub>, 1.459 lbs/yd<sup>3</sup> (cassiterite 70% Sn)



# AMDEX MINING LIMITED - PERCUSSION DRILL LOG

AREA Pioneer HOLE NO.: K55      COLLAR COORDINATES: 52650mN. 77200mE      SURFACE R.L.: 84.7m      BASEMENT R.L.: 48.5m 187

Date: 11.12.78 Driller: G. Selby      Assistant: B. O'Neill      Sample Washer: S. Moore      Geologist: No Geol.      Cutting shoe diameter: 16.03cm  
 Theoretical Volume: 0.040 m<sup>3</sup>      Present      Casing diameter: 15.24cm

Section Metres		Sample No.	Recovered Volume %	Corrected Volume m <sup>3</sup>	Weight (gms) Concentrate	Concentrate Assay % Sn	Value over Interval		Description of Sample
From	To						SnO <sub>2</sub> kg/m	SnO <sub>2</sub> lbs/yd <sup>3</sup>	
0	2	C 1644	0.54	0.032	9.004	6.97	0.028	0.047	Coarse & fine sand, yellow clay, Brown (Fe) cement Trace of very fine Tin, ilmenite, monazite.
2	4	C 1645	0.70	0.032	30.910	25.10	0.346	0.584	Coarse & fine sand, white clay, fine Tin, ilmenite, monazite.
4	6	C 1646	0.55	0.032	33.321	2.61	0.039	0.065	Coarse & fine sand, white clay, ilmenite, monazite.
6	8	C 1647	0.60	0.032	33.816	3.57	0.054	0.091	As above.
8	10	C 1648	0.65	0.032	25.777	3.50	0.040	0.068	As above.
10	12	C 1649	0.59	0.032	32.225	3.85	0.055	0.093	As above.
12	14	C 1650	0.71	0.032	45.817	3.18	0.065	0.110	As above.
14	16	C 1651	0.62	0.032	29.455	3.96	0.052	0.088	As above.
16	18	C 1652	0.52	0.032	37.239	3.41	0.057	0.096	As above.
18	20	C 1653	0.63	0.032	29.953	1.89	0.025	0.043	As above.
20	22	C 1654	0.37	0.032	27.591	4.06	0.050	0.084	Coarse & fine sand, yellow clay, ilmenite, monazite.
22	24	C 1655	0.77	0.032	35.355	10.64	0.168	0.283	Coarse & fine yellow sand, ilmenite, monazite.
24	26	C 1656	0.83	0.032	27.562	7.70	0.095	0.160	Coarse & fine yellow sand, white clay, ilmenite, monazite.

Drillers reported basement at 36.2 m.      Overall value from surface to 37 m. 0.289 kgSnO<sub>2</sub>/m<sup>3</sup>  
 Interval of tin bearing wash 2.4 m.      0.488 lbsSnO<sub>2</sub>/yd<sup>3</sup>  
 @ 0.346 kg/m<sup>3</sup>; 0.584 lbs/cu.yd.      (cassiterite 70% Sn)



# AMDEX MINING LIMITED - PERCUSSION DRILL LOG

52700mN. 77200mE 85.23m 47.73m **189**

AREA: Pioneer HOLE NO.: K56 COLLAR COORDINATES: SURFACE R.L.: BASEMENT R.L.:

Date: 23.11.78 Driller: A. Assistant: N. Stevens Sample Washer: S. Geologist: L. Cutting shoe diameter: 16.03cm  
 27.11.78 Watson Theoretical Volume: 0.040 m<sup>3</sup> - Moore McDonald Casing diameter: 15.24cm

Section Metres		Sample No.	Recovered Volume %	Corrected Volume m <sup>3</sup>	Weight (gms) Concentrate	Concentrate Assay % Sn	Value over Interval		Description of Sample
From	To						SnO <sub>2</sub> kg/m	SnO <sub>2</sub> lbs/yd <sup>3</sup>	
0	2	C 0720	0.87	0.032	12.320	2.32	0.013	0.022	Black top soil, coarse & fine sand = tr of v. fine Tin, monazite.
2	4	C 0721	0.64	0.032	42.261	9.55	0.180	0.304	Coarse & fine sand, brown clay: fine Tin, ilmenite, monazite.
4	6	C 0722	0.58	0.032	20.422	12.70	0.116	0.195	Coarse & fine sand, white clay: fine Tin, ilmenite, monazite.
6	8	C 0723	0.58	0.032	19.358	4.54	0.039	0.066	As above no tin.
8	10	C 0724	0.77	0.032	21.045	5.87	0.055	0.093	As above.
10	12	C 0725	0.62	0.032	23.215	3.46	0.036	0.060	As above.
12	14	C 0726	1.05	0.034	9.919	2.06	0.009	0.014	White clay, small amount of sand: ilmenite, monazite.
14	16	C 0727	1.10	0.035	11.948	7.32	0.036	0.060	Coarse & fine sand, white clay, ilmenite, monazite.
16	18	C 0728	0.73	0.032	40.293	9.36	0.168	0.284	As above.
18	20	C 0729	1.10	0.035	34.740	11.96	0.170	0.286	As above.
20	22	C 0730	0.83	0.032	28.425	9.60	0.122	0.205	As above with yellow clay.
22	24	C 0731	0.52	0.032	54.707	2.00	0.049	0.082	Coarse & fine yellow sand, yellow clay: ilmenite, monazite.
24	26	C 0732	0.90	0.032	42.967	3.50	0.067	0.113	As above with white clay.
26	28	C 0733	0.78	0.032	12.175	17.06	0.093	0.156	Coarse & fine yellow sand, yellow clay: trace tin, ilmenite monazite.

Drillers reported basement at 37.5 m.

Overall value from surface to 38 m. 0.186 kg SnO<sub>2</sub>/m<sup>3</sup>

Interval of tin bearing wash 2-4 m.

0.314 lbs SnO<sub>2</sub>/yd<sup>3</sup>

@ 0.18 kg/m<sup>3</sup>; 0.30 lbs/cu. yd. SnO<sub>2</sub>

(cassiterite 70% Sn)



# AMDEX MINING LIMITED - PERCUSSION DRILL LOG

191

AREA : Pioneer HOLE NO. : K57      52600mN 77100mE      88.18m      46.43m  
 COLLAR COORDINATES :      SURFACE R.L. :      BASEMENT R.L. :

Date: 11.12.78 Driller: G. Selby Assistant: B. O'Neil Sample Washer: S. Moore Geologist: No Geol. Cutting shoe diameter: 16.03cm  
 Theoretical Volume: 0.040 m<sup>3</sup> present Casing diameter: 15.24cm

Section Metres		Sample No.	Recovered Volume %	Corrected Volume m <sup>3</sup>	Weight (gms) Concentrate	Concentrate Assay % Sn	Value over Interval		Description of Sample
From	To						SnO <sub>2</sub> kg/m	SnO <sub>2</sub> lbs/yd <sup>3</sup>	
0	2	C 1663	0.54	0.032	9.312	1.42	0.006	0.010	White clay, small amount sand, trace of monazite & ilmenite.
2	4	C 1664	0.70	0.032	11.046	0.27	0.001	0.002	As above.
4	6	C 1665	0.37	0.032	7.249	0.30	0.001	0.002	As above.
6	8	C 1666	0.59	0.032	17.428	3.30	0.026	0.044	Coarse & Fine sand, white clay, ilmenite, monazite.
8	10	C 1667	0.65	0.032	34.190	1.95	0.030	0.050	As above.
10	12	C 1668	0.62	0.032	47.840	4.27	0.091	0.153	As above.
12	14	C 1669	0.50	0.032	36.237	3.25	0.053	0.089	As above.
14	16	C 1670	0.52	0.032	27.162	5.85	0.071	0.120	As above.
16	18	C 1671	0.51	0.032	18.776	3.12	0.026	0.044	As above.
18	20	C 1672	0.55	0.032	19.106	0.45	0.004	0.007	Coarse & fine sand, brown & white clay - ilmenite, monazite, pyrite.
20	22	C 1673	0.60	0.032	21.005	0.48	0.005	0.008	Coarse & fine sand, brown clay, pyrite.
22	24	C 1674	0.53	0.032	54.777	0.64	0.016	0.027	Coarse & fine sand, brown & white clay, conglomerate-pyrite.
24	26	C 1675	0.60	0.032	34.404	0.49	0.008	0.013	Coarse & fine sand, brown peat, conglomerate, white clay, - pyrite.

Drillers reported basement at 41.75 m.

Overall value from surface to 42 m. 0.151 kg SnO<sub>2</sub>/m<sup>3</sup>

Interval of tin bearing wash 34-42 m.

0.255 lbs SnO<sub>2</sub>/yd<sup>3</sup>

@ 0.667 kg/m<sup>3</sup> SnO<sub>2</sub>, 1.126 lbs/yd<sup>3</sup>

(cassiterite 70% Sn)

165203

# AMDEX MINING LIMITED - PERCUSSION DRILL LOG

AREA : Pioneer HOLE NO. : K57

52600mN 77100mE  
COLLAR COORDINATES :

88.18m  
SURFACE R.L.:

192  
46.43m  
BASEMENT R.L.:

Date: 11.12.78 Driller: G. Selby Assistant: B. O'Neill Sample Washer: S. Moore Geologist: No Geol. Cutting shoe diameter: 16.03cm  
Theoretical Volume: 0.040 m<sup>3</sup> Present Casing diameter: 15.24cm

Section Metres		Sample No.	Recovered Volume %	Corrected Volume m <sup>3</sup>	Weight (gms) Concentrate	Concentrate Assay % Sn	Value over Interval		Description of Sample
From	To						SnO <sub>2</sub> kg/m	SnO <sub>2</sub> lbs/yd <sup>3</sup>	
			x100	80% Rad.	F.				
26	28	C 1676	0.88	0.032	78.069	0.56	0.0195	0.032	Coarse & fine sand, white clay, pyrite.
28	30	C 1677	0.60	0.032	21.970	1.09	0.011	0.019	Coarse & fine sand, yellow clay, ilmenite, pyrite.
30	32	C 1678	0.75	0.032	49.657	1.13	0.025	0.042	Coarse & fine sand, grey clay, conglomerate, pyrite.
32	34	C 1679	0.53	0.032	45.336	5.57	0.113	0.191	Coarse & fine sand, white & yellow clay, conglomerate, - pyrite, ilmenite.
34	36	C 1680	0.68	0.032	86.832	31.6	1.225	2.066	Coarse & fine sand, white, grey & yellow clay, conglomerate, - Tin, ilmenite, pyrite.
36	38	C 1681	0.71	0.032	73.550	29.30	0.962	1.622	Coarse & fine sand, white & grey clay, conglomerate, - Tin, ilmenite, pyrite.
38	40	C 1682	0.75	0.032	42.842	12.00	0.230	0.388	Coarse & fine sand, white clay, small wash, trace of tin, pyrite, ilmenite.
40	42	C 1683	0.68	0.032	45.051	12.56	0.253	0.427	Coarse & fine sand, conglomerate granite, pyrite, ilmenite.
42	43	C 1684	0.18	0.016	8.276	1.54	0.011	0.019	Decomposed granite, pyrite.

Drillers reported basement at 41.75 m.

Overall value from surface to 42 m. 0.151 kg SnO<sub>2</sub>/m<sup>3</sup>

Interval of tin bearing wash 34-42 m.

0.255 lbs SnO<sub>2</sub>/yd<sup>3</sup>

@ 0.667 kg/m<sup>3</sup> SnO<sub>2</sub>, 1.126 lbs/yd<sup>3</sup>

(cassiterite 70% Sn)

# AMDEX MINING LIMITED - PERCUSSION DRILL LOG

193

AREA: Pioneer HOLE NO.: K58      52700mN      77100mE      86.04m      44.04m  
 COLLAR COORDINATES:      SURFACE R.L.:      BASEMENT R.L.:

Date: 4.1.79 Driller: A.      Assistant: J. Davies      Sample Washer: S. Moore      Geologist: L.      Cutting shoe diameter: 16.03cm  
 Watson      Theoretical Volume: 0.040m<sup>3</sup>      McDojald      Casing diameter: 15.24cm

Section Metres		Sample No.	Recovered Volume %	Corrected Volume m <sup>3</sup>	Weight (gms) Concentrate	Concentrate Assay % Sn	Value over Interval		Description of Sample
From	To						SnO <sub>2</sub> kg/m	SnO <sub>2</sub> lbs/yd <sup>3</sup>	
			x100	80% Rad.	F.				
0	2	0739	0.65	0.032	8.096	3.64	0.013	0.022	Coarse & fine sand, brown cement, Trace of v. fine tin, monazite.
2	4	0740	0.44	0.032	24.992	1.87	0.021	0.035	Coarse & fine sand, white clay, fine tin, monazite.
4	6	0741	0.68	0.032	27.149	2.34	0.028	0.048	Coarse & fine sand, white clay, ilmenite, monazite.
6	8	0742	0.65	0.032	18.240	2.20	0.018	0.030	Coarse & fine sand, white clay, ilmenite, monazite.
8	10	0743	0.60	0.032	16.878	1.48	0.011	0.019	Coarse & fine sand, white clay, ilmenite, monazite.
10	12	0744	0.67	0.032	29.135	1.86	0.024	0.041	Coarse & fine sand, white clay, ilmenite, monazite.
12	14	0745	0.56	0.032	32.188	2.38	0.034	0.058	As above.
14	16	0746	0.77	0.032	41.595	4.62	0.086	0.145	As above.
16	18	0747	0.63	0.032	26.184	3.71	0.043	0.073	As above.
18	20	0748	0.88	0.032	26.761	0.42	0.005	0.008	As above.
20	22	0749	0.83	0.032	12.635	0.70	0.004	0.007	As above.
22	24	0750	0.61	0.032	21.250	1.94	0.018	0.031	Coarse & fine sand, white & yellow clay, ilmenite, monazite.
24	26	0751	0.88	0.032	26.261	5.58	0.065	0.110	Coarse & fine sand, brown cement, white clay - ilmenite, monazite.
26	28	0752	1.20	0.038	32.599	7.01	0.086	0.145	Coarse & fine yellow sand, wash, ilm, pyrite, monazite.

Drillers reported basement at 42 m.      Overall value from surface to 43 m.      0.825 kg SnO<sub>2</sub>/m<sup>3</sup>

Interval of tin bearing wash 32-43 m.      1.391 lbs SnO<sub>2</sub>/yd<sup>3</sup>

@ 3.111 kg/m<sup>3</sup> SnO<sub>2</sub>, 5.247 lbs/yd<sup>3</sup> (cassiterite 70% Sn)

165205

# AMDEX MINING LIMITED - PERCUSSION DRILL LOG

194

AREA : Pioneer HOLE NO. : K58      52700mN 77100mE      86.04m      44.04m  
 COLLAR COORDINATES :      SURFACE R.L. :      BASEMENT R.L. :

Date: 4.1.79 Driller: A. Assistant: J. Davies Sample Washer: S. Moore Geologist: L. Cutting shoe diameter: 16.03cm  
 Watson Theoretical Volume: 0.040 m<sup>3</sup> McDonald Casing diameter: 15.24cm

Section Metres		Sample No.	Recovered Volume %	Corrected Volume m <sup>3</sup>	Weight (gms) Concentrate	Concentrate Assay % Sn	Value over Interval		Description of Sample
From	To						SnO <sub>2</sub> kg/m	SnO <sub>2</sub> lbs/yd <sup>3</sup>	
28	30	0753	0.95	0.032	27.071	4.62	0.056	0.094	Coarse & fine yellow sand, yellow clay, wash, - ilmenite, pyrite.
30	32	0754	0.64	0.032	36.700	6.54	0.107	0.181	Coarse & fine sand, brown cement w ash, - ilmenite, monazite.
32	34	0755	0.01	0.032	173.499	42.0	3.253	5.486	Coarse & fine sand, white, grey yellow clay, brown cement, coarse wash, large amount Tin, ilmenite, pyrite.
34	36	0756	0.62	0.032	302.159	40.2	5.423	9.144	Coarse & fine sand, white, grey clay, wash, - Large amount Tin, ilmenite, pyrite.
36	38	0757	0.60	0.032	83.149	29.6	1.099	1.853	Coarse & fine sand, w hite clay fine wash, - trace of tin, ilmenite, pyrite.
38	40	0758	0.78	0.032	164.738	52.8	3.883	6.548	Coarse & fine sand, white & grey clay, birds eye wash, - large amount tin, pyrite, ilmenite, .
40	42	0759	0.69	0.032	159.467	44.5	3.168	5.342	Coarse & fine sand, white clay, wash, - large amount tin, ilmenite, pyrite.
42	43	0760	0.43	0.016	23.897	26.9	0.574	0.968	Coarse & fine sand, decomposed granite, - trace of tin, pyrite, ilmenite.

Drillers reported basement at 42 m.      Overall value from surface to 43 m. 0.825 kg SnO<sub>2</sub>/m<sup>3</sup>  
 Interval of tin bearing wash 32-43 m.      1.391 lbs SnO<sub>2</sub>/yd<sup>3</sup>  
 @ 3.111 kg/m<sup>3</sup> SnO<sub>2</sub>; 5.247 lbs/yd<sup>3</sup> (cassiterite 70% Sn)

# AMDEX MINING LIMITED - PERCUSSION DRILL LOG

195

AREA : PIONEER HOLE NO. : K59     
 52700mN    77000mE     
 COLLAR COORDINATES :     
 87.68m     
 SURFACE R.L. :     
 44.3m     
 BASEMENT R.L. :

Date: 12/12/78 Driller: G. Selby    Assistant: J. Davies    Sample Washer: S. Moore    Geologist: K. Morrison    Cutting shoe diameter: 16.03cm  
 22/ 1/79      Theoretical Volume: 0.040 m<sup>3</sup>      Casing diameter: 15.24cm

Section Metres		Sample No.	Recovered Volume %	Corrected Volume m <sup>3</sup>	Weight (gms) Concentrate	Concentrate Assay % Sn	Value over Interval		Description of Sample
From	To						SnO <sub>2</sub> kg/m	SnO <sub>2</sub> lbs/yd <sup>3</sup>	
0	2	C 1685	0.40	0.032	12.280	4.78	0.026	0.044	Coarse & fine sand, yellow clay black top soil, trace of very fine tin, ilmenite, monazite.
2	4	C 1686	0.46	0.032	15.560	0.82	0.006	0.010	White clay, small amount sand, ilmenite, monazite.
4	6	C 1687	0.75	0.032	37.846	1.76	0.030	0.050	Coarse & fine sand, white clay, monazite, ilmenite.
6	8	C 1688	0.69	0.032	19.344	1.52	0.013	0.022	As above.
8	10	C 1689	0.49	0.032	18.848	3.24	0.027	0.046	As above.
10	12	C 1690	0.39	0.032	22.490	2.53	0.025	0.043	As above.
12	14	C 1691	0.70	0.032	41.758	1.28	0.024	0.040	As above.
14	16	C 1692	0.49	0.032	36.048	1.12	0.018	0.030	As above.
16	18	C 1693	0.59	0.032	29.920	1.14	0.015	0.026	As above.
18	20	C 1694	0.52	0.032	28.569	1.02	0.013	0.022	As above.
20	22	C 1695	0.52	0.032	54.286	0.92	0.022	0.038	Coarse & fine sand, white clay, small wash-ilmenite, monazite.
22	24	C 1696	0.56	0.032	29.252	3.00	0.039	0.066	As above.
24	26	C 1697	0.69	0.032	30.395	2.90	0.039	0.066	As above.
26	28	C 1698	1.13	0.036	26.270	2.10	0.022	0.037	Coarse & fine sand, white & yellow clay, wash, ilmenite, mon.
28	30	C 1699	0.63	0.032	27.920	3.20	0.040	0.067	As above.

Drillers reported basement at 43.38 m.      Overall value from surface to 42 m. 0.212 kg SnO<sub>2</sub>/m<sup>3</sup>

Interval of tin bearing wash 34-42 m. @ 0.993 kg/m<sup>3</sup>; 1.675 lbs/cu.yd.      0.359 lbs SnO<sub>2</sub>/yd<sup>3</sup>

(cassiterite 70% Sn)

165207

# AMDEX MINING LIMITED - PERCUSSION DRILL LOG

196

AREA : PIONEER HOLE NO. : K59      52700mN    77000mE      87.68m      44.30m  
 COLLAR COORDINATES :      SURFACE R.L. :      BASEMENT R.L. :

Date 12/12/78 Driller: G. Selby    Assistant: J. Davies    Sample Washer: S. Moore    Geologist: K. Morrison    Cutting shoe diameter: 16.03cm  
 22/ 1/79      Theoretical Volume: 0.040 m<sup>3</sup>      Casing diameter: 15.24cm

Section Metres		Sample No.	Recovered Volume %	Corrected Volume m <sup>3</sup>	Weight (gms) Concentrate	Concentrate Assay % Sn	Value over Interval		Description of Sample
From	To						SnO <sub>2</sub> kg/m	SnO <sub>2</sub> lbs/yd <sup>3</sup>	
30	32	C 1700	1.12	0.036	23.774	7.45	0.070	0.118	Coarse & Fine sand, peat, white & yellow & grey clay, wash, ilmenite, monazite.
32	34	C 1701	0.65	0.032	26.355	5.53	0.065	0.110	Coarse & fine sand, yellow & white clay, wash ilmenite, monazite, pyrite.
34	36	C 1702	0.75	0.032	22.960	31.57	0.324	0.546	As above.
36	38	C 1703	0.47	0.032	48.681	49.19	1.069	1.803	Coarse & fine sand, white, yellow & grey clay, big wash, trace of tin, ilmenite, pyrite.
38	40	C 1704	0.64	0.032	77.871	46.13	1.604	2.704	Coarse & fine sand, white & grey clay small wash, tin, ilmenite, pyrite.
40	42	C 1705	0.73	0.032	54.071	40.43	0.976	1.646	Coarse & fine sand, white clay, small wash, tin, ilmenite, pyrite.
42	44	C 1706	0.39	0.032	10.331	7.85	0.036	0.061	Coarse & fine sand, white clay, granite, tin, ilmenite, pyrite.
44	45	C 1707	0.35	0.016	20.164	1.52	0.027	0.046	Decomposed granite, pyrite.

Drillers reported basement at 43.38 m.      Overall value from surface to 42 m. 0.212 kg SnO<sub>2</sub>/m<sup>3</sup>  
 Interval of tin bearing wash 34-42 m.      @ 0.993 kg/m<sup>3</sup> SnO<sub>2</sub>; 1.675 lbs/cu.yd.      0.359 lbs SnO<sub>2</sub>/yd<sup>3</sup>  
(cassiterite 70% Sn)

165208

# AMDEX MINING LIMITED - PERCUSSION DRILL LOG

197

AREA : PIONEER HOLE NO. : K60      COLLAR COORDINATES : <sup>52650mN</sup> <sup>77150mE</sup>      SURFACE R.L. : <sup>84.72m</sup>      BASEMENT R.L. : <sup>47.92m</sup>

Date: 6-1-79    Driller: A. Watson    Assistant: N. Stevens    Sample Washer: S. Moore    Geologist:    Cutting shoe diameter: 16.03cm  
 Theoretical Volume: 0.040 m<sup>3</sup>    Casing diameter: 15.24cm

Section Metres		Sample No.	Recovered Volume %	Corrected Volume m <sup>3</sup>	Weight (gms) Concentrate	Concentrate Assay % Sn	Value over Interval		Description of Sample
From	To						SnO <sub>2</sub> kg/m <sup>3</sup>	SnO <sub>2</sub> lbs/yd <sup>3</sup>	
			X100	80% Rad.	F.				
28	30	C 0775	0.08	0.032	38.119	2.23	0.038	0.064	Coarse & fine sand, yellow & white clay, wash, - ilmenite, monazite.
30	32	C 0776	0.51	0.032	45.277	18.30	0.370	0.624	Coarse & fine sand, yellow & white & grey clay, wash, - ilmenite, pyrite, monazite.
32	34	C 0777	0.98	0.032	90.763	32.00	1.297	2.186	Coarse & fine sand, white, grey & yellow clay, coarse wash, - tin, ilmenite, pyrite.
34	36	C 0778	0.50	0.032	64.852	27.70	0.802	1.352	Coarse & fine sand, white & grey clay, wash, trace of tin, ilmenite, pyrite.
36	38	C 0779	0.48	0.032	54.787	16.00	0.391	0.660	Coarse & fine sand, white clay, granite, ilmenite, pyrite.
38	39	C 0780	0.61	0.020	24.212	4.02	0.070	0.117	Decomposed granite, pyrite.

Drillers reported basement at 36.80 m.      Overall value from surface to 38 m. 0.178 kg SnO<sub>2</sub>/m<sup>3</sup>  
 Interval of tin bearing wash 30-38 m.      @ 0.715 kg/m<sup>3</sup> SnO<sub>2</sub>; 1.205 lbs/cuyds.      0.300 lbs SnO<sub>2</sub>/yd<sup>3</sup>  
 (cassiterite 70% Sn)

165209



# AMDEX MINING LIMITED - PERCUSSION DRILL LOG

199

AREA : PIONEER HOLE NO. : K61     
 COLLAR COORDINATES :     
 SURFACE R.L. :     
 BASEMENT R.L. :

Date: 8-1-79 Driller: N. Stevens Assistant: C. Goninon Sample Washer: S. Moore Geologist: K. Morrison Cutting shoe diameter: 16.03cm  
 11-1-79      Theoretical Volume: 0.040 m<sup>3</sup>      Casing diameter: 15.24cm

Section Metres		Sample No.	Recovered Volume %	Corrected Volume m <sup>3</sup>	Weight (gms) Concentrate	Concentrate Assay % Sn	Value over Interval		Description of Sample
From	To						SnO <sub>2</sub> kg/m	SnO <sub>2</sub> lbs/yd <sup>3</sup>	
28	30	C 0795	0.90	0.032	19.591	3.21	0.028	0.047	Coarse & fine sand, white & yellow clay, big wash, ilmenite, monazite.
30	32	C 0796	1.32	0.042	28.298	18.17	0.176	0.296	Coarse & fine yellow sand, yellow & white clay, small wash, ilmenite, monazite, pyrite.
32	34	C 0797	0.75	0.032	39.145	16.35	0.286	0.482	Coarse & fine yellow sand, white & yellow clay, big wash, pyrite, ilmenite, monazite.
34	36	C 0798	0.80	0.032	25.538	16.20	0.185	0.311	Coarse & fine yellow sand, white & yellow clay, big wash, pyrite, ilmenite.
36	38	C 0799	0.72	0.032	36.947	5.49	0.091	0.153	Coarse & fine yellow sand, granite, birds eye wash, pyrite, ilmenite.
38	40	C 0800	0.28	0.032	33.945	0.56	0.008	0.014	Decomposed granite, - pyrite.

Drillers reported basement at 37.20 m.      Overall value from surface to 38 m. 0.071 kgSnO<sub>2</sub>/m<sup>3</sup>  
 Interval of tin bearing wash 30-36 m. @ 0.216 kg/m<sup>3</sup>; 0.364 lbs/cu.yd.      0.120 lbsSnO<sub>2</sub>/yd<sup>3</sup>  
(cassiterite 70% Sn)

# AMDEX MINING LIMITED - PERCUSSION DRILL LOG

200

52700mN      77150mE      84.97m      47.77m

AREA : PIONEER    HOLE NO. : K64    COLLAR COORDINATES :    SURFACE R.L. :    BASEMENT R.L. :

Date: 8/1/79 Driller: N. Stevens Assistant: C. Goninon Sample Washer: S. Moore Geologist: K. Morrison Cutting shoe diameter: 16.03cm  
 11/1/79      Theoretical Volume: 0.040 m<sup>3</sup>      Casing diameter: 15.24cm

Section Metres		Sample No.	Recovered Volume %	Corrected Volume m <sup>3</sup>	Weight (gms) Concentrate	Concentrate Assay % Sn	Value over Interval		Description of Sample
							SnO <sub>2</sub> kg/m	SnO <sub>2</sub> lbs/yd <sup>3</sup>	
From	To		X100	80% Rad. F.					
0	2	C 0781	0.50	0.032	6.476	1.66	0.005	0.008	Coarse & fine sand, brown cement, trace of very fine tin, monazite.
2	4	C 0782	0.70	0.032	18.174	3.74	0.030	0.051	Coarse & fine sand, white clay, fine tin, ilmenite, monazite.
4	6	C 0783	0.60	0.032	26.103	2.71	0.032	0.053	Coarse & fine sand, white clay, ilmenite, monazite.
6	8	C 0784	0.51	0.032	19.198	2.39	0.020	0.035	As above.
8	10	C 0785	0.61	0.032	21.326	3.42	0.033	0.055	As above.
10	12	C 0786	0.61	0.032	34.145	1.79	0.027	0.046	As above.
12	14	C 0787	0.50	0.032	24.717	4.97	0.055	0.092	As above.
14	16	C 0788	0.62	0.032	36.549	5.30	0.086	0.146	As above.
16	18	C 0789	1.15	0.037	23.542	3.82	0.035	0.059	As above.
18	20	C 0790	1.03	0.033	17.308	2.68	0.020	0.034	Coarse & fine sand, white & brown clay, ilmenite, monazite.
20	22	C 0791	0.93	0.032	28.302	12.39	0.157	0.264	Coarse yellow sand, white clay, ilmenite, monazite.
22	24	C 0792	0.56	0.032	38.709	1.50	0.026	0.044	Coarse & fine sand, white clay, ilmenite, monazite.
24	26	C 0793	0.53	0.032	59.895	1.05	0.028	0.047	Coarse & fine sand, white clay, small wash, ilmenite monazite.
26	28	C 0794	0.55	0.032	39.669	1.66	0.029	0.050	Coarse & fine sand, white & yellow clay, small wash - ilmenite, monazite.

Drillers reported basement at 37.2 m.      Overall value from surface to 38 m. 0.071 kg SnO<sub>2</sub>/m<sup>3</sup>  
 Interval of tin bearing wash 30-36 m.      @ 0.216 kg/m<sup>3</sup>; 0.364 lbs/cu.yd.      0.120 lbs SnO<sub>2</sub>/yd<sup>3</sup>

(cassiterite 70% Sn)      **165212**

# AMDEX MINING LIMITED - PERCUSSION DRILL LOG

201

AREA : PIONEER HOLE NO. : K62      52750mN    77100mE      COLLAR COORDINATES :      84.84m    SURFACE R.L. :      44.34m    BASEMENT R.L. :

Date: 12-1-79 Driller: N. Stevens Assistant: C. Gonion Sample Washer: S. Moore Geologist: K. Morrison Cutting shoe diameter: 16.03cm  
 24-1-79      Theoretical Volume: 0.040 m<sup>3</sup>      Casing diameter: 15.24cm

Section Metres		Sample No.	Recovered Volume %	Corrected Volume m <sup>3</sup>	Weight (gms) Concentrate	Concentrate Assay % Sn	Value over Interval		Description of Sample
From	To						SnO <sub>2</sub> kg/m	SnO <sub>2</sub> lbs/yd <sup>3</sup>	
30	32	C 0916	0.65	0.032	22.161	3.71	0.037	0.062	Coarse & fine yellow sand, whit & yellow clay, big wash, ilmenite, monazite.
32	34	C 0917	0.73	0.032	14.768	39.11	0.258	0.435	Coarse & fine yellow sand, whit & yellow & grey clay, wash - ilmenite, monazite.
34	36	C 0918	0.88	0.032	27.001	34.01	0.410	0.691	Coarse & fine sand, white clay, ilmenite, monazite, pyrite.
36	38	C 0919	0.81	0.032	28.594	32.39	0.413	0.697	Coarse & fine sand, grey clay, birds eye wash, small amount tin ilmenite, pyrite.
38	40	C 0920	0.67	0.032	109.500	50.51	2.469	4.164	Coarse & fine sand, grey clay, small wash-large amount tin, ilmenite pyrite.
40	42	C 0921	0.71	0.032	307.220	51.43	7.054	11.895	Coarse & fine sand, small wash, granite-large amount tin, ilmenite, pyrite.
42	43.5	C 0922	0.34	0.024	19.252	34.42	0.394	0.665	Decomposed granite, tin, ilmenite, pyrite.
					530				

Drillers reported basement at 40.5 m.      Overall value from surface to 43.5 m. 0.528 kg SnO<sub>2</sub>/m<sup>3</sup>  
 Interval of tin bearing wash 32-43.5 m. @ 1.878 kg/m<sup>3</sup> SnO<sub>2</sub>; 3.168 lbs/cu yd.      0.890 lbs SnO<sub>2</sub>/yd<sup>3</sup>  
 (cassiterite 70% Sn)      **165213**

# AMDEX MINING LIMITED - PERCUSSION DRILL LOG 202

AREA : PIONEER HOLE NO. : K62     
 COLLAR COORDINATES :  $52750mN$   $77100mE$      
 SURFACE R.L. :  $84.84m$      
 BASEMENT R.L. :  $44.34m$

Date: 12-1-79    Driller: N. Stevens    Assistant: E. Goninon    Sample Washer: S. Moore    Geologist: K. Morrison    Cutting shoe diameter: 16.03cm  
 24-1-79      Theoretical Volume: 0.040 m<sup>3</sup>      Casing diameter: 15.24cm

Section Metres		Sample No.	Recovered Volume %	Corrected Volume m <sup>3</sup>	Weight (gms) Concentrate	Concentrate Assay % Sn	Value over Interval		Description of Sample
From	To						SnO <sub>2</sub> kg/m	SnO <sub>2</sub> lbs/yd <sup>3</sup>	
			X 100	80% Rad.	F.				
0	2	C 0901	0.64	0.032	44.201	9.60	0.189	0.319	Coarse & fine sand, brown cement Trace very fine tin, monazite.
2	4	C 0902	0.61	0.032	25.132	9.10	0.102	0.172	Coarse & fine sand, amount of fine tin, ilmenite, monazite.
4	6	C 0903	0.73	0.032	17.850	4.39	0.035	0.059	Coarse & fine sand, white clay, fine tin, ilmenite, monazite.
6	8	C 0904	0.82	0.032	23.621	3.17	0.033	0.056	Coarse & fine sand, white clay, ilmenite, monazite.
8	10	C 0905	0.45	0.032	29.931	1.77	0.024	0.040	As above.
10	12	C 0906	0.53	0.032	22.516	1.90	0.019	0.032	As above.
12	14	C 0907	0.50	0.032	23.481	3.07	0.032	0.054	As above.
14	16	C 0908	0.59	0.032	14.871	4.04	0.027	0.045	As above.
16	18	C 0909	0.53	0.032	20.576	2.68	0.025	0.042	As above.
18	20	C 0910	0.42	0.032	27.585	2.35	0.029	0.049	Coarse & fine sand, ilmenite, monazite.
20	22	C 0911	0.79	0.032	21.928	1.87	0.018	0.031	Coarse & fine sand, white clay, ilmenite, monazite.
22	24	C 0912	0.65	0.032	34.542	3.68	0.028	0.048	As above.
24	26	C 0913	0.83	0.032	Combined		0.028	0.048	Coarse & fine sand, ilmenite, monazite.
26	28	C 0914	0.83	0.032	22.702	3.28	0.033	0.056	As above.
28	30	C 0915	1.30	0.042	17.036	4.00	0.023	0.039	Coarse & fine sand, yellow & white clay wash, ilmenite, mon.

Drillers reported basement at 40.5 m.     
 Overall value from surface to 43.5 m. 0.528 kg SnO<sub>2</sub>/m<sup>3</sup>  
 Interval of tin bearing wash 32-43.5 m.     
 @ 1.878 kg/m<sup>3</sup> SnO<sub>2</sub>; 3.168 lbs/cu yd.     
 0.890 lbs SnO<sub>2</sub>/yd<sup>3</sup>  
(cassiterite 70% Sn)

# AMDEX MINING LIMITED - PERCUSSION DRILL LOG

203

52750mN      77000mE      86.16m      44.66m

AREA PIONEER HOLE NO.: K63      COLLAR COORDINATES:      SURFACE R.L.:      BASEMENT R.L.:

Date: 22-1-79    Driller: G. Selby    Assistant: J. Davies    Sample Washer: S. Moore    Geologist: K. Morrison    Cutting shoe diameter: 16.03cm  
 30-1-79      Theoretical Volume: 0.040 m<sup>3</sup>      Casing diameter: 15.24cm

Section Metres		Sample No.	Recovered Volume %	Corrected Volume m <sup>3</sup>	Weight (gms) Concentrate	Concentrate Assay % Sn	Value over Interval		Description of Sample
From	To						SnO <sub>2</sub> kg/m	SnO <sub>2</sub> lbs/yd <sup>3</sup>	
			X100	80% Rad.	F.				
0	2	C 1708	0.62	0.032	8.824	2.86	0.011	0.019	Coarse & fine sand, white & yellow clay, trace of very fine tin, monazite.
2	4	C 1709	0.43	0.032	11.251	1.56	0.008	0.013	Coarse & fine sand, white clay, ilmenite, monazite.
4	6	C 1710	0.67	0.032	9.069	3.13	0.013	0.021	As above.
6	8	C 1711	0.65	0.032	12.612	3.38	0.019	0.032	Coarse & fine sand, brown & white clay, ilmenite, monazite.
8	10	C 1712	0.59	0.032	16.975	2.70	0.020	0.034	As above.
10	12	C 1713	0.48	0.032	19.202	1.46	0.012	0.021	Coarse & fine sand, white clay, ilmenite, monazite.
12	14	C 1714	0.58	0.032	15.080	4.00	0.027	0.045	As above.
14	16	C 1715	0.60	0.032	32.247	3.80	0.055	0.092	As above.
16	18	C 1716	0.57	0.032	15.240	3.45	0.023	0.039	As above.
18	20	C 1717	0.97	0.032	14.952	4.60	0.031	0.052	As above.
20	22	C 1718	0.66	0.032	20.499	0.80	0.007	0.012	Coarse & fine sand, white clay, small wash-ilmenite, monazite.
22	24	C 1719	0.71	0.032	17.471	0.49	0.004	0.006	Coarse & fine sand, white & yellow clay - ilmenite monazite.
24	26	C 1720	0.83	0.032	16.239	2.24	0.016	0.027	Coarse & fine yellow sand, white clay, ilmenite, monazite.
26	28	C 1721	0.72	0.032	19.910	5.60	0.050	0.084	Coarse & fine sand, white clay, small wash, ilmenite, monazite.
28	30	C 1722	0.54	0.032	29.410	2.40	0.031	0.053	Coarse & fine sand, yellow & white clay (wash-ilmenite, mon.

Drillers reported basement at 41.50 m.      207-1 Overall value from surface to 43 m.      0.110 kg SnO<sub>2</sub>/m<sup>3</sup>

Interval of tin bearing wash 32-43 m.      @ 0.365 kg/m<sup>3</sup> SnO<sub>2</sub>, 0.616 lbs/cu.yd.      0.186 lbs SnO<sub>2</sub>/yd<sup>3</sup>

(cassiterite 70% Sn)      **165215**

# AMDEX MINING LIMITED - PERCUSSION DRILL LOG

204

52750mN 77000mE 86.16m 44.66m

AREA : PIONEER HOLE NO. : K63 COLLAR COORDINATES : SURFACE R.L. : BASEMENT R.L. :

Date 22-1-79 Driller: G. Selby Assistant: J. Davies Sample Washer: S. Moore Geologist: K. Morrison Cutting shoe diameter: 16.03cm  
 30-1-79 Theoretical Volume: 0.040 m<sup>3</sup> Casing diameter: 15.24cm

Section Metres		Sample No.	Recovered Volume %	Corrected Volume m <sup>3</sup>	Weight (gms) Concentrate	Concentrate Assay % Sn	Value over Interval		Description of Sample
From	To						SnO <sub>2</sub> kg/m	SnO <sub>2</sub> lbs/yd <sup>3</sup>	
			X100	80% Rad.	F.				
30	32	C 1723	0.83	0.032	39.308	1.69	0.030	0.050	Coarse & fine sand, white grey, & yellow clay, brown cement, wash, ilmenite, monazite.
32	34	C 1724	0.78	0.032	32.901	8.10	0.119	0.201	Coarse & fine sand, yellow & white clay, peat, wash brown cement, ilmenite, monazite.
34	36	C 1725	0.55	0.032	28.648	7.60	0.097	0.0164	Coarse & fine sand, grey clay, big wash, ilmenite monazite, pyrite.
36	38	C 1726	0.56	0.032	33.524	7.80	0.117	0.197	Coarse & fine sand, yellow & grey clay, big wash-ilmenite, monazite, pyrite.
38	40	C 1727	0.50	0.032	22.434	25.50	0.255	0.431	Coarse & fine sand, grey clay, small wash - ilmenite, monazite pyrite.
40	42	C 1728	0.66	0.032	71.395	42.60	1.358	2.290	Coarse & fine sand, grey clay, birds eye wash - tin, ilmenite, pyrite, monazite.
42	43	C 1729	0.20	0.016	10.506	13.70	0.128	0.217	Coarse & fine sand, grey granit pyrite, ilmenite.
43	44	C 1730	0.37	0.016	8.763	2.60	0.020	0.034	Decomposed granite, pyrite.
					249				

Drillers reported basement at 41.50 m. Overall value from surface to 43 m. 0.110 kgSnO<sub>2</sub>/m<sup>3</sup>

Interval of tin bearing wash 32-43 m. @ 0.365 kg/m<sup>3</sup> SnO<sub>2</sub>, 0.616 lbs/cu.yd. 0.186 lbsSnO<sub>2</sub>/yd<sup>3</sup>

(cassiterite 70% Sn) **165216**

# AMDEX MINING LIMITED - PERCUSSION DRILL LOG

205

AREA PIONEER HOLE NO.: K64      52650mN 77100mE      86.52m      46.02m  
 COLLAR COORDINATES:      SURFACE R.L.:      BASEMENT R.L.:

Date: 26-1-79 Driller: N. Stevens Assistant: C. Coninon Sample Washer: S. Moore Geologist: K. MORRISON Cutting shoe diameter: 16.03cm  
 6-2-79      Theoretical Volume: 0.040 m<sup>3</sup>      Casing diameter: 15.24cm

Section Metres		Sample No.	Recovered Volume %	Corrected Volume m <sup>3</sup>	Weight (gms) Concentrate	Concentrate Assay % Sn	Value over Interval		Description of Sample
From	To						SnO <sub>2</sub> kg/m	SnO <sub>2</sub> lbs/yd <sup>3</sup>	
28	30	0937	0.70	0.032	14.066	3.35	0.021	0.035	Coarse & fine sand, yellow & white clay, (big wash) ilmenite, monazite.
30	32	0938	0.66	0.032	24.676	11.41	0.126	0.212	As above.
32	34	0939	1.21	0.039	12.530	45.00	0.207	0.348	Coarse & fine sand, yellow & white clay (big wash) trace of tin, ilmenite, monazite.
34	36	0940	1.30	0.042	13.880	36.92	0.17	0.294	As above.
36	38	0941	1.25	0.040	60.845	50.61	1.100	1.855	Coarse & fine sand, white, grey & yellow clay, birds eye wash - large amount tin, ilmenite, pyrite.
38	40	0942	0.86	0.032	109.413	51.23	2.502	4.220	Coarse & fine sand, white & grey clay, birds eye wash - large amount tin, ilmenite, pyrite.
40	42	0943	0.90	0.032	115.882	34.85	1.803	3.040	Coarse & fine sand, granite - large amount tin, ilmenite.
42	44	0944	0.39	0.032	50.982	28.62	0.651	1.098	Fine sand, decomposed granite, tin, ilmenite, pyrite.
44	45	0945	0.20	0.016	10.752	12.45	0.120	0.202	Decomposed granite - pyrite.
					227.00				

Drillers reported basement at 40.50 m.      Overall value from surface to 44 m. 0.322 kg SnO<sub>2</sub>/m<sup>3</sup>

Interval of tin bearing wash 32-44 m.      @ 1.073 kg/m<sup>3</sup> SnO<sub>2</sub>, 1.809 lbs/cu.yd.      0.543 lbs SnO<sub>2</sub>/yd<sup>3</sup>

(cassiterite 70% Sn)

165217

# AMDEX MINING LIMITED - PERCUSSION DRILL LOG

206

52650mN 77100mE      86.52m      46.02m

AREA : PIONEER HOLE NO. : K64      COLLAR COORDINATES :      SURFACE R.L. :      BASEMENT R.L. :

Date 26-1-79    Driller N. Stevens    Assistant: C. Goninon    Sample Washer: S. Moore    Geologist: K. Morrison    Cutting shoe diameter: 16.03cm  
 6-2-79      Theoretical Volume: 0.040 m<sup>3</sup>      Casing diameter: 15.24cm

Section Metres		Sample No.	Recovered Volume %	Corrected Volume m <sup>3</sup>	Weight (gms) Concentrate	Concentrate Assay % Sn	Value over Interval		Description of Sample
From	To						SnO <sub>2</sub> kg/m	SnO <sub>2</sub> lbs/yd <sup>3</sup>	
			x100	80% Rad. F.					
0	2	0923	0.49	0.032	16.537	11.30	0.083	0.141	Coarse & fine sand, yellow clay brown cement - amount of fine tin, monazite.
2	4	0924	0.56	0.032	8.688	1.78	0.007	0.012	White clay, small amount sand, ilmenite, monazite.
4	6	0925	0.72	0.032	23.441	0.72	0.00	0.013	Coarse & fine sand, white clay, ilmenite, monazite.
6	8	9026	0.79	0.032	42.160	1.21	0.023	0.038	As above.
8	10	0927	1.30	0.042	80.483	1.80	0.049	0.083	As above.
10	12	0928	1.22	0.039	25.490	1.48	0.014	0.023	As above.
12	14	0929	0.51	0.032	16.038	2.18	0.016	0.026	As above.
14	16	0930	0.50	0.032	25.664	2.09	0.024	0.040	Coarse & fine sand, ilmenite, monazite.
16	18	0931	0.50	0.032	30.193	2.89	0.039	0.066	Coarse & fine sand, brown & white clay - ilmenite, monazite
18	20	0932	0.91	0.032	26.744	0.55	0.007	0.011	Coarse & fine sand, brown lagoon bottom, peat - pyrite, ilmenite monazite.
20	22	0933	0.56	0.032	42.739	0.26	0.005	0.008	As above.
22	24	0934	0.82	0.032	24.467	2.24	0.024	0.041	Coarse & fine sand, white & yellow clay (wash), ilmenite, monazite
24	26	0935	0.91	0.032	25.277	12.96	0.146	0.247	Coarse & fine yellow sand, yellow clay-ilmenite, monazite.
26	28	0936	1.27	0.041	26.757	5.44	0.051	0.086	Coarse & fine yellow sand, wash - ilmenite, monazite.

Drillers reported basement at 40.50 m.      Overall value from surface to 44 m. 0.322 kg SnO<sub>2</sub>/m<sup>3</sup>

Interval of tin bearing wash 32-44 m. @ 1.073 kg/m<sup>3</sup> SnO<sub>2</sub>, 1.809 lbs/cu.yd.      0.543 lbs SnO<sub>2</sub>/yd<sup>3</sup>

(cassiterite 70% Sn)

165218



# AMDEX MINING LIMITED - PERCUSSION DRILL LOG

208

AREA PIONEER HOLE NO.: K65     
 COLLAR COORDINATES:  $52800mN$   $76900mE$      
 SURFACE R.L.:  $85.64m$      
 BASEMENT R.L.:  $47.45m$

Date: 9/2/79 Driller: G. Selby Assistant: J. Davies Sample Washer: S. Moore Geologist: K. Morrison Cutting shoe diameter: 16.03 cm  
 19/2/79 Theoretical Volume:  $0.040 m^3$  Casing diameter: 15.24 cm

Section Metres		Sample No.	Recovered Volume %	Corrected Volume $m^3$	Weight (gms) Concentrate	Concentrate Assay % Sn	Value over Interval		Description of Sample
From	To						$SnO_2$ kg/m	$SnO_2$ lbs/yd	
0	2	C 1731	0.50	0.032	12.241	2.20	0.012	0.020	Black top soil, coarse & fine sand, yellow & grey clay, trace of very fine tin, ilmenite, monazite.
2	4	C 1732	0.78	0.032	23.982	9.62	0.103	0.174	Coarse & fine sand, white clay, fine tin, ilmenite, monazite.
4	6	C 1733	0.56	0.032	43.754	1.02	0.020	0.034	Coarse & fine sand, white clay, ilmenite, monazite.
6	8	C 1734	0.43	0.032	13.076	1.74	0.010	0.017	As above.
8	10	C 1735	0.59	0.032	18.123	2.73	0.022	0.037	As above.
10	12	C 1736	0.54	0.032	10.827	4.76	0.023	0.039	As above.
12	14	C 1737	0.62	0.032	27.694	2.40	0.030	0.050	As above.
14	16	C 1738	0.69	0.032	42.654	1.31	0.025	0.042	As above.
16	18	C 1739	0.65	0.032	12.991	3.45	0.020	0.034	As above.
18	20	C 1740	0.53	0.032	2.215	7.50	0.007	0.013	As above-with wash.
20	22	C 1741	0.27	0.032	17.179	0.68	0.005	0.009	As above - small wash.
22	24	C 1742	0.45	0.032	15.717	0.62	0.004	0.007	As above - wash.
24	26	C 1743	0.89	0.032	33.700	0.86	0.013	0.022	As above - with brown cement.
26	28	C 1744	1.18	0.038	18.539	2.90	0.020	0.034	Coarse & fine sand, yellow clay wash, ilmenite, monazite.

Drillers reported basement at 38.2 m. Overall value from surface to 38 m. 0.044 kg  $SnO_2/m^3$   
 Interval of tin bearing wash 34-38 m. @ 0.209 kg/ $m^3$ ; 0.352 lbs/cu. yd  $SnO_2$  0.025 lbs  $SnO_2/yd^3$   
(cassiterite 70% Sn)

165220

# AMDEX MINING LIMITED - PERCUSSION DRILL LOG 209

AREA : PIONEER HOLE NO. : K66      52800mN      77100mE      83.57m      46.67m  
 COLLAR COORDINATES :      SURFACE R.L. :      BASEMENT R.L. :

Date: 8/2/79 Driller: N. Stevens Assistant: C. Goninon Sample Washer: S. Moore Geologist: K. Morrison Cutting shoe diameter: 16.03cm  
 14/2/79      Theoretical Volume: 0.040 m<sup>3</sup>      Casing diameter: 15.24cm

Section Metres		Sample No.	Recovered Volume %	Corrected Volume m <sup>3</sup>	Weight (gms) Concentrate	Concentrate Assay % Sn	Value over Interval		Description of Sample
From	To						SnO <sub>2</sub> kg/m	SnO <sub>2</sub> lbs/yd <sup>3</sup>	
22	24	C 0957	0.78	0.032	31.342	3.64	0.051	0.086	Coarse & fine sand, white clay, wash, ilmenite, monazite, trace of tin.
24	26	C 0958	0.78	0.032	24.763	28.67	0.317	0.534	Coarse & fine sand, white clay, wash, ilmenite, monazite, trace of tin.
26	28	C 0959	0.75	0.032	13.156	23.68	0.139	0.235	Coarse & fine sand, grey & white clay, wash, trace of tin, ilmenite, monazite.
28	30	C 0960	0.94	0.032	9.674	15.16	0.065	0.110	Coarse & fine sand, grey & yellow clay, wash, trace of tin, ilmenite, pyrite, monazite.
30	32	C 0961	0.92	0.032	24.707	14.54	0.160	0.270	Coarse & fine sand, white & grey clay, big wash, ilmenite, pyrite, monazite.
32	34	C 0962	0.55	0.032	21.526	9.24	0.089	0.150	Coarse yellow sand, yellow clay wash, brown cement, ilmenite, monazite
34	36	C 0963	0.94	0.032	23.470	48.61	0.509	0.859	Coarse & fine sand, yellow & grey clay, small wash, tin, ilmenite monazite.
36	38	C 0964	0.63	0.032	17.776	31.89	0.253	0.427	Coarse & fine sand, granite, trace of tin, ilmenite, pyrite.
38	39	C 0965	0.42	0.016	5.416	3.45	0.017	0.028	Decomposed granite, pyrite.

Drillers reported basement at 36.9 m.      Overall value from surface to 38 m. 0.128 kgSnO<sub>2</sub>/m<sup>3</sup>

Interval of tin bearing wash 34-38 m. @ 0.381 kg/m<sup>3</sup>; 0.643 lbs/yd<sup>3</sup> SnO<sub>2</sub> 0.216 lbsSnO<sub>2</sub>/yd<sup>3</sup>

(cassiterite 70% Sn)

165221

# AMDEX MINING LIMITED - PERCUSSION DRILL LOG

210

52800mN 77100mE

83.57m

46.67m

AREA : PIONEER HOLE NO. : K66

COLLAR COORDINATES :

SURFACE R.L. :

BASEMENT R.L. :

Date: 8/2/79 Driller: N. Stevens Assistant: C. Goninon Sample Washer: S. Moore Geologist: K. Morrison Cutting shoe diameter: 16.03cm  
 14/2/79 Theoretical Volume: 0.040 m<sup>3</sup> Casing diameter: 15.24cm

Section Metres		Sample No.	Recovered Volume %	Corrected Volume m <sup>3</sup>	Weight (gms) Concentrate	Concentrate Assay % Sn	Value over Interval		Description of Sample
From	To						SnO <sub>2</sub> kg/m	SnO <sub>2</sub> lbs/yd <sup>3</sup>	
0	2	C 0946a	0.32	0.032	11.186	0.84	0.004	0.007	+100# Black top soil, coarse and fine sand, white clay, -
0	2	C 0946b	0.32	0.032	2.489	5.47	0.006	0.010	+200# Trace of very fine tin, monazite, ilmenite.
2	4	C 0947a	0.39	0.032	27.167	18.69	0.227	0.382	+100# Coarse & fine sand, fine wash, white sandy clay, large amount of fine tin, ilmenite.
2	4	C 0947b	0.39	0.032	11.707	37.29	0.195	0.329	+200# amount of fine tin, ilmenite.
4	6	C 0948a	0.85	0.032	15.520	16.20	0.112	0.189	+100# Coarse & fine sand, white clay, fine tin, ilmenite
4	6	C 0948b	0.85	0.032	8.064	32.51	0.117	0.197	+200# monazite.
6	8	C 0949	0.75	0.032	39.407	4.10	0.072	0.122	Coarse & fine sand, white clay, trace of fine tin, ilmenite, mon.
8	10	C 0950	0.43	0.032	8.524	8.82	0.034	0.057	Coarse & fine sand, white clay, ilmenite, monazite.
10	12	C 0951	0.54	0.032	6.958	6.06	0.019	0.032	As above.
12	14	C 0952	0.72	0.032	16.711	3.53	0.026	0.044	As above.
14	16	C 0953	0.72	0.032	9.787	3.78	0.017	0.028	As above.
16	18	C 0954	1.20	0.038	22.365	1.13	0.009	0.016	As above.
18	20	C 0955	0.77	0.032	4.189	2.81	0.005	0.009	Coarse & fine sand, yellow & white clay, big wash, ilmenite, monazite.
20	22	C 0956	0.93	0.032	14.391	0.80	0.005	0.009	As above, - no yellow clay.

Drillers reported basement at 36.9 m. Overall value from surface to 38 m. 0.128 kgSnO<sub>2</sub>/m<sup>3</sup>  
 Interval of tin bearing wash 34-38 m. @ 0.381 kg/m<sup>3</sup>; 0.643 lbs/cu.yd SnO<sub>2</sub> 0.216 lbsSnO<sub>2</sub>/yd<sup>3</sup>  
 (cassiterite 70% Sn)

165222

# AMDEX MINING LIMITED - PERCUSSION DRILL LOG

211

AREA : PIONEER HOLE NO. : K67      52750mN    76900mE      86.05m      44.85m  
 COLLAR COORDINATES :      SURFACE R.L. :      BASEMENT R.L. :

Date: 23/2/79 Driller: G. Selby    Assistant: J. Davies    Sample Washer: S. & M.    Geologist: A. Fleming    Cuffing shoe diameter: 16.03cm  
 1/3/79      Theoretical Volume: 0.040 m<sup>3</sup>      Moore      Casing diameter: 15.24cm

Section Metres		Sample No.	Recovered Volume %	Corrected Volume m <sup>3</sup>	Weight (gms) Concentrate	Concentrate Assay % Sn	Value over Interval		Description of Sample
From	To						SnO <sub>2</sub> kg/m <sup>3</sup>	SnO <sub>2</sub> lbs/yd <sup>3</sup>	
			X100	80% Rad.					
26	28	C 1764	0.83	0.032	18.993	1.66	0.014	0.024	As above, with brown cement.
28	30	C 1765	0.64	0.032	20.119	2.80	0.025	0.042	Coarse & fine sand, medium wash white clay, ilmenite, monazite.
30	32	C 1766	0.75	0.032	15.755	4.70	0.033	0.056	Coarse & fine sand, grey clay, wash, pyrite.
32	34	C 1767	0.63	0.032	38.253	0.38	0.006	0.011	As above, with big wash.
34	36	C 1768	0.36	0.032	29.970	1.30	0.017	0.029	As above, with white clay.
36	38	C 1769	0.50	0.032	25.463	6.80	0.077	0.130	As above, no white clay.
38	40	C 1770	0.56	0.032	29.248	4.40	0.057	0.097	Coarse & fine sand, grey clay, small wash, pyrite.
40	42	C 1771	0.44	0.032	7.101	4.20	0.013	0.022	Granite, wash, coarse & fine sand, pyrite.
42	43	C 1772	0.35	0.016	5.674	1.18	0.006	0.010	Decomposed granite, pyrite.

Drillers reported basement at 41.2 m.      Overall value from surface to 42 m. 0.021 kg SnO<sub>2</sub>/m<sup>3</sup>  
 Interval of fin bearing wash          m.      0.035 lbs SnO<sub>2</sub>/yd<sup>3</sup>  
(cassiterite 70% Sn)

165223

# AMDEX MINING LIMITED - PERCUSSION DRILL LOG 212

52750mN 76900mE      86.05m      44.85m

AREA: PIONEER HOLE NO.: K67      COLLAR COORDINATES:      SURFACE R.L.:      BASEMENT R.L.:

Date: 23/2/79 Driller: G. Selby Assistant: J. Davies Sample Washer: S. & M. Geologist: A. Fleming Cutting shoe diameter: 16.03cm  
 1/3/79      Theoretical Volume: 0.040 m<sup>3</sup>      Moore      Casing diameter: 15.24cm

Section Metres		Sample No.	Recovered Volume %	Corrected Volume m <sup>3</sup>	Weight (gms) Concentrate	Concentrate Assay % Sn	Value over Interval		Description of Sample
From	To						SnO <sub>2</sub> kg/m	SnO <sub>2</sub> lbs/yd <sup>3</sup>	
			X100	80% Rad. P.					
0	2	C 1751	0.52	0.032	19.180	2.38	0.020	0.034	Coarse & fine sand, white clay, trace of fine tin, ilmenite, monazite.
2	4	C 1752	0.63	0.032	24.962	0.34	0.004	0.006	White clay, small amount sand, monazite, ilmenite.
4	6	C 1753	0.45	0.032	6.654	1.27	0.004	0.006	Coarse & fine sand, white clay, ilmenite, monazite.
6	8	C 1754	0.38	0.032	6.826	1.82	0.006	0.009	Coarse & fine sand, ilmenite, monazite.
8	10	C 1755	0.86	0.032	21.644	1.42	0.014	0.023	Coarse & fine sand, white clay, ilmenite & monazite.
10	12	C 1756	0.59	0.032	5.661	3.70	0.009	0.016	As above.
12	14	C 1757	0.62	0.032	27.429	0.96	0.012	0.020	Coarse & fine sand, ilmenite & monazite.
14	16	C 1758	0.48	0.032	2.297	9.30	0.011	0.016	As above, with white clay.
16	18	C 1759	0.53	0.032	3.857	8.50	0.015	0.025	As above.
18	20	C 1760	0.47	0.032	24.657	1.38	0.015	0.026	As above.
20	22	C 1761	0.51	0.032	15.975	1.95	0.014	0.023	Coarse & fine sand, white & grey clay, wash, ilmenite, monazite, pyrite.
22	24	C 1762	0.48	0.032	2.661	6.00	0.007	0.012	Coarse & fine sand, yellow & white clay, wash ilmenite, pyrite, monazite.
24	26	C 1763	0.67	0.032	4.781	4.80	0.010	0.017	Coarse & fine yellow sand, white clay, ilmenite & monazite.

Drillers reported basement at 41.2 m.      Overall value from surface to 42 m. 0.021 kg SnO<sub>2</sub>/m<sup>3</sup>  
 Interval of tin bearing wash          m.      0.035 lbs SnO<sub>2</sub>/yd<sup>3</sup>

(cassiterite 70% Sn)

# AMDEX MINING LIMITED - PERCUSSION DRILL LOG

213

AREA : PIONEER HOLE NO. : K68      52850mN      77100mE      87.70m      44.70m  
 COLLAR COORDINATES :      SURFACE R.L. :      BASEMENT R.L. :

Date: 16/2/79 Driller: N. Stevens Assistant: C. Goninon Sample Washer: S. Moore Geologist: K. Morrison Cutting shoe diameter: 16.03cm  
 22/2/79      Theoretical Volume: 0.040 m<sup>3</sup>      Casing diameter: 15.24cm

Section Metres		Sample No.	Recovered Volume %	Corrected Volume m <sup>3</sup>	Weight (gms) Concentrate	Concentrate Assay % Sn	Value over Interval		Description of Sample
From	To						SnO <sub>2</sub> kg/m	SnO <sub>2</sub> lbs/yd <sup>3</sup>	
			X100	80% Rad. F.					
30	32	C 0981	1.01	0.032	7.058	49.94	0.157	0.265	Coarse & fine sand, white clay, wash, trace of tin, ilmenite, monazite.
32	34	C 0982	0.79	0.032	19.658	9.19	0.081	0.136	As above - with yellow clay.
34	36	C 0983	1.05	0.034	18.093	19.01	0.145	0.244	As above - no tin.
36	38	C 0984	0.91	0.032	2.594	31.66	0.037	0.062	Coarse & fine sand, white clay, wash, ilmenite, monazite.
38	40	C 0985	0.83	0.032	15.765	10.87	0.077	0.129	Coarse & fine sand, white & grey clay, big wash, ilmenite, monazite.
40	42	C 0986	0.75	0.032	31.068	39.18	0.543	0.916	Coarse & fine sand, grey & yellow clay, birds eye wash, tin, ilmenite, monazite.
42	44	C 0987	0.63	0.032	15.618	30.09	0.210	0.353	Coarse & fine sand, grey clay, wash, granite, tin, ilmenite, monazite, pyrite.
44	46	C 0988	0.87	0.032	13.374	8.57	0.051	0.086	Decomposed granite, pyrite.

Drillers reported basement at 43 m.      Overall value from surface to 44 m. 0.096 kg SnO<sub>2</sub>/m<sup>3</sup>  
 Interval of tin bearing wash 40-44 m. @ 0.377 kg/m<sup>3</sup>; 0.635 lbs/cu. yd SnO<sub>2</sub>      0.162 lbs SnO<sub>2</sub>/yd<sup>3</sup>  
(cassiterite 70% Sn)

165225

# AMDEX MINING LIMITED - PERCUSSION DRILL LOG

214

52850mN 771000mE 87.70m 44.70m

AREA : PIONEER HOLE NO. : K68 COLLAR COORDINATES : SURFACE R.L. : BASEMENT R.L. :

Date: 16/2/79 Driller: N. Steven Assistant: C. Goninon Sample Washer: S. Moore Geologist: K. Morrison Cutting shoe diameter: 16.03cm  
 22/2/79 Theoretical Volume: 0.040 m<sup>3</sup> Casing diameter: 15.24cm

Section Metres		Sample No.	Recovered Volume %	Corrected Volume m <sup>3</sup>	Weight (gms) Concentrate	Concentrate Assay % Sn	Value over Interval		Description of Sample
From	To						SnO <sub>2</sub> kg/m	SnO <sub>2</sub> lbs/yd <sup>3</sup>	
0	2	C 0966	0.38	0.032	3.282	10.7	0.016	0.026	Coarse & fine sand, trace of fine tin, monazite.
2	4	C 0967	0.25	0.032	4.490	4.10	0.008	0.014	Coarse & fine sand, trace of very fine tin, monazite.
4	6	C 0968	0.87	0.032	29.028	12.9	0.167	0.282	Coarse & fine sand, large amount of fine tin, ilmenite, monazite
6	8	C 0969	0.49	0.032	23.835	11.9	0.127	0.214	Coarse & fine sand, white clay, fine tin, ilmenite, monazite.
8	10	C 0970	0.66	0.032	16.554	9.2	0.068	0.115	As above.
10	12	C 0971	0.58	0.032	17.925	3.32	0.027	0.045	As above - no tin.
12	14	C 0972	0.68	0.032	19.038	2.13	0.018	0.031	As above.
14	16	C 0973	0.85	0.032	24.290	3.10	0.034	0.057	As above.
16	18	C 0974	1.20	0.038	15.165	2.81	0.016	0.027	Coarse & fine sand, white & yellow clay, ilmenite & monazite
18	20	C 0975	0.64	0.032	40.979	2.43	0.044	0.075	Coarse & fine yellow sand, white clay, ilmenite, monazite.
20	22	C 0976	0.45	0.032	43.068	1.85	0.035	0.060	As above - yellow clay.
22	24	C 0977	0.55	0.032	7.261	7.00	0.023	0.038	Coarse & fine yellow sand, wash yellow clay, ilmenite, monazite
24	26	C 0978	0.51	0.032	4.594	33.85	0.069	0.117	As above - small wash.
26	28	C 0979	0.80	0.032	30.901	8.88	0.122	0.207	Coarse & fine sand, brown cement ilmenite, monazite.
28	30	C 0980	0.51	0.032	8.738	21.52	0.084	0.412	Coarse & fine sand, white clay, ilmenite, monazite.

Drillers reported basement at 43 m. Overall value from surface to 44 m. 0.096 kg SnO<sub>2</sub>/m<sup>3</sup>

Interval of tin bearing wash 40-44 m. @ 0.377 kg/m<sup>3</sup>; 0.635 lbs/cu.yd SnO<sub>2</sub> 0.162 lbs SnO<sub>2</sub>/yd<sup>3</sup>

(cassiterite 70% Sn)

165226

# AMDEX MINING LIMITED - PERCUSSION DRILL LOG

215

AREA: PIONEER HOLE NO.: K69     
 COLLAR COORDINATES: 52700mN 76900mE     
 SURFACE R.L.: 90.00m     
 BASEMENT R.L.: 48.8m

Date: 7/3/79 Driller: G. Selby Assistant: J. Davis Sample Washer: S. & M. Geologist: L. McDonald Cutting shoe diameter: 16.03cm  
 Theoretical Volume: 0.040 m<sup>3</sup> Moore Casing diameter: 15.24cm

Section Metres		Sample No.	Recovered Volume %	Corrected Volume m <sup>3</sup>	Weight (gms) Concentrate	Concentrate Assay % Sn	Value over Interval		Description of Sample
From	To						SnO <sub>2</sub> kg/m	SnO <sub>2</sub> lbs/yd <sup>3</sup>	
			X100	80% Red. F.					
26	28	C 1786	0.34	0.032	12.665	1.18	0.007	0.011	Coarse & fine sand, yellow clay, medium wash, ilmenite, monazite.
28	30	C 1787	0.53	0.032	26.807	2.25	0.027	0.045	Coarse & fine sand, peat, brown Fe cement, ilmenite, pyrite.
30	32	C 1788	0.45	0.032	19.588	2.73	0.024	0.040	Coarse & fine sand, yellow clay peat, pyrite, ilmenite.
32	34	C 1789	0.73	0.032	121.301	0.36	0.019	0.033	Coarse & fine sand, white clay, peat, wash, pyrite.
34	36	C 1790	0.71	0.032	130.321	0.22	0.013	0.022	Coarse & fine sand, grey clay, big wash, pyrite.
36	38	C 1791	0.74	0.032	33.774	2.59	0.039	0.066	As above.
38	40	C 1792	0.69	0.032	19.144	12.1	0.103	0.174	Coarse & fine sand, grey clay, wash, pyrite.
40	42	C 1793	0.48	0.032	39.290	6.00	0.105	0.177	Coarse & fine sand, big wash, grey clay, granite, pyrite.
42	44	C 1794	0.40	0.032	19.920	0.37	0.003	0.006	Granite, pyrite.

Drillers reported basement at 41.2 m.      Overall value from surface to 42 m. 0.021 kg SnO<sub>2</sub>/m<sup>3</sup>  
 Interval of tin bearing wash                      m.      0.036 lbs SnO<sub>2</sub>/yd<sup>3</sup>

(cassiterite 70% Sn)

165227

# AMDEX MINING LIMITED - PERCUSSION DRILL LOG 216

AREA : PIONEER HOLE NO.: K69 COLLAR COORDINATES: <sup>52700mN</sup> <sup>76900mE</sup> SURFACE R.L.: <sup>90.00m</sup> BASEMENT R.L.: <sup>48.8m</sup>

Date: 7/3/79 Driller: G. Selby Assistant: J. Davis Sample Washer: S. & M. Geologist L. McDonald Cutting shoe diameter: 16.03 cm  
 Theoretical Volume: 0.040 m<sup>3</sup> Moore Casing diameter: 15.24 cm

Section Metres		Sample No.	Recovered Volume %	Corrected Volume m <sup>3</sup>	Weight (gms) Concentrate	Concentrate Assay % Sn	Value over Interval		Description of Sample
From	To						SnO <sub>2</sub> kg/m	SnO <sub>2</sub> lbs/yd <sup>3</sup>	
0	2	C 1773	0.53	0.032	missing		0.020	assumed	Black top soil, Coarse & fine sand, trace of tin, ilmenite & monazite.
2	4	C 1774	0.57	0.032	6.157	9.3	0.026	0.043	White clay, small amount of sand trace of fine tin, ilmenite, monazite, spinel.
4	6	C 1775	0.48	0.032	4.608	2.10	0.004	0.007	White clay, coarse & fine sand, ilmenite, monazite.
6	8	C 1776	0.84	0.032	3.973	3.12	0.006	0.009	As above.
8	10	C 1777	0.32	0.032	25.883	0.98	0.011	0.019	As above.
10	12	C 1778	0.68	0.032	2.890	6.80	0.009	0.015	Coarse & fine sand, ilmenite, monazite.
12	14	C 1779	0.72	0.032	7.261	6.20	0.020	0.034	As above - with white clay.
14	16	C 1780	0.62	0.032	28.671	1.03	0.013	0.022	Coarse & fine sand, ilmenite, monazite.
16	18	C 1781	0.67	0.032	32.255	1.72	0.025	0.042	As above - with white clay.
18	20	C 1782	0.72	0.032	19.184	1.54	0.013	0.022	As above.
20	22	C 1783	0.42	0.032	24.175	0.92	0.010	0.017	As above.
22	24	C 1784	0.36	0.032	10.744	3.06	0.015	0.025	Coarse & fine sand, grey & white clay, big wash, ilmenite, monazite.
24	26	C 1785	0.54	0.032	15.769	2.24	0.016	0.027	Coarse & fine sand, yellow clay big wash, ilmenite, monazite.

Drillers reported basement at 41.2 m.

Overall value from surface to 42 m. 0.021 kg SnO<sub>2</sub>/m<sup>3</sup>

Interval of tin bearing wash          m.

0.036 lbs SnO<sub>2</sub>/yd<sup>3</sup>

(cassiterite 70% Sn)





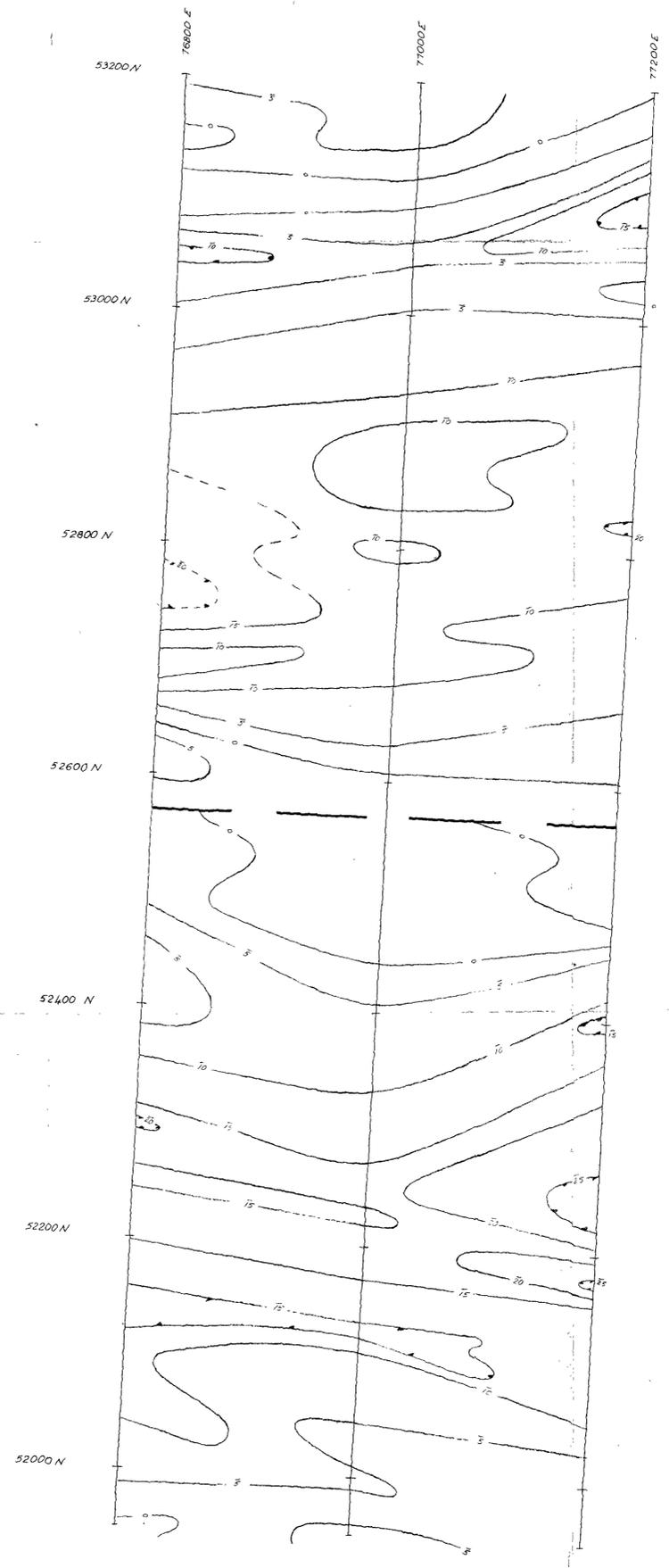
AMDEX MINING LIMITED  
 PIONEER TIN MINE  
 N.E. TASMANIA

DISTRIBUTION OF  
 HEAVY MINERAL FRACTION

165230 79-1355  
 COMPILLED BY SCINTREX Appendix I



SCALE 1:2500



AMDEX MINING LIMITED  
 PIONEER TIN MINE  
 N.E. TASMANIA  
 165231  
 R.R.M.I.P. SURVEY  
 MAGNETOMETRIC RESISTIVITY  
 CONTOUR PLAN

SURVEYED & COMPILED BY  
 SCINTREX

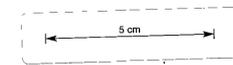
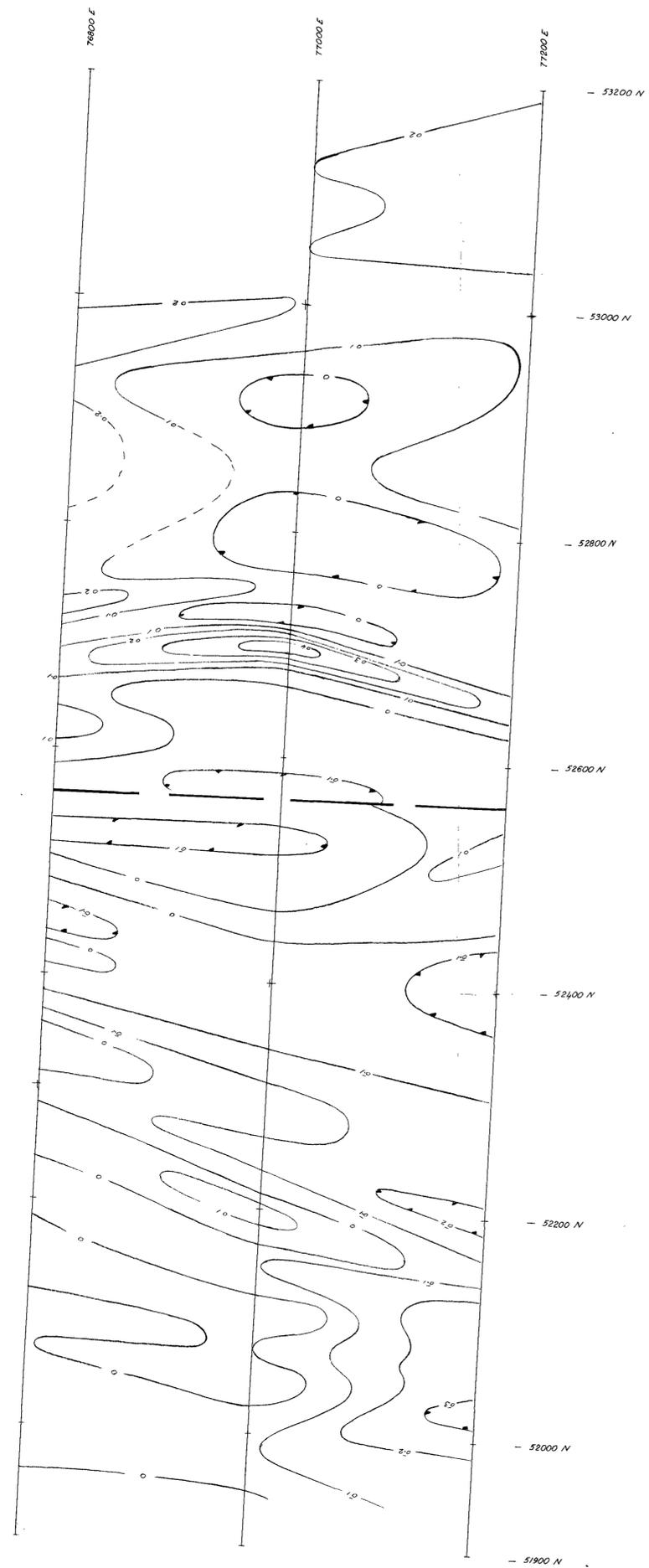


DECEMBER 1978

SCALE 1 2500

Job No TAS-067 R SH 1 of 1 PLATE 2

79-1365 Appendix I



AMDEX MINING LIMITED  
 PIONEER TIN MINE  
 NE TASMANIA

R.R.M.I.P. SURVEY  
 RELATIVE PHASE SHIFT (in °)  
 CONTOUR PLAN

165232

SURVEYED & COMPILED BY  
 SCINTREX



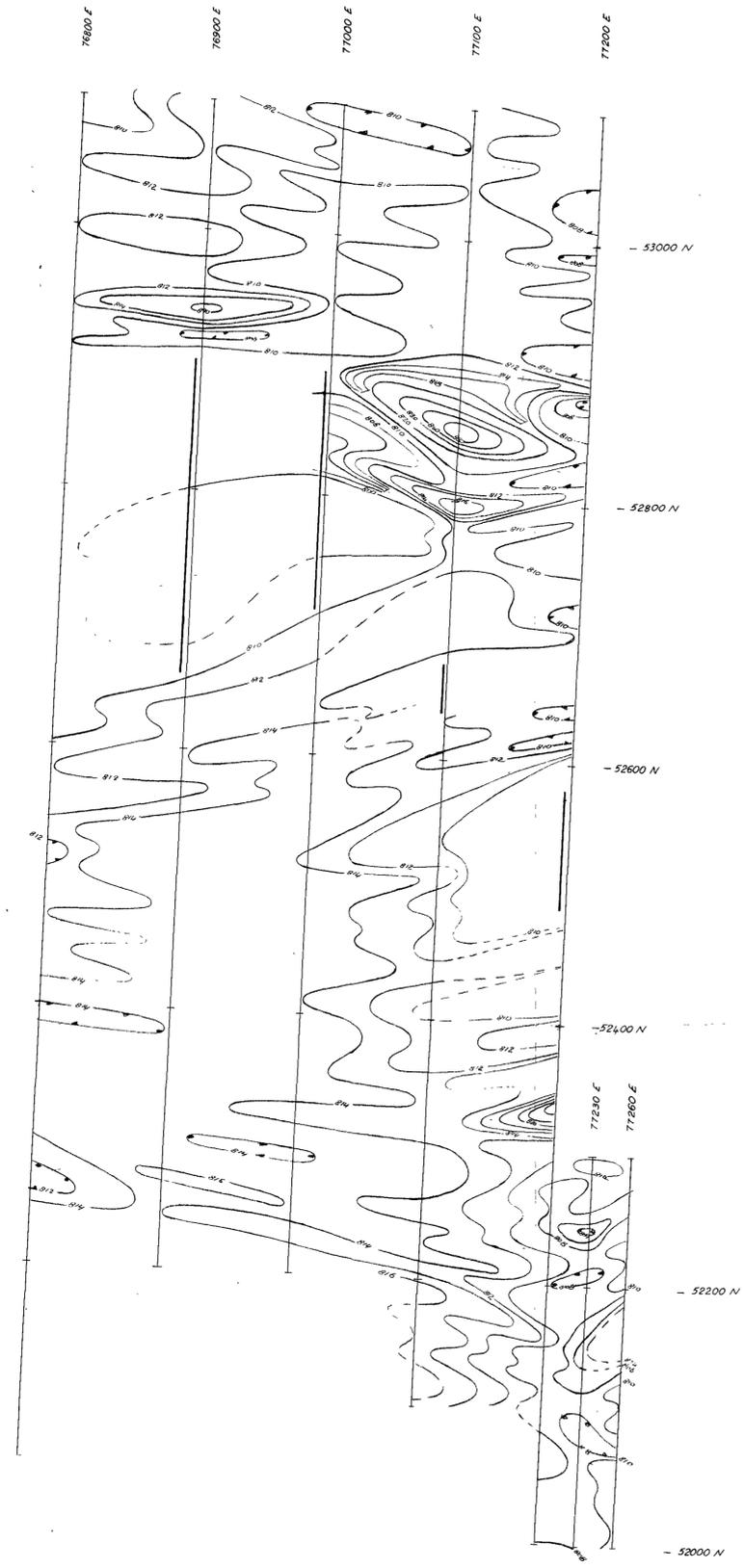
DECEMBER 1978

SCALE 1:2500

Job No TAS-067R SH 1 of 1 PLATE 3

79-1355

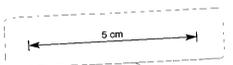
Appendix I



**Legend**

 Readings affected by artificial objects

Add 61,000 gammas to all values for total magnetic field



AMDEX MINING LIMITED  
 PIONEER TIN MINE  
 N.E. TASMANIA  
 105233  
 TOTAL MAGNETIC FIELD SURVEY  
 CONTOUR PLAN

SURVEYED & COMPILED BY  
 SCINTREX



MARCH 1979

SCALE 1:2500

JOB # TAS-069 SH 1 of 1 PLATE 4

79-1355

Appendix I.