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Reference

The
FLAT FILE

Manufactured in W.A.

SHERLOCK BAY Ni

ANNUAL REPORT 1972

(with Appendix 1)

SHELF/BAY No.	
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Australian Inland Exploration Co. Inc.

M 303 A 3515

AUSTRALIAN INLAND EXPLORATION COMPANY, INC.

7 HAVELOCK STREET, WEST PERTH, WESTERN AUSTRALIA, 6005

TELEPHONE: 22 1499

P.O. BOX 100, W. PERTH 6005

TELEGRAPHIC ADDRESS
AUSTLANDEXPLOR

LEO J. MILLER
PRESIDENT

February 2, 1973

The Hon. Minister for Mines
Mines Department of W.A.
Mineral House
66 Adelaide Terrace
PERTH. W.A. 6000

Dear Sir:

Annual Report for 1972
Temporary Reserve #4535H

Method of Exploration

Temporary Reserve #4535H was explored by detailed airborne magnetic surveys, ground magnetic surveys, diamond drilling, percussion drilling, auger drilling and geological mapping. The early result of this work was the discovery of the Sherlock Bay nickel deposit which was originally part of ~~TR.4535H.~~

Airborne Geophysics

Two thousand line miles of airborne magnetics were completed over the Reserve at line intervals of 500 feet with a magnetometer height of 125 feet. The survey was extremely successful in that the data approached the quality of ground magnetic work.

Ground Magnetic Surveys

Reconnaissance ground magnetic surveys were completed over all of the anomalies in order to locate drill holes for anomaly identification. By the end of the year detailed surveys were being undertaken in order to outline the boundaries of the ultramafics for further work.

.../2

001

Drilling

Two thousand feet of diamond percussion drilling, and auger drilling were completed during the anomaly identification program. From this work a geological map has been constructed and drilling is continuing on specific areas outlined by the map.

Geology

Geological correlation of drilling and magnetic anomalies was completed to a preliminary stage. The map was being used as a basis for detail gridding and further geophysical surveys.

Manpower

By the end of 1972, AIE had 3 geologists, 6 field assistants, and a drilling crew of 16 men working in the area.

Future Work

Detailed ground geophysics followed by detail drilling will be continued in 1973.

Expenditures for 1972

1st quarter	$46,000
2nd quarter	61,100
3rd quarter	88,600
4th quarter	101,000
Total	$296,700

A portion of this work was completed just outside the boundary of TR.4535H.

Reduction of Reserve 4535H

It is proposed to reduce the size of TR.4535H by 50%. The enclosed topographical map illustrates the size of our reduction.

Yours sincerely,

Leo J Miller

LEO J. MILLER
President

Enc: Map

M 303 A 3515

APPENDIX I

Induced Polarization Survey Report on Symond Well Prospect, West Pilbara Goldfield, Western Australia

REPORT ON AN INDUCED POLARIZATION SURVEY SYMOND WELL PROSPECT, WHIM CREEK AREA WESTERN AUSTRALIA ON BEHALF OF AUSTRALIAN INLAND EXPLORATION COMPANY INC.

PRIVATE AND CONFIDENTIAL

REPORT ON AN INDUCED POLARIZATION SURVEY SYMOND WELL PROSPECT, WHIM CREEK AREA WESTERN AUSTRALIA ON BEHALF OF AUSTRALIAN INLAND EXPLORATION COMPANY INC.

by

Jon G. Baird, B.Sc.,P.Eng.
Geophysicist

PERTH, WESTERN AUSTRALIA. OCTOBER, 1971.

CONTENTS

PLATES

SEIGEL ASSOCIATES AUSTRALASIA PTY. LTD.

GEOPHYSICAL CONSULTANTS AND CONTRACTORS

3 BENNETT STREET, PERTH, W.A. 6000

TELEPHONES: 258550, 258914, 258724. TELEGRAMS: SEIGEL, PERTH

SUMMARY

The present induced polarization survey has revealed five zones which exhibit modestly increased chargeability responses which may arise from rocks containing metallically conducting minerals such as sulphides and magnetite or other minerals known to give induced polarization responses.

Correlations of the present results with all available geological, geochemical and other geophysical data are necessary in order to determine which, if any, of the anomalous zones may be underlain by sulphide mineralization.

If it is decided that drilling is warranted, some or all of the four holes suggested herein may be undertaken.

REPORT ON AN
INDUCED POLARIZATION SURVEY
SYMOND WELL PROSPECT, WHIM CREEK AREA
WESTERN AUSTRALIA
ON BEHALF OF
AUSTRALIAN INLAND EXPLORATION COMPANY INC.

INTRODUCTION

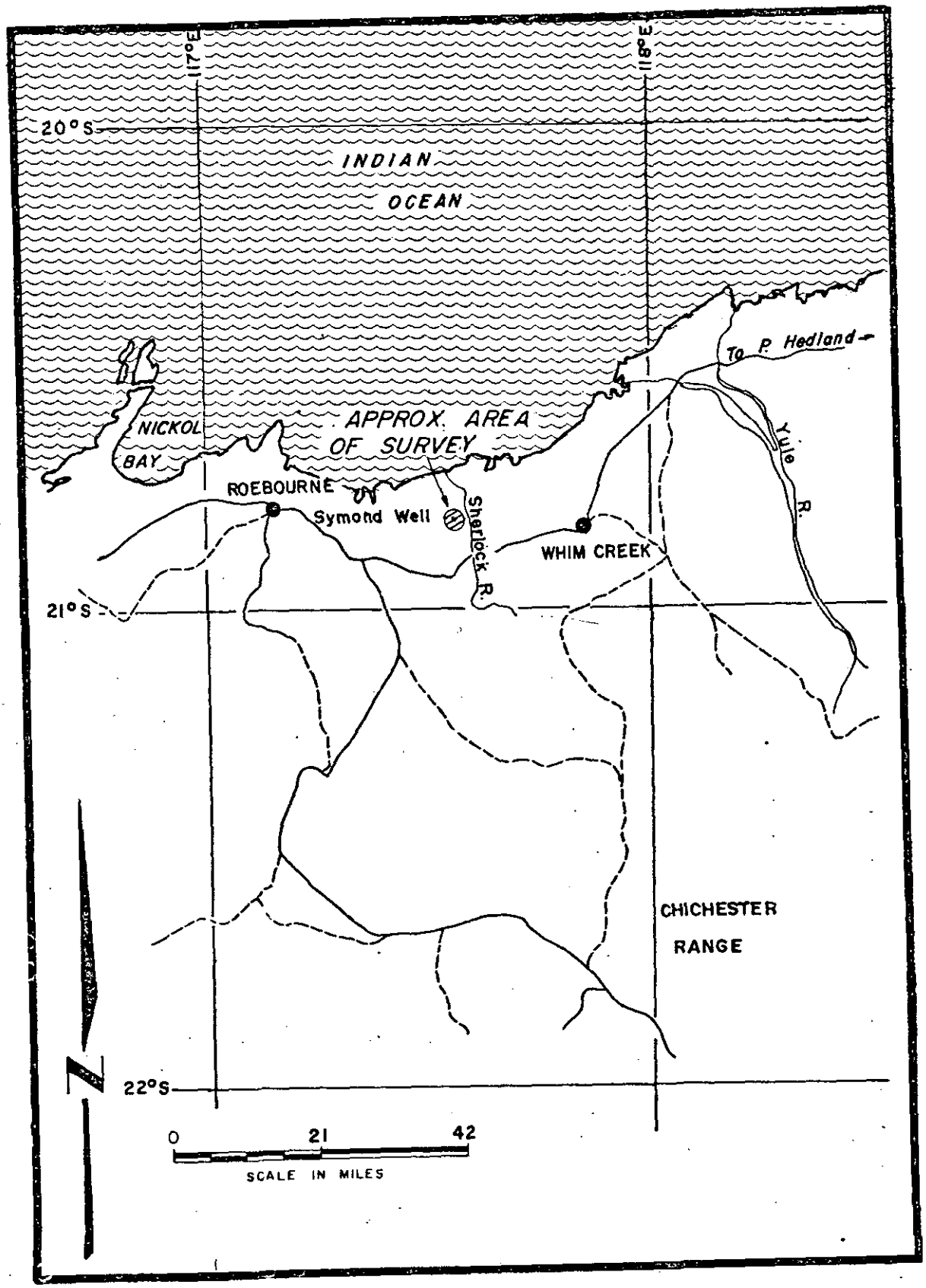
During the period September 11 to September 21, 1971, a geophysical field party under the direction of Mr. Andrew Bainbridge, B.Sc. and Mr. David Walker,M.Sc. executed an induced polarization survey over the Symond Well Prospect on behalf of Australian Inland Exploration Company Inc. The survey was under the overall technical supervision of the writer.

The property lies near Symond Well about 16 miles ~~East~~ West of Whim Creek. The area is reached from Whim Creek along the Great Northern Highway and then a dirt track.

The surface of the property is very flat and covered with grass growth. There are three or four rocky hills which have up to about 50 feet relief from the plain.

The purpose of an induced polarization survey is to map the subsurface distribution of metallically conducting mineralization beneath the grids covered. In the present area such mineralization would include metallic sulphide minerals although other minerals such as magnetite and serpentine can also give responses not always distinguishable from sulphide mineralization.

SYMOND WELL PROSPECT
LOCALITY PLAN



The attached appendix discusses the principles, field procedures and interpretation of the induced polarization method.

The present survey was carried out employing Scintrex MKVI induced polarization equipment. The gradient array was used with current separations of 3000 ft. and 4000 ft. The measuring dipole was kept at 100 ft. and readings were taken each 100 ft. along the grid lines.

Twenty-eight profiles were covered, each approximately 2000 ft. in length, for a total survey of about 12 line miles. The interline spacing was 400 ft.

In addition to the reconnaissance gradient array survey, detailed surveying was carried out on L12E, L28E and L40E employing the three electrode array. The three electrode array spacings were 50 ft, 100 ft and 200 ft.

GEOLOGY

The writer is not familiar with the detailed geology of the property however a field inspection was made with Dr. Kurt Linn of Australian Inland Exploration.

The general geology of the Whim Creek area consists of Archean rocks. While much of the surface of the present prospect is covered, rock outcrops are to be seen on hills and low ridges. The hills are underlain by basic rock types while one low ridge was observed to consist of a highly siliceous banded iron formation.

The rock types believed to underlie the present property may be a favourable environment for the location of a sulphide ore body.

PRESENTATION OF RESULTS

Plate 1 on the scale of 1" = 400 ft, shows the grid plan and geophysical interpretation. Zones exhibiting increased chargeabilities, increased resistivities or decreased resistivities have been shown.

The two sheets of Plate 2 show the chargeability and resistivity results as profiles. Symbols explained in the legend indicate those readings which were taken with 3000 ft. current electrode separation from those where the current electrode separation was 4000 ft. The L/M values are shown as symbols but are not profiled. The vertical scales for these profiles are 1" = 10 milliseconds for chargeability, 2" = 1 logarithmic cycle with the base level taken as 100 ohm-metres for resistivity and 1" = a ratio of 5 units for the L/M ratio.

Plate 3 on the scale of 1" = 100 ft, shows the results of detailed surveying on three profiles. The symbols explained in the legend indicate the electrode array and spacing used for each profile. The vertical scales are 1" = 10 milliseconds for chargeability and 2" = 1 logarithmic cycle with the base level taken as 10 ohm metres for resistivity.

DISCUSSION OF RESULTS

The profiles on Plate 2 indicate that the background chargeabilities range from about 2.0 to 6.0 milliseconds which is a normal non-metallic chargeability range for most rock types. This background level is sufficiently high that one would not expect masking to be important for the electrode array used for the survey.

With the present background chargeabilities a uniform distribution of 1% by volume of metallically conducting mineralization in the subsurface would be expected to add approximately 10.0 milliseconds to the background level. Confined bodies which may even contain much more than 1% by volume of metallically conducting material may give rise to only minor responses at the ground surface. Even modest amplitude and localized chargeability responses may therefore be of potential interest. Such minor responses would best be supported by decreased resistivity responses or favourable geology or geochemistry.

For the present purposes chargeability responses in excess of about 7.0 milliseconds may be considered of interest. Plate 1 reveals that there are four zones in excess of 1000 ft. in length and one isolated zone possibly no more than 400 ft. in length which exhibit above normal chargeabilities. For purposes of reference and not necessarily of priority these zones have been labelled A through E.

Zone A has a peak chargeability of 10.0 milliseconds at 13.50N on line 12E. The other increased chargeabilities to the west are of lesser amplitude although they do reach 8.5 milliseconds on line 0. Detailed traversing on line 12E with the three electrode array and 100 ft. and 50 ft. electrode spacings have not revealed any anomaly coincident with the chargeability peak at 13.50N for the gradient array. The chargeability responses are seen to increase with increasing electrode spacings and there is a sharp difference in resistivity between the three electrode traverses and the gradient array traverse. While a traverse employing 200 ft. electrode spacings is necessary for precise quantitative interpretation, the present responses indicate that there may be a sharp change in resistivity from a near surface layer of less than 15 ohm metres to a subsurface layer of in excess of 150 ohm metres. The depth to the interface is possibly about 100 ft. These sharp changes in electrical character could cause masking and explain why no increased chargeability responses are seen for the three electrode array results.

Zone B is over 2000 ft. in length and is well defined from the gradient array reconnaissance results. The detail traverses on line 28E reveal that the chargeable body is less than 100 ft. in width, steeply dipping and comes within a few feet of the ground surface at 17.50N on line 28E. Slight decreases in resistivity centred at 13N indicate that part of this body may be of low resistivity. Once again there is an increase in resistivity with increasing electrode spacings which justifies the use

of the gradient array to overcome masking. This zone coincides with a low ridge underlain by banded iron formation.

Zone C is over 1500 ft. in length and reveals maximum chargeability responses in excess of 10 milliseconds for the gradient array results. Detail traverses on line 40E indicate that the material of above normal chargeability comes to within about 45 ft. of the ground surface near 13N. The body may have a northerly dip. The detail resistivity profiles over this zone indicate that it has a higher resistivity than the surrounding area which may arise from the fact that the bedrocks have no low resistivity cover. This zone of increased chargeabilities and resistivities is seen to correlate closely with a hill underlain by a basic rock type.

Zone D is a confined zone of increased chargeability response with a peak observed value of 9.5 milliseconds occurring on line 56E. No detailed work has been done on this zone so that it is not possible to make precise quantitative interpretations of the depth to the chargeable source. The shape of the profiles would indicate that the upper surface of the increased chargeability material should not be in excess of 100 ft. from the ground surface.

Zone E may be an extension of Zone D as it has similar characteristics and is on strike.

The background resistivities range from a few tens of ohm metres to a few hundreds of ohm metres. Most of the grid shows resistivity responses between 100 and 200 ohm metres.

One area along the north edge of the grid exhibits resistivities of less than 100 ohm metres, while two other areas exhibit resistivities in excess of 200 ohm metres. These zones are shown on Plate 1.

While the apparent resistivities may be affected by changes in the type and depth of the weathered zone, consistent line to line correlation for the gradient array may indicate changes in the resistivity of underlying rock types. It is therefore possible that the north part of the grid is underlain by a different rock type from the rest of the grid with an east-west contact at about 20N. The two zones exhibiting resistivities in excess of 200 ohm metres are believed to coincide closely with rocky hills which may be underlain by a basic rock type. The increase in resistivity over these zones may be due as much to the fact that the overburden is very shallow as to an intrinsic difference in the resistivity of the rocks from surrounding rocks.

CONCLUSIONS AND RECOMMENDATIONS

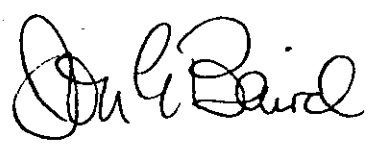
The present induced polarization survey has revealed five zones exhibiting modestly increased chargeability responses. Of these five zones, Zone B and Zone C are well defined geophysically. Zone A did not give anomalous responses when covered by detailed surveying however this lack of response could be caused by geoelectrical masking of a target in excess of 75 feet in depth. No detailed surveying has been done on Zones D or E.

The presently defined zones of increased chargeabilities indicate locations where the rocks may contain above normal percentages of metallically conducting mineralization. Such mineralization could consist of sulphides or other minerals such as magnetite or serpentine which give increased chargeability responses. The writer's field observations indicate that the increased chargeabilities of Zones B and C may be due, at least in part, to minerals other than sulphides.

It is recommended that the present interpretations be reviewed in the light of all available geological, geochemical and additional geophysical information. Drilling of one or more of the presently defined increased chargeability zones may then be deemed warranted. If this is the case then the following holes are suggested based on the present geophysical results alone:

Zone	Collar	Inclination	Direction	Minimum Length
Zone A	L12E, 15N	-45°	South	250'
Zone B	L28E, 18+50N	-45°	South	200'
Zone C	L40E, 14N	-45°	South	200'
Zone D	L56E, 26N	-45°	South	200'

for SEIGEL ASSOCIATES AUSTRALASIA PTY.LTD.



Jon G. Baird, B.Sc.,P.Eng.
Geophysicist

PERTH, WESTERN AUSTRALIA. OCTOBER,1971.

APPENDIX "IP"

APPENDIX "I.P."

INTRODUCTION

For the benefit of those who are unfamiliar with the Induced Polarization method in general, or with the pulse-type method in particular, a few introductory remarks will be directed on the Induced Polarization, or overvoltage, phenomena. Those who wish a fuller treatment of the subject are directed to Seigel (1962), which paper also includes an extensive list of references.

Induced Polarization in its broadest sense means a separation of charge to form an effective dipolar (polarized) distribution of electrical charges throughout a medium under the action of an applied electric field. When current is caused to pass across the interface between an electrolyte and a metallic conducting body, double layers of charge are built up at the interface, in the phenomenon known to the electrochemists as "overvoltage". This is the phenomenon which can be utilised for the detection of the metallic conducting rock-forming minerals such as most sulphides, arsenides, a few oxides and, unfortunately, graphite. In addition, effective dipolar charge distribution occurs to some extent in all rocks, due to ion-sorting in the fine capillaries in which the current is passing.

Induced Polarization responses may therefore arise from metallic or non-metallic agencies. Fortunately, the latter generally falls within fairly low and narrow limits for almost all rock types, although there is still no reliable general criterion for differentiating overvoltage responses

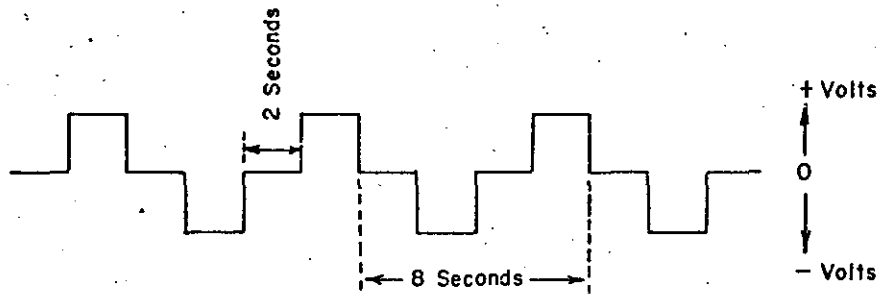
from graphite and metallic sulphides, or for distinguishing between the responses of one type of sulphide and another. Despite these limitations the Induced Polarization method has amply demonstrated its value in mineral exploration since its initial development as a useful exploration tool in 1948 (ed. Wait, 1959).

DESCRIPTION OF METHOD AND EQUIPMENT

For the present programme the pulse or time domain system was employed, using a 2.5 kW Scintrex Induced Polarization unit. The standard current-wave form with the unit is two seconds on-time and two seconds off-time. (see Figure 1). This unit features the Newmont type self-triggered receiver which operates remote from the current transmitting equipment. Three fundamental quantities are measured with this unit - the chargeability of "M" measurement, the "L" measurement and the resistivity.

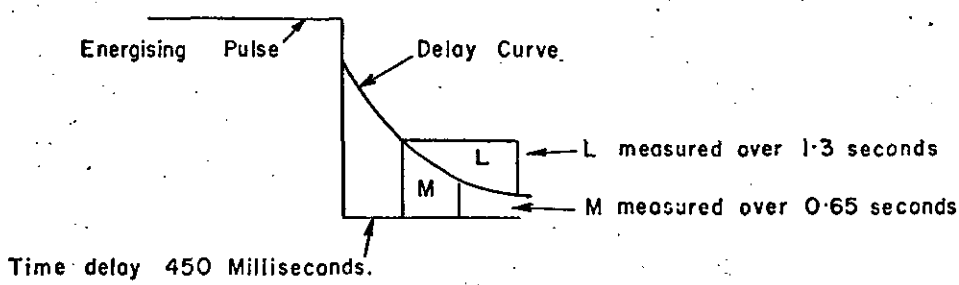
The receiver integrates the area under the decay curve during the time interval from 0.45 seconds to 1.1 seconds after termination of the primary current pulse. This integral, normalised with respect to its corresponding primary voltage, is the chargeability or "M" measurement, that is, the fundamental Induced Polarization characteristic. It is in units of milliseconds. The chargeability reading is for a single pulse, regardless of its sign. The value of the chargeability per pulse is half the chargeability per cycle. The Induced Polarization phenomena is dependent on the existence of electronically conducting material within the matrix of ionically conducting material. The chargeability is therefore a measure of the presence of electronically conducting material within the ground being tested.

MEASUREMENTS TAKEN



Energising freqency is a square wave having a frequency of 0·125 cps.

FIELD MEASUREMENTS MADE



The second quantity measured is the area over the transient decay curve between 0.45 seconds and 1.75 seconds of the current off-time. This measurement is designated the "L" measurement and is also in units of milliseconds. The ratio L/M gives a curve factor related to the shape of the transient voltage curve, and is a measure of the rate of decay of the transient voltage. This is of secondary diagnostic value in that the rate of decay of the transient voltage is partially a function of particle size. A large L/M ratio reflects a short time constant, commonly associated with finely disseminated sulphide or graphite, whereas a small L/M ratio reflects the longer time constants associated with the larger sized metallic particles.

The L/M ratio is also effective in determining the presence of electromagnetic coupling effects. With the Scintrex Induced Polarization unit, electro-magnetic coupling effects are essentially eliminated by an 0.45 second delay-time following termination of the primary current pulse before measurement of the transient voltage commences. However, in extremely low resistivity areas coupling may occur. Under these conditions the presence of electromagnetic coupling can distort the Induced Polarization response, and it is extremely important to know when this occurs. The presence of such coupling is immediately recognizable from the L/M ratios.

Resistivity measurements are also made as an integral part of all Induced Polarization measurements using the Scintrex Induced Polarization unit. The resistivity values are of primary importance in determining subsurface .

geological features such as contact zones, faulting, etc., and are of assistance in mapping the geology in general.

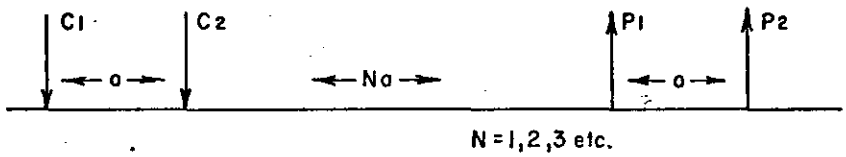
Electrode geometries (see Figure 2) utilised in obtaining field measurements are important, and no one electrode array is applicable for all conditions. In areas where a low resistivity oxidised surface layer overlies a much higher resistivity freshrock, a high degree of masking occurs using any of the close-coupled arrays, such as pole-dipole or dipole-dipole. An electrode spacing many times greater than the depth to freshrock must be used in order to obtain responses reasonably representative of the freshrock. With such large electrode spacings the physical properties are effectively averaged over so large a volume that we lose the ability to detect moderate sized bodies of polarizable material. However, under these conditions the gradient array is both feasible and desirable in that it minimises the effects of masking and at the same time has a high degree of resolution for small targets.

In the present areas of investigation abnormal Induced Polarization responses may be expected to arise from the electronically conducting sulphide minerals such as pyrite, pyrrhotite, chalcopyrite and pentlandite, plus graphite and magnetite. The response from magnetite has been found to be quite variable and somewhat unpredictable, reflecting the great variation in the mode of electrical conduction in this material. It is not always possible to differentiate between these potential sources of high chargeability from the Induced Polarization and resistivity data alone. Complimentary geophysical, geochemical and geological data enables a more complete interpretation to be made of the Induced Polarization data.

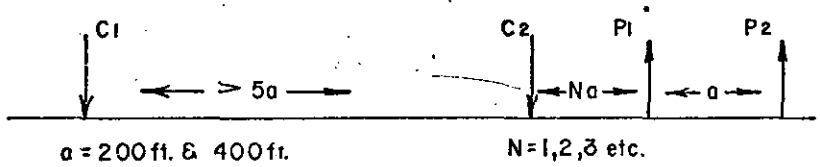
COMMONLY USED ELECTRODE ARRAYS

CLOSE – COUPLED ARRAYS

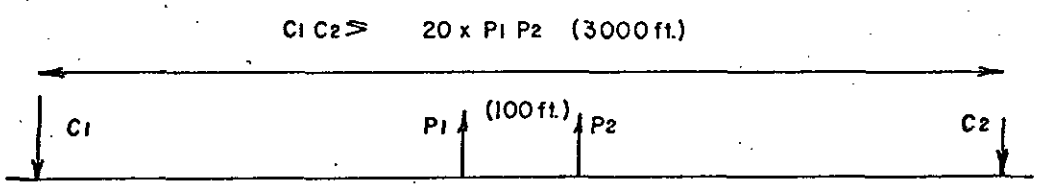
DIPOLE – DIPOLE



POLE – DIPOLE



GRADIENT ARRAY



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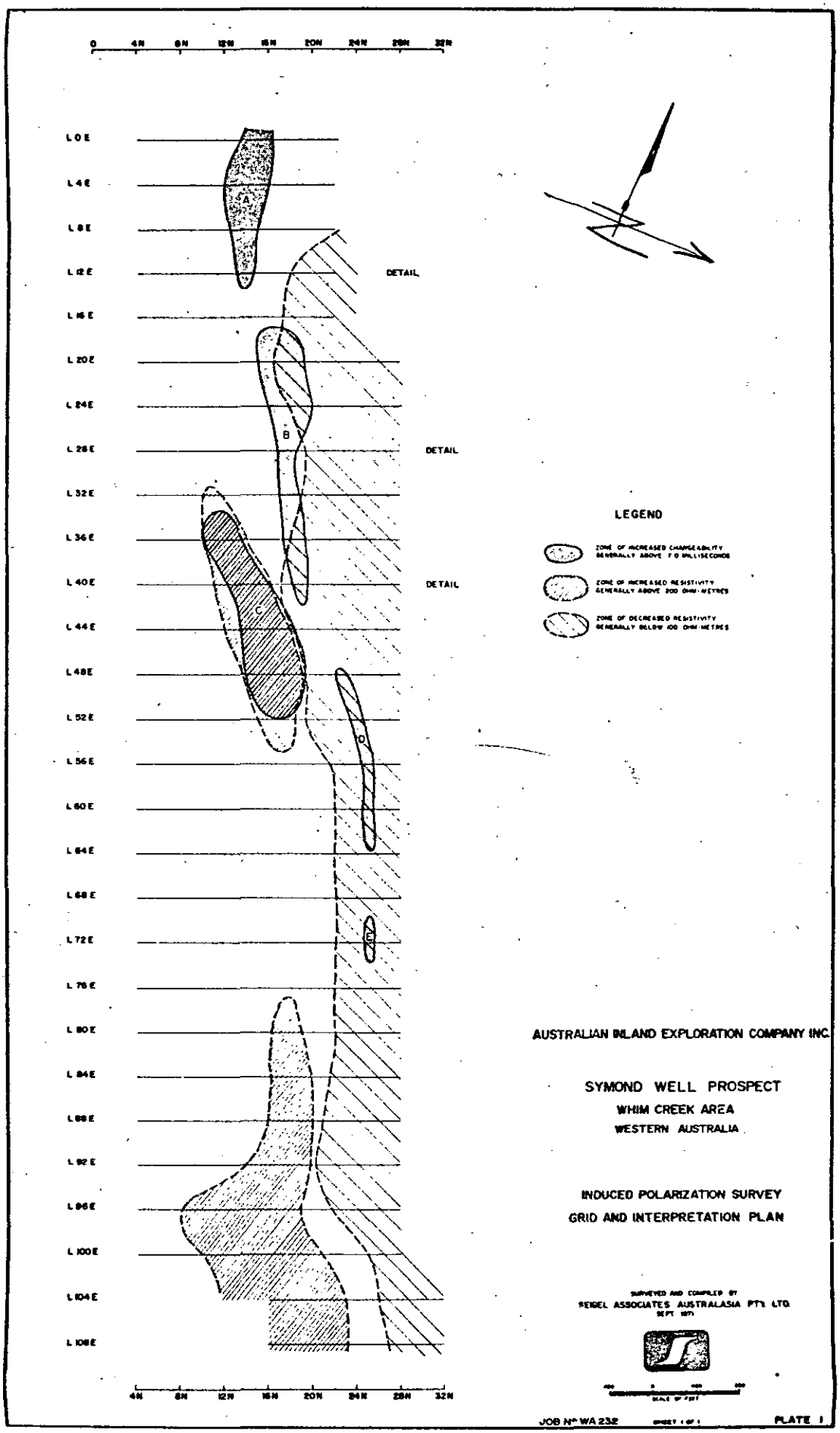
Seigel 1962 — "Induced Polarization and Its role in Mineral Exploration" by H.O. Seigel. Canadian Mining and Metallurgical Bulletin, April 1962.

ed. Wait 1959 — "Overvoltage Research and Geophysical Applications", editor J.R. Wait. Pergamon Press, London, 1959.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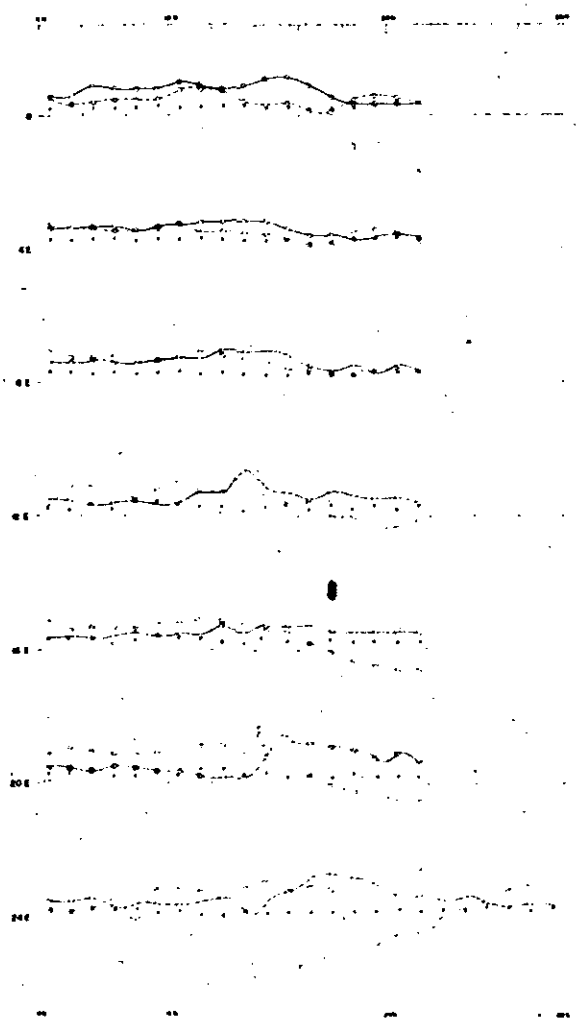
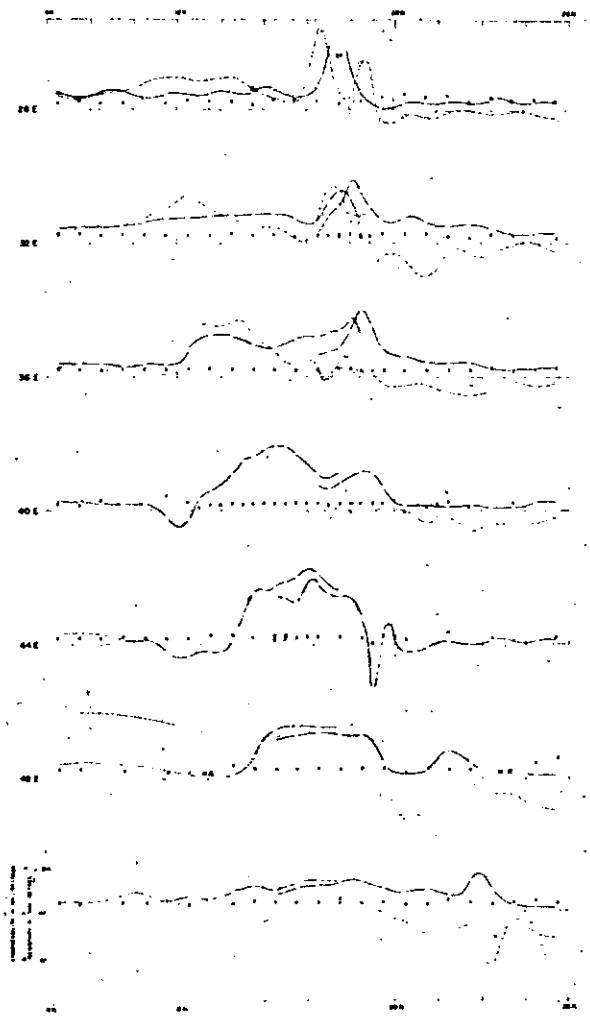
L 72 E
L 76 E
L 80 E
L 84 E
L 88 E
L 92 E
L 96 E
L 100 E
L 104 E
L 108 E
A
B
C
D
E
DETAIL
DETAIL
DETAIL
4N 8N 12N 16N 20N 24N 28N 32N
LEGEND
ZONE OF INCREASED CHARGEABILITY GENERALLY ABOVE 7.0 MILLISECONDS
ZONE OF INCREASED RESISTIVITY GENERALLY ABOVE 200 OHM-METRES
ZONE OF DECREASED RESISTIVITY GENERALLY BELOW 100 OHM-METRES
AUSTRALIAN INLAND EXPLORATION COMPANY INC.
SYMOND WELL PROSPECT
WHIM CREEK AREA
WESTERN AUSTRALIA
INDUCED POLARIZATION SURVEY
GRID AND INTERPRETATION PLAN
SURVEYED AND COMPILED BY
SEIGEL ASSOCIATES AUSTRALASIA PTY. LTD.
SEPT. 1971
JOB N° WA 232
PLATE 1





AUSTRALIAN INLAND EXPLORATION COMPANY INC

LEGEND

GRADIENT ARRAY

CHARGEABILITY

RESISTIVITY

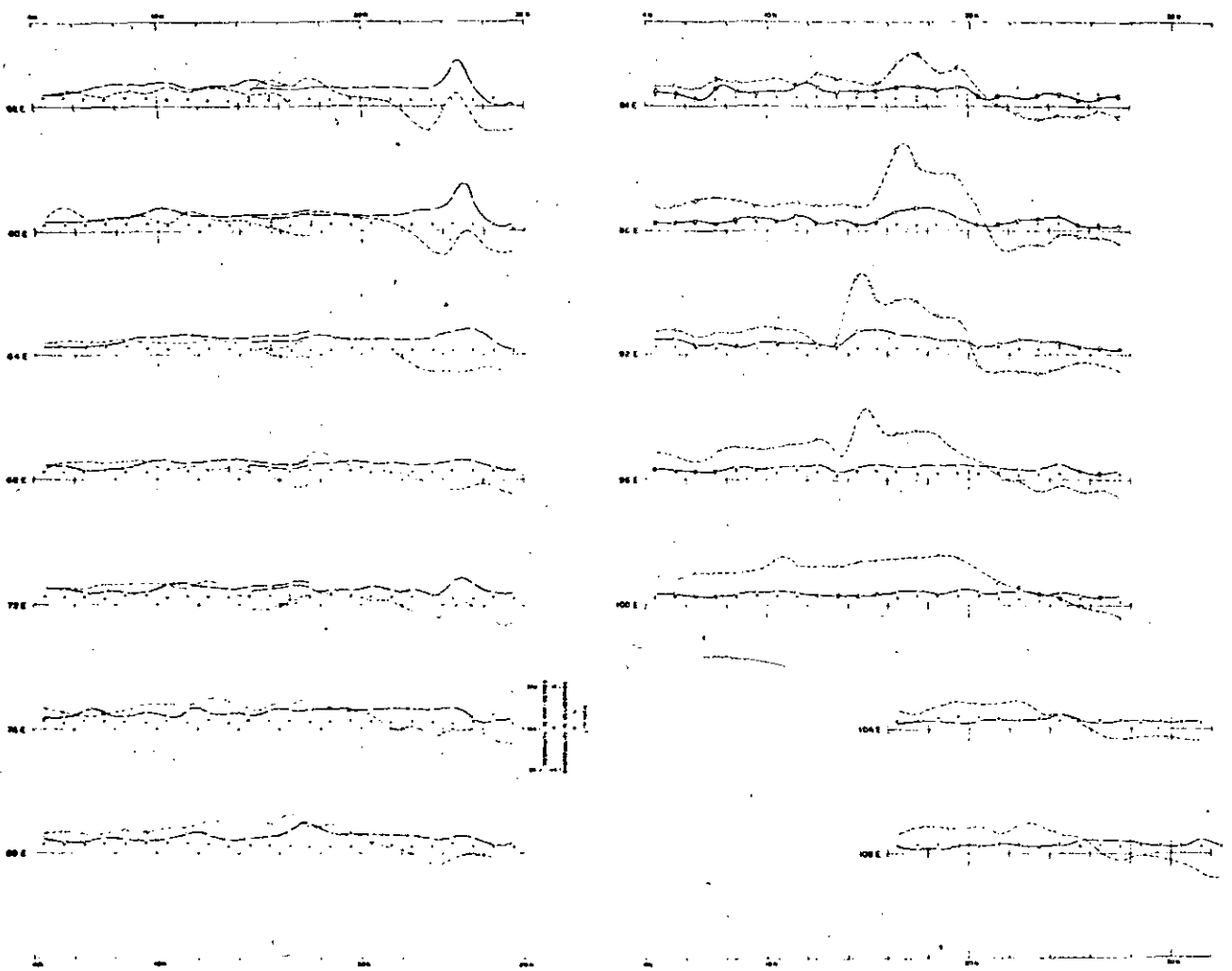
L/W RATIO

SYMOND WELL PROSPECT
WHIM CREEK AREA
WESTERN AUSTRALIA

INDUCED POLARIZATION SURVEY
DATA PROFILES
LINES 0 – 52 E

SURVEYED AND COMPILED BY
SIGEL ASSOCIATES AUSTRALASIA PTY LTD

JOB N° WA 232 PLATE 2



LEGEND

GRADIENT ARRAY

AUSTRALIAN INLAND EXPLORATION COMPANY INC.

SYMOND WELL PROSPECT
WHIM CREEK AREA
WESTERN AUSTRALIA

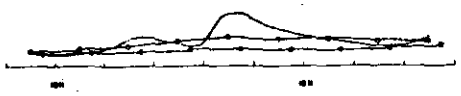
INDUCED POLARIZATION SURVEY
DATA PROFILES
LINES 56—108E

SCALE 1" = 200'

JOB N° WA 232 PLATE 2

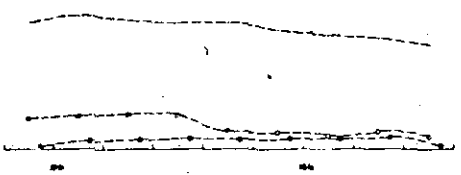
LINE 12 E

CHARGEABILITY



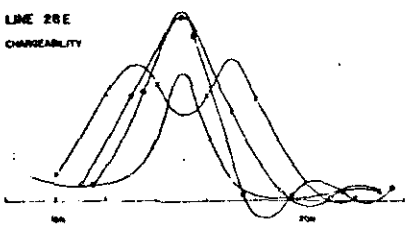
LINE 12 E

RESISTIVITY



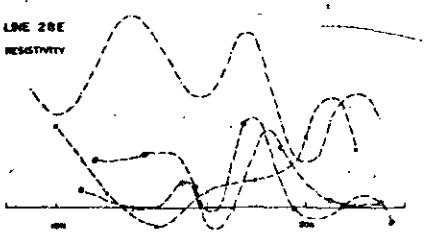
LINE 28E

CHARGEABILITY



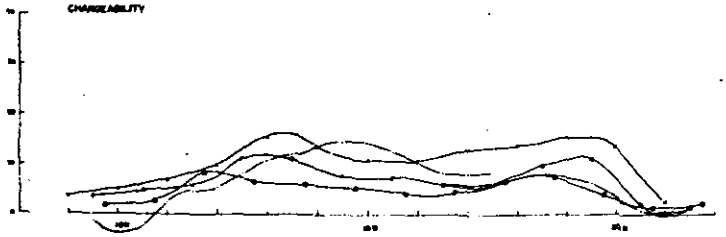
LINE 28E

RESISTIVITY



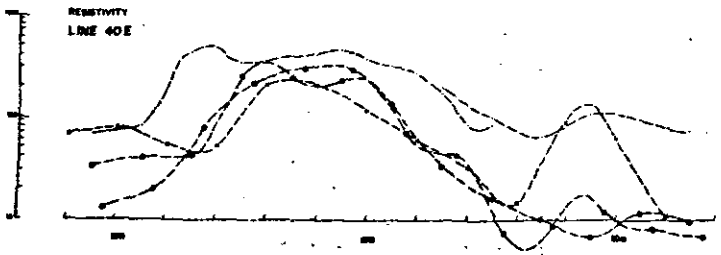
LINE 40E

CHARGEABILITY



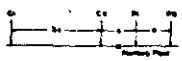
RESISTIVITY

LINE 40E



LEGEND

THREE ARRAY



CHARGEABILITY SCALE

RESISTIVITY SCALE

AUSTRALIAN INLAND EXPLORATION COMPANY INC.

SYMOND WELL PROSPECT

WHIM CREEK AREA

WESTERN AUSTRALIA

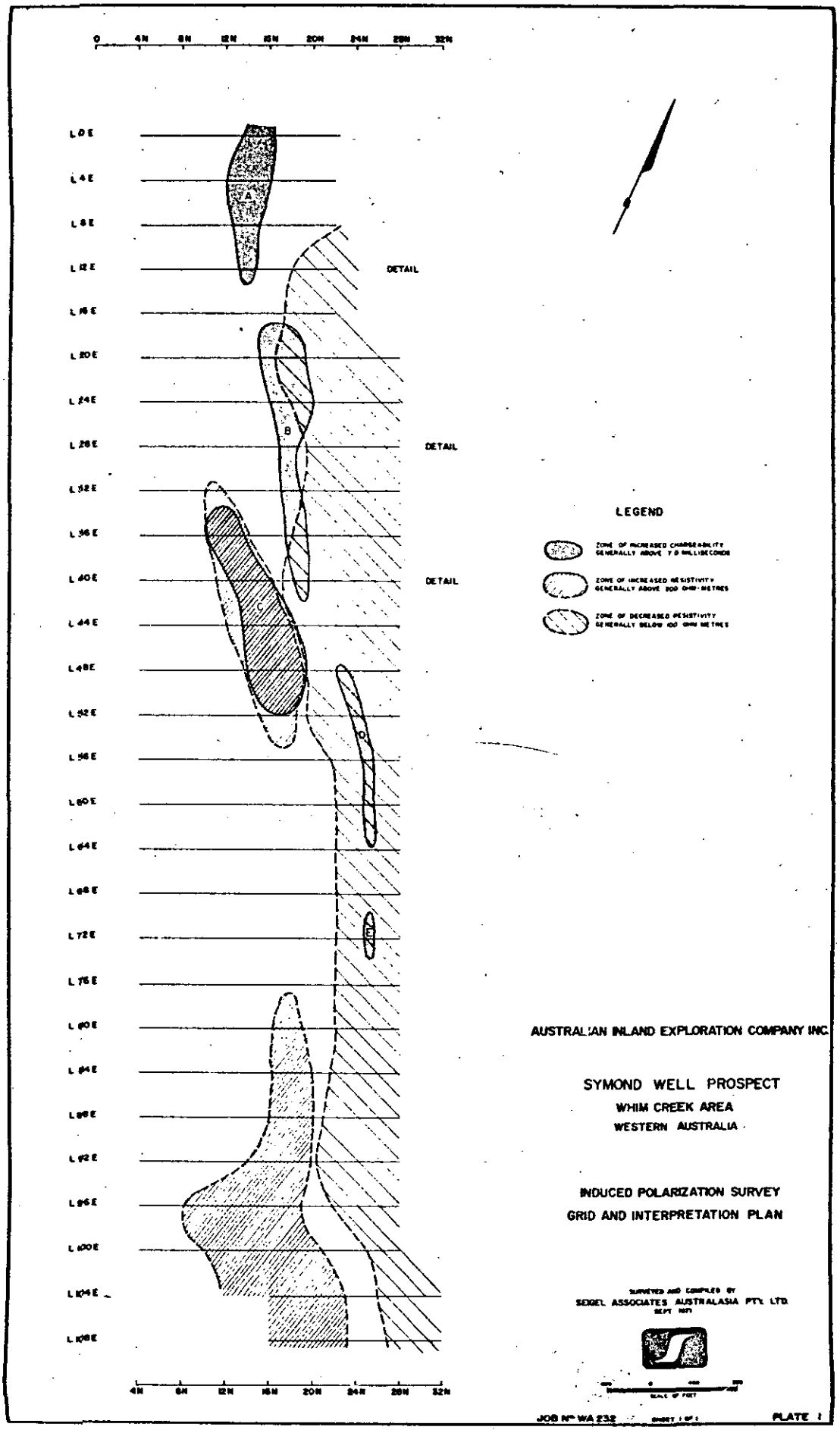
INDUCED POLARIZATION SURVEY

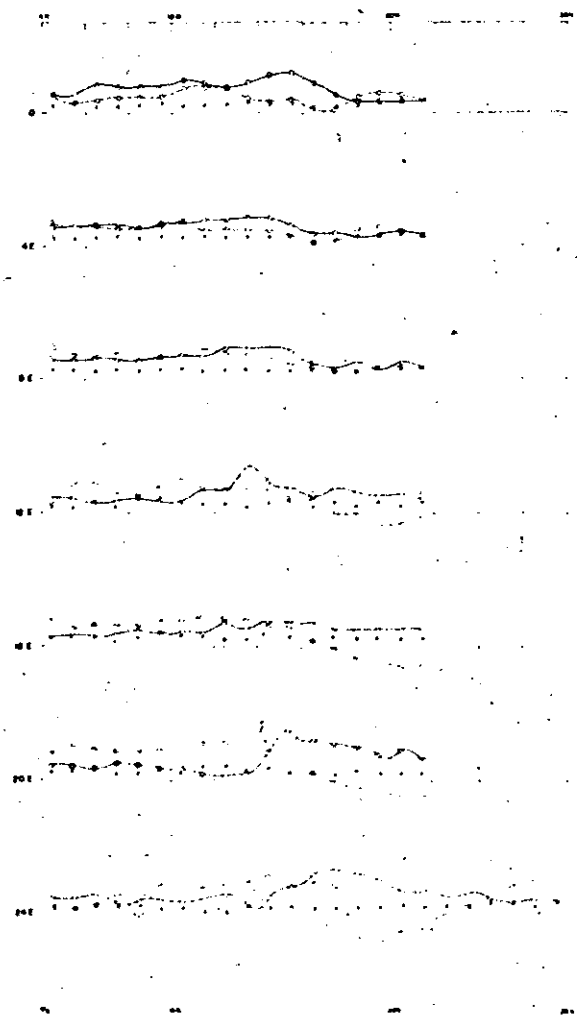
DETAILED DATA PROFILES

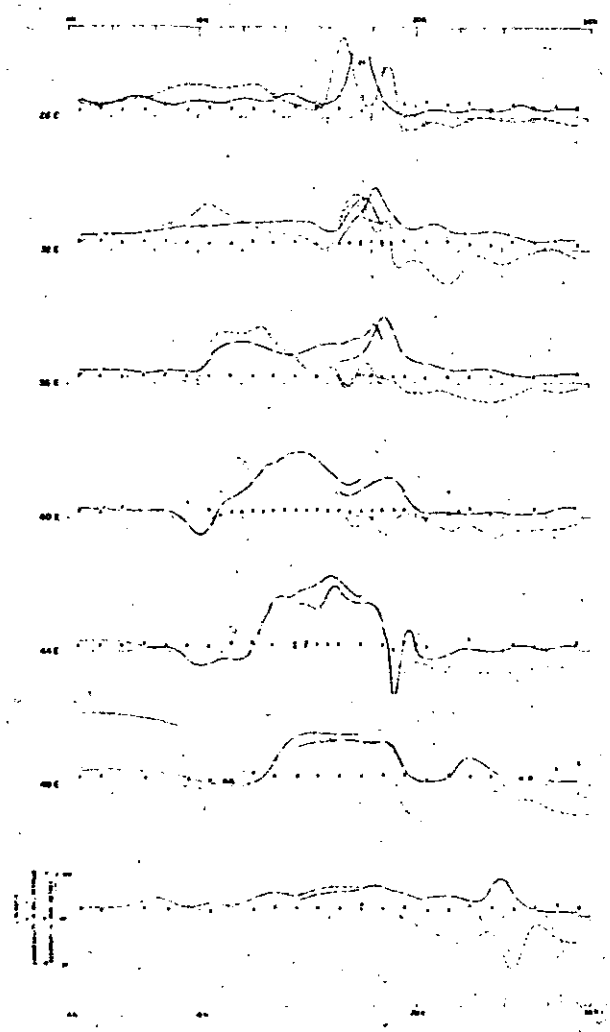
LINES 12, 28, & 40E

MODEL ASSOCIATES AUSTRALASIA PTY. LTD

JOB No WA 232 PLATE 8


0 4N 8N 12N 16N 20N 24N 28N 32N
L 0 E
L 4 E
L 8 E
L 12 E
L 16 E
L 20 E
L 24 E
L 28 E
L 32 E
L 36 E
L 40 E
L 44 E
L 48 E
L 52 E
L 56 E
L 60 E
L 64 E
L 68 E
L 72 E
L 76 E
L 80 E
L 84 E
L 88 E
L 92 E
L 96 E
L 100 E
L 104 E
L 108 E
A
B
C
D
E
DETAIL
DETAIL
DETAIL
LEGEND
ZONE OF INCREASED CHARGEABILITY GENERALLY ABOVE 7.0 MILLISECONDS
ZONE OF INCREASED RESISTIVITY GENERALLY ABOVE 200 OHM-METRES
ZONE OF DECREASED RESISTIVITY GENERALLY BELOW 100 OHM METRES
4N 8N 12N 16N 20N 24N 28N 32N
AUSTRALIAN INLAND EXPLORATION COMPANY INC.
SYMOND WELL PROSPECT
WHIM CREEK AREA
WESTERN AUSTRALIA
INDUCED POLARIZATION SURVEY
GRID AND INTERPRETATION PLAN
SURVEYED AND COMPILED BY
SEIGEL ASSOCIATES AUSTRALASIA PTY. LTD.
SEPT 1971
JOB No WA 232
PLATE 1





AUSTRALIAN INLAND EXPLORATION COMPANY INC

LEGEND

GRADIENT ARRAY

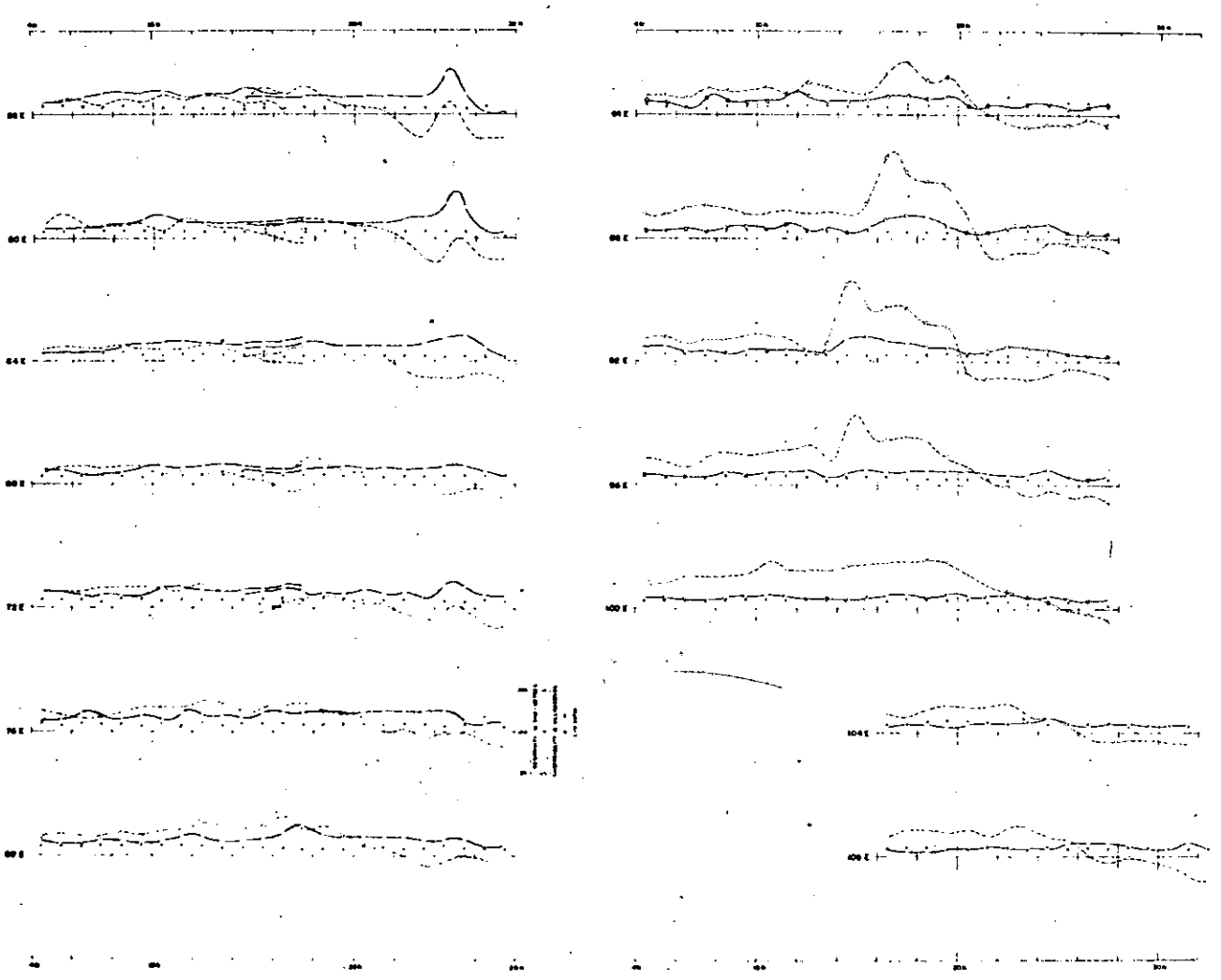
SYMOND WELL PROSPECT
WHIM CREEK AREA
WESTERN AUSTRALIA

INDUCED POLARIZATION SURVEY
DATA PROFILES
LINES 0 – 52 E

SEIGEL ASSOCIATES AUSTRALASIA PTY LTD

JOB No WA 232

PLATE 2



AUSTRALIAN INLAND EXPLORATION COMPANY INC

LEGEND

GRADIENT ARRAY

SYMOND WELL PROSPECT
WHIM CREEK AREA
WESTERN AUSTRALIA

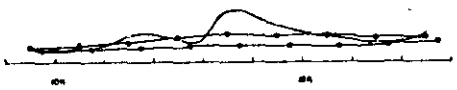
INDUCED POLARIZATION SURVEY
DATA PROFILES
LINES 56—108E

SEIGEL ASSOCIATES AUSTRALASIA PTY. LTD.

JOB N° WA 232 PLATE 2

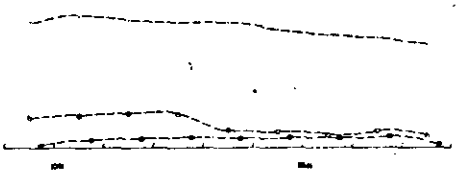
LINE 12 E

CHARGEABILITY



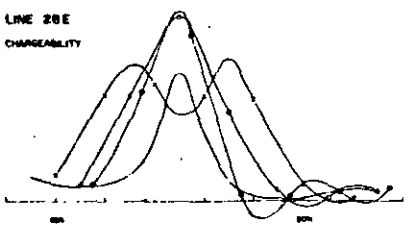
LINE 12 E

RESISTIVITY



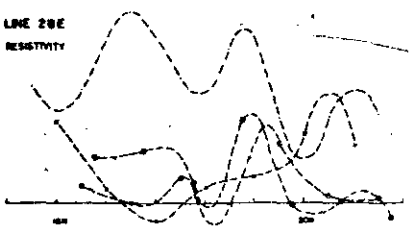
LINE 28E

CHARGEABILITY



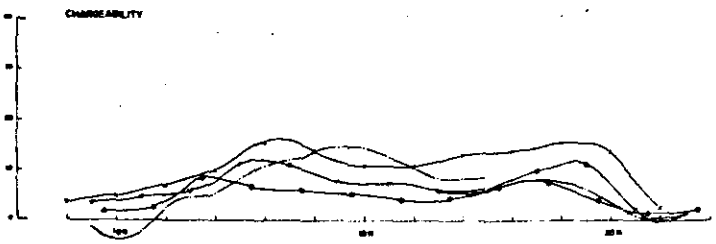
LINE 28E

RESISTIVITY



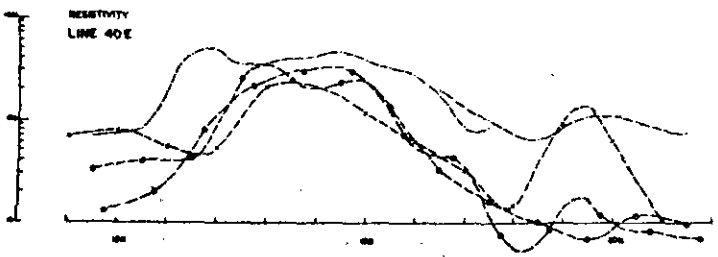
LINE 40E

CHARGEABILITY



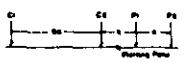
RESISTIVITY

LINE 40E



LEGEND

THREE ARRAY



CHARGEABILITY SCALE

RESISTIVITY SCALE

AUSTRALIAN INLAND EXPLORATION COMPANY INC.

SYMOND WELL PROSPECT

WHIM CREEK AREA

WESTERN AUSTRALIA

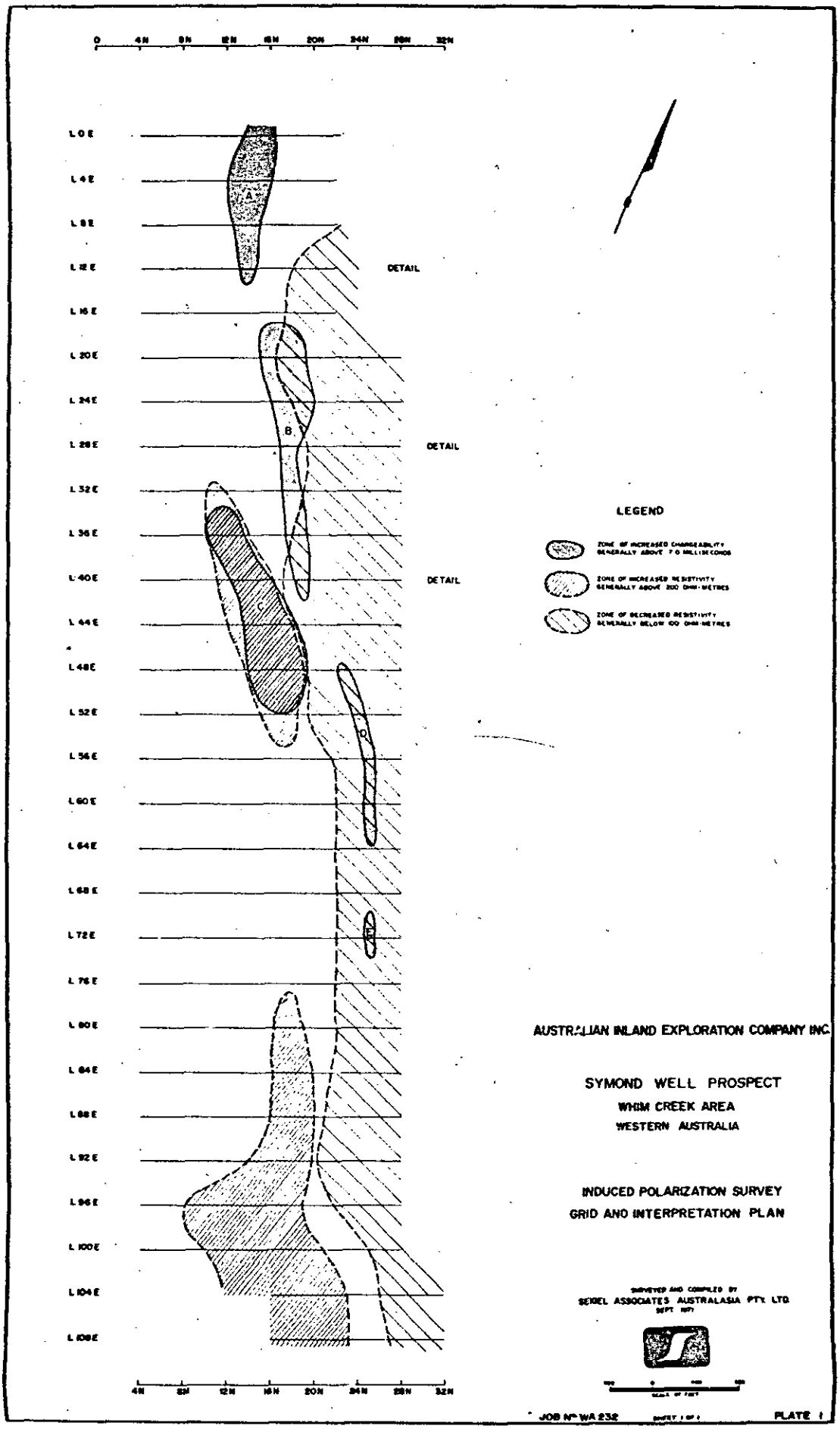
INDUCED POLARIZATION SURVEY

DETAILED DATA PROFILES

LINES 12, 28, & 40E

SEIGEL ASSOCIATES AUSTRALASIA PTY. LTD

JOB No WA 232 PLATE 3


0 4N 8N 12N 16N 20N 24N 28N 32N
L 0 E
L 4 E
L 8 E
L 12 E
L 16 E
L 20 E
L 24 E
L 28 E
L 32 E
L 36 E
L 40 E
L 44 E
L 48 E
L 52 E
L 56 E
L 60 E
L 64 E
L 68 E
L 72 E
L 76 E
L 80 E
L 84 E
L 88 E
L 92 E
L 96 E
L 100 E
L 104 E
L 108 E
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B
C
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E
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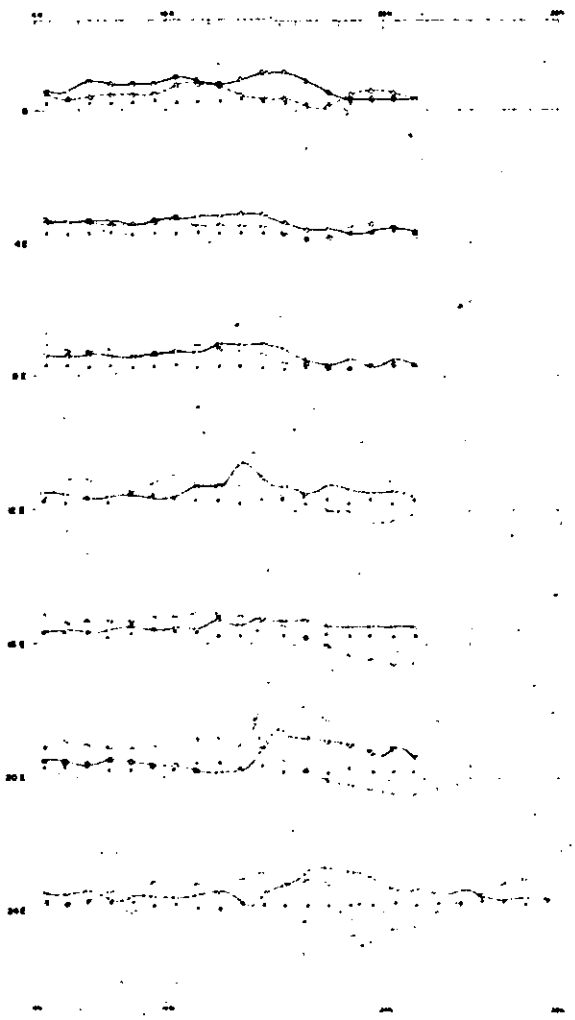
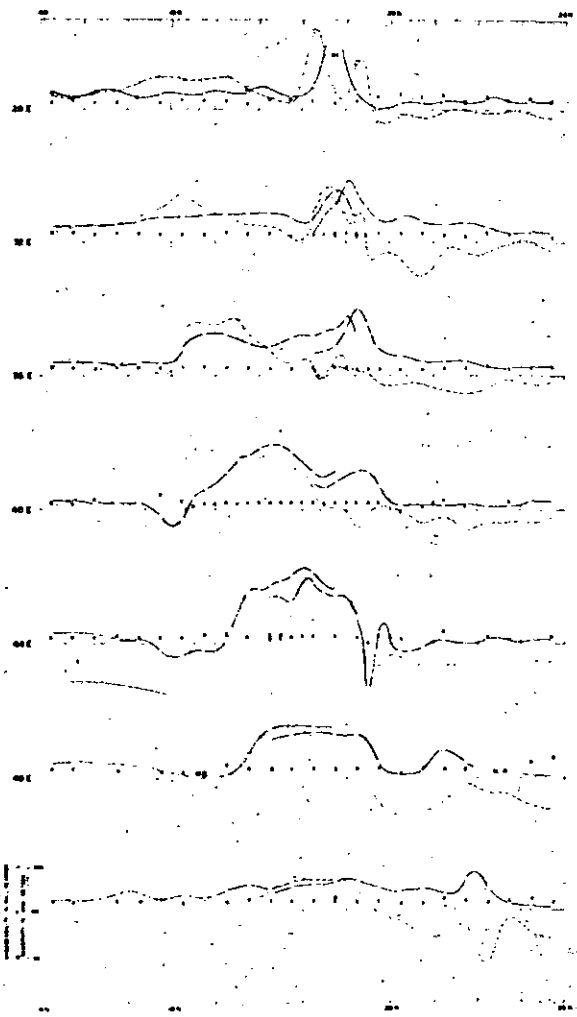
LEGEND
ZONE OF INCREASED CHARGEABILITY GENERALLY ABOVE 7.0 MILLISECONDS
ZONE OF INCREASED RESISTIVITY GENERALLY ABOVE 200 OHM-METRES
ZONE OF DECREASED RESISTIVITY GENERALLY BELOW 100 OHM-METRES
4N 8N 12N 16N 20N 24N 28N 32N
AUSTRALIAN INLAND EXPLORATION COMPANY INC.
SYMOND WELL PROSPECT
WHIM CREEK AREA
WESTERN AUSTRALIA
INDUCED POLARIZATION SURVEY
GRID AND INTERPRETATION PLAN
SURVEYED AND COMPILED BY
SEIGEL ASSOCIATES AUSTRALASIA PTY. LTD.
SEPT 1971
JOB No WA 232
PLATE 1





AUSTRALIAN INLAND EXPLORATION COMPANY INC

LEGEND

GRADIENT ARRAY

CHARGEABILITY

RESISTIVITY

M/R RATIO

SYMOND WELL PROSPECT

WHIM CREEK AREA

WESTERN AUSTRALIA

INDUCED POLARIZATION SURVEY

DATA PROFILES

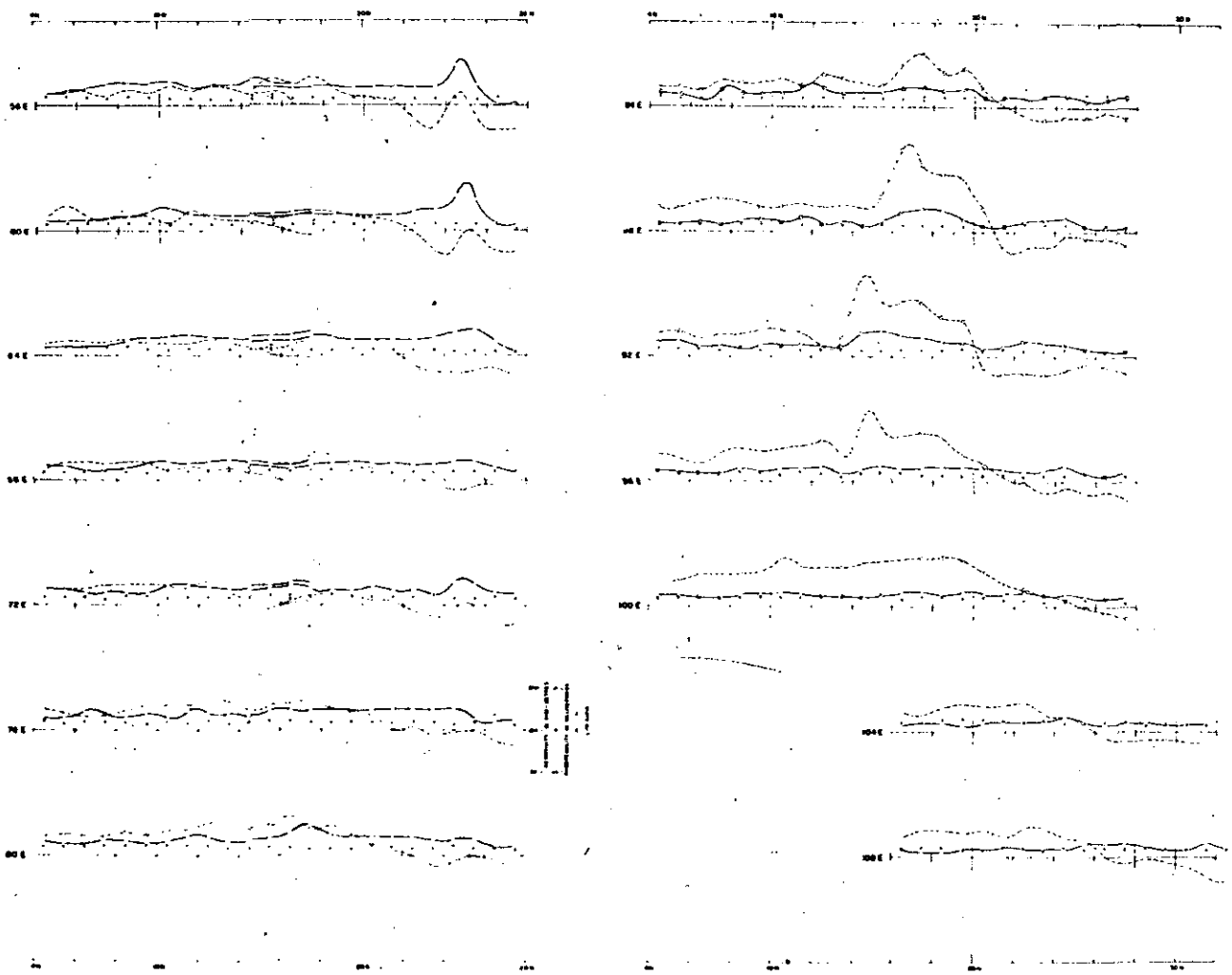
LINES 0 – 52 E

Surveyed and compiled by

SIEGEL ASSOCIATES AUSTRALASIA PTY LTD

JOB N° WA 232

PLATE 2



LEGEND

GRADIENT ARRAY

AUSTRALIAN INLAND EXPLORATION COMPANY INC

SYMOND WELL PROSPECT
WHIM CREEK AREA
WESTERN AUSTRALIA

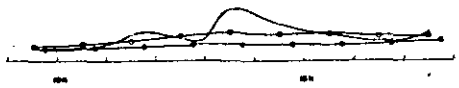
INDUCED POLARIZATION SURVEY
DATA PROFILES
LINES 56—108E

SEIGEL ASSOCIATES AUSTRALASIA PTY LTD

JOB N° WA 232 PLATE 2

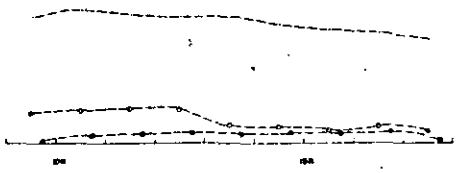
LINE 12 E

CHARGEABILITY



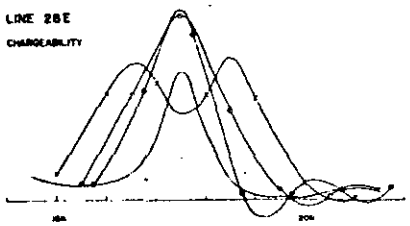
LINE 12 E

RESISTIVITY



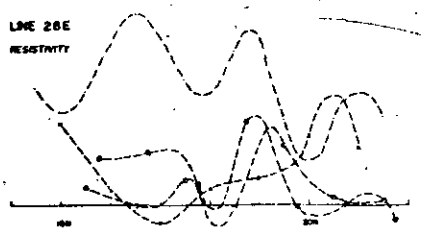
LINE 28E

CHARGEABILITY



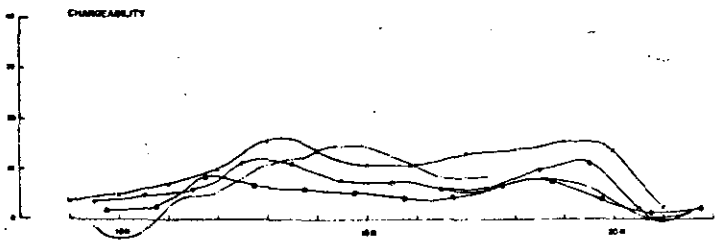
LINE 28E

RESISTIVITY



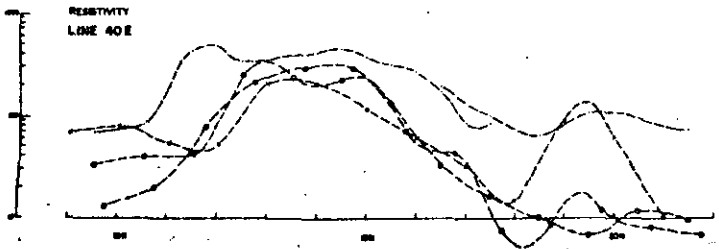
LINE 40E

CHARGEABILITY



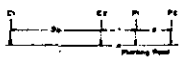
RESISTIVITY

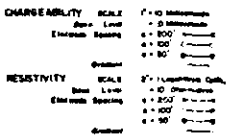
LINE 40E



LEGEND.

THREE ARRAY





AUSTRALIAN INLAND EXPLORATION COMPANY INC.

SYMOND WELL PROSPECT

WHIM CREEK AREA

WESTERN AUSTRALIA

INDUCED POLARIZATION SURVEY

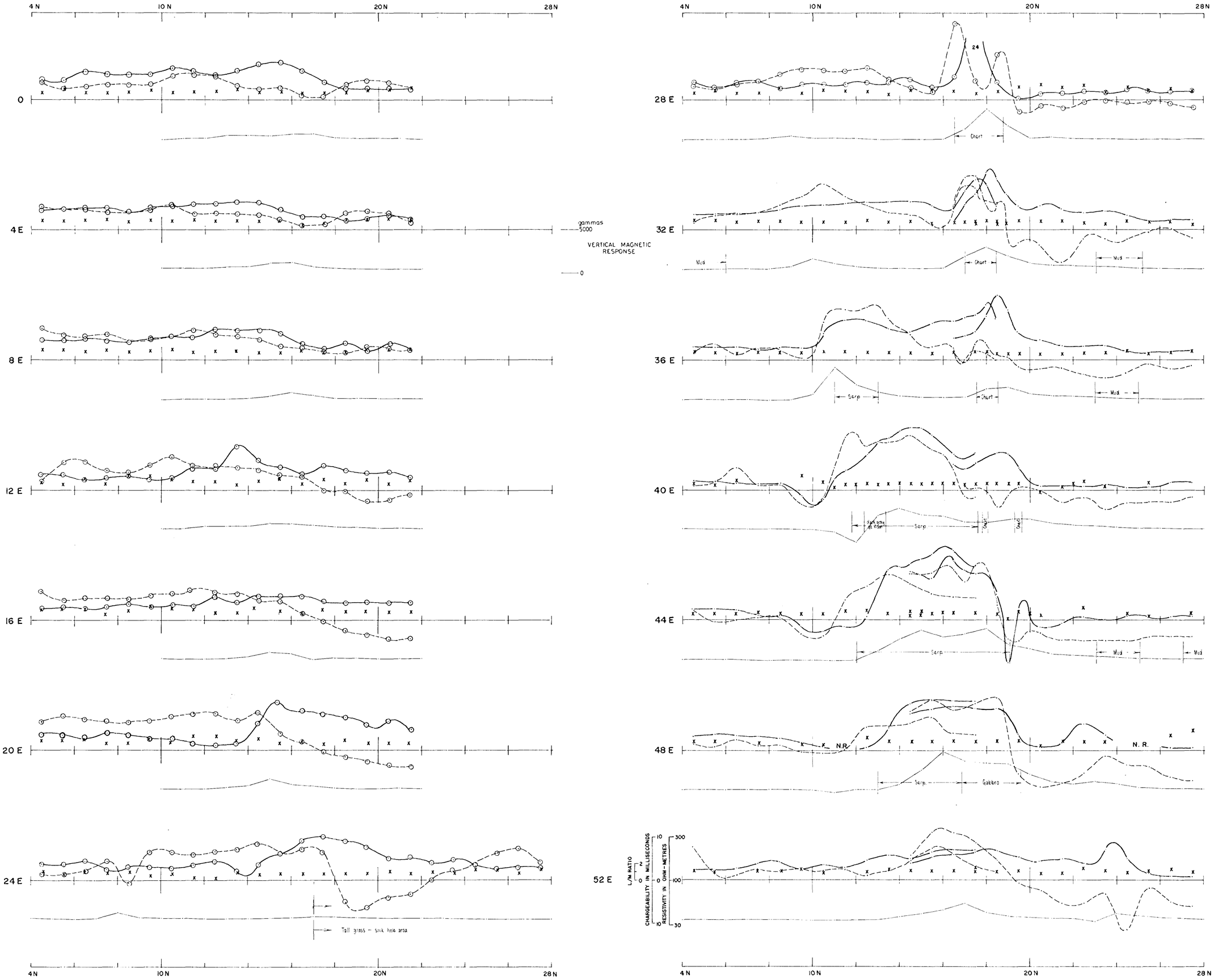
DETAILED DATA PROFILES

LINES 12, 28, & 40E

SURVEYED AND COMPILED BY

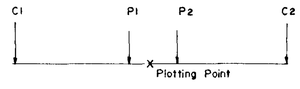
BOND ASSOCIATES AUSTRALASIA PTY. LTD.

JOB No WA 232 PLATE 3



LEGEND

GRADIENT ARRAY



C1 C2 = 3000' ·——· ; 4000 ⊙——⊙
P1 P2 = 100'

CHARGEABILITY SCALE :- 1" = 10 Milliseconds
Base Level = 0 Milliseconds
Symbol ·——·

RESISTIVITY SCALE :- 2" = 1 Logarithmic Cycle
Base Level = 100 Ohm-metres
Symbol ·— — —·

L/M RATIO SCALE :- 1" = 5 Units
Base Level = 0 Units
Symbol x x x x

VERTICAL MAGNETIC RESPONSE
Base Line = 5000 gammas
Scale ~ 1" = 5000 gammas

AUSTRALIAN INLAND EXPLORATION COMPANY INC.

SYMOND WELL PROSPECT

WHIM CREEK AREA

WESTERN AUSTRALIA

INDUCED POLARIZATION SURVEY

DATA PROFILES

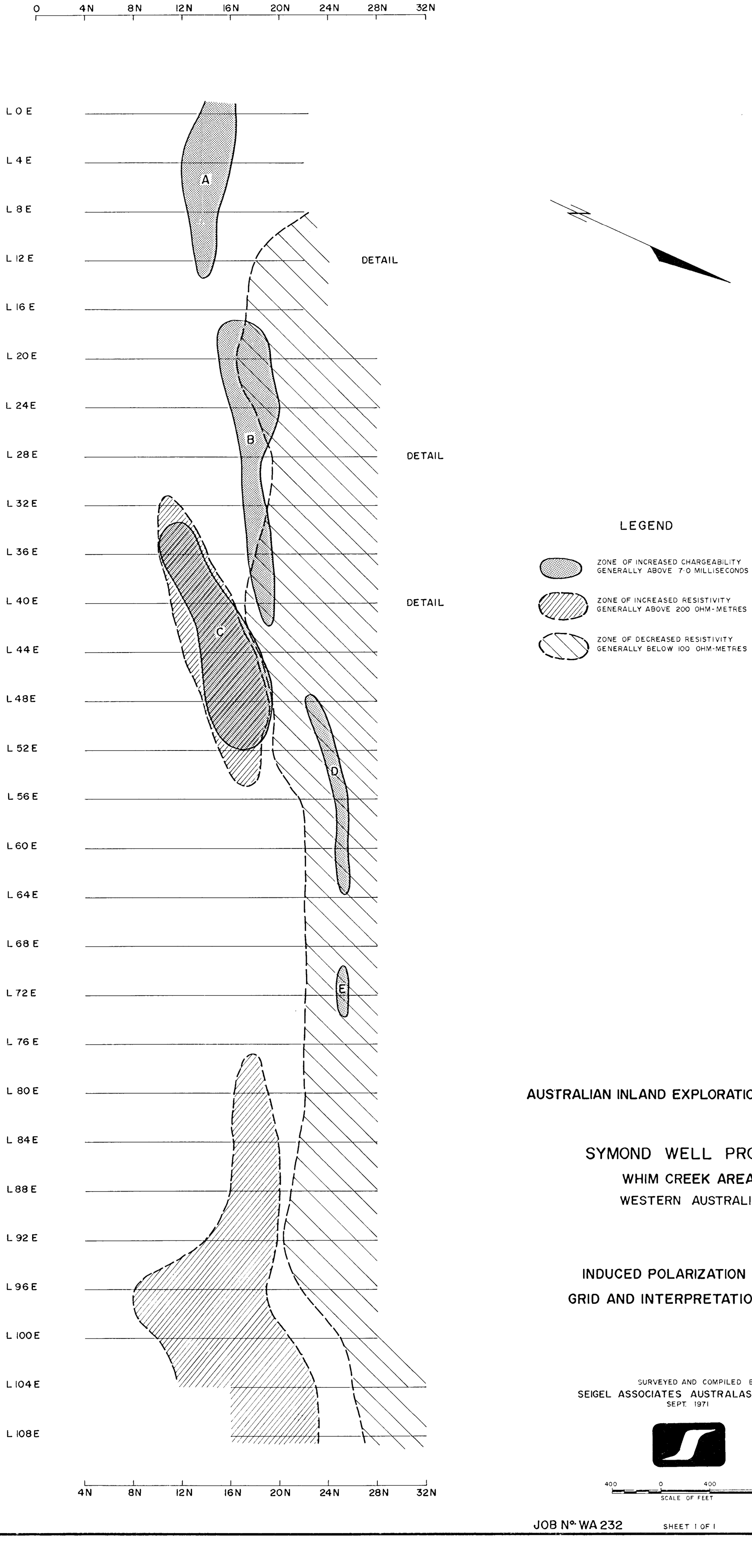
LINES 0 — 52 E

SURVEYED AND COMPILED BY
SEIGEL ASSOCIATES AUSTRALASIA PTY. LTD
SEPT. 1971

0 200 400 600
SCALE IN FEET

936
A 3515

JOB No. WA 232 SHEET 1 OF 2 PLATE 2



LEGEND

ZONE OF INCREASED CHARGEABILITY GENERALLY ABOVE 7·0 MILLISECONDS

ZONE OF INCREASED RESISTIVITY GENERALLY ABOVE 200 OHM-METRES

ZONE OF DECREASED RESISTIVITY GENERALLY BELOW 100 OHM-METRES

AUSTRALIAN INLAND EXPLORATION COMPANY INC.

SYMOND WELL PROSPECT

WHIM CREEK AREA

WESTERN AUSTRALIA

INDUCED POLARIZATION SURVEY

GRID AND INTERPRETATION PLAN

SURVEYED AND COMPILED BY
SEIGEL ASSOCIATES AUSTRALASIA PTY. LTD.
SEPT. 1971

400 0 400 800
SCALE OF FEET

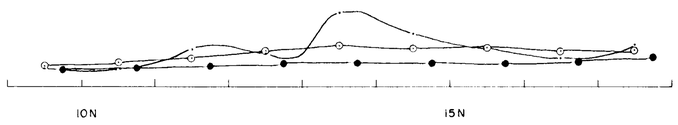
037

A 3515

JOB N°. WA 232 SHEET 1 OF 1 PLATE 1

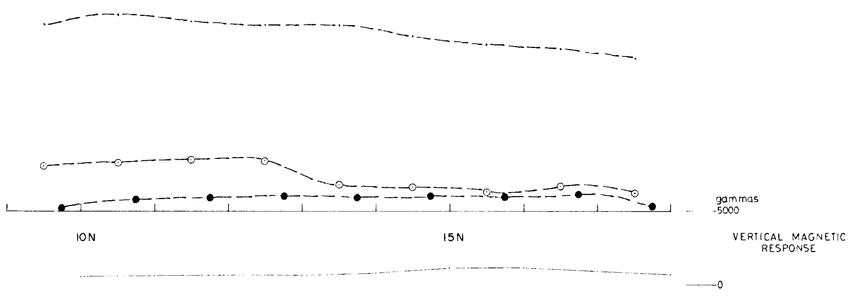
LINE 12 E

CHARGEABILITY



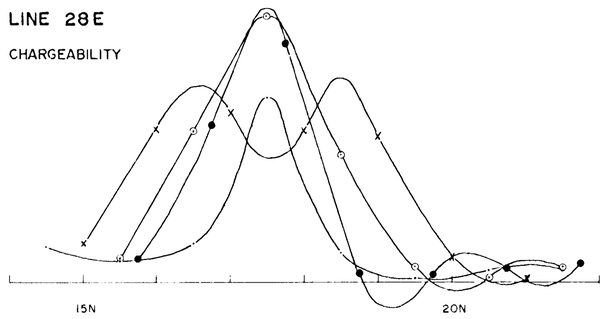
LINE 12 E

RESISTIVITY



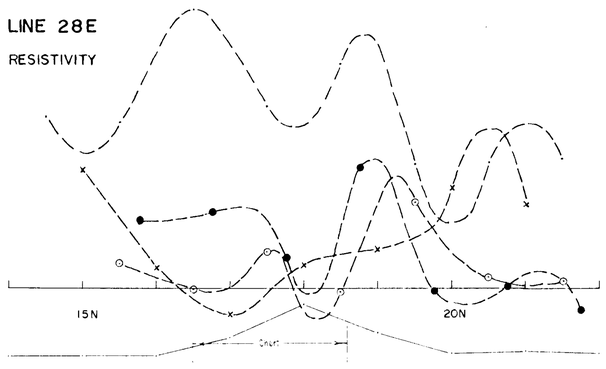
LINE 28E

CHARGEABILITY



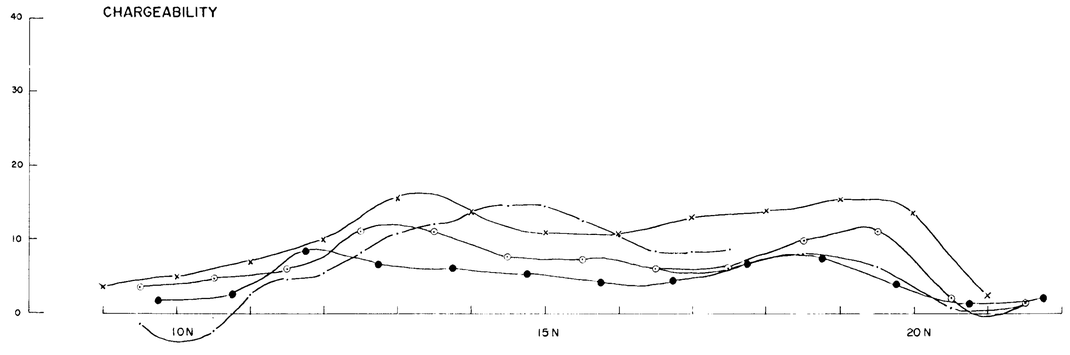
LINE 28E

RESISTIVITY



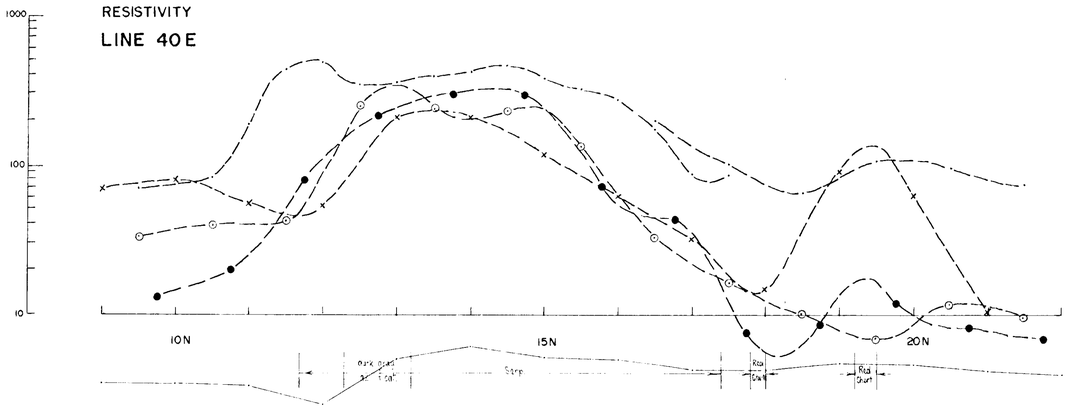
LINE 40E

CHARGEABILITY



RESISTIVITY

LINE 40E



LEGEND

THREE ARRAY

CHARGEABILITY SCALE- 1" = 10 Milliseconds
Base Level = 0 Milliseconds
Electrode Spacing a = 200' x——x
a = 100' ○——○
a = 50' ●——●
Gradient ·——·

RESISTIVITY SCALE- 2" = 1 Logarithmic Cycle,
Base Level = 10 Ohm-metres
Electrode Spacing a = 200' x– – –x
a = 100' ·—·—·
a = 50' ●–·–·●
Gradient ·——·

VERTICAL MAGNETIC RESPONSE
Base Line = 5000 gammas
Scale ~ 1" = 5000 gammas

AUSTRALIAN INLAND EXPLORATION COMPANY INC.

SYMOND WELL PROSPECT

WHIM CREEK AREA

WESTERN AUSTRALIA

INDUCED POLARIZATION SURVEY

DETAILED DATA PROFILES

LINES 12, 28, & 40E

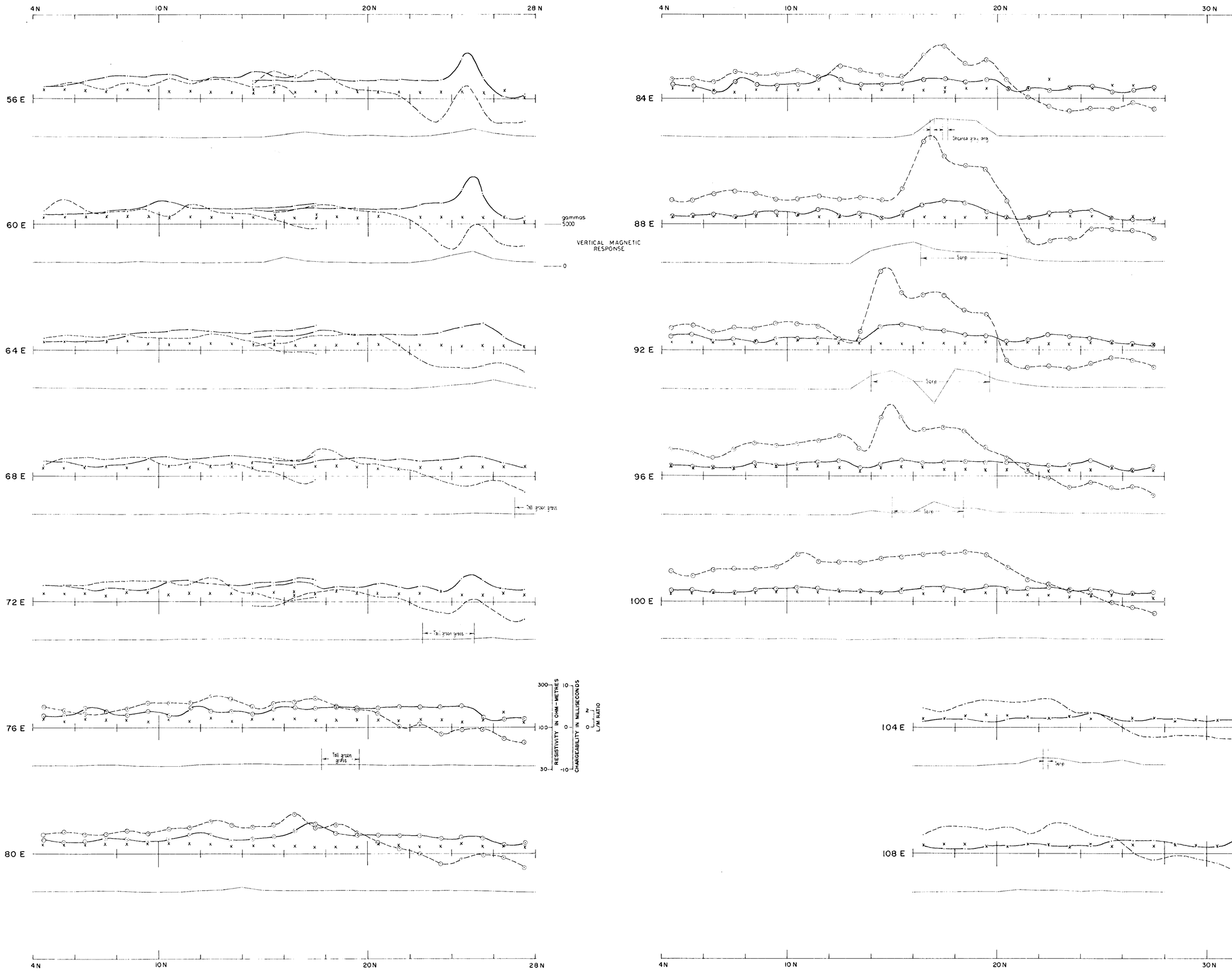
SURVEYED AND COMPILED BY
SEIGEL ASSOCIATES AUSTRALASIA PTY. LTD
SEPT. 1971

0 100 200 300
SCALE IN FEET

0·40

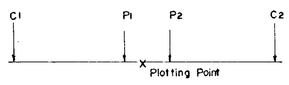
A 3515

JOB N° WA 232 SHEET 1 OF 1 PLATE 3



LEGEND

GRADIENT ARRAY



C1 C2 = 3000' ——·—— ; 4000' ○——○
P1 P2 = 100'

CHARGEABILITY SCALE : 1" = 10 Milliseconds
Base Level = 0 Milliseconds
Symbol ·——·

RESISTIVITY SCALE : 2" = 1 Logarithmic Cycle
Base Level = 100 Ohm-metres
Symbol ·— — —·

L/M RATIO SCALE : 1" = 5 Units
Base Level = 0 Units
Symbol x x x

VERTICAL MAGNETIC RESPONSE
Base Line = 5000 gammas
Scale ~ 1" = 5000 gammas

AUSTRALIAN INLAND EXPLORATION COMPANY INC.

SYMOND WELL PROSPECT

WHIM CREEK AREA
WESTERN AUSTRALIA

INDUCED POLARIZATION SURVEY
DATA PROFILES
LINES 56—108E

SURVEYED AND COMPILED BY
SEIGEL ASSOCIATES AUSTRALASIA PTY. LTD.
SEPT. 1971

0 200 400 600
SCALE IN FEET

039
A 3515

JOB N° WA 232 SHEET 2 OF 2 PLATE 2

M 303
I2097

A 3516 VOL 2

File No.

Name

Address

DATE

From ..... 19.....

To ..... 19.....

Reference .....

File No. .....

Name ..... Address ..... Date ..... 19.....

The

FLAT FILE

Manufactured in W.A.

Sherlock Bay 1972 Annual Report

Appendix 2. Drill Logs

SHELF/BAY No.	
121	

Box 420

M 303

A 35165 V2

APPENDIX II

Diamond Drill Hole Logs - Nos. 1 - 51

Sherlock Bay

AUSTRALIAN INLAND EXPLORATION CO. INC.

LOCATION 12 E - 14 N
ELEVATION 50'±
DRILLERS Selective
STARTED 3rd Nov. 1971
ASSAYS by Pilbara Laboratories

HOLE SBD 1
BEARING Vertical
INCLINATION -90°
COMPLETED 11th Nov. 1971
LOGGED by Leo Jmiller

CORE RECOVERED | DESCRIPTION

0
20
40
60
80
100
120
140
160

No Core

Rock Pit

Andesite Flow

Feldspar porp in part wt some qtz

massive. Some bedding probably parallel to core

dark green

Pilbara L.

	Cu	Ni
62		
62.5		
65		
68		
70		
76		
78.5		
80		
86		
91		
94		
103.5	240	120
113.5		
123.8	5200	180
133		
143		
145.5		
155.5	65	135

002

HOLE SBD; 1 continued

160

165·5 10/10

Andesite Flow

10/10

175·5

4/4

179·5

180

10·3/10·3

189·8

10·2/10·2

200

10/10

200

205'

Andesite Tuff

210

10/10

green, bedding

10/10

about parralled to

220

core axis. Could be greywack

10/10

228'

230

Rhyolite qtz port

232 2/2

end 235'

heavy chlorite - same pa

235 3/3

3750 | 100

= 234

240

NOT SURVEYED

260

280

300

320

340

360

003

AUSTRALIAN INLAND EXPLORATION CO. INC.

LOCATION	28 E 19 N	HOLE	SBD 2
ELEVATION	50'±	BEARING	Grid South 155°
DRILLERS	Selective	INCLINATION	-45°
STARTED	11th Nov. 1971	COMPLETED	18th Nov. 1971
ASSAYS by	Pilbara Laboratories	LOGGED by	L. J. Miller

Depth	Core recovered	Depth (ft)	Description
0	0/15	0	Rock Bit
15'	8.5/8.5	20	
	5.5/5.5		
29	9/9	35'	
38, 39, 41	[illegible]	40	Quartz-Feldspar Porph
41	4/4		feld plus grey feld
45	10/10		porph in part
55	10/10		massive
		60	Gabbro character versus ash flow
65	10/10		actinolite and plagioclase
			altered to clinozoisite
75 NQ	4/4		epidote
79	10/10	80	some ilmenite now
89	7.5/7.5		saussurite
96.5	8.5/8.5		veins of prehnite
		100	and calcite
105	9/9	106'	Ore Bed
114	10/10		quartz-actinolite-garnet-
		120	po-magnetite schist
124	8/8		banded + breccia
132	5/5		
137	5/5	140	some chalcopyrite
142	9.5/9.5		
151.5, 153	1.5/1.5		
	10/10	160	

Pilbara

Interval (ft)	Cu	Ni
80–85	230	190
85–90	280	210
90–95	95	165
95–100	125	175
100–105	65	140
105–110	885	1250
110–115	2300	2900
115–120	2250	3300
120–125	2600	4350
125–130	1500	3150
130–135	1250	2750
135–140	1700	4150
140–145	1400	3950
145–150	1350	3600
150–155	2750	2850
155–160	2200	3800

004

HOLE SBD 2 continued

Co	Ni
820	3850
1750	4250
1650	4180
1980	3950
4400	3350
2550	2700
1050	300
1700	700
1900	625
700	295
455	275
315	310
150	265
65	390

163
165·5
176
180
184·5
192
194
198·5
203
208
211
213·5
215·5
217
225
227·5
237·5
244·5
248
249
259
267
275
280
297
306·5
316·5
325
335
345
355

160
180
200
220
225
240
260
280
291'
300
320
340
360

One Bed
qtz-actinolite-po-mag-schist

Feldspar Porphyry
in siliceous grndm.
blue qtz eyes but
probably rhyolite
ash flow
chloritized in part.

Quartz-Feldspar Por's
felsic comp in
amphibole groundmass
qtz eyes

TROPARI −31° AT 370'
Measurement inside drill rods, no bearing

005

HOLE SBD 2 continued

360 Quartz Feldspar Porph
feld porp in
amphibole groundmass
wt qtz eyes.

380

400

420

435 End.

Tropari −31° at 370'

Measurement inside drill rods,
no bearing

AUSTRALIAN INLAND EXPLORATION CO. INC.

LOCATION 36 E 19·5 N
ELEVATION 50' ±
DRILLERS Selective
STARTED Nov. 20th 1971
ASSAYS by Pilbara Laboratories

HOLE SBD 3
BEARING Grid South 155°
INCLINATION -45°
COMPLETED Nov. 27th 1971
LOGGED by L.J. Miller

CORE RECOVERED

DESCRIPTION

0
20
40
60
80
92'
100
120
140
160

Rock Bit

NO CORE

Ore bird

NQ
BQ

Pilbara Cu	Pilbara Ni
860	1500
360	415
1350	1200
980	1550
1550	2150
820	2200
1200	4500
1800	3150
960	3150
640	3700
1700	4300
840	4300
1000	4600
2300	5350

007

HOLE SBD 3 **continued**

	Pilbara Cu	Pilbara Ni	Amdel Cu	Amdel Ni
	1850	5150		
	510	525		
	325	45		
	1000	150		
	630	85		
	1850	130		
	1700	70		
	2800	80		
	2100	85		
	1250	35		
	1000	90		
			930	140
			260	20
			130	30
			80	20
			50	10

160 Ore Real

180

200

B Basalt Flow

B 220.333'

Quartz-feldspar porphyry ghosts of feld. in siliceous grndm. spks chalco rhyolite ash flow

qz

qz

240

260 261½

HOLE COMPLETED 261·5

NOT SURVEYED

280

300

320

340

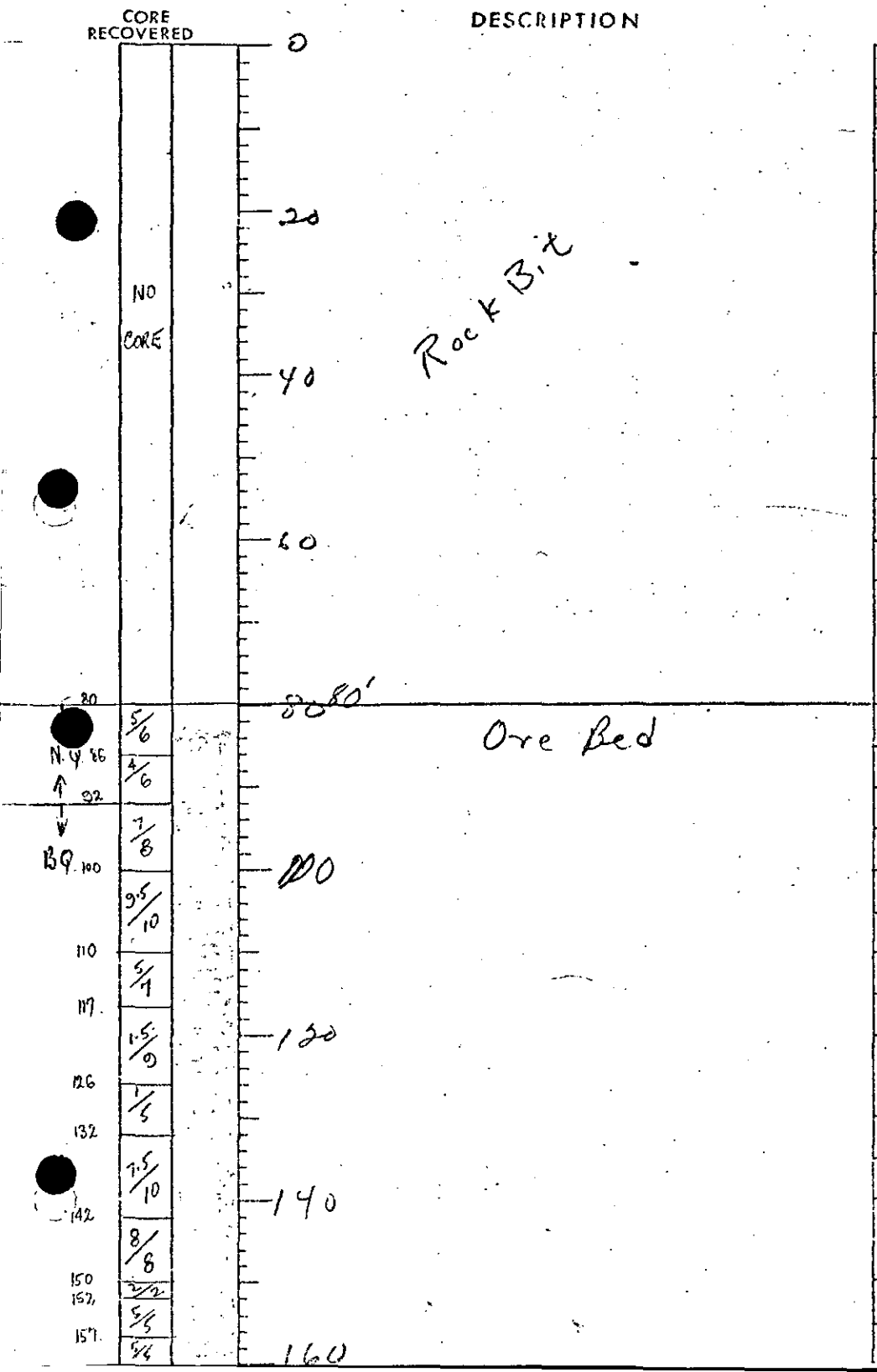
360

003

AUSTRALIAN INLAND EXPLORATION CO. INC.

LOCATION 40 E ~ 19.5 N
ELEVATION 50' ±
DRILLERS Selective
STARTED Nov. 27th 1971
ASSAYS by Pilbara Laboratories

HOLE SBD 4
BEARING Grid South 155°
INCLINATION -60°
COMPLETED Nov. 30th 1971
LOGGED by L.J. Miller



Pilbara Cu	Pilbara Ni	Geomin Co	Geomin Ni		
600	2250				
770	2250				
985	3050				
1850	3700				
1450	3600				
1010	2400				
780	3350				
400	3000				
830	5400				
980	3600				
990	4450				
865	5600				
820	5000				
295	210				
655	190				
365	135				
1600	220	1700	200		
600	170				
445	65				
245	145				
190	130				
225	125				
40	80				
80	265				
190	125				
300	950			099	
440	1600				
1350	2750	1200	2400		

HOLE 513D4 continued

			Cu	Ni
162		164.0 Ore Bed	1300	1650
168	5.5/6 8920	168' Qtz-feld porp	20	80

180

HOLE COMPLETED 168'

TROPARI −58° AT 150'

010

AUSTRALIAN INLAND EXPLORATION CO. INC.

LOCATION 28 E ~ 20 N
ELEVATION 50' ±
DRILLERS Selective
STARTED 1ST DEC. 1971
ASSAYS by Pilbara Laboratories
Amdel
Geomin

HOLE S.B.D 5
BEARING Grid South 155°
INCLINATION -45°
COMPLETED 6th DEC 1971
LOGGED by Lee J. Miller

CORE RECOVERED	DESCRIPTION	Amdel Cu	Amdel Ni	Pilbara 2 Cu	Pilbara 2 Ni	Geomin cu	Geomin Ni
	0 Rock Pick						
	20.						
7.5/9	23. Andesite Ash Flow Tuff Dark green massive felds porp.						
32 6/1							
39 5.5.5	40 41'						
41.5 2/5.5	Rhyolite Ash Fall Tuff ?						
47 1/8	finely bedded rhyo						
55 1½/2							
57 3/4	60 60'						
61 6/1	Andesite Ash Flow Tuff						
68 7/9							
77 1.5/8	80 qtz-feld porp in part						
88 1/3	chloritic dense						
89 6/1	po plus some chalco						
95							
95 .25/10	100 blue qtz eyes						
105 2½/3				Pilbara 2 Cu	Pilbara 2 Ni.		
108 1/3							
111 1.5/4							
115 7.5/8		820	85	505	105	500	84
120	120 Andesite Ash Flow Tuff						
123 7.5/8	wt mag - po - chalco	1500	115	1300	90	1250	74
125							
131	130'	150	45	75	40	72	34
130							
134 3/3	134' Ore Bed mag - chert	50	30				
134							
10/10.5	Andesite Ash Flow Tuff						
	140 qtz - feld porp						
144.5	144						
10/10	Quartz feld. porphyry						011
154.5 2.5/3.5	fine grain						
157	160 massive						

HOLE SBD5 continued

Quartz feld porphyry
massive fine grain feld gabbro
coarser near bottom
contact
chloritized

One Rod

Quartz feld porphyry
large feld pheno
in siliceous groundmass
some bands of chlorite

TROPARI −32° AT 365'
NO BEARING, SURVEY TAKEN INSIDE RODS

Amadeus Cu	Amadeus Ni	Pilbara 2 Cu	Pilbara 2 Ni	Geomin Cu	Geomin Ni
30	95	100	90	100	82
400	360	370	345	450	370
660	3540	2600	1850	2900	1600
2300	2100	3600	2200	3100	2000
1250	2680	1020	2760	1100	2500
770	2720	730	4050	750	4100
1950	2800	1350	2950	1250	2600
800	2760	740	3150		
460	1940	320	2400		
605	2060	640	3850		
870	2680	615	3450		
		640	2200		
605	2140	460	2050		
820	1860	680	1800		
850	1940	900	1900		
870	2440	990	2400		
1550	330	1950	3850		
1200	3120	1320	3550		
970	3420	860	3050		
1300	2440	1150	2450		
		1450	1900		
950	705	870	650		
410	305	480	330		
		1500	545		
630	130	760	135		
45	65	50	75		
40	95	40	70		

HOLE SBD 5 continued

364	4.5/4.5	360	Quartz feld. porph.
	11/11		feld in siliceous matrix
375			
381.5	6.5/6.5	380	

381.5 End.

Tropari −32° at 365'

No bearing, survey taken inside rods.

AUSTRALIAN INLAND EXPLORATION CO. INC.

LOCATION	32 E ~ 19 N	**HOLE**	SBD 6
ELEVATION	50' ±	**BEARING**	Grid South 155°
DRILLERS	Selective	**INCLINATION**	−60°
STARTED	4th Dec. 1971	**COMPLETED**	7th Dec. 1971
ASSAYS by	Pilbara Laboratories Geomin	**LOGGED by**	L.J. Miller

CORE RECOVERED / **DESCRIPTION**

Depth	Core recovered
10–12	2/2
12–18	2/6
18	4/4.5
	6.5/7.5
30	7/8
38	7/7
45	2/4
49	4.5/6.5
55	10.5/10.5
66–69	3/3
	9/9
78	9.5/10
88	9.5/10
98	10/10
108	10/10
118	10/10
128	10/10
138	7/7
145–148	3/3
	9/9
157	10/10

NQ 157 ↕ BQ

0 – Rock Bit

10–14 Ore Bed mag-chert banded

14 – 127' Gabbro
feld porf. Massive
green
chloritized
carbonate + qtz veinlets
some po + chalco

127' – 160 Ore Bed

Depth	Geomin Cu	Geomin Ni	Pilbara 2 Cu	Pilbara 2 Ni
120–125	28	110	25	105
127–130	1050	3500	990	3200
130–135	800	7500	750	6850
135–140	550	3800	540	3600
140–145	490	2400	315	2250
145–150	500	3000	500	2750
150–155	630	5500	590	6000
155–160	1150	5700	1100	6000

014

HOLE 5BD6 continued

160

One Reef

180

200

220

Quartz feldspar porphyry siliceous

240

250'

Feldspar Porphyry feld mesh-mass. little silica some chalco

260

268 End

Survey at 265'

bearing 153°
plunge -44°

280

300

320

340

360

Depth	Geomin Cu	Geomin Ni	Pilbara 2. Cu	Pilbara 2. Ni
165	900	8500	860	7350
170	500	4800	505	5050
175	310	1300	300	1350
180	590	1600	575	1600
185	700	1150	630	1200
190	590	800	570	780
195	1000	200	900	220
200	1200	170	1200	205
205	1200	130	1150	140
210	1050	84	1050	95
215	1300	180	1200	195
220	950	350	860	385
225	1450	1000	1250	890
230	350	1450	340	1450
235	76	102	90	115
240	30	120	30	135
245	200	150	210	170
250	98	144	105	50
255	170	36	160	40
260	26	56	25	55
265	32	160	25	120

AUSTRALIAN INLAND EXPLORATION CO. INC.

LOCATION 28 E ~ 21 N
ELEVATION 50' ±
DRILLERS Selective
STARTED 7th Dec. 1971
ASSAYS by Pilbara Laboratories

HOLE SBD 7
BEARING Grid South 155°
INCLINATION - 60°
COMPLETED 18th Dec. 1971
LOGGED by L.J. Miller

CORE RECOVERED | DESCRIPTION

0
20
40
60
80
88'
Rock Bit
Chert
Andesite Ash Flow Tuffs
qtz fold porp.
banded in part
100
Basalt Flow
vesicular at top
deep chlorite green
when wet
chartreuse when dry
calco sps throughout
140
qtz basalt in part

89
93 4/4
7/7
100 101.5 1.5/1.5
106 4.5/4.5
111 5/5
119 5/8
129 10/10
137 5/8
149 12/12
159 10/10

010

HOLE SBD7 continued

	Pilbara Cu	Pilbara Au	Amdel cu	Amdel Ni
165	45	75		
170	335	65		
200				
205	40	25		
210	50	75		
226			500	80
227				
250				
255	100	115		
260	35	105		
265	80	50		
270	25	60		
275	185	50		
280	260	65		

160 Basalt Flow
qtz basalt deep green
massive
much carbonate
plagioclase mesh
180
199'
200 Aplite Dike
qtz-feld hole xtl
202'
Basalt
220
224
Mag-po-qtz
227 Basalt-Aplite Dike
Andesite Tuff
banded fine grain Tuff
248
chartreuse
260
Ore Bed
banded mag-po-qtz-act-chlorite schist
280
Quartz Basalt
chlorite massive
300
Feldspar Porphyry
feld-chlorite
with xtls enlarging
toward bottom
320
340
360

HOLE 513D7 continued Pilbara

Co	Ni
360	Feldspar Porphyry becoming banded near bottom
380	383'
390	430
2250	1800
1550	2200
1250	2850
1150	2800
820	4050
360	1950
2000	2290
460	3900
1300	2900
1250	3400
1350	4200
750	5550
1050	4650
990	5100
1450	4950
660	2000
1700	880
1350	675
710	440
480	482'
325	55
365	105
470	170
40	165
25	150
35	140
80	140
40	140

Ore Bed

Feldspar Porphyry
Possible silicified
ash flow
feld in siliceous
groundmass:
does not appear
to be silicified
gabbro or granite

547 End

TROPARI AT 530'
bearing 158°
dip −37°

AUSTRALIAN INLAND EXPLORATION CO. INC.

LOCATION	34 E ~ 20 N	HOLE	S.B.D. 8
ELEVATION	50' ±	BEARING	Grid South 155°
DRILLERS	Selective	INCLINATION	-60°
STARTED	7th DEC 1971	COMPLETED	14th DEC. 1971
ASSAYS by	Pilbara Laboratories Amdel	LOGGED by	L.J. Miller

CORE RECOVERED | DESCRIPTION | Cu Ni

0 – 20 – 40 – 60 – 80 – 100 – 105'

Rock Bit

Depth	Core recovered	Description
105	3/3	Feldspar Porphyry
108	3.5/3.5	
111.5	7.5/7.5	Massive Lt green chloritic microgabbro
119	10/10	fine feld mesh
129	10/10	some chalco + po
139	10/10	
149	10/10	
159		160

Interval	Pilbara Cu	Pilbara Ni	Amdel Cu	Amdel Ni
150–155	60	90	110	85
155–160	205	100	220	95

019

HOLE SBD #8 continued

160 — feldspar porphyry, fine grain massive

Core recovery / depths (left margin): 175.5 — 10.5/10.5; 178.5 — 8/8; 180 — 2/8 (?); 188 — 4.5/10; 198 — 4/4; 204 — 4/4; 208 — 10/10; 218 — 10/10; 228 — 4.5/10; 238 — 10/10; 248 — 10/10; 258 — 6/6; 264 — 6/6; 270 — 8/8; 278 — 9/9; 296 — 3.5/9; 303 — 7/7; 312 — 9/9; 321.5 — 9.5/9.5; 330 — 8.5/8.5; 335 — 4/5; 342 — 6/7; 347 — 2.5/5; 352 — 4.5/5

188

196

202 201' — Basalt

Ore Bed

Depth	Pilbara Cu	Pilbara Ni	Amdel Cu	Amdel Ni
200				
205	1300	2300	1500	2500
210	1900	2600	1800	2400
215	1600	2450	1300	2400
220	1000	2250	1300	2200
225	670	2900	1000	2900
230	1900	3550	745	2600
235	10	130	10	115
240	725	3900	820	4400
245	850	4500	790	4000
250	790	4700	1000	3940
255	40	290	40	265
260	55	610	70	510
265	490	2900	520	2960
270	660	8000		
275	370	2750	460	2800
280	560	2650	280	2460
285	170	1350	130	1550
290	430	5150	370	3120
295	180	770	360	590
300	245	465	260	650
305	185	430	240	470
310	265	570		
315	300	80	350	100.

220

240

260

280

300

315 — Basalt

320

328' — Ore Bed

337' — 370 (Amdel Cu), 40 (Amdel Ni)

340 — Basalt

347' — Qtz-feld porph rhyolite

352'

360 End. Not Surveyed.

Right margin: 328, 347

020

AUSTRALIAN INLAND EXPLORATION CO. INC.

LOCATION 40 E, 24 N
ELEVATION 50' ±
DRILLERS ASSOCIATED DIAMOND DRILLERS
STARTED February 24th 1972
ASSAYS by Pilbara Laboratories
Geomin

HOLE SBD 9
BEARING 155°
INCLINATION -46°
COMPLETED March 9th 1972
LOGGED by L.J. Miller

CORE RECOVERED | DESCRIPTION

0
20
40
NO CORE
Rock Rubble
60
80
100
120
130 Andesite Tuff
NO 135 3/5
140
145 0/10
2/15
160
160

021

HOLE SWD9 continued

160 — 160

Andesite Tuff
Finely laminated
creamy siliceous
plus chloritic
bands
alternating green
to variegated

175
180 — 180
191
196
201 — 200
208
215
219 — 220.
230
236
240
244
251
258 — 258'

260 — Rhyolite Ash Fall Tuff
263 — Siliceous cream rhyo.
271
276 — 272'

NQ

280 — 280 — Andesite Ash Flow Tuff
qtz porp within dirty
chloritic matrix
293.5
296
299 — 300 — feldspar porp. part
feldspars within
chloritic groundmass
309
315
325 — 320 — banded at top and
328 — interbedded wt rhyo.
338
341.5 — 340
351.5
353.5
360

022

HOLE SWD 9 continued

Depth	Recovery	Log	Depth mark	Description	Pilbara Cu	Pilbara Ni	Geomin Cu	Geomin Ni	Amdel Cu	Amdel Ni	Scale
	10/10	V	360	Andesite Ash Flow Tuff							
363.5	3/3	V									
366.5	7.5/7.5	V									
374	10/10	V	380								
384	8/8	V V									
392	10/10	V V	393'	Andesite Tuff laminated							
402			400	Feld porp							
	10.5/10.5	V V		Andesite Tuff							
412.5	7/7	V V	419'								
419.5	10/10	B B	420	Basalt							
429.5	3.5/3.5	B B	433								
433	8.5/8.5	V V	436	Silicified Andesite							
		B B	440	Basalt							
441.5	7.5/7.5	B	446								
			449	Quartz-feld porp							
448	5/5	B B	453'	Basalt							453
454			455	Ore Bed Mag-po-asp-gar					130	50	455
	10/10	B B	460	Basalt Flow							
464	8/8	B									
472	10/10	B B	480								
482	10/10	B	487'								
492	10.5/10.5		500	Silicified feld porp Qtz-Feld porp in siliceous grdm.							
502.5	9/9.5		506								
		B B	512	Basalt Flow							
512	10/10			Silicified Gabbro							
522	10.5/10.5	B B	520	Basalt Flow							
		B	531'								
532.5	7.5/7.5	B		Silicified Basalt fine grain chlorite-siliceous massive							535
540		B	540		70	75	74	60			540
	7/8	B B			270	110	290	98			545
548	6/6	B			35	110	48	120			550
554		B			160	140	170	140			555
	7/7		560	Ore Bed	2550	1900	3000	2000			560

Pilbara Cu Ni — Geomin Cu Ni

023

HOLE SWP 9 continued

560 – Ore Bed

580 – Silified feld porp

feld phenos in massive siliceous groundmass grainy qtz mesh

680 – Gabbro

cs feld gabbro

Depth	Recovery
561	6/6
567	6/6
573	6/6
579	8.5/8.5
587.5	7.5/7.5
595	3/3
598	5/5
603	5.5/5.5
608.5	5.5/5.5
614	4/5
619	6/6
	5/5
630	7/7
637	7/7
644	8/8
652	3/3
655	4.5/4.5
659.5	10/10
669.5	9/9
678.5	7.5/7.5
683	7/7
693	10/10
703	2/2
705	10.5/10.5
715.5	10.5/10.5
726	10/10
736	10/10
746	10/10
756	4/4
760	

Depth	Cu (Pilbara 2)	Ni (Pilbara 2)	Cu (Geomin)	Ni (Geomin)
560	2800	4350	3100	4500
565	1050	5400	1100	5000
570	470	930	460	950
575	230	95	230	74
580	255	85	240	68
585	1650	110	1700	88
590	365	175	380	170
595	375	85	380	68
600	460	105	470	90
605	20	80	28	6?
610	195	85	180	70
615				
620				
625	330	55	330	44

HOLE SWD 9 continued

Geomin

	Cu	Ni	
791	8	160	791
801	10	150	801
806	8	150	806
810·3	12	1130	810·3
816	88	880	816
821	230	170	821
826	18	130	826
829	14	130	829
835·5	130	1450	835·5
841	14	250	841
845	22	240	845

770 781 791 801 811 821 831 836·5 845

10/10 11/11 10/10 10/10 10/10 10/10 9/10 5·5/5·5 7·5/7·5

760 780 800 820 840 860 880 900 920 940 960

Gabbro

P P P P P P P

Peridotite

HOLE ENDED 845'

ACID TESTS

0' −45°
500' −42°
830' −26°

025

AUSTRALIAN INLAND EXPLORATION CO. INC.

LOCATION 28 E, 26 N
ELEVATION 50' ±
DRILLERS Associated Drillers Pty Ltd.
STARTED 26th February 1972
ASSAYS by Pilbara Laboratories
Geomin

HOLE SBD 10
BEARING 155°
INCLINATION -60°
COMPLETED 15th March 1972
LOGGED by Leo J Miller

CORE RECOVERED | DESCRIPTION

0
20
40
60
80
100
113'

113
115
NQ
3/3
9/9
124
8.5/8.5
132.5
135.5
3/3
8.5/8.5
144
147
3/3
8.5/8.5
155.5
159
3.5/3.5

120
140
160

Andesite Tuff

Fine + cs. banded andesite tuff, very small feld. in chl groundmass 30% siliceous laminae

Excellent tuff

134 - 143 fine banding

026

HOLE SWD 10 continued

160

171'

174' Rhyolite Tuff

Andesite Tuff Lt green

180

183' Andesite Flow Top breccia - carbonated

Gabbro Tuff

190'

Andesite Tuff

coarse bedded

200

220

222'

Greywacke

226' siltstone plus mudstone

Andesite Tuff

wt much injection qtz + carbonate

qtz lenticles

240

242'

245' Siltstone wt seepy chl. Andesite Tuff

Andesite Tuff - Flow Mixture

252' Flow Top qtz

Andesite Tuff

260

Rhyolite Tuff

qtz porp in part

but essentially fine

Ash Fall Tuff

280

286'

Andesite Tuff

finely laminated

Ash fall tuff

300

laminae of chlorite

an some silica

Light chartreuse

green

320

335'

Andesite Feldspar Porp.

340

Ash Flow Tuff, welded

feldspars in chloritic

matrix (spotted

360

027

HOLE SWD 10 continued

360
Andesite Felds Porp welded Tuff Ash Flow
380
400'
Gabbro
408'
Andesite Ash Flow Tuff
418'
420 422' Gabbro
Andesite Ash Flow Tuff
435'
Gabbro
440
448
Andesite Ash Flow Tuff qtz-feld porp.
460 462
Andesite Ash Fall Tuff some feld & qtz phenos
480
485
Gabbro
500
520
538'
540 Andesite Ash Fall Tuff banded tuff w/ few qtz-feld phenos in chloritic groundmass
559'
560

028

HOLE SWD10 continued

562 — 560 563' Andesite Ash Flow Tuff
Basalt Flow
Massive lava flow
some felt pheno.
chloritic groundmass
575 — 580
585 — 585' qtz vein lower contact
Rhyolite Ash Fall Tuff
siliceous banded (Marker)
592 — Andesite Ash Fall Tuff
595.5 — some siliceous bands
603.5 — 600 chloritic
609 — green
616 — 618'
625 — 620 Basalt Flow
with some banding
of silica
635 — slighty porp.
645 — 640 vesicular in part
651 — Large red garnets
661 — 660 banded with rhyolite
667 — 657 - 665'
675 — 680 683'
Rhyolite Ash Fall Tuff
684.5 — layered silica
at times appears
704.5 — 700 as greywacke
707 — 715'
717 — 720 Basalt Flow
727.5 — massive chloritic
737.5 — some grainy texture
747.5 — 740 vesicular in part
757.5 — 760

HOLE SWD 10 continued

Run depth	Recovery	Depth	Lithology / description
	10/10	760 – 764'	Basalt Flow
767.5	5.5/5.5	– 774'	Gabbro. Lt when dry – dark wet
	12/12	780	Basalt Flow, very chloritic
785	10/10		
795	10/10		Gabbro
		800	Basalt Flow, vesicular
805	10/10		
815	10/10	820 – 821	
		– 828'	Gabbro
	13.5/13.5		Basalt Flow, very fine chloritic, vesicular wt qtz eyes
838.5	8/8	840 – 850'	
846.5	8.5/8.5		Ore Bed: qtz-mag-po-act.-chl. schist. Some chalco. No garnet observed. Qtz bands appear as chert. Abundant carbonate
857.5	2.5/2.5	860	
	7.5/7.5		
865	4/4		
869	10/10		
879	6/6	880	
	15/15		
900	6/6	900	
906	5/5		
911	10/10		
921	10.5/10.5	920	
931.5	10/10		
941.5	10/10	940	
951.5	7/7		
958.5		960	

Depth	Pilbara Cu.	Pilbara Ni.	Geomin Cu	Geomin Ni
840–845	505	80	560	82
850	415	260	460	280
855	1450	1150	1500	1300
860	1040	2100	1200	2550
865	555	3250	700	3600
870	850	3900	1000	4100
875	630	3000	700	3000
880	2350	3300	2300	3500
885	610	3750	700	4100
890	125	1050	170	1300
895	700	3400	900	3900
900	870	5100	1050	5900
905	700	4600	850	5400
910	540	5700	650	7500
915	580	4450	700	5200
920	620	4050	750	4600
925	690	3800	800	4100
930	375	2950	410	3400
935	590	3800	640	4600
940	800	3250	1000	4000
945	910	4350	1100	5000
950	600	4550	800	5200
955	1000	3850	1250	4400
960	2100	2700	2300	3100

030

HOLE SWD 10 continued

Pilbara. Cu.	Pilbara. Ni	Geomin. Cu.	Geomin. Ni	Amdel Cu.	Amdel Ni
2500	3250	2850	3900		
2000	1850	2050	2000		
1600	2750	1650	3300		
760	1150	950	1500		
80	100	78	92		
				110	30

960
965
970
975
980
985
995

968.5
975
982
992
1002
1005
1012.5
1035
1038
1048
1058
1068
1078
1088
1098
1110
1119

10/10
5.5/6.5
7/7
10/10
10/10
3/3
7.5/7.5
11/11
11.5/11.5
3/3
10/10
10/10
10/10
10/10
10/10
10/10
10/10
10/10

960
977'
980
1000
1030
1034'
1040
1060
1080
1100
1119' end
1120
1140
1160

Silicified feldspar porp
qtz-feld porp in
part
mainly siliceous
wt ghosts of feld

S
S
S

Gabbro
med grain holo cryst
gabbro

TROPARI 490'
bearing 150°
Dip 32°

ACID TEST 1000'
Dip 22°

031

AUSTRALIAN INLAND EXPLORATION CO. INC.

LOCATION 52 E - 28 N
ELEVATION 50' ±
DRILLERS Associated Drillers Pty Ltd.
STARTED 10th March 1972
ASSAYS by Pilbara Laboratories
Geomin

HOLE SBD 11
BEARING 155°
INCLINATION - 45°
COMPLETED 19th March 1972
LOGGED by L.J. Miller

CORE RECOVERED | DESCRIPTION

0 Rock Bit

20

Andesite Tuff w alternating lt + dk tuff ½" to fiber laminae

40

10

73'

Andesite Tuff
feldspar mosaic
carbonate layering
wt chlorite

80

109'

Andesite Tuff
qtz grains rusty
bands of sericite - chl.

120

129'

Andesite Flow Top
Chlorite Schist

Andesite Tuff

140

Andesite Ash Flow Tuff

032

Rhyolite Tuff Bnk

160

Basalt Flow
shear banding
chloritic
carbonate + qtz
injection

180

200

202

Andesite Tuff

219'

Rhyolite Pins

Basalt

233'

235

Rhyolite

Basalt
chaotic
carb + qtz inj.

240

260

272'

Rhyolite -
siliceous massive
ghosts of qtz eyes
white

280

300

320

335

Andesite Ash Flow Tuff
Feldspar Porp.

340

360

HOLE SWD 11 continued Pilbara Geomin

	Cu	Ni	Cu	Ni		
360 Andesite Ash Flow Feld porp. 380						
Quartz Gabbro feld porp in chl-amph groun. 400 413'						
Silicified Andesit Tuff banded siliceous ... wt fold mesh. qtz porp in part chloritic - contorted 420 440 445'	65	105	88	101		430
	60	100	60	90		435
	95	100	100	82		440
	135	315	170	330		445
Ore Bod	790	3250	950	3200		450
	1750	5250	1900	6000		455
460	1750	2550	1950	3100		460
	1700	1000	1800	1200		465
	1200	600	1350	580		470
	1100	550	1250	550		475
480	1700	525	2000	590		480
	1600	330	1950	330		485
	800	205	1100	240		490
	355	110	400	98		495
500	730	175	900	170		500
	980	245	1100	220		505
	1250	245	1350	230		510
	455	140	530	150		515
530	730	95	800	86		520
535						525
Silicified Andesite Tuff banded feld mesh chloritic 540 545	385	100	400	110		530
TROPARI 535' Bearing 145° Dip 30°						535
	.24%	.19%				

034

AUSTRALIAN INLAND EXPLORATION CO. INC.

LOCATION	21 E ~ 18 N	HOLE	SBD 12
ELEVATION	50' ±	BEARING	Grid South 155°
DRILLERS	Associated Diamond Drillers	INCLINATION	-45°
STARTED	16th March 1972	COMPLETED	24th March 1972
ASSAYS by	Pilbara Laboratories Geomin	LOGGED by	L. J. Miller

CORE RECOVERED — DESCRIPTION

Depth (ft)	Core recovered	Description
0	0/33	0 – 68' Rock Bit
33	1.5/3.5	
36.5	2/7.5	
44	2/10	
54	2.5/2.5	
56.5	1.5/1.5	
58	1.5/3	
61	2/3	
64	1.5/2	
66	3/3	
69	1/1	68' Andesite Flow
70	10/10	
80	4/4	
	9/9	
93	11/11	
104	10/10	
114	5.5/6.5	114' Andesite Tuff
120.5	1/3.5	
124	5/10.5	
134.5	1.5/2.5	
137	6/7	
144	12/12	Andesite Flow
156		

NQ ↑ / BQ ↓ (at 80)

Depth scale: 0, 20, 40, 60, 80, 100, 120, 140, 160

035

HOLE SBD 12 continued

Depth (ft)	Lithology
160–249	Andesite Ash Flow Tuff
249–254'	Rhyolite qtz-feld-porp
254–301'	Andesite Ash Flow Tuff
301–306'	Mag-chert-chl.
306–360	Rhyolite qtz eye porp

Interval to	Core recovery
164	8/8
174	10/10
184.5	9/10.5
194	9.5/9.5
198	4/4
208	10/10
214	6/6
222	8/8
232	10/10
242	10/10
254	12/12
264	10/10
274	10/10
281	6/7
286	5/5
292.5	6.5/6.5
306	13.5/13.5
323	17/17
333	10/10
337	4/4
342.5	5.5/5.5
347.5	5/5
350	2.5/2.5
360	10/10

Depth	Pilbara ? Cu	Pilbara ? Ni	Geomin Cu	Geomin Ni	Amdel Cu	Amdel Ni
190–195	3650	270	4300	260		
195–200	1700	125	1850	104		
200–205	380	195	400	90		
205–210	870	110	1000	86		
210–215	1030	110	1200	82		
215–220	390	100	350	84		
220–225	2950	90	3000	86		
225–230	160	90	160	92		
301–306					500	40
340–345	165	100	180	88		
345–350	610	100	580	82		
350–355	1200	530	1400	540		
355–360	1350	510	1500	500		

036

HOLE SBD#1 continued

Pilbara · Geomin

Cu	Ni	Cu	Ni
880	390	1100	370
420	100	460	88
500	110	444	102
25	85	30	62
55	130	80	94

360
365
370
375
380
385

10/10
13.5/13.5
5.5/5.5

360

Rhyolite
qtz-chl ramp.

370

380

383.5

389

389' end

400

TROPARI AT 380'
bearing 135°
plunge −29°

AUSTRALIAN INLAND EXPLORATION CO. INC.

LOCATION	60 E - 27 N	**HOLE**	SBD 13
ELEVATION	50' ±	**BEARING**	155°
DRILLERS	Associated Diamond Drillers	**INCLINATION**	-60°
STARTED	20th March 1972	**COMPLETED**	25th March 1972
ASSAYS by	Pilbara Laboratories Geomin	**LOGGED by**	L. J. Miller

CORE RECOVERED	Depth	DESCRIPTION
0/100	0 – 100	Overburden
100–107: 4/7 107–116: 5/9 116–124: 7/8 124–127	100 – 127'	Quartz - Sercite Schist (Rhyolitic Tuffs) few qtz eyes, laminated qtz + sericite, rare sulp. some chlorite, contorted in places, light colored, (50° contorted; 80° at 127')
124–133.5: 9.5/9.5 133.5–144: 10.5/10.5 144–150: 6/6 150–155.5: 5.5/5.5 155.5–159: 4/5	127' – 159'	Chlorite - Carbonate Schist (Andesitic Tuffs / Flow Tuffs) no qtz, green, lightly schisted, carbonate occurs as crystals and appears porphyritic

NQ 144 – 150 – LQ 155.5

Depth markers: 0, 20, 40, 60, 80, 100, 120, 140, 159', 160

038

159

HOLE 13 continued

Pilbara 2. / Amdel / Geomin

160 Magnetite - Quartz - Sericite Schist
10° upper contact 12" chlorite, small qtz. eyes, light color, prob rhyo. Tuff
167

Chlorite schist, some carbonate stringers prob. Andesite tuff — Basalt
172

Basalt
180 injection stringers, some specks py. finely laminated

~~Gabbro~~ ~~Basalt~~ Magnetite - qtz - chl schist
200
213 - 215

0° Chlorite schist wt qtz stringers, fine laminated — Basalt
0° prob. Andesite tuff
218

220 Chlorite schist, not laminated. — Basalt
carbonat crystals, prob Andesite
230 increasing Po 1%, lt grn. flow

Chlorite laminated schist — Basalt
240 increase qtz, lt gn.
specks po.
15° prob. Andesite tuff.
259
260

~~Ore Bed~~
Banded Chert wt banded Magnetite - pyrrhotite chlorite - schist
Up to 30% po + 30% Mag.
280
Spot sample take 359' for Zinc
Appears to be Andesite
300
tuff which is silicified
45°
320
340
360

Left margin (depths / core recovery): 160.5, 164, 165.5 (2.5/3.5), 7/7 B, 172.5 (4/4.5) B, 177, 7/7 B, 184, 186.5 (2.5/2.5) B, 9.5/9.5 B, 196 (10/10) B, 206 (7.5/7.5) B, 213.5 (6/6) B, 219.5 (6.5/6.5) B, (6.5/6.5) B, 232.5 (6.5/6.5) B, 239 (9.5/8) B, 247.5, 250 (2.5/2.5) B, 6/6 B, 256 (4/4) B, 260 (4/4), 264 (4/4.5), 268.5 (6/6.5), 275 (2.5/3), 278 (7.5/7.5), 9.5/9.5, 294, 296 (2/2), 6/6, 302 (5/5), 307 (9/9), 316 (16.5/16.5), 332.5 (10/10), 342.5 (2.5/2.5), 345 (10/10), 355

	Pilbara 2. Cu	Pilbara 2. Ni	Amdel Cu	Amdel Ni	Geomin Cu	Geomin Ni	Depth
			60	70			167
			110	50			202 / 204
			60	100			230 / 232
							250
	70	105			78	84	255
	220	115			230	130	260
	650	3750			700	3800	265
	860	5900			900	5400	270
	790	5400			900	5100	275
	780	8200	770	8000	800	8200	280
	570	1.20%	590	1.0%	600	1.17%.	285
	605	9200	630	9600	600	1.09%	290
	195	4100	190	4000	200	4100	295
	610	5350	640	5800	600	5300	300
	405	5100			410	4700	305
	490	5300			500	4800	310
	470	5900			480	5200	315
	200	3520			210	3400	320
	415	7900			450	8000	325
	510	5900			510	5000	330
	310	4000			300	3900	335
	550	5100			550	4700	340
	160	2600			160	2700	345
	270	3300			270	3400	350
	730	5450			750	5200	355
	460	4750			470	4500	360

039

HOLE /3 continued

Depth	Pilbara Cu	Pilbara Ni	Amdel Cu	Amdel Ni	Geomin Cu	Geomin Ni
365	400	3250			430	3500
370	330	2200			350	2450
375	400	1850			400	1850
380	440	850			430	850
385	265	750			280	700
390	600	2350			600	2500
395	660	2950			750	3100
400	1200	2950	1140	2980	1100	3400
405	850	4700	900	5200	1000	4900
410	1600	6100	1590	6600	1600	5900
415	1900	4900	1900	5600	1900	5200
420	870	4300	900	4800	900	4500
425	135	3050			140	300
430	1100	1700			1100	1650
435	1100	880			1100	830
440	820	360			900	380
445	540	270			550	250
450	780	265			850	260
455	260	280			280	270
460	370	350			400	390

Run depths / recovery: 360.5 (10.5/10.5), 376 (9.5/9.5), 386 (10/10), 396 (10/10), 406 (10/10), 416 (10/10), (7.5/7.5), 433 (9.5/9.5), 443 (9/10), 446 (3/3), 448 (2/2), 451 (2/3), 456 (5/5), 458 (2/2), 467.5 (9.5/9.5), 475 (7.5/7.5), 485 (10/10.5), 495 (9.5/9.5), 504 (9/9), 514 (10/10), 524 (10/10), 534 (10/10), 544 (10/10)

- 360–373
- 373–386 (B): Dense chlorite-carbonate, carbonate in light specks, little sulphide. basalt
- 386–406: 10% po, mag in banded chert-chl.
- 406–418: increase of po, pract. massive in stringers
- 418–424 (B): Barren basalt
- 424–438 (C): 10% po, mag. in banded chert-chl.
- 438–514: Rhyolite blue qtz eye porphry. Banded Prob. Ash fall tuff chloritic 20% po-py. 60°
- 514–518 (B)
- 518–539: chloritized [illegible] qtz eye rho
- 539–544 (B): [illegible] basalt

TROPARI AT 515'
Bearing 165°
Dip 33°

040

AUSTRALIAN INLAND EXPLORATION CO. INC.

LOCATION 12 E ~ 17 N
ELEVATION 50' ±
DRILLERS Associated Diamond Drillers
STARTED 25th March 1972
ASSAYS by Pilbara Laboratories
Geomin

HOLE S.B.D. 14
BEARING Grid South 155°
INCLINATION -60°
COMPLETED 3rd April 1972
LOGGED by L.J. Miller

CORE RECOVERED | DESCRIPTION

0
20
NO CORE
Rock Pit
40
60
Andesite Tuff
well banded
light creamy layers
mainly a sericite schist
oxidized
green
100
Rhyolite Tuff
cream schist
well banded
white
120
Andesite Tuff
green slightly
banded
140
158'
160

	Pilbara		Geomin	
	W	Ni.	W	Ni.
75	100	70	98	6X
125	70	105	70	90
145	185	75	190	68

041

HOLE SBD 4 continued

Log (depth scale in feet, core recovery, description):

Interval depth	Recovery	Depth mark	Description
–167	9/11	160	Andesite Flow, massive, dark green
167–173	6/6		
173–179	6/6		
179–182.5	3.5/3.5	180, 183'	
182.5–184.5	2/2	185'	Mag-chert-chl
184.5–194	9.5/9.5		Quartz Gabbro
194–204	10/10	200	fine grain green gabbro
204–213	9/9		massive
213–223	10/10	220	grades into Ore Bed
223–233	10/10		
233–243	10/10	240, 244'	
243–251	8/8		Ore Bed
251–261	9.5/10	260	magnetite-po-chl, much chalco
261–266	5/5		
266–273	7/7		
273–283	10/10	280	
283–291	8/8		
291–298.5	7.5/7.5		
298.5–301	2.5/2.5	300	
301–306	5/5		
306–315	9/9		
315–329	13/14	320	
329–339	10/10		
339–351	12/12	340	
351–355	4/4	354'	
355–	3.5/3.5	360	Gabbro

Assays:

Interval	Pilbara Cu	Pilbara Ni	Geomin Cu	Geomin Ni	Amdel Cu	Amdel Ni
183–185					350	90
205	10	10	14	14		
240–245	205	90	340	190		
245–250	345	75	380	52		
250–255	85	40	94	40		
255–260	295	125	310	114		
260–265	2250	145	2250	114		
265–270	360	80	350	70		
270–275	900	65	950	56		
275–285					620	110
285–295					1190	40
295–305					1180	20
305–315					800	40
315	295	115	290	36		
315–325					600	70
325–335					500	160
335–345					560	140
345–354					400	230

HOLE SBD # 14 continued

Pilbara Geomin — Amdel

	Pilbara Cu	Pilbara Ni	Geomin Cu	Geomin Ni	Amdel Cu	Amdel Ni	
360.5							
370							
380							
390							
395	115	125	96	104			395
405							
409							409
412.5					490	70	
419	285	95	360	96			419

360 Gabbro
Semi massive sone banding due to qtz shearing chartreuse

380

400

409 One Bed
May - po - chal - qtz - chl.

419.50

Not Surveyed.

AUSTRALIAN INLAND EXPLORATION CO. INC.

LOCATION	104 E – 27 N	**HOLE**	SBD 15
ELEVATION	50' ±	**BEARING**	155°
DRILLERS	Associated Diamond Drillers	**INCLINATION**	– 60°
STARTED	28th March 1972	**COMPLETED**	3rd April 1972
ASSAYS by	Pilbara Laboratories Geomin	**LOGGED by**	L.J. Miller

Depth	CORE RECOVERED	Log	Depth (ft)	DESCRIPTION	Pilbara Cu	Pilbara Ni	Geomin Cu	Geomin Ni	Assay depth
0–50	NO CORE		0 – 50'	Rock Bit					
50–53.5	3/3.5	V V	50'	Andesite Flow Magnetite – sulphide in weathered chartreuse oxidized rx					
53.5–58	4/4.5	V V							
58–61	1/3	V	60						
61–65	1/4	V							
65–68	1/3	V V							
68–76	3/8	V V			20	40	18	40	76
76–86	6/10	V V	80						
86–96	8/10	D D	86'	Qtz Diorite					
96–96.5	2/2.5	D							
96.5–101	2/2.5	D D	100						
101–106	5/5	D							
106–108.5	2.5/2.5	D D							
108.5–116	1.5/7.5	D D	116'						
116–119	2/3	V V	119'	Andesite Tuff					
119–126	4.5/7	D D	120	Quartz Diorite					
126–129	1.5/3	– –	125'	Siltstone white fine qtzt.	15	50	20	42	129
129–133	2.5/4	– –	133'						
133–135	1/2	V		Andesite Tuff	90	325	92	300	135
135–140.5	4/4.5	V V	140						
140.5–146	6.5/6.5	V V							
146–150	4/4	V V							
150–156	11/13.5	V V	156'		85	435	88	1030	153
		P P	160	Peridotite					

NQ

044

HOLE 50D15 **continued** Pilbara Goomin Amdel

			Cu	Ni	Cu	Ni	Cu	Ni
160		Peridotite - magnetite Andesite						
163								
163.5	11/10.5							
165	8/8	Gabbro						
171								170
175	10/10.5	Peridotite	1200	340	1200	370		175
180		fine grain, magnetite throughout					290	440 180
182	9/9						180	560
190								190
191	3.5/4							
195	4/5.5	Gabbro						
200								
200.5	5/5							
205.5	4/4.5	Peridotite						
210		fine grain, magnetite throughout						
211								211
212	2/2.5		20	910	26	1150		
217.5	5.5/6.5							
220	4/4							
223	5/5.5							
228	7/7	Gabbro						
233								
239	6/6	Peridotite fine magnetic						
240	7/7							
245		Gabbro						
250	4/4	Peridotite						
257	7/7	Coarser grain 1% Pa	105	85	120	82		257
260	9/9							
261		Andesite Flow						
266	10/10							
277								
280	11/11	Qtz Gabbro sheared in lower part to almost qtz-feld porp rock w qtz andesite						
287	3/4		45	75	48	66		291
291	9/11							
300								
302	13/13							
315			15	155	14	120		315
320	10.5/10.5							
325.5								
330	9.5/9.5							
335		Gabbro magnetite plus talc						
340	9/9							
344			5	65	6	60		345
351	8/8							
352	5/5	Peridotite	5	155	4	130		355
357	3/3							
360								

945

Hole No. SWD15
Brecciation

Geomin
Cu Ni

Pilbara.
Cu Ni

360
368'
375
380
400
420
431
460
473 End.

Qtz Diorite

Pervasive talcose to 385 then normal to end at 473

36 420 — 95 420 — 385
190 98 — 195 110 — 395
170 66 — 165 80 — 420
60 67 — 65 60 — 431
48 64 — 45 60 — 465

Tropari at 460'
Bearing 149°
Plunge 52°

046

AUSTRALIAN INLAND EXPLORATION CO. INC.

LOCATION 72 E ~ 27 N
ELEVATION 50' ±
DRILLERS Associated Diamond Drillers
STARTED 4th April 1972
ASSAYS by Pilbara Laboratories
Geomin

HOLE S.BD 16
BEARING Grid South 155°
INCLINATION −45°
COMPLETED 14th April 1972
LOGGED by L.J. Miller

CORE RECOVERED

DESCRIPTION

0
Rock pit
20'
Andesite Tuff
extensively more
sericitic carbonate
and qtz
40
60
80
100
120
125'
Basalt Flow
134
Basalt Tuff
finely laminated
140
160

NG
SG

047

HOLE SBD 16 continued Pilbara Geomin

	Cu	Ni	Cu	Ni
160				
Basalt Tuff chaotic some vesicules				
180				
190				
195 Gabbro				
200 Basalt Tuff				
220				
Rhyolite Tuff chloritic				
238'				
240 Basalt Flow				
246'				
250 Rhyolite Tuff				
Rhyolite Qtz Porp				
257				
260 Basalt Flow				
267				
One Bed	120	105	120	10x
	330	350	360	350
	1250	4300	1350	4100
280	1000	7300	1150	9000
	1300	7400	1450	9000
	1900	7100	2100	8500
	1250	6000	1300	5400
300	990	6350	1100	7000
	700	7100	800	7500
	1250	7400	1400	9000
	500	2100	450	2100
320	60	120	47	10c
	285	125	250	10x
	420	260	400	180
	145	185	140	160
340	30	115	32	94
339'				
370 Rhyolite Tuff				
350' and				
TROPARI AT 300' bearing 155° plunge −28°				
360				

048

AUSTRALIAN INLAND EXPLORATION CO. INC.

LOCATION	4W - 20N	**HOLE**	SBD 17
ELEVATION	50'±	**BEARING**	150°
DRILLERS	Associated Diamond Drillers	**INCLINATION**	-60°
STARTED	4th April 1972	**COMPLETED**	10th April 1972
ASSAYS by	Pilbara Laboratories / Geomin	**LOGGED by**	L.J. Miller

CORE RECOVERED		DEPTH	DESCRIPTION
NO CORE		0 – 80	Rock Bit
80 – 105: .5/25 (BQ)		80 – 105'	
105: 8/9.5; 114.5: 8/8; 122.5: 3.5/3.5	V V	105' – 124'	Andesite Tuff ¼" bands. upper part bleached, almost dacite
126: 8.5/8.5; 134.5: 3.5/3.5	V V	124' – 137½	Andesite Flow massive
138: 7/10; 148: 5/5; 153: 9/10		137½ – 160	Rhyolite Ash Fall Tuff finely laminated rhyolite tuff wt some qtz pheno.

049

HOLE SWD 17 **continued**

Depth	Recovery	Lithology	Description
160 – 208'	163: 9/10; 10/10; 173: 10.5/10.5; 183.5: 13.5/13.5; 197: 8/8; 205: 9.5/9.5	//////	Rhyolite Ash Fall Tuff Finely laminated
208' – 215	215.5: 7.5/7.5	═══	Greywacke Massive
215 – 228	10/10	═══	Greywacke finely laminated siltstone plus mud
228 – 233	232	+ +	Qtz-sel dike dark matrix
233 – 245	9.5/9.5; 241.5	V . V	Andesite Tuff
245 – 261	7/7; 248.5: 4.5/4.5; 253: 10.5/10.5	//////	Rhyolite Ash Flow qtz porp in porp finely laminated
261 – 360	263.5: 9.5/9.5; 273: 10/10; 283: 5.5/5.5; 288.5: 4.5/4.5; 293: 9/9; 302: 15/17; 310: 14/15.5; 334.5: 5/5; 340.5: 7.5/8.5; 348: 8.5/8.5; 356.5: 13/13.5	B	Basalt Tuff vesicules in part in most sections Chloritization increases at 273' Sulphides of po + cp increase Atp. unchloritized !

Pilbara 2 / Geomin

Depth	Pilbara 2 Cu	Pilbara 2 Ni	Geomin Cu	Geomin Ni
272.5			1200	150
280 – 284.5	570	95	750 540	150 72
285 – 290	535	95	500	78
290 – 295	325	65	350	42
295 – 300	620	75	570	52
300 – 304	310	60	370 270	90 46
305 – 310	135	110	130	102
310 – 315	1450	105	1300	88
315 – 320	1450	75	1500	68
320 – 325	330	50	280	40
325 – 330	1850	50	1600	42
330 – 335	3700	45	4000	36
335 – 340				
340 – 345	3450	75	3600	66
345 – 350	3550	75	4000	70
350 – 355	4600	75	4900	50
355 – 360	1550	15	1550	12

050

HOLE SWD 17 **continued**

Depth (ft)	Recovery	Log	Description
360	13/13.5	B	
370	10/10	B	
380	10/10	B	chlorite remain heavy but sulphides drop
390	10/10	B	
400	10/10	B	2.55 Cu →
410	10/10	B	
420	10/10	B	
430	10/10	B	
440	5/5	B	
445	10/10	B	Basalt some qtz eyes feldspar porp pyrrhotite continue much chlorite
455	10/10	B	
465	10/10	B	
475	10/10	B	7.3% Cu →
485	10/10	B	
495	3/3	B	
498	7/7	B	
505	10/10	B	510'
515	9/9	Gabbro symbol	Gabbro
524	6.5/6.5	·v·v·	520' Andesite Tuff
530.5	9.5/9.5	Gabbro symbol	531 Gabbro
540	8.5/8.5	B B	540 Basalt
548.5	6.5/6.5	B B	
555		Gabbro symbol	Gabbro.
560			

Depth (ft)	Pilbara Cu	Pilbara Ni	Geomin Cu	Geomin Ni
360–365	2350	40	2450	30
365–370	7600	55	8500	62
370–375	5050	65	6500	68
375–380	4750	55	5500	52
380–385	4250	65	4700	56
385–390	660	75	750	68
390–395	525	80	590	80
395–400	770	95	850	74
400–403			>1%	90
403–405	5250	75	6200	86
405–410	1300	98	1300	60
410–416	3950	30	4100	78
416–420	1050	90	1150	30
420–425	385	30	440	28
425–430	1350	105	1450	98
430–435	1750	120	1800	100
435–440	1500	125	1550	102
440–445	1350	115	1500	100
445–450	255	75	250	74
450–455	125	75	94	56
455–460	515	100	430	84
460–465	300	95	300	74
465–470	190	95	180	78
470–475	90	115	104	94
475–479			>1%	250
479–480	1950	120	2000	100
480–485	940	130	1000	122

051

HOLE SBD 17 continued

560

Gabbro
fine
+ feldspar - siliceous

576' po - chalco @ end

580

TROPARI

310	−50°	155°
485	−29°	153°

AUSTRALIAN INLAND EXPLORATION CO. INC.

LOCATION 56 E ~ 27 N
ELEVATION 50' ±
DRILLERS Associated Diamond Drillers
STARTED 11th April 1972
ASSAYS by Pilbara Laboratories
Geomin

HOLE SBD 18
BEARING Grid South 155°
INCLINATION -45°
COMPLETED 14th April 1972
LOGGED by L.J. Miller

CORE RECOVERED | DESCRIPTION

0
20
40
NO CORE
Rock Rot
60
80
100
110
110'
113.5 0.5/3.5
119 3.5/5.5
121.5 5.5/7.5
124 7.5/9.5
132 6/6
138 5/6
141 5.5/5
146 5/7
152 3/4
157.5 5/5.5
120
Rhyolite Tuff
q+z porp
white
chlorite seams
massive
140
157'
160
Andesite Ash Flow

053

HOLE SBD 18 **continued** Pilbara / Geomin

Core intervals and recovery (left margin): 162 – 4.5/5.5; 5/6; 168 – 11/13.5; 181.5 – 1.5/2.5; 184 – 5.5/5.5; 190.5 – 2.5/3; 193.5; 8/10; 203.5 – 10.5/10.5; 214 – 10/10; 6/7; 231 – 7/7; 236 – 6/6; 244 – 4.5/4.5; 246.5 – 4.5/4.5; 253 – 9.5/9.5; 262.5 – 6/6; 268.5 – 10/10; 278.5 – 8/8; ?.5 – 7.5/7.5; 294 – 10/10; 304 – 6/6; 310 – 14/14; 324 – 15/15; 339 – 5/5; 344 – 10/10; 354 – 8/8

160 – 194': Andesite Ash Flow Tuff
Felspar porp.
distinctive
spotted

194' – 215': Andesite Tuff

215' – 237: Gabbro
Qtz Gabbro
It wt sell mesh

237 – 275': Basalt
Massive Amph-
chlorite matrix

275' – 360: Ore Bed

Depth	Pilbara Cu	Pilbara Ni	Geomin Cu	Geomin Ni
245	45	130	72	120
250	100	460	98	430
255	545	275	530	230
260	510	150	560	140
265	580	125	590	115
270	290	105	300	96
275	325	125	370	160
280	1850	1400	1700	1300
285	760	2500	750	2350
290	4800	1200	4700	1200
295	745	600	850	570
300	840	230	900	210
305	670	375	700	360
310	970	1250	1000	1200
315	4350	3550	4400	2500
320	6450	4000	7000	4200
325	5350	1350	5600	1350
330	4650	320	4900	300
335	1150	125	1200	120
340	1250	235	1350	230
345	3000	265	3200	260
350	1100	1500	1150	1600
355	1150	170	1200	150
360	2050	60	2000	60

054

HOLE SBD 18 continued

	Pilbara Cu	Pilbara Ni	Geomin Cu	Geomin Ni
	1480	90	1350	84
	2000	65	2000	58
	1750	60	1650	80
	365	110	330	100

362 — 8/8, 10/10 — 360 — ore.

372 — 5.5/5.5

374.5 — 5.5/6.5 — 380 — Rhyolite Tuffs

384

391 — 7/7 — Bs — Silicified Basalt wt pos. some silicified gabbro

13/13 — B B — 400 — 401

404 — B B

Acid Tests

420 — 401' −35°

200' −45°

360 365 370 375 380

AUSTRALIAN INLAND EXPLORATION CO. INC.

LOCATION	61 E – 26.5 N	**HOLE**	SBD 19
ELEVATION	50' ±	**BEARING**	Grid South = 155°
DRILLERS	Associated Diamond Drillers	**INCLINATION**	– 45°
STARTED	15th April 1972	**COMPLETED**	18th April 1972
ASSAYS by	Pilbara Laboratories Geomin	**LOGGED by**	Leo J Miller

CORE RECOVERED — DESCRIPTION

0–90: Rock Bit

Note that at 90' the rock is fresh therefore the driller continued going into good rock before coring

90'–100': Carbonate-Chlorite Schist
100' Specks of Sulphides

100'–129': Andesite Tuff, Ore-bed
Banded quartz-Chlorite with possible serpentine or talc. Massive mag-po bands. Brown min could be garnet.
40°

129'–140': Same bed oxidized with ... qtz + asbestos
(Loss)

140'–160': Banded Qtz-Chlorite serpentine, increase in cp
Much Mag-po pos 20%
Pos. pyroxenite. 1mm serp. veinlets. Rx light gr to wh.

Core recovered (depth: recovered/run): 95½ 5/5½; 3½/5; 100½ 9½/10; 110½ 10/10; 120 9/11; 131 3/4; 135 12/12; 147 3/4; 151, 154, 155 2/3; 5/5

Pilbara 1 Cu	Pilbara 1 Ni	Pilbara 2 Cu	Pilbara 2 Ni	Geomin Cu	Geomin Ni	Depth to
						95
105	190	105	180	100	180	100
850	1550	860	1450	1000	1550	105
1700	6550	1750	6600	1750	7500	110
1030	6750	1100	6700	1100	8000	115
980	6450	1050	6400	1050	7500	120
490	8750	530	9800	590	~1%	125
275	3000	370	2650	250	2900	128
260	3000	280	2750	270	2900	135
310	5000	355	4650	330	4700	140
435	3050	450	2700	440	2900	145
630	3650	660	3150	700	3200	150
745	2150	780	2150	850	2150	155
940	1020	1150	1000	1150	1100	160

056

HOLE SWD 19 continued

Pilbara 1 Cu	Pilbara 1 Ni	Pilbara 2 Cu	Pilbara 2 Ni	Geomin Cu	Geomin Ni	
485	1350	510	1300	510	1250	160
100	590	230		130	330	165
5	300	10	250	10	260	166
80	425	110	370	90	410	168
90	110	105	105	80	90	172
240	1350	240	1030	240	1200	177
355	1200	345	1200	350	1300	182
790	3650	770	3450	850	3800	187
475	4450	495	4300	500	4700	192
300	4750	305	4750	310	5100	197
400	8200	420	8100	440	Ni%	202
275	4950	250	5000	250	5250	204
50	2000	60	165	60	270	206
320	4250	345	4250	340	4500	208
80	1200	80	1200	76	1250	211
535	9600	520	1.10%	480	Ni%	214
20	335	30	280	28	320	218
590	6100	600	6000	600	7000	223
555	9100	530	9500	560	Ni%	228
460	8600	440	8600	430	Ni%	233
1050	7800	1050	7700	1100	9000	238
1050	1500	1050	1500	1100	1300	243
855	1200	820	1150	900	1050	245
1250	480	1150	345	1250	360	250
295	170	280	135	280	140	253
910	1300	970	1300	1000	1300	258
680	2850	645	2800	750	2600	263
695	2250	730	2100	800	2000	268
345	810	365	650	350	600	273
450	300	430	275	430	270	278

160 rich cp at 160' ore bed

166' 167½ carb-chl-pyroxene schist

168' carb-chl-prox-schist

Ore bed
5% mag-po wt 1% cp
serp + prox stringers
Brown, wispy beds maybe sphal.
Hard siliceous wt chert
Seams ½ → 1" thick
2% garnet much actinolite

180

200

203½ Basalt sps po

206 ore bed

211 Basalt sps po

215 Ore bed

219 Basalt sps po

Ore bed
banded mag-po-qtz-garnet schist. Seams of actinolite-chlorite

240

244½ ore bed

244 part barren banded qtz-sch

Rhyolite some silicification
255 massive some sps po

Rhyolite actinolite-quartz schist
260 Mixture of laminated and massive amphibolite

269' 5% po cp

Rhyolite banded, chloritic
Abundant garnets in bands - silty siliceous bands
Fine grained little po

280

Rhyolite massive
fine grain
silty laminated

297 end

300

No tropari
too shallow

320

340

360

057

AUSTRALIAN INLAND EXPLORATION CO. INC.

LOCATION	60 E - 30 N	**HOLE**	SBD 20
ELEVATION	50' ±	**BEARING**	155°
DRILLERS	Associated Diamond Drillers	**INCLINATION**	-60°
STARTED	15th April 1972	**COMPLETED**	1st May 1972
ASSAYS by	Pilbara Laboratories Geomin	**LOGGED by**	Leo J Miller.

Depth	CORE RECOVERED		Footage	DESCRIPTION
			0	Overburden
			20	
30½	1½/2	qz	29'	Bull Quartz
	7½/7½			Massive white
NQ. 38	8/10	qz	40	
46	1/10		46'	vein quartz mix wt chlorite poor recovery
	3/9		60	
65	3/5		65'	Siltstone
70	5/5			punky - weathered prob greywacke
	6/10			mainly chl-sericite carbonate, silty
79	3/5		80	grainy. spks of po
84	8/8			Lt grey - finely bedded
93			95	
95	3/5	qz	97	Bull qtz
	7/7		100	Siltstone
102½	7½			Darker green, layers of siltsize qtz in chl
NQ 111½	9			shale (mud) probably
	5/5			a greywacke. Much
116½ / 119	2½		130	sericite
	7½			
127½	7/16		Lost core	finely laminated
			140	
144			143	
	2½	qz	146½	Bull qtz
	6½			Rhyolite Ash Fall Tuff
154	7			Injection carbonate
	4½		160	Dark green chlorite.

058

HOLE 20 continued

Interval	Recovery	Symbol	Depth	Description
165	7/7		160	Rhyolite Tuff
	6/7			uniform texture within chlorite ∴
172	9/12		180	not sediment
184	10/14			finely laminated silica, some
198	10/10		200	qtz eyes. grainy qtz-silts
208½	8½/10½	qz	217'	layers wt fine chl seams | Qtz Bull layered 209-217
	4/4	B	220	Basalt massive, chloritic
226	9/10	B		few garnets
236		B	236'	
	6/6		240 24'	Soapstone Talc schist
242	8/8	v.v.	249	Andesite Tuff dark green banded chlorite minor sericite
250	9/9			Rhyolite Tuff Bands of qtz-chlorite
259	15/15		260	laminated schist: dark contorted fine banding
			268	siliceous: qtz eyes few
				Rhyolite Ash Fall Tuff chalcedonic layering
274	10/10		280	finely laminated qtz-sericite schist. silt size remnants visible, some
	10/10			chlorite ∴ partly ? greywacke
294½	5/5		294'	Rhyo. Ash Flow Tuff
300			300'	green feldspathic massive
	10/10			Rhyolite Ash Fall Tuff
310	10/10		60°	layered qtz porp siliceous.
320	5½/6		320	excellent tuff
326	1/2			Main unit of upper hole #35
332	5/6		339'	#35 Tuff
339	14/14	v.v.	340	Andesite tuff, Calcite chlorite-qtz schist
		v.v.		#10 Tuff crinkled chlorite
353		v.v.	360	50% chl. 20% qtz 25% calcite

363 10/15/15 — 360 Andesite Tuff
carbonate injection
such as in flow top

378 — 380 #10 Tuff

11 — 388'

16 Basalt Flow

396 — 396 mass chl sheared pyrox

402 4/6 — 400 Rhyolite Tuff
404' qtz porp.; qtz-ser. sch.

10/10 Andesite Tuff

412 fine chl layering
10/10 — 420 20% banded qtz
but generally mass.
10/10 uniform texture

433 13/13 — 440 #10 Tuff

446 10/10

460' 460

466 20/20 #10 Tuff Andesite Tuff
same as 339'-388'
Coarse banding w/
10/10 qtz. Most actinolite
474 8/8 — 480 482' chlorite. Some magnetite not

Basalt Flow 491'

492 8/8 Rhyolite Ash Fall Tuff
10/10 qtz porphyry in part

506'

9/10 Andesite Tuff
511 laminated chlorite in
10/10 — 520 feldspar mesh

521 Rhyolite Ash Fall Tuff
10/10
531 fine layed tuffs
6/6 w/ few qtz eyes
537 3/3 — 540
7/7 siliceous
547'

547½ 6/7 #36 Tuff Andesite Ash Flow Tuff
554
6/7 — 560 feld. porp, massive
chloritic

060

HOLE SWD 20 continued

Pilbara 2. Geomin

560 Andesite Ash Flow Tuffs

Basalt
fine grain

580 582

Ore Bed

585 583 Andesite Tuff

Ore Bed

Banded Mag-qtz-po-act. Siltstone

600 Bedding Angles: 80° @ 582
40° @ 592
90° @ 604
75° @ 607

620

640

660

680

700

720

740

760

Rhyolite Tuff

Core interval	Recovery
563½–570	7/7
570–577	7/7
577–583	5/5
583–591½	9/9½
591½–598	6½/6½
598	1/1½
–606	6/8
606–616	10/10
616–618	2/2
618–628	10/10
628–638	10/10
638–648.5	9/10.5
648.5–663	14.5/14.5
663–666	3/3
666–670	1.5/4
670–690	20/20
690–703.5	13.5/13.5
703.5–716	12.5/12.5
716–726	10/10
726–736	10/10
736–746	10/10
746–756	10/10
756–759.5	2.5/2.5

Cu	Ni	Cu	Ni	Depth
				582
370	610	300	560	583
95	120	82	117	585
1200	500	1250	470	590
595	870	700	900	595
620	3150	700	3200	600
1300	5700	1350	6200	605
330	7300	330	8000	610
380	5100	370	5200	615
670	5000	800	5100	620
340	6050	330	6400	625
270	5300	300	5400	630
235	6400	250	7000	635
305	6150	310	5700	639
				640
150	2200	140	2100	642
270	5450	260	5200	645
390	6400	300	6400	650
365	7500	370	8000	655
475	6150	520	6200	660
260	4350	260	4200	665
290	1080	260	1100	670
345	960	350	1000	675
330	2850	350	2900	680
440	3900	440	3700	685
735	4150	800	3900	690
915	7400	950	8000	695
225	2450	220	2350	700
10	85	32	130	704
35	140	50	150	707
400	1550	400	1550	710
825	4800	850	4600	714
1060	1600	1100	1550	719
1250	2350	1300	2250	725
710	1100	700	1100	730
1500	1350	1450	1250	735
935	900	1000	850	740
940	315	950	260	745
295	165	270	130	750
420	95	420	160	755
370	115	380	96	760

061

Pilbara Geomin

Hole No. SBD 20

			Depth	Description	Cu	Ni	Cu/Ni
	15.5/15.5		760	Rhyolite Ash Fall Tuff sulphides, diss blue qtz eyes			
774	10/10						
784	10/10	B B B B	780	Basalt. lt chartreuse fine grain			
794	4/4						
798					230	60	230/5
			800	798 END			

796 / 798

ACID TEST

500' - 51°

780' - 20°

TROPARI

DEPTH	DIP
0	60°
90	58°
168	55°
246	51°
324	43°
402	40°
480	35°
558	28°
636	22°
714	18°
785	15°

062

AUSTRALIAN INLAND EXPLORATION CO. INC.

LOCATION 44E - 22N
ELEVATION 50' ±
DRILLERS Associated Diamond Drillers
STARTED 18th April 1972
ASSAYS by Pilbara Laboratories
Geomin

HOLE SBD 21
BEARING 155°
INCLINATION -45° South
COMPLETED 21st April 1972
LOGGED by Leo Miller.

2 - 22
3 - 9
4 - 4
21 - 21
56

CORE RECOVERED | DESCRIPTION

0
Rock Bit
20
40
AA'
44
7/7
2
2
57
3
64
3/5
69'
Rhyolite Tuffs
White banded,
siliceous Tuffs
60
69
5/5
74
5/7
80
84
3
10/10
94
6/6
100
5/5
100
105
3/7
112
7/7
119
5/6
120
125
10/10
135
4/5
140
140
9/9
149
5/5
154
4/5
160
158
Andesite Ash Flow Tuffs
qtz-feld porp.
in chloritic mesh
massive, lightly
sheared, green
sulphides ot some
clots.

063

HOLE 21 continued Pilbara Geomin

	Cu	Ni	Cu	Ni	
100–175' Andesite Ash Flow Tuff					
175–195' Sheared feld porp fine grain feld gabbro					
195–233' Feld porphyry massive fine grain bedded in some sheared seeking maybe andesite tuff					
233–238 Ore Bed chalcopyrite	395	30	430	48	233
238–242			800	70	238
242–248 Silicified feld por	790	60			242
248–260 Brecciated Qtz – feld porp – blue qtz eyes sulfides	not analyzed				248
260–265' Andesite Tuff					
265–280 Pyroxenite lt color white					
280–287					
287–300 Gabbro Fine grain light color					
300–313'					
313–330 Serpentinite dark green ~~talc~~ talc or serpentinite					
330–334' gabbro					
334–339 Peridotite like Lamblendite spotted	25	275			339
339–360					

HOLE SWD 91 continued Pilbara Geomin

Peridotite

	Cr	Ni	Cu	Ni
			16	340
	20	1000	18	1000

363 10/10 P P
9/1 P
10/10 P
382 10/10 P
388 5/6 P
10/10 P P
398 10/10 P
10/10 P P
408 10/10 P
10/10 P P
418 10/10 P
10/10 P P
428 10/10 P
10/10 P P
438 10/10 P
10/10 P P
448 10/10 P

HOLE ENDED 448.5

Not Surveyed.

360 380 400 420 440 460 480 500 520 540 550

399 407

AUSTRALIAN INLAND EXPLORATION CO. INC.

LOCATION 48 E - 24.5 N
ELEVATION 50' ±
DRILLERS Associated Diamond Drillers
STARTED 22ND April 1972
ASSAYS by Pilbara Laboratories
Geomin

HOLE SBD 22
BEARING 155°
INCLINATION -45° South
COMPLETED 25th April 1972
LOGGED by Lee J Miller

CORE RECOVERED		DESCRIPTION	Pilbara 1 Co	Pilbara 1 Ni	Pilbara 2 Geomin Cu	Pilbara 2 Geomin Ni	Cu	Ni
	0	Rock 13.t						
	20	20 — NQ/BQ — 119'						
		22 NQ/BQ — 120'						
	40							
50	50'							
3½ 59 65 73½ 79	60	Andesite Ash Flow Tuff feld porphyry massive						
3½ 90 95 99	80	Qtz feld porp cs grain massive gabbro texture						
100	105½							
111½ 115	117'	Andesite Tuff						
180	120	Quartz feld porp white, brecciated						
128	131'	Basalt						
139	137½ 139	Ore bed Mag-po-qtz	130	130	130	135	140	120
	142'	Basalt						
149	147'	Qtz-feld porp						086
158	156'	Basalt cs grain						
	160	Ore Bed	1850	1600	1950	1600	2000	1500

NQ ↓ BQ

138 139 156' 161'

HOLE SWD 22 continued

Depth	Recovery	Log depth	Description
164	6/6	160	Ore Bed
	10/10	166'	Gabbro
173½		168	Ore Bed
	10/10	45°	Banded qtz-act-chl-mag-po-garnet quartzite
183½	10/10	180	banding at 45°
193½	10/10		6" gabbro band @ 180'
204	9/5	200	fairly massive sulphides excellent ore up to ?% sul + magnetite
209	1/0	219'	Lost core
219	4/5	220	Basalt
	5/2		Rhyolite Tuff
230	4/4		fine banded siliceous
234	7/9	240	and chloritic matrix.
243	4/7		heterogeneous sediment
250	3/3		with rapid facies
253	4/5		changes
258	7/7	260	
265		265'	Basalt
	9/10		Rhyolite Tuffs
275		275 end	qtz porp. -
		280	Ash Fall Tuff

Not Surveyed.

300

320

340

360

		Pilbara Cu	Pilbara Ni	Geomin Cu	Geomin Ni	Depth
						161
1600	3150	1650	3100	1600	3100	166
20	105	15	90	32	120	169
835	2250	850	2150	950	2100	173
1200	2400	1150	2300			178
855	2700	880	2600	1000	2800	183
950	3400	950	3200	1050	3500	188
3250	4300	3400	4250			193
910	6300	1050	6250	1000	6000	198
940	7300	950	7300	1050	8000	203
2550	8500	2750	8850	3000	~1%	208
1450	1550	1450	1400	1450	1350	219
		305	95	300	88	221

AUSTRALIAN INLAND EXPLORATION CO. INC.

LOCATION 64E – 27 N. **HOLE** SWD 23

ELEVATION 50' ± **BEARING** 155°

DRILLERS Associated Diamond Drillers **INCLINATION** -45°

STARTED 26th April 1972 **COMPLETED** 2ND May 1972.

ASSAYS by Pilbara Laboratories, Geomin **LOGGED by** L.J. Miller

Depth	CORE RECOVERED	DESCRIPTION	Pilbara Cu	Pilbara Ni	Geomin Cu	Geomin Ni
0–50		Rock Bit				
50–61½	3/11½	Andesite Tuff. fine laminae, very chloritic, thin rhyolite layers ⅛" thick				
61½ (BQ)	5 grd Gup					
74	1					
77	1					
82	1					
87½	1					
92	2					
97½	1					
104	2					
106½	2					
110½	4/5					
115½	1					
118	5/6					
124	3.5/5					
129						
131.5	2.5					
134 – 135'	3/3.5	Rhyolite Tuff				
137.5 – 140	3/3.5	Ore Bed	50	115	52	116
141.5 – 145'	1.5/…	No mineralization			52	116
143.5						
145 – 150'	3/5	Andesite Tuff				
150.5	3.5/3.5	Gabbro				
154	5.5/5.5					
159.5						

098

HOLE SWD 23 **continued**

Dilbera 2 Geomin

		Cu	Ni	Cu	Ni
75	105	70	105	80	100
85	135	85	135	90	140
620	1500	645	1500	800	1550
650	5000	750	5200	800	5200
780	5550	860	6000	900	5600
500	4650	465	4800	520	4900
1550	7600	1460	8500	1450	9000
660	6950	660	6950	700	8000
530	4800	530	4800	500	4800
50	830	50	830	52	800
795	6850	795	6850	850	8000
1050	6400	1050	6400	1080	5700
840	4700	840	4700	850	4300
740	6450	740	6450	700	5700
805	5550	805	5550	850	5100
		290	1750	290	1550
		740	4850	800	4900
		1025	8700	1100	9000
		1015	7350	1050	7500
		1880	4350	1750	3900
		820	5450	850	4900
		320	1250	330	1200
		2650	2650	2700	2450
		595	1450	470	1300
		135	1140	130	1000
		610	1850	530	1600
		965	4050	900	4000
		1550	2650	1450	2350
		570	600	540	530
		500	180	470	160
		1100	105	1150	98

Gabbro

Ore Bed

Basalt Tuff

172

Ore Bed

180 Banded qtz-mag-py act-garnet schist

220

240

260

270

Basalt

280

283

Ore Bed

294

Basalt

300

Rhyolite

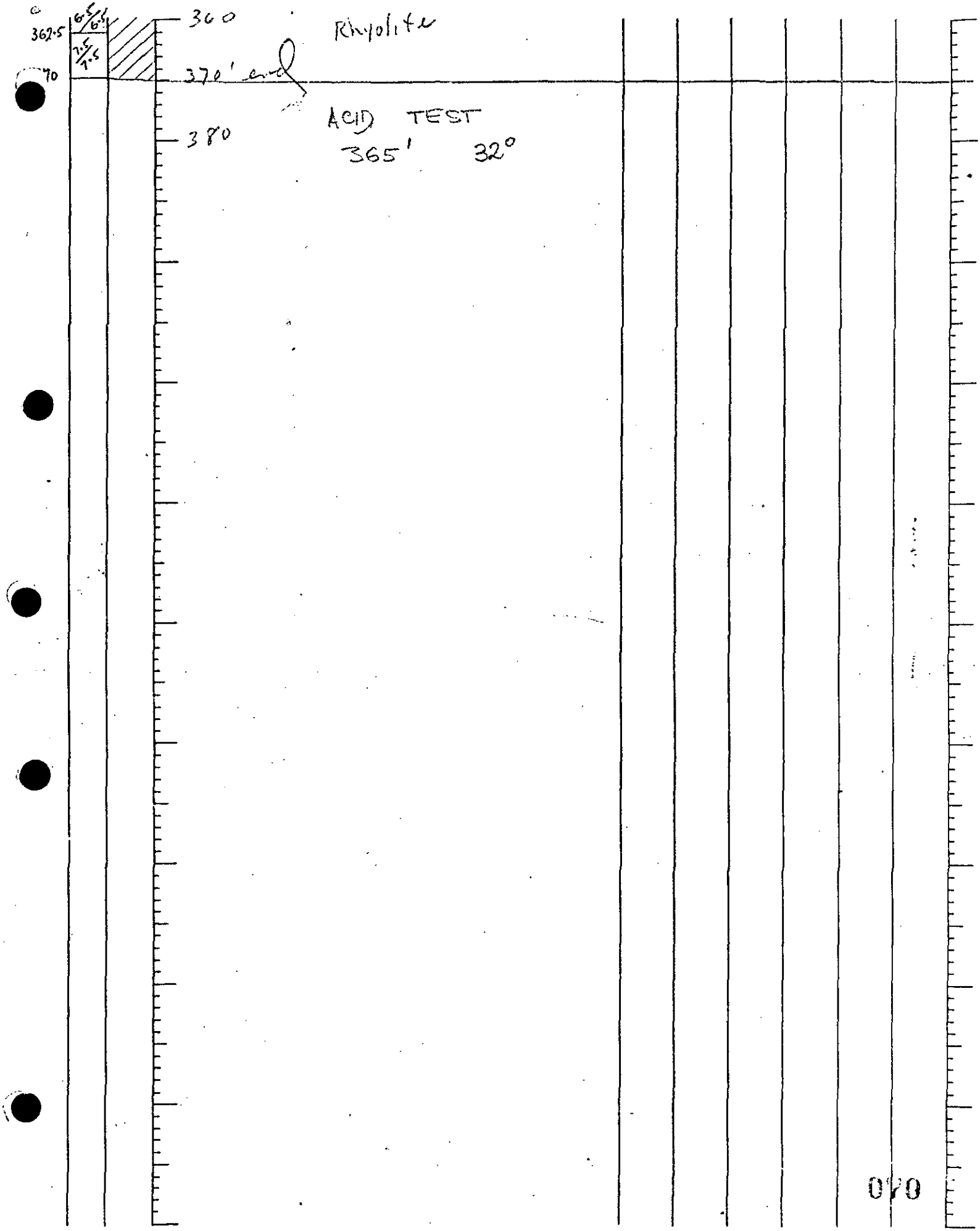
320

340

360

059

HOLE 23 continued



070

AUSTRALIAN INLAND EXPLORATION CO. INC.

LOCATION 68E - 27.4 N.
ELEVATION 50' ±
DRILLERS Associated Diamond Drillers
STARTED 3rd May 1972
ASSAYS by Geomin
Amdel

HOLE SBD 24
BEARING 155°
INCLINATION -45°
COMPLETED 9th May 1972
LOGGED by Leo J Miller

CORE RECOVERED		DESCRIPTION	Geomin Cu Ni.
	0	Rock Bit	
	20		
NO CORE	40		
	60		
	80		
94	94'		
99 3/5		Andesite Tuff carbonate layering creamy bands of crinkled chlorite	
105 6/6	100		
112 1/1			
124 8/12	120		
133.5 9.5/9.5			
137.5 4/4			
145 7.5/7.5	140		
157.5 12.5/12.5	153	Rhyolite Tuff Dike	

071

HOLE SBD 24 continued

	Geomin Cu	Geomin Ni	Amdel Cu	Amdel Ni		
160						
Andesite Tuff						
169'						
Basalt Flow						
180						
184'						
Basalt Flow: massive, green to lt in part dacite						
200'						
Dacite Tuff						
209						
Andesite Tuff						
220						
238'						
Rhyo-And Tuff banded as ore bed						
246'						245
248' Ore bed mag-po-ant	44	58	40	65		248
Andesite Tuff	32	68	25	75		253
260						
265	114	100	110	130		265
ore bed	1000	1700	890	1750		267
269' breccia Amphibolite	490	420	450	455		269
Ore bed	950	4900	750	5200		274
	700	5820	600	6000		279
280	1200	9600	1010	8250		284
	900	5300	810	5600		289
	850	5900	690	6250		294
	800	5800	725	5950		299
300	950	5600	850	5370		304
	2050	2550	1885	2656		309
	1800	2500	1625	265		314
	310	130	310	140		319
320, 323	590	150	560	150		324
327 Basalt						
Rhyolite qtz porp sericite banded						
340						
350' end						
Not Surveyed.						
360						

072

AUSTRALIAN INLAND EXPLORATION CO. INC.

LOCATION 76E – 2675 N
ELEVATION 50'±
DRILLERS Associated Diamond Drillers
STARTED 2ND May 1972
ASSAYS by Pilbara Laboratories
Geomin

HOLE SBD 25
BEARING 155°
INCLINATION -45°
COMPLETED 6th May 1972
LOGGED by L.J. Miller

CORE RECOVERED		DESCRIPTION
	0	Rock Bit
	30	
NO CORE	40	
	60	
	80	
4/9	94'	
6/11	100	Andesite Tuff
4/4	111'	
4.5/5	114'	Rhyolite Tuff
	118'	Andesite
4/7	120	Andesite Tuff w/ qtz + carbonate
4/9.5	136'	
4/4		
4/6	140	Basalt Tuff
3/3		
6/6		
10/10	160	

073

HOLE SBD25 continued

Pilbara 2. Geomin

Depth	Recovery	Log depth (ft)	Description
164	10/10	160	Andesite Tuff
174	10/10		[illegible]
			Basalt Tuff
184	10/10	180	Fine grain
		189	Chloritic
194		193	Gabbro
203.5	9.5/9.5	200	Basalt Flow
213.5	10/10		
	10.5/10.5	220, 222'	
		226	Gabbro
235	11/11		Basalt Flow
246	11/11	240	Andesite Tuff
254	8/8	251	Ore bed
261.5	7.5/7.5	260	
274	12.5/12.5		
277	3/3	280	
287	10/10		
297	10/10		
304	7/7	300, 307'	
314	10/10		Quartz Gabbro, fine fsld xlls in chl., few qtz phenos
324	9.5/10	320	
333.5	9.5/9.5	337'	
341	7.5/7.5	340	Rhyolite Tuff
345	4/4	345' [illegible]	qtz - porph [illegible]

Interval to (ft)	Cu	Ni	Cu	Ni
245				
250	110	210	120	190
255	450	840	450	800
260	220	840	200	850
265	310	660	340	610
270	390	830	410	850
275	100	1050	102	1100
278.5	225	2100	250	2250
282	190	505	190	430
287	100	90	100	84
292	95	95	108	108
297	375	2900	370	2550
302	850	4050	950	4400
307	1050	2550	1000	2900
310	270	215	300	190
315	130	105	130	86
320	80	90	88	76

ACID TEST
AT 340' — 28°

074

AUSTRALIAN INLAND EXPLORATION CO. INC.

LOCATION	80 E - 27.75 N	HOLE	SBD 26
ELEVATION	50'±	BEARING	155°
DRILLERS	Associated Diamond Drillers	INCLINATION	-45°
STARTED	6th May 1972	COMPLETED	11th May 1972
ASSAYS by	Geomin	LOGGED by	[signature]

Depth	Core Recovered	Log	Scale	Description
	No CORE		0	Rock Bit
			20	
			40	
			60	
			80	
90	3/5	////	90	
95			95'	Rhyolite qt porp.
	3/4	V V	100	Andesite Flow
103	4/7	V V		Flow Top structures
110	5/7	V V		
117	3/4	V V	120	
121	5/5	V V	130'	
131	6/6	B B		Basalt Flow
137	7/7	B	140	
144		////	144	Rhyolite Tuff
	9/9	B B		Basalt Flow
153		B B		
		////	150	Rhyolite Andesite Tuff

075

HOLE SBP 26 continued

Depth	Recovery	Log	Depth mark	Description	Geonin Cu	Geonin Ni	Amdel Cu	Amdel Ni	
	12/13	B B	160	Basalt - Andesite Tuff					
165	9/9	B B							
174	9/10	B B	180						
184	7/7	B B	188'						
			193	Gabbro					
191	7/7	B B	200	Basalt					
198	8/8	B B							
206	6/6	B	212						
212	11/11	V V	220	Andesit Tuff					
				Gabbro					
	7/7	B B	230	Basalt					
230	13/14		240	Gabbro					
244	8/8		252'	Rhyolite Tuff					
252	3/3	V V	255	Andesite Tuff					
255	8/8	V V	260, 264	Andesite Tuff well laminated like ore Bed					
263	3/3		266	ore Bed - sulphide					
266	10/10	B B		Basalt Flow light chartreuse					
276	7/7	B B	280, 285'	chloritic, massive					
283	3/3			Ore bed	1100	2250	625	2450	285–290
	10/10			mag - po - qtz - py bands	1200	1450	1085	1500	290–295
296			298		240	120	240	140	295–298
	10/10		300, 307	Sheared Gabbro to Basalt					
306	7/7			Massive Gabbro					
313	9/10		320						
323	7/7		330½ end						
330½				Not Surveyed.					
			340						

076

AUSTRALIAN INLAND EXPLORATION CO. INC.

LOCATION	136 E - 30 N	HOLE	SBD 27
ELEVATION	50' ±	BEARING	155°
DRILLERS	Associated Diamond Drillers	INCLINATION	-45°
STARTED	10th May 1972	COMPLETED	13th May 1972
ASSAYS by		LOGGED by	L.J. Miller

CORE RECOVERED

DESCRIPTION

Depth	Core recovered	Description
0 – 114	NO CORE	Rock Bit
BQ 114 – 131	7/7	Rhyolite Tuff
131 – 134	9/13	sericite schist
134 – 148	12/14	creamy texture
148 – 156	5/8	wt qtz eyes

0, 20, 40, 60, 80, 100, 114, 120, 140, 160

077

HOLE 5BD 27 continued

163	5/6	///	160 / 163	Rhyolite Andesitic Flow
170	6/7	V V		
175	5/5	V V		
182	6/7	V V	180	
185	3/3	V V		
191	5/6	V V		
193	2/2	V V	195'	
	6	V V		Andesitic Tuff
	11	V V	200	
204	8	V V		
	10	V V		
214	12	V V		
	12	V V	220	
	12	V V	226'	
226	7/8	/ \		Serpentinite magnetite rich
234	10	/ \		
	10	/ \	240	
244	9½	/ \		
251½	7	/ \	251½ end	
				Not Surveyed.
			260	

AUSTRALIAN INLAND EXPLORATION CO. INC.

LOCATION	94 E ~ 27 N	HOLE	SBD 28
ELEVATION	50' ±	BEARING	Grid South 155°
DRILLERS	Associated Diamond Drillers	INCLINATION	− 45°
STARTED	12th May 1972	COMPLETED	17th May 1972
ASSAYS by	Amdel Geomin	LOGGED by	Leo J Miller

From	CORE RECOVERED		Depth	DESCRIPTION
	NO CORE		0 – 94'	Rock Bit
94	7/7	B B	100	Basalt Tuff much injection carbonate
101	3/3	B		
104	10/11	B B B	114'	
115	4/4	Sid	119'	Siderite, qtz-chl sch.
119	5/5	//////	120 124	Rhyolite Tuffs
124	6/9	B B	131'	Basalt Tuff
		~~	136'	Soft Chlorite
133	5/8	V V V	140	Andesite Tuff banded chl - qtzt a few qtzt layers 6" thick
141	7/7	V V V		
148	4/4	V V V		
152		V V V	160	

079

HOLE continued SBD 20

				Geomin		Amdel			
				Cu	Ni	Cu	Ni		
164	5/6	V V	160 Andesite Tuff						
		V V	164						
	10/10	B B	Basalt Flow						
173									
	15	B B	180						
	15	B B							
188	7/7	B B							
195		B	197						
	12	V V	200 Andesite Tuff						
	12	V V	ft+ct cut some						
207	8/8	V V	chl bands						
215		V V							
	11	V V	220						
	11	V V	226						
231	6/7		Rhyolite Tuff						
233	4/4								
237	7/11		240						
			245						
		B B B	247' Rhyolite						
248	4/4		250 Rhyolite						
253	4/5	B B B	253 Rhyolite						
257	2/2		256 Ore Bed						259
25	9/6		260 very little actinolite or	26	62	25	65		264
265	8/8		chlorite	36	160	30	165		269
			magnetite is spotted	24	34	15	30		274
273	5/6		no garnet	54	86	45	85		279
279	4/4		280 pyrrhotite in thin	36	40	30	35		284
283	10/10		bands & spots	26	28	20	30		289
293	3/3		297' low grade mineralization	20	38	10	35		294
296	5/6		Ore Bed brecciated	38	58	25	65		299
300	5/6		300 and folded	34	46	25	55		304
			305' Ore Bed	22	76	10	80		309
306	3/3			30	82	20	85		312
309	3/3		312'						
312	4/5		Rhyolite tuff						
317			350 banded wt feld por						
	8/10		in siliceous gndm						
327			327 est						
			Not Surveyed						
			340						
			360						

080

AUSTRALIAN INLAND EXPLORATION CO. INC.

LOCATION ~~Surface at 1250W+9N~~
ELEVATION 50' ±
DRILLERS Associated
STARTED 13th May 1972
ASSAYS by Geomin

HOLE SBD #29
BEARING 65° (East.)
INCLINATION −45°
COMPLETED 28th May 1972
LOGGED by Lee Miller

CORE RECOVERED		DESCRIPTION
	0	
		Rock Bit
	20	NQ to 33 → 39'
33'	33'	
39' 4/6	40	Gabbro
44 4/5		cs grain
8/10	52'	feld porp.
	57	Chrysocolla Zone
60 5/6	60	Gabbro
6/7		fine grain
67 4/6		
78 10/15	80	80-85' autunite or gamierite type color; yellow-chartreuse
	85'	
9/9		Gabbro
94 10/10	100	cs grain
104 10/10		feldspar tends
114 10/10		to ghosts
124 10/10	120	Massive
9/10		Lt green
134 10/10		barren
144 10/10	140	Some dark metallic
154		mineral non-magnetic
	160	

081

HOLE CBD 29 continued Pilbara a. Geomin

	Cu	Ni.	Cu	Ni.			
160 Gabbro							
180							
187' Gabbro fine grain	105	280					182 / 187
25°-30° to core axis :dip=65-70° East Ore bed	325	370					192
Banded mag-po-chl-act. in quartzite	115	180					197
203'	780	295					203
Gabbro biotite rich sheared much actinolite	355	200					208
220 221'							
Gabbro coarse grain massive seld porp light green							
240							
260							
280							
300							
320							
327'							327
Ore Bed			340	1000			330
Gabbro altered to			800	1700			335
Gabbro altered to actinolite-chl-qtz-po schist Mineralisation			550	800			340
340			650	900			345
Dip is 45° to 55° to core +/- 80° west			530	420			350
354' decreases to 394			800	330			355
Pyroxenite							

082

364	7/10	360, 364'	Pyroxenite
	10/10		Siliceous Gabbro-Diorite
	S		banded w + chlorite
374		379'	+ siliceous, fine grain
	10/10	380	Siliceous Gabbro-Diorite
384	10/10		massive
	S		fairly clean
394			fine grain feld
	10/10	400	in siliceous matrix
404	S	407'	
	10/10	413'	Siliceous Gabbro slightly chloritized
414			Gabbro
	10/10	430 420'	massive to stly banded
	10/10		Gabbro chlorite qtz pomp banding blue eyes diss chalco po 453'-455'
434	10/10	440	
444	10	449'	Bedding 30° to axis
454	10/10		Gabbro
	S	460	massive
464	10/10		siliceous
	3/10		fine feld pomp (difficult)
474	S	474'	
	8/8		
482		480	massive
	10		partly chloritized
494	S	494'	
	10/10	500	Siliceous Gabbro actinolite-chlorite qtz with banding down core axis = parallel
504	7/9		
514	S		
	10/10	520	like #35 Rhyolite
524	10/10		very chloritic
	10/10		wt grainy qtz matrix
534	S		Appears drilling
	10/10	540	parallel to strike
544	10/10		
	10/10		
554	S		
	10/10	560	

Depth	Recovery	Log	Footage	Description	Geomin Cu	Ni	
564			560	Siliceous Gabbro			
	10/10	S		Banded chlorite			
574				+ silica			
	10/11		580	some sulphides			
585				becoming more			
	10/10	S		chloritic			
594	10/10		600				
604	4/5						
612	2/2						
614	7/7	S	620 623				
621	9/9		629	Ore Bed Band actinolite chert - po	260	300	626 629
630	7/7	S		Siliceous Gabbro Banded like ore Bed			
637	6/6		640 640'	Gabbro			
643	9/9		650'	wt blue dk mineral non magnet.			
652	10/10	S	660	Gabbro qtz - feld porp. siliceous			
657	11/10	S	671	wt chalco + po			
670	10/10		680 681	Gabbro qtz - feld porp more abundant pheno / blue qtz			
680	12/12	S		Siliceous Gabbro very siliceous			
694	10/10	S	700	some feld + sul.			
704	10/10						
	10/10	S					
714	10/10	S	717' 720	Siliceous Gabbro qtz porp disseminated chalco			
724	15/15	S		fine feld mesh			
739			739' end 740				

300' = 38°
500' = 32°
600' = 28°
739' = 25°

760

AUSTRALIAN INLAND EXPLORATION CO. INC.

LOCATION Sweton
ELEVATION 50'±
DRILLERS Associated
STARTED 19 May 1972
ASSAYS by Geomin / Amdel

HOLE SBD #30
BEARING 308°
INCLINATION -45 NW
COMPLETED 25 May 1972
LOGGED by [illegible]

CORE RECOVERED		DESCRIPTION
	0	
		Rock Bit
	20	
		35'-94' NQ
35	35'	
39	5/5	Granite
	40	
48	5/9	cs qtz-felk
	7/7	holocrystalline
55	7/7	granite
	60	
62	4/4	Little muscovite
66		or biotite
77	11/11	
80	3/3	
	80	
	5/6	
86	7/8	
94	5/5	
99		
	100	
108	8/9	
	6/6	
114	10/10	
	120	
124	7/7	
131	7/7	
	140	
138	9/9	
146	8/8	
154		
	160	

085

HOLE 513 D 30 continued Geomin Amdel

Log column (depth, core recovery, lithology):

163 — 160 / 163 — Granite (+ +)
10/10 — 168 — Ore Bed
10/10 — 173 — Chert (c c c)
173 — 174 — Granite (struck through)
5/5 — 176½ — Granite
178 — Ore Bed
10/10
10/10
188 — 3/4
192
10/10 — 200
202 — 5/5
207 — 7/7
211 — 3/3
217 — 10/10 — 220
6/6
233 — 5/5 — 235 — 237 — Chloritized chert (c c c)
238 — 6/6 — 240 — Ore Bed
244 — 10/10
254 — 10/10 — 260
264 — 5/5 — 265 — 268 — Chloritized chert (c c c)
269 — 5/5 — Ore Bed
274 — 10/10 — 280
284 — 5/5
289 — 5/5 — ?
294 — 10/10 — 297'
— 300 — Siliceous Gabbro unmineralized
304 — 3/3 — 308' — Massive
307 — 8/8 — Ore Bed
315 — 5/5 — 315' — Siliceous Gabbro unmineralized
320 — 10/10 — 320 321 — ore
— 326' — Gabbro - Andesite
— Gabbro - Andesite ore
330 — 9/9 — Ore Bed
some po - mag - chalco
339 — 10/10 — 340 — Siliceous Gabbro
Banded
unmineralized
349 — 10/10
359 — 360

Notes:

174 - 174½ Ore
174½ - 175 granite
176½ - 178 granite

178' 40°
186 40°
210 55°
269 45°
289 40°

185-186
972

326' 55°

Massive magnetite at 178½
" " " 186
188
191
201
much po + Chal @ times 231
massive 231

Acid corrected 250' = 35°
365' = 24°

Interval (ft)	Geomin Cu	Geomin Ni	Amdel Cu	Amdel Ni
163–168	2450	170	2325	150
168–173	130	100	135	95
173–174	10	18	5	5
174–174½	850	64	780	55
174½–175	96	16	115	10
175–176½	950	190	925	160
176½–178	84	34	75	25
178–180	1300	220	1150	190
180–185	1600	250	1335	230
185–186	40	18	25	25
186–191	2150	750	1875	850
191–196	1850	900	1675	975
196–201	5000	1150	4250	1275
201–206	7000	850	6500	925
206–211	3400	330	3050	400
211–216	2250	500	2275	625
216–221	1100	1200	1050	1325
221–226	1850	1050	2035	1325
226–231	1550	1700	1375	1750
231–235	750	1200	760	1475
235–237	42	110	35	140
237–242	1350	1350	1335	1800
242–247	1250	950	1225	1150
247–252	2000	1050	1875	1125
252–257	3700	1250	3350	1475
257–262	2250	1250	1625	1750
262–265	1050	600	975	850
265–268	120	130	115	160
268–273	1600	1200	.1335	1300
273–278	290	200	270	240
278–283	400	250	425	300
283–288	650	300	600	350
288–293	700	220	500	230
293–297	1300	260	1200	270
297–308	200	74	190	110
308–315	1000	230	875	270
315–325			380	70
325–335			~~250~~	~~80~~
335–345			350	.80
345–355			170	110
355				

086

HOLE SB 30 continued

Amdel

Cu.	Ni
170	110
.420	50

360

Banded siliceous Gabbro

365 1% po diss.

369' end

365

369

Acid emeited 350' = 350

345' = 240

380

400

420

440

087

AUSTRALIAN INLAND EXPLORATION CO. INC.

LOCATION	15 W + 050'N	**HOLE**	SBD #31
ELEVATION	50'±	**BEARING**	110° (South East)
DRILLERS	Associated Diamond Drillers	**INCLINATION**	-45°
STARTED	26th May 1972	**COMPLETED**	29th May 1972
ASSAYS by	Geomin Amdel	**LOGGED by**	L. J. Miller

CORE RECOVERED — DESCRIPTION

0

20

Rock Bit

40

NQ 66½ - 74'

60

66½

Depth	Core recovered
66½	0
68½	2
72	3
74	9/9
83	8/8
91	10/10
101	3/3
104	10/10
114	7/7
121	10/13
134	2
136	6/6
142	9/10
15_	[illegible]
154	[illegible]
159	

Gabbro
banded to massive
some bands of biotite
siliceous 66-75
CS 75-86
CS banded 86-103'
fine 103'-115
sericite 115-134'

80 100 120

Quartz

Ore Bed
qtz - mag - po - chalco
actinolite schist
at 142-143 qtz
" 156-157 qtz
good mineralisation stops at 156'

140 160

Bedding 50° core axis
∴ 85° NW.

Depth	Amdel Cu	Amdel Ni	Geomin Cu	Geomin Ni
135–136			350	510
141			3000	1200
142	425	1100		
143	80	600		
148	605	1120		
153	330	450		
156	970	785		
158	30	40		

088

HOLE 31 continued Amdel

			Cu	Ni
160	Ore Bod		970	500
10/10	Massive mag 4" at 174'		1600	330
169 6/6				
175	177'		2800	870
4/4				
179 5/6	180	Granite		
184				
10/10	190'			
	chlorite biotite schist			
194 5/5	196'	contact metamorphic		
199 4/5	200	Granite		
203 6/6				
209 10/10	219' end			
219	220			
	Not Surveyed			
	240			

161
166
179

AUSTRALIAN INLAND EXPLORATION CO. INC.

LOCATION 10 W + 950' N
ELEVATION 50' ±
DRILLERS Associated Diamond Drillers
STARTED 29th May 1972
ASSAYS by Amdel

HOLE SBD # 32
BEARING 245°
INCLINATION -45°
COMPLETED 1st June 1972
LOGGED by L. J. Miller

CORE RECOVERED		DESCRIPTION	Amdel Cu	Amdel Ni				
		0						
		Rock Bit						
		20						
		NQ 20'–70'						
20		30'						
34	4/4	.V.V. Andesite Tuff						
	10/10	V.V.V. green - feld matrix						
		40						
		·V·V·V· bedded						
44		V.V.V.						
	3/10	V.V. at 44' much green chartreuse garnierite						
54		54'						
	10/12	Gabbro						
		60						
66	5/5	fe/f porp holo						
70	6/6	crystalline, in						
76	8/8	grndmass						
		80						
	5/5	87'						
89	6/7	Gabbro						
		fine grain						
96	7/8	100'						100
		ore Bed	155	130				
104		106'						106
	8/12	Gabbro cs grain						
112		much chlorite						
	11/11	120						
		banded in lower part						
123	10/10		125	65				123
		130						128
	11	ore Bed	920	310				133
134			1500	245				136
	10/10	140						
		mock actinolite - chlorite	3500	210				142
144		low grade po						
	10/10	little chalco	2000	275				147
		148						
	10/10	Gabbro	360	210				152
154		massive green						
		160	30	55			090	157
		Micialised 155'–159'						

HOLE S B D 32 continued

Amdel

	CU	NI
164–165	540	375
165–177	1150	290
	165	90
	80	28

160 chert

165 Ore Bed (some chalco

Typical Iron fm., clean

177' chert wt banded iron

180 Gabbro

cs grain massive

grey

194

200

204

214

220 224' end

Not surveyed

240

162 167 171 177

AUSTRALIAN INLAND EXPLORATION CO. INC.

LOCATION 11 W, 6 N
ELEVATION 50' ±
DRILLERS Associated Diamond Drillers
STARTED 29th May 1972
ASSAYS by Amdel

HOLE S.B.D # 33
BEARING 245°
INCLINATION -45°
COMPLETED 7th June 1972
LOGGED by L. J. Miller

CORE RECOVERED		DESCRIPTION	Pilbara Cu	Pilbara Ni	Amdel Cu	Amdel Ni	
		0					
		Rock Bit					
		20					
		26'					26
29	3½/3	Ore Bed					
34	5/5	gossanous, chert breccia					
39	3/5	much garnerite					
44	5/5	40					
47	3/3						
54	7/7						
58	4/4						
64	6/6	60					
66	½/2	← Sample 66' green secondary garnerite	100	135			66
69	½/3						
73	3/4						
80	3/7	80' massive actinolite-magnetite					
84	3/4	84'			195	50	85
86	6/7	← Sample 86' serpentinite massive	70	180			86
91	3/3	serpentinite bed in one section					
94	10/10	replaces bedding 93-94 chert not replaced			30	20	95
		99					98
		100 Ore Bed					
104	10/10	Banded actinolite-qtz-po.			55	20	108
114	10/10	very little magnetite			155	20	118
		120 Hard drilling					
124	5/5	at times fibrous			175	20	128
129	5/5	actinolite & chrysotile					
134	10/10				280	50	138
		140					
		← 142' banded actinolite-po-qtz	740	360			142
144	7½/8				1135	60	148
152	10/10				540	50	158
		160					

092

HOLE SBD #33 continued

			Amdel Cu	Amdel Ni	
164	10/10	Ore Bed banded chert actinolite pyrrhotite wt chalco (low grade)	375	50	168
174	10/10		360	40	178
184	10/10	184'	255	45	188
194	10/10	Ore Bed Higher grade actinolite pyrrhotite-chalco qtz + schist some magnetite po massive over 6" wt much chalco	315	50	198
205	14/14		450	300	208
211	10/10		605	960	218
	10/10	Actinolite massive and coarse = Amphibolite	1300	1010	228
231	10/10	235'	765	540	238
	13/13	Gabbro feldspar porp. same VV as #32	80	140	246
244	10/10		60	100	256
254	10/10	Massive	20	80	266
264	10/10		820	250	274
274		274' end			

Not Surveyed

093

AUSTRALIAN INLAND EXPLORATION CO. INC.

LOCATION 24 E, 10 N
ELEVATION 50' ±
DRILLERS Associated Diamond Drillers
STARTED 1ST June 1972
ASSAYS by Amdel

HOLE SBD #34
BEARING 155° (Grid South)
INCLINATION -45°
COMPLETED 9th June 1972
LOGGED by L.J. Miller

CORE RECOVERED

DESCRIPTION

Amdel

Cu	Ni
125	55
95	95

0
20
Rock Bit
40
60
63½
65½ Rhyolite qtz-fel porp.
74 10/10
80
84 10/10
90 10/10
94 3/9
100
103
114 3/11
120
123 5/9
134 3/11
140, 142'
144 8/10
Andesite Tuff
149 5/5 v.v.
154 5/7 v.v.
160'

142
147
152

094

HOLE SBD 34 continued

			Amdel Co	Amdel Ni	Pilbara Co	Pilbara Ni			
3/3		160							
7/7		167' Pyroxenite sericite-talc schist							
8		Pyroxenite very sericitic wt much talc soft. some coarse cryst.							
13		180							
10									
10									
10		200							
10									
10									
10		216'							
10	P P	220 Peridotite							219
10	P	Darker wt chlorite and actinolite magnetite plus pyrrhotite - some chalco	20	880					224
10	P P		50	910					229
10	P		20	575					234
7	P		25	285					239
9	P	240	15	910					244
11	P P		5	880					249
11	P		25	950					254
6	P P	heavy mag-po at 263'	5	945					259
6		260	5	970					264
7	P	breccia 230-238	5	900					269
8	P		5	850					274
12	P		20	460					279
12	P	280	5	465	30	1220			282 284
13	P P	breccia at contact	25	1190					289
12	P	290 lighter peridotite	5	335					290
13	P P								
	P	300 less magnetite - pyrrhotite							
14	P P	possibly a pyroxenite							
14	P	with talc.							
10	P P	320 essentially a sericite							
10	P	talc schist							
10	P P								
10	P P	340							
10	P P								
10	P								
10	P P	353' breccia contact							353
	P	Peridotite	40	580					
	P P	360 Dark wt mag-po							358

095

HOLE SBD 34 continued

364	10/10	P	360	Peridotite mag-po	Amdel Cu 25	Ni 770			363
	10/10	P			10	910			368
1	10	P	374' end		10	880			374
			380	Not Surveyed.					

AUSTRALIAN INLAND EXPLORATION CO. INC.

LOCATION 61E, 2830N
ELEVATION 50' ±
DRILLERS Associated Diamond Drillers
STARTED 8th June 1972
ASSAYS by

HOLE S.B.D # 35
BEARING —
INCLINATION Vertical (-90°)
COMPLETED 19th October 1972
LOGGED by L.J. Miller

CORE RECOVERED | DESCRIPTION

0
NQ to 655'9"
HW core through overburden
∴ 20'? sand + gravel
20
Rhyolite Ash Fall Tuff.
banded silicious - chlorite as at 184' below, some carbonate
1" qtz bands
green
40
60
80
100
HW to 129'6"
NQ 129'6"
1000' and 655'9"
then BQ
120
121'
Rhyolite Ash Fall Tuff
green
banded siliceous layers
wt creamy layers
and x cutting cream
grey. Semi massive
as at 320' below
140
160

097

HOLE # 35 continued

160 – 8/8 – 168 – 10/9 – 177 – 10/10 – 180 – 184'

Rhyolite Ash Fall Tuff
siliceous - chlorite
bands wt creamy

184' – 10/10 – 187 – 5/6 – 191 – 7/7 – 198 – 200 – 13 – 14 – 212 – 5/5 – 218 – 4/4 – 220 – 6/6 – 228 – 7/7 – 235 – 10/10 – 240 – 245 – 10/10 – 255 – 10/10 – 260 – 265 – 10/11 – ← qtz – 276 – 280 – 10/10 – 286 – 9/9 – 295 – 300 – 10/12 – 307 – 314'

Rhyolite Ash Fall Tuff
wt blue qtz eyes
more carbonate and
siliceous bands than
above

more siliceous
with thin
chert or rhyo tuff
seams. Excellent
beds of pure silica
amorphous or
chalcedonic.

rock is essentially
fine siliceous bands
wt chloritic alteration
prob. rhyolite or dacite

314' – 10/10 – 317 – 320 – 10/10 – 327 – 6/6 – 333 – 8/8 – 340 – 341 – 7/7 – 348 – 9/9 – 357 – 360

Rhyolite Ash Fall Tuff
as from 126'-184'
grey semi massive
chalcedonic layering

HOLE SBD 35 continued

Depth	Recovery	Scale	Description
	9/9	360	
366	12/12		fine laminae of silicia as either siltstone or chert or rhyo tuff;
378	6/6	380	Chloritic wt some po.
384	12/12		Bedding parallel to core axis.
396	10/10	400	qtz layering like siltstone
406	11/11		
417	9/9	420	
426	10/10		
436	10/10	440	
446	10/10		
456	10/10	458' 460	Rhyolite Ash Fall Tuff
466	10/10		blue qtz eyes as 184'– 314' above
476	10/10	480	more carb – qtz injection
486	10/10		
496	10/10	500	dark green
506	8/8		well layered
514	9/9	520	
525	10/10		
535	10/10	540	
545	6/6		
551	5/5		
556		560	

HOLE SBD 35 continued

560 Rhyolite Ash Fall Tuff
blue qtz eyes
well layered
576' 576

Rhyolite Ash Fall Tuff
grey banded
more massive
in 129'-184' + 314'-458'
beds @ rt angle to
core at 603 area

600

End NQ
655.9" start BQ

660

680

700

705

715

720

725

738' 735

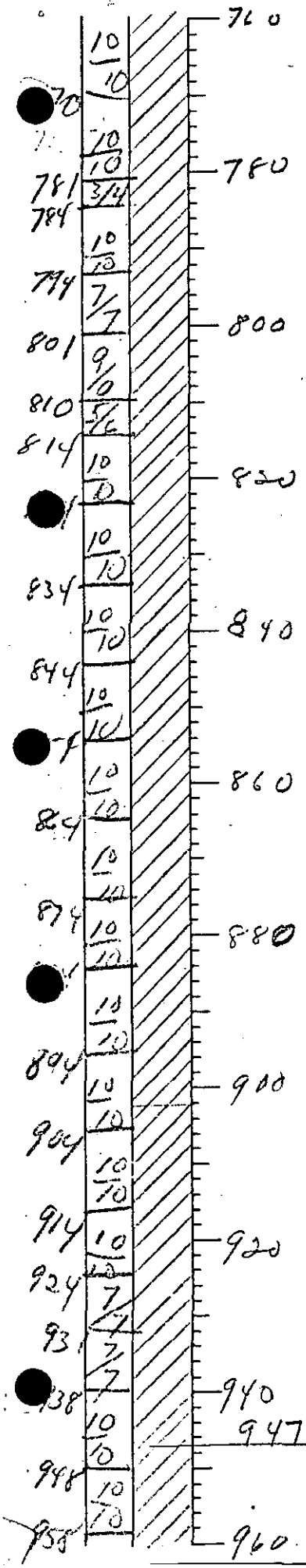
740 Rhyolite Ash Fall Tuff
blue qtz eyes; this unit
and above unit; interbedded
to 973'

745

755

760

HOLE 513 D #35 continued



Rhyolite
Ash Flow Tuff
Massive with
intermediate
bedding.
Blue gtz eyes
throughout

Becoming more
bedded at
bottom section

947'

Rhyolite Ash FLOW
Tuff
banded dense devitrified

960 interbedded with blue qtz eyes

973' Rhyolite Ash Fall Tuffs blue qtz eyes as 184–314 above

1034.8 end of Hole due to deviation

HOLE SBD #35A continued

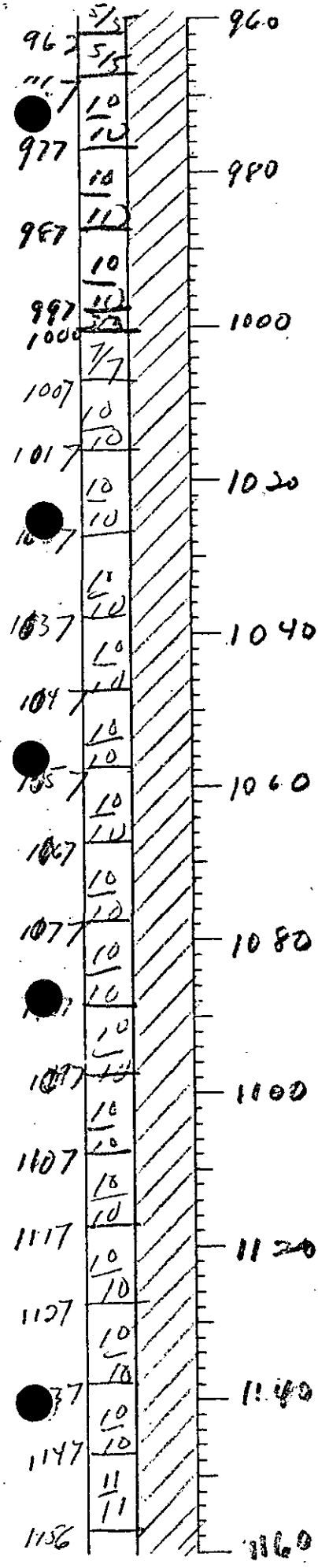
560
580
600
620
640
655' 9" start Reaming
660
680 Reaming NQ core barrel
700 702' Core commences
Rhyolite Ash Fall Tuff
blue qtz eyes bedded
but interbedded
wt semi massive
grey unit
720
740
760

702
704
706 3/2
6/5
712 5/5
714 8/5
725 10/10
735 11/11
746

HOLE BP 35A continued

760
Interbedded mass + bedded Rhyolite Ash Fall Tuff
780
800
820
840
847'
Rhyolite Ash Flow Tuff mass. purp r hyo silty bedded
860 861'
Rhy ash Fall Tuff grey semi mass.
869'
Rhyolite Ash Flow Tuff
880 883'
Rhyolite Ash Fall Tuff grey chalcedonic layers semi massive to well layered
900
920
940
960

HOLE SBD 35A continued



Rhyolite Ash Fall Tuff

grey, semi massive with some blue qtz eyes

bedding 20° to core axis @ 975'

very siliceous

1160
1165'
Rhyolite more banded than above unit
1180
1187 - 20°
1192 - 19°
1200 - 21°
1200
1200-1205 wedging
1205 - 18°
1213 - 17°
1216 - 16°
1225 - 28°
1218 - 21
Banded Rhyolite
1220
1233'
Andesite Tuff wt rhyolite beds
finely banded
Biotite-chlorite alteration
Po-Py @ 1266'-1267'
1240
1260
1280
1300
1303' 9" Start Reaming new hole
1320
1340
1360

960
980
1000
1020
1040
1060
1080
1100
1120
1140
1160

Reaming from 1000'

1065 1065'

Rhyolite Tuff

1068 3/3
15
14
1082
15
15
1097
18
11
1108
14
14
1122
16
16
38
17
17
1155

Fine banding of siliceous rhyo. disseminated py-po specks of chalco blue qtz eyes

HOLE SBD35B continued

2nd New

1160

17
17

Rhyolite Tuff
banded siliceous
tuff, disc. sulphides
blue qtz eyes

72

11
11

1180

1183

15
15

1198

1200

19
19

1217

Rhyolite Tuff
Biotite alteration
wt chlorite
banded, minor
py-po-chalco.
tension cracks
across banding
creamy layers.

1317

1220

15
15

1332

15
15

1240

1347

15
15

1260

1262

18
18

1280

13
13

1293

12
12

1300

1305

15
15

1320

1330

15
15

1335'

1335

1340

Rhyolite Tuff
Biotite more intense
Banding less obvious
in places chalcedony
creamy banding

15
15

1350

1360

HOLE S 13D 35 B continued

1360 — 2nd Nevo

Biotite Rhyolite Tuff
chalcedonic veining
diss fine grain sulf.

1380

1397'6" NQ Wedge Opperson

1400

Biotite Rhyolite
banded

1420 1423

Rhyolite massive

1440 1444'

Rhyolite massive
fine grain
shorted lightly bedded

1460

1461'3" wedge

1480

1487'2" wedge

1491'10"

1498'

1500

Rhyolite Tuff
bedded

1511'2" wedge

1520

1532'

1535'2" wedge Rhyolite Tuff

1540

Biotite - 9% schist
equal 268-286 #20
Pyrite cubes along bedding

1553'2" wedge

1560

1560 1562
1562 5/5 — Gabbro
5/5 fine grain
1573 0 — 1572'10" wedge
1575'7" 4/4
1581 — 1580
11/11 — 1590
1592 qz — 1593 Quartz
n — wedge 1600 after plugging — Norite massive hypersthene – cut chlorite pos. norite
1602 10 n — Pyrrhotite specks
1611'9" 4/4 n — 1611'9" wedge cancelled — pos. serpentine
1616'7" 0 n — plug back to 1599'3" — wedge @ 1616'7" 1620
10/10 n — specks talco
1629 10/10 n — Prob. same as 235-241 #20 ultramafic
n — wedge 1639'1" 1640 1642
1639 0 — Biotite – Chlorite schist
1640'1" 10 — Prob. sheared norite as 211 – 230 #20
10/11
10 — qtz injection along shears contorted banding "
1660'9" 10 — 1660 — 1662' wedge after plug back
10
1672'1" 10 — 1670'8" wedge plug back to 1662'
10
1683 10 qz — 1680 Bull Quartz
1689'6" 0 — 1689'6" wedge Rhyolite Tuff
1693 10/10 — banded contorted biotite – chl – qtz schist
— 1700 as 146 – 217 #20 with Bull Qtz to 1701
1703 10/10 — plug Back 1704' and wedge — Rhyolite Tuff biotite – qtz schist, slightly sheared
1713 10/10 — as 112 – 142 #20
1721 1723 — 1720 plug back — wedge @ 1717 – 1721'
1731 — wedge 1730'6" ran down old hole
10/10 — 1740 sulphides increasing, also chlorite
10/10 — 1742'0" wedge contorted bedding
1750 5/5
1755 5/5 qz — 1760 Quartz
1760

1760 Quartz
Bull quartz massive
1780
Rhyo Tuff as above
1791
1792 Quartz
Rhyo Tuff
as above
1800
1805'
1807 Quartz
1810 Rhyo Tuff
1814' Quartz
1815 wedge Rhyo Tuff
1820 as above
Rhyolite Tuffs
1838'3" wedge wt more qtz
than chl + biotite
increase in pyrite
1840
1841'6" wedge = Fail because can't core pilot hole
dips from horizontal each
1864 = 65°
1853 = 65°
1800 = 69
1789 = 9°
1860
1864½ wedge
1880
1900
1920
1940
1960

S.B.D 35

TROPARI RESULTS

Footage	Tropari Dip	Tropari Direction	Acid	Comment
105	90	—	—	
150	—	—	90°	
208	90	—	—	
322	89	106	—	
336	—	—	90	
361	90	—	—	
416	89	286	—	
512	90	—	—	
634	88	296	—	
724	—	—	87	
734	87	024	—	
834	87	026	—	
934 1ST RUN	83	358	—	
934 2ND RUN	83	352	—	
904	—	—	83	
1024 3RD RUN	77	038	—	
1034 2ND RUN	75	035	—	
1034 2ND RUN	76	343	—	
REAMING TO HELP CHANGE DIRECTION ON HOLE 655' — NEW READINGS				
706 1ST RUN	87	075	—	
706 2ND RUN	87	074	—	
707	—	—	89	
745	87	079	—	
777 1ST RUN	85	073	—	
777 2ND RUN	87	124	—	
824 1ST RUN	87	118	—	
824 2ND RUN	87	078	—	
824 3RD RUN	88	061	—	
867 1ST RUN	88	147	—	
867 2ND RUN	88	235	—	
917 1ST RUN	87	330	—	

S.B.D 35 CONT. TROPARI RESULTS

Footage	Tropari Dip	Tropari Direction	Acid	Comment
917 2ND RUN	88	258	—	
939	—	—	86	
990 2ND RUN	86	016	—	
1000 1ST RUN	86	030	—	
1054	86	006	—	
1116	84	357	—	
1175	81	345	—	
1200	80	337	—	
1200	—	—	81	
		Wedge		
1244	81	338	—	
1235	—	—	79	
1264 1ST RUN	79	338	—	
1264 2ND RUN	79	346	—	
1302 1ST RUN	77	339		
1302 2ND RUN	76	341		
RETURN TO 1000' TO COMMENCE DRILLING WITH N.Q RODS TROPARI STOCK (READING NOT RELIABLE)				
1042	87	226		
1042	—	—	89	
	CASING WEDGE 1042' — REMOVED NO GOOD			
1096	85	293		
1152	85	360		
1201	85	354		
1260 1ST RUN	85	093		
1260 2ND RUN	85	351		
1260 3RD RUN	85	358		
1320 1ST RUN	84	003		
1320 2ND RUN	84	358		
1320	—	—	85	
1371	84	356	-	
1397	84	007		
	WEDGE			

S.B.D 35 CONT. TROPARI RESULTS

Footage	Tropari Dip	Tropari Direction	Acid	Comment
1407	83	099	—	
1427	84	IN BIT	—	
1447	82	343	—	
1447	82	357	—	
	BQ ROD			
1486	82	IN BIT	—	
1502	83	"	—	
1511	82	"	—	
1522	83	"	—	
1535	83	"	—	
1554	—	—	85	
1572	84	"	—	
1591	87	"	—	
1601	87	"	—	
1611	85	"	—	
1611	85	125		
	PULL UP FROM	BOTTOM AND PLUGGED		
1599	87	—		
1616	88	—		
1629	87	—		
1634 TOP	87	035		
1639 BOTTOM	87	339		
1657 TOP	88	024		
1662 BOTTOM	88	015		
1683 BOTTOM	87	335		
1683	87	071		
1689	87	050		
1713	87	114		
1713	87	124		
1723	86	314		
PULLED	UP TO CHECK	BEST LOCATION	FOR PLUG	

S.B.D 35 CONT

TROPARI RESULTS

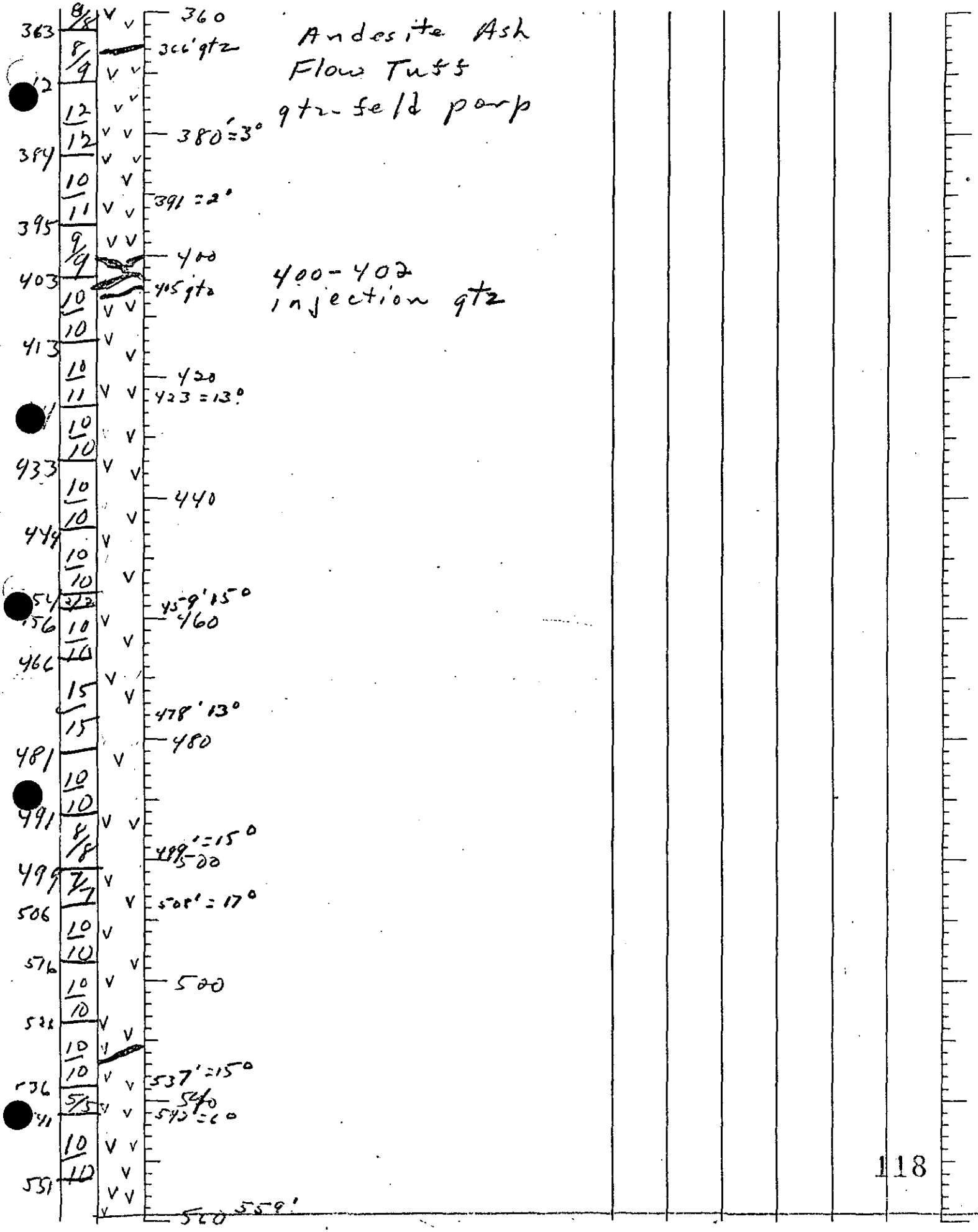
Footage	Tropari Dip	Tropari Direction	Acid	Comment
703	88			
1703	89			
1703	88			
1703	88			
1713	87			
1723	86			
	PLUG SET AT 1703			
1703	88 ON PLUG			
1717	88	305		
1730	89	002		
1742	89	344		
1754	89	128		
1759	89	245		
1764	89	050		
1769	89	125		
1775	89	304		
1780	89	145		
1800	88	139		
1805	88	068		
1810	87 TOP	016		
1815	87 BOTTOM	022		
1823	88	352		
1828 BOTTOM	88	021		
1841 1ST RUN TOP	90	146		
1841 BOTTOM	88	007		
1841 2ND RUN TOP	89	324		
1841 BOTTOM	88	319		
1851	89	352		

AUSTRALIAN INLAND EXPLORATION CO. INC.

LOCATION	34 E, 2310 N	HOLE	S.B.D # 36
ELEVATION	50' ±	BEARING	—
DRILLERS	Associated Diamond Drillers	INCLINATION	Vertical (-90°)
STARTED	8th June 1972	COMPLETED	10th July 1972
ASSAYS by	Pilbara Laboratories Amdel	LOGGED by	L.J. Miller

Depth	CORE RECOVERED		Scale	DESCRIPTION
0	10/18		0	HW core NQ to 700'6" mud & sand ∴ 18' of overburden
18'	4/4, 6/9	V V	20	Andesite Ash Flow Tuff HW core of bedrock
31'	8/10	V		
41'	2/11	V	40	qtz-feldspar porp. chlorite groundmass
	7/12	V V	60	
64'	8/10	V		HQ core
74	1/1, 10/14	V V	80	Andesite Ash Flow Tuff
90'	10/15	V V	100	Massive but slightly sheared bedding. Excellent
105	3/3	V		qtz eye pheno
108	7/8	V		
116	9/9	V	120	: crysts.
125	10/10	V		Chloritic
135	10/10	V	140	133' - 145' contorted qtz-porp.
145	10/10	V		
155		V	160	

160
Andesite Ash Flow Tuffs qtz-porp chloritic
172' = 15°
180
187'
187' to 198' contorted down axis
Andesite Ash Fall Tuffs, fine bedded andesite Tuffs
200
206
qtz
Andesite Ash Flow Tuffs primarily qtz porp chloritic
216' = 17°
220
236' = 10°
240
246
260
266
qtz
fine layered tuffs
270
273' = 11°
280
296
299' = 8°
300
qtz
309
313' = 9°
318
320
329
333' = 7°
339
340
346
355
357' = 5°
360


Andesite Ash Flow Tuff
qtz-feld porp
400-402 injection qtz
360
380'=3°
391=2°
400
405 qtz
420
423=13°
440
445-9'15°
460
478'13°
480
499'=15°
500
508'=17°
500
537'=15°
540
543=20
560
559'

Depth	Recovery	Graphic	Footage / Angle	Description
562	3/2	V.V.	560	Andesite Ash Fall
564	5/5	V.		finer grain wt laminated
569	8/8	V.V.		very chloritic, feld
577	10/9	V.V.		mesh, some blue small
586	8/8	V.	585'=23°	qtz eyes. Some po wt specks magnetite
594	6/6	V.V.		At bottom becomes
600	10/10	V.V.	600	gradational wt Ash Flow Tuff ∴ pink feld
610	7/8	V.V.	611'=30° 613'	some larger qtz eyes.
618	10/10	V	620	Andesite Ash Flow Tuff feld - qtz pheno within
628	10/10	V		chlorite ground-mass
638	3/3	V	640	Some po
641	10/10	V V	643=50° 649'	some biotite or hornblende little lamination
651	5/5			Gabbro
656	8/8		660 665'	
664	10/10	V.V	667=50°	Andesite Ash Fall Tuff fine mesh very
674	10/10	V.V.	680	chloritic some chalco stringers some po.
684	10/10	V.V.	695'=8°	Banded wt fine laminae
694	6/6	V	700	Andesite Ash Flow Tuff
700	10/10	V		
710	10/10	V	711=15°	qtz porp very finely layered.
720	10/10	V	720=0°	
726	5/6	V		
	10/10	V	731'=22°	Injection qtz
736	8/8	V.V.	740	Andesite Ash Fall Tuff
744	12/12	V.V	qtz	fine grain poorly bedded
756		V.V.	760	

Dip core to axis 20° (annotation, 560–585')

contorted / Flat to vert. (annotation, 667–684')

760 Andesite Ash Fall Tuff
chloritic wt qtz
mosaic

780
775'
gradational contact

Gabbro
qtz-gabbro holocrystalline
wt feld-hornblende; qtz occurs
within feldspar; chloritic

800

818'

820' Ash Flow Tuff

835 Ash Flow Tuff

832 Gabbro

Andesite Ash Flow Tuff

840

qtz porp. in
chlorite groundmass.
magnetic at 960
slightly bedded
A+ top qtz feld
porp.

860

880

881' = 55°
883 = 51°

Some sulphides
+ magnetite

897' = 47°

900

Some injection qtz.

layering of pseudo
qtz+.

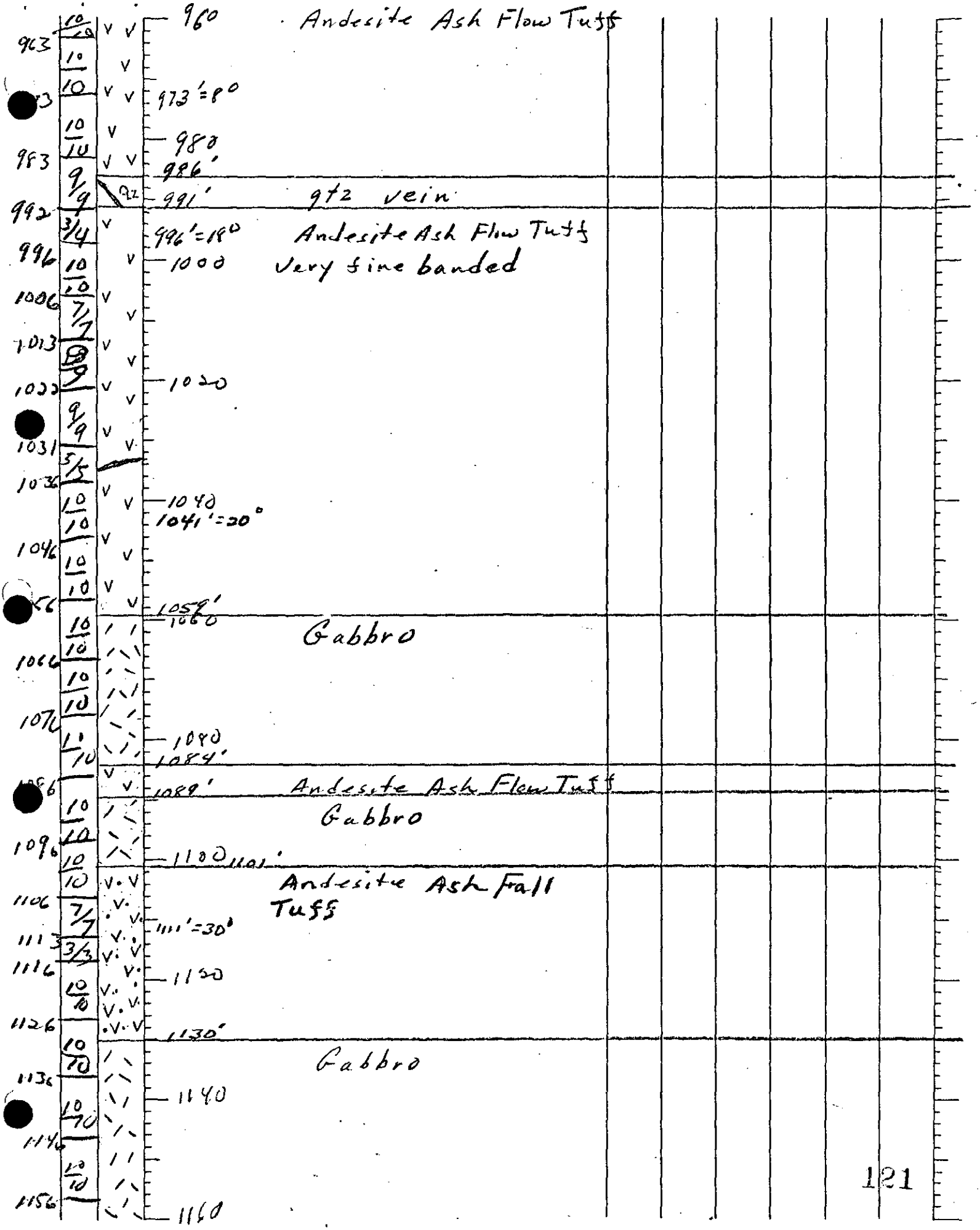
917' = 15°

920

930' = 18°

940

960


960
Andesite Ash Flow Tuff
973'=8°
980
986'
991'
Qz
Qz vein
996'=18°
Andesite Ash Flow Tuff
Very fine banded
1000
1020
1040
1041'=30°
1059'
1060
Gabbro
1080
1084'
1089'
Andesite Ash Flow Tuff
Gabbro
1100
1101'
Andesite Ash Fall
Tuff
1111'=30°
1120
1130'
Gabbro
1140
1160

HOLE 3C continued

1160 Gabbro

1180

1194'

Basalt
finely laminated
maybe tuff ; instead
of Flow
Chartreuse green

1200

1220

1235

1238 Chert Massive

Basalt
finely laminated
w/ some silica
chartreuse green
more massive
& Cottam

1240

1260

1280

Gabbro
silicified
Basalt

1304 – 1313 heavy
magnetite – pyrrhotite
in chlorite schist especially 1308'

1314'

Basalt Ash Fall Tuffs
Very heavy chlorite
concentration.
with chlorite sheen
fine banding
Excellent Basalt Tuff

1320

1340

1360

1034

HOLE SBD #36 continued

Pilbara. Amdel

Depth	Recovery	Lith.	Footage	Description
1364	10/10	B	1360	Basalt Ash Fall Tuff
71	7/7	B		Sulphides throughout
	10/10	B		
1382	10	B	1380	
1387	5/5	B		Much injection
1394	5/7	B		qtz at bottom
1399	5/5	B	1398'	
		B s B	1400, 1404'	Silicified Basalt Ash Fall Tuff, in part Ash Flow
1409	10/10	B		Basalt Lava Flow
1430	10/10	B	1420	
1432	10/10	B	1436'	
1440	10/10		1440	Gabbro silicified
1446	5/6			feld porp wt silica groundmass
56	10/10	S		qtz - feld porp at bottom
1465	9/9		1460	
1476	11/11	S		
	10		1480 1481	
1484	10			Ore Bed
1495	9/9			qtz-actinolite-mag-po wt chalco.
1505	10/10		1500	1500'-1500.5' qtz
1514	9/9			1502.5'-1503.5 qtz wt ore
1524	10/10		1520	Well banded po-mag wt patches of chalco
1534	10/10		1536' 1539	actinolite but no sulphides or mag
43	9/10		1540	
1553	10/10		1559'	
			1560	Barren Basalt or Gabbro

Cu	Ni.	Cu	Ni	Depth
				1479
25	140	10	120	1481
600	280	620	340	82
1600	1600	1260	1600	84
2000	1500	1800	1650	86
1800	1250	1700	1250	88
1700	1200	1490	1250	1490
1830	2100	1750	2150	92
1900	1880	1680	2000	94
1270	1750	1260	1650	96
2100	1980	2300	2000	98
860	2250	970	2300	1500
1280	750	1670	750	1501
1488	3500	1410	3450	1502
310	1000	500	1160	1503
820	2200	820	2250	05
285	1580	3200	1500	07
1780	2700	1560	2650	09
900	2800	820	2850	1511
1800	2700	1810	2700	13
900	2300	850	2250	15
1190	1780	1410	1800	17
560	2100	520	2150	19
1000	7100	1100	7300	1521
920	5600	1180	5900	23
1200	7700	1270	8500	25
1160	5500	1130	5500	27
840	7800	890	7650	29
680	5700	710	5600	1531
580	1.16%	650	1.30%	33
900	9200	900	8950	36
140	1280	160	1250	39
1850	1.60%	1930	1.25%	1541
1040	8800	870	8500	43
340	2700	250	3400	45
1360	7450	1430	7200	47
1200	1.03%	1200	1.05%	49
2500	7900	2500	7700	1551
1200	6100	1270	7100	53
740	9600	730	9600	55
580	4400	560	4300	57
1035	590	990	6000	1559

HOLE SBD 36 continued Pilbara 2 Amdel

Core log (left columns: depth, recovery, symbols, depth scale, description)

1561 6/6 — 1560 Barren Basalt or Gabbro
1567 9/9 — 1567' chloritic wt fine silicia-opha[illegible]
Ore Bed
1576 9 — Less mineralized
10 — 1580 1580.5' Basic siltstone
1586 10 — Ore Bed
10 — Less mineralized
1596 10 — wt actinolite - po - mag
10 — 1600 much chert
1606 10
10
1616 10
10 — 1650
10 — at 1656' becoming breccia
1626 2/3 — po diss in dense glass qtz
1631 8/8 — little magnetite, some actinolite
1636 8/8 — much carbonate veining
1644 2/3 — 1640
1647 2/3 — 1648 July 1, 1650'
1650 2/2
1652 4/4 — Chlorite - Biotite Zone
1659 3/4 — 1660 sheared + faulted
1660 3/4 — po-chalco diss no mag.
1664 3/2
1666 1/2 — Silicified Gabbro
1668 3/4 — blue qtz eyes
1672 3/5 — feld porp at top
1677 4/4 — 1680 diss chalco + po + py
1681 4/4
1687 3/4 — sulphides absent
1691 5/5 — at bottom
1696 8/8 — 1700 very siliceous
1704 8/9 — 1713' end
1713
— 1730
— 1740
— 1760

Assays

Cu	Ni	Cu	Ni	Depth
45	300	30	150	1567.5
1300	5300	1410	5100	69
730	5000	650	5000	1571
530	1.0%	530	1.0%	73
640	8700	570	8500	75
920	8500	1060	8650	77
530	6000	570	5700	79
1030	8900	940	8000	1589
36	[illegible]	20	320	
470	6000	470	6200	1583
265	4800	390	4550	85
360	5100	400	5250	87
210	2900	240	3000	89
235	3800	210	3600	1591
620	6200	600	6350	93
270	4500	280	4450	95
210	3800	200	3850	97
210	4000	230	3900	99
225	4400	220	4700	1601
245	4300	260	4100	3
320	4500	360	4800	5
390	6300	340	5900	7
270	4500	230	4150	9
440	4400	320	4100	1611
300	6200	280	6350	13
275	5000	310	4800	15
265	4850		4700	17
300	7600	310	7900	19
410	6200	140	6300	1621
180	3050	230	3400	23
330	4250	310	4200	25
290	3300	250	3200	27
280	4100	280	3850	29
630	4700	580	4800	1631
810	3650	890	3450	33
580	4200	600	4000	35
380	3800	260	3600	37
310	4350	500	3600	39
410	3200	280	4000	1641
370	3300	390	3150	43
320	2800	340	2650	45
210	3200	200	3000	47
690	1750	680	1470	49
385	4000	330	3500	1651
490	2400	480	1900	53
680	440	760	390	55
1020	470	970	410	57
710	390	680	350	59
330	150	450	150	1661
150	70	130	70	63
200	180	300	170	65
100	100	90	90	67
80	40		40	1672
1050	30	960	40	77
250	20	240	30	1682
80	10	80	30	87
30	20	30	30	1692

S.B.D 36

TROPARI RESULTS

Footage	Tropari Dip	Tropari Direction	Acid	Comment
100	–	–	90	
120	89	218	–	
211	90	–	–	
250	–	–	88	
350	–	–	87	
398	86	147	–	
450	–	–	84½	
510	85	066	–	
538	–	–	84	
548 1ST RUN	85	145	–	
548 2ND RUN	85	137	–	
562	85	024	–	
599 1ST RUN	84	137	–	
599 2ND RUN	85	147	–	
682	83	151	–	
725	84	167	–	
824 1ST RUN	82	152	–	
824 2ND RUN	82	211	–	
	END OF CONTROLLED DRILLING			
992	84	027	–	
1050	–	–	79	
1062 3RD RUN	80	046	–	
1064 1ST RUN	79	231	–	
1064 2ND RUN	80	155	–	
1112	78	156	–	
1162	76	168	–	
1340	–	–	64	
1364	65	161	–	
1525	–	–	61	
1583	–	–	55	
1641	–	–	54	
1710	–	–	52½	

AUSTRALIAN INLAND EXPLORATION CO. INC.

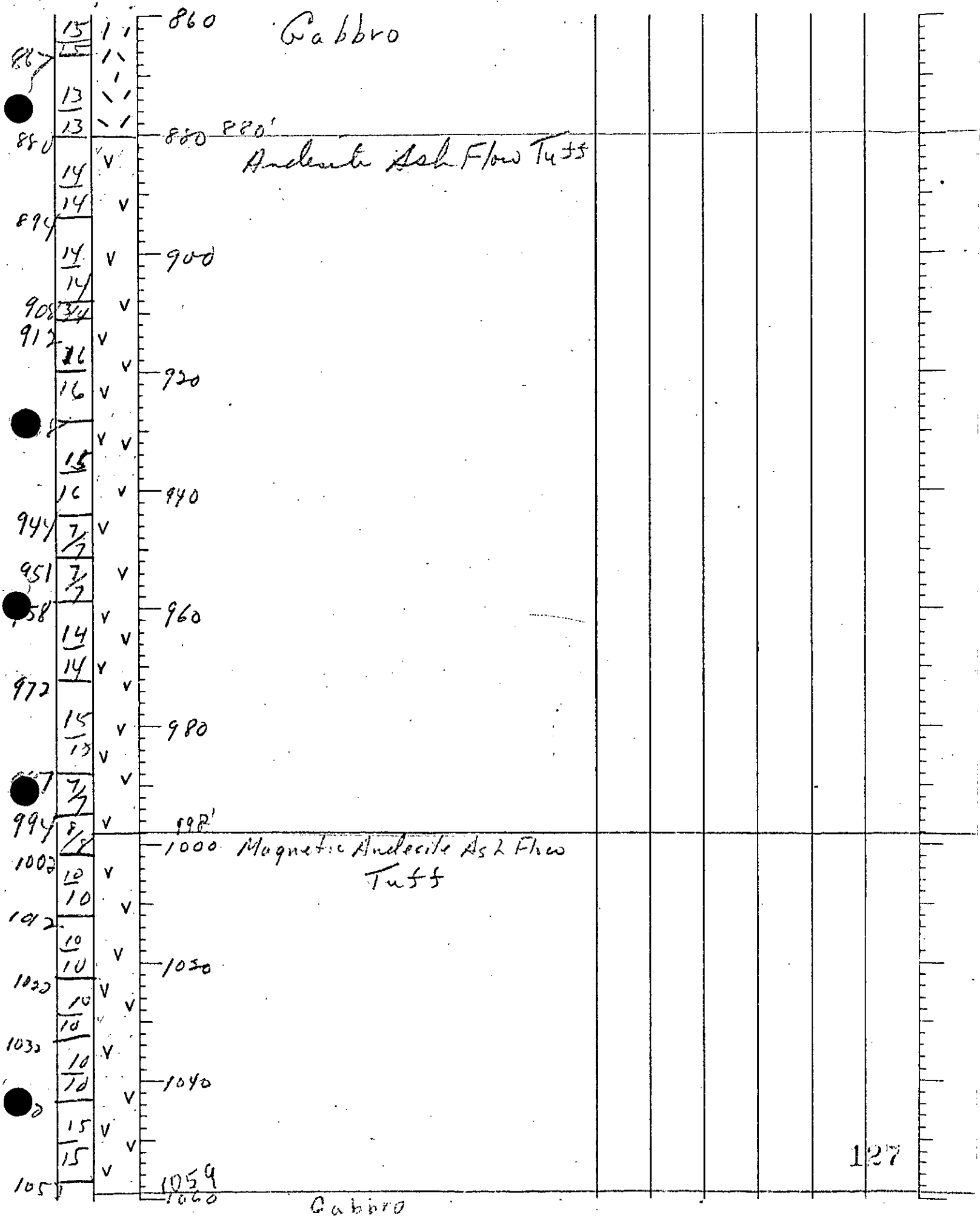
LOCATION 34E. - 2310N
ELEVATION 50' ±
DRILLERS Associated Diamond Drillers
STARTED 10th July 1972
ASSAYS by

HOLE S.B.D 36A
BEARING 144°
INCLINATION 83°
COMPLETED Temporary end 18th Sept. 1972
LOGGED by L.J Miller

CORE RECOVERED

DESCRIPTION

700
Andesite Ash Flow Tuff
qtz-feld porp
Massive.
720
735
740
747
760
770
780
Gabbro
798
800
803
818
820
839
840
847
852
860


860
Gabbro
880
880'
Andesitic Ash Flow Tuff
900
920
940
960
980
998'
1000
Magnetic Andesitic Ash Flow Tuff
1020
1040
1059
1060
Gabbro

HOLE 36A 1st New continued

1060

Reaming

1080

10/13

1093

10/10/10

1103

10/10/10

1113

10/10/10

1123

10/10/10

1133 4/4

1137

10/10/10

1146 6/6

1152

1100

Gabbro

1120

Andesite Ash Flow Tuff

1132

Andesite Tuff

1137

1140

Gabbro

Cancel

1160

1180

1200

1220

1240

1260

1060 Gabbro

1080 1081'6" Casing Wedge

1087 1091 1095 Gabbro

1100

1106

1112 1115'6" Clappercom Wedge

1117 1120 1120'6" Gabbro

1122 1126'6" Clappercom Wedge

1127 Andesite Ash Flow Tuff

1136

1140 Gabbro

1146 ← change to BQ Massive holocrystalline feld porp

1152

1160

1166

1172 ← 1176'6" wedge

1176

1180

1186

← 1196'2" wedge

1196

1200

1201

1211

1214 ← 1214'6" wedge Andesite Ash Flow Tuff

1220 qtz-feld porp.

1235 wedge 1237

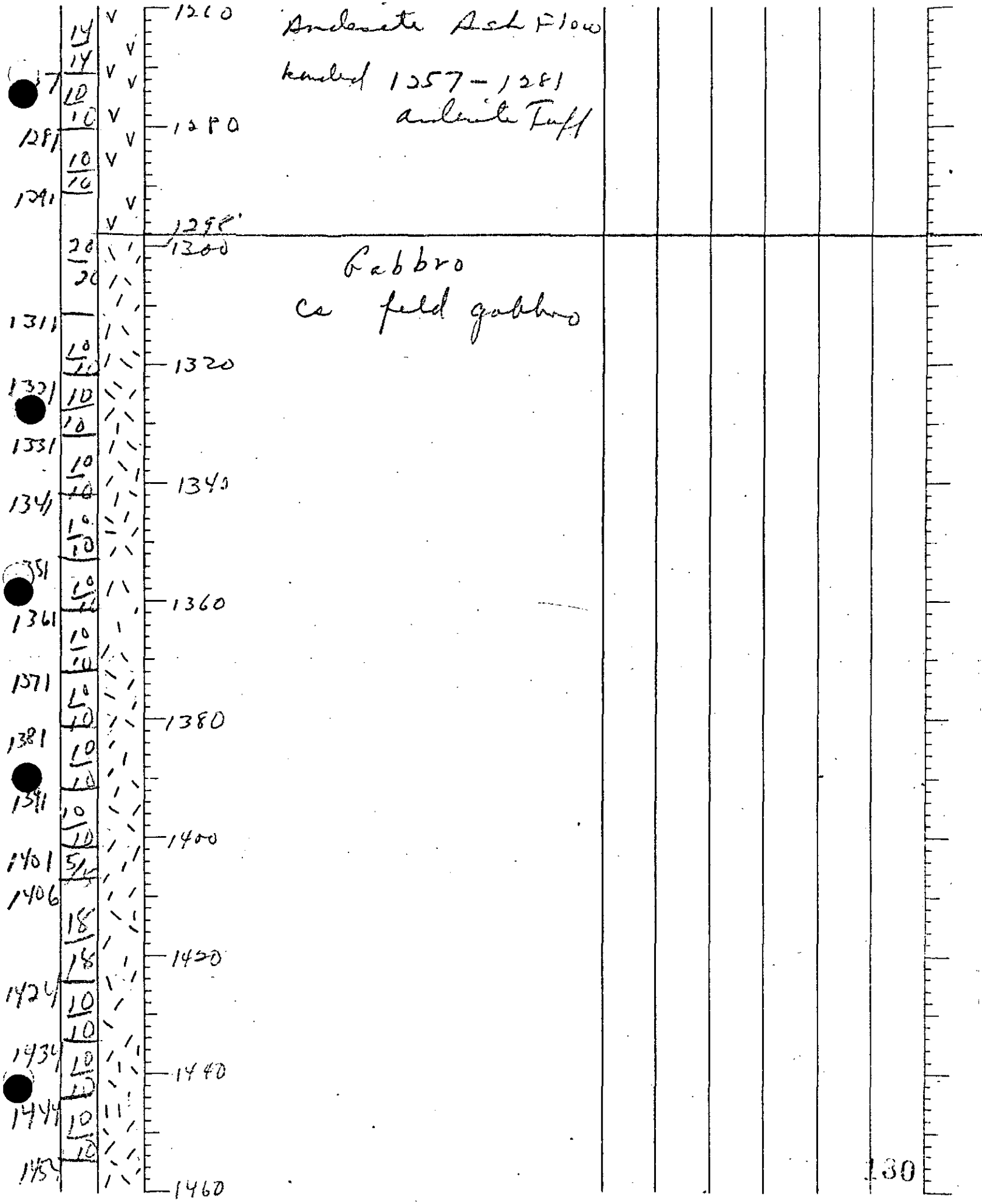
1237

1240

1247

1257

1260


1260
1280
1295'
1300
1320
1340
1360
1380
1400
1420
1440
1460
14
14
10
10
10
10
10
10
20
20
10
10
10
10
10
10
10
10
10
10
5
18
18
10
10
10
10
10
10
Andesite Ash Flow
hauled 1257 – 1281
andesite Tuff
Gabbro
ca feld gabbro
1281
1291
1311
1331
1351
1361
1371
1381
1391
1401
1406
1424
1434
1444
1454

1460
Gabbro
ca grain
@ trans pink
1480
1500
1520
1540
1548'
Andesit Ash Flow Tuff
magnetic section
@ 1566 1591 1626
sheared chloritic
qtz-feld porp
1560
1580
1600
1620
1629'
Andesitic Tuff
well layered
chl-qtz. schist
Contorted bedding
1640
1660

Run depth	Recovery	Depth	Description	Remarks
	10/10	1660	Andesite Tuff	
1666	10/10			
	10/10	1676'		
1676	10/10	1680	Rhyolite Tuff Green blue qtz eye tuff in banded rhyo [illegible]	
1686	10/10			
1696	10/10	1700 1705'	[illegible]	
	10/10		White Rhyolite Tuff blue qtz-eye banded rhyo	
1706	10/10			
1716	6/6	1720 1722'		
1722	9/9		Green Chlorite Rhyo Tuff sulphides po-py-chalco	
1731	5/5	1738'		
1736	10/10	1740	white Rhyo Tuff blue eyes qtz	failure
1746	10/10	1747 wedge		
1749	5/5			
1754	5/6			
1760	6/6	1760 1760'	Chlorite-Quartz Shear Zone 229-238 in #10 355'	Massive chlorite with qtz laminae non-magnetic
1766	10/10		qz	
1776	10/10	1778'	qz	
	10/10	1780	Greywacke Semi massive qtz + ? Same as 218-229 #10	
1786	10/10	1797'		
1796	10/10	1800	Andesite Tuff Scattered feld pheno chloritic-qtz bands 190-218 #10 excellent correlation	
1806	10/10			
1816	10/10	1820	feldpathization increases contorted, faulted	
1826	10/10			
1836	8/8	1840	+ brecciated	
1844	10/10			
1853'6"	10/10	1853'6" wedge		
		1860		

Depth	Recovery	Log	Footage	Description
1866	10/10, 10/10, 9/9	·V·V·	1860	Andesite Tuff banded, contorted, faulted feldspar scattered 1875'
1875, 1880, 1883	4/5, 0	\ /	1880 — wedge 1880'	Gabbro Massive equals 183-190 #10
1893	10/10, 10/10	\ /	1900	spotted sulfides Some adsorbed andesite tuff of above unit 1903'
1903, 1906	0, 10/10	·V·	1903'2" wedge	Andesite Tuff as above 1875'
1916	10/10	·V·	1920	feldspathization
1926	5/5	V·	1926'3" wedge	throughout
1931	6/8	·V·		excellent contorted banding
1939	11/11	V·V·	1940	faulted
1950	0	·V·V·	1950 wedge	
1953	10/10	\ /	1960 1955	Breccia Gabbro
1953'6"	10/10	·V·		Andesite Tuff
1973'9"	0	·V·	1973'9" wedge	Banded wt chlorite - qtz - feldspars
1976'9"	10	·V·	1980	
		V·	Plug Back 1987'6" wedge	Breciation increasing with
1986	10	·V·	1987'6" - 1990' = 0	depth
1996	10/10	V·V·	wedge @ 2000' 2000	much faulting spotted wt feldspar
2000	0	V·V·		
2003	10/10	·V·		
2013	10/10	·V·	2020	
2023	10/10	V·V·	2023 wedge	
2036	10/10	·V·	2040	
2046	0	·V·	2046' wedge not set	
2049, 2059	10/10	·V·	2060 wedge 2059'	Temp. end of hole

S.B.D 36[A]

TROPARI RESULTS

Footage	Tropari Dip	Tropari Direction	Acid	Comment
800	83	144	—	
849	83	140	—	
910	83	139	—	
950	83	142	—	
1010	-	029	—	
1020	—	-	82	
1080	—	—	82½	
1080	82			
	CASING WEDGE 1000'			
[illegible]4	81	155	82	
1112	80	151	82	
	CLAPPERSON WEDGE 1112'			
1125	81	213	—	
1125	—	—	82	
	RETURN TO N.Q. CORING			
1163	81	148	—	
1145	81	151	—	
1172	81	097	—	
1195	82	147	—	
1235	84	153	—	
1242	85	—		
1261	86	126	—	
1300	87	129	—	
	END of CONTROLLED DRILLING			
1350	86	119		
1406	86	099		
1454	88	118		
1504	88	124		
[illegible]54	90	130		
1676	85	357		
1676	85	020		

S.B.D 36^A CONT. TROPARI RESULTS

Footage	Tropari Dip	Tropari Direction	Acid	Comment
1735	83	348		
1735	—	—	83½	
1755	83	312		
1759	84	094		
1771	85	IN BIT		
1776	86	" —		
1801	84	"		
1806	85	"		
1821 TOP	87	292		
[illegible] BOTTOM.	87	260		
1826	83	IN BIT		
1831 TOP	85	217		
1831 BOTTOM	86	267		
1843	83	IN BIT		
843	82	"		
1853	82	"		
1853	82	"		
1875	83	"		
1903	81	"	81½	
1926	82	"		
1950	83	"		
1973	82			
1991	83	299		
1996	83	306		
	PLUGGED UP TO 1990 — 84°			
2000	85	IN BIT		
2023	86	302		
2031	85	330		
46	85	038		
2048	85	010		
2059	86	295		

AUSTRALIAN INLAND EXPLORATION CO. INC.

LOCATION 52 E, 6 N
ELEVATION 50' ±
DRILLERS Associated Diamond Drillers
STARTED 9th June 1972
ASSAYS by Amdel

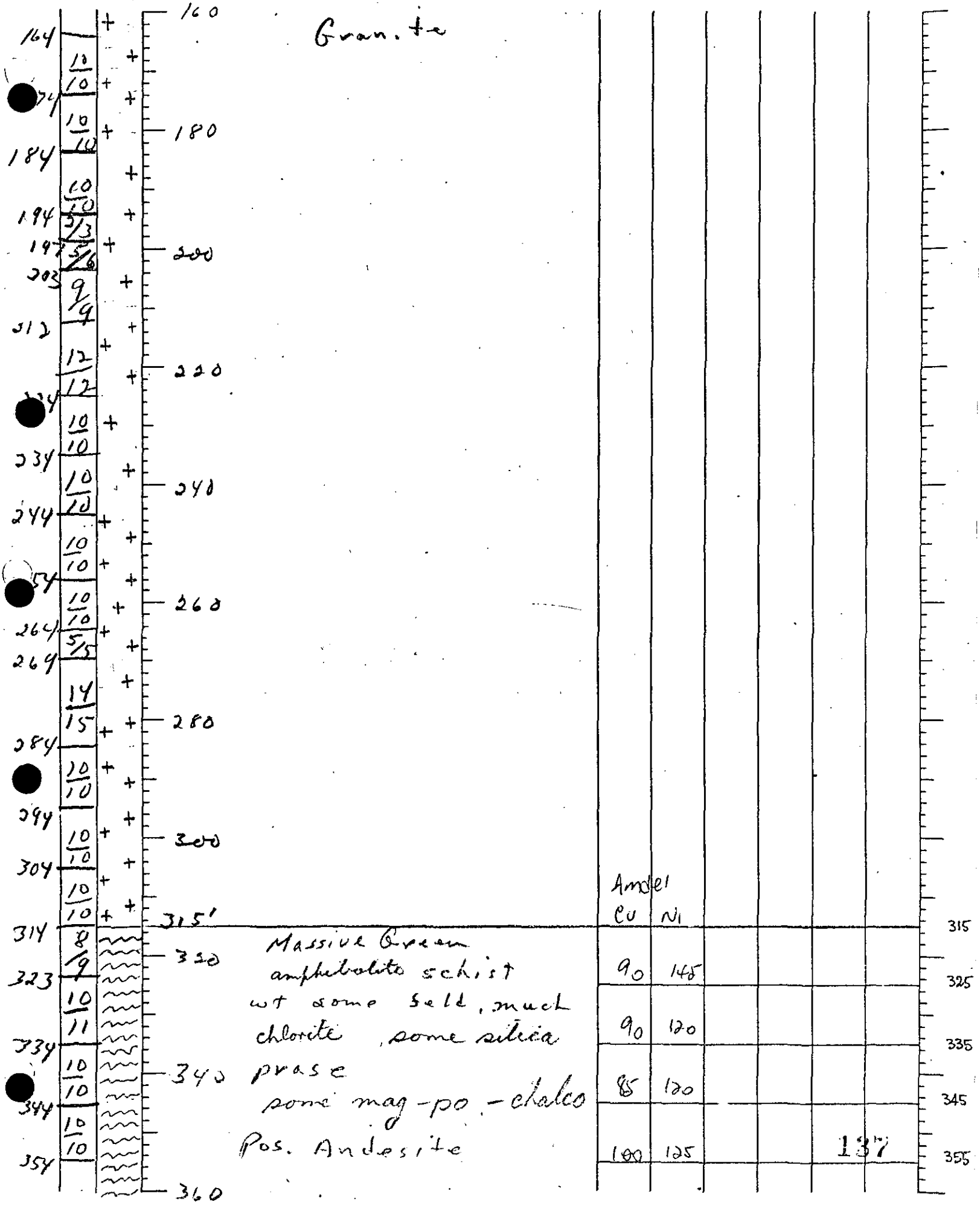
HOLE SBD # 37
BEARING 335° (Grid North)
INCLINATION -45°
COMPLETED 14th June 1972
LOGGED by L. J. Miller

CORE RECOVERED | DESCRIPTION

0
20
Rock Bit
40
4' 46' NQ 46'-79'
Granite
coarse grain
holocryst white
59 64 74 79 94 104 114 124 132 144 154
8/8 5/5 4/5 12/10 5/5 5/5 10 10 10/10 10/10 10 8/8 12/12 8/10
60 80 100 120 140 160

136

HOLE SBD 37 continued



HOLE 513D 37 continued

Andel

Cu	Ni
100	130
100	125
100	140

360

364 10/10

10/10

4 376' breccia contact

10/10 v.v. 380 Andesite Tuff

10 v.v. fine banded chlorite

384 1/2 v.v. 391 schist contorted

390'

Massive green amphibole - chlorite schist

17/17

400

408 6/6

414 417'

10/10 + + 420 Granite

424 +

10/10

434 10 + +

439 5/6 + + 439' end

440

NOT SURVEYED

460

365

375

377

AUSTRALIAN INLAND EXPLORATION CO. INC.

LOCATION	36 E, 950 N	HOLE	SBD # 38
ELEVATION	50'±	BEARING	335° (Grid North)
DRILLERS	Associated Diamond Drillers	INCLINATION	-45° North
STARTED	15th June 1972	COMPLETED	19th June 1972
ASSAYS by		LOGGED by	L.J. Miller

Depth	CORE RECOVERED		DESCRIPTION
			0 Rock Bit
22	1/2	+	20 22' NQ 22'–50'9" Granite
24	5/10	+	coarse large
34	6/6	+	feldspars
40		+	40
	10/11	+	
51	10	+	57'
	12	~	60 Greywacke
63	5/5	~	altered in part
68	10/10	~	to pyroxenite schist
78	6/6	~	80 some relic bedding
84	10	~	88'
	10	P	Peridotite massive
94	10/10	P	100 104', in part pyroxenite
104	10/10	+	Granite feldspar porp.
114	7/7	+	120 121'
121	5/6	P	Peridotite
127	7/7	P	Massive
134	10/10	P	some magnetite
144		P	140 serpentinite
	10/10	P	
154	5/5	P	154
159			159'9" 160 Lighter Peridotite Almost sediment Breccia

HOLE SBD 38 continued

164'	5/5	0	160	Breccia
			163'	
	10	~		Greywacke bedded qtz-feldspathic
	10	~		schist
174'			174'	
	10	P P		Peridotite
	10	P	180	
184'		P		
	10			
	10	P		
194'		P		
200	4/6	P	200	200' end

NOT SURVEYED

220

AUSTRALIAN INLAND EXPLORATION CO. INC.

LOCATION 40 E, 2060 N
ELEVATION 50' ±
DRILLERS Associated Diamond Drillers
STARTED 20th June 1972
ASSAYS by Amdel

HOLE SBD #39
BEARING 155° (Grid South)
INCLINATION -45°
COMPLETED 23rd June 1972
LOGGED by L.J. Miller

CORE RECOVERED		DESCRIPTION	Amdel Au	Amdel Ni				
	0							
	20							
	40	Rock Bit to 80'						
	60							
80	80	BQ thereafter						
12 / 12		Qfz-fld Porp. Massive massive wt siliceous groundmass but seld + qtz eyes wt chlorite cs to fine interbedded	Amdel Au	Amdel Ni				
10 / 10	100							
10 / 10								
10 / 10								
11 / 12	120							
10 / 10								
8 / 9								
11 / 11	140							
	147'	Ore Red Commences wt massive to semi massive sulfides	1000	1530			141	147 / 152 / 157
			1500	2400				
	160							

HOLE SBD 39 continued Amdel

	Cu	Ni	
160 Ore Bed	2000	2500	162
Rich to 175'	2000	3600	167
massive actinolite sulphide – magnetite	1750	3800	172
175'	1400	2500	175
Porp chloritized	270	75	
180 barren			181
Ore Bed	1500	130	186
Brecciated	460	45	189
chloritized – chl – actinolite	230	95	194
197' w+ 20% sulphides	1950	185	199
200 Ore Bed	660	80	204
mainly chert – qtzt	460	45	209
209' anastomosing sulphides			
Ore Bed			
220 Weakly mineralized;			
greywacke w/ chert	330	520	233
much chlorite in			
upper part	605	1630	243
240			
256'	815	750	256
260 Qtz porp			
261 and qtz eye porp – some chl/ca			
280 NOT SURVEYED			
300			
320			
340			
360			

LOCATION 43 E, 2160 N
ELEVATION 50' ±
DRILLERS Associated Diamond Drillers
STARTED 23rd June 1972
ASSAYS by Amdel

HOLE S.B.D 40
BEARING 155° (Grid South)
INCLINATION -45°
COMPLETED 30th June 1972
LOGGED by L.J. Miller

CORE RECOVERED			DESCRIPTION
		0	
		40	
		60	Rock Bit
		80	
95		95'	
98	3/3	V V	Andesite Ash Flow
	2/6	V	100 Tuff
104		V V	
	7/	V V	112' feld porp, chloritic
114	10		Rhyolite Ash Fall
119	5/5		120' Tuff
	5/5	V·V·V	Andesite Ash Fall Tuff
124		V·V·V	126' porphyritic
		c c	128' Massive Chert
	10/10	B B	Basalt Flow (Lava)
134			134' dens & chloritic
	5/6	o o	Qtz-feld porp
140	4/4	o	140 white
144	10	o q_z o	very cs feld xtls.
	10	o o	
155	4/4	o o	
158			160

HOLE 40 continued

160 – 165 Qtz. feld porp.

165 Basalt Flow (Lava)

180

200 201'

Feld porp
fine grain feld,
white dense
partly siliceous

220

237'

240 Ore Bed
Banded Actinolite
mag - chert - po

260

280

300

320

332

Rhyolite Tuff
banded

340

345'

Qtz - feld porp
fine grain feld
white qtz eye

360

Core recovery / depths (left margin): 166 8/8, 174 10/10, 184 9/9, 193 11/11, 204 10/10, 214 9/9, 223 9/9, 232 6/6, 238 7/9, 247 6/6, 255 10/11, 264 10/10, 274 10/10, 284 10/10, 294 7/7, 301 9/9, 310 9/9, 319 7/8, 327 10/10, 337 8/10, 347 9/9, 356

Andel Cu	Ni	Depth
		236
1200	1150	242
260	400	247
1050	2550	250
790	2250	256
1340	2550	261
740	2150	266
800	2300	271
770	2050	276
770	2000	281
850	2050	286
840	2000	291
650	1250	293
960	630	298
720	670	303
1110	1150	308
1080	1440	313
1160	1330	318
1690	560	321
650	150	322
1640	200	324
390	100	326
1430	160	329
375	50	331

HOLE 40 continued Amdel

	Cu	Ni
	750	260
	40	820
	40	730

360 Qtz+feld porp
Slump structures
374' mineralized
380 381' Gabbro ext po
Peridotite
400
405' 2" end
420

NOT SURVEYED

AUSTRALIAN INLAND EXPLORATION CO. INC.

LOCATION 4546 E ; 2264 N.
ELEVATION 50' ±
DRILLERS Associated Diamond Drillers
STARTED 3rd July 1972
ASSAYS by Amdel

HOLE S.B.D. # 41
BEARING 105°
INCLINATION 45° S.E.
COMPLETED 6th July 1972
LOGGED by L.J. Miller.

CORE RECOVERED | DESCRIPTION

0
Rock Bit
20
26'
Rhyolite Ash Fall Tuff
5/8
34 34'
40
60
Rock Bit
80
94 94'
Amdel
Au Ni
4/5 V V Andesite Ash Flow Tuff
99 5/5 100 qtz feld porp
104 10 V chlorite matrix
10 V green
114 4/9 V
121 V 120 121
121 3/9 V·V· Andesite Ash Fall Tuff
V·V· finely laminated w/
128 1/6 V·V· a few qtz eyes, chlorit
134 134
134 5/6 Ore Bed
140 actinolite - qtz - po - carb
140 1/4 144
144 2/7 Rhyolite Ash Fall Tuff
151 1/2 finely laminated Rhyo
154 160

Au	Ni	
90	130	130
76	130	132
670	2900	134
3500	4120	136
6700	5200	138
610	870	140
80	560	142
545	170	144
333	255	146
		148

HOLE SBD41 continued Amdel

Cu	Ni
390	300
380	270
1340	320
840	180
750	340
400	370
250	150
350	210
460	180

160 Rhyolite Ash Fall Tuff
fine layered siliceous tuff white

180

Rhyolite Ash Flow Tuff
qtz - feld porp
white
bedded chlorite at 195'

200
204

Ore Bed
actinolite - qtz - po - carb schist

214

Rhyolite Ash Fall Tuff
fine banded siliceous tuff with chloritic layers in creamy rhyolite.

220

240

260

272

278' Basalt Flow

280 Rhyolite Ash Fall Tuff
fine layered white

299' end

300

NOT SURVEYED

350

340

360

AUSTRALIAN INLAND EXPLORATION CO. INC.

LOCATION 1W, - 1850 N.
ELEVATION 50'+
DRILLERS Associated Diamond Drillers
STARTED 8th July 1972
ASSAYS by Amdel

HOLE - S.B.D # 42
BEARING 155°
INCLINATION 45° South
COMPLETED 19th July 1972
LOGGED by Leo Muller

CORE RECOVERED		DESCRIPTION	Amdel Cu	Amdel Ni
		0		
		20		
		40		
		60 Rock Bit		
		80		
92		92'		
	2/7	99' chloritised Rhyolite		
99		100		
	0	Rock Bit		
		120 122'		
122		Rhyolite qtz porb White		
	6/10	123' Rhyolite qtz porb		
	9/10	chloritised wit some		
		140 brecciated - no sulphides		
142	7/7	146' dark green		
149		151' Rhyolite st green-chl.		
	11/11	Biotite Rhyo qtz porb	1600	20
160		160 Sulphides Po + chalco		

148 151 158

HOLE SBD #42 continued

160 161' Rhyolite White No sul.

180 — Rhyolite qtz porp. biotite schist wt qtz eyes chalco ± po disseminated throughout. Massive wt shear banding white rhyolite at 173'–174', grey tobk 181'–185'

216'

220 — Rhyolite massive white to grey wt much diss chalco throughout dimishes 234'–240'

240 240' 243' Rhyolite chlorite wt chalco

Ore Bed - Massive bands of mag-act-qtz-po schist heavy mag, some chalco

253' Rhyolite white diss chalco & po

260 261

Andesite Massive dense chloritic some po little chalco

280

300 305' Rich chalco @ 304'

Rhyolite Ash Fall Tuff banded white wt diss chalco-po throughout as 216-234 slty weaker.

320

340

360 361'

Core run (ft)	Recovery
170	9/10
	8/8
178	7/8
186	12/12
198	10/10
208	10/10
218	6/6
224	10/10
234	6/6
240	8/8
248	5/6
254	10/10
264	10/10
274	10/10
284	10/10
294	10/10
304	10/10
314	10/10
324	10/10
334	10/10
344	10/10
354	7/7
361	

Sample depth	Amdel Cu	Amdel Ni	Pilbara Cu	Pilbara Ni
162				
173	1360	40		
174	~~74~~	~~10~~		
179–181	350	50	630	50
191	375	20		
196	440	40		
201	2870	40		
206	2750	40		
211	1587	50		
216	1575	50		
221	2870	40		
223			3900	30
226	3370	20		
231	2870	40		
236	1110	20		
240	425	10		
243	1525	20		
247	1725	80		
253	490	60		
258	390	40		
260	450	60		
270	550	70		
280	150	90		
290	225	90		
300	225	110		
304	1425	90		
305	~~8870~~	~~130~~		
315	2025	60		
325	4250	80		
335	2150	40		
345	2500	30		
355	25	70		
361	270	70		

HOLE SBD #42 continued

Footage	Recovery	Depth	Description	Amdel Cu	Ni	Sample to
364	3/3	360	Gabbro			
	10/10		massive - green			
374	10/10	380				
		384'				
384	8/8		Gabbro - siliceous			
392			siliceous, banded			
	12/12	400	little po, no chalco			
404	10/10	413'				
414	10/10		Gabbro fine siliceous			
	10/10	420	Massive feld porp			
424	6/7		in chlorite grndmass			
431		433'	Breccia cont. no chalco some po			
	10/10	440	Basalt serpentinite? greasy green lava flow Green			
441	9/9		Massive			
450	7/8	456'	some chalco			
457		460	Fine sulfides Basalt wt magnetite qtz - feld porp	290	90	456–458
	8/9		with interbedded tuffs	525	120	459
467	7/7		some chalco	75	50	469
474	10/10	480		40	80	479
		485'				
484	6/6		Ore Bed plus rhyolite	300	110	489
490	6/6		po - mag - chalco	1100	60	490
		498'	separated by rhyo	840	120	498
496	8/8	500	Gabbro	175	20	501
			massive sulphides	5500	960	503
				725	20	505
504				1075	900	506
	10/10		qtz - feld in part			
514	10/10		chloritic: partially			
	10/10	520	banded. diss chalco			
524		527				527
	10/11		Massive Magnetite - Actinolite			
534	5/6		chlorite some po	60	310	536
540		540	some qtz	250	170	544
	9/9	544–546	Andesite	10	110	546
549	5/5		Massive Magnetite - Actinolite - Chlorite	50	120	556
554		560	some qtz + po	10	130	560

150

560'
561' Andesite
some stringers of Actinolite
572' spks mag 6"
Gabbro
580
600
620
625'
629' Quartz
Gabbro
640
654' end
660
680
700
720
740
760

ACID TESTS

400' 35°
500' 31°
595' 25°

AUSTRALIAN INLAND EXPLORATION CO. INC.

LOCATION 35 E, - 20·5 N.
ELEVATION 50' ±
DRILLERS Associated Diamond Drillers
STARTED 27th July 1972
ASSAYS by Amdel

HOLE S.B.D. # 43
BEARING 155° (Grid South)
INCLINATION -45°
COMPLETED 11th August 1972
LOGGED by L.J. Miller

CORE RECOVERED		DESCRIPTION
	0	
	20	
	40	Rock Bit
	60	
69	69'	
74 5/5		Gabbro
79 5/12	80	green halo xlts
	91'	
9 3/8		Andesite Tuff
99 7/16	100	fine layered Tuff
115 8/10		Chloritic pos. fine
	120	gabbro
	125'	
125 5/7		Gabbro
132 8/8		fine grain
140 3/4	140	
144 3/5		
148 9/9	153'	
157		One Bed

152

HOLE SBD 43 continued Amdel

160'–189' Gabbro — co grain holocryst. massive

189'–207' Gabbro — fine grain siliceous

207'–235' Silicified Gabbro — Massive — fine grain green

235'–240' Ore Bed — Gabbro — Base

240'–264' Ore Bed — 247 (barren) rich act - po - mag - q [illegible] — Chalco 1" bleb at 251'

264'–283' Basalt Ore Bed — Lime — chartreuse some — 280 283' qtz veining

285' banded act-chl. - qtz - po

289' po - cc act, large amph cryst

295' Act-qtz-po — Mostly Act-chl.

298' Dark green basalt

300'–315' Banded actinolite - qtz po wt shearing and some breccia

315'–320' Breccia wt sul. — 320' qtz-chl breccia wt chlorog qtz

327' Green Basalt some layers

332' Banded phtes basalt — po in banding

332'–358' Banded qtz - jasper - chl mag - po — little mag or po

358' End

NOT SURVEYED

Interval from	Cu	Ni
235	1150	500
238	725	75
240	425	200
245		
247	3250	2950
252	1525	2600
257	2975	2800
262	1525	1800
267	50	2550
272	5	75
277	5	125
282	80	875
285	20	400
289	300	2850
295	70	100
298	110	525
303	520	1225
308	300	875
313	260	1050
315	310	75
320	230	50
327	220	75
332	420	25
337	900	50
342	1030	75
347	610	75
352	390	50
358		

AUSTRALIAN INLAND EXPLORATION CO. INC.

LOCATION 1150 W, - 500 N
ELEVATION 50' ±
DRILLERS Associated Diamond Drillers
STARTED 15th September 1972
ASSAYS by Pilbara Laboratories

HOLE S.B.D. # 44
BEARING 130°
INCLINATION 80°
COMPLETED 4th October 1972
LOGGED by Lee J Miller

CORE RECOVERED		DESCRIPTION	Pilbara Cu.	Ni	Pb	Zn		
		0 Rock Bit 20 28'						28
36' 7/7		Diorite - Gabbro massive - fractured containing yellow oxide mineral prob. gabbro	750	175	40	130		35
35 9/9	D	40	680	195	40	130		45
44 5/5			340	135	20	95		
49 6/6								55
55 9/9		60	215	105	25	90		65
64 9/9	D		280	90	30	90		
73 9/9		80 83'	440	90	30	95		75
9/9	C	Chert						85
86 8/8	C	massive chert	265	35	30	80		
94 7/8	C	grey silica	300	35	20	70		95
102 7/7	C	100 chalcopyrite common						105
109 12/12	C	@ 122. as disseminated	115	30	20	80		
121 10/12	C	120 specks. Much carbo	1050	150	30	90		115
12/12	C	no visible feldspars.	85	35	25	75		125
3 10/10	C	140	1300	40	20	170		135
143 9/9	C		520	40	15	70		145
152 9/9	C	153' 160 Chert light banded					154	150
								155

Interval / recovery	Depth	Description
162 – 10/10 c, 10/10 c	160 – 172	chert. Lt banded. some chalco specks
172 – 10/10 D, 182 – 9/10 D, 192 – 10/10, 199 – 7/7 qz, 206 – 10/10 D, 216 – 10/10 D, 226 – 10/10 D qz, 236	180 – 200 – 220 – 240'	Quartz Diorite. Massive silicified diorite wt qtz eyes (blue) and feld pheno. Chalcopyrite throughout wt massive chalco @ 180'–183'. chalco about 0.1 %. increase chlorite and actinolite along shear plans. pyrrhotite throughout. Sphalerite diss. commences @ 216'
236 – 10/10 D, 246 – 10/10 qz, 256 – 9/9 D, 265	240' – 260 – 266'	Quartz Diorite. Chloritized wt much chalco + po. definitely copper rich. chlorite + sulfides along shears. some zinc
265 – 10/10 D qz, 275 – 10/10 D, 285 – 10/10 D, 295 – 10/10 qz, 305 – 10/10 D, 315 – 7/7 D, 322 – 13/13 D, 335 – 10/10 qz D, 345 – 10/11 D	266' – 280 – 300 – 320 – 340 – 353'	Quartz Diorite Silicified. Less chalco - po. qtz-feld porp massive but some shearing wt chlorite esp. 316'. some sphalerite
356 – 11 qz D	353' – 360	Quartz Diorite chl - chalco - po - sp

Depth	Cu	Ni	Pb	Zn
164	290	55	20	75
165–175	2250	125	20	80
175–185	2350	250	20	80
185–195	1750	80	20	75
195–205	120	40	20	65
205–215	780	105	20	75
215–225	150	55	20	75
225–235	510	65	30	70
235–245	1100	135	30	80
245–255	1150	130	40	85
255–265	480	120	30	80
265–275	520	120	40	75
275–285	950	160	30	100
285–295	120	20	25	65
295–305	95	30	25	75
305–315	90	25	25	60
315–325	120	5	25	70
325–335	45	5	20	55
335–345	80	5	20	55
345–355	80	5	30	65

HOLE 518D 44 continued

Pilbara

	Cu	Ni	Pb	Zn
	45	10	30	70
	1200	5	50	100
	150	35	40	70
	300	25	20	70
	680	135	35	80
	315	115	35	90
	250	135	25	60

Quartz Diorite
increase chlorite
chalco + pyrrhotite
qtz-feld porp
wt sheared chl.

Norite
Massive hol. cryst.
no chalco some po

Chert
Massive with
some chlorite
along shearing
chalco 453-472
and 480-487'
sphalerite in veinlets
and blobs

560 chert
silicified rhyolite?
ghost of layering
chloride and sulphide
banding
white
chalco-po-sphalerite
600
620
659' first galena
640
660
676'
Diorite
calcite ghosts - silicified
680
700 700'
silicified rhyolite = chert
lightly banded
chalco-po-sp-galena
720
740
760

157

HOLE SBD 44 continued — Pilbara

Depth	Recovery		Log depth	Description
766	10/10	c	760	Chert - Silicified rhyolite
	10/10	c		Banded silica + chl
776		c	780	chalco specks
	10/10	c		sphalerite - galena
786		c		po flabs.
	10/10	c		
796	8/8	c	800	
804		c		
	10/10	c		
814		c		
	10/10	c	850	
833		c		
	13/13	c		
836		c		
	10	c	840 845'	

Ore Bed

qtz-chl-actinolite-magnetite-pyrrhotite-chalco-schist.
Magnetite increases with depth, but pyrrhotite + chlorite dominant. Some sections pratically massive pyrrhotite.
Large sections massive chlorite-actinolite
Green to white depending on chl-qtz
Banded wt chl-po-chal-act.-mag.
Some sections pure silica

Left margin (depth / recovery): 847, 10/10, 856, 10/10, 866, 10/10, 876, 10/10, 886, 10/10, 896, 10/10, 906, 10/10, 916, 10/10, 926, 10/10, 936, 10/10, 941, 10/10, 951, 5/5, 956

Log depths: 860, 880, 900, 950, 940, 960

To depth	Cu	Ni.	Pb.	Zn.
847	410	50	50	40
852	640	75	25	25
857	870	60	25	25
862	260	95	20	30
868	610	145	25	30
873	810	160	20	5
878	1040	380	30	10
883	390	150	20	15
886	560	145	30	5
891	1080	170	20	5
896	590	90	10	10
901	880	360	10	20
906	910	195	10	10
907 / 908.5	~~900~~	~~440~~	~~30~~	~~20~~
911	1030	280	20	10
916	390	280	25	10
921	490	330	25	10
924	1300	435	40	10
926	~~2200~~	~~1100~~	~~50~~	~~20~~
931	1200	360	40	15
936	500	220	20	15
941	640	270	10	10
946	600	410	5	10
951	2600	380	20	10
954	2000	560	10	5
957	40	75	5	5

(842 marked at start of Ore Bed)

HOLE 5BD 44 continued

Pilbara

cu.	Ni.	Pb.	Zn.			
840	480	10	5			962
3100	700	5	10			967
1150	410	5	5			972
3100	560	15	5			975
40	85	15	5			979
2600	520	15	10			985
2400	610	5	15			990
6600	1150	35	30			995
3000	335	20	20			999
2950	360	10	15			1004
2150	260	20	20			1009
950	140	5	20			1014
1250	95	5	10			1019
1550	70	5	10			1024
1000	70	15	20			1029
560	105	10	20			1034
1350	150	45	20			1039
280	20	35	20			1041
1480	155	40	20			1049
15	15	250	20			1052
25	90	2100	25			1054
10	10	40	15			1059
5	10	5	20			1064
5	10	10	25			1069

960 Ore Body

966

Gold phase 975-978 Massive pyrrhotite from 988' — 993

976

980

982

Well banded 50° core axis at 936'

990

996

1000

1006

350 @ 1000'

1014

1020 chalco increases with depth

1030

1035

1039'-1041' granite

From 1041 — 1048 inch chalco — po mineralization

1040

1045

1048' esp @ contact

Granite

1052

1054

1060

1064

1066

1069 end

Many massive metallic minerals

Granite

1069

1080

1100

1120

1140

1160

S.B.D 44

TROPARI RESULTS

Footage	Tropari Dip	Tropari Direction	Acid	Comment
200	81			
300	74 3/4			
400	73 3/4			
500	69 1/2			
600	66			
713	61			
806	56			
1000	48 1/2			
1060 TOP	44	147		
1[illegible]5 BOTTOM	44	175		
695 TOP	61	167		
700 BOTTOM	62	124		
295 TOP	75	129		
300 BOTTOM	74	140		

AUSTRALIAN INLAND EXPLORATION CO. INC.

LOCATION 6110 E, 3115 N.
ELEVATION 50' ±
DRILLERS Associated Diamond Drillers
STARTED 18th September 1972
ASSAYS by Amdel
Pilbara Laboratories

HOLE S.B.D # 45
BEARING 155° South along 61 East
INCLINATION 80° S.E
COMPLETED 7th November 1972
LOGGED by Lee J Miller

CORE RECOVERED | DESCRIPTION

0
20
40
Rock Bit
60
80'

80 | 8/10 | V.V.
NQ
90 | 12/12 | V.V.V.
qtz Andesite Tuff
laminated qtz chlorite schist
100 | 12/12 | V.V.V.
qtz grainy, green
103 | 9/9 | V.V.
111' | 9/9 | V.V.V.
qtz sericite in part
120 | 4/4 | V.V.
130
132 | 12/12
Rhyolite Tuff
laminated qtz-sericite schist
some chlorite
white to gray
Bedding dark core axis
140
142 | 10/10
150 | 8/8
152 | 2/2
160

160

Rhyolite Tuff
laminated qtz - sericite - chl schist
bedding down core axis ± 80°
spks of chalco + po
fine silica layering
chartreuse chlorite
some whispy veinlets
grey dry; green wet
much carbonate

180

200

220

240

260

267 Gabbro
massive, veined wt whispy chlorite
pos. norite

280 288

Sheared Gabbroic Zone
some qtz, whispy chlorite
in massive gabbro

300

306 Bull Quartz

312 Gabbro Sheared

Andesite Tuff
lightly laminated
chlorite - hornblende schist
some qtz - carbonate
specks of po.

320

340

360

360 Andesite Tuffs green

380

390' Gabbro fine grain massive some whispy chlorite feld-hornblende matrix some silicification

420

440

460

466' Banded Gabbro inj qtz into Gabbro much chlorite-sheared

450 481 Bull Quartz

500

520

533' Andesite Tuffs qtz-chlorite-biotite schist finely laminated

540

560

Sample depth	Recovery	Depth	Description
563	10/10	560	Andesite Tuff
	10/10		qtz-biotite - chlorite schist
573	9/9	580	cubes of pyrite
582	10/10		laminated
592	13/13	600	
		605'	
605	11/11		Rhyolite Tuff
			well layer siliceous rhyolite
616	10/10	620	sericite - chl-qtz schist
626	10/10		excellent silica-tuff bands
			gray to white
636	8/8	640 642	
644	10/10		Rhyolite
			massive sheared
654	9/9	660	rhyo.
			bio - ser - qtz schist
663		667'	white
	10/10		Quartz - chlorite
673	10/10	680	shear zone
683	11/11	692'	
694	10/10	700	Gabbro
			Massive, sheared
704	10/10		
714	10/10	717'	
		720	Quartz Gabbro
724	10/10		Massive sheared
			chlorite on shear surfaces
734	10/10	740	
744	10/10		
754		755'	
		760	Bull Quartz

761 — 760 — Bwli Quartz

770'

771 — Rhyolite Tuff lightly banded siliceous, grey some sulfides sps biotite a quartz schist

778 — 780

786

796 — 800

806' Quartz shear zone

806 — 820 822'

816 — Rhyolite Tuff same as above but lighter color white

826

836 — 840

846

856 — Bwli Quartz

863 — 860

870'

873 — Breccia

881

883 — Quartz

883 — Breccia

894

900

904

913 — 920

921

930'

936 — Rhyolite Qtz Porphyry massive siliceous, white qtz-eyes in silica groundm.

940

943

951

960

960 Qtz Rhyolite Qtz Porp Quartz

974

977 Bull Quartz

980 Gabbro
Massive

991

994 Quartz shear zone

1000 Gabbro
Massive
Black
pos. hornblendite
Lightly sheared
in par

1020

1040

1054'

1059' Bull Quartz

1060 Gabbro — Norite
Massive
dark, hyperthene?

1080

1091' Rhyolite
Qtz eye porp
very chloritized
whispy chlorite bands
Mainly massive
25 Rhyolite

1100

1120

1140 some chalcedonic veinlets

1160

Depth	Description
1160 – 1201'	Rhyolite massive qtz eye fine po throughout some chalco whispy chlorite dense, green, smooth
1201 – 1291	Gabbro - Massive fine grain graing some whispy chlorite chloritic
1291 – 1295	Bull Quartz
1295 –	Gabbro Massive - Coaser grain some chalcedonic veinlets with whispy chlorite

Box depths: 1161, 1176, 1186, 1196, 1201, 1206, 1216, 1226, 1236, 1246, 1256, 1266, 1276, 1286, 1296, 1300, 1310, 1320, 1326, 1336, 1346, 1356

Scale: 1160, 1180, 1200, 1220, 1240, 1260, 1280, 1300, 1320, 1340, 1360

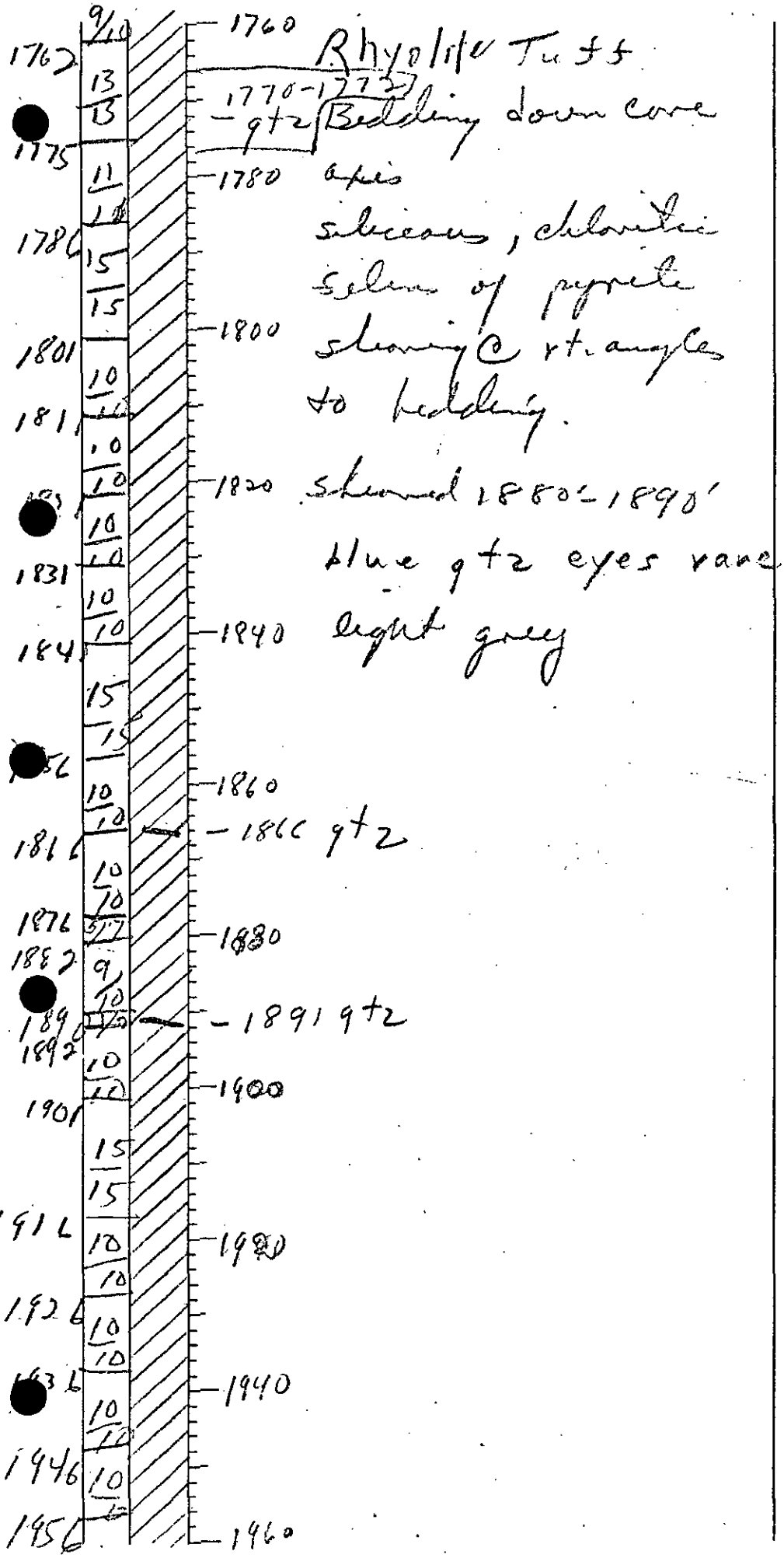
1360 1362

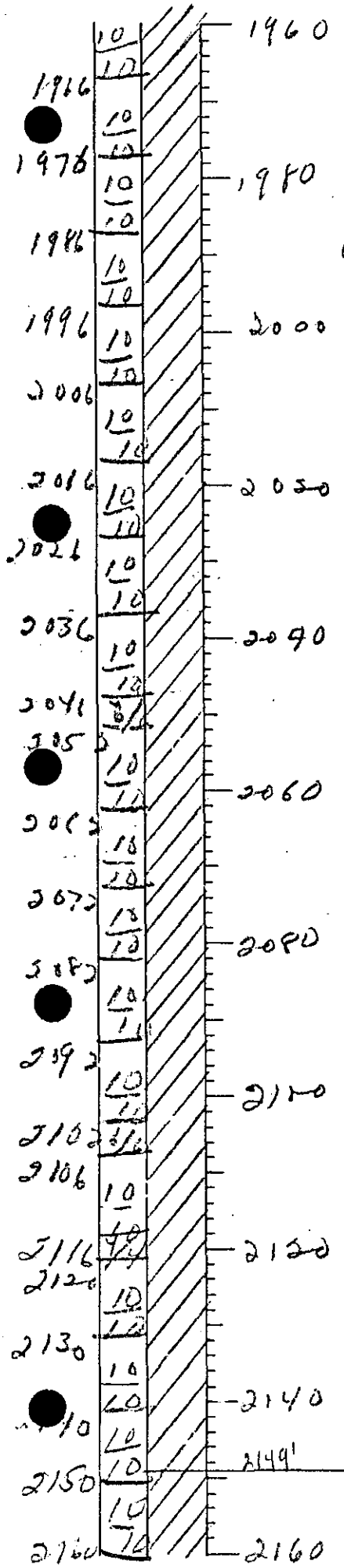
Gabbro with chalcedonic veinlets
contact near parallel
to core axis
massive
@ contact chalcedonic
numerous ½" chalcedonic
veinlets

some PO
specks chalcopyrite
whispy albite
and chalcedonic
veinlets continue
down core axis

dark hornblende
throughout

1560 Gabbro
massive
chalcedonic veinlets
spks chalco + po
1580
1586
Gabbro
fine grain layered
biotite or hornblende schist
1600
1605
Chlorite - Quartz
layered zone
1615
Rhyolite Tuffs
well layered Tuffs
Contorted. biotite - chl - sericite
qtz @ 1600'-1607'
1620
some qtz layering
dip along core axis 50° @ 1661
1635
1640
fine siliceous rhyo layers
wt andesite
some py - po
1660
1680
1700
1720
1740
1760


1760
Rhyolite Tuff
1770-1773 qtz
Bedding down core axis
1780
siliceous, chloritic
Selvage of pyrite
showing @ rt. angles
to bedding.
1800
showed 1880-1890'
blue qtz eyes rare
light grey
1820
1831
1840
1860
1866 qtz
1880
1891 qtz
1900
1920
1940
1960
1762
1775
1781
1801
1811
1831
1841
1876
1882
1892
1901
1911
1926
1936
1946
1956



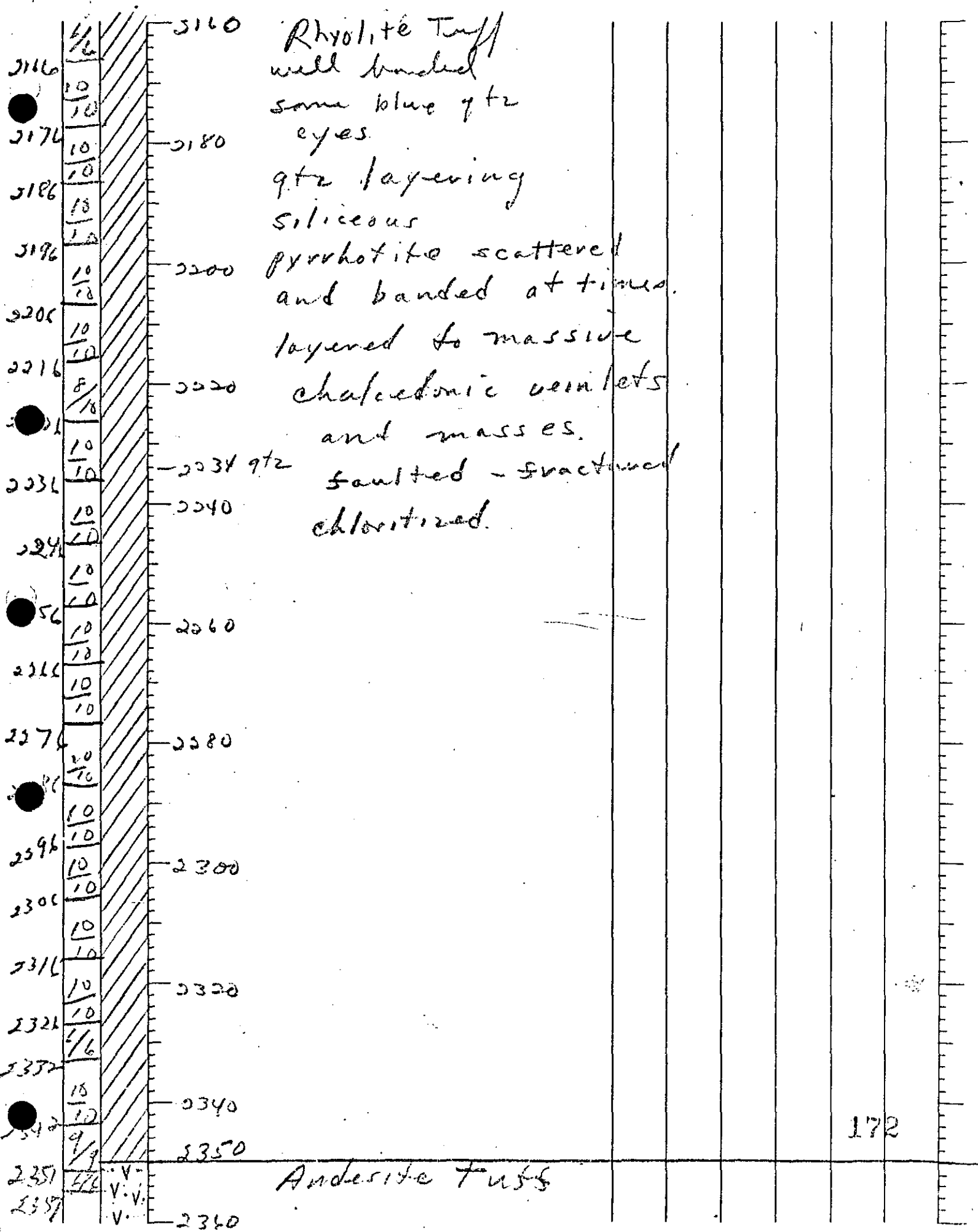
Rhyolite Tuff
Light grey
faintly banded
biotite - chlorite schist

blue eyes abundant
2120 — 2142

blue qtz eye zone
2120-2142

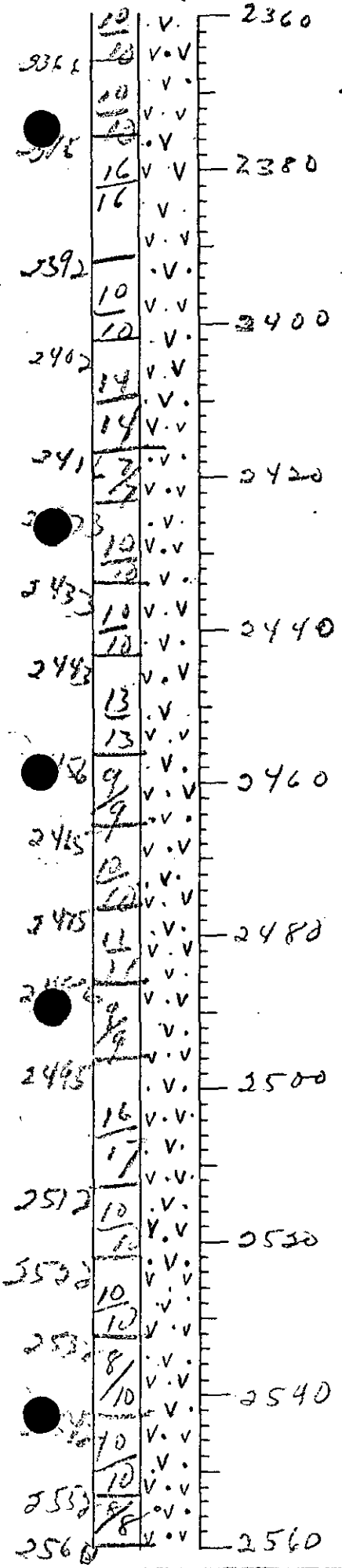
171

Rhyolite Tuff
with banded qtz - chl schist



Rhyolite Tuff
well banded
some blue qtz
eyes
qtz layering
siliceous
pyrrhotite scattered
and banded at times.
layered to massive
chalcedonic veinlets
and masses.
faulted - fractured
chloritized.

Andesite Tuffs



Andesite Tuffs
Extremely well banded and contorted andesite tuffs qtz-chlorite layering drag & kink folded
Some breccia
Sheared & faulted
Sulphides along bedding
Correlates with DDH 340'-522'

2560 Andesitic Tuff
qtz-chl schist
finely laminated
and denudated
2580 and chloritic
2586 Very Chloritic

2595 Breccia
2596 fragments of Andesite in dark matrix

2100 Rhyolite
massive as in 1091 – 1201'
chalcedonic veinlets
whispy tremolite or chlorite - qtz eyes
2120
2624'

Andesite Ash Flow Tuff
Massive, sheared
2640 qtz-feld porp
altered to qtz-fe-chl-chl-schist

2660

2680 2683'

Basalt or And. Tuff
laminated chlorite-talc? schist
excellent banding
2700 contorted, brecciated
chartreuse

2730
2727'

Andesite Ash Flow Tuff
sheared qtz-felt porp
2738

2740 Basalt-Andesite Tuff -
sheared, finely laminated
chlorite schist
chartreuse
2760

Run depth	Recovery	Depth	Description
	8/8	2760	Basalt - Andesite Tuff
2763	6/6	2771'	Rhyolite semi-massive siliceous
2769	12/12	2780	Andesite Ash Flow Tuff qtz - amphibole - chlorite schist some sulfides, chlorite is chartreuse green
2781	9/9		
2790	10/10	2800	
2800	7/7		
2807	3/3	2811'	
2811	10/10	2819'	Basalt chartreuse semi massive basalt
2821	7/7	2820 - 2828'	Rhyolite Tuff laminated qtz rhyo - white
2828	8/8		Andesite Tuff completely sheared and chloritized
2836	10/10	2840	
2846	5/5	2850'	
2851	10/10	2860	Bull Quartz
2861	10/10		
2871	10/10	2880	Andesite Tuff bedded, chloritized sheared chartreuse green
2881	10/10		
2891	10/10	2900	
2901	10/10		
2911	10/10	2920	
2921	9/9		
2930	10/10	2940	
2940	10/10		
2950	9/9		
2959		2960	Rhyolite Tuff

HOLE SBD 45 continued

			Pilbara Cu.	Pilbara Ni.			Amdel Cu.	Amdel Ni.	
2960		Rhyolite Tuff							
2967		Andesite Ash Flow Tuff			Contact with rhyolite = 25° to core axis				
2979		Massive qtz-feld porp							
2980		no bedding or shearing							
		Typical Marker, some blue qtz eyes.			15 joints = 40°				
2990					contact = 65°				
2992		Gabbro							
3000		feld porp, some qtz							
		could Ash Flow, same as #47 and, 20 + 36							
3010		Massive							
3020		some blue qtz eyes							
		some sulfides							
3030									
3040									
3041									
3046									
	qz	Sheared qtz-feld ash							
3051			45	100			30	50	3051
			20	105			20	100	3053
			310	740			240	250	3055
3057'	qz		900	0·345		3057'	1020	3600	3057
		ORE BED	1340	1·25			1160	1·40	59
3059			1700	0·95			1640	1·00	3061
3060		qtz-py-po-mag-act.-chlorite schist							3063·5
3063½			20	205	14' @ 0.5%		20	125	3067
3067	qz	qtz-feld porp	740	0·42			810	4150	3069
		ORE BED	370	0·37			440	3475	3071
			800	1000			660	1000	3073
		Contact @ 3057 20° to core Axis	290	550			240	600	3075
			540	1050			460	1075	3077
3080		Contact @ 3063½ 30° to core Axis	410	725			370	800	3078
		contact @ 3078 25° to core Axis	970	1400			920	1200	3080
			810	2200			740	2000	3082
			485	2350			400	2350	3084
			620	0·295			560	2800	3086
			240	0·128			290	1500	3088
			120	0·10			120	1425	3090
			270	0·24			290	2400	3092
			270	0·29			460	3150	3094
			210	0·18			200	1775	3096
			140	0·085			130	1000	3098
		Sulfides increase at 3107'	220	0.20			180	2100	3100
3100		Clotoco blebs throughout	1550	0·45			1220	3925	3102
			160	0·12			120	1325	3104
		actinolite enclaves	450	0·43			480	4400	3106
			570	0·50			780	6000	3108
			240	0·27			240	2600	3110
			220	0·144			275	1525	3112
			380	0·22			440	2100	3114
			220	0:21			175	1500	3116
3120									3120
3122		Rhyolite chloritized	20	100			10	160	3122
		Ore Bed	670	0·42	17' @ 0.68%		750	4350	3124
3128			210	0·30			210	3000	3126
			220	0·67			440	6900	3128
		Richer Ore Bed	390	0·73			350	6750	3130
			450	0·74			500	7100	3132
			390	0·49			200	3875	3134
			540	0·66			590	7100	3136
3139			550	0·48		3139'	575	4600	3139
3140									3143
3143		Rhyolite feld porp	150	320			110	225	3145
		Ore Bed	670	180			860	150	3147
3149			830	160			975	175	3149
		Richer Ore Bed	330	80			375	100	3151
3154		Magnetite increases	160	80			200	75	3154
		Ore Bed	160	60			200	75	3156
3159			430	30		170	500	50	3159
3165		Rhyolite	420	200			475	225	

HOLE SBD45 continued

Pilbaro Cu.	Pilbaro Ni	Amdel Cu.	Amdel Ni.
220	80	150	100
30	90	10	125
610	240	750	325
800	100	1100	125
0·18	110	1860	150
1330	160	1400	175

3160

Rhyolite qtz and qtz-feldspar porp white lightly banded disseminated chalco pyrrhotite throughout blue qtz eyes increase w+ depth

3180

3200

3220 3233 end of Hole

3240

3260

3280

3300

3320

3340

3360

3162 3164 3166 3168 3170 3172

S.B.D 45 TROPARI RESULTS

Footage		Tropari Dip	Tropari Direction	Acid	Comment
[illegible]20	TOP	82	230	—	
120	BOTTOM	81	163	—	
230		80	151	—	
350		—	—	79°	
436		—		77	
550		—	—	77 ½	
750		—	—	75 ½	
850		—	—	76	
950		—	—	77	
[illegible]50				76 ½	
1150		77	172	—	
1256		—	—	76 ½	
1350		—	—	74 ½	
1456		—	—	72 ½	
[illegible]520		71	106	—	
1604		68	107	—	
1691	TOP	64	116	—	
1696	BOTTOM	63	115	—	
	TROPARI	SERIES AS	ROD ARE LOWERED	DOWN HOLE	
[illegible]95	TOP	80	036		
400	BOTTOM	81	135		
595	TOP	80	007		
600	BOTTOM	79	129		
795	TOP	78	127		
800	BOTTOM	78	108		
995	TOP	78	127		
1000	BOTTOM	78	125		
1195	TOP	77	119		
[illegible]00	BOTTOM	77	116		
1395	TOP	75	109		
1400	BOTTOM	75	106		

S.B.D 45 CONT. TROPARI RESULTS

Footage		Tropari Dip	Tropari Direction	Acid	Comment
[illegible]790	TOP	62	105		
1795	Bottom	62	107		
1889	TOP	60	137.		
1894	Bottom	60	097		
1991	TOP	59	106		
1996	Bottom	60	108		
2081	TOP	57	103		
2086	Bottom	57	104		
2155	TOP	56	104½		
[illegible]160	Bottom	55	105½		
2261		50	103		
2266		50	103		
2351	TOP	45	111		
2356	Bottom.	44	108		
[illegible]51	TOP	45	109		
2456	Bottom.	46	106		
2554	TOP	48	131		
2559	Bot	47	117		
2649	TOP	46	112		
[illegible]54	Bottom	45	107		
2828	TOP	43	123		
	Bottom.	42	115		
2922	TOP	40	127		
	Bottom	40	122		
3000	TOP	38	120		
	Bottom	38	263		
3100	TOP	28	124		
	Bottom	28	127		
[illegible]230	TOP	20	135		
	Bottom.	19	136		

AUSTRALIAN INLAND EXPLORATION CO. INC.

LOCATION 1217 W 639 N
ELEVATION 50' ±
DRILLERS Associated Diamond Drillers
STARTED 4th October 1972
ASSAYS by —

HOLE S.B.D. 46
BEARING 130°
INCLINATION 88°
COMPLETED 9th October 1972
LOGGED by L.J. Miller

CORE RECOVERED

DESCRIPTION

0
20
40 Rock Bit
59'
60 Oxidized chert
67' w+ limonite
70'6" end Chert wt sul + mag
80
bedding down
core axis
canary yellow oxide mineral
100
120
140
160

180

AUSTRALIAN INLAND EXPLORATION CO. INC.

LOCATION 61 E, - 21 N

ELEVATION 50' ±

DRILLERS Associated Diamond Drillers

STARTED 10th October 1972

ASSAYS by Pilbara Laboratories
Amdel

HOLE S.B.D # 47

BEARING 335°

INCLINATION 80° N.W.

COMPLETED 25th October 1972

LOGGED by Lee Miller

CORE RECOVERED | DESCRIPTION

Depth mark	Core run	Core recovered	Scale	Description
			0	
				Plug bit
			20	
30			30	
	37	7/7		Rhyolite
	44	6/7	40	Massive qtz-feld porphyry
		6/7		Blue qtz eyes in chlorite matrix
	61	10	60	Probably Rhyolite Ash Flow
	67	6/6		coarse grain granitic texture
	76	7/9		
	86	10/10	80	Lightly sheared
		15		
	101	15	100	
		15		
	116'	15		
		11	120	
	127	11		
		10		
	137	10	140	
		13		
	152	15	154'	
		V.V.	160	Andesite

181

Sample / Recovery	Depth	Description
166 — 14/14	160 – 170	Rhyolite qtz-feld porph
172 — 10/10	175	Andesite
190 — 13/14	180	Rhyolite qtz-feld porphyry massive, lightly
197 — 7/7	200	sheared
207 — 10/10		blue qtz eyes
217 — 10/10	218'	coarse
227 — 10/10	220	Rhyolite glassy, non porphyritic
234 — 7/7		finely sheared
244 — 10/10	240 – 247'	
256 — 12/12	256'	Rhyolite qtz-feld porp coarse
266 — 8/8	260	Rhyolit sheared fine grain qtz porp
281 — 17/17	280	blue qtz eyes
296 — 15/15	296'	
306 — 10/10	300	Rhyolit Tuff scattered qtz eyes, blue
316 — 10/10	313'	Rhyolite mix Andesite Tuff
330 — 16/16	330 – 333'	Rhyolite qtz-feld porp
343 — 13/13	340	biotite - chlorite groundmass
351 — 8/8		lightly sheared
360 — 9/9	360	

HOLE S13D #47 continued

360 — 360 Rhyolite qtz-feld porp
366
13 13 — 372 Feld Porp Rhyolite
Rhyolite Qtz feld porp
10 10 — 380 interbedded andesite
383 and feld porp
6 6
389 11 12 — 400 Coarse, sheared
401 blue qtz eyes
11 11 — 413
412 V V 417 Andesite Ash Flow Tuff
1- 12 — 420 423 Rhyolite qtz feld porp wt blue eyes
Rhyolite Tuff
10 10 dense banded rhyolite
434 12 — 440 wt some porp of qtz-feld
12
446 6 6
457
10 10 — 460 Rhyolite qtz feld porp coarse
462 465 no blue qtz eyes
Rhyolite Tuff
10 10 banded with some porphyritic text.
472 10 10
462 — 480 483
10 10 Rhyolite qtz feld porp
492 10 10 no blue qtz eyes
500 501 massive
502
13 13 Rhyolite Tuff
514 banded glassy
515 Rhyolite qtz feld porp.
520 521
10 10
535 10 10 Rhyolite Tuff
10 10 banded, glassy
535 10 10 — 540 wt scattered blue qtz eyes
10 10 semi massive at times
545 11 11
556 — 560

HOLE SBD 97 continued

560 Rhyolite Tuffs Lightly bedded qtz eye

577' Basalt

579 560 Rhyolite Tuff

586 588' Basalt

590

596 Rhyolite Tuff

600

605' Basalt

606 607'

Rhyolite Tuff Bedded, qtz eye feld porp in part some chalco

613 620

640 Light chlorite

Andesite - Dacite in part

660

664

675

680

683

688' Ore Bed

Basalt

700 chartreuse chlorite mineralized wt po-chal-py-qtz

710' Ore Bed

720

Basalt

Ore Bed

737'4"

740 Gabbro feld porp

Basalt

745'7" Ore Bed

755'

Basalt

760 Ore Bed

761

Pilbaro Cu	Pilbaro Ni.	Amdel Cu.	Amdel Ni.	
610	340	620	350	678
450	840	390	855	683
600	510	620	490	686
220	660	205	800	691
410	940	500	955	696
180	310	170	340	701
310	540	270	535	706
510	500	490	475	710
660	1420	760	1450	715
660	1870	665	1950	720
185	700	205	760	725
25	90	30	105	730
30	55	40	90	737
5	80	35	125	743
535	4700	545	4700	744.5
485	5100	450	4850	750
30	100	40	90	755
310	5200	295	4300	755.5
				760

HOLE SBD #47 continued

760–808 Ore Bed
Evenly Banded
qtz-mag-act-chl-po
very little Chalco

Original rhyolite texture
faulted & brecciated

808–809 Ore Basalt

809–810 Ore Basalt

810–811 Ore Bed

811– Ore Bed
breccia with increase mineralization

823–827 Rhyolite

827–830 Ore Bed

830–837 Rhyolite

837–871 Gabbro
similar to Andesite
Ash Flow
feld porp with
some qtz

871–888 Andesite Ash Flow
Typical marker bed
feld porp, some qtz phen

888–903 Rhyolite
fairly massive

903–931 Rhyolite Tuff
chloritized Bedded

931' end

Depth to (ft)	Pilbara Cu.	Pilbara Ni.	Amdel Cu.	Amdel Ni.
765	540	8100	570	6950
770	430	5700	415	5750
775	440	5400	435	5850
780	310	4200	250	4150
785	340	3400	320	3870
790	570	3700	455	4720
795	720	4800	570	3870
800	270	3000		
805	620	1·03	625	8150
808	255	4800		
809	85	2600		
810	205	4800		
811	255	1900		
816	640	3600		
821	2000	5700		
824	1030	3700		
827	255	140		
830	1220	1870		
837	70	80		
842	100	40		

Core recovery (left margin): 764, 772, 782, 792, 797, 807, 814, 817, 823, 829, 832, 840, 850, 856, 866, 875, 885, 895, 906, 911, 914, 931

S.B.D 47

TROPARI RESULTS

Footage	Tropari Dip	Tropari Direction	Acid	Comment
100 B.	78	327		
100 T.	78	269.		
200 B.	75	325		
200 T	75	336		
304 B.	64	321		
304 T	65	331		
397 B	55	325		
397 T	56	334		
507 B	41	320		
502 T	42	340		
601 T	30	332		
606 B	29	325		
705	The dip has flattened to such an extent that the Tropari Rod will not reach the bottom. The tropari stopped at approx. 630 feet, 75 feet off bottom. The readings are as follows:-			
	Top 29	165.		
	Bottom 28	020		

AUSTRALIAN INLAND EXPLORATION CO. INC.

LOCATION 54 E ~ 23 N.
ELEVATION 50' ±
DRILLERS Associated Diamond Drillers
STARTED 26th October 1972
ASSAYS by Pilbara Laboratories
Amdel

HOLE S.B.D.# 48
BEARING 45° North
INCLINATION 335
COMPLETED 4th November 1972
LOGGED by L.J. Miller

CORE RECOVERED		DESCRIPTION
	0	
	20	Rock Bit
	35'	
35	40	Rhyolite Fragmented as rhyolite some chlorite yellow mineral
58	60	
	70'	
70		Rhyolite Tuff white tuff with qtz eyes yellow mineral
75	80	
88		
96	100	
105		
115	120	
126	122'	
130		Rhyolite Tuff green w feldspar yellow mineral
141	140	
152		
157	160	

HOLE SBD 48 continued

	Pilbara Cu.	Pilbara Ni.	Amdel Cu.	Amdel Ni.	
166					166
Sulphide Rhyolite banded rhyo wt py + po.	540	130	500	150	
	860	240	910	250	174 178
180 183'	820	80	910	100	182
Massive Rhydite few sulphides	1700	100	1650	150	187
	180	130	180	130	188
	2200	205	2260	225	190
	130	140	175	125	192
193	1280	160	1510	175	194
Ore Bed banded mag-po-schist very rich pyrrhotite wt some chalco mass. po, in part	3000	230	3028	250	
200					200
	2900	345	2800	350	205
	2700	690	2350	650	210
	2200	1500	2010	1200	215
po + chalco banded but also cuts across bedding	1420	1740	1505	1725	
220					220
	3200	3550	3125	3425	225
	1660	3700	1925	3950	230
	1520	4500	1350	4000	235
less rich grades to banded rhyolite	450	4000	300	3325	
240					240
	420	6200	540	5150	245
	280	2300	340	3625	250
254'	180	600	175	500	253
Ash Flow - Gabbro some sulfides	90	210	125	200	258
260	80	230	75	175	263
Typical marker bed of Gabbro feld porp also qtz. feld porp.					
280					
300					
308					
Andesite massive & green					
315'	40	80	50	75	315 317
Excellent Rhyolite tuff - well banded contorted					
320					
330'					
Ash Flow - Light qtz felk porp some bedding					
340					
351'					
Ash Flow Typical, qtz feld porp					
360					

HOLE 513D 48 continued

361	10	V	360 Andesite Ash flow w/ qtz eyes & pink felds.
371	10	V	
381	10	V	380
391	10	V	391' end of Hole
391	10	V	400

ACID	CORRECTED
150'	42°
250'	38°
393'	27°

AUSTRALIAN INLAND EXPLORATION CO. INC.

LOCATION 28 E 23 N.
ELEVATION 50' ±
DRILLERS Associated Diamond Drillers
STARTED 8th Nov. 1972
ASSAYS by Pilbara Laboratories

HOLE SBD 49
BEARING V
INCLINATION Vertical
COMPLETED
LOGGED by [illegible]

CORE RECOVERED | DESCRIPTION

0
20
HW Core
33'6" Andesite Ash Flow Tuff
40
Andesite Ash Flow Tuff
qtz-feld porp
within chloritic groundmass
60 HR or NX casing
80
100
120'
100
NQ
127 7/7
Andesite Ash Flow Tuffs
qtz feld porp
gabbro texture
blue qtz eyes
143 9/9
152 9/9
160

162 10/10
172 10/10
178 5/5
187 10/10
197 9/10
207 10/10
217 9/10
227 8/9
234 6/8
241 7/7
246 5/5
256 10/10
266 10/10
276 10/10
286 10/10
296 10/10
306 9/10
316 10/10
326 10/10
336 10/10
346 9/10
356

160 Andesite Ash Flow Tuff
lt green dense
blue qtz. eyes
massive
180 185' Gabbro texture ends
Andesite qtz-feld porp
darker green
wt more qtz eyes
200 qtz vein 196'
less massive wt some
laminations
220
228'
Andesite Tuff
fine layered chloritic
240 tuffs, contorted banding
251' blue qtz eyes
Andesite Ash Flow Tuff
260 qtz-feld porp.
gabbro texture
280
300
305'
Andesite Ash Flow Tuff
fine grain wt feldspar
320 interwoven. some qtz eyes
smooth texture
336 lt green, massive
340 Andesite Ash Flow
gabbro texture
massive
360

360
Andesite Ash Flow Tuffs
Gabbroic texture
massive
qtz-feld porp.
mainly feld in
chlorite matrix

380

400

420

440 444'

Andesite Ash Flow Tuffs
Coarser - laminated
some typical qtz-feld porp

410

472' Commence BQ

480

500

Injection Qtz-Chlorite
Zone

514'

Andesite Ash Flow Tuff
qtz-feld porp
cs - silty laminated

520

537'

Andesite Ash Flow Tuffs
gabbroic texture
massive qtz-feld porp

540

560

560 Andesite Ash Flow Tuff
qtz-feld porf
gabbroic texture
massive

580

591

Andesite Ash Flow Tuff
laminated qtz porp
light green sheared
chloritic qtz porp w/ feld
w/ qtz layering in part

600

620 623

Andesite Ash Flow Tuff
massive qtz-feld porp.
chloritic groundmass
sheared

640

647'

Andesite Ash Flow Tuff
blue eye qtz porp
chloritic groundmass
siliceous some reports
much sheared injection
qtz
contorted bedding or laminations

660

680

700

720

734

740

745

755

740

742	7/7	760	Andesite Ash Flow Tuff
760	7/8		blue qtz eye porp.
	6/6		in chloritic groundmass
776	8/8	780	laminated - carbonate + qtz
784	10/10		contorted laminations
794	12/12		fold mesh
806	10/10	800	
816	10/10	820	
826	10/10		
		833	
836	9/9	840	Qtz - chlorite zone
845		845'	
854	9/9	854'	Andesite Ash Flow
861	7/7	860	stretched qtz in chl. groundmass
866	4/5	866'	laminated channel
872	6/6		qtz eyes + layers
878	6/6	880	rock becoming more chartreuse
886	8/8		now chl - qtz schist
890	4/4		much injection qtz
898	8/8	900	fold sparse
906	8/8		
913	5/5		
920	9/9	920	
926	4/4		
935	9/9		
948	7/7	940	
951	9/9		
		960	

960 Andesite Qtz eye porp.

977'

980 Rhyolite Tuffs
fine laminations
much injection qtz
throughout unit
some porphyry.

1000

1020

1028'

Andesite Ash Flow
coarser qtz porp
much chlorite
sheared with
some laminations
variable beds of
cs + fine textures

1040

1060

1080

1100

1119'

1120 Andesite Ash Flow
more chloritic
than above unit
sheared

1140

1152'

Basalt

1160

Depth	Recovery	Depth	Description
	10/10	1160	Basalt
1169	10/10		slightly layered dark green, flow
1178	8/8	1180	structures
1186	10/10		very chloritic
1196	10/10	1198'	= 585' ±10 = 1064'5
		1200	Layered Andesite Tuff
1200		1207	sulfides 1198-1201' wt Magnetite layered
	10	1211	Layered Rhyolite
1216	10	1217	Rhyolite
	10	1220 1221	Rhyolite Tuff Layered
	10	1225	Rhyolite chloritized
	10/10		Rhyolite Porphyry blue qtz eyes, solid chlorite
1236	10/10	1240	dark serpentine green sulfides of po-chalco diss
1246	7/7		← 1244-46 bull qtz
1253	6/6	1255	← heavy pyrite
1259	7/7	1260	Massive feldspar Porp. Rhyolite
1266	7/7		white feldspar in
1273	6/7		siliceous groundmass
1280	5/6	1280	some po-chalco
1286	10/10		
1296	10/10	1300	
1306		1308	Massive feldspar porph wt chal.
	10/10	1315	Rhyolite green chloritized
1316	10/10	1320	Chartreuse fine grain chlorite basalt some chalco
1326	5/5		
1331	10/10	1340	
1341	9/10	1346'	Rhyolite
1351	5/5		cs, white siliceous
1356		1360	

HOLE SBD #49 continued

Pilbara

Depth	Recovery	Log
1366	10/10	1360 Rhyolite. white es. non chloritic
	10/10	1372
1376	10/10	Basalt
1386	10/10	1380 dark chloritized biotite, massive
1396	10/10	numerous qtz veins
1406	10/10	1400 some sulphides
1416	10/10	
1426	10/10	1420
1436	10/10	
1446	10/10	1440
1456	10/10	1453
		1457½ Ore Bed mag-po-chl.
1466	10/10	1460 Qtz-feld porph probably rhyo
1476	10/10	very light green
1486	10/10	1480 more feld near contact
1496	10/10	1493½
		Ore Bed little mag med rich po-chalco
1506	10/10	1500 Chlorite schist
		Ore Bed med. rich po-mag-chl much silica wt chalco
1516	10/10	
1519	3/3	1520 1521 Ore Bed
1526	8/8	1525 chl. zone green
1536	10/10	Ore Bed very lean, mainly silica wt some bands po-mag
1544	8/8	1540
1546	½	— 1547½-1548½ } basalt
1556	10/10	— 1550-151½ }
		1555
		1559' Ore bed chloritized rich magnetite

Cu.	Ni	Depth
200	110	1451
830	80	1453
198	83 / 70	55 / 56 / 57.5
300	100	1460
90	160	91 / 1493
0.200	0.380	96
0.195	0.340	98
0.148	0.260	1500
50	120	02
820	0.230	04
960	0.270	06
0.175	0.410	08
0.125	0.400	10
0.110	0.560	12
0.170	0.560	14
700	0.560	
410	0.390	18
240	0.360	21
150	480	
180	0.230	
250	0.270	
370	0.280	31
420	0.610	33
760	0.470	1535
760	0.700	1537
500	0.485	1539
370	800	1541
720	0.650	1543
1300	0.340	1545
570	410	1547.5
210	790	1548.5
300	0.715	1550
30	70	1551.5
120	760	
160	150	1555
80	130	1556
1050	160	1559

197

Pilbara Cu.	Pilbara Ni
100	180
110	70
800	20
800	180
100	110
660	250
620	80
500	60
880	70
860	60
820	40
430	40
370	30
190	30
140	30
260	30
490	50
120	140
100	50
120	30

1560 Ore Bed

Very leam. sulfides, approx pure silica

1568½ – 1569½ time gabbro barren

1580

Chevron folding imposed on lineage

lineage is everywhere approx. 45° to core.

1600 Thin dolerite with hornfelsed ore bed bands & fragments. still containing mineralization in fragments.

This Gabbro bands

1620

Gabbro predominates over ore bed remnant bands & xenoliths.

Contacts & foliation approx. 45° to core. Ore bed remnants as silicified(?) hornfelsed(?).

1640 Gabbro is coarser & more leucocratic with weak foliation. Hole Bottom at 1651

1660

1680

1700

1720

1740

1760

1561 1563 1565 1566 1568.5 1570 1572 1583 1593 1595 1597 1599 1601 1603 1605 1607 1609 1614 1619 1624 1629 1634

AUSTRALIAN INLAND EXPLORATION CO. INC.

LOCATION 31 E 23 N
ELEVATION 50' ±
DRILLERS Associated Diamond Drillers
STARTED 9th November 1972
ASSAYS by Pilbara Laboratories

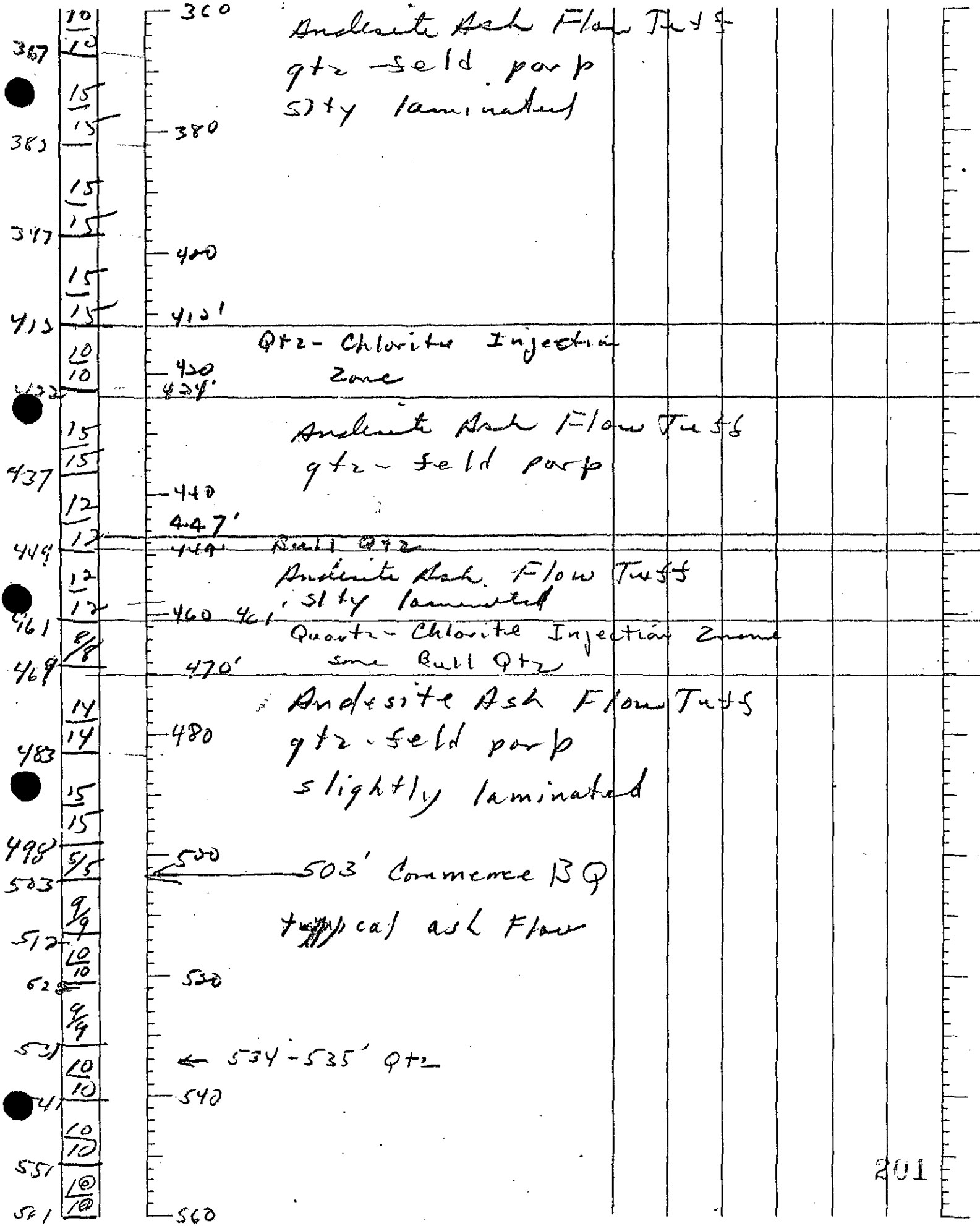
HOLE SBD #50
BEARING
INCLINATION Vertical
COMPLETED 7th December 1972
LOGGED by L.J. Miller

CORE RECOVERED		DESCRIPTION
	0	Plug bit
HR HW	20	HW Core
	25'	Andesite Ash Flow Tuff
		HR or NX Casing Core
	40	Andesite Ash Flow Tuff
		laminated
	60	Probably layered qtz-feld porp with chloritic groundmass
	80	
	100	
120	120'	Commence HQ
8/8		Andesite Ash Flow Tuff
128 3/4		finely laminated
132 10/10		qtz-feld porp.
142 12/12	140	
154		
	160	

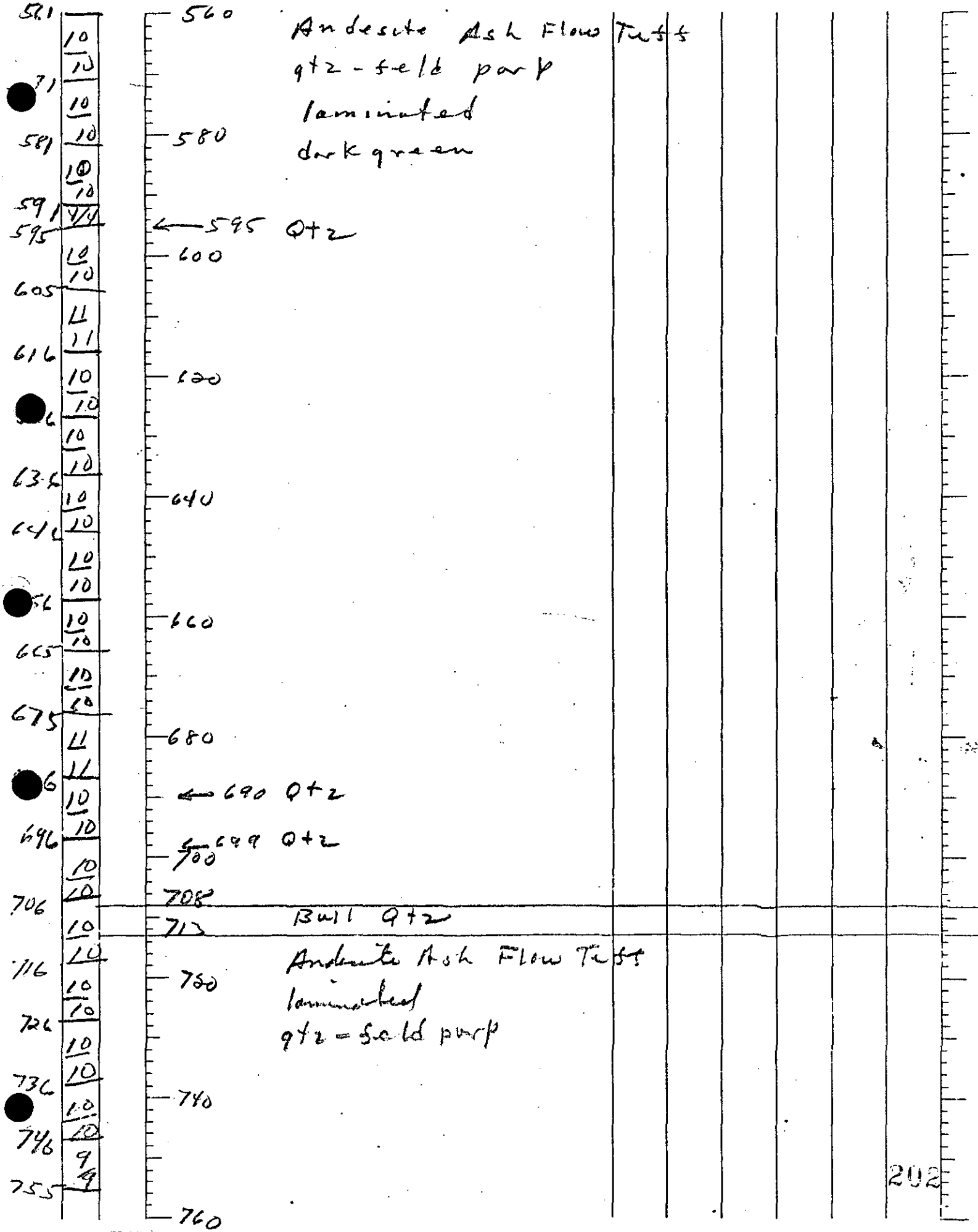
HOLE SBP 50 continued

Box depth	Recovery	Depth	Description						
164	7/7	160	Andesite Ash Flow Tuff						
		169'	?s-laminated qtz-feld porp				qtz vein cont.		
179	15/15	180	Andesite Ash Flow Tuff gabbroic texture						
192	13/13		massive Feld porp. w/ some qtz eyes						
202	10/10	200	lt green						
217	15/15	217'							
227	10/10	220	Injection qtz-chl zone						
		229	Andesite Ash Flow Tuff						
242	15/15	240	typical qtz-feld (pink) porp						
257	15/15		silty laminated dark green						
272	15/15	260	coarse Semi-massive						
287	15/15	280							
302	15/15	300							
316	14/14								
327	11/11	320							
342	15/15	340							
357	15/15	360							

200


Andesite Ash Flow Tuff
qtz-feld porp
slty laminated
Qtz-Chlorite Injection
zone
Andesite Ash Flow Tuff
qtz-feld porp
Bull Qtz
Andesite Ash Flow Tuff
slty laminated
Quartz-Chlorite Injection Zone
some Bull Qtz
Andesite Ash Flow Tuff
qtz-feld porp
slightly laminated
503' Commence BQ
typical ash Flow
← 534-535' Qtz
367
383
397
413
432
437
449
461
469
483
498
503
512
527
541
551
561
300
380
400
413'
420
434'
440
447'
449'
460
461'
470'
480
500
520
540
560

HOLE SBD 50 continued



740 Andesitic Ash Flow Tuff

770'

Gabbroic Texture Ash Flow
feld porp (pink in part)
wt some qtz pheno
chloritic
many qtz veins

780

800

820

840

860

880

900

904'

Sheared feld porp
wt much qtz

920

926'

Gabbroic Textured Ash Flow
feld porp

940

960

HOLE SBD 50 continued

960 Gabbroic Textured Ash Flow Tuffs
seld parts (pink in part)
in chloritic groundmass
2" qtz veins throughout
Massive light green
980
1000
1020 1023'

Rhyolite Ash Flow Tuffs
Siliceous qtz part
banded, blue eyes qtz.
dense chlorite @ 1040-1041
1040
1051' contorted 1036-1051 qtz injection

Rhyolite Ash Flow Tuffs
well bedded rhyolite
contorted, chloritic
white to green
1060
Fresh Epidote @ 1067
1076

Rhyolite Tuffs
heavy chloritic wt bedding
1080
massive
green
1100
1109

Rhyolite Ash Fall Tuffs
well layered rhyolite
tuffs. chloritic in
1120
sections.

1140
1146'

Chloritic Rhyolite.
massive chloritic
1160

Pilbara	
Cu	Ni
90	100
240	80

1141
1143
1149

Pilbara

				Cu	Ni	
1165	9/9	1160 1163'	Chloritic Rhyolite			1163
	10		Rhyolite Qtz Porphyry			
1175	10		massive white little chlorite			
	10	1180				
1185		1187'				
	9/9		Chloritic Rhyolite chalcopyrite 1200'—			1194
1194	10	1200	1208'	40	90	1199
	10			2900	160	1204
1204	4/4	1208'		2300	180	1208
1208	8/8		Rhyolite Qtz porp white			
1216		1216'	Chloritic Rhyolite			
	10	1220 1223'				
1226	10		Massive Qtz Rhyolite Porp white qtz phenos in siliceous groundmass			
	9/9					
1235	10	1240				
1245	10	1244	Amphibolite-OreBed chloritic wt much magnetite massive			
	10					
1255	11	1260				
	11					1263
1266	4/4	1271	1266 — 1271 banded magnetite wt silica	110	90	1268
1270				260	80	1272
	13		Gabbro			
	13	1280	fine grain chloritic - feld mesh chartreuse green massive			
1283	10					
	11					
1294	10	1300 1303				
1304	10		Gabbro coarser feld mesh			
	10					
1314	10	1320	light green massive			
1324	10					
	10	1331				
1335	10		Gabbro			
	10	1340	feld porp massive green			
1345	11					
	11					
1356		1360				

1350 1450 185

21

HOLE SBD 50 continued — Pilbara

Depth	Recovery	Log
	10/10	1360 Gabbro
1365	10/10	
	8/8	1371'
73		Ore Bed
	10/11	1380 Banded massive beds of po-mag-amp-qtz
1384	7/7	
1391	7/7	1391 gabbro - barren
		1394 gabbro - barren
1398	8/8	1400 at 1399 becomes leaner
1406		banded ore bed wt massive po sections.
	10/10	po banded throughout
1416	10/10	1420 actinolite.
26	10/10	some magnetite
1436		Amphibolite Breccia
	10/10	1440 Ore Bed
		rich po bands-
1446	3/3	← 1449-1449½ amphibolite
1449½	7/7	← 1452-1453 qtz-feld-amphibolite
56	10/10	1460
1466	5/5	
1471'	10/10	1480 1479½
1481	10/10	Gabbro Coarse Xtsl
		1484 Ore Bed much silica
		1488' Gabbro fine
1491	10/10	1490' Ore Bed
		1500 banded chlorite-silica
1501	6/6	1505 less sulfides + magnetite
1507	7/8	Chloritoid Rhyolite
1515	6/6	feldspar porph.
1521	4/4	1520
25	8/8	1525 Rhyolite
1533		1533' end white wt some Chl
		1540
		1560

Cu.	Ni.	Depth
		1363
		9
20	80	1371
240	120	73
700	520	75
1560	1350	77
1220	1500	79
910	1400	81
1600	1800	83
1950	0.240	85
1050	0.240	87
1220	1450	89
0.380	0.280	91
1420	0.230	93
20	140	96
0.290	0.350	98
1030	0.400	1400
1550	0.400	02
1520	0.520	04
540	0.460	06
490	0.530	1408
0.200	1.06	1410
860	1.20	1412
840	1.23	1414
0.480	0.780	1416
400	0.310	1418
660	0.730	1420
0.113	0.540	1422
980	0.690	1424
520	0.700	1426
830	0.900	1428
650	0.850	1430
600	0.520	1432
860	0.960	1434
100	0.060	1437
820	0.550	1439
0.104	1.14	1441
0.125	0.810	1443
810	0.880	1445
520	0.640	1447
760	0.660	1449
10	0.030	1450
520	0.560	1452
40	0.030	1453
880	0.620	1455
760	0.420	1457
0.140	0.440	1459
0.135	0.440	1461
0.115	0.360	1463
560	0.320	1465
820	0.370	1467
820	0.350	1469
0.162	0.420	1471
0.195	0.760	1473
0.158	0.810	1475
0.240	0.630	1477
0.128	0.410	1479½
40	0.021	1484
670	0.360	1486
0.100	0.435	1488
50	0.032	1490
740	0.260	1492
750	0.530	1494
200	0.190	1496
690	0.330	1498
260	0.195	1500
200	0.145	1502
260	0.128	1505
420	130	1514

(1)

AUSTRALIAN INLAND EXPLORATION CO. INC.

LOCATION 46E - 23N

HOLE SBD 51

ELEVATION

BEARING

DRILLERS Associated Diamond Drillers

INCLINATION

STARTED 5th Jan 1973 (Diamond drilling)

COMPLETED

ASSAYS by

LOGGED by

CORE RECOVERED

DESCRIPTION

100

120

140

160

180

200

Cleavage & banding ≈ 90° α | 55/10 | 5/5 | 8/8

Andesite tuff (?)
Sheared chloritic schists with quartz-feldspar stringers (quartz granules rotated).
Woody texture

202 - core diam change

At 220 drag-fold | 7/7 | 11/11 | 11/11 | 7/7 | 11/12 | 19/19

At 228 α = 45° (banding)

At (?) banding = 70° α

At 246, banding at 25°

220

Andesite tuff (?)
Contact from 214 to 223.
Essentially finer grained than previous. Banded.
Lumpy quartz at 229 to 230 and at 242 to 243.
Discordant thin quartz stringers throughout.

240

260

226 S

231/85

207

HOLE SBD 51 continued

Cu Ni

260

280 "Sheared gabbro?"
2-3 inches of true thickness, of
coarse textured (less sheared rock).
Quartz grannules rotated.
Breccias at 286' to 290' and at
322' 6" to 329'.
Sulfides throughout

300

320

340

70 | 31

357

360 "Sheared Andesite tuff (?)"
Laminated
Lumpy quartz at 361', 362' 6",
374', 388', 398' & 399'.
Quartz feldspar and quartz
stringers throughout.

380 Slumping at 407' 6"
Sulfides throughout.

400 Lumpy quartz at 420, 421, 422.
Vein quartz at 522.
Discordant and concordant quartz
& quartz feldspar stringers and
vein swellings throughout.

420

440

460

Sulfides continuous

208

Pilara Labs.

HOLE SBD 51 continued

Depth / core angle	Recovery
463' 70°	7/7
470' 70°	5/7
477' 70°	
478' 40°	10
479' 90°	10
484' 90°	3/3
490' 80°	10/10
495' 65°	
499' 80°	19/20
502' 45°	
505' 90°	
510' 85°	10/10
516' 85°	
521' 90°	9/10
529' 65°	5/6
531' 65°	
534' 63°	10/10
537 70°	
544' 72°	19/20
551' 80°	
554' 65°	10/10
566' 35°	10/10
574' 80°	7/7
580' 90°	4/5
585' 80°	6/6
591' 85°	6/6
595' 70°	3/3
600' 65°	5/5
608' 70°	5/5
609' 60°	3/3
612' 75°	3/4
626' 78°	10/10
629' 70°	6/6
631' 90°	5/5
644' 70°	19/20
653' 70°	8/13

460

480

500 — 500 core diameter changed. (Cu, Ni columns)

520

— 529' 84 / 135° ; 532' 84 / 129°

540 At 543'6" onwards, sheared andesite tuff (or gabbro?) of coarser texture with disseminated sulfides.

560

At 568, knobbly texture and chloritic partings. Slump breccia?

572 — Ore bed.

580 Essentially same rock but with magnetite bands and sulphide & chlorite in bands. Sulfides also as interstitial matter in breccia at 573. Lumps of rock at 575 & 578.

600 At 589 chloritic schist. Schistosity is corrugated locally. Still bears sulfides.

Cu	Ni
80	370
970	0.36%
900	0.37%
710	0.25%
730	100
300	140
180	120
230	100

620

— 627' 83 / 147° ; 632' 8 / 146°

640 — 638' 6" F.G. Diabase' intrudes contact.

Rhyolite

Banded and fluxted feldspar and quartz phenocrysts. Quartz are effloescent blue. Sulphides ... & disseminated.

660 Aplite veinlets.

Right margin: sulfides (present); d.s.; S.P.; d.s.; sulphides present; sulfides, sulfides present; S.P.

209

660 Flow breccia at base and at top.

Rhyolite.
Possibly a separate flow;
680 quartz is smaller, less abundant; ~~lath~~ feldspar frequently lath shaped; less sulfides?
From 711 to 712 ~~rioton~~
700 chloritic band with marked chloritic partings; this band is rich in sulfides.

720

From 730 onwards:
740" Alternating basic and intermediate, essentially laminated; tuffs".
Basic are greenish.
760 chlorite-feldspar with actinolite bands and sulphides with chloritic partings.
Intermediate have feldspar
780 phenocrysts, lighter coloured, occurring at 731, to 732, 735 to 737, 749½ to 751, 754 to 775½, 795½ onwards
800 See profile.
Intermediate tuffs from 795½ to 806 and from 816' to 820½.

820 820½
"Ore bed"
chlorite, quartz, magnetite, sulfides banded rock.

838
840 Andesite Tuff.
Laminated slumped in places, disseminated sulfides.

860

50	100
1240	350
680	190
1560	460
740	200
640	200
1260	150
2.00%	160
400	110
520	150
660	192
640	140

HOLE SBD 51 continued Cu Ni F

Depth	Angle	Recovery	Depth	Description	Notes
865'	58°	8/8	860		
872'	62°	7/7	865	"Rhyolite tuff" laminated, rare bluish quartz (at 893) sulfides in patches and in bands.	864 – 881 sulfides
		10/10	880		
883'	60°	9/10		Coarse texture in box 46 up to 904'6", then to 911'5" fine grained muds & tuffs. Banded with chlorite/striation. White quartz veins at 905'3", 906', 907'8", 910', 913', and 914'.	
886'	62°	10			
891'	65°	5/5			
895'	55°	15/15	900		
901'	60°				
904'	58°	3/3			906' 72 149°
907'	71°	4½/4½			911' 71 149°
911'	60°	8/8			
			920		
923'	70°	3½/3½		"Feldspar porphyry" Quartz & aplite bands, concordant to schistosity. Quartz veins at 921'7", 927' & 932'.	
92[illegible]	[illegible]0°	2½/2½			
		7½			
934'	63°	8			
		7½	940	Banded, fine grained, "Tuffs & muds". Chlorite partings. Quartz injection at 938'3", 939'9".	
939'	53°	7½			
941'	63°	4½/4½			
947'	62°	9/9		"Blue quartz rhyolite". Banded laminated, rotated quartz and sericitized feldspar. Gets finer grained and more chloritic down hole.	
952'	64°				
95[illegible]	60°	5½/5½	960		
961'	62°			"Sheared quartz porphyry".	Tuffaceous muds.
966'	52°			"Tuffaceous rhyolite"	
972'	45°			"Rhyolite tuff". laminated, chloritic partings, quartz intrusion.	
977'	70°				
980'	60°		980	"Laminated, rhyolite, tuff".	Tuffaceous muds
				"Sheared rhyolite tuff" Cils Finer grained with depth of hole.	1" Tuffaceous muds
98[illegible]	60°				
991'	58°			"Rhyolite tuff". vein quartz at 990', 993'10", 997'6", 993', and at 993'5".	
996'	55°				
998'	50°	7½	1000	"Sheared dolerite".	
999'	52°	7½			
1005'	48°				
1010'	48°	9⅓		"Hybrid rock – mixed dolerite intrusive into rhyolite" Predominance of rhyolite at 1016'.	
1015'	58°				
1017'	60°	10			
1019'	55°	1¼/1¼		"Sheared rhyolite tuff".	1" mud bands.
1024'	60	8/8	1020	"Rhyolite tuffs".	Slumped muds
				Dolerite	
1030'	53°	6½/8½		Well banded "rhyolite tuffs and muds". Abundant fine mud bands from 1044'6" downwards. Slumping.	
1035'	65	1½/2	1040		
1036'	60	10½			
1042'	55°	10½			
1048'	63°	7¼		"Basaltic tuffs" muds	
1052'	68°	7¼			
1054'	65°	3½/3½			220 90 / 570 260
1059'	50°	10/10	1060		

211

HOLE SBD51 continued Cu Ni F

Depth		Log	Cu	Ni
1065' 65	10/10	1060 "Basaltic tuffs with mud bands".	610 / 1330 / 700	380 / 110 / 170
1064 62 / 1078 55 / 1081 52	4¼ / 7¾ / 3/5	"Rhyolitic tuffs", grade to coarser texture with depth. 1080		
1086' 60 / 1091' 62 / 1097' 56	4½/5 / 10/10	"Sheared muds" intruded by quartz		
1103' 60 / 1108' 70 / 1113' 52	11/11 / 9/9	"Quartz-albite porphyry" or alaskite. 1100 (cloudy quartz, sausuritized plagiocl fine gr. to med. gr. even grained. Albite twinning at 1099'8". Aplite veins increase to predominance at 1113'6". 1109'9" to 1119' Basalt or diorite.		
1115' 52 / 1120' 50	6/6	Sheared muds intruded by numerous aplite veins. 1120 "Granulated quartz rock" vein quartz		
1125' 50 / 1130' / 1135' 72 / 1138' 60	3/ / 6¾/7	"Laminated rhyolitic tuffs" with quartz granules & sericitized potassic feldspar phenocrysts.	250 / 280	70 / 70
1142' 62 / 1148' 66 / 1150' 67		1140	220 / 370 / 290 / 200 / 330	50 / 70 / 50 / 90 / 70
115 80 / 115 55 / 115 45 / 1162' 60 / 1167' 57 / 1170' 75	11½ / 11½ / 4¼ / 4¼	"Dolerite with chloritic muds" (Actinolite) "Mixed talc-chlorite schist 1160 & aplite veins & stringers". "Migmatite of altered Ultra-mafic with aplite." "Talc-chlorite schist" less aplite.		
1171' 60'	12/14 / 3¾/3¾ / 6½/6½ / 6¼/6¼ / 3¾/3¾ / 8½/8½ / 10/10	"Massive Serpentinite". 1180 Relict olivine textures "Altered peridotite". 1200 1220 end of hole at 1226'		

1240

1260

S/C P S/C S/C S/C

1226' (61°)

Sherlock Bay 1972 Annual Report

APPENDIX IV

Appendix 4

PETROGRAPHY OF // SHERLOCK BAY Ni PROJECT ROCK SUITE

THE AUSTRALIAN MINERAL DEVELOPMENT LABORATORIES

Adelaide South Australia

APPENDIX IV

PETROGRAPHY

M 303 A 3517

amdel
The Australian Mineral Development Laboratories
Flemington Street, Frewville, South Australia 5063
Phone 79 1662, telex AA82520

Please address all correspondence to the Director
In reply quote: MP 3/370/0

27 June 1972

Australian Inland Exploration Company, Inc,
7 Havelock Street,
WEST PERTH WA 6005

REPORT MP 5560/72

YOUR REFERENCE:	Letters dated 15/5/72 and 25/5/72.
MATERIAL:	Drill core samples.
LOCALITY:	Sherlock Bay Ni Project.
IDENTIFICATION:	In Report.
DATE RECEIVED:	26/5/72.
WORK REQUIRED:	Petrography.

Investigation and Report by : F. Radke.

X-ray Diffraction analysis by : Dr R. N. Brown.

Officer in Charge, Mineralogy-Petrology Section : Dr K.J. Henley.

K. J. Henley

for F. R. Hartley
Director

002

PETROGRAPHY OF A SHERLOCK BAY Ni PROJECT ROCK SUITE

1. INTRODUCTION

A suite of 22 drill core samples and a bag of core chips from the ore bed were submitted by Australian Inland Exploration for petrographic examination.

2. PROCEDURE

An X-ray diffraction trace of each sample was made to determine its bulk mineralogy and help identify some minerals which are difficult to distinguish petrographically (e.g. the carbonates, talc and muscovite). Thin sections of each rock were made for petrographic examination and stained with alizarin red-S, which colours calcite red but does not affect the other carbonates. A few thin sections were stained for K-feldspar with a sodium cobaltinitrite solution following a hydrofluoric acid etch. A polished section of one sample (SBD 24-305) from the ore bed was examined mineragraphically.

3. RESULTS

3.1 Results of X-ray Diffraction Analysis

The results of the X-ray diffraction analysis are given in Table 1. It should be stressed that the semi-quantitative mineral abundances given in the table are an approximation from the peak-intensities and depend largely on the rock composition and the sensitivity of a particular mineral to this method. Some minerals (e.g. most phyllosilicates) are very sensitive and may be detected in small quantities (1-2%) but other minerals (e.g. epidote) are not sensitive and may not be detected even if they comprise a significant proportion of the rock.

3.2 Petrographic Results

The mineralogy of each sample is summarized in Table 2 and the petrographic and mineragraphic descriptions are given in section 5. In these descriptions muscovite is used to describe a white mica which occurs in the groundmass whereas sericite is reserved for birefringent phyllosilicates which occur in altered or partially altered plagioclase grains.

A brownish translucent Ti-mineral occurs in most specimens but it is too fine grained to positively identify. In sample SBD22-103 (TS 29184) large brown grains were identified as sphene by X-ray diffraction, and this suggests that the Ti-mineral in the other samples may also be sphene.

4. DISCUSSION

Most of the samples studied represent greenschists from the quartz-albite-muscovite-chlorite subfacies. The most common assemblage is albite-quartz-chlorite-carbonate-Ti-mineral (possibly sphene)-(epidote)-(muscovite) with amphibole present in some samples. This assemblage was probably produced by metamorphism of a sequence of acid to intermediate to basic igneous rocks (i.e. rhyolite to andesite to basalt in composition) with the mineral proportions depending largely on original rock composition. For instance a chlorite rich rock was probably originally basic (e.g. basaltic andesite) whereas a quartz and muscovite rich, chlorite poor rock was originally acidic in composition.

Although the original textures have largely been obliterated by metamorphism and shearing many of the samples have larger, rounded albite grains which are thought to be remnant phenocrysts from the original rock. The groundmass in which these porphyroclasts are set invariably consists of a well foliated matrix of chlorite (some with muscovite) with smaller grains of quartz and albite. Some large grains and granular aggregates of quartz also occur in these samples but they may represent recrystallized quartz rather than porphyroclasts. One sample (SBD22-103; TS529184) retains a gabbroic texture although the plagioclase has been altered (largely to albite, epidote and calcite) and the original mafic mineral has been altered to amphibole and chlorite.

Another sample (SBD26-324: TS29192) has a similar texture but has undergone greater shearing which has made its original texture less obvious.

Three of the specimens studied represent original ultramafic rocks and now have the following assemblages:

1. Chlorite-talc-amphibole-carbonate (SBD20-240; TS29173)
2. Serpentine-chlorite (SBD21-387; TS29182)
3. Chlorite-talc-carbonate-serpentine (SBD21-428; TS29183)

Sample SBD21-387 has a texture consisting of round serpentine pseudomorphs after olivine in a chlorite matrix believed to be after clinopyroxene which is similar to some cumulate textures exhibited by ultramafic layered intrusions and may represent such a body. The other two ultramafic samples have a well developed foliation probably produced by shearing.

The sample from the ore bed (SBD24-305; TS29184) also has a distinctive mineralogy consisting mainly of amphibole, quartz and stilpnomelane and is the only sample studied which has stilpnomelane. The paragenesis of this sample is discussed in detail in its petrographic description so it will only be mentioned here that the ore deposition is post-metamorphic and synchronous with the formation of stilpnomelane and probably some calcite.

The muscovite in these specimens is most likely a phengitic variety (i.e. a muscovite with either Mg or ferrous Fe in octahedral Al sites. The charge balance is maintained by an increase in the Si/Al ratio) since that is the type common to greenschist facies.

The presence of carbonate in these specimens deserves special mention since it indicates that during metamorphism there was a relatively high partial pressure of CO_2. Calcite has been observed optically in all carbonate bearing samples and dolomite has been detected in some samples by X-ray diffraction. It has been proposed (McNamara, 1965) that dolomite is indicative of a slightly lower metamorphic grade than calcite and if this is the case its presence may be useful as an indicator of the regional metamorphic gradient.

Although most of the samples are in the quartz-albite-muscovite-chlorite subfacies three samples (SBD20-122; SBD20-182; SBD17-488) have biotite indicating they are of slightly higher grade (Biotite zone). In the sample richest in biotite (SBD17-488) the X-ray diffraction peaks for biotite are broad, indicating that it is not a well crystallized variety and the rock is probably barely in the zone of biotite stability.

To summarize, these samples represent a sequence of intermediate to basic igneous rocks probably of volcanic origin (very likely a typical calc-alkaline sequence) with some gabbroic and ultramafic rocks which has undergone lower greenschist facies metamorphism.

5. PETROGRAPHIC AND MINERAGRAPHIC DESCRIPTIONS

Sample SBD20-122: TS 29171

Rock Name:

Albite-muscovite-quartz-chlorite schist.

Hand Specimen:

A foliated rock with alternating green and white bands.

Thin Section:

An optical estimate of the constituents gives the following:

	%
Plagioclase (albite)	30
Quartz	20
Muscovite	20
Chlorite	15
Calcite	5
Epidote	5
Ti-mineral	3
Biotite	Trace
Opaques	2

This sample consists essentially of granular quartz and plagioclase intergrown with oriented muscovite and chlorite flakes which define a well developed lepidoblastic foliation. The quartz and plagioclase have an average grain size of 0.1 mm and form granoblastic lenses up to 1.5 mm wide, oriented parallel to the foliation. The plagioclase is untwinned but much of it has a turbid appearance caused by incipient alteration to sericite and calcite. Calcite also occurs intergrown with the granular quartz both as vein-like bodies and as intergranular fillings.

The muscovite and chlorite form bands with intergrown granular stringers of a translucent Ti mineral, small, pleochroic brownish green biotite flakes and small epidote grains. Some larger muscovite flakes cut across the foliation and probably grew late in the metamorphic cycle.

Small opaque grains and granular aggregates less than 0.2 mm long are distributed through the rock. The grains have a cubic shape and translucent red colour around the fringes indicating they are limonitic pseudomorphs after pyrite. Some limonitic material also occurs as staining in foliation planes.

The rock is of fairly acid composition and could be a metamorphosed rhyolitic rock or a meta-greywacke.

Sample SBD20-182; TS 29172

Rock Name:

Albite-quartz-mica-chlorite schist.

Hand Specimen:

A well foliated rock consisting of elongate lenticular whiteish bodies separated by undulose dark green discontinuous veins which are subparallel to each other.

Thin Section:

An optical estimate of the constituents gives the following:

	%
Quartz	25
Plagioclase (albite)	30
Muscovite	20
Chlorite	10
Biotite	7
Calcite	5
Ti-mineral	3
Opaques	Trace

This sample is similar to SBD20-122 (TS 29171) except that it is somewhat richer in quartz and biotite. It consists essentially of granular quartz and plagioclase (grain size up to 0.3 mm) with undulose phyllosilicate-rich bands of oriented muscovite, chlorite and biotite, defining a lepidoblastic foliation.

The chlorite is faintly pleochroic in shades of green and has low birefringence but the biotite is intensely pleochroic from a pale yellow-green to a dark greenish brown. Fine grains and granular stringers (up to 0.05 mm wide) of a brown, translucent Ti mineral are present in the mica and chlorite rich bands.

The calcite occurs as irregularly shaped patches and discontinuous veins (oriented parallel to the foliation) which are concentrated in granular quartz lenses and veins.

Opaque grains up to 0.4 mm wide are distributed through the rock.

This rock is of acid composition and could be a metamorphosed acid volcanic, or a meta-greywacke or meta-siltstone.

Sample SBD 20-240: TS 29173

Rock Name:
Talc-chlorite-amphibole schist.

Hand Specimen:
A well foliated dark green rock.

Thin Section:
An optical estimate of the constituents gives the following:

	%
Talc	45
Chlorite	25
Calcite	15
Amphibole	10
Ti mineral	1
Opaques	5

This sample consists essentially of a well foliated matrix of oriented talc and chlorite flakes up to 0.1 mm long. The chlorite is concentrated in stringers arranged parallel to the lepidoblastic foliation. Some shearing has occurred as evidenced by dislocation and crenulation of the foliation and mineral bands along shear planes.

Small acicular amphibole crystals are distributed through the rock, but are particularly common in the talc - rich regions; they are usually less than 0.2 mm wide but some are up to 0.4 mm wide. The amphibole, which has a pale green to clear colour with some exhibiting very faint pleochroism, is probably a magnesian member of the tremolite-actinolite group.

The calcite occurs as granular veins up to 0.4 mm wide which are oriented parallel to the foliation.

This is a metamorphosed ultrabasic rock.

Sample SBD20-320: TS 29174

Rock Name:
Muscovite-albite-quartz schist.

Hand Specimen:
A well foliated dark green rock.

Thin Section:
An optical estimate of the constituents gives the following:

	%
Muscovite	30
Quartz	20
Plagioclase (albite)	30
Chlorite	10
Calcite	5
Ti mineral	4
Opaques	1

This sample is a well foliated and sheared rock consisting essentially of granoblastic quartz and plagioclase intergrown with oriented muscovite flakes which impart a lepidoblastic foliation.

Most of the quartz and plagioclase has a grain size below 0.1 mm and occurs as granoblastic lenses separated by mica rich bands with small amounts of granular quartz and plagioclase.

Large plagioclase porphyroclasts up to 0.8 mm long are distributed through the rock and exhibit many signs of deformation, including dislocated and bent twinning, fracturing and deformation twins. Some large quartz grains with strained extinction and peripheral mortar texture are similarly distributed through the rock.

A 1.5 mm wide granular quartz vein or band is oriented parallel to the foliation and contains quartz, with a grain size between 0.05 and 0.4 mm, which typically exhibits strained extinction. Calcite occurs in this vein as finer interstitial grains and also as vein-fillings, up to 0.5 mm wide, which transect the foliation.

Very fine grains and granular stringers up to 0.05 mm wide of a turbid, brown, translucent Ti mineral are concentrated in chlorite-rich bands and are intergrown with muscovite.

This rock represents an acidic rock which has undergone greenschist facies metamorphism and shearing to produce the existing mineral assemblage. The original rock may have been a fine-grained, holocrystalline granitic rock (microgranite) or a porphyritic rhyolite with a glassy or aphanitic matrix of either tuffaceous or flow origin, in which case the porphyroclasts would represent remnant phenocrysts.

Sample SBD 20-362: TS 29175

Rock Name:

Chlorite-quartz calcite schist.

Hand Specimen:

A well-foliated dark green rock with some whispy discontinuous white bands oriented parallel to the foliation.

Thin Section:

An optical estimate of the constituents gives the following:

	%
Chlorite	50
Quartz	20
Calcite	25
Plagioclase (albite)	5
Ti mineral	2
Opaques	Trace

This specimen consists essentially of a well foliated chlorite matrix intergrown with bands and lenticular bodies of calcite, up to 0.5 and 3 mm wide, which are oriented parallel to the foliation. The chlorite contains many small quartz and plagioclase grains and granular quartz lenses as inclusions which are usually less than 0.05 mm wide but with some reaching 0.3 mm in width. The calcite mostly has a grain size below 0.1 mm and shows evidence of deformation in dislocated twin lamellae and elongate grains. Some large individual quartz grains up to 0.4 mm wide occur in the calcite bands and exhibit strained extinction. Some lenticular bodies of granular quartz also have strained extinction and well developed, serrated grain boundaries.

Very fine (less than 0.04 mm long) crystals with a yellow brown colour and an acicular shape are scattered through the rock and may be rutile. These crystals are clearer and have better crystal shapes than the Ti mineral in the other specimens which typically have a translucent almost opaque appearance and no crystal shape.

The foliation in the rock is crenulated and the rock has a basic composition, but the abundance of calcite suggests that the metamorphism was not isochemical.

Sample SBD 20-393: TS 29176

Rock Name:
Chlorite-quartz-muscovite-albite schist.

Hand Specimen:
A well-foliated dark green rock.

Thin Section:
An optical estimate of the constituents gives the following:

	%
Chlorite	35
Quartz	20
Muscovite	15
Plagioclase (albite)	15
Calcite	10
Opaques	5

This sample consists essentially of granular quartz and plagioclase intergrown with oriented chlorite and muscovite flakes which form undulose bands and define a well developed lepidoblastic texture. Most of the quartz and plagioclase has a grain size below 0.05 mm but some larger rounded grains up to 0.2 mm wide are distributed through the rock and are probably of porphyroclastic origin. The larger plagioclase grains are typically untwinned, exhibit minor alteration to sericite and calcite and have the foliation draped around them.

The quartz occurs as individual grains and lenticular granular bodies up to 1 mm wide with most of the larger quartz grains exhibiting strained extinction. The rock has several lenticular bodies up to 2 mm wide, oriented parallel to the foliation, and filled with granular quartz and calcite. In some cases the same lens has one section rich in granular quartz with minor calcite as fine veinlets and interstitial fillings and another section rich in carbonate with small amounts of granular quartz. Some quartz-free calcite filled veins occur and are considered to be post-deformation because they transect foliation and are relatively unaffected by shearing. The carbonate in these veins could be remobilized carbonate from the rock itself and need not have an external source.

Idiomorphic opaque grains up to 0.3 mm wide are disseminated through the rock and include both iron-titanium oxides (e.g. magnetite, ilmenite) and sulphide grains.

The rock is of intermediate composition but could be of either igneous or sedimentary origin.

Sample SBD20-453: TS 29177

Rock Name:
Albite-chlorite-carbonate-epidote schist.

Hand Specimen:
A well foliated medium green rock with some irregular white veins up to 2 mm wide.

Thin Section:
An optical estimate of the constituents gives the following:

	%
Plagioclase (albite)	30
Chlorite	25
Calcite and dolomite	20
Epidote	20
Quartz	5
Sericite	Trace
Ti mineral	2
Opaques	Trace

This sample consists essentially of a well foliated chloritic matrix intergrown with albite laths, xenoblastic epidote grains and minor quartz and carbonate. The plagioclase laths range up to 0.4 mm long but most are less than 0.1 mm long and exhibit a preferred orientation parallel to the foliation of the chlorite. This texture is reminiscent of an igneous, trachytic texture. Although most of the plagioclase has lath shapes some larger grains are rounded and probably represent plagioclase phenocrysts in the original rock which have been rounded during deformation. The plagioclase is fresh but has a few inclusions of chlorite, carbonate and sericite.

The chlorite is moderately pleochroic from a pale yellow green to a deep green. It is speckled with fine (less than 0.1 mm wide) xenoblastic, moderately birefringent epidote grains. Epidote also occurs in aggregates.

The carbonate occurs mainly as irregularly shaped patches and veins, up to 1 mm wide, which are oriented parallel to and across the foliation. Staining shows that calcite is the dominant carbonate but some dolomite was detected on the X-ray trace of this sample.

Minor amounts of opaque grains up to 0.1 mm wide are disseminated through the rocks as are some small granular stringers of a translucent brown Ti mineral.

The rock shows some compositional banding, marked mainly by variation in the abundance of epidote and carbonate. This may reflect a sedimentary origin, although the rock is of fairly basic composition.

Sample SBD20-499: TS 29178

Rock Name:
Albite-quartz-muscovite-calcite-chlorite schist.

Hand Specimen:
A well foliated rock consisting of undulose grey and yellow green bands several mm thick.

Thin Section:
An optical estimate of the constituents gives the following:

	%
Plagioclase (albite)	35
Quartz	20
Muscovite	20
Calcite	15
Chlorite	10
Tourmaline	<Trace
Ti mineral	Trace
Opaques	Trace

This sample consists essentially of a granular intergrowth of quartz and plagioclase with undulose, subparallel bands up to 0.2 mm wide, of oriented mica flakes which impart a well developed lepidoblastic foliation. Most of the quartz and plagioclase is equigranular with a grain size between 0.02 and 0.08 mm but many larger grains up to 1 mm wide are distributed through the rock and are probably of porphyroclastic origin. The larger plagioclase grains have the foliation draped around them and commonly show incipient alteration, mainly to sericite but with some calcite and chlorite. Both twinned and untwinned varieties of large plagioclase grains are present and exhibit rounded shapes and fracturing due to deformation. The larger quartz grains are also deformed and have lenticular shapes and well developed strain extinction with some grains showing displacement along shear planes.

The rock is cut by many calcite and chlorite-filled veins, up to 0.3 mm wide, which transect the foliation. Where both occur in the same vein, the calcite occurs medially and the chlorite marginally. Small calcite crystals, less than 0.2 mm wide, and individual elongate chlorite flakes oriented parallel to the foliation are distributed through the granoblastic matrix. The chlorite is weakly pleochroic in shades of green and has low birefringence.

Very small (less than 0.02 mm wide) granular stringers of a brown translucent Ti mineral occur in the muscovite rich bands and some have minor amounts of fine (less than 0.01 mm long) pleochroic green tourmaline laths associated with them.

Some fine (less than 0.02 mm) opaque grains are disseminated through the rock.

The original rock in this case was probably a porphyritic acid igneous rock.

Sample SBD 20-510: TS 29179

Rock Name:
Albite-chlorite-quartz-calcite schist!

Hand Specimen:
A dark green foliated rock with several white veins up to 3 mm wide transecting the foliation.

Thin Section:
An optical estimate of the constituents gives the following:

	%
Plagioclase (albite)	30
Quartz	15
Chlorite	30
Calcite	15
Epidote	5
Sericite	Trace
Ti mineral	4
Opaques	1

This sample consists essentially of a well foliated chloritic matrix intergrown with granular plagioclase and quartz. It is similar to sample SBD20-453 except that the plagioclase in this sample is xenomorphic rather than lath shaped and this is probably due to more intense deformation of this sample. Most of this rock has a grain size below 0.1 mm but some larger plagioclase porphyroclasts up to 0.5 mm wide with foliation draped around them are also present. The plagioclase grains are rounded and many show incipient alteration to sericite epidote and chlorite.

The chlorite in this rock is faintly pleochroic in shades of yellow-green and green and in some cases is concentrated in undulose bands up to 2 mm wide. The chlorite flakes have a preferred orientation which defines a well developed lepidoblastic foliation.

The calcite forms irregularly shaped granular patches and veins up to 0.5 mm wide which are oriented both concordantly and discordantly to the foliation. Much of the calcite has inclusions and marginal intergrowths of epidote which may have formed by a decarbonation reaction involving calcite and silicate minerals. Some epidote also occurs as fine grains and granular aggregates up to 0.05 mm wide in the chlorite-rich bands. Most of the epidote is very fine grained but the coarser crystals have high birefringence.

Several lenticular bodies of granular quartz, oriented parallel to the foliation, occur in this rock and have a shear-produced boudinage structure.

Small grains and granular stringers up to 0.05 mm wide of a translucent, brown Ti mineral are concentrated in the chlorite rich regions of this rock. Minor amounts of opaques also occur as disseminated grains up to 0.1 mm wide.

The original rock was probably of intermediate igneous composition.

Sample: SBD20-563: TS 29180:

Rock Name:
Chlorite-albite-quartz-calcite schist

Hand Specimen:
A well foliated, dark green rock with some whispy, discontinuous white veinlets, oriented both parallel to and transecting the foliation.

Thin Section:
An optical estimate of the constituents gives the following:

	%
Chlorite	35
Plagioclase (albite)	30
Quartz	15
Calcite	15
Epidote	2
Sericite	Trace
Ti mineral	2
Opaques	1

This specimen consists essentially of granular albite and quartz intergrown with chlorite and calcite; larger plagioclase porphyroblasts are distributed throughout. The granular matrix has a grain size below 0.1 mm, whereas plagioclase porphyroblasts have a grain size up to 0.8 mm and are typically rounded, although some have a lath shape, with twinning and fine sericitic inclusions

There are apparently two varieties of chlorite in this rock, both of which exhibit low to moderate birefringence (second order interference colours). One chlorite variety is strongly pleochroic from a yellow-green to olive green and occurs as oriented flakes and undulose bands (up to 0.4 mm wide) of oriented flakes between the granular quartz and plagioclase, defining a lepidoblastic foliation. The other chlorite is less pleochroic, with paler green colours, and is typically associated woth calcite as intergrown or marginal patches with a fibrous, radial structure. The lack of preferred orientation in the second variety indicates it is a post-deformational mineral.

Some quartz occurs in lenticular-shaped, granoblastic bodies up to 0.2 mm wide, oriented parallel to the foliation.

The calcite forms irregularly shaped, granular veins and patches, up to 1 mm wide, which are oriented both concordant to and discordant to the foliation.

The epidote in this rock is birefringent (second order interference colours) and forms grains up to 1.5 mm wide which are in or marginal to the chlorite-rich bands. Large granular masses up to 0.2 mm wide of a translucent, brown titanium mineral are also concentrated in the chlorite-rich bands.

Opaque grains up to 0.2 mm wide with a cubic shape are disseminated through the rock.

The original rock was probably an intermediate igneous rock and the abundance of plagioclase porphyroblasts suggests that it may have been a porphyritic andesite.

Sample: SBD20-789: TS 29181:

Rock Name:
Albite-quartz-chlorite-muscovite schist

Hand Specimen:
A well foliated, dark green rock with some barely visible small sulphide grains.

Thin Section:
An optical estimate of the constituents gives the following:

	%
Plagioclase (albite)	35
Quartz	30
Chlorite	15
Muscovite	10
Calcite	5
Zircon	Trace
Ti mineral	3
Opaques	1

This sample consists essentially of a granoblastic quartz and plagioclase matrix, with a grain size between 0.02 and 0.1 mm, which is cut by many subparallel, undulose bands (up to 1 mm wide) of intergrown, oriented muscovite and chlorite, defining a well developed, lepidoblastic foliation.

Larger grains of plagioclase and quartz up to 0.8 mm wide, around which the foliation is draped, are distributed through the rock and are probably of porphyroblastic origin. The plagioclase is both twinned and untwinned, has fine sericitic inclusions, rounded to lath shapes, and many plagioclase grains are fractured whereas the larger quartz grains have strain extinction and commonly exhibit peripheral mortar texture indicative of deformation.

The muscovite and chlorite-rich bands consist of intergrown flakes of these minerals and contain concentrations of small grains and granular stringers less than 0.04 mm wide of a brownish, translucent Ti mineral. Individual flakes of muscovite and chlorite also occur between the granular quartz and plagioclase grains.

Most of the calcite occurs in veins, up to 0.5 mm wide, which transect foliation, but some small (less than 0.1 mm wide) calcite grains are scattered through the rock.

Opaque grains up to 0.05 mm wide are distributed through the rock and a single zircon grain, 0.05 mm long was observed.

The rock is of acid composition and the texture suggests that it may have been a porphyritic rhyolite.

Sample: SBD21-387: TS 29182:

Rock Name:
Altered peridotite

Hand Specimen:
A dark green rock with a somewhat mottled appearance.

Thin Section:
An optical estimate of the constituents gives the following:

	%
Serpentine (antigorite)	60
Chlorite	25
Epidote	2
Ti mineral	3
Opaques	10

This rock consists of equant serpentine patches, between 0.4 and 1.5 mm wide, probably representing pseudomorphs after olivine, in a matrix of interstitial chlorite.

The serpentine patches consist of interlocking serpentine flakes averaging 0.02 mm in length with dusty opaque inclusions distributed through them. Larger opaque grains up to 0.04 mm wide are arranged serially to produce discontinuous veins of granular opaques which appear to represent fractures in the original olivine grains.

The chlorite forms an interconnected web-like network between the serpentine patches and consists of randomly oriented chlorite flakes up to 0.2 mm long. The chlorite has many opaque grains up to 0.15 mm wide scattered through it. Minor amounts of epidote as small acicular or irregularly shaped grains also occurs in the chlorite, particularly adjacent to opaque grains. The chlorite also has some granular patches of a brown, translucent Ti mineral up to 0.5 mm wide.

The overall texture of this rock is similar to the poikilitic textures exhibited by zones in layered intrusions which consist of olivine grains scattered through a large intercumulous pyroxene crystal.

This specimen represents a peridotite which has been altered to a serpentine-chlorite rock. The texture indicates that the original peridotite could have been of cumulate origin.

Sample: SBD21-428: TS 29183:

Rock Name:
Talc-chlorite-calcite schist

Hand Specimen:
A dark green, well foliated rock.

Thin Section:
An optical estimate of the constituents gives the following:

	%
Talc	35
Chlorite	40
Calcite	20
Opaques	5

This sample consists essentially of a foliated matrix of intimately intergrown talc and chlorite flakes up to 0.5 mm long. The chlorite is pleochroic from a pale brown to pale green.

Irregularly shaped calcite-rich patches up to 0.3 mm wide are scattered through the rock. The calcite patches have a turbid appearance probably due to fine fibrous inclusions of talc and chlorite. Some clear calcite also occurs as discontinuous vein fillings up to 1.5 mm wide, transecting the foliation.

Opaque grains up to 0.1 mm wide are disseminated through the rock. Serpentine (antigorite) was identified on the X-ray trace of this rock but none could be positively identified in thin section.

The rock clearly has an ultrabasic composition but the original mineralogy and texture of the rock have been destroyed by low grade metamorphism.

Sample: SBD22-103: TS 29184:

Rock Name:
Metamorphosed gabbro

Hand Specimen:
A dark green rock with white patches up to 2 mm wide which give the specimen a somewhat mottled appearance.

Thin Section:
An optical estimate of the constituents gives the following:

	%
Amphibole	30
Plagioclase (albite)	40
Chlorite	10
Calcite	3
Quartz	3
Epidote	10
Sericite	Trace
Sphene	3
Opaques	1

This specimen represents a gabbroic rock which has undergone greenschist facies metamorphism and some shearing but largely retains its original sub-ophitic texture. The mafic minerals have been altered to a green weak to moderately pleochroic amphibole and the plagioclase composition has been altered to albite with the production of epidote, calcite and sericite.

The plagioclase has inclusions, up to 0.1 mm wide, of its alteration products which are mainly epidote with some sericite and minor calcite as well as very fine dusty inclusions which impart a turbid appearance. A few plagioclase grains have peripheries that exhibit a myrmekitic-like texture of intergrown quartz and feldspar, with the feldspar having a turbid appearance due to inclusions of alteration products. This texture is probably primary, inherited from the original igneous rock.

The amphibole crystals are randomly oriented with lengths up to 3 mm and many of them are twinned.

Patches of green pleochroic chlorite occur in the rock and tend to have small calcite and epidote grains either in or marginal to them.

Large subhedral grains of a translucent, brown mineral identified as sphene by X-ray diffraction, are scattered throughout the rock. Small opaque grains up to 0.1 mm wide are disseminated through the rock but are concentrated as inclusions in the sphene grains.

Sample: SBD22-153: TS 29185:

Rock Name:
Chlorite-albite-quartz-epidote-carbonate schist

Hand Specimen:
A well foliated, medium green rock with some discontinuous white bands about 0.5 mm thick oriented parallel to the foliation.

Thin Section:
An optical estimate of the constituents gives the following:

	%
Chlorite	50
Quartz	15
Plagioclase (albite)	10

	%
Epidote	10
Carbonate (dolomite and calcite)	10
Muscovite	2
Ti mineral	3
Opaques	2

This sample consists of a well foliated chloritic matrix intergown with xenoblastic plagioclase and quartz grains, with a grain size typically below 0.04 mm, and crystals or granular aggregates of epidote up to 0.3 mm wide.

The chlorite has low birefringence and a faint to moderate pleochroism in shades of green and brown and the epidote is moderately birefringent with second order interference colours. Some muscovite-rich bands up to 0.1 mm wide are intergrown with the chlorite-rich matrix.

Lenticular bodies and veins of granular quartz (grain size less than 0.2 mm) up to 0.5 mm wide are oriented parallel to the foliation and more finely granular quartz veins without a lenticular shape cut across the foliation. Carbonate is intergrown with the granular quartz veins and some of the larger ones have carbonate filled cores. The X-ray and staining results indicate that the carbonate includes both dolomite and calcite.

Granular stringers of a translucent, brown Ti mineral are scattered through the rock. Opaque grains with cubic shapes and translucent, brownish-red fingers up to 0.3 mm wide are intergrown with some granular quartz and probably represent limonitic pseudomorphs after pyrite.

The rock has a basic composition and may be a metamorphosed basaltic rock.

Sample:SED24-238: TS 29816:

Rock Name:
Chlorite-quartz-albite-muscovite-carbonate-epidote schist.

Hand Specimen:
A medium green, well foliated rock.

Thin Section:

An optical estimate of the constituents gives the following:

	%
Chlorite	30
Quartz	20
Plagioclase (albite)	10
Muscovite	15
Carbonate (calcite and dolomite)	10
Epidote	10
Ti mineral	3
Opaques	2

This sample has a finely laminated appearance and consists of granular quartz and plagioclase intergrown with oriented chlorite and muscovite flakes which impart a lepidoblastic foliation. The chlorite and muscovite are concentrated in bands, up to 1.5 mm wide, which give the rock its lamellar appearance.

Individual large grains and lenticular granular aggregates of quartz up to 0.4 mm wide, are oriented parallel to the foliation with some draping of the foliation around them. Carbonate occurs as vein fillings up to 0.5 mm wide and intergrown with the granular quartz. The carbonate and quartz veins occur both parallel to and transverse to the foliation. Calcite is the major carbonate present but some dolomite was identified on the X-ray diffraction trace.

Some of the foliation is displaced along fractures indicating this rock has undergone some shear deformation.

Fine grains up to 0.05 mm wide of epidote and a translucent Ti mineral are scattered through the rock as are some opaque grains and granular aggregates up to 0.1 mm wide. These have a cubic shape, appear yellow in reflected light and are probably pyrite.

The rock is approximately intermediate in composition and the larger quartz grains may be original phenocrysts. The fine grain size and strong lamination of the matrix suggest that the original rock may have been a tuff.

SBD24-305: TS 29187: PS 19156

Rock Name:

Mineralized amphibole-quartz schist.

Hand Specimen:

A dark green well foliated rock with several very fine (less than 0.5 mm wide) sulphide filled veinlets cutting the foliation.

Thin Section:

An optical estimate of the constituents gives the following:

	%
Amphibole	40
Quartz	25
Stilpnomelane	10
Calcite	10
Epidote	1
Opaques	15

This rock consists largely of oriented amphibole crystals up to 0.4 mm long which define a well developed nematoblastic foliation with some quartz grains and granular quartz lenses up to 0.2 mm wide distributed through it. Most of the amphibole is moderately pleochroic in shades of green and yellow-green but some amphibole crystals have dark coloured cores with intense pleochroism from a brownish green to a dark olive green with lighter rims.

A band about 5 mm wide, rich in granoblastic quartz with a grain size between 0.03 and 0.2 mm, is oriented parallel to the foliation and has some amphibole and calcite intergrown with it. The calcite is concentrated in the quartz rich band as granular aggregates and discontinuous veins up to 1 mm wide.

Opaque sulphide grains up to 1 mm wide are dispersed through the rock but tend to be concentrated in bands where they are intergrown with amphibole, stilpnomelane, calcite and quartz. The foliation is truncated by the opaque grains with little or no draping effect.

The stilpnomelane is intensely pleochroic from an almost clear neutral colour to a dark olive green and occurs as randomly oriented acicular to fibrous crystals which are commonly intergrown in calcite crystals or as inclusions or marginal penetrations in opaques. Some veins up to 0.3 mm wide filled with fibrous stilpnomelane occur both parallel to and transverse to the foliation. One of these veins has a marginal growth of cubic opaque grains along it.

The formation of the stilpnomelane, opaque minerals and possibly the calcite is considered to be post-metamorphic since the opaque grains cut across developed foliation and the stilpnomelane has random orientation.

The original rock was probably a basic to intermediate igneous rock, but the original texture has been completely destroyed by metamorphism.

Polished Section:

An optical estimate of the proportion of opaque constituents gives the following:

	%
Pyrite	40
Pyrrhotite	20
Magnetite	35
Pentlandite	5
Chalcopyrite	Trace-1
Violarite	Trace

Pyrite and magnetite are the two major opaque phases in this specimen and they also have the coarsest grain size, ranging up to 1.5 mm. Much of the pyrite has euhedral cubic shapes but most has an anhedral to subhedral shape. A pyrite-filled vein up to 1 mm wide transects this specimen and in some places the pyrite in this vein has a colloform appearance with fine bands of non-opaque inclusions running parallel to the vein edges, giving the pyrite a porous appearance. The magnetite occurs as rounded grains and granular aggregates.

The pyrrhotite has a finer grain size (up to 0.5 mm) than pyrite and exhibits angular shapes due to marginal intergrowths with a platy and acicular non-opaque mineral, identified as stilpnomelane in thin section. Virtually all the pyrrhotite in this sample has this kind of intergrowth. Some pyrrhotite has fine lenticular whiteish lamellae which appear similar to pentlandite lamellae but are not stained by nitric acid. These lamellae are thought to be pyrrhotite (possibly with different optical orientation from the host) since they are similar to those examined by electron microprobe in Amdel Report MP 4877/72. A few rounded pyrrhotite inclusions up to 0.05 mm wide occur in pyrite.

Fine pentlandite grains between 0.005 and 0.1 mm wide are concentrated as granular intergrowths with pyrrhotite and to a lesser extent magnetite or as individual grains. Some of the pentlandite also has acicular stilpnomelane inclusions and marginal intergrowths giving it an angular shape but most occurs as anhedral grains. A trace of violarite as a rounded grain 0.1 mm wide was observed.

Minor amounts of chalcopyrite as anhedral to angular grains up to 0.1 mm wide are concentrated as granular intergrowths with pyrrhotite.

In a few places cubic pyrite grains and rounded magnetite grains have partial rims of pyrrhotite indicating that at least some of the pyrrhotite was deposited after the pyrite and magnetite. The granular intergrowth of pyrrhotite with pentlandite and chalcopyrite is then to be evidence of simultaneous deposition. Thus the paragenesis of the opaque minerals is believed to be pyrite and magnetite followed by pyrrhotite, pentlandite and chalcopyrite. The stilpnomelane and probably at least some calcite is also believed to have formed with the pyrrhotite because of the stilpnomelane intimately intergrown with both pyrrhotite (and to a lesser extent pentlandite and chalcopyrite) and calcite.

Sample SBD240323: TS 29188

Rock Name:

Plagioclase-quartz-chlorite-muscovite schist.

Hand Specimen:

A well foliated rock with dark to medium green bands parallel to the foliation and a discontinuous sulphide filled vein about 1 mm wide also oriented parallel to the foliation.

Thin Section:

An optical estimate of the constituents gives the following:

	%
Plagioclase	30
Quartz	30
Chlorite	20
Muscovite	15
Tourmaline	Trace
Ti mineral	2
Opaques	3

This sample is similar to sample SBD20-789 (TS 29181) and has a matrix of granular quartz and plagioclase intergrown with oriented chlorite and muscovite flakes which impart a well developed lepidoblastic foliation. Most of the quartz and plagioclase has a grain size below 0.1 mm but larger grains up to 0.6 mm wide around which the foliation is bent are scattered through the rock. The large plagioclase grains are usually twinned with rounded shapes and show incipient alteration to sericite which occurs as fine flakes. The larger quartz grains in this rock are much less common than plagioclase and typically exhibit strained extinction. The large plagioclase grains are considered to be porphyroclasts but the large quartz may be either porphyroclasts or recrystallized quartz.

The muscovite and to a lesser extent the chlorite are concentrated in undulose bands up to 0.5 mm wide oriented parallel to the foliation. Some of the muscovite rich bands contain grains of pleochroic green tourmaline up to 0.1 mm long. Most of the chlorite is moderately pleochroic in shades of green and brownish-green with low birefringence and commonly has inclusions of small grains and granular stringers of a translucent brown Ti mineral.

Opaque sulphide grains up to 0.2 mm wide are scattered through the rock.

The rock is distinctly banded, some bands being uniformly fine grained, whereas others have a variable grainsize with numerous porphyroclasts. There are also bands of muscovite. This banding suggests that the rock may have had a sedimentary history. However, its composition is essentially acid igneous so it may have originally been a rhyolitic tuff.

Sample SBD24-348: TS 29189

Rock Name:

Quartz-Muscovite-Calcite schist.

Hand Specimen:

A well foliated pale green rock.

Thin Section:

An optical estimate of the constituents gives the following:

	%
Quartz	40
Muscovite	40
Calcite	15
Tourmaline	Trace
Ti mineral	2
Opaques	3

This sample consists essentially of very fine grained quartz (grain size mainly below 0.05 mm) intergrown with fine oriented muscovite which defines a well developed lepidoblastic foliation. Many discontinuous mica-rich bands (up to 0.5 mm wide) oriented parallel to the foliation occur and divide the regions richer in quartz into elongate lens-shaped bodies. Traces of pleochroic brown-green tourmaline occur in the muscovite rich bands.

Some large quartz grains up to 0.8 mm wide with rounded to lenticular shapes and strain extinction are scattered through the rock and the foliation is bent around them. Some of these grains exhibit a marginal mortar texture which is particularly well developed in the shadow zones of the lenticular grains. Calcite deposition has occurred in many shadow zones but calcite occurs mainly as discontinuous vein fillings up to 0.3 mm wide and dispersed through the groundmass as small grains and granular aggregates. Most of the calcite veins transect the foliation although some are parallel to it and many veins have both calcite and quartz fillings in different regions of the same vein.

Fine grains and granular stringers of a translucent brown Ti mineral are dispersed through the rock as are opaque grains and lenticular shaped granular opaque aggregates up to 0.2 mm long.

The original rock in this case was probably a weakly porphyritic rhyolite.

Sample SBD 17-536: TS 29190

Rock Name:

Albite-quartz-chlorite-epidote-calcite schist.

Hand Specimen:

A dark green rock with some large white grains which impart a mottled appearance.

Thin Section:

An optical estimate of the constituents gives the following:

	%
Plagioclase (albite)	20
Quartz	20
Chlorite	20
Epidote	15
Calcite	15
Amphibole	5
Muscovite	3
Ti mineral	1
Opaques	1

This specimen consists essentially of larger plagioclase and quartz grains (up to 1.4 mm wide) in a matrix of finer grained (grain size less than 0.2 mm) granular quartz and plagioclase with undulose chlorite-rich bands imparting a wavy foliation. The large plagioclase grains are commonly fractured, have rounded shapes and show alteration to sericite, epidote and calcite all of which occur as inclusions in the plagioclase. The large quartz grains have strain extinction and many are intergrown with well developed serrated grain boundaries. The large plagioclase grains are probably porphyroclasts but the large quartz grains may be porphyroclasts or recrystallized quartz.

The chlorite is pale green with a faint pleochroism and is often intergrown with fibrous flakes of amphibole and muscovite. Amphibole also occurs as small (less than 2 mm long) pale green, pleochroic, lath-shaped crystals which are distributed through the rock. The epidote is concentrated in the chlorite-rich bands as granular inclusions up to 0.4 mm wide and it has both second order interference colours and anomalous blue interference colours.

The calcite occurs as granular patches and vein fillings up to 1.5 mm wide. Stringers of a granular translucent brown Ti mineral up to 0.5 mm wide and a reddish brown opaque mineral (probably limonite) up to 1 mm wide are present.

The rock is approximately intermediate in composition and it could be a metamorphosed porphyritic andesite or possibly a meta-greywacke.

Sample SBD17-488: TS 29191

Rock Name:
Chlorite-biotite-albite-epidote-quartz schist.

Hand Specimen:
A dark green well foliated rock.

Thin Section:
An optical estimate of the constituents gives the following:

	%
Chlorite	35
Plagioclase (albite)	20
Quartz	10
Biotite	20
Epidote	10
Calcite	2
Sericite	Trace
Ti mineral	2
Opaques	1

This specimen consists largely of a foliated chlorite/ biotite matrix with plagioclase and quartz grains scattered through it. The chlorite has a faint pleochroism in shades of pale green and is intimately intergrown with biotite flakes up to 0.1 mm long, which are moderately pleochroic from a pale yellow green to an olive green and best distinguished from the chlorite by their high birefringence. The X-ray diffraction pattern gave broad biotite peaks indicating it is not a well crystallized variety.

The plagioclase has a grain size below about 1 mm and forms rounded grains around which the foliation is bent. Some of the plagioclase grains exhibit sericitic alteration. The quartz occurs as individual grains and larger lenticular granular aggregates and veins up to 2 mm wide with a grain size below 0.5 mm. The quartz in the granular aggregates and veins show strain extinction and serrated grain boundaries, indicating that they have undergone deformation. Some calcite is intergrown with the granular quartz but calcite also occurs as vein fillings up to 0.4 mm wide.

Epidote crystals up to 0.2 mm long which have second order interference colours are scattered through the chlorite in this rock as are elongate granular aggregates and stringers, up to 0.2 mm wide, of a translucent, brown Ti mineral. Opaque grains up to 0.15 mm wide are disseminated through the rock and many have fringes of the translucent brown Ti mineral about 0.05 mm thick.

The rock is fairly basic in composition and may be a metamorphosed basaltic andesite or greywacke.

Sample SBD26-324: TS 29192

Rock Name:

Plagioclase-amphibole-chlorite-epidote-quartz schist (metamorphosed gabbro).

Hand Specimen:

A medium green rock with a mottled appearance due to white patches up to 1.5 mm wide.

Thin Section:

An optical estimate of the constituents gives the following:

	%
Plagioclase (albite)	30
Amphibole	25
Chlorite	20
Epidote	15
Quartz	10
Calcite	1
Sericite	Trace
Ti mineral	1
Opaques	Trace

This specimen consists mainly of a coarse grained intergrowth of altered plagioclase laths and amphibole with undulose fibrous bands of amphibole and chlorite and granular quartz patches. The fibrous amphibole and chlorite bands impart a weak foliation to the sample.

The plagioclase has a grain size up to 1 mm and largely retains its subhedral shape despite intense alteration, mainly to epidote, which occurs as inclusions up to 0.2 mm wide in the plagioclase, but also to small amounts of sericite. The epidote is birefringent with second order interference colours.

Most of the amphibole has a pale green colour with weak pleochroism but some amphibole crystals have dark coloured cores with intense pleochroism from a pale brownish green to a dark olive green. Much of the amphibole has a fibrous to acicular appearance due to deformation and some amphibole exhibits marginal alteration to a pale green chlorite.

The quartz occurs as individual grains and granular lenticular aggregates, up to 0.5 mm wide, which are dispersed through the rock. The larger quartz grains invariably exhibit strain extinction.

A few elongate patches of a translucent brown Ti mineral up to 0.3=mm wide and 1 mm long and some irregularly shaped opaque grains up to 0.1 mm wide occur in this specimen.

This rock probably represents a gabbroic rock similar to sample SBD22-103 which has undergone more intense deformation and greenschist facies metamorphism.

dk:jey:33

TABLE 1: SUMMARY X-RAY DIFFRACTION RESULTS

Sample No.	Feldspar (albite)	Quartz	Chlorite	Mica	Calcite	Dolomite	Amphibole	Talc	Stilpmo-melane	Serpen-tine (antigor-ite)
SBD20-122	CD	A	A	CD	-	-	-	-	-	-
SBD20-182	CD	CD	A	SD	A	-	-	-	-	-
SBD20-240	-	-	SD	-	A	-	A	D	-	-
SBD20-320	D	SD	A	A	T	-	-	-	-	-
SBD20-362	A	A	D	-	A	-	-	-	-	-
SBD20-393	A	A	D	A	T	-	-	-	-	-
SBD20-453	D	A	SD	-	SD	A	-	-	-	-
SBD20-499	D	SD	T	A	A	-	-	-	-	-
SBD20-510	D	A	SD	-	A	-	-	-	-	-
SBD20-563	D	A	SD	-	A	-	-	-	-	-
SBD20-789	D	SD	A	T	A	-	-	-	-	-
SBD21-387	-	T	SD	-	-	-	-	-	-	D
SBD21-428	-	T	D	-	A	-	-	SD	-	A
SBD22-103	D	T	SD	-	A	A	SD	-	-	-
SBD22-153	SD	A	D	T	T	A	-	-	-	-
SBD24-238	SD	CD	CD	A	A	T	-	-	-	-
SBD24-305 (ore)	-	A	-	-	-	-	D	-	A	-
SBD24-323	D	SD	A	T	-	-	-	-	-	-
SBD24-348	-	D	-	SD	A	-	-	-	-	-
SBD17-536	D	A	A	T	A	-	T	-	-	-
SBD17-488	SD	A	D	A	-	-	-	T	-	-
SBD26-324	CD	A	CD	-	-	A	SD	T	-	-

CODE: D = Dominant; major mineral present
CD = Co-dominant; both minerals major components of rock and in approximately equal amounts.
SD = sub-dominant; approximately 20-40%
A = Abundant; approximately 5-20%
T = Trace; less than 5%
- = Not detected

TABLE 2: PETROGRAPHIC SUMMARY

Sample No.	Thin Section No.	Plagioclase (albite)	Quartz	Chlorite	Muscovite	Biotite	Carbonate	Amphibole	Talc	Epidote	Ti Mineral	Others (1)
SBD20-122	29171	30	20	15	20	T	5	-	-	5	3	
SBD20-182	2	30	25	10	20	7	5	-	-	-	3	
SBD20-240	3	-	-	25	-	-	15	10	45	- -	1	
SBD20-320	4	30	20	10	30	-	5	-	-	-	4	
SBD20-362	5	5	20	50	-	-	25	-	-	-	2	
SBD20-393	6	15	20	35	15	-	10	-	-	-	-	
SBD20-453	7	30	5	25	S(2)	-	20	-	-	20	2	
SBD20-499	8	35	20	10	20	-	15	-	-	-	T	Tourmaline (T)
SBD20-510	9	30	15	30	S		15			5	4	
SBD20-563	80	30	15	35	S	-	15	-	-	2	2	
SBD20-789	1	35	30	15	10	-	5	-	-	-	3	Zircon (T)
SBD21-387	2	-	-	25	-	-	-	-	-	-	3	Serpentine (60)
SBD21-428	3	-	-	40	-	-	20		35	-	-	
SBD22-103	4	40	3	10	S	-	3	30	-	10	Sphene (3)	
SBD22-153	5	10	15	50	2	-	10	-	-	10	3	
SBD24-238	6	10	20	30	15	-	10	-	-	10	3	
SBD24-305	ore 7	-	25	-	-	-	10	40	-	1	-	Stilpnomelane (10)
SBD24-323	8	30	30	20	15	-	-	-	-	-	2	Tourmaline (T)
SBD24-348	9	-	40	-	40	-	15	-	-	-	2	Tourmaline (T)
SBD 7-536	90	20	20	20	3	-	15	5	-	15	1	
SBD17-488	1	20	10	35	S	20	2	-	-	10	2	
SBD26-324	2	30	10	20	S	-	1	25	-	15	1	

(1) *Abundance is given in parentheses*

(2) S = Trace of sericite